4250607 INLETS, MANHOLES, AND JUNCTION BOXES
COMMENTS FROM INTERNAL/INDUSTRY REVIEW

Rudy Powell
414-4280

Comments: (4-25-12)
Shouldn't this apply to both existing and new structures? The title of subarticle 425-6.7 is Adjustment of Existing Structures.

Response: The title for Subarticle 425-6.7 "Adjusting Existing Structures" will be changed to "Adjusting Structures".
Change made.

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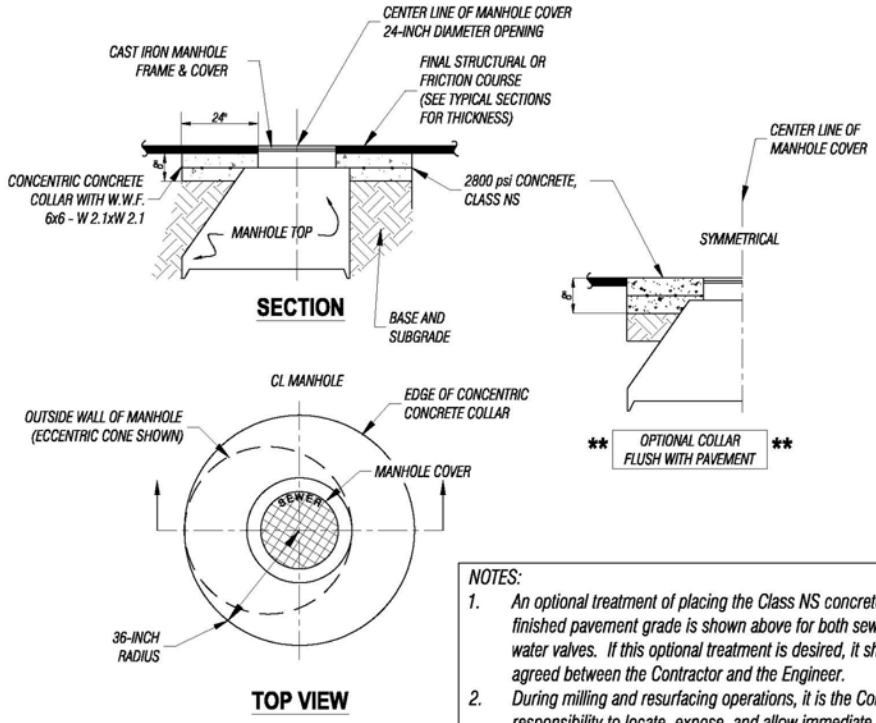
Sal Arnaldo
City of Tallahassee
850-891-6182

Comments: (4-26-12)
Thanks for the opportunity to review the proposed changes to Section 425-6.7 of the Standard Specifications. The City of Tallahassee Water Utility (a division of Underground Utilities Department) is OK with the revised language and I want to add one important comment, on behalf of our division.

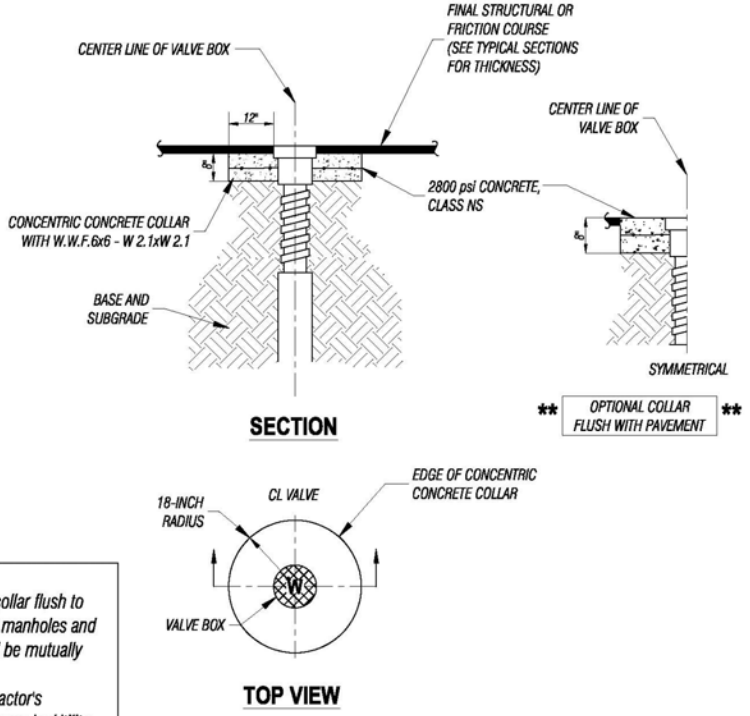
Allowing adequate curing time for the concrete collars at valve boxes and sewer manholes is crucial to the structural durability of the adjustment. On many night-work RRR projects, FDOT needs to have the highway open to traffic in the morning, when the concrete has not had time to set-up enough to withstand wheel loads by that time. I request that FDOT provide a solution to that problem. Perhaps a special high-early strength, fast-curing concrete mix (i.e. accelerator) be made part of the 425-6.7. We would be interested in receiving additional direction on permissible FDOT concrete mixes for valve and manhole adjustments.

Response: This is beyond the scope of this revision. The intent is that the final surface layer match the existing pavement type, we are not changing the method for adjusting manholes.
No change made.

Comments: (5-9-12)
Attached is a drawing provided to you as "industry comment" to FDOT's proposed amendments to 2010 UAM, Spec Section 425, and Index 201. This is a draft detail that I put together last year, before the FDOT ban on concrete collars in state highway pavements. For your consideration.



SEWER MANHOLE ADJUSTMENT



WATER/SEWER VALVE BOX ADJUSTMENT

NOTES:

1. An optional treatment of placing the Class NS concrete collar flush to finished pavement grade is shown above for both sewer manholes and water valves. If this optional treatment is desired, it shall be mutually agreed between the Contractor and the Engineer.
2. During milling and resurfacing operations, it is the Contractor's responsibility to locate, expose, and allow immediate access by Utility Agency Owner (UAO) personnel to any valves or manholes for the purpose of emergency utility operations or maintenance. The Contractor must assign a representative that will be available 24 hours-a-day, seven-days-a-week to coordinate emergency location and exposure of valves and manholes, as requested by the UAO.
3. Manhole adjustment grade rings shall be a minimum of 3 inches thick and shall not exceed 18 inches in height.

FOR PAVEMENT REHABILITATION/RESURFACING PROJECTS

(DRAWING IS NOT TO SCALE)

For Informational Purposes Only

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
2/23/11	SGA	ADDED OPTIONAL CONCRETE FLUSH SECTION AND NOTES			

City of Tallahassee
Water Resources Engineering
300 South Adams Street B-26
Tallahassee, FL 32301
Ph. (850) 891-6155

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	LEON	

WATER VALVE BOX & SEWER MANHOLE ADJUSTMENT

SHEET NO. UTV-1

Response: Thank you.

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Gabriella Molina-Corbin
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Comments: (5-2-12)
There is no mention in the Memo regarding the **width of the concrete collar** which I believe needs to be **standardized** throughout the State. Maybe a Design Standard Index showing the details in plan view and cross section view, as well as what to do with "valve clusters", would be helpful.

Response: This is beyond the scope of this revision. The intent is that the final surface layer match the existing pavement type, we are not changing the method for adjusting manholes.
No change made.

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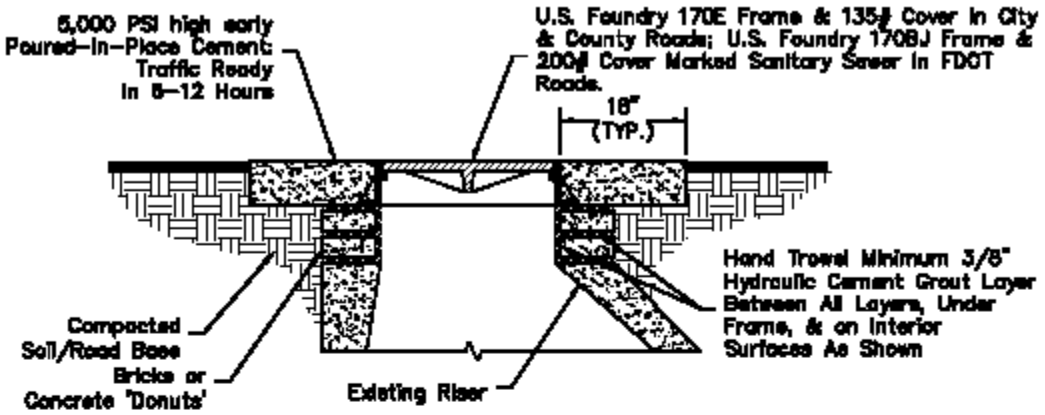
Mike Hamlin
Emerald Coast Utilities Authority
850-969-6501

Comments: (5-4-12)
1. Our utility has thousands of sewer manholes, and thousands of those are in FDOT roads, so we definitely have an interest in how the FDOT believes adjustments should be made. We, like the FDOT, absolutely want the best option with respect to constructability, material availability, ease of installation, and durability.
2. While we don't believe there is one adjustment option that is head and shoulders above the rest, we do believe the concrete collar is perhaps the most favorable. Per our MH Supervisor, he believes if done correctly, that adjustments can be made with the concrete collar that last for 20+ years without cracking.
3. We actually have developed a detail (see below, D-81 Manhole Adjustment Detail.pdf) to try and standardize the best means and methods we know. As you can see, it emphasizes hand spread mortar layers under and between bricks and frames. This is critical because rebuilding the section from the riser to the frame needs to be seen as a structural course, holding the frame in place, and eliminating shifting and concrete cracking.



MANHOLE (MH) ADJUSTMENT PROCEDURES:

Pre-milling coordination: Contractor shall contact ECUA's Manhole Supervisor, Mr. Doug Gibson, at 476-5110 (x 7503), or 698-4696, at least 2 weeks prior to milling operations to coordinate location of MHs requiring adjustment (visible MHs and those potentially under asphalt). ECUA & FDOTwill then make decision to either allow adjustment of existing frame and covers or ECUA shall supply new frame and covers to contractor.

Pre-milling procedures: Contractor shall place reference stakes or marks for each MH to assist with locating them after resurfacing, make a list of MH locations (station and offset or GPS coordinates to sub-meter accuracy), and submit list to Mr. Gibson. Contractor can then remove frame and cover and if required brick/risers and install minimum 1/2" thick steel plate over MH at a depth to avoid milling operations. Plate shall be sufficient size and thickness to satisfy roadway agency. Place hot mix asphalt over plate. Due to ECUA access and maintenance needs, MHs shall not be plated more than 1 month, with 2 weeks or less being preferred.

Post-resurfacing procedures: Contractor shall determine location of MHs using reference stakes or marks and shall remove circular area of asphalt approximately 5' in diameter (equal to typical 2' ring diameter and 18" wide concrete collar), centered over MH. Remove plate. For changes in grade of 2" or less, place minimum 3/8" layer, maximum 2" layer, of hydraulic cement grout over top of existing brick/concrete donut/riser. For changes in grade more than 2", add bricks (clay for City and County, concrete for FDOT) or concrete donuts, with 3/8" layer of hydraulic cement grout in between each layer of bricks/donuts. Coat all inside surfaces with 3/8" thick layer of hydraulic cement grout. Maximum height of vertical adjustment (including existing and new brick/donut) shall be 12" as measured from bottom of frame to top of riser; adjustments more than 12" shall require installation of concrete riser sections. Frame shall be set so that elevation and slope of lid matches finished road surface. Pour 5000 psi concrete around frame to form 18" wide concrete collar that matches elevation and slope of finished road surface.

Post-resurfacing coordination: Roadway Inspector shall confirm all MHs have been adjusted and done so according to this detail. Contractor shall then contact Mr. Gibson for final ECUA inspection. MHs not meeting this detail, or with construction debris in bottom of MH, or not matching roadway elevation and slope, will be corrected as required prior to payment. Contractor shall provide 2 years warranty (1 year if performed on FDOT project) beginning on ECUA's date of acceptance.

	MANHOLE ADJUSTMENT DETAIL N.T.S.	D-81
DATE: 11-2-2010	REV:	DETAIL

4. Our MH Supervisor believes that if mortar beds were used under frames, instead of concrete, that cracked concrete collars would be almost a thing of the past.

Anyway, thanks for letting us share our experiences and info. To sum up, we believe the concrete collar is the best option, and that perhaps the FDOT needs to focus on specs and standard drawings detailing its use and installation (similar to our detail?). Unfortunately, we

believe what has been suggested in the spec (asphalt layer over concrete) will be much more problematic in construction and less durable, and as a UAO, we would rather not maintain or adjust our MHs with this type of proposed adjustment. Let me know if you want to discuss or share other information.

Response: This is beyond the scope of this revision. The intent is that the final surface layer match the existing pavement type, we are not changing the method for adjusting manholes.
No change made.

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Mike Hamlin
Emerald Coast Utilities Authority
850-969-6501

Comments: (5-21-12)
Many utilities with manholes and valve boxes in FDOT roadways are in complete agreement with the FDOT that proper drawings and specifications that lead to proper adjustments of our facilities (as well as the FDOT's storm manholes) are critical. We (utility industry and FDOT) should all strive to find the best adjustment solution that is constructible, repeatable, and long-lasting.

1 There must be a perceived problem circulating around that concrete cracks and separates and is dangerous to motorists therefore it must be inferior to asphalt. Use of concrete is not necessarily the problem.

Response: The intent of this revision is that the final surface layer match the existing pavement type, we are not changing the method for adjusting manholes.
No change made.

2. From our experiences, when the concrete cracks, is due to the concrete mix being incorrect and the fact that mortar beds are not being used with each adjustment. Improper concrete may have too many aggregates/not enough fines and possibly be the wrong strength. Mortar beds should be used for each layer of bricks/rings, and to set the frames into; lack of hand laid mortar beds result in poor structural strength and shifting. These two reasons are generally why concrete rings crack.

Response: See response to #1.

3. The proposed solution of placing asphalt over concrete will not fix problems with the underlying materials and workmanship as described in #2. Also, reflective cracking will occur, causing possibly even more spalling with the asphalt than is currently seen with the concrete rings.

Response: See response to #1.

4. Asphalt availability for such small quantities will be extremely problematic for resurfacing contractors and especially for utilities that have to do individual adjustments or new installations from time to time.

Response: We do not see the problem in having the asphalt available when the existing/proposed surface is asphalt.
No change made.

5. Workmanship and rolling and compaction of this asphalt layer will also prove to be problematic and will in all probability result in depressions and even more problems than are thought to exist now with concrete rings. Utilities will not want to repair problematic adjustments if they were forced to adjust them based on an inferior spec/drawing.

Response: See response to #1.

6. For simplicity, perhaps a detail similar to the one attached at the end of this document (see 5-4-12 comment above, #3) are what is needed in the FDOT Standard Drawings. This puts everything a contractor would need to know in one detail, not on several details and/or buried in the specs.

We have folks in our part of D-3 that would be glad to meet with you and/or your staff about this proposal as well as other options (Quikrete 8,000 psi concrete, etc) that may be better suited. Just let us know. Thanks for your time.

Response: The intent is that the final surface layer match the existing pavement type, we are not changing the method for adjusting manholes.
No change made.

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Bert Woerner
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bert.woerner@dot.myflorida.com

Comments: (5-23-12)
425-6.7: In the first sentence of the proposed red letter addition, consider "and the adjusted Structures" to the end of the sentence, so it reads: Restore final road surface to match the existing pavement type" and the adjusted structure."

Response: The top elevation of the manhole lid should match the final pavement elevation.
No change made.

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