LANDMARK
Geo-Engineers and Geologists
a MBE Company

780 N. 4th Street
El Centro, CA 92243
(760) 370-3000
(760) 337-8900 fax

77-948 Wildcat Drive
Palm Desert, CA 92211
(760) 360-0665
(760) 360-0521 fax

November 17, 2023

Mr. Kenneth McLaughlin
City of Blythe
440S. Main Street
Blythe, CA 92225

Subject: Pavement Structural Section Report
1st & Murphy Streets Rehabilitation Design
Blythe, California
LCI Report No: LP23234

Dear Mr. McLaughlin:

This report presents the findings of our October 2023 pavement section study for the proposed various street improvement projects in the city of Blythe, California. The proposed project consists of pavement rehabilitation on:

1. N. First Street between E. Chanslor Way to Hobsonway
2. Murphy Street from N. Main Street to N. Third Street

Field Exploration

Subsurface exploration of the site was performed on October 23, 2023, using 2R Drilling of Ontario California to advance eleven (11) cores to a depth of 2.0 feet below the existing ground for soil logging and measuring the existing pavement structural sections. A staff engineer collected bulk samples and maintained a log of soils encountered in the test pits.

Subsurface Soils

Soil encountered consisted of sandy silt (ML) and silt (ML) to the maximum depth penetrated. Ground water was not encountered during soil exploration at the soil borings on October 23, 2023.

Pavement Structural Sections

The existing pavement sections within the scope of work are as follow:

Boring Log Number	Location	Existing Pavement Sections	
		AC (in)	Base (in)
B-1	1St Street, 100'N/O Hobson Way, North Bound	10	6
B-2	1st Street, 100' S/O Murphy St, South Bound	5	0
B-3	1st Street, 500' N/O Murphy St, North Bound	4	0
B-4	1st Street, 50' N/O Bernard St, South Bound	8	0
B-5	1st Street, 100' S/O Stewart St, North Bound	7	0
B-6	1st Street, 150' S/O Chanslow Way, South Bound	2	4
B-7	Murphy St, 50' E/O Main St, East Bound	8	6
B-8	Murphy St, 50' E/O Springs St, West Bound	5	8
B-9	Murphy St, 75' E/O Broadway, East Bound	6	4
B-10	Murphy St, 150'E/O 1st Street, East Bound	6	2
B-11	Murphy St, 150' W/O 3rd Street, West Bound	7	2

Note: The base materials consisted of grinding asphalt concrete pavement

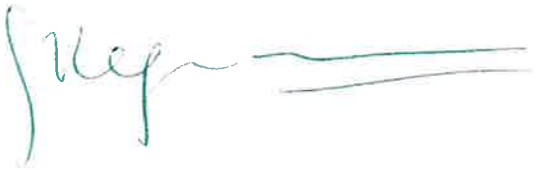
Based on the current State of California CALTRANS method, various R-values for the subgrade soils and various traffic index of 5.0, the following structure thicknesses for recommended pavement sections are:

N. First Street (RV=50; TI=5)	Grind 2.0 inches of the existing Asphalt Concrete, new 2.0 inches AC over exposed pavements
Murphy Street, e/o 1st Street (RV=30; TI=5)	Grind 1.5 inches of the existing Asphalt Concrete, new 1.5 inches AC over exposed pavements
Murphy Street, w/o 1st Street (RV=24; TI=5)	Grind 2.0 inches of the existing Asphalt Concrete, new 2.0 inches AC over exposed pavements

Grinding/overlay: The exposed surface cracks up to ½ inches should be cleaned and sealed prior to the placement of the new asphalt concrete layer. Asphaltic Concrete shall be Caltrans, Type B, ½ inch maximum medium grading medium grading with PG70-10 asphalt concrete (or equivalent), compacted to a minimum of 95% of the 50-blow Marshall density (ASTM D1559).

We appreciate the opportunity to provide our professional services. If you have any questions or comments regarding our findings, please call our office at (760) 360-0665.

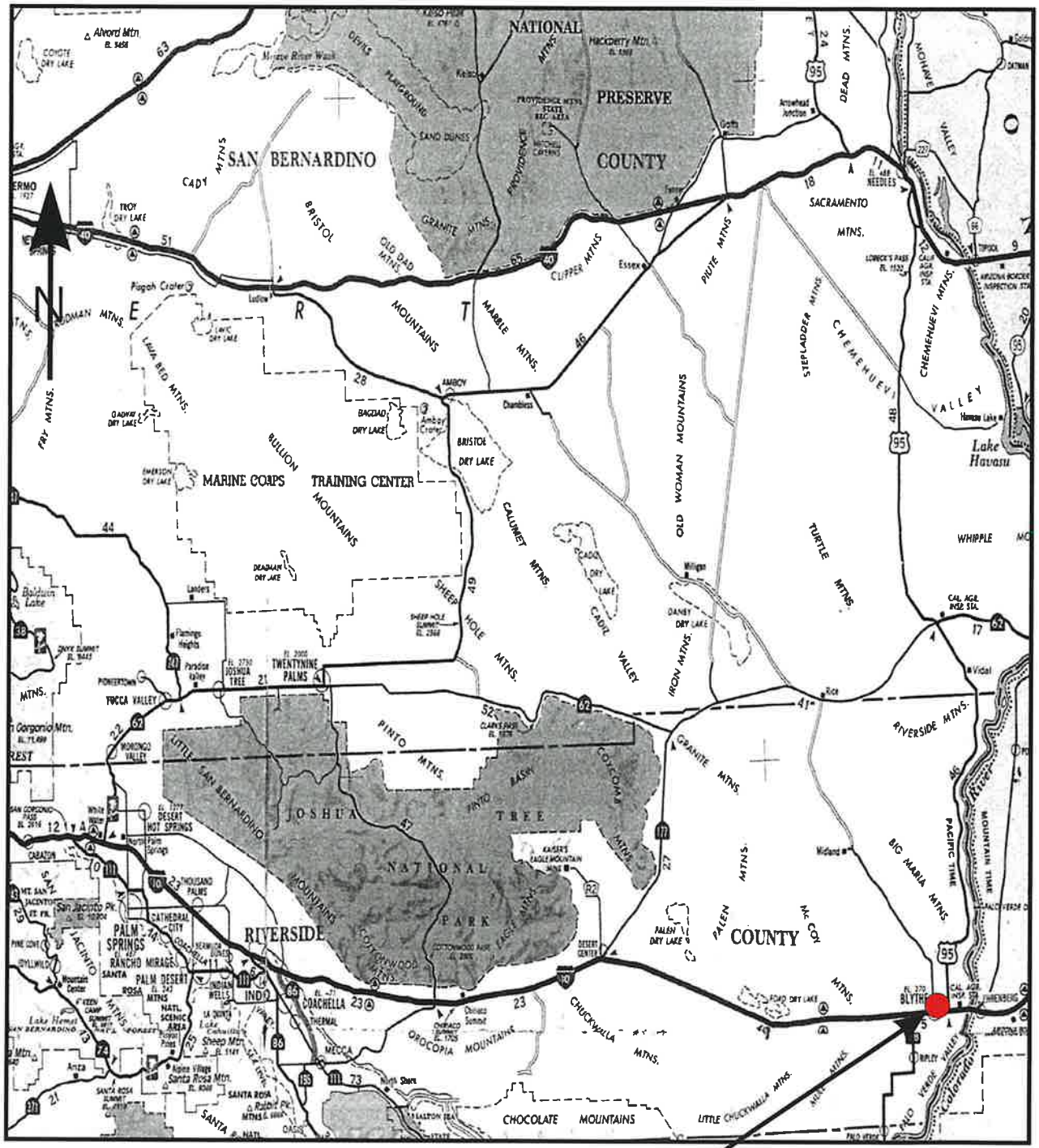
Respectfully Submitted,
Landmark Consultants, Inc.



Greg M. Chandra, PE, M.ASCE
Principal Engineer

Attachments:
Appendix A: Site and Boring Locations
Appendix B: Laboratory Test Results

APPENDIX A



LANDMARK Geo-Engineers and Geologists Project No.: LP23234	Vicinity Map	Plate A- 1

LANDMARK Geo-Engineers and Geologists Project No.: LP23234	Site and Exploration Plan	Plate A-2

APPENDIX B

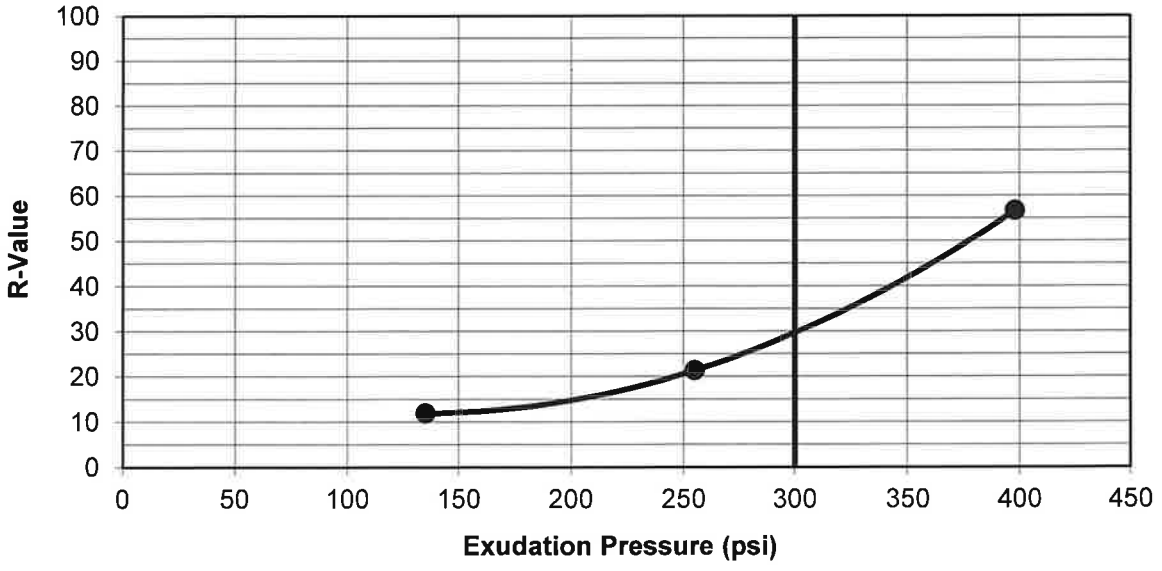
LANDMARK CONSULTANTS, INC.

Client: City of Blythe
Project: 1st St. and Murphy St.
Project No.: LP23234
Date: 11/8/2023 **Lab No.:** EC23-604

R-Value By Exudation Pressure (ASTM D2844/CAL 301)

Description: Sandy Silt (ML)
Sample Location: Murphy Street (West)
Sample Depth: 0-1 ft.

Sample	A	B	C
Moisture Content, %:	14.0%	13.0%	12.0%
Dry Density, pcf:	113.6	115.6	117.6
Compaction foot pressure, psi:	350	350	350
Specimen Height, in.:	2.51	2.55	2.46
Stabilometer, Ph @ 1000 lb:	58	50	28
Stabilometer, Ph @ 2000 lb:	123	105	46
Displacement:	5.42	5.02	4.38
Expantion pressure, psf:	0	0	0
Exudation pressure, psi:	135	255	398
Equilibrum R Value:	12	21	57
	R-Value	30	



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Project No.: LP23234

R-Value Test

Plate
1

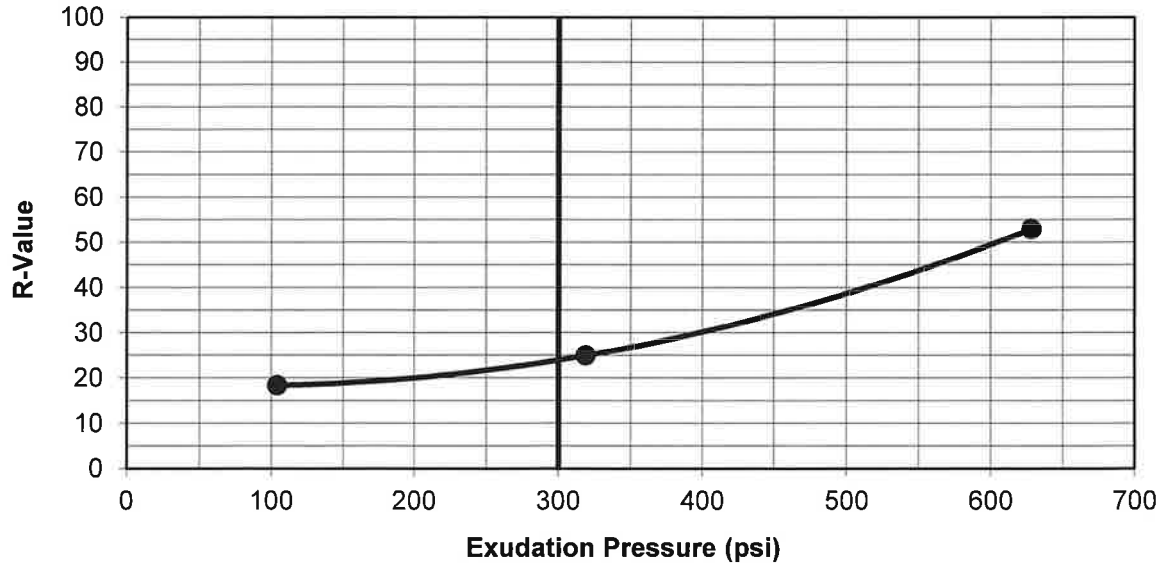
LANDMARK CONSULTANTS, INC.

Client: City of Blythe
Project: 1st St. and Murphy St.
Project No.: LP23234
Date: 11/8/2023 **Lab No.:** EC23-605

R-Value By Exudation Pressure (ASTM D2844/CAL 301)

Description: Silt (ML)
Sample Location: Murphy Street (East)
Sample Depth: 0-1 ft.

Sample	A	B	C
Moisture Content, %:	15.5%	14.5%	13.0%
Dry Density, pcf:	108.3	110.2	111.3
Compaction foot pressure, psi:	350	350	350
Specimen Height, in.:	2.54	2.50	2.48
Stabilometer, Ph @ 1000 lb:	79	67	36
Stabilometer, Ph @ 2000 lb:	110	95	53
Displacement:	5.20	5.02	4.46
Expantion pressure, psf:	0	35	118
Exudation pressure, psi:	104	319	628
Equilibrum R Value:	18	25	53
	R-Value	24	



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R-Value Test

Plate
2

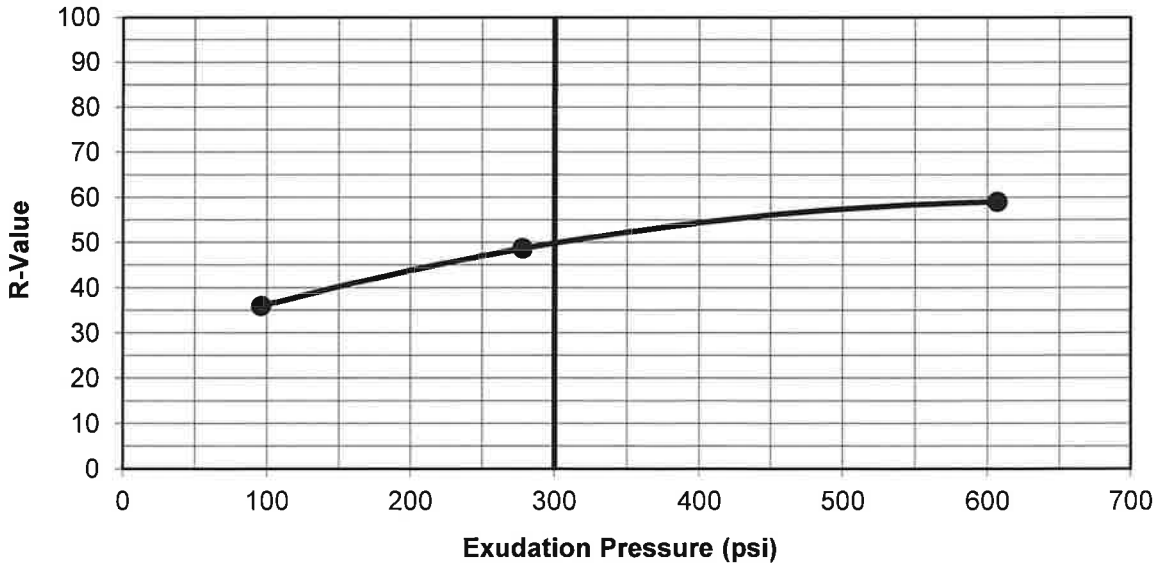
LANDMARK CONSULTANTS, INC.

Client: City of Blythe
Project: 1st St. and Murphy St.
Project No.: LP23234
Date: 11/8/2023 **Lab No.:** EC23-606

R-Value By Exudation Pressure (ASTM D2844/CAL 301)

Description: Sandy Silt (ML)
Sample Location: 1st Street (South)
Sample Depth: 0-1 ft.

Sample	A	B	C
Moisture Content, %:	15.0%	14.0%	13.0%
Dry Density, pcf:	108.6	110.5	111.1
Compaction foot pressure, psi:	350	350	350
Specimen Height, in.:	2.55	2.47	2.49
Stabilometer, Ph @ 1000 lb:	51	42	35
Stabilometer, Ph @ 2000 lb:	76	60	49
Displacement:	5.13	4.10	3.97
Expantion pressure, psf:	0	9	44
Exudation pressure, psi:	96	278	607
Equilibrum R Value:	36	49	59
	R-Value	50	



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Project No.: LP23234

R-Value Test

Plate
3

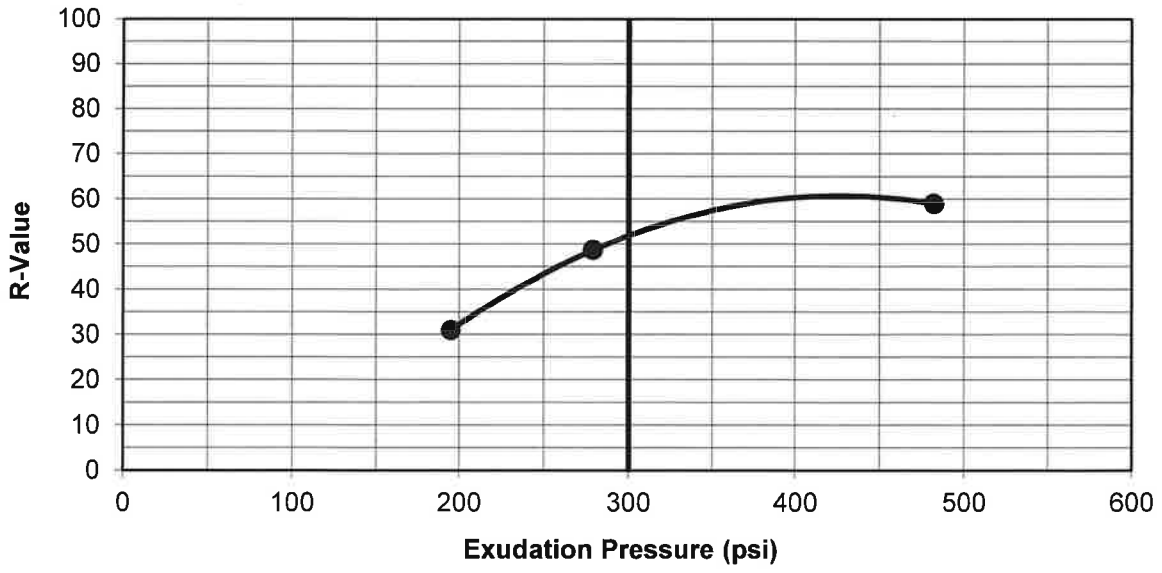
LANDMARK CONSULTANTS, INC.

Client: City of Blythe
Project: 1st St. and Murphy St.
Project No.: LP23234
Date: 11/10/2023 **Lab No.:** EC23-607

R-Value By Exudation Pressure (ASTM D2844/CAL 301)

Description: Sandy Silt (ML)
Sample Location: 1st Street (North)
Sample Depth: 0-1 ft.

Sample	A	B	C
Moisture Content, %:	14.0%	13.0%	11.5%
Dry Density, pcf:	112.9	115.9	117.0
Compaction foot pressure, psi:	350	350	350
Specimen Height, in.:	2.45	2.45	2.48
Stabilometer, Ph @ 1000 lb:	40	30	20
Stabilometer, Ph @ 2000 lb:	80	56	48
Displacement:	5.25	4.65	4.06
Expantion pressure, psf:	0	0	0
Exudation pressure, psi:	195	279	482
Equilibrum R Value:	31	49	59
	R-Value	52	



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R-Value Test

Plate
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