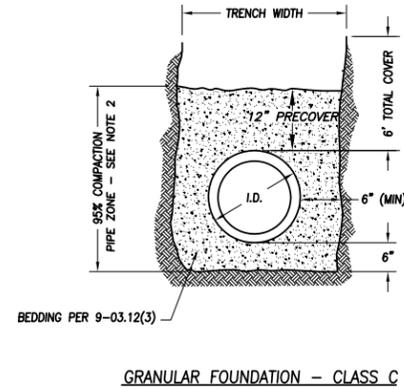
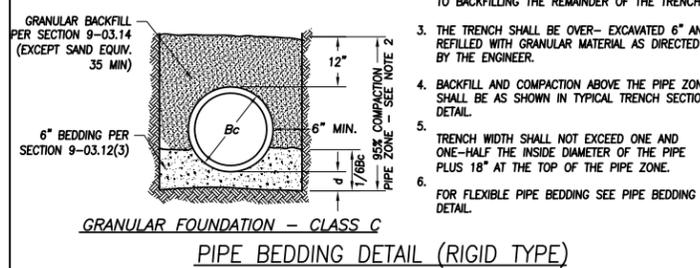
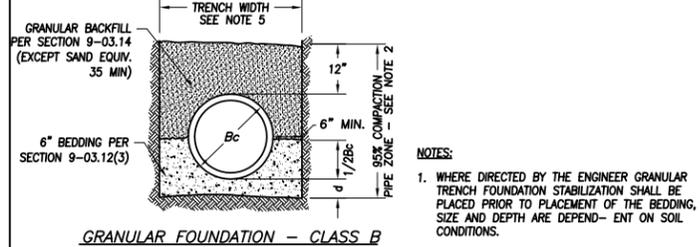
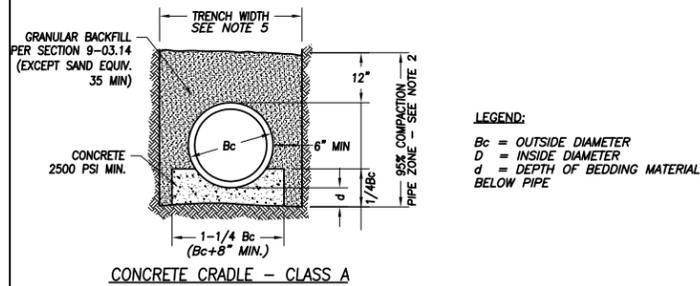
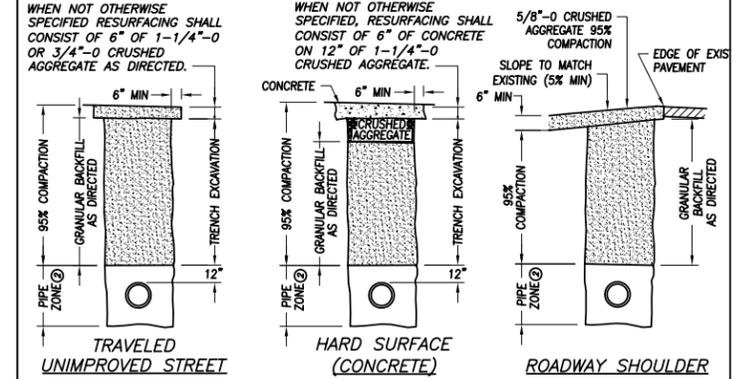


**SANITARY SEWER NOTES:**

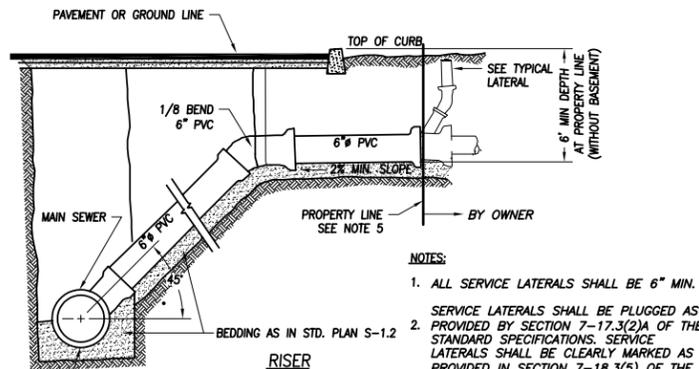
- THE CONTRACTOR SHALL PROVIDE THE UTILITY WITH A VIDEOTAPE INSPECTION OF ALL SANITARY SEWERS 7 DAYS PRIOR TO PAVING. THE CONTRACTOR SHALL CORRECT ALL DEFICIENCIES FOUND DURING TELEVISION INSPECTION, AT NO COST TO THE CITY.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT NO CONFLICTS EXIST BETWEEN SANITARY SEWER LINES AND PROPOSED OR EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- WHERE SEWER CROSSES OVER A WATERMAIN, ONE FULL LENGTH OF DUCTILE IRON PIPE SHALL BE USED WITH THE PIPES CENTERED FOR MAXIMUM JOINT SEPARATION.
- ALL LIFT HOLES ON PRECAST ITEMS SHALL BE COMPLETELY FILLED WITH NON-SHRINK GROUT AND SMOOTHED BOTH INSIDE AND OUT TO INSURE WATER-TIGHTNESS. ALL STEEL LOOPS ON PRECAST SECTION MUST BE REMOVED, FLUSH WITH THE MANHOLE WALL. THE STUBS SHALL BE MORTARED AND SMOOTHED. ROUGH, UNEVEN SURFACES WILL NOT BE PERMITTED.
- TRENCHES SHALL BE BACKFILLED AS SOON AFTER LAYING PIPE AS POSSIBLE. PVC OR 3034 SHALL BE INSTALLED WITH MINIMUM OF 6 FEET OF COVER OVER THE MAIN AND 5' OF COVER AT SERVICE LATERAL ENDS. IF COVER OVER THE MAIN IS LESS THAN 5', DUCTILE IRON MUST BE USED. IF COVER OVER THE MAIN IS GREATER THAN 15 FEET, DUCTILE IRON OR C900 MUST BE USED.
- TRENCH EXCAVATION SHALL NOT BE MORE THAN 150 FEET AHEAD OF THE PIPE LAYING OPERATION AND ALL TRENCHES SHALL BE CLOSED UP AT THE END OF THE DAY.
- UNLESS APPROVED OTHERWISE, ALL PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING:
  - POLYVINYLCHLORIDE (PVC) SEWER PIPE 15" DIAMETER OR LESS SHALL CONFORM TO ASTM D3034, SDR 35 OR ASTM F 789. IT SHALL HAVE A MINIMUM PIPE STIFFNESS OF 46 PSI. PVC PIPE 18" DIAMETER AND LARGER SHALL CONFORM TO ASTM F 679 OR ASTM F 794, SERIES 46. ALL PVC PIPE SHALL HAVE AN INTEGRAL BELL GASKETED JOINT WITH ELASTOMERIC GASKET AND SHALL BE FURNISHED IN 12-1/2 FOOT LAYING LENGTHS.
  - ALL DUCTILE IRON PIPE USED FOR SEWER CONSTRUCTION SHALL BE CLASS 52, DUCTILE IRON, UNLESS OTHERWISE NOTED ON THE PLANS.
- COMPLETE TAPS TO EXISTING SEWERLINES WITH MANHOLES. AFTER EXPOSING THE EXISTING SEWER LINES, CONSTRUCT CAST IN PLACE BASE PER THE PRECAST CONCRETE MANHOLE DETAILS. ONLY AFTER THE BASE HAS A COMPRESSIVE STRENGTH OF 1800 PSI, AND WITH THE CITY INSPECTOR GIVES APPROVAL, MAY THE RISER SECTIONS BE INSTALLED.
- ALL SEWERS ARE TO BE AIR TESTED AND A MANDREL PULLED TO ASSURE ROUNDNESS OF PIPE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. MANHOLES WILL BE VACUUM TESTED AFTER FINAL PAVING.
- ONE MANHOLE SHALL BE GROUTED AND CHANNIELED FOR APPROVAL BY THE CITY INSPECTOR. IF THE CHANNEL IS ACCEPTABLE, THEN OTHER MANHOLES MAY BE COMPLETED AT THE SAME LEVEL OF WORKMANSHIP.



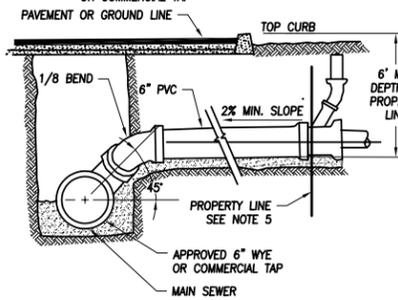
- NOTES:**
- WHERE DIRECTED BY THE ENGINEER, GRANULAR TRENCH FOUNDATION STABILIZATION SHALL BE PLACED PRIOR TO PLACEMENT OF THE BEDDING. SIZE AND DEPTH ARE DEPENDENT ON SOIL CONDITIONS.
  - BEDDING AND BACKFILL MATERIALS IN THE PIPE ZONE SHALL BE COMPACTED AS SPECIFIED PRIOR TO BACKFILLING THE REMAINDER OF THE TRENCH.
  - TRENCH SHALL BE OVER EXCAVATED 6" AND REFILLED WITH GRANULAR MATERIALS AS DIRECT BY THE ENGINEER.
  - BACKFILL AND COMPACTION ABOVE THE PIPE ZONE SHALL BE AS SHOWN IN TYPICAL TRENCH SECTIONS DETAIL.
  - INSTALLATION SHALL CONFORM TO UNIBELL PLASTIC PIPE ASSN. STANDARD SPEC. UNI-B-5 (LATEST EDITION) EXCEPT AS NOTED.
  - FINAL INSTALLATION TO BE TESTED PER SECTION 7-17.3(2)H OF THE STANDARD SPECIFICATIONS.
  - ALTERNATIVE PRE-COVER MATERIALS ARE ALLOWABLE FROM PIPE CENTERLINE TO ONE FOOT ABOVE THE TOP OF PIPE. ALTERNATIVE PRE-COVER MATERIALS MUST BE PRE-APPROVED BY THE INSPECTOR AND MAY BE SAND, CRUSHED SCREENINGS, GRAVEL, OR OTHER CLEAN GRANULAR MATERIAL CONTAINING NO ROCK LARGER THAN 1-1/4" IN LENGTH.
  - APPROVAL FOR SUCH ALTERNATE MATERIALS WILL BE GRANTED UPON CONFIRMATION BY TEST OF ITS COMPLIANCE WITH THESE REQUIREMENTS. SUBMIT 50 LB. SAMPLE FOR TESTING TO THE CITY INSPECTOR, AND OBTAIN APPROVAL OF MATERIAL PRIOR TO STARTING PIPE INSTALLATION WORK. THE TEST REQUIRES A MINIMUM OF FIVE BUSINESS DAYS TO COMPLETE.
  - BEDDING OF PIPE TO BE 6" BELOW AND 12" ABOVE BEFORE BACKFILLING. LATERALS ARE TO BE WIRED AND MARKED WITH 2"x4" AT THE LATERAL END.
  - TOTAL COVER 6" MIN.



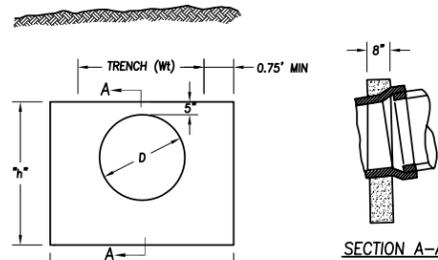
- NOTES:**
- SEE CLARK COUNTY UTILITY PERMIT FOR ADDITIONAL TRENCH BACKFILL AND SURFACING REQUIREMENTS IN COUNTY ROADS. MINIMUM A.C. DEPTHS MAY BE REDUCED TO 0.3 FT. AND 0.2 FT. FOR ARTERIAL AND COLLECTOR STREETS, RESPECTIVELY, IN COUNTY ROADS.
  - FOR PIPE ZONE BEDDING, BACKFILL AND COMPACTION REQUIREMENTS, SEE PIPE BEDDING DETAIL FOR RIGID PIPE AND FLEXIBLE PIPE.
  - COMPACTION PERCENTAGES REFER TO RELATIVE DRY DENSITY AS DETERMINED BY STANDARD PROCTOR (ASTM D 698).
  - CONTRACTOR MAY USE UP TO 2-1/2" OF 5/8" - 0 OR 3/4" - 0 CRUSHED AGGREGATE IN LIEU OF 1-1/4" - 0 BASE ROCK UNDER SURFACING FOR LEVELING COURSE.
  - ALL EXISTING PAVED SURFACES SHALL BE SAW CUT A MINIMUM OF 6" OUTSIDE OF EDGE OF TRENCH TO PROVIDE A NEAT STRAIGHT EDGE.
  - THE EDGES OF ALL EXISTING ASPHALT SURFACES SHALL BE CLEANED AND A TACT COAL SHALL BE APPLIED PER STD. SPEC. SECTION 5-04.3(D). ALL JOINTS SHALL BE SEALED WITH AR-4000 AND SANDED.
  - ALL BACKFILL SHALL BE MECHANICALLY COMPACTED IN LIFTS WHICH DO NOT EXCEED RATED CAPABILITY OF EQUIPMENT USED, BUT IN NO CASE EXCEED 12" LOOSE.
  - GRANULAR BACKFILL SHALL MEET REQUIREMENTS OF SECTION 9-03.19 UNLESS OTHERWISE SPECIFIED.



- NOTES:**
- ALL SERVICE LATERALS SHALL BE 6" MIN.
  - SERVICE LATERALS SHALL BE PLUGGED AS PROVIDED BY SECTION 7-17.3(2)A OF THE STANDARD SPECIFICATIONS. SERVICE LATERALS SHALL BE CLEARLY MARKED AS PROVIDED IN SECTION 7-18.3(5) OF THE STANDARD SPECIFICATIONS.
  - APPROVED COMMERCIAL TAPS:
    - ~ SEALTIGHT® TYPE "C" OR "D" SEWER SADDLE.
    - ~ FOWLER QUICK-WAY® SEWER TAP
    - ~ FOWLER "T & L"® SEWER TEE
    - ~ FOWLER "INSERTA TEE"®
    - ~ "TAP-TITE"® SEWER TEE TRANSITIONS BETWEEN DISSIMILAR PIPE MATERIALS OR SIZES SHALL BE MADE WITH APPROVED ADAPTERS (FERNCO, CAULDER, OR EQUAL).
  - IN NEW SUBDIVISIONS AND OTHER CONSTRUCTION INVOLVING NEW ROADS, INSTALL LATERALS TO 6 FEET BEHIND PROPERTY LINE FOR SEWERS IN STREET RIGHT-OF-WAY.



TYPICAL HOUSE BRANCH  
SERVICE LATERAL CONNECTIONS  
NTS

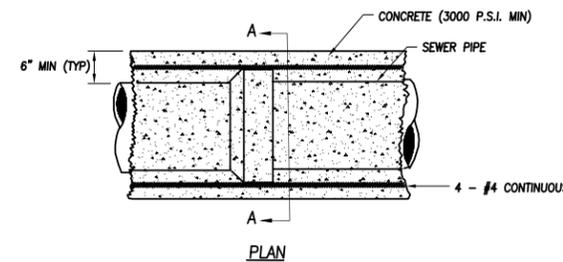
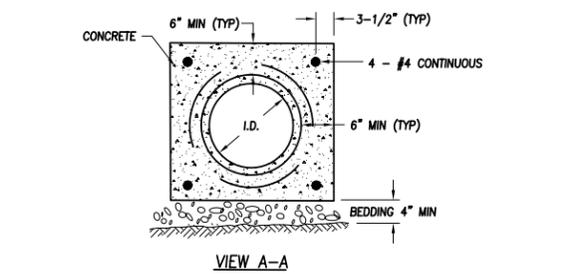


- NOTES:**
- ALL CONCRETE TO BE 3000 P.S.I., 2" TO 4" SLUMP.
  - WALLS TO BE PLACED WHERE GRADE IS 20% OR OVER.
  - ANCHOR WALLS TO BE EQUALLY SPACED WITH MAXIMUM DISTANCE BETWEEN WALLS TO BE AS SHOWN IN TABLE "A".
  - PLACE WALL IMMEDIATELY BELOW BELL OF PIPE WHERE POSSIBLE.
  - CONCRETE SHALL BE POURED AGAINST FORMS OR STABLE UNDISTURBED SOIL.

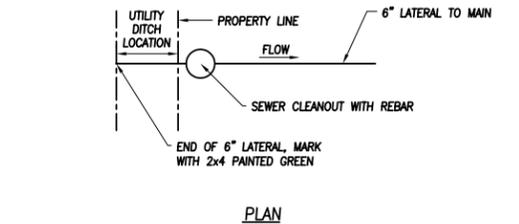
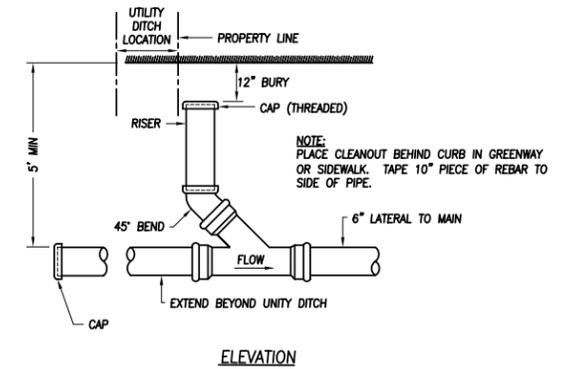
SLOPE %	MAXIMUM SPACING (FT.) (MEASURED ON SLOPE)
OVER 70	36"
20 35	24"
35 50	18"
50 100	18"

PIPE SIZE (D)	TRENCH WIDTH MAX. (W)	h	b	VOLUME OF CONCRETE (APPROX.)
6", 8", 10"	2.5'	3.0'	4.0'	0.29 C.Y.
12", 15"	2.5'	4.0'	4.0'	0.37 C.Y.
18", 21", 24"	3.5'	4.0'	5.0'	0.42 C.Y.
30", 36"	4.5'	5.0'	6.0'	0.62 C.Y.

STANDARD ANCHOR WALL DETAILS  
NTS



CONCRETE ENCASED SEWER PIPE  
NTS



STANDARD LATERAL & CLEANOUT  
NTS

By	APPR.	DATE	No.	REVISIONS	DESIGNED	EB/LF	SCALE	JOB NUMBER	CITY OF WASHOUGAL	DRAWING NUMBER
MBC		8/03		APPROVED (CD VERSION 1.1)	DRAWN	BS	HOR. NTS			
MBC		10/03		APPROVED (CD VERSION 1.2)	CHECKED	JG	VERT. NTS			
					APPROVED	MBC	FIELD BOOK			

DATE	STANDARD SANITARY DETAILS 1	SHEET of