
V. MITIGATION MONITORING PROGRAM

MITIGATION MONITORING PROGRAM PROCEDURES

Section 21081.6 of the Public Resources Code requires a Lead Agency to adopt a “reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment” (Mitigation Monitoring Program, Section 15097 of the CEQA Guidelines provides additional direction on mitigation monitoring or reporting). The Los Angeles Department of City Planning (City Planning) is the Lead Agency for the Wilshire Comstock Project.

A Draft Environmental Impact Report (Draft EIR) has been prepared to address the potential environmental impacts of the project. Where appropriate, this environmental document identified project design features or recommended mitigation measures to avoid or to mitigate identified potential impacts to a level where no significant impact on the environment would occur. This Mitigation Monitoring Program (MMP) is designed to monitor implementation of the mitigation measures required for the Wilshire Comstock Project. The required mitigation measures are listed and categorized by impact area, with an accompanying identification of the following:

- Monitoring Phase, the phase of the project during which the mitigation measure shall be monitored
 - Pre-Construction, including the design phase
 - Construction
 - Occupancy (post-construction)
- The Enforcement Agency, the agency with the power to enforce the mitigation measure
- The Monitoring Agency, the agency to which reports involving feasibility, compliance, implementation and development are made

The MMP for the Wilshire Comstock Project will be in place throughout all phases of the project. The project applicant shall be responsible for implementing all mitigation measures unless otherwise noted. The applicant shall also be obligated to provide certification, as identified below; to the appropriate monitoring agency and the appropriate enforcement agency that compliance with the required mitigation measure has been implemented. The City’s existing planning, engineering, review, and inspection processes will be used as the basic foundation for the MMP procedures and will also serve to provide the documentation for the reporting program.

The substance and timing of each certification report that is submitted to City Planning shall be at the discretion of City Planning. Generally, each report will be submitted to City Planning in a timely manner following completion/implementation of the applicable mitigation measure and shall include sufficient information to reasonably determine whether the intent of the measure has been satisfied. City Planning in conjunction with the project applicant shall assure that project construction occurs in accordance with the MMP. The South Coast Air Quality Management District shall be responsible for the implementation of corrective actions relative to violations of SCAQMD rules associated with mitigation. Departments listed below are all departments of the City of Los Angeles unless otherwise noted.

I. AESTHETICS

1. All open areas not used for buildings, driveways, parking areas, or walkways shall be attractively landscaped and maintained in accordance with a landscape plan, including an automatic irrigation plan, prepared by a licensed landscape architect to the satisfaction of the City Planning Department.

Monitoring Phase: Pre-construction, Construction
Enforcement Agency: City Planning Department
Monitoring Agency: City Planning Department

2. Outdoor lighting shall be directed on-site and designed and installed with shielding so that the light source can not be seen from adjacent land uses.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

3. The exterior of the proposed buildings shall be constructed of non-reflective building materials.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

II. AIR QUALITY

No mitigation measures are required.

III. CULTURAL RESOURCES

Historic Resources

No mitigation measures are required.

Archaeological Resources

1. In the event that subsurface archaeological resources/human remains are encountered during the course of grading and/or excavation, all development must temporarily cease in these areas until the archaeological resources are properly assessed and subsequent recommendations are determined by a qualified archaeologist. In the event that human remains are discovered, there shall be no disposition of such human remains, other than in accordance with the procedures and requirements set forth in California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98. These code provisions require notification of the County Coroner and the Native American Heritage Commission, who in turn must notify those persons believed to be most likely descended from the deceased Native American for appropriate disposition of the remains. Excavation or disturbance may continue in other areas of the project site that are not reasonably suspected to overlie adjacent remains or archaeological resources.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Native American Heritage Commission

2. Copies of the archeological survey, study, or report shall be submitted to the South Central Coastal Information Center at California State University, Fullerton.

Monitoring Phase:	Construction
Enforcement Agency:	Department of City Planning
Monitoring Agency:	Department of City Planning

Paleontological Resources

1. If any paleontological materials are encountered during the course of project development, construction activities in these areas shall be temporarily halted.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of City Planning

2. The services of a paleontologist shall be secured by contacting the Center for Public Paleontology, which can be found at the following universities: USC, UCLA, California State University at Los Angeles, and California State University at Long Beach, or at the County Museum, to assess paleontological resources and evaluate potential impacts.

Monitoring Phase: Construction
Enforcement Agency: Department of City Planning
Monitoring Agency: Department of City Planning

3. Copies of any paleontological survey, study, or report shall be submitted to the Los Angeles County Natural History Museum.

Monitoring Phase: Construction
Enforcement Agency: Department of City Planning
Monitoring Agency: Department of City Planning

IV. GEOLOGY AND SOILS

Soil Erosion and Sedimentation

1. Drainage collection devices shall be designed in conformance with the City of Los Angeles grading and building codes to ensure that all runoff will be collected and transferred to the proper collection devices. The applicant shall provide analysis of the drainage volume created by the proposed project. All design of drainage flow, collection, and discharge shall be in conformance with current city codes and subject to approval by the City of Los Angeles. On-site grading shall be performed in accordance with City codes to ensure that the erosion of graded areas will not occur. All areas of construction shall be fine-graded to direct runoff to the street or to the nearest available storm drain. No runoff within the property boundaries shall be allowed to flow uncontrolled.

Monitoring Phase: Pre-construction, Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Foundations

Bearing Values

2. Spread footings, if used for support of the proposed building, carried at least 1 foot into the undisturbed stiff or dense natural soils at the planned excavation level, and at least 3 feet below the lowest adjacent grade or floor level can be designed to impose a net dead-plus-live load

pressure of up to 8,000 pounds per square foot. The footing excavations shall be deepened as necessary to extend into undisturbed natural soils.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

3. The mat-type foundation supporting the entire building established in the undisturbed natural soils shall be designed to impose a net dead-plus-live load soil pressure of up to 5,000 pounds per square foot. The mat shall be sufficiently reinforced and thickened to distribute the imposed loads uniformly across the mat.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

4. Footings for minor structures (including auxiliary retaining walls, free-standing walls, and elevator pit walls) that are structurally separate from the proposed building shall be designed to impose a net dead-plus-live load pressure of 1,500 pounds per square foot, at a depth of 2 feet below the adjacent grade. Such footings shall be established in either properly compacted fill and/or undisturbed natural soils.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

5. The recommended bearing values are net values, and the weight of concrete in the footings and mat shall be taken as 50 pounds per cubic foot; the weight of soil backfill shall be neglected when determining the downward loads from the structure. A one-third increase in the above bearing values shall be used when considering wind or seismic loads.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

6. While the actual bearing value of the compacted fill will depend on the materials used and the compaction methods employed, the quoted bearing value will be applicable if acceptable soils are used and are compacted as recommended. The bearing value of the compacted fill shall be confirmed during grading.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Settlement

7. As the degree of settlement of the proposed condominium building will depend on the foundation loads imposed, settlement analyses shall be performed when the foundation load information is available. The results of the settlement analyses will be used to confirm or modify the foundation design recommendations presented in this report.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Modulus of Subgrade Reaction

8. To assist in the structural analyses of the mat foundation, a modulus of subgrade reaction (k) of 50 pounds per cubic inch shall be used for the soils underlying the mat foundation. This value was estimated from available data and published empirical relationships.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Lateral Loads

9. Lateral loads shall be resisted by soil friction and passive resistance against the footings or the mat foundation. A coefficient of friction of 0.5 shall be used between spread footings, the floor slab, the mat and the supporting soils. The passive resistance of the undisturbed natural soils against footings or the mat shall be assumed to be 300 pounds per cubic foot. A one third increase in the passive value shall be used for wind or seismic loads. The passive resistance of the soils and the frictional resistance between the floor slab, footings or the mat and the supporting soils shall be combined without reduction in determining the total lateral resistance.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Ultimate Values

10. The recommended bearing and lateral load design values for the proposed building are for use with loadings determined by a conventional working stress design. When considering an ultimate design approach, the recommended design values shall be multiplied by the following factors:

Design Item	Ultimate Design Factor
Bearing Value	3.0
Passive Pressure	1.75
Coefficient of Friction	1.25

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Foundation Observation

11. To verify the presence of satisfactory soils at design elevations, all footing or mat excavations shall be observed by personnel of MACTEC. Footings or mat shall be deepened as necessary to reach satisfactory supporting soils. Where foundation excavations are deeper than 4 feet, the sides of the excavations shall be sloped back at 1:1 or shored for safety.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

12. Backfill around and over foundations and utility trench backfill within the building area shall be mechanically compacted; flooding shall not be permitted.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

13. Inspection of the foundation excavations shall also be required by the appropriate reviewing governmental agencies. The contractor shall be familiar with the inspection requirements of the reviewing agencies.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Shoring

14. Where there is not sufficient space for sloped embankments, shoring will be required. One method of shoring would consist of steel soldier piles placed in drilled holes, backfilled with concrete, and tied back with earth anchors. Some difficulty shall be encountered in the drilling of the soldier piles and the anchors because of shallow ground water and caving of the sandy and gravelly deposits. Special techniques and measures will be necessary in some areas to permit the proper installation of the soldier piles and the tie back anchors. In addition, if there is not sufficient space to install the tie back anchors to the desired lengths on any side of the excavation, the soldier piles of the shoring system shall be internally braced.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Lateral Pressures

15. For design of cantilevered shoring, a triangular distribution of lateral earth pressure shall be used. It shall be assumed that the retained soils with a level surface behind the cantilevered shoring will exert a lateral pressure equal to that developed by a fluid with a density of 30 pounds per cubic foot. Where retained soils are partially sloped at 1:1 above the shoring, it shall be assumed that the soils will exert lateral pressures equal to 60 pounds per cubic foot.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

16. For the design of tied-back or braced shoring, a trapezoidal distribution of earth pressure shall be used. The recommended pressure distribution, for the case where the grade is level behind the shoring, is illustrated in Appendix C (Geotechnical Reports) with the maximum pressure equal to $22H$ in pounds per square foot, where H is the height of the shoring in feet. Where a combination of sloped embankment and shoring is used, the pressure would be greater and must be determined for each combination. However, where the required soils are sloped at 1:1 above the shoring, it shall be assumed that the soils will exert lateral pressure equal to $44H$ pounds per cubic foot.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

17. The upper 10 feet of shoring adjacent to the streets and vehicular traffic areas shall be designed to resist a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot surcharge behind the shoring due to normal street traffic. If the traffic is kept back at least 10 feet from the shoring, the traffic surcharge shall be neglected. Furthermore, the shoring system shall be designed to support the lateral surcharge pressures imposed by concrete trucks, cranes, and other heavy construction equipment placed near the shoring system.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Design of Soldier Piles

18. For the design of soldier piles spaced at least two diameters on centers, the allowable lateral bearing value (passive value) of the soils below the level of excavation shall be assumed to be 500 pounds per square foot per foot of depth at the excavated surface, up to a maximum of 5,000 pounds per square foot. To develop the full lateral value, provisions shall be taken to assure firm contact between the soldier piles and the undisturbed soils. The concrete placed in the soldier pile excavations shall be a lean-mix concrete. However, the concrete used in that portion of the soldier pile, which is below the planned excavated level, shall be of sufficient strength to adequately transfer the imposed loads to the surrounding soils.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

19. The frictional resistance between the soldier piles and the retained earth shall be used in resisting the downward component of the anchor load. The coefficient of friction between the soldier piles and the retained earth shall be taken as 0.3. In addition, provided that the portion of the soldier piles below the excavated level is backfilled with structural concrete, the soldier piles below the excavated level shall be used to resist downward loads. For resisting the downward loads, the frictional resistance between the concrete soldier piles and the soils below the excavated level shall be taken equal to 400 pounds per square foot.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Lagging

20. Continuous lagging will be required between the soldier piles. The soldier piles and anchors shall be designed for the full anticipated lateral pressure. However, the pressure on the lagging will be less due to arching in the soils. The lagging shall be designed for the recommended earth pressure but limited to a maximum value of 400 pounds per square foot.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Anchor Design

21. Tie back friction anchors shall be used to resist lateral loads. For design purposes, it shall be assumed that the active wedge adjacent to the shoring is defined by a plane drawn at 35 degrees with the vertical through the bottom of the excavation. The anchors shall extend at least 30 feet beyond the potential active wedge and to a greater length if necessary to develop the desired capacities. Prior to placing any anchors outside the property line the applicant shall obtain any and all necessary approvals, permits and/or agreements.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

22. The capacities of anchors shall be determined by testing of the initial anchors as outlined in a following section. For design purposes, it is estimated that drilled friction anchors will develop an average friction value of 500 pounds per square foot. Only the frictional resistance developed beyond the active wedge would be effective in resisting lateral loads. If the anchors are spaced at least 6 feet on centers, no reduction in the capacity of the anchors needs to be considered due to group action.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Anchor Installation

23. The anchors shall be installed at angles of 15 to 40 degrees below the horizontal. Caving of the anchor holes shall be anticipated and provisions made to minimize such caving. The anchors shall be filled with concrete placed by pumping from the tip out, and the concrete shall extend from the tip of the anchor to the active wedge. To minimize chances of caving, the portion of the anchor shaft within the active wedge shall be backfilled with sand before testing the anchor. This portion of the shaft shall be filled tightly and flushed with the face of the excavation. The sand backfill shall contain a small amount of cement to allow the sand to be placed by pumping.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Anchor Testing

24. A MACTECT representative shall select at least two of the initial anchors for a 24 hour 200% test, and five additional anchors for quick 200% tests. The purpose of the 200% test is to verify the friction value assumed in the design. The anchors shall be tested to develop twice the assumed friction value. Where satisfactory tests are not achieved on the initial anchors, the anchor diameter and/or length shall be increased until satisfactory test results are obtained. The total deflection during the 24-hour 200% test shall not exceed 12 inches during loading; the anchor deflection shall not exceed 0.75 inches during the 24-hour period, measured after the 200% test load is applied. If the anchor movement after the 200% load has been applied for 12 hours is less than 0.5 inches, and the movement over the previous 4 hours has been less than 0.1 inches, the test shall be terminated.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

25. For the quick 200% tests, the 200% test load shall be maintained for 30 minutes. The total deflection of the anchor during the 200% quick test shall not exceed 12 inches; the deflection after the 200% test load has been applied shall not exceed 0.25 inches during the 30-minute period. Where satisfactory tests are not achieved on the initial anchors, the anchor diameter and/or length shall be increased until satisfactory test results are obtained.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

26. All of the production anchors shall be pretested to at least 150% of the design load; the total deflection during the tests shall not exceed 12 inches. The rate of creep under the 150% test shall not exceed 0.1 inches over a 15-minute period for the anchor to be approved for the design loading.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

27. After a satisfactory test, each production anchor shall be locked off at the design load. The locked off load shall be verified by rechecking the load in the anchor. If the locked off load varies by more than 10% from the design load, the load shall be reset until the anchor is locked off within 10% of the design load.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

28. The installation of the anchors and the testing of the completed anchors shall be observed by MACTEC.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Internal Bracing

29. Raker bracing shall be used to internally brace the soldier piles. If used, raker bracing could be supported laterally by temporary concrete footing (deadmen) or by the permanent interior footings. For design of such temporary footings, poured with the bearing surface normal to the rakers inclined at 45 to 60 degrees with the vertical, a bearing value of 4,500 pounds per square foot shall be used, provided the shallowest point of the footing is at least 1 foot below the lowest adjacent grade. To reduce the movement of the shoring, the rakers shall be tightly wedged against the footings and/or shoring system.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Deflection

30. It is estimated that deflection could be on the order of 1 inch at the top of the shored embankment. If greater deflection occurs during construction, additional bracing shall be provided to minimize settlement of the utilities in the adjacent streets. To reduce the deflection of the shoring, a greater active pressure could be used in the shoring design.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Monitoring

31. The performance of the shoring system shall be monitored. The monitoring shall consist of periodic surveying of the lateral and vertical locations of the tops of all the soldier piles. The precise monitoring program shall be when the shoring system design is finalized.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

32. The adjacent existing structures shall be surveyed for horizontal and vertical locations. Also, a careful survey of existing cracks and offsets in any adjacent structure shall be performed and recorded and photographic records made.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Walls Below Grade***Lateral Pressures***

33. For design of cantilevered retaining walls, where the surface of the backfill is level, it shall be assumed that the soils will exert a lateral pressure equal to that developed by a fluid with a density of 35 pounds per cubic foot. The subterranean walls shall be designed to resist a trapezoidal distribution of lateral earth pressure. The lateral earth pressure on the permanent subterranean walls will be similar to that recommended for design of temporary shoring except that the maximum lateral pressure will be 24H in pounds per square foot, where H is the height of the walls in feet. The recommended earth pressure assumes that a subdrain system will be installed below the floor slab of the lower subterranean level and behind the subterranean walls,

so that external hydrostatic pressure will not be developed, if the ground water rises to the historical depth of 25 feet below the existing grade.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

34. In addition, to the recommended earth pressure, the upper 10 feet of walls adjacent to streets and vehicular traffic areas shall be designed to resist a uniform lateral pressure of 120 pounds per square foot, acting as a result of an assumed 350 pounds per square foot surcharge behind the walls due to normal traffic. If the traffic is kept back at least 10 feet from the walls, the traffic surcharge shall be neglected.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Waterproofing

35. As discussed in section IV.E. Hydrology, a subdrain system shall be installed so that external water pressure will not be developed against the basement walls. In addition, walls below grade shall be waterproofed.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Backfill

36. Required soil backfill shall be mechanically compacted, in layers not more than 8 inches thick, to at least 90% of the maximum density obtainable by the ASTM Designation D1557 91 method of compaction. The backfill shall be sufficiently impermeable when compacted to restrict the inflow of surface water. The placement of the upper on-site clay soils as a backfill behind walls below grade shall be avoided. Some settlement of the deep backfill shall be allowed for in planning sidewalks and utility connections.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Paving

37. To provide support for paving, the subgrade soils shall be prepared as recommended below in Grading. Compaction of the subgrade to at least 90%, including trench backfills, will be important for paving support. The preparation of the parking area subgrade shall be done immediately prior to the placement of the base course. Proper drainage of the paved areas shall be provided since this will reduce moisture infiltration into the subgrade and increase the life of the paving.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

38. To provide information for paving design, stabilometer (R-value) test was performed on a sample of the upper soils. The results of the test, which indicated an R-value of 34, are presented in Appendix C (Geotechnical Reports), Figures A-5.1 through A-5.3.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Asphaltic Paving

39. The required asphaltic paving and base course thickness will depend on the anticipated wheel loads and volume of traffic. The recommended paving sections for a range of Traffic Indices are presented below. The paving sections were determined using the Caltrans design method. Careful inspection is recommended to verify that the recommended thicknesses or greater are achieved and that proper construction procedures are used.

Assumed Traffic Index	Asphaltic Paving (Inches)	Base Course (Inches)
4½ (Automobile Parking)	3	4
5½ (Driveways with Light Truck Traffic)	3	7
6½ (Roadways with Heavy Truck Traffic)	4	7

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Portland Cement Concrete Paving

40. Portland cement concrete paving sections were determined in accordance with procedures developed by the Portland Cement Association. Concrete paving sections for a range of Traffic Indices are presented below. It is assumed that the portland cement concrete will have a compressive strength of at least 3,000 pounds per square inch. The concrete paving shall be properly reinforced. In addition, dowels are recommended at joints in the paving to reduce possible offsets.

Assumed Traffic Index	Paving Section (Inches)	Base Course (Inches)
4½ (Automobile Parking)	6	2
5½ (Driveways with Light Truck Traffic)	6½	2
6½ (Driveways with Heavy Truck Traffic)	7	2

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Base Course

41. The base course for both asphaltic and concrete paving shall meet the specifications for Class 2 Aggregate Base as defined in Section 26 of the latest edition of the State of California, Department of Transportation, Standard Specifications. Alternatively, the base course could meet the specifications for untreated base as defined in Section 200-2 of the latest edition of the Standard Specifications for Public Works Construction. The base course shall be compacted to at least 95%.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Grading

42. To provide support for the footings of minor structures, and for at-grade concrete walks and slabs adjacent to the building and for paving, all existing fill and disturbed natural soils shall be excavated and replaced with properly compacted fill, and all required additional fill shall be properly compacted. The footings of the minor structures shall be established in properly compacted fill and/or undisturbed natural soils.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

43. Where excavations for minor footings are deeper than 4 feet, the sides of the excavations shall be sloped back at 1:1 (horizontal to vertical) or shored for safety. All footing and utility trench backfills shall be mechanically compacted; flooding shall not be permitted.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Site Preparation and Moisture Conditioning

44. After excavating as recommended, the exposed soils in areas to receive additional fill shall be inspected and any disturbed deposits shall be excavated. The moisture content of the soils shall be determined, and the soils shall be slowly and uniformly moistened (or dried) as necessary to bring the soils to a uniformly moist condition. The moisture content of the cohesive soils and compacted fill shall be brought to between 2% and 4% over optimum moisture content to a depth of 6 inches. The moisture content of any non-expansive materials shall be brought to within 2% of optimum moisture content. The moisture content of the subgrade shall be checked and approved prior to placing the required fill.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Subgrade Preparation

45. After moistening as required, the exposed soils shall be compacted to at least 90% of the maximum dry density obtainable by the ASTM Designation D1557-91 method of compaction. The upper cohesive soils have high moisture content, and it will be necessary to allow the surface to dry out prior to compacting. As an alternative, a layer of coarse crushed rock about 12 inches thick could be placed over the exposed soils to provide a base for the compaction of the required fill. A geotextile fabric could be placed to help stabilize the subgrade soils and reduce the amount of gravel required. Where grading is interrupted by rain, fill operations shall not be resumed until the moisture content and dry density of the placed fill are satisfactory.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Compaction

46. After compacting the exposed soils, or after placing the gravel layer, the required fill shall be placed in horizontal lifts not more than 8 inches thick and compacted to at least 90%. Relatively non expansive soils shall be compacted at a moisture content varying no more than 2% below or above optimum moisture content. It is recommended that the moisture content of the on site cohesive soils at the time of compaction be brought to between 2% and 4% over optimum moisture content.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Material for Fill

47. The on site soils, less debris or organic materials within any existing fill soils, shall be used in the required fills. Any on site clay soils shall not be used as backfill behind any walls below grade. All required imported fill shall consist of relatively non expansive soils. The Expansion Index of the selected relatively non-expansive material shall be less than 35. Any import material shall contain sufficient fines (binder material) so as to provide a compacted fill that will be relatively impermeable and will be stable in shallow trenches.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Field Observation

48. The reworking of the upper soils and the compaction of all required fill shall be observed and tested by a qualified geotechnical expert. This representative shall have at least the following duties:

- Observe the clearing and grubbing operations to assure that all unsuitable materials have been properly removed.
- Observe the exposed subgrade in areas to receive fill and in areas where excavation has resulted in the desired finished subgrade, observe subgrade scarification, and delineate areas requiring overexcavation.
- Perform visual observation to evaluate the suitability of on site and import soils for fill placement; collect and submit soil samples for required or recommended laboratory testing where necessary.

- Perform field density and compaction testing to determine the percentage of compaction achieved during fill placement.
- Observe and probe foundation bearing materials to confirm that suitable bearing materials are present at the design grades.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

V. HAZARDOUS AND HAZARDOUS MATERIALS

Water Quality

1. Ordinance No. 172,176 and Ordinance No. 173,494 specify Stormwater and Urban Runoff Pollution Control which requires the application of Best Management Practices (BMPs). Chapter IX, Division 70 of the Los Angeles Municipal Code addresses grading, excavations, and fills. The applicant shall meet the requirements of the Standard Urban Stormwater Mitigation Plan (SUSMP) approved by Los Angeles Regional Water Quality Control Board.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Public Works
Monitoring Agency: Department of Building and Safety

VI. HYDROLOGY

Floor Slab or Mat Support

1. The required filter material (as discussed in Section IV.D. Geology and Soils, Mitigation Measures) for the subdrain system would offer adequate support for the floor slab or the mat foundation of the lower subterranean parking level. The at-grade concrete slabs and walks adjacent to the proposed building may be also supported on grade. The lower floor slab or the mat of the building would be used for parking and should not be sensitive to capillary moisture, however, where vinyl or other moisture-sensitive floor covering is planned for portions of the lower floor slab or the mat, the floor slab or the mat foundation shall be underlain by a capillary break consisting of a vapor-retarding membrane at least 10 mils thick. A 2 inch-thick layer of sand shall be placed beneath the membrane to decrease the possibility of damage to the membrane.

If a membrane is used, a low-slump concrete shall be used to minimize possible curling of the slab or the mat. A 2-inch-thick layer of coarse sand shall be placed over the membrane to

reduce slab curling. Care should be taken during the placement of the concrete to prevent displacement of the sand. The concrete slab shall be allowed to cure properly before placing vinyl or other moisture-sensitive floor covering.

Where vinyl or other moisture-sensitive floor covering is not planned, the floor slab or the mat foundation may be supported directly on the subdrain materials.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

Excavation Slopes and Dewatering

- Excavation up to about 35 to 40 feet deep would be required for the lower subterranean parking level of the proposed development. Where the necessary space is available, temporary unsurcharged embankments may be sloped back at 1:1 without shoring. Where space is not available, shoring shall be required. Data for design of shoring are presented in Section IV.D. Geology and Soils, Mitigation Measures.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

- Inspection of the foundation excavations shall also be required by the appropriate reviewing governmental agencies. The contractor shall be familiar with the inspection requirements of the reviewing agencies.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

- Where sloped embankments are used, the tops of the slopes shall be barricaded to prevent vehicles and storage loads within 10 feet of the tops of the slopes. A greater setback may be necessary when considering heavy vehicles, such as concrete trucks and cranes; the engineer shall be advised of such heavy vehicles so that specific setback requirements can be established. If the temporary construction embankments are to be maintained during the rainy season, berms are suggested shall be installed along the tops of the slopes, where necessary, to prevent runoff water from entering the excavation and eroding the slope faces.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

5. The soils at the excavated level will be wet and spongy. To provide support for foundations and a working base for men and equipment, a layer of 1½-inch crushed rock at least 1-foot-thick shall be provided over the excavated surface.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

6. The excavation shall be observed by a qualified geotechnical expert so that any necessary modifications based on variations in the soil conditions encountered can be made. All applicable safety requirements, including OSHA requirements, shall be met.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

7. The excavation for the spread footings or the mat foundation would extend below the ground water level, and dewatering of the excavation shall be required. The dewatering could be done by means of dewatering wells located around the perimeter of the site with supplementary wells located within the limits of the excavation. The dewatering system shall be placed several weeks prior to the start of excavation. In addition, a few monitoring wells shall be placed at the site to monitor the water level. The excavation at the site shall not start until the water level is withdrawn a few feet below the bottom of the excavation. In addition, drainage trenches excavated at the bottom of the excavation and backfilled with crushed rock shall be used to supplement the wells. The trenches shall be placed in areas between the foundation locations and should drain, together with the wells, into sumps equipped with pumps. The trenching should be coordinated with the construction sequencing.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

8. The dewatering system shall be designed by a competent dewatering contractor. The contractor shall determine the size, spacing, and depths of the dewatering wells. In addition, the contractor shall determine the locations and sizes of any necessary trenches within the excavation, and the volume of water inflow from the dewatering system.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

9. Given the historical detection of benzene in on-site groundwater at a concentration above the State MCL, groundwater quality monitoring shall continue to be performed during future dewatering operations.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

10. Any groundwater discharge from construction dewatering and the proposed permanent sub-drain system at the site would be treated as required and discharged to the local discharge point (outfall) in accordance with the discharge requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit, which consists of Order No. R4-2003-0111 and Monitoring and Reporting Program No. CI-8745, issued on May 4, 2004. Also, in accordance with the reuse agreements between Fifield and the Los Angeles Country Club (LACC), some of the discharge groundwater from the proposed permanent sub-drain system, if found to be of suitable quality, will be conveyed to the nearby LACC for reuse.

Monitoring Phase: Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

Subdrain System

11. Ground water was encountered above the planned lower subterranean parking level and provisions must be taken to protect the building from hydrostatic pressure. The following measures pertain to subdrain system beneath the floor slab (if spread footings are used) and beneath the mat foundation (if the mat is used) to support the building.

One of the two following alternative procedures shall be followed. A permanent subdrain system could be installed beneath the lower floor or mat of the building to maintain the water level below the lower subterranean level, or the lower subterranean floor slab or mat and the lower portions of the subterranean walls could be waterproofed and designed for the possible hydrostatic pressure. To compute the hydrostatic pressure, it may be assumed that the water level would be at a depth of 15 feet below the existing grade. The design of the lower floor slab or mat to resist the possible hydrostatic pressure would require a thorough waterproofing installation and relatively thick floor slab or mat.

If a subdrain system is installed, discharge would have to meet the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit. A water treatment system shall be required if the chemicals or pollutants within the water exceeds the allowable limits.

If a permanent subdrain system is installed beneath the lower floor or mat of the building to maintain the water level below the subterranean level, a back-up pump system will be installed in the event of power failure.

For a subdrain system, the lower floor or mat of the building shall be underlain by a layer of filter material approximately 1 foot thick. The filter material shall be drained by subdrain pipes leading to sump areas equipped with automatic pumping units. The filter material shall meet the requirements of Class 2 Permeable Material as defined in Section 68 of the latest edition of the State of California, Department of Transportation, Standard Specifications. If Class 2 material is not available, ¾-inch crushed rock separated from the adjacent soils by a filter fabric may be used. The crushed rock shall have less than 5% passing a No. 200 sieve. The drain lines shall consist of perforated pipe placed, with the perforations down, in trenches extending at least 1 foot below the filter material. The trenches shall be backfilled with material meeting the requirements of the Class 2 Permeable Material or lined with filter fabric and filled with ¾-inch crushed rock. The drain lines shall extend around the perimeter of the building and should be spaced approximately 40 feet apart within the interior of the building. A slope of at least 2 inches per 100 feet shall be used for the drain lines. Based on the results of a field pumping test, we suggest that the pumps and sumps be sized for a total inflow into the system of 450 gallons per minute. The actual inflow into the subdrain system is expected to be less.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

12. In addition to the above drainage system, some means of draining the soils outside the exterior walls will be required. The means of accomplishing drainage outside the walls would depend primarily on the selected method of shoring and the method of constructing the exterior building walls. A drainage system behind the basement walls may be provided by strips of Miradrain 6000 (or equivalent). Miradrain 6000 (or equivalent), attached to the lagging and protected from the concrete placement of the walls, would provide satisfactory drainage. Continuous Miradrain may be placed at a depth starting at about 3 feet below the existing grade.

The Miradrain shall be connected to weep holes at the bottom of the excavation. The weep holes should consist of solid pipes spaced at 8 feet on centers. At the connection of the weep holes and the Miradrain, the weep holes shall be embedded in 1 cubic foot of free-drainage aggregate surrounded by a filter fabric. The weep holes shall drain into the subdrain system

placed beneath the slab of the lower subterranean level or into a solid pipe placed beneath the edge of the lower floor slab. The solid pipe shall discharge into the sump.

The installed drainage system should be observed by a qualified dewatering contractor.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

VII. LAND USE

No mitigation measures are required.

VIII. NOISE

On-site construction activities would result in significant temporary noise impact at the nearest sensitive receptors due to heavy equipment operations. Standard noise abatement conditions will be required by the City of Los Angeles as part of any grading/construction permits. These measures include:

1. Construction activities shall be limited to the hours of 7:00 a.m. to 6:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday.
2. All construction equipment engines shall be properly tuned and muffled according to manufacturers' specifications.
3. Noise construction activities whose specific location on the site may be flexible (e.g., operation of compressors and generators, cement mixing, general truck idling) shall be conducted as far as possible from the nearest noise-sensitive land uses, and natural and/or manmade barriers (e.g., intervening construction trailers) shall be used to screen propagation of noise from such activities towards these land uses to the maximum extent possible.
4. The use of those pieces of construction equipment or construction methods with the greatest peak noise generation potential shall be minimized. Examples include the use of drills, jackhammers, and pile drivers.

Monitoring Phase:	Construction
Enforcement Agency:	Department of Building and Safety
Monitoring Agency:	Department of Building and Safety

IX. POPULATION AND HOUSING

No mitigation measures are required.

X. PUBLIC SERVICES

Police Protection

1. Parking facilities shall be secured.

Monitoring Phase: Construction, Occupancy
Enforcement Agency: Los Angeles Police Department
Monitoring Agency: Los Angeles Police Department

2. Access control shall be provided to the residential portion of the proposed buildings.

Monitoring Phase: Construction, Occupancy
Enforcement Agency: Los Angeles Police Department
Monitoring Agency: Los Angeles Police Department

3. Public and semi-public space shall be designed to be well illuminated, with a minimum of dead space to eliminate concealment.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Los Angeles Police Department
Monitoring Agency: Los Angeles Police Department

4. Plot Plans, including lighting and landscaping information, shall be submitted to the Los Angeles Police Department Crime Prevention Unit for review. Please refer to Design out Crime Guidelines: Crime Prevention through Environmental Design published by the LAPD's Crime Prevention Section.

Monitoring Phase: Pre-Construction
Enforcement Agency: Los Angeles Police Department
Monitoring Agency: Los Angeles Police Department

Fire Protection

The following recommendations of the Fire Department relative to fire safety shall be incorporated into building plans, which includes the submittal of a plot plan for approval by the Fire Department either prior to the recordation of a final map or the approval of a building permit. The plot plan shall include the following minimum design features:

1. Adequate off-site public and on-site private fire hydrants may be required. Their number and locations are to be determined after the LAFD's review of the plot plan.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety, Los Angeles Fire Department
Monitoring Agency: Los Angeles Fire Department

2. Fire lane width shall not be less than 20 feet. When a fire lane must accommodate the operation of a Fire Department aerial ladder apparatus, or where fire hydrants are installed, those portions shall not be less than 28 feet in width.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety, Los Angeles Fire Department
Monitoring Agency: Los Angeles Fire Department

3. No building or portion of a building shall be constructed more than 150 feet from the edge of a roadway of an improved street, access road, or designated fire lane.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety, Los Angeles Fire Department
Monitoring Agency: Los Angeles Fire Department

4. Access for Fire Department apparatuses and personnel to and into all structures shall be required.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety, Los Angeles Fire Department
Monitoring Agency: Los Angeles Fire Department

5. No building or portion of a building shall be constructed more than 300 feet from an approved fire hydrant. Distance for residential uses shall be computed to front door of the unit.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety, Los Angeles Fire Department
Monitoring Agency: Los Angeles Fire Department

6. The proposed project shall comply with all applicable State and local codes and ordinances, and the guidelines found in the Fire Protection and Fire Prevention Plan, as well as the Safety Plan, both of which are elements of the General Plan of the City of Los Angeles C.P.C. 19708.

Monitoring Phase: Pre-Construction, Construction, Occupancy
Enforcement Agency: Department of Building and Safety, Los Angeles Fire Department
Monitoring Agency: Los Angeles Fire Department

Schools

1. The applicant shall pay the required \$3.55 per square foot residential developer school fees to the LAUSD in accordance with Alternative Level 2 residential developer fees required by California Government Code Section 65995.5-7.

Monitoring Phase: Pre-Construction
Enforcement Agency: Los Angeles Unified School District
Monitoring Agency: Department of City Planning

Recreation and Parks

No mitigation measures are required.

Libraries

No mitigation measures are required.

XI. TRANSPORTATION AND TRAFFIC

No significant traffic impacts have been identified for the proposed project. Therefore, no traffic mitigation measures are required. However, the following recommendations would further ensure that project-related impacts remain less than significant.

- Valet – All parking at the project site should be facilitated by parking valets. A valet “call up” system should be implemented to retrieve parked vehicles in a timely fashion for residents and guests.
- Transit Information – As noted in the above analysis, the project site is served by excellent local and regional transit service. The lobby should contain a display of transit schedules and maps to assist employees, residents or guests with transit options.
- Moving Vans – The building management should maintain a “Moving Day/Furniture Delivery” log. This should be used to coordinate moving vehicles so only those that can fit on-site for scheduled loading or unloading are accommodated. All loading activity will be on-site. In the event an oversized moving truck is used, it will be required to remove the vehicle cab so that the moving vehicle completely fits on-site.
- Neighborhood Traffic Calming – While the project traffic does not warrant or require off-site measures to improve street system capacity or traffic calming measures, it is suggested that the project participate with local residents if there is a community-wide effort to address “cut thru” traffic issues.

Monitoring Phase: Pre-Construction, Construction, Occupancy
Enforcement Agency: Department of Transportation
Monitoring Agency: Department of Transportation

XII. UTILITIES

Sewer

No mitigation measures are required.

Water

1. The landscape irrigation system shall be designed, installed, and tested to provide uniform irrigation coverage for each zone. Sprinkler head patterns shall be adjusted to minimize over spray onto walkways and streets. Each zone (sprinkler valve) shall water plants having similar watering needs (do not mix shrubs, flowers, and turf in the same watering zone).

Monitoring Phase: Pre-Construction, Construction, Occupancy
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

2. Automatic irrigation timers should be set to water landscaping during early morning or late evening hours to reduce water losses from evaporation. Irrigation run times shall be adjusted for all zones seasonally, reducing watering times and frequency in the cooler months (i.e., fall, winter, spring). Sprinkler timer run times shall be adjusted to avoid water runoff, especially when irrigating sloped property.

Monitoring Phase: Construction, Occupancy
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Building and Safety

3. Selection of drought-tolerant, low water consuming plant varieties shall be used to reduce irrigation water consumption.

Monitoring Phase: Construction
Enforcement Agency: Department of City Planning
Monitoring Agency: Department of City Planning

4. If available, recycled water shall be used to irrigate large landscaped areas.

Monitoring Phase: Construction, Occupancy
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Water and Power, Department of Building and Safety

5. Ultra-low-flush water closets, ultra-low-flush urinals, and water-saving showerheads must be installed in both new construction and when remodeling. Low flow faucet aerators shall be installed on all sink faucets.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Water and Power, Department of Building and Safety

6. Significant opportunities for water savings exist in air conditioning systems that utilize evaporative cooling (i.e., employ cooling towers). The LADWP shall be contacted for specific information on appropriate measures.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Water and Power, Department of Building and Safety

7. Recirculating or point-of-use hot water systems shall be installed, where feasible, to reduce water waste in long piping systems where water must be run for considerable periods before heated water reaches the outlet.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Water and Power, Department of Building and Safety

8. Water-conserving clothes washers and dishwashers shall be provided where feasible. Water savings also represent energy savings, in that the water saved by these appliances is typically heated.

Monitoring Phase: Pre-Construction, Construction
Enforcement Agency: Department of Building and Safety
Monitoring Agency: Department of Water and Power, Department of Building and Safety

Solid Waste

No mitigation measures are required.