

December 22, 2015

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, January 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.

**2016 MAG Specifications and Details Committee
Ironwood, 2nd Floor**

January 6, 2016	1:30 pm	
February 3, 2016	1:30 pm	
March 2, 2016	1:30 pm	
April 6, 2016	1:30 pm	
May 4, 2016	1:30 pm	
June 1, 2016	1:30 pm	
July 6, 2016	1:30 pm	
August 3, 2016	1:30 pm	
September 7, 2016	1:30 pm	
October 5, 2016	1:30 pm	(if necessary)

MAG Standard Specifications and Details Committee
TENTATIVE AGENDA
January 6, 2016

COMMITTEE ACTION REQUESTED

1. Call to Order and Introductions
Introduction of new chair and vice chair.
Presentation to outgoing chair. Introduction of new members. Discuss advisory membership.

2. Call to the Audience
An opportunity is provided to the public to address the MAG Specifications and Details Committee on items that are not on the agenda that are within the jurisdiction of MAG, or non-action agenda items that are on the agenda for discussion or information only. Citizens will be requested not to exceed a three minute time period for their comments. A total of 15 minutes will be provided for the Call to the Audience agenda item, unless the committee requests an exception to this limit. Please note that those wishing to comment on agenda items posted for action will be provided the opportunity at the time the item is heard.

3. Approval of September 2, 2015, Meeting Minutes

2. Information.

3. **Review and approve minutes of the September 2, 2015 meeting.**

Carry Forward Cases from 2015

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

5. Case 15-10: Revisions to Section 321
Add subsection 321.10.5.3 "Rehabilitation Work" into the MAG Specifications.
Presentation on rehabilitation work by Brian Gallimore

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

4. Information and discussion.
Sponsor: Warren White, Chandler

5. Information and discussion.
Sponsor: Brian Gallimore, Materials WG

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

New Cases for 2016

- | | |
|--|--|
| 7. <u>Case 16-01: Misc. Corrections</u>
A. Revise Table 310-1 by deleting “or gradation deficiency” from the Deficiency column for Type IV. | 7. Information and discussion
Sponsor: Bob Herz, MCDOT
New |
|--|--|

General Discussion

- | | |
|--|--|
| 8. <u>Working Group Reports</u> | 8. Information and discussion. <ul style="list-style-type: none">• Curb Ramp WG Chair: Warren White
12/14/2015 Meeting• Water/Sewer Chair: Jim Badowich• Asphalt Chair: Greg Groneberg• Materials Chair: Brian Gallimore• Concrete Chair: Jeff Hearne• Outside ROW Chair: Peter Kandarlis |
| 9. <u>General Discussion</u>
- Provide information on the 2016 Revision Packets, and online document.

- ASTM update, hyperlinks and outdated ASTM Links. | 9. Information and discussion. |
| 10. <u>Request for Future Agenda Items</u> | 10. Information and discussion. |

Adjournment

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

September 2, 2015

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

AGENCY MEMBERS

Jim Badowich, Avondale, Vice Chair	Lance Webb, Mesa
Craig Sharp, Buckeye	Dan Nissen, Peoria
Warren White, Chandler	Rob Duvall, Phoenix (Streets) (proxy)
* Ruben Aguilar, El Mirage	Jami Erickson, Phoenix (Water)
* Wayne Costa, Florence	Rod Ramos, Scottsdale
Tom Condit, Gilbert	David Mobley, Surprise (proxy)
* Mark Ivanich, Glendale	Tom Wilhite, Tempe, Chair
* Tom Vassallo, Goodyear	* Harvey Estrada, Valley Metro
Bob Herz, MCDOT	Gregory Arrington, Youngtown

ADVISORY MEMBERS

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

MAG ADMINISTRATIVE STAFF

Gordon Tyus

* Members not attending or represented by proxy.

GUESTS/VISITORS

None.

1. Call to Order

Chair Tom Wilhite called the meeting to order at 1:30 p.m.

2. Call to the Audience

No requests to speak were received.

3. Approval of Minutes

The members reviewed the August 5, 2015 meeting minutes. Dan Nissen moved to accept the minutes as written. Warren White 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 – Revisions to Section 415 and/or include Guardrail Details.

Bob Herz said the case was withdrawn.

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

Chair Wilhite said a handout provided at the meeting replaced the version in the packet. Jeff Benedict said the case has been updated based on final revisions made during the asphalt working group meeting and suggestions from Bob Herz. Mr. Herz moved to accept Case 14-06 based on the 9/1/2015 revision. Rob Duvall seconded the motion. A roll call vote was taken. The motion passed 11 yes, 0 no, 0 abstaining, 6 not present.

6. Case 14-17: Create New Section 322 – Decorative Asphalt.

Greg Groneberg said the final revision of the case was provided in the packet. Mr. Herz said it was a good draft, but thought it still needed some work. Since it was carried over from last year, he suggested that the case be withdrawn and resubmitted next year. He explained some of the problems he thought needed to be addressed such as: conflicts in pavement thickness compared to that in the referenced Section 710, questions about “deleterious oils,” and questions about what was meant by “repaired by using the same process outlined in this section.” He also thought some of the language was unclear and/or needed wordsmithing. Brian Gallimore said that the case has been active for two years, and was based on supplements from Gilbert and Scottsdale. He said this process is commonly used in the field, and believed industry would like to have a specification now – not wait for another year. He suggested making whatever tweaks that can be agreed upon now, and then returning to make additional revisions in the future if needed.

To address some of Mr. Herz's questions, Mr. Gallimore explained that the working group discussed "deleterious oils" and used that term to group oils that were not part of the asphalt, but could have negative effects. He also said the "process outlined in the section" meant that the contractor would need to redo the work from the start using the entire specification. Rob Duvall didn't see a problem with the paving thickness specified in Section 322.3 because it was done in the raised medium area not subject to traffic. Bob Herz also thought it was unclear on when the surfacing system could be applied using brooms or brushes since it says it "shall be spray applied." Brian Gallimore replied that they wanted it spray applied as a default except in small areas where it could not be easily done. He said it was similar to how compaction was done with different equipment in areas that the normal compacting equipment could not be used. Mr. Herz had another question on whether a clear coat always must be applied, as stated in the fourth paragraph of Section 322.3.1. Jim Badowich suggested adding "if required" after the "clear coat sealant" to help clarify. Peter Kandaris had a question about seal coating.

Chair Wilhite asked Bob Herz to go through changes he thought could be made now, and then Mr. Wilhite summarized them as follows:

Section 322.1 General Requirements:

- 1st paragraph, last sentence: change "bid" documents to "contract" documents.
- 2nd paragraph, first sentence: strike "in the right of way." Second sentence: delete "also."

Section 322.2 Materials:

- 1st paragraph, last sentence: change "bid" documents to "contract" documents.

Section 322.3 Installation and Surface Patterning

- 1st sentence should be rewritten as: "The patterning equipment shall be metal templates that shall correspond to the patterns shown in the project plans and specifications."

Section 322.3.1 Surfacing System

- 4th paragraph. End first sentence after "recommendations." Strike the rest. Delete the second sentence. Add "if required" after "clear coat sealant" in last sentence.

Section 322.4 Measurement:

- 1st sentence: change "asphalt stamping installations" to "decorative asphalt installations." Also change "and" to "or."

Rod Ramos moved to accept the case with the changes noted above. Jim Badowich seconded the motion. A roll call vote was taken. The motion passed 11 yes, 0 no, 1 abstaining, 5 not present.

New Cases for 2015

7. Case 15-01: Miscellaneous Corrections A-G.

Tom Wilhite noted that some of the items in the corrections packet may be superseded by following cases if they are approved. Bob Herz said a new correction "G" was added to the packet. Craig Sharp moved to accept Case 15-01 A-G as presented. Warren White seconded the motion. A roll call vote was taken. The motion passed 12 yes, 0 no, 0 abstaining, 5 not present.

8. Case 15-03: Revise Section 601.4.5 Trench Final Backfill.

Bob Herz said there has been no recent changes to this case, which modifies the trench backfill requirements in Section 601.4. Seeing no further questions or comments, Mr. Herz moved to accept the case as presented. Rod Ramos seconded the motion. A roll call vote was taken. The motion passed 12 yes, 0 no, 0 abstaining, 5 not present.

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

Warren White said this case will be carried forward to 2016.

10. Case 15-07: Revisions to Concrete Paver Standards for Non-Traveled Surfaces, Detail 225 and Section 342.

Warren White said the only recent change to the case was in Section 342.3.7 in the 3rd paragraph, information on the methodology for vibrating and compacting the sand was removed. He said Bob Herz had questions about how to keep sand from getting into the sealant, but Mr. White thought this could be addressed in a future revision, perhaps by using a geotextile. Bob Herz moved to approve the case with the revision date 8/6/2015. Rod Ramos seconded the motion. A roll call vote was taken. The motion passed 12 yes, 0 no, 0 abstaining, 5 not present.

11. Case 15-09: Revisions to Section 321 Placement and Construction of Asphalt Concrete Pavement.

Jeff Benedict said a marked up version of the changes to Section 321 was in the packet. Gordon Tyus said that a handout was provided at their place which showed the additional changes made during and after the asphalt working group meeting. Bob Herz said in the minutes from the last meeting it was listed as a carry forward case. Mr. Tyus said he spoke with Mr. Benedict before preparing the agenda, and had it on the agenda for action, so it could be voted on if desired. Rob Duvall moved to accept the case as presented in the packet plus the revisions handed out at the meeting. Gregory Arrington seconded the motion. A roll call vote was taken. The motion passed 12 yes, 0 no, 0 abstaining, 5 not present.

12. Case 15-10: Add Subsection 321.10.5.3 "Rehabilitation Work" into the MAG Specifications.

Brian Gallimore said they were tasked by industry to gather more information on this case to present to agencies, so he said it would be carried over to next year. Jim Badowich thought it was a good thing to address as many cities are already doing this due to budget constraints. Mr. Gallimore said he hoped to make it more clear when it is allowed or not, and hopes to have a better understanding in the first quarter of next year.

13. Case 15-11: Incorporate revisions to Section 717, “Mix Design Requirements” into the MAG Specifications.

Greg Groneberg said a handout with both a marked-up and a clean version of Section 717 was provided at the meeting. Gordon Tyus said the only change made at the working group meeting was correcting an ASTM reference in Table 717-2 as shown in red. Jim Badowich moved to accept the case (dated 8/27/2015) as presented. Dan Nissen seconded the motion. A roll call vote was taken. The motion passed 12 yes, 0 no, 0 abstaining, 5 not present.

14. Case 15-12: New Section 608 HORIZONTAL DIRECTIONAL DRILLING.

Arvid Veidmark said the most recent version (revision 29) was provided in the packet. He said the case had several revisions as final details were ironed out during and after the water/sewer working group meeting. Dan Nissen moved to approve the case as presented. Jim Badowich seconded the motion. A roll call vote was taken. The motion passed 12 yes, 0 no, 0 abstaining, 5 not present. Jim Badowich provided his thanks to all the participants. He said this is the first case with a figure, and was also notable in reaching out and working extensively with utility companies. Bob Herz commended Arvid Veidmark on an excellent job.

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

Jeff Hearne said this case will be carried forward into next year.

16. Case 15-14: Revise Sections 321 and 325 to coordinate overlay work requirements.

Bob Herz said the handout provided at the meeting replaces the one in the packet. He said he received feedback from the last committee meeting that indicated requiring the removal of thermoplastic markings may be controversial. MCDOT requires it, but since it may not always be required by other agencies, the latest revision deletes the requirement to remove thermoplastic markings prior to overlay work. Warren White said he checked with his agency and they thought the language was okay. Brian Gallimore said some agencies require it and some don't, but if it were to remain, the specification would need to be revised to account for payment in non-milled areas. Mr. Herz thought it would be easier to leave it out of this spec, and allow individual agencies to adjust their supplements if needed. Seeing no further comments Mr. Herz moved to approve Case 15-14 as presented. Craig Sharp seconded the motion. A roll call vote was taken. The motion passed 12 yes, 0 no, 0 abstaining, 5 not present.

17. Working Group Reports

Chair Wilhite asked for reports from the working group chairs.

a. **Curb Ramp Working Group**

Warren White said the group did not meet last month but they have prepared some sample details to review at the next meeting planned for the Monday after the Labor Day holiday, September 14, at 1:00 in the MAG meeting room.

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

Jim Badowich said they met on August 20, 2015 and much of the meeting was preparing the final draft of the new Section 608 that was just approved. The group also discussed Case 15-05, reclaimed water valve boxes. He said a representative from Neenah Foundry was present and confirmed that the boxes did not have machined edges, and so the draft detail should be updated. Warren White asked if this was for both square and round boxes, and Mr. Badowich confirmed that it was. He also said they planned to focus on water, sewer and storm drain testing requirements next year. Mr. Badowich said meter boxes needed to be updated to allow for polymer concrete boxes that are being used. He said allowing a range of sizes may be needed for different manufacturers designs. Jami Erickson said Phoenix will continue using concrete boxes, but wanted polymer lids to match.

c. **Asphalt/Materials Working Groups**

Jeff Benedict said they reviewed all current cases at the last meeting in preparation for today's votes. He said they have not had time to consider new possible cases for next year yet. Brian Gallimore said they will continue to work on Case 15-10. The next meeting will likely be after the committee starts up again next year.

d. **Concrete Working Group**

Jeff Hearne said there was no meeting last month, but is getting more information on carry forward Case 15-13, and will continue work on the draft pervious concrete specifications. He said he would like to bring someone in to give a presentation to the committee on pervious concrete in January or February. He said the concrete working group meetings would be scheduled to follow the asphalt/material meetings.

e. **Outside ROW Working Group**

Peter Kandaris said he has found engineers willing to help review specs and details but still needed help developing the initial specifications.

18. General Discussion

Gordon Tyus explained the process of updating the specification manual based on the cases that were passed this year. First he asked members to review the public works directors' mail list, and provide him with any updates, either on the copy or via email. He said he would begin incorporating the revised specifications and details into a draft update packet to be sent to the public works directors for a 30-day review period. The packet would also include a summary of each case outlining the purpose and a brief summary of the revisions made. These materials would be posted on the MAG website for committee members to review as well. Once the public works directors have reviewed the update, it would be reviewed by the MAG Management Committee in November and the MAG Regional Council in early December. Once those reviews are complete the books and revision packet would be prepared for printing. Printing bids would be obtained, and the revision packets would be printed and available for purchase in January. The 2016 Revision to the 2015 Edition of the MAG Standards

Specifications and Details document would also be posted online. Bob Herz reminded Mr. Tyus, that Section 603 needed to be taken out, and a replacement page included in the packet.

Tom Wilhite said that this was his last meeting as chair. Current vice chair Jim Badowich would become chair of the committee next year. He encouraged members representing parts of the east valley who were interested in serving as vice chair to submit a letter of interest. Mr. Wilhite said he was pleased with the progress of the committee during his three-year term as chair and thanked members for their service as well.

19. Future Agenda Items

Jim Badowich thanked Mr. Wilhite for his service and asked members if they had any ideas for presentations that could be given to the committee early next year. Mr. Wilhite suggested contacting the representatives from ASU's sustainability program to see if they wanted to follow up on their previous meeting with information for the committee. Peter Kandaridis said that ASU also recently received an \$18.5 million geotech research grant that focused on dust control. He said they have about a 10 minute presentation, and thought they might have funding to address some MAG related issues. Mr. Tyus said MAG is also involved in air quality and dust control issues and would likely support the effort.

Mr. Wilhite asked members if any emerging technologies needed to be reviewed. Brian Gallimore said there are always new technologies, but they usually aren't cheap. He said vendors typically come to cities with them first.

Arvid Veidmark said he attended a panel on trenchless technologies, and asked if the committee was interested in rehabilitation techniques such as pipe bursting. Tom Wilhite said pipe reuse, such as using old water lines as conduits for dry utilities could be an area to review. Lance Webb of Mesa said they are working on it, but have had problems when running into valves. Mr. Wilhite also mentioned using ID tags when making repairs to locate utilities.

Jim Badowich said developers are using materials other than copper, such as HDPE for domestic water lines, and that MAG may want to consider these materials as well. Mr. Veidmark described a process used to repair water and sewer service lines by attaching a new line to the existing one and pulling the pipe into place. New equipment allows smaller pits and a smaller footprint.

Jim Badowich said they often have industry come in with new technologies. An example is polymer concrete manholes. Avondale currently lines all their manholes and an advantage of the polymer manholes is a lining is not needed. He said vendors want to know how to get into the MAG specs. He suggested working on guidelines that outlined the process and gave examples of national certifications that may be needed. He also thought helping them understand the process and how they can get involved in the working groups would be useful.

Bob Herz noted that the ASTM website now has links to AASHTO specs, and asked what it would take to allow members to access them. Mr. Tyus said he was aware that ASTM added this capability, but that our current subscription did not include it. He said the ASTM

subscription was part of the MAG budget and was renewed for another year. He would check to see what other purchasing options or subscription price may allow access to AASHTO specifications.

Jim Badowich suggested that a link on each page back to the table of contents page be provided in the online specifications if possible. He said it was convenient in the details section and could use this option in the written specs as well. Mr. Tyus said he would look into how this could be done for the new revision.

20. Adjournment:

Seeing no further business the meeting was adjourned at 3:00 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 2015						
15-05	Case 15-05: Proposed Revisions to Section 616 Reclaimed Water Line Construction and NEW Reclaimed Valve Box detail.	Chandler	Warren White	03/04/2015 06/24/2015		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		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.	MCDOT	Bob Herz	01/06/2016		0 0 0	Yes No Abstain
16-02						0 0 0	Yes No Abstain
16-03						0 0 0	Yes No Abstain
16-04						0 0 0	Yes No Abstain
16-05						0 0 0	Yes No Abstain
16-06						0 0 0	Yes No Abstain



Chandler • Arizona
Where Values Make The Difference

MEMORANDUM

Case # 15-05

DATE: March 4th, 2015

TO: MAG Specifications and Details Committee Members

FROM: Warren White, City of Chandler Representative

SUBJECT: Proposed Revisions to Section 616 Reclaimed Water Line Construction and NEW Reclaimed Valve Box detail

Revisions:

1. Revision to Section 616 Reclaimed Water Line Construction

Section 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~~ and TBD.
Manholes shall be in accordance with Section 625, 787 and this Section, and applicable Details.

2. New Reclaimed Valve Box Detail No. TBD

See attached initial DRAFT for further development.

3. Implements land treatments to help achieve Surface Water Quality Standards;
 4. Implements supplemental feeding, salting, and parasite control measures to help achieve Surface Water Quality Standards.
- B.** The person to whom a permit is issued shall make the following information available to the Department, at the person's place of business, within 10 business days of Department notice:
1. The name and address of the person grazing livestock, and
 2. The best management practices selected for livestock grazing.

Historical Note

New Section made by final rulemaking at 7 A.A.R. 1768, effective April 5, 2001 (Supp. 01-2).

ARTICLE 6. RECLAIMED WATER CONVEYANCES

R18-9-601. Definitions

In addition to the definitions provided in R18-9-701, the following terms apply to this Article:

1. "Open water conveyance" means any constructed open waterway, including canals and laterals that transports reclaimed water from a sewage treatment facility to a reclaimed water blending facility or from a sewage treatment facility or reclaimed water blending facility to the point of land application or end use. An open water conveyance does not include waters of the United States.
2. "Pipeline conveyance" means any system of pipelines that transports reclaimed water from a sewage treatment facility to a reclaimed water blending facility or from a sewage treatment facility or reclaimed water blending facility to the point of land application or end use.

Historical Note

New Section adopted by final rulemaking at 7 A.A.R. 758, effective January 16, 2001 (Supp. 01-1).

R18-9-602. Pipeline Conveyances of Reclaimed Water

- A.** Applicability.
1. Any person constructing a pipeline conveyance on or after January 1, 2001, whether new or a replacement of an existing pipeline shall meet the requirements of this Article.
 2. Any person who has constructed a pipeline conveyance before January 1, 2001, is considered to be in compliance with this Article.
- B.** A person shall design and construct a pipeline conveyance system using good engineering judgement following standards of practice.
- C.** A person shall construct a pipeline conveyance so that:
1. Reclaimed water does not find its way into, or otherwise contaminate, a potable water system;
 2. System structural integrity is maintained; and
 3. The capability for inspection, maintenance, and testing is maintained.
- D.** A person shall construct a pipeline conveyance and all appurtenances conducting reclaimed water to withstand a static pressure of at least 50 pounds per square inch greater than the design working pressure without leakage as determined in A.A.C. R18-9-E301(D)(2)(j).
- E.** A person shall provide a pipeline conveyance with thrust blocks or restrained joints where needed to prevent excessive movement of the pipeline.
- F.** The following requirements for minimum separation distance apply. A person shall:

1. Locate a pipeline conveyance no closer than 50 feet from a drinking water well unless the pipeline conveyance is constructed as specified under subsection (F)(3);
2. Locate a pipeline conveyance no closer than two feet vertically nor six feet horizontally from a potable water pipeline unless the pipeline conveyance is constructed as specified under subsection (F)(3);
3. Construct a pipeline conveyance that does not meet the minimum separation distances specified in subsections (F)(1) and (F)(2) by encasing the pipeline conveyance in at least six inches of concrete or using mechanical joint ductile iron pipe or other materials of equivalent or greater tensile and compressive strength at least 10 feet beyond any point on the pipeline conveyance within the specified minimum separation distance; and
4. If a reclaimed water system is supplemented with water from a potable water system, separate the potable water system from the pipeline conveyance by an air gap.

G. A person shall:

1. For a pipeline conveyance, eight inches in diameter or less, use pipe marked on opposite sides in English: "CAUTION: RECLAIMED WATER, DO NOT DRINK" in intervals of three feet or less and colored purple or wrapped with durable purple tape.
2. For a mechanical appurtenance to a pipeline conveyance, ensure that the mechanical appurtenance is 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 collection.

Historical Note

New Section adopted by final rulemaking at 7 A.A.R. 758, effective January 16, 2001 (Supp. 01-1).

R18-9-603. Open Water Conveyances of Reclaimed Water

- A.** This Article applies to an open water conveyance, regardless of the date of construction.
- B.** A person shall maintain an open water conveyance to prevent release of reclaimed water except as allowed under federal and state regulations. The maintenance program shall include periodic inspections and follow-up corrective measures to ensure the integrity of conveyance banks and capacity of the conveyance to safely carry operational flows.
- C.** Signage for Class B+, B, and C Reclaimed Water. A person shall:
1. Ensure that signs state: "CAUTION: RECLAIMED WATER, DO NOT DRINK," and display the international "do not drink" symbol;
 2. Place signs at all points of ingress and, if the open water conveyance is operated with open access, at least every 1/4-mile along the length of the open water conveyance; and
 3. Ensure that signs are visible and legible from both sides of the open water conveyance.

Historical Note

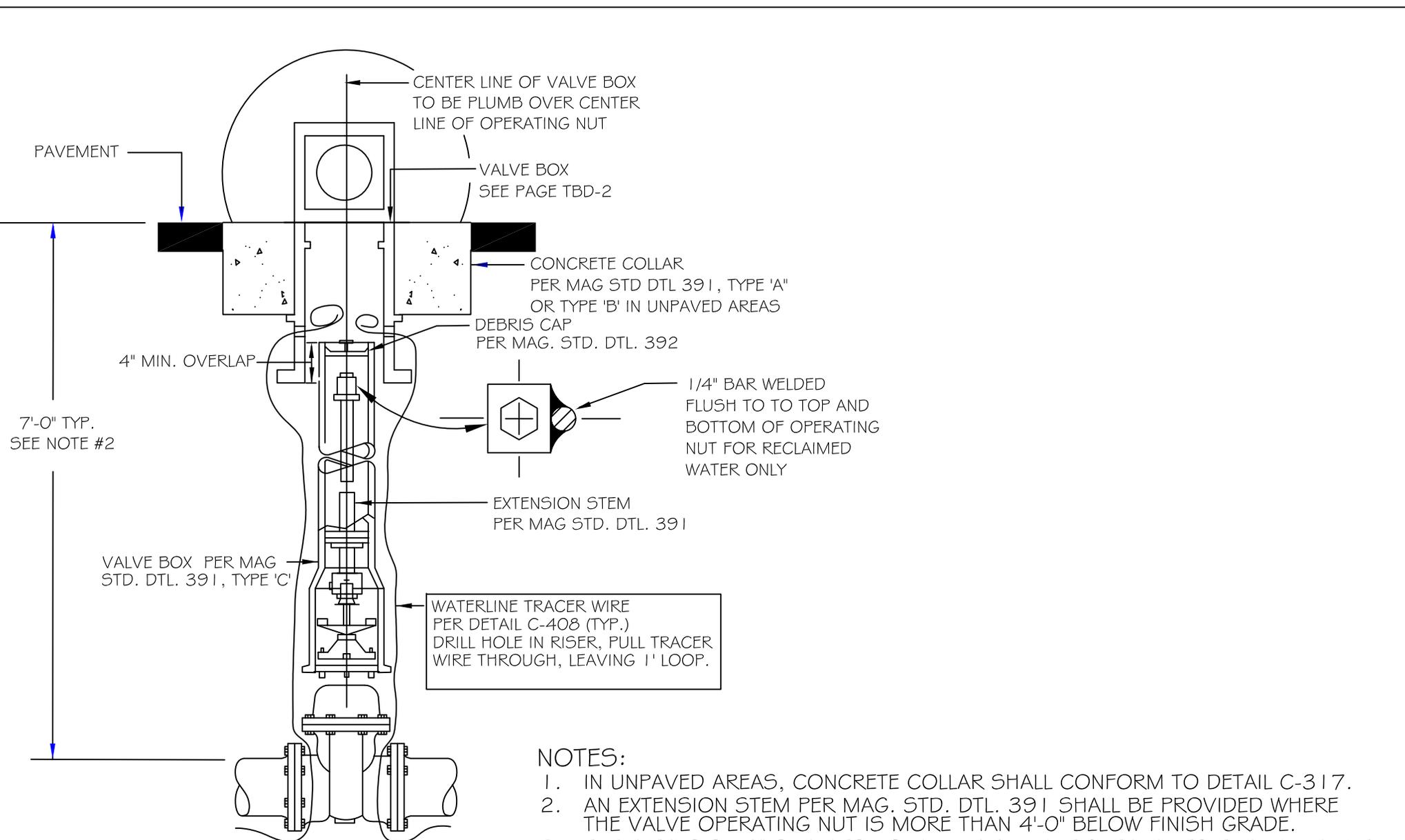
New Section adopted by final rulemaking at 7 A.A.R. 758, effective January 16, 2001 (Supp. 01-1).

ARTICLE 7. DIRECT REUSE OF RECLAIMED WATER

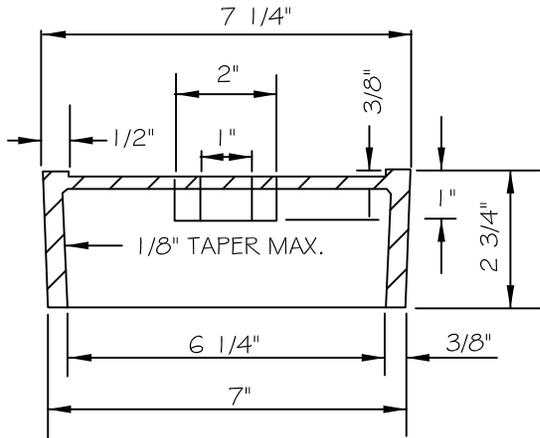
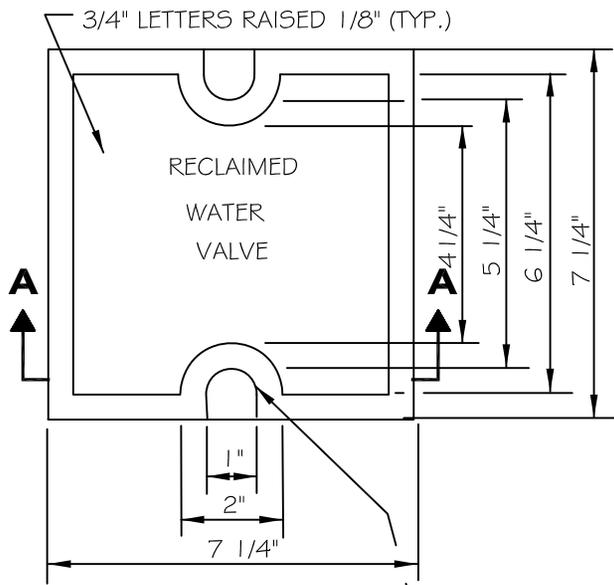
R18-9-701. Definitions

Unless provided otherwise, the definitions provided in A.R.S. § 49-201, A.A.C. R18-9-101, R18-9-601, R18-11-301, and the following terms apply to this Article:

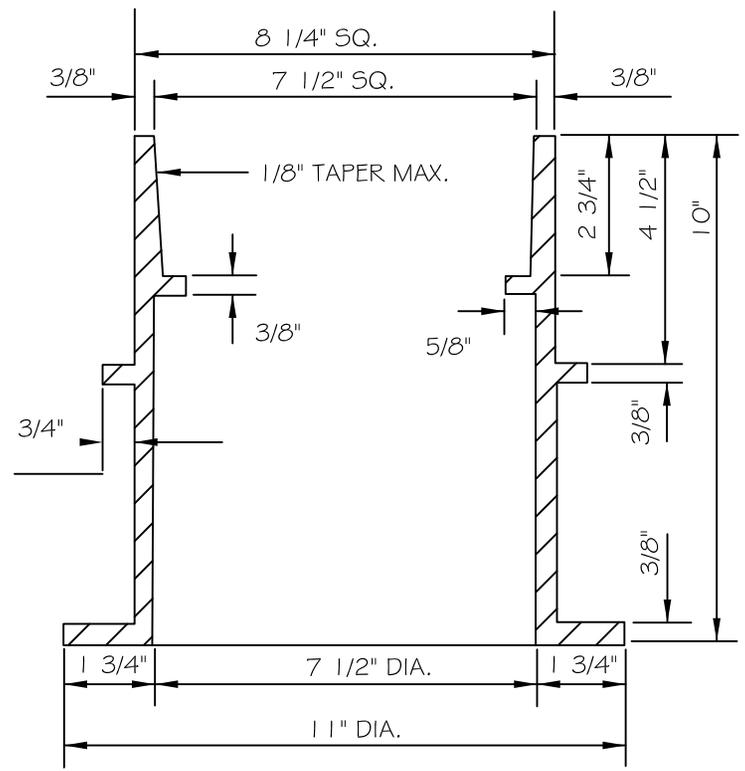
1. "Direct reuse" means the beneficial use of reclaimed water for a purpose allowed by this Article. The following is not a direct reuse of reclaimed water:



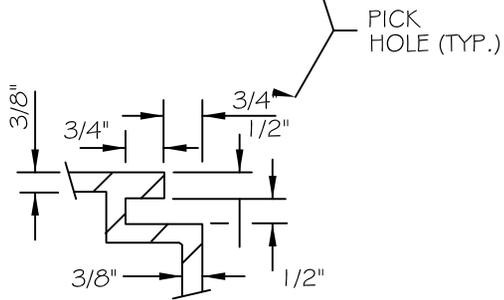
- NOTES:
1. IN UNPAVED AREAS, CONCRETE COLLAR SHALL CONFORM TO DETAIL C-317.
 2. AN EXTENSION STEM PER MAG. STD. DTL. 391 SHALL BE PROVIDED WHERE THE VALVE OPERATING NUT IS MORE THAN 4'-0" BELOW FINISH GRADE.
 3. THE EXTENSION 2" OPERATOR SHALL BE FIRMLY TIGHTENED TO THE VALVE NUT.
 4. BACKFILL SHALL BE 1/2 SACK CLSM. PER MAG. SPECIFICATION 718.
 5. VALVE BOXES SHALL NOT BE INSTALLED WITHIN CONCRETE GUTTER, SIDEWALK, RAMPS OR VALLEY GUTTER.



**SECTION A - A
COVER**



**SECTION
VALVE BOX**



SECTION

- NOTES:
1. ALL MATERIAL SHALL BE CAST IRON PER ASTM. A-48, CLASS 30 B.
 2. THE SURFACES OF THE COVER AND BOX WHICH COME IN CONTACT WITH EACH OTHER MUST BE SMOOTH AND FREE OF ALL CASTING RIDGES AND BURRS TO PROVIDE A SNUG FIT.
 3. THE VALVE BOX SHALL HAVE A ROUND BOTTOM TO ACCOMMODATE RISER PIPE. THE TOP OF THE VALVE BOX SHALL BE SQUARE.
 4. THE LID AND INSIDE AND OUTSIDE OF THE RISER PIPE SHALL BE COLORED PURPLE. COLOR MAY BE INCORPORATED INTO PIPE DURING MANUFACTURE OR PAINTED ONTO PIPE SURFACE. WHEN PAINTED THE PAINT SHALL BE SEYMOUR SAFETY PURPLE.
 5. LETTERING SHALL BE RESTRICTED TO THAT SHOWN ON THE VALVE BOX COVER.

DETAIL NO. TBD- 2	 MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	RECLAIMED WATER VALVE BOX INSTALLATION	REVISED 3/4/15 Draft	DETAIL NO. TBD- 2
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Date: May 29, 2015

To: MAG Specifications and Details Committee

From: Brian Gallimore, Chairman Materials Working Group

Subject: Revisions to Sections 321

Case # 15-10

PURPOSE: Incorporate revisions to Section 321, "*Rehabilitation Work*" into the MAG Specifications.

REVISIONS:

321.10.5.3 - Added this subsection to allow for some relief on asphalt density when provisions for reworking substandard bases (removals) or existing asphalts (overlays) to meet Section 310 or Section 321 for overlays are missing from bid documents or scope of work.

Currently, industry is being held to same standards on spot removals and edge mill/overlays as new construction over optimal base materials.

TABLE 321-6	
ASPHALT PAVEMENT THICKNESS PAYMENT REDUCTION	
For Thickness Deficiency of More Than 0.25 inches and less than 0.50 inches	
Total Specified Asphalt Pavement Thickness exclusive of ARAC (if any)	Reduction in Payment Applied to asphalt concrete Except ARAC layers (if any)
Less than 1.5 inches	50%
1.50 inches to 1.99 inches	33%
2.00 inches to 2.49 inches	25%
2.50 inches to 2.99 inches	20%
3.00 inches and over	17%

321.10.5 Density:**321.10.5.1 Pavement 1-1/2 Inches or Less in Nominal Thickness:**

Compaction shall consist of a “Rolling Method Procedure” using an established sequence of coverage with specified types of compactors. A pass shall be defined as one movement of a compactor in either direction. Coverage shall be the number of passes as are necessary to cover the entire width being paved.

The rolling sequence, the type of compactor to be used, and the number of coverages required shall be as shown in Table [321-7](#).

TABLE 321-7				
ROLLING SEQUENCE FOR LIFT THICKNESS 1½” OR LESS				
Rolling Sequence	Type of Compactor		No. of Coverages	
	Option No. 1	Option No. 2	Option No. 1	Option No. 2
Initial	Static Steel	Vibrating Steel	1	1
Intermediate	Pneumatic Tired	Vibrating Steel	4	2- 4*
Finish	Static Steel	Static Steel	1-3	1-3
* Based on the roller pattern which exhibits the best performance.				

The Contractor shall select the option for compaction and, when pneumatic-tired compactors are used will designate the tire pressure. Steel wheel compactors shall not be used in the vibratory mode for courses of one inch or less in thickness nor when the temperature of the asphaltic concrete falls below 180 degree F. Initial and intermediate compaction shall be accomplished before the temperature of the asphaltic concrete falls below 200 degree F.

Compaction will be deemed to be acceptable on the condition that the asphaltic concrete is compacted using the type of compactors specified, ballasted and operated as specified, and with the number of coverages of the compactors as specified.

321.10.5.2 Pavement Greater than 1-1/2 Inches in Nominal Thickness:

Achieving the required compaction is the responsibility of the contractor. The number and types of rollers is the contractor’s responsibility and shall be sufficient to meet these requirements.

Compaction effort is not solely dependent on the type and/or quantity of equipment on the job, but also includes the speed at which such equipment is utilized. It shall be the contractor’s responsibility to prove to the agency that every effort has been made to achieve the greatest possible density on projects that do not have provisions for reworking the base materials to compaction standards set forth in Section 301 for pavements over native subgrade, Section 310 for pavements over aggregate base course (ABC), or Section 321 (overlays).

In-place air voids shall be determined in accordance with AASHTO T-269 utilizing cores taken from the finished pavement. The maximum theoretical density used in the determination of in-place air voids will be the average value from the acceptance samples determined for the Lot as outlined in [321.10.1](#).

The Engineer will designate one random test location for each subplot and the acceptance laboratory will obtain one core from that location. Regardless of subplot quantities or boundaries, a minimum of one core will be obtained per residential street and a minimum of one core per travel lane for collector and arterial streets. The outside one foot of each pass of the pavement course or any unconfined edge will be excluded from testing. The Engineer may exclude areas from the compaction lot that are not accessible by normal compaction equipment.

The Contractor will provide the traffic control to facilitate any coring operations necessary for compaction acceptance.

Cores will be taken per the Asphalt Concrete Coring Method. This method can be found in Section [321.14](#). Acceptance testing results will be furnished to the contractor within five working days of receipt of samples by the acceptance laboratory.

If the pavement density has in-place voids of 8.0% or less, the asphalt concrete will be paid for at the contract unit price. If the pavement density has in-place voids greater than 8.0%, the deficient area will be evaluated within the subplot by coring at maximum intervals of 100 feet from the deficient core(s). If both cores in a subplot are deficient, 3 to 4 additional cores may be necessary to re-evaluate acceptance. The in-place voids of all the original core(s), whether deficient or acceptable, will be averaged with the in-place voids of the cores taken for re-evaluation to determine compliance with the acceptance requirements. If the average of the in-place voids is greater than 8.0% then Table [321-8](#) shall apply to the subplot. Additional cores may be required to define the limits of the deficient area, and shall not be used for re-evaluating acceptance.

TABLE 321-8		
PAVEMENT DENSITY PENALTIES		
Limits of In-place Air Voids for design lift thicknesses 1.5 inches and greater	When the contracting agency is the owner: Payment Reduction (\$ per ton of asphalt concrete)	When the contracting agency is not the owner (i.e. permits): Corrective Action
Below 3.0%	Removal* or EA	Removal* or EA
3.0% to below 4.0%	\$10.00	EA and Type II Surry Seal
4.0% to 8.0%	Full Payment	No Corrective Action
Greater than 8.0% to less than 9.0%	\$6.00	EA
9.0% to 10.0%	\$10.00	EA and Type II Surry Seal
Greater than 10.0%	Removal* or EA	Removal* or EA

NOTES: *The Contractor shall remove and replace the entire subplot that is deficient.
 EA = Engineering Analysis per Section [321.10.6](#)
 Removal for In-place Air Voids greater than 11.0% is not eligible for Section [321.10.6](#).

[321.10.5.3 Rehabilitation Work](#)

[In-place voids on rehabilitation work should take into consideration the underlying base materials and not be subject to penalties in Table 321-8, other than in place voids shall not exceed 10%. Rehabilitation work shall be considered any mill and overlays or remove and replace projects that do not have provisions for reworking the base materials to compaction standards set forth in Section 301 for pavements over native subgrade, Section 310 for pavements over aggregate base course \(ABC\), or Section 321 \(overlays\).](#)

OR

321.10.5.3 Placement of Pavement on Surfaces with Questionable Support Characteristics: This section shall only apply when any mill and overlay or remove and replace projects **do not** have provisions for reworking the base materials to compaction standards set forth in Section 301 for pavements over native subgrade, Section 310 for pavements over aggregate base course (ABC), or Section 321 (overlays). When pavement is to be placed on a surface suspected by the Contractor of having conditions that may adversely impact compaction, the Contractor at their own expense and prior to paving may demonstrate to the agency that the existing surface has characteristics that may prevent obtaining the standard required density. Unreliable compaction conditions may result from: base materials that provide inadequate support; extremely fractured pavement that moves when subjected to various loading conditions; or milled areas where the pavement thickness was less than anticipated and breaking of the remaining underlying pavement occurs sporadically. When the agency agrees in writing that the surface conditions within a specified area may significantly impact compaction and directs that paving proceed without corrective measures, then the Contractor shall not be subject to air void penalties within the specified area unless the in place air voids exceed 10%.

321.10.6 Engineering Analysis (EA): Within 10 working days after receiving notice that a lot or subplot of asphalt concrete is deficient and is found to fall within the "Removal or EA" band per Table(s) [321-4](#), [321-5](#), and/or [321-8](#) the contractor may submit a written proposal (Engineering Analysis) to accept the material in place at the applicable penalties along with possible remediation(s) listed in the "Removal or EA" category. Engineering Analysis can also be proposed for non-removal categories of "Corrective actions" when the contracting agency is not the owner (i.e. permits).

The Engineering Analysis shall contain an analysis of the anticipated performance of the asphalt concrete if left in place. The Engineering Analysis shall also detail the effect of any proposed corrective action to the material(s) in place as it relates to the in-place material's performance. The Engineering Analysis shall be performed by a professional engineer experienced in asphalt concrete testing and mix designs.

If a lot or subplot is accepted for referee testing and the referee test results still show a deficiency, the contractor shall have ten working days to submit an engineering analysis beginning upon notification of referee test results. When an Engineering Analysis recommends that a specific lot or subplot should not be removed, the Engineering Analysis will recommend that the following penalties (Table [321-9](#)) be paid when the contracting agency is the owner, for the specific criteria being reviewed by the EA.

TABLE 321-9		
ENGINEERING ANALYSIS PENALTIES for REMOVAL* LOTS/SUBLOTS LEFT IN-PLACE		
Acceptance Criteria	Acceptance Limits	Penalty When Contracting Agency is the Owner (\$/Ton)
Asphalt Binder Content	Over 0.2% points from that Permitted	\$9.00
Laboratory Air Voids (Measured at N_{des} or 75 blows as applicable)	Less than 1.5% or Greater Than 8.0%	\$7.50
Limits of In-place Air Voids	Less than 3% or Greater than 10.0%	\$15.00

Within 15 working days, the Engineer will determine whether or not to accept the contractor's proposed Engineering Analysis.

321.11 REFEREE:

If the Contractor has reason to question the validity of any of the acceptance test results, the Contractor may request that the Engineer consider referee test for final acceptance. Any request for referee testing must describe the contractor's reasons for questioning the validity of the original acceptance test results and must clearly describe which set of acceptance tests are in question. The engineer may either accept or reject the request for referee testing. When referee testing is accepted the

725.6 MIX DESIGN PROPORTIONING:

A concrete mix design carrying the producer's designated mix number for each type of concrete being furnished under these specifications shall be submitted to the Engineer at least once each year for approval. Each design shall utilize the proper proportioning of ingredients to produce a concrete mix that is homogeneous and sufficiently workable to provide a consistent and durable concrete product that meets the specified compressive strength and other properties as required by the application.

A concrete mix design submittal shall include the mix identification number and the applicable proportions, weights, and quantities of individual materials incorporated into the mix including the size and source of concrete aggregates, the type and source of cement and fly ash or SCM, and the brand and designation of chemical admixtures or other additives.

In the event there is a modification to the mix design proportions:

(A) Modifications that do not require a new mix design submittal/approval:

- (1) Modifications which do not result in batch target weights for the fine aggregate or combined coarse aggregates changing by more than 510 percent from the original approved mix design.
- (2) Modifications to the percentage of coarse aggregate fractions that do not change the total coarse aggregate volume.
- (3) Modifications to dosages of chemical or air-entraining admixtures, within the manufacturer's recommendations.
- (4) The incorporation or elimination of chemical admixtures which are listed on the mix design to effect a change in the time-of-set (retarders or accelerators).

(B) Modifications that require a new mix design submittal/approval and may require performance verification:

- (1) Modification to the class of concrete per Table 725-1.
- (2) Modification to the type/class/source of cement, fly ash, natural pozzolan, or silica fume.
- (3) Modification to the percentage of fly ash, natural pozzolan, or silica fume.
- (4) Modification to a coarse aggregate size designation.
- (5) Modification of the type of chemical admixture, or the incorporation or elimination, of an air-entraining admixture.
- (6) Modification of coarse or fine aggregate source.



MARICOPA COUNTY
Department of Transportation

MEMORANDUM

Date: January 8, 2016
To: MAG Specifications and Details Committee
From: Robert Herz, MCDOT Representative
Subject: Miscellaneous Corrections **Case 16-01A**

PURPOSE: Delete extraneous text.

REVISION: In Section 310 PLACEMENT AND CONSTRUCTION OF AGGREGATE BASE COURSE revise Table 310-1 by deleting “or gradation deficiency” from the Deficiency column for Type IV.

310.4 THICKNESS AND/OR PLASTICITY INDEX DEFICIENCY:

When in the opinion of the Engineer there is reason to believe that a deficiency in thickness, or an excess of plasticity exists, measurements or samples will be taken in the same pattern as that defined in Section 321. If the base has been covered or it is otherwise impractical to correct the deficiency, the corrective measures in Table 310-1 shall be taken by the Contractor at no additional cost to the Contracting Agency.

TABLE 310-1		
THICKNESS AND PLASTICITY DEFICIENCY		
Type	Deficiency	Corrective Measure
I	Less than 1/2 inch of the required thickness	No corrective measure required.
II	1/2 inch or more but less than 1 inch of the required thickness	(1) The contractor may choose to add additional material and rework the grade to meet the specification requirements. (2) The contractor may choose to increase the thickness of asphalt concrete by the amount of the aggregate base course thickness deficiency at no additional cost to the Owner. Required grade shall be met.
III	Thickness deficiency by greater than 1 inch	(1) The contractor will remove the aggregate base course and regrade the subgrade to allow the required aggregate base course layer thickness to be constructed. (2) If grades allow, the contractor may propose that the thickness of asphalt concrete be increased by the amount of the aggregate base course deficiency at no additional cost to the Owner.
IV	A plasticity index of 6 to 7 inclusive or gradation deficiency	(1) An Engineering Analysis (EA) that includes R-value testing may be prepared by the contractor to evaluate the expected performance of the aggregate base course layer. The EA may provide mitigation options for the Engineer to consider. If the Engineer accepts the plasticity index as a result of the EA, the material will be accepted at full payment. If the Engineer rejects the EA, the contractor will perform either option 2 or 3 below. (2) The contractor may choose to reprocess or treat the existing material to bring it within specification limits or remove deficient material from affected area and replace with material complying with the specifications. (3) If grades allow, the contractor may increase the thickness of asphalt concrete by 1/2-inch at no additional cost to the Owner.
V	A plasticity index of over 7	(1) The contractor may choose to reprocess or treat the existing material to bring it within specification limits or remove deficient material from affected area and replace with material complying with the specifications.

Report to MAG Technical Committee
Meeting Date: January 6, 2016
Asphalt and Materials Working Group meetings
By Chairmen, Brian Gallimore, Greg Groneberg

Last meeting was held in September preceding the last MAG Technical Committee meeting. The next meeting will be **Thursday, January 21st at Noon at the ARPA office**, where the following will be discussed:

Cases to be reviewed and discussed:

- **Case 15-10 Section 321** Compaction over poor base (Rehabilitation work). This is a carryover case from last year, where we will continue to work
- **New Issues / Business** – There has been some discussion on potentially new cases and will look forward to what is shared at the working group meeting

Curb Ramp Working Group Meeting

Meeting Notes
December 14, 2015

Opening:

The meeting of the Specifications and Details Curb Ramp Working Group was called to order by Warren White on December 15, 2015, at 1:30 p.m. in the MAG Cholla Room.

1. Attendance

Brandon Forrey (Peoria), Russel Gordon (Gilbert) Cathy Hollow (Tempe), Gordon Tyus (MAG), Tom Wilhite (Tempe), Warren White (Chandler)

2. Transition Plans

Warren White commented that Chandler's updated transition plan was recently approved by City Council. Ms. Hollow of Tempe and Mr. Gordon of Gilbert said they are beginning the development of their transition plan.

3. Curb Ramp Draft Details

Mr. White handed out the latest drafts of dual curb ramp options: Detail 236-1 was a modification of existing Detail 235-1 showing radial ramps for an attached sidewalk. Detail 236-2 showed radial ramps for a detached sidewalk. Brandon Forrey provided a draft Detail 237-1 that showed directional dual ramps in a format similar to existing MAG details. Mr. Gordon asked why we were developing radial ramps if the directional ramps are preferred. Mr. Forrey stated that the radial ramps are still allowed under the proposed guidelines, and it would be good to have several options available for agencies to choose from. He said that even single ramps are allowed in certain retrofit situations. Ms. Hollow said that projects that use ADOT federal funds are required to use dual ramps.

For the radial ramps Mr. Wilhite provided written notes adding some dimensions. There was discussion about what minimum sidewalk widths should be shown on the details. He also shared Tempe's details with the group. Mr. Forrey commented that providing all the options for sidewalks widths, street radii and curb thicknesses all on one drawing was tricky. Mr. Tyus developed a 3D model of the existing MAG detail 235-1 to visualize it to scale and suggested that the draft 236 details show wider wings and more separation between ramps for a more realistic look. There was discussion on making the distance between ramps 2' minimum instead of typical, since the ramp placement changes based on the radius of the street and placement of crosswalks.

The group next reviewed the directional ramp detail. Mr. Forrey noted that several dimensions still needed to be determined. Mr. Wilhite asked why the detectable warnings did not meet the edge of the curb. He also drew a diagram on the whiteboard to help explain how in order to have both a 1.5% slope at the bottom of the ramp to avoid debris collection, and an 8.33% slope on the ramp, some cross-slope of the ramp may be required depending on the direction of the flowline of the curb. Members also thought it would make sense to show the curb in the section view to be consistent with other details, and adjust placement of the section line. Mr. Wilhite

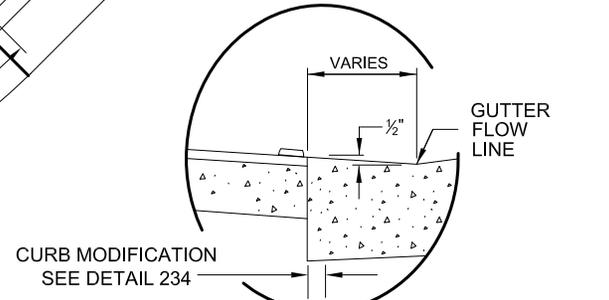
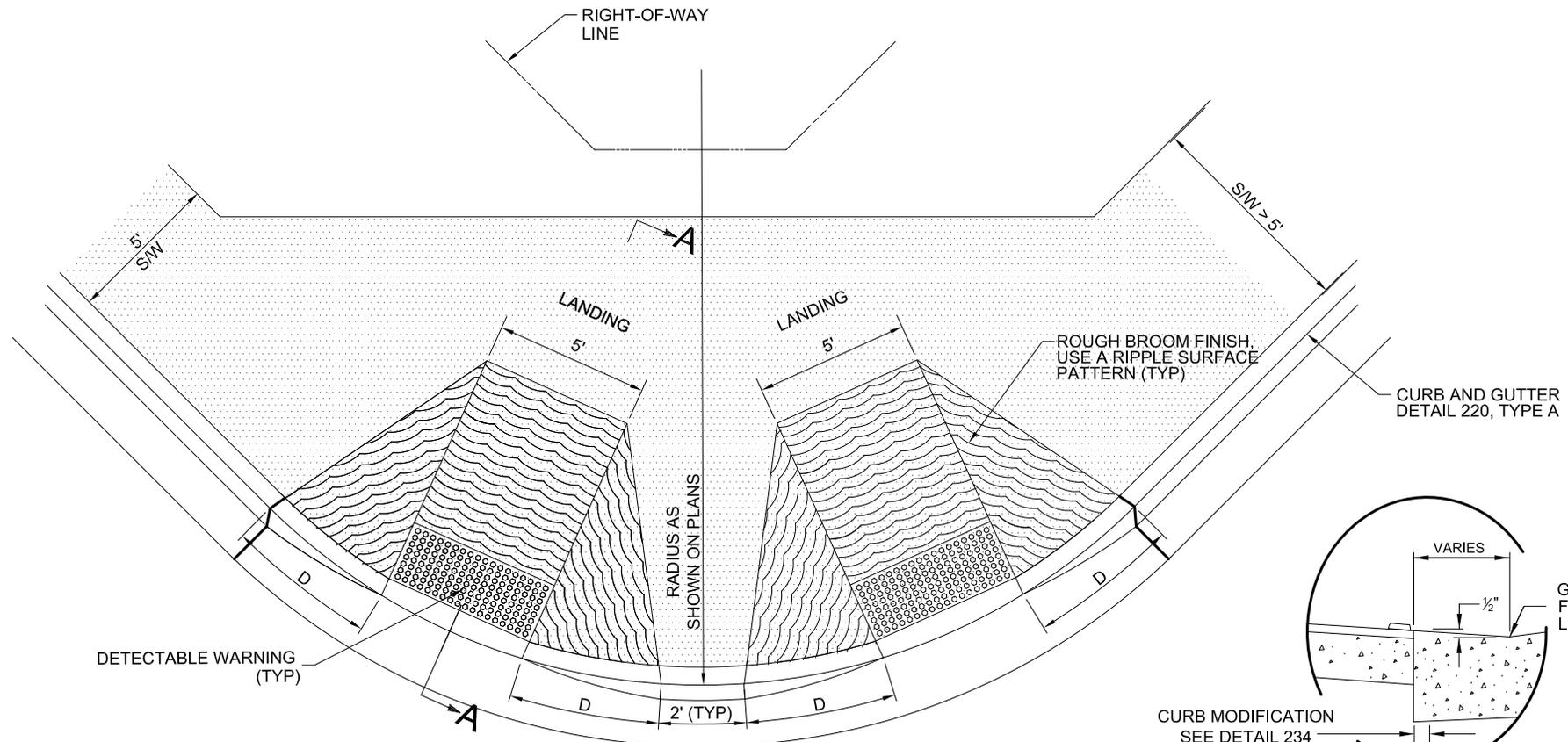
asked if the concrete was scored to help visualize the flow line. Mr. Tyus thought the inner line at the bottom of the ramp could be removed. Tom Wilhite provided written comments on the draft detail and also suggested adding Note #6 from Tempe's detail.

4. Next Steps

Warren White and Brandon Forrey said they would incorporate comments and feedback to update the draft details. The group suggested that Mr. White provide an update to the committee on the working group's progress and get some initial feedback from them as well.

5. Adjournment

The meeting was adjourned at 3:00 p.m.

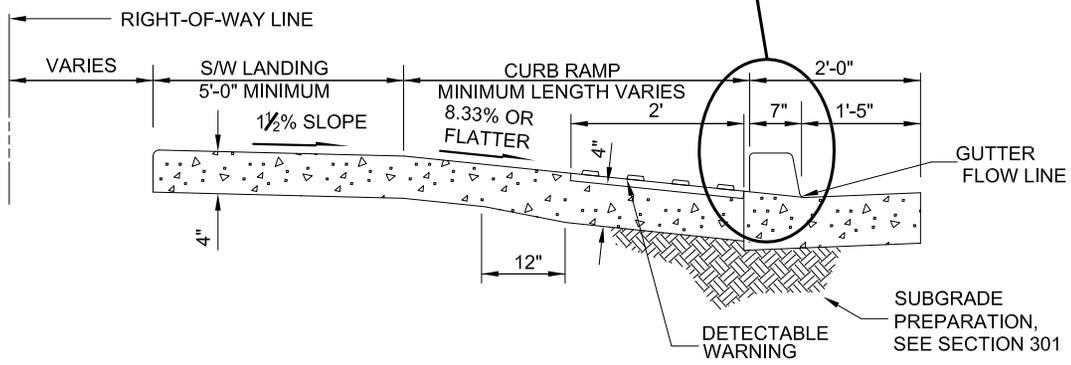


CURB HEIGHT	CURB RAMP MINIMUM LENGTH	D (min)	
		$S_G \leq 1\%$	$S_G \leq 2\%$
4"	5'	4.0'	4.5'
6"	7½'	6.0'	6.5'
7"	9'	6.5'	7.5'

S_G = MAXIMUM GUTTER SLOPE WITHIN RAMP LIMITS

NOTES:

1. CLASS 'B' CONCRETE PER SECTION 725.
2. EXPANSION JOINTS 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. DETAIL IS ADA COMPLIANT FOR $S_G \leq 2\%$.



SECTION A-A

DETAIL NO.
236-1

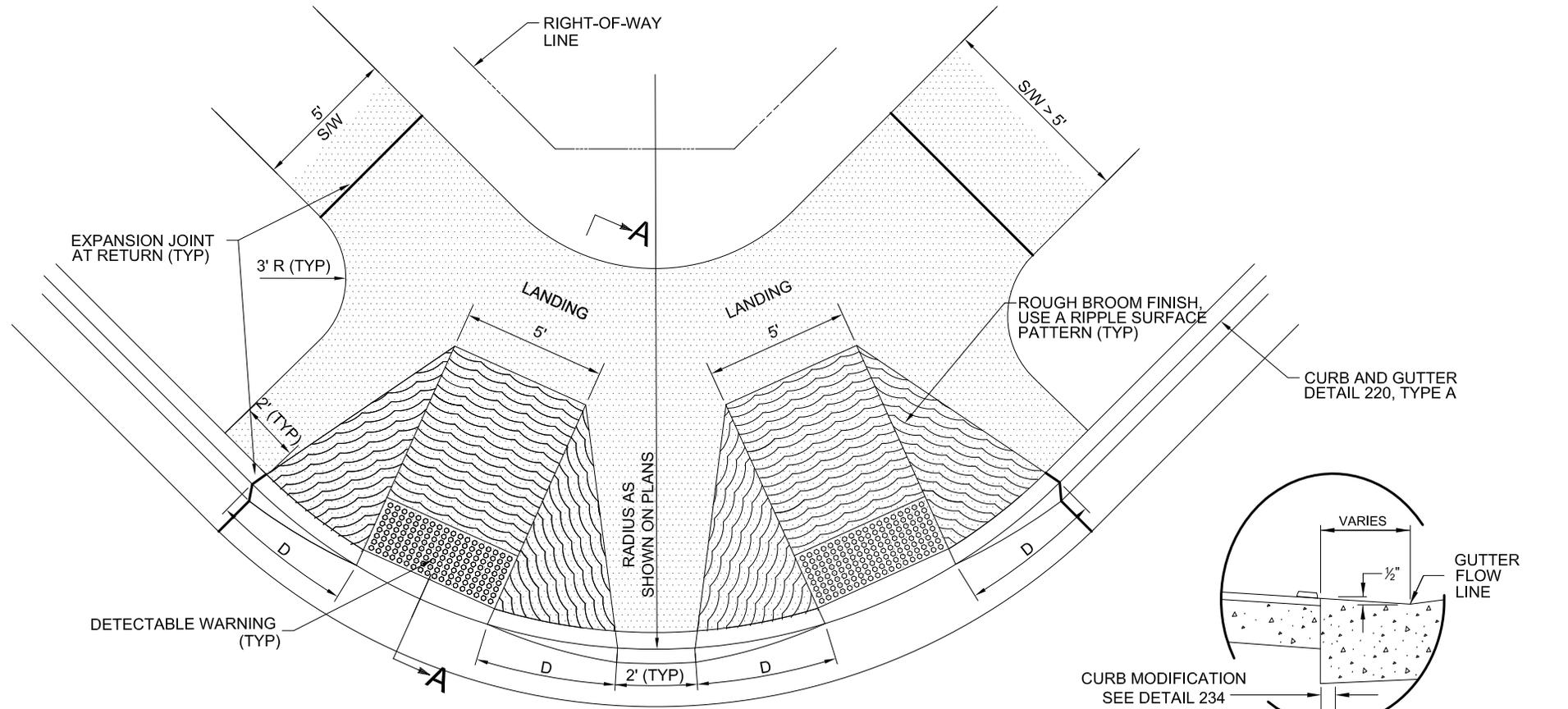


STANDARD DETAIL
ENGLISH

**DUAL CURB RAMPS (RADIAL)
ATTACHED SIDEWALK**

PROPOSED
01-01-2017

DETAIL NO.
236-1

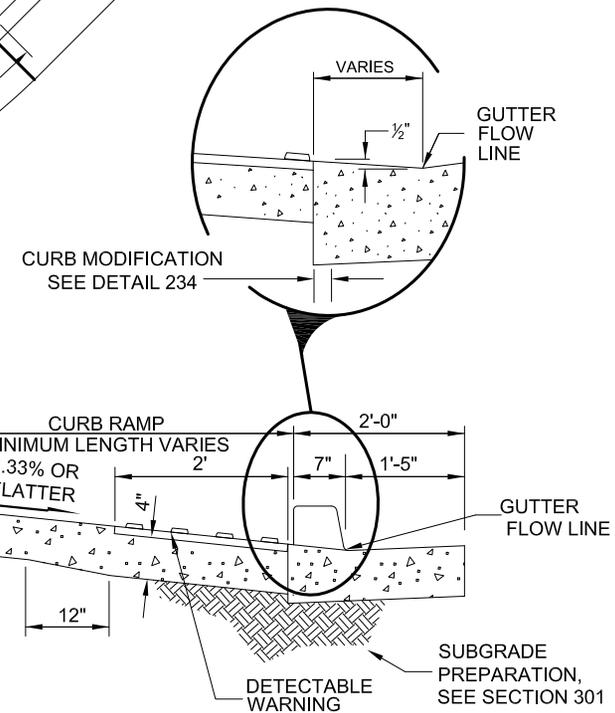


CURB HEIGHT	CURB RAMP MINIMUM LENGTH	D (min)	
		$S_G \leq 1\%$	$S_G \leq 2\%$
4"	5'	4.0'	4.5'
6"	7½'	6.0'	6.5'
7"	9'	6.5'	7.5'

S_G = MAXIMUM GUTTER SLOPE WITHIN RAMP LIMITS

NOTES:

1. CLASS 'B' CONCRETE PER SECTION 725.
2. EXPANSION JOINTS 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. DETAIL IS ADA COMPLIANT FOR $S_G \leq 2\%$.



SECTION A-A

DETAIL NO.
236-2

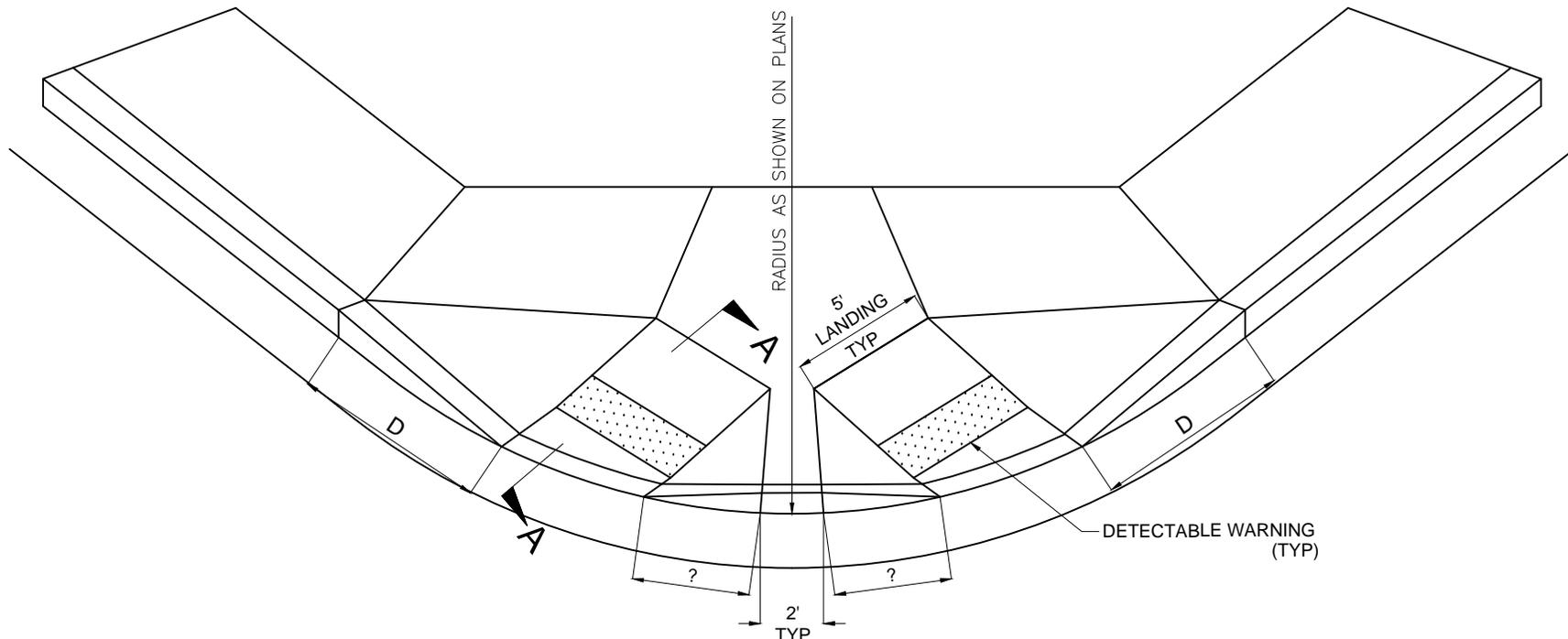


STANDARD DETAIL
ENGLISH

DUAL CURB RAMPS (RADIAL)
DETACHED SIDEWALK

PROPOSED
01-01-2017

DETAIL NO.
236-2

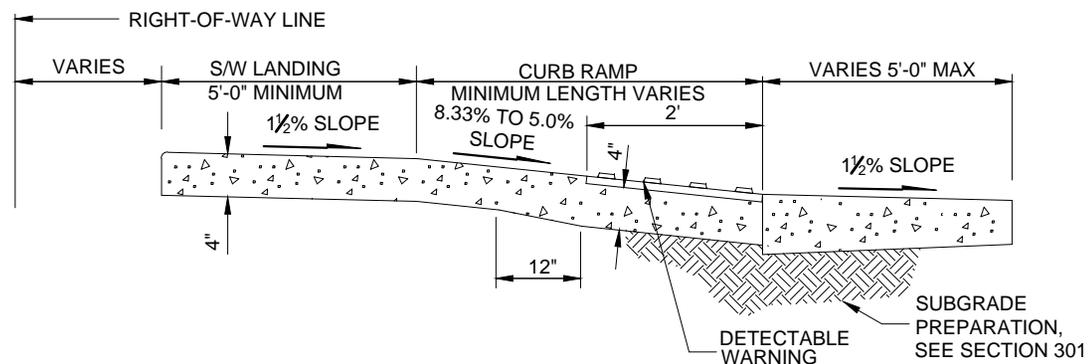


CURB HEIGHT	CURB RAMP MINIMUM LENGTH	<i>D (min)</i>		<i>? (min)</i>	
		$S_G \leq 1\%$	$S_G \leq 2\%$	$S_G \leq 1\%$	$S_G \leq 2\%$
4"	5'	4.0'	4.5'	2.0'	2.5'
6"	7½'	6.0'	6.5'	2.0'	2.5'
7"	9'	6.5'	7.5'	2.5'	2.5'

S_G = MAXIMUM GUTTER SLOPE WITHIN RAMP LIMITS

NOTES:

1. CLASS 'B' CONCRETE PER SECTION 725.
2. EXPANSION JOINTS 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. DETAIL IS ADA COMPLIANT FOR $S_G \leq 2\%$.
6. LOCATION OF CURB RAMPS SHOULD SHIFT IF NEEDED TO ALIGN ON BOTH SIDES.



SECTION A-A

ASTM References that need to be updated in the MAG Spec Book

ASTM	Why?	Pages	Suggestion for Correction
D6276	Withdrawn 2015. No replacement.	309-2	Cut since there is already an option to reference C977 APPENDIX.
C1028	Withdrawn 2014. No replacement.	340-1	Find new test or continue to reference historic document.
F1135	Withdrawn 2009. No replacement.	505-8	Find new specs for cadmium and zinc coatings or continue to reference historic document.
A82, A185, A496	Withdrawn 2013. All replaced with A1064/A1064M.	505-13, 727-1	Review new standard A1064 to make sure it is appropriate, and if so, replace A82, A185 and A496 with A1064.
C6023	Not found.	604-2	Is this a typo? Should it be D6023?
D2006	Withdrawn 1975. Not file available.	718-2	Find replacement standards, possibly AASHTO.
D6103	Withdrawn 2013. No replacement.	728-1	Find new test or continue to reference historic document.
D3406	Withdrawn. Material no longer manufactured	729-1	Find specifications for pour type joint fillers or remove Subsection 729.2.
D234	Withdrawn 2007. No replacement.	790-1	Use historic reference or remove Raw Linseed Oil as an option.
D260	Withdrawn 2007. No replacement.	790-1	Use historic reference or remove Boiled Linseed Oil as an option.
D13	Withdrawn 2007. No replacement.	790-1	Use historic reference or remove Turpentine as an option.
D605	Withdrawn 2003. No replacement.	790-2	Find new standards or continue to reference historic document.

LIST OF MEMBERS
For
MAG Standard Specifications and Details Committee

Page 1 of 4
January, 2016

AGENCY MEMBERS

CITY OF AVONDALE

Engineering Department
11465 W. Civic Center Drive, Suite 120
Avondale, AZ 85323-6804

Jim Badowich (Chair)
Phone: (623) 333-4222
Fax: (623) 333-0420
E-mail: jbadowich@avondale.org

CITY OF BUCKEYE

530 East Monroe Avenue
Buckeye, AZ 85326

Craig Sharp
Phone: (623) 349-6229
FAX: (623) 349-6221
E-mail: csharp@buckeyeaz.gov

CITY OF CHANDLER

Public Works Department
P.O. Box 4004, Mail Stop 405
Chandler, AZ 85244-4005

Warren White, P.E. (Vice Chair)
Phone: (480) 782-3337
FAX: (480) 782-3350
E-mail: warren.white@chandleraz.gov

CITY OF EL MIRAGE

Engineering Department
12145 NW Grand Avenue
El Mirage, AZ 85335

Ruben Aguilar
Phone: (623) 980-9987
E-mail: raguilar@cityofelmirage.org

TOWN OF FLORENCE

755 North Main Street, PO Box 267
Florence, AZ 85132

Wayne Costa
Phone: (520) 868-7617
E-mail: wayne.costa@florenceaz.gov

TOWN OF GILBERT

90 E. Civic Center Dr.
Gilbert, AZ 85296

Tom Condit, PE
Phone: (480) 503-6815
FAX: (480) 503-6170
E-mail: tom.condit@gilbertaz.gov

CITY OF GLENDALE

Engineering Department
5850 West Glendale Avenue – Suite 315
Glendale, AZ 85301

Mark Ivanich, P.E.
Phone: (623) 930-3654
FAX: (623) 915-2861
E-mail: mivanich@glendaleaz.com

CITY OF GOODYEAR

Engineering Department
14455 W. Van Buren Street, Suite D101
Goodyear, AZ 85338

Tom Vassallo
Phone: (623) 882-7979
Cell: (623) 377-3589
E-mail: tom.vassallo@goodyearaz.gov

**MARICOPA COUNTY DEPARTMENT OF
TRANSPORTATION**

2901 West Durango
Phoenix, AZ 85009-6357

Bob Herz
Phone: (602) 506-4760
FAX: (602) 506-5969
E-mail: rherz@mail.maricopa.gov

LIST OF MEMBERS
For
MAG Standard Specifications and Details Committee

Page 2 of 4
January, 2016

CITY OF MESA

Engineering Department
20 E. Main Street, Suite 500, PO Box 1466
Mesa, AZ 85211-1466

Lance Webb, P.E.
Phone: (480) 644-6980
FAX: (480) 644-3392
E-mail: Lance.Webb@mesaaz.gov

CITY OF PEORIA

Public Works/Engineering
9875 N 85th Avenue
Peoria, AZ 85345

Dan Nissen
Phone: (623) 773-7214
FAX: (623) 773-7211
E-mail: Dan.Nissen@peoriaaz.gov

CITY OF PHOENIX

Water Services Department
200 W. Washington Street, 8th Floor
Phoenix, AZ 85003

Jami Erickson
Phone: (602) 261-8229
FAX: (602) 495-5843
E-mail: jami.erickson@phoenix.gov

CITY OF PHOENIX

Street Transportation Department
Design and Construction Management
1034 E Madison St.
Phoenix, AZ 85034

Leticia Vargas
Phone: (602) 261-8076
E-mail: leticia.vargas@phoenix.gov

CITY OF SCOTTSDALE

9191 E. San Salvador Drive
Scottsdale, AZ 85258

Rodney Ramos, P.E.
Phone: (480) 312-5641
FAX: (480) 312-5539
E-mail: rrosos@scottsdaleaz.gov

CITY OF SURPRISE

Public Works Department
16000 N Civic Center Plaza
Surprise, AZ 85374-7470

Kristin Tytler, P.E.
Phone: (623) 222-6153
FAX: (623) 222-1701
E-mail: kristin.tytler@surprise.gov

CITY OF TEMPE

Public Works Department
31 E. 5th Street
Tempe, AZ 85281

Tom Wilhite, P.E. (Chair)
Phone: (480) 350-2921
FAX: (480) 350-8591
E-mail: tom_wilhite@tempe.gov

TOWN OF YOUNGTOWN

12030 Clubhouse Square
Youngtown, AZ 85363

Gregory Arrington
Phone: (623) 933-8286
Cell: (623) 640-8441
E-mail: garrington@youngtownaz.org

VALLEY METRO

101 N. First Avenue, Suite 1100
Phoenix, AZ 85003

Harvey Estrada or Jonathan Sorrell
Phone: (602) 495-4514
E-mail: hestrada@valleymetro.com
jsorrell@valleymetro.org

LIST OF MEMBERS
For
MAG Standard Specifications and Details Committee

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ADVISORY MEMBERS

ASSOCIATIONS:

ARIZONA ROCK PRODUCTS ASSOCIATION

1825 W. Adams, Phoenix, Arizona 85007

Phone: (602) 271-0346 FAX: (602) 252-5870

Southwest Asphalt
1302 W. Drivers Way
Tempe, AZ 85284

Greg Groneberg
Phone: (480) 730-1033
FAX: (480) 730-1264
E-mail: ggroneberg@fisherind.com

Salt River Materials Group
8800 E. Chaparral Road, Ste 155
Scottsdale, AZ 85250

Jeff Hearne
Phone: (480) 850-5757
Mobile: (602) 321-6040
FAX: (480) 850-5758
E-mail: jhearne@srmaterials.com

ASSOCIATED GENERAL CONTRACTORS:

1825 W Adams Street, Phoenix, Arizona

Phone: (602) 252-3926

WSP, Inc.
7777 N. 70th Avenue
Glendale, AZ 85027

Brian Gallimore
Phone: (623) 434-5050
FAX: (623) 434-5059
E-mail: bgallimore@wspinc.net

VACANT

LIST OF MEMBERS
For
MAG Standard Specifications and Details Committee

Page 4 of 4
March, 2015

ARIZONA UTILITY CONTRACTORS ASSOCIATION:

P.O. Box 66935, Phoenix, Arizona 85082 www.wedigaz.org
Phone: (480) 775-3943 FAX: (602) 532-7573

SSC Boring
2001 W. North Lane Ste: A
Phoenix, AZ 85021

Arvid Veidmark III
Phone: (602) 997-6164
E-mail: arvid@ssc boring.com

Utility West Energy, LLC
10211 N. 37th Ave.
Phoenix, AZ 85028

Tom Brennan
Phone: (602) 233-0658
E-mail: tfbrennan@utilitywestllc.com

PUBLIC UTILITIES:

SALT RIVER PROJECT

P.O. Box 52025
Mail Station XCT317
Phoenix, AZ 85072

Jacob Rodriguez
Phone: (602) 236-6459
E-mail: jacob.rodriguez@srpnet.com

INDEPENDENT:

DGA Consulting, PLLC
325 E. Southern, #109
Tempe, AZ 85282

Peter Kandarlis
Phone: (480) 273-9445
E-mail: pkandarlis@digioiagray.com

PIPE RIGHT NOW, LLC.
7349 W. Camron Dr.
Peoria, AZ 85345

Paul R. Nebeker
Phone: (623) 979-5154
FAX: (623) 878-4484
E-mail: pnebeker@cox.net

MAG ADMINISTRATIVE STAFF

**MARICOPA ASSOCIATION
OF GOVERNMENTS**

302 N. 1st Avenue, Suite 300
Phoenix, AZ 85003

Gordon Tyus
Phone: (602) 452-5035
FAX: (602) 254-6490
E-Mail: gtvus@azmag.gov