APPENDIX G

Geotechnical Report for Bridge Crossing

Project Update
January 23, 2012

CARLTON
Engineering Inc.

For: Andy Fisher
Placer County Parks Division
11476 C Avenue
Auburn, CA 95603

Tel (530) 889-6819
Fax (530) 889-6809

From: Dave Jermstad
Subject: Bridge 4 and 5 Geotechnical Engineering Study
Project: 6339-01-08 Hidden Falls Regional Park

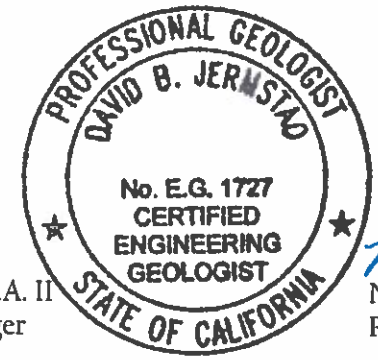
Total pages: 20

Carlton Engineering, Inc. (Carlton) is pleased to present the attached Design Criteria Memorandum containing the results of our update for Bridges 4 and 5 to our geotechnical study for the Placer County Procurement planned bridge construction near the town of Auburn, Placer County, California. The study was conducted in accordance with our proposal to the Placer County Procurement dated September 23, 2008.

The accompanying geotechnical study presents our findings, conclusions, and recommendations developed from our preliminary geotechnical study. Contained in the Design Criteria Memorandum are design criteria and parameters based on design conditions discovered during site investigations and recommendations for the bridge substructures. The results of field mapping, document research, and subsurface exploration and laboratory testing programs, which form the basis of our conclusions and recommendations, are also included in the geotechnical studies. Per discussions between Carlton and the Client, this update is an addendum to Carlton's Bridge 3 Geotechnical Engineering Study and a specific GES for the Bridge 4 and 5 sites will not follow.

If you have any questions regarding the information contained in this geotechnical studies, or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,
CARLTON ENGINEERING, INC.



David B. Jermstad, P.G., C.E.G., R.E.A. II
Vice President/Geotechnical Manager

Nathan L. Bowersox, P.E.
Project Engineer

Distribution: Mike Hauge, Carlton Engineering
Amy Suhoza, Carlton Engineering

cc: file

Project Update
January 23, 2012

DISCUSSION
This geotechnical study (Design Criteria Memorandum) presents the findings, conclusions, and recommendations developed from our update for Bridges 4 and 5 to our geotechnical study. The study was conducted in accordance with our Professional Service agreement dated February 11, 2008, according to Carlton's Scope of Work from the proposal also dated November 16, 2007.

FIELD EXPLORATION
On December 22, 2011 and January 8, 2012, Carlton performed detailed site reconnaissances near the two (2) proposed bridge abutments within the site. Geotechnical reconnaissance field work was performed over a period of 2 days and coincided, in part, with our subsurface investigation of the site.

- On December 22, 2011, a field mapping program was conducted by Dave Jermstad of Carlton Engineering. Field testing included Schmidt hammer and Engineer's probe. Rock and soil was visually classified based on Unified Soil Classification System (USCS). The testing locations were estimated based on distances to prominent landmarks.
- On January 8, 2012, a Geophysical Investigation was conducted at the Bridge 5 abutment. The Geophysical program consisted of one (1) Seismic refraction line to present a 2-D representative interpretation of subsurface materials.
- Bulk samples were collected in the vicinity of the project site, and are representative of material encountered at Bridges 4 & 5. The samples were visually classified based on the Unified Soil Classification System (USCS).
- Schmidt Hammer readings were taken on representative rock. The Schmidt Hammer readings were correlated to the loading capacity of rock found within the project area. Vertical readings were taken on representative in-place rock outcrops surrounding the proposed structures. Rock location was also visualized and located, see Figure 1 through Figure 3.

CONCLUSIONS

The following conclusions and recommendations for site development are provided to assist in the design of the proposed structures. Conclusions are based on field exploration. Conclusions and recommendations contained within Carlton's March 24th, 2011 Geotechnical Engineering Study shall be adhered to as updated herein.

Project Update
January 23, 2012

Bridge 4 Location

Based on the performed site reconnaissance's and various testing, Carlton concludes that the Bridge 4 abutments as shown on Figure G2 can be supported on existing rock, provided the recommendations herein are adhered to. During the explorations, Carlton encountered 0.5 to 2 feet of loose silty sand with gravel underlained by competent moderately weathered rock with a minimum compressive strength of 4,400 psi. Based on the high compressive strengths, the proposed concrete abutments can be designed to impose a bearing capacity of 12,000 psf for rock conditions. The allowable bearing pressure can be increased by one-third for wind and seismic loads if allowed by applicable building codes. Depending on bridge loads, either rock anchors or rock dowels shall be used for lateral and uplift support. Rock anchor or dowel capacities shall be confirmed during bridge design, however a minimum of 2,500 psi shall be used for competent rock. Conclusions and recommendations contained within Carlton's March 24th, 2011 Geotechnical Engineering Study shall be adhered to as supplemented herein.

The design criteria attached to this update are based on index testing. Index testing results will be provided in the Geotechnical Engineering Study to follow.

Bridge 5 Location

Based on the performed site reconnaissance's and various testing, Carlton concludes that the Bridge 5 abutments as shown on Figure G3 can be supported on existing rock, provided the recommendations herein are adhered to. Based on geophysical investigatory results, loose to medium dense soil/weathered rock material is anticipated to depths on the order of 10 feet (See Figure 5 attached). This material should be over-excavated if rock conditions are to be used. Competent moderately weathered rock with a minimum compressive strength of 5,500 psi is anticipated at a depth of 10 feet to be verified during construction. Based on the high compressive strengths, the proposed concrete abutments can be designed to impose a bearing capacity of 12,000 psf for rock conditions. The allowable bearing pressure can be increased by one-third for wind and seismic loads if allowed by applicable building codes. Depending on bridge loads, either rock anchors or rock dowels shall be used for lateral and uplift support. Rock anchor or dowel capacities shall be confirmed during bridge design, however a minimum of 2,500 psi shall be used for competent rock. Conclusions and recommendations contained within Carlton's March 24th, 2011 Geotechnical Engineering Study shall be adhered to as supplemented herein.

Situation of the Bridge 5 southern abutment should take into account the loose zone of material encountered at a surface elevation of approximately 1026 feet msl. Moving this abutment up or down the slope is anticipated to minimize the required overexcavation of material required to reach competent bedrock. A visualization of this is available as the 2D seismic refraction results presented Figure 5 attached to this report.

The design criteria attached to this update are based on index testing. Index testing results will be provided in the Geotechnical Engineering Study to follow.

Project Update
January 23, 2012

HFRP Bridge 4 & 5 Improvements Material: Reddish Brown Silty Sand (SM) on Metavolcanic Bedrock Selected Project Design Information (Note 1)				
Design Condition	**Parameter**	**Criteria**		**Notes**
Groundwater Conditions	Anticipated Groundwater Depth (bgs), feet	5'		Note 3
Seismic Design (2010 CBC) (Note 2)	Site Class	C		-
	Mapped MCE spectral response at short period (Ss)	0.414 g		-
	Mapped MCE spectral response at 1 sec period (S_1)	0.193 g		-
	Site Coefficient (Fa)	1.200		-
	Site Coefficient (Fv)	1.607		-
	MCE spectral response acceleration for short period (S_{ms})	0.497 g		-
	MCE spectral response acceleration for 1 sec period (S_{m1})	0.311 g		-
AASHTO Design Parameters (7% PE in 75 year) (Note 6)	Site Class	C		-
	Seismic Zone (Per AASHTO 3.10.6)	2		-
	PGA(Rock)	0.153 g		-
	Mapped Spectral response acceleration at short period (Ss)	0.297 g		-
	Mapped Spectral response acceleration at one second period (S_1)	0.149 g		-
	MCE Spectral response at short period (SDs)	0.357 g		-
	MCE Spectral response acceleration at one second period (SD_1)	0.246 g		-
Soil Properties	Property	Native Soil (Note 4)	Rock	Notes
	Classification Foundation Layer	SM	-	-
	Dry Unit Weight of Soil (pcf), γd	130	135.0	Note 4
	Total Unit Weight of Soil (pcf), γt @ 90%	130.0	140.0	Note 4
	Internal Friction Angle, ø	31.0	40.0	Note 4
	Cohesion (psf), c	0	75	Note 4
	Percent Passing No. 200 (ASTM C 136 or D 422)	<25%	-	
	Moisture Content	11.0%	-	Note 4
	Allowable Bearing Pressure, psf	2,100	12,000	Note 4
	Passive Resistance, pcf	300	1200	Note 4
	Frictional Coefficient	0.3	0.7	Note 4
	Maximum Cut Slope Geometry, (H:V)	1.5:1	0.5:1	-
	Static "Classic" Settlement (in)	<0.25	<0.25	
	Corrosion Potential	Low	Low	-
Lateral Conditions	Active Earth Pressures, Level (Flat)	45	30	EFP (Active)
	Active Earth Pressures, 3:1 (H:V)	50	35	
	Active Earth Pressures, 2:1 (H:V)	65	40	
	At-Rest pressures, Level Backfill	65	50	EFP (At Rest)
	At-Rest Pressures, 3:1 (H:V)	75	60	
	At-Rest Pressures, 2:1 (H:V)	85	70	
	Pseudostatic Coefficient k_h			Note 5
	Active Earth Pressure Coefficient	0.32	0.22	
	Passive Earth Pressure Coefficient	0.48	0.36	

Note 1: This table presents a Selection of Project Design Information for the project site based upon investigation and highlights a portion of the results of this specific Geotechnical Study for the proposed site improvements. This table is provided as a reference to the Geotechnical Study and is therefore not intended to be used as a stand-alone document and should not be separated from this report.

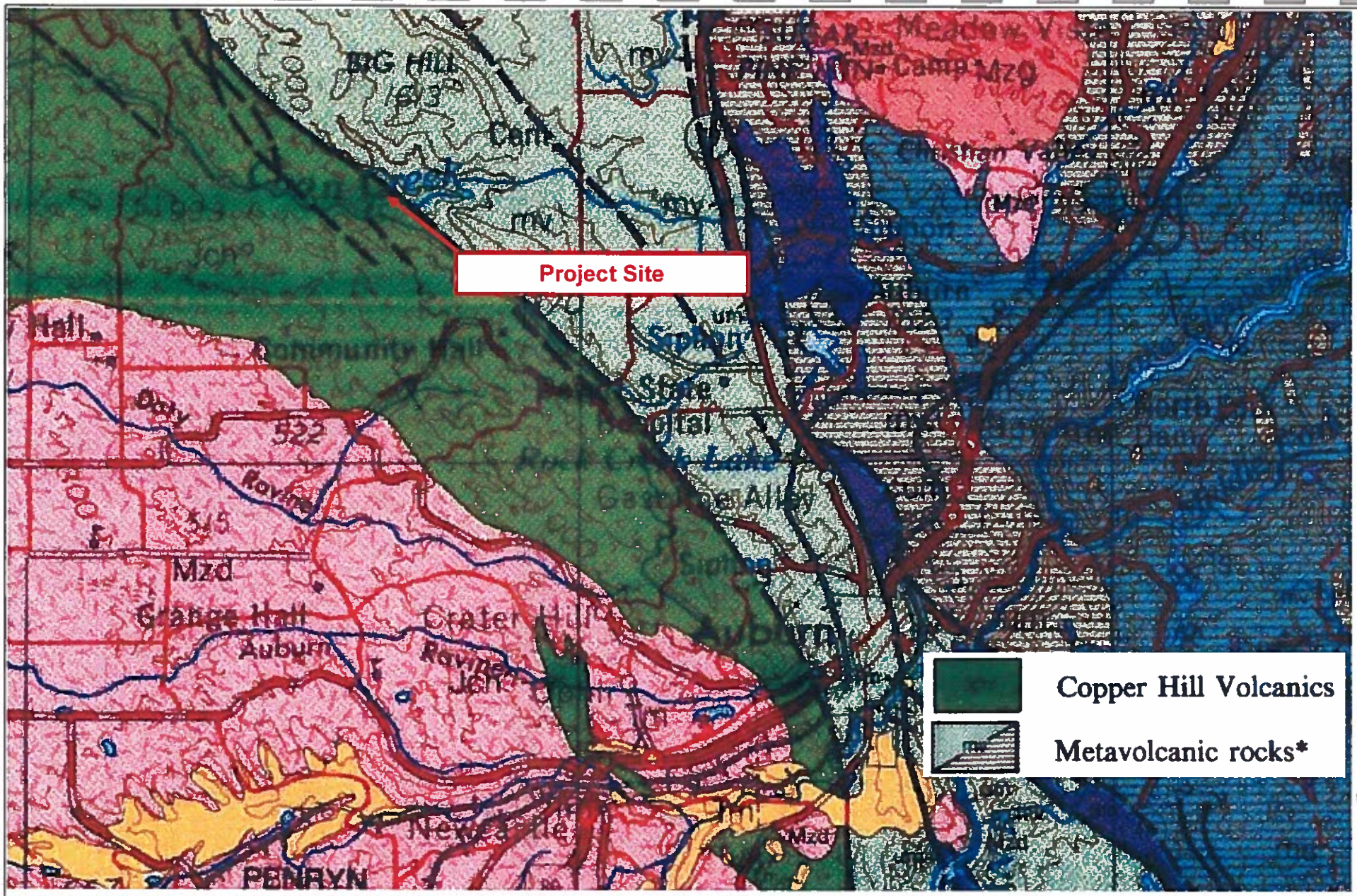
Note 2: Seismic Design is based on the 2010 CBC. Parameters are referenced from the ASCE/SEI 7-05 "Minimum Design Loads for Buildings and Other Structures."

Note 3: Based on site topography, subsurface investigations and familiarity of the project vicinity.

Note 4: Soil Internal Friction Angle based on back calculation of code minimums and engineering judgement.

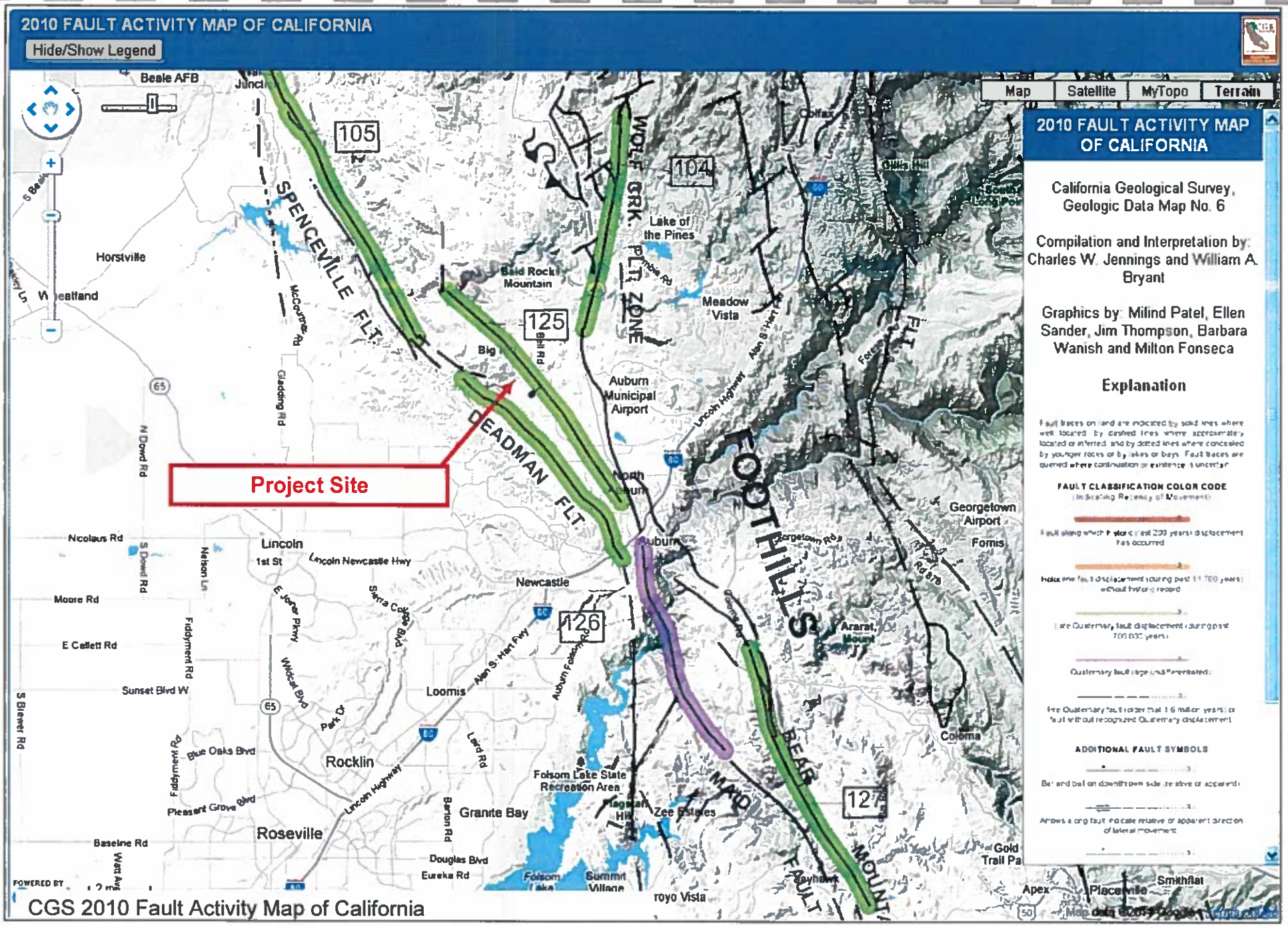
Note 5: Developed as $0.4*S_{DS}$ in accordance with 2010 CBC guidelines.

Note 6: AASHTO LRFD Design Parameters utilize a 7% probability of exceedance (PE) in 75 years. This data was developed using the USGS Computer program "AASHTO Ground Motion Parameters, Version 2.10."

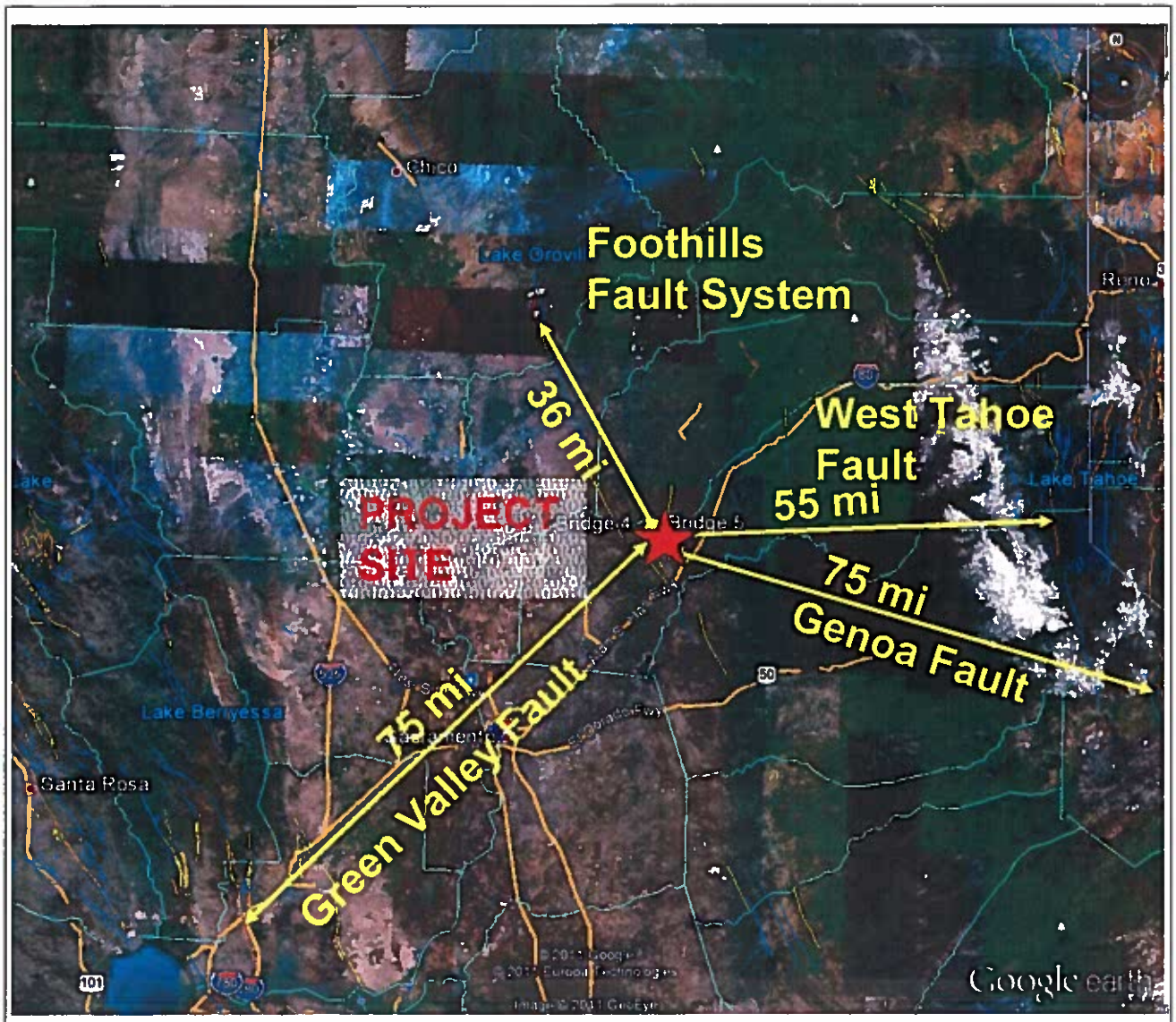


Wagner, D.L., Jennings, C.W.,Bedrossian, T.L., and Bortugno, E.J., 1981, Geologic map of the Sacramento Quadrangle, California: California Division of Mines and Geology

PROJECT 6339-01-08	January 2012		
CARLTON Engineering, Inc.	Carlton Engineering, Inc. 3883 Ponderosa Road Shingle Springs, California 95682	Hidden Falls Regional Park Bridges 4 & 5 Auburn, Placer County CA	FIGURE 1



PROJECT 6339-01-08	January 2012		
CARLTON Engineering, Inc.	3883 Ponderosa Road Shingle Springs, California 95682	Hidden Falls Regional Park Bridges 4 & 5 Auburn, Placer County CA	FIGURE 2



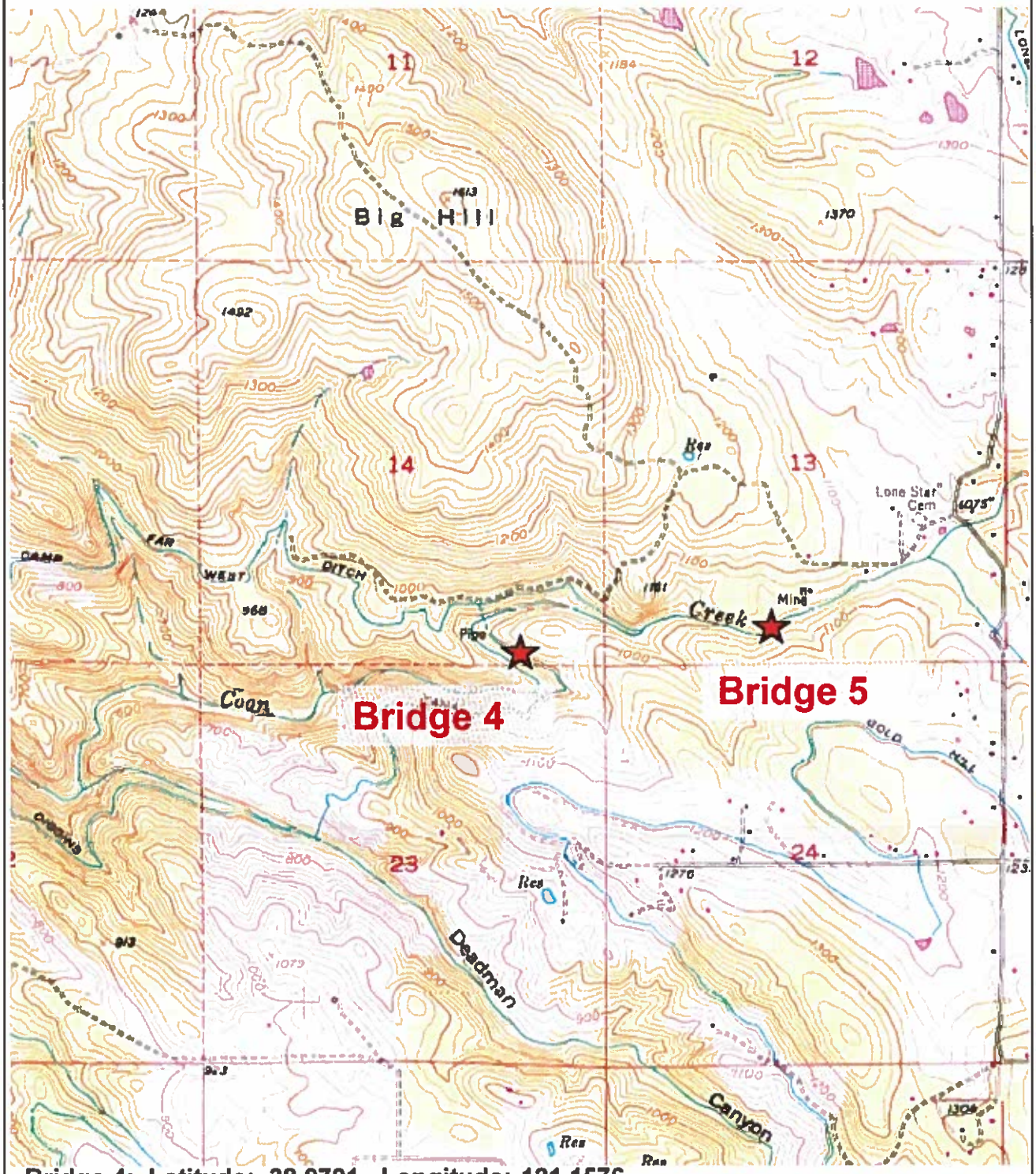
Fault Zones:

- West Tahoe Fault – Classified as experiencing movement within Holocene time
- Genoa Fault– Classified as experiencing movement within Quaternary to Late Quaternary time
- Foothills Fault System – North Central Reach Section (Cleveland Hill Fault)– Classified as experiencing movement within Historic time
- Green Valley Fault – Classified as experiencing movement within Historic time

Bridge 4: Latitude: 38.9701 Longitude:-121.1576

Bridge 5: Latitude: 38.9917 Longitude:-121.1463

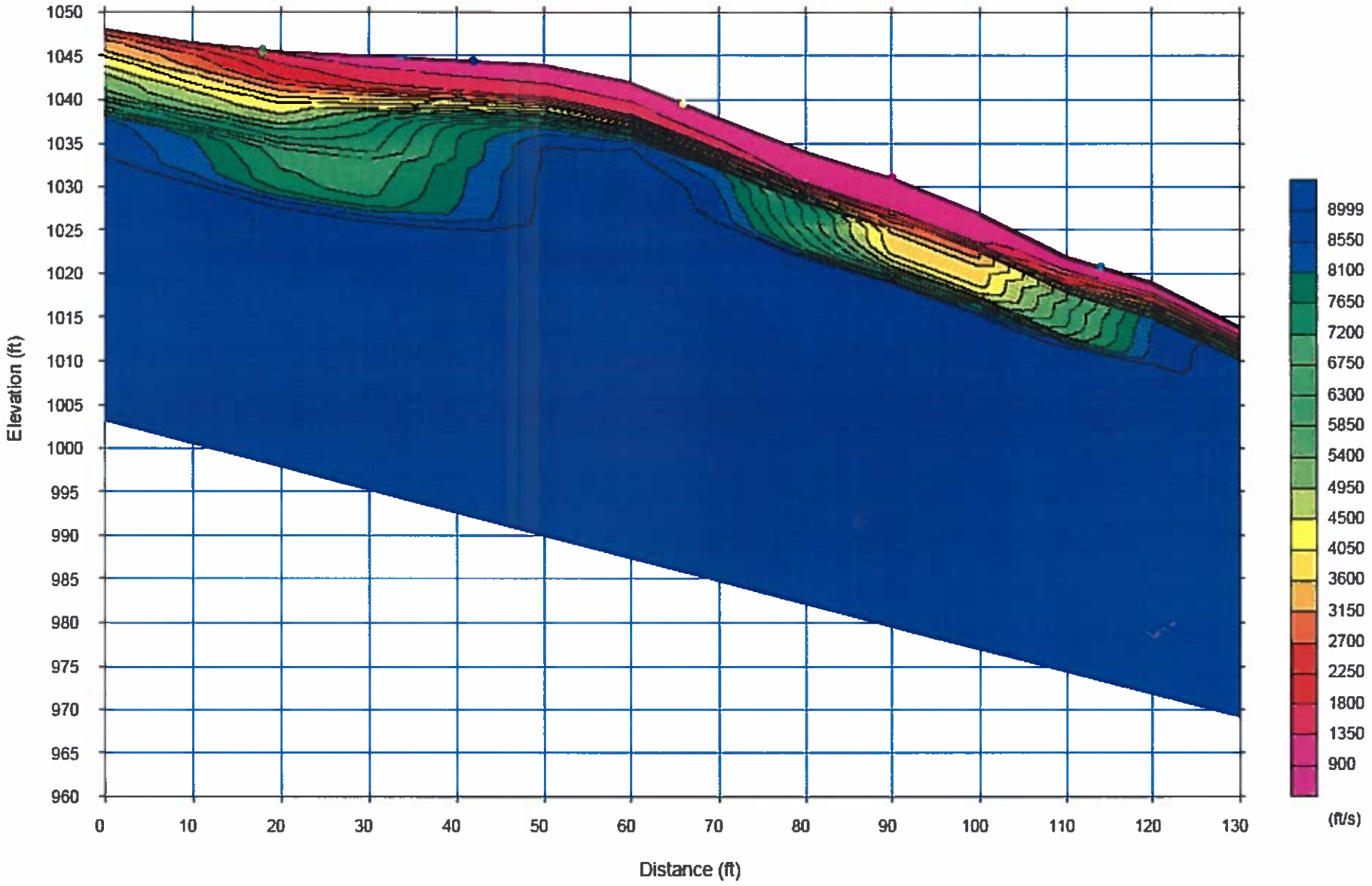
PROJECT 6339-01-08	January 2012		
CARLTON Engineering Inc. Carlton Engineering, Inc. 3883 Ponderosa Road Shingle Springs, California 95682		Hidden Falls Regional park Bridges 4 & 5 Auburn, Placer County CA	FIGURE 3



Bridge 4: Latitude: 38.9701 Longitude:-121.1576

Bridge 5: Latitude: 38.9917 Longitude:-121.1463

PROJECT 6339-01-08	January 2012		
Carlton Engineering, Inc. 3883 Ponderosa Road Shingle Springs, California 95682		Hidden Falls Regional Park Bridges 4 & 5 Auburn, Placer County CA	FIGURE 4



PROJECT 6339-01-08	January 2012	Hidden Falls Regional Park Bridge 5 Auburn. Placer County, CA	FIGURE 5 Seismic Refraction

CARLTON Engineering Inc.

Carlton Engineering, Inc.
3883 Ponderosa Road
Shingle Springs, California 95682

Hidden

General Notes

1. ALL REFERENCES TO "STANDARD SPECIFICATIONS" SHALL MEAN THE STATE OF CALIFORNIA, DEPARTMENT (CALTRANS) STANDARD SPECIFICATIONS, JULY, 2002. CONSTRUCTION NOT SPECIFIED ON THESE PLANS OR S ORDINANCES SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR FAMILIARIZE HIMSELF WITH APPLICABLE SPECIFICATIONS NOT DISCUSSED IN THE GENERAL NOTES.

2. CLEARING AND GRUBBING SHALL CONFORM TO THE PROVISIONS OF SECTION 16 OF THE STANDARD SPEC

3. ALL EXCAVATION, EMBANKMENT, AND BACKFILL SHALL CONFORM TO THE PROVISIONS IN SECTION 19, "EA STANDARD SPECIFICATIONS.

4. ALL GRADING SHALL CONFORM TO THE PLACER COUNTY GRADING, EROSION AND SEDIMENT CONTROL OR

5. ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE PLACER COUNTY DESIGN AND IMPROVEM MANUAL, AND TO THE SATISFACTION OF THE DIRECTOR OF THE DEPARTMENT OF TRANSPORTATION.

6. COMPACTION TESTS SHALL BE TAKEN AT A MAXIMUM OF TWO (2) FOOT LIFTS AND IN CONFORMANCE WITH GRADING ORDINANCE. TESTS SHALL BE AT THE DISCRETION OF THE DEPARTMENT OF TRANSPORTATION IN TESTING SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.

7. FILLS SHALL BE MOISTURE CONDITIONED TO A UNIFORM MOISTURE CONDITION AT LEAST 2 PERCENT ABO CONTENT AND COMPACTED TO A MINIMUM OF 95% (OR AS OTHERWISE STATED IN THE GEOTECHNICAL REPOR DENSITY AS DETERMINED BY THE ASTM D 1557 TEST PROCEDURE.

8. THE TOP EIGHT INCHES OF SUBGRADE BENEATH PAVEMENT AREAS SHALL BE MOISTURE CONDITIONED CONDITION AT LEAST 2 PERCENT ABOVE OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM OF S DENSITY AS DETERMINED BY THE ASTM D 1557 TEST PROCEDURE.

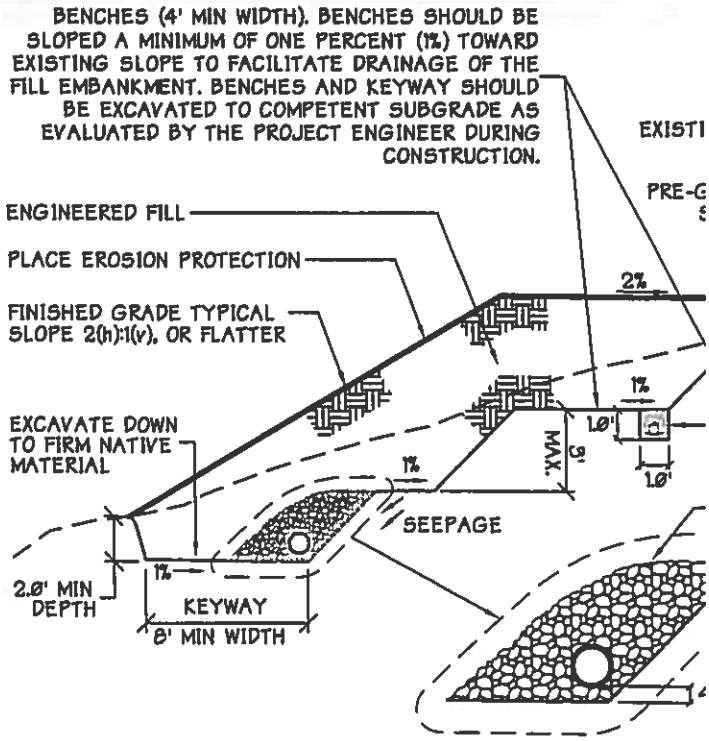
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL TEMPORARY EROSION CONTROL MEAS MEASURES SHALL CONFORM TO THE PLACER COUNTY GRADING, EROSION AND SEDIMENT CONTROL ORDINAN SEDIMENT LADEN RUNOFF DOES NOT LEAVE THE PROJECT SITE. THE CONTRACTOR SHALL BE RESPONSIBLE AND PERFORMANCE OF THE TEMPORARY EROSION CONTROL MEASURES THROUGH THE DURATION OF THE PRO ACTIVITIES ARE NOT COMPLETED BY OCTOBER 15, THE DEVELOPER SHALL IMPLEMENT THE TEMPORARY ERO

10. PERIODIC INSPECTION AND REPAIR WILL BE REQUIRED BY THE OWNER TO KEEP DRAINAGE IMPROVEMEN OF SEDIMENT DEPOSITS AND VEGETATIVE MATERIALS IN PIPES, INLET STRUCTURES AND DRAINAGE INVER AT A REGULAR MAINTENANCE INTERVAL TO PREVENT ACCUMULATION AND OBSTRUCTION OF DRAINAGE IMPI

11. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES, PIPES AND/OR STRUCTURES SHOWN O OBTAINED BY A SEARCH OF AVAILABLE RECORDS. THE CONTRACTOR SHALL ASCERTAIN THE TRUE LOCATIO UTILITIES AND SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE TO ANY AND ALL PUBLIC OR PRIVATE SHOWN HEREON.

DRAINS

1. INSTALL SUBDRAIN WHERE SUBSURFACE SATURATION IS ENCOUNTERED, OR SUSPECTED TO BE A POTENTIAL CONDITION OF CONCERN.
2. ALL DRAIN ROCK SHALL BE CALTRANS SECTION 68, CLASS 2 PERMEABLE MATERIAL, OR AS APPROVED BY CARLTON ENGINEERING.
3. PERFORATED PIPE, (ADS N-12, OR APPROVED EQUAL), SLOPE 1% MIN TO DRAIN. PIPE DRAINAGE SHOULD BE COLLECTED IN A SOLID CONDUIT AND DIRECTED TO A SUITABLE LOCATION FOR DRAINAGE. PIPE DIAMETER TO BE DETERMINED BY ENGINEER ON CASE-BY-CASE BASIS.



Keyway Detail

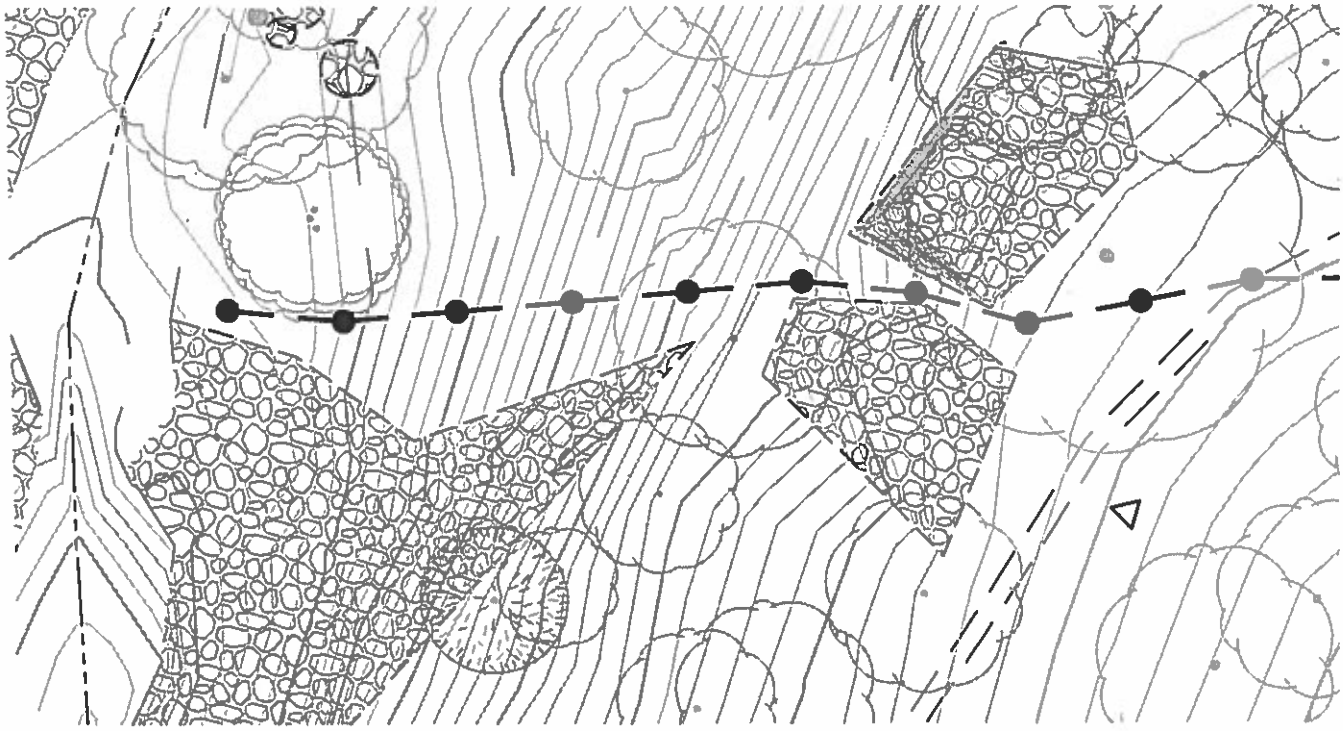

865
860
855
850
845
840
835
830
70
70
70
70
75
76

Legend

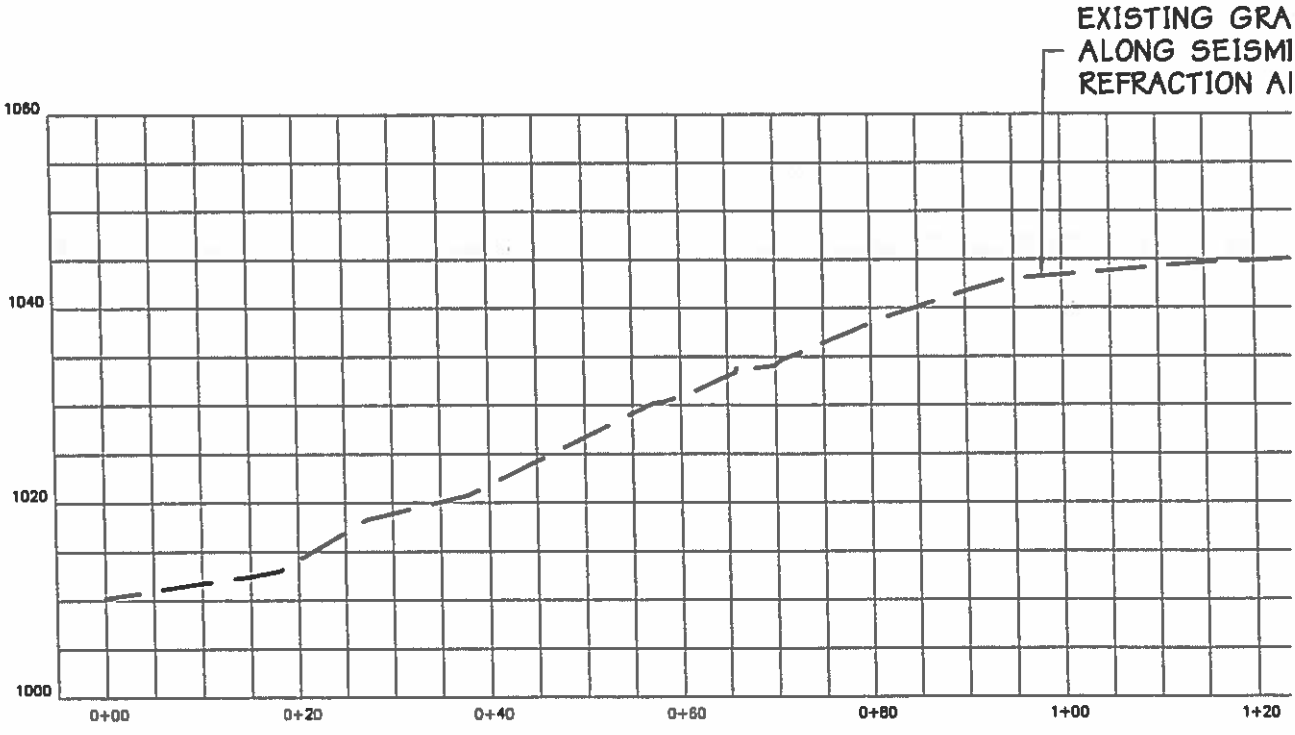
SCHMIDT REBOUND TEST (10/LOCAT

ROCK PARTING PLANE ORIENTATIC

02Feb2012 2:57pm 639901_G3

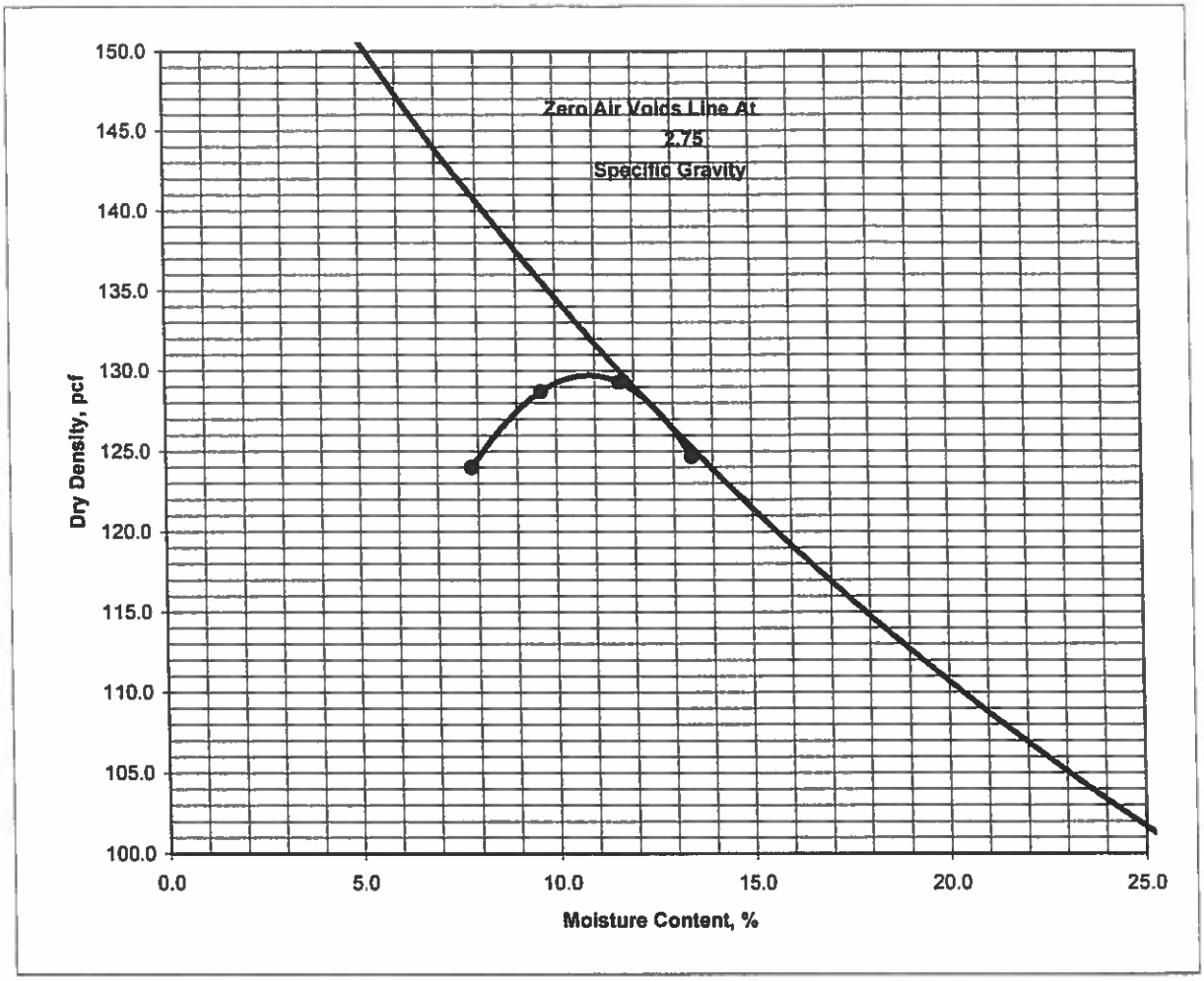


SEISMIC REFRACTION LINE: PLAN



SEISMIC REFRACTION LINE: PROFILE

MOISTURE DENSITY RELATIONSHIP CURVE



Maximum Dry Density (pcf)	**130.0**
Optimum Moisture Content (%)	**11.0**

Test Method: ASTM D1557 Method: B

SAMPLE IDENTIFICATION: Bulk E
SAMPLE DESCRIPTION: Light brown silt with sands
SAMPLE LOCATION: Onsite CE-4

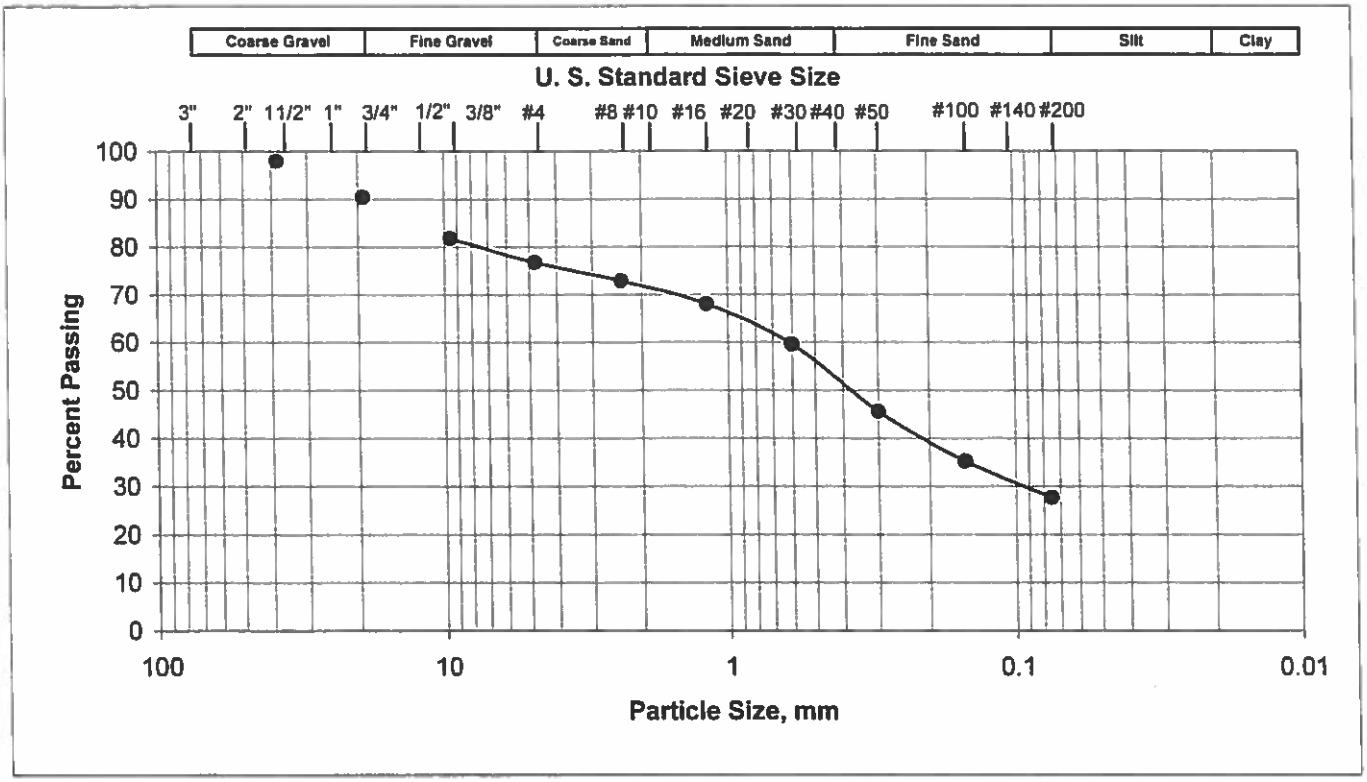
LAB NUMBER: 6520
GROUP SYMBOL:

PROJECT NUMBER: 6339-01-08 November 24, 2008

Hidden Falls Regional Park

CARLTON Engineering Inc.
Carlton Engineering, Inc.
3883 Ponderosa Road
Shingle Springs, California 95682

SIEVE ANALYSIS TEST REPORT



U.S. STANDARD SIEVE SIZE	SIEVE SIZE, mm	PERCENT PASSING
1 1/2 INCH	38.1	98
3/4 INCH	19.1	90
3/8 INCH	9.5	82
NO. 4	4.75	77
NO. 8	2.36	73
NO. 16	1.18	68
NO. 30	0.6	60
NO. 50	0.3	46
NO.100	0.15	35
NO 200	0.075	28

Test Method ASTM C136

SAMPLE IDENTIFICATION: TP1-A LAB NUMBER: 6516

SAMPLE DESCRIPTION: Light brown Silty Sand

SAMPLE LOCATION: Onsite Group Symbol: SM

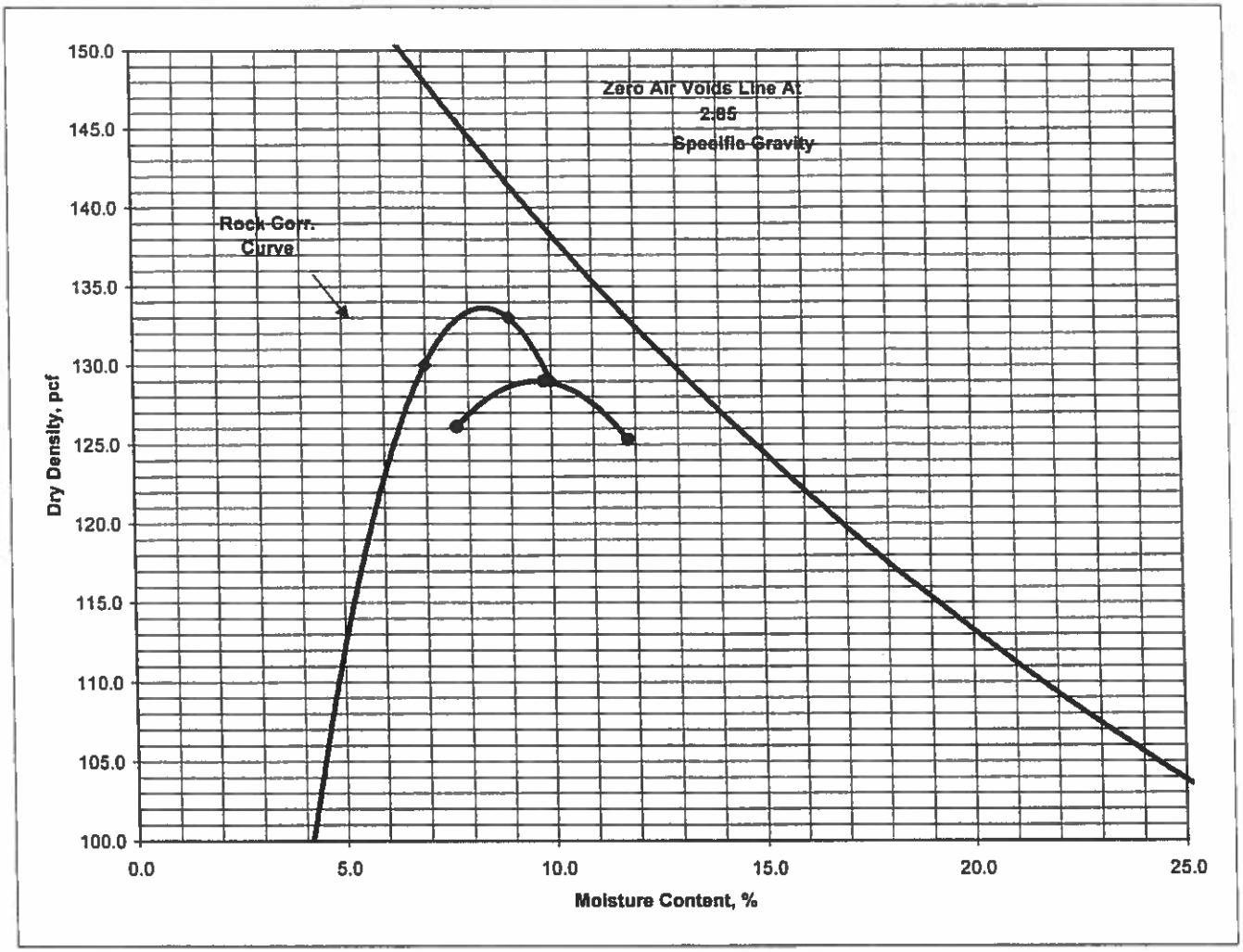
PROJECT NUMBER:	6339-01-08	November 3, 2008

Hidden Falls Regional Park

CARLTON Engineering Inc.

Carlton Engineering, Inc.
3883 Ponderosa Road
Shingle Springs, California 95682

MOISTURE DENSITY RELATIONSHIP CURVE



ROCK CORRECTED MAXIMUM

Maximum Dry Density (pcf)	133.0
Optimum Moisture Content (%)	9.0

Percentage of Plus 3/4"	12.6	Minus 3/4" Max. Dry Den. (pcf)	129.0
Bulk Specific Gravity Plus 3/4"	2.65	Minus 3/4" Optimum Moist. Cont. (%)	10.0

Test Method: ASTM D1557 Method: C

SAMPLE IDENTIFICATION: Bulk B TP2-A LAB NUMBER: 6517
SAMPLE DESCRIPTION: Red-Gray Clayey Sand w/ Gravel
SAMPLE LOCATION: Onsite

PROJECT NUMBER:	6339-01-08	November 3, 2008

CARLTON Engineering Inc

Carlton Engineering, Inc.
3883 Ponderosa Road
Shingle Springs, California 95682

Hidden Falls Regional Park

Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 11/06/2008
Date Submitted 11/04/2008

To: Toby Phillips
Carlton Engineering, Inc.
3883 Ponderosa Rd.
Shingle Springs, CA 95682

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 6339-01-08 Site ID : BULK A.
Thank you for your business.

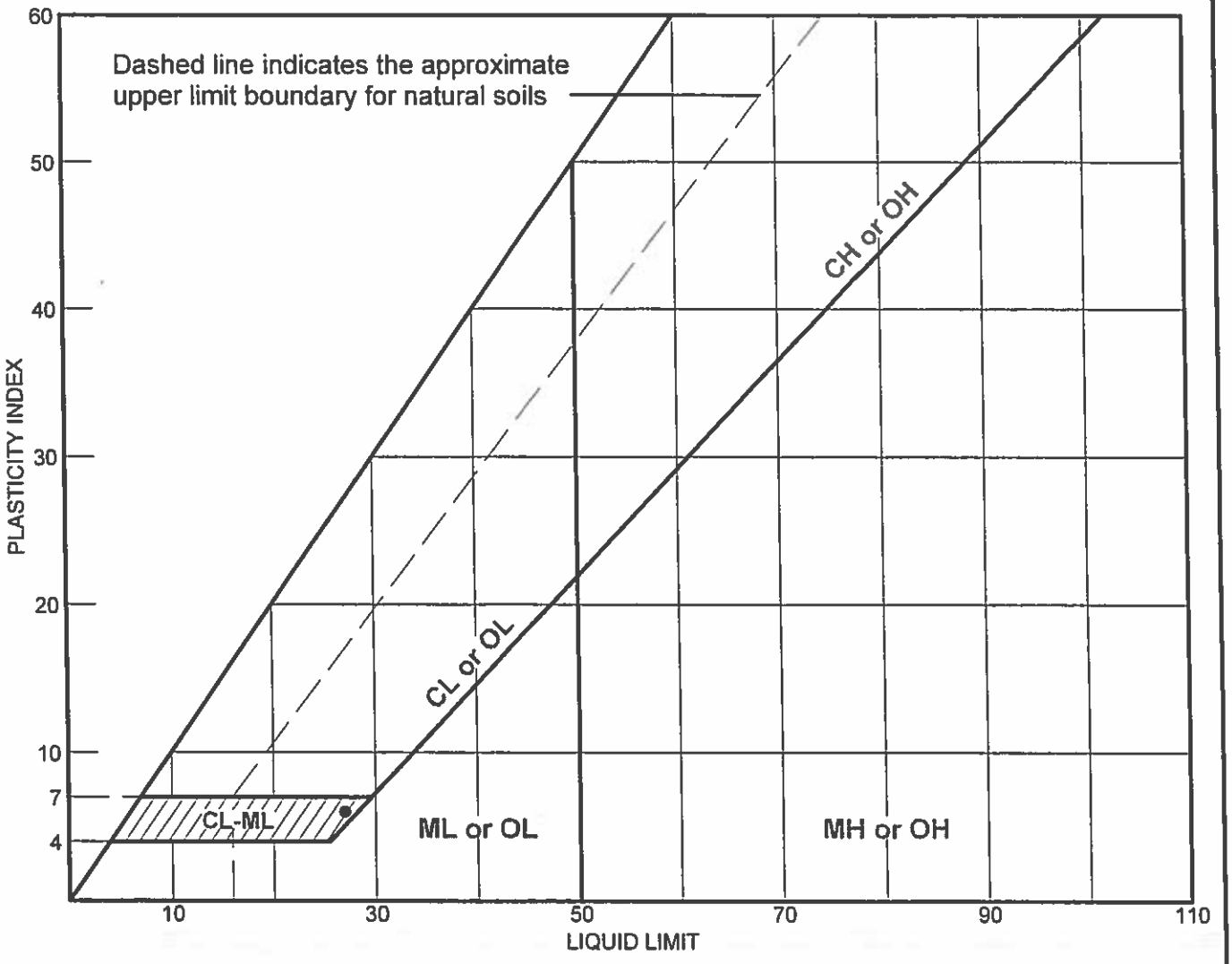
* For future reference to this analysis please use SUN # 54744-109984.

EVALUATION FOR SOIL CORROSION

Soil pH	6.42	
Minimum Resistivity	6.43 ohm-cm (x1000)	
Chloride	9.3 ppm	00.00093 %
Sulfate	8.1 ppm	00.00081 %

METHODS
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

LIQUID AND PLASTIC LIMITS TEST REPORT



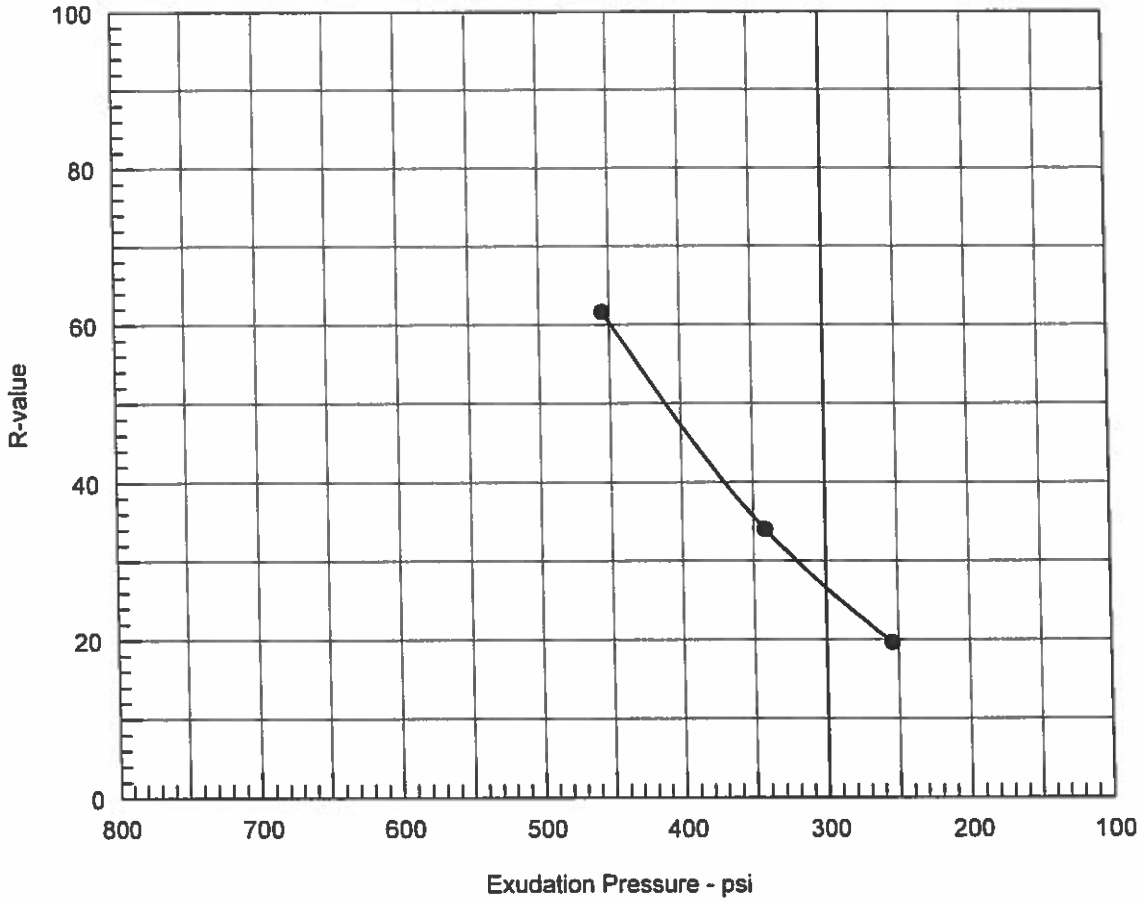
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●		Bulk F			21	27	6	

Taber
Since 1954

Client: Carlton Engineering Inc.
Project: Hidden Falls Regional Park / 6339-01-08

Project No.: 2T2/308/074-15 **Figure** 2

R-VALUE TEST REPORT



Resistance R-Value and Expansion Pressure - Cal Test 301

No.	Compact. Pressure psi	Density pcf	Moist. %	Expansion Pressure psf	Horizontal Press. psi @ 160 psi	Sample Height in.	Exud. Pressure psi	R Value	R Value Corr.
1	350	126.6	13.4	175	45	2.52	455	62	62
2	300	125.0	14.4	79	89	2.56	342	33	34
3	255	121.7	15.5	0	113	2.56	254	19	20

Test Results	Material Description
R-value at 300 psi exudation pressure = 27	Visual: Tan red slighty sandy clayey silt.

Project No.: 2T2/308/074-15
Project: Hidden Falls Regional Park / 6339-01-08
Sample Number: Bulk E

Date: 11/14/2008

Tested by: RJF
Checked by:
Remarks:

R-VALUE TEST REPORT

Taber Consultants

Figure 1

CARLTON
Engineering Inc.

Schmidt Hammer Test Report

Date: 12/22/2011 Time:

Project Name: Hidden Falls Regional

Test Number 1

Project Number: 6339-01-08

Location: Bridge 4

Hammer Identification:

Air Temperature: 65

Mix Design Number: NA

Design Strength (PSI): NA

Surface Characteristics: Bedrock

Orientation of Hammer: Vertical

	Hammer Reading
1)	64
2)	68
3)	70
4)	62
5)	64
6)	70
7)	64
8)	65
9)	
10)	

Average Hammer Reading
66

Adjusted Hammer Reading

Unconfined Compressive Strength (PSI)
11,500.00

ASTM C 805

CARLTON
Engineering Inc.

Schmidt Hammer Test Report

Date: 12/22/2011 Time:

Project Name: Hidden Falls Regional

Test Number 2

Project Number: 6339-01-08

Location: Bridge 4

Hammer Identification:

Air Temperature: 65

Mix Design Number: NA

Design Strength (PSI): NA

Surface Characteristics: Bedrock

Orientation of Hammer: Vertical

	Hammer Reading
1)	34
2)	50
3)	58
4)	42
5)	44
6)	36
7)	60
8)	45
9)	
10)	

Average Hammer Reading
46

Adjusted Hammer Reading

Unconfined Compressive Strength (PSI)
7,000.00

ASTM C 805

CARLTON
Engineering Inc.

Schmidt Hammer Test Report

Date: 12/22/2011 Time:

Project Name: Hidden Falls Regional

Test Number 3

Project Number: 6339-01-08

Location: Bridge 4

Hammer Identification:

Air Temperature: 65

Mix Design Number: NA

Design Strength (PSI): NA

Surface Characteristics: Bedrock

Orientation of Hammer: Vertical

	Hammer Reading
1)	32
2)	40
3)	34
4)	36
5)	48
6)	34
7)	52
8)	30
9)	
10)	

Average Hammer Reading
38

Adjusted Hammer Reading

Unconfined Compressive Strength (PSI)
5,200.00

ASTM C 805

CARLTON
Engineering Inc.

Schmidt Hammer Test Report

Date: 12/22/2011 Time: Project Name: Hidden Falls Regional

Test Number 4 Project Number: 6339-01-08

Location: Bridge 4 Hammer Identification:

Air Temperature: 65

Mix Design Number: NA

Design Strength (PSI): NA

Surface Characteristics: Bedrock

Orientation of Hammer: Vertical

	Hammer Reading
1)	68
2)	76
3)	72
4)	75
5)	78
6)	70
7)	74
8)	65
9)	
10)	

Average Hammer Reading
72

Adjusted Hammer Reading

Unconfined Compressive Strength (PSI)
11,400.00

ASTM C 805

CARLTON
Engineering Inc.

Schmidt Hammer Test Report

Date: 12/22/2011 Time:

Project Name: Hidden Falls Regional

Test Number 5

Project Number: 6339-01-08

Location: Bridge 4

Hammer Identification:

Air Temperature: 65

Mix Design Number: NA

Design Strength (PSI): NA

Surface Characteristics: Bedrock

Orientation of Hammer: Vertical

	Hammer Reading
1)	28
2)	34
3)	32
4)	38
5)	34
6)	32
7)	32
8)	34
9)	
10)	

Average Hammer Reading
33

Adjusted Hammer Reading

Unconfined Compressive Strength (PSI)
4,200.00

ASTM C 805

CARLTON
Engineering Inc.

Schmidt Hammer Test Report

Date: 12/22/2011 Time:

Project Name: Hidden Falls Regional

Test Number 6

Project Number: 6339-01-08

Location: Bridge 4

Hammer Identification:

Air Temperature: 65

Mix Design Number: NA

Design Strength (PSI): NA

Surface Characteristics: Bedrock

Orientation of Hammer: Vertical

	Hammer Reading
1)	38
2)	42
3)	40
4)	40
5)	46
6)	40
7)	42
8)	44
9)	
10)	

Average Hammer Reading
42

Adjusted Hammer Reading

Unconfined Compressive Strength (PSI)
6,100.00

ASTM C 805

CARLTON
Engineering Inc.

Schmidt Hammer Test Report

Date: 12/22/2011 Time: Project Name: Hidden Falls Regional

Test Number 1 Project Number: 6339-01-08

Location: Bridge 5 Hammer Identification:

Air Temperature: 65

Mix Design Number: NA

Design Strength (PSI): NA

Surface Characteristics: Bedrock

Orientation of Hammer: Vertical

	Hammer Reading
1)	58
2)	52
3)	56
4)	70
5)	68
6)	54
7)	40
8)	50
9)	
10)	

Average Hammer Reading
56

Adjusted Hammer Reading

Unconfined Compressive Strength (PSI)
9,650.00

ASTM C 805

CARLTON
Engineering Inc.

Schmidt Hammer Test Report

Date: 12/22/2011 Time:

Project Name: Hidden Falls Regional

Test Number 2

Project Number: 6339-01-08

Location: Bridge 5

Hammer Identification:

Air Temperature: 65

Mix Design Number: NA

Design Strength (PSI): NA

Surface Characteristics: Bedrock

Orientation of Hammer: Vertical

	Hammer Reading
1)	48
2)	56
3)	70
4)	58
5)	54
6)	50
7)	48
8)	50
9)	
10)	

Average Hammer Reading
54

Adjusted Hammer Reading

Unconfined Compressive Strength (PSI)
9,050.00

ASTM C 805

CARLTON
Engineering Inc.

Schmidt Hammer Test Report

Date: 12/22/2011 Time:

Project Name: Hidden Falls Regional

Test Number 3

Project Number: 6339-01-08

Location: Bridge 5

Hammer Identification:

Air Temperature: 65

Mix Design Number: NA

Design Strength (PSI): NA

Surface Characteristics: Bedrock

Orientation of Hammer: Vertical

	Hammer Reading
1)	44
2)	48
3)	46
4)	52
5)	58
6)	48
7)	50
8)	46
9)	
10)	

Average Hammer Reading
49

Adjusted Hammer Reading

Unconfined Compressive Strength (PSI)
7,700.00

ASTM C 805

CARLTON
Engineering Inc.

Schmidt Hammer Test Report

Date: 12/22/2011 Time:

Project Name: Hidden Falls Regional

Test Number 4

Project Number: 6339-01-08

Location: Bridge 5

Hammer Identification:

Air Temperature: 65

Mix Design Number: NA

Design Strength (PSI): NA

Surface Characteristics: Bedrock

Orientation of Hammer: Vertical

	Hammer Reading
1)	42
2)	58
3)	60
4)	52
5)	54
6)	48
7)	50
8)	
9)	
10)	

Average Hammer Reading
52

Adjusted Hammer Reading

Unconfined Compressive Strength (PSI)
8,500.00

ASTM C 805