# TABLE OF CONTENTS

REVISIONS		DRAINAGE (CONT.)		TRAFFIC RAILINGS (CONT.)	
Revisions Sheets Since Publication Of The 2008 Booklet (5 Sheets)		264	U-Type Concrete Endwall-Energy Dissipator-30" To 72" Pipe (2 Sheets)	470	Traffic Railing - (Thrie Beam Retrofit) General Notes & Details (3 Sheets)
		266	Winged Concrete Endwalls-Single Round Pipe	471	Traffic Railing - (Thrie Beam Retrofit) Narrow Curb (4 Sheets)
ABBF	REVIATIONS AND SYMBOLS	268	U-Type Sand-Cement Endwalls	472	Traffic Railing – (Thrie Beam Retrofit) Wide Strong
001	Standard Abbreviations (3 Sheets)	270	Flared End Section		Curb Type 1 (4 Sheets)
002	Standard Symbols (3 Sheets)	272	Cross Drain Mitered End Section (6 Sheets)	473	Traffic Railing - (Thrie Beam Retrofit) Wide Strong Curb Type 2 (4 Sheets)
		273	Side Drain Mitered End Section (7 Sheets)	474	Traffic Railing - (Thrie Beam Retrofit) Intermediate Curb (4 Sheets)
ERUS	SION CONTROL AND WATER QUALITY	280	Miscellaneous Drainage Details (3 Sheets)	475	Traffic Railing - (Thrie Beam Retrofit) Wide Curb Type 1 (4 Sheets)
100	Temporary Slope Drain And Sod Flume	281	Ditch Pavement And Sodding (2 Sheets)	476	Traffic Railing - (Thrie Beam Retrofit) Wide Curb Type 2 (4 Sheets)
101	Trash Retainer And Sediment Basin	282	Back Of Sidewalk Drainage (3 Sheets)	480	Traffic Railing - (Vertical Face Retrofit) General Notes & Details (2 Sheets)
102	Temporary Erosion And Sediment Control (3 Sheets)	283	Median Opening Flume	481	Traffic Railing - (Vertical Face Retrofit) Narrow Curb (3 Sheets)
103	Turbidity Barriers	284	Concrete Shoulder Gutter Spillway	482	Traffic Railing - (Vertical Face Retrofit) Wide Curb (4 Sheets)
104	Permanent Erosion Control (2 Sheets)	285	French Drain (2 Sheets)	483	Traffic Railing - (Vertical Face Retrofit) Intermediate Curb (3 Sheets)
105	Shoulder Sodding And Turf On Existing Facilities	286	Underdrain (2 Sheets)	484	Traffic Railing - (Vertical Face Retrofit) Spread Footing Approach (10 Sheets)
106	Soil Tracking Prevention Device Type A	287	Concrete Pavement Subdrainage (4 Sheets)	490	Skew Details For Traffic Railings, Parapets and Traffic Separators (2 Sheets)
		288	Deep Well Injection Box	GENE	-DAI
DRAI	NAGE	289	Concrete Box Culvert Details (LRFD) (7 Sheets)		
199	Geotextile Criteria	291	Supplemental Details For Precast Concrete Box Culverts (5 Sheets)	500	Removal Of Organic And Plastic Material (2 Sheets)
200	Structure Bottoms-Type J And P (5 Sheets)	292	Standard Precast Concrete Box Culverts (14 Sheets)	501	Geosynthetic Reinforced Soils (9 Sheets)
201	Supplementary Details For Manholes And Inlets (5 Sheets)	293	Safety Modifications For Inlets In Box Culverts	505	Embankment Utilization (4 Sheets)
205	Cover Height (6 Sheets)	295	Safety Modifications For Endwalls	506	Miscellaneous Earthwork Details
206	Trench Drain (2 Sheets)			510	Superelevation-Rural Highways, Urban Freeways And High Speed
210	Curb Inlet Tops-Types 1, 2, 3 And 4	CURE	RS AND PAVEMENT JOINTS		Urban Highways (2 Sheets)
211	Curb Inlet Tops-Types 5 and 6 (5 Sheets)	700		511	Superelevation-Urban Highways And Streets (3 Sheets)
212	Curb Inlet-Type 7	300	Curb & Curb And Gutter (2 Sheets)	514	Optional Base Group And Structural Numbers (2 Sheets)
213	Curb Inlet-Type 8	301	Turn Lanes	515	Turnouts (7 Sheets)
214	Curb Inlet Top-Type 9	302	Traffic Separators (4 Sheets)	516	Turnouts-Resurfacing Projects
215	Curb Inlet Top-Type 10	303	Curb Return Profiles	518	Rumble Strips (3 Sheets)
216	Closed Flume Inlet (3 Sheets)	304	Public Sidewalk Curb Ramps (6 Sheets)	520	Gravity Wall
217	Median Barrier Inlets Types 1, 2, 3, 4 And 5 (2 Sheets)	305	Concrete Pavement Joints (4 Sheets)	521	Concrete Steps
218	Barrier Wall Inlet (2 Sheets)	306	Bridge Approach Expansion Joint-Concrete Pavement	525	Ramp Terminals (5 Sheets)
219	Barrier Wall Inlet-Barrier Wall, Concrete (Rigid) (C & G) (2 Sheets)	307	Miscellaneous Utility Details (3 Sheets)	526	Roadway Transitions (8 Sheets)
220	Gutter Inlet-Type S (3 Sheets)	308	Concrete Slab Replacement (2 Sheets)	527	Directional Median Opening (3 Sheets)
221	Gutter Inlet-Type V (2 Sheets)	310	Concrete Sidewalk (2 Sheets)	530	Rest Area Equipment (3 Sheets)
230	Ditch Bottom Inlet-Type A (2 Sheets)			532	Mailboxes (3 Sheets)
231	Ditch Bottom Inlet-Type B (3 Sheets)			535	Tractor Crossings
232	Ditch Bottom Inlets-Types C, D, E And H (7 Sheets)	TRAF	FIC RAILINGS	540	Settlement Plate
233	Ditch Bottom Inlets Types C, B, E And Tr (7 Sheets)	400	Guardrail (26 Sheets)	544	Landscape Installation (3 Sheets)
234	Ditch Bottom Inlet-Type J (2 Sheets)	402	Guardrail Transitions And Connections For Existing Bridges (24 Sheets)	546	Sight Distance At Intersections (6 Sheets)
235	Ditch Bottom Inlet-Type K (2 Sheets)	403	Guardrail Transitions For Existing Bridge Traffic Railing Retrofits (3 Sheets)	560	Railroad Crossings
240	Skimmer For Dutlet Control Structures (2 Sheets)	410	Concrete Barrier Wall (25 Sheets)	$TR\Delta F$	FIC CONTROL THROUGH WORK ZONES
241	Skimmers For French-Drain Outlets	411	Pier Protection Barrier (10 Sheets)	771711	TIO OBIVINDE TIMBOOTI WANK ZANES
245	Underdrain Inspection Box	412	Low Profile Barrier (5 Sheets)	600	General Information For Traffic Control Through Work Zones (13 Sheets)
250	Straight Concrete Endwalls-Single And Multiple Pipe (2 Sheets)	414	Type K Temporary Concrete Barrier (15 Sheets)	601	Two-Lane Two-Way, Work Outside Shoulder
251	Straight Concrete Endwalls—Single And Double 60" Pipe (2 Sheets)	415	Temporary Concrete Barrier (10 Sheets)	602	Two-Lane Two-Way, Work On Shoulder
252	Straight Concrete Endwalls-Single And Double 66" Pipe (2 Sheets)	417	Inertial Crash Cushion	603	Two-Lane Two-Way, Work Within The TravelWay (2 Sheets)
25 <i>2</i> 25 <i>3</i>	Straight Concrete Endwalls—Single And Double 72" Pipe (2 Sheets)	420	Traffic Railing - (32" F Shape) (3 Sheets)	604	Two-Lane Two-Way, Work In Intersection
255 255	Straight Concrete Endwall-Single 84" Pipe  Straight Concrete Endwall-Single 84" Pipe	420 421	Traffic Railing - (Median 32" F Shape) (3 Sheets)	605	Two-Lane Two-Way, Work Near Intersection
258	Straight Concrete Enawaii—Single 84 Fipe Straight Sand—Cement Endwalls	421 422	Traffic Railing - (42" Vertical Shape) (3 Sheets)	606	Two-Lane Two-Way, Work Within The TravelWay-SignalControl(4 Sheets)
260	U-Type Concrete Endwalls With Grates-15" To 30" Pipe	422 423	Traffic Railing - (32" Vertical Shape) (3 Sheets)	607	Two-Lane Two-Way, Mobile Operation, Work On Shoulder And Work
261		423 424	Traffic Railing - (Corral Shape) (7 Sheets)		Within The Travel Way
∠∪1	U-Type Concrete Endwalls-Baffles And Grate Optional-15" To 30" Pipe (3 Sheets)	424 425	Traffic Railing - (42" F Shape) (3 Sheets)	608	Two-Lane Two-Way, Temporary Diversion Connection
	Tipo to onector		Optional Crash Cushion Details (2 Sheets)	611	Multilane, Work Dutside Shoulder
		430 461	·	612	Multilane, Work On Shoulder
		401	Opaque Visual Barrier	613	Multilane, Work Within The Travel Way-Median Or Outside Lane (2 Sheets)
				614	Multilane, Work Within The Travel Way-Center Lane (2 Sheets)
				615	Multilane, Work In Intersection

615 Multilane, Work In Intersection

## TABLE OF CONTENTS

## TRAFFIC CONTROL THROUGH WORK ZONES (CONT.)

- 616 Multilane, Work Near Intersection-Median Or Outside Lane (3 Sheets)
- 617 Multilane, Work In Intersection-Center Lane
- 618 Multilane, Work In Intersection-Two Lanes Closed-45 MPH Or Less
- Multilane, Mobile Operations Work On Shoulder, Work Within Travel Way
- 620 Multilane Divided, Temporary Diversion Connection (2 Sheets)
- 621 Multilane Undivided, Temporary Diversion Connection
- 622 Multilane, Work Near Intersection—Temporary Diversion Connection
  -35 MPH or Less
- 625 Temporary Road Closure-5 Minutes Or Less
- 628 Two Way Left Turn Lane Closure
- 630 Crossover For Paving Train Operations, Rural (2 Sheets)
- 631 Temporary Crossover (2 Sheets)
- 635 Work In Vicinity Of Railroad Crossing
- 640 Converting Two-Lanes To Four-Lanes Divided, Rural (2 Sheets)
- 641 Converting Two-Lanes To Four-Lanes Divided, Urban (3 Sheets)
- 7 Transitions For Temporary Concrete Barrier Wall On Freeway Facilities
- 650 Two-Lane Two-Way, Rural Structure Replacement (2 Sheets)
- 651 Multilane Divided, Maintenance And Construction (2 Sheets)
- 655 Traffic Pacing (3 Sheets)
- 660 Pedestrian Control For Closure Of Sidewalks
- 665 Limited Access, Temporary Opening
- 667 Toll Plaza, Traffic Control Standards (6 Sheets)
- 670 Motorist Awareness System

## ROADSIDE OFFSETS

700 Roadside Offsets (2 Sheets)

## FENCING AND PEDESTRIAN RAILINGS

- 800 Fence Location (2 Sheets)
- 801 Fence-Type A (3 Sheets)
- 802 Fence-Type B (3 Sheets)
- 803 Cantilever Slide Gate-Type B Fence
- 810 Bridge Fencing (Vertical) (4 Sheets)
- 811 Bridge Fencing (Curved Top) (3 Sheets)
- 812 Bridge Fencing (Enclosed) (4 Sheets)
- 820 Pedestrian/Bicycle Railing
- 821 Aluminum Pedestrian/Bicycle Bullet Railing For Traffic Railing (32" F Shape)
- 822 Aluminum Pedestrian/Bicycle Bullet Railing Details (2 Sheets)
- 850 Steel Pedestrian/Bicycle Picket Railing (5 Sheets)
- 851 Bridge Pedestrian/Bicycle Picket Railing (Steel) (2 Sheets)
- 860 Aluminum Pedestrian/Bicycle Picket Railing (5 Sheets)
- 861 Bridge Pedestrian/Bicycle Picket Railing (Aluminum) (2 Sheets)
- 870 Aluminum Pipe Guiderail (5 Sheets)
- 880 Steel Pipe Guiderail (5 Sheets)

#### WALL AND SOUND BARRIER SYSTEMS

- 5100 Retaining Wall-Cast In Place (2 Sheets)
- 5200 Precast Sound Barriers-General Notes
- 5201 Precast Sound Barriers-Texture Options
- 5202 Precast Sound Barriers-Flush Panel Option (4 Sheets)
- 5203 Precast Sound Barriers-Recessed Panel Option (5 Sheets)
- 5204 Precast Sound Barriers-Fire Hose Access Hole & Drainage Details
- 5205 Precast Sound Barriers-Pile and Post Reinforcing Steel (7 Sheets)
- 5206 Precast Sound Barriers-Pile Depth and Reinforcing Summary
- 5207 Precast Sound Barriers-Precast Post Capital
- 5210 Traffic Railing/Sound Barrier (8'-0") (5 Sheets)
- 5211 Traffic Railing/Sound Barrier (14'-0") (3 Sheets)
- 5212 Traffic Railing/Sound Barrier (8'-0") Junction Slab (2 Sheets)
- 5213 Traffic Railing/Sound Barrier T-Shape Spread Footing (2 Sheets)
- 5214 Traffic Railing/Sound Barrier L-Shaped Spread Footing (4 Sheets)
- 5215 Traffic Railing/Sound Barrier Trench Footing
- 5300 Permanent Retaining Wall Systems (19 Sheets)
- 5301 Temporary Retaining Wall Systems

#### SIGNING AND MARKINGS

- 11200 Multi-Column Ground Sign (2 Sheets)
- 11300 Steel Overhead Sign Structures
- 11310 Cantilever Sign Structure (5 Sheets)
- 11320 Span Sign Structure (5 Sheets)
- 11860 Single Column Ground Signs (8 Sheets)
- 13417 Mounting Exit Numbering Panels To Highway Signs
- 17302 Typical Sections For Placement Of Single & Multi-Column Signs
- 7328 Typical Signing For Truck Weigh & Inspection Stations (2 Sheets)
- 17344 School Signs & Markings (6 Sheets)
- 17345 Interchange Markings (4 Sheets)
- 17346 Special Marking Areas (14 Sheets)
- 17347 Bicycle Markings (4 Sheets)
- 17.349 Traffic Controls For Street Terminations
- 17350 Signing For Motorist Services
- 17351 Welcome Center Signing (2 Sheets)
- 17352 Typical Placement Of Reflective Pavement Markers (2 Sheets)
- 17355 Special Sign Details (11 Sheets)
- 17356 Span Wire Mounted Sign Details
- 17357 Bridge Weight Restrictions
- 17359 Rural Narrow Bridge Treatment (2 Sheets)

## RDADWAY LIGHTING

- 17500 Conventional Lighting (3 Sheets)
- 17501 Highway Lighting General Notes
- 17502 Highmast Lighting (7 Sheets)
- 17504 Service Point Details
- 17505 External Lighting For Signs (2 Sheets)
- 17515 Standard Roadway Aluminum Lighting (8 Sheets)

## TRAFFIC SIGNAL AND EQUIPMENT

- 17600 Motorist Aid Call Box (3 Sheets)
- 17721 Conduit Installation Details (2 Sheets)
- 17723 Steel Strain Pole (3 Sheets)
- 17725 Concrete Poles (2 Sheets)
- 17727 Signal Cable And Span Wire Installation Details (2 Sheets)
- 17733 Aerial Interconnect
- 17736 Electric Power Service
- 17743 Standard Mast Arm Assemblies (3 Sheets)
- 17745 Mast Arm Assemblies (5 Sheets)
- 17748 Free-Swinging, Internally-Illuminated Street Sign Assemblies
- 17749 Damping Device For Miscellaneous Structures
- 17764 Pedestrian Control Signal Installation Details
- 17781 Vehicle Loop Installation Details (2 Sheets)
- 17784 Pedestrian Detector Assembly Installation Details (2 Sheets)
- 17841 Cabinet Installation Details
- 17870 Standard Signal Operating Plans (2 Sheets)
- 17881 Advance Warning For R/R Crossing
- 17882 Railroad Grade Crossing Traffic Control Devices (4 Sheets)
- 17890 Traffic Control Devices For Movable Span Bridge Signals (3 Sheets)

## *MISCELLANEOUS*

17900 Traffic Monitoring Site (7 Sheets)

## ITS

- 18100 CCTV Pole Placement
- 18101 Typical CCTV Site
- 18102 CCTV Pole Grounding (2 Sheets)
- 18104 CCTV Cabinet Equipment Layout
- 18105 CCTV Block Diagram
- 18107 Ground Mounted CCTV Cabinet
- 18108 Pole Mounted CCTV Cabinet
- 18110 Camera Mounting Details (2 Sheets)
- 18111 Steel CCTV Pole (2 Sheets)
- 18113 Concrete CCTV Pole (2 Sheets)
- 18202 Fiber Optic Pullbox And Trench Details
- 18204 Fiber Optic Splice Box And Pullbox 18300 DMS Cabinet And Sign Wiring And Block Diagram
- 18301 DMS Cabinet Layout
- 18302 Typical DMS Mounting Details
- 18303 DMS Structures Details (2 Sheets)
- 18305 DMS Grounding Details (2 Sheets)

#### TABLE OF CONTENTS

#### PRESTRESSED CONCRETE AASHTO BEAMS

- 20110 Typical AASHTO And Bulb-T Beam Details and Notes
- 20120 AASHTO Type II-Beam Standard Details
- 20130 AASHTO Type III Beam Standard Details
- 20140 AASHTO Type IV Beam Standard Details
- 20150 AASHTO Type V Beam Standard Details
- 20160 AASHTO Type VI Beam Standard Details
- 20172 Florida Bulb-T 72 Beam Standard Details
- 20178 Florida Bulb-T 78 Beam Standard Details
- 20199 Build-Up And Deflection Data For AASHTO And Bulb-T Beams

## PRESTRESSED CONCRETE FLORIDA U BEAMS (FUB)

- 20210 Typical Florida U Beam Details And Notes (2 Sheets)
- 20248 Florida U 48 Beam Standard Details (3 Sheets)
- 20254 Florida U 54 Beam Standard Details (3 Sheets)
- 20263 Florida U 63 Beam Standard Details (3 Sheets)
- 20272 Florida U 72 Beam Standard Details (3 Sheets)
- 20299 Build-Up And Deflection Data For Florida U Beams

#### PRESTRESSED CONCRETE INVERTED-T BEAMS

- 20310 Typical Inverted-T Beam Details And Notes
- 20320 Inverted-T Beam Standard Details

#### CONCRETE SHEET PILES

- 20400 Notes And Details For Precast Concrete Sheet Piles
- 20410 Precast Concrete Sheet Pile Type "A" 10 Inch Thick
- 20412 Precast Concrete Sheet Pile Type "A" 12 Inch Thick
- 20430 Precast Concrete Sheet Pile Type "B" Variable Angle Corner Pile
- 20440 Precast Concrete Sheet Pile Type "C" Right Angle Corner Pile

#### BEARING PADS

- 20500 Composite Elastomeric Bearing Pads
- 20501 Beveled Bearing Plate Details-Prestressed AASHTO And Bulb-T Beams
- 20502 Beveled Bearing Plate Details-Florida U-Beams

#### SQUARE AND ROUND CONCRETE PILES

- 20600 Notes And Details For Square Prestressed Concrete Piles
- 20601 Square Prestressed Concrete Pile Splices
- 20602 EDC Instrumentation For Square Prestressed Concrete Piles
- 20612 12" Square Prestressed Concrete Pile
- 20614 14" Square Prestressed Concrete Pile
- 20618 18" Square Prestressed Concrete Pile
- 20620 20" Square Prestressed Concrete Pile
- 20624 24" Square Prestressed Concrete Pile
- 20630 30" Square Prestressed Concrete Pile
- 20631 High Moment Capacity 30" Square Prestressed Concrete Pile
- 20654 54" Precast/Post-Tensioned Concrete Cylinder Pile (2 Sheets)
- 20660 60" Prestressed Concrete Cylinder Pile (2 Sheets)

#### APPROACH SLABS

- 20900 Approach Slabs (Flexible Pavement Approaches) (2 Sheets)
- 20910 Approach Slabs (Rigid Pavement Approaches) (2 Sheets)

#### BRIDGE EXPANSION JOINTS

- 21100 Strip Seal Expansion Joint (3 Sheets)
- 21110 Poured joint With Backer Rod Expansion Joint System (2 Sheets)

## STRUCTURES LIGHTING AND UTILITIES

- 21200 Light Pole Pilaster (2 Sheets)
- 21210 Utility Conduit Details (2 Sheets)
- 21220 Navigation Light System Details (Fixed Bridges) (2 Sheets)
- 21240 Maintenance Lighting For Box Girders (2 Sheets)

## STANDARD BAR BENDING DETAILS

21300 Standard Bar Bending Details

## TEMPORARY DETOUR BRIDGES

- 21600 Temporary Detour Bridge General Notes And Details (7 Sheets)
- 21610 Temporary Detour Bridge Details-Timber Pile Foundations (3 Sheets)
- 21620 Temporary Detour Bridge Details-Steel H Pile Foundations (2 Sheets)
- 21630 Temporary Detour Bridge Details-Steel Pipe Pile Foundations (3 Sheets)

## POST-TENSIONING DETAILS

- 21801 Post-Tensioning Vertical Profiles (2 Sheets)
- 21802 Post-Tensioning Anchorage Protection
- 21803 Post-Tensioning Anchorage And Grouting Details (3 Sheets)

#### FENDER SYSTEMS DETAILS

- 21900 Fender System General Notes And Layout (2 Sheets)
- 21910 Fender System Heavy Duty (5 Sheets)
- 21920 Fender System Medium Duty (5 Sheets)
- 21930 Fender System Light Duty (5 Sheets)