B

Type

Plans

BLD11-3453

Permit Number

15000

Street Number

BODEGA HWY

Street Name

TW1

Community Code

026-130-001

APN

PRMD County of Sonoma

S.C. Repro 3/10

COUNTY OF SONOMA - PERMIT AND RESOURCE MANAGEMENT DEPARTMENT

2550 Ventura Avenue, Santa Rosa, CA 95403 (707) 565-1900 FAX (707) 565-1103

Please Print Your Name: MARK CLEVELAND

Date Applied: 8-16-2011

INFORMATION WITHIN HEAVY LINE TO BE COMPLETED BY APPLICANT

SITE LOCATION INFORMATION - PRINT CLEARLY

Site Address: 15000 BODEGA HIGHWAY City: BODEGA ZIP: 94922

Cross-Street: VALLEY FORD APN: 026-130-001 Project Phone #: ( ) N/A Project Fax #: ( ) N/A

Directions: HIGHWAY 12 - BODEGA HIGHWAY Email address: mcleveland@sonoma-county.org Unit # Lot #

Describe Project: REHABILITATION / RESTORATION OF THE HISTORIC WATSON SCHOOL, INCLUDING ACCESSIBILITY UPGRADES

Living Area / Garage / Decks: N/A Contract Price: (EST) $135,000

OWNER NAME AND ADDRESS

Name: SONOMA COUNTY - REGIONAL PARKS

Mailing Address: 2300 COUNTY CENTER DR, A120

City: SANTA ROSA State: CA ZIP: 95403

Day Ph: 707 565-3349 Fax: 707 579-8247

APPLICANT NAME AND ADDRESS

Name: SAME

Mailing Address:

City: State: ZIP:

Day Ph: ( ) Fax: ( )

CONTRACTOR INFORMATION

Company Name: TBD

Address:

City: State: ZIP:

Day Ph: ( ) Fax: ( )

OTHER PERSONS (ARCHITECT, ENGINEER, ETC.)

Name: COASTLAND CIVIL ENGINEERS

Address: 1400 NEOTOMAS AVE

City: SANTA ROSA State: CA ZIP: 95405

Day Ph: 707 571-8005 Fax: 707 571-8037

License No: C943095 Exp. Date: 3/31/12

WORKER'S COMPENSATION DECLARATION

I hereby affirm under penalty of perjury one of the following declarations:

☐ I have and will maintain a certificate of consent to self-insure for worker's compensation, as provided for by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued.

☐ I have and will maintain worker's compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My worker's compensation insurance carrier and policy number are:

Carrier ______

Policy No. ______

(This section need not be completed if the permit is for one hundred dollars ($100) or less).

☐ I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the worker's compensation laws of California, and agree that if I should become subject to the worker's compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Exp. Date: ______ Applicant: ______

WARNING: FAILURE TO SECURE WORKER'S COMPENSATION COVERAGE IS UNLAWFUL, AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS ($100,000), IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST, AND ATTORNEY'S FEES.

OWNER-BUILDER DECLARATION

I hereby affirm under penalty of perjury that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5, Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractor's License Law (Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars ($500).):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044 Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his or her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he or she did not build or improve for the purpose of sale.).

☑ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law.).

☐ I am exempt under Sec.______, B & P.C. for this reason______

By my signature below I acknowledge that, except for my personal residence in which I must have resided for at least one year prior to completion of the improvements covered by this permit, I cannot legally sell a structure that I have built as an owner-builder if it has not been constructed in its entirety by licensed contractors. I understand that a copy of the applicable law, Section 7044 of the Business and Professions Code, is available upon request when this application is submitted ~~or at the~~ following website: http://www.leginfo.ca.gov/calaw.html.

8-16-11 [signature]

Date / Signature of Property Owner or Authorized Agent

LICENSED CONTRACTOR'S DECLARATION

I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

Lic. Class ______ Lic. No. ______

Exp. Date ______ Contractor ______

ASBESTOS DECLARATION

Written asbestos notification pursuant to Part 61 of Title 40 of the Code of Federal Regulations is required when asbestos exists in buildings, or portions thereof, undergoing demolition. I hereby declare that demolition authorized by this permit is from construction that (☐ does) (☐ does not) contain asbestos, or that ☐ no demolition is authorized by this permit.

I certify that I have read this application and affirm under penalty of perjury that the above information is correct. I agree to comply with all local Ordinances and State laws relating to building construction. I hereby authorize representatives of the County of Sonoma to enter upon the above-mentioned property for inspection purposes. If, after making the Certificate of Exemption for the Worker's Compensation provision of the Labor Code I should become subject to such provisions, I will forthwith comply. In the event I do not comply with the Workman's Compensation law, this permit shall be deemed revoked.

[signature]

PERMITTEE SIGNATURE

2300 COUNTY CENTER DR., A120 S.R. 95403

ADDRESS CITY ZIP

☐ Contractor ☑ Owner ☐ Other Licensed Professional

CONSTRUCTION LENDING DECLARATION

I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued. (Sec. 3097, Civ. C.).

Lenders Name ______

Lenders Address ______

FOR DEPARTMENT USE

VOH Zoning LEA 160 Z, BR SR File No. ______ Acres .75

Existing Use/Structures WATSON SCHOOL

Proposed Use/Structures REHABILITATION OF STRUCTURE

Zoning Min. Yard Requirements: Front ______ Side ______ Back ______

NOTE: Fire Safe Standards require all parcels greater than 1 Acre to have a min. 30' setback unless mitigated. ☐ Mitigation Required ☐ Address subject to change

Approval for Permit Issuance: Approval for Occupancy:

By: ______ By: [signature]

Date: ______ Date: 11-10-11

Conditions: OK AS PER HD/ ... 8-16-11 NOTE: TIME SENSITIVE 4 WKS

Sewer Connection: ☐ Available ☐ Fees Paid

Approved by: ______ Date: ______

Road Encroachment: ☐ Fees Paid

Approved by: [signature] Date: ______

Septic System Permit/Clearance #: N/R No Plumbing

Approved by: [signature] Date: 8-16-11

Flood Zone: ☐ Yes ☒ No 100 Year Flood Elevation:

Site Review

Drainage Review Approved by: C. Ozanich N/R Date: 08/16/2011

Fire: Approved by: ______ Date: ______

Code Enforcement Violation ☐ Yes ☒ No Violation # ______

This permit is limited to ______ days.

Work Authorized: rehab 1-room school

☑ Plans Approved ☐ No Plans Subject to Field Inspection

☐ Post FIRM ☐ Pre FIRM ☐ Alquist Priolo Report Available ☐ Geotechnical report Available

Plancheck Ordered By	Date:	Type of Construction	Occupancy	No. of Stories	No. of Bedrooms
Carl Smith	11/8/11	VB	A3	1	Ø
Permit Ordered for Issuance By	**Date:**	**Auto. Fire Sprinklers Req'd**	**No of Units**	**Certificate of Occupancy**	
[signature]	11/10/11				

Machine Space for Permit Fee

Revised: 01/28/2009 cmuller s:\handouts\cssl\CIS-007.cdr

JOB ADDRESS: 15000 Bodega Hwy

TWI

PERMIT NUMBER: BLD11-3453

INSPECTION AREA: 8

THIS PERMIT SHALL EXPIRE IN THREE(3) YEARS FROM DATE FEES ARE PAID UNLESS OTHERWISE NOTED BY CODE ENFORCEMENT

Distribution: White - File Canary - Applicant Blue - Assessor Cardstock - Inspector

131) SPECIAL INSPECTION REQUIRED	☒ YES	☐ NO	IF YES, SEE ADDITIONAL SHEET

INSPECTION RECORD	DATE	NAME
101) ROUGH GRADING		
103) FOUNDATION		
FORMS/SETBACK	12-1-11	RP
FOOTING		
WALLS		
106) UFER GROUND # 4 Rebar	12-1-11	RP
104) CAISSONS/PIERS interior	12-1-11	RP
105) SLAB walk ways, parking	1-3-12	RP
107) UNDERGROUND UTILITIES		
110) MASONRY		
109) RETAINING WALLS		
113) FIREPLACE		
FOOTING		
HEARTH/PROTECTION		
THROAT		
114) CHIMNEY		
120) UNDERFLOOR/UNDERSLAB		
115) HYDRONICS		
116) U/F ELECTRICAL		
117) U/F MECHANICAL		
118) U/F PLUMBING		
119) U/F FRAMING	1-3-12	RP
139) U/F INSULATION	1-3-12	RP
126) SHEAR WALLS	1-6-12	RP
☐ INTERIOR ☒ EXTERIOR		
127) DIAPHRAGMS		
☐ ROOF ☐ FLOOR		
134) SIDING/SHEATHING		
125) HOLD DOWNS		
132) CLOSE-IN		
122) ROUGH ELECTRICAL		
123) ROUGH MECHANICAL		
124) ROUGH PLUMBING		
128) ROUGH FRAME		
160) SMOKE DETECTORS		
139) INSULATION		
142) WALLBOARD		
143) FIREWALLS		
135) STUCCO/PLASTER		
☐ LATH ☐ SCRATCH		
137) ROOFING		
130) TUB/SHOWER PAN		
162) FIRE DAMPERS/DOORS		
164) SUSPENDED CEILING		
☐ ROUGH ELEC. ☐ ROUGH MECH.		
165) EXITING - RAMPS/STAIRS		
163) HANDRAILS/GUARDRAILS		
CORRIDORS/DOORS		
166) ACCESSIBILITY COMPLIANCE	5-4-12	ARM
144) WATER TANKS		
☐ SLAB ☐ WALLS		
170) TEMPORARY OCCUPANCY		
171) TEMPORARY ELECTRICAL	12/13/11	DF
172) TEMPORARY GAS		
174) ELECTRIC METER AUTHORIZATION		
152) PANEL BOARDS/SERVICE		
189) SEPTIC ELECTRIC FINAL		
175) GAS METER AUTHORIZATION		
153) GAS PRESSURE TEST		
HOUSE YARD		
190) MANUF. HOME FOUNDATION		
191) MANUF. HOME INSTALLATION		
CONTINUITY		
STAIRS/SKIRTS		
RIDGE BOLTING		
193) MANUF. HOME COND. FINAL		
SWIMMING POOLS		
194) PRE-GUNITE		
195) PRE-DECK		
196) PRE-PLASTER/FENCE		
197) VINYL/FIBERGLASS POOL EXCAVATION		
102) GRADING FINAL		
176) ELECTRICAL FINAL		
177) MECHANICAL FINAL		
178) PLUMBING FINAL		
199) FINAL	3/13/14	fh
OCCUPANCY (OK TO OCCUPY)		

REMARKS

Restoration of Watson School

(103) 12-16-11 Wall @ front entry door RP.

(104) 12-16-11 deck piers front & rear RP

1/9/12 166 ment one parking & S. walk with Contractor DF

(needs 3" washers @ mudsill) OK

(126) 1-6-12 S. wall RP

9/27/13 on site 9:45 AM Building locked no one on site DF

(166) South Access Rot NOT Req per Shenis Peterson via phone conversation 5-4-12 ARM

650) SUSMP INSPECTION		
651) NPDES EROSION COMPLIANCE		
652) NPDES SEDIMENT COMPLIANCE		
653) NPDES DOCS/SWPPP		

FIRE INSPECTION REQUIRED ☐ Yes ☐ No	DATE	NAME
759) KNOX BOX		
760) PROPANE TANK HOLD DOWNS		
770) SPRINKLER FINAL		
771) ABOVEGROUND HYDROSTATIC		
772) UNDERGROUND HYDROSTATIC		
773) UNDERGROUND FLUSH		
774) THRUST BLOCKS		
775) PIPE WELD		
776) HYDRANTS/APPLIANCES		
777) PUMP ACCEPTANCE		
778) WATER SUPPLY/TANK		
779) ALARM SYSTEM		
780) HOOD & DUCT SYSTEM		
781) ABOVEGROUND TANK/DISPENSER		
198) FIRE FINAL		

CLEARANCES:

FIRE ☐ Local ☐ County

HEALTH DEPARTMENT

ZONING

SANITATION

PERMIT # BLD11-3053

PLAN RETENTION REQUIRED?

☒ Yes ☐ No

SITE EVALUATION SHEET

Address 15000 BODEGA Hwy **PC#** BLD11-3453

Inspector STAFF **Date** 9-7-11

The proposed construction appears to be located in:

Flood Hazard:	[ ] FIRM Flood Zone (ASFH) BFE = _____ft. NAVD. Lowest finish floor at 12 above BFE = _____ft. NAVD. [ ] Design for moving water is recommended Section _____ is _____ Ft/sec Section _____ is _____ Ft/sec N/A [ ] Area subject to flooding (not on adopted FIRM). [ ] Project is on flood zone major damage list. [ ] Flood Prone Urban Area defined by Ordinance #4906.	[ ] Portions of property in flood zone but project site not in flood zone. [ ] Building is in FIRM Floodway. [ ] Main building on site is Post-FIRM. [ ] Sensitive drainage area, review by drainage section recommended. [ ] Appears to be a "substantial improvement" (40%), therefore flood regulations apply. [ ] Located inside the *Laguna de Santa Rosa* below elevation of 75 ft (Ordinance #4906).
Geo-technical:	[ ] Area of suspected slides, slumps, earth flow, or soil creep. (a) [ ] Area of previous fill placement. (g) [ ] Area of suspected expansive soil. (c) [ ] Area without sufficient slope setback as set forth in UBC Section 1806. (b) [ ] Area subject to possible liquefaction. (e) [ ] Area of suspected soft, compressible, or organic soil with low bearing capacity. **Soils Investigation:**	[ ] Area without recommended setback from stream (Drainage Division recommendations). [ ] Area of high moisture content in soil. (f) [ ] Area subject to high erosion (water or wind). [ ] Area of soft soil due to past deep ripping or cultivation below minimum foundation depth. (h) [ ] Area within 1000 feet of a solid waste disposal site. [ ] Non exempt structure per tech bulletin B-28. **Required [ ] Included [X] Available [ ] Not Required [ ]**
Geologic:	[ ] Located in the Alquist-Priolo Special Studies Zone.	[ ] Geologic report required (see CGS Publication 42).
Seismic:	Seismic Design Category (SDC) D[X] E[ ]	[ ] Pictures available in S Drive
General:	[ ] Building addition will affect the required light and ventilation in an existing room. [X] Existing electric meter must be replaced. [ ] Existing gas meter must be replaced. Slope is _____	[ ] Indications of existing substandard conditions that are not addressed by the proposed construction. [ ] Indications of past work done without a permit. [ ] Grading permit required for road, driveway, or site preparation. [ ] Site is likely to be acceptable for conventional construction methods.
Wind:	Exposure "B" Exposure "C" Exposure "D"	N.S.C. Air Pollution Control District..... [X] Yes [ ] No

PLAT SITE, SLIGHT SLOPE TO CREEK TO THE SOUTH

P&A

HIGH LIQUIFACTION

SOILS REPORT INCLUDED

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS
POST OFFICE BOX 6172 SANTA ROSA, CA 95406
TELEPHONE (707) 528-3078 FACSIMILE (707) 528-2837

Report
Soil Investigation
Watson School Restoration
Sonoma County, California

Prepared for
Sonoma County Regional Parks
2300 County Center Drive, Suite 120-A
Santa Rosa, CA 95403
Attention: Mark Cleveland

By

GIBLIN ASSOCIATES
Consulting Geotechnical Engineers

Lawrence Charles
Geotechnical Engineer No. 2723

Jeffrey K. Reese
Civil Engineer No. 47753

Job No. 1098.22.1
November 6, 2008

INTRODUCTION

This report presents the results of our soil investigation for the proposed foundation rehabilitation to the Watson School building located at 15000 Bodega Highway near Freestone in Sonoma County, California. The building was erected in 1856 and is currently supported on a post-and-pier foundation system with diagonal cross bracing attached on the exterior. We understand that some minor settlement of the structure has occurred. Furthermore, it is our understanding that the proposed rehabilitation will consist of renovating the building and installing a new reinforced concrete foundation.

The object of our investigation, as outlined in the agreement dated August 13, 2008, was to review selected, published, geologic references in our files, explore subsurface conditions, measure depth to groundwater, and determine physical properties of the soils encountered. We then performed engineering analyses to develop conclusions and recommendations concerning:

1. Proximity of the site to active faults.
2. Potential for site liquefaction and mitigation measures to reduce the risk of distress, if appropriate.
3. Site preparation and grading, if appropriate.
4. Foundation support and design criteria.
5. Soil engineering drainage.
6. Supplemental soil engineering services.

WORK PERFORMED

We reviewed selected, published, geologic information in our files including:

1. The "Geology for Planning in Sonoma County" maps, Special Report 120, California Division of Mines and Geology, 1980.

2. The Valley Ford Quadrangle Sheet of the Alquist-Priolo Special Studies Zone maps, California Division of Mines and Geology, 1974.

3. Association of Bay Area Governments website (www.abag.ca.gov), 2008, Liquefaction Susceptibility Map.

On August 15, 2008, our engineer was at the site to observe conditions exposed and explore subsurface conditions to the extent of three test borings with truck-mounted auger equipment. The borings are at the approximate locations indicated on the Test Boring Location Sketch included on Plate 1. The locations of the borings were determined by visually estimating from existing surface features and should be considered no more accurate than implied by the methods used to establish the data.

The borings were drilled to depths that varied from about 26½ to 35½ feet with truck-mounted, hollow stem auger equipment. Our engineer located the borings, observed the drilling, logged the soil conditions, and obtained samples for visual classification and laboratory testing. Relatively undisturbed samples were obtained with a 2.5-inch (inside-diameter) split-spoon sampler and disturbed samples were obtained with a 2.0-inch (outside diameter) split-spoon sampler. Both samplers were driven with a 140-pound drop hammer. The fall distance, or stroke, during driving was about 30 inches. The number of blows

required to drive the sampler was recorded and converted to corresponding Standard Penetration blow counts for correlation with empirical data. Logs of the borings showing soil classifications, sample depths, and converted blow counts are presented on Plates 2 through 4. The soils are classified in general accordance with the Unified Soil Classification System explained on Plate 5. All borings were backfilled with bentonite chips at the completion of the exploration.

Selected samples were tested in our laboratory to determine moisture content/dry density, classification (percent passing No. 200 sieve, percent free swell and Atterberg Limits), and strength characteristics. The test results are shown on the logs with the strength data as described by the Key to Test Data, Plate 5. Detailed results of the Atterberg Limits tests are presented on Plates 6 and 7.

SURFACE AND SUBSURFACE CONDITIONS

In general, the ground surface at the site is relatively flat. The area surrounding the building is covered by grass, assorted mature trees, and a parking lot on the north side. Approximately 60 feet to the south of the building, a steep slope begins to descend to Salmon Creek about 25 to 30 vertical feet below. The gradient of the slope is visually estimated to be about one-and-one-half horizontal for every one vertical (1½:1). In addition, a temporary bathroom facility is located in the northeast portion of the site.

The borings and laboratory tests indicate that the site is underlain by natural soils consisting of soft to stiff sandy silts and clays, loose to medium dense sand with varying

percentages of silt and clay, and bedrock materials. The upper soil mainly consists of medium stiff to stiff silts and clays that extend to depths of about 12½ to 14½ feet. The upper about 2 to 2½ feet of the surface soils were weak and porous (compressible), likely from decomposition of organic roots and materials. Also, in Boring 1, a relatively thin layer of loose clayey sand was encountered from about 5½ to 8 feet deep. Below the upper about 12½ to 14½ feet, moist and saturated, loose sands and soft silts were encountered to depths that varied to about 24½ to 29 feet. Underlying these soils, shale bedrock materials of the Franciscan Assemblage were encountered to the maximum depth explored. An interpretive cross-section of the soil and bedrock materials, the adjacent slope, and groundwater level is included on the attached Plate 8.

Groundwater was initially observed in Borings 1 and 2 at depths of about 20 and 25 feet, respectively. A stabilized depth was recorded only in Boring 1 and was measured at 17½ feet below the surface. Our experience indicates that groundwater levels can vary seasonally and can rise and fall a few feet annually. Precise groundwater location or that of a perched water condition is beyond the scope of this investigation.

DISCUSSIONS AND CONCLUSIONS

Based on the results of our field exploration, laboratory testing and engineering analyses, we conclude that, from a soil engineering standpoint, the site can be used for the proposed foundation construction. The most significant soil factors that must be considered in

design and construction are the presence of weak, compressible soils in the upper 2 to 2½ feet and saturated, loose sands and soft silts susceptible to liquefaction.

Our experience indicates that weak, upper soils can undergo considerable strength loss and settlement when loaded in a saturated condition. Where evaporation is inhibited by foundations or fill, eventual saturation of the underlying soils can occur. Therefore, we conclude that the weak, upper soils in the building area are not suitable for foundation or fill support in their present condition. It will be necessary to support the foundations on firm materials below the weak, upper compressible soils.

Liquefaction, a loss in shear strength, and densification, a reduction in void ratio, are phenomena normally associated with saturated, loose, sandy and soft silty soil deposits subjected to ground shaking during earthquakes. Surface cracking and significant subsidence can result from soil liquefaction or densification during strong earthquake shaking. Other phenomena associated with strong ground shaking at sites near slopes are lateral spreading and soil lurching. Lateral spreading is horizontal slumping downslope and lurching is a virtually instantaneous lateral displacement of a soil mass out of a slope.

Whether liquefaction, lateral spreading , soil lurching, and/or densification would actually occur depends on complicated factors, such as intensity and duration of ground shaking at the site and underlying soil and groundwater conditions.

We have analyzed the soil data from the borings at the site in accordance with the "*Simplified Procedure for Evaluating Soil Liquefaction Potential*" by H. B. Seed and I. M.

Idriss, published in the Journal of the Soil Mechanics and Foundation Division of the American Society of Civil Engineers, dated September 1971, and "*Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils,*" by Youd, et al dated April 2001.

Based on our analyses, we conclude that the thin layer of loose clayey sand encountered in Boring 1, from about 5½ to 8 feet below the adjacent ground surface, and other loose silty sand and soft to medium stiff, sandy silt soils in all borings below about 12½ to 14½ feet deep could be subject to liquefaction and/or densification. However, because liquefaction would likely only happen during a time of sustained high groundwater table and strong ground shaking occur simultaneously (conditions that likely existed during the San Francisco 1906 earthquake), we believe that the possibility of this phenomenon to occur would be considered low. In addition, we considered the possibility of lateral spreading and soil lurching along the slope area. Based on the soil data from the borings at the site and the approximately 60 feet of horizontal distance from the top of the closest slope to the building, we judge that the risk of lateral spreading and/or soil lurching affecting the building could also be considered low.

However, because the underlying soils are susceptible to liquefaction and/or densification, there is a minor risk of future substantial and erratic total and differential settlements that could be 6 inches or more. The risk of future settlements could be lessened provided measures are taken to densify the saturated loose to medium dense, sands and stiffen the soft silts encountered at the site. Our recommendations are intended to provide a strong,

well-tied-together foundation system that should be able to withstand a few inches of differential settlement. However, the new foundation and/or overlying structure may not be able to withstand differential settlements associated with liquefaction and/or densification without the risk of damage in the form of severe distress. Should such distress occur, it may become necessary to repair and/or relevel the foundation and, possibly, the overlying structure.

We judge that satisfactory foundation support for the proposed rehabilitation could be obtained from a system of spread footings. To help reduce possible foundation distress, the spread footings should be well reinforced and well-tied-together in a grid-type system. Accordingly, the balance of this report is oriented toward a spread footing foundation system.

Specific recommendations for a foundation system or ground improvement technique that could better withstand such above-mentioned settlements, including driven piles, drilled piers, ground modification, grouting, and others, could be developed, if desired. However, these alternatives are very costly and may not be economically feasible. Accordingly, it should be recognized that construction of the foundation system recommended herein should be contemplated only with the understanding that some damage to the foundation (and possibly the overlying structure) could occur during future earthquakes, under certain circumstances.

SEISMIC DESIGN PARAMETERS

The geologic maps reviewed did not indicate the presence of active faults at the site and, therefore, we judge that there is little risk of fault-related ground rupture during

earthquakes. In a seismically active region such as Northern California, there is always some possibility for future faulting at a site. However, historical occurrences of surface faulting have generally closely followed the trace of more recently active faults. We judge that the closest active faults to the site are the San Andreas located about 6 miles to the southwest and the Rodgers Creek that is about 14 miles to the northeast.

Strong ground shaking will occur during earthquakes. The intensity at the site will depend on the distance to the earthquake epicenter, depth and magnitude of the tremor, and the response characteristics of the materials beneath the site. Because of the proximity to active fault zones in the region and the potential for strong ground shaking, it will be necessary to design and construct the project in strict accordance with current standards for earthquake-resistant construction.

We have determined the seismic ground motion values in accordance with procedures outlined in Section 1613 of the 2007 California Building Code (CBC). Mapped acceleration parameters (S_S and S_1) were obtained by inputting approximate site coordinates (latitude and longitude) into an earthquake ground motion program made available for use by the USGS for the determination of CBC ground motion values. Based on our review of available geologic maps and our knowledge of the subsurface conditions, we judge that the site can be classified as Site Class C, as described in Table 1613.5.2 of the 2007 CBC. Using corresponding values of site coefficients for Site Class C and procedures outlined in the CBC, the mapped

acceleration parameters were adjusted to yield design spectral response acceleration parameters S_{DS} and S_{D1}.

2007 California Building Code Ground Motion Parameters

Site Class	C
Mapped Spectral Response Accelerations:	
S_S	1.500g
S_1	0.735g
Design Spectral Response Accelerations:	
S_{DS}	1.000g
S_{D1}	0.637g

RECOMMENDATIONS

Site Grading

The areas to be graded and/or developed, if any, should be cleared of existing debris, brush, and other obstructions. Designated trees, if any, and dense growths of grass and vegetation should be removed within developed areas. Areas to be graded then should be stripped of the upper few inches of soil containing root growth and organic matter. We anticipate that the depth of stripping would average about 3 inches. Strippings should be removed from the site or stockpiled for reuse as topsoil in landscaped areas.

Voids encountered or created during grading, should be filled with compacted soil, compacted granular material, or concrete, as determined by the appropriate governing agency and/or the soil engineer.

Within areas to receive fill, if needed, the surfaces exposed by soil removal should be scarified at least 6 inches deep, moisture conditioned to near optimum, and compacted to at

least 90 percent relative compaction.[1] Approved excavated and/or imported fill should be placed in layers no greater than 8 inches in loose thickness, moisture conditioned to slightly above optimum, and similarly compacted to at least 90 percent.

Imported fill materials, if used, should be of low expansion potential, free of organic matter, rocks or hard fragments larger than 4 inches in diameter, and have a Plasticity Index of 15 or less. The material proposed for use as imported fill should be tested and approved by the soil engineer prior to importation to the site.

Foundation Support

Spread footings can be used for the foundations. All footings should be at least 12 inches wide and 24 inches deep. To help reduce possible foundation distress, no isolated pad footings should be used and the spread footings should be well reinforced and well-tied-together in a grid-type system. Grid spacing should be no more than 16 feet in each direction. Footings should be deepened as needed to bottom onto firm natural soil. Accordingly, we anticipate that footing depths will vary, but will generally bottom about 2 to 2½ feet below the adjacent ground surface.

Spread footings can be designed for dead plus code live load and total design load (including wind or seismic forces) bearing pressures of 1,500 and 2,250 pounds per square foot (psf), respectively. Resistance to lateral loads can be obtained by imposing a passive

1 Relative compaction refers to the in-place dry density of fill expressed as a percentage of maximum dry density of the same material determined in accordance with the ASTM D 1557-00 laboratory compaction test procedure. Optimum moisture content refers to the moisture content at maximum dry density.

equivalent fluid pressure of 300 pounds per cubic foot (pcf) and a friction factor of 0.30. Passive pressure can be assumed to commence at the ground surface, but should be neglected in the upper 12 inches unless confined by pavements or slabs.

Soil Engineering Drainage

Ponding water will cause softening of the site soils and could be detrimental to foundations. It is important that the areas adjacent to the building be sloped to drain away from foundations and around the structure. A gradient of at least 1/4-inch per foot extending at least 4 feet from the foundation should be maintained. Roof gutters should be used and maintained, and the downspouts should be connected to nonperforated pipelines that discharge into a planned or existing drainage system.

Careful attention to finish grading around the building should be provided. No loose or poorly compacted materials should be allowed adjacent to footings. Landscaping should maintain positive flow of surface water away from and around the structure. It should be recognized that fences, walks, patio slabs, lawns, planters, etc., could impede water flow and promote surface soil saturation and seepage beneath floor areas.

Supplemental Soil Engineering Services

We should review final foundation plans for conformance with the intent of our recommendations. Site grading operations, if any, should be observed and tested by the soil

engineer to verify that the recommended moisture content and degree of compaction are being attained.

The soil engineer should observe spread footing excavations to verify that the actual conditions encountered are as anticipated, to determine specific footing depths, and to modify our recommendations, if warranted.

LIMITATIONS

We have performed the investigation and prepared this report in accordance with generally accepted standards of the soil engineering profession. No warranty, either express or implied, is given. This investigation was limited to the scope of work outlined above, and did not include an assessment of other soil related concerns including, but not limited to, soil chemistry, corrosion potential, mold, and soil and/or groundwater contamination.

Subsurface conditions are complex and may differ from those indicated by surface features or encountered at test boring locations. Therefore, variations in subsurface conditions not indicated on the logs or described herein could be encountered.

If the project is revised or if conditions different from those described in this report are encountered during construction, we should be notified immediately so that we can take timely action to modify our recommendations, if warranted.

Supplemental services as recommended herein are performed on an as-requested basis. We accept no responsibility for items we are not notified to check, or for use and/or interpretation by others of the information contained herein. Such services are in addition to

this soil investigation and are charged for on an hourly basis in accordance with our Standard Schedule of Charges.

Site conditions and standards of practice change. Therefore, we should be notified to update this report if construction is not performed within 36 months.

LIST OF PLATES

Plate 1	Test Boring Location Sketch and Site Vicinity Map
Plates 2 through 4	Logs of Test Borings 1 through 3
Plate 5	Soil Classification System and Key to Test Data
Plates 6 and 7	Atterberg Limits Test Results
Plate 8	Interpretive Cross-Section A-A'

DISTRIBUTION

Copies submitted: 5

Sonoma County Regional Parks
2300 County Center Drive, Ste 120A
Santa Rosa, CA 95403
Attention: Mark Cleveland

LC/JKR:nay/NN/HD/bound/lc/Job No. 1098.22.1

N

Approximate Scale:
1 inch = 20 feet

Contours are interpretive and approximate

Approximate location of Salmon Creek

Restroom

BODEGA HIGHWAY

Existing Fence

2

Watson School Building
(15000 Bodega Highway)

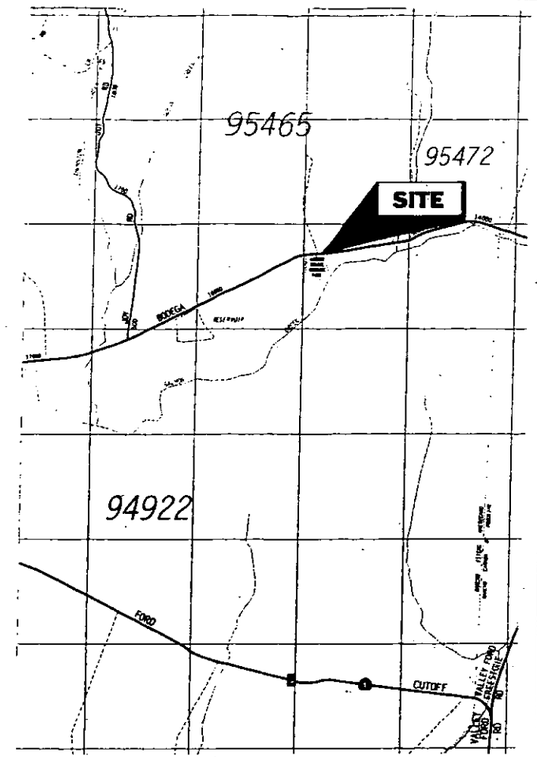
A

3

Boring 1
(Projection)

Boring 2
(Projection)

A'



SITE VICINITY MAP

Approximate Test Boring Location

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1098.22.1

Date: 10-28-08

Appr: LC

TEST BORING LCOATION PLAN
AND SITE VICINITY MAP

WATSON SCHOOL RENOVATION
SONOMA COUNTY, CALIFORNIA

PLATE
1

▽ groundwater first encountered at time of drilling

▼ groundwater at time of backfilling

LOG OF BORING 1

Equipment 6" FLIGHT AUGER

Elevation _____ Date 8-15-08

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				0		DARK BROWN SANDY SILTY CLAY (CL-ML), stiff, dry, porous to about 24 inches
TxUU (500) = 2640 Percent Passing No. 200 Sieve = 54.0 LL = 28 PL = 22 PI = 6	10	9.2	88	2		becomes medium stiff below about 2-1/2 feet
Percent Free Swell = 30	7	10.5	94			no recovery
				4		becomes mottled orange-brown between about 3-1/2 to 4-1/2 feet
						becomes brown below 4-1/2 feet
Percent Passing No. 200 Sieve = 17.3 LL = 29 PL = 20 PI = 9	4	15.8	98	6		DARK ORANGE BROWN CLAYEY SAND (SC), loose, moist
				8		GRAY CLAY WITH SAND (CL), medium stiff, moist, with some organics
UC(P) = 1250 UC = 780	7	25.0	97	10		
				12		
				14		GRAY SILTY SAND (SM), loose to medium dense, moist, fine-grained sand
Percent Passing No. 200 Sieve = 21.1	10	21.7	88	16		
				18		

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1098.22.1

Date: 10-28-08

Appr: LC

LOG OF BORING 1

WATSON SCHOOL RESTORATION
SONOMA COUNTY, CALIFORNIA

PLATE **2a**

*Converted to Standard Penetration Blow Counts

▽ groundwater first encountered at time of drilling

▼ groundwater at time of backfilling

LOG OF BORING 1

Equipment 6" FLIGHT AUGER

Elevation _____ Date 8-15-08

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				18		
				20		saturated, with occasional gravel
Percent Passing No. 200 Sieve = 27.7 Percent Free Swell = 20	5					GRAY SILT (ML), soft to medium stiff, saturated, occasional gravel
UC(P) = 500	7			22		
				24		becomes sandy
UC(P) = 250 Percent Passing No. 200 Sieve = 63.1 Percent Free Swell = 30	5	24.1	103	26		
	4					no recovery
				28		GRAY SHALE BEDROCK, moderately strong, moderately weathered
	50+			30		
				32		
				34		
	50+					

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1098.22.1

Date: 10-28-08

Appr: LC

LOG OF BORING 1

WATSON SCHOOL RESTORATION
SONOMA COUNTY, CALIFORNIA

PLATE **2b**

* Converted to Standard Penetration Blow Counts

▽ groundwater first encountered at time of drilling

▼ groundwater at time of backfilling

LOG OF BORING 2

Equipment 6" FLIGHT AUGER

Elevation _____ Date 8-15-08

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				0		DARK BROWN CLAY (CL), stiff, dry, porous to about 24 inches
TxUU (5000) = 3040 LL = 31 PL = 22 PI = 9 Percent Free Swell = 30	11	9.8	86	2		becomes light orange-brown below about 2 feet, non-porous
	11	9.7	96	4		
TxUU (700) = 3780	13	13.5	101	6		becomes mottled dark orange-brown and slightly cemented below about 4-1/2 feet
				8		
UC(P) = 4000 LL = 28 PL = 17 PI = 11 Percent Free Swell = 40	10	17.2	106	10		
				12		GRAY SILT (ML), stiff, moist
UC = 440 UC(P) = 750 Percent Free Swell = 60	3	32.9	88	14		becomes soft below about 13 feet
				16		
				18		becomes sandy and saturated below about 17 feet

*Corrected to Standard Penetration Blow Counts

▽ groundwater first encountered at time of drilling

▼ groundwater at time of backfilling

LOG OF BORING 2

Equipment 6" FLIGHT AUGER

Elevation _____ Date 8-15-08

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample
Percent Passing No. 200 Sieve = 57.5	4	25.5	100	18	
	3			20	
				22	
				24	
	5				
				26	
				28	
	50+			30	

GRAY SHALE BEDROCK, moderately strong, hard, weathered

*Corrected to Standard Penetration Blow Count

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1098.22.1

Date: 10-28-08

Appr: LC

LOG OF BORING 2

WATSON SCHOOL RESTORATION
SONOMA COUNTY, CALIFORNIA

PLATE **3b**

▽ groundwater first encountered at time of drilling

▼ groundwater at time of backfilling

LOG OF BORING 3

Equipment 6" FLIGHT AUGER

Elevation _____ Date 8-15-08

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				0		DARK BROWN CLAY (CL), stiff, dry, porous to about 24 inches
TxUU (500) = 4020 Percent Free Swell = 30	14	11.7	89	2		
				4		becomes mottled orange-brown with sand, slightly cemented
Percent Passing No. 200 Sieve = 65.6 Percent Free Swell = 35	14	13.0	102			
				6		
				8		becomes orange-brown with occasional gravel
LL = 30 PL = 21 PI = 9	13	17.1	107	10		
				12		GRAY SANDY SILT (ML), medium stiff, moist, fine-grained sand
Percent Passing No. 200 Sieve = 51.2 Percent Free Swell = 20	7			14		no recovery (obtained disturbed sample with sand catcher)
				16		
				18		GRAY SILTY SAND (SM), loose, saturated

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1098.22.1

Date: 10-28-08

Appr: UC

LOG OF BORING 3

WATSON SCHOOL RESTORATION
SONOMA COUNTY, CALIFORNIA

PLATE **4a**

*Converted to Standard Penetration Blow Counts

▽ groundwater first encountered at time of drilling

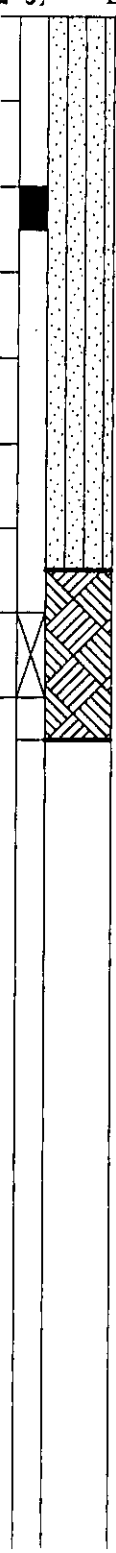
▼ groundwater at time of backfilling

LOG OF BORING 3

Equipment 6" FLIGHT AUGER

Elevation _____ Date 8-15-08

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				18		
Percent Passing No. 200 Sieve = 43.8	6			20		no recovery (obtained disturbed sample with sand catcher)
				22		
				24		GRAY SHALE BEDROCK, strong, deeply to moderately weathered
	22			26		



GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1098.22.1

Date: 10-28-08

Appr: LC

LOG OF BORING 3

WATSON SCHOOL RESTORATION
SONOMA COUNTY, CALIFORNIA

PLATE **4b**

*Converted to Standard Penetration Blow Counts

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN No. 200 SIEVE)	GRAVEL (MORE THAN HALF OF COARSE FRACTION IS LARGER THAN No. 4 SIEVE SIZE)	CLEAN GRAVEL WITH LESS THAN 5% FINES	GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURE
			GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURE
		GRAVEL WITH OVER 12% FINES	GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURE
			GC	CLAYEY GRAVEL, GRAVEL-SAND-CLAY MIXTURE
	SAND (MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN No. 4 SIEVE SIZE)	CLEAN SAND WITH LESS THAN 5% FINES	SW	WELL GRADED SAND, GRAVELLY SAND
			SP	POORLY GRADED SAND, GRAVELLY SAND
		SAND WITH OVER 12% FINES	SM	SILTY SAND, GRAVEL-SAND-SILT MIXTURE
			SC	CLAYEY SAND, GRAVEL-SAND-CLAY MIXTURE
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN No. 200 SIEVE)	SILT AND CLAY (LIQUID LIMIT LESS THAN 50)		ML	INORGANIC SILT, ROCK FLOUR, SANDY OR CLAYEY SILT WITH LOW PLASTICITY
			CL	INORGANIC CLAY OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAY (LEAN)
			OL	ORGANIC CLAY AND ORGANIC SILTY CLAY OF LOW PLASTICITY
	SILT AND CLAY (LIQUID LIMIT GREATER THAN 50)		MH	INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOIL, ELASTIC SILT
			CH	INORGANIC CLAY OF HIGH PLASTICITY, GRAVELLY, SANDY OR SILTY CLAY (FAT)
			OH	ORGANIC CLAY OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILT
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

KEY TO TEST DATA

							Shear Strength, psf	Confining Pressure, psf
EI	–	Expansion Index	TxUU	–	Unconsolidated Undrained Triaxial		320	(2600)
Consol	–	Consolidation	TxCU	–	Consolidated Undrained Triaxial		320	(2600)
LL	–	Liquid Limit (in %)	DSCD	–	Consolidated Drained Direct Shear		2750	(2000)
PL	–	Plastic Limit (in %)	FVS	–	Field Vane Shear		470	
PI	–	Plasticity Index	LVS	–	Laboratory Vane Shear		700	
SA	–	Sieve Analysis	UC	–	Unconfined Compression		2000	*
G_S	–	Specific Gravity	UC(P)	–	Laboratory Penetrometer		700	*
■		"Undisturbed" Sample						
□		Bulk Sample						

Notes: (1) All strength tests on 2.8" or 2.4" diameter samples unless otherwise indicated. * Compressive Strength

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

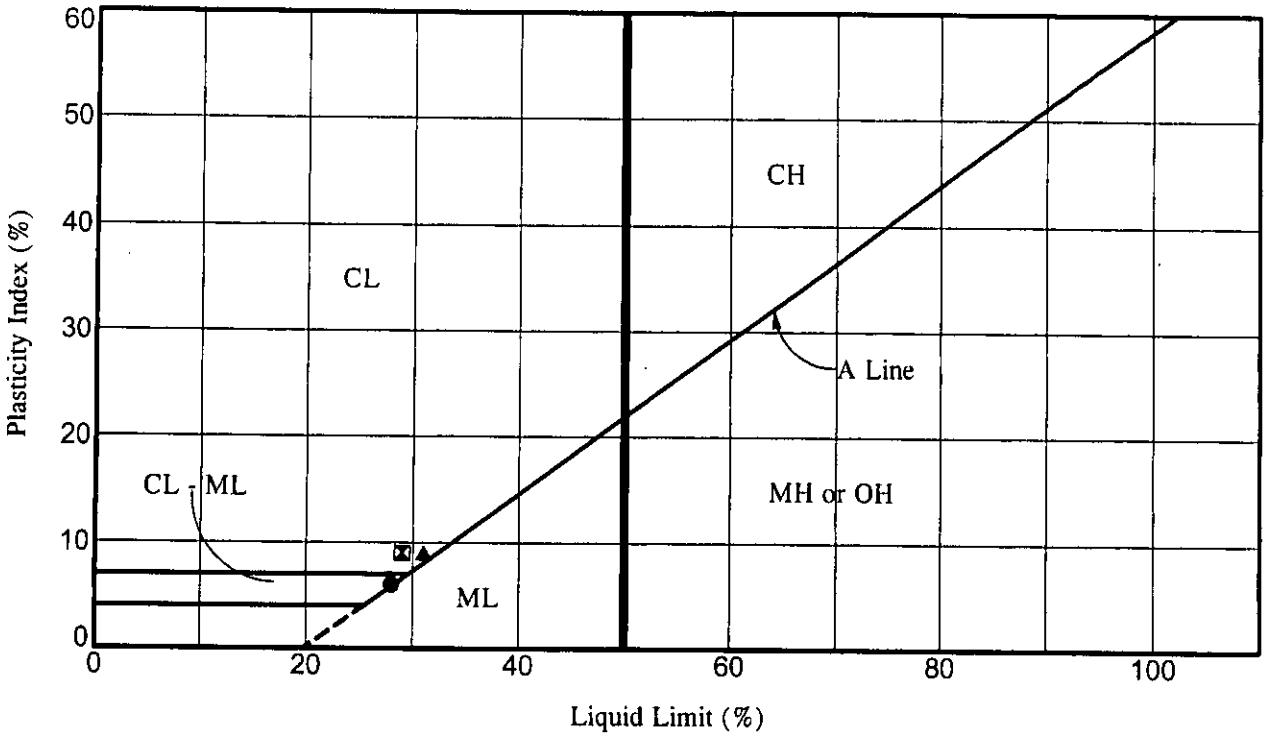
Job No: 1098.22.1

Date: 10-28-08

Appr: LC

SOIL CLASSIFICATION CHART AND KEY TO TEST DATA
WATSON SCHOOL RESTORATION
SONOMA COUNTY, CALIFORNIA

PLATE 5



ASTM D 4318-98

Symbol	Classification and Source	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Free Swell (%)
●	**DARK BROWN SANDY SILTY CLAY (CL-ML)** **Test Boring 1 at 0.7 feet**	28	22	6	30
⊠	**DARK ORANGE-BROWN CLAYEY SAND (SC)** **Test Boring 1 at 5.3 feet**	29	20	9	--
▲	**DARK BROWN CLAY (CL)** **Test Boring 2 at 1.8 feet**	31	22	9	30

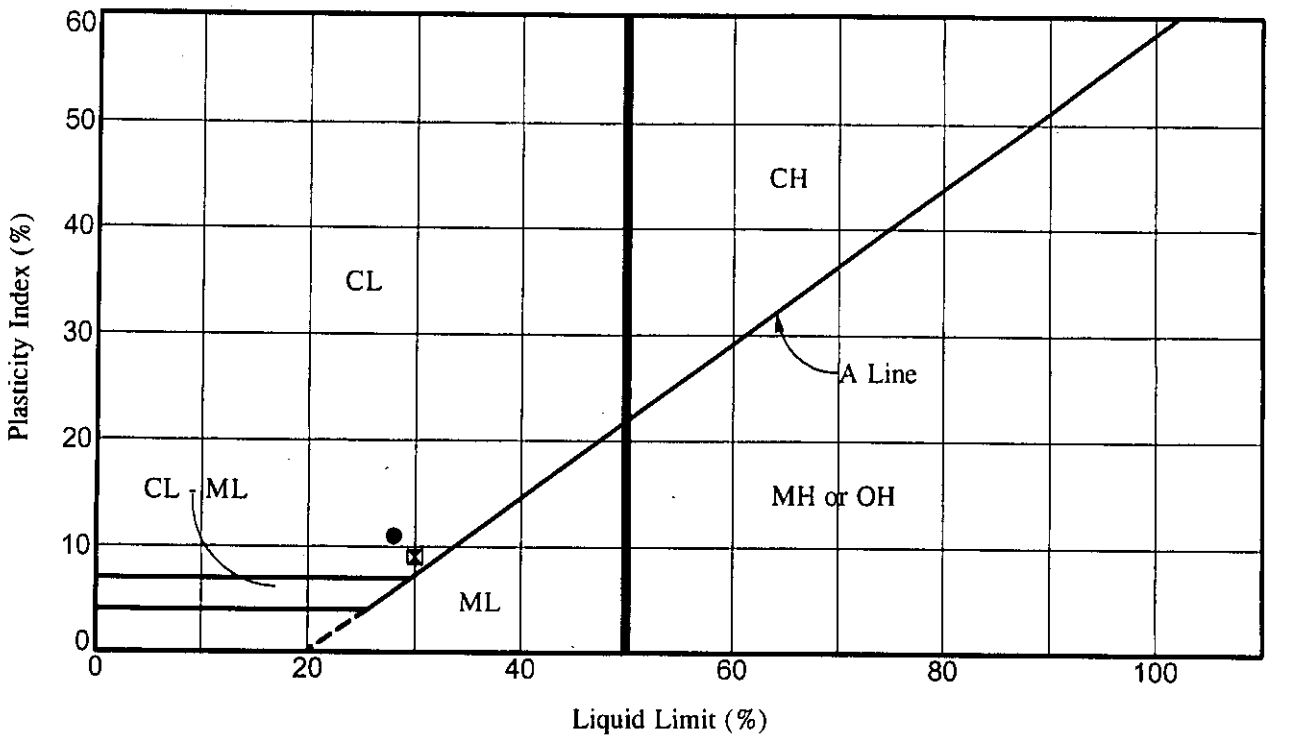
GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1098.22.1
Date: 10-28-08
Appr: LC

ATTERBERG LIMITS TEST RESULTS

WATSON SCHOOL RESTORATION
SONOMA COUNTY, CALIFORNIA

PLATE
6



ASTM D 4318-98

Symbol	Classification and Source	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Free Swell (%)
●	**DARK ORANGE-BROWN CLAY (CL)** **Test Boring 2 at 8.4 feet**	**28**	**17**	**11**	**40**
⊠	**ORANGE-BROWN CLAY (CL)** **Test Boring 3 at 9.4 feet**	**30**	**21**	**9**	**--**

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1098.22.1

Date: 10-28-08

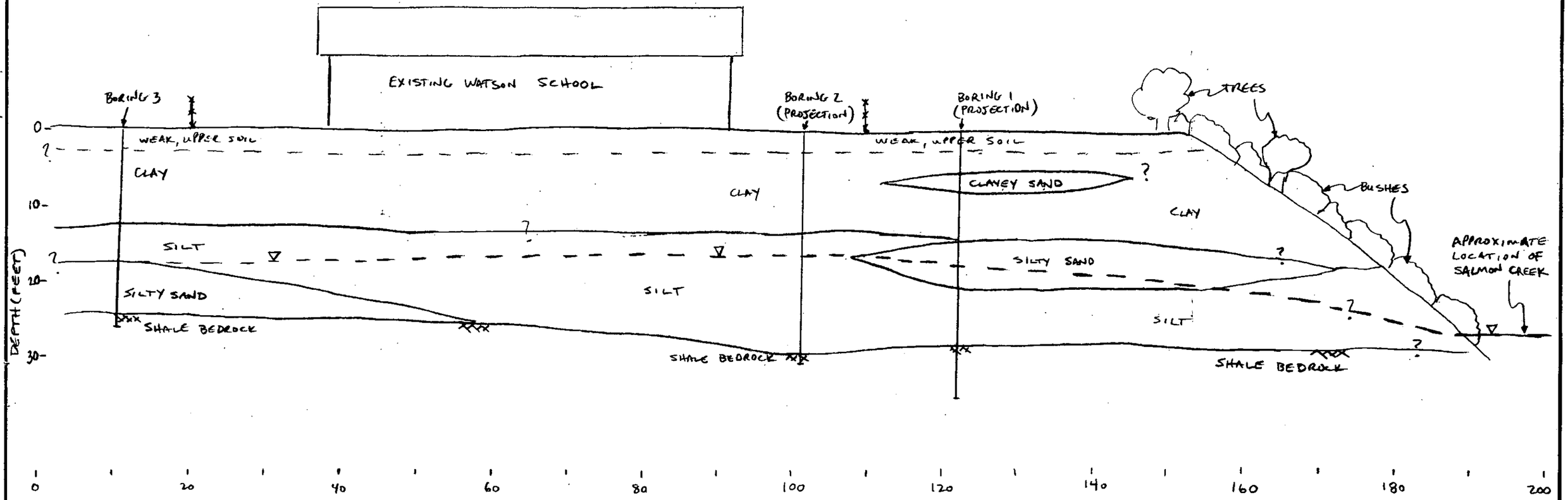
Appr:

ATTERBERG LIMITS TEST RESULTS

WATSON SCHOOL RESTORATION
SONOMA COUNTY, CALIFORNIA

PLATE **7**

INTERPRETIVE CROSS-SECTION A-A'
LOOKING EAST



▽ APPROXIMATE GROUNDWATER ELEVATION

GIBLIN ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1098.22.1
Date: 10-28-08
Appr: LC

INTERPRETIAVE CROSS-SECTION
A-A'

WATSON SCHOOL RENOVATION
SONOMA COUNTY, CALIFORNIA

PLATE
8

REESE CONSULTING GEOTECHNICAL & ASSOCIATES ENGINEERS

134 LYSTRA COURT
TELEPHONE (707) 528-3078

SANTA ROSA, CA 95401
FACSIMILE (707) 528-0887

THESE ATTACHMENTS ARE PART OF THE APPROVED PLANS.
* DO NOT REMOVE THEM *

NOV 04 2011

PERMIT AND RESOURCE MANAGEMENT DEPARTMENT
BUILDING PLAN CHECK
PERMIT #_____

January 21, 2010

Job No. 163.2.13

Sonoma County Regional Parks
2300 County Center Drive
Santa Rosa, CA 95403
Attention: Mark Cleveland

Report
Soil Engineering Consultation
and Review of Foundation Plans
Watson School House
Sonoma County, California

This report presents the results of our soil engineering consultation and review of plans for the new foundation improvements to be provided for the Watson School House located at 15000 Bodega Highway in Sonoma County, California. The building was constructed in 1856 and is currently supported on a post and pier type foundation system with diagonal cross-bracing. Giblin Associates performed a soil investigation for the project, and the results were presented in their report dated November 6, 2008. Our principal engineer served as project manager during the investigation and co-authored that report. In general, their recommendations for foundation support included criteria for a well reinforced and well tied together spread footing foundation system bottomed on firm underlying natural soil.

Foundation plans and details reviewed were prepared by Coastland Civil Engineering and are dated December 2009. Plans indicate that new foundation support for the structure will consist of a well reinforced and well tied together spread footing foundation system. Foundation detail notes indicate continuous perimeter and interior footings (and tie-beams) planned to be a minimum of 24 inches deep. Based on our knowledge of the subsurface conditions, we believe that the foundation system as planned would be suitable for the proposed construction. As recommended in the soil investigation report, footings should be deepened as needed to bottom onto firm natural soil. We anticipate that footing depths will vary, but will average about 2 to 2½ feet below the adjacent ground surface.

A foundation subdrain is indicated adjacent to the perimeter foundation. We recommend that the indicated subdrain pipe be installed in the trench on a bed of drainrock (perforations down). The drainrock should conform to the quality requirements for Class 2 Permeable Materials in accordance with the latest edition of the Caltrans Standard Specifications. As an alternative, any clean drainrock could be used if the rock is covered and separated from the soil bank by a nonwoven, geotextile fabric (Mirafi 140N or equivalent) weighing at least 4 ounces per square yard. The upper 6 inches should consist of compacted, excavated soil to inhibit surface water infiltration.

Notes on foundation details indicate that roof gutter downspouts be connected to the foundation subdrain and the drain system daylighted. We recommend that roof gutter downspouts and surface drains be maintained entirely separate from foundation subdrains. Downspouts should be connected to rigid-plastic nonperforated outlet pipes with water-tight joints that discharge into planned or existing drainage systems.

Ponding water will soften site soils and would be detrimental to foundations. It is important that the ground surface be sloped to drain away from foundations. Good, positive surface drainage away from the building consisting of at least 1/4-inch per foot extending at least 4 feet out should be provided.

Based on our plan review and previous work at the site, we believe that, provided the recommendations contained herein are implemented, the materials and methods indicated on the plans are in general conformance with the recommendations outlined in the soil investigation report. Site grading operations, if any, should be observed and tested by the soil engineer to verify that the recommended moisture content and degree of compaction are being attained. The soil engineer should observe spread footing excavations to verify that the actual conditions encountered are as anticipated and to modify the recommendations in the soil investigation report, if warranted.

We trust this provides the information needed at this time. If you have questions or wish to discuss this in more detail, please do not hesitate to contact us.

Yours very truly,

REESE & ASSOCIATES

Dan J. Figoni
Project Manager

Jeffrey K. Reese
Civil Engineer No. 47753

DF/JKR:nay/ra/df/Job No. 163.2.13
Copies Submitted: 3

cc: Coastland Civil Engineering
1400 Neotomas Avenue
Santa Rosa, CA 95405
Attention: Michael S. Unsworth, P.E.

THESE ATTACHMENTS ARE PART OF THE APPROVED PLANS.
*** DO NOT REMOVE THEM ***

NOV 04 2011

PERMIT AND RESOURCE MANAGEMENT DEPARTMENT BUILDING PLAN CHECK

PERMIT #_____

Coastland
Civil Engineering - Construction Management - Building Dept. Services

STRUCTURAL DESIGN CALCULATIONS

for the

THE WATSON SCHOOL HOUSE
REHABILITATION
OF LATERAL FORCE RESISTING SYSTEM
INCLUDING ENTRY DECK AND RAMP

located at

15000 BODEGA HIGHWAY
BODEGA, CALIFORNIA

Coastland Civil Engineering, Inc.
(CCE Job # 10-2457)
August 2011

Calculation Sheets 1- 17

1400 Neotomas Avenue Santa Rosa, CA 95405 707.571.8005 707.571.8037 Fax

Statement of Special Inspections

CNI-033

SONOMA COUNTY (REGIONAL PARKS)
Name of Owner

15000 BODEGA HIGHWAY
Address

BLD11-3453
Permit Number

HISTORIC SCHOOL REHABILITATION
Job Description

This Statement of and Schedule of Special Inspections is submitted to outline the requirements of CBC Chapter 17.

Included are:

- Schedule of Special Inspections and tests applicable to this project:
  - ☐ Special Inspections per Sections 1704 and 1705
  - ☐ Special Inspections for Seismic Resistance
  - ☐ Structural Observations per Section 1709
- List of the Testing Agencies and other special inspectors that will be retained to conduct the tests and inspections.
- Contractor's Statement of Responsibility, per CBC Section 1706.

Special Inspections and Testing will be performed in accordance with the approved plans and specifications, this statement, and CBC sections 1704, 1705, 1707, and 1708.

The Schedule of Special Inspections summarizes the Special Inspections and tests required. Special Inspectors will refer to the approved plans and specifications for detailed special inspection requirements. Any additional tests and inspections required by the approved plans and specifications will also be performed.

Interim reports will be submitted to the Building Official and the Registered Design Professional in Responsible Charge in accordance with CBC Section 1704.1.2

A Final Report of Special Inspections documenting required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy (Section 1704.1.2). The Final Report will document:

- Required special inspections.
- Final results of required structural testing.
- Correction of discrepancies noted in inspections.

The Owner recognizes his or her obligation to ensure that the construction complies with the approved permit documents and to implement this program of special inspections. In partial fulfillment of these obligations, the Owner will retain and directly pay for the Special Inspections as required in CBC Section 1704.1.

This plan has been developed with the understanding that the Building Official will:

- Review and approve the qualifications of the Special Inspectors who will perform the inspections.
- Review submitted inspection reports.
- Perform inspections as required by the local building code.

Prepared by:

MICHAEL S. UNSWORTH — C04095
Registered Design Professional in Responsible Charge — License Number

Michael S. Unsworth — 10/25/11
Signature — Date

Owner's Authorization:

SONOMA COUNTY (REGIONAL PARKS)
Owner

Mark Cleveland — 9/23/11
Signature MARK CLEVELAND — Date

Building Official's Acceptance:

Building Official

Signature — Date

Sonoma County Permit and Resource Management Department
2550 Ventura Avenue ◆ Santa Rosa, CA ◆ 95403-2829 ◆ (707) 565-1900 ◆ Fax (707) 565-1103

Schedule of Inspection, Testing Agencies, and Inspectors

The following are the testing agencies and special inspectors that will be retained to conduct tests and inspection on this project.

Responsibility	Firm	Address, Telephone, e-mail
1. Special Inspection (except for geotechnical)		
2. Material Testing	~~KLEINFELDER, INC.~~	~~2240 NORTHPOINT PKWY SANTA ROSA, CA 95407 (707) 571-1892~~
3. Geotechnical Inspections	REESE (GIBUILT) ASSOC.	134 LYSTRA CT, SUITE C SANTA ROSA, CA 95403 (707) 528-3078
4. SEISMIC FORCE-RESISTING SYSTEM	COASTLAND	1400 NEOTOMAS AVE SANTA ROSA, CA 95405 (707) 571-8005

Seismic Requirements (Section 1705.3.1)

Description of seismic-force-resisting system and designated seismic systems subject to special inspections as per Section 1705.3:

SEISMIC FORCE RESISTING SYSTEM:

1. SHEAR WALLS
2. WOOD DIAPHRAGMS
3. HOLD-DOWNS

The extent of the seismic-force-resisting system is defined in more detail in the construction documents.

Summary of Required Special Inspections, Structural Testing, Structural Observations:

Brief description of required ~~special inspections~~ and structural observations for this project. Full schedule of requirements are those that are √'d on the following pages:

1. PRIOR TO CONCRETE PLACEMENT
2. EXPOSED EXISTING WALL FRAMING
3. NAILING OF ALL STRUCTURAL SHEATHING

Schedule of Special Inspection

Notations used in this Table:

Column headers:

- C Indicates continuous inspection is required.
- P Indicates periodic inspections are required. The notes and/or contract documents should clarify.

Box entries:

- X Is placed in the appropriate column to denote either "C" continuous or "P" periodic inspections.
- - Denotes an activity that is either a one-time activity or one whose frequency is defined in some other manner.

Additional detail regarding inspections and tests are provided in the project specifications or notes on the drawings.

Verification and Inspection	C	P	✓ if Req.	Notes
1704.2.1 - Inspect fabricator's fabrication and quality control procedures.	-	-		
Table 1704.3 - Steel				
1. Material verification of high-strength bolts, nuts and washers.				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.		X		
b. Manufacturer's certificate of compliance required.		X		
2. Inspection of high-strength bolting:		X		
a. Bearing-type connections.		X		
b. Slip-critical connections	X	X		
3. Material verification of structural steel:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.	-	-		
b. Manufacturer's mill test reports	-	-		
4. Material verification of weld filler materials:				
a. Identification markings to conform to AWS designation listed in the WPS.	-	-		
b. Manufacturer's certificate of compliance required.	-	-		
5. Inspection of welding:				
a. Structural steel				
1) Complete and partial penetration groove welds.	X			
2) Multipass fillet welds.	X			
3) Single-pass fillet welds > 5/16"	X			

4) Single-pass fillet welds ≤ 5/16"		X		
5) Floor and roof deck welds.		X		
b. Reinforcing steel				
1) Verification of weldability of reinforcing steel other than ASTM A 706		X		
2) Reinforcing steel-resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls, and shear reinforcement.	X			
3) Shear reinforcement.	X			
4) Other reinforcing steel		X		
6. Inspection of steel frame joint details for compliance with approved construction documents: a. Details such as bracing and stiffening. b. Member locations. c. Applications of joint details at each connection.		X		
1704.3 - Welded studs when used for structural diaphragms.		X		
1704.3 - Welding of cold-formed sheet steel framing members.		X		
1704.3 - Welding of stairs and railing systems.		X		
Table 1704.4 - Concrete				
1. Inspection of reinforcing steel, including prestressing tendons and placement.		X		
2. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased.	X			
3. Verifying use of required design mix.		X		
4. At time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests and determine the temperature of the concrete.	X			
5. Inspection of concrete and shotcrete placement for proper application techniques.	X			
6. Inspection for maintenance of specified curing temperature and techniques.		X		
7. Inspection of prestressed concrete.				
a. Application of prestressing forces.	X			
b. Grouting of bonded prestressing tendons	X			
8. Erection of precast concrete members.		X		

9. Verification of in-situ concrete strength, prior to stressing of tendons in postensioned concrete and prior to removal of shores and forms from beams and structural slabs.		X		
10. Inspect formwork for shape, location, and dimensions of the concrete member being formed.		X		
Table 1704.5.1 - Level 1 Masonry Inspections.				
1. At the start of masonry construction verify the following to ensure compliance:				
a. Proportions of site-prepared mortar.		X		
b. Construction of mortar joints.		X		
c. Location of reinforcement, connectors, prestressing tendons, and anchorages.		X		
d. Prestressing technique.		X		
e. Grade and size of prestressing tendons and anchorages.		X		
2. Verify:				
a. Size and location of structural elements.		X		
b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.		X		
c. Specified size, grade, and type of reinforcement.		X		
d. Welding of reinforcing bars.	X			
e. Protection of masonry during cold weather (temperature below 40° F) or hot weather (temperature above 90° F)		X		
f. Application and measurement of prestressing force.		X		
3. Prior to grouting verify the following to verify compliance.				
a. Grout space is clean.		X		
b. Placement of reinforcement and connectors and prestressing tendons and anchorages.		X		
c. Proportions of site-prepared grout and prestressing grout for bonded tendons.		X		
d. Construction of mortar joints.		X		
4. Verify grout placement to ensure compliance with code and construction document provisions.				
a. Observe grouting of prestressing bonded tendons.	X			
5. Observe preparation of required grout specimens, mortar specimens, and/or prisms.	X			

6. Verify compliance with required inspection provisions of the construction documents and the approved submittals.		X		
Table 1704.5.3 - Level 2 Masonry Inspections				
1. From the beginning of masonry construction the following shall be verified to ensure compliance:				
a. Proportions of the site-prepared mortar, grout, and prestressing grout for bonded tendons.		X		
b. Placement of masonry units and construction of mortar joints.		X		
c. Placement of reinforcement, connectors and prestressing tendons and anchorages.		X		
d. Grout space prior to grouting.	X			
e. Placement of grout.	X			
f. Placement of prestressing grout.	X			
2. Verify:				
a. Size and location of structural elements.		X		
b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames and other construction.	X			
c. Specified size, grade, and type of reinforcement.		X		
d. Welding of reinforcing bars.	X			
e. Protection of masonry during cold weather (temperature below 40° F) or hot weather (temperature above 90° F)		X		
f. Application and measurement of prestressing force.	X			
3. Preparation of any required grout specimens, mortar specimens, and/or prisms shall be observed.	X			
4. Compliance with required provisions of construction documents and the approved submittals shall be verified.		X		
1704.6 - Inspect prefabricated wood structural elements and assemblies in accordance with Section 1704.2.	-	-		
1704.6 - Inspect site built assemblies.	-	-		
1704.6.1 - Inspect high-load diaphragms:	-	-		
1. Verify grade and thickness of sheathing.	-	-		
2. Verify nominal size of framing members at adjoining panel edges.	-	-		

4. Verify: • Nail or staple diameter and length, • Number of fastener lines, • Spacing between fasteners in each line and at edge margins.	-	-		
Table 1704.7 - Inspection of Soils				
1. Verify materials below footings are adequate to achieve the desired bearing capacity.		X	✓	
2. Verify excavations are extended to proper depth and have reached proper material.		X	✓	
3. Perform classification and testing of controlled fill materials.		X		
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of controlled fill.	X			
5. Prior to placement of controlled fill, observe subgrade and verify that site has been prepared properly.		X		
Table 1704.8 - Pile Foundations				
1. Verify pile materials, sizes and lengths comply with the requirements.	X			
2. Determine capacities of test piles and conduct additional load tests, as required.	X			
3. Observe driving operations and maintain completer and accurate records for each pile.	X			
4. Verify locations of piles and their plumbness. • Confirm type and size of hammer. • Record number of blows per foot of penetration. • Determine required penetrations to achieve design capacity. • Record tip and butt elevations and record any pile damage.	X			
5. For steel piles, perform additional inspections in accordance with Section 1704.3	-	-		
6. For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.	-	-		
7. For augered uncased piles and caisson piles, perform inspections in accordance with Section 1704.9.	-	-		
Table 1704.9 - Pier Foundations				
1. Observe drilling operations and maintain complete and accurate records for each pier.	X			

2. Verify locations of piers and their plumbness. Confirm: • Pier diameters, • Bell diameters (if applicable), • Lengths, embedment into bedrock (If applicable), • Adequate end strata bearing capacity.	X			
Table 1704.10 - Sprayed Fire-Resistant Materials				
1. Inspect surface for accordance with the approved fire-resistance design and the approved manufacturer's written instructions	-	-		
2. Verify minimum ambient temperature before and after application.	-	-		
3. Verify ventilation of area during and after application.		X		
4. Measure average thickness per ASTM E605 and section 1704.10.3	-	-		
5. Verify density of material for conformance with the approved fire-resistant design and ASTM E605.	-	-		
6. Test cohesive/adhesive bond strength per Section 1704.10.5.	-	-		
1704.11 - Mastic and Intumescent Fire-Resistant Coating	-	-		
1704.12 - Exterior Insulation and Finish Systems (EIFS)	-	-		
1704.13 - Alternate Materials and Systems	-	-		
1704.14 - Smoke Control System	-	-		
1705.3.1 - Seismic-force-resisting System			✓	
1705.3.2 - Designated Seismic Systems				
1705.3.3.1 - HVAC ductwork containing hazardous materials and anchorage of such ductwork				
1705.3.3.2 - Piping systems and mechanical units containing flammable, combustible or highly toxic materials				
1705.3.3.3 - Anchorage of electrical equipment used for emergency or standby power				
1705.3.4.2 - Exterior wall panels and their anchorage				
1705.3.4.3 - Suspended ceiling systems and their anchorage				
1705.3.4.4 - Access floors and their anchorage.				
1705.3.4.5 - Steel storage racks and their anchorage				
1705.3.5.2 - Electrical equipment				

Special Inspections for Seismic Resistance				
1707.2 - Special inspection for welding in accordance with AISC 341.	X			
1707.3 - Structural Wood				
1. Inspect field gluing operations of elements of the seismic-force-resisting system.	X			
2. Inspect nailing, bolting, anchoring, and other fastening of components within the seismic-force-resisting system, including: • Wood shear walls, • Wood diaphragms, • Drag struts, braces, • Shear panels, • Hold-downs		X		
1707.4 - Cold-Formed Steel Framing				
1. Welding of elements of the seismic-force-resisting system.		X		
2. Inspection of screw attachments, bolting, anchoring, and other fastening of components within the seismic-force-resisting system including struts, braces, and hold-downs.		X		
1707.5 - Pier Foundations				
1. Placement of reinforcing		X		
2. Placement of concrete	X			
1707.6 - Anchorage of storage racks and access floors 8 feet or greater in height.		X		
1707.7 - Architectural Components				
1. Inspect erection and fastening of exterior cladding weighing more than 5 psf.		X		
2. Inspect erection and fastening of interior and exterior non-bearing walls weighing more than 15 psf.		X		
3. Inspect erection and fastening of interior and exterior veneer weighing more than 5 psf.		X		
1707.8 - Mechanical and Electrical components				
1. Inspect anchorage of electrical equipment for emergency or stand-by power systems.		X		
2. Inspect anchorage of non-emergency electrical equipment.		X		
3. Inspect installation of piping systems and associated mechanical units carrying flammable, combustible, or highly toxic contents.		X		
4. Inspect installation of HVAC ductwork that contains hazardous materials.		X		
5. Inspect installation of vibration isolation systems where required by Section 1707.8		X		

1707.9 - Verify that the equipment label and anchorage or mounting conforms to the certificate of compliance when mechanical and electrical equipment must be seismically qualified.	-	-		
1707.10 - Seismic isolation system: Inspection of isolation system per ASCE 7 - Section 17.2.4.8		X		
1708.1 - Masonry Testing for Seismic Resistance				
1708.1.1 - Verify certificates of compliance prior to construction.	-	-		
1708.1.2 - Verification of f'_m and f'_{AAC} prior to construction.	-	-		
1708.1.4 - Verification of f'_m and f'_{AAC} every 5000 square feet during construction.	-	-		
1708.1.4 - Verification of proportions of materials in mortar and grout as delivered to the site.	-	-		
1708.3 - Obtain mill certificates for reinforcing steel, verify compliance with approved construction documents, and verify steel supplied corresponds to certificate.	-	-		
1708.4 - Structural Steel: Invoke the QAP Quality Assurance requirements in AISC 341.	-	-		
1708.5 - Obtain certificate that equipment has been tested per Section 1708.5.	-	-		
1708.6 - Obtain system tests as required by ASCE 7 Section 17.8.	-	-		

Contractor's Statement of Responsibility

Per Section 1706, each contractor responsible for the construction of a main wind- or seismic-force-resisting system, designated seismic system or a wind- or seismic-resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the building official and the owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall include the following (attach additional sheets if necessary):

1. Acknowledgment of awareness of the special requirements contained in the statement of special inspections;

2. Acknowledgment that control will be exercised to obtain conformance with the construction documents approved by the building official;

3. Procedures for exercising control within the contractor's organization,

the method and frequency of reporting and the distribution of the reports;

4. Identification and qualifications of the person(s) exercising such control and their position(s) in the organization. (Complete this page for each person exercising such control.)

Date:	Permit Number:
Contractor Name, License Number and Contact Information:	
Name of Designated Quality Controller:	
Contact Information:	
Qualifications:	
Specific Tests/Inspections Individual is Responsible for Coordinating & Distributing Reports:	
Additional Notes:	
Signature:	