



Chandler • Arizona
Where Values Make The Difference

MEMORANDUM

Case # 13-15

DATE: July 10th, 2013

TO: MAG Specifications and Details Committee Members

FROM: Warren White, City of Chandler Representative

SUBJECT: Proposed Revisions to MAG Sections 601, 603, 615, 618, 735, 101 and Dtl 200

This is an update to the case package submitted at the May meeting. It has been expanded to include proposed changes needed for both flexible and rigid pipe standards. Discussion at previous Water/Sewer Working group meetings includes the following direction:

- 1) Transform Section 603, Installation of HDPE Pipe, into a new flexible pipe Trench Excavation, Backfill and Compaction specification that is specific to flexible pipe.
- 2) Revise Section 601, Trench Excavation, Backfilling and Compaction, to be specific to rigid pipe.
- 3) Revise the Bedding Detail on Detail 200-2, to match ASTM terminology. Graphical changes to clarify new defined areas. Also, revisions to Detail 200-1 for consistent terminology.
- 4) Revise and add certain trench excavation related definitions and terms in Section 101, to match ASTM: Backfill (initial, final), Bedding, Foundation, Haunching, Springline and Pipe Embedment Zone.
- 5) Revise Installation Specifications (615, 618) for flexible and rigid requirements.
- 6) Revise Installation Specifications (615, 618) to include post installation testing requirements.
- 7) Revise Section 601 and 603 for new terminology and consistency.
- 8) Also, related to testing, revise the Material Specification for Reinforced Concrete Pipe, Section 735, RCP. Remove 735.7 item (G) hairline crack. It is not necessary and with item (F). Typically hairline cracks “repair” themselves through a process called autogenous healing.

Here is an overview of related (proposed) Sections:

	TRENCH EXCAVATION, BACKFILL AND COMPACTION	INSTALLATION	MATERIAL
Flexible Pipe	Section 603 (Revised title, was Installation of HDPE)	Section 615 - Sewer	Section 738 - HDPE
		Section 618 - Storm	Section 739 - SRPE
		Section 610 - Water	Section 740 - Polypropylene
			Section 745 - PVC
Rigid Pipe	Section 601	Section 615 - Sewer	Section 735 - RCP
		Section 618 - Storm	Section 736 - Non-RCP
		Section 610 - Water	Section 743 - VCP
			Section 750 - DIP
			Section 752 - ACP
			Section 785 - Concrete

Proposed Trench Excavation Definitions for MAG Section 101

B. Davis 7-1-13

Haunching – The area of a pipe trench backfill envelope that provides the majority of resistance against soil and traffic loadings. The haunching area is defined as the zone between the bottom of the pipe and the centerline, or springline, of the pipe.

Springline – The horizontal centerline of a pipe in a pipe trench backfill envelope. The springline separates the haunching area from the initial backfill in the pipe embedment zone.

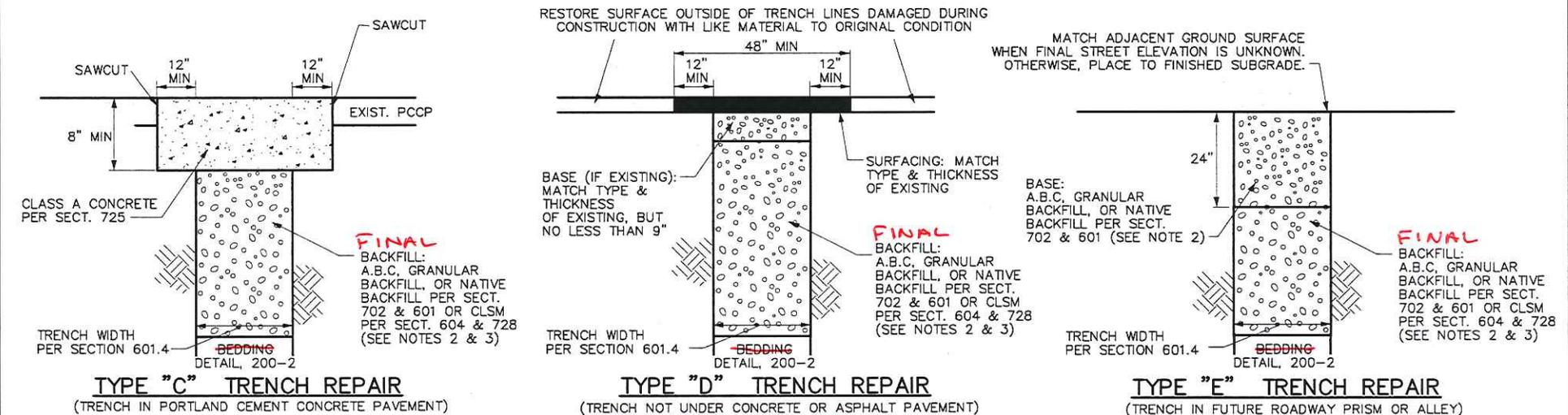
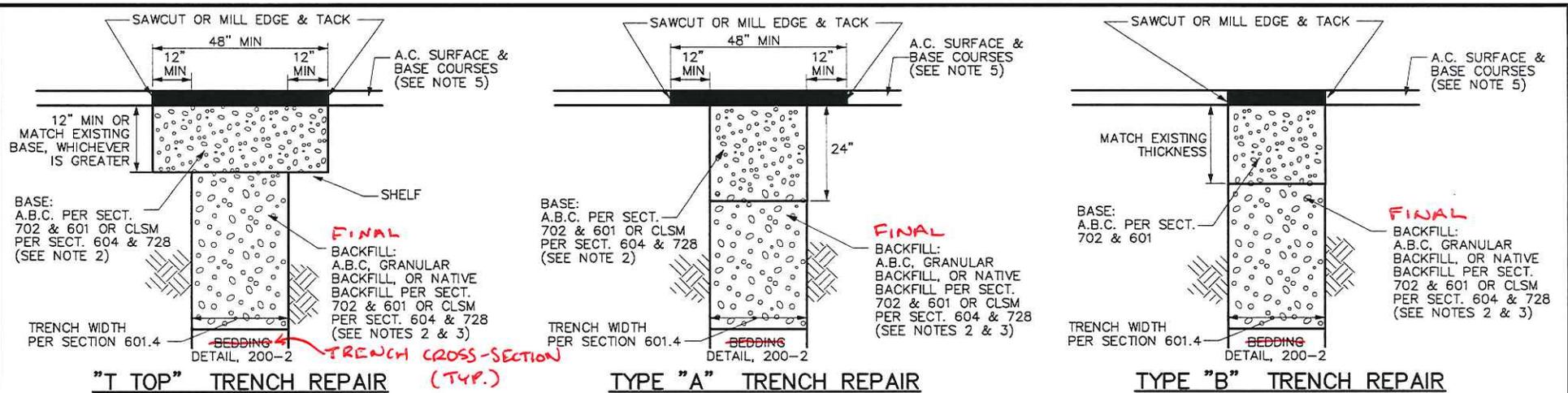
Bedding - (current MAG definition: Is the material placed in the area from the bottom of the trench to 1 foot above the top of the pipe or conduit.) *New definition proposed:* A backfill material layer placed on top of the pipe foundation to the bottom of the pipe, typically 4 – 6 inches in height. The bedding establishes line and grade to provide firm, but not hard, pipe support.

Foundation – (current MAG definition: For buildings or structures, this will be the substructure. For pipe this will be the native material or prepared material on which the pipe rests: normally, this is the bottom grade line of the trench). *New definition proposed:* For a pipe trench the foundation is defined as the native or prepared material upon which the bedding material is placed.

Initial backfill – The area of a pipe trench backfill envelope defined as the area between the springline and a minimum of 12 inches above the crown of the pipe.

Final backfill - The area of a pipe trench backfill envelope defined as the area above initial backfill to the top of the trench or to the bottom of the road base material. Final backfill is typically compacted native material.

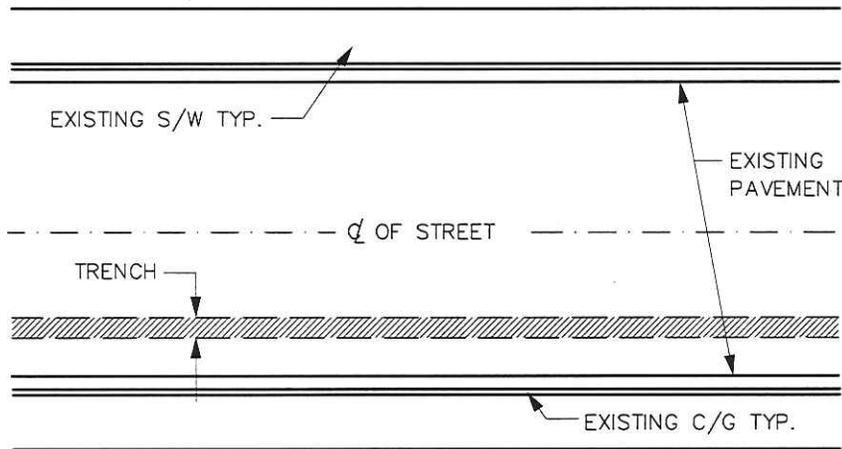
Pipe embedment zone - The area of a pipe trench backfill envelope, consisting of the bedding, haunching, and initial backfill areas.



- NOTES:**
- PAVEMENT MATCHING AND SURFACE REPLACEMENT SHALL BE IN ACCORDANCE WITH SECTION 336.
 - TYPE OF BACKFILL AND BASE (IF APPLICABLE) SHALL BE AS NOTED HEREIN UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS. IF NOT SPECIFIED, CLSM SHALL BE 1/2-SACK PER SECTIONS 604 AND 728.
 - TRENCHES LESS THAN 24" WIDE SHALL BE BACKFILLED FROM TOP OF BEDDING TO BOTTOM OF SURFACING MATERIALS WITH 1/2-SACK CLSM PER SECTIONS 604 AND 728.
 - ~~BASE, BACKFILL, BEDDING AND FOUNDATION~~ COMPACTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH SECTION 601.
 - ASPHALT CONCRETE SURFACE AND BASE COURSES SHALL COMPLY WITH SECTION 336.2.4.1 UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.
 - USE TYPE "A" FOR LONGITUDINAL TRENCH REPAIR AND USE "T-TOP" FOR TRANSVERSE TRENCH REPAIR (SEE DETAIL 200-2) UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS. TYPE "B" TRENCH REPAIR MAY BE USED FOR TRANSVERSE TRENCH REPAIR IF SPECIFIED BY THE AGENCY.
 - PROVIDE MINIMUM 12" WIDE SHELF AS SHOWN IN "T-TOP" TRENCH REPAIR AT ENDS OF TYPE "A" TRENCH REPAIR EXCEPT WHERE EDGE ABUTS EXISTING CONCRETE.
 - USE "T-TOP" PAVEMENT REPLACEMENT WHERE A TRENCH IS NOT PARALLEL TO A STREET OR GOES THROUGH AN INTERSECTION.
 - SEE DETAIL 200-2 FOR REMNANT PAVEMENT REMOVAL REQUIREMENTS.
 - EXPOSED COPPER OR POLYETHYLENE WATER PIPE UP TO 2" IN DIAMETER IN TRENCHES TO BE BACKFILLED WITH CLSM SHALL BE WRAPPED WITH MINIMUM 3/4" THICK PREFORMED PIPE-COVERING FOAM INSULATION BEFORE PLACING CLSM.

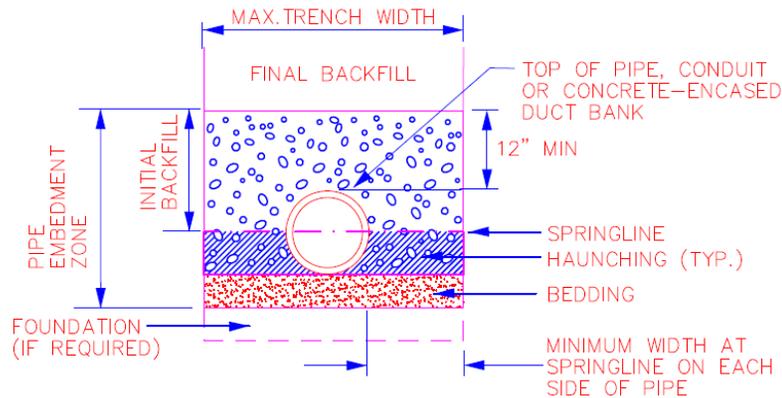
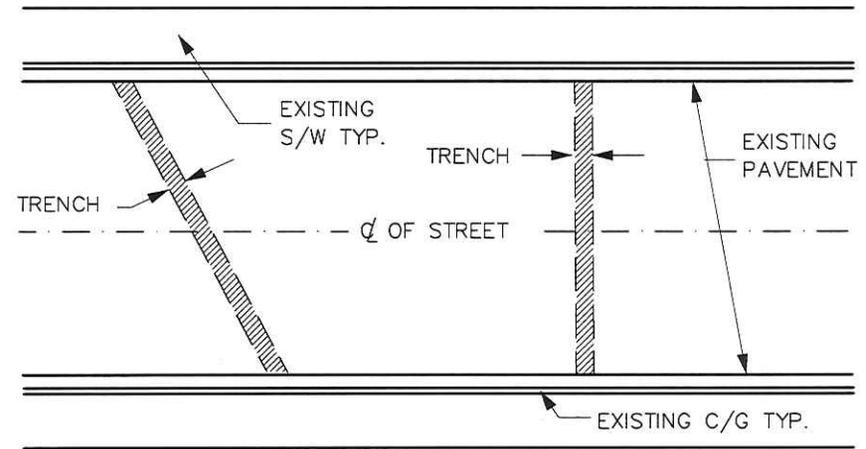
LONGITUDINAL TRENCH

(TRENCH IN PAVEMENT PARALLEL TO TRAFFIC)

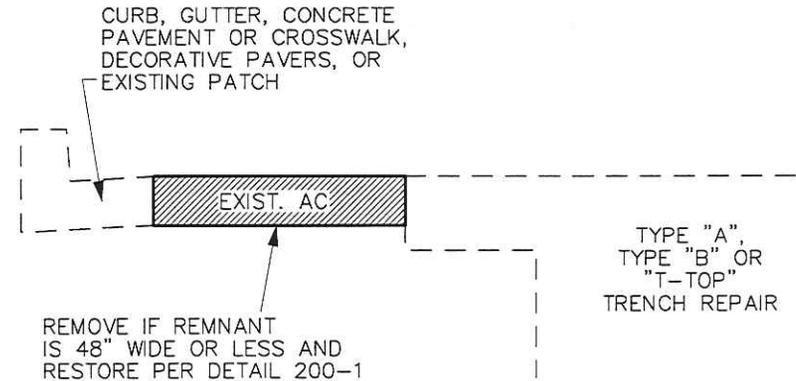


TRANSVERSE TRENCH

(TRENCH IN PAVEMENT NOT PARALLEL TO TRAFFIC)



TRENCH CROSS-SECTION DETAIL



REMNANT PAVEMENT REMOVAL

NOTES:

1. SEE SECTION 601 FOR RIGID PIPE INSTALLATION AND 603 FOR FLEXIBLE PIPE INSTALLATION.
2. SEE MAG DETAIL 200-1 FOR DETAILED TRENCH REPAIR REQUIREMENTS FOR TRENCH TYPES NOTED HEREIN.
3. SEE MAG DETAIL 211 FOR REQUIREMENTS REGARDING THE USE OF PLATING TRANSVERSE TRENCHES. USE OF STEEL PLATES SHALL NOT EXCEED 72 HOURS AFTER COMPLETION OF BACKFILL AND PRIOR TO FINAL PATCHING.

DETAIL NO.
200-2



STANDARD DETAIL
ENGLISH

BACKFILL, PAVEMENT AND
SURFACE REPLACEMENT

REVISED
~~01-01-2010~~

DETAIL NO.
200-2