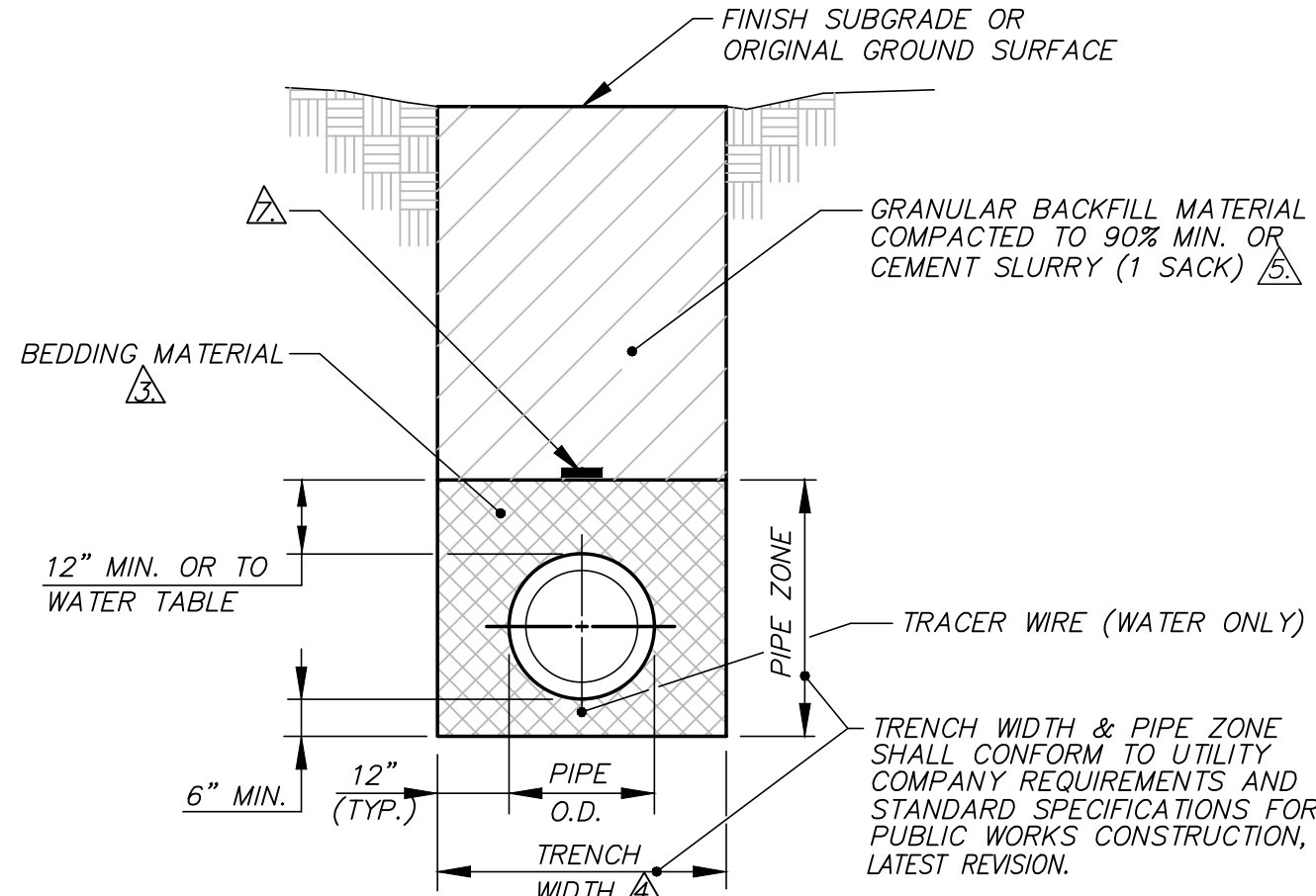
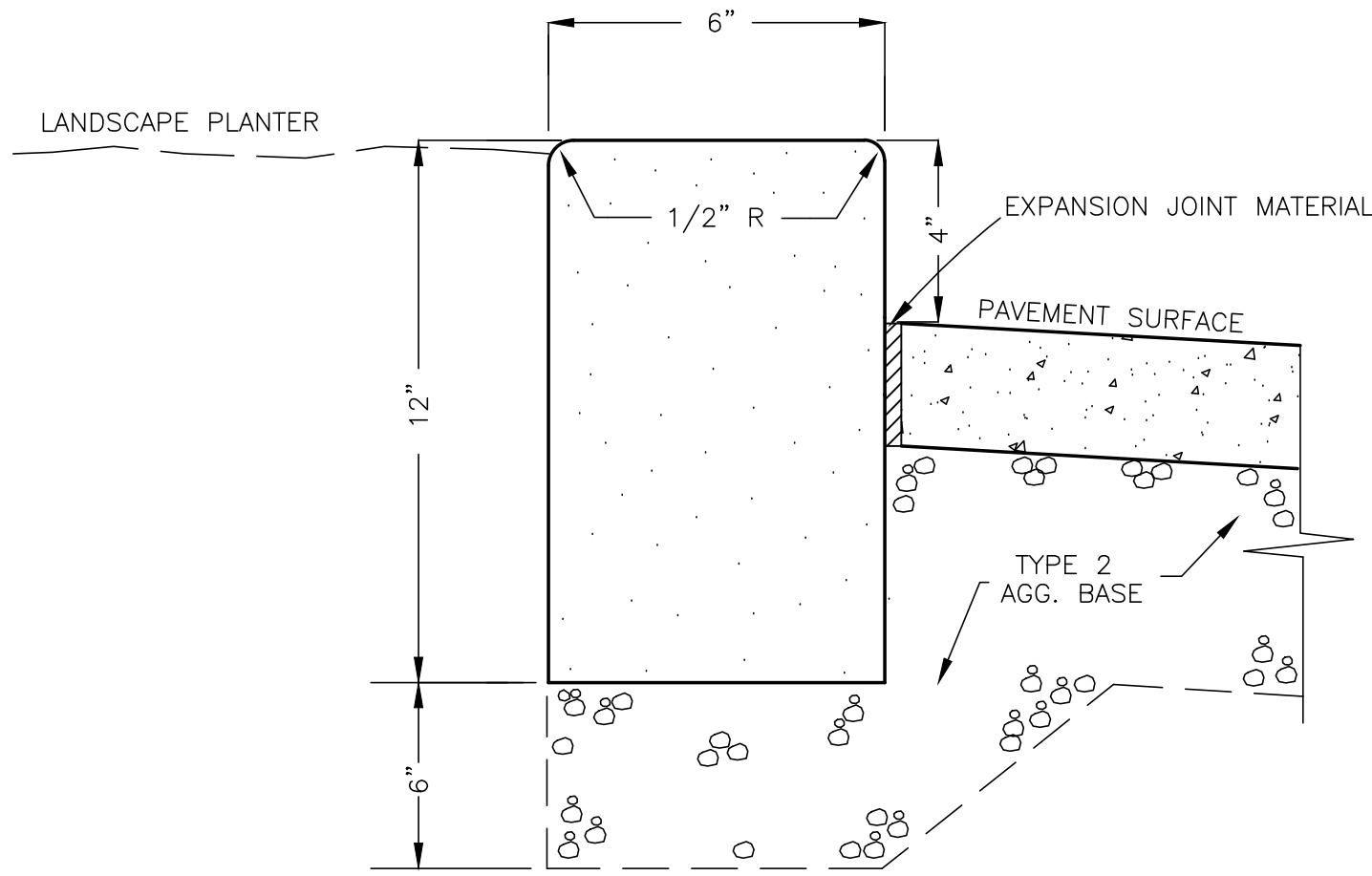


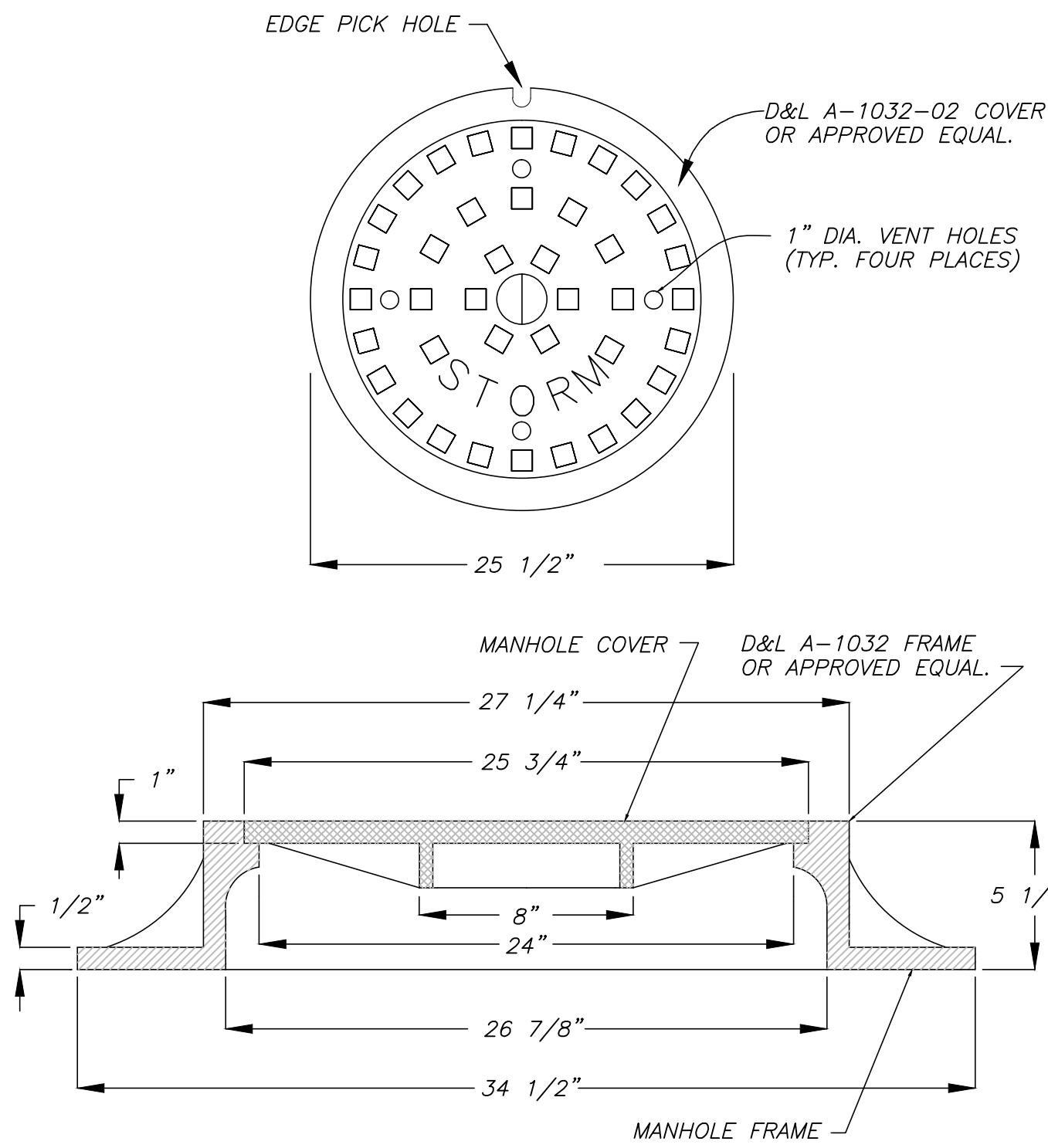
A
three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot



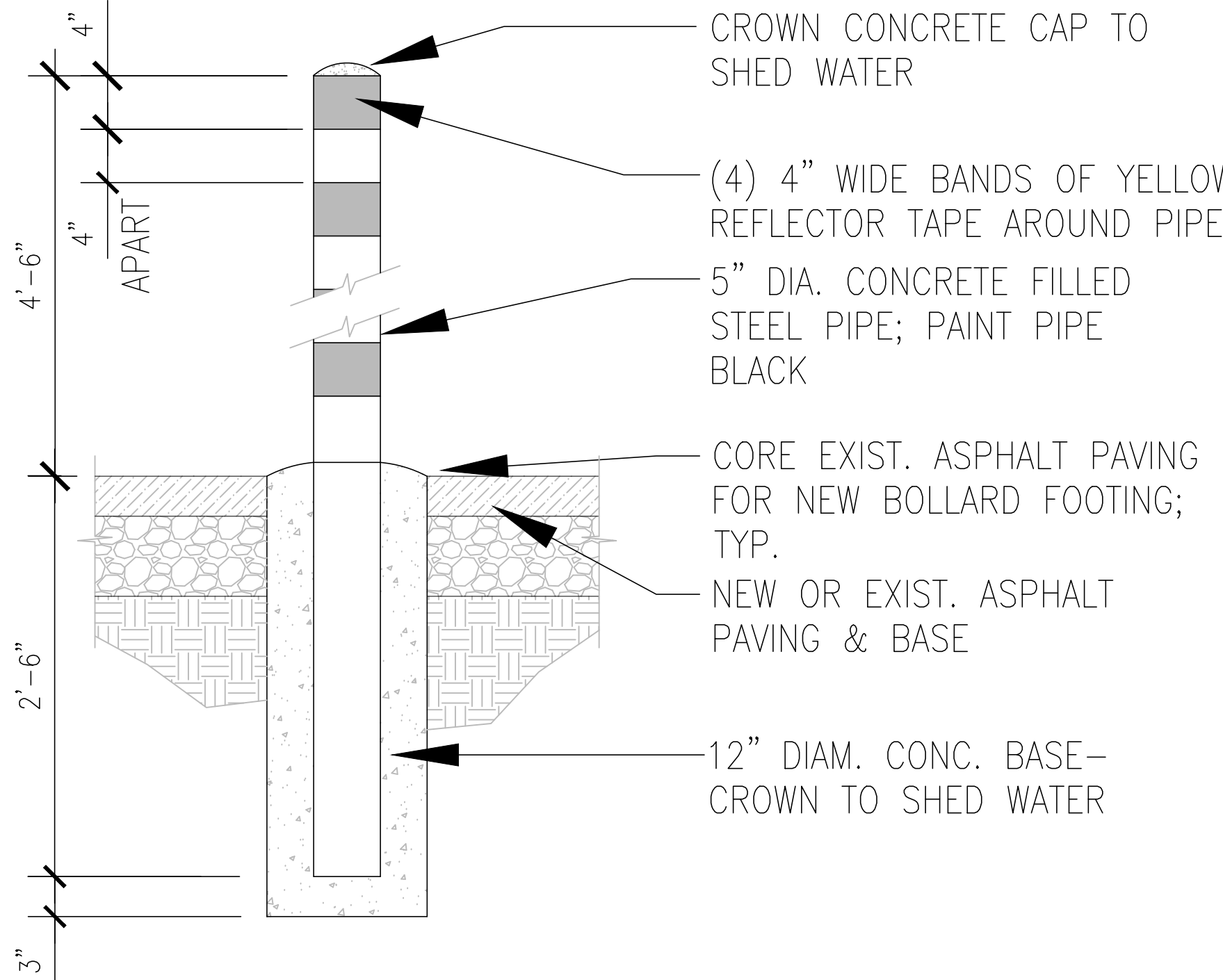
- NOTES:
1. A PERMIT MUST BE OBTAINED FROM THE CITY ENGINEER PRIOR TO CUTTING ANY PUBLIC RIGHT-OF-WAY. 24 HOURS PRIOR TO TRENCH EXCAVATION, THE PERMITTEE MUST NOTIFY THE CITY EXCAVATION PERMIT INSPECTOR OR APPLICABLE ENGINEER OF RECORD. SEE RELATED STANDARD DETAIL DRAWING NOS. R-103 (141), R-204 (306), R-119 (312), R-120 (305,320) AND R-121 (305,320).
 2. ALL MATERIALS AND INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST REVISION.
 3. BEDDING MATERIAL SHALL CONFORM TO OWNING-UTILITY COMPANY REQUIREMENTS AS APPROVED BY THE CITY OF RENO. FOR CITY-OWNED UTILITIES, BEDDING MATERIAL SHALL BE CLASS "A", "B", OR "C", COMPACTED TO 90% MINIMUM. FOR TRAFFIC/ELECTRICAL CONDUIT TRENCHES, LESS THAN 12" IN WIDTH, INCLUDING VERMIER TRENCHES, BEDDING SHALL BE CLASS "A" MATERIAL. BACKFILL SHALL BE CEMENT SLURRY (ONE SACK), CEMENT SLURRY BEDDING/BACKFILL MAY BE USED AS AN ALTERNATE TO CLASS "A", "B" OR "C" MATERIAL WITH WRITTEN APPROVAL FROM THE CITY ENGINEER FOR EACH SPECIFIC APPLICATION.
 4. ALL EXCAVATIONS SHALL CONFORM TO THE LATEST O.S.H.A. REQUIREMENTS. SHORING OR SLOPED CUT MAY BE NECESSARY, BUT THERE WILL BE NO PAYMENT FOR ADDITIONAL EXCAVATION, BEDDING, BACKFILL, OR SHORING.
 5. SEE STANDARD DETAIL DRAWING NOS. R-123A (305), R-123B (305) AND R-123C (305) FOR TRENCH SLURRY BACKFILL SPECIFICATIONS.
 6. EDGE OF 4" ROCK WHEEL TRENCHES FOR CONDUIT SHALL BE LOCATED A MINIMUM OF 9" FROM GUTTER LIP.
 7. PIPE TAPE IDENTIFICATION OF UTILITY SHALL BE INSTALLED.



- NOTES:
1. FIBER-REINFORCED PORTLAND CEMENT CONCRETE (P.C.C.) SHALL HAVE THE FOLLOWING CHARACTERISTICS: 4000 PSI MIN. COMPRESSIVE STRENGTH @ 28 DAYS, MIN. 6 SACKS OF CEMENT PER CUBIC YARD WITH A MAX. WATER/CEMENT RATIO OF 0.45, AIR ENTRAINMENT 6% \pm 1.5%, SLUMP AT 1 TO 4 INCHES. ALL MATERIALS SHALL CONFORM TO SSPWC SECTION 202. POLYPROPYLENE FIBERS SHALL BE ADDED TO THE P.C.C. PER THE MANUFACTURER'S RECOMMENDATIONS.
 2. (A) ALL CONCRETE CURB/GUTTER/SIDEWALK/VALLEY GUTTER SHALL HAVE WEAKENED PLANE JOINTS EVERY 10 FEET.
(B) EXPANSION JOINTS 1/2" WIDE SHALL BE LOCATED IN CURBS & GUTTERS @ EACH SIDE OF STRUCTURES, @ ENDS OF ALL CURB RETURNS, & ABUTTING HARDENED IN-PLACE CURB & GUTTER, EXCEPT THAT EXPANSION JOINTS SHALL NOT BE INSTALLED WITHIN 20' OF AN ISLAND NOSE. EXPANSION JOINTS SHALL BE 1/2" THICK, SHAPED TO THE CROSS SECTION OF THE CURB & GUTTER, & SHALL BE CONSTRUCTED @ RIGHT ANGLES TO THE CURB & GUTTER. JOINT FILLER MATERIAL SHALL CONFORM TO SECTION 202.10.
 3. AGGREGATE BASE MATERIAL SHALL CONFORM TO THE SPECIFICATIONS FOR TYPE 2 AGGREGATE BASE AND BE COMPACTED TO MIN. 95% MAXIMUM DRY DENSITY (M.D.D.).



- NOTES:
1. SPECIAL CIRCUMSTANCES MAY REQUIRE THE NEED FOR WATERTIGHT FRAMES, GASKETED OR BOLTED LIDS, ETC. AS DIRECTED BY THE CITY OF RENO. DETAILED PLANS OF ANY SPECIAL MANHOLE FRAMES AND/OR COVERS MUST BE APPROVED BY THE ENGINEER.

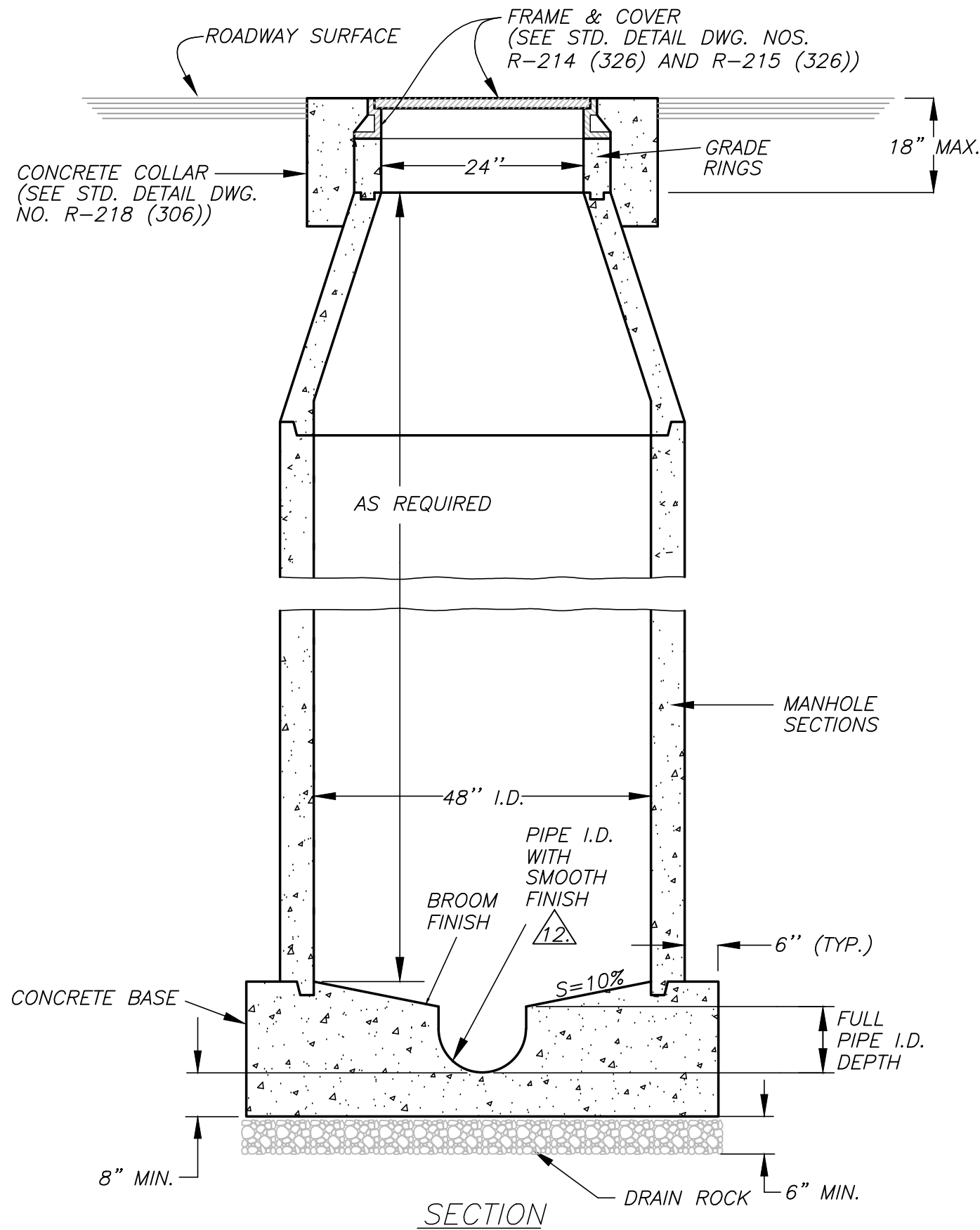


TRENCH EXCAVATION/BACKFILL

PLANTER CURB

(PRIVATE) 24" STORM DRAIN MANHOLE FRAME & COVER

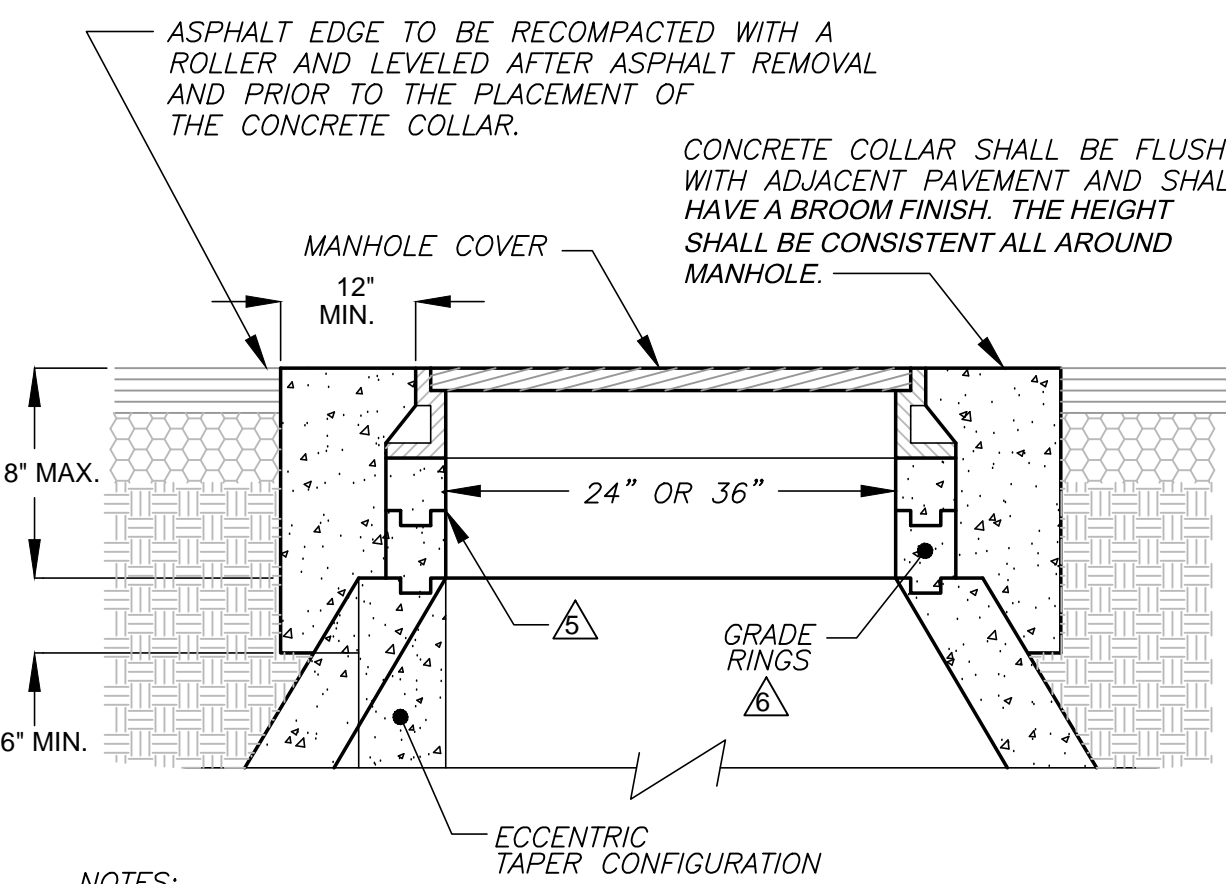
CONCRETE FILLED PIPE BOLLARD



TYPE 1 MANHOLE

- NOTES:
1. PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C-478.
 2. PIPES SHALL NOT PROTRUDE MORE THAN 3" INSIDE MANHOLE SECTION AS MEASURED AT THE OUTSIDE EDGES OF THE PIPE, VERTICALLY ALIGNED WITH THE SPRINGLINE. CONSTRUCT WATERTIGHT CONNECTION TO MANHOLE. REFER TO STANDARD DETAIL DRAWING NOS. R-219 (311), R-220 (311) AND R-221 (311) FOR PIPE CONNECTION REQUIREMENTS.
 3. MANHOLE BASE SHALL BE PORTLAND CEMENT CONCRETE (P.C.C.) AND SHALL HAVE THE FOLLOWING CHARACTERISTICS: 3000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS, MINIMUM 6 SACKS OF CEMENT PER CUBIC YARD WITH SLUMP AT 1 TO 4 INCHES. ALL MATERIAL SHALL CONFORM TO SSPWC, SECTION 202.
 4. TYPE 1 MANHOLE TO BE UTILIZED FOR PIPE DIAMETERS OF 12" OR SMALLER AND DEPTHS NOT EXCEEDING 18 FEET.
 5. MANHOLE MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF SECTION 204 "MANHOLES AND CATCH BASINS" OF THE STANDARD SPECIFICATIONS.
 6. PRECAST MANHOLE SECTIONS, OTHER THAN GRADE RINGS, SHALL BE JOINED WITH FLEXIBLE PLASTIC GASKET MATERIAL SUCH AS "RAM-NEK" OR EQUAL AS PER MANUFACTURER'S RECOMMENDATIONS.
 7. EXCAVATION AND BACKFILL SHALL BE AS SPECIFIED FOR "TRENCH EXCAVATION AND BACKFILL" IN SECTION 305 OF THE STANDARD SPECIFICATIONS.
 8. EXCAVATION SHALL BE AS NEARLY VERTICAL AS POSSIBLE (SHEET AND SHORE IF SOIL CONDITIONS REQUIRE), IN EXISTING STREET SECTIONS, ALLEY SECTIONS AND CONFINED AREAS, SUCH AS LIMITED EASEMENTS OR ADJACENT STRUCTURES. NATURAL ANGLE OF REPOSE WILL BE ALLOWED IN ALL OTHER AREAS.
 9. MANHOLE PRECAST SECTION LENGTHS SHALL BE ARRANGED TO FIT THE REQUIRED DEPTH.
 10. NO SEWER LINE PIPE DIAMETERS OF LESS THAN 8" IN DIAMETER SHALL BE CONNECTED TO THE MANHOLE.
 11. PRECAST CONCRETE BASE MAY BE USED IN LIEU OF CAST-IN-PLACE BASE.
 12. MATCH PIPE INVERTS TO MANHOLE INVERTS WHERE PIPES CONNECT TO MANHOLE BASE.
 13. ALL MANHOLES SHALL BE WATERTIGHT.
 14. THE USE OF "INSIDE DROP" MANHOLES IS NOT PERMITTED BY THE CITY OF RENO.
 15. PRIOR TO BACKFILLING, ALL MANHOLES SHALL BE VACUUM TESTED PER THE REQUIREMENTS OF ASTM C-1244.
 16. NO STEPS, LADDERS OR OTHER CLIMBING DEVICES SHALL BE INSTALLED IN THE MANHOLE.

TYPE 1 MANHOLE NOTES



- NOTES:
1. CONCRETE COLLAR TO BE PORTLAND CEMENT CONCRETE (P.C.C.) WITH THE FOLLOWING CHARACTERISTICS: 4000 PSI MIN. COMPRESSIVE STRENGTH AT 28 DAYS, MIN. 6 SACKS OF CEMENT PER CUBIC YARD WITH A MAX. WATER/CEMENT RATIO OF 0.45, AIR ENTRAINMENT 6% \pm 1.5% AND SLUMP AT 1 TO 4 INCHES. ALL MATERIAL SHALL CONFORM TO SSPWC SECTION 202.
 2. CIRCUMSTANCES MAY REQUIRE THE NEED FOR SPECIAL TYPES OF TOP OF MANHOLE CONFIGURATIONS SUCH AS FLAT TOP, ABOVE GROUND, ETC. AS DIRECTED BY THE CITY OF RENO. DETAILED PLANS OF ANY SPECIAL TOP OF MANHOLE CONFIGURATIONS AND ASSOCIATED COLLARS MUST BE APPROVED BY THE ENGINEER.
 3. IN UNPAVED AREAS, IT SHALL BE NECESSARY TO SET THE MANHOLE RIM APPROXIMATELY 6 INCHES ABOVE THE SURROUNDING AREA. INSTALL A 6 INCH THICK RING OF CONCRETE, TAPERED AT A 3:1 SLOPE, FROM THE TOP, OUTSIDE EDGE OF THE COLLAR TO THE EXISTING GROUND SURFACE.
 4. MANHOLE LIDS SHALL NOT BE LOCATED IN GUTTER PANS, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
 5. ALL GRADE RING JOINTS ARE TO BE GROUTED WITH NON-SHRINK GROUT HAVING THE FOLLOWING CHARACTERISTICS: 3000 PSI MIN. COMPRESSIVE STRENGTH AT 28 DAYS, MIN. 6 SACKS OF CEMENT PER CUBIC YARD AND SLUMP AT 1 TO 4 INCHES. ALL MATERIAL SHALL CONFORM TO SSPWC SECTION 202.
 6. ALL GRADE RINGS SHALL BE PORTLAND CEMENT CONCRETE. PVC GRADE RINGS ARE NOT ALLOWED.

MANHOLE COLLAR DETAIL

CONSULTANTS:		CIVIL ENGINEER		ARCHITECT/ENGINEERS:		Drawing Title		Project Title		Project Number		Office of Construction and Facilities Management Department of Veterans Affairs	
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Revisions		Date		Approved Project Director		Location 975 KIRMAN AVE, RENO, NEVADA 89502		Building Number 1					
						Date 06, JANUARY 2012		Checked J.W.					
								Drawing Number C-40		Dwg. of			