ROUGH GRADING PLAN
FOR
THE OAKS AT TRABUCO
TRACT NO. 14749

LOTS 3, 4, 6, 7, AND 8 OF TRACT NO. 14749, PER MB 589/42-46, RECORDS OF ORANGE COUNTY, CALIFORNIA
APN: 586-171-03, APN:586-171-04, APN: 586-171-06, APN: 586-171-07, AND APN: 586-171-08

GRADING NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE GRADING CODE OF THE COUNTY OF ORANGE, AND ANY SPECIAL REQUIREMENTS OF THE PERMIT. A COPY OF THE GRADING CODE AND MANUAL SHALL BE RETAINED ON THE JOB SITE WHILE WORK IS IN PROGRESS. WHEN REFERENCED ON THE PLANS, A COPY OF OC PUBLIC WORKS STANDARD PLANS SHALL ALSO BE RETAINED ON THE SITE.
2. GRADING SHALL NOT BE STARTED WITHOUT FIRST NOTIFYING THE DISTRICT GRADING INSPECTOR. A PRE-GRADING MEETING ON THE SITE IS REQUIRED BEFORE START OF GRADING WITH THE FOLLOWING PEOPLE PRESENT: OWNER, GRADING CONTRACTOR, DESIGN CIVIL ENGINEER, SOIL ENGINEER, ENGINEERING GEOLOGIST, DISTRICT GRADING INSPECTOR, AND WHEN REQUIRED, THE ARCHAEOLOGIST AND PALEONTOLOGIST. THE REQUIRED INSPECTIONS FOR GRADING WILL BE EXPLAINED AT THE MEETING.
3. ISSUANCE OF A GRADING PERMIT DOES NOT ELIMINATE THE NEED FOR PERMITS FROM OTHER AGENCIES WITH REGULATORY RESPONSIBILITIES FOR CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE WORK AUTHORIZED ON THIS PLAN.
4. THE GRADING PERMIT AND AN APPROVED COPY OF THE GRADING PLAN SHALL BE ON THE PERMITTED SITE WHILE WORK IS IN PROGRESS.
5. PRELIMINARY SOIL AND GEOLOGY REPORTS, AND ALL SUBSEQUENT REPORTS AS APPROVED BY OC PLANNING, GRADING SECTION, ARE CONSIDERED A PART OF THE APPROVED GRADING PLAN.
6. THE SOIL ENGINEER AND ENGINEERING GEOLOGIST SHALL PERFORM SUFFICIENT INSPECTIONS AND BE AVAILABLE DURING GRADING AND CONSTRUCTION TO VERIFY COMPLIANCE WITH THE PLANS, SPECIFICATIONS AND THE CODE WITHIN THEIR PURVIEW.
7. THE CIVIL ENGINEER SHALL BE AVAILABLE DURING GRADING TO VERIFY COMPLIANCE WITH THE PLANS, SPECIFICATIONS, CODE AND ANY SPECIAL CONDITIONS OF THE PERMIT WITHIN THEIR PURVIEW.
8. THE SOIL ENGINEER AND ENGINEERING GEOLOGIST SHALL, AFTER CLEARING AND PRIOR TO PLACEMENT OF FILL IN CANYONS, INSPECT EACH CANYON FOR AREAS OF ADVERSE STABILITY, AND TO DETERMINE THE PRESENCE OR ABSENCE OF SUBSURFACE WATER OR SPRING FLOW. IF NEEDED, SUBDRAINS WILL BE DESIGNED AND CONSTRUCTED PRIOR TO THE PLACEMENT OF FILL IN EACH RESPECTIVE CANYON.
9. SUBDRAIN OUTLETS SHALL BE COMPLETED AT THE BEGINNING OF THE SUBDRAIN CONSTRUCTION.
10. THE EXACT LOCATION OF THE SUBDRAINS SHALL BE SURVEYED IN THE FIELD FOR LINE/GRADE AND SHOWN ON AS-GRADED PLANS.
11. AREAS TO RECEIVE FILL SHALL BE PROPERLY PREPARED AND APPROVED IN WRITING BY THE SOIL ENGINEER AND THE BUILDING OFFICIAL PRIOR TO PLACING FILL.
12. FILLS SHALL BE BENCHED INTO COMPETENT MATERIAL PER OC PUBLIC WORKS STANDARD PLAN NO 1322.
13. ALL EXISTING FILLS SHALL BE APPROVED BY THE BUILDING OFFICIAL OR REMOVED PRIOR TO PLACING ADDITIONAL FILLS.
14. FILLS SHALL BE COMPACTED THROUGHOUT TO A MINIMUM OF 90% RELATIVE COMPACTION. AGGREGATE BASE FOR ASPHALTIC AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION. MAXIMUM DENSITY SHALL BE DETERMINED BY UNIFORM BUILDING CODE STANDARD GO. 70-1 OR APPROVED EQUIVALENT AND FIELD DENSITY BY UNIFORM BUILDING CODE NO. 70-2 OR APPROVED EQUIVALENT.
15. CUT AND FILL SLOPES SHALL BE NO STEEPER THAN 2-FEET HORIZONTAL TO 1-FOOT VERTICAL (2:1) EXCEPT WHERE SPECIFICALLY APPROVED OTHERWISE.
16. ALL CUT SLOPES SHALL BE INVESTIGATED BOTH DURING AND AFTER GRADING BY THE ENGINEERING GEOLOGIST TO DETERMINE IF ANY SLOPE STABILITY PROBLEMS EXIST. SHOULD EXCAVATION DISCLOSE ANY GEOLOGICAL HAZARDS OR POTENTIAL GEOLOGICAL HAZARDS, THE ENGINEERING GEOLOGIST SHALL SUBMIT RECOMMENDED TREATMENT TO THE BUILDING OFFICIAL FOR APPROVAL
17. WHERE SUPPORT OR BUTTRESSING OF CUT AND NATURAL SLOPES IS DETERMINED NECESSARY BY THE ENGINEERING GEOLOGIST AND SOIL ENGINEER, THE SOIL ENGINEER SHALL SUBMIT DESIGN, LOCATIONS AND CALCULATIONS TO THE BUILDING OFFICIAL PRIOR TO CONSTRUCTION. THE ENGINEERING GEOLOGIST AND SOIL ENGINEER SHALL INSPECT AND CONTROL THE CONSTRUCTION OF THE BUTTRESSING AND CERTIFY TO THE STABILITY OF THE SLOPE AND ADJACENT STRUCTURES UPON COMPLETION.
18. WHEN CUT PADS ARE BROUGHT TO NEAR GRADE, THE ENGINEERING GEOLOGIST SHALL DETERMINE IF THE BEDROCK IS EXTENSIVELY FRACTURED OR FAULTED, AND WILL READILY TRANSMIT WATER. IF CONSIDERED NECESSARY BY THE ENGINEERING GEOLOGIST AND SOIL ENGINEER, A COMPACTED FILL BLANKET WILL BE PLACED.
19. ALL TRENCH BACKFILL SHALL BE TESTED AND APPROVED BY THE SOIL ENGINEER PER THE GRADING CODE.
20. ANY EXISTING IRRIGATION LINES AND CISTERNS SHALL BE REMOVED OR CRUSHED IN PLACE AND APPROVED BY THE BUILDING OFFICIAL AND SOIL ENGINEER.
21. ANY EXISTING WATER WELLS SHALL BE ABANDONED IN COMPLIANCE WITH THE SPECIFICATIONS APPROVED BY ORANGE COUNTY HEALTH CARE AGENCY AND DIVISION OF ENVIRONMENTAL HEALTH.
22. ANY EXISTING CESSPOOLS AND SEPTIC TANKS SHALL BE ABANDONED IN COMPLIANCE WITH THE UNIFORM PLUMBING CODE TO THE APPROVAL OF OC PLANNING/BUILDING INSPECTION.
23. STOCKPILING OF EXCESS MATERIAL SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO EXCAVATION.
24. EXPORT SOIL MUST BE TRANSPORTED TO A LEGAL DUMP OR TO A PERMITTED SITE APPROVED BY THE DISTRICT GRADING INSPECTOR.
25. THE PERMITTEE SHALL COMPLY WITH THE GRADING CODE REQUIREMENTS FOR HAUL ROUTES WHEN AN EXCESS OF 5,000 CUBIC YARDS OF EARTH IS TRANSPORTED TO OR FROM A PERMITTED SITE ON PUBLIC ROADWAYS.
26. THE PERMITTEE IS RESPONSIBLE FOR DUST CONTROL MEASURES.
27. THE PERMITTEE SHALL GIVE REASONABLE NOTICE TO THE OWNER OF ADJOINING LANDS AND BUILDING PRIOR TO BEGINNING EXCAVATIONS WHICH MAY AFFECT THE LATERAL AND SUBJACENT SUPPORT OF THE ADJOINING PROPERTY. THE NOTICE SHALL STATE THE INTENDED DEPTH OF EXCAVATION AND WHEN THE EXCAVATION WILL COMMENCE. THE ADJOINING OWNER SHALL BE ALLOWED AT LEAST 30 DAYS AND REASONABLE ACCESS ON THE PERMITTED PROPERTY TO PROTECT HIS STRUCTURE, IF HE SO DESIRES, UNLESS OTHERWISE PROTECTED BY LAW.
28. ALL CONCRETE STRUCTURES THAT COME IN CONTACT WITH THE ON-SITE SOILS SHALL BE CONSTRUCTED WITH TYPE V CEMENT, UNLESS DEEMED UNNECESSARY BY SOLUBLE SULFATE-CONTENT TESTS CONDUCTED BY THE SOIL ENGINEER.
29. SLOPES EXCEEDING 5 FEET IN HEIGHT SHALL BE PLANTED WITH AN APPROVED PLANT MATERIAL. IN ADDITION, SLOPES EXCEEDING 15 FEET IN HEIGHT SHALL BE PROVIDED WITH AN APPROVED IRRIGATION SYSTEM, UNLESS OTHERWISE APPROVED BY THE BUILDING OFFICIAL.
30. ALL EXISTING DRAINAGE COURSES THROUGH THIS SITE SHALL REMAIN OPEN UNTIL FACILITIES TO HANDLE STORMWATER ARE APPROVED AND FUNCTIONAL, HOWEVER, IN ANY CASE, THE PERMITTEE SHALL BE HELD LIABLE FOR ANY DAMAGE DUE TO OBSTRUCTING NATURAL DRAINAGE PATTERNS.
31. SANITARY FACILITIES SHALL BE MAINTAINED ON SITE.
32. THE LOCATION AND PROTECTION OF ALL UTILITIES IS THE RESPONSIBILITY OF THE PERMITTEE.
33. APPROVED PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS SHALL BE USED TO PROTECT ADJOINING PROPERTIES DURING GRADING.
34. GRADING OPERATIONS INCLUDING MAINTENANCE OF EQUIPMENT WITHIN ONE-MILE OF A HUMAN OCCUPANCY SHALL NOT BE CONDUCTED BETWEEN THE HOURS OF 8:00 P.M. AND 7:00 A.M. DAILY, ON SUNDAY OR ON A FEDERAL HOLIDAY.
   a. ALL CONSTRUCTION VEHICLES OR EQUIPMENT, FIXED OR MOBILE, OPERATED WITHIN 1000 FEET OF A DWELLING SHALL BE EQUIPPED WITH PROPERLY OPERATIONAL AND MAINTAINED MUFFLERS.
   b. ALL OPERATIONS SHALL COMPLY WITH ORANGE COUNTY CODIFIED ORDINANCE DIVISION 6 (NOISE CONTROL).
   c. STOCKPILING AND/OR VEHICLE STAGING AREAS SHALL BE LOCATED AS FAR AS PRACTICAL FROM DWELLINGS AND WITHIN THE LIMITS OF THE GRADING PERMIT.
35. GRADING AND EXCAVATION SHALL BE HALTED DURING PERIODS OF HIGH WINDS. ACCORDING TO AQMD MEASURE F-4, HIGH WINDS ARE DEFINED AS 30 MPH OR GREATER. THIS LEVEL OCCURS ONLY UNDER EXTREME CONDITIONS SUCH AS SANTA ANA WIND CONDITIONS.
36. ASPHALT SECTIONS MUST BE PER CODE: PARKING STALL – 3" A/C OVER 6" A/B, DRIVES 3" A/C OVER 10" (COMMERCIAL) 12" (INDUSTRIAL). OR: PRIOR TO ROUGH GRADE RELEASE FOR BUILDING PERMITS BY THE DISTRICT GRADING INSPECTOR, THE SOIL ENGINEER SHALL SUBMIT FOR APPROVAL PAVEMENT SECTION RECOMMENDATIONS BASED ON "R" VALUE ANALYSIS OF THE SUB-GRADE SOILS, AND EXPECTED TRAFFIC INDICES.
37. ASPHALT CONCRETE SHALL BE CONSTRUCTED PER THE REQUIREMENTS OF OC PUBLIC WORKS STANDARD PLAN NO.1805.
38. AGGREGATE BASE SECTION SHALL BE CONSTRUCTED PER OC PUBLIC WORKS STANDARD PLAN NO. 1804.
39. ROOF GUTTERS SHALL BE INSTALLED TO PREVENT ROOF DRAINAGE FROM FALLING ON MANUFACTURED SLOPES.
40. THE CIVIL ENGINEER, AS A CONDITION OF ROUGH GRADE APPROVAL, SHALL PROVIDE A BLUE TOP WITH ACCOMPANYING WITNESS STAKE, SET AT THE CENTER OF EACH PAD REFLECTING THE PAD ELEVATION FOR PRECISE PERMITS, AND A BLUE TOP WITH WITNESS STAKE SET AT THE DRAINAGE SWALE HIGH-POINT REFLECTING THE HIGH POINT ELEVATION FOR PRELIMINARY PERMITS.
41. PRIOR TO FINAL APPROVAL, THE CIVIL ENGINEER SHALL CERTIFY TO THE BUILDING OFFICIAL THE AMOUNT OF EARTH MOVED DURING THE GRADING OPERATION.
42. THE ENGINEERING GEOLOGIST SHALL PERFORM PERIODIC INSPECTIONS AND SUBMIT A COMPLETE REPORT AND MAP UPON COMPLETION OF THE ROUGH GRADING.
43. THE GRADING CONTRACTOR SHALL SUBMIT A STATEMENT OF COMPLIANCE TO THE APPROVED GRADING PLAN PRIOR TO FINAL APPROVAL.
44. THE COMPACTION REPORT AND APPROVAL FROM THE SOIL ENGINEER SHALL INDICATE THE TYPE OF FIELD TESTING PERFORMED. THE METHOD OF OBTAINING THE IN-PLACE DENSITY SHALL BE IDENTIFIED WHETHER SAND CONE, DRIVE RING OR NUCLEAR, AND SHALL BE NOTED FOR EACH TEST. SUFFICIENT MAXIMUM DENSITY DETERMINATIONS SHALL BE PERFORMED TO VERIFY ACCURACY OF THE MAXIMUM DENSITY CURVES USED BY THE FIELD TECHNICIAN.
45. IN THE EVENT THAT SOIL CONTAMINATION IS DISCOVERED DURING EXCAVATION AND REMOVAL OF AN EXISTING TANK, WORK SHALL BE STOPPED UNTIL A SITE ASSESSMENT AND MITIGATION PLAN HAS BEEN PREPARED, SUBMITTED AND APPROVED BY THE HEALTH CARE AGENCY/ENVIRONMENTAL HEALTH AND OC PLANNING/GRADING.

EROSION CONTROL

46. IN THE CASE OF EMERGENCY, CALL BRUCE GOREN AT WORK TELEPHONE # (310) 950-5102.
47. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
48. EROSION CONTROL DEVICES SHALL NOT BE MOVED OR MODIFIED WITHOUT THE APPROVAL OF THE BUILDING OFFICIAL
49. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%,
50. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM STREETS, CHECK BERMS AND BASINS.
51. GRADED AREAS OF THE PERMITTED AREA PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE IS TO BE DIRECTED TOWARDS DESILTING FACILITIES.
52. THE PERMITTEE AND CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZARDOUS CONDITION.
53. THE PERMITTEE AND CONTRACTOR SHALL INSPECT THE EROSION CONTROL WORK AND INSURE THAT THE WORK IS IN ACCORDANCE WITH THE APPROVED PLAN.

ENVIRONMENTAL NOTES

54. THE PERMITTEE SHALL NOTIFY ALL GENERAL CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS, LESSEES AND PROPERTY OWNERS THAT DUMPING OF CHEMICALS INTO THE STORM DRAIN SYSTEM OR THE WATERSHED IS PROHIBITED.
55. PERMITTEE SHALL MAINTAIN CONSTRUCTION SITE IN A CONDITION THAT AN ANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS, WASTES FROM PAINT, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; FERTILIZERS, VEHICLE/EQUIPMENT WASH WATER AND CONCRETE WASH WATER; CONCRETE, DETERGENT OR FLOATABLE WASTES; WASTES FROM ANY ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING AND SUPER CHLORINATED POTABLE WATER LINE FLUSHING.

    DURING CONSTRUCTION, PERMITTEE SHALL DISPOSE OF SUCH MATERIALS IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE, PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
56. PERMITTEE MAY DISCHARGE MATERIAL OTHER THAN STORMWATER ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT: CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD; CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION OR NUISANCE; OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATION 40 CFR, PARTS 117 AND 302.
57. DEWATERING OF CONTAMINATED GROUNDWATER OR DISCHARGING CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NON-CONTAMINATED GROUNDWATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FORM THE RESPECTIVE STATE REGIONAL WATER QUALITY CONTROL BOARD.
58. SPECIAL NOTE:"SURVEY MONUMENTS SHALL BE PRESERVED AND REFERENCED BEFORE CONSTRUCTION AND REPLACED AFTER CONSTRUCTION PURSUANT TO SECTION 8771 OF THE BUSINESS AND PROFESSIONAL CODE."

ADDITIONAL NOTES:

1. ALL CONSTRUCTION CONTRACTORS SHALL COMPLY WITH SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) REGULATIONS, INCLUDING RULE 403, FUGITIVE DUST, AND RULE 402, NUISANCE. ALL GRADING (REGARDLESS OF ACREAGE) SHALL APPLY BEST AVAILABLE CONTROL MEASURES FOR FUGITIVE DUST IN ACCORDANCE WITH RULE 403. TO ENSURE THAT THE PROJECT IS IN FULL COMPLIANCE WITH APPLICABLE SCAQMD DUST REGULATIONS AND THAT THERE IS NO NUISANCE IMPACT OFF THE SITE, THE CONTRACTOR WOULD IMPLEMENT EACH OF THE FOLLOWING:
   a. A. MOISTEN SOIL NOT MORE THAN 15 MINUTES PRIOR TO MOVING SOIL OR CONDUCT WHATEVER WATERING IS NECESSARY TO PREVENT VISIBLE DUST EMISSIONS FROM TRAVELING MORE THAN 100 FEET IN ANY DIRECTION.
   b. B. APPLY CHEMICAL STABILIZERS TO DISTURBED SURFACE AREAS (I.E., COMPLETED GRADING AREAS) WITHIN FIVE DAYS OF COMPLETING GRADING OR APPLY DUST SUPPRESSANTS OR VEGETATION SUFFICIENT TO MAINTAIN A STABILIZED SURFACE.
   c. C. WATER EXCAVATED SOIL PILES HOURLY OR COVER WITH TEMPORARY COVERINGS.
   d. D. WATER EXPOSED SURFACES AT LEAST TWICE A DAY UNDER CALM CONDITIONS. WATER AS OFTEN AS NEEDED ON WINDY DAYS WHEN WINDS ARE LESS THAN 25 MILES PER DAY OR DURING VERY DRY WEATHER IN ORDER TO MAINTAIN A SURFACE CRUST AND PREVENT THE RELEASE OF VISIBLE EMISSIONS FROM THE CONSTRUCTION SITE.
   e. E. WASH MUD-COVERED TIRES AND UNDER-CARRIAGES OF TRUCKS LEAVING CONSTRUCTION SITES.
   f. F. PROVIDE FOR STREET SWEEPING, AS NEEDED, ON ADJACENT ROADWAYS TO REMOVE DIRT DROPPED BY CONSTRUCTION VEHICLES OR MUD, WHICH WOULD OTHERWISE BE CARRIED OFF BY TRUCKS DEPARTING FROM PROJECT SITES.
2. THE APPLICANT SHALL COMPLY WITH THE FOLLOWING MEASURES, AS FEASIBLE, TO REDUCE NOX AND ROC FROM HEAVY EQUIPMENT.
   a. TURN EQUIPMENT OFF WHEN NOT IN USE FOR MORE THAN FIVE MINUTES.
   b. MAINTAIN EQUIPMENT ENGINES IN GOOD CONDITION AND IN PROPER TUNE AS PER MANUFACTURERS' SPECIFICATIONS.
   c. LENGTHEN THE CONSTRUCTION PERIOD DURING SMOG SEASON (MAY THROUGH OCTOBER) TO MINIMIZE THE NUMBER OF VEHICLES AND EQUIPMENT OPERATING AT THE SAME TIME.
3. DURING CONSTRUCTION, THE PROJECT APPLICANT SHALL ENSURE THAT ALL NOISE GENERATING ACTIVITIES BE LIMITED TO THE HOURS OF 7 A.M. TO 8 P.M. ON WEEKDAYS AND SATURDAYS. NO NOISE GENERATING ACTIVITIES SHALL OCCUR ON SUNDAYS AND HOLIDAYS IN ACCORDANCE WITH THE COUNTY OF ORANGE NOISE ORDINANCE.
4. PRIOR TO THE ISSUANCE OF ANY GRADING PERMITS, THE PROJECT PROPONENT SHALL PRODUCE EVIDENCE ACCEPTABLE TO THE MANAGER, BUILDING PERMITS SERVICES, THAT: (COUNTY STANDARD CONDITION N10)
   a. ALL CONSTRUCTION VEHICLES OR EQUIPMENT, FIXED OR MOBILE, OPERATED WITHIN 1,000' OF A DWELLING SHALL BE EQUIPPED WITH PROPERLY OPERATING AND MAINTAINED MUFFLERS. (COUNTY STANDARD CONDITION N10)
   b. ALL OPERATIONS SHALL COMPLY WITH ORANGE COUNTY CODIFIED ORDINANCE DIVISION 6 (NOISE CONTROL). (COUNTY STANDARD CONDITION N10)
   c. STOCKPILING AND/OR VEHICLE STAGING AREAS SHALL BE LOCATED AS FAR AS PRACTICABLE FROM DWELLINGS. (COUNTY STANDARD CONDITION N10)
   d. NOTATIONS IN THE ABOVE FORMAT, APPROPRIATELY NUMBERED AND INCLUDED WITH OTHER NOTATIONS ON THE FRONT SHEET OF THE PROJECT'S PERMITTED GRADING PLANS, WILL BE CONSIDERED AS ADEQUATE EVIDENCE OF COMPLIANCE WITH THIS CONDITION. (COUNTY STANDARD CONDITION N10)
5. HARD BEDROCK MATERIAL MAY BE ENCOUNTERED DURING TEMPORARY EXCAVATIONS FOR UTILITIES. USE OF A BACKHOE FOR MAY BE IMPRACTICAL AND WILL LIKELY REQUIRE MODERATE TO HEAVY EFFORT WITH AN EXCAVATOR. REFER TO PLATE 2- GEOTECHNICAL MAP WITHIN THE GEOTECHNICAL REPORT FOR POTENTIAL LOCATIONS BEDROCK MAY BE ENCOUNTERED.
6. THERE SHALL BE NO TRENCHES OR EXCAVATIONS 5 FEET OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND, OR OBTAIN PERMIT FROM STATE OF CALIFORNIA, DIVISION OF OCCUPATIONAL SAFETY, AND HEALTH (CAL/OSHA). THIS PERMIT AND ANY OTHER SAFETY PERMIT SHALL BE OBTAINED PRIOR TO COMMENCE OF ANY WORK. CONTACT CAL/OSHA AT 714-558-4451 FOR ADDITIONAL INFORMATION.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

1. IN CASE OF EMERGENCY, CALL BRUCE GOREN AT WORK TELEPHONE # (310) 950-5102.
2. SEDIMENT FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING STRUCTURAL CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE.
3. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
4. APPROPRIATE BMP'S FOR CONSTRUCTION-RELATED MATERIALS, WASTE, SPILLS SHALL BE IMPLEMENTED TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
5. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITES UNLESS TREATED TO REDUCE OR REMOVE SEDIMENT AND OTHER POLLUTANTS.
6. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OF THE REQUIRED BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
7. AT THE END IF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED IN TRASH OR RECYCLE BINS.
8. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT AN ANTICIPATED STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OF MATERIALS OTHER THAN STORMWATER ONLY WHEN NECESSARY FOR PERFORMANCE AND COMPLETION OF CONSTRUCTION PRACTICES AND WHERE THEY DO NOT: CAUSE OR CONTRIBUTE TO A VIOLATION OF ANY WATER QUALITY STANDARD; CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR NUISANCE; OR CONTAIN A HAZARDOUS SUBSTANCE IN A QUANTITY REPORTABLE UNDER FEDERAL REGULATIONS 40 CFR PARTS 117 AND 302.
9. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTE FROM PAINTS, STAINS, SEALANTS, GLUES, LIMES, PESTICIDES, HERBICIDES, WOOD PRESERVATIVES AND SOLVENTS; ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY WASTES; WASTES FROM ANY ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING AND SUPERCHLORINATED POTABLE WATER LINE FLUSHING. DURING CONSTRUCTION, PERMITEE SHALL DISPOSE OF SUCH MATERIALS IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE, PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE & FEDERAL REQUIREMENTS.
10. DEWATERING OF CONTAMINATED GROUNDWATER, OR DISCHARGING CONTAMINATED SOILS VIA SURFACE EROSION IS PROHIBITED. DEWATERING OF NON-CONTAMINATED GROUNDWATER REQUIRES A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FROM THE RESPECTIVE STATE REGIONAL WATER QUALITY CONTROL BOARD.
11. GRADED AREAS ON THE PERMITTED AREA PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE IS TO BE DIRECTED TOWARD DESILTING FACILITIES.
12. THE PERMITEE AND CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATER CREATES A HAZADOUS CONDITION.
13. THE PERMITEE AND CONTRACTOR SHALL INSPECT THE EROSION CONTROL WORK AND INSURE THAT THE WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.
14. THE PERMITEE SHALL NOTIFY ALL GENERAL CONTRACTORS, SUBCONTRACTORS, MATERIAL SUPPLIERS, LESSEES, AND PROPERTY OWNERS: THAT DUMPING OF CHEMICALS INTO THE STORM DRAIN SYSTEM OR THE WATERSHED IS PROHIBITED.
15. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT A CONVENIENT LOCATION TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
16. ALL REMOVABLE EROSION PROTECTIVE DEVICES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY RAIN PROBABILITY FORECAST EXCEEDS 40%.
17. SEDIMENTS FROM AREAS DISTURBED BY CONSTRUCTION SHALL BE RETAINED ON SITE USING AN EFFECTIVE COMBINATION OF EROSION AND SEDIMENT CONTROLS TO THE MAXIMUM EXTENT PRACTICABLE, AND STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO MINIMIZE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
18. APPROPRIATE BMPs FOR CONTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED AND RETAINED ON SITE TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTY BY WIND OR RUNOFF.

UNAUTHORIZED CHANGES & USES

CAUTION: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

NECESSARY TEMPORARY EROSION CONTROL MEASURES WILL BE ASSESSED BY THE CONTRACTOR BY FIELD INSPECTION AND PLANS SUBMITTED FOR REVIEW AND APPROVAL IN ACCORDANCE TO THE ORDINANCE.

GOVERNING CODES

2019 CALIFORNIA RESIDENTIAL CODE (CRC)
2019 CALIFORNIA ELECTRICAL CODE (CEC)
2019 CALIFORNIA MECHANICAL CODE (CMC)
2019 CALIFORNIA BUILDIMG CODE (CBC)
2019 CALIFORNIA GREEN BUILDING STANDARDS CODE
2019 CALIFORNIA PLUMBING CODE (CPC)
2019 CALIFORNIA ENERGY EFFICIENCY CODE (EES)
2019 CALIFORNIA FIRE CODE (CFC)

NOTICE TO CONTRACTORS

1. ALL UNDERGROUND UTILITIES OR STRUCTURES REPORTED BY THE OWNER OR OTHERS, AND THOSE SHOWN ON THE RECORDS EXAMINED, ARE INDICATED WITH THEIR APPROXIMATE LOCATION AND EXTENT. THE OWNER, BY ACCEPTING THESE PLANS OR PROCEEDING WITH THE IMPROVEMENTS PURSUANT THERETO, AGREES TO ASSUME LIABILITY AND TO HOLD UNDERSIGNED HARMLESS FOR ANY DAMAGES RESULTING FROM THE EXISTENCE OF UNDERGROUND UTILITIES OR STRUCTURES NOT REPORTED TO THE UNDERSIGNED, NOT INDICATED ON THE PUBLIC RECORDS EXAMINED, LOCATED AT VARIANCE WITH THOSE REPORTED OR SHOWN ON RECORDS EXAMINED. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES SHOWN AND ANY OTHER UTILITIES OR STRUCTURES FOUND AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF THE UTILITIES OR STRUCTURES CONCERNED BEFORE STARTING WORK.
2. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THIS PLAN ARE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN AND ANY OTHER LINES OR STRUCTURES NOT SHOWN ON THESE PLANS.
3. ALL CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK SHOWN ON OR RELATED TO THESE PLANS SHALL CONDUCT THEIR OPERATIONS SO THAT ALL EMPLOYEES ARE PROVIDED A SAFE PLACE TO WORK AND THE PUBLIC IS PROTECTED. ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH THE "OCCUPATIONAL SAFETY AND HEALTH REGULATION" OF THE U.S. DEPARTMENT OF LABOR, AND WITH THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS' "CONSTRUCTION SAFETY ORDERS."
4. THE CIVIL ENGINEER SHALL NOT BE RESPONSIBLE IN ANY WAY FOR THE CONTRACTORS' AND SUB-CONTRACTORS' COMPLIANCE WITH THE "OCCUPATIONAL SAFETY AND HEALTH REGULATIONS" OF THE U.S. DEPARTMENT OF LABOR OR WITH THE STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS' "CONSTRUCTION SAFETY ORDERS."
5. CONTRACTOR FURTHER AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.
6. THE ESTIMATED QUANTITIES HEREON ARE ONLY FOR THE PURPOSE OF OBTAINING THE NECESSARY PERMITS, AND DAVID EVANS AND ASSOCIATES, INC. DOES NOT GUARANTEE THE ACCURACY OF THE ESTIMATED QUANTITIES. THE CONTRACTOR SHALL PERFORM HIS OWN QUANTITY TAKEOFF BEFORE SUBMITTING A BID FOR ANY PORTION OF THE IMPROVEMENTS COVERED BY THESE PLANS.
7. ALL GRADING, EXCAVATION, REMOVAL AND RECOMPACTION & CONCRETE MIX DESIGN SHALL BE IN ACCORDANCE WITH ALBUS-KEEFE & ASSOCIATES, INC. GEOTECHNICAL REPORT DATED 02/26/2020 & GEOTECHNICAL RESPONSE TO PLAN CHECK COMMENTS, ORANGE COUNTY PUBLIC WORKS DEPARTMENT DATED 4/27/2020.
8. THE PRELIMINARY REPORT AND ALL SUBSEQUENT REPORTS AS APPROVED BY THE ORANGE COUNTY PLANNING AND DEVELOPMENT SERVICES DEPARTMENT ARE CONSIDERED A PART OF GRADING PLAN. A COPY OF THE GEOTECHNICAL REPORTS SHALL BE KEPT ON THE CONSTRUCTION SITE
9. PER THE GEOTECHNICAL RESPONSE TO PLAN CHECK COMMENTS, ORANGE COUNTY PUBLIC WORKS DEPARTMENT DATED 4/27/2020, "TO CONFIRM THAT THE EL MODENO FAULT IS NOT LOCATED WITHIN THE LIMITS OF THE SUBJECT PROJECT DURING FUTURE GRADING, WE RECOMMEND THAT A STATE OF CALIFORNIA CERTIFIED ENGINEERING GEOLOGIST PROVIDE OBSERVATION DURING FUTURE GRADING, PARTICULARLY FOR LOTS 8 THROUGH 10. WE ALSO ADVISE THAT THE COUNTY GEOLOGIST BE PRESENT TO OBSERVE THE MAPPED GEOLOGIC CONDITIONS OF EXCAVATION BOTTOMS IN THIS AREA PRIOR TO FILL PLACEMENT OPERATIONS IN ORDER TO GET CONCURRENCE THAT THE FAULT IS NOT LOCATED WITHIN THE SUBJECT SITE."

UTILITY PROVIDERS:

SANITARY SEWER	TRABUCO CANYON WATER DISTRICT
DOMESTIC WATER	TRABUCO CANYON WATER DISTRICT
GAS	SOUTHERN CALIFORNIA GAS COMPANY
ELECTRIC	SOUTHERN CALIFORNIA EDISON COMPANY
PHONE	AT&T AND COX COMMUNICATIONS
CABLE	COX COMMUNICATIONS

SITE DATA:

PROJECT AREA: 1,493,759 SF, 34.29 ACRES
AREA OF DISTURBANCE: 108,608 SF, 2.49 ACRES
TOTAL IMPERVIOUS: 0 SF, 0 AC
TOTAL PERVIOUS: 108,608 SF, 2.49 ACRES

ESTIMATED EARTHWORK QUANTITIES:

LOT 3
RAW CUT: 5 CY
RAW FILL: 3,949 CY
NET IMPORT: 3,944 CY

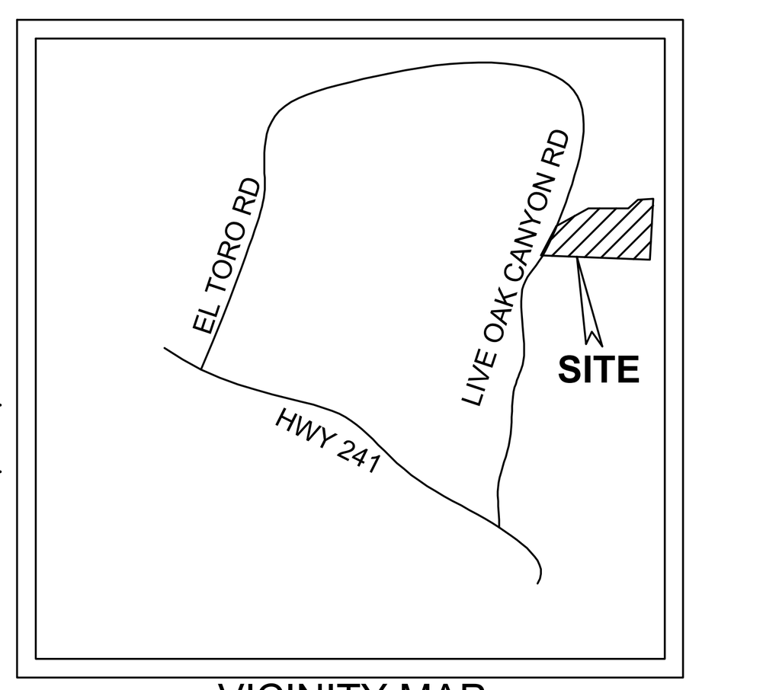
LOT 4
RAW CUT: 379 CY
RAW FILL: 789 CY
NET IMPORT: 410 CY

LOT 6
RAW CUT: 835 CY
RAW FILL: 1,203 CY
NET IMPORT: 368 CY

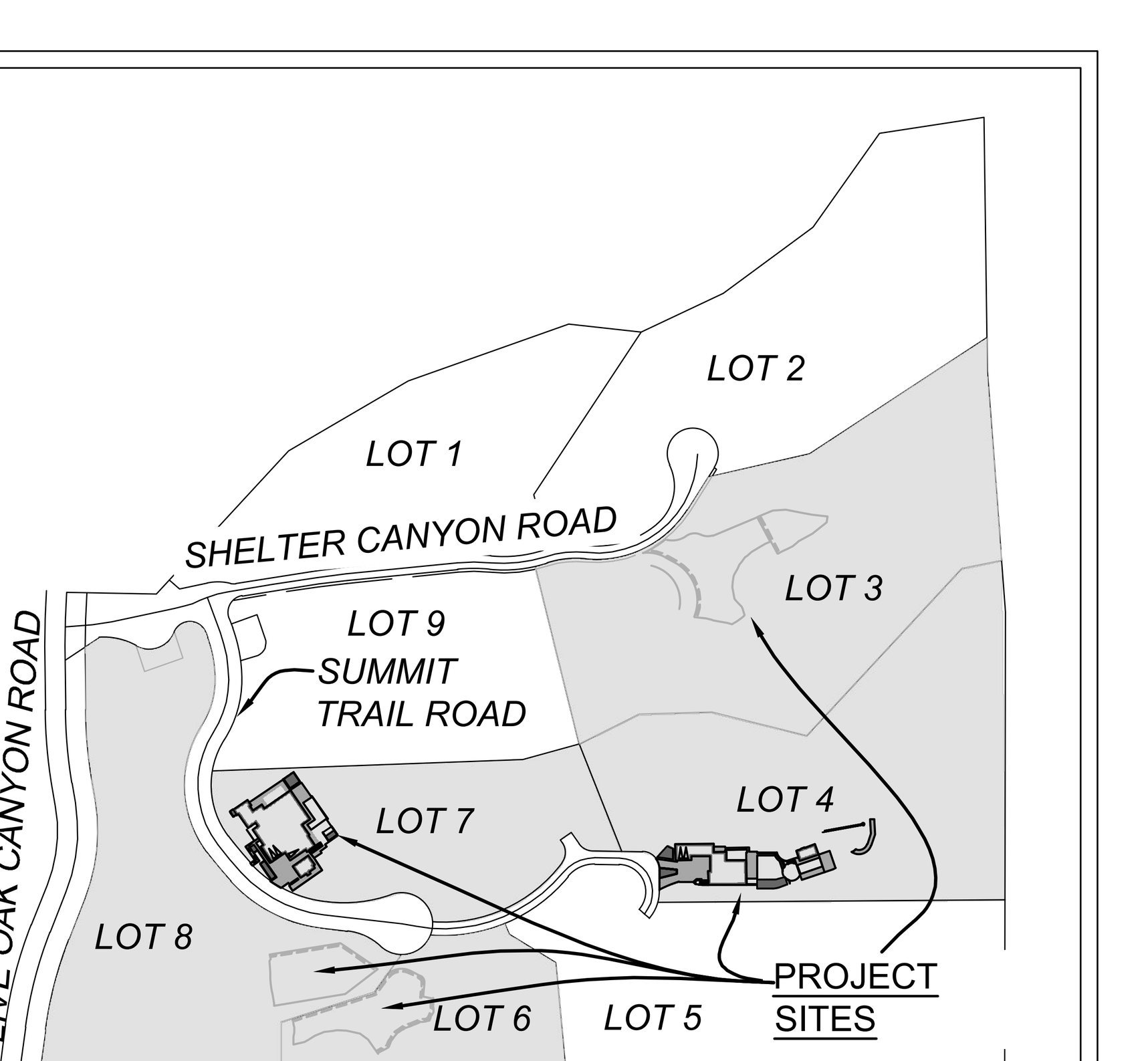
LOT 7
RAW CUT: 2,005 CY
RAW FILL: 394 CY
NET EXPORT: 1,611 CY

LOT 8
RAW CUT: 3,342 CY
RAW FILL: 301 CY
NET EXPORT: 3,041 CY

TOTAL
RAW CUT: 6,566 CY
RAW FILL: 6,636 CY
NET IMPORT: 70 CY



VICINITY MAP
NTS



INDEX MAP
NTS

LEGEND OF ABBREVIATIONS AND LINETYPES

FF	FINISHED FLOOR
TW	TOP OF WALL
BW	BOTTOM OF WALL
FL	FLOWLINE
PE	PAD ELEVATION
FG	FINISHED GRADE
(solid line)	PROPERTY LINE
(dashed line)	EASEMENT
(solid line)	RIGHT OF WAY
(solid line)	CENTER LINE
(heavy dash-dot line)	LIMITS OF GRADING
(solid line)	EDGE OF CONCRETE
(grey band)	CONCRETE PAVING
(hatched band)	BUILDING EXTERIOR LIMITS

INDEX OF SHEETS

NOTE: COUNTY APPROVED PLANS DO NOT RELIEVE CONTRACTOR/DEVELOPER FROM THE RESPONSIBILITY TO OBTAIN COUNTY PROPERTY PERMITS WHICH SHALL BE AVAILABLE ON THE JOB SITE AT ALL TIMES WORK IS BEING ACCOMPLISHED IN PUBLIC RIGHT-OF-WAY.

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009
WDID: PENDING

what's below. Call 811 before you dig.

OWNER:
THE OAKS AT TRABUCO, LLC
10866 WILSHIRE BLVD. 11TH FLOOR
LOS ANGELES, CA 90024
(351)441-8411
ATTN: BRUCE GOREN

APPLICANT:
THE OAKS AT TRABUCO, LLC
10866 WILSHIRE BLVD. 11TH FLOOR
LOS ANGELES, CA 90024
(351)441-8411
ATTN: BRUCE GOREN

ENGINEER:
DAVID EVANS AND ASSOCIATES, INC.
17542 E. 17TH STREET, SUITE 150
TUSTIN, CA 92780
(714) 665-4500
ATTN: LINDA SANDUSKY

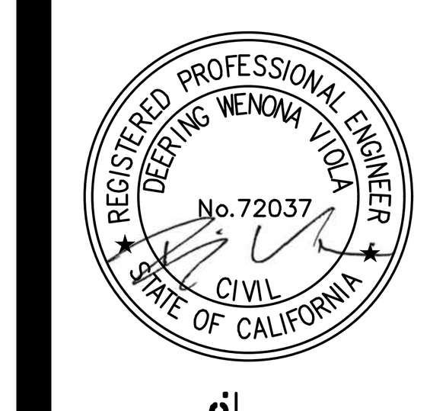
ARCHITECT:
PEKAREK ARCHITECTS, INC.
31411 CAMINO CAPISTRANO, SUITE 300
SAN JUAN CAPISTRANO, CA 92675
(949) 487-2320
ATTN: PHIL PEKAREK

LANDSCAPE ARCHITECT:
KOHEID DESIGN
5312 BOLSA AVE.
HUNTINGTON BEACH, CA 92649
(714)403-5798
ATTN: TRAVIS GRAMBERG

SOILS ENGINEER/GEOLOGIST
GMU
23241 ARROYO VISTA
RANCHO SANTA MARGARITA, CA 92688
(949) 888-6513
ATTN: DAVID HANSEN

THE OAKS AT TRABUCO
TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

COVER SHEET



DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REVISIONS: APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE: 01_COVER SHEET.dwg

SHEET NO. 1

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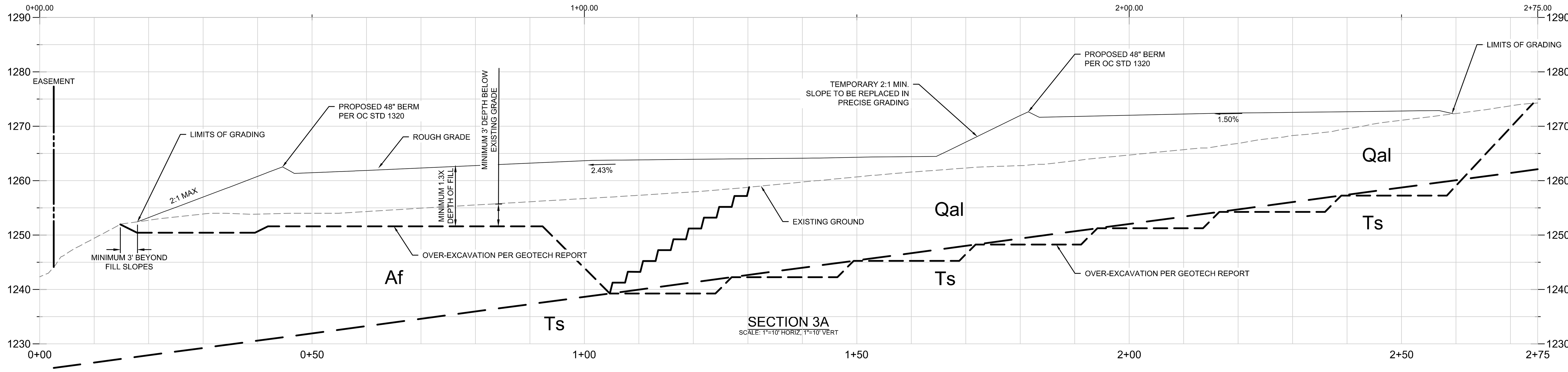
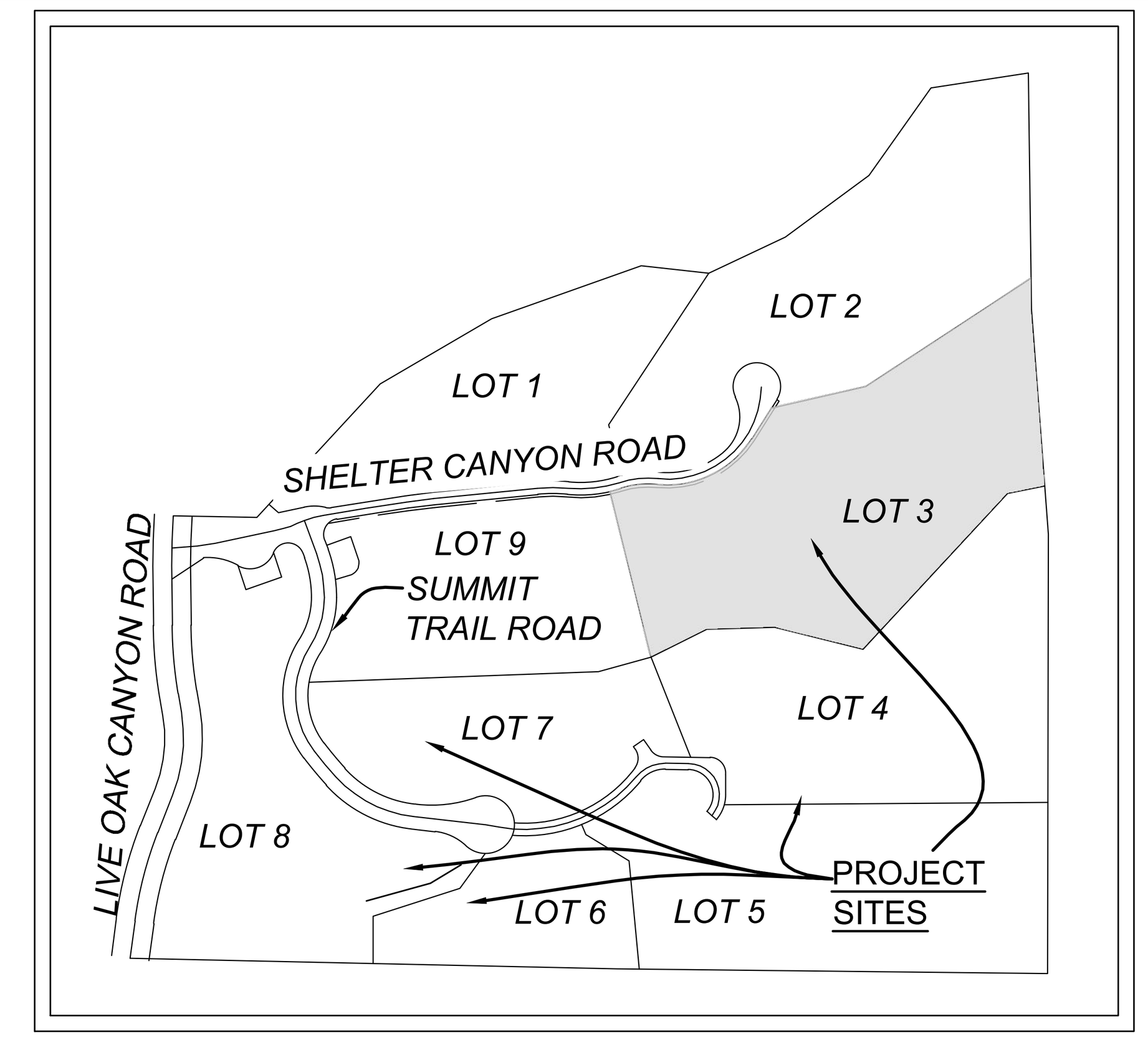
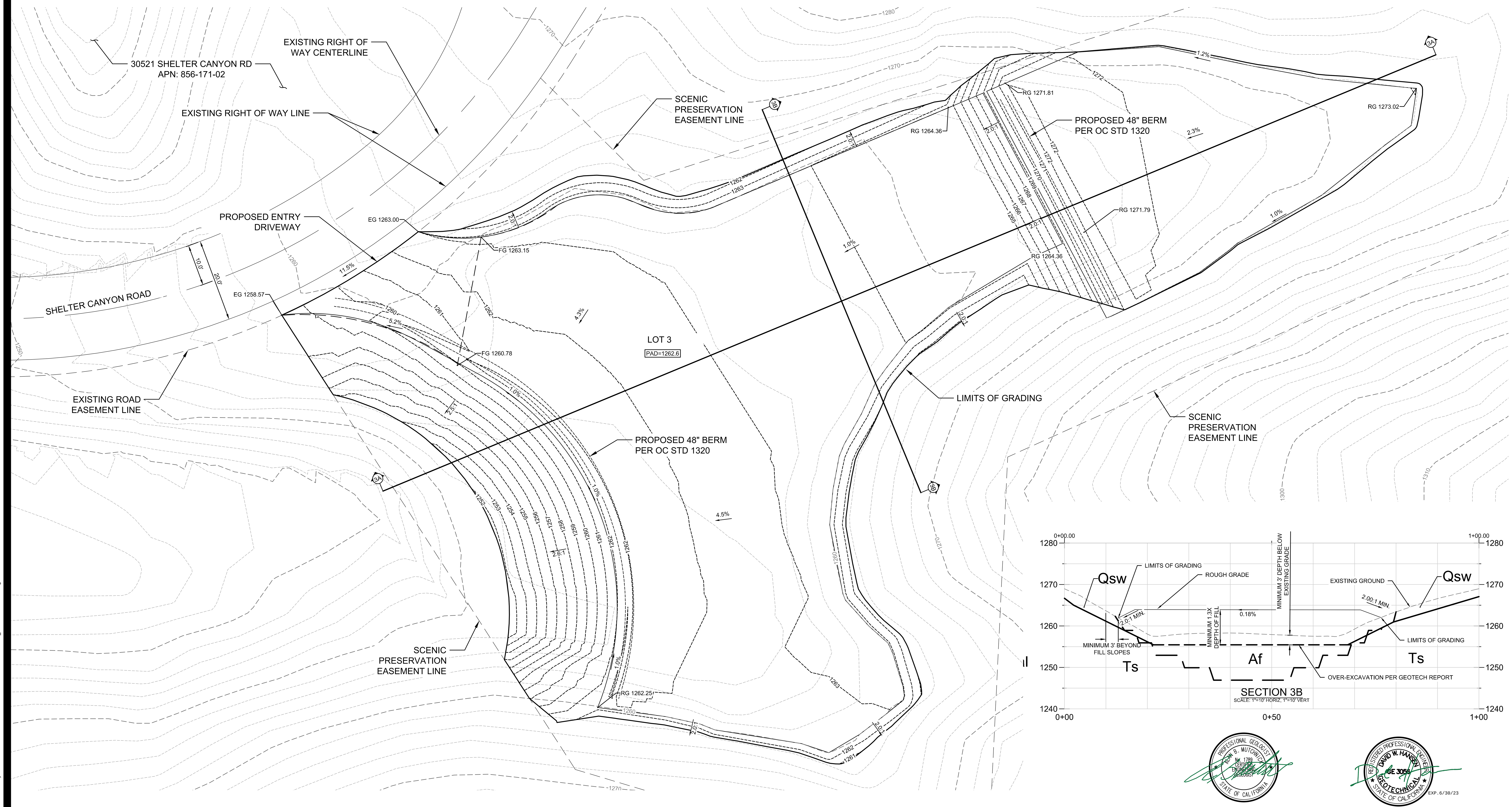




INDEX MAP
NTS



NOTE:
ALL PAD RUNOFF TO DISCHARGE TO SHELTER CANYON ROAD. REFER TO EROSION CONTROL SHEETS FOR RECOMMENDED V-DITCH AND BERM LOCATIONS

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009

SCALE 1" = 10'

THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOT 3 ROUGH GRADING PLAN

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REGISTERED PROFESSIONAL ENGINEER WENONA STOLA No. 72037 CIVIL STATE OF CALIFORNIA

REVISIONS:	APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE: 02_ROUGH GRADING.dwg

SHEET NO. 2

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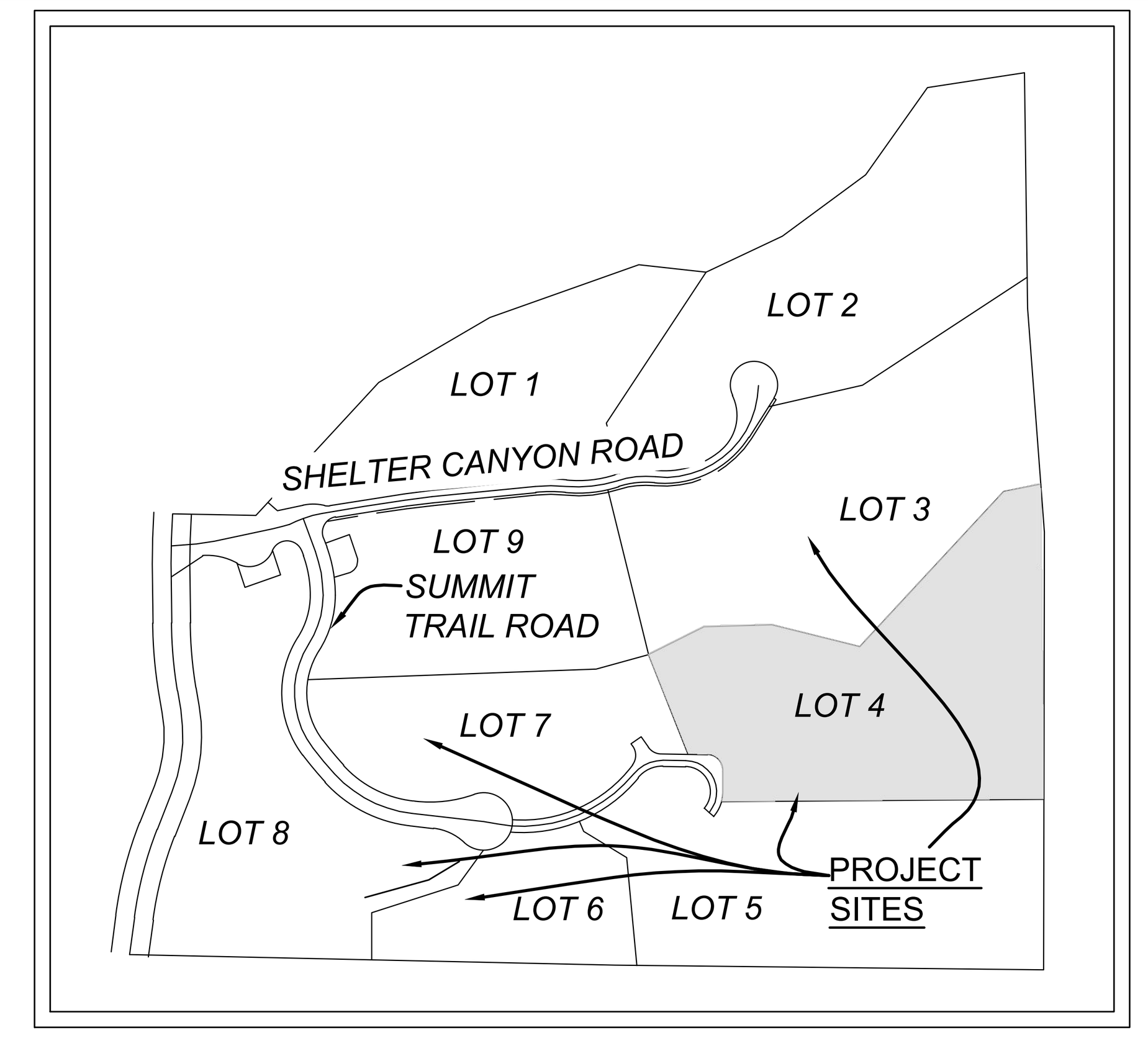
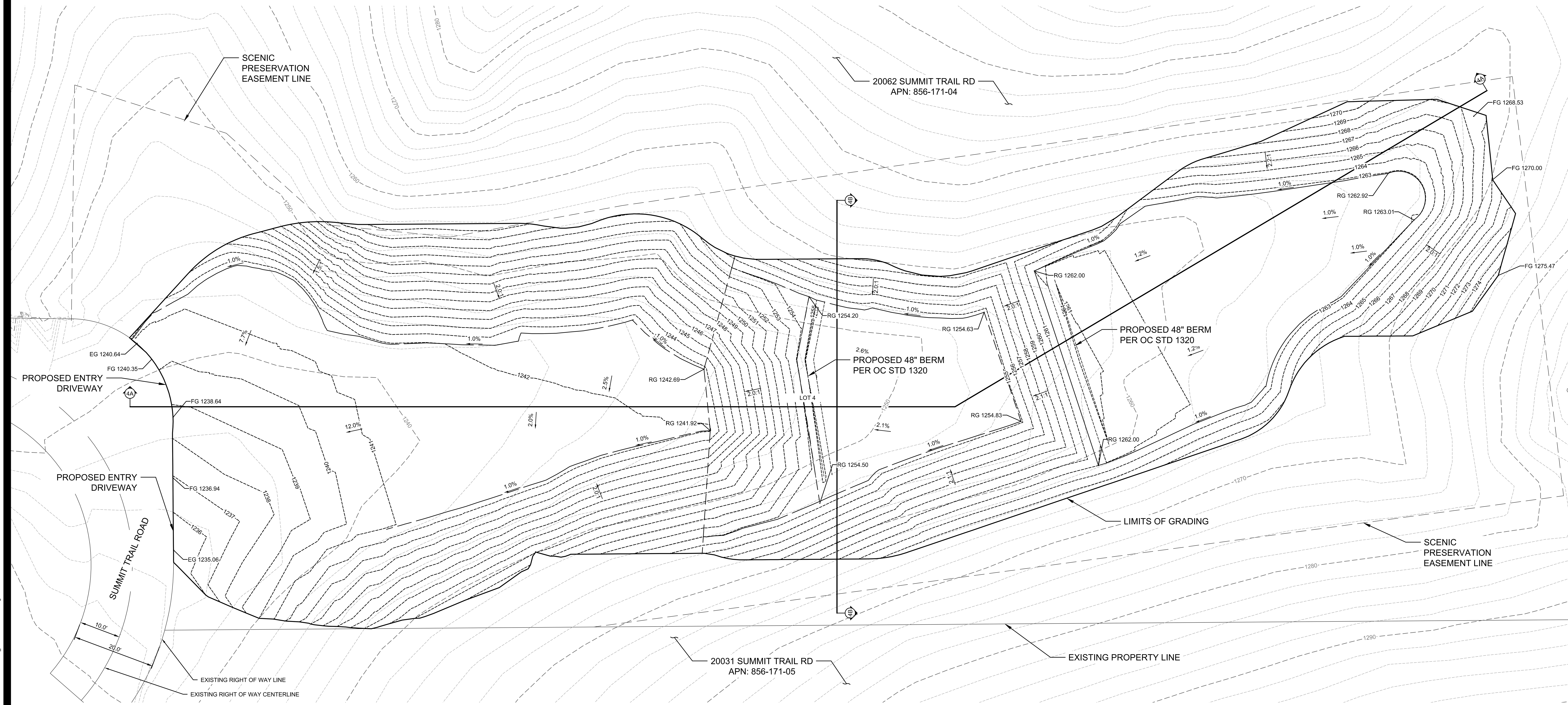


INDEX MAP
NTS



THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOT 4 ROUGH GRADING PLAN

NOTE:
ALL PAD RUNOFF TO DISCHARGE TO SUMMIT TRAIL ROAD. REFER TO EROSION CONTROL SHEETS FOR RECOMMENDED V-DITCH AND BERM LOCATIONS

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009

10 0 10 20
scale 1"= 10' feet

REGISTERED PROFESSIONAL ENGINEER DEERING WENONA VIOLA No.72037 CIVIL STATE OF CALIFORNIA

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REVISIONS:	APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

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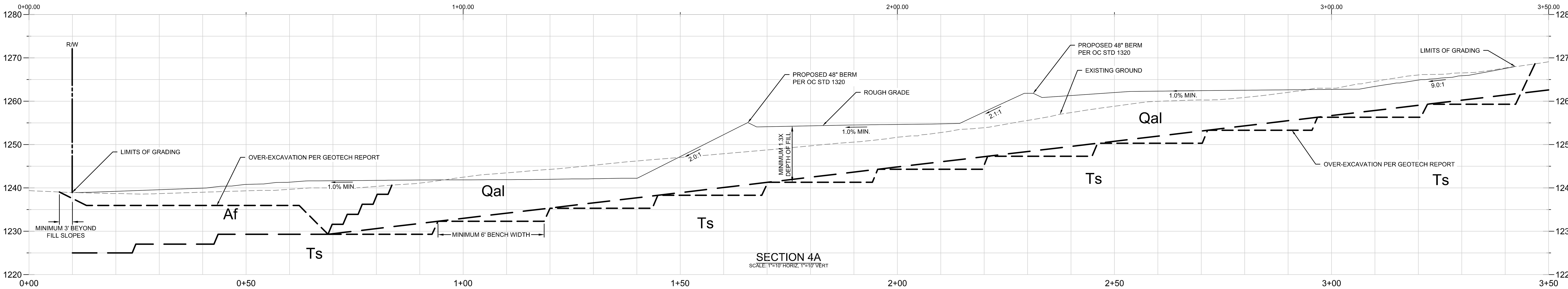
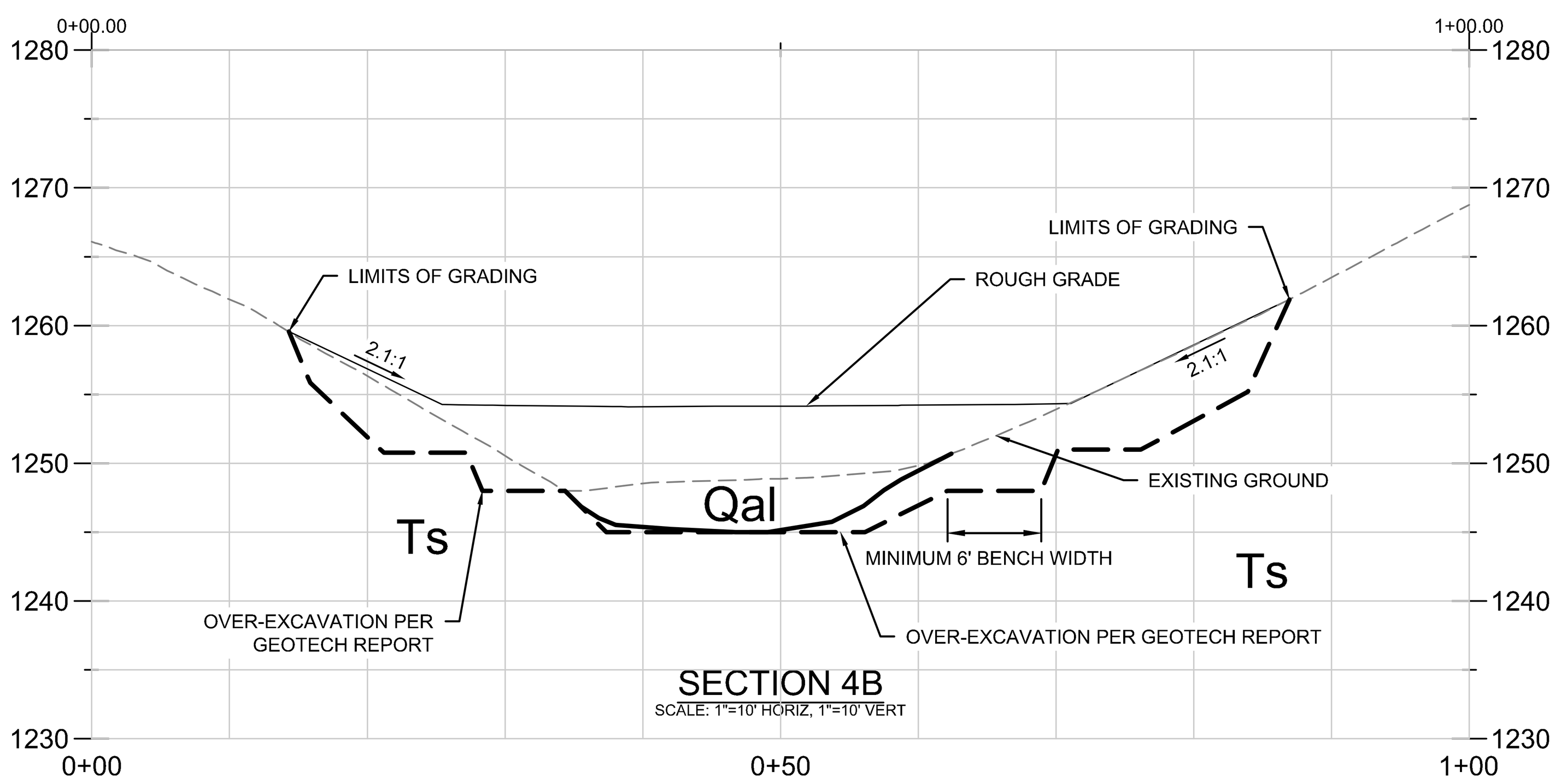
SHEET NO.
3





THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOT 4 SECTIONS

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REVISIONS: APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE:
02_ROUGH GRADING.dwg

SHEET NO.
3A

NOTE:
ALL PAD RUNOFF TO DISCHARGE TO SUMMIT TRAIL ROAD. REFER TO EROSION CONTROL SHEETS FOR RECOMMENDED V-DITCH AND BERM LOCATIONS

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009
WDID: PENDING

Plot Date: 6/20/2022 2:23 PM By: Andrew Rappe
Save Date: 6/20/2022 12:41 PM By: Atr

INDEX MAP
NTS

NOTE:
ALL PAD RUNOFF TO DISCHARGE TO SUMMIT TRAIL ROAD. REFER TO EROSION CONTROL SHEETS FOR RECOMMENDED V-DITCH AND BERM LOCATIONS

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009
WDID: PENDING

SCALE 1"= 10' (10 0 10 20 feet)

THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOTS 6&8 ROUGH GRADING PLAN

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REVISIONS: APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE: 02_ROUGH GRADING.dwg

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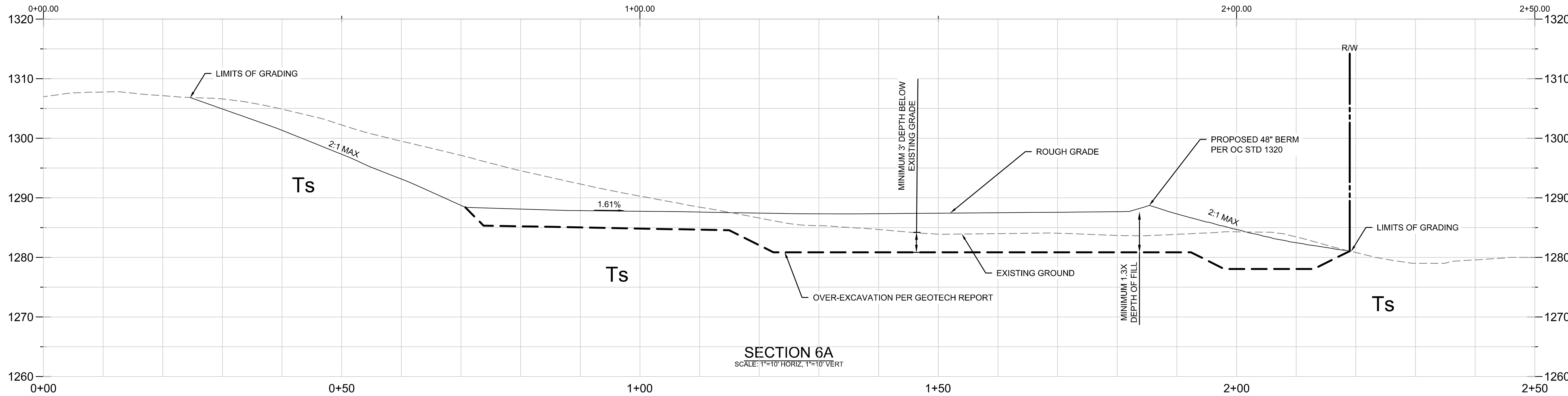

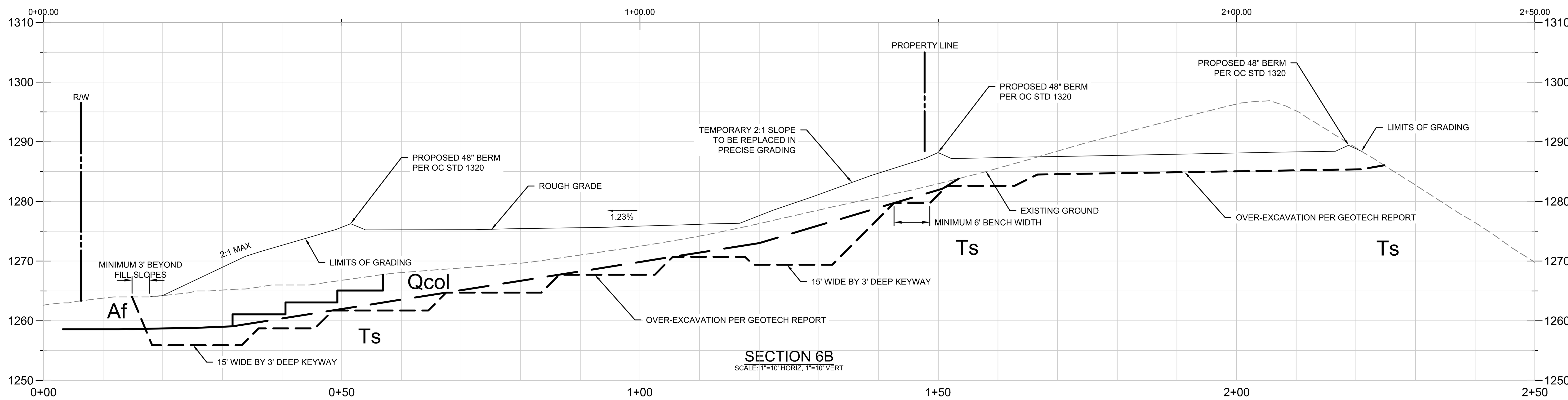

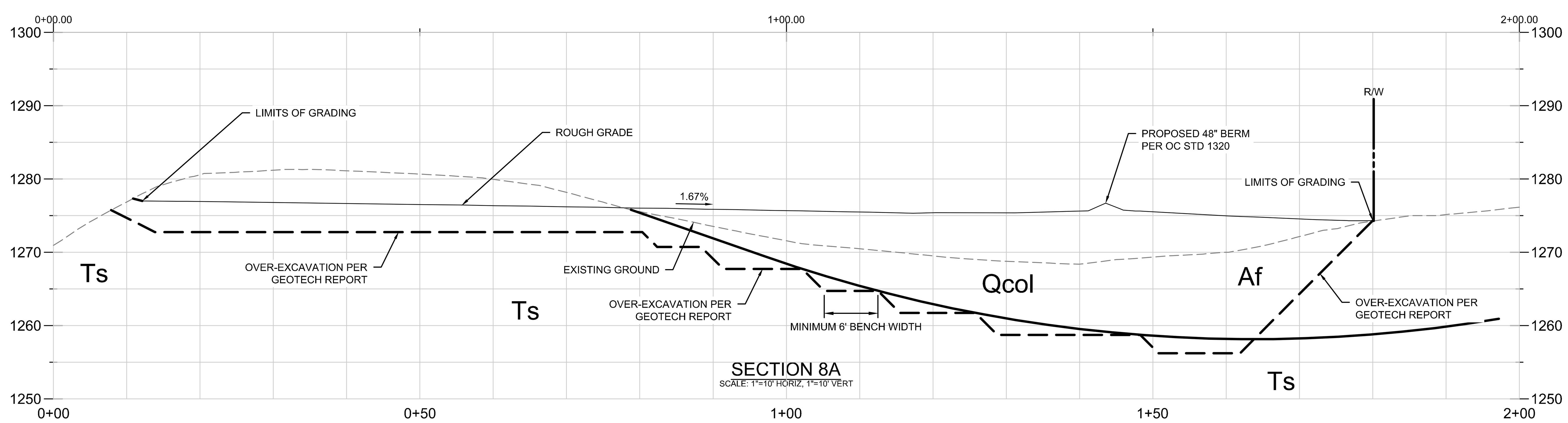

THE OAKS AT TRABUCO
TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOTS 6&8 SECTIONS

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REVISIONS: APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:
SCALE: AS NOTED
PROJECT NUMBER:
DRAWING FILE: 02_ROUGH GRADING.dwg
SHEET NO. 4A

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009
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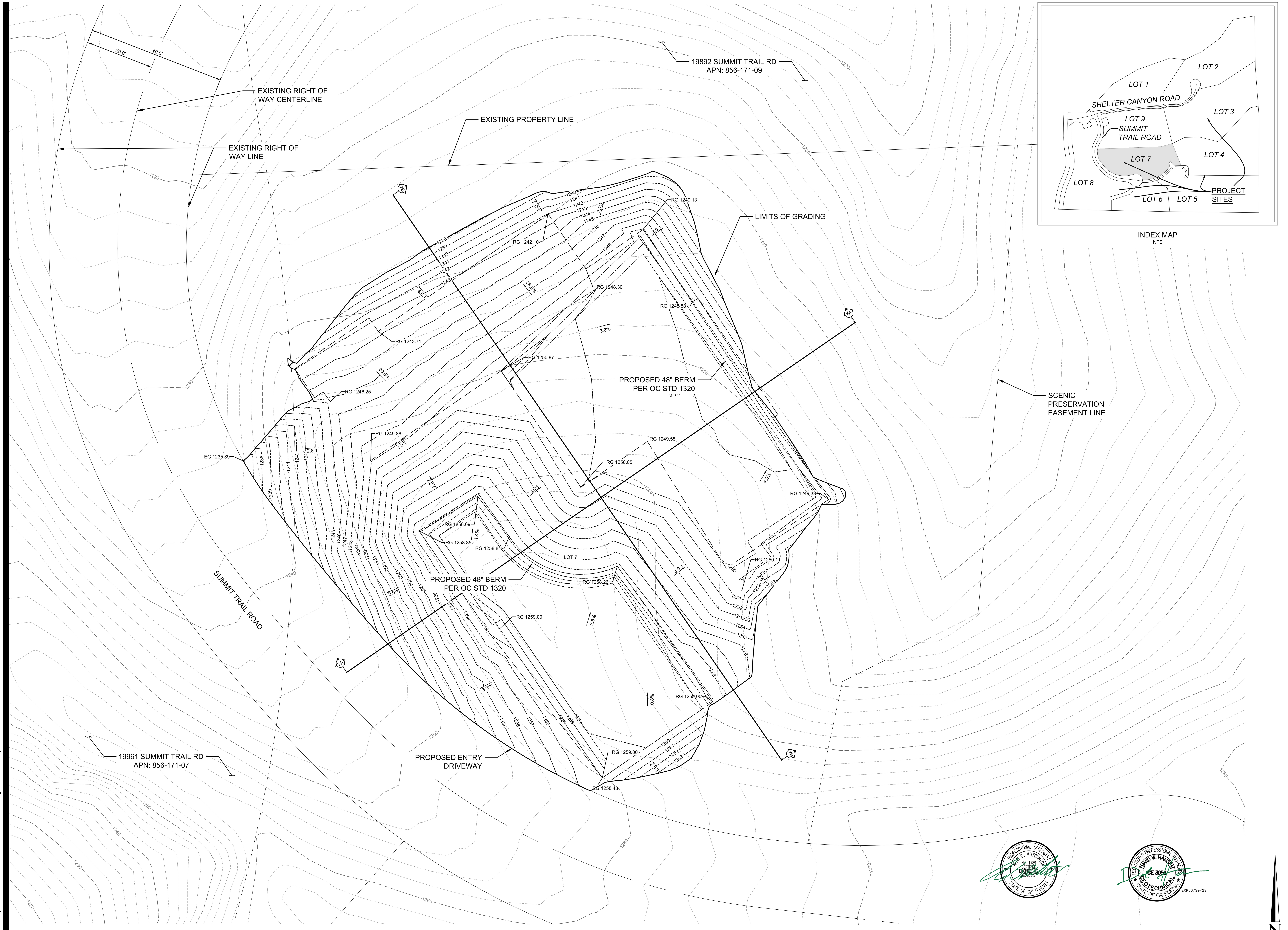

THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOT 7 ROUGH GRADING PLAN

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REGISTERED PROFESSIONAL ENGINEER · No. 72037 · CIVIL · STATE OF CALIFORNIA

PROFESSIONAL GEOLOGIST · STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER · DAVID W. HANSEN · GE 3056 · GEOTECHNICAL · STATE OF CALIFORNIA · EXP. 6/30/23

REVISIONS:	APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE:
02_ROUGH GRADING.dwg

SHEET NO.
5

NOTE:
ALL PAD RUNOFF TO DISCHARGE TO SUMMIT TRAIL ROAD. REFER TO EROSION CONTROL SHEETS FOR RECOMMENDED V-DITCH AND BERM LOCATIONS

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009
WDID: PENDING

scale 1" = 10' (10 0 10 20 feet)

N

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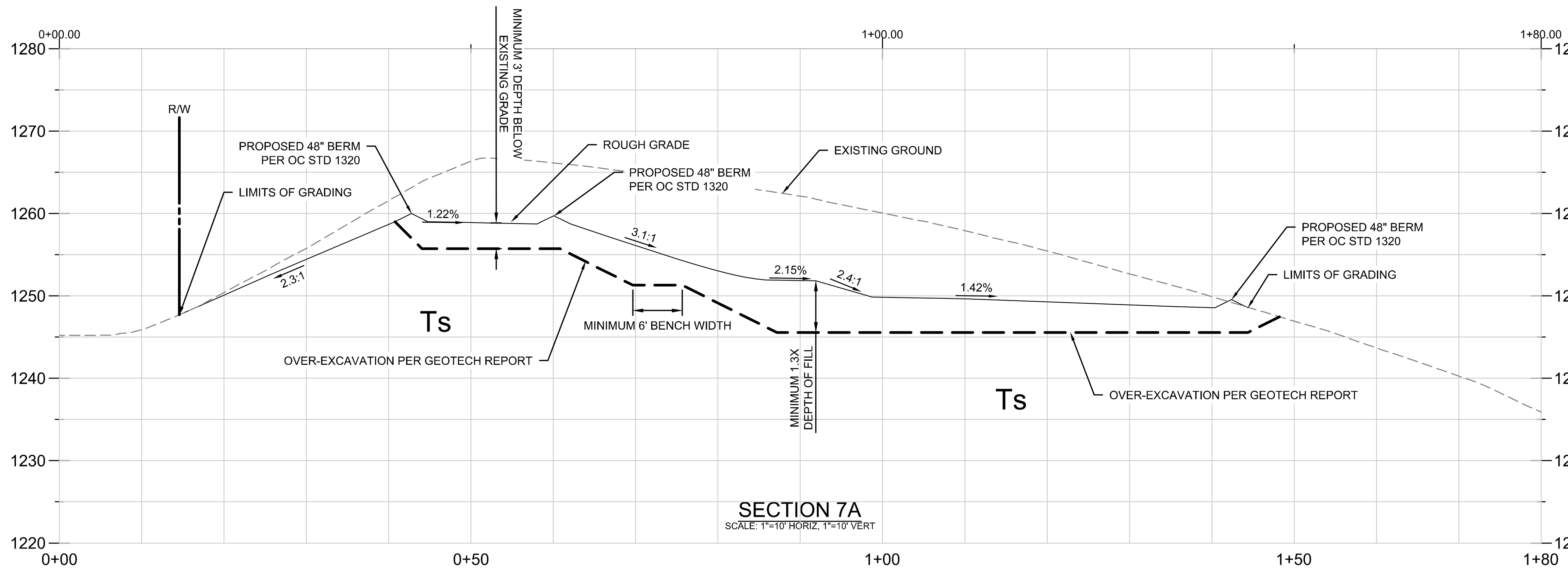
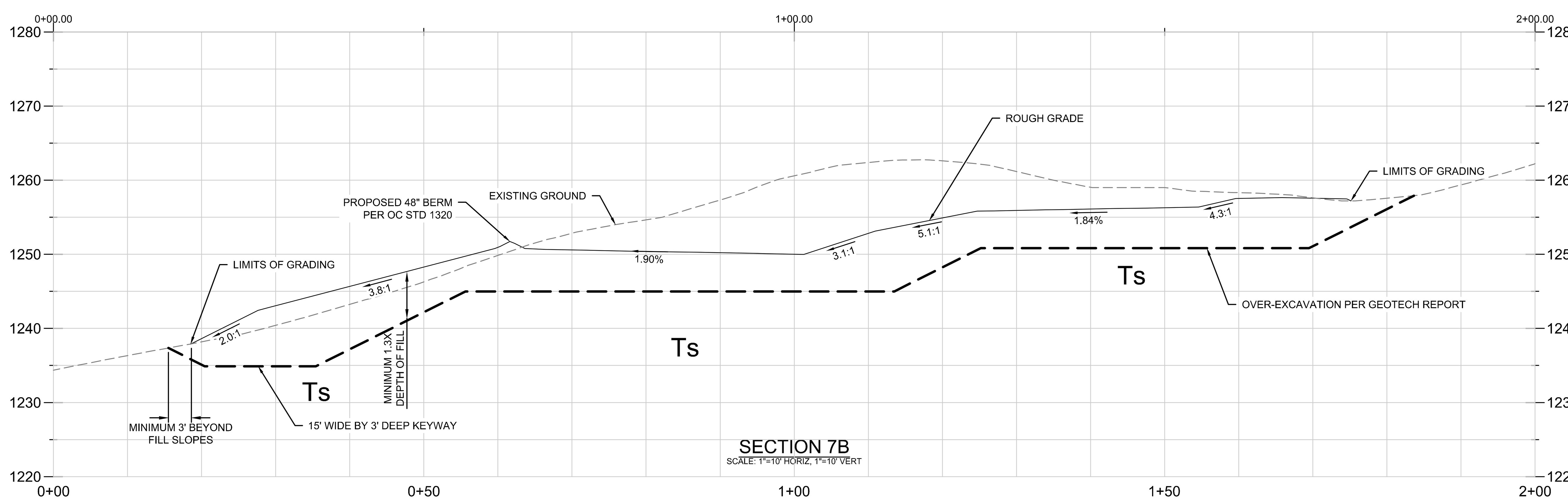
Save Date: 6/20/2022 12:41 PM By: Atr





GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009
WDID: PENDING

THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOT 7 SECTIONS

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REVISIONS:	APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE: 02_ROUGH GRADING.dwg

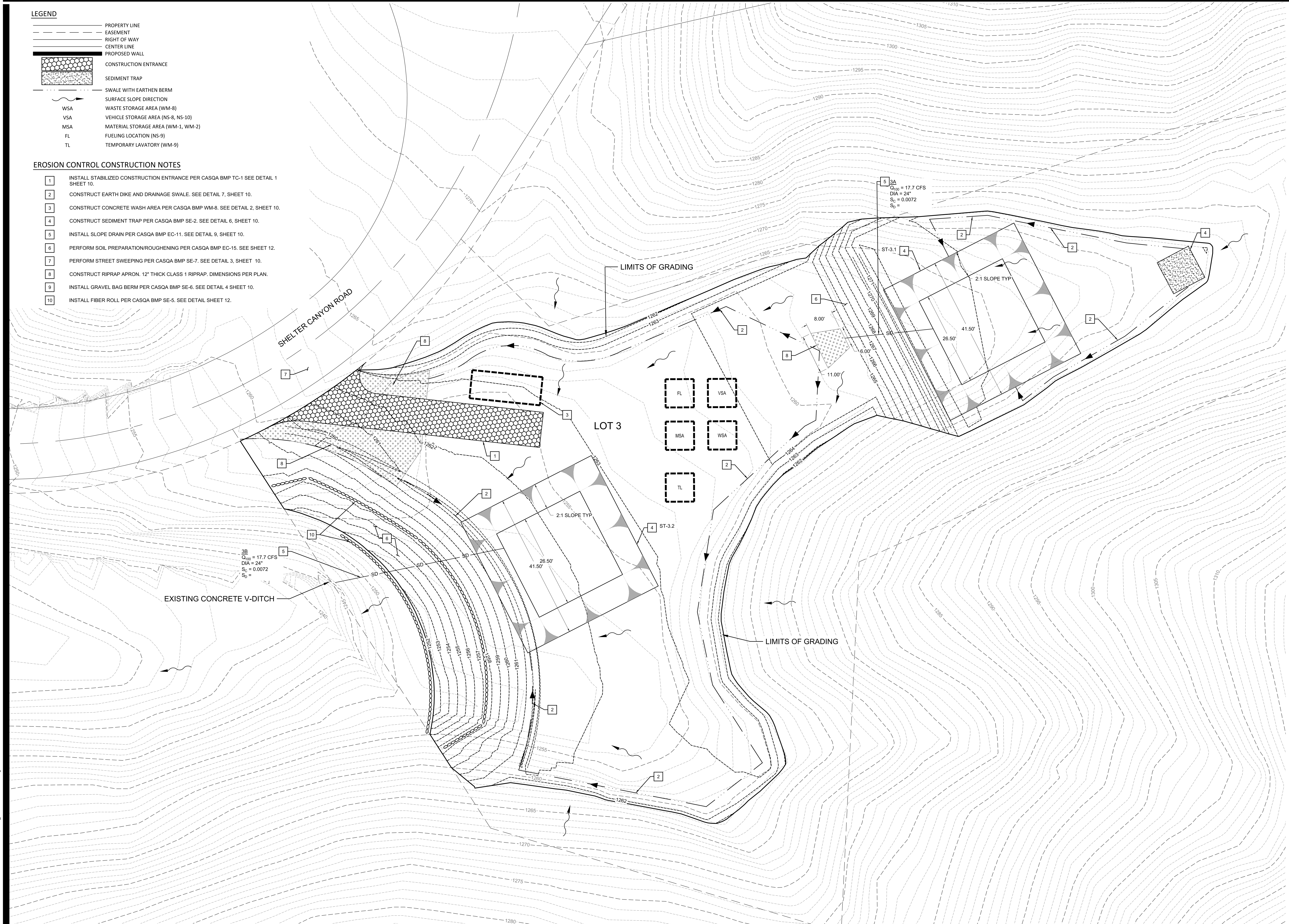
SHEET NO. 5A

LEGEND

(solid line)	PROPERTY LINE
(dashed line)	EASEMENT
(solid line)	RIGHT OF WAY
(solid line)	CENTER LINE
(heavy line)	PROPOSED WALL
(hatched box)	CONSTRUCTION ENTRANCE
(stippled box)	SEDIMENT TRAP
(dash-dot line)	SWALE WITH EARTHEN BERM
(wavy arrow)	SURFACE SLOPE DIRECTION
WSA	WASTE STORAGE AREA (WM-8)
VSA	VEHICLE STORAGE AREA (NS-8, NS-10)
MSA	MATERIAL STORAGE AREA (WM-1, WM-2)
FL	FUELING LOCATION (NS-9)
TL	TEMPORARY LAVATORY (WM-9)

EROSION CONTROL CONSTRUCTION NOTES

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER CASQA BMP TC-1 SEE DETAIL 1 SHEET 10.
2. CONSTRUCT EARTH DIKE AND DRAINAGE SWALE. SEE DETAIL 7, SHEET 10.
3. CONSTRUCT CONCRETE WASH AREA PER CASQA BMP WM-8. SEE DETAIL 2, SHEET 10.
4. CONSTRUCT SEDIMENT TRAP PER CASQA BMP SE-2. SEE DETAIL 6, SHEET 10.
5. INSTALL SLOPE DRAIN PER CASQA BMP EC-11. SEE DETAIL 9, SHEET 10.
6. PERFORM SOIL PREPARATION/ROUGHENING PER CASQA BMP EC-15. SEE SHEET 12.
7. PERFORM STREET SWEEPING PER CASQA BMP SE-7. SEE DETAIL 3, SHEET 10.
8. CONSTRUCT RIPRAP APRON. 12" THICK CLASS 1 RIPRAP. DIMENSIONS PER PLAN.
9. INSTALL GRAVEL BAG BERM PER CASQA BMP SE-6. SEE DETAIL 4 SHEET 10.
10. INSTALL FIBER ROLL PER CASQA BMP SE-5. SEE DETAIL SHEET 12.



SEDIMENT TRAP DATA

SEDIMENT TRAP NUMBER	Q_{100}	MINIMIMUM STORAGE VOLUME (CY)	MINIMUM STORAGE DEPTH (FT)	MINIMUM WEIR LENGTH (FT)
ST-3.1	17.7	150	3.7	12
ST-3.2	17.7	150	3.7	12

STORM DRAIN DATA

STORM DRAIN NUMBER	Q_{100}	DIAMETER	D_N	D_C	S_O	S_C	V_{MAX}	V_C	n
3A	17.7	24		1.52		0.0072		6.93	0.013
3B	17.7	24		1.52		0.0072		6.93	0.013

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009

10 0 10 20
scale 1"= 10' feet

N

Plot Date: 6/20/2022 2:23 PM By: Andrew Rappe
Save Date: 6/20/2022 2:21 PM By: Atr File: P:\P\PICA00000001\0400CAD\SHEETS\RG\03_EROSION CONTROL.dwg

THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOT 3 EROSION CONTROL PLAN

REGISTERED PROFESSIONAL ENGINEER
DEFNE WENONA FIDLER (?)
No.72037
CIVIL
STATE OF CALIFORNIA

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REVISIONS:	APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE:
03_EROSION CONTROL.dwg

SHEET NO.
6

LEGEND

FF	FINISHED FLOOR
	PROPERTY LINE
	EASEMENT
	RIGHT OF WAY
	CENTER LINE
	LIMITS OF GRADING
	PROPOSED WALL
	CONSTRUCTION ENTRANCE
	SANDBAGS
	SEDIMENT TRAP
	SWALE
	SURFACE SLOPE DIRECTION
WSA	WASTE STORAGE AREA (WM-8)
VSA	VEHICLE STORAGE AREA (NS-8, NS-10)
MSA	MATERIAL STORAGE AREA (WM-1, WM-2)
FL	FUELING LOCATION (NS-9)
TL	TEMPORARY LAVATORY (WM-9)

EROSION CONTROL CONSTRUCTION NOTES

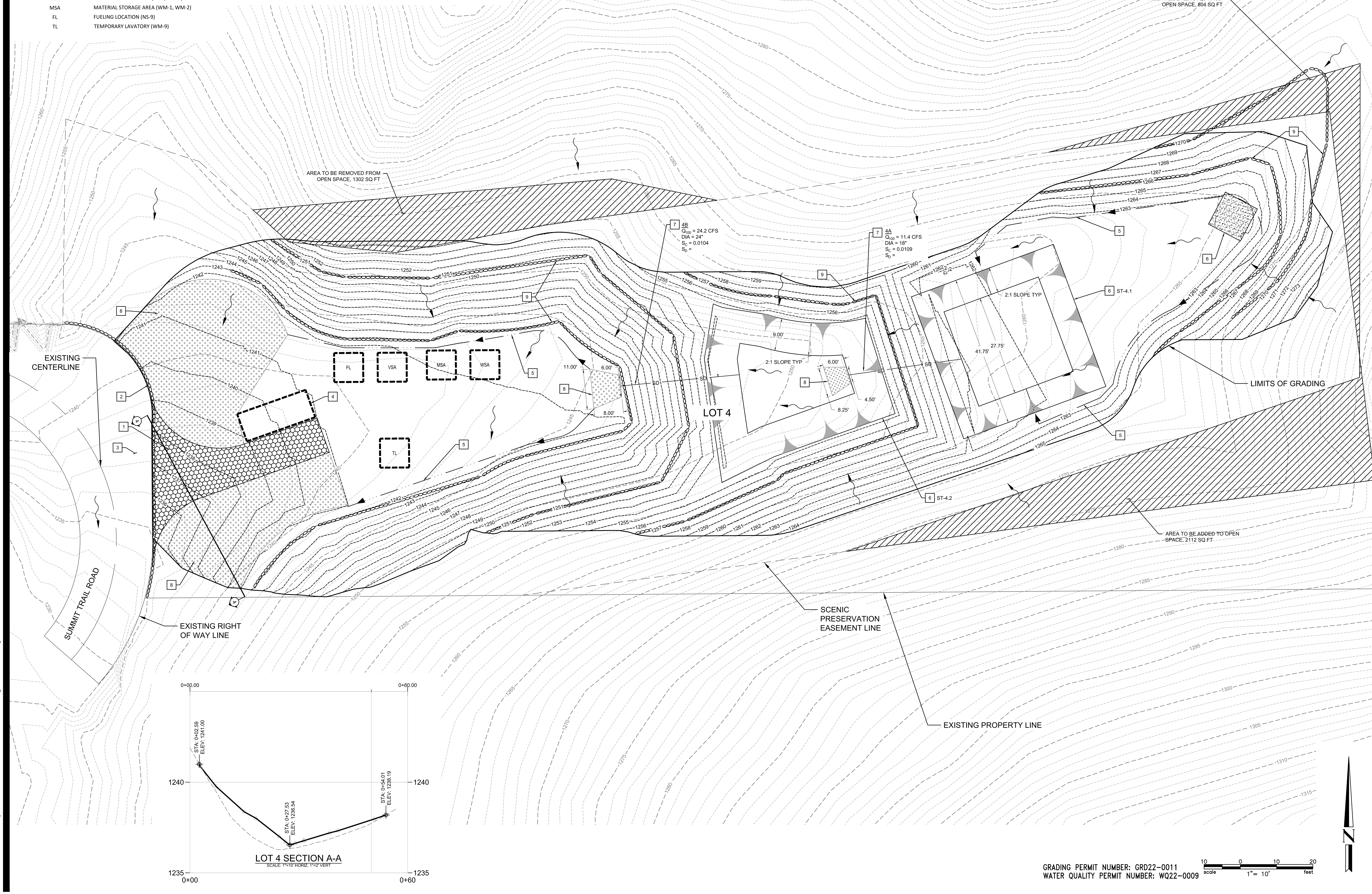
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER CASQA BMP TC-1 SEE DETAIL 1 SHEET 10.
2. INSTALL GRAVEL BAG BERM PER CASQA BMP SE-6. SEE DETAIL 4 SHEET 10.
3. PERFORM STREET SWEEPING PER CASQA BMP SE-7. SEE DETAIL 3, SHEET 10.
4. CONSTRUCT CONCRETE WASH AREA PER CASQA BMP WM-8. SEE DETAIL 2, SHEET 10.
5. CONSTRUCT EARTH DIKE AND DRAINAGE SWALE. SEE DETAIL 7, SHEET 10.
6. CONSTRUCT SEDIMENT TRAP PER CASQA BMP SE-3. SEE DETAIL 6, SHEET 10.
7. INSTALL SLOPE DRAIN PER CASQA BMP EC-11. SEE DETAIL 9, SHEET 10.
8. CONSTRUCT RIPRAP APRON. 12" THICK CLASS 1 RIPRAP. DIMENSIONS PER PLAN.
9. INSTALL FIBER ROLL PER CASQA BMP SE-5. SEE DETAIL SHEET 12.

SEDIMENT TRAP DATA

SEDIMENT TRAP NUMBER	Q_{100}	MINIMIMUM STORAGE VOLUME (CY)	MINIMUM STORAGE DEPTH (FT)	MINIMUM WEIR LENGTH (FT)
ST-4.1	11.4	250	3.5	8
ST-4.2	24.2	250	4.4	15

STORM DRAIN DATA

STORM DRAIN NUMBER	Q_{100}	DIAMETER	D_N	D_C	S_O	S_C	V_{MAX}	V_C	n
4A	11.4	18		1.29		0.0109		7.05	0.013
4B	24.2	24		1.74		0.0104		8.34	0.013



GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009

scale 1" = 10' feet

THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOT 4 EROSION CONTROL PLAN

REGISTERED PROFESSIONAL ENGINEER — DEFNE WENONA VIOLA — No. 72037 — CIVIL — STATE OF CALIFORNIA

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REVISIONS: APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE: 03_EROSION CONTROL.dwg

SHEET NO. 7

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THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOT 6&8 EROSION CONTROL PLAN

LEGEND

Symbol	Description
FF	FINISHED FLOOR
solid line	PROPERTY LINE
dashed line	EASEMENT
solid line	RIGHT OF WAY
solid line	CENTER LINE
heavy line	PROPOSED WALL
hatched area	CONSTRUCTION ENTRANCE
dash-dot line	SWALE
solid line	SEDIMENT FENCE
wavy arrow	SURFACE SLOPE DIRECTION
WSA	WASTE STORAGE AREA (WM-8)
VSA	VEHICLE STORAGE AREA (NS-8, NS-10)
MSA	MATERIAL STORAGE AREA (WM-1, WM-2)
FL	FUELING LOCATION (NS-9)
TL	TEMPORARY LAVATORY (WM-9)

EROSION CONTROL CONSTRUCTION NOTES

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER CASQA BMP TC-1 SEE DETAIL 1 SHEET 10.
2. PERFORM STREET SWEEPING PER CASQA BMP SE-7. SEE DETAIL 3, SHEET 10.
3. INSTALL SEDIMENT FENCE PER CASQA BMP SE-1, SEE DETAIL 8 ON SHEET 10.
4. CONSTRUCT CONCRETE WASH AREA PER CASQA BMP WM-8. SEE DETAIL 2, SHEET 10.
5. CONSTRUCT EARTH DIKE AND DRAINAGE SWALE. SEE DETAIL 7, SHEET 10.
6. PERFORM SOIL PREPARATION/ROUGHENING PER CASQA BMP EC-15. SEE SHEET 12.
7. CONSTRUCT SEDIMENT TRAP PER CASQA BMP SE-3. SEE DETAIL 6, SHEET 10.
8. INSTALL SLOPE DRAIN PER CASQA BMP EC-11. SEE DETAIL 9, SHEET 10.
9. INSTALL FIBER ROLL PER CASQA BMP SE-5. SEE DETAIL SHEET 12.
10. CONSTRUCT RIPRAP APRON. 12" THICK CLASS 1 RIPRAP. DIMENSIONS PER PLAN.

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009

10 0 10 20
scale 1" = 10' feet

N

REGISTERED PROFESSIONAL ENGINEER
DEERING WENONA VIOLA
No.72037
CIVIL
STATE OF CALIFORNIA

DAVID EVANS AND ASSOCIATES INC.
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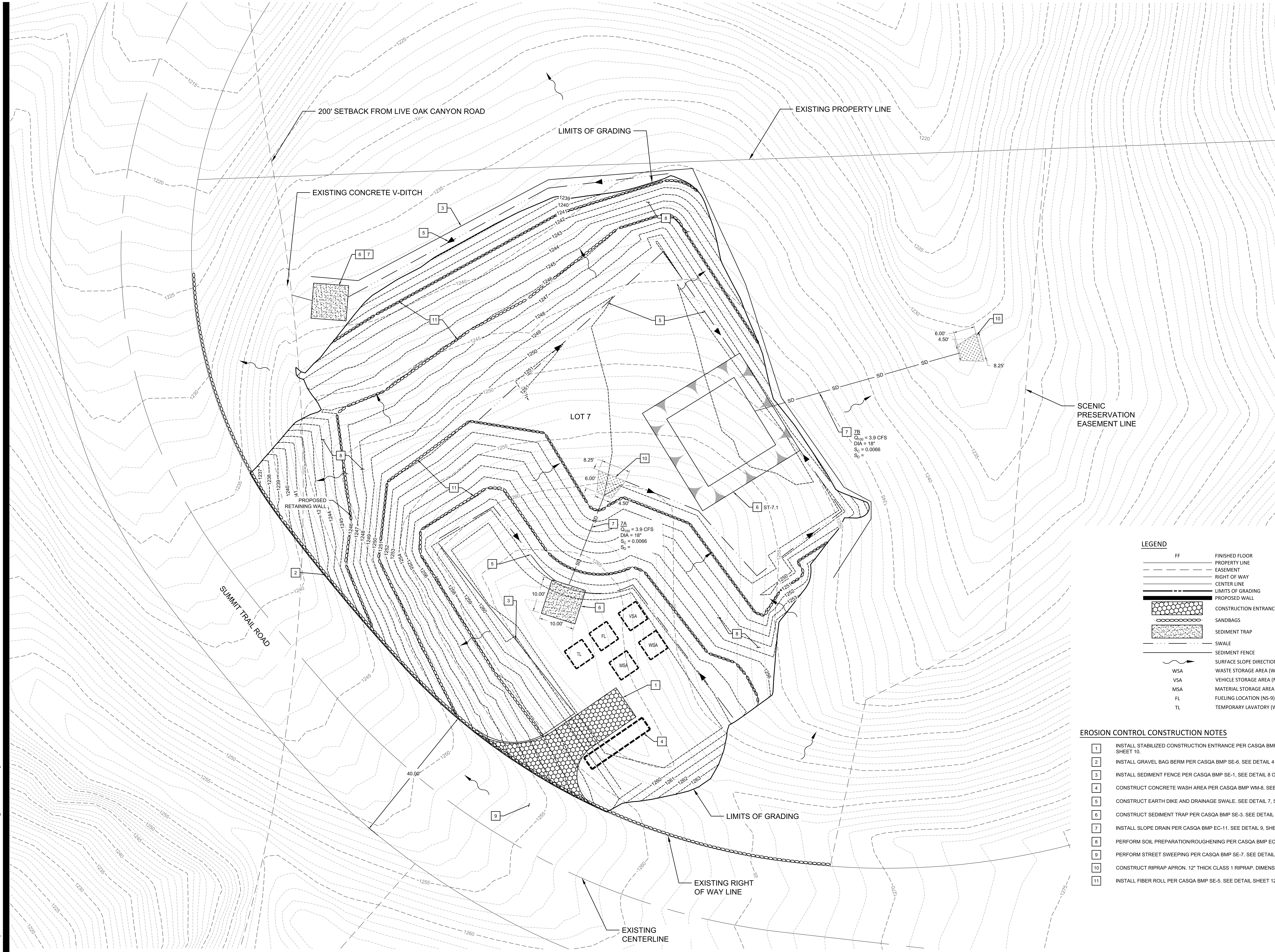
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE: 03_EROSION CONTROL.dwg

SHEET NO. 8



LEGEND

FF	FINISHED FLOOR
	PROPERTY LINE
	EASEMENT
	RIGHT OF WAY
	CENTER LINE
	LIMITS OF GRADING
	PROPOSED WALL
	CONSTRUCTION ENTRANCE
	SANDBAGS
	SEDIMENT TRAP
	SWALE
	SEDIMENT FENCE
	SURFACE SLOPE DIRECTION
WSA	WASTE STORAGE AREA (WM-8)
VSA	VEHICLE STORAGE AREA (NS-8, NS-10)
MSA	MATERIAL STORAGE AREA (WM-1, WM-2)
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11. INSTALL FIBER ROLL PER CASQA BMP SE-5. SEE DETAIL SHEET 12.

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009

10 0 10 20
scale 1"= 10' feet

N

THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

LOT 7 EROSION CONTROL PLAN

REGISTERED PROFESSIONAL ENGINEER
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REVISIONS:	APPD.

DATE: 6/20/2022
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REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

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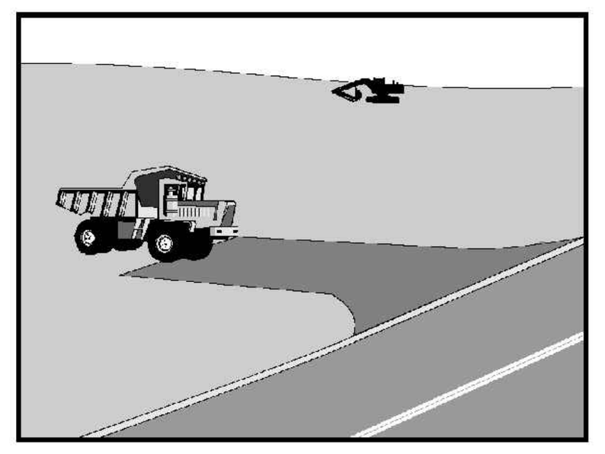
SHEET NO.
9

Stabilized Construction Entrance/Exit TC-1



Categories

EC	Erosion Control	☒
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives
None

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Description and Purpose
A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

Suitable Applications
Use at construction sites:

- Where dirt or mud can be tracked onto public roads.
- Adjacent to water bodies.
- Where poor soils are encountered.
- Where dust is a problem during dry weather conditions.

Limitations
- Entrances and exits require periodic top dressing with additional stones.
- This BMP should be used in conjunction with street sweeping on adjacent public right of way.
- Entrances and exits should be constructed on level ground only.
- Stabilized construction entrances are rather expensive to construct and when a wash rack is included, a sediment trap of some kind must also be provided to collect wash water runoff.

Stabilized Construction Entrance/Exit TC-1

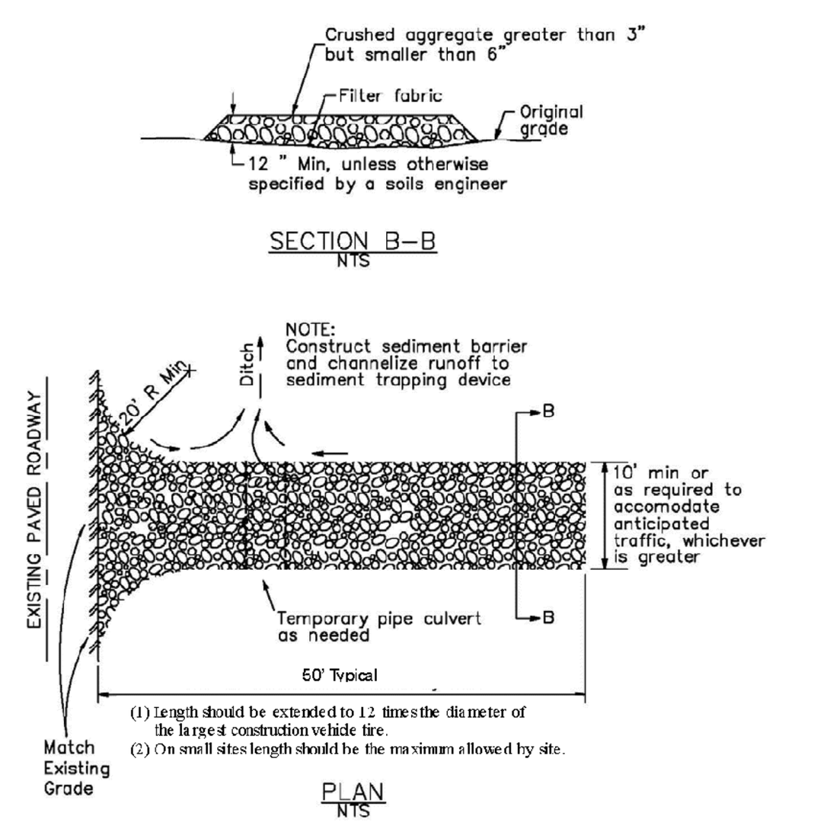
- Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. Do not use asphalt concrete (AC) grindings for stabilized construction access/roadway.
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 12 in. depth, or place aggregate to a depth recommended by a geotechnical engineer. A crushed aggregate greater than 3 in. but smaller than 6 in. should be used.
- Designate combination or single purpose entrances and exits to the construction site.
- Require that all employees, subcontractors, and suppliers utilize the stabilized construction access.
- Implement SE-7, Street Sweeping and Vacuuming, as needed.
- All exit locations intended to be used for more than a two-week period should have stabilized construction entrance/exit BMPs.

Inspection and Maintenance
- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMPs are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect local roads adjacent to the site daily. Sweep or vacuum to remove visible accumulated sediment.
- Remove aggregate, separate and dispose of sediment if construction entrance/exit is clogged with sediment.
- Keep all temporary roadway ditches clear.
- Check for damage and repair as needed.
- Replace gravel material when surface voids are visible.
- Remove all sediment deposited on paved roadways within 24 hours.
- Remove gravel and filter fabric at completion of construction

Costs
Average annual cost for installation and maintenance may vary from $1,200 to $4,800 each, averaging $2,400 per entrance. Costs will increase with addition of washing rack, and sediment trap. With wash rack, costs range from $1,200 - $6,000 each, averaging $3,600 per entrance.

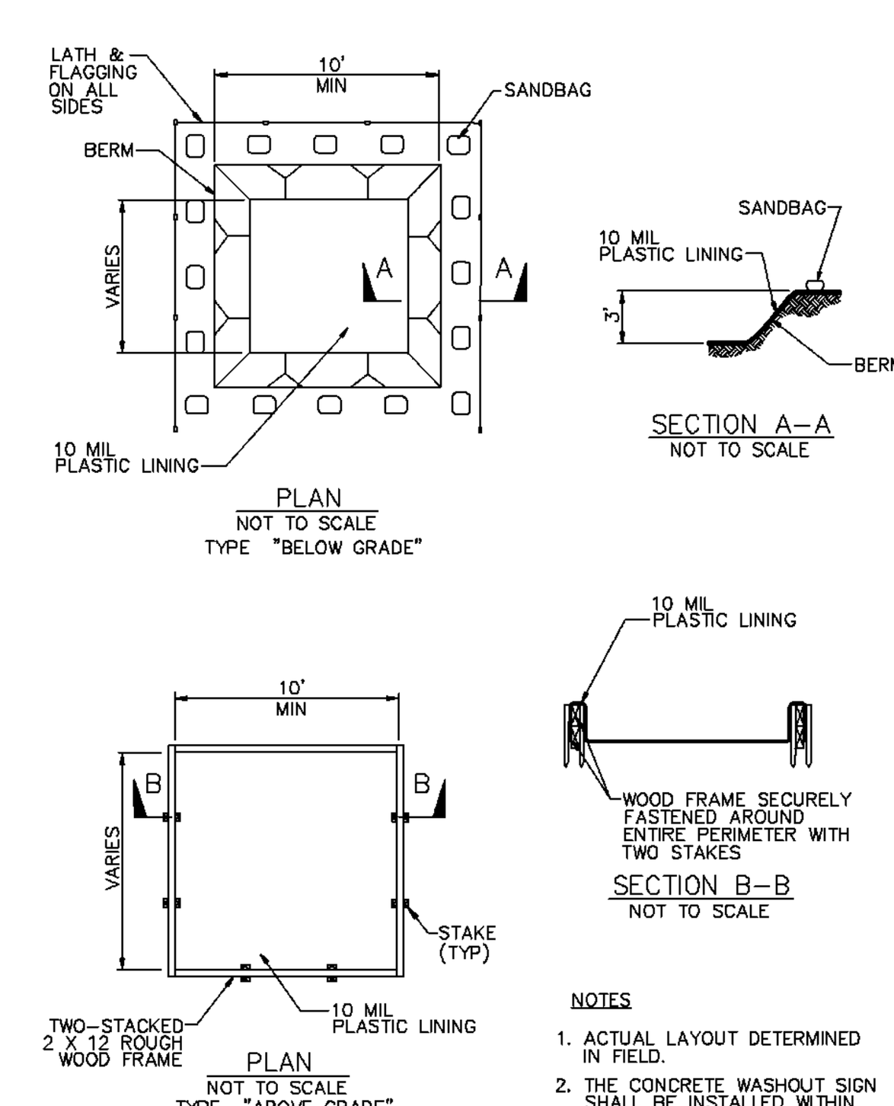
References
Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, May 1995.

Stabilized Construction Entrance/Exit TC-1



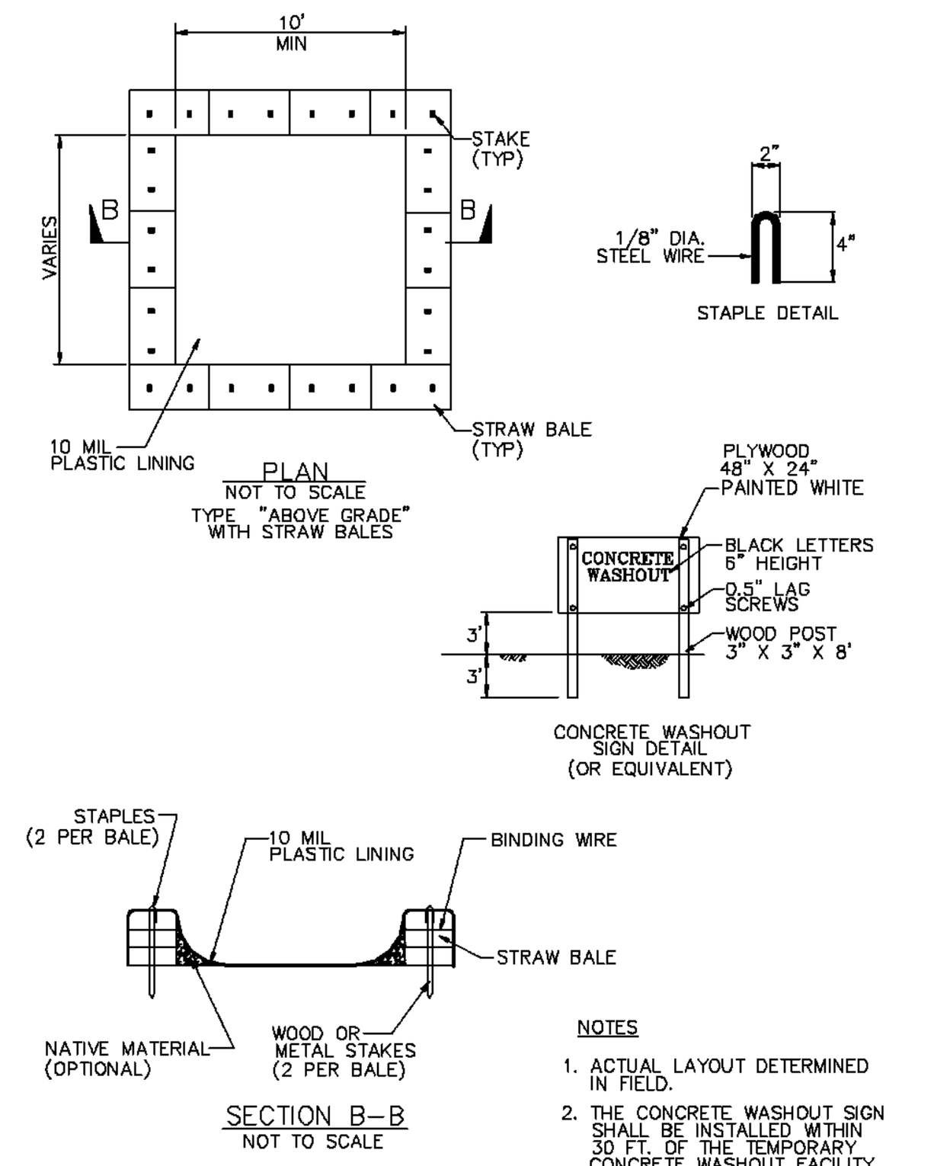
1 STABILIZED CONSTRUCTION ENTRANCE
PER CASQA STD TC-1

Concrete Waste Management WM-8



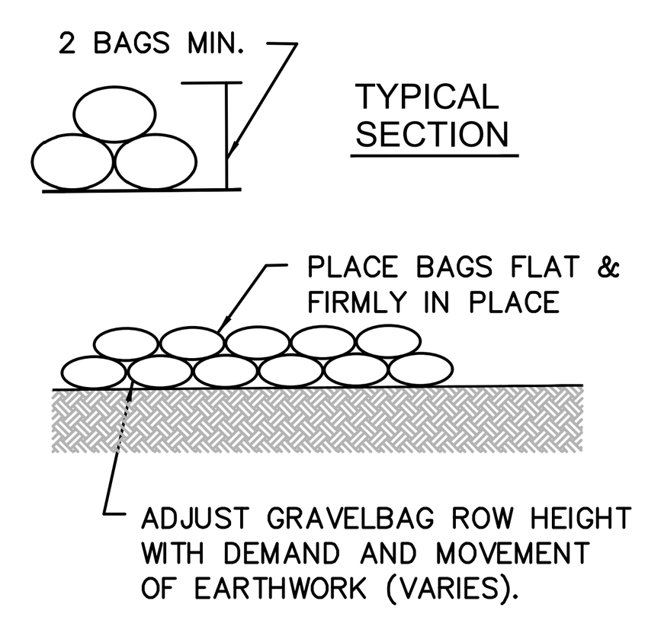
NOTES
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

Concrete Waste Management WM-8



NOTES
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

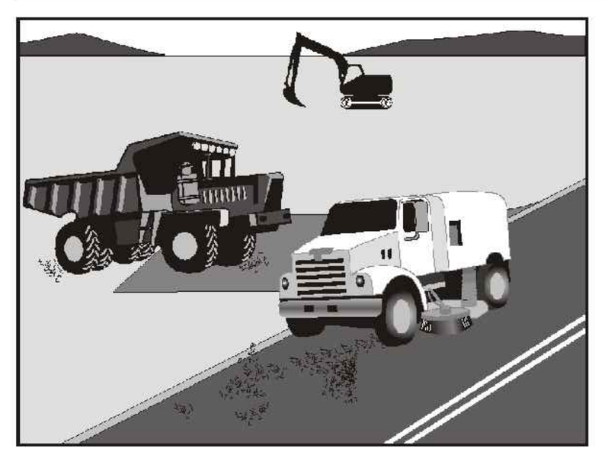
2 CONCRETE WASTE AREA
PER CASQA STD WM-8



TYPICAL ELEVATION

4 TYPICAL GRAVELBAG BERM DETAIL
PER CASQA STD SE-6

Street Sweeping and Vacuuming SE-7



Categories

EC	Erosion Control	
SE	Sediment Control	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives
None

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Description and Purpose
Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

Suitable Applications
Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved streets and roads, typically at points of egress. Sweeping and vacuuming are also applicable during preparation of paved surfaces for final paving.

Limitations
Sweeping and vacuuming may not be effective when sediment is wet or when tracked soil is caked (caked soil may need to be scraped loose).

Implementation
- Controlling the number of points where vehicles can leave the site will allow sweeping and vacuuming efforts to be focused, and perhaps save money.
- Inspect potential sediment tracking locations daily.
- Visible sediment tracking should be swept or vacuumed on a daily basis.

Street Sweeping and Vacuuming SE-7

- Do not use kick brooms or sweeper attachments. These tend to spread the dirt rather than remove it.
- If not mixed with debris or trash, consider incorporating the removed sediment back into the project

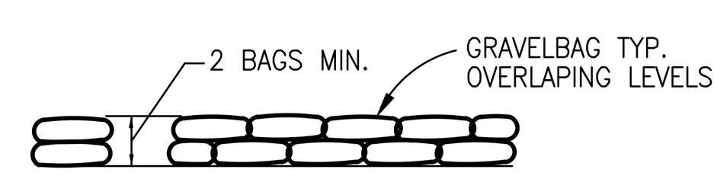
Costs
Rental rates for self-propelled sweepers vary depending on hopper size and duration of rental. Expect rental rates from $58/hour (3 yd³ hopper) to $88/hour (9 yd³ hopper), plus operator costs. Hourly production rates vary with the amount of area to be swept and amount of sediment. Match the hopper size to the area and expect sediment load to minimize time spent dumping.

Inspection and Maintenance
- Inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- When actively in use, points of ingress and egress must be inspected daily.
- When tracked or spilled sediment is observed outside the construction limits, it must be removed at least daily. More frequent removal, even continuous removal, may be required in some jurisdictions.
- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous.
- Adjust brooms frequently; maximize efficiency of sweeping operations.
- After sweeping is finished, properly dispose of sweeper wastes at an approved dumpsite.

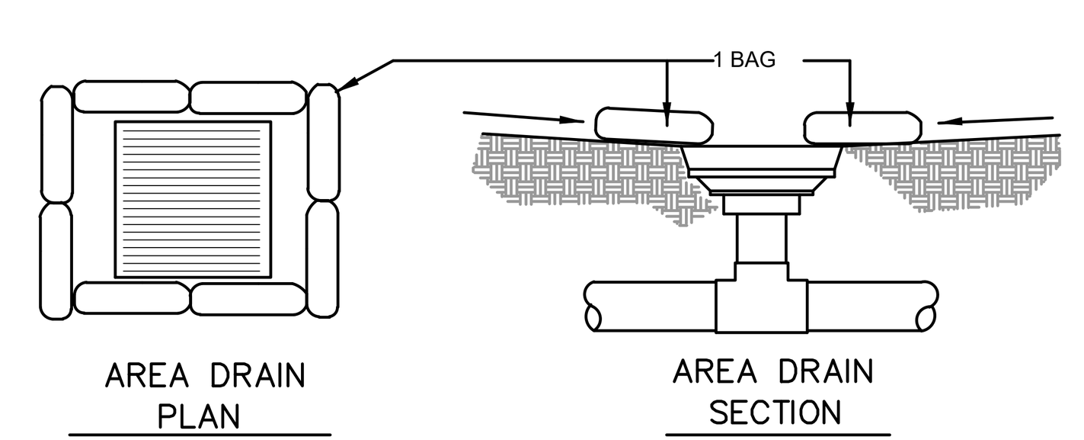
References
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Labor Surcharge and Equipment Rental Rates, State of California Department of Transportation (Caltrans), April 1, 2002 – March 31, 2003.

3 STREET SWEEPING
PER CASQA STD SE-7

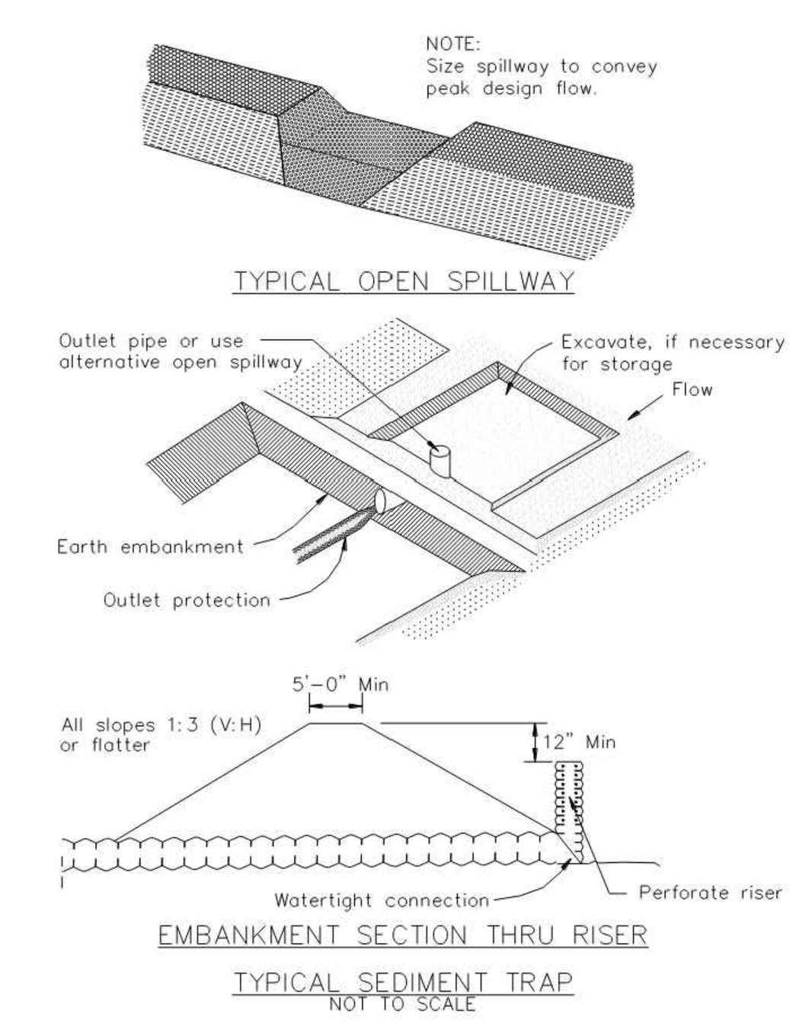


GRAVELBAG BARRIER
PER CASQA STD SE-8

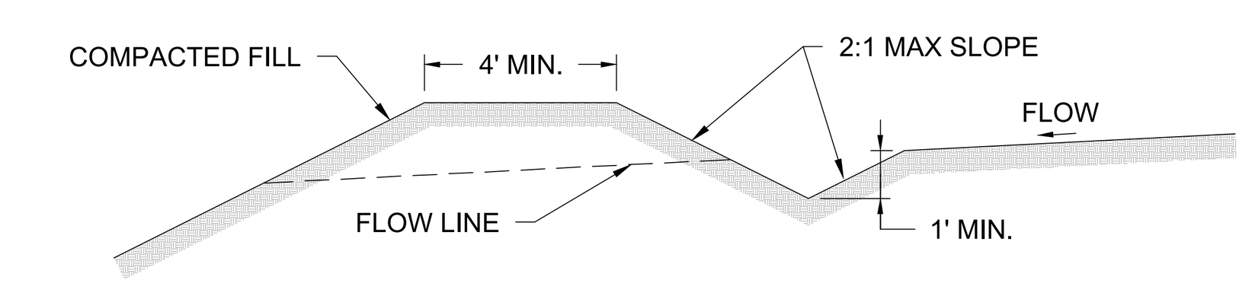


5 GRAVELBAG AROUND DRAIN INLET
PER CASQA STD SE-10

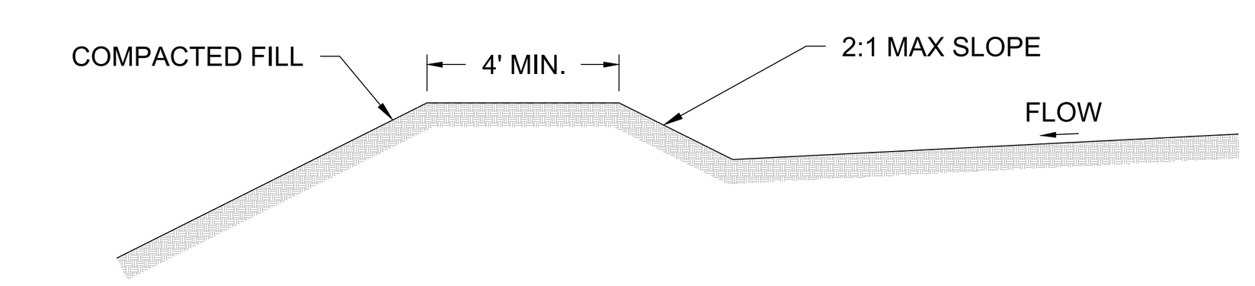
Sediment Trap SE-3



6 SEDIMENT TRAP
PER CASQA STD SE-3



DRAINAGE SWALE

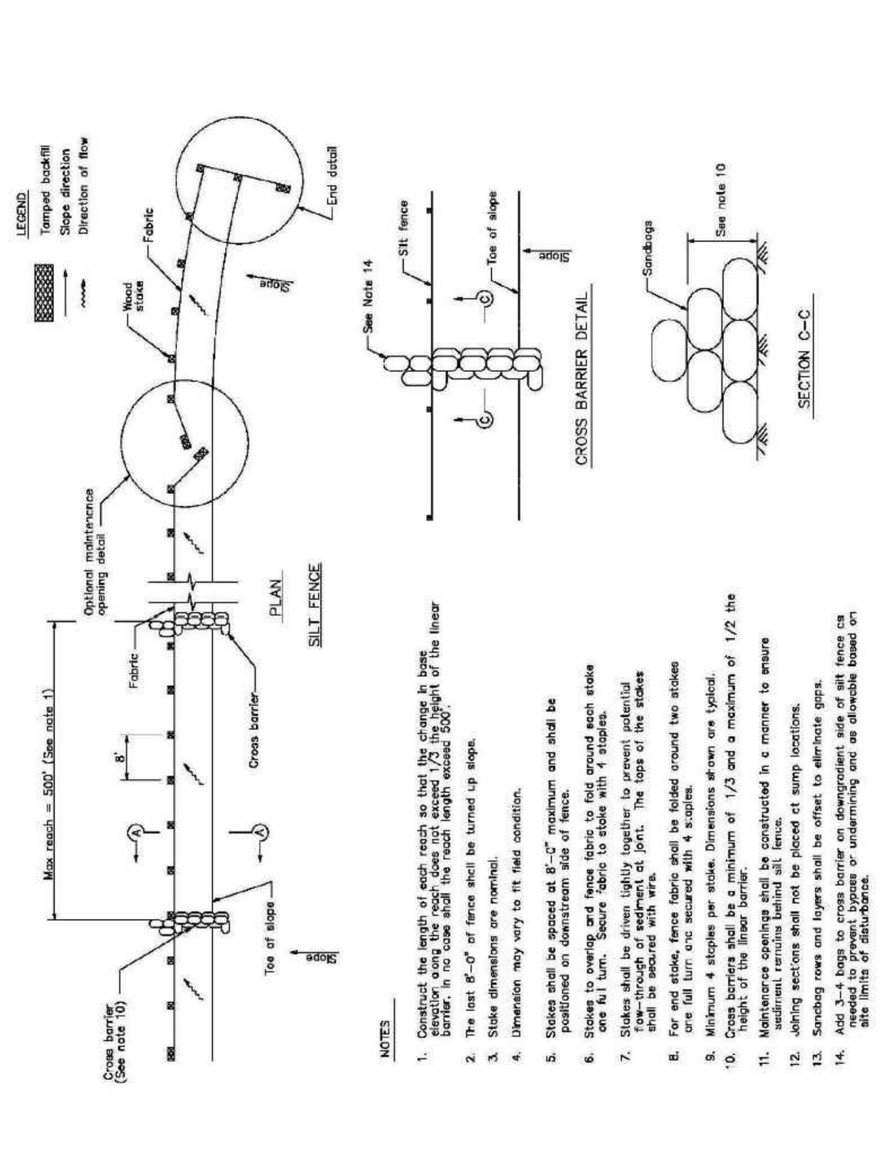


EARTH DIKE

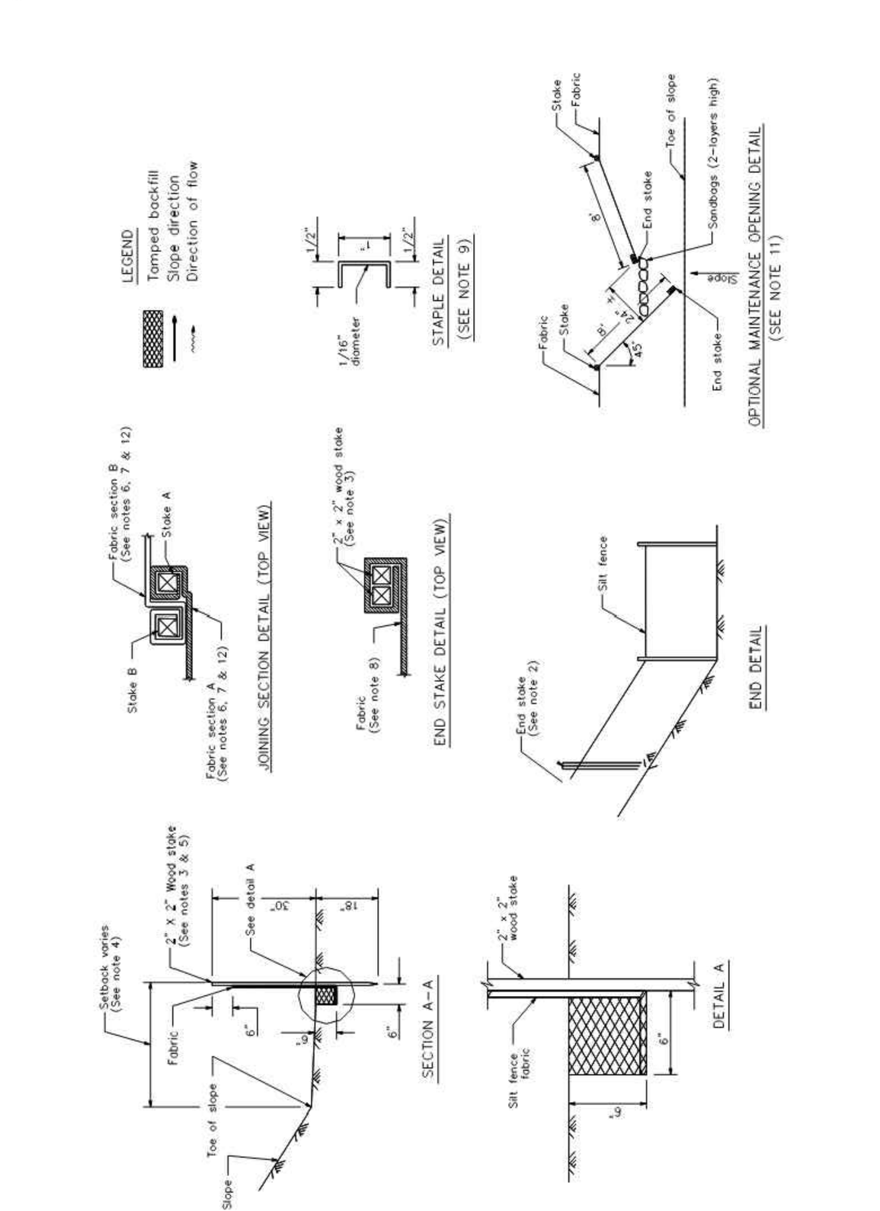
NOTES:
1. INLET OUTLETS AND SLOPES TO BE STABILIZED AND COMPACTED PER SPECIFICATIONS

7 EARTH DIKES AND DRAINAGE SWALES

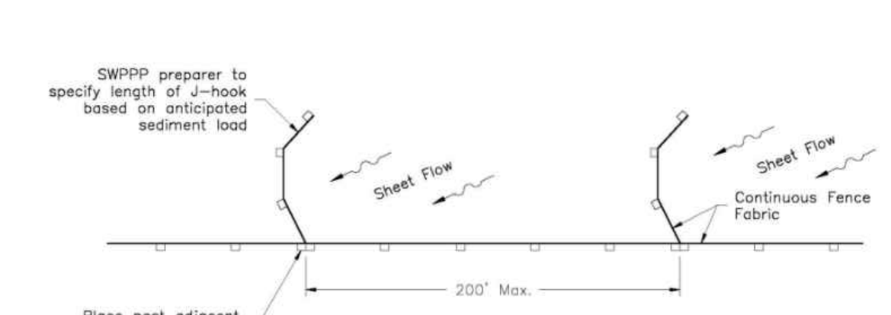
Silt Fence SE-1



Silt Fence SE-1

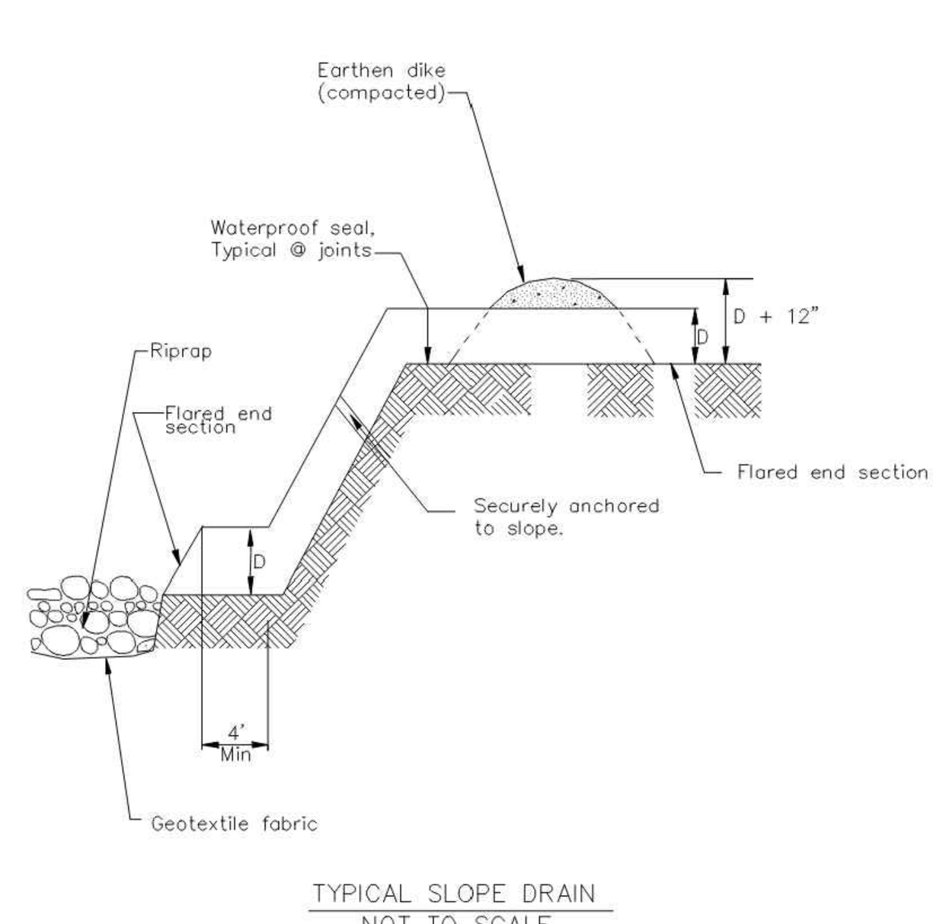


Silt Fence SE-1



8 SILT FENCE
PER CASQA STD SE-1

Slope Drains EC-11



TYPICAL SLOPE DRAIN
NOT TO SCALE

9 SLOPE DRAIN
PER CASQA STD EC-11

Biofilter Bags SE-14

- – Along streams and channels
- As linear erosion control measure:
  - – Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow
  - – At the top of slopes to divert runoff away from disturbed slopes
  - – As check dams across mildly sloped construction roads
- Inlet Protection (See SE-10)
- Supplement to silt fences or other sediment control devices

Limitations
- Short life-span (maximum usefulness of 2-3 months and should be replaced more frequently if needed); regular maintenance and replacement required to ensure effectiveness. Bags will rapidly fill with sediment and reduce permeability.
- Easily damaged by construction vehicles.
- If not properly staked, will fail on slope applications.
- If improperly installed can allow undercutting or side-cutting flow.
- Not effective where water velocities or volumes are high.
- Potentially buoyant and easily displaced if not properly installed.

Implementation
General
Biofilter bags are a relatively low cost temporary BMP that are easily deployed and have a simple installation that can be performed by hand. Without proper installation, however, biofilter bags can fail due to their light weight, potential displacement, and multiple joint locations. One of the benefits of utilizing biofilter bags is that the media (wood-product) can be recycled or used onsite when no longer needed (where acceptable).

Design and Layout – Linear control
- Locate biofilter bags on level contours.
  - – Slopes between 20:1 and 4:1 (H:V): Biofilter bags should be placed at a maximum interval of 20 ft, with the first row near the slope toe.
  - – Slopes between 4:1 and 2:1 (H:V): Biofilter bags should be placed at a maximum interval of 15 ft, with the first row near the slope toe.
  - – Slopes 2:1 (H:V) or steeper: Biofilter bags should be placed at a maximum interval of 10 ft., with the first row placed the slope toe.

Biofilter Bags SE-14

- Turn the ends of the biofilter bag barriers up slope to prevent runoff from going around the berm.
- Allow sufficient space up slope from the biofilter bag berm to allow ponding, and to provide room for sediment storage.
- Stake biofilter bags into a 1 to 2 in. deep trench with a width equal to the bag.
  - – Drive one stake at each end of the bag.
  - – Use wood stakes with a nominal classification of 0.75 by 0.75 in. and minimum length of 24 in.
- Biofilter bags should be overlapped (6 in.), not abutted.

Costs
Pre-filled biofilter bags cost approximately $2.50-$3.50 per bag, dependent upon size.

Inspection and Maintenance
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Biofilter bags exposed to sunlight will need to be replaced every two to three months due to degrading of the bags.
- Reshape or replace biofilter bags as needed.
- Repair washouts or other damage as needed.
- Sediment that is retained by the BMP should be periodically removed in order to maintain BMP effectiveness. Sediment should be removed when the sediment accumulation reaches one-third of the barrier height.
- Remove biofilter bag berms when no longer needed. Remove sediment accumulation and clean, re-grade, and stabilize the area. Biofilter media may be used on-site, if allowed.

References
Catalog of Stormwater Best Management Practices for Idaho Cities and Counties. Volume 2, Section 7, BMP 34 – Biofilter Bags, Idaho Department of Environmental Quality, 2005.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

10 BIOFILTER BAGS
PER CASQA STD SE-14

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009

THE OAKS AT TRABUCO
TR 14749, LOTS 3, 4, 6, 7 & 8
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EROSION CONTROL DETAILS

REGISTERED PROFESSIONAL ENGINEER
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No. 72037
CIVIL
STATE OF CALIFORNIA

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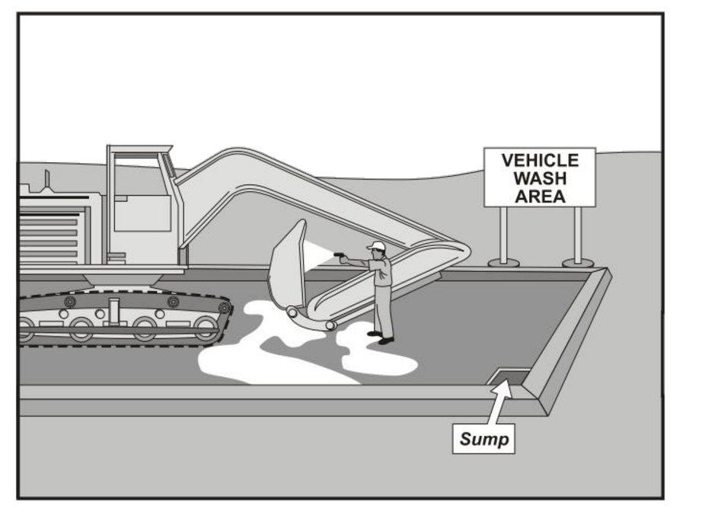
Vehicle and Equipment Cleaning NS-8



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EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
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NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives
None

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Description and Purpose
Vehicle and equipment cleaning procedures and practices eliminate or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning operations. Procedures and practices include but are not limited to: using offsite facilities; washing in designated, contained areas only; eliminating discharges to the storm drain by infiltrating the wash water; and training employees and subcontractors in proper cleaning procedures.

Suitable Applications
These procedures are suitable on all construction sites where vehicle and equipment cleaning is performed.

Limitations
Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

Implementation
Other options to washing equipment onsite include contracting with either an offsite or mobile commercial washing business. These businesses may be better equipped to handle and dispose of the wash waters properly. Performing this work offsite can also be economical by eliminating the need for a separate washing operation onsite.

If washing operations are to take place onsite, then:

Vehicle and Equipment Cleaning NS-8

- Use phosphate-free, biodegradable soaps.
- Educate employees and subcontractors on pollution prevention measures.
- Do not permit steam cleaning onsite. Steam cleaning can generate significant pollutant concentrates.
- Cleaning of vehicles and equipment with soap, solvents or steam should not occur on the project site unless resulting wastes are fully contained and disposed of. Resulting wastes should not be discharged or buried, and must be captured and recycled or disposed according to the requirements of WM-10, Liquid Waste Management or WM-6, Hazardous Waste Management, depending on the waste characteristics. Minimize use of solvents. Use of diesel for vehicle and equipment cleaning is prohibited.
- All vehicles and equipment that regularly enter and leave the construction site must be cleaned offsite.
- When vehicle and equipment washing and cleaning must occur onsite, and the operation cannot be located within a structure or building equipped with appropriate disposal facilities, the outside cleaning area should have the following characteristics:
  - Located away from storm drain inlets, drainage facilities, or watercourses
  - Paved with concrete or asphalt and bermed to contain wash waters and to prevent runon and runoff
  - Configured with a sump to allow collection and disposal of wash water
  - No discharge of wash waters to storm drains or watercourses
  - Used only when necessary
- When cleaning vehicles and equipment with water:
  - Use as little water as possible. High-pressure sprayers may use less water than a hose and should be considered
  - Use positive shutoff valve to minimize water usage
  - Facility wash racks should discharge to a sanitary sewer, recycle system or other approved discharge system and must not discharge to the storm drainage system, watercourses, or to groundwater

Costs
Cleaning vehicles and equipment at an offsite facility may reduce overall costs for vehicle and equipment cleaning by eliminating the need to provide similar services onsite. When onsite cleaning is needed, the cost to establish appropriate facilities is relatively low on larger, long-duration projects, and moderate to high on small, short-duration projects.

Vehicle and Equipment Cleaning NS-8

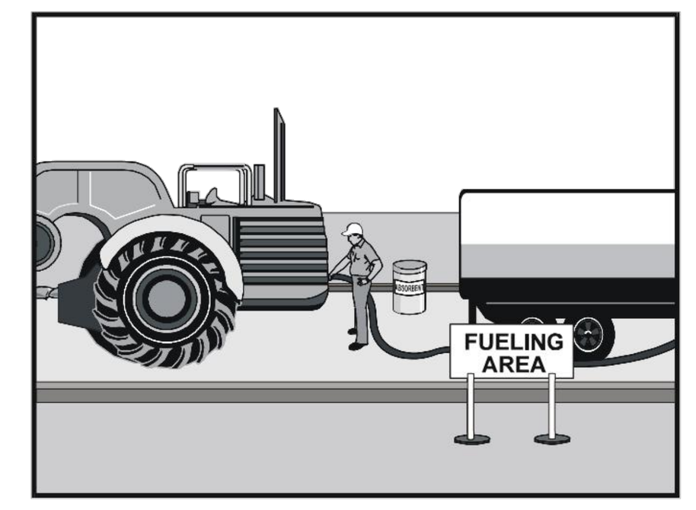
Inspection and Maintenance
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Inspection and maintenance is minimal, although some berm repair may be necessary.
- Monitor employees and subcontractors throughout the duration of the construction project to ensure appropriate practices are being implemented.
- Inspect sump regularly and remove liquids and sediment as needed.
- Prohibit employees and subcontractors from washing personal vehicles and equipment on the construction site.

References

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Swisher, R.D. Surfactant Biodegradation, Marcel Decker Corporation, 1987.

Vehicle and Equipment Fueling NS-9



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents	
Sediment	
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives
None

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Description and Purpose
Vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures.

Suitable Applications
These procedures are suitable on all construction sites where vehicle and equipment fueling takes place.

Limitations
Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling. Sending vehicles and equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/ Exit.

Implementation
- Use offsite fueling stations as much as possible. These businesses are better equipped to handle fuel and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate fueling area at a site.
- Discourage "topping-off" of fuel tanks.

Vehicle and Equipment Fueling NS-9

- Absorbent spill cleanup materials and spill kits should be available in fueling areas and on fueling trucks, and should be disposed of properly after use.
- Drip pans or absorbent pads should be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area.
- Use absorbent materials on small spills. Do not hose down or bury the spill. Remove the adsorbent materials promptly and dispose of properly.
- Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. With the exception of tracked equipment such as bulldozers and large excavators, most vehicles should be able to travel to a designated area with little lost time.
- Train employees and subcontractors in proper fueling and cleanup procedures.
- When fueling must take place onsite, designate an area away from drainage courses to be used. Fueling areas should be identified in the SWPPP.
- Dedicated fueling areas should be protected from stormwater runon and runoff, and should be located at least 50 ft away from downstream drainage facilities and watercourses. Fueling must be performed on level-grade areas.
- Protect fueling areas with berms and dikes to prevent runon, runoff, and to contain spills.
- Nozzles used in vehicle and equipment fueling should be equipped with an automatic shutoff to control drips. Fueling operations should not be left unattended.
- Use vapor recovery nozzles to help control drips as well as air pollution where required by Air Quality Management Districts (AQMD).
- Federal, state, and local requirements should be observed for any stationary above ground storage tanks.

Costs
- All of the above measures are low cost except for the capital costs of above ground tanks that meet all local environmental, zoning, and fire codes.

Inspection and Maintenance
- Inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Vehicles and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately or problem vehicles or equipment should be removed from the project site.
- Keep ample supplies of spill cleanup materials onsite.

Vehicle and Equipment Fueling NS-9

- Immediately clean up spills and properly dispose of contaminated soil and cleanup materials.

References

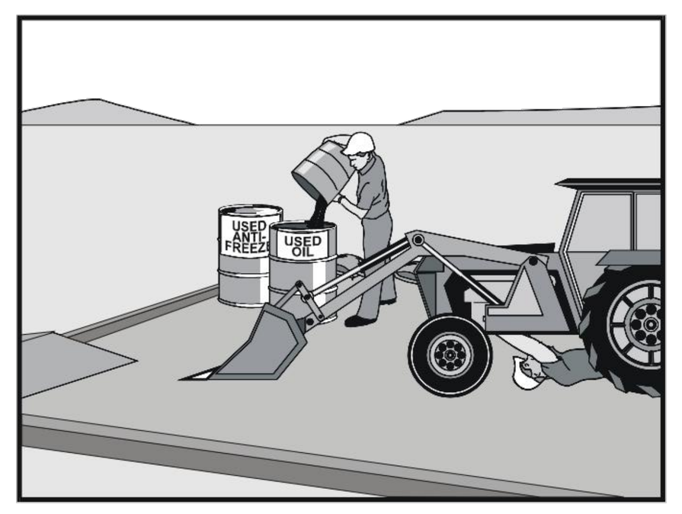
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, EPA 832-R-92005; USEPA, April 1992.

Vehicle & Equipment Maintenance NS-10



Categories		
EC	Erosion Control	
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TC	Tracking Control	
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NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ Primary Objective
☒ Secondary Objective

Targeted Constituents	
Sediment	
Nutrients	☑
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives
None

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Description and Purpose
Prevent or reduce the contamination of stormwater resulting from vehicle and equipment maintenance by running a "dry and clean site". The best option would be to perform maintenance activities at an offsite facility. If this option is not available then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. Employees and subcontractors must be trained in proper procedures.

Suitable Applications
These procedures are suitable on all construction projects where an onsite yard area is necessary for storage and maintenance of heavy equipment and vehicles.

Limitations
Onsite vehicle and equipment maintenance should only be used where it is impractical to send vehicles and equipment offsite for maintenance and repair. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

Outdoor vehicle or equipment maintenance is a potentially significant source of stormwater pollution. Activities that can contaminate stormwater include engine repair and service, changing or replacement of fluids, and outdoor equipment storage and parking (engine fluid leaks). For further information on vehicle or equipment servicing, see NS-8,

Vehicle & Equipment Maintenance NS-10

Vehicle and Equipment Cleaning, and NS-9, Vehicle and Equipment Fueling.

Implementation
- Use offsite repair shops as much as possible. These businesses are better equipped to handle vehicle fluids and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate maintenance area.
- If maintenance must occur onsite, use designated areas, located away from drainage courses. Dedicated maintenance areas should be protected from stormwater runon and runoff, and should be located at least 50 ft from downstream drainage facilities and watercourses.
- Drip pans or absorbent pads should be used during vehicle and equipment maintenance work that involves fluids, unless the maintenance work is performed over an impermeable surface in a dedicated maintenance area.
- Place a stockpile of spill cleanup materials where it will be readily accessible.
- All fueling trucks and fueling areas are required to have spill kits and/or use other spill protection devices.
- Use adsorbent materials on small spills. Remove the absorbent materials promptly and dispose of properly.
- Inspect onsite vehicles and equipment daily at startup for leaks, and repair immediately.
- Keep vehicles and equipment clean; do not allow excessive build-up of oil and grease.
- Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic and transmission fluids. Provide secondary containment and covers for these materials if stored onsite.
- Train employees and subcontractors in proper maintenance and spill cleanup procedures.
- Drip pans or plastic sheeting should be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than 1 hour.
- For long-term projects, consider using portable tents or covers over maintenance areas if maintenance cannot be performed offsite.
- Consider use of new, alternative greases and lubricants, such as adhesive greases, for chassis lubrication and fifth-wheel lubrication.
- Properly dispose of used oils, fluids, lubricants, and spill cleanup materials.
- Do not place used oil in a dumpster or pour into a storm drain or watercourse.
- Properly dispose of or recycle used batteries.
- Do not bury used tires.

Vehicle & Equipment Maintenance NS-10

- Repair leaks of fluids and oil immediately.

Listed below is further information if you must perform vehicle or equipment maintenance onsite.

Safer Alternative Products
- Consider products that are less toxic or hazardous than regular products. These products are often sold under an "environmentally friendly" label.
- Consider use of grease substitutes for lubrication of truck fifth-wheels. Follow manufacturers label for details on specific uses.
- Consider use of plastic friction plates on truck fifth-wheels in lieu of grease. Follow manufacturers label for details on specific uses.

Waste Reduction
Parts are often cleaned using solvents such as trichloroethylene, trichloroethane, or methylene chloride. Many of these cleaners are listed in California Toxic Rule as priority pollutants. These materials are harmful and must not contaminate stormwater. They must be disposed of as a hazardous waste. Reducing the number of solvents makes recycling easier and reduces hazardous waste management costs. Often, one solvent can perform a job as well as two different solvents. Also, if possible, eliminate or reduce the amount of hazardous materials and waste by substituting non-hazardous or less hazardous materials. For example, replace chlorinated organic solvents with non-chlorinated solvents. Non-chlorinated solvents like kerosene or mineral spirits are less toxic and less expensive to dispose of properly. Check the list of active ingredients to see whether it contains chlorinated solvents. The "chlor" term indicates that the solvent is chlorinated. Also, try substituting a wire brush for solvents to clean parts.

Recycling and Disposal
Separating wastes allows for easier recycling and may reduce disposal costs. Keep hazardous wastes separate, do not mix used oil solvents, and keep chlorinated solvents (like,- trichloroethane) separate from non-chlorinated solvents (like kerosene and mineral spirits). Promptly transfer used fluids to the proper waste or recycling drums. Don't leave full drip pans or other open containers lying around. Provide cover and secondary containment until these materials can be removed from the site.

Oil filters can be recycled. Ask your oil supplier or recycler about recycling oil filters.

Do not dispose of extra paints and coatings by dumping liquid onto the ground or throwing it into dumpsters. Allow coatings to dry or harden before disposal into covered dumpsters.

Store cracked batteries in a non-leaking secondary container. Do this with all cracked batteries, even if you think all the acid has drained out. If you drop a battery, treat it as if it is cracked. Put it into the containment area until you are sure it is not leaking.

Costs
All of the above are low cost measures. Higher costs are incurred to setup and maintain onsite maintenance areas.

Vehicle & Equipment Maintenance NS-10

Inspection and Maintenance
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect BMPs in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Inspect BMPs subject to non-stormwater discharges daily while non-stormwater discharges occur.
- Keep ample supplies of spill cleanup materials onsite.
- Maintain waste fluid containers in leak proof condition.
- Vehicles and equipment should be inspected on each day of use. Leaks should be repaired immediately or the problem vehicle(s) or equipment should be removed from the project site.
- Inspect equipment for damaged hoses and leaky gaskets routinely. Repair or replace as needed.

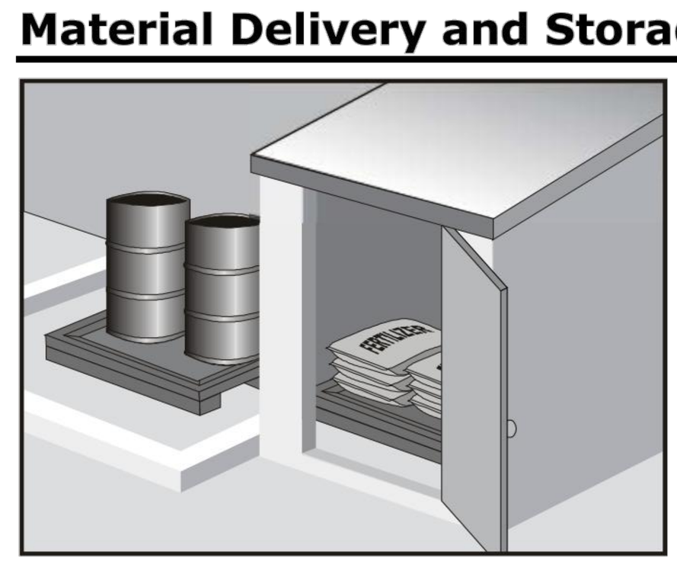
References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program; Program Development and Approval Guidance, Working Group, Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Material Delivery and Storage WM-1



Categories		
EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ Primary Category
☒ Secondary Category

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives
None

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Description and Purpose
Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in watertight containers and/or a completely enclosed designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

This best management practice covers only material delivery and storage. For other information on materials, see WM-2, Material Use, or WM-4, Spill Prevention and Control. For information on wastes, see the waste management BMPs in this section.

Suitable Applications
These procedures are suitable for use at all construction sites with delivery and storage of the following materials:

- Soil stabilizers and binders
- Pesticides and herbicides
- Fertilizers
- Detergents
- Plaster
- Petroleum products such as fuel, oil, and grease

Material Delivery and Storage WM-1

- Asphalt and concrete components
- Hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Concrete compounds
- Other materials that may be detrimental if released to the environment

Limitations
- Space limitation may preclude indoor storage.
- Storage sheds often must meet building and fire code requirements.

Implementation
The following steps should be taken to minimize risk:

- Chemicals must be stored in water tight containers with appropriate secondary containment or in a storage shed.
- When a material storage area is located on bare soil, the area should be lined and bermed.
- Use containment pallets or other practical and available solutions, such as storing materials within newly constructed buildings or garages, to meet material storage requirements.
- Stack erodible landscape material on pallets and cover when not in use.
- Contain all fertilizers and other landscape materials when not in use.
- Temporary storage areas should be located away from vehicular traffic.
- Material Safety Data Sheets (MSDS) should be available on-site for all materials stored that have the potential to effect water quality.
- Construction site areas should be designated for material delivery and storage.
- Material delivery and storage areas should be located away from waterways, if possible.
  - Avoid transport near drainage paths or waterways.
  - Surround with earth berms or other appropriate containment BMP. See EC-9, Earth Dikes and Drainage Swales.
  - Place in an area that will be paved.
- Storage of reactive, ignitable, or flammable liquids must comply with the fire codes of your area. Contact the local Fire Marshal to review site materials, quantities, and proposed storage area to determine specific requirements. See the Flammable and Combustible Liquid Code, NFPA30.
- An up to date inventory of materials delivered and stored onsite should be kept.

Material Delivery and Storage WM-1

- Hazardous materials storage onsite should be minimized.
- Hazardous materials should be handled as infrequently as possible.
- Keep ample spill cleanup supplies appropriate for the materials being stored. Ensure that cleanup supplies are in a conspicuous, labeled area.
- Employees and subcontractors should be trained on the proper material delivery and storage practices.
- Employees trained in emergency spill cleanup procedures must be present when dangerous materials or liquid chemicals are unloaded.
- If significant residual materials remain on the ground after construction is complete, properly remove and dispose of materials and any contaminated soil. See WM-7, Contaminated Soil Management. If the area is to be paved, pave as soon as materials are removed to stabilize the soil.

Material Storage Areas and Practices
- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 should be stored in approved containers and drums and should not be overfilled. Containers and drums should be placed in temporary containment facilities for storage.
- A temporary containment facility should provide for a spill containment volume able to contain precipitation from a 25 year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest container within its boundary, whichever is greater.
- A temporary containment facility should be impervious to the materials stored therein for a minimum contact time of 72 hours.
- A temporary containment facility should be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills should be collected and placed into drums. These liquids should be handled as a hazardous waste unless testing determines them to be non-hazardous. All collected liquids or non-hazardous liquids should be sent to an approved disposal site.
- Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.
- Incompatible materials, such as chlorine and ammonia, should not be stored in the same temporary containment facility.
- Materials should be covered prior to, and during rain events.
- Materials should be stored in their original containers and the original product labels should be maintained in place in a legible condition. Damaged or otherwise illegible labels should be replaced immediately.

Material Delivery and Storage WM-1

- Bagged and boxed materials should be stored on pallets and should not be allowed to accumulate on the ground. To provide protection from wind and rain throughout the rainy season, bagged and boxed materials should be covered during non-working days and prior to and during rain events.
- Stockpiles should be protected in accordance with WM-3, Stockpile Management.
- Materials should be stored indoors within existing structures or completely enclosed storage sheds when available.
- Proper storage instructions should be posted at all times in an open and conspicuous location.
- An ample supply of appropriate spill clean up material should be kept near storage areas.
- Also see WM-6, Hazardous Waste Management, for storing of hazardous wastes.

Material Delivery Practices
- Keep an accurate, up-to-date inventory of material delivered and stored onsite.
- Arrange for employees trained in emergency spill cleanup procedures to be present when dangerous materials or liquid chemicals are unloaded.

Spill Cleanup
- Contain and clean up any spill immediately.
- Properly remove and dispose of any hazardous materials or contaminated soil if significant residual materials remain on the ground after construction is complete. See WM-7, Contaminated Soil Management.
- See WM-4, Spill Prevention and Control, for spills of chemicals and/or hazardous materials.
- If spills or leaks of materials occur that are not contained and could discharge to surface waters, non-visible sampling of site discharge may be required. Refer to the General Permit or to your project specific Construction Site Monitoring Plan to determine if and where sampling is required.

Cost
- The largest cost of implementation may be in the construction of a materials storage area that is covered and provides secondary containment.

Inspection and Maintenance
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Keep storage areas clean and well organized, including a current list of all materials onsite.
- Inspect labels on containers for legibility and accuracy.

Material Delivery and Storage WM-1

- Repair or replace perimeter controls, containment structures, covers, and liners as needed to maintain proper function.

References

Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

THE OAKS AT TRABUCO
TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

EROSION CONTROL DETAILS

REGISTERED PROFESSIONAL ENGINEER
DEERING WENONA VIOLA
No. 72037
CIVIL
STATE OF CALIFORNIA

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REVISIONS:	APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE: 03_EROSION CONTROL.dwg

SHEET NO. 11

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009

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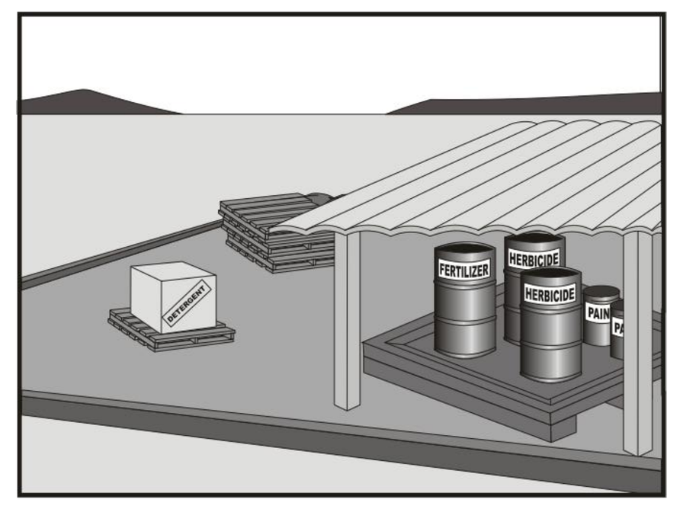
Material Use WM-2



Categories

EC	Erosion Control	
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TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Description and Purpose
Prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by using alternative products, minimizing hazardous material use onsite, and training employees and subcontractors.

Suitable Applications
This BMP is suitable for use at all construction projects. These procedures apply when the following materials are used or prepared onsite:

- Pesticides and herbicides
- Fertilizers
- Detergents
- Petroleum products such as fuel, oil, and grease
- Asphalt and other concrete components
- Other hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Other materials that may be detrimental if released to the environment

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Material Use WM-2

Limitations
Safer alternative building and construction products may not be available or suitable in every instance.

Implementation
The following steps should be taken to minimize risk:

- Minimize use of hazardous materials onsite.
- Follow manufacturer instructions regarding uses, protective equipment, ventilation, flammability, and mixing of chemicals.
- Train personnel who use pesticides. The California Department of Pesticide Regulation and county agricultural commissioners license pesticide dealers, certify pesticide applicators, and conduct onsite inspections.
- The preferred method of termiticide application is soil injection near the existing or proposed structure foundation/slab; however, if not feasible, soil drench application of termiticides should follow EPA label guidelines and the following recommendations (most of which are applicable to most pesticide applications):
  - Do not treat soil that is water-saturated or frozen.
  - Application shall not commence within 24-hours of a predicted precipitation event with a 40% or greater probability. Weather tracking must be performed on a daily basis prior to termiticide application and during the period of termiticide application.
  - Do not allow treatment chemicals to runoff from the target area. Apply proper quantity to prevent excess runoff. Provide containment for and divert stormwater from application areas using berms or diversion ditches during application.
  - Dry season: Do not apply within 10 feet of storm drains. Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds).
  - Wet season: Do not apply within 50 feet of storm drains or aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds) unless a vegetative buffer is present (if so, refer to dry season requirements).
  - Do not make on-grade applications when sustained wind speeds are above 10 mph (at application site) at nozzle end height.
  - Cover treatment site prior to a rain event in order to prevent run-off of the pesticide into non-target areas. The treated area should be limited to a size that can be backfilled and/or covered by the end of the work shift. Backfilling or covering of the treated area shall be done by the end of the same work shift in which the application is made.
  - The applicator must either cover the soil him/herself or provide written notification of the above requirement to the contractor on site and to the person commissioning the

Material Use WM-2

application (if different than the contractor). If notice is provided to the contractor or the person commissioning the application, then they are responsible under the Federal Insecticide Fungicide, and Rodenticide Act (FIFRA) to ensure that: 1) if the concrete slab cannot be poured over the treated soil within 24 hours of application, the treated soil is covered with a waterproof covering (such as polyethylene sheeting), and 2) the treated soil is covered if precipitation is predicted to occur before the concrete slab is scheduled to be poured.

- Do not over-apply fertilizers, herbicides, and pesticides. Prepare only the amount needed. Follow the recommended usage instructions. Over-application is expensive and environmentally harmful. Unless on steep slopes, till fertilizers into the soil rather than hydraulic application. Apply surface dressings in several smaller applications, as opposed to one large application, to allow time for infiltration and to avoid excess material being carried offsite by runoff. Do not apply these chemicals before predicted rainfall.
- Train employees and subcontractors in proper material use.
- Supply Material Safety Data Sheets (MSDS) for all materials.
- Dispose of latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths, when thoroughly dry and are no longer hazardous, with other construction debris.
- Do not remove the original product label; it contains important safety and disposal information. Use the entire product before disposing of the container.
- Mix paint indoors or in a containment area. Never clean paintbrushes or rinse paint containers into a street, gutter, storm drain, or watercourse. Dispose of any paint thinners, residue, and sludge(s) that cannot be recycled, as hazardous waste.
- For water-based paint, clean brushes to the extent practicable, and rinse to a drain leading to a sanitary sewer where permitted, or contain for proper disposal off site. For oil-based paints, clean brushes to the extent practicable, and filter and reuse thinners and solvents.
- Use recycled and less hazardous products when practical. Recycle residual paints, solvents, non-treated lumber, and other materials.
- Use materials only where and when needed to complete the construction activity. Use safer alternative materials as much as possible. Reduce or eliminate use of hazardous materials onsite when practical.
- Document the location, time, chemicals applied, and applicator's name and qualifications.
- Keep an ample supply of spill clean up material near use areas. Train employees in spill clean up procedures.
- Avoid exposing applied materials to rainfall and runoff unless sufficient time has been allowed for them to dry.
- Discontinue use of erodible landscape material within 2 days prior to a forecasted rain event and materials should be covered and/or bermed.

Material Use WM-2

- Provide containment for material use areas such as masons' areas or paint mixing/preparation areas to prevent materials/pollutants from entering stormwater.

Costs
All of the above are low cost measures.

Inspection and Maintenance
- Inspect and verify that activity-based BMPs are in place prior to the commencement of associated activities.
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Ensure employees and subcontractors throughout the job are using appropriate practices.

References
Blueprint for a Clean Bay: Best Management Practices to Prevent Stormwater Pollution from Construction Related Activities; Santa Clara Valley Nonpoint Source Pollution Control Program, 1995.

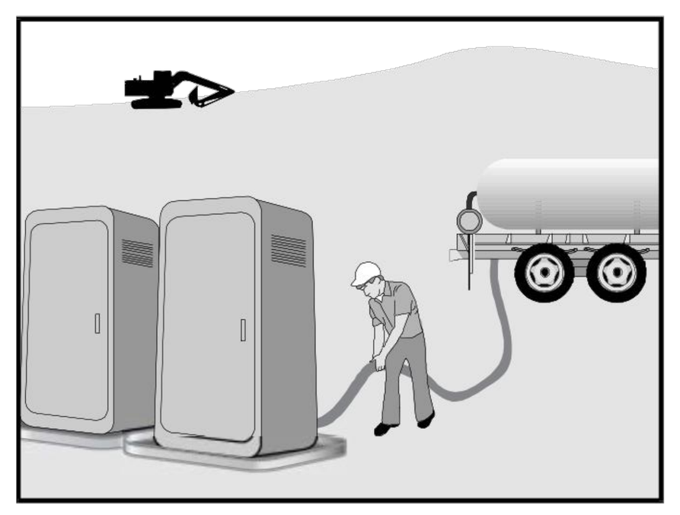
Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance, Working Group Working Paper; USEPA, April 1992.

Comments on Risk Assessments Risk Reduction Options for Cypermethrin: Docket No. OPP–2005–0293; California Stormwater Quality Association (CASQA) letter to USEPA, 2006.Environmental Hazard and General Labeling for Pyrethroid Non-Agricultural Outdoor Products, EPA-HQ-OPP-2008-0331-0021; USEPA, 2008.

Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Sanitary/Septic Waste Management WM-9



Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Description and Purpose
Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

Suitable Applications
Sanitary septic waste management practices are suitable for use at all construction sites that use temporary or portable sanitary and septic waste systems.

Limitations
None identified.

Implementation
Sanitary or septic wastes should be treated or disposed of in accordance with state and local requirements. In many cases, one contract with a local facility supplier will be all that it takes to make sure sanitary wastes are properly disposed.

Storage and Disposal Procedures
- Temporary sanitary facilities should be located away from drainage facilities, watercourses, and from traffic circulation. If site conditions allow, place portable facilities a minimum of 50 feet from drainage conveyances and traffic areas. When subjected to high winds or risk of high winds, temporary sanitary facilities should be secured to prevent overturning.

Targeted Constituents

Sediment	
Nutrients	☑
Trash	☑
Metals	
Bacteria	☑
Oil and Grease	
Organics	☑

Potential Alternatives

None

Sanitary/Septic Waste Management WM-9

- Temporary sanitary facilities must be equipped with containment to prevent discharge of pollutants to the stormwater drainage system of the receiving water.
- Consider safety as well as environmental implications before placing temporary sanitary facilities.
- Wastewater should not be discharged or buried within the project site.
- Sanitary and septic systems that discharge directly into sanitary sewer systems, where permissible, should comply with the local health agency, city, county, and sewer district requirements.
- Only reputable, licensed sanitary and septic waste haulers should be used.
- Sanitary facilities should be located in a convenient location.
- Temporary septic systems should treat wastes to appropriate levels before discharging.
- If using an onsite disposal system (OSDS), such as a septic system, local health agency requirements must be followed.
- Temporary sanitary facilities that discharge to the sanitary sewer system should be properly connected to avoid illicit discharges.
- Sanitary and septic facilities should be maintained in good working order by a licensed service.
- Regular waste collection by a licensed hauler should be arranged before facilities overflow.
- If a spill does occur from a temporary sanitary facility, follow federal, state and local regulations for containment and clean-up.

Education
- Educate employees, subcontractors, and suppliers on sanitary and septic waste storage and disposal procedures.
- Educate employees, subcontractors, and suppliers of potential dangers to humans and the environment from sanitary and septic wastes.
- Instruct employees, subcontractors, and suppliers in identification of sanitary and septic waste.
- Hold regular meetings to discuss and reinforce the use of sanitary facilities (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.

Costs
All of the above are low cost measures.

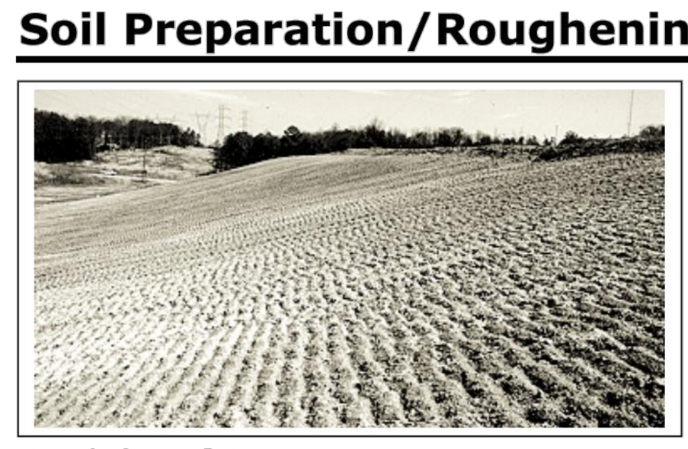
Sanitary/Septic Waste Management WM-9

Inspection and Maintenance
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Arrange for regular waste collection.
- If high winds are expected, portable sanitary facilities must be secured with spikes or weighed down to prevent over turning.
- If spills or leaks from sanitary or septic facilities occur that are not contained and discharge from the site, non-visible sampling of site discharge may be required. Refer to the General Permit or to your project specific Construction Site Monitoring Plan to determine if and where sampling is required.

References
Stormwater Quality Handbooks - Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), March 2003.

Stormwater Management for Construction Activities; Developing Pollution Prevention Plans and Best Management Practice, EPA 832-R-92005; USEPA, April 1992.

Soil Preparation/Roughening EC-15



Categories

EC	Erosion Control	☑
SE	Sediment Control	☒
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WE	Wind Erosion Control	
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WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Description and Purpose
Soil Preparation/Roughening involves assessment and preparation of surface soils for BMP installation. This can include soil testing (for seed base, soil characteristics, or nutrients), as well as roughening surface soils by mechanical methods (including sheepsfoot rolling, track walking, scarifying, stair stepping, and imprinting) to prepare soil for additional BMPs, or to break up sheet flow. Soil Preparation can also involve tilling topsoil to prepare a seed bed and/or incorporation of soil amendments, to enhance vegetative establishment.

Suitable Applications
Soil preparation: Soil preparation is essential to proper vegetative establishment. In particular, soil preparation (i.e. tilling, raking, and amendment) is suitable for use in combination with any soil stabilization method, including RECPs or sod. Soil preparation should not be confused with roughening.

Roughening: Soil roughening is generally referred to as track walking (sometimes called imprinting) a slope, where treads from heavy equipment run parallel to the contours of the slope and act as mini terraces. Soil preparation is most effective when used in combination with erosion controls. Soil Roughening is suitable for use as a complementary process for controlling erosion on a site. Roughening is not intended to be used as a stand-alone BMP, and should be used with perimeter controls, additional erosion control measures, grade breaks, and vegetative establishment for maximum effectiveness. Roughening is intended to only affect surface soils and should not compromise slope stability or overall compaction. Suitable applications for soil roughening include:

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-3 Hydraulic Mulch
EC-5 Soil Binders
EC-7 Geotextiles and Mats

Soil Preparation/Roughening EC-15

- Along any disturbed slopes, including temporary stockpiles, sediment basins, or compacted soil diversion berms and swales.
- Roughening should be used in combination with hydraulically applied stabilization methods, compost blanket, or straw mulch; but should not be used in combination with RECPs or sod because roughening is intended to leave terraces on the slope.

Limitations
- Preparation and roughening must take place prior to installing other erosion controls (such as hydraulically applied stabilizers) or sediment controls (such as fiber rolls) on the faces of slopes.
- In such cases where slope preparation is minimal, erosion control/revegetation BMPs that do not require extensive soil preparation - such as hydraulic mulching and seeding applications - should be employed.
- Consideration should be given to the type of erosion control BMP that follows surface preparation, as some BMPs are not designed to be installed over various types of tillage/roughening, i.e., RECPs (erosion control blankets) should not be used with soil roughening due to a "bridging" effect, which suspends the blanket above the seed bed.
- Surface roughness has an effect on the amount of mulch material that needs to be applied, which shows up as a general increase in mulch material due to an increase in surface area (Topographic Index -see EC-3 Hydraulic Mulching).

Implementation
- Additional guidance on the comparison and selection of temporary slope stabilization methods is provided in Appendix F of the Handbook.

General
A roughened surface can significantly reduce erosion. Based on tests done at the San Diego State Erosion Research Laboratory, various roughening techniques on slopes can result in a 12 - 76% reduction in the erosion rate versus smooth slopes.

Materials
Minimal materials are required unless amendments and/or seed are added to the soil. The majority of soil roughening/preparation can be done with equipment that is on hand at a normal construction site, such as bull dozers and compaction equipment.

Installation Guidelines
Soil Preparation
- Where appropriate or feasible, soil should be prepared to receive the seed by disking or otherwise scarifying the surface to eliminate crust, improve air and water infiltration and create a more favorable environment for germination and growth.
- Based upon soil testing conducted, apply additional soil amendments (e.g. fertilizers, additional seed) to the soil to help with germination. Follow EC-4, Hydroseeding, when selecting and applying seed and fertilizers.

Soil Preparation/Roughening EC-15

Cut Slope Roughening:
- Stair-step grade or groove the cut slopes that are steeper than 3:1.
- Use stair-step grading on any erodible material soft enough to be ripped with a bulldozer. Slopes consisting of soft rock with some subsoil are particularly suited to stair-step grading.
- Make the vertical cut distance less than the horizontal distance, and slightly slope the horizontal position of the "step" in toward the vertical wall.
- Do not make individual vertical cuts more than 2 feet (0.6 m) high in soft materials or more than 3 feet (0.9 m) high in rocky materials.
- Groove the slope using machinery to create a series of ridges and depressions that run across the slope, on the contour.

Fill Slope Roughening:
- Place on fill slopes with a gradient steeper than 3:1 in lifts not to exceed 8 inches (0.2 m), and make sure each lift is properly compacted.
- Ensure that the face of the slope consists of loose, uncompacted fill 4-6 inches (0.1-0.2 m) deep.
- Use grooving or tracking to roughen the face of the slopes, if necessary.
- Do not blade or scrape the final slope face.

Roughening for Slopes to be Mowed:
- Slopes which require mowing activities should not be steeper than 3:1.
- Roughen these areas to shallow grooves by track walking, scarifying, sheepsfoot rolling, or imprinting.
- Make grooves close together (less than 10 inches), and not less than 1 inch deep, and perpendicular to the direction of runoff (i.e., parallel to the slope contours).
- Excessive roughness is undesirable where mowing is planned.

Roughening With Tracked Machinery:
- Limit roughening with tracked machinery to soils with a sandy textural component to avoid undue compaction of the soil surface.
- Operate tracked machinery up and down the slope to leave horizontal depressions in the soil. Do not back-blade during the final grading operation.
- Seed and mulch roughened areas as soon as possible to obtain optimum seed germination and growth.

Soil Preparation/Roughening EC-15

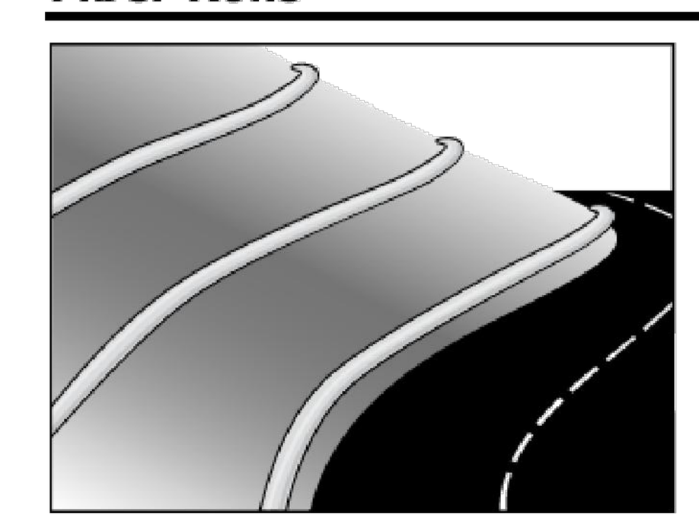
Costs
Costs are based on the additional labor of tracking or preparation of the slope plus the cost of any required soil amendment materials.

Inspection and Maintenance
- BMPs must be inspected in accordance with General Permit requirements for the associated project type and risk level. It is recommended that at a minimum, BMPs be inspected weekly, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.
- Check the seeded slopes for signs of erosion such as rills and gullies. Fill these areas slightly above the original grade, then reseed and mulch as soon as possible.
- Inspect BMPs weekly during normal operations, prior to forecasted rain events, daily during extended rain events, and after the conclusion of rain events.

References
Soil Stabilization BMP Research for Erosion and Sediment Controls: Cost Survey Technical Memorandum, State of California Department of Transportation (Caltrans), July 2007.

Erosion and Sediment Control Manual, Oregon Department of Environmental Quality, February 2005.

Fiber Rolls SE-5



Categories

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Legend:
☑ **Primary Category**
☒ **Secondary Category**

Description and Purpose
A fiber roll consists of straw, coir, or other biodegradable materials bound into a tight tubular roll wrapped by netting, which can be photodegradable or natural. Additionally, gravel core fiber rolls are available, which contain an imbedded ballast material such as gravel or sand for additional weight when staking the rolls are not feasible (such as use as inlet protection). When fiber rolls are placed at the toe and on the face of slopes along the contours, they intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff (through sedimentation). By interrupting the length of a slope, fiber rolls can also reduce sheet and rill erosion until vegetation is established.

Suitable Applications
Fiber rolls may be suitable:

- Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.
- At the end of a downward slope where it transitions to a steeper slope.
- Along the perimeter of a project.
- As check dams in unlined ditches with minimal grade.
- Down-slope of exposed soil areas.
- At operational storm drains as a form of inlet protection.

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence
SE-6 Gravel Bag Berm
SE-8 Sandbag Barrier
SE-12 Manufactured Linear Sediment Controls
SE-14 Biofilter Bags

THE OAKS AT TRABUCO

TR 14749, LOTS 3, 4, 6, 7 & 8
30502 SHELTER CANYON ROAD
19942, 19961, 19991, AND 20062 SUMMIT TRAIL
TRABUCO CANYON, CA

EROSION CONTROL DETAILS

REGISTERED PROFESSIONAL ENGINEER
DEERING WENONA VIOLA
No. 72037
CIVIL
STATE OF CALIFORNIA

DAVID EVANS AND ASSOCIATES INC.
17542 E. 17TH Street, Suite 150
Tustin California 92780
Phone: 714.665.4500

REVISIONS:	APPD.

DATE: 6/20/2022
DESIGN: ATR
DRAWN: SPMO
CHECKED: LS
REVISION NUMBER:

SCALE: AS NOTED

PROJECT NUMBER:

DRAWING FILE: 03_EROSION CONTROL.dwg

SHEET NO. 12

GRADING PERMIT NUMBER: GRD22-0011
WATER QUALITY PERMIT NUMBER: WQ22-0009

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