## GENERAL

1. THESE SHORING PLANS SHALL BE REVIEWED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO BEGINNING WORK.
2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE.
3. ALL CONSTRUCTION SHALL CONFORM TO REQUIREMENTS OF THE 2002 CITY OF LOS ANGELES BUILDING CODE.
4. CONTRACTOR SHALL COORDINATE SHORING WITH DRAWINGS OF RECORD TO ENSURE PROVISIONS FOR POCKETS, BLOCKOUTS, OFFSETS, STEPPED FOOTINGS AND ANY OTHER ITEMS AFFECTED BY THE SHORING.
5. DRAINAGE DEWATERING AND WATERPROOFING TO BE PROVIDED BY THE CONTRACTOR.
6. HEAVY EQUIPMENT OR CRANES SHALL NOT BE LOCATED ADJACENT TO THE SHORING BULKHEAD EXCEPT WHERE SPECIFICALLY PROVIDED FOR IN THE DESIGN.
7. TEMPORARY BUILDING SHORING IF REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR.
8. PERMISSION FOR THE USE OF TIEBACKS EXTENDING BEYOND THE PROJECT'S PROPERTY LINE SHALL BE OBTAINED BY OTHERS.
9. NO EXCAVATION OR GRADING SHALL COMMENCE UNTIL 30 DAYS AFTER ADJOINING PROPERTY OWNERS HAVE BEEN NOTIFIED IN WRITING AS REQUIRED BY SECTION 91.3301.2.1 OF THE CITY OF LOS ANGELES BUILDING CODE.
10. ALL MEMBER SIZES SHALL BE AS SHOWN OR EQUAL. AS APPROVED BY CEFALI & ASSOCIATES, EQUIVALENT OR STRONGER MEMBERS MAY BE SUBSTITUTED TO SUIT THE AVAILABILITY OF MATERIALS.

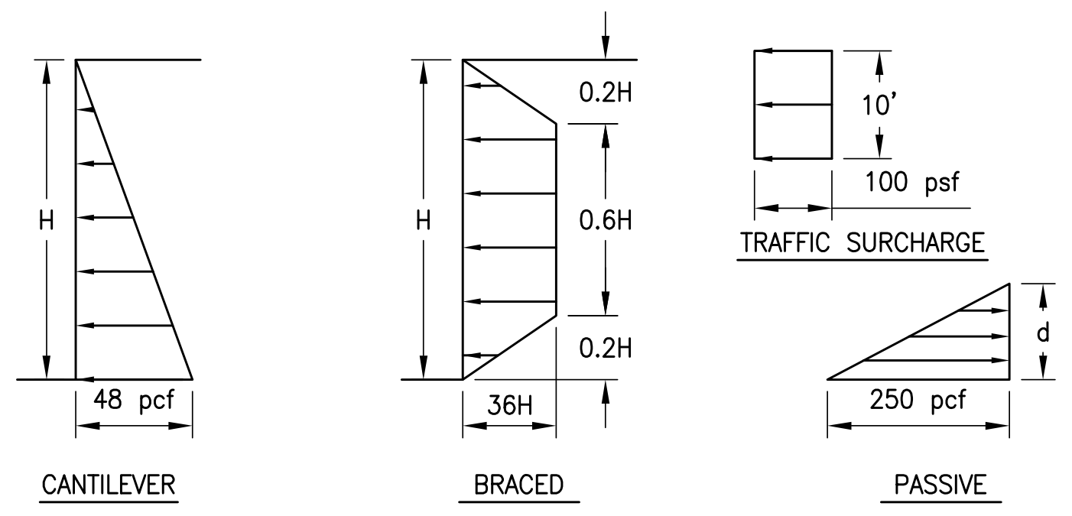
## UNDERGROUND STRUCTURES:

1. ALL UNDERGROUND UTILITIES OR STRUCTURES REPORTED BY THE OWNER OR OTHERS ARE INDICATED WITH THEIR APPROXIMATE LOCATION AND EXTENT IN THESE DRAWINGS. THE CLIENT BY ACCEPTING THESE PLANS OR PROCEEDING WITH CONSTRUCTION IN ACCORDANCE WITH THESE DRAWINGS AGREES TO ASSUME LIABILITY AND TO HOLD CEFALI & ASSOCIATES HARMLESS FOR ANY DAMAGES RESULTING FROM THE EXISTENCE OF UNDERGROUND UTILITIES OR STRUCTURES NOT REPORTED TO CEFALI & ASSOCIATES.
2. THE OWNER SHALL LOCATE ALL UTILITIES AND STRUCTURES WITHIN THE PROPOSED EXCAVATION AND MAKE APPROPRIATE ARRANGEMENTS FOR THEIR RELOCATION OR PROTECTION, PRIOR TO THE START OF CONSTRUCTION.
3. THE OWNER IN LOCATING ALL EXISTING UTILITIES AND STRUCTURES SHALL INSURE THAT NO CONFLICT EXISTS BETWEEN SHORING PILES AND TIEBACKS AND EXISTING UTILITIES. IF ANY CONFLICT IS FOUND TO EXIST, IT SHALL BE PROMPTLY BROUGHT TO THE ATTENTION OF CEFALI & ASSOCIATES AND CONSTRUCTION SHOULD NOT START UNTIL A RESOLUTION OF THE CONFLICT IS ACCOMPLISHED.
4. THE OWNER SHALL LOCATE AND CAP OFF ALL SEWER LATERALS BEHIND THE PROPOSED LOCATION OF SOLDIER BEAMS PRIOR TO THE INSTALLATION OF SOLDIER BEAMS.
5. EXISTING UNDERGROUND INSTALLATIONS CARRYING UNSTABLE SUBSTANCES SHALL BE "POT-HOLED" AS REQUIRED BY THE LOS ANGELES MUNICIPAL CODE 62.03.01 AND THE CITY ENGINEER'S SPECIAL ORDER S006-0279, DATED FEBRUARY 27, 1979.
6. AN UNDERGROUND SERVICE ALERT INQUIRY IDENTIFICATION NUMBER (USA II NO.)MUST BE OBTAINED AT LEAST TWO WORKING DAYS BEFORE STARTING WORK WITH THIS PERMIT. TELEPHONE NUMBER (800) 422-4133.

## GEOTECHNICAL DESIGN CRITERIA

1. THESE SHORING PLANS WERE PREPARED WITH CONFORMANCE TO THE GEOTECHNICAL DESIGN RECOMMENDATIONS AS PRESENTED WITHIN THE SOILS REPORT BY GROVER HOLLINGSWORTH AND ASSOCIATES, PROJECT NO. GH1459-S DATED MARCH 31, 2004.
2. THE GEOTECHNICAL DESIGN VALUES USED ARE AS FOLLOWS:

| | | |
|---|---|---|
| A. | ACTIVE PRESSURE: | 48 pcf (CANT. – TRIANGULAR)<br>36H psf (BRACED – TRAPEZOIDAL) |
| B. | PASSIVE PRESSURE: | 200 psf CONTINUOUS FOOTING<br>250 psf ISOLATED PILES |
| C. | COEFFICIENT OF FRICTION: | 0.25 |
| D. | LAGGING PRESSURE: | 48 pcf OR 400 psf (MAX) |
| E. | TIEBACK CAPACITY: | 400 psf (GRAVITY CAST)<br>3.5 klf (POST-GROUT) |
| F. | CUT SLOPES: | UNSURCHARGED 4 FT VERTICAL.<br>IN EXCESS OF THIS HEIGHT A 1:1 SLOPE OVERALL. |



## CONCRETE

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM WITH CHAPTER 19 OF THE UBC AND TO THE PROVISIONS OF ACI 318, LATEST ADDITION.
2. CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY AND APPROVED BY THE SHORING ENGINEER. MIX DESIGN METHODS (TEST HISTORY OR TRIAL BATCH METHOD) PER SECTION 1905.3 SHALL BE USED TO PROPORTION CONCRETE.
3. SLURRY SHALL BE A MIX OF WATER, CEMENT AND SAND; 1-1/2 SACK CEMENT PER YARD OF MIX.
4. DRYPACK SHALL BE A MIX OF WATER, CEMENT AND SAND; 1 PART CEMENT TO 3 PARTS SAND WITH JUST ENOUGH WATER FOR WORKABILITY.
5. PORTLAND CEMENT SHALL CONFORM TO ASTM C150, TYPE II OR V.
6. AGGREGATE FOR HARD ROCK CONCRETE SHALL CONFORM TO ALL REQUIREMENTS AND TESTS OF ASTM C33 AND PROJECT SPECIFICATIONS.
7. ADMIXTURES SHALL CONFORM TO ALL REQUIREMENTS AND TESTS OF ASTM C845, C260, C494, C 1017 OR C618 CLASSES N OR F AND PROJECT SPECIFICATIONS.
8. CONCRETE MIXING OPERATION, ETC. SHALL CONFORM TO ASTM C94.
9. CALCIUM CHLORIDE SHALL NOT BE ALLOWED IN THE CONCRETE WITHIN THE TIE-BACK SHAFTS AND CONNECTION AREAS.
10. SCHEDULE OF STRUCTURAL CONCRETE 28-DAY STRENGTH AND TYPES

| LOCATION IN STRUCTURE | STRENGTH (PSI) | DENSITY (PCF) | SLUMP (IN) |
|---|---|---|---|
| SLURRY | N/A | N/A | N/A |
| SOLDIER PILE TOES | 2500 | 150 PCF | 1-3 |

## PRESTRESSING STEEL

1. ANCHOR ROD TENDONS SHALL BE DEFORMED WITH ULTIMATE TENSILE STRENGTH OF 150 KSI CONFORMING TO ASTM A722 SPECIFICATIONS AND LOS ANGELES RESEARCH REPORT NUMBER 23835.
2. ANCHOR STRAND TENDONS SHALL BE SEVEN WIRE LOW-RELAXATION STRANDS WITH ULTIMATE TENSILE STRENGTH OF 270 KSI CONFORMING TO ASTM A416 SPECIFICATIONS AND LOS ANGELES RESEARCH REPORT NUMBER 25053.
3. TENDONS SHALL BE INSTALLED STRAIGHT AND TRUE. KINKING OR SHARP CURVATURE IN ANCHORS UNDER TENSION SHALL BE CAUSE FOR REJECTION.
4. TENDONS SHALL NOT BE WELDED NOR USED FOR GROUNDING WELDING EQUIPMENT.

## STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL (EXCLUDING PIPES AND PLATES) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572 GR. 50 SPECIFICATIONS.
2. ALL STRUCTURAL STEEL PIPE SHALL CONFORM TO ASTM A53 GR. B SPECIFICATIONS.
3. ALL STRUCTURAL STEEL PLATE SHALL CONFORM TO ASTM A36 SPECIFICATIONS.
4. ELECTRIC ARC WELDING SHALL UTILIZE ELECTRODES APPROVED BY BUILDING DEPARTMENT (E 70-XX) AND PLACED BY WELDERS PROPERLY CERTIFIED BY THE BUILDING OFFICIAL.

## TIMBER LAGGING

1. TIMBER LAGGING SHALL BE ROUGH-CUT DOUGLAS FIR LARCH, SIZE AND GRADE AS PER LAGGING DETAIL.
2. TIMBER LAGGING THAT IS NOT REMOVED AT THE COMPLETION OF THE SHORING PROJECT SHALL BE PRESSURE TREATED WITH A PRESERVATIVE.

## EXPANSION ANCHORS

1. EXPANSION ANCHORS SHALL BE RAMSET/RED HEAD WEDGE ANCHORS CONFORMING TO LOS ANGELES RESEARCH REPORT NUMBER 2748 AND ICBO ER 1372.

## SHAFTS

1. VERTICAL AND DIAGONAL SHAFTS ARE TO BE MACHINE DRILLED AND ACCURATELY LOCATED SO THAT SOLDIER PILES AND TIEBACKS ARE IN PROPER RELATION TO THE NEW BASEMENT WALL AND FOOTINGS.
2. TOLERANCE FOR INSTALLATION OF SOLDIER PILES IS ±1 INCH FOR VARIATION OF PLAN LOCATION AND 0.5 PERCENT OF PILE LENGTH FOR OUT OF PLUMB.
3. LOCATE SOLDIER PILES AS REQUIRED OUTSIDE OF BUILDING WALLS TO INSURE PILE DOES NOT INTRUDE INTO FINISHED WALL DUE TO OUT OF PLUMB OR VARIATION IN PLAN LOCATION.
4. TIE BACK ANCHORS SHALL BE INSTALLED AT THE ANGLE OF DECLINATION INDICATED IN THE SECTION OR SCHEDULE WITH A TOLERANCE OF ±3 DEGREES.
5. TOLERANCE FOR INSTALLATION OF TIEBACK IN ELEVATION IS ±3 INCH.
6. TIEBACK SHAFTS SHALL BE FREE OF LOOSE MATERIAL AND CONCRETE SHALL BE PLACED IMMEDIATELY AFTER PLACING TENDON IN THE SHAFT.
7. IT WILL NOT BE NECESSARY TO DEWATER THE HOLES FOR SOLDIER PILES OR TIEBACKS SHOULD GROUNDWATER BE ENCOUNTERED PROVIDED THE CONCRETE IS TREMIED INTO POSITION WITH APPROVED DEVICES.
8. SHAFTS CLOSER THAN TWO SHAFT DIAMETERS ON CENTER SHALL BE DRILLED AND POURED IN AN ALTERNATING SEQUENCE SUCH THAT THE ALTERNATE SHAFT IS NOT DRILLED UNTIL THE ADJACENT PILE HAS CURED FOR AT LEAST 24 HOURS.
9. PROVIDE PROTECTION OF SHAFT AGAINST SLOUGHING OR CAVING, AS REQUIRED.
10. WHERE CAVING OCCURS, DRILLED HOLES SHALL BE CASED AND ALL BACKFILL SHALL BE PRESSURE PUMPED SO THAT ALL VOIDS ARE FILLED.
11. ALL SHAFTS LEFT OPEN MORE THAN TWELVE (12) HOURS SHALL BE CASED.

## GROUT

(HIGH PRESSURE TIEBACK ANCHORS)

1. GROUT IN THE TIEBACK SHAFT SHALL BE A GROUT MIX OF CEMENT AND WATER.
2. CALCIUM CHLORIDE SHALL NOT BE ALLOWED IN THE GROUT.
3. HIGH-PRESSURE GROUT SHALL CONSIST OF: 1-SACK (94 LB.) CEMENT TYPE I, II, III, V CONFORMING TO ASTM C 150 MIXED WITH 4.5-5 GALLONS POTABLE WATER IN ACCORDANCE WITH THE POST TENSION INSTITUTE MANUAL 4TH EDITION.
4. ADMIXTURES SHALL NOT NORMALLY BE USED. ADMIXTURES WHICH CONTROL BLEED, IMPROVE FLOWABILITY REDUCE WATER CONTENT, AND RETARD SET MAY BE USED IN THE GROUT SUBJECT TO THE APPROVAL OF CEFALI & ASSOCIATES AND TESTS THAT VERIFY GROUT AND BOND PROPERTIES ARE NOT ADVERSELY AFFECTED. ADMIXTURES, IF USED, SHALL BE COMPATIBLE WITH THE PRESTRESSING STEEL AND MIXED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
5. THE GROUT MIX WILL BE BATCHED ON-SITE, USING A MIXING UNIT, DISCHARGING INTO A HOLDING TANK/AGITATOR UNIT OR DIRECTLY INTO THE PUMP PER THE FOLLOWING PROCEDURE:
   - A. FILL THE MIXING UNIT WITH THE SPECIFIED WATER USING A CALIBRATED MEASURING UNIT AND ADD CEMENT.
   - B. AGITATE THOROUGHLY UNTIL COLLOIDAL MIX IS ACHIEVED.
   - C. DISCHARGE GROUT INTO HOLDING TANK. AGITATE SLOWLY TO PREVENT SEGREGATION.
   - D. PUMP GROUT INTO BOREHOLE IN ACCORDANCE WITH THE TIE-BACK INSTALLATION PROCEDURE.

## SHORING PROCEDURE

1. DRILL VERTICAL SOLDIER PILE SHAFT.
2. PLACE SOLDIER BEAMS IN SHAFT
3. FILL THE TOE OF THE SOLDIER PILE SHAFT WITH 2500 PSI CONCRETE.
4. FILL BALANCE OF SHAFT WITH A SAND/CEMENT SLURRY.
5. PERFORM ABOVE STEPS FOR BALANCE OF SOLDIER PILES.
6. BEGIN EXCAVATION IN LIFTS AS MAY BE DETERMINED BY THE DEPUTY GRADING INSPECTOR. CLEAN SOLDIER PILES AS REQUIRED. PLACE WOOD LAGGING AS GRADE DESCENDS. PROVIDE SLURRY BEHIND LAGGING IN AREAS OF CAVING. OTHERWISE BACK-FILL WITH GRANULAR MATERIAL.
7. CONTINUE EXCAVATION TO THE STAGE 1 ELEVATION IN THE CASE OF A TIEBACK, RAKER OR CORNER BRACED SOLDIER PILE. IN THE CASE OF CANTILEVER PILE, OMIT STAGE 1 AND CONTINUE TO THE BOTTOM OF EXCAVATION.
8. IN THE CASE OF TIED BACK SOLDIER PILES, DRILL SHAFT FOR TIE-BACK AND INSTALL TENDONS PER THE "TIE-BACK INSTALLATION PROCEDURE" SHOWN. IN THE CASE OF RAKER BRACED SOLDIER PILE, INSTALL RAKER BRACE IN ACCORDANCE WITH "RAKER INSTALLATION PROCEDURE" SHOWN. FOR A CORNER BRACE INSTALL AT THIS STAGE IN ACCORDANCE WITH THE SPECIFIED DETAIL.
9. REPEAT STEPS 7 AND 8 FOR THE REST OF THE TIE-BACK/RAKER/CONRER BRACE LOCATIONS.
10. COMPLETE EXCAVATION.

## RAKER INSTALLATION PROCEDURE:

1. FOLLOW STEPS 1 THROUGH 7 OF "SHORING PROCEDURE" NOTES ON SHEET SS-1.
2. INSTALL RAKER BRACE.
3. POUR RAKER PAD.
4. AFTER CONCRETE HAS CURED FOR 2 DAYS COMPLETE EXCAVATION.

## TIE-BACK INSTALLATION PROCEDURE

-HIGH PRESSURE

1. MACHINE-DRILL THE TIEBACK SHAFT WITH A TEMPORARY CASING WHERE REQUIRED TO PREVENT SLOUGHING OR CAVING OF MATERIAL INTO THE HOLE. INJECT AIR AND/OR WATER UNDER PRESSURE THROUGH THE DRILL STEM TO REMOVE THE DRILL CUTTINGS FROM THE BOREHOLE.
2. WHEN THE SHAFT HAS BEEN ADVANCED TO TIP, INSTALL THE PREFABRICATED ANCHOR WITH ATTACHED CENTRALIZING DEVICES INTO THE BORE HOLE, OR WHERE REQUIRED THROUGHOUT THE DRILL CASING (NO CENTRALIZERS REQUIRED IF INSTALLED THROUGH CASING). THE PREFABRICATED ANCHOR SHALL CONSIST OF: HIGH-STRENGTH STEEL TENDONS, SPACERS TO SEPARATE THE INDIVIDUAL STRANDS (IF THE TENDON IS STRAND), CENTRALIZERS TO CENTRALIZE THE ASSEMBLY, TREMIE GROUT TUBE, POST-GROUT TUBE(S) WITH GROUT VALVES AND A PVC SHEATHING IN THE FREE STRESSING LENGTH.
3. FILL THE BORE HOLE THROUGH A TREMIE PIPE WITH GROUT. INSTALLATION PRESSURES SHALL BE LESS THAN 50 PSI. THE TREMIE LINE MAY REMAIN OR MAY BE REMOVED AFTER GROUTING. IF THE TUBE IS LEFT IN PLACE, IT MUST BE LEFT FULL OF GROUT. TERMINATE TREMIE GROUTING WHEN THE BORE HOLE IS COMPLETELY FILLED. THE GROUT WILL BE PUMPED AND PRESSURES WILL BE MONITORED BY A PRESSURE GAUGE AT THE OUTLET OF THE PUMP. THE TREMIE GROUT ACTS AS A SEAL FOR THE POST-GROUTING TO BE PERFORMED IN THE BOND ZONE ONLY.
4. ONCE THE TREMIE GROUT HAS ATTAINED ITS INITIAL SET, PERFORM POST-GROUTING OF THE ANCHOR BOND ZONE THROUGH THE ATTACHED POST-GROUT LINE AND VALVES. THE POST-GROUT LINE CONSISTS OF A PVC PIPE WITH RUBBER VALVES AT 4'-0" O.C. IN THE POST-GROUT ZONE. FRACTURE THE INITIALLY SET BOND ZONE WITH WATER AND REPEAT GROUTING UNTIL A CONFINEMENT BACK-PRESSURE OF BETWEEN 300 PSI AND 1200 PSI IS RECORDED. FLUSH THE POST-GROUT LINE WITH WATER FOR POTENTIAL REUSE. ACTUAL REQUIRED INJECTION PRESSURES AND GROUT VOLUMES WILL VARY DEPENDING ON GROUTING CONDITIONS AND HOLDING CAPACITIES OF THE ANCHOR.
5. THE ANCHOR SHALL REMAIN UNDISTURBED UNTIL THE GROUT HAS CURED A MINIMUM OF 2 DAYS.
6. TEST THE ANCHOR AGAINST THE SOLDIER BEAM. SHOULD THE ANCHOR FAIL THE ACCEPTANCE CRITERIA, UNLOAD THE ANCHOR AND PERFORM ADDITIONAL POST-GROUTING AND RETEST THE ANCHOR (STEPS 4, 5 AND 6). AFTER A SUCCESSFUL LOAD TEST, THE TENDON SHALL BE LOCKED OFF AT THE SPECIFIED LOCK-OFF LOAD. (SEE SCHEDULE)
7. REPEAT STEPS 1, 2, 3, 4, 5 AND 6 FOR THE REST OF THE TIEBACK LOCATIONS.
8. COMPLETE EXCAVATION TO THE NEXT ROW OF TIEBACKS OR BOTTOM OF EXCAVATION AS APPLICABLE.

## ANCHOR TESTING PROCEDURE

1. EACH ANCHOR SHALL BE SATISFACTORILY TESTED TO THE REQUIREMENTS OF A 150% OR 200% PULL TEST.
2. ALL ANCHORS, WITH THE EXCEPTION OF THE 200% TESTS, SHALL BE TESTED TO 150%. THIS TEST REQUIRES THE ANCHOR TO BE LOADED TO A MINIMUM OF 150% OF THE DESIGN LOAD. THE MOVEMENT OF THE PULLING HEAD INCLUDING THE FREE-STRESSING LENGTH ELONGATION SHALL NOT EXCEED 12" TOTAL DURING APPLICATION OF THE TEST LOAD FROM 0% TO 150%. AT THE 150% TEST LOAD, THE PULLING HEAD MOVEMENT SHALL NOT EXCEED 0.1 INCH DURING A 15-MINUTE TEST PERIOD.
3. UNLESS OTHERWISE APPROVED BY THE DEPARTMENT ON THE RECOMMENDATION OF THE GEOTECHNICAL ENGINEER, TEN PERCENT OF THE ANCHORS WHERE DIRECTED, SHALL BE TESTED IN ACCORDANCE WITH A 200% TEST. A 200% TEST REQUIRES THE ANCHOR TO BE LOADED TO 200% OF THE DESIGN LOAD. IN ADDITION, A REPRESENTATIVE SAMPLE OF THESE TESTS SHALL BE TESTED FOR A TIME PERIOD OF 24 HOURS. THE GEOTECHNICAL ENGINEER SHALL PREDETERMINE THE LOCATION OF THESE TEST ANCHORS AND EXTRA TENDONS, AS MAY BE REQUIRED, SHALL BE ADDED. THE MOVEMENT OF THE PULLING HEAD INCLUDING THE FREE-STRESSING LENGTH ELONGATION SHALL NOT EXCEED 12" TOTAL DURING APPLICATION OF THE TEST LOAD FROM 0% TO 200%. AT THE 200% TEST LOAD, THE PULLING HEAD MOVEMENT SHALL NOT EXCEED 0.2 INCH DURING A 15-MINUTE TEST PERIOD.
4. AT NO TIME DURING STRESSING AND REMOVAL OF JACKS, SHALL PERSONS STAND IN LINE WITH THE TENDONS OR BEND OVER ALREADY STRESSED TENDONS; SHOULD A TENDON BREAK, SUCH BREAKAGE IS EXPLOSIVE AND CAN RESULT IN SEVERE INJURY.
5. FOR ANCHORS FAILING THE TEST CRITERIA, CEFALI & ASSOCIATES SHALL BE NOTIFIED SO THAT REMEDIAL MEASURES CAN BE UNDERTAKEN.
6. PROVIDE ADDITIONAL TEMPORARY SUPPORT FOR STEEL SECTIONS AS MAY BE REQUIRED DURING THE TEST LOADING OF ANCHORS.

## INSPECTIONS/MONITORING

1. A REGISTERED SOILS/DEPUTY GRADING INSPECTOR SHALL BE PRESENT DURING ALL SHORING AND EXCAVATION OPERATIONS.
2. THE DEPUTY SOILS/GRADING INSPECTOR SHALL VERIFY THAT THE SIZE, DEPTH AND LOCATIONS OF EACH DRILLED HOLE COMPLIES WITH THE APPROVED PLANS. A LOG OF DEPTH READING FOR EACH DRILLED HOLE SHALL BE AVAILABLE FOR THE BUILDING DEPARTMENT INSPECTOR. THIS DOES NOT WAIVE INSPECTION BY THE BUILDING DEPARTMENT.
3. A REGISTERED DEPUTY INSPECTOR CERTIFIED IN REINFORCED CONCRETE SHALL BE PRESENT FOR POURING OF ALL CONCRETE AND GROUT AND TAKING OF SAMPLES.
4. THE CONCRETE DEPUTY INSPECTOR IS REQUIRED TO VERIFY THAT THE CONCRETE OR GROUT MIX REQUIREMENTS, THE TENDON LOCATIONS WITHIN THE ANCHOR HOLES, AND THE PLACEMENT OF THE GROUT/CONCRETE FOR THE ANCHORS ARE IN ACCORDANCE WITH THE APPROVED PLANS.
5. THE GEOTECHNICAL ENGINEER SHALL INSPECT AND APPROVE THE TESTING OF ALL ANCHORS. HE SHALL KEEP A RECORD OF ALL TEST LOADS AND TOTAL ANCHOR MOVEMENTS AND CERTIFY TO THEIR ACCURACY. THIS RECORD SHALL BE KEPT ON THE JOB SITE AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE BUILDING INSPECTOR.
6. PRIOR TO POURING CONCRETE OR GROUT IN THE DRILLED HOLES THE GEOTECHNICAL ENGINEER SHALL POST WRITTEN CERTIFICATION AT THE JOB SITE FOR THE CITY BUILDING INSPECTOR, STATING THAT THE SOIL CONDITIONS ENCOUNTERED IN EACH DRILLED HOLE IS IN CONFORMITY WITH THE CONDITIONS INCLUDED IN HIS REPORT. NO CONCRETE OR GROUT SHALL BE POURED UNTIL THE CITY BUILDING INSPECTOR ALSO HAS INSPECTED THE ANCHOR EXCAVATION.
7. ALL FIELD WELDING SHALL BE CONTINUOUSLY INSPECTED BY A REGISTERED DEPUTY INSPECTOR CERTIFIED IN STRUCTURAL WELDING.
8. ALL SHOP WELDING SHALL BE PERFORMED IN A CITY OF LOS ANGELES APPROVED FABRICATORS SHOP.
9. CERTIFICATION FROM AN APPROVED TESTING LABORATORY SHALL BE SUBMITTED FOR THE CALIBRATION OF THE ANCHOR LOADING DEVICES AT THE START OF EACH JOB AND AT 30 DAY INTERVALS THEREAFTER.
10. UPON COMPLETION OF THE ANCHOR INSTALLATION AND TESTING, THE GEOTECHNICAL ENGINEER SHALL SUBMIT A REPORT TO THE BUILDING DEPARTMENT STATING THAT THE INSTALLATION AND TESTING OF ALL ANCHORS ARE IN CONFORMANCE WITH THE RECOMMENDATIONS OF THE SOIL REPORT AND ANY SUPPLEMENTS.
11. SHORING PILES SHALL BE SURVEY MONITORED WEEKLY FOR LINE AND GRADE. ANY ONE-INCH MOVEMENT SHALL BE ANALYZED BY THE GEOTECHNICAL ENGINEER AND DATA PROMPTLY SUBMITTED TO CEFALI & ASSOCIATES AND THE CITY ENGINEER, CENTRAL ENGINEERING DISTRICT. ANY TWO-INCH MOVEMENT SHALL BE CAUSE FOR REMEDIAL SHORING TO PREVENT ADDITIONAL MOVEMENT PRIOR TO FURTHER CONSTRUCTION.
12. AFTER TIEBACK ANCHORS HAVE BEEN INSTALLED AND THERE OCCURS A 3-WEEK PERIOD WHERE THE MOVEMENT IS LESS THAN 0.3 INCHES, THE MONITORING INTERVALS MAY BE INCREASED TO MONTHLY INTERVALS.
13. MONITORING CAN BE DISCONTINUED AT SUCH TIME AS THE PERMANENT STRUCTURE IS CAPABLE OF TAKING THE PERMANENT EARTH LOAD.
14. THE PUBLIC WORKS INSPECTOR SHALL VERIFY AT THE CONCLUSION OF THE SHORING PROCESS THAT THE ANCHORS WITHIN THE PUBLIC WAY HAVE BEEN EITHER REMOVED OR DETENSIONED.

## SHORING REMOVAL PROCEDURE:

1. ALL SOLDIER BEAMS AND LAGGING PLACED IN THE PUBLIC WAY EITHER UNDER THE SIDEWALK OR IN THE ROADWAY SHALL BE REMOVED TO A MINIMUM OF 8'-0" BELOW GUTTER GRADE.
2. ALL SOLDIER BEAMS AND LAGGING PLACED IN AN ALLEY SHALL BE REMOVED TO A MINIMUM OF 4'-0" BELOW GUTTER GRADE.
3. ALL TIEBACK ANCHOR RODS IN THE PUBLIC WAY INCLUDING ALLEYS THAT ARE LOCATED WITHIN 20 FEET OF THE SURFACE SHALL BE REMOVED AT THE CONCLUSION OF CONSTRUCTION. THOSE TIEBACKS IN THE PUBLIC WAY DEEPER THAN 20 FEET SHALL BE DETENSIONED AT THE CONCLUSION OF CONSTRUCTION AND THIS SHALL BE VERIFIED BY THE PUBLIC WORKS INSPECTOR.
4. ALL BACKFILL BETWEEN THE PERMANENT WALL AND THE PUBLIC WAY SHALL BE COHESIVE MATERIAL, COMPACTED TO A MINIMUM 90 PERCENT RELATIVE COMPACTION OR A 1½ SACK SLURRY MIX, UNDER THE CONTINUOUS INSPECTION AND TESTING BY THE GEOTECHNICAL ENGINEER AND THE PUBLIC WORKS INSPECTOR.
5. DO NOT RELEASE TIES AND/OR REMOVE RAKERS AND/OR CORNER BRACES UNTIL CONFIRMATION IN WRITING FROM STRUCTURAL ENGINEER OF RECORD THAT THE PERMANENT STRUCTURE IS CAPABLE OF TAKING THE EARTH LOADS.
6. TIEBACKS/RAKERS/CORNER BRACES SHOULD NOT BE DETENSIONED OR REMOVED UNTIL AFTER THE PERMANENT WALL AT THIS LEVEL IS UP TO DESIGN STRENGTH AND BRACED BY THE STRUCTURAL SLAB IMMEDIATELY ABOVE.
7. FOR THE CASE OF A TIEBACKS/RAKERS/CORNER BRACES LOCATED WITHIN 3 FEET OF A STRUCTURAL SLAB BELOW, THESE CAN BE REMOVED PRIOR TO THE WALL AND STRUCTURAL DECK ABOVE BEING INSTALLED, AS LONG AS THE STRUCTURAL DECK AT THIS LEVEL IS UP TO STRENGTH.

## STRUCTURAL OBSERVATION

1. STRUCTURAL OBSERVATION IS NOT REQUIRED.

**Underground Service Alert**

CALL BEFORE YOU DIG

Call: TOLL FREE

1-800-422-4133

TWO WORKING DAYS
BEFORE YOU DIG

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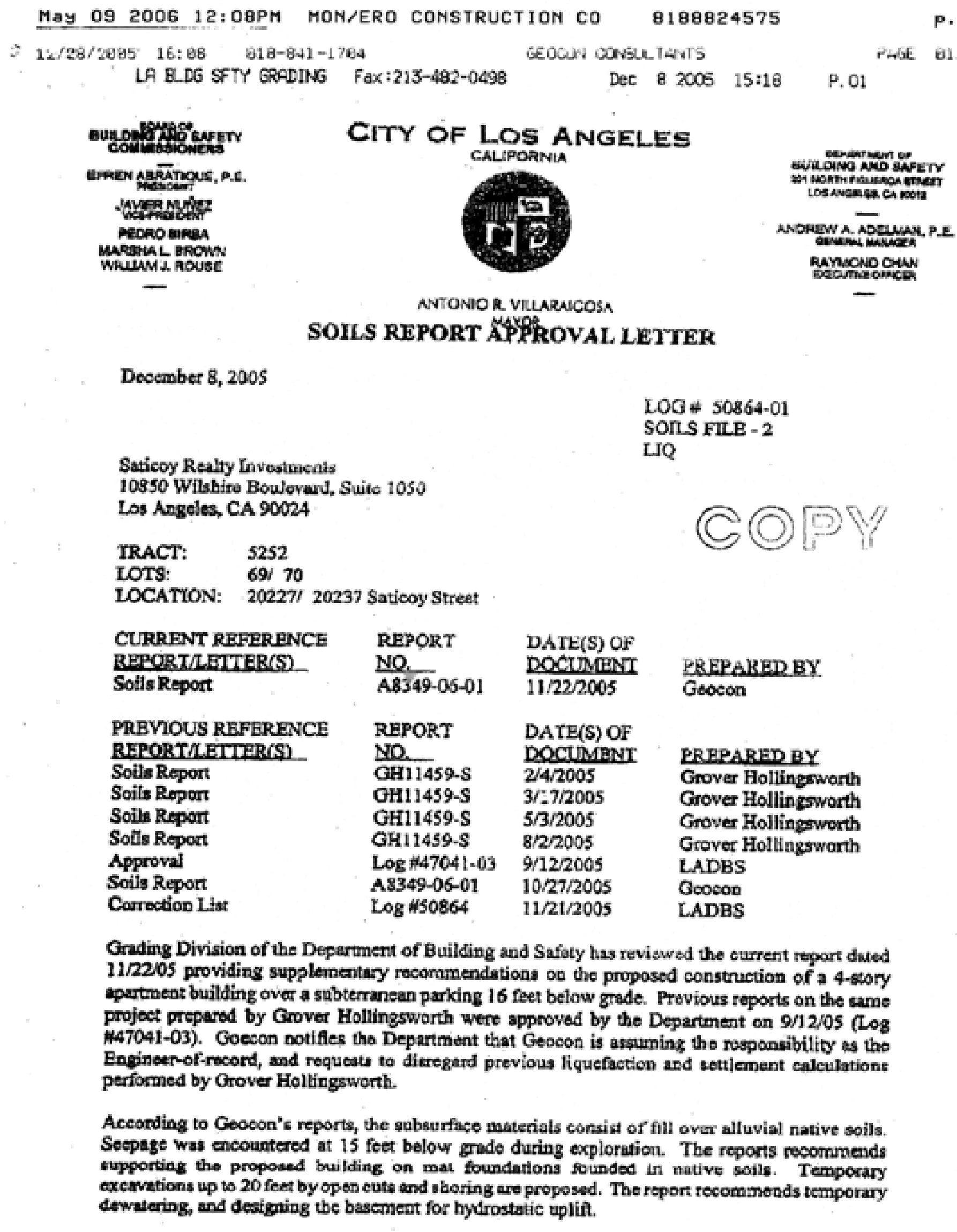

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12/28/2005 16:08 818-841-1704 GEOCON CONSULTANTS PAGE 01/04

LA BLDG SFTY GRADING Fax:213-482-0498 Dec 8 2005 15:18 P.01

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### SOILS REPORT APPROVAL LETTER

December 8, 2005

LOG # 50864-01
SOILS FILE - 2
LIQ

Saticoy Realty Investments
10850 Wilshire Boulevard, Suite 1050
Los Angeles, CA 90024

COPY

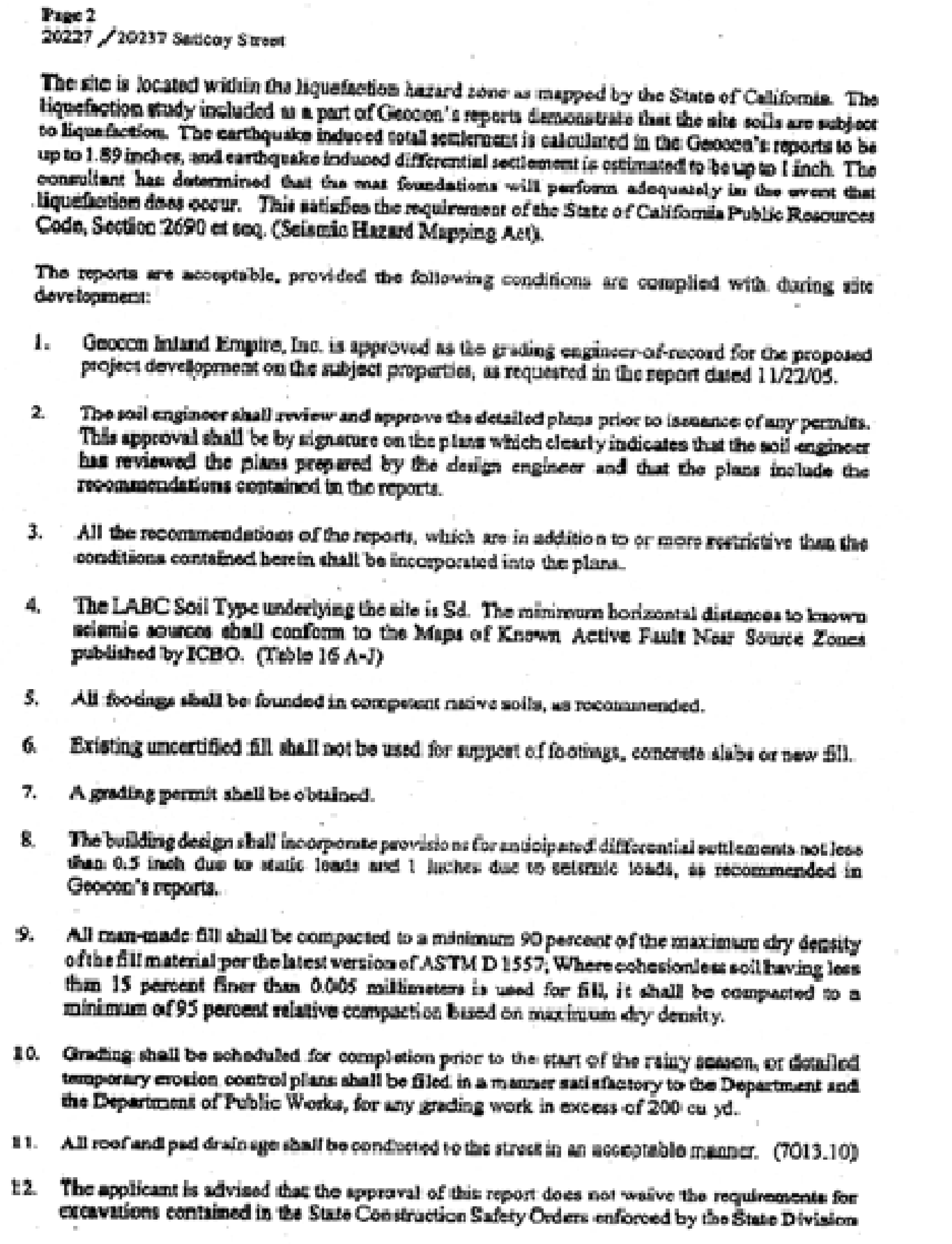
TRACT: 5252
LOTS: 69/ 70
LOCATION: 20227/ 20237 Saticoy Street

| CURRENT REFERENCE REPORT/LETTER(S) | REPORT NO. | DATE(S) OF DOCUMENT | PREPARED BY |
|---|---|---|---|
| Soils Report | A8349-06-01 | 11/22/2005 | Geocon |

| PREVIOUS REFERENCE REPORT/LETTER(S) | REPORT NO. | DATE(S) OF DOCUMENT | PREPARED BY |
|---|---|---|---|
| Soils Report | GH11459-S | 2/4/2005 | Grover Hollingsworth |
| Soils Report | GH11459-S | 3/17/2005 | Grover Hollingsworth |
| Soils Report | GH11459-S | 5/3/2005 | Grover Hollingsworth |
| Soils Report | GH11459-S | 8/2/2005 | Grover Hollingsworth |
| Approval | Log #47041-03 | 9/12/2005 | LADBS |
| Soils Report | A8349-06-01 | 10/27/2005 | Geocon |
| Correction List | Log #50864 | 11/21/2005 | LADBS |

Grading Division of the Department of Building and Safety has reviewed the current report dated 11/22/05 providing supplementary recommendations on the proposed construction of a 4-story apartment building over a subterranean parking 16 feet below grade. Previous reports on the same project prepared by Grover Hollingsworth were approved by the Department on 9/12/05 (Log #47041-03). Geocon notifies the Department that Geocon is assuming the responsibility as the Engineer-of-record, and requests to disregard previous liquefaction and settlement calculations performed by Grover Hollingsworth.

According to Geocon's reports, the subsurface materials consist of fill over alluvial native soils. Seepage was encountered at 15 feet below grade during exploration. The reports recommends supporting the proposed building on mat foundations founded in native soils. Temporary excavations up to 20 feet by open cuts and shoring are proposed. The report recommends temporary dewatering, and designing the basement for hydrostatic uplift.



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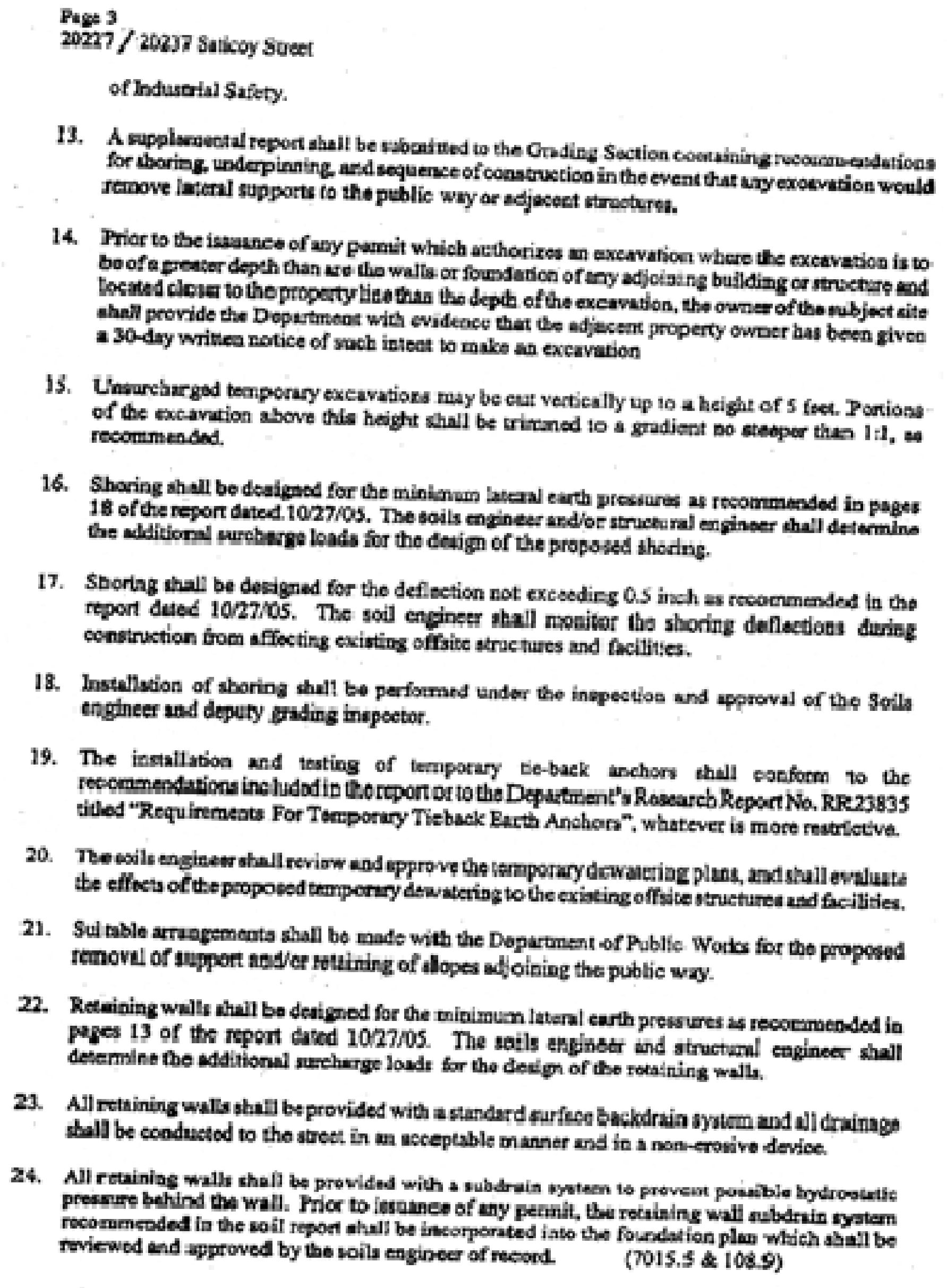
The site is located within the liquefaction hazard zone as mapped by the State of California. The liquefaction study included as a part of Geocon's reports demonstrate that the site soils are subject to liquefaction. The earthquake induced total settlement is calculated in the Geocon's reports to be up to 1.89 inches, and earthquake induced differential settlement is estimated to be up to 1 inch. The consultant has determined that the mat foundations will perform adequately in the event that liquefaction does occur. This satisfies the requirement of the State of California Public Resources Code, Section 2690 et seq. (Seismic Hazard Mapping Act).

The reports are acceptable, provided the following conditions are complied with during site development:

1. Geocon Inland Empire, Inc. is approved as the grading engineer-of-record for the proposed project development on the subject properties, as requested in the report dated 11/22/05.
2. The soil engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans which clearly indicates that the soil engineer has reviewed the plans prepared by the design engineer and that the plans include the recommendations contained in the reports.
3. All the recommendations of the reports, which are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.
4. The LABC Soil Type underlying the site is Sd. The minimum horizontal distances to known seismic sources shall conform to the Maps of Known Active Fault Near Source Zones published by ICBO. (Table 16 A-J)
5. All footings shall be founded in competent native soils, as recommended.
6. Existing uncertified fill shall not be used for support of footings, concrete slabs or new fill.
7. A grading permit shall be obtained.
8. The building design shall incorporate provisions for anticipated differential settlements not less than 0.5 inch due to static loads and 1 inches due to seismic loads, as recommended in Geocon's reports.
9. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557. Where cohesionless soil having less than 15 percent finer than 0.005 millimeters is used for fill, it shall be compacted to a minimum of 95 percent relative compaction based on maximum dry density.
10. Grading shall be scheduled for completion prior to the start of the rainy season, or detailed temporary erosion control plans shall be filed in a manner satisfactory to the Department and the Department of Public Works, for any grading work in excess of 200 cu yd.
11. All roof and pad drainage shall be conducted to the street in an acceptable manner. (7013.10)
12. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the State Construction Safety Orders enforced by the State Division



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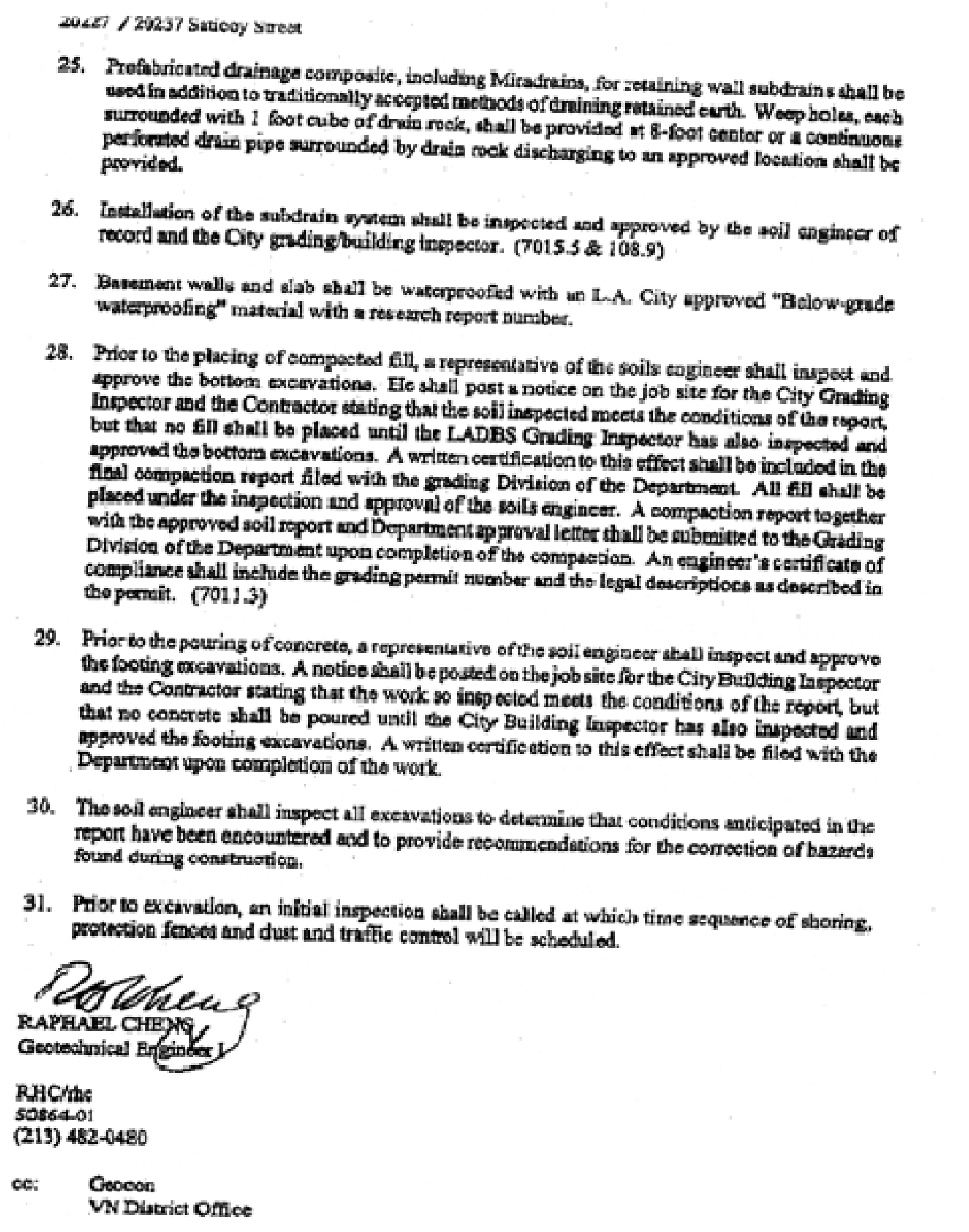
of Industrial Safety.

13. A supplemental report shall be submitted to the Grading Section containing recommendations for shoring, underpinning, and sequence of construction in the event that any excavation would remove lateral supports to the public way or adjacent structures.
14. Prior to the issuance of any permit which authorizes an excavation where the excavation is to be of a greater depth than are the walls or foundation of any adjoining building or structure and located closer to the property line than the depth of the excavation, the owner of the subject site shall provide the Department with evidence that the adjacent property owner has been given a 30-day written notice of such intent to make an excavation
15. Unsurcharged temporary excavations may be cut vertically up to a height of 5 feet. Portions of the excavation above this height shall be trimmed to a gradient no steeper than 1:1, as recommended.
16. Shoring shall be designed for the minimum lateral earth pressures as recommended in pages 18 of the report dated 10/27/05. The soils engineer and/or structural engineer shall determine the additional surcharge loads for the design of the proposed shoring.
17. Shoring shall be designed for the deflection not exceeding 0.5 inch as recommended in the report dated 10/27/05. The soil engineer shall monitor the shoring deflections during construction from affecting existing offsite structures and facilities.
18. Installation of shoring shall be performed under the inspection and approval of the Soils engineer and deputy grading inspector.
19. The installation and testing of temporary tie-back anchors shall conform to the recommendations included in the report or to the Department's Research Report No. RR23835 titled "Requirements For Temporary Tieback Earth Anchors", whatever is more restrictive.
20. The soils engineer shall review and approve the temporary dewatering plans, and shall evaluate the effects of the proposed temporary dewatering to the existing offsite structures and facilities.
21. Suitable arrangements shall be made with the Department of Public Works for the proposed removal of support and/or retaining of slopes adjoining the public way.
22. Retaining walls shall be designed for the minimum lateral earth pressures as recommended in pages 13 of the report dated 10/27/05. The soils engineer and structural engineer shall determine the additional surcharge loads for the design of the retaining walls.
23. All retaining walls shall be provided with a standard surface backdrain system and all drainage shall be conducted to the street in an acceptable manner and in a non-erosive device.
24. All retaining walls shall be provided with a subdrain system to prevent possible hydrostatic pressure behind the wall. Prior to issuance of any permit, the retaining wall subdrain system recommended in the soil report shall be incorporated into the foundation plan which shall be reviewed and approved by the soils engineer of record. (7015.5 & 108.9)



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25. Prefabricated drainage composite, including Miradrains, for retaining wall subdrains shall be used in addition to traditionally accepted methods of draining retained earth. Weep holes, each surrounded with 1 foot cube of drain rock, shall be provided at 8-foot center or a continuous perforated drain pipe surrounded by drain rock discharging to an approved location shall be provided.
26. Installation of the subdrain system shall be inspected and approved by the soil engineer of record and the City grading/building inspector. (7015.5 & 108.9)
27. Basement walls and slab shall be waterproofed with an L.A. City approved "Below-grade waterproofing" material with a research report number.
28. Prior to the placing of compacted fill, a representative of the soils engineer shall inspect and approve the bottom excavations. He shall post a notice on the job site for the City Grading Inspector and the Contractor stating that the soil inspected meets the conditions of the report, but that no fill shall be placed until the LADBS Grading Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be included in the final compaction report filed with the grading Division of the Department. All fill shall be placed under the inspection and approval of the soils engineer. A compaction report together with the approved soil report and Department approval letter shall be submitted to the Grading Division of the Department upon completion of the compaction. An engineer's certificate of compliance shall include the grading permit number and the legal descriptions as described in the permit. (7011.3)
29. Prior to the pouring of concrete, a representative of the soil engineer shall inspect and approve the footing excavations. A notice shall be posted on the job site for the City Building Inspector and the Contractor stating that the work so inspected meets the conditions of the report, but that no concrete shall be poured until the City Building Inspector has also inspected and approved the footing excavations. A written certification to this effect shall be filed with the Department upon completion of the work.
30. The soil engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during construction.
31. Prior to excavation, an initial inspection shall be called at which time sequence of shoring, protection fences and dust and traffic control will be scheduled.

RAPHAEL CHENG
Geotechnical Engineer I

RHC/thc
50864-01
(213) 482-0480

cc: Geocon
VN District Office

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| MARK | DATE | DESCRIPTION |
|---|---|---|
| 1 | 5-3-06 | CITY CORRECTIONS |
| 2 | 5-17-06 | RAKER REVISION |
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PROJECT TITLE

TEMPORARY SHORING

APARTMENT BUILDING
20223-20237 W. SATICOY
WINNETKA, CA

SHEET TITLE

GENERAL NOTES

DATE: 03/07/06
SCALE: AS NOTED
DRAWN BY: F.Q.
PROJECT NO. 05-010
DRAWING NO. SS-1
SHEET 1 OF 4