

FLORIDA DEPARTMENT OF TRANSPORTATION

District Three Design Newsletter

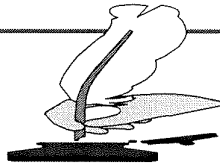
(Internet Address - <http://www.dot.state.fl.us/rddesign/D-3/files/d-3.htm>)

Volume 5, Issue 2

APRIL—JUNE 2000

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FROM THE EDITORS DESK

Brian Blanchard, District Design Engineer

On August 7 through 11, 2000, the Department will host the State Design Conference at the Clarion Hotel in Orlando on International Drive. Please make your reservations early if you would like to attend.

On April 26 and 27 we held another successful District III Design Conference. Until the next District Conference, we will continue to provide feedback to all designers through this Newsletter. The Newsletter will appear on the FDOT web page at the end of each quarter and no later than the fifteenth of the following month (April 15, July 15, October 15 and January 15). Please mark your calendars since important design issues and supplemental agreement information are provided.



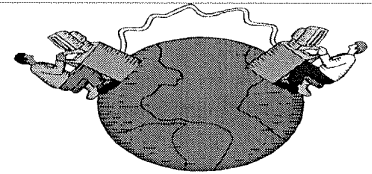
DRIVEWAYS

Brian Blanchard, District Design Engineer

Designers must notify property owners prior to altering or removing driveways. On projects without a right-of-way phase, this means sending a notification letter to the owner. On projects with a right of way phase, the documentation can be by written notification or through a final judgment. As I stated in the April—June 1997 newsletter, we should show all driveway's on multilane projects and any urban curb and gutter projects.

STANDARD INDEXES ONLINE

Jim Mills, State Roadway Engineer

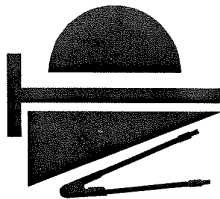


I am pleased to announce that the English edition of the 2000 Roadway and Traffic Design Standards booklet is now provided in its entirety on the Roadway Design Office Web Page. The web version is PDF format which allows anyone with an internet connection to view and print using Acrobat Reader software which is available free. The web address is:

http://www.dot.state.fl.us/rddesign/rd/RTDS/Standard_Index.htm

Special thanks goes to Ken Holland, Helen Dull, Tom Green, Sandy Chatwood, and John Grant for getting this done in a very efficient and timely manner!!! We hope that our "Customers and Partners" find the web version useful. The hardcopy version is still in the print shop and is scheduled for distribution in June (probably late June).

The English version of the 2000 Roadway and Traffic Design Standards will be effective on all ENGLISH jobs beginning with the January, 2001 Letting. The Metric version of the 2000 Roadway and Traffic Design Standards will continue to be effective on all Metric jobs beginning with the July, 2000 letting.



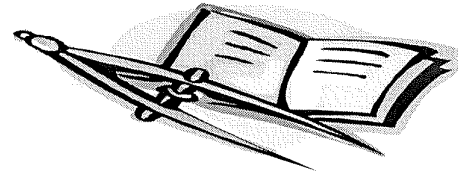
CADD Manual

Brian Blanchard, District Design

Scopes for work beginning July 1, 2000 and beyond shall refer CADD requirements to the FDOT CADD Manual. It is the responsibility of the Consultant to meet the requirements in the Department's CADD Manual (Topic Number 625-050-001—effective April 20, 2000).

The CADD Quality Assurance Reviews, conducted after July 1, 2000 by the Central Office, will be based on the new manual, with monitoring in the first year limited to the following:

- * Scope of Services Language- Documentation ensuring that each scope requires compliance with the new CADD Manual.
- * Delivery of CADD files to FDOT Project Managers- Project Managers will receive deliveries, and ensure a



data tracking system is maintained that includes chain of possession records and disposition records for the CADD delivery.

- * Verification of the content of the CADD Delivery- Documentation indicating that requisite files were received, and properly indexed.
- * Verification of CADD file formats- Documentation that files have been checked for proper format.

When providing electronic files to the district, the preferred method of delivery is by compact disc (CD).

Evacuation Through Construction Zones

Brian Blanchard, District Design Engineer

There are locations on the Interstate where construction activity may not allow conversion to original laneage in the event of evacuations.

In the future, emphasis must be placed on **Design and Construction methods that do not prohibit conversion to full laneage within 24 hours**. This policy has been published for the last five (5) years. Any design or construction method that does not allow this conversion should be discussed with the Directors of Production and Operations and the Emergency Coordinator in the plans development stages.

If you start your day with these four questions, you'll make every day a more productive day...

1. What's the best thing that can happen today?
2. What's the worst thing that can happen today?
3. What can I do today to make sure that the best thing happens?
4. What can I do today to make sure that the worst thing doesn't happen?

Supplemental Agreement Report—March

Brian Blanchard, District Design Engineer

This is the Supplemental Agreement Report for the month of March 2000. The three (3) categories of supplemental agreements that are included in this monthly report are codes 001, 007 and 105. This report is included in the Quarterly Design Newsletter as a tool to inform designers (anyone that receives it) of errors and omissions that can lead to Supplemental Agreements and unnecessary costs to the public.

Below is a description of those areas and our responses:

Description Code 001: Subsurface material or feature encountered not shown in plans – assuming reasonable engineering judgment/ processes used in plans preparation (i.e. muck, old

piling, boulders, artesian springs, abandoned utility lines, etc.).

S.P. No. 56020-3509, FPID: 219950-1-52-01 (Liberty County)

Reason: Improvements under this contract included the installation of drainage improvements to increase the drainage capacity of an existing cross drain at Sta. 213+29 (S-20) on SR 12. The plan improvements provided for extending the existing cross drain and jacking and boring a steel casing adjacent to the existing structure which would function as an additional cross drain pipe.

(Continued from page 2)

Subsequent to the pipe extension and jack and bore operation, subsurface water and unsuitable soils were encountered. It was determined that the high water table and unstable soil conditions had resulted in the deterioration and failure of the roadway foundation and embankment slopes in the immediate vicinity of the structure. As a result of these conditions, the Department determined that corrective action was required to preserve the structural integrity of the embankment and to provide a suitable drainage facility at this location.

The corrective work included complete drainage structure removal with subsoil excavation to remove the unstable material. The removal area was backfilled with #57 bedding stone in conjunction with both filter fabric and reinforced biaxial grid. Double 750 mm cross drain pipes were installed followed by embankment material, type "B" stabilization and roadway paving.

As a result of the corrective actions necessary to the structure, it was required that SR 12 be closed while this work was performed. Therefore, a detour route was established on CR 270 and CR 271 with permission from Liberty County officials and on CR 269 with permission from the Gadsden County Public Works Department. Signing and additional pavement markings were necessary to make these roads suitable for a detour, which resulted in a detour cost of \$25,526.11.

Increase = \$221,299.72 (includes \$25,526.11 for detour)

Response: Construction personnel did not attribute this supplemental agreement to a design error. However, there are several things the designer should consider in the design of an existing structure before deciding to extend the existing pipes and in this case jacking and boring a casing as a pipe.

1. What is the condition of the existing pipe and how deep is the existing pipe below the roadway surface?
2. Is there evidence of settling of the roadway, indicating either a leaking pipe or subgrade failure?
3. Is there evidence of the embankment sliding, indicating either bad material under the roadway or deteriorated end-walls.
4. How high is the water table.
5. What kind of corrosive environment is involved?
6. Is there sufficient right of way to get a boring and jacking machine at the location necessary? Will the water table be a problem? Can sheet piling be used to stabilize the existing embankment close enough to the roadway for a boring and jacking machine to be positioned? Will the cost of the sheet piling make this option

too expensive as compared to the cost of an easement? Are overhead utilities in close proximity to where sheeting would be placed, therefore creating a hazard to workers, i.e. crane operator?

7. What kind of unsuitable soils are involved? If muck is located at each end of existing pipe, there is a good possibility there is some under the roadway that would require removing.

Description Code 007: Work added or deleted resulting from agreements with other parties (non DOT) to address concerns within projects limits not in original scope (not permit related).

S.P. No. 48525-3602, FPID: 221287-1-52-01 (Escambia County)

Reason: Improvements under this contract included 4-laning of Airport Blvd. From CR 95A (Old Palafox) to SR 291 (Davis Hwy.) The septic tank drain fields were not addressed in the right of way acquisition phase. Periodic pumping is necessary to keep these systems operational until permanent connections are made to the new sewer line.

Increase = \$12,728.10

Response: This supplemental agreement is not being attributed to a design error by Design or Construction personnel. However, the blame possibly could be attributed to more than just to Right of Way personnel. Obviously, they did not address the septic tanks during their right of way negotiations. However, according to the designer the septic tank drain lines were not picked up by the survey and were not shown on the plans.

The main problem came about by the phasing of the construction and the fact that the proposed sanitary sewer line was not constructed on the first phase, which obviously removed the drain lines. The Designer and Utilities were aware of the phasing. (Right of Way would not be) but apparently did not know the houses were not on a sewer system and therefore did not address the problem.

Description Code 105: Conflicts resulting from discrepancies, inconsistencies, etc. between plan notes, details, pay items, standard indexes or specifications.

S.P. No. 55020-3532, FPID: 219828-1-52-01 (Leon County)

Reason: Improvements under this contract consisted of updating the signals on SR 10 (Tennessee St.) to mast arms.

The orientation angle for mast arm M-2 was incorrect

(Continued from page 3)

per mast arm schedule sheet no. 36. According to the mast arm pole detail on plan sheet no. 37 the bolt orientation of mast arm no. 2 will be measured counter clockwise from arm no. 1. The planned orientation angle for mast arm pole M-2 placed arm no. 2 on the wrong side of arm no. 1. The correct orientation was shown on signalization plan sheet no. 8. Subsequent to construction starting on the mast arm it was determined that the orientation for mast arm pole M-2 was incorrect. Therefore, the original base plates had to be removed, new ones fabricated, welded and painted for mast arm pole M-2.

The orientation angle for mast arms, B-2, G-1 & 1-1 were incorrect per mast arm schedule sheet no. 36. According to the mast arm pole detail on plan sheet no. 37 the bolt orientation of mast arm no. 2 will be measured counter clockwise from arm no. 1. The planned orientation angles for the arms at location B-2, G-1 & 1-1 placed arm no. 2 on the wrong side of arm no. 1. The correct orientation was shown on signalization plan sheet nos. 14, 26 & 28. Subsequent to construction starting on the mast arm it was determined that the orientation for mast arm pole (upright) B-2, G-1 & 1-1 was incorrect. Therefore, the original base plates had to be removed, new ones fabricated, welded and painted for these mast arms.

Increase = \$12,769.26

Response: This supplemental agreement was caused by design errors. Construction assessed that all the cost associated with this supplemental agreement was premium cost and therefore recovery will be pursued.

Supplemental Agreement Report—April

Brian Blanchard, District Design Engineer

This is the Supplemental Agreement Report for the month of April 2000. The two (2) categories of supplemental agreements that are included in this monthly report are codes 001 and 005. This report is included in the Quarterly Design Newsletter as a tool to inform designers (anyone that receives it) of errors and omissions that can lead to Supplemental Agreements and unnecessary costs to the public.

Below is a description of those areas and our responses:

Description Code 001: Subsurface material or feature encountered not shown in plans - assuming reasonable engineering judgment/

processes used in plans preparation (i.e. muck, old piling, boulders, artesian springs, abandoned utility lines, etc.).

S.P. No. 57040-3590, FPID: 220214-1-52-01 (Okaloosa County)

Reason: Improvements under this contract included 80 mm thick milling and resurfacing of SR 85 with superpave asphalt (traffic level 4) and friction course. Subsequent to application of structural course, two sections of the new superpave asphalt structural course developed severe alligator cracking due to underlying conditions. These two areas were milled 110 mm avg. depth and two lifts of fine graded superpave asphalt placed to hopefully cure the condition.

Increase = \$184,124.52

Response: This was not a design error. The Department furnished the pavement design for the project.

Description Code 005: Utility adjustments delaying contract work schedules caused by Utility Companies with no JPA involved (should be all Premium and 3rd party charged).

S.P. No. 61010-3528, FPID: 220778-1-52-01 (Washington County)

Reason: Improvements under this contract provided for the replacement of the Cypress Creek Bridge located in the City limits of Caryville on US 90. The proposed new bridge and approaches are being realigned to the north of the existing bridge and the existing bridge and approaches are to be removed.

The existing water mains are situated in the limits of the new roadway embankment and are affixed to the existing bridge. The water mains were scheduled to be relocated by the owner, the City of Caryville. Subsequently, the City informed the Department that it does not have the resources to accomplish the water main relocations. Therefore, the Department made the decision to incorporate the water main relocation into this contract to avoid delays to construction of the project.

Increase = \$120,662.60

Response: This supplemental agreement was not the result of a design error.

*CHANGE IS INEVITABLE, EXCEPT FROM A
VENDING MACHINE.*

Bits & Pieces

Supplemental Agreement Report—May Brian Blanchard, District Design Engineer

This is the Supplemental Agreement Report for the month of May 2000. The three (3) categories of supplemental agreements that are included in this monthly report are codes 001, 101 and 128. This report is also included in the Quarterly Design Newsletter as a tool to inform designers (anyone that receives it) of errors and omissions that can lead to Supplemental Agreements and unnecessary costs to the public.

Below is a description of those areas and our responses:

Description Code 001: Subsurface material or feature encountered not shown in plans – assuming reasonable engineering judgment/processes used in plans preparation (i.e. muck, old piling, boulders, artesian springs, abandoned utility lines, etc.).

S.P. No. 57040-3590, FPID: 220214-1-52-01 (Okaloosa County)

Reason: Improvements under this contract included 80 mm thick milling and resurfacing of SR 85 with superpave asphalt (traffic level 4) and friction course. Subsequent to application of structural course, two additional sections (2 sections covered in last months report) of the new superpave asphalt structural course developed severe alligator cracking due to underlying conditions. These two areas were milled 110 mm avg. depth and two lifts of fine graded superpave asphalt placed to hopefully cure the condition.

Increase = \$277,696.00

Response: This was not a design error. The Department furnished the pavement design for the project.

Description Code 101: Necessary pay item(s) not included.

S.P. No. 61001-3400, FPID: 222830-1-52-01 (Washington County)

Reason: Improvements under this contract provided for the removal and replacement of the Type A fence along the limited access right-of-way on I-10 in Washington County.

Subsequent, to commencement of construction, a review

was performed by the Engineer on the plans and the site conditions for the fence installation. During this review it was determined the Designer had omitted the corner post assemblies in the contract pay items. Actual site conditions revealed locations of changes in horizontal and vertical alignment of proposed fence installation that met the criteria set forth in Standard Index No. 451 for corner assemblies.

Increase = \$8,694.00

Response: This supplemental agreement was the result of a design error, but no premium cost was incurred. The Designer should have field reviewed the existing location of the Type A fence and noted where the corner post assemblies and pull post assemblies were located if the proposed fence was to be replaced in the same location. Standard Index No. 451 should have also been reviewed to determine if additional locations were needed and to ensure the necessary pay items were included in the plans.

Description Code 128: Inaccurate or inadequate survey information used in plans preparation.

S.P. No. 61010-3528, FPID: 220778-1-52-01 (Washington County)

Reason: Improvements under this contract provided for the replacement of the Cypress Creek Bridge located in the City limits of Caryville on US 90. The proposed new bridge and approaches are being realigned to the north of the existing bridge and the existing bridge and approaches are to be removed.

Subsequent to construction of the substructure and placement of the pre-stressed beams, it became apparent that the beam seat elevations for bent nos. 2 and no. 3 were low. An investigation revealed discrepancies in the bench mark elevations shown in the plans and the actual bench mark elevations. These discrepancies resulted in the beam seats being cast 100 mm below the required grade for bent nos. 2 & 3.

The Department determined the corrective measures necessary consisted of removal of the pre-stressed beams, modification to the beam seats as required to provide the correct elevations and the resetting of the pre-stressed beams.

Increase = \$74,500.00

Response: This supplemental agreement was the result of a design error and the entire cost has been determined to be premium cost. The Department will pursue recovery of the premium cost if after review by the Project Manager, Designer and Construction that the error was avoidable.

SCENES FROM DISTRICT III DESIGN CONFERENCE 2000



Let's get the day started...



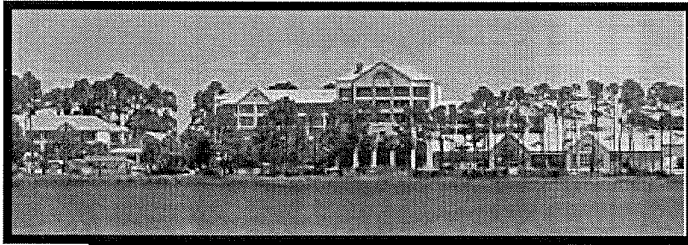
Break Time!



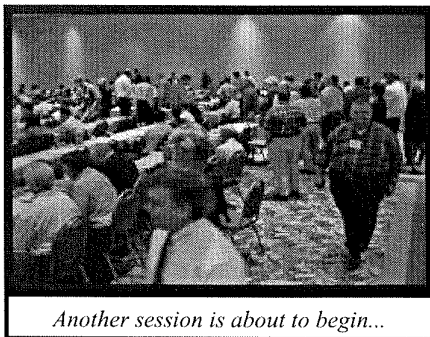
Any Questions before we move on?



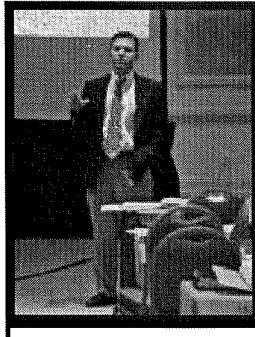
Quality is a priority...



Bay Point Marriott, Panama City Beach, FL



Another session is about to begin...



Closing comments...

DISTRICT THREE DESIGN FLORIDA DEPARTMENT OF TRANSPORTATION

If you have any questions or problems regarding obtaining a copy of this newsletter from the web page, contact Eddie Register in the District Utilities Office.
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District III Quarterly Design Newsletter

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