

DISTRICT THREE DESIGN NEWSLETTER



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JUNE—JULY 2004

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From the Editor's Desk

Larry Kelley, P.E., District Design Engineer



I was a great deal more interested in sports than in books prior to my college days. I was never a big reader and really read just enough to get by. Because of this, today I have a rather limited vocabulary and I am a slow reader. I still do not read a lot but do manage to get through about 6 books a year, mostly business, motivational and self-help subjects. I just finished "The Purpose Driven Life" by Rick Warren. I highly recommend it to everyone, as it is a good reminder of what's really important in life.

One of the themes in "The Purpose Driven Life" is that a self-centered approach to life will not bring true happiness. Happiness is about serving others.

In our business, there are many opportunities all around us to serve others. This time I am not speaking of customer service; I am speaking of proactively serving individuals. No matter if you are a young professional, middle aged or nearing retirement, opportunities abound. All of us have a responsibility to teach and guide others in the right direction. Usually this opportunity exists in those younger than ourselves, but not always.

I guarantee you that if you devote time to personally developing others, you will be paid back many times over. Your reward may not be immediate, but in time you will see increased productivity, quality and professional development that will enhance whatever organization you are in. "Mentoring" I suppose is the official term. However, I challenge you to get involved to a greater extent than the traditional mentoring approach calls for. I'm talking about an investment in others, primarily for their benefit, not just for yourself or the company.

Wisdom is far more valuable than knowledge. Teach others the wisdom in doing the right thing. Also teach fair and honest business practices. Conduct your business in a way that others will see you as a good example. Be the businessman or businesswoman that younger employees want to be like. Every little thing you do on and off the job will affect how others see you. Be careful. Someone is always watching. You have a responsibility to show others the importance in doing the right thing. In all issues, stress doing "the right thing". If it becomes habit with you and others see you as a good example, it will become habit with them.

"Teach others the wisdom in doing the right thing"

From a DOT perspective, I admire firms that practice hard work, consistency, honesty, responsiveness and integrity. These firms know the wisdom of these qualities and how they will repay them in the future. Also, usually these firms have people in them that care about people and are sensitive to personal needs and issues.

Again, take time to serve others. Invest in the lives of others. Its also the best thing you'll ever do for yourself.

The best index to a persons character is (a) how he treats people who can't do him any good, and (b) how he treats people who can't fight back.
Abigail Van Buren, American Columist (a.k.a. Dear Abby)

District III Quarterly Design Newsletter

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County Specific Signalization Notes

Clyde Green, Traffic Plans Coordinator

With the recent elimination of the Technical Specifications for Traffic Signal installation in District Three, the Traffic Plans Section in cooperation with Traffic Operations and PBS&J have developed plan specific General Notes for inclusion in Signalization Plans.

As soon as the Microstation file is finalized, it will be placed either out on a D-3 Server or on an internet site for

access by our consulting partners.

Notes have been prepared for the Counties having computerized signal systems (Bay, Escambia, Leon and Okaloosa) and a District Wide set for the remaining counties.

It will be the responsibility of the Engineer of Record to edit the notes as appropriate for the project being designed and for the

signing/sealing of the sheets.

The recommended utilization of the file is to create a blank Signalization General Note File (GNNTSG01.DGN) within your project, open the file we provide, fence-copy the appropriate sheets into your blank file, and edit, if needed.

I have spent my days stringing and unstringing my instrument, while the song I came to sing goes unsung.

Sir Rabindranath Tagore Indian Bengali poet

Electronic Delivery Update

Jason Peters, P.E., Assistant Design Engineer

Electronic Deliverable is becoming the more prominent popular subject in the Design arena. The Department continues to prepare for the July 2005 mandate with several pilot projects still scheduled for this year.

We have received a lot of new information lately from Central Office and we have learned of some recent changes that we have shared with you over the last two months.

One very important thing that we would like to stress, do not take Electronic Delivery lightly. As engineers, we continue to focus on the big ticket items and sometimes fail to address smaller issues even though they are just as important. Last month's letting plan was impacted due to the format of the Electronic Deliverables submitted to Tallahassee.

It appears that we are progressing and we should continue to focus on the Quality of the plans from an engineering and construction view point. However, Electronic Delivery is just as important. Don't let this be a side issue. Take the necessary measures to ensure that **ALL** CD's are in compliance with the governing criteria. If you do so, this will eliminate a lot of undue heartache in the long run both for you and the Department

The Un-Named Bridge

Keith Shores, P.E., District Structures Engineer

What's missing? The bridge number! Actually, it has been covered by the new thrie-beam guardrail. Index 402 (Sheet 26 of 26) shows details for attaching the new thrie-beam guardrail transition to existing flat slab and girder bridges. Index 402 also refers the designer to Structures Informational Standard Drawing I-790 or I-795. However, many design plans are missing the required notes.

When retrofitting thrie-beam guardrail to existing bridge safety shape traffic railing, please include the following notes in the Roadway Plans:

"A Bridge Name Plate shall be furnished and attached to the Traffic Railing Barrier, approximately 3" from the top, near the end of the Thrie Beam Guardrail Terminal Connector. The Bridge Name Plate shall include the information on the existing Traffic Railing Barrier that has been obscured by the new Thrie Beam Guardrail, e.g. Bridge Number, Bridge Name or Date. The Bridge Name Plate shall be approximately 1/16" thick aluminum plate conforming to Aluminum Association Alloy 6061-T6 or 5154-H38. The Bridge Name Plate shall be mechanically anchored to the barrier with a minimum of four concrete expansion anchors or concrete screws, 1/4" diameter by 1" long, as approved by the Engineer. The Bridge Name Plate shall have a white background, a 3/4" black border, with 3" tall black letters and sized appropriately to contain the information required. The cost of furnishing and installing the Bridge Name Plate will not be paid for separately, but shall be considered incidental to the Thrie Beam Guardrail."

"Reinforcing steel that is exposed during drilling/coring of the Terminal Connector bolt holes shall be painted with a zinc rich galvanizing compound in accordance with the Specifications."



Plan-Specifications Checklist/Recurring Plan Sheet Errors

Scott Golden, P.E., Assistant District Design Engineer

Central Office recently sent the Districts a "Plans and Specifications Checklist" as well as the "Most Common Reoccurring Plans Sheet Errors." We have included these in this Newsletter for your use.

PLANS:

- (1) Projects are checked for a bound original set of plans which are signed, dated and sealed and one specifications package posted to the server.
- (2) If project is Federal Oversight, one copy of the plans is needed for the Federal Aid Office for FHWA.
- (3) The Contract File is forwarded to the Production Management Office.
- (4) Check the plans package Lead Key Sheet for correct F.P.I.D., "Year of Governing for plans and specifications reference note", Fiscal Year, strung job numbers which go with the Lead Project No. (if applicable), good boarders, clarity, raised seal, signature and date.
- (5) Check "Transport Report" (Summary of Pay Items) for strung jobs (if applicable) to show correct lead number; valid components; signature, seal and date.
- (6) Check that all plans sheets are signed, sealed and dated (exceptions: DOT work performed utility projects and unaltered DOT Standards).
- (7) Check that the F.P.I.D. number is correct on all plans sheets.
- (8) Check to see all plans sheet numbers match each component's Key Sheet "Index of Sheet Nos."
- (9) Check all plans sheets (if applicable) Title Block information for Consultant information and Certificate of Authorization Number or Engineer's name, address and License Number.

SPECIFICATIONS:

- (1) On the front page of the Specifications package verify the F.P.I.D. number, county and Federal/State are correct.
- (2) Check the date created with creator's initials at the top right of the page. If this specification has been returned to the District (job moved by the District or rejected after the letting), it should read REVISED with the new creation date.
- (3) Check the electronic signature statement located above the Engineer's name and number of pages.
- (4) Check that the Engineer's name and number of pages are filled in at the bottom left corner of the front page.
- (5) Check that the F.P.I.D. number is included at the bottom right corner of the page (multiple projects include, etc.).
- (6) Check the Table of Contents against the body of the Specification package to ensure all information is included and correct.
- (7) If there is a Technical Special Provision included check the first page for:
 - (a) Visible seal which doesn't require the PEDDS verbiage or the electronic statement;
 - (b) F.P.I.D. number is correct
 - (c) The title of the tsp matches what is listed on the prior page (sometimes the titles are listed in the Table of Contents)
 - (d) Dual numbering (tsp will have its own numbering i.e. 1 of 4, 2 of 4, etc.) Also, it must have continuous numbering to pick up where the Spec. package left off.
- (8) The last page of the specifications package is to read "This completes this Specifications Package" centered.

CERTIFICATION

The Final Construction Plans have received a thorough review for correctness and accuracy with special emphasis placed on each of the above listed items. We certify the Final Submittal Package is complete and accurate ready for letting.

Principal in Charge

Engineer of Record/Quality Assurance Engineer

223 Projects Let for 2003 Calendar Year The Most Common Recurring Plans Sheet Errors

1. Incorrect 'Transport' report used to produce the Summary of Pay Items sheets.
2. Incorrect, incomplete or missing information such as:
 - a. F.P.I.D. number.
 - b. Sheet nos.
 - c. Fiscal Year (Key Sheets).
 - d. Design Standards Reference (Key Sheet).
 - e. Standard Specifications Reference (Key Sheet).
 - f. Title Block information:

- (1) Certificate of Authorization Number.
- (2) Consultant's information.
- 3. Inclusion of non-approved "District" and obsolete Design Standards.
- 4. Plans sheets not signed, dated and sealed.
- 5. Missing plans sheets or poor quality (non-reproducible) plans sheets due to clarity and print (font) size.
- 6. Multiple projects not strung under the Lead Project Number in the Summary of Pay Items; incorrect or missing "To be Let With Project ... " note.
- 7. PEDDS statement missing [electronic pilots], plans sheets not legible due to font too small, overlaid on plans sheet description/drawing and not located in the right margin of plans sheets.
- 8. Create special components not included in the P.P.M. i.e., C = Communications; PTMS = Traffic Monitoring Site; W = Wetlands.
- 9. Using incorrect prefix for components i.e., LS for Landscape plans - LD is correct.
- 10. Not putting the F.P.I.D./Sheet No. on Existing Bridge sheets.
- 11. Revision Memo errors - Plans Coordination errors:
 - a. Incorrect memo format.
 - b. Missing signatures on late revisions.
 - c. No FHWA approval (when applicable).
 - d. Inconsistent revision dates between memo and plans.
 - e. Missing revision notes on Lead Key Sheet, plans sheets and revision memo.



District Three Design Conference

APRIL 7-8,
2005

*MARK YOUR CALENDAR!
MORE INFORMATION IN OUR
NEXT ISSUE.*



Hilton  **Sandestin Beach
Golf Resort & Spa**

Statewide District Newsletters

Brian Blanchard, P.E., State Roadway Design Engineer

The State Roadway Design Web Page now has an internet link called "District Newsletters" where you can find the D3 newsletter and other district newsletters. One of the Department's Strategic Objectives is to "Improve Project Delivery" and one of the strategies under this objective is to "Improve the Quality of Design".

We have developed a statewide plan to publicize avoidable design errors. This training effort will be accomplished by each district through a biannual report/newsletter. It was agreed that each district will produce their own newsletter in lieu of a statewide newsletter. The write-up will be generic enough that it accomplishes the goal of sharing information without embarrassing the engineer-of-record. The proposed newsletters will include 2-3 supplemental agreements per month on avoidable design errors. Each district will publish a newsletter in August and in February. The lessons learned from this activity will benefit all designers and improve the quality of our designs. Below is the link for this information.

<http://www.dot.state.fl.us/rddesign/District%20Design%20Newletters/Districtnewsletters.htm>

Design Spotlight—Jimmy Smith

Larry Kelley, P.E., District Design Engineer

The spotlight is on Mr. Jimmy Smith this quarter.

I have known Jimmy for the three years that I have been in the Design Department. My first encounter with Jimmy was over the telephone. In May 2001 I called a consultant office to discuss a matter with an engineer. The engineer was not in, but Jimmy Smith quickly and professionally identified himself and offered any assistance he could. Jimmy was then employed by the consultant. I was immediately impressed with his desire to serve the customer. He now works for us here at DOT and is a great addition to our staff.

Jimmy was born in Jacksonville, Florida in 1973. His family moved to Cottondale, Florida in 1982 where his parents still live. He graduated from Cottondale High School in 1991, and then attended Chipola Jr. College and Florida State University. He earned a Bachelor of Science in Civil Engineering from FSU in 2000.

Jimmy had worked part time with District Three DOT Design Department while attending Chipola Jr. College. He must have enjoyed it, because in October 2001 he applied for and was selected for the Department's Professional Engineer Training Program. Since coming off the 18 month training program, Jimmy has had extensive exposure to roadway design in the CADD area. Jimmy is now concentrating in the drainage area.

On the personal side, Jimmy enjoys spending time with his wife Sonja and friends. Sonja is a Registered Nurse at Jackson Hospital. They enjoy the beach and lake, and taking the boat out. Jimmy also is devoted to working out and also attends drag races with his identical twin brother Tim.

I am very pleased and honored to have someone the caliber of Jimmy in the DOT Design organization. It is obvious on a daily basis that Jimmy enjoys his work and he sets a high standard here with his attitude and work ethic.

In his own words, Jimmy states "I am proud to be a member of the DOT Team. As I have learned about the many different facets of DOT operations and public services, I am looking forward to personally contributing to public service and making a difference." I hope everyone gets the opportunity to meet and work with Jimmy at some point. I can promise you it will be a very pleasant experience.



FDOT Permanent Reference Network (FPRN)

Danny Deal, PSM, District Surveyor

Because of some recent confusion about the mysterious antenna at Apalachicola Airport I would like to introduce everyone to the FDOT Permanent Reference Network (FPRN) with a brief description of the program and data available for use.



FDOT Surveying and Mapping has committed a minimum of 42 dual-frequency Continuously Operating Reference Station (CORS) receivers to the FDOT Permanent Reference Network (FPRN) program. Designed for high accuracy land survey, GIS, engineering and scientific applications, the CORS system includes all necessary components for continuous collection of high quality dual-frequency GPS data. The FPRN will serve as a supplement to the survey engineering community by providing raw GPS data collected at reference stations statewide. The programs primary objective is to enable GPS users to determine precise positional coordinates relative to the National Spatial Reference System (NSRS).

The 42 continuously operating, dual-frequency geodetic GPS receivers will log raw GPS data and transmit this data to the FPRN Operations Center in real time. The FPRN Operations Center will process the

data obtained from each station and perform system wide integrity monitoring. Each GPS receiver antenna will be mounted upon a variety of platforms and locations similar to the photo below.



RINEX data will be made available via the internet in an effort to share information and possibly reduce duplication of expenditures/effort by users. RINEX files will be stored in 1 hour increments and collected on a 24 hour basis each day of the year with an epoch synchronization rate of 1 second. The data roll-over will be on a 30-60 day basis. Users can achieve centimeter and decimeter level accuracy by post processing several hours or minutes, respectively, of their GPS data with data from the CORS network. This data is available for download at <http://www.myfloridagps.com/gsmweb/>.

Here's a list of contacts if you would like more information concerning the FPRN or the use of GPS within FDOT:

Scott Harris	Central GPS Network Monitor	850 245-1596
Cecil Martin	Central Geodetic Surveyor	850 245-1590
Wayne Faircloth	D3 Geodetic Surveyor	850 638-0250 Ext. 677

Supplemental Agreement Report—February

Larry Kelley, P.E., District Design Engineer

This is the Supplemental Agreement Report for the month of February 2004. The two (2) categories of supplemental agreements that are included in this monthly report are codes 001 and 101. This report is included in the Quarterly Design Newsletter as a tool to inform designers 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.).**

Reason: Improvements under this contract consist of the construction of a new bridge structure and widening of an existing bridge over one of the rivers in the western portion of the district.

Subsequent to beginning construction on this project while attempting to set and drive the first test pile for the westbound bridge in pile template location number 1, obstructions were encountered. An attempt to drive the test pile through these obstructions was unsuccessful and another location was selected. Jetting was then attempted at position number 11, pier number 11, but obstructions were also encountered at this location. The test pile was subsequently removed from position number 1 and was successfully driven at position number 8.

In order to achieve this work it was necessary to let a Work Order to probe the production pile locations to determine which pile positions were obstructed and to keep force account records to be used in this Supplemental Agreement for furnishing and installing pre-formed pile holes, fabricating and using a punch to remove the obstructions and additional work associated with the pre-formed pile holes required to complete the installation of the pile at pier number 11.

Increase = \$56,024.09

Response: This supplemental agreement is not the result of a design error. The Engineer of Record could not have anticipated the presence of the buried debris in the area of pier 11.

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

Reason: Improvements under this contract consist of multi-lane construction, storm water management ponds, construction a new northbound bridge over a river, traffic railing barrier, drainage and safety improvements, guardrail, fencing, landscaping, lighting, signalization, signing and pavement marking.

Subsequent to commencement of construction, a review of the contract documents revealed the designer had inadvertently failed to include a pay item for Concrete Barrier Wall (Rigid Curb and Gutter) as required to compensate the contractor for this work. The project plan sheets and cross section sheets clearly identified locations that required the construction of the rigid curb and gutter type barrier wall.

This Supplemental Agreement provided for the inclusion of the necessary pay item to pay the contractor for the performance of this work.

Increase = \$100,960.00

Response: This supplemental agreement is the result of a design error. There is no estimated premium cost.

Supplemental Agreement Report—March

Larry Kelley, P.E., District Design Engineer

This is the Supplemental Agreement Report for the month of March 2004. The two (2) categories of supplemental agreements that are included in this monthly report are codes 107 and 503. This report is included in the Quarterly Design Newsletter as a tool to inform designers 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 107: **Modification of approved MOT plan to accommodate various modes of transportation (i.e. pedestrians, boats, cars, bikes, etc.).**



Reason: Improvements under this contract consist of milling and resurfacing, bridge improvements, drainage improvements, mast arm/signalization construction and signing and pavement marking in Escambia County.

Subsequent to beginning construction on this project it was determined that, 72 meters of pre-cast concrete barrier wall and fourteen (14) Attenuator Modules (Inertia) (Temp.) would be needed to protect the traveling public and the Contractor's workers until construction at drainage structures S-1 and S-4 was complete. It was also determined that twenty eight (28) attenuator modules would be needed to provide safety for the public until the improvements to the bridge was complete and the guardrail installed.

The project plans did not show using these items in the MOT plans nor did the plans provide pay items for the inclusion of this work. Therefore, two (2) Field Supplemental Agreements were used to provide for this work. One provided for furnishing, installing and removal of the 72 meters of concrete barrier wall and 14 attenuator modules and the other provided for furnishing, installing and removal of 28 attenuator modules in the locations indicated above.

Increase = \$9,911.84 & \$8,596.00

Response: These 2 Field Supplemental Agreements were the result of design errors/omissions. There was no premium cost assessed by the CEI.

Description Code 503: Change resulting from engineering decision.

Reason: Improvements under this contract consist of the removal of the raised sidewalk, widening the bridge deck, adding Type "F" shape traffic barrier railing, milling and resurfacing the existing roadway and other drainage improvements in Wakulla County.

Subsequent to commencement of construction, the Contractor submitted a VECP to leave the raised parapet and bridge rail in place and to construct Thrie Beam Guardrail across the entire bridge using special posts. The VECP also called for the placement of additional rumble strips across the bridge and gave a credit to the contract of thirty (30) days. The Department approved the concept of the VECP and processed a supplemental agreement to make payment and to reduce the contract time by 30 days. The Contractor failed to sign the submitted supplemental agreement.

As a result of the contractor's failure to sign the supplemental agreement to provide for the work indicated above, the Department elected to compensate the Contractor for the work by Unilateral Payment.

Increase = \$45,225.00

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



Supplemental Agreement Report—March

Larry Kelley, P.E., District Design Engineer

This is the Supplemental Agreement Report for the months of April and May 2004. The two (2) categories of supplemental agreements that are included in this monthly report are codes 101 and 128. This report is included in the Quarterly Design Newsletter as a tool to inform designers 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 101: Necessary pay item(s) not included.

Reason: Improvements under this contract consist of new 6-lane roadway construction, bridge construction, drainage improvements, signalization and signing and pavement marking in Bay County.

The Traffic Control Plans for the project provided detailed drawings for temporary signalization during Phase II construction at 3 intersections. The Designer however inadvertently omitted the necessary pay items and quantities of work needed to compensate the Contractor for installation of these temporary signals.

Increase = \$40,150.00

Response: This supplemental agreement was the result of a design error/omission. There was no premium cost assessed by the CEI.

Reason: Improvements under this contract consist of construction of a new Fisher Creek Bridge on County Road 2203 in Leon County.

The Designer inadvertently omitted the pay item for Unclassified Shaft Excavation. A review of the plans and consultation with District 3 Design Personnel confirmed that the pay item should have been included.

Increase = \$51,643.37

Response: This supplemental agreement was the result of a design error/omission. There was no premium cost assessed by the CEI.

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

Reason: Improvements under this contract consist of widening, milling and resurfacing, safety and drainage improvements, signalization, signing and pavement marking on a multilane facility in Okaloosa County.

The contractor incurred additional costs associated with repairs of his milling machine that were required as a result of encountering 2 manholes located at an intersection. These manholes were not accounted for in the plans.

Increase = \$50,863.25

Response: This supplemental agreement appears to be the result of a design error. The total cost associated with the repair of the milling machine is premium therefore recovery may be pursued by the Department after an investigation of facts to determine if it was a design error

"The house we hope to build is not for my generation but for yours. It is your future that matters. And I hope that when you are my age, you will be able to say as I have been able to say: We lived in freedom. We lived lives that were a statement, not an apology."

Ronald Wilson Reagan
February 6, 1911--June 5, 2004