1. ALL SEWER MAINS AND LATERALS IN THE RIGHT-OF-WAY/EASEMENT SHALL BE PVC SDR35 UNLESS OTHERWISE NOTED.

* 2. MANHOLE BASE(S) SHALL BE PRECAST UNLESS OTHERWISE APPROVED BY CARSON CITY ~~DEVELOPMENT ENGINEERING~~ PUBLIC WORKS. NO FIELD MODIFICATIONS TO PRECAST BASES SHALL BE ALLOWED.

3. NON-FLEXIBLE TRANSITION COUPLINGS ARE REQUIRED WHEN CONNECTING SEWER LINES TO EXISTING LINES AND/OR FITTINGS.

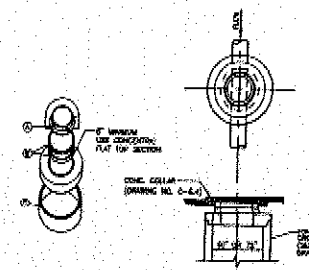
4. THE CONTRACTOR SHALL INSTALL A PLUG AT THE POINT OF EXTENSION OF A SEWER MAIN PRIOR TO THE START OF CONSTRUCTION. THE PLUG SHALL REMAIN IN PLACE UNTIL ALL LINES HAVE BEEN INSPECTED, TESTED, CLEANED AND FLUSHED. REMOVAL OF THE PLUG BY THE CONTRACTOR PRIOR TO APPROVAL IS A VIOLATION OF THE CARSON CITY MUNICIPAL CODE AND MAY RESULT IN FINES UP TO $1,000 A DAY.

5. SEWER LINES SHALL BE TESTED PER SECTION 336.03.07 OF THE SSPWC AS ADOPTED BY CARSON CITY. AN AIR PRESSURE TEST PER SECTION 336.03.07.04 AND A DEFLECTION TEST PER SECTION 336.03.08 OF THE CARSON CITY AMENDMENT TO THE SSPWC SHALL BE PERFORMED ON ALL SEWER LINES. A VACUUM TEST PER SECTION 336.03.07.05 OF THE CARSON CITY AMENDMENT TO THE SSPWC, LATEST EDITION, SHALL BE PERFORMED ON ALL SEWER MANHOLES.

6. MARKING TAPE SHALL BE INSTALLED 12" ABOVE ALL SEWER MAINS AND LATERALS. TAPE WIDTH SHALL BE THREE (3) INCHES; THICKNESS SHALL BE FOUR (4) MIL OR GREATER AND SHALL BE GREEN AND WEAR LARGE PRINTING DENOTING "CAUTION BURIED SEWER LINE BELOW" OR EQUIVALENT WORDING.

* 7. SEWER MANHOLE MARKERS SHALL BE INSTALLED WHEN SEWER MANHOLES ARE LOCATED OFF THE PAVED SURFACE. SEWER MANHOLE MARKERS SHALL BE GREEN CARSONITE UTILITY MARKER (ISOM 375), 6" X 2" WITH MANHOLE DECAL (666-MH) OR APPROVED EQUAL. PLACE MARKERS ON EASEMENT LINE NEAREST TO MANHOLE OR AS DIRECTED BY CARSON CITY ~~DEVELOPMENT ENGINEERING~~ PUBLIC WORKS.

NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION
1	NOTES 3 & 7	12/05	*MODIFIED* CARSON CITY UTILITIES SEWER GENERAL NOTES	CARSON CITY
				DRAWING NO. C-2.1 (304)
				DATE 2/2002
				PAGE 14



SYM	ITEM
A	RING & COVER (SEE NOTE 4)
B	GRADE ADJUSTING RING (SEE DRAWING C-6.5)
C	PRECAST MANHOLE SECTION

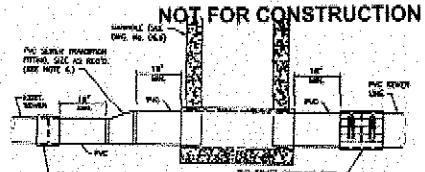
SEE ADDITIONAL NOTES AND CONSTRUCTION DETAILS FOR MANHOLE TYPE I, STD. DRAWING NO. C-6.6.

FLAT TOP MANHOLE
TYPE I-B TOP

NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION
				CARSON CITY
				DRAWING NO.
				DATE
				PAGE

NDOT/CARSON CITY AGREEMENT PLANS

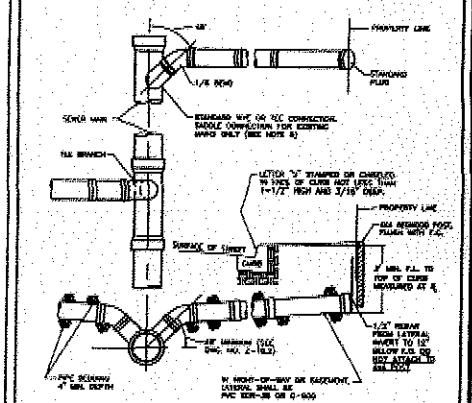
FOR INFORMATION ONLY NOT FOR CONSTRUCTION



TYPICAL SEWER LINE & MANHOLE TRANSITION
NTS

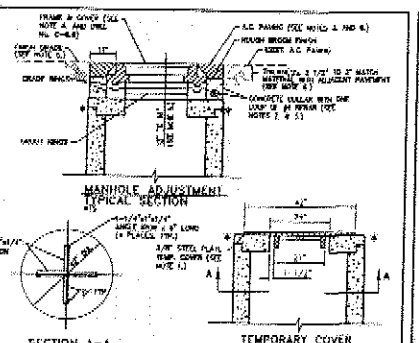
NOTES:
1. SEWER CLAMP COUPLING SHALL BE ROMAC STYLE 1001, 1072, 1053, OR APPROVED EQUAL.
2. SEWER CLAMP COUPLING LENGTH SHALL BE 12" MINIMUM FOR 8" PIPE AND LARGER.
3. SEWER CLAMP COUPLINGS SHALL BE USED AT LOCATIONS WHERE TWO PIPES OF EQUAL SIZE AND DIAMETER ARE BEING JOINED. (ie. 8" PVC TO 8" PVC)
4. SEWER COUPLINGS SHALL BE ROMAC STYLE 501 STAINLESS COUPLINGS FOR SEWER OR APPROVED EQUAL.
5. SEWER COUPLINGS SHALL BE USED AT LOCATIONS WHERE TWO PIPES OF EQUAL SIZE AND EQUAL OR DIFFERENT DIAMETER ARE BEING JOINED. (ie. 8" PVC TO 8" PVC, OR 8" PVC TO 8" CLAY.)
6. PVC SEWER TRANSITION FITTINGS SHALL BE USED AT ALL LOCATIONS WHERE TWO PIPE PIPES OF MATERIAL SIZE ARE TO BE JOINED. (ie. 8" PVC TO 6" PVC)

NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION
1	ITEM B NOTES	12/05	SEWER LINE TRANSITIONS	CARSON CITY
				DRAWING NO. C-6.1 (304)
				DATE 7/2001
				PAGE 13



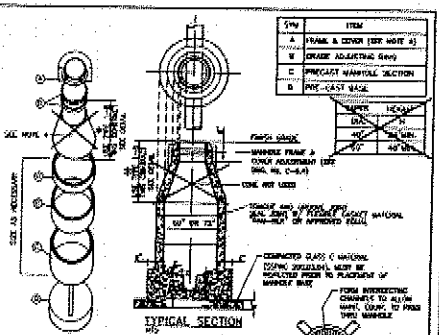
NOTES:
1. IN NO CASE SHALL A LATERAL CONNECT TO THE SEWER MAIN DIRECTLY ON TOP OR MITER THE FLOWLINE OF THE PIPE.
2. SEWER LATERALS SHALL HAVE A MINIMUM SLOPE OF 2%.
3. ALL JOINTS ON SEWER LATERAL PIPE WITHIN THE RIGHT-OF-WAY SHALL BE COMPRESSION TYPE.
4. LATERAL SHALL EXTEND TO PROPERTY LINE UNLESS OTHERWISE SHOWN ON PLANS.
5. USE OF SEWER SERVICE SADDLE CONNECTIONS SHALL NOT BE ALLOWED FOR NEW SEWER MAIN CONSTRUCTION. WHEN A SADDLE CONNECTION IS TO BE USED ON AN EXISTING SEWER MAIN, IT SHALL BE INSTALLED PER STANDARD DETAIL C-6.5.
6. DETERMINANCE OF USE OF AN EXISTING SEWER LATERAL REQUIRES ABANDONMENT OF THE LATERAL. CUT AND CAP THE EXISTING SEWER LATERAL TO BE ABANDONED WITHIN 3 INCHES OF THE SEWER MAIN. INSPECTION BY CARSON CITY UTILITIES IS REQUIRED PRIOR TO BACKFILL.

NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION
			SEWER LATERAL	CARSON CITY
				DRAWING NO. C-6.8
				DATE 2/2002
				PAGE 14



NOTES:
1. INSTALL STAINLESS STEEL WITH CONE INSTALLATION WHEN INSTALLING NEW MANHOLE OR WHEN RAISING EXISTING FRAME & COVER AND GRADE RINGS TO ADJUST TO FINISH GRADE. INSTALL COVER OVER MANHOLE BASE ON LINE NORTH TO PREVENT CLOSED FROM ENTERING SEWER SYSTEM. THE MANHOLE BASE COVER SHALL BE IN PLACE PRIOR TO PERFORMING ANY ADJUSTMENTS.
2. CONCRETE SHALL CONFORM TO THE SSPWC FOR SECTION 201.01.01. RUBBER SHALL BE USED ONLY WHEN THE MANHOLE IS LOCATED WITHIN PAVED AREAS.
3. THE CONCRETE COLLAR SHALL BE LEFT 2 1/2" TO 3" BELOW FINISHED ASPHALT SURFACE. APPLY AN APPROVED TACK COAT (CONFORMING TO THE SSPWC SECTION 302) AND PAVE WITHIN ADJACENT PAVEMENT AND FRAME WITH TYPE 3 EC 30 MIXING (CONFORMING TO THE SSPWC SECTION 203). ASPHALT PAVING CONFORMING TO SSPWC SECTION 302 TO THE ASPHALT SURFACE. ALL COSTS IN PAVING SHALL BE STRAIGHT AND EVEN EXCEPTION WHEN STRUCTURE NOT LOCATED IN ASPHALT PAVEMENT OR LOCATED IN AN UNPAVED AREA, EXTEND CONCRETE TO FINISH GRADE.
4. INSTALL NEW FRAME & COVER SHALLOW DIMENSIONS SHOWN ON THE PLANS OR SPECIAL CONDITIONS. FRAME & COVER SHALL BE SET FLUSH WITH FINISH GRADE UNLESS OTHERWISE NOTED.
5. FOR NEW MANHOLE INSTALLATIONS, DISTANCE FROM CENTER TO CONE SHALL BE 17" (INCHES) MINIMUM AND 19" (INCHES) MAXIMUM FOR MINOR INTERSECTIONAL STREETS AND 16" (INCHES) MINIMUM AND 18" (INCHES) MAXIMUM FOR ALL OTHER STREETS. FOR ADJUSTING EXISTING FRAME & COVERS, THE DISTANCE FROM COVER TO CONE SHALL NOT EXCEED 19" (INCHES).
6. WHEN LOCATED IN MOST RIGHT OF WAY, CONCRETE COLLAR SHALL CONFORM TO NDOT STANDARD PLAN SHT M-1.2 AND STANDARD SPECIFICATION 208.

NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION
1	ITEM B NOTES 1 / DO		*(MODIFIED) MANHOLE FRAME & COVER ADJUSTMENT	CARSON CITY
2	ITEM A NOTES 1 / DO	12/05		DRAWING NO. C-6.4 (304)
				DATE 7/2001
				PAGE 15

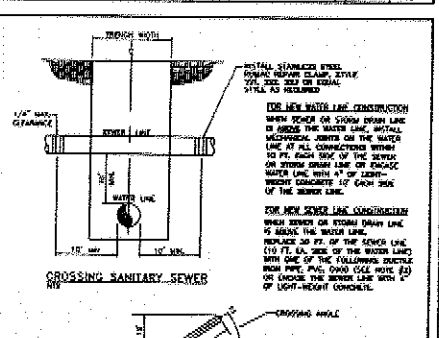


SYM	ITEM
A	FRAME & COVER (SEE NOTE 4)
B	GRADE ADJUSTING RING
C	PRECAST MANHOLE SECTION
D	PRE-CAST BASE

SIZE	HEIGHT
DIA.	H
48"	36" MIN.
60"	48" MIN.

NOTES:
1. MANHOLE SECTION (CASTING) HEIGHTS TO FIT DEPTH. ALL RING TO BE REMOVED AND VOIDS CREATED.
2. PRECAST MANHOLE COMPONENTS SHALL CONFORM TO ASTM C-478 MANHOLES TO BE SEALED WATER TIGHT.
3. NO "THRU" HOLES CLOSER THAN HOLES SHALL BE 180° FROM CENTER EQUAL. NO LADDER SURFACE OF STEPS. ~~MANHOLE SHALL BE SEALED WATER TIGHT AT ALL JOINTS AND PENETRATIONS~~
4. FLAT TOP SHALL BE USED FOR DEPTHS EXCEEDING TYPE I-B.
5. MANHOLE MATERIALS AND CONSTRUCTION SHALL CONFORM TO REQUIREMENTS OF SECTION 304 "MANHOLES AND CATCH POINTS" OF THE SSPWC.
6. CONE BOTTOM OF MANHOLE WITH FLEXIBLE RUBBERIZED COATING.
7. BASE CONFIGURATION TO BE DETAILED AS SHOWN ON THE APPROVED PLANS. NO PLUGGING OR MUDDING ALLOWED.

NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION
1	NOTES 6 & ITEM	12/05	MANHOLE TYPE I (MODIFIED)*	CARSON CITY
				DRAWING NO. C-6.6 (304)
				DATE 7/2001
				PAGE 16

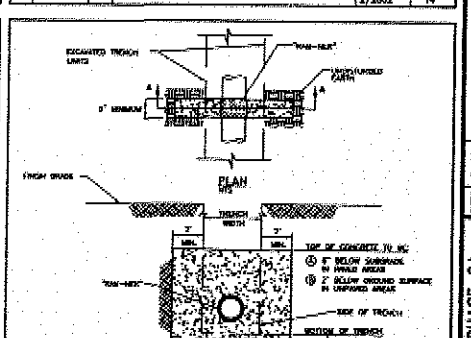


FOR NEW WATER LINE CONSTRUCTION
WHERE SEWER OR STORM DRAIN LINE IS ABOVE THE WATER LINE, INSTALL MECHANICAL JOINTS ON THE WATER LINE AT ALL CONNECTIONS WITHIN 10 FT. EACH SIDE OF THE SEWER OR STORM DRAIN LINE OR ENCASE WATER LINE WITH 4" OF LIGHT-WEIGHT CONCRETE 10' EACH SIDE OF THE SEWER LINE.

FOR NEW SEWER LINE CONSTRUCTION
WHERE SEWER OR STORM DRAIN LINE IS ABOVE THE WATER LINE, REPLACE 20 FT. OF THE SEWER LINE (10 FT. EA. SIDE OF THE WATER LINE) WITH ONE OF THE FOLLOWING DUCTILE IRON PIPE, PVC C900 (SEE NOTE 2) OR ENCASE THE SEWER LINE WITH 4" OF LIGHT-WEIGHT CONCRETE.

GENERAL NOTES
1. IN ALL CASES, PROVIDE 18" MIN. OF VERTICAL SEPARATION BETWEEN WATER, SEWER AND STORM DRAIN LINES. WHEN SEPARATION CAN NOT BE OBTAINED, CONTACT CARSON CITY UTILITIES INSPECTOR FOR DIRECTION. IN CASES WHERE WATER LINES MUST BE ROUTED UNDER SEWER OR STORM DRAIN LINES, FOLLOW STANDARD DETAIL NO. C-6.2. IF TRENCH WIDTH EXCEEDS 24", THEN DETAIL DRAWING NO. 3-17 (311) 500, 2 SHALL APPLY.
2. PVC TO BE USED ONLY WHEN DUCTILE IRON PIPE, LINE IS PVC.
3. IF WATER LINE IS 18" OR GREATER ABOVE THE SEWER LINE OR STORM DRAIN LINE, NO SPECIAL CONSTRUCTION IS REQUIRED.
4. ALL PROVISIONS ABOVE SHALL APPLY FOR CROSSINGS OTHER THAN 90° TO THE POINT AT WHICH THE 10' SEPARATION BETWEEN THE WATER AND SEWER OR STORM DRAIN LINE IS ACHIEVED (10'/SINE OF ANGLE OF CROSSING).
5. FOR PURPOSES OF SEPARATIONS AND PROTECTION OF THE WATER SUPPLY, A REGULATED WATER LINE SHALL BE CONSIDERED A SEWER LINE.

NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION
			SANITARY SEWER AND STORM DRAIN CROSSINGS	CARSON CITY
				DRAWING NO. C-6.1
				DATE 7/2001
				PAGE 31



NOTES:
1. CUT-OFF COLLARS ARE REQUIRED TO BE CONSTRUCTED WHEN THE CONTRACTOR ELECTS TO USE CLASS C BACKFILL FOR SEWER LINE REMOVAL. CUT-OFF COLLARS ARE NOT REQUIRED WHEN USING CLASS A BACKFILL FOR SEWER TRENCH.
2. CUT-OFF COLLARS ARE TO BE CONSTRUCTED AT THE DOWN GRADIENT END OF THE TRENCH AND SHALL BE SPACED AT 500 FOOT MAXIMUM INTERVALS, EXCEPT WHERE SHOWN OTHERWISE ON THE PLANS.
3. TRENCH WIDTH WITH "MAX-MIN" OR EQUIVALENT WHERE PIPE IS EXPOSED TO CONCRETE FROM 10 FOOTING.
4. CONCRETE SHALL BE A LEAN MIXTURE THAT CAN SLUMP NOT CONFORMING TO CONCRETE SPECIFICATIONS OF 3" MIN. STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. IF DEVIATION IS MADE FOR CONCRETE FORMAT, IT MUST BE LEFT IN PLACE.
5. CUT-OFF COLLARS TO BE USED ON SEWER MAINS ONLY. USE ON WATER LINES IS SUBJECT TO APPROVAL OF THE CARSON CITY ENGINEERING DEPARTMENT.
6. WHEN STEEL PLATES IS BACKFILL AND TRENCH PATCHING FOR SECTIONS UNDER THE BEDDING AND PAVE IS ENCOUNTERED, SUCH CONDITIONS. THE CUT-OFF COLLAR SHALL EXTEND 2 FEET MINIMUM BELOW THE BEDDING SURFACE.

NO.	REVISION	DATE	STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION	SECTION
1	REVISED DWG. & NO.	5/05	CUT-OFF COLLAR	CARSON CITY
				DRAWING NO. C-6.5
				DATE 7/2001
				PAGE 17

CARSON CITY FREEWAY PHASE 2A
UTILITY RELOCATIONS
E. FIFTH ST. FREEWAY EAST, SNOW DRIVE TO BUTTI WAY
PROJECT NO. 00-6010
TYPICAL CONSTRUCTION DETAILS

CARSON CITY PUBLIC WORKS DEPARTMENT
3505 BUTTI WAY CARSON CITY, NEVADA 89701
PH: 887-2355 FAX: 887-2112

THE LOUIS BERGER GROUP, INC.

PRELIMINARY 09/20/06

REV.	DATE	DESCRIPTION	BY	APP'D

DESIGNED BY: ---
DRAWN BY: ---
CHECKED BY: ---
DATE: ---
SCALE (HORIZ): NONE
SCALE (VERT): NONE

SHEET 26E OF 34

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