

ATTACHMENTS

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Preliminary Recommendations

Site Preparation and Grading

1. The ground surface should be prepared for grading by removing existing vegetation, large roots, debris, and other potentially deleterious materials from areas to receive improvements. Any buried subsurface objects encountered, or voids created during site preparation should be called to the attention of the geotechnical engineer.
2. Existing utility lines that will not remain in service should be removed or relocated. The appropriate method of utility abandonment will depend upon the type, depth, and location of the utility. Recommendations for abandonment can be made as necessary.
3. The existing fill in areas to receive improvements should be removed (overexcavated) to expose firm native soil. The estimated depth of fill that was placed on the northwestern section of the site was on the order of 1-½ foot. However, the actual fill depth may be greater, and other undocumented fill may be present at the site. The actual depth and lateral extent of fill removal should be as recommended by the geotechnical engineer based on the conditions observed at the time of grading.
4. Surfaces to receive fill, slabs-on-grade, exterior flatwork, and other improvements should be cross-scarified to an approximate depth of 8 inches, moisture conditioned to a level above optimum, and recompacted to a minimum of 90 percent of maximum dry density.
5. Fill should be placed in lifts not exceeding 8 inches in loose thickness, moisture conditioned to a level above optimum moisture content, and compacted to a minimum of 90 percent of maximum dry density. The previously overexcavated material can be utilized as fill provided that it is cleared of potentially deleterious materials.
6. In areas to receive asphalt concrete pavement, the upper 8 inches of subgrade soil should be compacted to a minimum 92 percent of maximum dry density. The aggregate base course should be compacted to a minimum 95 percent of maximum dry density. The subgrade and base should be firm and unyielding when proofrolled with heavy, rubber-tired equipment prior to paving. The pavement subgrade soils should be periodically moistened as necessary prior to placement of the aggregate base to maintain the soil moisture content near optimum.



7. If fill is to be imported to the site, the fill should be coarse grained (ASTM D 2487-11) with a plasticity index (ASTM D 4318-10) of 12 or less. Proposed imported soils should be evaluated by a representative of this firm before being transported to the site, and on an intermittent basis during placement on the site.
8. Cut and fill slopes should not be steeper than 2:1, measured horizontally to vertically.

Foundations

1. If the restroom is to be supported by conventional spread footings, the footings should have minimum depths of 12 inches below lowest adjacent grade. Minimum widths of continuous footings should be 12 inches. All footings should be reinforced as directed by the architect/engineer.
2. Footings should be designed using a maximum allowable bearing capacity of 1,500 psf dead plus live load. This value may be increased by one-third when transient loads such as wind or seismicity are included. Using these criteria, long term total and differential foundation settlements are expected to be less than 1 inch and ½ inch, respectively.
3. The seismic design parameters for the site per Chapter 16 of the California Building Code (2007 Edition) are as follows. The values were determined utilizing the USGS Earthquake Hazards Program Earthquake Ground Motion Parameter Java Application and the 2009 International Building Code provisions.

Site Class = D

Short Term Spectral Response Parameter, $S_s = 1.50$ g

1 Second Spectral Response Parameter, $S_1 = 0.64$ g

Site Coefficient, $F_a = 1.0$

Site Coefficient, $F_v = 1.5$

4. Resistance to lateral loads should be calculated based on a passive equivalent fluid pressure of 350 pcf and a friction factor of 0.35. Passive and frictional resistance can be combined in the calculations without reductions. These values are based on the assumption that backfill adjacent to foundations is compacted.
5. Footing excavations should be observed by a representative of this firm prior to placement of formwork or reinforcement. The footing excavations should be moistened to close any desiccation cracks prior to placement of concrete.



Slabs-On-Grade and Exterior Flatwork

1. Interior slabs-on-grade and exterior flatwork should have minimum thicknesses of 4 full inches and should be reinforced as directed by the architect/engineer. Interior slabs and footings should be doweled together as required by the architect/engineer.
2. In areas where moisture transmitted from the subgrade would be undesirable, a vapor retarder should be utilized beneath the floor slab. The vapor retarder should comply with ASTM Standard Specification E 1745-11 and the latest recommendations of ACI Committee 302. The vapor retarder should be installed in accordance with ASTM Standard Practice E 1643-11. Care should be taken to properly lap and seal the vapor retarder, particularly around utilities, and to protect it from damage during construction.
3. If sand, gravel or other permeable material is to be placed over the vapor retarder, the material over the vapor retarder should be only lightly moistened and not saturated prior to casting the slab concrete. Excess water above the vapor retarder would increase the potential for moisture damage to floor coverings and could increase the potential for mold growth or other microbial contamination.
4. Due to the low expansion potential of the soil, exterior concrete flatwork could be cast directly on the properly compacted soil. Prior to placement of the concrete, the soil surface should be at or above optimum moisture content, and no desiccation cracks should be present. Assuming that movement (i.e., ¼-inch or more) of exterior flatwork beyond the structure is acceptable, the flatwork should be designed to be independent of the building foundations. The flatwork should not be doweled to foundations, and a separator should be placed between the two.
5. If differential movement of flatwork is considered undesirable, the flatwork should be designed and constructed in roughly the same manner as the structure slabs, and reinforced footings should be provided around the perimeter of the flatwork.
6. To reduce shrinkage cracks in concrete, the concrete aggregates should be of appropriate size and proportion, the water/cement ratio should be low, the concrete should be properly placed and finished, contraction joints should be installed, and the concrete should be properly cured. This is particularly applicable to slabs that will be cast directly upon a vapor retarder and those that will be protected from transmission of vapor by use of admixtures or surface sealers. Concrete materials, placement and



curing specifications should be at the direction of the architect/engineer; ACI 302.1R-04 and ACI 302.2R-04 are suggested as resources for the architect/engineer in preparing such specifications.

Utility Trenches

1. A select, noncorrosive, granular, easily compacted material should be used as bedding and shading immediately around utility pipes. The site soils may be used for trench backfill above the select material. If obtaining compaction is difficult with the site soils, use of a more easily compacted sand may be desirable. The upper foot of backfill in unimproved areas should consist of native material to reduce the potential for seepage of water into the backfill.
2. Trench backfill in the upper 8 inches of subgrade beneath asphalt concrete pavement areas should be compacted to a minimum of 92 percent of maximum dry density. Trench backfill in other areas should be compacted to a minimum of 90 percent of maximum dry density. Jetting of utility trench backfill should not be allowed.
3. Where utility trenches extend under perimeter foundations, the trenches should be backfilled entirely with native soil compacted to a minimum of 90 percent of maximum dry density. The zone of native soil should extend to a minimum distance of 2 feet on both sides of the foundation. If utility pipes pass through sleeves cast into the perimeter foundations, the annulus between the pipes and sleeves should be completely sealed.

Site Drainage and Finish Improvements

1. Unpaved ground surfaces should be finish graded to direct surface runoff away from site improvements at a minimum 5 percent grade for a minimum distance of 10 feet. The site should be similarly sloped to drain away from improvements during construction. If this is not feasible due to the terrain, property lines, or other factors, swales with improved surfaces, area drains, or other drainage facilities should be provided to divert drainage away from improvements. The landscaping should be planned and installed to maintain proper surface drainage conditions.
2. Raised planter beds adjacent to foundations should be provided with sealed sides and bottoms so that irrigation water is not allowed to penetrate the subsurface beneath



foundations. Outlets should be provided in the planters to direct accumulated irrigation water away from foundations.

3. Runoff from driveways, roof gutters, downspouts, planter drains, and other improvements should discharge in a nonerosive manner away from foundations and other improvements, in accordance with the requirements of the governing agencies.
4. Stabilization of surface soils by vegetation or other means during and following construction is essential to protect the site from erosion damage. Care should be taken to establish and maintain vegetation. Irrigation systems should be controlled to the minimum levels that will sustain the vegetation without saturating the soil.

Geotechnical Observation and Testing

1. It must be recognized that the preliminary recommendations of this report are based on a limited subsurface investigation and rely on the anticipated soil conditions.
2. It is assumed that the geotechnical engineer will be retained to provide consultation during the design phase, to interpret this report during construction, and to provide construction monitoring in the form of testing and observation.
3. Unless otherwise stated, the terms "compacted" and "recompacted" refer to soils placed in level lifts not exceeding 8 inches in loose thickness and compacted to a minimum of 90 percent of maximum dry density. The standard tests used to define maximum dry density and field density should be ASTM D 1557-12 and ASTM D 6938-10, respectively, or other methods acceptable to the geotechnical engineer and jurisdiction.
4. Unless otherwise stated, "moisture conditioning" refers to adjusting the soil moisture to at least optimum moisture prior to application of compactive effort.
5. At a minimum, the following should be provided by the geotechnical engineer:
 - Review of grading and foundation plans as they near completion
 - Professional observation during site preparation, grading, and foundation excavation
 - Oversight of soil compaction testing during grading
 - Oversight of soils special inspection during grading



6. Special inspection of grading should be provided as per Section 1704.7 and Table 1704.7 of the CBC; the soils special inspector should be under the direction of the geotechnical engineer. In our opinion, the following operations should be subject to *continuous* soils special inspection:
 - Scarification and recompaction
 - Fill placement and compaction
7. In our opinion, the following operations may be subject to *periodic* soils special inspection; subject to approval by the Building Official:
 - Stripping and clearing of debris, vegetation, roots and deleterious materials
 - Removal of existing fill
 - Proposed imported materials
 - Foundation excavations
 - Utility trench backfill compaction
 - Pavement subgrade and aggregate base compaction
8. It will be necessary to develop a program of quality control prior to beginning grading. It is the responsibility of the owner, contractor, or project manager to determine any additional inspection items required by the architect/engineer or the governing jurisdiction.
9. The locations and frequencies of compaction tests should be as per the recommendations of the geotechnical engineer at the time of construction. The recommended test locations and frequencies may be subject to modification by the geotechnical engineer based upon soil and moisture conditions encountered, the size and type of equipment used by the contractor, the general trend of the compaction test results, and other factors.
10. A preconstruction conference between a representative of the owner, the geotechnical engineer, the soils special inspector, the architect/engineer, and contractors is recommended to discuss planned construction procedures and quality control requirements. This firm should be notified at least 48 hours prior to beginning grading operations.



- 11. If Earth Systems Pacific is not retained to provide construction observation and testing services, it shall not be responsible for the interpretation of the information by others or any consequences arising there from.

Closure

This report is valid for conditions as they exist at this time for the type of development described herein. Our intent was to perform the investigation in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the locality of this project under similar conditions. No representation, warranty, or guarantee is either expressed or implied. This report is intended for the exclusive use by the client for the subject project. Application beyond the stated intent is strictly at the user's risk.

Any items not specifically addressed in this report shall comply with the California Building Code and the requirements of the jurisdiction.

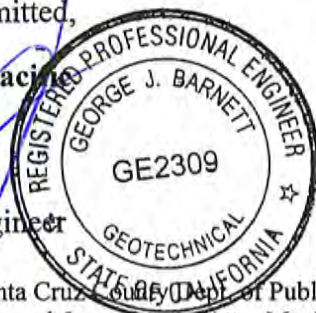
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Thank you for this opportunity to have been of service. Please do not hesitate to contact this office if you have any questions regarding this report.

Respectfully submitted,

Earth Systems Pacific

George J. Barnett
Geotechnical Engineer



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ATTACHMENT 2: SOQUEL CREEK WATER DISTRICT INSURANCE REQUIREMENTS

EXHIBIT C: INDEMNITY; INSURANCE

Indemnification: To the fullest extent permitted by law, Applicant shall indemnify and hold harmless and defend Soquel Creek Water District, its directors, officers, employees, consultants including those that the District is reimbursed by Applicant, or authorized volunteers, and each of them from and against:

- a. Any and all claims, demands, causes of action, damages, costs, expenses, losses or liabilities, in law or in equity, of every kind or nature whatsoever for, but not limited to, injury to or death of any person including Soquel Creek Water District and/or Applicant, or any directors, officers, employees, consultants, or authorized volunteers of Soquel Creek Water District or Applicant, and damages to or destruction of property of any person, including but not limited to, Soquel Creek Water District and/or Applicant or their directors, officers, employees, consultants, or authorized volunteers, arising out of or in any manner directly or indirectly connected with the work to be performed under this agreement, however caused, regardless of any negligence of Soquel Creek Water District or its directors, officers, employees, consultants, or authorized volunteers, except the sole negligence or willful misconduct or active negligence of Soquel Creek Water District or its directors, officers, employees, consultants, or authorized volunteers;
- b. Any and all actions, proceedings, damages, costs, expenses, penalties or liabilities, in law or equity, of every kind or nature whatsoever, arising out of, resulting from, or on account of the violation of any governmental law or regulation, compliance with which is the responsibility of Applicant;
- c. Any and all losses, expenses, damages (including damages to the work itself), attorneys' fees, and other costs, including all costs of defense, which any of them may incur with respect to the failure, neglect, or refusal of Applicant to faithfully perform the work and all of the Applicant's obligations under the agreement. Such costs, expenses, and damages shall include all costs, including attorneys' fees, incurred by the indemnified parties in any lawsuit to which they are a party.

Applicant shall defend, at Applicant's own cost, expense and risk, any and all such aforesaid suits, actions, or other legal proceedings of every kind that may be brought or instituted against Soquel Creek Water District or its directors, officers, employees, consultants, or authorized volunteers.

Applicant shall pay and satisfy any judgment, award or decree that may be rendered against Soquel Creek Water District or its directors, officers, employees, consultants, or authorized volunteers, in any and all such suits, actions, or other legal proceedings.

Applicant shall reimburse Soquel Creek Water District or its directors, officers, employees, consultants, or authorized volunteers, for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided.

Applicant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by the Soquel Creek Water District, or its directors, officers, employees, consultants, or authorized volunteers.

Minimum Scope and Limits of Insurance: Applicant shall procure and maintain for the duration of the contract, and for the 2 year warranty period thereafter, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Applicant, his agents, representatives, employees, or sub-Applicants.

Coverage - Coverage shall be at least as broad as the following:

1. **General Liability** - Commercial General Liability (CGL) - Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 00 01) including products and completed operations, property damage, bodily injury, personal and advertising injury with limit of at least two million dollars (**\$2,000,000**) per occurrence or the full per occurrence limits of the policies available, whichever is greater. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location

(coverage as broad as the ISO CG 25 03, or ISO CG 25 04 endorsement provided to Soquel Creek Water District) or the general aggregate limit shall be twice the required occurrence limit.

2. Automobile Liability - Insurance Services Office (ISO) Business Auto Coverage (Form CA 00 01), covering Symbol 1 (any auto) with limit of one million dollars **(\$1,000,000)** for bodily injury and property damage each accident.

3. Workers' Compensation Insurance - The Applicant shall provide workers' compensation as required by the State of California, with Statutory Limits and Employer's Liability Insurance with limit of no less than **\$1,000,000** per accident for bodily injury or disease. **Waiver of Subrogation (also known as Transfer of Rights of Recovery Against Others to Us):** The insurer(s) named above agree to waive all rights of subrogation against the Soquel Creek Water District, its elected or appointed officers, officials, agents, consultants, volunteers and employees for losses paid under the terms of this coverage which arise from work performed by the Named Insured for the Agency; this provision applies regardless of whether or not the Soquel Creek Water District has received a waiver of subrogation from the insurer."

Other Required Provisions - The general liability policy must contain, or be endorsed to contain, the following provisions:

1. Additional Insured Status: Soquel Creek Water District, its directors, officers, employees, consultants, and authorized volunteers are to be given insured status (at least as broad as ISO Form CG 20 10 11 85 or if not available, through the addition of **both** CG 20 10 10 01 and CG 20 37 10 01), with respect to liability arising out of work or operations performed by or on behalf of the Applicant including materials, parts, or equipment furnished in connection with such work or operations. General liability coverage can be provided in the form of an endorsement to the Applicant's insurance.

2. Primary Coverage: For any claims related to this project, the Applicant's insurance coverage shall be primary insurance coverage at least as broad as ISO CG 20 01 04 13 as respects to the Soquel Creek Water District, its officers, officials, employees, consultants, and volunteers. Any insurance or self-insurance maintained by the Soquel Creek Water District, its officers, officials, employees, consultants, or volunteers shall be excess of the Applicant's insurance and shall not contribute with it.

Notice of Cancellation: Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the Soquel Creek Water District.

Acceptability of Insurers - Insurance is to be placed with insurers having a current A.M. Best rating of no less than A:VII or equivalent, that are qualified to do and currently are doing business in the State of California, or as otherwise approved by Soquel Creek Water District.

The Applicant agrees and he/she will comply with such provisions before commencing work. All of the insurance shall be provided on policy forms and through companies satisfactory to Soquel Creek Water District. The Soquel Creek Water District reserves the right to obtain complete, certified copies of all required insurance policies, at any time, including the policy declarations page with endorsement number. Failure to continually satisfy the Insurance requirements is a material breach of contract.

Deductibles and Self-Insured Retentions - Insurance deductibles or self-insured retentions must be declared by the Applicant, and such deductibles and retentions shall have the prior written consent from Soquel Creek Water District. At the election of Soquel Creek Water District the Applicant shall either 1) reduce or eliminate such deductibles or self-insured retentions, or 2) procure a bond which guarantees payment of losses and related investigations, claims administration, and defense costs and expenses. The policy language shall provide, or be endorsed to provide, that the self-insured retention may be satisfied by either the named insured or the Soquel Creek Water District.

Responsibility for Work - Until the completion and final acceptance by the Soquel Creek Water District of all the work under and implied by this agreement, the work shall be under the Applicant's responsible care and charge. The Applicant shall rebuild, repair, restore and make good all injuries, damages, re-erectments, and repairs occasioned or rendered necessary by causes of any nature whatsoever.

The Applicant shall waive all rights of subrogation against the Soquel Creek Water District, its directors, officers, employees, or authorized volunteers.

Verification of Coverage - Evidences of Insurance Applicant shall furnish the Soquel Creek Water District with original certificates and amendatory endorsements, or copies of the applicable insurance language, effecting coverage required by this contract. All certificates and endorsements are to be received and approved by the Soquel Creek Water District before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Applicant's obligation to provide them. The Soquel Creek Water District reserves the right to require complete, certified copies of all required insurance policies, including policy Declaration pages and Endorsement pages, required by these specifications, at any time. Failure to continually satisfy the Insurance requirements is a material breach of contract.

Sub-Contractors - In the event that the Contractor employs other Contractors (sub-contractors) as part of the work covered by this agreement, it shall be the Contractor's responsibility to require and confirm that each sub-contractor meets the minimum insurance requirements specified above (via as broad as ISO CG 20 38 04 13). The Contractor shall, upon demand of Member Water Agency, deliver to Member Water Agency copies such policy or policies of insurance and the receipts for payment of premiums thereon.