

April 27, 2011

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, May 4, 2011 at 1:30 p.m.  
MAG Office, Suite 200 (Second Floor), Cholla 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.

Please park in the garage under the building, bring your ticket, parking will be validated. For those using transit, Valley Metro/RPTA will provide transit tickets for your trip. For those using bicycles, please lock your bicycle in the bike rack in the garage.

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. 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**  
**May 4, 2011**

1. Call to Order and Introductions

2. Call to the Audience

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.

3. Approval of April 6, 2011, Meeting Minutes

**Review of 2010 and 2011 Cases**

4. Case 10-05:  
Revise FOREWARD to clarify use of the MAG Specifications and Details for Public Works Construction document.

5. Case 10-08:  
Re-write Section 717 ASPHALT-RUBBER.

6. Case 10-12:  
New Section 361 – Shallow Depth Fiber Optic Micro-Conduit Installation.

7. Case 11-01: Miscellaneous Corrections  
A. Correct typographical errors in Table 711-1.  
B. Correct typographical error in Table 705-1.  
C. Correct errors in Detail 212.  
D. Other potential corrections cases.

8. Case 11-02:  
Add an Asphalt Pavement Safety Edge option to Detail 201.

**COMMITTEE ACTION REQUESTED**

2. Information.

3. Review and approve minutes of the April 6, 2011 meeting.

4. Information and discussion.  
Sponsor: Jesse Gonzales, Peoria

5. Information and discussion.  
Sponsor: Bob Herz, Maricopa County

6. Information and discussion.  
Sponsor: Rod Ramos, Scottsdale

7. Information and discussion.  
Sponsors: Bob Herz, Maricopa County and Peter Kandariss, SRP

8. Information and discussion.  
Sponsor: Bob Herz, Maricopa County

- 9. Case 11-03:  
Replace cadmium plated bolts referenced in Section 610.13 with zinc plated bolts as described in ASTM-B633.
- 10. Case 11-04:  
Replace reference to MAG Detail 190 in MAG Section 301 with ASTM D4718. Delete MAG 190.
- 11. Case 11-05:  
Move MAG Section 225 Water Requirements into MAG Section 104.1.3.
- 12. Case 11-06:  
Remove sections and details of the MAG specifications that are no longer used or refer to outdated technologies. Additions and changes were made to the list.

**New 2011 Cases**

- 13. Case 11-07:  
Revise Section 327 Hot In-Place Recycling. See item 13.
- 14. Case 11-08:  
Revise Section 711 Paving Asphalt to update performance tables and reference ASTM standards. See item 14.
- 15. Proposed New Cases  
  
Members can present new cases for information and discussion.
- 16. Potential Cases  
  
Members can discuss other potential new cases which they are working on, or are planning to present at a future meeting.

- 9. Information and discussion.  
Sponsor: Jesse Gonzales, Peoria
- 10. Information and discussion.  
Sponsor: Peter Kandaris, SRP
- 11. Information and discussion.  
Sponsor: Peter Kandaris, SRP
- 12. Information and discussion.  
Sponsor: Scott Zipprich, Buckeye
- 13. Information and discussion.  
Sponsor: Jeff Benedict, AGC
- 14. Information and discussion.  
Sponsor: Jeff Benedict, AGC
- 15. Information and discussion.
- 16. Information and discussion.

**General Discussion**

17. Working Group Reports

A. Outside Right-of-Way Working Group Report on 4/27/2011 meeting.

B. Asphalt Working Group Report on 4/13/2011 meeting.

C. Materials Working Group Report on 4/13/2011 meeting.

D. Water/Sewer Working Group Report on 4/19/2011 meeting.

E. Concrete Working Group Report on 4/21/2011 meeting

18. Staff Reports

Report on issues regarding publishing a new edition of the book and electronic sales.

19. Open General Discussion

Members can report on any items of interest to the committee.

20. Request for Future Agenda Items

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

17. Information and discussion.

Outside ROW Chair: Peter Kandarlis, SRP

Asphalt Chair: Jeff Benedict, AGC

Materials Chair: Brian Gallamore, AGC

Water/Sewer Chair: Jim Badowich, Avondale

Concrete Chair: Jeff Hearne, ARPA

18. Information and discussion.

19. Information and discussion.

20. Information and discussion.

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

April 6, 2011

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

AGENCY MEMBERS

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

ADVISORY MEMBERS

* John Ashley, ACA	Jeff Hearne, ARPA
Jeff Benedict, AGC	Peter Kandararis, SRP
Tony Braun, NUCA	Paul R. Nebeker, Independent
* Kwigs Bowen, NUCA	Mike Smith, ARPA
Brian Gallimore, AGC	

MAG ADMINISTRATIVE STAFF

Gordon Tyus

\* Members not attending or represented by proxy.

GUESTS/VISITORS

Doug Berg, Prensco  
Dale Bodiya, Maricopa County Environmental Services  
Jacob Foster, Stronggo  
Michael Hook, American Concrete Pipe Association  
Charles Moses, Jensen Precast  
John Paul Reis, Sunbelts Asphalt  
Niranjan Vescio, Stronggo

1. Call to Order

Chairman Troy Tobiasson called the meeting to order at 1:30 p.m. The chair also announced that he received a call from John Ashley who explained that the ACA was no longer being funded, so he would not be able to represent that organization on the committee. Mr. Tobiasson said he hoped Mr. Ashley would be able to actively participate in the future.

2. Call to the Audience

John-Paul Reis of Sunbelts Asphalt stated that he was taking over for Jerre Mills, and that he was willing to help on the Asphalt Working Group. Doug Berg, who has provided support to the committee in the past, said that after a year away he has returned to Arizona.

3. Approval of Minutes

The members reviewed the March 2, 2011 meeting minutes. Chairman Tobiasson noted that Marc Palichuk did attend last month's meeting and this correction would be noted. Tom Wilhite introduced a motion to accept the minutes as corrected. Marc Palichuk seconded the motion. A voice vote of all ayes and no nays was recorded.

**Review of 2010 and 2011 Cases**

4. Case 10-05 – Revise FOREWORD

*Clarify use of the MAG Specifications and Details for Public Works document.* Sponsor Jesse Gonzalez was not present to provide an update. No additional comments were received.

5. Case 10-08 – Revise Section 717 Asphalt Rubber

*Revise Section 717 ASPHALT-RUBBER to obtain a uniform specification.* Bob Herz responded to last month's comments about eliminating the maximum rubber content. He said that MCDOT did not agree to this proposal. He asked for a meeting to be set up with AGC and others to discuss the issue. Jeff Benedict said the Asphalt Working Group is planning a meeting to work on this case.

6. Case 10-12 – New Section 361 – Shallow Depth Fiber Optic Micro-Conduit Installation

*Provide specifications for the installation of underground fiber optic micro-conduit telecommunications facilities within the public right-of-way.* Sponsor Rod Ramos not present to provide an update. No additional comments were received.

7. Case 11-01: Miscellaneous Corrections

- a. **Case 11-01A – Correct the formula in Table 711-1.** No new comments provided.
- b. **Case 11-01B –Correct Percentage in Table 705-1.** No new comments provided.
- c. **Case 11-01C –Correct reference in Detail 12.** Bob Herz provided another case to change the reference in Detail 212 from Section 335 to Section 355.

8. Case 11-02 – Safety Edge Detail

*Add an Asphalt Pavement Safety Edge option to Detail 201.* Bob Herz provided a handout with a new specification *321.8.8 Safety Edge*. It provides a methodology to construct the safety edge option shown in Detail 201, which addresses concerns from AGC about edge compaction. Troy Tobiasson relayed a message from John Ashley regarding a ribbon curbs and maintenance issues. Mr. Herz responded that maintenance issues can be corrected through design changes. Peter Kandaris suggested adding references to this new section on the detail notes. Mr. Herz agreed that it was a good idea and also said that he would be updating the detail title. Mr. Herz also responded to a question about when the safety edge was required. He said they typically would be used when the roadway was designed for 40 mph or higher speeds, but that when to use it is a design issue, not a construction specification. Paul Nebeker asked if they should build a test road before adding it to MAG. Jeff Benedict said ADOT has been using a safety edge on several projects already. He also noted that this would necessitate changes to mill and fill requirements. Brian Gallimore said he has literature on how the construction is done, and will make it available.

9. 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.* Sponsor Jesse Gonzalez was not present to provide an update. No additional comments were received.

10. Case 11-04 – Deletion of Detail 190, Rock Correction Procedure

*Replace reference to MAG Detail 190 in MAG Section 301. Delete MAG Detail 190.* Peter Kandaris presented an update to this case that changed the rock correction procedures from referencing ASTM D4718 standards to ARIZ 227c which is the standard used for density determination in Arizona. A copy of ARIZ 227c was also provided. Bob Herz stated that Maricopa County is still reviewing this case, but he believed the county wanted to keep Detail 190. He requested that a vote be postponed until he had a chance to meet with county reviewers. Mike Smith said the City of Phoenix tech certification requirements use ARIZ

227c as the test procedure, so if other agencies are having rock corrections done by these certified technicians, they are likely already using ARIZ 227c. Mr. Kandaris agreed to wait a couple months before submitting the case for a vote.

#### 11. Case 11-05 – Deletion of MAG Section 225, Watering

*Move MAG Section 225, Water Requirements into MAG Section 104.1.3.* Bob Herz provided comments on the case. He asked to change the last sentence of subsection *104.1.3 Water Supply* so that “price bid” be changed to “proposal price” and to strike the end of the sentence removing, “unless otherwise provided for in the special provisions or proposal” since this is already covered elsewhere in Section 104. He also noted that a reference to the watering section in Section 311.2 needed to change to refer to 104.1.3. Mr. Herz also requested that all but the first sentence of the last paragraph in Section 104.1.1 be deleted as it was already covered within Section 107.9 under property restoration. Mr. Kandaris agreed to make the necessary changes for the next draft.

#### 12. Case 11-06 – Deletion of Out of Date MAG Standards

*Remove sections and details that are no longer used or refer to outdated technologies.* Scott Zipprich was not present to provide an update, however his proxy, Craig Sharp, said that they were continuing to work on revising the case, and were considering adding other specifications and details to the list.

#### 13. Proposed New Cases

No new cases were proposed.

#### 14. Potential Cases

Warren White continued a group discussion on the need for ADA compliant ramp details. He said he had met with experts at his agency to discuss potential updates to ramp details. Mr. White said he was told that the single ramp detail was ADA compliant for wheelchairs, but that there were some questions about way finding requirements for blind pedestrians. He also discussed the possibility of adding dual ramps as an option. There were also questions about when the agencies’ ADA transition plans needed to be updated. Mr. White received recommendations to review details *252 Bus Bay* and *250-2 Driveway Entrance* for ADA related updates. Bob Herz suggested Details 260 and 261 also be reviewed for ADA compliance. Chair Tobiasson asked if anyone wanted to take these on as cases. Warren White said he would continue to review them.

## 15. Working Group Reports

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

Peter Kandaris gave an update on the Outside Right-of-Way Working Group. The group last met on March 22, 2011. The group discussed two details (201 and 205) that were submitted for a MAG case. The group will work on reviewing draft onsite cases, and begin adding information from vendors and agency supplements that are appropriate such as Chandler's underground storage details. The group began to look at updates to the MAG specifications and details not assigned to other groups such as the chain link fence, speed humps and guard rails. Bob Herz stated Maricopa County has guard rail details in their supplement; however, the wood posts did not pass new test requirements so they will need to be updated. Peter Kandaris said the MAG details are even more outdated, and suggested that they be removed and reference ADOT standards, or if Maricopa County updates their details, MAG could use them. Another detail under review was the speed hump. Mr. Kandaris said more options could be added to reduce agency supplements. Mr. Herz said the markings need to be updated. Mr. Kandaris said speed tables could also be added. He also noted most chain link fences are taller than the six foot fence shown in the MAG details. Members said planning rules in jurisdictions often dictate height and types of fences. Finally, other options for street sign bases, and whether *Detail 202 Alley Details* should be removed were discussed. The next meeting is scheduled for April 27, 2011 from 1:30 to 3:30 p.m. at the ARPA office conference room.

### b. **Asphalt Working Group**

Jeff Benedict gave an update on the Asphalt Working Group. The group last met on March 22, 2011. Minutes from the meeting were provided in the agenda packet. Mr. Benedict said the group divided up action items among members to review and work on updates based on information provided by the Outside ROW group. A summary of the MAG sections the group will be addressing are shown in the table. He also said the working group is planning a meeting on April 11, 2011 at 11:30 a.m. to review the topic of rubberized asphalt. He invited Bob Herz and other interested members to attend and said he would provide more information soon. The next meeting of the Asphalt Working Group is scheduled for April 13, 2011 at 7:30 a.m. at the Speedie and Associates office.

### c. **Materials Working Group**

Brian Gallimore gave an update on the Materials Working Group. The group last met on March 22, 2011. Notes from the meeting were provided in the agenda packet. Mr. Gallimore said the Materials Working Group followed the Asphalt Working Group so participants could attend both meetings more easily. He summarized information from the last meeting as shown in the meeting notes included in the agenda packet. He also asked for volunteers from the member jurisdictions to participate and contribute to the working groups. Mr. Tobiasson agreed and said city representatives interested in specific topics should be encouraged to attend the working group meetings.

The next meeting of the Materials Working Group is scheduled for April 13, 2011 at 9:00 a.m. at the Speedie and Associates office.

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

Jim Badowich provided an update on the Water/Sewer Working Group. The group last met on March 16, 2011. Notes from the meeting were provided in the agenda packet. He said the group reviewed the sections and details provided by the Outside ROW Working Group. It was determined that most of them should be included in both MAG and the OROW manual, and most needed at least some updates. A summary of the comments are shown in the meeting notes included in the agenda packet. He also said there was a pretty good turnout at the meeting and thanked industry participants for providing valuable feedback and information. The items with asterisks on the notes page indicate those of high priority. Some issues of discussion included the use of size on size tapping sleeves, adding a wet barrel fire hydrant detail, and reviewing details for thrust blocks and joint restraints. There was also discussion about creating two separate details for valve box installation and valve box adjustment since they typically are done by separate contractors for different reasons. Mr. Badowich also questioned if the section on grey iron pipe should be removed, and whether *Detail 392 Debris Caps* should be deleted. Jami Erickson said Phoenix uses debris caps, although there is some internal disagreement over their use. Mesa and Goodyear also use them, but all say they have their own supplements. It was suggested that if the MAG detail is not being used, either remove it, or update it based on agencies' details. The next meeting of the Water/Sewer Working Group is scheduled for April 19, 2011 at 1:30 p.m. at the MAG office – Ocotillo room.

e. **Concrete Working Group**

Jeff Hearne said the working group has not scheduled the next meeting yet, but one was being planned. There was a question on what the focus of the working groups were regarding MAG inside vs. outside the right of way specifications should be. It was agreed that the working groups would be providing input and updates for both, but that updates to the MAG book should be a priority since the Outside the Right-of-Way manual would often reference MAG. Members advised that as groups are reviewing sections, it would make sense to note what needed to change for outside the right-of-way use as well, and work on both concurrently when possible. Peter Kandaris said agency supplements that are used outside the right-of-way could be added to the new manual. Mr. Badowich provided the example of backflow preventers, which all agencies use, but are not technically in the right-of-way. Jami Erickson clarified that easements are typically considered part of the right-of-way.

16. Staff Reports

Gordon Tyus said MAG has allocated funding for another year's subscription to the ASTM online service. He encouraged members to use it and spread the word, so there is justification to continue funding the project in the future. He also reminded members that several ASTM references in MAG have been deleted or superseded, and a review of these is necessary to

determine if the new standard is appropriate or if the reference should be deleted or refer to a different standard or specification.

#### 17. Open General Discussion

Tom Wilhite requested that an email summarizing the scope of each working group be prepared and broadcast throughout all the agencies to help inform and recruit volunteers to participate in the working groups on issues of specific interest to them. The email could also include a general agenda of upcoming issues and the date and time of the next meetings. Working group chairs agreed to forward information to Mr. Tobiasson prepare the email notice. It was also noted that the meeting information is posted on the MAG website.

Chair Tobiasson thanked the working group chairs for their updates and said he appreciated the summary notes for each meeting. He also asked if members had any items they wish to put on a future agenda.

Tom Wilhite asked if a discussion about whether to publish a new edition of the MAG document might be added to the next agenda. Mr. Tobiasson said he believed that with all the updates done since the last completely new edition in 1998, and with the major updates in the past few years, a new edition was justified. Mr. Tyus said having a new edition would help clarify updates going forward and solve the problem of inaccurate books that are missing update packets or with pages incorrectly updated. It was suggested that the update packets more clearly note what changes are included on the title page. Mr. Tyus also said that members may want to decide whether a new edition is justified based on the size of this year's update, since buying a whole new book would cost more than a small update packet.

Jami Erickson said because of budget issues, Phoenix downloaded and printed the books rather than buying them this year. Mr. Tyus said that sales of books are way down as more agencies and contractors download the electronic versions. This has had an effect on the funding available to staff the work of this committee He also mentioned that there has been some informal discussions about making the specifications and detail drawings available on the web in different formats that are more easily searchable and accessible, and also the possibility of charging some sort of fee. Members discussed different options for fees and/or electronic subscriptions, and the more widespread use of electronic documentation in general. Mr. Tyus reported that currently MAG does not charge for any electronic documents, and an organizational policy may need to be put in place to address this issue. It could have legal requirements based on public records request laws, and ramifications for having the information more widely distributed and used.

Members agreed to discuss these issues in more depth at the next meeting.

#### 18. Adjournment:

Chairman Tobiasson adjourned the meeting at 3:10 p.m.

## 2011 PROPOSED REVISIONS TO MAG SPECIFICATIONS AND DETAILS

(Updated information can be found on the website: <http://www.azmag.gov/Projects/Project.asp?CMSID=1055&CMSID2=1136>)

CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE	
10-05	Case 10-05: Revise FOREWARD to clarify use of the <i>MAG Specifications and Details for Public Works Construction</i> document.	Peoria	Jesse Gonzales	03/03/2010 03/02/2011		0 0 0	Yes No Abstain
10-08	Case 10-08: Re-write Section 717 ASPHALT-RUBBER.	MCDOT	Bob Herz	05/05/2010 02/18/2011		0 0 0	Yes No Abstain
10-12	Case 10-12: New Section 361 – Shallow Depth Fiber Optic Micro-Conduit Installation.	Scottsdale	Rod Ramos	05/05/2010 02/02/2011		0 0 0	Yes No Abstain
11-01	Case 11-01: Miscellaneous Corrections. A: Correct typographical errors in Table 711-1. B: Correct typographical error in Table 705-1. C: Correct errors in Detail 212.	MCDOT SRP	Bob Herz Peter Kandarlis	01/05/2011 04/06/2011		0 0 0	Yes No Abstain
11-02	Case 11-02: Add an Asphalt Pavement Safety Edge option to Detail 201.	MCDOT	Bob Herz	01/05/2011 04/06/2011		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	Jesse Gonzales	02/02/2011		0 0 0	Yes No Abstain
11-04	Case 11-04: Replace reference to MAG Detail 190 in MAG Section 301 with ASTM D4718. Delete MAG Detail 190.	OROW WG/ SRP	Peter Kandarlis	03/02/2011 04/06/2011		0 0 0	Yes No Abstain
11-05	Case 11-05: Move MAG Section 225 Water Requirements into MAG Section 104.1.3.	OROW WG/ SRP	Peter Kandarlis	03/02/2011		0 0 0	Yes No Abstain
11-06	Case 11-06: Remove sections and details of the MAG specifications that are no longer used or refer to outdated technologies.	OROW WG/ Buckeye	Scott Zipprich	03/02/2011 04/06/2011		0 0 0	Yes No Abstain
11-07	Case 11-07: Revisions to Section 327 - Hot In-Place Recycling.	AGC	Jeff Benedict	05/04/2011		0 0 0	Yes No Abstain

## 2011 PROPOSED REVISIONS TO MAG SPECIFICATIONS AND DETAILS

(Updated information can be found on the website: <http://www.azmag.gov/Projects/Project.asp?CMSID=1055&CMSID2=1136>)

CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE
11-08	Case 11-07: Revise Section 711 Paving Asphalt to update performance tables and reference ASTM standards.	AGC	Jeff Benedict	05/04/2011		0 0 0 Yes No Abstain
11-09						0 0 0 Yes No Abstain



**MARICOPA COUNTY**  
*Department of Transportation*

**MEMORANDUM**

**Date:** Jan 5, 2011

**To:** MAG Specifications and Details Committee

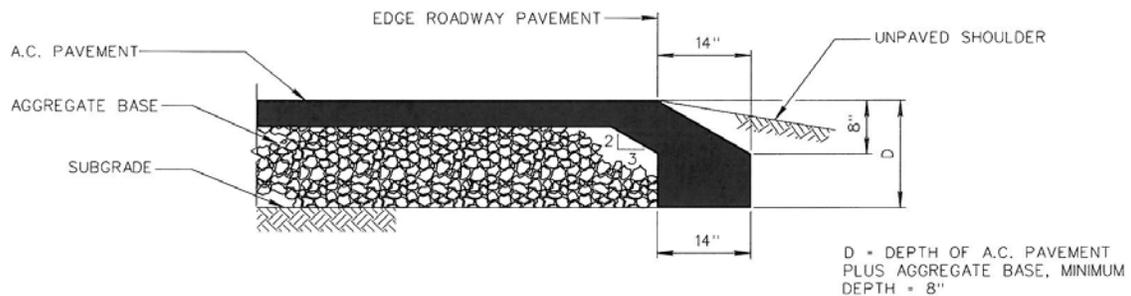
**From:** Robert Herz, MCDOT Representative

**Subject:** Proposed addition to Standard Detail 201 – Pavement Section at Termination

**Case 11-02**

**PURPOSE:** Add an Asphalt Pavement Safety Edge option to Detail 201

**REVISION:** Add Asphalt Pavement Safety Edge Detail.



**Add the following to Section 321:**

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

The finished safety edge slope shall be planar and form a  $30^{\circ} \pm 5^{\circ}$  angle with the horizontal plane. Due to the required final edge slope of the safety edge, compaction as required by sections 321.8.4 and 321.10 may not be attainable. When the approved procedures for placement and compaction of the safety edge are followed, the safety edge compaction shall be considered acceptable.

When the depth of the safety 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. The remaining portions of the safety edge shall be constructed as part of each successive asphalt lift (base, intermediate, and finishing courses). Construction of the base course may immediately follow compaction of the lower portion of the safety edge.

When the depth of the safety 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. The remaining portions of the safety edge shall be constructed as part of each successive asphalt lift (intermediate and finishing courses).

## SECTION 327

## HOT IN-PLACE RECYCLING

## 327.1 DESCRIPTION

This work shall consist of rehabilitating the surface layer of existing asphalt concrete pavement. Rehabilitation shall be accomplished with specially designed equipment in a simultaneous multistep process of heating, scarifying, applying an asphalt recycling agent and thoroughly remixing and reshaping the old asphalt concrete surface to an average depth of 1", and then placing an overlay of new hot mix asphalt concrete in compliance with the lines, grades, thickness and typical cross sections shown on the plans (typically 1" to 2"). NOTE: This work shall be performed with a single machine that heats, scarifies, recycles and spreads new asphalt concrete hot mix, all in one continuous pass. Additional preheaters may be utilized to achieve specified depth and temperature.

## 327.2 MATERIALS:

Asphalt Recycling Agent used to restore the existing pavement shall be approved by the Engineer prior to use. A manufacturer's certification shall be submitted for each load of recycling agent delivered to the project.

Hot Mix Asphalt Concrete (HMAC) shall meet the requirements of section 710 or section 717.

## 327.3 EQUIPMENT

The Contractor shall specify, in the bid proposal, the type of equipment intended for use. The equipment shall be on the project in operating condition a minimum of 2 days before beginning operations to allow evaluation by the Engineer. The Engineer reserves the right to reject equipment deemed not suitable for the intended purpose, at no additional cost to the Agency.

The recycling equipment shall meet the following minimum requirements:

Repaver: The equipment for this work shall be a self-contained, self-propelled, automated unit capable of heating, scarifying (or milling), mixing, redistributing and leveling the existing asphalt concrete pavement to the specified depth, all in a single pass.

It shall have a means of automatically applying an asphalt recycling agent at a uniform rate as shown on the plans, special provisions, or as requested by the Engineer. It shall be capable of applying a new HMAC layer over the hot, partially compacted recycled mixture.

Heating Unit: This unit shall be hooded to prevent damage to adjacent property, including trees and shrubs. It shall be capable of heating the pavement surface to a temperature high enough (375° - 400° F.) to allow scarification to the required depth without breaking aggregate particles or charring the pavement surface.

Scarifying or Milling Units: The scarifiers or rotary millers shall be able to penetrate the pavement surface to a depth shown, up to a maximum of one inch in one pass. Scarifiers or millers shall be equipped with separate, automatic height adjustments which allow clearance over manholes and other obstructions.

Recycling Agent Applicator: This system shall automatically add recycling agent to the scarified material at a uniform rate as shown on the plans, special provisions or as requested by the Engineer. The application rate shall be synchronized with the machine's forward speed to maintain a tolerance, within 5% of the specified rate.

Conveying System: Shall consist of a receiving hopper and conveying system to collect and transport new hot mix asphalt concrete material to the finishing unit.

Recycling Unit: A system that mixes, distributes and levels the scarified material over the width processed to produce a uniform cross-section of recycled material.

Finishing Unit: This unit shall have automatic screed controls to produce a surface conforming to that shown on the plans. The unit shall be capable of producing a uniform slope, grade and texture.

#### **327.4 CONSTRUCTION METHODS:**

The pavement to be treated shall be cleaned of trash, debris, earth or other deleterious substances present in sufficient quantity to interfere with the work to be performed.

The heating shall be sufficient to soften the pavement to the extent that it can be scarified or milled to the depth specified. Due to the varying properties of the existing asphalt pavement, depth of the scarification material may be varied, if requested by the Engineer. Heating shall be done in a manner that will assure uniform softening and will not char the asphalt.

The Contractor shall be responsible for protecting the area adjacent to the work from heat damage. If damage occurs, the Contractor shall replace all damaged areas, landscape, curb, parked vehicles, etc. at not cost to the Agency.

To provide a welded longitudinal joint, the standing edge of the adjoining asphalt pavement shall be fully heated to a width at least 2 inches beyond the width to be scarified and recycled.

Immediately following heating, the pavement surface shall be scarified (or milled) to the specified depth. The scarified material shall have a temperature between 225° F. and 265° F. unless otherwise requested by the Engineer. The material shall be leveled, mixed and treated with a recycling agent. The application rate shall be as shown on the plans, special provisions or as requested by the Engineer. Application rate for the recycling agent may be adjusted as necessary to maintain a uniform mixture.

The reclaimed material shall be gathered by a leveling device and spread to a uniform depth over the width being processed. After it is placed and while it still has a residual temperature of at least 190° F., a layer of new HMA conforming to the job mix formula shall be placed over it. The application rate of new material shall be sufficient to provide the required pavement thickness.

Construction, compaction and smoothness of the surface shall be in accordance with Section 321 except as modified in this section

#### **327.5 WEATHER CONDITIONS:**

This work shall not be done when it is raining or if there is a threat of rain. The ambient temperature shall be at least 50° F. and rising and the application shall cease when the temperature reaches 55° F. and falling.

#### **327.6 AIR QUALITY:**

The equipment and process shall meet all Arizona Department of Environmental Quality (ADEQ) and County air quality regulations and the Contractor shall have the appropriate ADEQ air quality control permit prior to the issuance of the notice to proceed.

#### **327.7 MEASUREMENT:**

Pavement Recycling will be measured by the square yard completed and accepted. Recycling Agent will measure by the gallon of actual material used in place. Hot Mix Asphalt Concrete (HMAC) will be measured by the ton in place.

#### **327.8 PAYMENT:**

The accepted quantities of pavement recycling will be paid at the contract unit price per square yard. Payment shall include cleaning the existing pavement surface and heating, scarifying, redistributing, leveling and compacting HMA pavement. Asphalt Recycling Agent will be paid for by the gallon used in place. Hot Mix Asphalt concrete (HMAC) will be paid for by the ton used in place.

## SECTION 711

## PAVING ASPHALT

## 711.1 GENERAL:

The asphalt shall be produced from crude asphalt petroleum or a mixture of refined liquid asphalt and refined solid asphalt. It shall be free from admixture with any residues obtained by the artificial distillation of coal, coal tar, or paraffin oil and shall be homogeneous and free from water.

Asphalt shall not be heated during the process of its manufacture, storage, or during construction so as to cause injury as evidenced by the formation of carbonized particles.

## 711.2 TESTING REQUIREMENTS:

Paving asphalt shall be classified by the Performance Grading System and shall conform to the requirements set forth in Table 711-1 and ASTM D6373-07<sub>e1</sub> with the PAV temperature changes noted herein in this table.

TABLE 711-1				
PERFORMANCE GRADING SYSTEM				
	PG 58-22	PG 64-16	PG 70-10	PG-76-10
<b>Original Asphalt</b>				
Viscosity, ASTM D4402 (Note 1) Max. 3 Pa-s, Test Temp, °C	135	135	135	135
Dynamic Shear TP5 (Note 2) G*/Sin δ, Min., 1.0 kPa Test Temp. @ 10 rad/s, °C	58	64	70	76
Rolling Thin Film Oven Residue (ASTM D2872)				
Mass Loss, Maximum % Dynamic Shear TP5 G*/sin δ, Min., 2.20 kPa Test Temp. @ 10 rad/s, °C	1.0 58	1.0 64	1.0 70	1.0 76
Pressure Aging Vessel Residue (ASTM D6521)				
PAV Aging Temperature, °C	100	100	110	110
Dynamic Shear TP5 G* <i>sin</i> δ, Max., 5000 kPa Test Temp. @ 10 rad/s, °C	22	28	34	34
Creep Stiffness, ASTM D6648 S, Maximum, 300.0 Mpa m-value, Minimum, 0.300 Test Temp. @ 60s, °C	-12	-6	0	-6
Direct Tension, TP3 (Note 3) Failure Strain, Minimum 1.0% Test Temp. @ 1.0 mm/min. °C	-12	-6	0	-6

On all Grades Flash Point Temperature T48: Minimum 230 °C and Mass Loss, Maximum 1.00 percent.

## NOTES:

- (1) This requirement may be waived at the discretion of the specifying agency if the supplier warrants that the asphalt binder can be adequately pumped and mixed at temperatures that meet all applicable safety standards.

(2) For quality control of unmodified asphalt cement production, measurement of the viscosity of the original asphalt cement may be substituted for dynamic shear measurements of  $G^*/\sin(d)$  at test temperatures when the asphalt is a Newtonian fluid. Any suitable standard means of viscosity measurement may be used, including capillary or rotational viscometry (T210 or T202).

(3) If the Creep Stiffness is below 300 Mpa, the direct tension test is not required. If the Creep Stiffness is between 300 and 600 Mpa, the direct tension failure strain requirement can be used in lieu of the Creep Stiffness requirement. The m-value requirement must be satisfied in all cases.

Design Note: Performance Grade Asphalts are selected for certain reliabilities with respect to high and low pavement temperatures. The specified characteristics are based upon a loading frequency that approximates vehicle speeds of approximately 90 km/hr. Since all binders are frequency dependent, the designer may consider increasing the high temperature requirement for slow transient and standing loads, such as intersection loading. The high temperature requirement may also be increased for excessive numbers of equivalent single axle loads.

**711.3 TEST REPORT AND CERTIFICATION:**

At the time of delivery of each shipment of asphalt, the supplier supplying the material shall deliver to the purchaser 3 certified copies of the test report which shall indicate the name of the refinery and supplier, type and grade of asphalt delivered, date and point of delivery, quantity delivered, delivery ticket number, purchase order number, and results of the above specified tests. The test report shall be signed by an authorized representative of the supplier certifying that the product delivered conforms to the specifications for the type and grade indicated.

Until the certified test reports and samples of the material have been checked by the Engineer, that material will be only tentatively accepted by the Contracting Agency. Final acceptance will be dependent upon the determination of the Engineer that the material involved fulfills the requirements prescribed. The certified test reports and the testing required in connection with the reports shall be at no additional cost to the Contracting Agency.

**711.4 TEMPERATURES:**

Unless otherwise specified in these specifications or in the special provisions, the various grades of paving asphalt shall be applied within the temperature range indicated in Table 711-2. The exact temperature shall be determined by the Engineer.

At no time, after loading into a tank car or truck for transportation from the refinery to the purchaser, shall the temperature of the paving asphalt be raised above 400 degrees F.

TABLE 711-2				
APPLICATION TEMPERATURE OF PAVING ASPHALTS				
Grade of Material	Pug Mill Mixing Asphalt Temperature °F.		Distributor Application Temperature °F.	
	Min.	Max.	Min.	Max.
PG 58-22	275	325	300	390
PG 64-16	275	325	300	390
PG 70-10	275	325	300	390
PG 76-16	290	340	310	390

Paving asphalt shall be heated in such a manner that steam or hot oils will not be introduced directly into the paving asphalt during heating.

**711.5 DISTRIBUTING EQUIPMENT:**

Distributing Equipment shall meet the requirements of Section 330.

**711.6 CONVERSION OF QUANTITIES:**

When pay quantities of paving asphalt are determined from volumetric measurements, the volumetric measurement at any temperature shall be reduced to the volume the material would occupy at 60 degrees F. in accordance with ASTM D-1250. In converting volume to weight, the computations shall be based on Table 711-3.

<b>TABLE 711-3</b>		
<b>PAVING ASPHALT QUANTITY CONVERSION</b>		
<b>Grade of Material</b>	<b>Gals. Per Ton of 60 °F.</b>	<b>Lbs. Per Gal at 60 °F.</b>
<b>PG 58-22</b>	<b>235</b>	<b>8.5</b>
<b>PG 64-16</b>	235	8.5
PG 70-10	235	8.5
<b>PG 76-16</b>	<b>233</b>	<b>8.6</b>

# Specifications & Details Outside Right-of-Way Working Group

April 27, 2011 Meeting (1:30 pm to 3:00 pm)

at

Arizona Rock Product Association

9<sup>th</sup> Avenue and Adams Street

Phoenix, AZ

## Meeting Agenda

### INTRODUCTION

- Welcome participants – Introductions

### DISCUSSION ITEMS

- Review revised draft to Section 201 (as a MAG case for Sections 107 & 104)
- Review draft revision to Section 350 (MAG case)
- Review revised draft to Section 205 (OROW standard)
- Review additional revisions to be done by WG
- Discuss new standards to be developed for outside ROW document from existing agency supplements.
- Next meeting date

# **Water/Sewer Working Group Meeting**

Meeting Notes

April 19, 2011

## **Opening:**

A meeting of the Specifications and Details Water/Sewer Working Group was called to order by Chair Jim Badowich on April 19, 2011 at 1:35 p.m. in the MAG Ocotillo Room.

## **Present:**

Jim Badowich (Avondale), Aaron Berry (Goodyear), Tony Braun (NUCA), Rita Chihanik (Deeter/Neenah), Chad Dixon (AGC), Charles Moses (Jensen), Clemente Riley (Goodyear), Larry Stumfoll (Jensen), Gordon Tyus (MAG), Scott Zipprich (Buckeye).

## **1. Introductions**

Participants present introduced themselves

## **2. Review March Meeting**

Jim Badowich quickly introduced the purpose of the working group and reviewed the last meeting notes. He said the goal was to review the sections and details as requested by the Outside ROW Working Group, and to prepare cases for the full committee.

## **3. Pre-cast Manhole Presentation**

Charles Moses and Larry Stumfoll of Jensen Precast provided a PowerPoint presentation that gave an overview of the use of precast manholes compared to pour-in-place construction. Mr. Moses also provided a sample detail similar to one that was developed for Pima County as well as potential revisions to Section 625 and sample Precast Manhole Construction Specifications.

Members discussed related issues such as settlement and the advantages and disadvantages of different connection options. It was noted that precast bases would require a different method of installation for contractors. Other issues such as steps, H<sub>2</sub>S concentration and coating materials were discussed.

## **4. Manhole Frame and Cover Presentation**

Rita Chiharik of Deeter/Neenah Foundry presented information regarding manhole frames and covers. She provided a sample revised Detail 424 for a 24" Manhole Frame and Cover. The new detail is more general since covers currently are not manufactured exactly to the dimensions of MAG Detail 242, and different manufacturers have different designs, although everyone is using class 35. The revised detail refers to performance specifications in ASTM and AASHTO.

Members discussed including having the manufacturer of frames and covers inscribed directly on them so covers would be correctly matched to frames if replacement or road reconstruction occurs. Rita agreed to develop a Detail for 30" frames and covers as well.

## **5. Specs/Details Being Considered for Removal**

Scott Zipprich discussed work he has been doing on the MAG deletion case. Detail 302 Joint Restraints could be removed because if used they are typically designed by an engineer. Detail

392 Debris Caps was also discussed. Members attending the main committee meeting noted that it was discussed that the caps are still being used by several agencies including Phoenix and Goodyear, although they have their own details. It was suggested rather than deleting the detail; it is revised to incorporate the agency supplements.

Scott also said he was also working on revising the fire hydrant details and was planning to add a wet barrel detail such as used by Avondale.

#### **6. Case Assignments**

Members agreed to continue work on the draft cases discussed.

#### **7. Next Meeting Date**

Members agreed to meet again on Tuesday, May 17<sup>th</sup> at 1:30 at the MAG office.

# MAG Concrete Working Group

## Meeting Notes

Thursday, April 21, 2011, 1:30 pm at the ARPA Offices

### Opening:

Since this is the first meeting of this group for 2011, we had a discussion of the purpose and brief history of the Working Group concept – presented by Peter Kandarlis and Jeff Hearne.

### Present:

See attached roster.

### A. Discussion:

Here is a list of the MAG Sections that this Group has been asked to review:

220	Rip Rap Construction
324	Portland Cement Concrete Street Pavement
340	Concrete Curb, Gutter, Sidewalk, etc.
341	Terrazzo Sidewalks
342	Decorative Pavement Concrete Paving Stone or Brick – Detail 225
505	Concrete Structures
506	Precast Prestressed Concrete Members
510	Concrete Block Masonry
511	Brick Masonry
525	Pneumatically Placed Mortar
702	Base Materials
703	Rip Rap
729	Expansion Joint Filler
775	Brick and Concrete Masonry Units (Blocks)
776	Masonry Mortar and Grout

A general discussion was led by Peter Kandarlis reviewing the notes and comments from the OROW Group for each section. Specific areas for review or additions were identified by various Group participants along with estimated levels of priority. The emphasis for review and any revision is to update each Section utilizing current ASTM/ACI or other Industry Standards with an aim towards better utilization by Agencies – reducing or eliminating the need for individual Agency Special Provisions. To jump start activity and best utilize our time and talents, it was decided to break up the Sections into smaller sub-groups for individual participants to work on and bring back to the Working Group for review. The sub-groups were divided as follows:

- 1) Sections 510, 511, 525, 775, and 776 – leader Raphael Tixier
- 2) Sections 324, 340, 341, 505, and 702 – leader Ed Weaver

- 3) Section 506 – leader Charles Moses
- 4) Sections 220, 703, 342, and a new section on Pervious Concrete – leader Jeff Hearne

All Working Group participants are encouraged to communicate with the sub-group leaders in any areas that they may have experience, specific ideas or currently specification examples to help with Section review and revision.

**B. Action Items:**

Sub-group leaders are encouraged to meet outside the Working Group meetings to review and revise assigned Sections and to utilize email and the word documents for tracking of proposed changes.

**C. Date and Agenda for Next Meeting:**

The next meeting is scheduled for **Wednesday, May 18<sup>th</sup> at 1:30 in the ARPA Offices.** We will begin to discuss specific revisions to MAG sections being reviewed.