Krazan & ASSOCIATES, INC.
GEOTECHNICAL ENGINEERING • ENVIRONMENTAL ENGINEERING
CONSTRUCTION TESTING & INSPECTION

May 26, 2000

RECEIVED
MAY 30 2000
Public Works, Engineering

KA Project No. 012-0003

Mr. Tim Groh
City of Fresno
Public Works Department
2600 Fresno Street, 3rd Floor
Fresno, California 93721

RE: Laboratory Testing and Measurement of Existing Pavement
City of Fresno
North Avenue between Highway 41 and Highway 99
Fresno, California

Dear Mr. Groh:

As requested, we have completed the Laboratory Testing and Measurement of Existing Pavement for the above-referenced project site.

Four test holes were cored though the existing asphaltic concrete pavement and aggregate base. The thickness of the existing asphaltic concrete and aggregate base is as follows:

Sample No.	Existing Asphaltic Concrete	Existing Aggregate Base
1	2½"	--
2	4"	5½"
3	4"	5½"
4	4"	5½"

Four subgrade soil samples were obtained from the project site for laboratory R-Value testing at the locations shown on the attached site plan. The samples were tested in accordance with the State of California Materials Manual Test Designation 301. Results of the tests are as follows:

Sample No.	Depth	Description	Moisture Content (%)	R-Value at Equilibrium
1	12-24"	Silty Sand (SM)	11.9	61
2	12-24"	Silty Sand (SM)	8.5	60
3	12-24"	Silty Sand (SM)	8.5	62
4	12-24"	Silty Sand (SM)	9.0	60

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (559) 348-2200.

REGISTERED PROFESSIONAL ENGINEER
DAVID R. JAROSZ, II
No. 60185
Expires: 6-30-00
CIVIL
STATE OF CALIFORNIA

Respectfully submitted,
KRAZAN & ASSOCIATES, INC.

Dave R. Jarosz, II
Project Engineer
RCE No. 60185

DRJ:ch

Log of Drill Hole B1

Project: City of Fresno - North Avenue

Project No: 012-00033

Client: City of Fresno - Public Works

Figure No.: A-1

Location: East North Avenue, Fresno, California

Logged By: Marty Groth

Depth to Water> **Initial:** None **At Completion:** None

SUBSURFACE PROFILE			SAMPLE					
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft (20 40 60)	Water Content (%) Wp |----0----| Wl (10 20 30 40)
0		Ground Surface						
		ASPHALTIC CONRETE ASPHALTIC CONCRETE = 2½ inches						
2		***SILTY SAND (SM)*** Loose, fine- to coarse-grained; light brown, damp to moist, drills easily						
4		***SANDY SILT (ML)*** Loose, fine- to medium-grained with cemented fragments; light grayish-brown, moist, drills firmly						
		End of Borehole						
6								
8								
10								
12								
14								
16								
18								
20								

Drill Method: Solid Flight

Drill Rig: CME 45B

Driller: Brent Snyder

Krazan and Associates

Drill Date: 5-24-00

Hole Size: 4½"

Sheet: 1 of 1

Log of Drill Hole B2

Project: City of Fresno - North Avenue

Project No: 012-00033

Client: City of Fresno - Public Works

Figure No.: A-2

Location: East North Avenue, Fresno, California

Logged By: Marty Groth

Depth to Water>

Initial: None

At Completion: None

SUBSURFACE PROFILE			SAMPLE					
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft (20 40 60)	Water Content (%) Wp |----0----| Wl (10 20 30 40)
0		Ground Surface						
		PAVEMENT SECTION ASPHALTIC CONCRETE = 4 inches AGGREGATE BASE = 5½ inches						
2		***SILTY SAND (SM)*** Loose, fine- to medium-grained; light brown, damp to moist, drills easily						
4		***SANDY SILT (ML)*** Loose, very fine- to fine-grained with cemented fragments; light grayish-brown, damp to moist, drills easily						
6		End of Borehole						
8								
10								
12								
14								
16								
18								
20								

Drill Method: Solid Flight

Drill Rig: CME 45B

Driller: Brent Snyder

Krazan and Associates

Drill Date: 5-24-00

Hole Size: 4½"

Sheet: 1 of 1

Log of Drill Hole B3

Project: City of Fresno - North Avenue

Project No: 012-00033

Client: City of Fresno - Public Works

Figure No.: A-3

Location: East North Avenue, Fresno, California

Logged By: Marty Groth

Depth to Water> **Initial:** None **At Completion:** None

SUBSURFACE PROFILE			SAMPLE					
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft (20 40 60)	Water Content (%) Wp |----0----| Wl (10 20 30 40)
0		Ground Surface						
		PAVEMENT SECTION ASPHALTIC CONCRETE = 4 inches AGGREGATE BASE = 5½ inches						
2		***SILTY SAND (SM)*** Loose, fine- to medium-grained; brown, damp to moist, drills easily						
4		***SANDY SILT (ML)*** Loose, very fine- to fine-grained; light grayish-brown, damp to moist, drills easily						
		End of Borehole						
6								
8								
10								
12								
14								
16								
18								
20								

Drill Method: Solid Flight

Drill Rig: CME 45B

Driller: Brent Snyder

Krazan and Associates

Drill Date: 5-24-00

Hole Size: 4½"

Sheet: 1 of 1

Log of Drill Hole B4

Project: City of Fresno - North Avenue

Project No: 012-00033

Client: City of Fresno - Public Works

Figure No.: A-4

Location: East North Avenue, Fresno, California

Logged By: Marty Groth

Depth to Water> **Initial:** None **At Completion:** None

SUBSURFACE PROFILE			SAMPLE					
Depth (ft)	Symbol	Description	Dry Density (pcf)	Moisture (%)	Type	Blows/ft.	Penetration Test blows/ft (20 40 60)	Water Content (%) Wp I----0----I Wl (10 20 30 40)
0		Ground Surface						
		PAVEMENT SECTION ASPHALTIC CONCRETE = 4 inches AGGREGATE BASE = 5½ inches						
2		***SILTY SAND (SM)*** Loose, fine- to medium-grained; brown, damp to moist, drills easily						
4		***SANDY SILT (ML)*** Loose, very fine- to fine-grained with cemented fragments; light grayish-brown, damp to moist, drills easily						
		End of Borehole						
6								
8								
10								
12								
14								
16								
18								
20								

Drill Method: Solid Flight

Drill Rig: CME 45B

Driller: Brent Snyder

Krazan and Associates

Drill Date: 5-24-00

Hole Size: 4½"

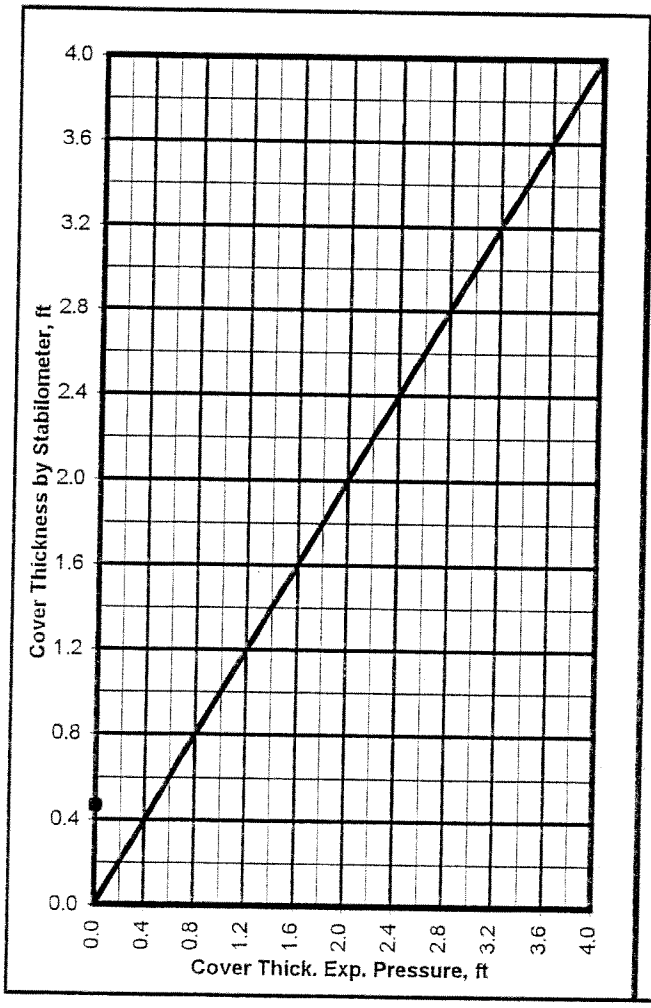
Sheet: 1 of 1

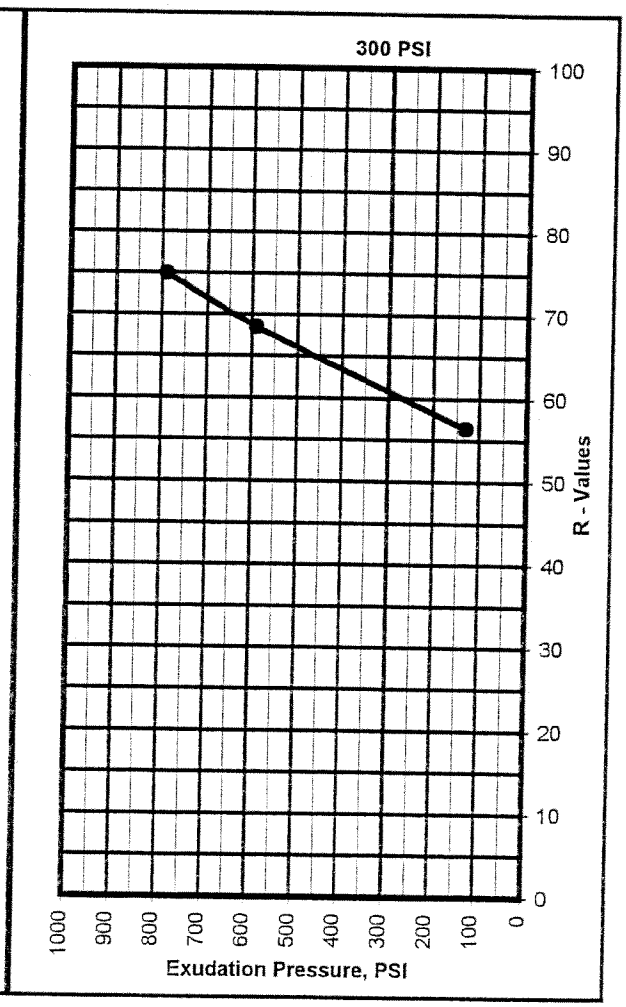
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	1200033
Project Name	:	City of Fresno
Date	:	5/26/00
Sample Location/Curve Number	:	RV# 1, North & Orange
Soil Classification	:	

TEST	A	B	C
Percent Moisture @ Compaction, %	11.8	10.8	11.1
Dry Density, lbm/cu.ft.	121.2	122.6	123.3
Exudation Pressure, psi	130	590	790
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	56	68	75

R Value at 300 PSI Exudation Pressure	**61**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**





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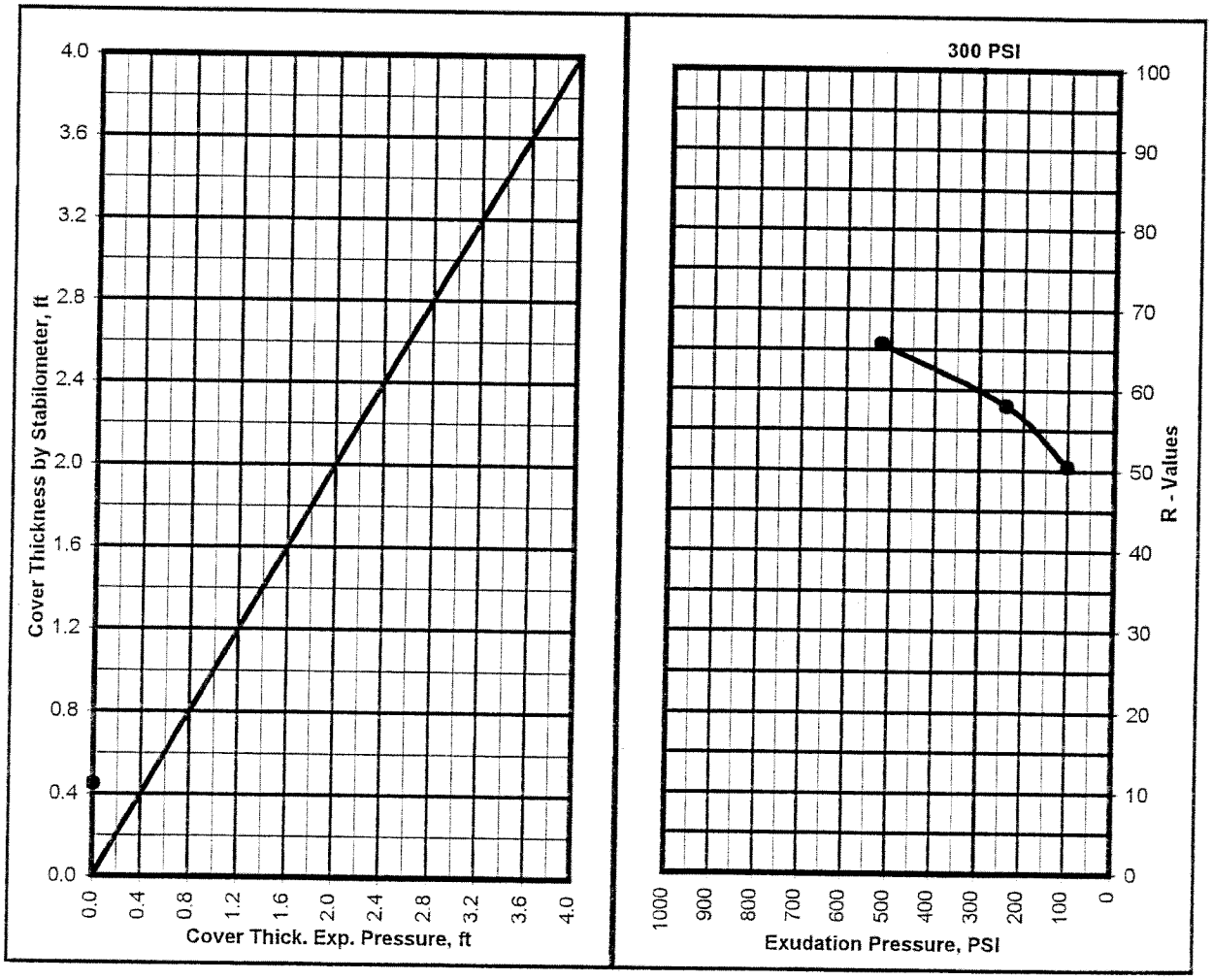
R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	1200033
Project Name	:	City of Fresno
Date	:	5/26/00
Sample Location/Curve Number	:	RV# 2, East North Ave.
Soil Classification	:	

TEST	A	B	C
Percent Moisture @ Compaction, %	12.8	11.8	13.9
Dry Density, lbm/cu.ft.	122.4	124.1	121.3
Exudation Pressure, psi	240	520	100
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	58	66	50

R Value at 300 PSI Exudation Pressure	**60**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



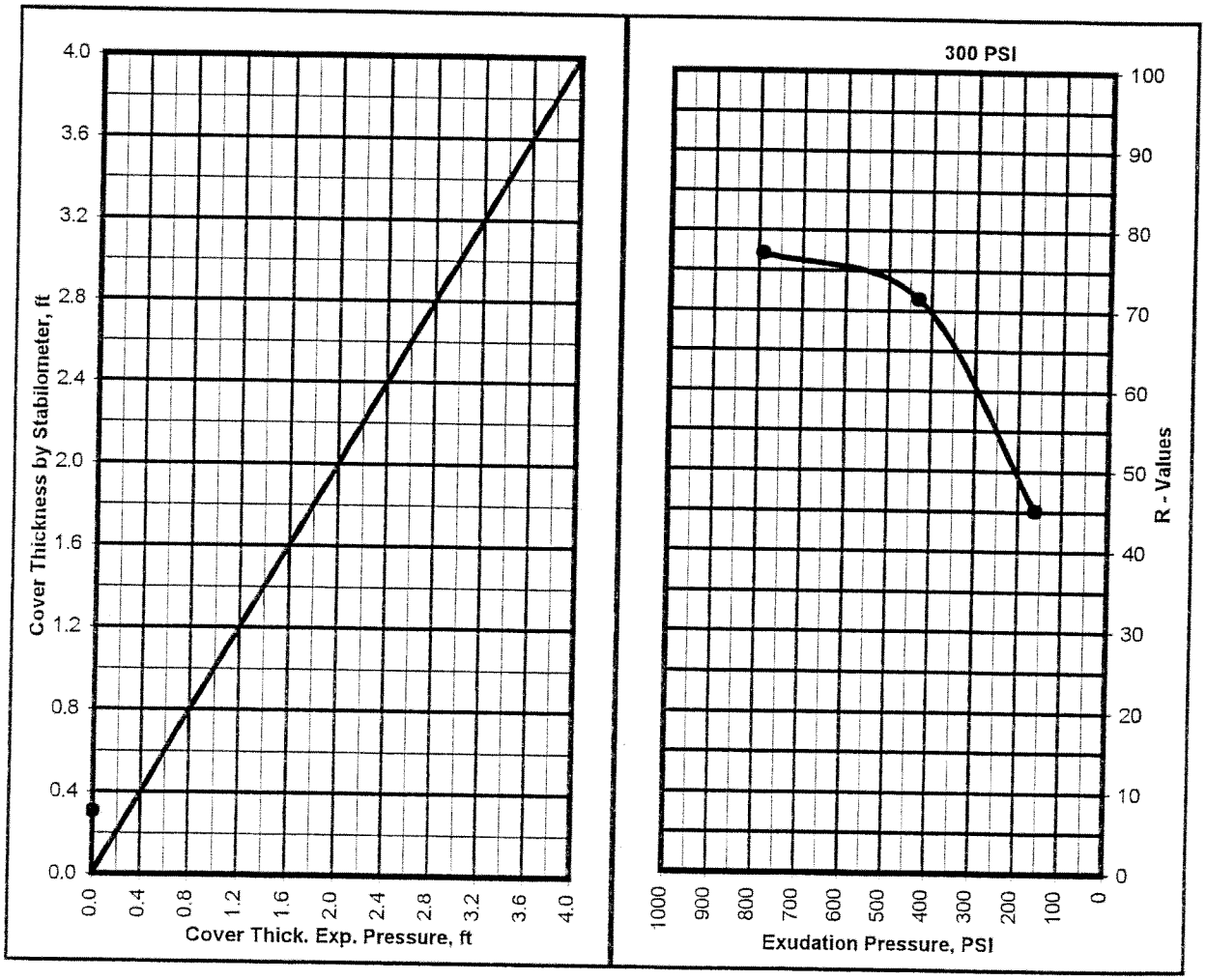
Krazan Testing Laboratory

R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	1200033
Project Name	:	City of Fresno
Date	:	5/26/00
Sample Location/Curve Number	:	RV# 3, North Angus
Soil Classification	:	

TEST	A	B	C
Percent Moisture @ Compaction, %	13.9	15.0	12.8
Dry Density, lbm/cu.ft.	120.1	118.0	119.9
Exudation Pressure, psi	430	160	790
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	71	45	77

R Value at 300 PSI Exudation Pressure	**62**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



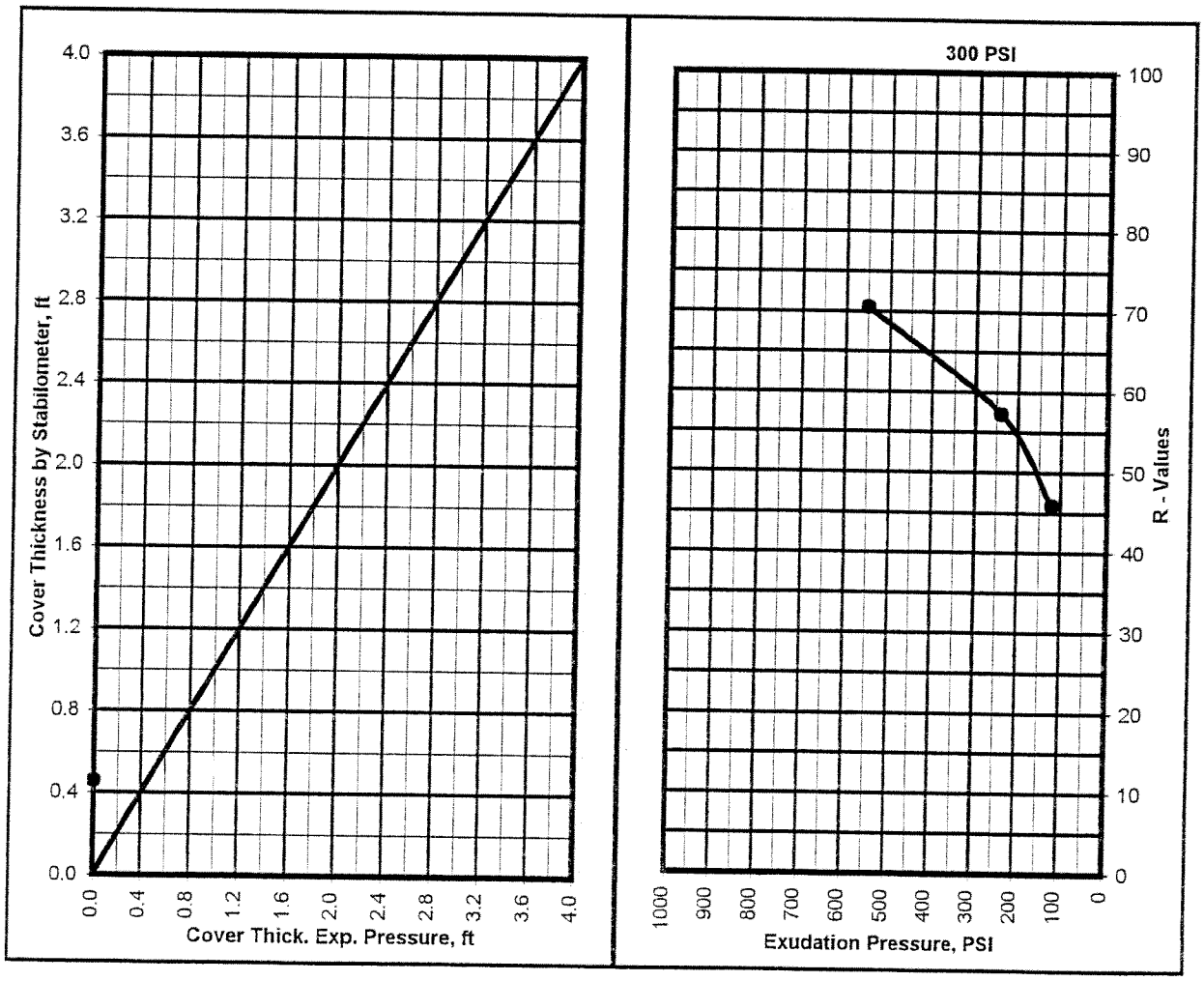
Krazan Testing Laboratory

R - VALUE TEST
ASTM D - 2844 / CAL 301

Project Number	:	1200033
Project Name	:	City of Fresno
Date	:	5/26/00
Sample Location/Curve Number	:	RV# 4, North Cherry Ave.
Soil Classification	:	

TEST	A	B	C
Percent Moisture @ Compaction, %	14.5	13.4	15.5
Dry Density, lbm/cu.ft.	118.0	118.5	117.0
Exudation Pressure, psi	240	550	120
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	57	70	46

R Value at 300 PSI Exudation Pressure	**60**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure nil**



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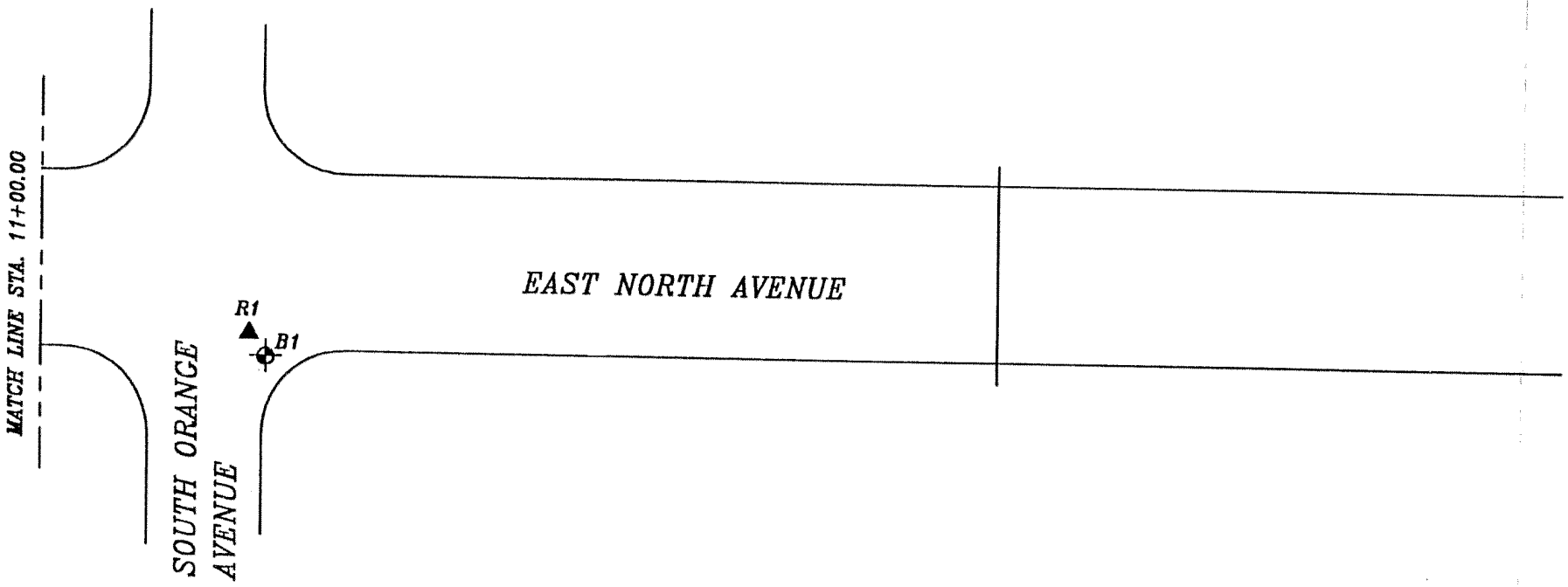

NOT TO SCALE

APPROXIMATE BORING LOCATION

APPROXIMATE R-VALUE LOCATION

CITY OF FRESNO – NORTH AVENUE
E. NORTH AVENUE BETWEEN SR41 AND SR99

FRESNO, CA.

Scale: AS SHOWN	Date: 5/00
Drawn by: CW	Approved by: RSS
Project No. 012-00033	Figure No. 1

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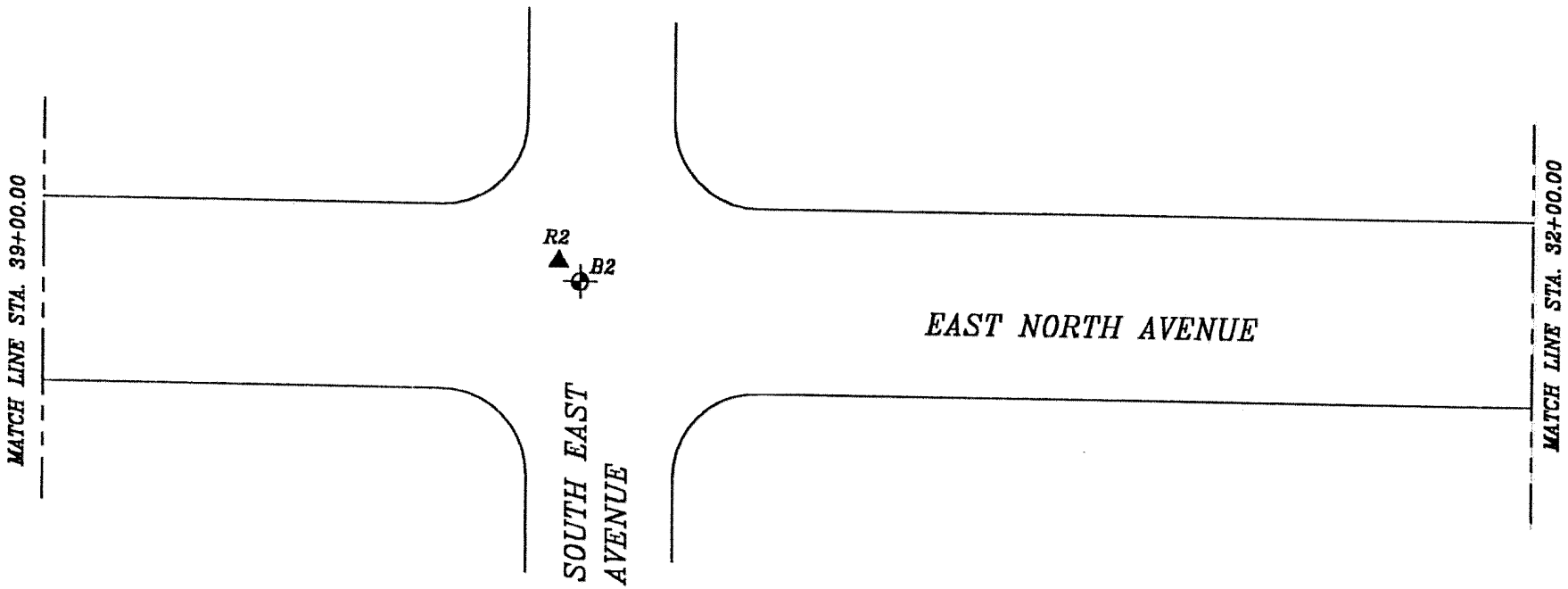
Offices Serving the Western United States



NOT TO SCALE

APPROXIMATE BORING LOCATION

APPROXIMATE R-VALUE LOCATION

CITY OF FRESNO – NORTH AVENUE
E. NORTH AVENUE BETWEEN SR41 AND SR99

FRESNO, CA.

Scale: AS SHOWN	Date: 5/00
Drawn by: CW	Approved by: RSS
Project No. 012-00033	Figure No. 2

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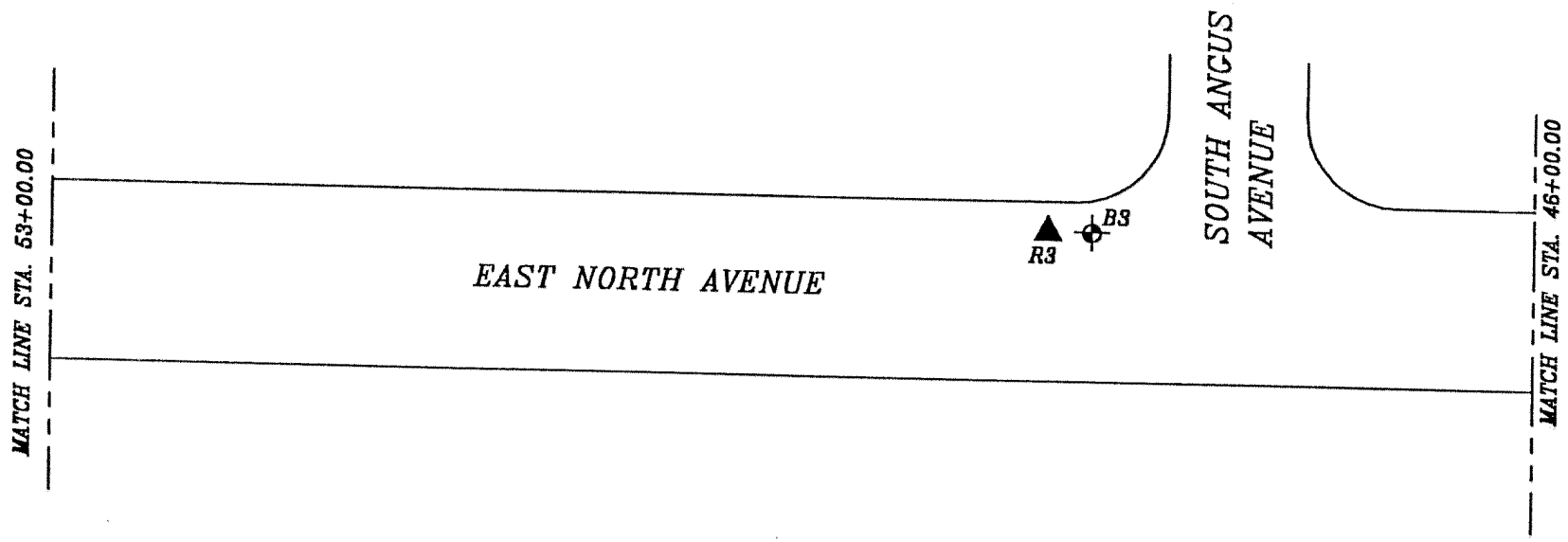

NORTH

NOT TO SCALE

APPROXIMATE BORING LOCATION

APPROXIMATE R-VALUE LOCATION

CITY OF FRESNO – NORTH AVENUE
E. NORTH AVENUE BETWEEN SR41 AND SR99

FRESNO, CA.

Scale: AS SHOWN	Date: 5/00
Drawn by: CW	Approved by: RSS
Project No. 012-00033	Figure No. 3

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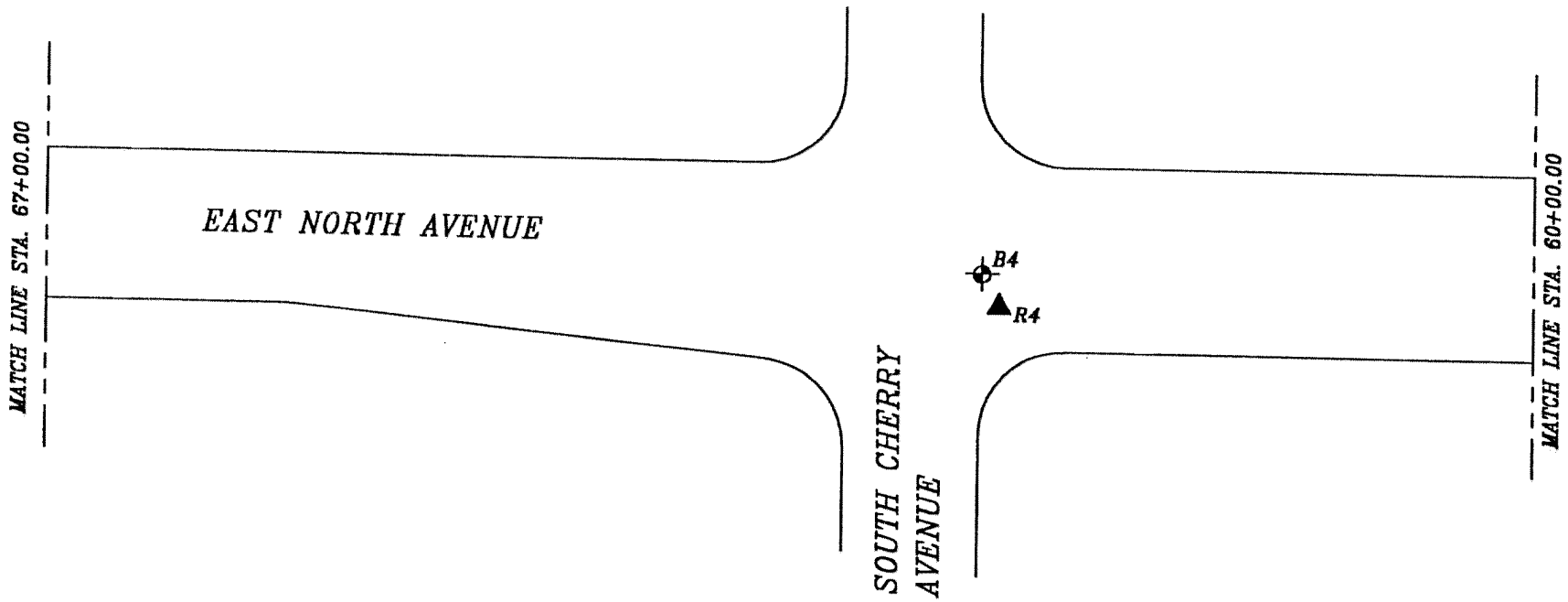

NORTH

NOT TO SCALE

APPROXIMATE BORING LOCATION

APPROXIMATE R-VALUE LOCATION

CITY OF FRESNO – NORTH AVENUE
E. NORTH AVENUE BETWEEN SR41 AND SR99

FRESNO, CA.

Scale: AS SHOWN	Date: 5/00
Drawn by: CW	Approved by: RSS
Project No. 012-00033	Figure No. 4

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