

# Mitigation Monitoring and Reporting Program

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The Initial-Study Mitigated Negative Declaration for the 3516 San Pablo Dam Road Self Storage Project (project) identifies the mitigation measures that will be implemented to reduce the impacts associated with the project. The California Environmental Quality Act (CEQA) requires that a reporting or monitoring program be adopted for the conditions of project approval that are necessary to mitigate or avoid significant effects on the environment (Public Resources Code 21081.6[a][1]). This mitigation monitoring and reporting program is intended to track and ensure compliance with adopted mitigation measures during the project implementation phase. For each mitigation measure recommended in the Initial Study-Mitigated Negative Declaration specifications are made herein that identify the action required, the monitoring that must occur, and the agency or department responsible for oversight.

The mitigation monitoring table lists those mitigation measures that may be included as conditions of approval for the project. To ensure that the mitigation measures are properly implemented, a monitoring program has been devised which identifies the timing and responsibility for monitoring each measure. The project applicant will have the responsibility for implementing the measures, and the various City of San Pablo departments will have the primary responsibility for monitoring and reporting the implementation of the mitigation measures.

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
<b>Air Quality</b>							
<b>AQ-1 Low-Emitting Construction Equipment</b>							
<p>The contractor shall submit a construction management plan to the City of San Pablo for review and approval prior to issuance of construction permits. The construction management plan shall demonstrate that off-road equipment used on site to construct the project would include the following:</p> <ul style="list-style-type: none"> <li>All off-road diesel construction equipment equal or greater than 50 HP shall be equipped with USEPA rated Tier 3 engines at a minimum. Construction equipment equipped with USEPA Tier 4 (interim or final) rated engines would meet this requirement. If Tier 3 rated engines are not commercially available, the use of alternatively fueled (i.e., non-diesel) equipment may suffice, as long as an overall average fleet reduction of two percent below NO<sub>x</sub> emission levels estimated can be demonstrated for the standard fleet mix in the California Emissions Estimator Model</li> </ul>	<ol style="list-style-type: none"> <li>Submit a construction management plan to the City.</li> <li>Off-road equipment used on site shall include the following: <ul style="list-style-type: none"> <li>Equipment equal or greater than 50 HP shall be equipped with USEPA rated Tier 3 engines</li> <li>If Tier 3 engines are not commercially available, the use of alternatively fueled (non-diesel) equipment may suffice.</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>Prior to issuance of construction permits.</li> </ol>	Prior to construction	City of San Pablo Community Development Department, and On-Site Construction Manager			
<b>Biological Resources</b>							
<b>BIO-1 Nesting Bird Avoidance and Minimization Efforts</b>							
<ul style="list-style-type: none"> <li>Project construction shall be conducted outside of the nesting season to the extent feasible (September 1 to January 31). If vegetation removal or initial ground-disturbing activities are conducted during the nesting season, a qualified biologist shall conduct a pre-construction nesting bird survey no more than 14 days prior to</li> </ul>	<ol style="list-style-type: none"> <li>A qualified biologist shall conduct a pre-construction nesting bird survey no more than 14 days prior to vegetation removal or initial ground disturbance</li> <li>Submit report of preconstruction surveys to the City</li> </ol>	<ol style="list-style-type: none"> <li>14 days prior to construction occurring from September 1 to January 31</li> <li>Within 30 days of report completion</li> </ol>	Prior to construction	City of San Pablo Community Development Department, and On-site Construction Manager			

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<p>vegetation removal or initial ground disturbance. Nesting habitat may include shrubs, trees, snags and open ground. The survey shall include all potential nesting habitat in the site and within 100 feet for passerine species, or 500 feet for raptors of the proposed project grading boundaries to identify the location and status of any nests that could potentially be affected by project activities. The project applicant shall submit a report of the preconstruction nesting bird surveys to the City to document compliance within 30 days of its completion.</p> <ul style="list-style-type: none"> <li>▪ If active nests are found within project impact areas or close enough to these areas to affect breeding success, the biologist shall establish a work exclusion zone around each nest that shall be followed by the contractor. Established exclusion zones shall remain in place until all young in the nest have fledged or the nest otherwise becomes inactive (e.g., due to predation). Appropriate exclusion zone sizes vary dependent upon bird species, nest location, existing visual buffers, ambient sound levels, and other factors; an exclusion zone radius should be no smaller than 50 feet (for common, disturbance-adapted species) or as large as 500 feet or more for raptors. Exclusion zone size may also be reduced from established levels if supported with nest monitoring by a qualified biologist indicating that work activities outside the reduced radius would not adversely impact the nest. The project applicant shall submit a report of any such exclusion zones to the</li> </ul>	<ol style="list-style-type: none"> <li>3. Establish work exclusion zones around active nests</li> <li>4. Submit report of work exclusion zones</li> </ol>	<ol style="list-style-type: none"> <li>4. When active nests are found by a qualified biologist</li> <li>5. Within 30 days of determination by qualified biologist</li> </ol>					

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City within 30 days of their determination by the qualified biologist.							
<b>Cultural Resources and Tribal Cultural Resources</b>							
<b>CUL-1 Unanticipated Discovery of Archaeological Resources</b>							
A Cultural Resources Treatment Plan identifying an archaeologist meeting the Secretary of the Interior’s Professional Qualification Standards for archaeology (National Park Service 1983) who will serve as on-call archaeologist shall be prepared and submitted to the City prior to the issuance of any grading permit. If archaeological resources are encountered during ground-disturbing activities, work within 100 feet of the area shall be halted and the designated archaeologist shall be contacted immediately to evaluate the find. If necessary, the evaluation may require preparation of a detailed treatment plan and archaeological testing for CRHR eligibility. If the discovery proves to be eligible for the CRHR and cannot be avoided by the project, additional work, such as data recovery excavation, may be warranted to mitigate any significant impacts to historical resources. Treatment of the resource(s) shall be determined on a case-by-case basis based on the nature of the find and in consultation between the tribes, qualified archaeologist, and lead agency.	<ol style="list-style-type: none"> <li>1. Prepare and submit a Cultural Resources Treatment Plan identifying a qualified archaeologist to the City</li> <li>2. Halt work within 100 feet of any encountered archaeological resources</li> <li>3. Mitigate any significant impacts to any discovered resources</li> </ol>	<ol style="list-style-type: none"> <li>1. Prior to issuance of any grading permit</li> <li>2. Immediately</li> <li>3. Throughout construction</li> </ol>	Prior to and throughout construction	City of San Pablo Community Development Department, and On-Site Construction Manager			
<b>Geology and Soils</b>							
<b>GEO-1 Floor Slabs</b>							
The upper 18 inches of subgrade below soil supported floor slabs shall consist of Low Volume Change (LVC) structural fill. The LVC	<ol style="list-style-type: none"> <li>1. Utilize LVC structural fill that meets geotechnical report specifications</li> </ol>	<ol style="list-style-type: none"> <li>1. During construction</li> </ol>	Periodically throughout	City of San Pablo Community			

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<p>structural fill shall meet the specifications outlined in the project-specific geotechnical report. Due to the potential for significant moisture fluctuations of subgrade material beneath slabs supported at-grade, the geotechnical engineer shall evaluate the material within 12 inches of the bottom of the LVC fill immediately prior to placement of additional fill or slabs. Soils below the specified water content within this area shall be moisture conditioned or replaced with structural fill as specified in the project-specific geotechnical report. As an alternative, the building shall be supported by a Mat Slab Foundation system underlain by a minimum of 24 inches of LVC material.</p> <p>The use of a vapor retarder shall be considered beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer shall refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder. Saw-cut control joints shall be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks shall be sealed with a waterproof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments. Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab</p>	<ol style="list-style-type: none"> <li>2. Evaluate material within 12 inches of the bottom of the LVC</li> <li>3. Moisture condition or replace soils below the specified water content with structural fill</li> <li>4. Support building with Mat Slab Foundation system (alternative)</li> <li>5. Consider use of a vapor retarder</li> <li>6. Place saw-cut joints in the slab and seal with the specified appropriate compound</li> <li>7. Account for potential differential settlement through use of sufficient control joints, appropriate reinforcing, or other means</li> <li>8. The City engineer shall inspect the foundation and floor slabs to ensure they were built as specified</li> </ol>	<ol style="list-style-type: none"> <li>2. Immediately prior to placement of additional fill or slabs</li> <li>3. Immediately prior to placement of additional fill or slabs</li> <li>4. Immediately prior to placement of additional fill or slabs</li> <li>5. During construction of concrete slabs</li> <li>6. During construction</li> <li>7. During construction</li> <li>8. After foundation construction, before building construction</li> </ol>	<p>construction activities</p>	<p>Development Department, and On-Site Construction Manager</p>			

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<p>cracks beyond the length of the structural dowels. The structural engineer shall account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.</p> <p>Prior to building construction, the City Engineer shall inspect the foundation and floor slabs to ensure that the foundation was built as specified.</p>							
<b>GEO-2: Grading and Drainage</b>							
<p>All grading shall provide effective drainage away from the building during and after construction and shall be maintained throughout the life of the structure. The roof shall have gutters/drains with downspouts that discharge onto splash blocks at a distance of at least 10 feet from the building. Exposed ground shall be sloped and maintained at a minimum 5 percent away from the building for at least 10 feet beyond the perimeter of the foundation. If a minimum 5 percent slope cannot be achieved due to site grades, a minimum 2½ percent slope shall be used provided pavement or hardscape surrounds and extends to the building or a subdrain could be installed around the perimeter of the foundations that carries water away from the building. Locally, flatter grades may be necessary to transition American Disabilities Act (ADA) access requirements for flatwork. After building construction and landscaping, final grades shall be verified to document effective drainage has been achieved. Grades around the structure shall also be periodically inspected and adjusted as necessary as part of the structure’s maintenance program. Where paving or flatwork abuts the structure a maintenance program shall be established to</p>	<ol style="list-style-type: none"> <li>1. Provide effective drainage away from the building</li> <li>2. Install gutters/drains with downspouts that discharge onto splash blocks at a distance of at least 10 feet from the building</li> <li>3. Slope and maintain exposed ground a minimum of 5 percent away from the building, or a minimum of 2.5 percent if 5 percent cannot be achieved due to site grades</li> <li>4. Ensure ADA compliance in grades</li> <li>5. Verify and document effective drainage</li> <li>6. Inspect and adjust grades around the structure in structure’s maintain program</li> <li>7. Ensure planters and bioswales within 10 feet of the structure are self-contained or have an impermeable lining</li> <li>8. Ensure appropriate distances between sprinklers, spray heads, trees, shrubbery, and other vegetation and the structure</li> </ol>	<ol style="list-style-type: none"> <li>1. During and after construction and throughout the life of the structure</li> <li>2. During construction</li> <li>3. During and after construction</li> <li>4. During and after construction of concrete slabs</li> <li>5. After construction</li> <li>6. After construction</li> <li>7. During and after construction</li> <li>8. During and after construction</li> </ol>	Periodically throughout construction activities	City of San Pablo Community Development Department, and On-Site Construction Manager			

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effectively seal and maintain joints and prevent surface water infiltration. Planters and bio-swales located within 10 feet of the structure shall be self-contained or lined with an impermeable membrane to prevent water from accessing building subgrade soils. Sprinkler mains and spray heads shall be located a minimum of 5 feet away from the building lines. Trees or other vegetation whose root systems have the ability to remove excessive moisture from the subgrade and foundation soils shall not be planted next to the building. Trees and shrubbery shall be kept away from the exterior of the structure a distance at least equal to their expected mature height. Drains shall be provided at the top of all slopes where the contributing drainage area to the slope has a flow path longer than 30 feet measured horizontally. Runoff water shall not be allowed to run over the slopes. Surface drainage shall be collected and discharged to an existing drainage system or to a positive gravity outlet with a dissipater. In addition to designing and constructing drainage for this project, the effects of site drainage shall be taken into consideration for the undeveloped portions of this property, and surrounding sites. Extra care shall be taken to ensure irrigation and drainage from adjacent areas do not drain onto the project site or saturate the construction area. After construction is complete, the City Engineer shall inspect the project to ensure that drainage performs as designed around the site.	9. Install drains where the contributing drainage area has a flow path of 30 feet	9. During and after construction					
	10. Ensure drainage is collected and discharged to an existing drainage system	10. 10. During and after construction					
	11. City engineer shall inspect the project to ensure that drainage performs as designed	11. After construction					
<b>GEO-3 Undocumented Fill</b>							
During the grading phase, the undocumented fill shall be over-excavated to firm native soil, cleaned of organic material and debris, moisture	1. Perform excavations in accordance with OSHA 29 CFR, Part 1926, Subpart P	1. During excavation	Periodically throughout	City of San Pablo Community			

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conditioned, and compacted during rough grading. At a minimum, excavations shall be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, and/or state regulations. Stockpiles of soil, construction materials, and construction equipment shall not be placed near trenches or excavations. A geological specialist shall be present during grading to identify areas of undocumented fill that will require over-excavation and to verify all fill is over-excavated and processed. At the end of the grading phase, the City Engineer shall inspect the site to ensure that all undocumented fill has been removed before construction continues.	<ol style="list-style-type: none"> <li>2. Avoid placing soil stockpiles, construction materials and construction equipment near trenches or excavations</li> <li>3. A geological specialist shall be present to identify areas on undocumented fill</li> <li>4. The City Engineer shall ensure that all undocumented fill has been removed</li> </ol>	<ol style="list-style-type: none"> <li>2. During construction</li> <li>3. During grading</li> <li>4. After grading, before construction</li> </ol>	construction activities	Development Department, and On-Site Construction Manager			
<b>GEO-4 Subgrade Preparation</b>							
In order to help mitigate the effects of over-excavation on the subsurface clay soils, during construction, contractors must be prepared to handle potentially unstable and/or soft conditions. After any cuts and any over-excavation operations are complete, the resulting subgrade shall be proof-rolled under the direction of a geotechnical engineer. Areas excessively deflecting under the proof-roll shall be delineated and subsequently addressed by the geotechnical engineer. These identified deflecting areas shall be either removed or modified using soil stabilization techniques. Excessively wet or dry material shall be removed or moisture conditioned and recompacted. Exposed surfaces shall be free of mounds and depressions which could prevent uniform compaction. Subgrade preparation shall extend at least 5 feet laterally beyond the building footprint and at least 3 feet laterally beyond	<ol style="list-style-type: none"> <li>1. Proof-roll resulting subgrades after any cuts or over-excavation</li> <li>2. Delineate and address areas excessively deflecting under the proof-roll</li> <li>3. Moisture condition and recompact materials, remove mounds and depressions exposed surfaces</li> <li>4. Ensure subgrade preparation occurs at least 5 feet laterally from building and 3 feet beyond concrete flatwork</li> <li>5. Ensure scarification complies with seasonal depth limits</li> <li>6. A geotechnical engineer shall evaluate the exposed subgrade</li> <li>7. Monitor subgrade moisture content</li> </ol>	<ol style="list-style-type: none"> <li>1. During excavation</li> <li>2. During excavation</li> <li>3. During excavation</li> <li>4. During excavation</li> <li>5. During excavation</li> <li>6. During excavation</li> <li>7. Prior to foundation construction</li> <li>8. Immediately prior to placement of</li> </ol>	Throughout excavation and construction	City of San Pablo Community Development Department, and On-Site Construction Manager			

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<p>pavement and exterior concrete flatwork. Once proof rolling has been performed, and prior to placing any fill, the subgrade soil shall be scarified, moisture conditioned, and compacted. If construction occurs during the winter or spring, scarification and compaction may only be 12 inches. If construction occurs during the summer or winter, the depth of scarification and moisture condition may be as much as 18 inches. A geotechnical engineer shall evaluate the exposed subgrade to determine the depth of scarification and moisture conditioning required. The moisture content and compaction of subgrade soils shall be maintained until foundation, slab, and pavement construction. After proper treatment of the subgrade, the subgrade moisture content prior to construction of foundations, floor slabs, and pavements shall be monitored and construction traffic over the completed subgrades shall be avoided to the extent practical. The site shall also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas shall be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material shall be removed, or the materials shall be scarified, moisture conditioned, and recompacted prior to slab or pavement construction. Final conditioning of the finished subgrade shall be performed immediately prior to placement of the floor slab support course. The geotechnical engineer and the City Engineer shall approve the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention shall be paid to high</p>	<p>8. Perform final conditioning of the subgrade</p>	<p>the floor slab support course</p>					

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<p>traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.</p>							
<b>GEO-5 Soil Stabilization</b>							
<p>In the event that areas excessively deflecting under proof-rolling or construction traffic are found, one or more of the following subgrade improvement methods shall be implemented after consultation with the geotechnical engineer and City Engineer:</p> <ul style="list-style-type: none"> <li>▪ Scarification and Compaction – It may be feasible to scarify, dry, and compact the exposed soils. The success of this procedure would depend primarily upon favorable weather and sufficient time to dry the soils. Stable subgrades likely would not be achievable if the thickness of the unstable soil is greater than about 1 foot or if construction is performed during a period of wet or cool weather when drying is difficult.</li> <li>▪ Aggregate Base – The use of Caltrans Class II aggregate base is the most common procedure to improve subgrade stability. Typical undercut depths would be expected to range from approximately 12 to 18 inches below finished subgrade elevation with this procedure. The use of high modulus geotextiles or geogrid could also be considered. Equipment shall not be operated above the geotextiles or geogrid until one full lift of aggregate base is placed above it. The maximum particle size of granular material placed over geogrid shall meet the manufacturer’s specifications.</li> </ul>	<p>1. Implement one or more of the subgrade improvement methods</p>	<p>1. After proof-rolling and after consultation with the geotechnical engineer and City Engineer</p>	<p>During construction</p>	<p>City of San Pablo Community Development Department, and On-Site Construction Manager</p>			

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<ul style="list-style-type: none"> <li>Chemical Treatment – Chemical treatment involves treating the unstable or pavement subgrade soils with a certain percentage of high calcium quicklime or cement. Usually 3.5 to 5.5 percent based on the dry unit weight of the soil, for a depth of 12 inches. The actual amount of lime or cement to be used shall be determined the geotechnical engineer and by laboratory testing at least three weeks prior to the start of grading operations. Chemical treatment is performed after rough grading is completed.</li> </ul>							
<b>GEO-6 Fill Material</b>							
<p>Earthen materials used for structural and general fill shall meet the material property and compaction requirements specified in the project-specific geotechnical report. For all import material, the contractor shall submit current verified reports from a recognized analytical laboratory indicating that the import has a “not applicable” (Class S0) potential for sulfate attack based upon current American Concrete Institute (ACI) criteria and is “mildly corrosive” to ferrous metal and copper. The reports shall be accompanied by a written statement from the contractor that the laboratory test results are representative of all import material that will be brought to the project. The report shall be delivered to and reviewed by the geotechnical engineer, and approved by the City Engineer.</p>	<ol style="list-style-type: none"> <li>Submit current verified reports regarding fill material potential for a sulfate attack and corrosivity</li> <li>Provide written statement from the contractor regarding laboratory results</li> <li>Provide reports and statement to the geotechnical engineer and the City engineer</li> </ol>	<ol style="list-style-type: none"> <li>Prior to construction</li> <li>Prior to construction</li> <li>Prior to construction</li> </ol>	Once prior to construction	City of San Pablo Community Development Department, and On-Site Construction Manager			
<b>GEO-7 Utility Trench Backfill and Trenching</b>							

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<p>All trench excavations shall be made with sufficient working space to permit construction including backfill placement and compaction. If utility trenches are backfilled with relatively clean granular material, they shall be capped with at least 18 inches of cementitious flowable fill or cohesive fill in non-pavement areas and areas outside of the building footprint to reduce the infiltration and conveyance of surface water through the trench backfill. Attempts shall also be made to limit the amount of fine migration into the clean granular material. A geotextile fabric that is designed to prevent fines migration in areas of contact between clean granular material and fine-grained soils shall be used. Clean granular fill shall be tracked or tamped in place where possible in order to limit the amount of future densification which may cause localized settlements over time. Utility trenches penetrating beneath the building shall be effectively sealed to restrict water intrusion and flow through the trenches, which could migrate below the building. The trench shall provide an effective trench plug that extends at least 5 feet from the face of the building exterior. The plug material shall consist of cementitious flowable fill or low permeability clay. The trench plug material shall be placed to surround the utility line. If used, the clay trench plug material shall be placed and compacted to comply with the water content and compaction recommendations for structural fill detailed in the project-specific geotechnical report. If chemical (lime) treatment of subgrade soils is performed and occurs before utility construction, Controlled Low Strength Material (CLSM) or sand/cement slurry shall be used as backfill material to cap utility trenches in</p>	<ol style="list-style-type: none"> <li>1. Cap utility trenches when appropriate</li> <li>2. Seal trenches that penetrate beneath the building</li> <li>3. Provide an effective trench plug that extends at least 5 feet from the face of the building exterior</li> <li>4. Utilize CLSM or sand/cement slurry to cap utility trenches if chemical treatment of subgrade soils is performed</li> <li>5. Compact trench backfill to the same or higher density if the trench section is repaired to match the original</li> <li>6. The City engineer shall verify that all utility trench backfill was completed in compliance with this mitigation measure and project BMPs</li> </ol>	<ol style="list-style-type: none"> <li>1. During construction</li> <li>2. During construction</li> <li>3. During construction</li> <li>4. During construction</li> <li>5. During post construction trenching</li> <li>6. After construction</li> </ol>	<p>During and after construction</p>	<p>City of San Pablo Community Development Department, and On-Site Construction Manager</p>			

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<p>pavement, hardscape, and building areas where trenches have cut through the treated subgrade. The thickness of the CLSM or slurry shall be at least the thickness or depth of chemically treated subgrade. Such areas trenched through chemically treated soil shall not be backfilled with aggregate base, native soil, or chemically treated soil.</p> <p>Post construction trenching through geogrid reinforced pavement areas shall be accomplished with conventional trenching equipment. Repairs to the trenched section shall be accomplished using a full structural replacement of the displaced materials or with a repaired section that is identical to the original section. If the trench section is repaired to match the original, the trench backfill shall be compacted to the same or higher density and the geogrid must be over-lapped a minimum 3-inches at the proper geogrid elevation.</p> <p>At the end of construction, the City Engineer shall verify that all utility trench backfill was completed in compliance with this mitigation measure and project BMPs.</p>							

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<b>GEO-8 Foundation Preparation</b>							
In areas of foundation excavations, the bearing subgrade shall be evaluated under the direction of the geotechnical engineer. If unanticipated conditions are encountered, the geotechnical engineer shall prescribe mitigation options. The geotechnical engineer shall ensure that the site follows the design parameters applicable for shallow foundations as identified in the project-specific geotechnical report. The footing excavations shall be evaluated under the direction of the geotechnical engineer. The base of all foundation excavations shall be free of water and loose soil, prior to placing concrete. Concrete shall be placed soon after excavating to reduce bearing soil disturbance. Care shall be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations shall be removed/reconditioned before foundation concrete is placed. To ensure foundations have adequate support, special care shall be taken when footings are located adjacent to trenches. The bottom of such footings shall be at least 1 foot below an imaginary plane with an inclination of 1.5 horizontal to 1.0 vertical extending upward from the nearest edge of adjacent trenches. If unsuitable bearing soils are encountered at the base of the planned footing excavations, the excavations shall be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. Over-excavation for structural fill placement below footings shall be backfilled up	<ol style="list-style-type: none"> <li>1. Evaluate bearing subgrade in areas of foundation excavations</li> <li>2. Geotechnical engineer shall prescribe mitigation measures if unanticipated conditions are encountered</li> <li>3. Geotechnical engineer shall ensure that the site follows applicable design parameters for shallow foundations</li> <li>4. City engineer shall confirm foundations were prepared in compliance with this mitigation measure</li> </ol>	<ol style="list-style-type: none"> <li>1. During construction</li> <li>2. During construction</li> <li>3. During construction</li> <li>4. After foundation construction</li> </ol>	During and after construction	City of San Pablo Community Development Department, and On-Site Construction Manager			

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<p>to the footing base elevation, with LVC structural fill placed as illustrated in the project-specific geotechnical report. The City Engineer shall confirm foundations were prepared in compliance with this mitigation measure.</p>							
<b>GEO-9 Lateral Earth Pressure Design</b>							
<p>Backfill placed against structures shall consist of LVC structural fill or low plasticity cohesive soils. For the LVC structural fill values to be valid, the fill backfill must extend out and up from the base of the wall at an angle of at least 45 and 60 degrees from vertical for the active and passive cases, respectively. Heavy equipment shall not operate within a distance closer than the exposed height of retaining or below grade walls to prevent lateral pressures more than those provided. Compaction of each lift adjacent to a wall shall be accomplished with hand-operated tampers for other lightweight compactors. Prior to project approval, the City Engineer shall review and approve construction and site plans.</p>	<ol style="list-style-type: none"> <li>1. Ensure proper fill backfill angle</li> <li>2. Avoid operating heavy equipment within a distance closer than the exposed height of retaining or below grade walls</li> <li>3. The City engineer shall review and approve construction site plans</li> </ol>	<ol style="list-style-type: none"> <li>1. During construction</li> <li>2. During construction</li> <li>3. Prior to construction</li> </ol>	<p>Periodically during construction, once before construction</p>	<p>City of San Pablo Community Development Department, and On-Site Construction Manager</p>			
<b>GEO-10 Subsurface Drainage</b>							
<p>A perforated rigid plastic drain line shall be installed behind the base of walls and extends below adjacent grade. The invert of a drain line around a below-grade building area or exterior retaining wall shall be placed near foundation bearing level. The drain line shall be sloped to provide positive gravity drainage to daylight or to a sump pit and pump. The drain line shall be surrounded by clean, free-draining granular material having less than 5 percent passing the No. 200 sieve, such as No. 57 aggregate. The free-draining aggregate shall be encapsulated in</p>	<ol style="list-style-type: none"> <li>1. Install perforated rigid plastic drain line with specified granular material</li> <li>2. Install a drain with collection pipe at the bottom of walls</li> <li>3. The City engineer shall review and approve construction and site plans</li> </ol>	<ol style="list-style-type: none"> <li>1. During construction</li> <li>2. During construction</li> <li>3. Prior to project approval</li> </ol>	<p>During construction, once before construction</p>	<p>City of San Pablo Community Development Department, and On-Site Construction Manager</p>			

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<p>a filter fabric. The granular fill shall extend to within 2 feet of final grade, where it shall be capped with compacted cohesive fill to reduce infiltration of surface water into the drain system.</p> <p>To control hydrostatic pressure behind the wall a drain shall be installed at the bottom of the wall with a collection pipe leading to a reliable discharge. The drainage shall consist of either a composite drain or a 12-inch-thick free draining gravel blanket. Free draining gravel shall consist of Caltrans Class II permeable material or ¾ inch clean gravel wrapped in Mirafi 140N filter fabric or equivalent. The drainage shall extend from the bottom of the wall to within 12 inches of the top of the wall. The drainage shall be capped with 12 inches of compacted cohesive soil. The collection pipe shall be designed by the civil engineer and shall be a minimum 4-inch diameter perforated Schedule 40 PVC or ABS drainpipe and shall slope to an existing drainage system or to a positive gravity outlet. Prior to project approval, the City Engineer shall review and approve construction and site plans.</p>							
<b>GEO-11 Pavement Preparation</b>							
<p>Differential movement shall be considered by the geotechnical engineer when planning the development of pavement areas. Site drainage shall be designed to compensate for differential settlement in pavement areas. Long term maintenance shall be planned for in pavement and drainage areas adjacent to building entrances. the moisture content and density of the top 12 inches of the subgrade be evaluated and the pavement subgrades be proof rolled within two days prior to commencement of actual paving operations. Areas not in</p>	<ol style="list-style-type: none"> <li>Design site drainage to compensate for differential settlement</li> <li>Plan for long term maintenance for pavement and drainage areas adjacent to building entrances</li> <li>Perform R-Value testing following rough grading of the site on subgrade soils that will support pavements</li> <li>Perform geogrid reinforcement or chemical treatment (alternative)</li> </ol>	<ol style="list-style-type: none"> <li>Prior to construction</li> <li>Prior to construction</li> <li>During construction</li> <li>During construction</li> <li>During construction</li> </ol>	<p>Periodically prior to and during construction, once after construction</p>	<p>City of San Pablo Community Development Department, and On-Site Construction Manager</p>			

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<p>compliance with the required ranges of moisture or density shall be moisture conditioned and recompacted. Particular attention shall be paid to high traffic areas that were rutted and disturbed earlier and to areas where backfilled trenches are located. Areas where unsuitable conditions are located shall be repaired by removing and replacing the materials with properly compacted fills. After proof rolling and repairing deep subgrade deficiencies, the entire subgrade shall be scarified and developed to provide a uniform subgrade for pavement construction. Areas that appear severely desiccated following site stripping may require further undercutting and moisture conditioning. If a significant precipitation event occurs after the evaluation or if the surface becomes disturbed, the subgrade shall be reviewed by qualified personnel immediately prior to paving. The subgrade shall be in its finished form at the time of the final review. Additional R-Value testing shall be performed following rough grading of the site on the subgrade soils that will ultimately support proposed pavements in order to determine if a more favorable R-Value result may be used in design reducing planning pavement sections.</p> <p>As an alternative to conventional pavement sections, reinforcing the pavement sections with geogrid or chemical treatment of the subgrade soils may be performed to improve their physical support characteristics and reduce the pavement section. Geogrid shall be placed directly on the subgrade below the aggregate base layer. Adjacent rolls of geogrid shall be overlapped a minimum of 1 foot. Soft subgrade conditions may require up to 3 feet of overlap at</p>	<ol style="list-style-type: none"> <li>5. Chemically treat pavement subgrade soils</li> <li>6. Place an adequate number of longitudinal and transverse control joints in rigid pavement in accordance with ACI and/or AASHTO requirements</li> <li>7. City engineer shall conduct a site visit to confirm construction was completed as specified</li> </ol>	<ol style="list-style-type: none"> <li>6. During construction</li> <li>7. After construction</li> </ol>					

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<p>the discretion of the geotechnical engineer. The development of wrinkles in the geogrid shall be avoided. A minimum loose fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. When underlying substrate is trafficable with minimal rutting, rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 10 mph).</p> <p>Chemical treatment shall be used to treat the pavement subgrade soils with a certain percentage of lime and/or concrete. The actual amount of lime and/or cement to be used shall be determined by a geotechnical engineer and by laboratory testing at least three weeks prior to the start of grading operations. Chemical treatment shall be performed after rough grading of the pavement areas is completed. An adequate number of longitudinal and transverse control joints shall be placed in the rigid pavement in accordance with ACI and/or AASHTO requirements. Expansion (isolation) joints must be full depth and shall only be used to isolate fixed objects abutting or within the paved area. All concrete for rigid pavements shall have a minimum flexural strength of 550 psi, a minimum compressive strength of 4,500 psi. and be placed with a maximum slump of four inches. Proper joint spacing shall also be required to prevent excessive slab curling and shrinkage cracking. All joints shall be sealed to prevent entry of foreign material and dowelled where necessary for load transfer. All Portland cement concrete (PCC) pavement details for joint spacing, joint reinforcement, and joint sealing shall be prepared in accordance with American Concrete Institute (ACI 330R and ACI 325R.9). PCC pavements shall be provided with</p>							

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mechanically reinforced joints (doweled or keyed) in accordance with ACI 330R. Where practical, early-entry cutting of crack-control joints in PCC pavements. Cutting of the concrete in its “green” state typically reduces the potential for micro cracking of the pavements prior to the crack control joints being formed, compared to cutting the joints after the concrete has fully set. Micro-cracking of pavements may lead to crack formation in locations other than the sawed joints, and/or reduction of fatigue life of the pavement. Thickened edges shall be used along outside edges of concrete pavements. Edge thickness shall be at least 2 inches thicker than concrete pavement thickness and taper to the actual concrete pavement thickness 36 inches inward from the edge. Integral curbs may be used in lieu of thickened edges. At the end of construction, the City Engineer shall conduct a site visit to confirm that construction was completed as specified in construction plans.							
<b>GEO-12 Pavement Drainage</b>							
Pavements shall be sloped to provide rapid drainage of surface water. The pavement subgrade shall be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet shall be provided to remove water from the granular subbase. The pavement surfacing, and adjacent sidewalks shall be sloped to provide rapid drainage of surface water. Water shall not be allowed to pond on or adjacent to these grade-supported slabs, since this could saturate the subgrade and contribute to premature pavement or slab deterioration. In areas where pavement	<ol style="list-style-type: none"> <li>Grade and slope pavement subgrade to provide rapid drainage of surface water</li> <li>Prevent water from ponding on or adjacent to grade-supported slabs</li> <li>The City engineer shall review and approve the site grading and drainage plan</li> <li>The City engineer shall inspect the site to ensure grading and the drainage plan were adequately executed</li> </ol>	<ol style="list-style-type: none"> <li>During construction</li> <li>During construction</li> <li>Prior to project approval</li> <li>After site grading</li> </ol>	Once before construction, periodically during construction, once after site grading	City of San Pablo Community Development Department, and On-Site Construction Manager			

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<p>sections abut bioswales, curb shall intercept water infiltration below the pavement section. Prior to project approval, the City Engineer shall review and approve the site grading and drainage plan. Upon completion of site grading, the City Engineer shall inspect the site to ensure grading and drainage plan was adequately executed.</p>							
<b>GEO-13 Preventative Maintenance</b>							
<p>The applicant’s civil engineer shall consider the following recommendations in the design and layout of pavements:</p> <ul style="list-style-type: none"> <li>▪ Final grade adjacent to paved areas should slope down from the edges at a minimum 2 percent.</li> <li>▪ Subgrade and pavement surfaces should have a minimum 2 percent slope to promote proper surface drainage.</li> <li>▪ Install below pavement drainage systems surrounding areas anticipated for frequent wetting.</li> <li>▪ Install joint sealant and seal cracks immediately.</li> <li>▪ Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.</li> <li>▪ Place compacted, low permeability backfill against the exterior side of curb and gutter.</li> <li>▪ Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.</li> </ul>	<p>1. Consider recommendations regarding design and layout of pavements</p>	<p>1. Prior to project construction</p>	<p>Once prior to construction</p>	<p>Applicant’s civil engineer</p>			

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<b>GEO-14 Unanticipated Discovery of Paleontological Resources</b>							
In the event an unanticipated fossil discovery is made during the course of project development, construction activity shall be halted within 50 feet of the fossil, and a qualified professional paleontologist shall be notified and retained to evaluate the discovery, determine its significance, and determine if additional mitigation or treatment is warranted. Work in the area of the discovery will resume once the find is properly documented and authorization is given to resume construction work. Any significant paleontological resources found during construction monitoring shall be prepared, identified, analyzed, and permanently curated in an approved regional museum repository under the oversight of the qualified paleontologist, and reported to the City after construction is complete.	<ol style="list-style-type: none"> <li>1. Halt construction within 50 feet of encountered fossil</li> <li>2. Notify and retain a qualified profession paleontologist to evaluate the discovery</li> <li>3. Only resume work once the find is properly documented and authorization is given</li> </ol>	<ol style="list-style-type: none"> <li>1. During construction</li> <li>2. After discovery of fossil</li> <li>3. After fossil is properly documented or additional mitigation is determined</li> </ol>	Periodically during construction	City of San Pablo Community Development Department, and On-Site Construction Manager			
<b>Noise</b>							
<b>NOI-1 Construction Noise Reduction</b>							
The project applicant shall reduce construction noise levels at the adjacent residences to 65 dBA $L_{eq}$ (one-hour) or less and at the adjacent commercial uses to 70 dBA $L_{eq}$ (one-hour) or less through the following measures: <ol style="list-style-type: none"> <li>1. Temporary noise barriers and/or blankets with a minimum height of 8 feet shall be constructed along the western, eastern, and northern project site boundaries. The temporary noise barriers and/or blankets may be constructed of material with a minimum weight of 2 pounds per square foot with no gaps or perforations. Temporary noise barriers and/or blankets</li> </ol>	<ol style="list-style-type: none"> <li>1. Construct temporary noise barriers</li> <li>2. Utilize electric equipment where feasible</li> <li>3. Provide a sign with a telephone number that can receive noise complaints</li> <li>4. City code enforcement or designated inspector shall confirm compliance with parts 1 through 3 of this measure</li> <li>5. Address noise complaints and provide a report to the City</li> </ol>	<ol style="list-style-type: none"> <li>1. Prior to construction</li> <li>2. During construction</li> <li>3. Prior to and during construction</li> <li>4. Prior to demolition or grading activities</li> <li>5. In a timely manner after</li> </ol>	Prior to and during demolition, grading, and other noisy construction.	City of San Pablo Community Development Department, and On-Site Construction Manager			

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	may be constructed of, but not limited to, 5/8-inch plywood, 5/8-inch oriented strand board, and hay bales.							receiving a noise complaint
2.	Electrically powered equipment instead of internal combustion equipment shall be used where feasible.							
3.	A sign shall be provided at the yard entrance, or other conspicuous location, that includes a telephone number for project information, and a procedure where a field engineer/construction manager shall respond to and investigate noise complaints and take corrective action, if necessary, in a timely manner. The sign shall have a minimum dimension of 48 inches wide by 24 inches high. The sign shall be placed 5 feet above ground level.							
4.	City code enforcement or designated inspector shall confirm compliance with parts (1) and (3) of this Mitigation Measure prior to the initiation of demolition or grading activities.							
5.	If a noise complaint(s) is registered, the contractor shall retain a City-approved noise consultant to conduct noise measurements at the use(s) that registered the complaint. The noise measurements shall be conducted for a minimum of one hour and shall include one-minute intervals. The consultant shall prepare a letter report summarizing the measurements and potential measures to reduce noise levels to the maximum extent feasible. The letter report shall include all measurement and calculation data used in determining impacts and resolutions. The letter report shall be							

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provided to City code enforcement for determining adequacy and recommendations, as well potential revocation of the variance if measures are inadequate.							