

**UNIFORM STANDARD
DETAILS**

for

**PUBLIC WORKS
CONSTRUCTION**

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**1998
ARIZONA**

(Includes Revisions Through 2006)

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DETAIL NO.

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100-2

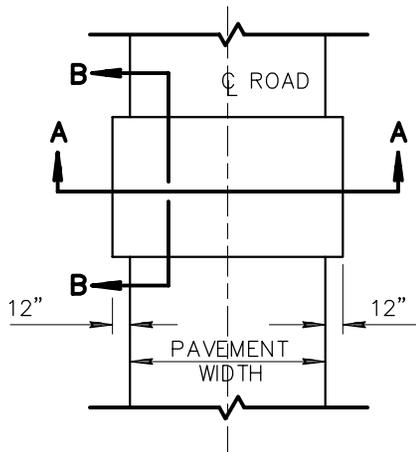


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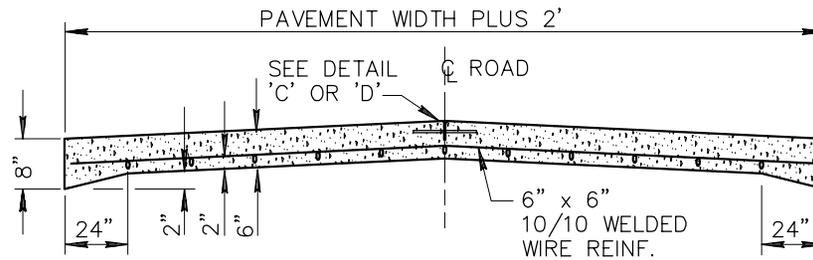
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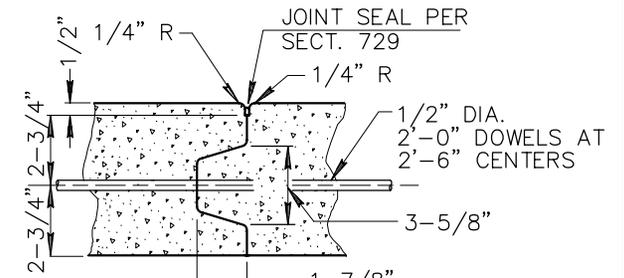
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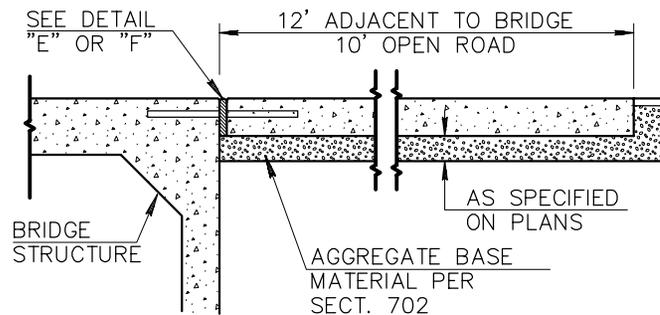
PLAN OF CONCRETE EQUIPMENT CROSSING



SECTION A-A



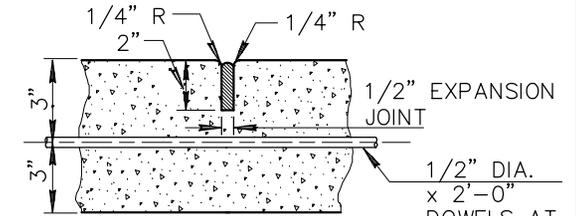
LONGITUDINAL JOINT DETAIL 'C'



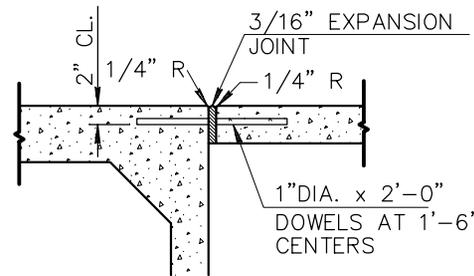
SECTION B-B

NOTES:

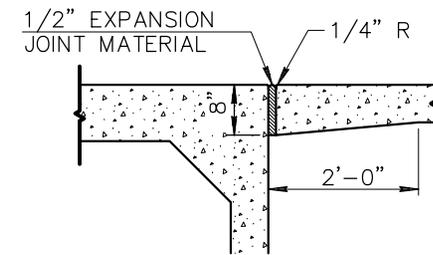
1. WHEN EQUIPMENT CROSSING LIES ADJACENT TO BRIDGE OR BOX CULVERT, CONSTRUCT THE EQUIPMENT CROSSING TO WIDTH OF BRIDGE ROADWAY.
2. ALL DOWELS IN CENTER JOINTS SHALL BE DEFORMED BARS AND SHALL HAVE UNBROKEN BOND. THEY SHALL BE HELD SECURELY IN PLACE, PARALLEL TO THE SUBGRADE AND PERPENDICULAR TO THE CENTER LINE OF THE ROAD.
3. THE EDGING TOOL USED FOR ALL LONGITUDINAL JOINTS SHALL BE SO CONSTRUCTED AS TO PROVIDE A SMOOTH TROWELED SURFACE 3" WIDE ON EACH SIDE OF THE JOINT.
4. IF APPROVED BY THE ENGINEER, OTHER DEFORMATIONS MAY BE USED IN LONGITUDINAL JOINT - DETAIL 'C'.
5. DETAIL 'C' TO BE USED ONLY WHEN FULL WIDTH CAN NOT BE POURED IN ONE POUR. USE DETAIL 'D' IF FULL WIDTH IS POURED IN ONE POUR.



LONGITUDINAL JOINT DETAIL 'D'



JOINT AT NEW BRIDGE DETAIL 'F'



JOINT AT EXISTING BRIDGE DETAIL 'E'

DETAIL NO.

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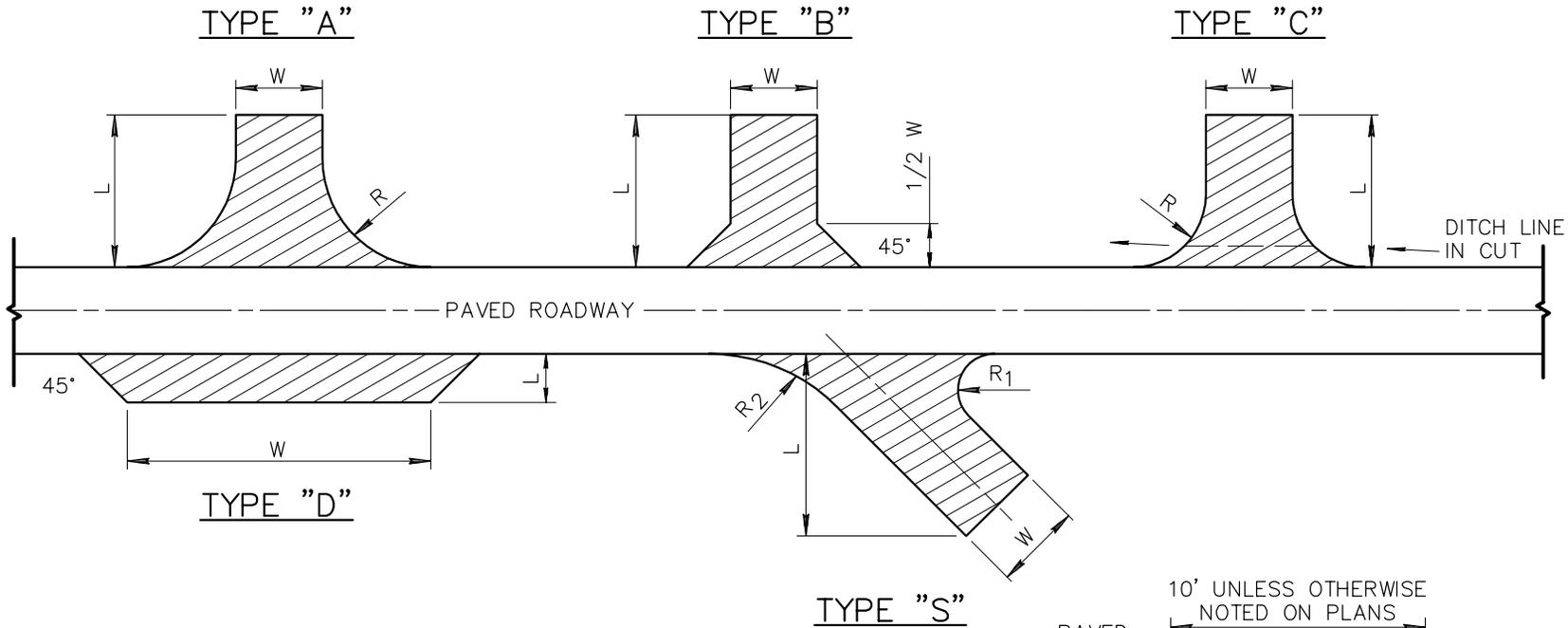
STANDARD DETAIL ENGLISH

EQUIPMENT CROSSING

REVISED

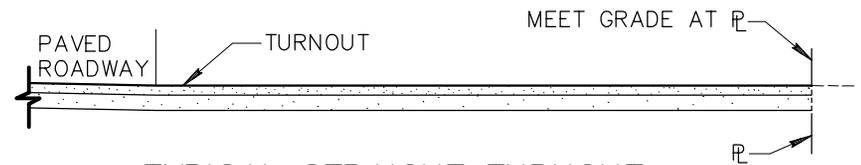
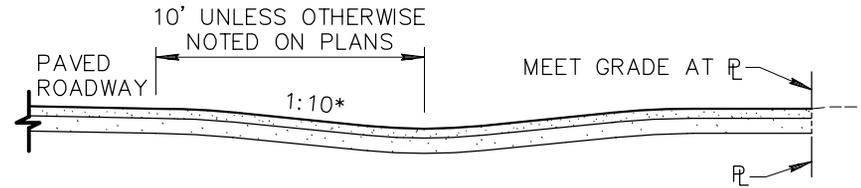
DETAIL NO.

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NOTES:

1. W - INDICATES WIDTH OF PAVED SURFACE OF TURNOUT.
 L - INDICATES LENGTH OF PAVED SURFACE OF TURNOUT.
 R - RADIUS.
2. SIZE AND TYPE OF TURNOUT SHALL BE NOTED ON PLANS AS FOLLOWS:
 90° - NO RADIUS: $W \times L$ -SURFACE-TYPE; ($12' \times 30'$ -A.C.-TYPE "B" TURNOUT).
 90° - WITH A RADIUS: $W \times L \times R$ -SURFACE-TYPE; ($12' \times 20' \times 15'$ -A.C.-TYPE "C" TURNOUT). OTHER THAN 90° WITH 2 RADII-TYPE "S": $W \times L \times R_1 \times R_2$ -SURFACE-TYPE; ($12' \times 20' \times 15'$ -A.C.-TYPE "S" TURNOUT).
OR IT MAY BE NOTED ON PLANS IN CONVENTIONAL TERMS.
3. TURNOUTS TO BE STRAIGHT TYPE UNLESS OTHERWISE NOTED ON PLANS.
4. A.C. AND BASE MATERIAL THICKNESS FOR TURNOUTS SHALL BE THE SAME AS SHOWN ON THE ROADWAY SECTION, UNLESS OTHERWISE NOTED.
5. ANY EXCAVATION OR EMBANKMENT FOR TURNOUTS IS INCLUDED IN THE ROADWAY QUANTITIES.
6. TURNOUTS ARE TO BE PLACED WHERE SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.



* UNLESS OTHERWISE NOTED ON PLANS

DETAIL NO.

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**STANDARD DETAIL
ENGLISH**

PAVED TURNOUTS

REVISED

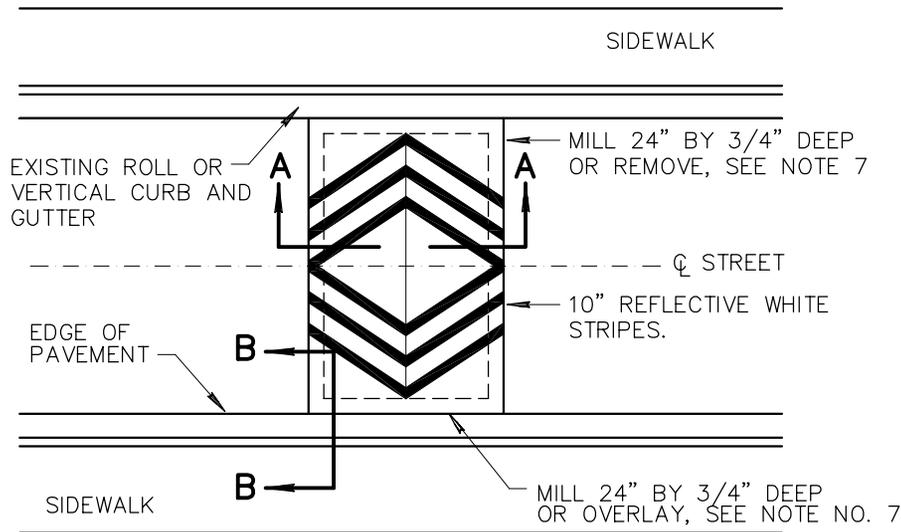
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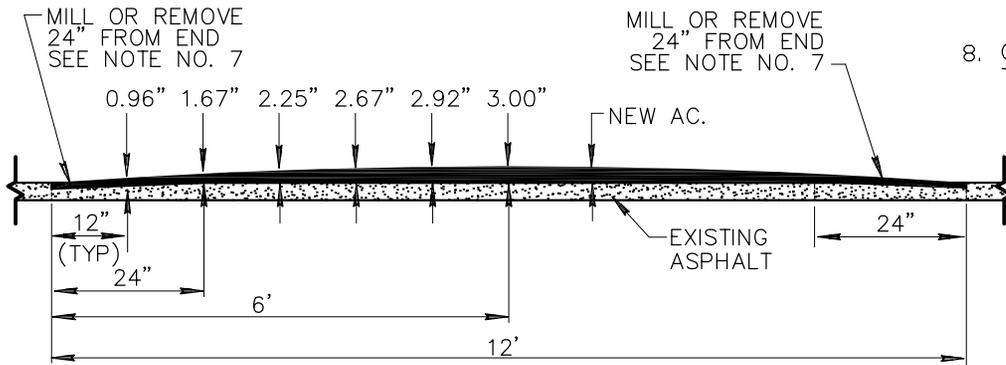
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NOTES:

1. HUMPS MUST BE THE FULL 3" FOR MAXIMUM EFFECT BUT SHALL NOT EXCEED 3.25".
2. HUMPS CONSTRUCTED OVER 3.25" SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
3. CROSS-SECTION ELEVATIONS SHALL HAVE A MAXIMUM TOLERANCE OF +0.25".
4. SPEED HUMPS SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MONUMENTS, JUNCTION CHAMBERS, ETC. OR IN CONFLICT WITH DRIVEWAYS.
5. SPEED HUMPS MUST BE PLACED AT LOCATIONS APPROVED BY THE AGENCY.
6. HUMP TO BE CONSTRUCTED WITH ASPHALT MIX APPROVED BY THE AGENCY. ASPHALT COMPACTION SHALL BE PER SECTION 321. A TACK COAT PER SECTION 713 SHALL BE APPLIED PRIOR TO APPLICATION OF PAVEMENT.
7. INSTALLATION JOINTS:
 - A. STANDARD INSTALLATION:
THE EXISTING ROADWAY SHALL BE MILLED TO A MINIMUM DEPTH OF 3/4" AROUND THE PERIMETER. CROSS SECTION DIMENSIONS DO NOT INCLUDE THE 3/4" MILLING. CONTRACTOR MUST PROVIDE VERIFICATION OF CROSS-SECTION DIMENSIONS.
 - B. ALTERNATIVE INSTALLATION:
FOR TRANSVERSE JOINTS (CROSS ROADWAY), THE EXISTING ASPHALT SHALL BE SAW CUT AND REMOVED FOR A WIDTH OF 18". THE ASPHALT SHALL BE REPLACED WITH THE SAME ASPHALT AND AT THE SAME TIME AS THE HUMP ASPHALT. FOR LONGITUDINAL JOINTS, THE EXISTING ASPHALT SHALL BE OVERLAID AND TAPERED IN 12". CROSS-SECTION DIMENSIONS REFLECT DISTANCES FROM THE SURFACE OF EXISTING ASPHALT.
8. CONTACT THE AGENCY (OR INSPECTOR) ONE WEEK PRIOR TO INSTALLATION TO COORDINATE PAVEMENT MARKINGS AND SIGNING.

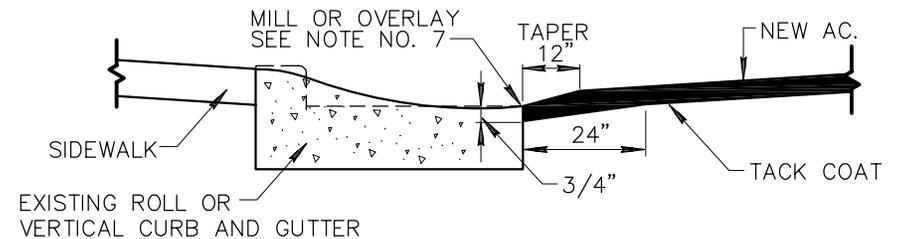


PLAN VIEW



SECTION A-A

IMPORTANT:
TO GAIN MAXIMUM EFFECT, HUMPS MUST BE THE FULL 3". CONTRACTORS MUST NOT EXCEED THIS HEIGHT BASED ON CONSIDERATION FOR EMERGENCY POLICE AND FIRE DEPARTMENT VEHICLES.



SECTION B-B

DETAIL NO.

210



**STANDARD DETAIL
ENGLISH**

RESIDENTIAL SPEED HUMP

REVISED

01-01-2006

DETAIL NO.

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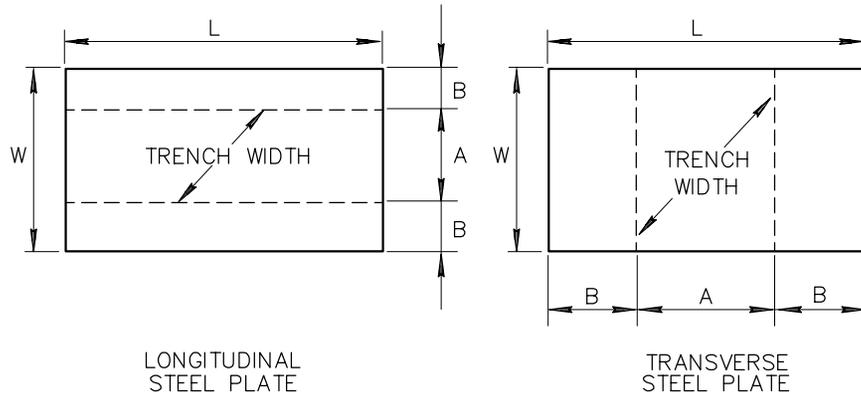
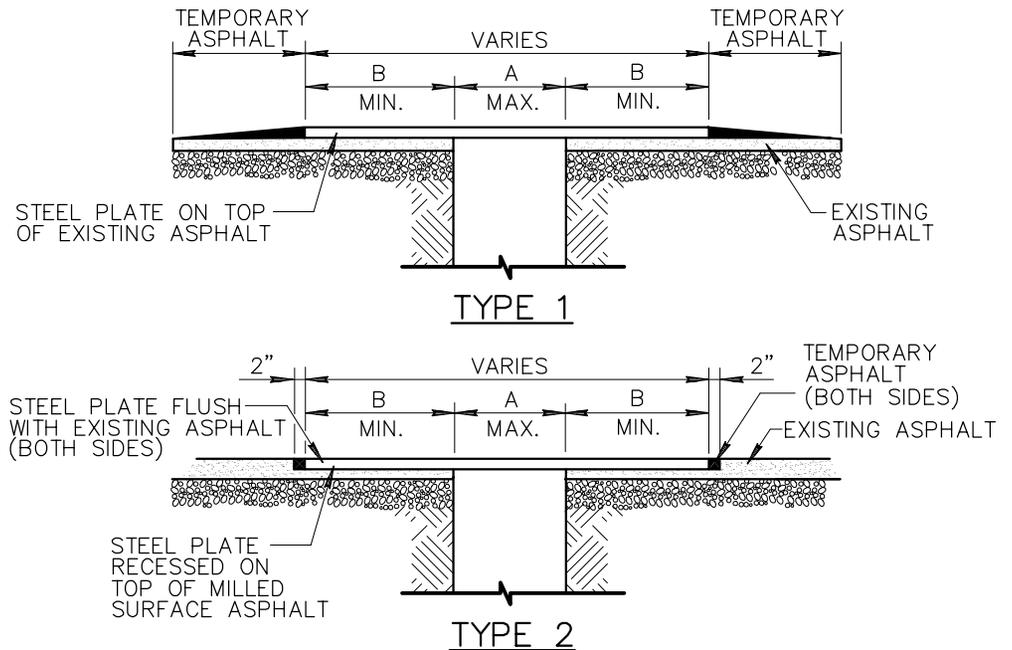
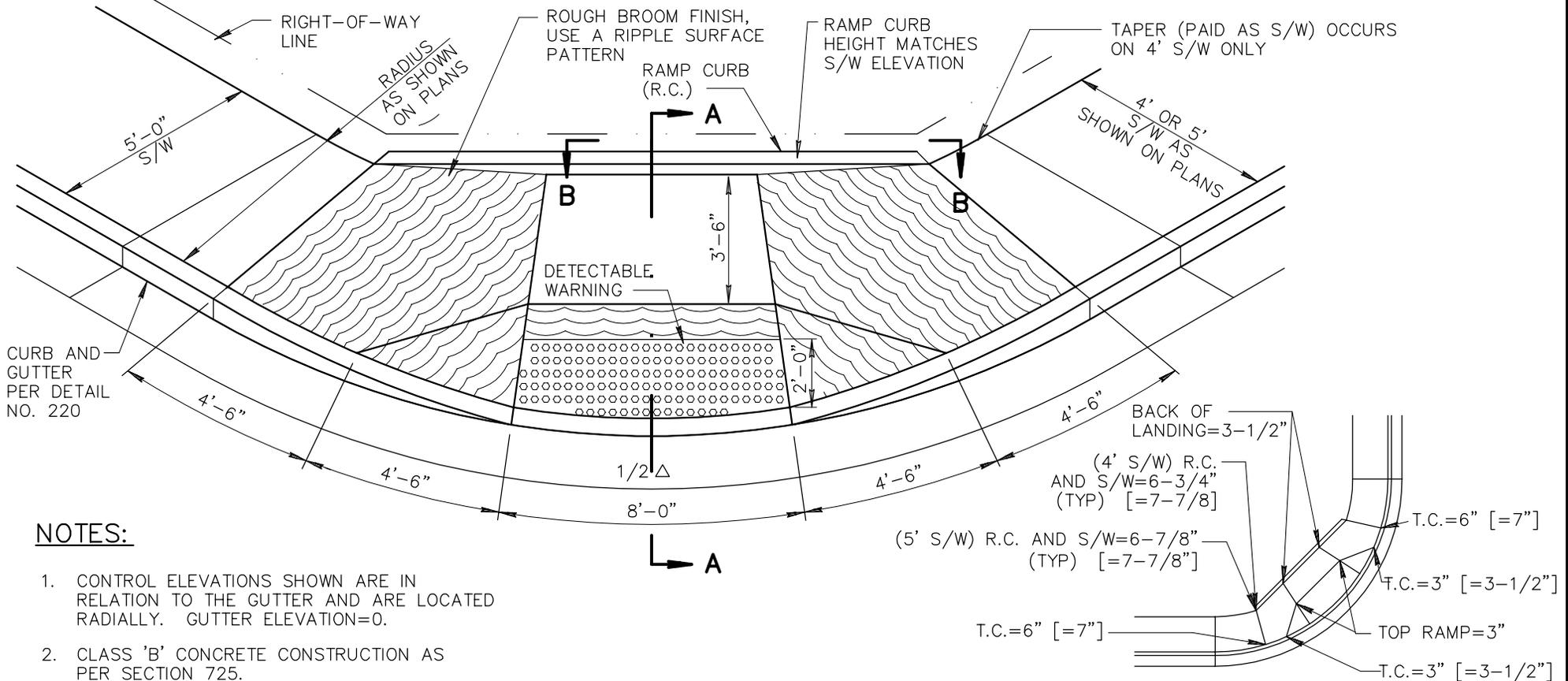


PLATE SIZE						
LONGITUDINAL					TRANSVERSE	
(A)	(B)	THICKNESS	(W)	(L)	(A)	(B)
12"	18"	1"	4'	8'	58"	19"
12"	18"	1"	4'	10'	58"	31"
24"	18"	1"	5'	10'	70"	25"
36"	18"	1"	6'	10'	44"	38"
48"	18"	1"	7'	10'	52"	34"
60"	18"	1"	8'	10'	58"	31"
12"	18"	1-1/4"	4'	15'	88"	47"
24"	18"	1-1/4"	5'	12'	104"	20"
36"	18"	1-1/4"	6'	12'	66"	39"
36"	18"	1-1/4"	6'	16'	66"	63"
48"	18"	1-1/4"	7'	12'	76"	33"
48"	18"	1-1/4"	7'	16'	76"	58"
60"	18"	1-1/4"	8'	12'	86"	29"
60"	18"	1-1/4"	8'	15'	86"	47"
60"	18"	1-1/4"	8'	16'	86"	63"
60"	18"	1-1/4"	8'	20'	86"	77"
60"	18"	1-3/8"	8'	20'	102"	69"

NOTES:

1. USE TYPE 1 PLATE INSTALLATION WHERE POSTED SPEED LIMIT IS LESS THAN 30 MPH. USE TYPE 2 PLATE INSTALLATION WHERE POSTED SPEED LIMIT IS 30 MPH OR GREATER.
2. FOR TYPE 2 PLATE INSTALLATION, THE STEEL PLATE SHALL BE RECESSED BY MILLING INTO THE EXISTING ASPHALT TO SET FLUSH WITH THE SURFACE OF THE EXISTING ASPHALT. FULL DEPTH CUTTING OF PAVEMENT SECTION OUTSIDE OF TRENCH IS NOT PERMITTED. MILLING DEPTH SHALL MATCH THICKNESS OF PLATE. THE GAP BETWEEN THE EDGE OF THE PLATE AND THE ADJACENT EXISTING ASPHALT PAVEMENT MUST BE FILLED WITH TEMPORARY ASPHALT.
3. TRENCH WIDTHS ARE BASED ON AN ANALYSIS PER THE 14TH EDITION OF STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES BY AASHTO. AN ASSUMED AXLE LOADING OF 12 TONS WITH A 30% IMPACT FACTOR WAS USED. THE AXLE LENGTH IS 6 FEET; THEREFORE THE NUMBER OF WHEELS CARRIED BY A PLATE DEPENDS ON THE ROADWAY WIDTH.
4. STEEL PLATE MUST BE ABLE TO WITHSTAND H-20 TRAFFIC LOADINGS WITHOUT ANY MOVEMENT.
5. PLATES SHALL BE FABRICATED FROM ASTM A36 STEEL (MIN).
6. PLATES SHALL BE SECURED FROM LATERAL MOVEMENT AND VERTICAL VIBRATION (ASSOCIATED NOISE) WHILE IN USE BY TEMPORARY ASPHALT (COLD MIX.)



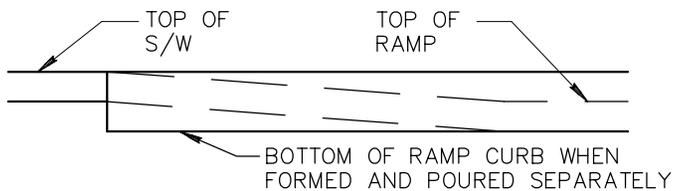


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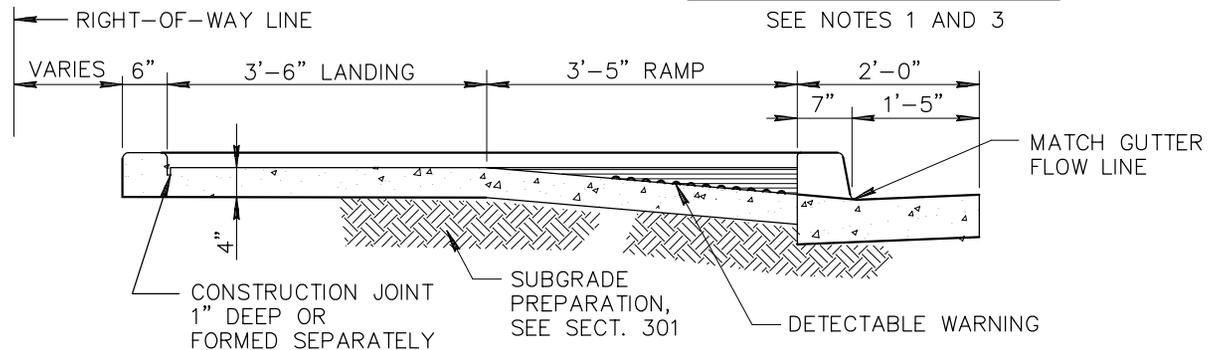
- CONTROL ELEVATIONS SHOWN ARE IN RELATION TO THE GUTTER AND ARE LOCATED RADIALLY. GUTTER ELEVATION=0.
- CLASS 'B' CONCRETE CONSTRUCTION AS PER SECTION 725.
- WHEN CURB HEIGHTS OF 7" ARE SHOWN ON PLANS, USE DIMENSIONS SHOWN IN []'S.
- DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.

CONTROL ELEVATIONS

SEE NOTES 1 AND 3



SECTION B-B



SECTION A-A

DETAIL NO.

231



**STANDARD DETAIL
ENGLISH**

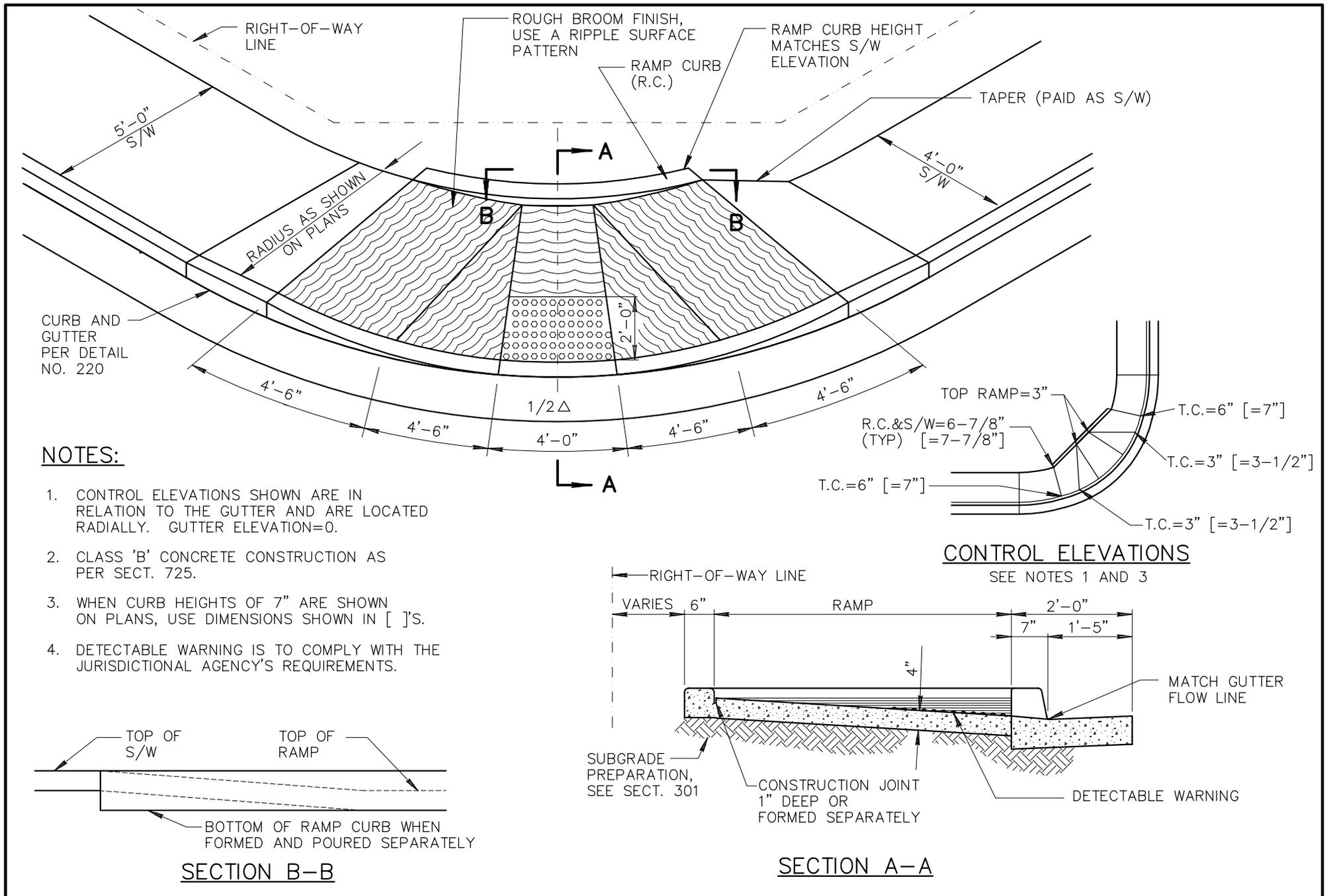
SIDEWALK RAMPS - TYPE 'A'

REVISED

01-01-2006

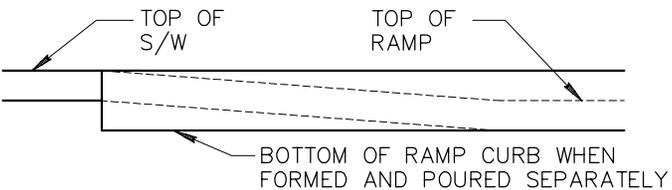
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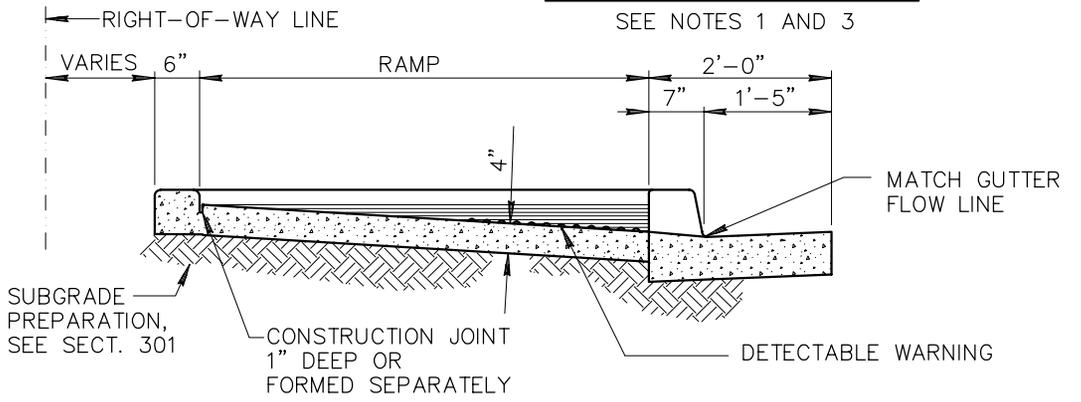


NOTES:

1. CONTROL ELEVATIONS SHOWN ARE IN RELATION TO THE GUTTER AND ARE LOCATED RADIALLY. GUTTER ELEVATION=0.
2. CLASS 'B' CONCRETE CONSTRUCTION AS PER SECT. 725.
3. WHEN CURB HEIGHTS OF 7" ARE SHOWN ON PLANS, USE DIMENSIONS SHOWN IN []'S.
4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.



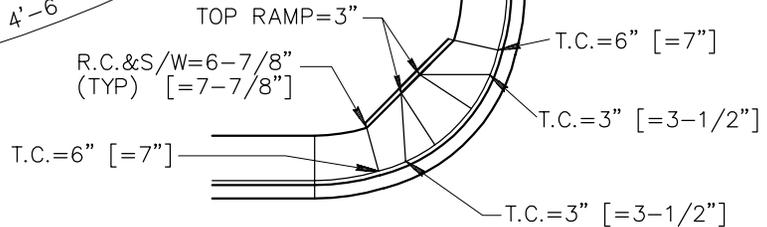
SECTION B-B

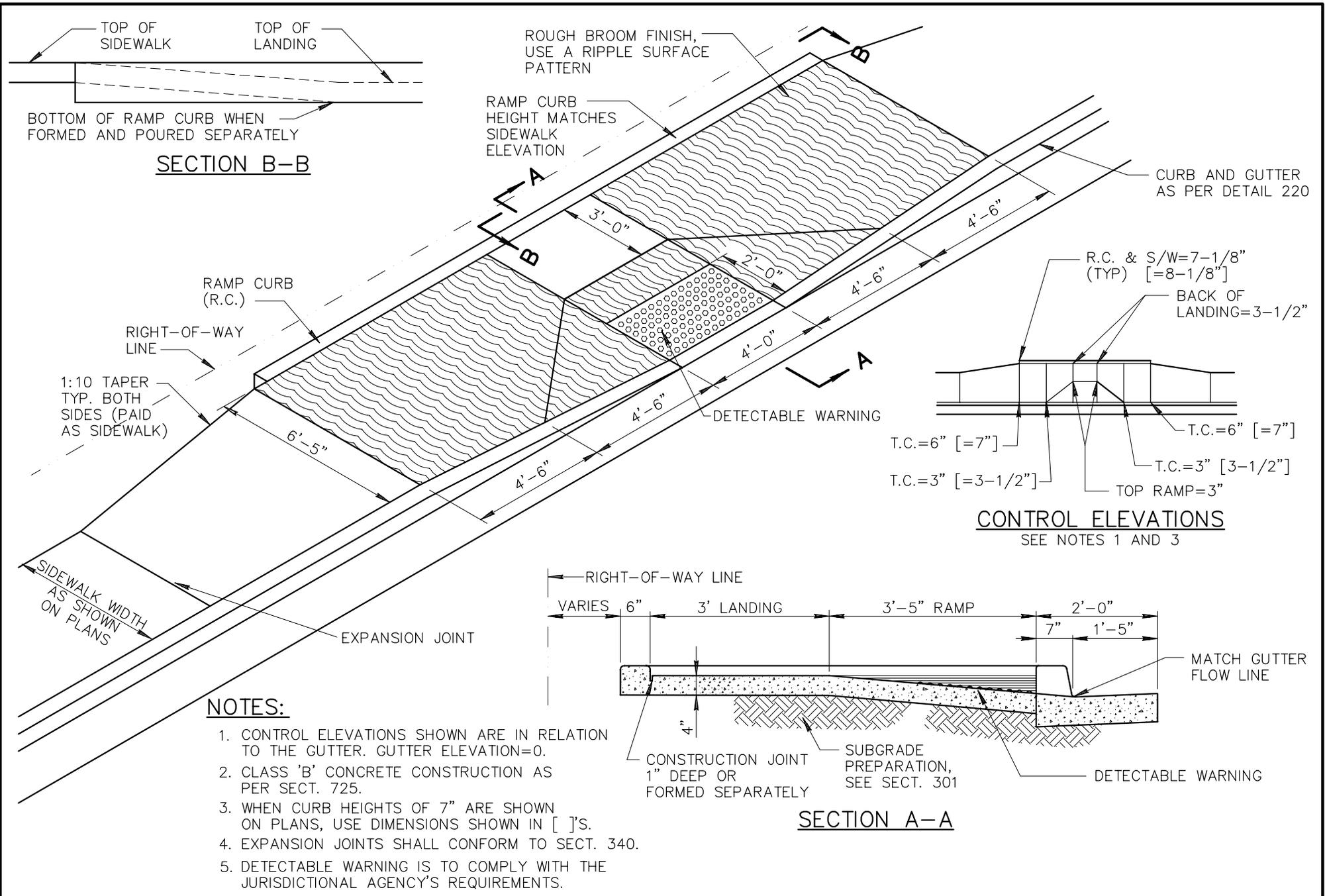


SECTION A-A

CONTROL ELEVATIONS

SEE NOTES 1 AND 3





DETAIL NO.

233



STANDARD DETAIL
ENGLISH

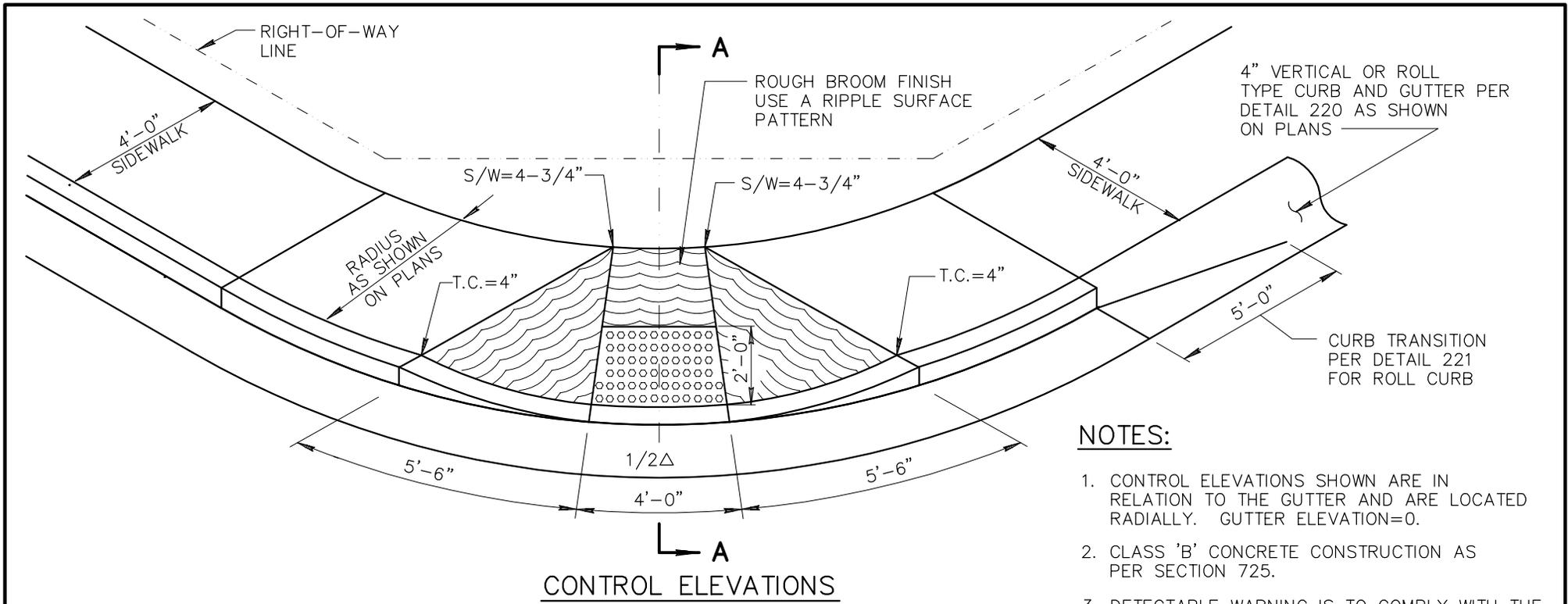
SIDEWALK RAMPS - TYPE 'C'

REVISED

01-01-2006

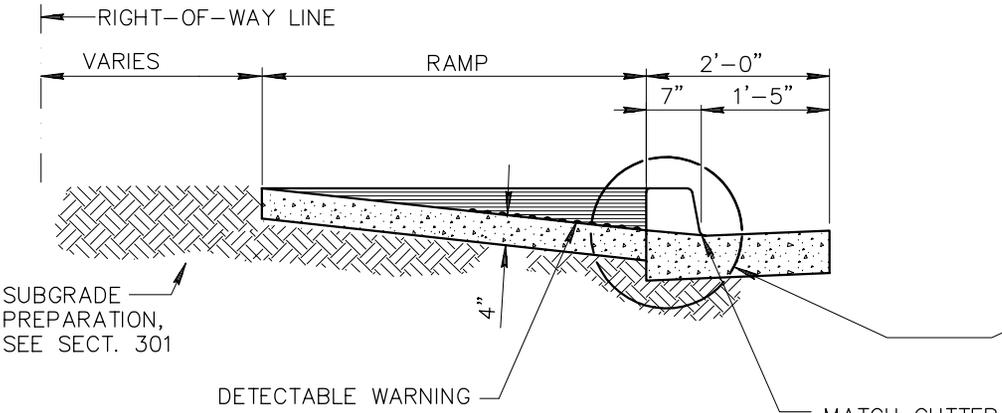
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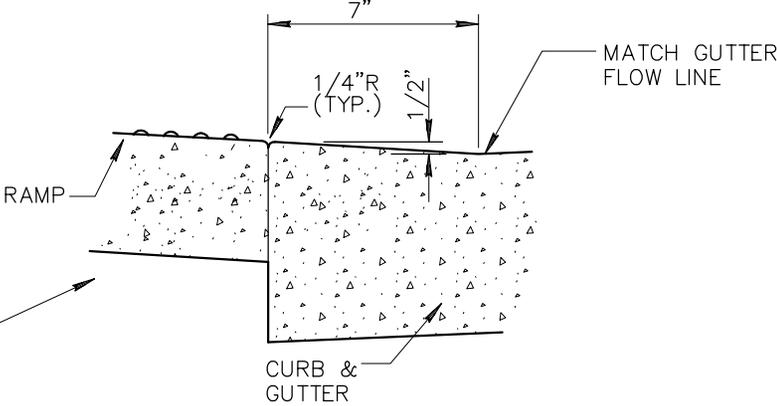


NOTES:

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2. CLASS 'B' CONCRETE CONSTRUCTION AS PER SECTION 725.
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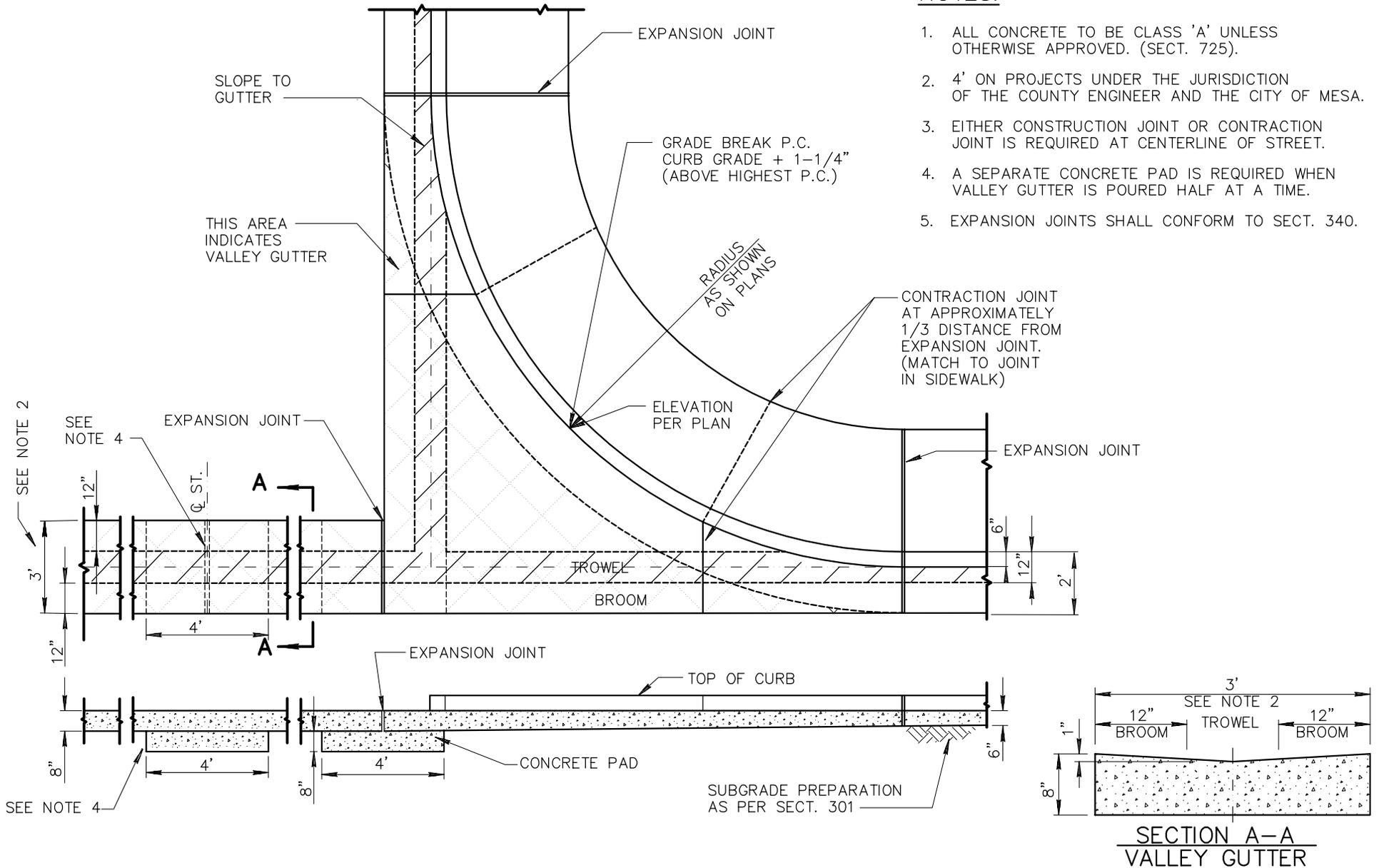
SECTION A-A



DETAIL 1

NOTES:

1. ALL CONCRETE TO BE CLASS 'A' UNLESS OTHERWISE APPROVED. (SECT. 725).
2. 4' ON PROJECTS UNDER THE JURISDICTION OF THE COUNTY ENGINEER AND THE CITY OF MESA.
3. EITHER CONSTRUCTION JOINT OR CONTRACTION JOINT IS REQUIRED AT CENTERLINE OF STREET.
4. A SEPARATE CONCRETE PAD IS REQUIRED WHEN VALLEY GUTTER IS POURED HALF AT A TIME.
5. EXPANSION JOINTS SHALL CONFORM TO SECT. 340.



DETAIL NO.

240



**STANDARD DETAIL
ENGLISH**

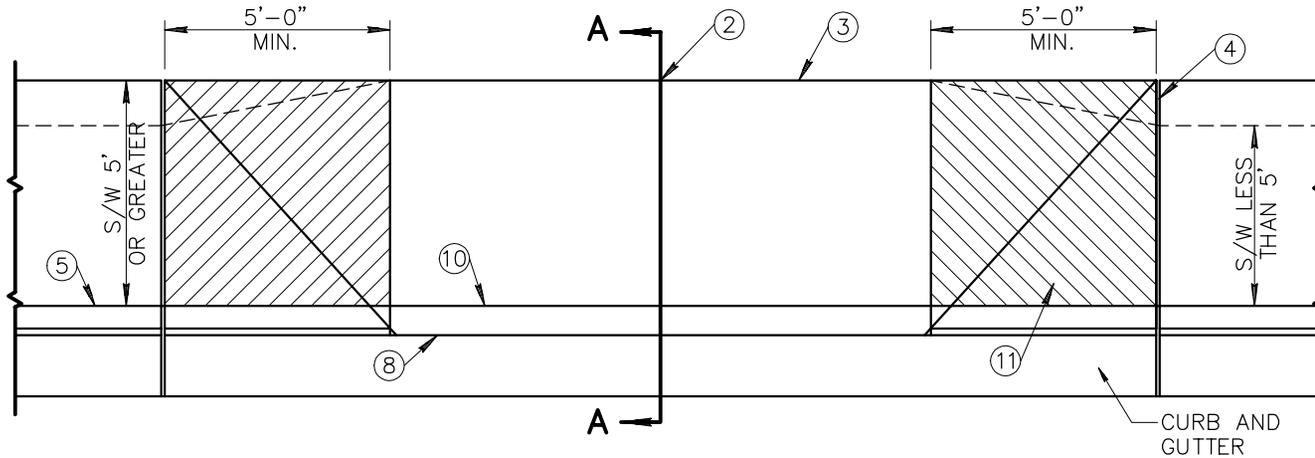
VALLEY GUTTER

REVISED

01-01-2003

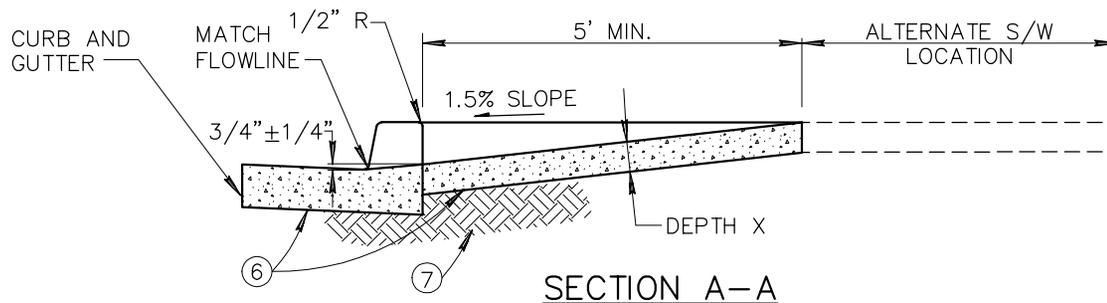
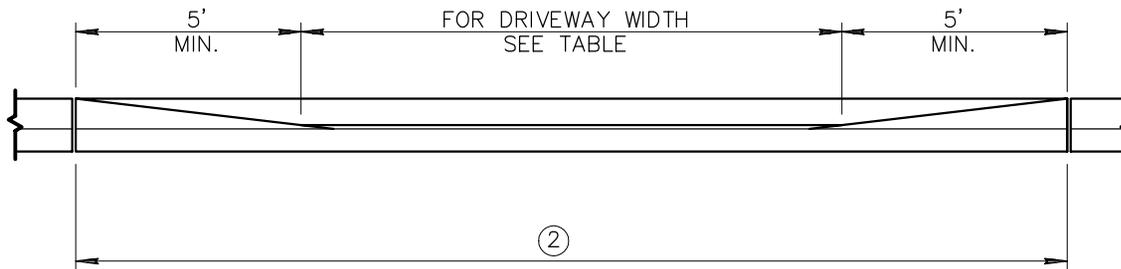
DETAIL NO.

240



NOTES:

1. DEPRESSED CURB SHALL BE PAID FOR AT THE UNIT PRICE BID FOR THE TYPE OF CURB USED AT THAT LOCATION.
2. WHEN WIDTH EXCEEDS 22' PROVIDE A CONTRACTION JOINT ON D/W CENTERLINE.
3. BACK OF D/W OR FACE OF FUTURE S/W.
4. EXPANSION JOINTS SHALL COMPLY WITH SECTION 340.
5. BACK OF CURB - CONSTRUCTION JOINT OR SCORE MARK.
6. CLASS 'B' CONCRETE, SECT. 725.
7. SUBGRADE PREPARATION, SECT. 301.
8. FLOW LINE OF GUTTER.
9. DEPRESSED CURB.
10. SECT. A-A AND ELEVATION, D/W VERTICAL CURB AND GUTTER OR ROLL TYPE CURB AND GUTTER.
11. ROUGH BROOM FINISH FULL WIDTH OF 5' WARP SECTION, EACH SIDE OF DRIVEWAY.



COMMERCIAL AND INDUSTRIAL				
DRIVEWAY WIDTH	MIN.	MAX.	CLASS	DEPTH X
COMMERCIAL	* 16'	40'	B	6"
INDUSTRIAL	* 16'	40'	B	6"
* 24' MIN. FOR TWO WAY TRAFFIC				
RESIDENTIAL				
DRIVEWAY WIDTH	MIN.	MAX.	CLASS	DEPTH X
MAJOR STREET	16'	30'	B	5"
COLLECTOR STREET	* 12'	30'	B	5"
LOCAL STREET	12'	30'	B	5"
* 16' DESIRABLE				

DETAIL NO.

250



**STANDARD DETAIL
ENGLISH**

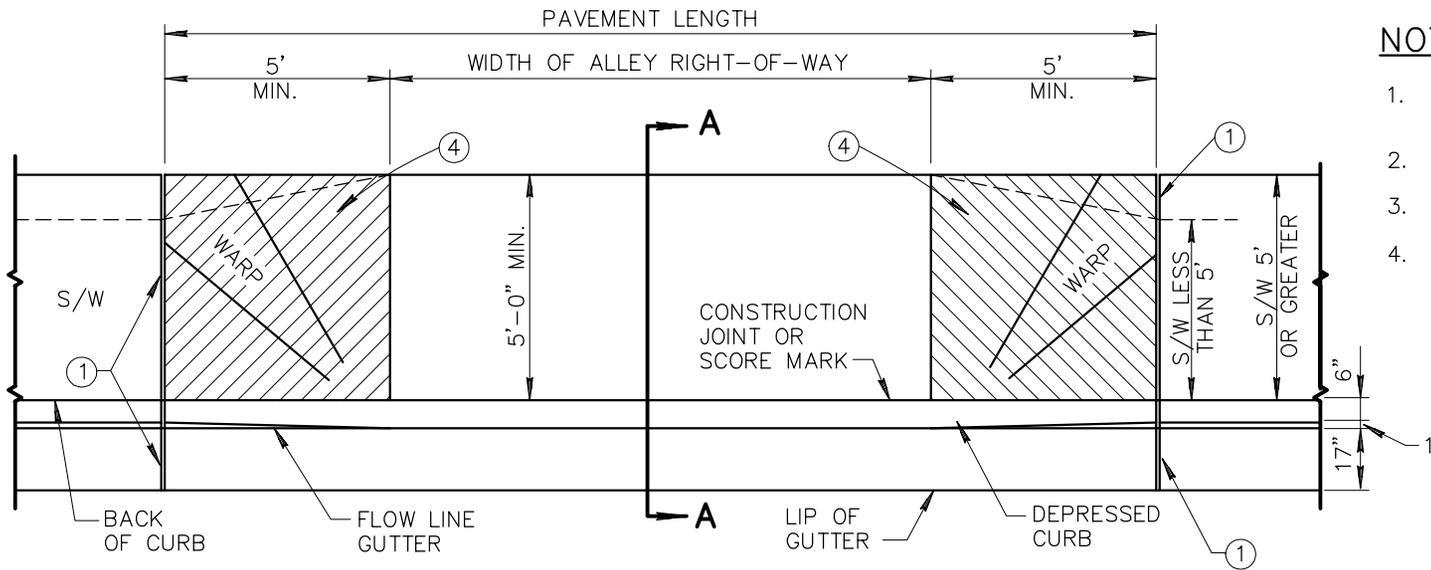
DRIVEWAY ENTRANCES

REVISED

01-01-2006

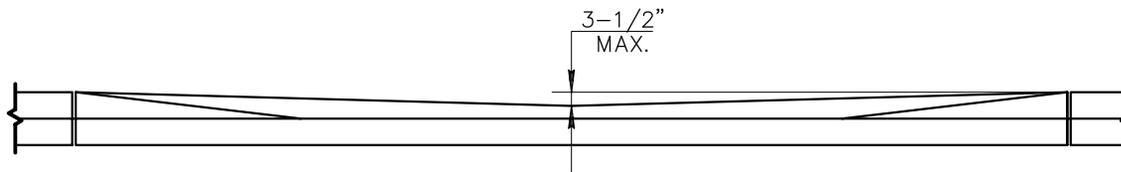
DETAIL NO.

250

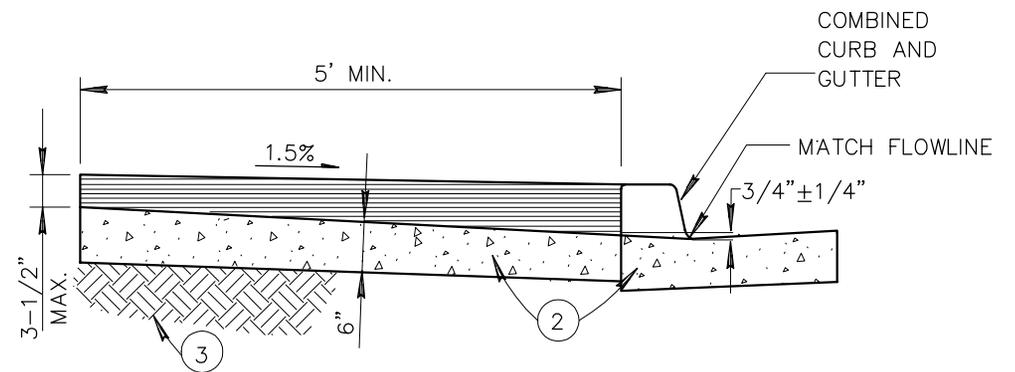


NOTES:

1. EXPANSION JOINTS SHALL CONFORM TO SECTION 340.
2. CLASS 'B' CONCRETE, PER SECT. 725.
3. SUBGRADE PREPARATION, PER SECT. 301.
4. ROUGH BROOM FINISH FULL WIDTH OF 5' WARP SECTION, EACH SIDE OF ALLEY ENTRANCE.



ELEVATION



SECTION A-A

DETAIL NO.

260



STANDARD DETAIL
ENGLISH

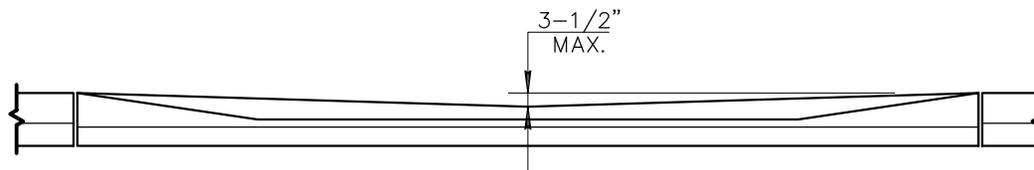
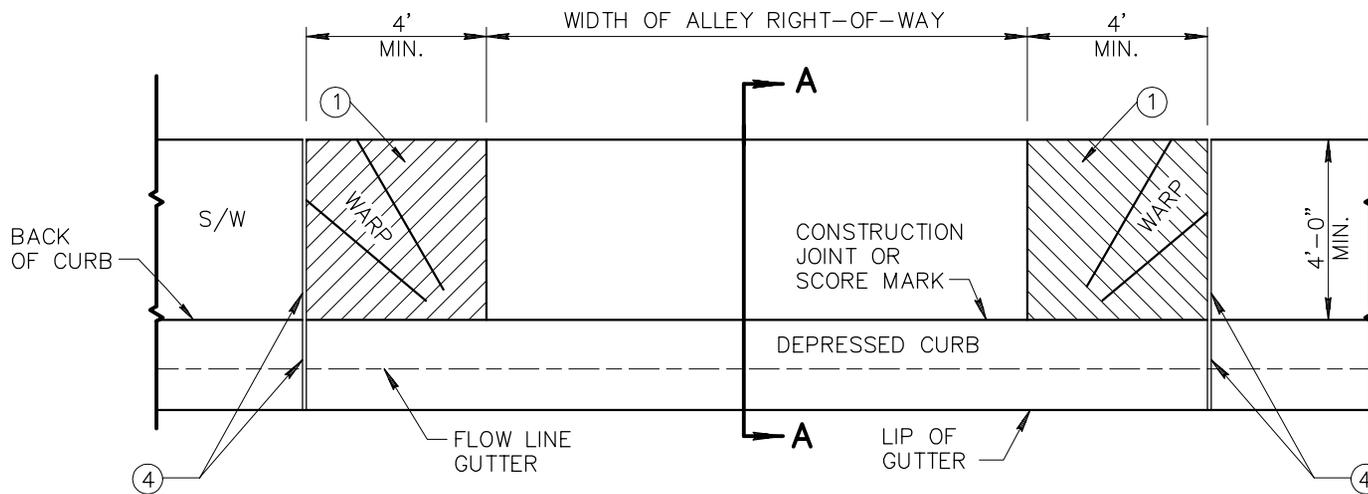
ALLEY ENTRANCE
(WITH COMBINED CURB AND GUTTER)

REVISED

01-01-2006

DETAIL NO.

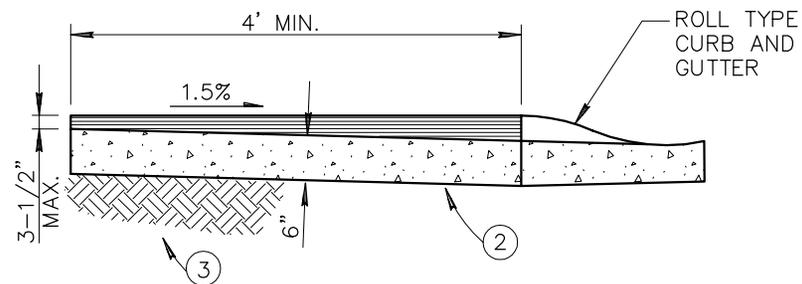
260



ELEVATION

NOTES:

1. ROUGH BROOM FINISH FULL WIDTH OF 4' WARP SECTION, EACH SIDE OF ALLEY ENTRANCE.
2. CLASS 'B' CONCRETE CONSTRUCTION PER SECT. 725.
3. SUBGRADE PREPARATION, PER SECT. 301.
4. EXPANSION JOINTS SHALL CONFORM TO SECT. 340.



SECTION A-A

DETAIL NO.

261



**STANDARD DETAIL
ENGLISH**

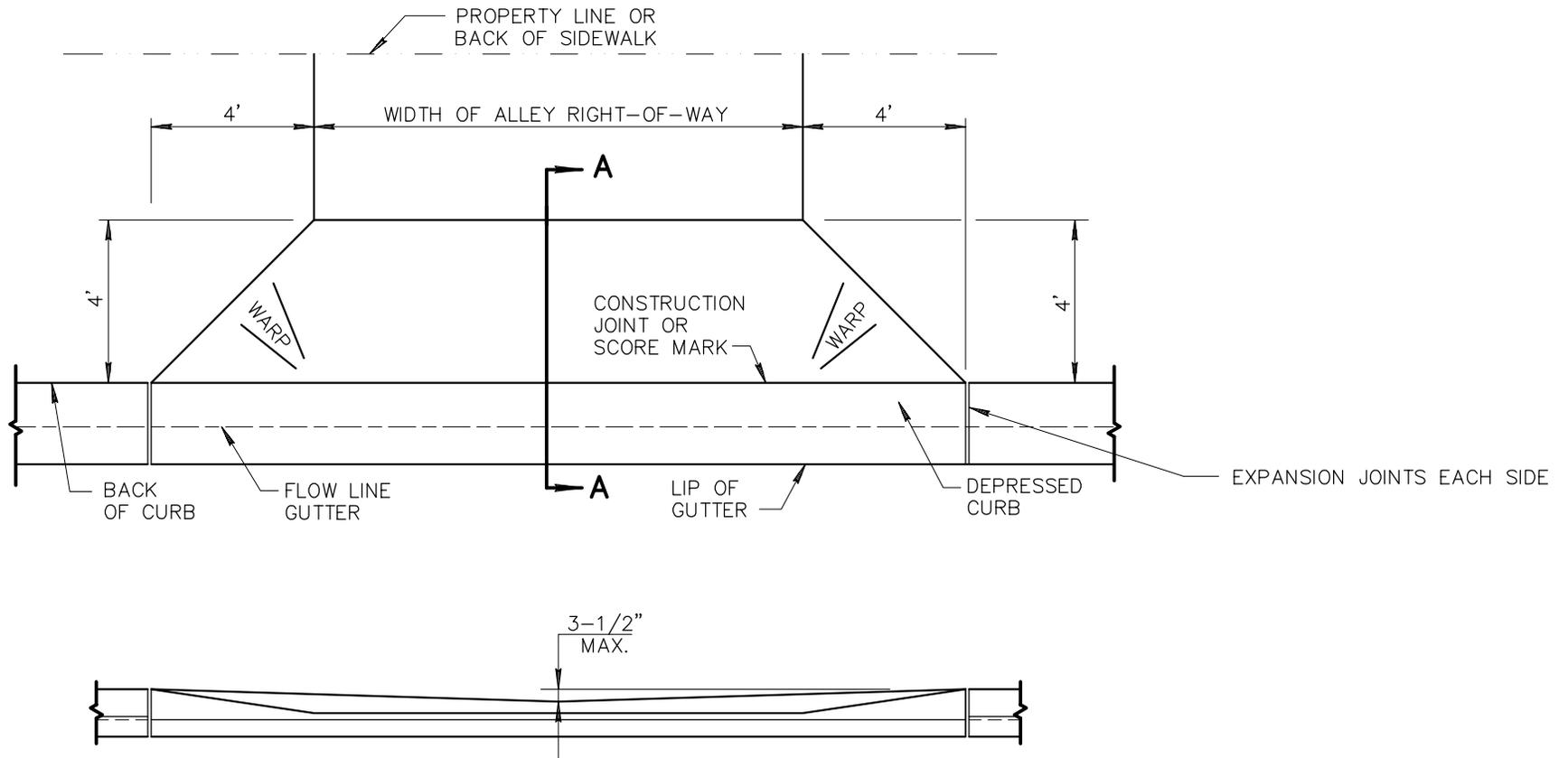
**ALLEY ENTRANCE
(WITH ROLL TYPE CURB AND GUTTER)**

REVISED

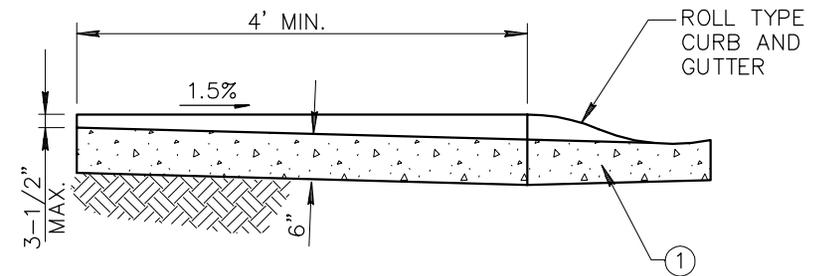
01-01-2006

DETAIL NO.

261



ELEVATION



SECTION A-A

NOTES:

1. CLASS 'B' CONCRETE CONSTRUCTION PER SECT. 725.
2. EXPANSION JOINTS SHALL CONFORM TO SECT. 340.
3. SUBGRADE PREPARATION PER SECTION 301.

DETAIL NO.

263



**STANDARD DETAIL
ENGLISH**

**WING TYPE ALLEY ENTRANCE
(WITH ROLL TYPE CURB AND GUTTER)**

REVISED

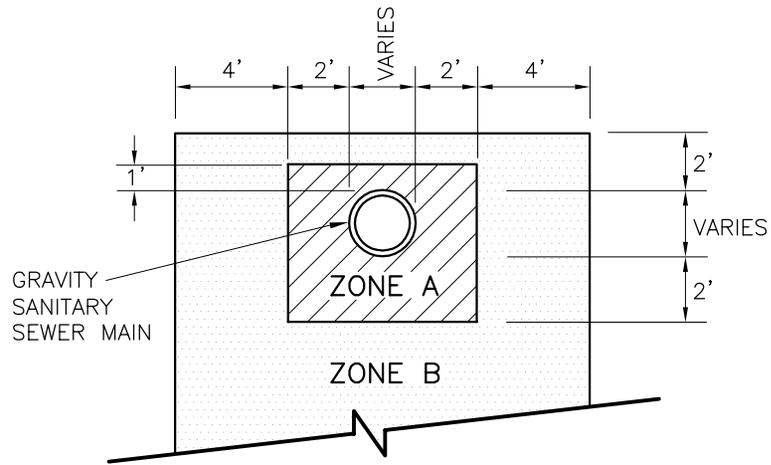
01-01-2002

DETAIL NO.

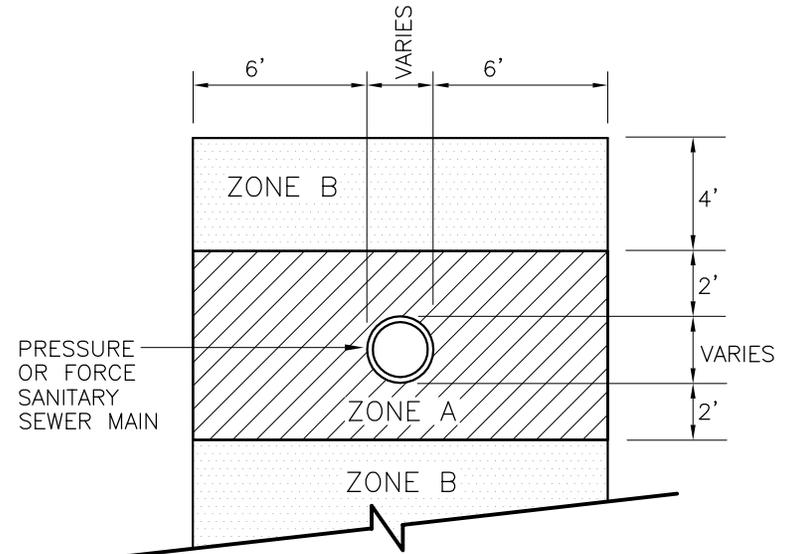
263

WATER LINE EXCLUSION AND EXTRA PROTECTION ZONES*

GRAVITY SANITARY SEWER



PRESSURIZED SANITARY SEWER



NOTES:

- ZONE A: NO WATER LINES ALLOWED/MINIMUM SEPARATION.
- ZONE B: EXTRA PROTECTION REQUIRED FOR WATER LINES.
- * REFER TO STANDARD 610, WATER LINE CONSTRUCTION.

DETAIL NO.

404-1



STANDARD DETAIL
ENGLISH

WATER AND SANITARY SEWER
SEPARATION/PROTECTION

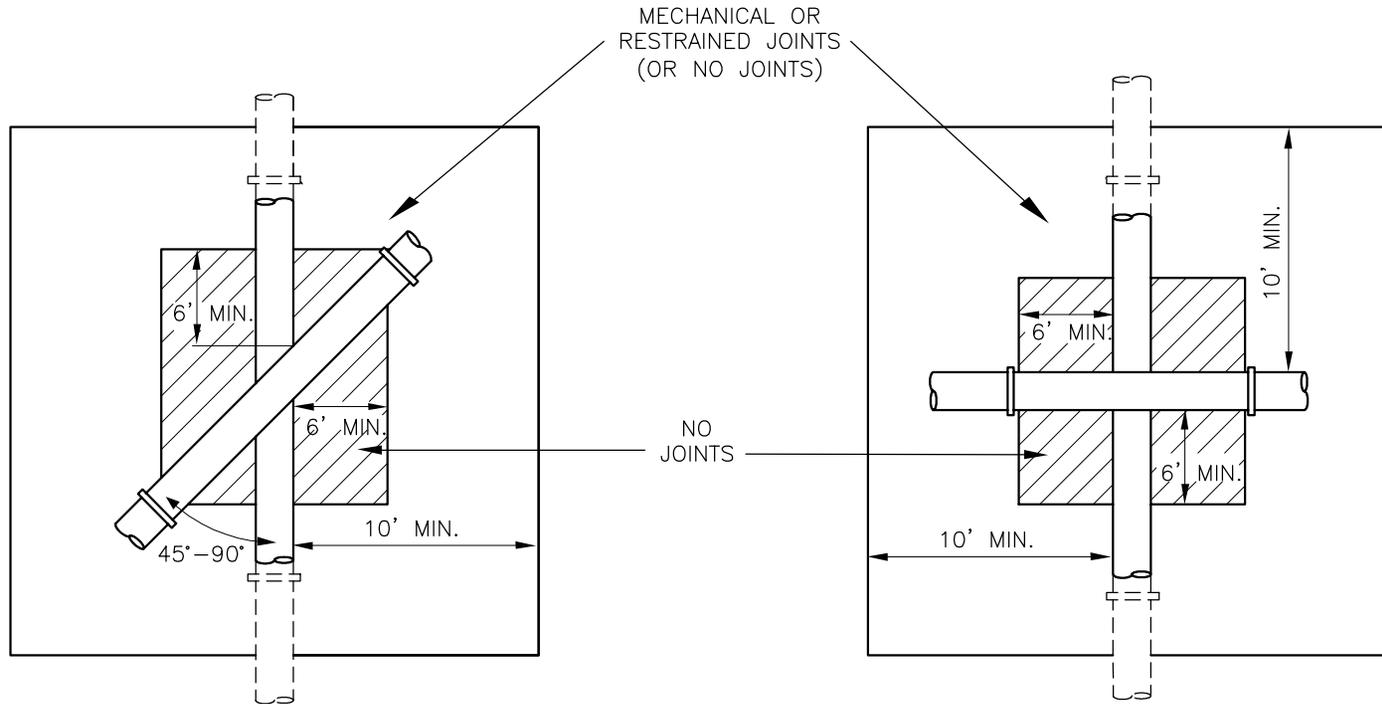
REVISED

01-01-2006

DETAIL NO.

404-1

WATER LINE EXTRA PROTECTION
 DUCTILE IRON PIPE WITH RESTRAINED OR MECHANICAL JOINTS*



EXTRA PROTECTION DUCTILE IRON PIPE
 (GRAVITY OR PRESSURIZED) SEWER LINE

NOTES:

* REFER TO MAG STANDARD SPECIFICATION SECTION 610.

DETAIL NO.

404-2



**STANDARD DETAIL
 ENGLISH**

**WATER AND SANITARY SEWER
 SEPARATION/PROTECTION**

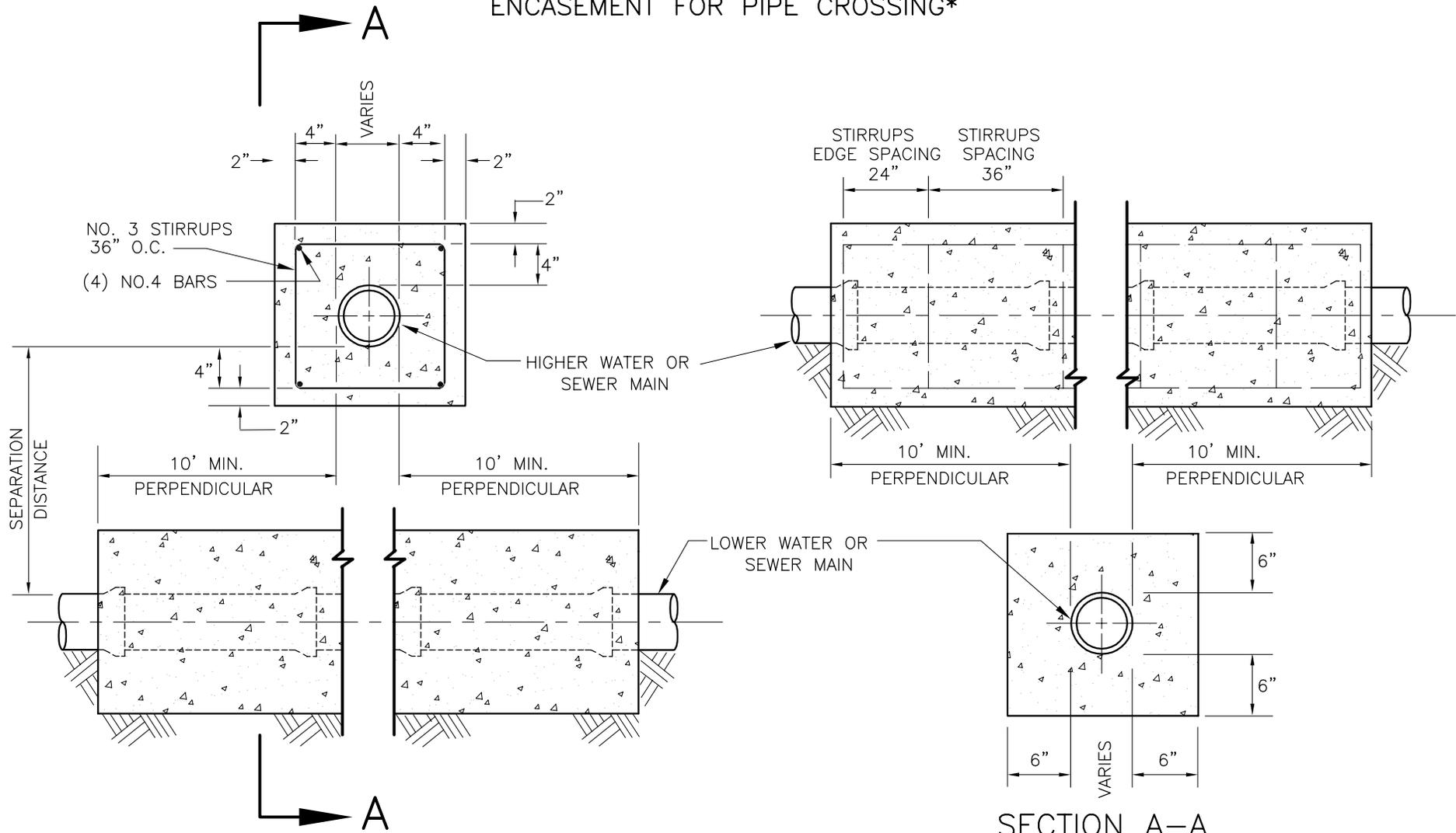
REVISED

01-01-2006

DETAIL NO.

404-2

ENCASEMENT FOR PIPE CROSSING*



NOTES:

- 1. CLASS 'C' CONCRETE AS PER SECTION 725.
- *REFER TO MAG STANDARD SPECIFICATION SECTION 610.

DETAIL NO.
404-3



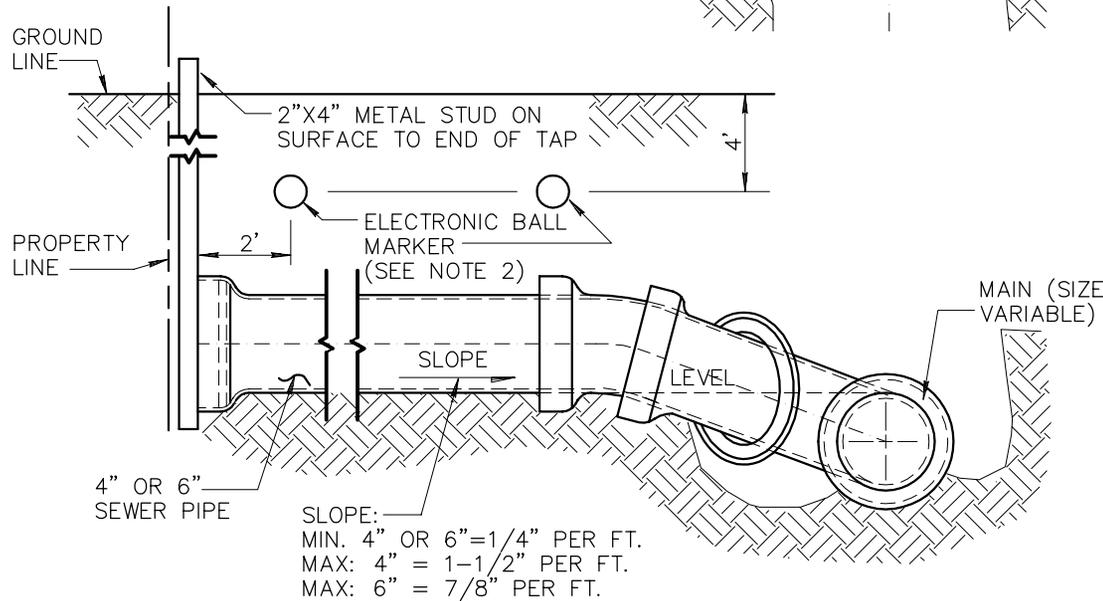
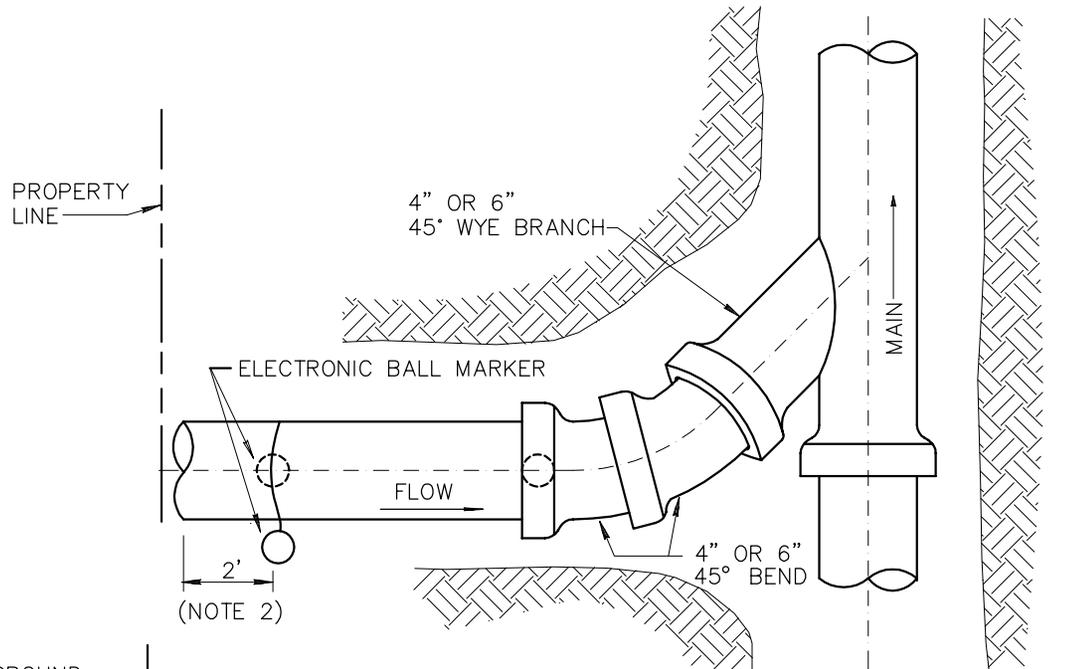
**STANDARD DETAIL
ENGLISH**

**WATER AND SANITARY SEWER
SEPARATION/PROTECTION**

REVISED
01-01-2006

DETAIL NO.
404-3

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ELECTRONIC MARKER PLACEMENT

NOTES:

1. ELECTRONIC BALL MARKER SHALL BE A 3M MODEL 1424-XR/iD [4" DIAMETER SELF LEVELING MARKER BALL GREEN IN COLOR] OR APPROVED EQUAL OR AS REQUIRED BY THE LOCAL AGENCY.
2. MARKER SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS, 2' BACK FROM THE END OF THE SEWER SERVICE STUB AND CINCH TIED TO PIPE OR ABOVE PIPE AS REQUIRED BY LOCAL AGENCY. AN ADDITIONAL MARKER SHALL BE INSTALLED AT EACH SERVICE STUB BEND.
3. ELECTRONIC MARKER SHALL BE RESTORED BY CONTRACTOR IF DISTURBED WHEN PRIVATE SERVICE LINE CONNECTION IS INSTALLED.
4. MARKER SHALL BE USED IN ADDITION TO A 2"x4" METAL STUD.
5. CONSTRUCTION DETAIL APPLIES WHERE CONTRACTOR BUILDS HOUSE CONNECTION. TAP EXTENDS TO PROPERTY LINE IN ALLEYS OR STREETS OR TO EASEMENT LINE.
6. SIZE OF TAP SHALL BE DESIGNATED ON PLANS.
7. CONSTRUCT TAP AT MINIMUM SLOPE IF COVER WILL BE LESS THAN 5' AT PROPERTY LINE.
8. ALL FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D-2321. THE CONTRACTOR MAY VARY FROM THE DRAWING TO USE THE APPROPRIATE WYES, TEE-WYES AND BENDS TO ENSURE NO MISALIGNMENT OF THE PIPE AND FITTINGS. BLOCK OR BRACE FITTINGS JOINTS TO ENSURE ZERO DEGREES ANGULAR JOINT DIRECTION.
9. END OF TAP TO BE SEALED AND MARKED AS NOTED.

DETAIL NO.
440-1



**STANDARD DETAIL
ENGLISH**

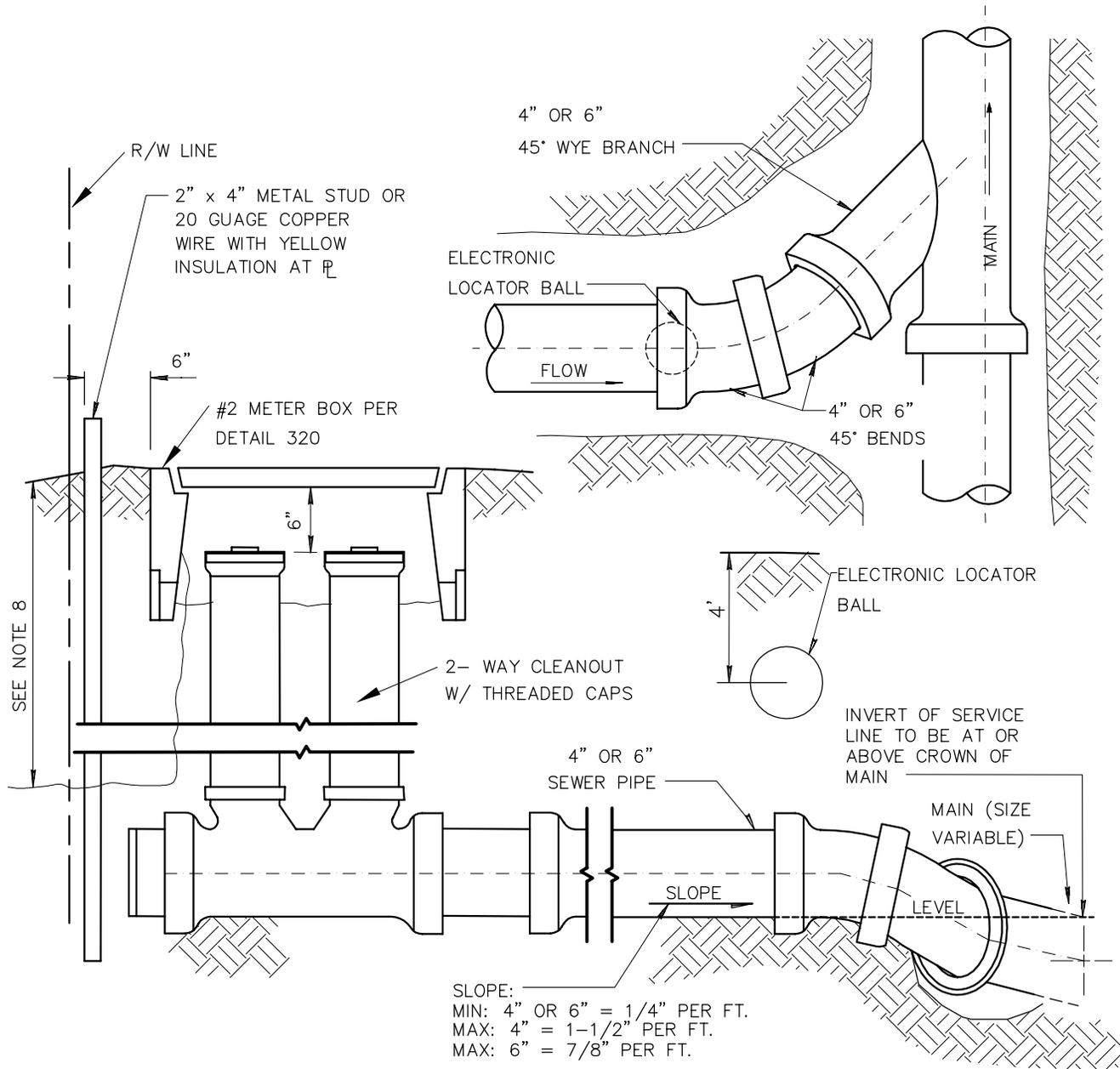
**TYPE 'A' - SEWER BUILDING CONNECTION
ELECTRONIC BALL MARKERS (STANDARD)**

REVISED

01-01-2006

DETAIL NO.

440-1



NOTES:

1. CONSTRUCTION DETAIL APPLIES WHERE CONTRACTOR BUILDS HOUSE CONNECTION. TAP EXTENDS TO PROPERTY LINE IN ALLEYS OR STREETS OR TO EASEMENT LINE.
2. SIZE OF TAP SHALL BE DESIGNATED ON PLANS.
3. CONSTRUCT TAP AT MINIMUM SLOPE IF COVER WILL BE LESS THAN 5' AT PROPERTY LINE.
4. IF DEPTH REQUIRES, MINIMUM SLOPE CAN BE REDUCED TO 1/8" PER FOOT PROVIDED STUB IS STAKED TO GRADE.
5. ALL FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D-2321. THE CONTRACTOR MAY VARY FROM THE DRAWING TO USE THE APPROPRIATE WYES, TEE-WYES AND BENDS TO ENSURE NO MISALIGNMENT OF THE PIPE AND FITTINGS. BLOCK OR BRACE FITTING JOINTS TO ENSURE ZERO DEGREES ANGULAR JOINT DEFLECTION.
6. END OF TAP TO BE SEALED AND MARKED AS NOTED.
7. ELECTRONIC BALL MARKER SHALL BE A 3M MODEL 1424-XR/iD [4" DIAMETER SELF LEVELING MARKER BALL GREEN IN COLOR] OR APPROVED EQUAL OR AS REQUIRED BY THE LOCAL AGENCY.
8. # 14 BARE COPPER LOCATOR WIRE ACCESSIBLE AT R/W AND AT PROPERTY OWNER CLEANOUT BOX NO GREATER THAN 4' DEEP.
9. STAMP OR WELD THE LETTER "S" ON LID OF METER BOX.

DETAIL NO.
440-2

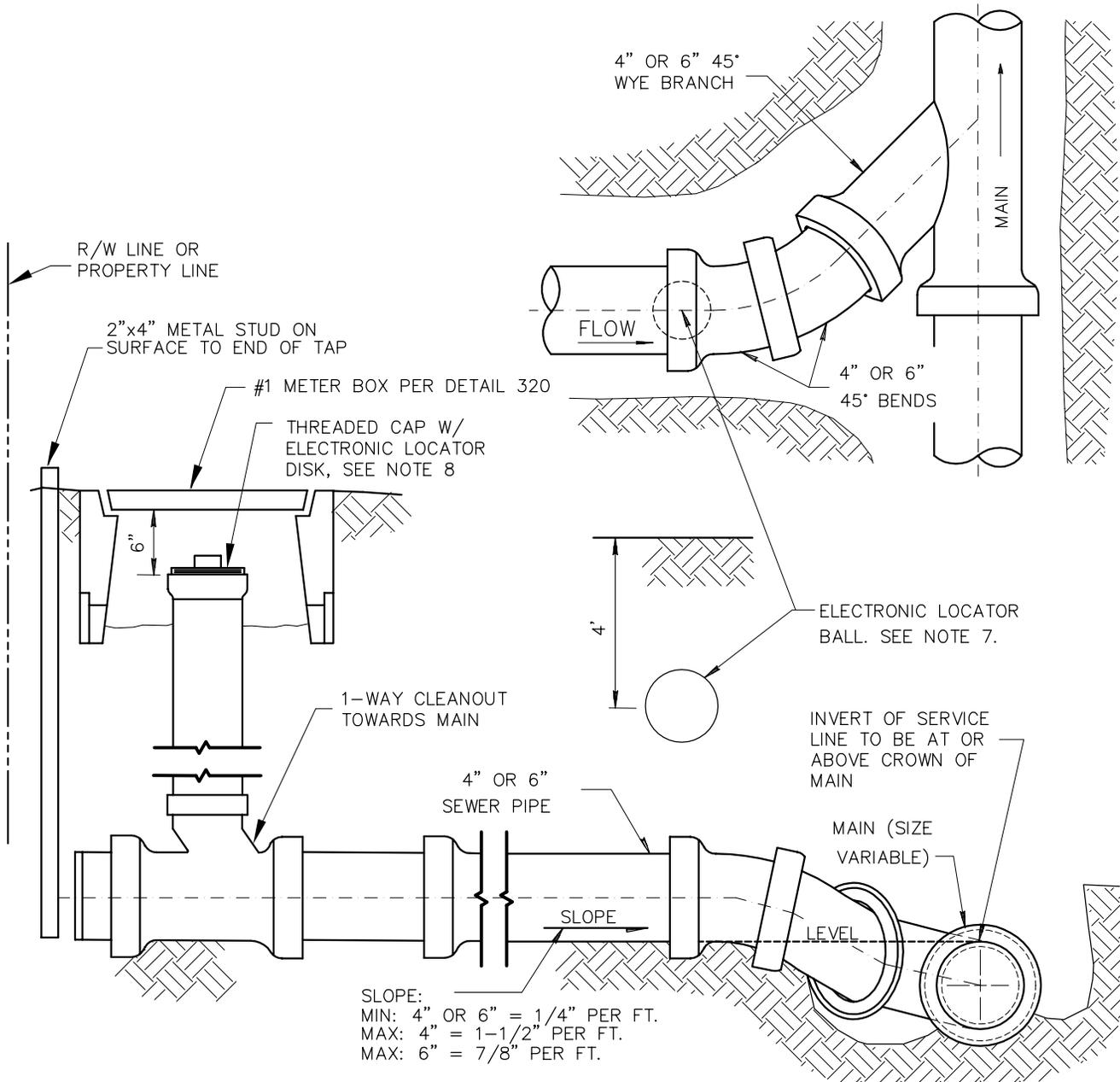


**STANDARD DETAIL
ENGLISH**

**TYPE 'B' - SEWER BUILDING CONNECTION
TWO-WAY CLEANOUT AND METER BOX AT R/W
(WHEN SPECIFIED BY LOCAL AGENCY)**

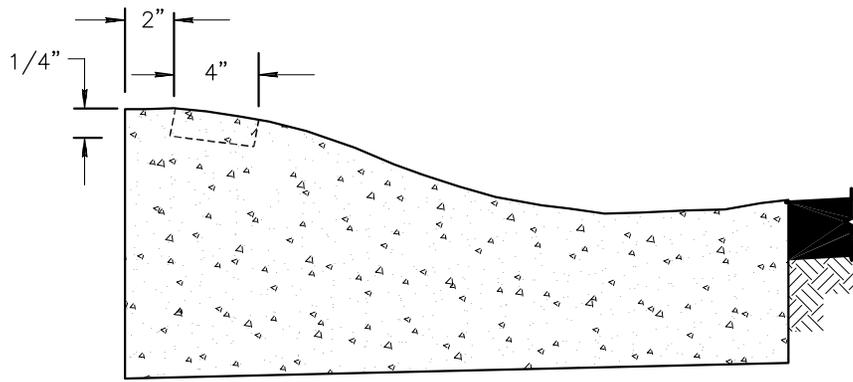
REVISED
01-01-2006

DETAIL NO.
440-2

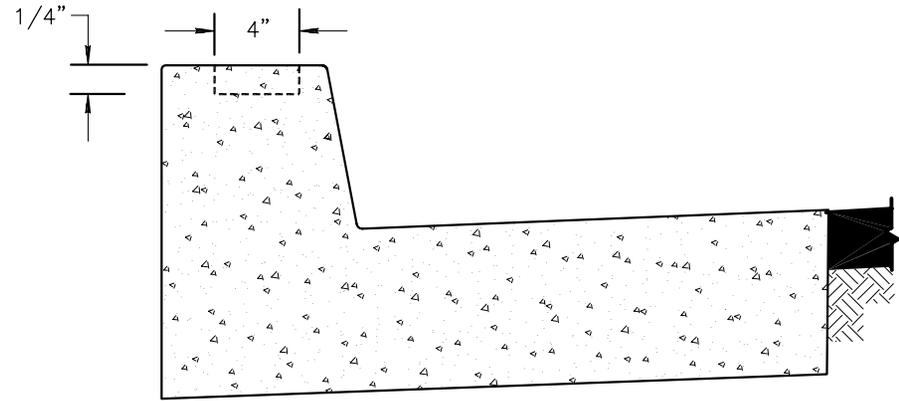


NOTES:

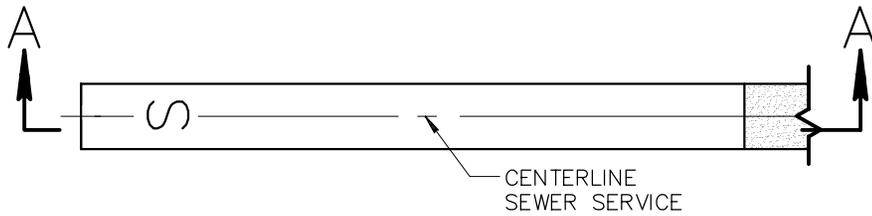
1. CONSTRUCTION DETAIL APPLIES WHERE CONTRACTOR BUILDS HOUSE CONNECTION. TAP EXTENDS TO PROPERTY LINE IN ALLEYS OR STREETS OR TO EASEMENT LINE.
2. SIZE OF TAP SHALL BE DESIGNATED ON PLANS.
3. CONSTRUCT TAP AT MIN. SLOPE IF COVER WILL BE LESS THAN 5' AT PROPERTY LINE.
4. IF DEPTH REQUIRES, MINIMUM SLOPE CAN BE REDUCED TO 1/8" PER FOOT PROVIDED STUB IS STAKED TO GRADE.
5. ALL FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D-2321. THE CONTRACTOR MAY VARY FROM THE DRAWING TO USE THE APPROPRIATE WYES, TEE-WYES AND BENDS TO ENSURE NO MISALIGNMENT OF THE PIPE AND FITTINGS. BLOCK OR BRACE FITTING JOINTS TO ENSURE ZERO DEGREES ANGULAR JOINT DEFLECTION.
6. END OF TAP TO BE SEALED AND MARKED.
7. ELECTRONIC BALL MARKER SHALL BE A 3M MODEL 1424-XR/iD [4" DIAMETER SELF LEVELING MARKER BALL GREEN IN COLOR] OR APPROVED EQUAL OR AS REQUIRED BY THE LOCAL AGENCY.
8. INSTALL RAISED 4" THREADED PLUG IN CLEANOUT INCORPORATING 3M MODEL 1414 ELECTRONIC DISC MARKER. GREEN IN COLOR. LOCATOR PLUG TO BE GPK PRODUCTS MODEL #228-0004 DM OR APPROVED EQUAL.
9. STAMP OR WELD THE LETTER "S" ON LID OF METER BOX.



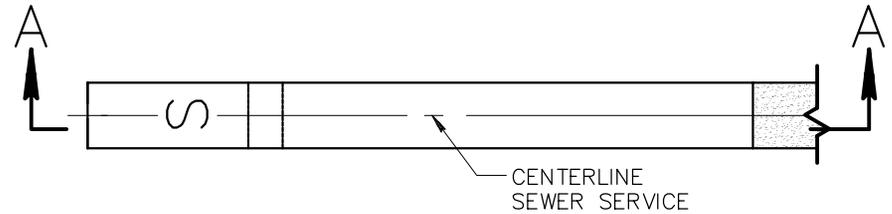
SECTION A-A



SECTION A-A



CURB STAMP ROLLED CURB



CURB STAMP VERTICAL CURB

NOTES:

1. STAMP TOP OF CURB WITH 4" TALL BY 1/4" DEEP "S" TO DESIGNATE SEWER SERVICE LINE CROSSING.

DETAIL NO.
440-4

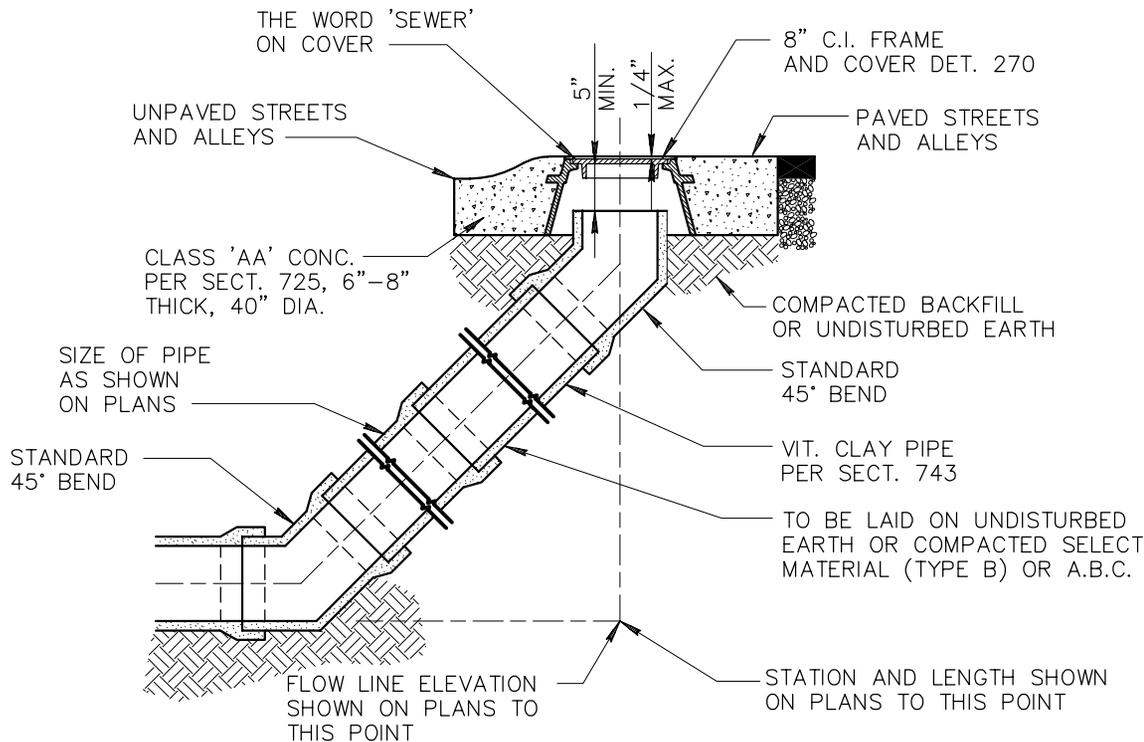


**STANDARD DETAIL
ENGLISH**

**SEWER SERVICE CURB CROSSING
STAMP DETAIL**

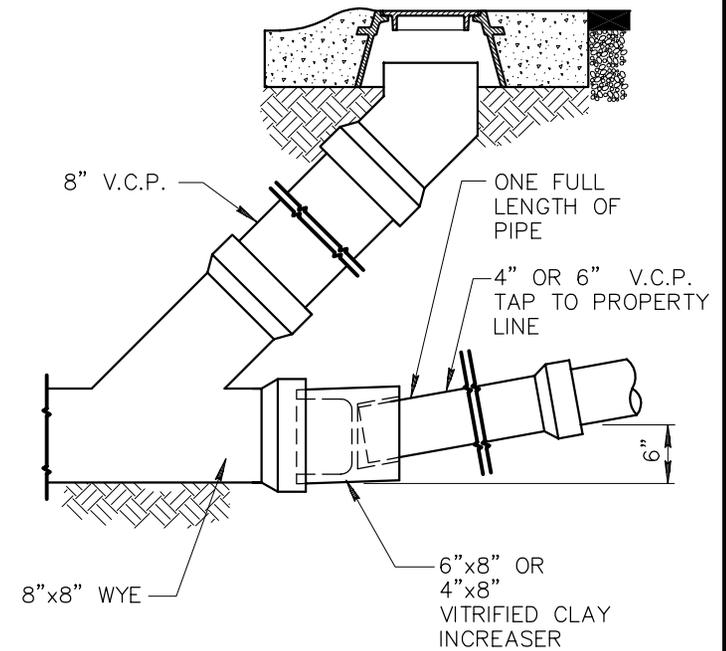
REVISED
01-01-2006

DETAIL NO.
440-4



CLEANOUT INSTALLATION

NOTE:
END OF SEWER TAP TO BE SEALED AND
MARKED IN ACCORDANCE WITH DET. 440



SEWER TAP AT CLEANOUT

DETAIL NO.

441



STANDARD DETAIL
ENGLISH

SEWER CLEANOUT

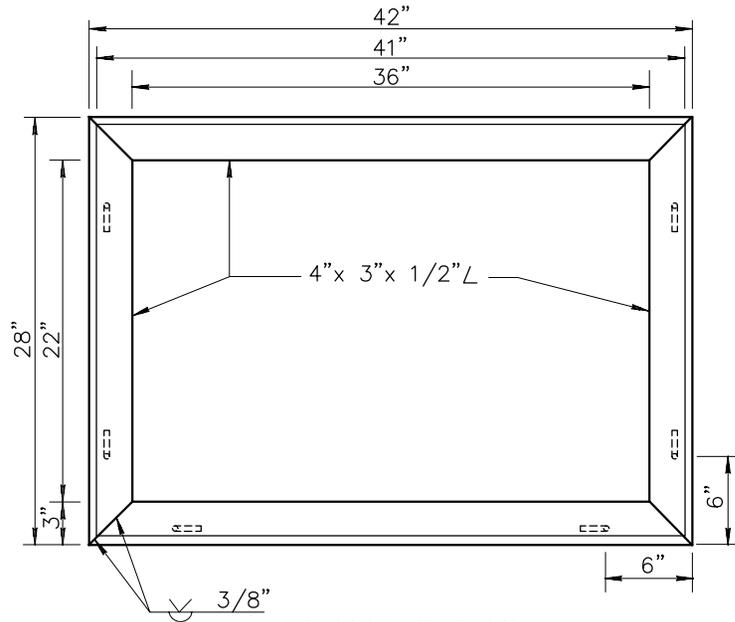
REVISED

01-01-2001

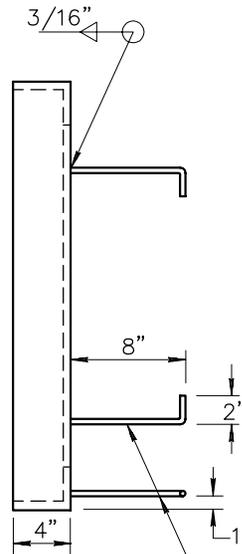
DETAIL NO.

441

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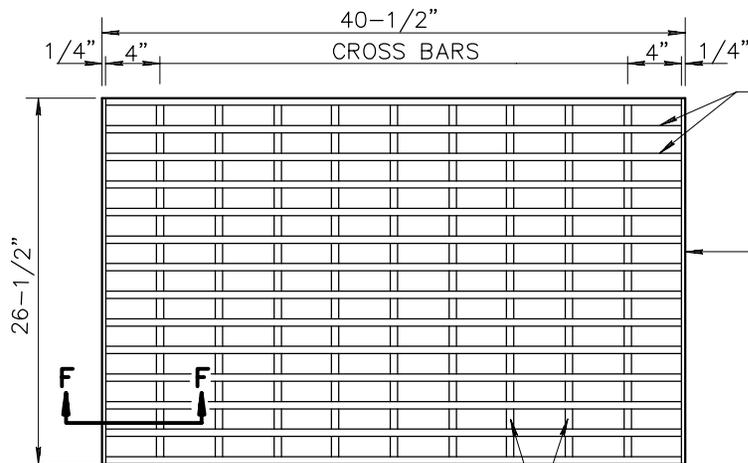


FRAME DETAIL



ANCHORS - TOTAL 6
SEE NOTE NO. 17

- ### FRAME AND GRATE NOTES
14. FRAME AND GRATING SHALL BE TESTED FOR ACCURACY OF FIT AND SHALL BE MARKED IN SETS BEFORE DELIVERY.
 15. ALL WELDING SHALL BE IN ACCORDANCE WITH STANDARD WELDING SPECIFICATIONS.
 16. CROSS BARS AND END BARS MAY BE FILLET WELDED, RESISTANCE WELDED OR ELECTOR FORGED TO BEARING BARS.
 17. ANCHORS SHALL BE 3/8" DIA. STEEL ROD, NO. 3 REBAR, 3/8" DIA. x 8" BOLTS OR 8" NELSON STUDS.
 18. ALL PARTS SHALL BE OF STRUCTURAL GRADE STEEL.
 19. ALL EXPOSED STEEL SHALL BE GALVANIZED OR PAINTED WITH ONE COAT #1 PAINT AND TWO FIELD COATS OF #10 PAINT.

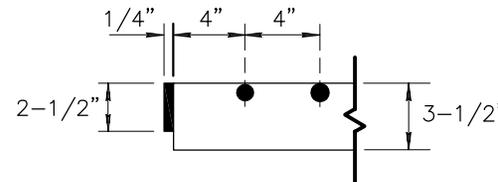


GRATE DETAIL

BEARING BARS:
3-1/2" x 1/2" x 40"
2" C. TO C., 14 EACH

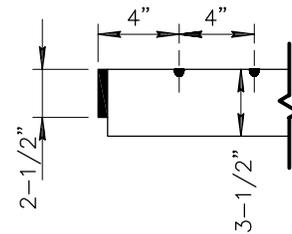
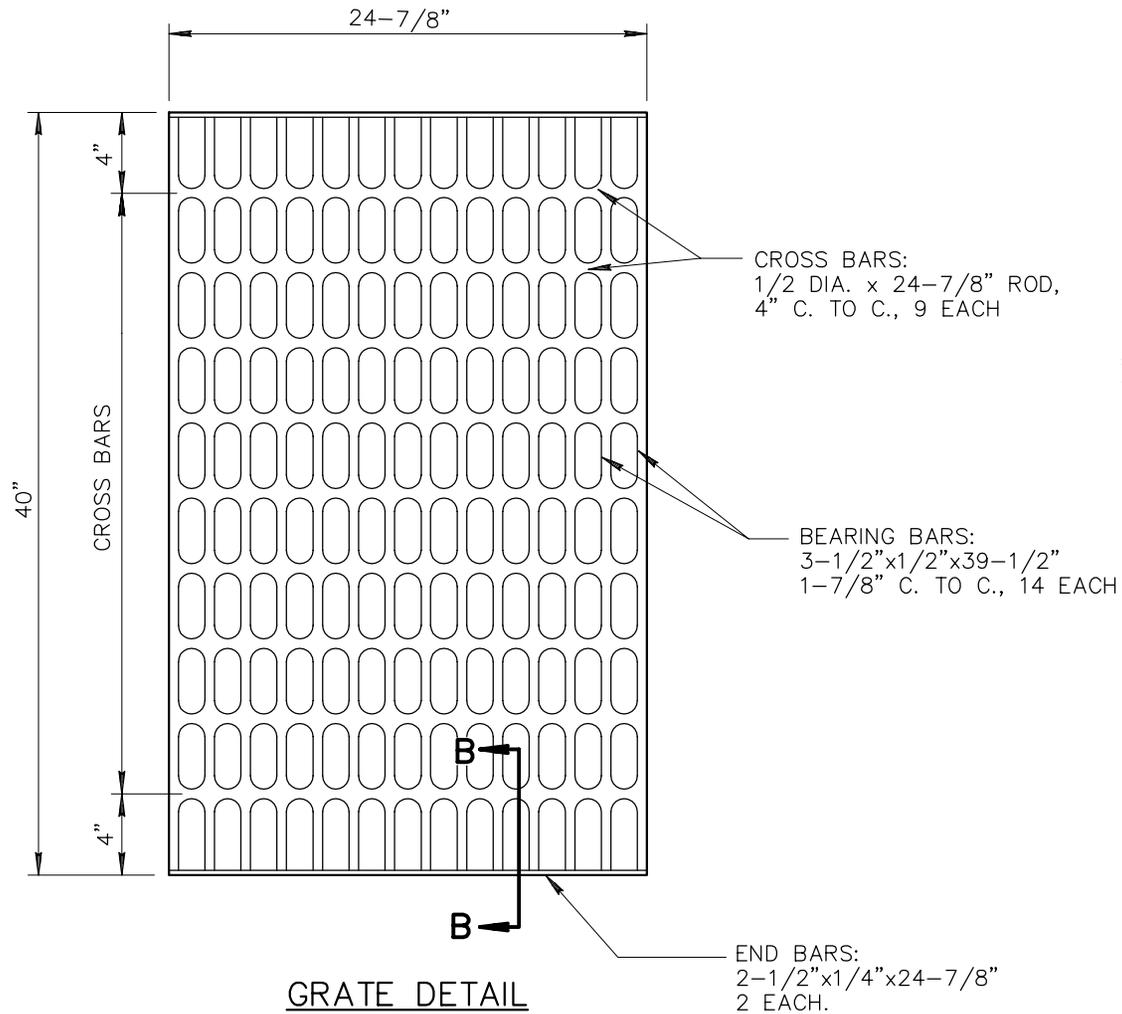
END BARS:
2-1/2" x 1/4" x 26-1/2"
2 EACH

CROSS BARS:
1/2" DIA. x 26-1/2" ROD
4" C. TO C., 9 EACH



SECTION F-F

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SECTION B-B

GRATE DETAIL

GRATE OPENING: 4.344 SQ. FT.

DETAIL NO.

533-4



**STANDARD DETAIL
ENGLISH**

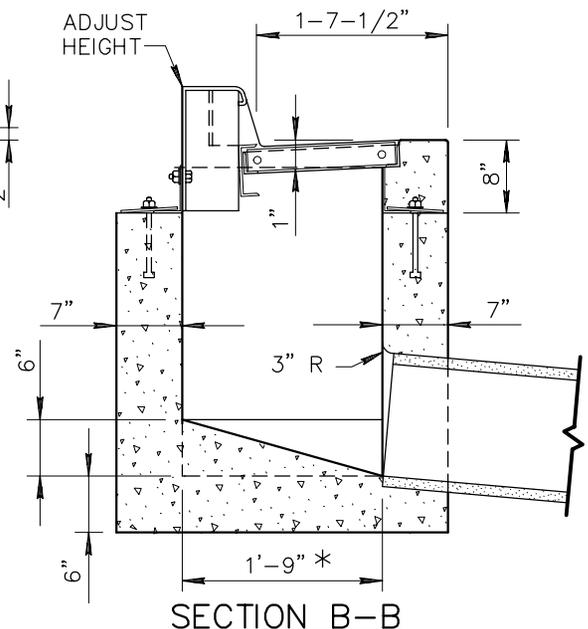
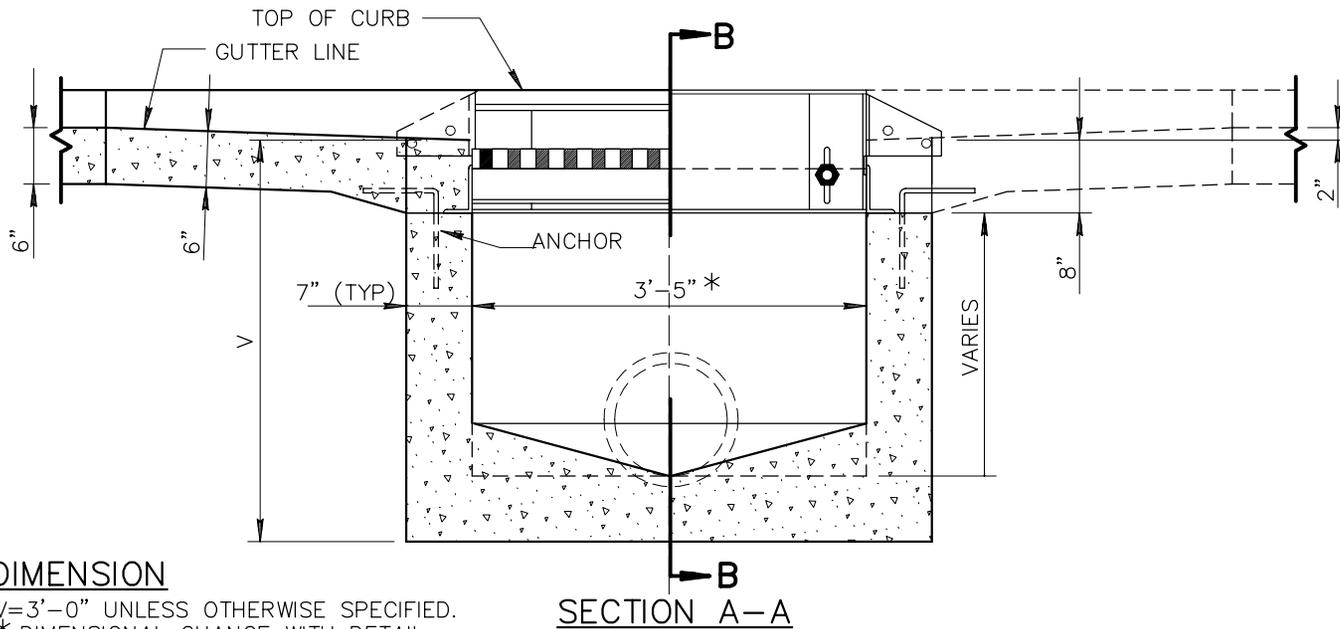
**7'-0" CURB OPENING CATCH BASIN
TYPE 'D' - GRATE DETAILS**

REVISED

7-13-2000

DETAIL NO.

533-4



DIMENSION

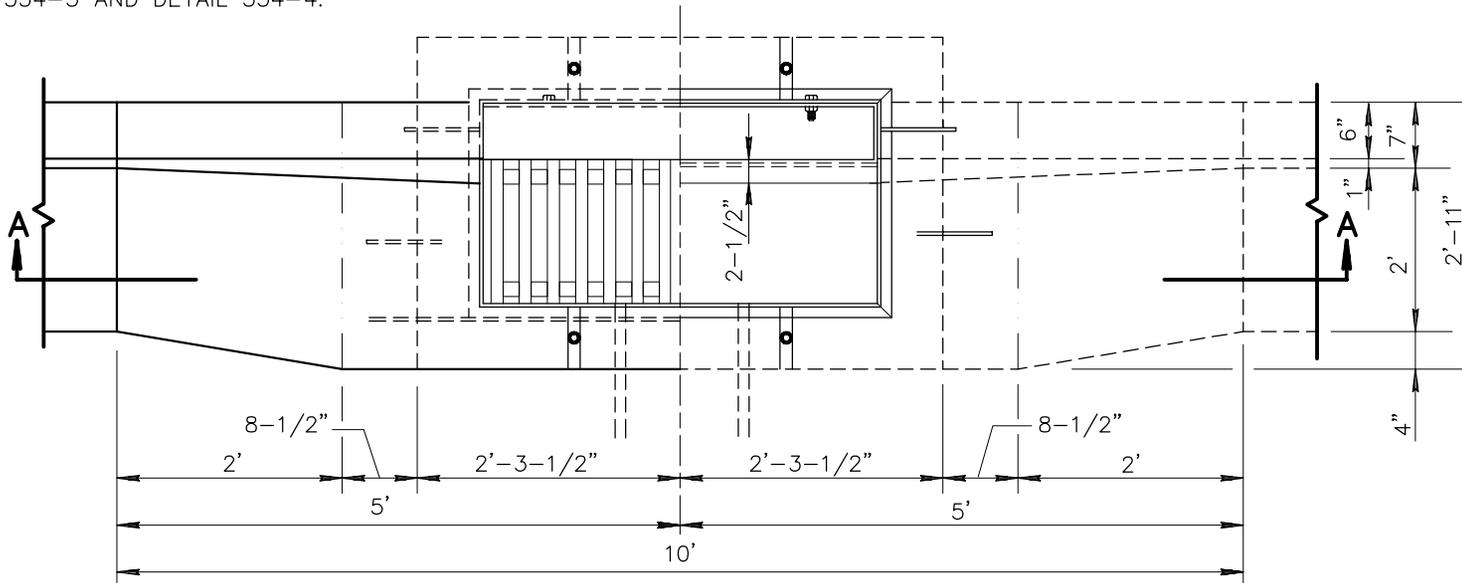
V=3'-0" UNLESS OTHERWISE SPECIFIED.
 * DIMENSIONAL CHANGE WITH DETAIL
 534-3 AND DETAIL 534-4.

SECTION A-A

SECTION B-B

NOTES:

1. ADJUSTABLE CURB, FRAME AND GRATING UNITS SHALL BE STRUCTURAL STEEL OR CAST IRON
2. PIPES MAY ENTER OR LEAVE ANY WALL. BOTTOM OF BOX TO BE SLOPED TO OUTLET PIPE FROM ALL DIRECTIONS AND TROWELLED TO A HARD SMOOTH SURFACE.
3. CONNECTION PIPES MAY BE PLACED IN ANY POSITION AROUND THE WALLS PROVIDED THE POSITION IS CONSISTENT WITH THE PLAN.
4. OUTLET PIPE SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH BEFORE CONCRETE IS POURED.
5. ALL STRUCTURAL STEEL TO BE PAINTED ONE SHOP COAT OF NO. 1 PAINT AND TWO FIELD COATS OF NO. 10 PAINT AS PER SECT. 790.
6. ALL CONCRETE, CLASS 'A' AS PER SECTION 725.



HALF PLAN GUTTER & GRATE

HALF PLAN FRAME & ANCHORS

DETAIL NO.

534-1



**STANDARD DETAIL
 ENGLISH**

CATCH BASIN TYPE 'E'

REVISED

DETAIL NO.

534-1