January 28, 2015

TO: Members of the MAG Standard Specifications and Details Committee

FROM: Tom Wilhite, City of Tempe, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Wednesday, February 4, 2015 at 1:30 p.m.
MAG Office, Suite 200 (Second Floor), Ironwood Room
302 North 1st Avenue, Phoenix

A meeting of the MAG Specifications and Details Committee has been scheduled for the time and place noted above. Members of the MAG Specifications and Details Committee may attend the meeting either in person, by videoconference or by telephone conference call. If you have any questions regarding the meeting, please contact Committee Chair Tom Wilhite at 480-350-2921 or Gordon Tyus, MAG staff at 602-254-6300.

In 1996, the Regional Council approved a simple majority quorum for all MAG advisory committees. If the MAG Specifications and Details Committee does not meet the quorum requirement, no action can be taken. 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
February 4, 2015

		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 January 7, 2015, Meeting Minutes	3. **Review and approve minutes of the January 7, 2015 meeting.**
Carry Forward Cases from 2015		
4.	Case 14-03: Updates to Guardrail Details Revisions to Section 415 and/or inclusion of MCDOT guardrail details.	4. Information and discussion. Sponsor: Bob Herz, MCDOT
5.	Case 14-06: Revisions to Section 718 Preservation Seal for Asphalt Concrete Update specifications for current preservative seal products.	5. Information and discussion. Sponsor: Jeff Benedict, Asphalt Working Group
6	Case 14-12: Proposed Revisions to Sections 336.3 and 336.4. Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path.	6. Information and discussion. Sponsor: Bob Herz, MCDOT
7.	Case 14-17: Create New Section 322 Provide specifications for Asphalt Stamping - materials and methods.	7. Information and discussion. Sponsor: Brian Gallimore, Materials WG

New Cases for 2015

8. Case 15-01: Misc. Corrections
   A. Add omitted text to Section 735.1.
   Text was approved by Case 14-07 and merged into Case 13-15.
   B. Revise "OA" to Quality Assurance and "OC" to Quality Control in Section 710.

   8. Information and discussion.
   Sponsor: Bob Herz, MCDOT

9. Case 15-02: Adjust Fence Requirements to Reference ASTM F1043
   Revise Section 772, Table 771-1 and Detail 145.

   9. Information and discussion.
   Sponsor: Bob Herz, MCDOT

10. Case 15-03: Revise Section 601.4.5 Trench Final Backfill Placement
    Change the requirement from 2 feet, to layers not exceeding eight inches in depth.

    10. Information and discussion.
    Sponsor: Bob Herz, MCDOT

General Discussion

11. Working Group Reports

    11. Information and discussion.
    Water/Sewer Chair: Jim Badowich
    01/15/2015 Meeting

    Asphalt Chair: Jeff Benedict
    Materials Chair: Brian Gallimore
    Concrete Chair: Jeff Hearne
    01/22/2015 Meeting

    Outside ROW: Peter Kandaris

12. General Discussion
    ADA Information
    ASTM Update

    12. Information and discussion.

13. Request for Future Agenda Items

    13. Information and discussion.

Adjournment

2015 MAG Specifications and Details Committee
Ironwood, 2nd Floor

January 7, 2015	1:30 pm	
February 4, 2015	1:30 pm	
March 4, 2015	1:30 pm	
April 8, 2015 (Updated)	1:30 pm	
May 6, 2015	1:30 pm	
June 3, 2015	1:30 pm	
July 1, 2015	1:30 pm	
August 5, 2015	1:30 pm	
September 2, 2015	1:30 pm	
October 7, 2015	1:30 pm	(if necessary)

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

January 7, 2015

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

AGENCY MEMBERS

Jim Badowich, Avondale, Vice Chair
Craig Sharp, Buckeye
* Warren White, Chandler
Bryce Christo, El Mirage (proxy)
* Wayne Costa, Florence
* Tom Condit, Gilbert
* Mark Ivanich, Glendale
Tom Vassallo, Goodyear
Bob Herz, MCDOT
Julie Christoph, Mesa
Dan Nissen, Peoria
* Syd Anderson, Phoenix (St. Trans.)
Jami Erickson, Phoenix (Water)
Rod Ramos, Scottsdale
Kristin Tytler, Surprise
Tom Wilhite, Tempe, Chair
* Harvey Estrada, Valley Metro
Gregory Arrington, Youngtown

ADVISORY MEMBERS

Jeff Benedict, ARPA
Arvid Veidmark, AZUCA
* Mike Sanders, AZUCA
Brian Gallimore, AGC
Greg Groneberg, AGC (proxy)
Jeff Hearne, ARPA
* Peter Kandaris, Independent
Paul R. Nebeker, Independent
Jacob Rodriguez, SRP

MAG ADMINISTRATIVE STAFF

Gordon Tyus

* Members not attending or represented by proxy.

GUESTS/VISITORS

Ed Diggs, Cues, Inc.
Karl Zook, City of Surprise
Stew Waller, Rinker

1. Call to Order

   Chair Tom Wilhite called the meeting to order at 1:32 p.m.

2. Call to the Audience

   Mr. Wilhite asked new member Greg Groneberg to introduce himself. Mr. Groneberg said he was with Southwest Asphalt and would be the new AGC representative. Mr. Wilhite also welcomed Kristin Tytler as an official member. She introduced the new City Engineer from Surprise who was also in attendance, Karl Zook. Mr. Zook said he will be her substitute when needed. Mr. Wilhite then opened the call to the audience. Mr. Diggs introduced himself and said he would be presenting later. There were no other requests to speak from the audience.

3. Approval of Minutes

   The members reviewed the October 10, 2014 meeting minutes. Bob Herz moved to accept the minutes as written. Rod Ramos seconded the motion. A voice vote of all ayes and no nays was recorded.

Carry Forward 2014 Cases

4. Case 14-03: Updates to Guardrail Details.

   Make revisions to Section 415 and/or include guardrail details in MAG. Bob Herz said he now plans for the Maricopa County 31" guardrail details to be published in 2016. Mr. Wilhite asked if carrying over the case has any effect on completing the change this year. Mr. Herz said he has plans to work on them during the April/May time period and will bring in the changes when ready.

5. Case 14-06: Revisions to Section 718 Preservative Seal for Asphalt Concrete.

   Update the specifications for the Type C preservative seal. Jeff Benedict said there have been no changes, but that the case is planned for discussion at the next Asphalt Working Group meeting on January 22, 2015 at noon at the ARPA office. He expects the main author of the specification to be at the meeting.

6. Case 14-12: Proposed Revisions to Sections 336, 321.10.3, 601.2.7 and Detail 200-1.

   Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path and to prevent creation of narrow pavement edge strips. Bob Herz said a new version of the case was provided in the agenda packet. He restated the purpose of the case and described some of the revisions. Additional revisions to Sections 321, 601 and Detail 200-1 were included.

Mr. Herz said he addressed issues brought up last year including adding an option to do milling on thicker pavements with staggered layers. He asked members to review the updates and provide feedback. Most of the proposed changes are already in the MCDOT supplement.

Brian Gallimore said AGC will have the same issue: they think it is a design issue and are concerned about who will pay when additional paving is needed. Mr. Herz said the changes did address the payment section and that contractors can submit change orders if needed.

Julie Christoph asked where she could find specifications for the safety edge. Mr. Gallimore said the safety edge was added to Detail 201 last year. Karl Zook of the City of Surprise said the paving equipment now has an attachment to form the safety edge.

7. Case 14-17: Create New Section 322 - Asphalt Stamping.

Provide specifications for materials and methods of Asphalt Stamping. Brian Gallimore submitted a case that is based on the Asphalt Stamping supplement from Gilbert. He said the case would also be discussed at the working group meeting. One area he is investigating is the issue of warranties: what do owners expect and what do contractors think is reasonable? Mr. Wilhite asked if Mr. Gallimore has looked at other specs such as those from the California Greenbook. He said no, but he would be interested in reviewing other specs if available.

Jim Badowich asked how the heating affects asphalt. Brian Gallimore was concerned that the summer ambient heat and traffic could cause the stamped gaps to close. He was also concerned about the paint requirements and maintenance. Mr. Badowich said Avondale has experimented with it, and one problem comes up that when treating streets, these areas have to be maintained differently.

Mr. Gallimore wanted an idea what agencies thought was an acceptable warranty. Rod Ramos said Scottsdale has done a lot of this kind of work and require a 1-year warranty. He also recommended not applying the color immediately, but to wait for some curing to avoid track-out. He said he would look to see if Scottsdale has developed any specifications.

New Cases for 2015

8. Case 15-01: Miscellaneous Corrections.

No new miscellaneous corrections were introduced at the meeting; however, the case number was set aside for future corrections submissions.

9. Case 15-02: Proposed Revisions to Section 772, Table 771-1 and Detail 145.

Adjust fence requirements to reference ASTM F1043 Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework. Bob Herz introduced a new case to use a more appropriate ASTM reference for chain link fence framework. This case adds alternative options to Table 771-1 and adjusts requirements in Section 772 Chain Link Fence.

The case also revises Note 1 on Detail 145 to reference ASTM F1043. Mr. Herz said he thought the case was pretty straight-forward, but recommended members review ASTM F1043 for themselves. He noted that members have access to the ASTM specifications.

Dan Nissen asked about any changes to the ASTM access process. Mr. Tyus reported that in the packet was an e-mail summarizing the status of the ASTM account. He said ASTM had a new account manager, John Gallagher, and his contact information was provided on the sheet. Members can contact him directly about setting up ASTM access at their agency, which is done either through an IP address or app. In addition, MAG will be working with ASTM to set up a general portal through MAG's servers that will allow basic access.

10. Working Group Reports

Chair Wilhite asked for reports from the working group chairs.

a. **Water/Sewer Issues Working Group**
Jim Badowich said he has received many compliments both within and outside his agency on the work done last year, especially from the water department. He proposed meeting the third Thursday of the month and asked if that was a good date for members to attend. It was agreed to set the next meeting date Thursday, January 15, 2015 at 1:30 p.m. Mr. Tyus said he would reserve a meeting room. Mr. Badowich said Arvid Veidmark has been working on a new Section 608 Horizontal Drilling that he hopes will be submitted as a case soon. Other areas he wanted to work on this year include updating the testing specifications, especially flushing. Paul Nebeker agreed with addressing the flushing specs. Jami Erickson said a goal in Phoenix is to reduce their supplements, so she hopes to get more of them incorporated in the MAG specifications.

b. **Asphalt/Materials Working Groups**
Jeff Benedict said the group would meet Thursday, January 22, 2015 at noon at the ARPA office. They will be discussing the three open cases: 14-06, 14-12 and 14-17, as well as the issue of core and puncture repair that was brought up at the end of last year.

Tom Wilhite asked about low impact development, and the use of materials such as pervious concrete. Jeff Hearne said pervious concrete was used in Glendale and Scottsdale for parking lots. Julie Christoph said Mesa is studying its use and will be preparing a report. Mr. Hearne said it is becoming a mature technology and ASTM now has specs on applications, testing and maintenance.

Jim Badowich asked the group to look at Section 336 Pavement Matching. He said patching is becoming a big issue. Patches are stripping and thinks the specification may need to some "guts" added to it, including some minimum testing requirements. Bob Herz said Section 336 does reference Section 321 in 336.2.4.1. Brian Gallimore said they can review Section 336 this year.

c. **Concrete Working Group**
Jeff Hearne said they would meet after the other group on January 22, and will look into pervious concrete specifications as discussed. He said it has been on the radar screen as part of the outside the right-of-way specs in the past. Tom Wilhite said it could be used for on-street parking that is in the right-of-way.

d. **Outside Right-of-Way Working Group**
Peter Kandaris was not present to provide an update.

11. Laser Profiling Presentation

Ed Diggs of Cues, Inc. provide a presentation on the use of laser profiling of pipes. A copy of ASTM F3080-14 *Laser Technologies for Measurement of Cross-sectional Shape of Pipline and Conduit by Non-Rotating Laser Projector and CCTV Camera System* was provided to members.

First Mr. Diggs addressed a couple issues discussed by the committee. He noted Philadelphia used pervious asphalt for streets and won several EPA awards. He also recommended a website, crossboresafety.org, for information on horizontal boring.

His presentation demonstrated how laser profiling and LIDAR equipment can be used to help determine the amount of decay and ovality of installed pipe. He said the ASTM spec is fairly new, and two people from Cues were on the committee that helped develop it. Slides showed how the laser profiling process can determine ovality (deflection) of pipe. There is also software that can build a 3D representation of the pipeline. LIDAR uses a different technology that is good for pipe 36" in diameter and up. It can determine the thickness of the pipe wall by comparing the original thickness in as-builts to the actual measured interior diameter. Other agencies, such as Fort Worth, have used this information to determine what pipe required replacement, which allowed them to save money overall. The presentation is available on the MAG website here:
https://www.azmag.gov/Events/Event.asp?CMSID=7009

Comments on the presentation included:

- Paul Nebeker noted that current specifications require that pipes must cleaned before testing. Mr. Diggs responded that the LIDAR is floated down without cleaning, and can image above the waterline and use sonar to get an idea of debris buildup below.
- Jim Badowich asked if there was a way to determine sag. Mr. Diggs said laser profiling was not the best equipment for that test. Mr. Badowich wished there was a type of technology that could test and image the pipe all in one pass.

12. General Discussion

Chair Wilhite discussed the 2015 proposed meeting schedule and asked about specific dates around holidays in April, July and September. Members agreed to keep the proposed dates with the exception of changing the April meeting from the 1st to the 8th since many members will be at the streets conference the first week of April. Mr. Tyus said he would adjust the schedule and reserve a room on April 8.

Gordon Tyus provided an update on the printing and distribution of the 2015 Edition of the Uniform Specifications and Details for Public Works Construction. He said MAG had 200 books printed, delivered and ready for sale. The prices will stay the same at $24.77 for the book, $9.91 for binders plus 6.3% sales tax. The documents are also posted online and include hyperlinks like before. Mr. Tyus noted that he also updated the specs and details documents page with additional early electronic versions. They available here: https://www.azmag.gov/communications/Specs_and_Details/default.asp

13. Future Agenda Items:

Chair Wilhite asked if members would like to hear any presentations during the February meeting. He proposed having Kelly DeRosa from the FHWA give a presentation on ADA requirements. Kristin Tytler said she attended a workshop she gave and learned a lot. Bob Herz said he has also already seen her presentation. Mr. Wilhite asked if other members would like the ADA presentation. Jim Badowich said he thinks it would be good but not as a long workshop, but maybe a short presentation on the legal issues.

The chair asked members for other issues the group may want to review. Karl Zook said one concern was surface water availability. If agencies have to be more dependent on groundwater, what effects will this have on water safety? Paul Nebeker said subsidence issues are also a concern, especially as more ground water is used. Mr. Wilhite said maybe MAG should address the reclaimed water specifications. Tom Vassallo said he thinks there should be clarification on reclaimed water when it comes to separation requirements, and perhaps more leniency. Jami Erickson warned about the possibility of contaminating potable water supply and the need for separation, including near storm drains.

14. Adjournment:

Seeing no further business the meeting was adjourned at 2:52 p.m.

2015 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=7154)

CASE	DESCRIPTION	PROPOSED BY	MEMBER	SUBMITTAL DATE Last Revision	VOTE DATE	VOTE	
	CARRY FORWARD CASES FROM 2014						
14-03	Case 14-03: Updates to Guardrail Details. Revisions to Section 415 and/or inclusion of MCDOT guardrail details.	MCDOT	Bob Herz	01/08/2014		0 0 0	Yes No Abstain
14-06	Case 14-06: Revisions to Section 718 Preservative Seal for Asphalt Concrete.	Asphalt WG	Jeff Benedict	02/05/2014		0 0 0	Yes No Abstain
14-12	Case 14-12: Proposed Revisions to Sections 336.3 and 336.4. Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path and to prevent creation of narrow pavement edge strips.	MCDOT	Bob Herz	06/04/2014 09/29/2014		0 0 0	Yes No Abstain
14-17	Case 14-17: Create New Section 322 Asphalt Stamping. Provide specifications for materials and methods.	Materials WG	Brian Gallimore	07/09/2014		0 0 0	Yes No Abstain
	NEW CASES FOR 2015						
15-01	**Case 15-01: Miscellaneous Corrections:** A. Add omitted text to Section 735.1. Text was approved by Case 14-07 and merged into Case 13-15. Both cases were approved in 2014. B. Revise “OA” to Quality Assurance and “OC” to Quality Control in Section 710.	MCDOT	Bob Herz	02/04/2015		0 0 0	Yes No Abstain
15-02	Case 15-02: Adjust Fence Requirements to Reference ASTM F1043. Revise Section 772, Table 771-1 and Detail 145.	MCDOT	Bob Herz	01/07/2015		0 0 0	Yes No Abstain
15-03	Case 15-03: Revise Section 601.4.5 trench final backfill placement requirement from 2 feet to layers not exceeding eight inches in depth.	MCDOT	Bob Herz	02/04/2015		0 0 0	Yes No Abstain
15-04						0 0 0	Yes No Abstain

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: January 8, 2014

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Guardrail Details and revisions to Section 415 FLEXIBLE METAL GUARDRAIL **Case 14-03**

PURPOSE: Notification of MCDOT's intention of revising its guardrail details.

REVISION: To be determined.

DISCUSSION: MCDOT will be revising the standard details for guardrail to have new guardrail installed with the top of rail height to be 31-inches, the current details have the top of rail height set at 28-inches. The revised details will be in the 2015 MCDOT Supplement to MAG Specifications and Details having a target publishing date of January 1, 2015. MAG Section 415 FLEXIBLE METAL GUARDRAIL references MCDOT guardrail details. If MAG agencies desire to keep the 28-inch guardrail height then MCDOT will provide its details to MAG for inclusion in the 2015 MAG Revisions.

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

SECTION 718

PRESERVATIVE SEAL FOR ASPHALT CONCRETE

718.1 GENERAL

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

TYPE A - Asphalt rejuvenating agent shall be an emulsion composed of a petroleum resin oil base uniformly emulsified with water. Each supplier must submit a certified statement from the asphalt rejuvenator manufacturer showing that the asphalt rejuvenating emulsion conforms to the required physical and chemical requirements. They also must provide documentation of tests that determine the acceptable range of application of the product. Typical application rates are .07 to .18 gallons per square yard.

TYPE B - Petroleum Hydrocarbon emulsion. Applied at .05 to .20 gallons per square yard, diluted.

TYPE C - Tire modified surface sealer (TRMSS) or equal not diluted, and applied at a rate of .10 to .20 gallons per square yard.

TYPE D - Acrylic polymer, modified emulsion. Diluted to the manufacture's recommendation and applied at a rate of .08 to .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

PRESERVATIVE SEAL SPECIFICATIONS

Properties * (note 2)		Type-A	Type-B	Type -C	Type-D
Saybolt Viscosity @77°F (sfs)	ASTM D7496-09	45-55 (KU)* (note 1)	15-40	~~15-40~~45-85(KU)*note 1	15-40
Residue by evaporation 138°C	ASTM D6934-08	30-40	.10 Max	~~53~~30 min.	60-65
Sieve test %	ASTM D6933-08	N/A		~~.10 max.~~N/A	0.1
5 day settlement test	ASTM D6930-10		2.0% max	N/A	N/A
Test on residue from evaporation ASTM D6934-08					
Flash point °F(Min)	ASTM D92	450°F	450°F	450°F	385°F
Softening point	ASTM D36M-09	130°F min	N/A	~~130~~140°F min.	N/A
Accelerated weathering test	ASTM D4799-03	Report * (note 3)	N/A	Pass-Report (note 3)	Plant certification within 6 months
Ductility (@77°F) 100g 5 sec.	ASTM D113-07	N/A	N/A	~~20 min.~~N/A	N/A
Storage stability, test 1 day%	ASTM 6930-10	N/A	N/A	N/A	N/A
Viscosity @ 140°F, cSt	D-445	N/A	1,000-9,500	N/A	210-390

Asphaltenes, % w (max)	D-2006-70	N/A	10.0 Max.	N/A	1.00
Maltene Dist. Ratio	D-2006-70	N/A	0.2-1.4	N/A	0.3-0.6
PC/S Ratio[45] (Min) (Note 4)	D-2006-70	N/A	0.5 Min.	N/A	0.5
Saturated Hydrocarbons,S[5] (note 4)	D-2006-70	N/A	28 Max.	N/A	21-28

Notes:
1. Kreb units (ASTM D562)
2. A full set of tests shall be performed by as specified by the special provisions in the undiluted condition. These tests and any other specified will be performed at the contractor's expense.
3. ASTM G154, 1000 hours ~~The~~ Ultraviolet resistance testing results will be provided at no cost to the engineer.
4. Only residue by evaporation shall be run on diluted samples. Specification limits should be diluted rate times minimum residual value of concentrate.
5. PC/S ratio: $\frac{PC + A_1}{S + A_2}$[5]

- End of Section -

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: June 4, 2014 Revised 2014-09-29

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Revisions to Sections 336, 321.10.3, 601.2.7 and Detail 200-1 **Case 14-12**

PURPOSE: Add pavement removal criteria to prevent full depth pavement cuts from being located within a lane wheel path and to prevent creation of narrow pavement edge strips.

REVISIONS:

1. Identified location restrictions for full depth longitudinal joints for asphalt pavement widening and for asphalt pavement trench repairs.

2. Defined vertically staggered joint as an alternative for full depth sawed joint.

3. Added pavement removal requirements when replacing existing curb or gutter.

4. Added requirement for asphalt pavement edge replacement to have a safety edge or thickened edge constructed per Detail 201 except when the asphalt edge abuts a concrete curb or gutter.

5. Trenching into portland cement concrete pavement, sidewalk, or other concrete flatwork shall require complete joint to joint replacement of damaged panels. Type C Trench Repair in Detail 200-1 is to be deleted.

6. Adjusted the default pay width for surface replacement to be the maximum trench width at top of pipe greater than O.D. of the pipe barrel as shown in Table 601-1.

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

SECTION 336

PAVEMENT MATCHING AND SURFACING REPLACEMENT

336.1 DESCRIPTION:

This specification identifies requirements for removing and replacing or widening ~~Street and alley~~ pavement and other surfacing within ~~the Contracting Agency's~~ public rights-of-way~~, removed by construction activities or to be widened or matched in connection with the improvement of Public Works, shall be placed as shown on the plans and applicable standard details, in accordance with this specification and/or the special provisions.~~

Asphalt concrete roadway ~~pavement replacement~~ trench repairs shall be constructed in accordance with Type A, B, or T-Top Trench Repair of Standard Detail 200-1 and as indicated on the plans or in the special provisions.

Trench repairs for unpaved alleys, roadways, and designated future roadway prism shall be constructed in accordance with Type E Trench Repair of Standard Detail 200-1.

Trenching into ~~P~~portland cement concrete pavement, sidewalk, or other concrete flatwork shall require complete joint to joint replacement of damaged panels. ~~replacement~~ The joint system in PCCP shall be maintained. ~~in accordance with Type C of the Standard Detail 200-1 and as required by Section 324.~~

Comment [RTH1]: Delete Type C Trench Repair from Detail 200-1. The Joint system in PCCP should be maintained and not arbitrarily changed.

~~All other s~~Surface replacement in the right-of-way ~~but~~ not in paved roadways shall be constructed in accordance with Type D Trench Repair of Standard Detail 200-1 and as indicated on the plans or in the special provisions.

Temporary pavement replacement shall be constructed as required herein.

Pavements to be matched by construction of new pavements adjacent to or at the ends of a project shall be milled or saw cut in accordance with these specifications and where shown on the plans.

Pavement and surfacing replacement within ADOT rights-of-way shall be constructed in accordance with their permits and/or specification requirements.

336.2 MATERIALS AND CONSTRUCTION METHODS:

Materials and construction methods used in the replacement of pavement and surfacing shall conform to the requirements of all applicable standard details and specifications, latest revisions.

336.2.1 Pavement Widening or Extensions: Existing pavements which are to be matched by pavement widening or pavement extension shall be trimmed to a neat true line with straight vertical edges free from irregularities with a device specifically designed for this purpose. ~~The minimum depth of cut shall be 1 ½ inches or D/4, whichever is greater.~~

~~The e~~Existing asphalt pavement shall be cut and trimmed after placement of required ABC and just prior to placement of asphalt concrete for pavement widening or extension, and the trimmed edges shall be painted with a light coating of asphalt cement or emulsified asphalt immediately prior to constructing the new abutting asphalt concrete pavements. No extra payment shall be provided for these items and all costs incurred in performing this work shall be incidental to the pavement widening or ~~pavement~~ extension.

The location of longitudinal match points shall depend on the type of asphalt joint being constructed (full depth or staggered) and the location of the pavement lane striping to be in place at completion of construction. Full depth longitudinal joints shall be located within one foot of a post construction lane line stripe or within the center two feet of a post construction travel lane. The location restriction for full depth longitudinal joints does not apply to multi-layer pavements when a vertically staggered joint with the existing pavement is constructed. An acceptable vertically staggered joint must have a minimum six-inch horizontal offset with the nearest joint in the underlying asphalt layer. A vertically staggered joint may be obtained by edge milling to a depth that matches the adjacent asphalt surface course to be placed.

The exact point of matching, termination, and overlay may be adjusted in the field~~, if necessary,~~ by the Engineer or designated representative.

336.2.2 Pavement to be Removed: Existing asphalt pavement to be removed for trenches or for other underground construction or repairs shall be cut by a device capable of making a neat, straight and smooth cut without damaging adjacent pavement that is not to be removed. The Engineer's decision as to the acceptability of the cutting device and manner of operation shall be final.

In lieu of cutting trenches across driveways, curbs and gutters, sidewalks, alley entrances, and other types of pavements, the Contractor may, when approved by the Engineer, elect to tunnel or bore under such structures and pavements.

When installations are within the street pavement and essentially parallel to the center line of the street, the Contractor, with approval of the Engineer, may elect to bore or tunnel all or a portion of the installation. In such installations, the seal coat requirements, as discussed in Section 336.2.4, will be modified as follows:

(A) If the pavement cuts (bore pits, recovery pits, etc.) are 300 feet or more apart, the bore or tunneled distance will not be considered as part of the open trench and the seal coat may will not be required.

Comment [RTH2]: Does any agency require a longer distance prior to elimination of the seal coat requirement?

(B) If the pavement cuts (bore pits, recovery pits, etc.) are less than 300 feet apart, the distance between the cuts will be considered the same as a trench cut and the distance will be added to any trench cut distances.

Pavement removal limits when replacing existing curb or gutter shall be as follows. For curb or gutter replacement adjacent to a designated bike lane or paved shoulder area wider than three feet, the asphalt pavement removal and replacement shall extend to within 6 inches of the travel lane edge stripe. For curb or gutter replacement when no travel lane edge stripe exists, the asphalt pavement match point shall extend two feet or less from the pavement edge into the vehicle travel lane.

336.2.3 Temporary Pavement Replacement: Temporary pavement replacement, as required in Section 601, may be with cold-mix asphalt concrete, with a minimum thickness of 2 inches, using aggregate grading in accordance with Marshall mix design of Section 710. Permanent pavement replacement shall replace temporary repairs within 5 working days after completion of temporary work.

Temporary pavement replacement shall be used in lieu of immediate placement of single course permanent replacement or the first course of two course pavement replacement only on transverse lines such as spur connections to inlets, driveways, road crossings, etc., when required by the Engineer, by utilities or others who subcontract their permanent pavement replacement, under special prior arrangement; or for emergency conditions where it may be required by the Engineer. Temporary pavement replacement shall be placed during the same shift in which the backfill to be covered is completed.

Rolling of the temporary pavement replacement shall conform to the following:

(A) Initial or breakdown rolling shall be followed by rolling with a pneumatic-tired roller. Final compaction and finish rolling shall be done by means of a tandem power roller.

(B) On small areas or where equipment specified above is not available or is impractical, the Engineer will approve the use of small vibrating rollers or vibrating plate type compactors provided comparable compaction is obtained.

The surface of the temporary pavement shall be finished off flush with the adjacent pavement.

336.2.4 Permanent Pavement Replacement and Adjustments:

336.2.4.1 Permanent Pavement Replacement: All pavement replacement shall match gradation and thickness of the existing pavement. Immediately preceding the placement of permanent pavement the density of the base material shall comply with requirements of Table 601-2. Asphalt concrete pPavement replacement shall be compacted to the same density specified for asphalt concrete pavements in Section 321. The compacted thickness of all courses shall conform to the recommended thicknesses requirements of Table 710-1.

Unless otherwise noted, asphalt concrete pavement replacement shall comply with the following:

(A) Single course pavement replacement shall consist of a 1/2" or 3/4" mix in accordance with Section 710.

(B) The base course(s) of a multi-course pavement replacement shall consist of a 3/4" mix in accordance with Section 710.

(C) The surface course of a multi-course pavement replacement shall consist of a 3/8" or 1/2" mix in accordance with Section 710 to match the existing surface.

(D) Where the base course is to be placed with non-compactive equipment, it shall be immediately rolled with a pneumatic-tired roller.

(E) Pavement replacement over trenches wWhere the pavement replacement width trench is 6 feet or more in width, all courses shall be placed with self-propelled spreading and compacting equipment. When the pavement replacement width trench is from 6 to 8 feet in width, self-propelled spreading and compacting equipment shall not be wider than 8 feet.

Comment [RTH3]: Can this be accomplished for the first layer of a two course asphalt pavement?

(F) Placement of the surface course is to be by means which will result in a surface flush with the existing pavement. The pavement replacement surface shall not vary more than 1/4 inch from the lower edge of a straightedge placed across the replacement pavement surface between edges of the existing matched surfaces. When the pavement replacement includes replacement of the roadway crown, the surface smoothness shall comply with requirements of Section 321.

(G) Pavement replacement extending to the edge of asphalt pavement shall have a safety edge or thickened edge constructed per Detail 201 except when the asphalt edge abuts a concrete curb or gutter.

Laying a single course or the base course(s) of the asphalt concrete pavement replacement shall never be more than 600 feet behind the ABC placement for the pavement replacement.

The tTrench backfill must be compacted to its required density, and required ABC must shall be in place and compacted to the density required in Table 601-2 prior to the placement of the asphalt concrete structural section or other surfacing.

Laying a single course or the base course(s) of the asphalt concrete pavement replacement for trenches shall never be more than 600 feet behind the ABC placement for the pavement replacement.

For trench cuts, pavement widening, or other partial pavement installations greater than 300 feet in length the entire area shall then be slurry seal coated in accordance with Section 332 or as otherwise specified. Theis seal coat shall extend from the edge of pavement or lip of gutter to the street centerline except that on residential streets less than 36 feet face to face of curb or and where the pavement patch straddles the centerline, the entire width of street shall be seal coated.

In lieu of placing the seal coat as required previously, and with approval of the Contracting Agencylocal jurisdiction, the Contractor may deposit with the Street Maintenance Department Contracting Agency for credit to the Street Maintenance Department, a negotiated agreed upon amount. The Street Maintenance Department will incorporate this work into their street maintenance program.

336.2.4.2 Adjustments: When new or existing manholes, valuves, survey monuments, clean outs, etc. fall within the limits of the permanent pavement replacement as discussed in this Section, the Contractor shall be responsible for adjusting the various items to the new pavement surface or as directed by the Engineer. This will include but not be limited to slurry and chip seals.

The Contractor will coordinate with the Engineer and with representatives of the various utilities regarding the adjustment and inspection of the work. The Contractor shall be responsible for obtaining and complying with all specifications, special requirements, details, etc. of the Utility Company regarding the adjustments. When adjusting the Agency's utilities, survey monuments, etc., the adjustment will comply with these Specifications and Details.

The work will be done in compliance with OSHA standards and regulations regarding confined space entry. The Contractor shall remove all material attached to the lids and/or covers including that of prior work. The method of removal shall be approved by the Engineer and/or the Utility Representative.

336.3 TYPES AND LOCATIONS OF PAVEMENT ANDTRENCH SURFACEING REPLACEMENT:

Normally, the tType of pavement surface replacement and backfill required for trenches shall will be as noted on the plans or special provisions specified in other portions of the contract documents and construction will shall be in accordance with Detail

200-1 and 200-2. The surface replacement limits for asphalt concrete pavement may vary from Detail 200-1 for full depth longitudinal pavement cuts. If a trench repair type is not noted on the plans or specified in the special provisions, the following criteria will govern:

Type A trench repair will be used for ~~utilized on~~ all asphalt concrete paved streets where the excavation is essentially longitudinal or parallel to traffic. The pavement match point location shall depend on the type of asphalt joint being constructed. Full depth longitudinal joints shall not be located within forty-eight inches (48") of an asphalt pavement edge or within a lane wheel path. The lane wheel path is the entire lane width except the area within one foot of a lane line stripe and except the center two feet of the travel lane. When the required surface match point is located within 48" of an asphalt pavement edge, all asphalt surfacing shall be removed to the asphalt edge and the asphalt edge shall be the new asphalt surfacing match point location. When concrete curb and gutter exist adjacent to asphalt pavement, the lip of gutter shall be considered an edge of the asphalt pavement. The restrictions for full depth longitudinal joints will not apply for two course asphalt concrete pavement replacements when surface milling is used to create at least a six-inch horizontal offset between the matching joint of the surface course and the joint in the underlying asphalt layer. The depth of the asphalt surface course shall be equal to or greater than the minimum thickness recommended in Table 710-1. The milled offset distance shall be outside the match point shown in Detail 200-1.

Comment [RTH4]: The asphalt match point shown in Detail 200-1 needs to be revised to comply with removal requirements of Section 336.2.1 paragraph two.

T-Top trench repair will be utilized on all streets where the excavation is essentially transverse or not parallel to traffic, including trenches that go through an intersection.

Type B trench repair ~~may~~ shall only be used ~~to repair transverse trenches if~~ when specified by the local jurisdiction~~Agency~~.

~~Type C trench repair will be used to repair existing Portland cement concrete pavement.~~

Comment [RTH5]: Delete Type C Trench Repair from Detail 200-1. The Joint system in PCCP should be maintained and not arbitrarily changed as indicated in Sections 324.3.5 and 324.3.9.
Section 340.3.10 requires replacement from joint to joint.

Type D trench repair will be utilized to repair surfaces other than asphalt concrete or ~~P~~portland cement concrete pavement. ~~When a trench cut is in aggregate surfaced area, t~~The surface~~ing~~ replacement shall be of a like type and depth as the existing material, compacted to the densities required in Section 601. Type D trench repair~~It~~ may ~~also~~ be used when the condition of the existing pavement does not justify construction of Type A, Type B or T-Top trench repair~~.~~ with ~~P~~prior written approval of the Engineer ~~is required for this condition~~.

Where a longitudinal trench is partly in pavement, the pavement replacement shall ~~be replaced~~extend to the outside limits ~~edge~~ of the existing pavement.~~,~~ The replacement pavement ~~on a straight~~ edge shall be~~line~~ constructed in a straight line with an appropriate edge treatment~~, as indicated on the plans~~. ~~Measurements for payment shall be from the inner limit of pay width allowed below, to the outside edge of the existing pavement as defined herein.~~

Where no part of a trench is in pavement, surface~~ing~~ replacement will only be specified where existing surfacing materials have been removed.

~~When a trench cut is in aggregate surfaced area, the surfacing replacement shall be of a like type and depth as the existing material, compacted to the densities required in Section 601.~~

336.4 MEASUREMENT:

Measurement for payment and surface~~ing~~ replacement shall be by the square yard, based ~~up~~on actual field measurement of the area covered except as noted below.

(A) In computing pay quantities for surface replacement of Types B and E trench repair, the default pay widths will be based on the ~~actual field measured width; however the boundaries of the measurement will not extend further than ½ the distance, either side, from the centerline of the pipe as depicted on~~dimension calculated from Table 601-1~~,~~ for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel". The pay width for Type B longitudinal trench repair will be adjusted to the field width required when the default surface match point is relocated to the edge of the asphalt pavement or is adjusted to be outside of a wheel path.

(B) In computing pay quantities for a single lift asphalt replacement of a ~~Types~~ T-Top or~~,~~ Type A ~~, C and D~~ trench repair, ~~pay~~ the default width~~s~~ will be based on the dimension calculated from ~~actual field measured width, however the boundaries of the measurement will not extend further than ½ the distance plus 12 inches, either side, from the centerline of the pipe as depicted~~

~~on~~ Table 601-1~~,~~ for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel" plus 24 inches. The pay width for Type A trench repair will be adjusted to the field width required when the surface match point is relocated to the edge of the asphalt pavement or is adjusted to be outside of a wheel path. In all cases, the minimum pay width for a single lift ~~replacement Types~~ T-Top~~,~~ or Type A ~~and D~~ surface replacement shall be 48 inches.

In computing pay quantities for a multiple lift surface replacement for T-Top and Type A trench repair, the pay widths will be based on the dimension calculated from Table 601-1 for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel" plus an additional 30 inches. In all cases, the minimum pay width for a multiple lift T-Top or Type A surface replacement shall be 48 inches.

(C) In computing pay quantities of surface replacement for Type D trench repair, pay widths will be based on the dimension calculated from Table 601-1 for the "Maximum Width At Top Of Pipe Greater Than O.D. Of Barrel". In all cases, the minimum pay width for Type D surface replacement shall be 48 inches.

(~~C~~D) Where a longitudinal trench is partly in asphalt pavement, ~~computations of~~ pay quantities shall ~~be based on~~not exceed ~~the~~actual pavement replacement quantities. The measurement shall be the area as allowed for the respective Type A or Type B trench repair limited to that portion located within the existing pavement. ~~limitations specified above.~~The minimum 48 inch pay width for the Type A pavement replacement does not apply when the trench is partially in pavement.

(~~D~~E) The length of pavement and surfacing replacement shall be measured through any manhole, valve box, or other structure constructed in the pipe line, and any pavement or surface replacement and/or seal treatment in excess of the above pay widths shall be considered and included in the bid item for such structure.

(~~E~~F) Any pavement replacement in excess of the specified pay widths necessitated by the installation of valves, tapping sleeves and valves, valve by-passes, and concrete thrust blocks shall be included in the bid price for these items.

(~~F~~G) ~~When special provisions allow deviations from the trench widths specified in Section 601, the above allowed pay widths for pavement replacement may be altered where so specified.~~

~~(G)~~ Measurement of pavement and surfacing replacement shall be made along the finished surface of the ground to the nearest foot, and shall be computed to the nearest square yard.

Comment [RTH6]: This does not provide clarification but creates confusion, therefore suggest deletion.

Comment [RTH7]: This may be appropriate for trench length but not for trench width.

336.5 PAYMENT:

Direct payment for pavement or other surface~~ing~~ replacement will be made for replacement over all pipe trench cuts except as otherwise ~~allowed~~ noted in the special provisions. Payment for surface replacement~~s~~ over other work shall be included in the cost of constructing that work~~, in accordance with the applicable standard details and specifications~~.

Payment for temporary pavement replacement shall be included in the cost of the pipe.

Payment for pavement replacement shall include the replacement cost of any existing pavement markings that have been degraded, obscured, obliterated or removed ~~by underground trench construction or repairs~~.

When a Contractor has the option of jacking and/or boring or open cut construction, and elects to construct a pipeline by the jacking and/or boring method, ~~he~~ the Contractor will be paid for the replacement of such items of work as pavement, curb and gutter, sidewalk, driveway, and alley entrances, as allowed for open cut construction.

- End of Section -

321.10.3 Surface Testing: If directed by the Engineer surface drainage test shall be performed. The completed surfacing shall be thoroughly compacted, smooth and true to grade and cross-section and free from ruts, humps, depressions or irregularities. An acceptable surface shall not vary more than 1/4 inch from the lower edge of a 12-foot straightedge when the straightedge is placed parallel to the centerline of the roadway. The straightedge shall be furnished by the contractor and shall be acceptable to the Engineer.

All streets shall be water tested for drainage in the presence of the Engineer or designated representative before final acceptance. Any areas not draining properly shall be corrected to the Engineer's satisfaction at the Contractor's expense. Water for this testing shall be provided and paid for by the Contractor.

When deviations in excess of the above tolerance are found, humps or depressions shall be corrected to meet the specified tolerance, or shall be cut out along neat straight lines and replaced with fresh hot mixture and thoroughly compacted to conform with and bond to the surrounding area. Materials and work necessary to correct such deviations shall be at no additional cost to the Contracting Agency.

When pavement is cut out along neat straight lines, the restrictions for full depth longitudinal joints shall match the restrictions for longitudinal joints in Section 336.3 for Type A Trench Repairs. Full depth longitudinal joints shall not be located within a lane wheel path or within forty-eight inches (48") of an asphalt pavement edge.

601.2.7 Pavement and Concrete Cutting and Removal: Where trenchless methods are not used and trenches or other excavations lie within the portland cement concrete section of streets, alleys, driveways, or sidewalks, etc., such concrete shall be completely removed between the closest adjacent joints. ~~sawcut to~~ Removal methods shall produce neat, straight, vertical, ~~true~~ lines in such a manner that the remaining adjoining ~~surface~~ concrete will not be damaged. ~~The minimum depth of cut shall be 1 ½ inches or 1/4 of the thickness, whichever is greater.~~

Sidewalk, curb, gutter, and other concrete flatwork shall have complete joint to joint replacement of all damaged sections. The construction replacing damaged concrete sections and joints shall be compliant with Section 340.

The existing joint system in portland cement concrete pavement (PCCP) shall be maintained. Reconstruction of PCCP panels and joints shall be in accordance with Section 324.

Asphalt pavement shall be clean-cut, with approved equipment and by approved methods in accordance with the requirements of Section 336.

No ripping or rooting will be permitted outside limits of cuts. Surfacing materials removed shall be hauled from the job site immediately, and will not be permitted in the backfill.

SECTION 322
ASPHALT STAMPING

322.1 DESCRIPTION:

The work under this item will provide stamped asphalt which shall include surface patterning and/or asphalt surfacing (painting) as described herein in accordance with Owners Standard Details and/or as shown on the plans and called out in the special provisions.

322.2 GENERAL REQUIREMENTS:

A Contractor shall meet the following qualifications in order to perform asphalt stamping:

> The Contractor shall have completed a minimum of three (3) asphalt stamping projects in the past year (from the date of bid) in the State of Arizona and totaling at least 50,000 S.F. The Contractor shall furnish evidence of meeting these experience requirements to the Engineer.

The Contractor shall submit for review and approval all manufacturer product and technical data for materials proposed to be installed in the right-of-way. The Contractor shall also submit for review and approval a sample of the stamped asphalt material prior to installation. These submittals shall be submitted to the Engineer.

Prior to acceptance of the project, the Contractor shall repair all damaged or unsuitable areas, as determined by the Engineer, at no expense to the Owner.

322.3 MATERIALS:

322.3.1 Asphalt Concrete: All roadway construction materials and asphalt thicknesses shall conform to the applicable requirements of MAG Section 321 and the project plans and specifications. Aggregate base course (ABC) shall be clean, well-graded sand and gravel compacted and placed per MAG Section 321.5.1 and the project plans and specifications.

For raised medians and other areas not subject to vehicular traffic, the surface course shall be at least 2-1/2” of MAG 1/2” or MAG 3/8” asphalt concrete mix in accordance with MAG 710.

322.3.2 Surface Patterning: The patterning equipment shall be metal templates that shall correspond to the patterns shown in Owner’s standard details or as shown on the plans and called out in special provisions. Refer to the project plans and specifications for the pattern type to be used.

322.3.3 Surfacing System (Painted Asphalt): All products used in the surfacing system shall meet the minimum physical and performance properties in Tables 322-1 and 322-2. The Contractor shall submit a Certificate of Compliance to the Engineer indicating that the materials to be included in the work meet these specification requirements. The color used for painted asphalt shall be terracotta or as approved by the Engineer.

TABLE 322-1		
ASPHALT STAMPING SURFACING SYSTEM PHYSICAL PROPERTIES		
Characteristic	**Test Specification**	**Base**
Solids by Volume (%)	ASTM D2697	55%
Solids by Weight (%)	ASTM D2369	68%
Density	ASTM D1475	13.0 lbs/gal

TABLE 322-2		
ASPHALT STAMPING SURFACING SYSTEM PHYSICAL PROPERTIES		
Characteristic	**Test Specification**	**Test Result**
Dry-Time (To Recoat)	ASTM D5895	35 Min
Taber Wear Abrasion Dry H-10 Wheel	ASTM D4060 1 day cure	0.98 g/1000 cycles
Taber Wear Abrasion Wet H-10 Wheel	ASTM D4060 7 days cure	3.4 g/1000 cycles
QUV E Accel.	ASTM G154 Delta	0.53
HydrophobicityWater Absorption	ASTM D-570	8.3 %(9 Day Immersion)
Shore Hardness	ASTM D2240	63 Type D
Mandrel Blend	ASTM D522-93A	1/4" @ 21 Degree C Pass
Permeance	ASTM D1653	3.77 g/m2 /hr (52 mils)
VOC	Per MSDS	23 g/l
Adhesion to Asphalt	ASTM D4541	Substrate Failure
Friction Wet	ASTM E303 British Pendulum Tester	WP * Coated- 62 WP* Uncoated - 57 AC ** Coated - 70 AC ** Uncoated - 60

322.4 INSTALLATION:

322.4.1 Asphalt Concrete:
The hot-mix asphaltic concrete shall be placed per the project plans and specifications. The Contractor shall contact the Engineer for roadway compaction approval prior to beginning asphalt stamping. Asphalt shall be fully compacted prior to positioning the patterning template.

322.4.2 Surface Patterning: After application and compaction of the asphaltic concrete, while it is still hot, templates shall be positioned on the surface in the required orientation. Templates shall be set in

place using a plate compactor and fully embedded using the same compaction equipment used in placing the asphalt (minimum static weight shall be 700 lbs.

The template print depth shall be 3/8" over 99% of the patterned area. All hand tooling shall be complete, full depth, straight in manner, and to the edge of the asphalt pavement, common edge, concrete curb, gutter, or other border. There shall be no overprint of patterns and no remnants of excess print on surrounding unintended areas.

322.4.3 Surfacing System (Painted Asphalt): The air temperature shall be at least 50^{o} F and rising before the application of surface system products begins. There shall also be no precipitation expected within 24 hours of the anticipated surfacing completion in order for the application to be authorized by the Town.

The surfacing system products shall be spray-applied. Where required to cover small areas, the surfacing system may be painted on using brooms or brushes. When complete, the entire asphalt surface shall be covered with the surfacing product with no exposed asphalt present.

The Contractor shall use sufficient masking to ensure that the surface system products are applied only where specified. Masking shall be complete and no overspray onto surfaces not designated as coated surfaces shall be allowed.

The Contractor shall apply the surface system products with a minimum of four complete passes on a roadway surface. Three complete passes shall be allowed on medians, walkways, pathways, and bike paths where traffic is primarily pedestrian with minimal or no automobile traffic. Thickness of the surfacing product shall be 20 mils or greater.

After the surfacing system products have been applied, the treated asphalt shall not be exposed to vehicular traffic for eight (8) hours, overnight, or as approved by the Engineer.

322.5 MEASUREMENT:

Asphalt stamping shall be measured by the square foot, which shall include surface patterning and/or asphalt surfacing (painting).

322.6 PAYMENT:

Asphalt stamping shall be measured as provided above shall be paid for at the contract price per square foot which price shall be full compensation for the item complete as described and specified herein.

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: January 8, 2015

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Miscellaneous Corrections **Case 15-01A**

PURPOSE: Add omitted text to section 735.1. Text was approved by Case 14-07 and merged into Case 13-15 both cases were approved in 2014.

REVISION:

REINFORCED CONCRETE PIPE

735.1 GENERAL:

These specifications cover reinforced concrete pipe and related structures intended to be used for conveyance of sewage, industrial waste, and storm and irrigation water.

Except as modified herein reinforced concrete pipe shall be manufactured and tested in conformance with the requirements of ASTM C76 for circular pipe, ASTM C506 for arch pipe, and ASTM C507 for elliptical pipe.

Whatever struts or other protective methods proved necessary to furnish and install the pipe to meet the limitation of cracks as specified herein, shall be provided and maintained throughout pipe handling and transportation.

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

CASE 15-01 B

SECTION 710

710.3 MIX DESIGN REQUIREMENTS:

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

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

(1) The name and address of the testing organization and the person responsible for the mix design report.

(2) The mix plant identification and/or location, as well as the supplier or producer name.

(3) A description of all products that are incorporated in the asphalt concrete along with the sources of all products, including admixtures and asphalt binder, and their method of introduction.

(4) The supplier and grade of asphalt binder, the source and type of mineral aggregate, and the percentage of asphalt binder and mineral admixture used.

(5) The percentage of RAP and RAP Binder being contributed to the total mix shall be included in the mix design report.

(6) The mix design report whether Gyratory or Marshall shall state the traffic condition (low or high traffic) and size designation.

(7) The results of all testing, determinations, etc., such as: specific gravity and gradation of each component, water absorption, sand equivalent, loss on abrasion, fractured coarse aggregate particles, Tensile Strength Ratio (ASTM D 4867), Marshall stability and flow, asphalt absorption, percent air voids, voids in mineral aggregate, and bulk density. Historical abrasion values may be supplied on existing sources. The submittal should include a plot of the gradation on the Federal Highway Administration's 0.45 Power Gradation Chart, plots of the compaction curves and the results of moisture sensitivity testing.

(8) The laboratory mixing and compaction temperature ranges for the supplier and grade of asphalt binder used within the mix design.

(9) A specific recommendation for design asphalt binder content and any limiting conditions that may be associated with the use of the design, such as minimum percentages of crushed or washed fine aggregate.

(10) The supplier's product code, the laboratory Engineer's seal (signed and dated), and the date the design was performed.

(11) If a Warm Mix Technology or additive is used; the following shall be included:

- Technology type and supporting manufacturer information; including instructions pertaining to laboratory mixture temperatures and curing.
- Amount (%) of additive (technology) used in the mixture.
- Attached copy of the ADOT approved product list, showing additive/technology
- Minimum plant production temperature shall not fall below manufacturer's recommendation.
- Minimum field compaction temperature shall be identified.
- Identify any special mixing or compaction temperatures or special methods to be used when conducting QA or QC testing of field collected samples. Example: if the field collected samples of warm mix asphalt can be treated as conventional hot asphalt mix, provide the equivalent conventional hot asphalt mix compaction temperature.

QA

QC

REVISE 'QA' TO QUALITY ASSURANCE
" 'QC' " " CONTROL

THE DEFINITIONS OF QA AND QC HAVE NOT BEEN IDENTIFIED.

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: December 17, 2014

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Proposed Revisions to Section 772, Table 771-1, and Detail 145 **Case 15-02**

PURPOSE: Adjust fence requirements to reference ASTM F1043 Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework.

REVISIONS:

1. Revise Note 1 on Detail 145 to read as follows:
   1. Posts and rails shall be 1.90 inch outside diameter high strength heavy industrial steel pipe conforming to ASTM F1043 Material Group IA-2 (2.72 lb/ft, minimum yield strength = 50 ksi) or Material Group IC galvanized after forming (2.28 lb/ft, minimum yield strength = 50 ksi).

2. Specification Section 771 GALVANIZING Modify Table 771-1 by adding ASTM F1043 groups IA and IC to the row for Steel Pipe – Rails and Post.

TABLE 771-1		
GALVANIZING SPECIFICATIONS		
Material	ASTM Spec.	Wt. of Coating Oz./Sq. Ft. (Min.)
Corrugated Metal Pipe	A929	1.80
Flat Steel or Iron Sheets	A653, A924	1.25
Iron or Steel Wire	A116	.80
Chain Link Fabric	A392	1.20
Barbed Wire	A121	.50
Steel Pipe - Rails and Posts	A53,	1.8
	F1043 IA	1.8
	F1043 IC Galvanized After Forming	0.9 oz w/chromate and organic clearcoat
Structural Shapes, Tie Rods, Ornamental Iron Railings, Handrails, Manhole and Catch Basin Steps, and Curb Armor	A123	2.00
Bolts, Nuts, Washers, Anchor Bolts, Packing Spools, Gray Iron and Malleable Iron Castings and Steel Castings	A153	1.25

3. Section 772 CHAIN LINK FENCE revise the material requirements identified in 772.2 POSTS, RAILS AND BRACES.

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

CHAIN LINK FENCE

772.1 GENERAL:

All material shall be new and, upon request, the Contractor shall furnish to the Contracting Agency, a certification of inspection stating that the materials have been manufactured, sampled, tested and inspected so as to meet the requirements for its type as specified below.

772.2 POSTS, RAILS AND BRACES:

Posts, rails and braces shall be constructed of pipe in conformance with types A, B or C below. Unless specifically designated by type in the plans or specifications, the Contractor may utilize any of the three types. The posts and rails in this section will cover fencing up to 12 feet in height with post spacing not to exceed 10 feet. The nominal outside dimensions and minimum weights shall be in accordance with Table 772-1. The manufacturer or his representative shall legibly mark each length of pipe by rolling, stamping or stenciling to identify the product by product name, ASTM standard, etc. and the country of manufacture.

Type A: ~~Pipe s~~Shall be manufactured in conformance to ASTM F1043 IA-2 black steel pipe, welded or seamless, hot-dipped zinc coated, ~~manufactured in conformance to ASTM F1083,~~ plain end, standard weight (schedule 40). The hot-dipped zinc coating (galvanized) shall be applied both inside and outside with not less than 1.8 ozs. per square foot ± 0.1 ozs.

Type B: Shall be manufactured in conformance to ASTM F1043 IC Galvanized After Forming. Steel used in the manufacturing of the pipe shall be hot-rolled strip steel in compliance with ASTM A1011 having a minimum yield strength of 50,000 psi. The pipe will be manufactured by electric welded cold-formed process per ASTM A500. The exterior surface will be triple coated and the interior surface single coated ~~per ASTM F1043~~. The triple coated external surface shall be hot-dipped zinc coated (galvanized) having a weight of not less than 1.0 ozs. per square foot ±0.1 ozs., followed by a chromate conversion coating, having a weight not less than 1.05 micro ounces per square foot±0.353 micro ounces (30 micrograms per square inch ±15 micrograms) and an acrylic coating having a thickness of 0.0005 inches ± 0.0002 inches. The internal surface shall be coated with a zinc base paint having a 90% zinc powder loading and having a minimum thickness of 0.0005 inches.

Type C: Shall be manufactured in conformance to ASTM F1043 IC Galvanized Before Forming. Steel used in the manufacturing of the pipe shall be strip steel in compliance with ASTM A653 Grade D having a minimum yield strength of 50,000 psi. Both sides of the strip shall be hot-dipped zinc coated (galvanized) per ASTM A653 and A-924 having the weight of not less than 1.0 oz. per square inch ± 0.1 oz. The zinc coating will form the first coat of a triple coated external surface and the final coat of the interior surface. The pipe will be manufactured by electric welded cold formed process per ASTM A789. After manufacturing, the final two external coatings shall be a chromate conversion having a weight of not less than 1.05 micro ounces per square inch ± 0.353 micro ounces and an acrylic coating having a thickness of 0.0005 inches ± 0.0002 inches.

772.3 CHAIN LINK FABRIC:

Chain link fabric shall conform to the requirements of ASTM A392 (Zinc-Coated) or ASTM A491(Aluminum-Coated). The coating process must leave the fabric completely free of barbs, icicles, or other projections which might be hazardous. The wire used in the manufacture of the fabric shall be 11 gage for all fence 60 inches or less in height and shall be 9 gage for all fence over 60 inches in height unless otherwise specified.

All chain link fabric shall be woven into approximately 2 inch mesh. Fabric less than 60 inches wide shall have knuckled finish on the top edge, and twisted and barbed finish on the bottom edge. Fabric 60 inches or reater in width shall have twisted and barbed finish on both edges. Barbing shall be done by cutting the wire on the bias.

772.4 TENSION WIRES AND FABRIC TIES:

Tension wires shall be at least 7 gage galvanized coil spring steel wire per ASTM A824. Ties used to fasten the fabric to posts, rails, and gate frames shall be not smaller than 11 gage galvanized steel, 6 gage aluminum wire, or approved non-corrosive metal bands.

Tension bars used in fastening fabric to end and corner posts and gate frames shall be galvanized high carbon steel bars not smaller than 3/16 inch x 3/4 inch.

TABLE 772-1 FENCE MEMBER SIZES & WEIGHTS					
USE	FENCE HEIGHT (Feet)	NPS DESIGNATOR	OUTSIDE DIAMETER (Inches)	WEIGHT (Lb/Lf Minimum)	
				TYPE A Schedule 40	TYPE B and C
FENCE POSTS					
End, corner, slope, pull and strain posts	Less than 6	2	2.375	3.65	3.12
	6 and over but less than 9	2 1/2	2.875	5.79	4.64
	9 and over but not over 12	3 1/2	4.000	9.11	6.56
Line posts	less than 6	1 1/2	1.900	2.72	2.28
	6 and over but less than 9	2	2.375	3.65	3.12
	9 and over but not over 12	21/2	2.875	5.79	4.64
GATE POSTS					
Single swing gates 6 feet or less in width or double swing gates 12 feet or less	less than 6	2	2.375	3.65	3.12
	6 and over but not over 12	3 1/2	4.000	9.11	6.56
Single swing gates over 6 feet but not over 13 feet in width or double swing gates over 12 feet but not over 26 feet in width	—	3 1/2	4.000	9.11	6.56
Single swing gates over 13 feet but not over 18 feet in width of double swing gates over 26 feet but not over 36 feet in width	—	6	6.625	18.97	—
Single swing gates over 18 feet in width or double swing gates over 36 feet in width	—	8	8.625	28.55	—
OTHER MEMBERS					
Top rail and braces	—	1 1/4	1.666	2.27	1.84
Frame for gates	—	1 1/2	1.900	2.72	2.28
Stiffners for gates	—	1 1/4	1.666	2.27	1.84

Notes to Table 772-1:

- All unit weights shall be subject to the standard mill tolerance of ±5 percent.
- Posts shall be fitted with tops designed so as to fit securely over the posts and carry a top rail where specified. They shall have a total length of not less than the depth of the concrete footings, as specified, plus the length required above ground. Where no top rail is required, pipe posts shall be fitted with suitable caps.
- Top rail shall be furnished in random lengths of approximately 20 feet where required.

772.5 TRUSS OR TENSION RODS:

Truss or tension rods used in trussing gate frames and line posts adjacent to end, corner, slope or gate posts shall be adjustable 3/8 inch diameter galvanized steel rod. When used in trussing line posts, adjustment shall be provided by means of galvanized, turnbuckle or other suitable tightening devices.

772.6 FITTINGS:

Fittings shall conform to ASTM F626.

Fittings, hardware, nuts and bolts shall be galvanized.

Couplings to connect the individual lengths of top rail shall be of the outside sleeve type at least 7 inches long. The bore of the sleeves shall be sufficiently true to maintain adjacent lengths of rail in alignment.

Extension arms for barbed wire on pipe posts shall be of 13 gage steel or heavier, single piece construction and a type that can be attached to the tops of the posts. Extension arms shall carry 3 wires at approximately 5 1/2 inch centers in a plane approximately 45 degrees from the vertical, inclined as shown on the plans or as directed by the Engineer.

772.7 BARBED WIRE:

Barbed wire shall be 4 point pattern; composed of 2 strands of 12 1/2 gage galvanized steel wire with barbs spaced 5 inches apart and shall conform to ASTM A121.

- End of Section -

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: January 28, 2015

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Proposed Revision to Section 601.4.5 Final Backfill **Case 15-03**

PURPOSE: Revise trench final backfill placement requirement from 2 feet to layers not exceeding eight inches in depth.

REVISIONS:

601.4.5 Final Backfill: Material placed above the initial backfill to the top of the trench or to the bottom of the road base material. Final backfill shall be placed in layers not more than eight inches in depth before compaction~~lifts that shall not exceed 2 feet and the lift height shall not be more than can be compacted to the required density with the equipment and methods being used~~.

Final backfill shall be ABC per Section 702 or sound earthen material with no piece larger than 4 inches and be free from broken concrete, broken pavement, wood or other deleterious material.

Backfill under street pavement shall be constructed per Detail 200-1 with the type of trench and surface replacement as noted on the plans or in the special provisions. Unless otherwise noted, backfill under single curb, curb and gutter, sidewalk, driveways, valley gutters, etc. shall be the same as the adjacent street pavement.

DISCUSSION:

An uncompacted layer depth of eight inches is a MAG standard used elsewhere in the specifications to provide a high confidence level that the required compaction will be obtained, see MAG Sections 206.4.2(C), 211.3, and 355.3.1. Section 211.3 for fill construction states "The loose thickness of each layer of fill material before compacting shall not exceed 8 inches". Section 206.4.2 (C) for placement of structure backfill states "Shall be placed in layers not more than 8 inches in depth before compaction, when compacted by pneumatic or mechanical tamping devices." Section 355.3.1 Backfill Using Mechanical Compaction states "Backfill shall be aggregate base per Section 702 or native soil per Section 601.4.3, placed in maximum 6 to 8-inch loose lifts."

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

ADOT Standard Specifications

The 2008 Arizona Department of Transportation (ADOT) Standard Specifications for Road and Bridge Construction also requires placement in loose layers not exceeding eight inches in depth see sections 203-5.03 (B) (3) and 501-3.04 (B) (1)

SECTION 203 EARTHWORK

203-5.03 Construction Requirements

(B) Backfill

(3) Placement of Backfill

{paragraph 6}:
Backfill compacted by pneumatic or mechanical tamping devices, shall be placed in layers not more than eight inches in depth before compaction.

SECTION 501 PIPE CULVERT AND STORM DRAINS:

501-3 Construction Requirements:

501-3.04 Backfilling and Compacting:

(B) Placement of Backfill Material:

(1) General:

All trash, forms, sheeting, bracing, and loose rock or loose earth shall be removed from the areas to be backfilled before backfill material is placed.

Backfill compacted by pneumatic or mechanical tamping devices, shall be placed in layers not more than eight inches in depth before compaction.

Pipe backfill shall be brought up evenly on both sides of the pipe for the full length to an elevation one foot above the top of the pipe.

Trench backfill shall be placed from one foot above the top of the pipe to the elevation at which base or surfacing materials are to be placed or to the top of the trench.

Backfill material shall be placed around and over arches in accordance with the requirements of Section 502.

*{Subsections **(2) Standard Aggregate Slurry** and **(3) Cement-Treated Slurry** have been omitted.}*

(C) Compaction of Backfill Material:

Backfill material shall be compacted to at least 95 percent of the maximum density determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual, as directed and approved by the Engineer.

Jetting shall not be used to compact pipe backfill, trench backfill or any material placed more than one foot above the top of the pipe.

Ponding will not be allowed in any case.

If trench backfill or pipe backfill is placed as an aggregate slurry, the contractor shall excavate holes in the compacted slurry to the depths and at the locations designated by the Engineer. These holes shall be of such size as to allow the required density tests to be performed in a safe manner. Upon completion of the tests, the contractor shall refill the excavated areas and compact the material to the required density in a manner satisfactory to the Engineer.

{Paragraphs regarding cement-treated slurry have been omitted.}

AASHTO 2008 Guide Specifications for Highway Construction

The AASHTO 2008 Guide Specifications for Highway Construction requires trench backfill to be placed in layer not exceeding six inches in depth [section 206.03].

SECTION 206
EXCAVATION AND BACKFILL FOR CONDUITS AND MINOR STRUCTURES

206.03 Construction

{Paragraph 4 reads as follows:}
Distribute backfill in uniform lifts less than [6 in. (150 mm)]. Compact each lift to specified density before placing successive lifts.

Water/Sewer Working Group Meeting

Meeting Notes
January 15, 2015

Opening:
A meeting of the Specifications and Details Water/Sewer Working Group was called to order by Jim Badowich on January 15, 2015, at 1:35 p.m. in the MAG Cottonwood Room.

1. Introductions/Attendance
Mike Ambroziam (CPM), Tony Ayala (Avondale), Jim Badowich (Avondale), Arturo Chavarria (Hanson), Jami Erickson (Phoenix), Bob Herz (MCDOT), Connie Peretz (AZUCA), Rod Ramos (Scottsdale), Gordon Tyus (MAG), Arvid Veidmark (SSC Boring), Stew Waller (Rinker)

2. Recap of Last Year's Cases and Proposed Cases for This Year
Jim Badowich quickly reviewed cases that were approved in 2014 and asked members if they have reviewed and received any feedback on the changes. He also asked if there were other areas the group should address this year. Bob Herz said he wants to make changes to the backfill depth specifications. Mr. Badowich also mentioned possible additions to the new testing Section 611. Stew Waller said they are working on a revised laser testing spec. Jamie Erickson said she would like to look at a water pressure test, because currently Phoenix's test is different than MAG's. Another area mentioned for review was the flushing requirements. Tony Ayala said Goodyear has some specs that Avondale has used. Mr. Badowich said there should be a minimum water meter size based on the pipe size to ensure proper flushing. Issues regarding water use were also discussed. Mike Ambroziam said they have run a camera through and use chlorine to disinfect pipe 12" and larger up to 6000'. He also showed a type of flexible liner and discussed how it could be used.

3. Revisions to Section 602
Arvid Veidmark handed out a proposed revision to Section 602 Trenchless Installation of Steel Casing. He said the current ASTM reference no longer exists. He proposed a change to the first paragraph of Section 602.2 Materials to reference an American Welding Society table of steel types. Members suggested determining what steel was typically used for casings and reference those ASTM specs directly.

4. Horizontal Drilling Directional Drilling (New Section 608)
Sponsor Arvid Veidmark handed out version #11 of the proposed case. He also provided an updated detail drawing showing a schematic view of the boring equipment setup. This version removed the large table but now has documentation requirements such as the bore plan, site layout and so on based on the classification of the bore size as small, medium or large.

Jim Badowich asked about wet utilities. Mr. Veidmark said the spec can be used for either wet or dry. The group also discussed training requirements. Connie Peretz said AZUCA would like to provide training in the future. Mr. Veidmark talked about the bore plan. Mr. Badowich said he would like to have the contractor indicate the depth of the bore on the surface. He also

suggested surveying the job site before and after to assure no heaving of pavement or curbs, and also wanted to know what happens if such heaving occurs. The group also discussed minimum clearance tolerance to other utilities. Arvid Veidmark described how the reaming process typically does not follow the exact center line of the bore, and this should be taken into account for all clearances.

5. Other Future Case Items

Mr. Badowich asked if any other agencies had details for reclaimed water covers. Mr. Ayala said they are typically square. Rod Ramos was asked if Scottsdale had any details. Mr. Tyus said he thought the entire Section 611 Reclaimed Water text should be reviewed. The group discussed water/sewer and reclaimed water separation requirements in general.

Bob Herz said Section 744 ABS truss pipe needs to be updated because the ASTM reference was withdrawn. If this type of pipe is no longer used the entire section could be deleted.

Tony Ayala said he received information from Mueller that the large 24" valve details are out of date. He said he would check back on possible changes.

Mr. Badowich said wet barrel hydrants have been updated and the placement of the valve on the detail may need to change.

6. Next Meeting Date

The next Water/Sewer working group meeting is scheduled for Thursday, February 19, 2015.

The meeting was adjourned at 3:30 p.m.

Report to MAG Technical Committee
Meeting January 22, 2015
Asphalt and Materials Working Group meetings
By Chairmen, Jeff Benedict, Brian Galimore

The meeting was held on noon on August 22, 2015 at the ARPA offices.
Present at the meeting: Gordon Tyus (MAG), Brian Gallimore (WSP), Greg Groneberg (S.W. Asphalt), Scott Clark (Peoria), Jeff Hearne (SRMG), Doug Laquey (Fisher Industries),Robert Herz (MCDOT)), Sam Huddleston (Western Refining) Dave Beckel, Kevin Moss, (Southwest Rock) and Todd Ingram (Lhoist North America)

Cases for submittal:
Case 14-06 revision to section 718 Sam Huddleston handed out a list of objectives and concerns with section 718. Items were discussed such as current fog products and adding "seal coat" products that are used now. Sam indicated a need to break polymer modified rejuvenating products into a category. In addition some minor modifications to sections 333, and 334 are need after 718 is updated. A draft of the modified section 718 will be ready by the February meeting. Sam's list of objectives is attached.

Case 14-12 MCDOT submitted this case for "Pavement removal" and to prevent joints along pavement wheel paths. The case was discussed with line by line changes proposed. The working group will read and comment on elimination of references to saw cutting concrete pavements "mid slab". The section 336 was reviewed to address concerns from Jim Badowich on compaction enforcement by contractors.

Case 14-17 Stamped (decorative) asphalt this case was discussed and it was decided that more agency input was needed on specific language for paint warranty etc. to move forward. Brian will attempt to get to the manufacturer for more input on this case.

After the carry over cases were discussed the gentlemen form Southwest Rock asked to discuss testing of ABC and the variations of "wet prep" with ABC that may have been treated with lime. They feel strongly that there is non-uniformity of testing with ABC and particularly lime treated ABC.
The working group explained that the issue is probably real but it is also difficult when MAG 702 shows current testing standards for ABC. Not lime "treated" ABC. The rub is the lime treating a poor ABC or is it a in spec ABC that happens to have lime in it? The working group recommended that the company attempt to get an agency involved to "push" the issue into a possible case. The working group did not wish to take this on as a case.

Next meeting is February 26th 2015 at the ARPA offices.
This meeting was adjourned at 1:35PM

SECTION 718

1-22-2015

Update SECTION 718

- Suppliers were contacted for current products being produced and specifications.

- 2012 revision created errors to the 718 specification for products.
    - Specification not match product designation
    - Review on 2004 revision to determine correction

- Received specifications from local agencies for materials currently using.
    - Peoria, Mesa, others through suppliers

- Recommend addition of Polymer modified rejuvenating emulsion (PMRE)
    - This will cover several suppliers products currently being used

- Recommend the addition of Seal Coat specifications
    - Non diluted sealcoating material specification
    - Allows agency testing
    - Currently being specified by several local agencies
    - Available from 3 or more manufactures/suppliers

- Review impact on other Sections in MAG
    - Section 333 and 334 will require update (Minimal language)

- Reviewing specifications to update
    - Test method to current practice
    - AASHTO or ASTM as appropriate to current practice

To: Benedict, Jeffrey

Subject: RE: Test procedure modifications of Lime Treated Natural Aggregate Base Courses

From: David Beckel [mailto:dbeckel@southwestrockproducts.com]
Sent: Monday, August 25, 2014 4:29 PM
To: Brian Gallimore
Subject: Test procedure modifications of Lime Treated Natural Aggregate Base Courses

Dear Brian, As I was trying to elaborate on the phone, my concerns are of test procedure "interpretation" by technicians in the Valley seem to be quite widespread. Issues we have had here at Southwest Rock Products include the following: With T27/T11 , I have split samples for gradation with a testing lab, they getting 14% passing the #200, myself getting 8% passing the #200. When I talked to the lab about the differences, they said that they looked at the material under a microscope and could tell that since it was a lime treated AB and the clays were bonded together by the lime, they made the judgement call to wash the sample for approx. 2 hours, to get the water "clear". Basically what they did was to unbond the clays and what the lime is supposed to do, to get it into what has been and is an accepted practice for treated gravel pits with clays in them.(Ie. destroying what the lime is supposed to accomplish). My 2nd concern is that of Wet prepping a lime treated AB gravel (T146) for the determination of Liquid Limits (T89) and Plastic Limits (T90) for the determination of the Plasticity Index. If you study and read the T146 procedure, there are many "gray" areas that are open and subject to the interpretation of the technician/operator performing the test. One example (of many I have) is in T146, Method A, Procedure 4, section 4.1 that deals with the prep. of the sample when it is received from the field....In here it states, "dry the sample in a way not to exceed 140 degrees, THEN, thoroughly break up the "aggregations" in the mortar with a rubber-covered pestle. To me this is to break up clays balls,lumps etc.....to get it ready to split down into the the correct sample size for the LL,PL and PI determination. In a lab I have used, they see it as and this is what they do, is to split it here on the #40, and process the entire +40 material thru the mortar and rubber-tipped pestle. What this does is unbond what the lime has bonded together, creating more "fines" for the LL and PL sample and thus creating a greater chance to determine a PI. Again this is being done because the lab says that lime-treated bonds of minerals are not "natural" aggregate, thus it is correct to do this. This is all happening in section 4.1 of the T146 Method A. If you read the procedure, the material should NOT be split on the #40 in step 4.1, should only be split in step 4.2 etc. I think what needs to be done, is to go thru the procedures for T27/T11, T146, T89/T90 ,step by step, and try to determine, with common sense, what the ORIGINAL intent of the procedures were from the original Authors. It is my belief that these procedures were written and specified BEFORE lime-treated aggregates were commonplace and I truly believe a "modification" is needed on the above procedures when they are specified for lime-treated aggregate bases. Sincerely, David J. Beckel, Quality Control Manager, Southwest rock Products, Queen Creek,AZ. Cell#602-695-2893. Look forward to hearing back from you . I know that's a lot to "digest", but to make it simple, it's all in the prep of the sample for PI, if you are going to get a PI. And as far as wet gradations, it's about how long you wash the sample to get "clear water" and if you have lime treated AB you can literally wash it until all your left with is diamonds.....and an extremely high % passing the #200. If you want to meet in person and have a discussion I am available as per your schedule. Thanks again for your attention to these issues, Dave.

Gordon Tyus

From: Benedict, Jeffrey <Jeff.Benedict@valero.com>
Sent: Monday, January 26, 2015 11:03 AM
To: dbeckel@southwestrockproducts.com
Cc: Brian Gallimore; Gordon Tyus
Subject: section 702 Base materials

David,
Brian forwarded your e-mail to me. Thank you. And thank you for the your attendance at the MAG working group meeting last week.
I feel your frustration. This was passionately clear at the meeting.

As I see this issue, you have a couple of choices:
one, find an agency that supports your position on sample prep. and help them write an update to section 702 and thus modifying the AASHTO procedures listed. It will need to come from an agency in order to get enough approval to have the case pass. If the working group were to generate the case it will not pass. Too self serving.

Two, get someone from ADOT to have AASHTO to include a new section on "lime treated" ABC with special handling of the wet prep sample. This is not impossible to accomplish. Difficult but not impossible.

The current sections (702,701) are written to allow AASHTO to update their procedures without having to rewrite MAG every time. We do not have any voice or association with AASHTO. ADOT and the FHWA do. These sections were recently updated in MAG. They are purposely written (as they are) to allow for national updates. The ASHTO test procedures listed are some of the few that remain within the MAG. Most of the test procedures have been changed to ASTM procedures. This was kept with AASHTO practices for consistency.

I have listed your concerns in my report to the overall technical committee. The report will be distributed to each member of MAG. Your opportunity to find an agency supporter is best after the February MAG meeting on the 4th.
Best of luck.

Jeff Benedict

Jeff Benedict
Valero Marketing & Supply
(M)602-989-6121

MAG Concrete Working Group

Meeting Notes

Thursday, January 22, 2015, 1:00 pm at the ARPA Offices

Present:

See attached attendance sheet.

Discussion:

1) New Pervious Concrete Specification – Jeff Hearne
   Several handouts of examples of existing Pervious Concrete specifications were distributed along with some basic information on what Pervious is and the systems utilized in a properly designed Project. Applicable subjects are (1) Subgrade preparation based on the amount of potential water runoff control required, (2) design and mix parameters of the concrete itself, (3) delivery, placement, and curing onsite, and (4) ongoing pavement operations and maintenance. The Group was asked to review the handouts and provide thoughts and comments at the next meeting regarding the general format and amount of detail needed in a proposed MAG specification. We probably will need more guidance from the Standards Committee on this too. The Group would also like to hear from Agencies (Glendale, Phoenix, Tempe, Scottsdale) who have already done Pervious Paving Projects and their experience with the product.

2) Revision to Section 725 – Bob Hertz (email from John Shi @ MCDOTX)
   John was questioning whether Section 725.6 should include specifics for items that are required for concrete mix design submittals – similar to Section 710 on asphalt mix designs.

Date for Next Meeting:

The next meeting is scheduled for **February 26, 2015** @ **1:00 pm** in the ARPA offices.
(Following the Asphalt and Materials Working Group meetings)

Any and all participants are welcome and encouraged to be involved.

MAG Concrete Working Group

Thursday, January 22, 2015

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
	John Shi	McDOT	Maricopa County		johnshi@mail.maricopa.gov
	Jacob Rodriguez	Utility	Salt River Project	602-236-8613	jacob.rodriguez@srpnet.com
	Syd Anderson	Municipality	City of Phoenix	602-495-2047	syd.anderson@phoenix.gov
	Richard Soltero	Municipality	City of Phoenix	602-495-2063	richard.soltero@phoenic.gov
	Don Hansen	Municipality	City of Chandler	480-215-9264	don.hansen@chandleraz.gov
	Bob Draper	Municipality	City of Mesa	480-644-3822	bob.draper@mesaaz.gov
	Rob Godwin	Municipality	City of Goodyear	623-693-2457	rob.godwin@goodyearaz.gov
	Brandon Forrey	Municipality	City of Peoria	623-773-7201	brandon.forrey@peoriaaz.gov
SC	Scott Clark	Municipality	City of Peoria		scott.clark@peoriaaz.com
	Brian Gallimore	Contractor	WSP Inc	623-434-5050	bgallimore@wspinc.net
JH	Jeff Hearne	Producer	Salt River Materials Group	480-850-5757	jhearne@srmaterials.com
	Mike Kohout	Producer	Cemex	602-220-5631	mkohout@cemexusa.com
	Robert Barkley	Producer	Hanson Aggregates of Arizona	602-685-3436	robert.barkley@hansen.biz
	Tom Romero	Producer	CPC Southwest Materials	520-744-3222	tromero@calportland.com
	Adrian Green	Producer	Vulcan Materials	602-528-8692	greenaj@vmcmail.com
	Tom Villa	Producer	Rock Solid Concrete	602 339-7375	tvilla@rocksolidconcrete.com
	John McClafferty	Producer	Drake Materials	602-881-1650	jmcclafferty@drakeus.com
	Angelo Trujillo	Producer	BASF Admixtures	480-824-3733	angelotrujillo@cox.net
	Derek Imperial	Producer	BASF Admixtures	480-993-6948	derek.imperial@basf.com
	Greg Dorsch	Producer	BASF Admixtures	480-363-5646	greg.dorsch@basf.com
	David Allen	Producer	Boral Materials	602-861-5100	david.allen@boral.com
JB	Jeff Benedict	Producer	Valero Energy Corp	602-989-6121	Jeff.Benedict@valero.com
	Sam Huddleston	Producer	Western Refining		sam.huddleston@wnr.com
	Greg Groneberg	Producer	Southwest Asphalt		ggroneberg@fisherind.com
	Matthew Marcus	Testing Laboratory	Ninyo & Moore	602-243-1600	mmarcus@ninyoandmoore.com
	William Smith	Testing Laboratory	Terracon	480-897-8200	whsmith@terracon.com
	Scott Thompson	Testing Laboratory	Cardno ATC	602-290-0840	scott.thompson@cardno.com
	Bob Kostelny	Testing Laboratory	Cardno ATC	480-244-4350	robert.kostelny@cardno.com
	Don Cornelison	Testing Laboratory	Speedie and Associates	602-997-6391	dcornelison@speedie.net
	Raphael Tixier	Testing Laboratory	Western Technologies Inc.	602-437-3737	r.tixier@wt-us.com
	Mike Whitman	Testing Laboratory	Western Technologies Inc.	602-437-3737	mike.w@wt-us.com
	Phillip Feliz	Testing Laboratory	Western Technologies Inc.	602-437-3737	phil.f@wt-us.com
	Peter Kandaris	Consultant	DGA	602-236-8613	pkandaris@dgacon.com
	Steve Trussel	ARPA	Arizona Rock Products Association	602-271-0346	steve@azrockproducts.org
	Dan Duffy	ARPA	Arizona Rock Products Association	602-271-0346	dan@azrockproducts.org

Workshop Schedule & Descriptions

AZ LTAP TRAINING SCHEDULE

All training is scheduled On-Demand Requested by Contributing Member Agencies

If there are no seats available, you may still register, which places you on the waiting list. Seat fill occurs on a first-come, first-served basis as they become available.

Wait lists help determine additional training demand

Course Code	Class Name	Start Date	End Date	Location	Avail Seats	Registration fees/notes
LTP0012	BWTC/ Flagger	1/28/2015	1/28/2015	Eager	1	ADOT $0; LG $35; P $70
GEN9996	SHRP 2- Gila River Indian Community DOT Showcase	2/24/2015	2/24/2015	Chandler	32	No Fee
LTP0012	BWTC/ Flagger	3/12/2015	3/12/2015	Queen Creek	5	ADOT $0; LG $35; P $70
GEN9996	NHI-Environmental Factors in Construction & Maintenance	3/23/2015	3/24/2015	Phoenix	6	ADOT $0; LG $100; P $200
NHI142005	NHI-NEPA and Transportation Decision Making	4/14/2015	4/16/2015	Phoenix	4	ADOT $0; LG $312; P $625
TCH1167	ATSSA - Workzone Traffic Control Supervisor	4/22/2015	4/23/2015	Sedona	23	ADOT $0; LG $150; P $300
GEN9996	NHI-142073 Applying Section 4(f)Putting Policy into Practice	5/19/2015	5/20/2015	Phoenix	7	ADOT $0; LG $262; P $525
TCH3046	Certified Payroll Workshop	2/11/2015	2/11/2015	Phoenix	4	No Fee
TCH3046	Certified Payroll Workshop	3/5/2015	3/5/2015	Phoenix	6	No Fee
TCH3046	Certified Payroll Workshop	4/8/2015	4/8/2015	Phoenix	9	No Fee
TCH3046	Certified Payroll Workshop	5/13/2015	5/13/2015	Phoenix	9	No Fee
TCH3046	Certified Payroll Workshop	6/10/2015	6/10/2015	Phoenix	9	No Fee
TCH3046	Certified Payroll Workshop	7/8/2015	7/8/2015	Phoenix	10	No Fee
TCH3046	Certified Payroll Workshop	8/5/2015	8/5/2015	Phoenix	10	No Fee
TCH3046	Certified Payroll Workshop	9/16/2015	9/16/2015	Phoenix	10	No Fee
TCH3046	Certified Payroll Workshop	10/7/2015	10/7/2015	Phoenix	10	No Fee
TCH3046	Certified Payroll Workshop	11/4/2015	11/4/2015	Phoenix	10	No Fee
TCH3046	Certified Payroll Workshop	12/9/2015	12/9/2015	Phoenix	10	No Fee
TCH3271	Design and Construction ADA Facilities in the Public ROW	4/15/2015	4/15/2015	Phoenix	6	ADOT $0; LG $0; P $35
TCH3271	Design and Construction ADA Facilities In the Public ROW	10/14/2015	10/14/2015	Phoenix	28	ADOT $0; LG $0; P $35

January 21,2015

Contributing Member Agency Employees are Free unless noted
LG = Local Government (Not From A Contributing Member Agency)
P = Private Sector, Non-Local Government, etc.

1130 North 22nd Avenue, Phoenix, Arizona 85009
602.712.4050 Phone ~ 602.712.3007 Fax
ttraining@azdot.gov

Design and Construction ADA Facilities in the Public Right of Way	**8 hours**	**This very valuable, 8-hour course is intended to educate participants about Americans with Disability Act (ADA) Section 504 requirements in the Public Right-of-Way that can assist designers, inspectors, construction personnel, in meeting ADA compliance. District Engineers, Group Managers, Standards Engineers, Area Engineers, Designers, Plan Reviewers, Resident Engineers, Project Managers, Construction Inspectors, and Maintenance Supervisors are encouraged to attend. Agencies that construct highways, roads, streets and other elements of the Public Right-of-Way should be trained on the legal and technical requirements for implementing Federal accessibility regulations and other requirements applied to the public Right-of-Way.** **Participants in this course will learn about the new Public Right-of-Way Accessibility Guidelines (PROWAG) including:** **• Laws, Regulations and Pedestrian Characteristics** **• Pedestrian Access Route (PAR)** **• Curb Ramps and Other Transitions** **• Detectable Warning (Truncated Domes)** **• Pedestrian Crossings** **• Accessible Pedestrian Signals (APS)** **• Street Furniture and Parking** **• Work Zones and Maintenance**