

July 25, 2012

TO: Members of the MAG Standard Specifications and Details Committee

FROM: Troy Tobiasson, City of Goodyear, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Wednesday, August 1, 2012 at 1:30 p.m.
MAG Office, Suite 200 (Second Floor), Ironwood Room
302 North 1st Avenue, Phoenix

A meeting of the MAG Specifications and Details Committee has been scheduled for the time and place noted above. Members of the MAG Specifications and Details Committee may attend the meeting either in person, by videoconference or by telephone conference call. If you have any questions regarding the meeting, please contact Committee Chair Troy Tobiasson at 623-882-7979 or Gordon Tyus, MAG staff at 602-254-6300.

In 1996, the Regional Council approved a simple majority quorum for all MAG advisory committees. If the MAG Specifications and Details Committee does not meet the quorum requirement, no action can be taken. Several cases are scheduled for action, so your attendance at the meeting is strongly encouraged.

Pursuant to Title II of the Americans with Disabilities Act (ADA), MAG does not discriminate on the basis of disability in admissions to or participation in its public meetings. Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Gordon Tyus at the MAG office. Requests should be made as early as possible to allow time to arrange the accommodation.

It is requested (not required) that written comments on active cases be prepared in advance for distribution at the meeting.

MAG Standard Specifications and Details Committee
TENTATIVE AGENDA
August 1, 2012

COMMITTEE ACTION REQUESTED

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| 1. <u>Call to Order and Introductions</u> | |
| 2. <u>Call to the Audience</u>
An opportunity is provided to the public to address the MAG Specifications and Details Committee on items that are not on the agenda that are within the jurisdiction of MAG, or non-action agenda items that are on the agenda for discussion or information only. Citizens will be requested not to exceed a three minute time period for their comments. A total of 15 minutes will be provided for the Call to the Audience agenda item, unless the committee requests an exception to this limit. Please note that those wishing to comment on agenda items posted for action will be provided the opportunity at the time the item is heard. | 2. Information. |
| 3. <u>Approval of July 11, 2012, Meeting Minutes</u> | 3. Review and approve minutes of the July 11, 2012 meeting. |
| 4. <u>2013 Chair and Vice Chair:</u> Following MAG's policy, the current Vice Chair will become Chair January 2013. A new Vice Chair will need to be appointed. Interested agency members are encouraged to submit a letter of interest to fill the Vice Chair position. | 4. Information and discussion. |

Cases Carried Forward from 2011

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| 5. <u>Case 11-02:</u>
Add an Asphalt Pavement Safety Edge option to Detail 201. UPDATE | 5. Information and discussion.
Sponsor: Bob Herz, Maricopa County |
| 6. <u>Case 11-03:</u>
Replace cadmium plated bolts referenced in Section 610.13 with zinc plated bolts as described in ASTM-B633. UPDATE | 6. Information, discussion and possible action.
Sponsors: Paul Nebeker, Jim Badowich |
| 7. <u>Case 11-12:</u>
Modifications to Regulatory Requirements, MAG Section 107. UPDATE | 7. Information, discussion and possible action.
Sponsor: Peter Kandaris |

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| <p>8. <u>Case 11-14:</u>
Update Fire Hydrant Detail 360-1, and add Wet Barrel Option (360-2) and Details (360-3).
UPDATE</p> | <p>8. Information, discussion and possible action.
Sponsor: Scott Zipprich</p> |
| <p>9. <u>Case 11-16:</u>
Modify Section 415: Steel Flexible Metal Guardrail.</p> | <p>9. Information and discussion.
Sponsor: Peter Kandararis</p> |
| <p>10. <u>Case 11-18:</u>
Update Section 350: Removal of Existing Improvements. UPDATE</p> | <p>10. Information and discussion.
Sponsor: Peter Kandararis</p> |

New Cases for 2012

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| <p>11. <u>Case 12-01 Miscellaneous Corrections:</u>
A. Typographic corrections in Section 108.8
B. Typographic error in Section 108.9
C. Correct references in Detail 160.
D. Correct typo in Section 610.3.</p> | <p>11. Information and discussion.</p> |
| <p>12. <u>Case 12-03:</u>
Revisions to Details 260-2: Driveway Entrances.</p> | <p>12. Information and discussion.
Sponsor: Bob Herz, Maricopa County</p> |
| <p>13. <u>Case 12-04:</u>
Revisions to Section 317: Asphalt Milling.</p> | <p>13. Information, discussion and possible action.
Sponsor: Jeff Benedict, ARPA</p> |
| <p>14. <u>Case 12-06:</u>
Add ADA Compliant Alley Entrance Detail.
UPDATE</p> | <p>14. Information and discussion.
Sponsor: Warren White, Chandler</p> |
| <p>15. <u>Case 12-07:</u>
Revisions to Section 332.6 Protection of Uncured Surface. UPDATE</p> | <p>15. Information, discussion and possible action.
Sponsor: Jami Erickson, Phoenix</p> |
| <p>16. <u>Case 12-08:</u>
Revisions to Section 611: Addition of Refreshing Plans.</p> | <p>16. Information and discussion.
Sponsor: Jami Erickson, Phoenix</p> |
| <p>17. <u>Case 12-10:</u>
Revision to Section 505.7.3 Bridge Deck Joint Assemblies.</p> | <p>17. Information and discussion.
Sponsor: Bob Herz, Maricopa County</p> |

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| 18. <u>Case 12-11:</u>
Use of Reclaimed/Recycled Materials. Revisions to Sections 701, 702, 710 and 728. | 18. Information and discussion.
Sponsors: Brian Gallimore, Jeff Hearne, Jeff Benedict - Materials, Concrete and Asphalt WGs |
| 19. <u>Case 12-12:</u>
New Section 789: Steel Reinforced Polyethylene Pipe (SRPE) | 19. Information and discussion.
Sponsor: Rod Ramos, Scottsdale |

General Discussion

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| 20. <u>Working Group Reports</u>

A. Water/Sewer Working Group
Report on 7/17/2012 meeting.
B. Other Working Group Upcoming Meeting Announcements | 20. Information and discussion.

A. Water/Sewer Chair: Jim Badowich, Avondale

B. Asphalt Chair: Jeff Benedict
Materials Chair: Brian Gallimore
Concrete Chair: Jeff Hearne
Outside ROW: Peter Kandar |
| 21. <u>General Discussion</u> | 21. Information and discussion. |
| 22. <u>Request for Future Agenda Items</u>
Topics or issues of interest that the Standard Specifications and Details Committee would like to have considered for discussion at a future meeting will be requested. | |

Adjournment

MEETING MINUTES FROM THE
MARICOPA ASSOCIATION OF GOVERNMENTS
STANDARD SPECIFICATIONS AND DETAILS COMMITTEE

July 11, 2012

Maricopa Association of Governments Office, Ironwood Room
302 North First Avenue
Phoenix, Arizona

AGENCY MEMBERS

Jim Badowich, Avondale	* Javier Setovich, Peoria
Craig Sharp, Buckeye (proxy)	Syd Anderson, Phoenix (St. Trans.)
Warren White, Chandler	Jami Erickson, Phoenix (Water)
* Lance Calvert, El Mirage	* Marc Palichuk, Queen Creek
Greg Crossman, Gilbert	Rodney Ramos, Scottsdale
Mark Ivanich, Glendale	Jason Mahkovtz, Surprise
Troy Tobiasson, Goodyear, Chair	Tom Wilhite, Tempe, Vice Chair
Bob Herz, MCDOT	* Jim Fox, Youngtown
Bob Draper, Mesa	

ADVISORY MEMBERS

Jeff Benedict, ARPA	Jeff Hearne, ARPA
Tony Braun, NUCA	Peter Kandarlis, Independent
Bill Davis, NUCA (proxy)	Paul R. Nebeker, Independent
Brian Gallimore, AGC	
Adrian Green, AGC	

MAG ADMINISTRATIVE STAFF

Gordon Tyus

* Members not attending or represented by proxy.

GUESTS/VISITORS

Arturo Chavarria, Hanson Pipe and Precast
Bob Erdman, Cutler Repaving
Mike Hook, ACPA
Kelly Kokesh, ADS
Jerre Mills, Regional Pavement
Karl Rockwell, MCDOT
Mike Weinberg, Contech

1. Call to Order

Chairman Troy Tobiasson called the meeting to order at 1:30 p.m.

2. Call to the Audience

No members of the audience requested to speak.

3. Approval of Minutes

The members reviewed the May 2, 2012 meeting minutes. Greg Crossman introduced a motion to accept the minutes as written. Rod Ramos seconded the motion. A voice vote of all ayes and no nays was recorded.

4. Membership

Peter Kandarlis, no longer representing SRP, submitted a letter requesting to be approved as an independent member so he could continue to participate on the committee. His membership was sponsored by Bob Herz of Maricopa County, who moved to appoint Mr. Kandarlis as an independent advisory member, and by Rod Ramos of Scottsdale, who seconded the motion. A voice vote of all ayes and no nays was recorded.

Review of 2011 Carry Forward Cases

5. Case 11-02 – Safety Edge Detail

Add an Asphalt Pavement Safety Edge option to Detail 201. Bob Herz said he hasn't made any addition progress, but will continue working on the case this year. Rod Ramos asked if the county has used this new process yet. Mr. Herz said no, although some safety edges have been made using a strike-off plate. Mr. Gallimore said the strike-off plate does not meet the new federal specifications. He noted that he has used new equipment able to create the 30 degree slope, and provide proper compaction, on a project on U.S. 60. Mr. Herz asked him the width and depth of the equipment creating the safety edge. Since it was purchased, Mr. Gallimore said he was unsure of the size, only that it provided the proper angle.

6. Case 11-03 – Replace Cadmium Plated Bolts.

Replace cadmium plated bolts referenced in Section 610.13 with zinc plated bolts as described in ASTM-B633. Jim Badowich described the latest revision (provided at the meeting) that he created and vetted through the water/sewer working group. He thanked Matt Savage from Ferguson for assistance. The top half of the page showed the existing spec, on the bottom the proposed revisions. He said the size of the pipe did not matter, so references to it were removed. For hex bolts the intent was to make zinc plating the default, while providing stainless steel and cadmium as options. He researched the ASTM references for all these options. The requirements for T-head bolts for mechanical joints were also included.

There was some discussion whether “Cor-ten” should be referenced, since it is a brand name, but also commonly used to reference these types of high-strength steel allow bolts.

Bob Herz suggested removing the reference to the Engineer or Governing Agency at the end of part 1, since the specs always imply this. Peter Kandaris suggested, and Mr. Badowich agreed to do some final word-smithing of the specification at next week’s water/sewer working group meeting. The final update would be provided in the agenda packet with the intent of voting on the case at the next meeting.

7. Case 11-12 – Modifications to Regulatory Requirements, MAG 107

Update references to state statutes and regulatory requirements. Peter Kandaris discussed a revised version (provided at the meeting) that incorporated comments from the city of Phoenix and Maricopa County. A condensed version of the specification showing the final language was provided. It also showed two areas with slightly different language based on the county’s comments. Mr. Kandaris asked for the committee’s direction to resolve them. Bob Herz noted that MCDOT’s recommended language which provides an indemnify clause, is the same as that currently in MAG, and he recommended that it stay. Other members agreed to use this option. The second question had to deal with language regarding permits. Jami Erickson said the City of Phoenix wanted to add language making the contractor responsible for maintaining and closing the permits, since they have had problems with developers who did not properly renew or close permits. Greg Crossman said they also had concerns about closing permits. Members discussed how the language may affect permits taken out by the city, and how permit fees are charged. Mr. Wilhite said Tempe has a line item for permits. Phoenix did for development plans, but not for others. Greg Crossman suggested it be reworded so contractors would not be responsible for agency permits. Troy Tobiasson said any contract language will override MAG anyway. Overall, members agreed to use the Phoenix language. Mr. Kandaris said he would create a final update and called for a vote on the case at the next meeting.

8. Case 11-14: Update Fire Hydrant Details

Update Detail 360-1, and add Wet Barrel Option (360-2) and Details (360-3). Craig Sharp said the revised details in the packet were based on revisions hashed out during the June water/sewer working group meeting. He asked members to do a final review, so they could be voted on at the August meeting. Jim Badowich highlighted some of the changes, including the minimum clearing of 36” based on the NFPA-24 code. Agencies that wanted a larger clearance would have to provide a supplement. Jason Mahkovtz suggested combining notes 5 and 6 on detail 360-3. Jami Erickson asked to have revision dates updated so she would know what the latest version was. Paul Nebeker questioned note 11 on detail 360-2 about two-port hydrants. Jim Badowich said that the wet-barrel hydrants for residential use that they have installed in Avondale do have only two ports. Craig Sharp asked for comments so he can provide final updated details with the intent to vote on the case at the next meeting.

9. Case 11-16: Modify Section 415: Steel Flexible Metal Guardrail

Update Section 415 based on the Maricopa County Supplement. Reference New Details. Peter Kandarlis provided an updated case at the meeting; however, he said he would need to make a few more revisions based on recent feedback from Maricopa County. Mr. Kandarlis asked for feedback on references to the county details. Rod Ramos suggested that maybe they should be included in MAG. Bob Herz said they are planning to make more revisions to the details this year. Mr. Kandarlis suggested just referencing them for now, and possibly having a new case next year that incorporates the county details after they have been updated.

10. Case 11-18: Update Section 350: Removal of Existing Improvements

Add language in Section 350.2 for utility removal, and payment requirements. Mr. Kandarlis provided an update at the meeting that incorporated additional wording from MCDOT. The county recommended deletion of the paragraph stating, “Utilities shall not be abandoned in place below new structures that are part of the work. In all other cases, any in-place utility abandonment shall be allowed if abandonment is noted on the plans. Otherwise abandoned utilities shall be removed.”

Peter Kandarlis said this language was added at the request of Salt River Project, and asked the preference of the committee. Some members questioned what was meant by a structure, and would it apply to both major and minor structures. Jami Erickson gave the example of old water lines that were grouted and left in place, since they were under existing lines. She said abandonments could be approved on a case-by-case basis on the approved plans. Greg Crossman asked what the default would be – abandon or remove? Mr. Kandarlis said he would continue to update the case based on committee feedback.

11. Case 11-21: Add new Section 623: Special Bedding for Mainline Storm Drain Pipe

Incorporate City of Phoenix supplement 623 into the MAG standards. Syd Anderson said that the case had grown in scope while being discussed in the working groups, and requested that the case be withdrawn, so that a new case could be proposed next year. Jim Badowich said the discussion on the case in the working group expanded to include having new specifications based on whether the installation is for rigid or flexible conduit. He said he thinks the slurry could be an option available to agencies, but that other trench and fill systems should be clarified as well. Jami Erickson asked if anyone besides Phoenix used the slurry backfill. Bob Herz said the county requires it for HDPE. Jim Badowich said they have used it on a recent project. Chair Tobiasson agreed to the request to withdraw the case and asked the water/sewer working group to continue to work on options for different installation systems for rigid and flexible pipe.

New 2012 Cases

12. Case 12-01: Miscellaneous Corrections

No new cases or revisions were suggested.

13. Case 12-03: Revisions to Detail 250-2 DRIVEWAY ENTRANCES

Update Sidewalk Widths to 4' in Detail 250-2 Driveway Entrances. Bob Herz said he had no changes, but hoped to get back to it to provide an update at the next meeting.

14. Case 12-04: Revisions to Section 317: Asphalt Milling

Revise Asphalt Milling to address dust control measures on milled surfaces open to traffic. Jeff Benedict said there were no comments or changes. He asked members to review the final draft and called for a vote on it next month.

15. Case 12-05: Modifications to Table 711-1

Revise Paving Asphalt Performance Grading System Requirements. Jeff Benedict said he incorporated the MCDOT comment on creep stiffness. That was on only change since April. Since the case was initially scheduled for a vote during the June meeting that was cancelled, he said it was ready for a vote. A motion to approve the case as submitted was made by Rod Ramos. Warren White seconded the motion. A roll call vote was taken. The case was approved 12 yes, 0 no, 0 abstained, 4 not present.

16. Case 12-06: New Detail 249: Modified Entrance

Create a new entrance detail meeting ADA requirements for straight sidewalks. Warren White provided an updated Alley Entrance Detail 260. It added a note 5: 6" SINGLE CURB PER MAG DETAIL 222, TYPE B. Syd Anderson suggested changing Note 1 to CLASS "A" CONCRETE to be consistent with other details. Warren White asked members if Note 5 should be optional. Tom Wilhite described a retrofitting application with curbing. Mr. White asked if the detail should be shown with or without curbing. Rod Ramos suggested a split plan view to show both. Mr. White said he would continue with revisions.

17. Case 12-07: Revisions to Section 332.6: Protection of Uncured Surface

Add language to include a work plan for uncured slurry protection. Jami Erickson said the handout included a change to Section 332.6 with new text that came out of the working groups stating, "Adequate means shall be provided by the Contractor to protect the uncured product. Any damage done to the product shall be repaired at the Contractor's expense." She said Phoenix is fine with this revision, and asked for a vote on the case at the August meeting.

18. Case 12-08: Section 611: Disinfecting Water Mains – Addition of Refreshing Plans

Modify Section 611.17 to include a “Keep Fresh Plan” to assure safe water quality. Jami Erickson said there are no changes currently but she was planning to work on it.

19. Case 12-09: ASTM Updates

A. *Update ASTM references to steel standards in Section 770.* Peter Kandarlis said he did not have any new ASTM updates this year, and suggested the committee go ahead and vote on the case as scheduled. Rod Ramos moved and Bob Draper seconded the motion to approved Case 12-09 as presented. A roll call vote was taken. The motion passed, 12 yes, 0 no, 0 abstained, 4 not present.

20. Case 12-10: Revisions to Section 505.6.3 Bridge Deck Joint Assemblies

Revise Section 505.6.3 and add updated welding requirements in part (7). Bob Herz introduced this case to eliminate one of the county supplements. It makes updates to the section noted above and adds language for the latest welding code. Troy Tobiasson asked if MCDOT did any joint repairs. Mr. Herz replied that he didn't know for sure what repairs have been done. He asked members to review the case and provide any comments.

21. Case 12-11: Reclaimed/Recycled Materials

Address the use of reclaimed and/or recycled materials along with proper reference adjustments to their respective corresponding sections. Brian Gallimore introduced a new case to add options for reclaimed/recycled materials to MAG sections 701, 702, 710 and 728. The case was developed jointly by the asphalt, materials and concrete working groups. The latest version dated July 9 was provided at the meeting, and incorporated some feedback from the city of Goodyear. The case introduces definitions for reclaimed concrete material and reclaimed asphalt material in section 701. It adds material descriptions for them in section 702, revisions for their use in RAP, section 710 and CLSM, section 728. Mr. Gallimore said it is a change in how MAG handles recycled materials, but the specs are based on language from ADOT and a City of Phoenix Sky Harbor project. He explained the recycled materials would still need to meet the standards of virgin materials. Mr. Gallimore described projects on Grand Avenue and parking lots at the Cardinals stadium that used recycled materials successfully.

Bob Draper asked about their use in asphalt. Adrian Green explained that any recycled material would still need to meet the same requirements, and that they adjust mix design appropriately. They do analytic comparisons based on amounts of old and virgin materials. Mr. Draper was also concerned about foreign materials such as rebar. Mr. Green said they don't want to feed rebar through their crusher either, and that the specification noted it had to be substantially free of debris. There was some question as to what substantially free meant, but he noted that it still has to meet PI and gradation requirements. He said fines are controlled during the process and material is inspected as it comes in.

Peter Kandarlis noted fines can have a huge impact on CLSM mixes. Jim Badowich asked about mix design criteria. Jeff Benedict said a reference for mix design was added to Section 710. Questions arose as to whether Section 709 Recycled Asphalt Paving would be necessary given these changes. Mr. Benedict agreed that Section 709 needs to be revised or possibly removed.

The terms recycled, reclaimed and salvaged were discussed. Jeff Hearne explained that MAG currently uses recycled, ASHTO uses reclaimed and ADOT uses salvaged, but they all refer to the same type of material. Committee members also debated whether to break the case into multiple cases or keep it all together. Mr. Hearne said the working groups debated this as well, but decided to put them all together since they are interrelated. Bob Draper he wanted to look at it as a whole. Jim Badowich, however, thought that there would be much more work to complete the asphalt revisions and suggested they be separated out, since the others are more commonly used and accepted. As a compromise, the case would remain together, but with subparts A) for 701 and 702 (materials) B) for 709 and 710 (asphalt) and C) for 728 CLSM.

22. Case 12-12: Steel Reinforced Polyethylene Pipe

Add new Section 739 for Steel Reinforced Polyethylene (SRPE) Pipe. Rod Ramos introduced a new case that would add SRPE as a new type of pipe material. The case (provided during the meeting to the committee) revises existing Section 738 HDPE to show what differences were needed for SRPE pipe. Since there were quite a few changes including different ASTM references, a new section was proposed. Jim Badowich said representatives from Contech attended the last working group meeting, and can help develop the installation specifications for flexible conduit.

23. General Discussion

Chairman Tobiasson opened the discussion on detectable warnings that was on the agenda for the June meeting. He said he received a question about when warnings should be installed on depressed sidewalks ramps for driveway openings such as the one proposed in case 12-06. Rod Ramos said in Scottsdale generally they are not included for ramp-type driveways, but are on return type driveways. The amount of traffic can determine if they are needed. Ramps and detectable warnings are used for different purposes. Ramps are for wheelchairs, whereas warnings are to notify visually impaired people they are entering a traffic area. Jim Badowich asked if other cities have had developers unclear as to whether detectable warnings need to be provided in the right-of-way, since they are no longer required in private areas such as parking lots. Mr. Herz noted there are different standards for ADA not in the roadway and ADA standards for right-of-way areas. Peter Kandarlis said there can be confusion on what are access areas. Troy Tobiasson said ADOT provided a presentation at MAG a couple months ago.

24. Working Group Reports

Chair Tobiasson asked for reports from the working groups.

a. **Water/Sewer Issues Working Group**

Jim Badowich said they met June 19th and had good turn-out. The meeting focused mainly on wrapping up cases 11-03 and 11-14. He said the group plans to work on revised manhole details, and adding a precast base option based on Buckeye's standards. Discussion on pipe trenching and bedding, as well as revisiting flushing are planned. He said the next meeting is scheduled for July 17th at 1:30 p.m. at the MAG office.

b. **Specifications and Details Outside the Right-of-Way Working Group**

The group did not meet in June.

c. **Asphalt Working Group**

Jeff Benedict said the asphalt, materials and concrete working groups met on June 28th and focused much of the time on preparing the recycled materials case presented during the meeting. They also helped with Phoenix's case 12-07. He said the next meeting is planned for August 23rd at noon at the ARPA office.

d. **Materials Working Group**

Brian Gallimore said the three groups basically worked together on the RAP case. He added that there was discussion about revisiting Section 309 Lime Stabilization, since the originator of the original MAG section thought the revision might create confusion between modifying and stabilizing soil. He also said there was discussion about the confusion of terms for bedding and pipe foundation. Although foundation is defined as the material under the pipe, many times it is commonly referred to as the term bedding, which is defined differently, as 1' above the pipe. Sometimes these terms can conflict. It was suggested to create a cross section to help define the foundation/bedding zone. Brian Gallimore suggested the water/sewer group may want to consider this. The next materials working group meeting follows the asphalt working group at about 1:00 p.m.

e. **Concrete Working Group**

Jeff Hearne said two other items planned for work include revisions to curb and gutter and directional sidewalk ramp details. He said he is waiting on revisions from Peoria to make their ramps more like MAG detail drawings, and samples from the city of Phoenix. He noted that Peoria's details are large and use a lot of concrete. The next meeting will follow the August 23rd asphalt working group at 1:30 p.m. at the ARPA office.

25. Adjournment:

Mr. Tobiasson adjourned the meeting at 3:43 p.m.

2012 PROPOSED REVISIONS TO MAG SPECIFICATIONS AND DETAILS

(Updated information can be found on the website: <http://www.azmag.gov/Committees/Committee.asp?CMSID=1055>)

CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE	
	CARRY FORWARD CASES FROM 2011						
11-02	Case 11-02: Add an Asphalt Pavement Safety Edge option to Detail 201.	MCDOT	Bob Herz	01/05/2011 07/25/2012		0 0 0	Yes No Abstain
11-03	Case 11-03: Replace cadmium plated bolts referenced in Section 610.13 with zinc plated bolts as described in ASTM-B633.	Peoria	Paul Nebeker/ Jim Badowich	02/02/2011 07/25/2012	Scheduled 08/01/2012	0 0 0	Yes No Abstain
11-12	Case 11-12: Modifications to Regulatory Requirements, MAG 107.	OROW WG/ SRP	Peter Kandaris	05/04/2011 07/24/2012	Scheduled 08/01/2012	0 0 0	Yes No Abstain
11-14	Case 11-14: Update Fire Hydrant Detail 360-1, and add Wet Barrel Option (360-2) and Details (360-3).	Water/Sewer WG/ Buckeye	Scott Zipprich	07/13/2011 07/17/2012	Scheduled 08/01/2012	0 0 0	Yes No Abstain
11-16	Case 11-16: Modify Section 415: Steel Flexible Metal Guardrail.	OROW WG/ SRP	Peter Kandaris	07/13/2011 05/22/2012		0 0 0	Yes No Abstain
11-18	Case 11-18: Update Section 350: Removal of Existing Improvements.	OROW WG/ SRP	Peter Kandaris	07/13/2011 07/23/2012		0 0 0	Yes No Abstain
11-21	Case 11-21: Add new Section 623: Special Bedding for Mainline Storm Drain Pipe.	Phoenix	Syd Anderson	07/13/2011 01/04/2012	Withdrawn 07/11/2012	0 0 0	Yes No Abstain
11-30	Case 11-30: Update Section 702: Base Material. Moved all ABC material to Section 310. Revise Section 310: Untreated Base Course. Revise for current standards. Update all references to Section 702. (Combined with previous Case 11-35.)	AGC/ Materials WG	Brian Gallimore	07/13/2011 03/07/2012	Approved 03/07/2012	12 0 0	Yes No Abstain

2012 PROPOSED REVISIONS TO MAG SPECIFICATIONS AND DETAILS

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CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE	
	NEW CASES FOR 2012						
12-01	Case 12-01: Miscellaneous Corrections A. Section 108 typographic errors B. Remove space in Section 108.9 C. Correct references in Detail 160 D. Correct typo in Section 610.3	Goodyear/ Mesa	Troy Tobaisson/ Bob Draper/ Warren White	02/01/2012 05/02/2012		0 0 0	Yes No Abstain
12-02	Case 12-02: Modify Section 710 Asphalt Concrete to include low traffic gyration levels.	ARPA/ Asphalt WG	Jeff Benedict	02/01/2012 03/12/2012	Approved 05/02/2012	11 0 1	Yes No Abstain
12-03	Case 12-03: Revisions to Details 260-2: Driveway Entrances	MCDOT	Bob Herz	02/01/2012 05/02/2012		0 0 0	Yes No Abstain
12-04	Case 12-04: Revisions to Section 317: Asphalt Milling	ARPA/ Asphalt WG	Jeff Benedict	02/28/2012 05/02/2012	Scheduled 08/01/2012	0 0 0	Yes No Abstain
12-05	Case 12-05: Revisions to Section 711: Asphalt Paving (Table 711-1)	ARPA/ Asphalt WG	Jeff Benedict	04/04/2012 04/09/2012	Approved 07/11/2012	12 0 0	Yes No Abstain
12-06	Case 12-06: New Detail: Modified ADA Compliant Alley Entrance	Chandler	Warren White	04/04/2012 07/25/2012		0 0 0	Yes No Abstain
12-07	Case 12-07: Revisions to Section 332.6: Protection of Uncured Surface	Phoenix	Jami Erikson	04/04/2012 07/02/2012	Scheduled 08/01/2012	0 0 0	Yes No Abstain
12-08	Case 12-08: Revisions to Section 611: Disinfecting Water Mains – Addition of Refreshing Plans	Phoenix	Jami Erikson	04/04/2012		0 0 0	Yes No Abstain
12-09	Case 12-09: ASTM Updates A. Section 770: Structural Steel	OROW WG/ SRP	Peter Kandararis	04/04/2012	Approved 07/11/2012	12 0 0	Yes No Abstain

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CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE
12-10	Case 12-10: Proposed revision to Section 505.6.3 Bridge Deck Joint Assemblies.	MCDOT	Bob Herz	06/06/2012		0 Yes 0 No 0 Abstain
12-11	Case 12-11: Use of Reclaimed/Recycled Materials A. Sections 701, 702 (Base Materials) B. Sections 709, 710 (Asphalt/RAP) C. Section 728 (CLSM)	Materials, Asphalt & Concrete WG	Brian Gallimore	07/02/2012		0 Yes 0 No 0 Abstain
12-12	Case 12-12: New Section 789 – Steel Reinforced Polyethylene Pipe (SRPE)	Scottsdale	Rod Ramos	07/11/2012		0 Yes 0 No 0 Abstain

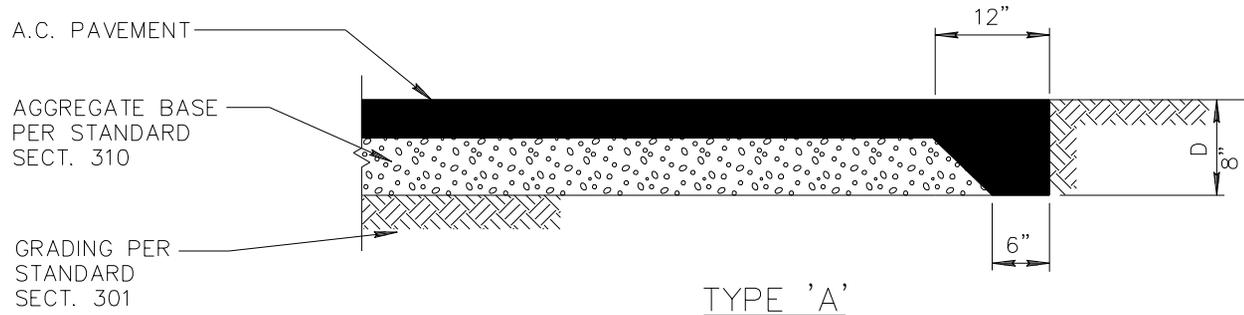
Add the following to Section 321:

321.8.8 Thickened Edge: Prior to commencing paving operations that require construction of a thickened edge, the Contractor shall submit for the Engineer's approval construction procedures to be used for placement and compaction of the thickened edge.

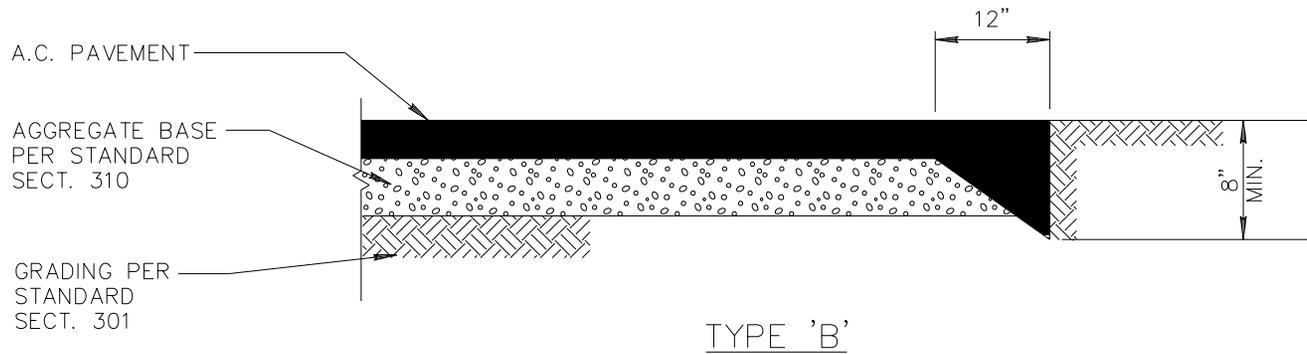
When the depth of the thickened edge extends two inches or more below the bottom of the asphalt pavement base course, the portion below the base course shall be placed and compacted as a separate construction operation. Construction of the base course may immediately follow compaction of the lower portion of the thickened edge.

When the depth of the thickened edge extends less than two inches below the bottom of the asphalt pavement base course, the portion below the base course may be placed and compacted with the base course in a single operation.

321.8.9 Safety Edge: The finished safety edge slope shall be planar forming a $30^{\circ} \pm 5^{\circ}$ angle with the horizontal plane (alt: with the adjacent roadway surface) and extend a minimum of five inches (5") below the roadway pavement's finished surface. The safety edge shall be constructed with the final paving lift of a new pavement or overlay using a special devise mounted within the screed portion of the laydown machine. Compaction obtained from the screed extruded edge shall be acceptable and no compaction testing shall be performed if the asphalt feed within the screed was not deficient - the shape of the extruded safety edge is fully formed.



D = DESIGN THICKNESS OF A.C. PAVEMENT PLUS AGGREGATE BASE.



CASE 11-02

DETAIL NO.
201



STANDARD DETAIL
ENGLISH

ASPHALT PAVEMENT EDGE DETAILS

DATE
7-27-2012

DETAIL NO.
201

Section 610.13 COUPLINGS, JOINTS, GASKETS AND FLANGES
Proposed Revision; Case 11-03 – June 6, 2012
Originally Submitted by City of Peoria

[Current]

Section 610.13 COUPLINGS, JOINTS, GASKETS AND FLANGES

- MAG 610

610.13 COUPLINGS, JOINTS, GASKETS AND FLANGES:

C) Bolts and Nuts:

- (1) For pipe 12 inches and smaller: Bolts and nuts for use in field connections or for connecting fittings shall be carbon steel equivalent to ASTM A307, Grade B, with cadmium plating in accordance with ASTM B-766, except that the minimum thickness of the plating shall be .00020 inches. Cadmium plated bolts shall have Class 2A threads and the nuts used with them shall have Class 2B threads. All bolt diameters shall normally be 1/8 inch smaller than the bolt hole diameter. High strength, heat treated cast iron tee-head bolts with hexagon nuts, all in accordance with the strength requirements of AWWA C-111, may be used in lieu of the cadmium plated bolts and nuts for jointing mechanical joint cast iron or ductile iron pipe and fittings only.
- (2) For pipes 16 inches and larger, all bolts and nuts on flanges for valves and flexible couplings shall be carbon steel equivalent to ASTM A307, Grade B. Bolt diameters shall normally be 1/8 inch smaller than the bolt hole diameters.

[REVISED, DRAFT; 7/17/12]

Section 610.13 COUPLINGS, JOINTS, GASKETS AND FLANGES

- MAG 610

610.13 COUPLINGS, JOINTS, GASKETS AND FLANGES:

(C) Bolts and Nuts:

- (1) ~~The minimum requirement for hexagon bolts, studs, and nuts to be used in underground field flanged connections or for connecting fittings shall be of the exact same material consisting of a carbon steel compliant with equivalent to ASTM A307, Grade A unless Grade B is specified, in accordance with the applicable requirements of AWWA C111. Bolts and studs shall have Class 2A thread tolerances with the corresponding nuts having Class 2B tolerance threads. Hexagon bolts, studs and nuts shall have a hot-dipped zinc coating in accordance with ASTM F2329. All bolt diameters shall normally be 1/8 inch smaller than the bolt hole diameter. The Engineer may specify a type Grade B material for higher strength if desired and depending on application. If otherwise specified, exceptions to Bolts, studs and nuts shall be zinc coated and may be unless made from 316 stainless steel per ASTM F593 or cadmium plated per ASTM B766. All bolts shall be hexagonal heads.~~

Comment [rth1]: Unclear phrase - What item is to be the same material as which item?

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Comment [rth2]: What constitutes equivalency? How equivalency is to be determined needs to be defined.

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Comment [rth3]: Identify which AWWA C111 requirements are applicable.

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(2) The minimum requirement for underground mechanical joint connections using T-head bolts shall meet the ~~applicable~~ requirements of AWWA C111 using a high strength low alloy steel manufactured for atmospheric corrosion resistance per ASTM A242.

Revise Section 505.6.3.3 (5) by deleting the cadmium option as indicated below:

(5) Galvanizing: All steel parts of strip seal assemblies shall be galvanized after fabrication, in accordance with the requirements of ASTM A123 and A153, unless ASTM A588 steel is used. Bolts shall be high strength, conforming to the requirements of ASTM A325M, with a protective coating of ~~cadmium or~~ zinc, followed by a chromate and baked organic coating conforming to the requirements of ASTM F1135, Grade 3, 5, 6, 7, or 8 and Color Code A.

SECTION 107

LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

107.1 COMPLIANCE WITH LAWS TO BE OBSERVED:

The Contractor shall keep fully informed of, observe and comply with all Federal and State laws, County and City ordinances, regulations, codes and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any way affect the conduct of the work. ~~He shall at all times observe and comply~~ The Contractor warrants that all items supplied and work performed under the contract have been sold, produced, delivered and furnished in strict compliance with all such laws, ordinances, regulations, codes, orders and decrees; ~~and to which the items, work and Contractor are subject. Upon request, Contractor shall execute and deliver to the Agency such documents as may be required by the Agency to evidence compliance with such laws, ordinances, regulations, codes, orders and decrees.~~

The Contractor shall protect and indemnify the Contracting Agency and its representatives against any claim or liability arising from or based on the violation of such, whether by ~~himself the Contractor~~ or his The Contractor's employees.

~~The attention of the Contractors is directed to the provisions of the following sections, Arizona Revised Statutes:~~

~~(A) Arizona Revised Statutes 23-373. Contracts negotiated between public Contractors and public employers shall contain the following contractual provisions:~~

~~In connection with the performance of work under this contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of race, religion, color or national origin. The aforesaid provision shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Contractor agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provision of the nondiscrimination clause.~~

~~The Contractor further agrees to insert the foregoing provision in all subcontracts, except subcontracts for standard commercial supplies or raw materials.~~

~~(B) When Federal aid funds are used on a project, the prevailing basic hourly wage rates and fringe benefit payments, as determined by the Secretary of Labor pursuant to the provisions of the Davis Bacon Act, shall be the minimum wages paid to the described classes of laborers and mechanics employed to perform the contract.~~

~~(C) Arizona Revised Statutes 40-360.22 Excavations: determining location of underground facilities; providing information. This statute requires that no person shall begin excavating before the location and marking are complete or the excavator is notified that marking is unnecessary and requires that upon notification, the owner of the facility shall respond as promptly as practical, but in no event later than two working days. The "Blue Stake Center" (263-1100) was formed to provide a more efficient method of compliance with this statute.~~

~~This section is not applicable to an excavation made during an emergency which involves danger to life, health or property if reasonable precautions are taken to protect underground facilities.~~

~~(D) Arizona Revised Statutes 40-360.23. Making excavations in careful, prudent manner; liability for negligence. This statute states that obtaining information as required does not excuse any person making any excavation from doing so in a careful and prudent manner nor shall it excuse such persons from liability for any damage or injury resulting from his negligence.~~

~~(E) Arizona Revised Statutes 40-360.28 Civil penalty; liability. If the owner or operator fails to locate, or incorrectly locates the underground facility, pursuant to this article, the owner or operator becomes liable for resulting damages, costs and expenses to the injured party.~~

~~(F) Arizona Revised Statutes 32-2313. Business license; business name; branch office registration; renewal. No person, partnership, corporation or association shall engage in the business of general pest or weed control without being duly licensed/certified by the Structural Pest Control Board.~~

107.2 PERMITS:

Permits, bonding and insurance requirements shall be as required by ~~the Contracting Agency's~~ statutes, codes, ordinances or regulations.

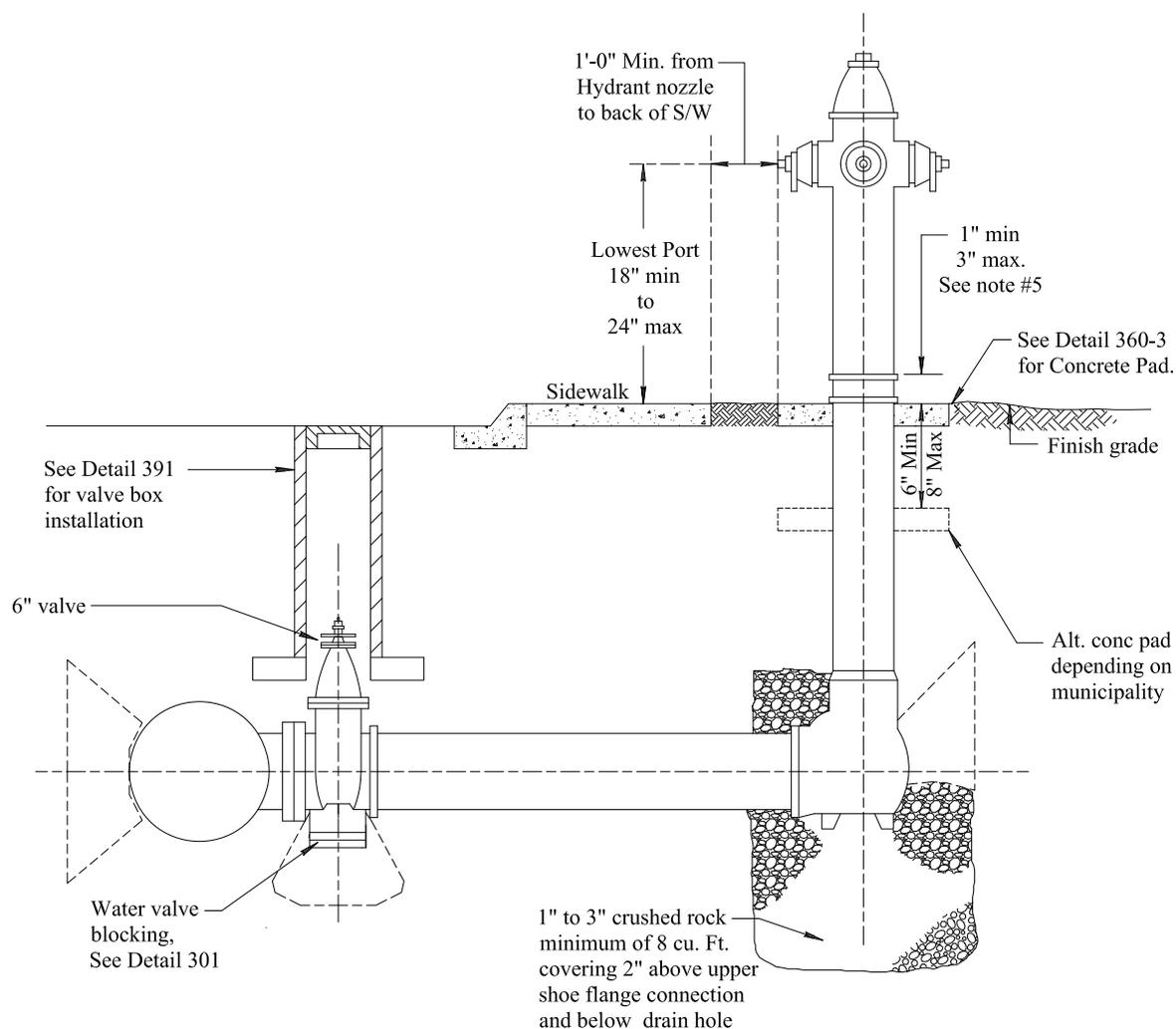
The Public Agency, when acting as the Contracting Agency, will attempt to obtain the required permits, but it is the duty of the Contractor to determine that all necessary permits have been obtained. The Contractor shall, at ~~his~~ the Contractor's own expense, obtain, maintain and close all the required permits which have not been furnished.

If the permits not included in the proposal pamphlet materially afffectchange any condition, specification, quantity, etc. contained in the proposal pamphlet, the Contracting Agency shall issue an appropriate change order pursuant to Subsection 109.4.

In all cases, the Contractor or the person supervising the authorized work shall notify the appropriate permit agency so as to insure proper inspection by the agency concerned.

General 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 MAG Std Dtl 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 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.
11. See MAG Std. Spec. 756 for hydrant Material.



DETAIL NO.

360-1

STANDARD DETAIL
ENGLISH

DRY BARREL FIRE HYDRANT INSTALLATION

REVISED

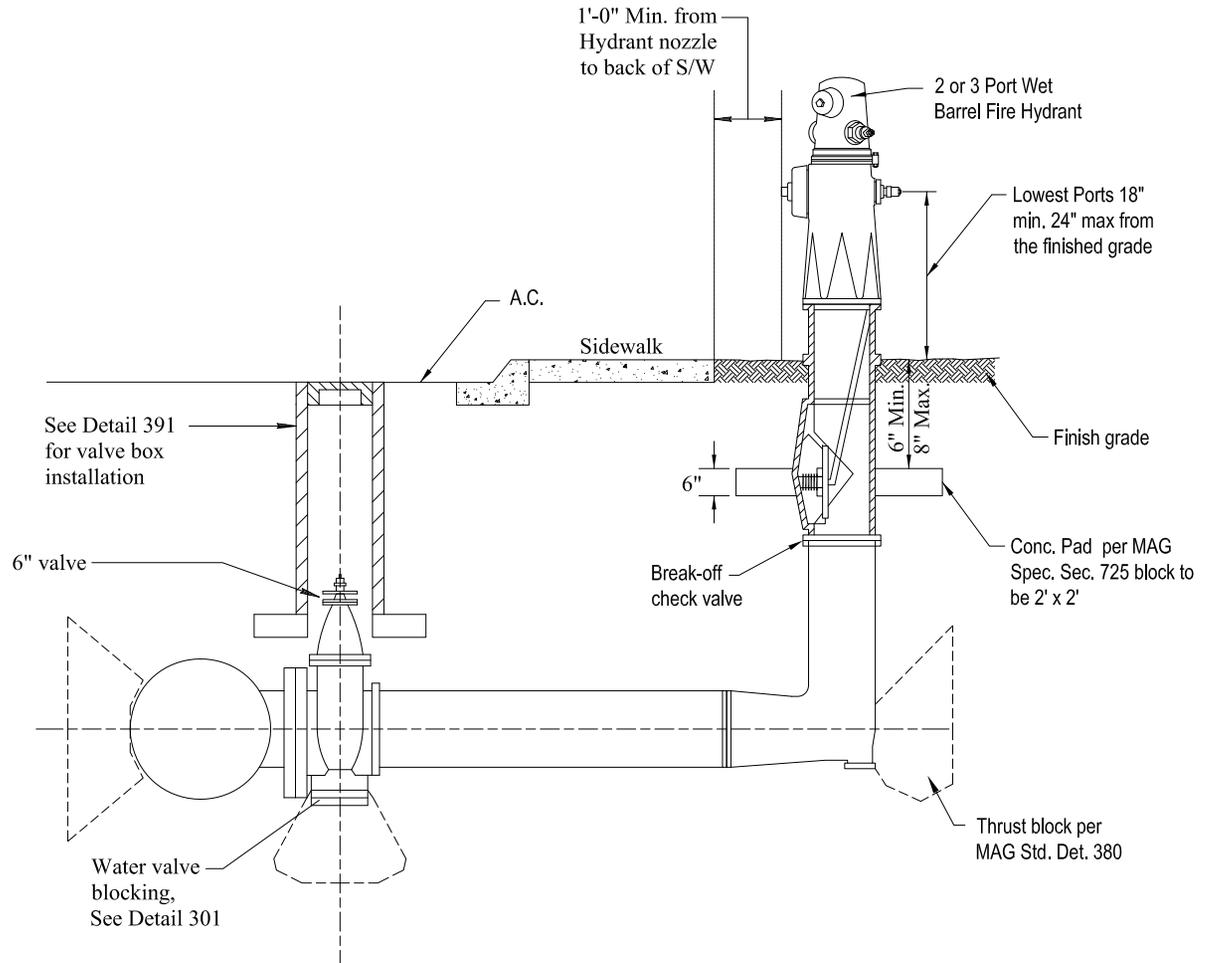
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DETAIL NO.

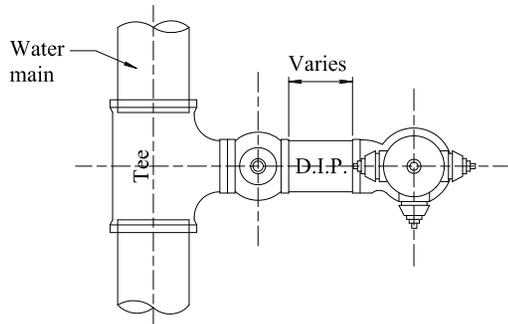
360-1

General Notes:

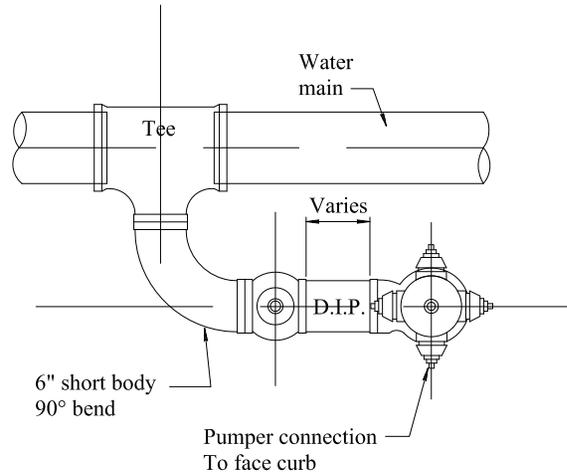
1. Joints between the valve and the main shall be flanged type. Joints between the valve and hydrant shall be mechanical restraint mechanical type.
2. Restraints shall be mechanical restraint or thrust block per MAG Std. Det. 380.
3. A flange joint by mechanical joint valve shall be used as the transition 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 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.
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).



DETAIL NO. 360-2	 STANDARD DETAIL ENGLISH	WET BARREL FIRE HYDRANT INSTALLATION	REVISED 07-17-2012	DETAIL NO. 360-2
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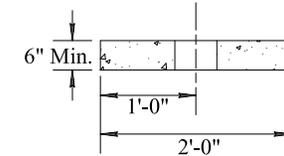
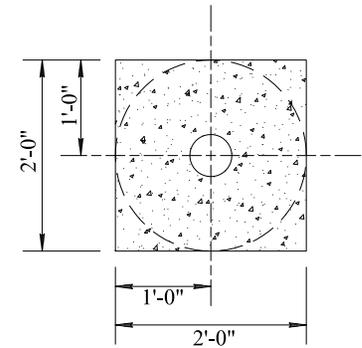


**TYP MAIN CONNECTION
(PREFERRED)**



ALT MAIN CONNECTION

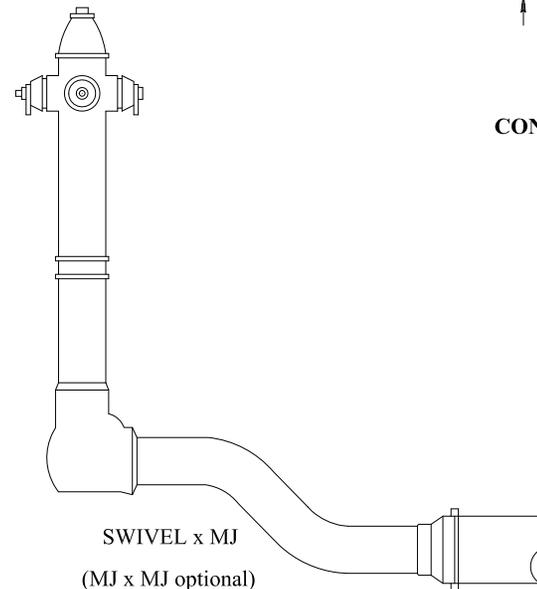
Square or round is acceptable
If Round: 24" diameter min. required



CONCRETE PAD DETAIL

General 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.



SWIVEL x MJ
(MJ x MJ optional)
OFFSET FITTINGS

DETAIL NO.
360-3



STANDARD DETAIL
ENGLISH

FIRE HYDRANT INSTALLATION DETAIL

REVISED
07-17-2012

DETAIL NO.
360-3

SECTION 350

REMOVAL OF EXISTING IMPROVEMENTS

350.1 DESCRIPTION:

This work shall consist of removal and disposal of various existing improvements, such as pavements, structures, pipes, conduits, curbs and gutters, and other items necessary for the accomplishment of the improvement.

350.2 CONSTRUCTION METHODS:

350.2.1 Utilities

The removal of existing improvements shall be conducted in such a manner as not to injure active utilities or any portion of the improvement that is to remain in place. ~~See Section 107.~~

A utility may be abandoned in place below a new major structure that is part of the work only if approved by the Agency and solidly filled with grout using methods approved by the Agency. All abandoned utilities shall be noted on the approved plans.

Utilities to be removed by the Contractor shall be disconnected and taken out in accordance with the requirements of the utility owner to the limits shown on the plans. Utility removal shall not be performed until a release has been obtained from the utility stating that their respective service connection and appurtenant equipment have been disconnected, removed or sealed and plugged in a safe manner.

The Engineer shall be notified when utilities are encountered that are not shown on the plans.

350.2.2 Others

Sidewalks shall be removed to a distance required to maintain a maximum slope for the replaced portion of sidewalk, for one inch per foot and all driveways shall be removed to a distance as required by standard details.

Existing concrete driveway, curbs and gutters shall be removed to the right-of-way line, with the end of the remaining curb face evenly saw-cut and the new end of curb faced.

Portland cement concrete pavements, curbs and gutters and sidewalks designated on the plans for removal shall be saw-cut at match lines, in accordance with Section 601 and removed.

Portions of asphalt Asphalt concrete pavements designated on the plans for removal shall be saw-cut at specified locations unless an alternate method is authorized or required by in accordance with Section 336.

Removal of trees, stumps, roots, rubbish, and other objectionable materials in the right-of-way shall be done in accordance with Section 201.

350.2.3 Backfill and Disposal

Backfill of all excavated areas below structures shall be in accordance with Section 206.4. Backfill and compaction of all other excavated areas shall be compacted to the densities as prescribed in Section 601 (trenches) or Section 211 (holes, pits or other depressions).

All surplus materials shall be immediately hauled from the jobsite and disposed of in accordance with Section 205.6.

350.3 MISCELLANEOUS REMOVAL AND OTHER WORK:

This work shall include, but not be limited to the following, where called for on the plans:

- (A) Relocate existing fence and gate.
- (B) Remove and reset mail boxes.
- (C) Remove signs and bases in right-of-way.
- (D) Remove planter boxes, block walls, concrete walls, footings, headwalls, irrigation structures, and storm water inlets.
- (E) Install plugs for pipes and remove existing plugs as necessary for new construction.
- (F) Remove wooden and concrete bridges.
- (G) Remove median island slabs.
- (H) Remove pavements and aggregate base where called for outside the roadway prism.

350.4 PAYMENT:

Payment for removals will be made at the unit ~~bid-proposal~~ prices ~~bid in the applicable proposal pay for~~ each removal items, which price shall be full compensation for the item complete, as described herein or on the plans.

ASPHALT MILLING

317.1 DESCRIPTION:

The work under this section shall consist of milling existing asphalt concrete pavement where shown on the Plans or requested by the Engineer.

317.2 CONSTRUCTION REQUIREMENTS:

Contractor is responsible for locating all milling hazards on and below the surface within the areas to be milled including areas requiring special milling. Special milling is not a separate pay item and shall be paid for as Asphalt Milling.

The milling cut depth shall be the depth indicated on the Plans plus or minus 1/8 inch. The milling machine shall have electronic grade controls. Contractor shall remove the milled material and sweep the roadway clean with a power pick-up broom to the satisfaction of the Engineer.

Asphalt pavement adjacent to manholes, valve boxes, small radius curbs and other fixed objects that produce confined area shall be removed with milling equipment specifically designed to operate in constricted areas. The equipment shall be capable of removing asphalt concrete of the specified thickness without damage to, or displacement of, the adjacent object(s).

The Contractor shall be responsible for continually checking the milling operation to determine that the proper depth of milling has been achieved, that the proper profile and cross slope are achieved, and that the surface texture is (a) free from longitudinal ridges, and (b) has a uniform pattern.

The Contractor shall immediately notify the Engineer when:

- The existing pavement thickness is found to be less than anticipated and breaking of the underlying material occurs.
- Delamination of underlying material occurs.

The work shall result in a clean milled surface to the specified depth for the area indicated by the construction documents including the areas immediately around and next to any individual hazard within the area to be milled. The edge of milled area shall form a straight clean cut line.

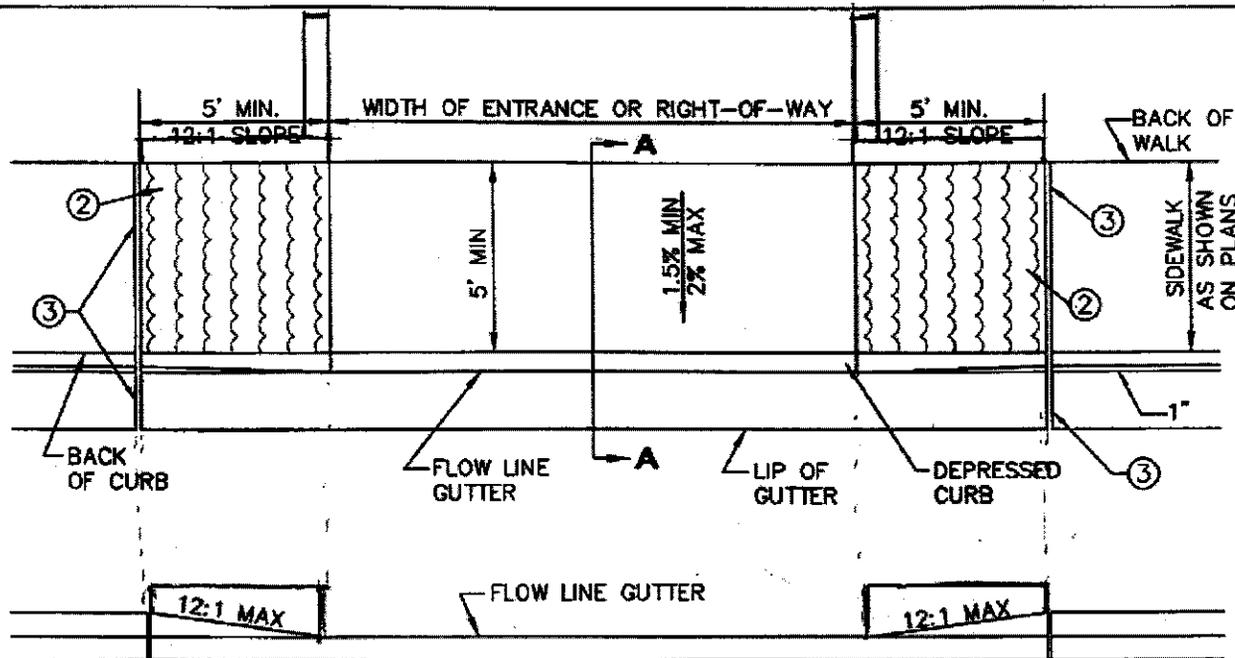
For milled surfaces on major streets (arterial and collector streets) that will be subject to traffic prior to overlay, a tack coat per MAG 329 shall be applied to the milled surface as a dust control measure. The tack coat shall be applied after sweeping and prior to allowing traffic on the milled surface. The tack coat application rate shall be as prescribed by the Engineer, typically being half of the total required tack coating application rate. The other half of the required tack coating will typically be applied immediately prior to overlay. No additional payment for the dust control tack coating application shall be made and the operation shall be considered incidental to the tack coat pay item as long as the overall required tons of applied tack coat for the project does not increase because of the prescribed dust control application rate.

317.3 MEASUREMENT AND PAYMENT:

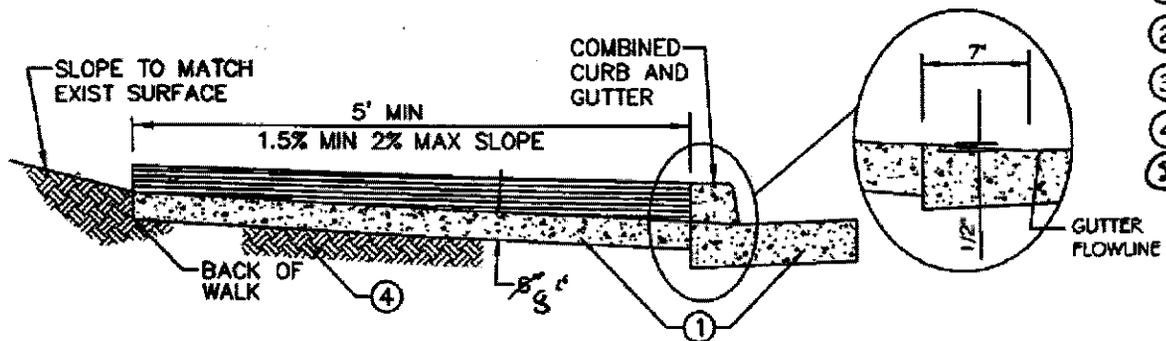
Measurement for Asphalt Milling will be by the square yard and shall only include area milled to the required depth and cross-section.

Payment for Asphalt Milling at the contract unit price shall be full compensation for the work, complete-in-place, including all asphalt milling, milling around structures, removal and disposal of milled materials, and sweeping.

- End of Section -



ELEVATION



SECTION A-A

NOTES:

- ① CLASS "B" CONCRETE PER MAG SECTION 725.
- ② LIMITS OF HEAVY ROUGH BROOM FINISH.
- ③ EXPANSION JOINTS PER MAG SECTION 390.
- ④ SUBGRADE PREPARATION PER MAG SECTION 301.
- ⑤ 6" SINGLE CURB PER MAG DTL. 222, TYPE 'B'.

DETAIL NO. 260	 MARICOPA ASSOCIATION OF GOVERNMENTS	STANDARD DETAIL ENGLISH	ALLEY ENTRANCE (WITH COMBINED CURB AND GUTTER)	REVISED 05/02/2012 DRAFT	DETAIL NO. 260
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SECTION 332 (Case 12-07 – Asphalt Working Group Proposed Revision)

PLACEMENT AND CONSTRUCTION OF ASPHALT EMULSION SLURRY SEAL COAT

332.1 DESCRIPTION:

The work covered by this specification consists of furnishing all labor, equipment, and materials necessary to perform all operations required for the application of an asphalt emulsion slurry surface.

NOTE: THESE SPECIFICATIONS DO NOT COVER THE APPLICATION OF COAL TAR SLURRY SEALS.

332.2 MATERIALS:

The asphalt emulsion material, mineral aggregate and mineral filler shall be as specified in Section [715](#).

332.3 EQUIPMENT:

332.3.1 General: When requested by the Engineer, descriptive information on the slurry seal mixing and applications equipment to be used will be submitted for approval no less than 7 days before the work starts.

332.3.2 Self Contained Slurry Machine: The mixing machine will be a continuous flow type. It will be capable of accurately delivering a predetermined proportion of pre-wetted aggregate, mineral filler, water and asphalt emulsion to the mixing chamber and discharging the thoroughly blended mixture on a continuous basis. The mixing machine will be equipped with a mineral filler feeder. The feeder will have an accurate metering device or method to introduce a predetermined proportion into the mixer. The filler will be introduced into the mixing chamber at the same time and location as the aggregate.

The mixing machine will be equipped with a water pressure system and fog-type spray bar, adequate for complete water fogging of the surface to be sealed.

The mixing machine will be mounted on a truck or other vehicle capable of producing evenly controlled low rates of speed throughout the operation to ensure the slurry is spread evenly and all cracks are filled.

332.3.3 Slurry Spreading Equipment: Attached to the mixer machine shall be a mechanical type squeegee spreader equipped with flexible material in contact with the surface to prevent loss of slurry from the distributor. It shall be maintained to prevent loss of slurry on varying grades and crown by adjustments to assure uniform spread. There shall be a steering device and a flexible strike-off. The spreader box shall have an adjustable width. The box shall be kept clean. Build-up of asphalt and aggregate on the box shall not be permitted. The use of burlap drags or other drags shall be approved by the Engineer.

332.3.4 Rollers: Rollers shall be approved by the Engineer.

332.3.5 Cleaning Equipment: Power brooms, pick-up brooms, air compressors, water flushing equipment, and hand brooms shall be suitable for cleaning the surface and cracks of the old surface.

332.3.6 Auxiliary Equipment: Hand squeegees, shovels, and other equipment shall be provided as necessary to perform the work.

332.4 PREPARATION OF THE SURFACE:

332.4.1 Immediately before applying the slurry, the area to be surfaced shall be cleaned of dirt, loose material, and other objectionable material. In urban areas, the surface shall be cleaned with a self-propelled pick-up sweeper. In rural areas, power brooms may be used. When necessary, cleaning shall be supplemented by hand brooms. Water flushing will not be permitted in areas where cracks are present in the pavement surface.

The slurry shall not be applied until an inspection of the surface has been made by the Engineer and he has determined that it is suitable.

SECTION 332 (Case 12-07 – Asphalt Working Group Proposed Revision)

332.4.2 Tack Coat: When specified, a tack coat shall be applied in accordance with Section [329](#) using the same type and grade of asphalt emulsion as specified for the slurry seal.

332.4.3 Water Fogging: When required by local conditions, the surface, directly ahead of the slurry box, shall be pre-wetted by fogging. The fogging shall be accomplished in such a manner that the entire surface is damp with no apparent flowing water or puddles.

332.5 WEATHER LIMITATIONS:

The slurry seal shall not be applied unless the pavement temperature is at least 45°F. and rising. The mixture shall not be applied during unsuitable weather.

332.6 PROTECTION OF UNCURED SURFACE:

~~Adequate methods such as barricades, flagmen, pilot cars, etc., shall be used to protect the uncured slurry surface from all types of traffic. Adequate means shall be provided by the Contractor to protect the uncured product. Any damage done to the product shall be repaired at the Contractor's expense.~~

332.7 MIXING AND APPLICATION:

The mixing time shall not exceed four minutes. Excessive mixing will not be allowed. The resulting mixture shall have the desired consistency, when placed on the surface. If breaking, hardening, segregation, balling or lumping occurs during the mixing process, the batch will be discarded.

A sufficient amount of slurry shall be carried in all parts of the spreader at all times so that a complete coverage is obtained.

No streaks caused by oversized aggregate shall be left in the finished surface. Build-up on longitudinal and transverse joints will be kept to a minimum. Approved squeegees shall be used to spread slurry in areas nonaccessible to the slurry mixer.

332.8 ROLLING:

As soon as the asphalt slurry has been set sufficiently to prevent any material from being picked up, it shall be rolled until all ridges have been ironed out and a uniform surface is obtained.

332.9 MEASUREMENT:

Quantities and materials for this work will be paid for at the contract price per unit of measurement for each of the following pay items as indicated in the proposal.

- | | |
|---------------------------------------|-------------------|
| (A) Bituminous tack coat if specified | Ton (Diluted) |
| (B) Emulsified asphalt for slurry | Ton (Undiluted) |
| (C) Aggregate for slurry | Ton (Surface Dry) |

- End of Section -



MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: May 15, 2012

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Proposed revision to Section **505.6.3 Bridge Deck Joint Assemblies.** **Case 12-10**

PURPOSE: Eliminate the MCDOT supplement to this section by incorporating the requirement into the MAG specification.

REVISION: Add to 505.6.3.3 Construction Requirements a subsection: (7) Welding. The proposed changes are show below using track changes.

505.6.3 Bridge Deck Joint Assemblies:

505.6.3.1 Description: This work shall consist of furnishing and installing expansion devices including the seals, anchorage system, and hardware in accordance with the project plans and these specifications.

505.6.3.2 Materials: Elastomer Seals shall be of the Compression Seal or Strip Seal type, and shall conform to the requirements of the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction Section 1011-5.

Steel shapes and plates shall conform to the requirements of ASTM A36, or ASTM A588.

505.6.3.3 Construction Requirements:

(1) General: Deck joint assemblies shall consist of elastomer and steel assemblies which are anchored to the concrete at the deck joint. The seal armor shall be cast in the concrete. The completed assembly shall be properly installed in the planned position, shall satisfactorily resist the intrusion of foreign material and water, and shall provide bump-free passage of traffic. For each size of seal on a project, one piece of the seal material supplied shall be at least 18 inches longer than required by the project Plans. The additional length will be removed by the Engineer and used for materials testing. Certificates of Compliance conforming to the requirements of Section 106.2 shall also be submitted by the Contractor.

(2) Shop Drawings: Prior to fabrication, the Contractor shall submit shop drawings to the Engineer for approval, in accordance with the requirements of Section 105.2. The shop drawings shall show complete details of the method of installation to be followed, including a temperature correction chart for adjusting the dimensions of the joint according to the ambient temperature, and any additions or rearrangements of the reinforcing steel from that shown on the project plans.

~~Deck joint assemblies for pretensioned and post-tensioned prestressed concrete superstructures shall be installed at the narrowest joint opening possible to allow for long-term superstructure shortening.~~

(3) Elastomer Seals: Seals shall conform to the requirements specified.

(4) Armor: All steel ~~forecast~~for cast-in-place deck joint assemblies shall conform to the requirements specified.

(5) Galvanizing: All steel parts of strip seal assemblies shall be galvanized after fabrication, in accordance with the requirements of ASTM A123 and A153, unless ASTM A588 steel is used. Bolts shall be high strength, conforming to the requirements of ASTM A325M, with a protective coating of cadmium or zinc, followed by a chromate and baked organic coating conforming to the requirements of ASTM F1135, Grade 3, 5, 6, 7, or 8 and Color Code A.

Steel parts of compression seal assemblies do not require galvanizing, plating, or painting.

(6) Joint Preparation and Installation: At all joint locations, the Contractor shall cast the bridge decks and abutment backwalls with a formed blockout, sized to accommodate the pre-assembled joint assembly. The joint assembly will be anchored in the concrete to be placed with the secondary pour in the blockout. Prior to the secondary pour, the surface of the existing concrete in the blockout shall be coated with an approved adhesive specifically formulated for bonding new concrete to old concrete.

~~Deck joint assemblies for pretensioned and post-tensioned prestressed concrete superstructures shall be installed at the narrowest joint opening possible to allow for long-term superstructure shortening.~~

~~(7) Welding: All welding and inspection of welding for structural steel shall be performed in accordance with the requirements of the latest revision of the AASHTO/AWS D1.5M/D1.5 Bridge Welding Code. The use of electro-slag welding process on structural steel will not be permitted.~~

Installed armor assemblies shall be covered or otherwise protected at all times prior to installing the elastomer portion of the joint assembly. The elastomer shall be installed at such time and in such manner that it will not be damaged by construction operations.

~~The seal element shall be installed subject to these specifications and approval of the Engineer.~~ Immediately prior to the installation of the seal element, the steel contact surfaces of the joint armor shall be clean, dry, and free of oil, rust, paint, or foreign material. Any perforation or tearing of the seal element due to installation procedures or construction activities will be cause for rejection of the installed seal element.

During the installation of all proprietary deck joint assemblies, the manufacturer's representative shall be present. As a minimum, the representative shall be present during the placement of the joint assembly in the deck blockout, prior to the secondary concrete pour, and shall also be present during the installation of the seal element.

DATE: July 9, 2012

TO: MAG Specification and Details Committee Members

FROM: Brian Gallimore, Materials Working Group/AGC
Jeff Benedict, Asphalt Working Group/ARPA
Jeff Hearne, Concrete Working Group/ARPA

RE: Reclaimed, Recycled Materials

PURPOSE: Addresses the use of reclaimed and or recycled materials along with proper reference adjustments to their respective corresponding sections

REVISIONS:

Section 701

- 1) Added section 701.4 and correctly adjusted sequential numbering, 701.4 "RECLAMINED CONCRETE MATERIAL (RCM); a definition and general statement to describe the product – with reference to AASHTO M 319.
- 2) Added section 701.5 and correctly adjusted sequential numbering, 701.5 "RECLAMINED ASPHALT PAVEMENT (RAP); a definition and general statement to describe the product.
- 3) Re-numbered section 701.4 to 701.6

Section 702

- 1) Added additional material descriptions to include salvaged / recycled / reclaimed materials to Section 702.1 "GENERAL.
- 2) Added additional commentary to Table 702-1 as NOTE 1

Section 710

- 1) Added additional commentary to Section 710.2 "MATERIAL" – 710.2.3 Reclaimed Asphalt Pavement (RAP). This is a small statement that references

this materials use shall conform to Section [701.5](#). – This addresses the material constituent.

- 2) Corrected spelling error adding an “r” to the word traffic in the third paragraph of Section 710.3.2.2

Section 728

- 1) Added reclaimed, recycled concrete to Section 728.2 Materials.

SECTION 701 – REVISED 6-12-12

AGGREGATE

701.1 GENERAL:

Coarse and fine aggregates are defined in accordance with ASTM D-2487. Material property requirements for specific uses are provided in applicable MAG sections.

701.2 COARSE AGGREGATE:

Rock and gravel shall be clean, hard, sound, durable, uniform in quality, and free of any detrimental quantity of soft, friable, thin elongated, or laminated pieces, disintegrated material, organic matter, oil, alkali, or other deleterious substance. Aggregate sources shall include, but not be limited to alluvial deposits, terrace aggregates, quarry stone, or other suitable sources including recycled products that meet all material test requirements as approved by the Engineer. Aggregate classification shall be made by size as noted herein.

Apparent specific gravity shall be at least 2.50, when tested in accordance with ASTM C-127.

701.2.1 Boulders: Particles of rock that will not pass a 12-inch square opening.

701.2.2 Cobbles: Particles of rock that will pass a 12-inch square opening, but are retained on a 3-inch square opening.

701.2.3 Coarse Gravel: Particles of rock that will pass a 3-inch U.S. standard sieve, but are retained on a 3/4-inch U.S. standard sieve.

701.2.4 Fine Gravel: Particles of rock that will pass a 3/4-inch U.S. standard sieve, but are retained on a No. 4 U.S. standard sieve

701.3 FINE AGGREGATE (SAND):

Fine aggregate (sand) shall be fine granular material produced by the crushing of rock or gravel or naturally produced by disintegration of rock and shall be sufficiently free of organic material, mica, loam, clay, and other deleterious substances to be thoroughly suitable for the purpose for which it is intended. Fine aggregates particles shall pass a No. 4 U.S. standard sieve, but are retained on a No. 200 U.S. standard sieve.

701.4 RECLAIMED CONCRETE MATERIAL (RCM)

Reclaimed, recycled concrete material (RCM) is defined as a manufactured aggregate material that is derived from the crushing, processing and classification of Portland cement concrete construction materials recovered from roadways, sidewalks, buildings, bridges, and other sources.

In accordance with Section 7 of AASHTO M319, RCM shall not contain more than five percent by mass of brick or concrete block and shall be substantially free of wood, metal, plaster, and gypsum board. RCM shall be free of all materials that fall under the category of solid waste or hazardous materials as defined by the state or local jurisdiction. With the prior approval of the Engineer, these respective quantities may be adjusted if the performance of the RCM is not adversely impacted. RCM may be blended with other approved aggregate materials to obtain the applicable performance criteria.

701.5 RECLAIMED ASPHALT PAVEMENT (RAP):

Reclaimed, recycled asphalt pavement (RAP) is defined as all asphalt road waste, large chunks or milled material, that has been size-reduced, crushed and or screened appropriately, making it reusable as part of a new asphalt mixture. This material shall be of a consistent and relatively clean manner as to not adversely affect the final material usage.

SECTION 701 – REVISED 6-12-12

701.4 6 SAMPLING:

Sampling of aggregates shall be performed in accordance with ASTM D-75.

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SECTION 702 – REVISED 6-12-12

BASE MATERIALS

702.1 GENERAL:

Base materials shall be as defined in Section 701, consisting of appropriately sized coarse and fine aggregates, recycled, reclaimed concrete material (RCM) or recycled, reclaimed asphalt pavement (RAP), other inert materials, and/or aggregates that have been treated for plasticity index mitigation, as approved by the Engineer. These materials, whether virgin, recycled, reclaimed, salvaged, or a blend of both shall conform to the end result quality requirements of this section.

When base material without further qualification is specified, the Contractor shall supply Aggregate Base Course as defined in Table 702-1. When a particular classification of base material is specified, the Contractor may substitute Aggregate Base Course for Select material when approved by the Engineer.

The Contractor shall provide the Engineer, in writing, material information and the source location at least 10 business days prior to use of the material unless the material is currently accepted for use, as determined by the Engineer.

702.1.1 Aggregate Base Course shall be used primarily in roadway applications or where otherwise specified by project plans or special provisions.

702.1.2 Select Material shall be primarily used, but not limited to applicable structure and pipe backfill installations, shoulders, turnouts, driveways, and tapers or where otherwise specified by project special provisions.

702.2 PHYSICAL PROPERTIES:

702.2.1 Base material shall meet the physical properties listed in Table 702-1.

Table 702-1			
Sieve Analysis			
Test Methods AASHTO T-27, T-11			
Sieve Size	Accumulative Percentage Passing Sieve, by Weight		
	Select Material		Aggregate Base Course
	Type A	Type B	
3 in.	100	--	--
1-1/2 in.	--	100	100
1 in.	--	--	90 – 100
No. 4	30 - 75	30 - 70	38 - 65
No. 8	20 - 60	20 - 60	25 – 60
No. 30	10 - 40	10 - 40	10 – 40
No. 200	0 - 12	0 - 12	3 – 12
Plasticity Index			
Test Methods AASHTO T-89 Method A, T-90, T146 Method A. (see Note 1)			
Maximum allowable value	5	5	5
Fractured Face, One Face			
Test Method ARIZ 212, Percent by Weight of the Material Retained on a #4 Sieve (see Note 1)			
Minimum required value	50	50	50
Resistance to Degradation and Abrasion by the Los Angeles Abrasion Machine			
Test Method AASHTO T-96, Percent Loss by Weight (see Note 1)			
Maximum allowable value at 100 revolutions	10	10	10
Maximum allowable value at 500 revolutions	40	40	40

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Note 1 – When reclaimed, recycled, or salvaged materials are used in or blended with virgin materials into a final product, the Plasticity Index, Fractured Face, and Los Angeles Abrasion requirements shall be on the virgin aggregate used in the blend.

702.2.2: When tested for acceptance, Base material that does not meet Table 702-1 properties for gradation or PI may be approved at the Engineer's discretion if the R-Value is at least 70 when determined by test method AASHTO T-190 (see Table 310-1).

End of Section

DRAFT

ASPHALT CONCRETE

710.1 GENERAL:

Asphalt concrete shall be a mixture of asphalt cement and mineral aggregates. Mineral admixture shall be included in the mixture when required by the mix design or by the Engineer. Asphalt concrete shall be produced in accordance with Section [321](#).

The designation for asphalt concrete mixes shall be based on the nominal maximum aggregate size of the mix. The applicable mix designations are 3/8 inch, 1/2 inch, 3/4 inch and Base (1") mix.

Each mix shall be designed using Marshall or Gyratory compaction methods. Either Gyratory or Marshall Mixes may be used for low or high traffic conditions, as determined by the agency. Low traffic conditions are conditions where the asphalt mix will be subject to low volume and low weight vehicle usage. Examples of this condition are residential streets, most parking lots and residential minor collector streets. High traffic conditions are conditions where the asphalt mix will be subject to high volume and/or heavy weight vehicle usage as found on major collector, arterial and commercial streets. Street classifications (i.e. minor collector and major collector) shall be determined by the specifying agency.

The following table (Table [710-1](#)) displays the recommended lift thickness for various asphalt concrete mix designations found within Section [710](#). Please note that these recommended lift thicknesses are minimums based on each mix designation's "Nominal Aggregate Size" and the relative coarseness of its gradation. The compacted thickness of layers placed shall not exceed 150% of the Minimum Lift Thickness of Table [710-1](#) except as otherwise provided in the plans and specifications, or if approved in writing by the Engineer.

RECOMMENDED MINIMUM LIFT THICKNESS'S for ASPHALT CONCRETE MIXES		
Asphalt Concrete Mix Designation (inches)	Minimum Lift Thickness Marshall Mixes	Minimum Lift Thickness Gyratory Mixes
3/8"	1.0 inches	1.5 inches
1/2"	1.5 inches	2.0 inches
3/4"	2.5 inches	3.0 inches
Base	3.0 inches	n/a

710.2 MATERIAL:

710.2.1 Asphalt Binder: The asphalt binder specified in this section has been developed for use in desert climate conditions. Should it be utilized in other climates, consideration should be given to adjustments in the asphalt binder selection. The asphalt binder shall be Performance Grade Asphalt conforming to the requirements of Section [711](#) for PG 70-10, unless otherwise approved by the Engineer or specified differently in the plans or special provisions.

710.2.2 Aggregate: Coarse and Fine aggregates shall conform to the applicable requirements of this section. Coarse mineral aggregate shall consist of crushed gravel, crushed rock, or other approved inert material with similar characteristics, or a combination thereof, conforming to the requirements of these specifications.

Coarse aggregate for hot mix asphalt is material retained on or above the No. 4 sieve and Fine aggregate is material passing the No. 4 sieve. Aggregates shall be relatively free of deleterious materials, clay balls, and adhering films or other material that prevent coating with the asphalt binder. Coarse and Fine aggregates shall conform to the following requirements when tested in accordance with the applicable test methods.

SECTION 710 – ACCEPTED 2-24-12 VERSION – **REVISED 7-9-12**

TABLE 710-2			
COARSE/FINE AGGREGATE REQUIREMENTS			
Characteristics	Test Method	Low Traffic	High Traffic
Fractured Faces, % (Coarse Aggregate Only)	Arizona 212	75, 1 or more	85, 1 or more 80, 2 or more
Uncompacted Voids, % Min.	AASHTO T-304, Method A	42	45
Flat & Elongated Pieces, % 5:1 Ratio	ASTM D 4791	10.0 Max.	10.0 Max.
Sand Equivalent, %	AASHTO T-176	50 Min.	50 Min.
Plasticity Index	AASHTO T-90	Non-plastic	Non-plastic
L.A. Abrasion, %Loss	AASHTO T-96	9 max. @ 100 Rev. 40 max. @ 500 Rev.	9 max. @ 100 Rev. 40 max. @ 500 Rev.
Combined Bulk Specific Gravity	AI MS-2/SP-2	2.35 – 2.85	2.35 – 2.85
Combined Water Absorption	AI MS-2/SP-2	0 – 2.5%	0 – 2.5%

Tests on aggregates used in asphalt concrete outlined above, shall be performed on materials furnished for mix design purposes and composited to the mix design gradation.

Blend sand (naturally occurring or crushed fines) shall be clean, hard and sound material which will readily accept asphalt binder coating. The blend sand grading shall be such that, when it is mixed with the other mineral aggregates, the combined product shall meet the requirements of Table [710-2](#).

The natural sand shall not exceed 20 percent for the Marshall mixes and 15 percent for the Gyrotory mixes by weight of the total aggregate for a mix.

710.2.3 Reclaimed Asphalt Pavement (RAP): Recycled or reclaimed materials used in paving mixture or mix design of hot mix asphalt shall conform to MAG Section 701.5.

710.2.34 Mineral Admixture: Mineral admixture when used as an anti-stripping agent in asphalt concrete shall conform to the requirements of AASHTO M-17. Mineral admixture used in asphalt concrete shall be dry hydrated lime, conforming to the requirements of ASTM C1097 or Portland cement conforming to ASTM C150 Type II or ASTM C595 Type IP. The amount of hydrated lime or Portland cement used shall be determined by the mix design. The minimum Mineral admixture content within a mix will be 1.00 percent, by weight of total aggregate.

710.3 MIX DESIGN REQUIREMENTS:

710.3.1 General: The mix design for asphalt concrete shall be prepared by a laboratory that is accredited through the AASHTO Accreditation Program (AAP) in Hot Mix Asphalt Aggregates and Hot Mix Asphalt. The laboratory shall be under the direct supervision of a Civil Engineer, registered by the State of Arizona, and who is listed by ADOT as a “Qualified Asphaltic Concrete Mix Design Engineer” within ADOT’s latest list of approved laboratories. The latest list of approved laboratories is available on ADOT’s web page www.azdot.gov. The date of the design shall not be older than one year from the date of submittal, unless supportive documentation is provided and approved by the Engineer.

The mix design report shall include the following elements as a minimum.

SECTION 728 – REVISED 6-12-12

CONTROLLED LOW STRENGTH MATERIAL

728.1 GENERAL:

Controlled Low Strength Material (CLSM) is a mixture of cementitious materials, aggregates, admixtures\additives, and water that, as the cementitious materials hydrate, forms a soil replacement. CLSM is a self-compacting, flowable, cementitious material primarily used as a backfill, structural fill, or a replacement for compacted fill or unsuitable native material. Placement and usage of each type of CLSM is described in Section 604,

728.2 MATERIALS:

Cementitious materials shall conform to Section 725.2.

Coarse aggregate shall conform to ASTM C-33 grading size No. 57. The size and gradation of fine aggregates (sand) shall conform to ASTM C-33. Alternate materials meeting the applicable requirements of Section 701 or 702 such as combinations of other aggregates or Aggregate Base Course (ABC) or Reclaimed, recycled concrete material (RCM) may be used to replace the required coarse and fine aggregate as long as the approved mix design meets the requirements of Table 728-1.

Water shall conform to Section 725.4.

728.3 PROPORTIONING OF MIXTURES AND PRODUCTION TOLERANCES:

Proportioning of the mixture shall comply with Section 725.6 and Table 728-1. The CLSM shall have consistency, workability, plasticity, and flow characteristics such that the material when placed is self-compacting. A minimum of 40% coarse aggregate shall be used. A mix design shall be submitted for the Engineer's approval prior to the excavation for which the material is intended for use. Sampling shall be in accordance with ASTM D-5971. The flow consistency shall be tested in accordance with ASTM D-6103. Unit weight (when applicable) shall be obtained by ASTM D-6023. Compressive strength shall be tested in accordance with ASTM D-4832.

TABLE 728-1	
CONTROLLED LOW STRENGTH MATERIAL REQUIREMENTS	
Portland Cement Content, Sack/cu yd	Flow, inches
1/2 Sack	9±2
1 Sack	9±2
1 1/2 Sack	9±2

Note for Table 728-1:

- 1) CLSM mixes meeting the table requirements will not generally be placeable by means of a concrete pump or may not provide the needed workability for certain conditions. When pumpable mixes or increased workability are required, the addition of fly ash or a natural pozzolan in excess of the required Portland Cement Content may be used.
- 2) Ready-mixed concrete shall not be used in lieu of CLSM without prior approval from the Engineer and shall be subject to rejection.

728.4 MIXING:

CLSM mixing shall comply with Section 725.7. Mixing shall continue until the cementitious material and water are thoroughly dispersed throughout the material. Mixes shall be homogenous, readily placeable and uniformly workable.

SECTION 7389 (Proposed)

STEEL REINFORCED HIGH DENSITY POLYETHYLENE PIPE & FITTINGS FOR STORM DRAIN & SANITARY SEWER**7389.1 GENERAL:**

This specification covers the requirements of Steel Reinforced Polyethylene Pipe (SRPE) profile reinforced and corrugated (Type S or Type D) high density polyethylene (HDPE) pipe manufactured per ASTM F2562/F894, AASHTO M-252 or AASHTO M-294 for gravity flow or, low pressure storm drains, irrigation and sanitary sewer systems. When noted on the plans or in the special provisions, gravity flow, low pressure storm drains, irrigation and sanitary sewers may be constructed using SRPE/HDPE pipe. The SRPE/HDPE pipe will be of the sizes 824 inch diameter through 120 inch diameter. For the purpose of this specification, testing at, low pressure is defined as the test pressures of 3.5 psi of air or 4 feet of water as specified in Section 615.11.

All Gasketed pipe joints shall conform to the controlled pressure test of 10.815.0 psi of air or 2534.5 feet of water as measured in accordance with stipulated in ASTM D3212.

All electro fusion pipe joints shall conform to the controlled pressure test of 30.0 psi of air or 69 feet of water as measured in accordance with ASTM D3212.

The size and class of the SRPE/HDPE pipe to be furnished shall be designed by the Engineer and shown on the plans or in the project specifications. At no time will the class designed be less than Class I-RSC-63 for profile pipe, or minimum equivalent Pipe Stiffness (PS) for corrugated pipe per the requirements of ASTM F2562/AASHTO M-252 or AASHTO M-294.

7389.2 MATERIALS:

7389.2.1 Base Steel Materials Composition: Continuous high strength galvanized ribs shall be cold rolled steel meeting the requirements of either ASTM A1008 or ASTM A1011 with minimum yield strength of 80,000 psi. Steel ribs shall be completely encased within the HDPE profile. Profile pipe base material and fittings shall, in accordance with ASTM F894, be made from a PE plastic compound meeting the requirements of Type III, Class C, Category 5, Grade P34 as defined in ASTM D1248 and with established hydrostatic design basis (HDB) of not less than 1250 psi for water at 73.4 degrees F° as determined in accordance with Method ASTM D2837. Materials meeting the requirements of cell classification PE 334433-C or higher cell classification, in accordance with ASTM D3350 are also suitable. Corrugated pipe base material shall comply with the requirements of AASHTO M-252 (Type S) or AASHTO M-294 (Type S or D) and have a minimum cell classification PE-335420C.

7389.2.2 Other Pipe HDPE Materials Composition: SRPE pipe HDPE material and fittings shall, in accordance with ASTM 2562, be made from HDPE plastic compound meeting the minimum requirements of cell classification 335464C or higher cell classification, in accordance with ASTM D3350. Materials other than those specified under Base Materials shall comply with ASTM F894, AASHTO M-252 or AASHTO M-294.

7389.2.3 Gaskets: Rubber gaskets shall be manufactured from a natural rubber, synthetic elastomer or a blend of both and shall comply in all respects with the physical requirements in ASTM F477.

7389.2.4 Water Stops: Water stops shall be manufactured from a natural or synthetic rubber and shall conform to the requirements of ASTM C923. The water stop shall have expansion rings, a tension band, or a take-up device used for mechanically compressing the water stop against the pipe.

7389.2.5 Thermal Welding Material: The material used for thermally welding the pipe material shall be compatible with the base material.

7389.2.6 Lubricant: The lubricant used for assembly shall comply to manufacturer's recommendations and have no detrimental effect on the gasket or pipe.

7389.2.7 Other Materials: Materials other than those specified above shall comply with ASTM F2562.

SECTION 7389 (Proposed)

7389.3 JOINING SYSTEMS:

7389.3.1 Gasket Type: ~~Steel reinforced bell and spigot joints~~Joints for the piping system and fittings shall consist of an integrally formed bell and spigot gasketed joint. The joint shall be designed so that when assembled, the elastomeric gasket ~~located on the spigot~~ is compressed radially on the pipe or fitting bell to form a water tight seal. The joint shall be designed so to prevent displacement of the gasket from the joint during assembly and when in service. The elastomeric gasket shall meet the provision of ASTM F477.

All pipes shall have a home mark on the spigot end to indicate proper penetration when the joint is made.

The bell and spigot configurations for the fittings shall be compatible to those used for the pipe.

Joints shall provide a seal against exfiltration and infiltration. All surfaces of the joint upon which the gasket may bear, shall be smooth and free of any imperfections, which would adversely affect seal ability. The assembly of the gasketed joints shall be in accordance with the pipe manufacturer's recommendations.

7389.3.2 Thermal Weld Type: ~~Electro fusion (EF) joints shall utilize plain ended pipe welded together by internal pressure testable couplers. The internal couplers shall have a minimum wall thickness equal to or greater than the pipe wall thickness as defined in pipe specification, ASTM F2562. The assembly of the welded joints shall be in accordance with the manufacturer's recommendations.~~

~~The pipe ends shall consist of an integrally formed bell and spigot, with or without the elastomeric centering gasket, which join together to form an interface between bell and spigot, such that it is suitable to seal by thermal weld using the extrusion welding process, in accordance with the manufacturer's recommended procedure.~~

~~Thermal welded joints may be effected by welding from inside the pipe or outside, or both.~~

~~The assembly of the welded joints shall be in accordance with the manufacturer's recommendations.~~

~~Thermal welded joints shall be used only when specified on plans or in specifications.~~

7389.4 FITTINGS:

Fittings for ~~SRPEHDPE profile wall or corrugated~~ pipe may include tees, elbows, manhole adapter rings, plugs, caps, adapters and increasers. Fittings shall be joined by gasket type or thermal weld type joints in accordance with Subsection [7389.3](#).

A clamp gasket or approved method shall be provided at manhole entry or connection to reduce infiltration and exfiltration. Where precast manholes are used, entrance holes must be large enough to allow for proper grouting around the manhole gasket. A non-shrink grout shall be used for grouting.

7389.5 CERTIFICATION:

The manufacturer shall furnish an affidavit (certification) that all materials delivered shall comply with the requirements of ASTM [F2562894](#) or [AASHTO M-252](#).

~~Pipe and resin producers that manufacture according to AASHTO M-294 shall be certified according to the Plastic Pipe Institute protocol for their Third Party Certification Program.~~

7389.6 DIMENSIONS AND TOLERANCES:

~~Profile wall SRPEHDPE pipe dimensions shall comply with dimensions given in Table 42 of ASTM F2562894. The "average or nominal inside diameter" of profile wall SRPEHDPE pipe shall not deviate from its published inside diameter normal pipe size by more than as specified in Section 6.2.3 Table 1 of ASTM F2562894.~~

~~Corrugated HDPE pipe dimensions shall be "nominal inside diameter" dimensions and shall not deviate from its nominal pipe size by more than the minimum and maximum tolerances as described in AASHTO M-252 or AASHTO M-294, Section 7.2.3.~~

SECTION 7389 (Proposed)

~~Profile pipe shall have a Ring Stiffness Constant (RSC) or Pipe Stiffness (PS) as shown on the plans. The minimum RSC for profile HDPE pipe shall be RSC-63. The minimum PS for corrugated pipe shall be as shown in AASHTO M-252 (Section 7.5) or AASHTO M-294 (Section 7.4), and tested per ASTM D2412. In no case shall the minimum PS be less than the equivalent PS value for RSC-63.~~

738.7 CLASSIFICATIONS:

~~HDPE profile reinforced pipe products shall be made in four standard Ring Stiffness Constant (RSC) classifications, 40, 63, 100 and 160. These are referred to as RSC-40, RSC-63, RSC-100 and RSC-160. The RSC test shall be conducted in accordance with ASTM D2412 with the exceptions listed in accordance with ASTM F894. HDPE corrugated pipe (Type S or Type D) shall meet the minimum Pipe Stiffness (PS) requirements of AASHTO M-252 or AASHTO M-294. The PS test shall be conducted in accordance with ASTM D2412 with the exceptions listed in accordance with AASHTO M-252 or AASHTO M-294.~~

7389.87 MARKINGS:

~~Markings on pipe shall be per ASTM F2562894, AASHTO M-252 or AASHTO M-294. These markings shall be clearly shown on the pipe at intervals of approximately 12 feet and include but not limited to the following: the manufacturer's name or trademark, nominal size, the specification designation, plant designation code, date of manufacture or an appropriate code. All fittings shall be marked with the designation number of the specification and with the manufacturer's identification symbol. In addition, manufacturers of corrugated HDPE, AASHTO M-294, shall print on or affix the appropriate Plastic Pipe Institute Program Mark on each length of pipe produced that meets the requirements of the program.~~

7389.98 CARE OF PIPE AND MATERIALS:

Care of pipe materials shall comply with Subsection [736.5](#).

~~SRPEHDPE profile reinforced RSC type pipe in shipping and/or storage shall be stacked per manufacturer's recommendation, but in no case higher than 4 rows, not be stacked higher than three rows for pipes 21 inches in diameter or less, nor higher than two rows for pipes 24 to 36 inches in diameter inclusive. Pipe shall not be stacked, shipped, or stored with weight on the bells of the pipe.~~

~~Corrugated HDPE pipe in shipping and storage shall be stacked per manufacturer's recommendation, but in no case higher than 5 rows for pipe 24 inches or less in diameter, or 3 rows for pipe greater than 24 inches in diameter.~~

~~Pipe that is gouged marred or scratched forming a clear depression shall not be installed and shall be removed if damaged in the installation.~~

- End of Section -