

DRAFT

**UNIFORM STANDARD
DETAILS**

for

**PUBLIC WORKS
CONSTRUCTION**

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2012 EDITION

ARIZONA

~~AWW~~ Includes GEFH revisions)

100 SERIES: GENERAL INFORMATION

Detail	Revised	Title
101	2011	GENERAL INFORMATION
110-1	2011	PLAN SYMBOLS (SYMBOLS)
110-2	2011	PLAN SYMBOLS (LINE TYPES)
112	1998	DIMENSIONING FOR ROAD IMPROVEMENT PLANS
120-1	2001	SURVEY MARKER
120-2	2007	SURVEY MARKER - FOR UNINCORPORATED AREAS OF THE COUNTY
122	2011	PAVEMENT MARKER FOR FIRE HYDRANTS
130	2003	BARRICADES
131	1998	STREET SIGN BASE
140	2009	BOLLARD
141	2009	HAZARD MARKER
145	2011	SAFETY RAIL
150	1998	PRECAST SAFETY CURB
160	2013 *	6' CHAIN LINK FENCE AND GATE

200 SERIES: STREET INFORMATION

Detail	Revised	Title
200-1	2010	BACKFILL, PAVEMENT AND SURFACE REPLACEMENT
200-2	2010	BACKFILL, PAVEMENT AND SURFACE REPLACEMENT
201	2013 *	PAVEMENT SECTION AT TERMINATION
202	1998	ALLEY DETAILS (PAVED AND UNPAVED)
203	1998	SCUPPERS
204	1998	EQUIPMENT CROSSING
205	2006	PAVED TURNOUTS
206-1	2007	CONCRETE SCUPPER
206-2	2007	CONCRETE SCUPPER
206-3	2007	CONCRETE SCUPPER (ISOMETRIC VIEW)
210	2012	RESIDENTIAL SPEED HUMP
211	1998	STANDARD TRENCH PLATING DETAIL
212	2012	UTILITY POTHOLE REPAIR
220-1	2007	CURB AND GUTTER TYPES A, B, C AND D
220-2	2007	CURB AND GUTTER TYPES E AND E
221	2011	CURB AND GUTTER TRANSITION TYPE A TO TYPE C, INTEGRAL ROLL CURB, GUTTER AND SIDEWALK
222	2008	SINGLE CURB - TYPES A, B AND TERMINATION
223	1998	MEDIAN NOSE TRANSITION
224	1998	JOINT FOR DRAINAGE INLETS AND MANHOLE COVERS
225	2005	CONCRETE PAVERS
230	2011	SIDEWALKS
234	2012	CURB MODIFICATION AT DETECTABLE WARNING
235-1	2012	CURB RAMPS (TYPE A)
235-2	2012	CURB RAMPS (TYPE B)
235-3	2012	CURB RAMPS (TYPE C)
235-4	2011	CURB RAMPS (TYPE D)
235-5	2011	CURB RAMPS (TYPE E)

200 SERIES: STREET INFORMATION (CONTINUED)

Detail	Revised	Title
240	2010	VALLEY GUTTER
250-1	2009	DRIVEWAY ENTRANCES WITH DETACHED SIDEWALK
250-2	2013 *	DRIVEWAY ENTRANCES WITH SIDEWALK ATTACHED TO CURB
251	2003	RETURN TYPE DRIVEWAYS
252	2005	BUS BAYS
260	2013 *	ALLEY ENTRANCE (WITH VERTICAL CURB AND GUTTER)
262	2012	WING TYPE ALLEY ENTRANCE (WITH COMBINED CURB AND GUTTER)
263	2002	WING TYPE ALLEY ENTRANCE (WITH ROLL TYPE CURB AND GUTTER)
270	2001	FRAME AND COVER (AND GRADE ADJUSTMENTS)

300 SERIES: WATER INFORMATION

Detail	Revised	Title
301	1998	BLOCKING FOR WATER GATE AND BUTTERFLY VALVES
302-1	1998	JOINT RESTRAINT WITH TIE RODS (DRAWING)
302-2	1998	JOINT RESTRAINT WITH TIE RODS (NOTES)
303-1	1998	JOINT RESTRAINT FOR DUCTILE IRON AND POLYETHYLENE WRAPPED DUCTILE IRON WATER PIPES (DRAWING)
303-2	1998	JOINT RESTRAINT FOR DUCTILE IRON AND POLYETHYLENE WRAPPED DUCTILE IRON WATER PIPES (TABLES)
310	1998	CAST IRON WATER METER BOX COVER NO. 1
311	1998	CAST IRON WATER METER BOX COVER NO. 2
312	1998	CAST IRON WATER METER BOX COVER NO. 3
313	1998	CAST IRON WATER METER BOX COVER NO. 4
314	1998	CAST IRON WATER METER BOX COVER NO. 5
320	1998	CONCRETE WATER METER BOXES
321	1998	STANDARD WATER METER VAULT
340	2002	INSTALLING TAPPING SLEEVES AND VALVES
342	1998	CONCRETE PRESSURE PIPE TAPPING SLEEVE
345-1	1998	3", 4", 6" WATER METER
345-2	1998	4", 6" WATER METER WITH ON-SITE HYDRANTS
346	1998	FIRE LINE DETECTOR CHECK VAULT
360-1	2013 *	DRY BARREL FIRE HYDRANT INSTALLATION
360-2	2013 *	WET BARREL FIRE HYDRANT INSTALLATION
360-3	2013 *	FIRE HYDRANT INSTALLATION DETAILS
362	1999	LOCATIONS FOR NEW FIRE HYDRANTS
370	1998	VERTICAL REALIGNMENT OF WATER MAINS
380	1998	THRUST BLOCKS FOR WATER LINES
381	1998	ANCHOR BLOCKS FOR VERTICAL BENDS
389	2001	CURB STOP WITH VALVE BOX AND COVER
390	1998	CURB STOP WITH FLUSHING PIPE
391-1	2001	VALVE BOX INSTALLATION AND GRADE ADJUSTMENT
391-2	2001	VALVE BOX INSTALLATION AND GRADE ADJUSTMENT
392	2001	DEBRIS CAP INSTALLATION

* NEWLY REVISED.

DETAIL NO.

100-1STANDARD DETAIL
ENGLISH**INDEX (PAGE 1 OF 2)**

REVISED

01-01-2013

DETAIL NO.

100-1

400 SERIES: SEWER INFORMATION

Detail	Revised	Title
403-1	1998	PIPE SUPPORT ACROSS TRENCHES
403-2	1998	PIPE SUPPORT ACROSS TRENCHES
403-3	1998	ALTERNATIVE TO PIPE SUPPORT
404-1	2006	WATER AND SANITARY SEWER SEPARATION/PROTECTION
404-2	2006	WATER AND SANITARY SEWER SEPARATION/PROTECTION
404-3	2006	WATER AND SANITARY SEWER SEPARATION/PROTECTION
405	1998	BROKEN SEWER LINE REPLACEMENT
420-1	2004	PRE-CAST CONCRETE SEWER MANHOLE
420-2	2001	PRE-CAST CONCRETE SEWER MANHOLE
421	2012	OFFSET MANHOLE 8" TO 30" PIPE
422	2012	BRICK SEWER MANHOLE AND COVER FRAME ADJUSTMENT
423-1	2012	24" CAST IRON MANHOLE FRAME AND COVER
423-2	2012	30" CAST IRON MANHOLE FRAME AND COVER
424-1	2012	24" CAST IRON WATERTIGHT MANHOLE FRAME AND COVER
424-2	2012	30" CAST IRON WATERTIGHT MANHOLE FRAME AND COVER
425	1998	24" ALUMINUM MANHOLE FRAME AND COVER
426	2007	DROP SEWER CONNECTIONS
427	1998	STUB OUT AND PLUGS
428	1998	MANHOLE STEPS
429	1998	INDUSTRIAL WASTE CONTROL VAULT WITH MANHOLE
440-1	2007	TYPE 'A' SEWER BUILDING CONNECTION - ELECTRONIC BALL MARKERS (STANDARD)
440-2	2007	TYPE 'B' SEWER BUILDING CONNECTION - TWO-WAY CLEANOUT AND METER BOX AT R/W
440-3	2007	TYPE 'C' SEWER BUILDING CONNECTION - ONE-WAY CLEANOUT AND METER BOX
440-4	2006	SEWER SERVICE CURB CROSSING STAMP DETAIL
441	2001	SEWER CLEANOUT

500 SERIES: IRRIGATION AND STORM DRAIN INFORMATION

Detail	Revised	Title
501-1	2012	HEADWALL
501-2	2012	HEADWALL
501-3	1998	HEADWALL 42" TO 84" PIPE
501-4	1998	HEADWALL IRRIGATION 18" TO 60" PIPE
501-5	1998	HEADWALL DROP INLET
502-1	1998	TRASH RACK
502-2	2004	TRASH RACK
503	1998	IRRIGATION STANDPIPE
504	1998	CONCRETE BLOCK JUNCTION BOX
505	1998	CONCRETE PIPE COLLAR
506	1998	IRRIGATION VALVE INSTALLATION
507	1998	ENCASED CONCRETE PIPE (FOR SHALLOW INSTALLATION)
510	1998	CORRUGATED METAL PIPE AND INSTALLATION

500 SERIES: IRRIGATION AND STORM DRAIN INFORMATION (CONTINUED)

Detail	Revised	Title
520	1998	STORM DRAIN MANHOLE BASE (48" AND SMALLER)
521	1998	STORM DRAIN MANHOLE BASE (51" OR LARGER)
522	1998	STORM DRAIN MANHOLE SHAFT
523-1	1998	PRESSURE MANHOLE
523-2	1998	PRESSURE MANHOLE
524	1998	STORM DRAIN LATERAL PIPE CONNECTIONS
530	1998	3'-6" CURB OPENING CATCH BASIN - TYPE 'A'
531	1998	5'-6" CURB OPENING CATCH BASIN - TYPE 'B'
532	1998	8'-0" CURB OPENING CATCH BASIN - TYPE 'C'
533-1	1998	CATCH BASIN TYPE 'D'
533-2	1999	APRON FOR TYPE 'D' CATCH BASIN
533-3	2007	FRAME AND GRATE FOR TYPE 'D' CATCH BASIN
533-4	2007	7'-0" CURB OPENING CATCH BASIN TYPE 'D' - GRATE DETAILS
534-1	1998	CATCH BASIN TYPE 'E'
534-2	1998	CATCH BASIN TYPE 'E' (DETAILS)
534-3	1998	CATCH BASIN TYPE 'E' (DETAILS)
534-4	1998	CATCH BASIN TYPE 'E' (DETAILS)
534-5	1998	ALTERNATE GRATE STYLES, SUMP LOCATION
535	2009	CATCH BASIN TYPE 'F' (FOR USE WITHOUT CURB)
536-1	1999	COMMON DETAILS AND SECTIONS FOR CURB OPENING CATCH BASINS
536-2	1998	ALTERNATIVE COVER FOR CURB OPENING CATCH BASINS
537	2002	CATCH BASIN TYPE 'G'
538	1998	CATCH BASIN TYPE 'H'
539	1998	GRATES FOR CATCH BASINS, TYPE G AND H
540-1	1998	CATCH BASIN GRATES
540-2	1998	CATCH BASIN GRATES
541	2005	CATCH BASIN SUBGRADE DRAIN
545	1998	END SECTION - REINFORCED CONCRETE PIPE
550	1998	SPILLWAY INLET AND OUTLET
552	2009	CONCRETE CUT-OFF WALLS
555	2010	EROSION PROTECTION/

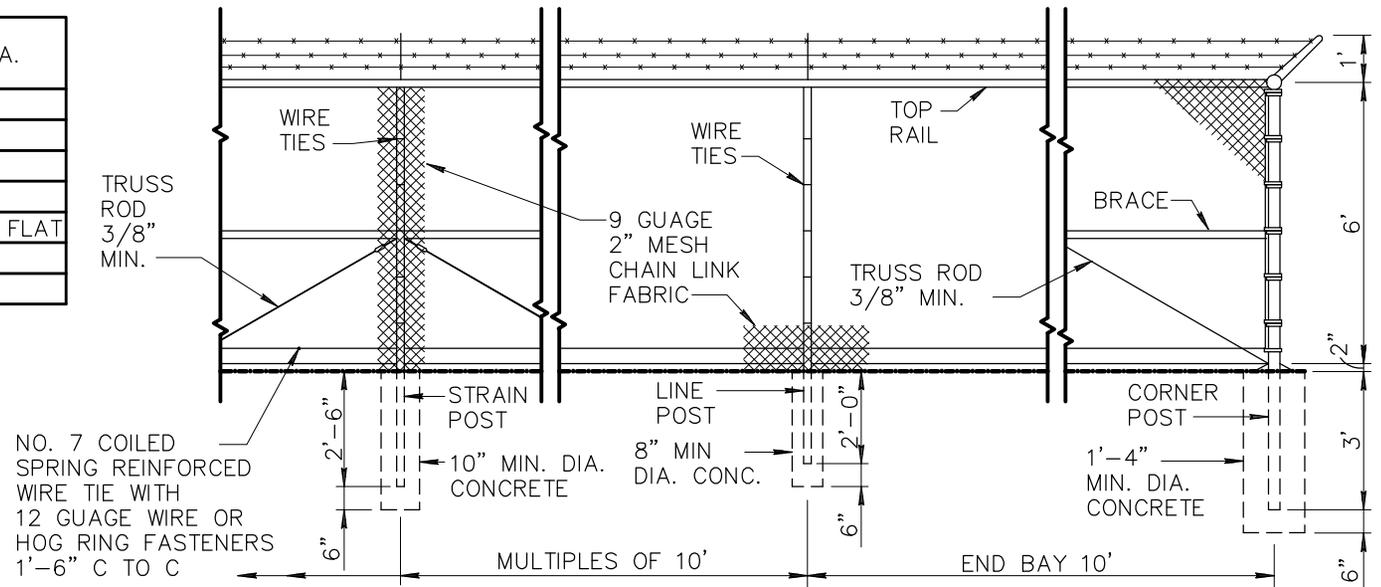
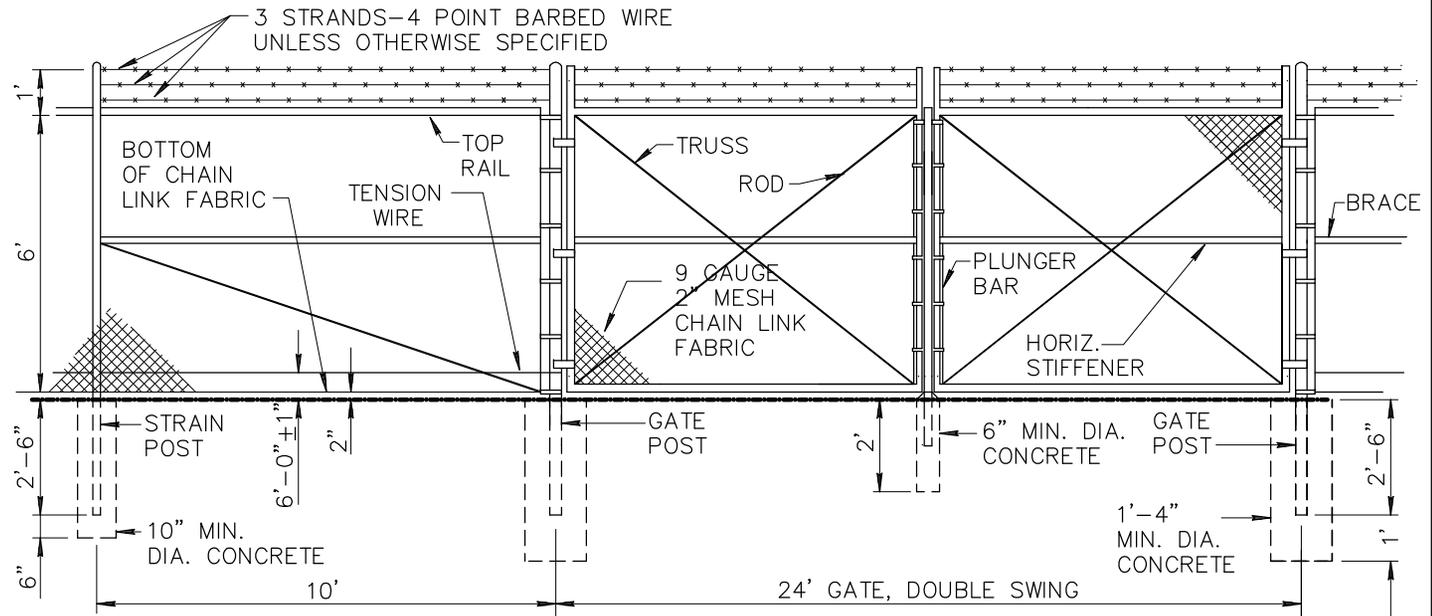
* NEWLY REVISED.

NOTES

1. ALL CONCRETE SHALL BE CLASS 'C' PER SECT. 725.
2. FITTINGS NOT SPECIFICALLY DETAILED SHALL BE HEAVY DUTY DESIGN.
3. STRAIN POSTS SHALL BE SPACED AT 500' MAXIMUM SPACING.
4. BOTH CORNER AND STRAIN POSTS SHALL HAVE STRAIN PANELS.
5. ALL POSTS SHALL BE CAPPED.
6. MEMBER SIZES SHALL BE THE FOLLOWING:

MEMBER	AISC SIZE	OUTSIDE DIA.
CORNER POST	2-1/2"	2.875"
LINE POST	1-1/2"	1.900"
STRAIN POST	1-1/2"	1.900"
BRACE	1-1/4"	1.666"
STRETCH BAR	3/16"x3/4" FLAT	3/16"x3/4" FLAT
GATE POST	3-1/2"	4.000"
TOP RAIL	1-1/4"	1.666"

7. CONSTRUCTION AND MATERIALS SHALL CONFORM TO SECT. 420 AND 772, RESPECTIVELY. SEE TABLE 772-1 FOR WEIGHTS OF MEMBERS.



DETAIL NO.

160



STANDARD DETAIL
ENGLISH

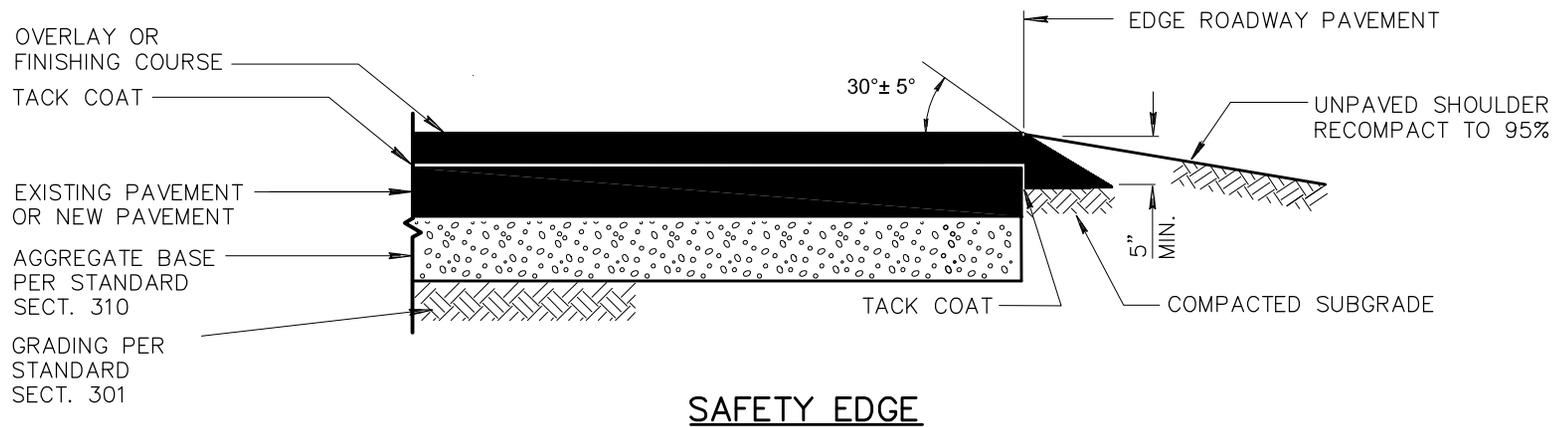
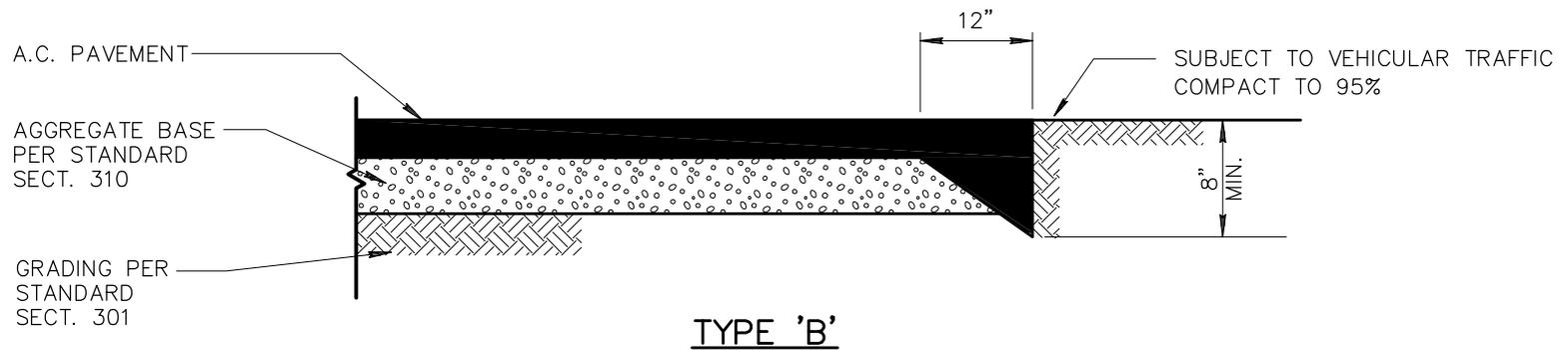
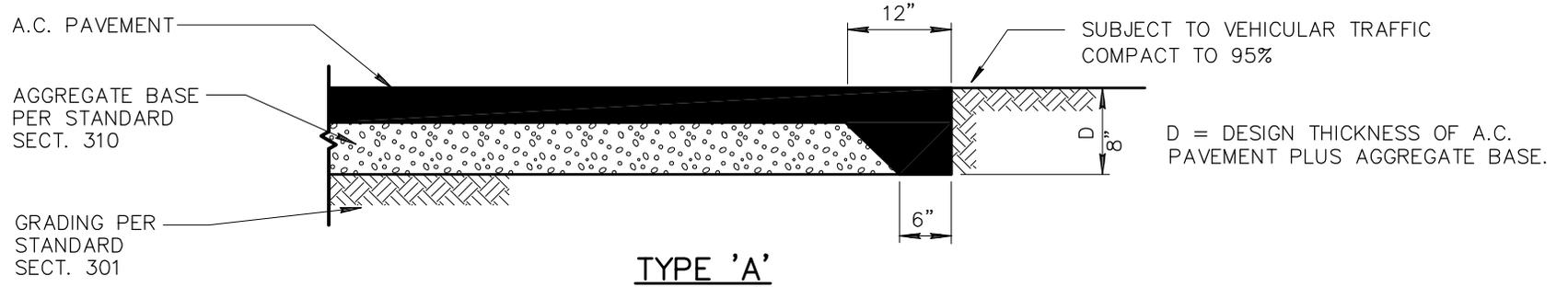
6' CHAIN LINK
FENCE AND GATE

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01-01-2013

DETAIL NO.

160



DETAIL NO.
201

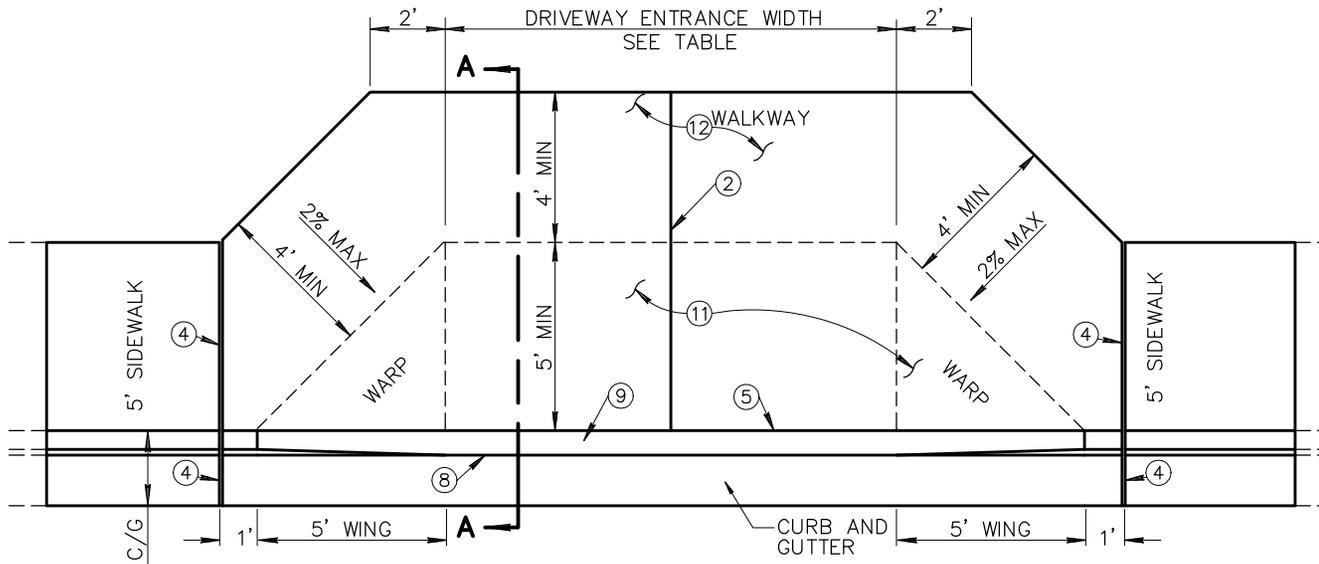


STANDARD DETAIL
ENGLISH

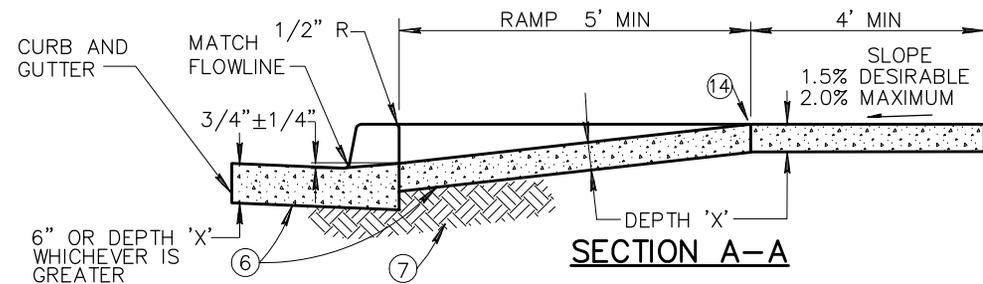
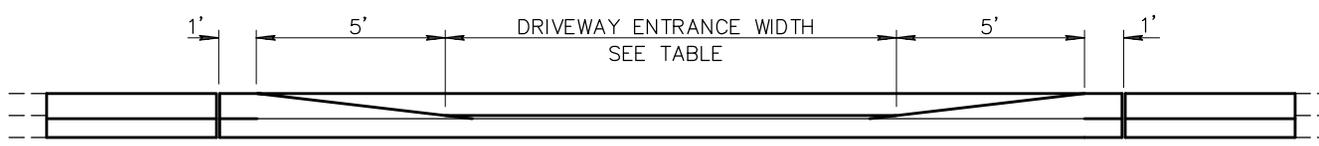
ASPHALT PAVEMENT EDGE DETAILS

DATE
01-01-2013

DETAIL NO.
201



DRIVEWAY WITH SIDEWALK ATTACHED TO CURB



COMMERCIAL AND INDUSTRIAL					RESIDENTIAL				
DRIVEWAY ENTRANCE WIDTH	MIN.	MAX.	CLASS	DEPTH 'X'	DRIVEWAY ENTRANCE WIDTH	MIN.	MAX.	CLASS	DEPTH 'X'
COMMERCIAL	* 16'	40'	A	9"	MAJOR STREET	16'	30'	B	5"
INDUSTRIAL	* 16'	40'	A	9"	COLLECTOR STREET	* 12'	30'	B	5"
* 24' MIN. FOR TWO WAY TRAFFIC					LOCAL STREET	12'	30'	B	5"
					* 16' DESIRABLE				

NOTES:

- DEPRESSED CURB SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE TYPE OF CURB USED AT THAT LOCATION.
- CONTRACTION JOINT(S) FOR DRIVEWAY ENTRANCE: WIDTH LESS THAN 22' NONE REQUIRED; WIDTH GREATER THAN 22' AND LESS THAN 30' LOCATE SINGLE JOINT ON D/W CENTERLINE; WIDTH OF 30' OR GREATER LOCATE TWO JOINTS TO EQUALLY DIVIDE THE DRIVEWAY ENTRANCE WIDTH.
- DETAIL GEOMETRICS ARE BASED ON A CURB HEIGHT OF SIX INCHES (6"), AN ATTACHED SIDEWALK WIDTH OF FIVE FEET (5'), AND A DRIVEWAY RAMP LENGTH NOT EXCEEDING SIX FEET (6'). GEOMETRIC MODIFICATIONS MAY BE REQUIRED WHEN CONDITIONS ARE MODIFIED.
- 1/2-INCH EXPANSION JOINTS SHALL COMPLY WITH SECTION 340.
- BACK OF CURB - CONSTRUCTION JOINT.
- CONCRETE CLASS AS NOTED IN TABLE. CONCRETE PER SECTION 725.
- SUBGRADE PREPARATION, SECT. 301.
- FLOW LINE OF GUTTER.
- DEPRESSED CURB.
- SECT. A-A AND ELEVATION: D/W SHOWN WITH VERTICAL CURB AND GUTTER, ROLL TYPE CURB AND GUTTER TREATED SIMILARLY.
- ROUGH BROOM FINISH FULL WIDTH OF RAMP AND WINGS.
- TROWEL AND USE LIGHT HAIR BROOM FINISH FOR WALKWAY AREA.
- 'DRIVEWAY ENTRANCE WIDTH' IS THE DRIVEWAY WIDTH PLUS ADDITIONAL WIDENING REQUIRED BY THE LOCAL JURISDICTION.
- ELEVATION AT TOP OF DRIVEWAY RAMP SHALL BE EQUAL TO OR HIGHER THAN NORMAL CURB ELEVATION.

DETAIL NO.
250-2

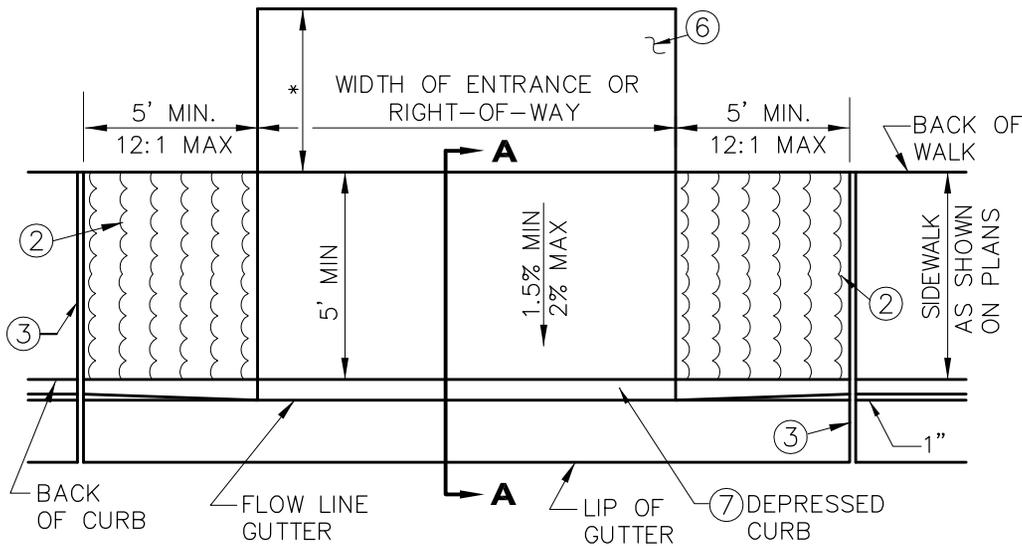


STANDARD DETAIL
ENGLISH

**DRIVEWAY ENTRANCES WITH
SIDEWALK ATTACHED TO CURB**

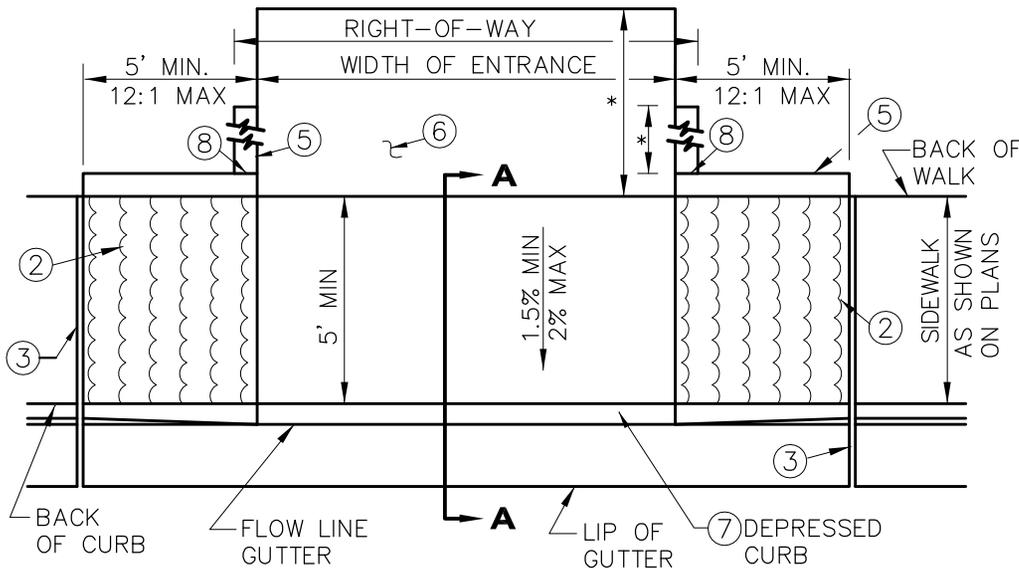
REVISED
01-01-2013

DETAIL NO.
250-2



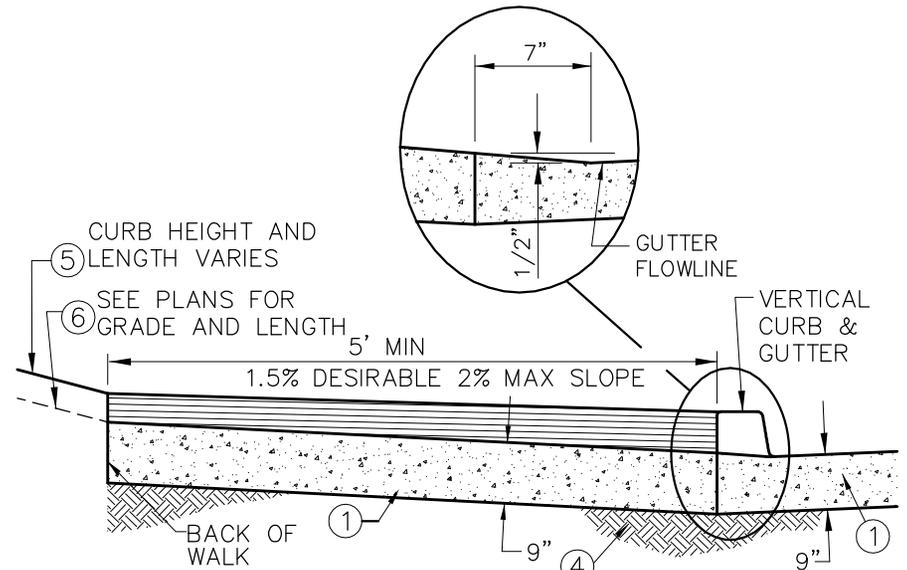
TYPE A - WITHOUT RETAINING CURB

* SEE PLANS FOR ALLEY SURFACING REQUIREMENTS



TYPE B - WITH RETAINING CURB

* SEE PLANS FOR RETAINING CURB LENGTHS, TOP OF CURB ELEVATIONS, AND ALLEY SURFACING REQUIREMENTS



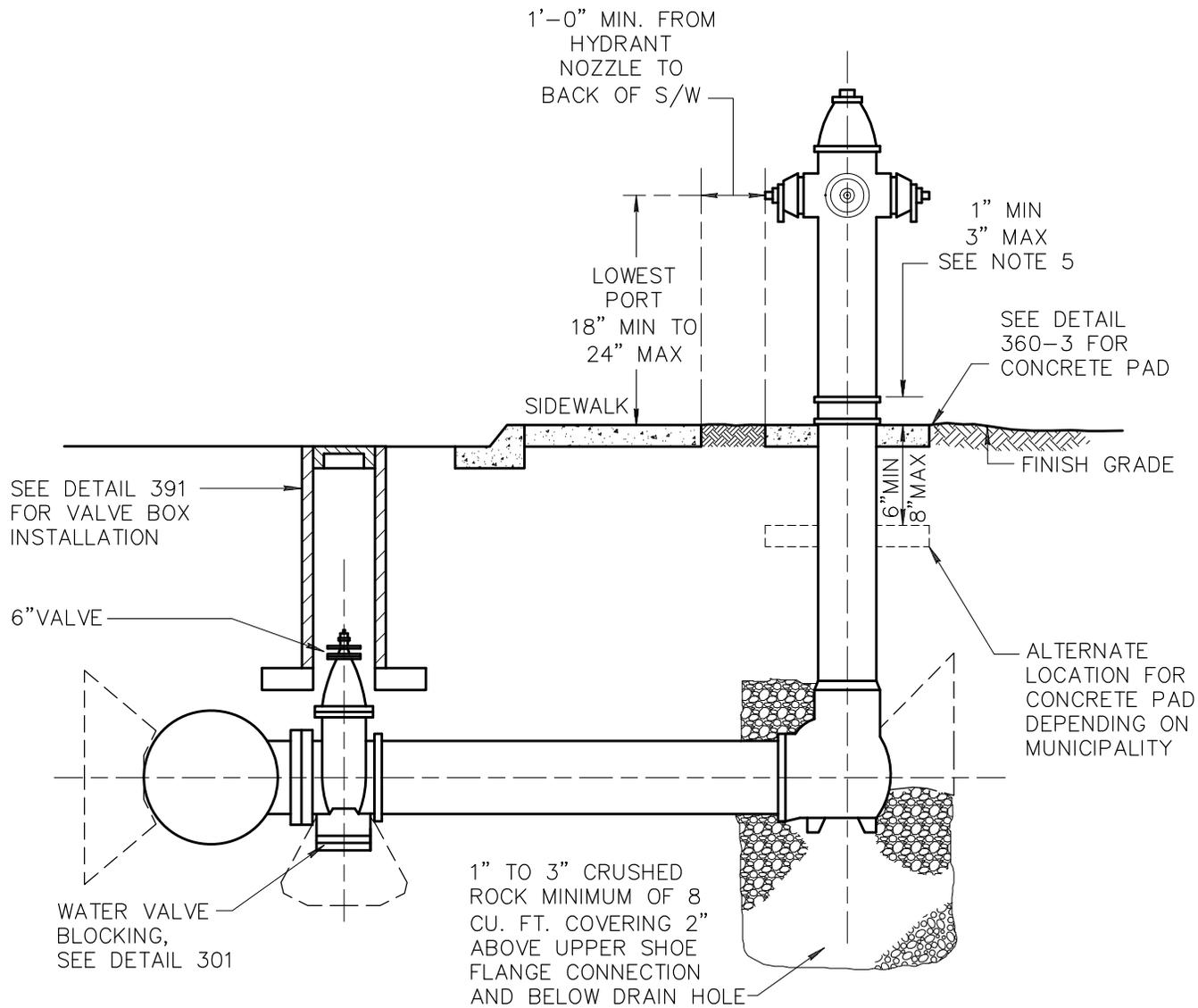
SECTION A-A



ELEVATION

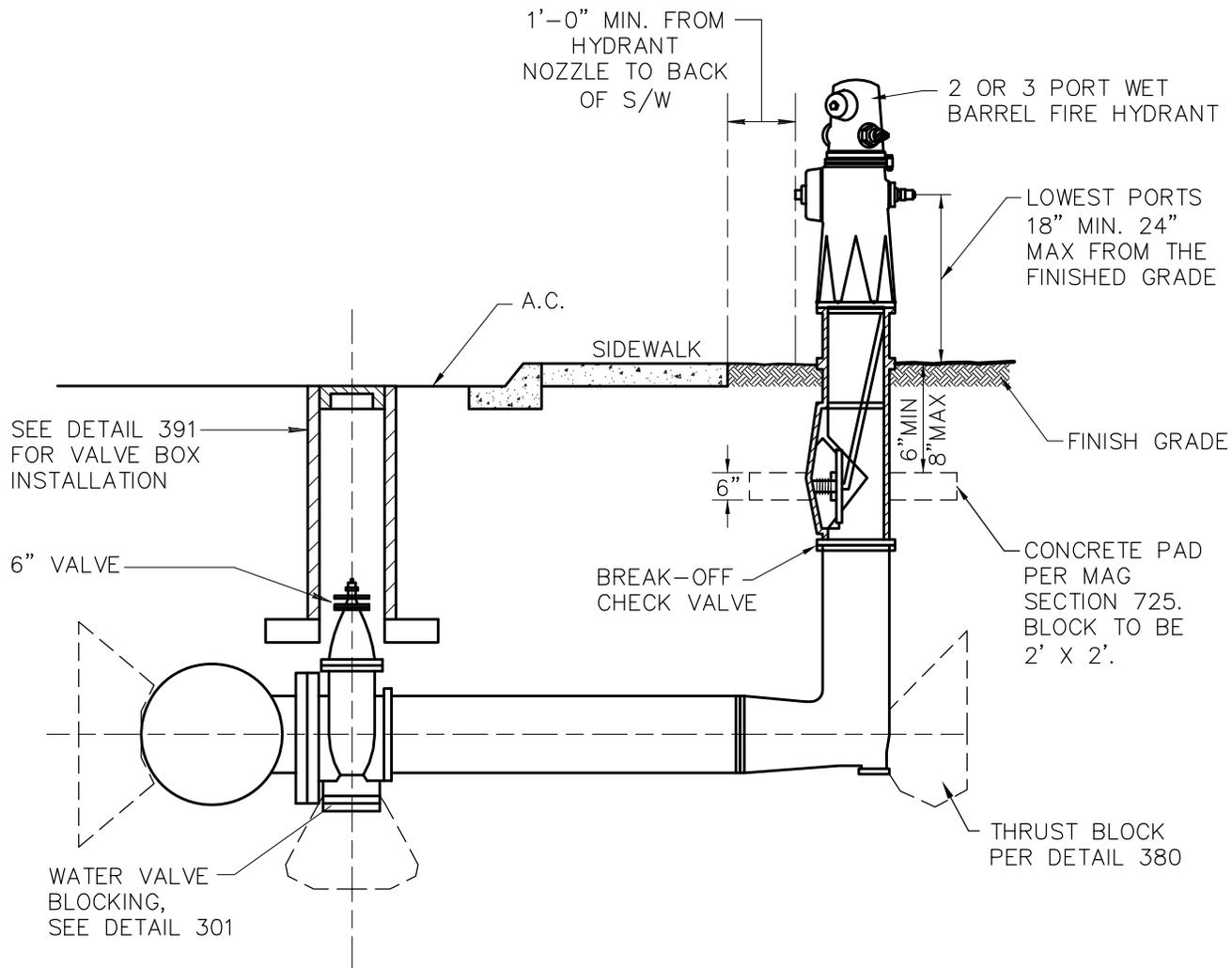
NOTES:

- ①. CLASS "A" CONCRETE PER SECTION 725.
- ②. LIMITS OF HEAVY ROUGH BROOM FINISH.
- ③. EXPANSION JOINTS PER SECTION 340.
- ④. SUBGRADE PREPARATION PER SECTION 301.
- ⑤. SINGLE CURB PER DETAIL 222, TYPE "B".
- ⑥. ALLEY SURFACING PER PLANS.
- ⑦. DEPRESSED CURB SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE TYPE OF CURB USED AT THAT LOCATION.
- ⑧. CONTROL JOINT.



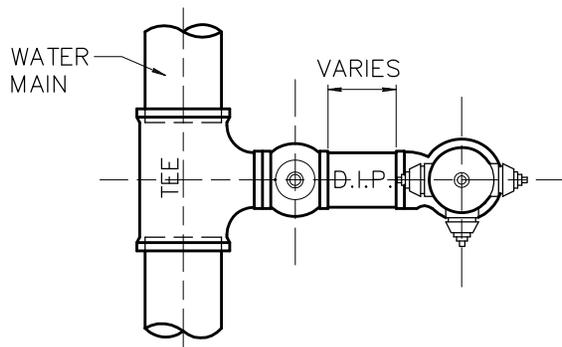
NOTES:

1. JOINTS BETWEEN THE VALVE AND THE MAIN SHALL BE FLANGED TYPE. JOINTS BETWEEN THE VALVE AND HYDRANT SHALL BE RESTRAINT OR MECHANICAL TYPE.
2. RESTRAINTS SHALL BE MECHANICAL RESTRAINT OR THRUST BLOCK PER DETAIL 380.
3. A FLANGE JOINT BY MECHANICAL JOINT VALVE SHALL BE USED AS THE TRANSITION BETWEEN THE JOINT TYPES.
4. PIPING BETWEEN WATER VALVE AND HYDRANT SHALL BE DUCTILE IRON.
5. SEE DETAIL 362 FOR LOCATION OF HYDRANT.
6. PUMPER CONNECTION SHALL FACE THE STREET.
7. NO VALVES ARE TO BE LOCATED IN CURB.
8. NATIONAL STANDARD THREADS REQUIRED ON ALL CONNECTIONS UNLESS OTHERWISE DIRECTED.
9. SEE DETAIL 360-3 FOR CONCRETE PAD.
10. FIRE HYDRANT SHALL BE FRESHLY PAINTED PRIOR TO FINAL ACCEPTANCE.
11. SEE SECTION 756 FOR HYDRANT MATERIAL.

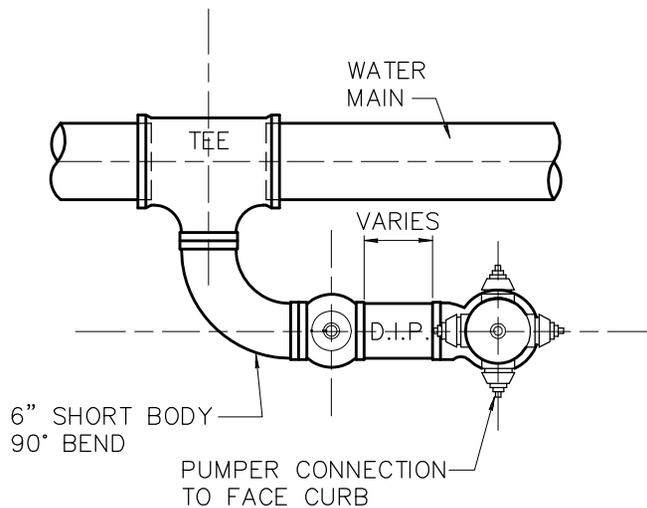


NOTES:

1. JOINTS BETWEEN THE VALVE AND THE MAIN SHALL BE FLANGED TYPE. JOINTS BETWEEN THE VALVE AND HYDRANT SHALL BE MECHANICAL RESTRAINT MECHANICAL TYPE.
2. RESTRAINTS SHALL BE MECHANICAL RESTRAINT OR THRUST BLOCK PER DETAIL 380.
3. A FLANGE JOINT BY MECHANICAL JOINT VALVE SHALL BE USED AS THE TRANSITION BETWEEN THE JOINT TYPES.
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6. PUMPER CONNECTION SHALL FACE THE STREET.
7. NO VALVES ARE TO BE LOCATED IN CURB.
8. NATIONAL STANDARD THREADS REQUIRED ON ALL CONNECTIONS UNLESS OTHERWISE DIRECTED.
9. SEE DETAIL 360-3 FOR CONCRETE PAD.
10. FIRE HYDRANT SHALL BE FRESHLY PAINTED PRIOR TO FINAL ACCEPTANCE.
11. THE HYDRANT SHALL HAVE 2- 2½" PORT AND 1- 4½" PORT (INDUSTRIAL OR COMMERCIAL).
12. THE HYDRANT SHALL HAVE 1- 2½" PORT AND 1- 4½" PORT (RESIDENTIAL).

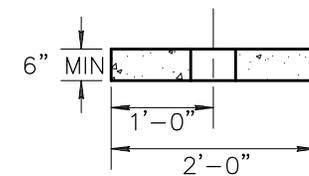
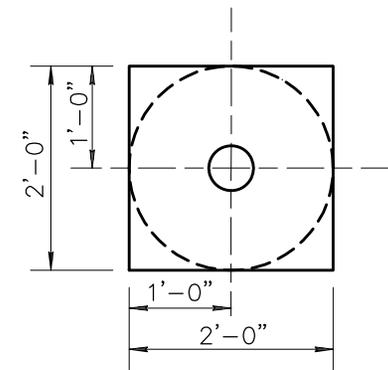


TYP MAIN CONNECTION
(PREFERRED)

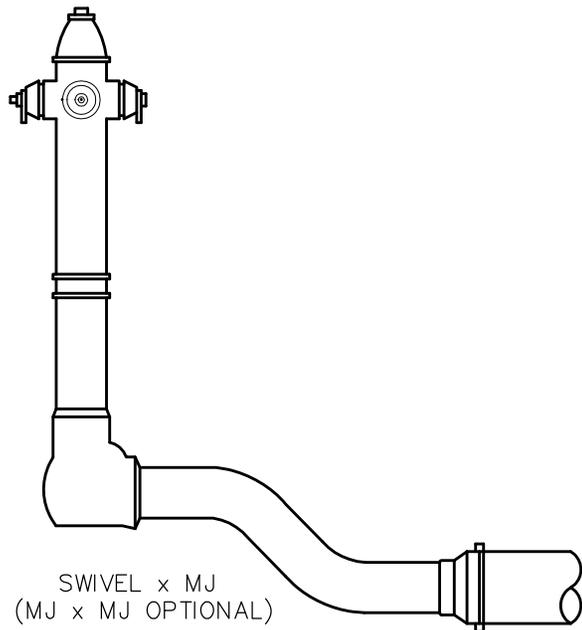


ALT MAIN CONNECTION

SQUARE OR ROUND IS ACCEPTABLE
IF ROUND: 24" DIAMETER MIN. REQUIRED



CONCRETE PAD
LOCATION DETAIL



OFFSET FITTINGS

NOTES:

1. CONCRETE FOR PAD SHALL BE CLASS "A".
2. SCORE LINE SHALL BISECT CONCRETE PAD AT MID POINT OF ALL SIDES.
3. CONCRETE COLOR SHALL MATCH ADJACENT CONCRETE. THE FINISHED CONCRETE SURFACE SHALL HAVE A ROUGH BROOM FINISH (SURFACE ONLY).
4. MULTIPLE OFFSET FITTINGS SHALL NOT BE ALLOWED.
5. MINIMUM 36" CLEARANCE PER NFPA-24 AROUND FIRE HYDRANT.
6. 1/2" BITUMINOUS EXPANSION SHALL BE PLACED AROUND THE BARREL OF THE FIRE HYDRANT AT THE CONCRETE PAD.