

2007 DESIGN/BRIDGE CONFERENCE

AUTOMATED INDEX OF SHEETS & PLAN SHEET NUMBERING

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Automated Index - Introduction

The automated index allows a quick creation and easy updates to the index of sheets.

Microsoft Excel - Small_Title_Numbring.xls

File Edit View Insert Format Tools Data Window Help Adobe PDF

C56

	A	B	C	D
1	SYMBOL TO DENOTE P. E.	DO NOT EDIT	DELETE HIGHLIGHTED ROW(S) INSERT HIGHLIGHTED # OF ROWS CREATE SHEET INDEX	NO. OF SHTS
4			TITLE SHEET	1
5			INDEX OF SHEETS	1
6			PROJECT LAYOUT	1
7			SURVEY CONTROL INDEX	1
8			HORIZONTAL & VERTICAL CONTROL	1
9			TYPICAL SECTIONS	1
10			GENERAL NOTES	1
11			ESTIMATE & QUANTIT	1
12			QUANTITY SUMMARY	1
13			PLAN AND PROFILE	1
14			TRAFFIC CONTROL PLAN	1
15			SIGNING AND STRIPING LAYOUT	1
16			STORMWATER POLLUTION PREVENTION PLAN (SW3P)	1
17			ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS	1
18			LAYOUT OF EROSION CONTROL MEASURES	1
19				
20			STANDARDS	
21			BC (1)-03	1
22			BC (2)-03	1
23			BC (3)-03	1
24			BC (4)-03	1
25			BC (5)-03	1
26			BC (6)-03	1
27			BC (7)-03	1
28			BC (8)-03	1
29			BC (9)-03	1
30			BC (10)-03	1
31			BC (11)-03	1

Instructions Index Input Sheet Index Index to Pen Table Standardization Tips Plans ONLINE Index

Ready

Introduction

The Excel index is easily copied into Microstation and stays linked for automatic updates.

The image shows a MicroStation V8i 2004 Edition window with a design file named 'D:\proj\041160504017\PM1960\DESIGN\EDP_fm1960.dgn'. An Excel spreadsheet is overlaid on the design, displaying an 'INDEX OF SHEETS' table. The table lists sheet numbers and descriptions, organized into sections like GENERAL, TRAFFIC CONTROL PLAN, TRAFFIC CONTROL PLAN STANDARDS, TRAFFIC SIGNAL, TRAFFIC SIGNAL STANDARDS, SIGNING, and ROADWAY DETAILS. A red circle highlights the Excel application icon in the Windows taskbar, indicating the link between the spreadsheet and the design.

SHEET	DESCRIPTION	SHEET	DESCRIPTION
GENERAL			
1	TITLE SHEET	90	STRUCTURE STANDARDS
2	INDEX OF SHEETS	91	AAA
3	PROJECT LAYOUT	92	AAA
4-5	TYPICAL SECTIONS	93	AAA
6	GENERAL NOTES	94	AAA
7	ESTIMATE & QUANTITY	95	AAA
8-9	QUANTITY SUMMARY	96	AAA
TRAFFIC CONTROL PLAN			
10	TRAFFIC CONTROL PLAN - PHASES NARRATIVE	97	AAA
11	TRAFFIC CONTROL PLAN - TYPICAL SECTIONS	98	AAA
12-14	TRAFFIC CONTROL PLAN - PHASE 1	99	AAA
15-17	TRAFFIC CONTROL PLAN - PHASE 2	100	AAA
18-20	TRAFFIC CONTROL PLAN - PHASE 3	101	AAA
21-23	TRAFFIC CONTROL PLAN - PHASE 4	TRAFFIC SIGNAL	
TRAFFIC CONTROL PLAN STANDARDS			
24-35	BC (11)-03 THRU BC (12)-03	102	TRAFFIC SIGNAL LAYOUT
36	TCP ()-	103	TRAFFIC SIGNAL ELEVATIONS
37	TCP ()-	104	AAA
38	TCP ()-	105	AAA
39	TCP ()-	TRAFFIC SIGNAL STANDARDS	
40	WZ ()-	106-118	ED (11)-03 THRU ED (13)-03
41	WZ ()-	119	AAA
42	WZ ()-	120	AAA
43	WZ ()-	SIGNING	
44	AAA	121	SMALL SIGN SUMMARY
45	AAA	122	SMALL SIGN LAYOUT
		123	SMALL SIGN DETAILS
ROADWAY DETAILS			
46	SURVEY CONTROL INDEX	SIGNING STANDARDS	
47	HORIZONTAL & VERTICAL CONTROL	124-129	TSR (11)-03 THRU TSR (61)-03
48-50	REMOVAL LAYOUT	130	SHD ()-
51	ALIGNMENT DATA	PAVEMENT MARKINGS & DELINEATION	
52-57	PLAN AND PROFILE	131-135	PAVEMENT MARKING AND DELINEATION LAYOUT
58	INTERSECTION DETAILS		
59	DRIVEWAY DETAILS		

Introduction

NEW!

Sheet number codes are produced.

Easily linked and produces correct page number every time.

TRAFFIC CONTROL PLAN - PHASE 1C 1	"\$PL\$" = "33"
TRAFFIC CONTROL PLAN - PHASE 1C 2	"\$PM\$" = "34"
TRAFFIC CONTROL PLAN - PHASE 1C 3	"\$PN\$" = "35"
TRAFFIC CONTROL PLAN - PHASE 1C 4	"\$PO\$" = "36"
TRAFFIC CONTROL PLAN - PHASE 1D1	"\$PP\$" = "37"
TRAFFIC CONTROL PLAN - PHASE 1D2	"\$PQ\$" = "38"
TRAFFIC CONTROL PLAN - PHASE 1D3	"\$PR\$" = "39"
TRAFFIC CONTROL PLAN - PHASE 1E - TURNAROUND1	"\$PS\$" = "40"
TRAFFIC CONTROL PLAN - PHASE 1E1	"\$PT\$" = "41"
TRAFFIC CONTROL PLAN - PHASE 1E2	
TRAFFIC CONTROL PLAN - PHASE 1E3	
TRAFFIC CONTROL PLAN - PHASE 1E4	
PHASE 1E - LEVEL UP DETAILS	

Automatic coding

Preformatted DGN

FHWA TEXAS DIVISION		FEDERAL AID PROJECT NO.		SHEET NO.
				\$PR\$
STATE		DISTRICT	COUNTY	
TEXAS		BMT	ORANGE	
CONTROL		SECTION	JOB	HIGHWAY NO.
0028		09	111	IH 10

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.	SHEET NO.	\$DST\$	\$CTY\$	
		39	SECTION	JOB	HIGHWAY NO.
			\$S\$	\$J\$	\$HWY\$

Plotted

Introduction

NEW!

Pen Tables are automatically created for each project.

PEN TABLE

MICROSTATION

Create/Overwrite
P. E. Seal
Pen Table

```
ih10- neches prelim.tbl - Notepad
File Edit Format View Help

BEGIN_STRINGS
"$TIMES$" = "_ TIME_"
"$DATES$" = "_ DATE_"
"$FILE$" = "_ FILE_"
"$ROADWAY NAMES$" = "IH 10 NECHES"
"$RN2$" = "RIVER BRIDGE"
"$C$" = "0028"
"$S$" = "09"
"$J$" = "111"
"$FPN$" = "BR ( )"
"$HWY$" = "IH 10"
"$DST$" = "BMT"
"$CTY$" = "ORANGE"
"$YEAR$" = "2007"
"$AA$" = "1"
"$AP$" = "2"
```

"\$AA\$" = "1"
"\$AB\$" = "2"
"\$AC\$" = "3"
"\$AD\$" = "4"
"\$AE\$" = "5"
"\$AF\$" = "6"
"\$AG\$" = "7"

\$ROADWAY NAME\$
PLAN SHEET NAME

0 50 100
SCALE IN FEET

©\$YEAR\$®
Texas Department of Transportation

SHEET OF

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
	\$FPN\$		\$ \$
STATE	DISTRICT	COUNTY	
TEXAS	\$DST\$	\$CTY\$	
CONTROL	SECTION	JOB	HIGHWAY NO.
\$C\$	\$S\$	\$J\$	\$HWY\$

Automated Index - Download

Address  <http://crossroads/org/des/pd/indexsheets.asp>

Address  <http://crossroads/org/des/pd/indexsheets.asp>



Texas Department of Transportation

Design Division

[Home](#) | [Sections](#) | [Tools](#) | [Contact Us](#) | Director: Mark A. Marek

Plan Development

Section Head: Elizabeth Hilton
(512) 416-2689

AUTOMATED INDEX OF SHEETS & SHEET NUMBERING

These Excel files and their importation into Microstation using Axiom greatly expedite the creation and further editing of the Index of Sheets in the PS&E. The latest version also has provisions for automatic sheet numbering. As the sheet index is input, pen table information is automatically created. This information is cut & pasted into Notepad to be read by Microstation for placing sheet numbers as sheets are printed. The process has been automated as much as possible and is easy to learn.

BENEFITS

- Common index information facilitates initial input.
- Sheet numbering is automatically calculated and changed as sheets are added and deleted from the list. The changes are automatically reflected on the "Index of Sheets".
- The Axiom import is preformatted with the proper headers, text size, line spacing, justification and column heights.
- It facilitates the Plans ONLINE process by allowing for easier production of the index by the General Services Division (GSD).
- Codes typed into the title blocks (preformatted sheets cells available) allow automatic sheet numbering of the plan set, even as revisions require sheets to be added or omitted.
- Standards now come with preset code so that they will never need numbering if the automatically generated Pen Table information is used.

There are six (6) versions of the sheet to choose from:

- Download [Small Index with No Sheet Numbering Capability](#)
- Download [Large Index with No Sheet Numbering Capability](#)
- Download [Small Index with 2Character Code for Sheet Numbering](#)
- Download [Large Index with 2Character Code for Sheet Numbering](#)
- Download [Small Index with Title Code for Sheet Numbering](#)
- Download [Large Index with Title Code for Sheet Numbering](#)
- Download [Auto Index Sheet.ini](#) (the file which provides proper settings for Axiom to format text)

Download

There are six (6) versions of the sheet to choose from:

Download [Small Index with No Sheet Numbering Capability](#)

Download [Large Index with No Sheet Numbering Capability](#)

Download [Small Index with 2Character Code for Sheet Numbering](#)

Download [Large Index with 2Character Code for Sheet Numbering](#)

Download [Small Index with Title Code for Sheet Numbering](#)

Download [Large Index with Title Code for Sheet Numbering](#)

SIZE

NUMBERING

Small
(less than 300 sheets)

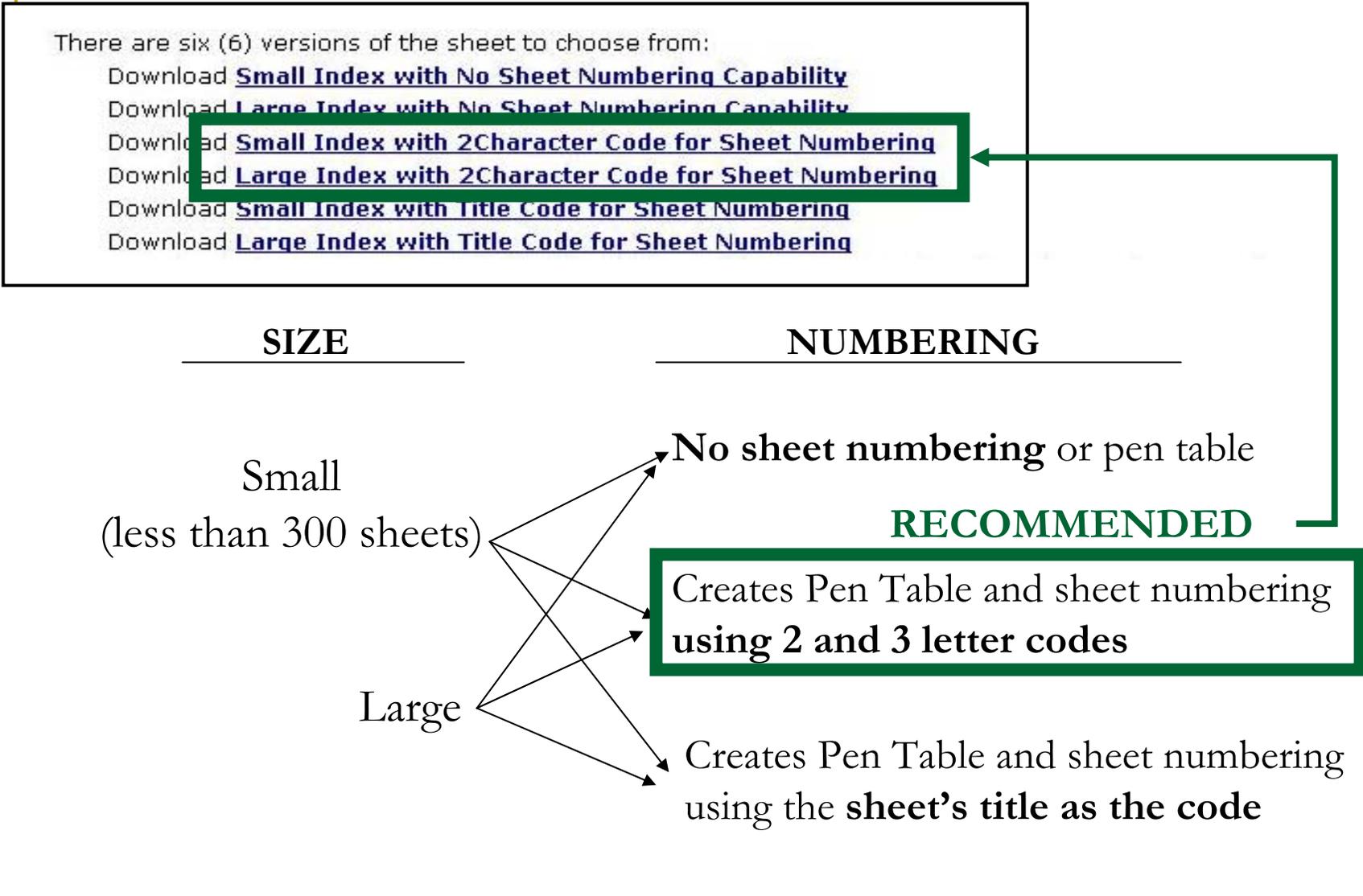
Large

No sheet numbering or pen table

RECOMMENDED

Creates Pen Table and sheet numbering
using 2 and 3 letter codes

Creates Pen Table and sheet numbering
using the **sheet's title as the code**



Automated Index - Instructions

File Edit View Insert Format Tools Data Window Help Adobe PDF Type a question for he

INDEX SHEET, SHEET NUMBERING & PEN TABLE GENERATOR

Show

[All Instructions](#)

OVERVIEW & CHOOSING THE WORKBOOK Show

This workbook allows the user to simply type in the sheet titles and how many sheets there are for each title to automatically generate three (3) things:

- 1) An **Index Sheet** for the plans that is imported and updated using Axiom (up to four sheets).
- 2) A list of codes for the **Pen Table to automatically number the sheets** as they are shown on the sheet index. The codes do not change as sheets are added or deleted, so the plan set always has correct numbering despite any edits made to the plan set.
- 3) Pen Tables for the particular project are automatically created (with all the features described on the DES_PD website).

There are **six (6) workbooks** to choose from on the DES_PD website (<http://crossroads/org/des/pd/indexsheets.asp>). Choose the one that will work best for you:

"Small no Numbring.xls"	}	No Pen Table provisions for automatic sheet numbering	NOTE (for plan sets over 600 sheets) If it is known that the project might have over 600 sheets, see bottom of instructions for options to expand the workbook.
"Gen no Numbring.xls"			
"Small 2Char Numbring.xls"	}	Have Pen Table provisions for automatic sheet numbering	
"Gen 2Char Numbring.xls" (This Workbook)			
"Small Title Numbring.xls"			
"Gen Title Numbring.xls"			

"Small" Refers to a small set of plans where the index is either on the Title Sheet or on a single sheet, and standards are typically listed together at the end.

"Gen" Refers to a set of plans where one (1) to four (4) Index Sheets are used and the standards are usually grouped together after each category of work.

"2Char" Refers to the automatically generated **PEN TABLE CODE** for sheet numbers that allows grouping of sheets (e.g. BC (1)-(12)-03) and requires minimal editing of the title blocks (e.g. \$A\$ might be the code entered in the title block to represent PS&E sheet #10). As sheets are added or omitted from the plans, the workbook updates numbers in a way that does NOT require editing code on the sheets.

"Title" Refers to the automatically generated **PEN TABLE CODE** for sheet numbers that uses the title of the sheet as the code (e.g. \$Title Sheet\$ would be typed into the Title Sheet's title block for the Pen Table to designate it as sheet 1).

Note: This format requires that each sheet be listed on the index individually. For example: BC(1)-03, BC(2)-03,... BC(12)-03.

The **worksheets** (bottom tabs) are as follows:

- "Index Input" – The sheet where all user editing will be done.
- "Sheet Index 1-4" – These sheets are automatically generated and will be imported into Microstation for the Index of Sheets.
- "Index to Pen Table" – This sheet is automatically generated and creates Pen Table codes for sheet numbering that will not change throughout PS&E development.
- "Standardization Tips" – This sheet includes tips for formatting in order to standardize indexes statewide and expedite the Plans Online process.
- "Plans ONLINE Index" – An automatically generated index to be forwarded to General Services Div. (GSD) for their use to produce the Plans Online Index.



Automated Index – Editing

Instructions **Index Input** Sheet Inde

Sheet names and quantity of sheets are entered in columns C & D.

Sheet numbers are automatically paginated in column B.

	A	B	C	D
	SYMBOL TO DENOTE P.E.	DO NOT EDIT	SHEET TITLES	NO. OF SHTS
1				
4			GENERAL	
5		1	TITLE SHEET	1
6		2	INDEX OF SHEETS	1
7		3	PROJECT LAYOUT	1
8		4-5	TYPICAL SECTIONS	2
9		6	GENERAL NOTES	1
10		7	ESTIMATE & QUANTITY	1
11		8-9	QUANTITY SUMMARY	2
12				
13				
14			TRAFFIC CONTROL PLAN	
15		10	TRAFFIC CONTROL PLAN - TYPICAL SECTIONS	1
16		11	TRAFFIC CONTROL PLAN - PHASES NARRATIVE	1
17		12-14	TRAFFIC CONTROL PLAN - PHASE 1	3
18		15-17	TRAFFIC CONTROL PLAN - PHASE 2	3
19		18-20	TRAFFIC CONTROL PLAN - PHASE 3	3
20		21-23	TRAFFIC CONTROL PLAN - PHASE 4	3
21				
22			TRAFFIC CONTROL PLAN STANDARDS	
23		24-35	BC (1)-03 THRU BC (12)-03	12
24		36	TCP ()-	1
25		37	TCP ()-	1
26		38	TCP ()-	1

Editing

To delete rows: Highlight the rows to be deleted and click the button.

The screenshot displays a software interface with a table containing various traffic control plan sections. The table is organized into columns labeled A, B, and D. A red arrow points to an orange button labeled "DELETE HIGHLIGHTED ROW(S)". Several rows are highlighted in purple, and their corresponding row ranges are circled in red: 11, 12-14, 15-17, 18-20, 21-23, 24-35, and 11-22. A blue button labeled "CREATE SHEET INDEX" is also visible. The table content includes sections like "TRAFFIC CONTROL PLAN", "GENERAL", "INDEX OF SHEETS", "PROJECT LAYOUT", "TYPICAL SECTIONS", "GENERAL NOTES", "ESTIMATE & QUANTITY", and "QUANTITY SUMMARY".

Row	Symbol to Denote P. E.	DO NOT EDIT	Section	Row Range
1			SHEET TITLES	
4			GENERAL	
5			TITLE SHEET	
6			INDEX OF SHEETS	
7			PROJECT LAYOUT	
8			TYPICAL SECTIONS	
9			GENERAL NOTES	
10			ESTIMATE & QUANTITY	
11			QUANTITY SUMMARY	
12				
13				
14			TRAFFIC CONTROL PLAN	
15			TRAFFIC CONTROL PLAN -	
16			TRAFFIC CONTROL PLAN -	
17			TRAFFIC CONTROL PLAN -	
18			TRAFFIC CONTROL PLAN -	
19			TRAFFIC CONTROL PLAN -	
20			TRAFFIC CONTROL PLAN -	
21				
22			TRAFFIC CONTROL PLAN	
23			BC (1)-03 THRU BC (12)-03	
24			TCP ()-	
25			TCP ()-	
26			TCP ()-	
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
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87				
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95				
96				
97				
98				
99				
100				

Editing

To add rows: Highlight the number of rows to add and click the button.

1	SYMBOL TO DENOTE P. E.	DO NOT EDIT	SHEET TITLES	NO. OF SHTS
4			GENERAL	
5	1		TITLE SHEET	1
6	2		INDEX OF SHEETS	1
7	3		PROJECT LAYOUT	1
8	4-5		TYPICAL SECTIONS	2
9	6		GENERAL NOTES	
10	7		ESTIMATE & QUANTITY	
11	8-9		QUANTITY SUMMARY	
12				
13				
14			TRAFFIC CONTROL PLAN	
15	10		TRAFFIC CONTROL PLAN - TYPICAL SECTIONS	
16	11		TRAFFIC CONTROL PLAN - PHASE 1	
17	12-14		TRAFFIC CONTROL PLAN - PHASE 2	
18	15-17		TRAFFIC CONTROL PLAN - PHASE 3	
19	18-20		TRAFFIC CONTROL PLAN - PHASE 4	
20	21-23		TRAFFIC CONTROL PLAN - PHASE 5	
21				
22			TRAFFIC CONTROL PLAN S	
23	24-35		BC (1)-03 THRU BC (12)-03	
24	36		TCP ()-	
25	37		TCP ()-	
26	38		TCP ()-	

4	SYMBOL TO DENOTE P. E.	DO NOT EDIT	SHEET TITLES	NO. OF SHTS
5	1		TITLE SHEET	1
6	2		INDEX OF SHEETS	1
7	3		PROJECT LAYOUT	1
8	4-5		TYPICAL SECTIONS	2
9	6		GENERAL NOTES	1
10	7		ESTIMATE & QUANTITY	1
11	8-9		QUANTITY SUMMARY	2
12				
13				
14			TRAFFIC CONTROL PLAN	
15	10		TRAFFIC CONTROL PLAN - TYPICAL SECTIONS	1
16				
17				
18				
19				
20				
21	11		TRAFFIC CONTROL PLAN - PHASES NARRATIVE	1
22	12-14		TRAFFIC CONTROL PLAN - PHASE 1	3
23	15-17		TRAFFIC CONTROL PLAN - PHASE 2	3
24	18-20		TRAFFIC CONTROL PLAN - PHASE 3	3
25	21-23		TRAFFIC CONTROL PLAN - PHASE 4	3
26				

Editing

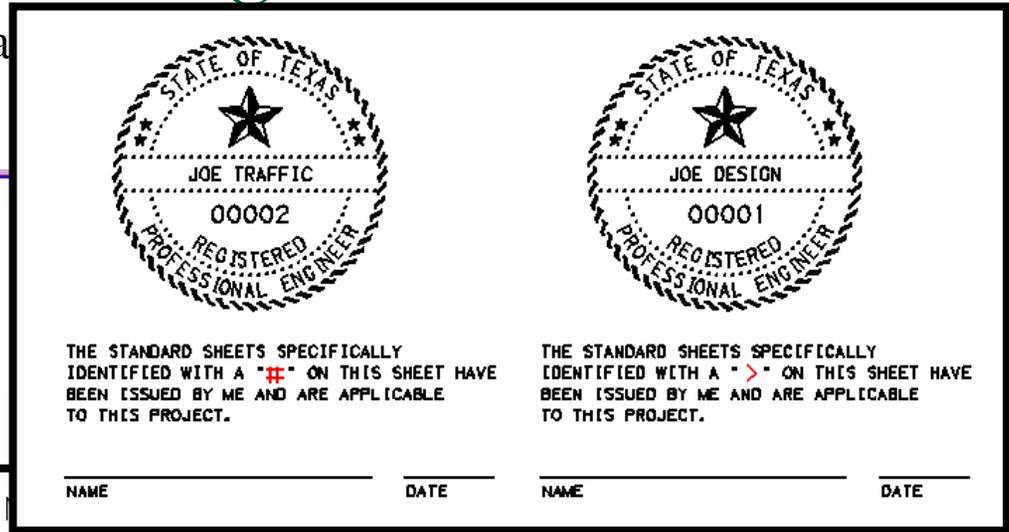
Indicate which standa

SYMBOL TO DENOTE P. E.

DO NOT EDIT

SHEET TITLES

8		
9	19	E
10-1	20	LAYOUT OF EROSION CONTROL
12-1		
16-1		
18	# 21-32	BC (1)-03 THRU BC (12)-03
19	# 33	TCP (2-1)-98
20	> 34	MBGF 03A
	> 35	MBGF (TR)-05
	& 36-37	EC (1)-93, EC (3)-93
	# 21-3	
	# 33	
	> 34	MBGF 03A
	> 35	MBGF (TR)-05
	& 36-37	EC (1)-93, EC (3)-93



STANDARDS

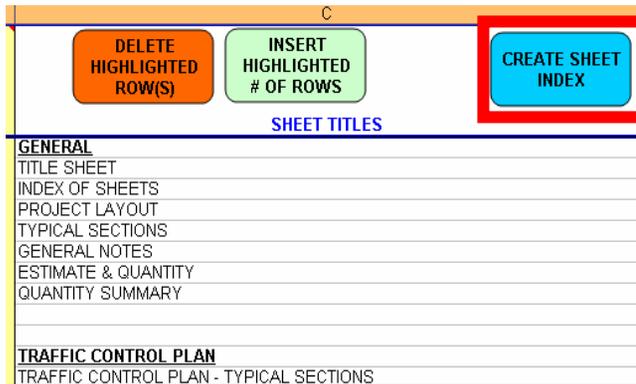
#	21-32	BC (1)-03 THRU BC (12)-03
#	33	TCP (2-1)-98
>	34	MBGF 03A
>	35	MBGF (TR)-05
&	36-37	EC (1)-93, EC (3)-93

Recommended symbols:

, > , < , or &

Automated Index – Plan Sheet

When “Index Input” sheet is complete, click the “Create Sheet Index” button.

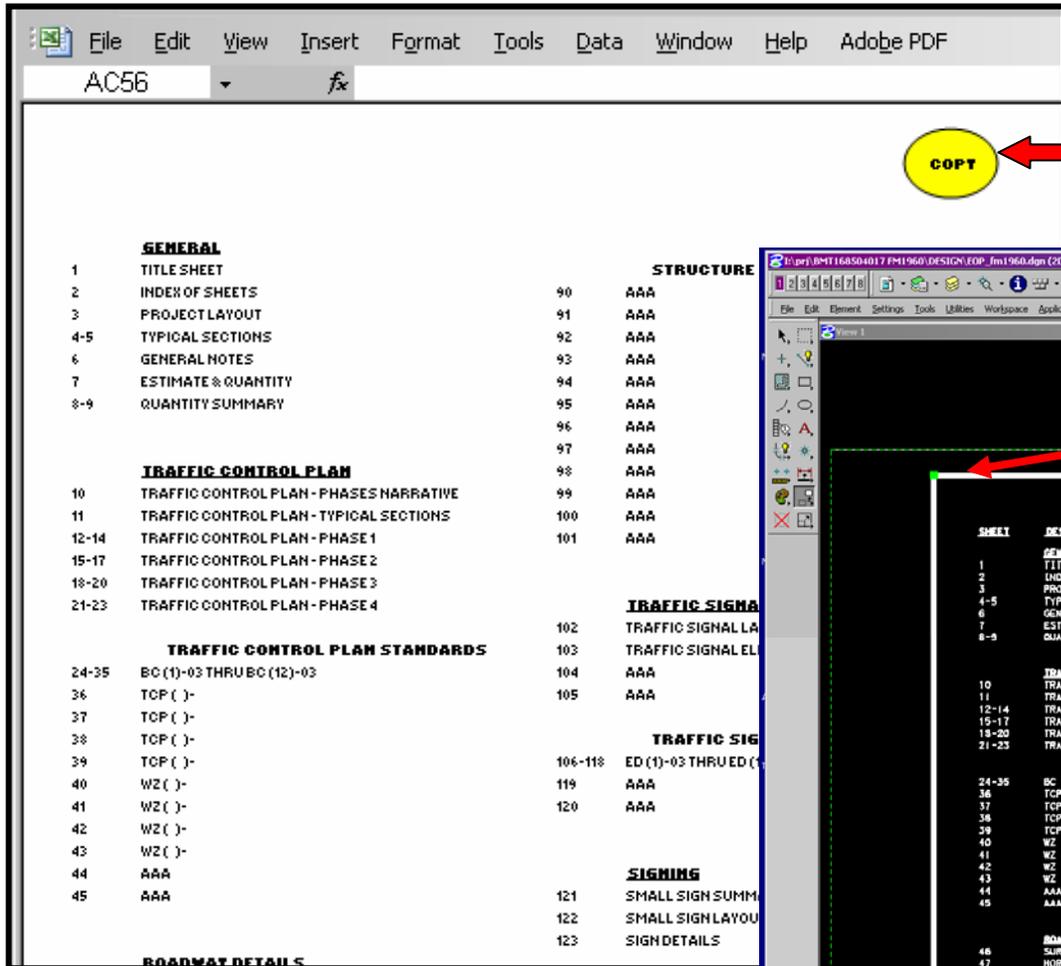


GENERAL		
1	TITLE SHEET	
2	INDEX OF SHEETS	
3	PROJECT LAYOUT	
4-5	TYPICAL SECTIONS	
6	GENERAL NOTES	
7	ESTIMATE & QUANTITY	
8-9	QUANTITY SUMMARY	
		STRUCTURE STANDARDS
		90 AAQ
		91 AAR
		92 AAS
		93 AAT
		94 AAU
		95 AAV
		96 AAW
		97 AAX
		98 AAY
		99 AAZ
10	TRAFFIC CONTROL PLAN	
11	TRAFFIC CONTROL PLAN - TYPICAL SECTIONS	
12-14	TRAFFIC CONTROL PLAN - PHASES NARRATIVE	
15-17	TRAFFIC CONTROL PLAN - PHASE 2	
18-20	TRAFFIC CONTROL PLAN - PHASE 3	
21-23	TRAFFIC CONTROL PLAN - PHASE 4	
		TRAFFIC SIGNAL
		100 TRAFFIC SIGNAL LAYOUT
		101 TRAFFIC SIGNAL ELEVATIONS
		102 ABA
		103 ACA
		TRAFFIC SIGNAL STANDARDS
24-35	BC (1)-03 THRU BC (12)-03	
36	TCP ()-	
37	TCP ()-	104-116 ED (1)-03 THRU ED (13)-03
38	TCP ()-	117 ADA
39	TCP ()-	118 AEA
40	WZ ()-	
41	WZ ()-	
42	WZ ()-	
43	WZ ()-	
44	AAA	
45	AAB	
		SIGNING
		119 SMALL SIGN SUMMARY
		120 SMALL SIGN LAYOUT
		121 SIGN DETAILS
		SIGNING STANDARDS
46	SURVEY CONTROL INDEX	122-127 TSR (1)-03 THRU TSR (6)-03
47	HORIZONTAL & VERTICAL CONTROL	128 SMD ()-
48-50	REMOVAL LAYOUT	
51	ALIGNMENT DATA	
		PAVEMENT MARKINGS & DELINEATION

Instructions / Index Input / **Sheet Index 1** / S

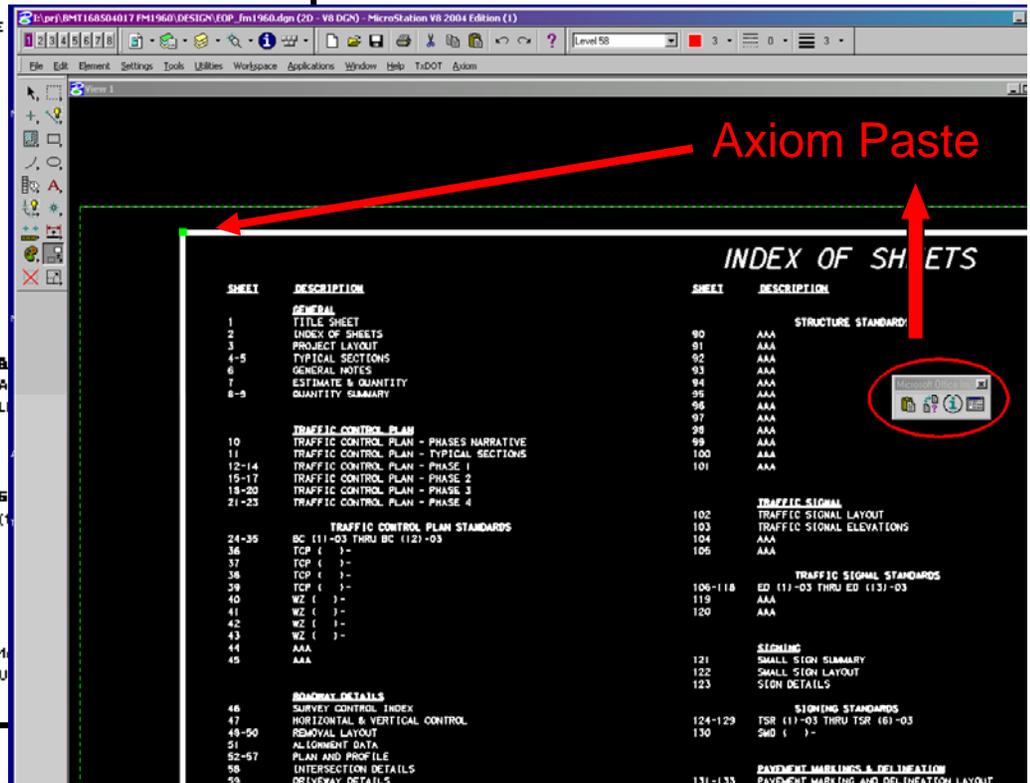
Plan Sheet

Open "Sheet Index 1" and click the "Copy" button.



GENERAL	
1	TITLE SHEET
2	INDEX OF SHEETS
3	PROJECT LAYOUT
4-5	TYPICAL SECTIONS
6	GENERAL NOTES
7	ESTIMATE & QUANTITY
8-9	QUANTITY SUMMARY
TRAFFIC CONTROL PLAN	
10	TRAFFIC CONTROL PLAN - PHASES NARRATIVE
11	TRAFFIC CONTROL PLAN - TYPICAL SECTIONS
12-14	TRAFFIC CONTROL PLAN - PHASE 1
15-17	TRAFFIC CONTROL PLAN - PHASE 2
18-20	TRAFFIC CONTROL PLAN - PHASE 3
21-23	TRAFFIC CONTROL PLAN - PHASE 4
TRAFFIC CONTROL PLAN STANDARDS	
24-35	BC (1)-03 THRU BC (12)-03
36	TCP ()-
37	TCP ()-
38	TCP ()-
39	TCP ()-
40	WZ ()-
41	WZ ()-
42	WZ ()-
43	WZ ()-
44	AAA
45	AAA
ROADWAY DETAILS	

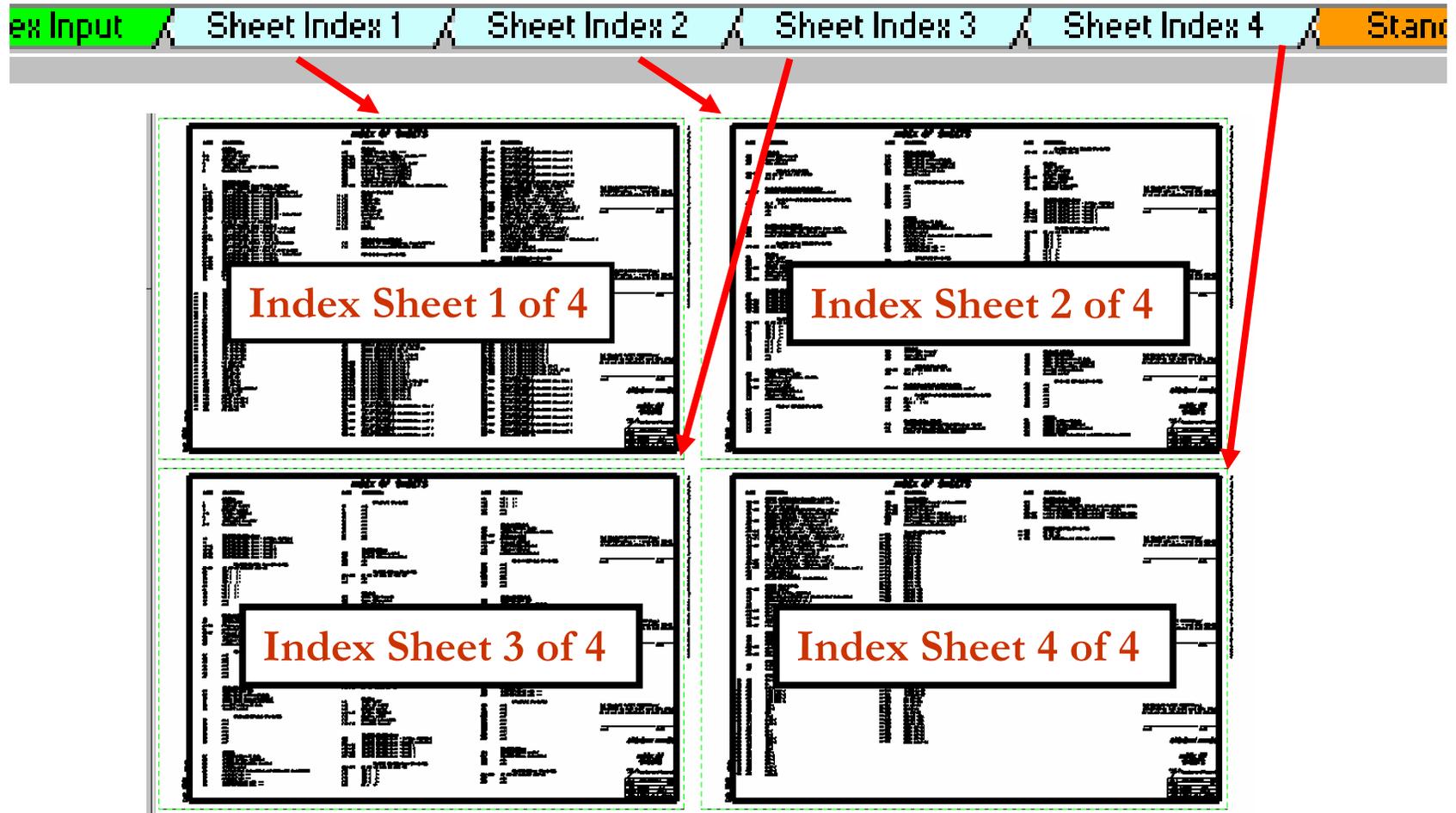
Sheet Index 1 / S



INDEX OF SHEETS	
GENERAL	
1	TITLE SHEET
2	INDEX OF SHEETS
3	PROJECT LAYOUT
4-5	TYPICAL SECTIONS
6	GENERAL NOTES
7	ESTIMATE & QUANTITY
8-9	QUANTITY SUMMARY
TRAFFIC CONTROL PLAN	
10	TRAFFIC CONTROL PLAN - PHASES NARRATIVE
11	TRAFFIC CONTROL PLAN - TYPICAL SECTIONS
12-14	TRAFFIC CONTROL PLAN - PHASE 1
15-17	TRAFFIC CONTROL PLAN - PHASE 2
18-20	TRAFFIC CONTROL PLAN - PHASE 3
21-23	TRAFFIC CONTROL PLAN - PHASE 4
TRAFFIC CONTROL PLAN STANDARDS	
24-35	BC (1)-03 THRU BC (12)-03
36	TCP ()-
37	TCP ()-
38	TCP ()-
39	TCP ()-
40	WZ ()-
41	WZ ()-
42	WZ ()-
43	WZ ()-
44	AAA
45	AAA
ROADWAY DETAILS	
46	SURVEY CONTROL INDEX
47	HORIZONTAL & VERTICAL CONTROL
48-50	REMOVAL LAYOUT
51	ALIGNMENT DATA
52-57	PLAN AND PROFILE
58	INTERSECTION DETAILS
59	DRIVEWAY DETAILS

Plan Sheet

Up to four plan sheets are automatically created.



Automated Index – Sheet Numbering

The program automatically creates a unique code for every sheet in the plans.

Sheet Index 4 **Index To Pen Table** / Stand

STEP #3		STEP #2		STEP #1	
Print Sheet Codes		Create/Overwrite P. E. Seal Pen Table		 LOCK	
\$AA\$	TITLE SHEET1	\$AA\$ = "1"		0	
TYPICAL SECTIONS2		\$AE\$ = "5"			
GENERAL NOTES1		\$AF\$ = "6"			
ESTIMATE & QUANTITY 1		\$AG\$ = "7"			
QUANTITY SUMMARY1		\$AH\$ = "8"			
\$AK\$	TRAFFIC CONTROL PLAN - PHASES	\$AK\$ = "11"			
\$AL\$	TRAFFIC CONTROL PLAN - PHASE	\$AL\$ = "12"			
\$AM\$	TRAFFIC CONTROL PLAN - PHASE	\$AM\$ = "13"			
\$AN\$	TRAFFIC CONTROL PLAN - PHASE	\$AN\$ = "14"			
\$AO\$	TRAFFIC CONTROL PLAN - PHASE	\$AO\$ = "15"			

Sheet Numbering

The pen table is easily created.

EXCEL FILE

N	P
	STEP #2
	Create/Overwrite P. E. Seal Pen Table
TITLE SHEET1	"\$AA\$" = "1"
INDEX OF SHEETS1	"\$AB\$" = "2"
PROJECT LAYOUT1	"\$AC\$" = "3"
TYPICAL SECTIONS1	"\$AD\$" = "4"
TYPICAL SECTIONS2	"\$AE\$" = "5"
GENERAL NOTES1	"\$AF\$" = "6"
ESTIMATE & QUANTITY 1	"\$AG\$" = "7"

PEN TABLE (Notepad File)

```
ih10- neches prelim.tbl - Notepad
File Edit Format View Help

BEGIN_STRINGS
"$TIMES$" = " TIME_"
"$DATES$" = " DATE_"
"$FILES$" = " FILE_"
"$ROADWAY NAMES$" = "IH 10 NECHES"
"$RN2$" = "RIVER BRIDGE"
"$CS$" = "0028"
"$SS$" = "09"
"$JS$" = "111"
"$FPN$" = "BR ( )"
"$HWY$" = "IH 10"
"$DST$" = "BMT"
"$CTY$" = "ORANGE"
"$YEAR$" = "2007"
"$AA$" = "1"
"$AB$" = "2"
"$NK$" = "3"
"$AC$" = "4"
"$AD$" = "5"
"$AG$" = "6"
"$AH$" = "7"
"$AI$" = "8"
```

Sheet Numbering

When the Pen Table is attached to a coded DGN, all information is plotted.

EXCEL FILE

N	P
	STEP #2
	Create/Overwrite P. E. Seal Pen Table
TITLE SHEET1	"\$AA\$" = "1"
INDEX OF SHEETS1	"\$AB\$" = "2"
PROJECT LAYOUT1	"\$AC\$" = "3"
TYPICAL SECTIONS1	"\$AD\$" = "4"
TYPICAL SECTIONS2	"\$AE\$" = "5"
GENERAL NOTES1	"\$AF\$" = "6"
ESTIMATE & QUANTITY 1	"\$AG\$" = "7"

PEN TABLE (Notepad File)

```

th10- neches prelim.tbl - Notepad
File Edit Format View Help

BEGIN_STRINGS
"$TIME$" = "_TIME_"
"$DATE$" = "_DATE_"
"$FILE$" = "_FILE_"
"$ROADWAY NAMES$" = "IH 10 NECHES"
"$RN2$" = "RIVER BRIDGE"
"$C$" = "0028"
"$S$" = "09"
"$J$" = "111"
"$FPN$" = "BR ( )"
"$HWY$" = "IH 10"
"$DST$" = "BMT"
"$CTY$" = "ORANGE"
"$YEAR$" = "2007"
"$AA$" = "1"
"$AB$" = "2"
"$NK$" = "3"
"$AC$" = "4"
"$AD$" = "5"
"$AG$" = "6"
"$AH$" = "7"
"$AI$" = "8"
"$OT$" = "9"
"$AO$" = "10"
"$NF$" = "11"
"$NG$" = "12"
"$NH$" = "13"
    
```

MICROSTATION

© YEAR\$
Texas Department of Transportation

SHEET 1 OF 1

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
	\$FPN\$		\$OT\$
STATE	DISTRICT	COUNTY	
TEXAS	\$DST\$	\$CTY\$	
CONTROL	SECTION	JOB	HIGHWAY NO.
\$C\$	\$S\$	\$J\$	\$HWY\$



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Texas Department of Transportation

SHEET 1 OF 1

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
	BR ()		9
STATE	DISTRICT	COUNTY	
TEXAS	BMT	ORANGE	
CONTROL	SECTION	JOB	HIGHWAY NO.
0028	09	111	IH 10

Sheet Numbering

HARDCOPY OF CODES

STEP #3

Print Sheet Codes

\$AA\$	TITLE SHEET1	\$CY\$	AAM1
\$AB\$	INDEX OF SHEETS1	\$CZ\$	AAH1
\$AC\$	PROJECT LAYOUT1	\$DA\$	AAI1
\$AD\$	TYPICAL SECTIONS1	\$DB\$	AAJ1
\$AE\$	TYPICAL SECTIONS2	\$DC\$	BRIDGE HYDRAULIC DATA1
\$AF\$	GENERAL NOTES1	\$DD\$	BRIDGE TYPICAL SECTIONS1
\$AG\$	ESTIMATE QUANTITY1	\$DE\$	BRIDGE CONSTRUCTION PHASING1
\$AH\$	QUANTITY SUMMARY1	\$DF\$	BRIDGE LAYOUT1
\$AI\$	QUANTITY SUMMARY2	\$DG\$	BEARING SEAT ELEVATIONS AND ESTIMATED QUANTITIES1
\$AJ\$	TRAFFIC CONTROL PLAN - TYPICAL SECTIONS1	\$DH\$	ABUTMENT NO. ---1
\$AK\$	TRAFFIC CONTROL PLAN - PHASE NARRATIVE1	\$DI\$	ABUTMENT NO. ---2
\$AL\$	TRAFFIC CONTROL PLAN - PHASE 11	\$DJ\$	INTERIOR BENTS NOS. ---1
\$AM\$	TRAFFIC CONTROL PLAN - PHASE 12	\$DK\$	INTERIOR BENTS NOS. ---2
\$AN\$	TRAFFIC CONTROL PLAN - PHASE 13	\$DL\$	AAQ1
\$AO\$	TRAFFIC CONTROL PLAN - PHASE 21	\$DM\$	AAH1
\$AP\$	TRAFFIC CONTROL PLAN - PHASE 22	\$DN\$	AAI1
\$AQ\$	TRAFFIC CONTROL PLAN - PHASE 23	\$DO\$	AAJ1
\$AR\$	TRAFFIC CONTROL PLAN - PHASE 3 1	\$DP\$	AAU1
\$AS\$	TRAFFIC CONTROL PLAN - PHASE 3 2	\$DQ\$	AAV1
\$AT\$	TRAFFIC CONTROL PLAN - PHASE 3 3	\$DR\$	AAW1
\$AU\$	TRAFFIC CONTROL PLAN - PHASE 41	\$DS\$	AAW1
\$AV\$	TRAFFIC CONTROL PLAN - PHASE 42	\$DT\$	AAW1
\$AW\$	TRAFFIC CONTROL PLAN - PHASE 43	\$DU\$	AAZ1
\$AX\$	BC(1)03 THRU BC(12)031	\$DV\$	TRAFFIC SIGNAL LAYOUT1
\$AY\$	BC(1)03 THRU BC(12)032	\$DW\$	TRAFFIC SIGNAL ELEVATIONS1
\$AZ\$	BC(1)03 THRU BC(12)033	\$DX\$	ABA1
\$BA\$	BC(1)03 THRU BC(12)034	\$DY\$	ACA1
\$BB\$	BC(1)03 THRU BC(12)035	\$CZ\$	ED(1)03 THRU ED(13)031
\$BC\$	BC(1)03 THRU BC(12)036	\$EA\$	ED(1)03 THRU ED(13)032
\$BD\$	BC(1)03 THRU BC(12)037	\$EB\$	ED(1)03 THRU ED(13)033
\$BE\$	BC(1)03 THRU BC(12)038	\$EC\$	ED(1)03 THRU ED(13)034
\$BF\$	BC(1)03 THRU BC(12)039	\$ED\$	ED(1)03 THRU ED(13)035
\$BG\$	BC(1)03 THRU BC(12)030	\$EE\$	ED(1)03 THRU ED(13)036
\$BH\$	BC(1)03 THRU BC(12)0311	\$EF\$	ED(1)03 THRU ED(13)037
\$BI\$	BC(1)03 THRU BC(12)0312	\$EG\$	ED(1)03 THRU ED(13)038
\$BJ\$	TCP (>1	\$EH\$	ED(1)03 THRU ED(13)039
\$BK\$	TCP (>2	\$EI\$	ED(1)03 THRU ED(13)040
\$BL\$	TCP (>3	\$EJ\$	ED(1)03 THRU ED(13)0311
\$BM\$	TCP (>4	\$EK\$	ED(1)03 THRU ED(13)0312
\$BN\$	WC (>1	\$EL\$	ED(1)03 THRU ED(13)0313
\$BO\$	WC (>2	\$EM\$	ADA1
\$BP\$	WC (>3	\$EN\$	AEA1
\$BQ\$	WC (>4	\$EO\$	SMALL SIGN SUMMARY1
\$BR\$	AAH1	\$EP\$	SMALL SIGN LAYOUT1
\$BS\$	AAM1	\$EQ\$	SIGN DETAILS1
\$BT\$	SURVEY CONTROL INDEX1	\$ER\$	TSR(1)03 THRU TSR(6)031
\$BU\$	HORIZONTAL & VERTICAL CONTROL1	\$ES\$	TSR(1)03 THRU TSR(6)032
\$BV\$	REMOVAL LAYOUT 1	\$ET\$	TSR(1)03 THRU TSR(6)033
\$BW\$	REMOVAL LAYOUT 2	\$EU\$	TSR(1)03 THRU TSR(6)034
\$BX\$	REMOVAL LAYOUT 3	\$EV\$	TSR(1)03 THRU TSR(6)035
\$BY\$	ALIGNMENT DATA1	\$EW\$	TSR(1)03 THRU TSR(6)036
\$BZ\$	PLAN AND PROFILE 1	\$EX\$	SMO (>1
\$CA\$	PLAN AND PROFILE 2	\$EY\$	PAYMENT MARKING AND DELINEATION LA
\$CB\$	PLAN AND PROFILE 3	\$EZ\$	PAYMENT MARKING AND DELINEATION LA
\$CC\$	PLAN AND PROFILE 4	\$FA\$	PAYMENT MARKING AND DELINEATION LA
\$CD\$	PLAN AND PROFILE 5	\$FB\$	PM (>01
\$CE\$	INTERSECTION DETAILS1	\$FC\$	DOM (>041
\$CF\$		\$FD\$	AFH1

\$BT\$ SURVEY CONTROL INDEX1
 \$BU\$ HORIZONTAL & VERTICAL CONTROL1
 \$BV\$ REMOVAL LAYOUT 1
 \$BW\$ REMOVAL LAYOUT 2
 \$BX\$ REMOVAL LAYOUT 3
 \$BY\$ ALIGNMENT DATA1
 \$BZ\$ PLAN AND PROFILE 1

TEXAS Department of Transportation

SHEET OF

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
	\$FPN\$		\$XX\$
STATE	DISTRICT	COUNTY	
TEXAS	\$DST\$	\$CTY\$	
CONTROL	SECTION	JOB	HIGHWAY NO.
\$C\$	\$S\$	\$J\$	\$HWY\$

Automated Index – Pen Table

All of the project data is set up the first time the program is used.

The screenshot shows a Microsoft Excel window titled 'Gen_2Ch...' with a Notepad window titled 'es prelim.tbl' open. The Notepad window contains the following text:

```
PEN TABLE  
INGS  
= " TIME "  
= " DATE "  
" FILE "  
WAY NAMES$ = "IH 10 NECHES"  
" RIVER BRIDGE"  
028"  
9"  
11"  
" BR ( )"  
= "IH 10"  
= "BMT"  
" ORANGE"  
= "2007"  
"  
?"
```

A red box highlights the text in the Notepad window. A red arrow points from a dialog box titled 'ROADWAY NAME' to the 'WAY NAMES\$' line in the Notepad window. The dialog box contains the following text:

ROADWAY NAME
Enter Roadway Name
Ex: IH 10
Must be in Capps

Buttons: OK, Cancel

Below the dialog box, a table is visible:

6	"\$AE\$" = "5"
7	"\$AF\$" = "6"
8	"\$AG\$" = "7"
9	"\$AH\$" = "8"
10	"\$AI\$" = "9"

The status bar at the bottom of the Excel window shows 'Index To Pen Table' and 'Stand.'.

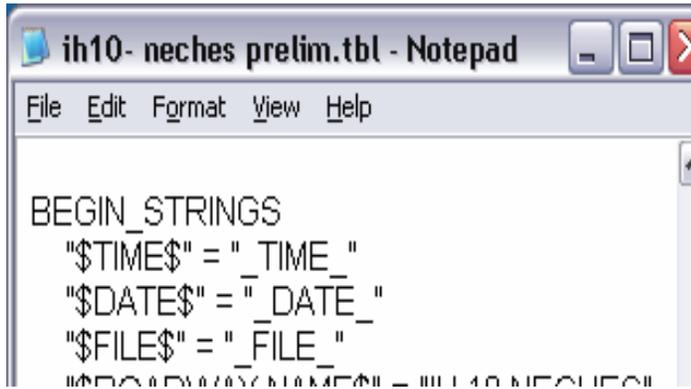
The screenshot shows a 'MICROSTATION' plan sheet template. The title is '\$ROADWAY NAME\$'. Below the title is a scale bar labeled 'SCALE IN FEET' with markings for 0, 50, and 100. The text 'Texas Department of Transportation' is visible. A red box highlights the text '\$YEAR\$'. Below the text is a table with the following structure:

SHEET OF		SHEET NO.	
FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.	\$FPN\$	\$ \$
STATE	DISTRICT	\$DST\$	COUNTY \$CTY\$
CONTROL	SECTION	JOB \$J\$	HIGHWAY NO. \$HWY\$

Red boxes highlight the '\$YEAR\$', '\$FPN\$', '\$DST\$', '\$CTY\$', '\$J\$', and '\$HWY\$' fields.

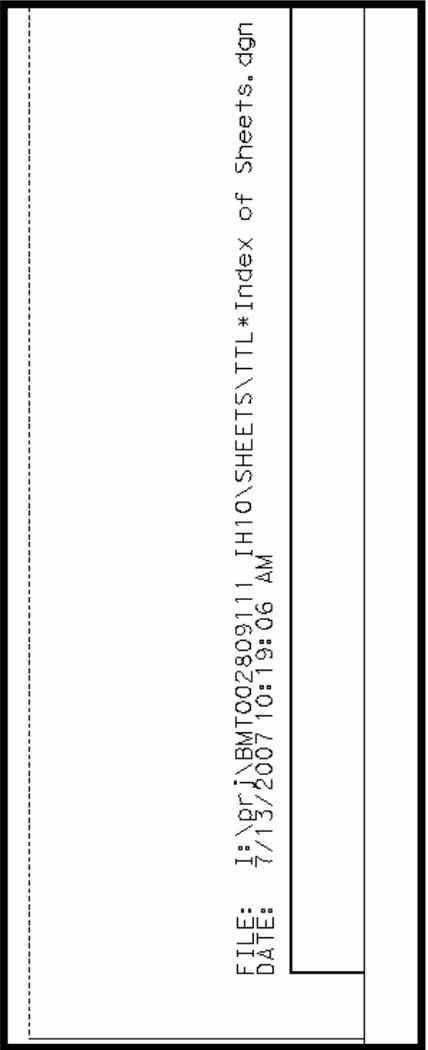
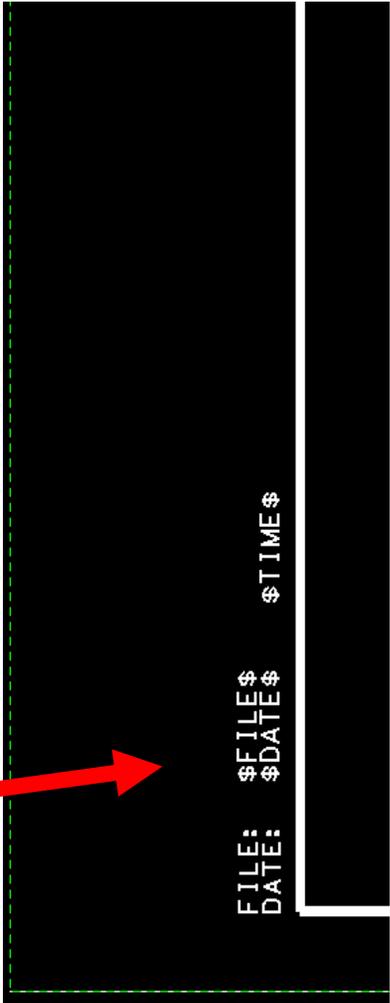
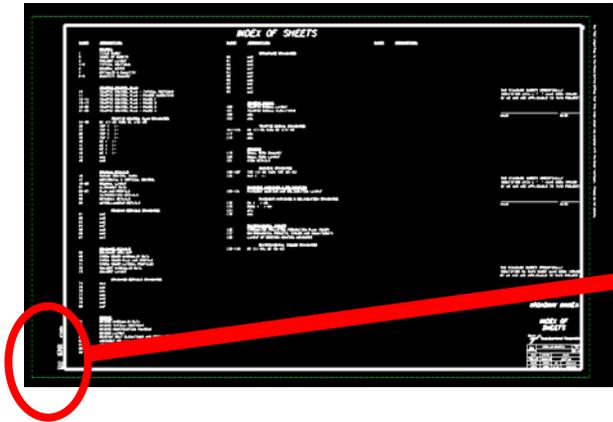
Pen Table

The Pen Table also enters a date and file path stamp.



```
ih10- neches prelim.tbl - Notepad
File Edit Format View Help

BEGIN_STRINGS
"$TIME$" = "_TIME_"
"$DATE$" = "_DATE_"
"$FILE$" = "_FILE_"
%%DYNAMICNAME%% = %%10NECHES%
```

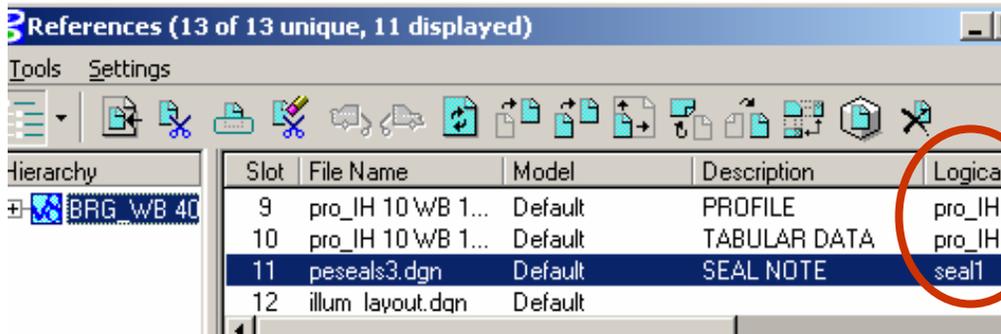


FILE: I:\gr\BMT00280911_IH10\SHEETS\TTL*Index of Sheets.dgn
DATE: 7/13/2007 10:19:06 AM

Pen Table

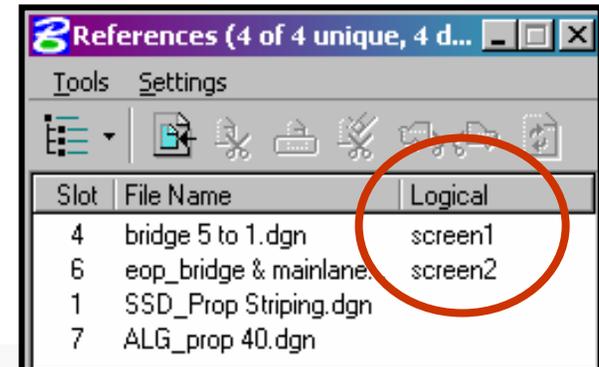
If desired, the Pen Table also allows control of :

- the Engineers' seals
- screening (or symbology of the drawings) in the plan sheets



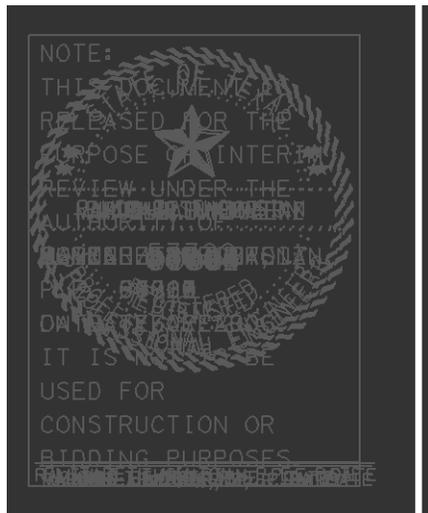
References (13 of 13 unique, 11 displayed)

Slot	File Name	Model	Description	Logical
9	pro_IH 10\WB 1...	Default	PROFILE	pro_IH :
10	pro_IH 10\WB 1...	Default	TABULAR DATA	pro_IH :
11	peseals3.dgn	Default	SEAL NOTE	seal1
12	illum layout.dgn	Default		



References (4 of 4 unique, 4 d...)

Slot	File Name	Logical
4	bridge 5 to 1.dgn	screen1
6	eop_bridge & mainlane	screen2
1	SSD_Prop Striping.dgn	
7	ALG_prop 40.dgn	



[See DES-PD website for more details on Pen Tables]

Automated Index – Standards

Every Statewide Standard is going to have code already set up.

The sheet number code will be the standard's name with all spaces removed.

D & OM (4) - 04			
FEDERAL AID PROJECT NO.			SHEET NO.
\$FPN\$		\$D&OM(4)-04\$	
FHWA TEXAS DIVISION	DISTRICT	COUNTY	
	\$DST\$	\$CTY\$	
CONTROL	SECTION	JOB	HIGHWAY NO.
\$C\$	\$S\$	\$J\$	\$HWY\$

Standards

If Engineer's symbol is doubled, the sheet code for standards is automatic.

SYMBOL TO DENOTE P. E.	DO NOT EDIT	SHEET TITLES
		37
	38-39	LAYOUT OF EROS
		STANDARDS
##	40	D&OM(4)-04
##	41	TCP (2-1)-98
>>	42	MBGF 03A
>>	43	MBGF (TR)-05
&&	44	EC (1)-03
&&	45	EC (3)-03

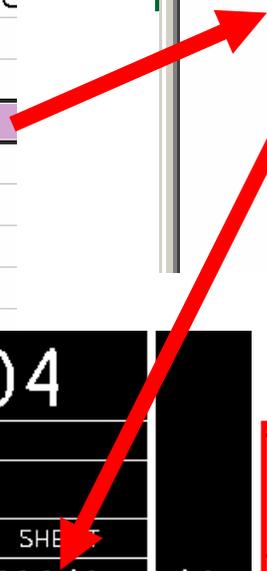
```

FM1960.tbl - Notepad
File Edit Format View Help

"$BK$" = "37"
"$BL$" = "38"
"$BM$" = "39"
"$D&OM(4)-04$" = "40"
"$TCP(2-1)-98$" = "41"
"$MBGF03A$" = "42"
"$MBGF(TR)-05$" = "43"
"$EC(1)-03$" = "44"
"$EC(3)-03$" = "45"
    
```

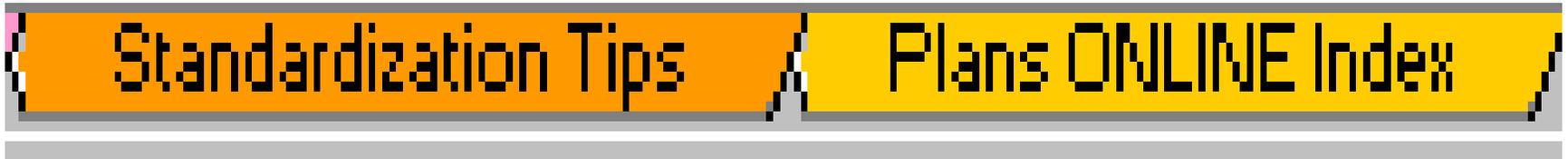
D & OM(4) - 04			
FEDERAL AID PROJECT			
DISTRICT	COUNTY		SHEET
\$DST\$	\$CTY\$		\$D&OM(4) - 04\$
CONTROL	SECTION	JOB	HIGHWAY
\$C\$	\$S\$	\$J\$	\$HWY\$

D & OM(4) - 04			
FEDERAL AID PROJECT			
DISTRICT	COUNTY		SHEET
BMT	ORANGE		40
CONTROL	SECTION	JOB	HIGHWAY
9999	99	999	IH 10



Automated Index – Plans Online

The last two worksheets in the program are for assisting the Plans Online process.



Plans Online

Index formatting tips

Using the following recommended index formatting will help standardize plans statewide and will help the Plans Online Office to create online indexing quickly and accurately:

TEXT FORMATTING

Avoid using slashes, symbols, asterisks and logos.

Limit the use of parentheses as much as possible.

Use standard abbreviations.

Minimize the use of spacing in Standard Sheet titles.

Use a common term for expansion. The word "THRU" works well. [ex. BC(1)-03 THRU BC(12)-03]

Multiple sheets listed on one line should be comma delimited. [ex. TCP(1-4)-98, TCP(2-4)-03]

Minimize the use of hand written notes. #

GENERAL FORMATTING

Use a separate page for the Index of Sheets rather than using the Title Sheet.

Eliminate the use of borders around text. #

Standardize the names of sheets and section headings. #

Section headings should be bolded. #

Use left justification and all capital letters. #

Place the sheet name and title block on the bottom right corner. #

Export the "Plans Online Index" worksheet and submit to GSD - Plans Online Office. #

SEE NEXT SHEET



Plans Online

Providing the index in text (*.TXT) format will greatly assist the efforts of Plans Online.

The screenshot displays a software window with a list of index items on the left and a button on the right. The list items are numbered 2 through 32 and include:

- 2 INDEX OF SHEETS
- 3 PROJECT LAYOUT
- 4 TYPICAL SECTIONS
- 5 TYPICAL SECTIONS
- 6 GENERAL NOTES
- 7 ESTIMATE & QUANTITY
- 8 QUANTITY SUMMARY
- 9 QUANTITY SUMMARY
- 10 TRAFFIC CONTROL PLAN - TYPICAL SECTIONS
- 11 TRAFFIC CONTROL PLAN - PHASES NARRATIVE
- 12 TRAFFIC CONTROL PLAN - PHASE 1
- 13 TRAFFIC CONTROL PLAN - PHASE 1
- 14 TRAFFIC CONTROL PLAN - PHASE 1
- 15 TRAFFIC CONTROL PLAN - PHASE 2
- 16 TRAFFIC CONTROL PLAN - PHASE 2
- 17 TRAFFIC CONTROL PLAN - PHASE 2
- 18 TRAFFIC CONTROL PLAN - PHASE 3
- 19 TRAFFIC CONTROL PLAN - PHASE 3
- 20 TRAFFIC CONTROL PLAN - PHASE 3
- 21 TRAFFIC CONTROL PLAN - PHASE 4
- 22 TRAFFIC CONTROL PLAN - PHASE 4
- 23 TRAFFIC CONTROL PLAN - PHASE 4
- 24 BC (1)-03 THRU BC (12)-03
- 25 BC (1)-03 THRU BC (12)-03
- 26 BC (1)-03 THRU BC (12)-03
- 27 BC (1)-03 THRU BC (12)-03
- 28 BC (1)-03 THRU BC (12)-03
- 29 BC (1)-03 THRU BC (12)-03
- 30 BC (1)-03 THRU BC (12)-03
- 31 BC (1)-03 THRU BC (12)-03
- 32 BC (1)-03 THRU BC (12)-03

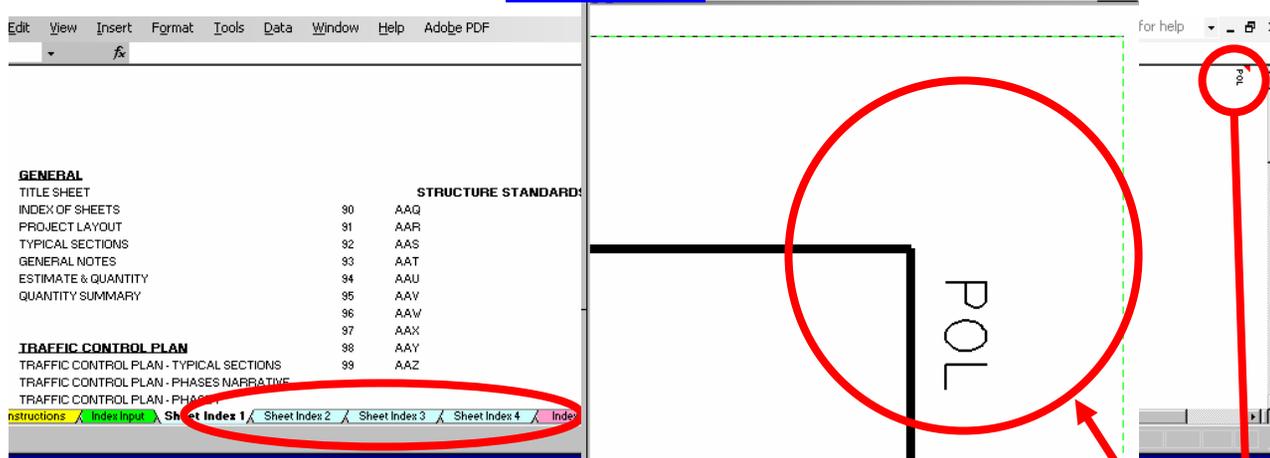
On the right side, there is a red button with the text: **Create Plans Online Text File**.

At the bottom of the window, a taskbar shows several tabs: Sheet Index 3, Sheet Index 4, Index To Pen Table, Standardization Tips, and **Plans ONLINE Index**. The 'Plans ONLINE Index' tab is circled in red, and a red arrow points upwards from below the window towards this tab.

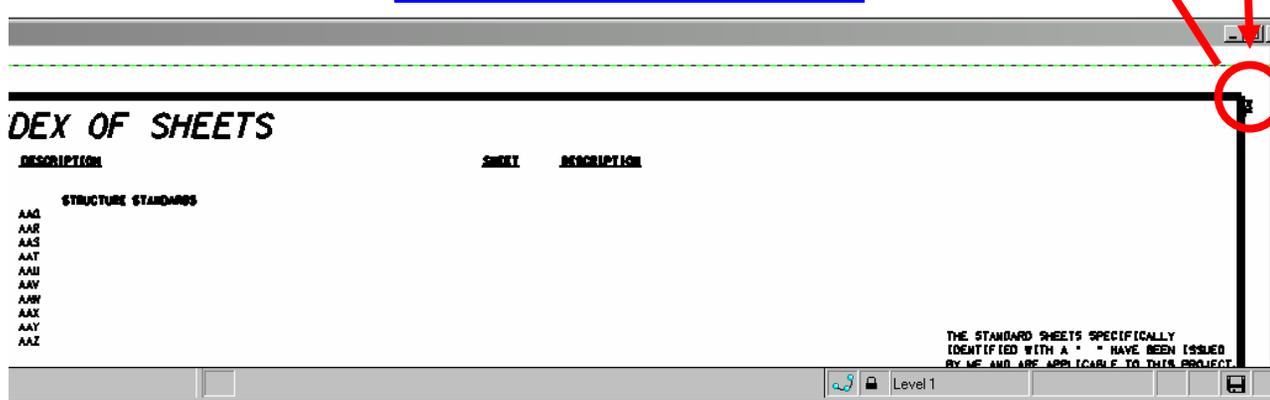
Plans Online

A stamp in the plan sheet gives GSD notice that a TXT file exists.

EXCEL



MICROSTATION



Automated Index - Benefits

- Preset index format and has automatic pagination = Quick Index creation and maintenance

- Link to Microstation = Index Plan Sheets are automatically updated

TIME SAVINGS

- Coded sheet numbers = No manual numbering (30%, 60%, etc...)

&

- Pen Table automatically created = No Pen Table to find or create

QUALITY CONTROL

- Using the Pen Table means never having to enter or edit title block info, sheet titles, plan year, date, or file path in any plan sheet

- Greatly facilitates Plans Online process

Questions?
