March 30, 2016

TO: Members of the MAG Standard Specifications and Details Committee

FROM: Jim Badowich, City of Avondale, Chair

SUBJECT: MEETING NOTIFICATION AND TRANSMITTAL OF TENTATIVE AGENDA

Wednesday, April 6, 2016 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 Jim Badowich at 623-333-4222 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
April 6, 2016

COMMITTEE ACTION REQUESTED

1. Call to Order and Introductions
   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 March 2, 2016, Meeting Minutes

   3. **Review and approve minutes of the March 2, 2016 meeting.**

Carry Forward Cases from 2015

4. Case 15-05: Proposed Revisions to Section 616 and Detail 270-2
   Update reclaimed water line construction specifications and create NEW Reclaimed Valve Box detail.

   4. **Information, discussion and possible action.**
   Sponsor: Warren White, Chandler
   Updated

5. Case 15-13: Revisions to Section 725
   Add text to Section 725.6 to identify what to include in a concrete mix design submittal.

   5. Information and discussion.
   Sponsor: Jeff Hearne, Concrete Working Group

New Cases for 2016

6. Case 16-01: Misc. Corrections
   A. Revise Table 310-1 by deleting "or gradation deficiency" from the Deficiency column for Type IV.
   B. Correct arrow placement on Detail 507: Encased Concrete Pipe
   C. Add bullets back into Table 608-2 to make sure item 3. Surface Survey is included in medium and large projects.

   6. Information and discussion
   Sponsors: Bob Herz, MCDOT
   Arvid Veidmark, AZUCA

7.	Case 16-02: Certificates of Compliance and Analysis Add requirements for certificate of compliance and certificate of analysis. Add Section 106.2.1 Certificate of Compliance, add Section 106.2.2 Certificate of Analysis, and modify Section 717.2.1.2 Crumb Rubber.	7. Information and discussion Sponsor: Bob Herz, MCDOT
8.	Case 16-03: Revision to Detail 251 RETURN TYPE DRIVEWAYS. Adjust concrete thickness and concrete class for commercial and industrial driveways to match requirements shown on Detail 250.	8. **Information, discussion and possible action.** Sponsor: Bob Herz, MCDOT
9.	Case 16-04: Update Section 340.2.1 DETECTABLE WARNINGS. Review and adjust Section 340.2.1 for withdrawn ASTM C1028 reference. Simplify and clarify language.	9. **Information, discussion and possible action.** Sponsor: Bob Herz, MCDOT
10.	Case 16-05: DUAL CURB RAMPS. New Details 236-1, 236-2, 237-1, 237-2 and revise Section 340.3.9 Tolerances.	10. Information and discussion Sponsor: Warren White, Chandler
11.	Case 16-06: Update Section 727 STEEL REINFORCEMENT. Replace withdrawn ASTM A82 and A185 with ASTM A1064.	11. Information and discussion Sponsor: Bob Herz, MCDOT *New*
12.	Case 16-07: Update Section 415 FLEXIBLE METAL GUARDRAIL. Add Atmospheric Corrosion Resistance Low-Alloy Steel (COR-TEN steel) to the Material portion of Section 415 Flexible Metal Guardrail.	12. Information and discussion Sponsor: Bob Herz, MCDOT *New*
13.	New and Potential Cases. New sponsored cases, ASTM corrections, other potential cases.	13. Information and discussion

General Discussion

14. Working Group Reports

    14. Information and discussion.

    - Curb Ramp WG Chair: Warren White
      03/14/2016 Meeting
    - Water/Sewer Chair: Jim Badowich
      03/15/2016 Meeting
    - Asphalt, Materials and Concrete WGs
      03/17/2016 Meeting
      Chairs: Greg Groneberg, Brian Gallimore and Jeff Hearne
    - Outside ROW Chair: Peter Kandaris

15. General Discussion
    Updating agency supplements for MAG references.

    15. Information and discussion.

16. Request for Future Agenda Items

    16. Information and discussion.

    Adjournment

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

March 2, 2016

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

AGENCY MEMBERS

Jim Badowich, Avondale, Chair
Roger Olsen, Buckeye (proxy)
Warren White, Chandler, Vice Chair
Nick Russo (audio)
* Wayne Costa, Florence
Tom Kaczmarowski, Glendale
Tom Condit, Gilbert
Rob Godwin, Goodyear (proxy)
Bob Herz, MCDOT
Lance Webb, Mesa
Dan Nissen, Peoria
* Leticia Vargas, Phoenix (Streets)
Jami Erickson, Phoenix (Water)
Rod Ramos, Scottsdale
David Mobley, Surprise (proxy)
Tom Wilhite, Tempe
* Jonathan Sorrell, Valley Metro
* Gregory Arrington, Youngtown

ADVISORY MEMBERS

Greg Groneberg, ARPA
Jeff Hearne, ARPA
Arvid Veidmark, AZUCA
Tom Brennan, AZUCA
Brian Gallimore, AGC
Peter Kandaris, Independent
Paul R. Nebeker, Independent
Christina Buckle, SRP

MAG ADMINISTRATIVE STAFF

Gordon Tyus

* Members not attending or represented by proxy.

GUESTS/VISITORS

Jim Anderson, Olson Precast Arizona
Bill Davis, Advanced Drainage Systems
Troy McGahey, New Horizon Sales

1. Call to Order

   Chair Jim Badowich called the meeting to order at 1:32 p.m.

   Mr. Badowich said that Nick Russo (attending via teleconference), Tom Kaczmarowski, and David Mobley have been officially appointed to the committee.

2. Call to the Audience

   Chair Badowich announced the call to the audience. No members of the audience wished to speak.

3. Re-admittance of Advisory Member

   In 2015, Paul Nebeker (Independent) failed to meet the attendance requirements for an advisory member. According to the committee bylaws, advisory members are required to submit a letter, be sponsored, and receive a 2/3 vote of the committee for re-admittance. Mr. Nebeker submitted a letter, which Mr. Badowich reviewed and noted that he has served on the committee for 20 years. Mr. Badowich called for a vote of the committee for re-admittance of Mr. Nebeker as an advisory member. A voice vote was taken and approved unanimously.

4. Approval of Minutes

   The members reviewed the February 3, 2016 meeting minutes. Peter Kandaris noted that there were errors in the third paragraph under Item 15. He said it should read "Arizona Geological Survey" instead of Geologic Survey Institute, and also that the "University of Arizona" should replace "ASU."

   Bob Herz moved to accept the minutes with the correction as noted above. Tom Wilhite seconded the motion. A voice vote of all ayes and no nays was recorded.

Carry Forward 2015 Cases

5. Case 15-05: Revise Section 616 Reclaimed Water Line Construction and Add New Reclaimed Valve Box Detail 270-2.

   Warren White provided a revised Detail 270-2 that included minor updates discussed at the previous meeting. This included removing the word "VALVE" from the plan and the notes. He also proposed removing the text "TYPE OF LETTERS TO BE SUBMITTED FOR APPROVAL" from note 2. Bob Herz suggested changing the detail number to 271 since Detail 270 is referenced on four other details. He thinks it would be easier to change this detail number rather than update the other four details. Section 616 would then need to be updated to reference Detail 271.

There was discussion about having grade adjustment details on the frame and cover details. It was decided to leave them on, since they can also be used for installation. Mr. White proposed to vote on the case at the next meeting.

6. Case 15-13: Add text to Section 725.6 to Identify what to Include in a Concrete Mix Design Submittal.

   Sponsor Jeff Hearne said he had nothing new since there was no Concrete Working Group meeting during the month.

New Cases for 2016

7. Case 16-01: Miscellaneous Corrections.

   C. Arvid Veidmark added a new correction in Section 608 Horizontal Directional Drilling. He noted that Table 608-2 was missing bullets for the medium and large projects for Item 3 – Surface Survey. They were included in earlier drafts of the case, but accidentally left out of the one voted on last year. Mr. Badowich said it would be included as correction C in Case 16-01.

8. Case 16-02: Add Section 106.2.1 Certificate of Compliance, add Section 106.2.2 Certificate of Analysis, and modify Section 717.2.1.2 Crumb Rubber.

   Bob Herz said this case was still under discussion at the Asphalt/Materials Working Group, and there currently are no changes.

9. Case 16-03: Revision to Detail 251 RETURN TYPE DRIVEWAYS to adjust concrete thickness and concrete class for commercial and industrial driveways to match requirements shown on Detail 250.

   Bob Herz provided a revised Detail 251 that made corrections based on the previous meeting. These included changing the radius dimension to be per plans, and restoring note 1. He then asked for comments. Seeing none he proposed to vote on the case at the next meeting.

10. Case 16-04: Adjustment to Section 340.2.1 for withdrawn ASTM C1028 reference.

    Bob Herz said he made a change to the last sentence of the last paragraph, adding “and alignment” to the text. The front page of the case shows the changes to Section 340.2.1, the back of the page shows the final revised text. With no additional comments, Mr. Herz proposed to vote on the case at the next meeting.

11. Case 16-05: Dual Curb Ramps. New Details 236-1, 236-2, 237-1, 237-2 and revise Section 340.3.9 Tolerances.

    Warren White introduced a new case for dual curb ramp details that he and Brandon Forrey of Peoria developed based on input from the Curb Ramp Working Group. The case included four

new details that covered both radial and directional ramps with options for attached and detached sidewalks. The details were developed to meet the proposed PROWAG requirements. The details also were designed to provide options for different curb radii and curb heights. The slopes indicated on the details have some built-in tolerance such as using an 8% slope for ramps instead of the 8.33% maximum. The case also proposes revisions to Section 340.3.9 to provide information on the minimum and maximum allowable slopes and cross slopes. Mr. White said they had reviewed some agency supplements to develop the details, but more input is needed.

Brian Gallimore said the 2009 MUTCD changes the location of crosswalks and asked if this was taken into account. Bob Herz said the placement of ramps needs to be coordinated with the crosswalks, but it would be part of the design. Warren White said as long as the landing for the turning area at the bottom of the ramps is within the crosswalk, it meets the requirement. Lance Webb also asked if there was a preference for directional ramps. Bob Herz said the designer would need to specify which to use. Mr. White said the working group wanted both options available since agencies had different preferences.

Jim Badowich asked if they can be used for new and retrofits. Mr. White said yes, but the type of ramp may also be affected by available right-of-way. Rod Godwin of Goodyear asked if they took into account the location of pads for signal push buttons. Warren White said they could be added, but Mr. Webb said they probably would be submitted as a separate detail.

Mr. White noted that ramps showed the option of a curb (instead of wing) for detached sidewalks. Jim Badowich asked if the curb could be used on both sides. Mr. White agreed that it could be done, but Mr. Herz was concerned about creating a potential tripping hazard. Mr. Godwin asked if the area in front of the detectable warning was a monolithic pour, and this was confirmed. There was also a question about whether and where to show the jointing lines on the details.

Jim Badowich asked about the ramp concrete thickness, currently specified as 4”. He thought is should be at least 6”. Rod Ramos said Scottsdale now has 8” thickness for ramps, returns and the apron. Bob Herz said valley gutters are currently set at 9”. Mr. White noted that current details are also specified at the 4” thickness. Mr. Badowich said construction zones can cause problems that damage ramps. Trucks drive over ramps since they don’t have the normal turning radius available. Mr. Ramos said damaged ramps then can create problems for potential lawsuits. Tom Wilhite said he would review Tempe’s details to see what thickness they use. He also suggested showing the demarcation of the changes in thickness at the joints.

Jim Badowich reminded members that one of the goals of the committee is to reduce agency supplements. He asked members to have their agencies review the details. Mr. White said they are open to suggestions to incorporate agency requirements.

Tom Wilhite proposed to change the new language in Section 340 to read “slopes shall not exceed maximum grades.” Mr. White said they will continue discussion at the next Curb Ramp Working Group.

12. New or Potential Cases.

Dan Nissen of Peoria said Brandon Forrey suggested changes to Detail 235 regarding the slopes. He said he still needed to meet with him to know the justification for the changes, but thinks he will submit a case within the next couple months. It will also be reviewed by the curb ramp working group.

13. Working Group Reports

Chair Badowich asked for reports from the working group chairs.

a. **Curb Ramp Working Group**
Warren White said most of what was covered during the meeting had already been discussed previously with the introduction of Case 16-05. One area the working group discussed not mentioned was how to interpret PROWAG specs for cross slopes. (The notes were included in the packet).

The next meeting is scheduled for Monday, March 14th at 1:30 in the MAG Palo Verde room.

b. **Water/Sewer Issues Working Group**
Jim Badowich said the group met Feburary 16th. (Notes included in the packet.) Discussion included the correction to table 608-2, and the case on the reclaimed valve boxes. He said Paul Nebeker had asked if it should include an option for locking lids. Many members said they preferred not to use them, so this option would likely remain an agency supplement. Lance Webb said Mesa prefers lids with deeper skirts to prevent them from popping out. Jami Erickson said Phoenix had an incident where a lid popped out and caused a bicycle accident resulting in a lawsuit. Some expressed they had problems with lids popping out with boxes manufactured in Mexico. Warren White said he has shop details for the boxes manufactured in India and USA, but not Mexico.

Mr. Badowich said the group also discussed Water/Sewer testing, and that Tony Ayala of Avondale was researching agency requirements. He said the meeting also was attended by several meter box companies and they plan to update Detail 320. Mr. Badowich wants options for polymer concrete boxes as well as other materials, and also a standard for traffic rated boxes.

Tom Kaczmarowski suggested the group look at asbestos testing in manholes. He said it was on the agenda at the county. Jami Erickson said Phoenix has put their projects on hold until the issue is sorted out. She also asked about HB 2549 regarding the selection of piping materials. Mr. Kandaris said he heard it died. Mr. Tyus said that he spoke to Steve Trussell of ARPA and that it was his understanding that the bill had been pulled and that the sponsors from the PVC pipe industry would be having discussions directly with the City of Phoenix before proceeding with legislation.

Mr. Badowich said the next meeting is scheduled for Tuesday, March 15th, at 1:30 in the MAG Chaparral room.

c. **Asphalt, Materials and Concrete Working Groups**
Greg Groneberg said that the group discussed Case 16-02 Certificates of Compliance, and ASTM updates. In addition to these items at the next meeting they plan to review the bike line green paint specs, and revisions to Section 710 regarding high volume and low volume mixes. He said the mixes they make meet the requirements of both, so differentiating them is not necessary, and just creates two sets of paperwork.

On the concrete side, Jeff Hearne said he was trying to organize plant tours for agency staff. He would like to do one each for East Valley and West Valley plants, starting with the East Valley. He is organizing it for the 2nd week in April that would have a bus tour of material, asphalt and concrete plants that starts at Riverview Park. Reps from the companies would explain the processes during the tour. He is working on a flier to distribute and will bring it up at the next meeting.

The next meeting of the joint Asphalt/Materials and Concrete Working Groups is scheduled for Thursday, February 17th, at noon. The meetings will be held in the ARPA office, 916 W Adams Street, Phoenix.

d. **Outside ROW Working Group**
Peter Kandaris said he was recovering from illness and didn't have a chance to work on much last month. He noted that he would be out of state during the week of the working groups meetings so he would try to get some work done via email.

14. General Discussion

Jim Badowish said the group already discussed House Bill 2549. Rob Godwin said there have been changes to the AWWA specs that may want to be reviewed by the working group.

Paul Nebeker noted that many agencies have approved materials lists. After working out of state, he realized how helpful they are for projects, and suggested if you don't have approved material lists you may want to start them. Members discussed different ways new materials can be approved including trials. Mr. Nebeker said it also makes less work for inspectors when they can refer to approved lists.

15. Future Agenda Items

Chair Badowich asked the committee for any possible future agenda items. None were announced.

16. Adjournment

Seeing no further business, chair Badowich adjourned the meeting at 2:51 p.m.

2016 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 2015						
15-05	Case 15-05: Proposed Revisions to Section 616 Reclaimed Water Line Construction and NEW Reclaimed Valve Box detail 270-2. Update Detail 270-1.	Chandler	Warren White	03/04/2015 04/06/2016	Scheduled: 04/06/2016	0 0 0	Yes No Abstain
15-10	Case 15-10: Add subsection 321.10.5.3 “Rehabilitation Work” into the MAG Specifications.	Materials WG	Brain Gallimore	06/03/2015 07/23/2015	Withdrawn 02/03/2016	0 0 0	Yes No Abstain
15-13	Case 15-13: Add text to Section 725.6 to identify what to include in a concrete mix design submittal.	Concrete WG	Jeff Hearne	06/03/2015		0 0 0	Yes No Abstain
	NEW CASES FOR 2016						
16-01	**Case 16-01: Miscellaneous Corrections:** A. Revise Table 310-1 by deleting “or gradation deficiency” from the Deficiency column for Type IV. B. Correct arrow placement on Detail 507: Encased Concrete Pipe C. Add bullets back into Table 608-2 to make sure Item 3. Surface Survey is included in medium and large projects.	MCDOT	Bob Herz, Arvid Veidmark	01/06/2016 03/02/2016		0 0 0	Yes No Abstain
16-02	Case 16-02: Add requirements for certificate of compliance and certificate of analysis. Add Section 106.2.1 Certificate of Compliance, add Section 106.2.2 Certificate of Analysis, and modify Section 717.2.1.2 Crumb Rubber.	MCDOT	Bob Herz	01/06/2016		0 0 0	Yes No Abstain
16-03	Case 16-03: Revision to Detail 251 RETURN TYPE DRIVEWAYS. Adjust concrete thickness and concrete class for commercial and industrial driveways to match requirements shown on Detail 250.	MCDOT	Bob Herz	01/06/2016 02/04/2016	Scheduled: 04/06/2016	0 0 0	Yes No Abstain
16-04	Case 16-04: Review and adjust Section 340.2.1 for withdrawn ASTM C1028 reference.	MCDOT	Bob Herz	02/03/2016 02/04/2016	Scheduled: 04/06/2016	0 0 0	Yes No Abstain

2016 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	
16-05	Case 16-05: Dual Curb Ramps. New Details 236-1, 236-2, 237-1, 237-2 and revise Section 340.3.9 Tolerances.	Curb Ramp WG	Warren White	03/02/2016		0 0 0	Yes No Abstain
16-06	Case 16-06: Update Section 727 Steel Reinforcement to replace withdrawn ASTM A82 and A185 with ASTM A1064.	MCDOT	Bob Herz	04/06/2016		0 0 0	Yes No Abstain
16-07	Case 16-07: Add Atmospheric Corrosion Resistance Low-Alloy Steel (COR-TEN steel) to the Material portion of Section 415 Flexible Metal Guardrail.	MCDOT	Bob Herz	04/06/2016		0 0 0	Yes No Abstain

Chandler • Arizona
Where Values Make The Difference

MEMORANDUM **Case # 15-05**

DATE: April 6, 2016

TO: MAG Specifications and Details Committee Members

FROM: Warren White, City of Chandler Representative

SUBJECT: Proposed Revisions to Detail 270 and Section 616 (UPDATE)

Purpose: Incorporate a square frame and cover intended for reclaimed water valve construction meeting ADEQ requirements (option to colored purple)

Revisions:

- New "SQUARE FRAME AND COVER AND GRADE ADJUSTMENT" Detail 271 (instead of previously proposed Detail 270-2).
- Revise current Detail 270 and proposed Detail 271, removing text "TYPE OF LETTERS TO BE SUBMITTED FOR APPROVAL" from note 2.
- Revise Section 616 Reclaimed Water Line Construction as follows:

616.2 MATERIALS:

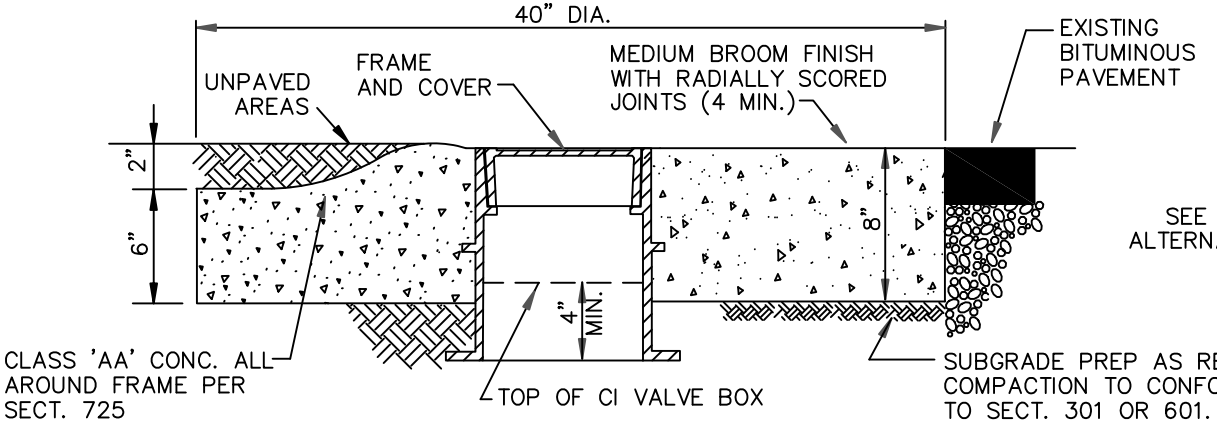
Pipe materials shall be in accordance with Section 610.

Valves shall be in accordance with Sections 610 and 630.

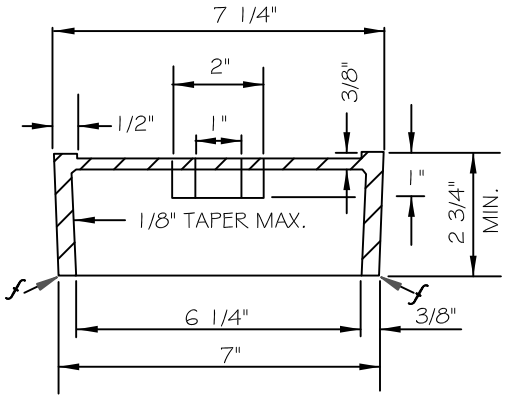
Valve boxes shall be in accordance with Section 345, this Section and Detail 391-1 and 391-2. Frame and cover shall be in accordance with Detail 271, or per Agency requirements. Manholes shall be in accordance with Section 625, 787 and this Section, and applicable Details.

Notes:

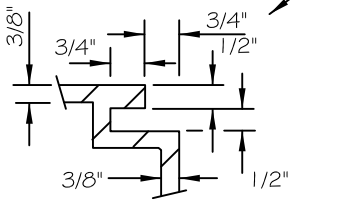
Arizona Administrative Code R18-9 Article 6 Reclaimed Water Conveyances requires mechanical appurtenances (valves) to be colored purple or legibly marked to identify it as part of the reclaimed water distribution system and distinguish it from systems for potable water distribution and sewage systems. Some municipalities have been using a square frame and cover for this purpose.



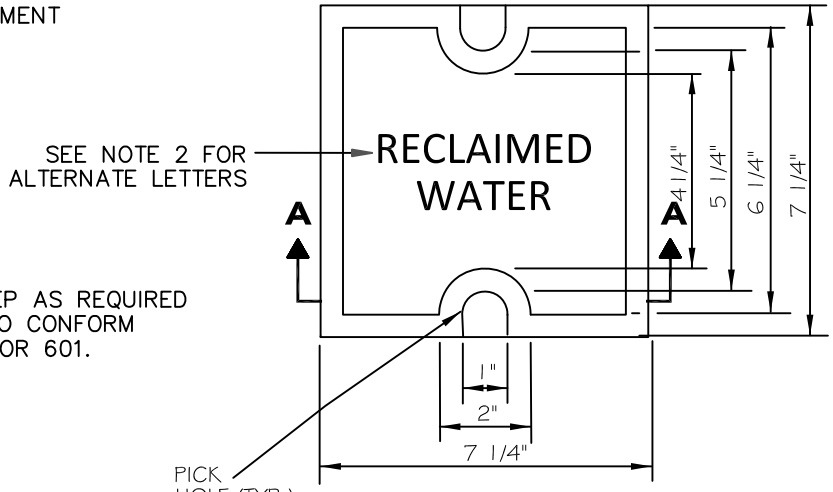
GRADE ADJUSTMENT FOR FRAME AND COVER

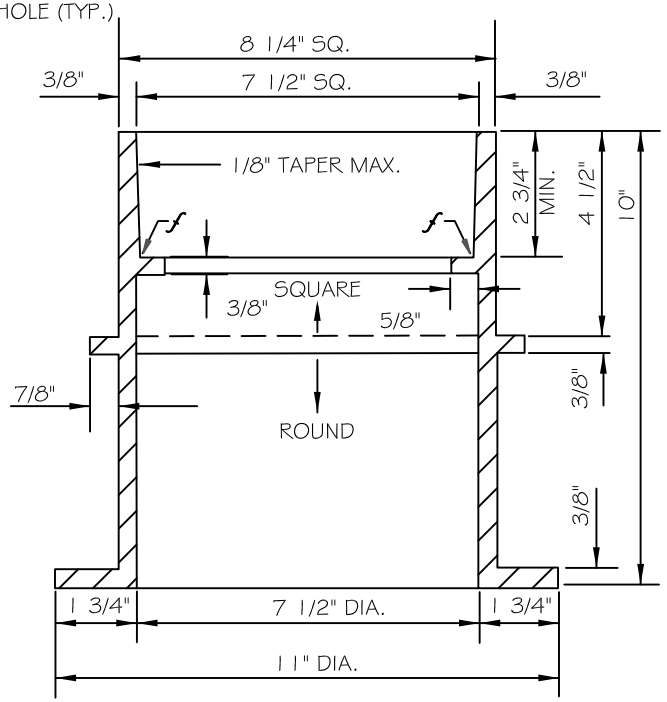


COVER SECTION A–A



PICK HOLE SECTION



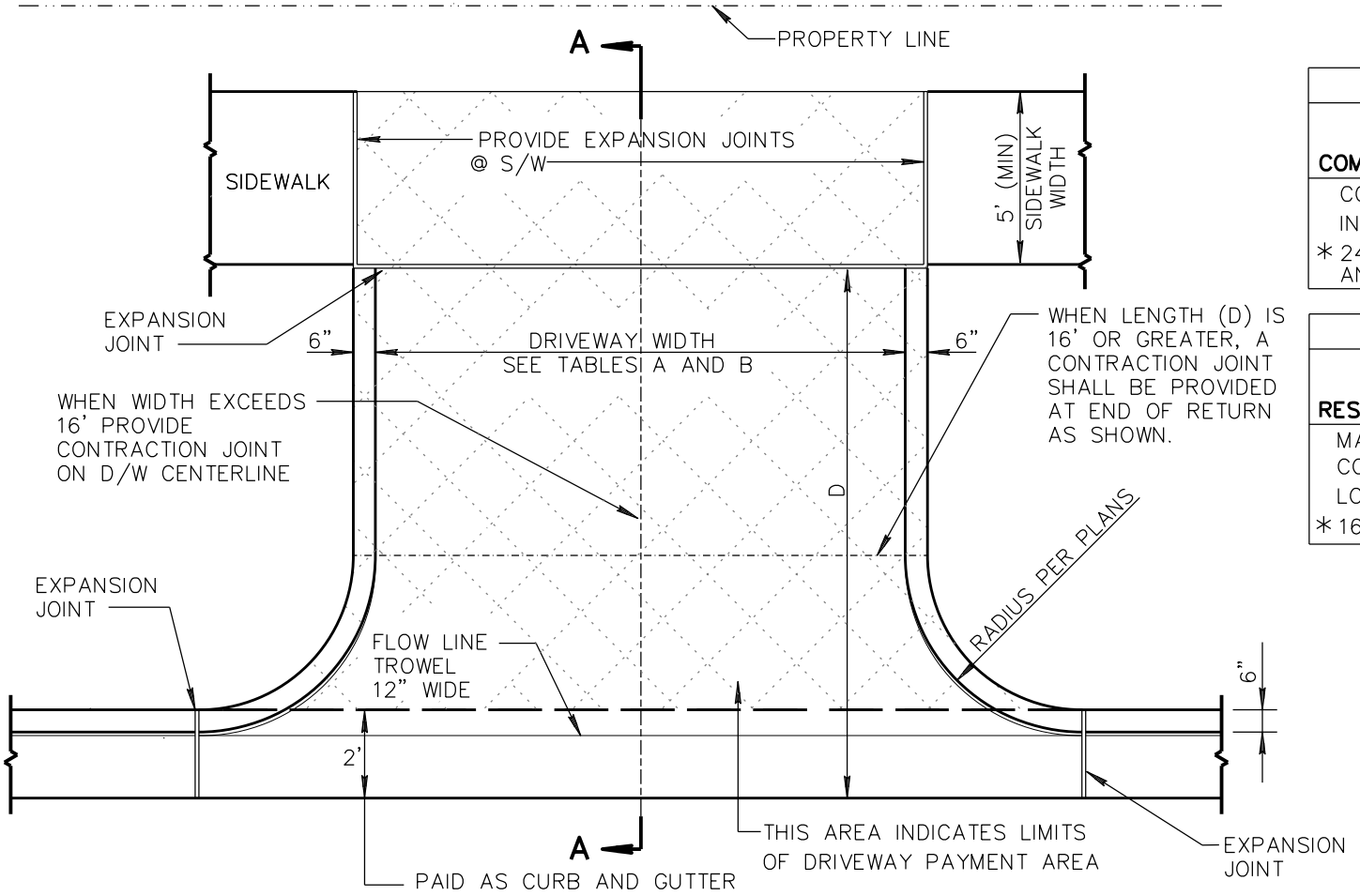


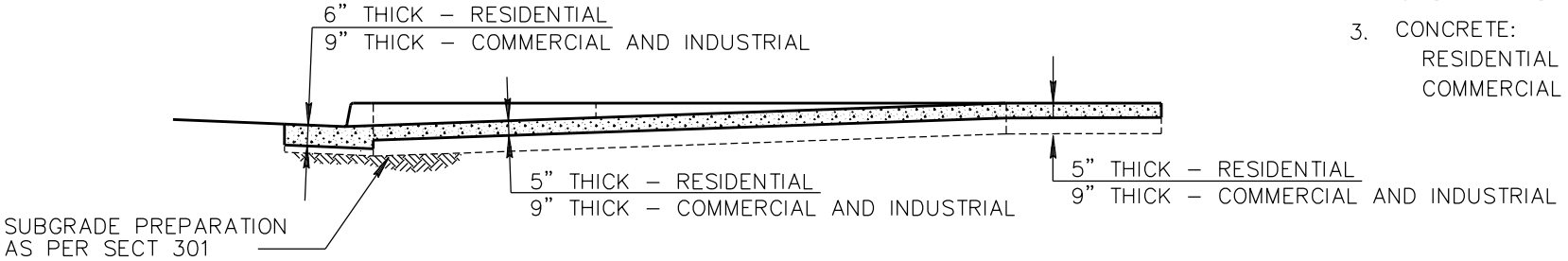
C.I. FRAME AND COVER

NOTES:

1. CASTING TO CONFORM TO SECT. 787.
2. LETTERS ON COVER TO BE AS FOLLOWS, PER AGENCY REQUIREMENTS: 3/4" HIGH "RECLAIMED WATER" OR 1/2" HIGH "NONPOTABLE WATER". LETTERS TO BE RAISED 1/16".
3. ℱ INDICATES MACHINE FINISHED SURFACE.
4. VALVE BOX SHALL HAVE A ROUND BOTTOM TO ACCOMMODATE RISER PIPE.

DETAIL NO.					
271	MARICOPA ASSOCIATION of GOVERNMENTS	STANDARD DETAIL ENGLISH	SQUARE FRAME AND COVER AND GRADE ADJUSTMENT	REVISED DRAFT 01–01–2017	271





SECTION A–A

TABLE A		
ZONING COMMERCIAL AND INDUSTRIAL	DRIVEWAY WIDTH MIN*	 MAX
COMMERCIAL	16'	40'
INDUSTRIAL	16'	40'
* 24' WHERE 2–WAY TRAFFIC IS ANTICIPATED		

TABLE B		
ZONING RESIDENTIAL	DRIVEWAY WIDTH MIN*	 MAX
MAJOR STREET	16'	30'
COLLECTOR STREET	12'	30'
LOCAL STREET	12'	30'
* 16' WIDTH IS DESIRABLE		

NOTES:

1. EXPANSION JOINT SHALL COMPLY TO SECTION 340.
2. THIS TYPE D/W TO BE USED ONLY UPON APPROVAL OF ENGINEER.
3. CONCRETE:
   RESIDENTIAL CLASS B
   COMMERCIAL AND INDUSTRIAL CLASS A

DETAIL NO.			REVISED	DETAIL NO.
251	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	RETURN TYPE DRIVEWAYS	01–01–2017	251

CASE 16–03 DRAFT 2–04–2016

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: February 3, 2016 Revised 2/4/2016

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Adjustment for Withdrawn ASTM C1028 **Case 16-04**

PURPOSE: Review and adjust Section 340.2.1. Section 340.2.1 is the only section that references ASTM C1028. ASTM C1028 (a test method for determining the static coefficient of friction) was withdrawn in 2014 without replacement.

REVISION:

340.2.1 Detectable Warnings: ~~Truncated dome dimensions and spacing for detectable warnings are defined by the Americans with Disabilities Act Accessibilities Guidelines (ADAAG) for optimal detect-ability and public safety.~~ Detectable warnings shall consist of raised truncated domes aligned in a square grid pattern in conformity to the Americans with Disabilities Act Accessibilities Guidelines (ADAAG)~~ADAAG~~. Truncated domes shall have the following nominal dimensions: base diameter of 1.0 inches (0.9 inches minimum) top diameter of 50 percent of the base diameter minimum to 65 percent of the base diameter maximum, and height of 0.2 inches. Dome center-to-center spacing of 2.35 inches, measured between the most adjacent domes on the square grid. Dome center-to-center spacing for radial installations shall be 1.6 inches minimum and 2.4 inches maximum with a base-to-base spacing of 0.65 inches minimum. Detectable warning ~~edges~~ panels shall be ~~sized and~~ installed ~~so that~~ with the dome spacing and alignment ~~is~~ maintained across adjoining panels ~~edges~~. ~~Each dome shall have a minimum static friction of coefficient of 0.8 as tested per ASTM C1028.~~

~~**340.2.1.1 Color and Contrast:**~~ Detectable warnings shall contrast visually with adjoining surfaces, either light-on-dark or dark-on-light. Specific colors to be used shall be approved by the local jurisdictional agency prior to installation. Detectable warnings shall have integral color throughout.

~~**340.2.1.2 Materials:**~~ Detectable warning materials shall be durable with a non-slip surface not subject to spalling, chipping, delamination, or separation. All detectable warnings shall be approved by the local jurisdictional agency prior to installation.

~~**340.2.1.3 Attachment System:**~~ Detectable warnings shall be either placed in freshly poured concrete (wet-set) or recessed into pre-formed concrete. Detectable warnings using wet-set placement shall have the bottom of the detectable warning continuously supported by the underlying concrete with no air voids. ~~an anchoring method that assures constant contact of the detectable warning bottom surface with the concrete as it cures, thus rendering the ramp a single monolithic structure. The thicker and heavier~~ Detectable warnings ~~lowered~~ placed into pre-formed recesses in the concrete ~~substrate must demonstrate~~ shall have a firm fit~~ting into metal reinforced frames~~ without gaps along the edges, and ~~that can channel water, sand, or debris. They must also~~ be able to resist movement (i.e. sliding, rocking, or lifting) once in ~~service~~ place. ~~All attachment systems shall be approved by the local jurisdictional agency.~~

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

TEXT IN FINAL FORM:

340.2.1 Detectable Warnings: Detectable warnings shall consist of raised truncated domes aligned in a square grid pattern in conformity to the Americans with Disabilities Act Accessibilities Guidelines (ADAAG). Truncated domes shall have the following nominal dimensions: base diameter of 1.0 inches (0.9 inches minimum) top diameter of 50 percent of the base diameter minimum to 65 percent of the base diameter maximum, and height of 0.2 inches. Dome center-to-center spacing of 2.35 inches, measured between the most adjacent domes on the square grid. Dome center-to-center spacing for radial installations shall be 1.6 inches minimum and 2.4 inches maximum with a base-to-base spacing of 0.65 inches minimum. Detectable warning panels shall be installed with the dome spacing and alignment maintained across adjoining panels.

Detectable warnings shall contrast visually with adjoining surfaces, either light-on-dark or dark-on-light. Specific colors to be used shall be approved by the local jurisdictional agency prior to installation. Detectable warnings shall have integral color throughout.

Detectable warning materials shall be durable with a non-slip surface not subject to spalling, chipping, delamination, or separation. All detectable warnings shall be approved by the local jurisdictional agency prior to installation.

Detectable warnings shall be either placed in freshly poured concrete (wet-set) or recessed into pre-formed concrete. Detectable warnings using wet-set placement shall have the bottom of the detectable warning continuously supported by the underlying concrete with no air voids. Detectable warnings placed into pre-formed recesses in the concrete shall have a firm fit without gaps along the edges, and be able to resist movement (i.e. sliding, rocking, or lifting) once in place.

Chandler • Arizona
Where Values Make The Difference

MEMORANDUM **Case # 16-05**

DATE: March 2, 2016

TO: MAG Specifications and Details Committee Members

FROM: Warren White, City of Chandler Representative

SUBJECT: Proposed New Dual Curb Ramp Details and Revisions to Section 340

Purpose: Incorporate new standard details for dual curb ramps (radial and directional) and revisions to Section 340 for maximum grade allowances meeting latest ADA requirements. The intention is for construction details to have the "build to" slopes/grades that will allow for tolerance while the specification provides the maximum limits for acceptance.

Revisions:

- New Detail 236-1 "DUAL CURB RAMPS (RADIAL) ATTACHED SIDEWALK"
- New Detail 236-2 "DUAL CURB RAMPS (RADIAL) DETACHED SIDEWALK"
- New Detail 237-1 "DUAL CURB RAMPS (DIRECTIONAL) ATTACHED SIDEWALK"
- New Detail 237-2 "DUAL CURB RAMPS (DIRECTIONAL) DETACHED SIDEWALK"
- Revise Section 340 "CONCRETE CURB, GUTTER, SIDEWALK, CURB RAMPS, DRIVEWAY AND ALLEY ENTRANCE" as follows, adding sentence to end:

340.3.9 Tolerances: The face, top, back, and flow line of the curb and gutter shall not deviate in excess of 1/4-inch over 10 feet, as tested with a 10-foot straightedge or curve template, longitudinally along the surface.

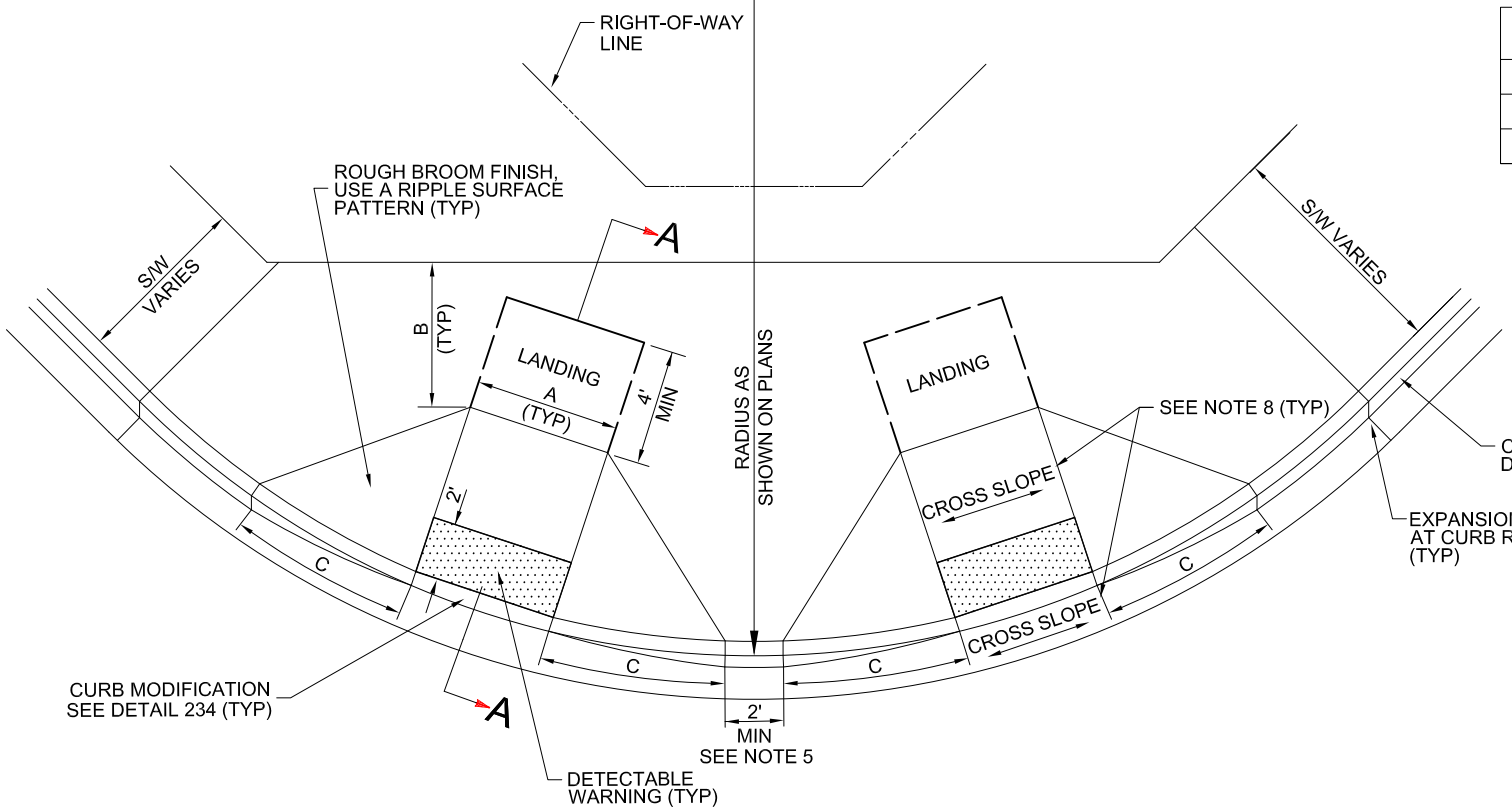
The surface of concrete sidewalk or curb ramp shall not deviate in excess of 1/8-inch over 5 feet as tested with a 5-foot straightedge except for the 1/4-inch recess of the preformed material in expansion joints.

All finished concrete elevations shall not deviate from the elevations shown on the plans, or indicated by typical sections or standard details referenced within the construction documents, by more than 1/2 inch.

When required by the Engineer, gutters shall be water tested. The Contractor shall establish flow in the length of gutter to be tested by supplying and distributing water from a hydrant, tank truck or other source. After the supply of water is shut off and water has stopped flowing, the gutter shall be inspected for evidence of ponding or improper shape. The work shall be deemed deficient if water is found ponded in the gutter to a depth greater than 1/2 inch or ponding extends onto the adjacent asphalt pavement.

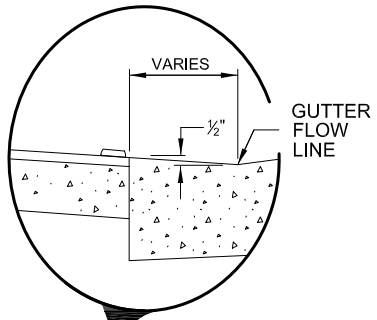
Areas between elevations shown on the plans shall be straight graded or smoothly transitioned through a vertical curve in a manner approved by the Engineer or as otherwise indicated on the construction documents.

In all cases, slopes shall meet the maximum grades per most current adopted ADA guidelines: sidewalk cross slope of 2%, ramp slope of 8.33%, ramp and landing cross slope of 2% (or up 5% allowed in certain cases) and flared side (wing) slope of 10% (measured parallel to curb line).



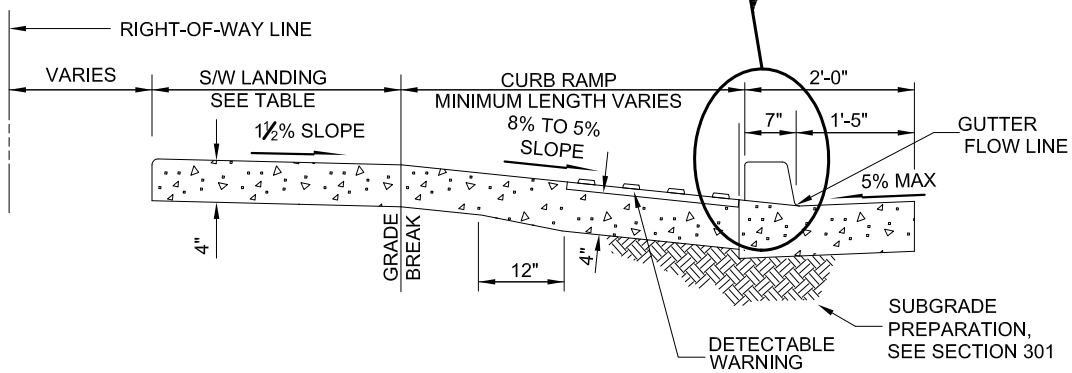
CURB HEIGHT	CURB RAMP MINIMUM LENGTH	C (min)
4"	4'	4'
6"	6'	6'
7"	7'	7'

CURB RAMP RADIUS (F/C)	A (min)	B (min)
25' AND GREATER	5'	5'
LESS THAN 25'	4'	4'



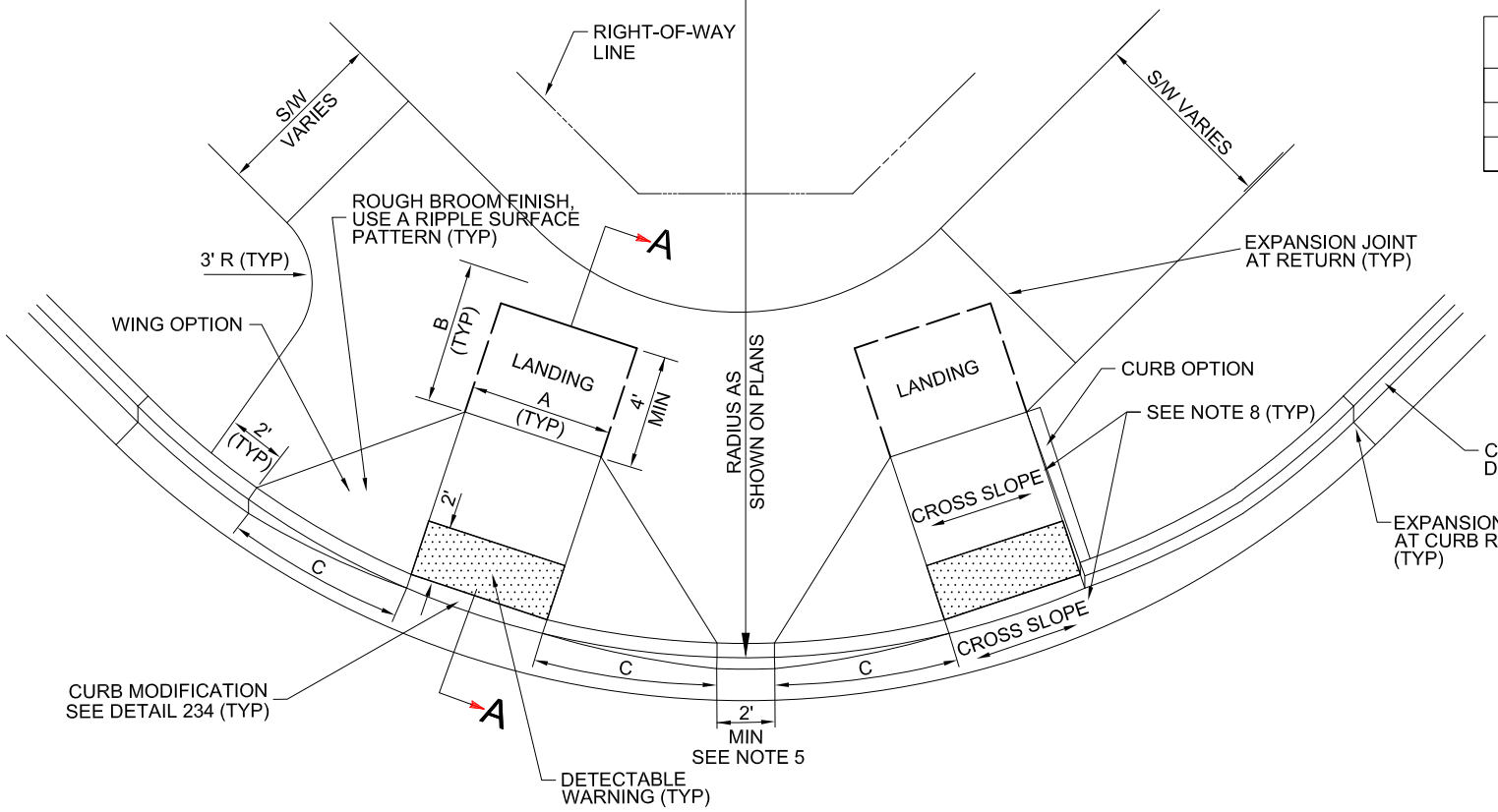
NOTES:

1. CLASS 'B' CONCRETE PER SECTION 725.
2. CONSTRUCTION INCLUDING EXPANSION JOINTS AND MAXIMUM SLOPES SHALL CONFORM TO SECTION 340.
3. SIDEWALK SURFACE TO MATCH 1½% SLOPE FROM TOP OF CURB.
4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.
5. DISTANCE BETWEEN RAMPS MAY BE ADJUSTED TO IMPROVE CROSSING ALIGNMENT WITH OPPOSING RAMP WHEN ALLOWED BY THE JURISDICTIONAL AGENCY.
6. 9.5% WING SLOPE, MEASURED PARALLEL TO CURB LINE.
7. RAMP AND WINGS SHALL BE WHOLLY CONTAINED WITHIN LIMITS OF CURB RETURN.
8. 2% MAXIMUM RAMP AND TURNING SPACE CROSS SLOPE OR UP TO 5% WHERE VEHICLES ARE NOT REQUIRED TO STOP AT CROSSWALK. MID-BLOCK CROSSINGS ARE PERMITTED TO MATCH STREET GRADE.



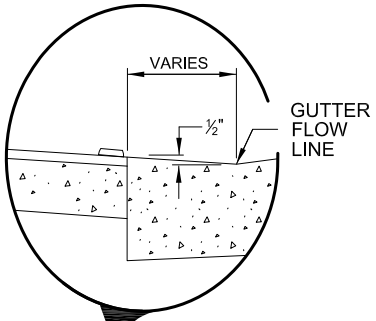
SECTION A-A

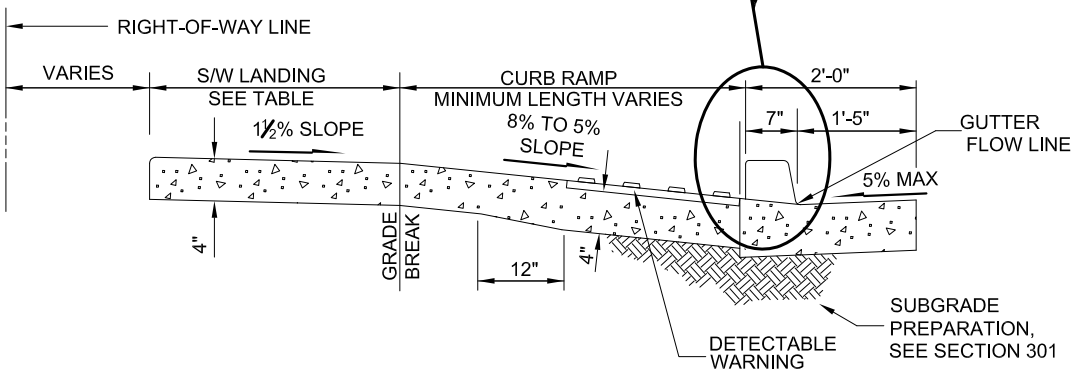
DETAIL NO.			PROPOSED	DETAIL NO.
236-1	MARICOPA ASSOCIATION of GOVERNMENTS — STANDARD DETAIL ENGLISH	DUAL CURB RAMPS (RADIAL) ATTACHED SIDEWALK	01–01–2017	236-1



CURB HEIGHT	CURB RAMP MINIMUM LENGTH	C (min)
4"	4'	4'
6"	6'	6'
7"	7'	7'

CURB RAMP RADIUS (F/C)	A (min)	B (min)
25' AND GREATER	5'	5'
LESS THAN 25'	4'	4'





SECTION A-A

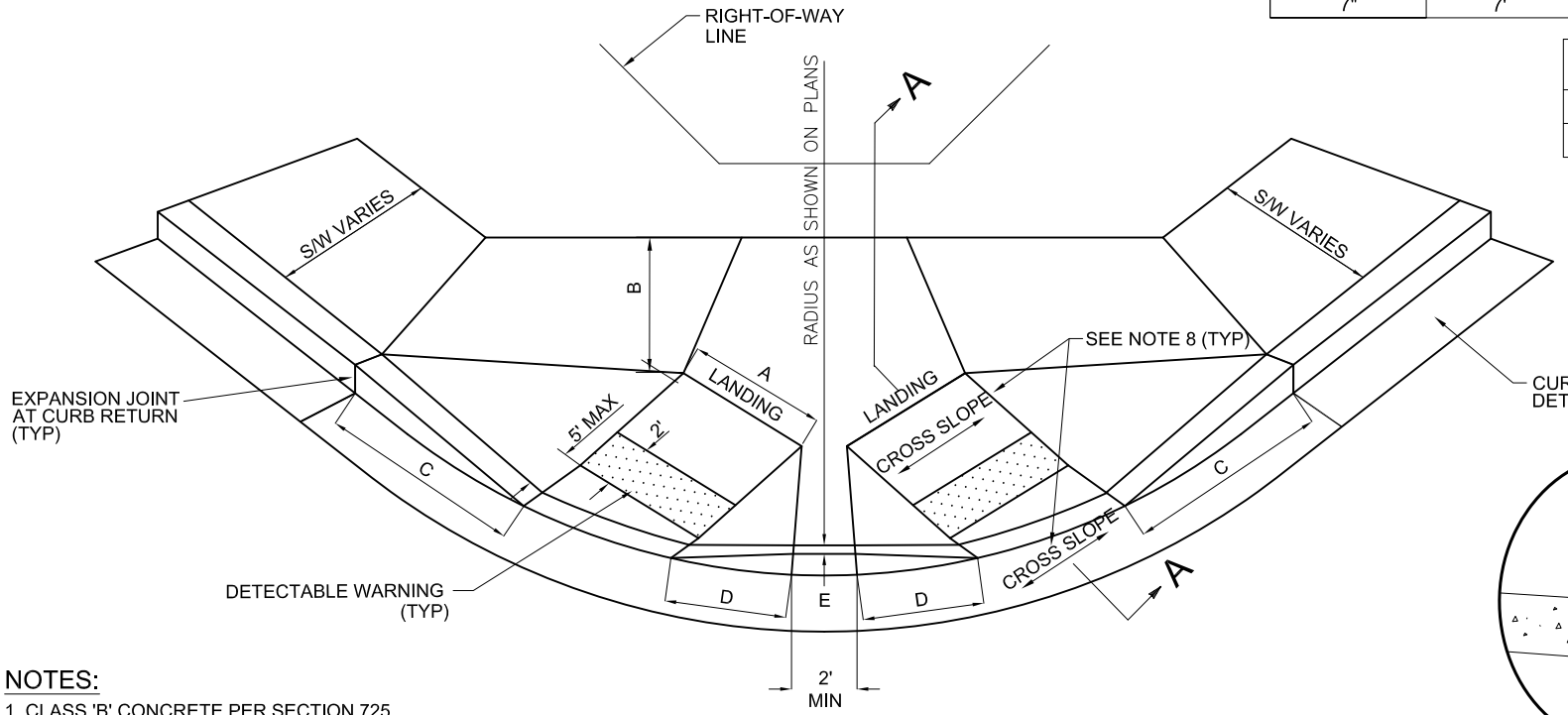
NOTES:

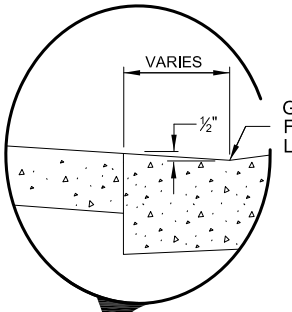
1. CLASS 'B' CONCRETE PER SECTION 725.
2. CONSTRUCTION INCLUDING EXPANSION JOINTS AND MAXIMUM SLOPES SHALL CONFORM TO SECTION 340.
3. SIDEWALK SURFACE TO MATCH 1½% SLOPE FROM TOP OF CURB.
4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.
5. DISTANCE BETWEEN RAMPS MAY BE ADJUSTED TO IMPROVE CROSSING ALIGNMENT WITH OPPOSING RAMP WHEN ALLOWED BY THE JURISDICTIONAL AGENCY.
6. 9.5% WING SLOPE, MEASURED PARALLEL TO CURB LINE.
7. RAMP AND WINGS SHALL BE WHOLLY CONTAINED WITHIN LIMITS OF CURB RETURN.
8. 2% MAXIMUM RAMP AND TURNING SPACE CROSS SLOPE OR UP TO 5% WHERE VEHICLES ARE NOT REQUIRED TO STOP AT CROSSWALK. MID-BLOCK CROSSINGS ARE PERMITTED TO MATCH STREET GRADE.

DETAIL NO.				PROPOSED	DETAIL NO.
236-2	MARICOPA ASSOCIATION of GOVERNMENTS	STANDARD DETAIL ENGLISH	DUAL CURB RAMPS (RADIAL) DETACHED SIDEWALK	01–01–2017	236-2

CURB HEIGHT	CURB RAMP LENGTH (MIN)	C (MIN)	D (MIN)	CURB HEIGHT E (MIN)
4"	4'	4'	3'	2"
6"	6'	6'	4'	3"
7"	7'	7'	5'	4"

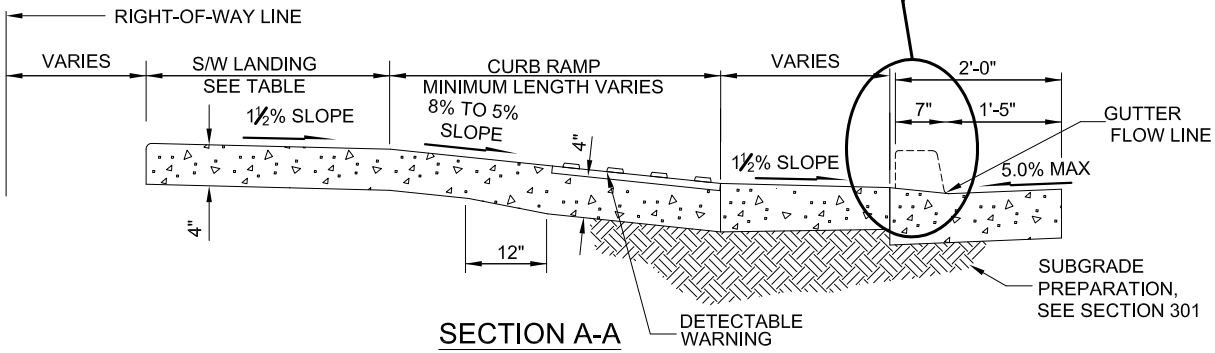
CURB RAMP RADIUS (F/C)	A (MIN)	B (MIN)
25' AND GREATER	5'	5'
LESS THAN 25'	4'	4'





NOTES:

1. CLASS 'B' CONCRETE PER SECTION 725.
2. CONSTRUCTION INCLUDING EXPANSION JOINTS AND MAXIMUM SLOPES SHALL CONFORM TO SECTION 340.
3. SIDEWALK SURFACE TO MATCH 1½% SLOPE FROM TOP OF CURB.
4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.
5. DISTANCE BETWEEN RAMPS MAY BE ADJUSTED TO IMPROVE CROSSING ALIGNMENT WITH OPPOSING RAMP WHEN ALLOWED BY THE JURISDICTIONAL AGENCY.
6. 9.5% WING SLOPE, MEASURED PARALLEL TO CURB LINE.
7. RAMP AND WINGS SHALL BE WHOLLY CONTAINED WITHIN LIMITS OF CURB RETURN.
8. 2% MAXIMUM RAMP AND TURNING SPACE CROSS SLOPE OR UP TO 5% WHERE VEHICLES ARE NOT REQUIRED TO STOP AT CROSSWALK. MID-BLOCK CROSSINGS ARE PERMITTED TO MATCH STREET GRADE.

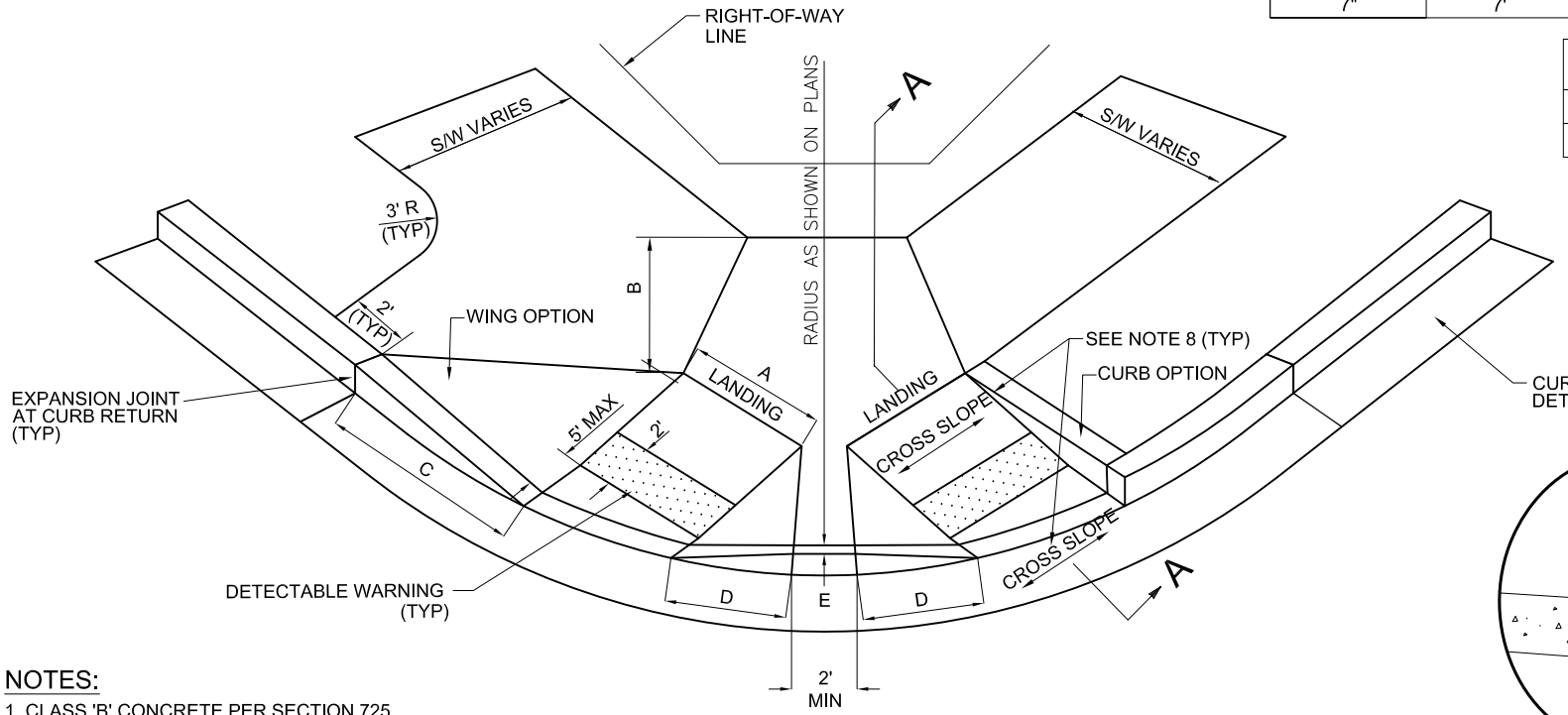


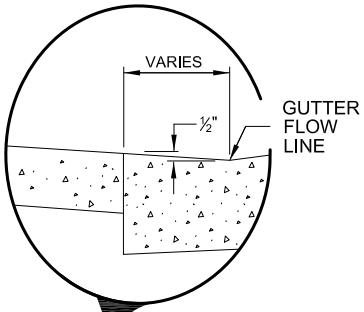
SECTION A-A

DETAIL NO.				PROPOSED	DETAIL NO.
237-1	MARICOPA ASSOCIATION of GOVERNMENTS	STANDARD DETAIL ENGLISH	DUAL CURB RAMPS (DIRECTIONAL) ATTACHED SIDEWALK	01–01–2017	237-1

CURB HEIGHT	CURB RAMP LENGTH (MIN)	C (MIN)	D (MIN)	CURB HEIGHT E (MIN)
4"	4'	4'	3'	2"
6"	6'	6'	4'	3"
7"	7'	7'	5'	4"

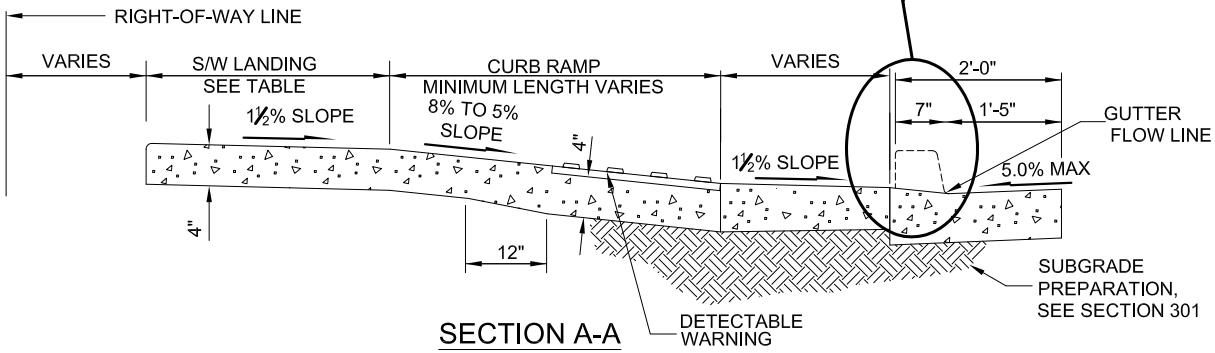
CURB RAMP RADIUS (F/C)	A (MIN)	B (MIN)
25' AND GREATER	5'	5'
LESS THAN 25'	4'	4'





NOTES:

1. CLASS 'B' CONCRETE PER SECTION 725.
2. CONSTRUCTION INCLUDING EXPANSION JOINTS AND MAXIMUM SLOPES SHALL CONFORM TO SECTION 340.
3. SIDEWALK SURFACE TO MATCH 1½% SLOPE FROM TOP OF CURB.
4. DETECTABLE WARNING IS TO COMPLY WITH THE JURISDICTIONAL AGENCY'S REQUIREMENTS.
5. DISTANCE BETWEEN RAMPS MAY BE ADJUSTED TO IMPROVE CROSSING ALIGNMENT WITH OPPOSING RAMP WHEN ALLOWED BY THE JURISDICTIONAL AGENCY.
6. 9.5% WING SLOPE, MEASURED PARALLEL TO CURB LINE.
7. RAMP AND WINGS SHALL BE WHOLLY CONTAINED WITHIN LIMITS OF CURB RETURN.
8. 2% MAXIMUM RAMP AND TURNING SPACE CROSS SLOPE OR UP TO 5% WHERE VEHICLES ARE NOT REQUIRED TO STOP AT CROSSWALK. MID-BLOCK CROSSINGS ARE PERMITTED TO MATCH STREET GRADE.



SECTION A-A

DETAIL NO.				
237-2	MARICOPA ASSOCIATION of GOVERNMENTS	STANDARD DETAIL ENGLISH	DUAL CURB RAMPS (DIRECTIONAL) DETACHED SIDEWALK	PROPOSED 01–01–2017 / DETAIL NO. 237-2

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: March 3, 2016

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Update to Section 727 Steel Reinforcement **Case 16-06**

PURPOSE: Adjust ASTM references. ASTM A82 and ASTM A185 have been withdrawn and replaced by ASTM A1064. Delete referenced ASTM B670 (Standard Specification for Precipitation-Hardening Nickel Alloy (UNS N07718) Plate, Sheet, and Strip for High-Temperature Service), it is spurious and does not apply.

REVISION:

SECTION 727

STEEL REINFORCEMENT

727.1 GENERAL:

The following specifications set forth the requirements for bar reinforcement, wire reinforcement, and wire mesh reinforcement. The reinforcement shall conform accurately to the dimensions and details indicated on the plans or otherwise prescribed and before being placed in any concrete work, shall be thoroughly cleaned of all loose rust, mill scale, mortar, oil, dirt, or coating of any character, which would be likely to destroy, reduce, or impair its proper binding with the concrete.

No reinforcing steel will be accepted under this specification until it has been approved by the Engineer. When required by the Engineer, the Contractor or supplier shall furnish a spot sample taken on the project and notify the Engineer as to when and where they will be available. Such samples shall be furnished at the expense of the Contractor or supplier, but the cost of any testing that may be required will be borne by the Contracting Agency. Samples shall only be taken in the presence of the Engineer. The Contractor shall furnish 3 certified mill test reports or certificates of compliance for each heat or size of steel which can be clearly identified with the lot. When such information has been furnished, placing of the steel will not be held up until results of spot samples have been received. Unless otherwise specified, all reinforcing steel bars shall be deformed intermediate grade 40 billet steel in conformanceing with ASTM A615~~ and the shapes shall conform with ASTM B670~~.

In testing bar reinforcement, only the theoretical cross-sectional area will be used in all computations.

Reinforcing steel shall be furnished in the sizes, shapes, and lengths shown on the plans. Bending of steel shall conform to the requirements of Section 505.5.2.

The various grades of steel shall not be used interchangeably in structures.

727.2 WIRE REINFORCEMENT:

Wire reinforcement shall in all respects fulfill requirements prescribed in ASTM~~ A82~~ A1064.

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

727.3 WELDED WIRE ~~MESH~~ REINFORCEMENT:

Mesh reinforcements shall conform to ASTM ~~A185~~ A1064. The ~~gage of the~~ wire size number and the ~~dimension of the mesh~~ wire spacing will be specified in the special provisions or shown on the plans. The welded wire ~~mesh~~ reinforcement shall be so constructed as to retain its original shape and form during necessary handling. The effective cross-sectional area of the metal shall be equal to that specified or indicated on the plans.

727.4 WIRE TIES:

Wire for ties shall be black, annealed, not lighter than 16 gage.

- End of Section -

Reference Information:

Designation: B670 – 07 (Reapproved 2013)

Standard Specification for Precipitation-Hardening Nickel Alloy (UNS N07718) Plate, Sheet, and Strip for High-Temperature Service[1]

This standard is issued under the fixed designation B670; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers rolled precipitation hardenable nickel alloy (N07718)* plate, sheet, and strip in the annealed condition (temper).

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to become familiar with all hazards including those identified in the appropriate Material Safety Data Sheet (MSDS) for this product/material as provided by the manufacturer, to establish appropriate safety and health practices, and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

B637 Specification for Precipitation-Hardening and Cold Worked Nickel Alloy Bars, Forgings, and Forging Stock for Moderate or High Temperature Service

B906 Specification for General Requirements for Flat-Rolled Nickel and Nickel Alloys Plate, Sheet, and Strip

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E139 Test Methods for Conducting Creep, Creep-Rupture, and Stress-Rupture Tests of Metallic Materials

[1] This specification is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.07 on Refined Nickel and Cobalt and Their Alloys.

Current edition approved Feb. 1, 2013. Published February 2013. Originally approved in 1972. Last previous edition approved in 2007 as B670 – 07. DOI: 10.1520/B0670-07R13.

* New designation established in accordance with ASTM E527 and SAE J1086, Practice for Numbering Metals and Alloys (UNS).

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM*

3. Terminology

3.1 *Description of Terms Specific to This Standard*—Th terms given in Table 1 shall apply.

4. General Requirements

4.1 Material furnished under this specification shall cor form to the applicable requirements of Specification B90 unless otherwise provided herein.

5. Ordering Information

5.1 It is the responsibility of the purchaser to specify a requirements that are necessary for material ordered to thi specification. Examples of such requirements include, but ar not limited to, the following:

5.1.1 *Alloy*—Name or UNS number (see Table 2).

5.1.2 ASTM designation, including year of issue.

5.1.3 *Condition*—See 7.1 and Appendix X1.

5.1.4 *Finish*—Specification B906 or Appendix X1.

5.1.5 *Dimensions*—Thickness, width, and length.

5.1.6 *Quantity:*

5.1.7 *Optional Requirements:*

5.1.7.1 *Sheet and Strip*—Whether to be furnished in coil, i cut straight lengths, or in random straight lengths.

5.1.7.2 *Strip*—Whether to be furnished with commercial sli edge, square edge, or round edge.

5.1.7.3 *Plate*—Whether to be furnished specially flattene (see 8.7); also how plate is to be cut (see 8.2.1 and 8.3.2).

5.1.8 *Fabrication Details*—Not mandatory but helpful t the manufacturer:

5.1.8.1 *Welding or Brazing*—Process to be employed.

5.1.8.2 *Plate*—Whether material is to be hot-formed.

5.1.9 *Certification*—State if certification or a report of tes results is required (see Specification B906).

5.1.10 *Samples for Product (Check) Analysis*—Whethe samples should be furnished (see 6.2).

5.1.11 *Purchaser Inspection*—If the purchaser wishes t witness the tests or inspection of material at the place o manufacture, the purchase order must so state indicating whicl

ASTM COMPASS®
Your Portal for Standards, Testing, Learning, & More

ASTM A185/A185M-07 (Withdrawn Version)

Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete (Withdrawn 2013)

Withdrawn Standard: A185/A185M-07 | Developed by Subcommittee: A01.05

WITHDRAWN, REPLACED BY A1064/A1064M

Format	Pages	
PDF Version	6	DOWNLOAD PDF

1. Scope

1.1 This specification covers welded wire reinforcement to be used for the reinforcement of concrete.

Note 1

Welded wire for concrete reinforcement has been described by various terms: welded wire fabric, WWF, fabric, and mesh. The wire reinforcement industry prefers the term "welded wire reinforcement" (WWR) as being more representative of the range of products being manufactured. Therefore, the term "welded wire fabric" has been replaced with the term "welded wire reinforcement" in this specification and in related specifications.

1.2 The values stated in SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard. (Within the text the inch-pound units are shown in brackets.)

ASTM COMPASS®
Your Portal for Standards, Testing, Learning, & More

ASTM A82/A82M-07 (Withdrawn Version)

Standard Specification for Steel Wire, Plain, for Concrete Reinforcement (Withdrawn 2013)

Withdrawn Standard: A82/A82M-07 | Developed by Subcommittee: A01.05

WITHDRAWN, REPLACED BY A1064/A1064M

Format	Pages	
PDF Version	4	DOWNLOAD PDF

1. Scope

1.1 This specification covers cold-drawn steel wire, as-drawn or galvanized, to be used as such, or in fabricated form, for the reinforcement of concrete, in sizes not less than 2.03 mm [0.080 in.] nominal diameter.

1.2 Supplement S1 describes high-strength wire, which shall be furnished when specifically ordered. It shall be permissible to furnish high-strength wire in place of regular wire if mutually agreed to by the purchaser and the manufacturer.

1.3 The values stated in SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard (The inch-pound units are shown in brackets except in Table 6.)

MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: March 28, 2016

To: MAG Specifications and Details Committee

From: Robert Herz, MCDOT Representative

Subject: Update to Section 415 Flexible Metal Guardrail **Case 16-07**

PURPOSE: Add Atmospheric Corrosion Resistance Low-Alloy Steel (COR-TEN steel) to the Material portion of Section 415 Flexible Metal Guardrail.

REVISION:

SECTION 415

FLEXIBLE METAL GUARDRAIL

415.1 DESCRIPTION:

The work under this section shall consist of furnishing all materials, constructing new guardrail, and delineating guardrail sections at the locations shown on the plans.

Guard rail end treatments shall be as specified on the plans or special provisions.

415.2 MATERIALS:

The rail elements, bolts, nuts and other fittings shall conform to the specifications of AASHTO M 180, except as modified in this section. The rail metal shall conform to AASHTO M 180, Type I, Class A and in addition to the requirements of AASHTO M 180, shall withstand a cold bend, without cracking of 180 degrees around a mandrel of a diameter equal to 2 1/2 times the thickness of the plate.

Corten steel guardrail shall conform to AASHTO M 180, Type IV, beams (W-beam, thrie beam, and transitions) shall be Class B using ASTM A588 steel.

Three certified copies of mill test reports of each heat from which the rail element is formed shall be furnished to the Engineer.

All materials shall be new, except as otherwise noted on the plans or special provisions.
Railing Parts furnished under these specifications shall be interchangeable with similar parts regardless of source. All surfaces of guardrail elements that are exposed to traffic shall present a uniform, pleasing appearance and shall be free of scars, stains or corrosion.

Nails shall be 16 penny common galvanized.

Bolts shall have shoulders shaped to prevent the bolts from turning.

Unless otherwise specified the rail elements, terminal sections, bolts, nuts, and other fittings shall be galvanized in accordance with Section 771. Where galvanizing has been damaged, the coating shall be repaired in accordance with Section 771.

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

Guardrail reflector tabs shall be either 3003-H14 Aluminum strip 0.063 ± 0.004 inches thick, or steel strip 0.078 ± 0.008 inches thick galvanized in accordance with ASTM A653 coating designation G 90. The reflector material shall be high-reflectivity sheeting, either silver-white or yellow and shall conform to the requirements of Arizona State Department of Transportation Standard Specifications for Road and Bridge Construction. Adhesive for sheeting attachment to the metal tab shall be of the type and quality recommended by the sheeting manufacturer. Reflector tabs shall conform to the Reflector Tab Detail of Maricopa County Department of Transportation Standard Detail 3002.

Timber for posts and blocks shall be rough sawn (unplanned) or S4S with the nominal dimensions indicated. Any species or group of woods graded in accordance with the requirements for Timber and Posts of the Western Wood Products Association may be used. Timber shall be No. 1 or better, and the stress grade shall be as follows:

6” by 8” Post and Block	1200 psi
8” by 8” Post and Block	900 psi
10” by 10” Post and Block	900 psi

When the plans show guardrail systems using 8” by 8” timber posts and blocks, the Contractor may use 8 1/4” nominal size posts and blocks with a stress grade of 825 pounds per square inch.

At the time of installation, the dimensions of timber posts and blocks shall vary no more than plus or minus 1/2” from the nominal dimensions as specified on the project plans. The size tolerance of rough sawn block in the direction of the bolt holes shall vary no more than plus or minus 3/8”.

All timber shall have a preservative treatment as per the requirements of AASHTO M 133.

Structural steel shapes shall conform to the requirements of ASTM A36 and be galvanized in conformance with the appropriate requirements of AASHTO M 111. Dimensions shall meet the dimensional requirements of the American Institute of Steel Construction.

Steel tubes shall conform to the material requirements of ASTM A500 or A501 and be galvanized in conformance with the requirements of AASHTO M 180, Type 1.

415.3 CONSTRUCTION REQUIREMENTS:

Curb Ramp Working Group Meeting

Meeting Notes
March 14, 2016

Opening:
The meeting of the Specifications and Details Curb Ramp Working Group was called to order by Warren White on March 14, 2016, at 1:30 p.m. in the MAG Palo Verde Room.

1. Attendance
Brandon Forrey (Peoria), Bob Herz (MCDOT), Craig Sharp (Buckeye), Dan Songer (Gilbert) Gordon Tyus (MAG), Warren White (Chandler)

2. Radial Curb Ramp Draft Details (Details 236-1, 236-2)
Warren White asked for comments on the radial ramp detail. Bob Herz had several comments and revisions that he brought up. One issue was that you need a 5' top landing area aligned in the ramp direction clear of vertical obstructions such as a curb or pole, this can affect right-of-way. He also mentioned that objects such as valve boxes should not be located in the ramps. Mr. Herz thought the distances for B in the table should be the minimum accessible route width. He shared all his suggested revisions, and Mr. White made notes on the drawings to update them. Issues discussed included:

- Updating the tables for the ramp and landing sizes based on the intersection radius.
- Increasing the size of the ramps and wings to make sure the maximum ADA slope isn't exceeded (take into account maximum slopes, and the curb height).
- Deleting note 6 as unnecessary because the slope will be set by the ramp size in the tables.
- Deleting note 7 because there are times when the wings can't be contained within the curb return.
- Editing note 8 to change "turning space" into "landing" to be consistent with the detail labelling and also deleting all that followed 'cross slope'.
- Adding a note: A special design is required when the street or gutter grade exceeds 2%.
- Revising the slope notes on the section view.
- Discussing how the 1½% sidewalk cross-slope affects the ramp slopes.
- Making changes in the written specs – Section 340.3.9
- Showing the detail in the plan view rather than a slightly isometric view.

Warren White asked what the group thought about increasing the concrete thickness of the ramps. It was agreed to make them 6" rather than 4" to match the gutter pan thickness to avoid damaged cause be trucks running over them. Mr. Tyus asked if existing ramp details should also be changed. Mr. White said it could be a case in the future.

Bob Herz said that requiring dual ramps on local roads intersections will change County right-of-way requirements. He also mentioned the use of 6" roll curbs and how they don't provide necessary clearance for car undercarriages. Craig Sharp said they have had some complaints with them in Buckeye. During the discussion, Warren White also compared suggested changes with agency supplemental details.

3. Directional Curb Ramp Draft Details (Detail 237-1, 237-2)
The directional curb ramp details were also reviewed. Brandon Forrey said most of the comments for the radial ramps would also apply to these details. Additional areas of discussion included:

- Constructing the ramps, traditionally and with a monolithic pour. Mr. Forrey said Peoria will be building a ramp based on this detail as a test.
- Showing the joints between ramps.
- Clarifying dimension E on the plan view.
- How adjusting the minimum distance between ramps down to 1' could affect the design, and also how moving them farther apart to align with crosswalks affects the wing size.
- Revising the section view to remove the cross slope note at the bottom landing area as well as the counter slope note, and fixing the blow-up view.
- Requiring spot elevations at the bottom corners of the detectable warnings and gutter elevations at the center and ends of the curb returns to make sure there is proper drainage.
- Modify the specification that allows a construction tolerance of ½", which is greater than can be allowed to achieve proper drainage slopes.
- Talked about creating an exhibit to identify the different areas of the ramp so if a special design has to be created the designer has the minimum requirements for the different pieces of the ramp. Using a ½ inch tolerance could potentially cause the ramp to be out of compliance with the PROWAG standards.

4. Next Steps
Warren White and Brandon Forrey plan to review and update the details based on feedback provided during the meeting.

5. Adjournment
The meeting was adjourned at 3:38 p.m.

Water/Sewer Working Group Meeting

Meeting Notes
March 15, 2016

Opening:
A meeting of the Specifications and Details Water/Sewer Working Group was called to order by chair Jim Badowich on March, 2016, at 1:32 p.m. in the MAG Chaparral Room.

1. Introductions/Attendance
Jim Badowich (Avondale), Tom Brennan (Utility West), Chris Corsidine (Oldcastle), Ravi Devalapura (Oldcastle), Bob Herz (Maricopa County), Rick Hurula (Hilgart Wilson), Troy McGahey (New Horizon Sales), Paul Nebeker (Pipe Right Now), Craig Sharp (Buckeye), Brian Sitarz (Oldcastle), Raffi Soghomonlan (Armorcast), Matt Stoltenborg (Oldcastle), Gordon Tyus (MAG), Arvid Veidmark (SSC Boring), and Kenny Watkins (Oldcastle).

2. Case 16-01: Misc. Corrections
Jim Badowich asked if anyone had any related blooper cases to discuss. None were announced.

3. Case 15-05: Reclaimed Valve Boxes
Mr. Badowich said the case is scheduled for a vote at the next committee meeting. Bob Herz said he would like to review the final revisions prior to the meeting.

4. Meter Boxes
Ravi Devalapura of Oldcastle presented an overview of the national and regional specifications for testing enclosures such as MAG meter boxes entitled: *Industry Standards and Load Ratings of Enclosures.* One of the reasons for the presentation was to help determine loading requirements and testing for meter boxes including those that are "traffic rated." Specifications available include: SCTE 77, WUC GUIDE, ASTM C857, AASHTO, Telcordia, and specific manufacturers. The presentation is posted on the MAG web site here: http://www.azmag.gov/Events/Event.asp?CMSID=9507

After the presentation Jim Badowich said MAG is looking to update the meter boxes to include new materials such as polymer concrete and PVC, but want the dimensions of the boxes to remain the same for maintenance reasons. For example, he wants the lids to be interchangeable so crews can quickly replace them. He said they may also want to add boxes for traffic controls and ITS in the future.

There was discussion about what loading standard was required for the MAG meter boxes. Pedestrian loading is all that is needed typically on sidewalks and landscape areas, but traffic rated boxes would be needed in driveways and along roads without curbs. Higher rated boxes may be needed in streets that receive deliberate vs. intermittent traffic. Raffi Soghomonlan said Armorcast has engineered a traffic-rated box and lid that would work. Representatives from Oldcastle said they could also design them, but would need to know what standard load rating MAG wants "traffic-rated" boxes to meet. Mr. Badowich said he thinks they should work in a worst case scenario where a semi drives on it.

Arvid Veidmark suggested industry representatives get together and work on a re-write of Section 630 to modernize it and include the committee requests of standards sizes, alternate materials and proper load ratings for traffic rated boxes. Mr. Tyus said they could review details 310-320 as well. Mr. Badowich asked for industry assistance and said he would help find a case sponsor on the committee.

5. Spec Section 611: Water, Sewer and Storm Drain Testing
Paul Nebeker said he review the disinfection/chlorination specs provided by Tony Ayala at the previous meeting, and found that agency supplements are out of date with the current MAG specs, referring to early versions of the MAG spec. He said they have different testing durations (24 hr, 48 hr, and 72 hr.) with different methodologies and criteria. Jim Badowich said he would like to tackle flushing first that included orifice size, flow rates and velocity needed. Paul Nebeker suggested including a chart. He also said agencies have different levels of disinfection, for example Phoenix does plate testing after 72 hrs. Mr. Badowich said MAG should come up with a minimum standard and also check with the current AWWA standards. Mr. Nebeker said he would like to know that the current changes are, but doesn't have access to the current AWWA specs. Craig Sharp said Rob Godwin of Goodyear would like to participate in the working group, and he will talk to him about Goodyear's methods. Mr.Nebeker said he would review the flushing specs and have comments at the next meeting. Jim Badowich brought up the issue of shorter installations such as an 80' connection. How do you test it? When should it be swabbed of flushed? Currently the decisions are somewhat arbitrary. He noted that after what happened in Flint, MI it has become a political issue to ensure water safety.

6. Extra Protection Requirements for Reclaimed Water, Section 616 and Details 404-2, 404-2.
Rick Hurula of Hilgart Wilson brought to the group's attention an issue regarding extra protection requirements in MAG that currently exceed those required by Maricopa County for separation of reclaimed water lines between sewer and water lines. He gave an example of a 1" sprinkler line that had to be encased according to the MAG specs. Members discussed possibly replacing the current text in Section 616.3 with language similar to that provided by MCEQD. Jim Badowich said that agencies also want separation for maintenance work. He said Avondale has had problems with coated ductile iron sewer pipe failing and a replacing it with PVC; however, it requires that you stay 10' away for any lines at pipe joints. Mr. Badowich agreed that the reclaimed water specs should be reviewed. Mr. Hurula thanked the group for their time and consideration of this issue.

7. House Bill 2549 Regarding Pipe Materials Purchasing
Mr. Badowich said this issue currently was being worked out between the PVC industry and the City of Phoenix. Mr. Tyus did not have any new updates since the committee meeting.

8. Asbestos Testing in Manholes
Mr. Badowich said when rehabbing existing manholes by sandblasting, county health officials question whether asbestos dust was present. The group did not think any existing manholes in the region have asbestos in them. Raffi Soghomonlan of Armorcast said they have a method of repairing vaults using panels inside them. This method has been used in California.

9. Valve Stem Extension Sleeve (Detail 391-2)
Brian Sitarz of Oldcastle brought samples of a valve box key extension using a sleeve to allow faster connection of differing lengths. This method would allow for faster manufacturing of the extensions without having to keep an inventory of many different lengths. Craig Sharp agreed to sponsor this change to Detail 391-2.

10. Next Meeting
The next meeting will be at 1:30 on April 19th at the MAG offices.

11. Adjournment
The meeting was adjourned at 3:05 p.m.

MAG Asphalt, Materials, and Concrete Working Groups

Meeting Notes

Thursday, March 17, 2016, 12:00 pm at the ARPA Offices

Present:

See attached attendance sheet. Greg Groneberg was unable to attend due to illness. Jeff Hearne and Brian Gallimore chaired the meeting.

Discussion:

1) Case 16-02 Certificates of Compliance/Analysis – Bob Herz
   The latest Draft was discussed – Bob Herz had continuing concerns over the draft wording regarding the "upon request" option as McDOT would need submittal of COC/COA documents for their Projects due to Federal funding requirements. The group discussed the concepts behind MAG requirements versus Federal requirements. Projects that have Federal funding and the associated reporting requirements will be different than the normal MAG Project and the group did not want to put additional reporting requirements as defaults into the MAG standards as unwanted burdens on Contractors/Suppliers and Agencies. We do want to allow for individual Agencies/Engineers to require COC/COA documents for new materials if needed. We will continue to work on the appropriate wording.
2) ASTM Standard Updates – Greg Groneberg (Jeff Hearne)
   No change to the existing spreadsheet. Bob Herz is bringing a new case 16-06 at the next Committee meeting on Section 727 - Steel Reinforcing - correcting/updating the ASTM standards and a copy was handed out to the Group. It was discussed whether to handle each needed change as one Case – similar to the Bloopers – or as individual Cases with no real resolution.
3) MAG Section 710 – Greg Groneberg (Brian Gallimore)
   Discussion continued on the proposed revisions to Section 710 – specifically the elimination of low volume designs as redundant to the requirements of high volume designs and therefore no longer needed. It was agreed to proceed with that proposal and to also look at a new Section or sub-section of 710 for Terminal blends with modified binders. A Sub-group will be formed to review current specifications from MAG Agencies for a draft back to the Working Group. Don Cornelison stated that Section 325 also needed some additional clarification work and would bring that to the Group at a future meeting.
4) Bike Lane Green – Greg Groneberg (Brian Gallimore)
   Based on individual research and changing Federal requirements, it was agreed to table this issue at this time and return to it when or if needed in the future.
5) New Business – Cold In-place and Central Plant Asphalt Recycling Discussion
   Chuck Valentine from Pavement Recycling Systems and Dan Selby from Asphalt Busters opened a discussing on the potential for a new MAG Section on Cold In-place and Central Plant Asphalt Recycling. They expressed the need for such a specification to be able to start doing this type of work around the State. The Group discussed with them the process for initiating new Sections and the approval process asking them to work with a MAG Agency or Agencies on a proposed draft that could be brought on their behalf to the Committee for Working Group discussion.
6) Jeff Hearne reminded Working Group and Committee members of the upcoming Plant Tour on April 13th involving three facilities (Aggregate/Base, Concrete, and Asphalt Production). Flyers have been sent to all Committee members and a copy is attached.

Date for Next Meeting:

The next meeting is scheduled for **April 21, 2016 @ 12:00 pm** in the ARPA offices.

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

MAG Working Group

Thursday, March 17, 2016

Company Name	Name	E-mail Address	Signature
Alon Asphalt	Mo Rahman	mo.rahman@alonusa.com	
AMEC Foster Wheeler	Scott Thompson	scott.thompson@amecfw.com	
AMEC Foster Wheeler	Bob Kostelny	robert.kostelny@amecfw.com	
City of Goodyear	Rob Godwin	rob.godwin@goodyearaz.gov	
City of Peoria	Scott Clark	scott.clark@peoriaaz.com	
City of Phoenix	Rob Duvall	robert.duvall@phoenix.gov	
City of Scottsdale	Rod Ramos	rramos@scottsdaleaz.gov	
Cutler Repaving	Bob Erdman	berdman@cutlerrepaving.com	
Desert Ready Mix	Manny Mungaray	manny@desertrm.com	
DGA	Peter Kandaris	pkandaris@digioiagray.com	
Drake	John McClafferty	jmcclafferty@drakeus.com	
Fisher Industries	Doug Laquey	dlaquey@fisherind.com	
Fisher Sand & Gravel	Trey Billingsley	tbillingsley@fisherind.com	
Hanson	Brian Newman	brian.newman@hanson.com	
MAG	Gordon Tyus	gtyus@azmag.gov	
MCDOT	Robert Herz	rherz@mail.maricopa.gov	
Southwest Asphalt	Greg Groneberg	ggroneberg@fisherind.com	
Southwest Asphalt	Richard Kissling	rkissling@fisherind.com	
Southwest Rock Products	Kevin Moss	kmoss@southwestrockproducts.com	
Speedie & Associates	Don Cornelison	dcornelison@speedie.net	
SRMG - ARPA	Jeff Hearne	jhearne@srmaterials.com	

Company Name	Name	E-mail Address	Signature
Western Refining	Sam Huddleston	sam.huddleston@wnr.com	
WSP	Brian Gallimore	bgallimore@wspinc.net	
WTI	Phillip Feliz	phil.f@wt-us.com	
Vulcan	Alex Carter	cartera@vmcmail.com	
Vulcan	Llyoyd Glover	gloverl@vmcmail.com	
ASPHALT BUSTERS	CHUCK VALENTINE	CVALENTINE@PAVEMENTRECYCLING.COM	
Asphalt Busters	Dan Selby	dan selby@asphaltbusters.com	

ARIZONA ROCK PRODUCTS ASSOCIATION

Your Homes….Your Roads… Your Future - Rocks Build America

State, County, and Local Materials Personnel

Arizona Rock Products Association

is providing a

FREE BUS TOUR

in order to see an aggregate mining operation,
ready-mix concrete batch plant, and asphalt plant in Mesa, AZ

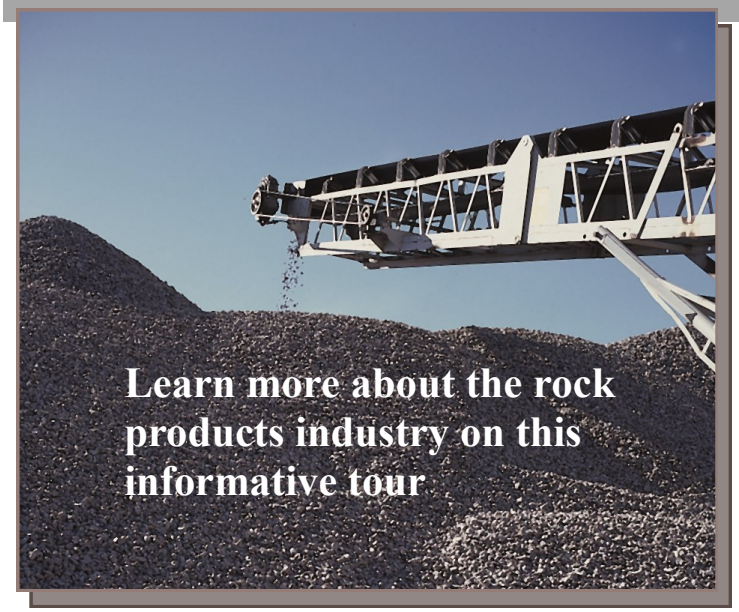
Wednesday, April 13, 2016
9:00am - Noon

Where: Mesa Riverview Park
2100 W. Rio Salado Parkway
Mesa, AZ, 85201

Bus will depart at 9:00am

Note: Parking available in the Yellow Lot **(see separate map)**

Space is limited so don't delay!



RSVP required:

Send the name/s of attendees and your organization name to:

info@azrockproducts.org
or
Call 602-271-0346

Registration deadline:

Wednesday, April 6, 2016

For questions please call 602-271-0346

Arizona Rock Products Association Plant Tour Parking · Mesa Riverview Park · Located at the SE corner of loop 101 & 202 freeway interchange

You may enter the park from Rio Salado Parkway and turn north onto Riverview toward the Yellow Lot

Or

You may enter the park from Dobson Rd. and turn west onto Cubs Way toward the Yellow Lot