THE CITY OF PLEASANTON

Trails Ad Hoc Committee Special Meeting Summary Notes

Council Conference Room, 200 Old Bernal Avenue
September 12, 2006 - 6:30 p.m.

1. CALL TO ORDER – PLEDGE OF ALLEGIANCE

Chairperson Kummer called the meeting to order at 6:50 p.m.

2. ROLL CALL

Committee Members Present: Sue Compton, Joe Jones, Libby Kolar, Andrew Shaper, Dick Quigley, and Chairperson Kurt Kummer. (Sgt. Suzanne Soberanes and Jim Townsend arrived at 6:38 p.m.).

Committee Members Absent: Larry Akinsiku and Greg Dunn.

Staff Present: Jim Wolfe, Director of Parks and Community Services; Fan Ventura, Management Analyst; and Edith Caponigro, Recording Secretary.

3. AGENDA AMENDMENTS

There were none.

4. REVIEW OF SUMMARY NOTES

The Trails Ad Hoc Committee Meeting Summary Notes from June 26, 2006 were reviewed. A motion was made and seconded to accept the Notes as presented.

5. MATTERS INITIATED BY MEMBERS OF THE AUDIENCE

There were none.

6. MATTERS BEFORE THE COMMITTEE

A. Workshop on Proposed Trails for Lund Ranch II (PUD 25)

Ms. Ventura advised that Greenbriar Homes owns approximately 200 acres in the southern area of Pleasanton, southeast of the Bonde Ranch Open Space and Lund Ranch Road, and east of Sunset Creek

Lane. The developer is proposing to build 150 single-family homes on the property, and understands that a condition of the development is to meet the intent of the Community Trails Master Plan regarding Class B and C trails.

(Sgt. Soberanes was called out of the meeting on a Police issue at 6:48 p.m.)

Melissa Holmes, Greenbriar Homes Development Manager – advised that Greenbriar will be submitting two (2) different trail plans to the City for consideration, and is willing to encompass the desires of the City for the area. Ms. Holmes advised that Greenbriar believes the trail location will avoid any impact to trees. Mr. Shaper confirmed that of the most proposed trail would be sidewalk until the upper area is reached. Mr. Drywood, of Greenbriar Homes, advised that the company would like to avoid putting trails in an area that would require significant grading.

Ms. Holmes advised that Greenbriar was hoping the Committee would make a recommendation to the Parks and Recreation Commission that the trails proposed are what are desired for the area.

Ms. Compton confirmed that the proposed trails align with those in the Trails Master Plan. Mr. Quigley thought the Greenbriar project trails were not contiguous with those in the Oak Grove project. Ms. Holmes advised that trails from the Trails Master Plan had been superimposed on the plans Greenbriar was presenting.

Mr. Shaper felt that sidewalk access was not a "real" trail and asked about the possibility of the trail from Middleton Place connecting to a Class C trail. Mr. Quigley agreed there was need for a multi-use trail.

Mr. Townsend questioned how realistic these trails would be if the Foley family has not been contacted and agreed to trail connection.

A motion was made by Mr. Quigley, seconded by Ms. Kolar, recommending preliminary approval of multi-use and regionally connected trails for Lund Ranch II (PUD 25), with consideration given to trail access from the Middleton Place connection to a Class C trail, *and that a six-vehicle trail head on the knoll be considered (correction added at October 23, 2006 meeting)*. The Committee also requested that Greenbriar bring the modified plans back to the Committee for further review before a final recommendation is forwarded to the Parks and Recreation Commission.

After further discussion with Mr. Wolfe and Greenbriar representatives, it was agreed that the modified plans should be presented to the Committee at the October meeting and that a motion at this time was unnecessary. Ms. Kolar withdrew her second to the motion, and the motion died for lack of a second. Greenbriar will present modified plans for the Committee's review at the next meeting.

C. Subcommittee Recommendations for Dublin Canyon/Lester Property (PREV-570, 11021 and 11033 Dublin Canyon Road

Ms. Ventura advised that Century Land Corporation had submitted an application to the City Planning Department for a proposed 42-lot residential development at the end of Canyon Meadow Drive, south of Dublin Canyon Road.

Committee members Quigley and Shaper, of the Development Opportunities Subcommittee, had reviewed the plans and visited the site. It was their opinion that this would be an appropriate location for a trailhead/staging area to provide access to the northern end of Pleasanton Ridge.

Mr. Townsend provided information about a proposed EBRPD staging connection from the Garms property, which is scheduled to be ready in about 2008, and a potential connection from Alviso Adobe Park. He also advised that the Garms connection would most likely be wide enough to accommodate multi-use. Mr. Quigley indicated that he would still like to see additional staging areas in the area.

After further discussion, Mr. Shaper noted that with EBRPD's plans for providing access to the Ridge, he didn't believe there was a need for an additional access at this location. The Committee agreed with that assessment, and that no further action needed to be taken.

D. <u>Information from Alamo Canal Trail Extension Workshop Held August 23 (CIP 047020)</u>

Ms. Ventura advised that on August 23, 2006, Francis Lo (from T.Y. Lin) and Jim Townsend held a workshop at the Dublin Library to obtain public input for the proposed Alamo Canal Trail Extension project. Items reviewed and discussed at the meeting included:

- Lack of trail vertical clearance;
- Trail subject to flooding several times a year;
- Americans with Disabilities Act (ADA) requirements;
- 300' of Class A trail;
- Purpose of the project;
- Public safety;
- Partnering of agencies;
- Agency that would be responsible for maintenance;
- Proposition 50 requirements;
- Need to keep trail continually lighted;
- Trail use would help discourage transients;
- Preliminary project cost estimate of $2.25M.

Mr. Townsend advised Mr. Shaper that EBRPD has involved Caltrans in this project and received no indication that there will be any problems. EBRPD staff have met several times with Caltrans representatives and received only positive responses.

Mr. Wolfe had questions regarding ACTIA's possible support with funding design costs. Mr. Townsend advised that management of the project needed to be reviewed. Mr. Wolfe indicated that this was a high-priority project for Pleasanton's City Council, and it was motivated to keep the project moving forward. Mr. Quigley advised this was also a high priority project for Zone 7.

Funding mechanisms for the project were discussed by the Committee with Mr. Townsend.

Mr. Kummer provided information about a "fly-over" being proposed by Caltrans, and felt it was important that the Alamo Canal Trail Extension project be completed first.

B. 990 Sycamore Road (PUD-53/PSP-9) – Request to Change Alignment of Potential Future Trail

Ms. Ventura advised that at the June 26, 2006 meeting, the Committee received a verbal report from the Development Opportunities subcommittee regarding its project visit with Margo Layton, a member of Bringhurst LLC. The Committee raised a number of questions, and it deferred a decision about possible changes to the trail alignment until more information could be obtained from Jenny Soo, Associate Planner assigned to the project.

Mr. Shaper discussed with Ms. Soo her recommendation for the trail location and the easement that has been discussed for Ms. Layton's property.

The meeting was opened for public comment at 7:55 p.m.

James Frost, 692 Hidden Creek Court, (President, Bridle Creek Association) – had questions regarding a section of fencing that had been put in place, and improving sections of the pathway. Ms. Layton advised that she had the fence installed, and would be willing to improve the path area if the trail was realigned.

Lila Bringhurst, P.O. Box 3041, Fremont – provided information about her family's purchase of the property, and its desire to subdivide and relocate the trail. She also advised that realignment of the trail had been previously approved by the Planning Department in 1998.

Kevin Close, 871 Sycamore Road – didn't believe that the trail should follow the pathway of the creek and go through the middle of Ms. Layton's property. He also felt that the Specific Plan did not indicate the trail being placed in this area. Mr. Close expressed some concerns about the location of the trail through the Spotorno property.

Ms. Layton discussed with the Committee the alternative trail location being recommended, and changing to a dirt trail if necessary.

Dolores Bengtson, 568 Hamilton Way – discussed Dale Way access and difficulty using the trail. She felt it was critical that an easement be gained to continue the trail over the Spotorno property.

The meeting was closed for public comment at 8:14 p.m.

Mr. Quigley advised that he was not opposed to changing the location of the trail and acquiring an easement for possible use in the future. Mr. Jones agreed with this comment.

Mr. Wolfe discussed the proposed easement with Ms. Soo, who clarified that the Committee did not want this conditioned upon completion of the trail. Mr. Shaper agreed with Ms. Bengtson's comments, but felt it was important to move forward with the trail realignment being requested by Ms. Layton and not condition it on obtaining an easement for the Spotorno property.

A motion was made by Mr. Shaper, seconded by Mr. Quigley, recommending that the development be conditioned to extend the trail easement from the end of existing trail at Dale Way, south to Sycamore Road, along the west edge of the property adjacent to Sycamore Road, with the intent that it be a multi-use trail.

ROLL CALL VOTE:
AYES: Compton, Jones, Shaper, Quigley, Townsend, Kolar, and Chairperson Kummer.
NOES: None
ABSENT: Akinsiku, Dunn, and Soberanes.
ABSTAIN: None

E. Discussion of Potential Trails to Schools Program

Ms. Kolar advised that she and other Committee members had met with Lisa Adamos, the City's Commute Alternatives Coordinator, to discuss types of incentive/promotional events that could work for a potential program, and which elementary or middle schools might be better suited for such a program. Ms. Adamos advised that 20% of Pleasanton traffic is school related.

Ms. Kolar indicated that Hart and Pleasanton middle schools were identified as potential schools for the Trails to School program, and the Subcommittee selected Hart Middle School. She also noted that the Youth Commission was in favor of the program and had recommended targeting middle schools.

Mr. Kummer suggested that the Subcommittee report back to the full Committee on the progress of this project at the next meeting.

Mr. Quigley provided information about the Livermore Rotary Interact Youth Group, and wondered if Pleasanton Rotary had a similar group that might be able to help with the project.

Mr. Shaper suggested that the Subcommittee consider combining this program with a bicycle skills contest as a way of providing interest and intrigue to the students. Mr. Wolfe also indicated that the Police Department might be a good source for help with this project.

F. Updates from the Parks and Recreation Commission

Chairperson Kummer advised that the Parks and Recreation Commission would be considering two (2) trails related matters at its meeting on Thursday, September 14.

G. Trail Projects Status Reports

Ms. Ventura reviewed the Trails Projects Status Report with the Committee.

Iron Horse Trail – Santa Rita Road to Busch Road – Ms. Ventura advised that this trail was still not technically open; however, people have been using the trail.

Trail Gate Modifications – Pilot Program – the designer and staff from Zone 7 and Pleasanton conducted a site visit of Gate 7 to work through some design problems with access, clearance, and safety/liability

issues. An alternate design was determined, and plans are being revised. Bid documents should be received with a week.

Arroyo del Valle Trail (LPFD to Shadow Cliffs) – questions were raised regarding the easement request from PG&E and staff agreed to continue working on this matter.

(Mr. Townsend left the meeting at 8:45 p.m.)

7. COMMUNICATIONS

A. Schedule of Upcoming Meetings of Interest

The Committee was advised that the Trails Ad Hoc Committee meeting for September 25, 2006 had been cancelled.

B. June 28, 2006 Email from Ursula Goldstein

June 28, 2006 email from Ursula Goldstein was reviewed.

C. June 30, 2006 Press Release on Proposition 50 Grant Awards

Press Release on Proposition 50 Grant Awards was reviewed.

D. July 6, 2006 E-mail Regarding Pleasanton/Livermore Trail Connector

This email and staff's response was reviewed.

E. July 6, 2006 Article on Potential Trails to School Program

Newspaper article reviewed.

F. July 19, 2006 Article on Trails to Schools Program

Article reviewed.

G. August 22, 2006 Memorandum from the Trails Council of Livermore Amador Valley

Memorandum from Dolores Bengtson, Trails Council of Livermore Amador Valley, dated August 22, 2006, was reviewed regarding suggested improvements to the Callippe Preserve Golf Course, Open Space and Trail.

Mr. Jones agreed with the letter and felt that this trail had inherent problems. He asked that this matter be added to the agenda of the next Committee meeting so the groups could discuss how to improve the trail and bring it up to a better standard.

H. August 23, 2006 Email from Anne Fox Regarding the Oak Grove Project

The e-mail was reviewed.

8. SUBCOMMITTEE REPORTS

There were none.

9. MATTERS INITIATED BY COMMITTEE MEMBERS AND STAFF

a) Mr. Quigley provided information about: 1) an invitation received from James Paxson for a Choice Transportation Faire at the CarrAmerica facility scheduled for October 22, 2006, from 10:30 a.m. – 1:30 p.m.; 2) two neighboring cities that are updating their Master Plans for bicycles, etc. He wondered if Pleasanton shouldn't also consider a similar process; and 3) the September 10 Annual Water Temple Celebration in Sunol.

10. NEXT MEETING

The next Trails Ad Hoc Committee Meeting is scheduled for October 23, 2006.

11. ADJOURNMENT

The meeting was adjourned at 9:05 p.m.

Community Support for Project

Although many residents in Pleasanton oppose increasing density, whenever we have presented a map and explained the location and shape of our proposed North Lot, they agree it is the only solution that makes sense. It will match in size and style the Sycamore Heights subdivision, it will use existing roads and infrastructure that were designed to accommodate more homes than were built, and it will have minimal impact on the community. In fact the donation of land for the road and the continuation of a public trail on Lot 1 are a benefit to the community (see map).

We met with four members of the Sycamore Heights Homeowners' Association on Monday, March 26, 2018 in the Pleasanton Senior Center. We explained our proposal and answered questions. All four agreed the project made sense and were supportive of three new homes going in along Sycamore Creek Way, provided they were similar in size, color and design with the existing neighborhood.

We invited neighbors within a ~1,000 foot radius of the property to a neighborhood meeting at the Pleasanton Senior Center, 5353 Sunol Blvd, on Wednesday, March 28, 2018 at 7:30 pm in "The Classroom." Invitations were hand delivered to their door steps on Saturday, March 17, 2018 and mailed on Monday, March 19, 2018. Copies of the letters are attached.

Seven neighbors attended the March 28th neighborhood meeting. All seven, 100%, supported the project and signed a Statement of Support testifying of their approval. The fact that we have not encountered anyone in opposition to the project is indicative of how well the project fits in with the existing neighborhoods. Many of them have said, "We've been wondering when those homes would finally be built." We hope that time is very soon!

STATEMENT OF SUPPORT FOR "SYCAMORE CORNER" PROJECT

I support the proposed amendment to the North Sycamore Specific Plan to allow the subdivision of the Bringhurst property into five lots, allowing for three homes along Sycamore Creek Way between 941 and 1011 Sycamore Creek Way and for two lots, zoned agricultural, on the southern portion of the property.

Name (please print)	**Address** (please print)	**Phone # (opt.)**	**Signature**	**Date**
Steven McGinnis	1047 Sycamore Creek Way	925-426-1290		3-28-18
Paula McGinnis	1047 Sycamore Creek Way	925-426-1290		3-28-18
Sharon Cabrera	911 Sycamore Rd	925-462-4341		3-28-18
Tom Daggett	6034 ALISAL ST	925 2606384		3-28-18

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Name (please print)	**Address** (please print)	**Phone # (opt.)**	**Signature**	**Date**
SHERMAN BALCH	6002 ALISAL STREET			3/28/18
Cheryl Balch	6002 Alisal Street		Cheryl Balch	3/28/18
Barbara Daggett	6034 Alisal St.			3/28/18

Preliminary Arborist Report

990 Sycamore Road
Pleasanton, CA

PREPARED FOR
Bringhurst LLC.
990 Sycamore Road
Pleasanton, CA

PREPARED BY:
HortScience, Inc.
325 Ray St.
Pleasanton, CA 94566

March 2018

Preliminary Arborist Report
990 Sycamore Road
Pleasanton, CA

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990 Sycamore Rd.
Pleasanton, CA

Introduction and Overview

Bringhurst, LLC has proposed to subdivide the property at 990 Sycamore Road, in Pleasanton California. Currently there is a single-family residence and a detached garage occupying the central portion of the site with a gravel driveway providing access onto Sycamore Road. HortScience, Inc. was prepared an **Arborist Report** for the site in 2006 and was asked to update that report to reflect the current tree condition and development proposal.

This report provides the following information:

1. An assessment of trees within the proposed project area.
2. An assessment of the impacts of construction on the trees.
3. Identification of trees to be removed and preserved.
4. The appraisal value of all trees.

Assessment Methods

Trees were assessed on March 7, 2018. The survey included all trees 6" and greater in diameter. Off-site trees with canopies extending over the property line were included in the assessment. The assessment procedure consisted of the following steps:

1. Identifying the tree as to species;
2. Tagging each tree with an identifying number and recording its location on a map;
3. Measuring the trunk diameter at a point 54" above grade;
4. Evaluating the health and structural condition using a scale of 1 – 5:
   - ***5*** - A healthy, vigorous tree, reasonably free of signs and symptoms of disease, with good structure and form typical of the species.
   - ***4*** - Tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.
   - ***3*** - Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
   - ***2*** - Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
   - ***1*** - Tree in severe decline, dieback of scaffold branches and/or trunk; most of foliage from epicormics; extensive structural defects that cannot be abated.
5. Rating the suitability for preservation as "high", "moderate" or "low". Suitability for preservation considers the health, age and structural condition of the tree, and its potential to remain an asset to the site for years to come.
   - ***High***: Trees with good health and structural stability that have the potential for longevity at the site.
   - ***Moderate***: Trees with somewhat declining health and/or structural defects that can be abated with treatment. The tree will require more intense management and monitoring, and may have shorter life span than those in 'high' category.
   - ***Low***: Tree in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of treatment. The species or individual may have characteristics that are undesirable for landscapes and generally are unsuited for use areas.

Description of Trees

Twenty-two (22) trees were evaluated, including 21 of the trees assessed in 2006. Twelve of the trees assessed in 2006 were removed in the intervening years, including #461-463, 465, 469-471, 473-475, 479 and 480. Tree #482 was a new addition and #886 was off-site. Descriptions of each tree are found in the ***Tree Assessment Form,*** locations are plotted on the ***Tree Assessment Map*** (see Exhibits).

A small ephemeral creek runs east to west across the property. Vegetation at the site was concentrated around the periphery, with landscape trees surrounding the existing residence.

There were 10 species evaluated at the site (Table 1, following page). The most frequently encountered species was Calif. Black walnut, with 6 trees or 27% of the population. Calif. Black walnuts were concentrated along the western fence line (Photo 1). These were semi-mature to mature trees, with trunk diameters between 16" and 20". Overall, they were in decline, with 3 in poor condition, 2 in fair and #472 in good.

Photo 1: Looking northwest at Calif. black walnuts #453-456 (R to L).

In general, the Calif. Black walnuts were in decline, with 3 in poor condition.

Four (4) river red gums were included in the assessment. River red gums #460 and 464 flanked the drive to the residence and #477 and 478 had been planted in the northeast corner of the site. Trees #460m 477 and 478 were semi-mature (13" to 19" in diameter) and #464 was mature at 30" in trunk diameter. Two were in fair condition and 2 were in good.

Three (3) Calif. Sycamores were centrally located and included off-site tree #886. Trees #451 and 886 were mature to over-mature (77" and 54" in trunk diameter, respectively) and #451 was semi-mature with trunks measuring 16" and 12" in diameter. As is typical of over-mature specimens of the species, Calif. Sycamore #451 had a hollow main stem with extensive decay (**Photo 1**). The smaller-diameter Calif. Sycamore (tree #450) appeared to be a seedling, or more likely a root-sprout, from the larger tree (Photo 2, following page).

Three (3) Monterey pines were assessed, including two along the drive (#457 and 459) and one adjacent to the existing residence (#468). Monterey pines were young to semi-mature and in fair (#457 and 468) to good (#459) condition.

Photo 2: Looking northeast at Calif. sycamores #450 (L) and 451(R). Calif, sycamore #450 was likely a seedling or root sprout from the larger tree. It has been suppressed beneath its neighbor's canopy, producing a two stems that bow to the north (circle).

Table 1: Condition ratings and frequency of occurrence of trees.
990 Sycamore Rd., Pleasanton

Common Name	Scientific Name	Condition Rating			No. of Trees
		Poor (1-2)	Fair (3)	Good (4-5)	
Deodar cedar	*Cedrus deodara*	-	-	1	1
River red gum	*Eucalyptus camaldulensis*	1	2	1	4
Blue gum	*Eucalyptus globulus*	-	-	1	1
Calif. black walnut	*Juglans hindsii*	3	2	1	6
English walnut	*Juglans regia*	-	1	-	1
Monterey pine	*Pinus radiata*	-	2	1	3
Calif. sycamore	*Platanus racemosa*	-	3	-	3
Fremont cottonwood	*Populus fremontii*	-	1	-	1
Valley oak	*Quercus lobata*	-	-	1	1
Coast redwood	*Sequoia sempervirens*	-	1	-	1
Total		**4**	**12**	**6**	**22**
		18%	55%	27%	100%

The remaining 6 species included the following:

- Coast redwood #452 was a young tree (10" in diameter) and in good condition.
- Fremont cottonwood #466 had 2 stems measuring 12" and 17" in diameter. It was in poor condition with extensive dieback.
- English walnut #467 was a stump sprout with several small-diameter stems. It was in fair condition.
- Blue gum #476 was semi-mature, with stems measuring 19" and 7" in diameter. It was in good condition with good form.
- Deodar cedar #481 was young (10" in diameter) and in excellent condition.
- Valley oak #482 was young (9" in diameter) and in excellent condition.

Average tree condition was fair (12 trees or 55% of the population). Six (6) trees were in good condition and 4 were in poor condition. Trees in poor condition were exclusively river red gum and Calif. Black walnut.

The City of Pleasanton defines a tree with a diameter of 18" or greater, or a height of 35' or greater, as *Heritage*. Based on this definition 15 of the trees assessed at the 990 Sycamore Rd. site qualified as *Heritage*. *Heritage* trees are identified in the ***Tree Assessment Form*** (see Exhibits).

Suitability for Preservation

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment and perform well in the landscape.

Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. For trees growing in open fields, away from areas where people and property are present, structural defects and/or poor health presents a low risk of damage or injury if they fail. However, we must be concerned about safety in use areas. Therefore, where development encroaches into existing plantings, we must consider their structural stability as well as their potential to grow and thrive in a new environment.

Evaluation of suitability for preservation considers several factors:

- **Tree health**
  Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.

- **Structural integrity**
  Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely.

- **Species response**
  There is a wide variation in the response of individual species to construction impacts and changes in the environment. In our experience, for example, walnuts are sensitive to construction impacts, while redwoods are tolerant of site disturbance.

- **Tree age and longevity**
  Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.

- **Invasiveness**
  Species which spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database (http://www.cal-ipc.org/paf/) lists species identified as being invasive. Pleasanton is part of the Central West Floristic Province. River red gum was the only species assessed at the site that was listed as having 'Limited' invasiveness.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment. Table 2 provides the suitability ratings for each tree.

We consider trees with good suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

Table 2: Tree Suitability for Preservation
990 Sycamore Rd., Pleasanton

High	These are trees with good health and structural stability that have the potential for longevity at the site. Three (3) trees were considered highly suitable for preservation, including: River red gum #464, valley oak #482 and deodar cedar #481 in this category: six coast redwoods, evergreen ash #81 and bottlebrush #62.
Moderate	Trees in this category have fair health and/or structural defects that may be abated with treatment. These trees require more intense management and monitoring, and may have shorter life-spans than those in the "high" category. Fourteen (14) trees were of moderate suitability for preservation, including: 3 Calif. black walnuts, 3 Calif. sycamores, 3 Monterey pines, 3 river red gums, coast redwood #452 and blue gum #476.
Low	Trees in this category are in poor health or have significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. Five (5) trees had low suitability for preservation, including; Calif. black walnuts #454-456, Fremont cottonwood #466 and English walnut #467.

Preliminary Evaluation of Impacts

Appropriate tree retention develops a practical match between the location and intensity of construction activities and the quality and health of trees. The ***Tree Assessment*** was the reference point for tree condition and quality. Potential impacts from construction were evaluated using the Preliminary Lot Plan provided Bringhurst LLC. (received March 9, 2018).

The Plan was preliminary in nature and showed lot lines, lot layouts and retaining wall locations for Lots 3-5. Grading and drainage information were not included on the Plan, but accurate tree trunk locations and existing utilities were.

The subdivision will require that a portion of the site be graded in preparation for construction of four new homes on four Lots. The existing home on Lot 2 will remain but an addition to the structure is proposed and an in-law unit will be built in the northeast corner of Lot 2.

Potential impacts from construction were estimated for each tree based on the information available. Primary impacts would be associated with the grading of each lot and installation of retaining walls as follows:

- Grading of Lots 3-5 will occur well north of the trees and should have no tree impacts.
- Grading for Lots 1 and 2 has the potential to impact trees #452 and 466-468 (Lot 2) and 453-456 (Lot 1).
- A 3'-8' retaining wall would be installed along the western boundary of Lot 3 and the southern boundaries of Lots 3-5. The retaining wall would be approximately 15' north of tree #451 and 30' north of tree #450, but within the dripline of the two trees. The Lot 3 retaining wall would continue north, remaining 35' to 50' from tree #886 (just outside the dripline).
- Building an in-law unit on Lot 2 has the potential to impact trees #476 and 477.

Based on the preliminary plans, I expect impacts from the proposed demolition, grading and retaining wall work to be within the tolerance of the trees and all 22 trees can be preserved. Preservation of trees is predicated on adhering to the ***Tree Preservation Guidelines*** provided (page 8).

Three (3) of the Calif. black walnuts along the western property line (Lot 1), and Fremont cottonwood #466 and English walnut #467 (Lot 2), are of low suitability for preservation. These trees are currently recommended for preservation, as they are "outside development impacts". Condition of these trees should be monitored over time, as I expect they will continue to decline and will need to be removed.

Currently, tree #450 is expected to require some amount of clearance pruning to allow for construction of the retaining wall and property line fence. Recommendations for management of preserved trees, and specific guidelines for maintaining the health and vitality of trees through the development processes, are provided in the ***Tree Preservation Guidelines*** (page 8).

Table 3: Preliminary recommendations for action
990 Sycamore Rd., Pleasanton

Tree #	Species	Trunk Diameter (in.)	Heritage	Recommendation
450	Calif. sycamore	12,9	Yes	**Preserve**, retaining wall ~30 north
451	Calif. sycamore	77	Yes	**Preserve**, retaining wall ~15 north
452	Coast redwood	10	No	**Preserve**, keep grading min. of 10' away
453	Calif. black walnut	15,14	Yes	**Preserve**, keep grading min. of 15' away
454	Calif. black walnut	18,17	Yes	**Preserve**, keep grading min. of 15' away
455	Calif. black walnut	19	Yes	**Preserve**, keep grading min. of 15' away
456	Calif. black walnut	15	No	**Preserve**, keep grading min. of 15' away
457	Monterey pine	9	No	**Preserve**, outside development impacts
458	Calif. black walnut	39	Yes	**Preserve**, outside development impacts
459	Monterey pine	19	Yes	**Preserve**, outside development impacts
460	River red gum	13,9,7	Yes	**Preserve**, outside development impacts
464	River red gum	30	Yes	**Preserve**, outside development impacts
466	Fremont cottonwood	17,12	Yes	**Preserve**, keep grading min. of 15' away
467	English walnut	6,6,5,5,4	No	**Preserve**, keep grading min. of 10' away

(**Continued, following page**)

Table 3: Preliminary recommendations for action, continued
990 Sycamore Rd., Pleasanton

Tree #	Species	Trunk Diameter (in.)	Heritage	Recommendation
468	Monterey pine	13	No	**Preserve**, keep grading min. of 10' away
472	Calif. black walnut	38	Yes	**Preserve**, outside development impacts
476	Blue gum	19,7	Yes	**Preserve**, keep grading min. of 15' away
477	River red gum	15,14,13	Yes	**Preserve**, keep grading min. of 15' away
478	River red gum	19	Yes	**Preserve**, outside development impacts
481	Deodar cedar	10	No	**Preserve**, outside development impacts
482	Valley oak	9	No	**Preserve**, outside development impacts
886	Calif. sycamore	54	Yes	**Preserve**, retaining wall ~35-50' E. & N.

Appraisal of Value

The City of Pleasanton requires that the value of all trees to be preserved during development be established, as well as the value of 'Heritage" trees to be removed. To accomplish this, I used the standard methods found in *Guide for Plant Appraisal*, 9th edition (published in 2000 by the International Society of Arboriculture, Champaign IL). In addition, I referred to *Species Classification and Group Assignment* (2004), a publication of the Western Chapter of the International Society of Arboriculture. These two documents outline the methods employed in tree appraisal.

The value of landscape trees is based upon four factors: size, species, condition and location. Size is measured as trunk diameter, normally 54" above grade. The species factor considers the adaptability and appropriateness of the plant in the East Bay area. The *Species Classification and Group Assignmen*t lists recommended species ratings and evaluations. Condition reflects the health and structural integrity of the individual, as noted in the ***Tree Assessment Form***. Location considers the site, placement and contribution of the tree in its surrounding landscape.

The appraised value of the trees recommended for preservation is $91,200 (**Table 4**).

Table 4: Appraised value of individual trees
990 Sycamore Rd., Pleasanton

Tree #	Species	Trunk Diameter (in.)	Heritage	Appraised value
450	Calif. sycamore	12,9	Yes	2,600
451	Calif. sycamore	77	Yes	26,350
452	Coast redwood	10	No	2,500
453	Calif. black walnut	15,14	Yes	2,750
454	Calif. black walnut	18,17	Yes	2,050
455	Calif. black walnut	19	Yes	600
456	Calif. black walnut	15	No	800
457	Monterey pine	9	No	350
458	Calif. black walnut	39	Yes	4,250
459	Monterey pine	19	Yes	1,150
460	River red gum	13,9,7	Yes	2,200
464	River red gum	30	Yes	11,000
466	Fremont cottonwood	17,12	Yes	1,300

(**Continued, following page**)

Table 4: Appraised value of individual trees
990 Sycamore Rd., Pleasanton

Tree #	Species	Trunk Diameter (in.)	Heritage	Appraised value
467	English walnut	6,6,5,5,4	No	1,350
468	Monterey pine	13	No	450
472	Calif. black walnut	38	Yes	15,400
476	Blue gum	19,7	Yes	6,750
477	River red gum	15,14,13	Yes	10,650
478	River red gum	19	Yes	3,950
481	Deodar cedar	10	No	1,650
482	Valley oak	9	No	1,950
886	Calif. sycamore	54	Yes	19,250

Preliminary Tree Preservation Guidelines

The goal of tree preservation is not merely tree survival during development but maintenance of tree health and beauty for many years. Trees retained on sites that are either subject to extensive injury during construction or are inadequately maintained become a liability rather than an asset. The response of individual trees will depend on the amount of excavation and grading, the care with which demolition is undertaken, and the construction methods. Coordinating any construction activity inside the **Tree Protection Zone** can minimize these impacts.

The following recommendations will help reduce impacts to trees from development and maintain and improve their health and vitality through the clearing, grading and construction phases.

Design recommendations

1. All plans affecting trees shall be reviewed by the Consulting Arborist with regard to tree impacts. These include, but are not limited to, demolition plans, grading and utility plans, landscape and irrigation plans.

2. For trees recommended for preservation adjacent to grading, a **TREE PROTECTION ZONE** shall be established around each tree. Specific **TPZ'**s are provided in the following table. No grading, excavation, construction or storage of materials shall occur within the **Tree Protection Zone**. For trees identified as 'outside impacts' the **TPZ** shall be established at the dripline in all directions.

Tag #	Minimum TPZ
450	The **TPZ** shall be established at 15' to the north (at the limit of the retaining wall) and at the dripline in all other directions.
451	The **TPZ** shall be established at 35' to the north (at the limit of the retaining wall) and at the dripline in all other directions.
452, 467, 468	The **TPZ** shall be established 10' to the east and at the dripline in all other directions. Fencing trees as a group is acceptable.
453-456, 466	The **TPZ** shall be established at 15' to the east and at the dripline in all other directions. Fencing trees as a group is acceptable.
476, 477	The **TPZ** shall be established at 15' to the west and at the dripline in all other directions.. Fencing trees as a group is acceptable.
886	The **TPZ** shall be established at 35' to the east and 50' to the north (at the

	limit of the retaining wall) and at the dripline in all other directions.

3. No underground services including utilities, sub-drains, water or sewer shall be placed in the **TREE PROTECTION ZONE**.

4. **Tree Preservation Notes**, prepared by the Consulting Arborist, should be included on all plans.

5. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use.

6. Irrigation systems must be designed so that no trenching will occur within the **TREE PROTECTION ZONE**.

Pre-construction treatments and recommendations

1. The demolition contractor shall meet with the Consulting Arborist before beginning work to discuss work procedures and tree protection.

2. If structures and underground features have to be removed within the **TREE PROTECTION ZONE** it shall be done by hand or using the smallest equipment, and operate from outside the **TREE PROTECTION ZONE**. The Consulting Arborist shall be on-site during all operations within the **TREE PROTECTION ZONE** to monitor demolition activity.

3. Fence all trees to be retained to completely enclose the **TREE PROTECTION ZONE** prior to demolition, grubbing or grading. Fences shall be 6 ft. chain link or equivalent as approved by Consulting Arborist. Fences are to remain until all grading, construction and landscaping is completed. Place weather proof signs, 2' x 2', on the fencing that read "**TREE PROTECTION ZONE** Keep Out" (eg. one sign for each of the four compass points).

4. Prune trees to be preserved to clean the crown and to provide clearance. All pruning shall be done by a State of California Licensed Tree Contractor (C61/D49). All pruning shall be done by Certified Arborist or Certified Tree Worker in accordance with the Best Management Practices for Pruning (International Society of Arboriculture, 2002) and adhere to the most recent editions of the American National Standard for Tree Care Operations (Z133.1) and Pruning (A300).

5. All tree work shall comply with the Migratory Bird Treaty Act as well as California Fish and Wildlife code 3503-3513 to not disturb nesting birds. To the extent feasible tree pruning and removal should be scheduled outside of the breeding season. Breeding bird surveys should be conducted prior to tree work. Qualified biologists should be involved in establishing work buffers for active nests.

6. Apply and maintain 4-6" of wood chip mulch within the **TREE PROTECTION ZONE.**

Recommendations for tree protection during construction

1. Prior to beginning work, the contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.

2. Any excavation within the dripline or other work that is expected to encounter tree roots should be approved and monitored by the Consulting Arborist. Roots shall be cut by manually digging a trench and cutting exposed roots with a sharp saw. The Consulting Arborist will identify where root pruning is required and monitor all root pruning activities.

3. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.

4. Fences have been erected to protect trees to be preserved. Fences define a specific **TREE PROTECTION ZONE** for each tree or group of trees. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without permission of the Consulting Arborist.

5. Construction trailers, traffic and storage areas must remain outside fenced areas at all times.

6. All underground utilities, drain lines or irrigation lines shall be routed outside the **TREE PROTECTION ZONE**. If lines must traverse through the protection area, they shall be tunneled or bored under the tree as directed by the Consulting Arborist.

7. No materials, equipment, spoil, waste or wash-out water may be deposited, stored, or parked within the **TREE PROTECTION ZONE** (fenced area).

8. Any additional tree pruning needed for clearance during construction must be performed by a qualified arborist and not by construction personnel.

9. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on-site must be tree-safe and not easily transported by water.

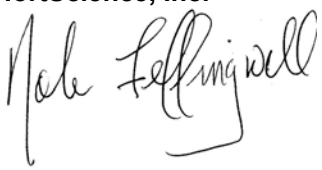
10. Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw.

11. If temporary haul or access roads must pass over the root area of trees to be retained, a road bed of 6" of mulch or gravel shall be created to protect the soil. The road bed material shall be replenished as necessary to maintain a 6" depth.

12. Spoil from trench, footing, utility or other excavation shall not be placed within the **TREE PROTECTION ZONE**, neither temporarily nor permanently.

Maintenance of impacted trees
Preserved trees will experience a physical environment different from that pre-development. As a result, tree health and structural stability should be monitored. Occasional pruning, fertilization, mulch, pest management, replanting and irrigation may be required. In addition, provisions for monitoring both tree health and structural stability following construction must be made a priority. As trees age, the likelihood of failure of branches or entire trees increases. Therefore, annual inspection for hazard potential is recommended.

HortScience, Inc.



John Leffingwell
Board Certified Master Arborist #WE-3966B
Registered Consulting Arborist #442

Exhibits

Tree Assessment Form

Tree Assessment Map

Tree Assessment

Bringhurst LLC.
990 Sycamore Rd.
Pleasanton, California
March 2018

HORT SCIENCE

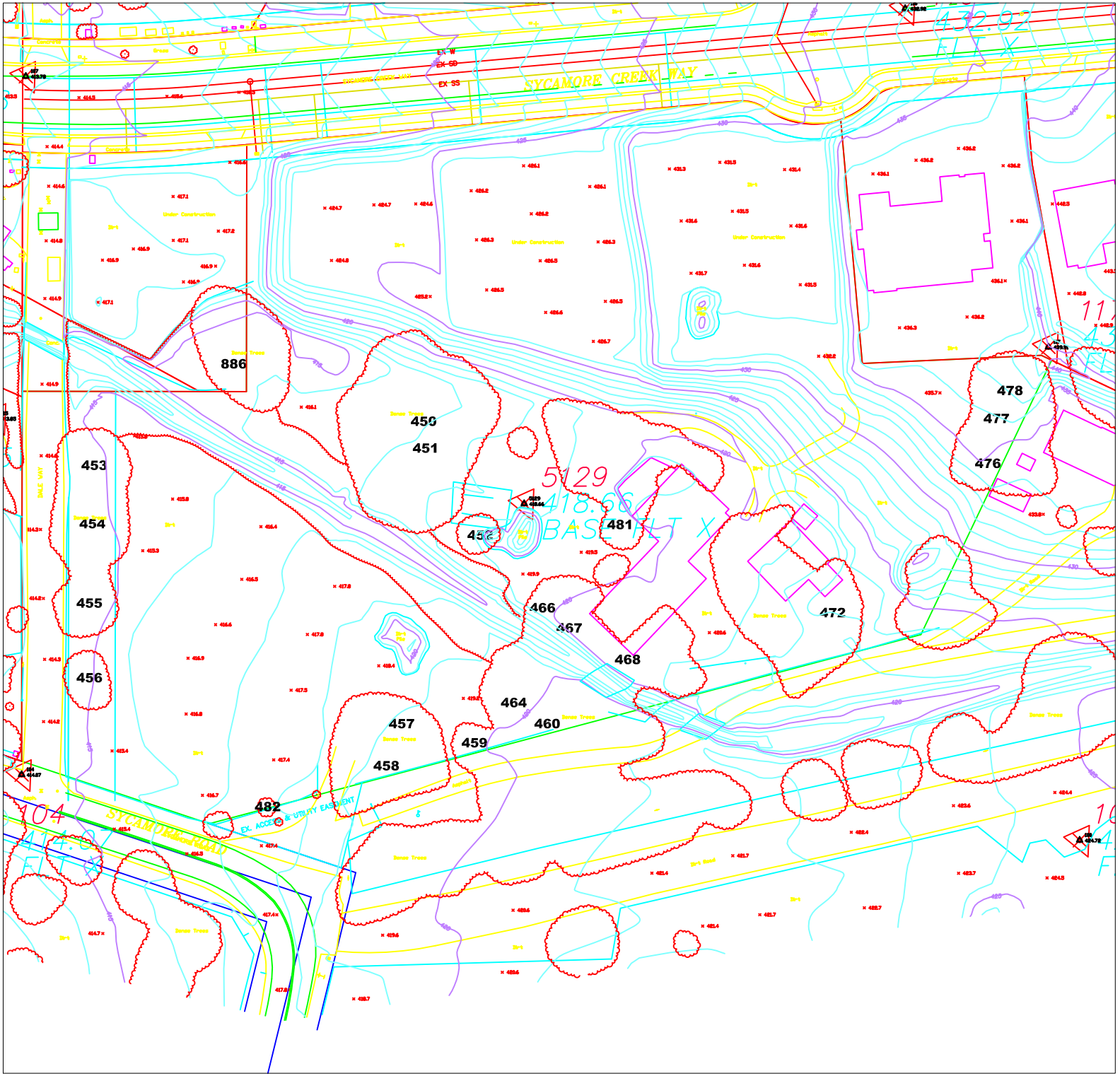
TREE No.	SPECIES	SIZE DIAMETER (in inches)	Heritage?	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
450	Calif. sycamore	16,12	Yes	3	Moderate	Codominant trunks at base; suppressed form; bowed north.
451	Calif. sycamore	79	Yes	4	Moderate	Multiple attachments at 10'; multiple trunk cavitites with decay; full crown; excellent vigor.
452	Coast redwood	17	No	4	Moderate	Codominant at 15'; moderate form and structure.
453	Calif. black walnut	16,14	Yes	3	Moderate	Codominant trunks at 3'; twig and branch dieback.
454	Calif. black walnut	19,18	Yes	2	Low	Multiple attachments at 4'; dead top.
455	Calif. black walnut	20	Yes	1	Low	Codominant trunks at 7'; dead top; extensive dieback; bark peeling off of trunk.
456	Calif. black walnut	16	No	2	Low	Lateral at 5'; extensive dieback.
457	Monterey pine	16	No	3	Moderate	Suppressed form; bowed north.
458	Calif. black walnut	39	Yes	3	Moderate	Multiple attachments at 6'; good form and structure; heavy lateral limb to north; branch dieback in upper crown.
459	Monterey pine	22	Yes	4	Moderate	Slight lean south; good form and structure.
460	River red gum	15,11,7	Yes	3	Moderate	Multiple attachments at base; suppressed form.
464	River red gum	40	Yes	4	High	Multiple attachments at 10'; good form and structure.
466	Fremont cottonwood	20,15	Yes	2	Low	Codominant trunks at 3'; included bark; oozing from attachment; extensive branch dieback.
467	English walnut	7,7,6,6,5	No	3	Low	Stump sprout; extensive trunk decay.
468	Monterey pine	16	No	3	Moderate	Sinuous trunk; moderate form and structure; top bows to
472	Calif. black walnut	40	Yes	4	Moderate	Codominant trunks at 10'; trunk wounds; lateral limbs propped; minor twig dieback.
476	Blue gum	26,14,12,10	Yes	4	Moderate	Low laterals; good form; multiple attachments at base.
477	River red gum	24,21,20	Yes	4	Moderate	Multiple attachments at 1'; central tree; narrow form; dense crown
478	River red gum	27	Yes	3	Moderate	Leans northwest; suppressed form.
481	Deodar cedar	10	No	5	High	Excellent form and structure.

Tree Assessment

Bringhurst LLC.
990 Sycamore Rd.
Pleasanton, California
March 2018

HORT SCIENCE

TREE No.	SPECIES	SIZE DIAMETER (in inches)	Heritage?	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	COMMENTS
482	Valley oak	9	No	4	High	Good young tree; good form and structure.
886	Calif. sycamore	54	Yes	4	Moderate	Off-site; codominant trunks at 18'; multiple trunk wounds; decay; history of branch failure.



Tree Assessment Plan

990 Sycamore Road
Pleasanton, CA

Prepared for:
Bringhurst LLC
Pleasanton, CA

Updated March 2018

N

No Scale

Notes:
Base map provided by:
Alexander & Associates
Pleasanton, CA

Numbered tree locations are approximate.

HORT SCIENCE

325 Ray Street
Pleasanton, CA 94566
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Fax 925.484.0596
www.hortscience.com

Livermore-Pleasanton Fire Department

DATE: February 18, 2010

TO: Jenny Soo,

FROM: Scott Deaver, Fire Marshal

SUBJECT: 990 Sycamore Road, Pleasanton, CA

The following comments are for the proposed remodel on an existing single family dwelling presented by Margo Layton located at 990 Sycamore Road, Pleasanton, CA. These comments were provided to Ms. Layton following a meeting at Fire Headquarters, as well as emailed to here address:

1. Chapter 5 California Fire Code Section 503.1.1...The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

Exception: The fire code official is authorized to increase the dimension of 150 feet where:

There are not more than two Group R-3 or Group U occupancies. This exception and the layout of less than 150 feet from an approved fire department access route eliminates the requirement of a turn around on-site.

2. Group R-3 is single family home and applicable to this section and requirement. In addition there is a parallel driveway adjacent the property line that is within the 150 feet requirement and for structural fire response provides the options needed for suppression response. In addition this is an existing home with remodel plans and does not constitute a change in fire hazard classification.

A recommendation for the addition of residential fire sprinkler system is installed during this remodel. Current ordinance requires residential fire sprinklers in all occupancies beyond the 5 minute response time. Further, California will be requiring residential fire sprinkler systems is all new one – and two – family dwellings beginning January 1, 2011.

Livermore - Pleasanton Fire Department

Scott Deaver
Fire Marshal

3560 Nevada Street
Pleasanton, CA 94566
sdeaver@lpfire.org

(925) 454-2330
Fax: (925) 454-2367

CHAPTER 5
FIRE SERVICE FEATURES

SECTION 501
GENERAL

501.1 Scope. Fire service features for buildings, structures and premises shall comply with this chapter.

501.2 Permits. A permit shall be required as set forth in Appendix Chapter 1, Sections 105.6 and 105.7.

501.3 Construction documents. Construction documents for proposed fire apparatus access, location of fire lanes and construction documents and hydraulic calculations for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

501.4 Timing of installation. When fire apparatus access roads or a water supply for fire protection is required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction except when approved alternative methods of protection are provided. Temporary street signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles in accordance with Section 505.2.

SECTION 502
DEFINITIONS

502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

FIRE APPARATUS ACCESS ROAD. A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway.

FIRE COMMAND CENTER. The principal attended or unattended location where the status of the detection, alarm communications and control systems is displayed, and from which the system(s) can be manually controlled.

FIRE DEPARTMENT MASTER KEY. A limited issue key of special or controlled design to be carried by fire department officials in command which will open key boxes on specified properties.

FIRE LANE. A road or other passageway developed to allow the passage of fire apparatus. A fire lane is not necessarily intended for vehicular traffic other than fire apparatus.

KEY BOX. A secure device with a lock operable only by a fire department master key, and containing building entry keys and other keys that may be required for access in an emergency.

SECTION 503
FIRE APPARATUS ACCESS ROADS

503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3.

503.1.1 Buildings and facilities. Approved fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

RESIDENTIAL NFPA-13D

Exception: The fire code official is authorized to increase the dimension of 150 feet (45 720 mm) where:

1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.
2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternative means of fire protection is provided.

EXISTING

3. There are not more than two Group R-3 or Group U occupancies. SINGLE FAMILY

503.1.2 Additional access. The fire code official is authorized to require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access.

503.1.3 High-piled storage. Fire department vehicle access to buildings used for high-piled combustible storage shall comply with the applicable provisions of Chapter 23.

503.2 Specifications. Fire apparatus access roads shall be installed and arranged in accordance with Sections 503.2.1 through 503.2.7.

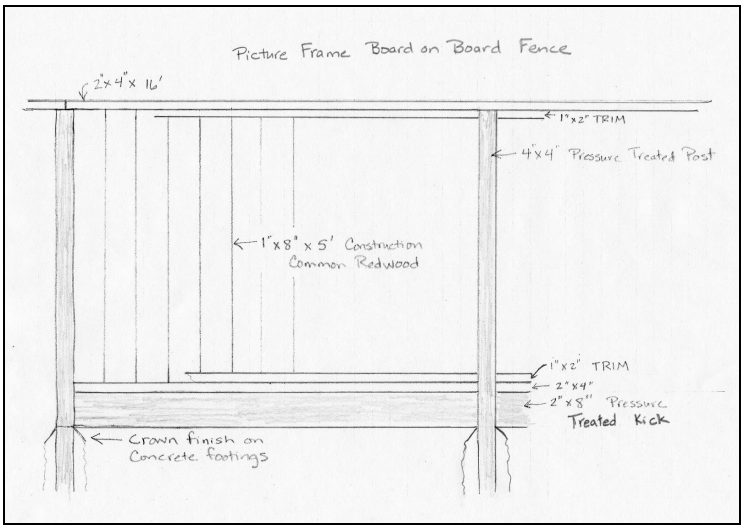
503.2.1 Dimensions. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm).

503.2.2 Authority. The fire code official shall have the authority to require an increase in the minimum access widths where they are inadequate for fire or rescue operations.

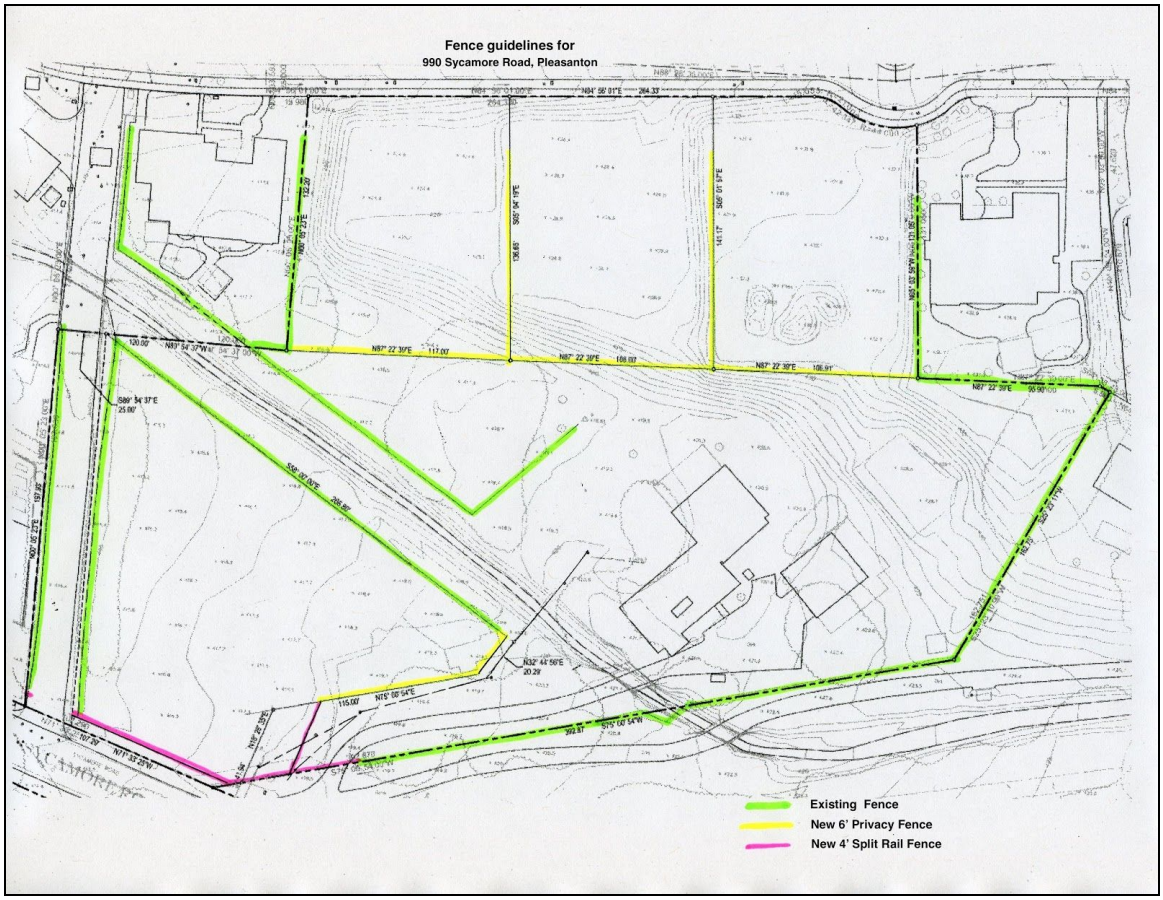
503.2.3 Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of

Fencing Plan

Fencing for all five lots should match the existing board on board fencing in the Sycamore Heights Subdivision. 6’ privacy fencing, or existing fencing can be used for all rear and side yards. Additional requirements for construction are detailed in the drawing at right.



Additionally, Lot 1 and 2 shall have a split rail fence and in the front yard, along Sycamore Road, to match the fences west of the subdivision and on the North side of Sycamore Road.



Retaining Wall Plan

The retaining wall blocks shall be a minimum of 12” deep and earth-toned in color. Retaining walls over 48” in height shall be engineered per City of Pleasanton requirements. The retaining wall designs will be submitted with the PUD application.

GEOTECHNICAL STUDY AND FAULT REVIEW
990 SYCAMORE ROAD - PROPOSED 5-LOT SUBDIVISION
PLEASANTON, CALIFORNIA

FOR

MRS. MARGO LAYTON

Project No. 12-222/7338-01

OCTOBER 12, 2007

Purcell, Rhoades & Associates

Purcell, Rhoades & Associates, Inc.

Geotechnical, Environmental, & Materials Testing

1041 Hook Avenue
Pleasant Hill, CA 94523

Tel (925) 932-1177
Fax (925) 932-2795

No. 12-222/7338-01
October 12, 2007

Mrs. Margo Layton
990 Sycamore Road
Pleasanton, CA 94568

SUBJECT: **GEOTECHNICAL STUDY AND FAULT REVIEW**
990 Sycamore Road - Proposed 5-Lot Subdivision
Pleasanton, California

Dear Mrs. Layton:

At your request, we have prepared this Geotechnical Study and Fault Review for the above subject site. The site is located within the northern mapped limits of a Alquist-Priolo Special Study Zone for Potentially Active Faults, established for the Pleasanton Fault. Based upon review of published geologic information, review of stereo-paired aerial photographs, and field studies by this office, it is our opinion that exploratory trenching for fault location is not required for this site, and there was no indication that a Holocene active fault would be expected to cross the property. Based upon the results of the exploratory boring and laboratory testing program, it is our opinion that the subject site can be developed with a single-family residences, provided the recommendations provided in this report are considered in the design and construction of the residence.

We appreciate this opportunity to be of service on this project. Please contact this office with any questions, or if we may be of further service.

Very truly yours,

PURCELL, RHOADES & ASSOCIATES

Daniel J. Rhoades, C.E.
Principal
G.E. 716, Exp. 06-30-09

Irving D. Affeldt, C.E.G. 1108
Principal

ida/L733801.1

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LIST OF FIGURES

PURPOSE

This report provides an evaluation of the potential seismic hazards to the site, including surface fault rupture and seismic ground shaking, and provides a geotechnical investigation of the property, with the intent of using this report in consideration of development of this property with four, new single-family residential dwellings.

SCOPE

The scope of this Geotechnical Study and Fault Review entailed a review of the available literature, including soil and geologic maps and reports on file with the City of Pleasanton, review of fault studies in the California Geologic Survey fault study database, a site reconnaissance of the site and adjacent areas, a review of stereo-paired aerial photographs, the drilling of four exploratory borings, laboratory analysis, and the preparation of this report.

SITE LOCATION

The project site is located at 990 Sycamore Road, just northeast of the intersection of Sycamore Road with Alisal Street, in Pleasanton, California (see Figure 1, Site Location Map). The site consists of an existing single family residence (Lot 1), three, graded fill pads (Lots 3, 4 and 5), a flat, natural open area (Lot 2), a seasonal drainage channel, oak trees and wild grasses. It is proposed to develop the three graded fill pads and natural open-space area with wood-framed single family dwellings (see Figure 2, Site Plan and Boring Location Map).

SITE DESCRIPTION

The subject site consists of a former orchard, adjoining an existing residential dwelling. The southern half of the site is essentially flat, with a few trees, while the northern half of the site had been graded in March 2004 to construct three fill pads at the subject site. This latter grading was part of the overall site development for the adjoining Sycamore Heights subdivision, and was observed and tested by the geotechnical firm of Lowney Associates. The attached site aerial photo (Figure 2A) shows the northern half of the site during mass grading, with the southern half of the site as currently exists.

EXISTING SITE CONDITIONS

The subject site area is currently developed with a single residential unit, and detached barn, with a few heritage oak trees and wild grass, a flat open space area, and three graded pads. A drainage channel passes through approximately the middle of the property. The property is generally flat from Sycamore Road on the south, with the northern half of the site constructed with approximately 2-1/2 to 3:1, horizontal to vertical fill slopes.

GEOLOGIC AND SEISMIC SETTING

The subject site is situated in the San Francisco Bay Area, in the Coast Range Geologic Province of California. This province is the Northern California segment of the Coast Range Mountains which extend from Southern Oregon to Southern California. The Coast Range landscape is characterized throughout its length by a series of rugged, subparallel, northwest-trending mountain ranges, most of which are structurally influenced by the San Andreas rift zone.

Regional geologic mapping of the area by Helley and Graymer (1997), indicate the general vicinity to consist of linear ridges that are underlain by Plio-Pleistocene Livermore Formation, with low-lying plain areas, including the site, shown as mantled with Pleistocene alluvial fan deposits (see Figure 3, Area Geologic Map). The mapping of bedrock units by Graymer, Jones and Brabb (1996) in Figure 4 (Area Bedrock Geologic Map), indicate the site area as undivided Quaternary deposits, with adjoining hills mapped as consisting of Plio-Pleistocene Livermore Formation and Miocene age Briones Formation. This mapping also shows a thrust fault trending along the base of the foothills, and concealed beneath the Quaternary cover, in the location mapped as the Pleasanton fault by the California Geologic Survey. Helley and Graymer (1997) describe the Quaternary unit as late Pleistocene alluvium, about 10,000 years old and older, with a maximum age unknown, but "probably between 35,000 and 70,000 years. Similarly, Herd (1977) had mapped the site as covered by older alluvial deposits, and stated that judging by the degree of soil development on the deposits, all older alluvial units have argillic B horizons. Birkeland (1974) found that in California, some 40,000 years of soil formation appears to be required to form a minimal B horizon.

A regional study being prepared by William Lettis & Associates, in collaborative research with the U. S. Geological Survey, is compiling thrust and reverse fault data for the Northern California Database. In this data compilation, it is indicated that the Pleasanton fault represents a northeast dipping blind thrust fault. The regional bedrock mapping of Graymer, Jones and Brabb (1996) shows the Pleasanton fault as a thrust fault, with its location mapped along the base of the foothills east of the site (Figure 4). This feature is shown as concealed beneath Quaternary deposits, and cutting through the Plio-Pleistocene Livermore Formation.

Faulting and Fault Creep

The Project Site Area lies within an Alquist-Priolo Earthquake Fault Zone (formerly known as Special Studies Zones, 1982) associated with the Pleasanton Fault (see Figure 5, CGS Special Studies Map). The original zoning for this fault traced various branches from the site area to Camp Parks in Dublin, California. The California Division of Mines and Geology prepared a Fault Evaluation Report (FER-109) for the Pleasanton fault (Hart, 1981) for the Dublin Quadrangle. This report described that Special Study Zones were established for the Pleasanton fault and its related branches in 1974, based on the mapping and interpretations of various workers, but, *"Subsequent investigations have since cast considerable doubt on the location, activity, and even the existence of some segments of the Pleasanton fault."*

The FER report concluded that the Pleasanton fault was an inferred fault based on the linear features observed at Camp Parks and the association of assumed groundwater barriers interpreted by various workers. Subsequent work has raised questions as to the location and recency of faulting for the various strands and branches of the Pleasanton fault and the validity of historic slip attributed to the fault.

In the area of the subject site, the FER stated that Herd (1978) only mapped three short traces for the Pleasanton fault, based on "linear soil patterns" and "subtle scarps". Herd's mapping of the Verona fault partly coincides with the Pleasanton fault of Ford, et al. (1970). This segment of the Verona/Pleasanton fault was trenched and shown not to be Holocene active (Earth Sciences Associates, 1979; Yadon and Wright, 1979). Dibblee's (1980) Verona fault, similar to Herd's mapping in the area of the site, is shown to be concealed under Quaternary alluvium and is inferred to cut the Livermore Gravels to the south. Deep seismic reflection profiling across the southern segment of the Pleasanton fault (Verona fault of Herd, 1977) south of Pleasanton, also failed to reveal the fault. The FER report

states, *"Trenches excavated for the proposed County Government Center in Pleasanton failed to find evidence of recent faulting in the Livermore Gravels. South of there, the Pleasanton fault of Ford (1970) and the Verona fault of Herd (1977) and Dibblee (1980) were not detected as recent features in a carefully logged trench (Earth Sciences, 1979; Yadon and Wright, 1979)."*

The FER concluded that, *"The Pleasanton fault of Ford (1970) and Verona fault of Herd (1977) and Dibblee (1980) were trenched and no evidence of Holocene faulting was reported. In fact, no important faults were exposed in these trenches. There is no evidence of recent, through-going fault observable on aerial photos."*

The FER report concluded that, *"with the possible exceptions at Camp Parks area, and at Old Ranch Road, the Pleasanton fault is not a well-defined, active fault."* The FER study recommended to delete all traces of the Pleasanton fault from zoning from Highway I-580 to Pleasanton, excepting one trace extending 2000 feet south of I-580, and that south of Pleasanton, with respect to the Pleasanton fault, there is no evidence for the existence of well-defined, Holocene faults in the area, and recommended no zones be established.

The CDMG Fault Evaluation Report (FER-104) prepared by Smith (1981) included review of that portion of the Pleasanton fault in the southern third of the Livermore quadrangle, which includes the subject site. The original mapping of the Pleasanton fault in the area of the site was based upon the aerial mapping by Herd (1977), with Herd considering the Pleasanton fault a northward extension of the Verona fault. Southeast of the site, Herd located the Verona fault essentially at the base of the eroded escarpment that extends along the western and southwestern margins of the Vallecitos Hills. In the area of the site, it is mapped as a concealed trace, yet, *"there is no specific geomorphic evidence for the location shown by Herd, except that it is at the immediate base of the relatively linear hill front"* (Smith, 1981). Smith stated in FER-104, there is geomorphic evidence for a fault

near the base of the hills, but not at the base. Smith's interpretation is presented on Figure 6 of this study, and shows his mapping of the Pleasanton fault as located approximately 1,000 feet east of the site. The FER-104 reports that Earth Sciences Associates (1979) excavated an exploratory trench (see Trench E, Figure 6) across the hill front along the mapped trace of the Pleasanton fault in the area of the site. This trench is approximately 1,400 feet northwest of the subject site. This trench was excavated approximately 10 to 15 feet deep, and, *"revealed several small northwest-trending, southwest-dipping shears, but no evidence for high-angle or thrust faulting as postulated by the USGS"* (Smith, 1981). Smith also stated, that, *"in regard to recency of offset, it is also clear that there is no geomorphic evidence for Holocene offset either along the trace mapped by Herd, or as mapped by the writer."*

In the "Recommendations for Zoning" section of FER-104, two alternatives were presented. Alternative A stated,

"It is recommended that no zone be established along the Pleasanton fault (as mapped by the writer), or the northwestern extension of the Verona fault (as mapped by Herd, 1977). Both faults, if either exist, are definitely not well defined, and exhibit no evidence for Holocene activity."

Alternative B, which was concurred by Earl Hart,

"Within the Livermore quadrangle, the writer recommends that a zone, at least one-fourth mile wide, be centered over the base of the hill front–essentially over the Verona fault as mapped by Herd and Brabb in that area. This zone should extend no farther to the northwest than Sycamore Avenue."

The current Alquist-Priolo map for this area (Figure 4) show the Pleasanton fault as a dashed, and not dotted trace, and the zone was extended north of Sycamore Road, contrary to the approved recommendation of the FER.

SEISMICITY

The subject property, like all properties in the San Francisco Bay Area, is situated in a very seismically active region. The following statements summarize the potential impacts of the seismic setting upon development of the subject property.

Based on an analysis of the historic earthquake records of the active faults, published and unpublished data on potentially active faults and the geographic relationship between the subject property and the faults of the San Francisco Bay region, it is reasonable to conclude that the major Bay area fault systems have the greatest potential for adversely impacting the proposed development. The Hayward and Calaveras fault zones are situated approximately 7-1/4 miles, and 1-1/2 miles southwest of the site, respectively.

Surface ground rupture (surface faulting) may occur abruptly during an earthquake or slowly due to fault creep. Movement on a fault can be horizontal, vertical or a combination of both.

In the event of an earthquake, seismic risk to a structure will depend on the distance of the structure from the epicenter and source fault, the character and magnitude of the earthquake, the geologic, groundwater, and soil conditions underlying the structure and its immediate vicinity, and the nature of the construction.

The effects of seismically-induced ground shaking at the subject property resulting from a large magnitude (6.0 or greater) earthquake on any major fault within the San Francisco

Bay region can be estimated from accounts of the effects which were described shortly after the 1906 earthquake, magnitude 8.3 with an epicenter located between San Francisco and Marin Counties. Studies by Lawson (1908) and Borcherdt, et al (1975) indicate that the highest ground shaking intensities (i.e., very violent) occur within 1500 to 2000 feet of the master trace of the San Andreas fault, and that violent ground shaking generally occurs at sites that are within 1 mile of the master trace. Furthermore, sites situated between 1 and 3 miles of the master trace would likely experience very strong ground shaking intensities. Therefore, in the event of a large magnitude earthquake on the Calaveras Fault, with surface fault rupture occurring at the site vicinity, it is reasonable to assume that the subject property may experience very strong ground shaking. It should be emphasized that estimates of ground shaking from this study were based on a small number of field observations in a region that was sparsely populated in 1906.

Since these are estimates, and they are based on a small amount of data, they should be used as a general guide to reflect future ground shaking intensities. Nevertheless, we believe that it is reasonable to conclude that any structures constructed on the subject property should be expected to experience very strong ground shaking.

The U.S. Geological Survey Working Group on California Earthquake Probabilities (2003) issued a report assessing the likelihood of large earthquakes in the San Francisco Bay area. The report stated that the odds of a magnitude 6.7 or higher earthquake occurring between 2003 and 2032 are 62 percent in the San Francisco Bay Area. This same study indicated that the Calaveras fault, was determined to have an 11 percent probability of incurring one or more 6.7 magnitude or higher earthquakes within this same period.

Structural damage due to ground shaking is caused by the transmission of earthquake vibrations from the ground into the structure. The variables which determine the extent of the damage are the characteristics of the underlying earth materials, the design of the

structure, the quality of materials and workmanship used in construction, the location and magnitude of the earthquake, and the duration and intensity of the shaking. The most destructive effects of earthquakes are usually seen where the ground is unstable and the structures are poorly designed and constructed.

The maximum moment magnitude listed for the Calaveras is 6.8 (CGS, 2003). The on-line interpretative probabilistic ground shaking map by the CGS indicates the regional site area as having a 10% probability of exceeding a 0.64g ground acceleration value in a given 50 year period. The spectral acceleration for a short period earthquake (0.2 second) is listed as 1.522g.

Using the attenuation relationships developed by Boore, Joyner and Fumal (1997), the peak ground acceleration at the site from a maximum moment magnitude 6.8 earthquake is approximately 0.37g. The work of Plossel and Slosson (1974) indicates that the repeatable high ground acceleration value would approximate 65% of the peak value, which would be approximately 0.24g.

The local building codes and current UBC recommendations reflect the design parameters for mitigation of earthquake conditions. The appropriate code should be utilized for minimum design standards based upon the particular features of the structure and the recommended minimum seismic load factors.

Ground Failure

The southern half of the site is generally flat, with a shallow (less than 3 feet) drainage gully traversing the middle of the site. The northern half of the site is constructed upon compacted engineered fill pads, with slopes of 2-1/2 to 3 horizontal to 1 vertical. Therefore, the risk of impact to the site from seismic-induced ground movement is low. The site is underlain by interbeds of mixtures of silty sand and gravel, and clayey silts and sands. Liquefaction is the affect of saturated granular materials losing their shear strength during seismic shaking. In general, Pleistocene age alluvial materials have a low potential for liquefaction. The U.S. Geological Survey report regarding liquefaction susceptibility in the San Francisco Bay region indicates the site area as having a Low Susceptibility for liquefaction (Witter, et al., 2006). This study indicates that Late Pleistocene deposits, such as at the subject site have not displayed historical liquefaction, and is estimated to require a peak ground acceleration threshold value to initiate liquefaction of greater than 0.5g. Liquefaction susceptibility in this unit is described as Low for groundwater levels up to 30 feet below the ground surface, and Very Low with groundwater levels deeper than 30 feet.

Exploratory borings at this site were drilled to a maximum depth of 23 feet below existing grade and did not encounter free ground water. Exploratory borings at a project immediately southwest of the subject site (969 Sycamore Road) determined a free groundwater level of approximately 28 feet below the ground surface. The recorded blow counts from the exploratory borings were reduced to represent Standard Penetration Test results, and found that the majority of the blowcounts were in excess of 45 blows per foot, with one blowcount of 33. Based upon the published literature, the geologic age of the deposits, and the results of Standard Penetration tests, the potential for liquefaction at this site is considered Very Low.

REVIEW OF PREVIOUS WORK

A search for geologic and seismic studies for fault investigations in Special Studies Zones was conducted by research of the digital database compiled by the California Geologic Survey, a review of available files at the City of Pleasanton, telephone contact with Mr. William Bryant of the California Geologic Survey, and review of our in-house files. The approximate locations of the exploratory trenches excavated for the nearest studies are presented on Figure 6.

Earth Science Associates (1979)

As part of their geologic studies for the General Electric Test Reactor at Vallecitos Valley, ESA excavated a trench on the mapped trace of Herd (1977), located approximately 1,400 feet northwest of the subject site along the base of the linear ridge line (designated as Trench E, on Figure 6). As described in FER-104, this trench was excavated approximately 10 to 15 feet deep and did not find the Pleasanton (Verona) fault. Several small, northwest-trending, southwest-dipping shears were observed, but no evidence for either a high-angle or thrust faulting was observed at this location.

Lowney Associates (1997)

A fault rupture hazard zone report was prepared by Lowney Associates for the Sycamore Heights residential development, which is adjacent to the northern boundary of the site. The approximate location of the exploratory trench for this study is presented on Figure 6. This trench was approximately 12 to 16 feet deep and extended along the rear property line of Lots 44, 45, 46, and 48 of the adjoining Sycamore Heights development. The western limit of this trench on Lot 48 is approximately 40 feet north of Lot 3 of the subject site. The location of this trench appears to not actually cross the projected trace of the Pleasanton fault, but rather lies just east of the trace, and continues through the eastern boundary of the fault zone. This trench did not encounter evidence of a Holocene active

fault trace. The Certified Engineering Geologist who logged this trench, Richard Rowland, stated in his report that in personal communication with Perry Wong of the California Division of Mines and Geology, since the zone was somewhat oblique to the road, the northeast corner of the 1000 foot wide zone extended across the road. The intent was for the zone to terminate at Sycamore Road.

Purcell, Rhoades & Associates (2006)

PRA performed a fault investigation study immediately southwest of the subject site at 969 Sycamore Road. The 347 foot long exploratory trench logged for this study, as approximately located on Figure 6, extended along the Alisal Street section of the site and turned westward along the southern property line toward the western limit of the AP-fault zone. No evidence of a Holocene active fault trace was observed in this trench.

REVIEW OF STEREO-PAIRED AERIAL PHOTOGRAPHS

The following stereo-paired aerial photographs were obtained from Pacific Aerial Survey for review, in an attempt to observe tonal lineations, or off-set features that would indicate the potential presence of geologic faults.

Date	Scale	Source
5/2/05	1:7200	KAV 9015-17- (20 & 21)
7-23-90	1:12000	AV-3845-26- (20 & 21)
8/24/73	1:12000	AV-1101-01- (19 & 20)
3-29-59	1:9600	AV-329-07- (23 & 24)
5-4-57	1:12000	AV-253-26- (47 & 48)

In review of the referenced aerial photographs, there were no tonal lineations, cultural features or off-set geomorphic features that would suggest the presence of a Holocene active fault as crossing the site. The 1973 aerial photos show a faint tonal lineation approximately 1,500 feet northeast of the site, which would be in the vicinity of the trace mapped by Smith (1981) on Figure 6.

DISCUSSION OF FAULT REVIEW

In review of FER-104, and 109 concerning the Pleasanton and Verona faults, the results of adjacent fault investigations, and the analysis of stereo-paired aerial photographs, it is our opinion that there is no indication of a Holocene active fault trace crossing the subject site. There have been several studies on the Pleasanton and Verona faults, most notably regarding the General Electric Test Reactor at Vallecitos Valley. The FER-104 provided extensive review of the different interpretations provided, particularly with respect to offset units within trenches being a result of either tectonic fault shear or massive landslide movements.

While there have been different discussions as to whether the Verona and Pleasanton faults represent a high angle strike slip fault or a thrust fault, the available geologic information indicates that the feature off-sets the Plio-Pleistocene Livermore Gravels, but does not appear to off-set older alluvium estimated as Pleistocene age in the area of the site. An exploratory trench excavated across the base of the linear ridge line in the area of the site, and across the projected trace of this feature, failed to discover the fault trace. There is no clear evidence of geomorphic disturbance in the area of the site or near vicinity that would indicate a Holocene active fault feature.

In recommendations for zoning of the Pleasanton fault, one alternative provided in FER-104 was to completely eliminate the trace mapped by Herd (1977). Instead, the second alternative was chosen, whereby, a fault zone was recommended to be centered over the base of the ridge line, which also happened to generally coincide with the trace plotted by Herd (1977), but the zone was to stop at Sycamore Road. The issued AP fault zone map not only changed the dotted, concealed trace to a dashed, approximately located trace, but the fault trace was stopped at Sycamore Road, and the zone extended beyond the termination of the fault.

Due to the age of the geologic materials at this site, the results of adjacent fault investigations, our review of aerial photographs, and the intent as to the revised zoning for the Pleasanton fault, it is our opinion that there is no evidence that a well-defined, and readily identifiable Holocene active fault trace traverses the subject site.

SITE EXPLORATION AND LABORATORY TESTING

Site Exploration

Field exploration of the site, conducted on June 29, 2007, consisted of the drilling of 4 exploratory borings up to a maximum depth of about 23-feet below existing grade. Please see Figure 2, Site Plan and Boring Location Map. The borings were drilled with a truck-mounted, B-24 Mobile drill rig. A permit was obtained from the Zone 7 Water Agency for these borings.

Relatively undisturbed soil samples for laboratory testing were recovered in a 2.5-inch outside diameter (OD) California sampler or in a 2-inch OD split spoon sampler driven by a 140-pound hammer free-falling 30 inches. The number of blows applied to advance the sampler was recorded for each 6 inches of penetration and then converted to Standard Penetration Test values and recorded on the Exploratory Boring Logs.

Exploratory Boring Logs describing the material encountered in the borings were recorded in the field by a engineer from this office and are presented as Figures 8 through 11.

Laboratory Testing

Laboratory testing was conducted on selected borehole samples to obtain data on density, moisture content, and unconfined compressive strength. Test results are shown on the Exploratory Boring Logs.

SUBSURFACE CONDITIONS

Exploratory Borings and Laboratory Testing

Four borings were drilled in the approximate locations shown on Figure 2. Boring B-1 was drilled on Lot 1, and encountered stiff, medium brown sandy silt fill to a depth of 2 feet, which was underlain by very dense silty sand with gravel to a depth of approximately 5 feet. Below 5 feet, hard medium and orange brown, silty and sandy clay, with sand and gravel was encountered to the termination of the boring at a depth of 23 feet below existing grade. Boring B-2 was drilled on Lot 5, and encountered a hard, light brown sandy silt with gravel fill to a depth of approximately 12 feet below existing grade, underlying this fill was a very dense silty gravel with sand, mottled with orange brown to greenish brown, and moist. Boring B-3 was drilled on Lot 4, and encountered a fill consisting of a very dense, silty sand with gravel to a depth of approximately 8 feet below grade, where the fill became more of a orange to rust brown, hard, sandy silt with gravel to a depth of 10 feet below existing grade. Underlying the fill is hard, dark brown, sandy silt to the bottom of the hole at 15 feet below grade. Boring B-4 was located on Lot 3, and encountered a fill consisting of mottled brown, dense, silty sand with gravel to a depth of approximately 7 feet below existing grade. Underlying this fill is a dark olive brown, hard, sandy silt, with some gravel that transitioned to medium and dark brown at a depth of 13 feet below grade, at the bottom of the hole.

Laboratory testing of the obtained soil samples indicated a dry density on the order of 115 to 124 pounds per cubic foot, with a moisture content of 4 to 14 percent. Unconfined compressive strength tests ranged from 5,500 to 12,500 pounds per square foot.

Free Water

Free water was not encountered to the depth explored of 23 feet below existing grade. In the geotechnical study performed by PRA for 969 Sycamore Road, immediately southwest of the subject site, free groundwater was encountered at a depth of approximately 28 feet below the existing ground surface. Groundwater levels would be expected to fluctuate due to variations in rainfall and site conditions.

DISCUSSION

The subject sites lies within the northern limit of a Alquist-Priolo Special Studies fault zone designated for the Pleasanton fault. As previously discussed in the Fault Review section of this report, based upon the absence of encountering the fault in adjacent studies, the absence of off-set cultural features or tonal lineations observed in aerial photographs, and the recommendations of the California Geologic Survey Fault Evaluation Reports for the Pleasanton fault in this area, it is our opinion that there is no evidence to indicate the presence of a well-defined, and readily identifiable Holocene active fault crossing the subject site.

The subsurface materials exposed in the exploratory borings at this site indicate hard and very dense subsoils. Due to the geologic age of the materials and the penetration resistance (blow counts), it is our opinion that the potential for liquefaction susceptibility at the site is Very Low.

CONCLUSIONS

Based upon the review of prior published work, surface field reconnaissance, the review of off-site fault investigation reports, it is our opinion that the site is not crossed by a well-defined and readily identifiable Holocene active trace of the Pleasanton fault.

Due to the proximity of active strands of the Calaveras fault zone, very strong levels of seismic ground shaking must be expected in the event of a near-source major earthquake.

Seismic ground shaking impacts will occur regionally in the San Francisco Bay area and the impacts of surface fault rupture will occur on property all along those sections of the active fault that ruptures. Even though local utility lines at this site may successfully resist the affects of the next earthquake, service may be interrupted due to regional damage incurred off-site.

Seismically induced ground shaking with minor to moderate structural damage may occur within the economic life of the development. While surface fault rupture is presently anticipated to occur along known fault zones during a major earthquake, there is always the possibility that surface fault rupture may occur outside of identified fault zones.

Based upon the information determined from our exploratory field program and laboratory testing, it is our opinion that the site can be developed, provided the recommendations provided in this report are incorporated into the design and construction phases of this project.

Due to the granular nature of the surface soils, it is our opinion that the site has a low expansion potential.

It is our opinion that based upon the subsurface information obtained from the site, and engineering analysis by this office, it is our opinion that single-family, wood-framed structures may be constructed upon a shallow bearing, continuous footing foundation system with raised wood floors. If an alternative foundation system is desired, such as concrete slab on grade, please contact this office for supplemental recommendations.

RECOMMENDATIONS

Geotechnical Hazards

Risk of geotechnical hazards will always exist due to uncertainties of geologic conditions and the unpredictability of seismic activity in the Bay Area. However, in our opinion, based on available data, there are no indications of geotechnical hazards that would preclude use of the site for the proposed development. The proposed structures should be designed to meet current *Uniform Building Code* (UBC) and *California Building Code (CBC)* requirements to limit potential damage from ground shaking.

UBC Seismic Parameters

We have reviewed the 1997 edition of the Uniform Building Code (UBC) and our files to provide seismic shaking criteria for your structural engineer's consideration in the foundation design of the proposed development.

The nearest known seismic source is the Calaveras fault (Type B), located approximately 2.5 km southwest of the site. The UBC seismic criteria is as follows:

SEISMIC CRITERIA	VALUE
Seismic Zone (UBC, Figure 16-2)	4
Seismic Zone Factor (UBC, Table 16-I)	0.4
Soil Profile Type (UBC, Table 16-J)	S_C
Near-Source Factor N_a (UBC, Table 16-S)	1.25
Near-Source Factor N_v (UBC, Table 16-T)	1.55
Seismic Coefficient $C_a = 0.40N_a$ (UBC, Table 16-Q)	0.5
Seismic Coefficient $C_v = 0.56N_v$ (UBC, Table 16-R)	0.87

Grading

Grading plans were not available during preparation of this report. We recommend that preliminary grading plans be reviewed by our office prior to submitting to reviewing agencies for permit approval. All grading must conform to Appendix A, Recommended Grading Specifications; however, the specifications are general and would be expected to vary with site and soil conditions encountered during development.

All grading must be observed by a representative of our firm. It is especially important that our representative be present during the stripping, tree removal, and scarification process to observe whether undesirable materials are encountered and properly removed. In the footprint of the proposed structure plus 5 feet and after demolition and removal has occurred, the Geotechnical Engineer will evaluate the subsurface soil condition to determine the removal depth of subsoils. A minimum subexcavation depth of 12 inches is anticipated in the building pad footprint area plus 5 feet. The excavated subgrade level must be moisture conditioned to a minimum of 5 percent over optimum and compacted to a minimum of 90 percent relative compaction, except that the driveway subgrade must be compacted to a minimum of 95 percent relative compaction. A representative of this office

must be present during subexcavation, tree removal, and recompaction to observe the exposed soil conditions and to perform compaction testing as required.

The following general recommendations are to be incorporated into the site grading operations and are subject to change based upon the field conditions and the geotechnical intent of this report. On-site, low expansion (PI<10) soil generated by site grading may be used as fill provided that the soil is free of deleterious and organic materials and that it has been approved for use as fill by our geotechnical engineer or the engineer's representative. Samples of any proposed import fill planned for use on this project must be submitted to our geotechnical engineer or the engineer's representative for approval and appropriate testing no less than 4 working days before the expected delivery to the jobsite.

Foundations

We understand that the proposed structures will be up to a two-story, wood-frame single-family dwelling. As discussed earlier, structural loads for this type of construction is generally relatively light. Based upon our Geotechnical Study, we recommend that the proposed structures be supported on conventional continuous exterior foundations with a raised wood floor system for the structure.

If a foundation system other than those recommended is desired, this office should be called for supplemental recommendations. Such recommendations will be presented as an addendum to this report.

Spread Footing

The conventional system should consist of continuous exterior footings, in conjunction with continuous or isolated interior spread footings where needed. The dimensions of the footings may be specified by the Structural Engineer and have their bases located not less than 16 inches below lowest interior grade into dense, compacted engineered on-site soil.

The interior footings, where needed, may be tied into the exterior foundation system to provide a more rigid foundation system by the selective use of reinforced tie beams placed on appropriate centers as selected by the Project Structural Engineer. Inspection of all footings by the Soil Engineer is required to verify the design assumptions.

Footings constructed to the given criteria may be designed for the following allowable bearing capacities:

1. Exterior continuous footings:
   2500 p.s.f. for Dead Load plus Live Load, with a 33-1/3% increase for Dead Load plus Live Load plus Seismic Loads.
   Minimum depth below lowest adjacent grade 16 inches.

2. Isolated columns:
   2500 p.s.f. for Dead Load plus Live Load, with a 33-1/3% increase for Dead Load plus Live Load plus Seismic Loads.
   Minimum depth below lowest adjacent grade 16 inches.

3. Friction value of 0.45 for lateral resistance with a minimum embedment of 12 inches in compacted on-site soil.

The dead load settlement of footings designed for the stated bearing pressures is estimated to not exceed one inch over 25-foot spans. In the event a slab on grade flooring system is used, some allowance should be made between an adjacent slab and the footings to permit such movement, if they are not placed monolithic.

The footings should contain a minimum of one no. 5 bar top and bottom for steel reinforcement, or as directed by the Project Structural Engineer in accordance with

applicable local building code, UBC or AC standards. It is recommended that the bottom of all foundation excavations be inspected prior to reinforcing steel and concrete placement to determine that a uniform density and bearing value is present throughout the foundation area.

Should you desire to use a foundation system different than that recommended, this office should be contacted for supplemental recommendations. Such recommendations will forwarded by an addendum to this report, and may include a post-tensioned slab, reinforced mat, pier and grade beams or comparable foundation system.

Concrete slab-on-grade floor systems for the garage as specified by the Structural Engineer for reinforcing and slab thickness should be underlain by a 4-inch-thick capillary break of pea gravel or clean crushed rock (no fines). We recommend that Class 2 base rock not be used as the capillary break. Prior to placement of the sand and membrane (where moisture penetration through the slab is objectionable) in the slab area, the subgrade must be moisture conditioned by extended sprinkling. We recommend that a vapor retarder consisting of a membrane of 10 mil minimum thickness be placed on the crushed rock and overlain by 1 to 2 inches of clean sand to assist in the proper curing of the slab. The length of overlap for the impermeable membrane should conform to the manufacturer's specification or a minimum of 12 inches, whichever is greater. Furthermore, at no time should the membrane be punctured during the construction of the concrete slab-on-grade. We recommend that if the membrane be punctured, the repair conform with the manufacturer's specifications and be observed by a representative of our firm. Improper placement of the membrane may result in adverse moisture conditions that could contribute to cracking or heaving of the slab. Excess moisture could also pass through the slab into the occupied commercial space where vinyl tile flooring materials could be adversely impacted.

Recommendations presented in the American Concrete Institute manual should be complied with for all concrete placement and curing operations. Improper curing techniques and/or excessive slump (water-cement ratio) could cause excessive shrinkage, cracking or curling. Concrete slabs should be allowed to cure adequately before placing vinyl or other moisture sensitive floor coverings. We recommend that the project structural engineer also consider specifying air-entrainment for the concrete mix design to reduce the permeability of the concrete slab.

The excavations for footings should be cleaned of loose material and debris prior to placement of concrete. All footing excavations must be observed by a representative of our firm to check the compatibility of the foundation and to observe the competence of material in the excavations. Loose, soft, or undesirable soil encountered in footing excavations should be excavated to firm soil or should be over-excavated and backfilled with compacted fill.

Retaining Walls

The site plan indicates proposed retaining walls to a maximum height of approximately 3-1/2 feet along the western property line of Lot 3, and along the southern property line of Lots 3 and 4, and on the fill slope at the rear of Lot 1, below Lots 4 and 5. Table II, presents our design recommendations for any retaining walls up to 5 feet in height. Retaining walls should be designed for a full-drained condition. We recommend installing a 4-inch diameter perforated SDR 35 pipe or better placed upon a 2-inch minimum layer of Cal Trans Class 2 permeable drain rock at the base of the wall located a minimum of 6-inches below any cold joint or interior crawl space (when incorporated into the house). The trench and pipe should be sloped a minimum of 1 percent and discharged into a suitable outlet. Where the retaining wall is not integrated into the foundation of a structure, the drain rock should be backfilled to within 1 foot of the surface, then capped with compacted clay material up to the finish surface. If needed, the following parameters should be

implemented in the design. To reduce the potential for moisture transmission through the retaining wall where moisture transmission would be objectionable, it is recommended that the appropriate face be hot-mopped in accordance with the manufacturer's specifications and an impermeable membrane be placed over the hot-mopped surface to protect the surface from damage during drain rock placement. Recommendations to control surface drainage are discussed in the drainage section of this report.

The proposed design should be reviewed by our firm to confirm that the retaining wall configuration is compatible with the assumed parameters. Design pressures are based on the subsurface conditions encountered during the site investigation and are expressed as equivalent fluid pressures. Terraced walls must be designed to take into consideration surcharge affects on adjacent, lower walls.

TABLE II

RETAINING WALL DESIGN CRITERIA

Gradient of Backfill	Equivalent Fluid Weight (pcf)	Passive Resistance* (pcf)
Level	50	350
3:1 to Level	60	350
Steeper than 3:1 (Maximum 2:1)	65	350

***Commences a minimum of 18-inches below lowest adjacent grade.**

The retaining wall design should be made by the Project Structural Engineer. All retaining walls must be free draining.

Concrete Slabs-on-Grade, Miscellaneous Flatwork

1. It is recommended that the exterior flatwork slabs-on-grade be a minimum thickness of 4 inches and be structurally independent of the foundation to provide freedom of movement due to soil volume changes.

2. The exterior flatwork slabs-on-grade should be underlain by a minimum 2-inch thick rock cushion with the exterior portion of the slabs having a deepened edge of 4 inch minimum into the lowest adjacent grade subsoil.

3. Reinforcement of the concrete slabs shall be as directed by the project structural engineer. We recommend that crack control joints be utilized as designated by the structural engineer.

We recommend that the owners be advised that some vertical displacement of exterior flatwork, sidewalks, driveways, and pavements be anticipated. Proper site drainage, maintenance and controlling landscape irrigation is recommended to reduce the amount of vertical displacement that may occur.

Utility Trenches

Utility trenches that parallel the sides of the buildings should be placed so that they do not extend below a line sloped down and away at a slope of 2H:1V (horizontal to vertical) from the bottom outside edge of the perimeter foundations (i.e., the base of the grade beam systems or the base of exterior footings for a reinforced mat system).

All trenches should be backfilled with native materials compacted uniformly to the relative compaction specified in Appendix A. If local building codes require use of sand as the trench backfill, all utility trenches entering the building should be provided with an impervious seal of either cohesive soil or lean concrete where the trench passes under the building perimeter. The impervious plug should extend 4 feet into, and out of, the building perimeter. Jetting of trench backfill is not recommended as it may result in an unsatisfactory degree of compaction.

Drainage

Surface water must not be allowed to pond adjacent to building foundations. To preclude drainage problems, we recommend roof stormwater control for the proposed facilities. It will be necessary to direct all water collected from roof downspouts into closed conduits that lead to acceptable discharge points away from the structures.

A positive cross slope gradient of 3 percent down and away from the building perimeter should be applied to the finished subgrade (inclusive of topsoil). This slope should extend no less than 5 feet away from the outside building perimeter. Where collector swales are necessary to direct the storm water to the fronting streets for discharge, a minimum swale slope gradient of 1% is required. Drop inlet facilities within the drainage swales should be provided to assist in the removal of runoff from around the structures where concrete walks or asphalt pavements do not abut the foundations and non-drainage recessed planter areas are located.

Plants should not be placed immediately adjacent to the structures. If vegetation must be planted adjacent to the buildings, plants that require very little moisture should be used. Sprinkler heads should not be placed where they could saturate foundation soil.

Pavements

We recommend selecting the pavement section after earthwork construction for the subject project has been completed. Based on the low expansion potential sandy silt soils encountered at this site, the following preliminary pavement design is recommended.

Asphalt Concrete (inches)	Aggregate Base, R = 78+ (inches)
3	8

In the event a concrete roadway is considered, it is recommended that a minimum thickness of 6-inches be underlain by a 4-inch thick layer of Cal Trans Class II aggregate base rock. The roadway slab should be reinforced with a minimum of no. 4 reinforcing rods placed 24-inches on center each way in a grid pattern supported on dobies.

To perform to its greatest efficiency, the pavement section requires the following construction criteria:

a. Remove organic and deleterious materials from all pavement subgrade.

b. Moisture-condition the upper 6 inches of subgrade soil and compact it to a minimum relative compaction of 95 percent and to a moisture content of 2 to 4 percent over the optimum moisture content. All pavement subgrade should be stable with no "pumping" at the time the base rock is placed.

c. Use only good quality materials of the type and minimum thickness specified. All base rock should meet the *Standard Specifications* of the State of California for Class 2 baserock and should be angular in shape.

d. Compact the baserock uniformly to a minimum relative compaction of 95 percent.

e. Place the asphalt concrete only during periods of fair weather when the free air temperature is within the prescribed limits as set forth by the Asphalt Concrete Institute.

f. Compact all trench backfill under the pavement to reduce fill settlement and minimize pavement damage that may result from such settlement. Mechanical compaction is recommended because material placed by jetting or ponding will probably not attain satisfactory densities.

g. Provide adequate drainage or V-ditch systems to prevent surface water from migrating into the subgrade pavement soil from behind curb-and-gutter sections. For areas where pavement abuts landscaping, we recommend extending the concrete curb to the bottom of the base rock layer to form a cut-off wall to prevent water from migrating into the base rock.

Construction During Fall and Winter Seasons

Wet weather may raise the moisture content of the soil well above optimum conditions and earthwork construction may be difficult or impossible. Supplemental recommendations will be provided by our geotechnical engineer or the engineer's representative in the field, if appropriate.

Miscellaneous

Our exploration did not reveal the presence of any other buried items such as leaching fields, wells, storage tanks, etc. It is possible, however, that other items that could interfere with the facilities may be present. If such items are encountered during grading or during excavations of foundations, our firm should be notified immediately to provide recommendations for proper procedures. Also, this study did not include investigations for toxic substances or groundwater contamination of any type. If such conditions are encountered during site development, additional studies will be required. This study also did not include soil sampling and testing for corrosion potential and/or sulfate content of on-site soils. After site grading has been completed, it is recommended that soil sampling be performed to determine if corrosive soils and high sulfate concentration soils are present that may require special recommendations for foundation cement type and protective membranes.

Plan Review

Before submitting design drawings and construction documents to the appropriate local agency for approval, copies of the documents must be reviewed by our firm to ensure that the recommendations in this report have been effectively incorporated.

Construction Observations

A representative of this firm must be present during grading and foundation excavation to observe that the work performed is in conformance with the specifications and recommendations provided in this report. We will also perform testing as necessary to evaluate the quality of the materials and their relative compaction. Records will be maintained of our site visits and test results. At the completion of site grading and foundation excavation, we will submit a summary of our observation and test results along with any necessary supplemental recommendations.

To assure that our personnel are at the site when needed, we require that you notify us at least 2 working days before the task begins.

LIMITATIONS

This report has been prepared for the exclusive use of Mrs. Margo Layton, and her consultants for specific application to the proposed development. If changes occur in the nature, design location, or configuration of the proposed development, the conclusions and recommendations contained here shall not be considered valid. Changes must be reviewed by our firm.

The analysis, opinions, conclusions and recommendations submitted in this report are based in part on the referenced materials, site visit and evaluation, and subsurface exploration. The nature and extent of variation among exploratory borings may not become evident until construction. If variations appear, it will be necessary to re-evaluate or revise recommendations made in this report.

The recommendations in this report are contingent on conducting an adequate testing and monitoring program during construction of the proposed development. Unless the construction monitoring and testing program is provided by or coordinated with our firm, Purcell, Rhoades & Associates will not be held responsible for compliance with design recommendations presented in this report and other supplemental reports submitted as part of this report.

Our services have been provided in accordance with generally accepted geotechnical engineering practices. No warranties are made, express or implied, as to the professional opinions or advice provided. Recommendations contained in this report are valid for a period of 2 years; after 2 years they must be reviewed by this firm to determine whether or not they still apply.

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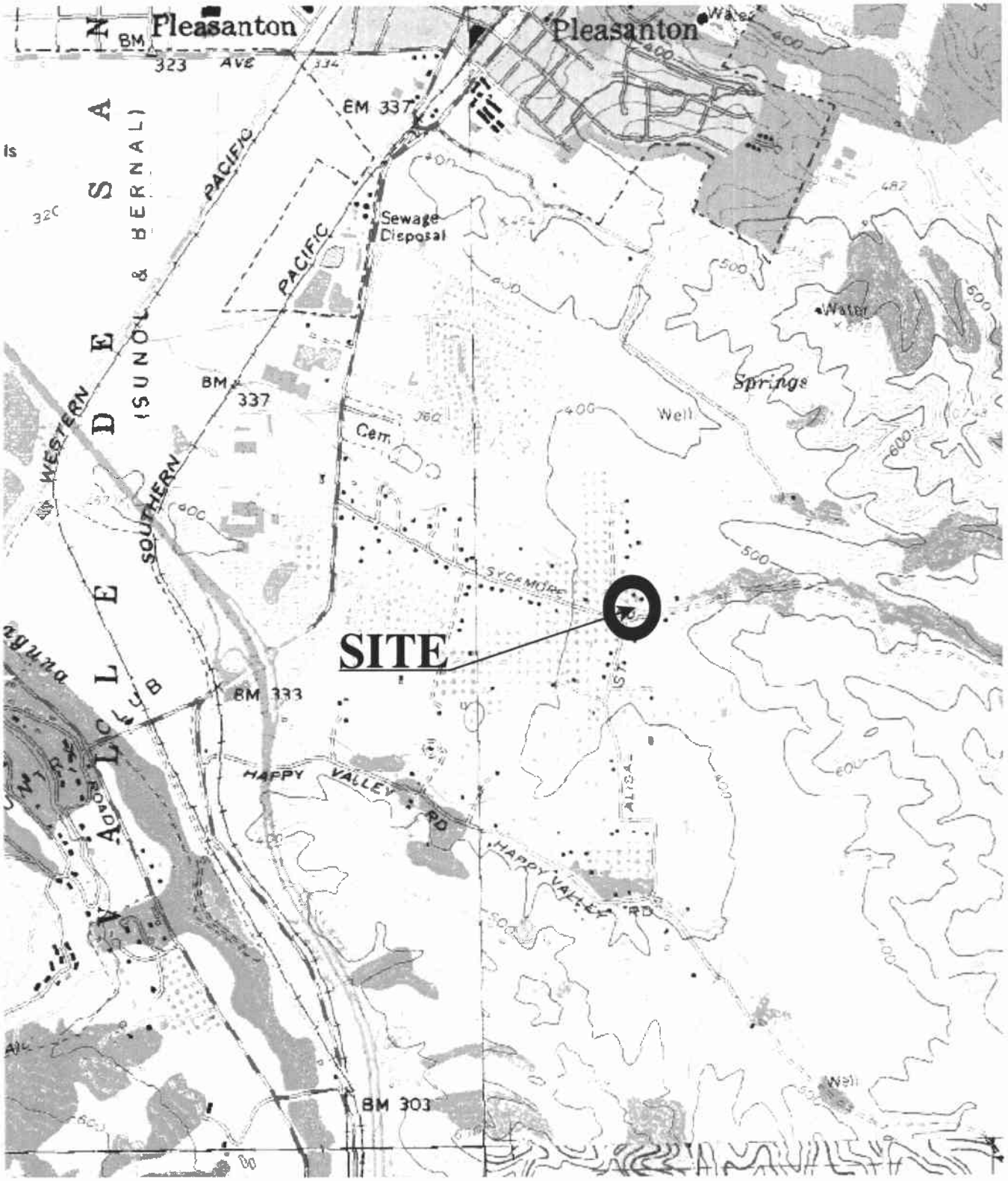


NOT TO SCALE

NOTES

SOURCE: TOPOZONE, LIVERMORE QUAD.

DATE	OCTOBER 2007
JOB NO	7338-01
DWG NO	L733801FIG1
DRAWN	IDA
CHK'D	DJR
APP'D	DJR

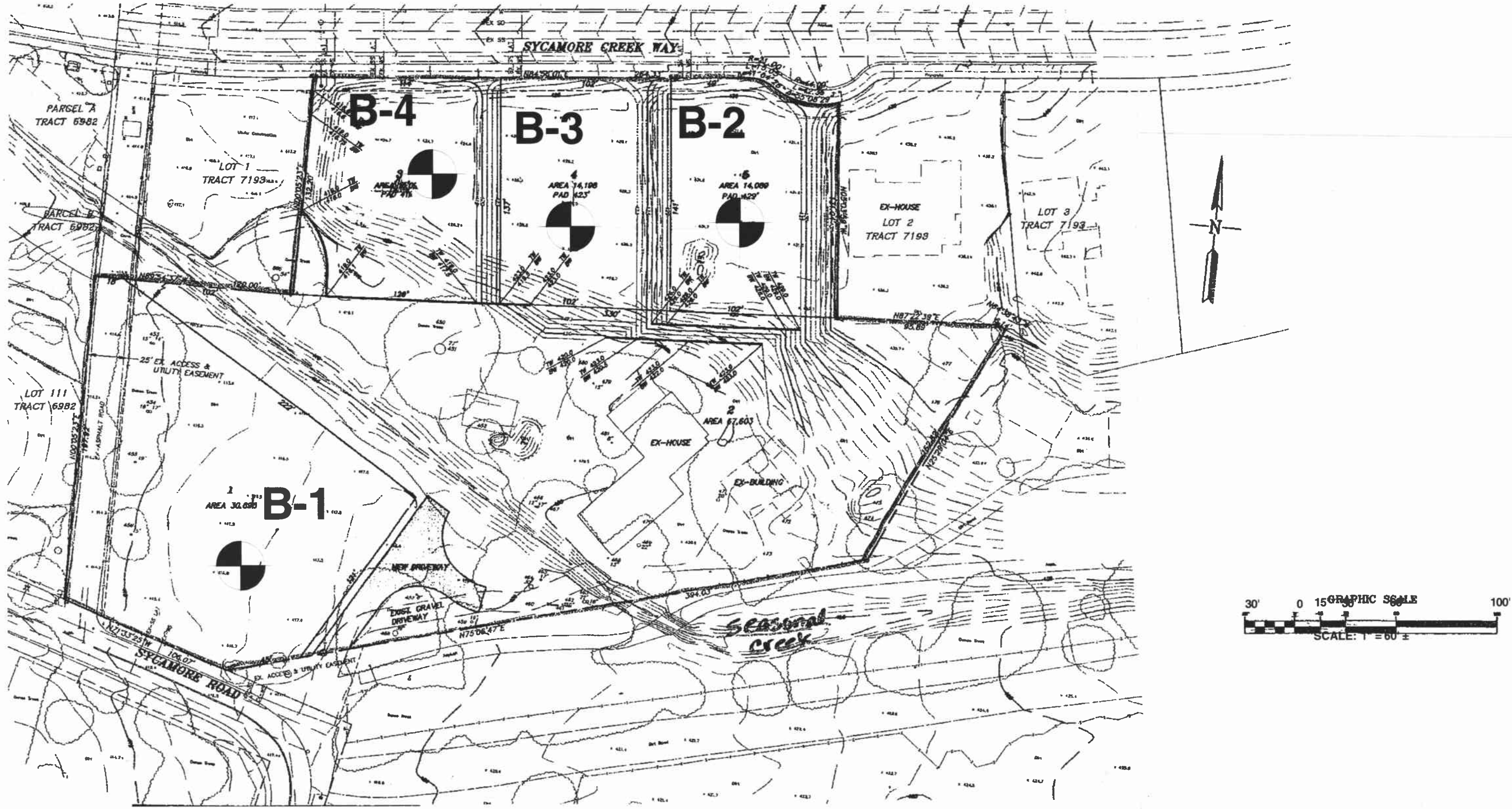
Purcell, Rhoades & Associates
Consultants in the Applied Earth Sciences

SITE LOCATION MAP
990 SYCAMORE ROAD
PLEASANTON, CALIFORNIA

FIGURE NO. 1

CLIENT MRS. MARGO LAYTON

REV. NO.



NOTES **SOURCE: ALEXANDER & ASSOCIATES, INC.**

APPROXIMATE BORING LOCATIONS

DATE	OCTOBER 2007
JOB NO.	7338-01
DWG NO.	L733801FIG2
DRAWN	IDA
CHK'D	DJR
APP'D	DJR

Purcell, Rhoades & Associates
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SITE PLAN AND BORING LOCATION MAP
990 SYCAMORE ROAD
PLEASANTON, CALIFORNIA

CLIENT MRS. MARGO LAYTON

FIGURE NO. 2

REV. NO.

NOTES

SOURCE:
GOOGLE EARTH

DATE	OCTOBER2007
JOB NO.	7338-01
DWG NO.	L733801FIG2A
DRAWN	IDA
CHK'D	DJR
APP'D	DJR

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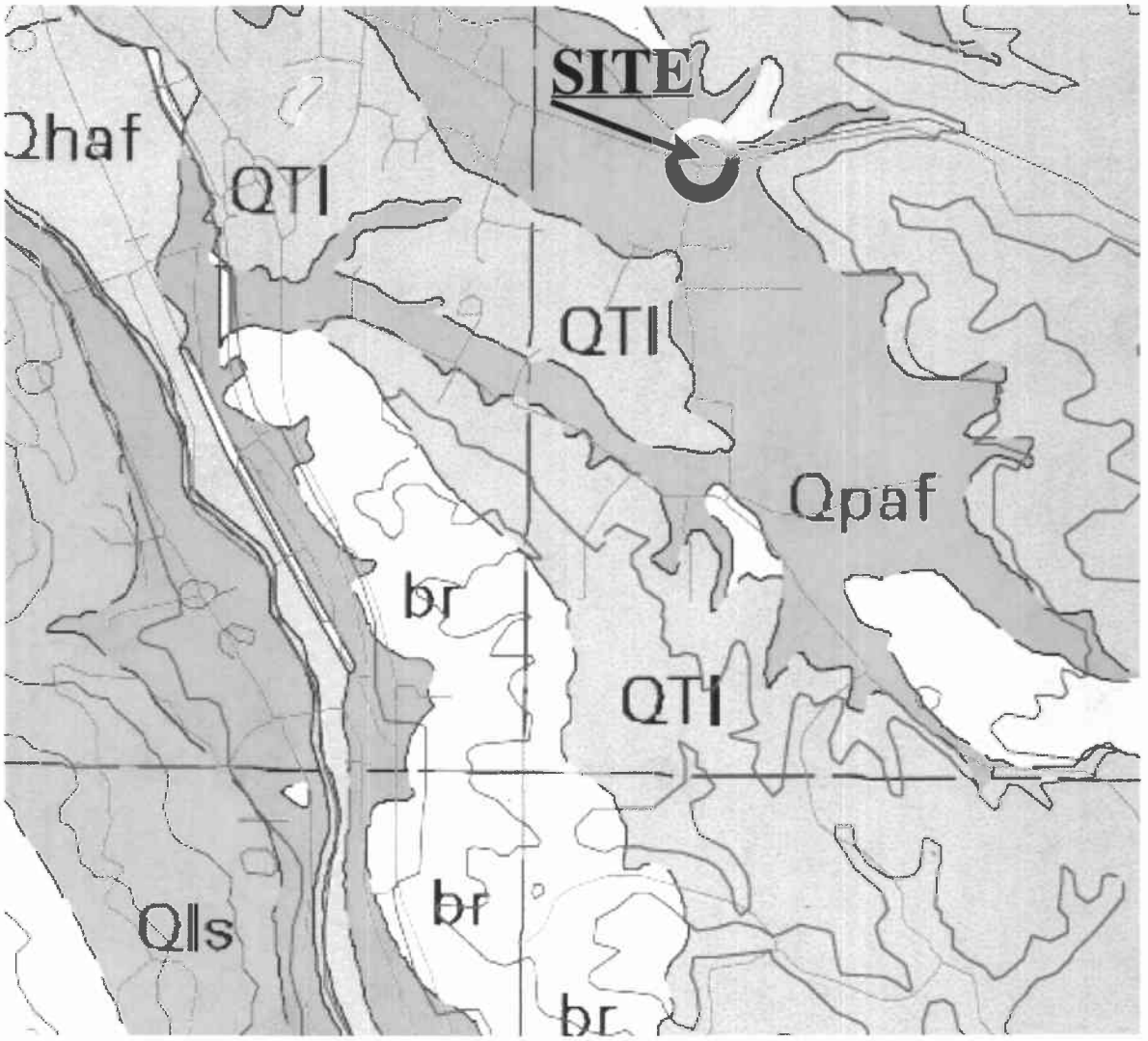
SITE AERIAL PHOTO
990 SYCAMORE ROAD
PLEASANTON, CALIFORNIA

CLIENT MRS. MARGO LAYTON

FIGURE NO.
2A

REV. NO.



KEY

Qhaf	Holocene Alluvial Fan and Fluvial Deposits
Qpaf	Pleistocene Alluvial Fans and Fluvial Deposits
QTl	Pliocene(?) and Pleistocene Livermore Gravels

NOT TO SCALE

NOTES

SOURCE: HELLEY AND GRAYMER, 1997

DATE	OCTOBER 2007
JOB NO.	7338-01
DWG NO.	L733801FIG3
DRAWN	IDA
CHK'D	DJR
APP'D	DJR

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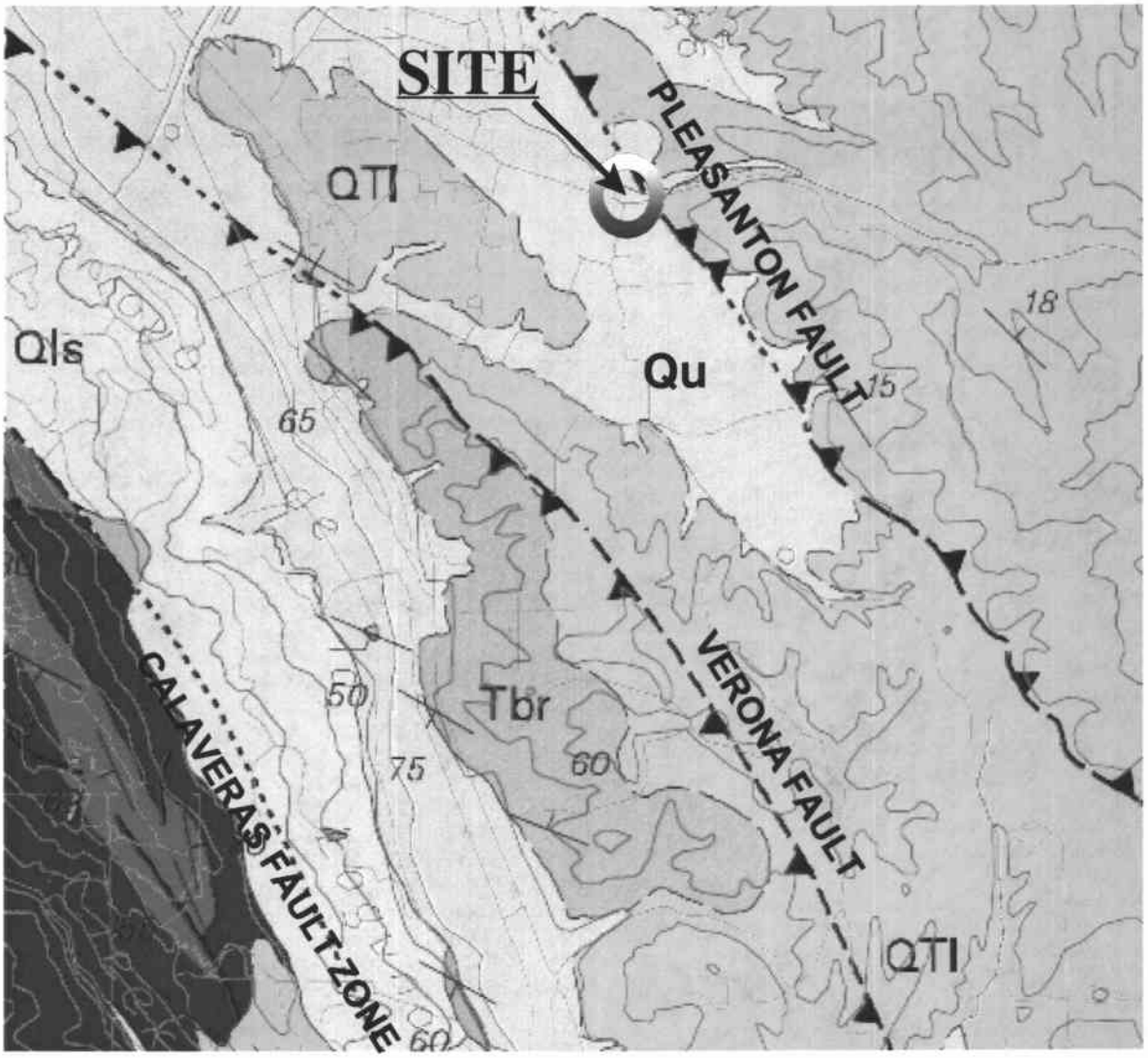
AREA GEOLOGIC MAP
990 SYCAMORE ROAD
PLEASANTON, CALIFORNIA

FIGURE NO.
3

CLIENT MRS. MARGO LAYTON

REV. NO.



N

KEY

Qls	Quaternary Landslide Deposits
Qls	Quaternary Deposits Undivided
QTl	Pliocene-Pleistocene Livermore Gravels
Tbr	Miocene Briones Formation
Ku	Cretaceous Unnamed Shale
Ks	Cretaceous Unnamed Sandstone and Shale

NOT TO SCALE

NOTES

SOURCE:
GRAYMER, JONES AND BRABB, 1996

DATE	OCTOBER 2007
JOB NO.	7338--01
DWG NO.	L733801FIG4
DRAWN	IDA
CHK'D	DJR
APP'D	DJR

Purcell, Rhoades & Associates
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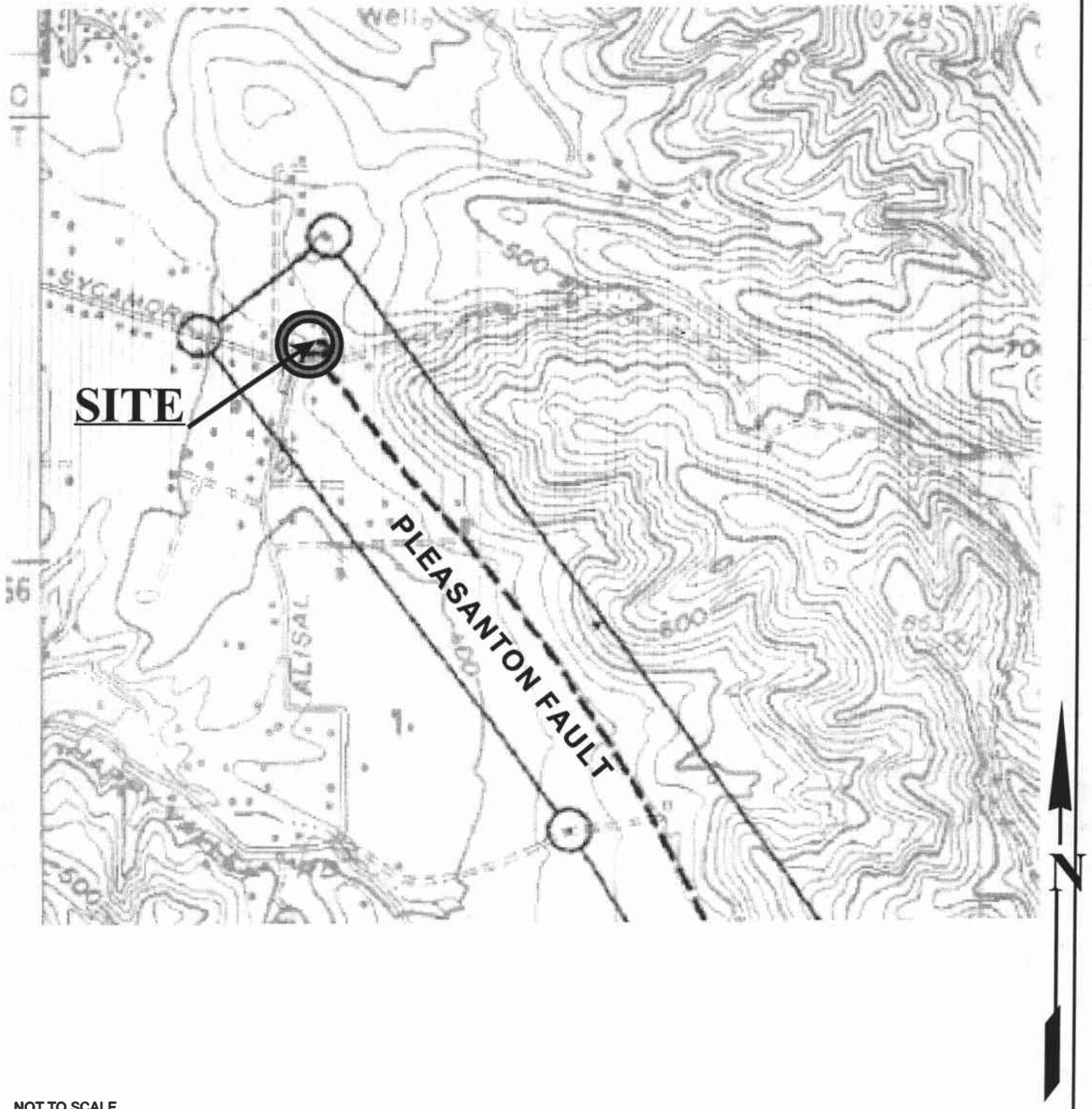
AREA BEDROCK GEOLOGIC MAP
990 SYCAMORE ROAD
PLEASANTON, CALIFORNIA

FIGURE NO. 4

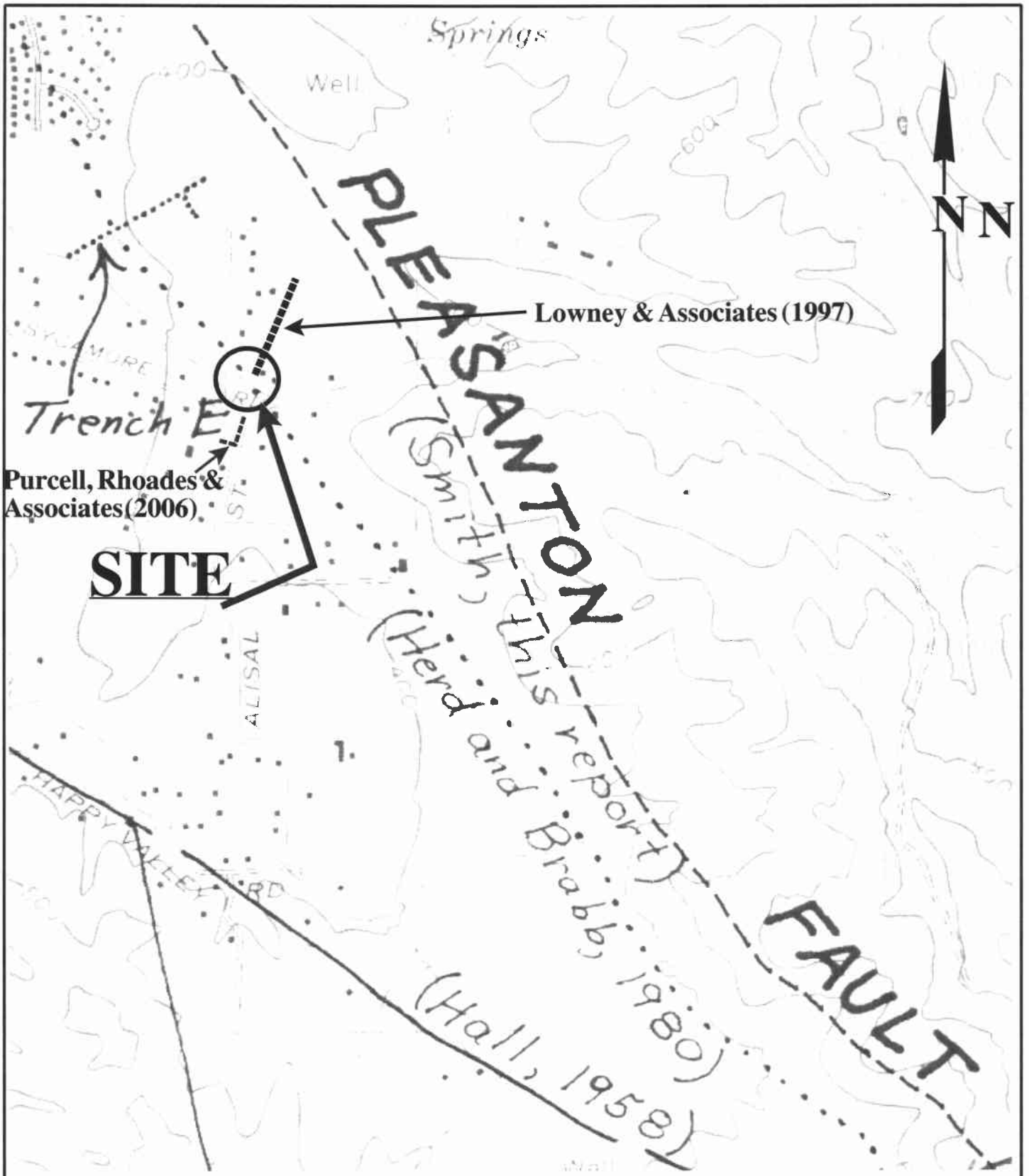
CLIENT MRS. MARGO LAYTON

REV. NO.



NOT TO SCALE

NOTES SOURCE: CALIFORNIA GEOLOGICAL SURVEY LIVERMORE QUADRANGLE, 1982	DATE OCTOBER 2007 JOB NO. 7338-01 DWG NO. L733801FIG5 DRAWN IDA CHK'D DJR APP'D DJR	Purcell, Rhoades & Associates Consultants in the Applied Earth Sciences **CGS SPECIAL STUDIES ZONE** 990 SYCAMORE ROAD PLEASANTON, CALIFORNIA CLIENT MRS. MARGO LAYTON	FIGURE NO. 5 REV. NO.



NOTES	DATE	OCTOBER 2007	Purcell, Rhoades & Associates
SOURCE:	JOB NO.	L7338-01	Consultants in the Applied Earth Sciences
CDMG FER-104 (1981) Trench locations for Purcell, Rhoades & Assoc. and Lowney Assoc. added for this study are approximate.	DWG NO.	L733801FIG6	**CDMG FAULT EVALUATION MAP**
	DRAWN	IDA	990 SYCAMORE ROAD
	CHK'D	DJR	PLEASANTON, CALIFORNIA
	APP'D	DJR	CLIENT MRS. MARGO LAYTON

FIGURE NO. 6

REV. NO.

EXPLORATORY BORING LOG

CLIENT: MARGO LAYTON PROJECT NO.: 7338-01	LOGGED BY: JLM	DATE DRILLED: 6-29-07	PAGE 1 OF 1
DRILL RIG: B-24 DRILLER: RAM WEIGHT OF HAMMER: 140 POUNDS DROP: 30 inches		BORING ELEV.: E.G. BORING DIAM.: 4 INCHES	BORING NO. **B-1**

FIELD				DESCRIPTION	LABORATORY								
DEPTH (FT.)	SAMPLE	SAMPLE NO.	BLOWS / FT.	MATERIAL DESCRIPTION AND REMARKS	CONSISTENCY	USCS LETTER SYMBOL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	pH @ °C	PLASTICITY INDEX (%)	UNCONFINED COMPRESSIVE STRENGHT (PSF)	DIRECT SHEAR ϕ	DIRECT SHEAR COHESION, PSF
1				FILL: SANDY SILT, medium brown, damp	Very Stiff	SM							
4		B1-1	52	SILTY SAND WITH GRAVEL, mottled brown, moist	Very Dense	SM	116	5					
9		B1-2	75	SILTY CLAY WITH SOME SAND, medium brown, moist	Hard	CL	116	14			12700		
13		B1-3	43/6"	SANDY CLAY WITH GRAVEL, medium brown, moist	Hard	CL							
18		B1-4	43/5"	SANDY CLAY, orange and brown, moist	Hard	CL	114	13					
24	TD			NO FREE GROUNDWATER ENCOUNTERED AT TIME OF DRILLING. BORING TERMINATED AT 23 FEET AND BACKFILLED WITH GROUT. ALL SAMPLES RECOVERED USING A 2.5 INCH O.D. MOD. CAL. SAMPLER. ALL BLOWCOUNTS CONVERTED TO STANDARD PENETRATION TEST.									

Purcell, Rhoades & Associates
Consultants in the Applied Earth Sciences

EXPLORATORY BORING LOG B-1
990 SYCAMORE ROAD
PLEASANTON, CALIFORNIA

Client: MARGO LAYTON

FIGURE NO.
7

EXPLORATORY BORING LOG

CLIENT: MARGO LAYTON PROJECT NO.: 7338-01	LOGGED BY: JLM	DATE DRILLED: 6-29-07	PAGE 1 OF 1
DRILL RIG: B-24 DRILLER: RAM WEIGHT OF HAMMER: 140 POUNDS DROP: 30 inches		BORING ELEV.: E.G. BORING DIAM.: 4 INCHES	BORING NO. **B-2**

FIELD				DESCRIPTION	LABORATORY								
DEPTH (FT.)	SAMPLE	SAMPLE NO.	BLOWS / FT.	MATERIAL DESCRIPTION AND REMARKS	CONSISTENCY	USCS LETTER SYMBOL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	pH @ °C	PLASTICITY INDEX (%)	UNCONFINED COMPRESSIVE STRENGHT (PSF)	DIRECT SHEAR Φ	DIRECT SHEAR COHESION, PSF
1				FILL: SANDY SILT WITH GRAVEL, light brown, damp	Very Stiff	SM							
3				FILL:									
4		B2-1	48	SANDY SILT WITH GRAVEL, mottled brown, moist	Hard	SM	112	14			5600		
8													
9		B2-2	79	SILTY CLAY WITH SOME SAND, medium brown, moist	Hard	CL	116	14					
13		B3-3	43/3"	SANDY GRAVEL WITH SAND, mottled orange, green and medium brown, moist	Very Dense	GM	107	5					
14	TD			NO FREE GROUNDWATER ENCOUNTERED AT TIME OF DRILLING. BORING TERMINATED AT 14 FEET AND BACKFILLED WITH GROUT. ALL SAMPLES RECOVERED USING A 2.5 INCH O.D. MOD. CAL. SAMPLER. ALL BLOWCOUNTS CONVERTED TO STANDARD PENETRATION TEST.									

Purcell, Rhoades & Associates
Consultants in the Applied Earth Sciences

EXPLORATORY BORING LOG B-2
990 SYCAMORE ROAD
PLEASANTON, CALIFORNIA
Client: MARGO LAYTON

FIGURE NO.
8

EXPLORATORY BORING LOG

CLIENT: MARGO LAYTON PROJECT NO.: 7338-01	LOGGED BY: JLM	DATE DRILLED: 6-29-07	PAGE 1 OF 1
DRILL RIG: B-24 DRILLER: RAM WEIGHT OF HAMMER: 140 POUNDS DROP: 30 inches		BORING ELEV.: E.G. BORING DIAM.: 4 INCHES	BORING NO. **B-3**

FIELD				DESCRIPTION	LABORATORY							
DEPTH (FT.)	SAMPLE	SAMPLE NO.	BLOWS / FT.	MATERIAL DESCRIPTION AND REMARKS	CONSISTENCY	USCS LETTER SYMBOL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	pH @ °C	PLASTICITY INDEX (%)	UNCONFINED COMPRESSIVE STRENGHT (PSF)	DIRECT SHEAR Φ / COHESION, PSF
1					Dense							
2												
3				FILL:								
4		B3-1	57	SILTY SAND WITH GRAVEL, mottled brown, moist	Very Dense	GM	124	9			6700	
5												
6												
7				FILL:								
8		B3-2	43/6"	SANDY SILT WITH GRAVEL, mottled orange rust and medium brown, moist	Very Dense	SM		8				
9												
10												
11												
12												
13												
14		B3-3	54	SANDY SILT, dark brown, moist	Very Dense	SM	115	14				
15	TD			NO FREE GROUNDWATER ENCOUNTERED AT TIME OF DRILLING. BORING TERMINATED AT 14-1/2 FEET AND BACKFILLED WITH GROUT. ALL SAMPLES RECOVERED USING A 2.5 INCH O.D. MOD. CAL. SAMPLER. ALL BLOWCOUNTS CONVERTED TO STANDARD PENETRATION TEST.								
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Purcell, Rhoades & Associates
Consultants in the Applied Earth Sciences

EXPLORATORY BORING LOG B-3
990 SYCAMORE ROAD
PLEASANTON, CALIFORNIA

Client: MARGO LAYTON

FIGURE NO.
9

EXPLORATORY BORING LOG

CLIENT: MARGO LAYTON PROJECT NO.: 7338-01	LOGGED BY: JLM	DATE DRILLED: 6-29-07	PAGE 1 OF 1
DRILL RIG: B-24 DRILLER: RAM WEIGHT OF HAMMER: 140 POUNDS DROP: 30 inches		BORING ELEV.: E.G. BORING DIAM.: 4 INCHES	BORING NO. **B-4**

FIELD				DESCRIPTION	LABORATORY								
DEPTH (FT.)	SAMPLE	SAMPLE NO.	BLOWS / FT.	MATERIAL DESCRIPTION AND REMARKS	CONSISTENCY	USCS LETTER SYMBOL	DRY DENSITY (PCF)	MOISTURE CONTENT (%)	pH @ °C	PLASTICITY INDEX (%)	UNCONFINED COMPRESSIVE STRENGHT (PSF)	DIRECT SHEAR Φ	DIRECT SHEAR COHESION, PSF
1					Dense								
2													
3				FILL:									
4		B4-1	33	SANDY SILT, SOME GRAVEL, mottled brown, moist	Dense	SM	114	12			7600		
5													
6													
7													
8				SILTY SAND WITH GRAVEL, dark olive brown, moist	Very Dense	SM	113	13					
9		B4-2	46										
10													
11													
12													
13		B4-3	43/6"	SANDY SILT, medium to dark brown, moist	Very Dense	SM	117	14					
14	TD			NO FREE GROUNDWATER ENCOUNTERED AT TIME OF DRILLING. BORING TERMINATED AT 13-1/2 FEET AND BACKFILLED WITH GROUT. ALL SAMPLES RECOVERED USING A 2.5 INCH O.D. MOD. CAL. SAMPLER. ALL BLOWCOUNTS CONVERTED TO STANDARD PENETRATION TEST.									
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Purcell, Rhoades & Associates
Consultants in the Applied Earth Sciences

EXPLORATORY BORING LOG B-4
990 SYCAMORE ROAD
PLEASANTON, CALIFORNIA

Client: MARGO LAYTON

FIGURE NO.
10

APPENDIX A

RECOMMENDED GRADING SPECIFICATIONS

FOR

990 SYCAMORE ROAD - PROPOSED 5-LOT SUBDIVISION
PLEASANTON, CALIFORNIA

FOR
MRS. MARGO LAYTON

APPENDIX A

RECOMMENDED GRADING SPECIFICATIONS

For

990 SYCAMORE ROAD - PROPOSED 5-LOT SUBDIVISION
PLEASANTON, CALIFORNIA

FOR
MRS. MARGO LAYTON

1. General

1.1 These Recommended Grading Specifications (called "Specifications" here) provide general guidelines for soil engineering aspects of grading for the subject development. The Geotechnical Engineer from Purcell, Rhoades & Associates should be consulted prior to any site work connected with grading. Please refer to the following report(s) for other grading recommendations supporting these Specifications.

1. Purcell, Rhoades & Associates, "Geotechnical Study and Fault Review, 990 Sycamore Road - Proposed 5-Lot Subdivision, Pleasanton, California, Job No. 12-222/7338-01, dated October 12, 2007"

1.2 These Specifications include the following:

- clearing, stripping, grubbing, and preparing areas to be filled
- selecting materials for fill
- placing, spreading, and compacting fill
- completing subsidiary work necessary to conform to lines, grades, and slopes shown on accepted plans
- protecting the soil in slab and foundation areas from drying out between grading and construction

1.3 Tests and observations shall be made by a representative from Purcell, Rhoades & Associates during the grading so that we can confirm that grading was performed according to these Specifications. Such confirmation in a Final grading report is often required to obtain a building permit.

1.4 Purcell, Rhoades & Associates shall be notified at least 2 working days prior to placement of fill so arrangements for testing and observation may be made.

1.5 Grading or placement of fill done without the presence of a representative of Purcell, Rhoades & Associates or without prior coordination between Purcell, Rhoades & Associates and the grading contractor shall be at the contractor's risk; Purcell, Rhoades & Associates will accept no responsibility for such work.

2. Testing

2.1 The American Society for Testing and Materials (ASTM) Test Procedure D 1557-78 shall be the standard test to define maximum densities for all compaction of fill. All densities shall be expressed as relative compaction in terms of the maximum dry density obtained in the laboratory by the foregoing standard procedure.

2.2 Field density tests shall be performed according to ASTM Test Procedures D 2922-81 and D 3017-88. The locations and number of field density tests shall be selected by the Geotechnical Engineer or the Engineer's Representative.

3. Clearing, Stripping, Grubbing, and Preparing of Areas to Be Filled

3.1 Trees, roots, vegetation, and organic surficial soil shall be removed from structural areas unless specified otherwise by Purcell, Rhoades & Associates. The depth of organic surficial soil to be removed will be recommended by the Geotechnical Engineer or the Engineer's Representative but, in general, will probably vary from about 2 to 4 inches.

3.2 Strippings are defined as surface vegetation and organic surficial soil. Strippings may not be used in fill unless specifically authorized and observed by the Geotechnical Engineer or the Engineer's Representative. Stripping may be stockpiled for landscaping use, with the approval of the landscape architect.

3.3 Soil deemed soft or unsuitable by the Geotechnical Engineer or the Engineer's Representative shall be removed. Loose fills and surface soil sloughs shall also be excavated.

3.4 Underground structures such as old foundations, abandoned pipelines, septic tanks, and leach fields shall be removed from the site.

3.5 The final stripping and excavation shall be approved by the Geotechnical Engineer or the Engineer's Representative before further grading is started.

3.6 The original ground on which the fill, foundation or slabs are to be placed shall be plowed or scarified at least 8 inches and until the surface is free from ruts, hummocks or uneven features which would tend to prevent compaction. The contractor shall observe the following guidelines:

- Where the slope ratio of the original ground is steeper than 5:1 (horizontal to vertical), the bank shall be stepped or benched.

- At the toe of the side slope fills, the base key shall be at least 12 feet in width, cut into firm, natural ground and sloped back into the hillside at a gradient of at least 2 percent.

- Subsequent keys or benches shall be 10 feet wide and placed no more than 4 feet in vertical height from the previous key or bench unless otherwise recommended by the Geotechnical Engineer or the Engineer's Representative.

3.7 The native subgrade soil to receive fill shall be moisture-conditioned and compacted to the requirements specified in the referenced report and below:

Minimum relative compaction:	90	percent
Minimum moisture content:	3	percent over optimum
Special considerations:	85-90	percent compaction in designated expansive soil at 3 percent over optimum moisture condition.

4. Selecting Fill

4.1 The Geotechnical Engineer or the Engineer's Representative shall evaluate suitability of materials for compacted fills. The material shall be a soil or soil-rock mixture, free of organic matter or other deleterious substances. Within 3 feet of finished grade, the compacted fill shall contain no rocks or lumps over 6 inches in diameter and none that are more than 15 percent larger than 2-1/2 inches. Rocks greater than 6 inches in diameter shall be placed in deep fills as approved by the Geotechnical Engineer or the Engineer's Representative so that they are not nested and so compaction may be achieved around them.

4.2 If imported materials are needed, they must be approved by the Geotechnical Engineer or the Engineer's Representative prior to transporting the fill to the project. Unless otherwise exempted by the Geotechnical Engineer, they should meet the following requirements:

1. The plasticity index shall not exceed 15.
2. No rocks shall exceed 6 inches in diameter.

5. Placing, Spreading, and Compacting Fill

5.1 The fill shall be placed in uniform lifts of not more than 8 inches in uncompacted thickness. Each layer shall be spread evenly and shall be thoroughly blade mixed during spreading to obtain uniformity of material. Before compaction begins, the fill shall be brought to a water content (as directed by the Geotechnical Engineer or the Engineer's Representative) that

will permit proper compaction by either (1) aerating the material if it is too wet or (2) spraying the material with water if it is too dry.

5.2 After each layer has been placed, mixed, and spread evenly, it shall be compacted as specified in the referenced report and below:

Minimum relative compaction:	90	percent
Minimum moisture content:	3	percent over optimum

5.3 The contractor shall use appropriate equipment to compact the fill to the specified density. Compacting shall be performed while the fill is within the specified range of moisture content. Each layer shall be compacted over its entire area, and the compacting equipment shall make enough passes to achieve the required density.

5.4 Fill placed on slopes shall be compacted by means of suitable equipment. Benching of the slopes should be done in increments of 3 to 5 feet in height until the fill is brought to its specified height or as determined by the Geotechnical Engineer or the Engineer's Representative.

5.5 When sheepsfoot rollers are used for compaction, the density tests shall be taken in the compacted material below the surface disturbed by the roller. When these tests indicate that the density of any layer of fill, or portion thereof, is below the required density, it shall be reworked until the required compaction has been obtained.

5.6 Soil shall not be placed or compacted during periods of rain or on ground which is not drained of water. Soil which has been moistened by rain or other cause shall not be compacted until the moisture content is within the limits specified in the referenced report. Prior approval by the Geotechnical Engineer or the Engineer's Representative shall be obtained before continuing grading.

6. Backfilling Trenches

6.1 Geologic exploratory trenches (or other depressions), if any, within the proposed building or pavement areas, shall be re-excavated and backfilled to meet the requirements for compacted fill, as specified above.

6.2 The utility trenches extending under the perimeter foundation and concrete slabs-on-grade may require backfilling or plugging with impermeable soils at the building line with a 3-foot wide impermeable segment of compacted fill. Requirements will be specified during trench backfilling. Ponding or jetting of trench backfill is not recommended.

7. Removing Subsurface Pipes

7.1 The Geotechnical Engineer or Engineer's Representative shall designate the methods of removal of subsurface pipes. Depending upon depth and location, one of the following methods shall be specified:

- The pipe shall be removed, and the trench shall be filled and compacted according to applicable requirements for compacting native soil (Section 3) or fill (Section 5).
- The pipe shall be crushed in the trench, and the trench shall be filled and compacted according to applicable portions of Sections 3 and 5.
- The ends of the pipes shall be capped with concrete to prevent entrance of water. The length of the cap shall be at least 5 feet.

7.2 Any existing wells on the site shall be filled, buried and capped according to the requirements of the local regulatory agency. The final elevation of the top of the well casing shall be a minimum of 36 inches below any adjacent grade at the completion of grading or filling. Under no circumstances should structural foundations be placed over the capped wells.

8. Grading Slopes

8.1 Slopes shall be graded at gradients no steeper than 2:1 (horizontal to vertical) for fill and cut, except as noted in the referenced report.

8.2 After the slopes have been graded, they shall be track-rolled, and provisions shall be made for planting the slopes for erosion control. Drainage facilities shall be constructed to prevent water from flowing over slopes. No slope shall be left to stand through a winter season without erosion control.

9. Installing Subdrains

9.1 For subdrains, the contractor shall provide and install perforated pipe Standard Designation Ratio (SDR) 23.5 or equivalent approved by the Geotechnical Engineer or the Engineer's Representative and filter material for subdrains as shown on the plans or as directed by the Purcell, Rhoades & Associates. The following restrictions apply:

9.1.1 Clay drain tile, concrete drain tile and perforated clay pipe shall not be permitted. Use no wyes, tees, or other joints of these materials.

9.1.2 Porous concrete pipe, perforated asbestos-cement pipe, bituminous fiber or pipe of other materials shall be permitted only on written authorization of the Geotechnical Engineer.

9.1.3 The contractor shall use ½ by 3/4 inch drain rock wrapped within a filter fabric approved by our Geotechnical Engineer, unless otherwise permitted by written authorization from the Geotechnical Engineer.

9.1.4 Unless recommended otherwise by the Geotechnical Engineer or the Engineer's Representative, the contractor shall use pipes not less than 4 inches in diameter for lateral drains up to 50 feet in length. Use pipes of not less than 6 inches in diameter for lateral drains greater than 50 feet in length. Larger minimum pipe diameters may be specified by the Geotechnical Engineer or the Engineer's Representative during construction.

10. Unusual Conditions

10.1 If unusual conditions occur during grading, the Geotechnical Engineer shall be immediately notified for recommendations.

1. For preliminary planning purposes, a 50-foot building restriction setback line should begin at the break in slope located at the downhill end of the shed, with this line extending across the subject lot along a N40°W line. The actual building restriction zone must be identified by a licensed land surveyor and the fault traces and final building restriction line made a part of the Title documents for this site.

2. A reduction in the 50-foot setback zone may be possible, subject to the foundation and framing design of the proposed development. Reinforced mat foundations have been found to resist significant surface ground deformations due to surface fault rupture in some cases. A reduction of the 50-foot building restriction would be subject to a geotechnical foundation investigation and collaboration with a Structural Engineer experienced in this type of earthquake resistant design.

3. Any proposed structures should be designed to withstand severe ground shaking generated by an earthquake on traces of the Hayward fault zone, or from other nearby active faults in the Bay Area. Because of the close proximity of an earthquake source, the site may experience unusually high vertical accelerations and short-term lateral forces during an earthquake on the Hayward fault.

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

Mountain View
Fairfield
Oakland
San Ramon
Fullerton

July 8, 2004
1227-1G

Ms. Margo Layton
BRINGHURST LLC
990 Sycamore Road
Pleasanton, California 94566

RE: GEOTECHNICAL OBSERVATION AND TESTING SERVICES FOR THREE BUILDING PADS ON THE BRINGHURST PROPERTY PLEASANTON, CALIFORNIA

Dear Ms. Layton:

In this letter we summarize the results of our geotechnical observation and testing services for the three building pads of the above referenced project. A report was prepared for the adjacent property by Stevens Ferrone & Bailey titled "Updated Geotechnical Investigation, Sycamore Heights Residential Development, Pleasanton, California," dated February 7, 2003. We performed a review of this report and provided supplemental recommendations in our September 18, 2003 letter.

SCOPE OF WORK

The scope of our services was primarily directed toward part-time observation and testing during the fill placement operations as set forth in our agreement with you dated March 11, 2004. Our services were limited to observing the placement and compaction of approximately 2 to 8 feet of import soil materials within the three building pads (approximately Elevation 421, 426 and 429). As referenced below, compaction tests were determined relative to the maximum dry density and optimum moisture content established by ASTM Test Designation D1557, latest edition. Construction work involving testing services to date is presented below.

1. Clearing of surface and subsurface deleterious materials, including debris, shrubs and associated roots.

2. Compacting fill as well as scarified surface soils in those areas to receive fill to at least 90 percent relative compaction.

SERVICES PERFORMED

Our field observation and testing services for the site began March 11, 2004. Compaction of imported material was completed by March 22, 2004, the date of our last requested site visit.

During the above period one of our field representatives was present on an on-call basis to provide field observations and testing services of the site work. A total of 27-field density tests were performed at various locations and elevations within the split-level pad. The locations of these field density tests were described in our Daily Field Reports Nos. 1 through 7, beginning March 11 and ending March 22, 2004. These tests were performed to check conformance with the fill recommendations of our geotechnical report for the adjacent

2258 Camino Ramon San Ramon, CA 94583-1353 Tel: 925.275.2550 Fax: 925.275.2555
E-mail: mail@lowney.com http://www.lowney.com

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property. Laboratory testing consisted of four compaction curve tests that were conducted for the import soils used as fill at the site. Records of the field density tests and laboratory testing are kept in our files for a period of three years after completion of the project and are available for your review.

MEANING OF "OBSERVATION"

"Observation", as used in this document, means that we observed the progress of the work on an intermittent basis, and performed tests on selected soil and rock materials. Our opinion about the general conformance of geotechnical aspects of construction to our compaction recommendations is based on these observations and test results.

CONCLUSIONS

Based on our field observations and test results, it is our opinion that the geotechnical aspects of the fill placement for the three building pads that we observed and tested have been performed in general conformance with our compaction recommendations within the geotechnical report for the adjacent property. Please note that Lowney Associates did not test the compaction of the on-site materials below the import fill or materials outside of the three building pads; nor did Lowney Associates provide any other recommendations or opinions regarding the subsurface conditions on the site.

Our services were performed in accordance with geotechnical engineering principles generally accepted at this time and location; we make no other warranty, expressed or implied.

If you have any questions concerning our observations, test results, or opinions, please call and we will be glad to discuss them with you.

Very truly yours,

LOWNEY ASSOCIATES

Kent M. Screechfield
Assistant Manager, Construction Services

John R. Dye, P.E., G.E.
Senior Project Engineer

KMS:JRD:jcm

Copies: Addressee (2)

SR/1227-1G Bringhurst pad 070804.doc

LOWNEYASSOCIATES Daily Field Report

Environmental / Geotechnical / Engineering Services

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☐ Oakland Tel: 510.267.1970 Fax: 510.267.1972
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Job No.	1227-1G
Page	1 of 3
Project	Bringhurst Property
Client	Bringhurst LLC
Report No.	1
Location	Pleasanton, CA
Grading or Excavation Contractor	De Silva Gates
Date	3/11/04
Day of Week	Thursday
General Contractor	Summerhill Homes
Contractor's Foreman	John Rhoades
Eng. Tech	PJF
Assistants	--
General Contractor's Superintendent	Mike McCall
Specialty Contractor	
Contractor's Foreman	
Source and Description of Fill Material	Curve 7: Orange brn silt w/clay and gravel (125.0 @ 9.0%)
Weather	Clear warm
Time	4:30 PM

Test Number	Test Location	Elevation	Reference Compaction Curve	Relative Compaction (percent)	Fill Moisture (percent)	Optimum Moisture Content	Pass/Fail	Comments
1	See attached plan	~417	7	85	17.3	9.0	F	Near Sycamore Creek RD
1A	See attached plan	~417	7	93	13.9	9.0	P	Near Sycamore Creek RD
2	See attached plan	~420	7	90	12.8	9.0	P	Near Sycamore Creek RD
3	See attached plan	~418	7	93	13.7	9.0	P	Near Sycamore Creek RD
4	See attached plan	~420	7	90	13.9	9.0	P	Near Sycamore Creek RD

- DeSilva Gates began placing fill in the Northwest portion of the property. A D8 dozer was used to remove the nine tree stumps. The tree stumps were pushed aside for future off haul from the site. The soils of the fill area were ripped and processed to incorporate the strippings into the existing soils. It appeared to me that the organic content of the soils was at or under the acceptable limit of 3% (by weight per cubic foot). While the D8 dozer was stripping the surface vegetation, an area was uncovered that contained very wet soils. An excavator removed the wet soils from about a 40 foot diameter area to a depth of about 3 ½ feet below original grade elevation. Firm and unyielding soils were encountered at about 3 ½ feet below original grade. Once the soils were removed, ground water began to percolate into the hole. Two Cat 623 paddle wheel scrapers cut soils from Lots 28 and 35 of the Summerhill (Sycamore Heights) project. The soils were placed to fill the excavated area. The percolated water did not seem to affect the fill soils as a bridging layer was placed. The scrapers continued fill operations, placing soils into the portion of the property that borders Sycamore Creek Road to about 50 feet to the south (see plan). The soils were spread into 6 to 8-inch lifts and compacted by a Cat 825G sheepsfoot compactor. I tested the relative compaction of the fill soils in five locations, including on retest. The results are shown above.

Follow-up from prior report ☒ Yes ☐ No

[signature] 3/11/04

What should be observed, checked, or tested during the next visit:

The DFR is preliminary ☒ This DFR is final ☐ Continued on next page ☒

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Job No. 1227-1G	Page 1 of 3		
Project: Bringhurst Property	Client: Bringhurst LLC	Report No. 2	
Location: Pleasanton, CA	Grading or Excavation Contractor: De Silva Gates	Date: 3/12/04	Day of Week: Friday
General Contractor: Summerhill Homes	Contractor's Foreman: John Rhoades	Eng. Tech: PJF	Assistants: --
General Contractor's Superintendent: Mike McCall	Specialty Contractor:	Contractor's Foreman:	

Source and Description of Fill Material Curve 7: Orange brown silt w/clay and gravel(125.0 @ 9.0%)

Curve 3: Brown silty clay (116.0 at 11.5%)

Weather Clear warm **Time** 4:30 PM

Test Number	Test Location	Elevation	Reference Compaction Curve	Relative Compaction (percent)	Fill Moisture (percent)	Optimum Moisture Content	Pass/Fail	Comments
5	See attached plan	~426	7	93	11.4	9.0	P	Near Sycamore Creek RD
6	See attached plan	~428	3	96	19.1	11.5	P	Near Sycamore Creek RD
7	See attached plan	~430	7	95	14.2	9.0	P	Near Sycamore Creek RD
8	See attached plan	~423	7	96	14.5	9.0	P	Near Sycamore Creek RD

- DeSilva Gates continued placing fill in the Northwest portion of the property; and began placement of fill in the southeast part of the property. The soils of the fill area were ripped and processed to incorporate the strippings into the existing soils. It appeared to me that the organic content of the soils was at or under the acceptable limit of 3% (by weight per cubic foot). Some small soft wet areas were encountered while the D8 dozer was stripping the surface vegetation. The soft soils were removed from the areas. The soils were spread across the site in a thin layer to allow them to dry. Firm and unyielding soils were encountered at about 2 feet below original grade. Once the soils were removed, dry soils were track walked to backfill the areas. Two Cat 623 paddle wheel scrapers cut soils from Lots 28, 35, and the cut slope of lot 45 of the Summerhill (Sycamore Heights) project. The soils were placed as fill in 6 to 8 inch lifts and compacted by a Cat 825 sheepsfoot compactor. Initially the fill soils appeared to pump slightly, but appeared to heal as the fill soils were placed. I tested the relative compaction of the fill soils in four locations. The results are shown above.

Peter [signature] 3/12/04

Follow-up from prior report ☒ Yes ☐ No

What should be observed, checked, or tested during the next visit:

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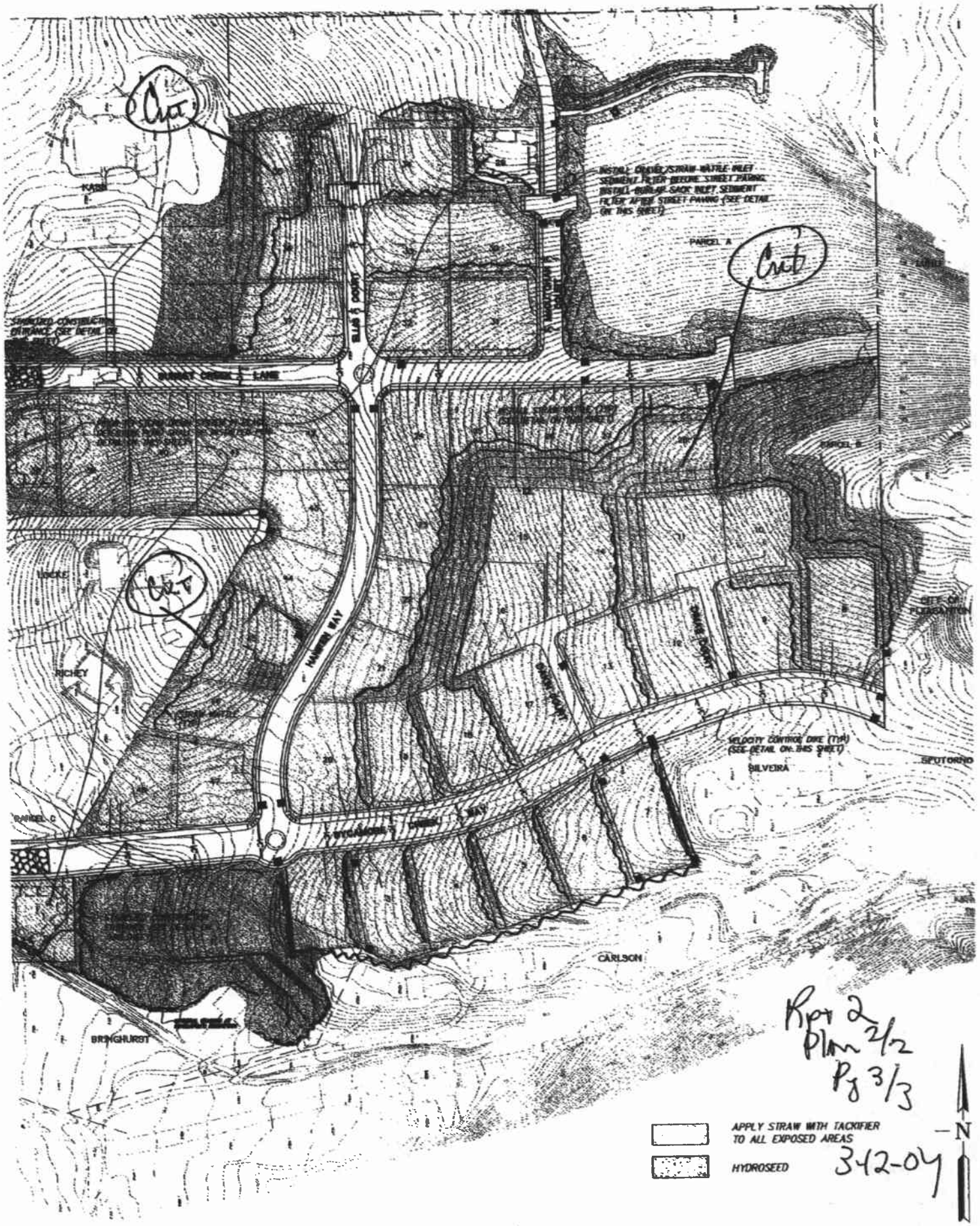
Masters/DFR10.doc


SYCAMORE CREEK WAY
P436.0
FILL AREA
417.6
418.3
414.7
414.2
416.3
417.0
414.7
FL 416.5
Rpr 2
Plat 1/2
Pg 213
312.0


Cut
Cut
Cut
INSTALL GRAVEL/STRAW BATTLE INLET SEDIMENT FILTER BEFORE STREET PAVING. INSTALL BURLAP SACK INLET SEDIMENT FILTER AFTER STREET PAVING (SEE DETAIL ON THIS SHEET)
PARCEL A
PARCEL B
PARCEL C
HARBOR BAY
BRIGHT CREEK LANE
RICHEY
SILVEIRA
CARLSON
BRIGHURST
VELOCITY CONTROL DIKE (TYP) (SEE DETAIL ON THIS SHEET)
APPLY STRAW WITH TACKIFIER TO ALL EXPOSED AREAS
HYDROSEED
N
Rpt 2
Plan 2/2
Pg 3/3
342-04
6" WOOD
@ 4' O.C.
EXTEND AND CONNECT PIPE TO NEARBY EX R

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Job No.	Page
1227.16	1 of 3

Project Bringhurst Property	**Client** Bringhurst LLC	**Report No.** 3	
Location Pleasanton, CA	**Grading or Excavation Contractor** De Silva Gates	**Date** 3/15/04	**Day of Week** Monday
General Contractor Summerhill Homes	**Contractor's Foreman** John Rhoades	**Eng. Tech** PJF	**Assistants** --
General Contractor's Superintendent Mike McCall	**Specialty Contractor**	**Contractor's Foreman**	
Source and Description of Fill Material	Curve 7: Orange brn silt w/clay and gravel (125.0 @ 9.0%)		

Weather Clear warm **Time** 4:30 PM

Test Number	Test Location	Elevation	Reference Compaction Curve	Relative Compaction (percent)	Fill Moisture (percent)	Optimum Moisture Content	Pass/Fail	Comments
9	See Plan	~426	7	93	12.6	9.0	P	
10	See Plan	~432	7	94	13.8	9.0	P	
11	See Plan	~423	7	93	13.4	9.0	P	
12	See Plan	~424	7	95	14.2	9.0	P	
13	See Plan	~423	7	96	12.9	9.0	P	

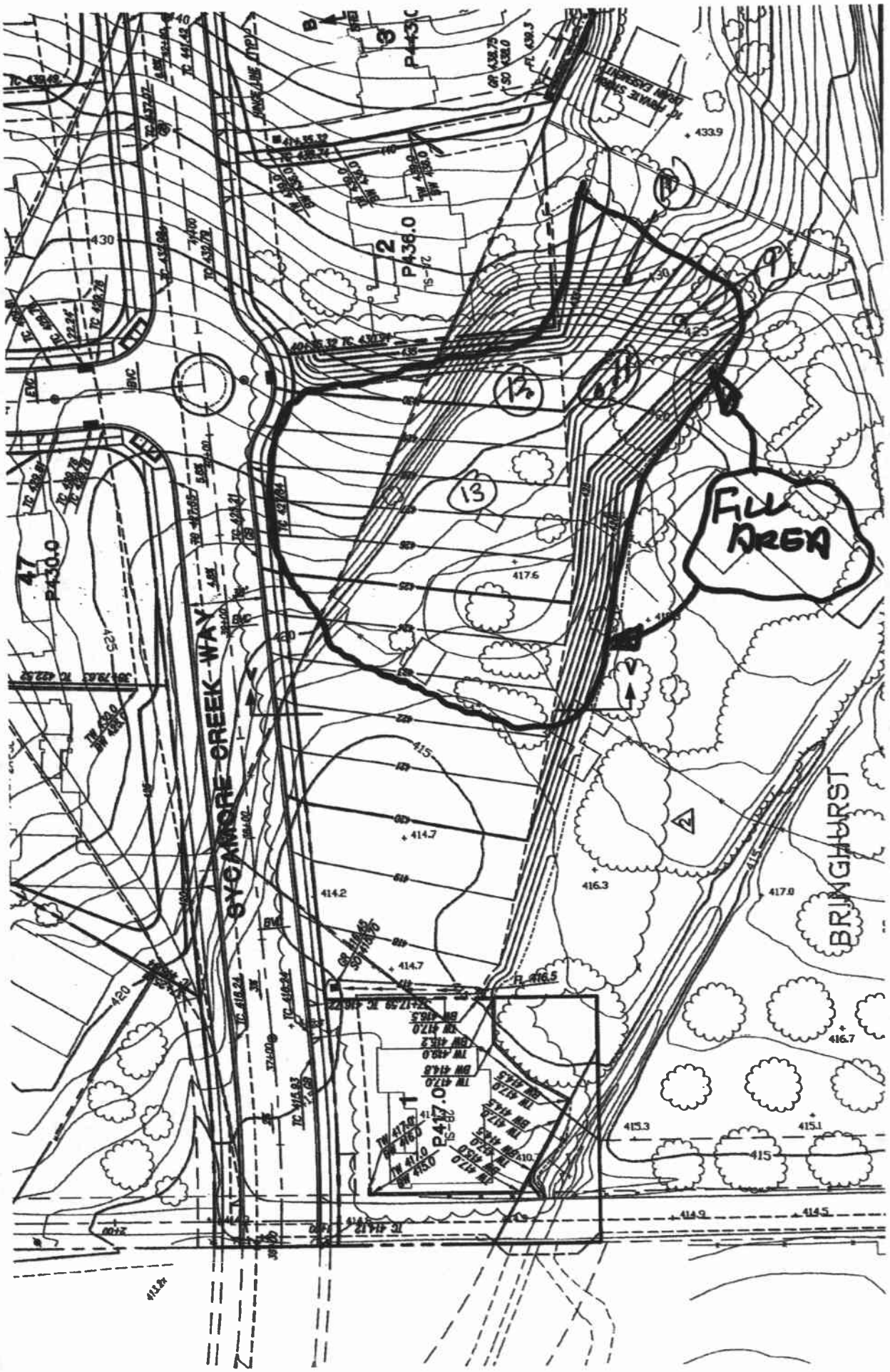
-DeSilva Gates continued placement of fill soils in the Northwest portion of the property and the southeast part of the property; and began placement of soils in the remainder of the site. The soils of the fill area were ripped and processed to incorporate the strippings into the existing soils. It appeared to me that the organic content of the soils was at or under the acceptable limit of 3% (by weight per cubic foot). Two Cat 623 paddle wheel scrapers cut soils from Lots 28 and 35 of the Summerhill (Sycamore Heights) project. The soils were placed as fill in 6 to 8 inch lifts and compacted by a Cat 825 sheepsfoot compactor. I tested the relative compaction of the fill soils in 5 locations. The results are shown above.

Pete K
3-15-04

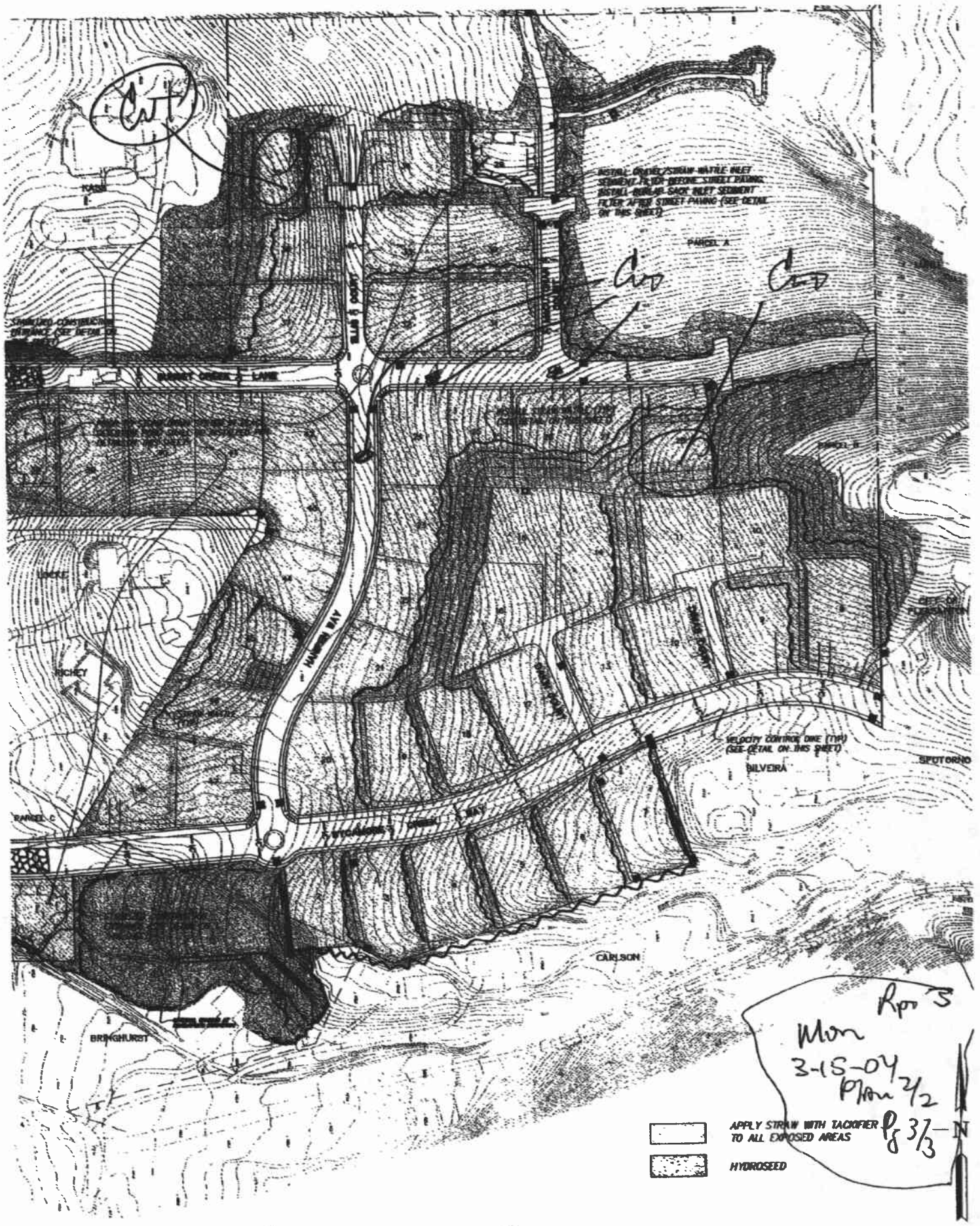
Follow-up from prior report ☒ Yes ☐ No

What should be observed, checked, or tested during the next visit:

The DFR is preliminary ☒ **This DFR is final** ☐ **Continued on next page** ☒



Rpt 3
3-15-04
Plan 1/2
Pg 2/3


INSTALL GRAVEL/STRAW WATTLE INLET SEDIMENT FILTER BEFORE STREET PAVING. INSTALL BURLAP SACK INLET SEDIMENT FILTER AFTER STREET PAVING (SEE DETAIL ON THIS SHEET)
PARCEL A
PARCEL B
PARCEL C
HAMPTON BAY
VELOCITY CONTROL DIKE (TYP) (SEE DETAIL ON THIS SHEET)
SILVEIRA
SPOTORNO
CARLSON
BRINGHURST
APPLY STRAW WITH TACIFIER TO ALL EXPOSED AREAS
HYDROSEED
EXTEND AND CONNECT PIPE TO NEARBY EX R

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Job No. 1227-16 | Page 1 of 3

Project: Bringhurst Property	Client: Bringhurst LLC	Report No.: 4
Location: Pleasanton, CA	Grading or Excavation Contractor: De Silva Gates	Date: 3/16/04 — Day of Week: Tuesday
General Contractor: Summerhill Homes	Contractor's Foreman: John Rhoades	Eng. Tech: PJF — Assistants: --
General Contractor's Superintendent: Mike McCall	Specialty Contractor:	Contractor's Foreman:

Source and Description of Fill Material: Curve 4: Brn silty clay/brn gravely sandy clay (124.0 at 10.5%); Curve 6: Orange brn silty clay w/gravel (130.0 at 8.5%)

Weather: Clear warm — Time: 4:30 PM

Test Number	Test Location	Elevation	Reference Compaction Curve	Relative Compaction (percent)	Fill Moisture (percent)	Optimum Moisture Content	Pass/Fail	Comments
14	See Plan	~418.5	4	93	16.0	10.5	P	
15	See Plan	~423	4	95	14.4	10.5	P	
16	See Plan	~426	4	92	19.2	10.5	P	
17	See Plan	~428	6	98	11.8	8.5	P	

-DeSilva Gates continued placement of fill soils across the site. Two Cat 623 paddle wheel scrapers cut soils from The Kass Property and some of the trimmings from Hanifen Way and Sunset Creek Lane. The soils were placed in 6 to 8 inch lifts and compacted by a Cat 825 sheepsfoot compactor. I tested the relative compaction of the fill soils in four locations. The results are shown above.

[signature] 3-16-04

Follow-up from prior report ☒ Yes ☐ No

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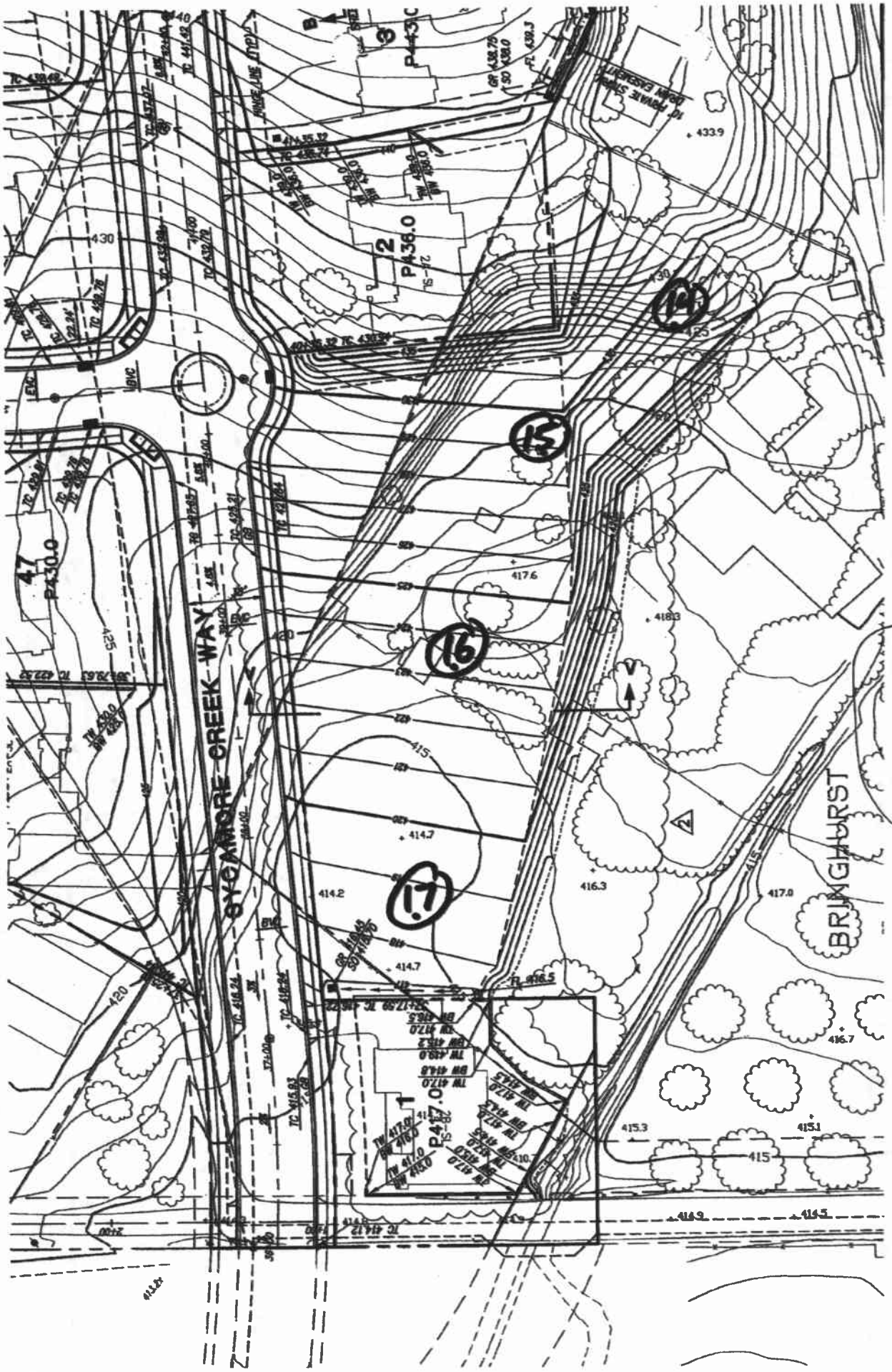
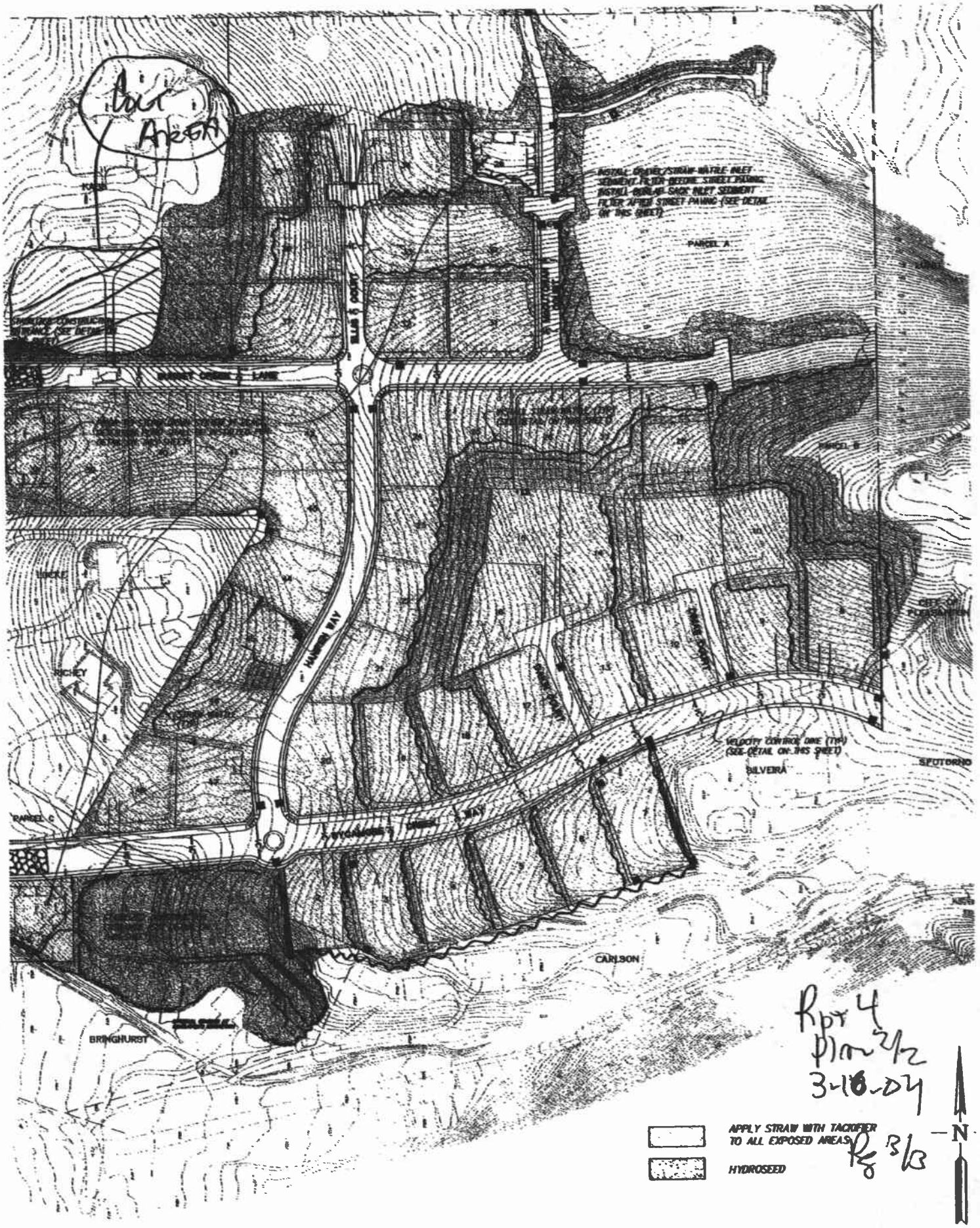


Rpt 4
Plan 1/2
3-18-04
Pg 2/3



Rpt 4
Plan 2/2
3-18-04
RB 3/8

6" WOOD
1.4 ac

EXTEND AND CONNECT PIPE TO NEARBY EX R—

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Environmental / Geotechnical / Engineering Services

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Job No.	Page
122716	1 of 3

Project: Bringhurst Property	Client: Bringhurst LLC	Report No.: 5	
Location: Pleasanton, CA	Grading or Excavation Contractor: De Silva Gates	Date: 3/17/04	Day of Week: Wednesday
General Contractor: Summerhill Homes	Contractor's Foreman: John Rhoades	Eng. Tech: PJF	Assistants: --
General Contractor's Superintendent: Mike McCall	Specialty Contractor	Contractor's Foreman	

Source and Description of Fill Material: Curve 4: Brn silty clay/brn gravely sandy clay (124.0 at 10.5%)

Weather: Clear warm Time: 4:30 PM

Test Number	Test Location	Elevation	Reference Compaction Curve	Relative Compaction (percent)	Fill Moisture (percent)	Optimum Moisture Content	Pass/Fail	Comments
18	See Plan	~434	4	92	14.8	10.5	P	
19	See Plan	~431	4	91	13.8	10.5	P	
20	See Plan	~427	4	90	14.4	10.5	P	
21	See Plan	~424	4	91	15.2	10.5	P	

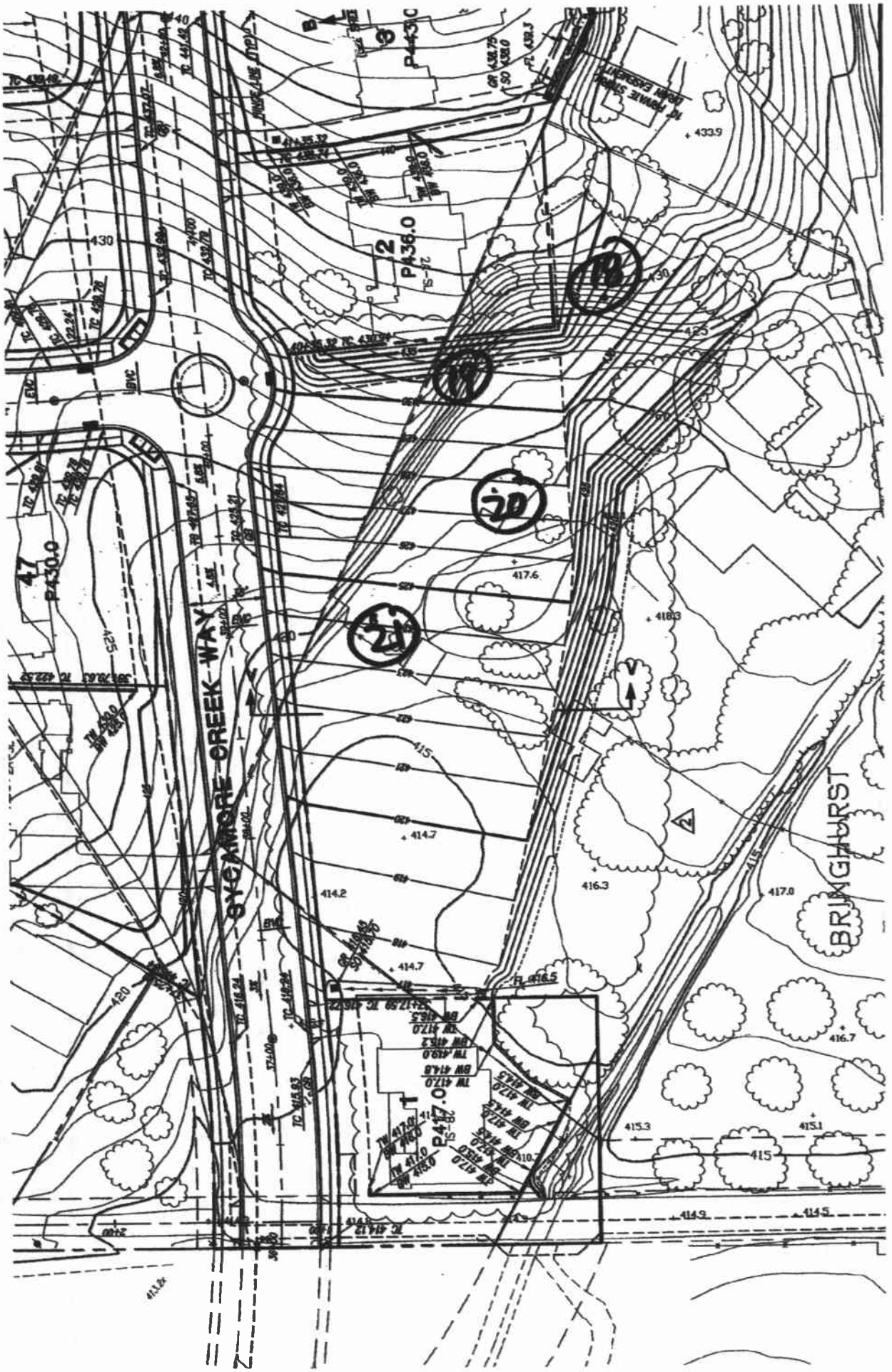
-DeSilva Gates continued placement of fill soils across the site. Three Cat 623 paddle wheel scrapers continued to cut soils from The Kass Property. The soils were placed in 6 to 8 inch lifts and compacted by a Cat 825 sheepsfoot compactor. I tested the relative compaction of the fill soils in four locations. The results are shown above.

PJF 3-17-04

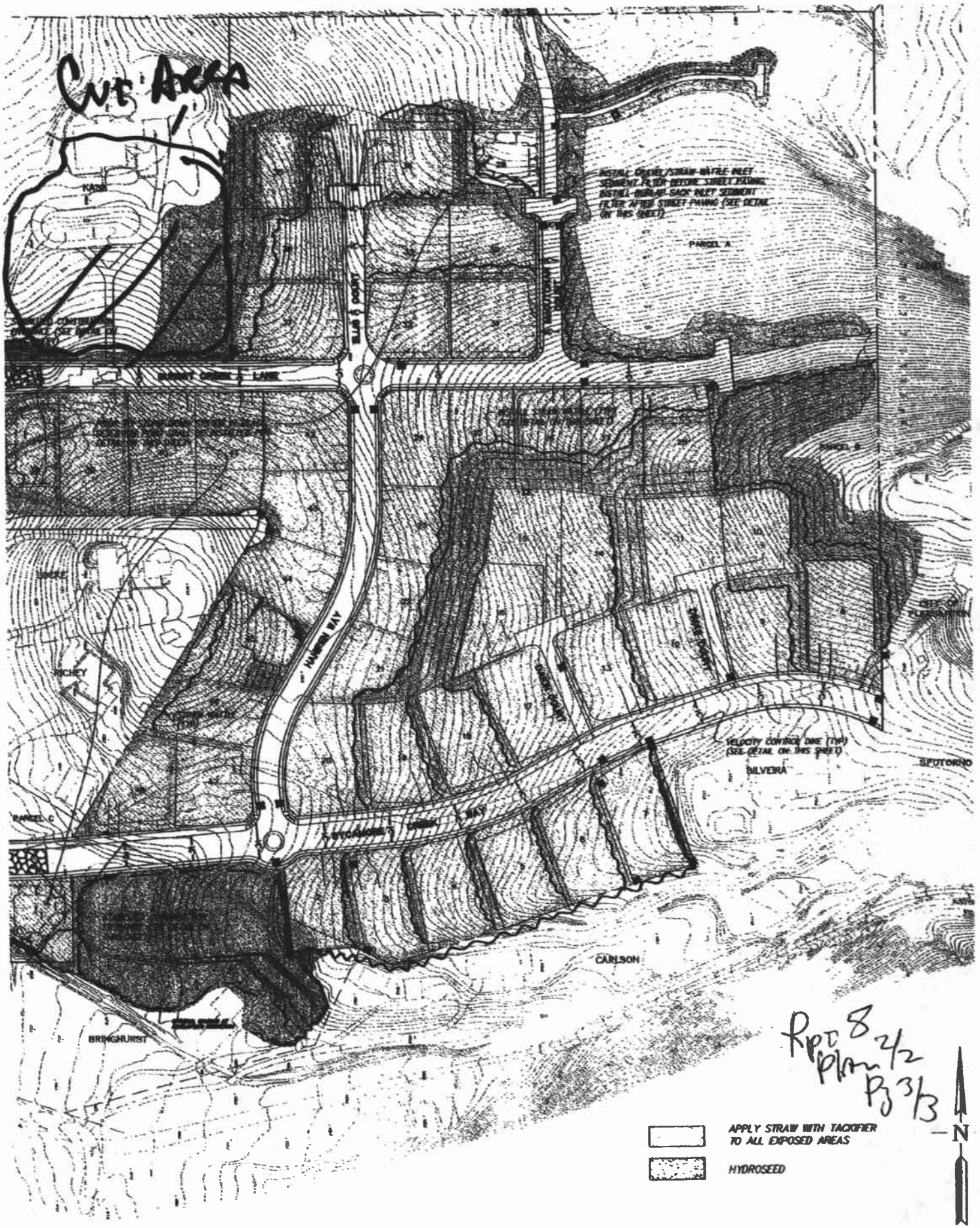
Follow-up from prior report ☒ Yes ☐ No

What should be observed, checked, or tested during the next visit:

The DFR is preliminary ☒ This DFR is final ☐ Continued on next page ☒



Rpt 5
3-17-04
Plan 1/2
Pg 2/3



Rpt 8 2/2
Plan Pg 3/3

LOWNEY ASSOCIATES Daily Field Report

Environmental / Geotechnical / Engineering Services

☐ Mountain View Tel: 650.967.2365 Fax: 650.967.2785
☒ San Ramon Tel: 925.275.2550 Fax: 925.275.2555
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☐ Fullerton Tel: 714.441.3090 Fax: 714.441.3091

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Project Bringhurst Property	**Client** Bringhurst LLC	**Report No.** 6	
Location Pleasanton, CA	**Grading or Excavation Contractor** De Silva Gates	**Date** 3/18/04	**Day of Week** Thursday
General Contractor Summerhill Homes	**Contractor's Foreman** John Rhoades	**Eng. Tech** PJF	**Assistants** --
General Contractor's Superintendent Mike McCall	**Specialty Contractor**	**Contractor's Foreman**	
Source and Description of Fill Material	Curve 4: Brown silty clay/brown gravely sand (125.0 at 10.5%)		

Weather Clear warm **Time** 4:30 PM

Test Number	Test Location	Elevation	Reference Compaction Curve	Relative Compaction (percent)	Fill Moisture (percent)	Optimum Moisture Content	Pass/Fail	Comments
22	See Plan	~430.5	4	90	11.8	10.5	P	
23	See Plan	~426.1	4	90	14.6	10.5	P	
24	See Plan	~423.1	4	92	14.2	10.5	P	
25	See Plan	~419.2	4	91	15.1	10.5	P	

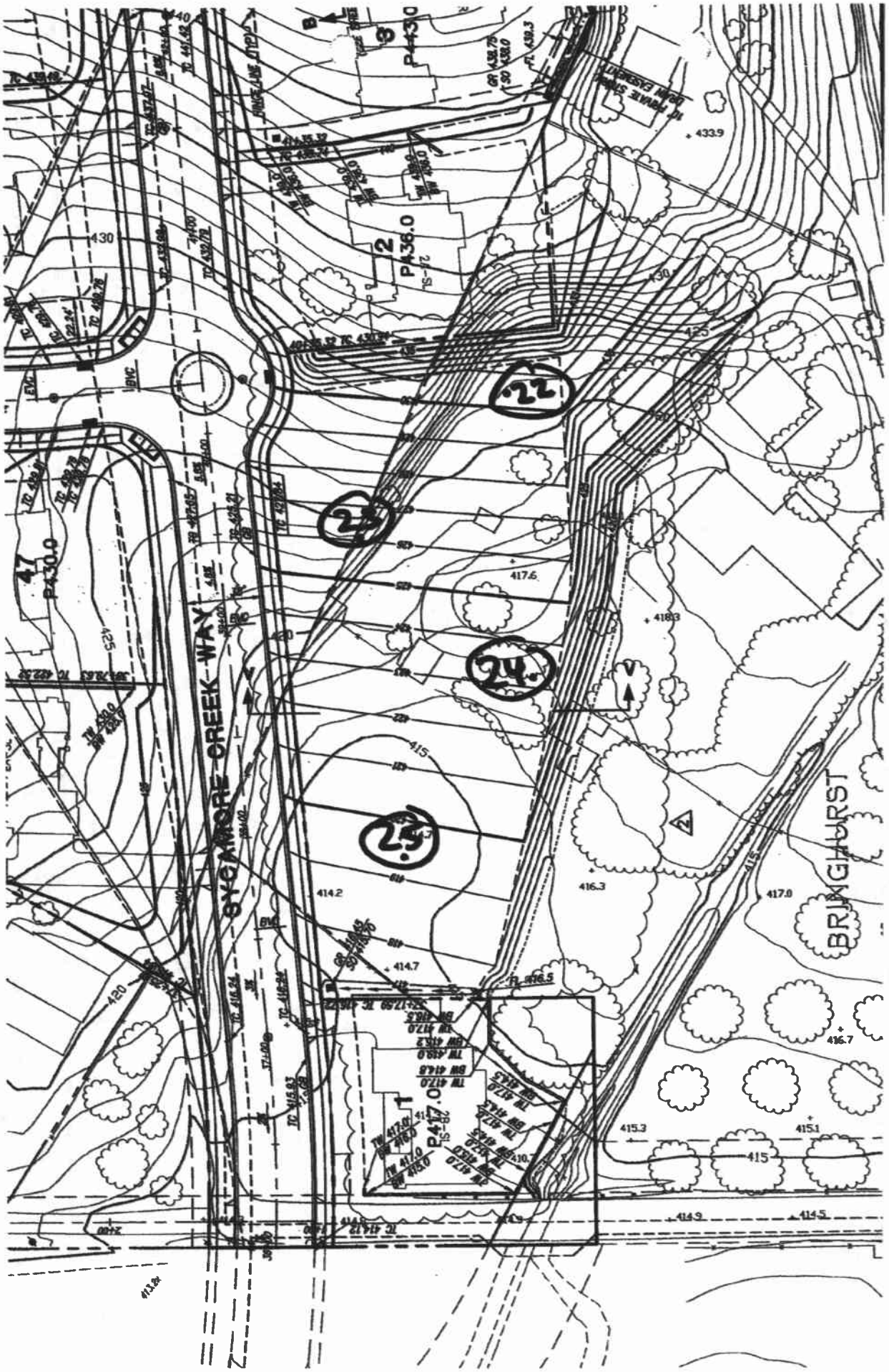
- DeSilva Gates continued placement of fill soils across the site. Apparently the grade was raised about a foot across the entire site. Three Cat 623 paddle wheel scrapers continued to cut soils from The Kass Property. The soils were placed in 6 to 8 inch lifts and compacted by a Cat 825 sheepsfoot compactor. I tested the relative compaction of the fill soils in four locations. The results are shown above.

3-18-04

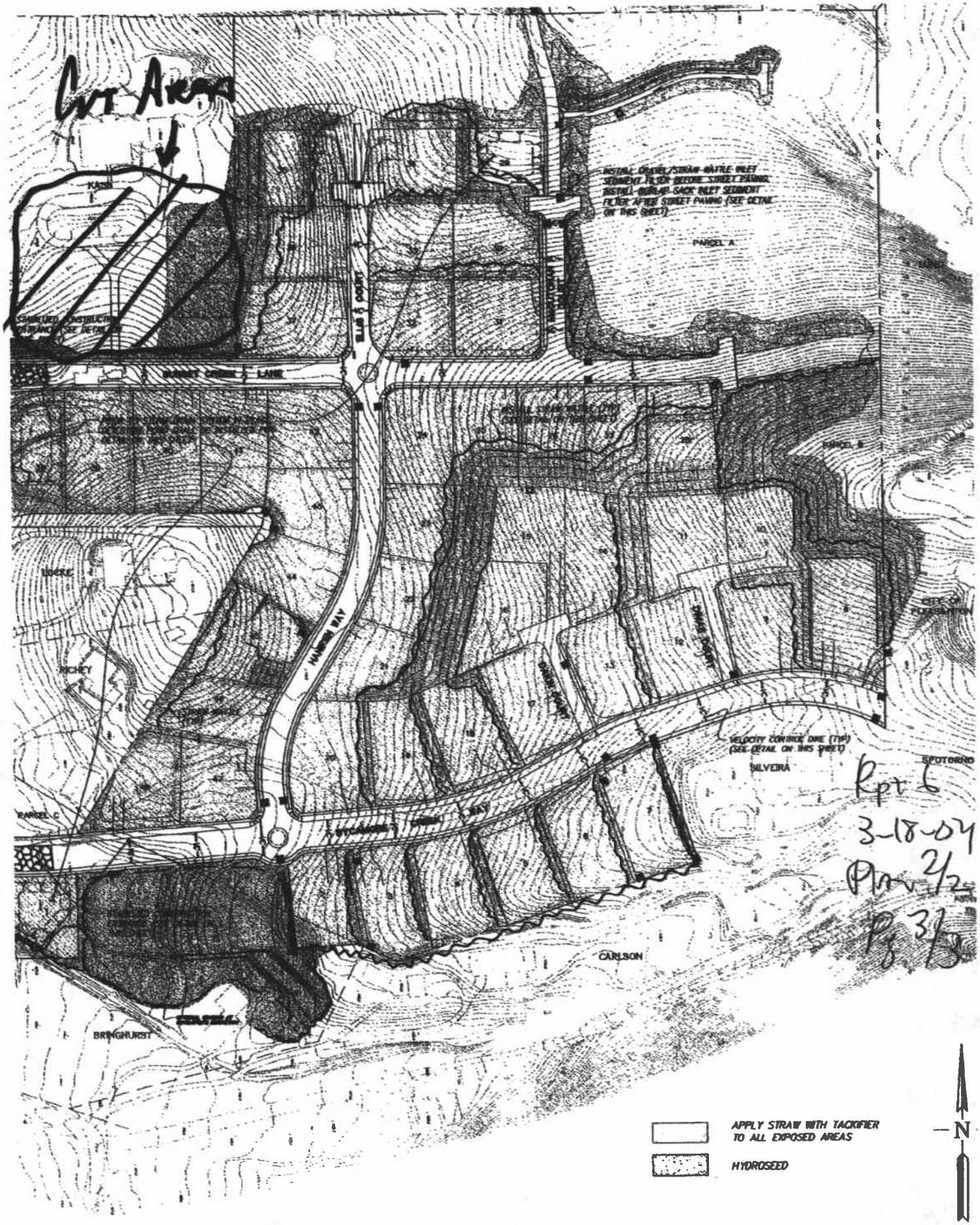
Follow-up from prior report ☒ Yes ☐ No

What should be observed, checked, or tested during the next visit:

The DFR is preliminary ☒ **This DFR is final** ☐ **Continued on next page** ☒



Rpo 6
3-18-04
Plan 1/2
Pg 2/3



Rpt 6
3-18-04
Plan 2/2
Pg 3/3

4" WOOD
T & G.C.

EXTEND AND CONNECT PIPE TO NEARBY EX R

LOWNEY ASSOCIATES
Environmental / Geotechnical / Engineering Services

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☐ Fullerton Tel: 714.441.3090 Fax: 714.441.3091

Daily Field Report

Job No.	Page
1227-1G	1 of 2

Project Bringhurst Property	**Client** Bringhurst LLC	**Report No.** 7	
Location Pleasanton, CA	**Grading or Excavation Contractor** De Silva Gates	**Date** 3/22/04	**Day of Week** Monday
General Contractor Summerhill Homes	**Contractor's Foreman** Biff	**Eng. Tech** RAM	**Assistants** —
General Contractor's Superintendent Mike McCall	**Specialty Contractor**	**Contractor's Foreman**	

Source and Description of Fill Material Curve 6: Orange Brown silty clay with gravel (130.0 at 8.5%)

Weather Clear warm **Time** 4:30 PM

Test Number	Test Location	Elevation	Reference Compaction Curve	Relative Compaction (percent)	Fill Moisture (percent)	Optimum Moisture Content	Pass/Fail	Comments
26	See Plan	~429	6	89	12.4	8.5	F	
26A	See Plan	~429	6	91	11.1	8.5	P	Retest
27	See Plan	~429	6	91	10	8.5	P	

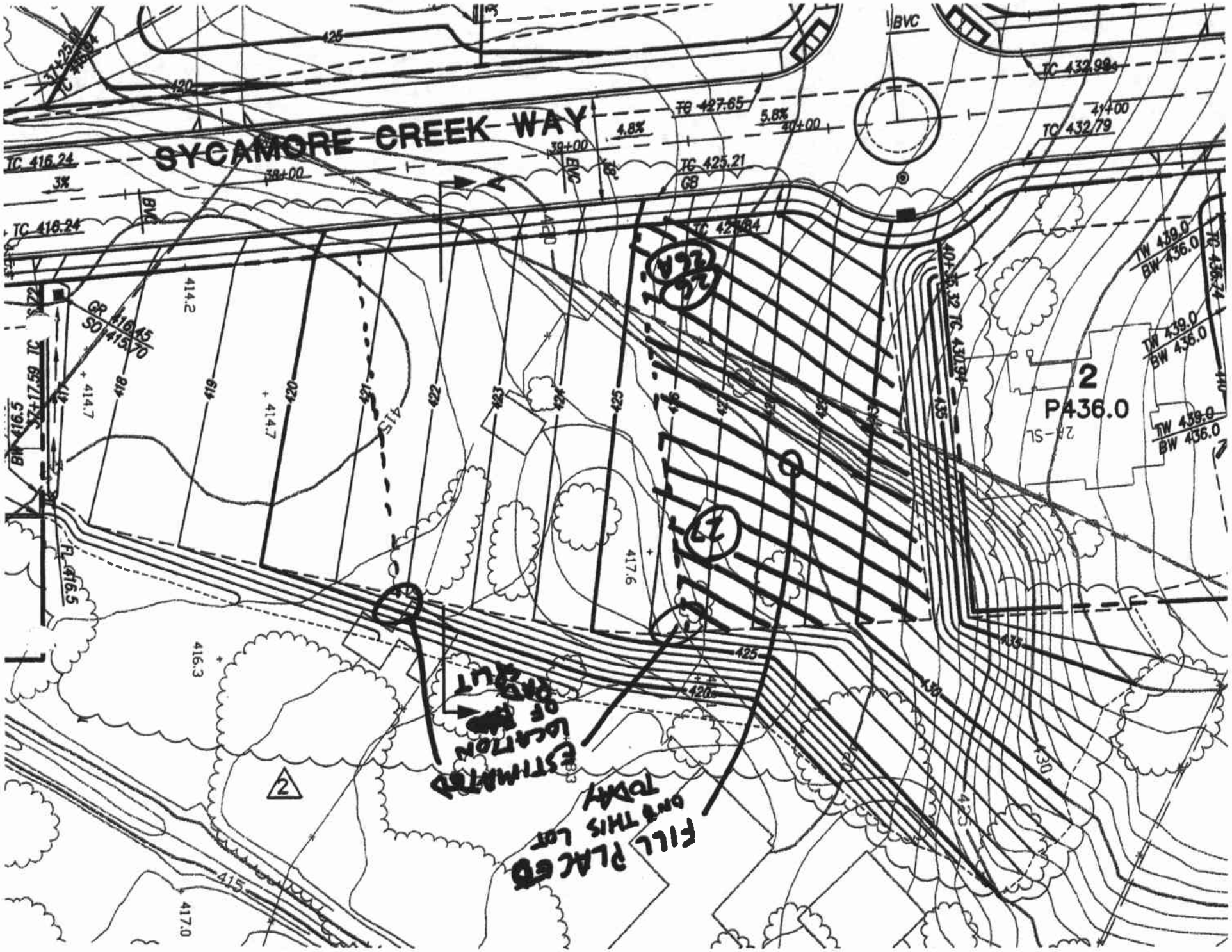
- DeSilva Gates continued placement of fill soils across the site. Apparently the grade has been raised to create three pads that step up in elevation from Lot 1 of the adjacent Sycamore Heights site. The grade checker told me that the planned finish grade on the lot I tested would be EL. 431 (see attached site plan). Two Cat 623 paddle wheel scrapers cut soils from the Kass Property and occasionally from Sunset Creek Lane. The soils were placed in 6 to 8 inch lifts and compacted by a Cat 825 sheepsfoot compactor. I tested the relative compaction of the fill soils in two locations. The results are shown above.

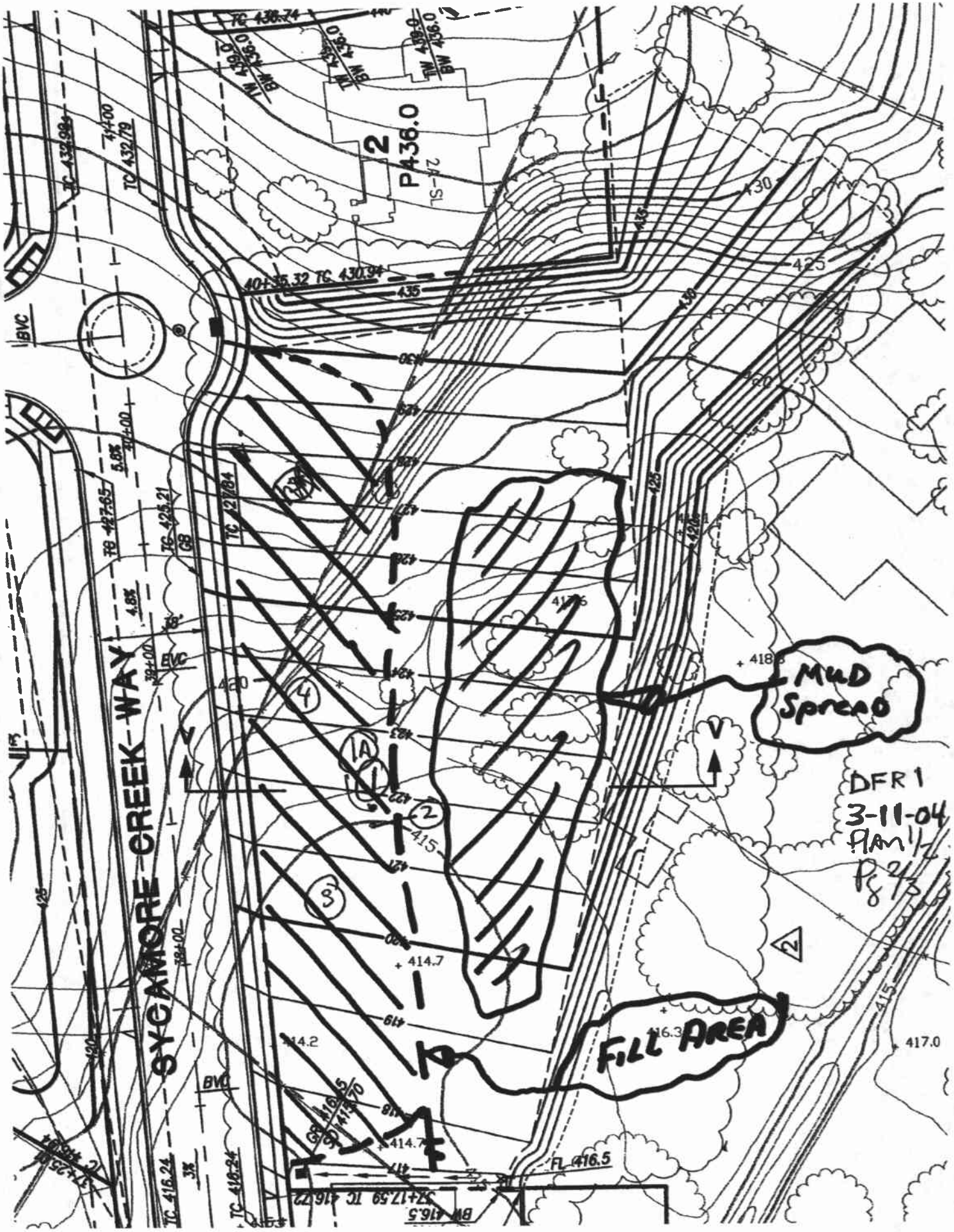
Ron Munroe

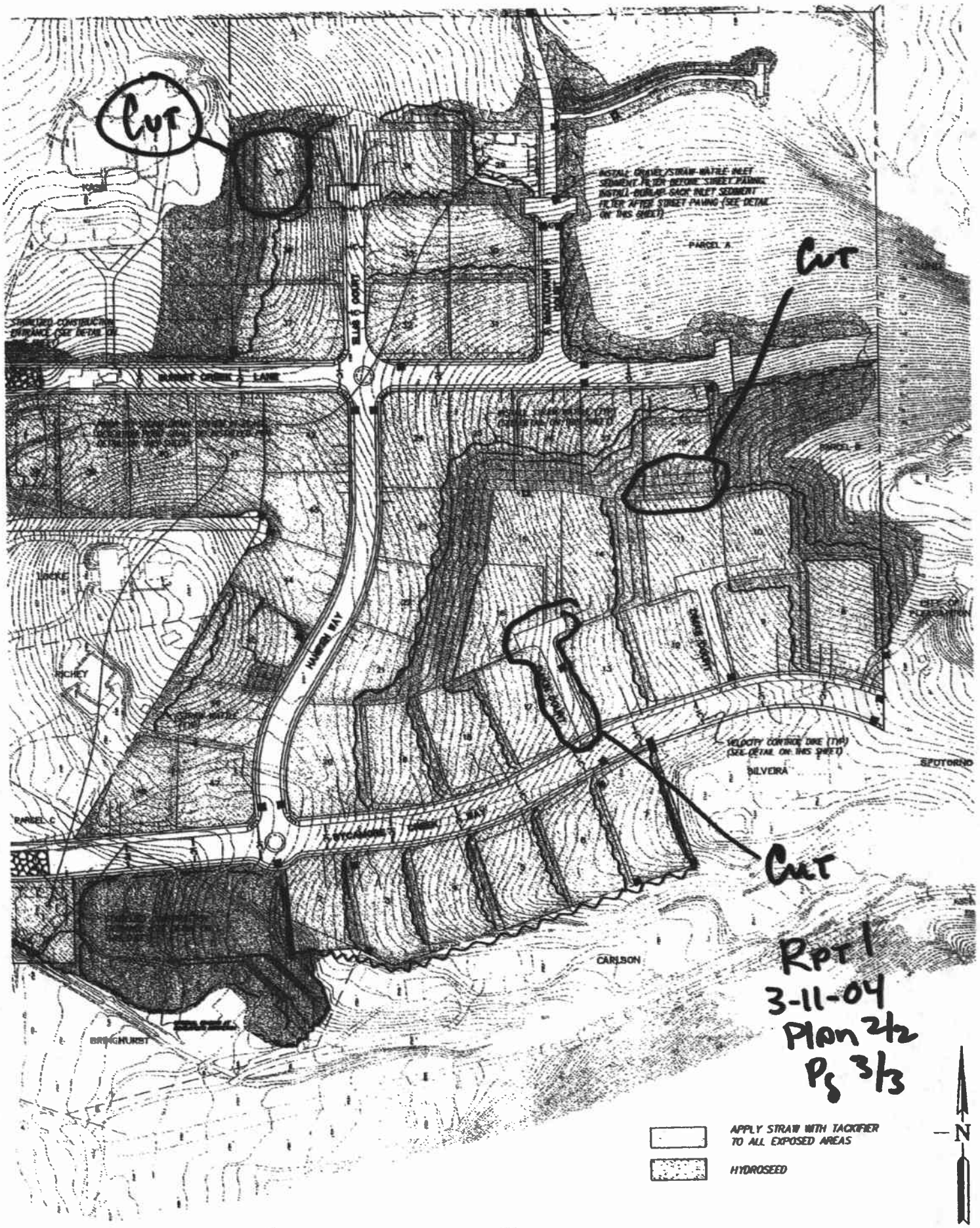
Follow-up from prior report ☒ Yes ☐ No

What should be observed, checked, or tested during the next visit:

The DFR is preliminary ☒ **This DFR is final** ☐ **Continued on next page** ☒


SYCAMORE CREEK WAY
TC 416.24
3%
TC 427.65
4.8%
5.8%
TC 432.99
TC 432.79
TC 425.21
GB
BVC
EVC
TC 416.24
TC 427.84
TW 439.0
BW 436.0
TC 436.24
TC 430.94
2
P436.0
2A-SL
TW 439.0
BW 436.0
TW 439.0
BW 436.0
GB
SD
416.45
415.70
BW 416.5
TC
FL 416.5
414.2
414.7
414.7
417.6
416.3
417.0
415
420
425
430
435
ESTIMATED LOCATION OF SHED
FILL PLACED ON THIS LOT TODAY


SYCAMORE CREEK WAY
MUD Spread
FILL AREA
DFR 1
3-11-04
Plan 1
Pg 2/3
P436.0
2-SL
BVC
EVC
FL 416.5
414.7
414.2
416.3
417.0



RPT 1
3-11-04
Plan 2/2
Ps 3/3

SYCAMORE CORNER HOUSING DESIGN GUIDELINES

Sycamore Corner includes five lots. All the lots have water and sanitary sewer hook-ups. The guidelines below describe the type of housing we envision on the lots. Additional guidelines or plans shall be provided if required by City Staff in a subsequent application. Landscape and drainage plans will be submitted at that time as well.

HOUSING DESIGN GUIDELINES FOR LOT 1

Proposed agricultural Lot 1 will have a similar feel to its neighbors along Sycamore Road. There are no curbs, gutters or sidewalks; only a soft shoulder. The homes and yards vary but have an overall rural feel. Because of the City's requirement to have one owner for the creek, Lot 1 is less than a full acre. At 33,602 SF, Lot 1 will generally follow the City of Pleasanton's guidelines for R-1-40,000 zoning district. However, the odd shape of this lot makes it difficult to follow the R-40,000 setbacks exactly, so some modifications are needed.

Allowable Building Floor Area

The FAR for Lot 1 is 27%.

Setbacks for Primary Structures

- Front setback from Sycamore Road = 30 ft min
- Rear setback = 30 ft min
- Side setback = 5 ft min on one side and 40 ft total of both sides
- Garage setback from utility easement = 15 ft min
- Building setback from utility easement = 10 ft min

Setbacks for Accessory Structures

- Rear setback = 20 ft min
- Side setback = 5 ft min

Height Limitations

In accordance with the City of Pleasanton Zoning Ordinance, the maximum height of homes or accessory structures are as follows:

- Primary Residence = 30 ft max height
- Accessory Structure = 15 ft max height

Garage

The garage for Lot 1 should be designed to minimize the visibility of the garage doors from the street. The garage door may be angled at 90 degrees, relative to Sycamore Road or set back further on the lot to avoid interference with the appearance of the front elevation of the house. Two guest parking spaces will be located in an area that will not prevent access to the covered parking space.

Mailbox

The mailbox shall be consistent with those of the neighboring homes to the West on the North side of Sycamore Road.

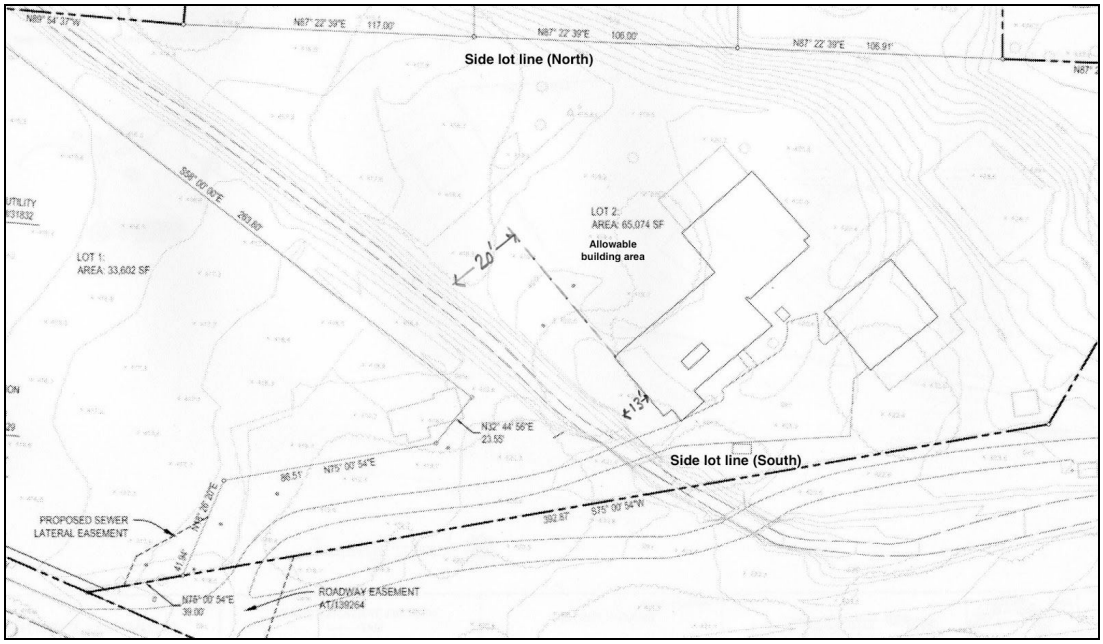
HOUSING DESIGN GUIDELINES FOR LOT 2

Proposed agricultural Lot 2 will have a similar feel to its neighbors along Sycamore Road. The homes and yards vary but have an overall rural feel. Access to the property is over an existing easement from its neighbor to the South. The existing home on Lot 2 is set well back from Sycamore Road. Lot 2 will generally follow the City of Pleasanton's guidelines for R-1-40,000 zoning district. However, the channel/creek and the slope in the back yard mean some modifications are needed.

Allowable Building Floor Area: The FAR for Lot 2 is 25%.

Setbacks for Primary Structures

- **Front setback:** With access through a flag lot driveway, the setback from the front lot line is less relevant than the setback from the channel/creek. The existing home is approximately 13' from the top of bank at it closest point. The distance of the house from the creek increases from there. The existing home, plus additional allowance for an addition to the house is to be grandfathered in along this same trajectory.



- **Rear setback** = 30 ft min
- **Side setback** = 5 ft min on one side and 50 ft total of both sides

Setbacks for Accessory Structures

- Rear setback = 20 ft min
- Side setback = 20 ft min

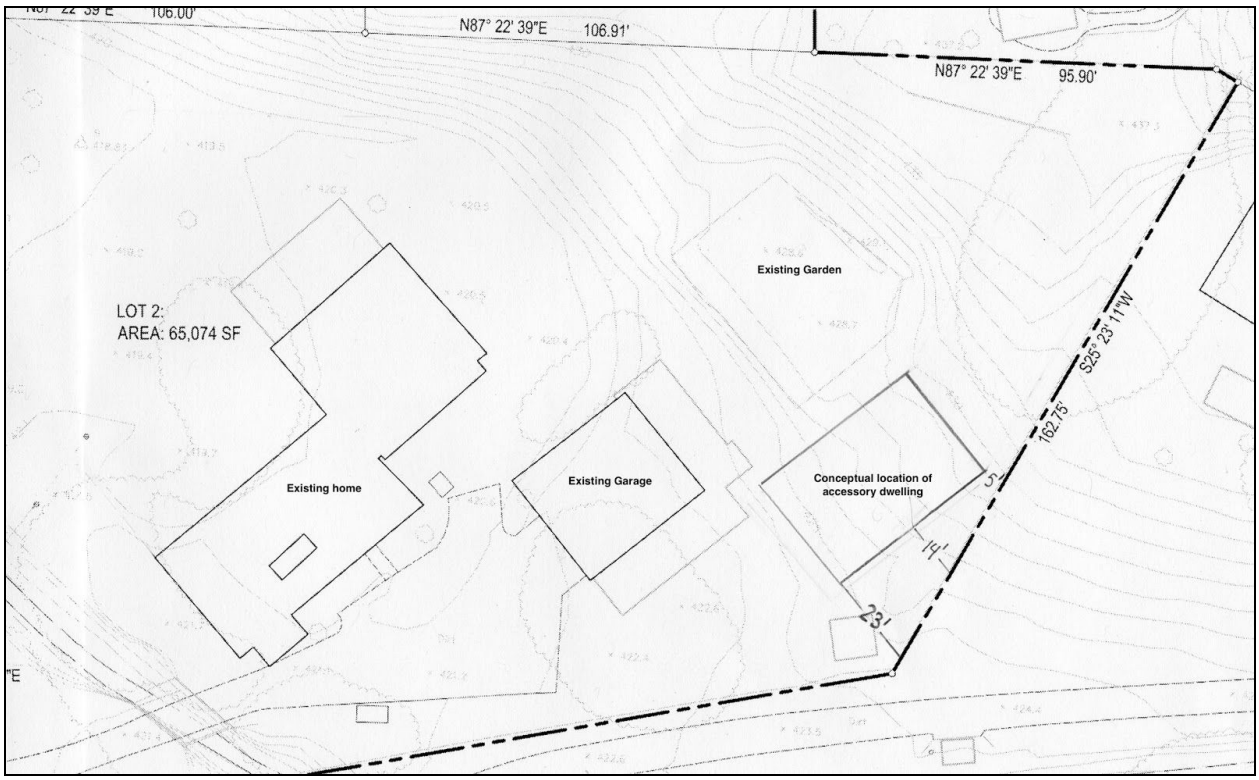
Setbacks for In-law Unit

- Rear setback = 20 ft min
- Side setback = 5 ft min (see proposed in-law unit drawing below showing building angle compared to lot line. The average setback for the building would be 14’.)

Height Limitations

Building an in-law unit on Lot 2 requires a modification for the height requirement because it is on a slope.

- Primary Residence = 30 ft max height
- Accessory Structure = 20 ft max height



Garage

There is an existing garage on Lot 2. A remodel of the home may include additional garage space. The location of garage doors is of minimal concern due to the limited visibility and long setback from Sycamore Road. Two guest parking spaces will be located in an area that will not prevent access to the covered parking space.

Mailbox

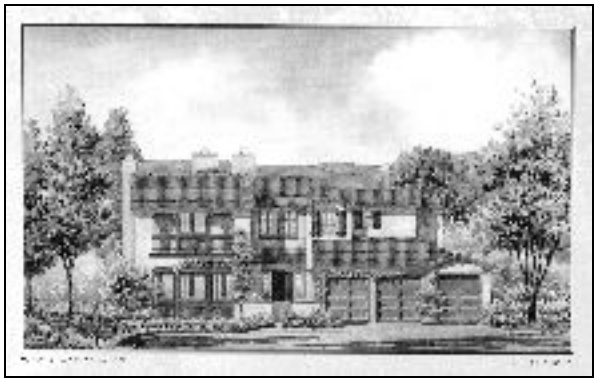
Lot 2 has an existing mailbox.

HOUSING DESIGN GUIDELINES FOR LOTS 3, 4 and 5

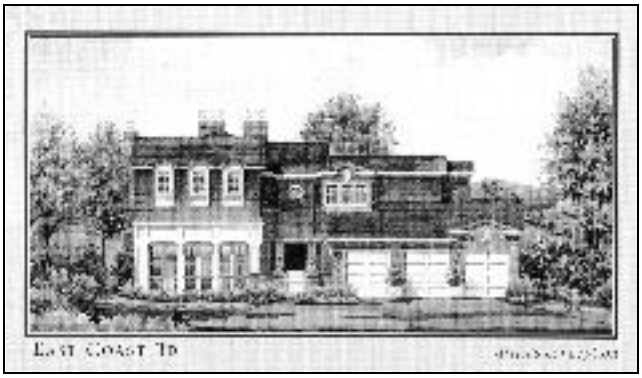
Proposed Lots 3, 4 and 5 will be zoned R-1 (one-family residential) and have homes similar to their neighboring homes along Sycamore Creek Way in the Sycamore Heights Subdivision. Summerhill Homes built 48 homes in the Sycamore Heights Subdivision with four different floor plans, ranging from 3,200 square feet to 4,980 square feet. The exterior historic styles include “Southern European,” “Northern European,” “West Coast” and “East Coast.”

Southern European

Northern European



West Coast



East Coast

*Artist renderings from Sycamore Height Sales Brochure

The new homes along Sycamore Creek way will include a combination of these styles, the choice of which will take into account the homes situated next to and across the street from the new homesites. In addition, the colors chosen will match Sycamore Height’s guidelines as specified by their HOA.

Allowable Building Floor Area

Lots 3, 4 and 5 have an allowable building floor area of 40%. The maximum living area of the primary residence shall not exceed 4,980 square feet (the area of Sycamore Heights’ largest home).

Setbacks for Primary Structures
Lots 3, 4 and 5 shall conform to the City of Pleasanton Site Development Standards for homes in an R-1-20,000 zoning district:
Front setbacks:

- Lot 3 Front setback = 25 ft minimum
- Lot 4 Front setback = 28 ft minimum
- Lot 5 Front setback = 30 ft minimum

- Rear Setbacks = 25 ft min
- Side Setbacks = 5 ft min on one side and 30 ft total of both sides

Setbacks for Accessory Structures
Accessory structures such as detached garages, storage sheds, arbors, trellises and pool houses shall conform to the setbacks required by the City of Pleasanton Zoning Ordinance.

- Rear setback = 5 ft min
- Side setback = 3 ft min

Height Limitations
In accordance with the City of Pleasanton Zoning Ordinance, the maximum height of homes or accessory structures are as follows:

- Primary Residence = 30 ft max height
- Accessory Structure = 15 ft max height

Driveways/Parking
On-site parking surfaces and driveways for Lots 3, 4 and 5 shall be consistent in layout, material and color with those installed in the Sycamore Heights Subdivision. Six of the fifteen homes facing Sycamore Creek Way have side entrance garages. To be in line with that ratio, at least one of the new homes should have a side entrance garage.

Garages
All new homes will have at least a three-car garage.

Mailboxes
Mailboxes shall be consistent with those of the Sycamore Heights Subdivision.

Note: We referenced "Sycamore Corner Design Guidelines" created by Kurt Hereld in March 2009 in the creation of his document.

CHANNEL CONSIDERATIONS

We would like to take this opportunity to clarify the setbacks from the creek for Lot 1 and Lot 2 by quoting a rather lengthy section from the NSSP. Although Parcel 17 has a 28-foot right-of-way and Parcel 18 has a 50-foot right-of-way, our property, Parcel 24, does not include this requirement (see below):

> d. A dedicated right-of-way of 50 feet would be required for the proposed channel improvement for **most** [bolding added] of the study area. Several variations in channel improvements are possible for geographic creek segments as described below:
>
> **Southeastern Channel Improvements (Parcels 24 and 25)**. The existing channel within these parcels would essentially remain in its current condition, with only a minor amount of channel improvements. The intent is to minimize disturbance of riparian habitat. Potential improvements would include some minor alignment changes and clearing out of debris and/or reinforcement of channel edge with rip-rap. Some riparian vegetation may need to be removed to install or improve the drainage channel, however, this should be kept to a minimum. In addition, rights of entry for maintenance and/or improvements should be obtained from existing and/or future property owners.
>
> **Central (East) Channel Improvements (Parcel 18)**. The full channel improvements described under Section 3, Performance Standards for the Improved Natural Channel, including a 50-foot right-of-way, would be required for the length of this parcel (approximately 2,100 linear feet).
>
> **Central (West) Channel Improvements (Parcel 17)**. This section of the channel through the above-mentioned parcel could be developed with a reduced (28-foot) right-of-way width, if the proposed east-west collector were to be utilized as the maintenance accessway. (NSSP p 58)

The NSSP section regarding Parcel 24 does not include a stipulation for a setback. The NSSP specifically calls out Parcel 24 as being a segment of the creek that is a variation from the requirement for the dedicated 50-foot right-of-way. SummerHill homes knew that they did not need to provide a 50-foot setback and built the home on Sycamore Heights Lot #1 with a setback from the top of bank of between 5 feet and 6 feet.

Maintenance for the creek in Sycamore Corner can be accessed on the southwest side of the creek on Sycamore Corner Lot 2. There is sufficient space for vehicle access but we do not want a road there as we believe it would detract from the beauty of the property. A setback of 20 feet from center of creek is sufficient to comply with the NSSP and allow for any necessary maintenance and overall riparian well-being. There is an existing home on the northeast side that is grandfathered in so a setback requirement would not apply to that home. Any future structures would comply with the 20-foot center of creek setback requirement.

Margo Layton
(925) 600-1442

Hydraulic Study
For The
Bringhurst Property
990 Sycamore Road, Pleasanton

Prepared For:
Dr. Deon Bringhurst

January 3, 2000

Landtech Consultants
Civil & Structural Engineers

3845 Beacon Avenue Suite D
Fremont, California 94538

Landtech Consultants
Civil & Structural Engineers

January 3, 2000

Mr. Wes Jost
Public Works Department
City of Pleasanton
123 Main Street
Pleasanton, CA 94566-0802

SUBJECT: HYDROLOGIC AND HYDRAULIC STUDY FOR SYCAMORE CREEK ALONG THE BRINGHURST PROPERTY, 990 SYCAMORE AVE., PLEASANTON, CA

Dear Mr. Jost:

This STUDY evaluates the impact that future residential development of the subject property will have upon the 15-year and 100-year hydraulic grade line (HGL) elevations of Sycamore Creek in the project vicinity.

The subject property is located immediately upstream of the North Sycamore Specific Plan Area. Figure 1 shows the PEAK DISCHARGES for the SYCAMORE CREEK BASIN as were determined in the HYDROLOGIC AND HYDRAULIC STUDIES, NORTH SYCAMORE SPECIFIC PLAN AREA (SYCAMORE CREEK) prepared by Ruggeri-Jensen-Azar & Associates (RJA-REPORT). The RJA-REPORT provided HEC-RAS calculations along with 15-year and 100-year design storm flow rates for Sycamore downstream of river station 1802. This STUDY matches and continues the RJA-REPORT river stationing from station 1730 to station 2295, as shown in Figure 2.

Figure 3 determines the incremental increase in Q(15) and Q(100) design flows that will result from the future residential development of the project site due to the increased runoff coefficients resulting from the more intense development. These incremental increases were added to the RJA-REPORT flows to determine the "future" flow rates.

Figures 4 show the HEC-RAS water surface (HGL) profiles plot for the existing and future 15-year design flows. Figure 4 provides the corresponding tabulated information.

Figures 6 show the HEC-RAS water surface (HGL) profiles plot for the existing and future 100-year design flows. Figure 7 provides the corresponding tabulated information.

Figures 8, 9 and 10 show the cross section plots at river stations 1801.5, 2150.5 and 2207.5 respectively.

Figure 11 shows the detailed HEC-RAS report.

X In summary, future residential development of the subject property will result in an increase in the Sycamore Creek 15-year and 100-year HGL's of about 0.01 feet or less, which is considered not significant.

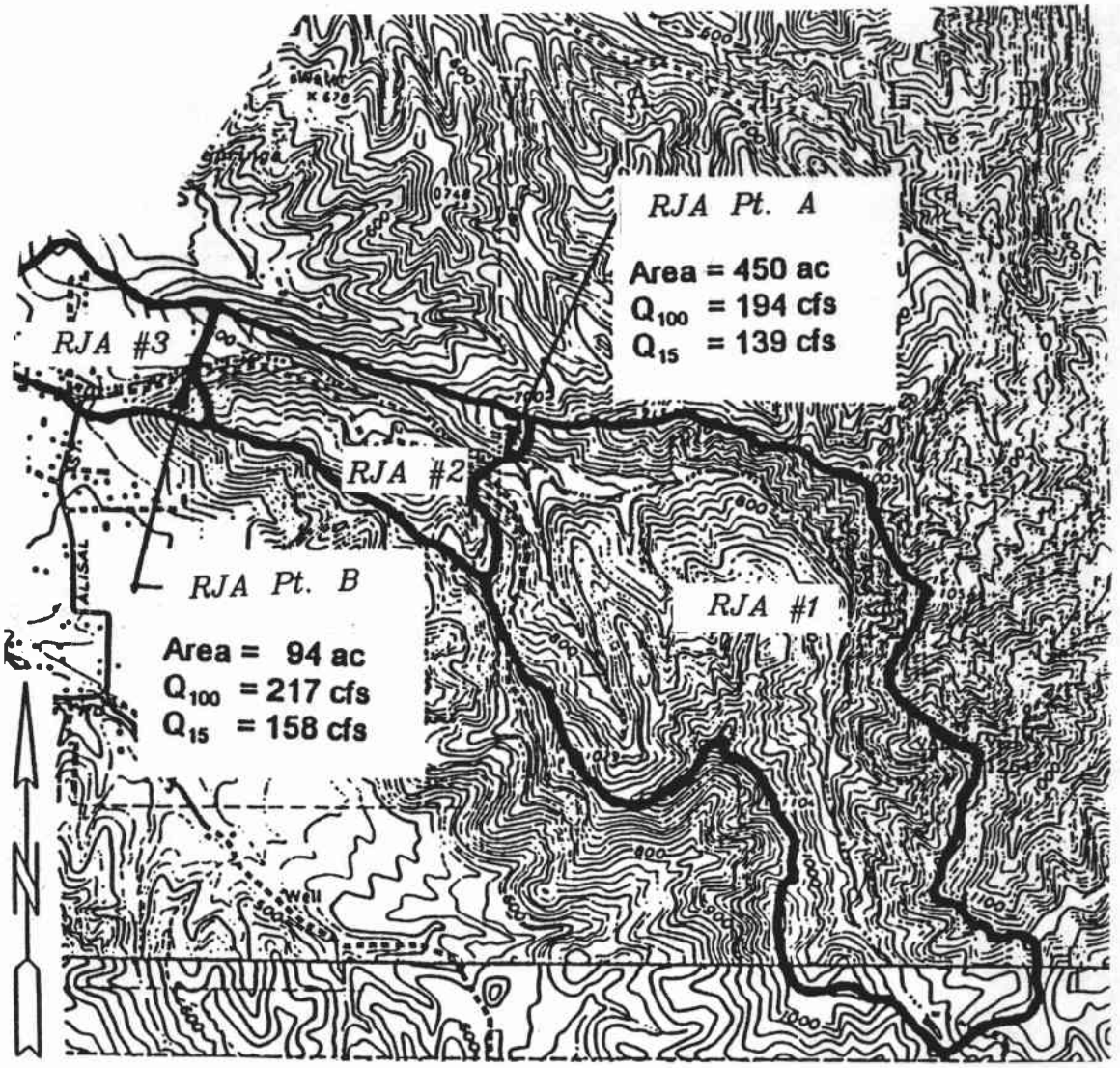
3845 Beacon Avenue, Suite D
Fremont, CA 94538

(510) 505-9501
FAX (510) 505-9503

If you have questions or would like additional information regarding this report, please advise.

Sincerely,

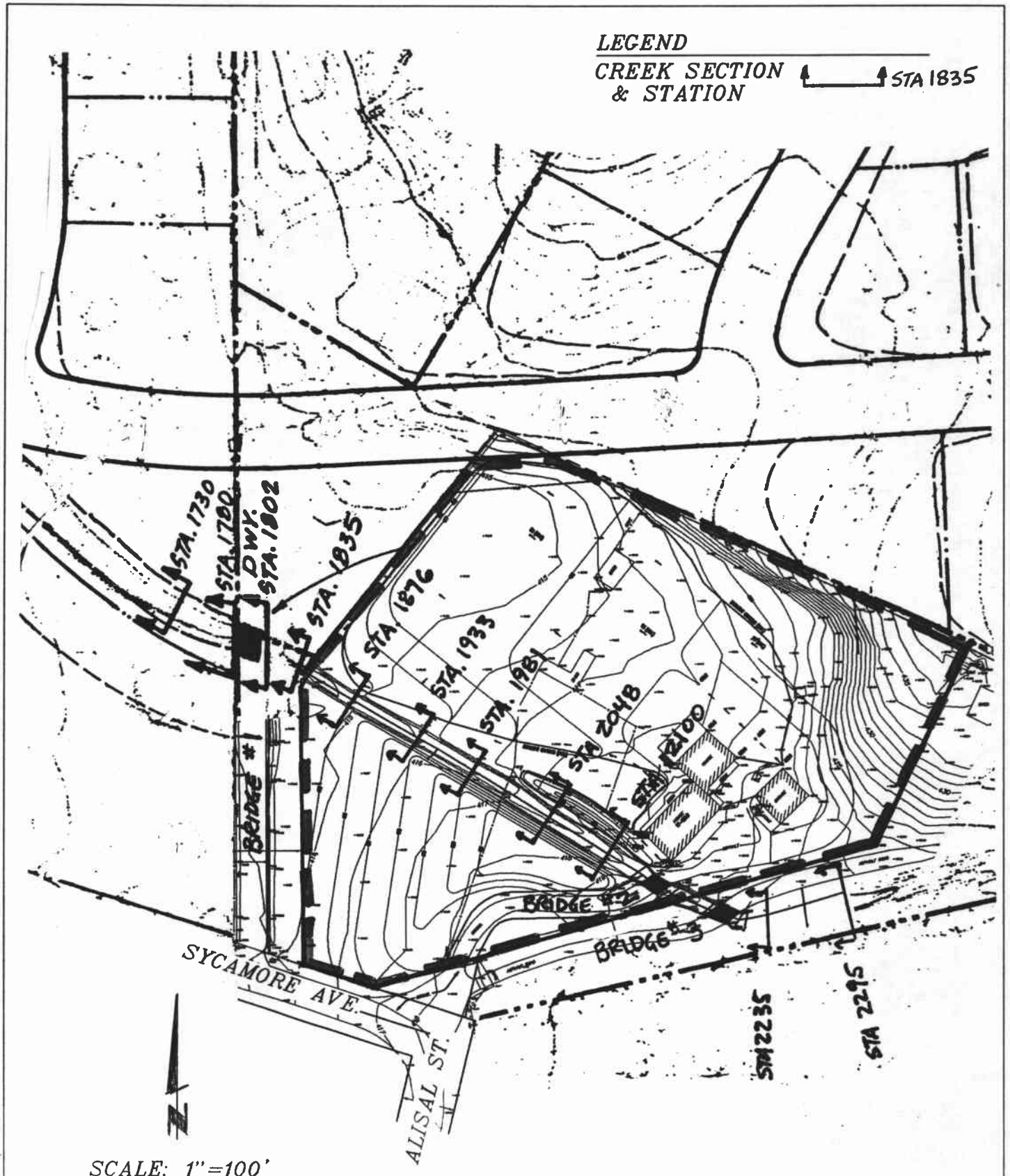
Kamal Obeid, SE, PE
Civil Engineer



SOURCE: HYDROLOGIC AND HYDRAULIC STUDIES
NORTH SYCAMORE SPECIFIC PLAN AREA
(SYCAMORE CREEK)
BY RUGGERI-JENSEN-AZAR & ASSOCIATES
DATED FEBRUARY 1997

PEAK DISCHARGES
FOR SYCAMORE CREEK BASIN

FIGURE 1



BRINGHURST PROPERTY
990 SYCAMORE AVE., PLEASANTON
VICINITY & CREEK SECTION LOCATIONS

FIGURE 2

BRINGHURST PROPERTY
990 SYCAMORE AVE., PLEASANTON
15-YEAR HYDROLOGY COMPARISON STUDY

POC	Tc	I(15)	AREA DESIG.	ΔA ACRES	%AVG SLOPE	C	C'	ΔAC' ACRES	ΣA ACRES	ΣAC'	Q(15) CFS
HYDROLOGY FOR EXISTING PROPERTY											
	36.91	1.05	1	0.35	4	0.4	0.44	0.15	0.35	0.15	
"B"	36.91	1.05	2	2.94	4	0.2	0.26	0.76	3.29	0.91	0.96
HYDROLOGY FOR FUTURE DEVELOPMENT											
"B"	36.91	1.05	3	3.29	4	0.4	0.44	1.45	3.29	1.45	1.52

1. THE Tc, I(15) AND I(100) VALUES WERE TAKEN FROM THE HYDROLOGIC AND HYDRAULIC STUDIES FOR THE NORTH SYCAMORE SPECIFIC PLAN AREA (SYCAMORE CREEK) AS PREPARED BY RUGGERI-JENSEN-AZAR & ASSOCIATS DATED FEBRUARY 1997 FOR POINT OF CONCENTRATION "B".
2. AREA "1" REFERS TO THE EXISTING RESIDENTIAL DEVELOPMENT WHICH UTILIZES AN 0.35 ACRES OF THE TOTAL 3.29 ACRE SITE. THE REMAINDER AREA "2" OF AN ESTIMATED 2.94 ACRES IS UNDEVELOPED. AREA "3" REFERS TO THE TOTAL ESTIMATED 3.29 ACRES.
3. THIS PROPOSED DEVELOPMENT WILL RESULT IN AN ESTIMATED Q(15) INCREASE OF (1.52 - 0.96) = 0.56 CFS.

100-YEAR HYDROLOGY COMPARISON STUDY

POC	Tc	I(100)	AREA DESIG.	ΔA ACRES	%AVG SLOPE	C	C'	ΔAC' ACRES	ΣA ACRES	ΣAC'	Q(100) CFS
HYDROLOGY FOR EXISTING PROPERTY											
	36.91	1.44	1	0.35	4	0.4	0.46	0.16	0.35	0.16	
"B"	36.91	1.44	2	2.94	4	0.2	0.29	0.85	3.29	1.01	1.45
HYDROLOGY FOR FUTURE DEVELOPMENT											
"B"	36.91	1.44	3	3.29	4	0.4	0.46	1.51	3.29	1.51	2.17

1. THE Tc, I(15) AND I(100) VALUES WERE TAKEN FROM THE HYDROLOGIC AND HYDRAULIC STUDIES FOR THE NORTH SYCAMORE SPECIFIC PLAN AREA (SYCAMORE CREEK) AS PREPARED BY RUGGERI-JENSEN-AZAR & ASSOCIATS DATED FEBRUARY 1997 FOR POINT OF CONCENTRATION "B".
2. AREA "1" REFERS TO THE EXISTING RESIDENTIAL DEVELOPMENT WHICH UTILIZES AN 0.35 ACRES OF THE TOTAL 3.29 ACRE SITE. THE REMAINDER AREA "2" OF AN ESTIMATED 2.94 ACRES IS UNDEVELOPED. AREA "3" REFERS TO THE TOTAL ESTIMATED 3.29 ACRES.
3. THIS PROPOSED DEVELOPMENT WILL RESULT IN AN ESTIMATED Q(100) INCREASE OF (2.17 - 1.45) = 0.72 CFS.

FIGURE 3

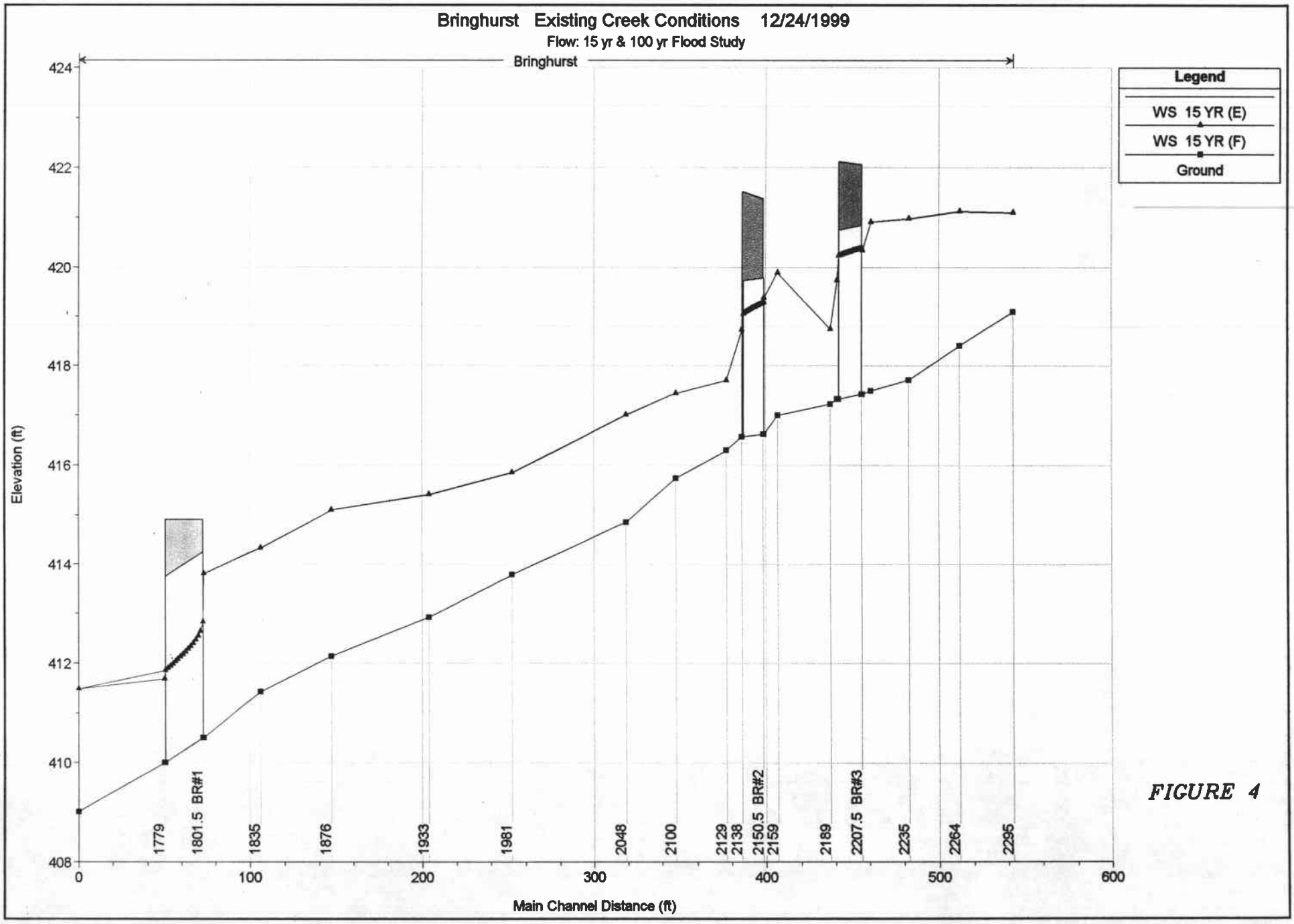

Bringhurst Existing Creek Conditions 12/24/1999
Flow: 15 yr & 100 yr Flood Study
Bringhurst
Legend
WS 15 YR (E)
WS 15 YR (F)
Ground
Elevation (ft)
Main Channel Distance (ft)
424
422
420
418
416
414
412
410
408
0
100
200
300
400
500
600
1779
1801.5 BR#1
1835
1876
1933
1981
2048
2100
2129
2138
2150.5 BR#2
2159
2189
2207.5 BR#3
2235
2264
2295

FIGURE 4

HEC-RAS Plan: Bringhurst River: Sycamore Creek Reach: Bringhurst

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (fps)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Bringhurst	2296	10 YR (E)	158.00	419.10	421.09	420.73	421.47	0.008102	4.93	32.07	20.45	0.69
Bringhurst	2296	10 YR (F)	158.56	419.10	421.10	420.74	421.48	0.008024	4.92	32.25	20.47	0.69
Bringhurst	2284	10 YR (E)	158.00	418.41	421.12		421.28	0.002380	3.21	49.29	23.28	0.39
Bringhurst	2284	10 YR (F)	158.56	418.41	421.13		421.29	0.002380	3.20	49.48	23.38	0.39
Bringhurst	2235	10 YR (E)	158.00	417.71	420.97		421.20	0.003035	3.79	41.68	16.72	0.42
Bringhurst	2235	10 YR (F)	158.56	417.71	420.98		421.20	0.003029	3.79	41.81	16.73	0.42
Bringhurst	2213	10 YR (E)	158.00	417.50	420.91		421.13	0.003209	3.77	41.86	16.19	0.41
Bringhurst	2213	10 YR (F)	158.56	417.50	420.91		421.13	0.003202	3.78	41.99	16.19	0.41
Bringhurst	2208	10 YR (E)	158.00	417.43	420.33	419.86	421.05	0.013198	6.80	23.24	8.97	0.74
Bringhurst	2208	10 YR (F)	158.56	417.43	420.34	419.86	421.06	0.013194	6.80	23.30	8.97	0.74
Bringhurst	2207.5		Culvert									
Bringhurst	2193	10 YR (E)	158.00	417.33	419.73	419.73	420.81	0.023495	8.31	19.01	8.96	1.01
Bringhurst	2193	10 YR (F)	158.56	417.33	419.74	419.74	420.81	0.023502	8.32	19.06	8.96	1.01
Bringhurst	2159	10 YR (E)	158.00	417.23	418.73	419.30	420.58	0.060567	10.89	14.51	12.31	1.77
Bringhurst	2159	10 YR (F)	158.56	417.23	418.74	419.30	420.58	0.060554	10.90	14.55	12.32	1.77
Bringhurst	2159	10 YR (E)	158.00	417.00	419.88	418.71	420.08	0.002672	3.59	44.03	18.94	0.41
Bringhurst	2159	10 YR (F)	158.56	417.00	419.89	418.72	420.09	0.002665	3.59	44.18	18.95	0.41
Bringhurst	2161	10 YR (E)	158.00	416.62	419.38	418.80	420.00	0.011079	6.34	24.91	9.57	0.69
Bringhurst	2161	10 YR (F)	158.56	416.62	419.38	418.81	420.01	0.011079	6.35	24.97	9.57	0.69
Bringhurst	2150.5		Culvert									
Bringhurst	2133	10 YR (E)	158.00	416.57	418.71	418.71	419.74	0.022787	8.14	19.42	9.55	1.01
Bringhurst	2133	10 YR (F)	158.56	416.57	418.72	418.72	419.75	0.022780	8.14	19.47	9.55	1.01
Bringhurst	2129	10 YR (E)	158.00	416.30	417.70	418.18	419.34	0.071878	10.27	15.38	16.27	1.86
Bringhurst	2129	10 YR (F)	158.56	416.30	417.70	418.18	419.34	0.071928	10.29	15.41	16.27	1.86
Bringhurst	2100	10 YR (E)	158.00	415.74	417.44	417.57	418.31	0.023440	7.51	21.05	16.09	1.16
Bringhurst	2100	10 YR (F)	158.56	415.74	417.44	417.58	418.32	0.023359	7.51	21.13	16.10	1.15
Bringhurst	2048	10 YR (E)	158.00	414.86	417.00	416.86	417.65	0.013470	6.48	24.38	14.81	0.89
Bringhurst	2048	10 YR (F)	158.56	414.86	417.00	416.86	417.65	0.013475	6.49	24.44	14.82	0.89
Bringhurst	1981	10 YR (E)	158.00	413.79	415.84	415.84	416.62	0.017374	7.08	22.33	14.56	1.01
Bringhurst	1981	10 YR (F)	158.56	413.79	415.84	415.84	416.62	0.017366	7.08	22.39	14.57	1.01
Bringhurst	1933	10 YR (E)	158.00	412.93	415.40	415.03	415.89	0.009266	5.67	27.89	15.72	0.75
Bringhurst	1933	10 YR (F)	158.56	412.93	415.40	415.03	415.90	0.009264	5.67	27.96	15.74	0.75
Bringhurst	1876	10 YR (E)	158.00	412.14	415.09		415.45	0.005502	4.85	32.58	15.00	0.58
Bringhurst	1876	10 YR (F)	158.56	412.14	415.09		415.46	0.005510	4.86	32.64	15.00	0.58
Bringhurst	1835	10 YR (E)	158.00	411.43	414.31	414.31	415.05	0.017496	6.88	22.97	15.94	1.01
Bringhurst	1835	10 YR (F)	158.56	411.43	414.32	414.32	415.05	0.017482	6.88	23.04	15.96	1.01
Bringhurst	1802	10 YR (E)	158.00	410.50	413.79	413.34	414.30	0.009275	5.73	27.57	13.68	0.71
Bringhurst	1802	10 YR (F)	158.56	410.50	413.80	413.34	414.31	0.009202	5.72	27.73	13.70	0.71
Bringhurst	1801.5		Culvert									
Bringhurst	1779	10 YR (E)	158.00	410.00	411.84	411.85	412.53	0.017640	6.66	23.72	17.81	0.71
Bringhurst	1779	10 YR (F)	158.56	410.00	411.67	411.85	412.57	0.025734	7.63	20.78	16.90	0.71
Bringhurst	1730	10 YR (E)	158.00	409.00	411.47	411.05	411.81	0.007620	4.68	33.74	23.03	0.68
Bringhurst	1730	10 YR (F)	158.56	409.00	411.47	411.05	411.81	0.007675	4.70	33.74	23.03	0.68

FIGURE 5

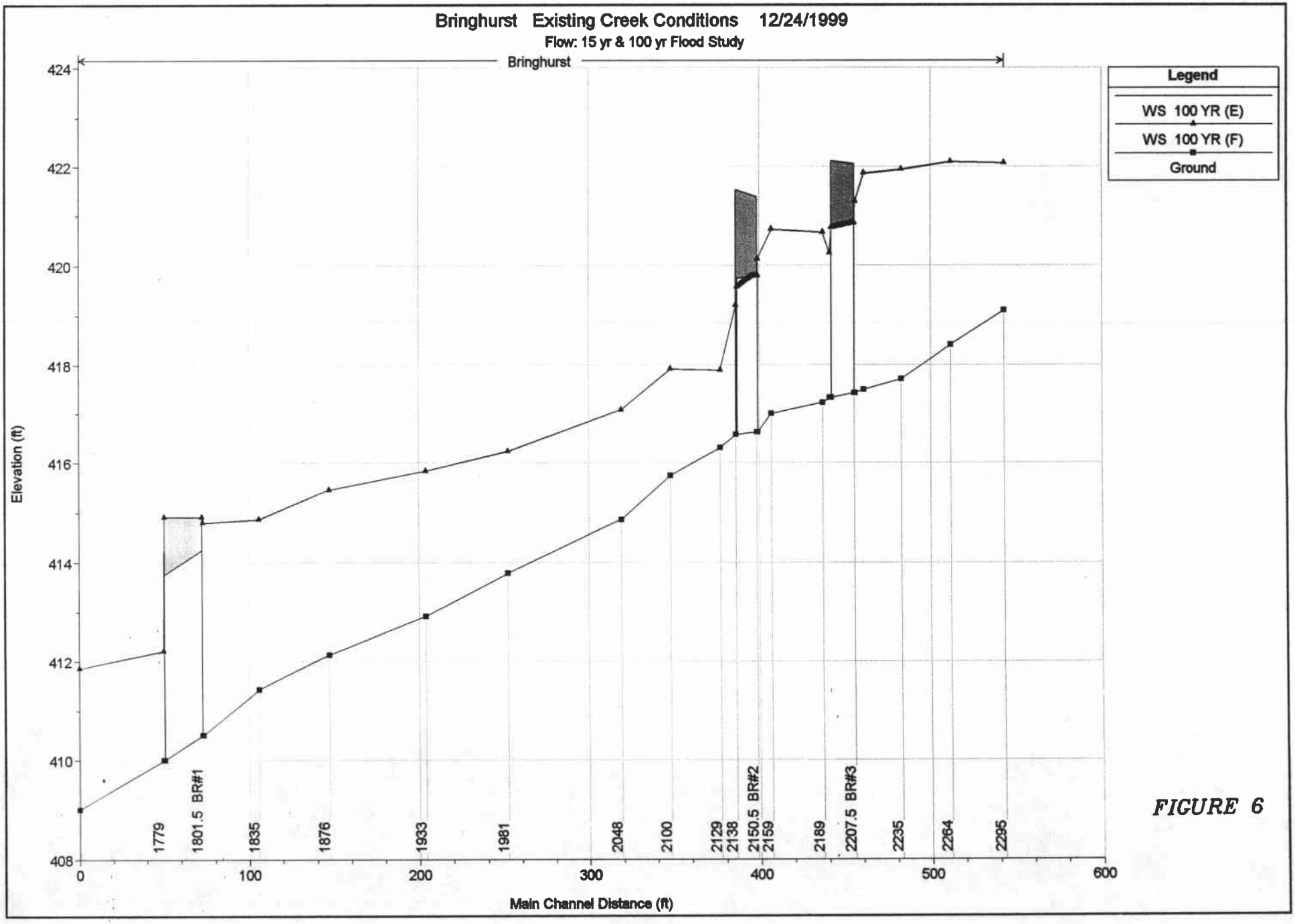

Bringhurst Existing Creek Conditions 12/24/1999
Flow: 15 yr & 100 yr Flood Study
Bringhurst
Legend
WS 100 YR (E)
WS 100 YR (F)
Ground
Elevation (ft)
424
422
420
418
416
414
412
410
408
0
100
200
300
400
500
600
Main Channel Distance (ft)
1779
1801.5 BR#1
1835
1876
1933
1981
2048
2100
2129
2138
2150.5 BR#2
2159
2189
2207.5 BR#3
2235
2264
2295

FIGURE 6

HEC-RAS Plan: Bringhurst River: Sycamore Creek Reach: Bringhurst

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Bringhurst	2295	100 YR (E)	217.00	419.10	422.06	421.04	422.32	0.003470	4.13	52.57	22.31	0.47
Bringhurst	2295	100 YR (F)	217.72	419.10	422.07	421.04	422.34	0.003458	4.12	52.84	22.44	0.47
Bringhurst	2264	100 YR (E)	217.00	418.41	422.09		422.21	0.001688	2.81	77.32	34.85	0.33
Bringhurst	2264	100 YR (F)	217.72	418.41	422.10		422.22	0.001678	2.80	77.75	34.99	0.33
Bringhurst	2235	100 YR (E)	217.00	417.71	421.93		422.13	0.003141	3.65	59.43	26.64	0.43
Bringhurst	2235	100 YR (F)	217.72	417.71	421.94		422.15	0.003158	3.64	59.77	27.06	0.43
Bringhurst	2213	100 YR (E)	217.00	417.50	421.85		422.07	0.002406	3.80	57.11	16.20	0.36
Bringhurst	2213	100 YR (F)	217.72	417.50	421.86		422.08	0.002399	3.80	57.30	16.20	0.36
Bringhurst	2208	100 YR (E)	217.00	417.43	421.27	420.36	422.00	0.010482	6.85	31.67	9.00	0.64
Bringhurst	2208	100 YR (F)	217.72	417.43	421.28	420.36	422.01	0.010455	6.85	31.77	9.00	0.64
Bringhurst	2207.5		Culvert									
Bringhurst	2193	100 YR (E)	217.00	417.33	420.24	420.24	421.56	0.024122	9.23	23.50	8.97	1.01
Bringhurst	2193	100 YR (F)	217.72	417.33	420.24	420.24	421.57	0.024126	9.24	23.55	8.97	1.01
Bringhurst	2159	100 YR (E)	217.00	417.23	420.65	419.70	421.08	0.005462	5.26	41.29	15.49	0.57
Bringhurst	2159	100 YR (F)	217.72	417.23	420.65	419.70	421.08	0.005456	5.26	41.41	15.50	0.57
Bringhurst	2159	100 YR (E)	217.00	417.00	420.71		420.91	0.002016	3.62	59.89	19.20	0.36
Bringhurst	2159	100 YR (F)	217.72	417.00	420.72		420.92	0.002015	3.63	60.03	19.20	0.36
Bringhurst	2151	100 YR (E)	217.00	416.62	420.12	419.28	420.83	0.010298	6.78	32.01	9.59	0.65
Bringhurst	2151	100 YR (F)	217.72	416.62	420.12	419.29	420.84	0.010324	6.79	32.05	9.59	0.65
Bringhurst	2150.5		Culvert									
Bringhurst	2138	100 YR (E)	217.00	416.57	419.19	419.19	420.46	0.023247	9.04	24.00	9.56	1.01
Bringhurst	2138	100 YR (F)	217.72	416.57	419.20	419.20	420.47	0.023257	9.05	24.05	9.56	1.01
Bringhurst	2129	100 YR (E)	217.00	416.30	417.89	418.51	420.03	0.075651	11.74	18.48	16.33	1.94
Bringhurst	2129	100 YR (F)	217.72	416.30	417.89	418.52	420.04	0.075688	11.76	18.52	16.33	1.95
Bringhurst	2100	100 YR (E)	217.00	415.74	417.91	417.94	418.78	0.017448	7.49	28.97	17.63	1.03
Bringhurst	2100	100 YR (F)	217.72	415.74	417.91	417.94	418.78	0.017388	7.49	29.07	17.64	1.03
Bringhurst	2046	100 YR (E)	217.00	414.86	417.07	417.24	418.20	0.022314	8.51	25.51	15.02	1.15
Bringhurst	2046	100 YR (F)	217.72	414.86	417.08	417.24	418.20	0.022284	8.51	25.58	15.03	1.15
Bringhurst	1981	100 YR (E)	217.00	413.79	416.22	416.22	417.15	0.016851	7.72	28.10	15.44	1.01
Bringhurst	1981	100 YR (F)	217.72	413.79	416.22	416.22	417.15	0.016848	7.73	28.17	15.44	1.01
Bringhurst	1933	100 YR (E)	217.00	412.93	415.82	415.43	416.42	0.009255	6.22	34.91	16.90	0.76
Bringhurst	1933	100 YR (F)	217.72	412.93	415.83	415.43	416.43	0.009255	6.22	34.99	16.90	0.76
Bringhurst	1878	100 YR (E)	217.00	412.14	415.45		415.95	0.006603	5.72	37.93	15.00	0.63
Bringhurst	1878	100 YR (F)	217.72	412.14	415.45		415.96	0.006618	5.73	37.98	15.00	0.63
Bringhurst	1836	100 YR (E)	217.00	411.43	414.85		415.57	0.012683	6.81	31.88	17.00	0.88
Bringhurst	1836	100 YR (F)	217.72	411.43	414.86		415.57	0.012548	6.79	32.06	17.00	0.87
Bringhurst	1802	100 YR (E)	217.00	410.50	414.78	413.75	415.21	0.005751	5.24	41.44	14.00	0.54
Bringhurst	1802	100 YR (F)	217.72	410.50	414.79	413.76	415.22	0.005737	5.24	41.58	14.00	0.54
Bringhurst	1801.5		Culvert									
Bringhurst	1779	100 YR (E)	217.00	410.00	412.20	412.20	412.99	0.016564	7.11	30.51	19.73	1.01
Bringhurst	1779	100 YR (F)	217.72	410.00	412.20	412.20	412.99	0.016547	7.12	30.59	19.76	1.01
Bringhurst	1730	100 YR (E)	217.00	409.00	411.84	411.39	412.24	0.007595	5.07	42.78	25.80	0.69
Bringhurst	1730	100 YR (F)	217.72	409.00	411.84	411.39	412.24	0.007646	5.09	42.78	25.80	0.70

FIGURE 7

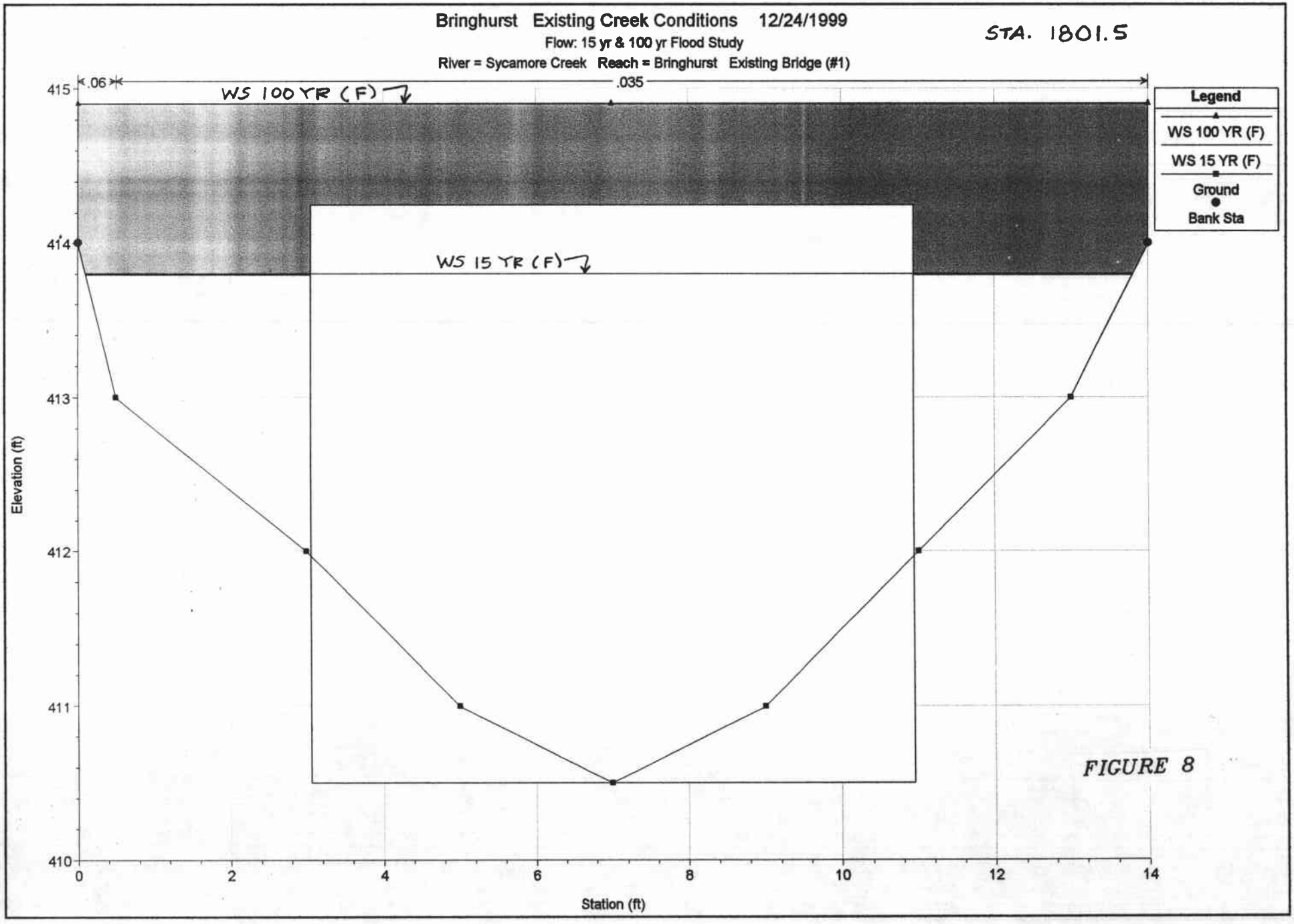

Bringhurst Existing Creek Conditions 12/24/1999
Flow: 15 yr & 100 yr Flood Study
River = Sycamore Creek Reach = Bringhurst Existing Bridge (#1)
STA. 1801.5
.06
.035
WS 100 YR (F)
WS 15 YR (F)
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
415
414
413
412
411
410
0
2
4
6
8
10
12
14

FIGURE 8

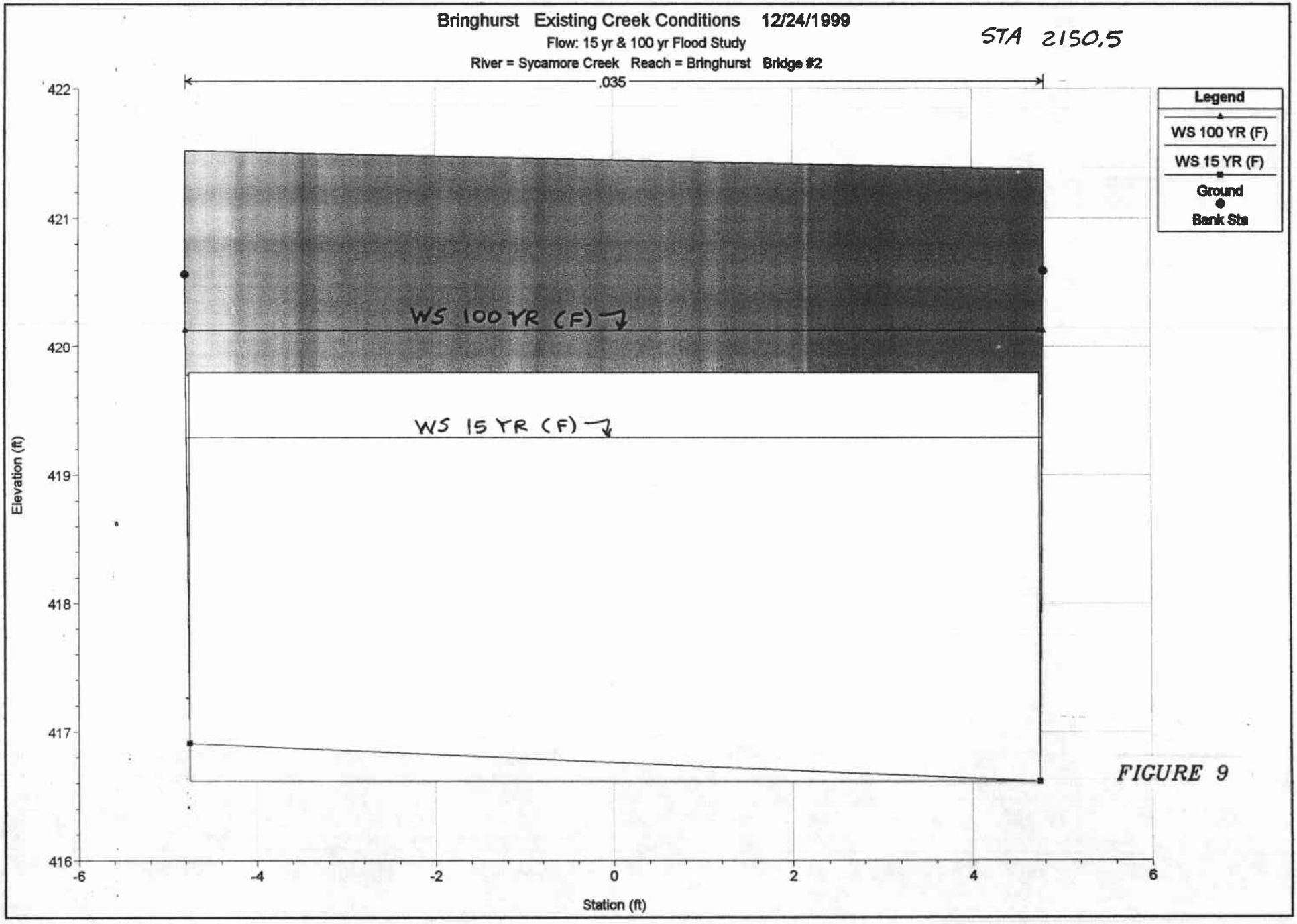

Bringhurst Existing Creek Conditions 12/24/1999
Flow: 15 yr & 100 yr Flood Study
River = Sycamore Creek Reach = Bringhurst Bridge #2
STA 2150.5
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
WS 100 YR (F)
WS 15 YR (F)
Elevation (ft)
422
421
420
419
418
417
416
-6
-4
-2
0
2
4
6
Station (ft)

FIGURE 9

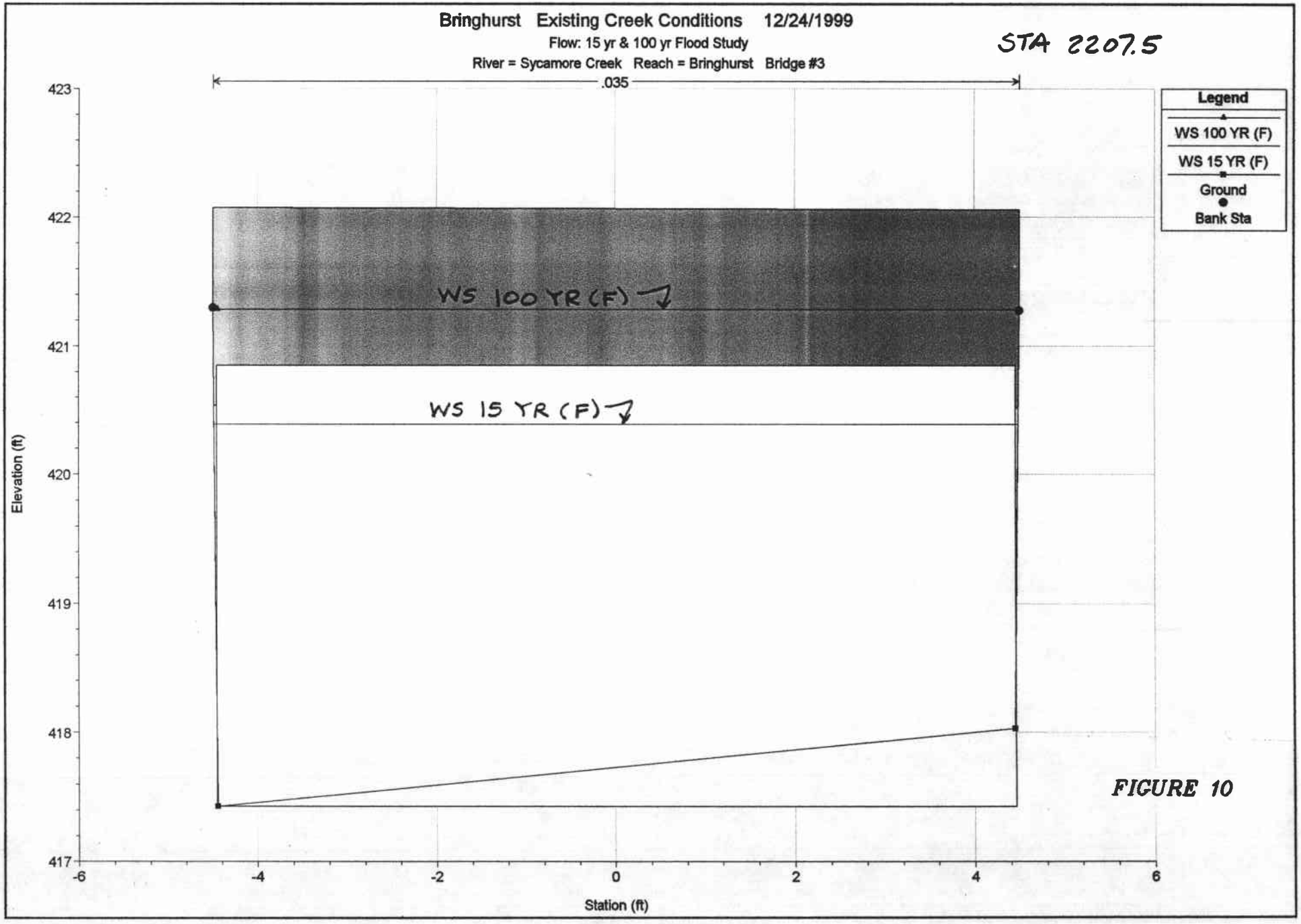

Bringhurst Existing Creek Conditions 12/24/1999
Flow: 15 yr & 100 yr Flood Study
River = Sycamore Creek Reach = Bringhurst Bridge #3
STA 2207.5
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
WS 100 YR (F)
WS 15 YR (F)
Elevation (ft)
423
422
421
420
419
418
417
-6
-4
-2
0
2
4
6
Station (ft)

FIGURE 10

HEC-RAS September 1998 Version 2.2
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X         X    X      X   X     X  X    X
X     X  X         X           X   X    X    X   X
XXXXXXX  XXXX      X       XXX XXXX     XXXXXX    XXXX
X     X  X         X           X  X     X    X       X
X     X  X         X    X      X   X    X    X       X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

****

PROJECT DATA
Project Title: Bringhurst
Project File : bringhurst.prj
Run Date and Time: 12/24/1999 4:34:12 PM

Project in English units

****

PLAN DATA

Plan Title: Existing Creek Conditions
Plan File : C:\WINNT\Profiles\Marvin\Desktop\Hec-OLD\RAS\bringhurst.p01

Geometry Title: Bringhurst Creek Frontage
Geometry File : C:\WINNT\Profiles\Marvin\Desktop\Hec-OLD\RAS\bringhurst.g01

FIGURE 11

Flow Title : 15 yr & 100 yr Flood Study
Flow File : C:\WINNT\Profiles\Marvin\Desktop\Hec-OLD\RAS\bringhurst.f01

Plan Summary Information:
Number of: Cross Sections = 20 Mulitple Openings = 0
Culverts = 3 Inline Weirs = 0
Bridges = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculaton tolerance = 0.01
Maximum number of interations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

****

FLOW DATA

Flow Title: 15 yr & 100 yr Flood Study
Flow File : C:\WINNT\Profiles\Marvin\Desktop\Hec-OLD\RAS\bringhurst.f01

Flow Data (cfs)

River	Reach	RS	15 YR (E)	100 YR (E)	15 YR (F)	100 YR (F)
Sycamore Creek	Bringhurst	2295	158	217	158.56	217.72

```
* Sycamore Creek  Bringhurst      1730    *              158             217          158.56
217.72 *
*****************************************************************************************
*****************

Boundary Conditions
*****************************************************************************************
************
* River           Reach           Profile          *            Upstream
Downstream    *
*****************************************************************************************
************
* Sycamore Creek  Bringhurst      15 YR (E)        *          Normal S = .02        Known
WS = 411.47 *
* Sycamore Creek  Bringhurst      100 YR (E)       *          Normal S = .02        Known
WS = 411.84 *
* Sycamore Creek  Bringhurst      15 YR (F)        *          Normal S = .02        Known
WS = 411.47 *
* Sycamore Creek  Bringhurst      100 YR (F)       *          Normal S = .02        Known
WS = 411.84 *
*****************************************************************************************
************

*************************************************************************

GEOMETRY DATA

Geometry Title: Bringhurst Creek Frontage
Geometry File : C:\WINNT\Profiles\Marvin\Desktop\Hec-OLD\RAS\bringhurst.g01

CROSS SECTION          RIVER: Sycamore Creek
REACH: Bringhurst         RS: 2295

INPUT
Description:
Station Elevation Data    num=       7
```

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-20	422.29	-19	419.55	-15.5	419.1	-9	419.12	0	420.35
2	422.02	10	422.82						

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-20	.035	10	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-20	10	33	31	31	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 2264

INPUT
Description:
Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-22.5	422.05	-21.5	419.36	-15.5	418.41	0	419.39	1	421.11
14.5	422.27								

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-22.5	.035	14.5	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-22.5	14.5	31	29	28	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 2235

INPUT
Description:

Station Elevation Data num= 6

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-14.5	421.38	-13.5	417.71	-12	417.83	0	418.66	3	421.64
14.5	422								

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-14.5	.035	14.5	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-14.5	14.5	27	22	18	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 2213

INPUT
Description: 5' U/S of U/S Bridge #3 face

Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-8.1	420.89	-8	417.5	8	419.11	8.1	421.1

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-8.1	.035	8.1	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-8.1	8.1	7	5	4	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 2208

INPUT
Description: U/S face of Bridge #3

Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-4.5	421.29	-4.45	417.43	4.45	418.03	4.5	421.27

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-4.5	.035	4.5	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-4.5	4.5	16	15	15	.1	.3

CULVERT RIVER: Sycamore Creek
REACH: Bringhurst RS: 2207.5

INPUT
Description: Bridge #3
Distance from Upstream XS = .5
Deck/Roadway Width = 13.5
Weir Coefficient = 2.6
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
-5	422.07	420.53	5	422.05	420.51

Upstream Bridge Cross Section Data
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-4.5	421.29	-4.45	417.43	4.45	418.03	4.5	421.27

Manning's n Values num= 2

Sta	n Val	Sta	n Val

-4.5	.035	4.5	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
-4.5	4.5	.1	.3

Downstream Deck/Roadway Coordinates

num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-5	422.1	420.56	5	422.34	420.8

Downstream Bridge Cross Section Data

Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-4.5	421.32	-4.45	417.33	4.45	417.88	4.5	421.56

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-4.5	.035	4.5	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
-4.5	4.5	.1	.3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 422.05
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	3.42	8.92

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	n Value	Entrance Loss Coef	Exit Loss Coef
	.5	13.5	.035	.2	1

Upstream Elevation = 417.43
Centerline Station = 0
Downstream Elevation = 417.33
Centerline Station = 0

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 2193

INPUT
Description: D/S face Bridge #3
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-4.5	421.32	-4.45	417.33	4.45	417.88	4.5	421.56

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-4.5	.035	4.5	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-4.5	4.5	7	4	4	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 2189

INPUT
Description: 4' D/S of Bridge #3
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-6	419.52	-5	417.23	5	417.62	10	420.99

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-6	.035	10	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-6	10	30	30	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 2159

INPUT
Description: 8' U/S Bridge #2
Station Elevation Data num= 8

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-9.6	420.07	-8.1	419	-6.7	418	-2.4	417	7.2	417
8	418	9	419	9.6	419.67				

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-9.6	.035	9.6	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-9.6	9.6	8	8	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 2151

INPUT
Description: U/S face of Bridge #2
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-4.8	420.56	-4.75	416.91	4.75	416.62	4.8	420.59

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-4.8	.035	4.8	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-4.8	4.8	13	13	.1	.3

CULVERT RIVER: Sycamore Creek
REACH: Bringhurst RS: 2150.5

INPUT
Description: Bridge #2
Distance from Upstream XS = .5
Deck/Roadway Width = 12.33
Weir Coefficient = 2.6
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-5 421.52	419.77	5 421.37	419.62

Upstream Bridge Cross Section Data
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-4.8	420.56	-4.75	416.91	4.75	416.62	4.8	420.59

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-4.8	.035	4.8	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
-4.8	4.8	.1	.3

Downstream Deck/Roadway Coordinates
num= 2

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
-5	421.51	419.76	5	421.68	419.93

Downstream Bridge Cross Section Data
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-4.8	420.57	-4.75	416.57	4.75	416.78	4.8	420.83

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-4.8	.035	4.8	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
-4.8	4.8	.1	.3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins = 421.37
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	3.17	9.5

FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	n Value	Entrance Loss Coef	Exit Loss Coef

```
              .05      12       .035                    .2                1
Upstream   Elevation =  416.62
           Centerline Station =  0
Downstream Elevation =  416.57
           Centerline Station =  0

CROSS SECTION          RIVER: Sycamore Creek
REACH: Bringhurst         RS: 2138

INPUT
Description: D/S face of Bridge #2
Station Elevation Data    num=       4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************
    -4.8  420.57   -4.75  416.57     4.75  416.78      4.8  420.83

Manning's n Values        num=       2
     Sta   n Val      Sta   n Val
*********************************
    -4.8    .035      4.8     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -4.8     4.8                  9       9       9             .1      .3

CROSS SECTION          RIVER: Sycamore Creek
REACH: Bringhurst         RS: 2129

INPUT
Description: 9' DS Bridge #2
Station Elevation Data    num=       4
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************
    -8.5  420.11      -8  417.19        8   416.3      8.5  420.11

Manning's n Values        num=       2
     Sta   n Val      Sta   n Val
*********************************
```

-8.5	.035	8.5	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-8.5	8.5	25	29	32	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 2100

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-9	417.91	-6	416.03	5	415.74	10	418.72	13.5	418.89

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-9	.035	13.5	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-9	13.5	29	29	32	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 2048

INPUT
Description:
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-8.5	417.86	-4.5	415.12	5	414.86	8	417.35	24.3	418.24

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-8.5	.035	24.3	.06

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -8.5    24.3                 67      67      67             .1      .3

CROSS SECTION          RIVER: Sycamore Creek
REACH: Bringhurst         RS: 1981

INPUT
Description:
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************
    -6.5  416.03      -3  414.01     5.5  413.79     9.5  416.62

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
*********************************
    -6.5    .035     9.5     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          -6.5     9.5                 48      48      48             .1      .3

CROSS SECTION          RIVER: Sycamore Creek
REACH: Bringhurst         RS: 1933

INPUT
Description:
Station Elevation Data    num=       4
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************
      -7   415.9      -3  412.93       5  413.15      10   415.7

Manning's n Values        num=       2
     Sta   n Val     Sta   n Val
*********************************
      -7    .035      10     .06
```

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-7	10	57	57	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 1876

INPUT
Description:
Station Elevation Data num= 4

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-8	414.92	-3.5	412.14	3.5	412.26	7	414.87

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-8	.035	7	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
-8	7	41	41	43	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 1835

INPUT
Description:
Station Elevation Data num= 3

Sta	Elev	Sta	Elev	Sta	Elev
-6	414.32	2	411.43	11	414.69

Manning's n Values num= 2

Sta	n Val	Sta	n Val
-6	.035	11	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.

-6	11		34	33	38	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 1802

INPUT
Description: Upstream face of bridge
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	414	.5	413	3	412	5	411	7	410.5
9	411	11	412	13	413	14	414		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	.5	.035	14	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	14	23	23	.1	.3

CULVERT RIVER: Sycamore Creek
REACH: Bringhurst RS: 1801.5

INPUT
Description: Existing Bridge (#1)
Distance from Upstream XS = .5
Deck/Roadway Width = 22
Weir Coefficient = 2.6
Bridge Deck/Roadway Skew =
Upstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	414.9	413.79	35	414.9	413.79

Upstream Bridge Cross Section Data

Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	414	.5	413	3	412	5	411	7	410.5
9	411	11	412	13	413	14	414		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	.5	.035	14	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
0	14	.1	.3

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
0	414.9	413.79	35	414.9	413.79

Downstream Bridge Cross Section Data

Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	414	7	413	14	410	22	410	34	414

Manning's n Values num= 1

Sta	n Val
0	.035

Bank Sta: Left	Right	Coeff Contr.	Expan.
0	34	.1	.3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95

Elevation at which weir flow begins = 414.9
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name	Shape	Rise	Span
Culvert #1	Box	3.75	7.875

FHWA Chart # 10- 90 degree headwall; Chamfered or beveled inlet
FHWA Scale # 1 - Inlet edges chamfered 3/4 inch
Solution Criteria = Highest U.S. EG

Culvert	Upstrm Dist	Length	n Value	Entrance Loss Coef	Exit Loss Coef
	.5	22	.02	.2	1

Upstream Elevation = 410.5
Centerline Station = 7
Downstream Elevation = 410
Centerline Station = 18

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 1779

INPUT
Description: Downsteam face of bridge
Station Elevation Data num= 5

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	414	7	413	14	410	22	410	34	414

Manning's n Values num= 1

Sta	n Val
0	.035

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	34	55	50	45	.1	.3

CROSS SECTION RIVER: Sycamore Creek
REACH: Bringhurst RS: 1730

INPUT
Description: 50' D/S of existing bridge
Station Elevation Data num= 7

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	412	2.5	411	4	410	8	409	18	410
22	411	27	412						

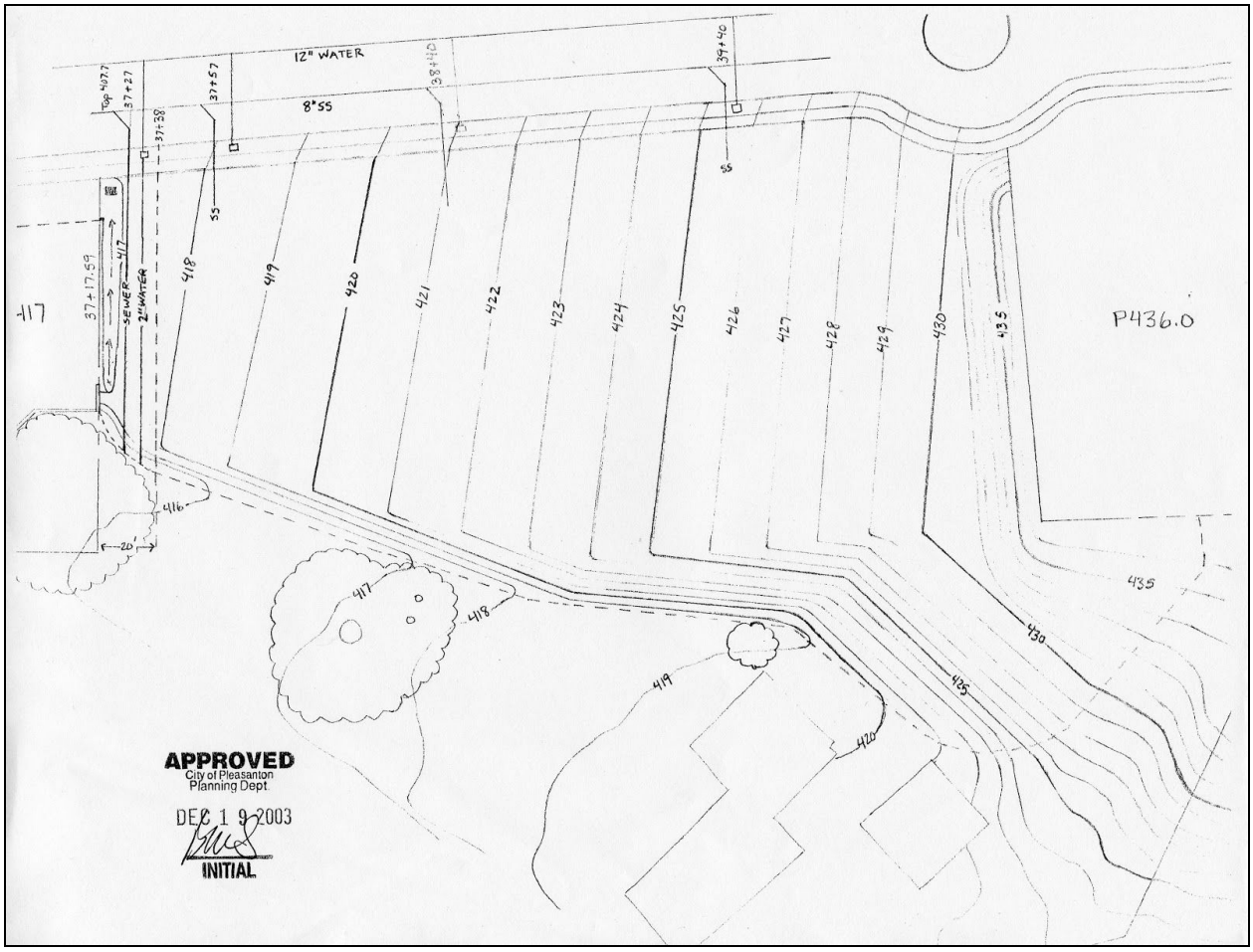
Manning's n Values num= 2

Sta	n Val	Sta	n Val
0	.035	27	.06

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
0	27	0	0	0	.1	.3

Interim Grading Plan

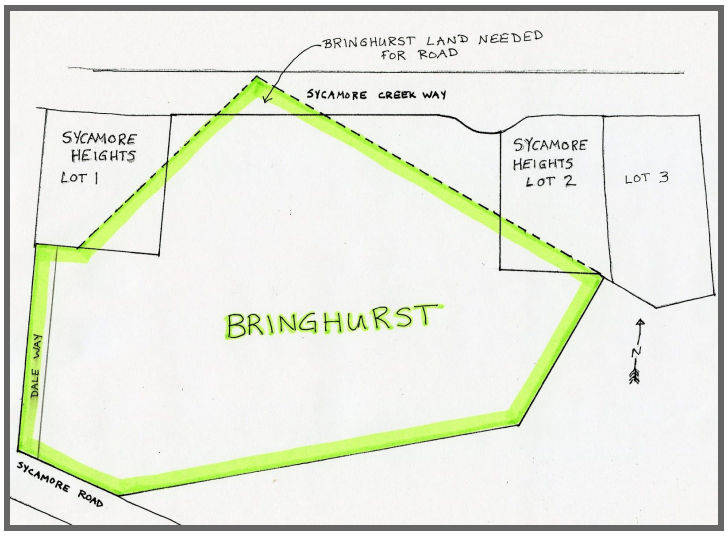
This approved Interim Grading Plan shows that the City approved the grading of this lot. At the time, SummerHill was in contract with the Bringhurst LLC to buy this lot and build homes. SummerHill informed the Bringhurst LLC that they made a verbal agreement during the grading with Brian Swift (City of Pleasanton Planning Department) to create pads since it was more efficient to use the heavy equipment that was already on-site.



March 17, 2018

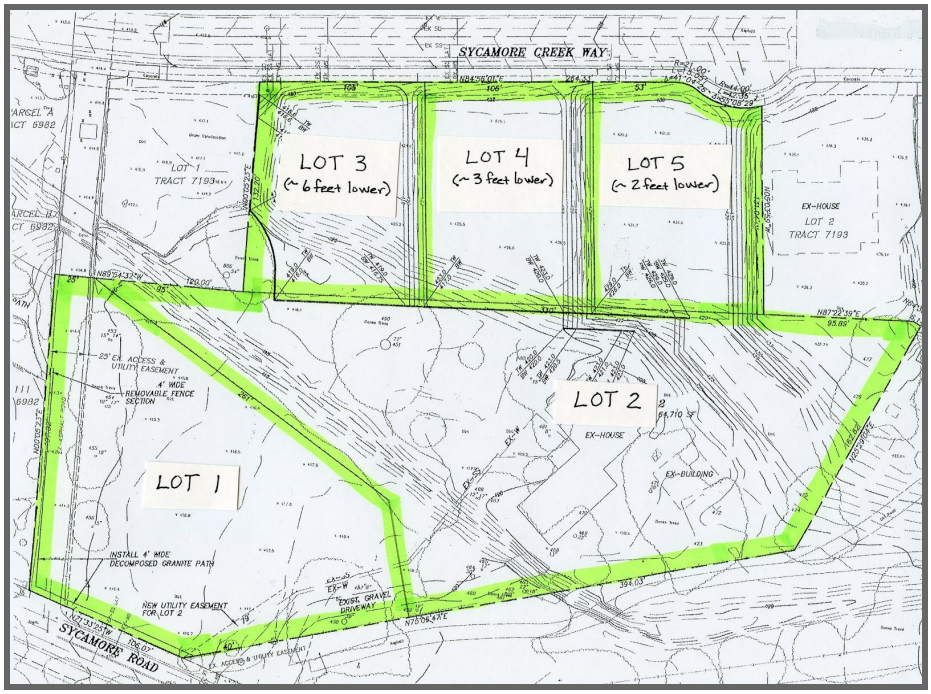
Dear Neighbors,

You may have wondered what is happening with the large vacant lot toward the end of Sycamore Creek Way. My family bought the property in 1998. Pleasanton's General Plan, amended in 2009, allows for two dwellings per acre on our property. Our whole parcel is over three acres.



When Sycamore Heights was built they needed land for the new road and wanted to square up two of their lots, so we did a lot line adjustment with them, and provided land for Sycamore Creek Way.

We are proposing to sub-divide our land into 5 parcels. Three of these parcels will infill the space between the Sycamore Heights lots and will be consistent with the adjacent lot sizes. These three will be accessed from Sycamore Creek Way (the area labeled Lot 3, Lot 4 and Lot 5 in the map below). The other two lots will be larger lots that are accessed from Sycamore Rd.

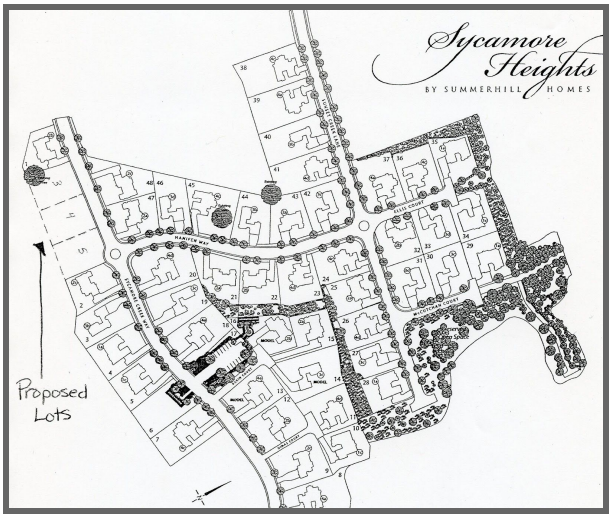


For the proposed lots along Sycamore Creek Way, we intend to match the size, style and colors of the Sycamore Heights existing homes.

The sewer, water and utilities for the three new lots on Sycamore Creek Way were already put in by the Sycamore Heights developer at the same time as the road was constructed so there would be less disruption during construction.

The lots outlined in dashed red lines below show a conceptual image of what the homes would look like in relation to the neighboring existing homes:

We are in the process of submitting a preliminary application for a planned unit development which will include the three lots along Sycamore Creek Way, and two lots below, accessed from Sycamore Road. With our current lot size of 3.3 acres, the overall density that we are asking for is less than the 2 units per acre allowed in the General Plan. Our property falls under the North Sycamore Specific Plan of June 1992 so it must be updated to become consistent with the General Plan.



We invite you to join us for a neighborhood community meeting at the Pleasanton Senior Center, 5353 Sunol Blvd, on Wednesday, March 28, 2018 at 7:30 pm in "The Classroom."

Warm Regards,

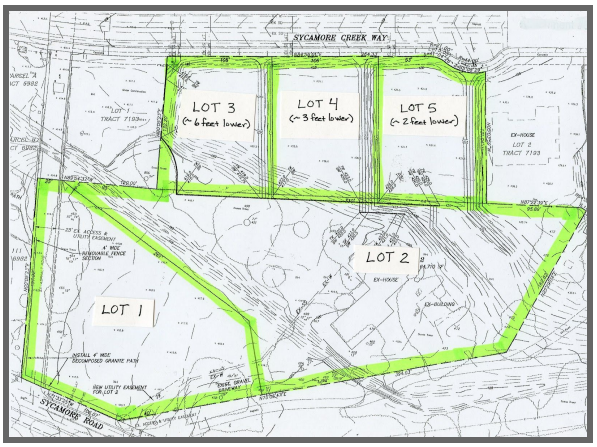
Margo Layton

Margo Bringhurst Layton and The Bringhurst Family
margolayton@hotmail.com

March 17, 2018

Dear Neighbors,

My family bought the property at the end of Sycamore Road in 1998. We are proposing to sub-divide our land into 5 parcels. Three of these parcels will infill the space between the Sycamore Heights lots and will be consistent with the adjacent lot sizes. These three will be accessed from Sycamore Creek Way (the area labeled Lot 3, Lot 4 and Lot 5 in the map at right). The other two lots will be larger lots, maintaining the rural feel of Sycamore Road. The newly formed Lot 1 and the existing home on Lot 2 will continue to be accessed from Sycamore Road.



Sewer, water and utilities for all the lots were already installed during previous road work so there will be less disruption during construction.

The lots outlined in dashed red lines below show a conceptual image of what the homes would look like in relation to the neighboring existing homes:

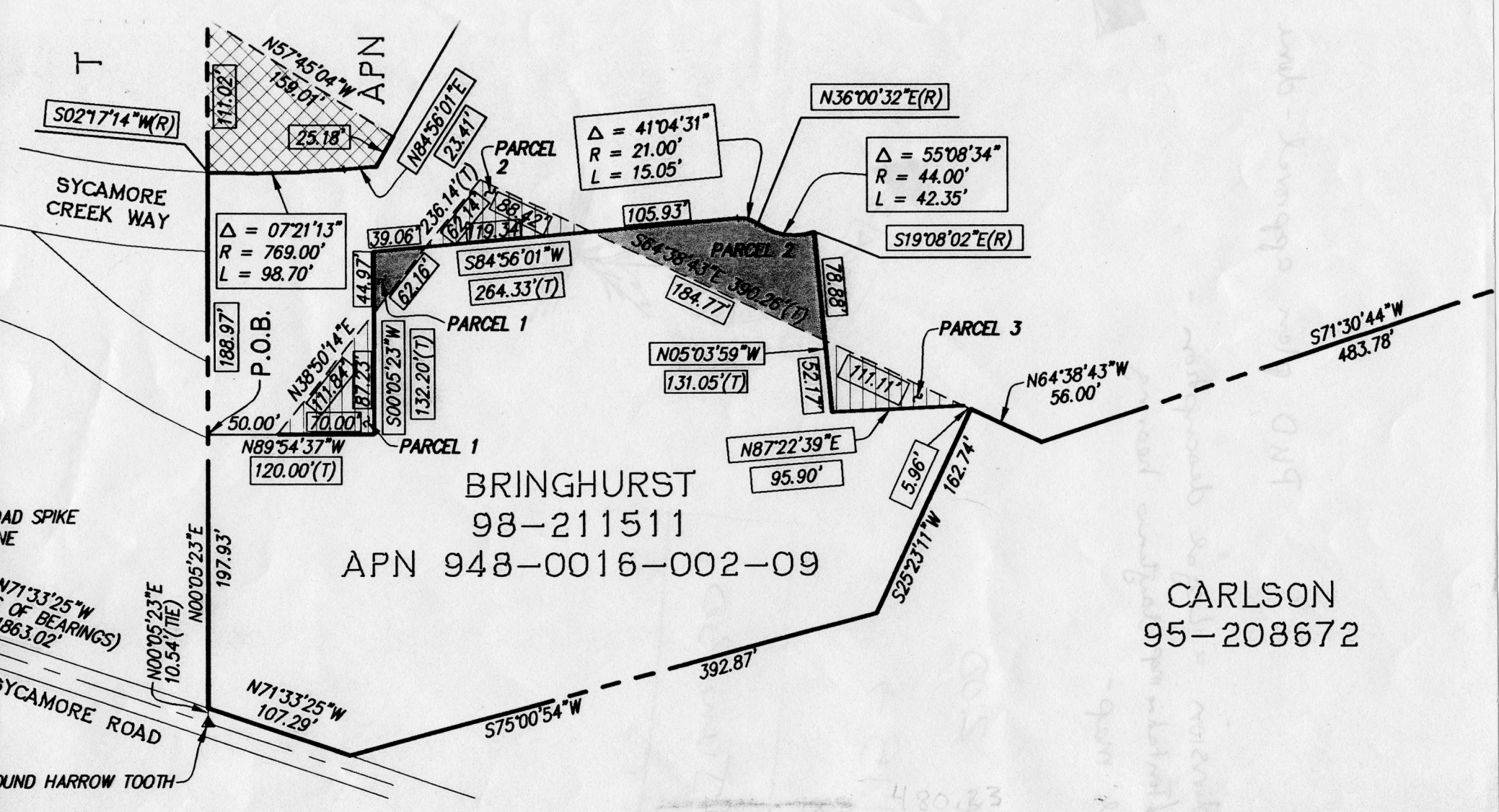
We are in the process of submitting a preliminary application for a planned unit development which will include the three lots along Sycamore Creek Way, and two lots along Sycamore Road. Pleasanton's General Plan, amended in 2009, allows for two dwellings per acre on our property. With our current lot size of 3.3 acres, the overall density that we are asking for is less than the 2 units per acre allowed in the General Plan. Our property falls under the North Sycamore Specific Plan of June 1992 so it must be updated to become consistent with the General Plan.

We invite you to join us for a neighborhood community meeting at the Pleasanton Senior Center, 5353 Sunol Blvd, on Wednesday, March 28, 2018 at 7:30 pm in "The Classroom."

Warm Regards,

Margo Layton

Margo Bringhurst Layton and The Bringhurst Family
margolayton@hotmail.com


N57°45'04"W
159.07'
APN
11.02'
25.18'
S02°17'14"W(R)
N84°56'01"E
23.41'
PARCEL 2
Δ = 41°04'31"
R = 21.00'
L = 15.05'
N36°00'32"E(R)
Δ = 55°08'34"
R = 44.00'
L = 42.35'
S19°08'02"E(R)
SYCAMORE CREEK WAY
Δ = 07°21'13"
R = 769.00'
L = 98.70'
39.06'
236.14'(T)
61.14'
88.42'
119.34'
105.93'
S84°56'01"W
264.33'(T)
S84°38'43"E 390.26'(T)
184.77'
78.88'
PARCEL 2
44.97'
62.16'
PARCEL 1
188.97'
P.O.B.
N38°50'14"E
111.84'
87.73'
S00°05'23"W
132.20'(T)
N05°03'59"W
131.05'(T)
52.17'
111.11'
PARCEL 3
S71°30'44"W
483.78'
N64°38'43"W
56.00'
50.00'
70.00'
N89°54'37"W
120.00'(T)
PARCEL 1
N87°22'39"E
95.90'
5.96'
162.74'
S25°23'11"W
BRINGHURST
98-211511
APN 948-0016-002-09
CARLSON
95-208672
AD SPIKE
NE
N71°33'25"W
OF BEARINGS)
863.02'
N00°05'23"E
197.93'
N00°05'23"E
10.54'(TIE)
YCAMORE ROAD
N71°33'25"W
107.29'
S75°00'54"W
392.87'
UND HARROW TOOTH
LEGEND:
NEW CITIES LA
NEW CITIES LA
BRINGHURST T

March 29, 2018

To the City of Pleasanton Staff:

Thank you for reviewing our proposed planned unit development “Sycamore Corner” and our request to update the North Sycamore Specific Plan to conform to the General Plan as amended in 2009. We are seeking approval to change the northern ~one acre of the site from Agriculture (PUD-A) zoning to Planned Unit Development- Low Density Residential (PUD-LDR) zoning so it will match the existing neighborhood. The remaining approximately two acres to the south will remain Agriculture zoning.

We have created this document to explain the history of the project and our vision for the property. We believe this plan will make the best use and most pleasing aesthetic outcome for the property. We have partnered with the community in the development of this area for many years. Many neighbors have expressed their support for this project. We look forward to working with you to bring this plan to fruition. Please contact us if you have any questions or needed revisions. Thank you.

Sincerely,

The Bringhurst Family

Background, *A Brief History of the Property*

When the North Sycamore Specific Plan (NSSP) was created in 1992, the 3.3-acre property at 990 Sycamore Road was zoned for three, one-acre Agricultural lots. Even though the Northern acre of the property extended into a Low Density Residential (LDR) zoning area, it was all accessed off Sycamore Road and designated Agricultural. After facilitating the creation of the new collector road in 2003, the Northern acre of 990 Sycamore Road had access off Sycamore Creek Way, and was surrounded on three sides by ⅓ acre lots, yet remained zoned agricultural. However, the General Plan adopted in 2009, designates the entire parcel as two dwellings per acre.

The NSSP clarifies “State law requires that a specific plan be consistent with the general plan.” (NSSP, p 74). Additionally, under the title *Land Use Goals 4a* of the NSSP, it states that its goal is to “Provide a specific plan which facilitates the orderly development of lands within the planning area in a manner which: ...is consistent with all elements of the Pleasanton General Plan.” (NSSP, 17) Pleasanton’s City website confirms this:

> The General Plan is the official document used by city decision-makers and citizens to guide the long-range development of land and the conservation of resources in Pleasanton. It is the key document with which all other city ordinances and policies must be consistent. (https://www.cityofpleasantonca.gov/gov/depts/cd/planning/general.asp)

Since the General Plan is the “key document” and state law stipulates that specific plans must be consistent with the General Plan, the NSSP should be updated to become consistent with the 2009 General Plan. Although the General Plan allows for six lots on our property, we are only applying for five lots, three accessed from Sycamore Creek Way and two roughly one-acre lots accessed from Sycamore Road. All five of these lots will be similar in size with their neighboring lots. Sycamore Heights did not build as many homes as allowed for the area under the North Sycamore Specific Plan so there is unused capacity within the NSSP to accommodate an additional two homes on our property.

History of Grading and Utility Hookup Installation on North Lot

In 2004, we entered into a contract with SummerHill Homes, the builder of Sycamore Heights, so they could buy our Northern acre adjacent to Sycamore Creek Way and put three of their Sycamore Heights houses on the land. While under contract, SummerHill Homes worked with us and the city of Pleasanton to get an interim-grading plan. SummerHill needed to raise the elevation of our North acre to support the new Sycamore Creek Way collector road and also to support their Sycamore Heights lots #1 and #2. Since our North acre was being accessed off Sycamore Creek Way, it also needed to be able to drain toward the road.

SummerHill knew that Kass, another neighbor they were working with, had too much dirt. Instead of hauling Kass' extra dirt off-site, through the streets of Pleasanton, and bringing in dirt for our project later, by truck, through the streets of Pleasanton, the City staff agreed it made sense to approve an interim-grading plan (see attached). This arrangement allowed dirt to be moved by scrapers from one area to another with virtually no impact to the community. It also allowed native dirt to be utilized for the project.

As the infrastructure was being installed for Sycamore Heights, all involved agreed it made sense to put in the utilities for the homes SummerHill planned to build on our North acre. It was more efficient to install them when they were putting in the infrastructure for their other homes and it meant the road would not have to be torn up at a later date.

At the time, SummerHill kept moving forward their construction dates because their homes were selling so quickly. At some point they came to the conclusion that their builders would be done and gone before our subdivision could make it through the City planning process. They decided to withdraw from the contract because they did not want to come back at a later date to build only three homes.

Southern Two-plus Acres Will Remain Agricultural

As mentioned earlier, we have no plans to alter the agricultural zoning or density of the two plus acres off Sycamore Road. These will remain agricultural with no change to the feel of the neighborhood or increase in density or traffic beyond what is already allowed.

NSSP *Encourages* New Housing in Infill Areas

While our application requires a zoning change, this change is justifiable and even encouraged according to the NSSP. In Section 2. *Residential Policies* of the NSSP, it lists its goals as, "Preserve the character of existing residential neighborhoods. Encourage **new housing** in infill and peripheral areas which are adjacent to existing residential development." [bold lettering part of original document] (NSSP, p 75). Building three homes with similar lot sizes that are consistent with the other homes along Sycamore Creek Way is the only solution that will meet the criteria outlined in the NSSP. A long, rectangular, one-acre lot with one home would not conform to the neighborhood and would, in fact, stand out.

NSSP Includes Provisions for Innovation and Special Circumstances

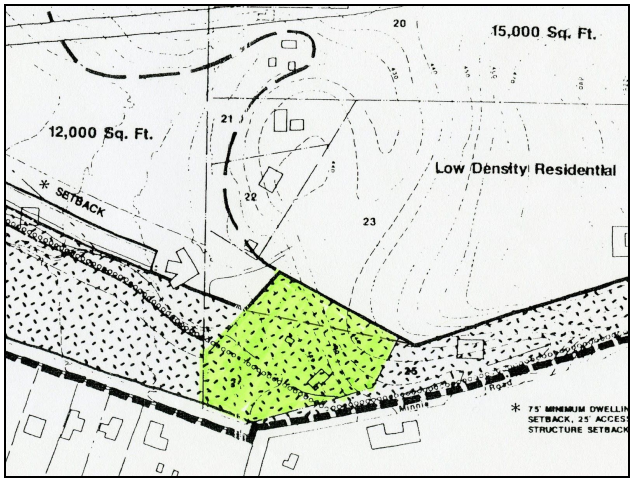
The NSSP explicitly states that zoning within the Specific Plan area may be changed if there are "exceptions for unique conditions. Under Section 1 *Intent*, it reads, "The PUD-A zoning category is intended to correspond generally to the Agricultural District designation of the City of Pleasanton Municipal Code, with some exceptions for unique conditions in the Specific Plan area" (NSSP p 27). On page 30 under *PUD-Low Density Residential 1. Intent*, it reiterates this allowance for special circumstances, "The PUD designation is intended to allow for innovation and/or special circumstances. Development applications would be reviewed by the City for

consistency with existing and future land uses and with the goals and policies of the Specific Plan." (NSSP, p 30)

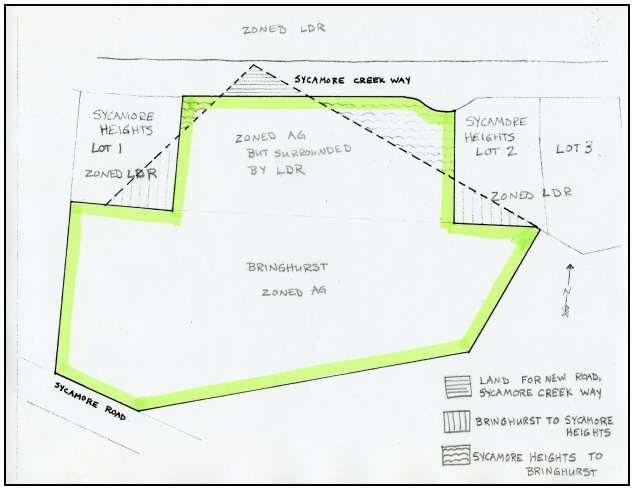
A third mention of the need for flexibility in Zoning appears in Section 4. *Zoning*:

> Application of the PUD is recommended to ensure that goals and policies of the General Plan and Specific Plan are implemented, while accommodating innovation and special consideration for site-specific capabilities and constraints, including odd-sized or specially constrained parcels. The following four PUD categories are proposed: PUD-A, PUD-LDR, PUD-MDR, and PUD-O. Once approved, each PUD application is processed as a unique zoning district. (NSSP, p 66)

990 Sycamore falls under the category of property needing "innovation and special consideration" because of its odd shape and location. When the NSSP was created, a large triangular portion extended into the LDR zone, but because it was all one lot, it was designated PUD-A. Part of this triangle extended so far into the PUD-LDR that some of it was needed for the new collector road, Sycamore Creek Way. The Bringhurst family voluntarily donated part of their land for the construction of the new Sycamore Creek Way. At the same time we agreed to do a lot line adjustment so our Sycamore Heights neighbors above us and below us would have nicely shaped, rectangular lots. These changes, and the donated land for the road can be seen below.



Page 22 NSSP



Donation of Land, Lot line adjustments

The North acre should be rezoned LDR because 1) LDR zoning agrees with the dwelling per acre designation in the General Plan adopted in 2009, 2) LDR zoning fulfills the NSSP goal of placing new housing as an infill project within an existing neighborhood, and 3) LDR zoning is the only logical use of the land given its location and unique "site-specific capabilities and constraints."

Original

Landtech Consultants
Civil & Structural Engineers

February 25, 2000

Mr. Wes Jost
Public Works Department
City of Pleasanton
123 Main Street
Pleasanton, CA 94566-0802

SUBJECT: REVISED HYDROLOGIC AND HYDRAULIC STUDY FOR SYCAMORE CREEK ALONG THE BRINGHURST PROPERTY, 990 SYCAMORE AVE., PLEASANTON, CA

Dear Mr. Jost:

Reference is made to our original report dated January 3, 2000 and to our meeting with you on January 27.

The purpose of this letter is to supplement the original January 3 report by including creek sections, as you requested at our January 27 meeting. We revised some of the sections from our original report to include additional overbank areas, so we are also including revised profile plots and summaries for the 15-year and 100-year storms. The HGL for these revised calculations varies slightly from the original calculations as a result of the additional overbank area inclusion, however the increase resulting from the future development will still be less than 0.01 feet, which is considered not significant.

During the January 27 meeting you expressed concern that Sycamore Creek may have increased flow in the future due to the upstream SPOTORNO/SUMMERHILL DEVELOPMENT. We reviewed the drainage study as prepared by David Evans & Associates and noted on page 4 and 5 of the SUMMARY AND ANALYSIS section that "… no additional increase in runoff to Sycamore Creek from the proposed development <i.e., SPOTORNO/SUMMERHILL DEVELOPMENT> (will) be allowed".

We are also submitting under separate cover a revised Grading Plan and an Erosion Control Plan for your review and comment. The revised Grading Plan proposes no grading within 5' of the creek bank. In addition, only minimal grading (to produce a 2% slope toward the creek) will be done within 15' of the creek bank. It is our hope that by providing these setbacks we will be able to proceed with the grading and erosion control as soon as possible so that our client can take advantage of the export soil from the adjacent development.

If you have questions or would like additional information regarding this report, please advise.

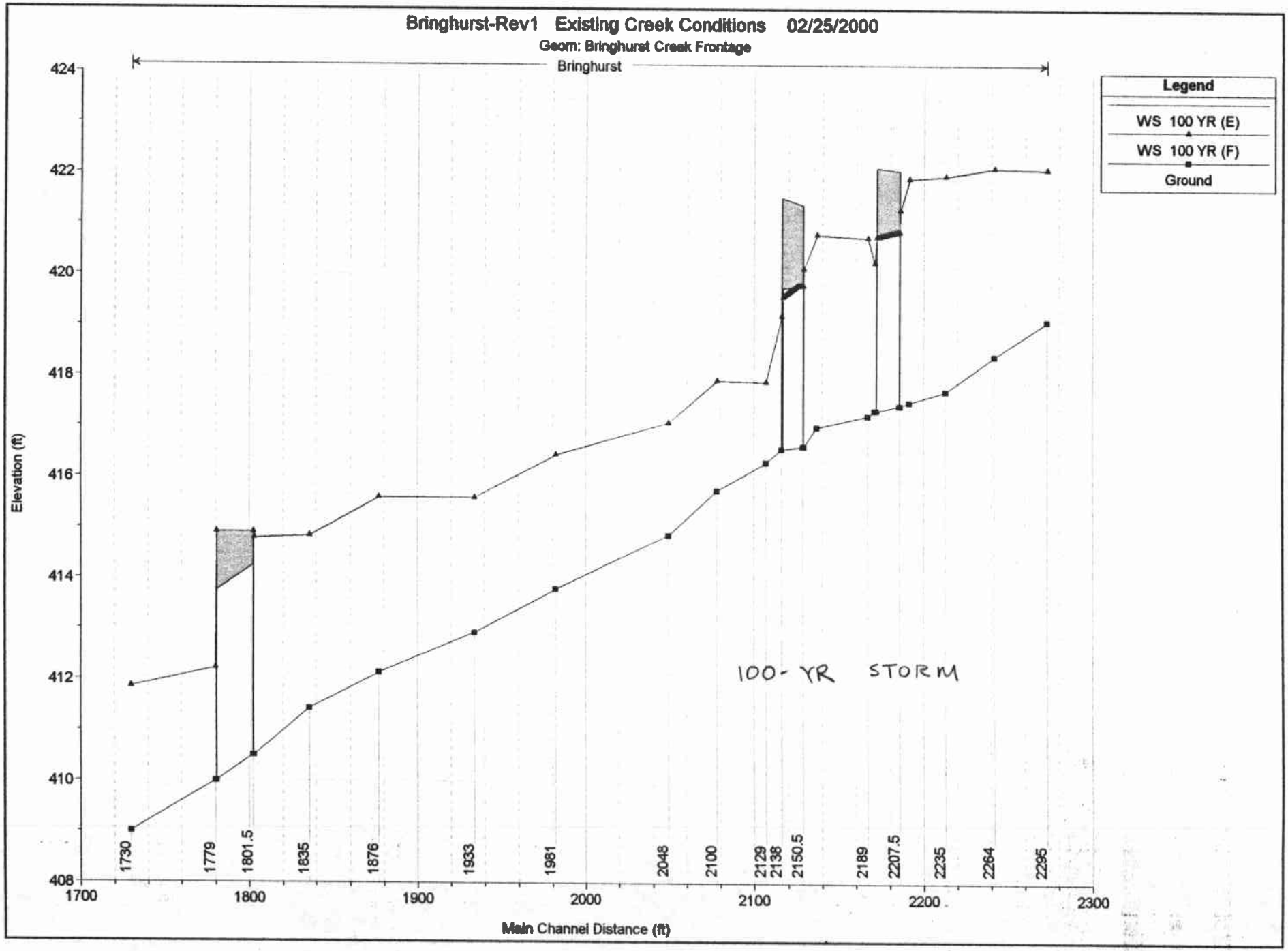
Sincerely,

Kamal Obeid, SE, PE
Civil Engineer 35214
Expires September 30, 2003

cc: Dr. Deon Bringhurst

3845 Beacon Avenue, Suite D
Fremont, CA 94538

(510) 505-9501 Kamal Obeid
FAX (510) 505-9503


Bringhurst-Rev1 Existing Creek Conditions 02/25/2000
Geom: Bringhurst Creek Frontage
Bringhurst
Legend
WS 100 YR (E)
WS 100 YR (F)
Ground
Elevation (ft)
Main Channel Distance (ft)
424
422
420
418
416
414
412
410
408
1700
1800
1900
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2129
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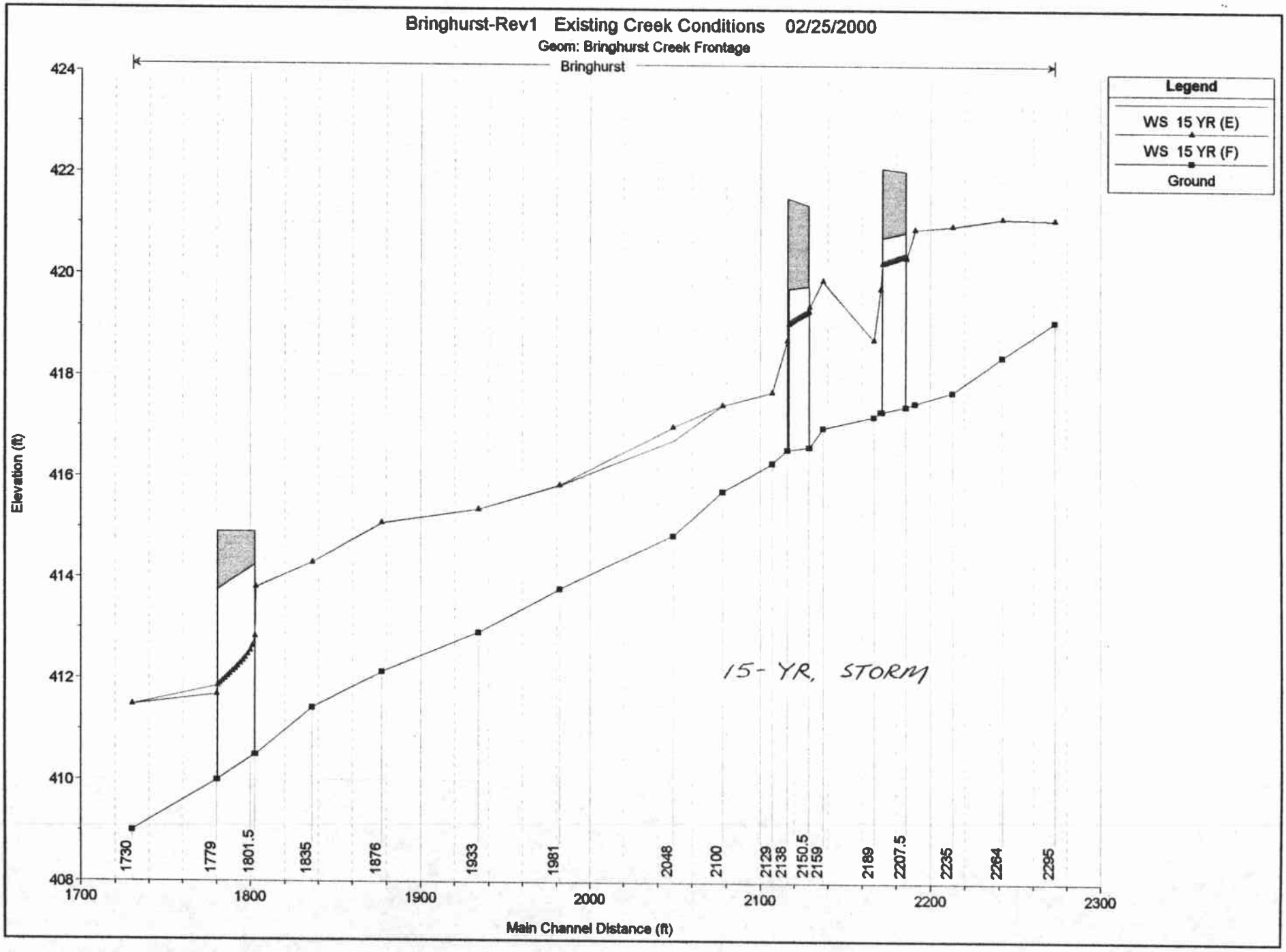
2150.5
2189
2207.5
2235
2264
2295
100-YR STORM

100-YR STORM

HEC-RAS Plan: Bringhurst River: Sycamore Creek Reach: Bringhurst

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Bringhurst	2295	100 YR (E)	217.00	419.10	422.08	421.04	422.34	0.003423	4.10	52.94	22.48	0.47
Bringhurst	2295	100 YR (F)	217.72	419.10	422.09	421.04	422.35	0.003412	4.09	53.21	22.61	0.47
Bringhurst	2284	100 YR (E)	217.00	418.41	422.10		422.22	0.001659	2.79	77.90	35.04	0.33
Bringhurst	2284	100 YR (F)	217.72	418.41	422.11		422.23	0.001649	2.78	78.32	35.18	0.33
Bringhurst	2235	100 YR (E)	217.00	417.71	421.96		422.15	0.003134	3.62	59.96	27.26	0.43
Bringhurst	2235	100 YR (F)	217.72	417.71	421.96		422.16	0.003149	3.61	60.29	27.66	0.43
Bringhurst	2213	100 YR (E)	217.00	417.50	421.89		422.08	0.002998	3.48	62.33	27.71	0.41
Bringhurst	2213	100 YR (F)	217.72	417.50	421.90		422.09	0.002985	3.47	62.68	27.90	0.41
Bringhurst	2208	100 YR (E)	217.00	417.43	421.27	420.36	422.00	0.010482	6.85	31.67	9.00	0.64
Bringhurst	2208	100 YR (F)	217.72	417.43	421.28	420.36	422.01	0.010455	6.85	31.77	9.00	0.64
Bringhurst	2207.5		Culvert									
Bringhurst	2193	100 YR (E)	217.00	417.33	420.24	420.24	421.56	0.024122	9.23	23.50	8.97	1.01
Bringhurst	2193	100 YR (F)	217.72	417.33	420.24	420.24	421.57	0.024126	9.24	23.55	8.97	1.01
Bringhurst	2159	100 YR (E)	217.00	417.23	420.73	419.73	421.09	0.005058	4.82	45.03	19.70	0.56
Bringhurst	2159	100 YR (F)	217.72	417.23	420.74	419.74	421.10	0.005049	4.82	45.17	19.74	0.56
Bringhurst	2159	100 YR (E)	217.00	417.00	420.79		420.92	0.002247	2.96	73.34	38.50	0.38
Bringhurst	2159	100 YR (F)	217.72	417.00	420.80		420.93	0.002232	2.96	73.65	38.50	0.38
Bringhurst	2151	100 YR (E)	217.00	416.62	420.12	419.28	420.83	0.010298	6.78	32.01	9.59	0.65
Bringhurst	2151	100 YR (F)	217.72	416.62	420.12	419.29	420.84	0.010324	6.79	32.05	9.59	0.65
Bringhurst	2150.5		Culvert									
Bringhurst	2138	100 YR (E)	217.00	416.57	419.19	419.19	420.46	0.023247	9.04	24.00	9.56	1.01
Bringhurst	2138	100 YR (F)	217.72	416.57	419.20	419.20	420.47	0.023257	9.05	24.05	9.56	1.01
Bringhurst	2129	100 YR (E)	217.00	416.30	417.89	418.51	420.03	0.075638	11.74	18.48	16.33	1.94
Bringhurst	2129	100 YR (F)	217.72	416.30	417.89	418.52	420.04	0.075688	11.76	18.52	16.33	1.95
Bringhurst	2100	100 YR (E)	217.00	415.74	417.91	417.94	418.78	0.017449	7.49	28.97	17.63	1.03
Bringhurst	2100	100 YR (F)	217.72	415.74	417.91	417.94	418.78	0.017388	7.49	29.07	17.64	1.03
Bringhurst	2048	100 YR (E)	217.00	414.86	417.07	417.24	418.20	0.022315	8.51	25.51	15.02	1.15
Bringhurst	2048	100 YR (F)	217.72	414.86	417.08	417.24	418.20	0.022284	8.51	25.58	15.03	1.15
Bringhurst	1981	100 YR (E)	217.00	413.79	416.43	416.47	417.07	0.011355	6.40	33.91	28.02	1.03
Bringhurst	1981	100 YR (F)	217.72	413.79	416.44	416.47	417.07	0.011300	6.39	34.09	28.23	1.02
Bringhurst	1933	100 YR (E)	217.00	412.93	415.58	415.43	416.35	0.013183	7.03	30.85	16.34	0.90
Bringhurst	1933	100 YR (F)	217.72	412.93	415.58	415.43	416.35	0.013223	7.05	30.89	16.34	0.90
Bringhurst	1878	100 YR (E)	217.00	412.14	415.58		415.84	0.003578	4.43	61.80	50.00	0.48
Bringhurst	1878	100 YR (F)	217.72	412.14	415.59		415.85	0.003558	4.42	62.11	50.00	0.48
Bringhurst	1836	100 YR (E)	217.00	411.43	414.82		415.54	0.012764	6.83	31.78	17.00	0.88
Bringhurst	1836	100 YR (F)	217.72	411.43	414.83		415.55	0.012623	6.81	31.97	17.00	0.88
Bringhurst	1802	100 YR (E)	217.00	410.50	414.78	413.75	415.21	0.004862	5.24	41.44	14.00	0.54
Bringhurst	1802	100 YR (F)	217.72	410.50	414.79	413.76	415.22	0.004847	5.24	41.58	14.00	0.54
Bringhurst	1801.5		Culvert									
Bringhurst	1779	100 YR (E)	217.00	410.00	412.20	412.20	412.99	0.016564	7.11	30.51	19.73	1.01
Bringhurst	1779	100 YR (F)	217.72	410.00	412.20	412.20	412.99	0.016547	7.12	30.59	19.76	1.01
Bringhurst	1730	100 YR (E)	217.00	409.00	411.84	411.39	412.24	0.007595	5.07	42.78	25.80	0.69
Bringhurst	1730	100 YR (F)	217.72	409.00	411.84	411.39	412.24	0.007646	5.09	42.78	25.80	0.70


Bringhurst-Rev1 Existing Creek Conditions 02/25/2000
Geom: Bringhurst Creek Frontage
Bringhurst
Legend
WS 15 YR (E)
WS 15 YR (F)
Ground
15-YR, STORM
Elevation (ft)
Main Channel Distance (ft)
424
422
420
418
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408
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1800
1900
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2200
2300
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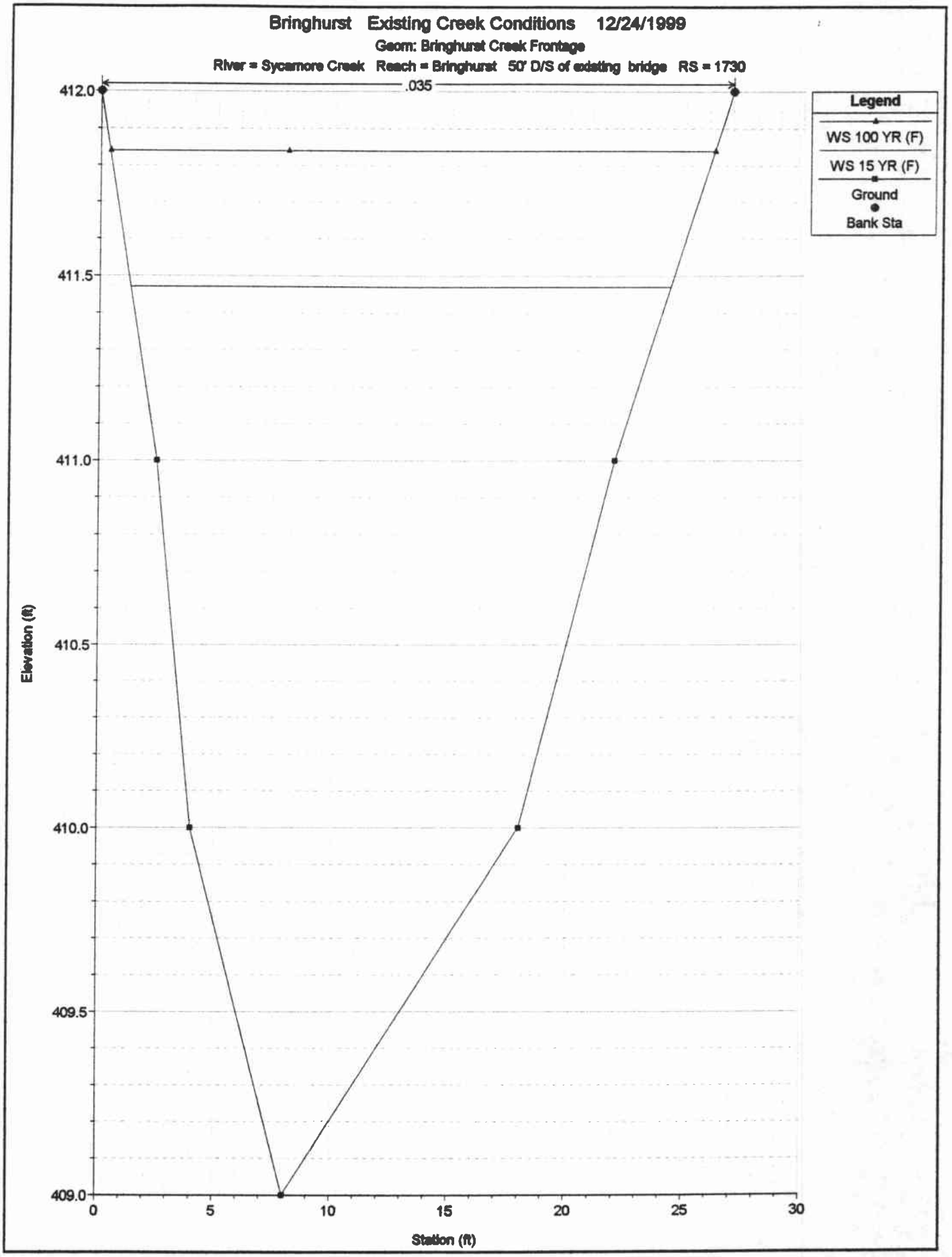
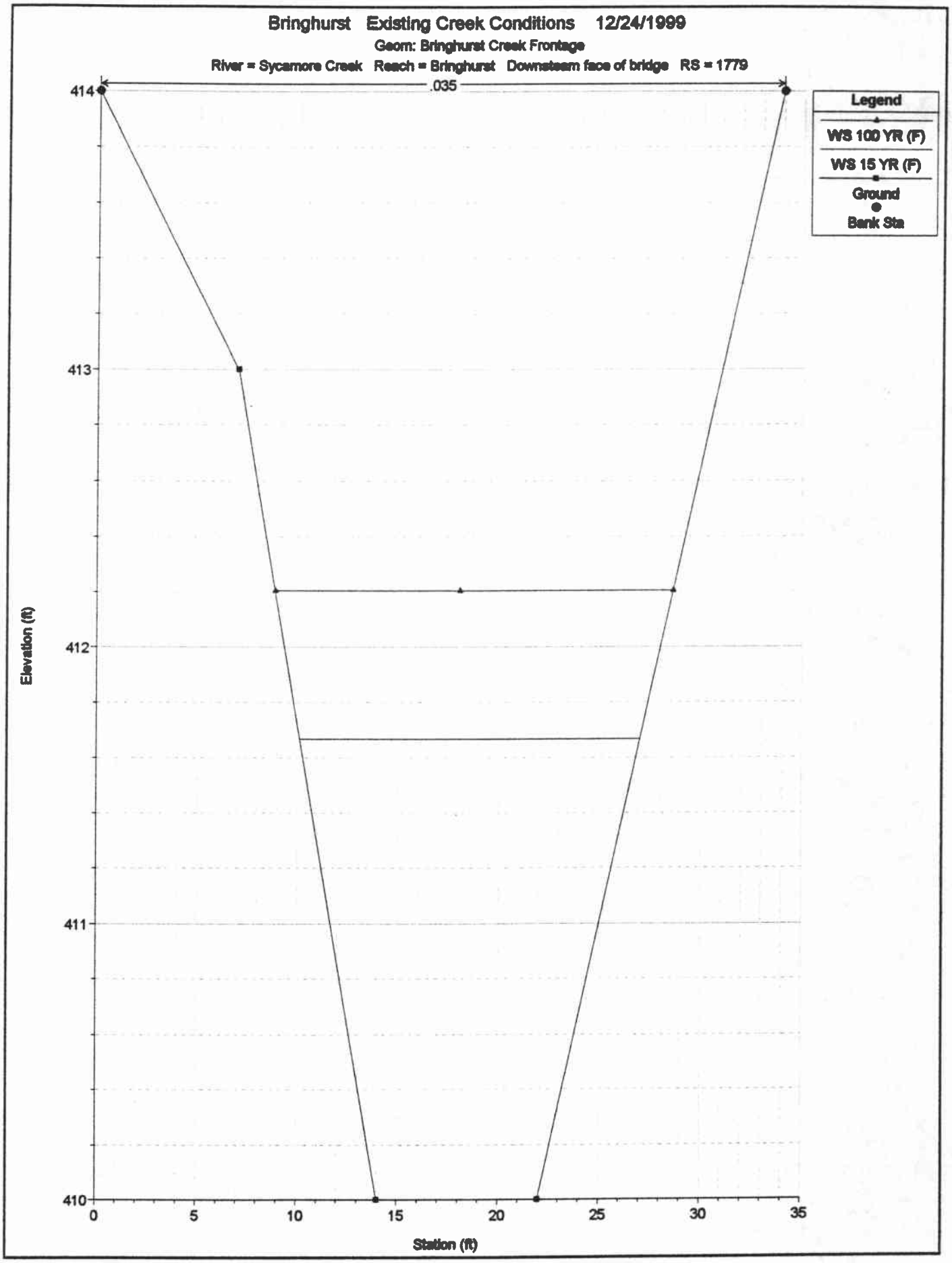
1779
1801.5
1835
1876
1933
1981
2048
2100
2129
2138
2150.5
2159
2189
2207.5
2235
2264
2295

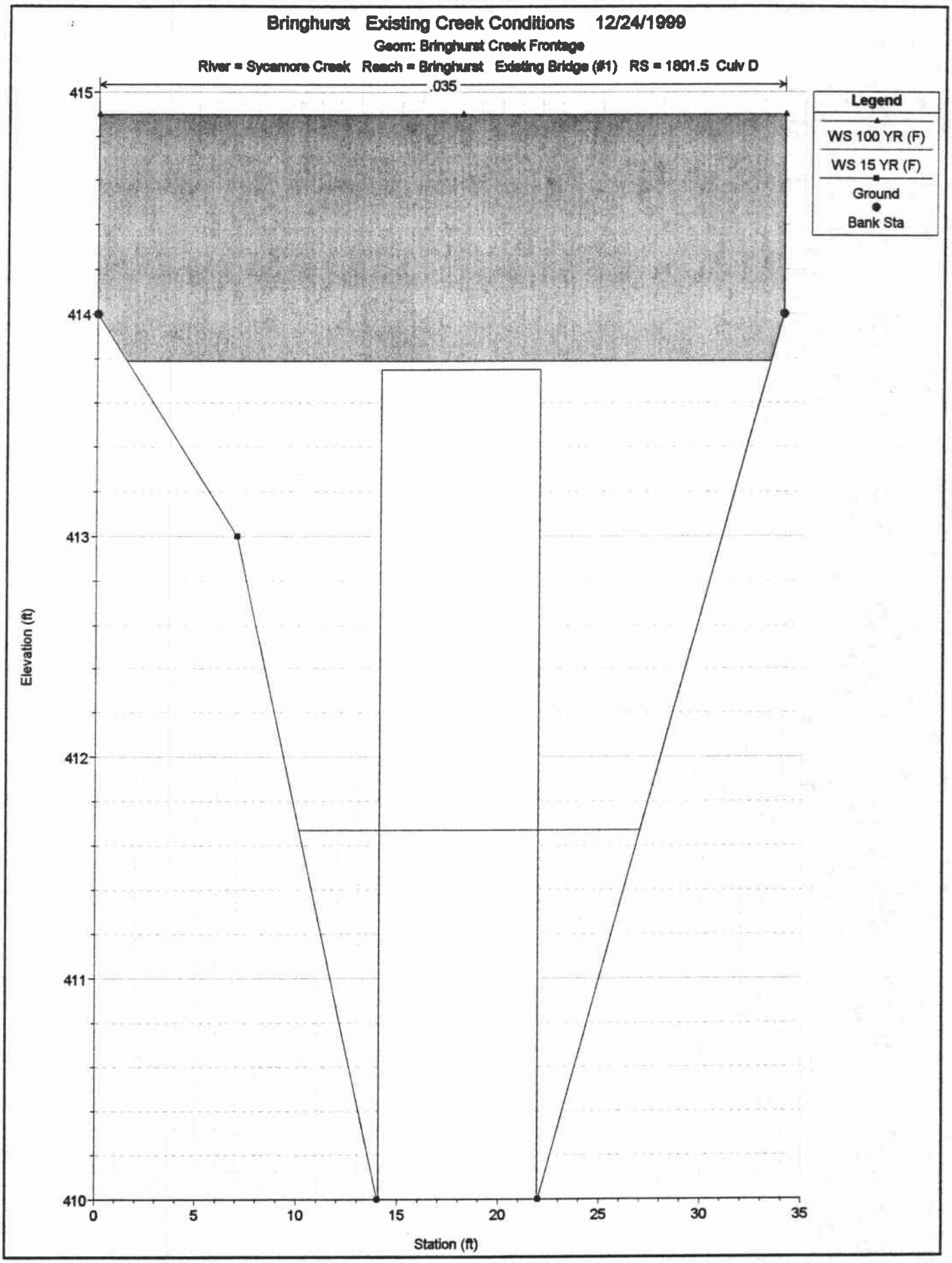
15-YR STORM

HEC-RAS Plan: Bringhurst River: Sycamore Creek Reach: Bringhurst

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Bringhurst	2295	15 YR (E)	158.00	419.10	421.09	420.73	421.47	0.008102	4.93	32.07	20.45	0.69
Bringhurst	2295	15 YR (F)	158.56	419.10	421.10	420.74	421.48	0.008024	4.92	32.25	20.47	0.69
Bringhurst	2264	15 YR (E)	158.00	418.41	421.12		421.28	0.002380	3.21	49.29	23.28	0.39
Bringhurst	2264	15 YR (F)	158.56	418.41	421.13		421.29	0.002380	3.20	49.48	23.38	0.39
Bringhurst	2235	15 YR (E)	158.00	417.71	420.97		421.20	0.003035	3.79	41.68	16.72	0.42
Bringhurst	2235	15 YR (F)	158.56	417.71	420.98		421.20	0.003029	3.79	41.81	16.73	0.42
Bringhurst	2213	15 YR (E)	158.00	417.50	420.91		421.13	0.003209	3.77	41.88	16.19	0.41
Bringhurst	2213	15 YR (F)	158.56	417.50	420.91		421.13	0.003202	3.78	41.99	16.19	0.41
Bringhurst	2208	15 YR (E)	158.00	417.43	420.33	419.86	421.05	0.013198	6.80	23.24	8.97	0.74
Bringhurst	2208	15 YR (F)	158.56	417.43	420.34	419.86	421.06	0.013194	6.80	23.30	8.97	0.74
Bringhurst	2207.5		Culvert									
Bringhurst	2193	15 YR (E)	158.00	417.33	419.73	419.73	420.81	0.023495	8.31	19.01	8.96	1.01
Bringhurst	2193	15 YR (F)	158.56	417.33	419.74	419.74	420.81	0.023502	8.32	19.06	8.96	1.01
Bringhurst	2189	15 YR (E)	158.00	417.23	418.73	419.29	420.58	0.060671	10.89	14.50	12.31	1.77
Bringhurst	2189	15 YR (F)	158.56	417.23	418.74	419.30	420.58	0.060657	10.91	14.54	12.32	1.77
Bringhurst	2159	15 YR (E)	158.00	417.00	419.89	418.71	420.09	0.002985	3.55	44.45	21.51	0.44
Bringhurst	2159	15 YR (F)	158.56	417.00	419.90	418.72	420.09	0.002985	3.55	44.62	21.61	0.44
Bringhurst	2151	15 YR (E)	158.00	416.62	419.38	418.80	420.00	0.011079	6.34	24.91	9.57	0.69
Bringhurst	2151	15 YR (F)	158.56	416.62	419.38	418.81	420.01	0.011079	6.35	24.97	9.57	0.69
Bringhurst	2150.5		Culvert									
Bringhurst	2138	15 YR (E)	158.00	416.57	418.71	418.71	419.74	0.022787	8.14	19.42	9.55	1.01
Bringhurst	2138	15 YR (F)	158.56	416.57	418.72	418.72	419.75	0.022780	8.14	19.47	9.55	1.01
Bringhurst	2129	15 YR (E)	158.00	416.30	417.70	418.18	419.34	0.071878	10.27	15.38	16.27	1.86
Bringhurst	2129	15 YR (F)	158.56	416.30	417.70	418.18	419.34	0.071950	10.29	15.41	16.27	1.86
Bringhurst	2100	15 YR (E)	158.00	415.74	417.44	417.57	418.31	0.023440	7.51	21.05	16.09	1.16
Bringhurst	2100	15 YR (F)	158.56	415.74	417.44	417.58	418.32	0.023357	7.51	21.13	16.10	1.15
Bringhurst	2048	15 YR (E)	158.00	414.86	416.73	416.85	417.85	0.022232	7.70	20.51	14.10	1.13
Bringhurst	2048	15 YR (F)	158.56	414.86	417.00	416.86	417.85	0.013462	6.49	24.45	14.83	0.89
Bringhurst	1981	15 YR (E)	158.00	413.79	415.84	415.84	416.62	0.017332	7.07	22.35	14.57	1.01
Bringhurst	1981	15 YR (F)	158.56	413.79	415.84	415.84	416.62	0.017386	7.08	22.38	14.57	1.01
Bringhurst	1933	15 YR (E)	158.00	412.93	415.36	415.03	415.88	0.009810	5.78	27.32	15.61	0.77
Bringhurst	1933	15 YR (F)	158.56	412.93	415.36	415.03	415.88	0.009829	5.79	27.37	15.62	0.77
Bringhurst	1878	15 YR (E)	158.00	412.14	415.07		415.42	0.005352	4.80	36.33	50.00	0.58
Bringhurst	1878	15 YR (F)	158.56	412.14	415.08		415.43	0.005335	4.79	36.59	50.00	0.57
Bringhurst	1835	15 YR (E)	158.00	411.43	414.28	414.28	415.02	0.017433	6.91	22.88	15.72	1.01
Bringhurst	1835	15 YR (F)	158.56	411.43	414.29	414.29	415.03	0.017430	6.91	22.94	15.74	1.01
Bringhurst	1802	15 YR (E)	158.00	410.50	413.79	413.34	414.30	0.008468	5.73	27.57	13.68	0.71
Bringhurst	1802	15 YR (F)	158.56	410.50	413.80	413.34	414.31	0.008392	5.72	27.73	13.70	0.71
Bringhurst	1801.5		Culvert									
Bringhurst	1779	15 YR (E)	158.00	410.00	411.84	411.85	412.53	0.017640	8.66	23.72	17.81	0.71
Bringhurst	1779	15 YR (F)	158.56	410.00	411.87	411.85	412.57	0.025734	7.63	20.78	16.90	0.71
Bringhurst	1730	15 YR (E)	158.00	409.00	411.47	411.05	411.81	0.007620	4.68	33.74	23.03	0.68
Bringhurst	1730	15 YR (F)	158.56	409.00	411.47	411.05	411.81	0.007675	4.70	33.74	23.03	0.68


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst 50' D/S of edating bridge RS = 1730
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
412.0
411.5
411.0
410.5
410.0
409.5
409.0
0
5
10
15
20
25
30
Station (ft)


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst Downstream face of bridge RS = 1779
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
414
413
412
411
410
0
5
10
15
20
25
30
35
Station (ft)


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst Existing Bridge (#1) RS = 1801.5 Culv D
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
415
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413
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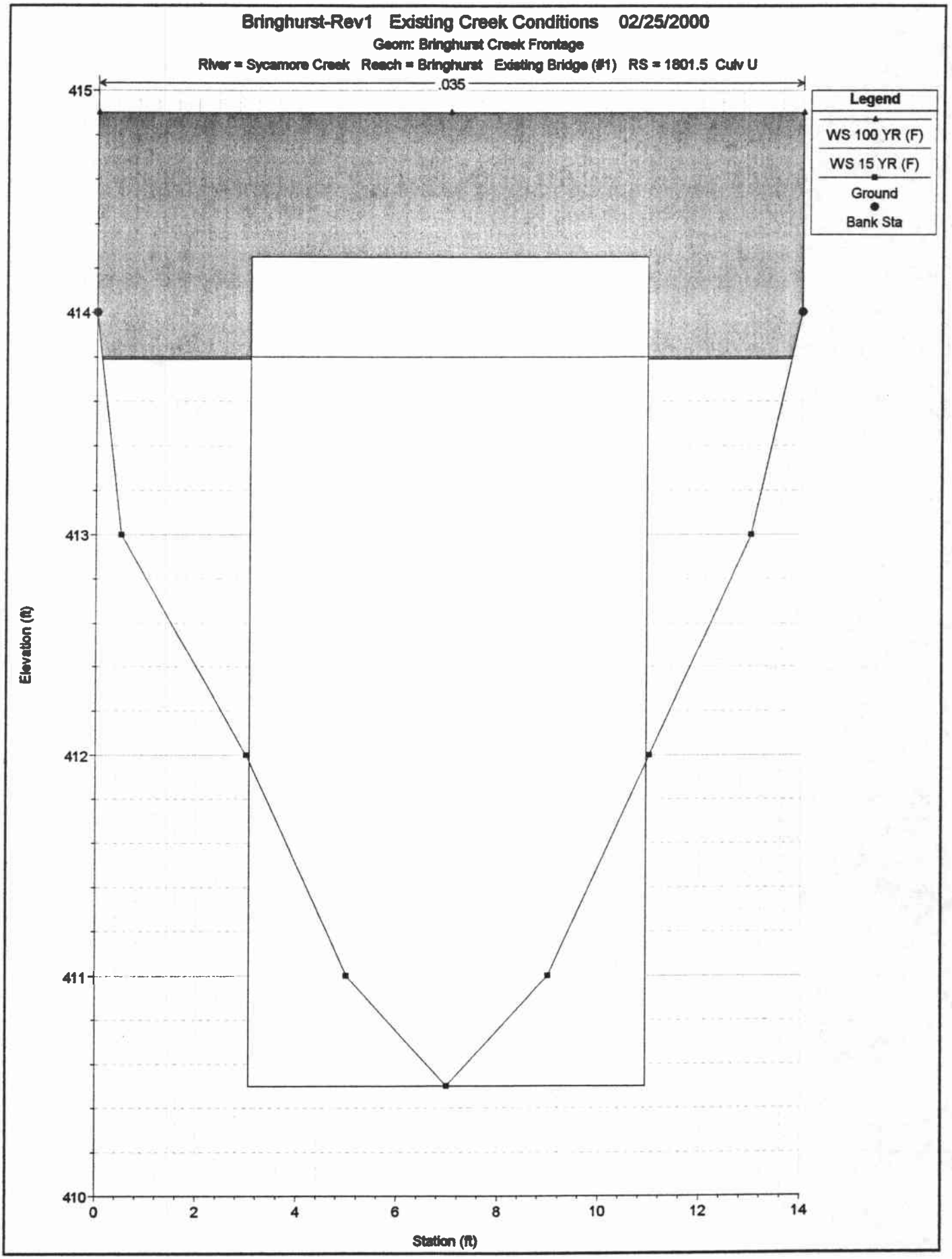
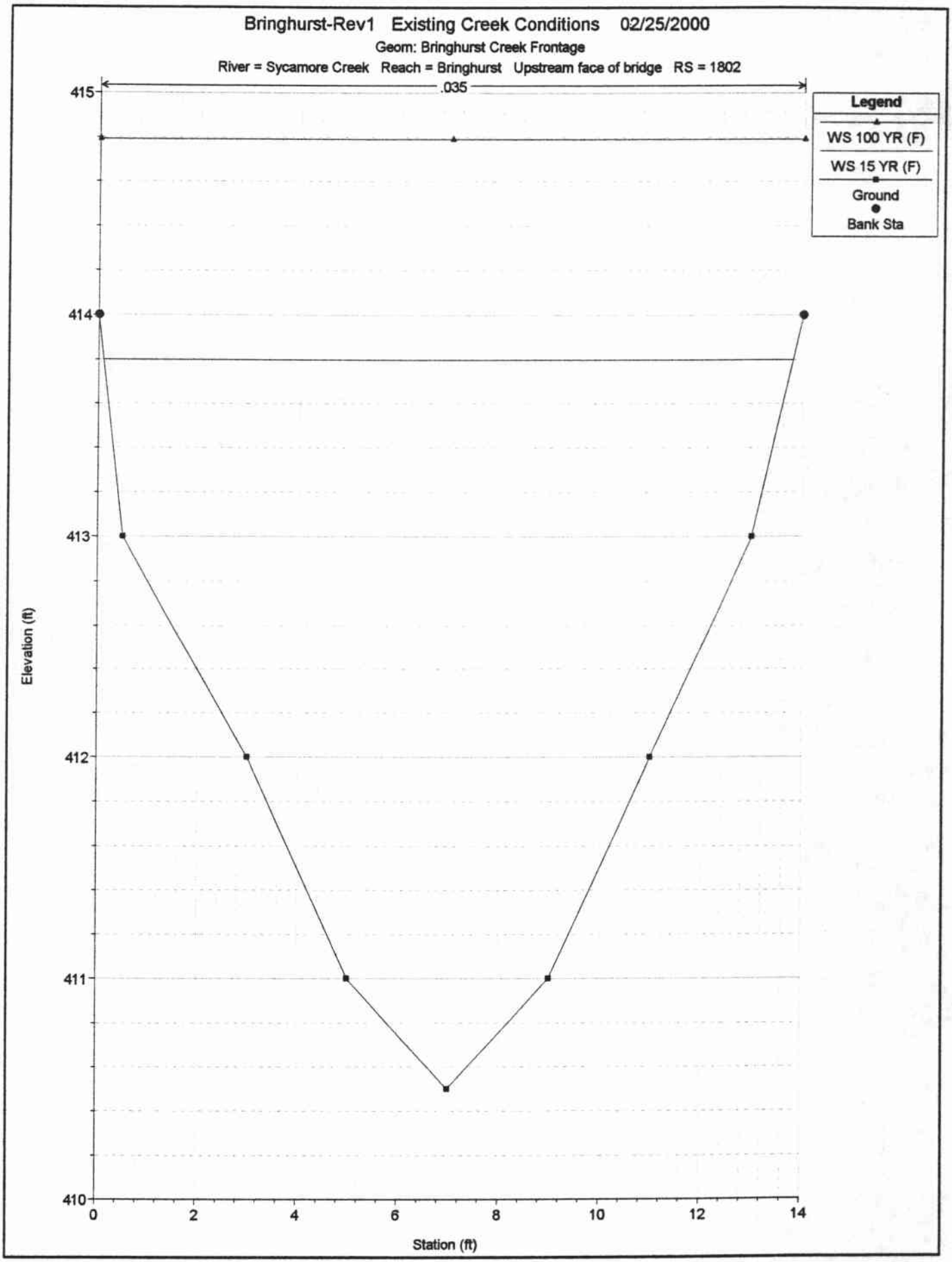
35


Bringhurst-Rev1 Existing Creek Conditions 02/25/2000
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst Existing Bridge (#1) RS = 1801.5 Culv U
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
415
414
413
412
411
410
0
2
4
6
8
10
12
14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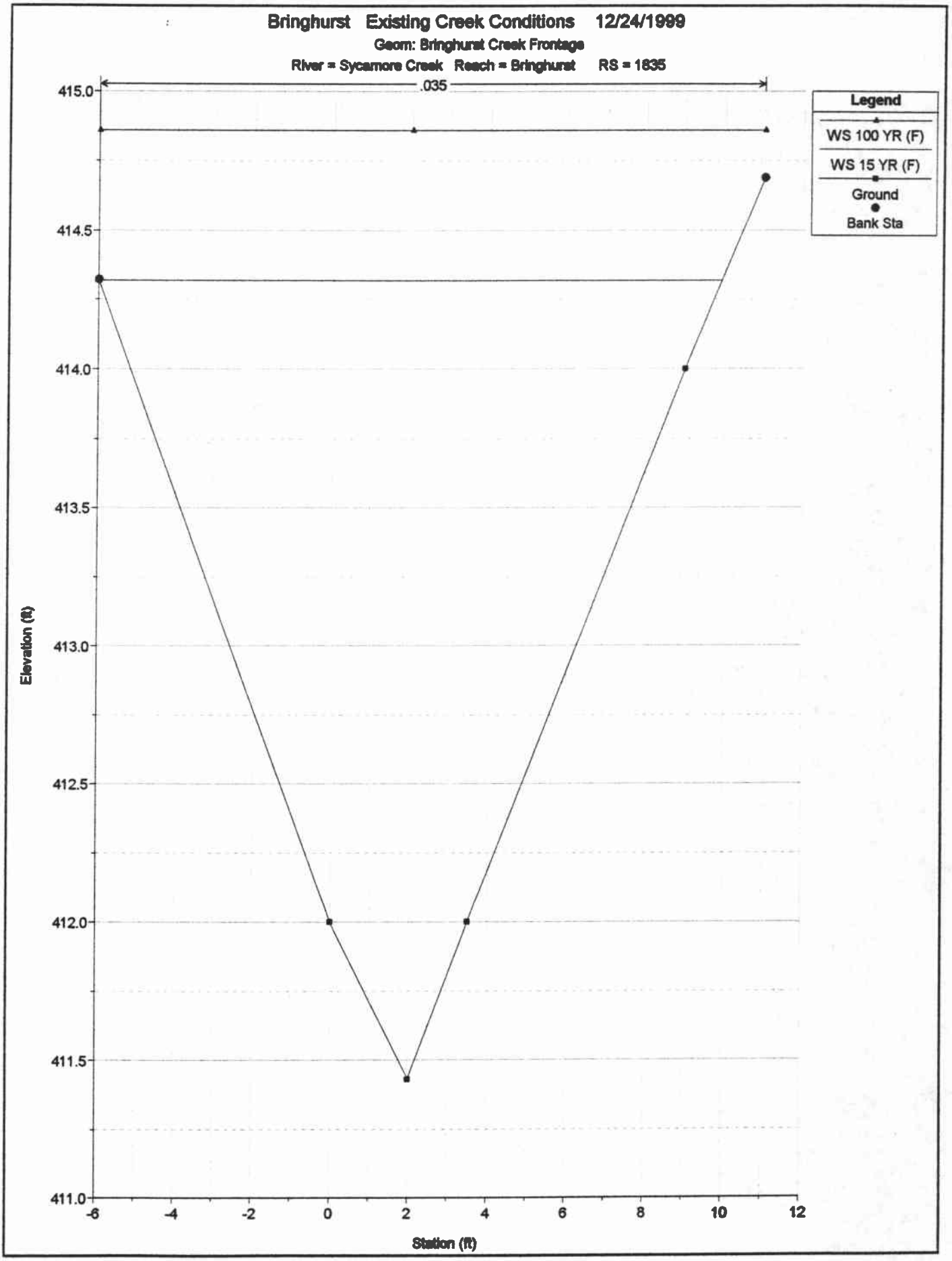
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst Upstream face of bridge RS = 1802
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
415
414
413
412
411
410
0
2
4
6
8
10
12
14
Station (ft)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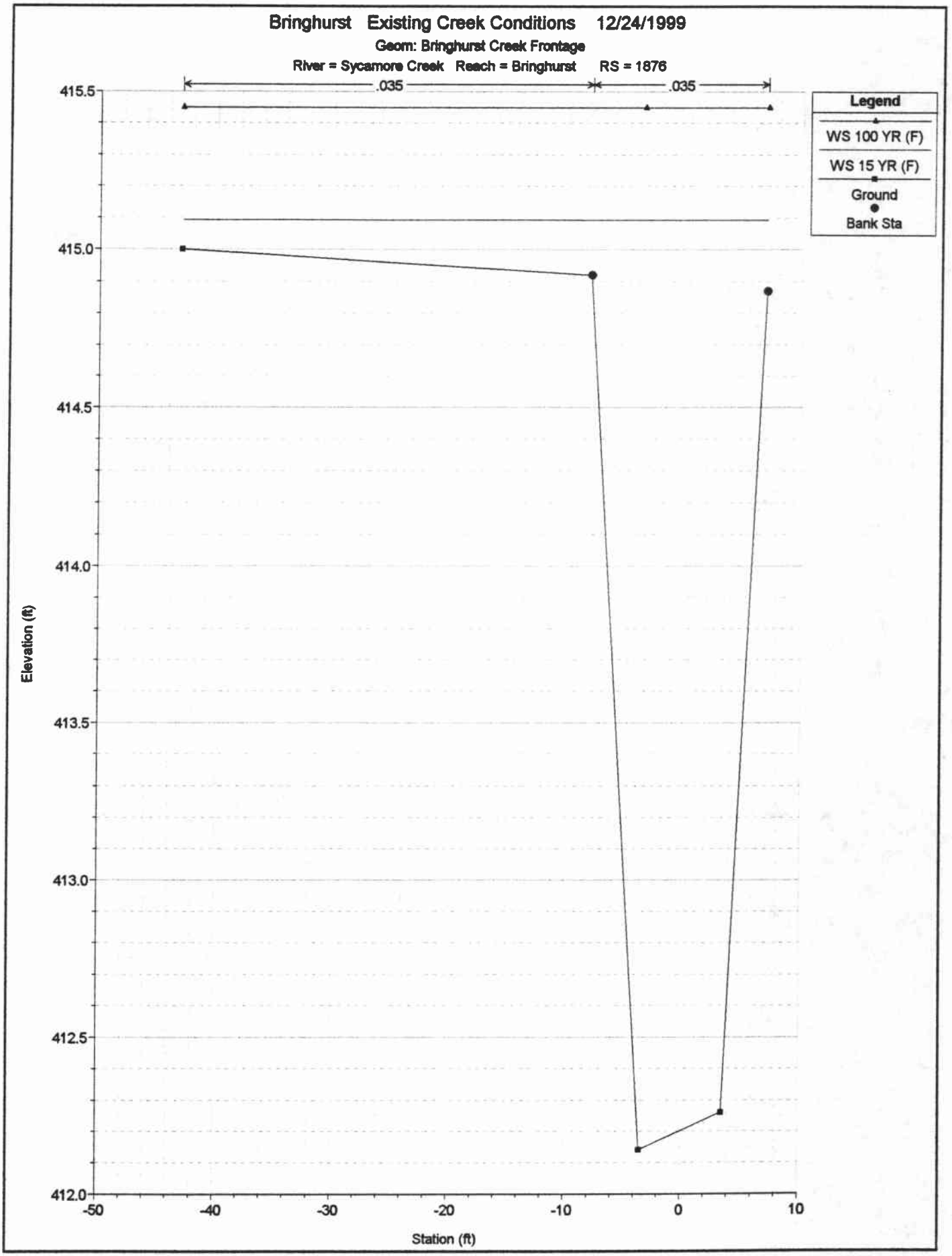
River = Sycamore Creek Reach = Bringhurst RS = 1835
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
415.0
414.5
414.0
413.5
413.0
412.5
412.0
411.5
411.0
-6
-4
-2
0
2
4
6
8
10
12
Station (ft)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.035
.035
Legend
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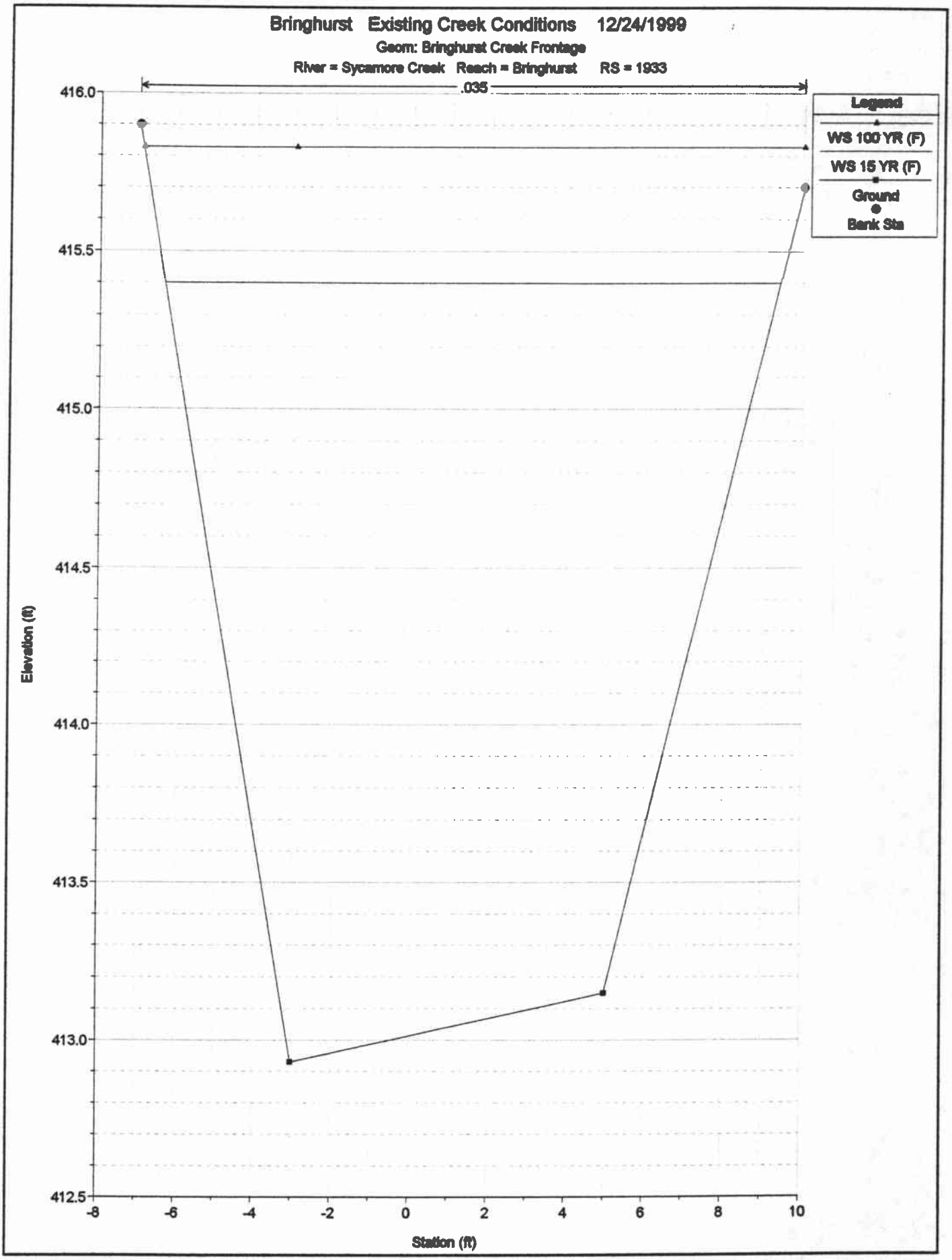
WS 15 YR (F)
Ground
Bank Sta
415.5
415.0
414.5
414.0
413.5
413.0
412.5
412.0
Elevation (ft)
-50
-40
-30
-20
-10
0
10
Station (ft)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Geom: Bringhurst Creek Frontage
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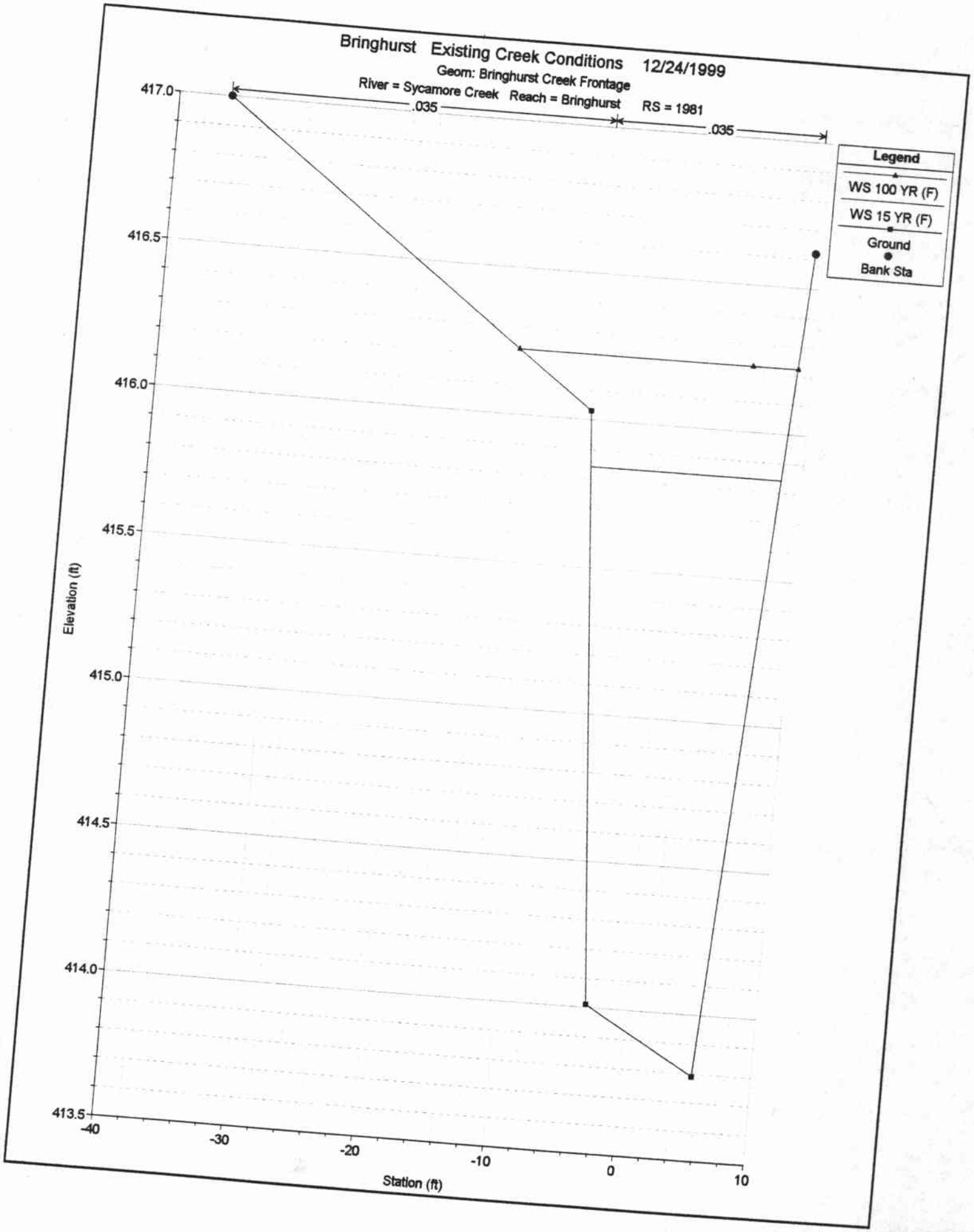
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
416.0
415.5
415.0
414.5
414.0
413.5
413.0
412.5
-8
-6
-4
-2
0
2
4
6
8
10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Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst RS = 1981
.035
.035
Legend
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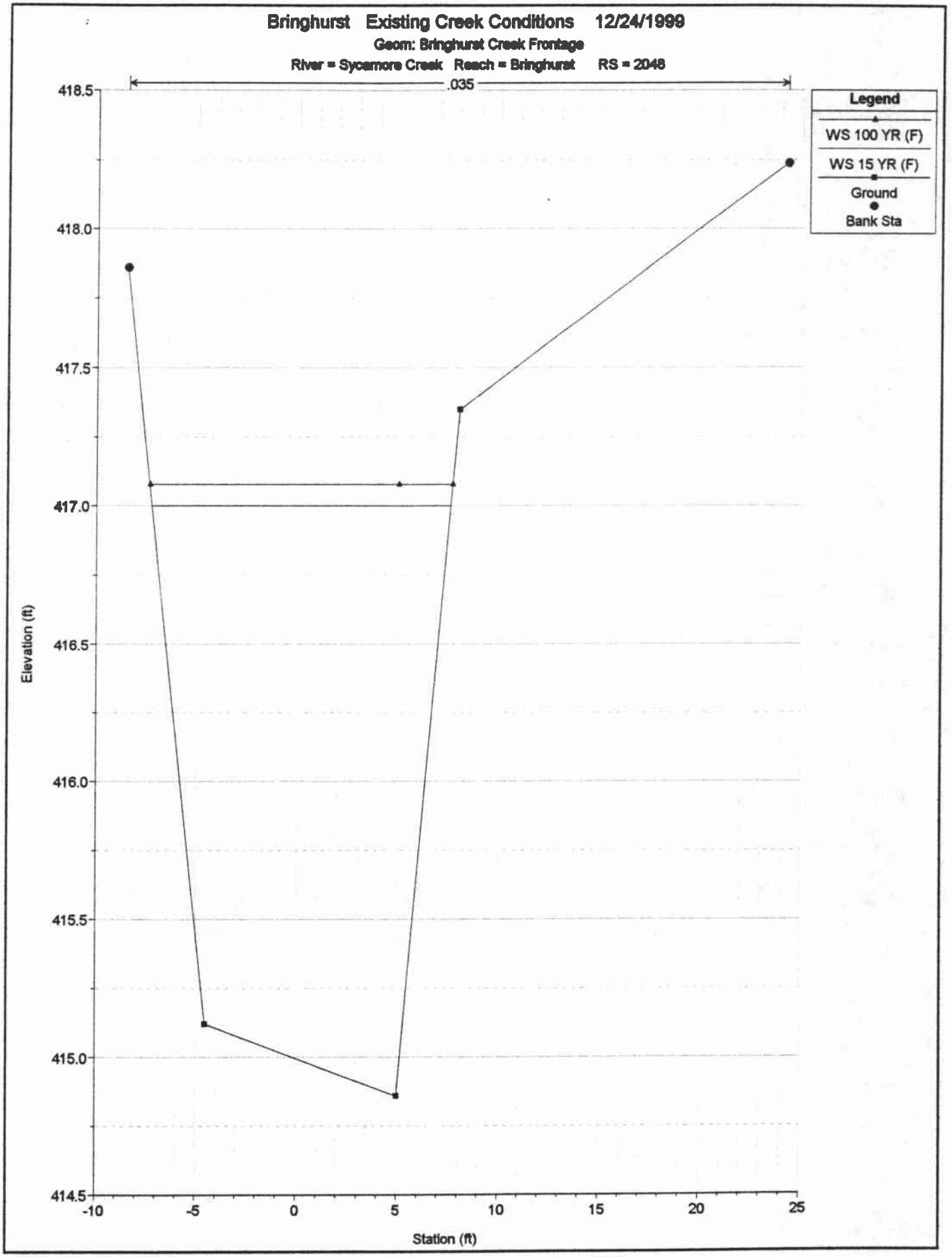
WS 15 YR (F)
Ground
Bank Sta
417.0
416.5
416.0
415.5
415.0
414.5
414.0
413.5
Elevation (ft)
-40
-30
-20
-10
0
10
Station (ft)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Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst RS = 2048
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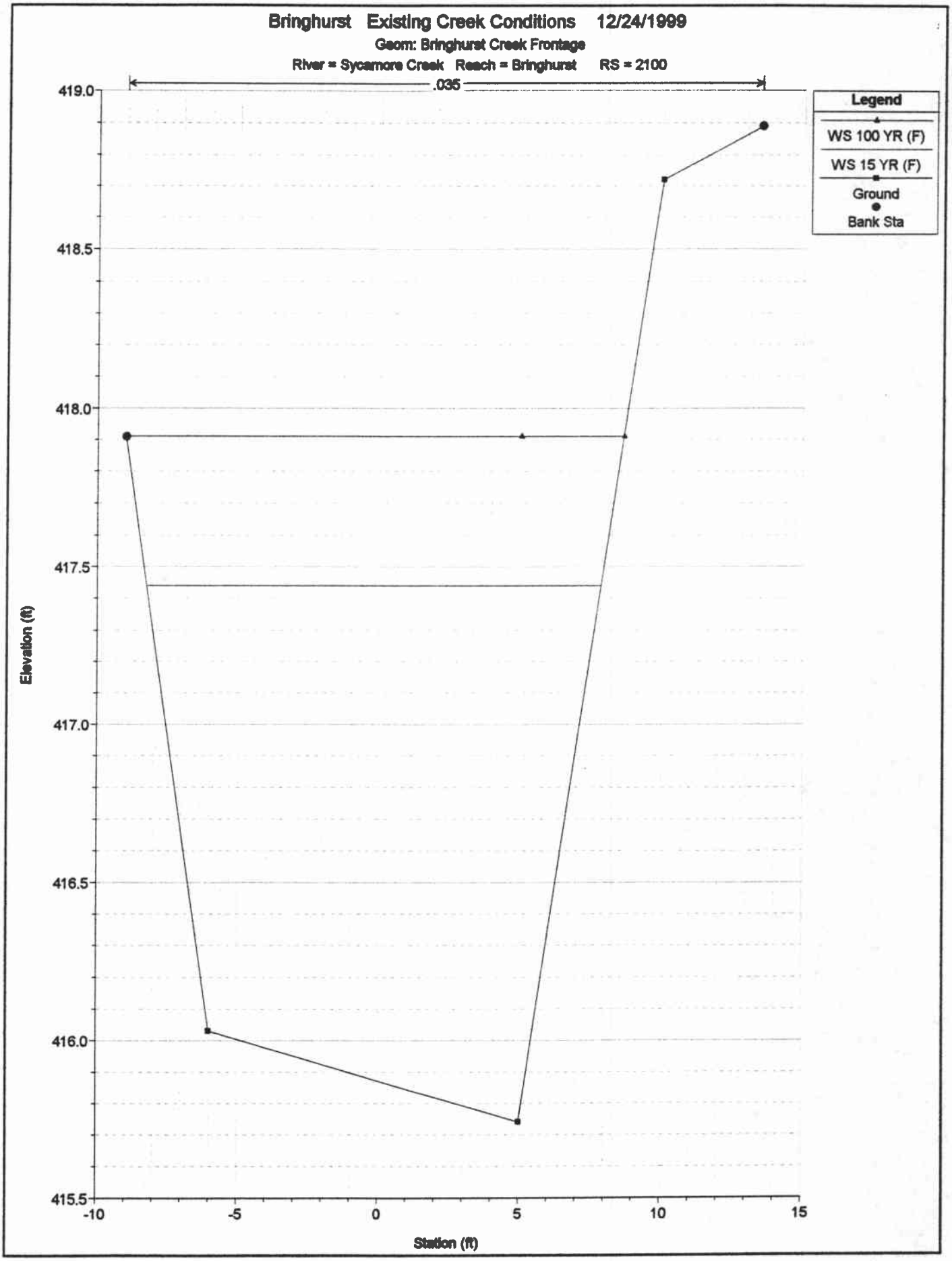
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
418.5
418.0
417.5
417.0
416.5
416.0
415.5
415.0
414.5
-10
-5
0
5
10
15
20
25
Station (ft)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.035
Legend
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WS 15 YR (F)
Ground
Bank Sta
419.0
418.5
418.0
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416.5
416.0
415.5
Elevation (ft)
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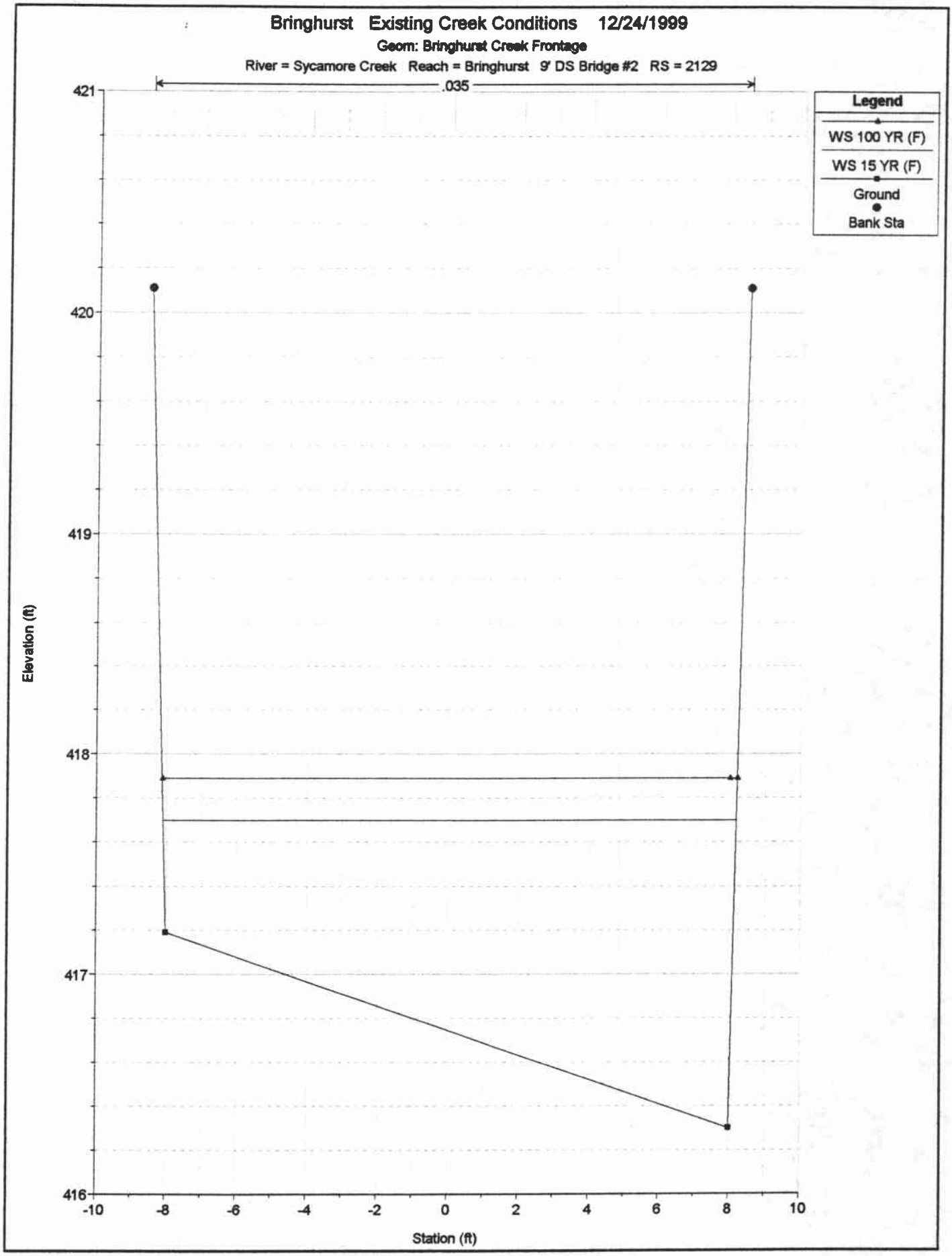
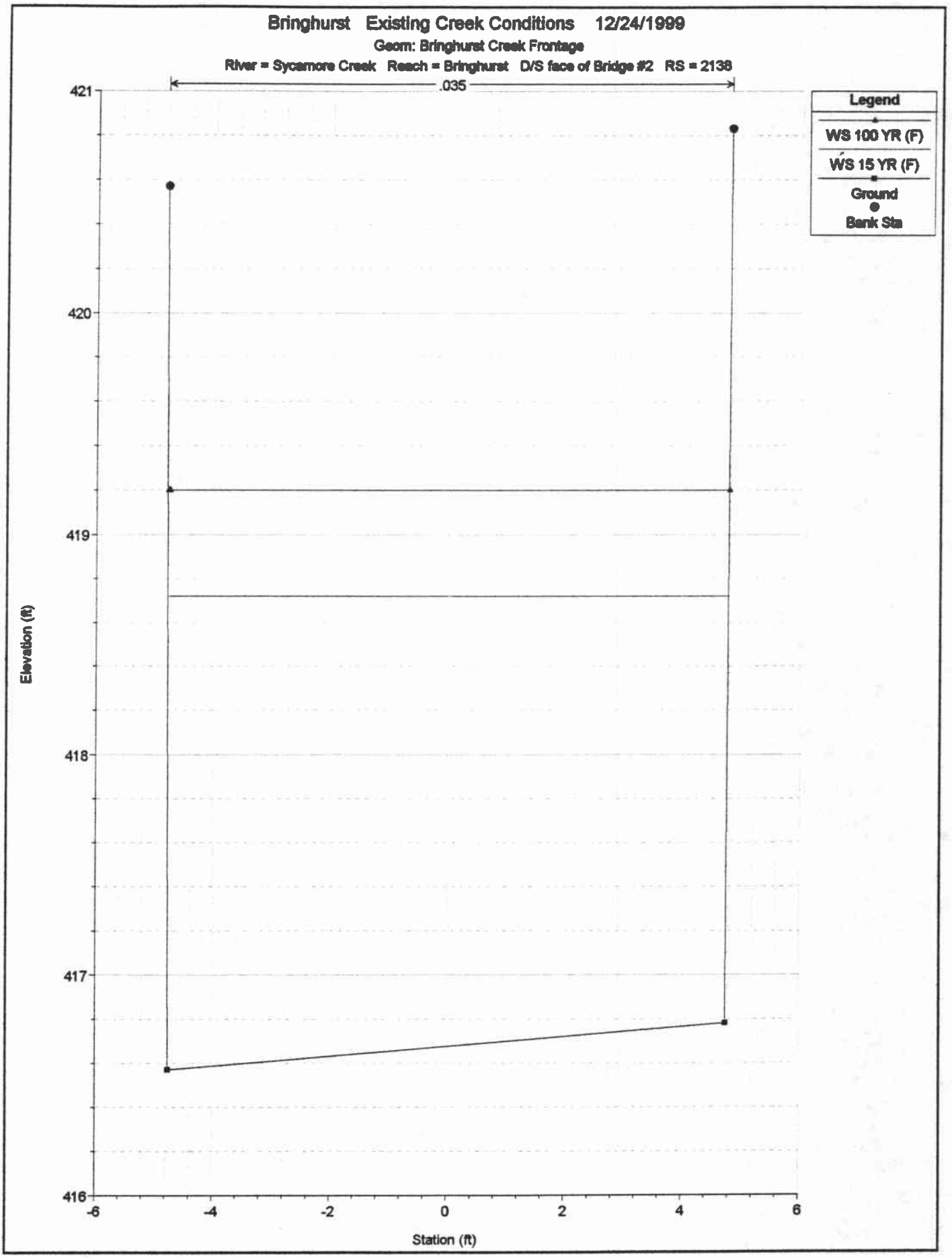
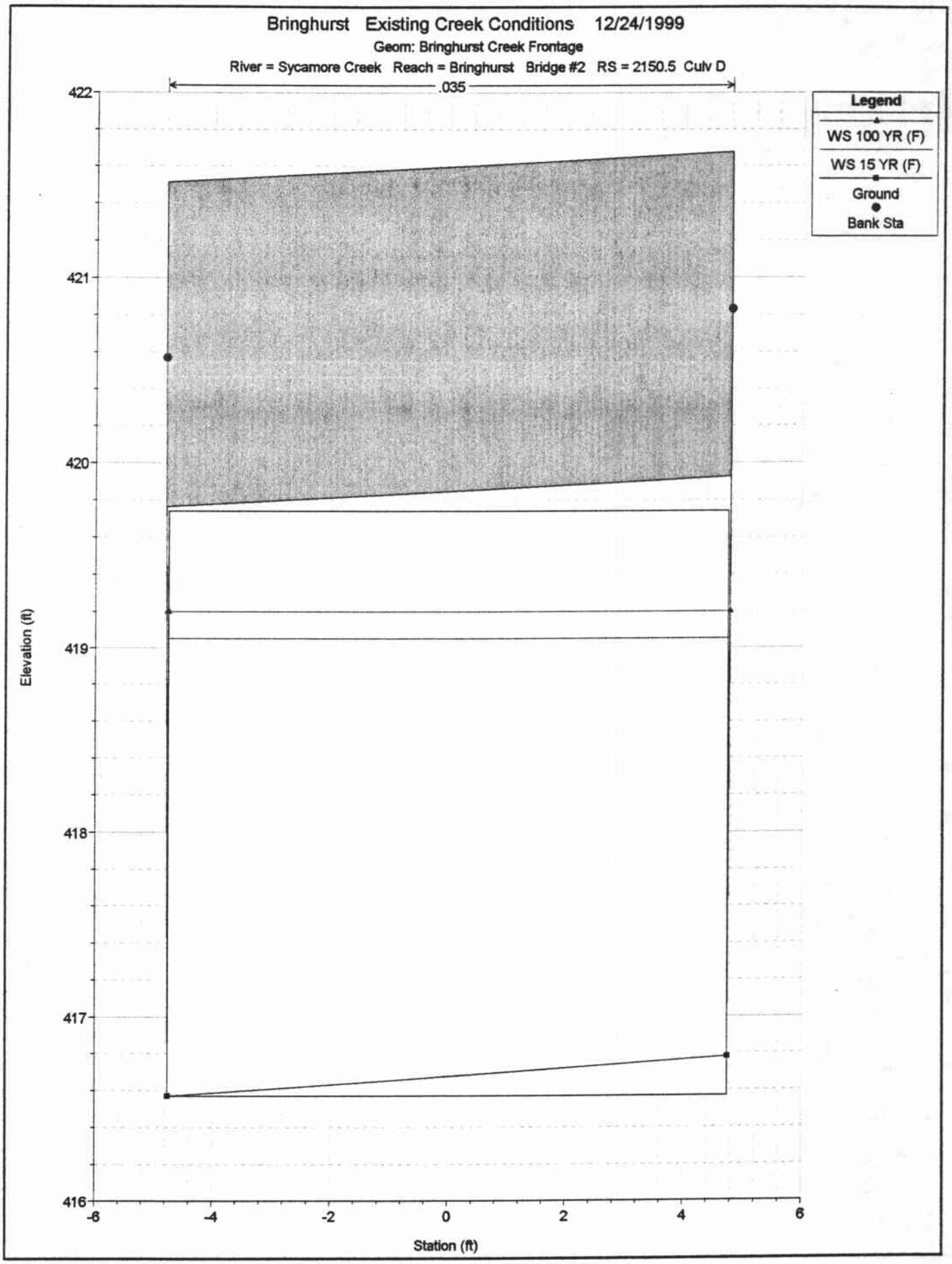
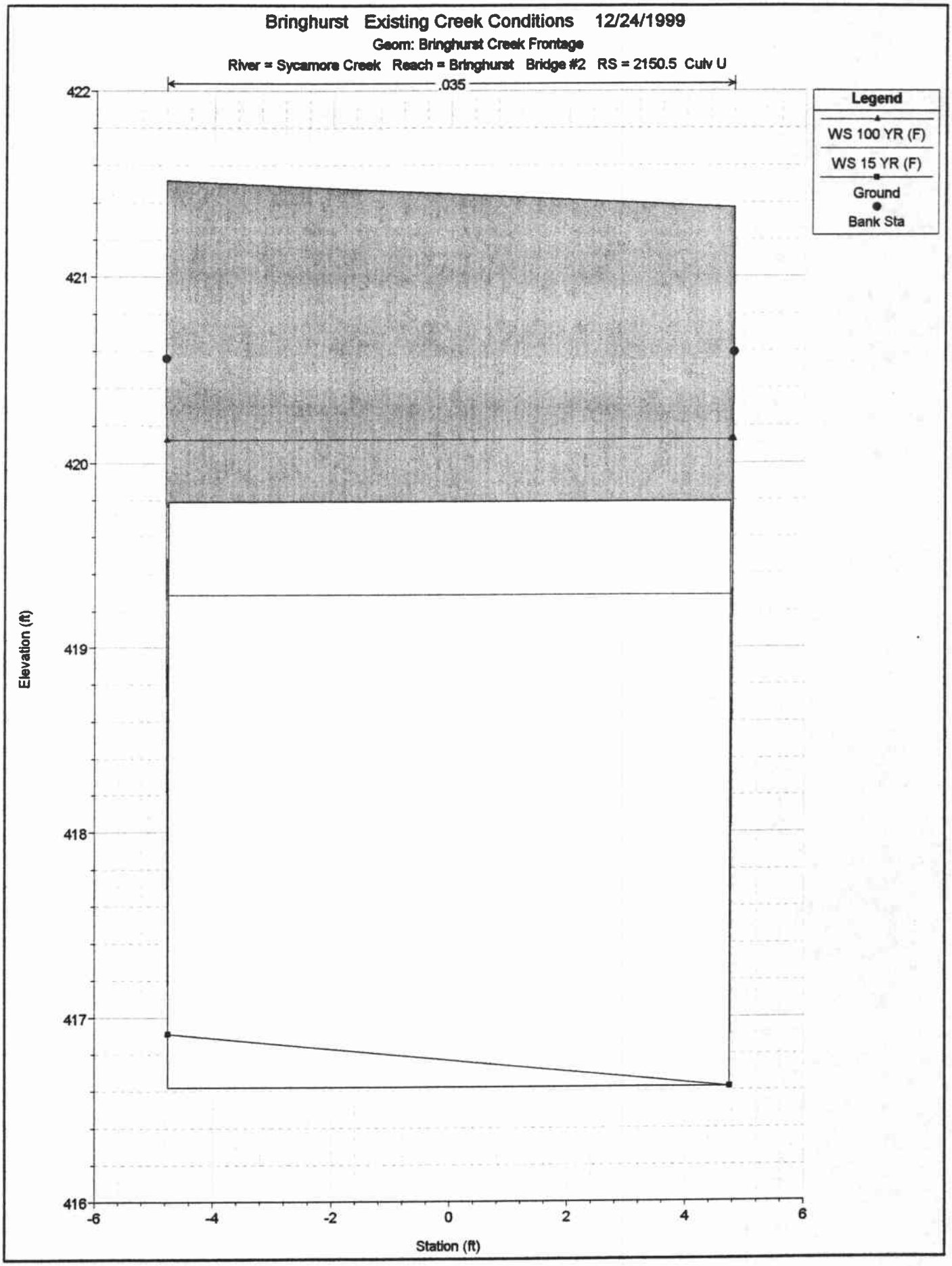
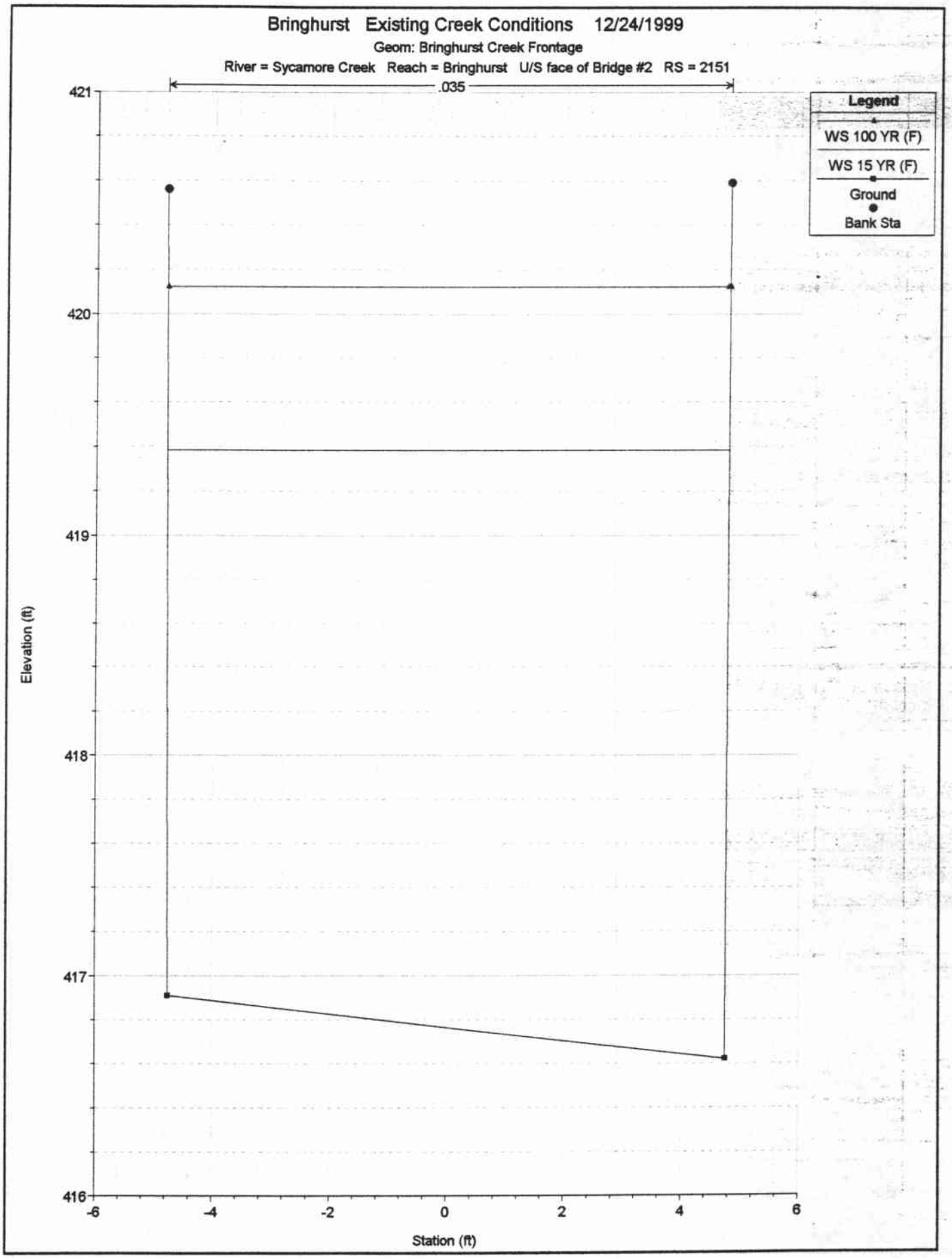
5
10
15
Station (ft)


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst 9' DS Bridge #2 RS = 2129
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
421
420
419
418
417
416
-10
-8
-6
-4
-2
0
2
4
6
8
10


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst D/S face of Bridge #2 RS = 2138
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
421
420
419
418
417
416
-6
-4
-2
0
2
4
6


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst Bridge #2 RS = 2150.5 Culv D
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
422
421
420
419
418
417
416
-6
-4
-2
0
2
4
6


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst Bridge #2 RS = 2150.5 Culv U
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
422
421
420
419
418
417
416
-6
-4
-2
0
2
4
6
Station (ft)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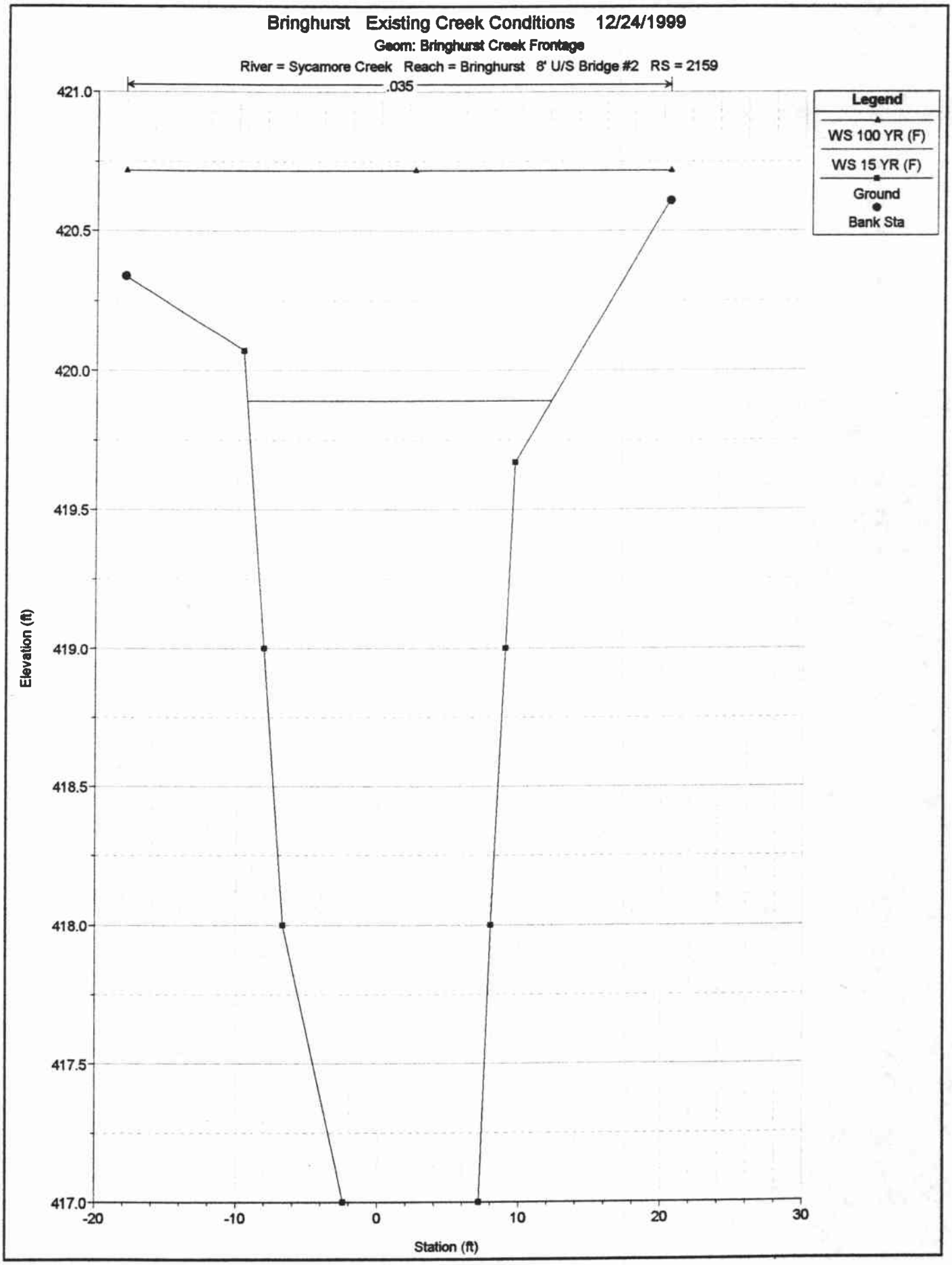
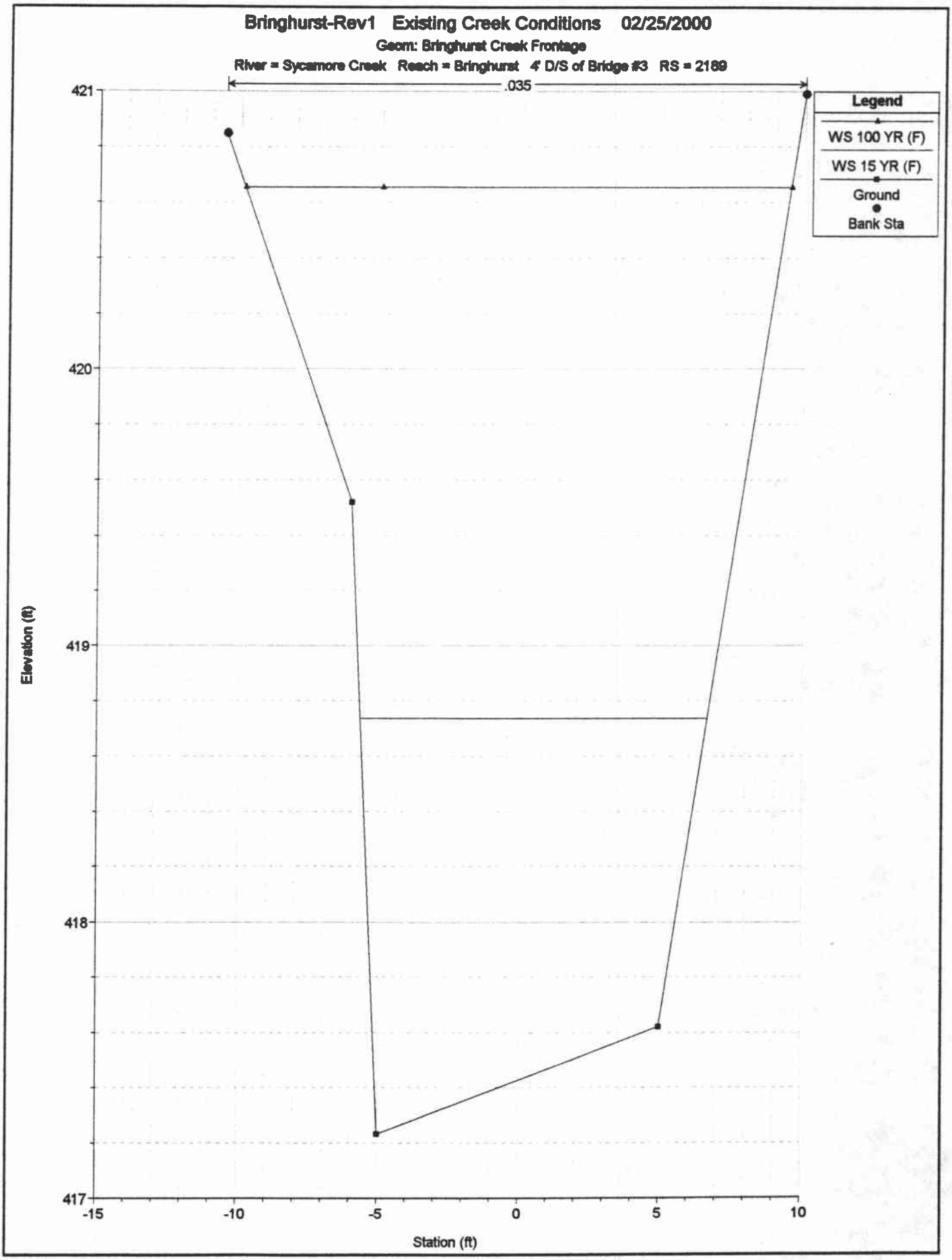
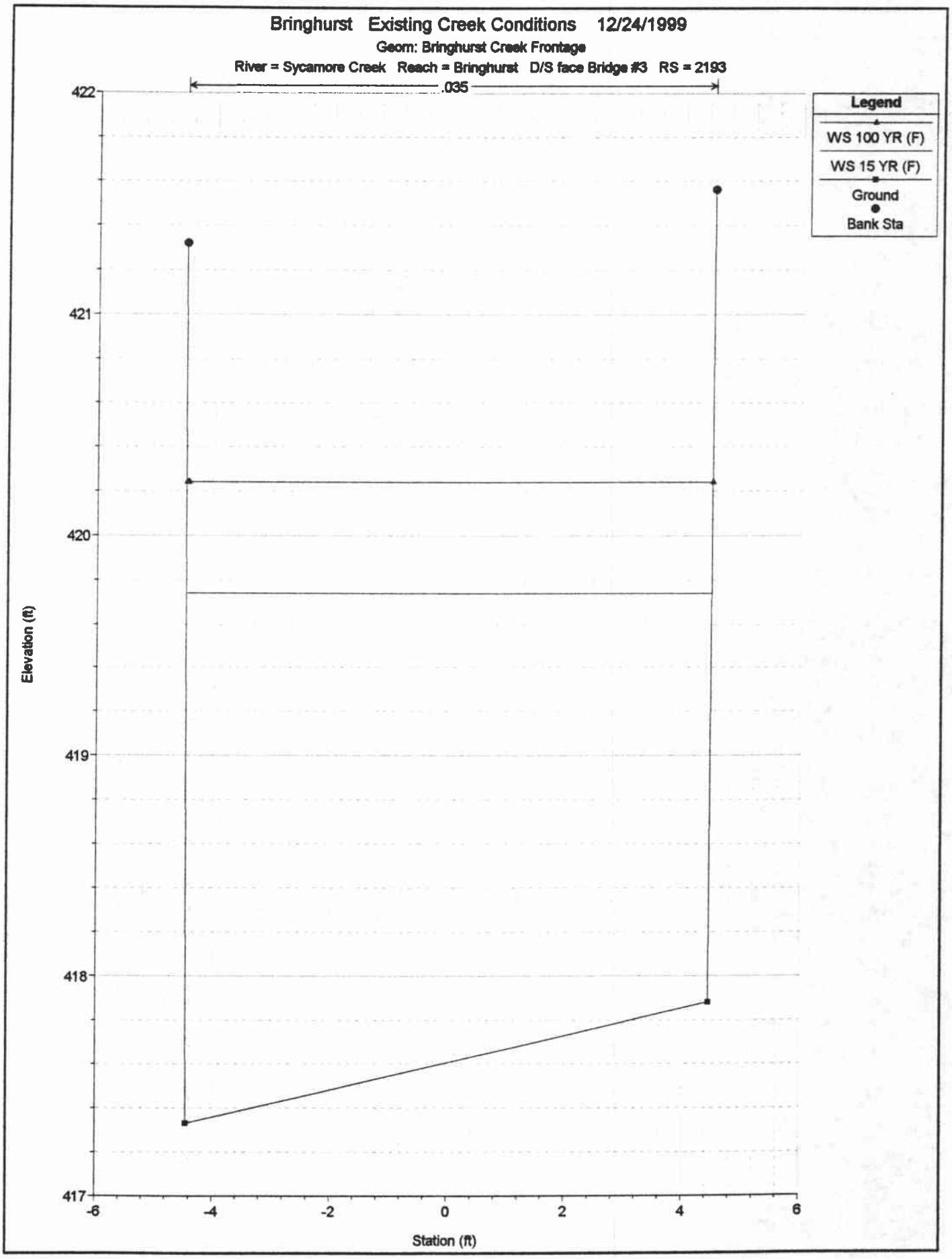
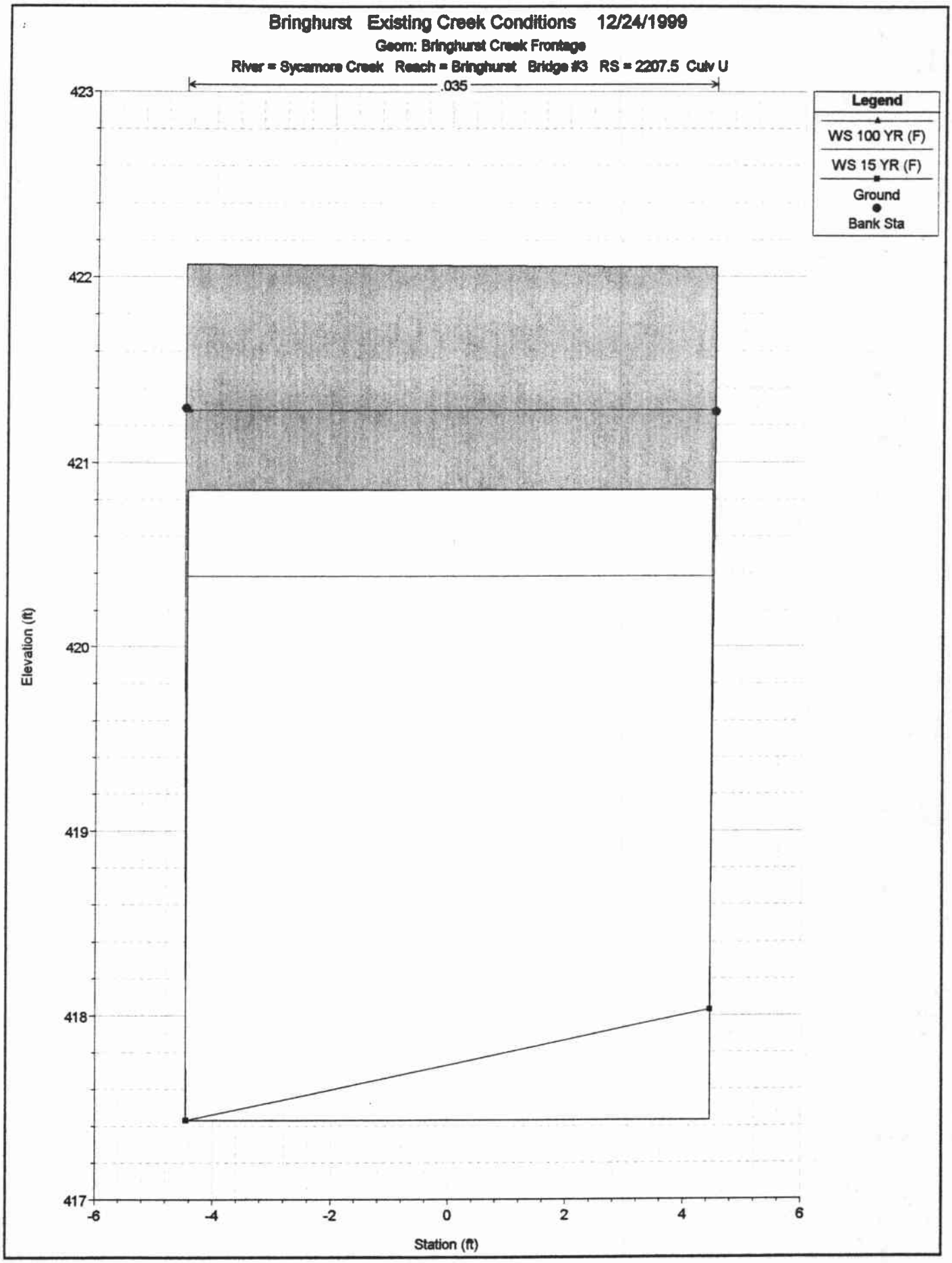
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst U/S face of Bridge #2 RS = 2151
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
421
420
419
418
417
416
-6
-4
-2
0
2
4
6
Station (ft)


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst 8' U/S Bridge #2 RS = 2159
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
421.0
420.5
420.0
419.5
419.0
418.5
418.0
417.5
417.0
-20
-10
0
10
20
30


Bringhurst-Rev1 Existing Creek Conditions 02/25/2000
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst 4' D/S of Bridge #3 RS = 2189
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
421
420
419
418
417
-15
-10
-5
0
5
10
Station (ft)


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst D/S face Bridge #3 RS = 2193
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
422
421
420
419
418
417
-6
-4
-2
0
2
4
6
Station (ft)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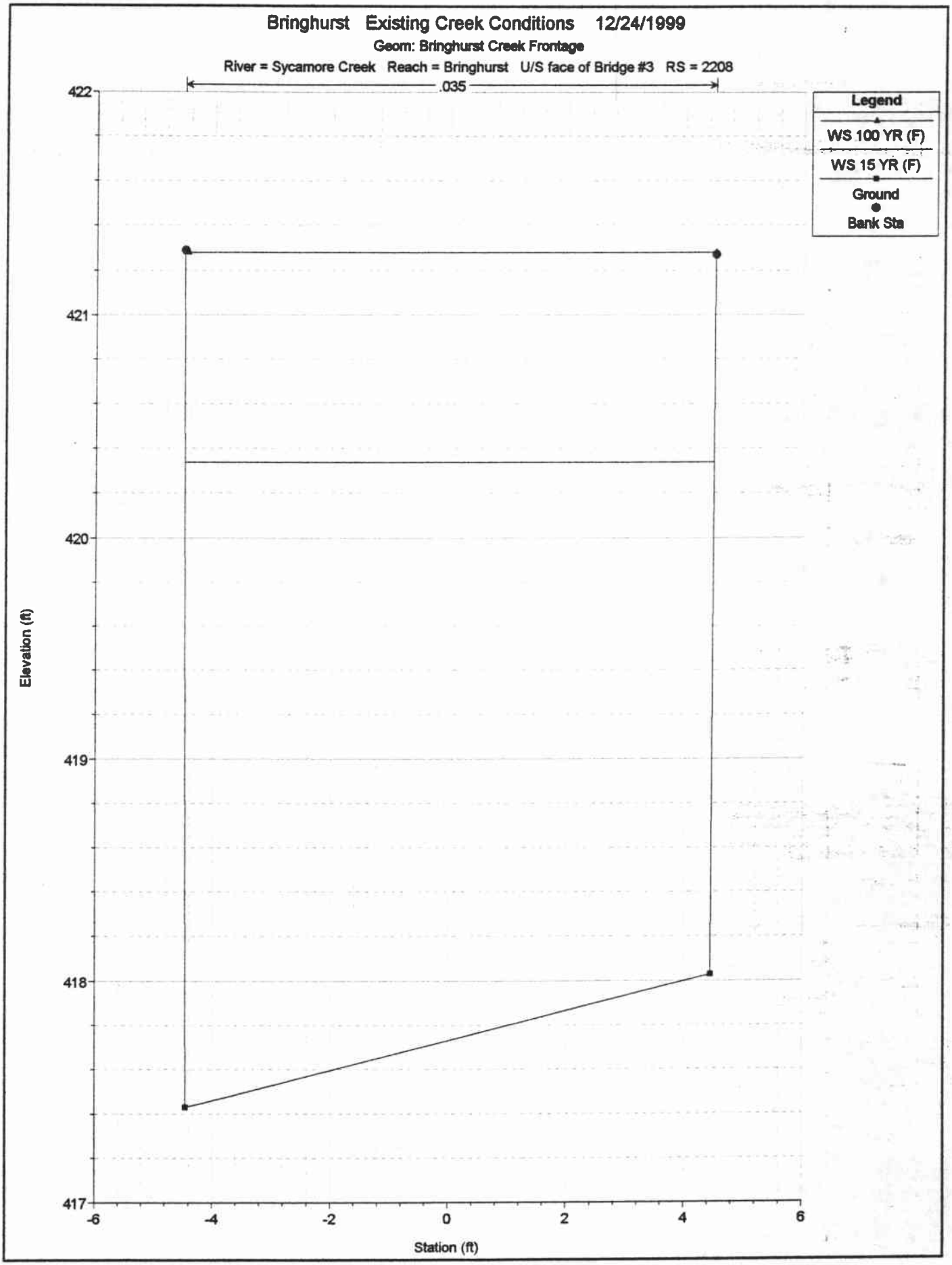
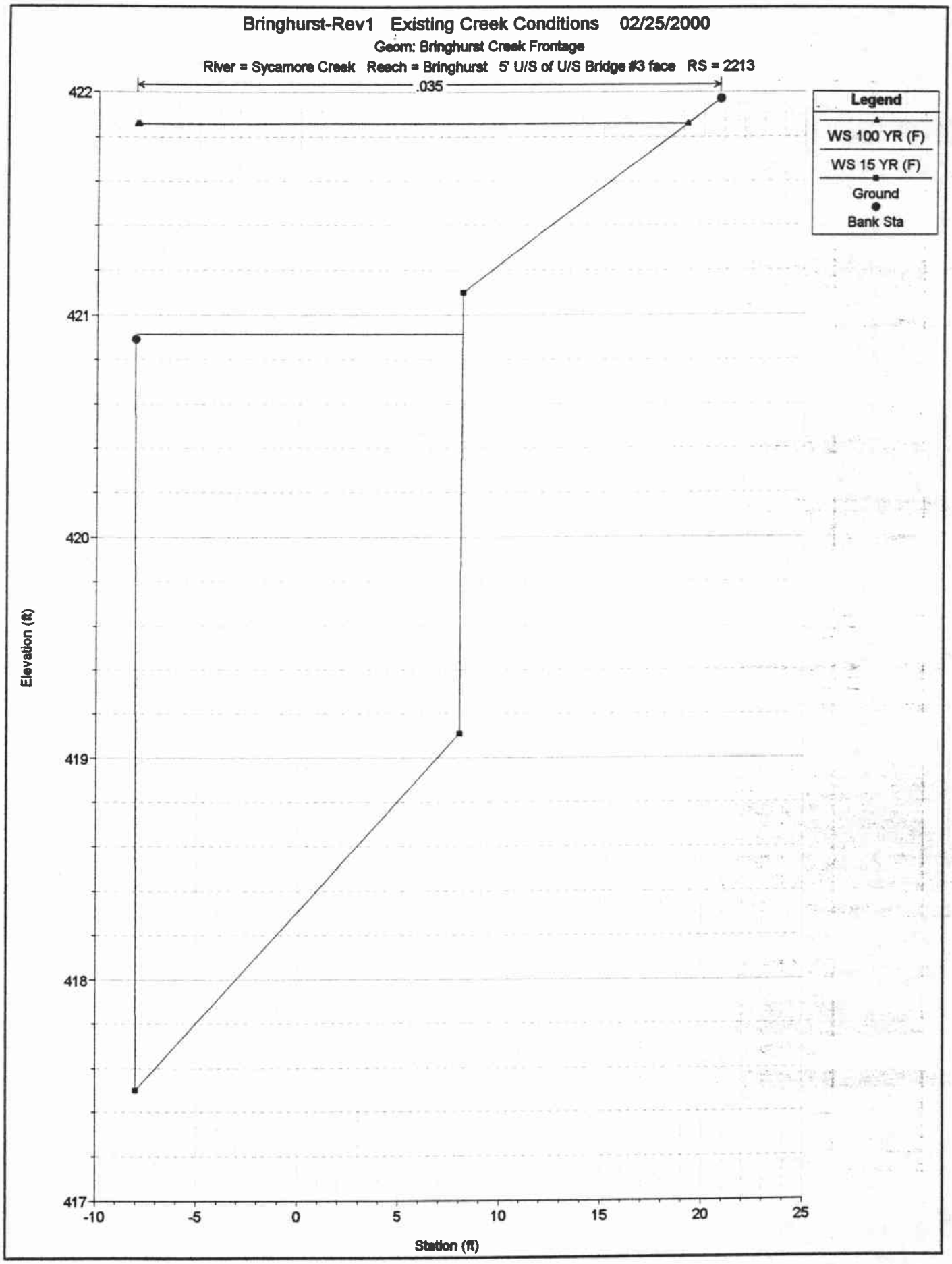
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst Bridge #3 RS = 2207.5 Culv U
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
423
422
421
420
419
418
417
-6
-4
-2
0
2
4
6


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst U/S face of Bridge #3 RS = 2208
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
422
421
420
419
418
417
-6
-4
-2
0
2
4
6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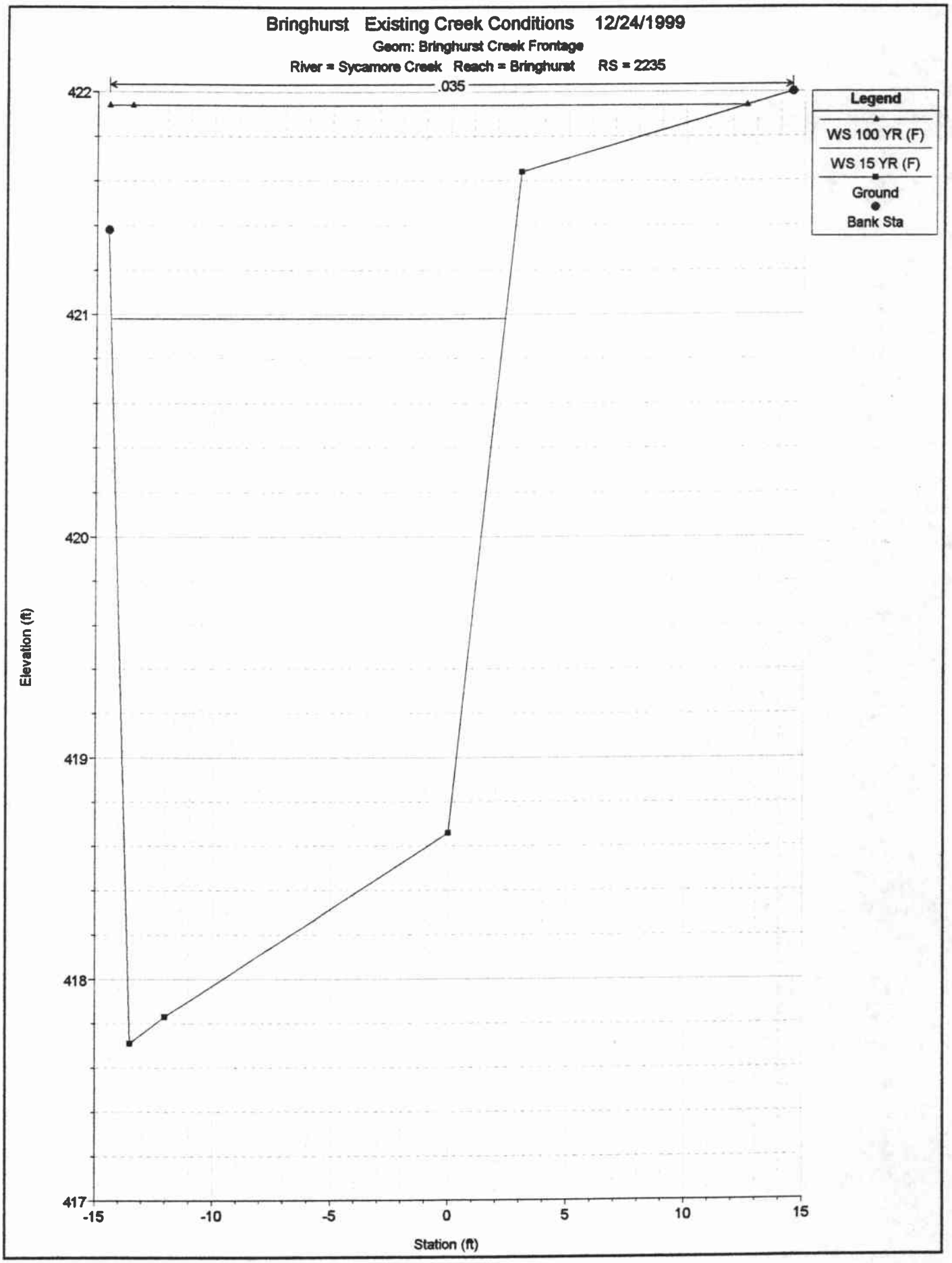
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst 5' U/S of U/S Bridge #3 face RS = 2213
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
422
421
420
419
418
417
-10
-5
0
5
10
15
20
25
Station (ft)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Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst RS = 2235
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
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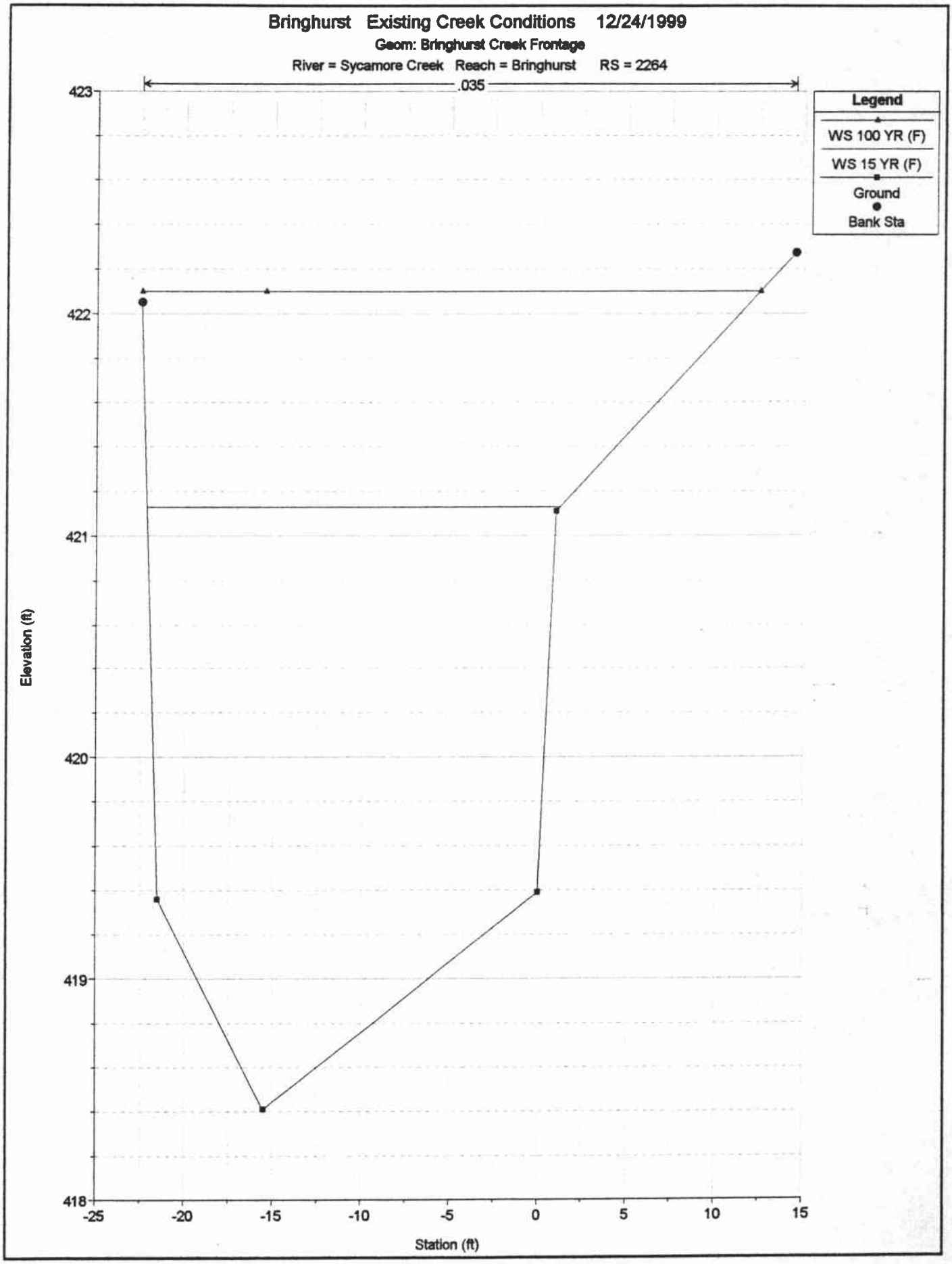
421
420
419
418
417
-15
-10
-5
0
5
10
15
Station (ft)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Geom: Bringhurst Creek Frontage
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.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
Elevation (ft)
Station (ft)
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422
421
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419
418
-25
-20
-15
-10
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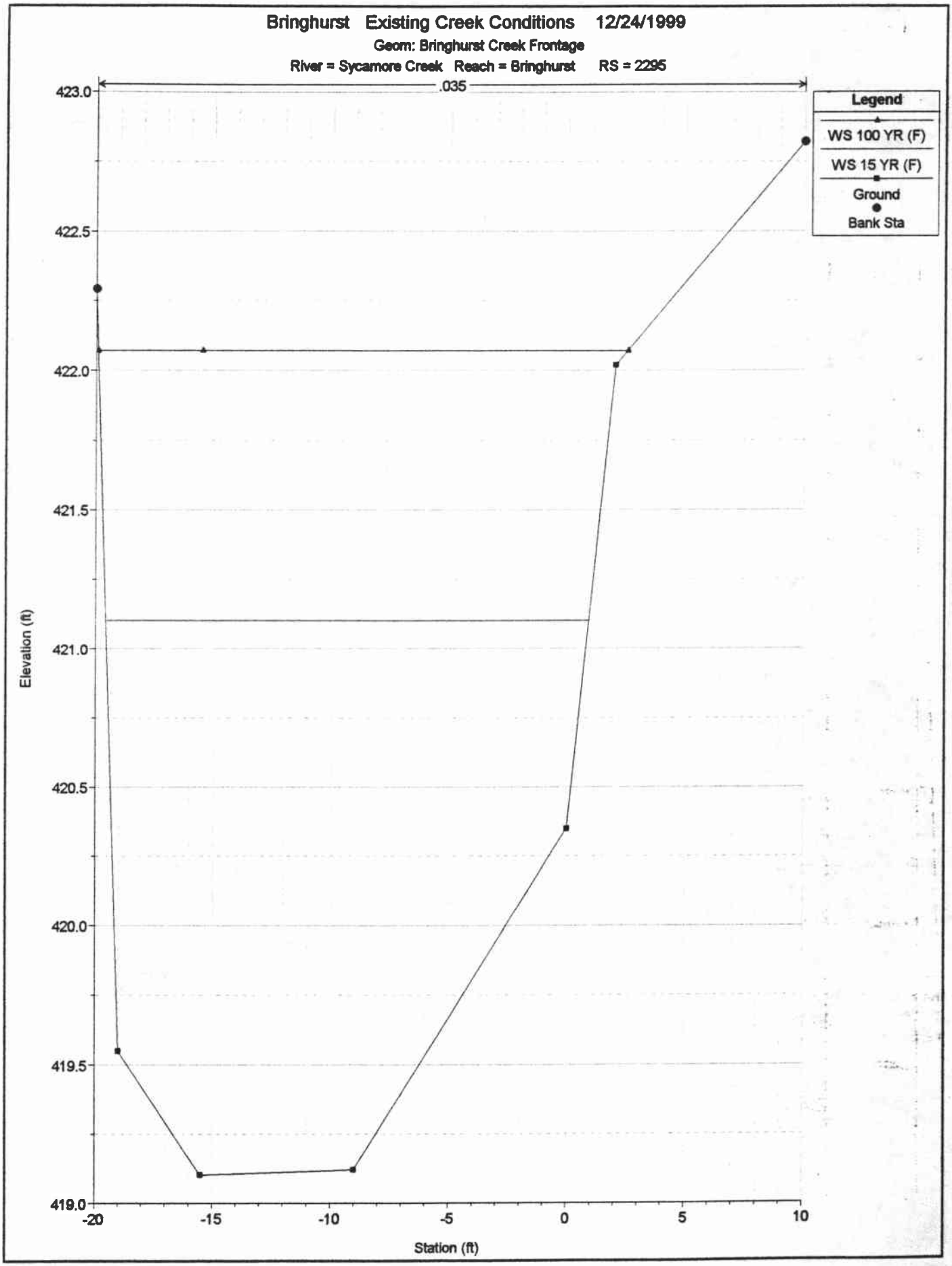
0
5
10
15


Bringhurst Existing Creek Conditions 12/24/1999
Geom: Bringhurst Creek Frontage
River = Sycamore Creek Reach = Bringhurst RS = 2295
.035
Legend
WS 100 YR (F)
WS 15 YR (F)
Ground
Bank Sta
423.0
422.5
422.0
421.5
421.0
420.5
420.0
419.5
419.0
Elevation (ft)
-20
-15
-10
-5
0
5
10
Station (ft)

100-YR STORM

HEC-RAS Plan: Bringhurst River: Sycamore Creek Reach: Bringhurst

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Bringhurst	2295	100 YR (E)	217.00	419.10	422.08	421.04	422.34	0.003423	4.10	52.94	22.48	0.47
Bringhurst	2295	100 YR (F)	217.72	419.10	422.09	421.04	422.35	0.003412	4.09	53.21	22.61	0.47
Bringhurst	2284	100 YR (E)	217.00	418.41	422.10		422.22	0.001659	2.79	77.90	35.04	0.33
Bringhurst	2284	100 YR (F)	217.72	418.41	422.11		422.23	0.001649	2.78	78.32	35.16	0.33
Bringhurst	2235	100 YR (E)	217.00	417.71	421.96		422.15	0.003134	3.62	59.95	27.26	0.43
Bringhurst	2235	100 YR (F)	217.72	417.71	421.96		422.16	0.003149	3.61	60.29	27.66	0.43
Bringhurst	2213	100 YR (E)	217.00	417.50	421.89		422.08	0.002998	3.48	62.33	27.71	0.41
Bringhurst	2213	100 YR (F)	217.72	417.50	421.90		422.09	0.002985	3.47	62.68	27.90	0.41
Bringhurst	2208	100 YR (E)	217.00	417.43	421.27	420.36	422.00	0.010482	6.85	31.67	9.00	0.64
Bringhurst	2208	100 YR (F)	217.72	417.43	421.28	420.36	422.01	0.010455	6.85	31.77	9.00	0.64
Bringhurst	2207.5		Culvert									
Bringhurst	2193	100 YR (E)	217.00	417.33	420.24	420.24	421.56	0.024122	9.23	23.50	8.97	1.01
Bringhurst	2193	100 YR (F)	217.72	417.33	420.24	420.24	421.57	0.024126	9.24	23.55	8.97	1.01
Bringhurst	2182	100 YR (E)	217.00	417.23	420.73	419.73	421.09	0.005058	4.82	45.03	19.70	0.56
Bringhurst	2182	100 YR (F)	217.72	417.23	420.74	419.74	421.10	0.005049	4.82	45.17	19.74	0.56
Bringhurst	2158	100 YR (E)	217.00	417.00	420.79		420.92	0.002247	2.96	73.34	38.50	0.38
Bringhurst	2158	100 YR (F)	217.72	417.00	420.80		420.93	0.002232	2.96	73.65	38.50	0.38
Bringhurst	2151	100 YR (E)	217.00	416.62	420.12	419.28	420.83	0.010298	6.78	32.01	9.59	0.65
Bringhurst	2151	100 YR (F)	217.72	416.62	420.12	419.29	420.84	0.010324	6.79	32.05	9.59	0.65
Bringhurst	2150.5		Culvert									
Bringhurst	2138	100 YR (E)	217.00	416.57	419.19	419.19	420.46	0.023247	9.04	24.00	9.56	1.01
Bringhurst	2138	100 YR (F)	217.72	416.57	419.20	419.20	420.47	0.023257	9.05	24.05	9.56	1.01
Bringhurst	2129	100 YR (E)	217.00	416.30	417.89	418.51	420.03	0.075638	11.74	18.48	16.33	1.94
Bringhurst	2129	100 YR (F)	217.72	416.30	417.89	418.52	420.04	0.075688	11.76	18.52	16.33	1.95
Bringhurst	2100	100 YR (E)	217.00	415.74	417.91	417.94	418.78	0.017449	7.49	28.97	17.63	1.03
Bringhurst	2100	100 YR (F)	217.72	415.74	417.91	417.94	418.78	0.017388	7.49	29.07	17.64	1.03
Bringhurst	2048	100 YR (E)	217.00	414.86	417.07	417.24	418.20	0.022315	8.51	25.51	15.02	1.15
Bringhurst	2048	100 YR (F)	217.72	414.86	417.08	417.24	418.20	0.022284	8.51	25.58	15.03	1.15
Bringhurst	1981	100 YR (E)	217.00	413.79	416.43	416.47	417.07	0.011355	6.40	33.91	28.02	1.03
Bringhurst	1981	100 YR (F)	217.72	413.79	416.44	416.47	417.07	0.011300	6.39	34.09	28.23	1.02
Bringhurst	1933	100 YR (E)	217.00	412.93	415.58	415.43	416.36	0.013183	7.03	30.85	16.34	0.90
Bringhurst	1933	100 YR (F)	217.72	412.93	415.58	415.43	416.36	0.013223	7.05	30.89	16.34	0.90
Bringhurst	1876	100 YR (E)	217.00	412.14	415.58		415.84	0.003578	4.43	61.80	50.00	0.48
Bringhurst	1876	100 YR (F)	217.72	412.14	415.59		415.85	0.003558	4.42	62.11	50.00	0.48
Bringhurst	1836	100 YR (E)	217.00	411.43	414.82		415.54	0.012764	6.83	31.78	17.00	0.88
Bringhurst	1836	100 YR (F)	217.72	411.43	414.83		415.55	0.012623	6.81	31.97	17.00	0.88
Bringhurst	1802	100 YR (E)	217.00	410.50	414.78	413.75	415.21	0.004862	5.24	41.44	14.00	0.54
Bringhurst	1802	100 YR (F)	217.72	410.50	414.79	413.76	415.22	0.004847	5.24	41.58	14.00	0.54
Bringhurst	1801.5		Culvert									
Bringhurst	1779	100 YR (E)	217.00	410.00	412.20	412.20	412.99	0.016564	7.11	30.51	19.73	1.01
Bringhurst	1779	100 YR (F)	217.72	410.00	412.20	412.20	412.99	0.016547	7.12	30.59	19.76	1.01
Bringhurst	1730	100 YR (E)	217.00	409.00	411.84	411.39	412.24	0.007595	5.07	42.78	25.80	0.69
Bringhurst	1730	100 YR (F)	217.72	409.00	411.84	411.39	412.24	0.007646	5.09	42.78	25.80	0.70

Stevens,
Ferrone &
Bailey
Engineering Company, Inc.

Geotechnical Engineering
Engineering Geology
Storm Water Management
Construction Observation & Testing Services

February 7, 2003

UPDATED GEOTECHNICAL INVESTIGATION
SYCAMORE HEIGHTS RESIDENTIAL DEVELOPMENT
PLEASANTON, CALIFORNIA
SFB PROJECT NO. 100-8

Prepared For:

New Cities Development Group
100 Pasadera Drive
Monterey, CA 93940

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APPENDICES

1.0 INTRODUCTION

This report presents the results of our updated geotechnical investigation for the proposed Sycamore Heights Residential Development. The proposed development will be located in Pleasanton, California, as shown on the Site Plan, Figure 1. The purpose of our investigation was to evaluate the foundation soils and provide recommendations regarding the geotechnical engineering aspects of the project.

As part of our scope of work, we are performing a corrosion potential investigation for the project. The results of the corrosion potential investigation will be submitted in report form under separate cover.

Based on the information indicated on the Site Plan, as well as information provided by New Cities Land Development, Inc., it is our understanding that the development will consist of an approximately 60 single-family, detached, wood-framed homes with associated infrastructure. Maximum cuts and fills on the order of about 20 feet are anticipated.

Previously, Lowney Associates (LA) performed geotechnical exploration on the site and the results have been incorporated into this report. In addition, LA performed a fault rupture hazard study for a portion of the site located within an Alquist-Priolo Earthquake Hazard Zone; the results were presented in their report dated April 10, 1997. Please refer to the LA report for conclusions and recommendations regarding the fault rupture hazard potential at the site.

We note that it was beyond our scope of work to perform an additional fault rupture hazard investigation or review the LA investigation results for their accuracy. Therefore we have no opinion as to the adequacy of the LA report or the existence of faults on the property or the potential for fault rupture at the site.

2.0 SCOPE OF WORK

This investigation included the following scope of work:

- Reviewing published and unpublished geotechnical and geological literature relevant to the development of the site, including a cursory review of previous geotechnical work performed by others onsite or in the vicinity of the site (including twelve exploratory borings);
- Performing a reconnaissance of the site and surrounding area;
- Performing a subsurface exploration program, including excavating nine exploratory pits to depths of about 6 to 10 feet;
- Performing laboratory testing of samples retrieved from exploratory pits;
- Performing engineering analysis of the field and laboratory data; and
- Preparing this report.

The data obtained and the analyses performed were for the purpose of providing updated design and construction criteria for site earthwork, installation of underground utilities, building foundations, retaining walls, and pavements.

3.0 SITE INVESTIGATION

Stevens, Ferrone & Bailey Engineering Company, Inc. (SFB) performed a reconnaissance of the site and surrounding area on January 23, 2003. Nine exploratory pits were excavated, using a backhoe, to a maximum depth of about 10 feet on January 23, 2003. Previously, twelve geotechnical borings were performed onsite by LA using truck-mounted and track-mounted drill rigs equipped with 8-inch diameter, continuous flight, hollow stem augers. The approximate locations of the exploratory pits and geotechnical borings are shown on the Site Plan, Figure 1. Logs of the exploratory pits and details regarding SFB's field investigation are included in Appendix A. The results of SFB's laboratory tests are discussed in Appendix B. The results of the previous borings and laboratory testing performed by LA are incorporated into this report and are included as Appendix C. It should be noted that changes in the surface and subsurface conditions can occur over time as a result of either natural processes or human activity and may affect the validity of the conclusions and recommendations in this report.

The backhoe pits were loosely backfilled and wheel-rolled. At the time of construction, the pits will require over-excavation and re-compaction to the standards described in this report.

3.1 Surface

At the time of our investigation and as shown on Figure 1, the site was bounded by a residential development to the north, open field to the east, and several single-family houses to the west and south. Small sheds and other structures were located in the western portions of the site. An asphalt concrete paved roadway extended from the southwestern corner of the site to the southern boundaries. A buried water tank was located to the east of the property; buried water pipes likely extend through the site from the southwest corner to the water tank.

The site was irregular in shape and had maximum plan dimensions of approximately 1450 by 1350 feet. The topography of the site generally consisted of gently to moderately sloping hillsides. The highest portion of the site was located to the east and generally sloped downward toward the north, northeast, and west with inclinations ranging from approximately 14:1 to 4:1 (horizontal: vertical). The lower portions of the site were located in the northern and the southwestern corners of the site. Three natural drainage channels were observed in the northern, eastern, and western portions of the site. Vegetation consisted of a moderate growth of grasses and weeds; several small diameter trees were located onsite.

3.2 Subsurface

The surface materials encountered in our exploratory pits and the borings performed by others generally consisted of very soft to stiff, silty clays and loose sands that extended to depths of about 2 to 4 feet. These surface materials are weak and potentially compressible. The more clayey surface materials have a medium to high plasticity and moderate to critical expansion potential. Below these surface materials, the borings and pits encountered various thicknesses of stiff to hard clays with high plasticity and high expansion potential and medium dense to dense sands with low plasticity. Underlying the clays, gravels, sands, and silts were typically encountered that extended to the maximum depth explored in the pits of about 10 feet, and to the maximum depth explored in the borings of about 25 feet. These underlying materials have a medium plasticity and medium expansion potential. Detailed descriptions of the materials encountered in each of the exploratory pits are presented on the pit logs in Appendix A; logs of the previous borings are included as Appendix C.

SFB's exploratory pit logs and related information depict location specific subsurface conditions encountered during our field investigation. The approximate locations of SFB's exploratory pits were determined by pacing and should be considered accurate only to the degree implied by the method used.

3.3 Ground Water

Ground water not was encountered in SFB's exploratory pits at the time of exploration. Boring PB-10 (located near the north-central end of the site) encountered ground water at a depth of about 7-1/2 feet at the time of their drilling. It should be noted that the pits and borings might not have been left open for a sufficient period of time to establish equilibrium ground water conditions. In addition, fluctuations in the ground water level could occur due to change in seasons, variations in rainfall, and other factors.

3.4 Geology and Seismicity

Most of the site is underlain by Pliocene and Pleistocene Livermore gravels except the southwestern corner, which is underlain by Pleistocene alluvial fans and fluvial deposits[1]. The Livermore gravels have been previously mapped as being poorly to moderately consolidated, indistinctly bedded, cobble conglomerate, gray conglomeratic sandstone, and gray coarse-grained sandstone; the formation also includes some siltstone and claystone. Clasts are mostly graywacke, chert, and metamorphic rocks probably derived from the Franciscan complex. The

[1]Helley and Graymer, 1997, Quaternary Geology of Alameda County, and Parts of Contra Costa, Santa Clara, San Mateo, San Francisco, Stanislaus, and San Joaquin Counties, *California: A Digital Database*, USGS Open File Report 97-97.

alluvial fans and fluvial deposits are generally composed of brown dense gravely and clayey sand or clayey gravel that fines upward to sandy clay. No morphological evidence of landsliding was observed onsite during our investigation. As of the date of this report, a Seismic Hazards Map for landsliding has not been prepared by the State of California that includes the area of the site.

The project site is located in the San Francisco Bay Area that is considered one of the most seismically active regions in the United States. Significant earthquakes have occurred in the San Francisco Bay Area and are believed to be associated with crustal movements along a system of subparallel fault zones that generally trend in a northwesterly direction. The Verona fault has been mapped as possibly extending onto the site (refer to LA's April 10, 1997, report for further details). The site is located approximately 1-1/2 miles east, 4 miles south, 7-1/2 miles northeast, 10 miles west, 10-1/2 miles southwest, 19-1/2 miles south, 20-1/2 miles south, and 26-1/2 miles northeast, respectively, of the active Calaveras, Pleasanton, Hayward, Greenville, Marsh Creek, Clayton, Concord-Green Valley, and San Andreas faults[2]. Dibblee (1980) [3] indicated that the northwest-southeast trending Verona Fault was concealed and passes through the southwestern corner of the site, but this fault was not designated as an active fault in Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada, prepared by California Department of Conservation, Division of Mines and Geology (1998). However, the southwestern corner of the site is located within an Alquist-Priolo Earthquake Fault Zone as designated by the State of California[4].

Earthquake intensities will vary throughout the Bay Area, depending upon numerous factors including the magnitude of earthquake, the distance of the site from the causative fault, and the type of materials underlying the site. The site will probably be subjected to at least one moderate to severe earthquake that will cause strong ground shaking. According to the U.S. Geological Survey and California Geological Survey (USGS Open-File Report 97-130), the site has a 10% probability of exceeding a peak ground acceleration of about 0.7g in 50 years (design basis ground motion based on NEHRP B-C boundary site condition[5]). The actual ground surface acceleration might be amplified depending upon the onsite engineering characteristics of the bedrock and the overlying unconsolidated soils.

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[2] Jennings, 1994, *Fault Activity Map of California and Adjacent Areas,* CDMG Geologic Data Map No. 6.

[3] Dibblee, 1980, *Preliminary Geologic Map of the Livermore Quadrange, Alameda and Contra Costa Counties, California*, USGS Open File Report 80-533.

[4] Hart and Bryant, Revised 1997 (Supplements 1 and 2 added 1999), *Fault-Rupture Hazard Zones in California,* CDMG Special Publication 42.

[5] NEHRP B-C boundary site condition: Site with an average shear wave velocity of 760 meters per second in the upper 30 meters.

3.5 Seismic Design Criteria

For seismic design using the 1997 Uniform Building Code (UBC), the nearest active fault to the site (the Calaveras fault) has been identified as a Type A fault, according to the Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada, prepared by California Department of Conservation, Division of Mines and Geology (1998). The site is located in Seismic Zone 4.

We recommend that the site be categorized under Soil Profile Type S_C, as defined in Table 16-J of the 1997 UBC. Near-Source Factors N_a =1.43 (per Table 16-S) and N_v =1.91 (per Table 16-T) are appropriate for the site with respect to the nearby faults. Seismic coefficients C_a=0.40N_a (per Table 16-Q) and C_v=0.56N_v (per Table 16-R) should be used in structural design.

3.6 Liquefaction

Soil liquefaction is a phenomenon primarily associated with saturated, cohesionless, soil layers located close to the ground surface. These soils lose strength during cyclic loading, such as imposed by earthquakes. During the loss of strength, the soil acquires mobility sufficient to permit both horizontal and vertical movements. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands that lie close to the ground surface. According to ABAG and the U.S. Geological Survey, the site, excluding the northeastern corner, is located in an area designated as having a very low to low likelihood of liquefaction in an earthquake and has been characterized as having a very low to low liquefaction susceptibility[6,7]. The northeastern corner of the site has a moderate likelihood of liquefaction in an earthquake and has been characterized as having a moderate liquefaction susceptibility. As of the date of this report, a Seismic Hazards Map for liquefaction has not been prepared by the State of California that includes the area of the site.

Based on the combined results of the exploratory pits, borings, in-situ penetration resistance tests, and laboratory tests, it is our opinion that the potential for ground surface damage at the site resulting from liquefaction is low.

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[6] Association of Bay Area Governments, 1980, *Liquefaction Susceptibility, San Francisco Bay Region.*

[7] Knudsen, Sowers, Witter, Wentworth, and Helly, 2000, *Preliminary Maps of Quaternary Deposits and Liquefaction Susceptibility, Nine-County San Francisco Bay Region, California*, USGS Open File Report 00-444.

4.0 CONCLUSIONS AND RECOMMENDATIONS

It is our opinion that the site is suitable for the proposed residential subdivision development from a geotechnical engineering standpoint. The conclusions and recommendations presented in this report should be incorporated in the design and construction of the project to minimize soil or foundation related issues. The following are the primary geotechnical considerations for development of the site.

COMPRESSIBLE AND EXPANSIVE SOILS: The near surface soils located in the upper 2 to 4 feet across the site are weak and potentially compressible, and they also have a high to very high plasticity and a highly to critical expansion potential. In the low lying areas of the site, clayey soils extend to the bottom of the borings. In order to minimize differential movement of the proposed structures and provide for the most economical foundation design, we recommend the residences be underlain by at least 3 feet of the more sandy and gravelly soils that exist below the surficial soils at the site. The grading operations will uncover the more sandy and gravelly soils at pad elevations in some areas of the site. In other areas, over-excavation of the more clayey soils will be necessary on building pads, and sandy and gravelly soils will need to be placed within the excavations. We recommend the over-excavations extend at least 5 feet beyond the footprints of the buildings. SFB should determine the locations and extent of the over-excavations at the time of construction.

CUT/FILL TRANSITIONS: Proposed grading may result in cut/fill transitions across building pads. In order to minimize potential differential settlement across the proposed foundations, we recommend that the post-tensioned or structural mat slab foundations bear entirely on similar materials. Over-excavation and re-compaction below foundations may be necessary in order for the slab foundations to bear upon similar materials (ie., compacted fill). The location and extent of the over-excavation and re-compaction can be determined by SFB once a final grading plan is established.

SEEPAGE, SURFACE AND SUBSURFACE WATER: Water seepage will occur during and after periods of rainfall, and possibly as a result of irrigation by "upstream" neighbors. Subdrains may be required below engineered fill placed on slopes and within previously existing drainage channels. After construction is complete, additional subdrains may be necessary and should be anticipated as the seepage patterns below the ground surface resulting from irrigation and storm water flow develop over time.

EROSION AND SLOPE MAINTENANCE: Drainage and erosion control measures should be maintained during and after construction onsite. Consideration should be given to establishing a regular slope and drainage maintenance program after the construction of the project.

Short-term and long-term erosion control are critical for the stability of any exposed cut and fill slopes, and may be necessary for the natural slopes in order to reduce sediment accumulation in the drainage systems. We recommend all exposed cut and fill slopes be seeded or planted with appropriately designed erosion resistant vegetation and fertilizer. The vegetation should be appropriately irrigated in order to establish and maintain growth. Over-watering should be avoided in order to minimize surficial instability and erosion. Vegetation should be deeply rooted to aid in the interlocking of the near-surface soils. Additional seeding and planting may be necessary in localized areas if the initial seeding or planting is unsuccessful. After seeding, fertilizing, and planting, staked erosion control blankets might be necessary to further stabilize the surficial soils.

Additional erosion control measures will need to be designed and implemented prior to the rainy season based upon the site's configuration. The measures could include straw wattles, silt fencing, hay bales, sediment collection basins, and filtration systems. Silt fencing should be designed for the site's soil type. Storm water discharge and release points from silt fencing should be designed to minimize erosion. In areas exposed to winter rains, we recommend an erosion control plan be prepared and implemented at least one month prior to the beginning of the rainy season. The erosion control measures will require inspection, modification, and re-mediation during the rainy season in order to comply with regulatory requirements. SFB can provide storm water management services for the site.

ADDITIONAL RECOMMENDATIONS: Detailed earthwork, drainage, and foundation recommendations for use in design and construction of the project are presented below. We recommend SFB review the final design and specifications to confirm that the recommendations presented in this report have been properly interpreted and implemented in the design, plans, and specifications. We can assume no responsibility for misinterpretation of our recommendations if we do not review the plans and specifications.

4.1 Earthwork

4.1.1 Clearing and Site Preparation

The site should be cleared of all obstructions including existing structures and their associated foundation systems, designated shrubs, trees and their root systems, designated pavement,

fencing and debris. Holes resulting from the removal of underground obstructions extending below the proposed finish grade should be cleared and backfilled with suitable material compacted to the requirements in Section 4.1.5, *Compaction*. We recommend backfilling operations for any excavations to remove deleterious material be carried out under the observation of SFB.

At least two weeks prior to grading, the site should be disced to remove standing surface vegetation. Portions of the site containing heavy surface vegetation should be stripped to an appropriate depth to remove these materials. The amount of actual stripping, if necessary, should be determined in the field by SFB at the time of construction. Stripped materials should be removed from the site or stockpiled for later use in landscaping, if desired.

4.1.2 Building Pads

The proposed grading should be performed so that no more than 5 feet of differential fill thickness exists below foundations. If any portion of a foundation is bearing on cut and other portions of the foundation are bearing on compacted fill that is greater than 3 feet deep, then we recommend that the portion of the foundation bearing on cut be over-excavated at least 3 feet so that the entire foundation is bearing on compacted fill. Deeper over-excavation may be necessary to satisfy the differential fill thickness recommendations.

Residences should be underlain by at least 3 feet of the more sandy and gravelly soils (select fill) that exist at the site. The grading operations will uncover the more sandy and gravelly soils at pad elevations in some areas of the site. In other areas, over-excavation of the more clayey soils will be necessary on building pads, and sandy and gravelly soils will need to be mined and placed within the excavations. The fill should be compacted in accordance to the recommendations in Section 4.1.5, *Compaction*. We recommend the over-excavations extend at least 5 feet beyond the footprints of the buildings. SFB should determine the locations and extent of the over-excavations at the time of construction.

Wherever over-excavation is performed, subdrains may need to be added at the base of the over-excavation to minimize the potential for water build-up and saturation of the fill materials. The actual need and location for subdrains should be evaluated in the field by SFB at the time of construction. Construction of the subdrains is described in Section 4.1.7.2, *Subsurface Drainage*.

4.1.3 Subgrade Preparation

After the completion of clearing, stripping, and the over-excavation in the building footprint, soil exposed in areas to receive improvements such as structural fill, slabs-on-grade, or pavements should be scarified to a depth of 12 inches, moisture conditioned to slightly above optimum water content, and compacted to the requirements for structural fill.

4.1.4 Fill Material

On-site soil below the stripped layer and having an organic content of less than 3 percent by volume can be used as fill except where the select, native, sandy or gravelly fill is required in the building footprints. Fill material generated from mass grading for select fill should be predominantly granular with a plasticity index of 20 or less. All fill placed at the site including on-site soils should not contain rocks or lumps larger than 6 inches in greatest dimension with not more than 15 percent larger than 2.5 inches. If required, imported fill should be predominantly granular with a plasticity index of 20 or less.

In addition to the mechanical properties specifications, all imported fill material shall have a resistivity (100% saturated) no less than the resistivity for the onsite soils, a minimum pH of 6.0, a total water soluble chloride concentration less than 300 ppm, and a total water soluble sulfate concentration less than 1,000 ppm.

4.1.5 Compaction

Structural fill less than 5 feet thick should be compacted to at least 90 percent relative compaction as determined by ASTM Designation D1557 (latest edition). The upper 6 inches of subgrade soils beneath pavements should be compacted to at least 95 percent relative compaction. Structural fill or wall backfill greater than 5 feet deep should be entirely compacted to at least 95 percent relative compaction. Fill material should be spread and compacted in lifts not exceeding 8 inches in uncompacted thickness.

4.1.6 Trench Backfill

Pipeline trenches should be backfilled with fill placed in lifts of approximately 8 inches in uncompacted thickness. Thicker lifts can be used provided the method of compaction is approved by SFB and the required minimum degree of compaction is achieved. Backfill should be placed by mechanical means only. Jetting is not permitted.

On-site trench backfill should be compacted to at least 90 percent relative compaction. The upper 3 feet of on-site trench backfill in slab and pavement areas should be compacted to at least 95 percent relative compaction. Imported sand trench backfill should be entirely compacted to at least 95 percent relative compaction. Sufficient water should be added during backfilling operations to prevent the soil from "bulking" during compaction.

Sand backfilled trench laterals that extend toward roadways or under foundations, and are located below irrigated landscaped areas such as lawns or planting strips, should be plugged with low strength concrete, sand/cement slurry, or onsite clays. The plug for the trench lateral should be located below the curb and gutter or edge of roadway, and under the perimeter of the foundation. The plug should be at least 12 inches thick, extend at least 1 foot beyond the edges and bottom of the trench, and extend to within 1 foot of the finished ground surface.

4.1.7 Drainage

4.1.7.1 *Surface*

Surface water should not be allowed to flow over the top of engineered slopes, down engineered slope faces, or over retaining walls. Ponding of surface water should not be allowed at the top or bottoms of slopes, adjacent to retaining walls, foundations, or on pavement. Positive surface gradients of at least 2 percent should be provided adjacent to the tops and bottoms of retaining walls, and adjacent to foundations, to direct surface water toward suitable discharge facilities. Areas above slopes should be graded to a 2 percent gradient or greater to direct surface water away from the top of slopes toward a suitable point of discharge such as concrete lined ditches or surface drain inlets. Roof gutters should be used on all buildings. Roof downspouts from buildings should be connected to solid pipes that transmit storm water onto paved roadways, into drainage inlets, or into storm drains. Collected water should not be allowed to flow onto slopes. We recommend the surface drainage be designed in accordance with the latest edition of the Uniform Building Code.

Landscaping drainage inlets should be provided around the proposed foundations that adequately collect irrigation or rain water and direct the water onto pavement or into storm water systems. It is imperative that the drainage inlets be properly designed and constructed so that the moisture content of the soils surrounding the foundations do not become elevated and no ponding of water occurs. The design of the foundations is based upon a well-drained condition. Elevated or excessively low moisture contents of soils located near or below foundations may result in differential movement of the foundations.

Appropriately lined ditches should also be used to collect surface water wherever open space areas direct storm water toward the planned development. All ditches should be appropriately sized for maximum storm water flows based on the upslope tributary area and should discharge to appropriately sized drainage inlets. Concrete lined ditches should be adequately reinforced. Concrete ditches should be installed with the lip of the gutter cut at least 2-inches below adjacent surface grade. Forming and backfilling around concrete lined ditches should not be allowed.

If earthen swales are used adjacent roadways, we recommend each swale be underlain by a subdrain approximately 3 feet deep. The subdrain should be located below the centerline of the swale. Twelve inches of compacted fill should be located between the bottom of the swale and the top of the subdrain. Construction of the subdrains is described in Section 4.1.7.2.

If irrigation of open-space areas or properties adjacent the upslope side of the development occurs, both short-term and long-term drainage impacts to the development may occur and may not be fully appreciated for many years. If irrigation of property located upslope of the development occurs (including open-space areas part of the development), then additional surface and subsurface drainage measures may need to be installed. These measures may include installing or increasing the size of drainage ditches, installing additional subdrains within adjacent slopes, and possibly over-excavating portions of the slopes and constructing drained buttress fills. We recommend SFB be consulted if irrigation will occur near the upslope side of the development or within adjacent open-space areas.

In order to minimize water induced issues, we recommend that the homeowner's be advised in the projects CC&R's to perform regular maintenance of their lots and the open-space areas, including maintenance prior to rainstorms. Maintenance should include the re-compaction of loosened soils, collapsing and infilling holes and burrows with compacted soils or low strength sand/cement grout, removal and control of burrowing animals, modifying storm water drainage patterns to allow for sheet flow into drainage inlets or ditches rather than concentrated flow, removal of debris within drainage ditches and inlets, and immediately repairing any erosion or soil flow. The inspection should include checking drainage patterns, making sure drainage systems are functional and not clogged, and erosion control measures are adequate for anticipated storm events. Immediate repair should be performed if any of these measures appears to be inadequate.

Additional surface and subsurface drainage control measures may need to be installed if animal infestation is not controlled, and the resulting animal holes, burrows, and animal created loosened soils are not re-compacted or infilled with sand/cement grout. Temporary and permanent erosion and sediment control measures should be installed over any exposed soils immediately after repairs are made.

4.1.7.2 *Subsurface Drainage*

In order to minimize the potential for subsurface water induced issues, we recommend subsurface drains be installed adjacent the curbs of roadways, in the areas where any seepage is observed, and within fill slope keyways and subgrade benches. Curb subdrains should extend at least 6 inches into pavement subgrade and should be located adjacent the pavement side of the curbs. During the earthwork operations, additional subdrains may be necessary in areas of encountered or anticipated seepage. The actual location of the subdrains should be determined by SFB once a grading plan has been established. We recommend a subdrain be located below concrete lined ditches that collect surface water from open space areas.

Subdrains should consist of perforated pipe surrounded by free draining, uniformly graded, 1/2 to 3/4 inch crushed gravel wrapped in filter fabric such as Mirafi 140N or equivalent. The pipe should be underlain by about 1 inch of the gravel, and on the sides by at least 4 inches of gravel. The height of the filter fabric wrapped gravel depends upon the extent of keyway construction and, if encountered, depth of seepage. As a minimum, we recommend keyway subdrains extend the full depth of fill slope keyways. The filter fabric should overlap approximately 12 inches or more at joints. Subdrain pipes should consist of rigid ABS (SDR-35) or PVC A-2000 (or equal) for fills less than 20 feet in height, and ABS (SDR-23.5) or PVC Schedule 40 (or equal) for fills 20 to 50 feet in height. The lateral drainpipes should be at least 4 inches in diameter and be connected to a collector pipe. Subdrain clean-outs should be provided. The clean-out locations should be based upon the reach of the rotary cleaning systems and the restrictions of pipe bends. Caltrans Class 2 permeable material may be used in lieu of gravel and filter fabric.

If used, subdrain trenches should be at least 12 inches wide and about 4 to 5 feet deep. If a subdrain extends to the ground surface and is not covered with concrete lined ditch, we recommend the subdrain be covered with a 12-inch thick cap consisting of native soil compacted to at least 90% relative compaction. Collector pipes should be connected to appropriate discharge facilities such as storm drains, drainage inlets, or storm drain manholes.

4.1.8 Engineered Slopes

4.1.8.1 *General*

We recommend all cut and fill slopes not exceed an inclination of 3:1 (horizontal to vertical). We recommend all cut and fill slopes be constructed with surface drainage. Shallow slope movements such as surficial sloughing and flows, however, could still occur as a result of erosion and unanticipated water infiltration. To decrease the potential for shallow slope

movement, the drainage and erosion control recommendations presented in this report should be implemented in the design and construction of the site. The implemented drainage and erosion control measures should be maintained during and after construction.

4.1.8.2 *Fill Slopes*

We recommend that fill slopes be over-built approximately 2 feet horizontally and subsequently trimmed back to finished grades.

Where fills are placed on slopes steeper than 6:1 (horizontal to vertical), the fills should be keyed a minimum of 5 feet into competent, undisturbed native soil. Keyways should be a minimum of 10 feet wide and a subdrain should be placed at the bottom and to the rear of each keyway. The keyway should be sloped toward the back at 2 percent or steeper.

Where fill is to be placed within swales or over existing drainage channels, subdrains should be installed at the base of the fill along the centerline of the swale or drainage channel. Subdrain construction is described in Section 4.1.7.2. The actual extent of the keying, benching, and subdrains should be determined by SFB once a final grading plan has been established.

4.1.8.3 *Unstable Cut Slopes*

Where cut slopes expose unstable soils, the unstable soils should be buttressed with properly keyed, benched, and drained engineered fill in order to minimize the potential for cut slope erosion and slumping. The construction of the fill should conform to the recommendations provided above in Section 4.1.8.2, *Fill Slopes*. Cut slopes should be observed by SFB at the time of grading to evaluate the need for buttressing and to determine the actual extent of over-excavation, thickness of buttress and to assess the need for any additional remedial work.

4.1.9 Setbacks

Cut and fill slopes should be setback from the site boundaries in accordance with the Uniform Building Code. Where driveways are located adjacent to cut, fill or native slopes, we recommend the driveway pavement section be setback at least 5 feet from the top or toe of the adjacent slope.

4.1.10 Construction During Wet Weather Conditions

If construction proceeds during or shortly after wet weather conditions, the moisture content of the on-site soils could be appreciably above optimum. Consequently, subgrade preparation, placement and/or reworking of on-site soil as structural fill might not be possible. Alternative wet weather construction recommendations can be provided by SFB in the field at the time of construction, if appropriate.

4.2 Foundation Support

The houses can either be supported on structural mat or post-tensioned slabs that are designed for the low to moderate expansion potential of the onsite soils.

4.2.1 General

The slab foundations should bear entirely on properly prepared compacted structural fill or native soils. In no case should a slab foundation bear upon more than one of these materials. Recommendations regarding cut and fill pads were previously presented in Section 4.1.2, *Building Pads*. Recommendations for subgrade preparation are described in Section 4.1.3, *Subgrade Preparation*. Slab-on-grade subgrade surfaces should be proof-rolled to provide a smooth, unyielding surface for slab support.

To minimize differential settlement, the slab foundations should be as square as possible and long, rectangular slabs should be avoided. We recommend a maximum length to width ratio of 2 or less be used. The slab foundations should be designed for an allowable dead plus live load bearing pressure of 500 pounds per square foot. Deflection of the unsupported portions of the slab foundations should not exceed the values calculated in Chapter 18, Division III of the 1997 Uniform Building Code

Foundations should be setback from the top and toe of slopes in accordance with the 1997 Uniform Building Code. For slopes less than 30 feet in height, at least 10 feet of cover should be provided between the outer face of foundations and un-retained slope faces, as measured laterally between slope faces and the foundations. Where less than 10 feet of cover exists, deepening of the edge of foundations using drilled piers may be necessary in order to achieve 10 feet of cover. Where foundations are located adjacent to utility trenches, the foundation bearing surface should bear below an imaginary 1.5 horizontal to 1 vertical plane extending upward from the bottom edge of the adjacent utility trench. Alternatively, the foundation reinforcing could be increased to span the area defined above assuming no soil support is provided.

Providing a moisture barrier between the subgrade soils and the bottom of the slabs should minimize water vapor migrating from the pad subgrade to the base of the slab foundations. We recommend the moisture barrier consist of 2 inches of lightly moistened (not saturated) sand overlying a double layer of impermeable membrane that is at least 10 mil thick. The membrane layers should be placed at 90-degree angles to each other and should be lapped and sealed in accordance with the manufacture's specifications, including taping joints where pipes penetrate the membrane. Care must be taken to protect the membrane from tears and punctures during construction.

We recommend the membrane in the moisture barrier for structural mat slabs also be underlain by an additional 4-inches of uniformly graded, free draining, gravel. We recommend slabs not be poured during or immediately after rainstorms.

In order to minimize surface water intrusion, we recommend a water impermeable material, such as Parastop II or equivalent, be placed between the bottom of the foundation perimeter edge and the supporting subgrade. As an alternative to using a water impermeable material below the edge of the foundation, the perimeter of the slab foundation could be extended 6 inches into the supporting subgrade. If the perimeter of the slab is extended into the building pad, we recommend that the structural engineer confirm that cracking will not occur as a result of tensioning of the cables in the slab.

Concrete slabs retain moisture and often take many months to dry. All flooring should be installed in accordance with manufacturer's specifications, including their moisture emission specifications. We recommend a concrete mix design with low water/cement ratio be used; a concrete specialist should be consulted to provide measures to minimize concrete permeability and vapor transmission through the slab foundations.

We recommend SFB review the foundation drawings and specifications prior to submittal to verify that the recommendations provided in this report have been used in the design of the slabs.

4.2.2 Structural Mat Slabs

Structural mat slab foundations should be designed in accordance with the parameters presented in the 1997 edition of the Uniform Building Code. The subgrade materials beneath the slabs should be considered to have Effective Plasticity Index of 20 percent. Slabs should be at least 8-inches thick.

4.2.3 Post-Tensioned Slabs

To minimize differential movement, the slab foundations should be as square as possible. The slab foundations should be a minimum of 10-inches thick and be designed for an allowable dead plus live load bearing pressure of 500 pounds per square foot. Deflection of the unsupported portions of the slab foundations should not exceed the values calculated in Chapter 18, Division III of the 1997 Uniform Building Code.

An experienced Structural Engineer should design the post-tensioned slabs. The following design parameters were generated using the procedure presented in the 1997 Uniform Building Code. The recommended soil design parameters are presented below. These values are based upon the post-tensioned slab foundations being entirely surrounded by moderately irrigated landscaping; if differing conditions will exist or if portions of the foundations will be located adjacent to relatively dry or wet soils, we should be consulted and modifications to the values below be presented in written form.

SWELLING MODE

	Center Lift	Edge Lift
Edge Moisture Variation Distance (e_m)	4.5 feet	5.0 feet
Differential Soil Movement (y_m)	0.7 inches	0.3 inches

4.2.4 Exterior Slabs

As previously discussed, the moderately to critically expansive surface soils at the site could be subjected to volume changes during fluctuations in moisture content. As a result of these volume changes, some vertical movement of exterior slabs (driveways, sidewalks, patios, exterior flatwork, etc.) should be anticipated. This movement could result in damage to the exterior slabs and might require periodic maintenance or replacement. Adequate clearance should be provided between the exterior slabs and building elements that overhang these slabs, such as window sills or doors that open outward.

To minimize the impact of the expansion pressures, consideration should be given to reinforcing exterior slabs with steel bars in lieu of wire mesh. Smooth dowels could be provided at all expansion and cold joints. Although exterior slabs that are adequately reinforced will still crack,

trip hazards requiring replacement of the slabs will be minimized. To minimize the potential crack formation, #3 bars spaced at approximately 24 inches on center in both directions could be used. All cold joints and expansion joints could be constructed with #3 bar slip dowels. The dowels should be at least 30 inches long and should be spaced at a maximum lateral spacing of 24 inches.

Sidewalks, street curb and gutter, and exterior slabs should be supported directly on properly prepared native soils. Eliminating rock base beneath slabs will minimize the potential for migration of landscape irrigation water into the street pavement section. Prior to placing concrete, subgrade soils should be moisture conditioned to increase their moisture content approximately 3 to 5 percent above laboratory optimum moisture (ASTM D-1557).

To minimize moisture changes in the natural soils and fills in landscaped areas, we recommend that drought resistant plants and "drip" irrigation systems be used. If landscaping plans include trees, they should be planted at least one-half the anticipated mature height of the tree away from slabs to minimize potential effects of tree roots on these improvements. Low flow watering systems should be used and inspected for leakage regularly. Adequate landscaping drainage should be provided, including drainage inlets for all lawn and open space areas.

4.2.5 Concrete or Masonry Retaining Walls and Soundwalls

Walls that retain soil must be designed to resist both lateral earth pressures and any additional lateral loads caused by surcharging.

We recommend that the unrestrained walls be designed to resist an equivalent fluid pressure of 50 pounds per cubic foot. This assumes a level backfill. Restrained walls should be designed to resist an equivalent fluid pressure of 50 pounds per cubic foot plus a uniform pressure of 10H pounds per square foot, where H is the height of the wall in feet. Walls with inclined backfill should be designed for an additional equivalent fluid pressure of 1 pound per cubic foot for every 1 degree of slope inclination. Walls subjected to surcharge loads should be designed for an additional uniform lateral pressure equal to one-third and one-half the anticipated surcharge load for unrestrained and restrained walls, respectively.

The recommended lateral pressures assume walls are fully-backdrained to prevent the build-up of hydrostatic pressures. Installing subdrains behind the walls should provide adequate drainage. For the subdrain system, the top of the perforated pipe should be below the lowest adjacent finished grade. Construction of subdrain systems was previously presented in Section 4.1.7.2, *Subsurface Drainage.*

If heavy compaction equipment is used, the walls should be appropriately designed to withstand the surcharge loads exerted by the heavy equipment and/or temporarily braced.

Retaining walls should be supported on drilled, cast-in-place, straight shaft friction piers that develop their load carrying capacity in the materials underlying the site. The piers should have a minimum diameter of 12 inches and a minimum center-to-center spacing of three times the shaft diameter. We recommend that piers extend to a minimum depth of 6 feet below grade. Pier reinforcing should be based on structural requirements.

The actual design depth of the piers should be determined using an allowable skin friction of 500 pounds per square foot for dead plus live loads, with a one-third increase for all loads including wind or seismic. Seventy percent of this value can be used to resist uplift; the wall and grade beam can be used to resist uplift. The upper 2 feet of pier shaft should be neglected in design. The portion of the pier shaft located within 10 feet of the nearest slope face, as measured laterally, should also be ignored in the design.

The bottoms of the pier excavations should be relatively dry and free of all loose cuttings or slough prior to placing reinforcing steel and concrete. Any accumulated water in pier excavations should be removed prior to placing concrete. We recommend that the excavation of all piers be performed under the direct observation of SFB to confirm that the pier foundations are founded in suitable materials and constructed in accordance with the recommendations presented herein.

Grade beams should be designed to span between the piers in accordance with the structural requirements. In order to minimize the possible detrimental affects of the expansive on-site soils, the connecting grade beams should be designed with a 4-inch void below the grade beams.

4.2.6 Lateral Load Resistance

Lateral load resistance for the proposed residential post-tensioned slab foundations can be developed by friction between the foundation bottom and the supporting subgrade. A friction coefficient of 0.25 is considered applicable.

Passive resistance can be developed against the retaining wall pier foundations. A passive resistance equal to an equivalent fluid weighing 300 pounds per cubic foot acting against twice the projected width of the pier can be used, however the upper 2 feet of pier should be neglected in the passive resistance design. At least 10 feet of cover should exist as measured laterally from the face of slopes to the face of piers in order to develop the full passive resistance.

4.3 Pavements

In areas where pavements will abut planted areas, the pavement baserock layer, pavement section subgrade soils, and trench backfill should be protected against saturation. Planned concrete slabs, sidewalks, driveways, and curb and gutters should be supported directly on the properly compacted native soils. Concrete curbs should be extended at least 6 inches into pavement subgrade to create a water barrier between the pavement section and adjacent soil or fill.

Based on the results of laboratory testing of onsite materials, we recommend that an R-value of 15 be used for proposed pavement subgrade. We recommend an additional R-value test be performed once the pavement subgrade is exposed to confirm the use of this design value.

We developed the following alternative preliminary pavement sections using Topic 608 of the State of California Department of Transportation Highway Design Manual, the recommended R-value, and typical traffic indices for residential developments. The project's Civil Engineer or appropriate public agency should determine actual traffic indices.

RECOMMENDED PAVEMENT DESIGN ALTERNATIVES
SUBGRADE R-VALUE = 15

Location	Pavement Components		Total Thickness (inches)
	Asphaltic Concrete (inches)	Aggregate Base Class 2 (inches)	
T.I. = 4.5	3.0	8.0	11.0
T.I. = 5.0	3.0	9.0	12.0
T.I. = 6.0	3.0	12.0	15.0

If the pavements are planned to be placed prior to or during construction, the traffic indices and pavement sections may not be adequate for support of what is typically more frequent and heavier construction traffic. If the pavement sections will be used for construction access, our firm should be consulted to provide recommendations for alternative pavement sections capable of supporting the heavier use. If requested, SFB can provide recommendations for a phased placement of the asphalt concrete to minimize the potential for mechanical scars caused by construction traffic in the finished grade.

5.0 CONDITIONS AND LIMITATIONS

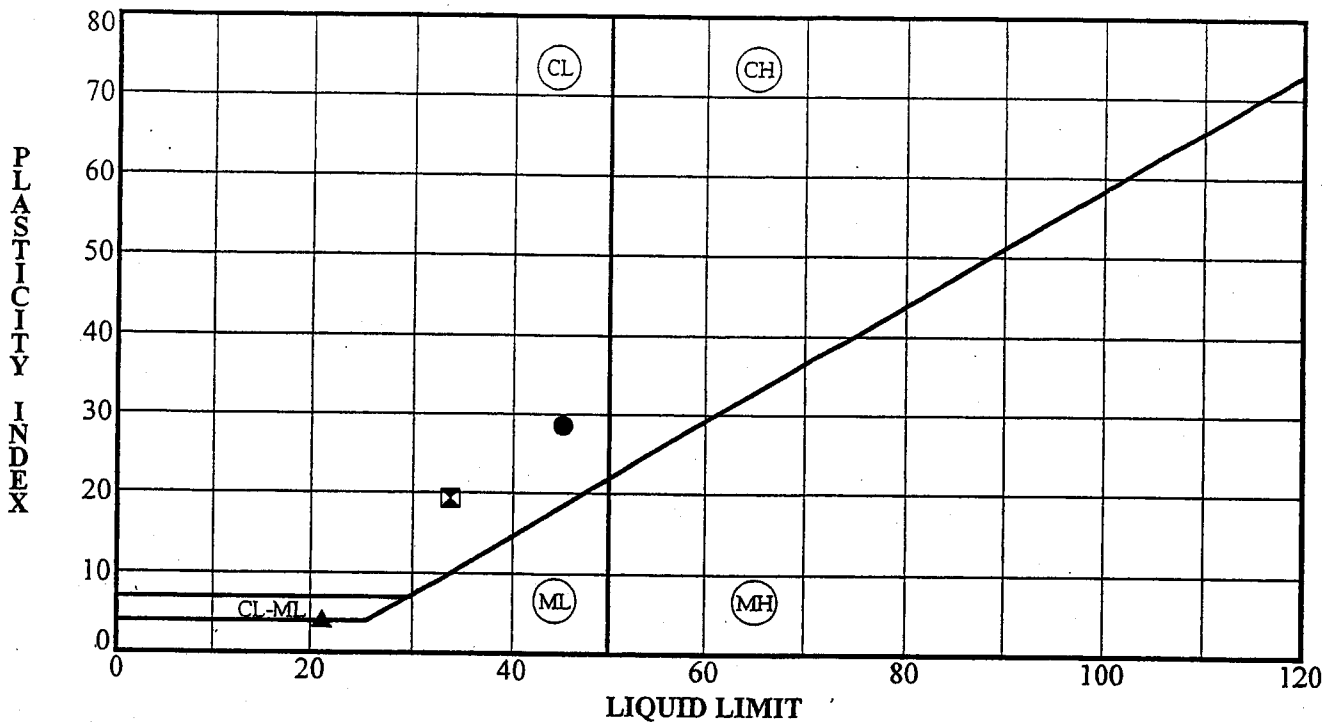
The analysis, designs, opinions, and recommendations submitted in this report are based in part upon the data obtained from SFB's exploratory work and on information developed by others. Variations in subsurface conditions from those analyzed or characterized in this report are possible as may become evident during construction. In that event, it may be advisable to revisit certain analyses or assumptions. Changes in the condition of the site can occur over time as a result of either natural processes or human activity and should be anticipated.

We recommend that SFB be retained to provide geotechnical, geological, and storm water management services during design, site grading, and foundation installation to confirm and observe compliance with the design concepts, specifications and recommendations presented in this report. Our presence will also allow us to modify design if unanticipated subsurface conditions are encountered or if changes to the scope of the project, as defined in this report, are made. If we are not retained to provide geotechnical or geological design modifications or observations, as necessary, prior to or during construction activities, or if other persons or entities are retained to provide such services, SFB, cannot be held responsible for any or all claims, including but not limited to claims arising from or resulting from the performance of such services by other persons or entities, and any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

This report is a design document that has been prepared in accordance with generally accepted geological and geotechnical engineering practices for the exclusive use of. New Cities Development Group and their consultants for specific application to the proposed Sycamore Heights Residential Development in Pleasanton, California, and is intended to represent our design recommendations to New Cities Development Group for specific application to the Sycamore Heights Residential Development. The conclusions and recommendations contained in this report are solely professional opinions. It is the responsibility of New Cities Development Group to transmit the information and recommendations of this report to those designing and constructing the project. Advancements in the practice of geotechnical engineering and engineering geology, or discovery of differing surface or subsurface conditions, may affect the validity of this report and are not uncommon. SFB strives to perform its services in a proper and professional manner with reasonable care and competence but it is not infallible. We should be consulted immediately if surface or subsurface conditions differ from those described in this report.

In the event that there are any changes in the nature, design or location of the project, as described herein, or if any future additions are planned, the conclusions and recommendations contained in this report should not be considered valid unless we are contacted in writing, the project changes are reviewed by us, and the conclusions and recommendations presented in this report are modified or verified in writing. This report does not necessarily represent all of the information that has been communicated by us to New Cities Development Group and their consultants during the course of this engagement and our rendering of professional services to New Cities Development Group. Reliance on this report by parties other than those described above must be at their own risk unless we are first consulted as to the parties' intended use of this report and only after we obtain the written consent of New Cities Development Group to divulge information that may have been communicated to New Cities Development Group. We cannot accept consequences for un-consulted use of segregated portions of this report.

FIGURES



Key Symbol	Boring No.	Depth (Feet)	Liquid Limit	Plasticity Index	Liquidity Index	Water Content (%)	% Passing #200 Sieve	USCS
●	SFB-2	3.0	45	29	0.238	23	72	CL
⊠	SFB-2	8.0	34	19	0.187	18	45	SM
▲	SFB-9	1.0	21	4	-0.714	14	44	SM

FUGRO

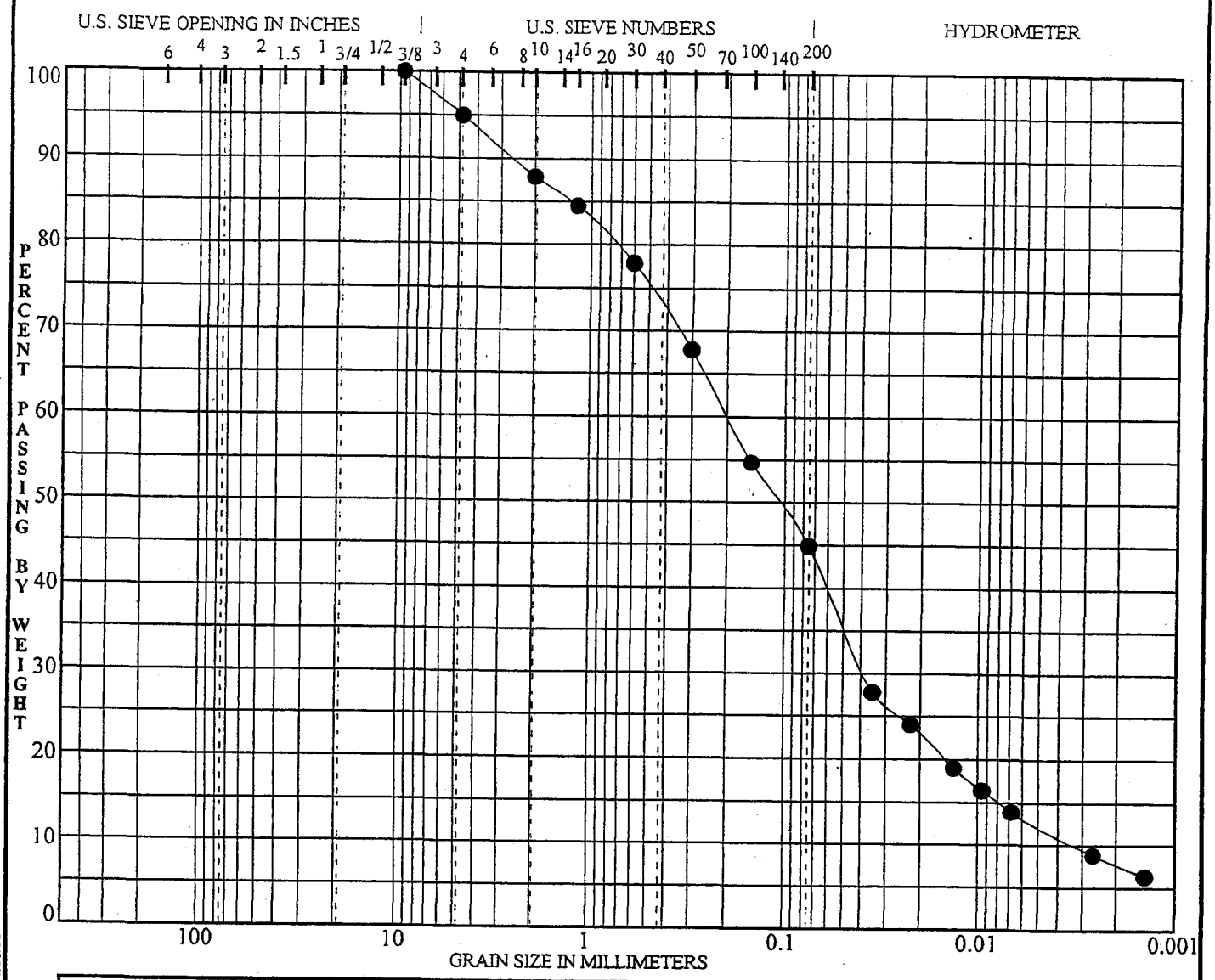
PREPD BY:
APP'D BY:
DATE: 1/30/03
DWG FILE: 100-8.GPJ

PLASTICITY CHART AND DATA

SYCAMORE HEIGHTS
Pleasanton, California

FIGURE
B-1
PROJECT No.
100-8

File Name: H:\ENGINEERING\TWPROJECTS\100-8.GPJ Report Template: ATT_B Output Date: 1/30/03



Cobbles	Gravel		Sand			Silt and Clay
	Coarse	Fine	Coarse	Medium	Fine	

Key Symbol	Boring No.	Depth (Feet)	% Passing No. 200 Sieve	% Passing No. 4 Sieve	Sample Descsription	USCS
●	SFB-2	8.0	45	95	Dark brown silty SAND, trace clay	SM

FUGRO

PREP'D BY
APP'D BY
DATE 1/30/03
DWG FILE 100-8.GPJ

GRADATION TEST DATA

SYCAMORE HEIGHTS
Pleasanton, California

FIGURE
B-2
PROJECT No.
100-8

File Name: H:\ENGINEER\GINTW\PROJECTS\100-8.GPJ Report Template: GRADATION_B Output Date: 1/30/03

APPENDIX A
Field Investigation

APPENDIX A

Field Investigation

SFB's field investigation for the proposed Sycamore Heights Residential Development in Pleasanton consisted of a surface reconnaissance and a subsurface exploration program using a backhoe. Nine exploratory pits were excavated on January 23, 2003, to a maximum depth of about 10 feet. Our representative continuously logged the soils encountered in the pits in the field. The locations of the exploratory pit are shown on the Site Plan, Figure 1. The soils are described in general accordance with the Unified Soil Classification System (ASTM D-2487). The logs of the pits as well as a key for the classification of the soil (Figure A-1) are included as part of this appendix. Previous borings were performed by others onsite; the locations of the previous explorations are shown on Figure 1, and the logs are attached as Appendix C.

Representative samples were obtained from the exploratory pits at selected depths appropriate to the investigation. All samples were transmitted to our offices for evaluation and appropriate testing.

The elevations discussed in this report and shown on the boring logs were obtained from the base map shown on Figure 1; datum unknown.

The attached boring and pit logs and related information show our interpretation of the subsurface conditions at the dates and locations indicated, and it is not warranted that they are representative of subsurface conditions at other locations and times.

FIGURE A-1, KEY TO EXPLORATION LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		Ltr	Description	Major Divisions		Ltr	Description
Coarse Grained Soils	Gravel and Gravelly Soils	GW	Well graded gravels or gravel sand mixtures, little or no fines	Fine Grained Soils	Silts and Clays LL<50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		GP	Poorly graded gravels or gravel sand mixtures, little to no fines			CL	Inorganic clays or low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		GM	Silty gravels, gravel-sand-silt mixtures			OL	Organic silts and organic silts-clays of low plasticity
		GC	Clayey gravels, gravel-sand-clay mixtures		Silts and Clays LL>50	MH	Inorganic silts, micaceous or diatomaceous fine or silty soils, elastic silts
	Sand and Sandy Soils	SW	Well graded sands or gravelly sands, little to no fines			CH	Inorganic clays of high plasticity, fat clays
		SP	Poorly graded sands or gravelly sands, little to no fines			OH	Organic clays of medium to high plasticity
		SM	Silty sands, sand-silt mixtures				
		SC	Clayey sands, sand-clay mixtures	Highly Organic Soils		PT	Peat and other highly organic soils

GRAIN SIZES

U.S. STANDARD SERIES SIEVE — CLEAR SQUARE SIEVE OPENINGS

200	40	10	4	¾"	3"	12"

Silts and Clays	Sand			Gravel		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

RELATIVE DENSITY

Sands and Gravels	N, Blows/Foot*
Very Loose	0 – 4
Loose	4 – 10
Medium Dense	10 – 30
Dense	30 – 50
Very Dense	Over 50

CONSISTENCY

Silts and Clays	N, Blows/Foot*	Strength (tsf)**
Very Soft	0 – 2	0 – ¼
Soft	2 – 4	¼ - ½
Firm	4 – 8	½ - 1
Stiff	8 – 16	1 – 2
Very Stiff	16 – 32	2 – 4
Hard	Over 32	Over 4

*Number of blows for a 140-lb. hammer falling 30 inches, driving a 2-inch O.D. (1-3/8") SPT sampler.
**Unconfined compressive strength.

SYMBOLS

	Standard Penetration Sampler (SPT Sampler)
	3" O.D. Split Barrel Sampler w/ Liners
	Shelby Tube Sample, 3" O.D.
	2½ " O.D. Split Barrel Sampler w/ Liners

Increasing Visual Moisture Content

Dry
Damp
Moist
Wet

CONSTITUENT PERCENTAGE

trace	<5%
some	5 – 15%
with	16 – 30%
-y	31 – 49%

BACKHOE Deere 310SE 4x4	SURFACE ELEVATION 423 feet	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	TRENCH WIDTH 24-inch	DATE 1/23/03

DESCRIPTION AND CLASSIFICATION			DEPTH	SAMPLER	TORVANE SHEAR STR. (TSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	POCKET PENETROM. STRENGTH (TSF)	OTHER
DESCRIPTION AND REMARKS	CONSIST	TYPE	(FEET)						TESTS
CLAY (CL), dark brown, silty, sandy (fine-grained), moist to wet	Firm-Stiff		0						
CLAY (CL/GC), mottled grayish brown, silty, sandy (fine- to coarse-grained), gravelly, with abundant cobbles	Stiff-V. Stiff		5						Sample Sample
Bottom of Pit = 10 feet Note: See report for additional details.			10						
			15						
			20						
			25						
			30						
			35						

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EXPLORATORY PIT LOG

SYCAMORE HEIGHTS

Pleasanton, CA

PROJECT NO.	DATE	PIT NO.
100-8	February 2003	SFB-1

BACKHOE Deere 310SE 4x4	SURFACE ELEVATION 465 feet	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	TRENCH WIDTH 24-inch	DATE 1/23/03

DESCRIPTION AND CLASSIFICATION			DEPTH	SAMPLER	TORVANE SHEAR STR. (TSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	POCKET PENETROM. STRENGTH (TSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	TYPE	(FEET)						
CLAY (CL), mottled reddish brown and brown, silty, some sand and gravel (fine to coarse), damp	V. Stiff to Hard		0			23			2 Samples LL=45, PI=29 Passing #200 Sieve=72%
SAND (SM), mottled light brown, silty, some clay, with occasional gravels	Dense		5			18			2 Samples LL=34, PI=19 Gravel=5% Sand=50% Silt=33%, Clay=12%
Bottom of Pit = 10 feet Note: See report for additional details. LL=Liquid Limit, PI=Plasticity Index			10						
			15						
			20						
			25						
			30						
			35						

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EXPLORATORY PIT LOG

SYCAMORE HEIGHTS

Pleasanton, CA

PROJECT NO.	DATE	PIT NO.
100-8	February 2003	SFB-2

BACKHOE Deere 310SE 4x4	SURFACE ELEVATION 499 feet	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	TRENCH WIDTH 24-inch	DATE 1/23/03

DESCRIPTION AND CLASSIFICATION			DEPTH	SAMPLER	TORVANE SHEAR STR. (TSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	POCKET PENETROM. STRENGTH (TSF)	OTHER
DESCRIPTION AND REMARKS	CONSIST	TYPE	(FEET)						TESTS
CLAY (CL), brown, some sand, silt and gravel, moist	Firm		0						
CLAY (CL), mottled reddish brown, with sand, silt and gravel, damp	Stiff								Sample
GRAVEL (GC), reddish brown, some clay, silt, and sand, damp	Med. Dense to Dense		5						Sample
Bottom of Pit = 7 feet Note: See report for additional details.			10						
			15						
			20						
			25						
			30						
			35						

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EXPLORATORY PIT LOG

SYCAMORE HEIGHTS

Pleasanton, CA

PROJECT NO.	DATE	PIT NO.
100-8	February 2003	SFB-3

BACKHOE Deere 310SE 4x4	SURFACE ELEVATION 465 feet	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	TRENCH WIDTH 24-inch	DATE 1/23/03

DESCRIPTION AND CLASSIFICATION			DEPTH	SAMPLER	TORVANE SHEAR STR. (TSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	POCKET PENETROM. STRENGTH (TSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	TYPE	(FEET)						
CLAY (CL), brown, with silt and sand, moist	Firm		0						
GRAVEL (GC), mottled yellowish brown, fine to coarse, some sand, clay and silt, damp	Med. Dense		5						
Bottom of Pit = 6 feet Note: See report for additional details.			10						
			15						
			20						
			25						
			30						
			35						

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EXPLORATORY PIT LOG

SYCAMORE HEIGHTS

Pleasanton, CA

PROJECT NO.	DATE	PIT NO.
100-8	February 2003	SFB-4

BACKHOE Deere 310SE 4x4	SURFACE ELEVATION 426 feet	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	TRENCH WIDTH 24-inch	DATE 1/23/03

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	TORVANE SHEAR STR. (TSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	POCKET PENETROM. STRENGTH (TSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	TYPE							
CLAY (CL), brown, silty, with sand (fine to coarse), saturated	Soft		0						
CLAY (CL), mottled yellowish brown, with sand, silt and gravel, damp to wet	Stiff								Sample
GRAVEL (GC), yellowish brown, fine to coarse, trace cobbles, some sand, silt and clay, damp	Med. Dense		5						Sample
Bottom of Pit = 7 feet Note: See report for additional details.			10						
			15						
			20						
			25						
			30						
			35						

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EXPLORATORY PIT LOG

SYCAMORE HEIGHTS

Pleasanton, CA

PROJECT NO.	DATE	PIT NO.
100-8	February 2003	SFB-5

BACKHOE Deere 310SE 4x4	SURFACE ELEVATION 425 feet	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	TRENCH WIDTH 24-inch	DATE 1/23/03

DESCRIPTION AND CLASSIFICATION			DEPTH	SAMPLER	TORVANE SHEAR STR. (TSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	POCKET PENETROM. STRENGTH (TSF)	OTHER
DESCRIPTION AND REMARKS	CONSIST	TYPE	(FEET)						TESTS
CLAY (CL), brown, with silt and sand, saturated	V. Soft		0						
CLAY (CH), mottled brown, with silt and sand, trace gravel, wet	Stiff		5						
CLAY (CL), mottled yellowish brown, silty, with sand, some gravel and cobbles	V. Stiff								Sample
Bottom of Pit = 9 feet Note: See report for additional details.			10						
			15						
			20						
			25						
			30						
			35						

SuperLog V2.8 CivilTech Software, USA www.civiltech.com File: C:\Program Files\Sup Date: 2 [illegible] \projects\v0-8Pit.log

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EXPLORATORY PIT LOG

SYCAMORE HEIGHTS

Pleasanton, CA

PROJECT NO.	DATE	PIT NO.
100-8	February 2003	**SFB-6**

BACKHOE Deere 310SE 4x4	SURFACE ELEVATION 441 feet	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	TRENCH WIDTH 24-inch	DATE 1/23/03

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	TORVANE SHEAR STR. (TSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	POCKET PENETROM. STRENGTH (TSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	TYPE							
CLAY (CL), dark brown, silty, some sand, wet	Firm		0						
CLAY (CH), reddish brown, some silt and sand, wet	Stiff								
SILT (ML), yellowish brown, some clay and sand, damp	Stiff to V. Stiff								Sample
GRAVEL (GC), mottled yellowish brown, some clay, with sand and silt, damp	Med. Dense to Dense		5						Sample
Bottom of Pit = 8 feet Note: See report for additional details.			10						
			15						
			20						
			25						
			30						
			35						

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EXPLORATORY PIT LOG

SYCAMORE HEIGHTS

Pleasanton, CA

PROJECT NO.	DATE	PIT NO.
100-8	February 2003	SFB-7

BACKHOE Deere 310SE 4x4	SURFACE ELEVATION 441 feet	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	TRENCH WIDTH 24-inch	DATE 1/23/03

DESCRIPTION AND CLASSIFICATION			DEPTH (FEET)	SAMPLER	TORVANE SHEAR STR. (TSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	POCKET PENETROM. STRENGTH (TSF)	OTHER TESTS
DESCRIPTION AND REMARKS	CONSIST	TYPE							
CLAY (CL), dark brown, silty, some sand (fien-grained), wet	Soft		0						
CLAY (CL/CH), mottled reddish brown, with sand and silt, trace gravel, moist	Stiff								
GRAVEL (GC), reddish brown, fine to coarse, some cobbles, sand, silt and clay, damp	Dense		5						
Bottom of Pit = 6 feet Note: See report for additional details.			10						
			15						
			20						
			25						
			30						
			35						

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EXPLORATORY PIT LOG

SYCAMORE HEIGHTS

Pleasanton, CA

PROJECT NO.	DATE	PIT NO.
100-8	February 2003	SFB-8

BACKHOE Deere 310SE 4x4	SURFACE ELEVATION 446 feet	LOGGED BY KF
DEPTH TO GROUNDWATER Not Encountered	TRENCH WIDTH 24-inch	DATE 1/23/03

DESCRIPTION AND REMARKS	CONSIST	TYPE	DEPTH (FEET)	SAMPLER	TORVANE SHEAR STR. (TSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	POCKET PENETROM. STRENGTH (TSF)	OTHER TESTS
SAND (SM), mottled dark brown, with silt and clay, trace gravel, wet	Loose		0			14			Sample LL=21, PI=4 Passing #200 Sieve=44%
(perched water)									
CLAY (CH), mottled yellowish brown, some silt, sand and gravel, damp to wet	Stiff								
GRAVEL (GC), mottled yellowish brown, with clay, silt and sand, occasional cobbles, damp	Dense		5						Sample
Bottom of Pit = 6 feet Note: See report for additional details.									
LL = Liquid Limit, PI = Plasticity Index			10						
			15						
			20						
			25						
			30						
			35						

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Suite 1551
Concord, CA 94520
TEL 925.688.1001
FAX 925.688.1005

EXPLORATORY PIT LOG

SYCAMORE HEIGHTS

Pleasanton, CA

PROJECT NO.	DATE	PIT NO.
100-8	February 2003	SFB-9

APPENDIX B

Laboratory Investigation

APPENDIX B

Laboratory Investigation

SFB's laboratory testing program for the proposed Sycamore Heights Residential Development was directed toward a quantitative and qualitative evaluation of the physical and mechanical properties of the soils underlying the site.

The natural water content was determined on three samples of the materials recovered from the pits. These water contents are recorded on the pit logs at the appropriate sample depths.

Atterberg Limit determinations were performed on three samples of the subsurface soils to determine the range of water content over which these materials exhibit plasticity. The Atterberg Limits were determined in accordance with ASTM Test Designations D4318. These values are used to classify the soil in accordance with the Unified Soil Classification System and to indicate the soil's compressibility and expansion potentials. The results of these tests are presented on the pit logs and Figure B-1.

Gradation and hydrometer tests were performed on one sample of the subsurface soils. These tests were performed to assist in the classification of the soils and to determine their grain size distribution. The results of the test are presented on the pit logs and Figure B-2.

The percent passing the #200 sieve was determined on three samples of the subsurface soils to aid in the classification of these soils. The results of these tests are shown on the pit logs and Figure B-1.

APPENDIX C

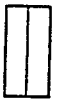
Boring Logs By Others

PRIMARY DIVISIONS			SOIL TYPE	LEGEND	SECONDARY DIVISIONS
COARSE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVELS (MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE)	CLEAN GRAVELS (Less than 5% Fines)	GW		Well graded gravels, gravel–sand mixtures, little or no fines
			GP		Poorly graded gravels or gravel–sand mixtures, little or no fines
		GRAVEL WITH FINES	GM		Silty gravels, gravel–sand–silt mixtures, plastic fines
			GC		Clayey gravels, gravel–sand–clay mixtures, plastic fines
	SANDS (MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE)	CLEAN SANDS (Less than 5% Fines)	SW		Well graded sands, gravelly sands, little or no fines
			SP		Poorly graded sands or gravelly sands, little or no fines
		SANDS WITH FINES	SM		Silty sands, sand–silt–mixtures, non–plastic fines
			SC		Clayey sands, sand–clay mixtures, plastic fines
FINE GRAINED SOILS (MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS (LIQUID LIMIT IS LESS THAN 50 %)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL		Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS (LIQUID LIMIT IS GREATER THAN 50 %)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH		Inorganic clays of high plasticity, fat clays
			OH		Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			PT		Peat and other highly organic soils

DEFINITION OF TERMS

U.S. STANDARD SIEVE SIZE				CLEAR SQUARE SIEVE OPENINGS				
200	40	10	4	3/4"	3"	12"		
SILTS AND CLAY	SAND			GRAVEL		COBBLES	BOULDERS	
	FINE	MEDIUM	COARSE	FINE	COARSE			

GRAIN SIZES



TERZAGHI
SPLIT SPOON
STANDARD PENETRATION

MODIFIED CALIFORNIA

SHELBY TUBE
PITCHER TUBE

SAMPLERS

SAND AND GRAVEL	BLOWS/FOOT*
VERY LOOSE	0–4
LOOSE	4–10
MEDIUM DENSE	10–30
DENSE	30–50
VERY DENSE	OVER 50

RELATIVE DENSITY

SILTS AND CLAYS	STRENGTH+	BLOWS/FOOT*
VERY SOFT	0–1/4	0–2
SOFT	1/4–1/2	2–4
MEDIUM STIFF	1/2–1	4–8
STIFF	1–2	8–16
VERY STIFF	2–4	16–32
HARD	OVER 4	OVER 32

CONSISTENCY

*Number of blows of 140 pound hammer falling 30 inches to drive a 2–inch O.D. (1–3/8 inch I.D.) split spoon (ASTM D–1586).
+Unconfined compressive strength in tons/sq.ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D–1586), pocket penetrometer, torvane, or visual observation.

KEY TO EXPLORATORY BORING LOGS
Unified Soil Classification System (ASTM D–2487)

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

FIGURE A–1

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 465 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: N/E | DATE DRILLED: 3/20/97

UNCONFINED COMPRESSIVE STRENGTH x (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
3.6	1.0	107	12		7			CL	SILTY CLAY (CL) soft to medium stiff, moist, brown, mottled reddish-brown and gray, trace gravel and rootlets
									Plasticity Index = 12, Liquid Limit = 24
6.6	2.8	110	18		19			CL	SILTY CLAY (CL) stiff, reddish brown, some gravel
						5			
8.8	3.8	113	15		26				mottled reddish brown and gray, trace gravel
								CL	SANDY CLAY (CL) very stiff, moist, brown, mottled reddish brown, some gravel to 1 inch
			15		24				
						10		CL	SILTY CLAY (CL) very stiff, moist, brown, trace sand and gravel
8.4	3.0	114	16		45				becomes mottled gray and reddish-brown, less sand
						15			
			17		14				more sand
						20			
								ML	SANDY SILT (ML) very stiff, moist, mottled brown and gray, trace clay
		111	20		45				
						25			Bottom of Boring = 25 feet
									Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.
						30			*Pocket Penetrometer Strength

EXPLORATORY BORING - EB-1

DUNKLEY/HUMPHRIES PROPERTIES

Pleasanton, California

LOWNEY ASSOCIATES

Environmental/Geotechnical/Engineering Services

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 443 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: N/E | DATE DRILLED: 3/20/97

UNCONFINED COMPRESSIVE STRENGTH K (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
1.6		84	29		11			CL	SILTY CLAY (CL) firm, moist, brown, mottled gray and reddish brown, trace gravel
9.0+		117	11		42				becomes hard, brown, mottled gray
						5			
9.0+		109	14		41			CL	SANDY CLAY (CL) hard, moist, brown, some gravel
9.0+		109	15		41				
						10		CL	SILTY CLAY (CL) hard, moist, brown, trace gravel
9.0+		107	18		48				trace sand
						15			
9.0+		122	7		48				some gravel to 1 1/2 inch
						20			Bottom of Boring = 20 feet
									Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual. *Pocket Penetrometer Strength
						25			
						30			

EXPLORATORY BORING - EB-2

DUNKLEY/HUMPHRIES PROPERTIES

Pleasanton, California

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 492 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: N/E | DATE DRILLED: 3/20/97

UNCONFINED COMPRESSIVE STRENGTH K (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
5.8	2.2	98	22		17			CH	SILTY CLAY (CH) stiff, moist, reddish-brown, trace sand, some gravel Plasticity Index = 59, Liquid Limit = 73
9.0+		111	13		63	5		ML	SANDY SILT (ML) hard, moist, reddish-brown, trace gravel, trace clay
9.0+		112	10		70			SM	SILTY SAND (SM) dense, moist, mottled light brown and reddish brown, trace gravel
			10		52	10			becomes very dense
			10		78				Percent passing #200 sieve = 23%
			6		50/ 5.5"	15			
			8		89	20			Gravelly lens from approximately 21 to 22 1/2 feet
						25			Bottom of Boring = 24 1/2 feet Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual. *Pocket Penetrometer Strength
						30			

EXPLORATORY BORING – EB-3

DUNKLEY/HUMPHRIES PROPERTIES

Pleasanton, California

LOWNEY ASSOCIATES

Environmental/Geotechnical/Engineering Services

EB-3

1227-1B

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 460 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: N/E | DATE DRILLED: 3/20/97

UNCONFINED COMPRESSIVE STRENGTH # (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
4.4	2.2	96	25		19			CH	SILTY CLAY (CH) stiff, moist, reddish-brown, mottled gray, trace sand and gravel Plasticity Index = 39, Liquid Limit = 53
7.2	3.6	112	17		32				becomes very stiff
						5			
			8		60			SM	SILTY SAND (SM) dense, moist, reddish-brown, trace clay, some gravel
			6		75				becomes very dense
						10			
			8		79				
						15			
			9		85/11"				
						20			Bottom of Boring = 20 feet
									Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.
									*Pocket Penetrometer Strength
						25			
						30			

EXPLORATORY BORING - EB-4

DUNKLEY/HUMPHRIES PROPERTIES
Pleasanton, California

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 431 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: N/E | DATE DRILLED: 3/20/97

UNCONFINED COMPRESSIVE STRENGTH # (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
0.8		109	17		4			CL	SILTY CLAY (CL) soft, wet, brown, some sand and gravel
9.0+		115	15		29	5		CL	SILTY CLAY (CL) very stiff, moist, mottled brown, gray, reddish-brown, trace sand and gravel
9.0+		108	12		74/11.5				trace rootlets, becomes hard
9.0+		114	17		71	10			
9.0+		133	9		60				increasing sand and gravel
						15			Bottom of Boring = 15 feet
						20			Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual. *Pocket Penetrometer Strength
						25			
						30			

EXPLORATORY BORING - EB-5

DUNKLEY/HUMPHRIES PROPERTIES

Pleasanton, California

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 455 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: N/E | DATE DRILLED: 3/20/97

UNCONFINED COMPRESSIVE STRENGTH x (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
5.4		106	19		15			CL	SILTY CLAY (CL) stiff, moist, brown, mottled reddish-brown, trace sand and gravel
			11		58			SM	SILTY SAND (SM) dense, moist, brown, mottled reddish-brown, gravel to 1/2 inch
			10		42	5			
			9		45				trace gravel
			11		45	10			
			8		86/11"	15			becomes very dense
			10		64	20			
						25			Bottom of Boring = 25 feet Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual. *Pocket Penetrometer Strength
						30			

EXPLORATORY BORING - EB-7

DUNKLEY/HUMPHRIES PROPERTIES
Pleasanton, California

LOWNEY ASSOCIATES
Environmental/Geotechnical/Engineering Services

EB-7
1227-18

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 449 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: N/E | DATE DRILLED: 3/21/97

UNCONFINED COMPRESSIVE STRENGTH * (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
3.8	2.2		25		12			CL	SILTY CLAY (CL) stiff, moist, reddish-brown, mottled light brown, trace sand and gravel
5.0	2.0	111	17		19				gravel to 1 inch
						5			
3.6		111	17		20				increasing sand and gravel
5.8		112	12		20				
						10			
			12		15				
						15			Bottom of Boring = 15 feet
									Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.
									*Pocket Penetrometer Strength
						20			
						25			
						30			

EXPLORATORY BORING - EB-8

DUNKLEY/HUMPHRIES PROPERTIES

Pleasanton, California

LOWNEY ASSOCIATES

Environmental/Geotechnical/Engineering Services

EB-8

1227-1B

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 440 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: N/E | DATE DRILLED: 3/21/97

UNCONFINED COMPRESSIVE STRENGTH X (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
3.0	1.6	93	25		12			CL	SILTY CLAY (CL) firm, moist, reddish-brown, mottled light brown, trace gravel, trace rootlets
9.0+		106	20		38			ML	CLAYEY SILT (ML) hard, moist, reddish-brown, mottled gray and black
9.0+		115	18		61	5			
9.0+			19		65				
						10			
9.0+		120	15		89/10"			ML	CLAYEY SILT (ML) hard, moist, brown, mottled gray and black
						15			
			13		65				becomes brown, trace sand
						20			Bottom of Boring = 20 feet Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual. *Pocket Penetrometer Strength
						25			
						30			

EXPLORATORY BORING - EB-9

DUNKLEY/HUMPHRIES PROPERTIES
Pleasanton, California

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 402 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: 7 1/2 ft. | DATE DRILLED: 3/21/97

UNCONFINED COMPRESSIVE STRENGTH * (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
3.4		117	14		9			CL	SANDY CLAY (CL) firm, moist, brown, mottled orangish-brown, trace gravel, trace rootlets
8.6	2.6	114	16		21	5		CL	SILTY CLAY (CL) stiff, moist, brown, mottled gray and reddish-brown, trace sand and gravel more gravel between 3 1/2 -6 feet
		123	12		49			SM	SILTY SAND (SM) dense, moist, reddish-brown, mottled gray, trace clay, trace gravel
			14		29	10			▼ ▽ Percent passing #200 sieve = 32%
			14		51	15			Bottom of Boring = 15 feet Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual. *Pocket Penetrometer Strength
						20			
						25			
						30			

EXPLORATORY BORING - EB-10

DUNKLEY/HUMPHRIES PROPERTIES

Pleasanton, California

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 445 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: N/E | DATE DRILLED: 3/21/97

UNCONFINED COMPRESSIVE STRENGTH * (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
5.8	1.6	106	21		14			CL	SILTY CLAY (CL) stiff, moist, brown, mottled orangish brown, some sand, trace gravel
									Plasticity Index = 20, Liquid Limit = 36
			11		84			SM	SILTY SAND (SM) dense, moist, mottled organish brown, brown and gray, some clay, trace gravel
						5			becomes very dense, trace weathered rock
			8		66				
			8		51				Percent passing #200 sieve = 20%
						10			
								SM	SILTY SAND (SM) dense, moist, orangish-brown
			7		55	15			
			16		40			CL	SILTY CLAY (CL) hard, moist, orangish-brown, trace sand
						20			Bottom of Boring = 20 feet
									Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual.
						25			*Pocket Penetrometer Strength
						30			

EXPLORATORY BORING - EB-11

DUNKLEY/HUMPHRIES PROPERTIES
Pleasanton, California

DRILL RIG: Mobile B-56 | SURFACE ELEVATION: 428 ft. | LOGGED BY: JTS

BORING TYPE: 8-inch hollow stem | DEPTH TO GROUND WATER: N/E | DATE DRILLED: 3/21/97

UNCONFINED COMPRESSIVE STRENGTH # (KSF)	SHEAR STRENGTH BY TORVANE (KSF)	DRY DENSITY (PCF)	WATER CONTENT (%)	SAMPLER	PENETRATION RESISTANCE (BLOWS/FT.)	DEPTH (FEET)	LEGEND	SOIL TYPE	MATERIAL DESCRIPTION AND REMARKS
3.2		109	14		9			SM	SILTY SAND (SM) loose, moist, brown, trace gravel, trace roots
			11		39	5		CL	SILTY CLAY (CL) very stiff, moist, reddish-brown, mottled brown, some gravel, trace rootlets
			8		69			SM	SILTY SANDY (SM) very dense, moist, orangish brown, trace to some gravel
			9		52/6"	10			
						15			Bottom of Boring = 14 1/2 feet Note: The stratification lines represent the approximate boundary between the soil types. The transition may be gradual. *Pocket Penetrometer Strength
						20			
						25			
						30			

EXPLORATORY BORING - EB-12

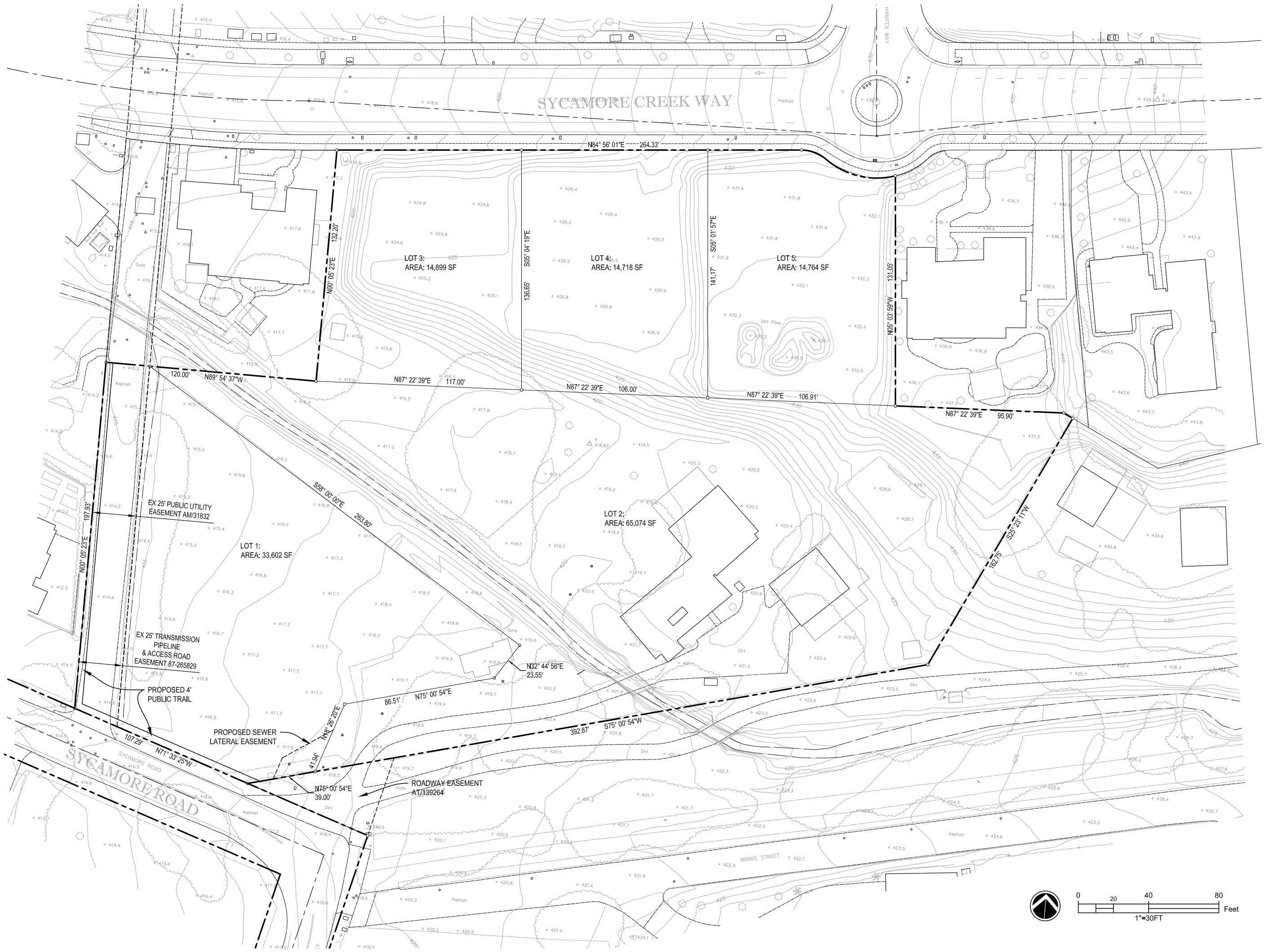
DUNKLEY/HUMPHRIES PROPERTIES

Pleasanton, California

VESTING TENTATIVE TRACT MAP

----

990 SYCAMORE ROAD
PLEASANTON, CA 94566



PROJECT INFORMATION:

APN: 948-0016-002-15

EXISTING ZONING: PUD-A
PROPOSED ZONING: PUD

EXISTING ADDRESS: 990 SYCAMORE ROAD
PLEASANTON, CA 94566

OWNER/CONSULTANTS:

OWNER:
BRINGHURST LLC
990 SYCAMORE ROAD
PLEASANTON, CA 94566

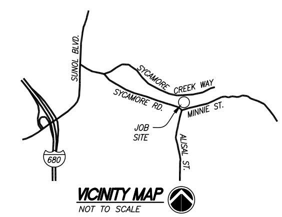
CIVIL ENGINEER:
LANDTECH CONSULTANTS
3845 BEACON AVENUE, SUITE D
FREMONT, CA 94538

FLOOD ZONE INFORMATION:

THE SITE SHOWN ON THIS PLAN LIES WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN FROM FEMA MAP NUMBER 06001C0338G.

UTILITIES:

WATER: CITY OF PLEASANTON
SANITARY SEWER: CITY OF PLEASANTON
STORM: CITY OF PLEASANTON
TELEPHONE AND TV: AT&T
GAS AND ELECTRIC: PG&E
FIRE PROECTION DISTRICT: LIVERMORE-PLEASANTON FIRE DEPARTMENT



LEGEND:

DESCRIPTION:	PROPOSED:	EXISTING:
BOUNDARY, TRACT BOUNDARY		
CENTERLINE		
CURB, GUTTER, SIDEWALK		
MONUMENT LINE		
STORM DRAIN	SD	SD
SANITARY SEWER	SS	SS
WATER	W	W
ELECTRIC CONDUIT	E	E
GAS	G	G
TELEPHONE, DATA (COMMUNICATION)	COM	COM
JOINT TRENCH	JT	JT
EASEMENT		
CONTOUR, ELEVATION AND SPOT ELEVATION	16 +16.25	16 +16.25
CURB DRAIN		
MANHOLE		
FIELD INLET, CATCH BASIN		
UTILITY PULL BOX/ STUB-OUT BOX		
FIRE HYDRANT		HYD
SANITARY SEWER CLEANOUT		
SANITARY SEWER SERVICE LATERAL		
WATER SERVICE		
WATER MAIN AND VALVE		
ELECTROLIER		
RIGHT OF WAY		
SWALE (1% MIN.)		
DIRECTION OF SLOPE		
TOP OF WALL ELEVATION, TW BOTTOM OF WALL ELEVATION, BW	TW BW	TW BW

DESIGNED BY:	NO.	DATE	REVISION	BY	APP.
DRAWN BY:					
CHECKED BY:					
DIV. MGR.:					

REGISTERED PROFESSIONAL ENGINEER
KAMAL S. OBEID
No. 35214
Exp. SEP. 30, 2019
CIVIL
STATE OF CALIFORNIA

Landtech Consultants
Civil & Structural Engineers
3845 Beacon Avenue Suite D (510) 505-9501
Fremont, CA 94538
http://www.landtech.com

PREPARED FOR:
BRINGHURST, LLC

VESTING TENTATIVE TRACT MAP -------
990 SYCAMORE RD
PLEASANTON, CALIFORNIA

SHEET TITLE:
PRELIMINARY TENTATIVE TRACT MAP

DATE: 3-27-2018
SCALE:
DWG. NO.: TTM-1
SHT. NO: 1 OF: 8