

THE J. BYER GROUP, INC.

A GEOTECHNICAL CONSULTING FIRM

1461 E. CHEVY CHASE DR. #200, GLENDALE, CA 91206
818•549•9959 TEL 818•543•3747 FAX

"Trust the Name You Know"

October 2, 2001
JB 18457-I

Palisades Landmark LLC
10600 Santa Monica Boulevard
Los Angeles, California 90025

Attention: Ken Kahan

Subject

Addendum Geologic and Soils Engineering Exploration Report #4
Proposed Landslide Repair and Multi-Unit Condominium and Town Home Buildings
Tentative Tract 52928, Lot 1 (Condominiums)
17331-17333 Tramonto Drive
Pacific Palisades, California

Grading Section Log # 31587-03

References: Reports by The J. Byer Group, Inc.:

Geologic and Soils Engineering Exploration, Proposed Landslide Repair and Multi-Unit Condominium and Town Home Buildings, Tentative Tract 52928, 17331-17333 Tramonto Drive, Pacific Palisades, California, dated August 16, 2000;

Addendum Geologic and Soils Engineering Exploration Report, Proposed Landslide Repair and Multi-Unit Condominium and Town Home Buildings, November 29, 2000;

Addendum Geologic and Soils Engineering Exploration Report #2, Proposed Landslide Repair and Multi-Unit Condominium and Town Home Buildings, dated June 29, 2001; and

Addendum Geologic and Soils Engineering Exploration Report #3, Proposed Landslide Repair and Multi-Unit Condominium and Town Home Buildings, dated August 28, 2001.

City of Los Angeles Department of Building and Safety, Grading Section, review letters, dated September 21, 2000; January 22, 2001; July 30, 2001; and September 13, 2001.

Gentlemen:

The J. Byer Group has prepared this addendum report to provide additional information to the Grading Section for the design and construction of the proposed project. The city review letter dated September 13, 2001 is attached for reference.

Item - 1 *Provide recommendations to protect the site from potential landslide movement resulting in overtopping of the retaining wall along the rear property line or provide recommendations for obtaining a factor of safety of 1.5 for the offsite property.*

Based upon the hypothetical high groundwater condition shown on Section H, the safety factor of a potential failure that over-tops the property line retaining walls is less than 1.5. It is not possible to mitigate the potential hazard by offsite grading or de-watering. Free board is recommended to protect the proposed development from offsite debris.

The free board height was determined using the mass transfer method. This method assumes that if the slide moves, mass will be transferred from the head of the slide to the toe. This mass transfer will reduce driving forces and increase resisting forces. The Mass Transfer calculations, which are based upon Section H, indicate that a transfer of 26 kips of mass from the top to the bottom of the slide will raise the safety factor to 1.5. The 26 kips represents a volume of slide debris of 200 cubic feet. Ten feet of freeboard will create a catchment area suitable for 200 cubic feet of debris. The free-board should be designed for an equivalent fluid pressure of 65 pcf.

Item - 2 *The report dated 06/29/2001 recommends a maximum deflection of 1 inch for both, temporary and permanent retaining structures. Provide design calculations to justify the recommended minimum deflection of one inch. The consultant recommends the use of tiebacks to resist the lateral loads. Note, that permanent tie-backs are not acceptable to the Department. Furthermore, a notarized letter from adjoining property owners allowing tieback on their property shall be submitted to the Department. If off-site permission cannot be obtained, provide alternate recommendations.*

Tie-backs are not currently planned for the project. Two or more rows of soldier piles may be utilized to support temporary excavations along the property lines. The Pile Deflection calculations show the calculated deflections for piles supporting permanent and temporary loads. A concrete compressive strength of 6,000 psi was assumed. For a 10 foot on center spacing, cantilevered piles supporting an equivalent fluid pressure of 30 pcf need to be 54 inches in diameter to limit deflection to one inch. For piles supporting an equivalent fluid pressure of 65 pcf, two rows of 54 inch diameter piles will be required. Alternatively, the pile spacing may be reduced to five feet on center. Limiting the deflection to near one inch at the tops of the piles will ensure protection of the upslope properties.

Item - 3 *Design recommendations for 45 feet high temporary shoring (Calculations sheet #13 of 06/29/2001 report) indicted a backslope angle of 27 degrees. However, the cross-section shows a backslope of an approximately 1:1 (horizontal to vertical), Revise calculations and recommendations.*

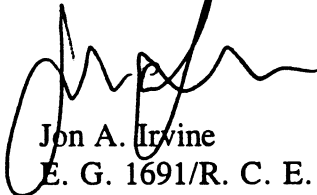
The initial backslope angle is 44 degrees, which extends upslope from the piles 25 feet. Beyond 25 feet, the slope gradient flattens to 15 degrees. Previous calculations assumed an average slope gradient of 27 degrees. The enclosed Soldier Piles - Complex Backslope calculation which includes the 44 at 15 degree backslopes, indicates that soldier piles may be designed for an equivalent fluid pressure of 65 pcf.

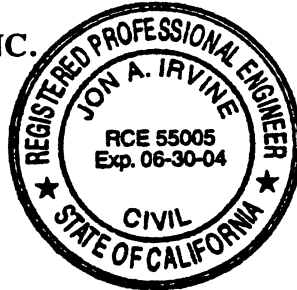
Item - 4 *Clarify the assumed equivalent fluid pressure (EFP) 30 PCF for the uphill piles and EFP =65 PCF for the downhill piles, as previously requested. The cross-section H-H shows that the piles in question are along the northerly and southerly property lines. However, the response dated 08/28/2001 only discussed piles along the northerly property line.*

Piles P1 through P40 are considered the uphill piles. Piles along the southern property line are considered the downhill piles. Piles supporting excavations along the southern property line should be designed for an equivalent fluid pressure of 65 pcf (permanent and temporary). Piles P1 through P40 should be designed for a temporary equivalent fluid pressure of 65 pcf. Piles P1 through P30 should be designed for a permanent equivalent fluid pressure of 30 pcf.

The J. Byer Group appreciates the opportunity to continue as your geotechnical consultants. Any questions regarding this or the referenced report should be directed to the undersigned.

Respectfully submitted,
THE J. BYER GROUP, INC.


Jon A. Irvine
E. G. 1691/R. C. E. 55005



Robert I. Zweigler
E. G. 1210/G. E. 2120

JAI:RIZ:JWB:flh
Y:\FINAL\ADDENDUM\18457-i2.add.wpd

Enc: City of Los Angeles Department of Building and Safety, Grading Section review letter dated September 13, 2001 (2 pages)
Soldier Piles - Complex Backslope
Mass Transfer Calculations (2)
Pile Deflection Calculations (2)

In Pocket: Geologic Map
Section H (1 Sheet)
Sections L & K (1 Sheet)

xc: (3) Addressee
(1) Gary Safronoff
(1) William Rose & Associates
(3) City of Los Angeles Department of Building & Safety, Grading Section

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EXECUTIVE OFFICER

September 13, 2001

Log # 31587-03
SOILS/GEOLOGY FILE - 2

Palisades Landmark LLC
10600 Santa Monica Bl
Los Angeles, CA 90025

TRACT: (Tentative Tract 52928)
LOT: 1 (condominiums)
LOCATION: 17331-17333 Tramonto Dr

<u>CURRENT REFERENCE REPORT/LETTER(S)</u>	<u>REPORT NO.</u>	<u>DATE(S) OF DOCUMENT</u>	<u>PREPARED BY</u>
Geology/Soil Report	18457-I	08/28/01	J. Byer Group
Ovrszd Doc	"	"	"
<u>PREVIOUS REFERENCE REPORT/LETTER(S)</u>	<u>REPORT NO.</u>	<u>DATE(S) OF DOCUMENT</u>	<u>PREPARED BY</u>
Geology/Soil Report	18457-I	06/29/01	J. Byer Group
Geology/Soil Report	18457	08/16/00	J. Byer Group
Geology/Soil Report	18457-I	11/29/0	J. Byer Group
Department letter	29828	02/07/00	LADBS
Department letter	31587	09/21/00	LADBS
Department letter	31587-01	01/22/01	LADBS
Department letter	31587-02	06/30/01	LADBS

The current referenced report providing a response to the Department Correction Letter dated 06/30/2001 has been reviewed by the Grading Section of the Department of Building and Safety. Slope stability analysis included in the report indicate factor of safety of 1.3 for overtopping of the rear-yard retaining wall. This is not in compliance with the minimum requirements of the Building Code.

The subject site is underlain by an active landslide. The previous reports provide recommendations for a repair of the existing landslide by removing the landslide debris and support the proposed structures on compacted fill and piles. Shoring, up to 45 feet in height is required to support the proposed excavation.

The reports cannot be approved as they lack sufficient information to determine the stability or safety of the proposed development. An addendum to the reports shall be submitted which contains

Page 2

17331-17333 Tramonto Dr

the following information:

1. Provide recommendations to protect the site from potential landslide movement resulting in overtopping of the retaining wall along the rear property line or provide recommendations for obtaining a factor of safety of 1.5 for the offsite property.
2. The report dated 06/29/2001 recommends a maximum deflection of 1 inch for both, temporary and permanent retaining structures. Provide design calculations to justify the recommended maximum deflection of one inch. The consultant recommends the use of tie-backs to resist the lateral loads. Note, that permanent tie-backs are not acceptable to the Department. Furthermore, a notarized letter from adjoining property owners allowing tie-back on their property shall be submitted to the Department. If off-site permission cannot be obtained, provide alternate recommendations.
3. Design recommendations for 45 feet high temporary shoring (Calculations sheet #13 of 06/29/2001 report) indicated a backslope angle of 27 degrees. However, the cross-section shows a backslope of an approximately 1:1 (horizontal to vertical). Revise calculations and recommendations.
4. Clarify the assumed equivalent fluid pressure (EFP) 30 PCF for the uphill piles and EFP=65 PCF for the downhill piles, as previously requested. The cross-section H-H shows that the piles in question are along the northerly and southerly property lines. However, the response dated 08/28/2001 only discussed piles along the northerly property line.

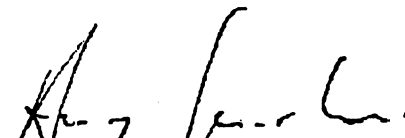
DAVID HSU
Chief of Grading Section



DANA PREVOST
Engineering Geologist II

DP/ATS:dp/ats
31587-03
(213) 977-6329

cc: J. Byer Group
WLA District Office



ANDRZEJ T. SZPIKOWSKI
Geotechnical Engineer I



THE J. BYER GROUP, INC.

A GEOTECHNICAL CONSULTING FIRM

1461 E. CHEVY CHASE DRIVE, GLENDALE, CA 91206

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SOLDIER PILES - COMPLEX SLOPE

JB: 18457-I CONSULT: JAI

CLIENT: PALISADES LANDMARK

CALCULATION SHEET # 1

CALCULATE THE DESIGN MINIMUM EQUIVALENT FLUID PRESSURE (EFP) FOR PROPOSED SOLDIER PILES WITH A COMPLEX BACKSLOPE. THE SOLDIER PILE HEIGHT, UPSLOPE DISTANCE TO THE CHANGE IN SLOPE, AND BACKSLOPE AND SURCHARGE CONDITIONS ARE LISTED BELOW. ASSUME THE BACKFILL IS SATURATED WITH NO EXCESS HYDROSTATIC PRESSURE.

CALCULATION PARAMETERS

EARTH MATERIAL:	BEDROCK	INITIAL BACKSLOPE:	44 degrees
SHEAR DIAGRAM:	2	UPPER BACKSLOPE:	15 degrees
SOLDIER PILE	45 feet	LOWER SURCHARGE:	0 pounds
NO UPPER WALL:	0 feet	SURCHARGE TYPE:	U Uniform
COHESION:	780 psf	UPPER SURCHARGE:	0 pounds
PHI ANGLE:	31 degrees	SURCHARGE TYPE:	P Point
DENSITY:	130 pcf	INITIAL FAILURE ANGLE:	20 degrees
SAFETY FACTOR:	1.25	FINAL FAILURE ANGLE:	70 degrees
WALL FRICTION:	0 degrees	SLOPE CHANGE DIST.:	25 feet
CD (C/FS):	624.0 psf	FINAL TENSION CRACK:	150 feet
PHID = ATAN(TAN(PHI)/FS) =	25.7 degrees		

CALCULATED RESULTS

CRITICAL FAILURE ANGLE	51 degrees
AREA OF LOWER TRIAL FAILURE WEDGE	1040.9 square feet
AREA OF UPPER TRIAL FAILURE WEDGE	624.4 square feet
TOTAL EXTERNAL SURCHARGE - LOWER WEDGE	0.0 pounds
TOTAL EXTERNAL SURCHARGE - UPPER WEDGE	0.0 pounds
WEIGHT OF LOWER TRIAL FAILURE WEDGE	135313.4 pounds
WEIGHT OF UPPER TRIAL FAILURE WEDGE	81178.2 pounds
NUMBER OF TRIAL WEDGES ANALYZED	3742 trials
LENGTH OF FAILURE PLANE	76.3 feet
DEPTH OF TENSION CRACK	16.0 feet
HORIZONTAL DISTANCE TO UPSLOPE TENSION CRACK	48.0 feet
CALCULATED HORIZONTAL THRUST ON PILE	55002.4 pounds
CALCULATED EQUIVALENT FLUID PRESSURE	54.3 pcf
DESIGN EQUIVALENT FLUID PRESSURE	65.0 pcf

CONCLUSIONS:

THE CALCULATION INDICATES THAT THE PROPOSED SOLDIER PILE SURCHARGED BY A COMPLEX BACKSLOPE MAY BE DESIGNED FOR AN EQUIVALENT FLUID PRESSURE OF 65 POUNDS PER CUBIC FOOT. THE FLUID PRESSURE SHOULD BE MULTIPLIED BY THE PILE SPACING

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MASS TRANSFER

JB 18457-I PALISADES LANDMARK

CONSULTANT: JAI

SCALE: NONE

CALCULATE THE FREEBOARD HEIGHT TO MITIGATE OVERTOPPING --> SECTION H

CROSS SECTIONAL AREA OF LANDSLIDE (ft ²)	8250
SECTION WIDTH OF LANDSLIDE (ft)	1
VOLUME OF LANDSLIDE (ft ³)	8250
MOIST UNIT WEIGHT OF SLIDE DEBRIS (kcf)	0.130
MASS OF LANDSLIDE(kips)	1072.5
SLIDE PLANE ANGLE (degrees)	37.9
PHI ANGLE ALONG BASE OF SLIDE (degrees)	16
COHESION VALUE ALONG BASE OF SLIDE (ksf)	0
PHI ANGLE ACROSS SLIDE DEBRIS (degrees)	25
COHESION VALUE ACROSS SLIDE DEBRIS (ksf)	0.32
LENGTH OF FAILURE THROUGH SLIDE DEBRIS (FEET)	60

BASIC EQUATIONS FOR DRIVING AND RESISTING FORCES

RESISTING FORCE: $MASS \cdot \cos(26) \cdot \tan(18) + COHESION \cdot FAILURE \text{ LENGTH}$

DRIVING FORCE: $MASS \cdot \sin(26)$

Slice	Area (ft ²)	Effective Wt. (kips)*	Failure Angle (degrees)	Driving Force (kips)	Resisting Force (kips)
1	478.5	62.2	37.9	38.21	14.07
2	391	41.3	37.9	25.37	9.34
3	637.5	57.6	37.9	35.38	13.03
4	556	41.6	37.9	25.55	9.41
5	840	97	-15.2	-25.43	62.85
			Sum	99.08	108.71

* Effective Weight of slice corrected for water table shown on Section H

SAFETY FACTOR 1.10

Mass Transfer 0



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MASS TRANSFER

JB 18457-I PALISADES LANDMARK

CONSULTANT: JAI

SCALE: NONE

Slice	Area (ft ²)	Effective Wt. (kips)*	Failure Angle (degrees)	Driving Force (kips)	Resisting Force (kips)
1	478.5	36.2	37.9	22.24	8.19
2	391	41.3	37.9	25.37	9.34
3	637.5	57.6	37.9	35.38	13.03
4	556	41.6	37.9	25.55	9.41
5	840	123	-15.2	-32.25	74.55
			Sum	76.29	114.53

SAFETY FACTOR 1.50

Mass Transfer (kips) moved from Slice 1 to 5	26
Equivalent Volume (ft³)	200
Backslope Angle Existing Slope (degrees)	14
Freeboard Height (feet)	9.99

CONCLUSIONS:

MASS MOVING FROM UPPER (DRIVING) PORTION OF SLIDE TO PORTION OVER-TOPPING PILES (RESISTING) WILL REDUCE DRIVING FORCE AND INCREASE RESISTING FORCE. 10 FEET OF FREE BOARD IS SUFFICIENT TO MITIGATE AGAINST OVER-TOPPING.

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PILE DEFLECTION

JB 18457-I PALISADES LANDMARK

CONSULTANT: JAI

SCALE: NONE

PERMANENT PILES - EFP = 30 PCF

Compressive Strength F_c (psi)	6000	
Elastic Modulus E (ksi)	4415	4415201 psi
Cantilever Pile Length (feet)	46	552 inches
Resultant Force Distance (feet)	15.33	184 inches
Design EFP (pcf)	30	
Pile Spacing (feet)	10	
Lateral Force on Pile (pounds)	317400	317.4 kips

	Pile Diameters				
	(inches)	(inches)	(inches)	(inches)	(inches)
	30	36	42	48	54
Moment of Inertia I (in ⁴)	39761	82448	152745	260576	417393
Deflection at 1/3 ht. (inches)	3.75	1.81	0.98	0.57	0.36
Deflection at top of pile (inches)	11.26	5.43	2.93	1.72	1.07

CONCLUSIONS:

THE CALCULATED DEFLECTIONS FOR CANTILEVERED SOLDIER PILES IS SHOWN IN THE CHART. A 54 INCH PILE WITH A 10 FOOT ON CENTER SPACING RESULTS IN 1" OF DEFLECTION.

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PILE DEFLECTION

JB 18457-I PALISADES LANDMARK

CONSULTANT: JAI

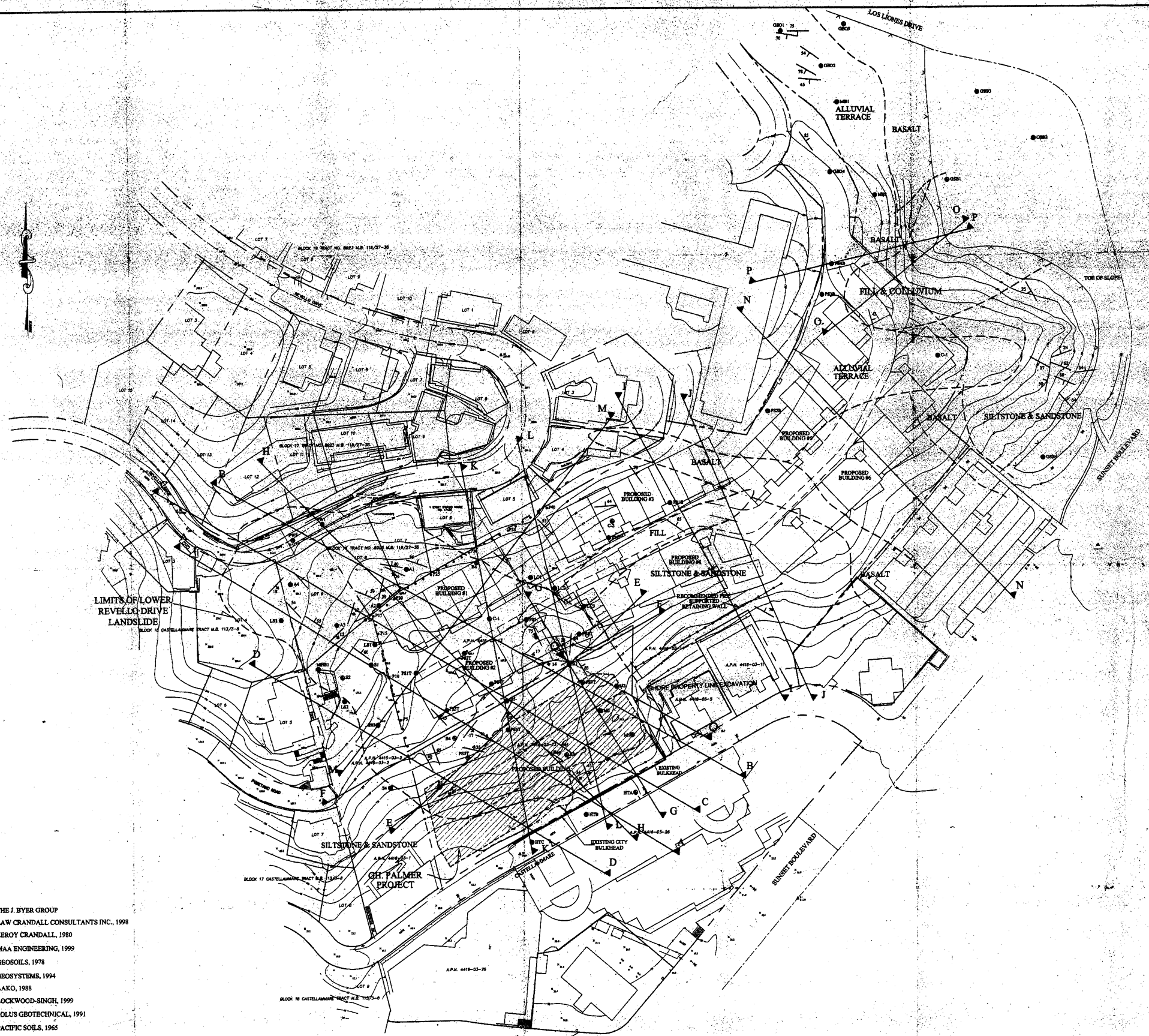
SCALE: NONE

TEMPORARY - EFP = 65 PCF

Compressive Strength Fc (psi)	6000	
Elastic Modulus E (ksi)	4415	4415201 psi
Cantilever Pile Length (feet)	46	552 inches
Resultant Force Distance (feet)	15.33	184 inches
Design EFP (pcf)	65	
Pile Spacing (feet)	5	
Lateral Force on Pile (pounds)	343850	343.85 kips

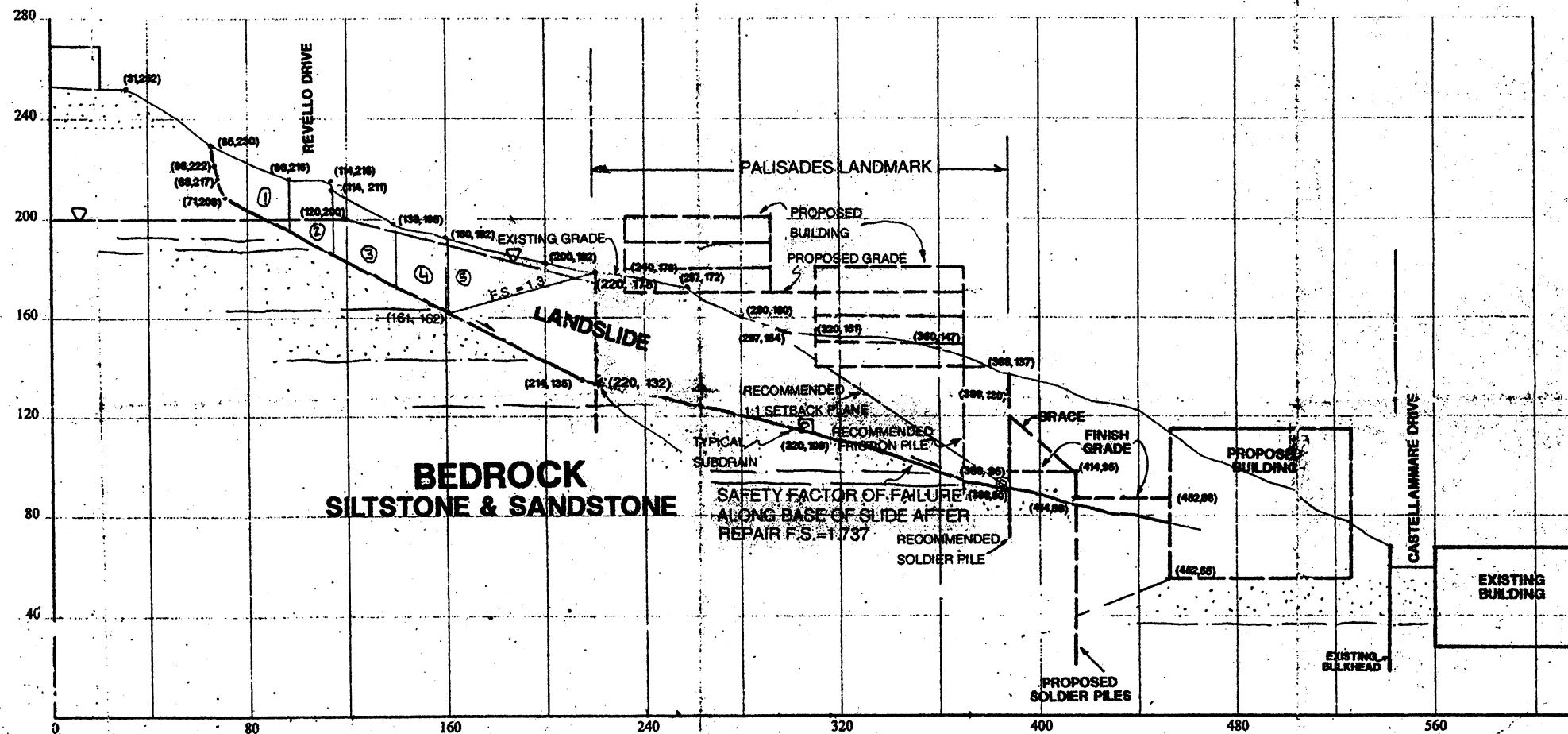
	Pile Diameters				
	(inches)	(inches)	(inches)	(inches)	(inches)
	30	36	42	48	54
Moment of Inertia I (in ⁴)	39761	82448	152745	260576	417393
Deflection at 1/3 ht. (inches)	4.07	1.96	1.06	0.62	0.39
Deflection at top of pile (inches)	12.20	5.88	3.18	1.86	1.16

CONCLUSIONS: THE CALCULATED DEFLECTIONS FOR CANTILEVERED SOLDIER PILES IS SHOWN IN THE CHART. A 54 INCH PILE WITH A 5 FOOT ON CENTER SPACING OR 2 'STACKED' PILES LOCATED 10 FEET ON CENTER RESULTS IN 1" OF DEFLECTION.



- LEGEND**
- B6 ● LOCATION AND NUMBER OF BORINGS BY THE J. BYER GROUP
 - C-3 ● LOCATION AND NUMBER OF BORINGS BY LAW CRANDALL CONSULTANTS INC., 1998
 - LC3 ● LOCATION AND NUMBER OF BORINGS BY LEROY CRANDALL, 1980
 - MAA2 ● LOCATION AND NUMBER OF BORINGS BY MAA ENGINEERING, 1999
 - OSB4 ● LOCATION AND NUMBER OF BORINGS BY GEOSOLS, 1978
 - OSB1 ● LOCATION AND NUMBER OF BORINGS BY GEOSYSTEMS, 1994
 - A4 ● LOCATION AND NUMBER OF BORINGS BY AAKO, 1988
 - LS3 ● LOCATION AND NUMBER OF BORINGS BY LOCKWOOD-SINGH, 1999
 - SB3 ● LOCATION AND NUMBER OF BORINGS BY SOLUS GEOTECHNICAL, 1991
 - PSST ● LOCATION AND NUMBER OF BORINGS BY PACIFIC SOILS, 1965
 - M3 ● LOCATION AND NUMBER OF BORINGS BY I.D. MERRILL
 - PW2 ● LOCATION AND NUMBER OF BORINGS BY CITY OF L.A. PUBLIC WORKS, 1965
 - 30° STRIKE AND DIP OF SHEAR
 - 65° STRIKE AND DIP OF BEDDING
 - 75° STRIKE AND DIP OF JOINT
 - GEOLOGIC CONTACT
 - P38 ● LOCATION AND NUMBER OF RECOMMENDED SOLDIER-PILES
 - LIMITS OF 1963 BENCH

THE J. BYER GROUP, INC. A GEOTECHNICAL CONSULTING FIRM <small>1611 CORY CORNER DRIVE, CHANON, CA 91710 (916) 284-9970 FAX (916) 284-9971</small>	GEOLOGIC MAP	
	<small>PROJECT NO. 184571</small> <small>DATE: 10/20/00</small>	<small>184571 PALISADES LANDMARK LLC</small> <small>CONSULTANT: JAJ</small>



SECTION H-H

AUGUST 28, 2001
 JUNE 29, 2001

THE J. BYER GROUP, INC. A GEOTECHNICAL CONSULTING FIRM <small>1441 E. Cherry Street Dr. Suite 200, Glendale, CA 91206 (818) 549-9999 Tel (818) 543-3747 Fax</small>	SECTION H-H	
	JOB: 18457-1 PALISADES LANDMARK LLC	CONSULTANT: JAI

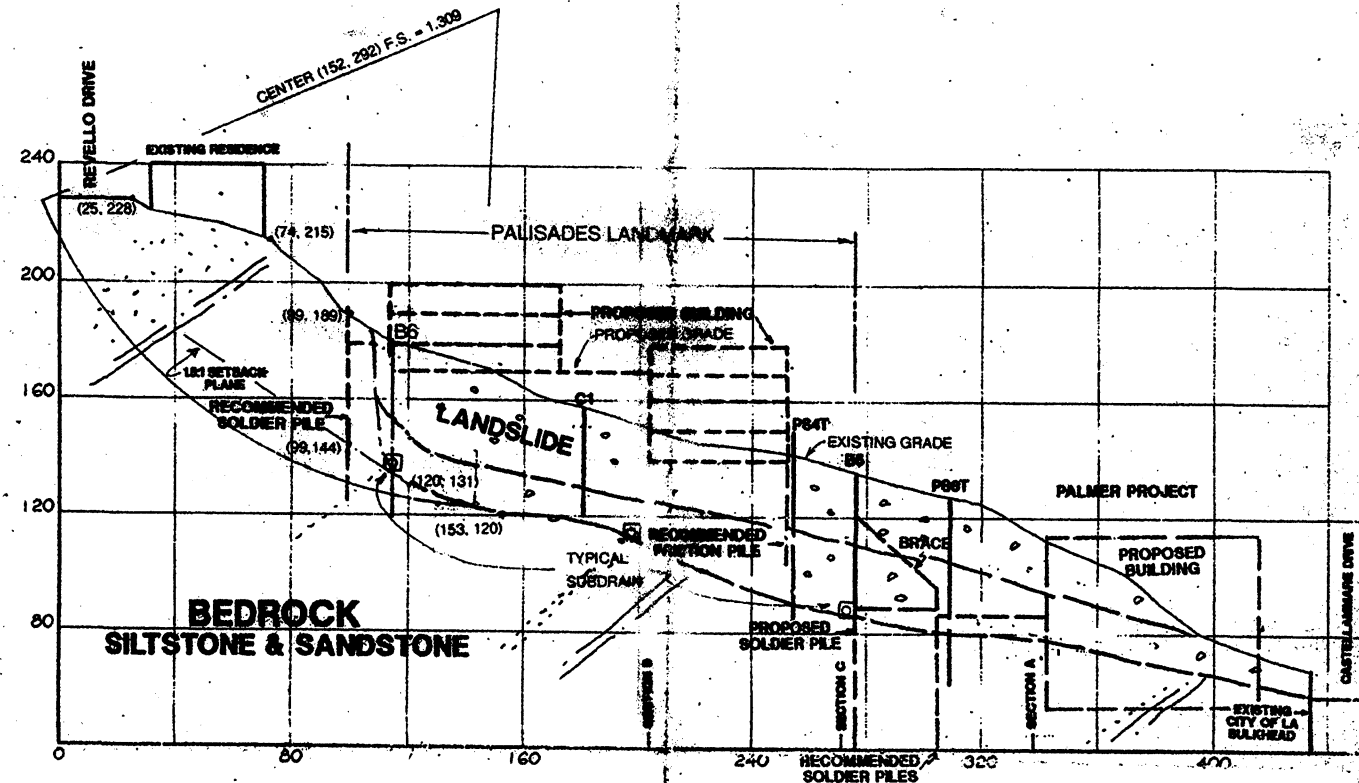
SECTIONS L & K

JB: 18457-I PALISADES LANDMARK LLC.

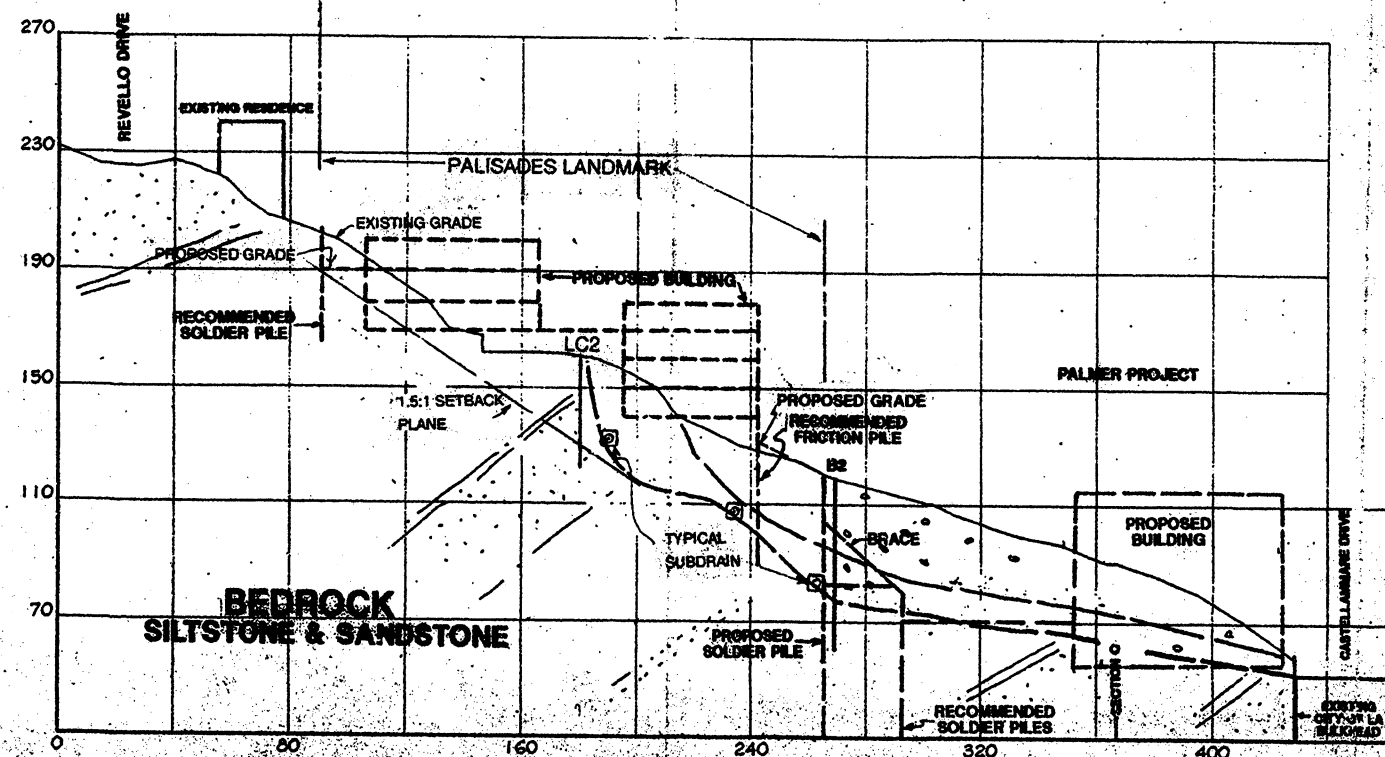
CONSULTANT: JAI

SCALE: 1" = 40'

JUNE 29, 2001
 AUGUST 28, 2001



SECTION K



SECTION L