MISSISSIPPI DEPARTMENT OF TRANSPORTATION

Inter-Departmental Memorandum

TO: Design Team Leaders **DATE:** May 9, 2001

FROM: John Pickering
Roadway Design Division Engr.

SUBJECT OR PROJECT NO: Pipe Policy

INFORMATION COPY TO: **COUNTY:**

Assistant Roadway Design Division Engineer (Purvis)
Roadway Design Section Engineers
Active Consultants
State Construction Engineer (Russell)
Specifications Engineer (Funchess)
Engineer Division Administrator (Brumfield)
Assistant Chief Engineer - Pre-Construction (McMahen)
Assistant Chief Engineer – Operations (Ruff)
State Research Engineer (Portera)
District Engineers
Files

Please find a copy of the revised MDOT Pipe Culvert Material Design Criteria attached to this memo. All projects which have not had the drainage recapped shall adhere to this policy. All other projects shall be revised on a case by case basis. Please see attached fact sheet, which outlines the changes to the policy, which will affect the design of projects.

Examples of how to illustrate the policy changes on the plan/profile, estimated quantities and summary of quantities sheets have been attached. If you have any questions concerning the examples, please contact Mr. Steve Reeves in RWD's Quality Control section

If you have any questions, please advise.

JBP/swr
Attachments

FACT SHEET

1. Poly vinyl chloride (PVC) pipe has been added to alternate pipe.
2. Alternate pipes may be used as cross-drains on rural collectors and local roads where the Design Hourly Volume (DHV) is less than or equal to 200 and the pipe size is less than or equal to 36".
3. PVC pipe may be used as an alternative side-drain pipe provided the exposed ends are protected from ultra-violet light exposure. This provision is part of the new pipe policy and the protection shall be provided by either contractor or supplier.
4. Alternate pipes may be used as storm-drains in locations outside the travel and auxiliary lanes and beyond the alignment of the curb and gutter inlets and the pipe size is less than or equal to 36".
5. Pay item 907-603-ALT will be used for alternate pipes.
6. Roadway Design's CADD files (English only) have been updated to include the new alternate pipe symbols and notes. Consultants can download these updated files from ftp.its.state.ms.us/pub/mdot/ROADWAY/rwd/group (Read about the update in the file jan01.txt). MDOT employees can view the details about the update at http://rwdsrv001/mstation.htm (January 2001) and follow the appropriate download instructions. CADD files have already been updated for Roadway Design employees.
7. Summary of quantities, estimated drainage, side drain recap and plan/profile sheets are included in this packet that show the changes in symbology and notes required to design plans in accordance with the revised pipe policy.
8. Pipe locations will be shown on the plan/profiles as they have been shown in the past. The difference will be that alternate pipes will be striped to differentiate between alternate pipe locations and concrete pipe locations. See plan/profile example sheets.

I. CROSS-DRAINS

A. Design Life: 50 years
B. Alternates to be considered
   1. Rural Collectors - where Design Hourly Volume (DHV) ≤ 200 ***and*** pipe size ≤ 36 inch (900 mm) diameter, alternates to be considered are:
      a. Concrete
      b. Galvanized steel (AASHTO Designation: M 36)
      c. Galvanized steel bituminous-coated (AASHTO Designation: M 190)
      d. Aluminized type 2 steel (AASHTO Designation: M 36)
      e. Polymer-coated [250 µm (10 mils) x 250 µm (10 mils)] (AASHTO Designation: M 245)
      f. Aluminum alloy (AASHTO Designation: M 196)
      g. High Density Polyethylene (AASHTO Designation: M 294, Type S)
      h. Poly (Vinyl Chloride) (PVC) (ASTM Designation: F 949)

      Minimum cover for alternates b-h shall be 12 inch (300 mm).
      Alternates b-h shall be joined with systems approved by the standard specifications for cross-drain applications.
      All alternates shall have concrete end sections.
   2. All other Collectors, urban or rural, where DHV and/or pipe size exceeds limits shown in number 1 above: concrete, but special design applications of metal structures may be considered when approved by the Chief Engineer.
   3. All other functional classifications: concrete only.

II. SIDE-DRAINS

A. Design Life for all functional classifications:
   Urban: 50 years Rural: 25 years
B. Alternates to be considered are:
   1. Concrete
   2. Galvanized steel (AASHTO Designation: M 36)
   3. Galvanized steel bituminous-coated (AASHTO Designation: M 190)
   4. Aluminized type 2 steel (AASHTO Designation: M 36)
   5. Polymer-coated [250 µm (10 mils) x 250 µm (10 mils)] (AASHTO Designation: M 245)
   6. Aluminum alloy (AASHTO Designation: M 196)
   7. High Density Polyethylene (AASHTO Designation: M 294, Type S), ≤ 36 inch (900 mm) diameter
   8. Poly (Vinyl Chloride) (PVC) (ASTM Designation: F 949)

   Minimum cover for alternates 2-8 shall be 12 inch (300 mm).
   Alternates 2-8 shall be joined with systems approved by the standard specifications for side-drain applications.
   Exposed ends of alternate 8 shall be protected from ultra-violet light exposure at no additional cost to the MDOT.

III. STORM-DRAINS

A. Design Life: 50 years.

B. For pipe sizes ≤ 36 inch (900 mm) diameter, in locations outside the travel and auxiliary lanes ***and*** beyond the alignment of the curb and gutter inlets, alternates to be considered are:
   1. Concrete
   2. Galvanized steel (AASHTO Designation: M 36)
   3. Galvanized steel bituminous-coated (AASHTO Designation: M 190)
   4. Aluminized type 2 steel (AASHTO Designation: M 36)
   5. Polymer-coated [250 **µ**m (10 mils) x 250 **µ**m (10 mils)] (AASHTO Designation: M 245)
   6. Aluminum alloy (AASHTO Designation: M 196)
   7. High Density Polyethylene (AASHTO Designation: M 294, Type S)
   8. Poly (Vinyl Chloride) (PVC) (ASTM Designation: F 949)

   Minimum cover for alternates 2-8 shall be 12 inch (300 mm) where storm drain crosses a side street.

   Alternates 2-8 shall be joined with systems approved by the standard specifications for storm drain applications.

   All alternates shall have concrete end sections.

C. For pipe sizes > 36 inch (900 mm) diameter ***and/or*** locations under the travel and auxiliary lanes ***and/or*** locations within the alignment of the curb and gutter inlets, alternates to be considered: concrete only.

IV. UNDER-DRAINS

A. Design Life: 50 years.

B. For pipe sizes ≤ 6 inch (150 mm) diameter:
   1. Concrete
   2. Galvanized steel (AASHTO Designation: M 36, Type III)
   3. Galvanized steel bituminous-coated (AASHTO Designation: M 190, Type A)
   4. Aluminized type 2 steel (AASHTO Designation: M 36, Type III)
   5. Polymer-coated [250 **µ**m (10 mils) x 250 **µ**m (10 mils)](AASHTO Designation: M 245, Type III)
   6. Aluminum alloy (AASHTO Designation: M 196, Type III)
   7. Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe (ASTM Designation: D 3034, for the pipe SDR number specified)
   8. Acrylonitrile-Butadiene-Styrene (ABS) Sewer Pipe (ASTM Designation: D 2751, for the pipe SDR number specified)
   9. Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe (ASTM Designation: F 949, when the pipe SDR number is specified as 35 or greater)
   10. Corrugated Polyethylene (AASHTO Designation: M 252, Type S and/or Type SP)

   Alternates 2-10 shall be joined with systems approved by the standard specifications for under-drain applications.

   For alternates 2-6, manufacturer must repair coating damage resulting from perforating pipe.

IV. UNDER-DRAINS (continued)

C. For pipe sizes > 6 inch (150 mm) and ≤ 36 inch (900 mm) diameter ***and*** in locations outside the travel and auxiliary lanes, alternates to be considered are:
   1. Concrete
   2. Galvanized steel (AASHTO Designation: M 36, Type III)
   3. Galvanized steel bituminous-coated (AASHTO Designation: M 190, Type A)
   4. Aluminized type 2 steel (AASHTO Designation: M 36, Type III)
   5. Polymer-coated [250 µm (10 mils) x 250 µm (10 mils)] (AASHTO Designation: M 245, Type III)
   6. Aluminum alloy (AASHTO Designation: M 196, Type III)
   7. High Density Polyethylene (AASHTO Designation: M 294, Type S and Type SP)
   8. Poly (Vinyl Chloride) (PVC) (ASTM Designation: F 949)

   Minimum cover for alternates 2-8 shall be 12 inch (300 mm).
   Alternates 2-8 shall be joined with systems approved by the standard specifications for under-drain applications.
   For alternates 2-6, manufacturer must repair coating damage resulting from perforating pipe.
   All alternates shall have concrete end sections.

V. "ADD-ON" LIFE

The following "ADD-ON" life for protective or barrier coating will be:

	TYPE	YEARS
A.	Bituminous coated	3
B.	Aluminized Type 2	10
C.	Polymer Coated (0.25 µm [10 mils] each side)	20

VI. ADDITIONAL REQUIREMENTS FOR METAL PIPE

A. The California Department of Transportation (CALTRANS) method is to be used to determine the life of steel culverts. The pipe life is time to first perforation.
B. Aluminum Alloy Pipe is restricted to soil and water pH ranges between 5 and 9. The estimated life is as follows:

   1. Resistivity above 10,000 ohm centimeters — 50 year life
   2. Resistivity between 1,500 to 10,000 — 25 year life

C. Do not use steel pipe in marshy areas or other areas where standing water will be a common occurrence.
D. Do not use steel pipe as cross-drains in locations where the pH is less than 4 and/or the resistivity is less than 10,000 ohm centimeters.
E. Do not use Aluminum Alloy or Aluminized Type 2 Steel Pipe as cross-drains in locations where the pH is less than 5 or greater than 9 and/or the resistivity is less than 10,000 ohm centimeters.
F. If the pH is less than 4 and/or the resistivity is less than 1000 ohm centimeters, steel pipe will not be considered for side-drains.
G. If the slope of side-drains is greater than 4 percent and the velocity of flow through cross-drains is computed to be greater than 8 ft/sec (2.4 meters per second), specify paved inverts.

VII. BEDDING AND BACKFILL REQUIREMENTS FOR FLEXIBLE PIPE IN CROSS-DRAIN AND STORM-DRAIN APPLICATIONS

A. When flexible pipe (pipes other than reinforced concrete) is used in these applications, material for pipe bedding and for backfill to a point 12 inch (300 mm) above the top of the pipe shall consist of granular material meeting the requirements of Classes 1 through 9 with the additional requirement that 100% of the material shall pass the 1.5 inch (37.5 mm) sieve.

B. The cost of furnishing and placing granular material indicated in paragraph A above shall be included in the unit cost of the pipe, i.e., there will be no separate payment for flexible pipe bedding and backfill material.

H:\Research\Pipe Committee\Revised Current Policy 09 00.doc

STATE	PROJECT NO.
MISS.	

SUMMARY OF QUANTITIES

PAY ITEM NO.	PAY ITEM	UNIT	PRELIMINARY	FINAL	
603-C-A	18" REINFORCED CONCRETE PIPE, CLASS III	LIN.FT.			
603-C-A	24" REINFORCED CONCRETE PIPE, CLASS III	LIN.FT.			
603-C-A	30" REINFORCED CONCRETE PIPE, CLASS III	LIN.FT.			
603-C-A	36" REINFORCED CONCRETE PIPE, CLASS III	LIN.FT.			
603-C-A	48" REINFORCED CONCRETE PIPE, CLASS III	LIN.FT.			
603-C-E	22" x 13" REINFORCED CONCRETE PIPE, CLASS III	LIN.FT.			
603-C-E	51" x 31" REINFORCED CONCRETE PIPE, CLASS III	LIN.FT.			
907-603-ALT	18" TYPE A ALTERNATE PIPE	LIN.FT.			1
907-603-ALT	24" TYPE A ALTERNATE PIPE	LIN.FT.			1
907-603-ALT	30" TYPE A ALTERNATE PIPE	LIN.FT.			1
907-603-ALT	22" x 13" TYPE B ALTERNATE PIPE	LIN.FT.			2

(1) SEE EQ-1 FOR ALTERNATES

OR

(1) ALTERNATE A
ZINC COATED CORRUGATED METAL PIPE, 12 GAUGE (2 2/3" x 1/2") OR BITUMINOUS COATED CORRUGATED METAL PIPE, 14 GAUGE (2 2/3" x 1/2") OR ALUMINUM COATED CORRUGATED METAL PIPE, 16 GAUGE (2 2/3" x 1/2") OR REINFORCED CONCRETE PIPE, CLASS "III" OR CORRUGATED POLYETHYLENE PIPE OR POLY VINYL CHLORIDE (PVC) PIPE

(2) ALTERNATE B
BITUMINOUS COATED PAVED INVERT CORRUGATED METAL PIPE, 14 GAUGE(2 2/3" x 1/2") OR ALUMINUM COATED PAVED INVERT CORRUGATED METAL PIPE, 16 GAUGE (2 2/3" x 1/2") OR REINFORCED CONCRETE PIPE, CLASS "III" OR CORRUGATED POLYETHYLENE PIPE OR POLY VINYL CHLORIDE (PVC) PIPE

OR

(2) SEE EQ-1 FOR ALTERNATES

REVISION | BY | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

WORKING NUMBER
SQ-1

SHEET NUMBER

FILENAME:

DESIGN TEAM ____ CHECKED ____ DATE ____

PIPE CULVERT DRAINAGE STRUCTURES

STATE	PROJECT NO.
MISS.	

WK. SH. NO.	STATION	ID NUMBER	TYPE	PIPE CULVERTS 18"	24"	30"	36"	48"							22"x13"	51"x31"	END SECTIONS 18"	24"	30"	36"	48"	22"x13"	51"x31"	SIZE L	W	H	OPENINGS	DRAWINGS REQ'D.	CLASS "B" CONC.	REINF. STEEL	GRATING	CASTINGS	PAVED APRON	STRUCTURE EXCAVATION CU YDS EXCAV	EST. DEPTH	GEOTEXTILE	FILTER MATERIAL TYPE "A"	TYPE "B"	COVER	REMARKS
7	240+50		CONC.	112													1									8'	1 @ 18"	MI-1,FES	1.894	103	250		0.532	29	2					9 TON RIPRAP LT
7	243+50		CONC.					408													4					10'	2 @ 48"	MI-1A,FES	2.775	329	250		0.532	94	1					DBL LN (204 EA.)
7	246+50		CONC.	96													1									5.5'	1 @ 18"	MI-1,FES	1.366	78	250		0.532	25	2					
7	253+00		CONC.												80							2						FES	0.126					27	2					
7	259+00		CONC.													200							2					FES,BC-1	0.268					49	1					
7	259+00		Ⓑ												12											MIN.	1@22"x13"	MI-4	0.582	50	500		1.203							STUB IN 51x31 BK
7	264+20		Ⓐ	40																						MIN.	1 @ 18"	MI-1,BC-1	0.670	48	250		0.532	10	2					STUB IN 10x8 RCB
7	270+00		CONC.	112													1									MIN.	1 @ 18"	MI-2,FES	1.030	64	250		0.532	29	2					
7	270+00		CONC.	4																																				STACK PIPE
11	1+00		Ⓐ		40													2										FES	0.166					19	3					LOC. RD. RT.
11	245+75		CONC.					88													2							FES	0.290					43	2					
11	257+00		CONC.		92													2										FES	0.166					43	3					
11	260+40		CONC.			84													2									FES	0.204					41	2					
11	263+50		CONC.		92													2										FES	0.166					30	2					
11	265+80		CONC.				80													2								FES	0.246					33	2					
11	1+00		CONC.		40													2										FES	0.166					19	3					LOC. RD. RT.
11	270+11		CONC.			92													2									FES	0.204					17	1					
13	158+00 TO 158+90		CONC.		88																													15	1					LT.
13	158+90	158A																						5.00	3.50	6.16	1@24",1@30"	SS-2	3.203	262		79								LT.
13	158+90 TO 160+15		CONC.			120																												40	2					LT.
UNIT				L.F.	L.F.	L.F.	L.F.	L.F.							L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	EA.	EA.						C.Y.	LB.	LB.	LB.	C.Y.	C.Y.					
CONCRETE THIS SHEET				324	312	296	80	496							80	200	3	8	4	2	6	2	2						13.522	934	1750	79	3.863	563					
ALTERNATE Ⓐ THIS SHEET				40	40																																			
ALTERNATE Ⓑ THIS SHEET															12																									
ALTERNATE Ⓒ THIS SHEET																																								
ALTERNATE Ⓓ THIS SHEET																																								

ALTERNATE Ⓐ

ZINC COATED CORRUGATED METAL PIPE, 12 GAUGE (2 2/3" x ½") OR
BITUMINOUS COATED CORRUGATED METAL PIPE, 14 GAUGE (2 2/3" x ½") OR
ALUMINUM COATED CORRUGATED METAL PIPE, 16 GAUGE (2 2/3" x ½") OR
REINFORCED CONCRETE PIPE, CLASS "III" OR
CORRUGATED POLYETHYLENE PIPE OR
POLY VINYL CHLORIDE (PVC) PIPE

ALTERNATE Ⓑ

BITUMINOUS COATED PAVED INVERT CORRUGATED METAL PIPE, 14 GAUGE(2 2/3" x ½") OR
ALUMINUM COATED PAVED INVERT CORRUGATED METAL PIPE, 16 GAUGE (2 2/3" x ½") OR
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CORRUGATED POLYETHYLENE PIPE OR
POLY VINYL CHLORIDE (PVC) PIPE

ALTERNATE Ⓒ

ALTERNATE Ⓓ

NOTE : INLET QUANTITIES ARE BASED ON CONCRETE PIPE BEING USED. NO ADJUSTMENT WILL BE MADE FOR ANY OTHER ALTERNATE PIPE USED.

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DRAINAGE STRUCTURES

REVISION | BY | DATE

PROJECT NO.

COUNTY :

DESIGNED ____ DETAILED ____ TRACED ____
CHECKED ____ ISSUED ____ DATE ____

WORKING NUMBER EQ-1

SHEET NUMBER

PIPE CULVERT DRAINAGE STRUCTURES

STATE	PROJECT NO.
MISS.	

WK. SH. NO.	STATION	ID NUMBER	TYPE	PIPE CULVERTS 18"	24"	30"	36"	48"	22"x13"	51"x31"	END SECTIONS 18"	24"	30"	36"	48"	22"x13"	51"x31"	SIZE L	W	H	OPENINGS	DRAWINGS REQ'D.	CLASS "B" CONC.	REINF. STEEL	GRATING	CASTINGS	PAVED APRON	STRUCTURE EXCAVATION CU YDS EXCAV	EST. DEPTH	GEOTEXTILE	FILTER MATERIAL TYPE "A"	TYPE "B"	COVER	REMARKS
13	160+15	160A																5.00	3.50	5.23	2@30"	SS-2	2.840	246		79								LT
13	160+15 TO 161+40		CONC.			120																						53	2					LT
13	161+40	161A																5.00	4.00	5.20	2@30"	SS-2	3.024	250		79								LT
13	161+40 TO BC-1		Ⓐ			64																BC-1						25	2					LT STUB INTO WINGWALL
13	162+50	162A	Ⓐ	12							1							5.00	2.50	3.45	1@18"	FES-1,SS-2	2.171	202		79		27	3					LT
13	163+50	163A	Ⓐ		24							1						5.00	2.50	3.45	2@24"	FES-1,SS-2	2.171	202		79		35	2					LT
13	158+00 TO 158+90		CONC.		88																							40	1					RT
13	158+90	158B																5.00	3.50	6.16	1@18",1@24",1@30"	SS-2	3.149	262		79								RT
13	158+90	158C	Ⓐ	12																MIN.	1@18"	B-9	0.623	42	127		.532	20	2					RT
13	158+90 TO 160+15		CONC.			120																						65	3					RT
13	160+15	160B																5.00	3.50	5.23	2@30"	SS-2	2.840	246		79								RT
13	160+15		Ⓐ			12																JB-1						18	1					RT
13	160+15 TO 161+40		Ⓐ			120																						65	3					RT
13	161+40	161B	Ⓐ			12												5.00	4.00	5.20	1@30"	SS-2	3.024	250		79		18	1					RT
13	161+40 TO BC-1		Ⓐ			64																JB-1,BC-1						25	2					RT STUB INTO WINGWALL
	BC-1 TO 162+50		CONC.	24																								36	2					
13	162+50	162B																5.00	2.50	8.99	1@18"	SS-2	3.790	292		79								RT
13	162+50 TO 163+50		CONC.	96																								65	1					
13	163+50	163B																5.00	2.50	8.63	1@18,1@24"	SS-2	3.676	288		79		35	2.5					RT
13	163+50		CONC.		60																													CROSS-DRAIN
UNITS				L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	EA.	EA.						C.Y.	LB.	LB.	LB.	C.Y.	C.Y.					
CONCRETE THIS SHEET				120	148	240					1	1											27.308	2280	127	711	0.532	527					
ALTERNATE Ⓐ THIS SHEET				24	24	272																												
ALTERNATE Ⓑ THIS SHEET																																		
ALTERNATE Ⓒ THIS SHEET																																		
ALTERNATE Ⓓ THIS SHEET																																		
UNITS				L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	EA.	EA.						C.Y.	LB.	LB.	LB.	C.Y.	C.Y.					
CONCRETE TOTALS				444	460	536	80	496	80	200	4	9	4	2	6	2	2						40.830	3214	1877	790	4.395	1090					
ALTERNATE Ⓐ TOTALS				64	64	272																												
ALTERNATE Ⓑ TOTALS									12																									

ALTERNATE Ⓐ

ZINC COATED CORRUGATED METAL PIPE, 12 GAUGE (2 2/3" x ½") OR
BITUMINOUS COATED CORRUGATED METAL PIPE, 14 GAUGE (2 2/3" x ½") OR
ALUMINUM COATED CORRUGATED METAL PIPE, 16 GAUGE (2 2/3" x ½") OR
REINFORCED CONCRETE PIPE, CLASS "III" OR
CORRUGATED POLYETHYLENE PIPE OR
POLY VINYL CHLORIDE (PVC) PIPE

ALTERNATE Ⓑ

BITUMINOUS COATED PAVED INVERT CORRUGATED METAL PIPE, 14 GAUGE(2 2/3" x ½") OR
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ALTERNATE Ⓒ

ALTERNATE Ⓓ

NOTE : INLET QUANTITIES ARE BASED ON CONCRETE PIPE BEING USED. NO ADJUSTMENT WILL BE MADE FOR ANY OTHER ALTERNATE PIPE USED.

REVISION | BY | DATE

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

DRAINAGE STRUCTURES

PROJECT NO.

COUNTY :

DESIGNED ____ DETAILED ____ TRACED ____
CHECKED ____ ISSUED ____ DATE ____

WORKING NUMBER
EQ-2

SHEET NUMBER

STATE	PROJECT NO.
MISS.	

SIDE DRAINS

WK. SH. NO.	STATION	SIZES								REMARKS
		LESS THAN 4 % Ⓐ				4 % OR MORE Ⓑ				
		18"	24"	30"	36"	18"	24"	30"	36"	
7	245+00						156'			LT
7	255+00		80'							RT.
7	263+20	76'								RT.
11	249+49	48'								LT
11	250+97					52'				RT.
11	255+65	52'								LT.
		L.F.	L.F.			L.F.	L.F.			
		176'	80'			52'	156'			

Ⓐ ZINC COATED CORRUGATED METAL PIPE, 12 GAUGE (2 2/3" x 1/2") OR
BITUMINOUS COATED CORRUGATED METAL PIPE, 14 GAUGE (2 2/3" x 1/2") OR
ALUMINUM COATED CORRUGATED METAL PIPE, 16 GAUGE (2 2/3" x 1/2") OR
REINFORCED CONCRETE PIPE, CLASS "III" OR
CORRUGATED POLYETHYLENE PIPE OR
POLY VINYL CHLORIDE (PVC) PIPE

Ⓑ BITUMINOUS COATED PAVED INVERT CORRUGATED METAL PIPE, 14 GAUGE(2 2/3" x 1/2") OR
ALUMINUM COATED PAVED INVERT CORRUGATED METAL PIPE, 16 GAUGE (2 2/3" x 1/2") OR
REINFORCED CONCRETE PIPE, CLASS "III" OR
CORRUGATED POLYETHYLENE PIPE OR
POLY VINYL CHLORIDE (PVC) PIPE

DATE	REVISION	BY

MISSISSIPPI DEPARTMENT OF TRANSPORTATION

ESTIMATED QUANTITY :
SIDE DRAINS

WORKING NUMBER
EQ-3

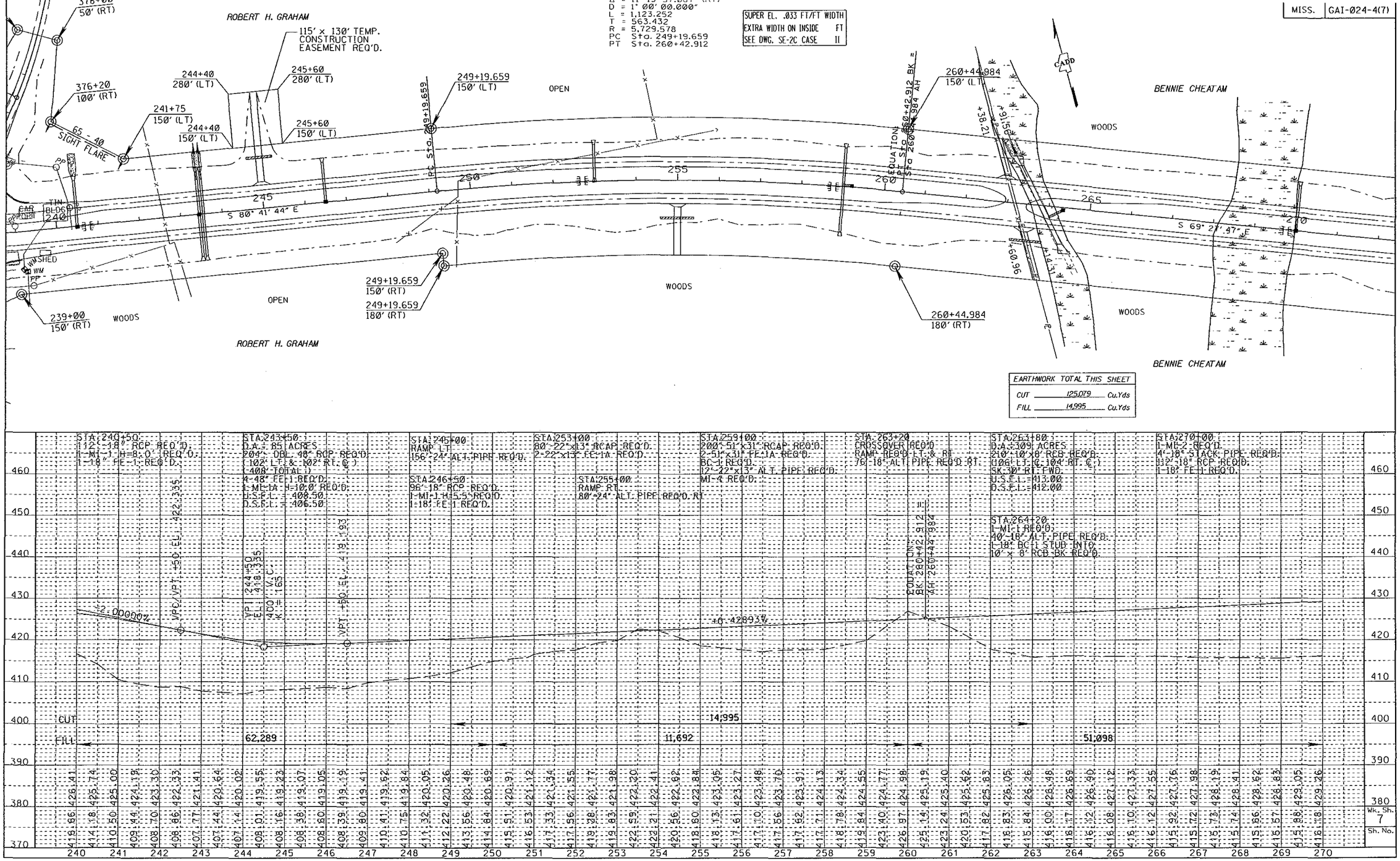
SHEET NUMBER

FILENAME:
DESIGN TEAM CHECKED DATE

COUNTY:
PROJECT NO.:
DESIGN TEAM:
FILENAME:

D = 1° 00' 00.000"
L = 1,123.252
T = 563.432
R = 5,729.578
PC Sta. 249+19.659
PT Sta. 260+42.912

SUPER EL. .033 FT/FT WIDTH	
EXTRA WIDTH ON INSIDE	FT
SEE DWG. SE-2C CASE	II



EARTHWORK TOTAL THIS SHEET		
CUT	125,079	Cu.Yds
FILL	14,995	Cu.Yds

STA. 240+50
12"-18" RCP REQ'D.
1-MI-1 H=8.0' REQ'D.
1-18" FE-1 REQ'D.

STA. 243+50
D.A.: 85 ACRES
204" DBL. 48" RCP REQ'D.
(102" LT & 102" RT. ℄)
(408" TOTAL)
4-48" FE-1 REQ'D.
1-MI-1A H=10.0' REQ'D.
U.S.F.L. = 408.50
D.S.F.L. = 406.50

STA. 245+00
RAMP LT
156"-24" ALT. PIPE REQ'D.

STA. 246+50
96"-18" RCP REQ'D.
1-MI-1 H=5.5' REQ'D.
1-18" FE-1 REQ'D.

STA. 253+00
80'-22" x 13" RCAP REQ'D.
2-22" x 13" FE-1A REQ'D.

STA. 255+00
RAMP RT.
80"-24" ALT. PIPE REQ'D. RT.

STA. 259+00
200"-51" x 31" RCAP REQ'D.
2-51" x 31" FE-1A REQ'D.
BC-1 REQ'D.
12"-22" x 13" ALT. PIPE REQ'D.

STA. 263+20
CROSSOVER REQ'D
RAMP REQ'D. LT. & RT.
76-18" ALT. PIPE REQ'D. RT.
MI-4 REQ'D.

STA. 263+80
D.A.: 309 ACRES
210"-10' x 8' RCB REQ'D.
(106' LT. ℄, 104' RT. ℄)
UK-10' RT. FWD.
U.S.F.L.: 413.00
D.S.F.L.: 412.00

STA. 264+20
1-MI-1 REQ'D.
40"-18" ALT. PIPE REQ'D.
1-18" BC-1 STUB INTO
10' x 8' RCB BK REQ'D.

STA. 270+00
1-MI-2 REQ'D.
4"-18" STACK PIPE REQ'D.
112"-18" RCP REQ'D.
1-18" FE-1 REQ'D.

VPC VPT +50 EL. 422.335
VPI 244+50 EL. 418.335 400' V.C. K = 165
VPT +50 EL. 419.193
-0.000007%
+0.428937%
EQUATION BK 260+42.912 = AH 260+44.984
CUT
FILL
62,289
11,692
14,995
51,098

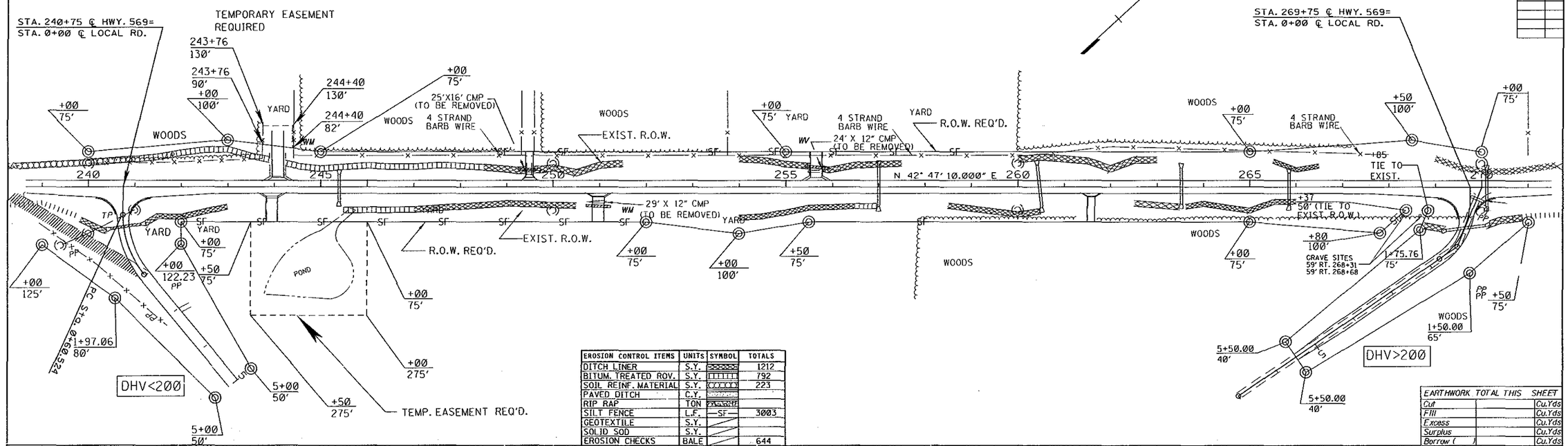
Station	Elevation
240	426.41
241	425.74
242	425.00
243	424.19
244	423.30
245	422.33
246	421.41
247	420.64
248	420.02
249	419.55
250	419.23
251	419.07
252	419.05
253	419.19
254	419.41
255	419.62
256	419.84
257	420.05
258	420.26
259	420.48
260	420.69
261	420.91
262	421.12
263	421.34
264	421.55
265	421.76
266	421.98
267	422.20
268	422.41
269	422.62
270	422.84
271	423.05
272	423.27
273	423.48
274	423.70
275	423.91
276	424.13
277	424.34
278	424.55
279	424.77
280	424.98
281	425.19
282	425.40
283	425.62
284	425.83
285	426.05
286	426.26
287	426.48
288	426.69
289	426.90
290	427.12
291	427.33
292	427.55
293	427.76
294	427.98
295	428.19
296	428.41
297	428.62
298	428.83
299	429.05
300	429.26

Wk. Sh. 7
Sh. No.

PLAN-PROFILE
ROADWAY DESIGN DIVISION C.A.D.D. SECTION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

COUNTY: NESHOBA
PROJECT NO.:
DESIGN TEAM:
FILENAME: WK7LT.DGN

REVISIONS	
DATE	BY



EROSION CONTROL ITEMS	UNITS	SYMBOL	TOTALS
DITCH LINER	S.Y.		1212
BITUM. TREATED ROV.	S.Y.		792
SOIL REINF. MATERIAL	S.Y.		223
PAVED DITCH	C.Y.		
RIP RAP	TON		
SILT FENCE	L.F.	—SF—	3003
GEOTEXTILE	S.Y.		
SOLID SOD	S.Y.		
EROSION CHECKS	BALE		644

EARTHWORK	TOTAL THIS SHEET	
Cut		Cu.Yds
Fill		Cu.Yds
Excess		Cu.Yds
Surplus		Cu.Yds
Borrow ( )		Cu.Yds

STA. 243+95
30' RAMP REQ'D. RT.
DRY

STA. 245+75
88' - 48" RCP REQ'D.
2-48" FES REQ'D.

STA. 249+49
16' RAMP REQ'D. LT.
48' - 18" ALT. PIPE REQ'D.

STA. 255+65
30' RAMP REQ'D. LT.
52' - 18" ALT. PIPE REQ'D.

STA. 257+00
92' - 24" RCP
2 - 24" F.E.S. REQ'D.

STA. 260+40
34' - 30" RCP
5° SKEW RT. FWD.
2 - 30" F.E.S. REQ'D.

STA. 263+50
92' - 24" RCP REQ'D.
2 - 24" F.E.S. REQ'D.

STA. 270+11
92' - 30" RCP REQ'D.
2-30" FES REQ'D.

STA. 244+08
30' RAMP REQ'D. LT.
DRY

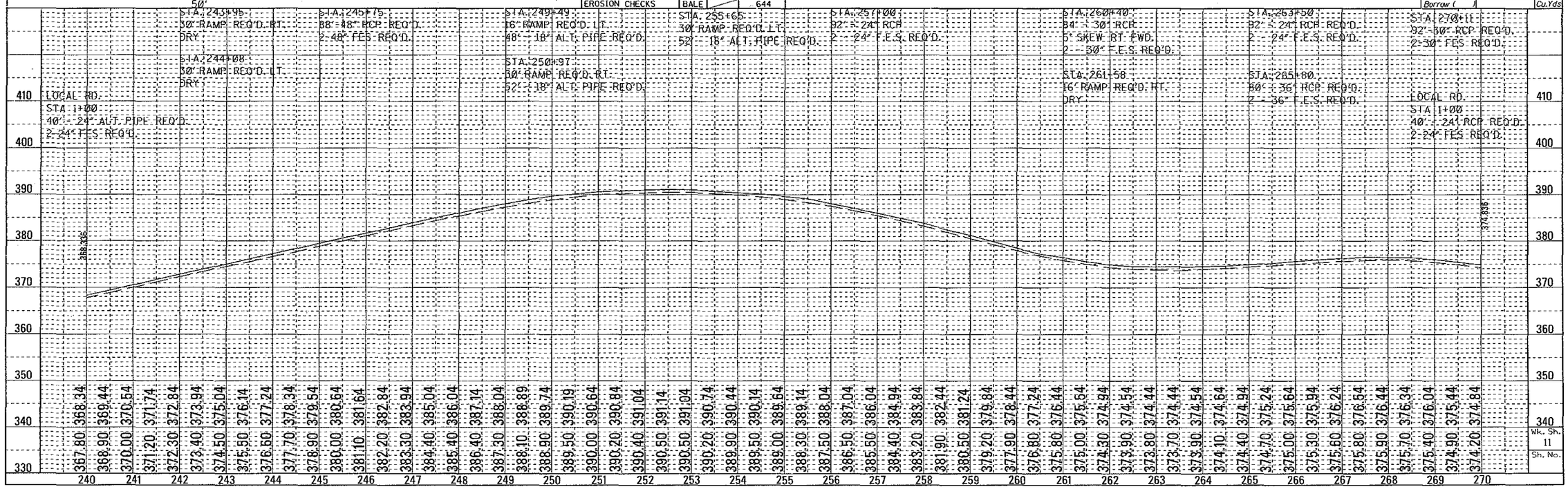
STA. 250+97
30' RAMP REQ'D. RT.
52' - 18" ALT. PIPE REQ'D.

STA. 261+58
16' RAMP REQ'D. RT.
DRY

STA. 265+80
80' - 36" RCP REQ'D.
2 - 36" F.E.S. REQ'D.

LOCAL RD.
STA 1+00
40' - 24" ALT. PIPE REQ'D.
2-24" FES REQ'D.

LOCAL RD.
STA 1+00
40' - 24" RCP REQ'D.
2-24" FES REQ'D.



Wk. Sh. 11
Sh. No.

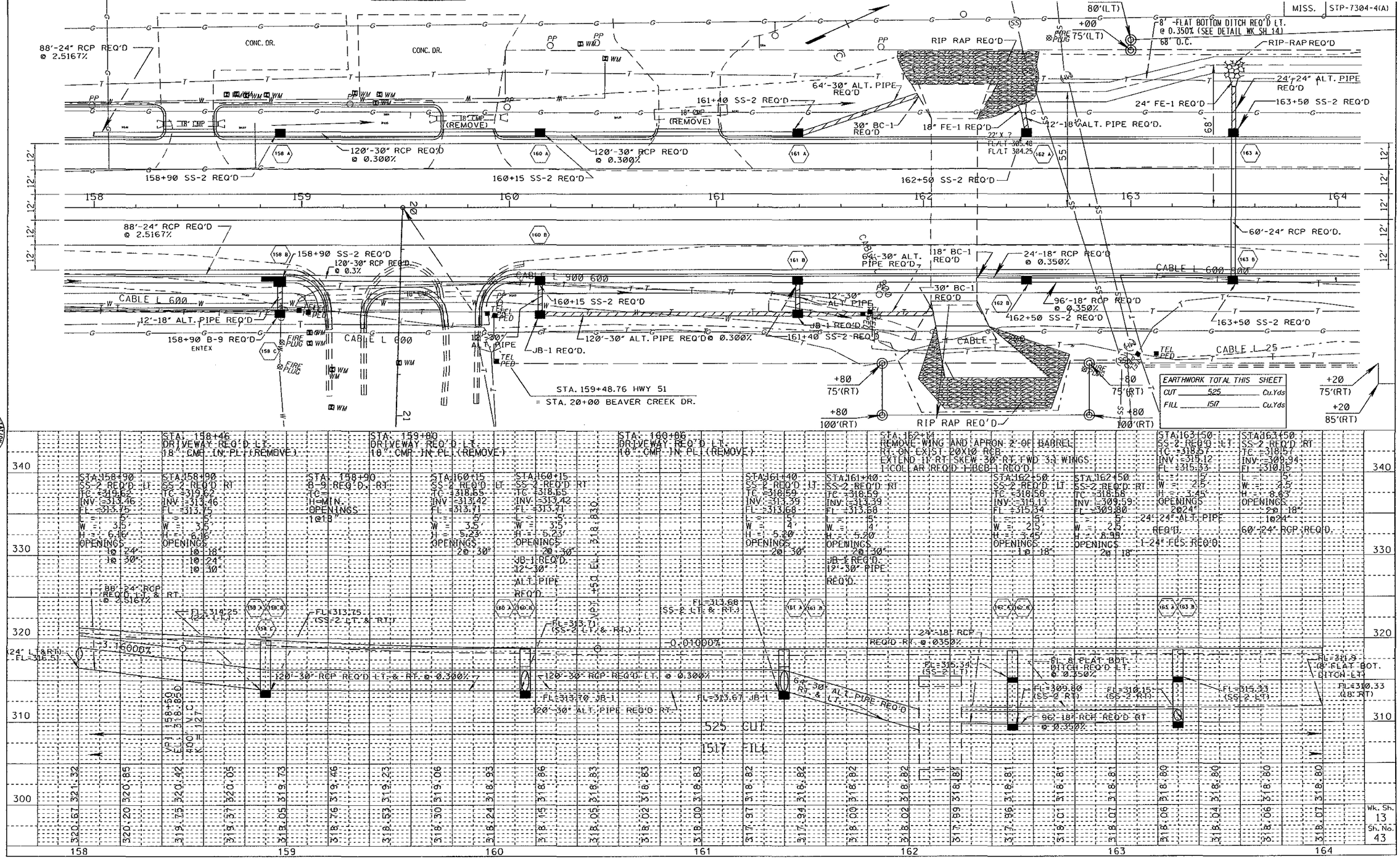
PLAN-PROFILE
ROADWAY DESIGN DIVISION C.A.D.D. SECTION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

COUNTY: AMITE

PROJECT NO.: STP-0242-00(004)

DESIGN TEAM:

FILENAME: WK11.DGN



PLAN-PROFILE
ROADWAY DESIGN DIVISION C.A.D.D. SECTION
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

FILENAME: wk11.dgn