ALLIANCE RESIDENTIAL COMPANY
BROADSTONE LAGUNA NIGUEL
PRECISE GRADING & DRAINAGE PLANS
LAGUNA NIGUEL, CALIFORNIA

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE GRADING CODE OF THE CITY OF LAGUNA NIGUEL 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 CITY 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, GEOLOGIST, CITY GRADING INSPECTOR AND WHEN REQUIRED THE ARCHAEOLOGIST AND PALEONTOLOGIST. THE REQUIRED INSPECTIONS FOR GRADING WILL BE EXPLAINED AT THIS MEETING.
3. AN APPROVED COPY OF THE GRADING PLAN SHALL BE ON THE PERMITTED SITE WHILE WORK IS IN PROGRESS.
4. CUT AND FILL SLOPES SHALL BE NO STEEPER THAN 2 FOOT HORIZONTAL TO 1 FOOT VERTICAL (2:1).
5. FILLS SHALL BE COMPACTED THROUGHOUT TO A MINIMUM OF 90% RELATIVE DENSITY. AGGREGATE BASE FOR ASPHALTIC AREAS SHALL BE COMPACTED TO MINIMUM OF 95% RELATIVE DENSITY. MAXIMUM DENSITY SHALL BE DETERMINED BY CALIFORNIA BUILDING CODE STANDARD NO. 70-1 OR APPROVED EQUIVALENT, AND FIELD DENSITY BY CALIFORNIA BUILDING CODE STANDARD NO. 70-2 OR APPROVED EQUIVALENT.
6. AREAS TO RECEIVE FILL SHALL BE PROPERLY PREPARED AND APPROVED IN WRITING BY THE SOIL ENGINEER AND THE BUILDING OFFICIAL PRIOR TO PLACING FILL.
7. FILLS SHALL BE BENCHED INTO COMPETENT MATERIAL PER OC PUBLIC WORKS STANDARD PLAN NO. 1322.
8. *ALL EXISTING FILLS SHALL BE APPROVED BY THE BUILDING OFFICIAL OR REMOVED* PRIOR TO PLACING ADDITIONAL FILLS.
9. ANY EXISTING IRRIGATION LINES AND CISTERNS SHALL BE REMOVED, OR CRUSHED IN PLACE, AND APPROVED BY THE BUILDING OFFICIAL AND SOIL ENGINEER.
10. STOCKPILING OF EXCESS MATERIAL SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO EXCAVATION.
11. THE DESIGN ENGINEER, AS A CONDITION OF ROUGH GRADE APPROVAL, SHALL PROVIDE 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.
12. ALL TRENCH BACKFILLS SHALL BE TESTED AND APPROVED BY THE SOIL ENGINEER PER THE GRADING CODE.
13. THE ENGINEERING GEOLOGIST AND SOIL ENGINEER SHALL AFTER CLEARING AND PRIOR TO THE 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.
14. SUBDRAIN OUTLETS SHALL BE COMPLETED AT THE BEGINNING OF THE SUBDRAIN CONSTRUCTION.
15. THE EXACT LOCATION OF THE SUBDRAINS SHALL BE SURVEYED IN THE FIELD FOR LINE/GRADE AND REFLECTED ON AS-GRADED PLANS.
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 TO BE 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. THE ENGINEERING GEOLOGIST SHALL PERFORM PERIODIC INSPECTIONS AND SUBMIT A COMPLETE REPORT AND MAP UPON COMPLETION OF THE ROUGH GRADING.
20. THE COMPACTION REPORT AND APPROVAL FOR THE SOIL ENGINEER SHALL INDICATE THE TYPE OF FIELD-TESTING PERFORMED. EACH TEST SHALL BE IDENTIFIED WITH A METHOD OF OBTAINING THE IN-PLACE DENSITY, WHETHER SAND CONE OR DRIVE RING AND SHALL BE SO NOTED FOR EACH TEST. SUFFICIENT MAXIMUM DENSITY DETERMINATIONS SHALL BE PERFORMED TO VERIFY THE ACCURACY OF THE MAXIMUM DENSITY CURVES USED BY THE FIELD TECHNICIAN.
21. 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.
22. THE CIVIL ENGINEER SHALL BE AVAILABLE DURING GRADING TO VERIFY COMPLIANCE WITH THE PLANS, SPECIFICATIONS, CODE AND ANY SPECIAL CONDITIONS OF THE PERMIT WITHIN THE PURVIEW.
23. THE PERMITTEE IS RESPONSIBLE FOR DUST CONTROL MEASURES.
24. SANITARY FACILITIES SHALL BE MAINTAINED ON THE SITE.
25. THE LOCATION AND PROTECTION OF ALL UTILITIES IS THE RESPONSIBILITY OF THE PERMITTEE.
26. APPROVED PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS SHALL BE USED TO PROTECT ADJOINING PROPERTIES DURING GRADING.
27. ANY EXISTING WATER WELLS SHALL BE ABANDONED IN COMPLIANCE WITH THE SPECIFICATIONS APPROVED BY COUNTY OF ORANGE, HUMAN SERVICES AGENCY, DIVISION OF ENVIRONMENTAL HEALTH.
28. ANY EXISTING OIL WELLS SHALL BE ABANDONED IN COMPLIANCE WITH THE ORANGE COUNTY OIL CODE TO THE APPROVAL OF OC PUBLIC WORKS/REGULATIONS SPECIAL SERVICE SECTION.
29. ANY EXISTING CESSPOOLS AND SEPTIC TANKS SHALL BE ABANDONED IN COMPLIANCE WITH *THE CALIFORNIA PLUMBING CODE TO THE APPROVAL OF CITY PLANNING/BUILDING* DIVISIONS, SPECIAL SERVICE SECTION.
30. PRIOR TO FINAL APPROVAL, THE CIVIL ENGINEER SHALL CERTIFY TO THE BUILDING OFFICIAL THE AMOUNT OF EARTH MOVED DURING THE GRADING OPERATION.

GENERAL NOTES CONT.

31. THE PERMITTEE SHALL COMPLY WITH THE GRADING CODE REQUIREMENTS WHEN AN EXCESS OF 5,000 CUBIC YARDS OF EACH IS TRANSPORTED TO OR FROM A PERMITTED SITE ON PUBLIC ROADWAYS.
32. ASPHALT CONCRETE SHALL BE CONSTRUCTED PER THE REQUIREMENTS OF OC PUBLIC WORKS STANDARD PLAN NO. 1805.
33. AGGREGATE BASE SECTION SHALL BE CONSTRUCTED PER OC PUBLIC WORKS STANDARD NO.1804.
34. ALL CONCRETE STRUCTURES THAT COME IN CONTACT WITH THE ON-SITE SOILS SHALL BE CONSTRUCTED WITH TYPE V CEMENT, UNLESS DEEMED UNNECESSARY BY SOLUBLE SULPHATE-CONTENT TESTS CONDUCTED BY THE SOIL ENGINEER.
35. EXPORT SOIL MUST BE TRANSPORTED TO A LEGAL DUMP OR TO A PERMITTED SITE APPROVED BY THE DISTRICT GRADING INSPECTOR.
36. SLOPES EXCEEDING 5 FEET IN HEIGHT SHALL BE PLANTED WITH APPROVED PLANT MATERIAL. IN ADDITION, EXCEEDING 15 FEET IN HEIGHT SHALL BE PROVIDED WITH AN APPROVED IRRIGATION SYSTEM, UNLESS OTHERWISE APPROVED BY THE BUILDING OFFICIAL.
37. THE GRADING CONTRACTOR SHALL SUBMIT A STATEMENT OF COMPLIANCE TO THE APPROVED GRADING PLAN PRIOR TO FINAL APPROVAL.
38. ASPHALT SECTIONS MUST BE PER CODE: PARKING STALLS = 3" A/C OVER 6" A/C, DRIVES 3" A/C OVER 10" (COMM.) 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.
39. PRELIMINARY SOIL AND GEOLOGY REPORTS AND ALL SUBSEQUENT REPORTS AS APPROVED BY THE CITY GRADING SECTION ARE CONSIDERED A PART OF THE APPROVED GRADING PLAN.
40. ALL EXISTING DRAINAGE COURSES THROUGH THIS SITE SHALL REMAIN OPEN UNTIL FACILITIES TO HANDLE STORM WATER ARE APPROVED AND FUNCTIONAL; HOWEVER, IN ANY CASE, THE PERMITTEE SHALL BE HELD LIABLE FOR ANY DAMAGE DUE TO OBSTRUCTING NATURAL DRAINAGE PATTERNS.
41. GRADING OPERATIONS, INCLUDING MAINTENANCE OF EQUIPMENT WITHIN ONE-HALF MILE OF A HUMAN OCCUPANCY, SHALL NOT BE CONDUCTED BETWEEN THE HOURS OF 8 P.M. AND 7 A.M. DAILY, ON SUNDAY OR ON A FEDERAL HOLIDAY.
42. ROOF GUTTERS SHALL BE INSTALLED TO PREVENT ROOF DRAINAGE FROM FALLING ON MANUFACTURED SLOPES.
43. THE PERMITTEE SHALL BE GIVEN REASONABLE NOTICE TO THE OWNER OF ADJOINING LANDS AND BUILDINGS 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 OF THE PERMITTED PROPERTY TO PROTECT HIS STRUCTURE, IF HE SO DESIRES, UNLESS OTHERWISE PROTECTED BY LAW.

EROSION CONTROL NOTES

44. IN CASE OF EMERGENCY, CALL: MICHAEL MCCANN WORK PHONE: (949) 370-8155.
45. 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, SIDEWALKS, GUTTERS, DRAIN INLETS OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING OR WIND.
46. ALL SEDIMENT AND CONSTRUCTION DEBRIS WHICH IS TRACKED OR DEPOSITED ONTO PUBLIC OR PRIVATE SIDEWALKS, GUTTERS OR PAVED ROADS SHALL BE REMOVED ON A DAILY BASIS BY SWEEPING OR VACUUMING AND DISPOSED OF PROPERLY. SEDIMENT AND CONSTRUCTION DEBRIS SHALL NOT BE WASHED INTO THE STORM DRAIN SYSTEM, INCLUDING THE GUTTER AND STORM DRAIN INLETS.
47. SANDBAGS, GRAVEL BAGS OR OTHER EFFECTIVE FILTER OR TRAP-TYPE BARRIERS SHALL BE USED WHERE APPROPRIATE TO INTERCEPT AND SLOW THE FLOW OF RUNOFF FROM THE CONSTRUCTION SITE AND TO TRAP SEDIMENT BEFORE IT ENTERS THE STORM DRAIN SYSTEM, INCLUDING GUTTERS AND INLETS. ALL ON-SITE STORM DRAIN INLETS SHALL BE PROTECTED AND OFF-SITE INLETS SHALL BE PROTECTED IN AREAS WHERE CONSTRUCTION ACTIVITY TRACKS SEDIMENT ON PAVED AREAS OR WHERE INLETS RECEIVE RUNOFF FROM DISTURBED AREAS.
48. 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.
49. EROSION CONTROL DEVICES SHALL NOT BE MOVED OR MODIFIED WITHOUT THE APPROVAL OF THE BUILDING OFFICIAL.
50. DURING THE WET SEASON, BETWEEN OCTOBER 1ST AND APRIL 30TH, EROSION CONTROL PROTECTIVE DEVICES AND MEASURES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY PROBABILITY-OF-RAIN EXCEEDS 40%. DURING THE REMAINDER OF THE YEAR, THE EROSION CONTROL PROTECTIVE DEVICES AND MEASURES SHALL BE ONSITE AND READY FOR INSTALLATION WHEN THE 5-DAY PROBABILITY-OF-RAIN EXCEED 50% AND IN PLACE AT THE END OF EACH DAY WHEN THE 48 HOUR PROBABILITY-OF-RAIN EXCEEDS 50%.
51. AFTER A RAINSTORM ALL SILT AND DEBRIS SHALL BE REMOVED FROM STREETS, CHECK BERMS AND BASINS.
52. GRADED AREAS ON THE PERMITTED AREA PERIMETER MUST DRAIN AWAY FROM THE FACE OF SLOPES AT THE CONCLUSION OF EACH WORKING DAY. DRAINAGE TO BE DIRECTED TOWARD DE-SILTING FACILITIES.
53. ALL BARE SLOPES, INCLUDING MANUFACTURED SLOPES, SHALL BE PROVIDED WITH PROTECTIVE EROSION CONTROL MEASURES.
54. EROSION CONTROL SYSTEMS ARE DYNAMIC AND WILL CHANGE BASED ON CHANGES IN SITE DEVELOPMENT AND WEATHER CONDITIONS. THEREFORE, UPON INSPECTION, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED BY THE CITY INSPECTOR TO MINIMIZE EROSION AND SEDIMENT TRANSPORT FROM AREAS OF THE SITE TO STREETS, SIDEWALKS, GUTTERS, DRAIN INLETS OR ADJACENT PROPERTIES.
55. 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.
56. THE PERMITTEE AND CONTRACTOR SHALL INSPECT THE EROSION CONTROL WORK AND ENSURE THAT THE WORK IS IN ACCORDANCE WITH THE APPROVED PLANS.

UNDERGROUND STORAGE TANK REMOVAL NOTES

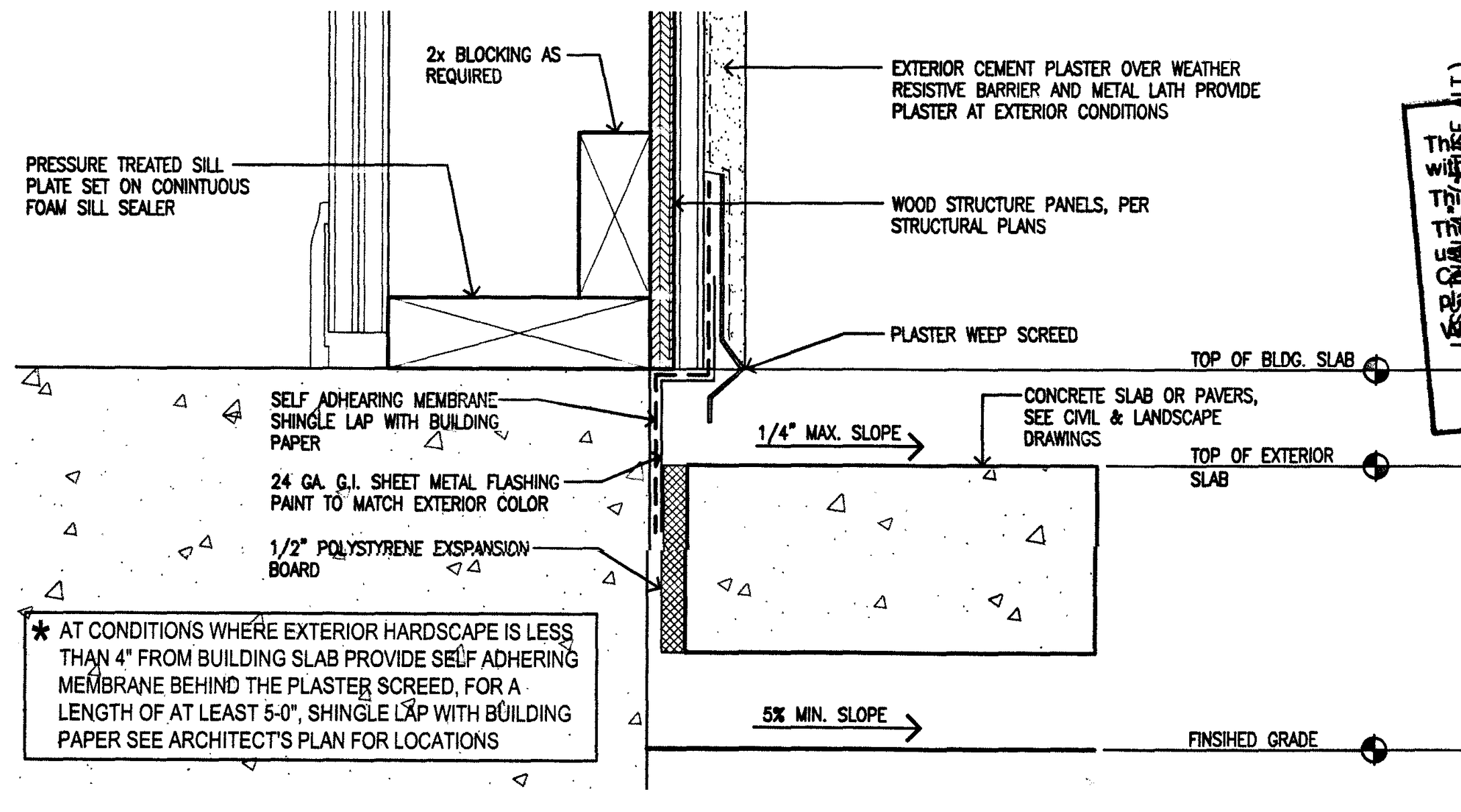
57. IN THE EVENT THAT SOIL CONTAMINATION IS DISCOVERED DURING EXCAVATION AND REMOVAL OF AN EXISTING TANK, WORK SHALL BE STOPPED UNTIL A SITE ASSESSMENT AND MITIGATION PLAN HAS BEEN PREPARED, SUBMITTED AND APPROVED BY HCA/ENVIRONMENTAL HEALTH AND THE GRADING SECTION.
58. ISSUANCE OF A GRADING PERMIT DOES NOT ELIMINATE THE NEED FOR PERMITS FROM OTHER AGENCIES WITH REGULATORY RESPONSIBILITIES FOR CONSTRUCTION ACTIVITIES ASSOCIATED WITH THE WORK AUTHORIZED ON THIS PLAN.

SPECIAL NOTES

59. SURVEY MONUMENTS SHALL BE PRESERVED AND REFERENCED BEFORE CONSTRUCTION AND REPLACED AFTER CONSTRUCTION PURSUANT TO SECTION 8771 OF THE BUSINESS AND PROFESSIONAL CODE.

WATER QUALITY NOTES

60. 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, SIDEWALKS, GUTTERS, DRAIN INLETS OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING OR WIND.
61. ALL SEDIMENT AND CONSTRUCTION DEBRIS WHICH IS TRACKED OR DEPOSITED ONTO PUBLIC OR PRIVATE SIDEWALKS, GUTTERS OR PAVED ROADS SHALL BE REMOVED ON A *DAILY BASIS BY SWEEPING OR VACUUMING AND DISPOSED OF PROPERLY. SEDIMENT AND* CONSTRUCTION DEBRIS SHALL NOT BE WASHED INTO THE STORM DRAIN SYSTEM, INCLUDING THE GUTTER AND STORM DRAIN INLETS.
62. SANDBAGS, GRAVEL-BAGS OR OTHER EFFECTIVE FILTER OR TRAP-TYPE BARRIERS SHALL BE USED WHERE APPROPRIATE TO INTERCEPT AND SLOW THE FLOW OF RUNOFF FROM THE CONSTRUCTION SITE AND TO TRAP SEDIMENT BEFORE IT ENTERS THE STORM DRAIN SYSTEM, INCLUDING GUTTERS AND INLETS. ALL ON-SITE STORM DRAIN INLETS SHALL BE PROTECTED AND OFF-SITE INLETS SHALL BE PROTECTED IN AREAS WHERE CONSTRUCTION ACTIVITY TRACKS SEDIMENT ON PAVED AREAS OR WHERE INLETS RECEIVE RUNOFF FROM DISTURBED AREAS.
63. WATER AND/OR OTHER DUST PALLIATIVE AND STABILIZATION METHODS SHOULD BE USED TO PREVENT OR ALLEVIATE DUST NUISANCES (DUST CONTROL) GENERATED BY CONSTRUCTION ACTIVITIES. COVERING SMALL STOCKPILES OF SOIL AND DEBRIS OR AREAS WITH UN-STABILIZED SOIL IS AN ALTERNATIVE TO APPLYING WATER OR OTHER DUST PALLIATIVES.
64. CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE RETAINED ON-SITE TO MINIMIZE TRANSPORT FROM THE SITE TO STREETS, SIDEWALKS, GUTTERS, DRAIN INLETS OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
65. TO PREVENT THE DISCHARGE OF POLLUTANTS FROM MATERIAL DELIVERY AND STORAGE TO THE STORM WATER SYSTEM OR WATERCOURSES, ALL MATERIALS SHALL BE PROPERLY STORED TO PREVENT SOIL CONTAMINATION AND CONTACT WITH STORM WATER RUNOFF, WHICH MAY INCLUDE APPROPRIATE COVERS, CONTAINMENT AREAS OR SURFACES AND INDOOR STORAGE.
66. STOCKPILES OF SOIL, PAVING MATERIALS, AND PRESSURE-TREATED WOOD SHALL BE MANAGED TO PREVENT AIR AND WATER POLLUTION. STOCKPILES SHOULD BE LOCATED 50 FEET AWAY FROM CONCENTRATED FLOWS OF STORM WATER, WATERCOURSES AND DRAIN INLETS. PRIOR TO THE ONSET OF PRECIPITATION, STOCKPILES SHALL BE COVERED AND PROTECTED BY A TEMPORARY PERIMETER SEDIMENT BARRIER AT ALL TIMES.
67. HAZARDOUS-MATERIAL WASTE, INCLUDING BUT NOT LIMITED TO PETROLEUM PRODUCTS, ROOFING TAR, PAINTS, SOLVENTS, STAINS, ACIDS, WOOD PRESERVATIVES, SEPTIC WASTES AND ASPHALT PRODUCTS, SHALL NOT BE ALLOWED TO ENTER THE STORM DRAIN SYSTEM OR WATERCOURSES AND SHALL BE PROPERLY TRANSPORTED, USED, STORED AND DISPOSED AS REQUIRED BY FEDERAL AND STATE LAW. PAINT BRUSHES AND EQUIPMENT FOR WATER- AND OIL-BASED PAINTS SHALL BE CLEANED WITHIN A CONTAINED AREA AND SHALL NOT BE ALLOWED TO CONTAMINATE SITE SOIL, WATERCOURSES OR STORM DRAIN SYSTEMS. WATER-BASED PAINTS SHALL BE RINSED INTO THE SANITARY SEWER SYSTEM; AND THINNERS, SOLVENTS, EXCESS OIL-BASED PAINTS AND SLUDGE SHALL BE DISPOSED AS HAZARDOUS WASTE.
68. CEMENTACEOUS PRODUCTS SUCH AS CONCRETE, MORTAR OR STUCCO FROM CONCRETE TRUCKS, POTABLE MIXERS AND MISCELLANEOUS CONTAINERS SHALL NOT BE WASHED-OUT INTO THE STORM DRAIN SYSTEM OR WATERCOURSES. DESIGNATED WASHOUT AREAS SHALL BE LOCATED AT LEAST 50 FEET FROM CONCENTRATED FLOWS OF STORM WATER, WATERCOURSES AND STORM DRAIN INLETS, AND RUNOFF FROM WASHOUT-AREAS SHALL BE CONTAINED BY CONSTRUCTING A TEMPORARY PIT OR BERM AREA LARGE ENOUGH TO CAPTURE THE LIQUID AND SOLID WASTE MATERIALS.
69. SAW-CUT CEMENT-CONCRETE AND ASPHALT-CONCRETE SLURRY SHALL NOT BE ALLOWED TO ENTER THE STORM DRAIN SYSTEM OR WATERCOURSES. RESIDUE FROM GRINDING OPERATIONS SHALL BE PICKED UP BY MEANS OF A VACUUM ATTACHMENT TO THE GRINDING MACHINE AND NOT ALLOWED TO FLOW ACROSS THE PAVEMENT OR BE LEFT ON THE SURFACE OF THE PAVEMENT.
70. PRIOR TO DISCHARGE OF GROUNDWATER AND ASSOCIATED WASTE, THE DISCHARGER SHALL SUBMIT AN APPLICATION TO THE SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD AND OBTAIN COVERAGE UNDER ORDER NO. R9-2008-0002, DISCHARGES FROM GROUNDWATER EXTRACTION TO SURFACE WATERS IN THE SAN DIEGO REGION EXCEPT SAN DIEGO BAY.



2x BLOCKING AS REQUIRED
PRESSURE TREATED SILL PLATE SET ON CONINTUOUS FOAM SILL SEALER
EXTERIOR CEMENT PLASTER OVER WEATHER RESISTIVE BARRIER AND METAL LATH PROVIDE PLASTER AT EXTERIOR CONDITIONS
WOOD STRUCTURE PANELS, PER STRUCTURAL PLANS
PLASTER WEEP SCREED
TOP OF BLDG. SLAB
SELF ADHEARING MEMBRANE SHINGLE LAP WITH BUILDING PAPER
1/4" MAX. SLOPE
CONCRETE SLAB OR PAVERS, SEE CIVIL & LANDSCAPE DRAWINGS
TOP OF EXTERIOR SLAB
24 GA. G.I. SHEET METAL FLASHING PAINT TO MATCH EXTERIOR COLOR
1/2" POLYSTYRENE EXSPANSION BOARD
8" MIN.
5% MIN. SLOPE
FINSIHED GRADE

★ AT CONDITIONS WHERE EXTERIOR HARDSCAPE IS LESS THAN 4" FROM BUILDING SLAB PROVIDE SELF ADHERING MEMBRANE BEHIND THE PLASTER SCREED, FOR A LENGTH OF AT LEAST 5-0", SHINGLE LAP WITH BUILDING PAPER SEE ARCHITECT'S PLAN FOR LOCATIONS

PLASTER WEEP SCREED DETAIL

SCALE: NONE

LEGAL DESCRIPTION

REAL PROPERTY IN THE CITY OF LAGUNA NIGUEL, COUNTY OF ORANGE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL A: (APN: 636-034-10)

THAT PORTION OF LOT 1 OF TRACT NO. 6081, AS SHOWN ON A MAP RECORDED IN BOOK 224, PAGES 7 AND 8 OF MISCELLANEOUS MAPS, RECORDS OF ORANGE COUNTY, CALIFORNIA, LYING NORTHERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING AT A POINT IN THE EASTERLY LINE OF SAID LOT 1, SOUTH 15° 04' 17" WEST 214.00 FEET FROM THE NORTHEAST CORNER OF SAID LOT 1; THENCE, AT RIGHT ANGLES TO SAID EASTERLY LINE NORTH 74° 55' 43" WEST 102.50 FEET; THENCE AT RIGHT ANGLES NORTH 15° 04' 17" EAST 24.00 FEET; THENCE AT RIGHT ANGLES NORTH 74° 55' 43" WEST 170.12 FEET TO A POINT ON THE WESTERLY LINE OF SAID LOT 1, SOUTH 13° 59' 37" WEST, THEREON 21.86 FEET FROM THE NORTHERLY TERMINUS OF THE LINE DESCRIBED AS NORTH 13° 59' 37" EAST 207.35 FEET.

PARCEL B: (APN: 636-034-03, 636-034-04, AND 636-034-05)

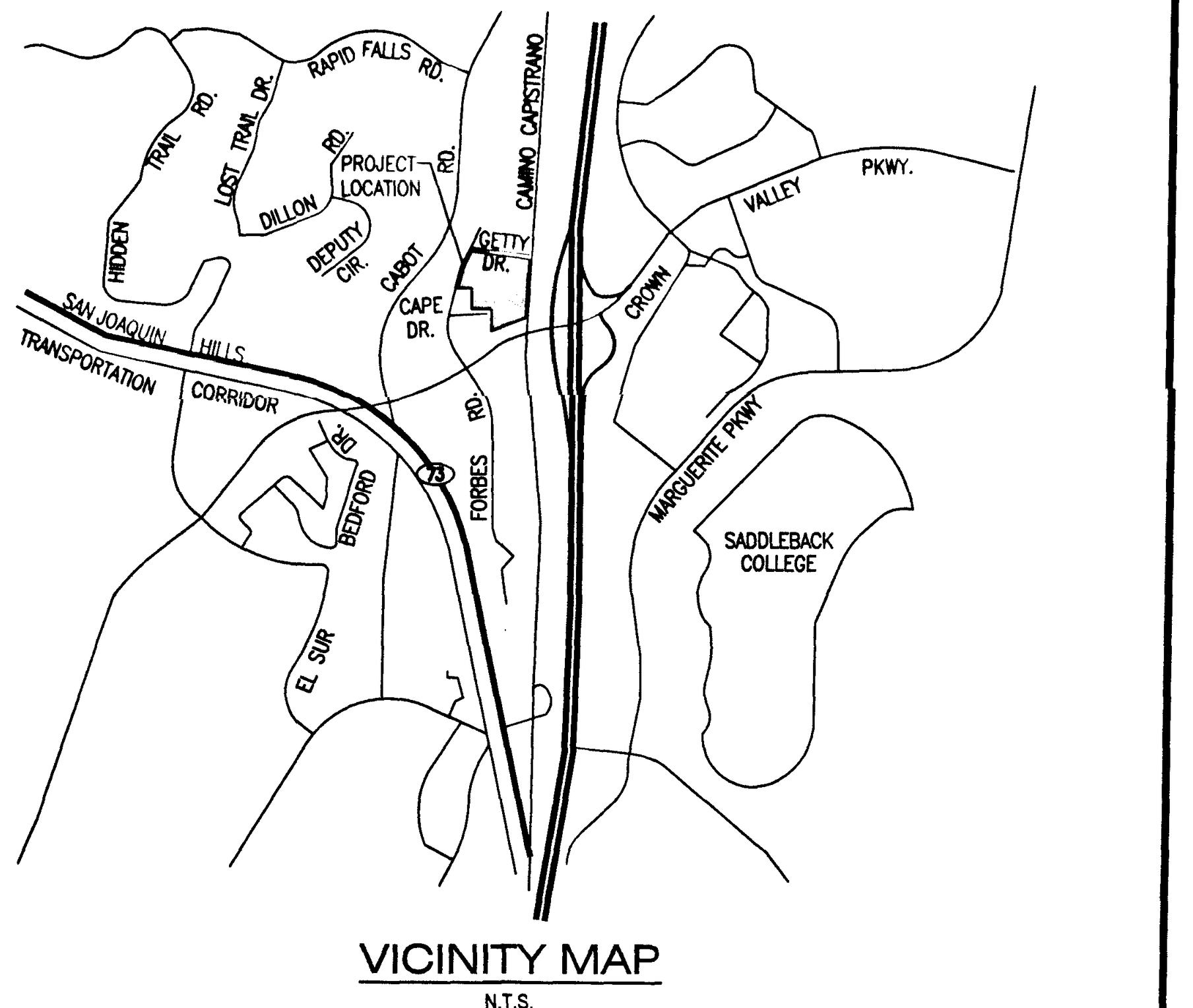
LOTS 2, 3 AND 4 OF TRACT NO. 6081, AS SHOWN ON A MAP RECORDED IN BOOK 224, PAGES 7 AND 8 OF MISCELLANEOUS MAPS, RECORDS OF ORANGE COUNTY, CALIFORNIA.

PARCEL C: (APN: 636-034-11)

THAT PORTION OF LOT 1 OF TRACT NO. 6081, AS SHOWN ON A MAP RECORDED IN BOOK 224, PAGES 7 AND 8 OF MISCELLANEOUS MAPS, RECORDS OF ORANGE COUNTY, CALIFORNIA, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY BOUNDARY OF SAID LOT 1 WHICH LIES SOUTH 15° 04' 17" WEST THEREON 277.00 FEET FROM THE MOST NORTHEASTERLY CORNER OF SAID LOT 1; THENCE FROM SAID POINT OF BEGINNING AT RIGHT ANGLES TO SAID EASTERLY BOUNDARY, NORTH 74° 55' 43" WEST 48.50 FEET; THENCE SOUTH 15° 04' 17" WEST 31.50 FEET; NORTH 74° 55' 43" WEST 27.00 FEET; THENCE SOUTH 15° 04' 17" WEST 69.96 FEET TO A POINT ON THE SOUTHERLY BOUNDARY OF SAID LOT 1; THENCE ALONG SAID SOUTHERLY BOUNDARY, NORTH 87° 33' 42" EAST 30.85 FEET TO THE BEGINNING OF A TANGENT CURVE THEREON, CONCAVE NORTHERLY AND HAVING A RADIUS OF 90.00 FEET; THENCE IN AN EASTERLY DIRECTION ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 36° 52' 12", A DISTANCE OF 57.92 FEET TO THE MOST SOUTHEASTERLY CORNER OF SAID LOT 1; THENCE NORTH 15° 04' 17" EAST 58.77 FEET TO THE POINT OF BEGINNING.

PLANNING & ZONE CLEARANCE
This plan was inspected on 7/14/15 and found to comply with applicable City land-use regulations.
This clearance is only valid for the life of the building permit.
The occupancy of this building shall not be changed from the use stated in the permit application except by issuance of a new Certificate of Use and Occupancy. Deviation from the approved plan shall be cause for stopping construction.
WARNING: This stamp indicates partial review only and does not constitute a building permit.
Laguna Niguel Community Development Department



VICINITY MAP
N.T.S.
T.G. 922-A7

GRADING QUANTITY ESTIMATE

CUT = 23,700 C.Y.
FILL = 9,500 C.Y.
NET = 14,200 C.Y. (EXPORT)
OVER-EXCAVATION = 10,523 C.Y.
EXPORT = 14,200 C.Y.

NOTE:

1. *OBTAIN HAUL ROUTE/ENCROACHMENT PERMIT FROM PUBLIC WORKS DEPARTMENT.*
2. *QUANTITIES SHOWN ARE ESTIMATES FOR BONDING PURPOSES ONLY. ACTUAL PAY QUANTITY CALCULATIONS ARE THE RESPONSIBILITY OF THE GRADING CONTRACTOR.*

SOILS ENGINEER STATEMENT

THIS PLAN HAS BEEN REVIEWED AND CONFORMS TO RECOMMENDATIONS OF SOILS ENGINEERING/GEOLOGIC

REPORTS DATED MAY 15, 2014 . SIGNATURE AND DATE: 7/10/15 .

DAVID E. ALBUS No. 2455 Exp. 12/31/16

DECLARATION OF RESPONSIBLE CHARGE

THIS GRADING PERMIT IS ISSUED SUBJECT TO THE CONDITION THAT THIS GRADING WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF A CIVIL ENGINEER, REGISTERED IN THE STATE OF CALIFORNIA, AND IN COMPLIANCE WITH THE PROVISIONS OF APPENDIX CHAPTER "J" OF THE CALIFORNIA BUILDING CODE, 2010 EDITION, AS AMENDED BY THE CITY OF LAGUNA NIGUEL. UPON COMPLETION OF GRADING, PRIOR TO THE ISSUANCE OF THE BUILDING PERMITS, THE CIVIL ENGINEER SHALL SUBMIT A SIGNED CERTIFICATION TO THE DIRECTOR OF COMMUNITY DEVELOPMENT SERVICES THAT THE GRADING WORK WAS PERFORMED SUBSTANTIALLY IN ACCORDANCE WITH THESE PLANS AND, IN HIS CONSIDERED OPINION, NO CONDITION EXISTS WHICH WOULD LEAD TO INSTABILITY OF SLOPES OR TO EXCESSIVE EROSION. THE NAME OF THE CIVIL ENGINEER RESPONSIBLE FOR THE CONDITIONS UPON THE GRADING WORK PROPOSED IN THIS IS JAMES H. KAWAMURA R.C.E. NO. 30560.

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED UNDER MY SUPERVISION AND BASED UPON GEOLOGIC AND/OR SOILS INVESTIGATION.

James H. Kawamura 7/9/15
JAMES H. KAWAMURA DATE

OWNER

ALLIANCE RESIDENTIAL COMPANY
450 NEWPORT CENTER DRIVE
SUITE 550
NEWPORT BEACH, CALIFORNIA 92660
ATTN.: MICHAEL WILBORN
PHONE NO.: (949) 706-8461

CIVIL ENGINEER

KHR ASSOCIATES
4100 NEWPORT PLACE DRIVE
SUITE 200
NEWPORT BEACH, CALIFORNIA 92660
ATTN.: JAMES KAWAMURA/MIKE THOMAS
PHONE NO.: (949) 756-6440

SOIL ENGINEER

ALBUS-KEEFE & ASSOCIATES, INC.
1011 NORTH ARMANDO STREET
ANAHEIM, CALIFORNIA 92806
ATTN.: PATRICK M. KEEFE
PHONE NO.: (714) 630-2606

WDID

9 30C372461

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON ARE BASED ON THE CENTERLINE BEARING SHOWN AS N87°33'42"E, ON TRACT NO. 6081 RECORDED IN BOOK 224 PAGES 7 AND 8 OF MISCELLANEOUS MAPS, PER RECORDS ON FILE IN THE ORANGE COUNTY SURVEYOR'S OFFICE.

BENCHMARK

ORANGE COUNTY SURVEY BENCHMARK NO. 3U-41-70

DESCRIBED BY OCS 2003 - FOUND 3 3\4" OCS ALUMINUM BENCHMARK DISK STAMPED "3U-41-70", SET IN THE NORTHWESTERLY CORNER OF A CONCRETE BRIDGE ABUTMENT. MONUMENT IS LOCATED IN THE NORTHWESTERLY CORNER OF THE INTERSECTION OF FORBES
ROAD AND CROWN VALLEY PARKWAY, 150 FT. WESTERLY OF THE CENTERLINE OF FORBES,
22.6 FT. NORTHERLY OF THE CENTERLINE OF CROWN VALLEY PARKWAY AND IN THE NORTHERLY END OF THE WESTERLY ABUTMENT. MONUMENT IS SET LEVEL WITH THE BRIDGE DECK.

ELEVATION = 264.878, DATUM NAVD 88

NOTICE TO CONTRACTORS

1. THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND (UTILITY PIPES, STRUCTURES, ETC). SHOWN ON THESE PLANS (MAIN LINES ONLY - NO SERVICE LATERALS) WERE ASCERTAINED BY A REVIEW OF RECORDS PROVIDED BY MEMBER AGENCIES AND ARE APPROXIMATE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR THE UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN.
2. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ALL UTILITIES SHOWN ON THESE PLANS AND/OR ANY OTHER UNDERGROUND UTILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.

WORK TO BE DONE:

THE GRADING PLANS CONSISTS OF THE FOLLOWING WORK TO BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING DOCUMENTS:

1. CITY OF LAGUNA NIGUEL GRADING/EXCAVATION CODE AND MANUAL,
2. STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC),
3. COUNTY OF ORANGE (DPW) STANDARD PLANS,
4. STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ("GREENBOOK"),
5. STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) STANDARD PLANS,
6. STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) STANDARD SPECIFICATIONS,
7. STATE OF CALIFORNIA STORM WATER BEST MANAGEMENT PRACTICE (BMP) HANDBOOKS

UTILITY	NAME	TELEPHONE NO.
POWER	SDG&E	(800) 336-7343
WATER	MOULTON NIGUEL WATER	(949) 831-2500
SEWER	MOULTON NIGUEL WATER	(949) 831-2500
GAS	SOUTHERN CALIFORNIA GAS COMPANY	(800) 427-2200
PHONE/CABLE TV	COX	(949) 546-2600
PHONE/CABLE TV	AT&T	(800) 310-2355

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7/13/15

811 Know what's below. Call before you dig

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA No. 30560 Expiration: 03/31/16

SHEET DESCRIPTION: TITLE SHEET

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-1

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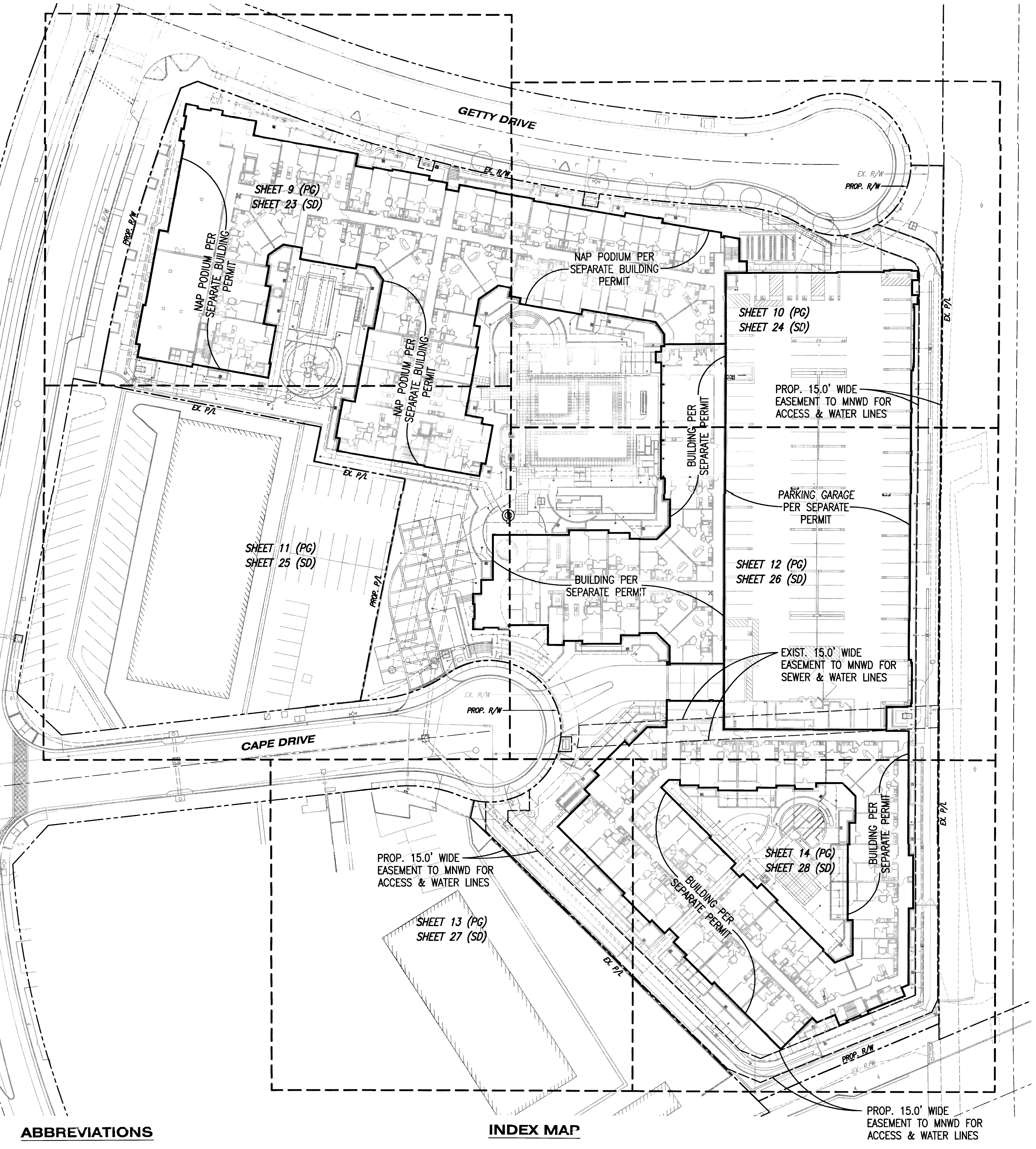
GETTY DRIVE
FORBES ROAD
CAPE DRIVE
EX. R/W
PROP. R/W
EX. P/L
PROP. P/L
SHEET 9 (PG)
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EXIST. 15.0' WIDE EASEMENT TO MNWD FOR SEWER & WATER LINES
PROP. 15.0' WIDE EASEMENT TO MNWD FOR ACCESS & WATER LINES
PROP. 15.0' WIDE EASEMENT TO MNWD FOR ACCESS & WATER LINES

INDEX MAP

SCALE 1"=30'

CONSTRUCTION NOTES

		QUANTITY
①	CONSTRUCT 6-INCH HIGH PCC CURB, SEE SHEET C-7, DETAIL 1 OR DETAIL 2 FOR PERVIOUS PAVER CONDITION.	579 L.F.
②	CONSTRUCT VARIABLE HEIGHT PCC CURB FACE, SEE SHEET C-7, DETAIL 3.	10 LF.
③	CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.	5853 SF.
④	CONSTRUCT 6-INCH THICK VEHICULAR PCC SLAB WITH #4 REBAR AT 12-INCH O.C. OVER 8-INCH CRUSHED MISCELLANEOUS BASE, (CMB) SEE SHEET C-7, DETAILS 4 & 5. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.	536 SF.
⑤	CONSTRUCT 4-INCH THICK ACCESSIBLE PCC RAMP. WITH #4 REBAR AT 24-INCHES O.C. (ADD CURBS WHEN ADJACENT TO BUILDING AND/OR WALL CONDITION, FOR ENTIRE LENGTH OF RAMP). SEE SHEET C-7, DETAIL 8. SEE LANDSCAPE PLANS FOR PCC COLORS AND FINISHES, ALSO FOR ALTERNATIVE PAVER SURFACES.	959 SF.
⑥	CONSTRUCT 4-INCH THICK MIN. (VEHICULAR) OR 3-INCH THICK (PEDESTRIAN) STABILIZED DECOMPOSED GRANITE (SDG) SURFACE. FOR VEHICULAR SECTION PLACE 17-INCHES OF CRUSHED MISCELLANEOUS BASE (CMB) BELOW SDG. SUBGRADE PREPARATION PER SOILS REPORT. SEE LANDSCAPE ARCHITECT'S PLANS FOR ADDITIONAL DETAILS.	8024 SF.
⑦	CONSTRUCT 80mm VEHICULAR CONCRETE PAVER OVER 1 1/2-INCH MIN. SAND BED OVER 14-INCHES OF CRUSHED MISCELLANEOUS BASE (CMB), SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.	1326 LF.
⑧	CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.	9436 SF.
⑨	CONSTRUCT 8-INCH CMU BLOCK FLOW THROUGH PLANTER SYSTEM, SEE SHEET C-30 DETAIL 14, SLOPE EXTERIOR FINISHED GRADE AWAY FROM WALLS AT 2% MIN., SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.	726 LF.
⑩	CONSTRUCT 8-INCH CMU FREE STANDING SITE PERIMETER WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY). SLOPE FINISHED SURFACE AWAY FROM WALLS AT 2% MIN. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.	405 LF.
⑪	CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.	1147 LF.
⑫	CONSTRUCT PERMANENT SHOTCRETE SHORING PILE & LAGGING RETAINING WALL, PER SEPARATE PERMIT AND SEPARATE PLAN (SHOWN FOR REFERENCE ONLY). SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE FINISHED GRADE AWAY FROM WALL AT 2% MIN.	177 LF.
⑬	CONSTRUCT 2-FOOT WIDE CONC. RETAINING WALL DRAINAGE DITCH, SEE SHEET C-8, DETAIL 15.	133 LF.
⑭	CONSTRUCT 6-INCH WIDE CONC. DRAINAGE DITCH SPLASH WALL, SEE SHEET C-8, DETAIL 15.	11 LF.
⑮	CONSTRUCT PCC STAIRS AND HANDRAILS. SEE SHEET C-7, DETAIL 9.	221 SF.
⑯	INSTALL TILE PAVING PER LANDSCAPE ARCHITECT'S PLANS & DETAILS.	2194 SF.
⑰	INSTALL SYNTHETIC TURF, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS, COLOR AND FINISHES.	5117 SF.
⑱	INSTALL SYNTHETIC TURFBLOCK AT FIRELANE OVER 17-INCH CRUSHED MISCELLANEOUS BASE, SEE SHEET C-8, DETAIL 17. SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.	2140 SF.
⑲	CONSTRUCT 80mm PERVIOUS CONCRETE PAVER OVER MULTIPLE LAYERS OF AGGREGATES AND STONE, PROVIDE IMPERVIOUS GEOSYNTHETIC LINER AND PERFORATED SUBDRAIN SEE SHEET C-8, DETAILS 10, 11 AND 16. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISHES.	5097 SF.
⑳	CONSTRUCT 3-INCH THICK CONCRETE SLAB BETWEEN BUILDING AND FLOW THROUGH PLANTER WALL. CREATE SWALE LINE IN THE CENTER AND SLOPE AT 1% MIN. CROSS SLOPE FROM BUILDING AND PLANTER WALL TO BE AT 2% MIN TO SWALE, SEE SHEET C-8, DETAIL 14.	1099 SF.
㉑	CONSTRUCT 4-INCH THICK ASPHALT CONCRETE PAVEMENT OVER 10-INCH CRUSHED MISCELLANEOUS BASE (CMB) TI=5.5, PER SOILS REPORT BY ALBUS-KEEFE& ASSOCIATES, INC., DATED MAY 15, 2014.	293 SF.
㉒	CONSTRUCT FULL DEPTH ASPHALT CONCRETE PAVEMENT SLOT PATCH TO MATCH EXISTING ASPHALT SECTION PLUS 1-INCH. FEATHER AND JOINT TO EXISTING ASPHALT PAVEMENT.	128 SF.
㉓	CONSTRUCT 18-INCH WIDE, 8-INCH THICK CONC. RIBBON GUTTER, SHEET C-8, DETAIL 13.	582 LF.
㉔	CONSTRUCT 0-INCH CURB PCC FACE, SEE SHEET C-8, DETAIL 19.	62 LF.
㉕	INSTALL RUBBERIZED PLAY SURFACE PER LANDSCAPE ARCHITECT'S PLANS.	794 SF.
㉖	CONSTRUCT 6-INCH WIDE FLUSH PCC CURB, SEE SHEET C-8, DETAIL 18.	2043 LF.
㉗	CONSTRUCT 0-INCH TO 6-INCH CURB FACE TRANSITION OVER 1-FOOT IN LENGTH.	8 LF.
㉘	CONSTRUCT 6-INCH THICK PCC (VEHICULAR) SLAB WITH #4 REBAR AT 12-INCH O.C. OVER 8-INCH CRUSHED MISCELLANEOUS BASE (CMB) WITH SYNTHETIC TURF BETWEEN SLABS SEE SHEET C-7, DETAILS 4 & 5, AND LANDSCAPE ARCHITECT'S PLANS FOR COLOR, FINISH AND ADDITIONAL DETAILS.	3,492 SF.
㉙	CONSTRUCT 4-INCH THICK PCC SLAB WITH #4 REBAR AT 24-INCH O.C. WITH SYNTHETIC TURF BETWEEN SLABS SEE SHEET C-7, DETAILS 4 & 5, AND LANDSCAPE ARCHITECT'S PLANS FOR COLOR, FINISH AND ADDITIONAL DETAILS.	417 SF.
㉚	CMU PATIO WALL PER SEPARATE PLANS & PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS.	244 LF.
㉛	INSTALL 42-INCH HIGH TUBULAR STEEL BARRIER RAIL, PER CBC REQUIREMENTS. PAINT TO MATCH SITE RAILINGS, SEE LANDSCAPE ARCHITECT'S PLAN FOR DECORATIVE RAILING ALTERNATIVE.	101 LF.
㉜	CONSTRUCT 8-INCH WIDE VARIABLE HEIGHT DEEPENED PCC CURB, SEE SHEET C-7, DETAIL 6.	120 LF.
㉝	CONSTRUCT 6-INCH WIDE FLUSH PCC CURB WITH VERTICAL LOUVERED FENCE, PER LANDSCAPE ARCHITECT'S PLANS.	173 LF.
㉞	INSTALL CLEAN WASHED PLAYGROUND SAND WITH 4-INCH PERFORATED SUBDRAIN SYSTEM. PER LANDSCAPE ARCHITECT'S PLANS.	461 SF.
㉟	CONSTRUCT 30-INCH WIDE STABILIZED EARTHEN SWALE, SEE SHEET C-8, DETAIL 20.	125 LF.
㊱	INSTALL GLASS POOL ENCLOSURE FENCING PER LANDSCAPE ARCHITECT'S PLANS.	182 LF.
㊲	CONSTRUCT 8-INCH CMU WALL, UNDER SEPARATE PERMIT & PLANS (SHOWN FOR INFORMATION ONLY), PER LANDSCAPE ARCHITECT'S PLANS.	89 LF.
㊳	CONSTRUCT STONE PAVING PER LANDSCAPE ARCHITECT'S PLANS	49 LF.
㊴	CONSTRUCT 8-INCH CMU WALL RAISED PLANTER WALL, UNDER SEPARATE PERMIT & PLANS, (SHOWN FOR INFORMATION ONLY) PER LANDSCAPE ARCHITECT'S PLANS.	159 LF
㊵	CONSTRUCT 1-FOOT WIDE x 2-FOOT DEEP CONCRETE BAND, SHEET C-8, DETAIL 12.	84 LF.

CONSTRUCTION NOTES CONT.

		QUANTITY
㊶	GRIND 6-FOOT WIDE x 0.125-FOOT DEEP STRIP ALONG THE EXISTING AC PAVEMENT LINE AND OVERLAY NEW ASPHALT CONCRETE AT A MIN. DEPTH OF 0.125-FEET MEETING PROPOSED ELEVATION AND SLOPES AS SHOWN ON THE GRADING PLANS.	3,070 S.F.

STORM DRAIN NOTES

		QUANTITY
㉚	PROVIDE AND INSTALL 4-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.	2273 LF.
㉛	PROVIDE AND INSTALL 6-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.	963 LF.
㉜	PROVIDE AND INSTALL 8-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.	859 LF.
㉝	PROVIDE AND INSTALL 10-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.	273 LF.
㉞	PROVIDE AND INSTALL 12-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.	235 LF.
㉟	PROVIDE AND INSTALL 15-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.	586 LF.
㊱	PROVIDE AND INSTALL PVC STORM DRAIN CLEANOUT. SEE SHEET C-31, DETAILS 3 OR 5.	25 EA.
㊲	PROVIDE AND INSTALL 9-INCH x 9-INCH LOW PROFILE ADAPTER (NDS #930) USE 9-INCH SQUARE GRATE IN GRASS AREA (NDS #990 "GREEN"). USE 9-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #981 "BLACK"). SEE SHEET C-31, DETAIL 6.	52 EA.
㊳	PROVIDE AND INSTALL 12-INCH x 12-INCH LOW PROFILE ADAPTER (NDS #1230) USE 12-INCH SQUARE GRATE IN GRASS AREA (NDS #1212 "GREEN"). USE 12-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #1290 "BLACK"). SEE SHEET C-31, DETAIL 6.	45 EA.
㊴	PROVIDE AND INSTALL 4-INCH ROUND ATRIUM GRATE (NDS #11 "BLACK"). SEE SHEET C-31, DETAIL 6.	64 EA.
㊵	PROVIDE AND INSTALL 6-INCH ROUND ATRIUM GRATE (NDS #90) IN SOIL AREAS AND 6-INCH ROUND GRATE (NDS #50) IN GRASS AREAS. SEE SHEET C-31, DETAIL 6.	22 EA.
㊶	PROVIDE AND INSTALL 5"x5" SQUARE BRASS GRATE (NDS #913B).	32 EA.
㊷	INSTALL 4-INCH DIA. "ZURN" MODEL #Z888-4 HDS" ADA COMPLIANT SLOT DRAIN WITH BOTTOM OUTLET. SEE SHEET 31, DETAIL 7.	12 LF.
㊸	PROVIDE AND INSTALL ECCENTRIC REDUCER, SIZE PER PLAN.	5 EA.
㊹	PROVIDE AND INSTALL HDPE ECCENTRIC REDUCER WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON PIPE TRANSITION, SEE SHEET C-32, DETAIL 2.	175 EA.
㊺	PROVIDE AND INSTALL 45° WYE, SEE SHEET C-32, DETAIL 4.	73 EA.
㊻	PROVIDE AND INSTALL HDPE WYE WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON LATERAL, SEE SHEET C-32, DETAIL 2.	114 EA.
㊼	PROVIDE AND INSTALL 45° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.	7 EA.
㊽	PROVIDE AND INSTALL 30° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.	11 EA.
㊾	PROVIDE AND INSTALL 22.5° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.	17 EA.
㊿	PROVIDE AND INSTALL 11.25° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.	2 EA.
(51)	PROVIDE AND INSTALL 4'x4' FILTERRA BIORETENTION ROOF DRAIN SYSTEM. SEE SHEET C-32, DETAIL 3 AND MANUFACTURER'S SPECIFICATIONS FOR ADDITIONAL INFORMATION.	8 EA.
(52)	PROVIDE AND INSTALL 16-INCH x 16-INCH CAST-IN-PLACE CONCRETE DROP INLET WITH GALVANIZED STEEL GRATE AND FRAME. SEE SHEET C-32, DETAIL 1.	186 EA.
(53)	PROVIDE AND INSTALL 8-INCH PVC (SCHEDULE 40) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.	195 LF.
(54)	PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER PERVIOUS PAVERS. SEE SHEET C-8, DETAIL 16.	277 LF.
(55)	PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER TURF. SEE SHEET C-8, DETAIL 17.	393 LF.
(56)	PROVIDE STENCILING AT CATCH BASIN AND INLETS TO DISCOURAGE DUMPING OF POLLUTANTS, SEE SHEET C-31, DETAIL 4.	10 EA.
(57)	PROVIDE AND INSTALL 4'x4' MODULAR WETLANDS STORMWATER FILTRATION SYSTEM BY BIO CLEAN. SEE MANUFACTURER'S SPECIFICATIONS FOR ADDITIONAL INFORMATION, SEE SHEET C-31, DETAIL 6.	3 EA.
(58)	PROVIDE AND INSTALL AREA DRAIN REDUCER, SEE SHEET C-35, DETAIL 3.	23 EA.
(59)	PROVIDE AND INSTALL 12-INCH ACO POWERDRAIN "S300K" PRE-SLOPED TRENCH DRAIN W/ SIDE OUTLET (CHANNELS SK3-1 THRU SK3-8). PROVIDE H20 LOADING CAST IRON GRATE & FRAME. SEE SHEET C-30, DETAIL 8.	26 LF.
(60)	PROVIDE AND INSTALL 4-INCH ACO POWERDRAIN "S100K" PRE-SLOPED TRENCH DRAIN W/ BOTTOM OUTLET. PROVIDE H20 LOADING CAST IRON GRATE & FRAME. SEE SHEET C-31, DETAIL 8.	45 LF.
(61)	PROVIDE AND INSTALL 12-INCH x 12-INCH CAST-IN-PLACE CONCRETE DROP INLET WITH GALVANIZED STEEL GRATE AND FRAME. SEE SHEET C-32, DETAIL 1.	2 EA.
(62)	PROVIDE AND INSTALL CONTECH CORRUGATED STEEL RETENTION PIPE, ACCESS RISER AND ALL ASSOCIATED EQUIPMENT AND APPURTENANCES PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-33 AND 34 FOR DETAILS.	623 L.F.
(63)	CONNECT SITE STORM DRAIN LINE TO CMP TANK, SEE DETAILS ON SHEET 33.	26 EA.
(64)	PROVIDE AND INSTALL PRE-PACKAGED PUMP STATION JENSEN PRECAST ENGINEERED STORM DRAIN PUMP MODEL #PLS48-GRP10/3-MVP-DAX208 PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-34, DETAIL 2 FOR DETAILS.	4 EA.
(65)	CONSTRUCT PCC MANHOLE STRUCTURE WITH WEIR PLATE, SEE SHEET C-35, DETAIL 1 & 2.	2 EA.
(66)	CONSTRUCT PCC MANHOLE STRUCTURE (MIN. CONC. STRENGTH=4,500 PSI) PER S.P.P.W.C. STANDARD PLAN 321-2.	2 EA.
(67)	PROVIDE AND INSTALL SUBDRAINAGE CONNECTION TO STORM DRAIN SYSTEM, SEE SHEET C-31, DETAIL 9.	2 EA.
(68)	PROVIDE AND INSTALL 18-INCH RCP (D-3000) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.	4 L.F.
(69)	PROVIDE AND INSTALL 14-INCH x 23-INCH RCP (D-3000) ELLIPTICAL (PER ASTM-C507) PIPE WITH WATER TIGHT JOINTS (18-INCH ROUND PIPE EQUIVALENT). SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.	29 L.F.

NOTE:

1. *QUANTITIES SHOWN ARE ESTIMATES FOR BONDING PURPOSES ONLY. ACTUAL PAY QUANTITY CALCULATIONS ARE THE RESPONSIBILITY OF THE TRADE CONTRACTOR.*

ABBREVIATIONS

AB	AGGREGATE BASE	DCDA	DOUBLE CHECK DETECTOR ASSEMBLY	FS	FINISHED SURFACE	PED	ABOVE GROUND UTILITY PEDESTAL	TC	TOP OF CURB
AC	ASPHALT CONCRETE	DI	DRAINAGE INLET	G	GAS	PIV	POST INDICATOR VALVE	TF	TOP OF FOOTING
AR	AIR RELEASE VALVE ASSEMBLY	DIP	DUCTILE IRON PIPE	GB	GRADE BREAK	PL	PROPERTY LINE	TG	TOP OF GRATE
B	BOLLARD	DS	DOWN SPOUT	GM	GAS METER	PVC	POLYVINYL CHLORIDE PIPE	TP	TOP OF PIPE
BFD	BACKFLOW DEVICE	DWY	DRIVEWAY	GV	GAS VALVE	RD	ROOF DRAIN	TS	TRAFFIC SIGNAL EQUIPMENT
BO	WATER LINE BLOW-OFF	EG	EDGE OF GUTTER	HP	HIGH POINT	RW	RIGHT OF WAY	TW	TOP OF WALL
BW	BACK OF WALK	ELEC	UNDERGROUND ELECTRICAL LINES	INV	INVERT	S	SEWER LINES	WM	WATER METER
BOP	BOTTOM OF PIPE	ELEC-OH	OVERHEAD ELECTRICAL LINES	IRR	IRRIGATION	SCO	SEWER CLEANOUT	WV	WATER VALVE
BOS	BOTTOM OF STAIRS	EMH	ELECTRICAL MANHOLE	LP	LOW POINT	SD	STORM DRAIN		
BOT	BOTTOM	EP	EDGE OF PAVEMENT	LFLW	LOW FLOW STORM DRAIN LINE	SDMH	STORM DRAIN MANHOLE		
CATV	CABLE TELEVISION	EX.	EXISTING	LS	LIGHT STANDARD	SL	STREET LIGHT		
CB	CATCH BASIN	FG	FINISHED GRADE	NG	NATURAL GRADE	SMH	SEWER MANHOLE		
CL	CENTERLINE	FDC	FIRE DEPARTMENT CONNECTION	PA	PLANTER AREA	SW	SIDEWALK		
CMU	CONCRETE MASONRY UNIT	FH	FIRE HYDRANT	PB	PULL BOX	TELE	UNDERGROUND TELEPHONE LINES		
COMM	UNDERGROUND COMMUNICATION LINES	FL	FLOW LINE	PCC	PORTLAND CEMENT CONCRETE	TMH	TELEPHONE MANHOLE		

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

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REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

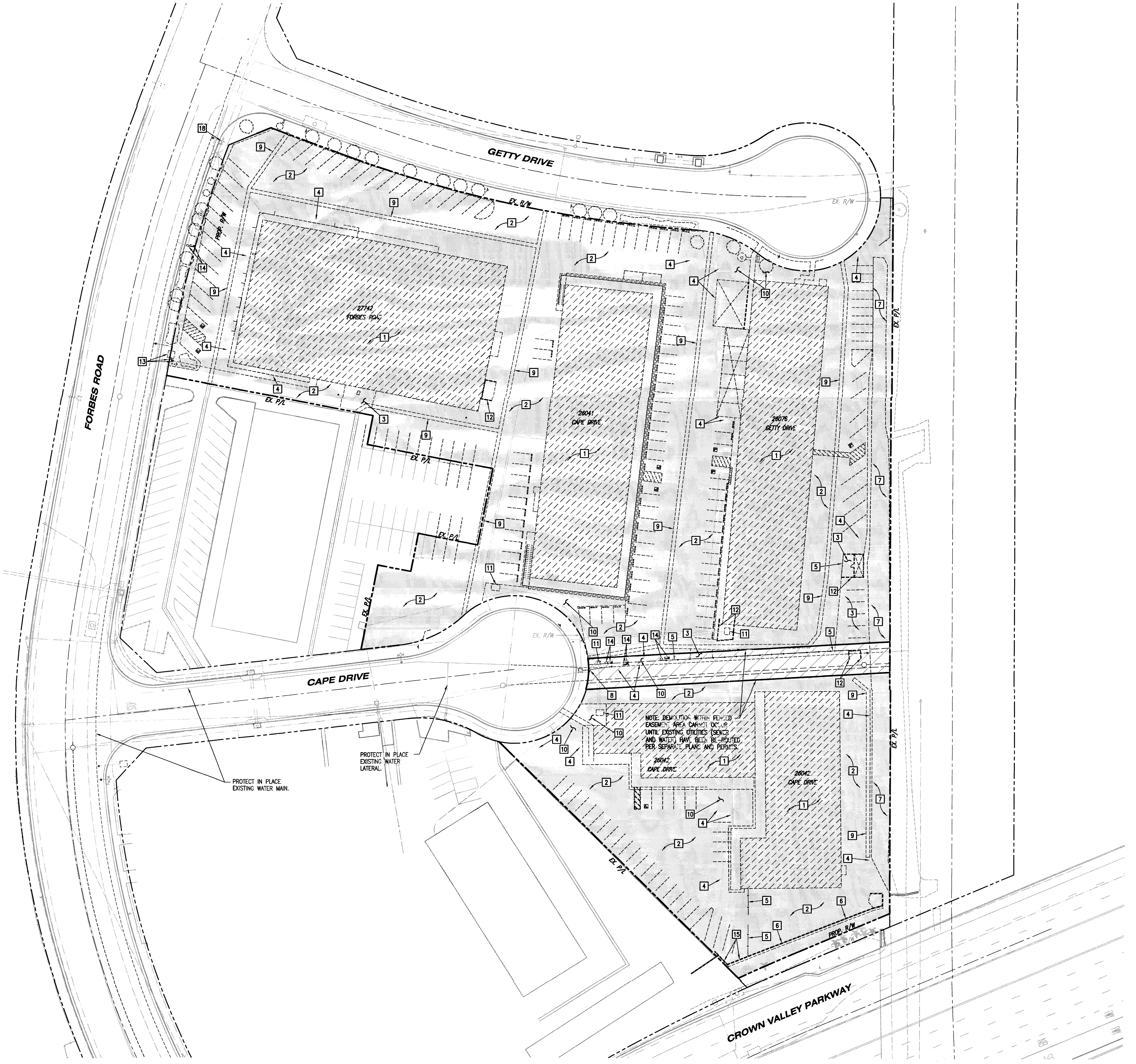
SHEET DESCRIPTION:
INDEX MAP, CONST. NOTES & QUANTITIES

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-2



NOTE: DEMOLITION WITHIN FENCED EASEMENT AREA CANNOT OCCUR UNTIL EXISTING UTILITIES (SEWER AND WATER) HAVE BEEN RE-ROUTED PER SEPARATE PLANS AND PERMITS.

PROTECT IN PLACE EXISTING WATER MAIN.

PROTECT IN PLACE EXISTING WATER LATERAL.

GENERAL NOTES:

1. ALL UTILITY LINES WILL BE PROTECTED DURING DEMOLITION. DEMOLITION CONTRACTORS SHALL COORDINATE WITH DRY UTILITY COMPANIES PRIOR TO THE REMOVAL OF ANY UTILITIES SHALL BE "SHEARED OFF" AT PROPERTY LINE AND REMOVED PER UTILITY COMPANY INSTRUCTIONS, WET UTILITIES SHALL ABIDE BY MNWD STANDARDS AND SPECIFICATIONS FROM DISTRICT INSPECTOR.

DEMOLITION NOTES

1 DEMOLISH, REMOVE AND DISPOSE OF EXISTING BUILDING, OVERHEAD CANOPIES SLABS, FOOTINGS, ELECTRICAL FIXTURES, RECEPTACLES, JUNCTION BOXES AND ALL ASSOCIATED CONDUIT AND WIRING CONNECTED TO ELECTRICALLY-OPERATED EQUIPMENT AND DEVICES. REMOVE ALL EXISTING PLUMBING FIXTURES, UNDERGROUND WATER AND SEWER PIPE TO PROPERTY LINE AND CAP PER CITY STANDARDS. COORDINATE REMOVAL OF GAS METER AND PIPING WITH OWNER. NEED TO CONDUCT ACM TESTING, REMOVAL AND CONTAINMENT.

2 REMOVE AND DISPOSE OF EXISTING ASPHALT CONCRETE PAVEMENT.

3 REMOVE AND DISPOSE OF EXISTING CONCRETE PAVEMENT.

4 REMOVE AND DISPOSE OF EXISTING CONCRETE CURB.

5 REMOVE AND DISPOSE OF EXISTING FENCE.

6 REMOVE AND DISPOSE OF EXISTING RETAINING WALL, FOOTING AND HANDRAILS WHERE APPLICABLE

7 SAWCUT, REMOVE AND DISPOSE OF EXISTING CONCRETE LINED SLOPE.

8 REMOVE AND DISPOSE OF EXISTING POWER POLE AND STREET LIGHT. COORDINATE WITH LOCAL POWER COMPANY FOR REMOVAL.

9 REMOVE AND DISPOSE OF EXISTING CONCRETE GUTTER.

10 REMOVE AND DISPOSE OF EXISTING LANDSCAPING AND IRRIGATION SYSTEM. ENSURE THAT THE REMOVAL OF THE IRRIGATION SYSTEM DOES NOT AFFECT OTHER EXISTING IRRIGATION SYSTEMS THAT NEED TO STAY OPERATIONAL.

11 REMOVE AND DISPOSE OF EXISTING TRANSFORMER. COORDINATE WITH LOCAL POWER COMPANY FOR REMOVAL.

12 REMOVE AND DISPOSE OF EXISTING CMU WALL.

13 REMOVE AND DISPOSE OF EXISTING WATER METER VAULT, FIRE DEPARTMENT CONNECTION AND POST INDICATOR VALVE. ABANDON AT MAIN PER DISTRICT STANDARDS. ALL VALVING ON BRANCHES SHALL BE REMOVED AND BRANCH BLIND FLANGED.

14 REMOVE AND DISPOSE OF EXISTING BACKFLOW DEVICE, VALVE BOX AND VALVES. REMOVE ENTIRE DOMESTIC WATER LINE TO MAIN AND CAP PER MNWD STANDARDS. ALL VALVING ON BRANCHES SHALL BE REMOVED AND BRANCH BLIND FLANGED. ALL METERS TO BE RETURNED TO MNWD.

15 PROTECT IN PLACE EXISTING RETAINING WALL.

16 REMOVE AND DISPOSE OF EXISTING PUBLIC 8-INCH SEWER MAINLINE PER SEPARATE PLANS AND PERMIT.

17 REMOVE AND DISPOSE OF EXISTING PUBLIC 10-INCH WATER MAINLINE PER SEPARATE PLANS AND PERMIT.

18 PROTECT IN PLACE EXISTING FIRE HYDRANT.

LEGEND

☐	LIMITS OF DEMOLITION
▨	LIMITS OF BUILDING REMOVAL
▨	RESTRICTED EASEMENT AREA

0 15 30 60 90
SCALE: 1"=30'

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

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NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
CIVIL

SHEET DESCRIPTION: **DEMOLITION PLAN PER SEPERATE PLAN & SEPERATE BUILDING PERMIT (FOR INFORMATION ONLY)**

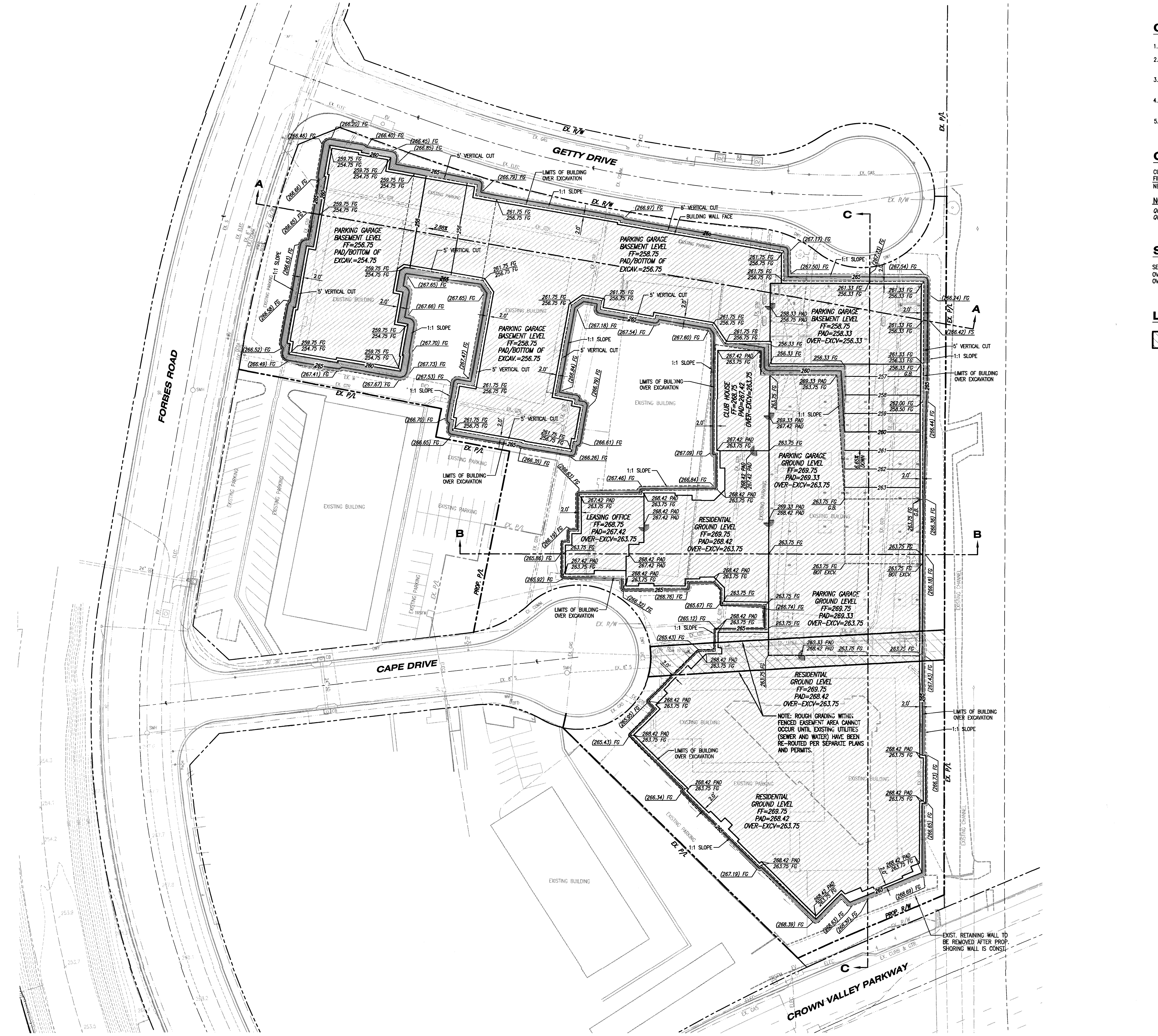
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

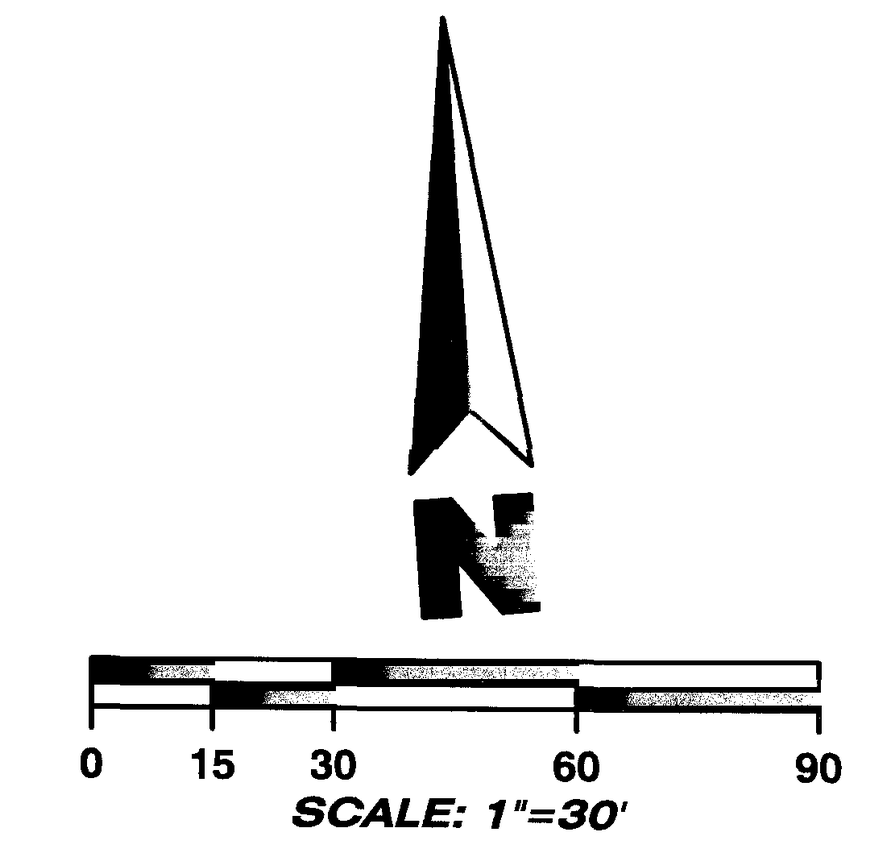
PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-3

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-03-DEMO.dwg July 08, 2015 - 11:19am Mike Thomas


GETTY DRIVE
FORBES ROAD
CAPE DRIVE
CROWN VALLEY PARKWAY
EX. R/W
EX. P/L
PROP. P/L
PROP. R/W
A
B
C
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD/BOTTOM OF EXCAV.=254.75
PARKING GARAGE BASEMENT LEVEL FF=258.75 PAD/BOTTOM OF EXCAV.=256.75
PARKING GARAGE BASEMENT LEVEL FF=258.75 PAD=258.33 OVER-EXCV=256.33
CLUB HOUSE FF=268.75 PAD=267.42 OVER-EXCV=263.75
PARKING GARAGE GROUND LEVEL FF=269.75 PAD=269.33 OVER-EXCV=263.75
LEASING OFFICE FF=268.75 PAD=267.42 OVER-EXCV=263.75
RESIDENTIAL GROUND LEVEL FF=269.75 PAD=268.42 OVER-EXCV=263.75
NOTE: ROUGH GRADING WITHIN FENCED EASEMENT AREA CANNOT OCCUR UNTIL EXISTING UTILITIES (SEWER AND WATER) HAVE BEEN RE-ROUTED PER SEPARATE PLANS AND PERMITS.
EXIST. RETAINING WALL TO BE REMOVED AFTER PROP. SHORING WALL IS CONST.
LIMITS OF BUILDING OVER EXCAVATION
5' VERTICAL CUT
1:1 SLOPE
BUILDING WALL FACE
EXISTING BUILDING
EXISTING PARKING
EXISTING CHANNEL
6.65% DOWN
2.88%


N
0
15
30
60
90
SCALE: 1"=30'

GENERAL NOTES:

1. SEE SHEET C-5 FOR EXCAVATION SECTIONS.
2. CONTRACTOR TO ADHERE TO ALL RECOMMENDATIONS PROVIDED IN THE APPROVED SOILS REPORT THE OVER-EXCAVATION DEPTH.
3. SUB-GRADE PREPARATIONS SHALL CONFORM TO THE REQUIREMENTS OF THE SOIL REPORT AND SHALL BE PERFORMED UNDER THE SUPERVISION OF THE SOILS ENGINEER.
4. THE REMOVAL AND REPLACEMENT OF UNSUITABLE MATERIAL (ARTIFICIAL FILL) PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
5. ALL VERTICAL CUT MORE THAN 5 FEET IN HEIGHT SHALL BE CUT BACK AT 1:1 SLOPE.

GRADING QUANTITY ESTIMATE

CUT = 23,700 CY
FILL = 9,500 CY
NET = 14,200 CY

IMPORT = 0 CY
EXPORT = 14,200 CY

NOTE:

QUANTITIES SHOWN ARE ESTIMATES FOR BONDING PURPOSES ONLY. ACTUAL PAY QUANTITY CALCULATIONS ARE THE RESPONSIBILITY OF THE GRADING CONTRACTOR.

SITE OVEREXCAVATION NOTE:

SEE SOIL REPORT DATED MAY 15, 2014, SECTION 6.1.4 SITE PREPARATION (REMOVALS AND OVEREXCAVATION) FOR RECOMMENDATIONS OF OVEREXCAVATION BEYOND THE BUILDING LIMITS OF OVEREXCAVATION.

LEGEND

▨ RESTRICTED EASEMENT AREA

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

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NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
EXCAVATION / ROUGH GRADING PLAN

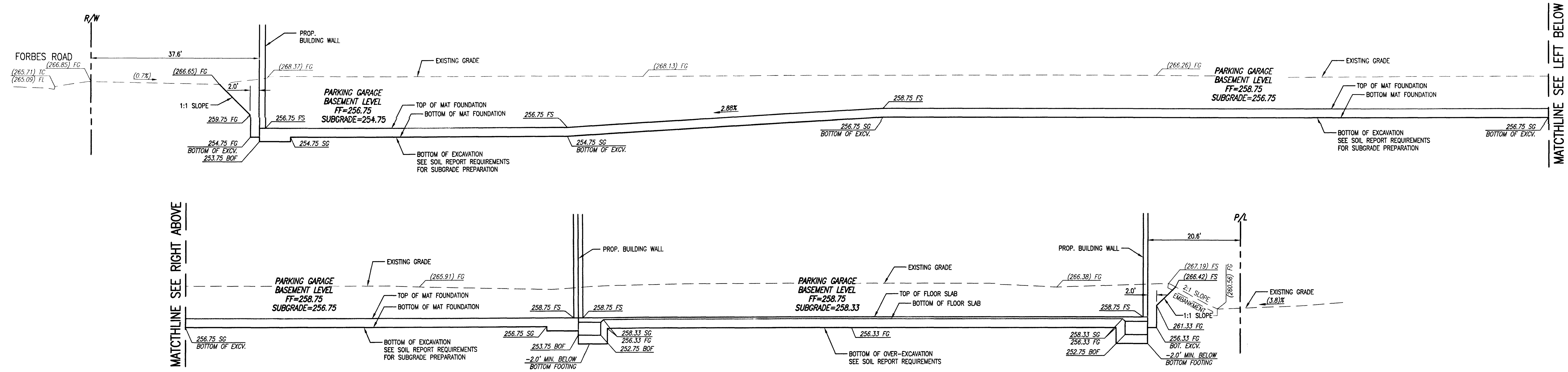
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

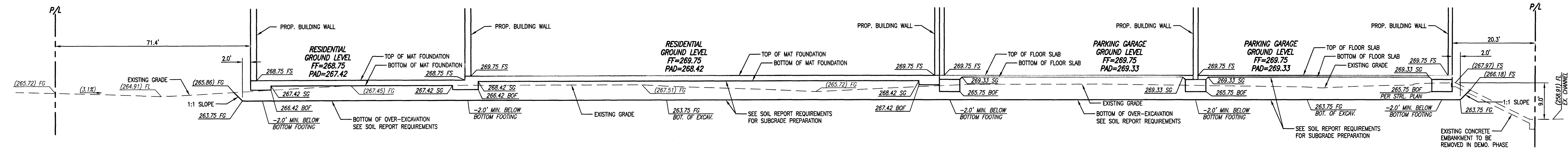
SHEET NO.
C-4

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-04-EXCV.dwg July 13, 2015 - 10:16am Mike Thomas


R/W
FORBES ROAD
37.6'
PROP. BUILDING WALL
EXISTING GRADE
PARKING GARAGE BASEMENT LEVEL FF=256.75 SUBGRADE=254.75
PARKING GARAGE BASEMENT LEVEL FF=258.75 SUBGRADE=256.75
TOP OF MAT FOUNDATION
BOTTOM OF MAT FOUNDATION
BOTTOM OF EXCAVATION SEE SOIL REPORT REQUIREMENTS FOR SUBGRADE PREPARATION
1:1 SLOPE
2.0'
2.88%
(0.7%)
254.75 SG
256.75 FS
258.75 FS
254.75 FG BOTTOM OF EXCV. 253.75 BOF
256.75 SG BOTTOM OF EXCV.
MATCHLINE SEE LEFT BELOW
MATCHLINE SEE RIGHT ABOVE
PARKING GARAGE BASEMENT LEVEL FF=258.75 SUBGRADE=258.33
TOP OF FLOOR SLAB
BOTTOM OF FLOOR SLAB
BOTTOM OF OVER-EXCAVATION SEE SOIL REPORT REQUIREMENTS
P/L
20.6'
2:1 SLOPE EMBANKMENT
(3.8)%
-2.0' MIN. BELOW BOTTOM FOOTING
258.33 SG
256.33 FG
252.75 BOF
261.33 FG
256.33 FG BOT. EXCV.

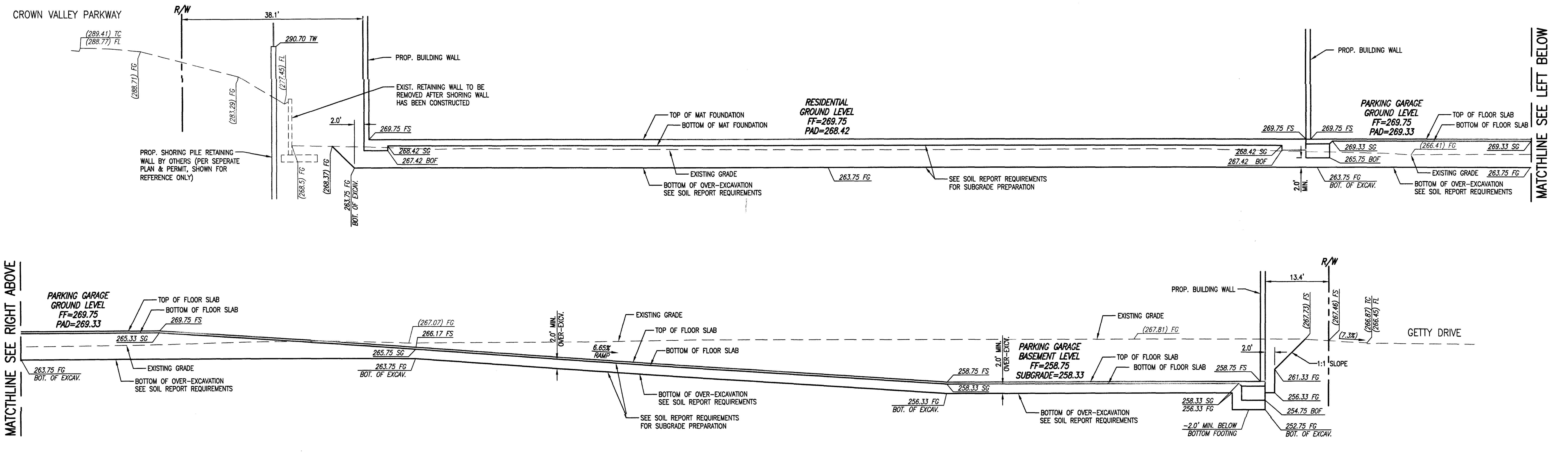
SECTION "A-A"

SCALE: 1"=10'


P/L
71.4'
20.3'
PROP. BUILDING WALL
RESIDENTIAL GROUND LEVEL FF=268.75 PAD=267.42
RESIDENTIAL GROUND LEVEL FF=269.75 PAD=268.42
PARKING GARAGE GROUND LEVEL FF=269.75 PAD=269.33
TOP OF MAT FOUNDATION
BOTTOM OF MAT FOUNDATION
TOP OF FLOOR SLAB
BOTTOM OF FLOOR SLAB
EXISTING GRADE
(3.1%)
1:1 SLOPE
-2.0' MIN. BELOW BOTTOM FOOTING
BOTTOM OF OVER-EXCAVATION SEE SOIL REPORT REQUIREMENTS
SEE SOIL REPORT REQUIREMENTS FOR SUBGRADE PREPARATION
263.75 FG BOT. OF EXCAV.
265.75 BOF PER STRL. PLAN
(258.91) FL EX. CHANNEL
9.0'
EXISTING CONCRETE EMBANKMENT TO BE REMOVED IN DEMO. PHASE

SECTION "B-B"

SCALE: 1"=10'


CROWN VALLEY PARKWAY
R/W
38.1'
290.70 TW
PROP. BUILDING WALL
EXIST. RETAINING WALL TO BE REMOVED AFTER SHORING WALL HAS BEEN CONSTRUCTED
PROP. SHORING PILE RETAINING WALL BY OTHERS (PER SEPERATE PLAN & PERMIT, SHOWN FOR REFERENCE ONLY)
RESIDENTIAL GROUND LEVEL FF=269.75 PAD=268.42
PARKING GARAGE GROUND LEVEL FF=269.75 PAD=269.33
TOP OF MAT FOUNDATION
BOTTOM OF MAT FOUNDATION
TOP OF FLOOR SLAB
BOTTOM OF FLOOR SLAB
EXISTING GRADE
BOTTOM OF OVER-EXCAVATION SEE SOIL REPORT REQUIREMENTS
SEE SOIL REPORT REQUIREMENTS FOR SUBGRADE PREPARATION
MATCHLINE SEE LEFT BELOW
MATCHLINE SEE RIGHT ABOVE
PARKING GARAGE GROUND LEVEL FF=269.75 PAD=269.33
6.65% RAMP
2.0' MIN. OVER-EXCV.
PARKING GARAGE BASEMENT LEVEL FF=258.75 SUBGRADE=258.33
GETTY DRIVE
13.4'
(7.3%)
1:1 SLOPE
-2.0' MIN. BELOW BOTTOM FOOTING
252.75 FG BOT. OF EXCAV.

SECTION "C-C"

SCALE: 1"=10'

Know what's below. Call before you dig.

NOTICE TO CONTRACTOR

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PREPARED BY:
KHR ASSOCIATES
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Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION: **EXCAVATION SECTIONS**

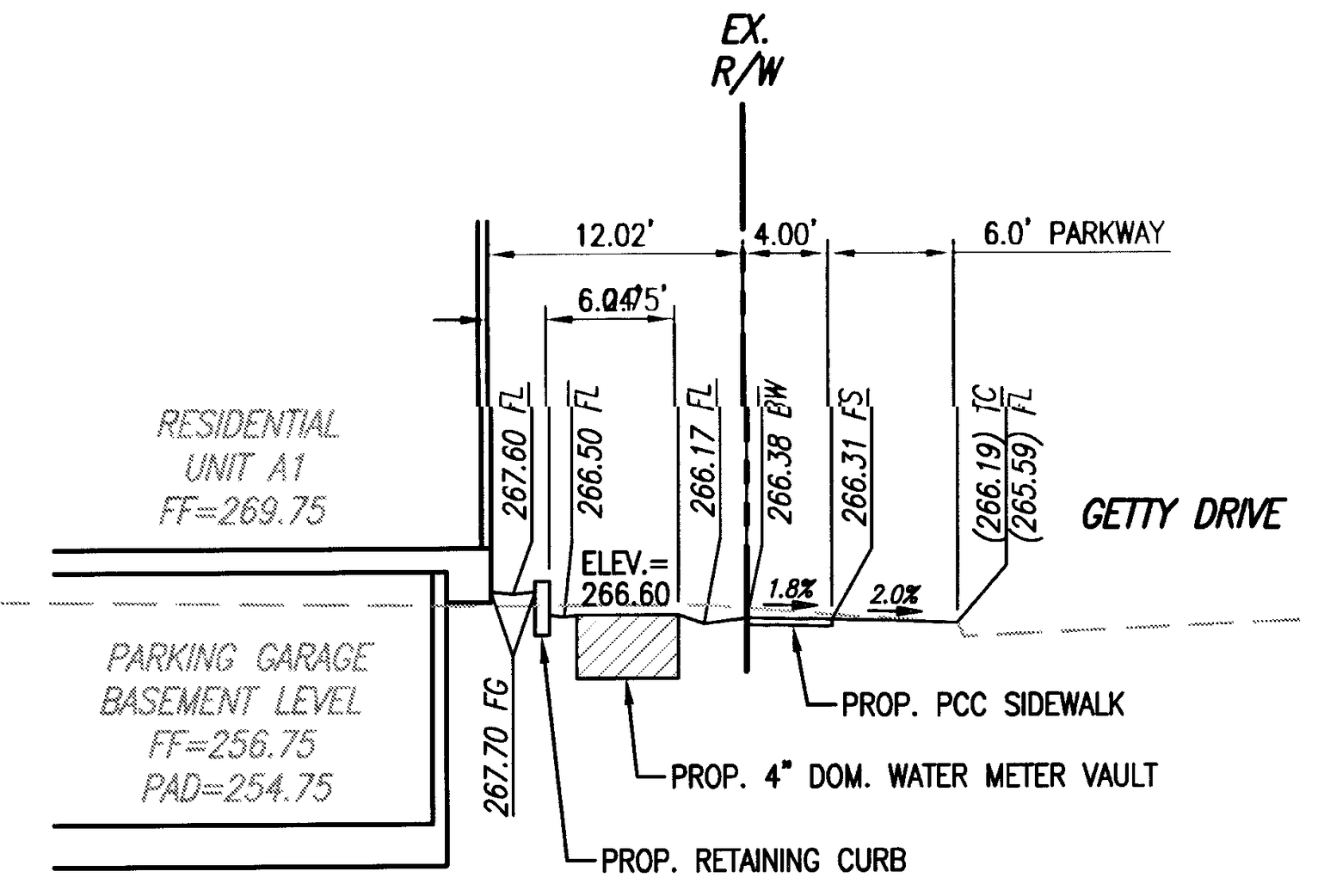
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

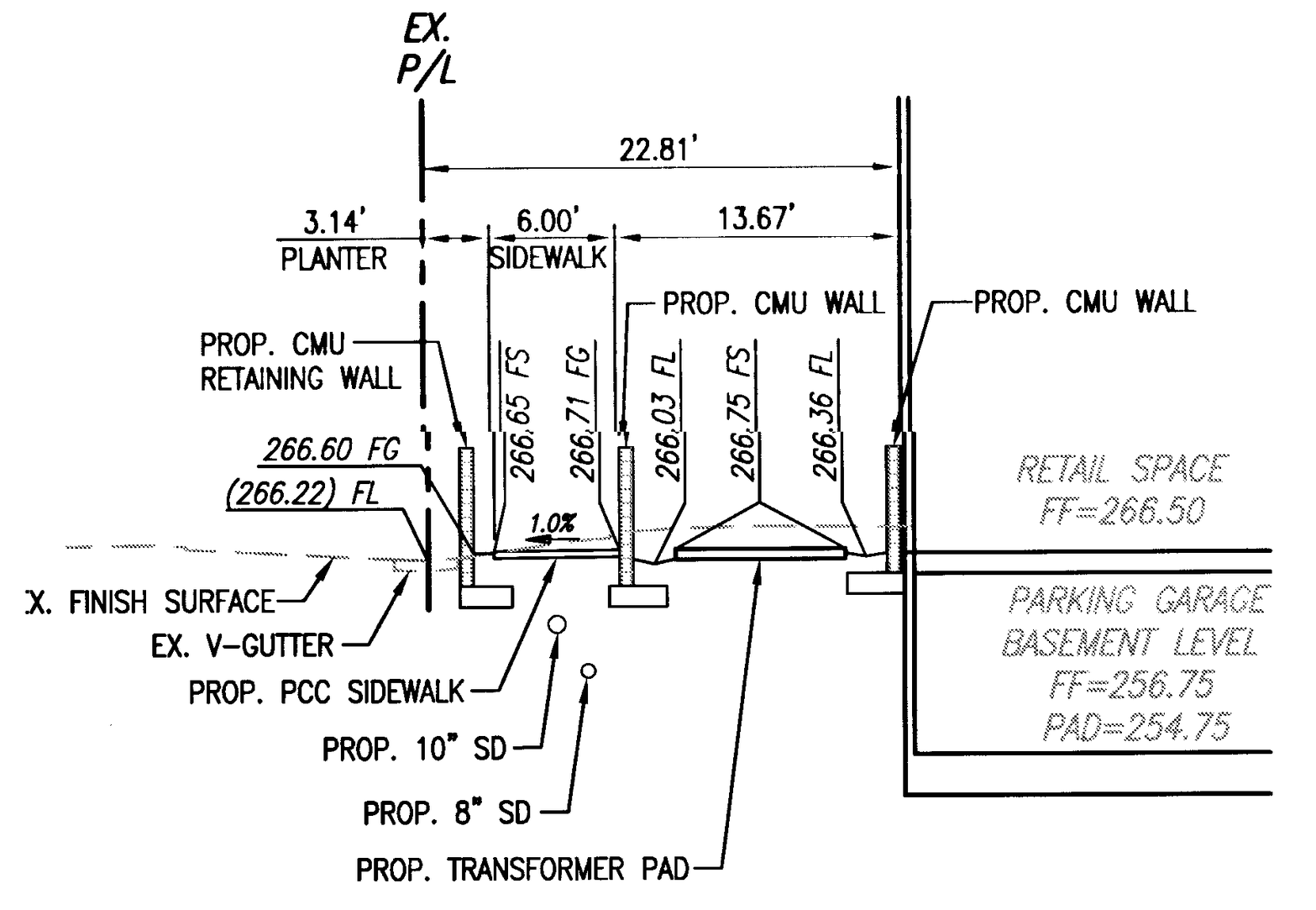
PROJECT NUMBER
5275032

SHEET NO.
C-5

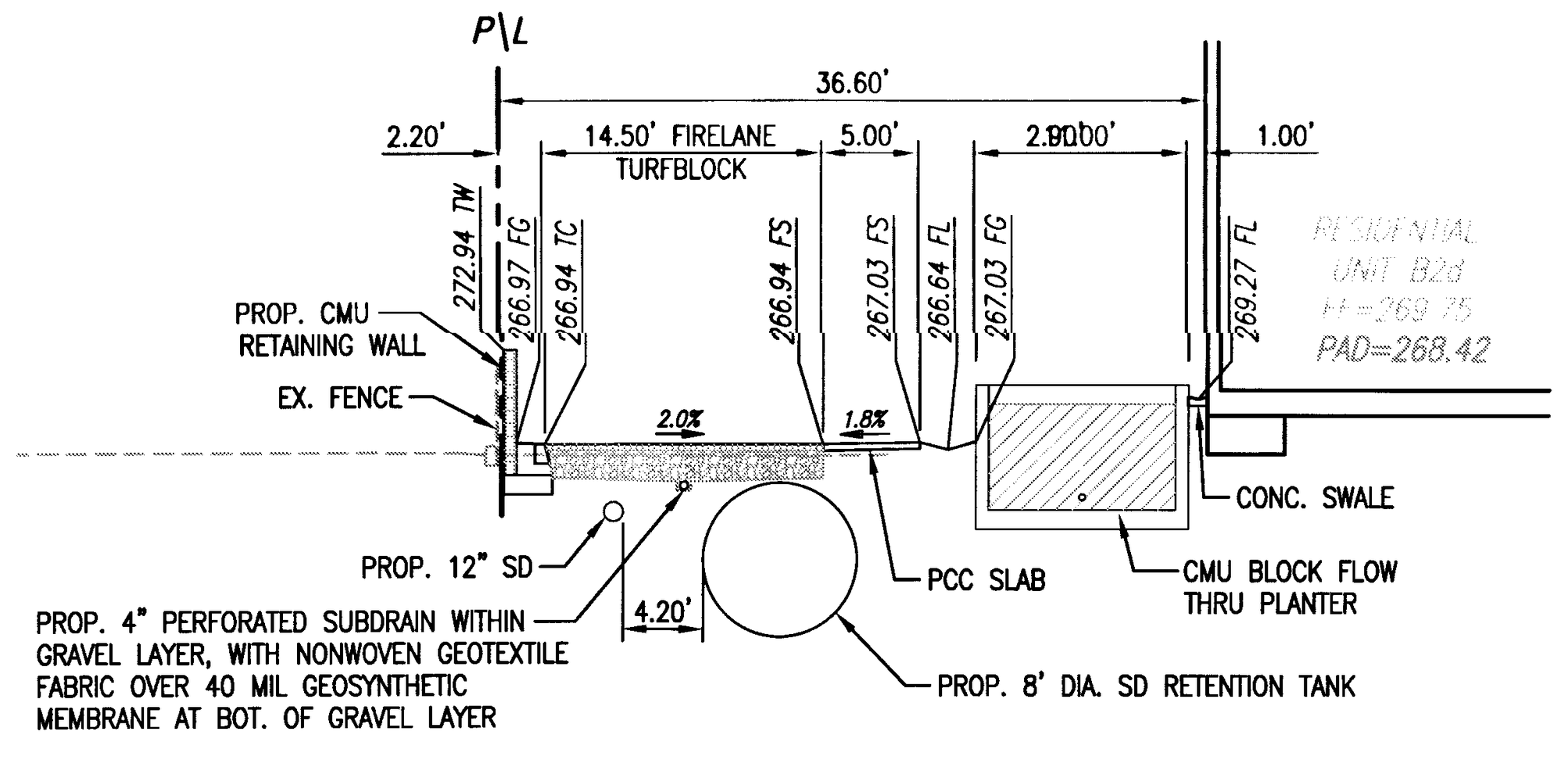
R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-05-EXCV-SCTS.dwg


EX. R/W
12.02'
4.00'
6.0' PARKWAY
6.00'
RESIDENTIAL UNIT A1 FF=269.75
ELEV.= 266.60
GETTY DRIVE
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD=254.75
PROP. PCC SIDEWALK
PROP. 4" DOM. WATER METER VAULT
PROP. RETAINING CURB

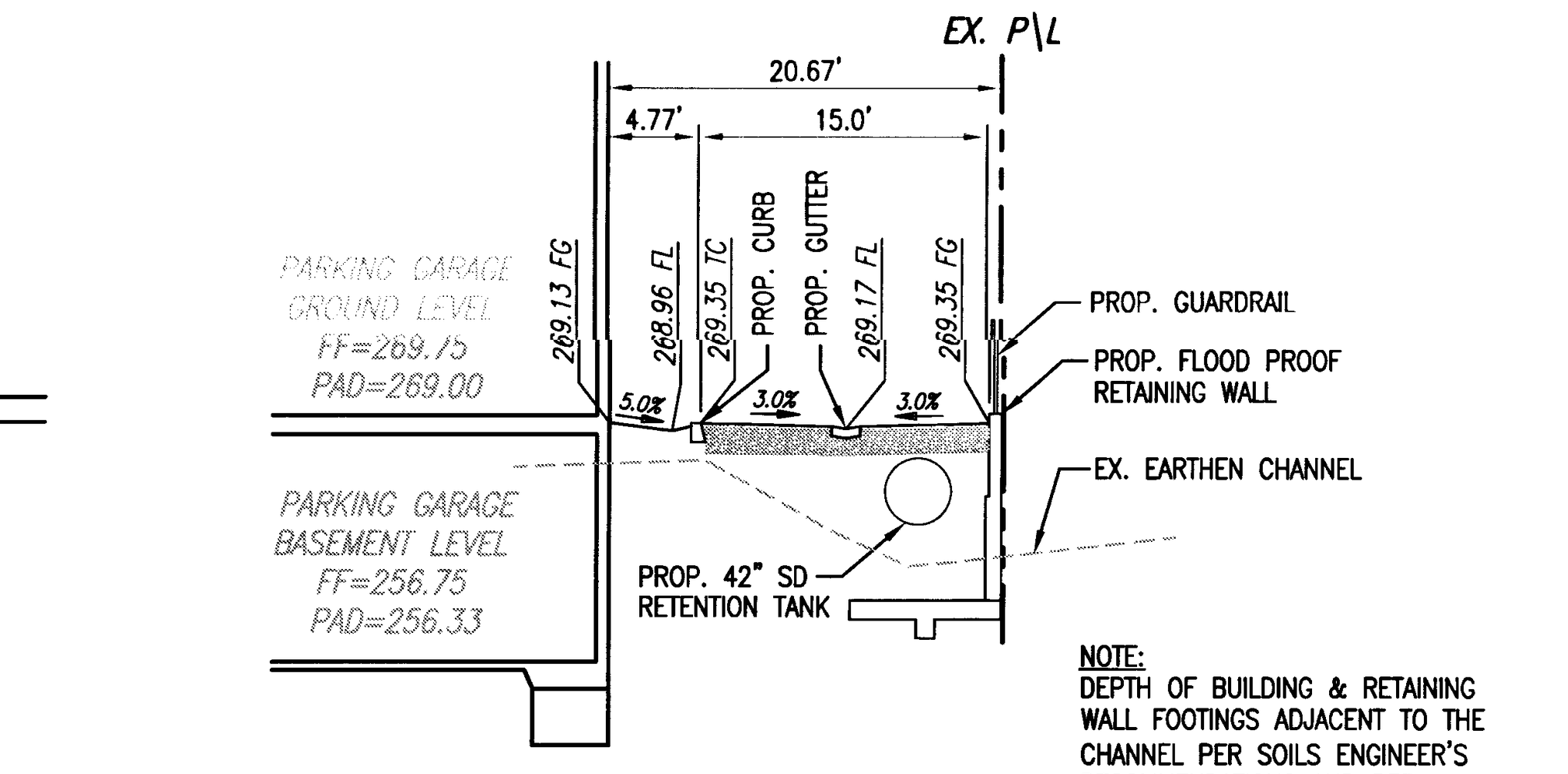
SECTION "Q-Q"
SCALE: 1"=10'


EX. P/L
22.81'
3.14' PLANTER
6.00' SIDEWALK
13.67'
PROP. CMU RETAINING WALL
PROP. CMU WALL
PROP. CMU WALL
266.60 FG
(266.22) FL
RETAIL SPACE FF=266.50
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD=254.75
X. FINISH SURFACE
EX. V-GUTTER
PROP. PCC SIDEWALK
PROP. 10" SD
PROP. 8" SD
PROP. TRANSFORMER PAD

SECTION "N-N"
SCALE: 1"=10'

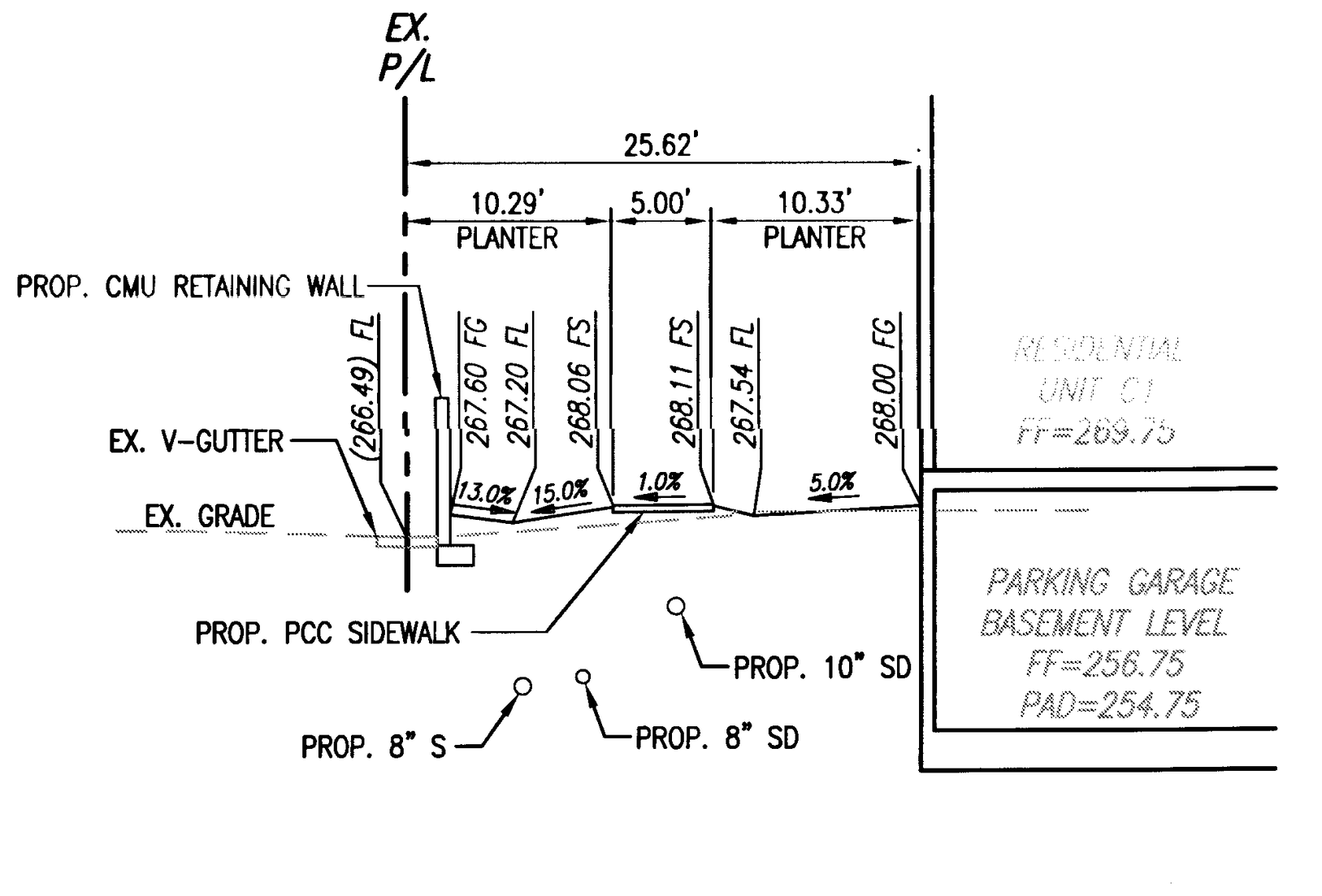

P/L
36.60'
2.20'
14.50' FIRELANE TURFBLOCK
5.00'
2.90'
1.00'
RESIDENTIAL UNIT B2d FF=269.75 PAD=268.42
PROP. CMU RETAINING WALL
EX. FENCE
PROP. 12" SD
4.20'
PCC SLAB
CONC. SWALE
CMU BLOCK FLOW THRU PLANTER
PROP. 4" PERFORATED SUBDRAIN WITHIN GRAVEL LAYER, WITH NONWOVEN GEOTEXTILE FABRIC OVER 40 MIL GEOSYNTHETIC MEMBRANE AT BOT. OF GRAVEL LAYER
PROP. 8' DIA. SD RETENTION TANK

SECTION "J-J"
SCALE: 1"=10'

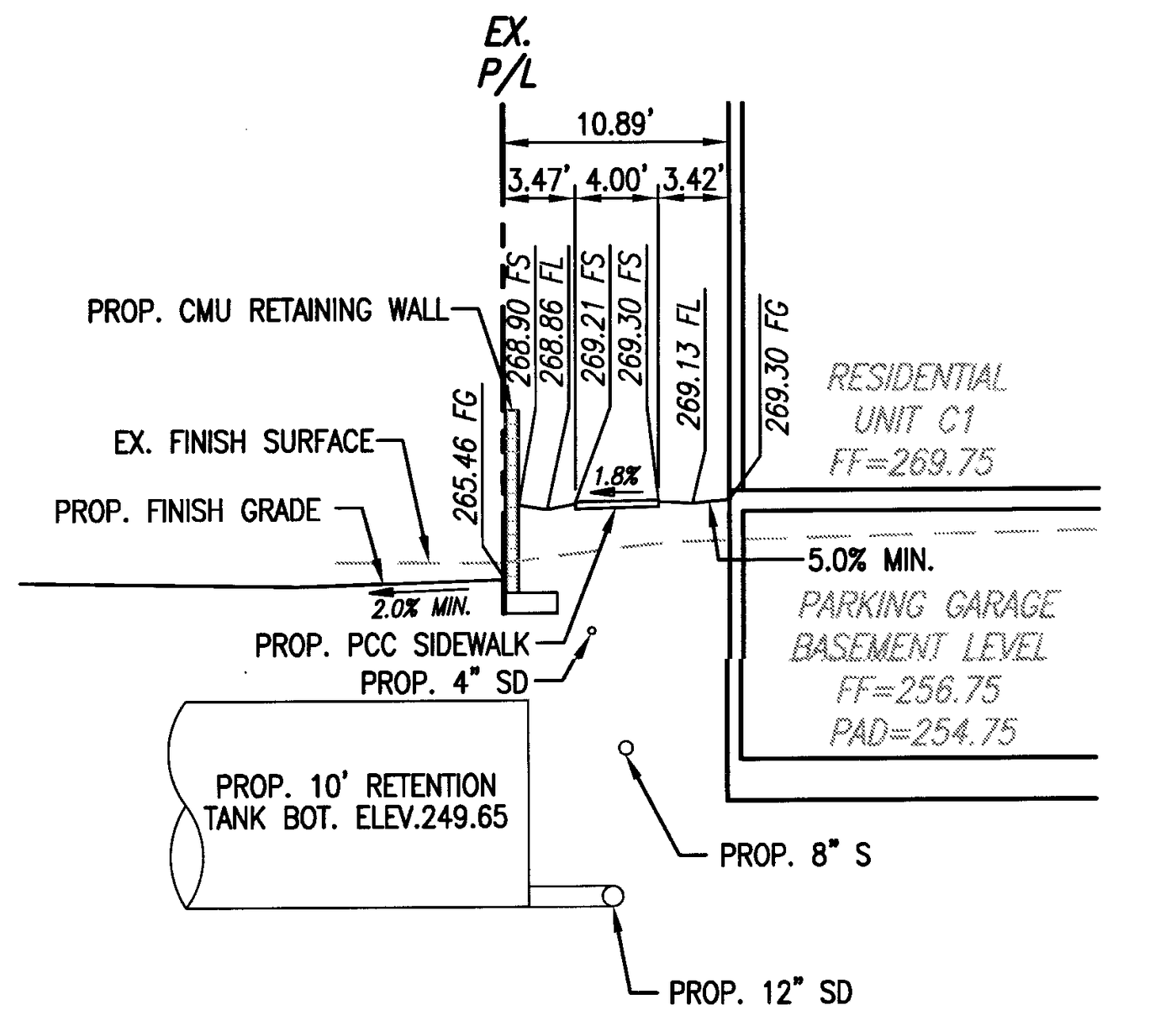

EX. P/L
20.67'
4.77'
15.0'
PARKING GARAGE GROUND LEVEL FF=269.75 PAD=269.00
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD=256.33
PROP. CURB
PROP. GUTTER
PROP. GUARDRAIL
PROP. FLOOD PROOF RETAINING WALL
EX. EARTHEN CHANNEL
PROP. 42" SD RETENTION TANK

NOTE:
DEPTH OF BUILDING & RETAINING WALL FOOTINGS ADJACENT TO THE CHANNEL PER SOILS ENGINEER'S RECOMMENDATIONS AND PER SEPARATE BUILDING & FOUNDATION PLANS

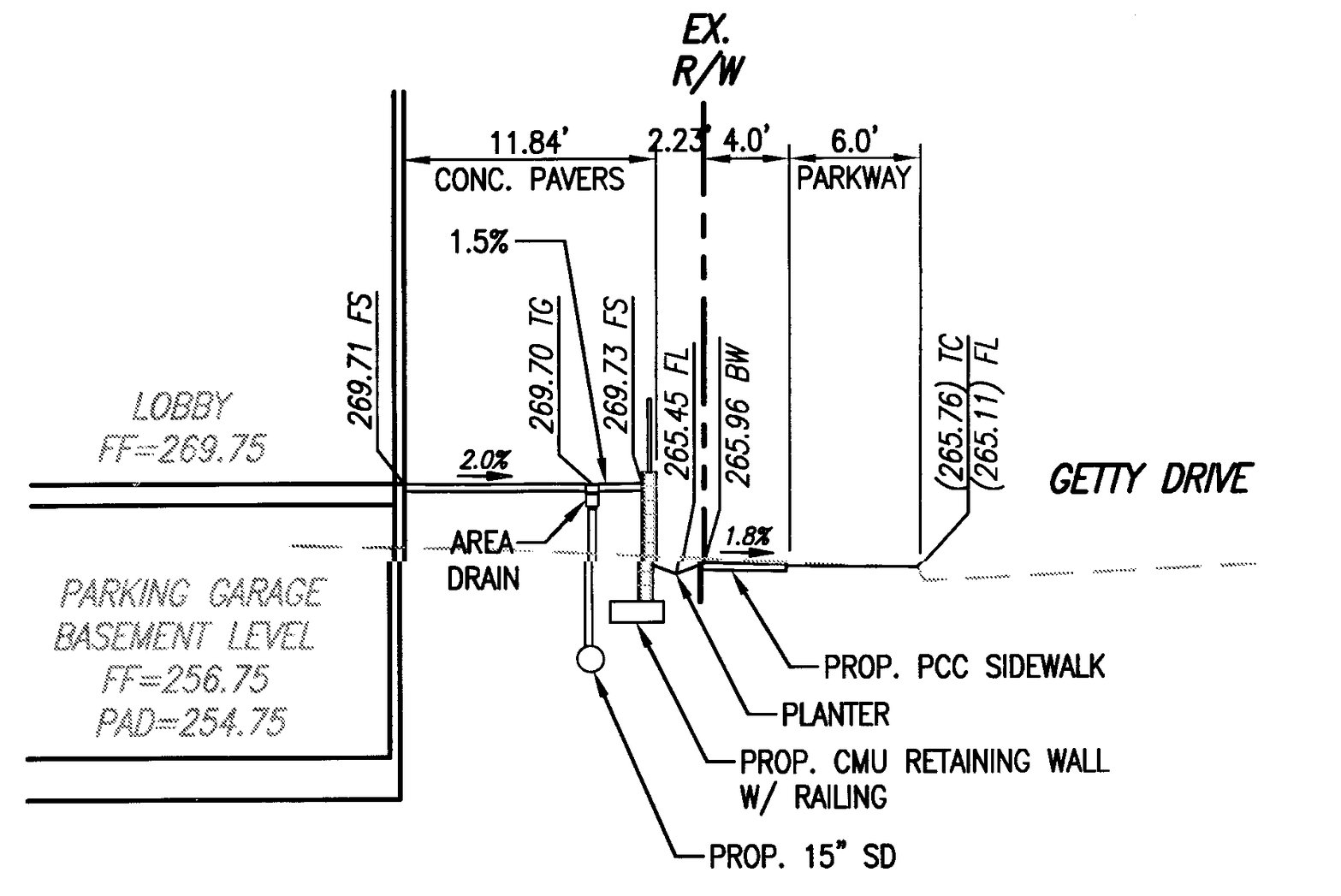
SECTION "E-E"
SCALE: 1"=10'


EX. P/L
25.62'
10.29' PLANTER
5.00'
10.33' PLANTER
PROP. CMU RETAINING WALL
EX. V-GUTTER
EX. GRADE
RESIDENTIAL UNIT C1 FF=269.75
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD=254.75
PROP. PCC SIDEWALK
PROP. 10" SD
PROP. 8" S
PROP. 8" SD

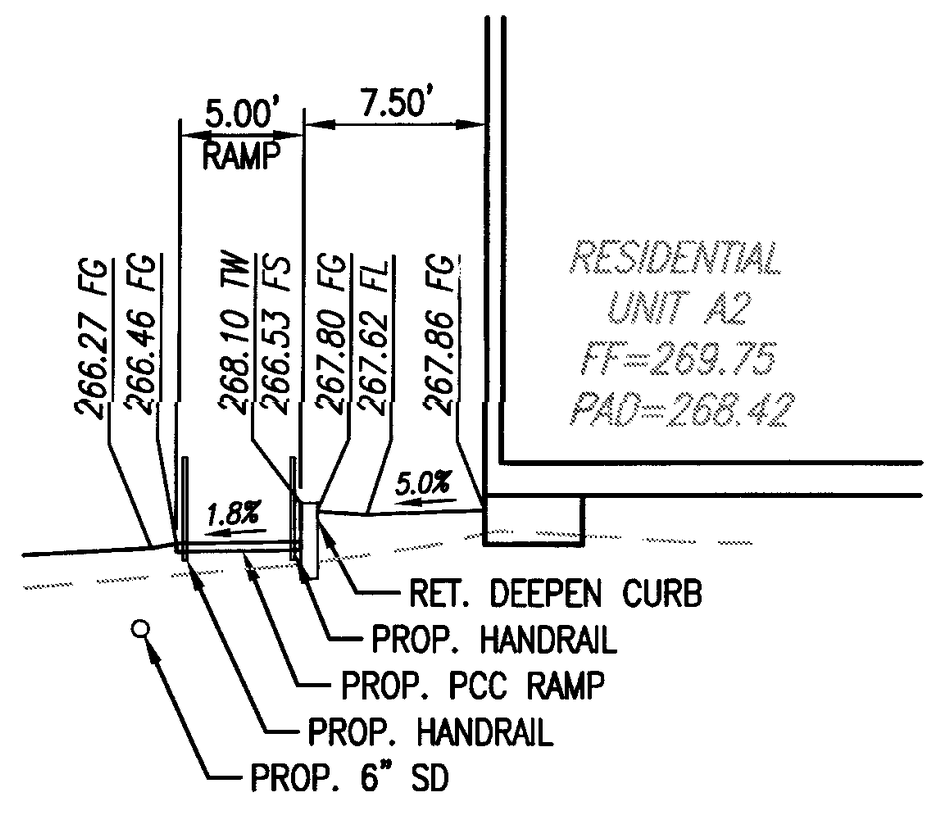
SECTION "A-A"
SCALE: 1"=10'


EX. P/L
10.89'
3.47'
4.00'
3.42'
PROP. CMU RETAINING WALL
EX. FINISH SURFACE
PROP. FINISH GRADE
2.0% MIN.
5.0% MIN.
RESIDENTIAL UNIT C1 FF=269.75
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD=254.75
PROP. PCC SIDEWALK
PROP. 4" SD
PROP. 10' RETENTION TANK BOT. ELEV.249.65
PROP. 8" S
PROP. 12" SD

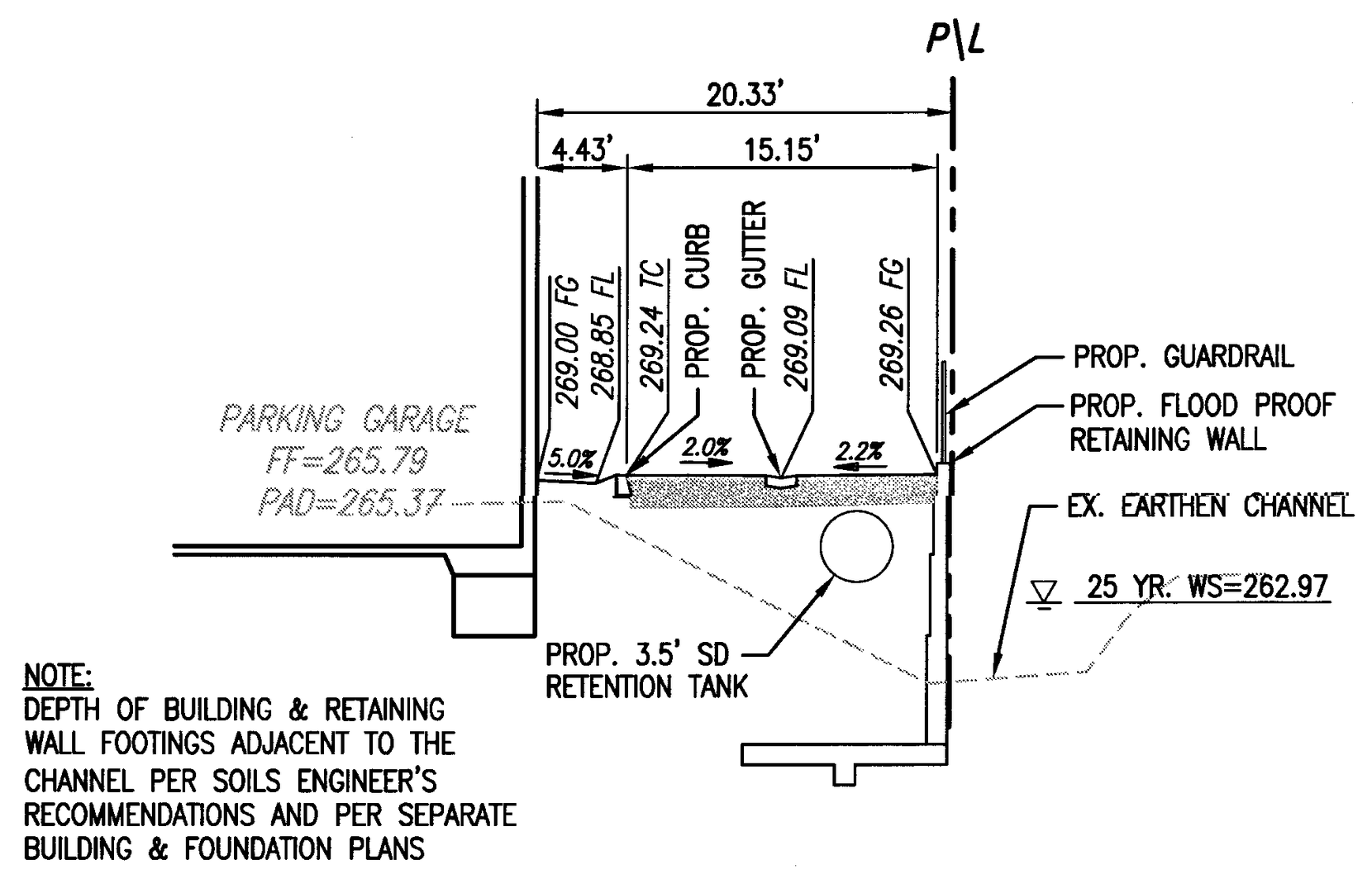
SECTION "R-R"
SCALE: 1"=10'


EX. R/W
11.84' CONC. PAVERS
2.23'
4.0'
6.0' PARKWAY
1.5%
LOBBY FF=269.75
GETTY DRIVE
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD=254.75
AREA DRAIN
PROP. PCC SIDEWALK
PLANTER
PROP. CMU RETAINING WALL W/ RAILING
PROP. 15" SD

SECTION "P-P"
SCALE: 1"=10'

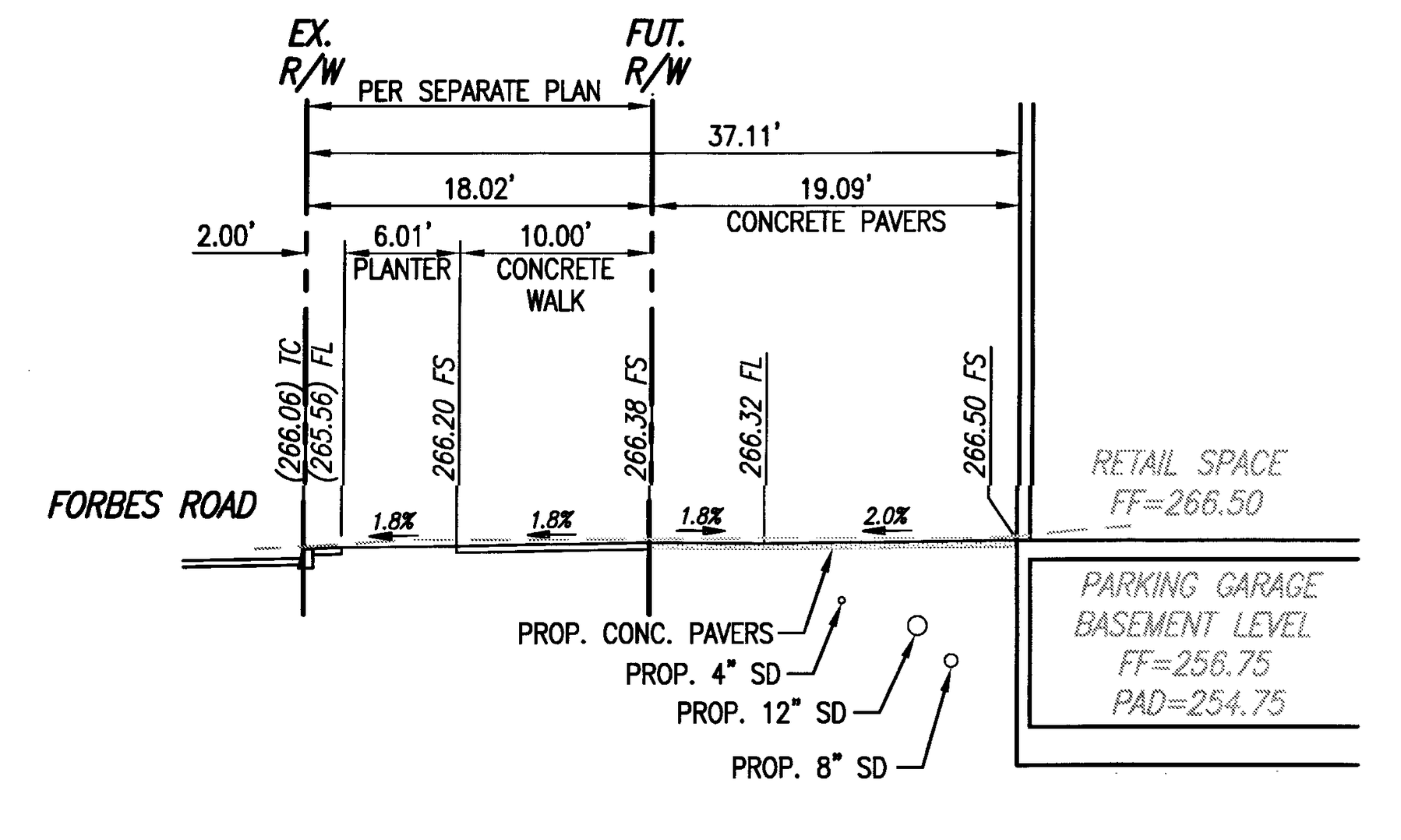

5.00' RAMP
7.50'
RESIDENTIAL UNIT A2 FF=269.75 PAD=268.42
RET. DEEPEN CURB
PROP. HANDRAIL
PROP. PCC RAMP
PROP. HANDRAIL
PROP. 6" SD

SECTION "K-K"
SCALE: 1"=10'

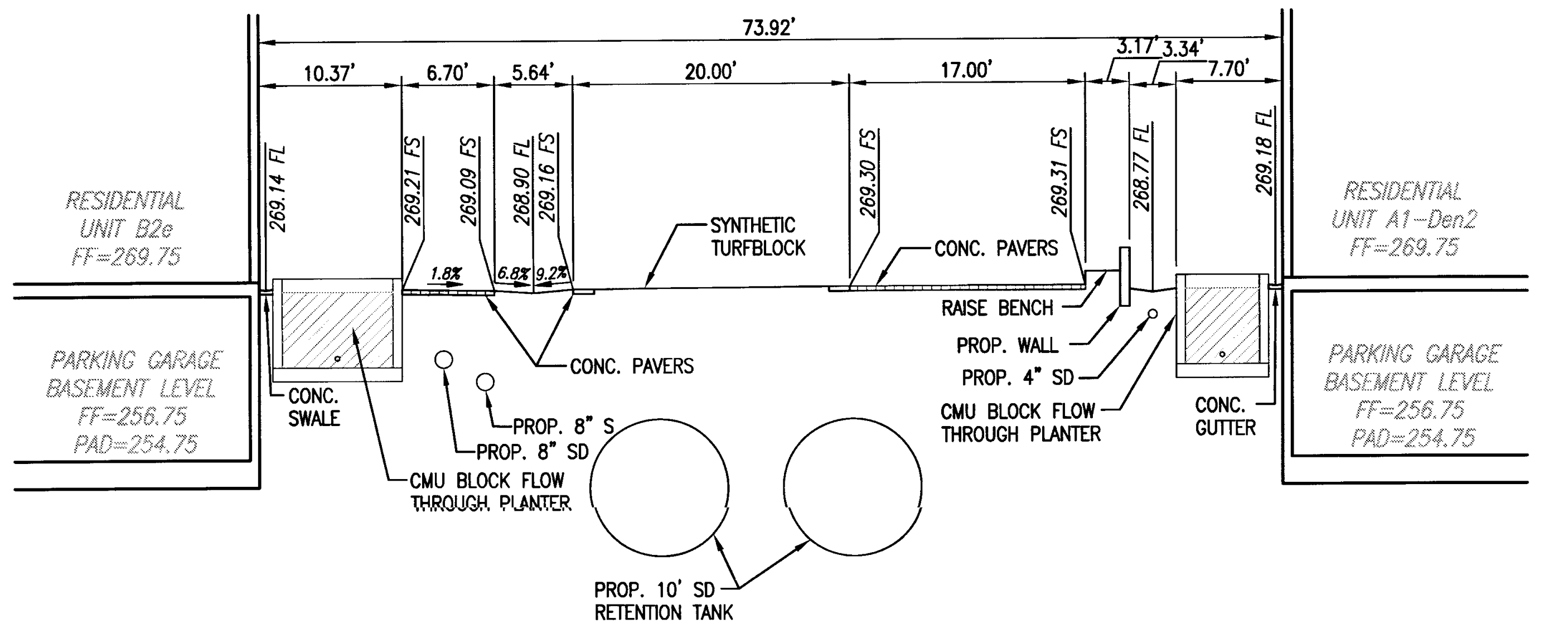

P/L
20.33'
4.43'
15.15'
PARKING GARAGE FF=265.79 PAD=265.37
PROP. CURB
PROP. GUTTER
PROP. GUARDRAIL
PROP. FLOOD PROOF RETAINING WALL
EX. EARTHEN CHANNEL
25 YR. WS=262.97
PROP. 3.5' SD RETENTION TANK

NOTE:
DEPTH OF BUILDING & RETAINING WALL FOOTINGS ADJACENT TO THE CHANNEL PER SOILS ENGINEER'S RECOMMENDATIONS AND PER SEPARATE BUILDING & FOUNDATION PLANS

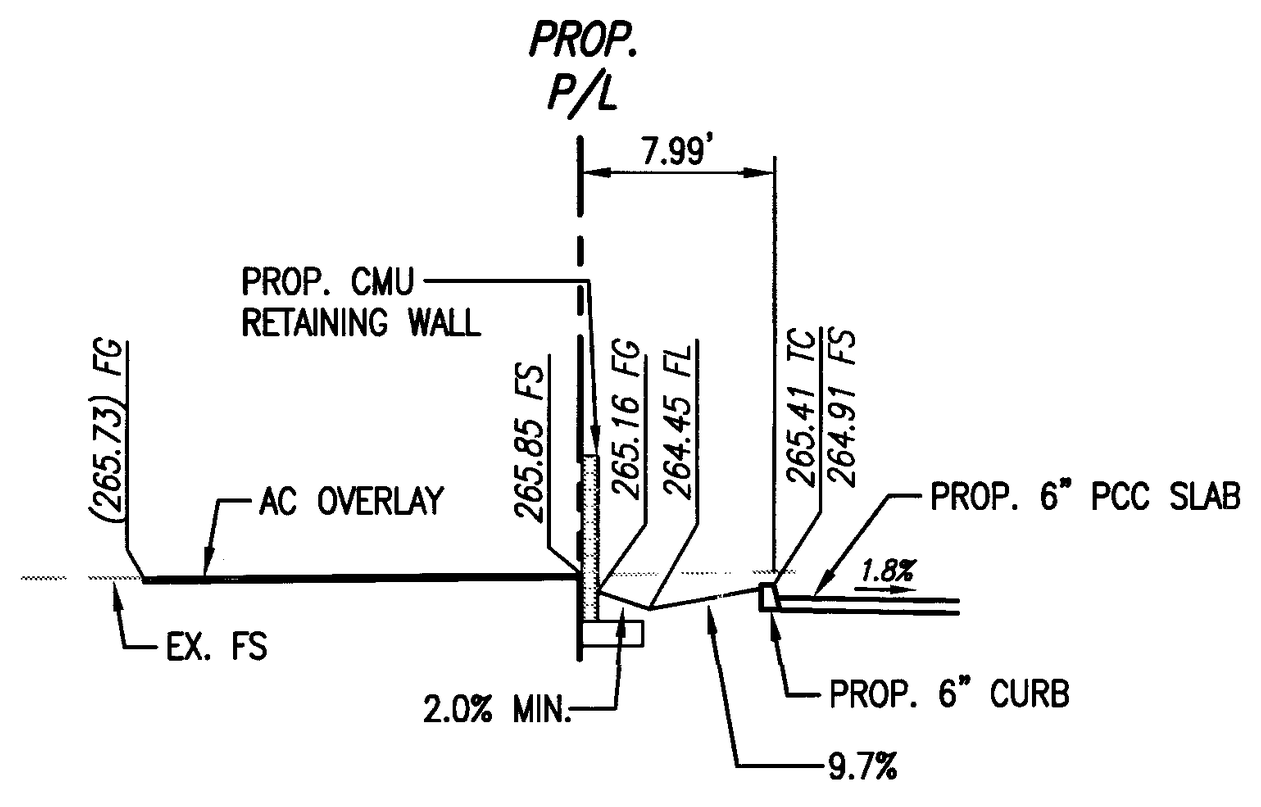
SECTION "F-F"
SCALE: 1"=10'


EX. R/W
PER SEPARATE PLAN
FUT. R/W
37.11'
18.02'
19.09' CONCRETE PAVERS
2.00'
6.01' PLANTER
10.00' CONCRETE WALK
FORBES ROAD
RETAIL SPACE FF=266.50
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD=254.75
PROP. CONC. PAVERS
PROP. 4" SD
PROP. 12" SD
PROP. 8" SD

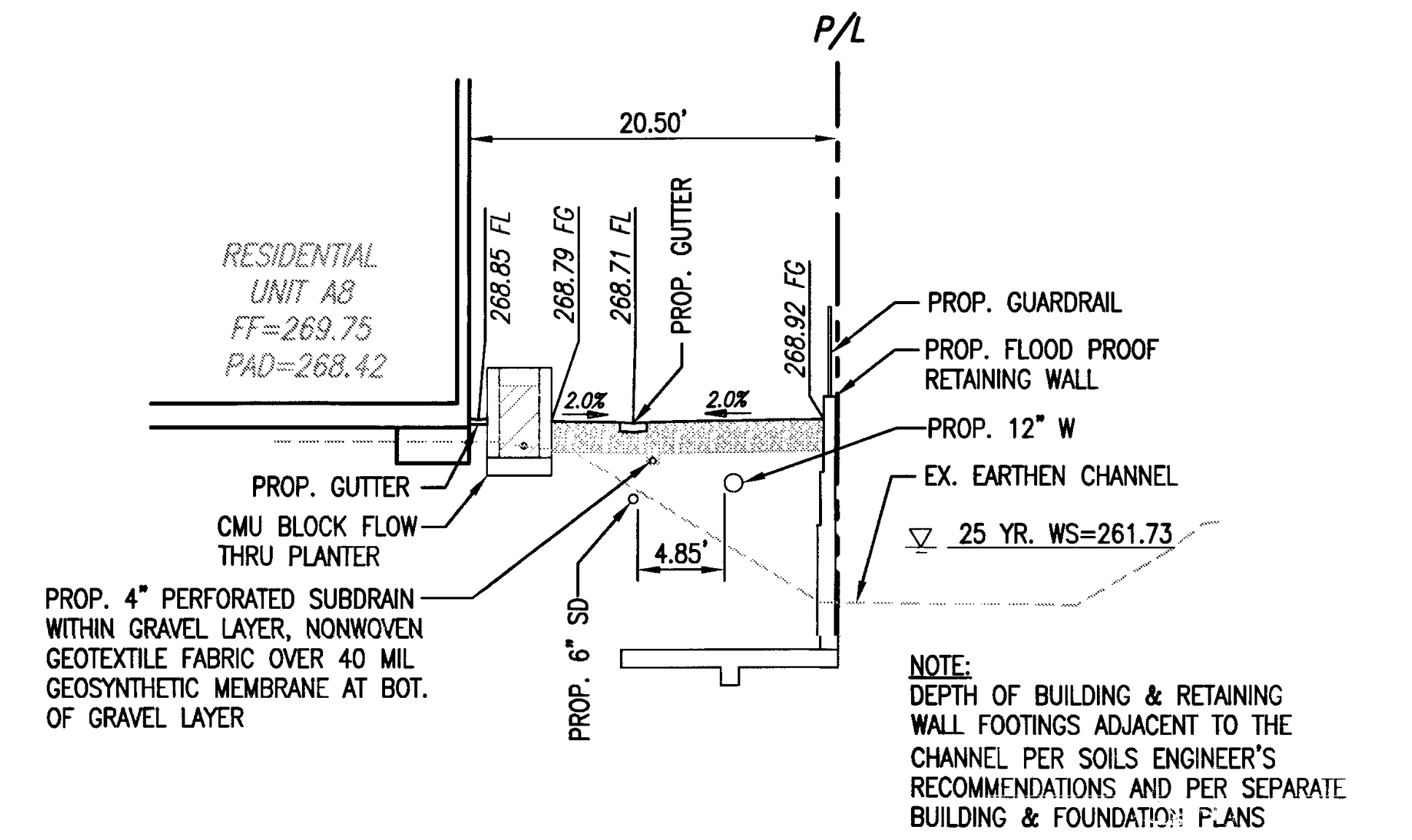
SECTION "B-B"
SCALE: 1"=10'


73.92'
10.37'
6.70'
5.64'
20.00'
17.00'
3.17'
3.34'
7.70'
RESIDENTIAL UNIT B2e FF=269.75
RESIDENTIAL UNIT A1-Den2 FF=269.75
SYNTHETIC TURFBLOCK
CONC. PAVERS
RAISE BENCH
PROP. WALL
PROP. 4" SD
CMU BLOCK FLOW THROUGH PLANTER
CONC. GUTTER
CONC. PAVERS
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD=254.75
CONC. SWALE
PROP. 8" S
PROP. 8" SD
CMU BLOCK FLOW THROUGH PLANTER
PROP. 10' SD RETENTION TANK

SECTION "S-S"
SCALE: 1"=10'

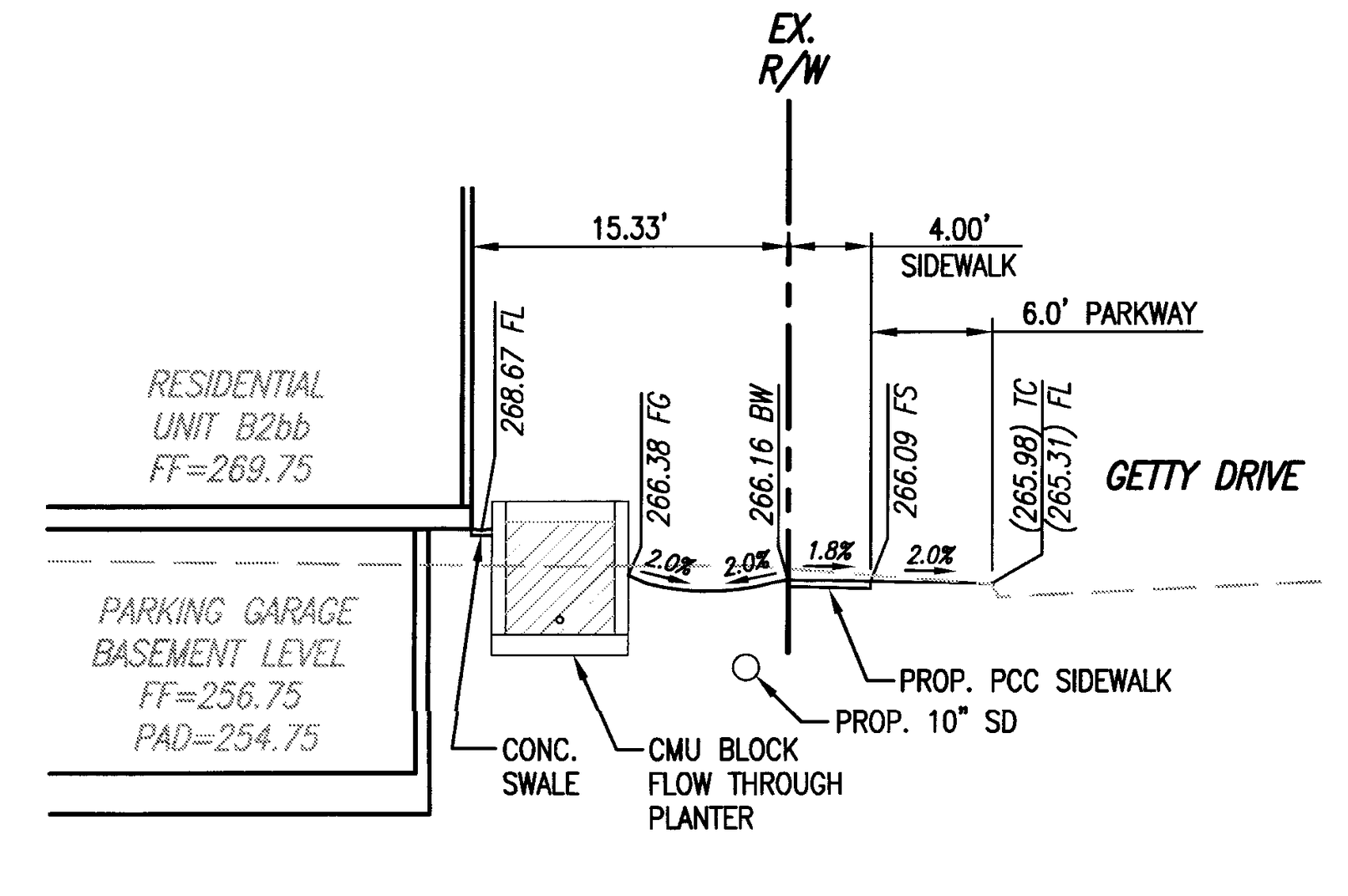

PROP. P/L
7.99'
PROP. CMU RETAINING WALL
AC OVERLAY
EX. FS
2.0% MIN.
PROP. 6" PCC SLAB
PROP. 6" CURB
9.7%

SECTION "L-L"
SCALE: 1"=10'

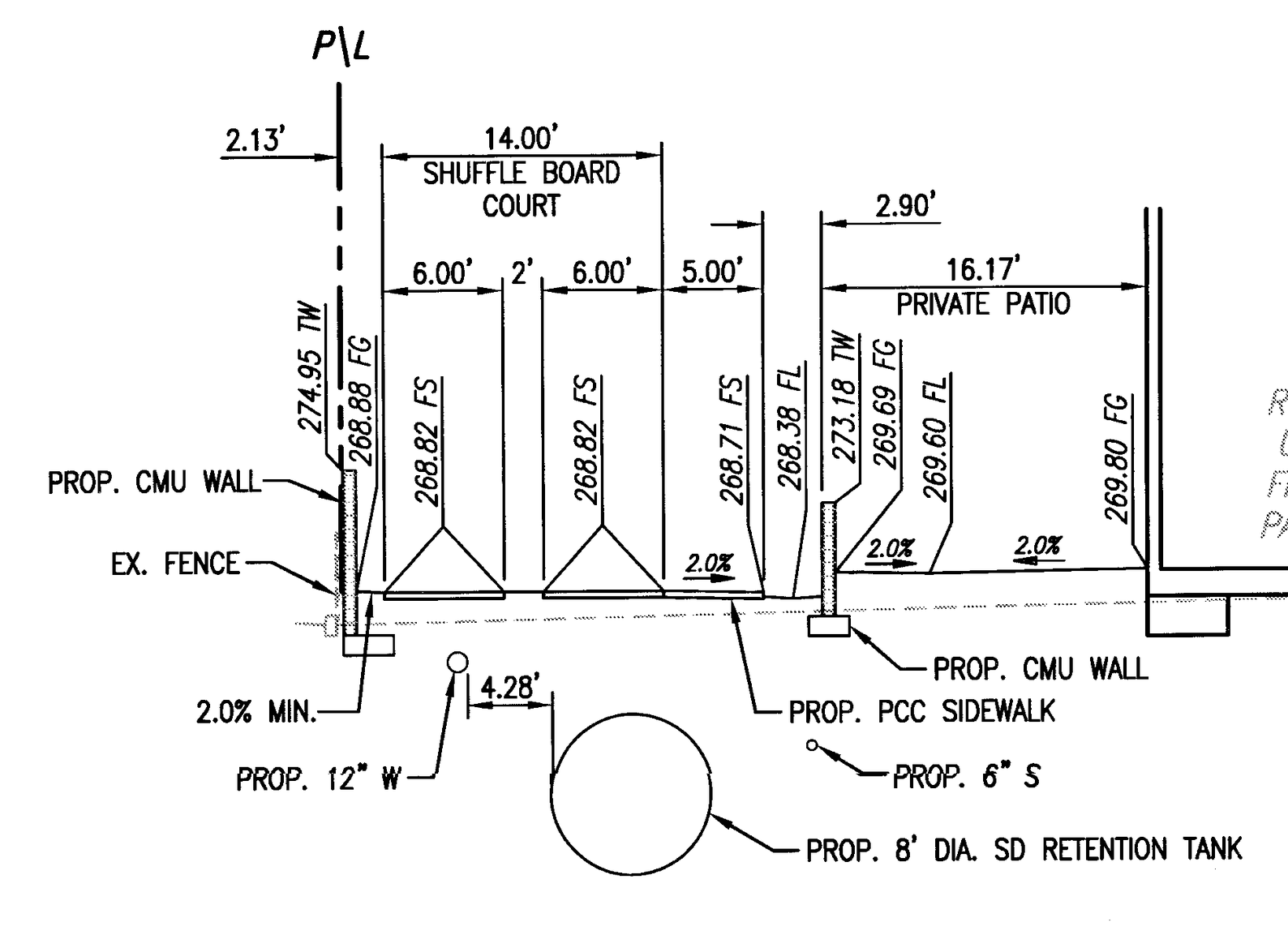

P/L
20.50'
RESIDENTIAL UNIT A8 FF=269.75 PAD=268.42
PROP. CURB
PROP. GUTTER
PROP. GUARDRAIL
PROP. FLOOD PROOF RETAINING WALL
PROP. 12" W
EX. EARTHEN CHANNEL
25 YR. WS=261.73
4.85'
PROP. GUTTER
CMU BLOCK FLOW THRU PLANTER
PROP. 4" PERFORATED SUBDRAIN WITHIN GRAVEL LAYER, NONWOVEN GEOTEXTILE FABRIC OVER 40 MIL GEOSYNTHETIC MEMBRANE AT BOT. OF GRAVEL LAYER
PROP. 6" SD

NOTE:
DEPTH OF BUILDING & RETAINING WALL FOOTINGS ADJACENT TO THE CHANNEL PER SOILS ENGINEER'S RECOMMENDATIONS AND PER SEPARATE BUILDING & FOUNDATION PLANS

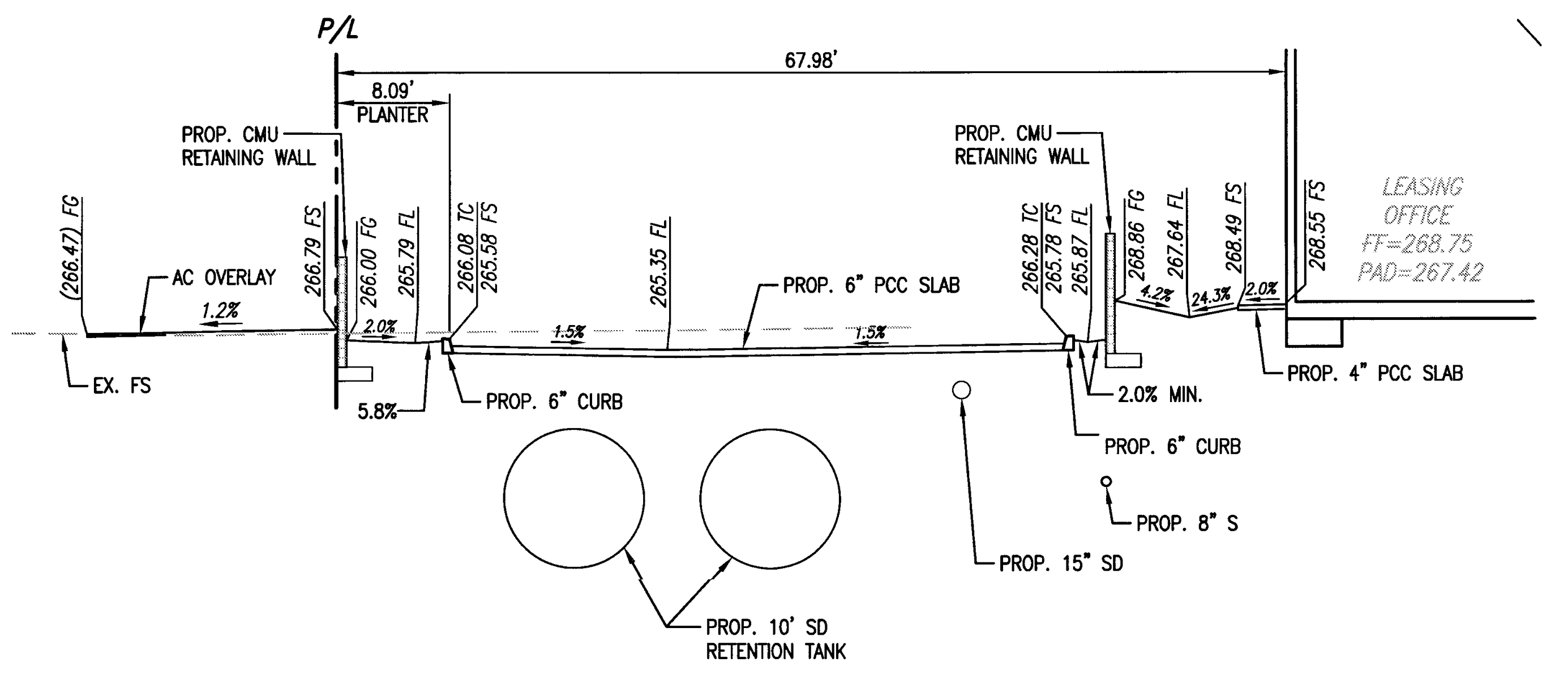
SECTION "G-G"
SCALE: 1"=10'


EX. R/W
15.33'
4.00' SIDEWALK
6.0' PARKWAY
RESIDENTIAL UNIT B2bb FF=269.75
GETTY DRIVE
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD=254.75
CONC. SWALE
CMU BLOCK FLOW THROUGH PLANTER
PROP. PCC SIDEWALK
PROP. 10" SD

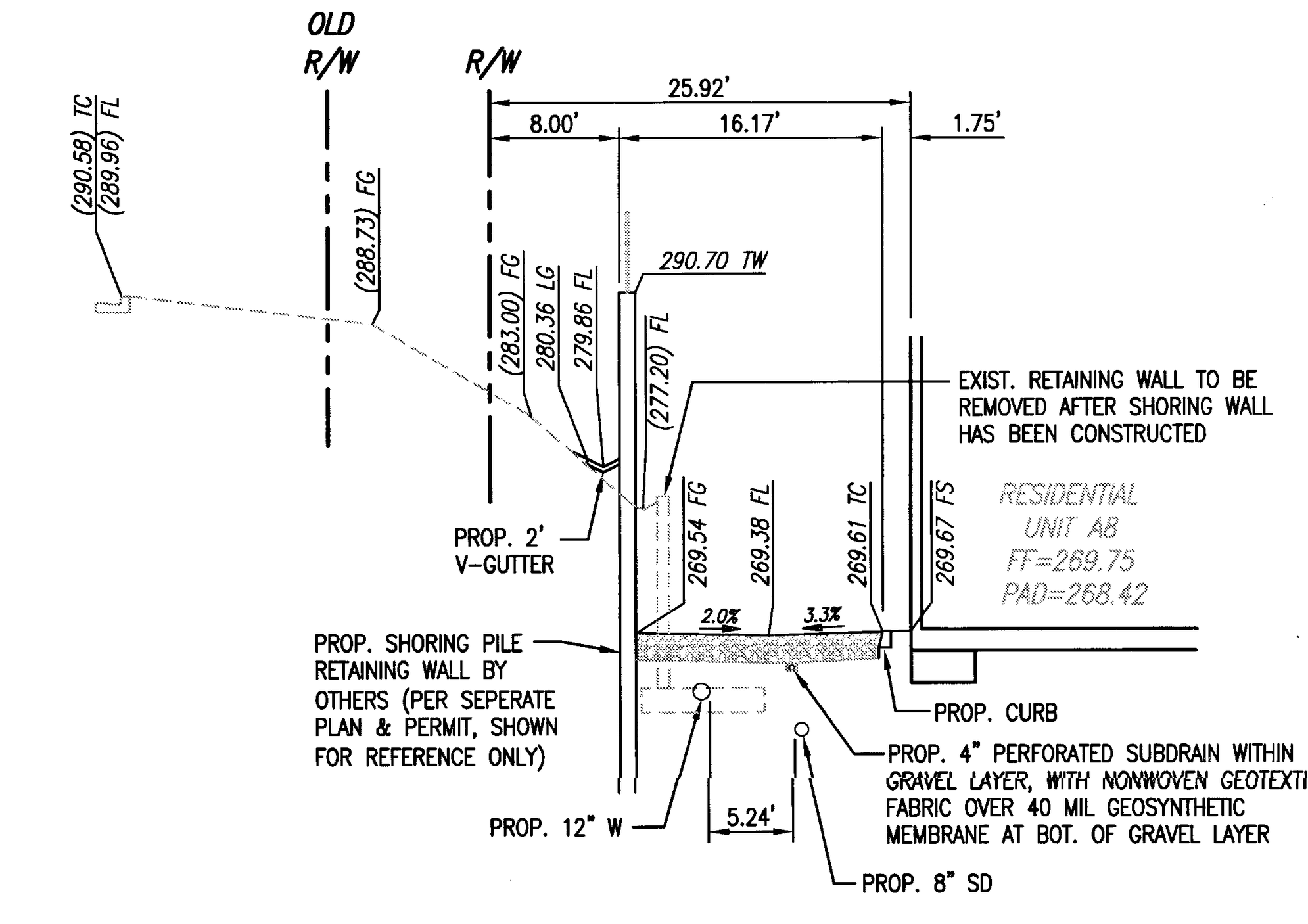
SECTION "C-C"
SCALE: 1"=10'


P/L
2.13'
14.00' SHUFFLE BOARD COURT
6.00'
2'
6.00'
5.00'
2.90'
16.17' PRIVATE PATIO
RESIDENTIAL UNIT B2d FF=269.75 PAD=268.42
PROP. CMU WALL
EX. FENCE
2.0% MIN.
4.28'
PROP. 12" W
PROP. CMU WALL
PROP. PCC SIDEWALK
PROP. 6" S
PROP. 8' DIA. SD RETENTION TANK

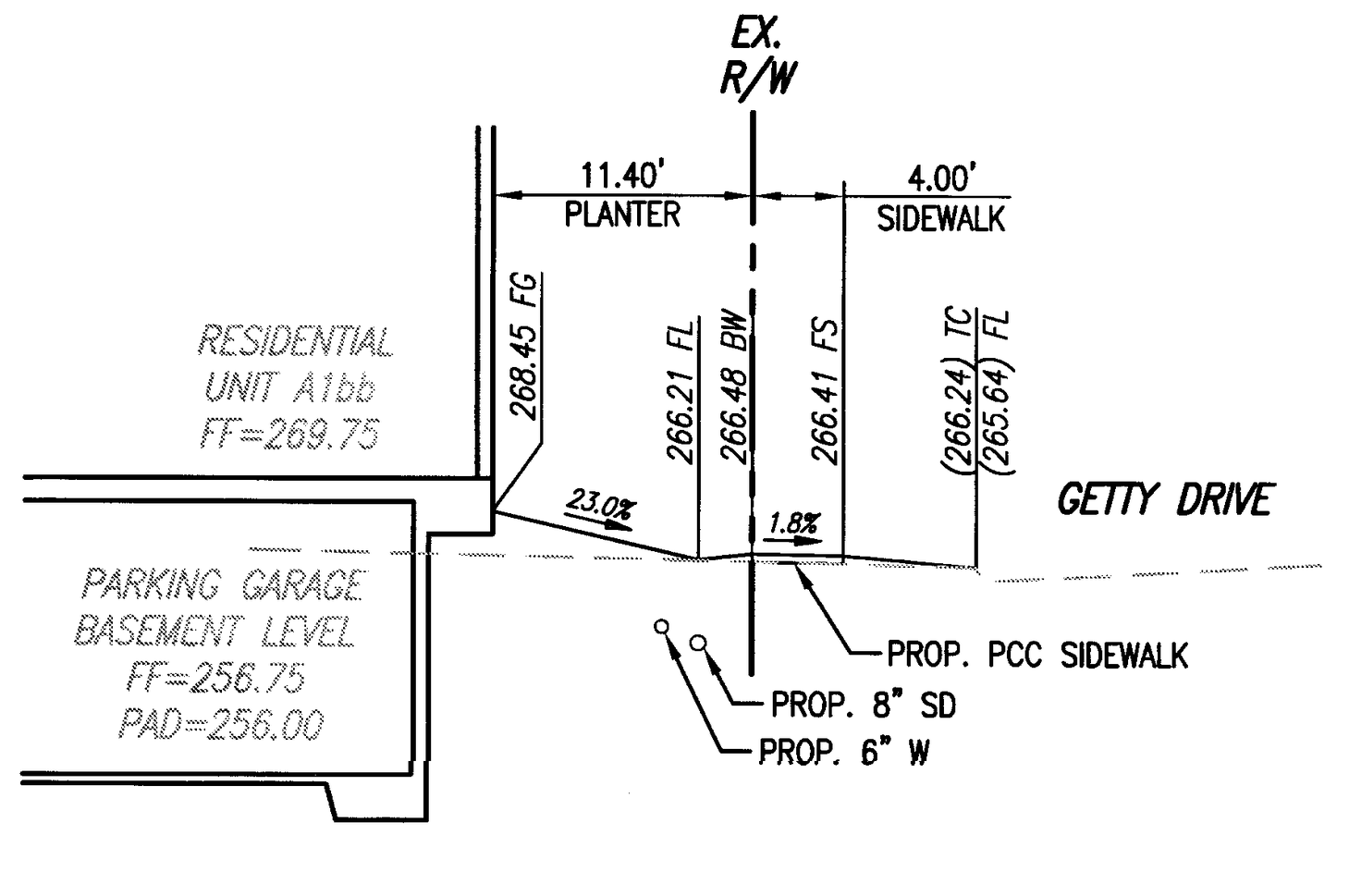
SECTION "T-T"
SCALE: 1"=10'


P/L
8.09' PLANTER
67.98'
PROP. CMU RETAINING WALL
PROP. CMU RETAINING WALL
AC OVERLAY
EX. FS
PROP. 6" PCC SLAB
LEASING OFFICE FF=268.75 PAD=267.42
PROP. 4" PCC SLAB
PROP. 6" CURB
2.0% MIN.
PROP. 6" CURB
PROP. 8" S
PROP. 15" SD
PROP. 10' SD RETENTION TANK

SECTION "M-M"
SCALE: 1"=10'


OLD R/W
R/W
25.92'
8.00'
16.17'
1.75'
290.70 TW
EXIST. RETAINING WALL TO BE REMOVED AFTER SHORING WALL HAS BEEN CONSTRUCTED
RESIDENTIAL UNIT A8 FF=269.75 PAD=268.42
PROP. 2' V-GUTTER
PROP. SHORING PILE RETAINING WALL BY OTHERS (PER SEPERATE PLAN & PERMIT, SHOWN FOR REFERENCE ONLY)
PROP. CURB
PROP. 4" PERFORATED SUBDRAIN WITHIN GRAVEL LAYER, WITH NONWOVEN GEOTEXTILE FABRIC OVER 40 MIL GEOSYNTHETIC MEMBRANE AT BOT. OF GRAVEL LAYER
PROP. 12" W
5.24'
PROP. 8" SD

SECTION "H-H"
SCALE: 1"=10'


EX. R/W
11.40' PLANTER
4.00' SIDEWALK
RESIDENTIAL UNIT A1bb FF=269.75
GETTY DRIVE
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD=256.00
PROP. PCC SIDEWALK
PROP. 8" SD
PROP. 6" W

SECTION "D-D"
SCALE: 1"=10'

811
Know what's below. Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444

UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

REGISTERED PROFESSIONAL ENGINEER
JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
CIVIL
STATE OF CALIFORNIA

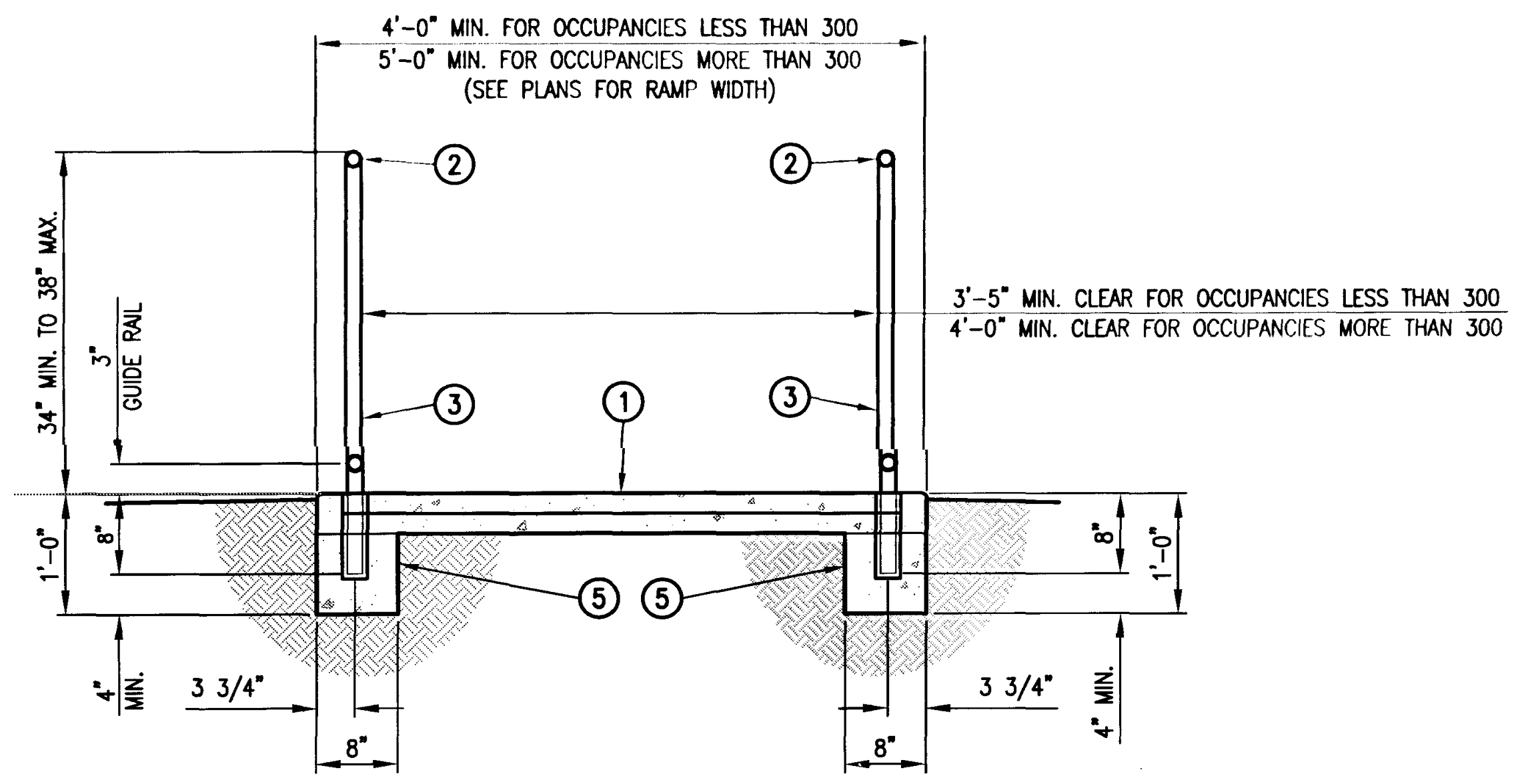
SHEET DESCRIPTION:
SITE SECTIONS

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

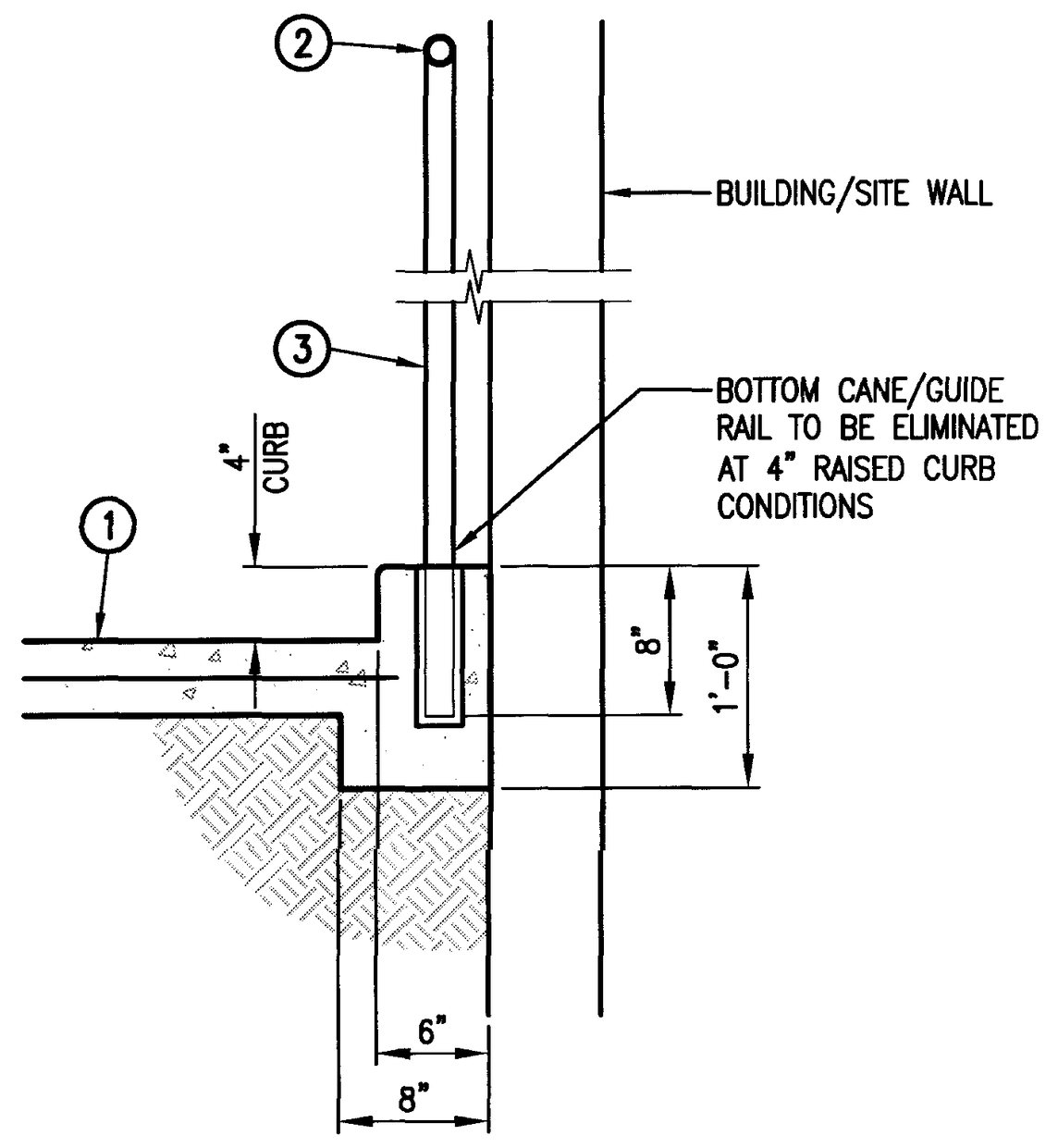
PROJECT NUMBER
5275032

SHEET NO.
C-6

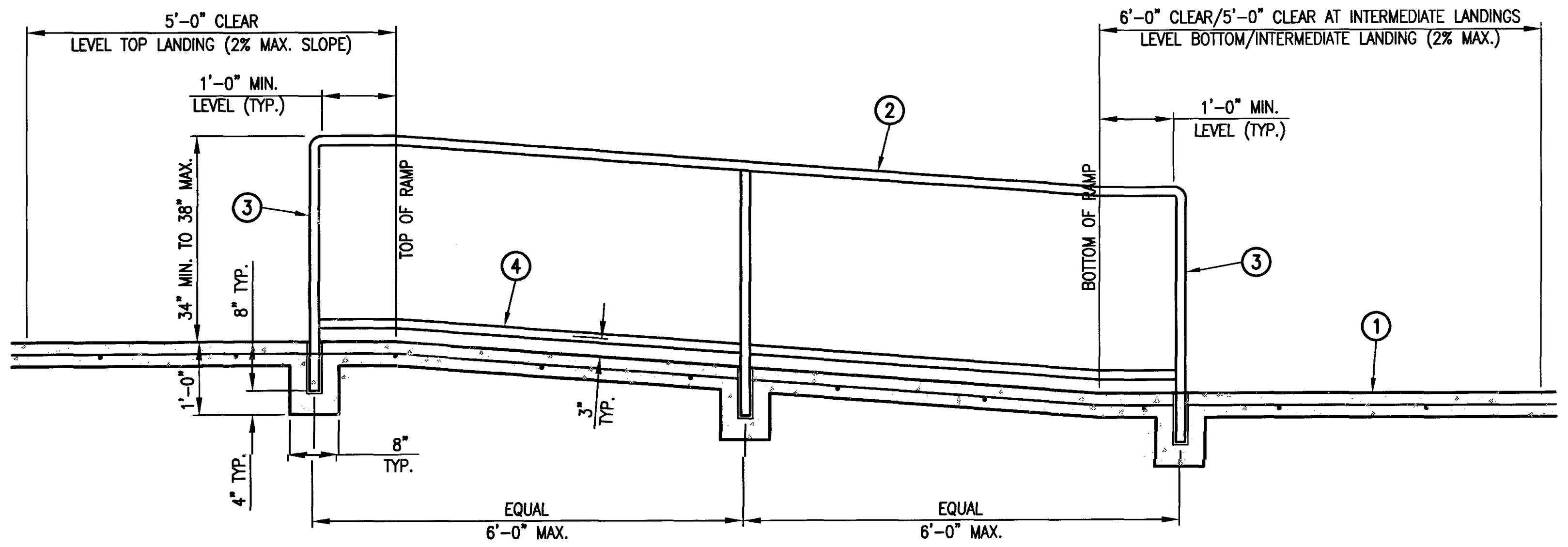

4'-0" MIN. FOR OCCUPANCIES LESS THAN 300
5'-0" MIN. FOR OCCUPANCIES MORE THAN 300
(SEE PLANS FOR RAMP WIDTH)
3'-5" MIN. CLEAR FOR OCCUPANCIES LESS THAN 300
4'-0" MIN. CLEAR FOR OCCUPANCIES MORE THAN 300
34" MIN. TO 38" MAX.
3" GUIDE RAIL
1'-0"
8"
4" MIN.
3 3/4"
②
③
①
⑤

LEGEND:

1. 4,000 psi*, CEMENT TYPE V ACCESSIBLE RAMP #4 REBAR AT 24" O.C. W/MEDIUM BROOM FINISH TO RUN PERPENDICULAR TO SIDEWALK.
2. 1 1/2" O.D. PAINTED STEEL HANDRAIL PER MINIMUM CBC REQUIREMENTS. FOR PROJECT SPECIFIC DECORATIVE RAILING, SEE LANDSCAPING PLANS.
3. 1 1/2" O.D. PAINTED STEEL POST PER MINIMUM CBC REQUIREMENTS. FOR PROJECT SPECIFIC DECORATIVE POST, SEE LANDSCAPING PLANS.
4. 1 1/2" O.D. PAINTED STEEL GUIDE RAIL PER MINIMUM CBC REQUIREMENTS. FOR PROJECT SPECIFIC DECORATIVE RAIL, SEE LANDSCAPING PLANS. SEE LANDSCAPING PLANS FOR RAIL COLOR.
5. BLOCK OUT 2 1/2" x 2 1/2" x 8 1/2" DEEP SQ. POST OPENING PRIOR TO POURING CONCRETE, FILL W/ NON-SHRINK GROUT AFTER POST IS PLACED, ALIGNED AND LEVELED, OR CORE DRILL 2 1/2" DIA. x 8 1/2" DEEP HOLE AND FILL WITH NON-SHRINK GROUT AFTER POST IS PLACED, ALIGNED AND LEVELED.

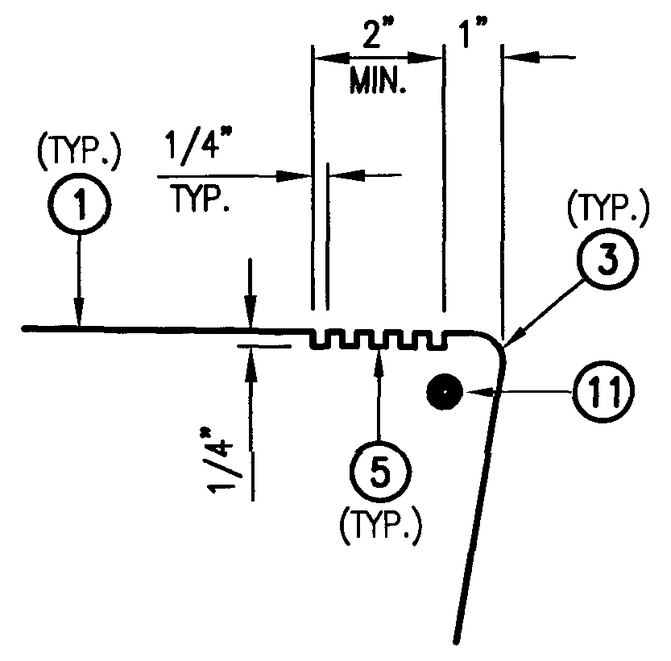

②
③
①
BUILDING/SITE WALL
BOTTOM CANE/GUIDE RAIL TO BE ELIMINATED AT 4" RAISED CURB CONDITIONS
4" CURB
8"
1'-0"
6"
8"

CURB ADJACENT TO WALL CONDITION

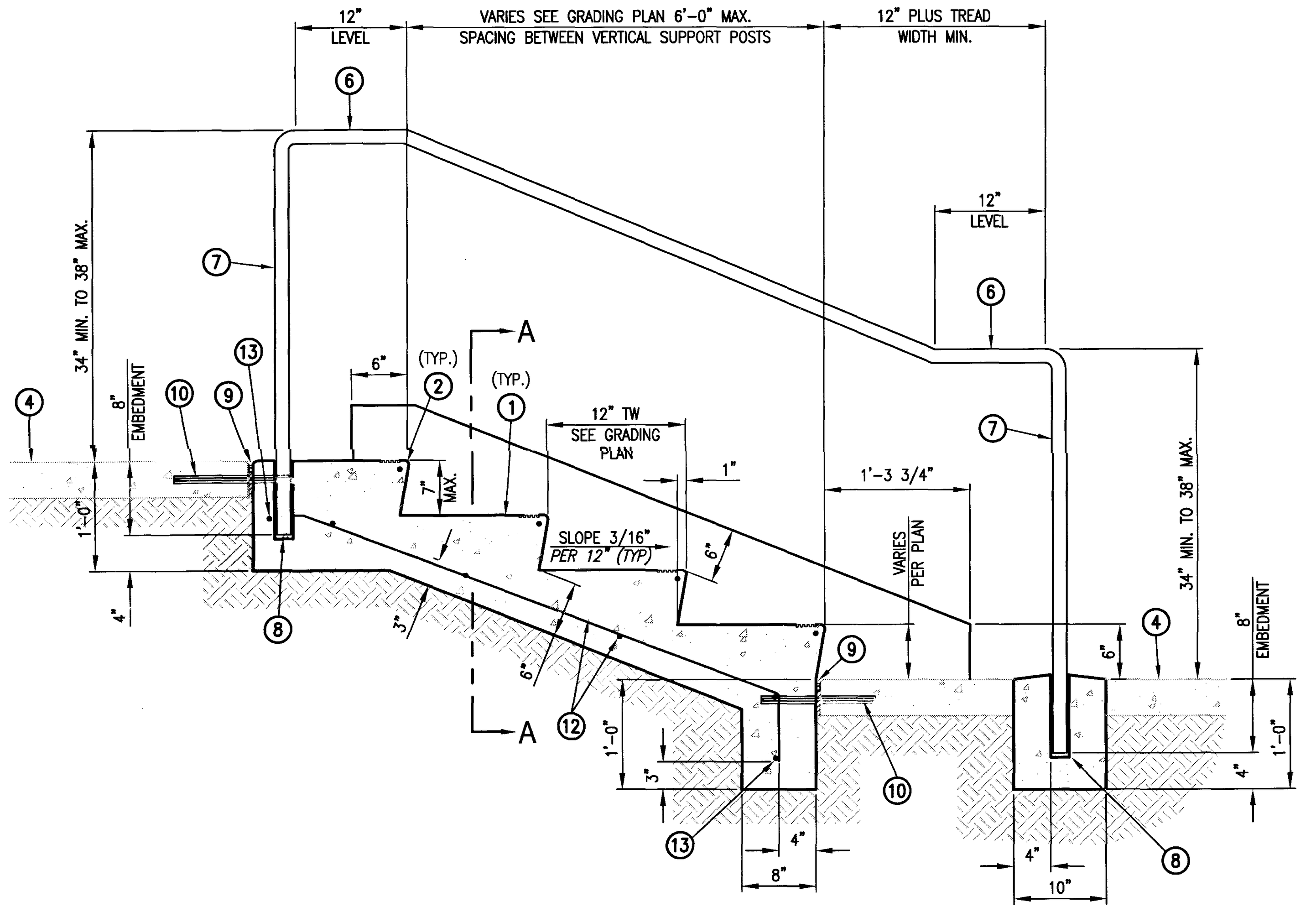

5'-0" CLEAR
LEVEL TOP LANDING (2% MAX. SLOPE)
1'-0" MIN.
LEVEL (TYP.)
6'-0" CLEAR/5'-0" CLEAR AT INTERMEDIATE LANDINGS
LEVEL BOTTOM/INTERMEDIATE LANDING (2% MAX.)
34" MIN. TO 38" MAX.
8" TYP.
TOP OF RAMP
BOTTOM OF RAMP
1'-0"
4" TYP.
3" TYP.
8" TYP.
EQUAL
6'-0" MAX.
①
②
③
④

SCALE: NONE

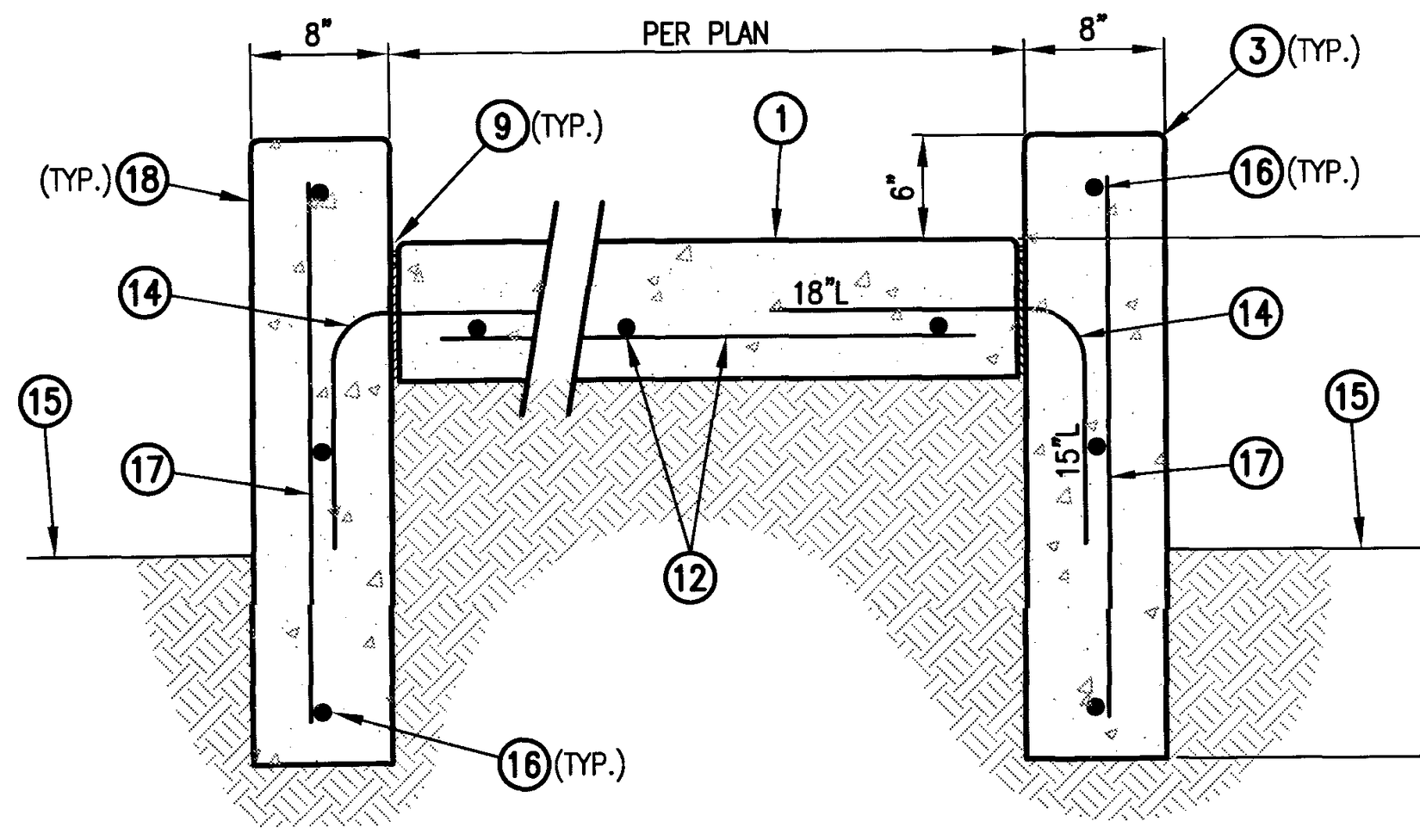
TYPICAL CONCRETE ACCESSIBLE RAMP (PER SEPARATE BUILDING PERMIT, SHOWN FOR REFERENCE ONLY) 8


2" MIN.
1"
1/4" TYP.
1/4"
(TYP.) ①
(TYP.) ③
⑪
⑤ (TYP.)

NOSING ENLARGEMENT


12" LEVEL
VARIES SEE GRADING PLAN 6'-0" MAX.
SPACING BETWEEN VERTICAL SUPPORT POSTS
12" PLUS TREAD WIDTH MIN.
12" LEVEL
34" MIN. TO 38" MAX.
8" EMBEDMENT
1'-0"
4"
6"
(TYP.) ②
(TYP.) ①
7" MAX.
12" TW
SEE GRADING PLAN
1"
1'-3 3/4"
SLOPE 3/16" PER 12" (TYP)
VARIES PER PLAN
3"
6"
A
8"
10"
④
⑥
⑦
⑧
⑨
⑩
⑫
⑬

CONC. STAIR/RAIL SUPPORT SECTION


8"
PER PLAN
8"
③(TYP.)
⑨(TYP.)
①
(TYP.)⑱
⑯(TYP.)
6"
⑭
18"L
15"L
⑮
⑰
⑫
2'-0" MAX. (VARIES)
1'-0" MIN.
⑯(TYP.)

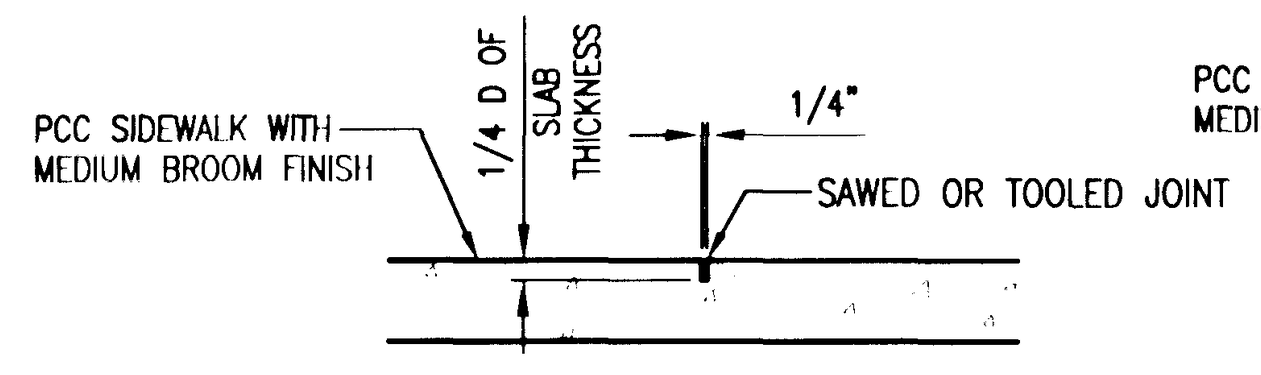
SECTION "A"-"A"

LEGEND:

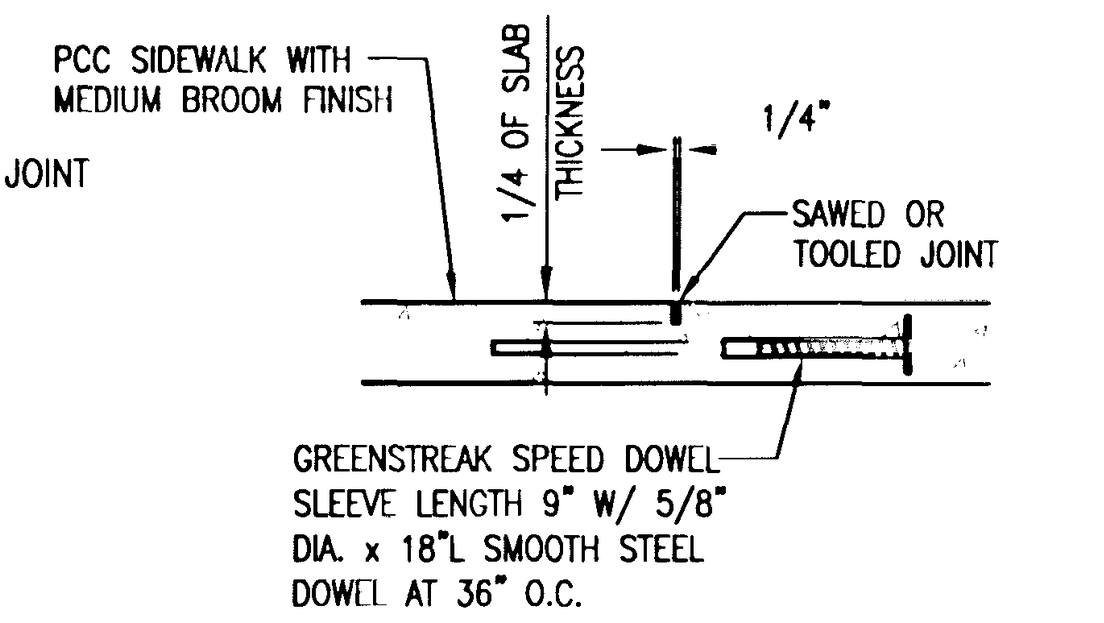
1. 4,000 psi*, CEMENT TYPE V STEPS
2. SEE NOSING ENLARGEMENT DETAIL
3. 1/2" RADIUS CONTINUOUS
4. FINISH SURFACE
5. 1/4" X 1/4" GROOVING PER MINIMUM CBC CODE REQUIREMENTS (SLIP RESISTANT WITH CONTRASTING COLOR, TYPICAL AT ALL NOSING)
6. 1-1/2" DIA. ROUND PAINTED STEEL HANDRAIL PER MINIMUM CBC CODE REQUIREMENTS, COORDINATE STYLE AND COLOR WITH THE ARCHITECT & LANDSCAPE ARCHITECT.
7. 1-1/2" DIA. ROUND PAINTED STEEL POST PER MINIMUM CBC CODE REQUIRMENTS, COORDINATE WITH LANDSCAPE ARCHITECT, BLOCK OUT 2" DIA. x 8-1/2" DEEP SQUARE
8. BLOCK OUT 2" DIA. x 8-1/2" DEEP POST OPENING, PRIOR TO POURING CONCRETE, FILL W/ NON-SHRINK GROUT AFTER POST IS PLACED, ALIGNED AND LEVELED.
9. 1/2" EXPANSION JOINT W/ BACKER ROD, FILLER & SEALANT PROVIDE 1/2" TOOLED RADIUS.
10. 1/2" DIA. x 12" LONG. SMOOTH STEEL ROD 24" O.C. GREASE ONE END AND PROVIDE EXPANSION CAP ON OTHER END. 11. #4 REBAR AT 18" O.C. BOTH WAYS
11. #4 REBAR CONTINUOUS NOSING BAR
12. #4 REBAR AT 18" O.C. BOTH WAYS
13. #4 REBAR CONTINUOUS
14. #4 TIE BAR AT 18" O.C.
15. FINISH GRADE WHERE OCCURS
16. #4 REBAR TOP AND BOTTOM, #4 MID BAR AT WALL OVER 12" TOTAL HEIGHT.
17. #4 VERTICAL AT 18" O.C.
18. 4,000 psi*, CEMENT TYPE V CHEEK WALL AS REQUIRED

SCALE: NONE

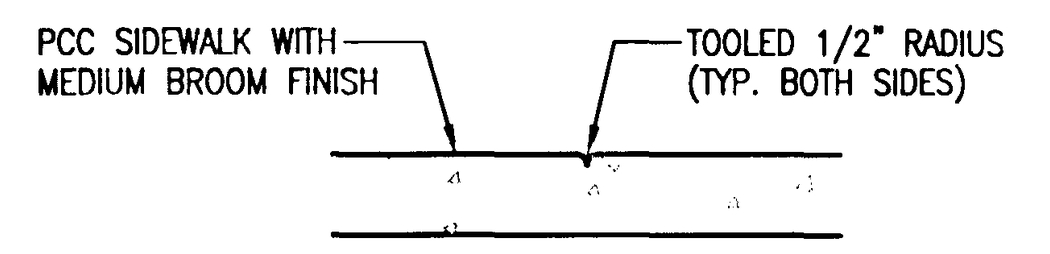
TYPICAL CONCRETE STAIRS DETAIL (PER SEPARATE BUILDING PERMIT, SHOWN FOR REFERENCE ONLY) 9


PCC SIDEWALK WITH MEDIUM BROOM FINISH
1/4 D OF SLAB THICKNESS
1/4"
SAWED OR TOOLED JOINT

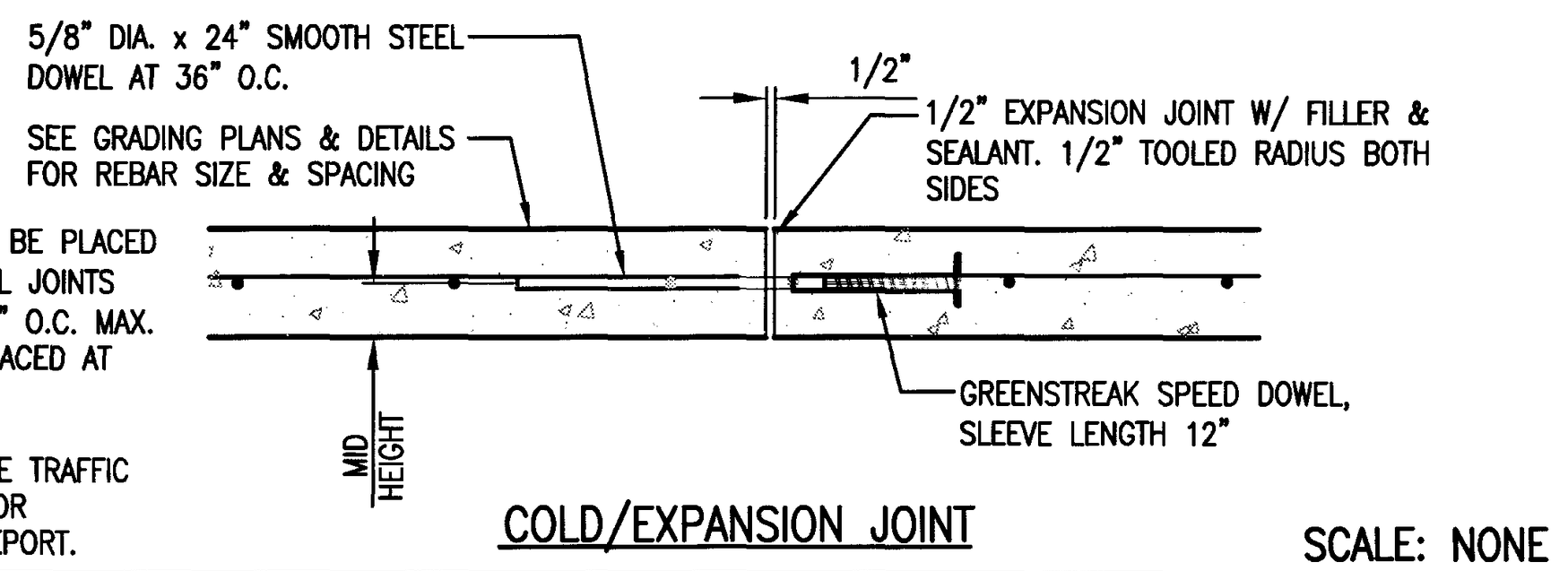
CONTROL JOINT


PCC SIDEWALK WITH MEDIUM BROOM FINISH
1/4 OF SLAB THICKNESS
1/4"
SAWED OR TOOLED JOINT
GREENSTREAK SPEED DOWEL SLEEVE LENGTH 9" W/ 5/8" DIA. x 18"L SMOOTH STEEL DOWEL AT 36" O.C.

DOWELED CONTROL JOINT (VEHICLE)


PCC SIDEWALK WITH MEDIUM BROOM FINISH
TOOLED 1/2" RADIUS (TYP. BOTH SIDES)

TOOLED CONTROL JOINT (SIDEWALKS)


5/8" DIA. x 24" SMOOTH STEEL DOWEL AT 36" O.C.
SEE GRADING PLANS & DETAILS FOR REBAR SIZE & SPACING
1/2"
1/2" EXPANSION JOINT W/ FILLER & SEALANT. 1/2" TOOLED RADIUS BOTH SIDES
GREENSTREAK SPEED DOWEL, SLEEVE LENGTH 12"
MID HEIGHT

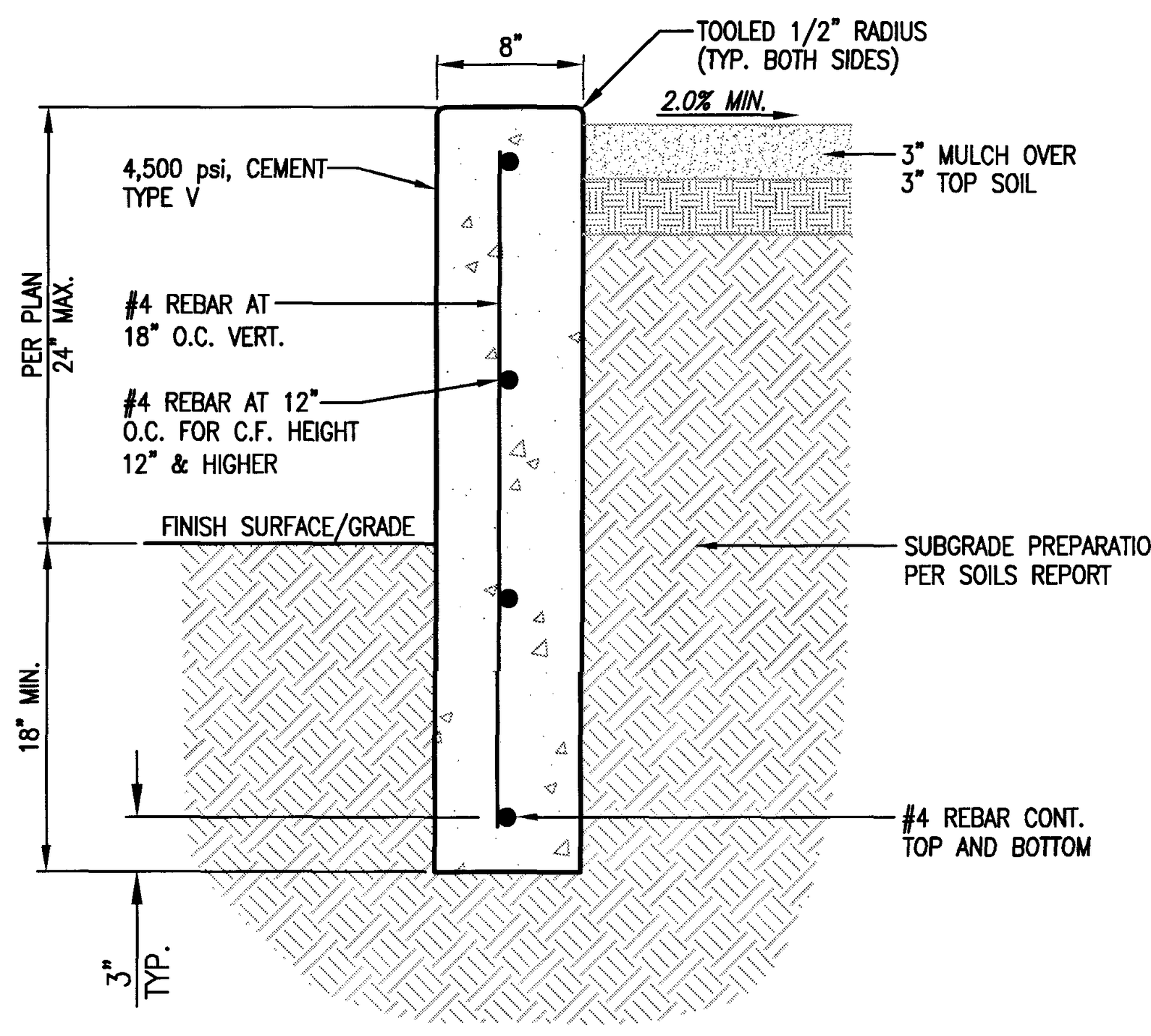
NOTE:

1. TOOLED CONTROL JOINTS SHALL BE PLACED EVERY 5'-0" O.C. MAX. CONTROL JOINTS SHALL BE PLACED EVERY 10'-0" O.C. MAX. EXPANSION JOINTS SHALL BE PLACED AT 30'-0" O.C. MAX.
2. PROVIDE THICKENED EDGE WHERE TRAFFIC TRANSVERSES ACROSS A COLD OR EXPANSION JOINT, SEE SOILS REPORT.

COLD/EXPANSION JOINT

SCALE: NONE

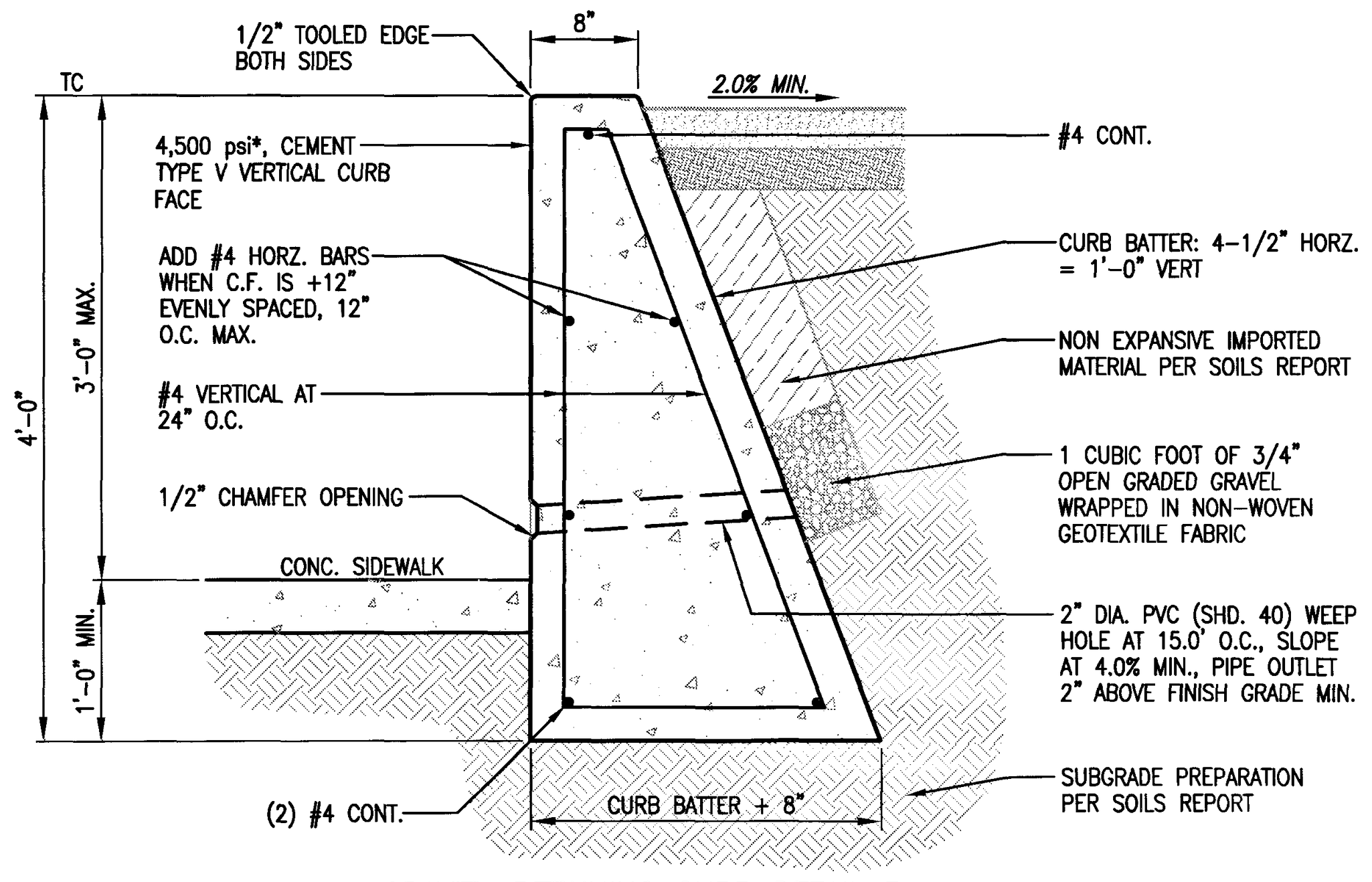
CONCRETE JOINT DETAILS 5


8"
TOOLED 1/2" RADIUS (TYP. BOTH SIDES)
2.0% MIN.
4,500 psi, CEMENT TYPE V
3" MULCH OVER 3" TOP SOIL
PER PLAN 24" MAX.
#4 REBAR AT 18" O.C. VERT.
#4 REBAR AT 12" O.C. FOR C.F. HEIGHT 12" & HIGHER
FINISH SURFACE/GRADE
SUBGRADE PREPARATION PER SOILS REPORT
18" MIN.
#4 REBAR CONT. TOP AND BOTTOM
3" TYP.

NOTE:

CONTROL JOINTS SHALL BE PLACED EVERY 10'-0" O.C. MAX. & AT EVERY B.C. & E.C.

DEEPENED CURB DETAIL A


1/2" TOOLED EDGE BOTH SIDES
8"
TC
2.0% MIN.
4,500 psi*, CEMENT TYPE V VERTICAL CURB FACE
#4 CONT.
ADD #4 HORZ. BARS WHEN C.F. IS +12" EVENLY SPACED, 12" O.C. MAX.
CURB BATTER: 4-1/2" HORZ. = 1'-0" VERT
NON EXPANSIVE IMPORTED MATERIAL PER SOILS REPORT
#4 VERTICAL AT 24" O.C.
1 CUBIC FOOT OF 3/4" OPEN GRADED GRAVEL WRAPPED IN NON-WOVEN GEOTEXTILE FABRIC
1/2" CHAMFER OPENING
CONC. SIDEWALK
2" DIA. PVC (SHD. 40) WEEP HOLE AT 15.0' O.C., SLOPE AT 4.0% MIN., PIPE OUTLET 2" ABOVE FINISH GRADE MIN.
4'-0"
3'-0" MAX.
1'-0" MIN.
(2) #4 CONT.
CURB BATTER + 8"
SUBGRADE PREPARATION PER SOILS REPORT

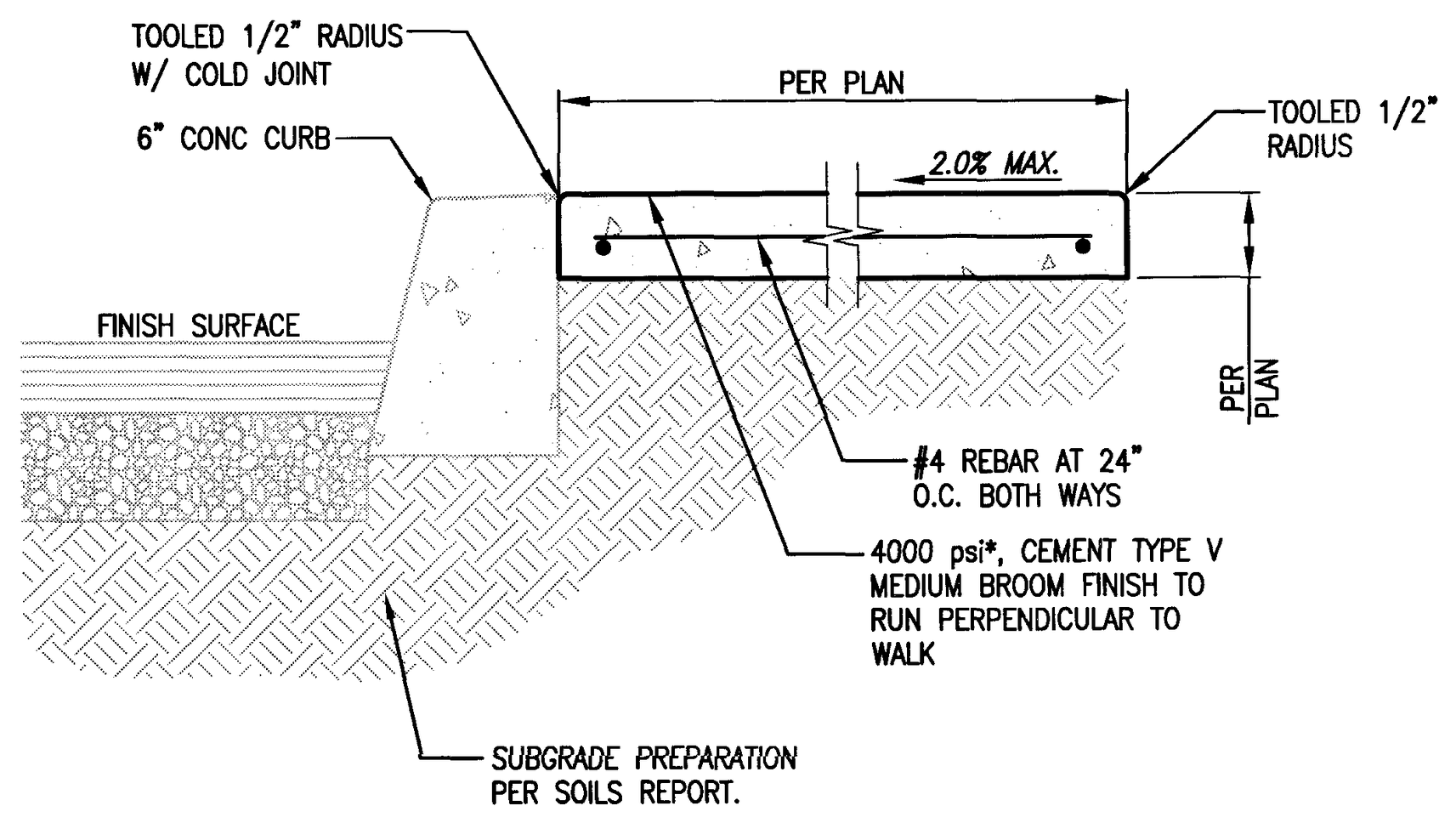
GRAVITY RETAINING CURB DETAIL B

NOTE:

1. EXPANSION JOINTS SHALL EXTEND THROUGH THE ENTIRE CURB AND BE SPACED AT A MAXIMUM DISTANCE OF 30.0'. EXPANSION JOINT TO BE PRE-MOLDED FILLER WITH CAULKING SEALANT ON EARTHEN SIDE.

SCALE: NONE

PCC DEEPENED & GRAVITY RETAINING CURB 6


TOOLED 1/2" RADIUS W/ COLD JOINT
6" CONC CURB
PER PLAN
2.0% MAX.
TOOLED 1/2" RADIUS
FINISH SURFACE
PER PLAN
#4 REBAR AT 24" O.C. BOTH WAYS
4000 psi*, CEMENT TYPE V MEDIUM BROOM FINISH TO RUN PERPENDICULAR TO WALK
SUBGRADE PREPARATION PER SOILS REPORT.

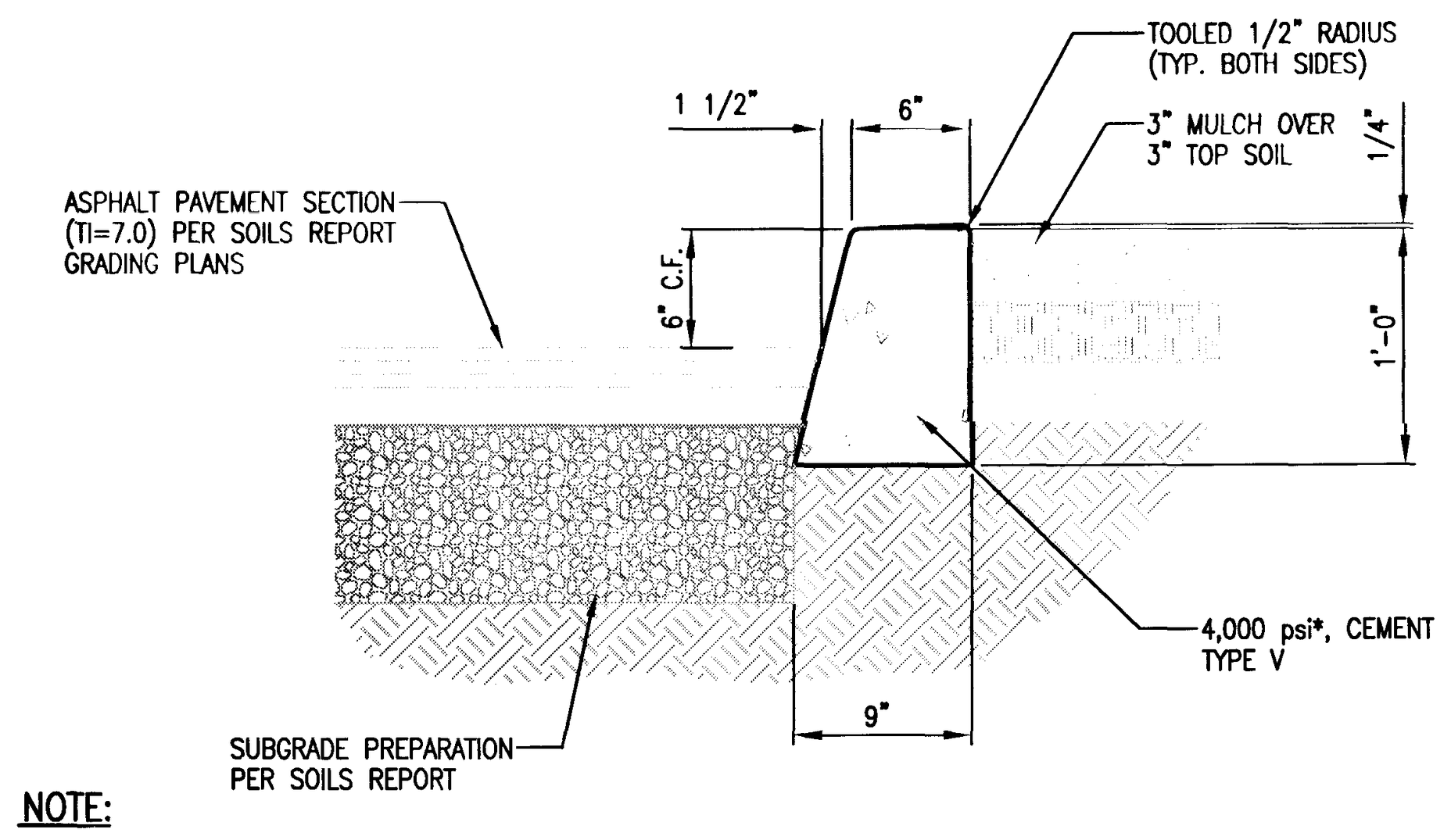
NOTE:

CURB CONTROL JOINTS SHALL BE PLACED EVERY 10'-0" O.C. (15'-0" MAX.) & AT EVERY B.C. & E.C.; EXPANSION JOINTS AT 30'-0" O.C. SIDEWALK TOOL JOINTS AT 5.0' O.C.

CONCRETE SIDEWALK AT CURB 7

GENERAL NOTE (FOR ALL DETAILS):

* THE PROJECT SOIL ENGINEER SHALL BE RESPONSIBLE FOR FINAL ALLOWABLE CONCRETE STRENGTH AND CEMENT TYPE (BASED ON SULFATE CONTENT OF SOIL) FOR ALL CONCRETE IN CONTACT WITH SOIL.

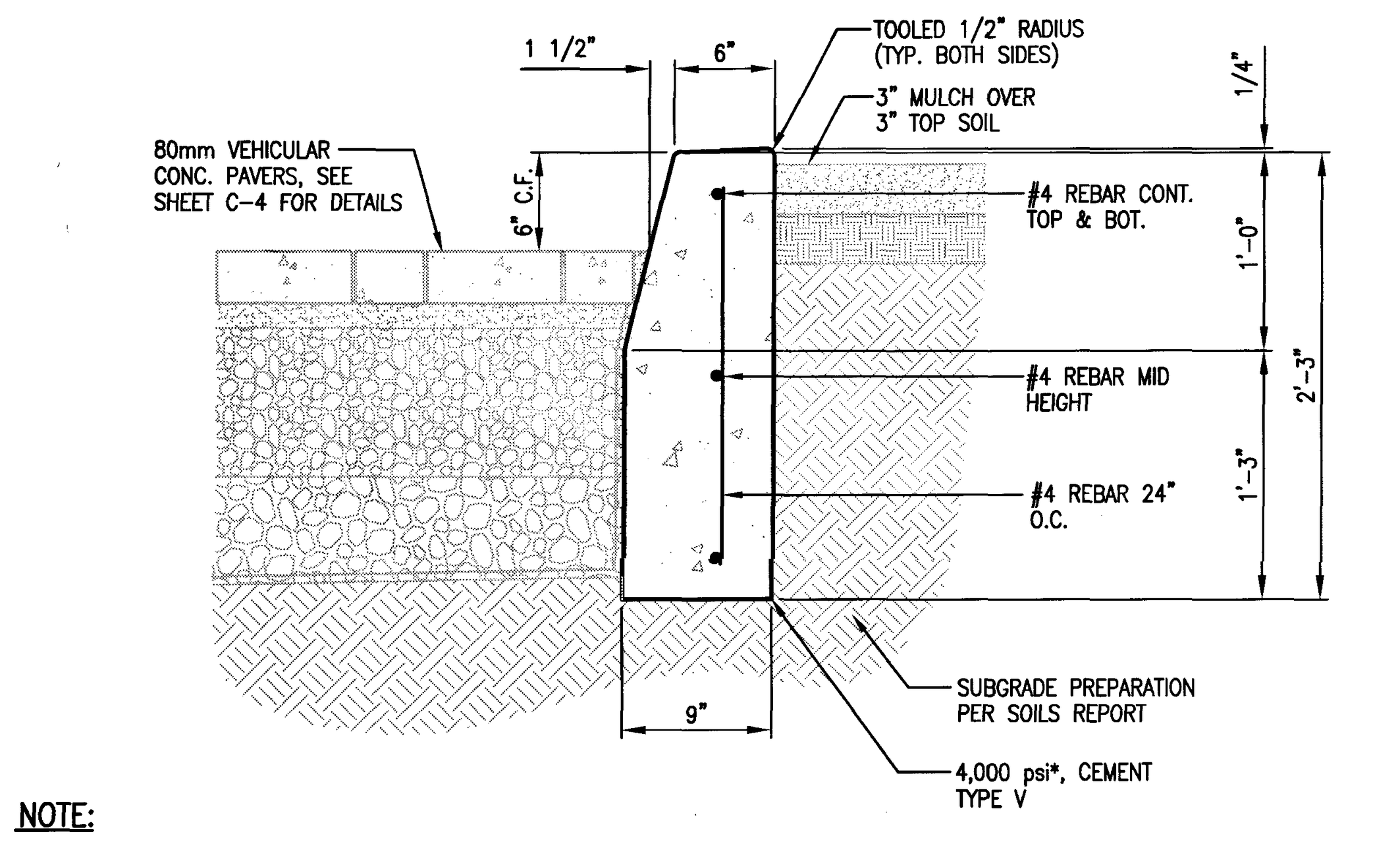

TOOLED 1/2" RADIUS (TYP. BOTH SIDES)
1 1/2"
6"
3" MULCH OVER 3" TOP SOIL
1/4"
ASPHALT PAVEMENT SECTION (TI=7.0) PER SOILS REPORT GRADING PLANS
6" C.F.
1'-0"
4,000 psi*, CEMENT TYPE V
9"
SUBGRADE PREPARATION PER SOILS REPORT

NOTE:

CONTROL JOINTS SHALL BE PLACED EVERY 10'-0" O.C. MAX. & AT EVERY B.C. & E.C.

SCALE: NONE

6" PCC CURB AT AC PAVEMENT 1

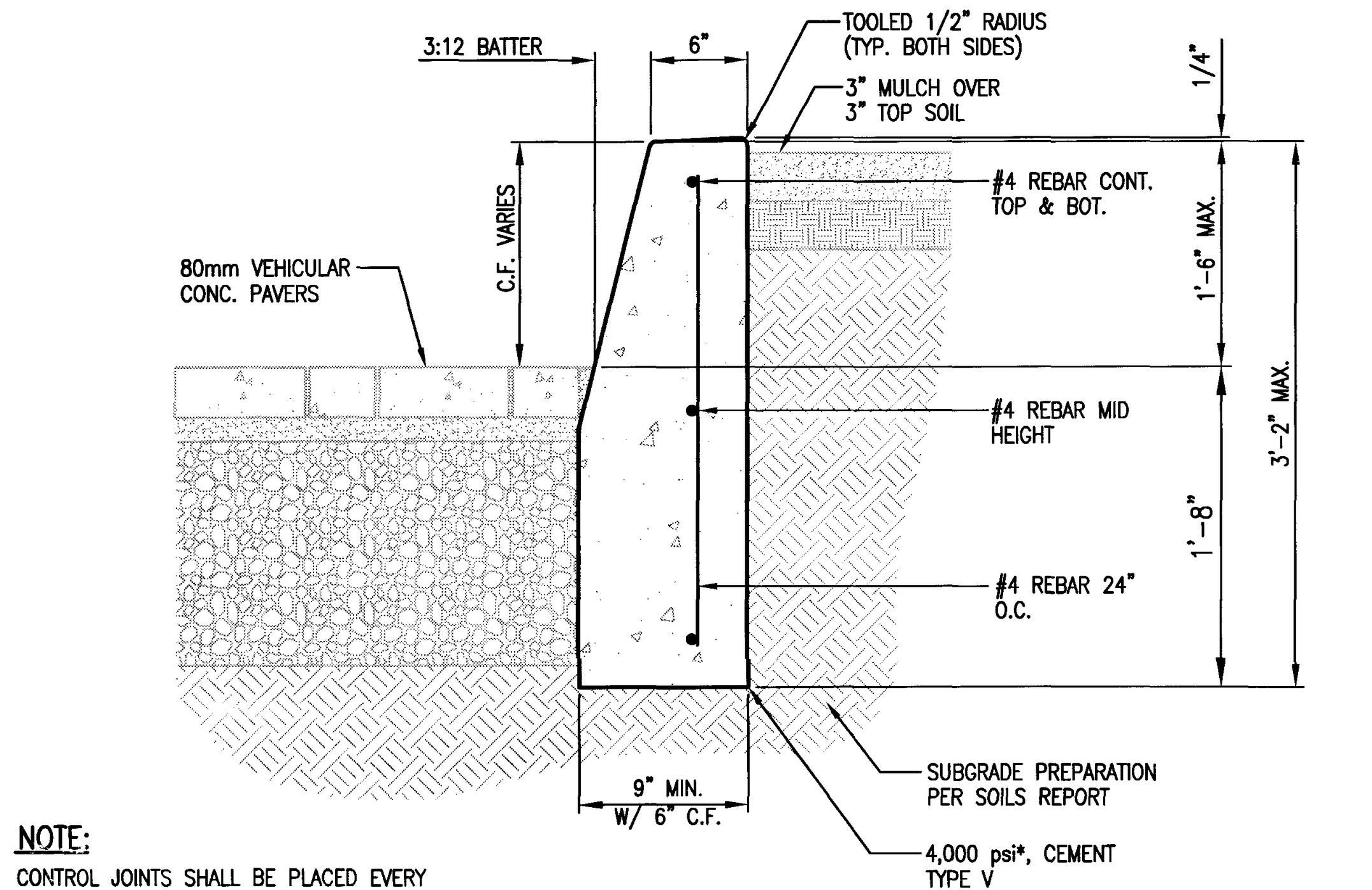

1 1/2"
6"
TOOLED 1/2" RADIUS (TYP. BOTH SIDES)
3" MULCH OVER 3" TOP SOIL
1/4"
80mm VEHICULAR CONC. PAVERS, SEE SHEET C-4 FOR DETAILS
6" C.F.
#4 REBAR CONT. TOP & BOT.
1'-0"
2'-3"
#4 REBAR MID HEIGHT
1'-3"
#4 REBAR 24" O.C.
SUBGRADE PREPARATION PER SOILS REPORT
9"
4,000 psi*, CEMENT TYPE V

NOTE:

CONTROL JOINTS SHALL BE PLACED EVERY 10'-0" O.C. MAX. & AT EVERY B.C. & E.C.

SCALE: NONE

6" PCC CURB AT PERVIOUS CONC. PAVERS 2

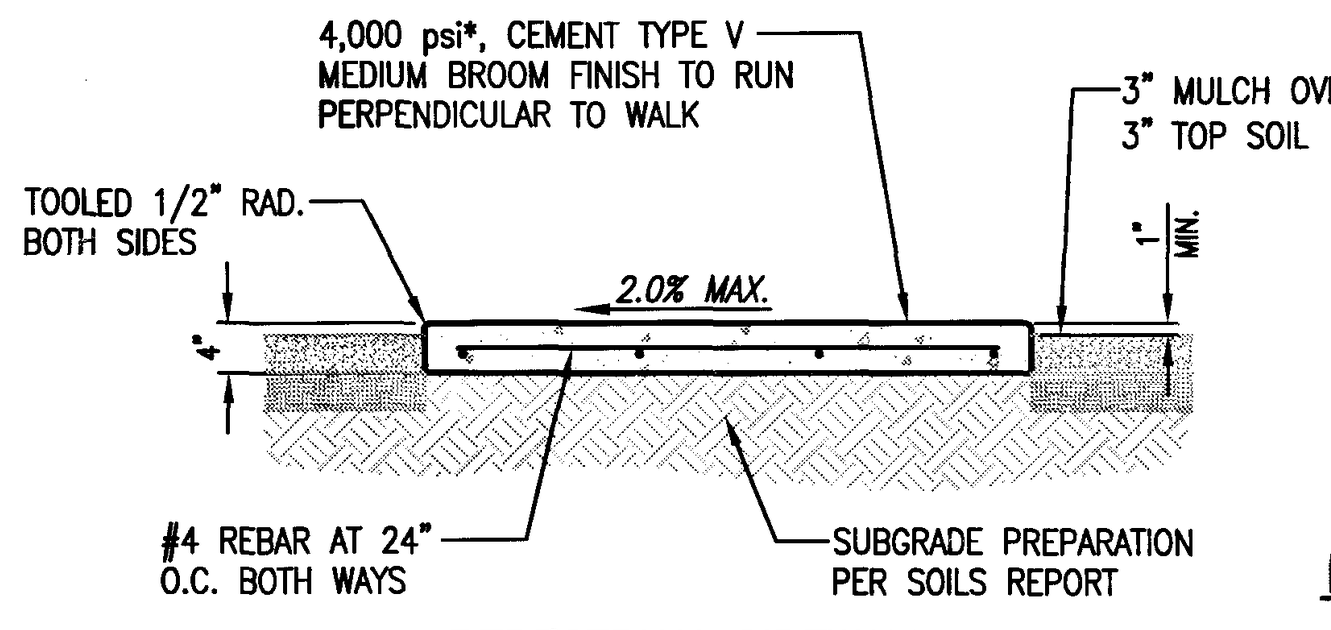

3:12 BATTER
6"
TOOLED 1/2" RADIUS (TYP. BOTH SIDES)
3" MULCH OVER 3" TOP SOIL
1/4"
#4 REBAR CONT. TOP & BOT.
C.F. VARIES
80mm VEHICULAR CONC. PAVERS
1'-6" MAX.
3'-2" MAX.
#4 REBAR MID HEIGHT
1'-8"
#4 REBAR 24" O.C.
SUBGRADE PREPARATION PER SOILS REPORT
9" MIN. W/ 6" C.F.
4,000 psi*, CEMENT TYPE V

NOTE:

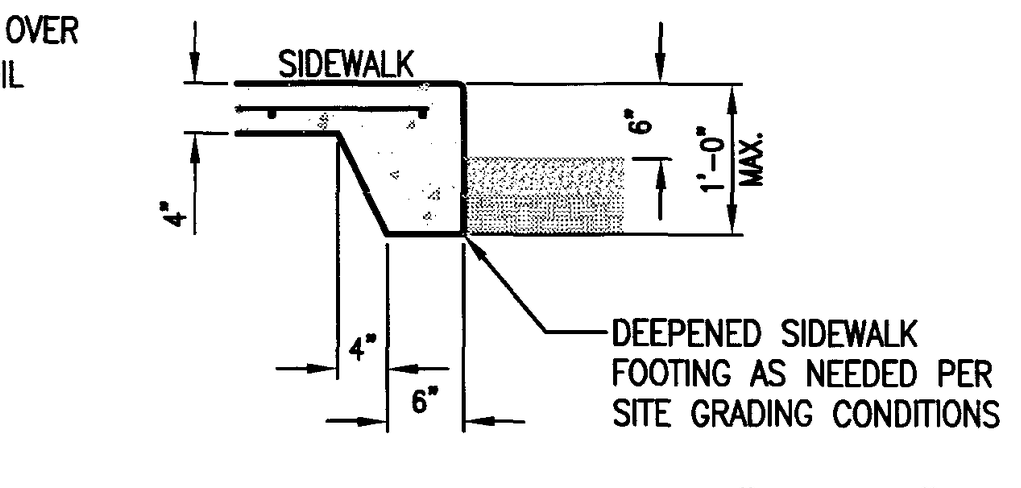
CONTROL JOINTS SHALL BE PLACED EVERY 10'-0" O.C. MAX. & AT EVERY B.C. & E.C.

SCALE: NONE

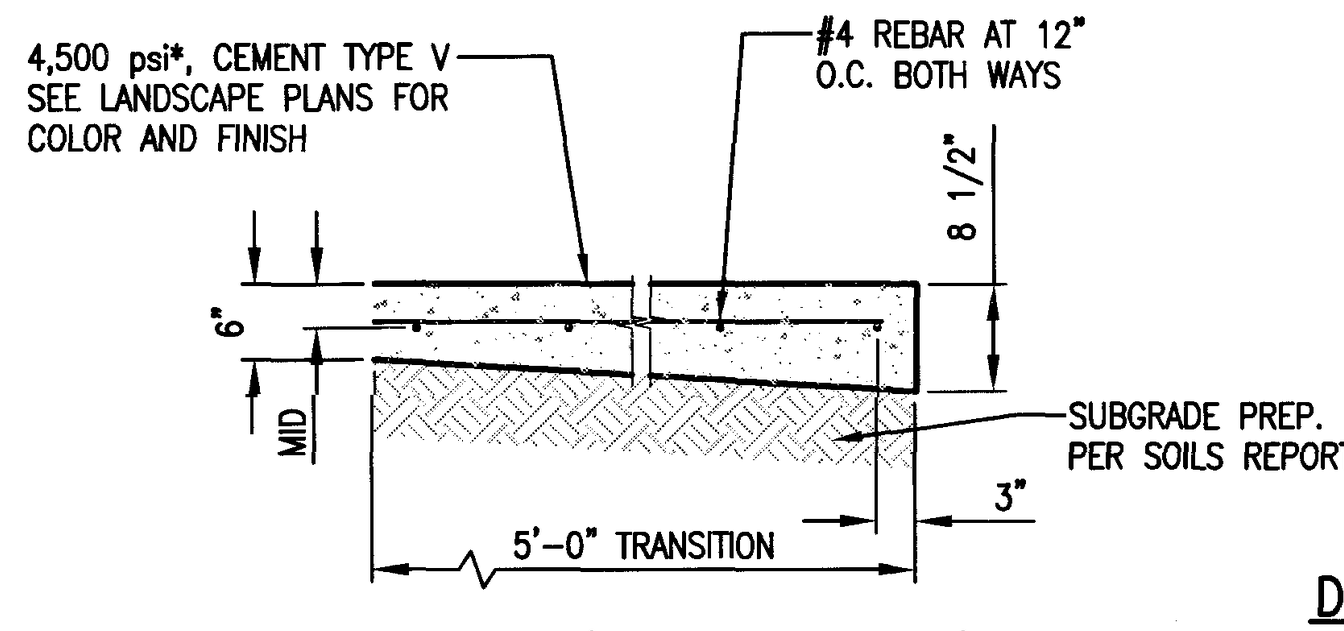
6" VARIABLE HEIGHT PCC CURB 3


4,000 psi*, CEMENT TYPE V MEDIUM BROOM FINISH TO RUN PERPENDICULAR TO WALK
3" MULCH OVER 3" TOP SOIL
TOOLED 1/2" RAD. BOTH SIDES
1" MIN.
2.0% MAX.
4"
#4 REBAR AT 24" O.C. BOTH WAYS
SUBGRADE PREPARATION PER SOILS REPORT

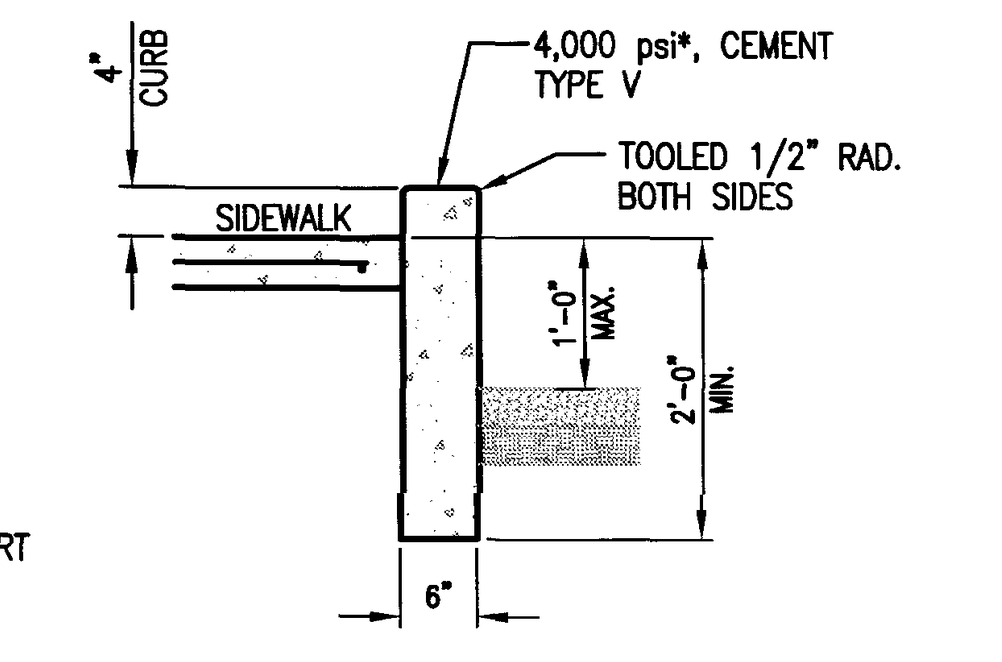
PEDESTRIAN SIDEWALK


SIDEWALK
6"
1'-0" MAX.
4"
4"
6"
DEEPENED SIDEWALK FOOTING AS NEEDED PER SITE GRADING CONDITIONS

DEEPENED SIDEWALK FOOTING "CASE A"


4,500 psi*, CEMENT TYPE V SEE LANDSCAPE PLANS FOR COLOR AND FINISH
#4 REBAR AT 12" O.C. BOTH WAYS
8 1/2"
6"
MID
SUBGRADE PREP. PER SOILS REPORT
3"
5'-0" TRANSITION

DRIVE SLAB (EDGE CONDITION)


4" CURB
4,000 psi*, CEMENT TYPE V
TOOLED 1/2" RAD. BOTH SIDES
SIDEWALK
1'-0" MAX.
2'-0" MIN.
6"

DEEPENED CURB AT SIDEWALK "CASE B"

SCALE: NONE

CONCRETE SECTIONS 4

Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
CIVIL

SHEET DESCRIPTION: **SITE DETAILS**

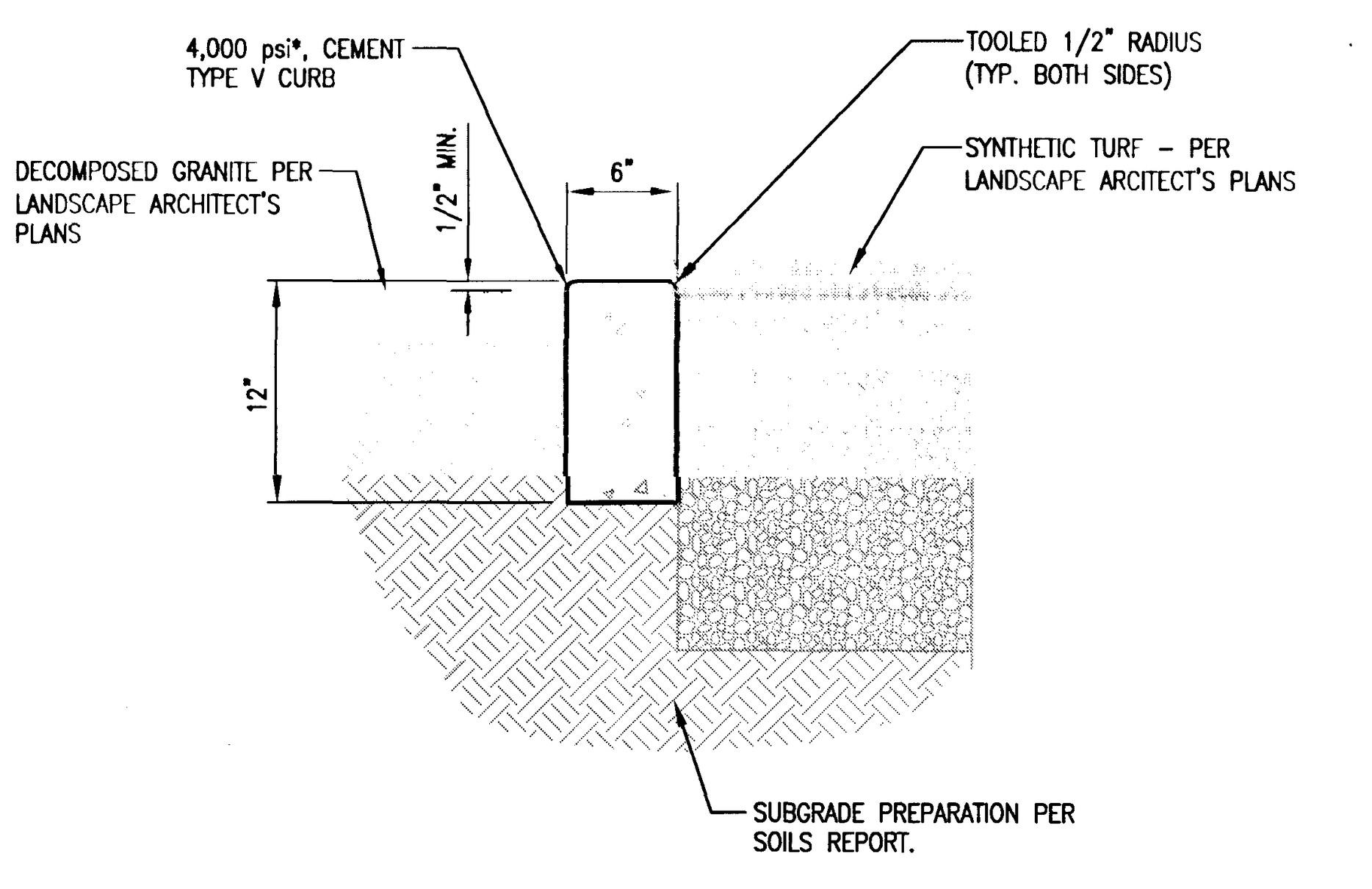
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

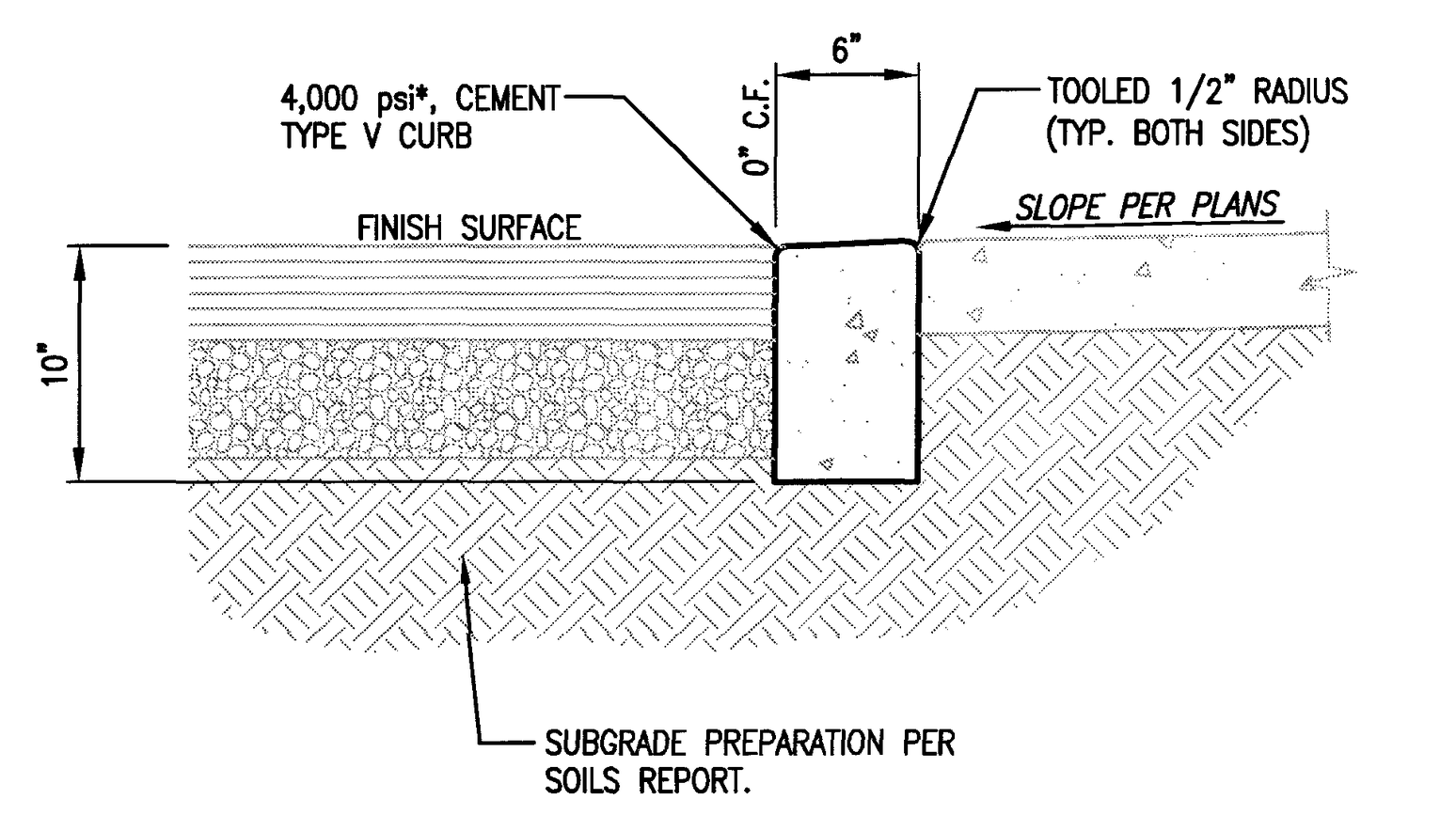
SHEET NO.
C-7

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-07-D.dwg July 13, 2015 - 11:31am Mike Thomas


4,000 psi*, CEMENT TYPE V CURB
TOOLED 1/2" RADIUS (TYP. BOTH SIDES)
DECOMPOSED GRANITE PER LANDSCAPE ARCHITECT'S PLANS
1/2" MIN.
6"
SYNTHETIC TURF - PER LANDSCAPE ARCITECT'S PLANS
12"
SUBGRADE PREPARATION PER SOILS REPORT.

SCALE: NONE

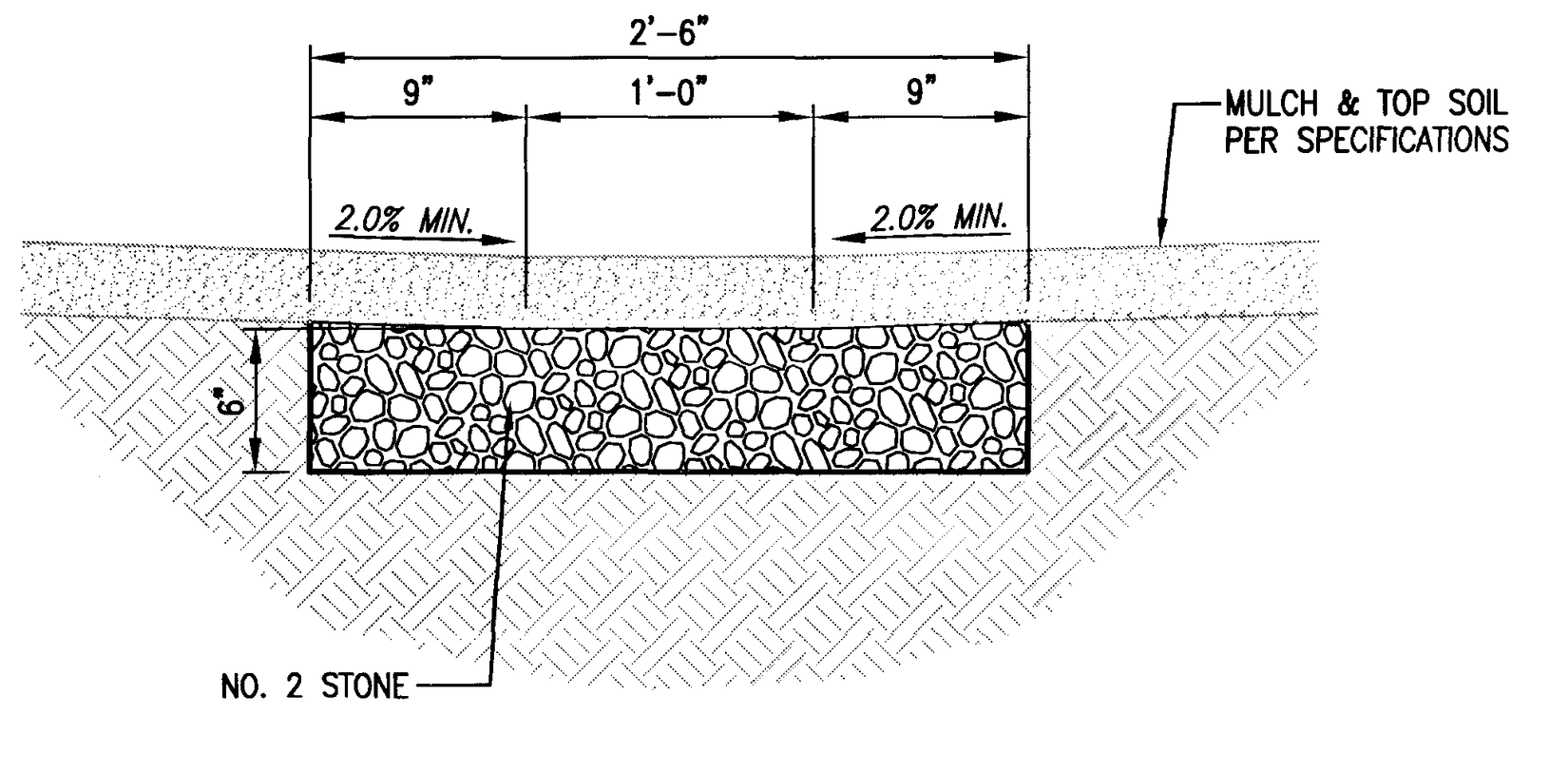
6-INCH WIDE FLUSH PCC CURB
18


6"
4,000 psi*, CEMENT TYPE V CURB
0" C.F.
TOOLED 1/2" RADIUS (TYP. BOTH SIDES)
FINISH SURFACE
SLOPE PER PLANS
10"
SUBGRADE PREPARATION PER SOILS REPORT.

NOTE:
CONTROL JOINTS SHALL BE PLACED EVERY 10'-0" O.C. (15'-0" MAX.) & AT EVERY B.C. & E.C.; EXPANSION JOINTS AT 30'-0" O.C.

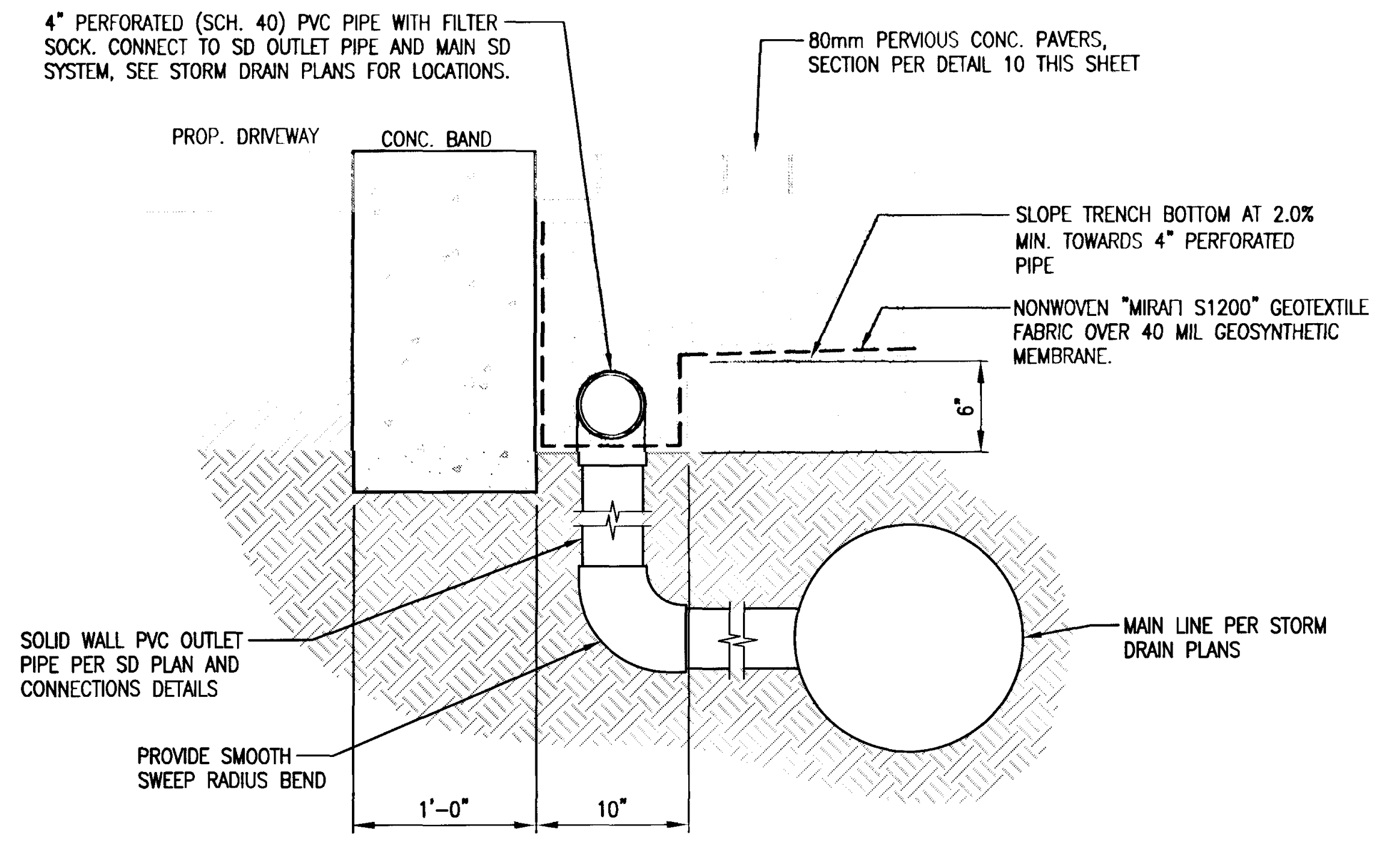
SCALE: NONE

0" PCC CURB FACE DETAIL
19

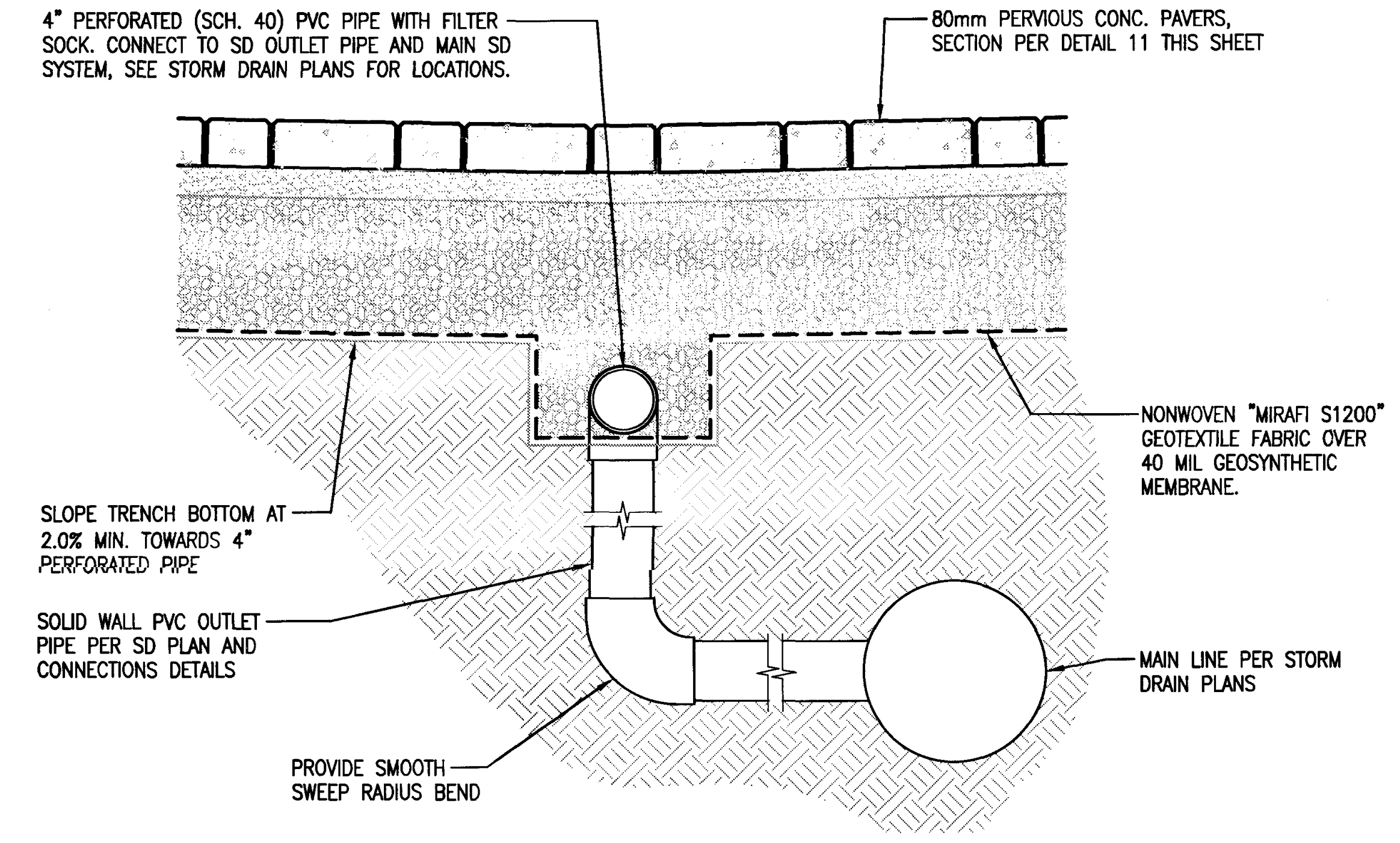

2'-6"
9"
1'-0"
9"
MULCH & TOP SOIL PER SPECIFICATIONS
2.0% MIN.
2.0% MIN.
6"
NO. 2 STONE

SCALE: NONE

STABILIZED EARTHEN SWALE
20

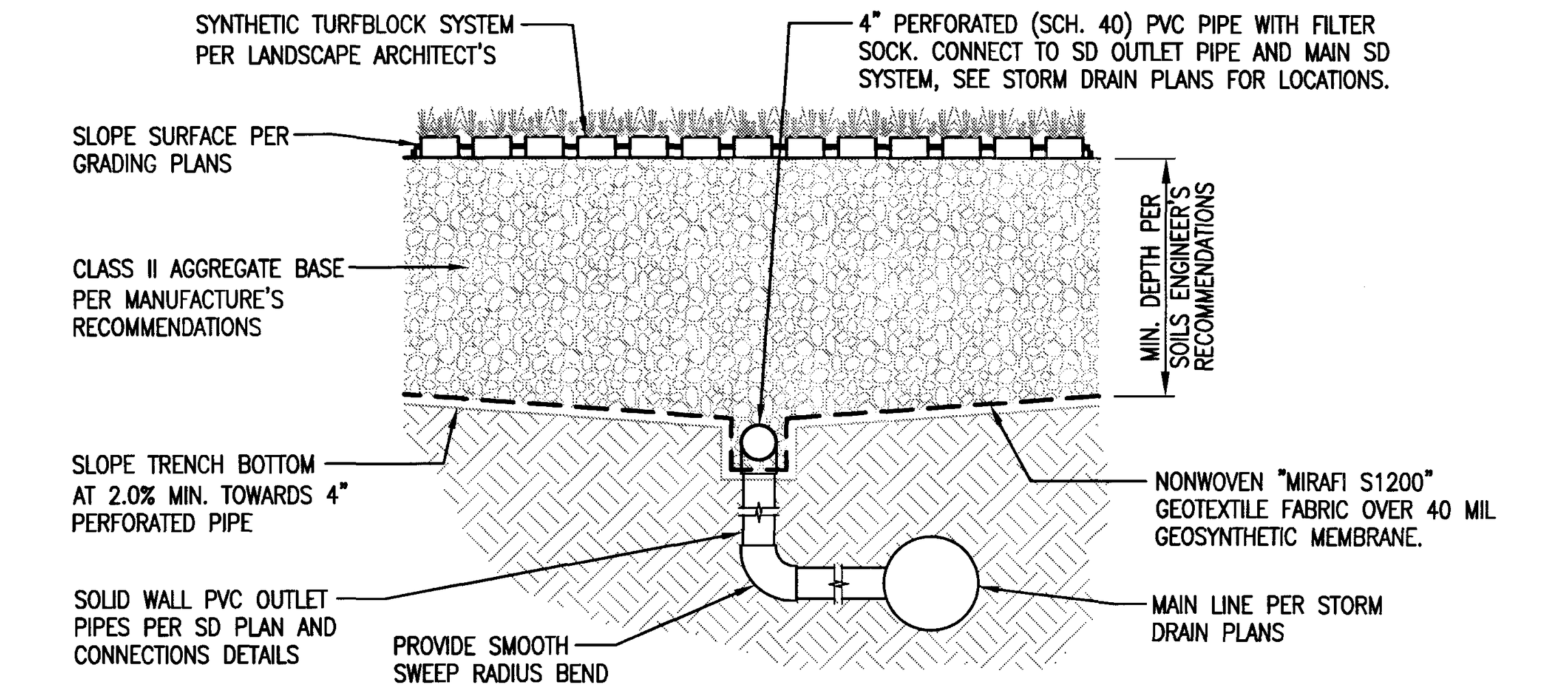

4" PERFORATED (SCH. 40) PVC PIPE WITH FILTER SOCK. CONNECT TO SD OUTLET PIPE AND MAIN SD SYSTEM, SEE STORM DRAIN PLANS FOR LOCATIONS.
80mm PERVIOUS CONC. PAVERS, SECTION PER DETAIL 10 THIS SHEET
PROP. DRIVEWAY
CONC. BAND
SLOPE TRENCH BOTTOM AT 2.0% MIN. TOWARDS 4" PERFORATED PIPE
NONWOVEN "MIRAFI S1200" GEOTEXTILE FABRIC OVER 40 MIL GEOSYNTHETIC MEMBRANE.
6"
SOLID WALL PVC OUTLET PIPE PER SD PLAN AND CONNECTIONS DETAILS
MAIN LINE PER STORM DRAIN PLANS
PROVIDE SMOOTH SWEEP RADIUS BEND
1'-0"
10"

VEHICULAR

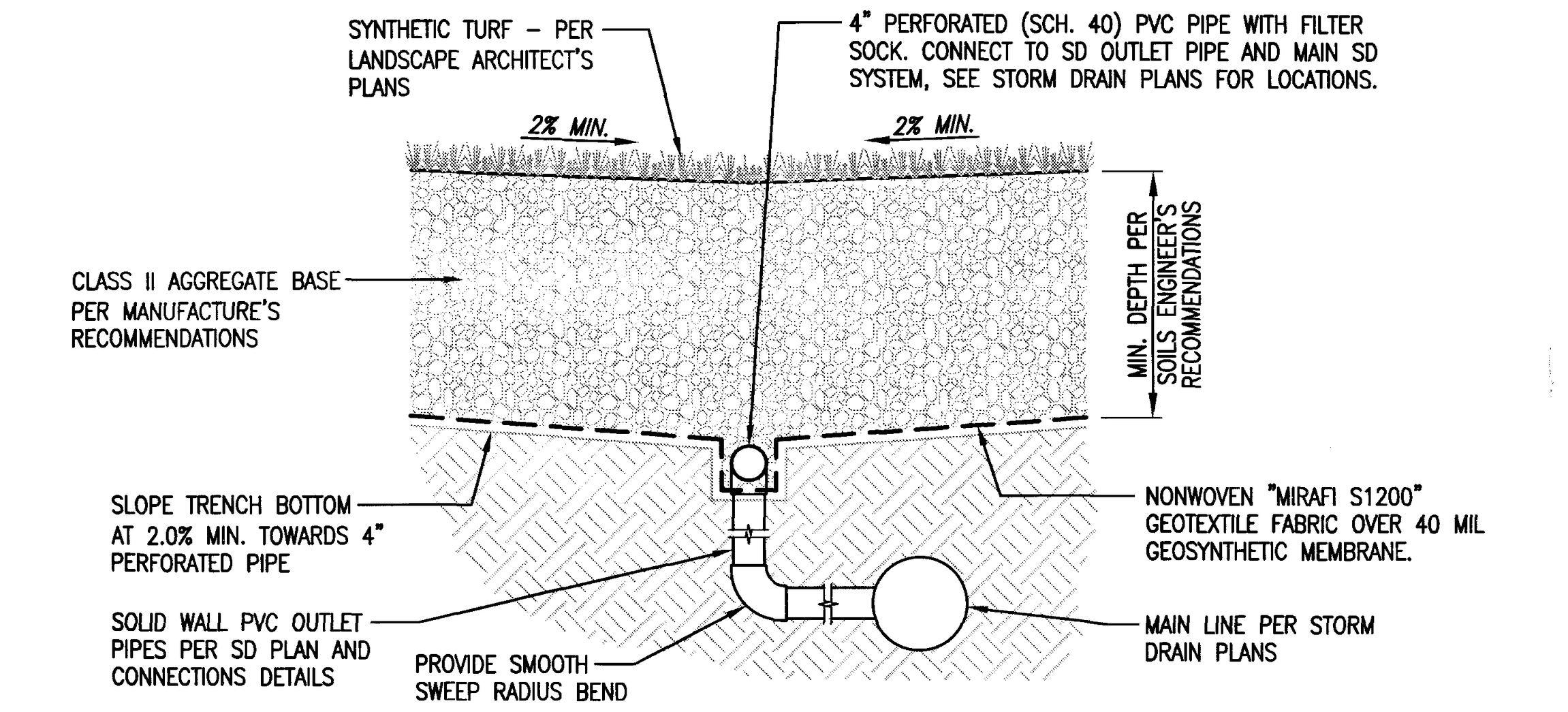

4" PERFORATED (SCH. 40) PVC PIPE WITH FILTER SOCK. CONNECT TO SD OUTLET PIPE AND MAIN SD SYSTEM, SEE STORM DRAIN PLANS FOR LOCATIONS.
80mm PERVIOUS CONC. PAVERS, SECTION PER DETAIL 11 THIS SHEET
NONWOVEN "MIRAFI S1200" GEOTEXTILE FABRIC OVER 40 MIL GEOSYNTHETIC MEMBRANE.
SLOPE TRENCH BOTTOM AT 2.0% MIN. TOWARDS 4" PERFORATED PIPE
SOLID WALL PVC OUTLET PIPE PER SD PLAN AND CONNECTIONS DETAILS
MAIN LINE PER STORM DRAIN PLANS
PROVIDE SMOOTH SWEEP RADIUS BEND

PEDESTRIAN

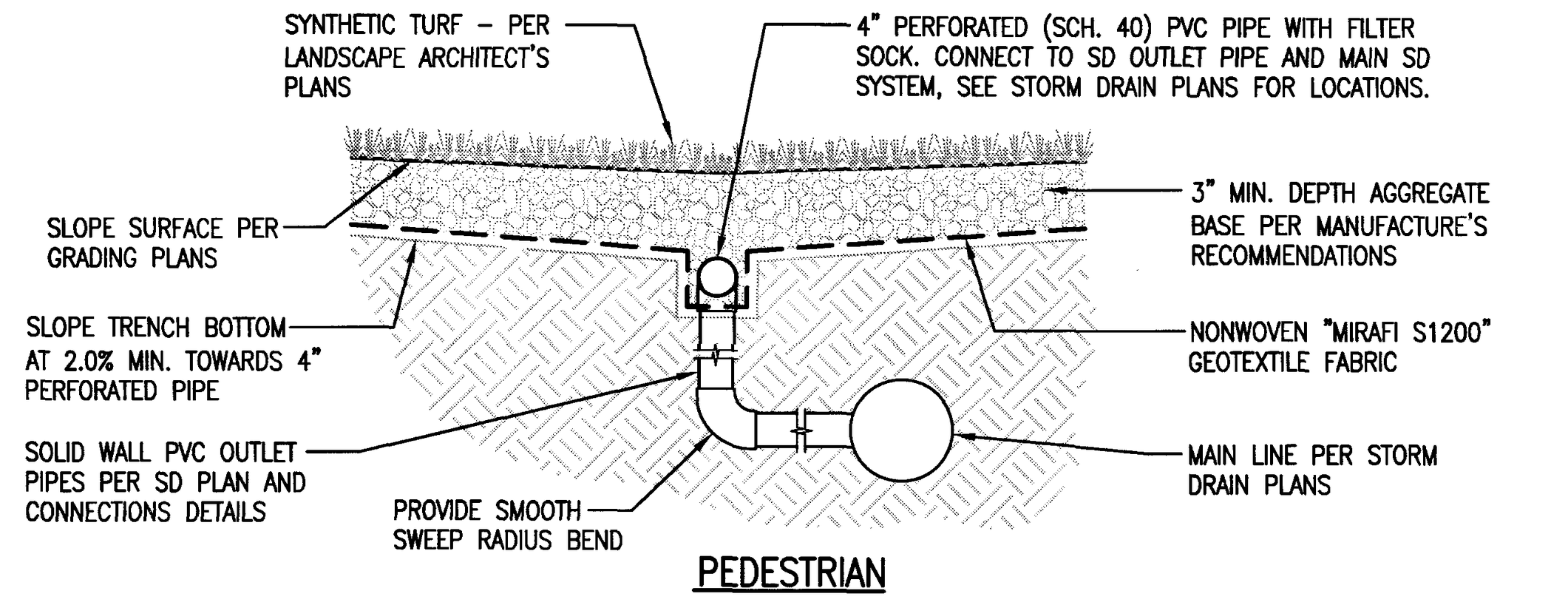
PERVIOUS PAVER SUBDRAINAGE
16


SYNTHETIC TURFBLOCK SYSTEM PER LANDSCAPE ARCHITECT'S
4" PERFORATED (SCH. 40) PVC PIPE WITH FILTER SOCK. CONNECT TO SD OUTLET PIPE AND MAIN SD SYSTEM, SEE STORM DRAIN PLANS FOR LOCATIONS.
SLOPE SURFACE PER GRADING PLANS
CLASS II AGGREGATE BASE PER MANUFACTURE'S RECOMMENDATIONS
MIN. DEPTH PER SOILS ENGINEER'S RECOMMENDATIONS
SLOPE TRENCH BOTTOM AT 2.0% MIN. TOWARDS 4" PERFORATED PIPE
NONWOVEN "MIRAFI S1200" GEOTEXTILE FABRIC OVER 40 MIL GEOSYNTHETIC MEMBRANE.
SOLID WALL PVC OUTLET PIPES PER SD PLAN AND CONNECTIONS DETAILS
PROVIDE SMOOTH SWEEP RADIUS BEND
MAIN LINE PER STORM DRAIN PLANS

VEHICULAR AT TURFBLOCK


SYNTHETIC TURF - PER LANDSCAPE ARCHITECT'S PLANS
4" PERFORATED (SCH. 40) PVC PIPE WITH FILTER SOCK. CONNECT TO SD OUTLET PIPE AND MAIN SD SYSTEM, SEE STORM DRAIN PLANS FOR LOCATIONS.
2% MIN.
2% MIN.
CLASS II AGGREGATE BASE PER MANUFACTURE'S RECOMMENDATIONS
MIN. DEPTH PER SOILS ENGINEER'S RECOMMENDATIONS
SLOPE TRENCH BOTTOM AT 2.0% MIN. TOWARDS 4" PERFORATED PIPE
NONWOVEN "MIRAFI S1200" GEOTEXTILE FABRIC OVER 40 MIL GEOSYNTHETIC MEMBRANE.
SOLID WALL PVC OUTLET PIPES PER SD PLAN AND CONNECTIONS DETAILS
PROVIDE SMOOTH SWEEP RADIUS BEND
MAIN LINE PER STORM DRAIN PLANS

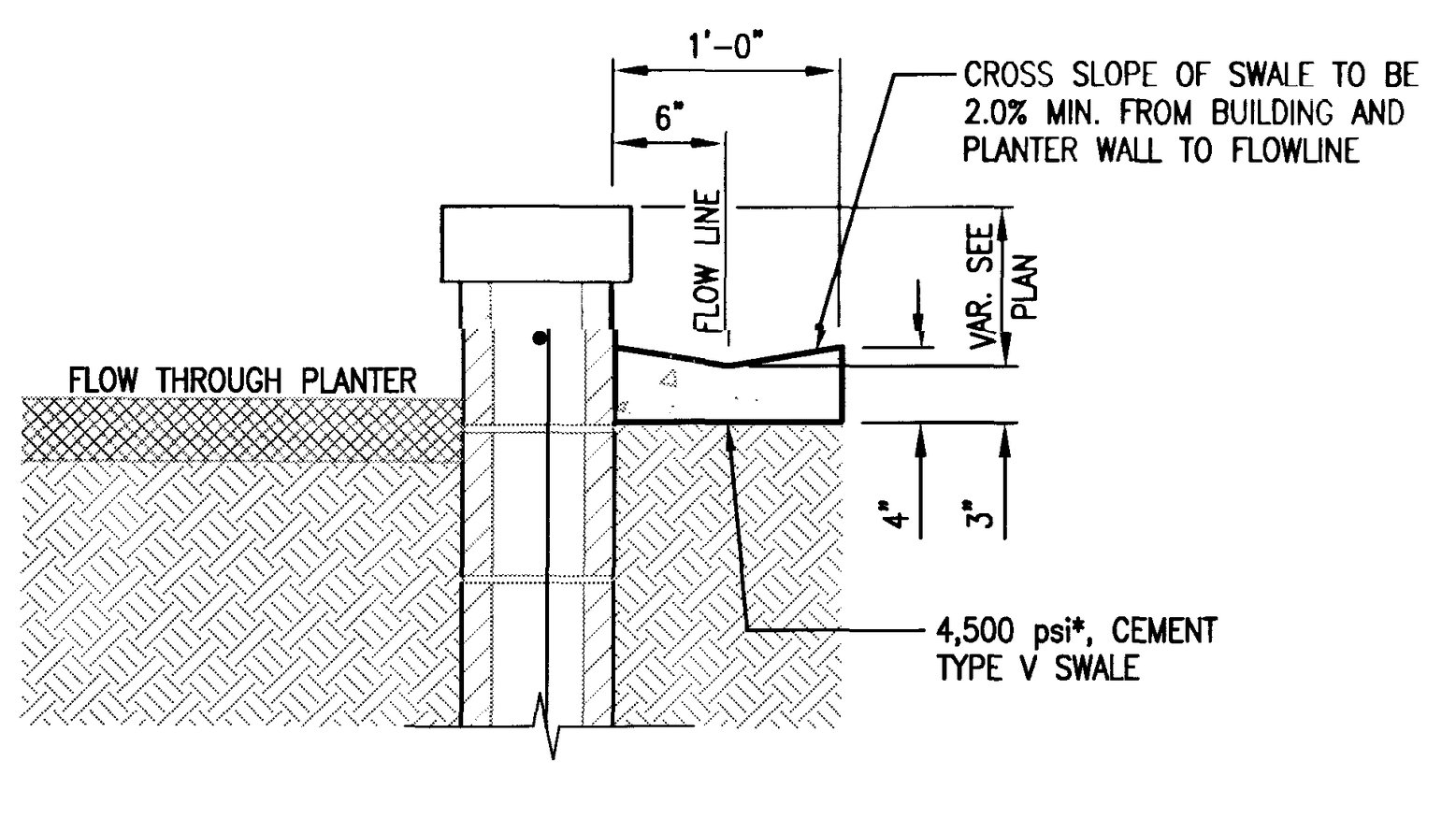
VEHICULAR AT DOG PARK


SYNTHETIC TURF - PER LANDSCAPE ARCHITECT'S PLANS
4" PERFORATED (SCH. 40) PVC PIPE WITH FILTER SOCK. CONNECT TO SD OUTLET PIPE AND MAIN SD SYSTEM, SEE STORM DRAIN PLANS FOR LOCATIONS.
SLOPE SURFACE PER GRADING PLANS
3" MIN. DEPTH AGGREGATE BASE PER MANUFACTURE'S RECOMMENDATIONS
SLOPE TRENCH BOTTOM AT 2.0% MIN. TOWARDS 4" PERFORATED PIPE
NONWOVEN "MIRAFI S1200" GEOTEXTILE FABRIC
SOLID WALL PVC OUTLET PIPES PER SD PLAN AND CONNECTIONS DETAILS
PROVIDE SMOOTH SWEEP RADIUS BEND
MAIN LINE PER STORM DRAIN PLANS

PEDESTRIAN

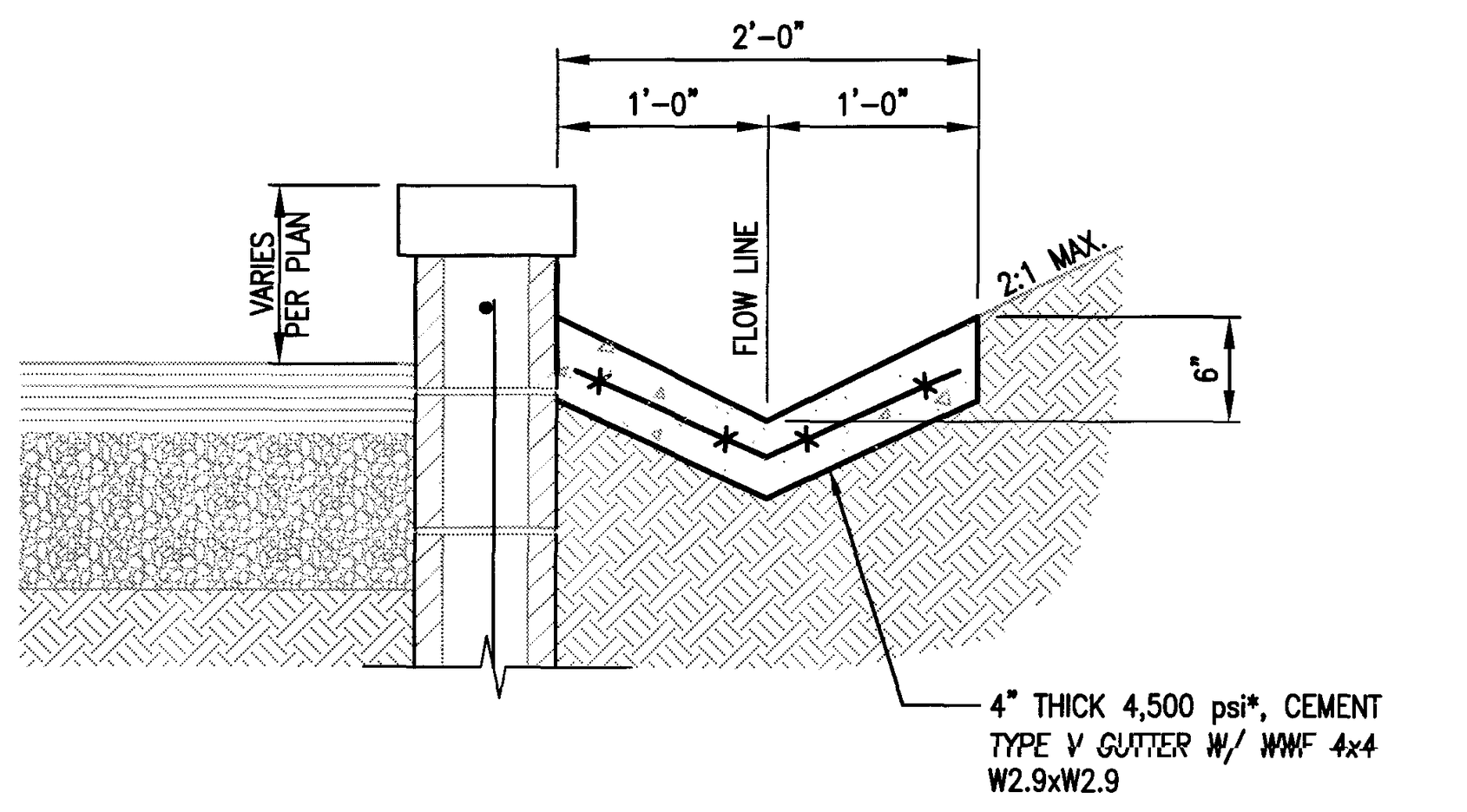
TURF SUBDRAINAGE
17

GENERAL NOTE (FOR ALL DETAILS):
* THE PROJECT SOIL ENGINEER SHALL BE RESPONSIBLE FOR FINAL ALLOWABLE CONCRETE STRENGTH AND CEMENT TYPE (BASED ON SULFATE CONTENT OF SOIL) FOR ALL CONCRETE IN CONTACT WITH SOIL.

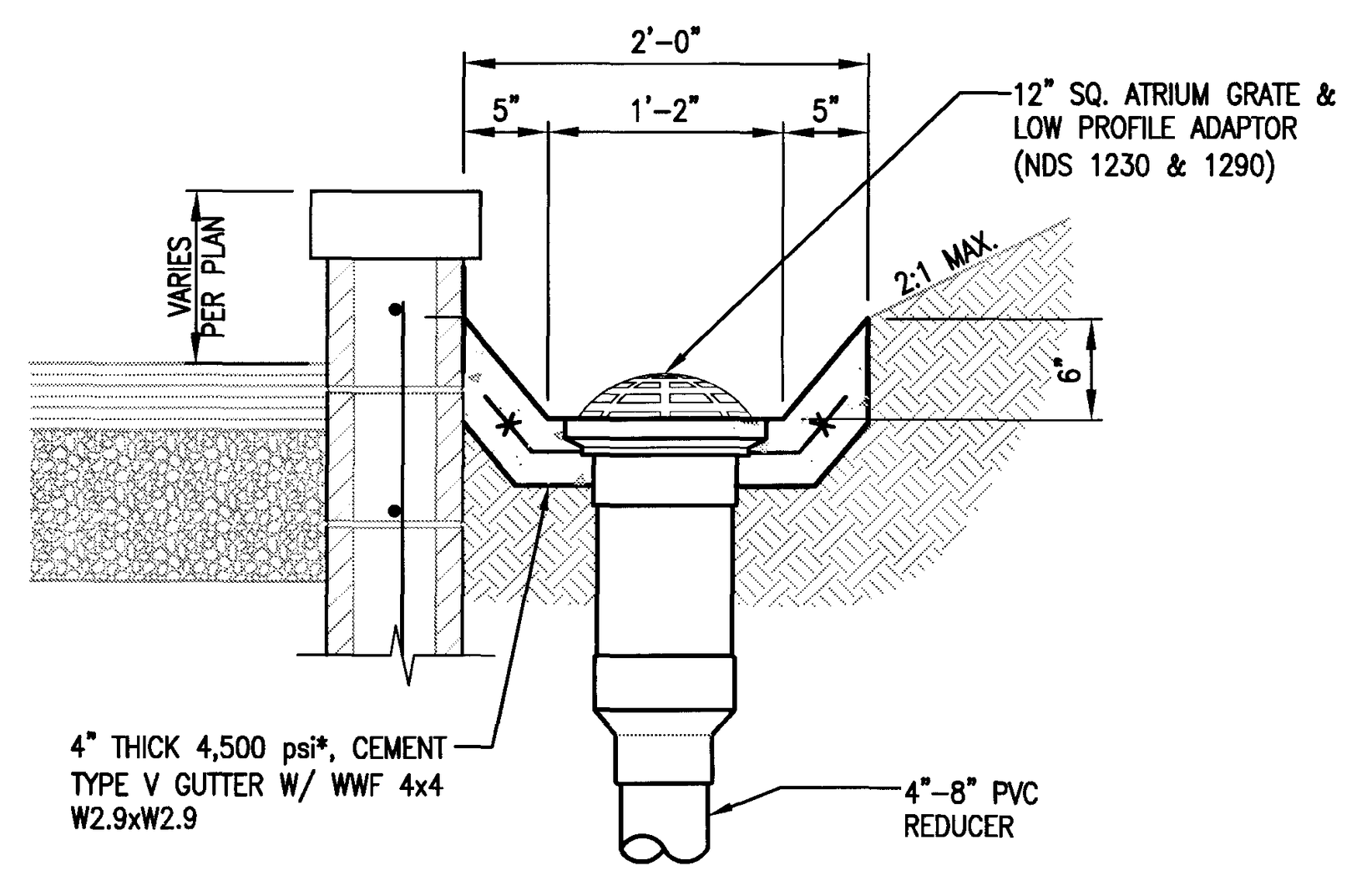

1'-0"
6"
CROSS SLOPE OF SWALE TO BE 2.0% MIN. FROM BUILDING AND PLANTER WALL TO FLOWLINE
FLOW LINE
VAR. SEE PLAN
FLOW THROUGH PLANTER
4"
3"
4,500 psi*, CEMENT TYPE V SWALE

SCALE: NONE

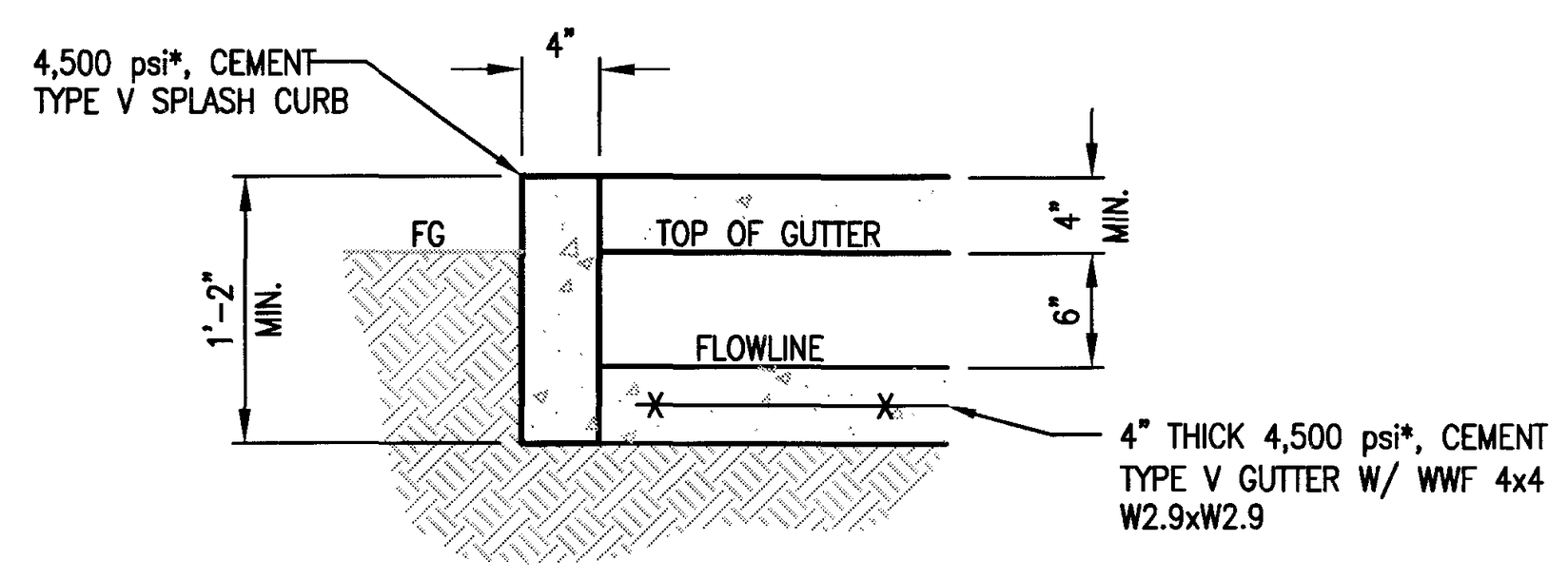
3-INCH CONCRETE SWALE AT FLOW THRU PLANTERS
14


2'-0"
1'-0"
1'-0"
VARIES PER PLAN
FLOW LINE
2:1 MAX.
6"
4" THICK 4,500 psi*, CEMENT TYPE V GUTTER W/ WWF 4x4 W2.9xW2.9

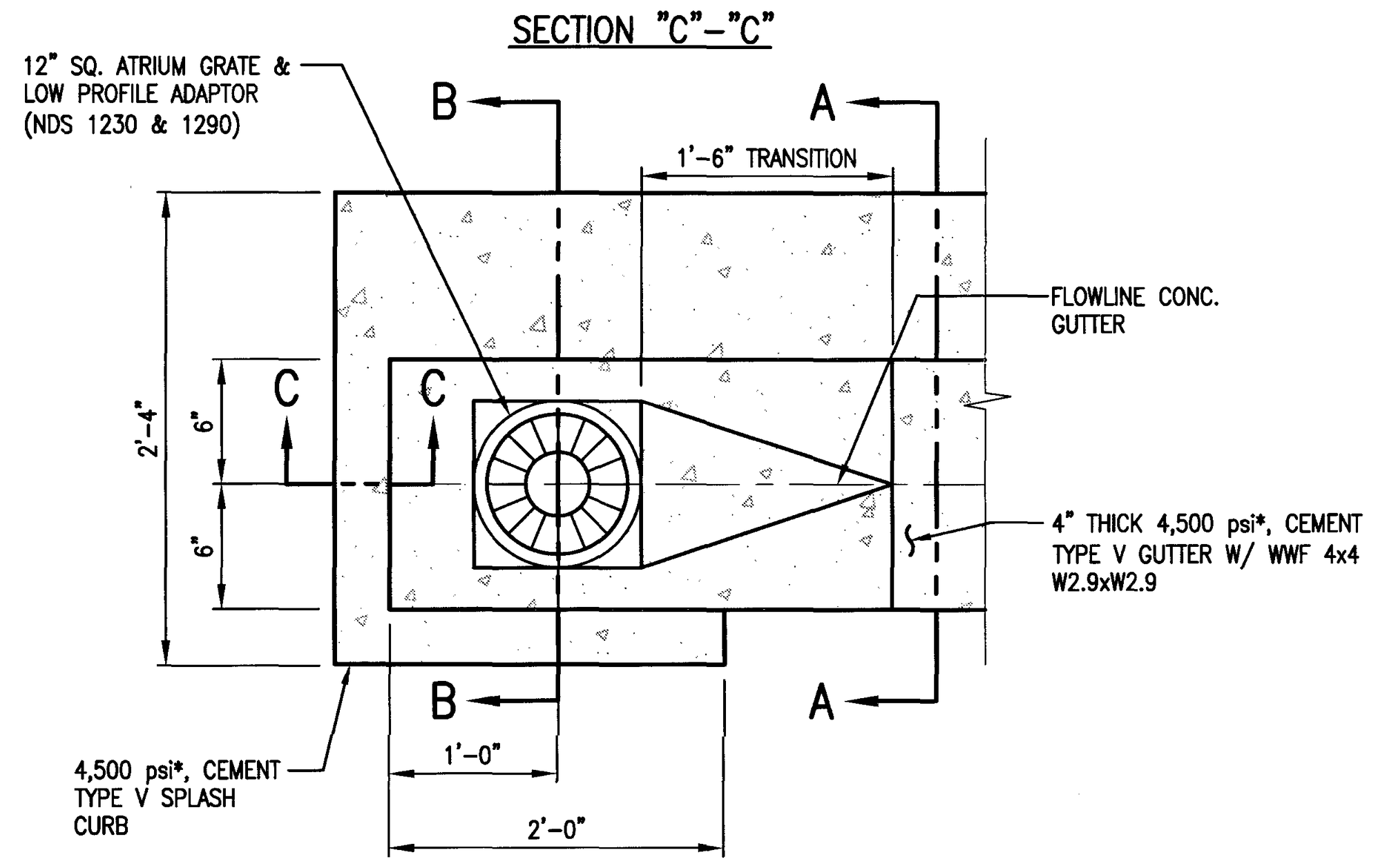
SECTION "A"-"A"


2'-0"
5"
1'-2"
5"
12" SQ. ATRIUM GRATE & LOW PROFILE ADAPTOR (NDS 1230 & 1290)
VARIES PER PLAN
2:1 MAX.
6"
4" THICK 4,500 psi*, CEMENT TYPE V GUTTER W/ WWF 4x4 W2.9xW2.9
4"-8" PVC REDUCER

SECTION "B"-"B" AT INLET


4,500 psi*, CEMENT TYPE V SPLASH CURB
4"
FG
TOP OF GUTTER
1'-2" MIN.
4" MIN.
6"
FLOWLINE
4" THICK 4,500 psi*, CEMENT TYPE V GUTTER W/ WWF 4x4 W2.9xW2.9

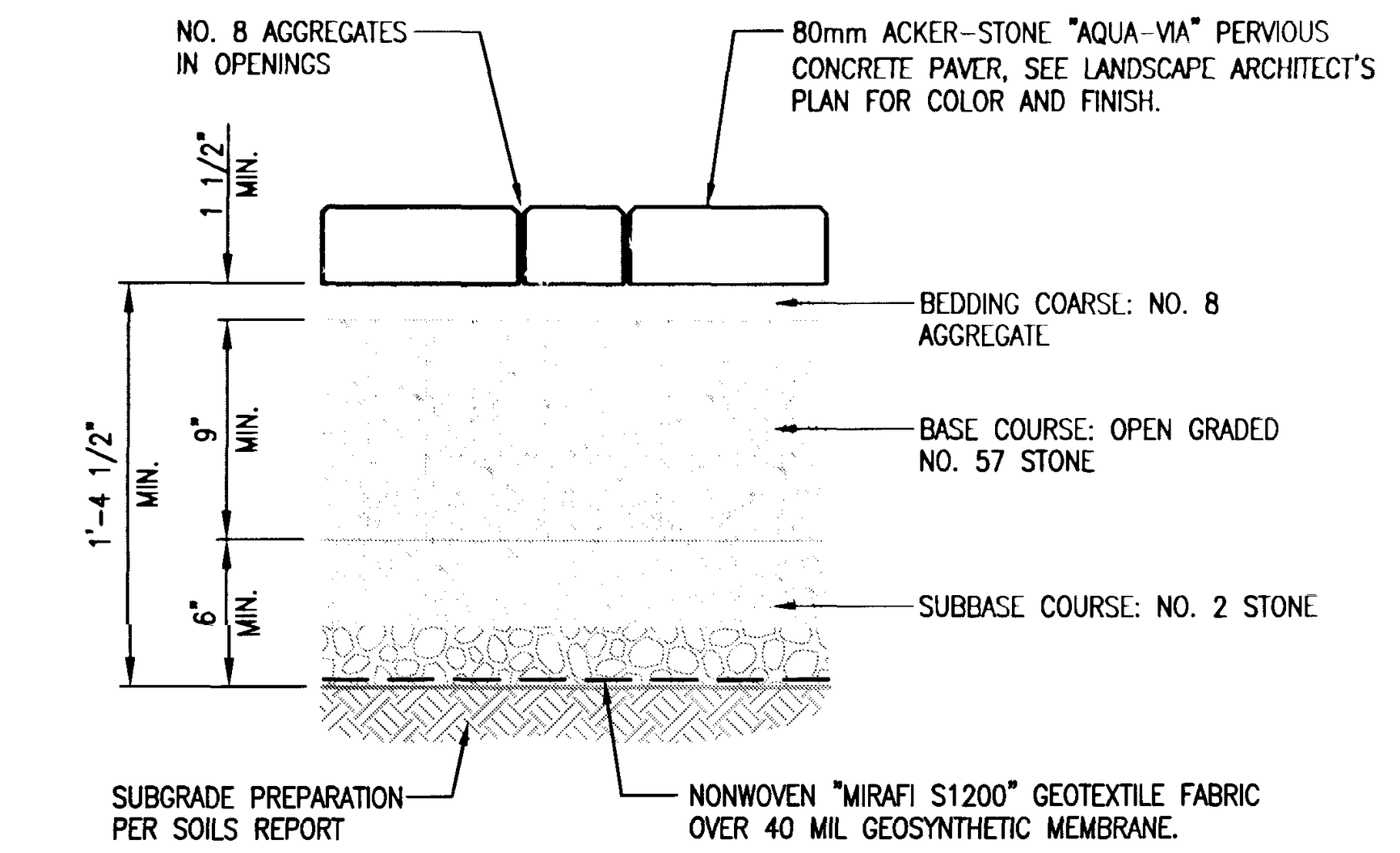
SECTION "C"-"C"


12" SQ. ATRIUM GRATE & LOW PROFILE ADAPTOR (NDS 1230 & 1290)
B
A
1'-6" TRANSITION
FLOWLINE CONC. GUTTER
2'-4"
6"
6"
C
C
4" THICK 4,500 psi*, CEMENT TYPE V GUTTER W/ WWF 4x4 W2.9xW2.9
B
A
4,500 psi*, CEMENT TYPE V SPLASH CURB
1'-0"
2'-0"

END CONDITION GUTTER INLET

SCALE: NONE

CONCRETE BROW DITCH & FLOWLINE TRANSITION
15

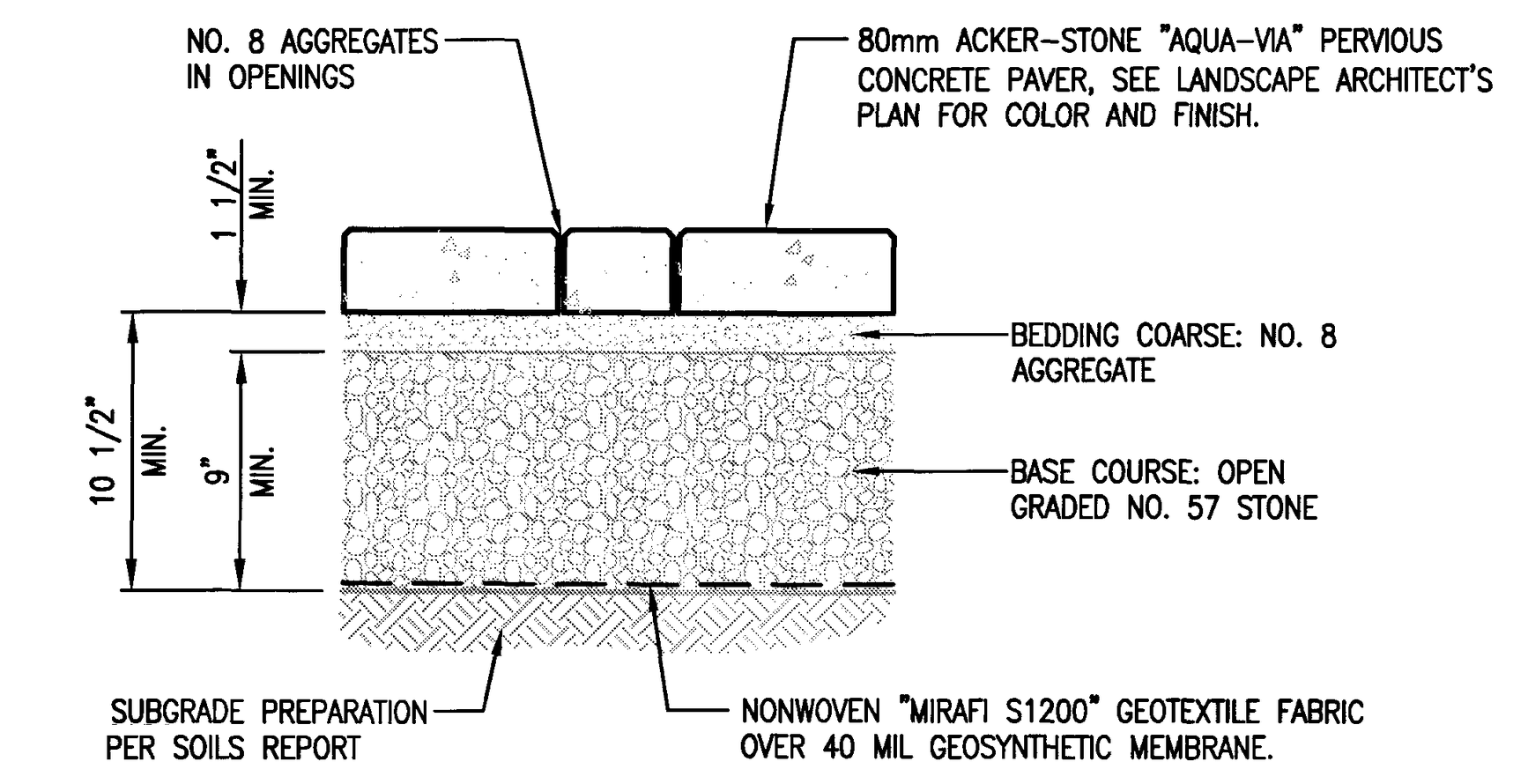

NO. 8 AGGREGATES IN OPENINGS
80mm ACKER-STONE "AQUA-VIA" PERVIOUS CONCRETE PAVER, SEE LANDSCAPE ARCHITECT'S PLAN FOR COLOR AND FINISH.
1 1/2" MIN.
BEDDING COARSE: NO. 8 AGGREGATE
1'-4 1/2" MIN.
9" MIN.
BASE COURSE: OPEN GRADED NO. 57 STONE
6" MIN.
SUBBASE COURSE: NO. 2 STONE
SUBGRADE PREPARATION PER SOILS REPORT
NONWOVEN "MIRAFI S1200" GEOTEXTILE FABRIC OVER 40 MIL GEOSYNTHETIC MEMBRANE.

NOTE:

1. CONTRACTOR TO ENSURE THAT ALL PENETRATIONS THROUGH GEOSYNTHETIC MEMBRANE ARE WATER TIGHT AND SEALED PER MANUFACTURES SPECIFICATIONS
2. CONCRETE PAVER MATERIAL & INSTALLATION PER INTERLOCKING CONCRETE PAVEMENT INSTITUTE STANDARDS & SPECIFICATIONS

SCALE: NONE

PERVIOUS PAVER SECTION (TRAFFIC)
10

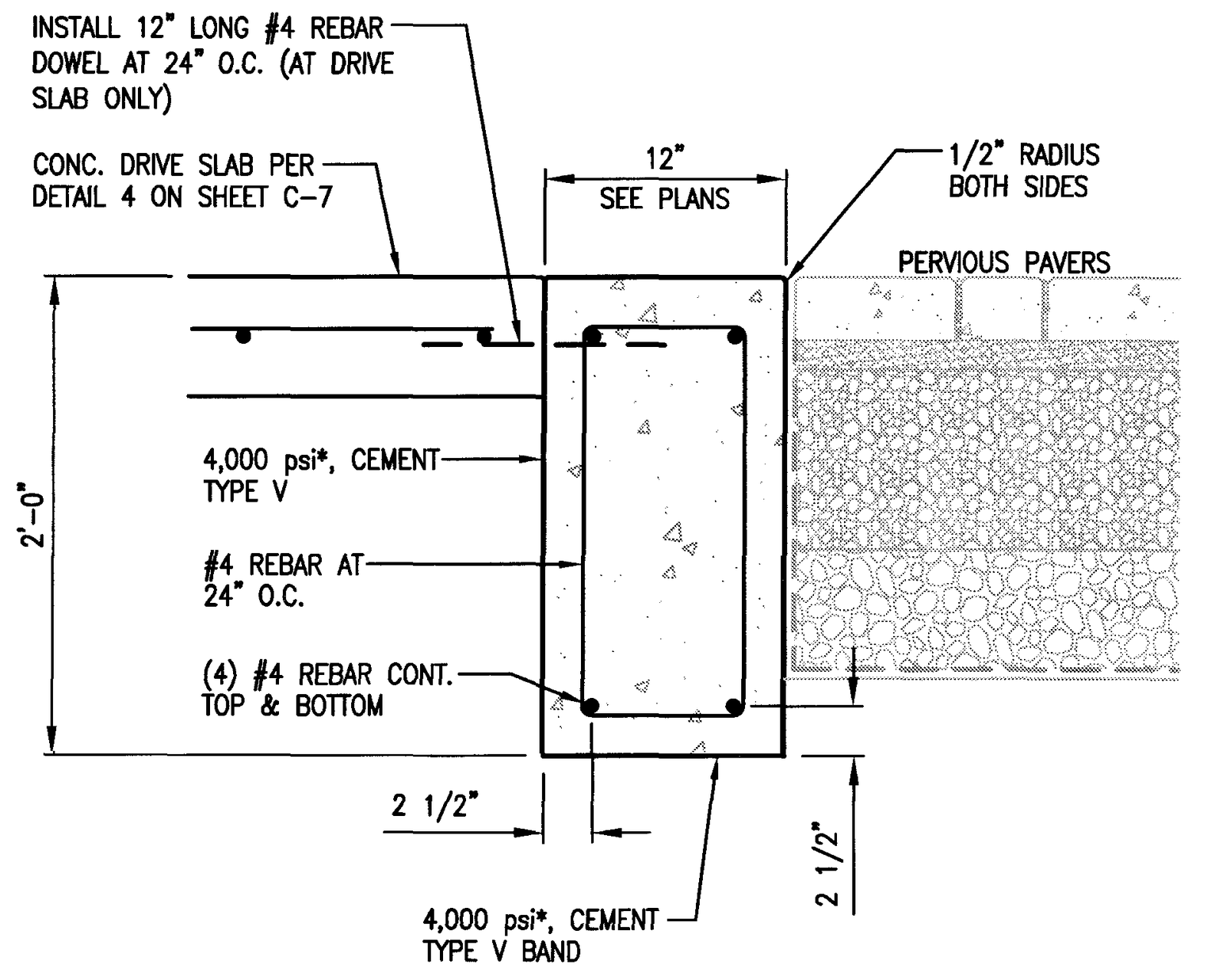

NO. 8 AGGREGATES IN OPENINGS
80mm ACKER-STONE "AQUA-VIA" PERVIOUS CONCRETE PAVER, SEE LANDSCAPE ARCHITECT'S PLAN FOR COLOR AND FINISH.
1 1/2" MIN.
BEDDING COARSE: NO. 8 AGGREGATE
10 1/2" MIN.
9" MIN.
BASE COURSE: OPEN GRADED NO. 57 STONE
SUBGRADE PREPARATION PER SOILS REPORT
NONWOVEN "MIRAFI S1200" GEOTEXTILE FABRIC OVER 40 MIL GEOSYNTHETIC MEMBRANE.

NOTE:

1. CONTRACTOR TO ENSURE THAT ALL PENETRATIONS THROUGH GEOSYNTHETIC MEMBRANE ARE WATER TIGHT AND SEALED PER MANUFACTURES SPECIFICATIONS
2. CONCRETE PAVER MATERIAL & INSTALLATION PER INTERLOCKING CONCRETE PAVEMENT INSTITUTE STANDARDS & SPECIFICATIONS

SCALE: NONE

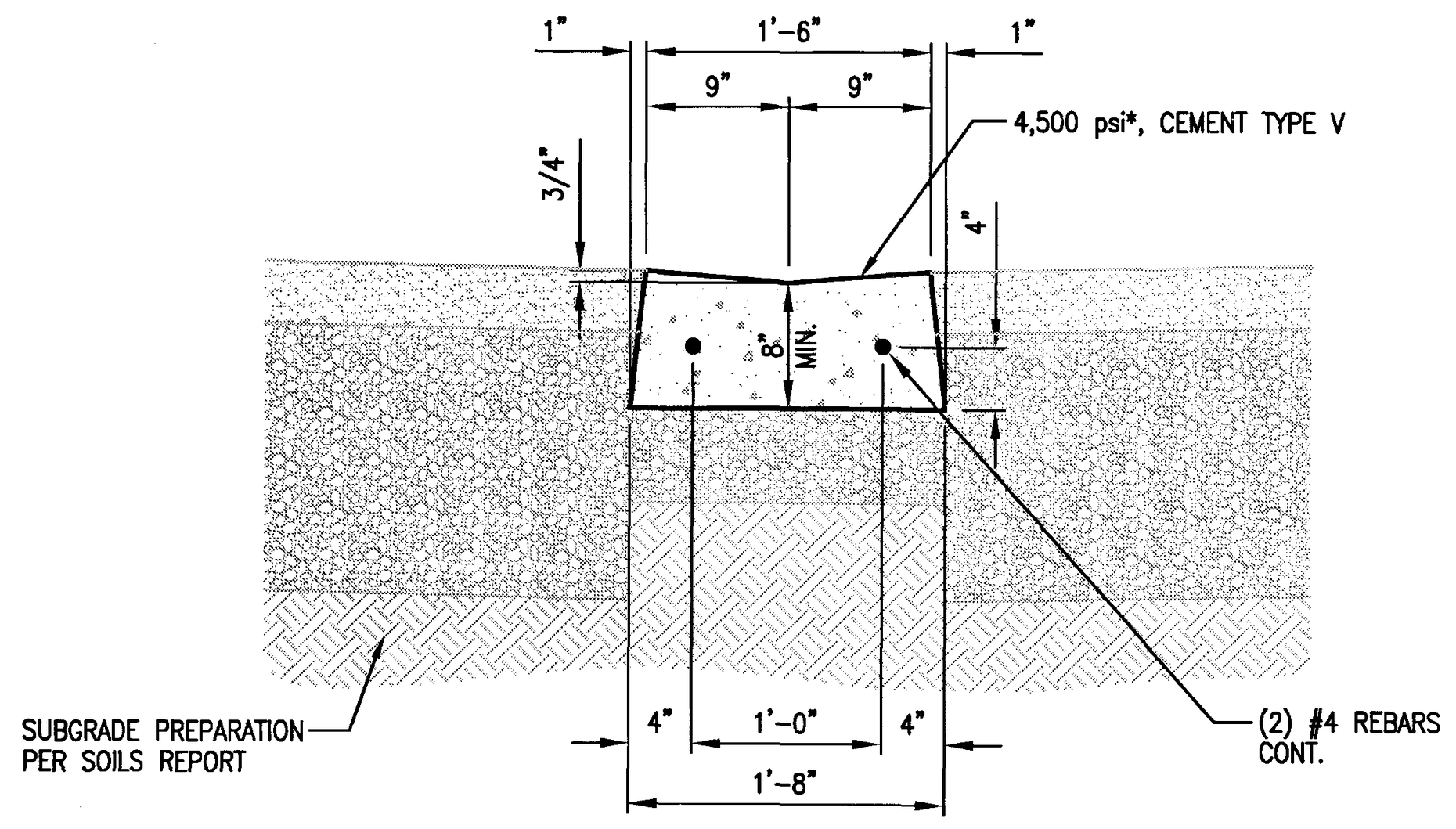
PERVIOUS PAVER SECTION (PEDESTRIAN)
11


INSTALL 12" LONG #4 REBAR DOWEL AT 24" O.C. (AT DRIVE SLAB ONLY)
CONC. DRIVE SLAB PER DETAIL 4 ON SHEET C-7
12"
SEE PLANS
1/2" RADIUS BOTH SIDES
PERVIOUS PAVERS
2'-0"
4,000 psi*, CEMENT TYPE V
#4 REBAR AT 24" O.C.
(4) #4 REBAR CONT. TOP & BOTTOM
2 1/2"
2 1/2"
4,000 psi*, CEMENT TYPE V BAND

NOTE:
CONTROL JOINTS SHALL BE PLACED EVERY 8'-0" O.C. & AT EVERY B.C. & E.C.

SCALE: NONE

PCC BAND DETAIL AT PERVIOUS PAVERS
12


1"
1'-6"
1"
9"
9"
4,500 psi*, CEMENT TYPE V
3/4"
4"
8" MIN.
SUBGRADE PREPARATION PER SOILS REPORT
4"
1'-0"
4"
1'-8"
(2) #4 REBARS CONT.

NOTES:

1. PROVIDE CONTROL JOINTS AT 10'-0" O.C. (15'-0" MAX.) AND AT EVERY BC AND EC; EXPANSION JOINTS AT 30'-0" O.C.
2. MAX. 5.0% CROSS SLOPE WITHIN GUTTER WHEN AN ACCESSIBLE PATH OF TRAVEL INTERSECTS THE RIBBON GUTTER, EXTEND THE WARPED GUTTER 1.0' BEYOND EITHER SIDE OF THE ACCESSIBLE PATH OF TRAVEL AND TRANSITION BACK TO STANDARD GUTTER.

SCALE: NONE

18-INCH WIDE CONCRETE V-GUTTER
13

Know what's **below.**
Call before you dig.

NOTICE TO CONTRACTOR

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REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

REGISTERED PROFESSIONAL ENGINEER
JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
CIVIL
STATE OF CALIFORNIA

SHEET DESCRIPTION:
SITE DETAILS

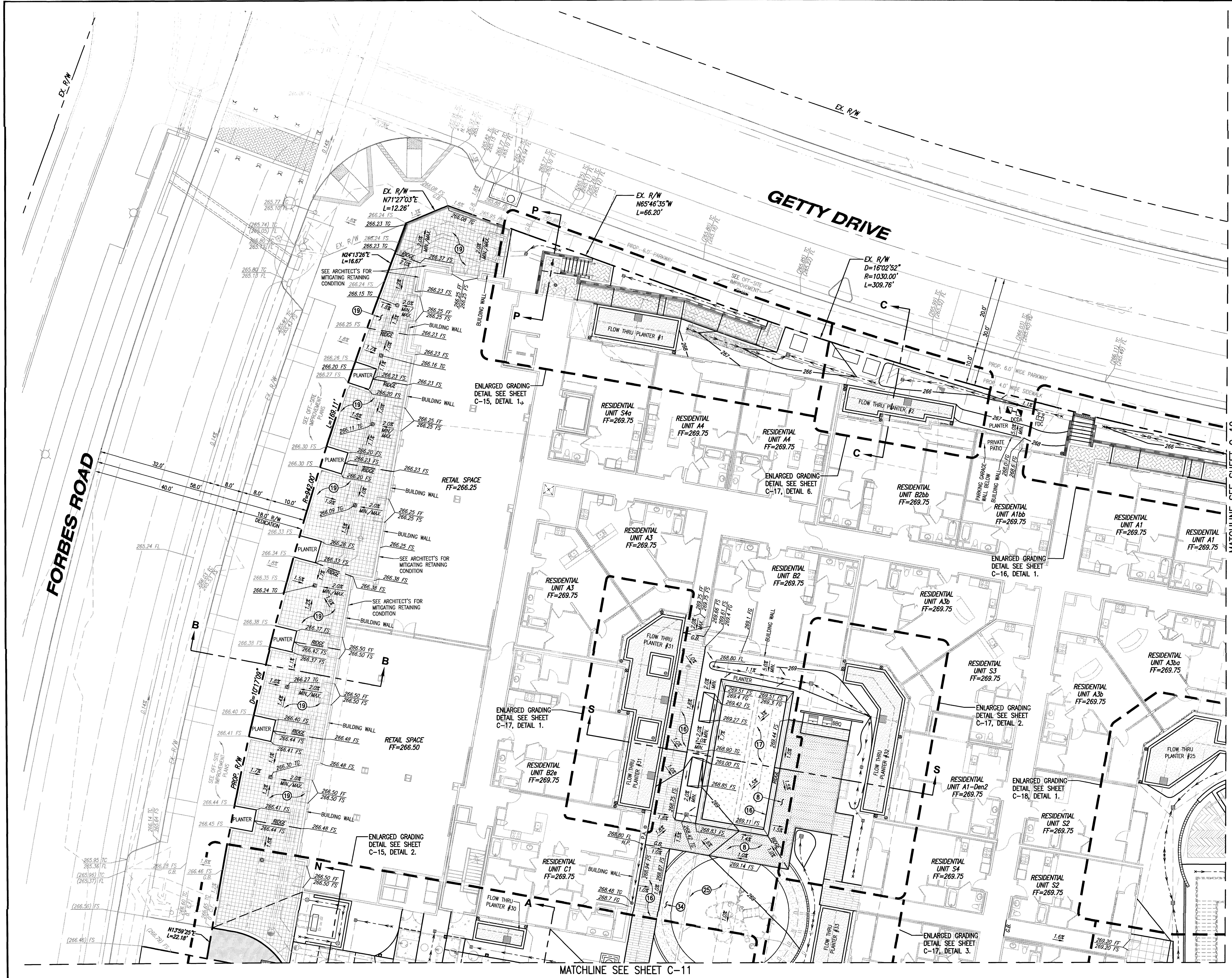
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

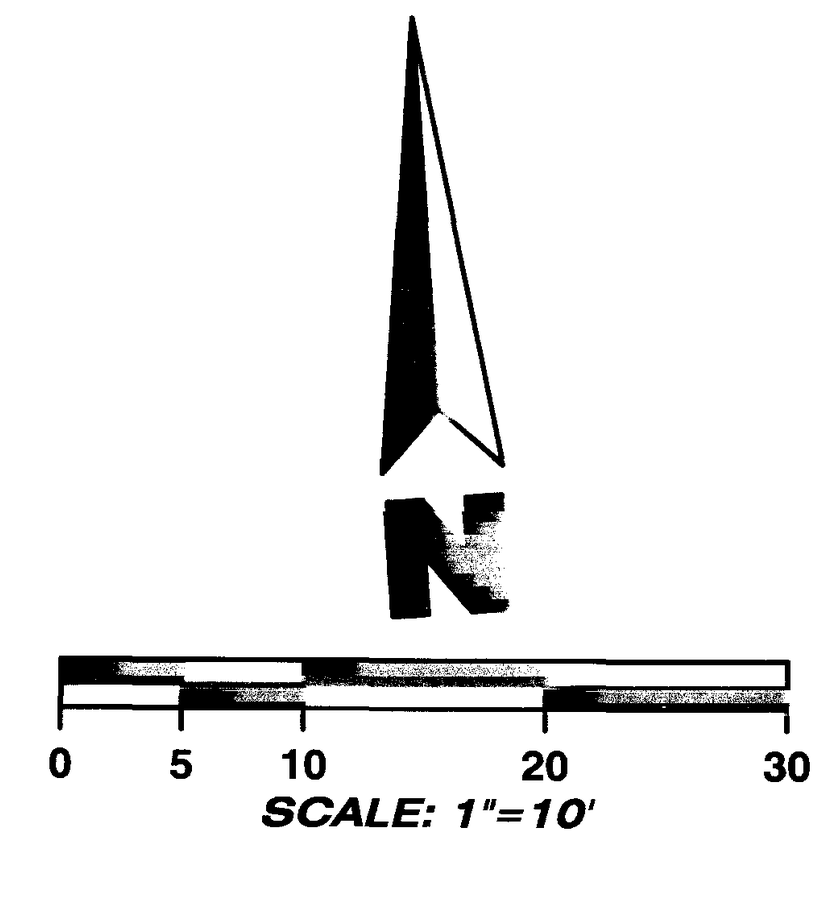
PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-8

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-08-D.dwg July 13, 2015 - 11:39am Mike Thomas


GETTY DRIVE
FORBES ROAD
EX. R/W
EX. R/W N71°27'03"E L=12.26'
EX. R/W N65°46'35"W L=66.20'
EX. R/W D=16°02'52" R=1030.00' L=309.76'
N24°13'26"E L=16.87'
N13°59'25"E L=22.18'
L=189.11'
R=942.00'
D=12°17'09"
18.0' R/W DEDICATION
PROP. 6.0' PARKWAY
PROP. 6.0' WIDE PARKWAY
PROP. 4.0' WIDE SIDEWALK
SEE OFF-SITE IMPROVEMENT PLANS
SEE ARCHITECT'S FOR MITIGATING RETAINING CONDITION
RETAIL SPACE FF=266.25
RETAIL SPACE FF=266.50
RESIDENTIAL UNIT S4a FF=269.75
RESIDENTIAL UNIT A4 FF=269.75
RESIDENTIAL UNIT A3 FF=269.75
RESIDENTIAL UNIT B2 FF=269.75
RESIDENTIAL UNIT B2bb FF=269.75
RESIDENTIAL UNIT A1bb FF=269.75
RESIDENTIAL UNIT A1 FF=269.75
RESIDENTIAL UNIT A3b FF=269.75
RESIDENTIAL UNIT A3ba FF=269.75
RESIDENTIAL UNIT S3 FF=269.75
RESIDENTIAL UNIT B2e FF=269.75
RESIDENTIAL UNIT A1-Den2 FF=269.75
RESIDENTIAL UNIT C1 FF=269.75
RESIDENTIAL UNIT S4 FF=269.75
RESIDENTIAL UNIT S2 FF=269.75
FLOW THRU PLANTER #1
FLOW THRU PLANTER #2
FLOW THRU PLANTER #25
FLOW THRU PLANTER #30
FLOW THRU PLANTER #31
FLOW THRU PLANTER #32
FLOW THRU PLANTER #33
ENLARGED GRADING DETAIL SEE SHEET C-15, DETAIL 1.
ENLARGED GRADING DETAIL SEE SHEET C-15, DETAIL 2.
ENLARGED GRADING DETAIL SEE SHEET C-16, DETAIL 1.
ENLARGED GRADING DETAIL SEE SHEET C-17, DETAIL 1.
ENLARGED GRADING DETAIL SEE SHEET C-17, DETAIL 2.
ENLARGED GRADING DETAIL SEE SHEET C-17, DETAIL 3.
ENLARGED GRADING DETAIL SEE SHEET C-17, DETAIL 6.
ENLARGED GRADING DETAIL SEE SHEET C-18, DETAIL 1.
PARKING GARAGE WALL BELOW
PRIVATE PATIO
BUILDING WALL
PLANTER
RIDGE
BBQ
2.0% MIN/MAX.
P
C
B
S
N
A
MATCHLINE SEE SHEET C-10
MATCHLINE SEE SHEET C-11


N
0
5
10
20
30
SCALE: 1"=10'

CONSTRUCTION NOTES

⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

⑯ INSTALL TILE PAVING PER LANDSCAPE ARCHITECT'S PLANS & DETAILS.

⑰ INSTALL SYNTHETIC TURF, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS, COLOR AND FINISHES.

⑲ CONSTRUCT 80mm PERVIOUS CONCRETE PAVER OVER MULTIPLE LAYERS OF AGGREGATES AND STONE, PROVIDE IMPERVIOUS GEOSYNTHETIC LINER AND PERFORATED SUBDRAIN SEE SHEET C-8, DETAILS 10, 11 AND 16. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISHES.

㉕ INSTALL RUBBERIZED PLAY SURFACE PER LANDSCAPE ARCHITECT'S PLANS.

㉞ INSTALL CLEAN WASHED PLAYGROUND SAND WITH 4-INCH PERFORATED SUBDRAIN SYSTEM. PER LANDSCAPE ARCHITECT'S PLANS.

LEGEND:

→ - → - → - →	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▬ ▬ ▬ ▬	ENLARGED PRECISE GRADING DETAILS, SEE PLAN FOR DETAIL LOCATION
▨ ▨ ▨ ▨	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
░	PROPOSED CONCRETE PAVEMENT
░	SYNTHETIC TURF
░	STABILIZED DECOMPOSED GRANITE
░	FLOW THROUGH PLANTER SYSTEM
▒	PROPOSED ASPHALT CONCRETE PAVEMENT
▨	PROPOSED CONCRETE PAVERS
▦	PROPOSED CONCRETE PERVIOUS PAVERS

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)

811
Know what's below.
Call before you dig

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444

UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
James H. Kawamura

SHEET DESCRIPTION:
PRECISE GRADING PLAN

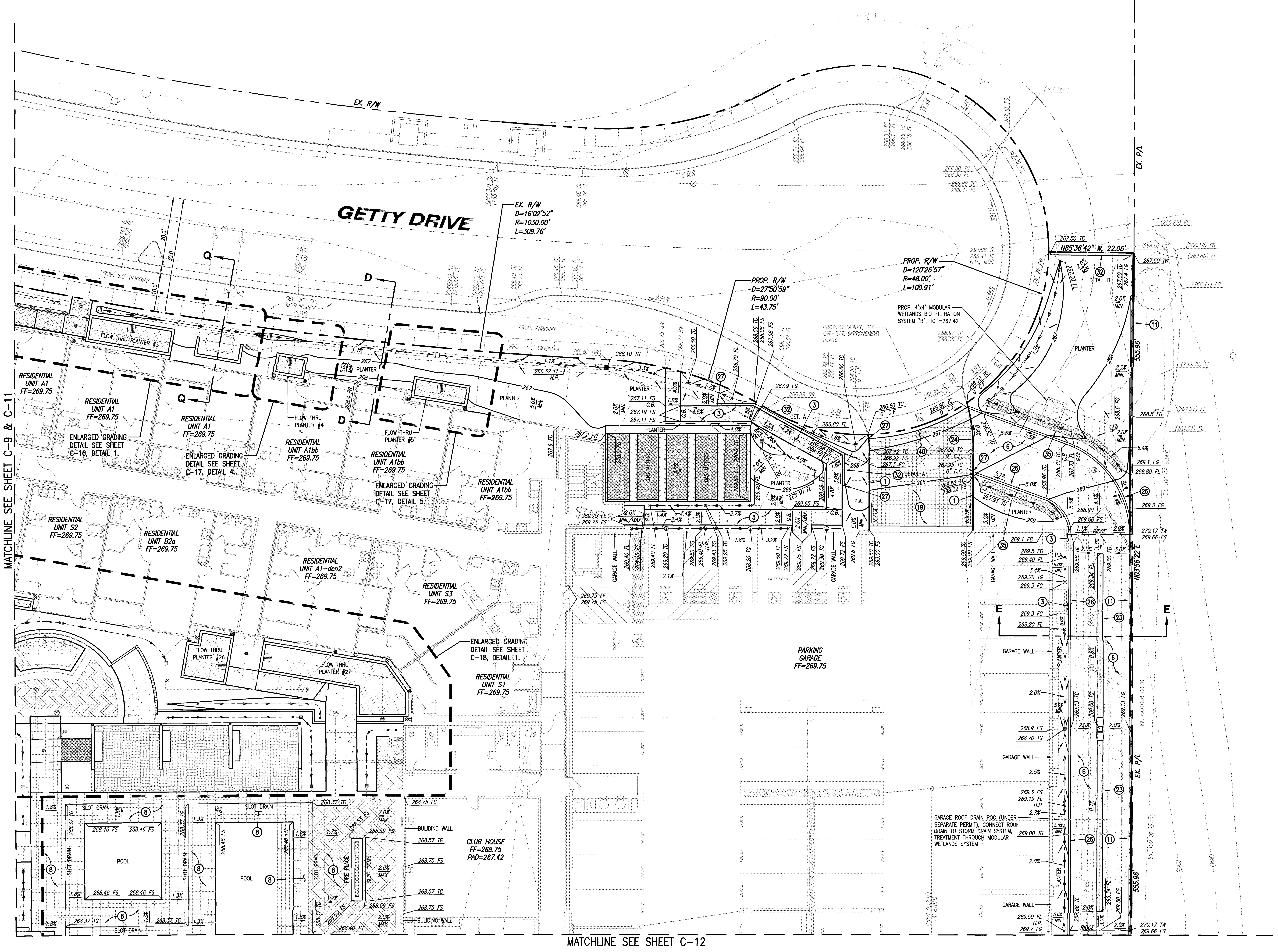
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-9

r:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-09-PG.dwg July 08, 2015 - 10:44am Shiori


GETTY DRIVE
EX. R/W
EX. R/W D=16°02'52" R=1030.00' L=309.76'
PROP. R/W D=27°50'59" R=90.00' L=43.75'
PROP. R/W D=120°26'57" R=48.00' L=100.91'
N85°36'42" W, 22.06'
N03°56'22" E
555.96'
EX. P/L
PROP. 6.0' PARKWAY
PROP. PARKWAY
PROP. 4.0' SIDEWALK
SEE OFF-SITE IMPROVEMENT PLANS
PROP. DRIVEWAY, SEE OFF-SITE IMPROVEMENT PLANS
PROP. 4'x4' MODULAR WETLANDS BIO-FILTRATION SYSTEM "B", TOP=267.42
FLOW THRU PLANTER #3
FLOW THRU PLANTER #4
FLOW THRU PLANTER #5
FLOW THRU PLANTER #26
FLOW THRU PLANTER #27
RESIDENTIAL UNIT A1 FF=269.75
RESIDENTIAL UNIT A1bb FF=269.75
RESIDENTIAL UNIT S2 FF=269.75
RESIDENTIAL UNIT B2a FF=269.75
RESIDENTIAL UNIT A1-den2 FF=269.75
RESIDENTIAL UNIT S3 FF=269.75
RESIDENTIAL UNIT S1 FF=269.75
ENLARGED GRADING DETAIL SEE SHEET C-16, DETAIL 1.
ENLARGED GRADING DETAIL SEE SHEET C-17, DETAIL 4.
ENLARGED GRADING DETAIL SEE SHEET C-17, DETAIL 5.
ENLARGED GRADING DETAIL SEE SHEET C-18, DETAIL 1.
GAS METERS
PLANTER
P.A.
DETAIL A
DETAIL B
PARKING GARAGE FF=269.75
GARAGE WALL
GARAGE ROOF DRAIN POC (UNDER SEPARATE PERMIT), CONNECT ROOF DRAIN TO STORM DRAIN SYSTEM, TREATMENT THROUGH MODULAR WETLANDS SYSTEM
CLUB HOUSE FF=268.75 PAD=267.42
POOL
SLOT DRAIN
FIRE PLACE
BUILDING WALL
RIDGE
EX. EARTHEN DITCH
EX. TOP OF SLOPE
MATCHLINE SEE SHEET C-9 & C-11
MATCHLINE SEE SHEET C-12
Q
D
E

CONSTRUCTION NOTES

① CONSTRUCT 6-INCH HIGH PCC CURB, SEE SHEET C-7, DETAIL 1 OR DETAIL 2 FOR PERVIOUS PAVER CONDITION.

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑥ CONSTRUCT 4-INCH THICK MIN. (VEHICULAR) OR 3-INCH THICK (PEDESTRIAN) STABILIZED DECOMPOSED GRANITE (SDG) SURFACE. FOR VEHICULAR SECTION PLACE 17-INCHES OF CRUSHED MISCELLANEOUS BASE (CMB) BELOW SDG. SUBGRADE PREPARATION PER SOILS REPORT. SEE LANDSCAPE ARCHITECT'S PLANS FOR ADDITIONAL DETAILS.

⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

⑪ CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.

⑲ CONSTRUCT 80mm PERVIOUS CONCRETE PAVER OVER MULTIPLE LAYERS OF AGGREGATES AND STONE, PROVIDE IMPERVIOUS GEOSYNTHETIC LINER AND PERFORATED SUBDRAIN SEE SHEET C-8, DETAILS 10, 11 AND 16. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISHES.

㉓ CONSTRUCT 18-INCH WIDE, 8-INCH THICK CONC. RIBBON GUTTER, SHEET C-8, DETAIL 13.

㉔ CONSTRUCT 0-INCH CURB PCC FACE, SEE SHEET C-8, DETAIL 19.

㉖ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB, SEE SHEET C-8, DETAIL 18.

㉗ CONSTRUCT 0-INCH TO 6-INCH CURB FACE TRANSITION OVER 1-FOOT IN LENGTH.

㉜ CONSTRUCT 8-INCH WIDE VARIABLE HEIGHT DEEPENED PCC CURB, SEE SHEET C-7, DETAIL 6.

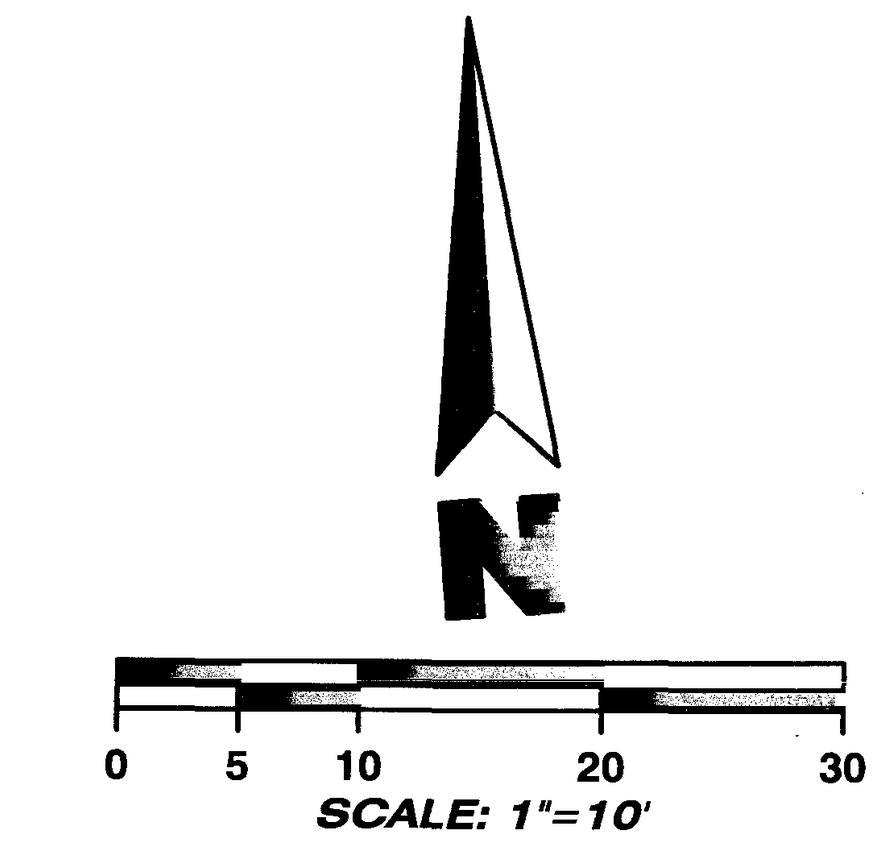
㉟ CONSTRUCT 30-INCH WIDE STABILIZED EARTHEN SWALE, SEE SHEET C-8, DETAIL 20.

LEGEND:

>-->-->-->	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▬ ▬ ▬	ENLARGED PRECISE GRADING DETAILS, SEE PLAN FOR DETAIL LOCATION
▨ ▨ ▨	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
▧	PROPOSED CONCRETE PAVEMENT
▧	SYNTHETIC TURF
▧	STABILIZED DECOMPOSED GRANITE
▧	FLOW THROUGH PLANTER SYSTEM
▩	PROPOSED CONCRETE PAVERS
▦	PROPOSED CONCRETE PERVIOUS PAVERS

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)


N
0
5
10
20
30
SCALE: 1"=10'

Grading\ABLN-PG-10-PG.dwg July 08, 2015 – 10:46am

811

Know what's below. Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

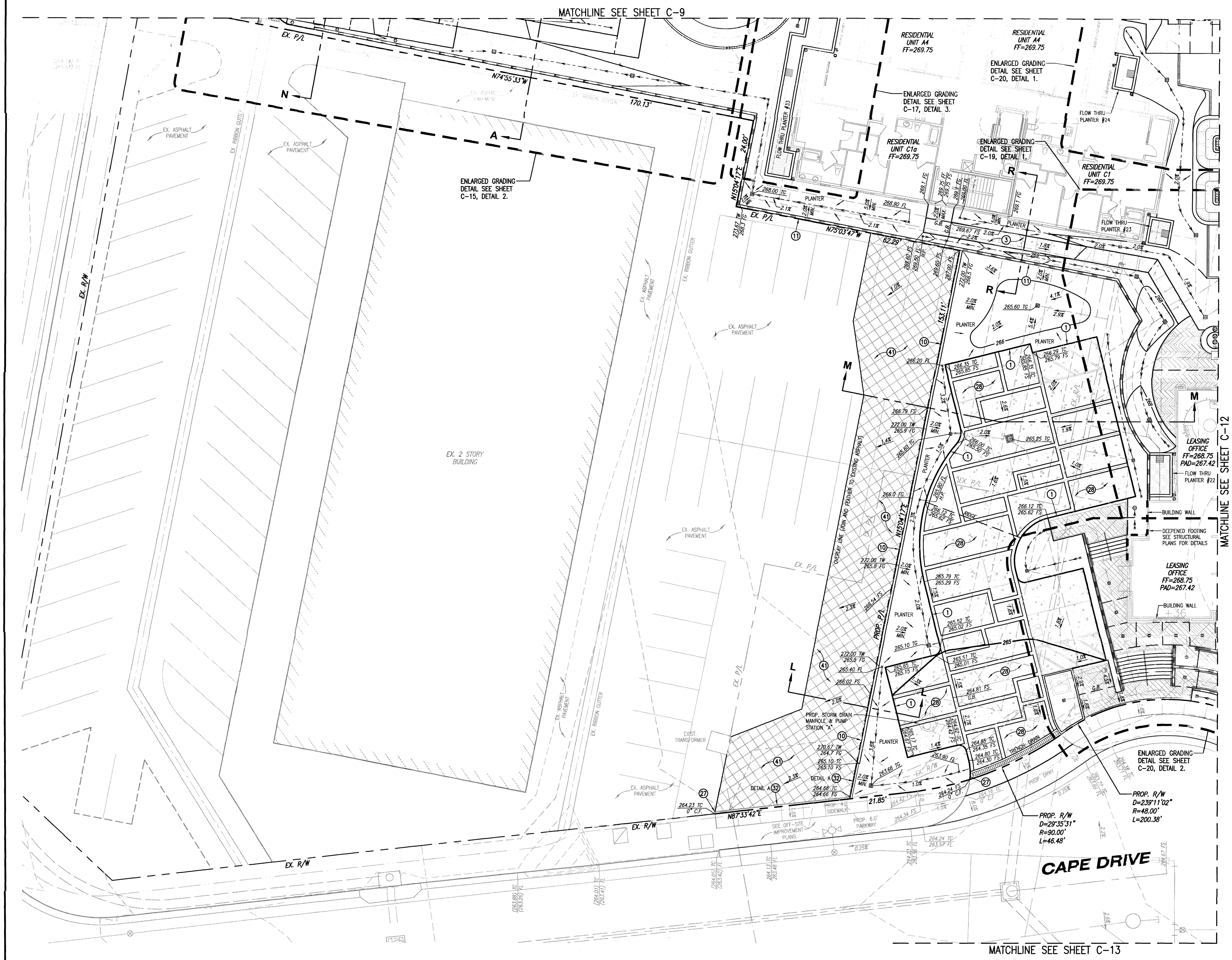
JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

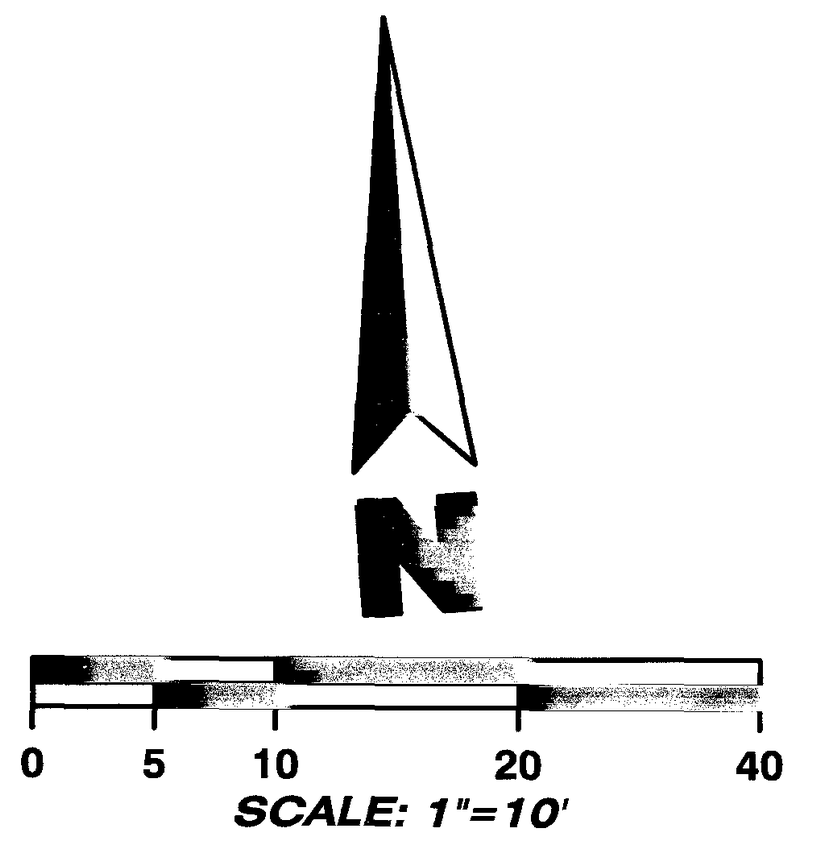
SHEET DESCRIPTION: **PRECISE GRADING PLAN**

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJEC
52


MATCHLINE SEE SHEET C-9
MATCHLINE SEE SHEET C-12
MATCHLINE SEE SHEET C-13
RESIDENTIAL UNIT A4 FF=269.75
RESIDENTIAL UNIT A4 FF=269.75
RESIDENTIAL UNIT C1a FF=269.75
RESIDENTIAL UNIT C1 FF=269.75
ENLARGED GRADING DETAIL SEE SHEET C-20, DETAIL 1.
ENLARGED GRADING DETAIL SEE SHEET C-17, DETAIL 3.
ENLARGED GRADING DETAIL SEE SHEET C-19, DETAIL 1.
ENLARGED GRADING DETAIL SEE SHEET C-15, DETAIL 2.
ENLARGED GRADING DETAIL SEE SHEET C-20, DETAIL 2.
FLOW THRU PLANTER #24
FLOW THRU PLANTER #23
FLOW THRU PLANTER #22
FLOW THRU PLANTER #33
EX. P/L
N74°55'33"W
170.13'
N15°04'17"E
24.00'
N75°03'47"W
62.29'
153.11'
N87°33'42"E
21.85'
EX. ASPHALT PAVEMENT
EX. RIBBON GUTTER
EX. R/W
EX. 2 STORY BUILDING
PROP. P/L
OVERLAY NEW (GRIND AND FEATHER TO EXISTING ASPHALT)
PLANTER
LEASING OFFICE FF=268.75 PAD=267.42
BUILDING WALL
DEEPENED FOOTING SEE STRUCTURAL PLANS FOR DETAILS
PROP. STORM DRAIN MANHOLE & PUMP STATION "A"
EXIST. TRANSFORMER
TRENCH DRAIN
DETAIL A
PROP. R/W D=29°35'31" R=90.00' L=46.48'
PROP. R/W D=239°11'02" R=48.00' L=200.38'
SEE OFF-SITE IMPROVEMENT PLANS
PROP. 4.0' SIDEWALK
PROP. 6.0' PARKWAY
CAPE DRIVE
N
A
R
M
L



SCALE: 1"=10'

CONSTRUCTION NOTES

① CONSTRUCT 6-INCH HIGH PCC CURB, SEE SHEET C-7, DETAIL 1 OR DETAIL 2 FOR PERVIOUS PAVER CONDITION.

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑩ CONSTRUCT 8-INCH CMU FREE STANDING SITE PERIMETER WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY). SLOPE FINISHED SURFACE AWAY FROM WALLS AT 2% MIN. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑪ CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.

㉗ CONSTRUCT 0-INCH TO 6-INCH CURB FACE TRANSITION OVER 1-FOOT IN LENGTH.

㉘ CONSTRUCT 6-INCH THICK PCC (VEHICULAR) SLAB WITH #4 REBAR AT 12-INCH O.C. OVER 8-INCH CRUSHED MISCELLANEOUS BASE (CMB) WITH SYNTHETIC TURF BETWEEN SLABS SEE SHEET C-7, DETAILS 4 & 5, AND LANDSCAPE ARCHITECT'S PLANS FOR COLOR, FINISH AND ADDITIONAL DETAILS.

㉜ CONSTRUCT 8-INCH WIDE VARIABLE HEIGHT DEEPENED PCC CURB, SEE SHEET C-7, DETAIL 6.

㊶ GRIND 6-FOOT WIDE x 0.125-FOOT DEEP STRIP ALONG THE EXISTING AC PAVEMENT LINE AND OVERLAY NEW ASPHALT CONCRETE AT A MIN. DEPTH OF 0.125-FEET MEETING PROPOSED ELEVATION AND SLOPES AS SHOWN ON THE GRADING PLANS.

LEGEND:

→- -→- -→- -→	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▬ ▬ ▬ ▬	ENLARGED PRECISE GRADING DETAILS, SEE PLAN FOR DETAIL LOCATION
▦ ▦ ▦ ▦	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═══	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - - - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
░	PROPOSED CONCRETE PAVEMENT
░	SYNTHETIC TURF
░	STABILIZED DECOMPOSED GRANITE
░	FLOW THROUGH PLANTER SYSTEM
▒	PROPOSED ASPHALT CONCRETE PAVEMENT
▨	PROPOSED CONCRETE PAVERS
▨	PROPOSED ASPHALT OVERLY

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)

811
Know what's below.
Call before you dig.

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NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
James H. Kawamura

SHEET DESCRIPTION:
PRECISE GRADING PLAN

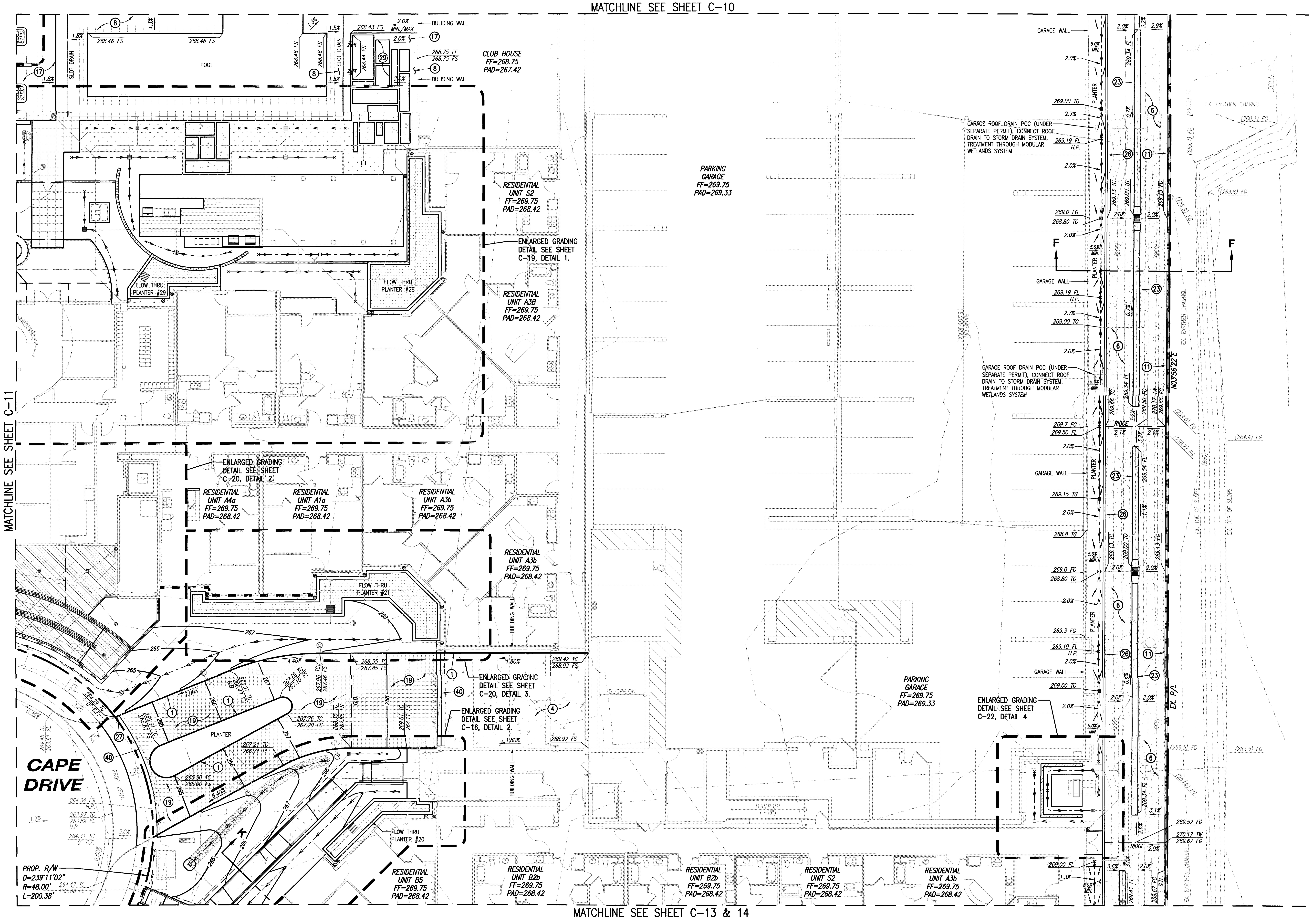
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

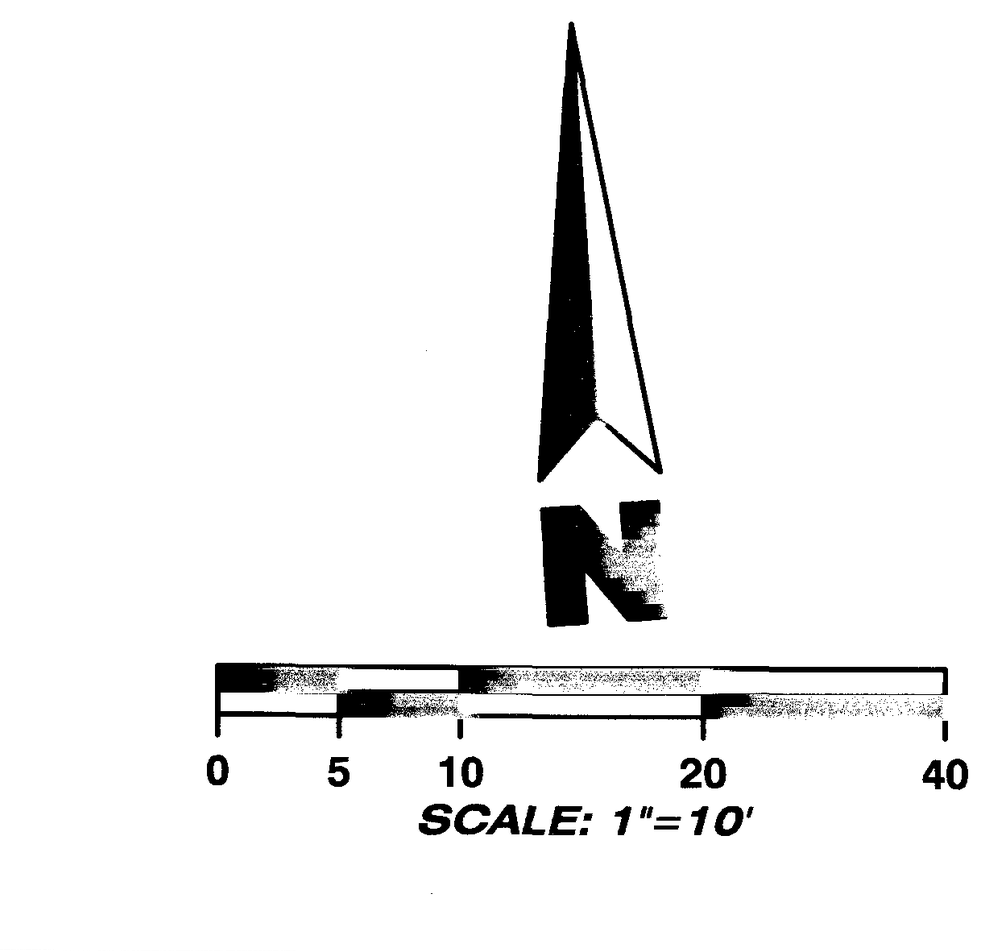
PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-11

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-11-PG.dwg July 08, 2015 - 11:02am Shiori


MATCHLINE SEE SHEET C-10
MATCHLINE SEE SHEET C-11
MATCHLINE SEE SHEET C-13 & 14
POOL
CLUB HOUSE
FF=268.75
PAD=267.42
BUILDING WALL
SLOT DRAIN
PARKING GARAGE
FF=269.75
PAD=269.33
RESIDENTIAL UNIT S2
FF=269.75
PAD=268.42
RESIDENTIAL UNIT A3B
FF=269.75
PAD=268.42
RESIDENTIAL UNIT A4a
FF=269.75
PAD=268.42
RESIDENTIAL UNIT A1a
FF=269.75
PAD=268.42
RESIDENTIAL UNIT A3b
FF=269.75
PAD=268.42
RESIDENTIAL UNIT B5
FF=269.75
PAD=268.42
RESIDENTIAL UNIT B2b
FF=269.75
PAD=268.42
ENLARGED GRADING DETAIL SEE SHEET C-19, DETAIL 1.
ENLARGED GRADING DETAIL SEE SHEET C-20, DETAIL 2.
ENLARGED GRADING DETAIL SEE SHEET C-20, DETAIL 3.
ENLARGED GRADING DETAIL SEE SHEET C-16, DETAIL 2.
ENLARGED GRADING DETAIL SEE SHEET C-22, DETAIL 4
FLOW THRU PLANTER #29
FLOW THRU PLANTER #28
FLOW THRU PLANTER #21
FLOW THRU PLANTER #20
PLANTER
CAPE DRIVE
PROP. R/W
D=239°11'02"
R=48.00'
L=200.38'
GARAGE WALL
GARAGE ROOF DRAIN POC (UNDER SEPARATE PERMIT), CONNECT ROOF DRAIN TO STORM DRAIN SYSTEM, TREATMENT THROUGH MODULAR WETLANDS SYSTEM
RIDGE
EX. EARTHEN CHANNEL
EX. TOE OF SLOPE
EX. TOP OF SLOPE
EX. P/L
N03°56'22"E
RAMP UP
SLOPE DN
F
F



SCALE: 1"=10'

CONSTRUCTION NOTES

- ① CONSTRUCT 6-INCH HIGH PCC CURB, SEE SHEET C-7, DETAIL 1 OR DETAIL 2 FOR PERVIOUS PAVER CONDITION.
- ③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.
- ④ CONSTRUCT 6-INCH THICK VEHICULAR PCC SLAB WITH #4 REBAR AT 12-INCH O.C. OVER 8-INCH CRUSHED MISCELLANEOUS BASE, (CMB) SEE SHEET C-7, DETAILS 4 & 5. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.
- ⑥ CONSTRUCT 4-INCH THICK MIN. (VEHICULAR) OR 3-INCH THICK (PEDESTRIAN) STABILIZED DECOMPOSED GRANITE (SDG) SURFACE. FOR VEHICULAR SECTION PLACE 17-INCHES OF CRUSHED MISCELLANEOUS BASE (CMB) BELOW SDG. SUBGRADE PREPARATION PER SOILS REPORT. SEE LANDSCAPE ARCHITECT'S PLANS FOR ADDITIONAL DETAILS.
- ⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.
- ⑪ CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.
- ⑰ INSTALL SYNTHETIC TURF, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS, COLOR AND FINISHES.
- ⑲ CONSTRUCT 80mm PERVIOUS CONCRETE PAVER OVER MULTIPLE LAYERS OF AGGREGATES AND STONE, PROVIDE IMPERVIOUS GEOSYNTHETIC LINER AND PERFORATED SUBDRAIN SEE SHEET C-8, DETAILS 10, 11 AND 16. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISHES.
- ㉓ CONSTRUCT 18-INCH WIDE, 8-INCH THICK CONC. RIBBON GUTTER, SHEET C-8, DETAIL 13.
- ㉖ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB, SEE SHEET C-8, DETAIL 18.
- ㉗ CONSTRUCT 0-INCH TO 6-INCH CURB FACE TRANSITION OVER 1-FOOT IN LENGTH.
- ㉙ CONSTRUCT 4-INCH THICK PCC SLAB WITH #4 REBAR AT 24-INCH O.C. WITH SYNTHETIC TURF BETWEEN SLABS SEE SHEET C-7, DETAILS 4 & 5, AND LANDSCAPE ARCHITECT'S PLANS FOR COLOR, FINISH AND ADDITIONAL DETAILS.
- ㊵ CONSTRUCT 1-FOOT WIDE x 2-FOOT DEEP CONCRETE BAND, SHEET C-8, DETAIL 12.

LEGEND:

>-->-->-->	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
▬ ▬ ▬ ▬	ENLARGED PRECISE GRADING DETAILS, SEE PLAN FOR DETAIL LOCATION
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS
▨ ▨ ▨ ▨	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═══	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
░	PROPOSED CONCRETE PAVEMENT
░	SYNTHETIC TURF
░	STABILIZED DECOMPOSED GRANITE
░	FLOW THROUGH PLANTER SYSTEM
▨	PROPOSED PERVIOUS PAVERS

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS			
NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

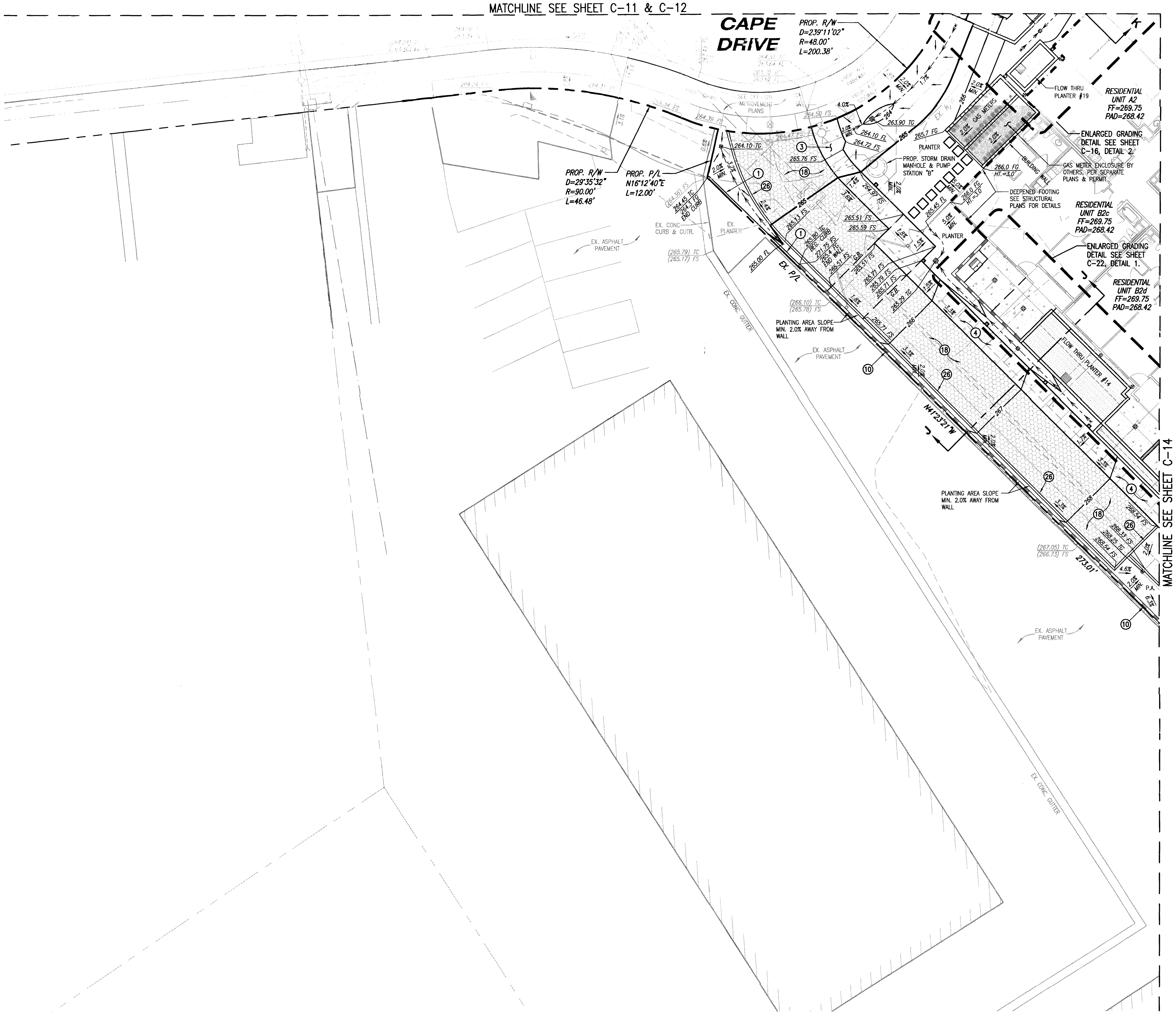
SHEET DESCRIPTION:
PRECISE GRADING PLAN

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-12


MATCHLINE SEE SHEET C-11 & C-12
CAPE DRIVE
PROP. R/W D=239°11'02" R=48.00' L=200.38'
PROP. R/W D=29°35'32" R=90.00' L=46.48'
PROP. P/L N16°12'40"E L=12.00'
SEE OFF-SITE IMPROVEMENT PLANS
264.10 TG
265.76 FS
263.90 TG
264.10 FL
264.72 FS
265.7 FG
PLANTER
PROP. STORM DRAIN MANHOLE & PUMP STATION "B"
266.0 FG HT.=3.0'
BUILDING WALL
GAS METERS
FLOW THRU PLANTER #19
RESIDENTIAL UNIT A2 FF=269.75 PAD=268.42
ENLARGED GRADING DETAIL SEE SHEET C-16, DETAIL 2.
GAS METER ENCLOSURE BY OTHERS, PER SEPARATE PLANS & PERMIT
DEEPENED FOOTING SEE STRUCTURAL PLANS FOR DETAILS
RESIDENTIAL UNIT B2c FF=269.75 PAD=268.42
ENLARGED GRADING DETAIL SEE SHEET C-22, DETAIL 1.
RESIDENTIAL UNIT B2d FF=269.75 PAD=268.42
264.45 TC
264.3 FG END CURB
(264.36) FS
EX. CONC CURB & GUTR.
EX. PLANTER
EX. ASPHALT PAVEMENT
(265.79) TC
(265.17) FS
265.00 FL
EX. P/L
265.13 FS
265.80 TC BEG. CURB
271.75 FS
265.4 FG END WALL
265.51 FS
265.59 FS
G.B.
265.71 FS
265.79 FS
265.29 TG
265.45 FL
(266.10) TC
(265.78) FS
PLANTING AREA SLOPE MIN. 2.0% AWAY FROM WALL
EX. CONC. GUTTER
FLOW THRU PLANTER #14
N41°23'21"W
273.01'
268.54 FS
268.33 FS
268.25 TG
(267.05) TC
(266.73) FS
P.A.
MATCHLINE SEE SHEET C-14

CONSTRUCTION NOTES

① CONSTRUCT 6-INCH HIGH PCC CURB, SEE SHEET C-7, DETAIL 1 OR DETAIL 2 FOR PERVIOUS PAVER CONDITION.

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

④ CONSTRUCT 6-INCH THICK VEHICULAR PCC SLAB WITH #4 REBAR AT 12-INCH O.C. OVER 8-INCH CRUSHED MISCELLANEOUS BASE, (CMB) SEE SHEET C-7, DETAILS 4 & 5. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑩ CONSTRUCT 8-INCH CMU FREE STANDING SITE PERIMETER WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY). SLOPE FINISHED SURFACE AWAY FROM WALLS AT 2% MIN. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑱ INSTALL SYNTHETIC TURFBLOCK AT FIRELANE OVER 17-INCH CRUSHED MISCELLANEOUS BASE, SEE SHEET C-8, DETAIL 17. SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

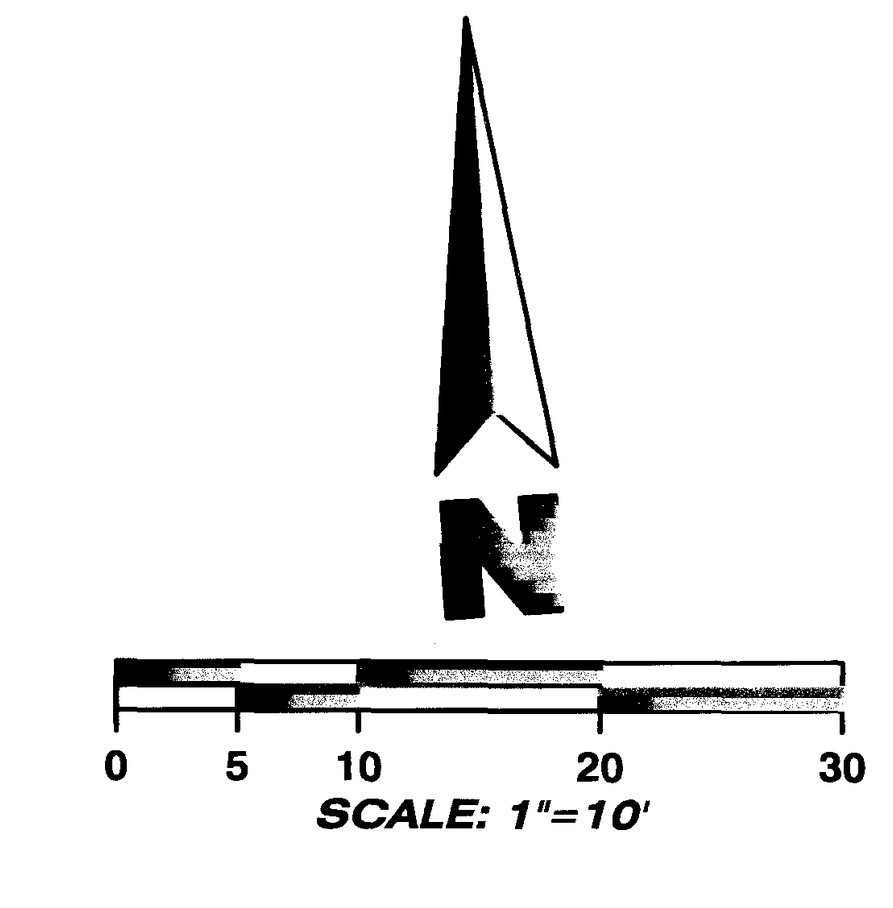
㉖ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB, SEE SHEET C-8, DETAIL 18.

LEGEND:

→ - → - →	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▬ · ▬ · ▬	DEEPENED BUILDING FOOTING, DEPTH SHALL BE THE STRUCTURAL DESIGN DEPTH PLUS "HT." AS SHOWN, SEE STRUCTURAL DRAWINGS FOR DETAILS AND CALCULATIONS.
▬ ▬ ▬ ▬	ENLARGED PRECISE GRADING DETAILS, SEE PLAN FOR DETAIL LOCATION
▨ ▨ ▨ ▨	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
▨	PROPOSED CONCRETE PAVEMENT
▨	SYNTHETIC TURF
▨	STABILIZED DECOMPOSED GRANITE
▨	FLOW THROUGH PLANTER SYSTEM
▨	SYNTHETIC TURFBLOCK

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)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SCALE: 1"=10'

811 Know what's below. Call before you dig

NOTICE TO CONTRACTOR

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REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION: **PRECISE GRADING PLAN**

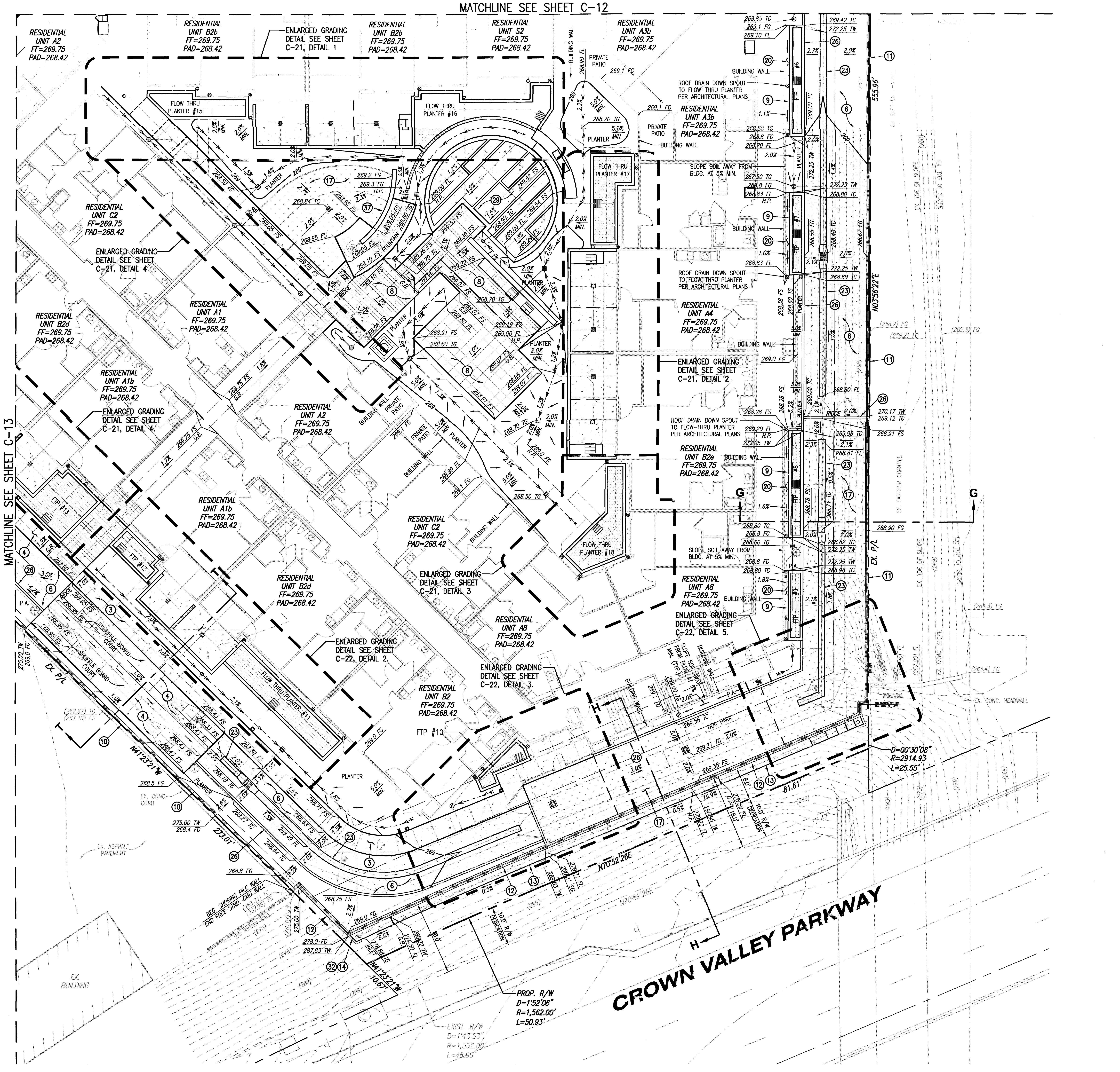
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-13

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-13-PG.dwg July 08, 2015 - 11:05am Shiori


MATCHLINE SEE SHEET C-12
MATCHLINE SEE SHEET C-13
RESIDENTIAL UNIT A2 FF=269.75 PAD=268.42
RESIDENTIAL UNIT B2b FF=269.75 PAD=268.42
ENLARGED GRADING DETAIL SEE SHEET C-21, DETAIL 1
RESIDENTIAL UNIT S2 FF=269.75 PAD=268.42
RESIDENTIAL UNIT A3b FF=269.75 PAD=268.42
FLOW THRU PLANTER #15
FLOW THRU PLANTER #16
FLOW THRU PLANTER #17
FLOW THRU PLANTER #18
PRIVATE PATIO
BUILDING WALL
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
SLOPE SOIL AWAY FROM BLDG. AT 5% MIN.
RESIDENTIAL UNIT C2 FF=269.75 PAD=268.42
ENLARGED GRADING DETAIL SEE SHEET C-21, DETAIL 4
RESIDENTIAL UNIT B2d FF=269.75 PAD=268.42
RESIDENTIAL UNIT A1 FF=269.75 PAD=268.42
RESIDENTIAL UNIT A4 FF=269.75 PAD=268.42
RESIDENTIAL UNIT A1b FF=269.75 PAD=268.42
ENLARGED GRADING DETAIL SEE SHEET C-21, DETAIL 2
RESIDENTIAL UNIT A2 FF=269.75 PAD=268.42
RESIDENTIAL UNIT B2e FF=269.75 PAD=268.42
RESIDENTIAL UNIT C2 FF=269.75 PAD=268.42
ENLARGED GRADING DETAIL SEE SHEET C-21, DETAIL 3
RESIDENTIAL UNIT A8 FF=269.75 PAD=268.42
ENLARGED GRADING DETAIL SEE SHEET C-22, DETAIL 5.
ENLARGED GRADING DETAIL SEE SHEET C-22, DETAIL 2.
ENLARGED GRADING DETAIL SEE SHEET C-22, DETAIL 3.
RESIDENTIAL UNIT B2 FF=269.75 PAD=268.42
FTP #10
FTP #11
FTP #12
FTP #13
FLOW THRU PLANTER #11
SHUFFLE BOARD COURT
DOG PARK
PLANTER
FOUNTAIN
EX. P/L
N41°23'21"W
N03°56'22"E
555.96'
N70°52'26"E
81.61'
273.01'
D=00°30'08"
R=2914.93
L=25.55'
PROP. R/W
D=1°52'06"
R=1,562.00'
L=50.93'
EXIST. R/W
D=1°43'53"
R=1,552.00'
L=45.90'
10.0' R/W DEDICATION
EX. CONC. CURB
EX. ASPHALT PAVEMENT
EX. BUILDING
EX. CONC. HEADWALL
EX. EARTHEN CHANNEL
EX. TOE OF SLOPE
EX. TOP OF SLOPE
BEG. SHORING PILE WALL
END FREE STND. CMU WALL
G
H
CROWN VALLEY PARKWAY

CONSTRUCTION NOTES

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

④ CONSTRUCT 6-INCH THICK VEHICULAR PCC SLAB WITH #4 REBAR AT 12-INCH O.C. OVER 8-INCH CRUSHED MISCELLANEOUS BASE, (CMB) SEE SHEET C-7, DETAILS 4 & 5. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑥ CONSTRUCT 4-INCH THICK MIN. (VEHICULAR) OR 3-INCH THICK (PEDESTRIAN) STABILIZED DECOMPOSED GRANITE (SDG) SURFACE. FOR VEHICULAR SECTION PLACE 17-INCHES OF CRUSHED MISCELLANEOUS BASE (CMB) BELOW SDG. SUBGRADE PREPARATION PER SOILS REPORT. SEE LANDSCAPE ARCHITECT'S PLANS FOR ADDITIONAL DETAILS.

⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

⑨ CONSTRUCT 8-INCH CMU BLOCK FLOW THROUGH PLANTER SYSTEM, SEE SHEET C-30 DETAIL 14, SLOPE EXTERIOR FINISHED GRADE AWAY FROM WALLS AT 2% MIN., SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑩ CONSTRUCT 8-INCH CMU FREE STANDING SITE PERIMETER WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY). SLOPE FINISHED SURFACE AWAY FROM WALLS AT 2% MIN. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑪ CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.

⑫ CONSTRUCT PERMANENT SHOTCRETE SHORING PILE & LAGGING RETAINING WALL, PER SEPARATE PERMIT AND SEPARATE PLAN (SHOWN FOR REFERENCE ONLY). SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE FINISHED GRADE AWAY FROM WALL AT 2% MIN.

⑬ CONSTRUCT 2-FOOT WIDE CONC. RETAINING WALL DRAINAGE DITCH, SEE SHEET C-8, DETAIL 15.

⑭ CONSTRUCT 6-INCH WIDE CONC. DRAINAGE DITCH SPLASH WALL, SEE SHEET C-8, DETAIL 15.

⑯ INSTALL TILE PAVING PER LANDSCAPE ARCHITECT'S PLANS & DETAILS.

⑰ INSTALL SYNTHETIC TURF, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS, COLOR AND FINISHES.

⑳ CONSTRUCT 3-INCH THICK CONCRETE SLAB BETWEEN BUILDING AND FLOW THROUGH PLANTER WALL. CREATE SWALE LINE IN THE CENTER AND SLOPE AT 1% MIN. CROSS SLOPE FROM BUILDING AND PLANTER WALL TO BE AT 2% MIN TO SWALE, SEE SHEET C-8, DETAIL 14.

㉓ CONSTRUCT 18-INCH WIDE, 8-INCH THICK CONC. RIBBON GUTTER, SHEET C-8, DETAIL 13.

㉖ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB, SEE SHEET C-8, DETAIL 18.

㉙ CONSTRUCT 4-INCH THICK PCC SLAB WITH #4 REBAR AT 24-INCH O.C. WITH SYNTHETIC TURF BETWEEN SLABS SEE SHEET C-7, DETAILS 4 & 5, AND LANDSCAPE ARCHITECT'S PLANS FOR COLOR, FINISH AND ADDITIONAL DETAILS.

㉜ CONSTRUCT 8-INCH WIDE VARIABLE HEIGHT DEEPENED PCC CURB, SEE SHEET C-7, DETAIL 6.

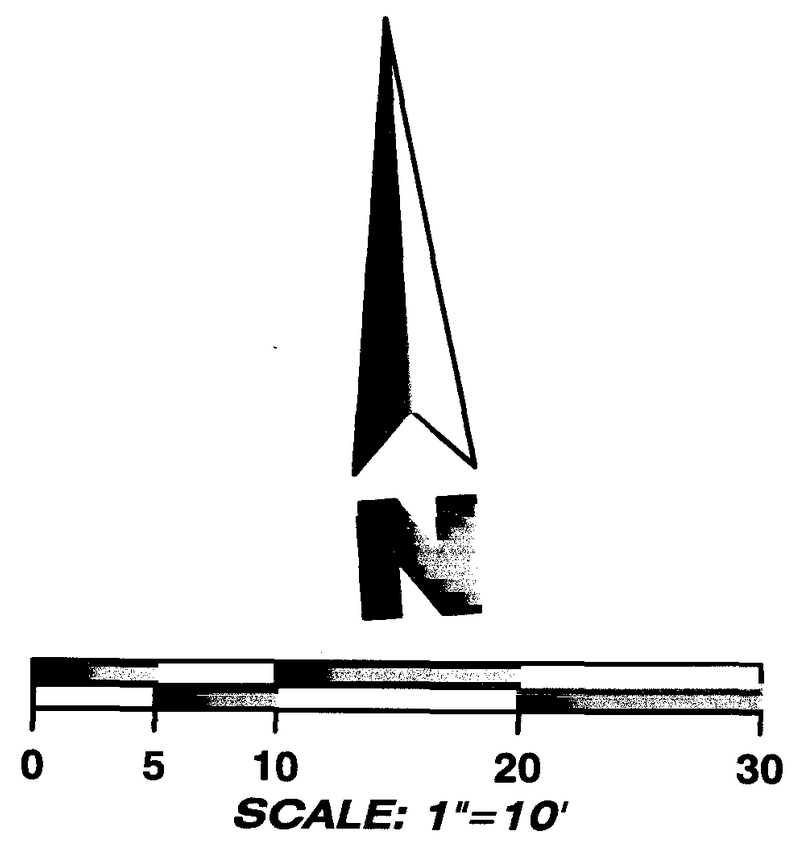
㊲ CONSTRUCT 8-INCH CMU WALL, UNDER SEPARATE PERMIT & PLANS (SHOWN FOR INFORMATION ONLY), PER LANDSCAPE ARCHITECT'S PLANS.

LEGEND:

—>—>—>	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▬ ▬ ▬ ▬	ENLARGED PRECISE GRADING DETAILS, SEE PLAN FOR DETAIL LOCATION
▨ ▨ ▨ ▨	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
☐	PROPOSED CONCRETE PAVEMENT
☐	SYNTHETIC TURF
▒	STABILIZED DECOMPOSED GRANITE
░	FLOW THROUGH PLANTER SYSTEM
⬡	SYNTHETIC TURFBLOCK

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)


0
5
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SCALE: 1"=10'

811
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REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
PRECISE GRADING PLAN

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-14

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-14-PG.dwg July 08, 2015 - 11:07am Shiori

CONSTRUCTION NOTES

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑤ CONSTRUCT 4-INCH THICK ACCESSIBLE PCC RAMP. WITH #4 REBAR AT 24-INCHES O.C. (ADD CURBS WHEN ADJACENT TO BUILDING AND/OR WALL CONDITION, FOR ENTIRE LENGTH OF RAMP). SEE SHEET C-7, DETAIL 8. SEE LANDSCAPE PLANS FOR PCC COLORS AND FINISHES, ALSO FOR ALTERNATIVE PAVER SURFACES.

⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

⑨ CONSTRUCT 8-INCH CMU BLOCK FLOW THROUGH PLANTER SYSTEM, SEE SHEET C-30 DETAIL 14, SLOPE EXTERIOR FINISHED GRADE AWAY FROM WALLS AT 2% MIN., SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑩ CONSTRUCT 8-INCH CMU FREE STANDING SITE PERIMETER WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY). SLOPE FINISHED SURFACE AWAY FROM WALLS AT 2% MIN. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑪ CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.

⑮ CONSTRUCT PCC STAIRS AND HANDRAILS. SEE SHEET C-7, DETAIL 9.

⑯ INSTALL TILE PAVING PER LANDSCAPE ARCHITECT'S PLANS & DETAILS.

⑲ CONSTRUCT 80mm PERVIOUS CONCRETE PAVER OVER MULTIPLE LAYERS OF AGGREGATES AND STONE, PROVIDE IMPERVIOUS GEOSYNTHETIC LINER AND PERFORATED SUBDRAIN SEE SHEET C-8, DETAILS 10, 11 AND 16. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISHES.

⑳ CONSTRUCT 3-INCH THICK CONCRETE SLAB BETWEEN BUILDING AND FLOW THROUGH PLANTER WALL. CREATE SWALE LINE IN THE CENTER AND SLOPE AT 1% MIN. CROSS SLOPE FROM BUILDING AND PLANTER WALL TO BE AT 2% MIN TO SWALE, SEE SHEET C-8, DETAIL 14.

㉑ CONSTRUCT 4-INCH THICK ASPHALT CONCRETE PAVEMENT OVER 10-INCH CRUSHED MISCELLANEOUS BASE (CMB) TI=5.5, PER SOILS REPORT BY ALBUS-KEEFE& ASSOCIATES, INC., DATED MAY 15, 2014.

㉓ CONSTRUCT 18-INCH WIDE, 8-INCH THICK CONC. RIBBON GUTTER, SHEET C-8, DETAIL 13.

㉔ CONSTRUCT 0-INCH CURB PCC FACE, SEE SHEET C-8, DETAIL 19.

㉕ INSTALL RUBBERIZED PLAY SURFACE PER LANDSCAPE ARCHITECT'S PLANS.

㉖ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB, SEE SHEET C-8, DETAIL 18.

㉛ INSTALL 42-INCH HIGH TUBULAR STEEL BARRIER RAIL, PER CBC REQUIREMENTS. PAINT TO MATCH SITE RAILINGS, SEE LANDSCAPE ARCHITECT'S PLAN FOR DECORATIVE RAILING ALTERNATIVE.

㉝ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB WITH VERTICAL LOUVERED FENCE, PER LANDSCAPE ARCHITECT'S PLANS.

㉞ INSTALL CLEAN WASHED PLAYGROUND SAND WITH 4-INCH PERFORATED SUBDRAIN SYSTEM. PER LANDSCAPE ARCHITECT'S PLANS.

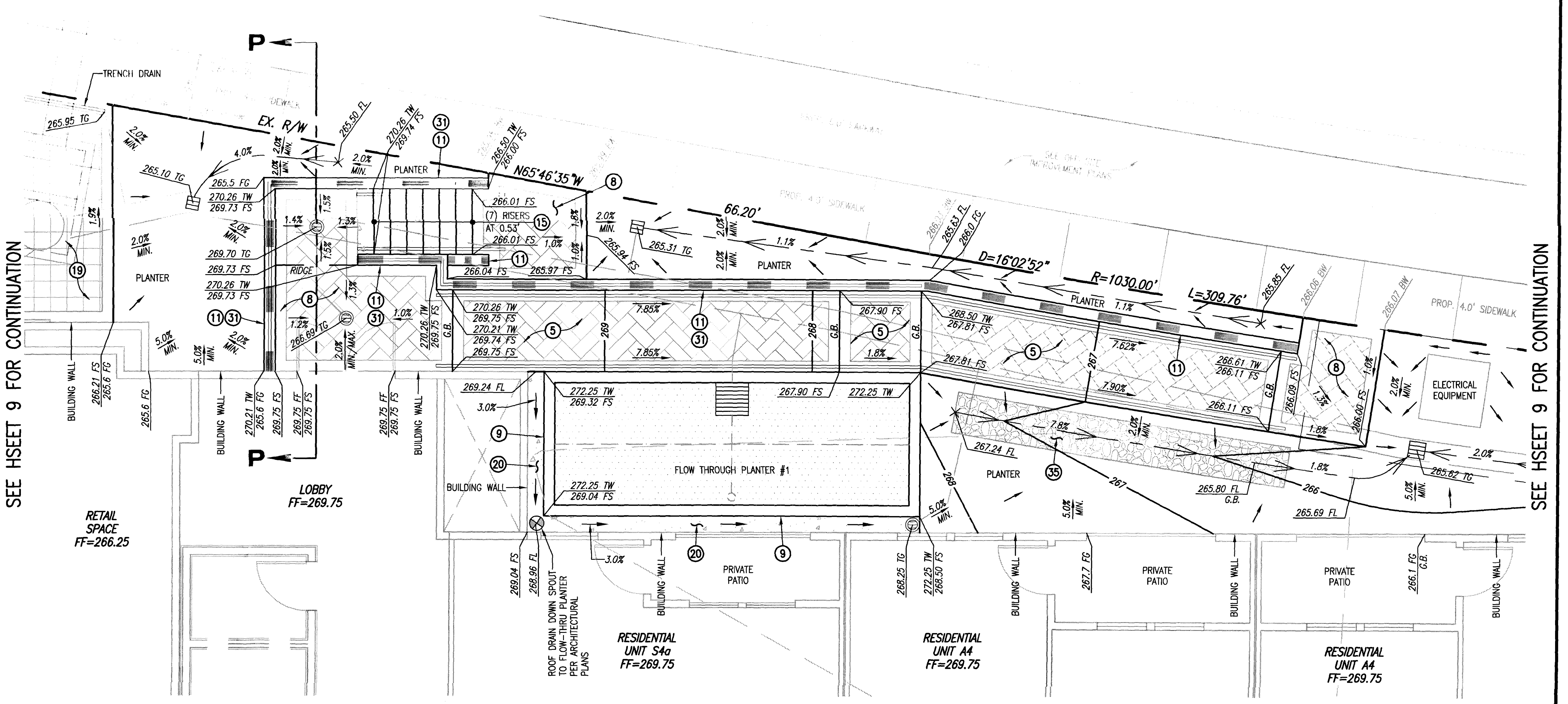
㉟ CONSTRUCT 30-INCH WIDE STABILIZED EARTHEN SWALE, SEE SHEET C-8, DETAIL 20.

LEGEND:

→ - → - →	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▩ ▩ ▩	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
░	PROPOSED CONCRETE PAVEMENT
░	SYNTHETIC TURF
░	CLEAN PLAYGROUND SAND
░	FLOW THROUGH PLANTER SYSTEM
▒	PROPOSED ASPHALT CONCRETE PAVEMENT
▨	PROPOSED CONCRETE PAVERS
▦	PROPOSED CONCRETE PERVIOUS PAVERS

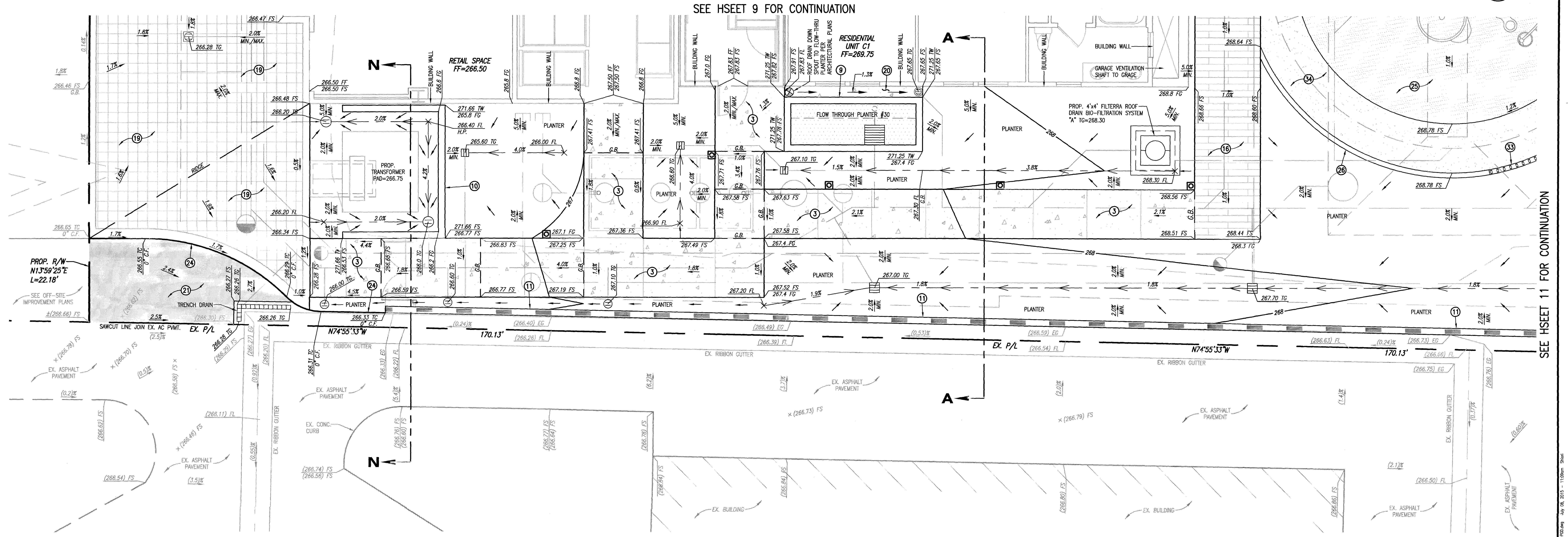
GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)


P
TRENCH DRAIN
265.95 TG
EX. R/W
265.50 FL
270.26 TW
269.74 FS
N65°46'35"W
265.10 TG
265.5 FG
270.26 TW
269.73 FS
269.70 TG
269.73 FS
RIDGE
266.01 FS
(7) RISERS AT 0.53'
266.04 FS
265.97 FS
266.50 TW
266.00 FS
265.94 FS
265.31 TG
66.20'
D=16°02'52"
R=1030.00'
L=309.76'
265.63 FL
266.0 FG
265.85 FL
266.06 BW
266.07 BW
PROP. 4.0' SIDEWALK
SEE OFF-SITE IMPROVEMENT PLANS
PLANTER
266.69 TG
270.26 TW
269.75 FS
270.21 TW
269.74 FS
269.75 FS
7.85%
267.90 FS
268.50 TW
267.81 FS
7.62%
7.90%
266.61 TW
266.11 FS
266.09 FS
266.00 FS
ELECTRICAL EQUIPMENT
265.62 TG
267.24 FL
265.80 FL
G.B.
265.69 FL
269.24 FL
272.25 TW
269.32 FS
272.25 TW
269.04 FS
FLOW THROUGH PLANTER #1
269.04 FS
268.96 FL
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
268.25 TG
272.25 TW
268.50 FS
267.7 FG
266.1 FG
BUILDING WALL
PRIVATE PATIO
266.21 FS
265.6 FG
270.21 TW
269.75 FF
LOBBY FF=269.75
RETAIL SPACE FF=266.25
RESIDENTIAL UNIT S4a FF=269.75
RESIDENTIAL UNIT A4 FF=269.75
SEE HSEET 9 FOR CONTINUATION

GRADING DETAIL (1) - AT NORH WESTERLY ACCESSIBLE RAMP / FLOW THROUGH PLANTER #1

SCALE: 1"=4'


SEE HSEET 9 FOR CONTINUATION
266.47 FS
266.28 TG
2.0% MIN./MAX.
266.46 FS G.B.
RIDGE
266.65 TC 0" C.F.
PROP. R/W N13°59'25"E L=22.18'
SEE OFF-SITE IMPROVEMENT PLANS
±(266.66) FS
266.55 TC 0" C.F.
266.27 FS
266.26 TG
266.29 TC 0" C.F.
TRENCH DRAIN
266.26 TG
SAWCUT LINE JOIN EX. AC PVMT.
EX. P/L
266.28 TG
N
266.48 FS
266.20 TG
266.50 FF
266.50 FS
PROP. TRANSFORMER PAD=266.75
266.20 FL
266.34 FS
266.00 TG
266.33 TC 0" C.F.
266.31 TC 0" C.F.
N74°55'33"W
170.13'
RETAIL SPACE FF=266.50
BUILDING WALL
266.6 FG
271.66 TW
265.8 FG
266.40 FL H.P.
265.60 TG
266.00 FL
271.66 FS
266.77 FS
267.1 FG
267.25 FS
266.83 FS
266.59 FS
266.77 FS
267.19 FS
PLANTER
266.60 TG
267.41 FS
267.36 FS
266.90 FL
267.49 FS
267.10 TG
267.71 FS
267.58 FS
267.4 FG
267.20 FL
267.52 FS
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
RESIDENTIAL UNIT C1 FF=269.75
FLOW THROUGH PLANTER #30
271.25 TW
267.4 FG
267.63 FS
267.30 FL
267.00 TG
A
BUILDING WALL
GARAGE VENTILATION SHAFT TO GRAGE
PROP. 4'x4' FILTERRA ROOF DRAIN BIO-FILTRATION SYSTEM "A" TG=268.30
268.8 FG
268.30 FL
268.56 FS
268.51 FS
268.64 FS
268.66 FS
268.60 FS
268.44 FS
268.3 FG
268.78 FS
267.70 TG
EX. P/L
EX. RIBBON GUTTER
EX. ASPHALT PAVEMENT
EX. CONC. CURB
EX. BUILDING
SEE HSEET 11 FOR CONTINUATION

GRADING DETAIL (2) - SOUTHSIDE OF RETAIL SPACE / FLOW THROUH PLANTER #30

SCALE: 1"=4'

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
James H. Kawamura

SHEET DESCRIPTION: **PRECISE GRADING DETAILS**

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-15

CONSTRUCTION NOTES

① CONSTRUCT 6-INCH HIGH PCC CURB, SEE SHEET C-7, DETAIL 1 OR DETAIL 2 FOR PERVIOUS PAVER CONDITION.

② CONSTRUCT VARIABLE HEIGHT PCC CURB FACE, SEE SHEET C-7, DETAIL 3.

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑤ CONSTRUCT 4-INCH THICK ACCESSIBLE PCC RAMP. WITH #4 REBAR AT 24-INCHES O.C. (ADD CURBS WHEN ADJACENT TO BUILDING AND/OR WALL CONDITION, FOR ENTIRE LENGTH OF RAMP). SEE SHEET C-7, DETAIL 8. SEE LANDSCAPE PLANS FOR PCC COLORS AND FINISHES, ALSO FOR ALTERNATIVE PAVER SURFACES.

⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

⑨ CONSTRUCT 8-INCH CMU BLOCK FLOW THROUGH PLANTER SYSTEM, SEE SHEET C-30 DETAIL 14, SLOPE EXTERIOR FINISHED GRADE AWAY FROM WALLS AT 2% MIN., SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑪ CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.

⑮ CONSTRUCT PCC STAIRS AND HANDRAILS. SEE SHEET C-7, DETAIL 9.

⑲ CONSTRUCT 80mm PERVIOUS CONCRETE PAVER OVER MULTIPLE LAYERS OF AGGREGATES AND STONE, PROVIDE IMPERVIOUS GEOSYNTHETIC LINER AND PERFORATED SUBDRAIN SEE SHEET C-8, DETAILS 10, 11 AND 16. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISHES.

⑳ CONSTRUCT 3-INCH THICK CONCRETE SLAB BETWEEN BUILDING AND FLOW THROUGH PLANTER WALL. CREATE SWALE LINE IN THE CENTER AND SLOPE AT 1% MIN. CROSS SLOPE FROM BUILDING AND PLANTER WALL TO BE AT 2% MIN TO SWALE, SEE SHEET C-8, DETAIL 14.

㉗ CONSTRUCT 0-INCH TO 6-INCH CURB FACE TRANSITION OVER 1-FOOT IN LENGTH.

㉛ INSTALL 42-INCH HIGH TUBULAR STEEL BARRIER RAIL, PER CBC REQUIREMENTS. PAINT TO MATCH SITE RAILINGS, SEE LANDSCAPE ARCHITECT'S PLAN FOR DECORATIVE RAILING ALTERNATIVE.

㉜ CONSTRUCT 8-INCH WIDE VARIABLE HEIGHT DEEPENED PCC CURB, SEE SHEET C-7, DETAIL 6.

㉟ CONSTRUCT 30-INCH WIDE STABILIZED EARTHEN SWALE, SEE SHEET C-8, DETAIL 20.

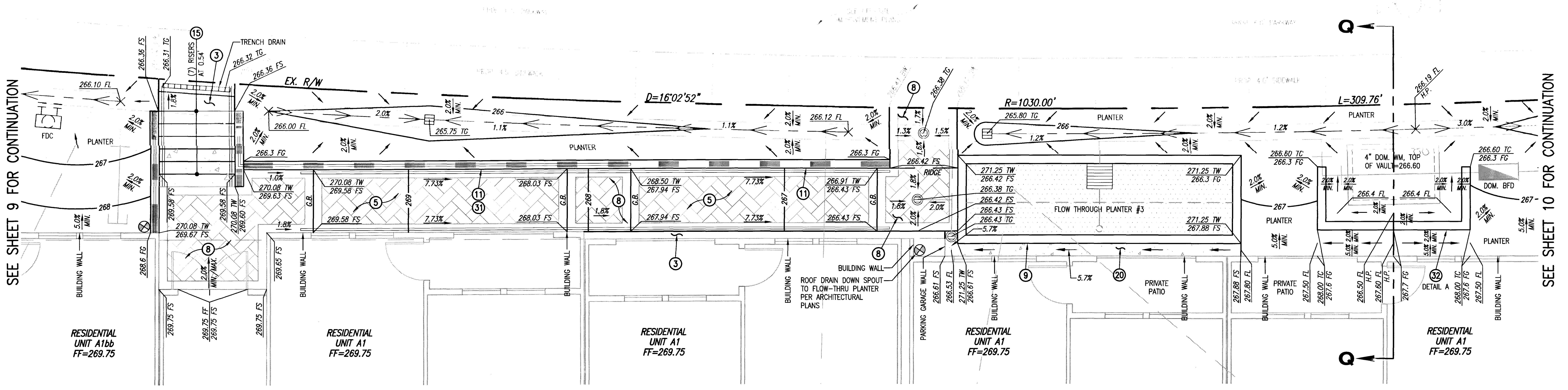
㊵ CONSTRUCT 1-FOOT WIDE x 2-FOOT DEEP CONCRETE BAND, SHEET C-8, DETAIL 12.

LEGEND:

→--→--→--→	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▬ ▬ ▬	DEEPENED BUILDING FOOTING, DEPTH SHALL BE THE STRUCTURAL DESIGN DEPTH PLUS "HT." AS SHOWN, SEE STRUCTURAL DRAWINGS FOR DETAILS AND CALCULATIONS.
▨ ▨ ▨ ▨	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═══	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
▭	PROPOSED CONCRETE PAVEMENT
▭	SYNTHETIC TURF
▭	STABILIZED DECOMPOSED GRANITE
▭	FLOW THROUGH PLANTER SYSTEM
▨	PROPOSED CONCRETE PAVERS
▦	PROPOSED CONCRETE PERVIOUS PAVERS

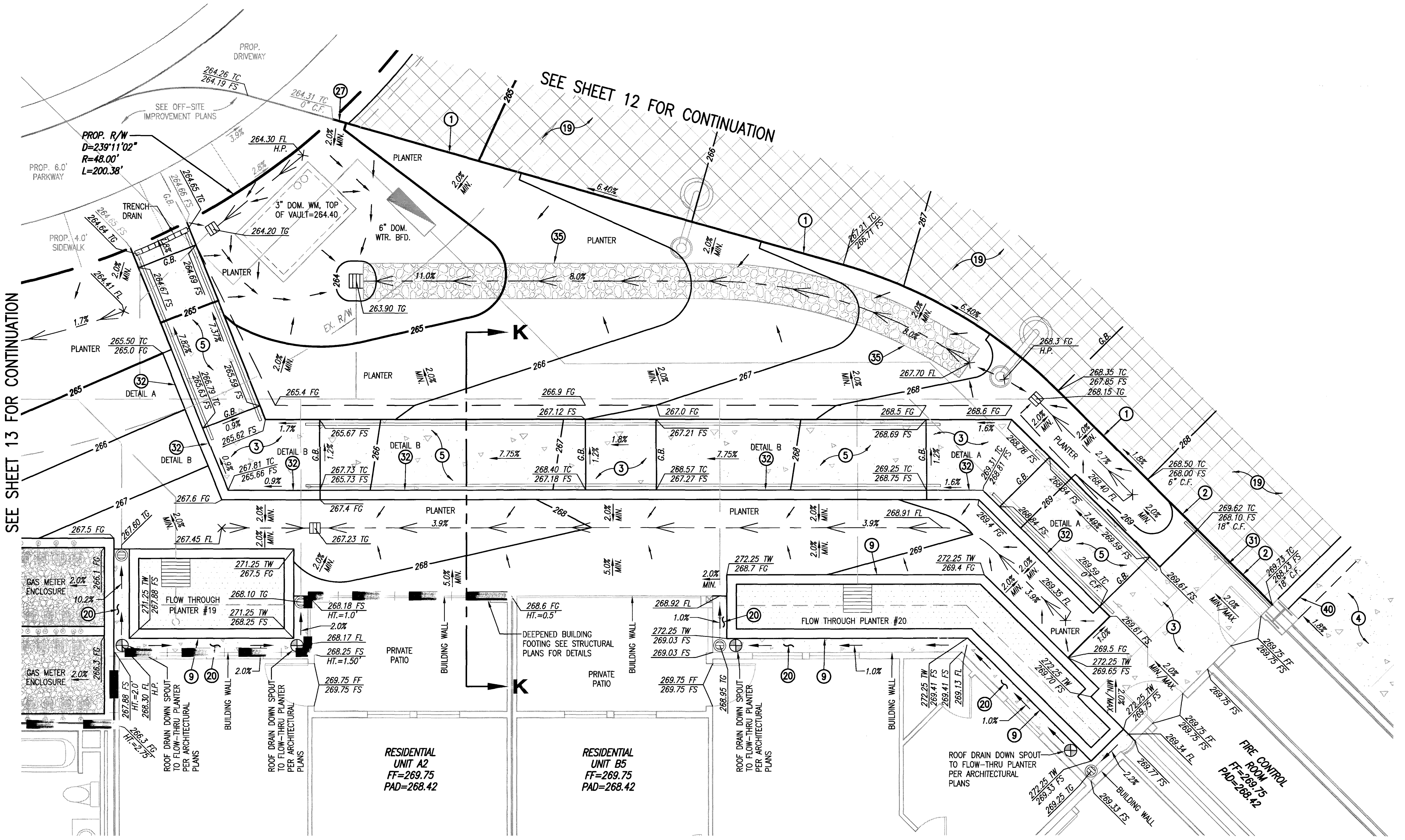
GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)


SEE SHEET 9 FOR CONTINUATION
SEE SHEET 10 FOR CONTINUATION
TRENCH DRAIN
(7) RISERS AT 0.54'
EX. R/W
D=16°02'52"
R=1030.00'
L=309.76'
FDC
PLANTER
FLOW THROUGH PLANTER #3
4" DOM. WM, TOP OF VAULT=266.60
DOM. BFD
RIDGE
BUILDING WALL
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
PARKING GARAGE WALL
PRIVATE PATIO
DETAIL A
RESIDENTIAL UNIT A1bb FF=269.75
RESIDENTIAL UNIT A1 FF=269.75
Q
Q

GRADING DETAIL (1) - AT NORTH EASTERLY ACCESSIBLE RAMP / FLOW THROUGH PLANTER #3

SCALE: 1"=4'


SEE SHEET 12 FOR CONTINUATION
SEE SHEET 13 FOR CONTINUATION
PROP. DRIVEWAY
SEE OFF-SITE IMPROVEMENT PLANS
PROP. R/W
D=239°11'02"
R=48.00'
L=200.38'
PROP. 6.0' PARKWAY
PROP. 4.0' SIDEWALK
TRENCH DRAIN
3" DOM. WM, TOP OF VAULT=264.40
6" DOM. WTR. BFD.
EX. R/W
PLANTER
K
K
DETAIL A
DETAIL B
GAS METER ENCLOSURE
FLOW THROUGH PLANTER #19
FLOW THROUGH PLANTER #20
DEEPENED BUILDING FOOTING SEE STRUCTURAL PLANS FOR DETAILS
PRIVATE PATIO
BUILDING WALL
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
RESIDENTIAL UNIT A2 FF=269.75 PAD=268.42
RESIDENTIAL UNIT B5 FF=269.75 PAD=268.42
FIRE CONTROL ROOM FF=269.75 PAD=268.42

GRADING DETAIL (2) - ACCESSIBLE RAMP AT GARAGE ENTRANCE / FLOW THROUGH PLANTER #19 & 20

SCALE: 1"=4'

811
Know what's below.
Call before you dig.

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NO.	DATE:	DESCRIPTION	APPROVAL

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KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
CIVIL

SHEET DESCRIPTION:
PRECISE GRADING DETAILS

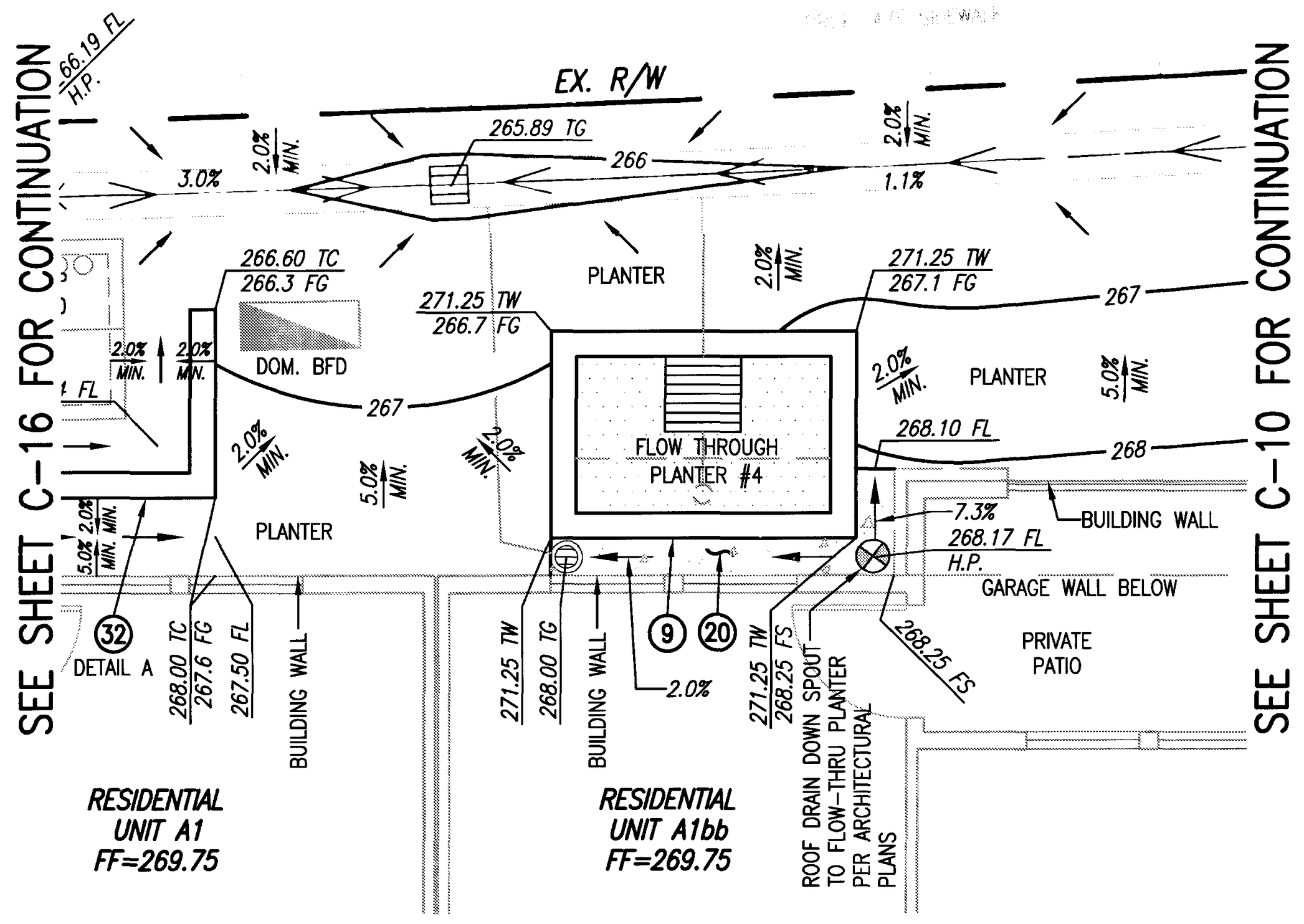
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

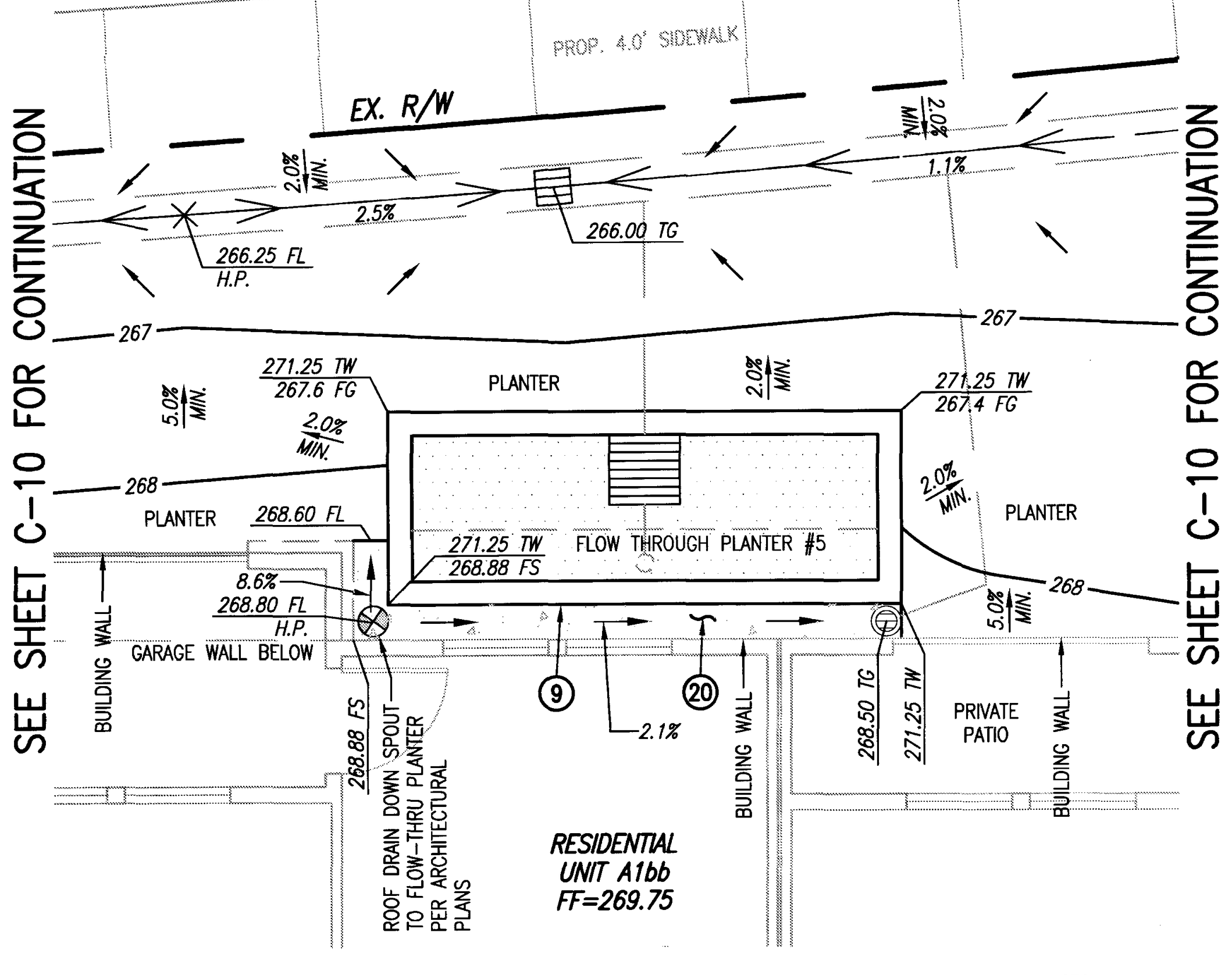
SHEET NO.
C-16

H:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-16-PGD.dwg


SEE SHEET C-16 FOR CONTINUATION
SEE SHEET C-10 FOR CONTINUATION
EX. R/W
265.89 TC
266
3.0%
2.0% MIN.
1.1%
266.60 TC
266.3 FG
DOM. BFD
271.25 TW
266.7 FG
PLANTER
271.25 TW
267.1 FG
267
FLOW THROUGH PLANTER #4
268.10 FL
268
268.17 FL
H.P.
BUILDING WALL
GARAGE WALL BELOW
PRIVATE PATIO
DETAIL A
RESIDENTIAL UNIT A1 FF=269.75
RESIDENTIAL UNIT A1bb FF=269.75
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
BUILDING WALL
2.0%
7.3%

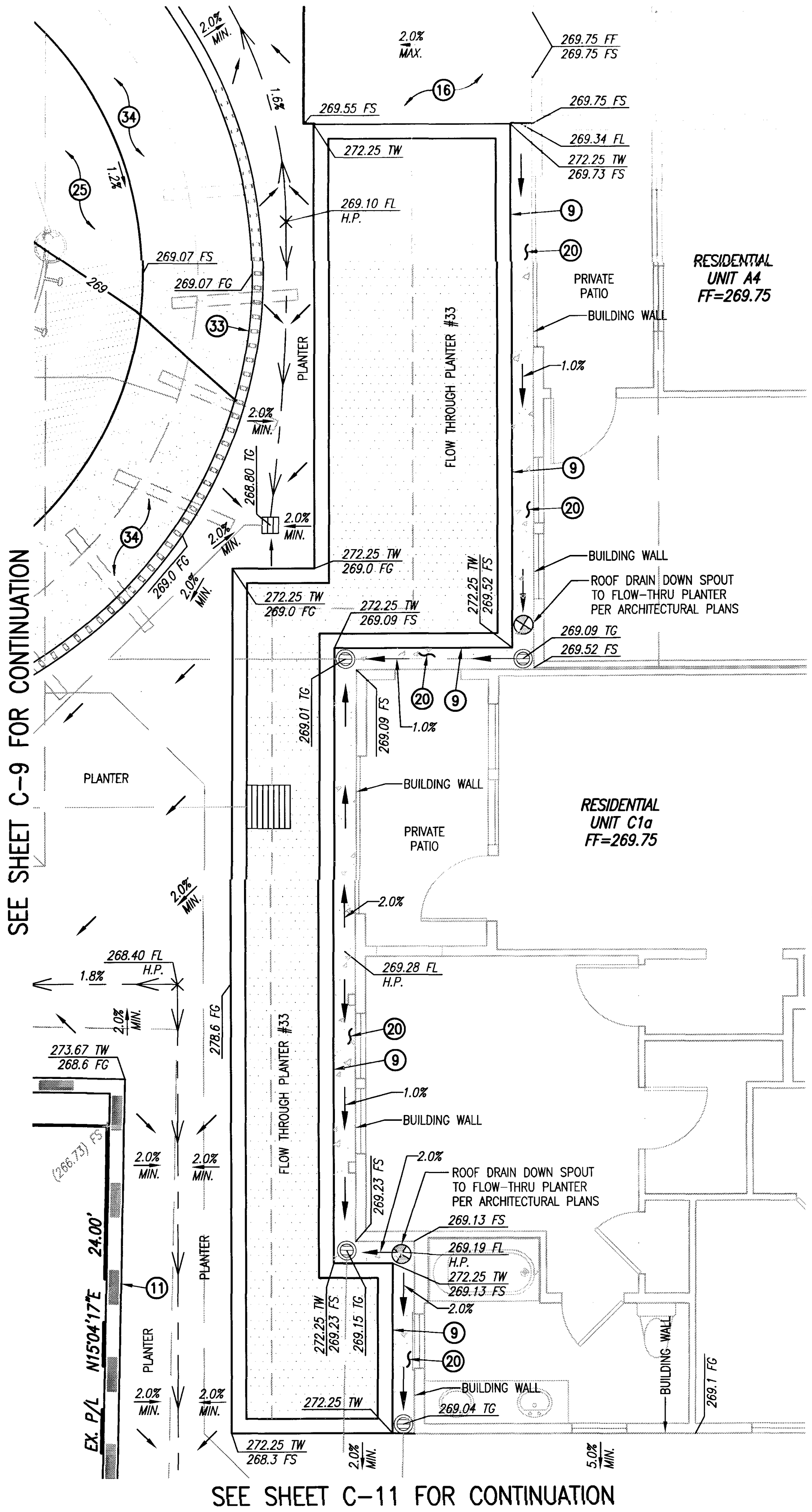
GRADING DETAIL (4) - FLOW THROUGH PLANTER #4

SCALE: 1"=4'


SEE SHEET C-10 FOR CONTINUATION
PROP. 4.0' SIDEWALK
EX. R/W
2.5%
266.00 TC
1.1%
266.25 FL
H.P.
267
271.25 TW
267.6 FG
PLANTER
271.25 TW
267.4 FG
268
268.60 FL
271.25 TW
268.86 FS
FLOW THROUGH PLANTER #5
8.6%
268.80 FL
H.P.
GARAGE WALL BELOW
2.1%
BUILDING WALL
PRIVATE PATIO
RESIDENTIAL UNIT A1bb FF=269.75
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS

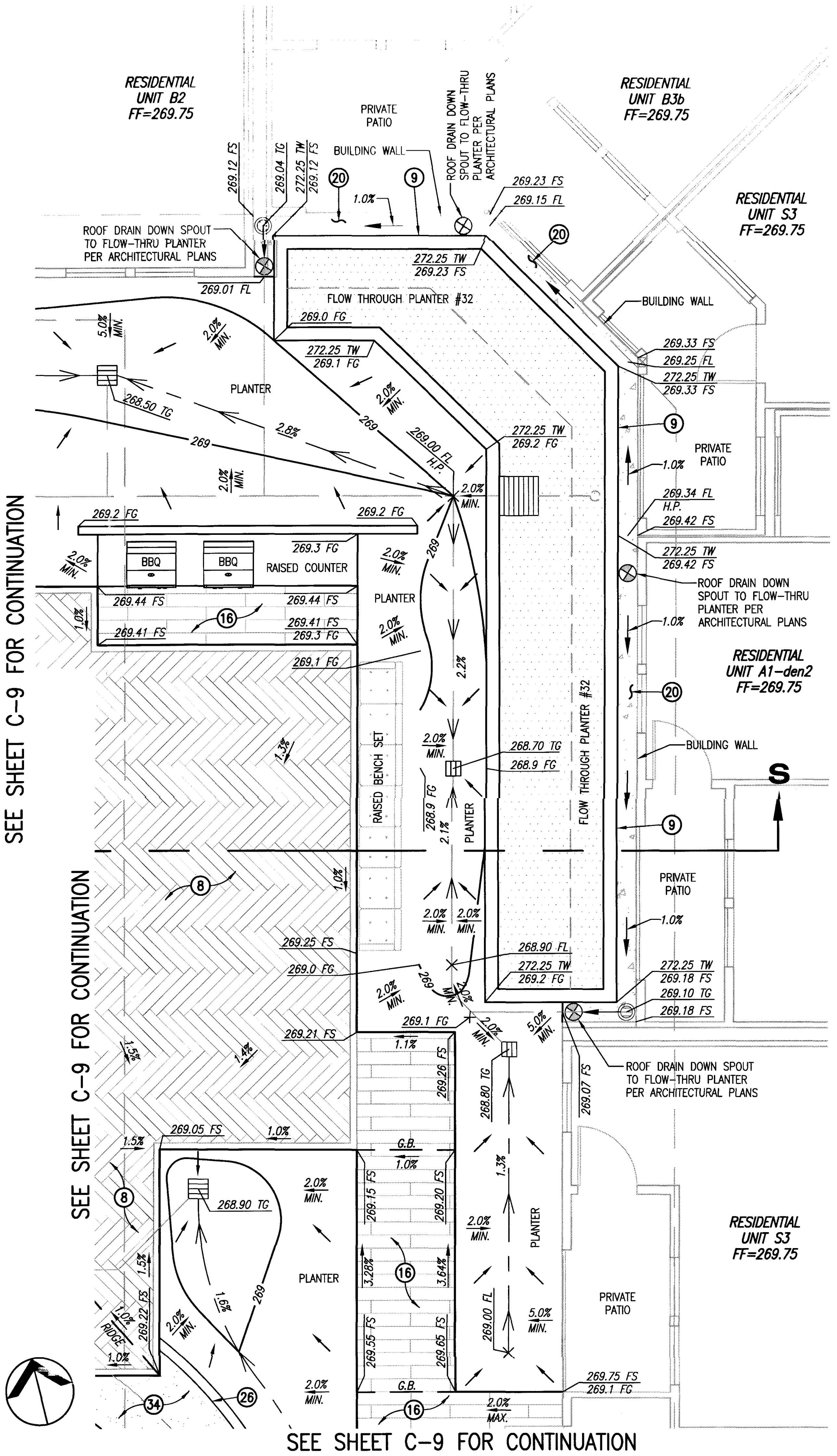
GRADING DETAIL (5) - FLOW THROUGH PLANTER #5

SCALE: 1"=4'


SEE SHEET C-9 FOR CONTINUATION
2.0% MAX.
269.75 FF
269.75 FS
269.55 FS
272.25 TW
269.75 FS
269.34 FL
272.25 TW
269.73 FS
269.10 FL
H.P.
269.07 FS
269.07 FG
FLOW THROUGH PLANTER #33
PLANTER
PRIVATE PATIO
BUILDING WALL
RESIDENTIAL UNIT A4 FF=269.75
1.0%
272.25 TW
269.0 FG
272.25 TW
269.09 FS
269.09 TC
269.52 FS
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
RESIDENTIAL UNIT C1a FF=269.75
269.28 FL
H.P.
269.19 FL
H.P.
272.25 TW
269.13 FS
269.04 TG
268.40 FL
H.P.
273.67 TW
268.6 FG
24.00'
N15°04'17"E
EX. P/L
272.25 TW
268.3 FS
SEE SHEET C-11 FOR CONTINUATION

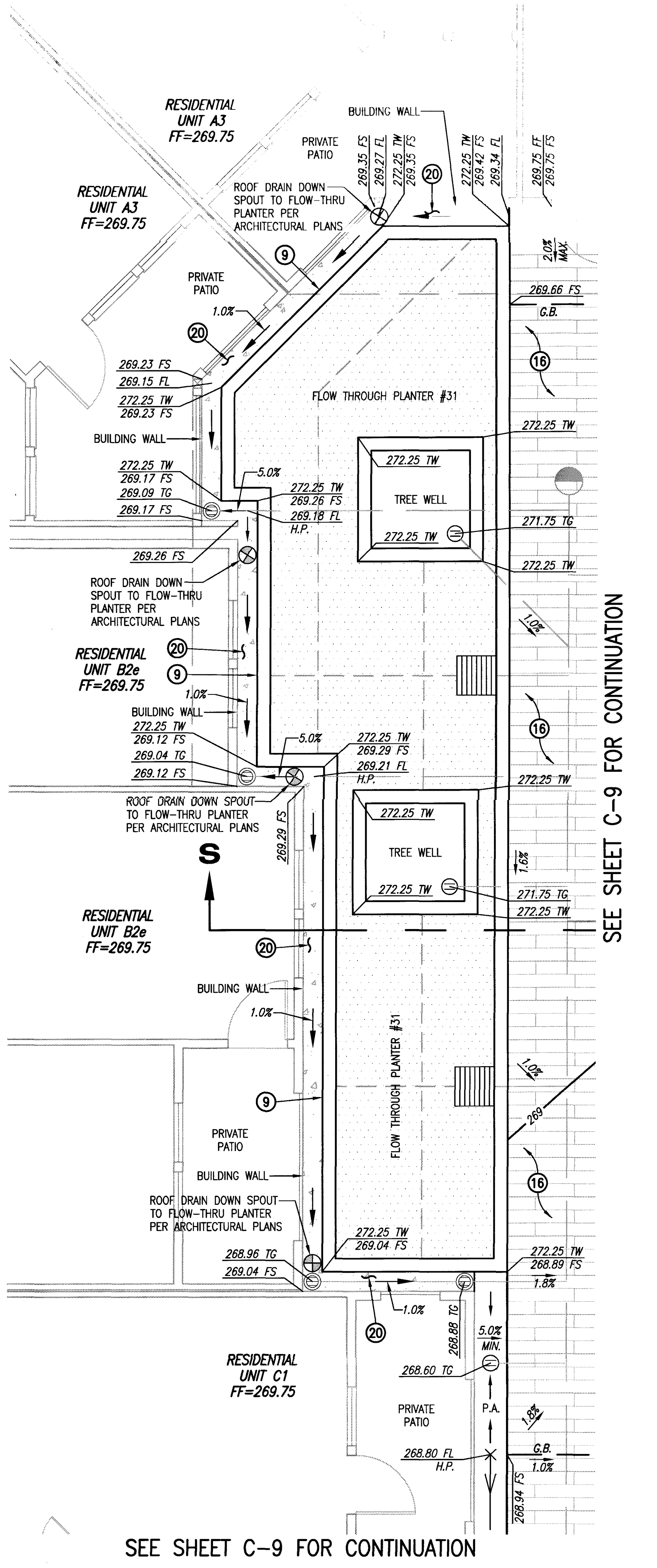
GRADING DETAIL (3) - COURTYARD A/FTP #33

SCALE: 1"=4'


SEE SHEET C-9 FOR CONTINUATION
RESIDENTIAL UNIT B2 FF=269.75
PRIVATE PATIO
BUILDING WALL
RESIDENTIAL UNIT B3b FF=269.75
RESIDENTIAL UNIT S3 FF=269.75
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
272.25 TW
269.23 FS
FLOW THROUGH PLANTER #32
269.0 FG
269.01 FL
268.50 TC
PLANTER
2.8%
269.00 FL
H.P.
269.2 FG
BBQ
RAISED COUNTER
269.44 FS
269.41 FS
269.3 FG
269.1 FG
RAISED BENCH SET
268.70 TG
268.9 FG
272.25 TW
269.2 FG
RESIDENTIAL UNIT A1-den2 FF=269.75
PRIVATE PATIO
268.90 FL
269.25 FS
269.21 FS
269.05 FS
268.90 TC
PLANTER
S
G.B.
269.75 FS
269.1 FG
2.0% MAX.
RESIDENTIAL UNIT S3 FF=269.75

GRADING DETAIL (2) - COURTYARD A/FTP #32

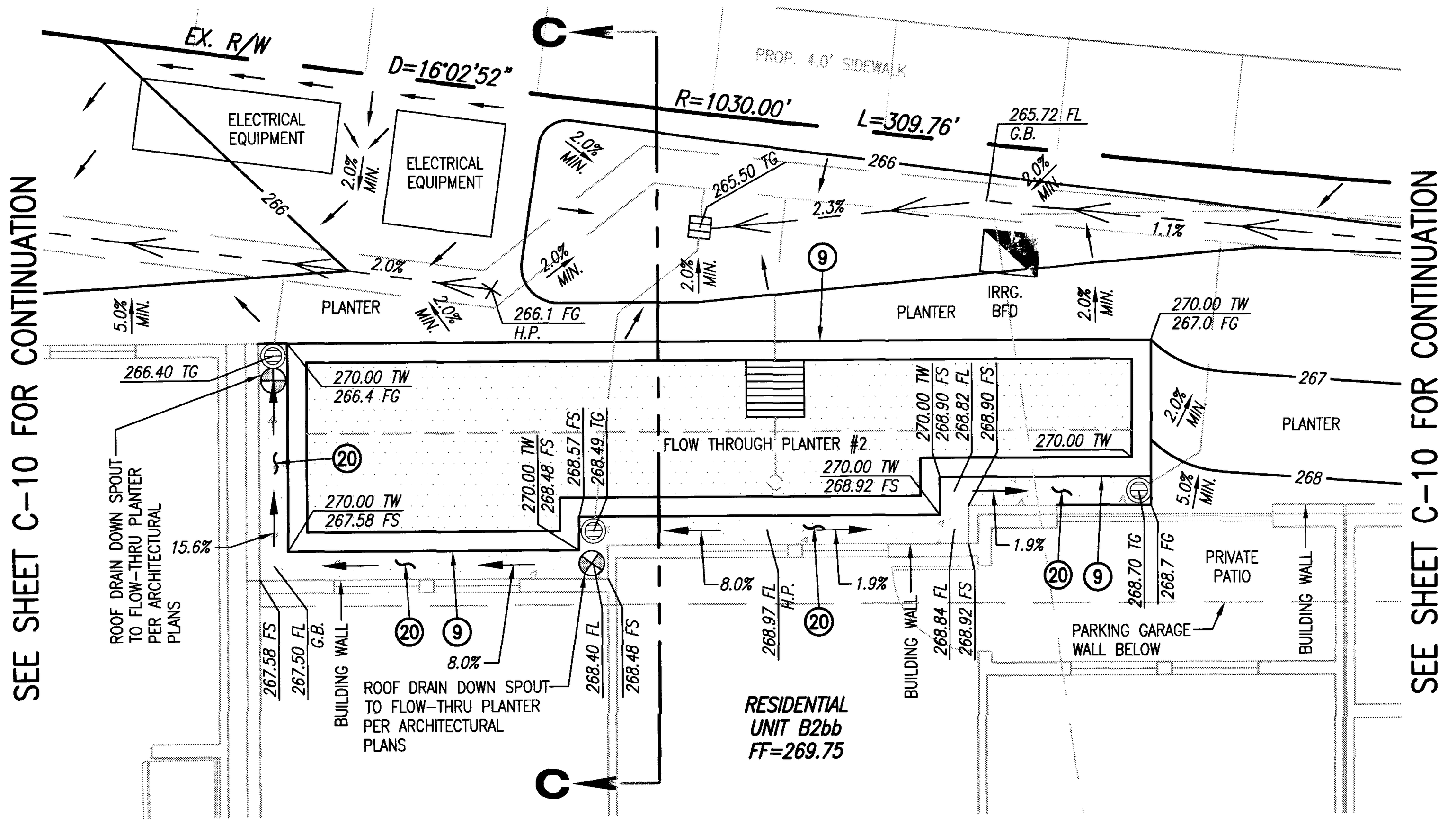
SCALE: 1"=4'


RESIDENTIAL UNIT A3 FF=269.75
PRIVATE PATIO
BUILDING WALL
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
RESIDENTIAL UNIT A3 FF=269.75
269.66 FS
G.B.
FLOW THROUGH PLANTER #31
272.25 TW
TREE WELL
271.75 TG
269.26 FS
RESIDENTIAL UNIT B2e FF=269.75
S
SEE SHEET C-9 FOR CONTINUATION
269.21 FL
H.P.
269.18 FL
H.P.
272.25 TW
269.04 FS
RESIDENTIAL UNIT C1 FF=269.75
PRIVATE PATIO
268.60 TC
268.80 FL
H.P.
P.A.
G.B.
1.0%

SEE SHEET C-9 FOR CONTINUATION

GRADING DETAIL (1) - COURTYARD A/FTP #31

SCALE: 1"=4'


C
SEE SHEET C-10 FOR CONTINUATION
EX. R/W
D=16°02'52"
R=1030.00'
L=309.76'
PROP. 4.0' SIDEWALK
ELECTRICAL EQUIPMENT
ELECTRICAL EQUIPMENT
265.72 FL
G.B.
265.50 TC
266
2.3%
1.1%
IRRG. BFD
2.0%
PLANTER
266.1 FG
H.P.
266.40 TC
270.00 TW
266.4 FG
FLOW THROUGH PLANTER #2
270.00 TW
267.0 FG
267
268
270.00 TW
267.56 FS
270.00 TW
268.92 FS
15.6%
8.0%
1.9%
PRIVATE PATIO
PARKING GARAGE WALL BELOW
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
BUILDING WALL
RESIDENTIAL UNIT B2bb FF=269.75

GRADING DETAIL (6) - FLOW THROUGH PLANTER #2

SCALE: 1"=4'

CONSTRUCTION NOTES

- ⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.
- ⑨ CONSTRUCT 8-INCH CMU BLOCK FLOW THROUGH PLANTER SYSTEM, SEE SHEET C-30 DETAIL 14, SLOPE EXTERIOR FINISHED GRADE AWAY FROM WALLS AT 2% MIN., SEE LANDSCAPE ARCHITECT'S PLANS SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.
- ⑪ CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.
- ⑯ INSTALL TILE PAVING PER LANDSCAPE ARCHITECT'S PLANS & DETAILS.
- ⑳ CONSTRUCT 3-INCH THICK CONCRETE SLAB BETWEEN BUILDING AND FLOW THROUGH PLANTER WALL. CREATE SWALE LINE IN THE CENTER AND SLOPE AT 1% MIN. CROSS SLOPE FROM BUILDING AND PLANTER WALL TO BE AT 2% MIN TO SWALE, SEE SHEET C-8, DETAIL 14.
- ㉕ INSTALL RUBBERIZED PLAY SURFACE PER LANDSCAPE ARCHITECT'S PLANS.
- ㉖ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB, SEE SHEET C-8, DETAIL 18.
- ㉜ CONSTRUCT 8-INCH WIDE VARIABLE HEIGHT DEEPENED PCC CURB, SEE SHEET C-7, DETAIL 6.
- ㉝ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB WITH VERTICAL LOUVERED FENCE, PER LANDSCAPE ARCHITECT'S PLANS.
- ㉞ INSTALL CLEAN WASHED PLAYGROUND SAND WITH 4-INCH PERFORATED SUBDRAIN SYSTEM. PER LANDSCAPE ARCHITECT'S

LEGEND:

->--->--->-->	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▨ ▨ ▨ ▨	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═══	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - - - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
▨	PROPOSED CONCRETE PAVEMENT
▨	SYNTHETIC TURF
▨	CLEAN PLAYGROUND SAND
▨	FLOW THROUGH PLANTER SYSTEM

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
James H. Kawamura

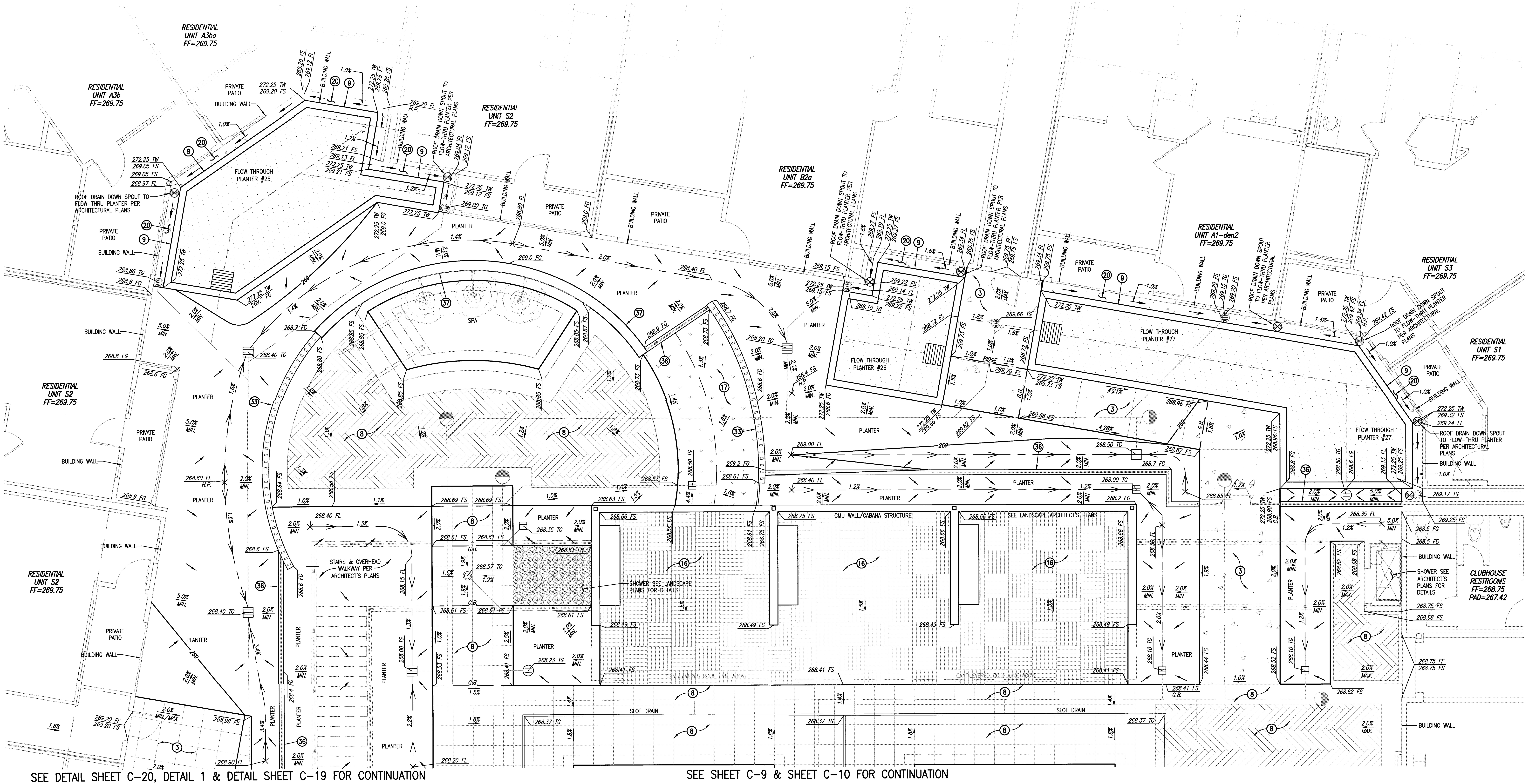
SHEET DESCRIPTION: **PRECISE GRADING DETAILS**

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-17


RESIDENTIAL UNIT A3ba FF=269.75
RESIDENTIAL UNIT A3b FF=269.75
RESIDENTIAL UNIT S2 FF=269.75
RESIDENTIAL UNIT B2a FF=269.75
RESIDENTIAL UNIT A1-den2 FF=269.75
RESIDENTIAL UNIT S3 FF=269.75
RESIDENTIAL UNIT S1 FF=269.75
RESIDENTIAL UNIT S2 FF=269.75
RESIDENTIAL UNIT S2 FF=269.75
CLUBHOUSE RESTROOMS FF=268.75 PAD=267.42
FLOW THROUGH PLANTER #25
FLOW THROUGH PLANTER #26
FLOW THROUGH PLANTER #27
FLOW THROUGH PLANTER #27
SPA
PRIVATE PATIO
BUILDING WALL
PLANTER
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
STAIRS & OVERHEAD WALKWAY PER ARCHITECT'S PLANS
SHOWER SEE LANDSCAPE PLANS FOR DETAILS
SHOWER SEE ARCHITECT'S PLANS FOR DETAILS
CMU WALL/CABANA STRUCTURE
SEE LANDSCAPE ARCHITECT'S PLANS
CANTILEVERED ROOF LINE ABOVE
SLOT DRAIN
BRIDGE
272.25 TW
269.00 FL
268.40 FL
268.69 FS
268.61 FS
268.49 FS
268.41 FS
268.37 TG
268.20 FL
2.0% MIN.
5.0% MIN.

SEE DETAIL SHEET C-20, DETAIL 1 & DETAIL SHEET C-19 FOR CONTINUATION

SEE SHEET C-9 & SHEET C-10 FOR CONTINUATION

GRADING DETAIL (1) - POOL AREA COURTYARD / FLOW THROUGH PLANTERS 25, 26 & 27

SCALE: 1"=4'

CONSTRUCTION NOTES

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

⑨ CONSTRUCT 8-INCH CMU BLOCK FLOW THROUGH PLANTER SYSTEM, SEE SHEET C-30 DETAIL 14, SLOPE EXTERIOR FINISHED GRADE AWAY FROM WALLS AT 2% MIN., SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑯ INSTALL TILE PAVING PER LANDSCAPE ARCHITECT'S PLANS & DETAILS.

⑰ INSTALL SYNTHETIC TURF, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS, COLOR AND FINISHES.

⑳ CONSTRUCT 3-INCH THICK CONCRETE SLAB BETWEEN BUILDING AND FLOW THROUGH PLANTER WALL. CREATE SWALE LINE IN THE CENTER AND SLOPE AT 1% MIN. CROSS SLOPE FROM BUILDING AND PLANTER WALL TO BE AT 2% MIN TO SWALE, SEE SHEET C-8, DETAIL 14.

㉝ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB WITH VERTICAL LOUVERED FENCE, PER LANDSCAPE ARCHITECT'S PLANS.

㊱ INSTALL GLASS POOL ENCLOSURE FENCING PER LANDSCAPE ARCHITECT'S PLANS.

㊲ CONSTRUCT 8-INCH CMU WALL, UNDER SEPARATE PERMIT & PLANS (SHOWN FOR INFORMATION ONLY), PER LANDSCAPE ARCHITECT'S PLANS.

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)

LEGEND:

➤- -➤- -➤- -➤	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▬ ▨ ▬ ▨ ▬	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═══	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - - - - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
▭	PROPOSED CONCRETE PAVEMENT
▭	SYNTHETIC TURF, PER LANDSCAPE PLANS
▦	TILE PAVING, PER LANDSCAPE PLANS
▒	FLOW THROUGH PLANTER SYSTEM

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Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION: **PRECISE GRADING DETAILS**

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

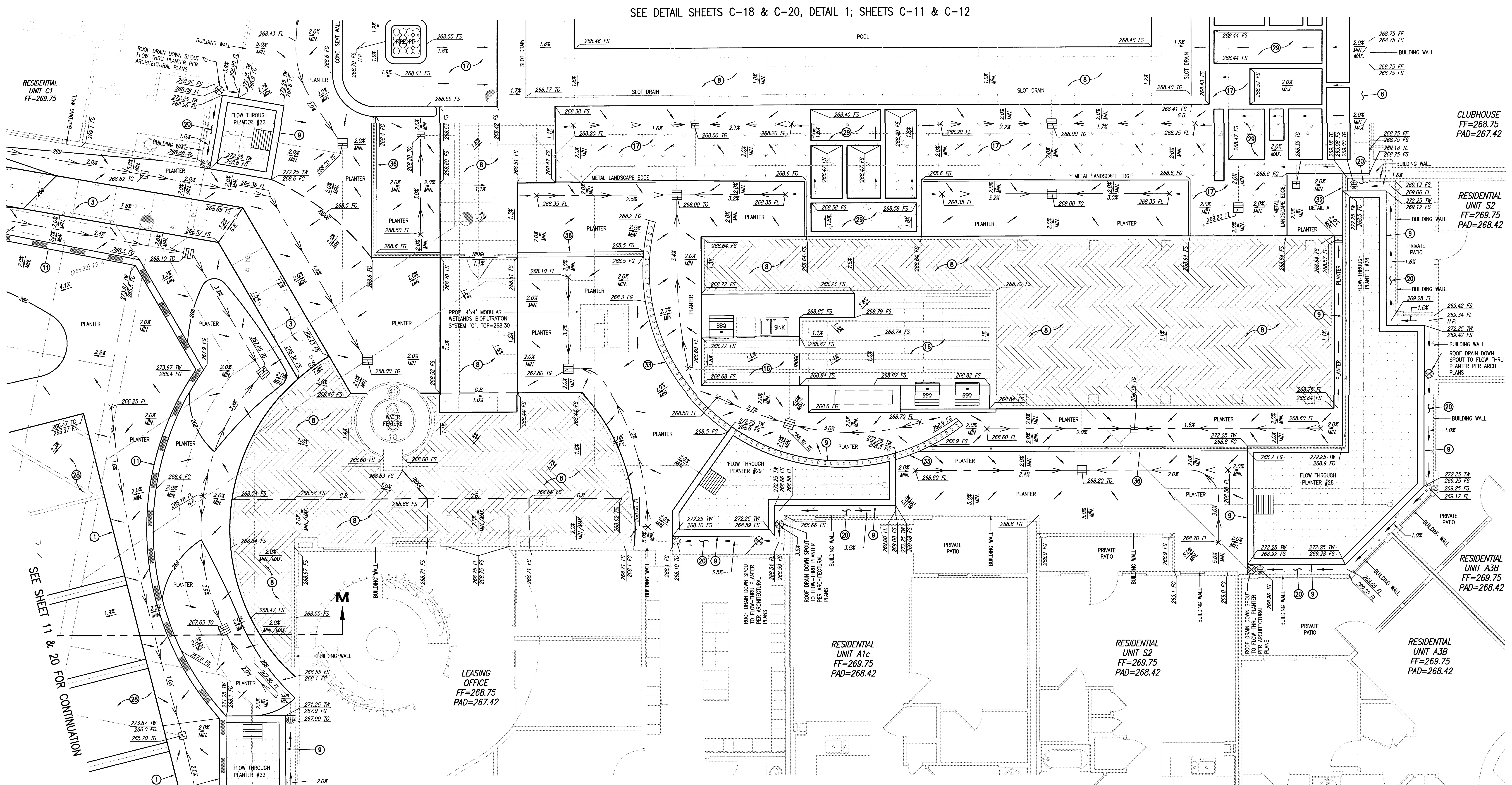
PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-18

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-18-PGD.dwg July 08, 2015 - 11:16am Shiori

SEE DETAIL SHEETS C-18 & C-20, DETAIL 1; SHEETS C-11 & C-12


POOL
SLOT DRAIN
CLUBHOUSE
FF=268.75
PAD=267.42
RESIDENTIAL UNIT C1
FF=269.75
RESIDENTIAL UNIT S2
FF=269.75
PAD=268.42
RESIDENTIAL UNIT A3B
FF=269.75
PAD=268.42
RESIDENTIAL UNIT A1c
FF=269.75
PAD=268.42
RESIDENTIAL UNIT S2
FF=269.75
PAD=268.42
RESIDENTIAL UNIT A3B
FF=269.75
PAD=268.42
LEASING OFFICE
FF=268.75
PAD=267.42
FLOW THROUGH PLANTER #23
FLOW THROUGH PLANTER #29
FLOW THROUGH PLANTER #28
FLOW THROUGH PLANTER #22
FLOW THROUGH PLANTER #28
WATER FEATURE
PROP. 4'x4' MODULAR WETLANDS BIOFILTRATION SYSTEM "C", TOP=268.30
METAL LANDSCAPE EDGE
PLANTER
PRIVATE PATIO
BUILDING WALL
BBQ
SINK
RIDGE
DETAIL A
CONC. SEAT WALL
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCH. PLANS
DEEPENED BUILDING FOOTING SEE STRUCTURAL PLANS FOR DETAILS
SEE SHEET 11 & 20 FOR CONTINUATION
M
G.B.
H.P.
2.0% MIN.
5.0% MIN.
1.0% MIN.
268.75 FF
268.75 FS
269.18 TC
269.00 FG
272.25 TW
266.2 FG
H=2.0'

GRADING DETAIL (1) - POOL COURTYARD / FTP #22, 23, 28 & 29

SCALE: 1"=4'

LEGEND:

➝ - ➝ - ➝ - ➝	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▪▪▪▪▪	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - - - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
▭	PROPOSED CONCRETE PAVEMENT
▭	SYNTHETIC TURF
▭	FLOW THROUGH PLANTER SYSTEM
▨	PROPOSED ASPHALT CONCRETE OVERLY

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)

CONSTRUCTION NOTES

① CONSTRUCT 6-INCH HIGH PCC CURB, SEE SHEET C-7, DETAIL 1 OR DETAIL 2 FOR PERVIOUS PAVER CONDITION.

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

⑨ CONSTRUCT 8-INCH CMU BLOCK FLOW THROUGH PLANTER SYSTEM, SEE SHEET C-30 DETAIL 14, SLOPE EXTERIOR FINISHED GRADE AWAY FROM WALLS AT 2% MIN., SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑪ CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.

⑯ INSTALL TILE PAVING PER LANDSCAPE ARCHITECT'S PLANS & DETAILS.

⑰ INSTALL SYNTHETIC TURF, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS, COLOR AND FINISHES.

⑳ CONSTRUCT 3-INCH THICK CONCRETE SLAB BETWEEN BUILDING AND FLOW THROUGH PLANTER WALL. CREATE SWALE LINE IN THE CENTER AND SLOPE AT 1% MIN. CROSS SLOPE FROM BUILDING AND PLANTER WALL TO BE AT 2% MIN TO SWALE, SEE SHEET C-8, DETAIL 14.

㉘ CONSTRUCT 6-INCH THICK PCC (VEHICULAR) SLAB WITH #4 REBAR AT 12-INCH O.C. OVER 8-INCH CRUSHED MISCELLANEOUS BASE (CMB) WITH SYNTHETIC TURF BETWEEN SLABS SEE SHEET C-7, DETAILS 4 & 5, AND LANDSCAPE ARCHITECT'S PLANS FOR COLOR, FINISH AND ADDITIONAL DETAILS.

㉙ CONSTRUCT 4-INCH THICK PCC SLAB WITH #4 REBAR AT 24-INCH O.C. WITH SYNTHETIC TURF BETWEEN SLABS SEE SHEET C-7, DETAILS 4 & 5, AND LANDSCAPE ARCHITECT'S PLANS FOR COLOR, FINISH AND ADDITIONAL DETAILS.

㉜ CONSTRUCT 8-INCH WIDE VARIABLE HEIGHT DEEPENED PCC CURB, SEE SHEET C-7, DETAIL 6.

㉝ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB WITH VERTICAL LOUVERED FENCE, PER LANDSCAPE ARCHITECT'S PLANS.

㊱ INSTALL GLASS POOL ENCLOSURE FENCING PER LANDSCAPE ARCHITECT'S PLANS.

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Know what's below.
Call before you dig

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REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

No. 30560
Expiration: 03/31/16
CIVIL
James H. Kawamura

SHEET DESCRIPTION: **PRECISE GRADING DETAILS**

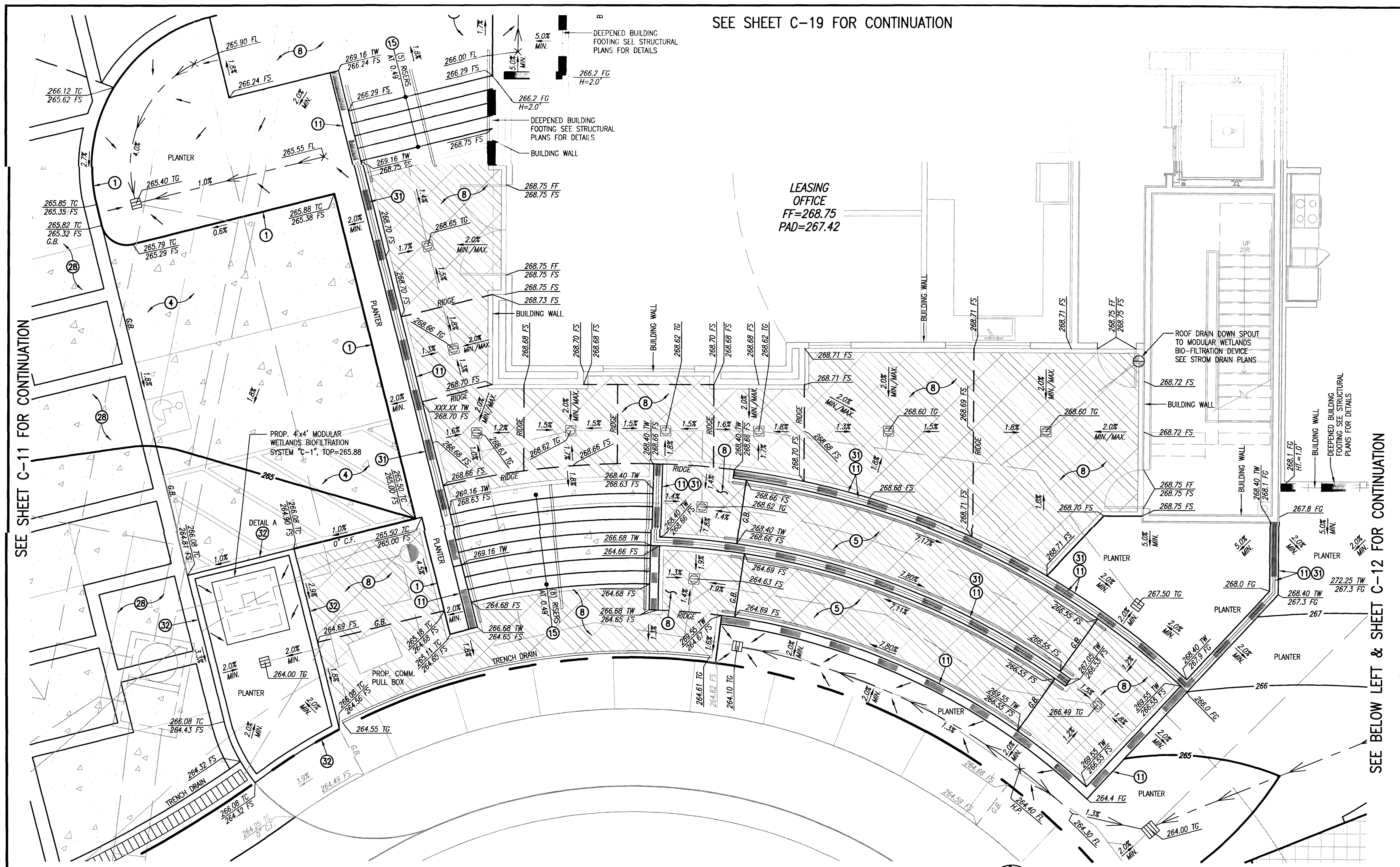
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

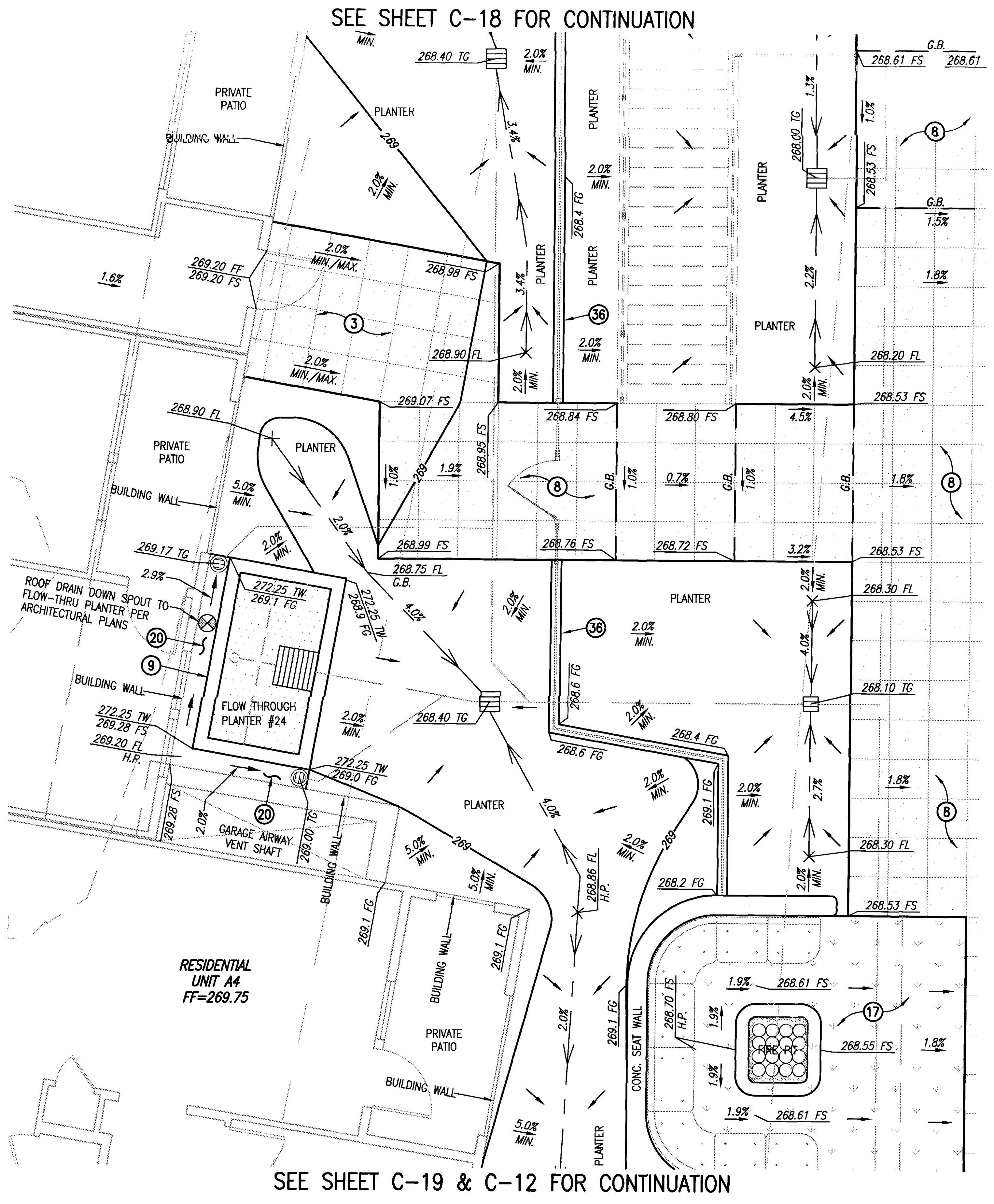
SHEET NO.
C-19

H:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-19-PGD.dwg July 08, 2015 - 11:18am Shiori


SEE SHEET C-19 FOR CONTINUATION
SEE SHEET C-11 FOR CONTINUATION
SEE BELOW LEFT & SHEET C-12 FOR CONTINUATION
LEASING OFFICE
FF=268.75
PAD=267.42
DEEPENED BUILDING FOOTING SEE STRUCTURAL PLANS FOR DETAILS
BUILDING WALL
PLANTER
PROP. 4'x4' MODULAR WETLANDS BIOFILTRATION SYSTEM "C-1", TOP=265.88
ROOF DRAIN DOWN SPOUT TO MODULAR WETLANDS BIO-FILTRATION DEVICE SEE STROM DRAIN PLANS
DETAIL A
PROP. COMM. PULL BOX
TRENCH DRAIN
RIDGE
265.90 FL
266.12 TC
265.62 FS
265.40 TG
268.75 FF
268.75 FS
264.55 TG
264.00 TG
2.0% MIN./MAX.

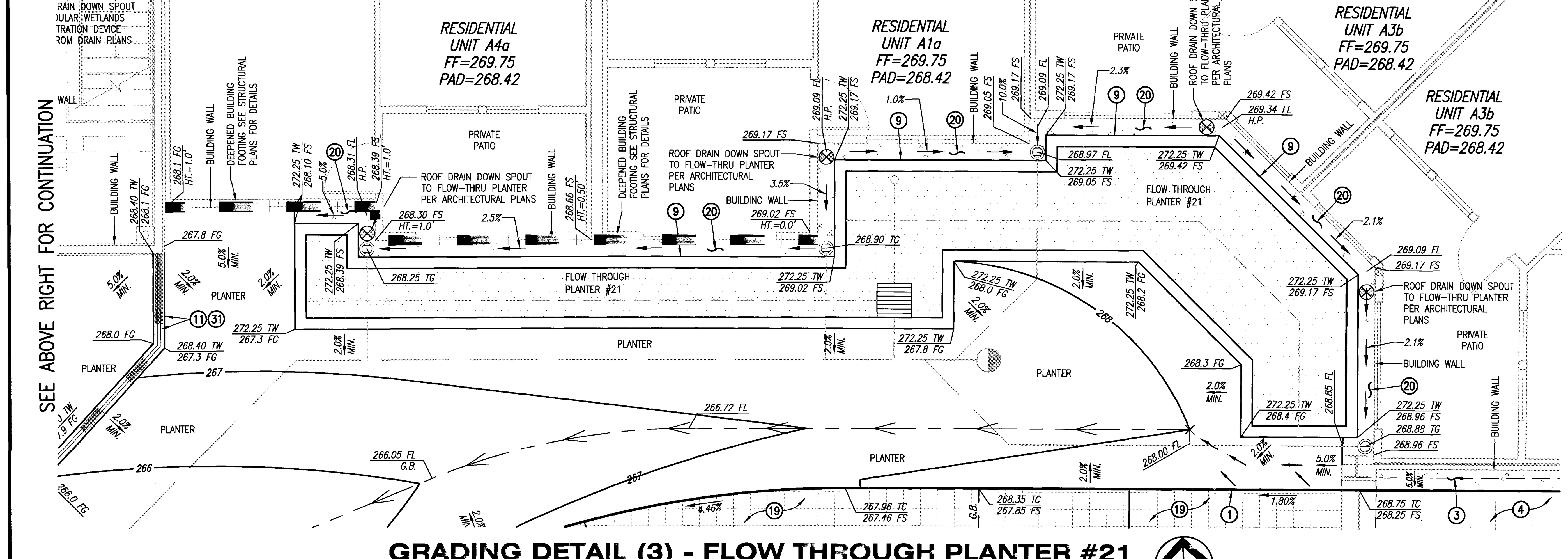
GRADING DETAIL (2) - LEASING OFFICE ENTRANCE

SCALE: 1"=4'


SEE SHEET C-18 FOR CONTINUATION
SEE SHEET C-19 & C-12 FOR CONTINUATION
PRIVATE PATIO
PLANTER
BUILDING WALL
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
FLOW THROUGH PLANTER #24
GARAGE AIRWAY VENT SHAFT
RESIDENTIAL UNIT A4
FF=269.75
CONC. SEAT WALL
268.40 TG
268.61 FS
269.20 FF
269.20 FS
272.25 TW
269.7 FG

GRADING DETAIL (1) - POOL COURTYARD / FTP #24

SCALE: 1"=4'


SEE ABOVE RIGHT FOR CONTINUATION
RESIDENTIAL UNIT A4a
FF=269.75
PAD=268.42
RESIDENTIAL UNIT A1a
FF=269.75
PAD=268.42
RESIDENTIAL UNIT A3b
FF=269.75
PAD=268.42
RESIDENTIAL UNIT A3b
FF=269.75
PAD=268.42
PRIVATE PATIO
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
FLOW THROUGH PLANTER #21
PLANTER
BUILDING WALL
DEEPENED BUILDING FOOTING SEE STRUCTURAL PLANS FOR DETAILS
266.72 FL
266.05 FL
267.96 TC
267.46 FS
268.35 TC
267.85 FS
268.75 TC
268.25 FS
4.46%
1.80%

GRADING DETAIL (3) - FLOW THROUGH PLANTER #21

SCALE: 1"=4'

CONSTRUCTION NOTES

① CONSTRUCT 6-INCH HIGH PCC CURB, SEE SHEET C-7, DETAIL 1 OR DETAIL 2 FOR PERVIOUS PAVER CONDITION.

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

④ CONSTRUCT 6-INCH THICK VEHICULAR PCC SLAB WITH #4 REBAR AT 12-INCH O.C. OVER 8-INCH CRUSHED MISCELLANEOUS BASE, (CMB) SEE SHEET C-7, DETAILS 4 & 5. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑤ CONSTRUCT 4-INCH THICK ACCESSIBLE PCC RAMP. WITH #4 REBAR AT 24-INCHES O.C. (ADD CURBS WHEN ADJACENT TO BUILDING AND/OR WALL CONDITION, FOR ENTIRE LENGTH OF RAMP). SEE SHEET C-7, DETAIL 8. SEE LANDSCAPE PLANS FOR PCC COLORS AND FINISHES, ALSO FOR ALTERNATIVE PAVER SURFACES.

⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

⑨ CONSTRUCT 8-INCH CMU BLOCK FLOW THROUGH PLANTER SYSTEM, SEE SHEET C-30 DETAIL 14, SLOPE EXTERIOR FINISHED GRADE AWAY FROM WALLS AT 2% MIN., SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑪ CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.

⑮ CONSTRUCT PCC STAIRS AND HANDRAILS. SEE SHEET C-7, DETAIL 9.

⑰ INSTALL SYNTHETIC TURF, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS, COLOR AND FINISHES.

⑲ CONSTRUCT 80mm PERVIOUS CONCRETE PAVER OVER MULTIPLE LAYERS OF AGGREGATES AND STONE, PROVIDE IMPERVIOUS GEOSYNTHETIC LINER AND PERFORATED SUBDRAIN SEE SHEET C-8, DETAILS 10, 11 AND 16. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISHES.

⑳ CONSTRUCT 3-INCH THICK CONCRETE SLAB BETWEEN BUILDING AND FLOW THROUGH PLANTER WALL. CREATE SWALE LINE IN THE CENTER AND SLOPE AT 1% MIN. CROSS SLOPE FROM BUILDING AND PLANTER WALL TO BE AT 2% MIN TO SWALE, SEE SHEET C-8, DETAIL 14.

㉘ CONSTRUCT 6-INCH THICK PCC (VEHICULAR) SLAB WITH #4 REBAR AT 12-INCH O.C. OVER 8-INCH CRUSHED MISCELLANEOUS BASE (CMB) WITH SYNTHETIC TURF BETWEEN SLABS SEE SHEET C-7, DETAILS 4 & 5, AND LANDSCAPE ARCHITECT'S PLANS FOR COLOR, FINISH AND ADDITIONAL DETAILS.

㉛ INSTALL 42-INCH HIGH TUBULAR STEEL BARRIER RAIL, PER CBC REQUIREMENTS. PAINT TO MATCH SITE RAILINGS, SEE LANDSCAPE ARCHITECT'S PLAN FOR DECORATIVE RAILING ALTERNATIVE.

㉜ CONSTRUCT 8-INCH WIDE VARIABLE HEIGHT DEEPENED PCC CURB, SEE SHEET C-7, DETAIL 6.

㊱ INSTALL GLASS POOL ENCLOSURE FENCING PER LANDSCAPE ARCHITECT'S PLANS.

㊴ CONSTRUCT 8-INCH CMU WALL RAISED PLANTER WALL, UNDER SEPARATE PERMIT & PLANS, (SHOWN FOR INFORMATION ONLY) PER

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)

LEGEND:

→- -→- -→- -→	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▬ ▬ ▬	DEEPENED BUILDING FOOTING, DEPTH SHALL BE THE STRUCTURAL DESIGN DEPTH PLUS "HT." AS SHOWN, SEE STRUCTURAL DRAWINGS FOR DETAILS AND CALCULATIONS.
▨ ▨ ▨	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
┄┄┄	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
▨	PROPOSED CONCRETE PAVEMENT
▨	SYNTHETIC TURF
▨	FLOW THROUGH PLANTER SYSTEM
▦	PROPOSED CONCRETE PERVIOUS PAVERS

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

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REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

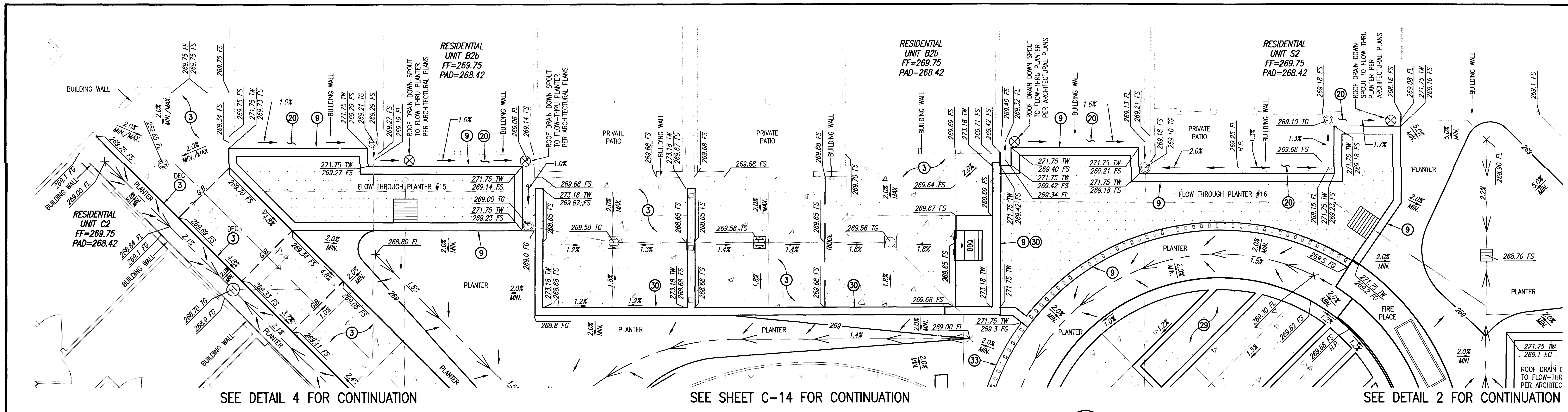
SHEET DESCRIPTION: **PRECISE GRADING DETAILS**

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-20


RESIDENTIAL UNIT B2b FF=269.75 PAD=268.42
RESIDENTIAL UNIT S2 FF=269.75 PAD=268.42
RESIDENTIAL UNIT C2 FF=269.75 PAD=268.42
BUILDING WALL
PRIVATE PATIO
FLOW THROUGH PLANTER #15
FLOW THROUGH PLANTER #16
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
PLANTER
FIRE PLACE
BBQ
RIDGE
SEE DETAIL 4 FOR CONTINUATION
SEE SHEET C-14 FOR CONTINUATION
SEE DETAIL 2 FOR CONTINUATION

GRADING DETAIL(1) - COURTYARD C / FTP #15 & 16

SCALE: 1"=4'

LEGEND:

→- -→- -→- -→	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS OR SIDEWALK
▨ ▨ ▨ ▨	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═══	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
- - - - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
▭	PROPOSED CONCRETE PAVEMENT
▭	SYNTHETIC TURF
▭	FLOW THROUGH PLANTER SYSTEM

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)

CONSTRUCTION NOTES

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑧ CONSTRUCT 50, 70 OR 100mm PEDESTRIAN CONCRETE PAVER OVER 1-INCH MIN. SAND BED OVER 3-INCHES OF CRUSHED MISCELLANEOUS BASE (CMP), OR OVER MORTAR BED & CONCRETE SLAB, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

⑨ CONSTRUCT 8-INCH CMU BLOCK FLOW THROUGH PLANTER SYSTEM, SEE SHEET C-30 DETAIL 14, SLOPE EXTERIOR FINISHED GRADE AWAY FROM WALLS AT 2% MIN., SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑰ INSTALL SYNTHETIC TURF, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS, COLOR AND FINISHES.

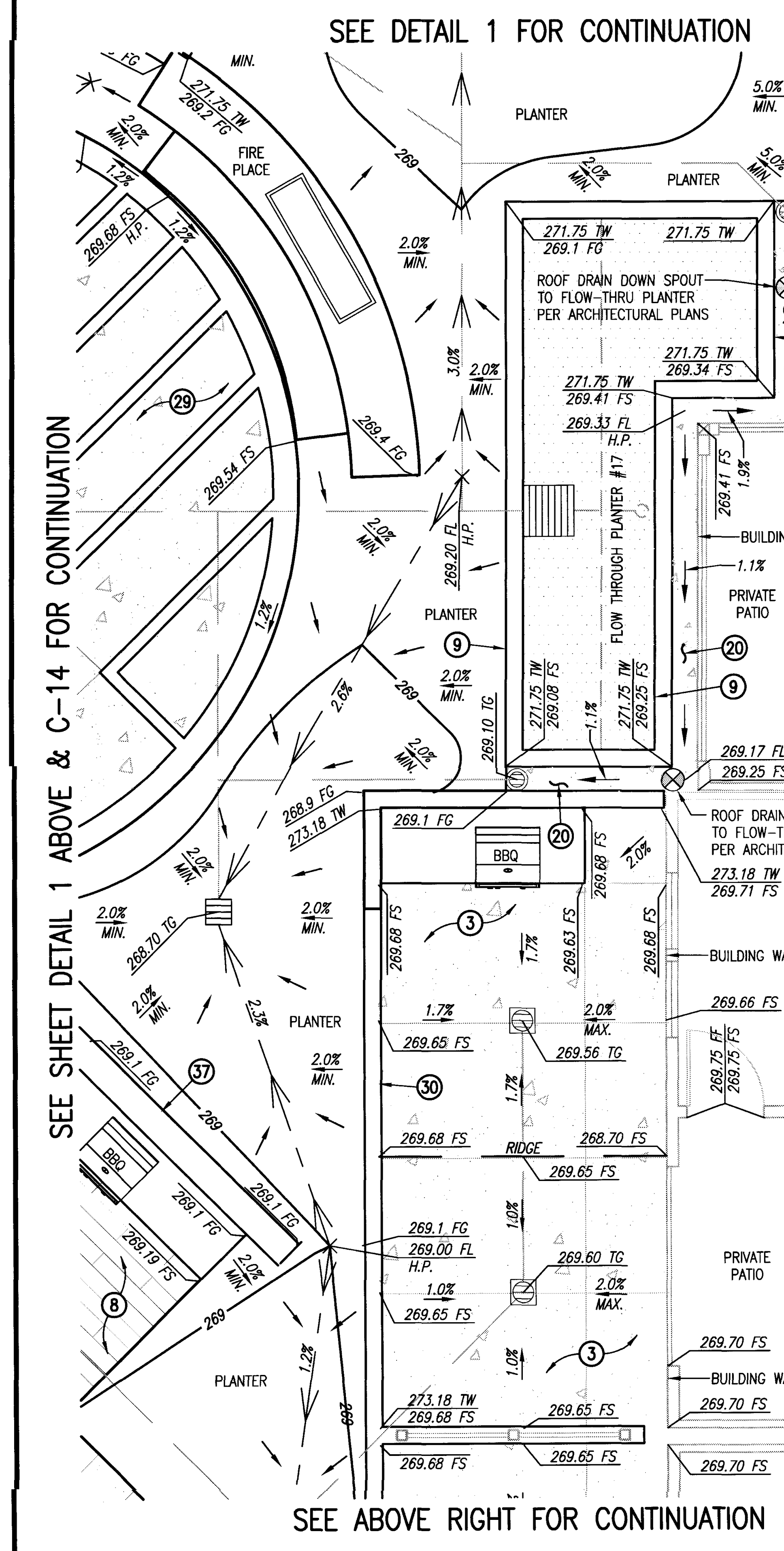
⑳ CONSTRUCT 3-INCH THICK CONCRETE SLAB BETWEEN BUILDING AND FLOW THROUGH PLANTER WALL. CREATE SWALE LINE IN THE CENTER AND SLOPE AT 1% MIN. CROSS SLOPE FROM BUILDING AND PLANTER WALL TO BE AT 2% MIN TO SWALE, SEE SHEET C-8, DETAIL 14.

㉙ CONSTRUCT 4-INCH THICK PCC SLAB WITH #4 REBAR AT 24-INCH O.C. WITH SYNTHETIC TURF BETWEEN SLABS SEE SHEET C-7, DETAILS 4 & 5, AND LANDSCAPE ARCHITECT'S PLANS FOR COLOR, FINISH AND ADDITIONAL DETAILS.

㉚ CMU PATIO WALL PER SEPARATE PLANS & PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS.

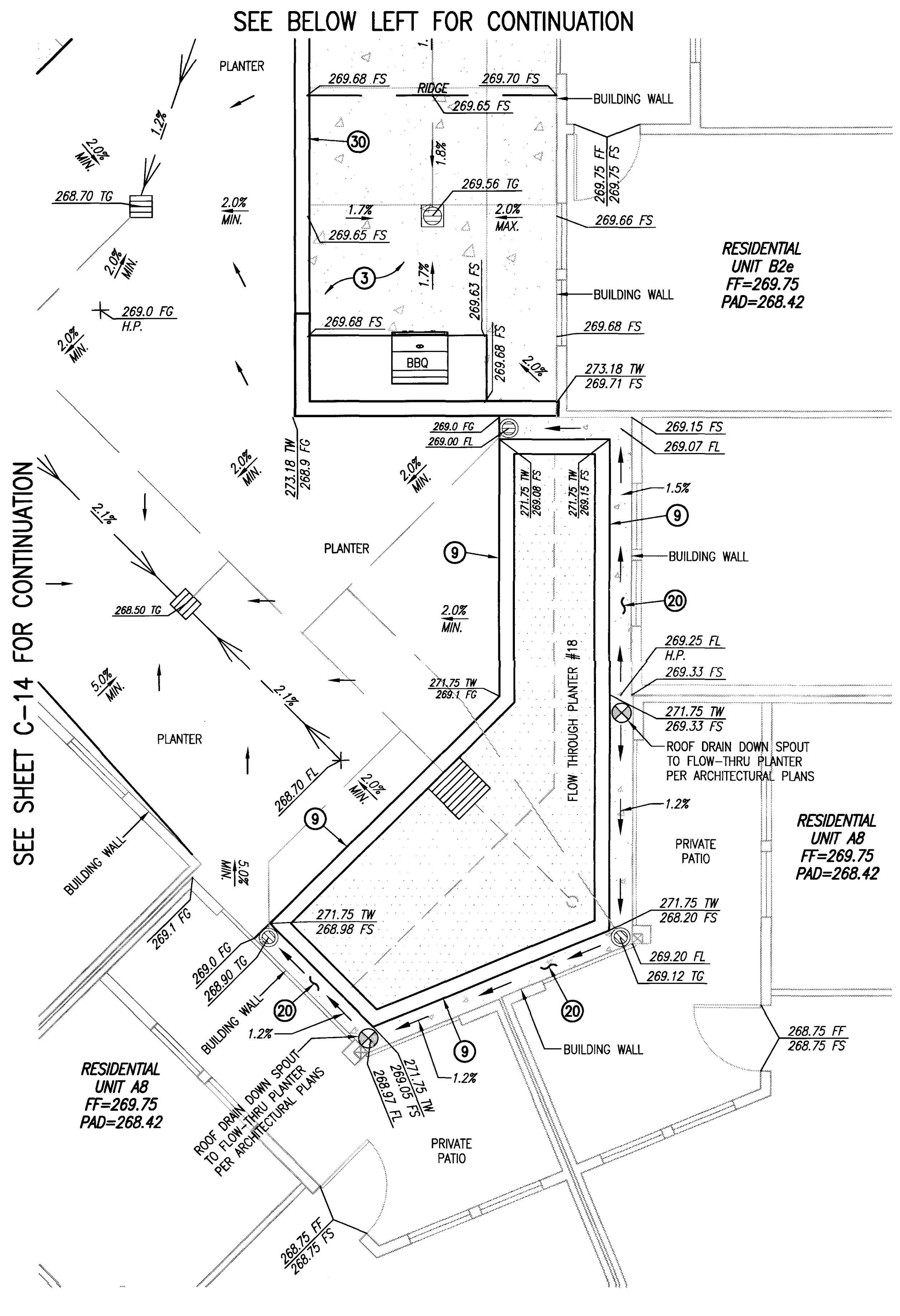
㉝ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB WITH VERTICAL LOUVERED FENCE, PER LANDSCAPE ARCHITECT'S PLANS.

㊲ CONSTRUCT 8-INCH CMU WALL, UNDER SEPARATE PERMIT & PLANS (SHOWN FOR INFORMATION ONLY), PER LANDSCAPE ARCHITECT'S PLANS.


SEE DETAIL 1 FOR CONTINUATION
SEE SHEET DETAIL 1 ABOVE & C-14 FOR CONTINUATION
RESIDENTIAL UNIT A3.22 FF=269.75 PAD=268.42
RESIDENTIAL UNIT A4 FF=269.75 PAD=268.42
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
FLOW THROUGH PLANTER #17
BUILDING WALL
PRIVATE PATIO
PLANTER
FIRE PLACE
BBQ
RIDGE
SEE ABOVE RIGHT FOR CONTINUATION

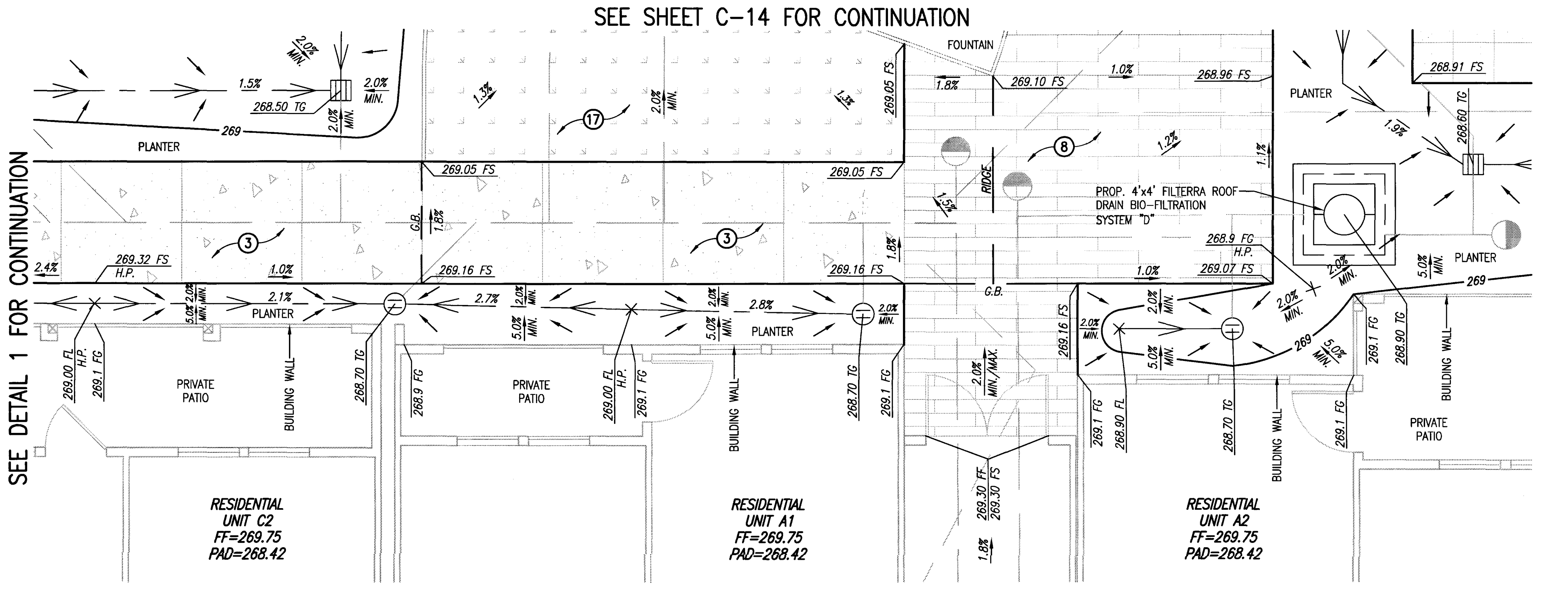
GRADING DETAIL (2) - FTP #17

SCALE: 1"=4'


SEE BELOW LEFT FOR CONTINUATION
SEE SHEET C-14 FOR CONTINUATION
RESIDENTIAL UNIT B2e FF=269.75 PAD=268.42
RESIDENTIAL UNIT A8 FF=269.75 PAD=268.42
RESIDENTIAL UNIT A8 FF=269.75 PAD=268.42
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
FLOW THROUGH PLANTER #18
BUILDING WALL
PRIVATE PATIO
PLANTER
BBQ
RIDGE

GRADING DETAIL (3) - FTP #18

SCALE: 1"=4'


SEE SHEET C-14 FOR CONTINUATION
SEE DETAIL 1 FOR CONTINUATION
FOUNTAIN
PROP. 4'x4' FILTERRA ROOF DRAIN BIO-FILTRATION SYSTEM "D"
RESIDENTIAL UNIT C2 FF=269.75 PAD=268.42
RESIDENTIAL UNIT A1 FF=269.75 PAD=268.42
RESIDENTIAL UNIT A2 FF=269.75 PAD=268.42
PRIVATE PATIO
PLANTER
BUILDING WALL
RIDGE

GRADING DETAIL (4) - COURTYARD C

SCALE: 1"=4'

Know what's below. Call before you dig

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

REGISTERED PROFESSIONAL ENGINEER
JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
CIVIL
STATE OF CALIFORNIA

SHEET DESCRIPTION:
PRECISE GRADING DETAILS

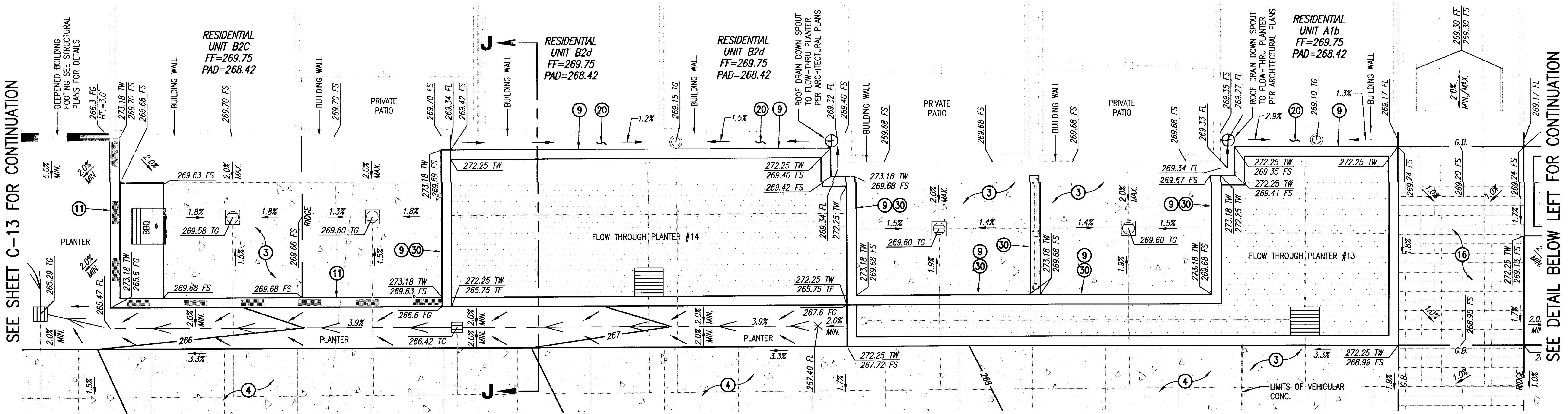
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-21

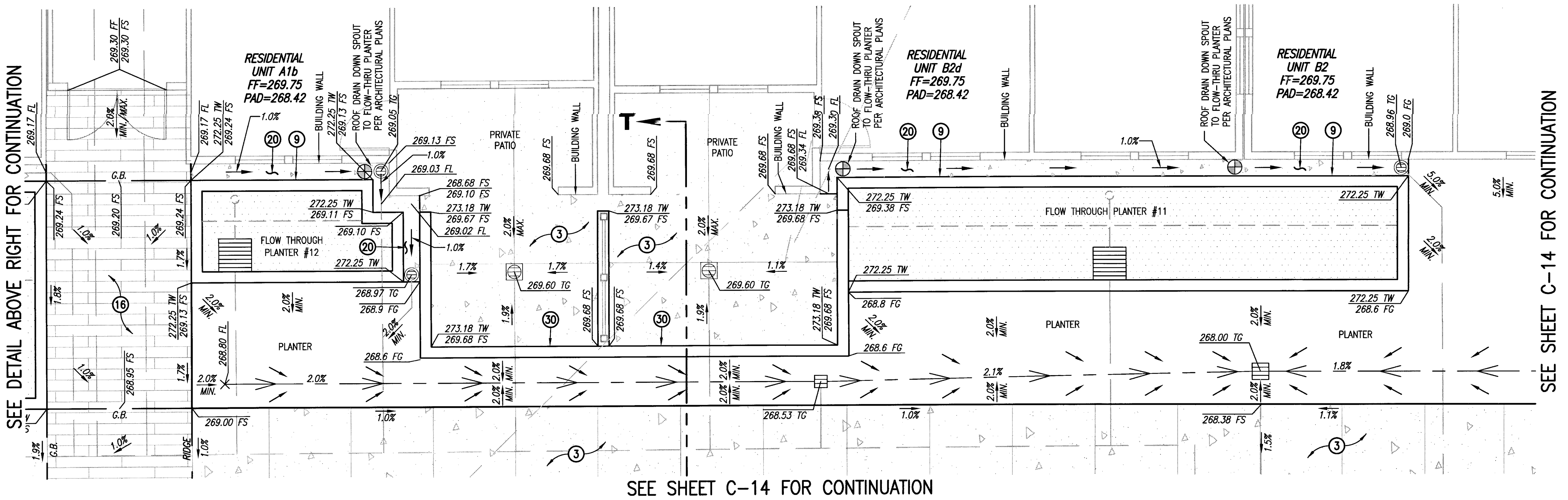
R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-21-PGD.dwg July 08, 2015 - 11:23am Shiori


SEE SHEET C-13 FOR CONTINUATION
SEE DETAIL BELOW LEFT FOR CONTINUATION
RESIDENTIAL UNIT B2C FF=269.75 PAD=268.42
RESIDENTIAL UNIT B2d FF=269.75 PAD=268.42
RESIDENTIAL UNIT A1b FF=269.75 PAD=268.42
PRIVATE PATIO
BUILDING WALL
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
FLOW THROUGH PLANTER #14
FLOW THROUGH PLANTER #13
PLANTER
BBQ
RIDGE
LIMITS OF VEHICULAR CONC.
G.B.
J
J

SEE SHEET C-14 FOR CONTINUATION

GRADING DETAIL (1) - FIRE LANE / FTP #13 &14

SCALE: 1"=4'

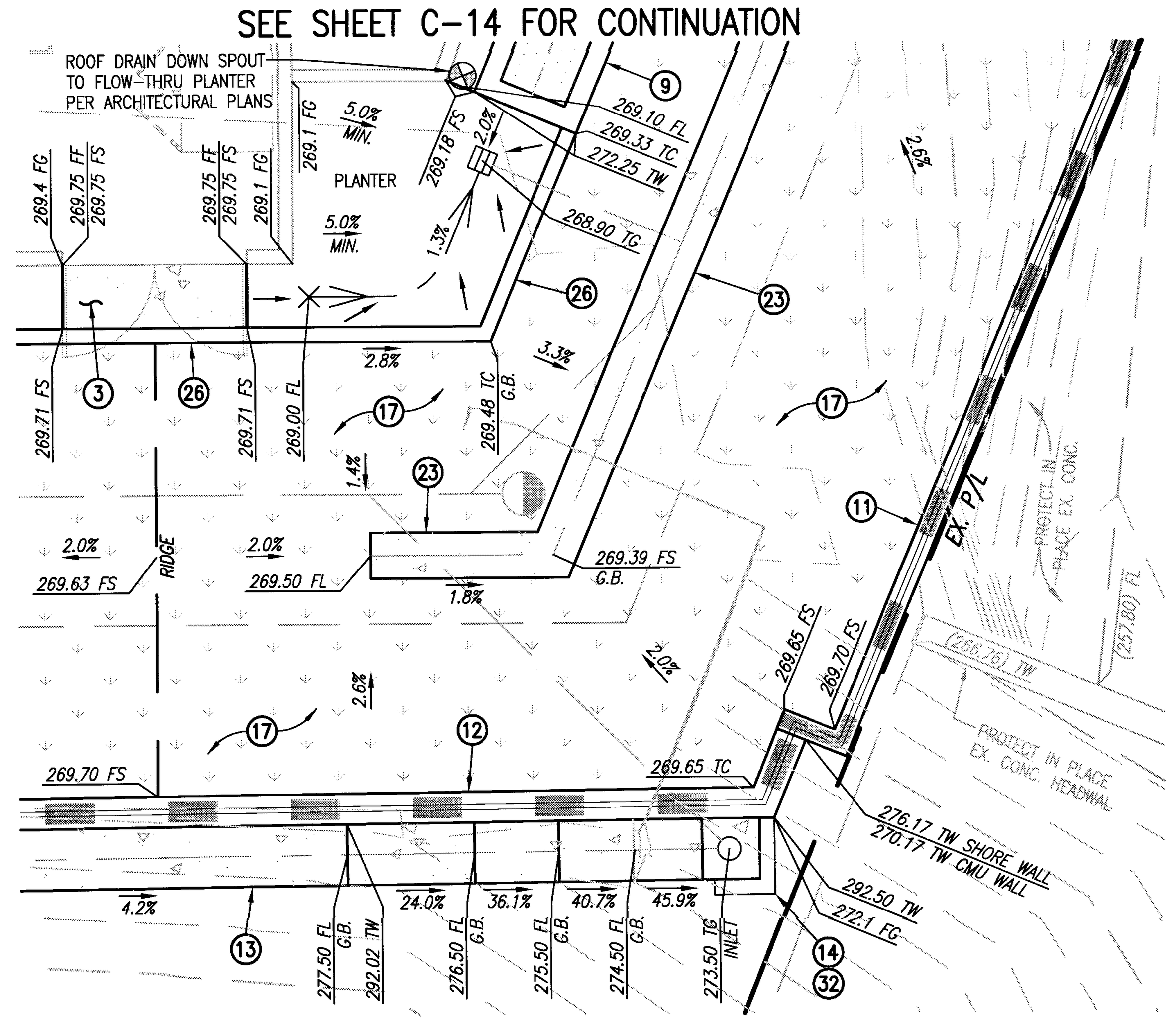

SEE DETAIL ABOVE RIGHT FOR CONTINUATION
SEE SHEET C-14 FOR CONTINUATION
RESIDENTIAL UNIT A1b FF=269.75 PAD=268.42
RESIDENTIAL UNIT B2d FF=269.75 PAD=268.42
RESIDENTIAL UNIT B2 FF=269.75 PAD=268.42
FLOW THROUGH PLANTER #12
FLOW THROUGH PLANTER #11
PRIVATE PATIO
BUILDING WALL
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
PLANTER
RIDGE
G.B.
T

SEE SHEET C-14 FOR CONTINUATION

GRADING DETAIL (2) - FIRE LANE / FTP #11 &12

SCALE: 1"=4'

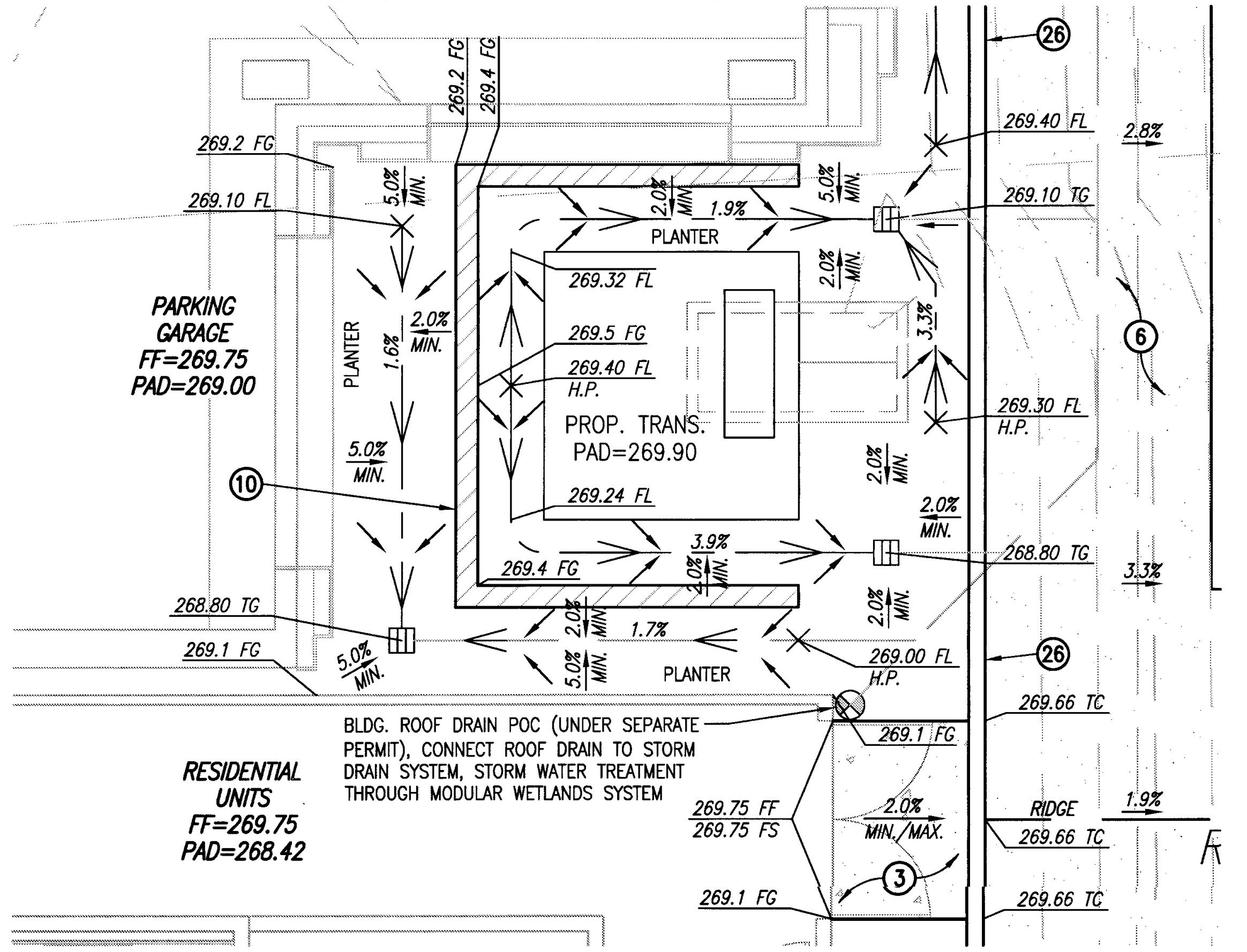
SEE SHEET C-14 FOR CONTINUATION


ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
PLANTER
RIDGE
G.B.
EX. P/L
PROTECT IN PLACE EX. CONC.
PROTECT IN PLACE EX. CONC. ROADWAY
276.17 TW SHORE WALL
270.17 TW CMU WALL
INLET

GRADING DETAIL (5)

SCALE: 1"=4'

SEE SHEET C-12 FOR CONTINUATION

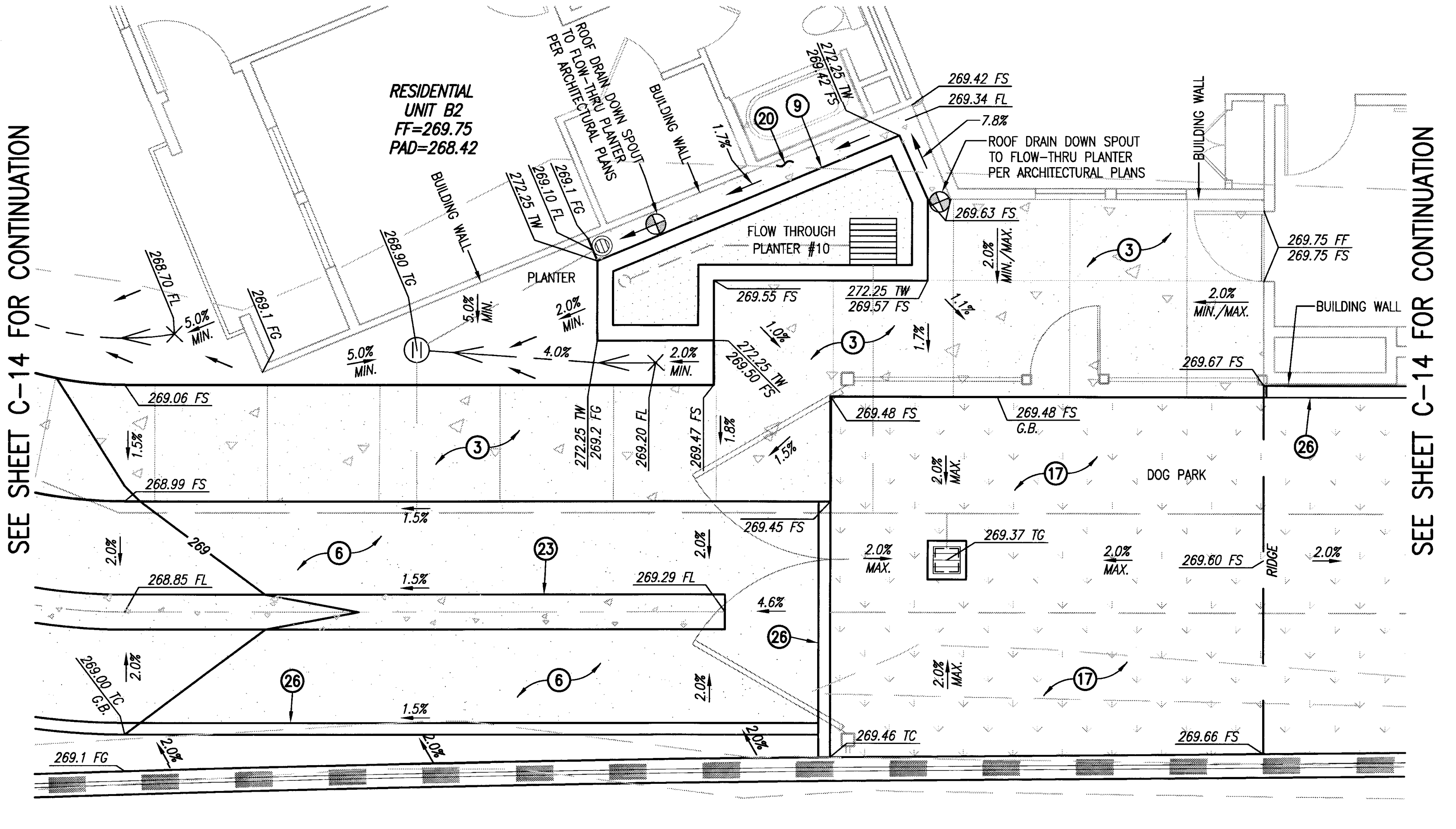

PARKING GARAGE FF=269.75 PAD=269.00
PLANTER
PROP. TRANS. PAD=269.90
H.P.
BLDG. ROOF DRAIN POC (UNDER SEPARATE PERMIT), CONNECT ROOF DRAIN TO STORM DRAIN SYSTEM, STORM WATER TREATMENT THROUGH MODULAR WETLANDS SYSTEM
RESIDENTIAL UNITS FF=269.75 PAD=268.42
RIDGE

SEE SHEET C-12 FOR CONTINUATION

GRADING DETAIL (4) - GARAGE TRANSFORMER

SCALE: 1"=4'

SEE SHEET C-14 FOR CONTINUATION


SEE SHEET C-14 FOR CONTINUATION
SEE SHEET C-14 FOR CONTINUATION
RESIDENTIAL UNIT B2 FF=269.75 PAD=268.42
ROOF DRAIN DOWN SPOUT TO FLOW-THRU PLANTER PER ARCHITECTURAL PLANS
BUILDING WALL
FLOW THROUGH PLANTER #10
PLANTER
DOG PARK
RIDGE
G.B.

GRADING DETAIL (3) - FTP #10

SCALE: 1"=4'

GENERAL NOTES:

1. SEE SHEET C-6 FOR SITE SECTIONS.
2. SEE SHEET C-32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C-36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)

LEGEND:

➔ - ➔ - ➔ - ➔	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
→ → →	DIRECTION OF SURFACE FLOW WITHIN LANDSCAPE AREAS, MIN. 5.0% FROM BUILDING AND MIN. 2.0% FROM ALL CMU WALLS
▨ ▨ ▨	RETAINING WALL, PER SEPARATE PLAN & SEPARATE BUILDING PERMIT (SHOWN FOR INFORMATION ONLY.
═══	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS PER SEPARATE PLANS & SEPARATE BUILDING PERMIT. (SHOWN FOR INFORMATION ONLY) SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
▬ ▬ ▬	DEEPENED BUILDING FOOTING, DEPTH SHALL BE THE STRUCTURAL DESIGN DEPTH PLUS "HT." AS SHOWN, SEE STRUCTURAL DRAWINGS FOR DETAILS AND CALCULATIONS.
- - - -	6-INCH PERFORATED PIPE SYSTEM IN FLOW THROUGH PLANTERS
▨	PROPOSED CONCRETE PAVEMENT
▨	SYNTHETIC TURF
▨	FLOW THROUGH PLANTER SYSTEM

CONSTRUCTION NOTES

③ CONSTRUCT 4-INCH THICK PCC SIDEWALK WITH #4 REBAR AT 24-INCH O.C. SEE SHEET C-7, DETAILS 4, 5 AND 6. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

④ CONSTRUCT 6-INCH THICK VEHICULAR PCC SLAB WITH #4 REBAR AT 12-INCH O.C. OVER 8-INCH CRUSHED MISCELLANEOUS BASE, (CMB) SEE SHEET C-7, DETAILS 4 & 5. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLOR AND FINISH.

⑥ CONSTRUCT 4-INCH THICK MIN. (VEHICULAR) OR 3-INCH THICK (PEDESTRIAN) STABILIZED DECOMPOSED GRANITE (SDG) SURFACE. FOR VEHICULAR SECTION PLACE 17-INCHES OF CRUSHED MISCELLANEOUS BASE (CMB) BELOW SDG. SUBGRADE PREPARATION PER SOILS REPORT. SEE LANDSCAPE ARCHITECT'S PLANS FOR ADDITIONAL DETAILS.

⑨ CONSTRUCT 8-INCH CMU BLOCK FLOW THROUGH PLANTER SYSTEM, SEE SHEET C-30 DETAIL 14, SLOPE EXTERIOR FINISHED GRADE AWAY FROM WALLS AT 2% MIN., SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑩ CONSTRUCT 8-INCH CMU FREE STANDING SITE PERIMETER WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY). SLOPE FINISHED SURFACE AWAY FROM WALLS AT 2% MIN. SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES.

⑪ CONSTRUCT 8-INCH CMU RETAINING WALL, PER SEPARATE PLANS & SEPARATE PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE EXTERIOR SURFACE AWAY FROM WALLS.

⑫ CONSTRUCT PERMANENT SHOTCRETE SHORING PILE & LAGGING RETAINING WALL, PER SEPARATE PERMIT AND SEPARATE PLAN (SHOWN FOR REFERENCE ONLY). SEE LANDSCAPE ARCHITECT'S PLANS FOR COLORS AND FINISHES. SLOPE FINISHED GRADE AWAY FROM WALL AT 2% MIN.

⑬ CONSTRUCT 2-FOOT WIDE CONC. RETAINING WALL DRAINAGE DITCH, SEE SHEET C-8, DETAIL 15.

⑭ CONSTRUCT 6-INCH WIDE CONC. DRAINAGE DITCH SPLASH WALL, SEE SHEET C-8, DETAIL 15.

⑯ INSTALL TILE PAVING PER LANDSCAPE ARCHITECT'S PLANS & DETAILS.

⑰ INSTALL SYNTHETIC TURF, SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS, COLOR AND FINISHES.

⑱ INSTALL SYNTHETIC TURFBLOCK AT FIRELANE OVER 17-INCH CRUSHED MISCELLANEOUS BASE, SEE SHEET C-8, DETAIL 17. SEE LANDSCAPE ARCHITECT'S PLANS FOR DETAILS.

⑳ CONSTRUCT 3-INCH THICK CONCRETE SLAB BETWEEN BUILDING AND FLOW THROUGH PLANTER WALL. CREATE SWALE LINE IN THE CENTER AND SLOPE AT 1% MIN. CROSS SLOPE FROM BUILDING AND PLANTER WALL TO BE AT 2% MIN TO SWALE, SEE SHEET C-8, DETAIL 14.

㉓ CONSTRUCT 18-INCH WIDE, 8-INCH THICK CONC. RIBBON GUTTER, SHEET C-8, DETAIL 13.

㉖ CONSTRUCT 6-INCH WIDE FLUSH PCC CURB, SEE SHEET C-8, DETAIL 18.

㉚ CMU PATIO WALL PER SEPARATE PLANS & PERMIT (SHOWN FOR REFERENCE ONLY), SEE LANDSCAPE ARCHITECT'S PLANS.

㉜ CONSTRUCT 8-INCH WIDE VARIABLE HEIGHT DEEPENED PCC CURB, SEE SHEET C-7, DETAIL 6.

811
Know what's below.
Call before you dig.

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REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
PRECISE GRADING DETAILS

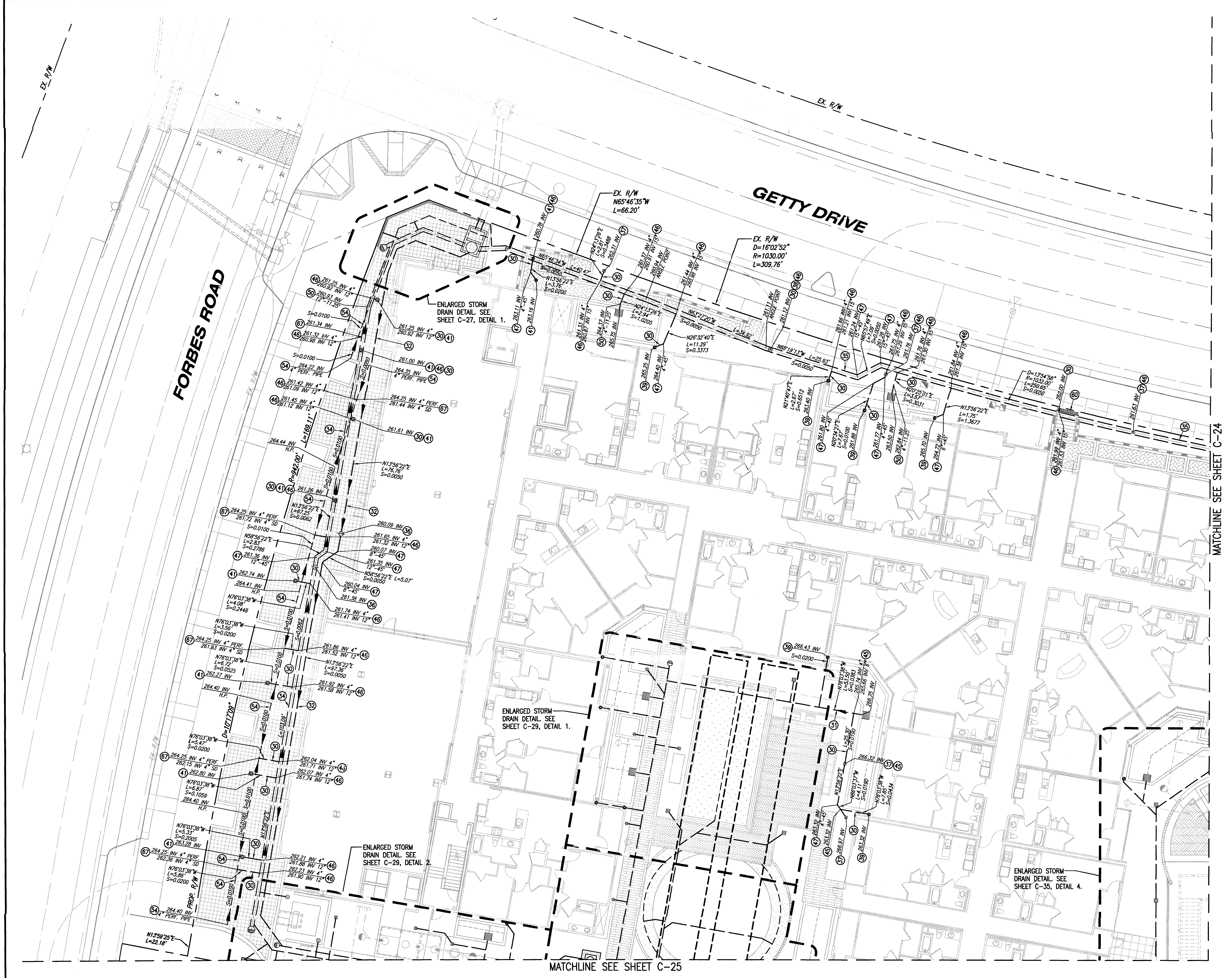
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-22

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-22-PGD.dwg July 08, 2015 - 11:25am Shiori


EX. R/W
FORBES ROAD
GETTY DRIVE
EX. R/W
N65°46'35"W
L=66.20'
EX. R/W
D=16°02'52"
R=1030.00'
L=309.76'
ENLARGED STORM DRAIN DETAIL. SEE SHEET C-27, DETAIL 1.
ENLARGED STORM DRAIN DETAIL. SEE SHEET C-29, DETAIL 1.
ENLARGED STORM DRAIN DETAIL. SEE SHEET C-29, DETAIL 2.
ENLARGED STORM DRAIN DETAIL. SEE SHEET C-35, DETAIL 4.
R=942.00'
L=169.11'
D=10°17'09"
PROP. R/W
N13°59'25"E
L=22.18'
MATCHLINE SEE SHEET C-24
MATCHLINE SEE SHEET C-25

STORM DRAIN NOTES

- (30) PROVIDE AND INSTALL 4-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- (31) PROVIDE AND INSTALL 6-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- (32) PROVIDE AND INSTALL 8-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- (34) PROVIDE AND INSTALL 12-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.
- (35) PROVIDE AND INSTALL 15-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.
- (36) PROVIDE AND INSTALL PVC STORM DRAIN CLEANOUT. SEE SHEET C-31, DETAILS 3 OR 5.
- (37) PROVIDE AND INSTALL 9-INCH x 9-INCH LOW PROFILE ADAPTER (NDS #930) USE 9-INCH SQUARE GRATE IN GRASS AREA (NDS #990 "GREEN"). USE 9-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #981 "BLACK"). SEE SHEET C-31, DETAIL 6.
- (38) PROVIDE AND INSTALL 12-INCH x 12-INCH LOW PROFILE ADAPTER (NDS #1230) USE 12-INCH SQUARE GRATE IN GRASS AREA (NDS #1212 "GREEN"). USE 12-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #1290 "BLACK"). SEE SHEET C-31, DETAIL 6.
- (39) PROVIDE AND INSTALL 4-INCH ROUND ATRIUM GRATE (NDS #11 "BLACK"). SEE SHEET C-31, DETAIL 6.
- (41) PROVIDE AND INSTALL 5"x5" SQUARE BRASS GRATE (NDS #913B).
- (45) PROVIDE AND INSTALL 45° WYE, SEE SHEET C-32, DETAIL 4.
- (46) PROVIDE AND INSTALL HDPE WYE WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON LATERAL, SEE SHEET C-32, DETAIL 2.
- (47) PROVIDE AND INSTALL 45° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.
- (50) PROVIDE AND INSTALL 11.25° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.
- (54) PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER PERVIOUS PAVERS. SEE SHEET C-8, DETAIL 16.
- (60) PROVIDE AND INSTALL 4-INCH ACO POWERDRAIN "S100K" PRE-SLOPED TRENCH DRAIN W/ BOTTOM OUTLET. PROVIDE H20 LOADING CAST IRON GRATE & FRAME. SEE SHEET C-31, DETAIL 8.
- (67) PROVIDE AND INSTALL SUBDRAINAGE CONNECTION TO STORM DRAIN SYSTEM, SEE SHEET C-31, DETAIL 9.

0 5 10 20 40
SCALE: 1"=10'

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444

UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
James H. Kawamura

SHEET DESCRIPTION:
STORM DRAIN PLAN

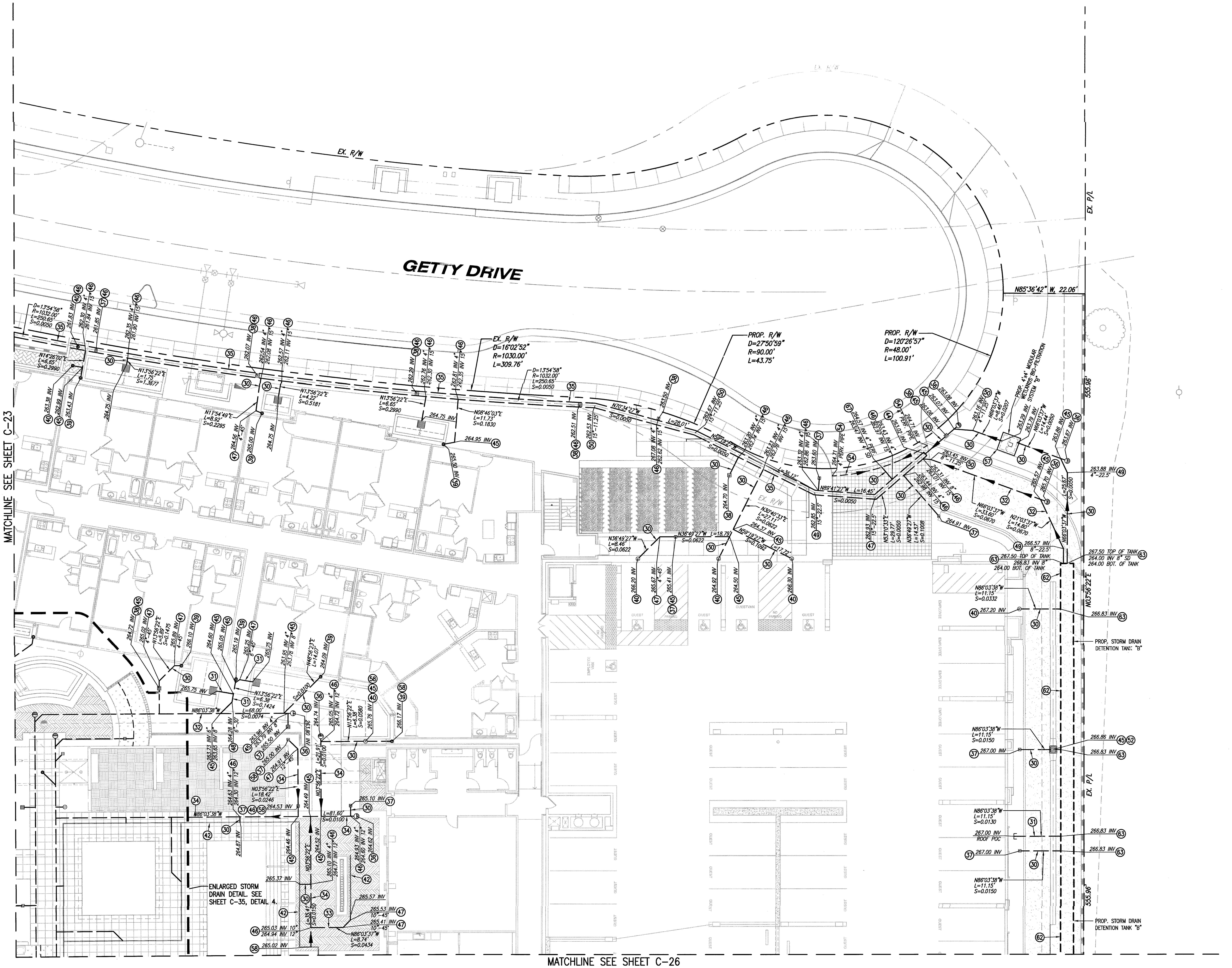
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

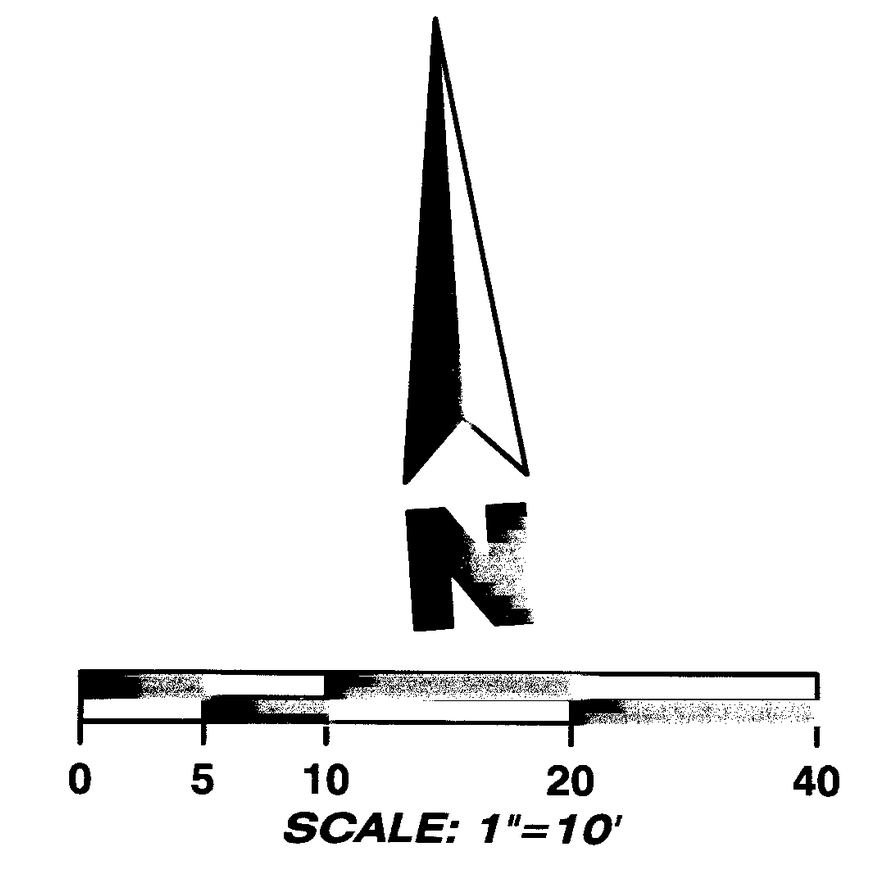
SHEET NO.
C-23

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-23-SD.dwg July 08, 2015 - 10:37am Cesar

MATCHLINE SEE SHEET C-23



GETTY DRIVE
EX. R/W
EX. R/W
D=16°02'52"
R=1030.00'
L=309.76'
PROP. R/W
D=27°50'59"
R=90.00'
L=43.75'
PROP. R/W
D=120°26'57"
R=48.00'
L=100.91'
D=13°54'58"
R=1032.00'
L=250.65'
S=0.0050
N85°36'42" W, 22.06'
EX. P/L
555.96'
N03°56'22"E
555.96'
EX. P/L
PROP. 4'x4' MODULAR WETLANDS BIO-FILTRATION SYSTEM "B"
267.50 TOP OF TANK
264.00 INV 8" SD
264.00 BOT. OF TANK
PROP. STORM DRAIN DETENTION TANK "B"
PROP. STORM DRAIN DETENTION TANK "B"
ENLARGED STORM DRAIN DETAIL. SEE SHEET C-35, DETAIL 4.
266.83 INV
266.86 INV
267.00 INV ROOF POC
N86°03'38"W
L=11.15'
S=0.0332
N86°03'38"W
L=11.15'
S=0.0150
N86°03'38"W
L=11.15'
S=0.0130
263.88 INV
4"-22.5°
264.91 INV
266.57 INV
8"-22.5°
GUEST
EMPLOYEE



N
0
5
10
20
40
SCALE: 1"=10'

MATCHLINE SEE SHEET C-26

STORM DRAIN NOTES

㉚ PROVIDE AND INSTALL 4-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

㉛ PROVIDE AND INSTALL 6-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

㉜ PROVIDE AND INSTALL 8-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

㉝ PROVIDE AND INSTALL 10-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

㉞ PROVIDE AND INSTALL 12-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.

㉟ PROVIDE AND INSTALL 15-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.

㊱ PROVIDE AND INSTALL PVC STORM DRAIN CLEANOUT. SEE SHEET C-31, DETAILS 3 OR 5.

㊲ PROVIDE AND INSTALL 9-INCH x 9-INCH LOW PROFILE ADAPTER (NDS #930) USE 9-INCH SQUARE GRATE IN GRASS AREA (NDS #990 "GREEN"). USE 9-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #981 "BLACK"). SEE SHEET C-31, DETAIL 6.

㊳ PROVIDE AND INSTALL 12-INCH x 12-INCH LOW PROFILE ADAPTER (NDS #1230) USE 12-INCH SQUARE GRATE IN GRASS AREA (NDS #1212 "GREEN"). USE 12-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #1290 "BLACK"). SEE SHEET C-31, DETAIL 6.

㊴ PROVIDE AND INSTALL 4-INCH ROUND ATRIUM GRATE (NDS #11 "BLACK"). SEE SHEET C-31, DETAIL 6.

㊵ PROVIDE AND INSTALL 6-INCH ROUND ATRIUM GRATE (NDS #90) IN SOIL AREAS AND 6-INCH ROUND GRATE (NDS #50) IN GRASS AREAS. SEE SHEET C-31, DETAIL 6.

㊷ INSTALL 4-INCH DIA. "ZURN" MODEL #Z888-4 HDS" ADA COMPLIANT SLOT DRAIN WITH BOTTOM OUTLET. SEE SHEET 31, DETAIL 7.

㊹ PROVIDE AND INSTALL HDPE ECCENTRIC REDUCER WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON PIPE TRANSITION, SEE SHEET C-32, DETAIL 2.

㊺ PROVIDE AND INSTALL 45° WYE, SEE SHEET C-32, DETAIL 4.

㊻ PROVIDE AND INSTALL HDPE WYE WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON LATERAL, SEE SHEET C-32, DETAIL 2.

㊼ PROVIDE AND INSTALL 45° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

㊽ PROVIDE AND INSTALL 30° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

㊾ PROVIDE AND INSTALL 22.5° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

㊿ PROVIDE AND INSTALL 11.25° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(52) PROVIDE AND INSTALL 16-INCH x 16-INCH CAST-IN-PLACE CONCRETE DROP INLET WITH GALVANIZED STEEL GRATE AND FRAME. SEE SHEET C-32, DETAIL 1.

(54) PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER PERVIOUS PAVERS. SEE SHEET C-8, DETAIL 16.

(57) PROVIDE AND INSTALL 4'x4' MODULAR WETLANDS STORMWATER FILTRATION SYSTEM BY BIO CLEAN. SEE MANUFACTURER'S SPECIFICATIONS FOR ADDITIONAL INFORMATION, SEE SHEET C-31, DETAIL 6.

(58) PROVIDE AND INSTALL AREA DRAIN REDUCER, SEE SHEET C-35, DETAIL 3.

(62) PROVIDE AND INSTALL CONTECH CORRUGATED STEEL RETENTION PIPE, ACCESS RISER AND ALL ASSOCIATED EQUIPMENT AND APPURTENANCES PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-33 AND 34 FOR DETAILS.

(63) CONNECT SITE STORM DRAIN LINE TO CMP TANK, SEE DETAILS ON SHEET 33.

(67) PROVIDE AND INSTALL SUBDRAINAGE CONNECTION TO STORM DRAIN SYSTEM, SEE SHEET C-31, DETAIL 9.

811
Know what's **below**.
Call before you dig.

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Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
James H. Kawamura

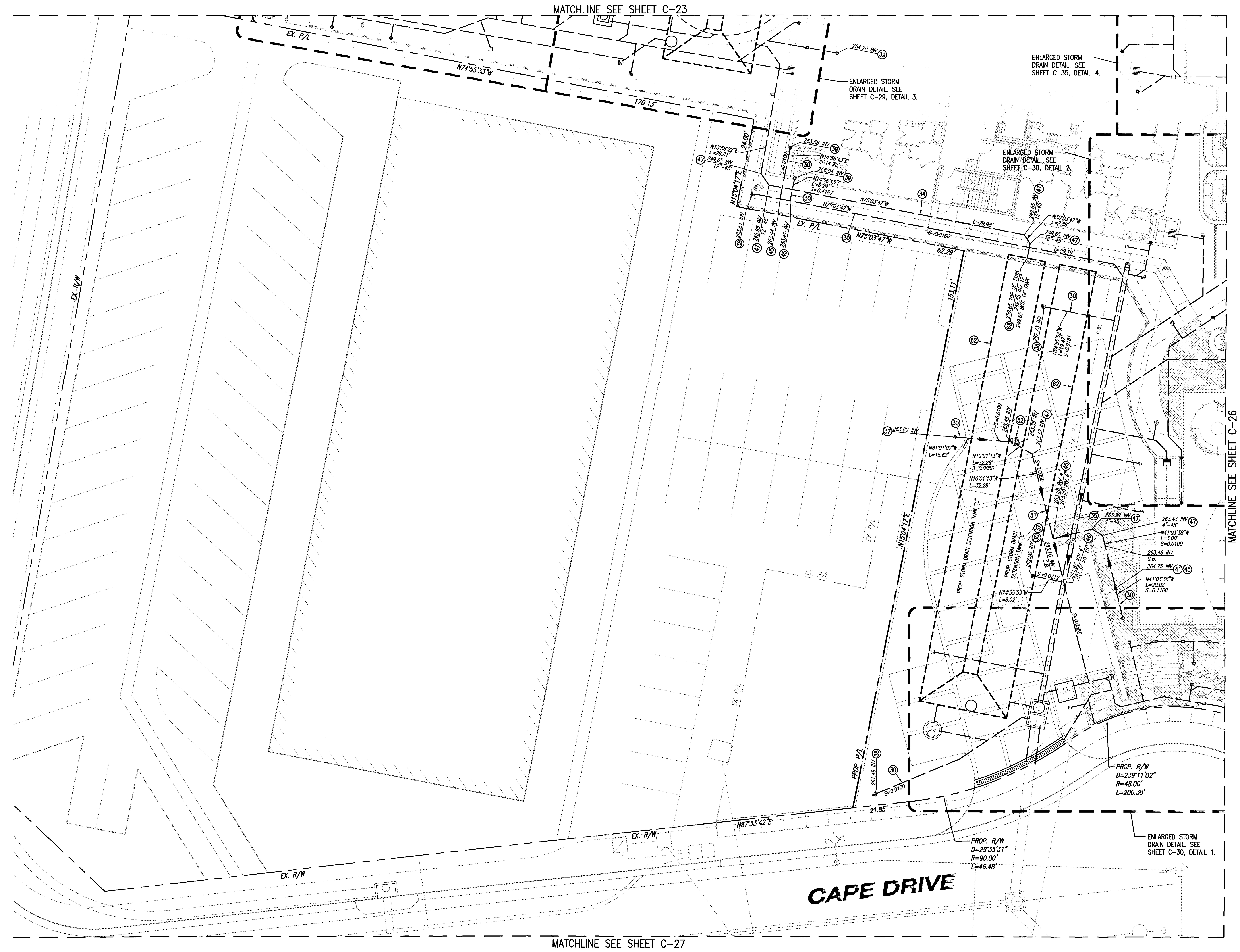
SHEET DESCRIPTION:
STORM DRAIN PLAN

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

SHEET NO.
C-24

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-24-SD.dwg July 08, 2015 - 10:43am Cesar


MATCHLINE SEE SHEET C-23
EX. P/L
N74°55'33"W
170.13'
264.20 INV ㊴
ENLARGED STORM DRAIN DETAIL. SEE SHEET C-29, DETAIL 3.
ENLARGED STORM DRAIN DETAIL. SEE SHEET C-35, DETAIL 4.
ENLARGED STORM DRAIN DETAIL. SEE SHEET C-30, DETAIL 2.
EX. R/W
24.00'
N13°56'22"E
L=29.81'
㊼ 249.65 INV
12"-45°
263.58 INV ㊴
N14°56'13"E
L=14.22'
S=0.0100
㉚
266.04 INV ㊴
N14°56'13"E
L=6.29'
S=0.4187
N15°04'17"E
N75°03'47"W
㉞
L=79.98'
S=0.0100
㊳ 263.51 INV
㊼ 249.65 INV 12"-45°
㊺ 263.44 INV
㊺ 263.41 INV
N30°03'47"W
L=2.89'
249.65 INV ㊼
12"-45°
249.65 INV
12"-45°
L=99.19'
62.29'
153.11'
(63) 259.65 TOP OF TANK
249.65 INV 12"
249.65 BOT. OF TANK
(62)
㊳ 262.73 INV
N74°55'52"W
L=19.47'
S=0.0161
㊲ 263.60 INV
N81°01'02"W
L=15.62'
S=0.0100
263.45 INV (52)
263.35 INV
263.32 INV ㊼
N10°01'13"W
L=32.28'
S=0.0050
N10°01'13"W
L=32.28'
S=0.0050
EX. P/L
㊺ 263.28 INV 4"
263.20 INV 6"
PROP. STORM DRAIN DETENTION TANK "C"
PROP. STORM DRAIN DETENTION TANK "C"
㉛
㊲ ㉚ 262.00 INV
263.16 INV
G.B.
S=0.0212
N74°55'52"W
L=8.02'
㊻ 261.83 INV 4"
261.37 INV 15"
S=0.0355
㉟
263.39 INV ㊼
4"-45°
263.43 INV ㊼
4"-45°
N41°03'38"W
L=3.00'
S=0.0100
263.46 INV
G.B.
264.75 INV ㊶ ㊺
N41°03'38"W
L=20.02'
S=0.1100
MATCHLINE SEE SHEET C-26
N87°33'42"E
21.85'
PROP. P/L
261.49 INV ㊳
S=0.0100
PROP. R/W
D=239°11'02"
R=48.00'
L=200.38'
PROP. R/W
D=29°35'31"
R=90.00'
L=46.48'
ENLARGED STORM DRAIN DETAIL. SEE SHEET C-30, DETAIL 1.
CAPE DRIVE
MATCHLINE SEE SHEET C-27

STORM DRAIN NOTES

㉚ PROVIDE AND INSTALL 4-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

㉛ PROVIDE AND INSTALL 6-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

㉞ PROVIDE AND INSTALL 12-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.

㉟ PROVIDE AND INSTALL 15-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.

㊲ PROVIDE AND INSTALL 9-INCH x 9-INCH LOW PROFILE ADAPTER (NDS #930) USE 9-INCH SQUARE GRATE IN GRASS AREA (NDS #990 "GREEN"). USE 9-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #981 "BLACK"). SEE SHEET C-31, DETAIL 6.

㊳ PROVIDE AND INSTALL 12-INCH x 12-INCH LOW PROFILE ADAPTER (NDS #1230) USE 12-INCH SQUARE GRATE IN GRASS AREA (NDS #1212 "GREEN"). USE 12-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #1290 "BLACK"). SEE SHEET C-31, DETAIL 6.

㊴ PROVIDE AND INSTALL 4-INCH ROUND ATRIUM GRATE (NDS #11 "BLACK"). SEE SHEET C-31, DETAIL 6.

㊶ PROVIDE AND INSTALL 5"x5" SQUARE BRASS GRATE (NDS #913B).

㊺ PROVIDE AND INSTALL 45° WYE, SEE SHEET C-32, DETAIL 4.

㊻ PROVIDE AND INSTALL HDPE WYE WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON LATERAL, SEE SHEET C-32, DETAIL 2.

㊼ PROVIDE AND INSTALL 45° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(52) PROVIDE AND INSTALL 16-INCH x 16-INCH CAST-IN-PLACE CONCRETE DROP INLET WITH GALVANIZED STEEL GRATE AND FRAME. SEE SHEET C-32, DETAIL 1.

(62) PROVIDE AND INSTALL CONTECH CORRUGATED STEEL RETENTION PIPE, ACCESS RISER AND ALL ASSOCIATED EQUIPMENT AND APPURTENANCES PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-33 AND 34 FOR DETAILS.

(63) CONNECT SITE STORM DRAIN LINE TO CMP TANK, SEE DETAILS ON SHEET 33.

N

0 5 10 20 40
SCALE: 1"=10'

811
Know what's below.
Call before you dig.

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Newport Beach, California 92660
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UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

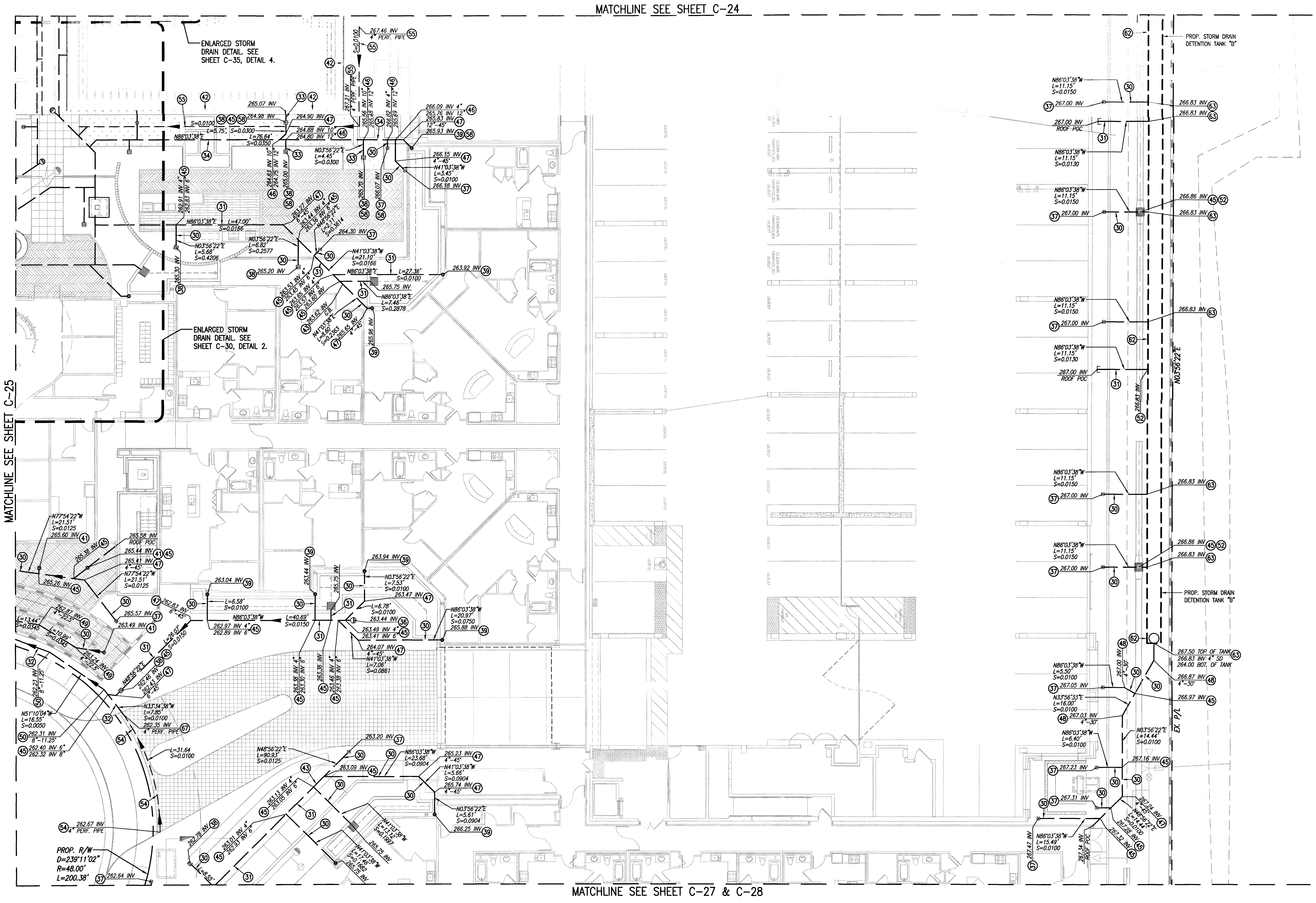
SHEET DESCRIPTION:
STORM DRAIN PLAN

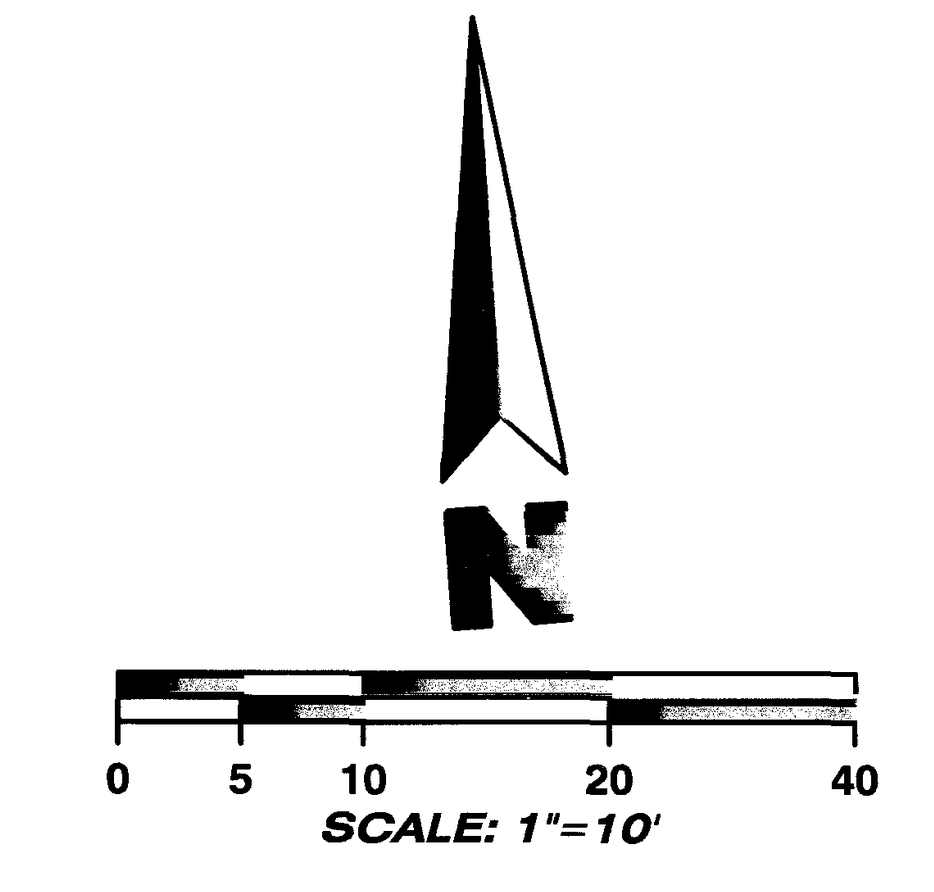
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

SHEET NO.
C-25

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-25-SD.dwg July 08, 2015 - 10:46am Cesar





STORM DRAIN NOTES

(30) PROVIDE AND INSTALL 4-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

(31) PROVIDE AND INSTALL 6-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

(32) PROVIDE AND INSTALL 8-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

(33) PROVIDE AND INSTALL 10-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

(34) PROVIDE AND INSTALL 12-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.

(36) PROVIDE AND INSTALL PVC STORM DRAIN CLEANOUT. SEE SHEET C-31, DETAILS 3 OR 5.

(37) PROVIDE AND INSTALL 9-INCH x 9-INCH LOW PROFILE ADAPTER (NDS #930) USE 9-INCH SQUARE GRATE IN GRASS AREA (NDS #990 "GREEN"). USE 9-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #981 "BLACK"). SEE SHEET C-31, DETAIL 6.

(38) PROVIDE AND INSTALL 12-INCH x 12-INCH LOW PROFILE ADAPTER (NDS #1230) USE 12-INCH SQUARE GRATE IN GRASS AREA (NDS #1212 "GREEN"). USE 12-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #1290 "BLACK"). SEE SHEET C-31, DETAIL 6.

(39) PROVIDE AND INSTALL 4-INCH ROUND ATRIUM GRATE (NDS #11 "BLACK"). SEE SHEET C-31, DETAIL 6.

(41) PROVIDE AND INSTALL 5"x5" SQUARE BRASS GRATE (NDS #913B).

(42) INSTALL 4-INCH DIA. "ZURN" MODEL #Z888-4 HDS" ADA COMPLIANT SLOT DRAIN WITH BOTTOM OUTLET. SEE SHEET 31, DETAIL 7.

(43) PROVIDE AND INSTALL ECCENTRIC REDUCER, SIZE PER PLAN.

(45) PROVIDE AND INSTALL 45° WYE, SEE SHEET C-32, DETAIL 4.

(46) PROVIDE AND INSTALL HDPE WYE WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON LATERAL, SEE SHEET C-32, DETAIL 2.

(47) PROVIDE AND INSTALL 45° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(48) PROVIDE AND INSTALL 30° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(49) PROVIDE AND INSTALL 22.5° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(50) PROVIDE AND INSTALL 11.25° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(52) PROVIDE AND INSTALL 16-INCH x 16-INCH CAST-IN-PLACE CONCRETE DROP INLET WITH GALVANIZED STEEL GRATE AND FRAME. SEE SHEET C-32, DETAIL 1.

(54) PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER PERVIOUS PAVERS. SEE SHEET C-8, DETAIL 16.

(55) PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER TURF. SEE SHEET C-8, DETAIL 17.

(58) PROVIDE AND INSTALL AREA DRAIN REDUCER, SEE SHEET C-35, DETAIL 3.

(62) PROVIDE AND INSTALL CONTECH CORRUGATED STEEL RETENTION PIPE, ACCESS RISER AND ALL ASSOCIATED EQUIPMENT AND APPURTENANCES PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-33 AND 34 FOR DETAILS.

(63) CONNECT SITE STORM DRAIN LINE TO CMP TANK, SEE DETAILS ON SHEET 33.

(67) PROVIDE AND INSTALL SUBDRAINAGE CONNECTION TO STORM DRAIN SYSTEM, SEE SHEET C-31, DETAIL 9.

811
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UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

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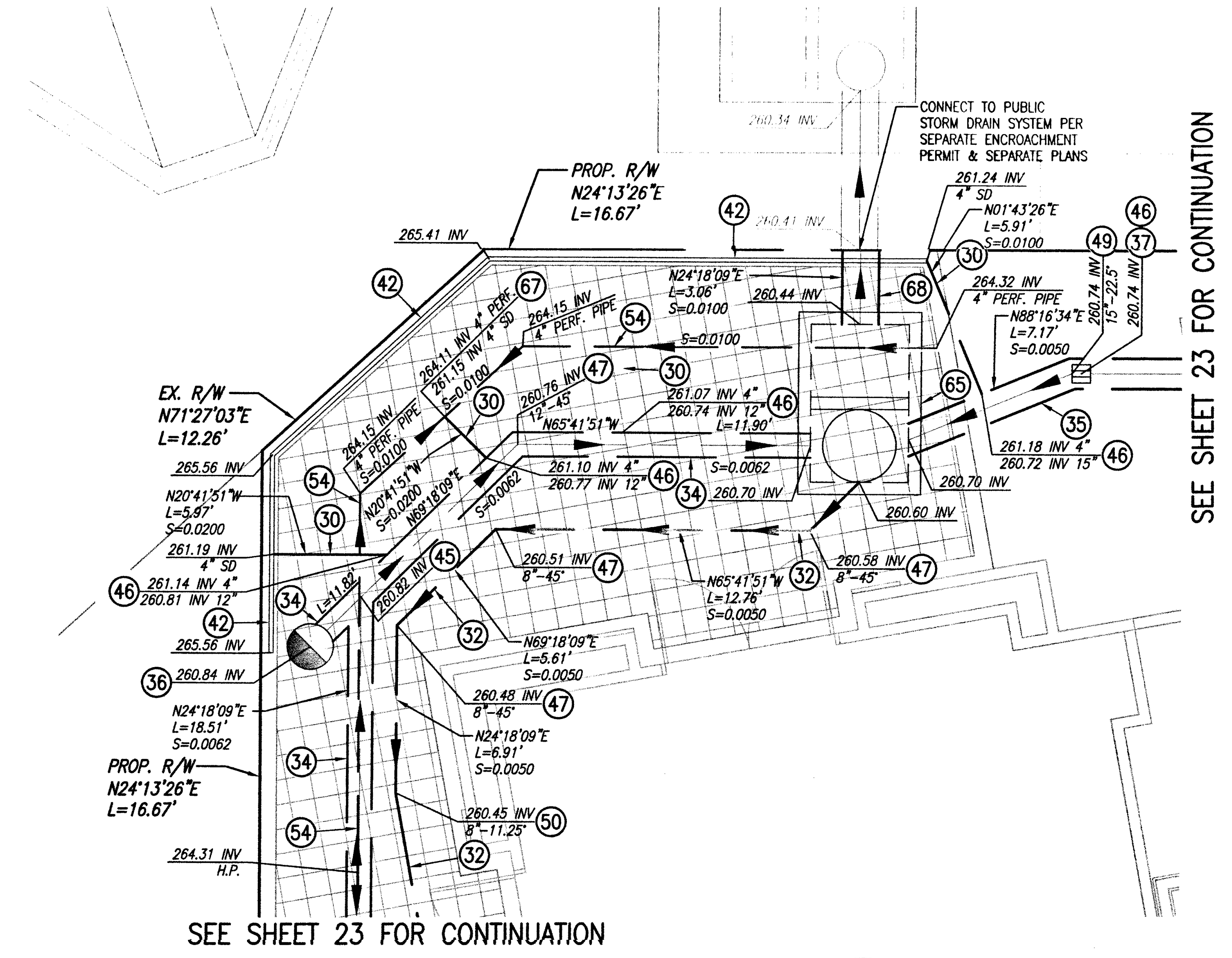
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

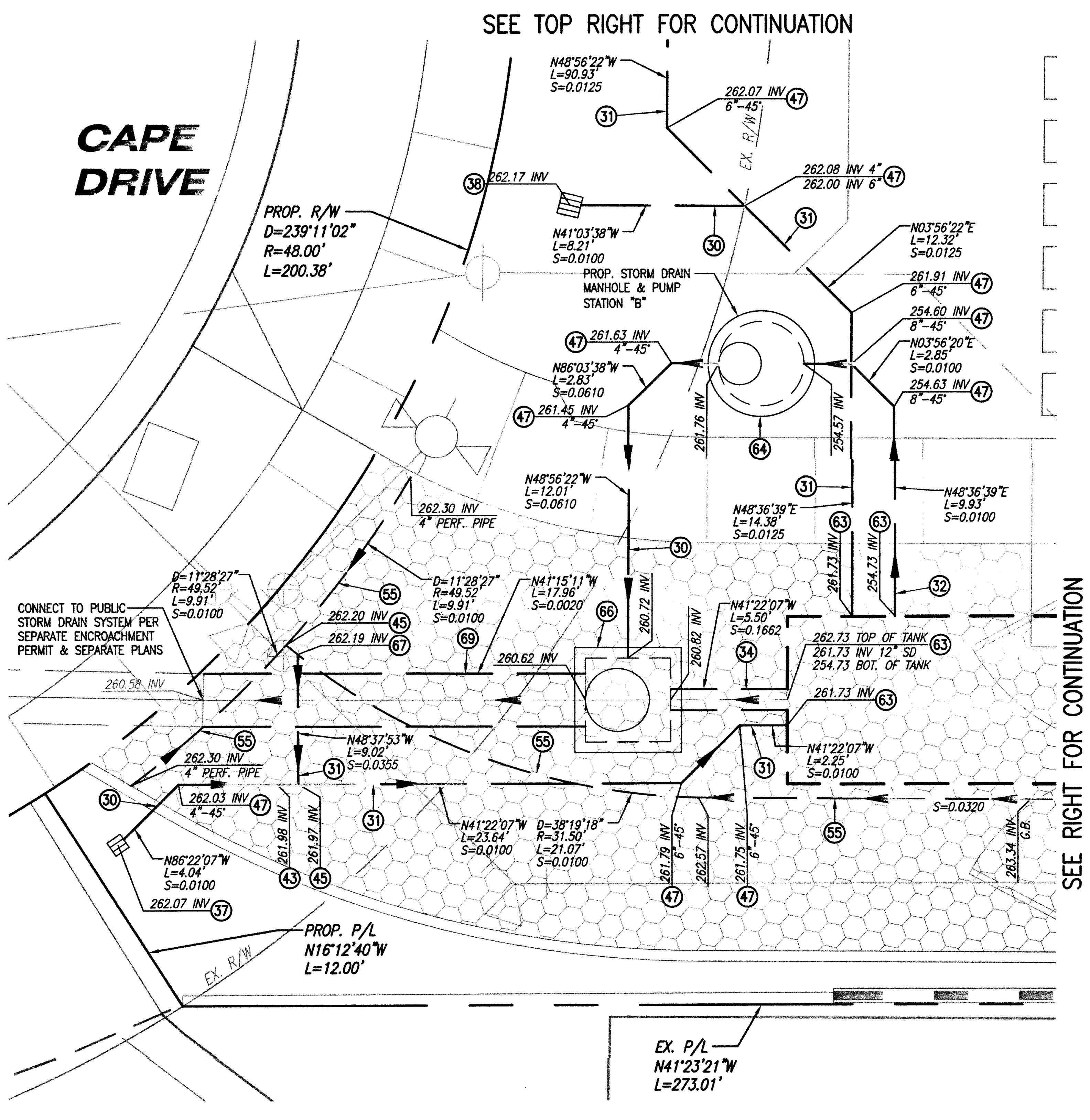
SHEET NO.
C-26

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-26-SD.dwg July 08, 2015 - 10:47am Cesar


SEE SHEET 23 FOR CONTINUATION
CONNECT TO PUBLIC STORM DRAIN SYSTEM PER SEPARATE ENCROACHMENT PERMIT & SEPARATE PLANS
PROP. R/W N24°13'26"E L=16.67'
EX. R/W N71°27'03"E L=12.26'
265.41 INV
265.56 INV
260.34 INV
260.41 INV
261.24 INV 4" SD
N01°43'26"E L=5.91' S=0.0100
N24°18'09"E L=3.06' S=0.0100
260.44 INV
264.32 INV 4" PERF. PIPE
N88°16'34"E L=7.17' S=0.0050
260.74 INV 15"-22.5° 260.74 INV
264.11 INV 4" PERF.
261.15 INV 4" SD
264.15 INV 4" PERF. PIPE
S=0.0100
260.76 INV 12"-45°
261.07 INV 4" 260.74 INV 12" L=11.90'
N65°41'51"W
264.15 INV 4" PERF. PIPE S=0.0100
N20°41'51"W S=0.0200
N69°18'09"E S=0.0062
261.10 INV 4" 260.77 INV 12"
S=0.0062
260.70 INV
260.60 INV
261.18 INV 4" 260.72 INV 15"
N20°41'51"W L=5.97' S=0.0200
261.19 INV 4" SD
261.14 INV 4" 260.81 INV 12"
L=11.82'
260.82 INV
260.51 INV 8"-45°
N65°41'51"W L=12.76' S=0.0050
260.58 INV 8"-45°
265.56 INV
260.84 INV
N69°18'09"E L=5.61' S=0.0050
260.48 INV 8"-45°
N24°18'09"E L=18.51' S=0.0062
N24°18'09"E L=6.91' S=0.0050
PROP. R/W N24°13'26"E L=16.67'
260.45 INV 8"-11.25°
264.31 INV H.P.
30 32 34 35 36 37 42 45 46 47 49 50 54 65 67 68

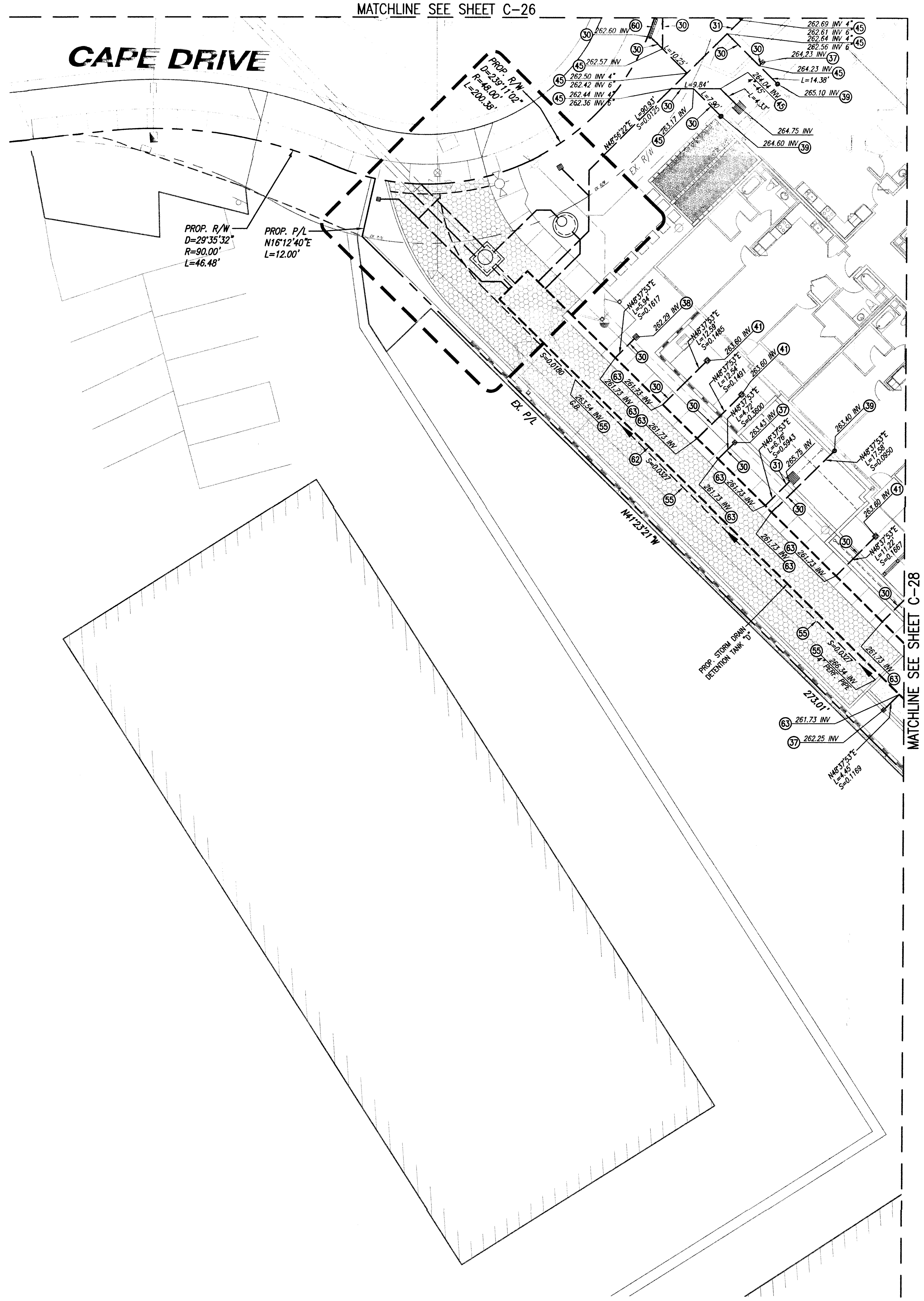
STORM DRAIN DETAIL NO. 1

SCALE: 1"=4'


SEE TOP RIGHT FOR CONTINUATION
CAPE DRIVE
PROP. R/W D=239°11'02" R=48.00' L=200.38'
N48°56'22"W L=90.93' S=0.0125
262.07 INV 6"-45°
EX. R/W
262.17 INV
262.08 INV 4" 262.00 INV 6"
N41°03'38"W L=8.21' S=0.0100
N03°56'22"E L=12.32' S=0.0125
PROP. STORM DRAIN MANHOLE & PUMP STATION "B"
261.91 INV 6"-45°
254.60 INV 8"-45°
261.63 INV 4"-45°
N86°03'38"W L=2.83' S=0.0610
N03°56'20"E L=2.85' S=0.0100
254.63 INV 8"-45°
261.45 INV 4"-45°
261.76 INV
254.57 INV
N48°56'22"W L=12.01' S=0.0610
N48°36'39"E L=9.93' S=0.0100
N48°36'39"E L=14.38' S=0.0125
262.30 INV 4" PERF. PIPE
261.73 INV
254.73 INV
D=11°28'27" R=49.52' L=9.91' S=0.0100
D=11°28'27" R=49.52' L=9.91' S=0.0100
N41°15'11"W L=17.96' S=0.0020
260.72 INV
260.82 INV
N41°22'07"W L=5.50' S=0.1662
CONNECT TO PUBLIC STORM DRAIN SYSTEM PER SEPARATE ENCROACHMENT PERMIT & SEPARATE PLANS
262.20 INV
262.19 INV
262.73 TOP OF TANK 261.73 INV 12" SD 254.73 BOT. OF TANK
260.58 INV
260.62 INV
261.73 INV
N48°37'53"W L=9.02' S=0.0355
N41°22'07"W L=2.25' S=0.0100
262.30 INV 4" PERF. PIPE
262.03 INV 4"-45°
S=0.0320
N86°22'07"W L=4.04' S=0.0100
261.98 INV
261.97 INV
N41°22'07"W L=23.64' S=0.0100
D=38°19'18" R=31.50' L=21.07' S=0.0100
261.79 INV 6"-45°
262.57 INV
261.75 INV 6"-45°
263.34 INV G.B.
262.07 INV
SEE RIGHT FOR CONTINUATION
PROP. P/L N16°12'40"W L=12.00'
EX. R/W
EX. P/L N41°23'21"W L=273.01'
30 31 32 34 37 38 43 45 47 55 63 64 66 67 69

STORM DRAIN DETAIL NO. 2

SCALE: 1"=4'


MATCHLINE SEE SHEET C-26
CAPE DRIVE
PROP. R/W D=239°11'02" R=48.00' L=200.38'
PROP. R/W D=29°35'32" R=90.00' L=46.48'
PROP. P/L N16°12'40"E L=12.00'
262.60 INV
262.57 INV
262.50 INV 4" 262.42 INV 6"
262.44 INV 4" 262.36 INV 6"
L=10.25'
L=9.84'
L=7.90'
262.69 INV 4" 262.61 INV 6"
262.64 INV 4" 262.56 INV 6"
264.23 INV
264.23 INV
L=14.38'
264.04 INV 4"-45°
L=4.33'
265.10 INV
264.75 INV
264.60 INV
N48°56'22"E L=90.93' S=0.0125
263.17 INV
EX. R/W
N48°37'53"E L=5.94' S=0.1617
262.29 INV
N48°37'53"E L=12.59' S=0.1485
263.60 INV
N48°37'53"E L=12.54' S=0.1491
263.60 INV
N48°37'53"E L=4.72' S=0.3600
263.43 INV
N48°37'53"E L=6.76' S=0.5943
265.75 INV
263.40 INV
N48°37'53"E L=17.58' S=0.0950
263.60 INV
N48°37'53"E L=11.22' S=0.1667
S=0.0180
EX. P/L
263.54 INV G.B.
261.73 INV
S=0.0327
N41°23'21"W
PROP. STORM DRAIN DETENTION TANK "D"
266.34 INV 4" PERF. PIPE
273.01'
261.73 INV
262.25 INV
N48°37'53"E L=4.45' S=0.1169
MATCHLINE SEE SHEET C-28
30 31 37 38 39 41 45 55 60 62 63

STORM DRAIN NOTES

- ㉚ PROVIDE AND INSTALL 4-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- ㉛ PROVIDE AND INSTALL 6-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- ㉜ PROVIDE AND INSTALL 8-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- ㉞ PROVIDE AND INSTALL 12-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.
- ㉟ PROVIDE AND INSTALL 15-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.
- ㊱ PROVIDE AND INSTALL PVC STORM DRAIN CLEANOUT. SEE SHEET C-31, DETAILS 3 OR 5.
- ㊲ PROVIDE AND INSTALL 9-INCH x 9-INCH LOW PROFILE ADAPTER (NDS #930) USE 9-INCH SQUARE GRATE IN GRASS AREA (NDS #990 "GREEN"). USE 9-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #981 "BLACK"). SEE SHEET C-31, DETAIL 6.
- ㊳ PROVIDE AND INSTALL 12-INCH x 12-INCH LOW PROFILE ADAPTER (NDS #1230) USE 12-INCH SQUARE GRATE IN GRASS AREA (NDS #1212 "GREEN"). USE 12-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #1290 "BLACK"). SEE SHEET C-31, DETAIL 6.
- ㊴ PROVIDE AND INSTALL 4-INCH ROUND ATRIUM GRATE (NDS #11 "BLACK"). SEE SHEET C-31, DETAIL 6.
- ㊶ PROVIDE AND INSTALL 5"x5" SQUARE BRASS GRATE (NDS #913B).
- ㊷ INSTALL 4-INCH DIA. "ZURN" MODEL #Z888-4 HDS" ADA COMPLIANT SLOT DRAIN WITH BOTTOM OUTLET. SEE SHEET 31, DETAIL 7.
- ㊸ PROVIDE AND INSTALL ECCENTRIC REDUCER, SIZE PER PLAN.
- ㊺ PROVIDE AND INSTALL 45° WYE, SEE SHEET C-32, DETAIL 4.
- ㊻ PROVIDE AND INSTALL HDPE WYE WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON LATERAL, SEE SHEET C-32, DETAIL 2.
- ㊼ PROVIDE AND INSTALL 45° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.
- ㊾ PROVIDE AND INSTALL 22.5° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.
- ㊿ PROVIDE AND INSTALL 11.25° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.
- (54) PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER PERVIOUS PAVERS. SEE SHEET C-8, DETAIL 16.
- (55) PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER TURF. SEE SHEET C-8, DETAIL 17.
- (60) PROVIDE AND INSTALL 4-INCH ACO POWERDRAIN "S100K" PRE-SLOPED TRENCH DRAIN W/ BOTTOM OUTLET. PROVIDE H20 LOADING CAST IRON GRATE & FRAME. SEE SHEET C-31, DETAIL 8.
- (62) PROVIDE AND INSTALL CONTECH CORRUGATED STEEL RETENTION PIPE, ACCESS RISER AND ALL ASSOCIATED EQUIPMENT AND APPURTENANCES PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-33 AND 34 FOR DETAILS.
- (63) CONNECT SITE STORM DRAIN LINE TO CMP TANK, SEE DETAILS ON SHEET 33.
- (64) PROVIDE AND INSTALL PRE-PACKAGED PUMP STATION JENSEN PRECAST ENGINEERED STORM DRAIN PUMP MODEL #PLS48-GRP10/3-MVP-DAX208 PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-34, DETAIL 2 FOR DETAILS.
- (65) CONSTRUCT PCC MANHOLE STRUCTURE WITH WEIR PLATE, SEE SHEET C-35, DETAIL 1 & 2.
- (66) CONSTRUCT PCC MANHOLE STRUCTURE (MIN. CONC. STRENGTH=4,500 PSI) PER S.P.P.W.C. STANDARD PLAN 321-2.
- (67) PROVIDE AND INSTALL SUBDRAINAGE CONNECTION TO STORM DRAIN SYSTEM, SEE SHEET C-31, DETAIL 9.
- (68) PROVIDE AND INSTALL 18-INCH RCP (D-3000) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.
- (69) PROVIDE AND INSTALL 14-INCH x 23-INCH RCP (D-3000) ELLIPTICAL (PER ASTM-C507) PIPE WITH WATER TIGHT JOINTS (18-INCH ROUND PIPE EQUIVALENT). SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.

N

0 5 10 20 40
SCALE: 1"=10'

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
CIVIL

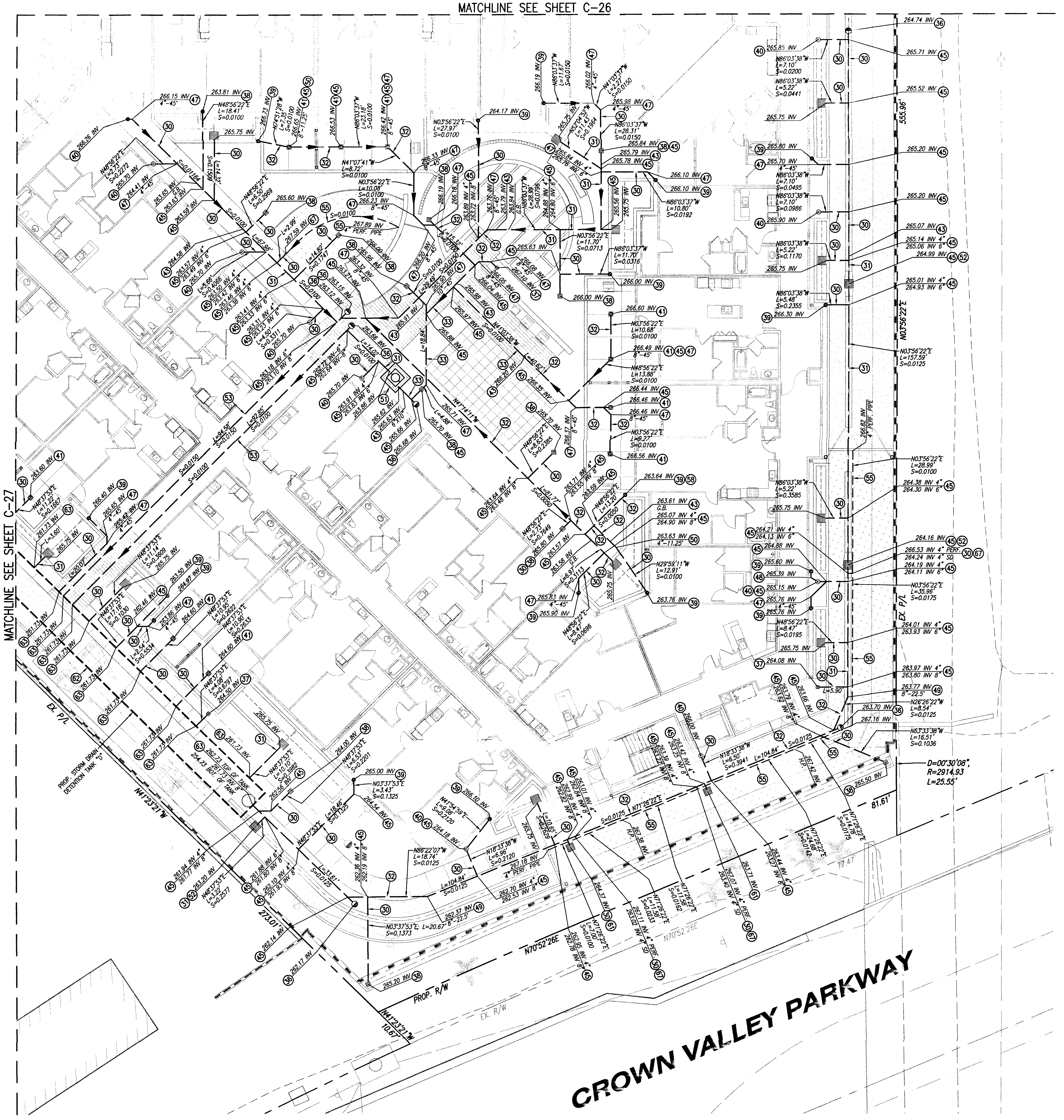
SHEET DESCRIPTION:
STORM DRAIN PLAN

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

SHEET NO.
C-27

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-27-SD.dwg July 09, 2015 - 5:21pm Cesar



STORM DRAIN NOTES

(30) PROVIDE AND INSTALL 4-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

(31) PROVIDE AND INSTALL 6-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

(32) PROVIDE AND INSTALL 8-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

(33) PROVIDE AND INSTALL 10-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

(36) PROVIDE AND INSTALL PVC STORM DRAIN CLEANOUT. SEE SHEET C-31, DETAILS 3 OR 5.

(37) PROVIDE AND INSTALL 9-INCH x 9-INCH LOW PROFILE ADAPTER (NDS #930) USE 9-INCH SQUARE GRATE IN GRASS AREA (NDS #990 "GREEN"). USE 9-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #981 "BLACK"). SEE SHEET C-31, DETAIL 6.

(38) PROVIDE AND INSTALL 12-INCH x 12-INCH LOW PROFILE ADAPTER (NDS #1230) USE 12-INCH SQUARE GRATE IN GRASS AREA (NDS #1212 "GREEN"). USE 12-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #1290 "BLACK"). SEE SHEET C-31, DETAIL 6.

(39) PROVIDE AND INSTALL 4-INCH ROUND ATRIUM GRATE (NDS #11 "BLACK"). SEE SHEET C-31, DETAIL 6.

(40) PROVIDE AND INSTALL 6-INCH ROUND ATRIUM GRATE (NDS #90) IN SOIL AREAS AND 6-INCH ROUND GRATE (NDS #50) IN GRASS AREAS. SEE SHEET C-31, DETAIL 6.

(41) PROVIDE AND INSTALL 5"x5" SQUARE BRASS GRATE (NDS #913B).

(43) PROVIDE AND INSTALL ECCENTRIC REDUCER, SIZE PER PLAN.

(45) PROVIDE AND INSTALL 45° WYE, SEE SHEET C-32, DETAIL 4.

(47) PROVIDE AND INSTALL 45° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(48) PROVIDE AND INSTALL 30° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(49) PROVIDE AND INSTALL 22.5° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(50) PROVIDE AND INSTALL 11.25° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(51) PROVIDE AND INSTALL 4'x4' FILTERRA BIORETENTION ROOF DRAIN SYSTEM. SEE SHEET C-32, DETAIL 3 AND MANUFACTURER'S SPECIFICATIONS FOR ADDITIONAL INFORMATION.

(52) PROVIDE AND INSTALL 16-INCH x 16-INCH CAST-IN-PLACE CONCRETE DROP INLET WITH GALVANIZED STEEL GRATE AND FRAME. SEE SHEET C-32, DETAIL 1.

(53) PROVIDE AND INSTALL 8-INCH PVC (SCHEDULE 40) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

(55) PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER TURF. SEE SHEET C-8, DETAIL 17.

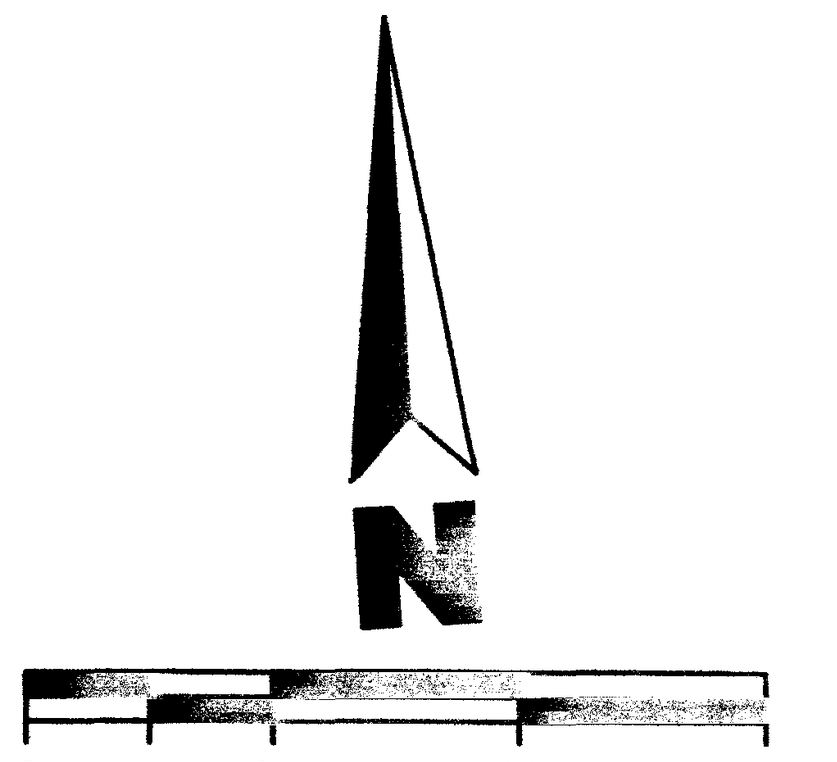
(58) PROVIDE AND INSTALL AREA DRAIN REDUCER, SEE SHEET C-35, DETAIL 3.

(61) PROVIDE AND INSTALL 12-INCH x 12-INCH CAST-IN-PLACE CONCRETE DROP INLET WITH GALVANIZED STEEL GRATE AND FRAME. SEE SHEET C-32, DETAIL 1.

(62) PROVIDE AND INSTALL CONTECH CORRUGATED STEEL RETENTION PIPE, ACCESS RISER AND ALL ASSOCIATED EQUIPMENT AND APPURTENANCES PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-33 AND 34 FOR DETAILS.

(63) CONNECT SITE STORM DRAIN LINE TO CMP TANK, SEE DETAILS ON SHEET 33.

(67) PROVIDE AND INSTALL SUBDRAINAGE CONNECTION TO STORM DRAIN SYSTEM, SEE SHEET C-31, DETAIL 9.



0 5 10 20 40
SCALE: 1"=10'

811
Know what's below.
Call before you dig.

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PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
STORM DRAIN PLAN

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

SHEET NO.
C-28

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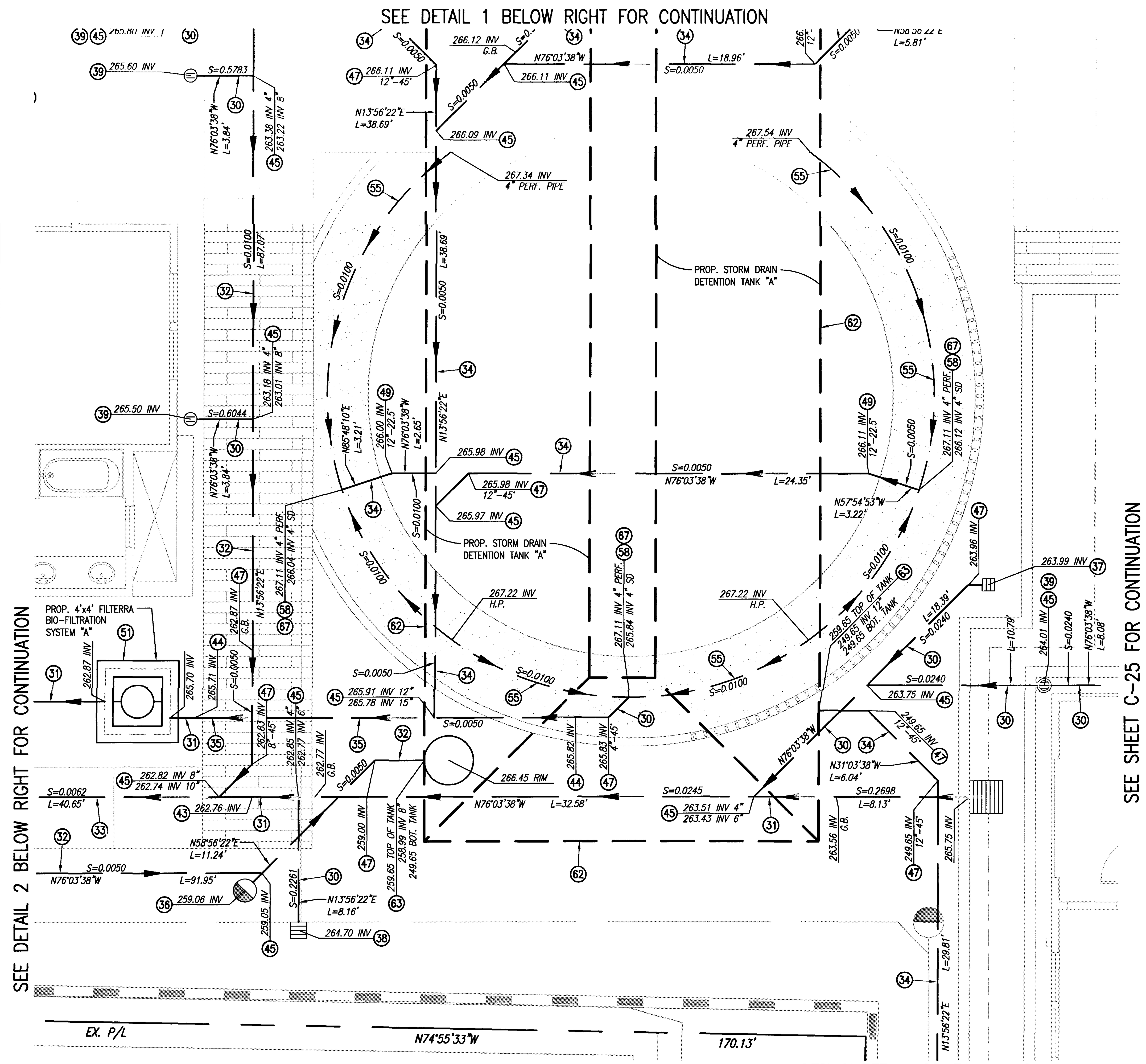
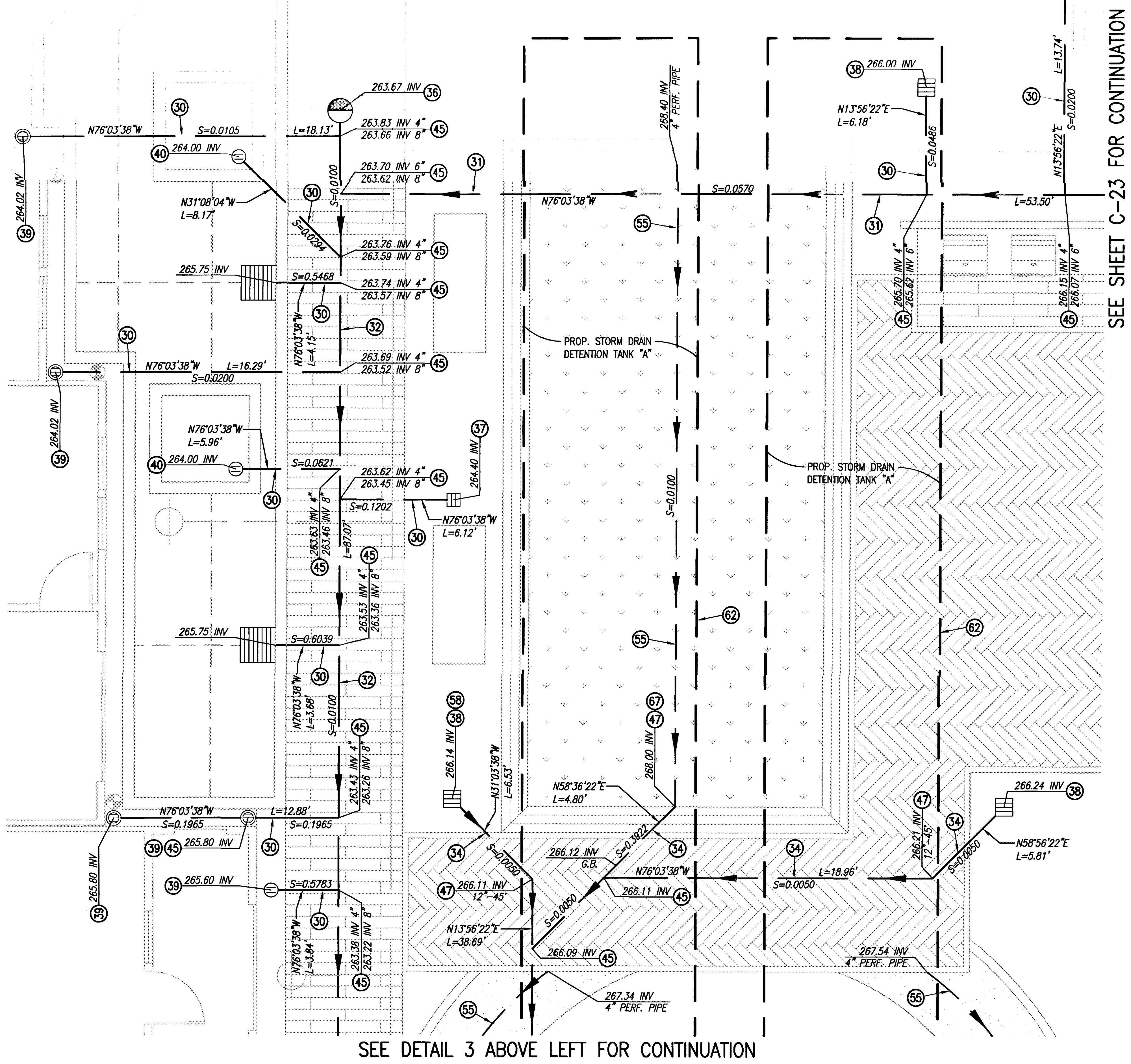

SEE DETAIL 1 BELOW RIGHT FOR CONTINUATION
SEE DETAIL 2 BELOW RIGHT FOR CONTINUATION
SEE SHEET C-25 FOR CONTINUATION
PROP. STORM DRAIN DETENTION TANK "A"
PROP. 4'x4' FILTERRA BIO-FILTRATION SYSTEM "A"
267.54 INV 4" PERF. PIPE
267.34 INV 4" PERF. PIPE
267.22 INV H.P.
266.45 RIM
265.91 INV 12" 265.78 INV 15"
N76°03'38"W
N13°56'22"E
N74°55'33"W
170.13'
EX. P/L

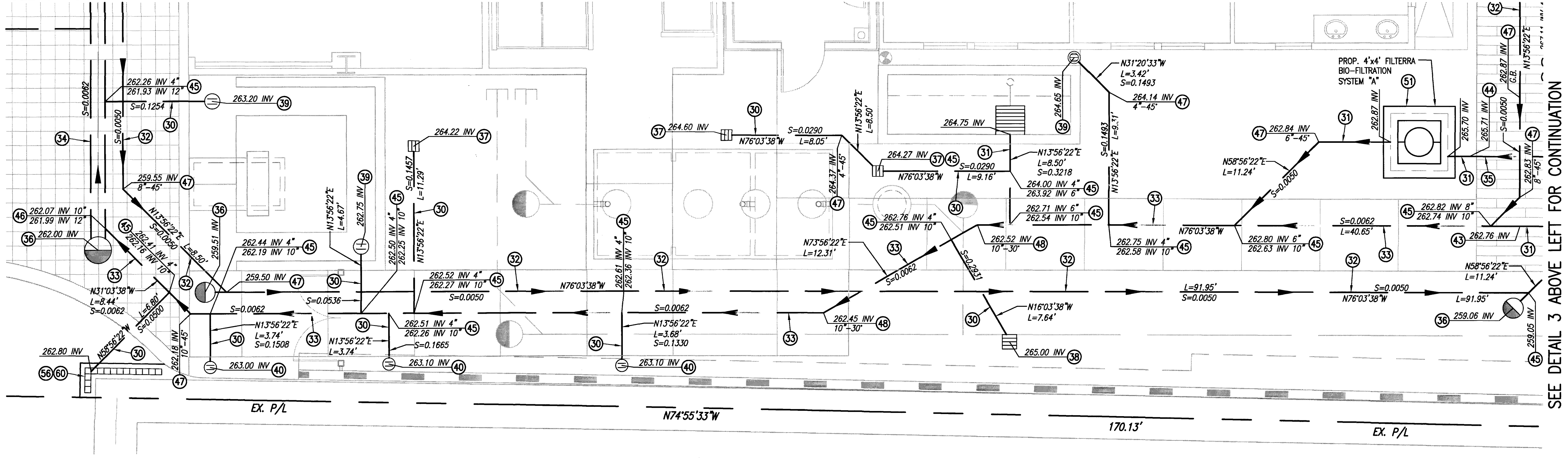
STORM DRAIN DETAIL NO. 3

SCALE: 1"=4'


SEE SHEET C-23 FOR CONTINUATION
SEE DETAIL 3 ABOVE LEFT FOR CONTINUATION
PROP. STORM DRAIN DETENTION TANK "A"
266.00 INV
263.67 INV
264.00 INV
265.75 INV
265.80 INV
265.60 INV
266.24 INV
267.54 INV 4" PERF. PIPE
267.34 INV 4" PERF. PIPE
N76°03'38"W
N13°56'22"E
N31°08'04"W
N58°56'22"E

STORM DRAIN DETAIL NO. 1

SCALE: 1"=4'


SEE SHEET C-23 FOR CONTINUATION
SEE DETAIL 3 ABOVE LEFT FOR CONTINUATION
PROP. 4'x4' FILTERRA BIO-FILTRATION SYSTEM "A"
263.20 INV
264.22 INV
264.60 INV
264.75 INV
265.00 INV
263.00 INV
263.10 INV
262.80 INV
N76°03'38"W
N31°20'33"W
N13°56'22"E
N58°56'22"E
N74°55'33"W
170.13'
EX. P/L

STORM DRAIN DETAIL NO. 2

SCALE: 1"=4'

STORM DRAIN NOTES

- (30) PROVIDE AND INSTALL 4-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- (31) PROVIDE AND INSTALL 6-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- (32) PROVIDE AND INSTALL 8-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- (33) PROVIDE AND INSTALL 10-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- (34) PROVIDE AND INSTALL 12-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.
- (35) PROVIDE AND INSTALL 15-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.
- (36) PROVIDE AND INSTALL PVC STORM DRAIN CLEANOUT. SEE SHEET C-31, DETAILS 3 OR 5.
- (37) PROVIDE AND INSTALL 9-INCH x 9-INCH LOW PROFILE ADAPTER (NDS #930) USE 9-INCH SQUARE GRATE IN GRASS AREA (NDS #990 "GREEN"). USE 9-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #981 "BLACK"). SEE SHEET C-31, DETAIL 6.
- (38) PROVIDE AND INSTALL 12-INCH x 12-INCH LOW PROFILE ADAPTER (NDS #1230) USE 12-INCH SQUARE GRATE IN GRASS AREA (NDS #1212 "GREEN"). USE 12-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #1290 "BLACK"). SEE SHEET C-31, DETAIL 6.
- (39) PROVIDE AND INSTALL 4-INCH ROUND ATRIUM GRATE (NDS #11 "BLACK"). SEE SHEET C-31, DETAIL 6.
- (40) PROVIDE AND INSTALL 6-INCH ROUND ATRIUM GRATE (NDS #90) IN SOIL AREAS AND 6-INCH ROUND GRATE (NDS #50) IN GRASS AREAS. SEE SHEET C-31, DETAIL 6.
- (43) PROVIDE AND INSTALL ECCENTRIC REDUCER, SIZE PER PLAN.
- (44) PROVIDE AND INSTALL HDPE ECCENTRIC REDUCER WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON PIPE TRANSITION, SEE SHEET C-32, DETAIL 2.
- (45) PROVIDE AND INSTALL 45° WYE, SEE SHEET C-32, DETAIL 4.
- (46) PROVIDE AND INSTALL HDPE WYE WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON LATERAL, SEE SHEET C-32, DETAIL 2.
- (47) PROVIDE AND INSTALL 45° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.
- (48) PROVIDE AND INSTALL 30° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.
- (49) PROVIDE AND INSTALL 22.5° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.
- (51) PROVIDE AND INSTALL 4'x4' FILTERRA BIORETENTION ROOF DRAIN SYSTEM. SEE SHEET C-32, DETAIL 3 AND MANUFACTURER'S SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- (55) PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER TURF. SEE SHEET C-8, DETAIL 17.
- (56) PROVIDE STENCILING AT CATCH BASIN AND INLETS TO DISCOURAGE DUMPING OF POLLUTANTS, SEE SHEET C-31, DETAIL 4.
- (58) PROVIDE AND INSTALL AREA DRAIN REDUCER, SEE SHEET C-35, DETAIL 3.
- (60) PROVIDE AND INSTALL 4-INCH ACO POWERDRAIN "S100K" PRE-SLOPED TRENCH DRAIN W/ BOTTOM OUTLET. PROVIDE H20 LOADING CAST IRON GRATE & FRAME. SEE SHEET C-31, DETAIL 8.
- (62) PROVIDE AND INSTALL CONTECH CORRUGATED STEEL RETENTION PIPE, ACCESS RISER AND ALL ASSOCIATED EQUIPMENT AND APPURTENANCES PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-33 AND 34 FOR DETAILS.
- (63) CONNECT SITE STORM DRAIN LINE TO CMP TANK, SEE DETAILS ON SHEET 33.
- (67) PROVIDE AND INSTALL SUBDRAINAGE CONNECTION TO STORM DRAIN SYSTEM, SEE SHEET C-31, DETAIL 9.

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444

UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

REGISTERED PROFESSIONAL ENGINEER
JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
CIVIL
STATE OF CALIFORNIA

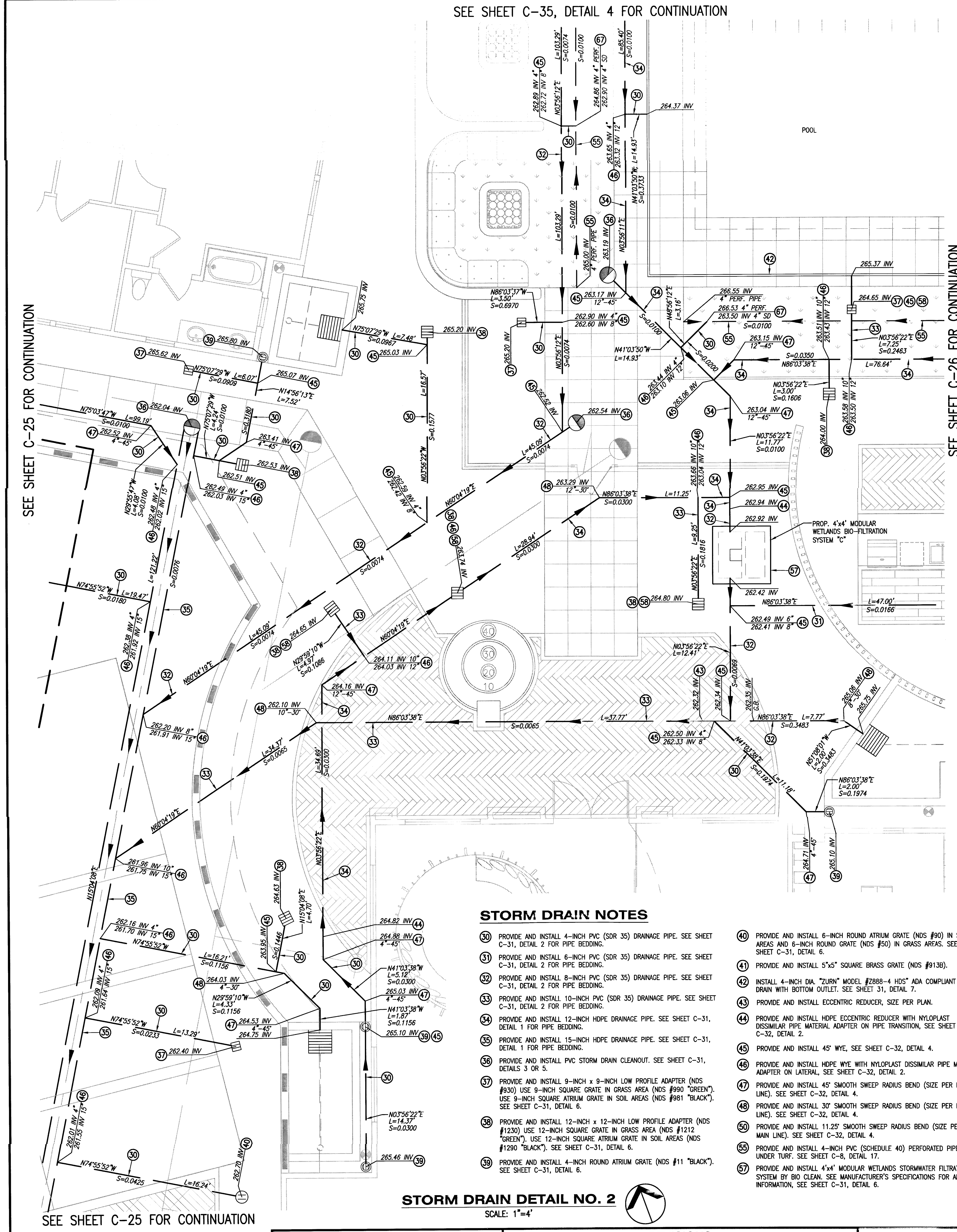
SHEET DESCRIPTION: **STORM DRAIN PLAN DETAIL**

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

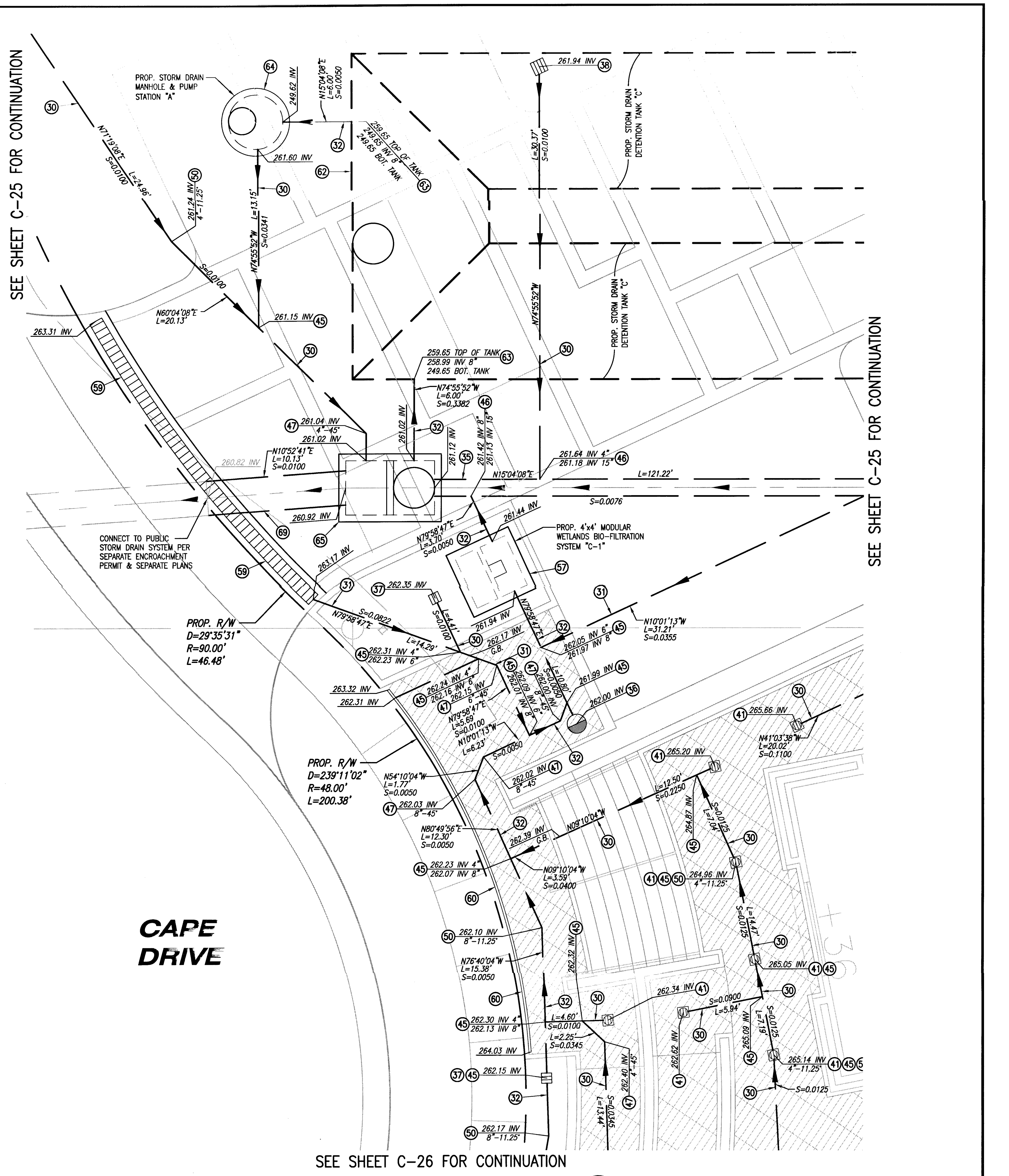
SHEET NO.
C-29

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-29-SDD.dwg July 08, 2015 - 10:56am Cesar


SEE SHEET C-35, DETAIL 4 FOR CONTINUATION
SEE SHEET C-25 FOR CONTINUATION
SEE SHEET C-26 FOR CONTINUATION
SEE SHEET C-25 FOR CONTINUATION
POOL
PROP. 4'x4' MODULAR WETLANDS BIO-FILTRATION SYSTEM "C"
N86°03'38"E
S=0.0300
L=121.22'
S=0.0076

STORM DRAIN DETAIL NO. 2

SCALE: 1"=4'


SEE SHEET C-25 FOR CONTINUATION
SEE SHEET C-25 FOR CONTINUATION
SEE SHEET C-26 FOR CONTINUATION
PROP. STORM DRAIN MANHOLE & PUMP STATION "A"
PROP. STORM DRAIN DETENTION TANK "C"
259.65 TOP OF TANK
258.99 INV 8"
249.65 BOT. TANK
CONNECT TO PUBLIC STORM DRAIN SYSTEM PER SEPARATE ENCROACHMENT PERMIT & SEPARATE PLANS
PROP. 4'x4' MODULAR WETLANDS BIO-FILTRATION SYSTEM "C-1"
PROP. R/W
D=29°35'31"
R=90.00'
L=46.48'
PROP. R/W
D=239°11'02"
R=48.00'
L=200.38'
CAPE DRIVE

STORM DRAIN DETAIL NO. 1

SCALE: 1"=4'

STORM DRAIN NOTES

㉚ PROVIDE AND INSTALL 4-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

㉛ PROVIDE AND INSTALL 6-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

㉜ PROVIDE AND INSTALL 8-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

㉝ PROVIDE AND INSTALL 10-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.

㉞ PROVIDE AND INSTALL 12-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.

㉟ PROVIDE AND INSTALL 15-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.

㊱ PROVIDE AND INSTALL PVC STORM DRAIN CLEANOUT. SEE SHEET C-31, DETAILS 3 OR 5.

㊲ PROVIDE AND INSTALL 9-INCH x 9-INCH LOW PROFILE ADAPTER (NDS #930) USE 9-INCH SQUARE GRATE IN GRASS AREA (NDS #990 "GREEN"). USE 9-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #981 "BLACK"). SEE SHEET C-31, DETAIL 6.

㊳ PROVIDE AND INSTALL 12-INCH x 12-INCH LOW PROFILE ADAPTER (NDS #1230) USE 12-INCH SQUARE GRATE IN GRASS AREA (NDS #1212 "GREEN"). USE 12-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #1290 "BLACK"). SEE SHEET C-31, DETAIL 6.

㊴ PROVIDE AND INSTALL 4-INCH ROUND ATRIUM GRATE (NDS #11 "BLACK"). SEE SHEET C-31, DETAIL 6.

㊵ PROVIDE AND INSTALL 6-INCH ROUND ATRIUM GRATE (NDS #90) IN SOIL AREAS AND 6-INCH ROUND GRATE (NDS #50) IN GRASS AREAS. SEE SHEET C-31, DETAIL 6.

㊶ PROVIDE AND INSTALL 5"x5" SQUARE BRASS GRATE (NDS #913B).

㊷ INSTALL 4-INCH DIA. "ZURN" MODEL #Z888-4 HDS" ADA COMPLIANT SLOT DRAIN WITH BOTTOM OUTLET. SEE SHEET 31, DETAIL 7.

㊸ PROVIDE AND INSTALL ECCENTRIC REDUCER, SIZE PER PLAN.

㊹ PROVIDE AND INSTALL HDPE ECCENTRIC REDUCER WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON PIPE TRANSITION, SEE SHEET C-32, DETAIL 2.

㊺ PROVIDE AND INSTALL 45° WYE, SEE SHEET C-32, DETAIL 4.

㊻ PROVIDE AND INSTALL HDPE WYE WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON LATERAL, SEE SHEET C-32, DETAIL 2.

㊼ PROVIDE AND INSTALL 45° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

㊽ PROVIDE AND INSTALL 30° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

㊿ PROVIDE AND INSTALL 11.25° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.

(55) PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER TURF. SEE SHEET C-8, DETAIL 17.

(57) PROVIDE AND INSTALL 4'x4' MODULAR WETLANDS STORMWATER FILTRATION SYSTEM BY BIO CLEAN. SEE MANUFACTURER'S SPECIFICATIONS FOR ADDITIONAL INFORMATION, SEE SHEET C-31, DETAIL 6.

(58) PROVIDE AND INSTALL AREA DRAIN REDUCER, SEE SHEET C-35, DETAIL 3.

(59) PROVIDE AND INSTALL 12-INCH ACO POWERDRAIN "S300K" PRE-SLOPED TRENCH DRAIN W/ SIDE OUTLET (CHANNELS SK3-1 THRU SK3-8). PROVIDE H20 LOADING CAST IRON GRATE & FRAME. SEE SHEET C-30, DETAIL 8.

(60) PROVIDE AND INSTALL 4-INCH ACO POWERDRAIN "S100K" PRE-SLOPED TRENCH DRAIN W/ BOTTOM OUTLET. PROVIDE H20 LOADING CAST IRON GRATE & FRAME. SEE SHEET C-31, DETAIL 8.

(62) PROVIDE AND INSTALL CONTECH CORRUGATED STEEL RETENTION PIPE, ACCESS RISER AND ALL ASSOCIATED EQUIPMENT AND APPURTENANCES PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-33 AND 34 FOR DETAILS.

(63) CONNECT SITE STORM DRAIN LINE TO CMP TANK, SEE DETAILS ON SHEET 33.

(64) PROVIDE AND INSTALL PRE-PACKAGED PUMP STATION JENSEN PRECAST ENGINEERED STORM DRAIN PUMP MODEL #PLS48-GRP10/3-MVP-DAX208 PER MANUFACTURER'S STANDARDS AND SPECIFICATIONS, SEE SHEET C-34, DETAIL 2 FOR DETAILS.

(65) CONSTRUCT PCC MANHOLE STRUCTURE WITH WEIR PLATE, SEE SHEET C-35, DETAIL 1 & 2.

(67) PROVIDE AND INSTALL SUBDRAINAGE CONNECTION TO STORM DRAIN SYSTEM, SEE SHEET C-31, DETAIL 9.

(69) PROVIDE AND INSTALL 14-INCH x 23-INCH RCP (D-3000) ELLIPTICAL (PER ASTM-C507) PIPE WITH WATER TIGHT JOINTS (18-INCH ROUND PIPE EQUIVALENT). SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.

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REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444

UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
STORM DRAIN PLAN

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

SHEET NO.
C-30

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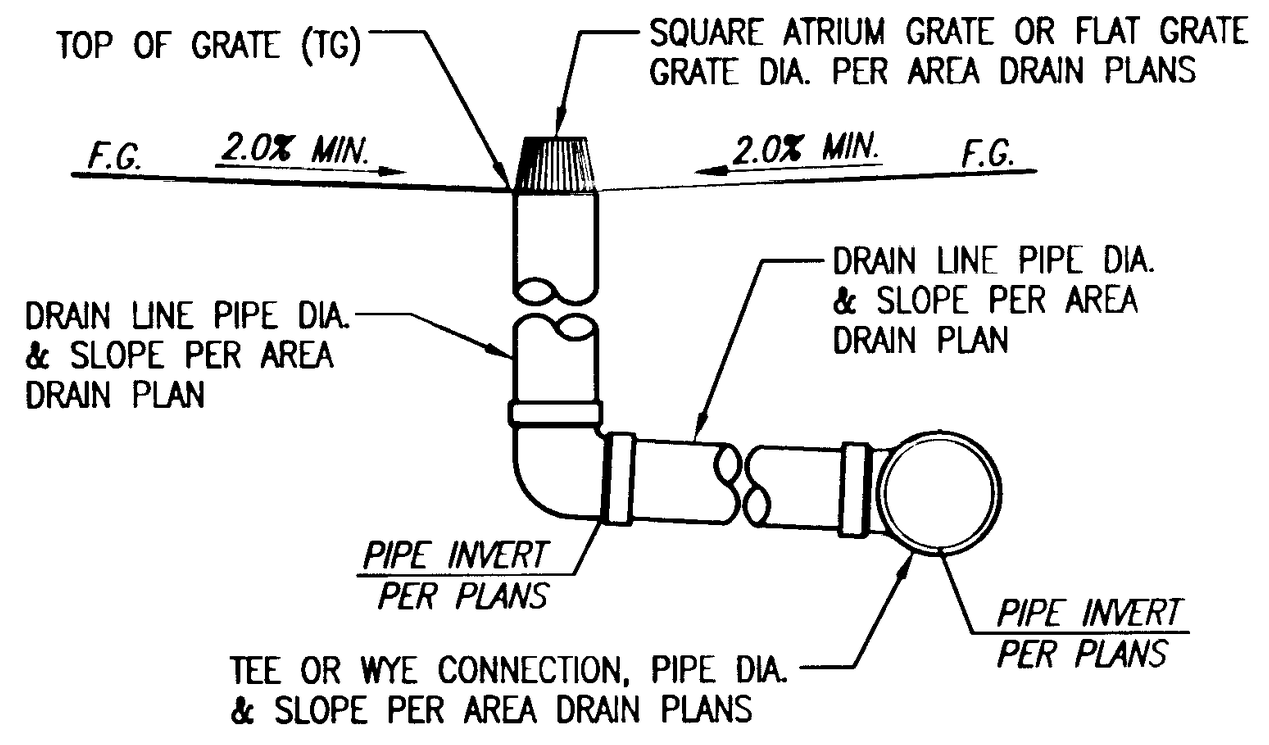
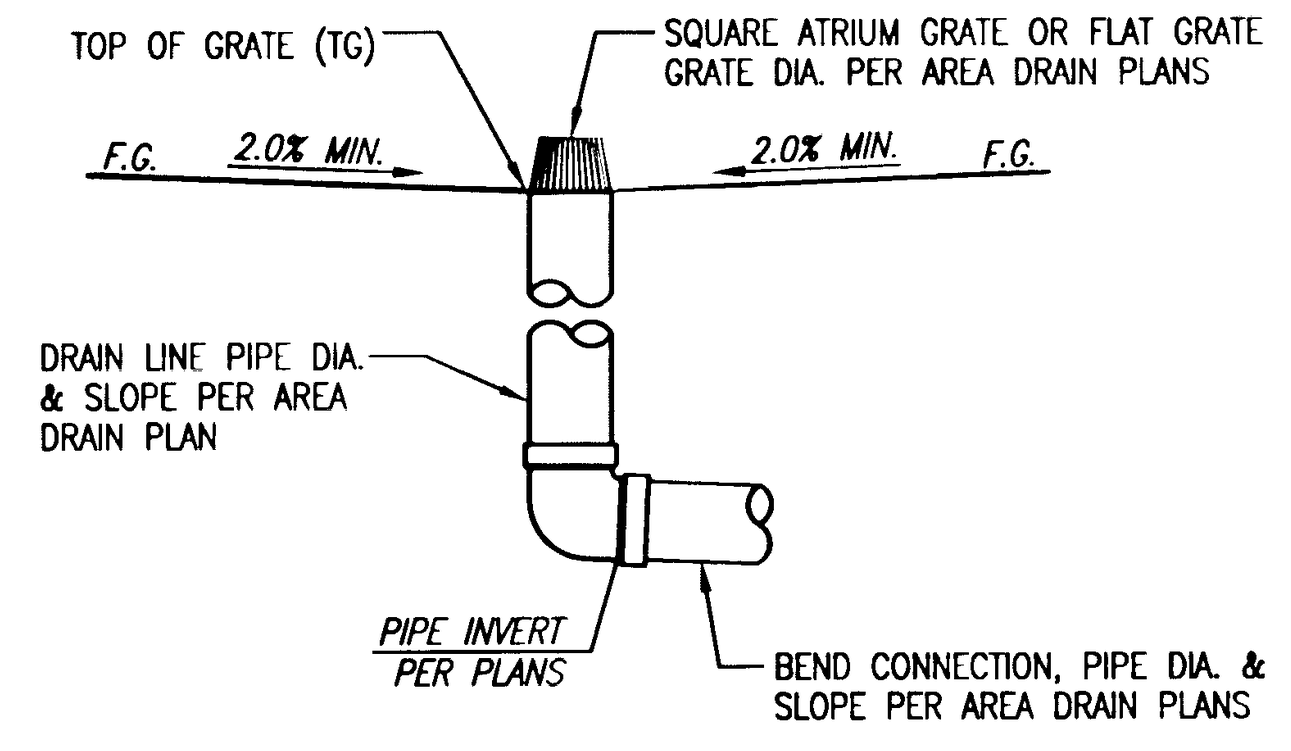
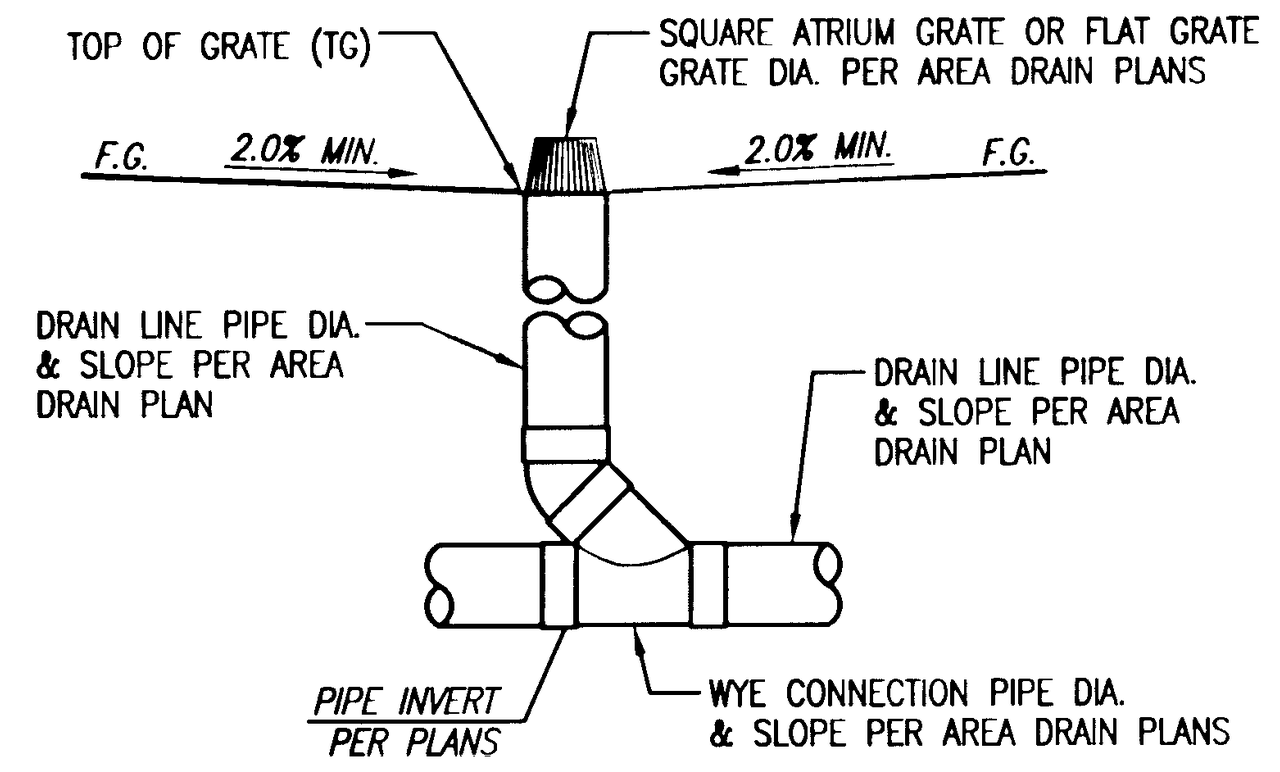

TOP OF GRATE (TG)
SQUARE ATRIUM GRATE OR FLAT GRATE GRATE DIA. PER AREA DRAIN PLANS
F.G.
2.0% MIN.
2.0% MIN.
F.G.
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
PIPE INVERT PER PLANS
PIPE INVERT PER PLANS
TEE OR WYE CONNECTION, PIPE DIA. & SLOPE PER AREA DRAIN PLANS

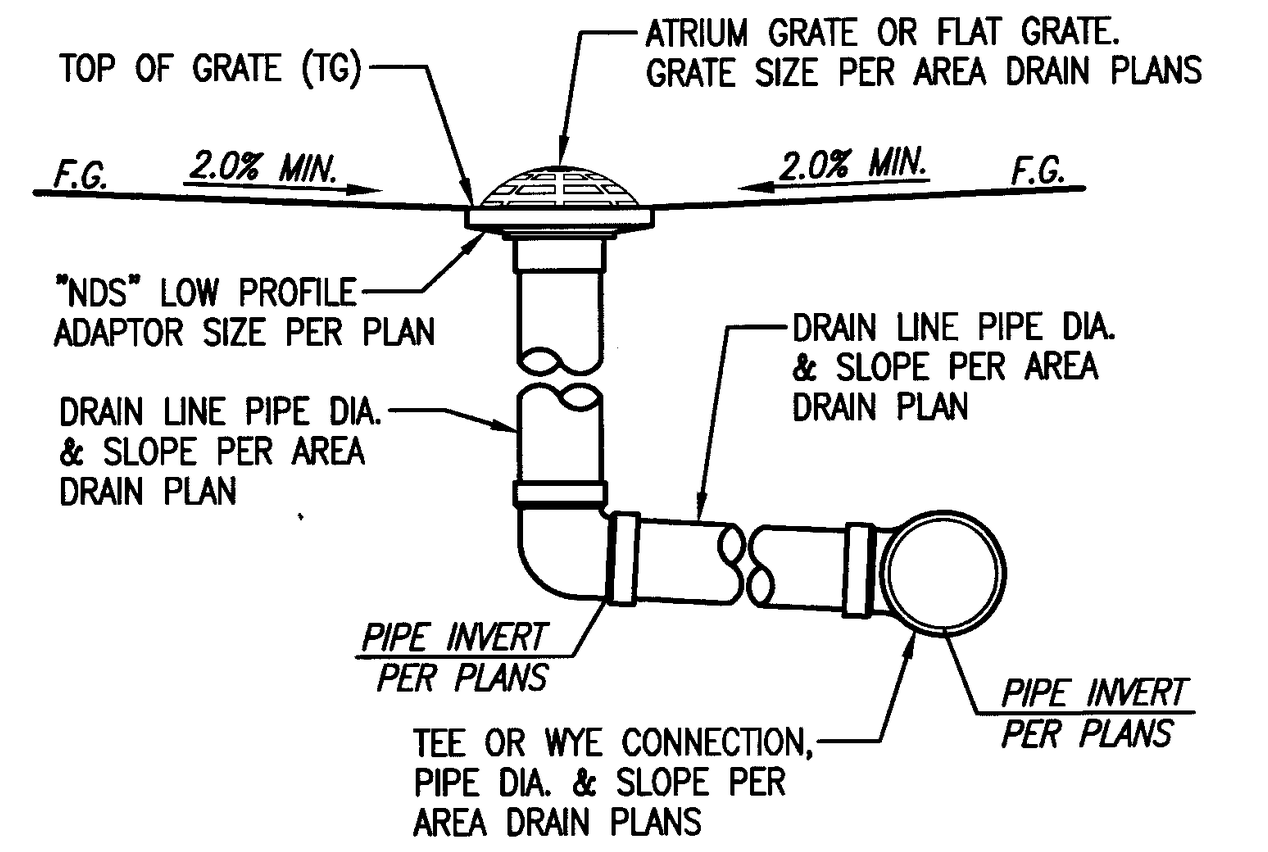
ROUND LANDSCAPE AREA DRAIN (OFF-LINE)


TOP OF GRATE (TG)
SQUARE ATRIUM GRATE OR FLAT GRATE GRATE DIA. PER AREA DRAIN PLANS
F.G.
2.0% MIN.
2.0% MIN.
F.G.
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
PIPE INVERT PER PLANS
BEND CONNECTION, PIPE DIA. & SLOPE PER AREA DRAIN PLANS

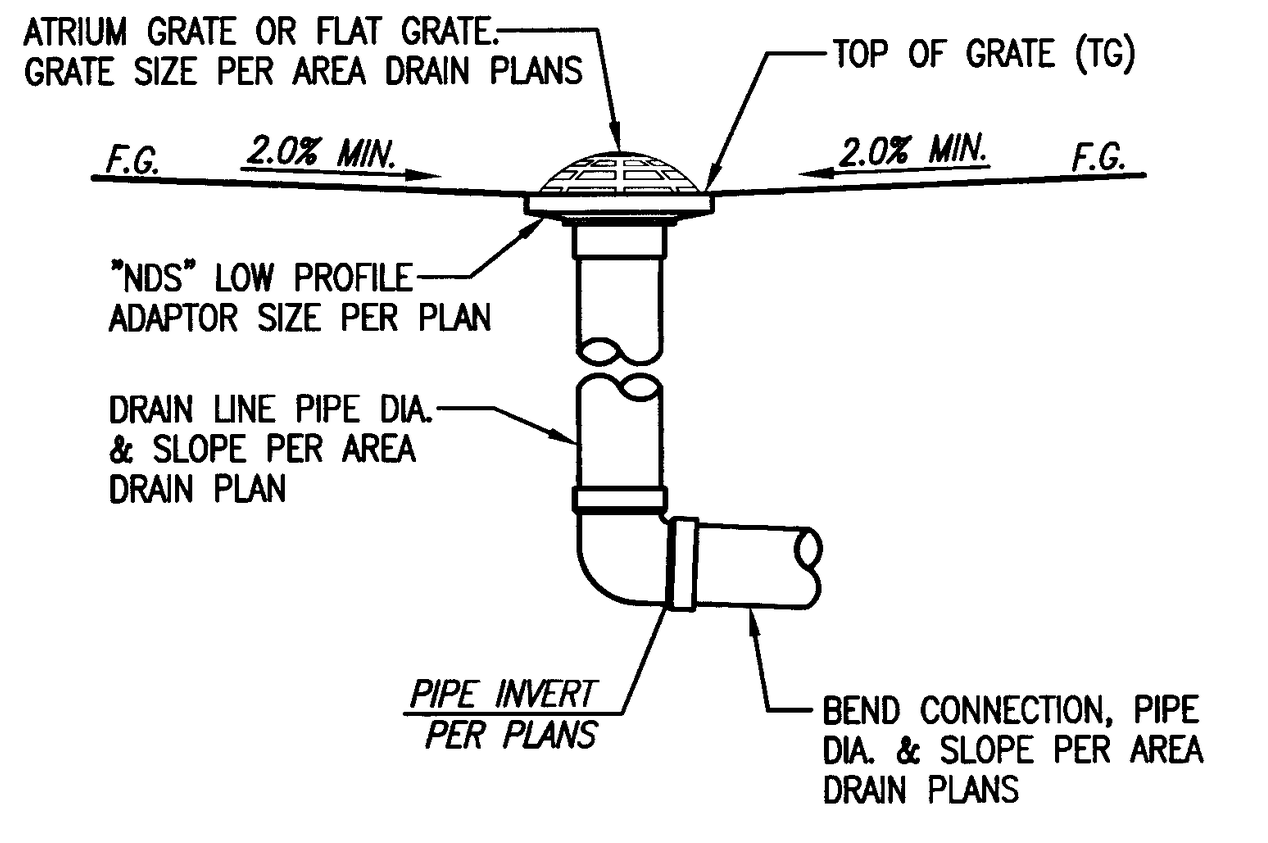
ROUND LANDSCAPE AREA DRAIN (TERMINAL)


TOP OF GRATE (TG)
SQUARE ATRIUM GRATE OR FLAT GRATE GRATE DIA. PER AREA DRAIN PLANS
F.G.
2.0% MIN.
2.0% MIN.
F.G.
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
PIPE INVERT PER PLANS
WYE CONNECTION PIPE DIA. & SLOPE PER AREA DRAIN PLANS

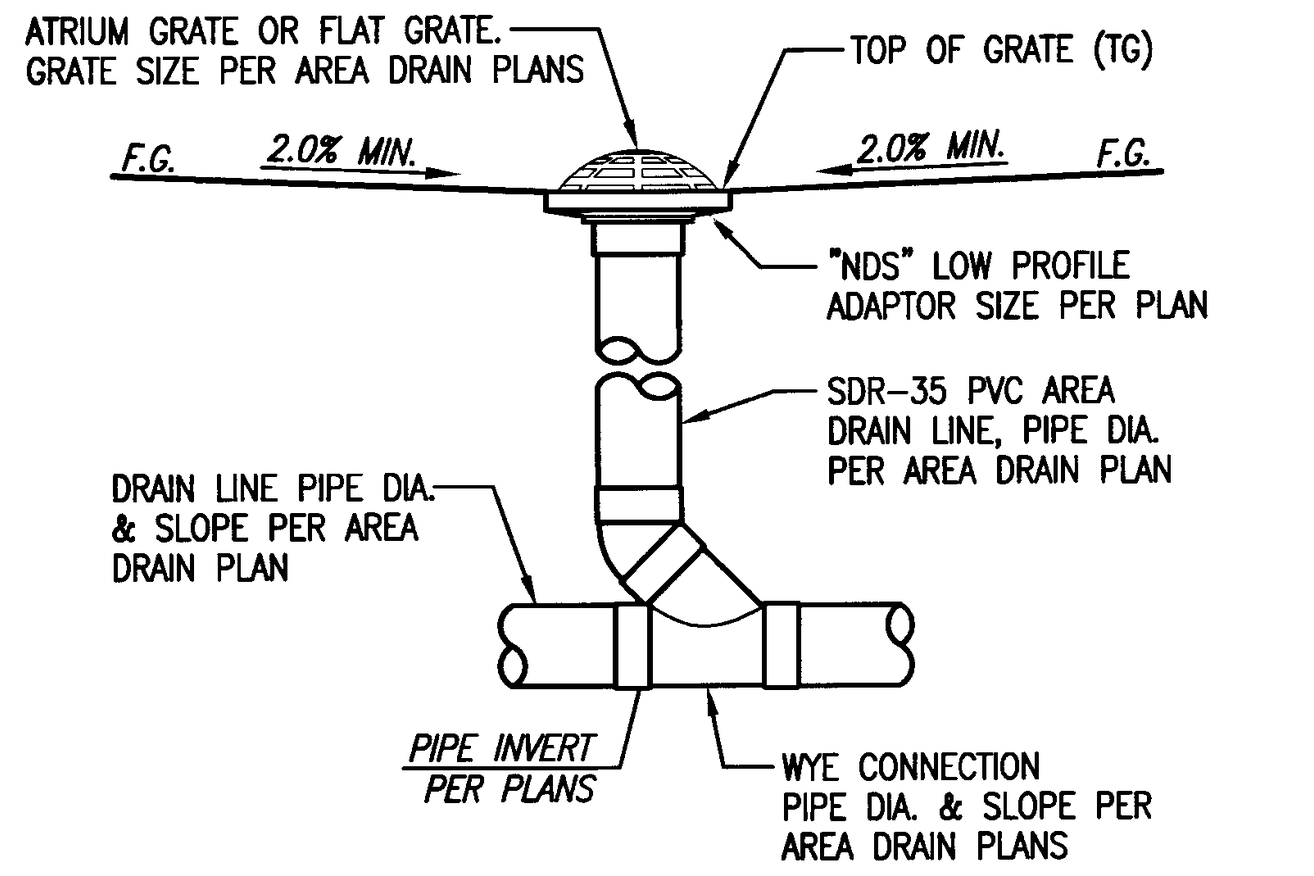
ROUND LANDSCAPE AREA DRAIN (IN-LINE)


TOP OF GRATE (TG)
ATRIUM GRATE OR FLAT GRATE. GRATE SIZE PER AREA DRAIN PLANS
F.G.
2.0% MIN.
2.0% MIN.
F.G.
"NDS" LOW PROFILE ADAPTOR SIZE PER PLAN
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
PIPE INVERT PER PLANS
PIPE INVERT PER PLANS
TEE OR WYE CONNECTION, PIPE DIA. & SLOPE PER AREA DRAIN PLANS

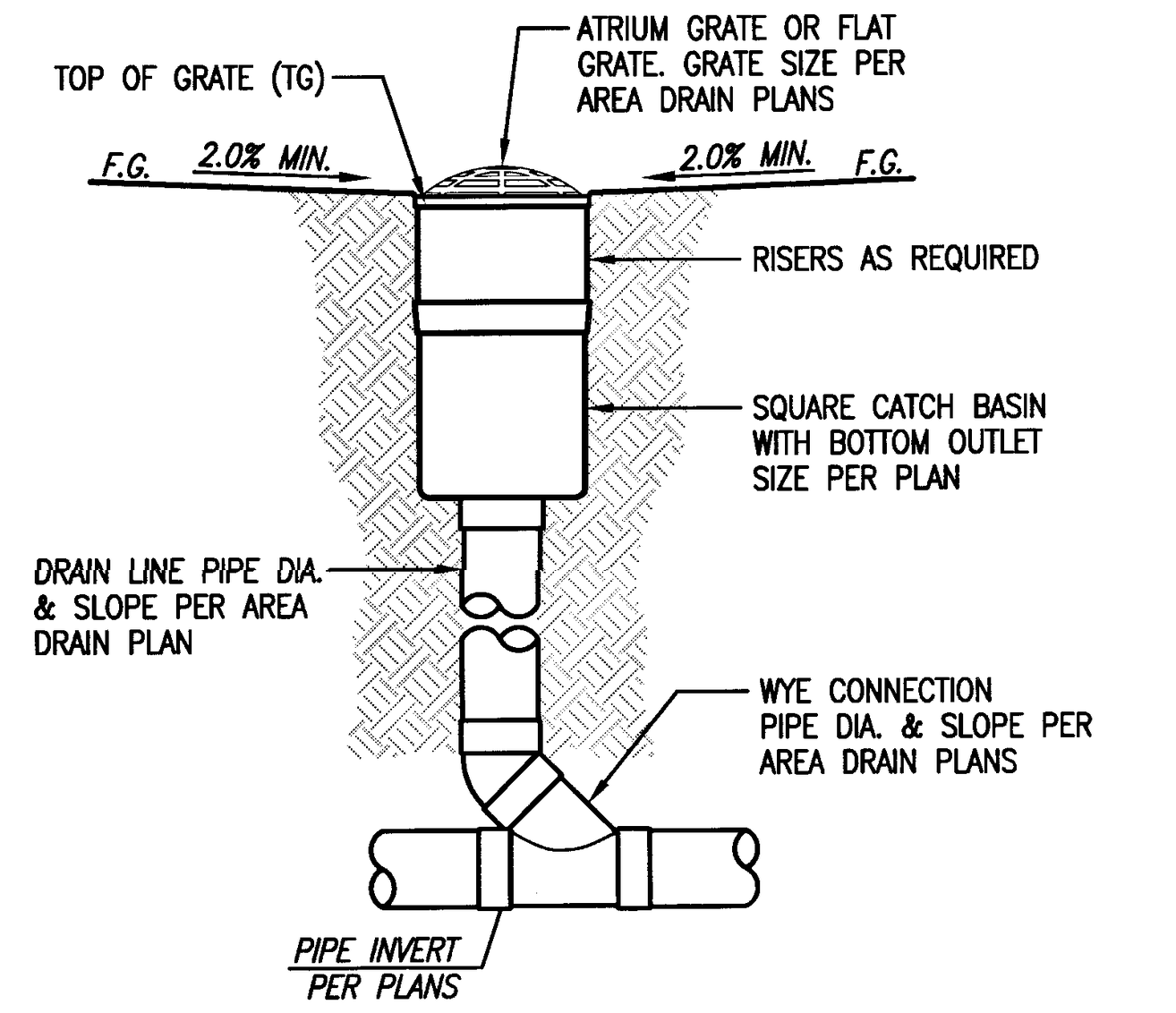
SQUARE LANDSCAPE AREA DRAIN (OFF-LINE)


ATRIUM GRATE OR FLAT GRATE. GRATE SIZE PER AREA DRAIN PLANS
TOP OF GRATE (TG)
F.G.
2.0% MIN.
2.0% MIN.
F.G.
"NDS" LOW PROFILE ADAPTOR SIZE PER PLAN
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
PIPE INVERT PER PLANS
BEND CONNECTION, PIPE DIA. & SLOPE PER AREA DRAIN PLANS

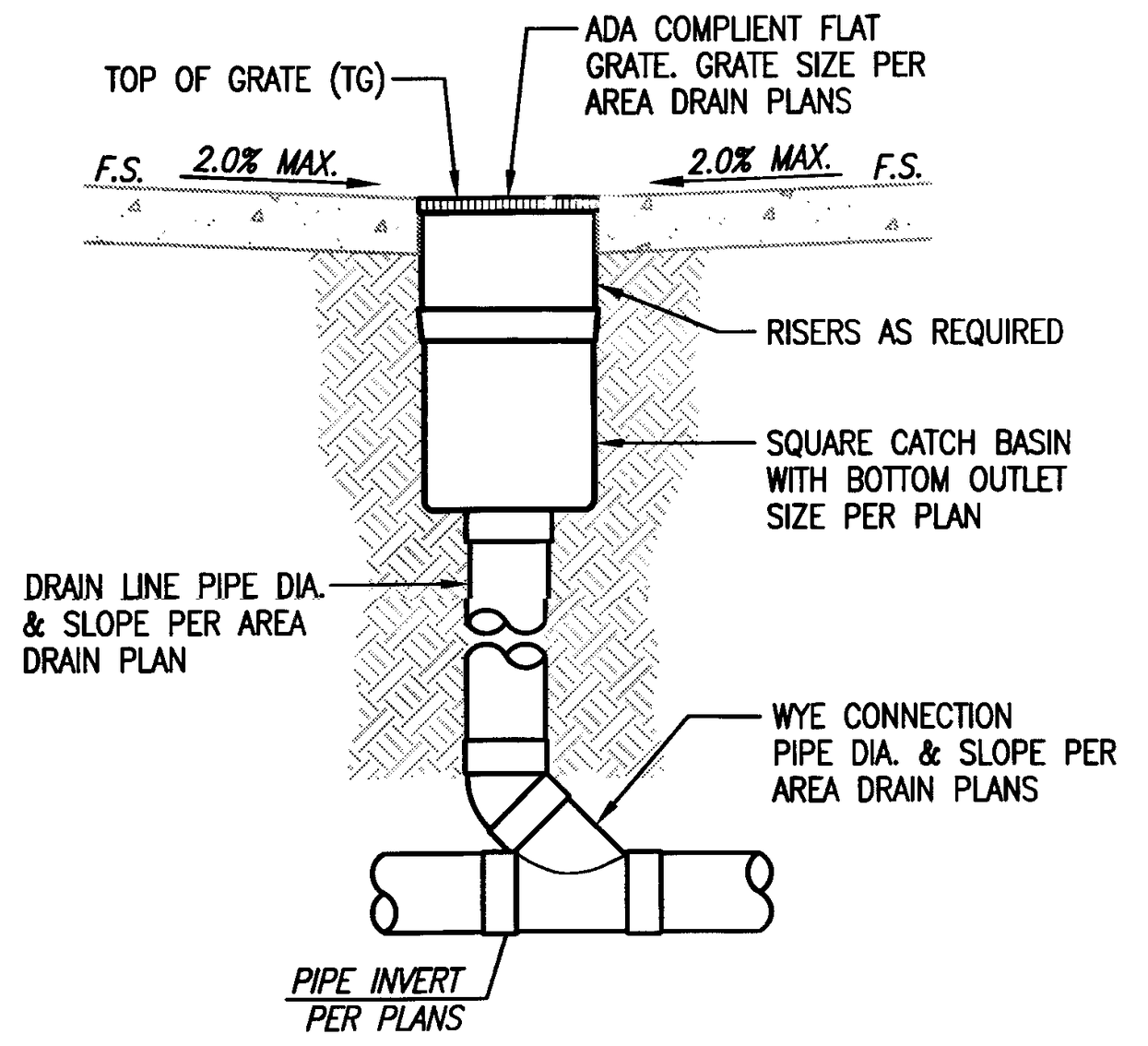
SQUARE LANDSCAPE AREA DRAIN (TERMINAL)


ATRIUM GRATE OR FLAT GRATE. GRATE SIZE PER AREA DRAIN PLANS
TOP OF GRATE (TG)
F.G.
2.0% MIN.
2.0% MIN.
F.G.
"NDS" LOW PROFILE ADAPTOR SIZE PER PLAN
SDR-35 PVC AREA DRAIN LINE, PIPE DIA. PER AREA DRAIN PLAN
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
PIPE INVERT PER PLANS
WYE CONNECTION PIPE DIA. & SLOPE PER AREA DRAIN PLANS

SQUARE LANDSCAPE AREA DRAIN (IN-LINE)


TOP OF GRATE (TG)
ATRIUM GRATE OR FLAT GRATE. GRATE SIZE PER AREA DRAIN PLANS
F.G.
2.0% MIN.
2.0% MIN.
F.G.
RISERS AS REQUIRED
SQUARE CATCH BASIN WITH BOTTOM OUTLET SIZE PER PLAN
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
WYE CONNECTION PIPE DIA. & SLOPE PER AREA DRAIN PLANS
PIPE INVERT PER PLANS

SUMP BOX LANDSCAPE AREA DRAIN


TOP OF GRATE (TG)
ADA COMPLIENT FLAT GRATE. GRATE SIZE PER AREA DRAIN PLANS
F.S.
2.0% MAX.
2.0% MAX.
F.S.
RISERS AS REQUIRED
SQUARE CATCH BASIN WITH BOTTOM OUTLET SIZE PER PLAN
DRAIN LINE PIPE DIA. & SLOPE PER AREA DRAIN PLAN
WYE CONNECTION PIPE DIA. & SLOPE PER AREA DRAIN PLANS
PIPE INVERT PER PLANS

SUMP BOX PEDESTRIAN AREA DRAIN

SCALE: NONE

AREA DRAIN DETAILS

6

HDPE STORM DRAIN PIPE - GENERIC SPECIFICATIONS

GENERAL NOTES:

CORRUGATED H.D.P.E. PIPE AND FITTINGS SHALL HAVE BELL AND SPIGOT JOINTS, SMOOTH INTERIOR COMPLYING WITH AASHTO DESIGNATION M-252(4"-10"), M-294(12"-36") TYPE S OR MP6-95 (42"&48") TYPE S OR D. THE PIPE AND FITTINGS SHALL BE MADE OF VIRGIN H.D.P.E. COMPOUNDS CONFORMING TO THE REQUIREMENTS OF CELL CLASSIFICATION 32440C. PIPE AND FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D-2321 AND THE PROJECT SPECIFICATIONS. ALL PIPE SHALL BE JOINED WITH A BELL AND SPIGOT TYPE OR RUBBER GASKETED JOINT. ALL FITTINGS SHALL UTILIZE RUBBER GASKETED JOINTS. ALL RUBBER GASKET SHALL MEET THE REQUIREMENTS OF ASTM F-477.

WHERE H.D.P.E. STORM DRAIN LINES ARE SHOWN ON A RADIUS, THE CONTRACTOR SHALL FURNISH ELBOWS OR SHORT LENGTHS, OR A COMBINATION OF BOTH. THE MAXIMUM ALLOWABLE ANGLE IS 45 DEGREES. THE MAXIMUM ALLOWABLE HORIZONTAL DEFLECTION AT A JOINT WITHOUT AN ELBOW IS 3 DEGREES.

SMOOTH INTERIOR TYPE S AND TYPE D HIGH DENSITY POLYETHYLENE PIPE SHALL BE ADS N-12 STORM DRAIN PIPE OR APPROVED EQUAL.

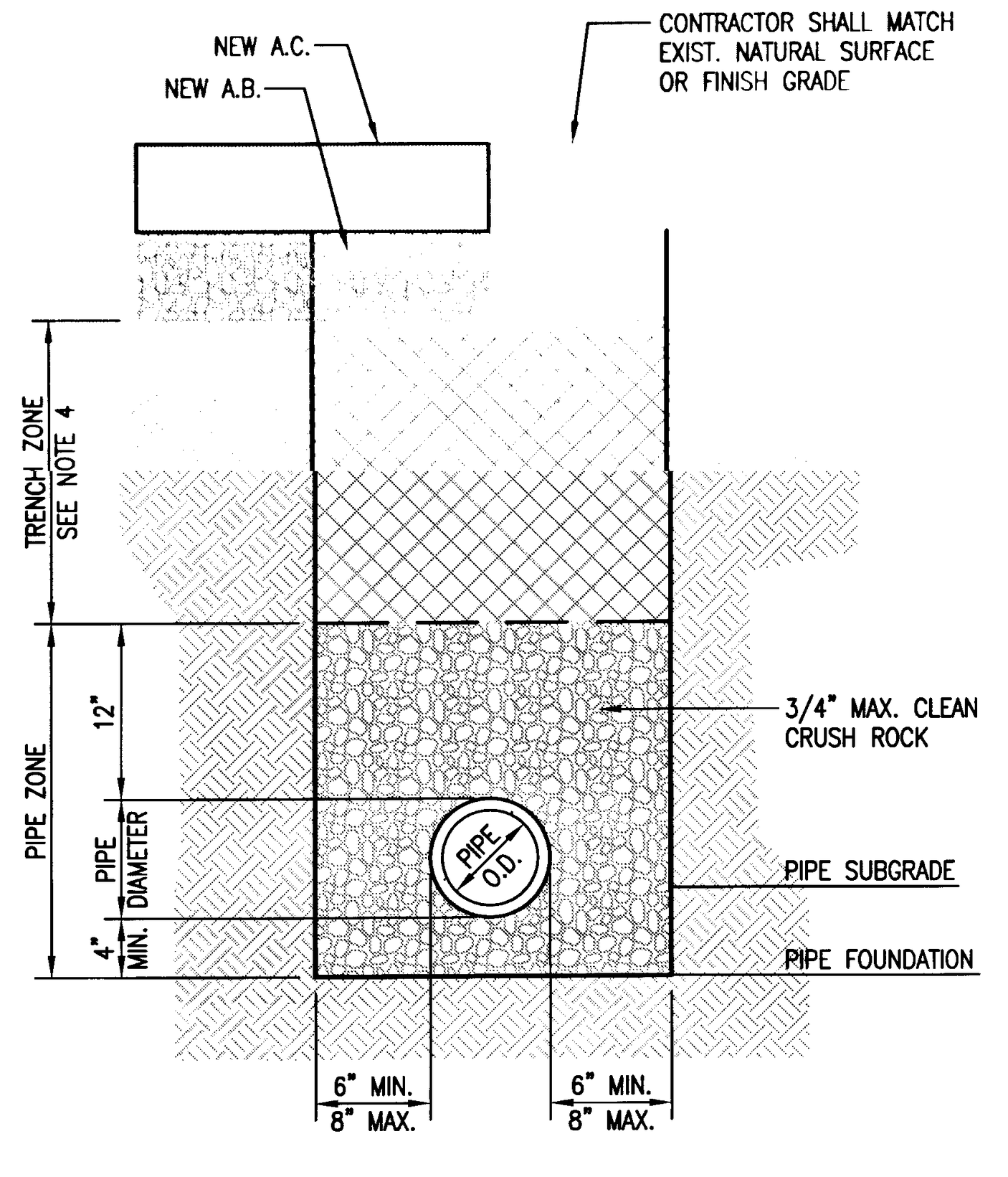
GENERAL NOTES:

NATIVE MATERIAL TO BE USED FOR BACKFILL IN THE PIPE TRENCH SHALL BE EXAMINED FOR SUITABILITY OF INTENDED USE BY THE GEOTECHNICAL CONSULTANT PRIOR TO ANY TRENCH BACKFILL. COMPACTION TEST FOR EACH LIFT SHALL BE OBTAINED AT THE DISCRETION OF THE ENGINEER. THE ENGINEER OR GEOTECHNICAL CONSULTANT SHALL DECIDE THE EXACT LOCATION AT WHICH THE COMPACTION TESTS ARE OBTAINED.

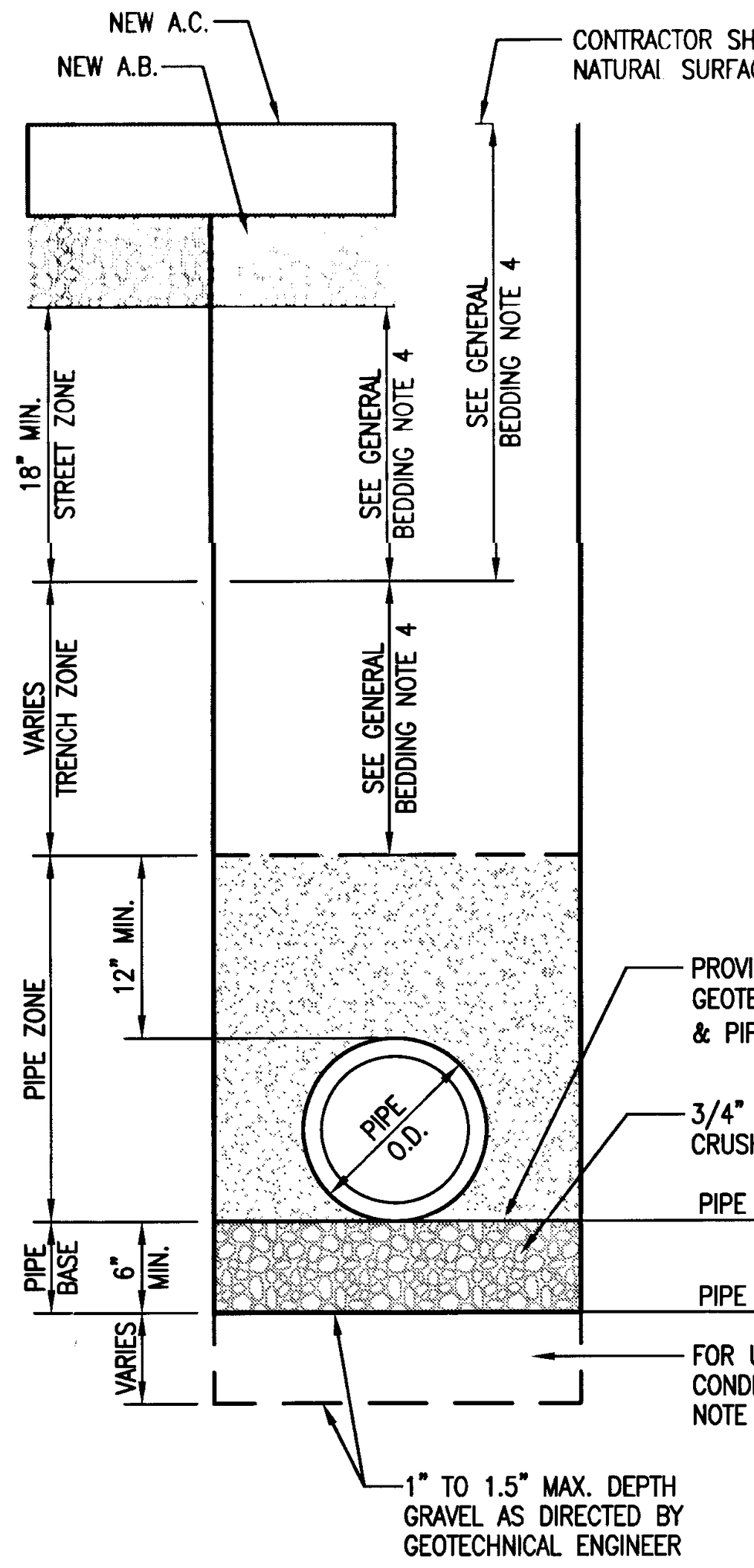
AT ALL TIMES PIPE MATERIALS SHALL BE HANDLED WITH CARE TO AVOID DAMAGE. WHETHER MOVED BY HAND, FORKLIFT, OR HOISTS, MATERIAL SHALL NOT BE DROPPED, BUMPED, OR ALLOWED TO IMPACT ON ITSELF. DOUBLE STRAPPING SHOULD BE USED WITH ALL LIFTS. WHENEVER POSSIBLE, IN DISTRIBUTING THE PIPE AT THE JOB SITE, IT SHALL BE UNLOADED ADJACENT TO OR NEAR THE LOCATION WHERE IT IS TO BE INSTALLED.

GENERAL BEDDING NOTES:

1. TRENCH WIDTH DETAIL AND BACKFILL REQUIREMENTS SHALL BE EXECUTED AT CONTRACTOR'S DISCRETION. BEDDINGS 'A' AND 'B' SHALL BE FROM PIPE SUBRGRADE.
2. IF UNSTABLE SOIL IS ENCOUNTERED, GEOTECHNICAL ENGINEER WILL DETERMINE CONTRACTOR'S OPTIONS. BEDDINGS 'A', 'B' SHALL BE FROM PIPE SUBGRADE.
3. 2 SACK SLURRY CEMENT BACKFILL SHALL BE USED WHERE COVER IS 2-FEET AND UNDER.
4. NATIVE OR IMPORTED BACKFILL AT THE CONTRACTORS DISCRETION TO BE BROUGHT UP IN LIFTS AND COMPACTED TO 90%.


NEW A.C.
NEW A.B.
CONTRACTOR SHALL MATCH EXIST. NATURAL SURFACE OR FINISH GRADE
TRENCH ZONE SEE NOTE 4
PIPE ZONE
12"
PIPE DIAMETER
4" MIN.
3/4" MAX. CLEAN CRUSH ROCK
PIPE O.D.
PIPE SUBGRADE
PIPE FOUNDATION
6" MIN. 8" MAX.
6" MIN. 8" MAX.

RCP BEDDING DETAIL


NEW A.C.
NEW A.B.
CONTRACTOR SHALL MATCH EXIST. NATURAL SURFACE OR FINISH GRADE
18" MIN. STREET ZONE
SEE GENERAL BEDDING NOTE 4
SEE GENERAL BEDDING NOTE 4
VARIES TRENCH ZONE
SEE GENERAL BEDDING NOTE 4
PIPE ZONE
12" MIN.
PIPE O.D.
PIPE BASE
6" MIN.
VARIES
PROVIDE NONWOVEN "MIRAFI 140N" GEOTEXTILE FABRIC BETWEEN PIPE ZONE & PIPE BASE WHEN USING BEDDING 'A'
3/4" MAX. CLEAN CRUSH ROCK
PIPE SUBGRADE
PIPE FOUNDATION
FOR UNSTABLE SOIL CONDITION SEE GEN. NOTE 2.
1" TO 1.5" MAX. DEPTH GRAVEL AS DIRECTED BY GEOTECHNICAL ENGINEER

TRENCH WIDTH AND BACKFILL REQUIREMENTS:

BEDDING 'A'

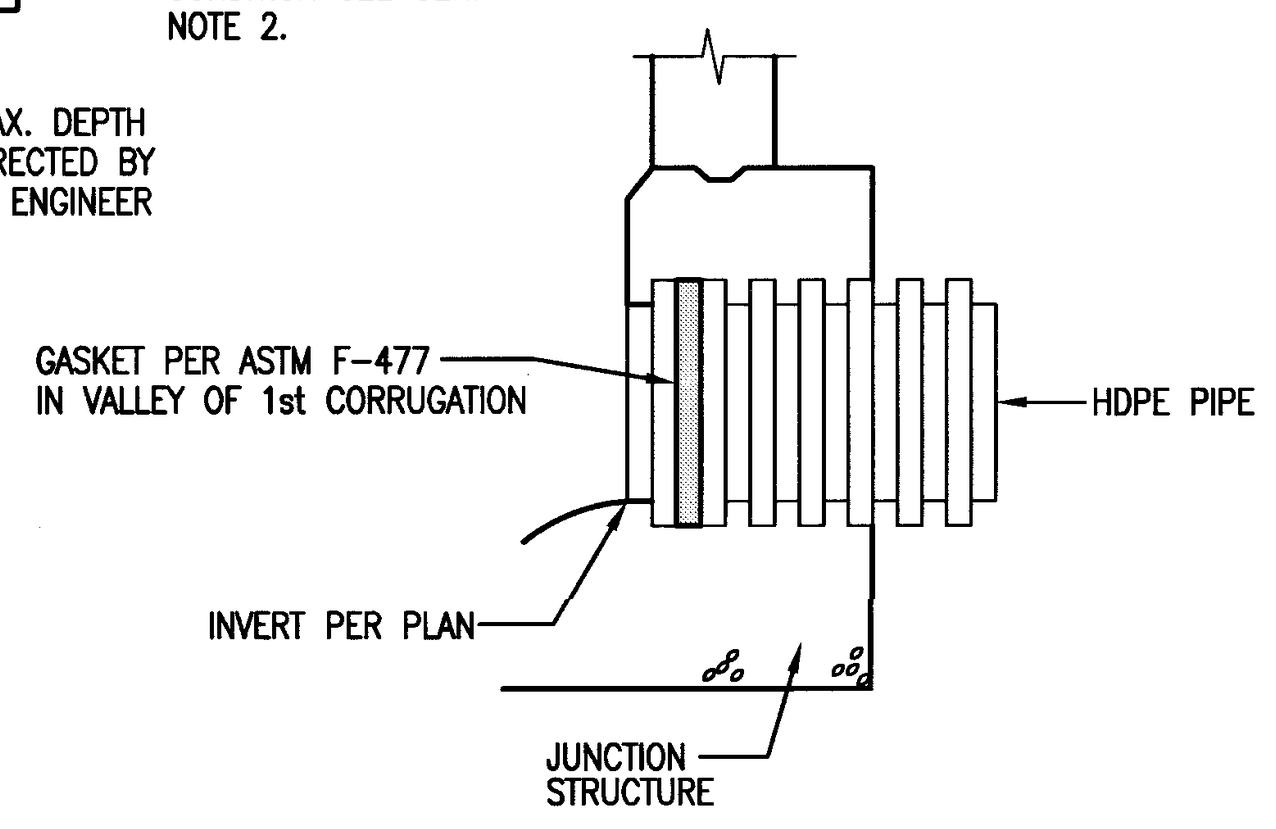
NATURAL CLEAN SAND PER SSPWC 306-1.3 COMPACTED TO A RELATIVE COMPACTION OF NOT LESS THAN 90%.

PIPE DIAMETER	TRENCH WIDTH
18" TO 36"	O.D. + 36"
39" TO 48"	O.D. + 48"

BEDDING 'B'

SLURRY OR CLSM, 2 SACK CEMENT

PIPE DIAMETER	TRENCH WIDTH
18" TO 48"	O.D. + 10"


GASKET PER ASTM F-477 IN VALLEY OF 1st CORRUGATION
HDPE PIPE
INVERT PER PLAN
JUNCTION STRUCTURE

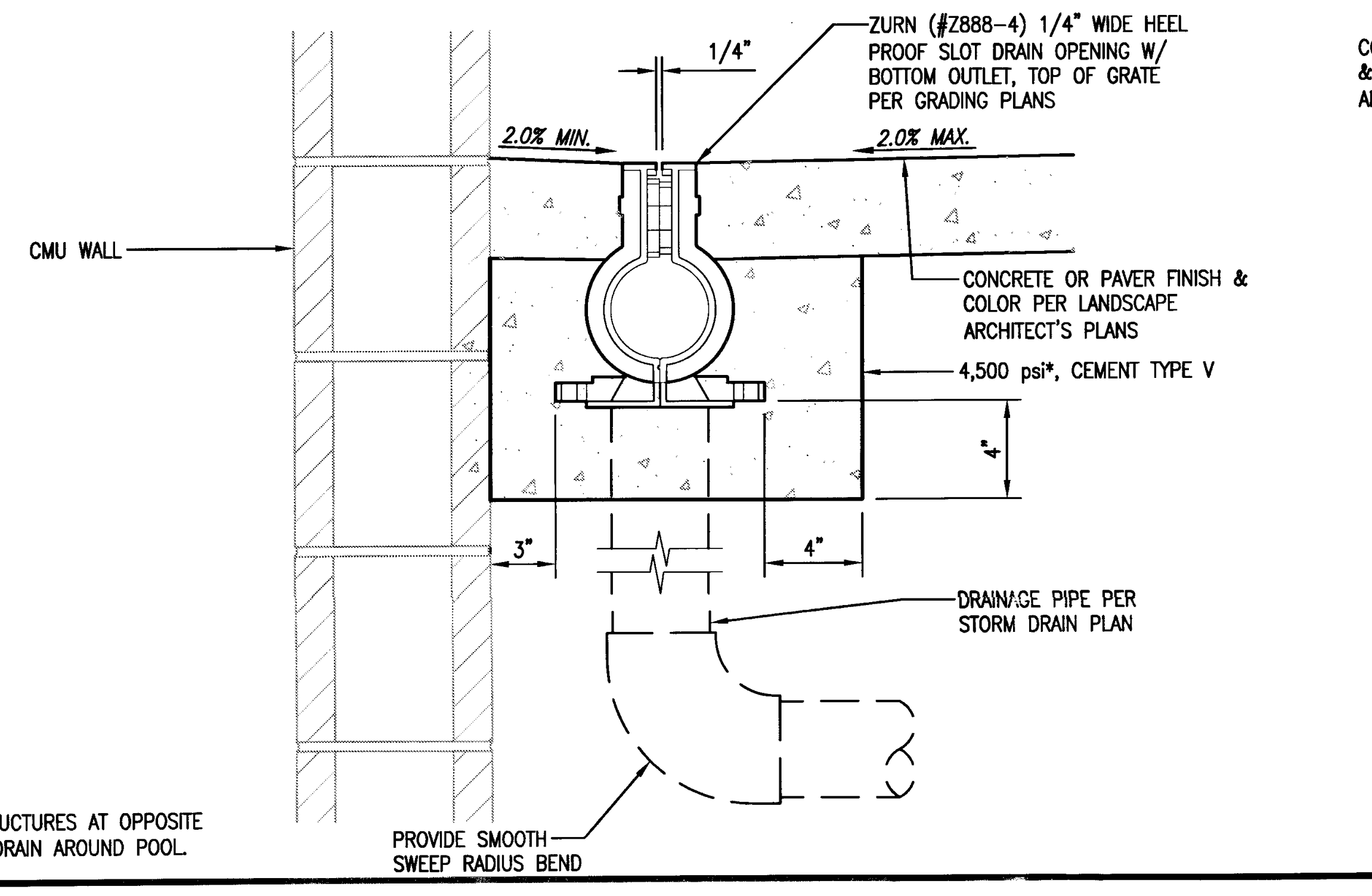
MANHOLE CONNECTION DETAILS

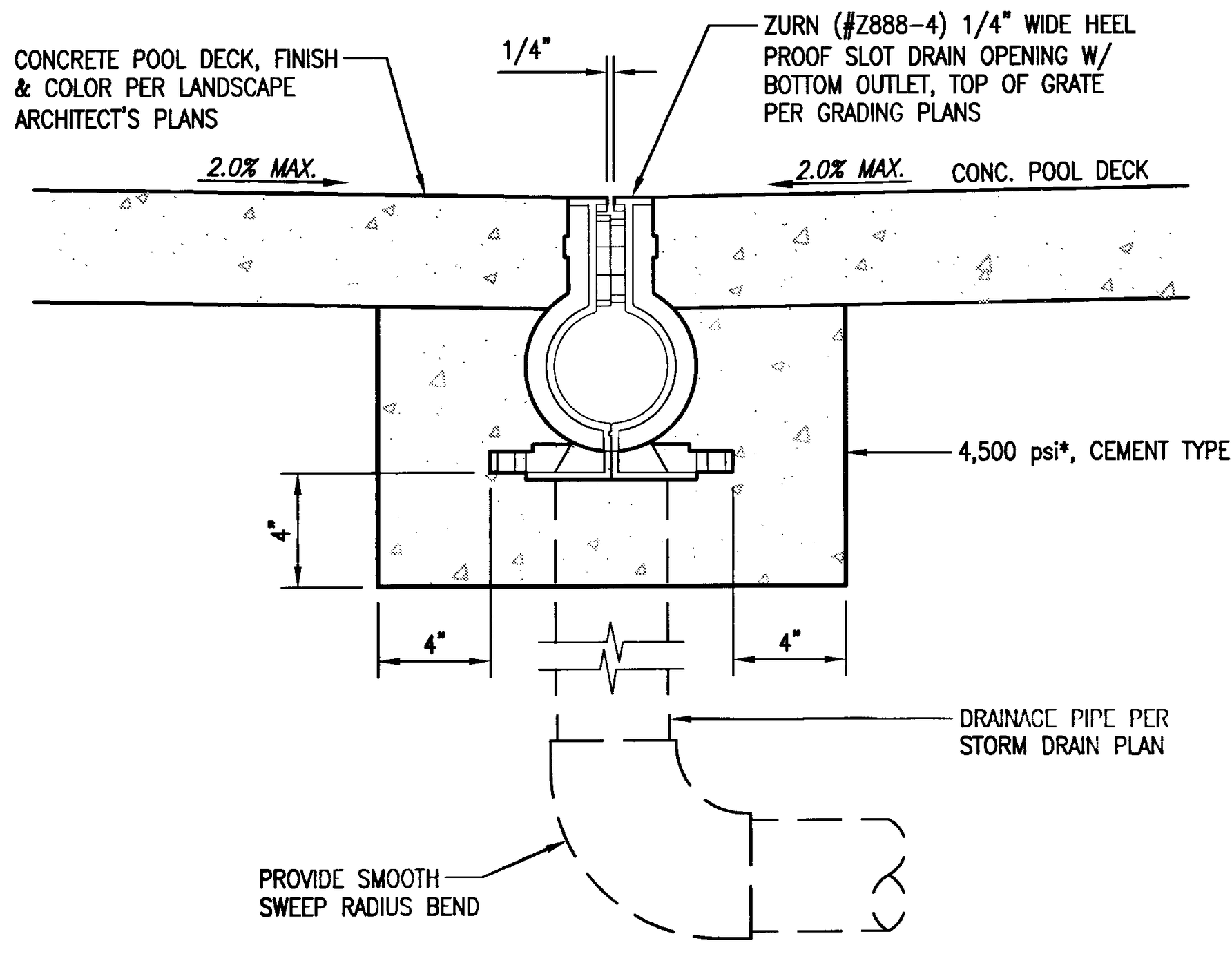
HDPE BEDDING DETAIL

SCALE: NONE

RCP/HDPE TRENCHING AND BEDDING

1


1/4"
ZURN (#Z888-4) 1/4" WIDE HEEL PROOF SLOT DRAIN OPENING W/ BOTTOM OUTLET, TOP OF GRATE PER GRADING PLANS
2.0% MIN.
2.0% MAX.
CMU WALL
CONCRETE OR PAVER FINISH & COLOR PER LANDSCAPE ARCHITECT'S PLANS
4,500 psi*, CEMENT TYPE V
4"
3"
4"
DRAINAGE PIPE PER STORM DRAIN PLAN
PROVIDE SMOOTH SWEEP RADIUS BEND


CONCRETE POOL DECK, FINISH & COLOR PER LANDSCAPE ARCHITECT'S PLANS
1/4"
ZURN (#Z888-4) 1/4" WIDE HEEL PROOF SLOT DRAIN OPENING W/ BOTTOM OUTLET, TOP OF GRATE PER GRADING PLANS
2.0% MAX.
2.0% MAX.
CONC. POOL DECK
4,500 psi*, CEMENT TYPE V
4"
4"
4"
DRAINAGE PIPE PER STORM DRAIN PLAN
PROVIDE SMOOTH SWEEP RADIUS BEND

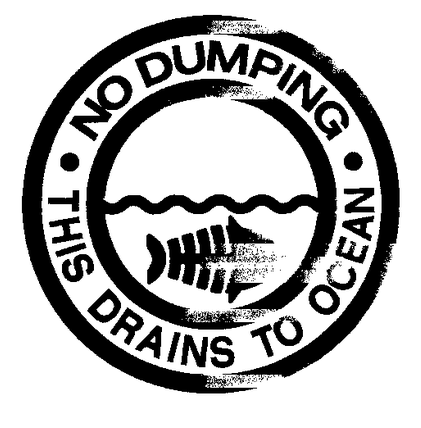
NOTES:

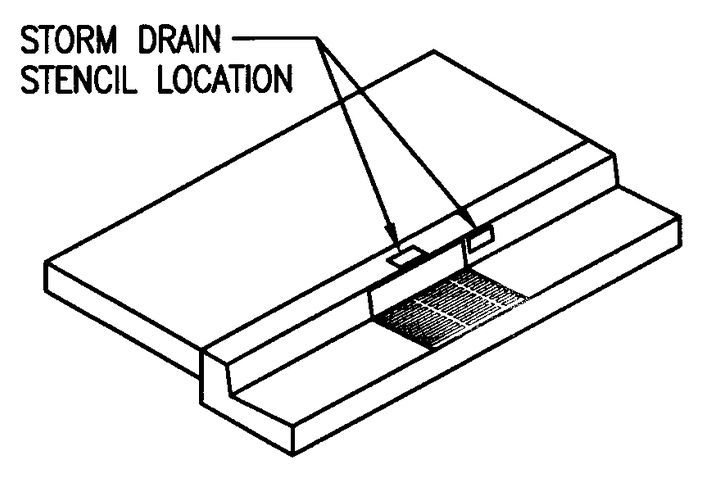
1. PROVIDE CLEANOUT STRUCTURES AT OPPOSITE CORNERS OF TRENCH DRAIN AROUND POOL.

SCALE: NONE

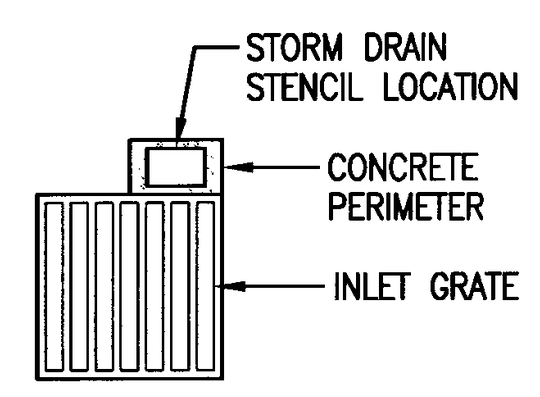
SLOT TRENCH DRAIN DETAILS

7

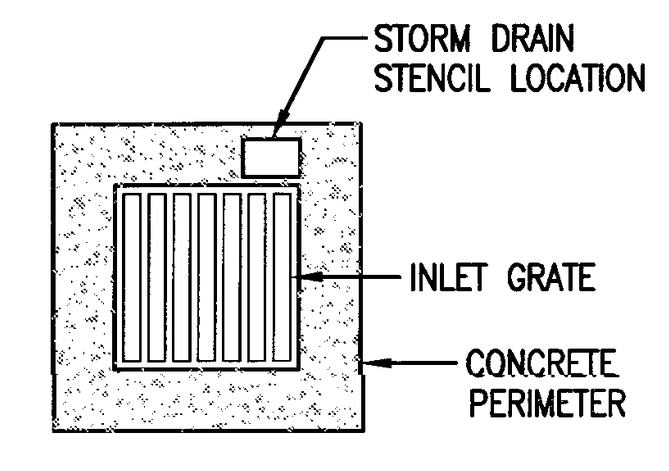

NO DUMPING
THIS DRAINS TO OCEAN


STORM DRAIN STENCIL LOCATION

CURB TYPE INLET


STORM DRAIN STENCIL LOCATION
CONCRETE PERIMETER
INLET GRATE

AREA DRAIN TYPE INLET


STORM DRAIN STENCIL LOCATION
INLET GRATE
CONCRETE PERIMETER

PCC DROP INLET GRATING TYPE INLET

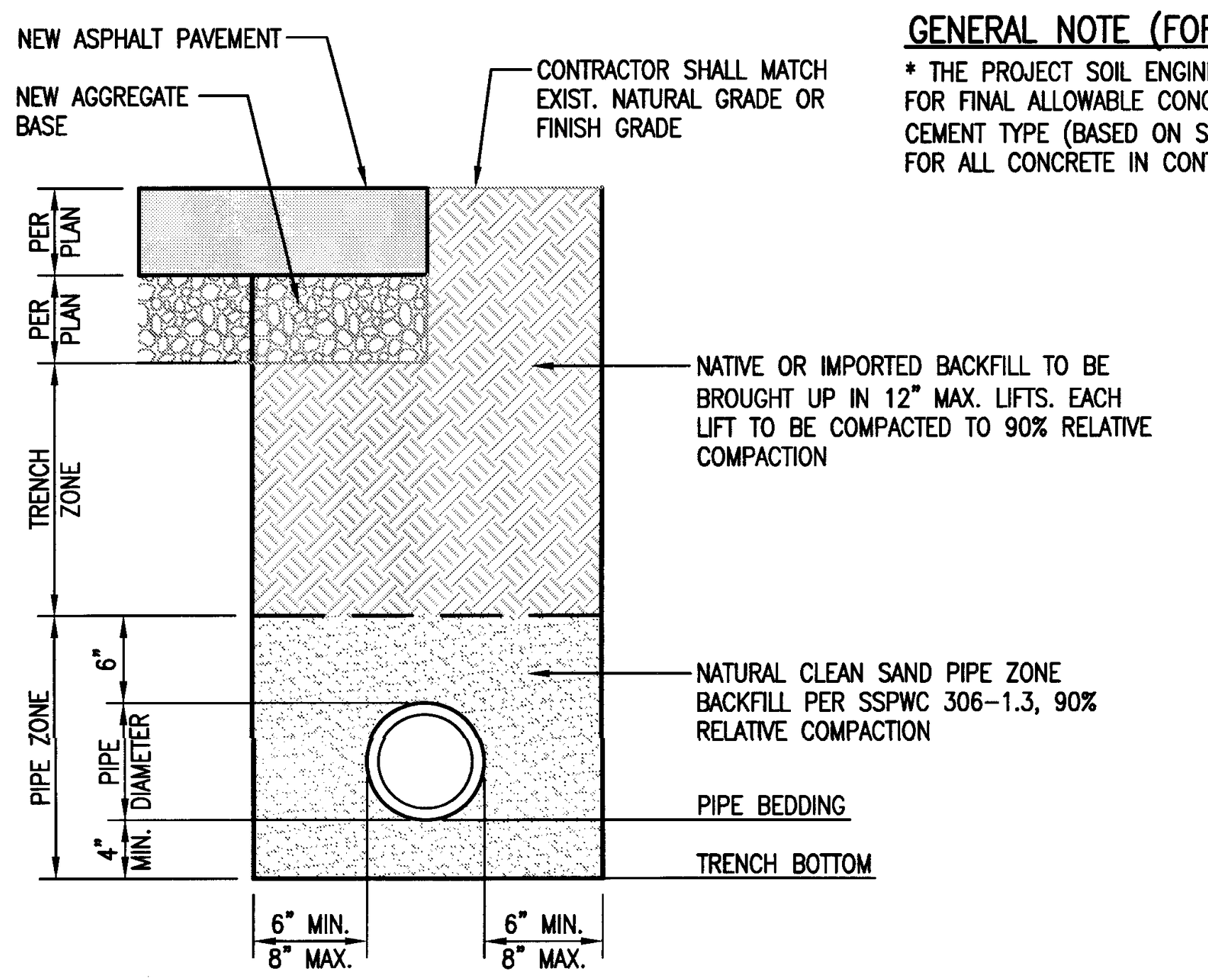
NOTES:

1. STENCIL OR SIGNAGE IS REQUIRED AT ALL DRAINAGE INLETS.
2. STORM DRAIN MESSAGE WILL BE APPLIED IN SUCH A WAY AS TO PROVIDE A CLEAR LEGIBLE IMAGE.
3. STORM DRAIN MESSAGE WILL BE PERMANENTLY APPLIED DURING THE CONSTRUCTION OF THE CURB AND GUTTER USING A METHOD APPROVED BY THE COUNTY.

SCALE: NONE

STORM DRAIN STENCILING

4


NEW ASPHALT PAVEMENT
NEW AGGREGATE BASE
CONTRACTOR SHALL MATCH EXIST. NATURAL GRADE OR FINISH GRADE
PER PLAN
PER PLAN
TRENCH ZONE
PIPE ZONE
6"
PIPE DIAMETER
4" MIN.
NATIVE OR IMPORTED BACKFILL TO BE BROUGHT UP IN 12" MAX. LIFTS. EACH LIFT TO BE COMPACTED TO 90% RELATIVE COMPACTION
NATURAL CLEAN SAND PIPE ZONE BACKFILL PER SSPWC 306-1.3, 90% RELATIVE COMPACTION
PIPE BEDDING
TRENCH BOTTOM
6" MIN. 8" MAX.
6" MIN. 8" MAX.

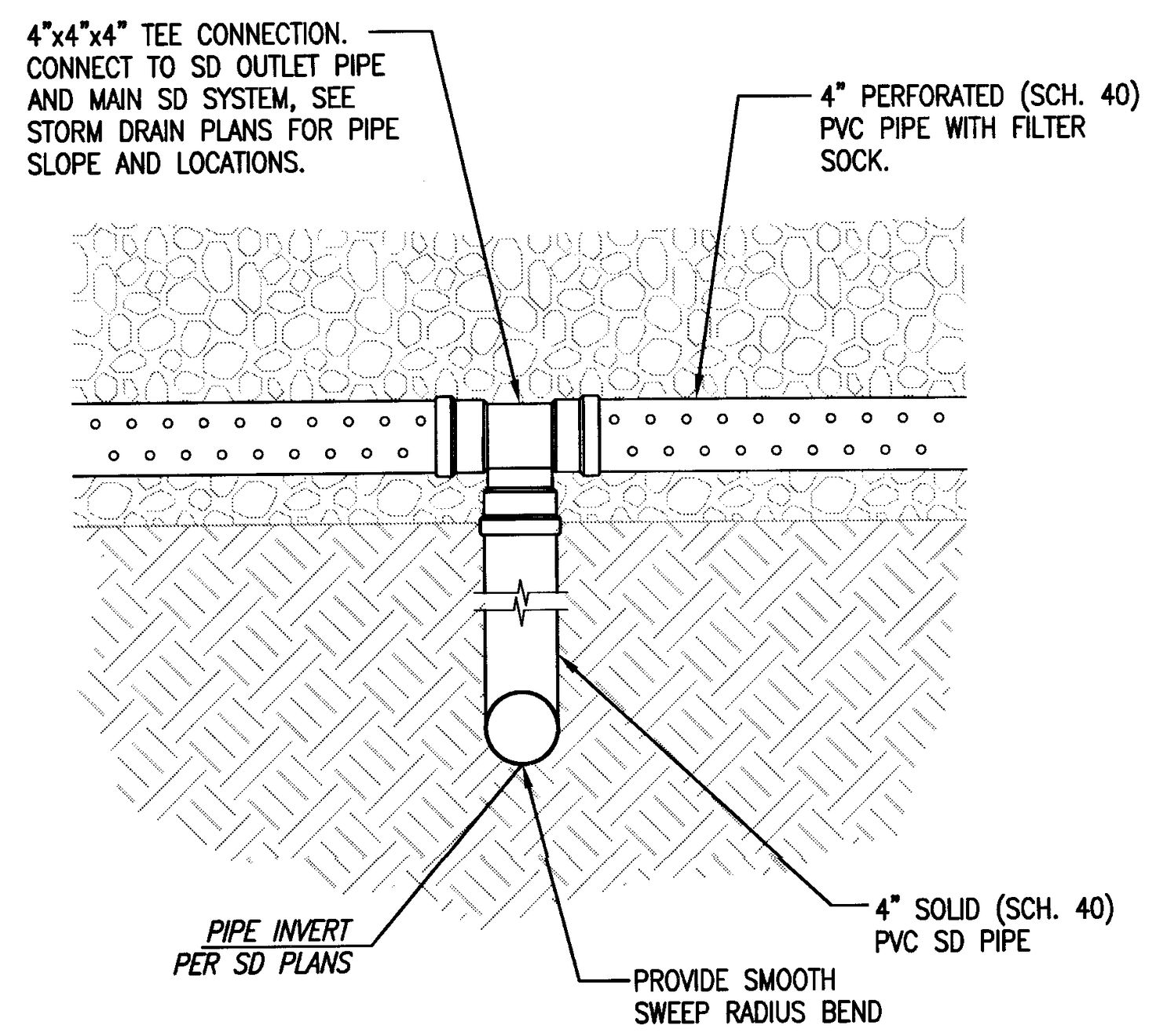
GENERAL NOTE (FOR ALL DETAILS):

* THE PROJECT SOIL ENGINEER SHALL BE RESPONSIBLE FOR FINAL ALLOWABLE CONCRETE STRENGTH AND CEMENT TYPE (BASED ON SULFATE CONTENT OF SOIL) FOR ALL CONCRETE IN CONTACT WITH SOIL.

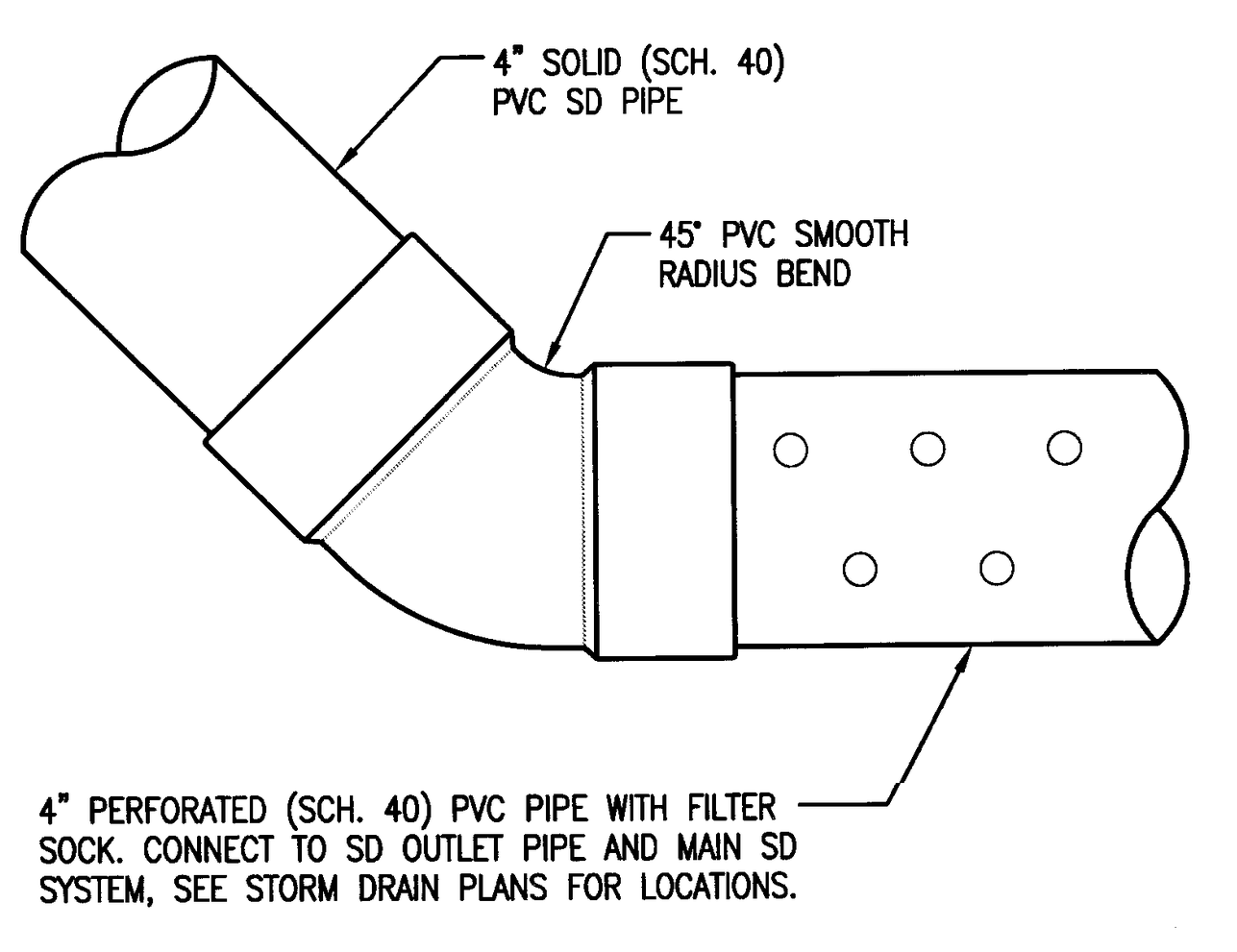
SCALE: NONE

PVC TRENCHING AND BEDDING

2


4"x4"x4" TEE CONNECTION. CONNECT TO SD OUTLET PIPE AND MAIN SD SYSTEM, SEE STORM DRAIN PLANS FOR PIPE SLOPE AND LOCATIONS.
4" PERFORATED (SCH. 40) PVC PIPE WITH FILTER SOCK.
PIPE INVERT PER SD PLANS
4" SOLID (SCH. 40) PVC SD PIPE
PROVIDE SMOOTH SWEEP RADIUS BEND

IN-LINE CONDITION

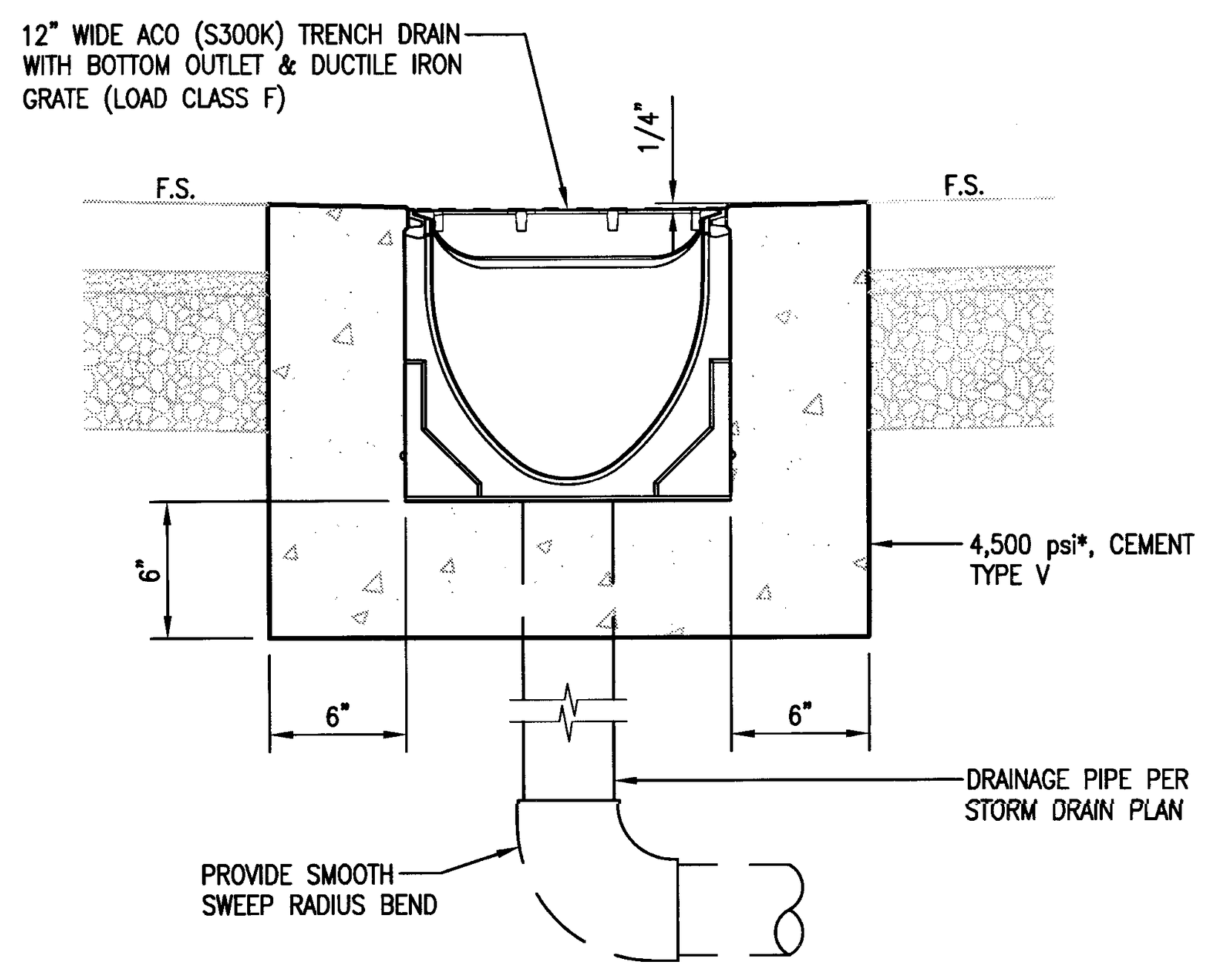

4" SOLID (SCH. 40) PVC SD PIPE
45° PVC SMOOTH RADIUS BEND
4" PERFORATED (SCH. 40) PVC PIPE WITH FILTER SOCK. CONNECT TO SD OUTLET PIPE AND MAIN SD SYSTEM, SEE STORM DRAIN PLANS FOR LOCATIONS.

END CONDITION

SCALE: NONE

PERFORATED PVC PIPE TO SOLID PVC PIPE CONNECTION

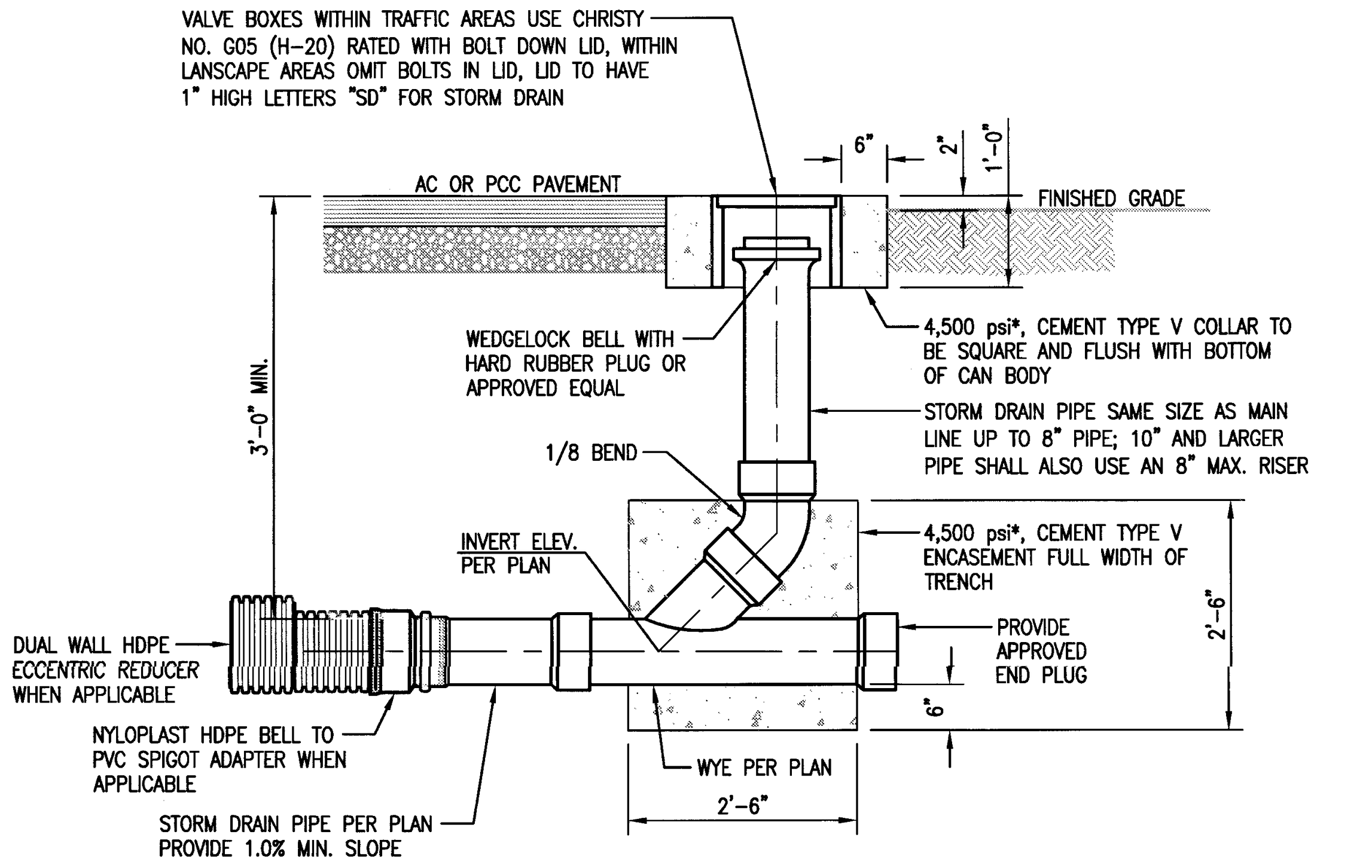
9


12" WIDE ACO (S300K) TRENCH DRAIN WITH BOTTOM OUTLET & DUCTILE IRON GRATE (LOAD CLASS F)
1/4"
F.S.
F.S.
4,500 psi*, CEMENT TYPE V
6"
6"
6"
DRAINAGE PIPE PER STORM DRAIN PLAN
PROVIDE SMOOTH SWEEP RADIUS BEND

SCALE: NONE

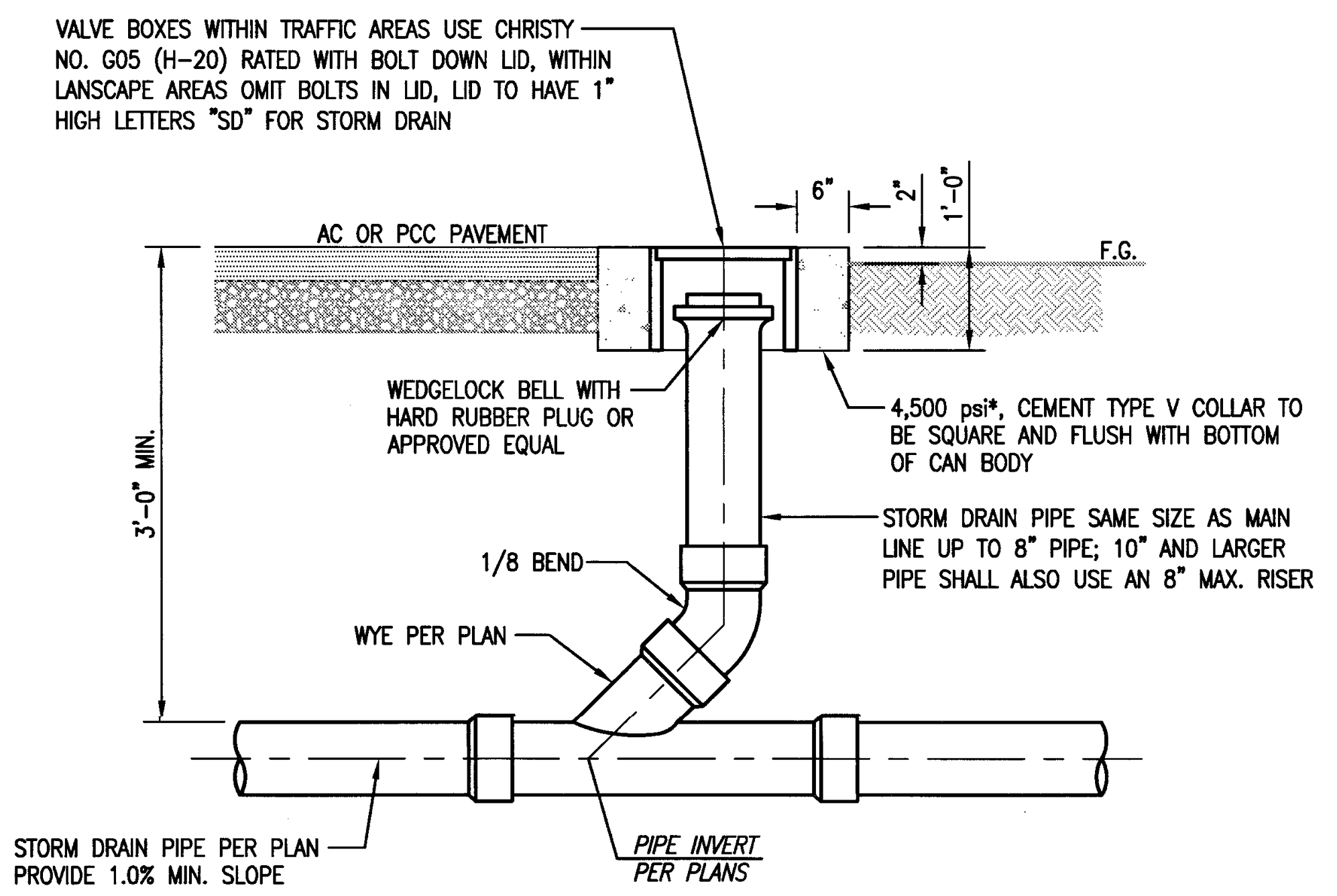
12" WIDE TRENCH DRAIN DETAIL

8


VALVE BOXES WITHIN TRAFFIC AREAS USE CHRISTY NO. G05 (H-20) RATED WITH BOLT DOWN LID, WITHIN LANSCAPE AREAS OMIT BOLTS IN LID, LID TO HAVE 1" HIGH LETTERS "SD" FOR STORM DRAIN
6"
2"
1'-0"
AC OR PCC PAVEMENT
FINISHED GRADE
3'-0" MIN.
WEDGELOCK BELL WITH HARD RUBBER PLUG OR APPROVED EQUAL
4,500 psi*, CEMENT TYPE V COLLAR TO BE SQUARE AND FLUSH WITH BOTTOM OF CAN BODY
STORM DRAIN PIPE SAME SIZE AS MAIN LINE UP TO 8" PIPE; 10" AND LARGER PIPE SHALL ALSO USE AN 8" MAX. RISER
1/8 BEND
INVERT ELEV. PER PLAN
4,500 psi*, CEMENT TYPE V ENCASEMENT FULL WIDTH OF TRENCH
2'-6"
DUAL WALL HDPE ECCENTRIC REDUCER WHEN APPLICABLE
PROVIDE APPROVED END PLUG
6"
NYLOPLAST HDPE BELL TO PVC SPIGOT ADAPTER WHEN APPLICABLE
WYE PER PLAN
2'-6"
STORM DRAIN PIPE PER PLAN PROVIDE 1.0% MIN. SLOPE

TERMINAL CLEANOUT

5


VALVE BOXES WITHIN TRAFFIC AREAS USE CHRISTY NO. G05 (H-20) RATED WITH BOLT DOWN LID, WITHIN LANSCAPE AREAS OMIT BOLTS IN LID, LID TO HAVE 1" HIGH LETTERS "SD" FOR STORM DRAIN
6"
2"
1'-0"
AC OR PCC PAVEMENT
F.G.
3'-0" MIN.
WEDGELOCK BELL WITH HARD RUBBER PLUG OR APPROVED EQUAL
4,500 psi*, CEMENT TYPE V COLLAR TO BE SQUARE AND FLUSH WITH BOTTOM OF CAN BODY
STORM DRAIN PIPE SAME SIZE AS MAIN LINE UP TO 8" PIPE; 10" AND LARGER PIPE SHALL ALSO USE AN 8" MAX. RISER
1/8 BEND
WYE PER PLAN
STORM DRAIN PIPE PER PLAN PROVIDE 1.0% MIN. SLOPE
PIPE INVERT PER PLANS

SCALE: NONE

IN-LINE CLEANOUT

3

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444

UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
STORM DRAIN DETAILS

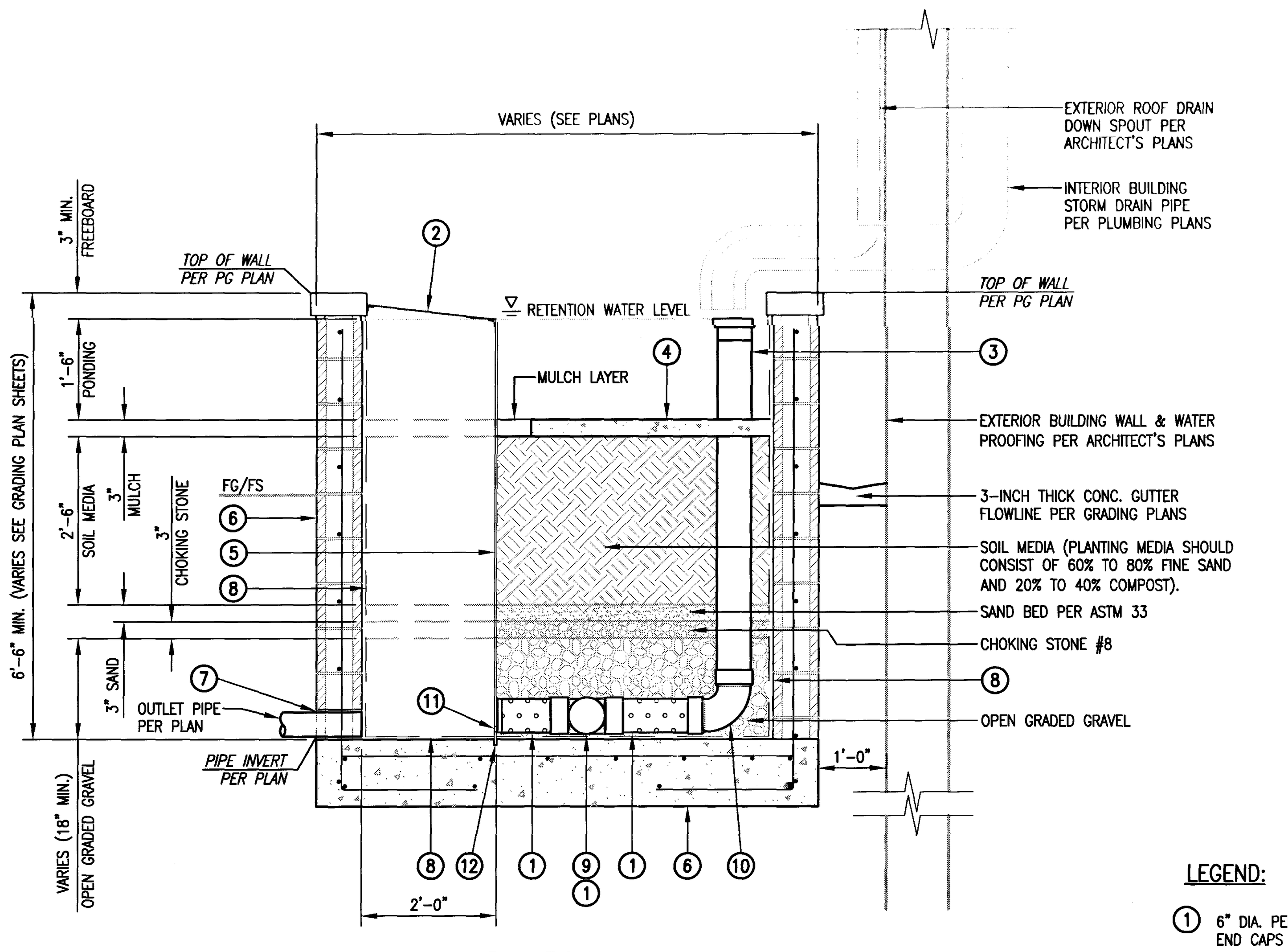
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

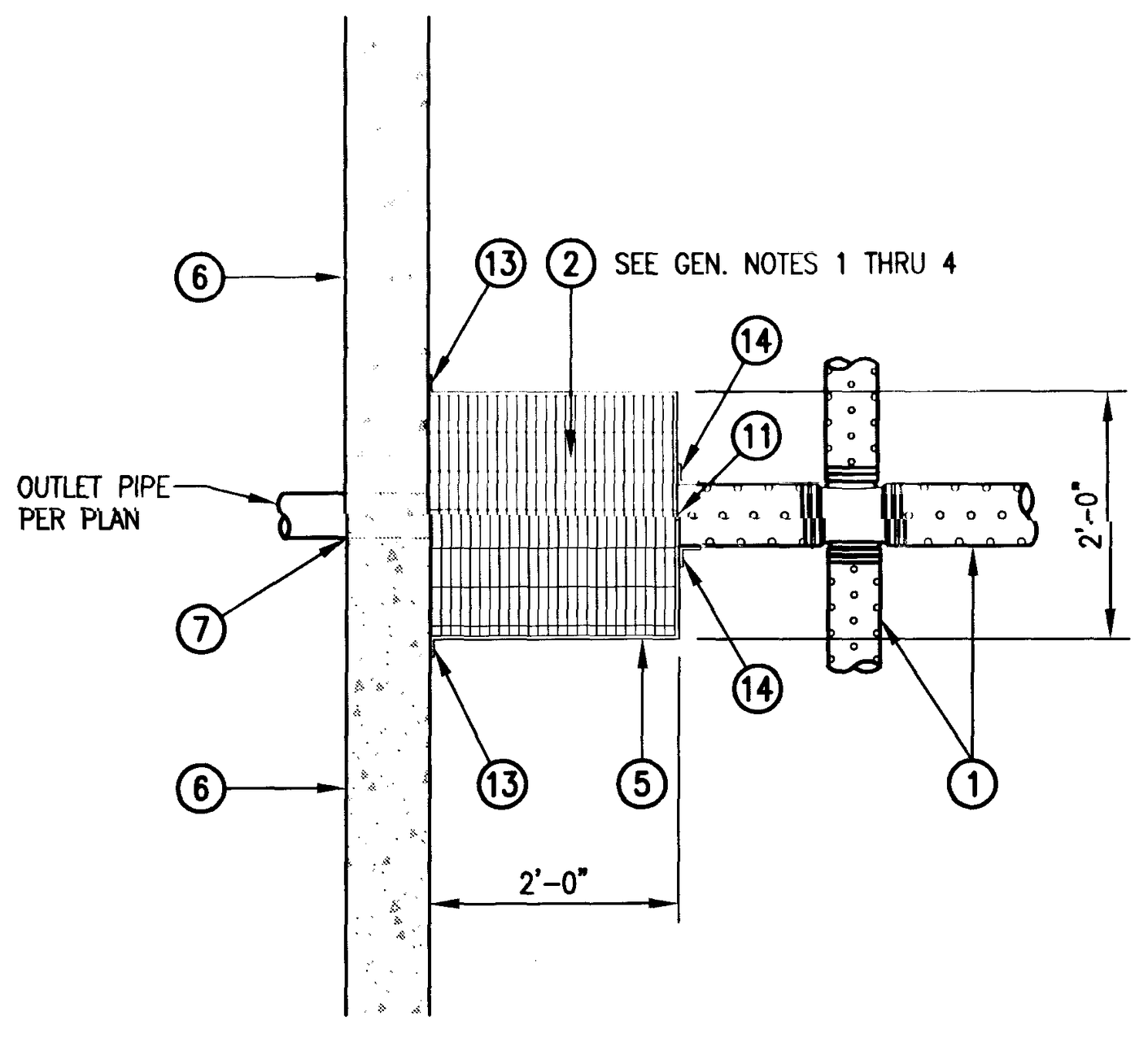
PROJECT NUMBER
5275032

SHEET NO.
C-31

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-31-SDD.dwg July 13, 2015 - 11:20am Mike Thomas


VARIES (SEE PLANS)
EXTERIOR ROOF DRAIN DOWN SPOUT PER ARCHITECT'S PLANS
INTERIOR BUILDING STORM DRAIN PIPE PER PLUMBING PLANS
TOP OF WALL PER PG PLAN
RETENTION WATER LEVEL
MULCH LAYER
EXTERIOR BUILDING WALL & WATER PROOFING PER ARCHITECT'S PLANS
3-INCH THICK CONC. GUTTER FLOWLINE PER GRADING PLANS
SOIL MEDIA (PLANTING MEDIA SHOULD CONSIST OF 60% TO 80% FINE SAND AND 20% TO 40% COMPOST).
SAND BED PER ASTM 33
CHOKING STONE #8
OPEN GRADED GRAVEL
FG/FS
3" MIN. FREEBOARD
1'-6" PONDING
2'-6" SOIL MEDIA
3" MULCH
3" CHOKING STONE
3" SAND
6'-6" MIN. (VARIES SEE GRADING PLAN SHEETS)
VARIES (18" MIN.) OPEN GRADED GRAVEL
OUTLET PIPE PER PLAN
PIPE INVERT PER PLAN
1'-0"
2'-0"
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

SECTION


SEE GEN. NOTES 1 THRU 4
OUTLET PIPE PER PLAN
2'-0"
2'-0"
① ② ⑤ ⑥ ⑦ ⑪ ⑬ ⑭

GENERAL OUTLET DETAIL

SCALE: NONE

GENERAL OUTLET DETAIL NOTES:

1. GRATE SHALL BE MOUNTED USING STAINLESS STEEL HARDWARE AND PROVIDED WITH HINGED AND LOCKABLE OR BOLTABLE ACCESS PANELS.
2. GRATE SHALL BE STAINLESS STEEL, ALUMINUM OR STEEL. STEEL GRATES SHALL BE HOT DIP GALVANIZED AND MAY BE HOT POWDER PAINTED AFTER GALVANIZING.
3. GRATE SHALL BE DESIGNED SUCH THAT THE DIAGONAL DIMENSION OF EACH OPENING IS SMALLER THAN THE DIAMETER OF THE OUTLET PIPE.
4. STRUCTURAL DESIGN OF GRATE SHALL BE BASED ON FULL HYDROSTATIC HEAD WITH ZERO HEAD DOWNSTREAM OF GRATE.

***GENERAL NOTE (FOR ALL DETAILS):**

THE PROJECT SOIL ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING ALLOWABLE CONCRETE STRENGTH AND CEMENT TYPE (BASED ON SULFATE CONTENT OF SOIL) FOR ALL CONCRETE IN CONTACT WITH SOIL.

LEGEND:

① 6" DIA. PERFORATED SCH. 40 PVC PIPE, PROVIDE END CAPS AT BOTH ENDS OF PIPE.

② SLOPED CLOSE MESH REMOVABLE GRATE BOLD TO SUPPORT FRAME

③ 6" DIA. SCH. 40 PVC CLEANOUT TO 12" ABOVE FINISH GRADE. PROVIDE SEALED CAP.

④ 3'-0" WIDE x 3'-6" LONG x 3" THICK CONC. *SPLASH PAD AT ALL BUILDING DRAINS.*

⑤ STEEL OR ALUMINUM CLEANOUT FRAME AND GRATE SYSTEM TO SUPPORT SURROUNDING SOILS, ENGINEERED BY OTHERS. SUBMIT SHOP DRAWINGS FOR CIVIL REVIEW.

⑥ 8" CMU PLANTER WALL & FOUNDATION UNDER SEPARATE PERMIT. MIN. 4,500 psi*, CEMENT TYPE V

⑦ CORE DRILL CMU WALL 1-INCH THAN PROPOSED OUTLET PIPE DIA. AND FILL WITH NON-METALLIC NON-SHRINK GROUT.

⑧ WATERPROOFING SYSTEM WITHIN FLOW THROUGH PLANTERS SHALL BE DESIGNED BY THE OWNER'S WATERPROOFING CONSULTANT TO ENSURE A WATER TIGHT SYSTEM.

⑨ 6" DIA. SCH. 40 PVC CROSS FITTING.

⑩ 6" x 90° SCH. 40 PVC BEND.

⑪ ORIFICE DRILLED INTO VAULT WALL

⑫ FORM A 1.5" DEEP x 1" + FRAME THICKNESS WIDE GROOVE IN CONCRETE AND PROVIDE A CONTINUOUS WATERTIGHT CONNECTION USING AN APPROVED SEALANT.

⑬ WATERTIGHT CONNECTION, INSTALL 1/8" TO 1/4" THICK x 2" WIDE CONTINUOUS 30 DUROMETER NEOPRENE GASKET, ALL AROUND VAULT FRAME.

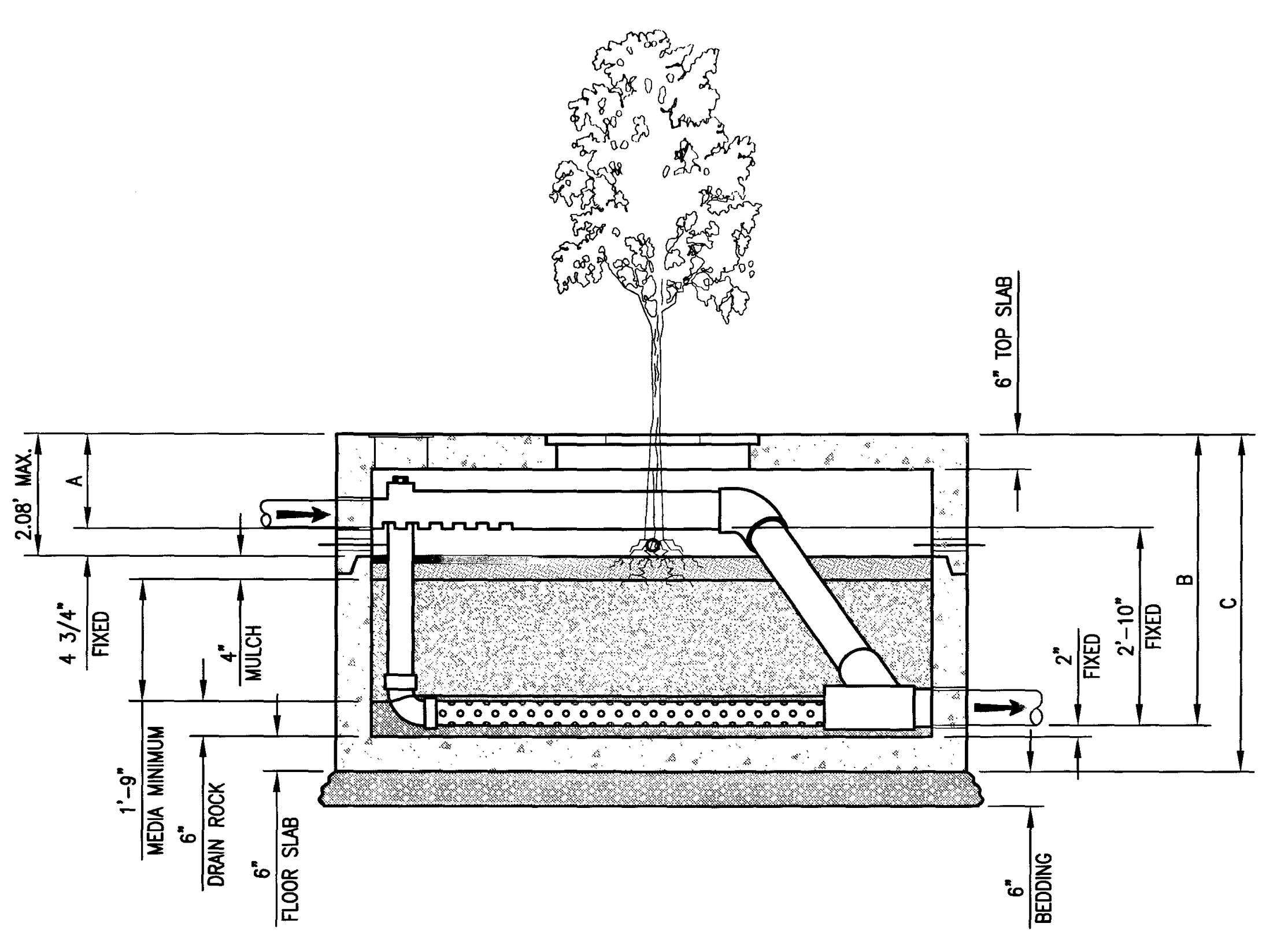
⑭ BOLT FLANGE TO VAULT

SCALE: NONE

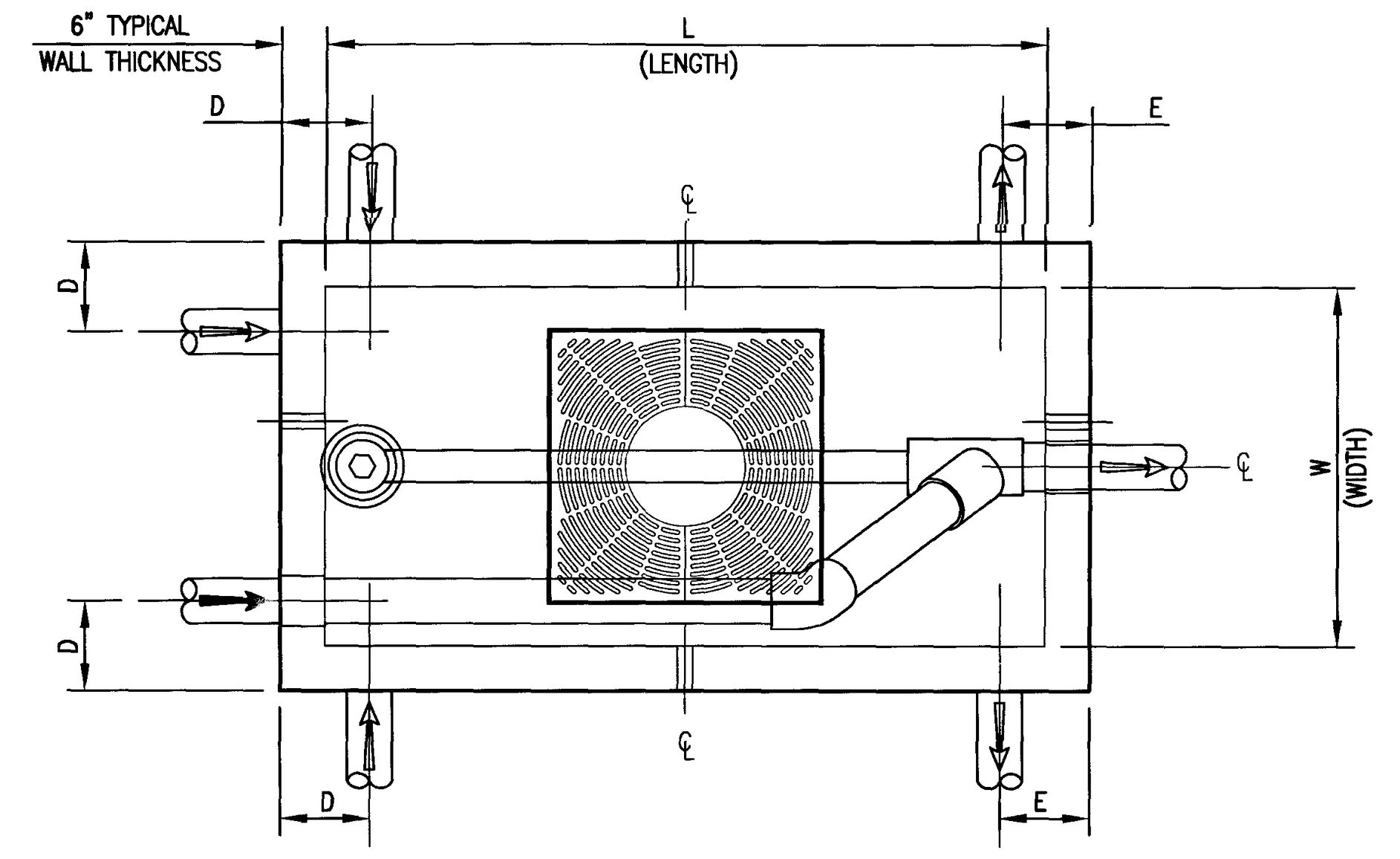
TYPICAL FLOW THROUGH PLANTER DETAIL 5

SIZING CHART - FOOTPRINT & PIPE SIZES

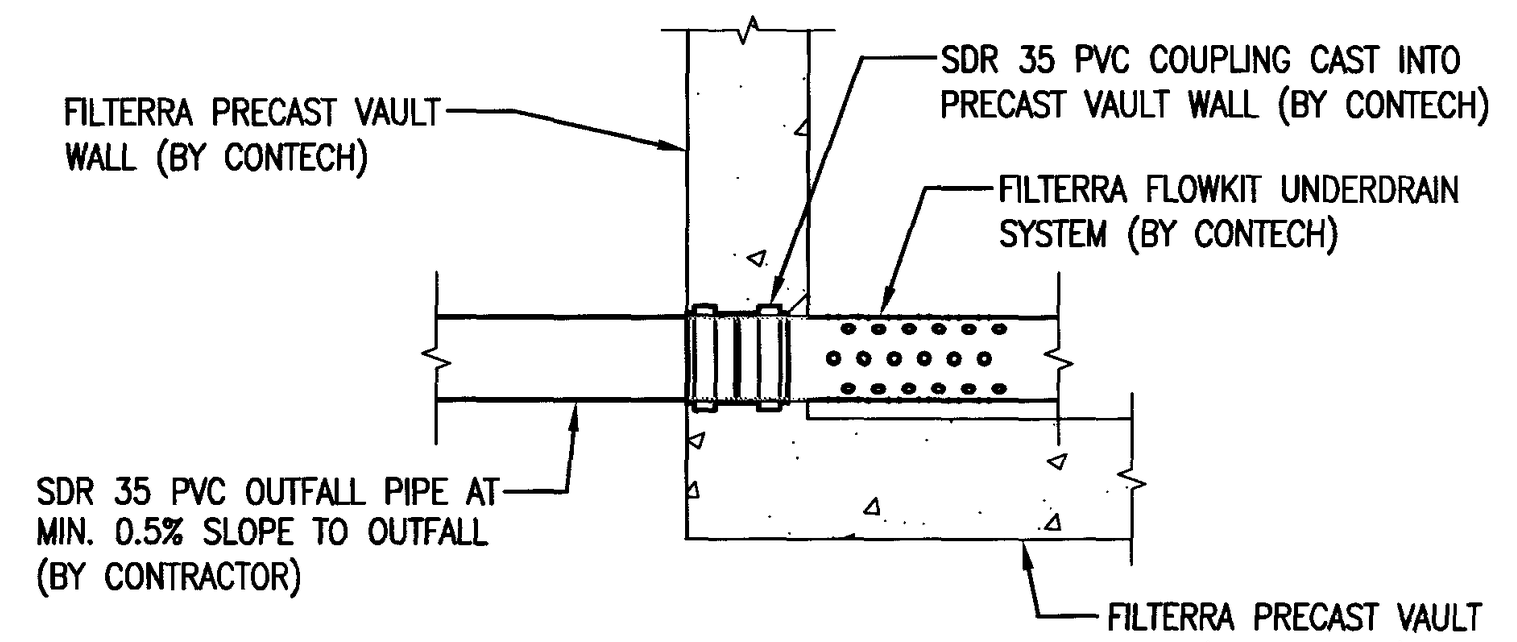
FILTERRA ROOFDRAIN UNIT SIZE OR (FTRD)	W DIMENSION (WIDTH)	L DIMENSION (LENGTH)	PERFORATED PIPE & CLEANOUT SIZE	TREE GRATE QUANTITY/SIZE	INLET/OUTLET PIPE SIZE (DIAMETER INCHES)
FTRD 4.0'x4.0'	4.00' [48.00"]	4.00' [48.00"]	4.00"	1 EA. / 3' x 3'	6.00"


2.08' MAX.
A
4 3/4" FIXED
4" MULCH
1'-9" MEDIA MINIMUM
6" DRAIN ROCK
6" FLOOR SLAB
6" TOP SLAB
2'-10" FIXED
2" FIXED
B
C
6" BEDDING

CUTAWAY SECTION


6" TYPICAL WALL THICKNESS
L (LENGTH)
D
E
W (WIDTH)

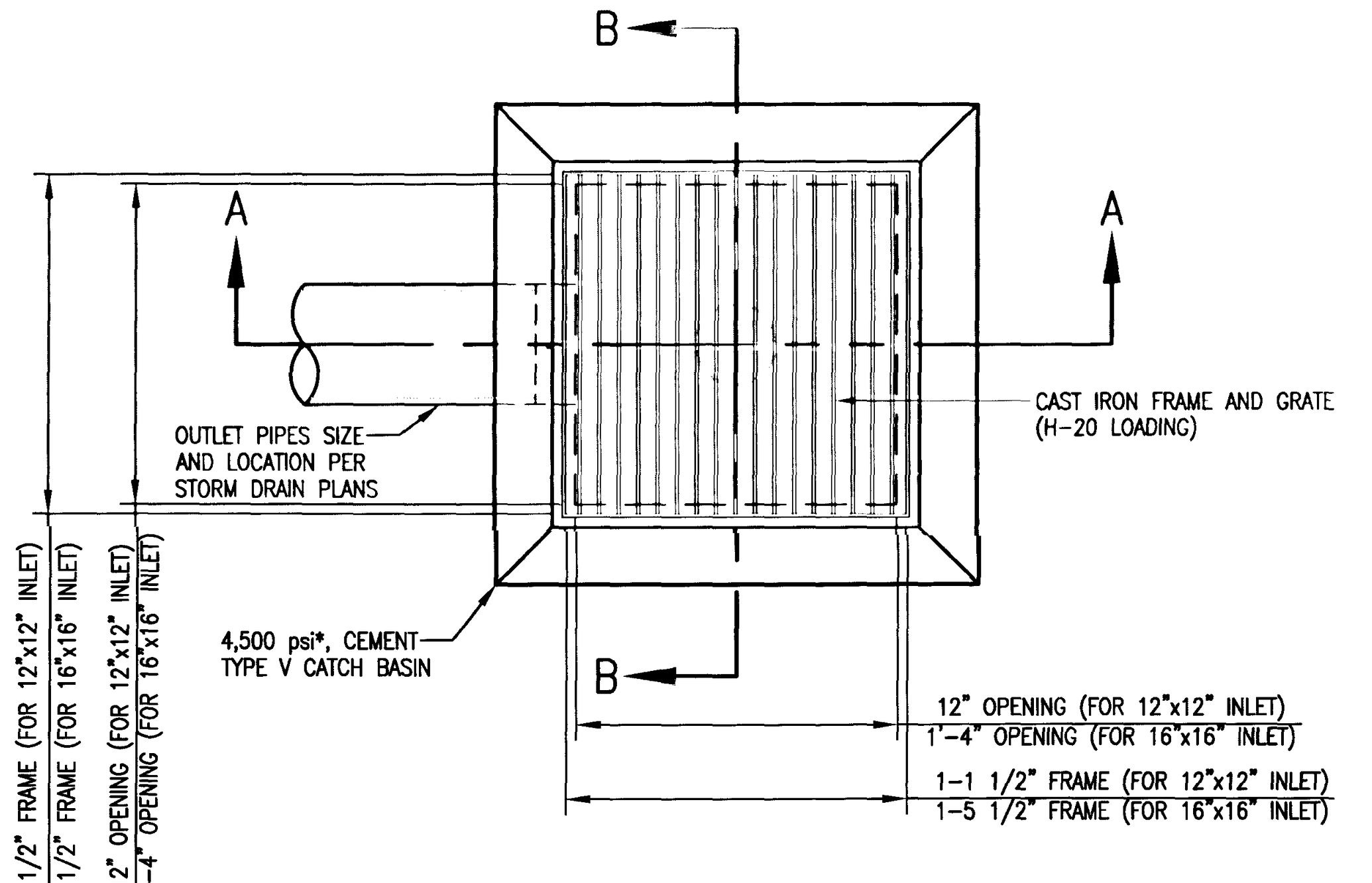
PLAN VIEW


FILTERRA PRECAST VAULT WALL (BY CONTECH)
SDR 35 PVC COUPLING CAST INTO PRECAST VAULT WALL (BY CONTECH)
FILTERRA FLOWKIT UNDERDRAIN SYSTEM (BY CONTECH)
SDR 35 PVC OUTFALL PIPE AT MIN. 0.5% SLOPE TO OUTFALL (BY CONTRACTOR)
FILTERRA PRECAST VAULT BASE (BY CONTECH)

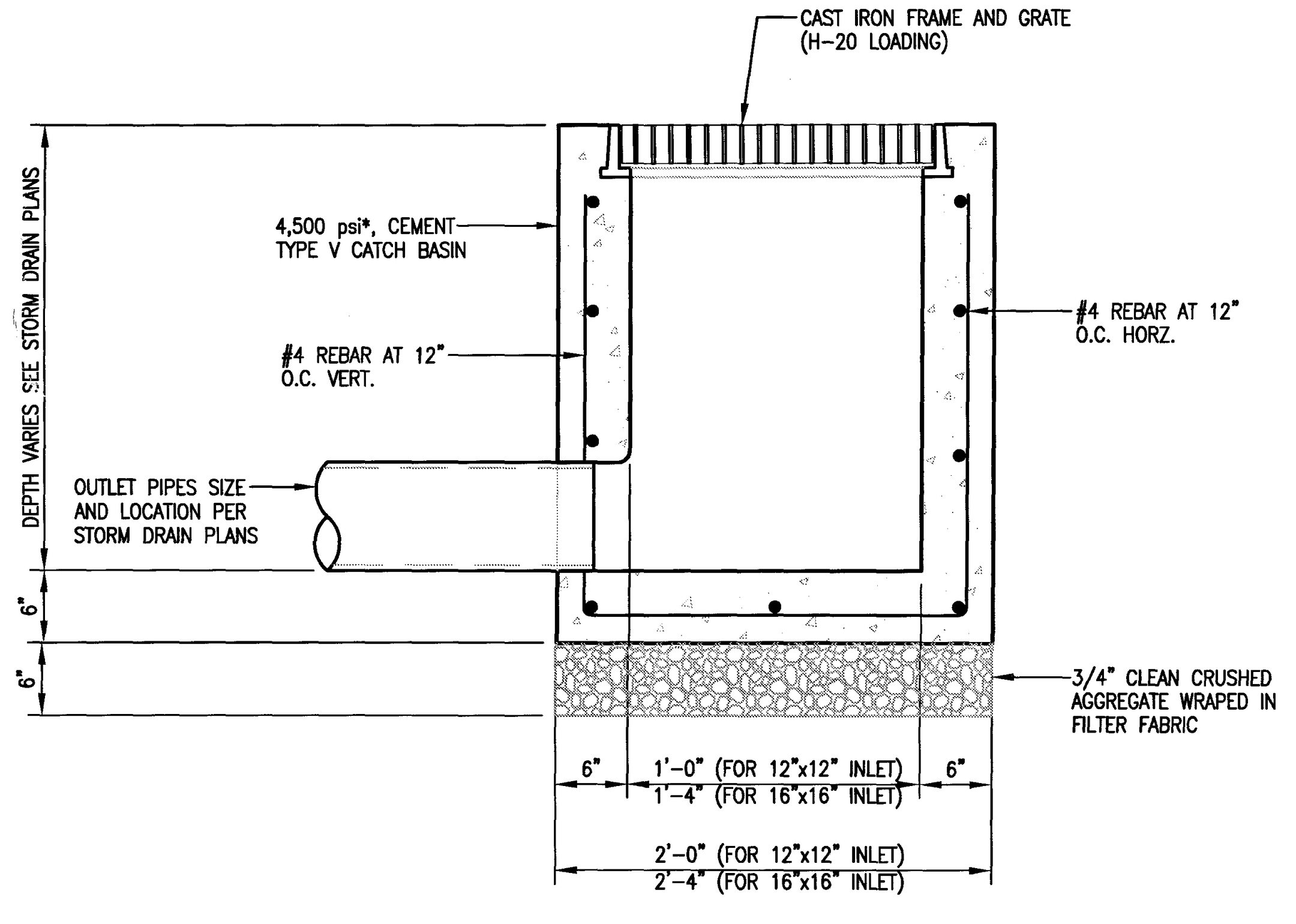
CONNECTION DETAIL

SCALE: NONE

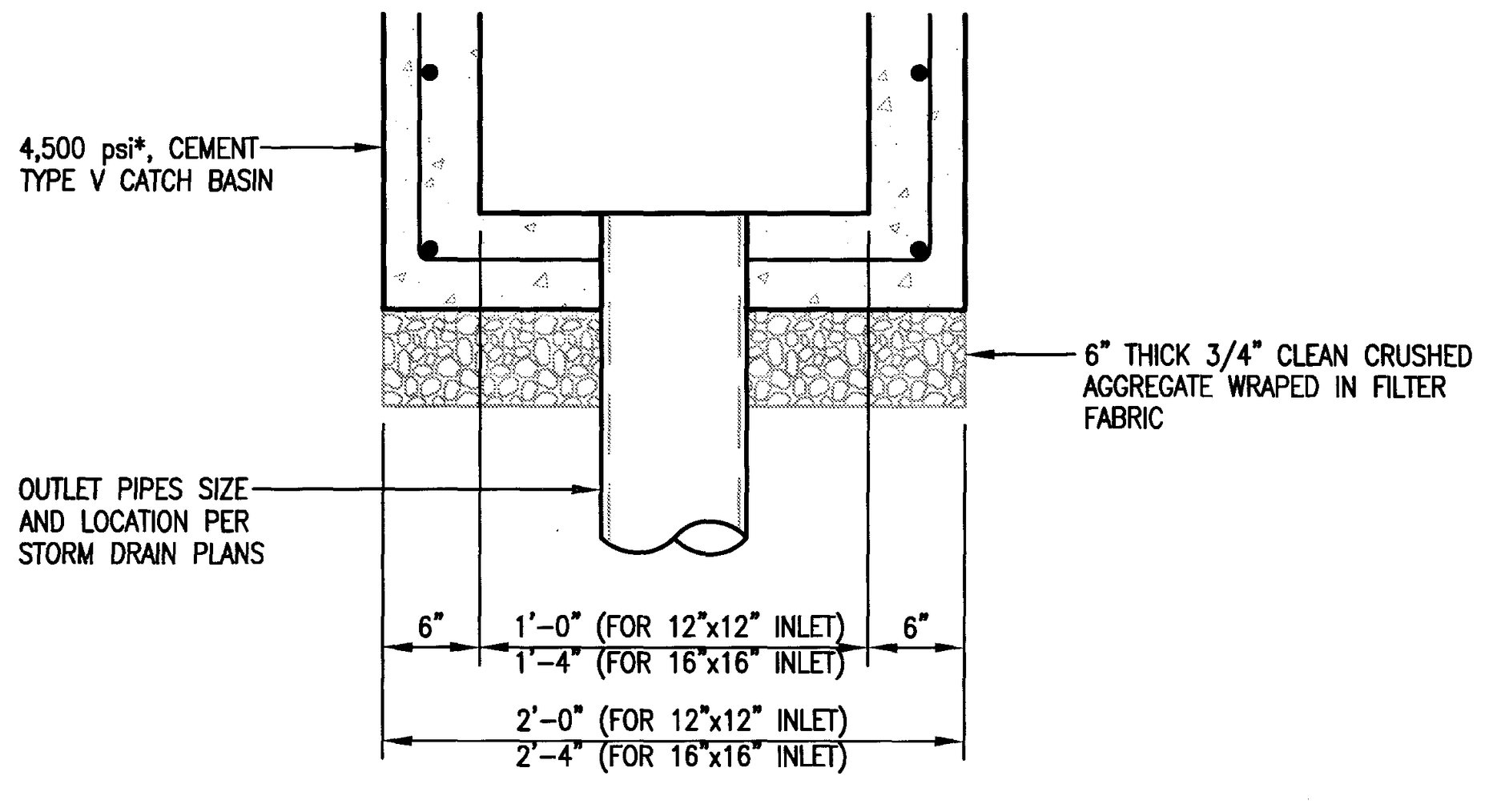
TYPICAL FILTERRA ROOF DRAIN BOX 3


B
A
A
B
OUTLET PIPES SIZE AND LOCATION PER STORM DRAIN PLANS
CAST IRON FRAME AND GRATE (H-20 LOADING)
4,500 psi*, CEMENT TYPE V CATCH BASIN
12" OPENING (FOR 12"x12" INLET)
1'-4" OPENING (FOR 16"x16" INLET)
1-1 1/2" FRAME (FOR 12"x12" INLET)
1-5 1/2" FRAME (FOR 16"x16" INLET)

PLAN VIEW


CAST IRON FRAME AND GRATE (H-20 LOADING)
4,500 psi*, CEMENT TYPE V CATCH BASIN
#4 REBAR AT 12" O.C. VERT.
#4 REBAR AT 12" O.C. HORZ.
DEPTH VARIES SEE STORM DRAIN PLANS
OUTLET PIPES SIZE AND LOCATION PER STORM DRAIN PLANS
6"
6"
3/4" CLEAN CRUSHED AGGREGATE WRAPED IN FILTER FABRIC
1'-0" (FOR 12"x12" INLET)
1'-4" (FOR 16"x16" INLET)
2'-0" (FOR 12"x12" INLET)
2'-4" (FOR 16"x16" INLET)

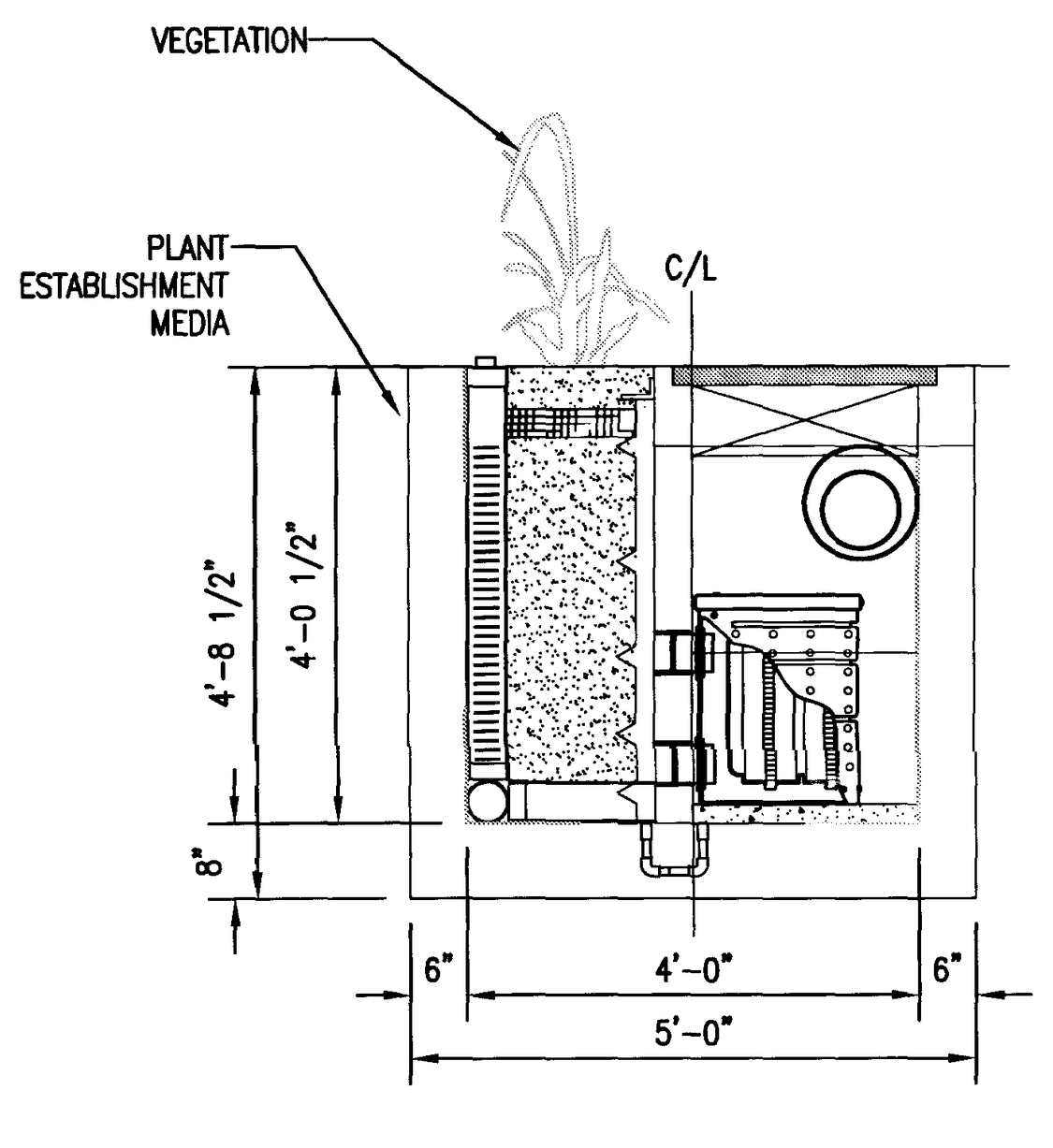
SECTION "A"-"A"


4,500 psi*, CEMENT TYPE V CATCH BASIN
6" THICK 3/4" CLEAN CRUSHED AGGREGATE WRAPED IN FILTER FABRIC
OUTLET PIPES SIZE AND LOCATION PER STORM DRAIN PLANS
1'-0" (FOR 12"x12" INLET)
1'-4" (FOR 16"x16" INLET)
2'-0" (FOR 12"x12" INLET)
2'-4" (FOR 16"x16" INLET)

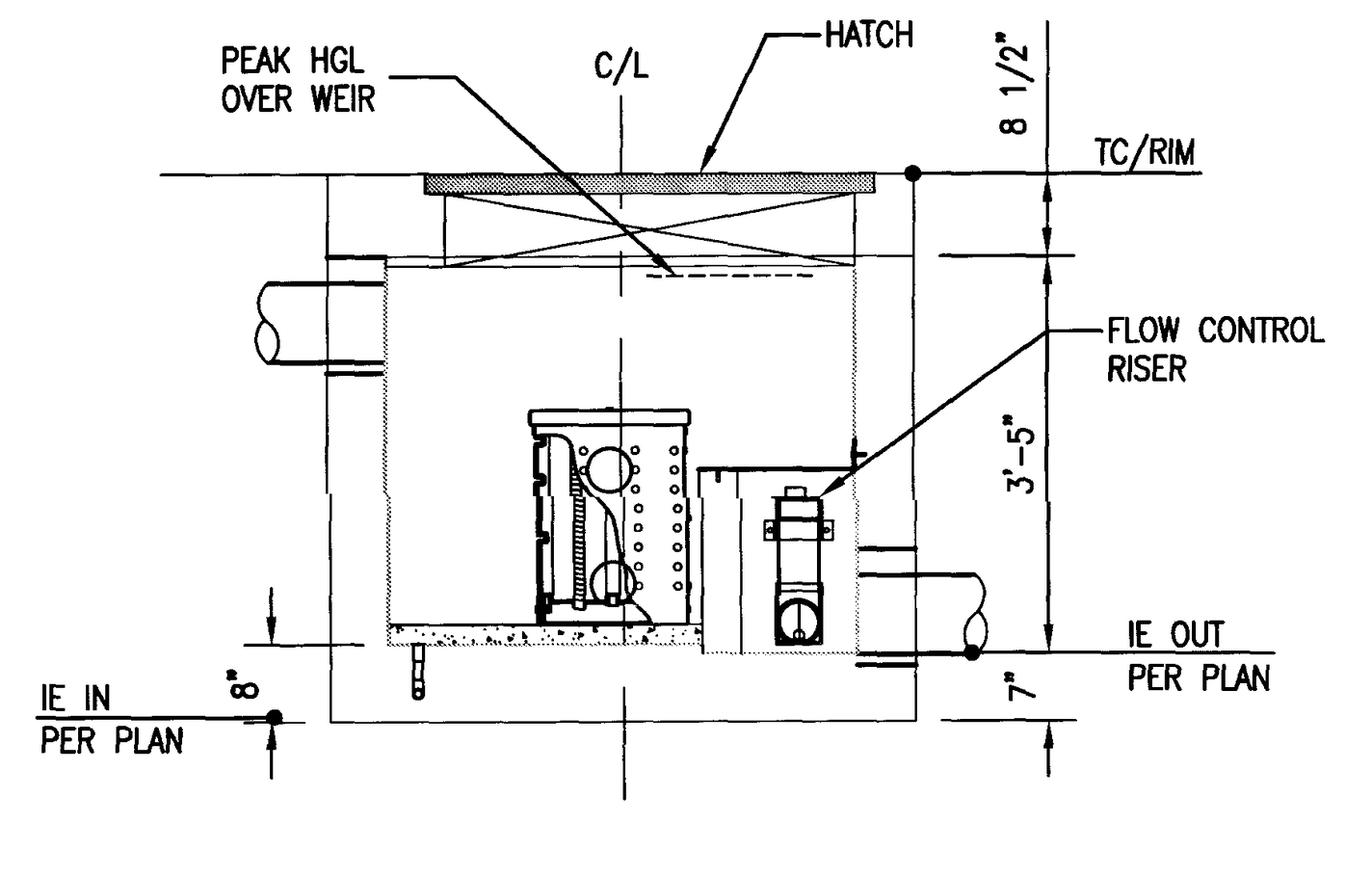
SECTION "B"-"B" ALTERNATIVE BOTTOM OUTLET

SCALE: NONE

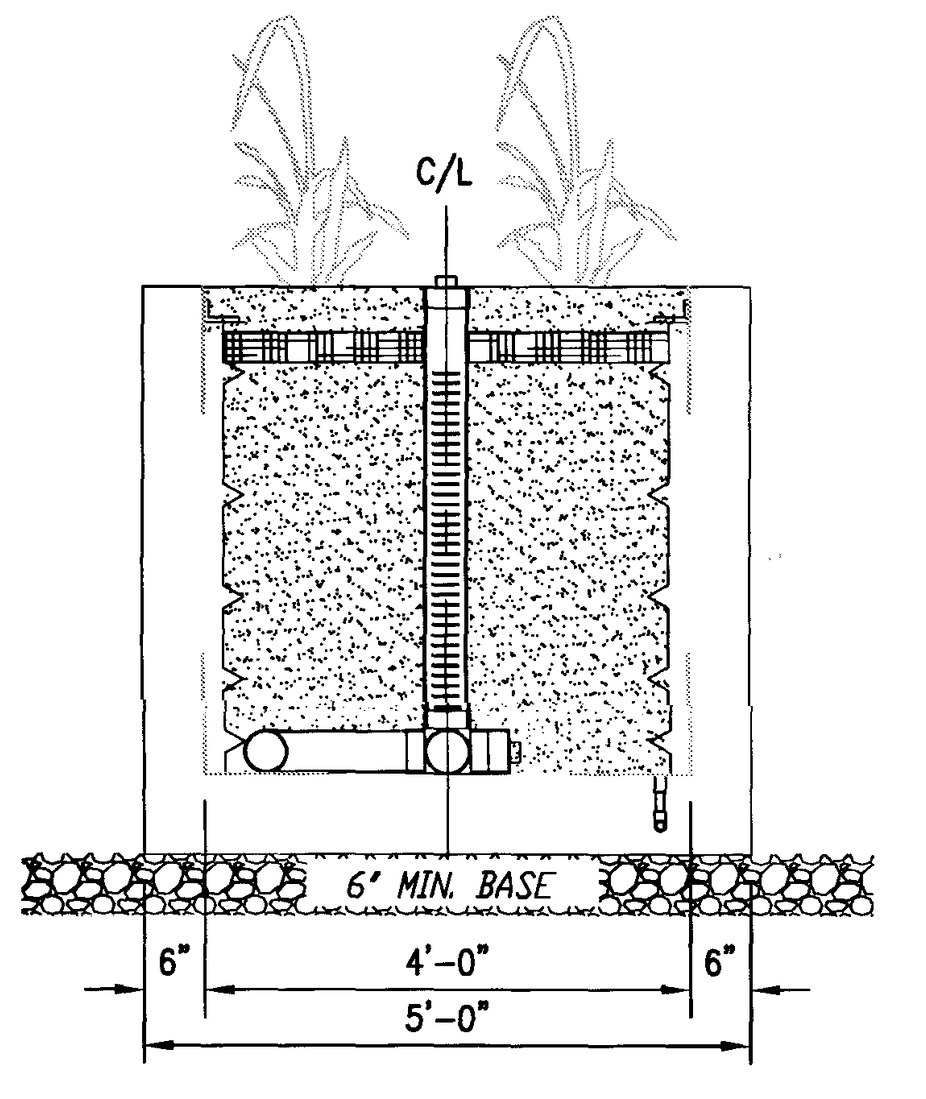
12" x 12" & 16" x 16" PCC DROP INLET 1


VEGETATION
PLANT ESTABLISHMENT MEDIA
C/L
4'-8 1/2"
4'-0 1/2"
8"
6"
4'-0"
6"
5'-0"

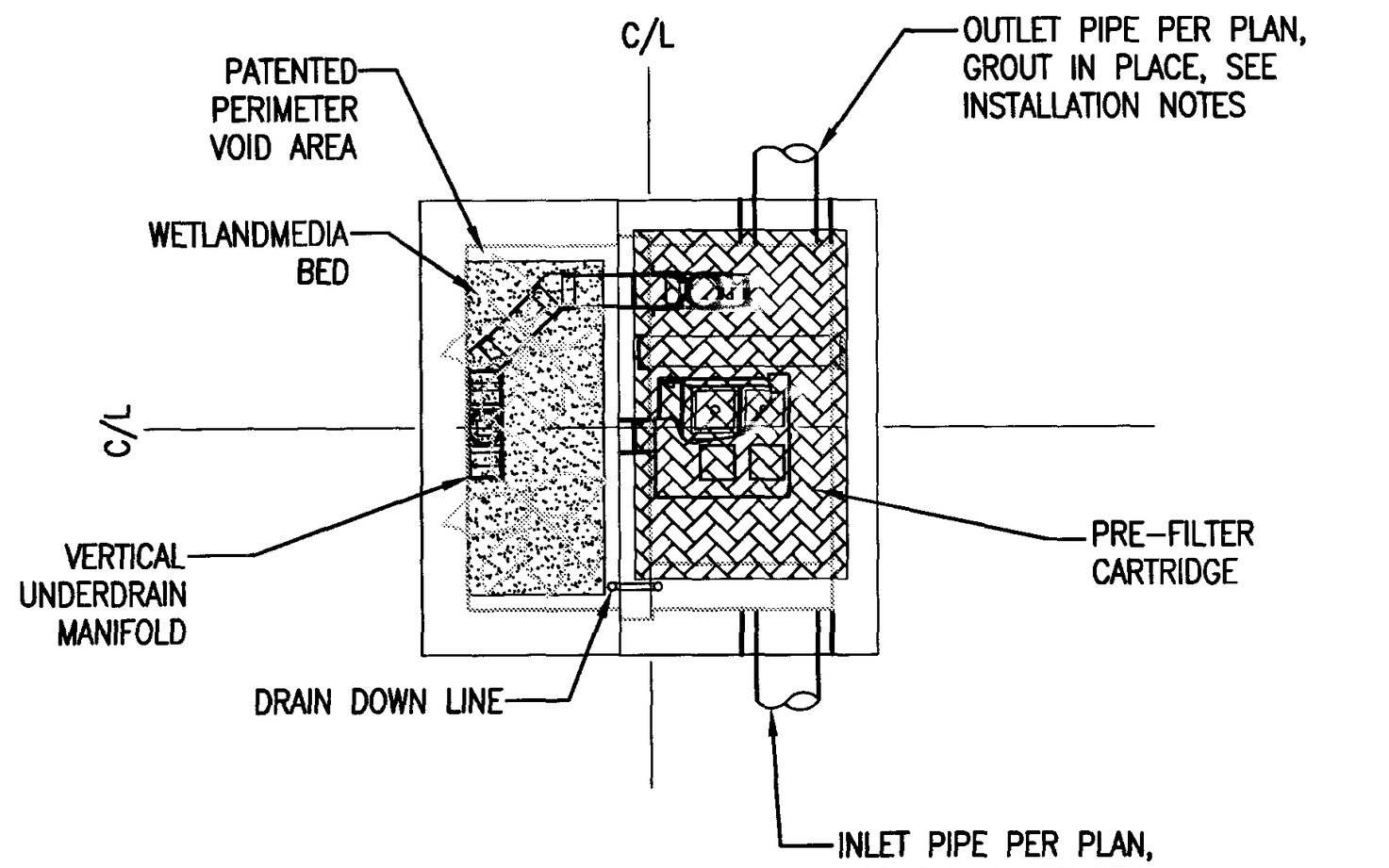
ELEVATION VIEW


PEAK HGL OVER WEIR
C/L
HATCH
TC/RIM
8 1/2"
FLOW CONTROL RISER
3'-5"
IE IN PER PLAN
IE OUT PER PLAN

RIGHT END VIEW
PRETREATMENT/DISCHARGE


C/L
6" MIN. BASE
6"
4'-0"
6"
5'-0"

LEFT END VIEW
BIOFILTRATION


PATENTED PERIMETER VOID AREA
C/L
OUTLET PIPE PER PLAN, GROUT IN PLACE, SEE INSTALLATION NOTES
WETLANDMEDIA BED
C/L
PRE-FILTER CARTRIDGE
VERTICAL UNDERDRAIN MANIFOLD
DRAIN DOWN LINE
INLET PIPE PER PLAN, GROUT IN PLACE SEE INSTALLATION NOTES

PLAN VIEW

INSTALLATION NOTES:

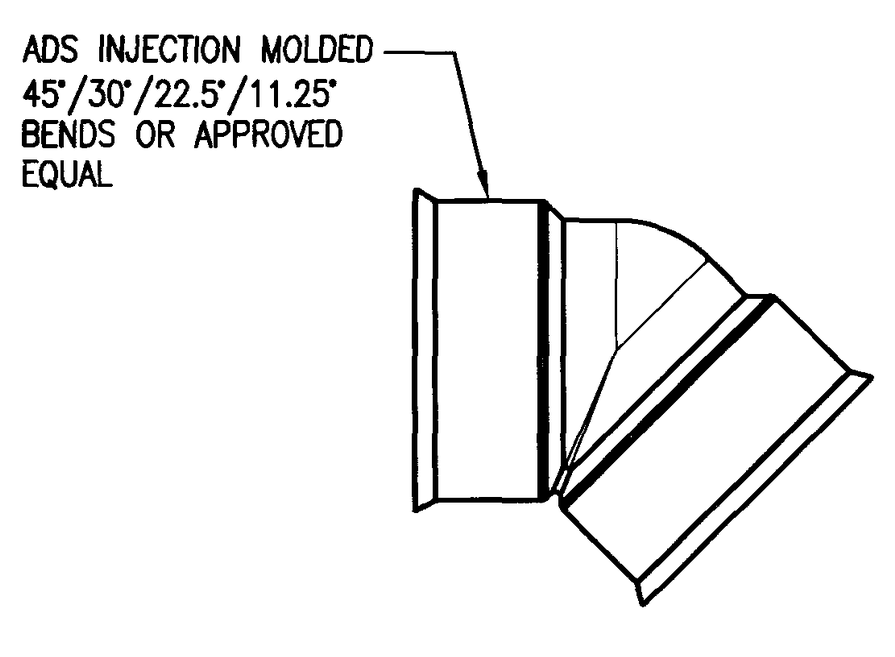
1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
3. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL GAPS AROUND PIPES SHALL BE SEALED WATER TIGHT WITH A NON-SHRINK GROUT PER MANUFACTURERS STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. DRIP OR SPRAY IRRIGATION REQUIRED ON ALL UNITS WITH VEGETATION.

GENERAL NOTES:

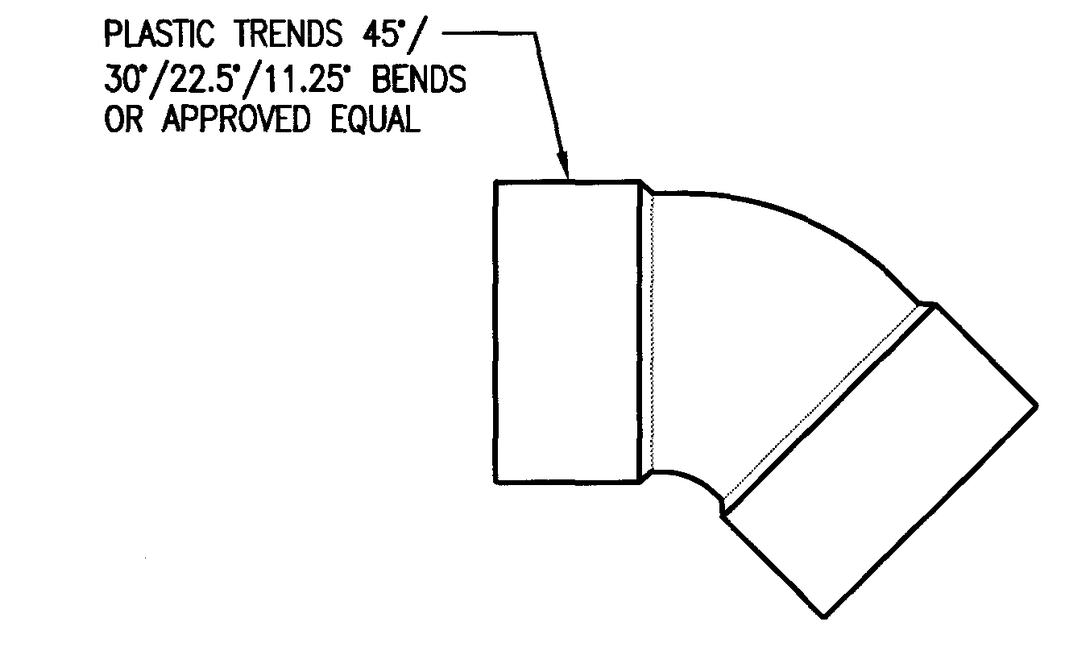
1. MANUFACTURER TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT MANUFACTURER.

SCALE: NONE

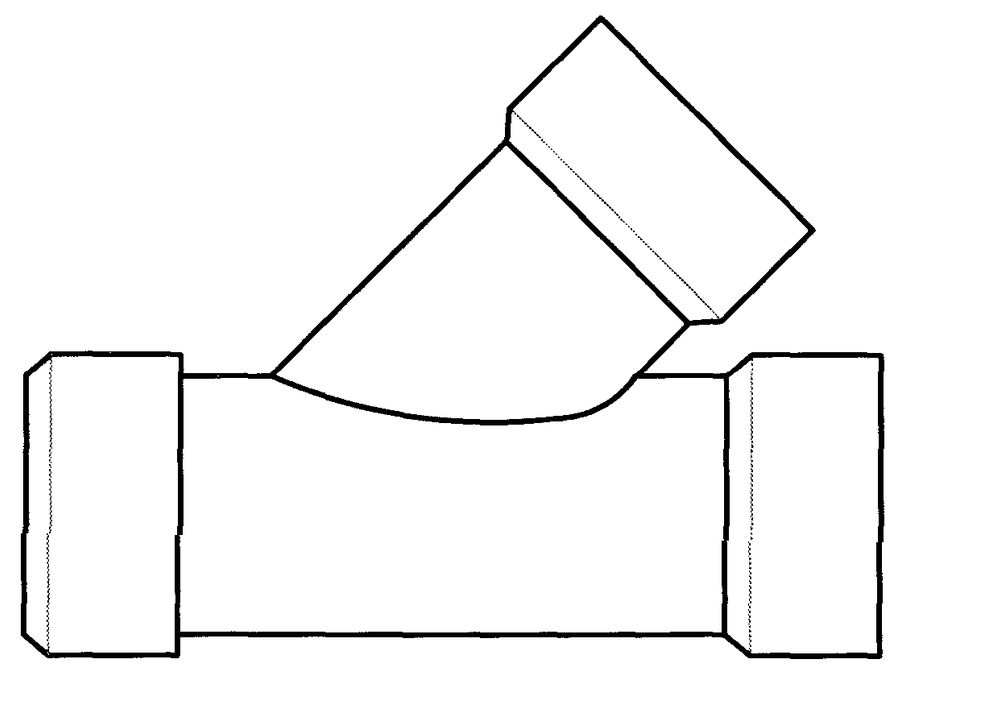
TYPICAL MODULAR WETLANDS SYSTEM DETAIL 6


ADS INJECTION MOLDED 45°/30°/22.5°/11.25° BENDS OR APPROVED EQUAL

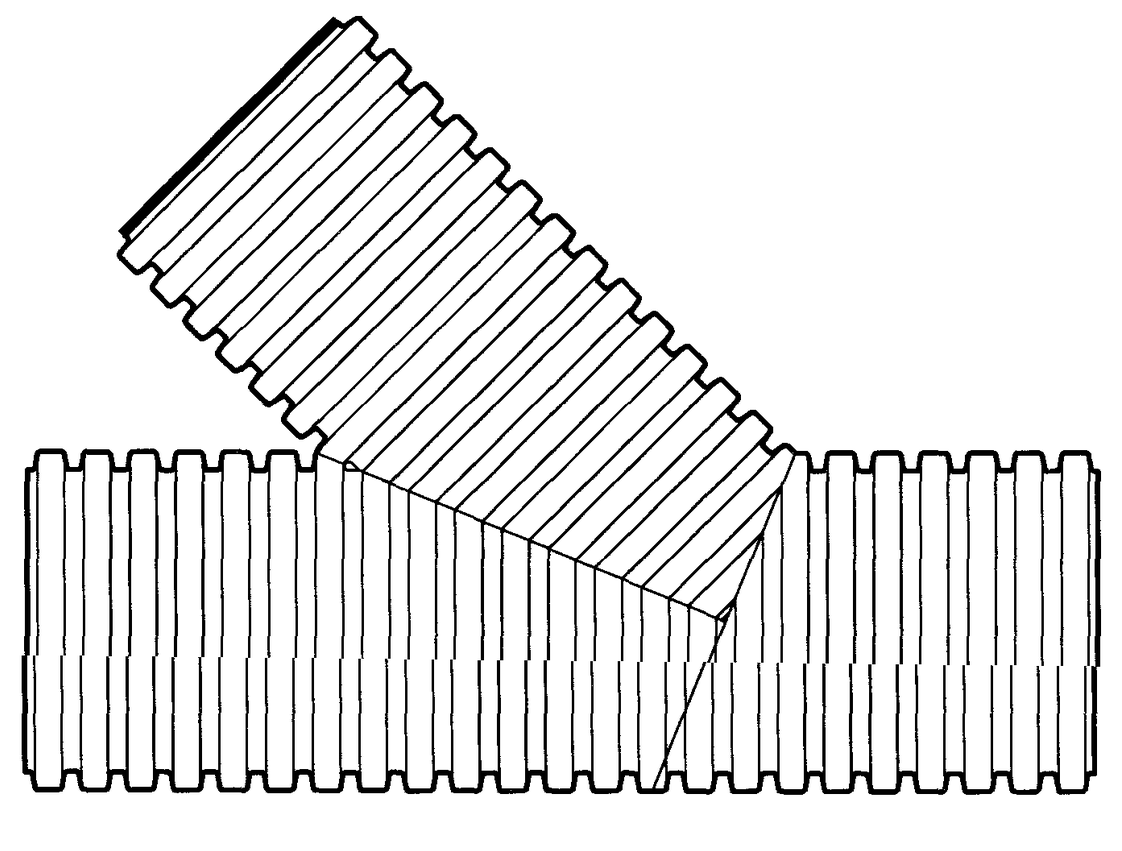
HDPE SMOOTH SWEEP RADIUS PIPE FITTINGS


PLASTIC TRENDS 45°/30°/22.5°/11.25° BENDS OR APPROVED EQUAL

PVC SMOOTH SWEEP RADIUS PIPE FITTINGS



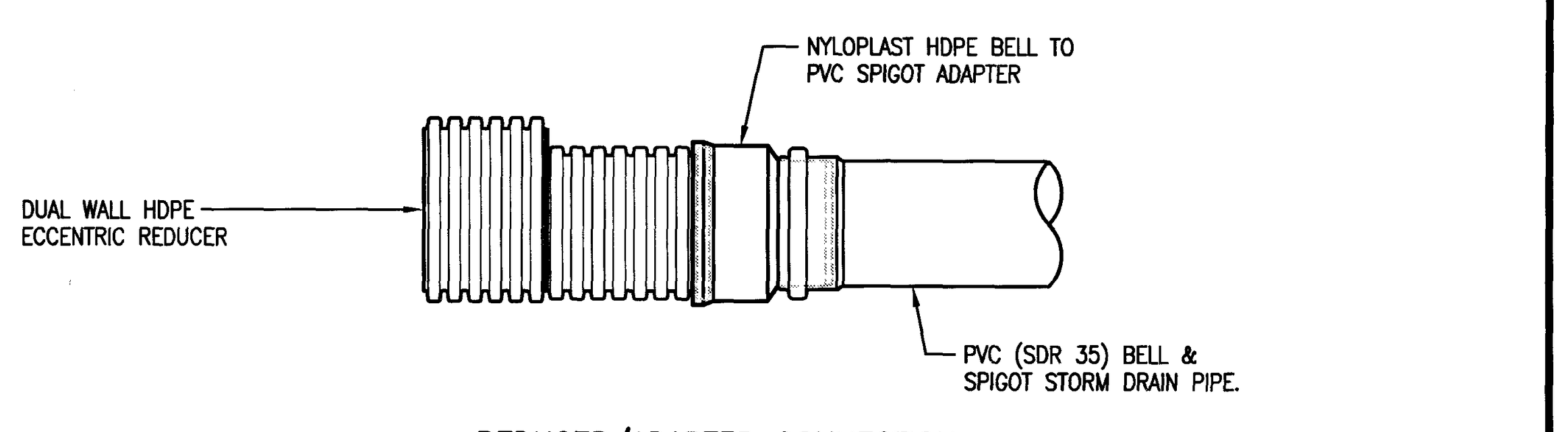
PVC TO PVC WYE FITTINGS



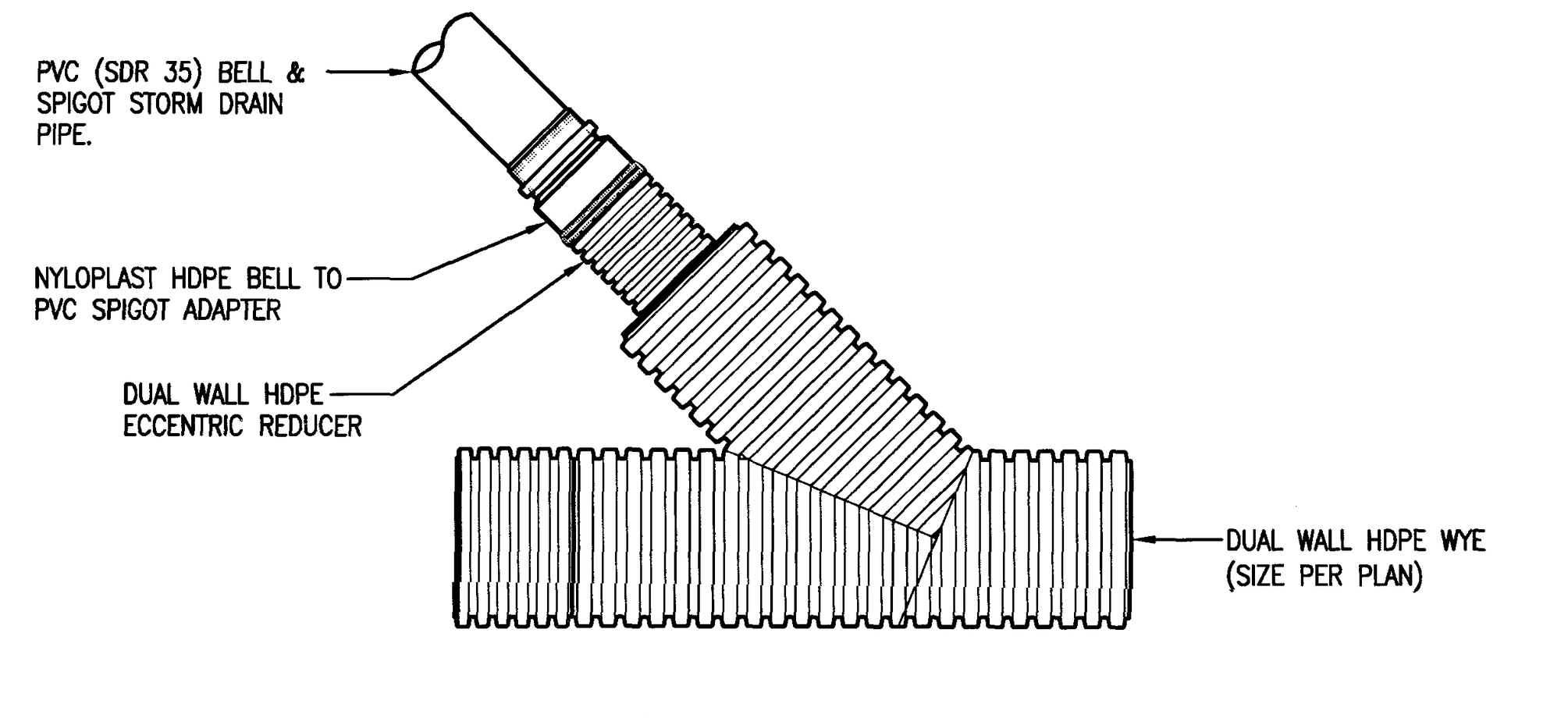
HDPE TO HDPE WYE FITTINGS

SCALE: NONE

WYE / SMOOTH SWEEP RADIUS PIPE FITTINGS 4


NYLOPLAST HDPE BELL TO PVC SPIGOT ADAPTER
DUAL WALL HDPE ECCENTRIC REDUCER
PVC (SDR 35) BELL & SPIGOT STORM DRAIN PIPE.

REDUCER/ADAPTER CONNECTION


PVC (SDR 35) BELL & SPIGOT STORM DRAIN PIPE.
NYLOPLAST HDPE BELL TO PVC SPIGOT ADAPTER
DUAL WALL HDPE ECCENTRIC REDUCER
DUAL WALL HDPE WYE (SIZE PER PLAN)

WYE/ADAPTER CONNECTION

SCALE: NONE

DISSIMILAR PIPE MATERIAL ADAPTERS 2

Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
STORM DRAIN DETAILS

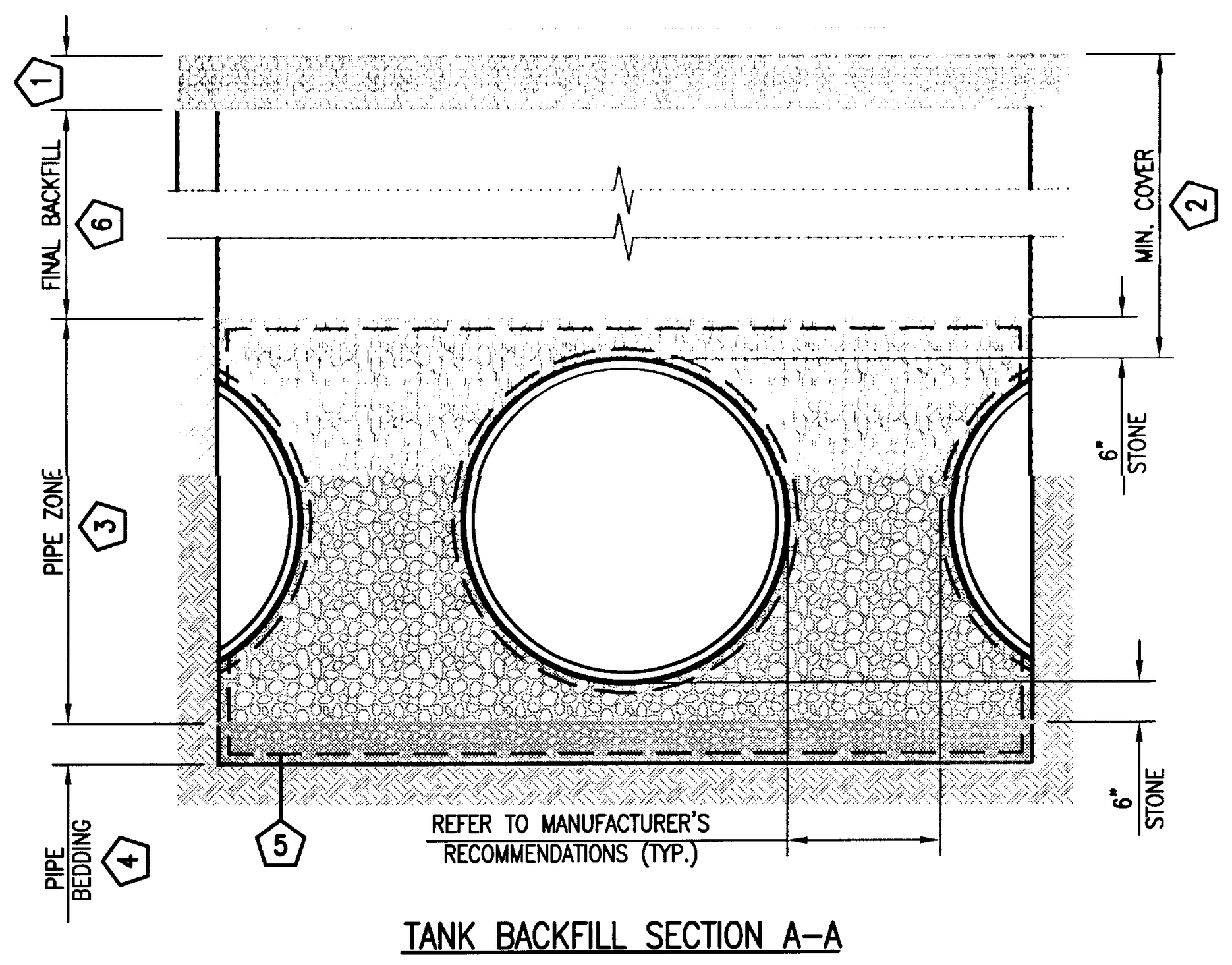
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-32

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-32-SDD.dwg July 13, 2015 - 11:14am Mike Thomas


1
6
FINAL BACKFILL
MIN. COVER
2
3
PIPE ZONE
6" STONE
PIPE BEDDING
4
5
6" STONE
REFER TO MANUFACTURER'S RECOMMENDATIONS (TYP.)

TANK BACKFILL SECTION A–A

KEY:

1. AGGREGATE ROAD BASE PER GRADING PLANS
2. 12" MIN. FOR DIAMETERS THROUGH 96"; 18" MIN. FOR DIAMETERS FROM 102" AND LARGER MEASURED TO TOP OF RIGID OR BOTTOM OF FLEXIBLE PAVEMENT.
3. FREE DRAINING ANGULAR WASHED STONE 3/4" TO 2" PARTICLE SIZE. COMPACT TO MIN. 90% STANDARD DENSITY PER AASHTO T99.
4. WELL GRADED GRANULAR BEDDING, ROUGHLY SHAPED TO FIT THE BOTTOM OF PIPE 4" TO 6" IN DEPTH.
5. CONTECH C-40 NON-WOVEN GEOTEXTILE REQUIRED, WRAPPING TRENCH ONLY.
6. FINAL BACK FILL MATERIAL PLACED IN 8" LIFTS AND COMPACTED TO 90%. PER PROJECT SOILS REPORT, GRADING PLANS AND SPECIFICATIONS.

BACKFILL

THE BACKFILL MATERIAL SHALL BE FREE-DRAINING ANGULAR WASHED STONE ¾"-2" PARTICLE SIZE. MATERIAL SHALL BE PLACED IN 8"-10" MAXIMUM LIFTS. MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL – SLICING, RODDING, AIR-TAMPER, VIBRATORY ROD, OR OTHER EFFECTIVE METHODS COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR, OR UNDER FOOT, AND THE PROJECT ENGINEER OR HIS REPRESENTATIVE IS SATISFIED WITH THE LEVEL OF COMPACTION. INADEQUATE COMPACTION CAN LEAD TO EXCESSIVE DEFLECTIONS WITHIN THE SYSTEM AND SETTLEMENT OF THE SOILS OVER THE SYSTEM. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO-LIFT DIFFERENTIAL BETWEEN THE SIDES OF ANY PIPE IN THE SYSTEM AT ALL TIMES DURING THE BACKFILL PROCESS. BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON ANY PIPES IN THE SYSTEM.

EQUIPMENT USED TO PLACE AND COMPACT THE BACKFILL SHALL BE OF A SIZE AND TYPE SO AS NOT TO DISTORT, DAMAGE, OR DISPLACE THE PIPE. ATTENTION MUST BE GIVEN TO PROVIDING ADEQUATE MINIMUM COVER FOR SUCH EQUIPMENT, AND MAINTAINING BALANCED LOADING ON ALL PIPES IN THE SYSTEM, DURING ALL SUCH OPERATIONS.

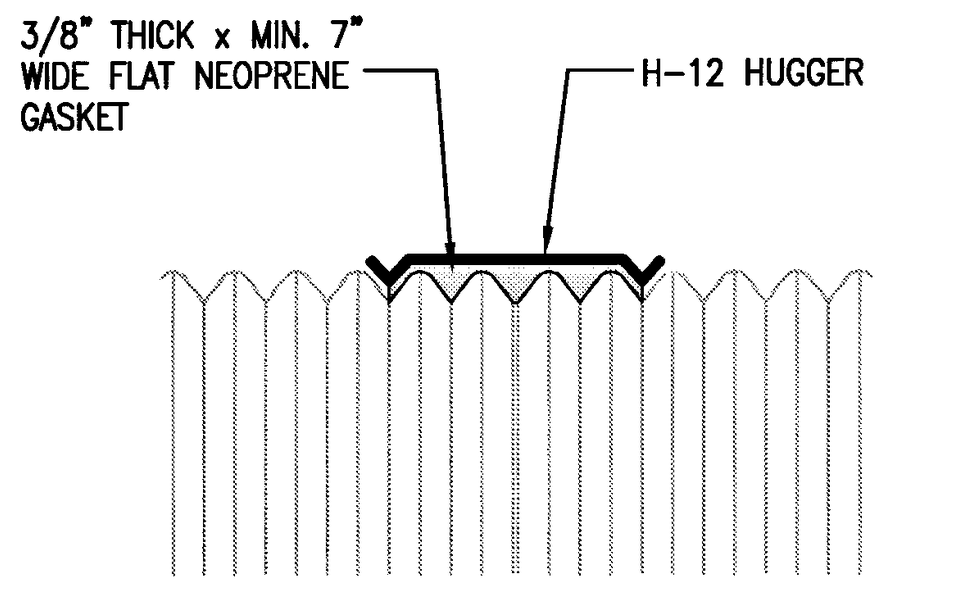
OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS. REFER TO TYPICAL BACKFILL DETAIL FOR MATERIAL REQUIRED.

FOUNDATION/BEDDING PREPARATION

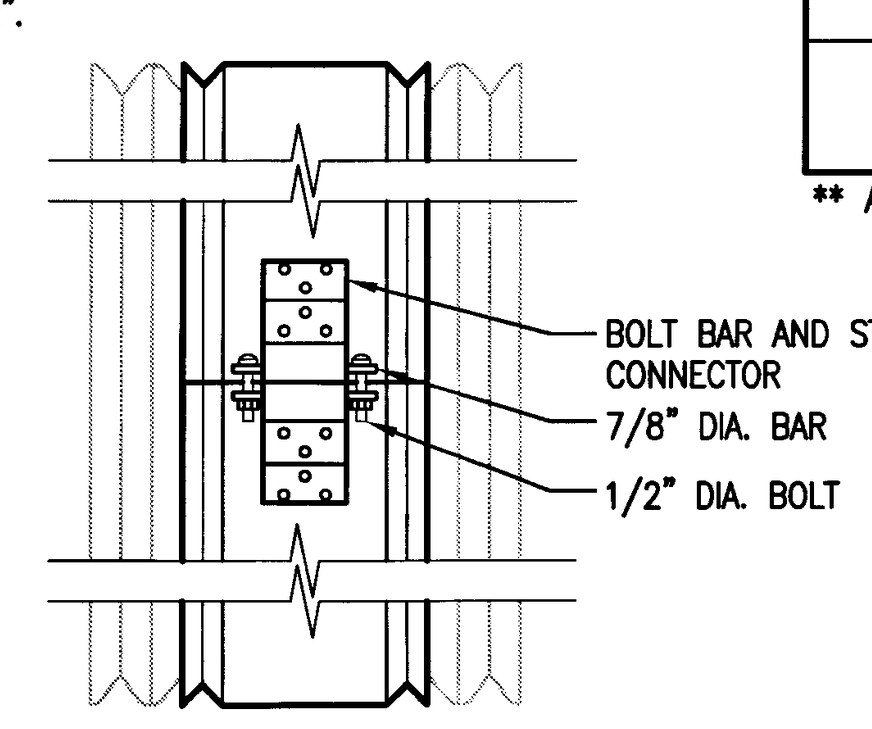
PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE ENGINEER. ONCE THE FOUNDATION PREPARATION IS COMPLETE, THE 4 INCHES OF A WELL-GRADED GRANULAR MATERIAL SHALL BE PLACED AS THE BEDDING.

HUGGER BAND GENERAL NOTES:

1. REFER TO CONTECH BAND SELECTION GUIDE FOR BAND WIDTH, GAGE, AND FASTENER TYPES.
2. BANDS FOR PIPE-ARCH ARE THE SAME AS FOR EQUIVALENT DIAMETER ROUND PIPE.
3. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   12" THRU 48" 1-PIECE
   54" THRU 96" 2-PIECE
   102" THRU 144" 3-PIECES
4. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS.
5. REROLLED ANNULAR END CORRUGATIONS ARE NORMALLY 2-2/3" X 1/2".
6. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.


3/8" THICK x MIN. 7" WIDE FLAT NEOPRENE GASKET
H-12 HUGGER

FLAT GASKET


BOLT BAR AND STRAP CONNECTOR
7/8" DIA. BAR
1/2" DIA. BOLT

HUGGER BAND CONNECTION DETAIL

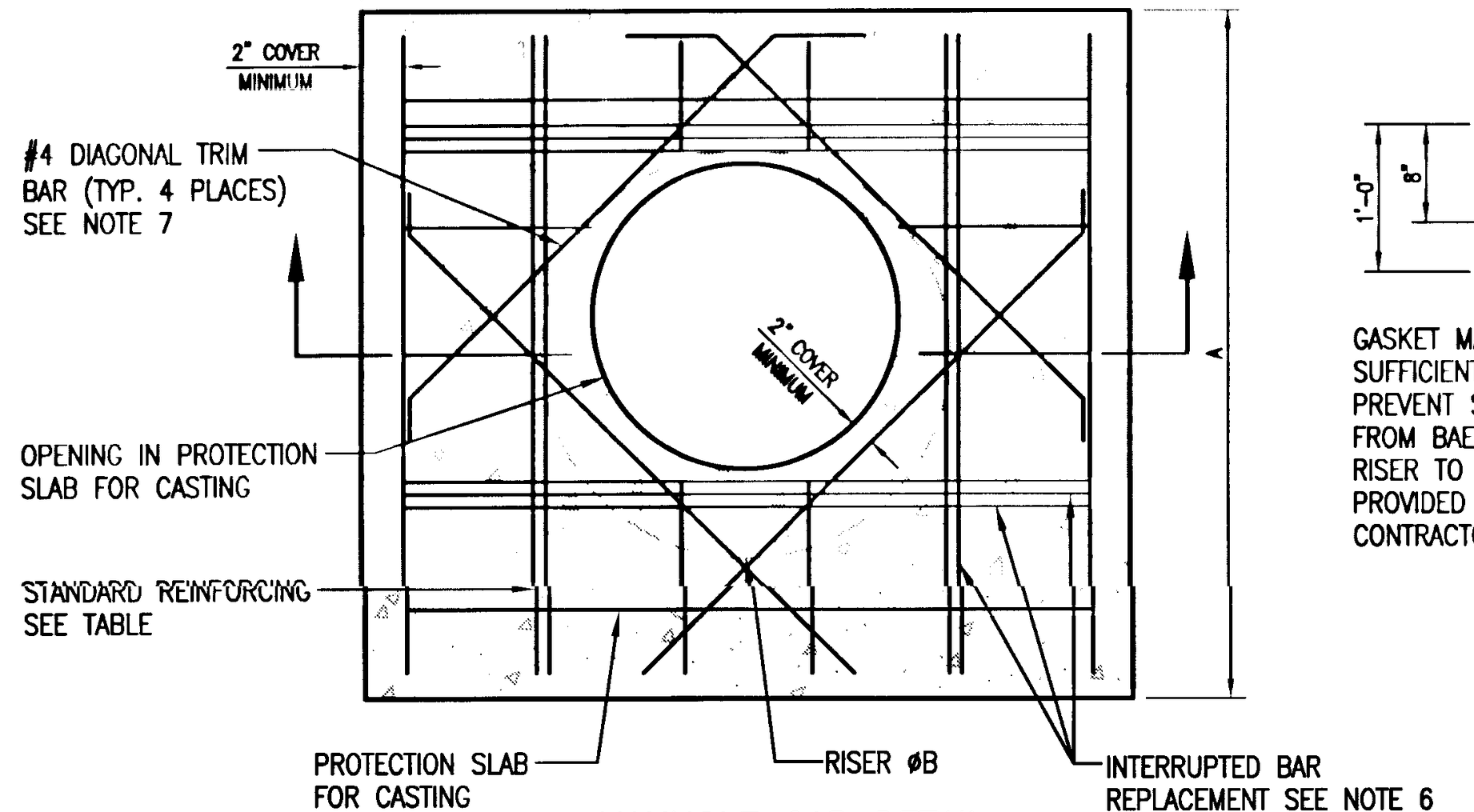
REINFORCING TABLE

ØSRPE RISER	A	Ø B	REINFORCING	**BEARING PRESSURE (PSF)
24"	ø 4' 4' X 4'	26"	#5 @ 12" OCEW #5 @ 12" OCEW	2,410 1,780
30"	ø 4'-6" 4'-6" X 4'-6"	32"	#5 @ 12" OCEW #5 @ 12" OCEW	2,120 1,530
36"	ø 5' 5' X 5'	38"	#5 @ 10" OCEW #5 @ 10" OCEW	1,890 1,350
42"	ø 5'-6" 5'-6" X 5'-6"	44"	#5 @ 10" OCEW #5 @ 9" OCEW	1,720 1,210
48"	ø 6' 6' X 6'	50"	#5 @ 9" OCEW #5 @ 8" OCEW	1,600 1,110

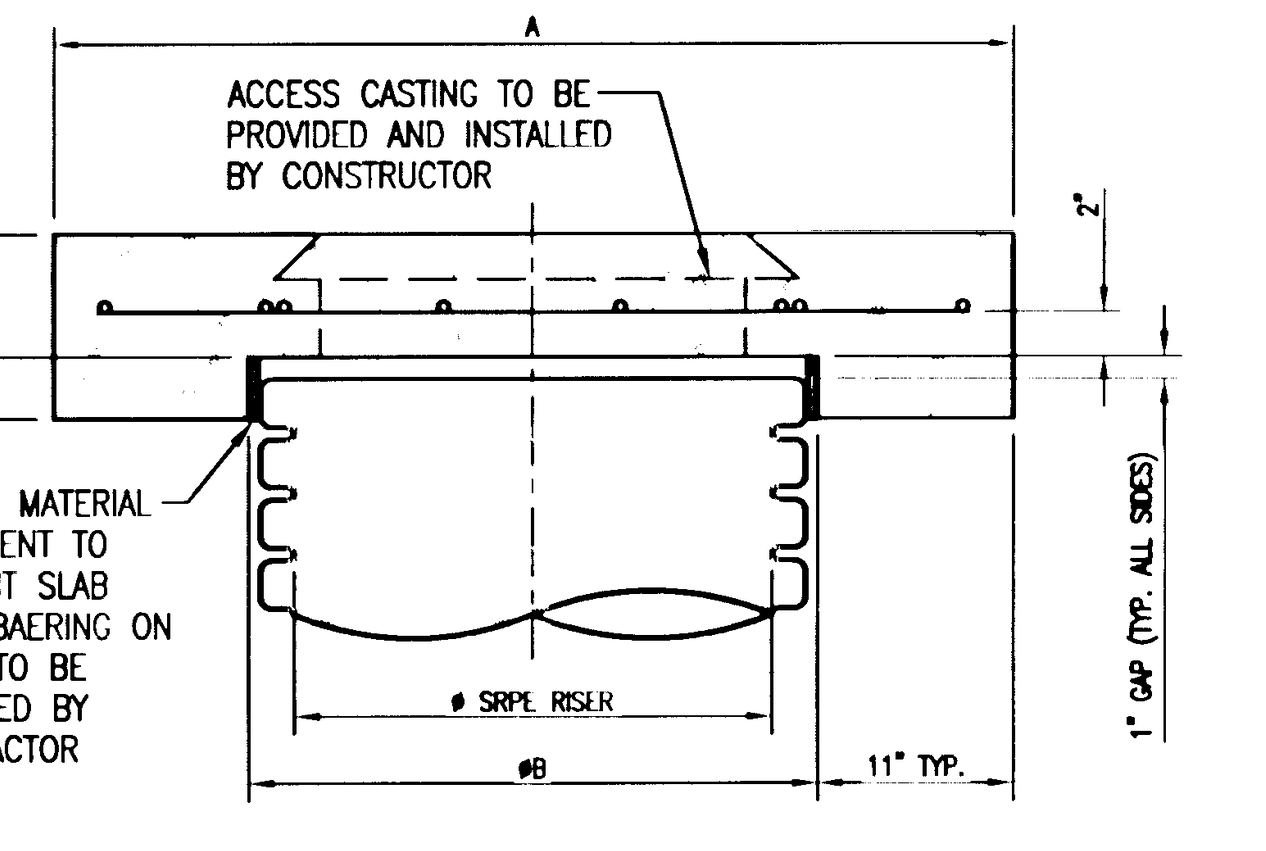
** ASSUMED SOIL BEARING CAPACITY

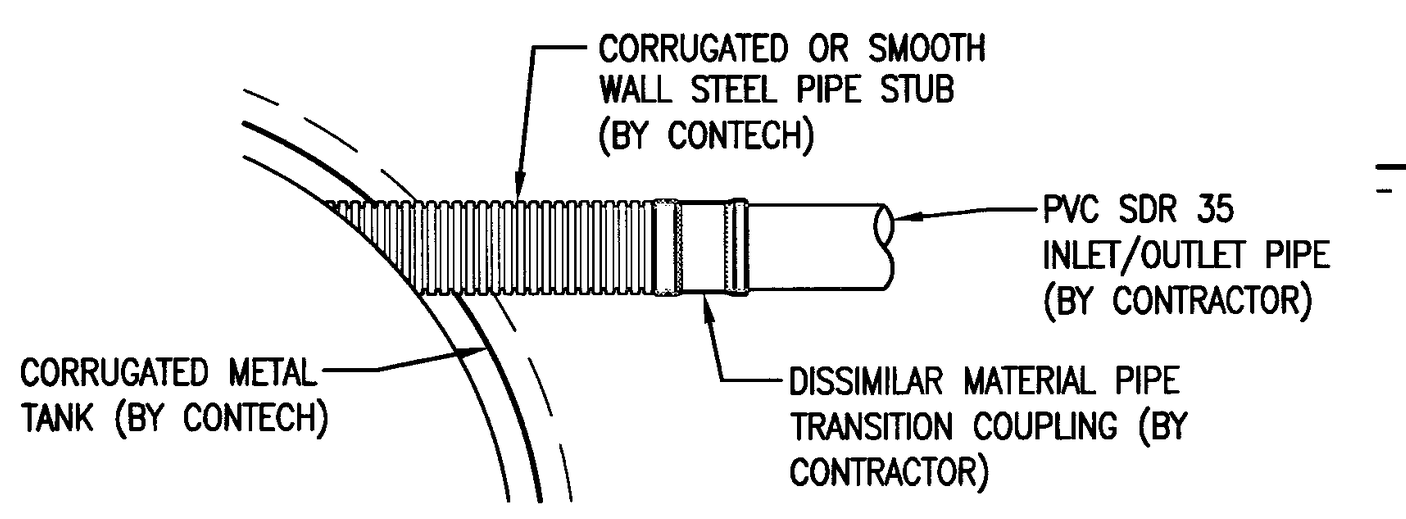
MANHOLE CAP NOTES:

1. DESIGN IN ACCORDANCE WITH AASHTO, 17TH EDITION.
2. DESIGN LOAD HS25,
3. EARTH COVER = 1' MAX.
4. CONCRETE STRENGTH = 4,500 psi, CEMENT TYPE V
5. REINFORCING STEEL = ASTM A615, GRADE 60.
6. PROVIDE ADDITIONAL REINFORCING AROUND OPENINGS EQUAL TO THE BARS INTERRUPTED, HALF EACH SIDE. ADDITIONAL BARS TO BE IN THE SAME PLANE.
7. TRIM OPENING WITH DIAGONAL #4 BARS, EXTEND BARS A MINIMUM OF 12" BEYOND OPENING, BEND BARS AS REQUIRED TO MAINTAIN BAR COVER.
8. PROTECTIVE SLAB AND ALL MATERIALS TO BE PROVIDED AND INSTALLED BY CONTRACTOR.
9. DETAIL DESIGN BY DELTA ENGINEERING, BINGHAMTON, NY.

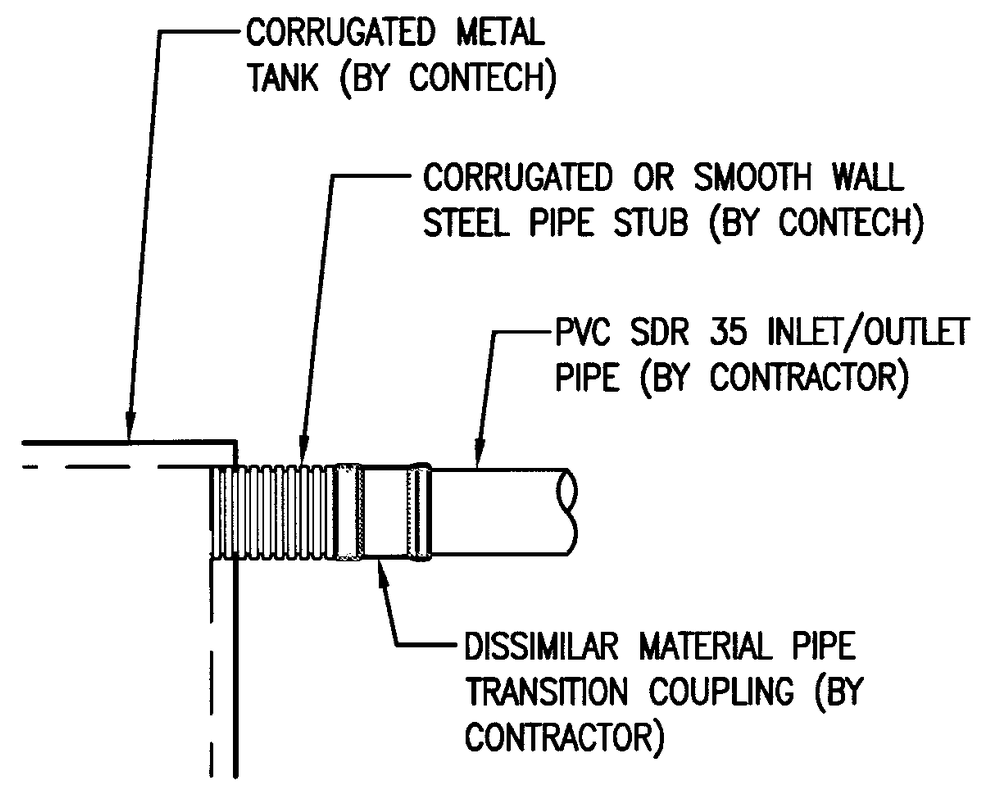

A
2" COVER MINIMUM
#4 DIAGONAL TRIM BAR (TYP. 4 PLACES) SEE NOTE 7
2" COVER MINIMUM
OPENING IN PROTECTION SLAB FOR CASTING
STANDARD REINFORCING SEE TABLE
A
PROTECTION SLAB FOR CASTING
RISER ØB
INTERRUPTED BAR REPLACEMENT SEE NOTE 6

MANHOLE CAP DETAIL

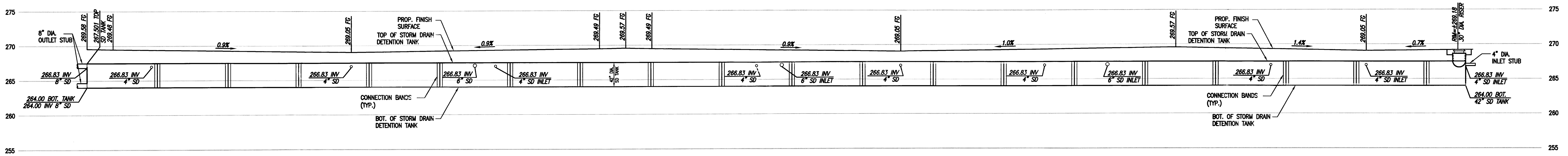

A
ACCESS CASTING TO BE PROVIDED AND INSTALLED BY CONSTRUCTOR
2"
1'-0"
8"
GASKET MATERIAL SUFFICIENT TO PREVENT SLAB FROM BAERING ON RISER TO BE PROVIDED BY CONTRACTOR
ø SRPE RISER
ØB
11" TYP.
1" GAP (TYP. ALL SIDES)


CORRUGATED OR SMOOTH WALL STEEL PIPE STUB (BY CONTECH)
PVC SDR 35 INLET/OUTLET PIPE (BY CONTRACTOR)
CORRUGATED METAL TANK (BY CONTECH)
DISSIMILAR MATERIAL PIPE TRANSITION COUPLING (BY CONTRACTOR)

SIDE CONNECTION INLET DETAIL

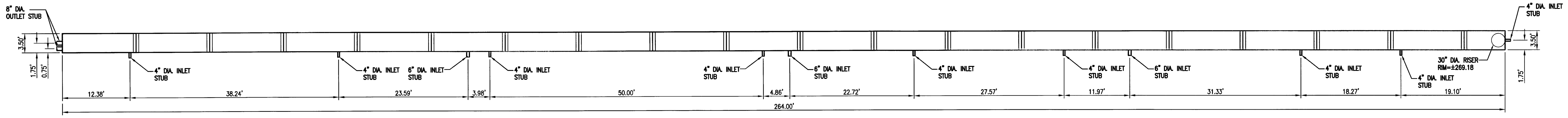

CORRUGATED METAL TANK (BY CONTECH)
CORRUGATED OR SMOOTH WALL STEEL PIPE STUB (BY CONTECH)
PVC SDR 35 INLET/OUTLET PIPE (BY CONTRACTOR)
DISSIMILAR MATERIAL PIPE TRANSITION COUPLING (BY CONTRACTOR)

END CONNECTION INLET/OUTLET DETAIL


275
270
265
260
255
8" DIA. OUTLET STUB
269.58 FG
267.50± TOP 30" TANK
269.48 FG
0.9%
269.05 FG
PROP. FINISH SURFACE
TOP OF STORM DRAIN DETENTION TANK
0.9%
269.49 FG
269.57 FG
269.49 FG
0.9%
269.05 FG
1.0%
269.57 FG
1.4%
269.05 FG
0.7%
RIM=±269.18 30" DIA. RISER
4" DIA. INLET STUB
266.83 INV 4" SD
266.83 INV 6" SD
266.83 INV 4" SD INLET
266.83 INV 6" SD INLET
264.00 BOT. TANK
264.00 INV 8" SD
264.00 BOT. 42" SD TANK
CONNECTION BANDS (TYP.)
BOT. OF STORM DRAIN DETENTION TANK

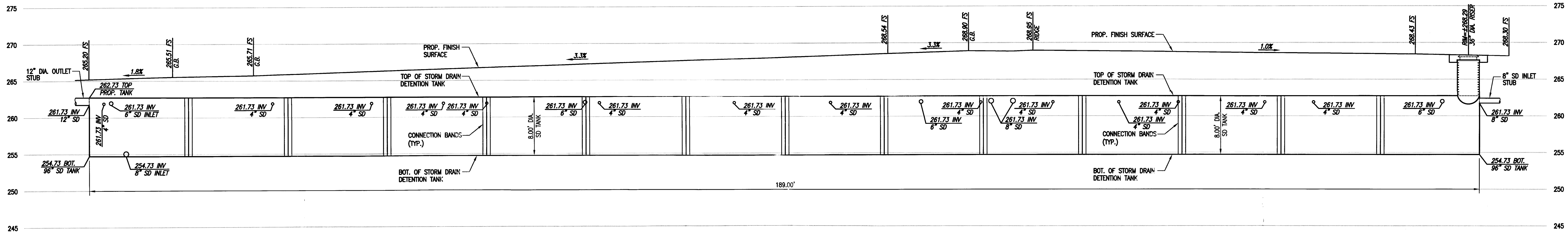
3'-6" DIA. DETENTION TANK "B" ELEVATION

SCALE: 1" = 8' HORIZ. & 1" = 6' VERT.


8" DIA. OUTLET STUB
3.50'
1.75'
0.75'
4" DIA. INLET STUB
6" DIA. INLET STUB
30" DIA. RISER RIM=±269.18
3.50'
1.75'
12.38'
38.24'
23.59'
3.98'
50.00'
4.86'
22.72'
27.57'
11.97'
31.33'
18.27'
19.10'
264.00'

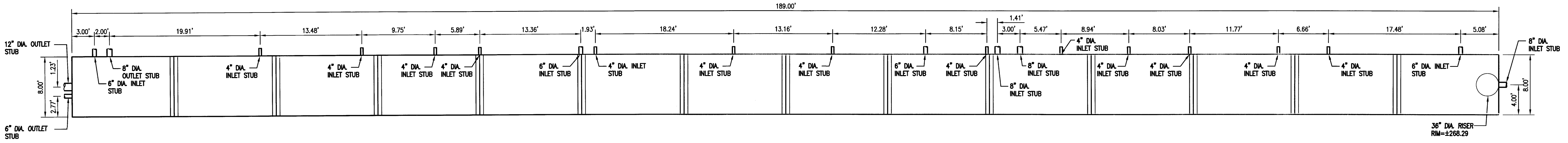
3'-6" DIA. DETENTION TANK "B" PLAN VIEW (VOL=2540 C.F.)

SCALE: 1" = 8'


275
270
265
260
255
250
245
12" DIA. OUTLET STUB
265.20 FS
1.8%
266.51 FS
268.71 FS
PROP. FINISH SURFACE
3.3%
268.54 FS
3.3%
268.90 FS
268.95 FS RIDGE
PROP. FINISH SURFACE
1.0%
268.43 FS
RIM=±268.29 36" DIA. RISER
268.30 FS
262.73 TOP PROP. TANK
TOP OF STORM DRAIN DETENTION TANK
8" SD INLET STUB
261.73 INV 12" SD
261.73 INV 6" SD INLET
261.73 INV 4" SD
261.73 INV 6" SD
261.73 INV 8" SD
8.00' DIA. SD TANK
CONNECTION BANDS (TYP.)
254.73 BOT. 96" SD TANK
254.73 INV 8" SD INLET
BOT. OF STORM DRAIN DETENTION TANK
189.00'

8'-0" DIA. DETENTION TANK "D" ELEVATION

SCALE: 1" = 6'


189.00'
3.00'
2.00'
19.91'
13.48'
9.75'
5.89'
13.36'
1.93'
18.24'
13.16'
12.28'
8.15'
1.41'
3.00'
5.47'
8.94'
8.03'
11.77'
6.66'
17.48'
5.08'
12" DIA. OUTLET STUB
8" DIA. OUTLET STUB
6" DIA. INLET STUB
4" DIA. INLET STUB
6" DIA. INLET STUB
8" DIA. INLET STUB
1.23'
8.00'
2.77'
4.00'
8.00'
6" DIA. OUTLET STUB
36" DIA. RISER RIM=±268.29

8'-0" DIA. DETENTION TANK "D" PLAN VIEW (VOL=9500 C.F.)

SCALE: 1" = 6'

TYPICAL CMP STANDARD DETAILS AND SITE SPECIFIC DETENTION TANK CONFIGURATIONS

1

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
James H. Kawamura

SHEET DESCRIPTION:
STORM DRAIN DETAILS

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

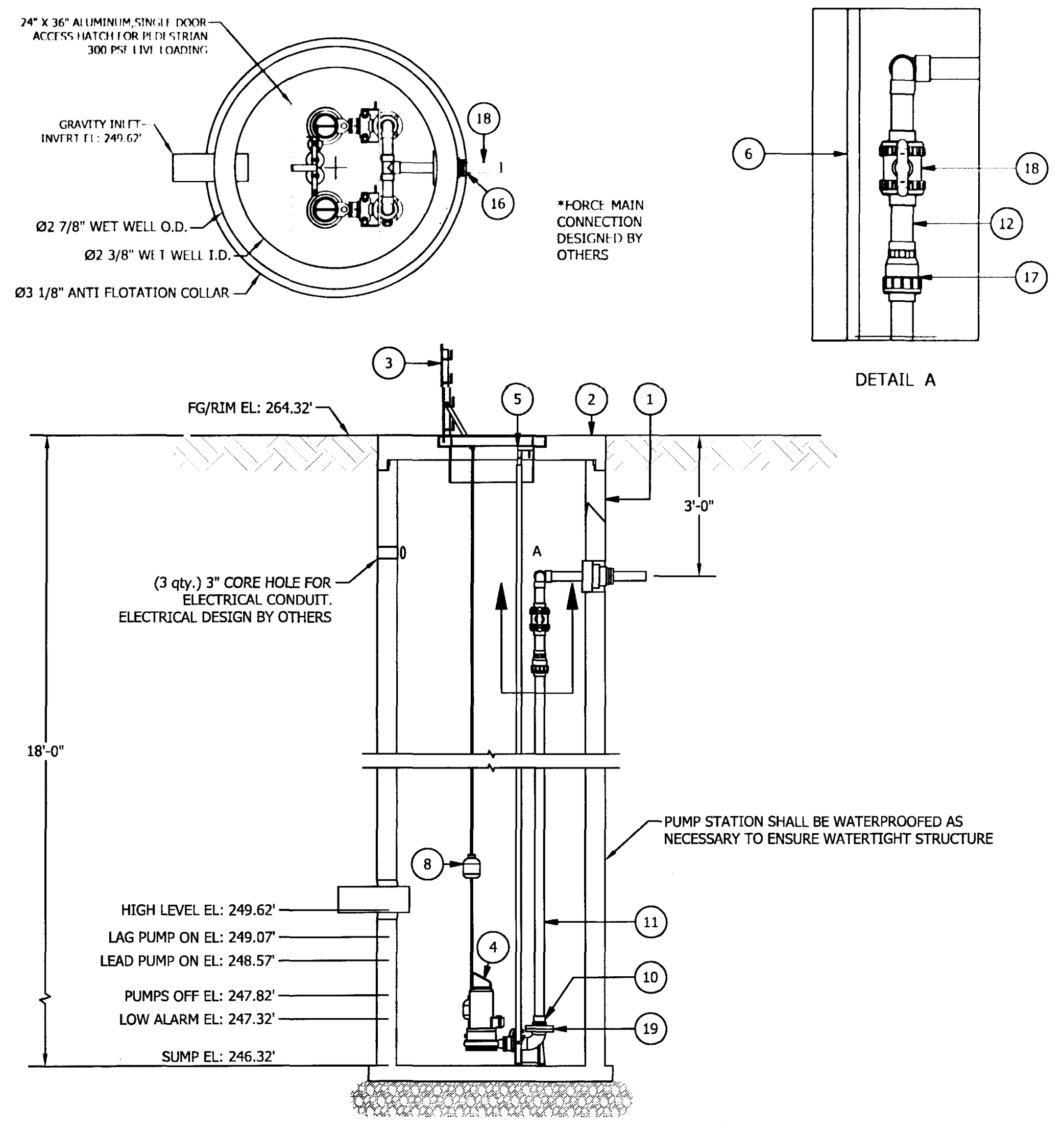
PROJECT NUMBER
5275032

SHEET NO.
C-33

r:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-33-SDD.dwg July 1, 2015 - 11:17am Mike Thomas

PARTS LIST		
ITEM	QTY	DESCRIPTION
1	1	JENSEN PRECAST 48" DIA. MANHOLE X 18'-0" DEPTH RIM TO SUMP, ENSURE WATERTIGHT STRUCTURE
2	1	JENSEN PRECAST 48" DIA MANHOLE FLAT TOP
3	1	24" X 36" ALUMINUM, SINGLE DOOR ACCESS HATCH FOR PEDESTRIAN 300 PSF LIVE LOADING, CAST FLUSH IN FLAT TOP
4	2	HOMA GRP10/3 SUBMERSIBLE GRINDER PUMP WITH AUTOCOUPLING
5	2	1" 304SS UPPER GUIDE RAIL BRACKET
6	4	1" DIA 304SS GUIDE RAIL PIPE
7	1	SS FLOAT BRACKET W/ CORD GRIPS
8	2	NON-MERCURY, INTRINSICALLY SAFE FLOAT SWITCH
9	1	PRESSURE TRANSDUCER
10	2	2.5" X 2.0" SCH80 PVC REDUCER
11	2	2" SCH80 PVC PIPE CUT TO REQUIRED LENGTH
12	6	2" SCH80 PVC PIPE 4"
13	1	6" PVC SCH80 PIPE 24"
14	2	2" PVC SCH80 90DEG ELBOW
15	1	2" PVC SCH80 TEE
16	1	FLEXIBLE PIPE CONNECTOR MEETS ASTM A-923
17	2	2" Ball Check Valve BY ASAHI
18	2	2" PVC SCH80 PLUG VALVE BY ASAHI
19	2	2.5" SCH80 PVC FLG X SLP

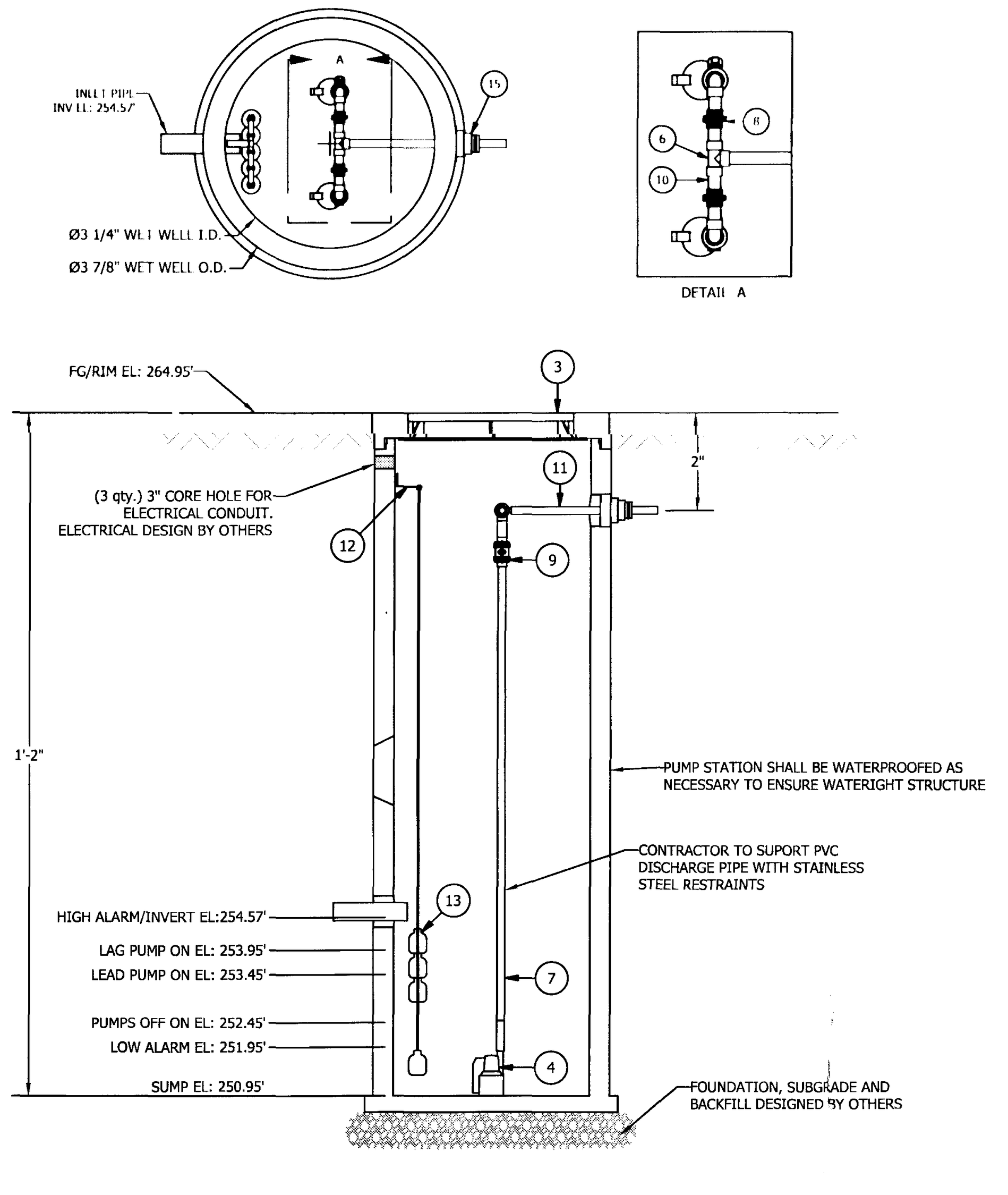
SYSTEM CHARACTERISTICS	
DESCRIPTION	VALUE
DUTY POINT	30.5gpm @ 18.1' TDH
MANUFACTURER	HOMA
MODEL NUMBER	GRP10/3 FM
PUMP TYPE	SUBMERSIBLE GRINDER PUMP
MOTOR SIZE	0.8 hp , 3.2 A
MAX PUMP RUN SPEED	3450 rpm
AVAILBLE POWER	230 V , 3 Ph
WET WELL LINER/COATING	AS NEEDED FOR WATERTIGHT STRUCTURE
ACCESS HATCH LOADING CRITERIA	PEDESTRIAN


24" X 36" ALUMINUM,SINGLE DOOR ACCESS HATCH FOR PEDESTRIAN 300 PSF LIVE LOADING
GRAVITY INLET INVERT EL: 249.62'
Ø2 7/8" WET WELL O.D.
Ø2 3/8" WET WELL I.D.
Ø3 1/8" ANTI FLOTATION COLLAR
18
16
*FORCE MAIN CONNECTION DESIGNED BY OTHERS
6
18
12
17
DETAIL A
3
5
2
1
FG/RIM EL: 264.32'
3'-0"
A
(3 qty.) 3" CORE HOLE FOR ELECTRICAL CONDUIT. ELECTRICAL DESIGN BY OTHERS
18'-0"
PUMP STATION SHALL BE WATERPROOFED AS NECESSARY TO ENSURE WATERTIGHT STRUCTURE
8
HIGH LEVEL EL: 249.62'
LAG PUMP ON EL: 249.07'
LEAD PUMP ON EL: 248.57'
PUMPS OFF EL: 247.82'
LOW ALARM EL: 247.32'
SUMP EL: 246.32'
11
4
10
19

PUMP STATION "A" SECTION ELEVATION

PARTS LIST		
ITEM	QTY	DESCRIPTION
1	1	JENSEN PRECAST 48" DIA MANHOLE X 14'-0" RIM TO SUMP, ENSURE WATERTIGHT STRUCTURE
2	1	JENSEN PRECAST 48" DIA MANHOLE FLAT TOP
3	1	36" RIM AND COVER
4	2	MYERS S40HT SERIES SUBMERSIBLE SUMP PUMP WITH FLOOR STAND
5	2	1.5" PVC SCH80 90DEG ELBOW
6	1	1.5" PVC SCH80 TEE
7	2	1.5" SCH80 PVC PIPE CUT TO REQUIRED LENGTH
8	2	1.5" PVC UNION
9	2	1.5" PVC SCH80 BALL VALVE BY ASAHI
10	4	1.5" PVC SCH80 PIPE 4"
11	1	1.5" PVC SCH80 PIPE 24"
12	1	304SS FLOAT BRACKET
13	5	NON-MERCURY, INTRINSICALLY SAFE FLOAT SWITCH
14	1	INLET PIPE
15	1	FLEXIBLE PIPE CONNECTOR MEETS ASTM A-923

SYSTEM CHARACTERISTICS	
DESCRIPTION	VALUE
DUTY POINT	10gpm @ 10' TDH
MANUFACTURER	MYERS
MODEL NUMBER	S40HT
PUMP TYPE	SUBMERSIBLE SUMP PUMP
MOTOR SIZE	0.5 hp ,12 A
MAX PUMP RUN SPEED	3450 rpm
AVAILBLE POWER	115 V , 1 Ph
WET WELL LINER/COATING	AS NEEDED FOR WATERTIGHT STRUCTURE
ACCESS HATCH LOADING CRITERIA	PEDESTRIAN

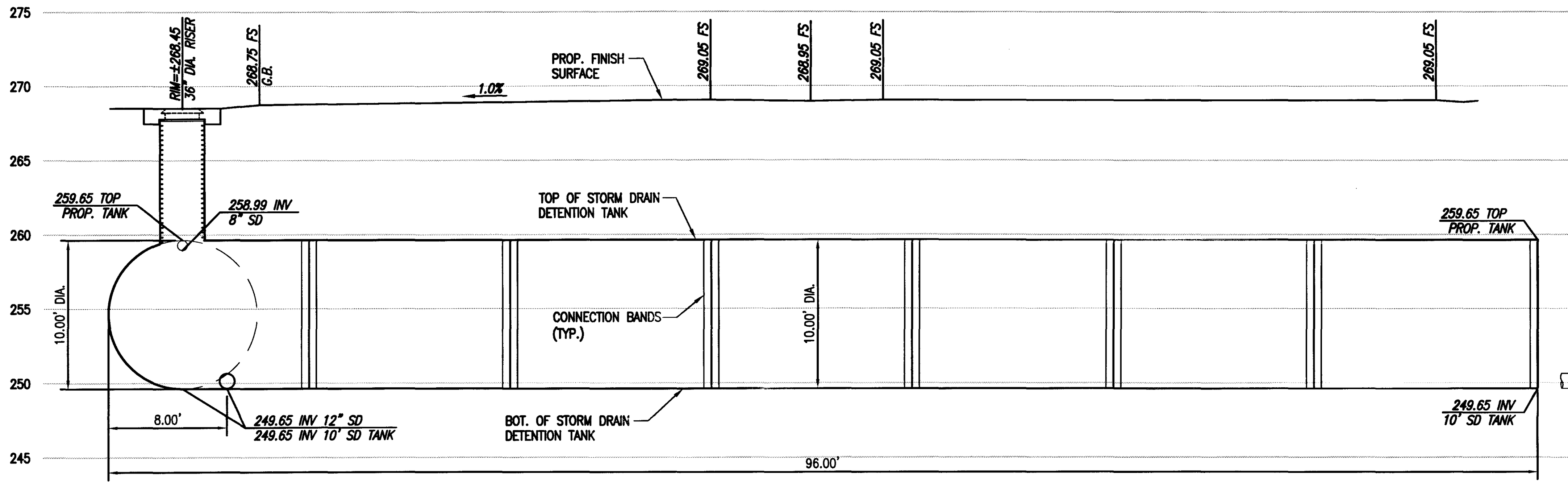

INLET PIPE INV EL: 254.57'
A
15
Ø3 1/4" WET WELL I.D.
Ø3 7/8" WET WELL O.D.
8
6
10
DETAIL A
FG/RIM EL: 264.95'
3
2"
11
(3 qty.) 3" CORE HOLE FOR ELECTRICAL CONDUIT. ELECTRICAL DESIGN BY OTHERS
12
9
1'-2"
PUMP STATION SHALL BE WATERPROOFED AS NECESSARY TO ENSURE WATERIGHT STRUCTURE
CONTRACTOR TO SUPORT PVC DISCHARGE PIPE WITH STAINLESS STEEL RESTRAINTS
13
HIGH ALARM/INVERT EL:254.57'
LAG PUMP ON EL: 253.95'
LEAD PUMP ON EL: 253.45'
PUMPS OFF ON EL: 252.45'
LOW ALARM EL: 251.95'
SUMP EL: 250.95'
7
4
FOUNDATION, SUBGRADE AND BACKFILL DESIGNED BY OTHERS

PUMP STATION "B" SECTION ELEVATION

DISCLAIMERS, INCLUDING BUT NOT LIMITED TO:
1.) Elevations provided by others. Changes greater than 0.1' require engineer approval. Field elevations have not been verified by Jensen Precast. Refer to Jensen Precast concrete production drawings for concrete excavation. These mechanical drawings are not intended for setting of precast structures.
2.) Pump station design characteristics such as, but not limited to; inflow rate, on-site power availability, etc., were provided by the engineer of record.
3.) Purchasing agent must verify pump station complies with engineering plans, specifications, and site conditions prior to production.
4.) Site assembly required. Purchasing agent is responsible for assembly of entire pump station. Includes but is not limited to; off-loading & setting of concrete material, piping assembly, and electrical wiring.
5.) Location of control panel must be disclosed to Jensen Precast.

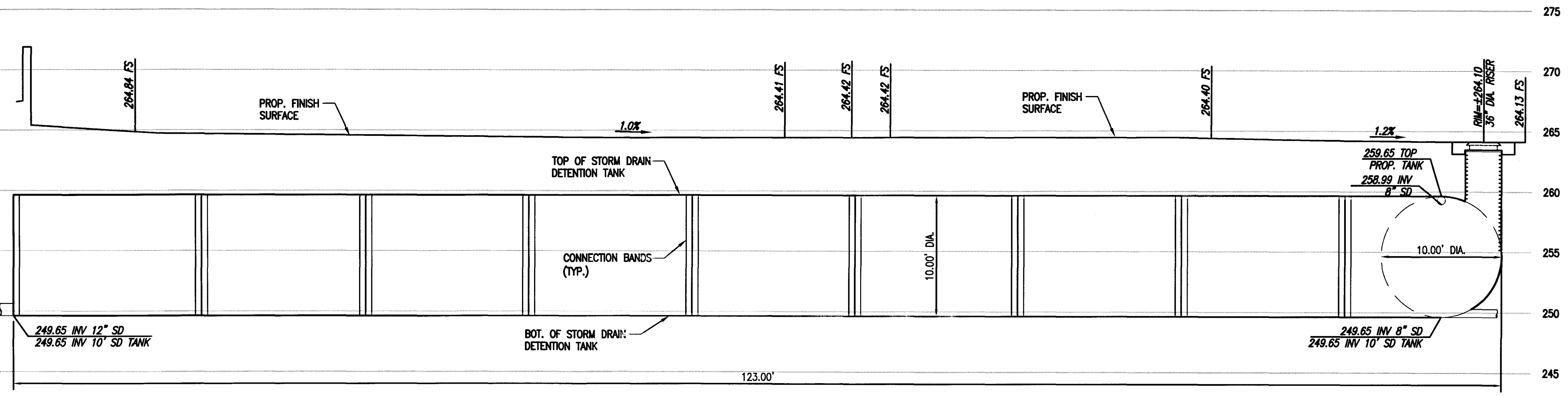
STORM DRAIN PUMP STATIONS "A" & "B" DETAIL

1


275
270
265
260
255
250
245
240
RIM=±268.45 36" DIA. RISER
268.75 FS G.B.
PROP. FINISH SURFACE
1.0%
269.05 FS
268.95 FS
269.05 FS
269.05 FS
259.65 TOP PROP. TANK
258.99 INV 8" SD
TOP OF STORM DRAIN DETENTION TANK
259.65 TOP PROP. TANK
10.00' DIA.
CONNECTION BANDS (TYP.)
10.00' DIA.
8.00'
249.65 INV 12" SD
249.65 INV 10' SD TANK
BOT. OF STORM DRAIN DETENTION TANK
249.65 INV 10' SD TANK
96.00'

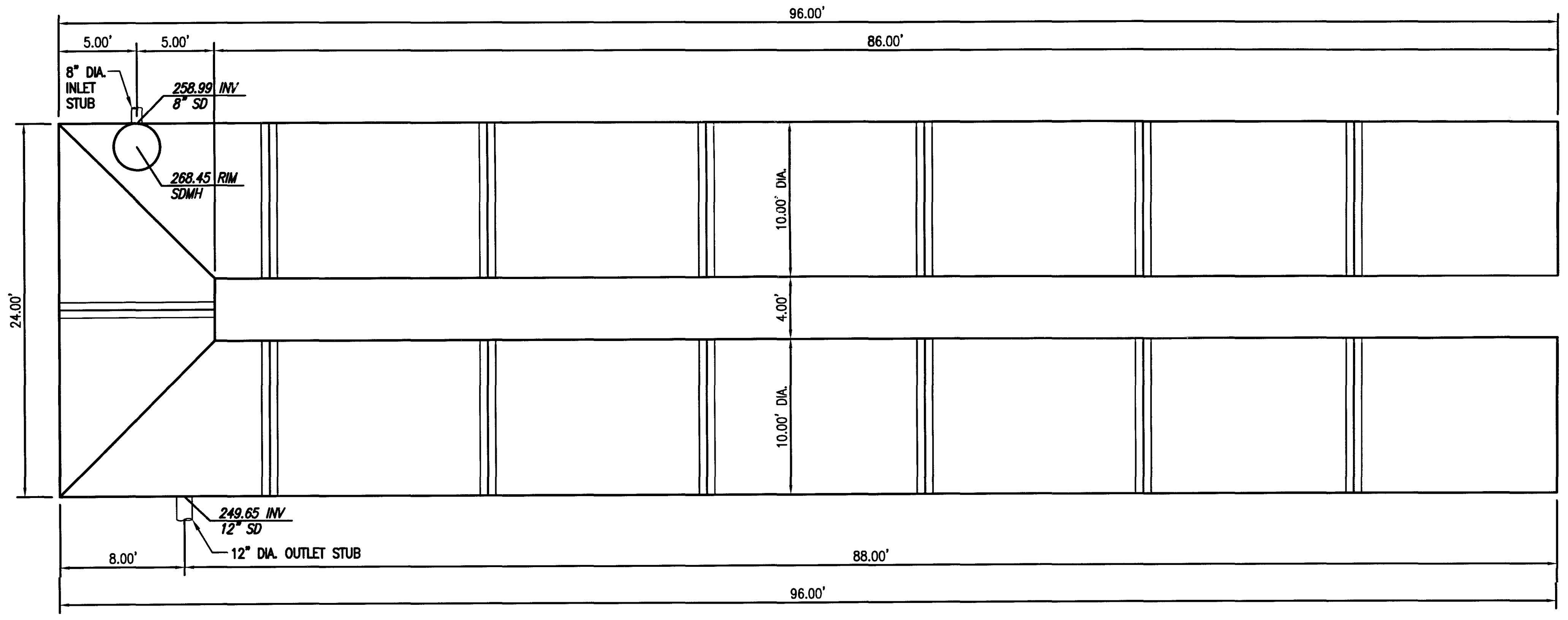
10'-0" DIA. DETENTION TANK "A" ELEVATION

SCALE: 1" = 6'


275
270
265
260
255
250
245
240
264.84 FS
PROP. FINISH SURFACE
1.0%
264.41 FS
264.42 FS
264.42 FS
PROP. FINISH SURFACE
264.40 FS
1.2%
RIM=±264.10 36" DIA. RISER
264.13 FS
TOP OF STORM DRAIN DETENTION TANK
259.65 TOP PROP. TANK
258.99 INV 8" SD
CONNECTION BANDS (TYP.)
10.00' DIA.
10.00' DIA.
249.65 INV 12" SD
249.65 INV 10' SD TANK
BOT. OF STORM DRAIN DETENTION TANK
249.65 INV 8" SD
249.65 INV 10' SD TANK
123.00'

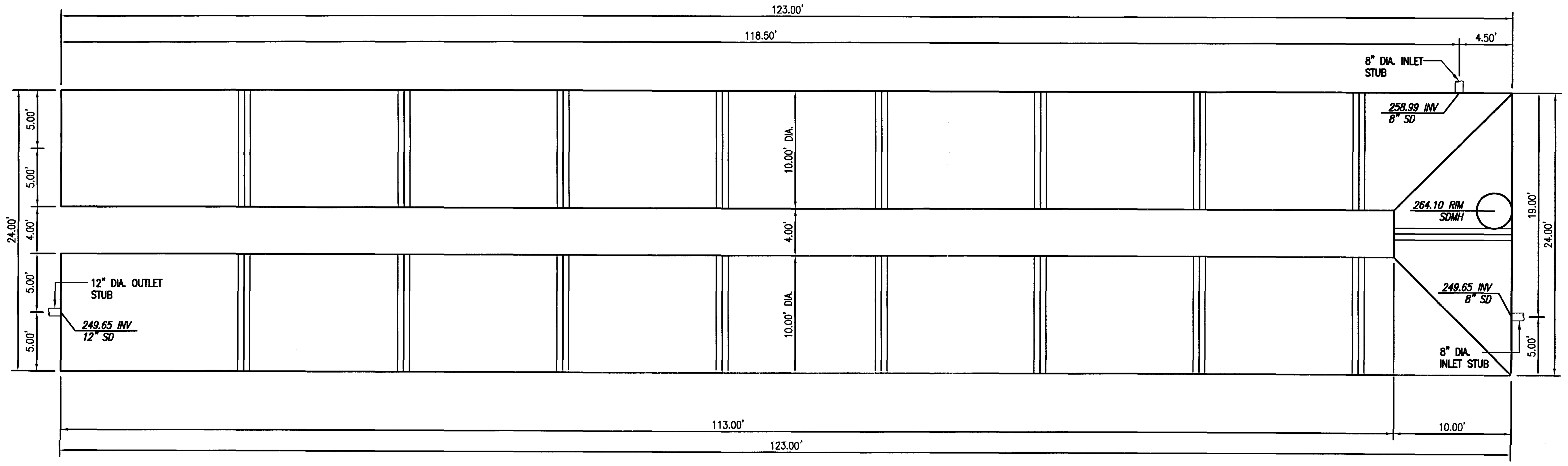
10'-0" DIA. DETENTION TANK "C" ELEVATION

SCALE: 1" = 6'


96.00'
5.00'
5.00'
86.00'
8" DIA. INLET STUB
258.99 INV 8" SD
268.45 RIM SDMH
10.00' DIA.
4.00'
10.00' DIA.
24.00'
249.65 INV 12" SD
12" DIA. OUTLET STUB
8.00'
88.00'
96.00'

10'-0" DIA. DETENTION TANK "A" PLAN VIEW (VOL=15,394 C.F.)

SCALE: 1" = 6'


123.00'
118.50'
4.50'
8" DIA. INLET STUB
258.99 INV 8" SD
5.00'
5.00'
10.00' DIA.
4.00'
10.00' DIA.
24.00'
5.00'
5.00'
264.10 RIM SDMH
19.00'
24.00'
12" DIA. OUTLET STUB
249.65 INV 12" SD
249.65 INV 8" SD
8" DIA. INLET STUB
5.00'
113.00'
10.00'
123.00'

10'-0" DIA. DETENTION TANK "C" PLAN VIEW (VOL=19,635 C.F.)

SCALE: 1" = 6'

SITE SPECIFIC DETENTION TANK CONFIGURATIONS

1

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS			
NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
STORM DRAIN DETAILS

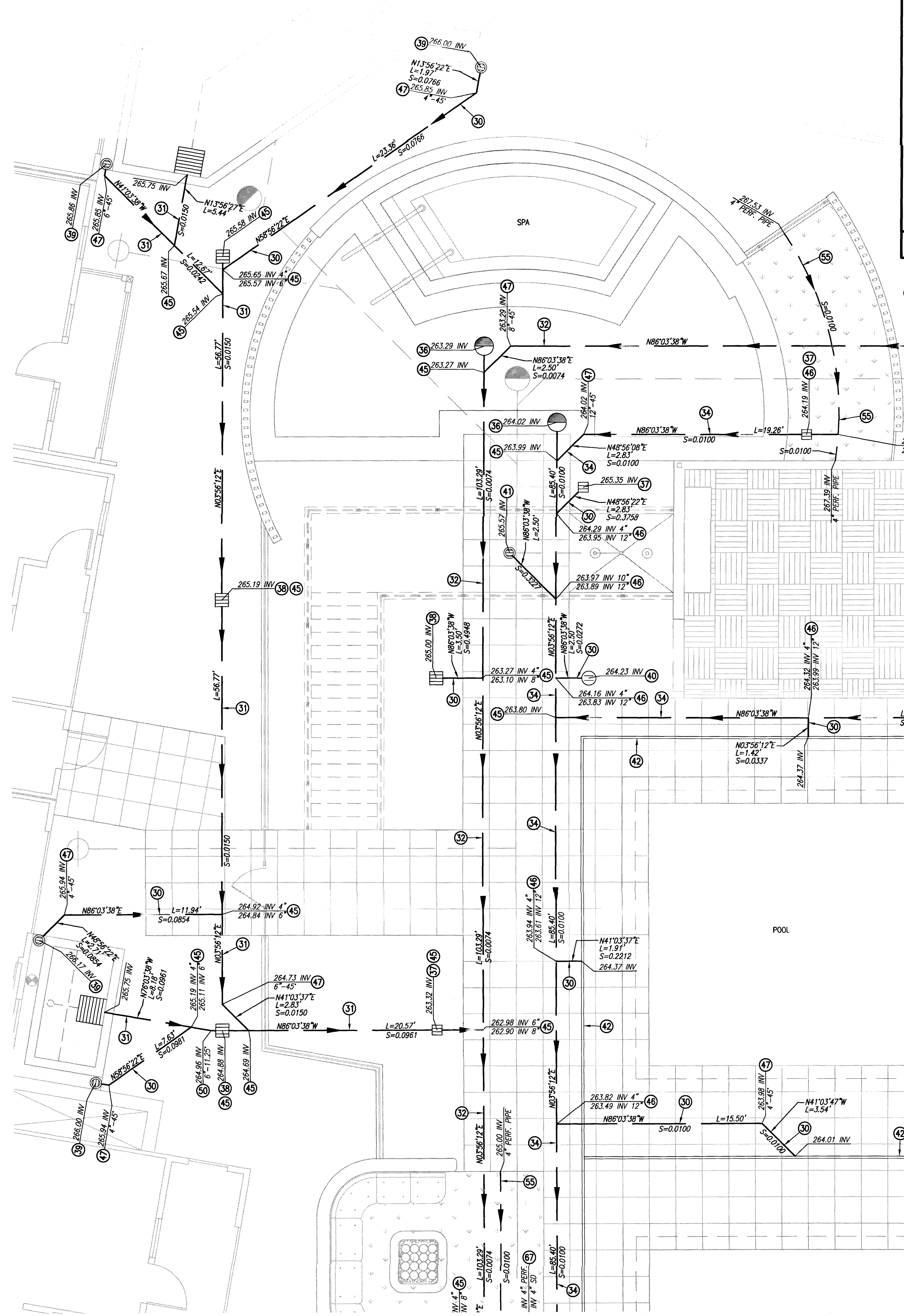
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

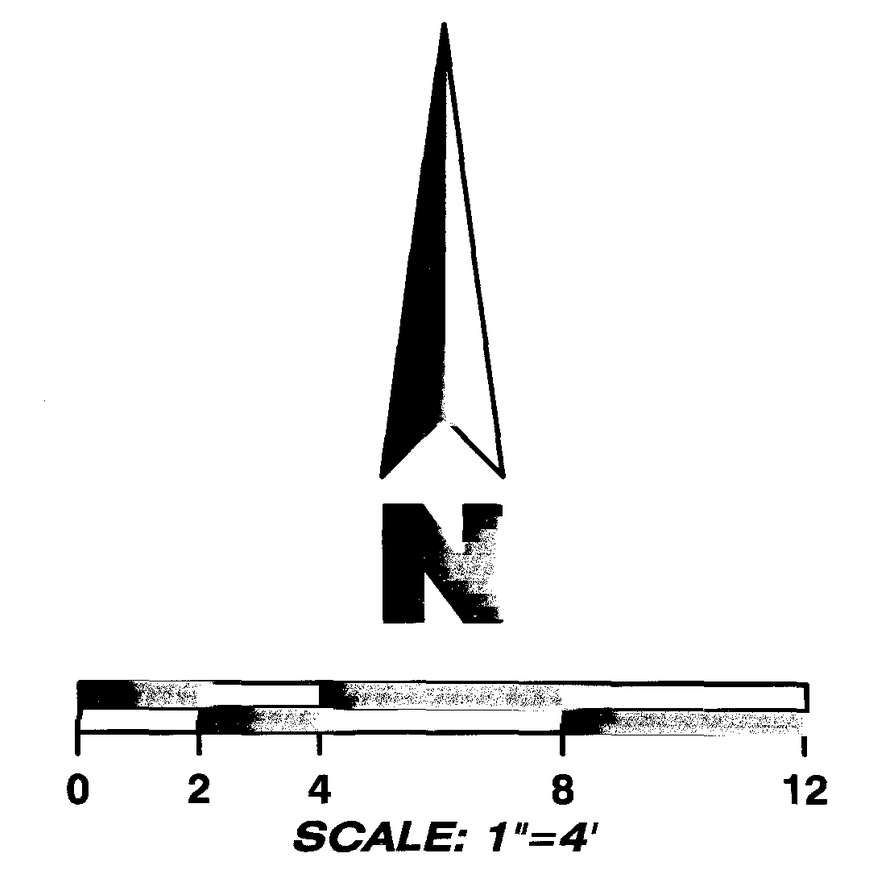
PROJECT NUMBER
5275032

SHEET NO.
C-34

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-34-SDD.dwg July 08, 2015 - 11:30am Cesar


39 266.00 INV
N13°56'22"E L=1.97' S=0.0766
47 265.85 INV 4"-45°
30
L=23.36' S=0.0766
SPA
265.75 INV
N13°56'27"E L=5.44'
265.86 INV 39
265.85 INV 6"-45° 47
N41°03'38"W
31
S=0.0150
265.58 INV 45
N58°56'22"E
30
L=12.67' S=0.0242
265.65 INV 4" 265.57 INV 6" 45
265.67 INV 45
265.54 INV 45
31
L=56.77' S=0.0150
N03°56'12"E
47 263.29 INV 8"-45°
32
36 263.29 INV
45 263.27 INV
N86°03'38"E L=2.50' S=0.0074
N86°03'38"W
264.02 INV 12"-45° 47
36 264.02 INV
45 263.99 INV
N48°56'08"E L=2.83' S=0.0100
34
N86°03'38"W S=0.0100
L=19.26'
265.35 INV 37
N48°56'22"E L=2.83' S=0.3758
30
264.29 INV 4" 263.95 INV 12" 46
41 265.57 INV
N86°03'38"W L=2.50'
S=0.3227
263.97 INV 10" 263.89 INV 12" 46
L=103.29' S=0.0074
L=85.40' S=0.0100
32
265.00 INV 38
N86°03'38"W L=3.50' S=0.4948
265.19 INV 38 45
263.27 INV 4" 263.10 INV 8" 45
N03°56'12"E
N86°03'38"W L=2.50' S=0.0272
30
264.23 INV 40
264.16 INV 4" 263.83 INV 12" 46
34
45 263.80 INV
267.53 INV 4" PERF. PIPE
55
S=0.0100
37 46 264.19 INV
267.39 INV 4" PERF. PIPE
55
267.37 INV 4" PERF. 264.22 INV 4" SD 58 67
46 264.32 INV 4" 263.99 INV 12"
N86°03'38"W
30
N03°56'12"E L=1.42' S=0.0337
264.37 INV
42
L=81.60' S=0.0100
L=56.77'
31
S=0.0150
47 265.94 INV 4"-45°
N86°03'38"E
30
L=11.94' S=0.0854
264.92 INV 4" 264.84 INV 6" 45
N48°56'22"E L=2.71' S=0.0854
266.17 INV 39
265.75 INV
N76°03'38"W L=8.18' S=0.0961
31
264.73 INV 6"-45° 47
N41°03'37"E L=2.83' S=0.0150
265.19 INV 4" 265.11 INV 6" 45
N86°03'38"W
L=20.57' S=0.0961
263.32 INV 37 45
262.98 INV 6" 262.90 INV 8" 45
L=7.63' S=0.0981
264.96 INV 6"-11.25° 50
264.88 INV 38 45
264.69 INV 45
N58°56'22"E
30
266.00 INV 39
265.94 INV 4"-45° 47
32
34
46 263.94 INV 4" 263.61 INV 12"
N41°03'37"E L=1.91' S=0.2212
264.37 INV
30
42
POOL
263.82 INV 4" 263.49 INV 12" 46
N86°03'38"W S=0.0100
L=15.50'
47 263.98 INV 4"-45°
N41°03'47"W L=3.54'
S=0.0100
30
264.01 INV
265.00 INV 4" PERF. PIPE
55
45
67 INV 4" PERF. INV 4" SD
34

SEE SHEET 30, DETAIL 2 FOR CONITINUATION

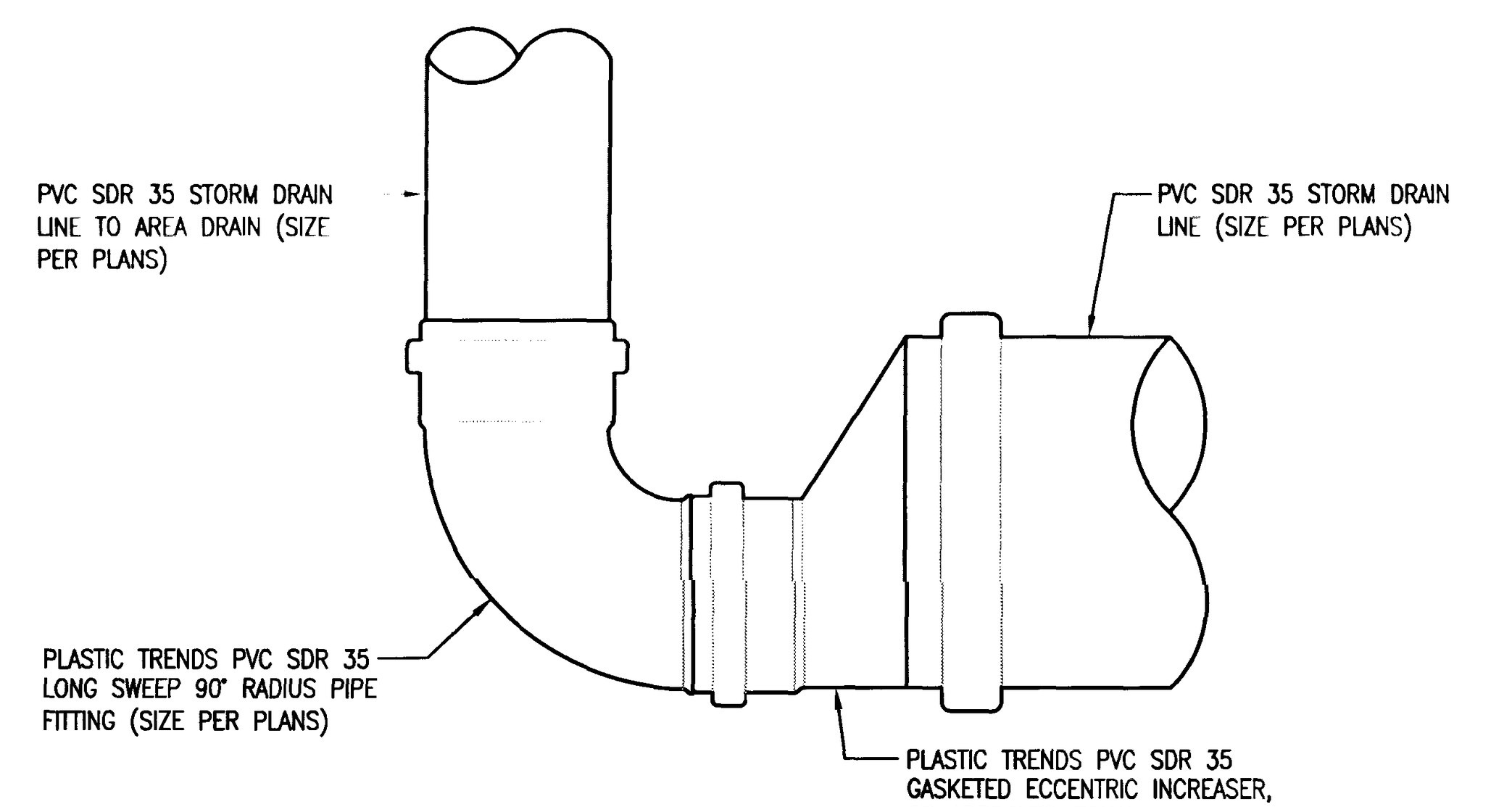

N
0
2
4
8
12
SCALE: 1"=4'

SCALE: NONE

STORM DRAIN DETAIL 4

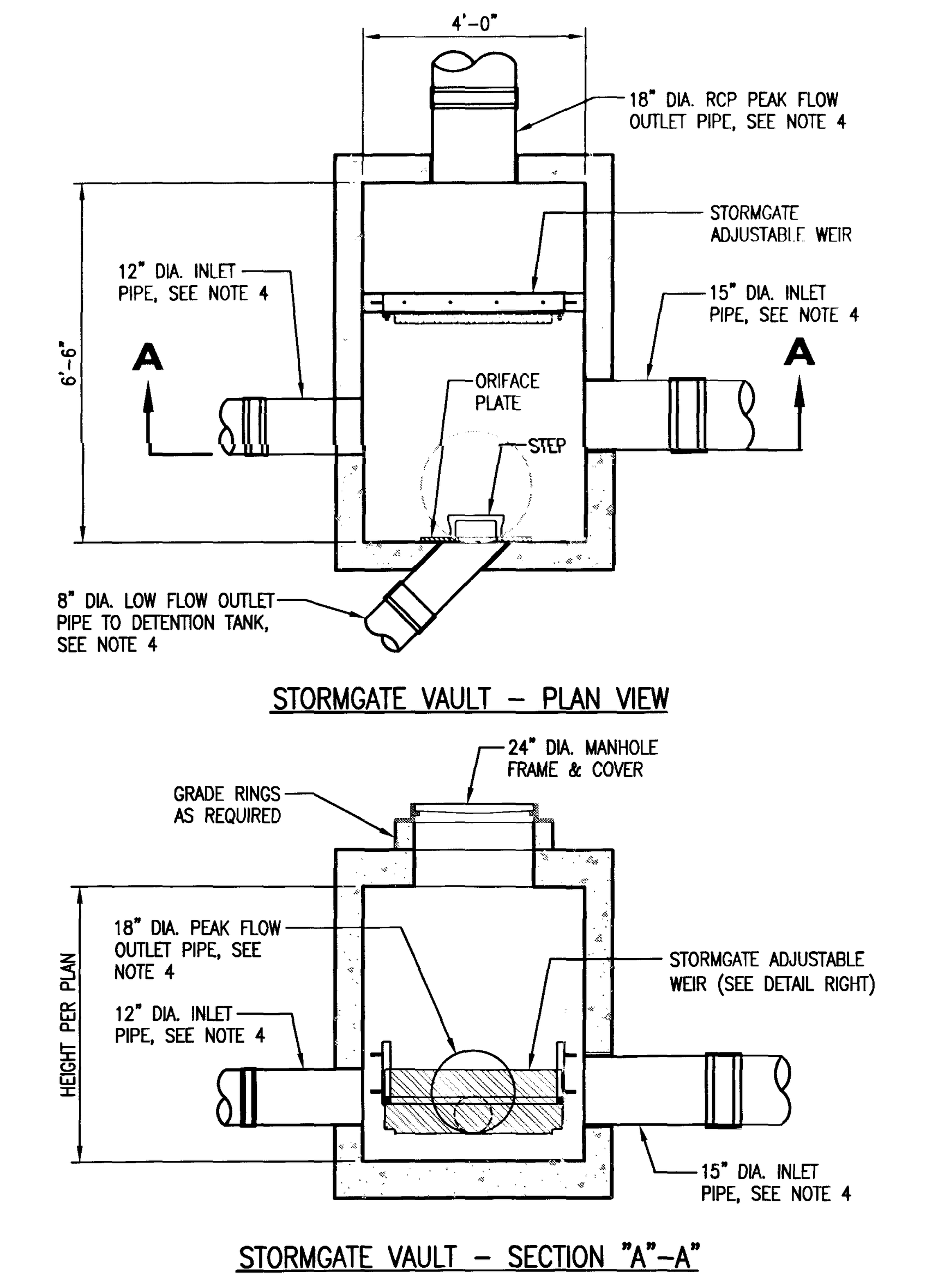
STORM DRAIN NOTES

- (30) PROVIDE AND INSTALL 4-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- (31) PROVIDE AND INSTALL 6-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- (32) PROVIDE AND INSTALL 8-INCH PVC (SDR 35) DRAINAGE PIPE. SEE SHEET C-31, DETAIL 2 FOR PIPE BEDDING.
- (34) PROVIDE AND INSTALL 12-INCH HDPE DRAINAGE PIPE. SEE SHEET C-31, DETAIL 1 FOR PIPE BEDDING.
- (36) PROVIDE AND INSTALL PVC STORM DRAIN CLEANOUT. SEE SHEET C-31, DETAILS 3 OR 5.
- (37) *PROVIDE AND INSTALL 9-INCH x 9-INCH LOW PROFILE ADAPTER (NDS* #930) USE 9-INCH SQUARE GRATE IN GRASS AREA (NDS #990 "GREEN"). USE 9-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #981 "BLACK"). SEE SHEET C-31, DETAIL 6.
- (38) PROVIDE AND INSTALL 12-INCH x 12-INCH LOW PROFILE ADAPTER (NDS #1230) USE 12-INCH SQUARE GRATE IN GRASS AREA (NDS #1212 "GREEN"). USE 12-INCH SQUARE ATRIUM GRATE IN SOIL AREAS (NDS #1290 "BLACK"). SEE SHEET C-31, DETAIL 6.
- (39) PROVIDE AND INSTALL 4-INCH ROUND ATRIUM GRATE (NDS #11 "BLACK"). SEE SHEET C-31, DETAIL 6.
- (40) PROVIDE AND INSTALL 6-INCH ROUND ATRIUM GRATE (NDS #90) IN SOIL AREAS AND 6-INCH ROUND GRATE (NDS #50) IN GRASS AREAS. SEE SHEET C-31, DETAIL 6.
- (41) PROVIDE AND INSTALL 5"x5" SQUARE BRASS GRATE (NDS #913B).
- (42) INSTALL 4-INCH DIA. "ZURN" MODEL #Z888-4 HDS" ADA COMPLIANT SLOT DRAIN WITH BOTTOM OUTLET. SEE SHEET 31, DETAIL 7.
- (45) PROVIDE AND INSTALL 45° WYE, SEE SHEET C-32, DETAIL 4.
- (46) PROVIDE AND INSTALL HDPE WYE WITH NYLOPLAST DISSIMILAR PIPE MATERIAL ADAPTER ON LATERAL, SEE SHEET C-32, DETAIL 2.
- (47) PROVIDE AND INSTALL 45° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.
- (50) PROVIDE AND INSTALL 11.25° SMOOTH SWEEP RADIUS BEND (SIZE PER MAIN LINE). SEE SHEET C-32, DETAIL 4.
- (55) PROVIDE AND INSTALL 4-INCH PVC (SCHEDULE 40) PERFORATED PIPE UNDER TURF. SEE SHEET C-8, DETAIL 17.
- (58) PROVIDE AND INSTALL AREA DRAIN REDUCER, SEE SHEET C-35, DETAIL 3.
- (67) PROVIDE AND INSTALL SUBDRAINAGE CONNECTION TO STORM DRAIN SYSTEM, SEE SHEET C-31, DETAIL 9.


PVC SDR 35 STORM DRAIN LINE TO AREA DRAIN (SIZE PER PLANS)
PVC SDR 35 STORM DRAIN LINE (SIZE PER PLANS)
PLASTIC TRENDS PVC SDR 35 LONG SWEEP 90° RADIUS PIPE FITTING (SIZE PER PLANS)
PLASTIC TRENDS PVC SDR 35 GASKETED ECCENTRIC INCREASER, OR APPROVED EQUAL

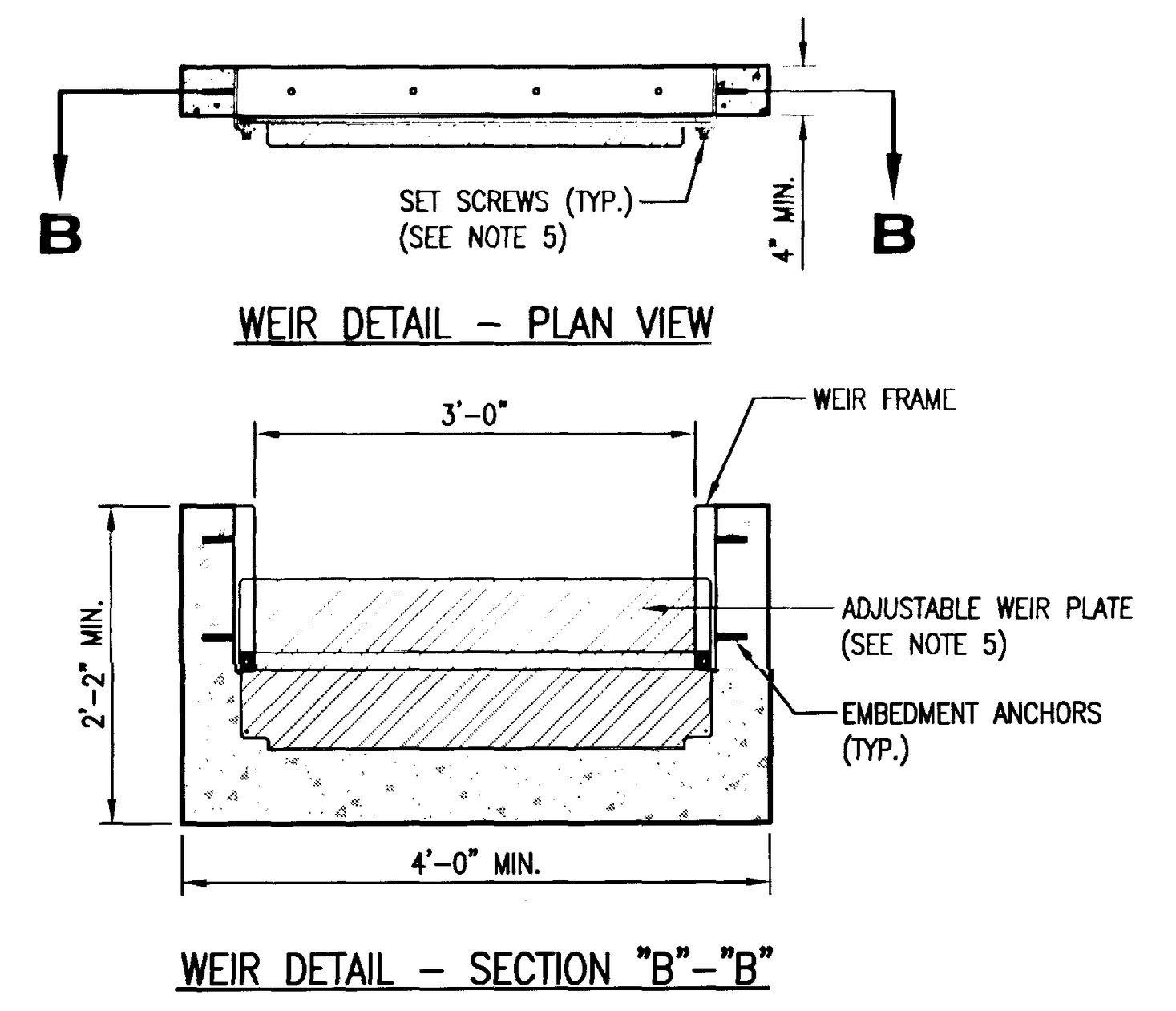
SCALE: NONE

PVC 90° LONG SWEEP FITTING TO PVC INCREASER 3


4'-0"
18" DIA. RCP PEAK FLOW OUTLET PIPE, SEE NOTE 4
STORMGATE ADJUSTABLE WEIR
12" DIA. INLET PIPE, SEE NOTE 4
15" DIA. INLET PIPE, SEE NOTE 4
6'-6"
A
A
ORIFACE PLATE
STEP
8" DIA. LOW FLOW OUTLET PIPE TO DETENTION TANK, SEE NOTE 4
24" DIA. MANHOLE FRAME & COVER
GRADE RINGS AS REQUIRED
18" DIA. PEAK FLOW OUTLET PIPE, SEE NOTE 4
STORMGATE ADJUSTABLE WEIR (SEE DETAIL RIGHT)
12" DIA. INLET PIPE, SEE NOTE 4
HEIGHT PER PLAN
15" DIA. INLET PIPE, SEE NOTE 4

STORMGATE VAULT – PLAN VIEW

STORMGATE VAULT – SECTION "A"–A"


B
B
SET SCREWS (TYP.) (SEE NOTE 5)
4" MIN.
3'-0"
WEIR FRAME
ADJUSTABLE WEIR PLATE (SEE NOTE 5)
EMBEDMENT ANCHORS (TYP.)
2'-2" MIN.
4'-0" MIN.

WEIR DETAIL – PLAN VIEW

WEIR DETAIL – SECTION "B"–"B"

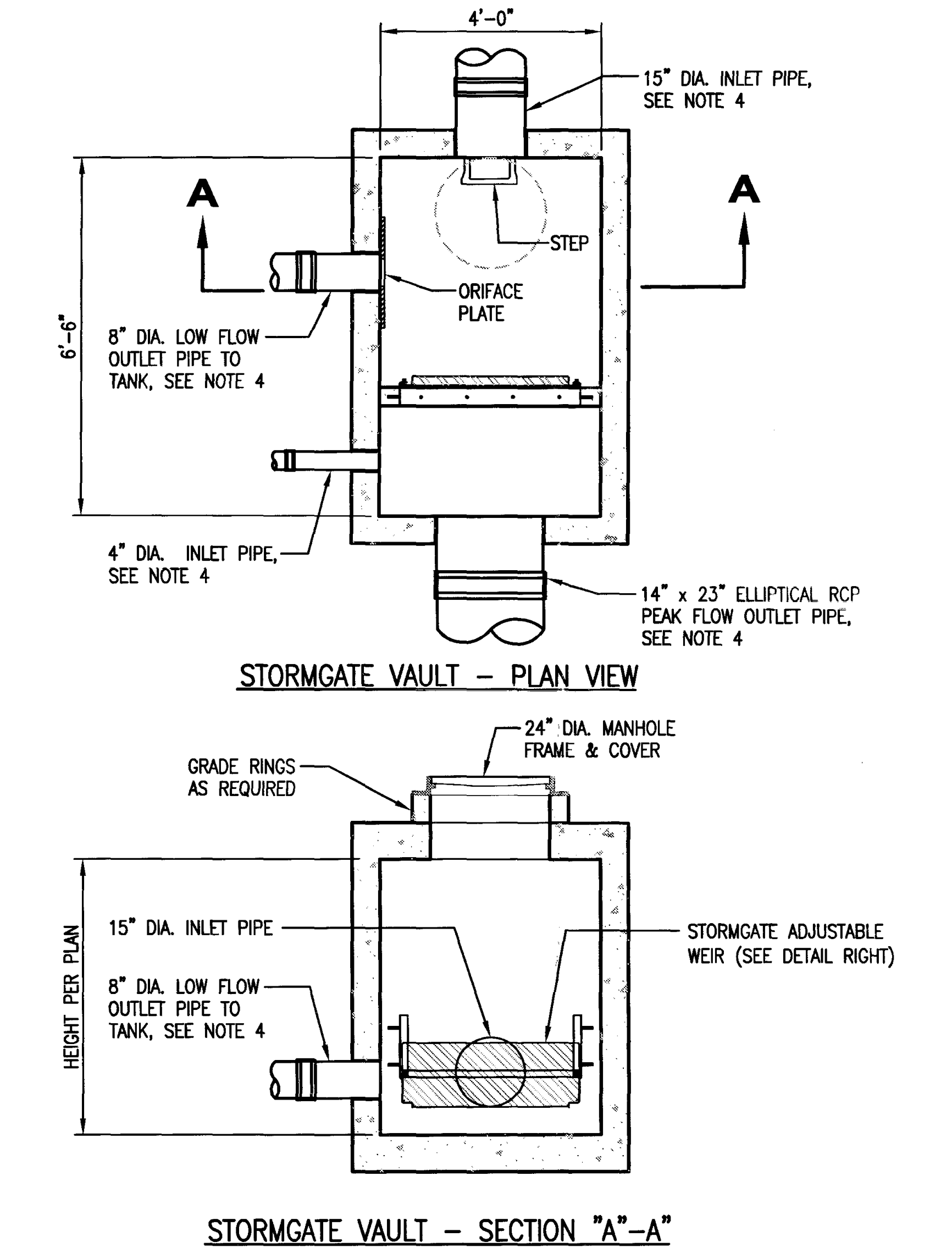
STORMGATE VAULT DATA			
STRUCTURE ID			SYSTEM A
WATER QUALITY FLOW RATE (cfs)			0.543
PEAK FLOW RATE, Qpeak (cfs)			4.79
VAULT LENGTH			7.5'
VAULT WIDTH			5'
RIM ELEVATION			264.30'
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	260.69'	HDPE	12"
INLET PIPE #2	260.69'	PVC	10"
WATER QUALITY FLOW OUTLET PIPE	260.59'	PVC	8"
PEAK FLOW OUTLET PIPE	260.49'	RCP	18"
ORIFICE TYPE (PIPE, CAP, PLATE)			PLATE
ORIFICE DIAMETER (in)			6
WEIR CREST ELEVATION			261.14'
WEIR WALL ELEVATION			261.64
HEAD OVER WEIR, H (ft)			0.60'
WSE at Qpeak			261.75'
FLOOR ELEVATION			259.48'

GENERAL NOTES:

1. STORMGATE BY CONTECH STORMWATER SOLUTIONS; PORTLAND, OR (800) 548-4667; SCARBOROUGH, ME (877) 907-8676; ELKRIDGE, MD (866) 740-3318.
2. PRECAST VAULT TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C857 AND C858. DETAIL DRAWING REFLECTS DESIGN INTENT ONLY. LENGTH AND WIDTH OF VAULT WILL VARY DEPENDING ON PIPE DIAMETER AND ORIENTATION. PLEASE CONTACT CONTECH STORMWATER SOLUTIONS TO DETERMINE VAULT SIZING AND AVAILABILITY. ACTUAL DIMENSIONS AND CONFIGURATION WILL BE SHOWN ON PRODUCTION SHOP DRAWING.
3. MIN. 4,500 psi, CEMENT TYPE V. STRUCTURE, ACCESS COVERS TO MEET AASHTO H-20 LOAD RATING.
4. INLET AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR. PRECAST STORMGATE VAULT EQUIPPED WITH EITHER CORED OPENINGS OR KNOCKOUTS AT INLET AND OUTLET LOCATIONS. USE NON-SHRINK, NON-METALLIC GROUT TO SECURE PIPES TO VAULT STRUCTURE.
5. CONTRACTOR TO ADJUST WEIR TO DESIGN ELEVATION SPECIFIED IN DATA TABLE BELOW. DO NOT EXCEED 5.0 FT-LBS TORQUE WHEN TIGHTENING SCREWS ON WEIR FRAME. SEAL WEIR TO FRAME WITH RTV SILICONE SEALANT AFTER FINAL ADJUSTMENT.

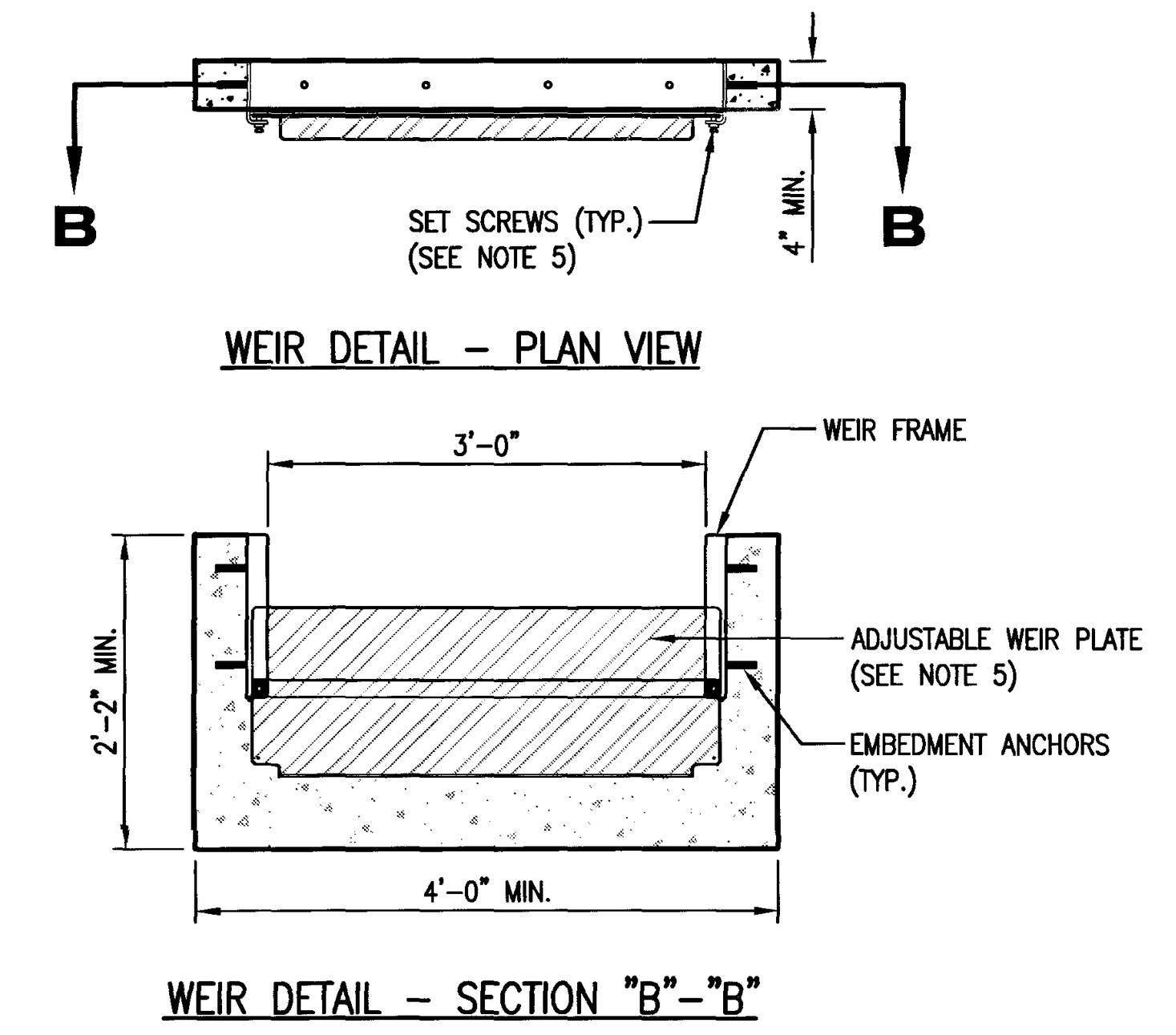
SCALE: NONE

PRECAST STORMGATE VAULT STRUCTURE (SYSTEM A) 1


4'-0"
15" DIA. INLET PIPE, SEE NOTE 4
A
A
STEP
ORIFACE PLATE
6'-6"
8" DIA. LOW FLOW OUTLET PIPE TO TANK, SEE NOTE 4
4" DIA. INLET PIPE, SEE NOTE 4
14" x 23" ELLIPTICAL RCP PEAK FLOW OUTLET PIPE, SEE NOTE 4
24" DIA. MANHOLE FRAME & COVER
GRADE RINGS AS REQUIRED
15" DIA. INLET PIPE
STORMGATE ADJUSTABLE WEIR (SEE DETAIL RIGHT)
HEIGHT PER PLAN
8" DIA. LOW FLOW OUTLET PIPE TO TANK, SEE NOTE 4

STORMGATE VAULT – PLAN VIEW

STORMGATE VAULT – SECTION "A"–A"


B
B
SET SCREWS (TYP.) (SEE NOTE 5)
4" MIN.
3'-0"
WEIR FRAME
ADJUSTABLE WEIR PLATE (SEE NOTE 5)
EMBEDMENT ANCHORS (TYP.)
2'-2" MIN.
4'-0" MIN.

WEIR DETAIL – PLAN VIEW

WEIR DETAIL – SECTION "B"–"B"

STORMGATE VAULT DATA			
STRUCTURE ID			SYSTEM A
WATER QUALITY FLOW RATE (cfs)			0.617
PEAK FLOW RATE, Qpeak (cfs)			5.26
VAULT LENGTH			7.5'
VAULT WIDTH			5'
RIM ELEVATION			264.30'
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	261.45'	HDPE	15"
INLET PIPE #2	261.45'	PVC	6"
WATER QUALITY FLOW OUTLET PIPE	261.35'	PVC	8"
PEAK FLOW OUTLET PIPE	261.25'	RCP	15"
ORIFICE TYPE (PIPE, CAP, PLATE)			PLATE
ORIFICE DIAMETER (in)			6"
WEIR CREST ELEVATION			262.02'
WEIR WALL ELEVATION			262.52'
HEAD OVER WEIR, H (ft)			0.66'
WSE at Qpeak			262.68'
FLOOR ELEVATION			260.35'

GENERAL NOTES:

1. STORMGATE BY CONTECH STORMWATER SOLUTIONS; PORTLAND, OR (800) 548-4667; SCARBOROUGH, ME (877) 907-8676; ELKRIDGE, MD (866) 740-3318.
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3. MIN. 4,500 psi, CEMENT TYPE V. STRUCTURE, ACCESS COVERS TO MEET AASHTO H-20 LOAD RATING.
4. INLET AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR. PRECAST STORMGATE VAULT EQUIPPED WITH EITHER CORED OPENINGS OR KNOCKOUTS AT INLET AND OUTLET LOCATIONS. USE NON-SHRINK, NON-METALLIC GROUT TO SECURE PIPES TO VAULT STRUCTURE.
5. CONTRACTOR TO ADJUST WEIR TO DESIGN ELEVATION SPECIFIED IN DATA TABLE BELOW. DO NOT EXCEED 5.0 FT-LBS TORQUE WHEN TIGHTENING SCREWS ON WEIR FRAME. SEAL WEIR TO FRAME WITH RTV SILICONE SEALANT AFTER FINAL ADJUSTMENT.

SCALE: NONE

PRECAST STORMGATE VAULT STRUCTURE (SYSTEM C) 2

811

Know what's **below**
Call before you dig

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
James H. Kawamura

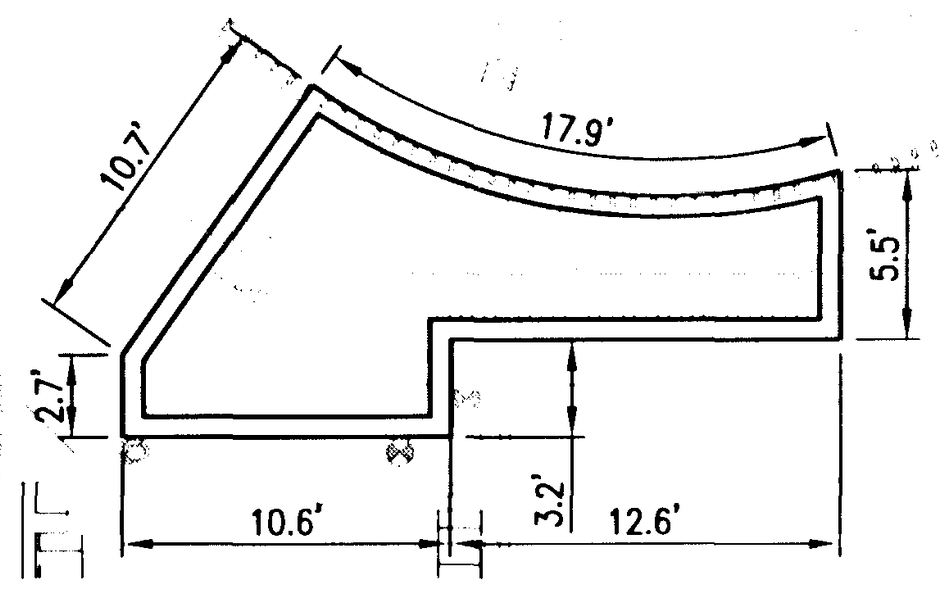
SHEET DESCRIPTION:
STORM DRAIN ENLARGEMENT PLAN & DETAILS

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

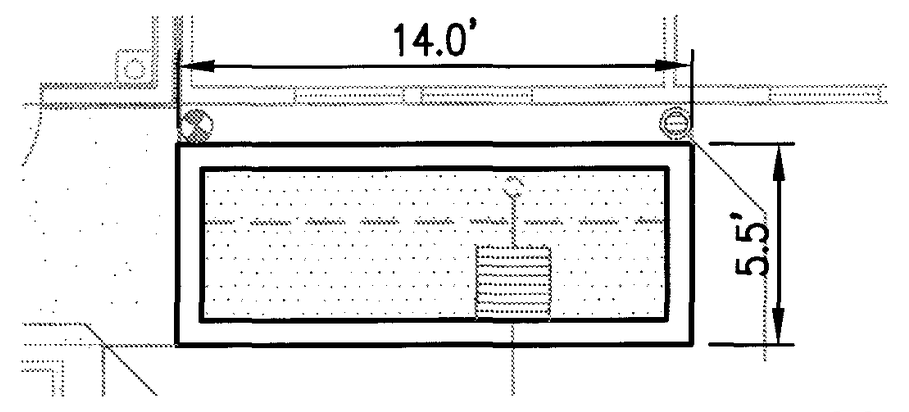
SHEET NO.
C-35

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-35-SDD.dwg July 13, 2015 - 11:15am Mike Thomas


10.7'
17.9'
5.5'
2.1'
10.6'
3.2'
12.6'

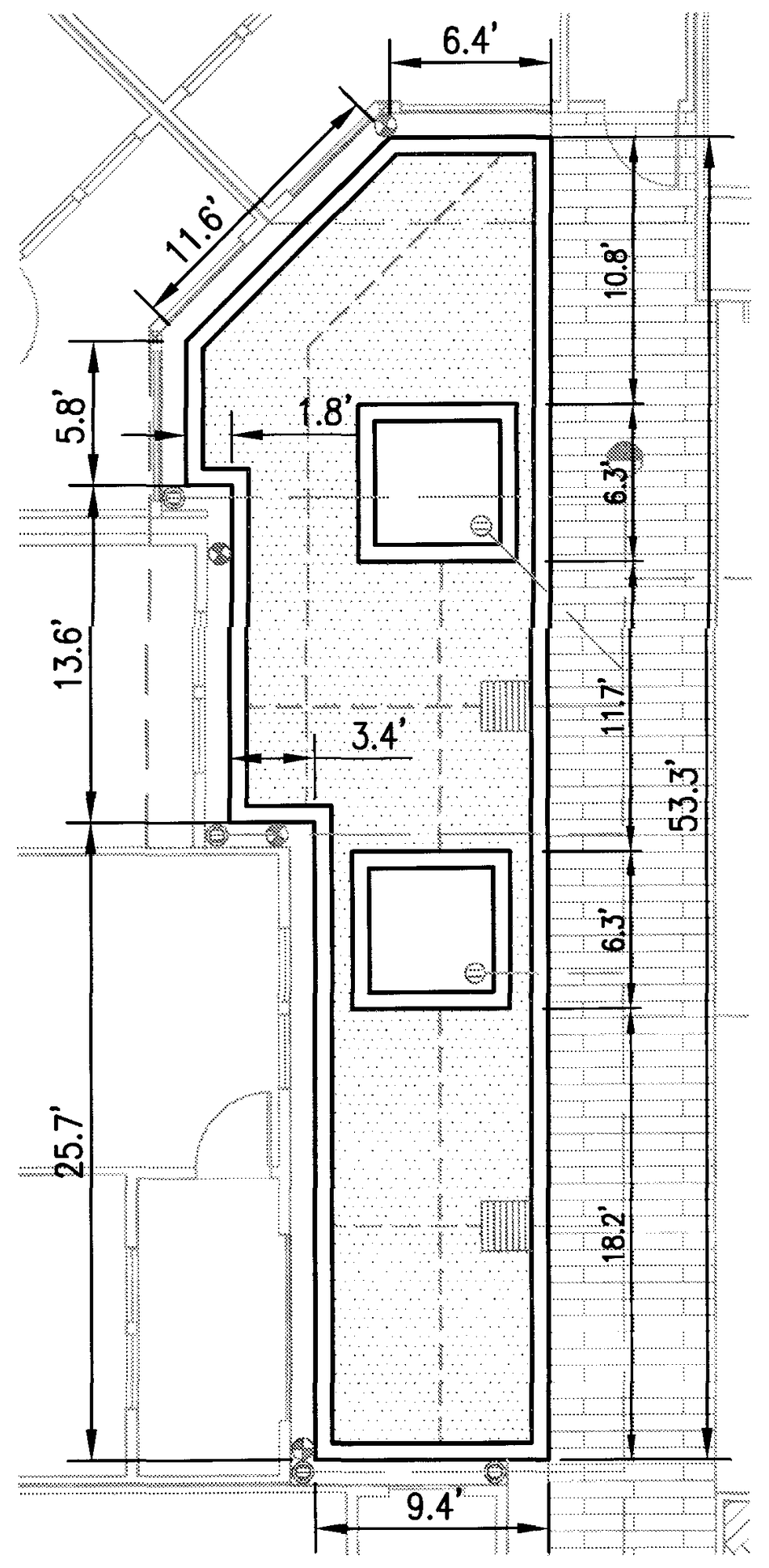
FTP #29

SCALE: 1"=8'



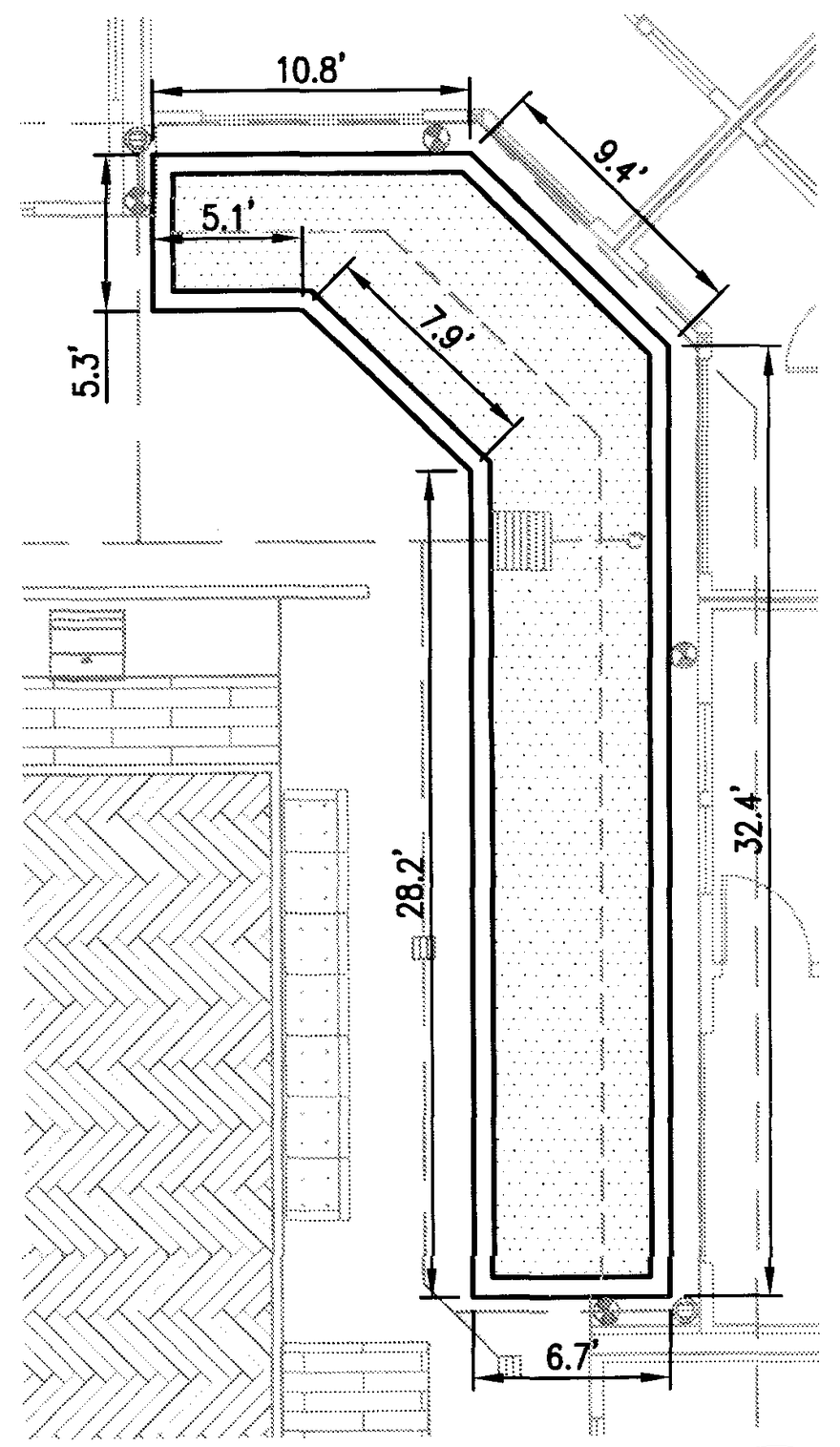
FTP #30

SCALE: 1"=8'


6.4'
11.6'
10.8'
5.8'
1.8'
6.3'
13.6'
3.4'
11.7'
53.3'
6.3'
25.7'
18.2'
9.4'

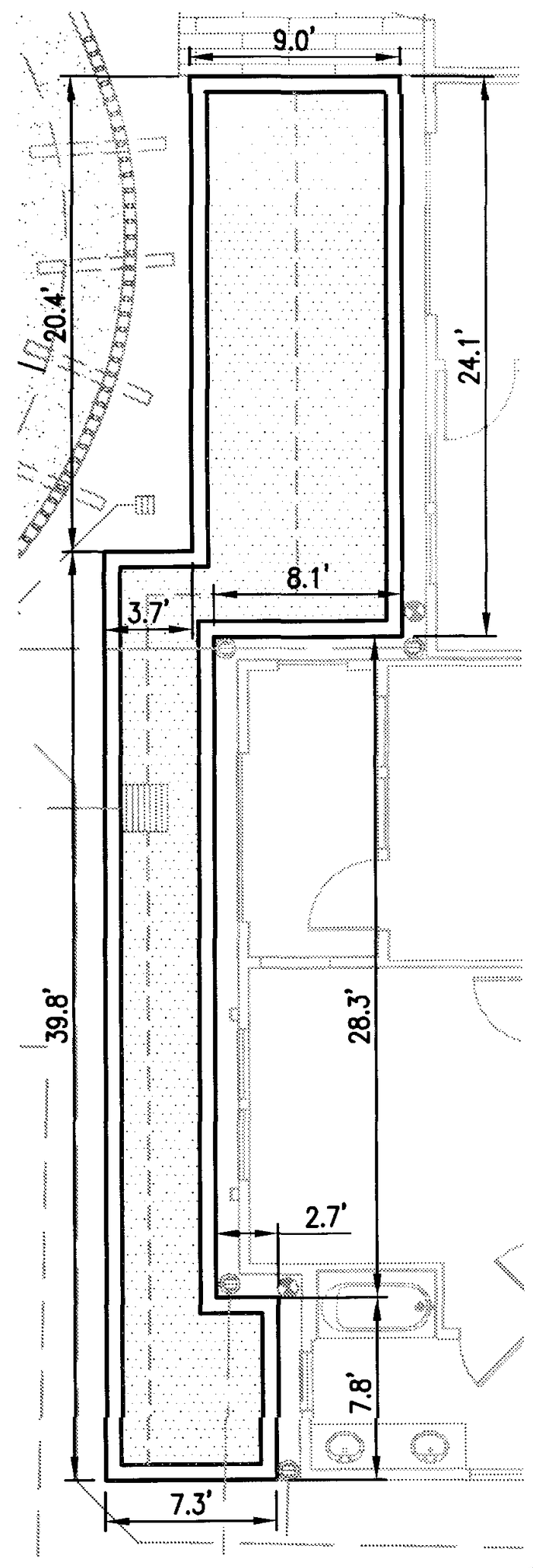
FTP #31

SCALE: 1"=8'


10.8'
9.4'
5.1'
5.3'
7.9'
28.2'
32.4'
6.7'

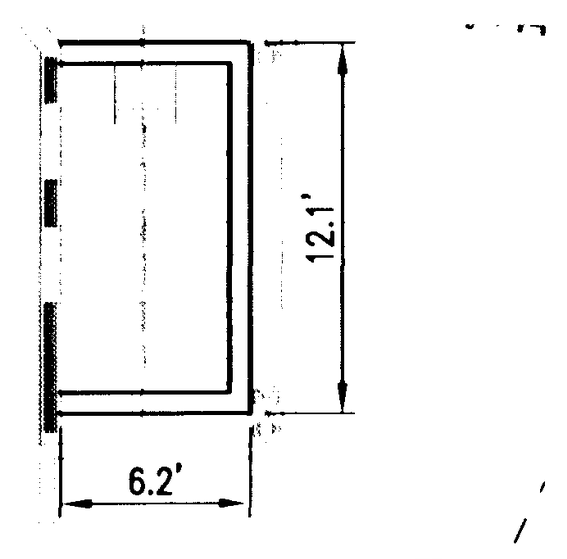
FTP #32

SCALE: 1"=8'


9.0'
20.4'
24.1'
3.7'
8.1'
39.8'
28.3'
2.7'
7.8'
7.3'

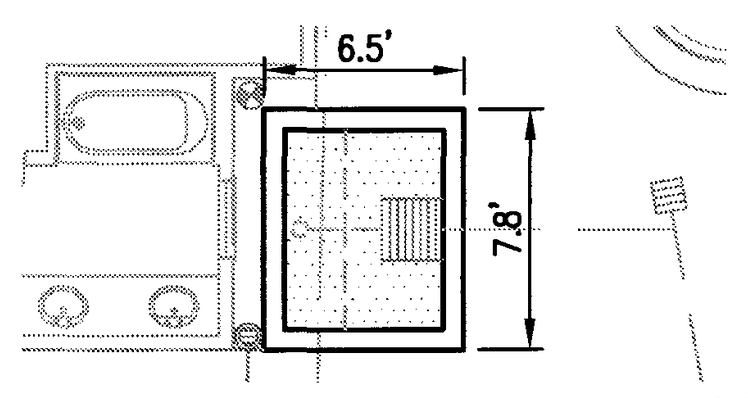
FTP #33

SCALE: 1"=8'



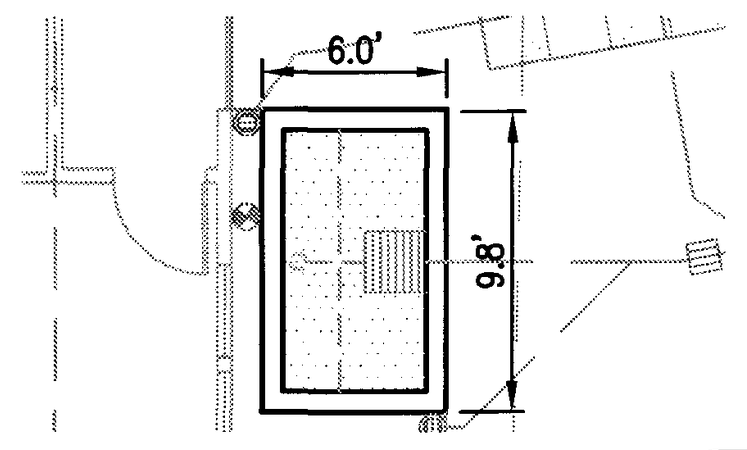
FTP #22

SCALE: 1"=8'



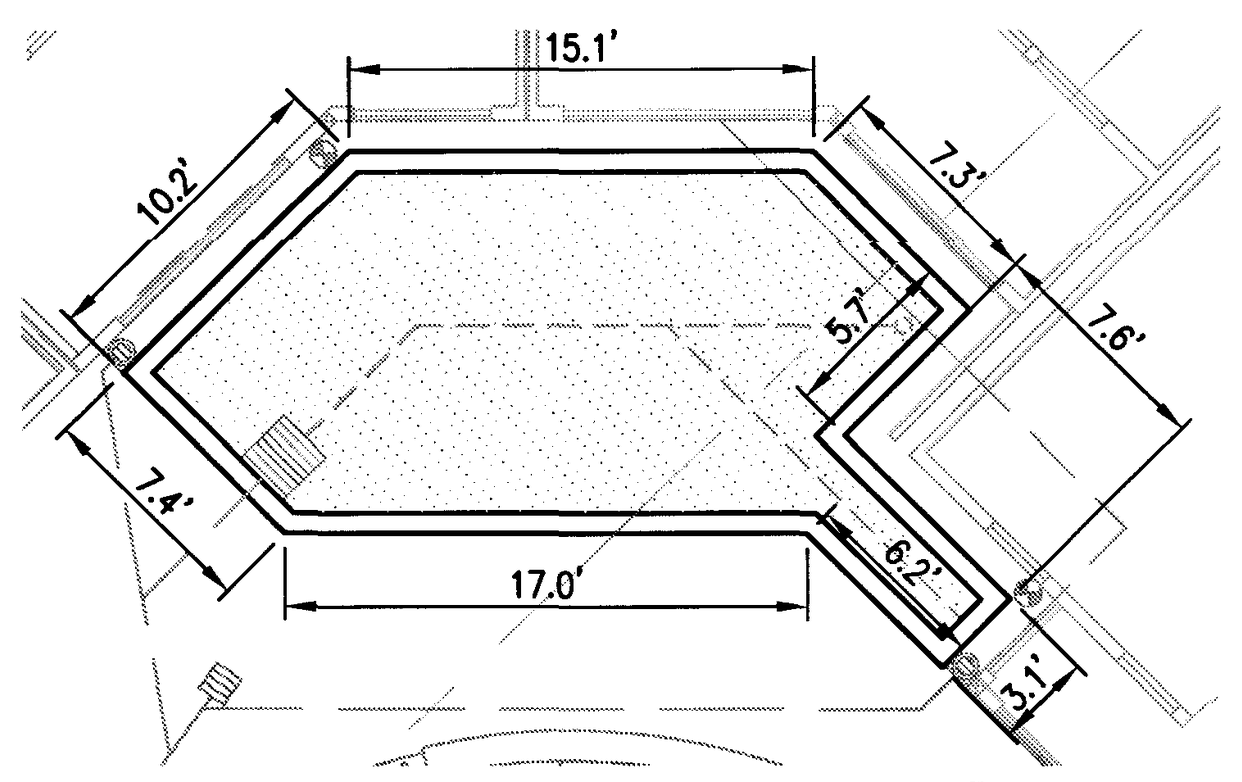
FTP #23

SCALE: 1"=8'



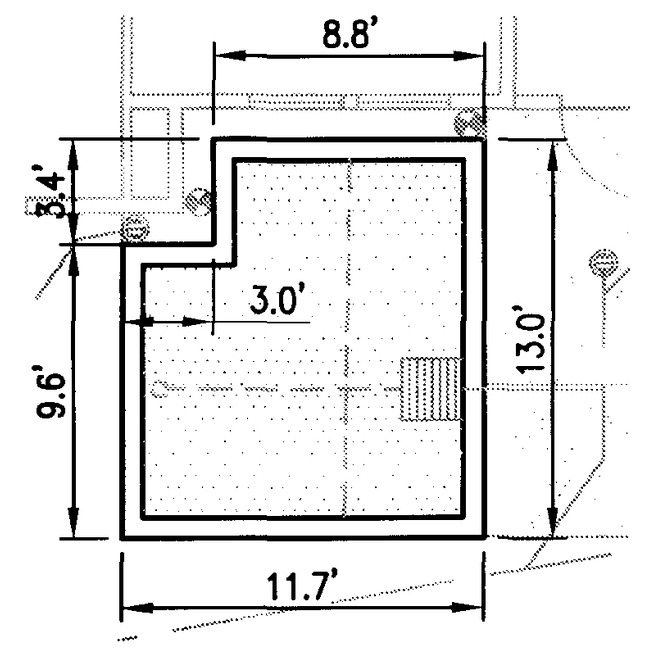
FTP #24

SCALE: 1"=8'


15.1'
10.2'
7.1'
5.7'
7.8'
7.4'
17.0'
6.2'
3.1'

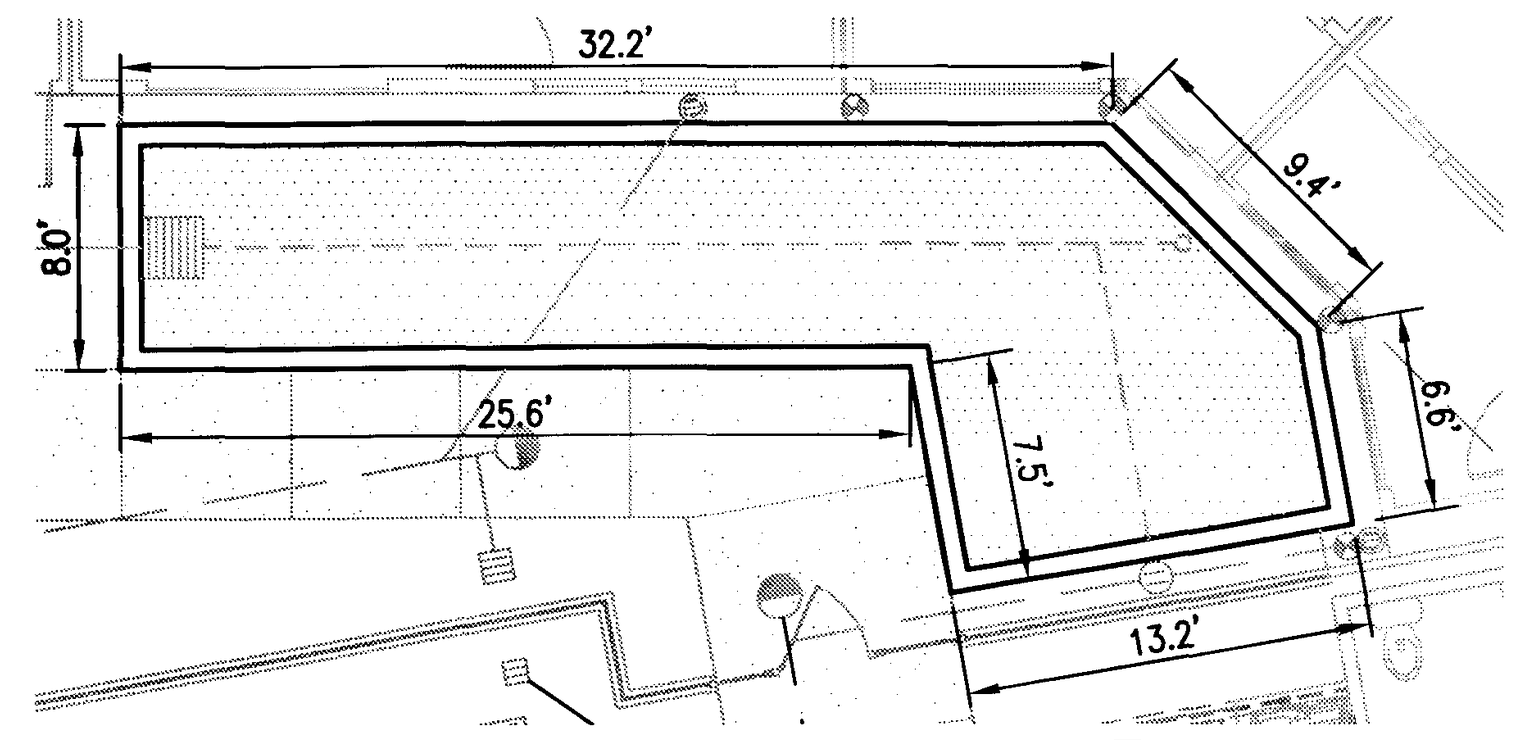
FTP #25

SCALE: 1"=8'


8.8'
3.4'
3.0'
13.0'
9.6'
11.7'

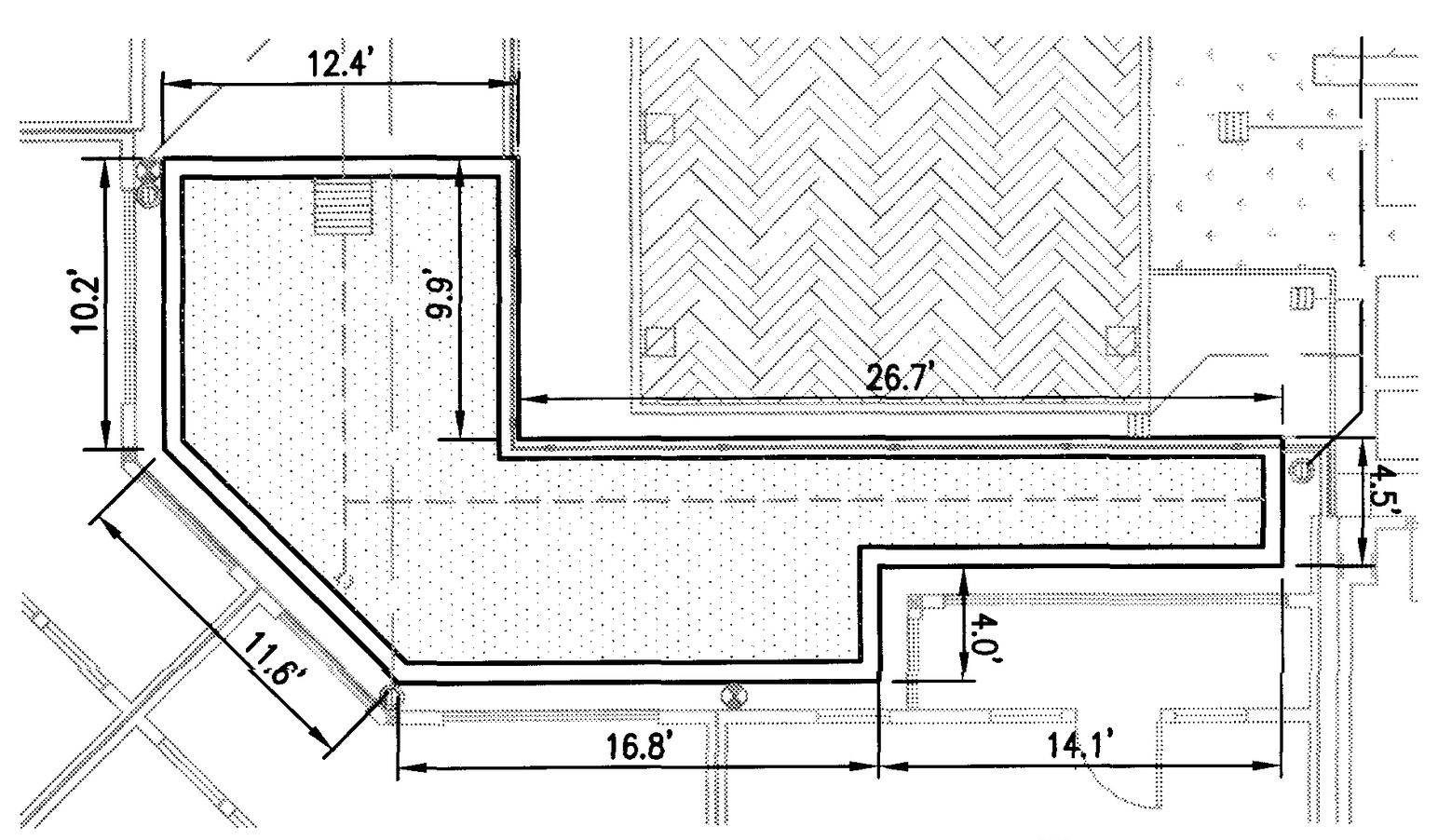
FTP #26

SCALE: 1"=8'


32.2'
9.4'
8.0'
25.6'
7.5'
6.6'
13.2'

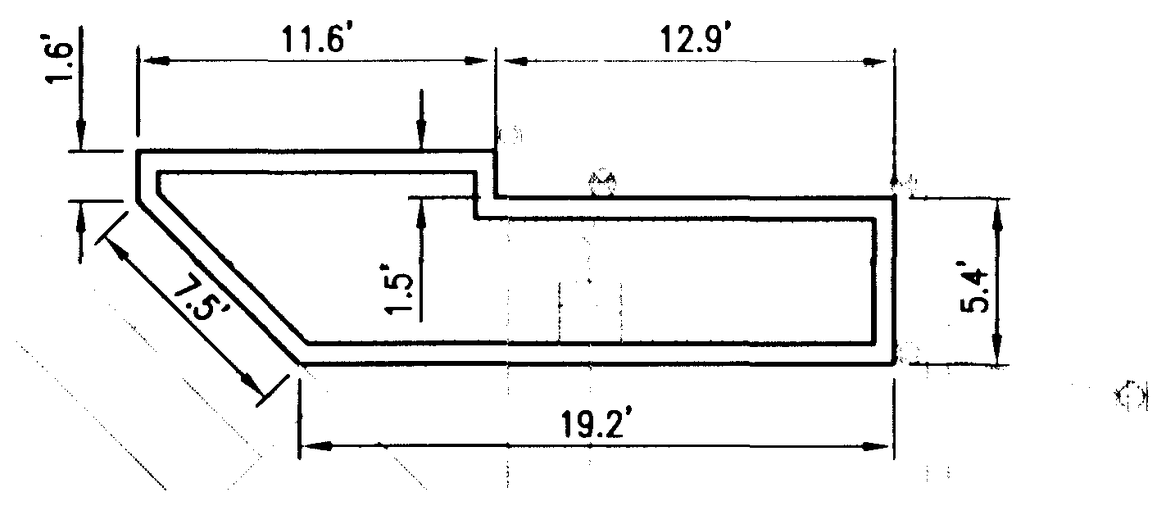
FTP #27

SCALE: 1"=8'


12.4'
10.2'
9.9'
26.7'
4.5'
11.6'
4.0'
16.8'
14.1'

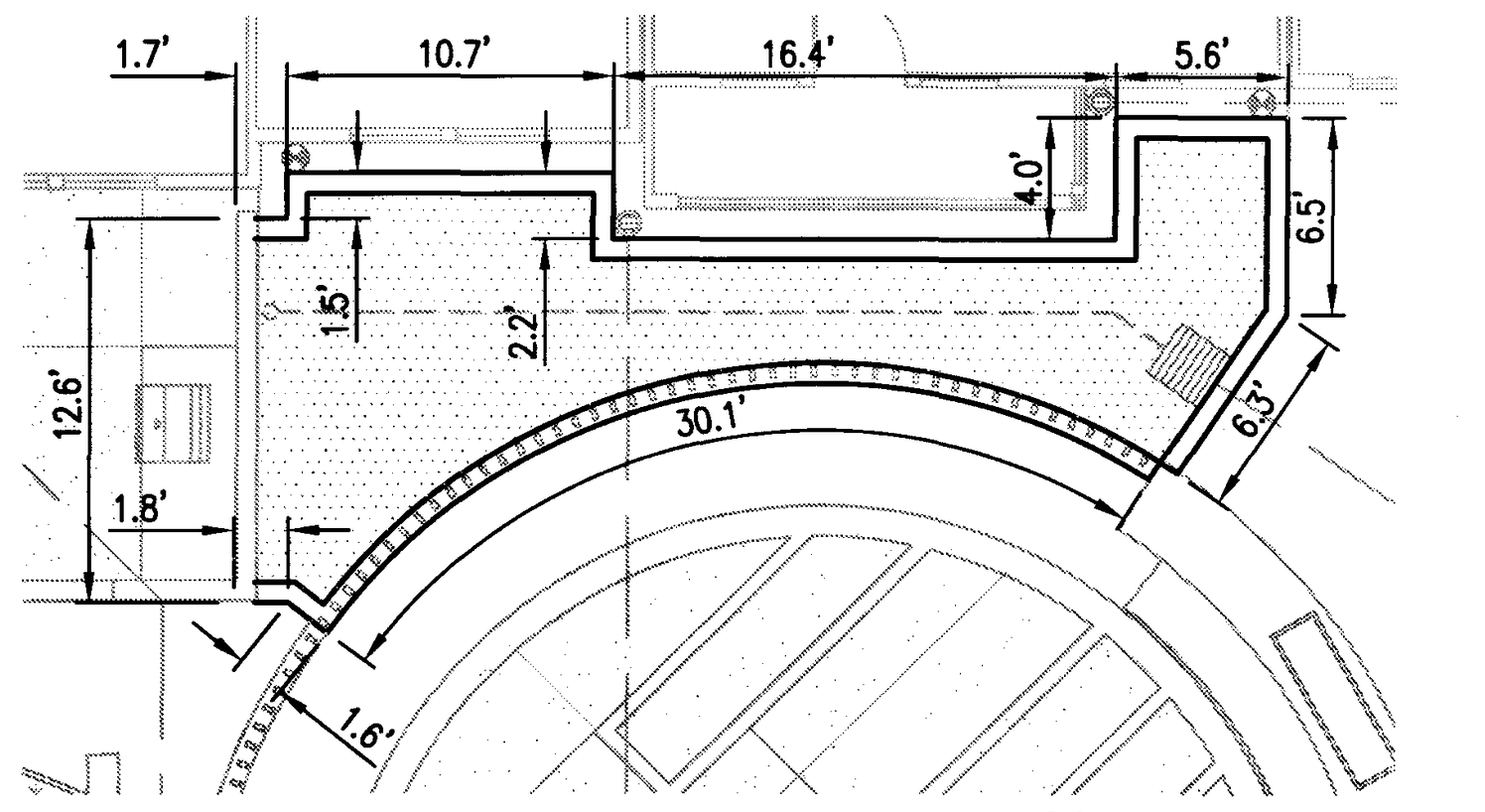
FTP #28

SCALE: 1"=8'


1.6'
11.6'
12.9'
7.5'
1.5'
5.4'
19.2'

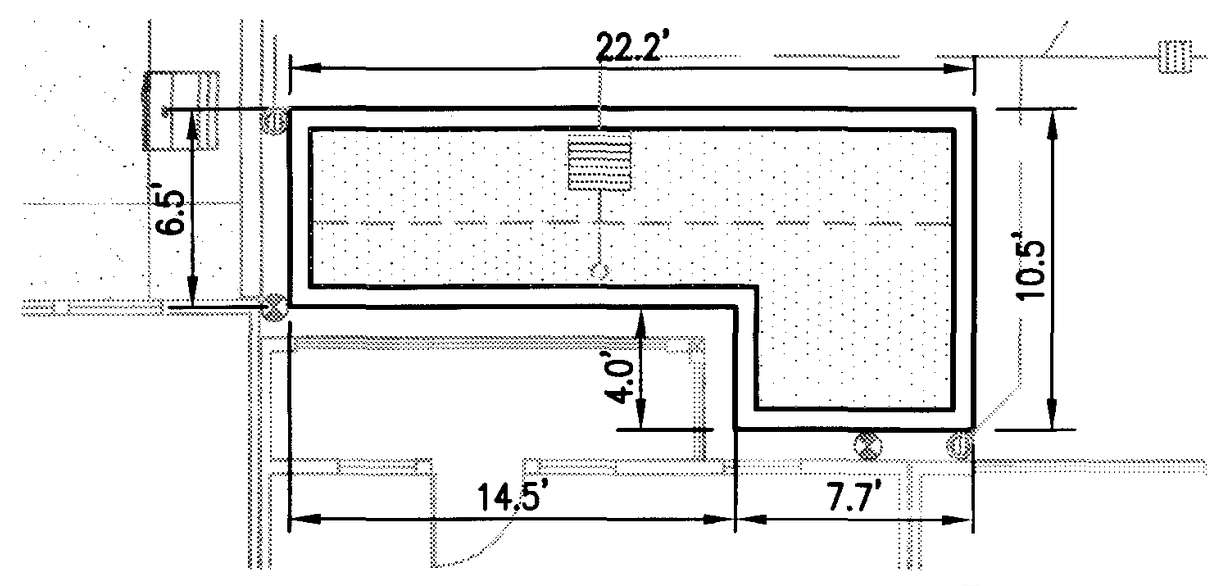
FTP #15

SCALE: 1"=8'


1.7'
10.7'
16.4'
5.6'
4.0'
6.5'
1.8'
2.2'
12.6'
30.1'
6.3'
1.8'
1.6'

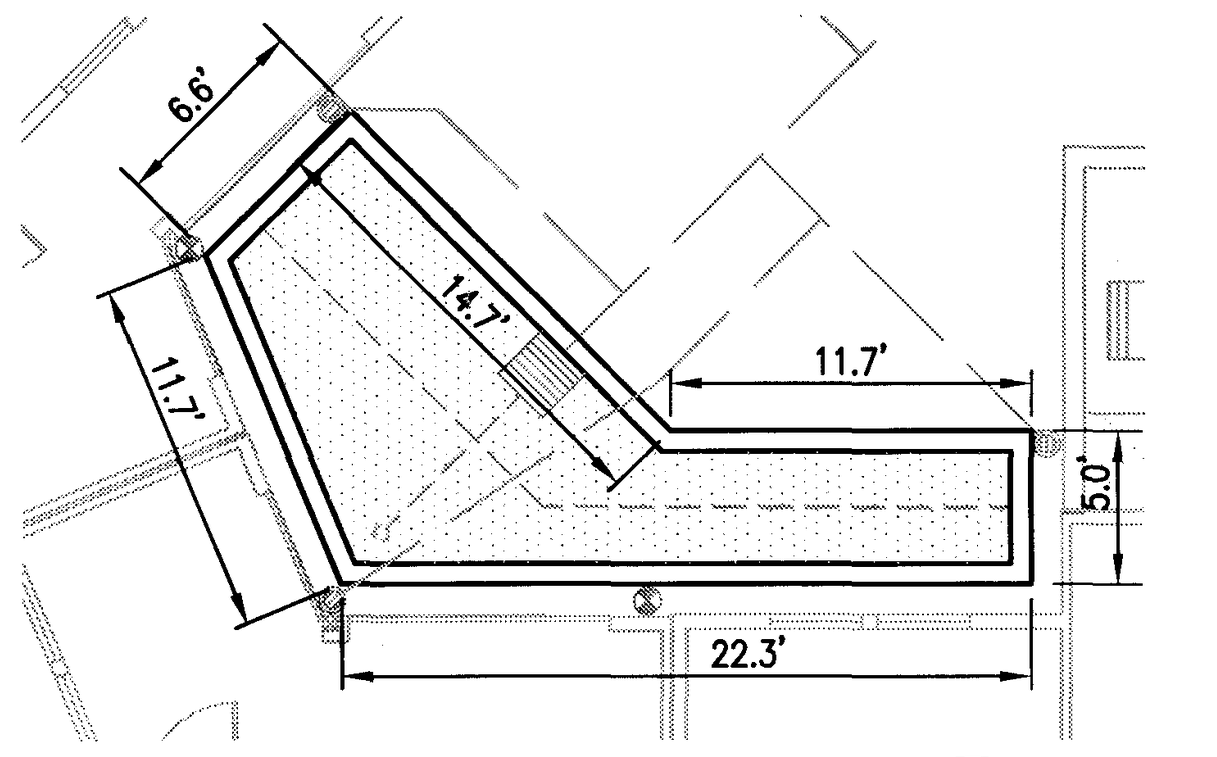
FTP #16

SCALE: 1"=8'


22.2'
6.5'
10.5'
4.0'
14.5'
7.7'

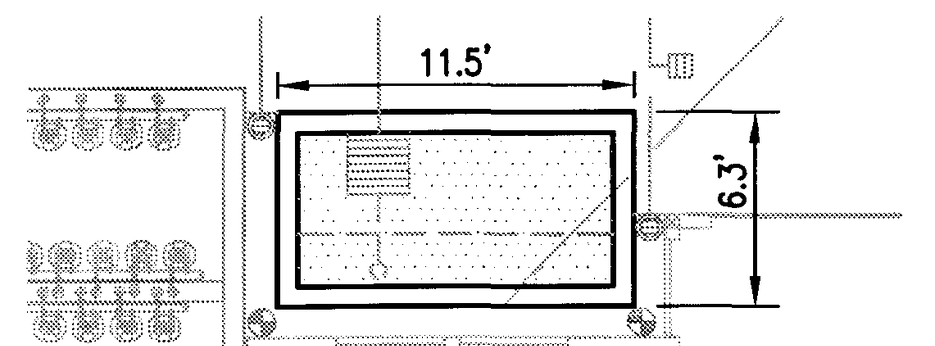
FTP #17

SCALE: 1"=8'


6.6'
14.7'
11.7'
11.7'
5.0'
22.3'

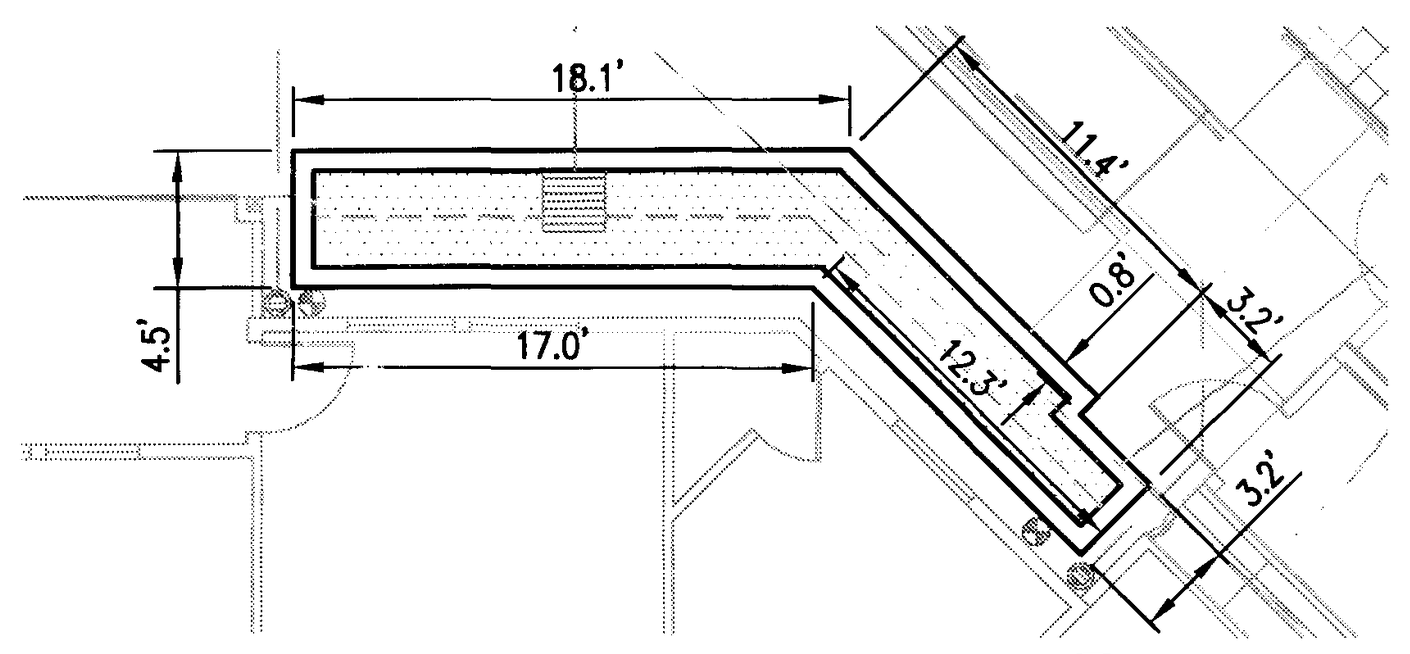
FTP #18

SCALE: 1"=8'



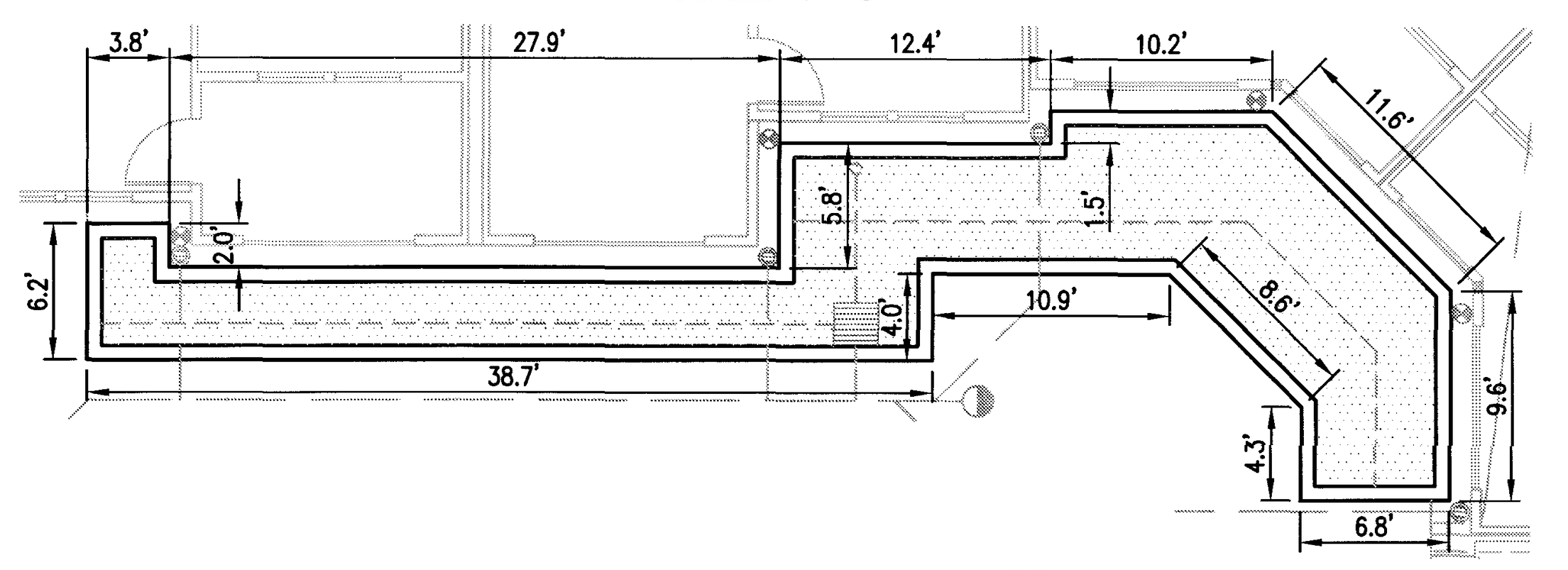
FTP #19

SCALE: 1"=8'


18.1'
11.4'
4.5'
17.0'
0.8'
3.2'
12.3'
3.2'

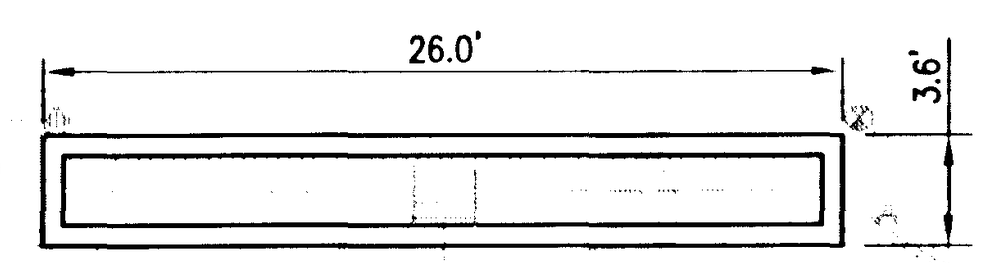
FTP #20

SCALE: 1"=8'


3.8'
27.9'
12.4'
10.2'
11.6'
5.8'
1.5'
2.0'
6.2'
4.0'
10.9'
8.6'
38.7'
9.6'
4.3'
6.8'

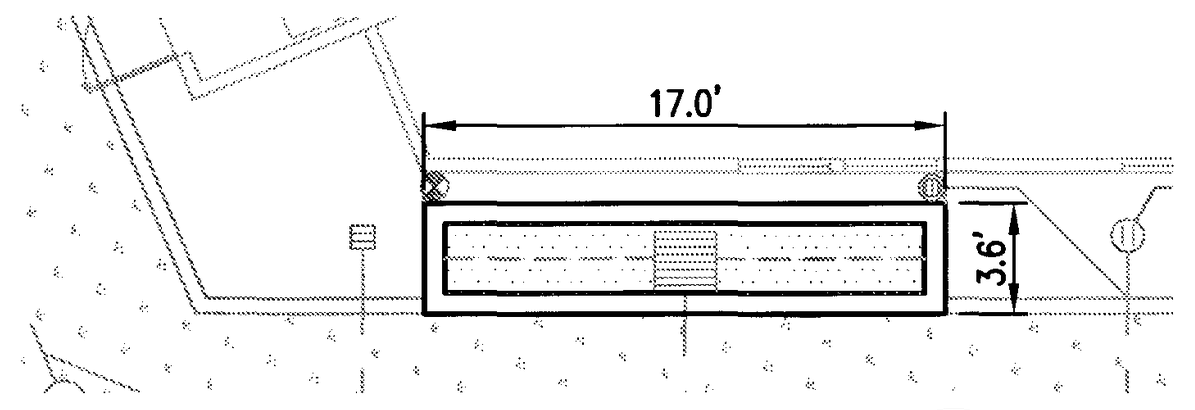
FTP #21

SCALE: 1"=8'



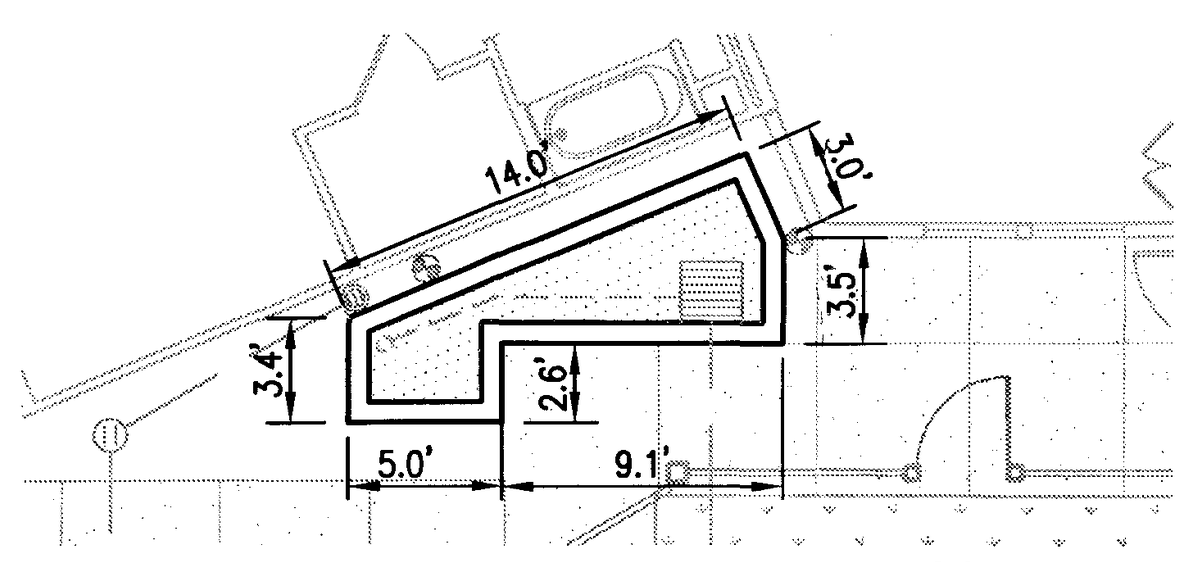
FTP #8

SCALE: 1"=8'



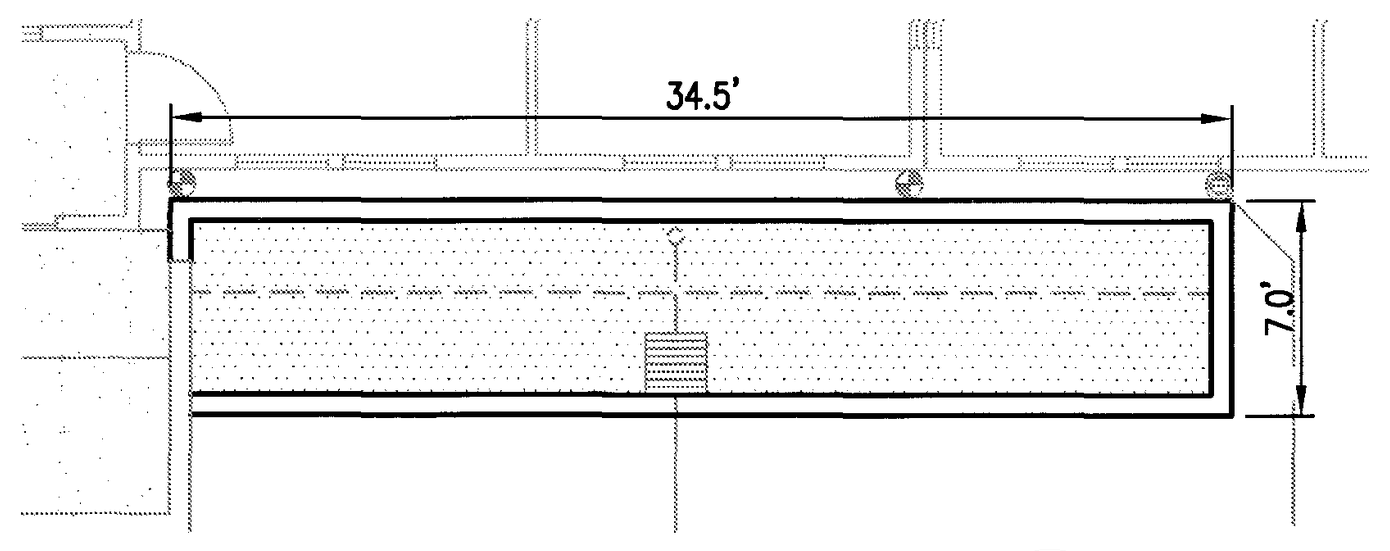
FTP #9

SCALE: 1"=8'


14.0'
3.0'
3.4'
2.6'
3.5'
5.0'
9.1'

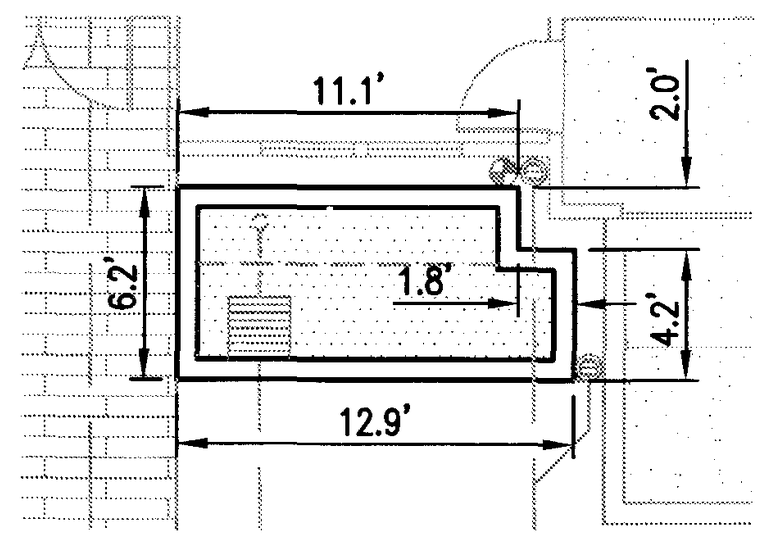
FTP #10

SCALE: 1"=8'



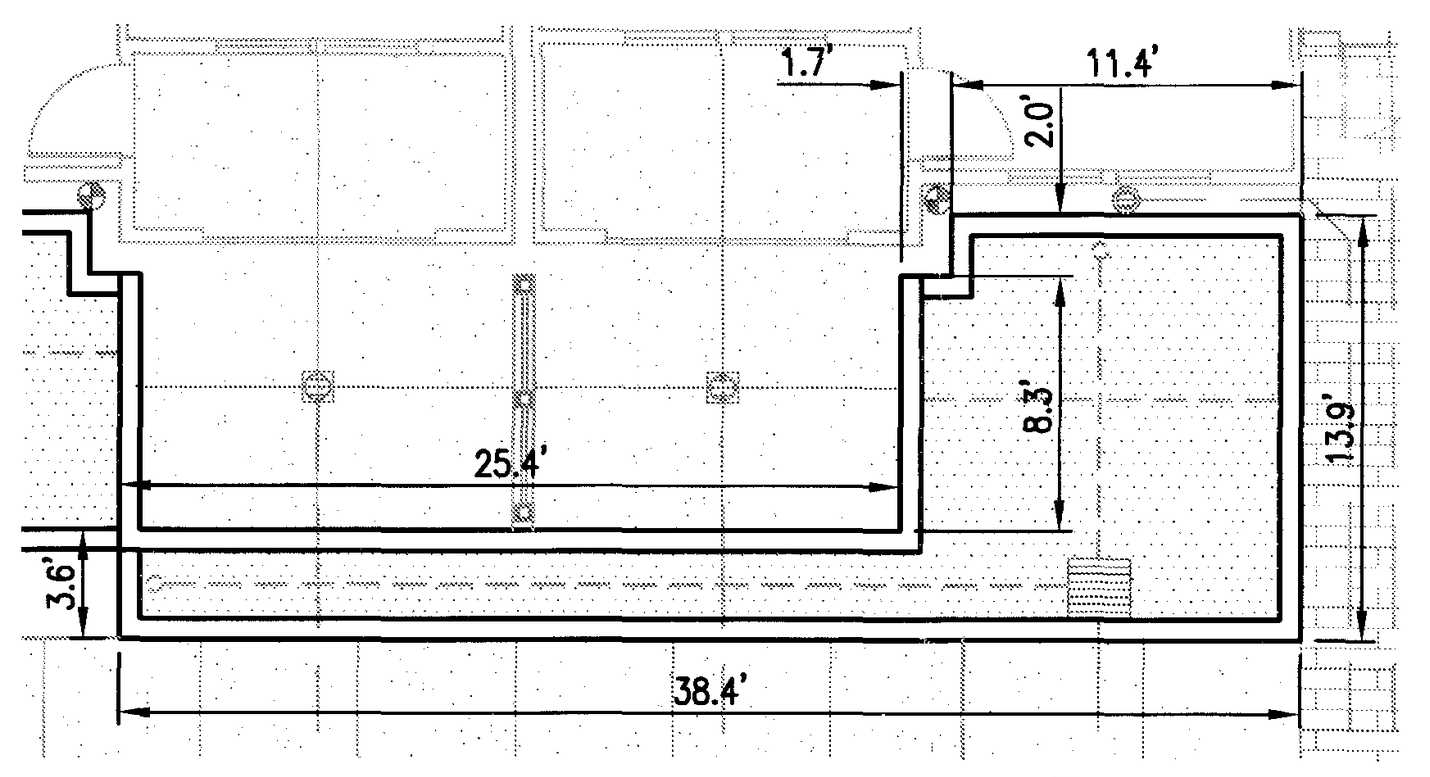
FTP #11

SCALE: 1"=8'


11.1'
2.0'
6.2'
1.8'
4.2'
12.9'

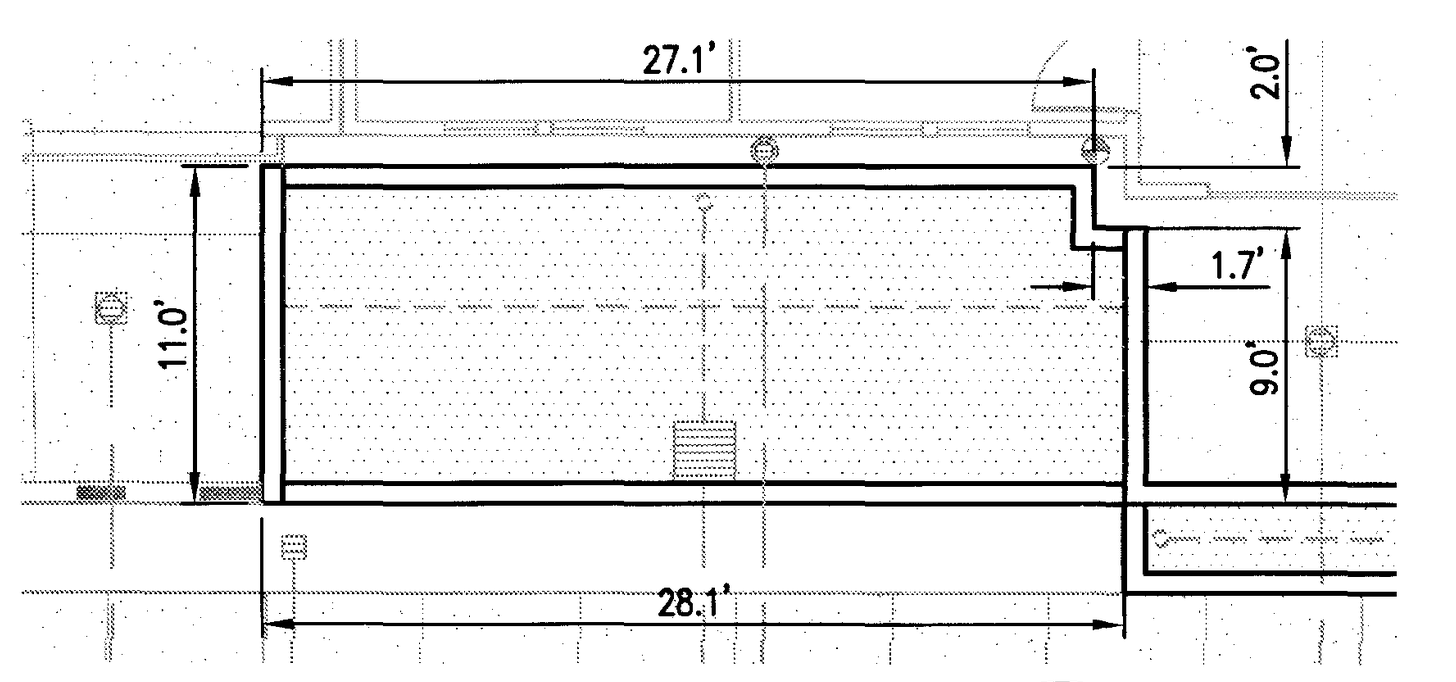
FTP #12

SCALE: 1"=8'


1.7'
11.4'
2.0'
8.3'
13.9'
25.4'
3.6'
38.4'

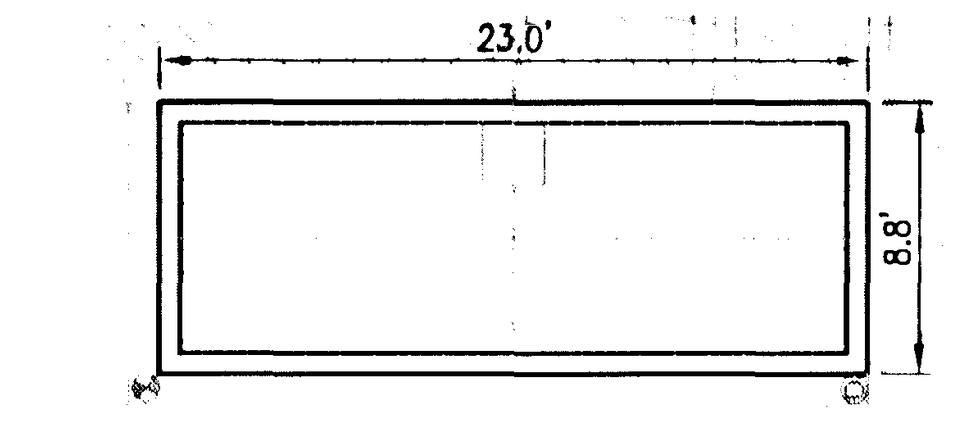
FTP #13

SCALE: 1"=8'


27.1'
2.0'
1.7'
11.0'
9.0'
28.1'

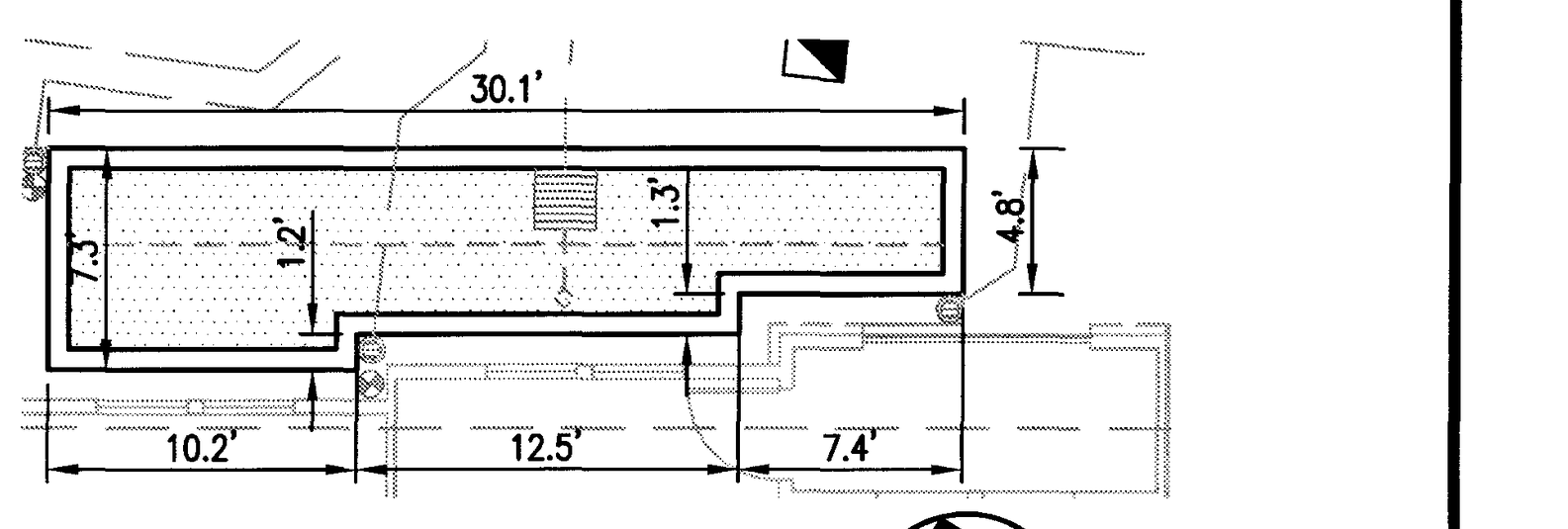
FTP #14

SCALE: 1"=8'



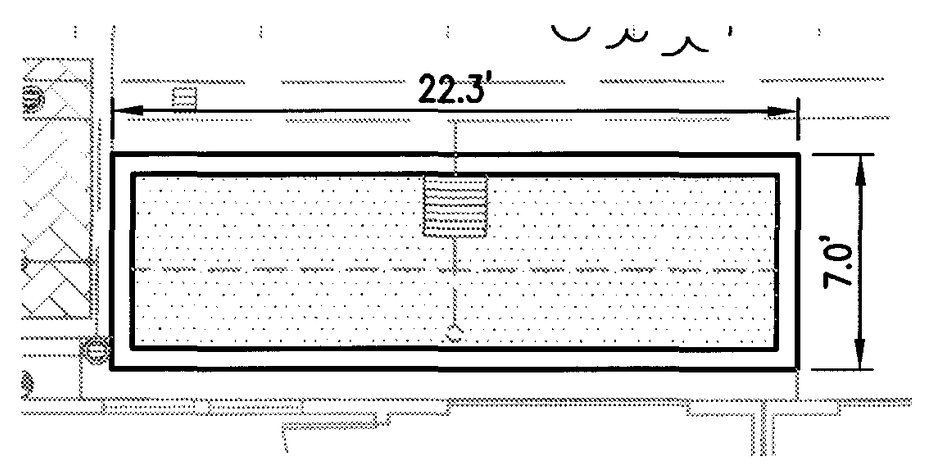
FTP #1

SCALE: 1"=8'


30.1'
7.3'
1.2'
1.3'
4.8'
10.2'
12.5'
7.4'

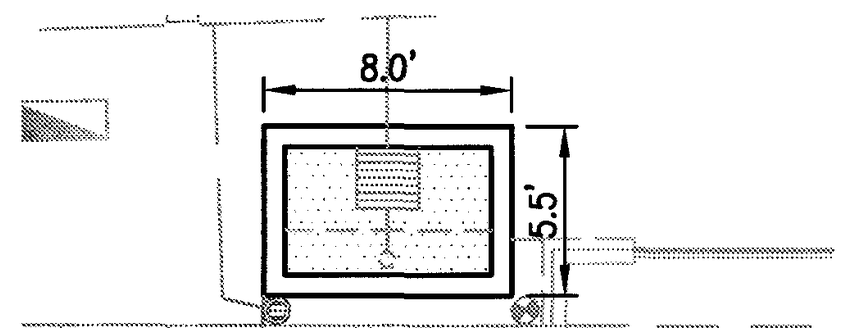
FTP #2

SCALE: 1"=8'



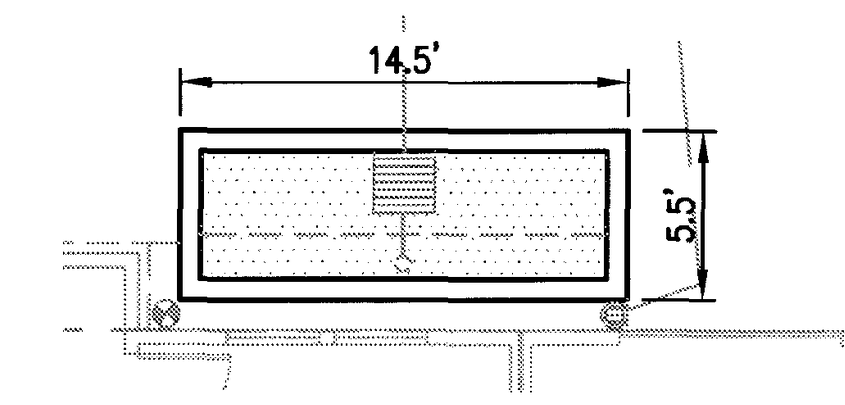
FTP #3

SCALE: 1"=8'



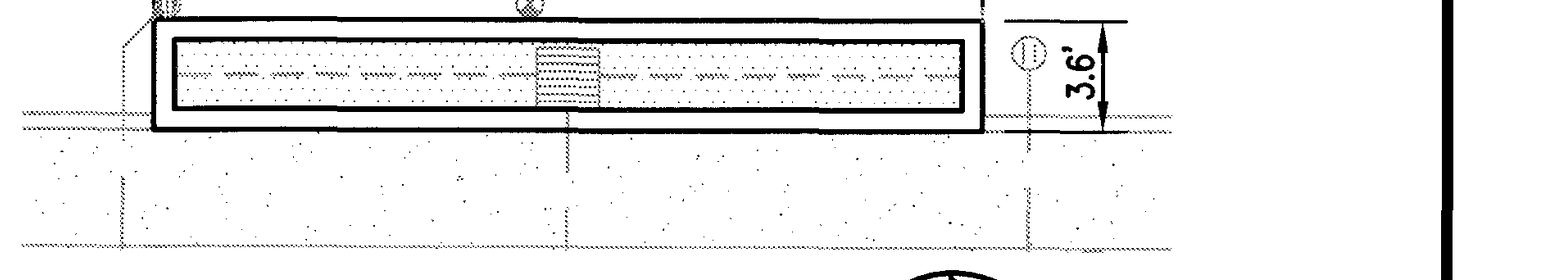
FTP #4

SCALE: 1"=8'



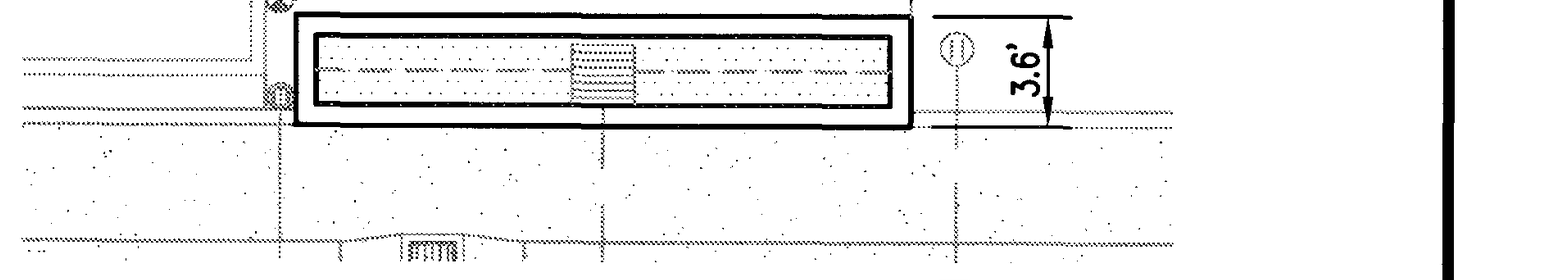
FTP #5

SCALE: 1"=8'



FTP #6

SCALE: 1"=8'



FTP #7

SCALE: 1"=8'

Know what's **below.** **Call** before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444

UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
FLOW THROUGH PLANTER WALL DIMENSIONS

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-36

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-36-FTP.dwg July 08, 2015 - 11:41am Cesar

BMP - NOISE CONTROL

BEST MANAGEMENT PRACTICES, NOISE CONTROL (GSP MM4.10-1 – MM4.10-4) – PRIOR TO ISSUANCE OF GRADING OR BUILDING PERMITS, THE PROJECT APPLICANT SHALL DOCUMENT ON THE GRADING AND BUILDING PLANS THE FOLLOWING CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPS), TO BE IMPLEMENTED BY CONTRACTORS TO REDUCE CONSTRUCTION NOISE LEVELS:

(MM4.10-1)

a. ENSURE THAT CONSTRUCTION EQUIPMENT IS PROPERLY MUFFLED ACCORDING TO INDUSTRY STANDARDS AND IN GOOD WORKING CONDITION.

b. PLACE NOISE-GENERATING CONSTRUCTION EQUIPMENT AND LOCATE CONSTRUCTION STAGING AREAS AWAY FROM SENSITIVE USES, WHERE FEASIBLE.

c. SCHEDULE HIGH NOISE-PRODUCING ACTIVITIES BETWEEN THE HOURS OF 8:00 AM AND 5:00 PM TO MINIMIZE DISRUPTION ON SENSITIVE USES, MONDAY THROUGH SATURDAY.

d. IMPLEMENT NOISE ATTENUATION MEASURES, WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY NOISE BARRIERS OR NOISE BLANKETS AROUND STATIONARY CONSTRUCTION NOISE SOURCES, WHERE FEASIBLE.

e. USE ELECTRIC AIR COMPRESSORS AND SIMILAR POWER TOOLS RATHER THAN DIESEL EQUIPMENT, WHERE FEASIBLE.

f. CONSTRUCTION-RELATED EQUIPMENT, INCLUDING HEAVY-DUTY EQUIPMENT, MOTOR VEHICLES, AND PORTABLE EQUIPMENT, SHALL BE TURNED OFF WHEN NOT IN USE FOR MORE THAN 10 MINUTES.

g. CONSTRUCTION HOURS, ALLOWABLE WORKDAYS, AND THE PHONE NUMBER OF THE JOB SUPERINTENDENT SHALL BE CLEARLY POSTED AT ALL CONSTRUCTION ENTRANCES TO ALLOW FOR SURROUNDING OWNERS AND RESIDENTS TO CONTACT THE JOB SUPERINTENDENT. IF THE CITY OR THE JOB SUPERINTENDENT RECEIVES A COMPLAINT, THE SUPERINTENDENT SHALL INVESTIGATE, TAKE APPROPRIATE CORRECTIVE ACTION, AND REPORT THE ACTION TAKEN TO THE REPORTING PARTY.

h. (MM4.10-2) CONSTRUCTION STAGING AREAS ALONG WITH THE OPERATION OF EARTHMOVING EQUIPMENT WITHIN THE PROJECT AREA WOULD BE LOCATED AS FAR AWAY FROM VIBRATION AND NOISE SENSITIVE SITES AS POSSIBLE.

i. (MM4.10-3) HEAVILY LOADED TRUCKS USED DURING CONSTRUCTION WOULD BE ROUTED AWAY FROM RESIDENTIAL STREETS.

j. (MM4.10-4) USE OF NOISE-REDUCING PILE DRIVING TECHNIQUES IF NEARBY STRUCTURES ARE SUBJECT TO PILE DRIVING NOISE AND VIBRATION. THESE TECHNIQUES INCLUDE PRE-DRILLING PILE HOLES (IF FEASIBLE, BASED ON SOILS) TO THE MAXIMUM FEASIBLE DEPTH, INSTALLING STATE-OF-THE-ART INTAKE AND EXHAUST MUFFLERS ON PILE DRIVING EQUIPMENT, VIBRATING PILES INTO PLACE WHEN FEASIBLE, AND INSTALLING SHROUDS AROUND THE PILE DRIVING HAMMER WHERE FEASIBLE. PILE DRIVING ACTIVITIES SHALL BE SCHEDULED BETWEEN THE HOURS OF 8:00 AM AND 4:00 PM ON MONDAYS THROUGH FRIDAYS ONLY.

BMP - AIR QUALITY

BEST MANAGEMENT PRACTICES, AIR QUALITY (GSP MM4.2-1 – MM4.2-14) – PRIOR TO ISSUANCE OF A GRADING AND/OR A BUILDING PERMIT, THE FOLLOWING BMPS SHALL BE INCLUDED ON THE PROJECT GRADING AND/OR BUILDING PLANS, AS DETERMINED APPROPRIATE BY THE COMMUNITY DEVELOPMENT DIRECTOR OR BUILDING OFFICIAL:

a. (MM4.2-1) NAME AND PHONE NUMBER OF THE CONTRACTOR'S SUPERINTENDENT HIRED BY THE APPLICANT SHALL BE SUBMITTED TO THE COMMUNITY DEVELOPMENT AND PUBLIC WORKS DEPARTMENTS. IN ADDITION, CLEARLY VISIBLE SIGNS SHALL BE POSTED ON THE PERIMETER OF THE SITE INDICATING WHO SHALL BE CONTACTED FOR INFORMATION REGARDING THIS DEVELOPMENT AND ANY ONSTRUCTION/GRADING-RELATED CONCERNS. THIS CONTACT PERSON SHALL BE AVAILABLE IMMEDIATELY TO ADDRESS ANY CONCERNS OR ISSUES RAISED BY ADJACENT PROPERTY OWNERS DURING THE CONSTRUCTION ACTIVITY. S/HE WILL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH THE CONDITIONS HEREIN, SPECIFICALLY, GRADING ACTIVITIES, TRUCK ROUTES, CONSTRUCTION HOURS, NOISE, ETC. SIGNS SHALL INCLUDE THE APPLICANT'S CONTACT NUMBER REGARDING GRADING AND CONSTRUCTION ACTIVITIES, AND "1-800-CUTSMOG" IN THE EVENT THERE ARE CONCERNS REGARDING FUGITIVE DUST AND COMPLIANCE WITH SCAQMD RULE NO. 403.

b. (MM4.2-2) WIND BARRIERS SHALL BE INSTALLED ALONG THE PERIMETER OF THE SITE AND/OR AROUND AREAS BEING GRADED.

c. (MM4.2-3) PROJECT APPLICANT SHALL ESTABLISH AN ON-SITE CONSTRUCTION EQUIPMENT STAGING AREA AND CONSTRUCTION WORKER PARKING, LOCATED ON EITHER PAVED SURFACES OR UNPAVED SURFACES SUBJECTED TO SOIL STABILIZATION TREATMENTS, AS CLOSE AS POSSIBLE TO A PUBLIC ROADWAY.

d. (MM4.2-4) PROJECT APPLICANT SHALL CONTROL ACCESS TO THE PUBLIC BY LIMITING CURB CUTS/DRIVEWAYS TO MINIMIZE PROJECT CONSTRUCTION IMPACTS UPON ROADWAY TRAFFIC OPERATIONS.

e. (MM4.2-5) PROJECT APPLICANT SHALL PROPERLY MAINTAIN NONVEHICULAR EQUIPMENT ENGINES TO MINIMIZE THE VOLUME OF EXHAUST EMISSIONS.

f. (MM4.2-6) PROJECT APPLICANT SHALL USE ELECTRICITY FROM POWER POLES, RATHER THAN TEMPORARY DIESEL OR GASOLINE POWERED GENERATORS, AS FEASIBLE.

g. (MM4.2-7) PROJECT APPLICANT SHALL USE ON-SITE MOBILE EQUIPMENT POWERED BY ALTERNATIVE FUEL SOURCES (I.E., METHANOL, NATURAL GAS, PROPANE, OR BUTANE) AS FEASIBLE.

h. (MM4.2-8) PROJECT APPLICANT SHALL PAVE ALL CONSTRUCTION ROADS AS FEASIBLE.

i. (MM4.2-9) PROJECT APPLICANT SHALL PROVIDE RIDESHARING OR SHUTTLE SERVICE FOR CONSTRUCTION WORKERS, AS FEASIBLE.

j. (MM4.2-10) PROJECT APPLICANT SHALL PROVIDE TEMPORARY TRAFFIC CONTROLS SUCH AS A FLAG PERSON, DURING ALL PHASES OF CONSTRUCTION TO MAINTAIN SMOOTH TRAFFIC FLOW, AS DEEMED NECESSARY BY THE PUBLIC WORKS DIRECTOR.

k. (MM4.2-11) PROJECT APPLICANT SHALL PROVIDE DEDICATED TURN LANES FOR MOVEMENT OF CONSTRUCTION TRUCKS AND EQUIPMENT ON AND OFF SITE, AS DEEMED NECESSARY BY THE PUBLIC WORKS DIRECTOR.

l. (MM4.2-12) PROJECT APPLICANT SHALL REROUTE CONSTRUCTION TRUCKS AWAY FROM CONGESTED STREETS OR SENSITIVE RECEPTOR AREAS, AS FEASIBLE;

m. (MM4.2-13) PROJECT APPLICANT SHALL REQUIRE THE USE OF CLEANEST BURNING DIESEL HAUL TRUCKS AVAILABLE, SUCH AS TRUCKS THAT MEET 2010 MODEL YEAR EPA STANDARDS.

n. (MM4.2-14) PROJECT APPLICANT SHALL ENSURE THAT ALL ARCHITECTURAL COATING (PAINT AND PRIMER) PRODUCTS APPLIED DURING CONSTRUCTION HAVE A LOW TO NO VOC RATING.

BMP - DUST CONTROL

DUST CONTROL – DURING CLEARING, GRADING, EARTH-MOVING, OR EXCAVATION OPERATIONS, EXCESSIVE FUGITIVE DUST EMISSIONS SHALL BE CONTROLLED BY REGULAR WATERING OR OTHER DUST-PREVENTIVE MEASURES USING THE FOLLOWING PROCEDURES, AS SPECIFIED IN THE SCAQMD RULE 403 LISTED BELOW. PRIOR TO GRADING PERMIT ISSUANCE, THESE CONTROL TECHNIQUES SHALL BE NOTED ON THE PROJECT GRADING PLANS. COMPLIANCE WITH THE MEASURE SHALL BE SUBJECT TO PERIODIC SITE INSPECTIONS BY THE CITY.

a. ON-SITE VEHICLE SPEED SHALL BE LIMITED TO 15 MILES PER HOUR.

b. ALL MATERIAL EXCAVATED OR GRADED SHALL BE SUFFICIENTLY WATERED TO PREVENT EXCESSIVE AMOUNTS OF DUST. WATERING SHALL OCCUR AT LEAST TWICE DAILY WITH COMPLETE COVERAGE, PREFERABLY IN THE LATE MORNING AND AFTER WORK IS DONE FOR THE DAY.

c. STREETS ADJACENT TO THE PROJECT SITE SHALL BE SWEPT AS NEEDED TO REMOVE SILT THAT MAY HAVE ACCUMULATED FROM CONSTRUCTION ACTIVITIES SO AS TO PREVENT EXCESSIVE AMOUNTS OF DUST.

d. ALL TRUCKS HAULING DIRT, SAND, SOIL, OR OTHER LOOSE MATERIALS SHALL BE SECURELY COVERED, OR MAINTAIN AT LEAST 0.6 METERS (2 FEET) OF FREEBOARD (VERTICAL SPACE BETWEEN THE TOP OF THE LOAD AND TOP OF THE TRAILER) IN ACCORDANCE WITH THE REQUIREMENTS OF CALIFORNIA VEHICLE CODE (CVC) SECTION 23114.

e. THE AREA DISTURBED BY CLEARING, GRADING, EARTH-MOVING, OR EXCAVATION OPERATIONS SHALL BE MINIMIZED SO AS TO PREVENT EXCESSIVE AMOUNTS OF DUST.

f. VISIBLE DUST BEYOND THE PROPERTY LINE EMANATING FROM THE PROJECT SHALL BE PREVENTED TO THE MAXIMUM EXTENT FEASIBLE.

BEST MANAGEMENT PRACTICES

THE FOLLOWING BMPs AS OUTLINED IN, BUT NOT LIMITED TO, THE CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA) CONSTRUCTION BEST MANAGEMENT PRACTICES (BMP) HANDBOOK, NOVEMBER 2009, OR LATEST REVISED EDITION, MAY APPLY DURING THE CONSTRUCTION OF THIS PROJECT (ADDITIONAL MEASURES MAY BE REQUIRED IF DEEMED APPROPRIATE BY THE PROJECT ENGINEER OR THE BUILDING OFFICIAL).

TEMPORARY EROSION CONTROL

EC-1	SCHEDULING
EC-2	PRESERVATION OF EXISTING VEGETATION
EC-3	HYDRAULIC MULCH
EC-4	HYDROSEEDING
EC-5	SOIL BINDERS
EC-6	STRAW MULCH
EC-7	GEOTEXTILES AND MATS
EC-8	WOOD MULCHING
EC-9	EARTH DIKES AND DRAINAGE SWALES
EC-10	VELOCITY DISSIPATION DEVICES
EC-11	SLOPE DRAINS
EC-12	STREAMBANK STABILIZATION
EC-13	RESERVED (FORMERLY PAM)
EC-14	COMPOST BLANKETS
EC-15	SOIL PREPARATION/ROUGHENING
EC-16	NON-VEGETATIVE STABILIZATION

TEMPORARY SEDIMENT CONTROL

SE-1	SILT FENCE
SE-2	SEDIMENT BASIN
SE-3	SEDIMENT TRAP
SE-4	CHECK DAM
SE-5	FIBER ROLLS
SE-6	GRAVEL BAG BERM
SE-7	STREET SWEEPING AND VACUUMING
SE-8	SANDBAG BARRIER
SE-9	STRAW BALE BARRIER
SE-10	STORM DRAIN INLET PROTECTION
SE-11	ACTIVE TREATMENT SYSTEMS
SE-12	TEMPORARY SILT DIKE
SE-13	COMPOST SOCKS AND BERMS
SE-14	BIOFILTER BAGS

WIND EROSION CONTROL

WE-1	WIND EROSION CONTROL

NON-STORMWATER MANAGEMENT CONTROL

NS-1	WATER CONSERVATION PRACTICES
NS-2	DEWATERING OPERATIONS
NS-3	PAVING AND GRINDING OPERATIONS
NS-4	TEMPORARY STREAM CROSSING
NS-5	CLEAR WATER DIVERSION
NS-6	ILLICIT CONNECTION/DISCHARGE
NS-7	POTABLE WATER/IRRIGATION
NS-8	VEHICLE AND EQUIPMENT CLEANING
NS-9	VEHICLE AND EQUIPMENT FUELING
NS-10	VEHICLE AND EQUIPMENT MAINTENANCE
NS-11	PILE DRIVING OPERATIONS
NS-12	CONCRETE CURING
NS-13	CONCRETE FINISHING
NS-14	MATERIAL OVER WATER
NS-15	DEMOLITION ADJACENT TO WATER
NS-16	TEMPORARY BATCH PLANTS

WASTE MANAGEMENT & MATERIALS POLLUTION CONTROL

WM-1	MATERIAL DELIVERY AND STORAGE
WM-2	MATERIAL USE
WM-3	STOCKPILE MANAGEMENT
WM-4	SPILL PREVENTION AND CONTROL
WM-5	SOLID WASTE MANAGEMENT
WM-6	HAZARDOUS WASTE MANAGEMENT
WM-7	CONTAMINATED SOIL MANAGEMENT
WM-8	CONCRETE WASTE MANAGEMENT
WM-9	SANITARY/SEPTIC WASTE MANAGEMENT
WM-10	LIQUID WASTE MANAGEMENT

EQUIPMENT TRACKING CONTROL

TC-1	STABILIZED CONSTRUCTION ENTRANCE/EXIT
TC-2	STABILIZED CONSTRUCTION ROADWAY
TC-3	ENTRANCE/OUTLET TIRE WASH

NOTE

1. SPRAY EARTHGUARD OR EQUIVALENT ON ALL DISTURBED AREAS, DISTURBED SLOPES AND STOCKPILES, PRIOR TO THE RAIN EVENT/STORM (SEE NOTE BELOW).

   DURING THE WET SEASON, BETWEEN OCTOBER 1ST AND APRIL 30TH, EROSION CONTROL PROTECTIVE DEVICES AND MEASURES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY PROBABILITY-OF-RAIN EXCEEDS 40%. DURING THE REMAINDER OF THE YEAR, THE EROSION CONTROL PROTECTIVE DEVICES AND MEASURES SHALL BE ONSITE AND READY FOR INSTALLATION WHEN THE 5-DAY PROBABILITY-OF-RAIN EXCEED 50% AND IN PLACE AT THE END OF EACH DAY WHEN THE 48 HOUR PROBABILITY-OF-RAIN EXCEEDS 50%.

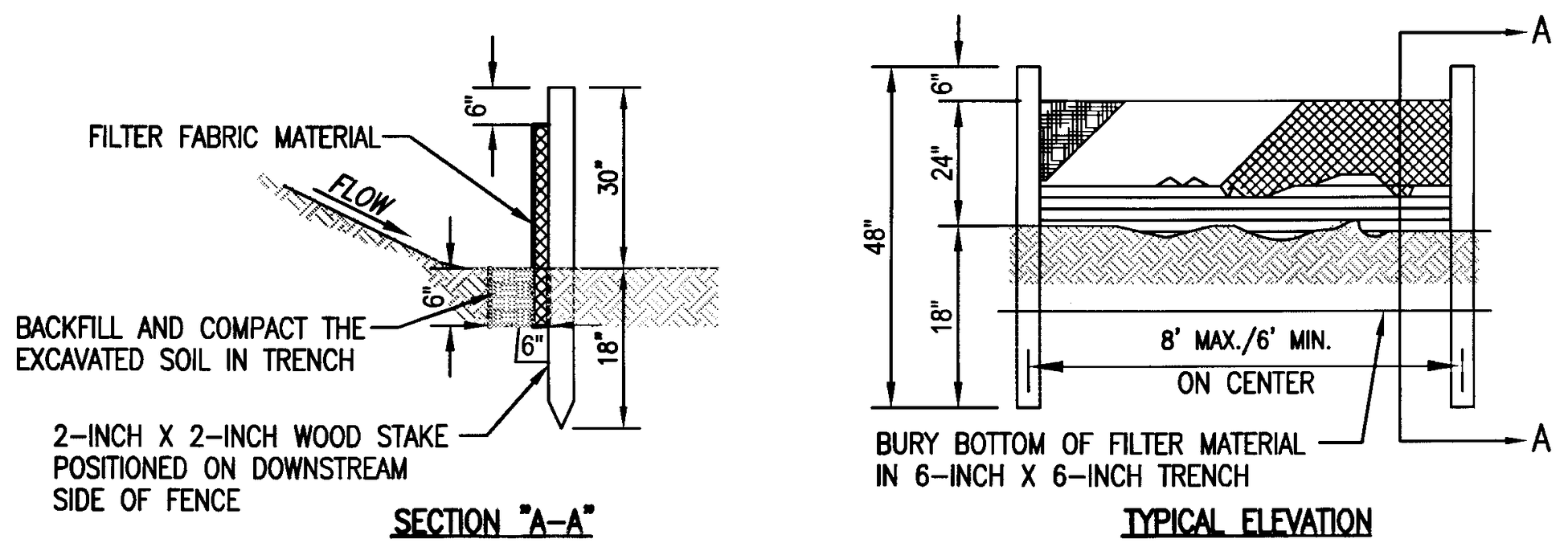
2. LINEAR SEDIMENT CONTROLS SHALL BE APPLIED ALONG THE TOP OF SLOPE, FACE OF SLOPE, AND AT THE GRADE BREAKS OF EXPOSED SLOPES TO COMPLY WITH SHEET FLOW LENGTHS STATED IN THE CONSTRUCTION GENERAL PERMIT AND SHOWN BELOW.

SLOPE PERCENTAGE	SHEET FLOW LENGTH NOT TO EXCEED
0-25%	20 FEET MAX.
25-50%	15 FEET MAX.
OVER 50%	10 FEET MAX.

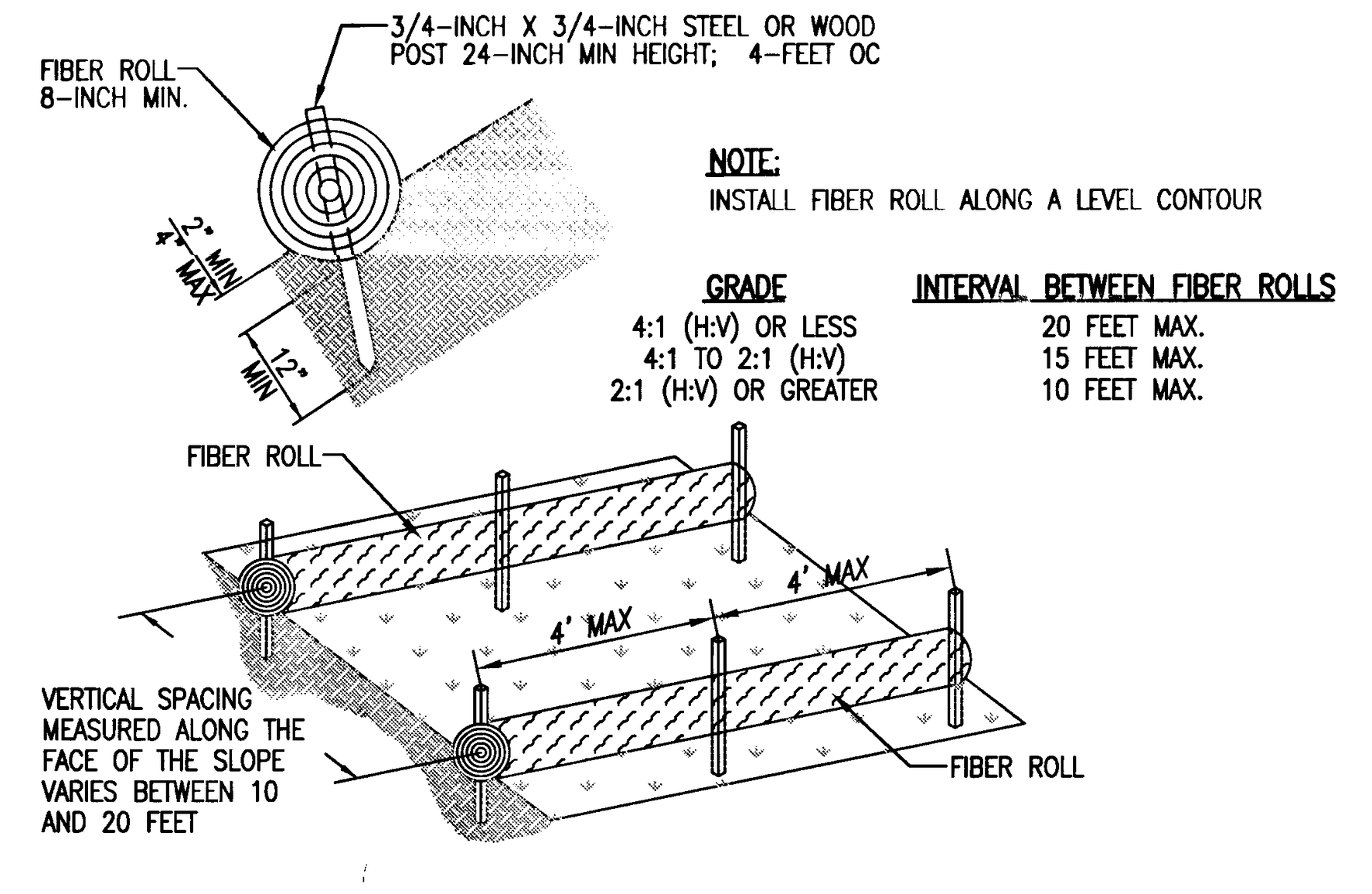
3. CONCENTRATED FLOWS CREATED DURING DEMOLITION PHASE ARE A TEMPORARY CONDITION THAT WILL BE REMOVED DURING PRECISE GRADING.

4. ANY STORM WATER LEAVING THE SITE MUST MEET OR EXCEED DISCHARGE REQUIREMENTS FROM THE CONSTRUCTION GENERAL PERMIT.

5. A SOCK SHALL BE INSTALLED WITHIN STORM DRAIN RISERS AND INLETS UNTIL THE DRAINAGE AREA IS FREE FROM EXPOSED SOIL.


FILTER FABRIC MATERIAL
FLOW
6"
30"
18"
6"
6"
BACKFILL AND COMPACT THE EXCAVATED SOIL IN TRENCH
2-INCH X 2-INCH WOOD STAKE POSITIONED ON DOWNSTREAM SIDE OF FENCE
SECTION "A-A"
48"
6"
24"
18"
8' MAX./6' MIN. ON CENTER
A
A
BURY BOTTOM OF FILTER MATERIAL IN 6-INCH X 6-INCH TRENCH
TYPICAL ELEVATION

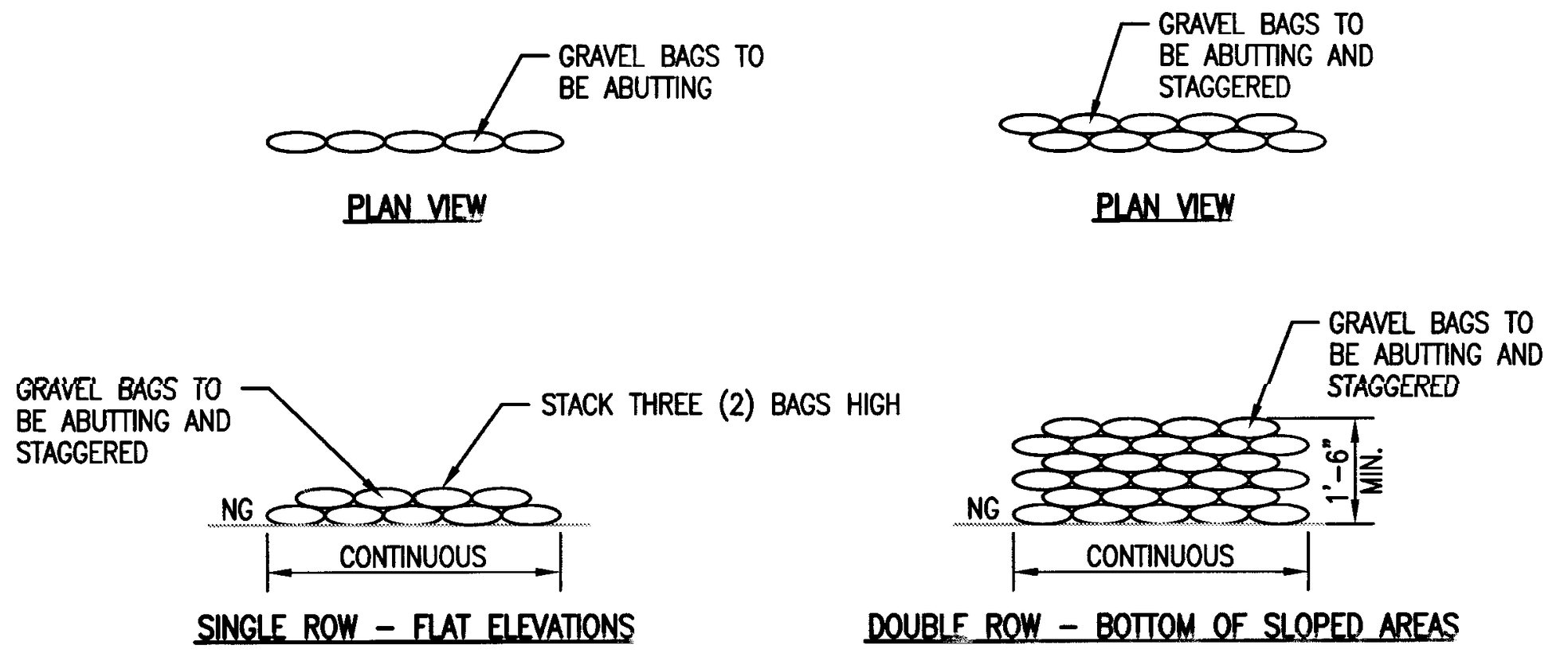
SE-1: SILT FENCE
SCALE: NONE


FIBER ROLL 8-INCH MIN.
3/4-INCH X 3/4-INCH STEEL OR WOOD POST 24-INCH MIN HEIGHT; 4-FEET OC
2" MIN
4" MAX
12" MIN
FIBER ROLL
4' MAX
4' MAX
VERTICAL SPACING MEASURED ALONG THE FACE OF THE SLOPE VARIES BETWEEN 10 AND 20 FEET
FIBER ROLL

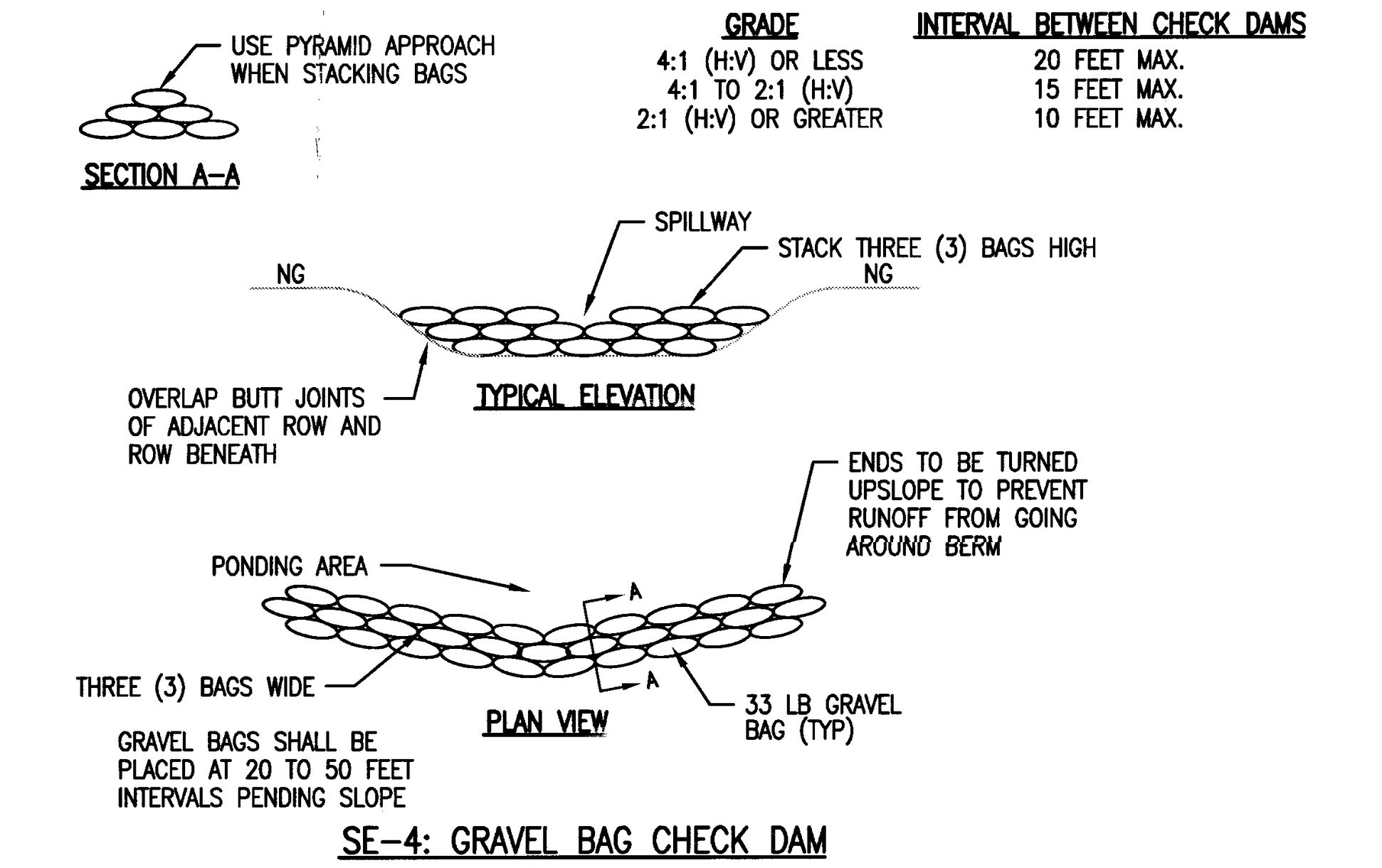
NOTE:
INSTALL FIBER ROLL ALONG A LEVEL CONTOUR

GRADE	INTERVAL BETWEEN FIBER ROLLS
4:1 (H:V) OR LESS	20 FEET MAX.
4:1 TO 2:1 (H:V)	15 FEET MAX.
2:1 (H:V) OR GREATER	10 FEET MAX.

SE-5: FIBER ROLLS
SCALE: NONE

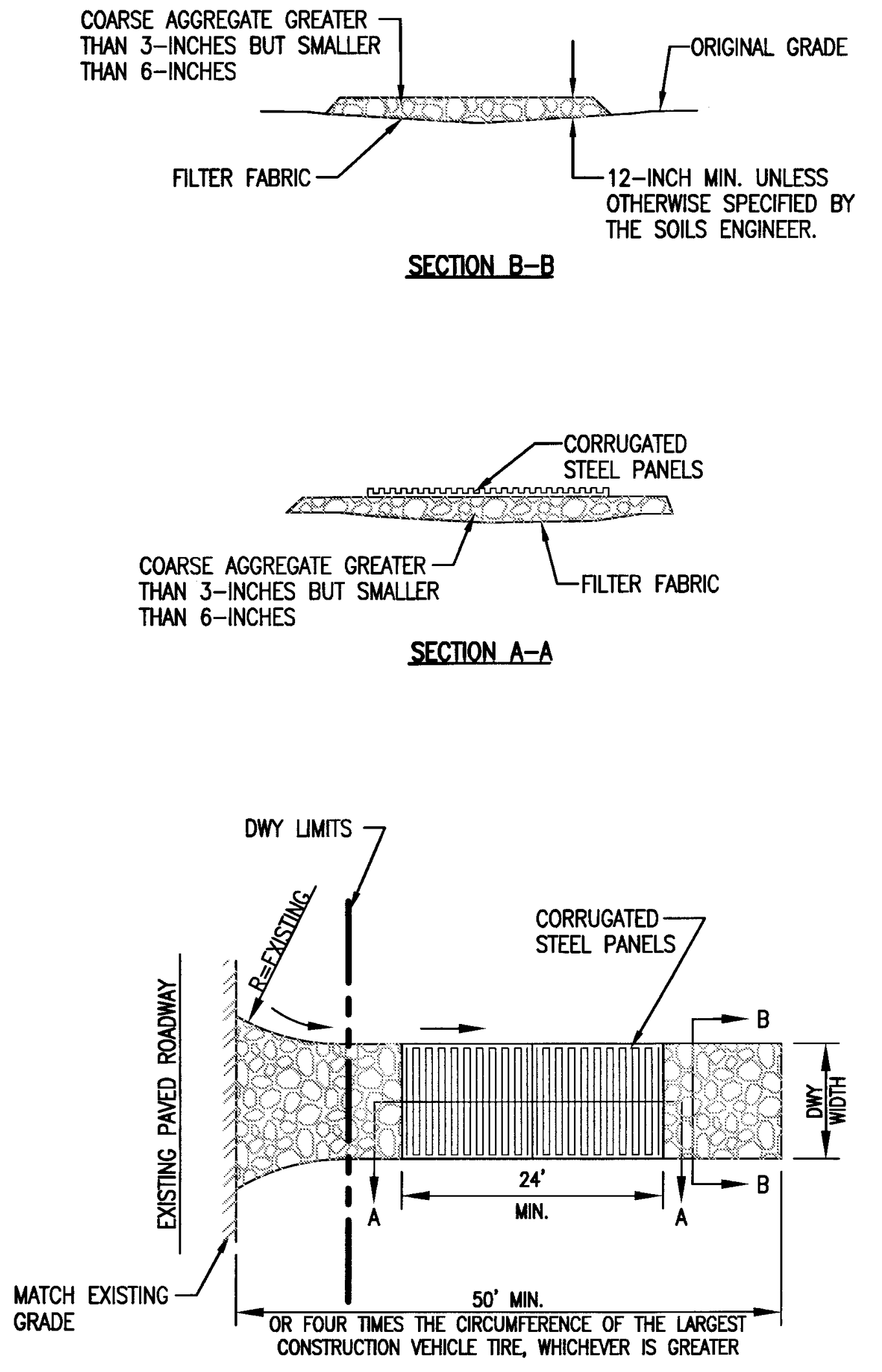

GRAVEL BAGS TO BE ABUTTING
PLAN VIEW
GRAVEL BAGS TO BE ABUTTING AND STAGGERED
PLAN VIEW
GRAVEL BAGS TO BE ABUTTING AND STAGGERED
STACK THREE (2) BAGS HIGH
NG
CONTINUOUS
SINGLE ROW – FLAT ELEVATIONS
GRAVEL BAGS TO BE ABUTTING AND STAGGERED
1'-6" MIN.
NG
CONTINUOUS
DOUBLE ROW – BOTTOM OF SLOPED AREAS

SE-6: GRAVEL BAGS ALONG CONSTRUCTION AREA
SCALE: NONE

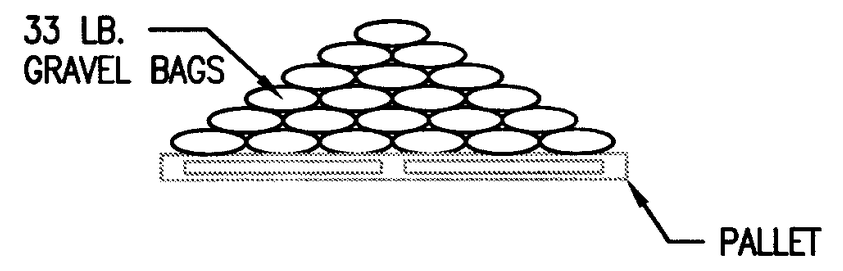

USE PYRAMID APPROACH WHEN STACKING BAGS
SECTION A-A
SPILLWAY
STACK THREE (3) BAGS HIGH
NG
NG
OVERLAP BUTT JOINTS OF ADJACENT ROW AND ROW BENEATH
TYPICAL ELEVATION
ENDS TO BE TURNED UPSLOPE TO PREVENT RUNOFF FROM GOING AROUND BERM
PONDING AREA
A
A
THREE (3) BAGS WIDE
33 LB GRAVEL BAG (TYP)
PLAN VIEW
GRAVEL BAGS SHALL BE PLACED AT 20 TO 50 FEET INTERVALS PENDING SLOPE

GRADE	INTERVAL BETWEEN CHECK DAMS
4:1 (H:V) OR LESS	20 FEET MAX.
4:1 TO 2:1 (H:V)	15 FEET MAX.
2:1 (H:V) OR GREATER	10 FEET MAX.

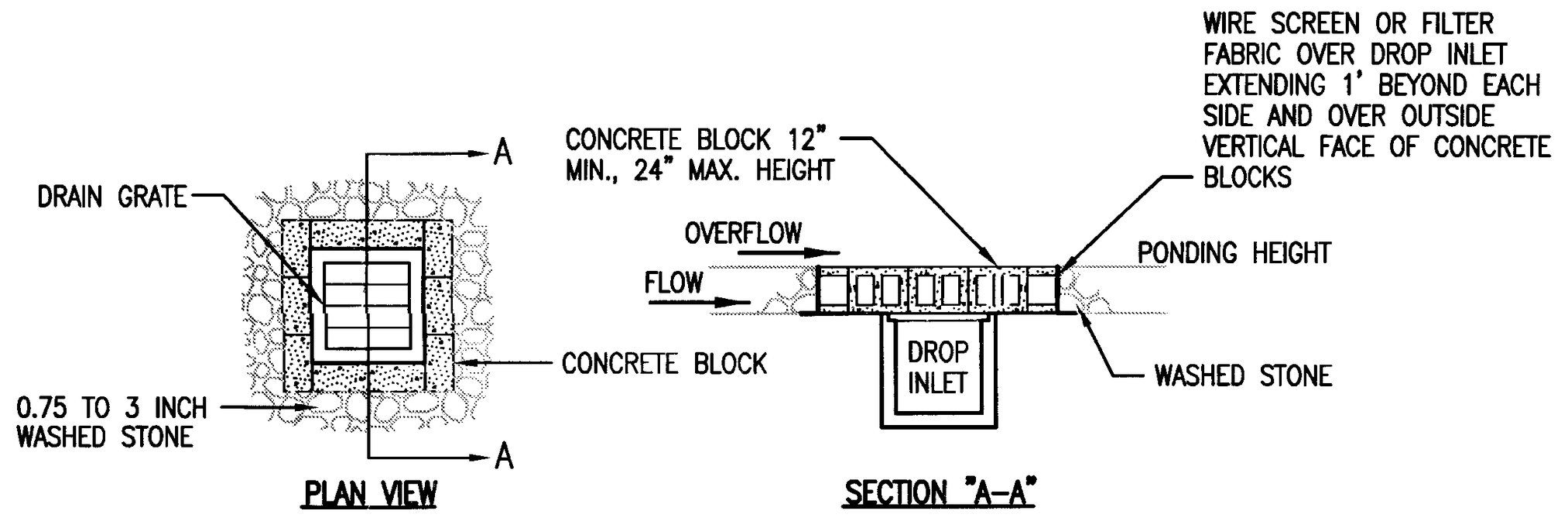
SE-4: GRAVEL BAG CHECK DAM
SCALE: NONE


COARSE AGGREGATE GREATER THAN 3-INCHES BUT SMALLER THAN 6-INCHES
ORIGINAL GRADE
FILTER FABRIC
12-INCH MIN. UNLESS OTHERWISE SPECIFIED BY THE SOILS ENGINEER.
SECTION B-B
CORRUGATED STEEL PANELS
COARSE AGGREGATE GREATER THAN 3-INCHES BUT SMALLER THAN 6-INCHES
FILTER FABRIC
SECTION A-A
DWY LIMITS
R=EXISTING
CORRUGATED STEEL PANELS
EXISTING PAVED ROADWAY
B
B
DWY WIDTH
A
A
24' MIN.
MATCH EXISTING GRADE
50' MIN.
OR FOUR TIMES THE CIRCUMFERENCE OF THE LARGEST CONSTRUCTION VEHICLE TIRE, WHICHEVER IS GREATER

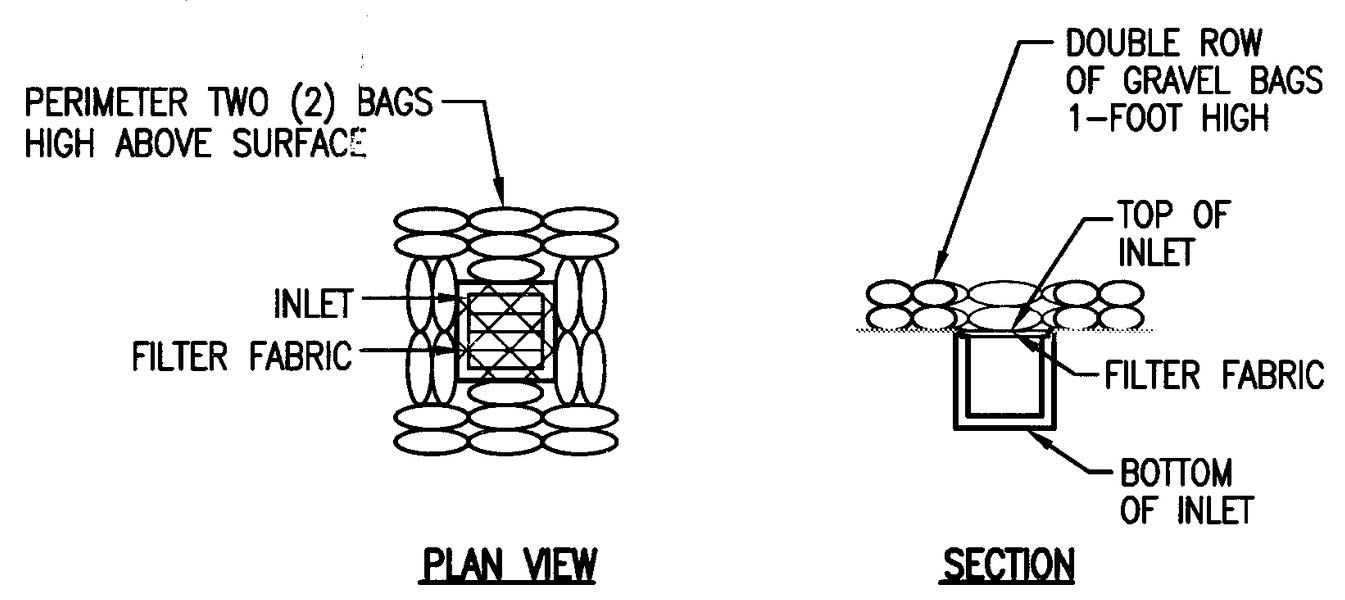
TC-1 TRACKING CONTROL
SCALE: NONE


33 LB. GRAVEL BAGS
PALLET

GRAVEL BAG STOCKPILE
SCALE: NONE


DRAIN GRATE
A
A
CONCRETE BLOCK
0.75 TO 3 INCH WASHED STONE
PLAN VIEW
CONCRETE BLOCK 12" MIN., 24" MAX. HEIGHT
WIRE SCREEN OR FILTER FABRIC OVER DROP INLET EXTENDING 1' BEYOND EACH SIDE AND OVER OUTSIDE VERTICAL FACE OF CONCRETE BLOCKS
OVERFLOW
FLOW
PONDING HEIGHT
DROP INLET
WASHED STONE
SECTION "A-A"

SE-10: INLET PROTECTION FOR RAIN EVENTS
SCALE: NONE


PERIMETER TWO (2) BAGS HIGH ABOVE SURFACE
INLET
FILTER FABRIC
PLAN VIEW
DOUBLE ROW OF GRAVEL BAGS 1-FOOT HIGH
TOP OF INLET
FILTER FABRIC
BOTTOM OF INLET
SECTION

SE-10 STORM DRAIN INLET PROTECTION
SCALE: NONE

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

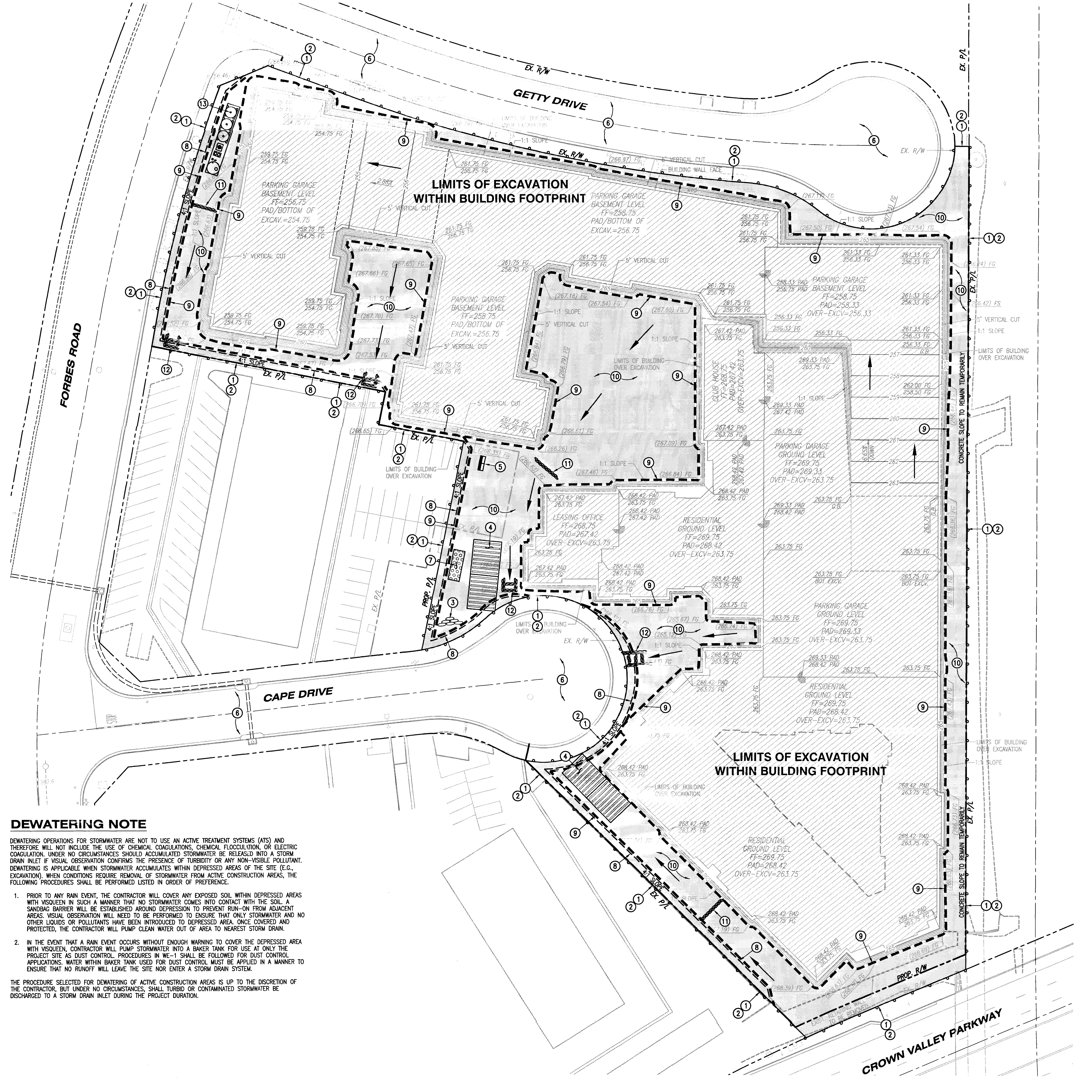
SHEET DESCRIPTION: **EROSION CONTROL NOTES & DETAILS**

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-37


GETTY DRIVE
FORBES ROAD
CAPE DRIVE
CROWN VALLEY PARKWAY
EX. R/W
EX. P/L
PROP. R/W
PROP. P/L
LIMITS OF EXCAVATION WITHIN BUILDING FOOTPRINT
LIMITS OF EXCAVATION WITHIN BUILDING FOOTPRINT
PARKING GARAGE BASEMENT LEVEL FF=256.75 PAD/BOTTOM OF EXCAV.=254.75
PARKING GARAGE BASEMENT LEVEL FF=258.75 PAD/BOTTOM OF EXCAV.=256.75
PARKING GARAGE BASEMENT LEVEL FF=258.75 PAD/BOTTOM OF EXCAV.=256.75
PARKING GARAGE BASEMENT LEVEL FF=258.75 PAD=258.33 OVER-EXCV=256.33
CLUB HOUSE FF=268.75 PAD=267.42 OVER-EXCV=263.75
PARKING GARAGE GROUND LEVEL FF=269.75 PAD=269.33 OVER-EXCV=263.75
LEASING OFFICE FF=268.75 PAD=267.42 OVER-EXCV=263.75
RESIDENTIAL GROUND LEVEL FF=268.75 PAD=268.42 OVER-EXCV=263.75
PARKING GARAGE GROUND LEVEL FF=269.75 PAD=269.33 OVER-EXCV=263.75
RESIDENTIAL GROUND LEVEL FF=269.75 PAD=268.42 OVER-EXCV=263.75
RESIDENTIAL GROUND LEVEL FF=269.75 PAD=268.42 OVER-EXCV=263.75
5' VERTICAL CUT
1:1 SLOPE
4:1 SLOPE
LIMITS OF BUILDING OVER EXCAVATION
CONCRETE SLOPE TO REMAIN TEMPORARILY
N
0 15 30 60 90
SCALE: 1"=30'

DEWATERING NOTE

DEWATERING OPERATIONS FOR STORMWATER ARE NOT TO USE AN ACTIVE TREATMENT SYSTEMS (ATS) AND THEREFORE WILL NOT INCLUDE THE USE OF CHEMICAL COAGULATIONS, CHEMICAL FLOCCULATION, OR ELECTRIC COAGULATION. UNDER NO CIRCUMSTANCES SHOULD ACCUMULATED STORMWATER BE RELEASED INTO A STORM DRAIN INLET IF VISUAL OBSERVATION CONFIRMS THE PRESENCE OF TURBIDITY OR ANY NON-VISIBLE POLLUTANT. DEWATERING IS APPLICABLE WHEN STORMWATER ACCUMULATES WITHIN DEPRESSED AREAS OF THE SITE (E.G., EXCAVATION). WHEN CONDITIONS REQUIRE REMOVAL OF STORMWATER FROM ACTIVE CONSTRUCTION AREAS, THE FOLLOWING PROCEDURES SHALL BE PERFORMED LISTED IN ORDER OF PREFERENCE.

1. PRIOR TO ANY RAIN EVENT, THE CONTRACTOR WILL COVER ANY EXPOSED SOIL WITHIN DEPRESSED AREAS WITH VISQUEEN IN SUCH A MANNER THAT NO STORMWATER COMES INTO CONTACT WITH THE SOIL. A SANDBAG BARRIER WILL BE ESTABLISHED AROUND DEPRESSION TO PREVENT RUN-ON FROM ADJACENT AREAS. VISUAL OBSERVATION WILL NEED TO BE PERFORMED TO ENSURE THAT ONLY STORMWATER AND NO OTHER LIQUIDS OR POLLUTANTS HAVE BEEN INTRODUCED TO DEPRESSED AREA. ONCE COVERED AND PROTECTED, THE CONTRACTOR WILL PUMP CLEAN WATER OUT OF AREA TO NEAREST STORM DRAIN.
2. IN THE EVENT THAT A RAIN EVENT OCCURS WITHOUT ENOUGH WARNING TO COVER THE DEPRESSED AREA WITH VISQUEEN, CONTRACTOR WILL PUMP STORMWATER INTO A BAKER TANK FOR USE AT ONLY THE PROJECT SITE AS DUST CONTROL. PROCEDURES IN WE-1 SHALL BE FOLLOWED FOR DUST CONTROL APPLICATIONS. WATER WITHIN BAKER TANK USED FOR DUST CONTROL MUST BE APPLIED IN A MANNER TO ENSURE THAT NO RUNOFF WILL LEAVE THE SITE NOR ENTER A STORM DRAIN SYSTEM.

THE PROCEDURE SELECTED FOR DEWATERING OF ACTIVE CONSTRUCTION AREAS IS UP TO THE DISCRETION OF THE CONTRACTOR, BUT UNDER NO CIRCUMSTANCES, SHALL TURBID OR CONTAMINATED STORMWATER BE DISCHARGED TO A STORM DRAIN INLET DURING THE PROJECT DURATION.

GENERAL NOTES:

1. SEE SHEET C-5 FOR EXCAVATION SECTIONS.
2. CONTRACTOR TO ADHERE TO ALL RECOMMENDATIONS PROVIDED IN THE APPROVED SOILS REPORT FOR THE OVER-EXCAVATION DEPTH.
3. SUB-GRADE PREPARATIONS SHALL CONFORM TO THE REQUIREMENTS OF THE SOIL REPORT AND SHALL BE PERFORMED UNDER THE SUPERVISION OF THE SOILS ENGINEER.
4. THE REMOVAL AND REPLACEMENT OF UNSUITABLE MATERIAL (ARTIFICIAL FILL) IS PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
5. ALL VERTICAL CUTS MORE THAN 5 FEET IN HEIGHT SHALL BE CUT BACK AT 1:1 SLOPE.

GRADING QUANTITY ESTIMATE

CUT = 23,700 CY
FILL = 9,500 CY
NET = 14,200 CY

IMPORT = 0 CY
EXPORT = 14,200 CY

NOTE:

QUANTITIES SHOWN ARE ESTIMATES FOR BONDING PURPOSES ONLY. ACTUAL PAY QUANTITY CALCULATIONS ARE THE RESPONSIBILITY OF THE GRADING CONTRACTOR.

CONSTRUCTION NOTES

① INSTALL 6-FOOT HIGH CHAIN LINK FENCE WITH SCREENING AROUND PERIMETER OF PROPERTY.

② BMP'S SE-1, SE-5, SE-6, SE-12: PLACE SILT FENCE AND GRAVEL BAGS (2 HIGH) ALONG CONSTRUCTION PERIMETER IN ACCORDANCE WITH CASQA BMP STANDARD.

③ STOCKPILE BMPs THROUGHOUT CONSTRUCTION AREA FOR REPLACEMENT OF DAMAGED BMP'S AND/OR CREATION OF EMERGENCY BMPs.

④ BMP TC-1: CONSTRUCT TEMPORARY DRIVE PAD WITH A WIDTH EQUAL TO THE ENTRANCE/EXIT OF PROJECT SITE AND AT LEAST 50-FEET MIN. IN LENGTH. PURPOSE OF DRIVE PAD IS TO MITIGATE TRACKING OF MUD AND SILT ONTO PUBLIC STREETS. DESIGN ACCORDING TO CASQA STANDARD.

⑤ BMP WM-9: PLACE PORTABLE TOILET 50-FEET AWAY FROM DOWNSTREAM DRAINAGE FACILITIES, WATERCOURSES, AND CONSTRUCTION PERIMETER. SECONDARY CONTAINMENT SHALL BE RPOVIDED IN CASE OF SPILLS. USE CASQA BMP STANDARD.

⑥ BMP SE-7: SWEEP AND/OR VACUUM ALL STREETS AND SIDEWALKS, AS NEEDED, TO REMOVE VISIBLE SEDIMENT TRACKED FROM THE CONSTRUCTION SITE. ANY TRACKED SEDIMENT WILL BE REMOVED PRIOR TO THE END OF THE WORK DAY. USE CASQA BMP STANDARD.

⑦ BMP WM-5: PLACE WATERTIGHT TRASH CONTAINERS AWAY FROM DRAINAGE FACILITIES AND WATERCOURSES. ARRANGEMENTS FOR WASTE COLLECTION SHALL BE MADE PRIOR TO TWO-THIRDS CAPACITY. TRASH CONTAINERS SHALL BE COVERED AT THE END OF WORK DAY. USE CASQA BMP STANDARD.

⑧ CREATE A 5-FOOT WIDE 4:1 SLOPE INTO THE PROJECT SITE ALONG LIMITS OF DEMOLITION TO ALLOW FOR DESILTING OF SEDIMENT PRIOR TO DISCHARGING OFF-SITE. PLACE FIBER ROLLS OR STRAW WATTLE AT TOE OF SLOPE.

⑨ BMP SE-5: STAKE IN FIBER ROLLS OR STRAW WATTLES WITHIN TRENCH ALONG EVEN CONTOURS AT VERTICAL SPACING AS SPECIFIED BY THE DETAIL ON SHEET C-37 AND IN ACCORDANCE WITH THE CASQA BMP STANDARD.

⑩ BMP EC-5: SPRAY EARTHGUARD OR EQUIVALENT ON ALL ACTIVE AND NON-ACTIVE SOIL AREAS THROUGHOUT THE ENTIRE SITE. APPLICATION SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S STANDARDS AND REAPPLIED AS NEEDED. SEE NOTE #1 BELOW.

⑪ BMP SE-4, SE-6: INSTALL CHECK DAMS AT INTERVALS SPECIFIED IN DETAIL BASED ON SLOPE PERCENTAGE. STEEP GRADES REQUIRE STAKES TO BE DRIVEN 4-INCHES INTO THE GROUND DOWNSTREAM AND ADJACENT TO GRAVEL BAGS (DO NOT PUT STAKES IN GRAVEL BAGS) IN A MANNER THAT WILL KEEP THE GRAVEL BAG BERMS IN POSITION. SEE DETAIL ON SHEET C-37.

⑫ BMP SE-6: PLACE AND CONSTRUCT GRAVEL BAG POINT OF DISCHARGE CONTROL TWO BAGS WIDE AND THREE BAGS TALL.

⑬ BMP NS-2: PROVIDE AND INSTALL DEWATERING SYSTEM TO REMOVE ACCUMULATED STORMWATER FROM DEPRESSED AREAS. SEE DEWATERING NOTE ON THIS SHEET.

LEGEND

o—o—o—oo	PERIMETER CONTROL (SILT FENCE WITH GRAVEL BAGS)
←	DIRECTION OF PROPOSED SURFACE DRAINAGE
ⓘ	CONSTRUCTION NOTE CALLOUT REFERENCE
▬ ▬	RIGHT OF WAY LINE/PROPERTY LINE
▥	GRAVEL BED AND/OR (IF ON ASPHALT)) RUMBLE PLATES
○○○○	TEMPORARY DUMPSTER AREA
▭	TEMPORARY PORTABLE TOILET
⬭	GRAVEL BAGS
- - - -	FIBER ROLL/STRAW WATTLE
▨	EARTHGUARD OR EQUIVALENT

NOTE

1. SPRAY EARTHGUARD OR EQUIVALENT ON ALL DISTURBED AREAS, DISTURBED SLOPES AND STOCKPILES, PRIOR TO THE RAIN EVENT/STORM (SEE NOTE BELOW).

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2. LINEAR SEDIMENT CONTROLS SHALL BE APPLIED ALONG THE TOP OF SLOPE, FACE OF SLOPE, AND AT THE GRADE BREAKS OF EXPOSED SLOPES TO COMPLY WITH SHEET FLOW LENGTHS STATED IN THE CONSTRUCTION GENERAL PERMIT AND SHOWN BELOW.

SLOPE PERCENTAGE	SHEET FLOW LENGTH NOT TO EXCEED
0-25%	20 FEET MAX.
25-50%	15 FEET MAX.
OVER 50%	10 FEET MAX.

3. CONCENTRATED FLOWS CREATED DURING DEMOLITION PHASE ARE A TEMPORARY CONDITION THAT WILL BE REMOVED DURING PRECISE GRADING.
4. ANY STORM WATER LEAVING THE SITE MUST MEET OR EXCEED DISCHARGE REQUIREMENTS FROM THE CONSTRUCTION GENERAL PERMIT.
5. A SOCK SHALL BE INSTALLED WITHIN STORM DRAIN RISERS AND INLETS UNTIL THE DRAINAGE AREA IS FREE FROM EXPOSED SOIL.

811
Know what's below.
Call before you dig.

NOTICE TO CONTRACTOR

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REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

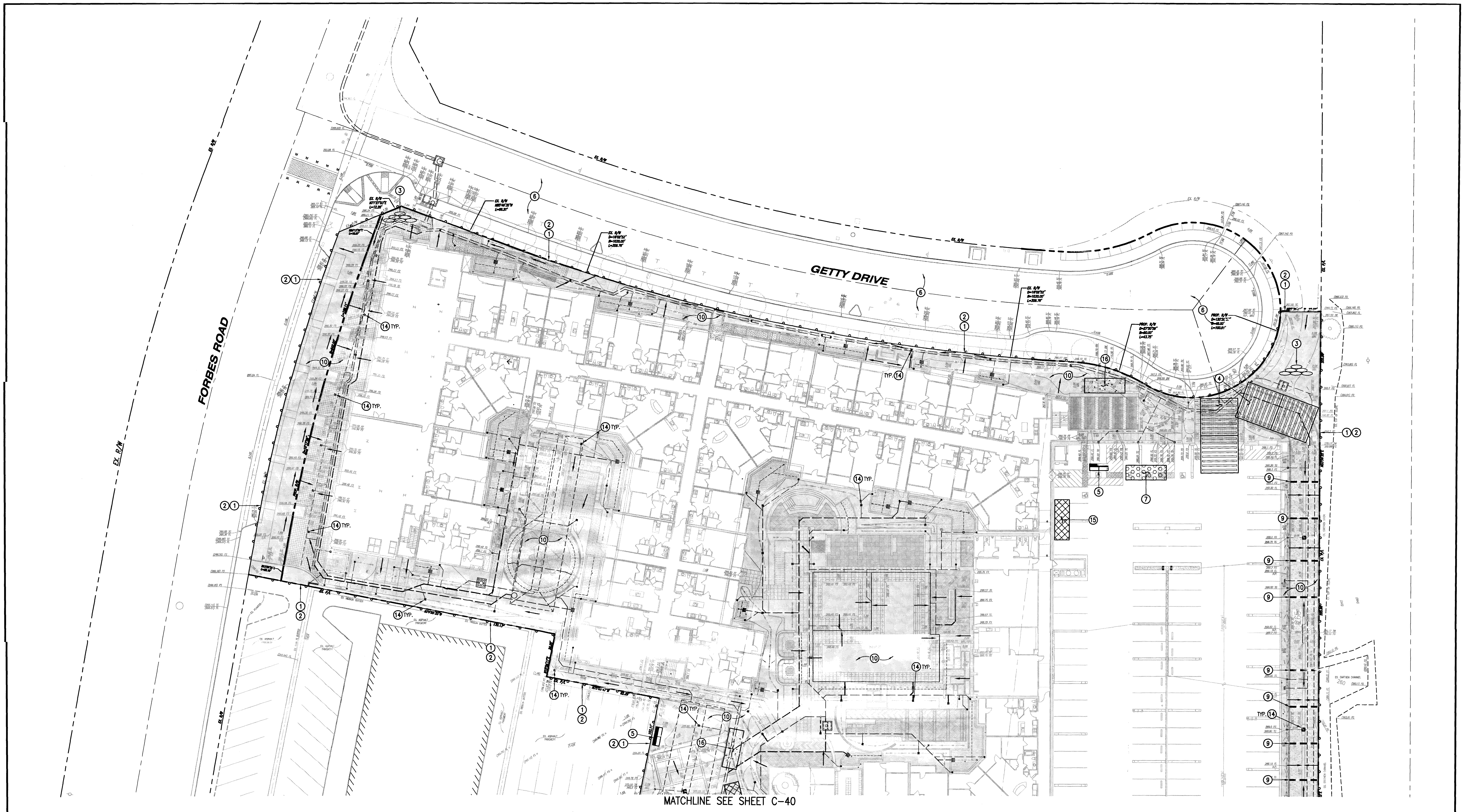
SHEET DESCRIPTION:
EROSION CONTROL PLAN - EXCAVATION / ROUGH GRADING

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-38



CONSTRUCTION NOTES

① INSTALL 6-FOOT HIGH CHAIN LINK FENCE WITH SCREENING AROUND PERIMETER OF PROPERTY.

② BMP'S SE-1, SE-6: STAKE IN SILT FENCE AND PLACE GRAVEL BAGS (2 HIGH) ALONG CONSTRUCTION PERIMETER IN ACCORDANCE WITH CASQA BMP STANDARD.

③ STOCKPILE BMPs THROUGHOUT CONSTRUCTION AREA FOR REPLACEMENT OF DAMAGED BMP'S AND/OR CREATION OF EMERGENCY BMPs.

④ BMP TC-1: CONSTRUCT TEMPORARY DRIVE PAD WITH A WIDTH EQUAL TO THE ENTRANCE/EXIT OF PROJECT SITE AND AT LEAST 50-FEET MIN. IN LENGTH. PURPOSE OF DRIVE PAD IS TO MITIGATE TRACKING OF MUD AND SILT ONTO PUBLIC STREETS. DESIGN ACCORDING TO CASQA STANDARD.

⑤ BMP WM-9: PLACE PORTABLE TOILET 50-FEET AWAY FROM DOWNSTREAM DRAINAGE FACILITIES, WATERCOURSES, AND CONSTRUCTION PERIMETER. SECONDARY CONTAINMENT SHALL BE RPOVIDED IN CASE OF SPILLS. USE CASQA BMP STANDARD.

⑥ BMP SE-7: SWEEP AND/OR VACUUM ALL STREETS AND SIDEWALKS, AS NEEDED, TO REMOVE VISIBLE SEDIMENT TRACKED FROM THE CONSTRUCTION SITE. ANY TRACKED SEDIMENT WILL BE REMOVED PRIOR TO THE END OF THE WORK DAY. USE CASQA BMP STANDARD.

⑦ BMP WM-5: PLACE WATERTIGHT TRASH CONTAINERS AWAY FROM DRAINAGE FACILITIES AND WATERCOURSES. ARRANGEMENTS FOR WASTE COLLECTION SHALL BE MADE PRIOR TO TWO-THIRDS CAPACITY. TRASH CONTAINERS SHALL BE COVERED AT THE END OF WORK DAY. USE CASQA BMP STANDARD.

⑨ BMP SE-5: STAKE IN FIBER ROLLS OR STRAW WATTLES WITHIN TRENCH ALONG EVEN CONTOURS AT VERTICAL SPACING AS SPECIFIED BY THE DETAIL ON SHEET C-37 AND IN ACCORDANCE WITH THE CASQA BMP STANDARD.

⑩ BMP EC-5: SPRAY EARTHGUARD OR EQUIVALENT ON ALL ACTIVE AND NON-ACTIVE SOIL AREAS THROUGHOUT THE ENTIRE SITE. APPLICATION SHALL BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S STANDARDS AND REAPPLIED AS NEEDED. SEE NOTE #1 ON SHEET C-37.

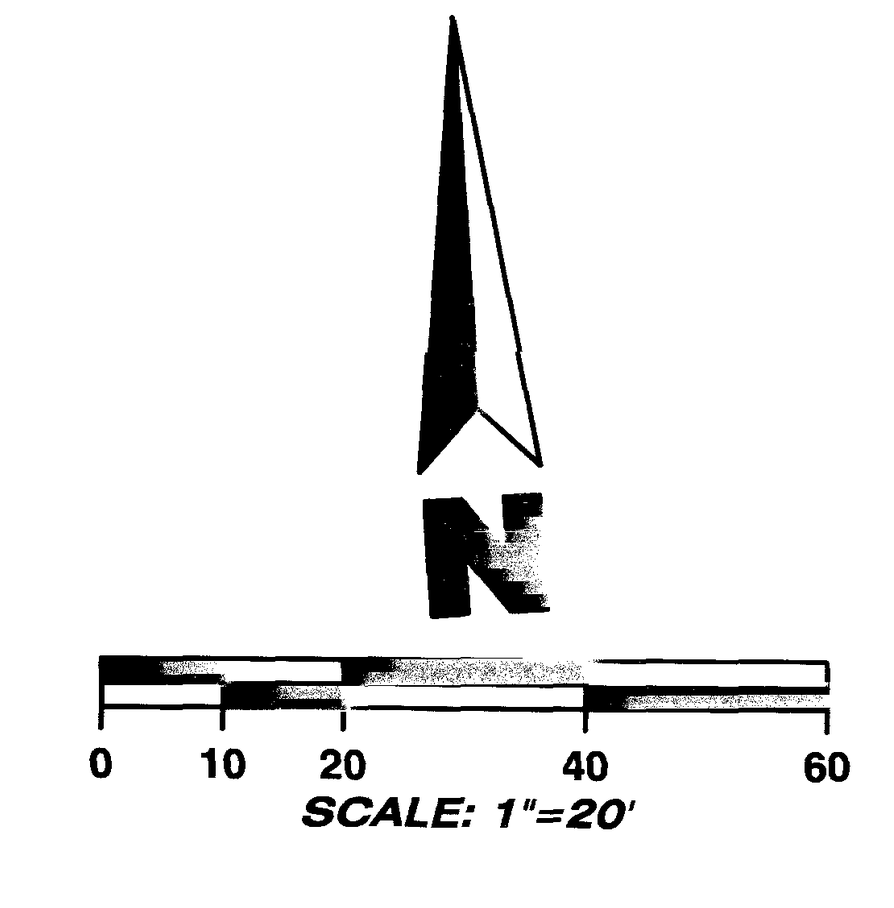
⑭ SE-10: PLACE GRAVEL BAGS AND FILTER FABRIC AT CATCH BASINS TO PROVIDE FOR DESILTING OF RAIN OR EXCESS WATER. USE CASQA BMP STANDARD.

⑮ BMP'S WM-1, WM-3, WM-5, WM-7, WM-8: USE PRIMARY (COVER) AND SECONDARY (GRAVEL BAG BERM) CONTAINMENT FOR TEMPORARY EXPOSED STORAGE AREAS IN ACCORDANCE WITH CASQA BMP STANDARDS.

⑯ BMP'S WM-8, NS-8: LOCATE TEMPORARY CONCRETE TRUCK/EQUIPMENT WASHOUT AREA AT LEAST 50-FEET FROM DOWNSTREAM STORM DRAIN INLETS. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD NOT ALLOW FOR ANY RUNOFF AND SHALL HAVE SUFFICIENT CAPACITY TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. WASHOUTS SHALL HAVE SECONDARY CONTAINMENT. USE CASQA BMP STANDARD.

LEGEND

·o——o——o——oo	PERIMETER CONTROL (SILT FENCE AND GRAVEL BAG)
←	DIRECTION OF PROPOSED SURFACE DRAINAGE
Ⓘ	CONSTRUCTION NOTE CALLOUT REFERENCE
—— - - ——	RIGHT OF WAY LINE/PROPERTY LINE
▥	GRAVEL BED AND/OR (IF ON ASPHALT)) RUMBLE PLATES
⬡	TEMPORARY DUMPSTER AREA
▬	TEMPORARY PORTABLE TOILET
⬭	GRAVEL BAG
▩	TEMPORARY STORAGE AREA
⁘	TEMPORARY CONCRETE WASHOUT AREA
▬ ▬ ▬ ▬	FIBER ROLL/STRAW WATTLE
▒	EARTHGUARD OR EQUIVALENT



SCALE: 1"=20'

811 Know what's below. Call before you dig.

NOTICE TO CONTRACTOR

CONTRACTOR HEREBY AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF PERSONS AND PROPERTIES; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD HARMLESS THE OWNER AND ENGINEER FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

REVISIONS

NO.	DATE:	DESCRIPTION	APPROVAL

PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

James H. Kawamura
No. 30560
Expiration: 03/31/16

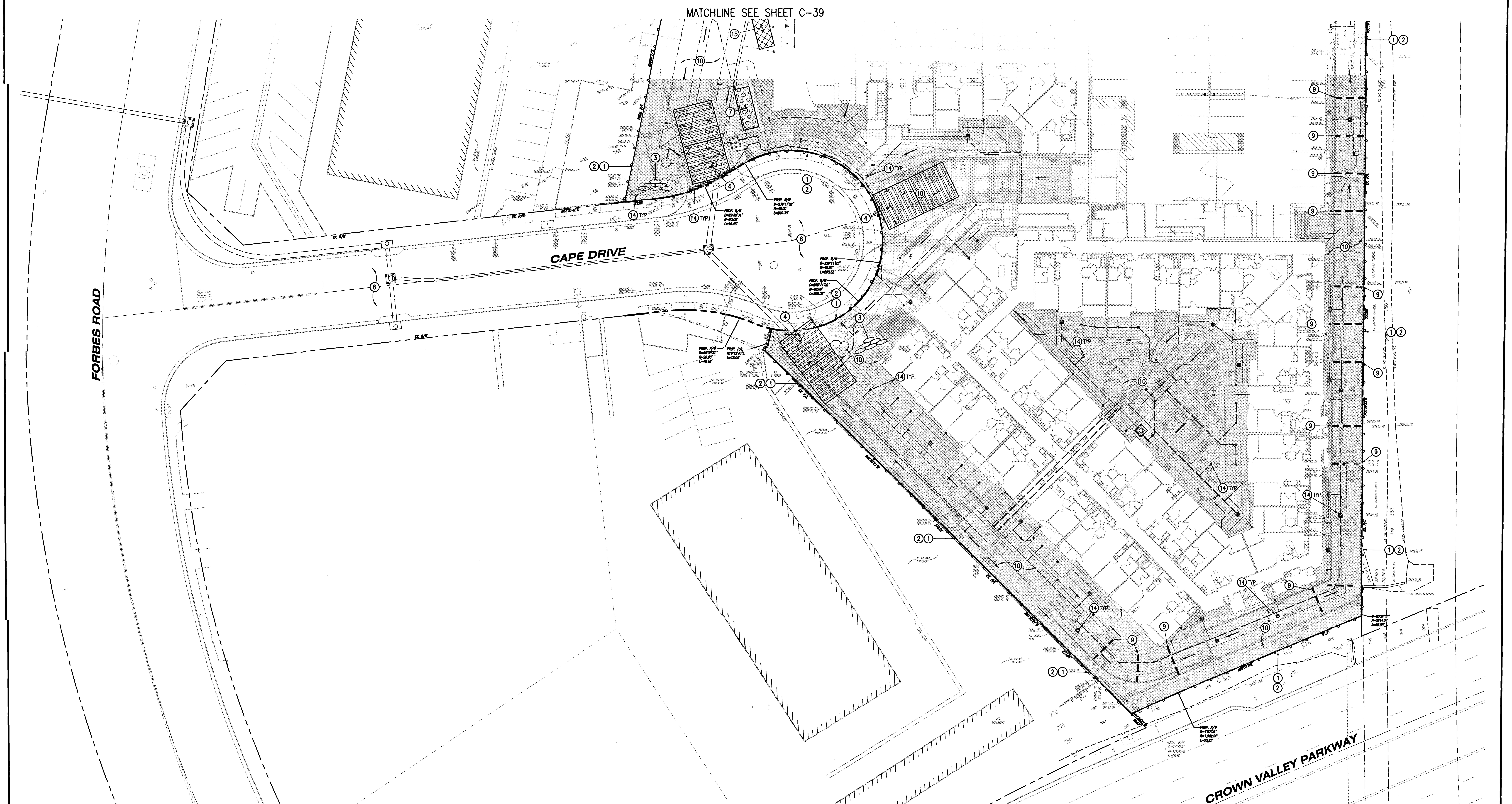
SHEET DESCRIPTION:
EROSION CONTROL PLAN - PRECISE GRADING

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA
PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-39

H:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-39-EC-PG.dwg July 08, 2015 - 12:09pm Mike Thomas



CONSTRUCTION NOTES

① INSTALL 6-FOOT HIGH CHAIN LINK FENCE WITH SCREENING AROUND PERIMETER OF PROPERTY.

② BMP'S SE-1, SE-6: STAKE IN SILT FENCE AND PLACE GRAVEL BAGS (2 HIGH) ALONG CONSTRUCTION PERIMETER IN ACCORDANCE WITH CASQA BMP STANDARD.

③ STOCKPILE BMPs THROUGHOUT CONSTRUCTION AREA FOR REPLACEMENT OF DAMAGED BMP'S AND/OR CREATION OF EMERGENCY BMPs.

④ BMP TC-1: CONSTRUCT TEMPORARY DRIVE PAD WITH A WIDTH EQUAL TO THE ENTRANCE/EXIT OF PROJECT SITE AND AT LEAST 50-FEET MIN. IN LENGTH. PURPOSE OF DRIVE PAD IS TO MITIGATE TRACKING OF MUD AND SILT ONTO PUBLIC STREETS. DESIGN ACCORDING TO CASQA STANDARD.

⑤ BMP WM-9: PLACE PORTABLE TOILET 50-FEET AWAY FROM DOWNSTREAM DRAINAGE FACILITIES, WATERCOURSES, AND CONSTRUCTION PERIMETER. SECONDARY CONTAINMENT SHALL BE RPOVIDED IN CASE OF SPILLS. USE CASQA BMP STANDARD.

⑥ BMP SE-7: SWEEP AND/OR VACUUM ALL STREETS AND SIDEWALKS, AS NEEDED, TO REMOVE VISIBLE SEDIMENT TRACKED FROM THE CONSTRUCTION SITE. ANY TRACKED SEDIMENT WILL BE REMOVED PRIOR TO THE END OF THE WORK DAY. USE CASQA BMP STANDARD.

⑦ BMP WM-5: PLACE WATERTIGHT TRASH CONTAINERS AWAY FROM DRAINAGE FACILITIES AND WATERCOURSES. ARRANGEMENTS FOR WASTE COLLECTION SHALL BE MADE PRIOR TO TWO-THIRDS CAPACITY. TRASH CONTAINERS SHALL BE COVERED AT THE END OF WORK DAY. USE CASQA BMP STANDARD.

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LEGEND

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ⓘ	CONSTRUCTION NOTE CALLOUT REFERENCE
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▬ ▬ ▬ ▬	FIBER ROLL/STRAW WATTLE
▒	EARTHGUARD OR EQUIVALENT

N

0 10 20 40 60

SCALE: 1"=20'

Know what's **below.**
Call before you dig.

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PREPARED BY:
KHR ASSOCIATES
CONSULTING ENGINEERS/SURVEYORS/PLANNERS
4100 Newport Place Drive - Suite 200
Newport Beach, California 92660
(949) 756-6440 Fax (949) 756-6444
UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
EROSION CONTROL PLAN - PRECISE GRADING

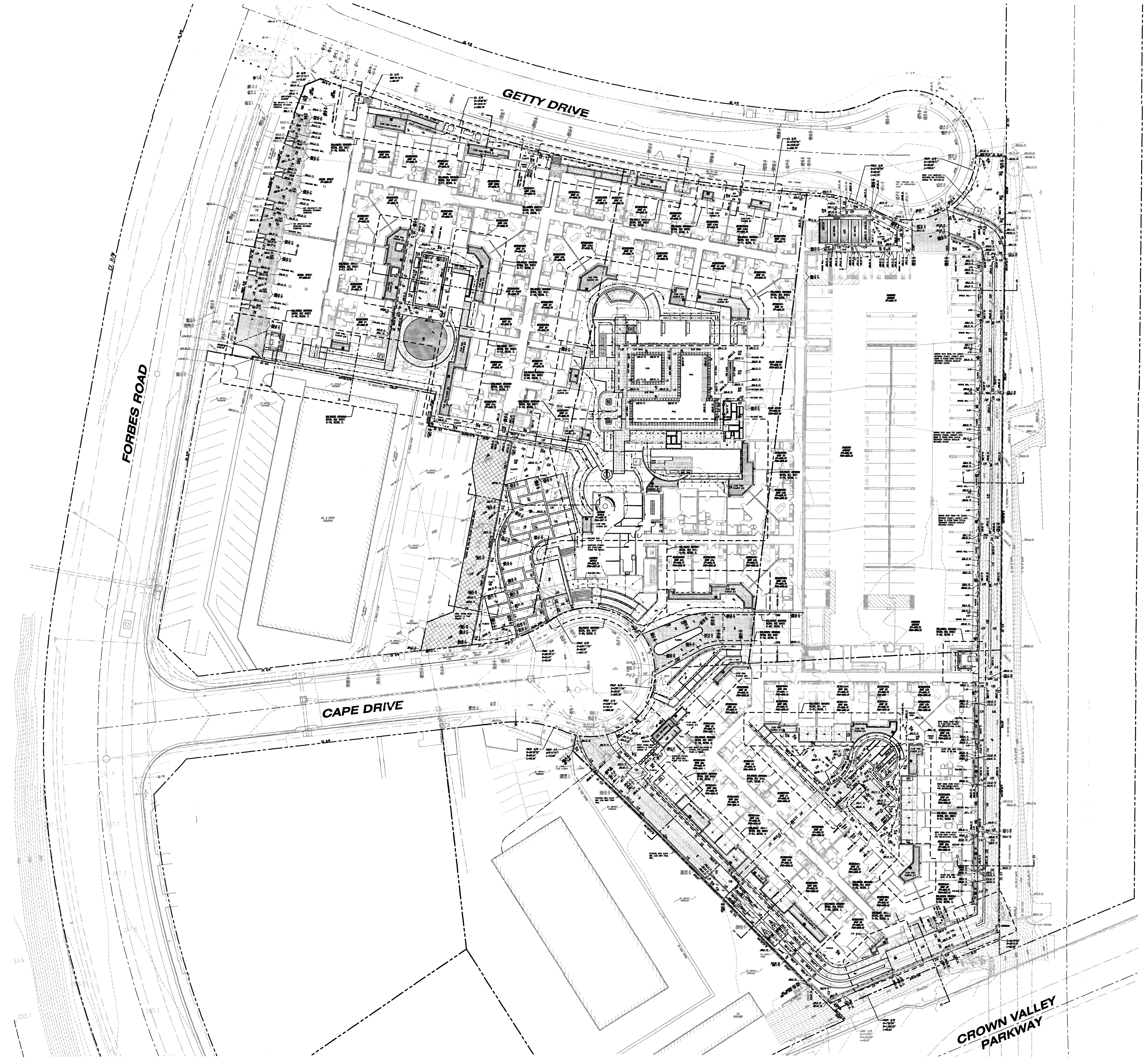
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-40

R:\Alliance\Alliance-Laguna Niguel\CDs\Precise Grading\ABLN-PG-40-EC-PG.dwg July 08, 2015 - 12:13pm Mike Thomas



LEGEND:

→ - → - → - →	GRADED EARTHEN SWALE 10 FEET OR LESS FROM BUILDING TO BE SLOPED AT 2.0% MIN. (BEYOND 10 FEET TO BE SLOPED AT 1.0%) TO DRAINAGE INLET; CROSS SLOPE FROM BUILDING TO BE 5.0% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM WALLS TO BE 2% MIN. DOWN TO EARTHEN SWALE, CROSS SLOPE FROM SIDEWALK SHALL BE 1.0% MIN. DOWN TO EARTHEN SWALE.
▬ ▬ ▬ ▬	ENLARGED PRECISE GRADING DETAILS, SEE PLAN FOR DETAIL LOCATION
■ ■ ■ ■ ■	RETAINING WALL, PER SEPARATE PERMIT.
═	CMU SITE PERIMETER, FLOW THROUGH PLANTER AND RAISED PLANTER WALLS SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION
▨	PROPOSED CONCRETE PAVEMENT
▨	SYNTHETIC TURFBLOCK
▨	SYNTHETIC TURF
▨	STABILIZED DECOMPOSED GRANITE
▨	FLOW THROUGH PLANTER SYSTEM

GENERAL NOTES:

1. SEE SHEET C–6 FOR SITE SECTIONS.
2. SEE SHEET C–32 FOR TYPICAL FLOW THROUGH PLANTER DETAILS & SHEET C–36 FOR DIMENSIONAL PLANS.
3. SEE COVER SHEET FOR WEEP SCREED DETAILS.
4. *ALL WORK WITHIN THE PUBLIC RIGHT–OF–WAY PER SEPARATE PLAN & SEPARATE PERMIT (SHOWN FOR INFORMATION ONLY)*

N

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SCALE: 1"=30'

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Know what's below.
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UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16
James H. Kawamura

SHEET DESCRIPTION:
PRECISE GRADING COMPOSITE PLAN

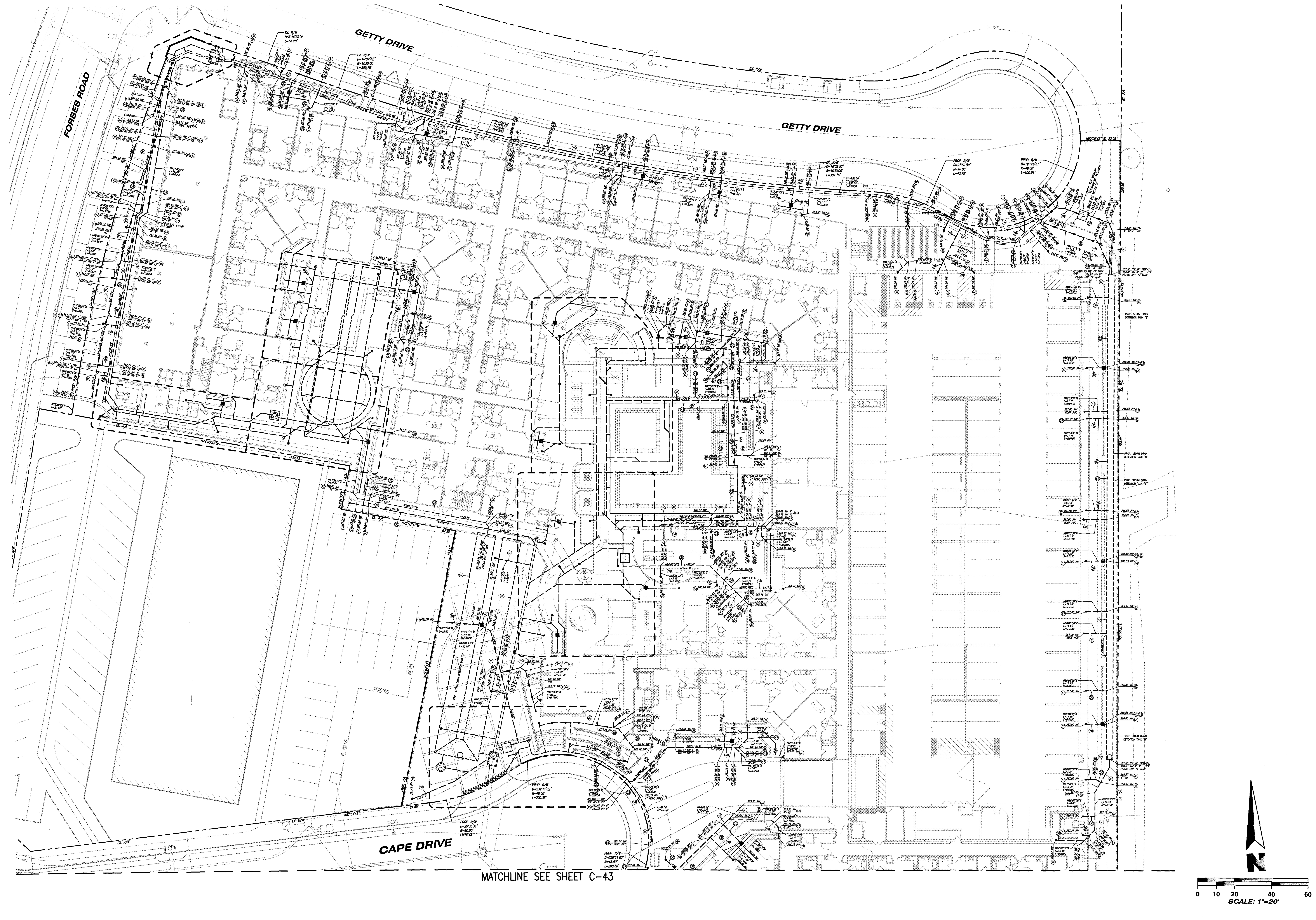
BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PERMIT # G14-15

PROJECT NUMBER
5275032

SHEET NO.
C-41

R:\Alliance\Alliance–Laguna Niguel\CDs\Precise Grading\ABLN–PG–41–PG COMP.dwg July 08, 2015 - 12:16pm Mike Thomas



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UNDER THE SUPERVISION OF: JAMES H. KAWAMURA (R.C.E. 30560)

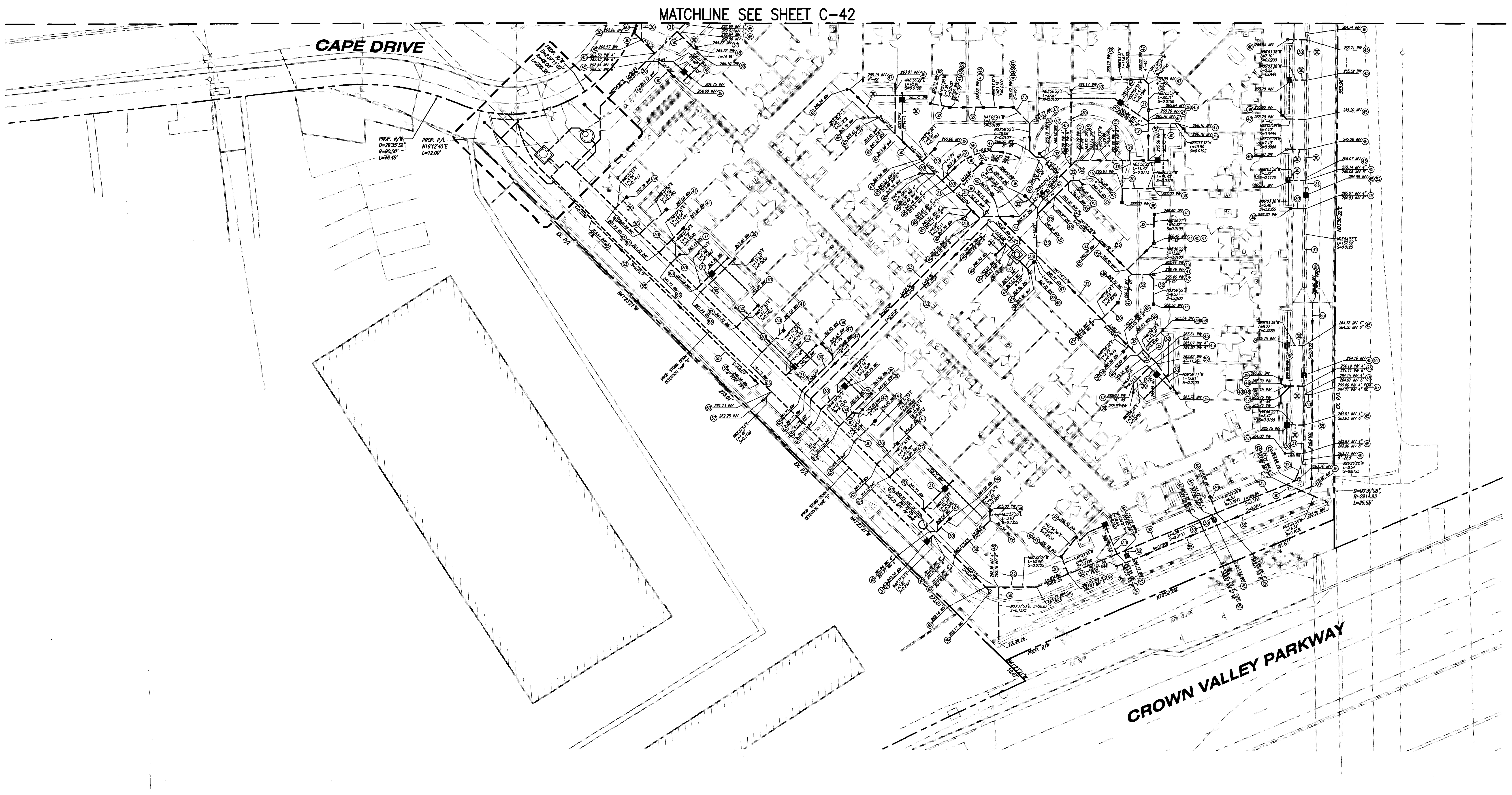
JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
STORM DRAIN COMPOSITE PLAN

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

SHEET NO.
C-42



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0 10 20 40 60
SCALE: 1"=20'

811
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JAMES H. KAWAMURA
No. 30560
Expiration: 03/31/16

SHEET DESCRIPTION:
STORM DRAIN COMPOSITE PLAN

BROADSTONE LAGUNA NIGUEL
27742 FORBES ROAD
LAGUNA NIGUEL, CALIFORNIA

PROJECT NUMBER
5275032

SHEET NO.
C-43

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THE CITY OF LAGUNA NIGUEL

APPROVED

EROSION CONTROL PLAN

This set of plans & specifications must be kept on the job at all times and it is unlawful to make any changes or alterations on same without written permission from the Grading Section City of Laguna Niguel.

The Stamping of this plan & Specifications SHALL NOT be held to permit or be an approval of the violation of any provisions of any City and County Ordinance or State Law.

Approved By - Gary Hawken
BUILDING OFFICIAL

FOR GRADING PERMIT # G14-15

By

Date 7/14/15

THE CITY OF LAGUNA NIGUEL
REGULATION
GRADING SECTION
APPROVED

This set of plans & specifications must be kept on the job at all times and it is unlawful to make any changes of alterations on same without written permission by the Grading Section, City of Laguna Niguel.

The stamping of this plan & specifications SHALL NOT be held to permit or be an approval of the violation of any provisions of any City and County Ordinance or State Law.

This permit is an application for inspection the issuance of which is not an approval or an authorization for the work specified herein.

This permit does not authorize or permit, nor shall it be construed as authorizing or permitting the violation or failure to comply with an applicable law. The City of Laguna Niguel, its boards, departments, officers, and employees, hereby expressly deny any warranty or responsibility for the design, construction or operation of the work described, the condition of the property or the soil upon which the work is undertaken. No statement by any officer, employee, or agent written or oral, can alter this denial.

This grading plan does not Allow or Approve ANY Construction within the dedicated Right of Way. A permit is required from Department of Public Works for encroachment on public Right of Way

Gary Hawken
BUILDING OFFICIAL

GRADING PERMIT # G14-15

☐ PRELIMINARY
NO BUILDING PERMITS SHALL BE ISSUED UNTIL THIS PERMIT IS SUPERSEDED BY A PRECISE GRADING PERMIT

☒ PRECISE
BUILDING PERMITS MAY BE ISSUED AFTER ROUGH GRADING HAS BEEN APPROVED

By

Date 7/14/15