May 25, 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, June 1, 2011 at 1:30 p.m.
NOTE: CHANGE OF LOCATION.
Due to remodeling of the MAG second floor offices the meeting will be held at:
Valley Metro Office
101 1st Avenue, Phoenix
Suite 1100 - Lake Mead Room

Validated parking is still available at the MAG Office, 302 North 1st Avenue, Phoenix. Due to limited parking at Valley Metro, it is recommended to park under the MAG building and walk one block south to the Valley Metro Office.

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 in person. A videoconference and/or telephone conference call is not available at this site. 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 MAG 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
June 1, 2011

COMMITTEE ACTION REQUESTED

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.

   2. Information.

3. Approval of May 4, 2011, Meeting Minutes

   3. Review and approve minutes of the May 4, 2011 meeting.

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.

   4. Information and discussion.
   Sponsors: Javier Setovich, Peoria and Peter Kandaris, SRP

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

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

6. 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.

   6. Information and discussion.
   Sponsors: Bob Herz, Maricopa County and Peter Kandaris, SRP

7. Case 11-02:
   Add an Asphalt Pavement Safety Edge option to Detail 201. See item 7.

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

8. Case 11-03: Replace cadmium plated bolts referenced in Section 610.13 with zinc plated bolts as described in ASTM-B633.	8. Information and discussion. Sponsor: Javier Setovich, Peoria
9. Case 11-04: Replace reference to MAG Detail 190 in MAG Section 301 with ASTM D4718. Delete MAG 190. See item 9.	9. Information and discussion. Sponsor: Peter Kandaris, SRP
10. Case 11-05: Move MAG Section 225 Water Requirements into MAG Section 104.1.3. See item 10.	10. Information and discussion. Sponsor: Peter Kandaris, SRP
11. Case 11-06: Remove sections and details of the MAG specifications that are no longer used or refer to outdated technologies.	11. Information and discussion. Sponsor: Scott Zipprich, Buckeye
12. Case 11-07: Revise Section 327 Hot In-Place Recycling. See item 12.	12. Information and discussion. Sponsor: Jeff Benedict, AGC
13. Case 11-08: Revise Section 711 Paving Asphalt to update performance tables and reference AASHTO standards. See item 13.	13. Information and discussion. Sponsor: Jeff Benedict, AGC
14. Case 11-09: Preservative Seal for Asphalt Concrete – Revise sections 334 and 718. See item 14.	14. Information and discussion. Sponsor: Jeff Benedict, AGC
15. Case 11-10: Curb Ramp Modification for Radial Installations – Create new detail 234. Revise details 235-1, 235-2 and 235-3. See item 15.	15. Information and discussion. Sponsor: Bob Herz, MCDOT
16. Case 11-11: Superseded ASTM Specifications: A. Nuclear Density Testing of Soil. See item 16.	16. Information and discussion. Sponsor: Peter Kandaris, SRP
17. Case 11-12: Modifications to Regulatory Requirements, MAG 107. See item 17.	17. Information and discussion. Sponsor: Peter Kandaris, SRP

New 2011 Cases

18. Proposed New Cases

    Members can present new cases for information and discussion.

    18. Information and discussion.

19. Potential Cases

    Members can discuss other potential new cases which they are working on, or are planning to present at a future meeting.

    19. Information and discussion.

General Discussion

20. Working Group Reports See item 20.

    A. Outside Right-of-Way Working Group Report on 5/25/2011 meeting.
    B. Asphalt Working Group Report on 5/13/2011 meeting.
    C. Materials Working Group Report on 5/13/2011 meeting.
    D. Water/Sewer Working Group Report on 5/17/2011 meeting.
    E. Concrete Working Group Report on 5/18/2011meeting

    20. Information and discussion.

    A. Outside ROW Chair: Peter Kandaris, SRP

    B. Asphalt Chair: Jeff Benedict, AGC

    C. Materials Chair: Brian Gallamore, AGC

    D. Water/Sewer Chair: Jim Badowich, Avondale

    E. Concrete Chair: Jeff Hearne, ARPA

21. Staff Reports

    Report on MAG meeting room availability in July and August.

    21. Information and discussion.

22. Open General Discussion

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

    22. Information and discussion.

23. 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.

    23. Information and discussion.

Adjournment

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

May 4, 2011

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

AGENCY MEMBERS

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

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Jeff Benedict, AGC
Tony Braun, NUCA
Bill Davis, NUCA (proxy)
Brian Gallimore, AGC
Jeff Hearne, ARPA
Peter Kandaris, SRP
Paul R. Nebeker, Independent
* Mike Smith, ARPA

MAG ADMINISTRATIVE STAFF

Gordon Tyus

* Members not attending or represented by proxy.

GUESTS/VISITORS

Arturo Chavarria, Hanson Pipe
Bob Erdman, Cutler Repaving
Jacob Foster, Stronggo
Maher Hazine, Peoria
Greg West, TetraTech

1. Call to Order

   Chairman Troy Tobiasson called the meeting to order at 1:32 p.m. The chair welcomed new member Javier Setovich from the City of Peoria who will be taking over for former member Jesse Gonzales.

2. Call to the Audience

   No members from the public wished to address the committee.

3. Approval of Minutes

   The members reviewed the April 6, 2011 meeting minutes. Jason Mahkovtz introduced a motion to accept the minutes as written. Greg Crossman 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. Javier Setovich suggested withdrawing this case. Peter Kandaris said he had worked with Jesse Gonzales on the case before he left, and was willing to help with the case rather than withdraw it. He suggested just including the foreword for the MAG book since the Outside Right-of-way Guide would not be ready this year. Members agreed to work together to finalize a revised foreword that would focus on a new edition of the MAG Specs and Details book.

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

   Revise Section 717 ASPHALT-RUBBER to obtain a uniform specification. Bob Herz said that he still needed to get reviewers from the county together to discuss this case. Jeff Benedict said members of the asphalt working group were planning to meet with county officials this Friday.

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 said he was considering withdrawing the current case and resubmitting a new case later that focused on the asphalt repair specifications, which could be used not only for shallow depth cable installation, but also crack repair. He said they did install some material near Cholla and 84th Streets, and would be testing its performance. Mr. Ramos said that if the specification focused just on the asphalt repair, individual jurisdictions could use the specification for crack repair or for shallow depth cable installation if they so chose. The cable installation

specifications would not be included because jurisdictions may not with to allow shallow depth cable installation, or may want to provide their own provisions. Jeff Benedict said the Asphalt Working Group is developing a new crack seal specification, and this repair method could be included as one of the options. Discussions included the size of cracks that could be repaired, the depth the saw wheels can cut, and to avoid proprietary materials in the specification. Mr. Ramos decided that he would withdraw the current case, and work with the asphalt group to develop a crack seal specification similar to the method used in the current case, but just focusing on the asphalt repair requirements.

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.** No new comments provided.

8. Case 11-02 – Safety Edge Detail

    Add an Asphalt Pavement Safety Edge option to Detail 201. Bob Herz mentioned that he provided new specifications at the last meeting and asked for comments. Brian Gallimore handed out copies of a brochure produced by the U.S. DOT about safety edges on road reconstruction (available here: http://safety.fhwa.dot.gov/roadway_dept/pavement/safedge/). He explained differences between the detail on the brochure and the proposed detail, and described methods of construction used by ADOT. Bob Herz explained that the current detail and specifications were for new construction and that the specifications required two lifts, which would allow the edge construction at the required angle. Mr. Gallimore noted that the detail would not work if the road were constructed with one 3" lift. Members discussed several variations of base course and asphalt thicknesses. Rod Ramos said overlay reconstruction with a safety edge was common. Mr. Herz said he was willing to add an additional detail for overlays.

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. Javier Setovich, taking over the case for Jesse Gonzales said he would like to defer this case until next month so he can review it.

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 handed out an update to the case that replaced reference to MAG Detail 190 in MAG Section 301 with ARIZ 227c, and replace reference to ASTM D2922 & 3017 in MAG Section 301 with ASTM D6938 (superseded in 2007). Jeff Herne asked if users would know what ARIZ 227c is referencing. Mr. Kandaris said he believed it was in the definitions, but would check.

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

Move MAG Section 225, Water Requirements into MAG Section 104.1.3. Peter Kandaris handed out an update to the case that made changes to address comments provided by Maricopa County. The last paragraph was modified to change "bid" to "proposal price." The case also deleted all but the first sentence of the last paragraph of 104.1.1 because these items are covered by subsection 107.9. Finally a reference to Section 225 was deleted in Section 311.2 since watering requirements were already covered in the referenced Section 725.

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 said that he was continuing to revise the list of deletions based on feedback from working groups. For example the debris caps were discussed at the last Water/Sewer Working Group meeting and it was determined that they were still in use by several agencies. Rather than delete the MAG details he suggested it be updated to match requirements of the agency supplements. Mr. Zipprich also mentioned that he was working on updating the fire hydrant details to reduce supplements by creating three details, including a wet barrel version. The updated details would allow flexibility in such things as if and where shear blocks are placed. Scott Zipprich asked the committee if there were any additional deletion cases. Jeff Herne said that the Concrete Working Group identified Section 341 Terrazzo Sidewalks as a possible deletion, or perhaps inclusion in the Outside the Right-of-way Specs only. Mr. Zipprich said that he would update the list of proposed deletions for the next meeting.

New 2011 Cases

13. Case 11-07 – Revise Section 327: Hot In-Place Recycling

Update Section 327 to current industry standards. Jeff Benedict introduced a new case based on review from the Asphalt Working Group to provide minor updates to Section 327 including noting the asphalt depths, adding a reference to Section 717, and correct the typographic error for the word "scarifiers." Mr. Benedict also suggested that the committee consider deleting Section 323 Heater Remix Resurfacing, since it is not commonly used.

14. Case 11-08 – Revise Section 711: Paving Asphalt

Update performance tables, references to ASTM standards, and revise Section 711 to meet current practices. Jeff Benedict introduced a new case based on review from the Asphalt Working Group to make major revisions to the paving asphalt specifications. The revisions would completely update Table 711-1 Performance Grading System to meet AASHTO standards. He noted a change in the PAV Temp to 110 degrees for some grades. Other changes are noted in yellow (on electronic and color copies). Mr. Benedict said the committee may wish to delete the table on application temperature, because these

temperatures are often overruled by Maricopa County Environmental Division standards. He also said the asphalt is not mixed in pug mills either. Members suggested changing the temperature section to reference the approved mix design requirements.

15. Case 11-09 – Update Preservative Seal for Asphalt Concrete

    Revise Sections 334 and add new 718 to meet current industry materials and practice. Jeff Benedict introduced a new case based on review from the Asphalt Working Group to include new materials. A new materials section 718 was included that breaks the asphalt preservative seals into three types. Members noted that the letters of the types needed to be updated in Section 334 to refer to the correct type in 718. Mr. Benedict said he would make those corrections and asked members to review the case and provide comments back to him.

16. Case 11-10 – Curb Ramp Modification for Radial Installations

    Add new detail 234 and modify existing ramp details to show curb modification. Bob Herz handed out a new case with the purpose to eliminate concrete spalling that may occur in the narrow curved segment between the back of curb and the detectable warnings for curb ramps installed within a curb return. Mr. Herz said forming the back of the curb as a straight line corresponding to the edge of the detectable warning would eliminate the "sliver" of concrete between them. He said this revision was based on a PAG detail. Members suggested not filling in the area with black for clarity, and asked if these changes could be made on existing 235 details. Mr. Herz said that he would revise the new detail and the existing ones to show the change, and add a reference to the new detail since there is not room to add all the necessary notes to the existing ramp details.

17. Case 11-11 – ASTM Revisions

    a. **Case 11-11A – Nuclear Density Testing of Soil.** Peter Kandaris introduced this case to update references to ASTM standards that have changed. ASTM standard D3017, "Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)," and standard D2922, "Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)" were withdrawn in 2007 and replaced with ASTM D6938, "Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)." This case would replace the old ASTM references with the new one on several pages noted in the case materials. Mr. Kandaris said he could leave the case open so as other out-of-date ASTM references were found and updated they could be added.

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

    Add references to Arizona native plant requirements update references to state statutes. MAG Section 107.1(A) references ARS 23-373; however, current state statutes no longer include 23-373. A new reference is needed (possibly ARS 23-425 and/or a statute within ARS 34.) Agencies were asked to consult their legal departments to determine an appropriate

reference. Mr. Kandaris said MAG 107 should be reviewed by the agency legal departments in general to update it for current ARS statutes. Members said their agencies have developed their own contracts. Scott Zipprich said that some smaller agencies use the MAG section as a boilerplate, so it really should be updated. Mr. Herz said Maricopa County supplements MAG 107 also. Mr. Tyus asked members to provide sample contracts to help determine what areas should be updated. He said MAG does have a legal counsel that may be available to review the issue.

19. Potential Cases

Paul Nebeker brought information on plate locks used to restrain plates instead of cold patch. Pros and cons of the plate locks (essentially lag bolts) were discussed. Pros included ease of installing and removing the plates. Cons included the chance the bolts would come loose, and the repair needed once removed. Rod Ramos said they have used locks on speed tables without problems. Brian Gallimore said he had problems with the bolts coming up on a similar application. A brochure is available online here: www.platelocks.com

Gordon Tyus said he received information from Michael Henrick of McDonald that low lead standards being developed by ANSI are to be effective July 1, 2012. Some extra copies were available for interested members. Some members said they would check to see what plans have been made for the switch-over at their agency.

Warren White provided an update on ADA compliant ramp details stating that a ruling on dual ramps was expected this summer, and the committee may want to wait for the result before approving dual ramps.

20. Working Group Reports

a. **Specifications and Details Outside the Right-of-Way Working Group (4/27/11)**
Peter Kandaris said the group is working in three general areas: additions of new standards (such as detectable warnings); combining/deleting supplements, and revising existing specifications to work on-site. Example areas of discussion where additional work was needed to incorporate supplements included: guard rails, landscaping and irrigation specifications, other types of sidewalks, and backfill/excavation specifications. Mr. Kandaris suggested developing a flow chart to determine updates may be useful. The group also discussed needing additional research on the plasticity index and ABC, and perhaps using the R value in a referee test. He said he appreciated the attendance and participation of industry at the meeting and said the next meeting will be May 25th at 1:30 p.m. at the ARPA offices.

b. **Asphalt Working Group (4/13/11)**
Jeff Benedict said Don Cornelison produced minutes from the meeting which were included in the meeting addendum. He said he expects revisions to about five more sections should be ready to be presented as cases at the next meeting. As mentioned previously, the group is working on a new crack seal section. They are also looking at the recycled asphalt pavement section, which has become a challenge to update to take

into account mix design issues. The next meeting will be May 13th at 7:30 a.m. at the Speedy and Associates office.

c. **Materials Working Group (4/13/11)**
Brian Gallimore said revisions to Section 301 would probably be ready as a case next month. Sections 309/311 revisions were in rough draft form and may also be ready by next month. MAG sections 310, 312, 701, 702 and 705 required much more work. Mr. Gallimore said he was working on MAG 270 to provide adjustment details and asked Mike Samer if Mesa had a supplement that could be used as a starting point. He said he would also work with members of the Water/Sewer group. Additional details from the meeting are in the minutes provided in the addendum. The next meeting is scheduled for May 13th after the Asphalt meeting (around 8:45 a.m.) at the Speedy and Associates office.

d. **Water/Sewer Issues Working Group (4/19/11)**
Jim Badowich said Charles Moses presented information on precast manhole construction and specifically, bases, to the group. This presentation is available on the MAG web site here: http://www.azmag.gov/Events/Event.asp?CMSID=3838.
The group discussed pros and cons of precast vs. cast-in-place bases, compaction issues, and different methods of connecting the pipe with flexible joints. Mr. Kandaris said SRP has sample details he could provide. The group also discussed revising the manhole construction details to be more general since no manufacturers build them exactly to the MAG detail dimensions. Mr. Badowich asked if agencies use anything other than 24" and 30" frames and covers. He said the group discussed adding the manufacturer's name and model number to frames and covers so they would be correctly matched when doing road reconstruction or repairs. Rod Ramos commented that Quest uses different covers. Jim Badowich also asked the committee if they had any information on PVC pipe pressure reclassifications, and how it might affect how the pipe is specified. The next meeting of the water/sewer group is scheduled for May 17th at 1:30 p.m. at the MAG office.

e. **Concrete Working Group (4/21/11)**
Jeff Hearne said notes from the meeting were included in the packet. Group members are working in four sub-areas, and planned to review specifications identified by the Outside ROW Working Group. The group will later bring recommendations back to the MAG committee. Mr. Hearne requested agency staff attend the meetings to help provide guidance on areas of concentration. The next meeting is scheduled for May 18th at 1:30 p.m. at the ARPA office.

21. Staff Reports

Gordon Tyus said he discussed the issue of charging for downloads of electronic files on the website with MAG's executive director. He reported the director preferred to continue making the documents available online for free and even suggested that MAG stops printing books and releases them online only. Mr. Tyus asked for feedback from agency members on whether they would prefer electronic-only versions, if they wished MAG to continue printing

books, or possibly other print-on-demand arrangements. Some discussion of what and how the book could be released electronically followed. Maher Hazine of Peoria said he did not think MAG should release the AutoCAD files, so they would not be modified in plans.

Gordon Tyus also said he worked with the administrative assistant to begin converting the MAG specifications from WordPerfect to Microsoft Word format. The conversion to Word would ease the sharing and revision of MAG specifications in the future. It would also necessitate creating a completely new edition, since in the conversion process the pagination changes, and page specific updates would not be possible. Mr. Tyus asked for feedback from members on whether to continue the conversion based on the likelihood of releasing a new edition. Most members preferred to go ahead with a new edition. Chair Tobiasson said there have been many updates in the past years, and this would allow a clean slate to begin a new book going forward. Maher Hazine of Peoria noted that since the reformatting would be needed on future cases, to wait would create more work in reformatting. It would be more efficient to revise and incorporate sections next year if they were both already in Word format. Several members commented that many books have not been kept up-to-date. Mr. Tyus said the conversion would make it easier to provide links in future web site and PDF versions. It was generally agreed to continue work on the conversion and that a new edition would be warranted this year even if all of the proposed sections were not revised.

22. Open General Discussion

No general discussion topics were introduced.

23. Adjournment:

Chairman Tobiasson adjourned the meeting at 4:05 p.m.

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For
MAG Standard Specifications and Details Committee

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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 *MAG Specifications and Details for Public Works Construction* document.	Peoria/ SRP	Javier Setovich Peter Kandaris	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	Withdrawn 05/04/2011	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 Kandaris	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	Javier Setovich	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 Kandaris	03/02/2011 05/23/2011		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 Kandaris	03/02/2011 05/04/2011		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/ Asphalt WG	Jeff Benedict	05/04/2011 05/13/2011		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 11-08: Revise Section 711 Paving Asphalt to update performance tables and reference AASHTO standards.	AGC/ Asphalt WG	Jeff Benedict	05/04/2011 05/13/2011		0 0 0	Yes No Abstain
11-09	Case 11-09: Preservative Seal for Asphalt Concrete – Revise sections 334 and 718.	AGC/ Asphalt WG	Jeff Benedict	05/04/2011 05/13/2011		0 0 0	Yes No Abstain
11-10	Case 11-10: Curb Ramp Modification for Radial Installations – Create new Detail 234. Revise details 235-1, 235-2 and 235-3.	MCDOT	Bob Herz	05/04/2011		0 0 0	Yes No Abstain
11-11	Case 11-11: Superseded ASTM Specifications: A. Nuclear Density Testing of Soil	OROW WG/ SRP	Peter Kandaris	05/04/2011		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		0 0 0	Yes No Abstain
11-13						0 0 0	Yes No Abstain
11-14						0 0 0	Yes No Abstain

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: Jan 5, 2011

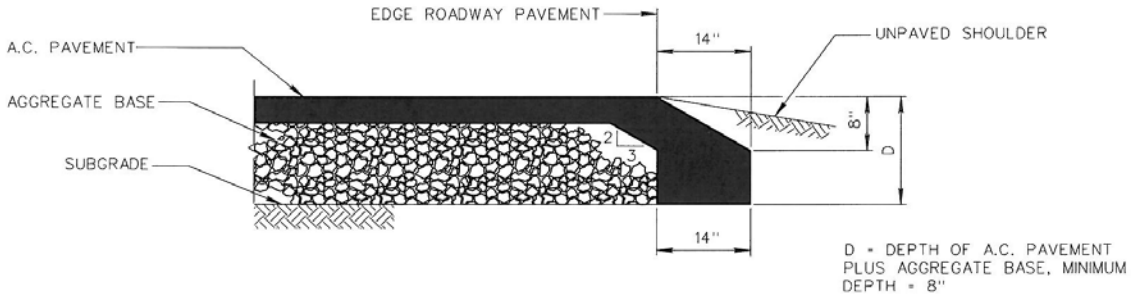
To: MAG Specifications and Details Committee

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.



2901 West Durango Street Phoenix, Arizona 85009 Phone: 602-506-4760 Fax: 602-506-5969

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° ± 5° 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.

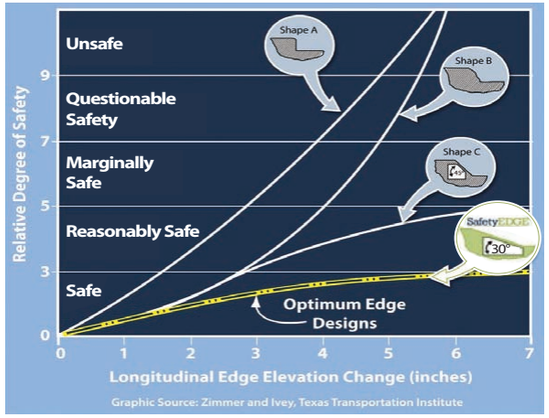
When the depth of the safety edge extends two inches or more below the bottom of the asphalt pavement base course, the portion below the base course shall be placed and compacted as a separate construction operation. The remaining portions of the safety edge shall be constructed as part of each successive 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).

FAQs

Why should I change my current process to include the Safety Edge?

The Safety Edge improves the short- and long-term safety of the roadway. Studies show that severe crashes may occur when a vehicle drops a tire over the edge of a nearly vertical pavement. The research shows that virtually all drivers can recover, even at high speeds, when the pavement edge is a 30-degree wedge. Using the Safety Edge also improves the durability of the pavement edge.

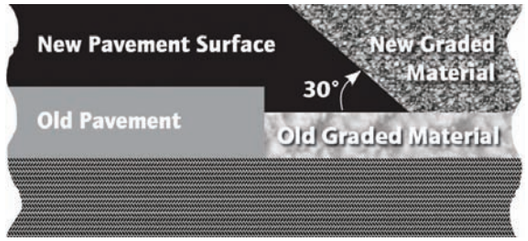


Do I need to modify my paving process to install the Safety Edge on asphalt?

Very few changes are needed. The key item is to add a specially designed shoe, per manufacturer's instructions, to the paver to create the Safety Edge. While paving, the shoe should be monitored and adjusted to keep the bottom edge of the device in contact with the road shoulder surface. Using the Safety Edge should not affect the rate of production.

How much will the addition of the Safety Edge cost per mile?

It will be almost negligible for hot-mix asphalt. It does depend somewhat on the specific design and construction parameters, but typically the process compacts asphalt that often otherwise would break off because it was loose. When measured, it has been calculated to be less than 1 percent additional asphaltic material.



This diagram shows how the Safety Edge is created during a repaving project. As the new graded material begins to settle or erode, the angled and more durable Safety Edge prevents a vertical edge from forming, making the pavement edge safer for drivers and cyclists.

Contact Information

For training or more information on this Every Day Counts Initiative, please contact your local FHWA Division Office.

To learn more about EDC, visit:
http://www.fhwa.dot.gov/everydaycounts

About Every Day Counts

Every Day Counts is designed to identify and deploy innovation aimed at shortening project delivery, enhancing the safety of our roadways, and protecting the environment.

Publication Number: FHWA-SA-10-034

The Safety Edge

A Pavement Edge Drop-Off Treatment

U.S. Department of Transportation
Federal Highway Administration

What is the Safety Edge?

The Safety Edge is a simple but effective solution that can help save lives by allowing drivers who drift off highways to return to the road safely. Instead of a vertical drop-off, the Safety Edge shapes the edge of the pavement to 30 degrees. Research has shown this is the optimal angle to allow drivers to re-enter the roadway safely. The asphalt Safety Edge provides a strong, durable transition for all vehicles. Even at higher speeds, vehicles can return to the paved road smoothly and easily. The FHWA's goal is to accelerate the use of the Safety Edge technology, working with States to develop specifications and adopt this pavement edge treatment as a standard practice on all new paving and resurfacing projects.

The Safety Edge is shown here in the main photo during construction. Upon project completion, the adjacent unpaved material should be graded flush with the top of the pavement (inset photo). The Safety Edge creates a more durable pavement edge and makes recovery from any future drop-off much easier and safer.

How Does It Work?

Drivers leave the paved road for many reasons. When steering the tires back onto the pavement, a vertical edge can make it difficult for a driver to safely re-enter the travel lane. Drivers may over-steer and lose control of the vehicle, leading to severe crashes. The challenge is that a drop-off is created during most paving projects. Even when the unpaved shoulder is regraded to eliminate the drop-off, the edge often becomes exposed within a few months. The edge also may deteriorate.

The Safety Edge is an effective solution to reduce pavement edge-related crashes, by shaping the edge of the pavement to 30 degrees using a commercially available device (called a shoe) that can be attached to the paver. The asphalt is extruded under the shoe, resulting in a durable edge that resists edge raveling. Research has shown this 30-degree shape allows drivers to re-enter the roadway safely.

After paving with the Safety Edge, the adjacent material should be regraded flush with the top of the pavement. This is considered the best practice, and provides the safest pavement edge. The difference is that when the edge becomes exposed, this shape can be more safely traversed than a vertical edge.

The shoe that creates the Safety Edge is a special edging device that asphalt paving contractors can install on new or existing resurfacing equipment.

Quick Facts

Sharp, steep pavement edge drop-offs can contribute to crashes.

- The Safety Edge can help decrease highway fatalities and serious injuries on our Nation's highways.
- Because the Safety Edge provides an additional level of consolidation on the edge, edge raveling is decreased. This contributes to longer pavement life.
- The Safety Edge involves minimal time and cost to implement. Typically, less than 1 percent additional asphalt is needed. The Safety Edge shoe, which creates the edge, can be installed on existing equipment.
- The Safety Edge also can be installed on Portland Cement concrete pavements. (Several differences should be considered. For more information, visit the Safety Edge Web site for details.)
- Best practice is to maintain a flush edge, so that no drop-off exists. The Safety Edge reduces the risk of drop-offs when maintenance forces cannot keep up with erosion or tire wear.
- Vertical and near vertical pavement edge drop-offs have been a factor in a substantial percentage of severe crashes in which vehicles leave the road, particularly on rural roads with unpaved shoulders. The Safety Edge reduces this problem, providing a safer transition back to the road.
- The Safety Edge is a safer design for motorcyclists and bicyclists, as well as motorists.

Case Study: Iowa Adopts Safety Edge Policy

Safety Edge treatment being applied during an asphalt overlay.

The Iowa FHWA Division and the Iowa Department of Transportation (IDOT) recently began working with counties to install the Safety Edge on projects with a history of roadway departure crashes. The Safety Edge was included at the county level on project plans or incorporated as change orders on already-let projects. During one of these county projects, the contractor's safety officer felt positive about the results because the Safety Edge potentially reduced the contractor's liability by providing immediate elimination of the vertical drop-off.

After seeing how easily even large vehicles could traverse the pavement edge without loss of control or damaging the edge, the county decided its typical practice of bringing in a gravel wedge before nightfall was not necessary when the Safety Edge was present. The results were so positive that IDOT decided to use the Safety Edge on one of its State paving projects on a narrow road. Since then, IDOT has decided to adopt the Safety Edge as standard practice across the entire State.

Pavement Edge Drop-Offs Can Contribute to Crashes

Roadway departures account for 53 percent of fatal crashes. State-level studies point to the life-saving potential of the Safety Edge. For example, researchers studying crashes in Missouri during 2002-2004 reported that pavement edges may have been a contributing factor in as many as 24 percent of rural run-off-road crashes on paved roadways with unpaved shoulders. This type of crash was twice as likely to include a fatality than rural crashes overall on similar roads.[1]

When a driver drifts off the roadway and tries to steer back onto the pavement, a vertical pavement edge can create a "tire scrubbing" condition that may result in over-steering. If drivers over-steer to return to the roadway without reducing speed, they are prone to lose control of the vehicle. The resulting crashes tend to be more severe than other crash types. The vehicle may veer into the adjacent lane, where it may collide with oncoming cars; overturn; or run off the opposite side of the roadway and strike a fixed object or overturn on a slope.

This is a typical diagram for a crash caused by tire scrubbing. The vehicle at left scrubbed the edge of the pavement, and when it returned, the driver overcorrected, lost control, crossed into the adjacent lane, and struck an oncoming vehicle.
(Graphic source: AAA Foundation for Highway Safety)

Inexperienced drivers are not the only victims of tire scrubbing. Smaller, lighter vehicles have a harder time climbing a steep pavement edge. At high speeds, the climb is particularly dangerous. According to in-service evaluations, a vertical or near vertical drop-off of 2.5 inches or greater has been shown to pose a significant risk, while pavements built with the Safety Edge showed reductions of more than 5 percent of total crashes .

[1]Hallmark et. al: Safety Impacts of Pavement Edge Drop-Offs, AAA Foundation for Highway Safety, Washington, DC, September 2006.

Federal Highway Administration

Every Day Counts

Innovation Initiative

Safety Edge Construction Webinar

What: The FHWA Safety Edge Team will host a webinar to share lessons learned from the construction of more than 10 demonstration projects completed in 2010 and 2011. Highlights include construction techniques, hardware improvements, testing results, and answers to the most frequently asked questions.

Who: Federal, State, and Local Highway Agency, Industry representatives, contractors

When: May 23rd 1pm – 2:30pm register at:
http://fhwa.adobeconnect.com/safetyedgemay23/event/registration.html

June 1st 1pm – 2:30 pm register at:
http://fhwa.adobeconnect.com/safetyedgejune1/event/registration.html

June 6th 1pm -2:30 pm register at:
http://fhwa.adobeconnect.com/safetyedgejune6/event/registration.html

The webinar location will be sent out to the first 100 registrations for each date. If your selected webinar is full, please register on a different date. The call in number will be displayed it the webroom.

Contact: Chris Wagner, P.E.
Christopher.wagner@dot.gov
404.562.3693

Safety Edge Installation: North Carolina 2011

P.O. Box 52025
Phoenix, AZ 85072-2025
(602) 236-5900

Case 11-04

DATE: May 23, 2011

TO: MAG Specifications and Details Committee Members

FROM: Peter Kandaris, SRP Representative
Outside of Right-of-Way Working Group

RE: **Rock Correction Procedure – Revised for Comments**

Purpose: MAG Detail 190, "Rock Correction Procedure for Maximum Density Determination," is not a construction detail, but a design guide for use by quality control technicians. The procedure does not belong in a construction specification. MAG 190 is referenced only in MAG Section 301 and can be replaced by the standard Arizona rock correction method, ARIZ 227c.

Revisions:

- Replace reference to MAG Detail 190 in MAG Section 301 with ARIZ 227c.
- Replace reference to ASTM D2922 & 3017 in MAG Section 301 with ASTM D6938 (superseded in 2007).
- Delete MAG 190.
- Include the following in Section 101, "Abbreviations and Definitions"

101.1 ABBREVIATIONS:

ARIZ Arizona Department of Transportation test method

101.2 DEFINITIONS AND TERMS:

Arizona Test Method: Arizona Department of Transportation Materials Testing Manual test method.

SECTION 301

SUBGRADE PREPARATION

301.1 DESCRIPTION:

This section shall govern the preparation of natural, or excavated areas prior to the placement of sub-base material, pavement, curbs and gutters, driveways, sidewalks or other structures. It shall include stripping and disposal of all unsuitable material including existing pavement and obstructions such as stumps, roots, rocks, etc., from the area to be paved.

301.2 PREPARATION OF SUBGRADE:

With the exception of areas where compacted fills have been constructed as specified in Section 211, in the areas where new construction is required, the moisture content shall be brought to that required for compaction by the addition of water, by the addition and blending of dry, suitable material or by the drying of existing material. The material shall then be compacted to the specified relative density. If pumping subgrade should become evident at any time prior to paving, the Engineer may require proof rolling with a pneumatic-tire roller or other approved equipment in order to identify the limits of the unacceptable area. The proof rolling will be performed at no additional cost to the Contracting Agency.

Subgrade preparation shall also include preparing the subgrade to the required line and grade for paved or unpaved shoulders, tapers, turnouts, and driveways, and at all other project locations where aggregate base and/or select material courses are used in accordance with the Project Plans.

301.2.1 The Contractor may use removed existing asphalt concrete and other existing bituminous roadway surfacing materials originating on the project site, as embankment fill. All materials used shall be thoroughly crushed to sizes not exceeding four inches, or as approved by the Engineer. These asphalt/bituminous materials shall be placed not less than two feet below finished subgrade elevation.

Project earthwork quantities when included as separate contract pay items will include removed asphalt/bituminous material volumes, unless otherwise specified in the Special Provisions.

All unsuitable material and all excess material shall be disposed of in accordance with the requirements of Sections 205.2 and 205.6, respectively. When additional material is required for fill, it shall conform to Section 210.

301.3 RELATIVE COMPACTION:

The subgrade shall be scarified and loosened to a depth of 6 inches. Rock 6-inches or greater in size that becomes exposed due to scarification shall be removed from the scarified subgrade. When fill material is required, a layer of approximately 3 inches may be spread and compacted with the subgrade material to provide a better bond. The subgrade cut and fill areas shall be constructed to achieve a uniform soil structure having the following minimum compaction, measured as a percentage of maximum dry density when tested in accordance with AASHTO T-99, Method A, and T-191 or ~~ASTM D-2922 and D-3017~~ ASTM D-6938 with the percent of density adjusted in accordance with the rock correction procedures for maximum density determination, ~~Standard Detail 190~~ARIZ 227c [(1)], to compensate for the rock content larger than that which will pass a No. 4 sieve. Unless otherwise noted in the project plans or project

[(1)] Arizona Department of Transportation test method

specifications, compaction shall be performed within 2 percentage points of the optimum moisture content.

(A) Below pavement, curb & gutter, attached sidewalk, roadway shoulders, and other areas within right-of-way subject to vehicular traffic	95 percent
(B) Below detached sidewalk not subject to vehicular traffic	85 percent

301.4 SUBGRADE TOLERANCES:

Subgrade upon which pavement, sidewalk, curb and gutter, driveways, or other structures are to be directly placed shall not vary more than 1/4 inch from the specified grade and cross-section. Subgrade upon which sub-base or base material is to be placed shall not vary more than 3/4 inch from the specified grade and cross-section. Variations within the above specified tolerances shall be compensating so that the average grade and cross-section specified are met.

301.5 GRADING OF AREAS NOT TO BE PAVED:

Areas where grade only is called for on the plan shall be graded to meet the tolerances for the subgrade where subbase or base material is to be placed. The surface shall be constructed to a straight grade from the finished pavement elevations shown on the plans to the elevation of the existing ground at the extremities of the area to be graded.

301.6 PROTECTION OF EXISTING FACILITIES:

The Contractor shall exercise extreme caution to prevent debris from falling into manholes or other structures. In the event that debris should fall into a structure it shall immediately be removed.

301.7 MEASUREMENT:

Measurement for Subgrade Preparation will be by the square yard. The area to be measured will be the total accepted area of new asphalt or Portland cement pavement, including paved shoulders, tapers, and turnouts, and unpaved roadway shoulders. Measurement will also include driveways that are paved or are surfaced with aggregate base or select materials. The area under concrete curb and gutter, sidewalk, concrete driveway entrances, and concrete alley entrances will not be included in this pay item.

Project earthwork quantities for Roadway Excavation, Borrow Excavation, and Fill Construction shall not be separately measured when they are not listed as separate line items on the fee proposal form. In such case, unless otherwise specified, payment for said earthwork items shall be included in the unit price for Subgrade Preparation.

301.8 PAYMENT:

Payment for Subgrade Preparation will be made only when it is performed for street or roadway paving projects.

Payment shall be compensation in full for stripping, scarifying, grading, excavating, hauling, filling, compacting, and disposing of excess or unsuitable materials, together with all costs incidental thereto.

P.O. Box 52025
Phoenix, AZ 85072-2025
(602) 236-5900

Case 11-05

DATE: May 4, 2011

TO: MAG Specifications and Details Committee Members

FROM: Peter Kandaris, SRP Representative
Outside of Right-of-Way Working Group

RE: **Water Requirements – Revisions per Comments**

Purpose: MAG Section 225, "Watering," provides no technical guidance for the performance of work and is general in scope. The section should be placed in Part 100, General Conditions.

Revisions: Move all of MAG 225 to MAG Section 104.1.3. Modify the last paragraph in this section to read as follows:

The cost of watering will be included in the proposal price ~~bid~~ for the construction operation to which such watering is incidental or appurtenant~~, unless otherwise provided for in the special provisions or proposal~~.

Re-number MAG 104 as needed.

Delete MAG 225.

Delete all but the first sentence of the last paragraph of 104.1.1. These items are covered by MAG Section/paragraph 107.9.

Delete reference to MAG 225 in Section 311.2.

SECTION 104

SCOPE OF WORK

104.1 WORK TO BE DONE:

104.1.1 General: The Contractor shall perform all work as may be necessary to complete the contract in a satisfactory and acceptable manner in full compliance with the plans, specifications and terms of the contract.

In the event a conflict exists between Contract Documents the order of precedence listed in descending order shall be as follows:

Change Orders
Addenda
Special Provisions
Project Plans
Contracting Agency's supplements to the MAG Uniform Standard Specifications and Details
MAG Uniform Standard Specifications
MAG Standard Details

Unless otherwise specified in the special provisions, The Contractor shall furnish all labor, materials, equipment, transportation, utilities, services and facilities required to perform all work for the construction of the project within the time specified. ~~All existing concrete or bituminous surfaced sidewalks, driveways and alleys which were disturbed by the Contractor at the direction of the Engineer, shall be replaced. Private concrete or bituminous surfaced sidewalks and driveways, which were disturbed by the new improvements must be replaced. The slope of the replaced sidewalk or driveway must comply with the agency's minimum standards. If the standard cannot be constructed within the disturbed area, the Contractor shall remove and replace to a distance required to obtain the slope. Payment for such work will be made under the respective pay items provided for in the contract, or by agreed prices in advance, if no pay items are provided for in the contract.~~

104.1.2 Maintenance of Traffic: The Contractor's operations shall be in accordance with the traffic manual and/or policies of the appropriate public agency having jurisdiction over the project and Section 401. These operations shall cause no unnecessary inconvenience to the public and public access rights shall be considered at all times. Unless otherwise authorized in the specifications or on a temporary basis by the Engineer, traffic shall be permitted to pass through the work area. The Contractor shall coordinate with the various agencies both commercial and public, involved in the collection and removal of trash and garbage, so that adequate services are maintained.

Safe and adequate pedestrian and vehicular access shall be provided and maintained to fire hydrants, commercial and industrial establishments, churches, schools, parking lots, motel, hospitals, fire stations, police stations, and establishments of a similar nature. Access to residential properties shall be in accordance with Section 107.

Grading operations, roadway excavation and fill construction shall be conducted and maintained in such a manner as to provide a reasonably satisfactory and safe surface for vehicular and pedestrian traffic. When rough grading is completed, the roadbed shall be brought to and maintained in a reasonably smooth condition, satisfactory and safe for vehicular traffic at the posted speed limit. Pedestrian walkways shall be provided and maintained in a like manner. The Contractor shall accomplish any additional grading

operations and/or repairs, including barricade replacement or repairs during working and nonworking periods which, in the opinion of the Engineer, are required.

In the event of abnormal weather conditions, such as windstorms, rainstorms, etc., the Contractor shall immediately inspect his work area and take all necessary actions to insure that public access and safety are maintained.

The Contractor shall provide the Engineer with the emergency address of his representatives as required by Section 105.

104.1.3 Water Supply:

Water shall consist of providing a water supply sufficient for the needs of the project and the hauling and applying of all water required.

The Contractor shall make arrangements for and provide all necessary water for his construction operation and domestic use at his own expense.

If the Contractor purchases water from a water utility at a fire hydrant on or near the project, all arrangements shall be made by him at his own expense and payment made direct to the water utility as agreed upon.

The Contractor shall use only those hydrants designated by the water utility in charge of water distribution and in strict accordance with its requirements for hydrant use.

The Contractor shall furnish all connections, wrenches, valves and small tools that may be necessary to meet the requirements of the water utility pertaining to hydrant use.

The tank truck and/or trailer shall meet all safety and licensing regulations and the water shall be applied by sprinkling with tank trucks equipped with spray bars and suitable apparatus.

No measurement will be made of water, unless otherwise provided for in the special provisions or proposal.

The cost of watering will be included in the proposal price for the construction operation to which such watering is incidental or appurtenant.

104.1.~~3~~ 4 Cleanup and Dust Control: Throughout all phases of construction, including suspension of work, and until final acceptance of the project, the Contractor shall keep the work area clean and free from rubbish, excess materials and debris generated by Construction Activities.

At disposal sites and storage sites, other than agency landfills, the Contractor shall be responsible for all required dust control measures. This includes temporary yard or staging areas.

The Contractor shall take whatever steps, procedures or means required to prevent any dust nuisance due to his construction operations. The dust control measures shall be maintained at all times to the satisfaction of the Engineer and in accordance with the requirements of the Maricopa County Bureau of Air Pollution Control Rules and Regulations.

Failure of the Contractor to comply with the Engineer's cleanup orders may result in an order to suspend work until the condition is corrected. No additional compensation or time will be allowed as a result of

such suspension and the Engineer has the authority to take such other measures as may be necessary to remedy the situation. Subsection 104.2.5 applies.

104.1.4 ~~4~~ 5 Final Cleaning Up: Before final acceptance, all private or public property and grounds occupied by the Contractor in connection with the work shall be cleaned of all rubbish, excess materials, temporary structures and equipment, and all parts of the work area shall be left in an acceptable condition.

104.2 ALTERATION OF WORK:

***104.2.1 By the Contracting Agency:** The Contracting Agency reserves the right to make, at anytime during the progress of the work, such alterations in the details of construction and such increases or decreases in quantities as may be found necessary or desirable. Such alterations and changes shall not invalidate the contract nor release the surety and the Contractor agrees to perform the work as altered, the same as if it had been a part of the original contract. The Engineer will issue Change Orders to cover unforeseen circumstances which make it impossible to carry out the work in accordance with the original contract plans and specifications.

If the alterations or changes made by the Contracting Agency increases or decreases the total cost of the contract or the total cost of any major item by more than 20 percent, either party may request an adjustment in payment in accordance with Section 109.

104.2.2 Due to Physical Conditions:

***(A) Should the Contractor encounter or discover during the process of the work, subsurface or latent physical conditions at the site differing materially from those indicated in the contract, or unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for
in the contract, the Engineer shall be promptly notified in writing of such conditions before they are disturbed. The Engineer will thereupon promptly investigate the conditions and, if he finds they do so materially differ and cause an increase or decrease in the cost of or the time required for performance of the contract, an equitable adjustment will be made and the contract modified in writing accordingly.

***(B) If at the time of opening up any portion of the work, material from which the subgrade, backfill or bedding is to be constructed contains an excess of moisture so that the required compaction cannot be obtained without additional manipulation, the Engineer will determine the cause of such condition. If the cause of such condition is determined to have been unforeseeable and beyond the control of and without fault or negligence of the Contractor, the Engineer will determine whether the material shall be aerated or removed and replaced. Such work shall be done as directed and will be paid for as provided in Section 109.

***(C) Failure to notify the Engineer of the conditions described in A and B above prior to doing any work may be just cause to reject any claims for additional monies and/or time. ***(D) Material in ditches and ditch banks that contains moisture in an amount considered excessive by the Engineer shall be removed and shall be aerated to the extent required by the Engineer before compaction is effected. No measurement or direct payment for the removal and aeration of such material will be made.

***(E) After any portion of the work has been opened up, saturation of material caused by irrigation water, storm drainage, weather or such similar causes will be considered as within the responsibility of the Contractor.

***104.2.3 Due to Extra Work:** The Contractor shall perform unforeseen work, for which there is no unit bid price in the proposal, whenever it is deemed necessary or desirable by the Engineer in order to fully complete the work as contemplated. Such work shall be governed by all applicable provisions of the contract documents and payment will be made in accordance with the provisions set forth in Section 109.

Should the Contractor claim that any instructions received involve extra work under the contract, he shall give the Engineer written notice within two work days after receipt of such instructions, and in any event before proceeding to execute the work, except in emergencies endangering life or property. No claim shall be valid unless written notice is given.

If this extra work is performed by others, the Contractor agrees to cooperate fully with the other source accomplishing this work and agrees that this action shall not invalidate the Contract or release the surety.

104.2.4 At the Contractor's Request: Changes in the plans or specifications, which do not materially affect and are not detrimental to the work or to the interests of the Contracting Agency, may be granted to facilitate the work. Requests shall be in writing and submitted to the Engineer for approval. These changes, if approved and when resulting in a saving to the Contractor, will be made at an equitable reduction in cost or in no case at any additional cost to the Contracting Agency.

104.2.5 Due to the Failure of the Contractor to Properly Maintain the Project:

(A) If the Contractor fails to provide adequate Maintenance of Traffic or Cleanup and Dust Control or to correct deficiencies resulting from abnormal weather conditions, the Engineer has the authority to suspend the work wholly or in part until this condition has been corrected.

(B) If the Contractor fails to comply with the Engineer's written order to provide adequate maintenance of traffic, cleanup, dust control, or to correct deficiencies resulting from abnormal weather conditions, the Engineer has the authority to have this work accomplished by other sources.

(C) The Contractor agrees to cooperate fully with the other source accomplishing this work and agrees that this action shall not invalidate the Contract or release the surety.

---

*Not applicable to Improvement District Projects.

SECTION 311

SOIL CEMENT BASE COURSE

311.1 DESCRIPTION:

This item shall consist of a base course composed of a mixture of local soil, portland cement, and water compacted at optimum moisture content.

311.2 MATERIALS:

Portland cement and water shall comply with Sections 725~~ and 225~~. The soil for the mixture shall consist of the material in the area to be paved. The material shall not contain more than 5 percent gravel or stone retained on a 3 inches sieve. It shall be demonstrated by laboratory tests that the plasticity and hardening characteristics of the soil will be adequately modified by the specified cement content.

311.3 EQUIPMENT:

An ample number of machines, combination of machines and equipment shall be provided and used to produce the complete soil cement base course meeting the requirements for soil pulverization, cement distribution, water application, incorporation of materials, compaction, finishing, and for application of the curing material as provided in these specifications.

Mixing shall be accomplished by means of multiple-pass soil-cement mixer, single-pass soil-cement mixer or central plant mixer.

Water may be applied through the mixer or with the water trucks equipped with pressure sprays. Water trucks providing fine fog-type sprays shall be furnished for finishing and curing. Properly adjusted garden type nozzles on a pressure bar may be used to produce fog spray if approved by the Engineer.

Cement spreader shall be a specially constructed device to distribute bulk cement uniformly at rate specified either in windrows or on the flat as determined by method of mixing.

311.4 CONSTRUCTION METHODS:

Before undertaking construction of the soil cement base course, the area to be paved shall be brought to a compacted condition, true to line and grade as directed by the Engineer or as shown on the plans. During this process any unsuitable soil or material, including excess material retained on a 3 inches sieve, shall be removed and replaced with acceptable material. The compacted surface shall be at the proper elevation as specified, shown on the plans, or as directed by the Engineer, for the top of the soil cement base. At completion of this phase, the material and surface shall be approved by the Engineer before proceeding with the next step.

The material shall be scarified, pulverized, mixed with water and cement, compacted and finished and cured in lengths permitting the full roadway width to be complete in not more than 4 hours from the time that cement is exposed to water. Such lengths will generally be not less than 600 feet or the length of one City block and preferably more. Where a gutter section exists the material shall be pulled back from the gutter face for the full depth of the course before processing.

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 HMAC 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 HMAC 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 ad-mixture 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 evidence 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 AASHTO M320 with the PAV temperature changes noted herein this table.

TABLE 711-1

PERFORMANCE GRADING SYSTEM

	PG 58-22	**PG 64-16**	**PG 70-10**	**PG-76-16**
Original Asphalt				
Viscosity, ASTM D4402 (Note 1) Max. 3 Pa·s, Test Temp, °C	135	135	135	135
Dynamic Shear (Note 2) G*/Sinδ, Min., 1.0 kPa Test Temp. @ 10 rad/s, °C	58	64	70	76
Rolling Thin Film Oven Residue (AASHTO T240)				
Mass Loss, Maximum % Dynamic Shear G*/sinδ, 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 (AASHTO R28)				
PAV Aging Temperature, °C	100	100	110	110
Dynamic Shear G*sinδ, Max., 5000 kPa Test Temp. @ 10 rad/s, °C	22	28	34	34
Creep Stiffness, AASHTO T313 S, Maximum, 300 MPa *m*-value, Minimum, 0.300 Test Temp. @60s, °C	-12	-6	0	-6
Direct Tension, (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 waved 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*/sinδ at test temperatures when the asphalt is a Newtonian fluid. Any suitable standard means of viscosity measurement may be used, including vacuum capillary or rotational viscometer (T202 or T316).

(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 not exceed 340°F. ~~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.

TABLE 711-3

PAVING ASPHALT QUANTITY CONVERSION

Grade of Material	Gals. Per Ton of 60 °F.	Lbs. Per Gal at 60 °F.
PG 58-22	235	8.5
PG 64-16	235	8.5
PG 70-10	235	8.5
PG 76-16	233	8.6

SECTION 334

PRESERVATIVE SEAL FOR ASPHALT CONCRETE

334.1 DESCRIPTION:

The asphalt concrete preservative seal shall be composed of an emulsified asphalt or ~~penetrating softening agent and~~ asphalt sealant to ~~rejuvenate and~~ preserve the asphalt concrete pavement.

Preservative seals are applicable for ~~new and existing~~ asphalt pavements as directed on the plans, special provisions, or the Engineer.

334.2 MATERIALS:

The preservative seal shall be as specified by the engineer.
They shall be one of the following materials:
Acrylic polymer emulsion (section 718, type A)
CSS-1, or SS-1h (section 713)
A "filled" asphalt sealer such as Sealmaster's TRMSS or equal (section 718 type C)

334.3 CONSTRUCTION METHOD:

The material shall be approved by the Engineer in accordance to this specification. The application rates, dilution and curing shall be directed by the Engineer in accordance with this specification.

The application rate will be based upon a typical surface condition test site with application rate trials to determine the needed rate. All application rates specified in Section 712 shall be a diluted 50-50 ~~preservative seal~~ emulsified asphalt and water, except as recommended by the manufacturer for Type C ~~D~~. Any over applied seal will be sanded as directed by the Engineer. Application equipment shall be in accordance with Section 330.

Before opening a treated area to traffic, the surface shall be checked for slipperiness and/or tackiness. If the treated portion of the roadway must be opened to traffic prior to the disappearance of slipperiness and/or tackiness, the surface shall be sanded with a minimum of 1 ½ pounds per square yard or as directed by the Engineer. Sand Blotter shall comply with Section 333.

334.4 MEASUREMENT:

Preservative seal for asphalt concrete will be measured by the gallon or ton applied ~~including dilutent~~.

334.5 PAYMENT:

Payment will be made on the basis of the unit price bid in the proposal. Payment shall be full compensation for preservative seal complete and in place.

SECTION 718
PRESERVATIVE SEAL FOR ASPHALT CONCRETE PAVEMENT

718.1 GENERAL

Asphalt Concrete preservative seal shall be one of the following types or equal, with typical application rates.

Type A- Acrylic polymer, modified emulsion. Diluted to the manufacture's recommendation and applied at a rate of 0.10 to 0.20 gallons per square yard.

Type B- Emulsified asphalt, type SS-1h or CSS-1h. Diluted to 1:1 with hot water, and applied at a rate of 0.10 to 0.20 gallons per square yard. Material shall meet all requirements in section 713 as well as those specified in Table 718-1.

Type C- SealMaster® TRMSS or equal (not diluted), and applied at a rate of 0.10 to 0.20 gallons per square yard.

718.2 TEST METHODS AND REQUIREMENTS

Preservative seal for asphalt concrete material, shall meet Type A, B, or C on table 718-1 by certification from the manufacturer.

All tests shall be performed by AMRL accredited laboratory, accredited in the specified test being performed.

Table 718-1

**Properties ***note 2		Type-A	Type-B	Type-C
Saybolt Viscosity @77F (sfs)	AASHTO T72	15-40	20-100	45-55(KU)*note 1
Residue by evaporation at (325°F)	AASHTO T59	53 Min.	57 Min.	
Residue by evaporation, %	ASTM D2939	N/A	N/A	30 - 40
Sieve test %	AASHTO T59	0.10 max.	0.10 max.	N/A
Test on residue from evaporation AASHTO T59				
Flash point, F	AASHTO T48	450 Min..	450 Min..	450 Min..
Softening point, °F	AASHTO T53	130 Min.	N/A	130 Min.
Accelerated weathering test		Report		Report
Ductility at 77°F,100g 5, sec.	AASHTO T51	20 Min.	40 Min.	N/A
Storage stability, 24 hours, %	ASTM D4799	N/A	97.5 Min	N/A

Notes:
1, Kreb units (ASTM D562)
2. A full set of tests shall be performed as specified by the special provisions in the undiluted condition. These , and any other specified tests will be performed at the expense of the contractor.

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: May 4, 2011

To: MAG Specifications and Details Committee

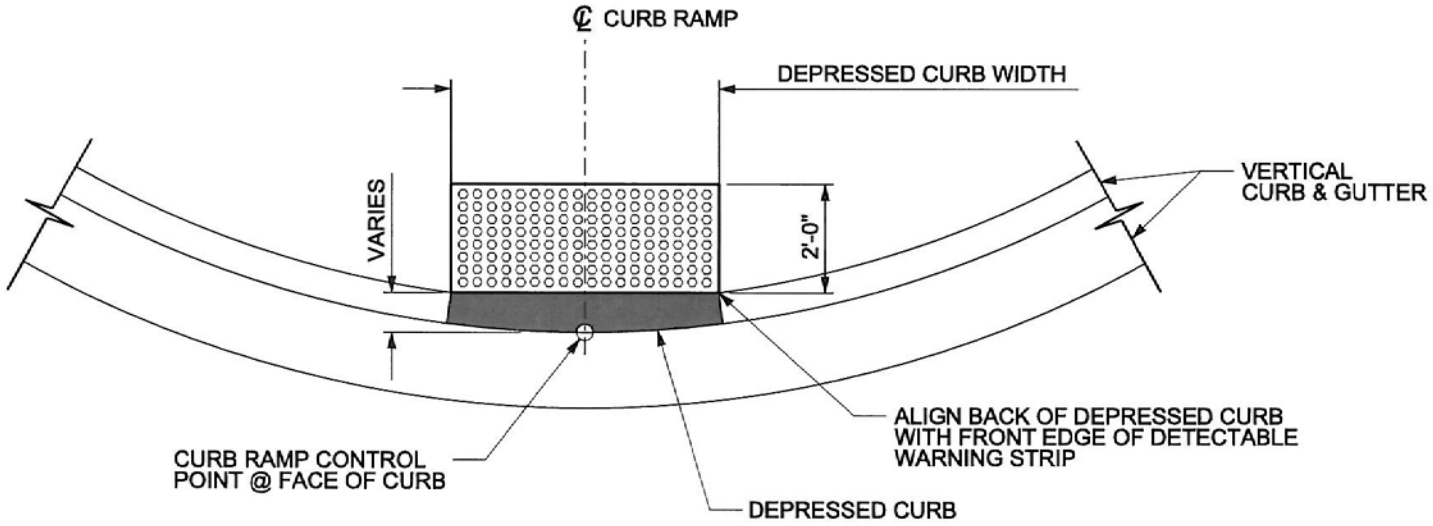
From: Robert Herz, MCDOT Representative

Subject: Curb Ramp Modification for Radial Installations **Case 11-10**

PURPOSE: Eliminate concrete spalling that may occur in the narrow circular segment between the back of curb and the detectable warnings for curb ramps installed within a curb return.

REVISION: Modify the back of curb to include the circular segment area between the back of curb and the detectable warnings. This proposed revision involves the creation of the attached new Detail 234 showing the curb modification and also revising Type A, B, and C Curb Ramps shown in Details 235-1, 235-2 and 235-3.

2901 West Durango Street Phoenix, Arizona 85009 Phone: 602-506-4760 Fax: 602-506-5969

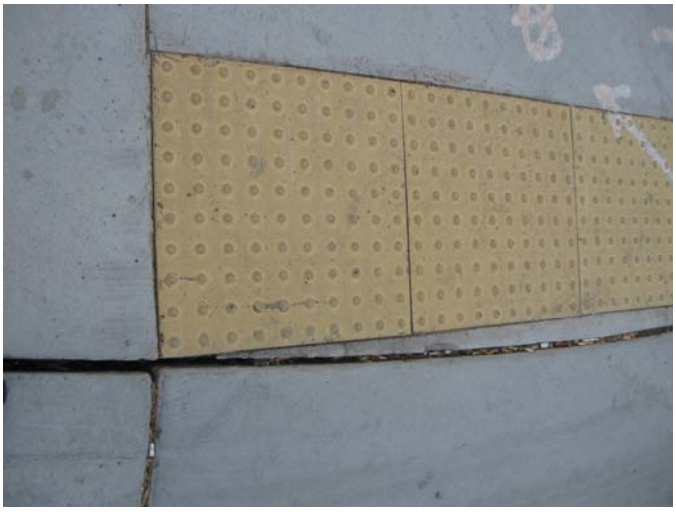


CURB MODIFICATION @ DETECTABLE WARNING

DETAIL NO.			REVISED	DETAIL NO.
234	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	CURB MODIFICATION @ DETECTABLE WARNING		234

ADA Ramp Pictures

The Problem: Note that the thin sliver of concrete is breaking out due to the difference of expansion between materials and or being run over by trucks.



P.O. Box 52025
Phoenix, AZ 85072-2025
(602) 236-5900

Case 11-11(a)

DATE: May 4, 2011

TO: MAG Specifications and Details Committee Members

FROM: Peter Kandaris, SRP Representative

RE: **Superseded ASTM Specification: Nuclear Density Testing of Soil**

Purpose: ASTM standard D3017, "Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)," and standard D2922, "Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)" were withdrawn in 2007 and replaced with ASTM D6938, "Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)."

Revisions: Replace references to ASTM D3017 & D2922 with ASTM D6938 in the following MAG specification pages and paragraphs:

Page	Paragraph
211-2	211.4
301-1	301.3
311-2	311.4.4
312-1	312.3
313-2	313.8
601-2	601.2.5
601-5	601.4.4
620-1	620.3.1

Withdrawn Standard: ASTM D3017-05 Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth) (Witthdrawn 2007)

Developed by Subcommittee: D18.08

WITHDRAWN, REPLACED BY D6938

Withdrawn Rationale:

This test method covers the determination of water content of soil and rock by the thermalization or slowing of fast neutrons where the neutron source and the thermal neutron detector both remain at the surface.

Formerly under the jurisdiction of ASTM Committee D18 on Soil and Rock, his test method was discontinued in May 2007.

1. Scope

1.1 This test method covers the determination of water content of soil and rock by the thermalization or slowing of fast neutrons where the neutron source and the thermal neutron detector both remain at the surface.

1.2 The water content in mass per unit volume of the material under test is determined by comparing the detection rate of thermalized or slow neutrons with previously established calibration data.

1.3 The values stated in SI units are to be regarded as the standard. The inch-pound equivalents may be approximate.

1.3.1 It is common practice in the engineering profession to concurrently use pounds to represent both a unit of mass (lbm) and of force (lbf). This implicitly combines two systems of units, that is, the absolute system and the gravitational system. This test method has been written using the absolute system for water content (kilograms per cubic metre) in SI units. Conversion to the gravitational system of unit weight in lbf/ft^3 may be made by multiplying by 0.06243 or in kN/m^3 by multiplying by 9.807. The recording of water content in pound-force per cubic foot should not be regarded as non-conformance with this test method although the use is scientifically incorrect.

This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

Withdrawn Standard: ASTM D2922-05 Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth) (Withdrawn 2007)

Developed by Subcommittee: D18.08

WITHDRAWN, REPLACED BY D6938

Withdrawn Rationale:

These test methods cover the determination of the total or wet density of soil and soil-rock mixtures by the attenuation of gamma radiation where the source and detector(s) remain on the surface (Backscatter Method) or the source or detector is placed at a known depth up to 300 mm (12 in.) while the detector(s) or source remains on the surface (Direct Transmission Method).

Formerly under the jurisdiction of ASTM Committee D18 on Soil and Rock, these test methods were discontinued in May 2007.

1. Scope

1.1 These test methods cover the determination of the total or wet density of soil and soil-rock mixtures by the attenuation of gamma radiation where the source and detector(s) remain on the surface (Backscatter Method) or the source or detector is placed at a known depth up to 300 mm (12 in.) while the detector(s) or source remains on the surface (Direct Transmission Method).

1.2 The density in mass per unit volume of the material under test is determined by comparing the detected rate of gamma radiation with previously established calibration data.

1.3 The values tested in SI units are to be regarded as the standard. The inch-pound equivalents may be approximate.

1.4 It is common practice in the engineering profession to concurrently use pounds to represent both a unit of mass (lbm) and a unit of force (lbf). This implicitly combines two separate systems of units; that is, the absolute system and the gravitational system. It is scientifically undesirable to combine the use of two separate sets of inch-pound units within a single standard. These test methods have been written using the gravitational system of units when dealing with the inch-pound system. In this system the pound (lbf) represents a unit of force (weight). However, the use of balances or scales recording pounds of mass (lbm), or the recording of density in lbm/ft ^{3} should not be regarded as nonconformance with these test methods.

P.O. Box 52025
Phoenix, AZ 85072-2025
(602) 236-5900

Case 11-12

DATE: May 4, 2011

TO: MAG Specifications and Details Committee Members

FROM: Peter Kandaris, SRP Representative
Outside of Right-of-Way Working Group

RE: **Modifications to Regulatory Requirements, MAG 107**

Purpose: MAG standards are absent of requirements for Native Arizona Plants. Rules are provided in ARS Title 3, Chapter 7.

Revisions: Reference ARS Title 3, Chapter 7 in MAG 107.1

Additional: MAG 107.1(A) references ARS 23-373. The current state statutes no longer include this statute. A new reference is needed (possibly ARS 23-425 and/or a statute within ARS 34). Agencies should consult their legal departments to determine the most appropriate revised reference.

SECTION 107

LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

107.1 LAWS TO BE OBSERVED:

The Contractor shall keep fully informed of 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 with all such laws, ordinances, regulations, codes, orders and decrees; and 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 or his 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.

(G) Arizona Revised Statutes Title 3, Chapter 7, Native Arizona Plants. Those native plant species which are protected by the State of Arizona must be preserved at all times. When it is necessary to remove any of these protected plant species from the site, use suitable methods in the excavation, handling and transportation to ensure they are not damaged.

Title 23 - Labor

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23-425. Employee discharge or discrimination

A. No person shall discharge or in any manner discriminate against any employee because such employee has filed any complaint or instituted or caused to be instituted any proceeding under or related to this article or has testified or is about to testify in any such proceeding or because of the exercise by such employee on behalf of himself or others of any right afforded by this article.

B. Any employee who believes that he has been discharged or otherwise discriminated against by any person in violation of this section may within thirty days after such violation occurs, file a complaint with the commission alleging such discrimination. Upon receipt of such complaint, the commission shall cause such investigation to be made as it deems appropriate. If upon such investigation, the commission determines that the provisions of this section have been violated, it shall bring an action in any appropriate superior court against such person. In any such action the superior court shall have jurisdiction for cause shown to restrain violations of subsection A and order all appropriate relief including rehiring or reinstatement of the employee to his former position with back pay.

C. Within ninety days of the receipt of a complaint filed under this section the commission shall notify the complainant of its determination under subsection B.

Title 34 - Public Buildings and Improvements

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Water/Sewer Working Group Meeting

Meeting Notes
May 17, 2011

Opening:
A meeting of the Specifications and Details Water/Sewer Working Group was called to order by Scott Zipprich on May 17, 2011 at 1:30 p.m. in the MAG Ocotillo Room.

Present:
Rita Chihanik (Deeter/Neenah), Chad Dixon (AGC), Brian Gallimore (AGC), Charles Moses (Jensen), Gordon Tyus (MAG), Scott Zipprich (Buckeye).

1. Introductions
Scott Zipprich said that working group chair Jim Badowich was unable to attend the meeting and asked him to fill in. Other attendees greeted and exchanged cards.

2. Review April Meeting
Gordon Tyus provided notes from the April 15th meeting for members to review. Mr. Zipprich referred to projects underway and asked to receive updates from other members as described below.

3. Manhole Frame and Cover Presentation
Rita Chiharik of Deeter/Neenah Foundry presented draft details of 24" and 30" manhole frames and covers. She also provided details for 24" and 30" details for water tight and pressure tight versions. These details would replace current MAG Details 423, 424 and 523. For clarity the 24" and 30" details are on separate sheets. Mr. Tyus noted they should be labeled 423-1 and 423-2 for example. Ms. Chiharik noted that these details met ASTM A-48 class 35 and AASHTO 306 for load bearing. There was discussion on variations on of agency identification and logos. Scott Zipprich asked to add a note indicating the manufacturer inscribed on the frame and cover. He also asked members to review and make any changes necessary to Section 787 Grey Iron Castings. Ms. Chiharik said she would make updates and email the detail drawings. Mr. Zipprich said once these were completed he would like to introduce it as a MAG case at the next full committee meeting.

4. Adjustments to Frames and Covers
Brian Gallimore began discussion about creating new specifications and details for frame and cover adjustments when repaving. Members reviewed MAG Detail 270. Scott Zipprich suggested moving the Frame and Grade adjustment detail to a separate sheet (possibly 271) and updating it to show the process required for making the adjustments (lowing and raising) during construction. There was also discussion about problems with the covers coming up, and whether to include the chain detail. Ms. Chiharik said some agencies do use chains, but her company also created a frame for Yuma with a longer collar and a heavy lid. It was suggested that this type of detail be added as an option.

5. Specs/Details Being Considered for Removal
Scott Zipprich said he had nothing new but was planning to update the case for the next MAG meeting.

6. New Fire Hydrant Details
Mr. Zipprich passed out draft hydrant details both for dry barrel and wet barrel types based on details from Buckeye and Avondale. He hoped that adding these details and providing notes to allow agency specific variances, (such as placement of the flange and break-off valve) the supplements to MAG would be reduced. Members discussed the depiction of the thrust blocks in the details, and also as shown in MAG 380, and the consensus was to make them look more "blob-like" in general. There was also discussion about when and where mechanical restraints are used instead of thrust blocks. Scott Zipprich noted that these details are in the draft stage, and he was planning to add a third sheet that included more details, and a plan view of the hydrant with required restrictions within 3 and 10 foot circles.

7. Pre-cast Manholes
Charles Moses is working with Buckeye on a current project. Details created for Buckeye may be used as a basis for a new MAG detail in the future. Jim Badowich updated the full committee on the pre-cast manhole bases at the last meeting, and the presentation has been posted on the MAG website.

8. Other Revisions
Attendees further discussed frame and cover adjustments relating to details other that 270 such as 391-1 and 391-2. It was suggested that the adjustment parts of the details be moved to a more general (new) 271 Frame and Cover Grade Adjustment (name TBD) detail. Chad Dixon said he reviewed these and other related details, and could provide feedback. Scott Zipprich noted that as a new detail was created it would make sense to clean up the others. He noted there was no detail for the cover of the Type C Valve Box on Detail 391-1, and suggested making sure it specified the heavier covers.

Brian Gallimore said he was working on revising Section 621 Corrugated Metal Pipe, and thought MAG needed a frame and grate/cover detail for it. Rita Chiharik said she would see if they had anything. Scott Zipprich said he might find something in Chandler's underground details. This section may be moved to the MAG Outside Right-of-Way book.

9. Case Assignments
Members agreed to continue work on the draft cases discussed.

10. Next Meeting Date
Members agreed to meet again on Tuesday, June 21st at 1:30 at the MAG office.

MAG Concrete Working Group

Meeting Notes

Wednesday, May 18, 2011, 1:30 pm at the ARPA Offices

Present:

See attached attendance sheet.

Discussion:

First pass reviews were emailed to members prior to the meeting as follows:

324	Portland Cement Concrete Street Pavement
340	Concrete Curb, Gutter, Sidewalk, etc.
342	Decorative Pavement Concrete Paving Stone or Brick – Detail 225
505	Concrete Structures
511	Brick Masonry
525	Pneumatically Placed Mortar
702	Base Materials
703	Rip Rap
775	Brick and Concrete Masonry Units (Blocks)
776	Masonry Mortar and Grout

1) The group went over section 220 on Riprap which let to discussions on sections 703 and 701. It was determined that 220 and 701 could be revised to incorporate key sentences from 703 - eliminating the need for that section altogether. A draft of 220 and 701 will be prepared for case submittal based on group comments.
2) Section 342 was discussed and revisions suggested for preparation of a draft for potential case submittal.
3) Sections 324 were tabled for later discussion – based on volume of review needed.
4) A review of section 702 was discussed and the group agreed to let the Materials Working Group take the lead in the revision process.
5) Section 775 was discussed with very little need for revision. Since the section calls out ASTM C-90 as the standard for concrete masonry units, it was decided to reduce some of the redundant language in the proposed draft version and include a current copy of C-90 as justification with the case submittal.
6) After brief discussions of the proposed revisions to sections 776, 525, 510, and 511, it was determined that these sections needed further individual review by members.

Action Items:

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

Date and Agenda for Next Meeting:

The next meeting is scheduled for **Thursday, June 9th at 1:30 in the ARPA Offices**. We will finalize draft versions of several sections for case submittal and continue to discuss specific revisions to other sections being reviewed.

MAG Concrete Working Group

Wednesday, May 18, 2011

Attendance Initials					
GT	Gordon Tyus	MAG	Maricopa Association of Governments	602-254-6300	GTyus@azmag.gov
BH	Bob Herz	McDOT	Maricopa County	602-506-4760	rherz@mail.maricopa.gov
PK	Peter Kandaris	Utility	Salt River Project	602-236-8613	pmkandar@srpnet.com
	Chris Shaw	Municipality	City of Phoenix	602-534-7050	chris.shaw@phoenix.gov
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	Syd Anderson	Municipality	City of Phoenix	602-495-2047	syd.anderson@phoenix.gov
	Jesse Gonzales	Municipality	City of Peoria	623-773-7548	jesse.gonzales@peoriaaz.gov
	Don Hansen	Municipality	City of Chandler	480-215-9264	don.hansen@chandleraz.gov
	Joe Mueller	Municipality	City of Mesa	480-644-6937	joe.mueller@mesaaz.gov
	Tom Kaczmarowski	Municipality	City of Glendale	623-930-3640	tkaczmarowski@glendaleaz.com
	Troy Tobiasson	Municipality	City of Goodyear	623-882-7979	troy.tobiasson@goodyearaz.gov
	Scott Ziprich	Municipality	Town of Buckeye	623-547-4661	scott@scoutten.com
	Brian Gallimore	Contractor	WSP Inc	623-434-5050	bgallimore@wspinc.net
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RB	Robert Barkley	Producer	Hanson Aggregates of Arizona	602-685-3436	robert.barkley@hansen.biz
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	Angelo Trujillo	Producer	BASF Admixtures	480-824-3733	angelotrujillo@cox.net
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