



**MARICOPA COUNTY**  
*Department of Transportation*

**MEMORANDUM**

**Date:** January 8, 2016  
**To:** MAG Specifications and Details Committee  
**From:** Robert Herz, MCDOT Representative  
**Subject:** Miscellaneous Corrections **Case 16-01A**

**PURPOSE:** Delete extraneous text.

**REVISION:** In Section 310 PLACEMENT AND CONSTRUCTION OF AGGREGATE BASE COURSE revise Table 310-1 by deleting “or gradation deficiency” from the Deficiency column for Type IV.

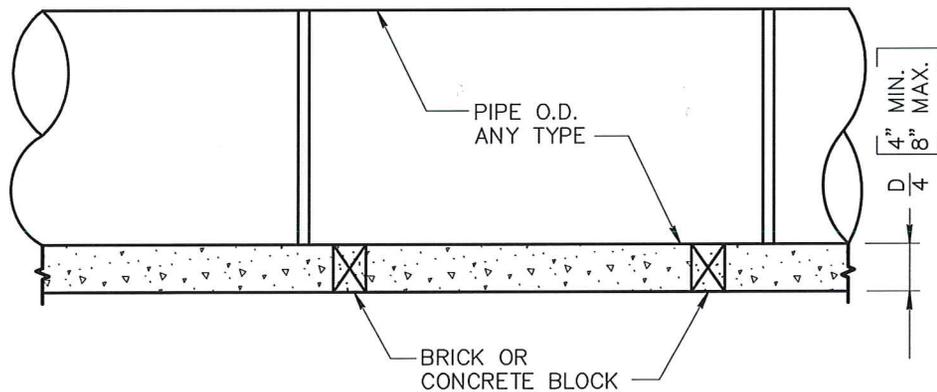
**310.4 THICKNESS AND/OR PLASTICITY INDEX DEFICIENCY:**

When in the opinion of the Engineer there is reason to believe that a deficiency in thickness, or an excess of plasticity exists, measurements or samples will be taken in the same pattern as that defined in Section 321. If the base has been covered or it is otherwise impractical to correct the deficiency, the corrective measures in Table 310-1 shall be taken by the Contractor at no additional cost to the Contracting Agency.

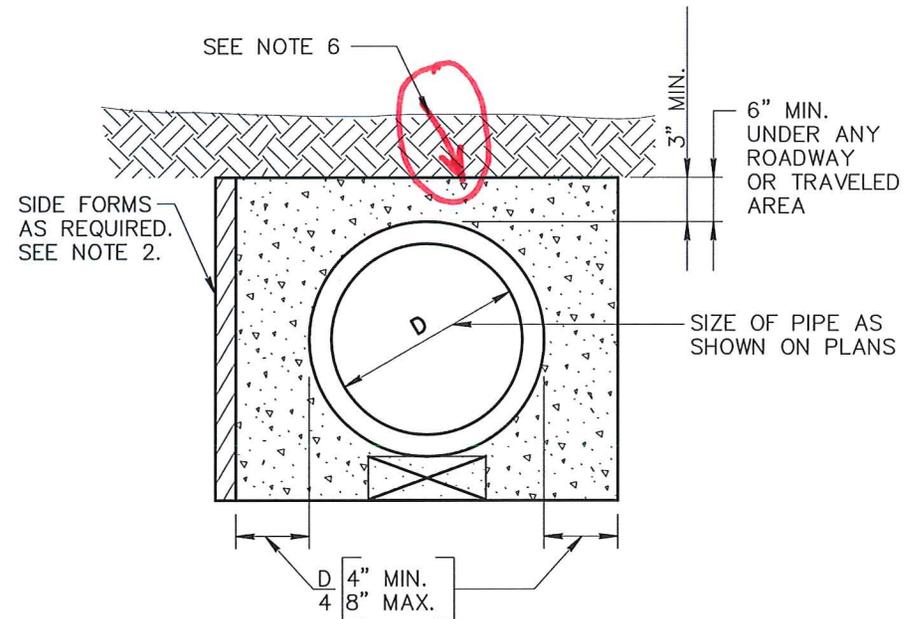
TABLE 310-1		
THICKNESS AND PLASTICITY DEFICIENCY		
Type	Deficiency	Corrective Measure
I	Less than 1/2 inch of the required thickness	No corrective measure required.
II	1/2 inch or more but less than 1 inch of the required thickness	(1) The contractor may choose to add additional material and rework the grade to meet the specification requirements. (2) The contractor may choose to increase the thickness of asphalt concrete by the amount of the aggregate base course thickness deficiency at no additional cost to the Owner. Required grade shall be met.
III	Thickness deficiency by greater than 1 inch	(1) The contractor will remove the aggregate base course and regrade the subgrade to allow the required aggregate base course layer thickness to be constructed. (2) If grades allow, the contractor may propose that the thickness of asphalt concrete be increased by the amount of the aggregate base course deficiency at no additional cost to the Owner.
IV	A plasticity index of 6 to 7 inclusive <del>or gradation deficiency</del>	(1) An Engineering Analysis (EA) that includes R-value testing may be prepared by the contractor to evaluate the expected performance of the aggregate base course layer. The EA may provide mitigation options for the Engineer to consider. If the Engineer accepts the plasticity index as a result of the EA, the material will be accepted at full payment. If the Engineer rejects the EA, the contractor will perform either option 2 or 3 below. (2) The contractor may choose to reprocess or treat the existing material to bring it within specification limits or remove deficient material from affected area and replace with material complying with the specifications. (3) If grades allow, the contractor may increase the thickness of asphalt concrete by 1/2-inch at no additional cost to the Owner.
V	A plasticity index of over 7	(1) The contractor may choose to reprocess or treat the existing material to bring it within specification limits or remove deficient material from affected area and replace with material complying with the specifications.

**NOTES:**

1. THIS DETAIL SHALL BE REQUIRED WHEN NEW OR EXISTING PIPE INSTALLATIONS WILL BE SUBJECT TO DAMAGE ANYTIME IN THE FUTURE DUE TO LACK OF PROPER COVER, AS DETERMINED BY THE ENGINEER.
2. FOR PIPE OVER 18" I.D. WOOD, METAL OR GYPSUM BOARD FORMS MUST BE USED TO FORM THE SIDES OF THE ENCASEMENT. GYPSUM BOARD FORMS MAY BE LEFT IN THE GROUND BELOW THE TOP OF THE ENCASEMENT. THIS SHALL BE OPTIONAL WITH POURING AGAINST TRENCH WALLS FOR ENCASEMENT OF 18" AND SMALLER PIPE.
3. FOR ALL SITUATIONS WHERE SIDE FORMS ARE USED, TRENCH WALLS SHALL BE OVER-EXCAVATED TO ALLOW SUFFICIENT ROOM TO OPERATE PROPER MECHANICAL COMPACTION EQUIPMENT.
4. CONCRETE WHICH SPILLS BEYOND 12" FROM THE SIDES OF THE PIPE FOR ANY REASON SHALL BE REMOVED BACK TO THE PROPER LINE PRIOR TO BACKFILLING.
5. SEE SECTION 601 FOR TRENCH PREPARATION.
6. CONCRETE TO BE CLASS 'A' PER SECT. 725.
7. COVER TO BE APPROVED BY ENGINEER.



LONGITUDINAL SECTION



END SECTION

DETAIL NO.

507



STANDARD DETAIL  
ENGLISH

**ENCASED CONCRETE PIPE  
(FOR SHALLOW INSTALLATION)**

REVISED

01-01-1998

DETAIL NO.

507

*CASE 16-01 B*

**608.4 RECORD DOCUMENTS AND SUBMITTAL REQUIREMENTS:**

Submittal requirements are based on the bore size classification as shown in Table 608-2. The required items contained in items 1 through 10 shall be submitted prior to the authorization to commence field construction. Copies of all documents shall be maintained at the construction site and be available for inspection.

<b>TABLE 608-2</b>			
<b>SUBMITTAL REQUIREMENTS</b>			
<b>Required Record Document</b>	<b>Bore Size Classification</b>		
	<b>Small</b>	<b>Medium</b>	<b>Large</b>
1. Agency Approved Plans	•	•	•
2. Personnel Qualifications	•	•	•
3. Surface Survey		•	•
4. Bore Plan/Profile		•	•
5. Drilling Fluid Management Plan		•	•
6. Equipment & Site Setup			•
7. Drilling Fluid Pressure Calculations			•
8. Pipe Stress and Pullback Calculations			•
9. Bore Data	•	•	•
10. As-Built	•	•	•

**608.4.1 Agency Approved Plans:** The facility owner shall submit plans for approval to the Agency in whose right-of-way the facility owner is proposing to install the new utility. Any changes from the approved plans will require a re-submittal of plans and re-approval. Plans are to identify the location of all property lines, right-of-way, and easements within the project construction limits. No work is to take place outside of the construction limits as shown on the agency approved plans.

**608.4.2 Personnel Qualifications:** The Contractor shall provide a competent and experienced individual familiar with the equipment and the type of HDD operations to be performed. The individual shall be present onsite while HDD operations are being performed and be in direct charge and control of the HDD operations. Documentation of experience and appropriate training evidenced by a certificate of attendance from a training program shall be provided upon request.

**608.4.3 Surface Survey:** A surface survey is not required for small bores unless specified by contract or permit documents. A surface survey requires the contractor prior to starting the drilling operation to submit to the Engineer a surface survey of elevations along the planned bore alignment, the maximum interval between elevations shall be ten feet (10'). Upon completion of the installation of the product pipe, the Contractor shall have a second survey performed and shall have the elevations compared with the pre-bore survey elevations. The second survey and the comparative results shall be submitted to the Engineer. Any change in elevation of a paved surface greater than 1/2" shall be considered excessive and shall be repaired at the Contractor's expense. Any elevation deviation of a paved flow line that is greater than 1/4" shall be considered excessive and shall be repaired at the Contractor's expense.

**608.4.4 Bore Plan/Profile:** A scaled plan and profile drawing of the proposed pilot bore shall be submitted by the Contractor. The bore plan/profile shall show existing surface features and grade, the proposed pilot bore size and path, and all existing utilities with dimensioned vertical and horizontal clearances.

**608.4.5 Drilling Fluid Management Plan:** Indicate the type and amount of the drilling fluid planned to be used on the project. Include safety data sheets for the identified drilling fluid components and additives. The drilling fluid plan is developed based upon the anticipated soil conditions, and a sufficient supply of fluid is to be available to enable successful completion of the bore. Indicate the intended method of disposal of spent drilling fluids and



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**MEMORANDUM**

**Date:** August 23, 2016  
**To:** MAG Specifications and Details Committee  
**From:** Robert Herz, MCDOT Representative  
**Subject:** Miscellaneous Corrections

**Case 16-01D**

**PURPOSE:** Revise the Class for Type IV (weathering steel) guardrail from B to A. Class A and Class B identify the steel thickness of the guardrail, Class B being 0.135 inches and Class A being 0.105 inches. Class A guardrail is readily available from suppliers while Class B guardrail is a special order item that can take months to obtain. The guardrail historically provided has been Class A.

**REVISION:** Case 16-07 added weathering steel guardrail specifications to the Materials portion of Section 415 Flexible Metal Guardrail. The paragraph added by Case 16-07 is to be modified as indicated below.

Guardrail specified to be constructed with weathering steel (sometimes called Corten steel) shall conform to the requirements of AASHTO M 180, Type IV, Class ~~B-A~~ and use ASTM A588 steel.



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**Case 16-01E**

**PURPOSE:** Correct Chain Link Fence Post Discrepancy. The required diameter for a 6' chain link fence line post is 2" per Table 772-1 and 1.5" per Detail 160.

**REVISION:** Adjust Table 772-1 to match Detail 160. This will make MAG requirements match the size required by ADOT Drawing number C-12.20.

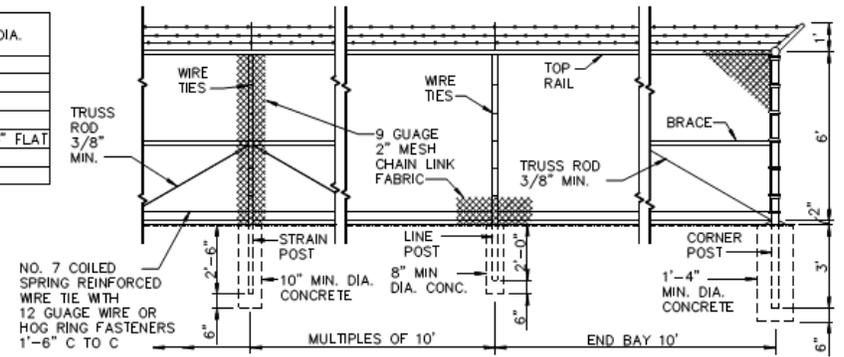
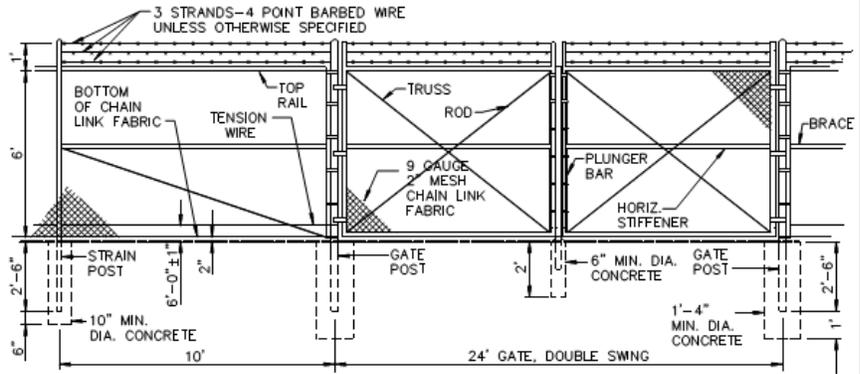
TABLE 772-1					
FENCE MEMBER SIZES & WEIGHTS					
USE	FENCE FABRIC HEIGHT (Feet)	NPS DESIGNATOR	OUTSIDE DIAMETER (Inches)	WEIGHT (Lb/Lf Minimum)	
				TYPE A Schedule 40	TYPE B and C
<b>FENCE POSTS</b>					
End, corner, slope, pull and strain posts	Less than 6	2	2.375	3.65	3.12
	6 and over but less than 9	2 1/2	2.875	5.79	4.64
	9 and over but not over 12	3 1/2	4.000	9.11	6.56
Line posts	less than not over 6	1 1/2	1.900	2.72	2.28
	6 and over 6 but less than 9	2	2.375	3.65	3.12
	9 and over but not over 12	2 1/2	2.875	5.79	4.64
<b>GATE POSTS</b>					
Single swing gates 6 feet or less in width or double swing gates 12 feet or less	less than 6	2	2.375	3.65	3.12
	6 and over but not over 12	3 1/2	4.000	9.11	6.56
Single swing gates over 6 feet but not over 13 feet in width or double swing gates over 12 feet but not over 26 feet in width	—	3 1/2	4.000	9.11	6.56
Single swing gates over 13 feet but not over 18 feet in width or double swing gates over 26 feet but not over 36 feet in width	—	6	6.625	18.97	—
Single swing gates over 18 feet in width or double swing gates over 36 feet in width	—	8	8.625	28.55	—
<b>OTHER MEMBERS</b>					
Top rail and braces	—	1 1/4	1.666	2.27	1.84
Frame for gates	—	1 1/2	1.900	2.72	2.28
Stiffners for gates	—	1 1/4	1.666	2.27	1.84

**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**

REVISED  
01-01-2013

DETAIL NO.  
**160**