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Florida Department of Transportation

District 4 Design Newsletter

Administrative Staff
CADD
Consultant Management
Drainage
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From the Editor's Desk

Howard Webb, P.E., District Design Engineer

This is our fourth edition of the Design Newsletter and we hope we are fulfilling our goal of sharing useful information with our staff and our consultant partners. Your feedback on ways to improve this publication will be greatly appreciated.

We have now completed another the fiscal year and we continue to show improvement in our major performance indicators. In spite of our struggles with the new electronic delivery process, we continue to improve in the areas Plans Production, reduction in construction time & cost overrun, and in our response time to address external inquiries and issues. We have improved in meeting our Production date, but, we need to reduce our turn-around time for resubmitting project CD, after receiving list of concerns from our Final Plans Unit. Late re-submittal could jeopardize the Letting.

Another area that will need urgent attention is timely preparation and submittal of estimates, during the Work Program Cycle. During this cycle we showed improvement over last year, but 22% of the estimates were submitted after the deadline. Timely submittal of cost estimates is essential for the successful development of the new Work Program.

Our efforts to continue our improvements will be tested as we continue to adapt to the electronic delivery process as well as the conversion to MicroStation V8 and our implementation of EDMS (Electronic Data Management System). However, I am confident that with your assistance, we will continue to show improvement in all areas of our business plan.

Electronic Delivery- Lessons Learned

By: Vanita Sharma, P.E., Project Manager

The process of electronic letting is now in full gear with all current and future design projects scheduled to be let electronically for District 4. The District has gone through approximately 30 projects that have been let electronically so far. For all the submittals that came through the District, each produced its own set of examples of what to do or not to do during an electronic delivery process.

The critical items for the project CD to be accepted for review at production are: correct sheetndx.htm file, project.pdf file, projectFiles.xml and projectIndex.xml file. The postscript and the .pdf must have proper orientations. The most common error found with the sheetndx.htm file is that the hyperlinks do not correlate to the correct plan sheet. The plan sheet description should match the description on the sheetndx.htm hyperlink and on the index of the key sheet. The improper referencing of file attachment is another common error found in electronic delivery submittals. The use of Axiom RefManager software to check for "no missing attachment" and "no full path saved when attaching a reference" should avoid these errors.

Another new requirement starting with all July 2005 lettings are that all projects are to be referenced by 11-digit FPID number instead of the current 7 digits. This also includes the SPEC.PDF file.

Inside this issue:

District 4 Quarterly Design Newsletter

Editor……..Howard Webb

Layout…….....Amie Marsh

Submissions By:

Howard Webb, James Ford, Leslie Wetherell, Vanita Sharma, Rocky DePrimo, Robert Hughan, and Moretza Alian

Several iterations were undertaken to fine-tune the process of incorporating the PNC sheets into the project CD. The Latest outcome of the iterations produced the following baseline requirements:

- Rule 61G17-7.0025, with F.A.C. will be on the right legend.
- Surveyor name, License number must be on each sheet
- Company name, LB (certificate of Authorization) number, phone number and company address must be in the title block.
- Remove the note from the page"Not valid without signature and the original raised seal of a Florida licensed surveyor and mapper".
- The surveyor's certification only needs to be on the first sheet.

The latest words from Central Office regarding landscaping component plans and existing bridge plans within the electronic delivery process are as follow:

The submitted signed and sealed landscaping plan set will be scanned into .pdf format DO NOT place text notes on the plans that read, "The official signed and sealed record of this plan sheet is on file at the District 4 Office". Make sure they are in the correct orientation after scanned and remember to use grayscale to feature the raised seal.

Existing bridge plans sheets must be included in the project CD and should have the Financial Project ID number prefixed with EB manually written at the top right of each sheet.

Two important requirements for strung projects are to make sure that hyperlink is inserted within sheet index through the project browser, electronic delivery version 2.0.0. And the project CD is submitted separately for each project.

The last item that will be discussed is Plans Revisions. There is a process in place that directs how plan revisions are handled for electronic delivery. This can be found at the FDOT ECSO website: http://www.dot.state.fl.us/ecso. The expectation of District 4 is that the project CD is submitted that includes the plan revisions. The District 4 Final Plans office will then extract the "Revision" Plans and Specs CD from the project CD.

Some of the Key elements that can make an electronic submittal successful are:

- Commitment Dates- Meet all commitment dates set forth during review and resubmittal of project CDs for production complete and letting of the project.
- CADD Compliance – Cadd compliancy lays the groundwork for making a smooth and easy process for electronic delivery. And the most important part of it is the naming convention. This should be initiated at the start of each project, beginning with the Design Survey. The FDOT CADD Manual and CADD Production Criteria Handbook contain the electronic productivity tools that are required for the electronic delivery process. QC rule files and naming convention can be located in the CADD Production Criteria Handbook. All files without proper naming convention must be documented in the journal.rtf.
- Coordination with Sub-Consultants -- All parties need to be on the same page and need to have the resources and "know-how" of integrating their respective component work into the electronic delivery process.
- Hardware and Software – Having the proper versions of electronic delivery Suites and keeping on top of all updates and releases that go out will mak,e the electronic delivery process on track towards a smooth submittal. Utilize tools such as QC filechecker.exe, RefUtil.exe CompEdit.exe and Axiom. These tools are required to ensure a quality electronic delivery process. All current information can be found at the FDOT ECSO website: http://www.dot.state.fl.us/ecso
- QA/QC of project CD -- The Prime Consultant/Design Engineer must know their respective areas of responsibility for the QA/QC process. The project CD must be authenticated, free of any errors prior to submittal. File Checker is a good utility to utilize for QC process. This can be found at the FDOT ECSO website: http://www.dot.state.fl.us/ecso. Also, original Signatory and Manifest documents are required to be submitted, not copies.

The bottom line is that the Prime Consultant/Project Engineer should keep informed of all updates, releases and publications that come out on electronic delivery and should be checked on at least a monthly basis. Also make sure that the project CD complies with FDOT CADD Manual and CADD Production Criteria Handbook.

Construction – Design Hand-off Meeting: Lessons learned

By: James Ford, P.E., Section Leader / Leslie Wetherell, P.E., Project Manager

Upon final completion of SR68 / Orange Ave (FM#230108-1-52-01), design personnel met with construction personnel to have a construction – design hand-off meeting.

Project background:
This was a reconstruction job of a 2-lane undivided facility with open drainage to a 4-lane divided facility with closed drainage. The project limits are from just east of I-95 to Angle Rd. The project is mainly in unincorporated St Lucie County; however, the intersection of Angle Rd is in the jurisdiction of the city of Fort Pierce.

In this area of Fort Pierce, most of the offsite properties historically drain to our roadway; therefore, we have to continue to collect their offsite flow. This in turn, caused a tremendous effort on the part of both the drainage and roadway design departments during the course of design for the job. In some locations, there are three (3) parallel trunk lines: two for roadway flow (one going to the pond, one coming from the pond) and one for the offsite flow that is bypassing the pond.

This roadway has high volumes of truck traffic, and many of the properties are industrial or commercial in nature.

R/W was acquired for this project, mostly for the pond locations, and at spot locations along the corridor to provide enough roadway room for vehicles to be able to make u-turns.

Lessons learned:

- Check light pole foundations vs. drainage structures (especially taking into consideration the "3rd" dimension).
- Verify drainage structure elevations.
- Verify pond structure locations to see if slotted sides or pipe crown elevation conflicts with slopes of berm.
- Where commercial properties have expected truck traffic use the sidewalk profile drop detail instead of the 3-foot (now 4-foot) walkaround. This aids in allowing vehicles (like lo-boys and RV's) to cross the driveway without bottoming out.
- Modified type C inlet (index 282) requires a handrail and gravity wall; the length of the gravity wall and handrail need to be specified for slot depths that are atypical.
- Use a pavement design that has at least two asphalt lifts (if using SP and FC). The 2nd lift, FC, gives the opportunity to improve the paving by hiding the imperfections.
- At 45° and 90° bends in the irrigation lines under the pavement, manholes are needed for access purposes (in areas where the bends occur underground, pull boxes may be used). These are areas that have frequent problems.
- More MOT scrutiny to resolve possible issues; specifically as it relates to other projects in the area and how they will affect your work zone (an adjacent project had a detour in place utilizing SR68 as the detour route; however, single lane closures were being utilized on SR68)

Generally speaking, the comment that really applies to everything above is to think outside the box, especially the 2-D box. **Thinking in the 3rd dimension is one major lesson to be learned from this project.**

Some of the lessons learned involved topography that changed between the time it was surveyed and the time things were constructed; these things can't be predicted, and taking that into account, construction did an admirable job in resolving these things.

Overall, this was a very interesting and exciting project to be involved with. Design and construction encountered many challenges and were able to solve them all on the way to building a new and improved transportation facility for the community and traveling public.

Hints for Successful Utility Coordination and What's on the State Utility Office Web Site

By: Rocco A. DePrimo, District Utility Administrator

The Utility Office gets many calls for information related to utility coordination. Most of the information requested can be found on the State Utility Web Site:

http://www.dot.state.fl.us/rddesign/utilities/files/utilities.htm

The Utility User's Guide contains the following:

a. The utility certification process
b. Forms and agreements
c. Sample letters
d. Utility procedures
e. How to conduct a utility meeting
f. The Utility Work Schedule
g. Permitting
h. Utility Work by Highway Contractor Agreement (JPA)
i. The Utility Exception Process

I have only highlighted some of the information in the Utility User's Guide, please go to the site and review it. When you have specific questions after reviewing the site, please contact the District Utility Office of the district in which you are working.

Take advantage of the kick-off meeting with a member of the District Utility staff. The District Utility staff will furnish you a copy of the district contact list and explain what is expected of you for utility certification.

When confronting a non-responsive utility owner you need to escalate the project issues and lack of response to a higher level in the utility organization with face-to-face meetings with utility directors and division managers.

Project Network Control Sheets

By: Robert Hughan, District Surveyor

The Project Network Control Sheets were started about five years ago. The surveyors felt that this was a better method of providing data on the baseline and survey control points. This gives the surveyor sheets for which he has a professional responsibility, removes liability from the engineer for survey control and reduces the clutter on plan sheets. The PNC sheets are mandatory in District 4 and Turnpike. They are used in Districts 6 on a regular basis.

The primary purpose is to provide all data needed for a surveyor to lay out the baseline of survey. This information is used in construction, R/W mapping and monumentation. The sheets contain a graphic depiction of the baseline and the control points. The coordinate and curve data is included with the baseline. Each control point's coordinates, scale factor, latitude, longitude, elevation, station and offset is shown on a tab sheet. All coordinates are within the State Plane Coordinate System. The vertical datum is cited. With this data all points can be reliably reproduced if the control is lost.

The Survey Office will provide the blank sheet cells. The statement concerning electronic signatures has been changed to comply with the rule governing surveyors. The consultant will modify the cell to include the company logo and address, the surveyor's name and PSM number. The rweng02.rul file is used to check for CADD compliance.

The use of PNC sheets has a real benefit to surveyors, contractors and engineers. They provide a centralized location of the survey data in a clear, concise manner.

Computation Error in Pay Item Quantities

By: Morteza Alian, P.E., DCPME

Over the past eight months, the Department has seen computation errors in various pay items quantities in at least three projects. Two projects are already in construction and one is about to be let to contract. Although this kind of error does not affect the Department's budget in terms of premium costs, it has a serious effect on the Department's contingency funds in order to operate in an efficient manner. As a result, the Department has been tracking cost overruns and time extensions on a regular basis and has been reporting each District's Performance every month. The goal is to have less than 10% on cost overruns and 10% on time extensions.

We began the calendar year with $947,198 in a supplemental agreement for errors in test and production pile lengths. The pile quantities were calculated using minimum tip elevation rather than using the estimated tip (Anticipated Pile Length) as specified in Section 3.5.8 of Structures Design Guidelines. The plans called for 4281 feet of pile but the contractor had to use close to 9500 feet of production and test piles.

This month, we received an inquiry from a contractor before letting date regarding sod quantities in a reconstruction project. The plans called for 863,157 square yards but the contractor could not account for so much sod in the plans by a quick review. The designer checked the plans and changed the sod quantities to 105,171 square yards. This huge error again could have cost the Department some additional money in accordance with the Standard Specification 4-3.

Recently, we experienced computation errors in paving quantities, which would require a supplemental agreement with a price tag of $1.8 million dollars. This error occurred because of a misrepresented number in the comp book calculation. An area of 22,190.8 SY was carried over from the milling area comp sheet. Unfortunately, this was a misrepresentation of the actual quantity of 221,190.8 SY resulting in an error with a factor of 10.

As I indicated above, the Department is being tracked on all supplemental agreements with cost overruns and contract day extensions during construction. So far, District 4's numbers are 11.5% and 8.3% respectively. Moreover, with projects' performance mentioned above it would be very difficult to meet our goal. It is evident that majority of our projects come within the contract budget hence meeting expectations but there are only few projects with problems to this magnitude, which would cause poor performance.

We need to minimize plan errors in terms of engineering design and quantity estimation by placing a renewed emphasis on Quality Control (QC) and Quality Assurance (QA). The project manager along with his/her staff must make good use of their time in design work and reviews. Additionally, all projects done by consultants have staff hours for QC. Consultants are required to use these hours in an efficient way utilizing experienced staff with respect to the specialty areas.

Studies show that retention of learning is as follows: Ten percent of what we read, Twenty percent of what we hear, Thirty percent of what we use, Fifty percent of what we see and hear, Seventy percent of what say, and Ninety percent of what we say and do. So I hope that you read this article and talk about it with your colleagues and do it as part of your normal practice.

Designers' Corner

Ron Wallace - Section 5

Ron Wallace graduated from the University of Central Florida in 1993. He worked for Dyer, Riddle, Mills and Precourt, in Orlando for 11 years, as a Project Manager and Assistant Department Manager in the Transportation Department. He has worked on several projects for the Turnpike, OOCEA, FDOT Districts 2 and 3, as well as local municipalities such as Seminole County, Citrus County and the City of Oviedo. So please welcome Ron to the Design family.

Antolina Michel-Diaz - Section 3

Antolina is the mother of three: Luke (13), Mark (12) and Matthew (10). Her husband Joseph, who is also a Civil/Hydraulic Engineer, works for Brown & Caldwell Inc. They live in Palm Beach and love to travel and play family games. Antolina received her Bachelor in Civil Engineering degree from Central East University, Dominican Republic and a Master in Transportation from City University of New York, New York. After 5 ½ years working for the Department as a Plans Review / Utility Coordinator for District 6 Construction Department (4 years) and as District Rail Coordinator for District 4 OMD (1 ½ years), she is very excited about coming to Design. She said she thinks this is a very good opportunity to share her previous experience and broaden her knowledge and skills in this area of engineering. So please welcome Antolina to the Design family.

Sabrina Aubery - Section 3

Sabrina comes to us form the University of South Florida (Tampa) having obtained her Bachelors in Civil Engineering degree in May 2004. While in school she had the unique experience of being a theme park manager working at Adventure Island during the warm months of the year. She is an avid basketball player who enjoys traveling while speaking fluent French. Of course she does not do all at the same time. She has expressed a great desire to get into the "real" engineering world and I am sure we will not disappoint her in this regard. So please welcome Sabrina to the Design family.

Jorge Corrales - Drainage

Jorge S. Corrales comes from Fort Lauderdale Operations where he started working in 1999 as a Final Estimates Technician, later becoming the Residency Final Estimates Engineer, and finally working as a Construction Project Administrator. He has a Civil Engineering degree from FIU. His hobbies are traveling, listening to music, going to the movies, and reading. So please welcome Jorge to the Design family.

Richard Stepp - Section 3

Richard comes to us from The University of Florida having obtained his Bachelors in Civil Engineering degree in December 2004. Richard has interests in tailgating for Gator and Dolphin football games, watching Gator and Dolphin football games, visiting Gator girlfriend, boating and fishing, writing novels and paintball. He truly sounds like a well rounded fellow to me. The one thing I have noticed about Richard is that he realizes how much he has to learn (he has said it about 10 times) and I am sure we will give him the opportunity to learn many things. So please welcome Richard to the Design family.

Leslie Wetherell - Section 4

Leslie has been with the Design Department for five and half years. She started as a designer immediately after graduating from the University of Florida. Yes, another Gator. Leslie has been working in in-house Roadway Section 3 on numerous projects. She is now permanently in Consultant Management Section 4, under Joe Borello. Please welcome Leslie to the Design family.

Brent Lee Shue Ling - Section 2

Brent is the newest member of the Design Section 2 roadway design team. He comes all the way from Manhattan, NY where he completed his Bachelors in Civil Engineering with Honors at the City College of New York, CUNY. He was born in Trinidad and his favorite hobby is playing soccer. So please welcome Brent to the Design family.

Ramon Sierra - Section 6

Ramon Sierra has joined District 4 again as a Project Manager in Consultant Management unit. Ramon comes to us from Broward County Engineering Department after 1 ½ year as a Project Engineer. Prior to leaving District 4, he worked in In-House Roadway Section 3 under James Ford as a Design Engineer for about 4 ½ years. Ramon received his Bachelor of Science degree in Engineering from Florida International University. Ramon now works in Section 6 and has been tasked to manage various design projects as well as a Design Build Project, Eller Loop. So please welcome Ramon to the Design family.

Julio Delgado - Section 5

Julio is a graduate of University of Florida and comes to us from Jacobs Civil Inc. Julio is now working in Consultant Management Section 5 under Robert Bostian. He spent over five years at Jacobs as a project engineer working on various projects ranging from interstate resurfacing to major design/build projects. He has also worked on PDE projects as well. Julio has solid background with FDOT and Turnpike projects and has over eight years of design experience. So please welcome Julio to the Design family.

Kenzot Jasmin - Section 1

Kenzot started last month in Design Section 1. He graduated from F.A.U. in May and passed the EIT in April. His hobbies are soccer and basketball. Kenzot spent 3 years in the Army in active duty and 4 years in the reserve. He is originally from Haiti and has been in Florida for 9 years. So please welcome Kenzot to the Design family.

Carlos Gonzalez - Section 5

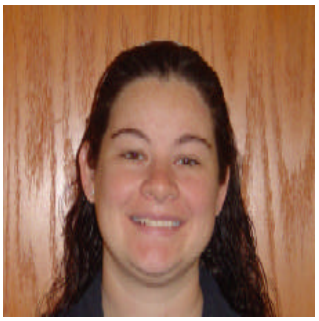
Carlos was born in Cuba. He came to the U.S. at the age of 14, via the Mariel boat life. He graduated from FIU in Civil Engineering. Has 10 years of experience as a roadway engineer. He began his career teaching Geopak while working for BHA. He presently employed by HDR and works in the consultant Management Section 5 for the District. He's married and they have to two children. So please welcome Carlos to the Design family.

Design Award Recipients









CM Section 4 - Design Unit of Year Award

Design Section 4, a Consultant Management unit is managed by Joe Borello and has produced 19 projects during the Fiscal Year 2004-2005. The members of this unit are: Sonny Abia, Betsy Jeffers, Donovan Pessoa, John Thompson, Vanita Sharma, and Leslie Wetherell.

Of 19 projects, 16 made production complete on time, two projects came in late and one project was rolled out of fiscal year. The total planned projects in district are 48 so this unit alone was carrying 40% of the district load. It is also noteworthy to indicate that this unit's 16 projects on time is 64% of all projects that came in on time for the district. The Design Office's goal for meeting production complete is 70%. Therefore, this unit was able to meet 91% of the Design Office's goal for this fiscal year.

The total estimated construction cost for all 19 projects is $96 million, which is 45% of total planned projects for the district.

The unit began its preparation for meeting production complete on all these projects more than a year in advance of production date with one goal in mind; meet the production date one job at a time. Joe along with his project managers made a habit of going over the status of all project s during section meetings. Typically, these meetings are scheduled every other week and they made an extra attempt of attending these meetings in -group. All project managers stayed the entire meeting to go over the status of each individual project and most of all, to learn from each other's experiences. One of the focus areas was the negative float on the project schedule. They spent enough time to figure out the reasons for the negative number and discussed strategies to recover time and get back on schedule again. Another area of focus was communication with consultants and local government agencies as well. Project managers realized that they need to communicate the project intent and scope clearly with consultants and to make sure this is clearly communicated with the local government.

Other areas the project managers excelled were follow-up and sharing information. The project managers made it part of their every day practice to follow up with old issues. This is, of course, to make sure projects are staying on track and on schedule and most of all, this practice took out the element of "guess work" altogether. They were also making a habit of talking about their experiences with other project managers not only during section meetings but also in hallway conversations.

Project managers also made great use of buddy system. Each project manager has teamed up with another project manager for those times that they are away from office. This is to ensure that project issues are handled expeditiously and with quality. The consultants typically know whom to call for project issues when they find out that their project manager is out temporarily.

Additionally; one of the project managers, Donovan Pessoa was tasked with managing three emergency projects after Hurricanes Frances and Jeane went through our district in September and October 2004. These projects were on fast track for completion in 180 days for two reasons; locations and to capture 100% federal emergency funds. Donovan was able to work with his consultant and St. Lucie County and Martin County officials to complete these projects and capture over $33 million of federal emergency funds in 180 days as intended.

This unit worked well and hard to accomplish all these tasks. Each project regardless of its size and location require the same effort and time to ensure quality product is produced. This unit worked hard to accomplish their goals. And it is for these reasons that this unit received the Design "Unit of Year Award".

Donovan Pessoa, P.E. – Highway Engineer Award

Donovan started with the Department in 1989 as a professional engineer trainee. Donovan is now a senior project manager in Consultant Management. Donovan has managed nine projects, which were completed this fiscal Year. The combined total of the construction estimate for these nine projects was $51,485,000.This total included 3 emergency contracts in Saint Lucie County on CR 707 for approximately $25 million.

The District average for completing projects as scheduled according to defined parameters is approximately 50 %. Donovan was instrumental in meeting the production dates on all his projects by providing clear and concise direction to the design consultants.

Donovan is a registered Professional Engineer with a BSCE and MSCE from Florida International University. Donovan has over 15 years of design experience to rely on when making decisions on behalf of the Department. Donovan sets a high standard of performance on himself and the design consultants to help achieve this result.

Donovan's enthusiasm and commitment is recognized by his coworkers and supervisors as outstanding performance. And it is for these reasons where Donovan was considered, and received the 2005 Highway Engineer Award.

Fausto Gomez, P.E. - Design Employee of the Year Award

Fausto Gomez came to the Design Department with as a Professional Engineer having a Degree in Civil Engineering and over ten (15) years experience in construction, maintenance, design, and project management. Mr. Gomez has exhibited an exceptional degree of excellence in his position as project manager due to his intuitive thinking, extensive cross training experience, and his commitment to producing quality plans for the Department.

Fausto's initial bevy of projects assigned to him ran the gamut of those seen in the design office. His projects included new urban arterial resurfacing projects, new construction projects, bascule bridge rehabilitation, safety type, widening projects, and post design on major new construction work. Fausto's proactive hands-on approach was a major reason he was able to make such a substantial and positive impact managing a very challenging workload from day one.

Mr. Gomez has shown outstanding dedication, adaptability and extraordinary flexibility this past year. He has been in Consultant Management officially since Jan 2004, but he didn't physically move from the Maintenance Office to the section until mid Mar 2004. During the first couple months, Mr. Gomez pulled "triple-duty" by training his Maintenance office replacement, working with the new project assignments in Design, and also wrapping-up the Maintenance contract work he was performing.

The severe after effects of the Hurricanes which impacted District Four during the late summer of 2004 were a great challenge to FDOT. Mr. Gomez made significant contributions to the Department during this serious time. He was asked by the District Maintenance Engineer to come back to the Maintenance office to work on the contracts for the emergency hurricane work efforts.

Mr. Gomez was essentially "drafted" by the District Maintenance office for about four months between Sept 2004 and Jan 2005 to contribute to the work effort of restoring safe roadway facilities damaged during the storms. Mr. Gomez worked assiduously during the fours months at the end of 2004. He not only worked with the emergency contracts, but also maintained oversight of the projects he was managing for the Design Department. His overall efforts since joining Consultant Management have been exemplary. Mr. Gomez has clearly shown how valuable he is to the Design office, and also how important his contributions this past year have been the FDOT and District 4 as a whole.