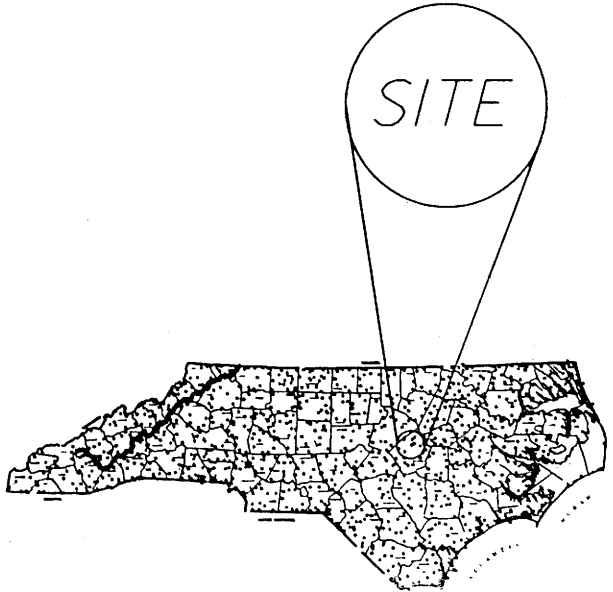


VICINITY MAP



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 JOHNSTON COUNTY  
 8.T311002 R-2552C  
 US-70 CLAYTON BYPASS  
 FROM EAST OF SR-1560  
 TO US-70 EAST OF CLAYTON  
 SCALE AS SHOWN  
 SHEET 1 OF 23 SEPT. 15, 2004

MATCH LINE

SITE C-6

SITE C-5

SITE C-4

SITE C-3

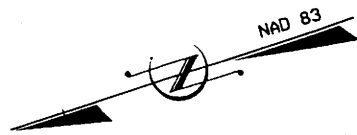
SITE C-1

SITE C-2

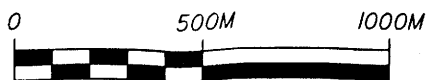
BEGIN TIP PROJECT R-2552C  
 BEGIN F.A. PROJECT NHF-60-1(9)  
 -L2- POT STA. 108 + 53.275  
 -L2LT- POT STA. 108 + 56.959 (50m LT)  
 -L2RT- POT STA. 108 + 51.599 (33.532m RT)

BEGIN CONSTRUCTION  
 -L2- POT 108 + 35.000

-L2- POT 126 + 50.000 LA =  
 -L2-LT ST 126 + 37.900 (10.5m LT) LB  
 -L2-RT POT 126 + 50.325 (10.5m RT) LB



SITE MAP



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

JOHNSTON COUNTY

B.T311002

R-2552C

US-70 CLAYTON BYPASS  
FROM EAST OF SR-1560  
TO US-70 EAST OF CLAYTON

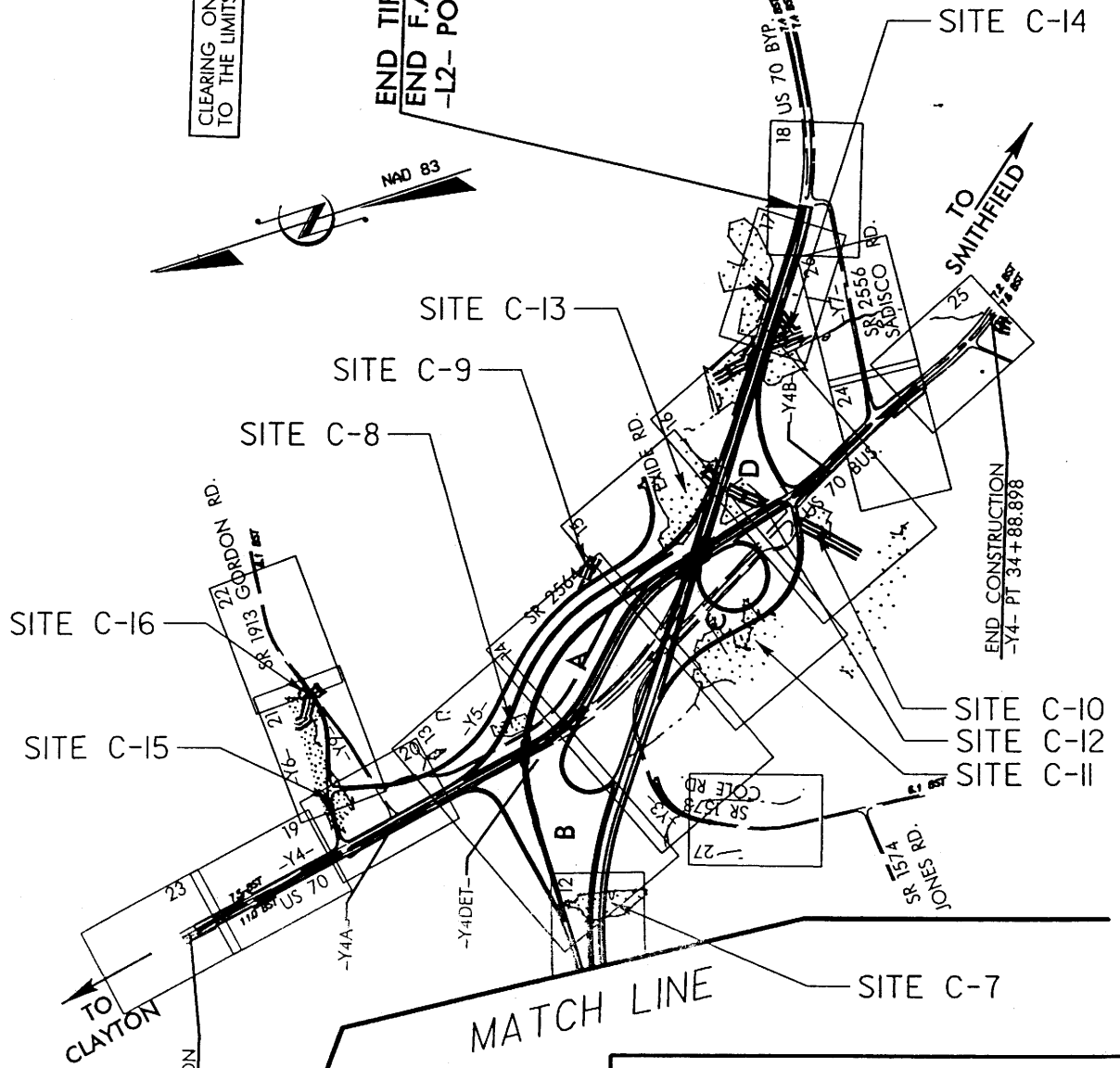
SCALE AS SHOWN

SHEET 2 OF 23

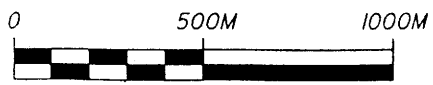
SEPT. 15, 2004

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

END TIP PROJECT R-2552C  
END F.A. PROJECT NHF-60-1(9)  
-L2- POT STA. 158+55.000



SITE MAP



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
JOHNSTON COUNTY  
B.T311002 R-2552C  
US-70 CLAYTON BYPASS  
FROM EAST OF SR-1560  
TO US-70 EAST OF CLAYTON  
SCALE AS SHOWN  
SHEET 3 OF 23  
SEPT. 15, 2002

**PROPERTY OWNERS  
NAME AND ADDRESS**

<b>PARCEL No.</b>	<b>OWNER'S NAME</b>	<b>ADRESS</b>
902	Carolina Packers, Inc.	P. O. Drawer 1109 Smithfield, NC 27577
2	Luther Shelby Durham	4483 Little Creek Church Road Clayton, NC 27520
14	Teresa Montgomery	3731 Peele Road Clayton, NC 27520
15	TAP Properties, LLC	273-D Blue Pond Road Clayton, NC 27520
16	Brenda C. Holt & Connie M. Boykin	3687 Peele Road Clayton, NC 27520
20	John Jennings Williams, Heirs	4335 Little Creek Church Road Clayton, NC 27520
21	Robert Hatcher, Jr.	2498 Peele Road Clayton, NC 27520
26	Scott D. Overbee	P. O. Box 1051 Clayton, NCD LK27520
30	W. J. C. Blinson	7595F US 70W Clayton, NC 27520
31	Vergie B. Wood	616 Barbour St. Clayton, NC 27520
32	Lola's Beauty Shop Limited Partnership	3307 Little Creek Church Road Clayton, NC 27520
35	Norwood Godwin Jones, Jr., et. al.	804 Chestnut Drive Smithfield, NC 27577
38	Carl B. Dean	2000 Neuse Colony Drive Clayton, NC 27520
39	Donald H. Williamson	P. O. Box 605 1546 Piney Grove Church Road Kenly, NC 27542

**N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
JOHNSTON COUNTY  
PROJECT: 8.T311002 R-2552C**

**US-70 CLAYTON BYPASS  
FROM EAST OF SR-1560 TO US-70 EAST OF CLAYTON**

**PROPERTY OWNERS  
NAME AND ADDRESS**

PARCEL No.	OWNER'S NAME	ADDRESS
43	William R. Jones	P. O. Box 393 Pine Level, NC 27568
45	Daniel L. Heavner	P. O. Box 2346 Smithfield, NC 27577
47	W. E. Lancaster	31 Sadisco Road Clayton, NC 27520
34	Worth Gurley	318 S. McDowell St. Raleigh, NC 27601
52	Theodore James Cihos	7744 U.S. Hwy. 70 West Clayton, NC 27520
56	Elbert D. Mitchell	2367 Gordon Road Clayton, NC 27520

N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
JOHNSTON COUNTY

PROJECT: 8.T311002                      R-2552C

US-70 CLAYTON BYPASS  
FROM EAST OF SR-1560 TO US-70 EAST OF CLAYTON

Date: September 15, 2004  
 Dsn. By: RNS

ASSUMPTIONS FOR ROADWAY CUT DITCHES:  
 "V" BOTTOM DITCH  
 MINIMUM GRADE AT SAGS = 0.2%

Site #1

**R-2552C Johnston Co. Affected Buffer Areas**  
 Discharge is considered to be treated if it meets the following criteria:  
 100 ft. of grass swale for every 1 acre of drainage area, AND  
 2 yr. velocity is less than or equal to 2 ft./sec.

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A.		Required length for treatment		PROVIDED Length (m)	Channel Slope (%)	SIDE SLOPES *			Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
					ha	ac	(ft.)	(m.)			Z1	Z2	Z3							
	115	L2 RT	104+80 RT	2-GI	0.84	2.1	207.6	63	199	2.34	0.0	6	6	6	6.9	1.8	8.6	2.0	G.S.	
	114	L2 RT	104+77 LT	2-GI	0.48	1.2	118.6	36	199	2.34	0.0	6	6	6	3.1	1.2	3.8	1.3	G.S.	
	113	L2 LT	104+83 RT	2-GI	0.67	1.7	165.6	50	199	2.34	0.0	6	6	6	5.3	1.6	6.6	1.7	G.S.	
	112	L2 LT	104+85 LT	2-GI	0.75	1.9	185.3	56	179	2.34	0.0	6	6	6	4.6	1.5	5.7	1.6	G.S.	
	116	L2 LT	106+84 LT	2-GI	0.81	2.0	200.2	61	199	3.82	0.0	6	6	6	4.7	1.8	5.9	2.1	G.S.	
	117	L2 LT	106+84 RT	2-GI	0.75	1.9	185.3	56	199	3.82	0.0	6	6	6	5.8	2.0	7.3	2.3	G.S.	
	120	L2 LT	107+81 LT	2-GI	0.50	1.2	123.6	38	99	1.10	0.0	6	6	6	2.8	0.8	3.5	0.9	G.S.	
	121	L2 LT	107+81 RT	2-GI	0.47	1.2	116.1	35	99	1.10	0.0	6	6	6	3.4	0.9	4.3	1.0	G.S.	
4		L2 LT	108+56 LT	2-GI	0.58	1.4	143.3	44	92	SAG	0.0	6	6	6	6.0	0.5	7.5	0.6	G.S.	
4		L2 LT	108+51 RT	2-GI	0.84	2.1	207.6	63	85	SAG	0.0	6	6	6	5.1	0.5	6.5	0.6	G.S.	
4		L2 LT	109+06 RT	OPEN	6.09	16.5	1653.1	504	1549	N/A	N/A	N/A	N/A	N/A	38.7	N/A	49.7	N/A	N/A	1
4	119	L2 RT	106+79 RT	2-GI	0.90	2.2	222.4	68	198	2.34	0.0	6	6	6	6.6	1.7	8.2	2.0	G.S.	
4	118	L2 RT	106+78 LT	2-GI	0.62	1.5	153.2	47	200	2.34	0.0	6	6	6	4.3	1.4	5.4	1.6	G.S.	
4		L2 RT	108+65 LT	2-GI	0.65	1.6	160.6	49	186	0.20	0.0	6	6	6	5.9	0.5	7.4	0.6	G.S.	
4		L2 RT	108+77.5 RT	2-GI	0.59	1.5	145.8	44	234	SAG	0.0	6	6	6	4.8	0.5	6.1	0.5	G.S.	
4		L2 RT	109+15 RT	2-GI	0.00	0.0	0.0	0	0	0.58	0.0	6	6	6	N/A	N/A	N/A	N/A	N/A	
4		L2 RT	109+97 RT	DITCH	3.00	7.4	741.3	226	848	0.61	3.0	3	3	3	19.0	1.7	24.2	2.0	G.S.	1
4		L2 RT	108+77.5 LT	2-GI	0.12	0.3	29.7	9	0	N/A	N/A	N/A	N/A	N/A	1.7	N/A	2.1	N/A	N/A	
4		L2 RT	109+54 LT	2-GI	0.04	0.1	10.4	3	0	N/A	N/A	N/A	N/A	N/A	0.6	N/A	0.7	N/A	N/A	
4		L2 RT	109+79 LT	OPEN	0.16	0.4	40.0	12	0	N/A	N/A	N/A	N/A	N/A	2.3	N/A	2.9	N/A	PSH	1
4		L2 LT	110+37 LT	2-GI	0.12	0.3	29.7	9	0	N/A	N/A	N/A	N/A	N/A	1.6	N/A	1.9	N/A	N/A	
4		L2 LT	109+95 LT	OPEN	0.12	0.3	29.7	9	0	N/A	N/A	N/A	N/A	N/A	1.6	N/A	1.9	N/A	PSH	1
5		L2 RT	111+12 LT	2-GI	0.11	0.3	27.2	8	0	N/A	N/A	N/A	N/A	N/A	1.6	N/A	1.9	N/A	N/A	3
5		L2 RT	112+77 LT	OTCB	0.47	1.2	116.1	35	102	3.98	9.0	4	4	4	3.4	0.8	4.2	0.9	G.S.	
5		L2 LT	112+70 LT	2-GI	0.53	1.3	131.0	40	129	3.85	0.0	6	6	6	4.1	1.8	5.1	1.9	G.S.	
5		L2 LT	112+70 RT	2-GI	0.31	0.8	76.6	23	129	3.85	0.0	6	6	6	2.0	1.2	2.5	1.3	G.S.	
5		L2 LT	111+16 LT	2-GI	0.47	1.2	116.1	35	153	3.34	0.0	6	6	6	4.5	1.7	5.6	1.9	G.S.	
4		L2 RT	110+30 LT	DITCH	3.20	7.9	790.7	241	644	2.00	6.0	3	3	3	15.2	1.7	20.4	2.0	G.S.	1,2

NOTE 1: TOTAL FOR THIS SYSTEM  
 NOTE 2: NO CREDIT IS CLAIMED FOR THE DITCH FROM L2 RT STA. 111+71 TO STA. 112+45 LT  
 NOTE 3: TREATMENT IS PROVIDED DOWNSTREAM

BDS = BERM DRAINAGE OUTLET STRUCTURE  
 OTCB = OPEN THROAT CATCH BASIN  
 OPEN = OPEN END PIPE  
 PSH = PRE FORMED SCOUR HOLE  
 LS = LEVEL SPREADER  
 \* SIDE SLOPES TAKEN FROM CROSS SECTIONS

2GI = 2 GRATED INLET  
 SBG = SHOULDER BERM GUTTER  
 CB = CATCH BASIN  
 DDB = DRY DETENTION BASIN  
 B = BASIN  
 GS = GRASS SWALE

**R-2552C Johnston Co. Affected Buffer Areas Site # 4**

Discharge is considered to be treated if it meets the following criteria:  
 100 ft. of grass swale for every 1 acre of drainage area. AND  
 2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:  
 "V" BOTTOM DITCH  
 MINIMUM GRADE AT SAGS = 0.2%

Date: September 15, 2004  
 Dsn. By: RNS

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A.		Required length for treatment		PROVIDED Length (m)	Channel Slope (%)	SIDE SLOPES *		Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks		
					ha	(ac)	(ft.)	(m.)			Z1	Z2									
8		L2 LT	120+80 LT	2-GI	0.14	0.3	34.6	11	0	N/A	N/A	N/A	NO	2.0	N/A	2.5	N/A	PSH	1		
8		Y1	11+16 RT	DITCH	0.30	0.7	74.1	23	26	3.33	4.00	3.00	YES	1.8	1.3	2.4	1.5	G.S.	1		
8		Y1	11+17 RT	DITCH	0.12	0.3	29.7	9	43	2.70	4.00	3.00	YES	1.1	1.0	1.3	1.1	G.S.	1		

2GI = 2 GRATED INLET  
 SBG = SHOULDER BERM GUTTER  
 CB = CATCH BASIN  
 DDB = DRY DETENTION BASIN  
 B = BASIN  
 GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE  
 OTCB = OPEN THROAT CATCH BASIN  
 OPEN = OPEN END PIPE  
 PSH = PRE FORMED SCOUR HOLE  
 LS = LEVEL SPREADER  
 \* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

**R-2552C Johnston Co. Affected Buffer Areas**

**Site # 5**

Date: September 15, 2004

Dsn. By: RNS

Discharge is considered to be treated if it meets the following criteria:

100 ft. of grass swale for every 1 acre of drainage area. AND  
2 yr. velocity is less than or equal to 2 ft./sec.

ASSUMPTIONS FOR ROADWAY CUT DITCHES:  
"V" BOTTOM DITCH  
MINIMUM GRADE AT SAGS = 0.2%

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Total D.A. (ac)	Required length for treatment		PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES *		Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
							(ft.)	(m.)				Z1	Z2							
9		L2	126+10 LT	2-GI	0.18	0.4	44.5	14	0	1.50	N/A	N/A	N/A	NO	2.5	N/A	3.2	N/A	N/A	
9		L2	126+10 M	2-GI	0.27	0.7	66.7	20	129	1.50	0.0	8	8	YES	1.8	0.8	2.2	0.8	G.S.	
9		L2	126+10 RT	2-GI	0.04	0.1	9.9	3	0	1.50	N/A	N/A	N/A	NO	0.6	N/A	0.7	N/A	N/A	
9		L2	125+88 RT	2-GI	0.20	0.5	49.4	15	0	1.50	N/A	N/A	N/A	NO	2.8	N/A	3.5	N/A	N/A	
9		L2	125+88 RT	OPEN	0.69	1.7	170.5	52	129		N/A	N/A	N/A	NO	6.2	N/A	8.0	N/A	PSH	1
9		L2	126+00 LT	DITCH	3.30	8.2	815.4	249	N/A	N/A	N/A	N/A	N/A	NO	12.1	N/A	16.5	N/A	L.S.	1
9		L2	126+40 RT	DITCH	3.10	7.7	766.0	233	N/A	N/A	N/A	N/A	N/A	NO	10.6	N/A	14.6	N/A	L.S.	1

NOTE 1: TOTAL FOR THIS SYSTEM

BDOS = BERM DRAINAGE OUTLET STRUCTURE  
OTCB = OPEN THROAT CATCH BASIN  
OPEN = OPEN END PIPE  
PSH = PRE FORMED SCOUR HOLE  
LS = LEVEL SPREADER  
\* SIDE SLOPES TAKEN FROM CROSS SECTIONS

2GI = 2 GRATED INLET  
SBG = SHOULDER BERM GUTTER  
CB = CATCH BASIN  
DDB = DRY DETENTION BASIN  
B = BASIN  
GS = GRASS SWALE



Date: September 15, 2004  
Dsn. By: RNS

ASSUMPTIONS FOR ROADWAY CUT DITCHES:  
"V" BOTTOM DITCH  
MINIMUM GRADE AT SAGS = 0.2%

Site # 6

R-2552C Johnston Co. Affected Buffer Areas

Discharge is considered to be treated if it meets the following criteria:  
100 ft. of grass swale for every 1 acre of drainage area. AND  
2 yr. velocity is less than or equal to 2 ft./sec.

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha (ac)	Required length for treatment		PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES *		Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
						(ft.)	(m.)				Z1	Z2							
10		L2	129+68 RT	2-GI	0.38	0.9	93.9	29	0.77	0.0	6	6	YES	3.7	0.8	4.6	0.9	G.S.	
10		L2	129+68 M	2-GI	0.50	1.2	123.6	38	0.77	0.0	8	8	YES	2.9	0.7	3.6	0.7	G.S.	
10		L2	129+68 LT	2-GI	0.54	1.3	133.4	41	0.85	0.0	6	6	YES	4.8	1.0	6.1	1.1	G.S.	
10		L2	130+20 LT	2-GI	0.15	0.4	37.1	11	0.85	0.0	6	6	YES	1.5	0.6	1.9	0.7	G.S.	
10		L2	131+49 RT	2-GI	0.47	1.2	116.1	35	1.34	0.0	6	6	YES	4.5	1.1	5.7	1.3	G.S.	
10		L2	131+49 M	2-GI	0.38	0.9	93.9	29	1.34	0.0	8	8	YES	2.4	0.8	3.0	0.8	G.S.	
10		L2	131+47 LT	DITCH	3.17	7.8	783.3	239	1.34	4.0	3	3	YES	17.6	1.9	23.3	2.3	G.S.	
11		L2	133+60 LT	DITCH	4.70	11.6	1161.4	354	0.33	4.0	3	3	YES	23.0	1.4	31.2	1.6	G.S.	1, 2
11		L2	132+60 M	2-GI	0.23	0.6	56.8	17	1.34	0.0	8	8	YES	1.6	0.7	2.0	0.7	G.S.	
11		L2	132+60 RT	2-GI	0.60	1.5	148.3	45	1.34	0.0	6	6	YES	3.2	0.9	8.1	1.6	G.S.	
11		L2	133+05 RT	DITCH	3.40	8.4	840.1	256	1.00	1.2	3	3	NO	10.8	1.2	14.8	2.2	G.S.	1
11		L2	133+86 M	2-GI	0.43	1.1	106.3	32	SAG	0.0	8	8	YES	3.6	0.4	4.6	0.5	G.S.	
11		L2	133+86 RT	2-GI	0.07	0.2	17.3	5	N/A	N/A	N/A	N/A	NO	1.0	N/A	1.2	N/A	N/A	
11		L2	133+36 RT	2-GI	0.09	0.2	22.2	7	N/A	N/A	N/A	N/A	NO	1.3	N/A	1.6	N/A	N/A	
11		L2	133+36 RT	OPEN	0.59	1.5	145.8	44	N/A	N/A	N/A	N/A	NO	5.6	N/A	7.1	N/A	PSH	1
11		L2	134+55 M	2-GI	0.45	1.1	111.2	34	SAG	0.0	6	6	YES	3.8	0.5	4.8	0.5	G.S.	
11		L2	134+55 RT	2-GI	0.20	0.5	49.4	15	N/A	N/A	N/A	N/A	NO	2.8	N/A	3.5	N/A	N/A	
11		L2	134+55 RT	OPEN	0.65	1.6	160.6	49	N/A	N/A	N/A	N/A	NO	6.4	N/A	8.0	N/A	RIP RAP PAD	1, 3
12		FLYOVER	2+68 RT	2-GI	0.80	2.0	197.7	60	SAG	0.0	6	6	YES	3.9	0.5	5.0	0.5	G.S.	
12		FLYOVER	2+68 LT	2-GI	0.75	1.9	185.3	56	0.69	0.0	6	6	YES	6.2	0.8	7.9	0.9	G.S.	
12		FLYOVER	2+06 LT	2-GI	0.15	0.4	37.1	11	0.69	0.0	6	6	YES	1.6	0.6	2.0	0.6	G.S.	
11		FLYOVER	1+00 LT	DITCH	3.25	8.0	803.1	245	0.81	4.0	3	3	YES	18.9	1.2	25.0	1.3	G.S.	1
11		FLYOVER	0+70 LT	2-GI	0.13	0.3	32.1	10	0.22	N/A	N/A	N/A	NO	1.8	N/A	2.3	N/A	G.S.	
11		FLYOVER	1+16.4 LT	2-GI	0.14	0.3	34.6	11	N/A	N/A	N/A	N/A	NO	2.0	N/A	2.5	N/A	G.S.	
11		FLYOVER	1+16.4 LT	OPEN	0.27	0.7	66.7	20	0.90	N/A	N/A	N/A	NO	3.8	N/A	4.8	N/A	PSH	1

2GI = 2 GRATED INLET  
SBG = SHOULDER BERM GUTTER  
CB = CATCH BASIN  
DDB = DRY DETENTION BASIN  
B = BASIN  
GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE  
OTCB = OPEN THROAT CATCH BASIN  
OPEN = OPEN END PIPE  
PSH = PRE FORMED SCOUR HOLE  
LS = LEVEL SPREADER  
\* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM  
NOTE 2: No credit is claimed for 4M Base Ditch from Sta. 132+00 to Sta. 133+30 LT.  
NOTE 3: OUTLETS INTO WETLAND

**R-2552C Johnston Co. Affected Buffer Areas Site # 9**

Date: September 15, 2004  
Dsn. By: RNS

ASSUMPTIONS FOR ROADWAY CUT DITCHES:  
"V" BOTTOM DITCH  
MINIMUM GRADE AT SAGS = 0.2%

Discharge is considered to be treated if it meets the following criteria:  
100 ft. of grass swale for every 1 acre of drainage area. AND  
2 yr. velocity is less than or equal to 2 ft./sec.

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A.		Required length for treatment (m.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES *		Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
					ha	ac					Z1	Z2							
14		FLYOVER	12+46 RT	2-GI	0.12	0.3	29.7	9	N/A	N/A	N/A	N/A	N/A	1.7	N/A	2.1	N/A	N/A	3
14		FLYOVER	13+60 RT	2-GI	0.13	0.3	32.1	10	N/A	N/A	N/A	N/A	N/A	1.8	N/A	2.3	N/A	N/A	3
14		FLYOVER	12+86 RT	DITCH	1.10	2.7	271.8	83	0.83	0.0	3	3	YES	5.0	1.3	6.7	1.5	G.S.	
14		RAMP A	6+55.5 LT	DITCH	0.25	0.6	61.8	19	0.88	0.0	6	3	YES	2.0	0.7	2.6	0.8	G.S.	
14		RAMP A	6+56.5 LT	DITCH	0.75	1.9	185.3	56	2.40	0.0	6	3	YES	5.4	1.9	6.8	2.1	G.S.	
14		RAMP A	6+37.5 RT	DITCH	0.20	0.5	49.4	15	0.75	0.0	5	4	YES	0.9	0.6	1.1	0.6	G.S.	
14		RAMP A	6+38.5 RT	DITCH	0.70	1.7	173.0	53	2.00	0.0	6	4	YES	4.5	1.5	5.6	1.6	G.S.	
14		Y-5-	18+80 LT	DITCH	0.55	1.4	135.9	41	2.90	0.0	4	4	YES	4.3	1.9	5.4	2.1	G.S.	
14		Y-5-	19+93 LT	DITCH	3.80	9.4	939.0	286	0.35	0.6	3	3	YES	15.6	1.5	21.5	1.7	G.S.	1
14		FLYOVER	14+26 RT	2-GI	0.08	0.2	19.8	6	N/A	N/A	N/A	N/A	N/A	1.1	N/A	1.4	N/A	N/A	3
14		FLYOVER	13+92 RT	DITCH	0.66	1.6	163.1	50	0.91	0.0	3	3	YES	4.8	1.3	6.1	1.5	G.S.	
14		RAMP A	5+40 LT	2-GI	0.28	0.7	69.2	21	1.01	0.0	6	6	YES	2.3	0.7	2.9	0.8	G.S.	
14		Y-5-	19+95 RT	DITCH	0.26	0.6	64.2	20	1.60	0.0	4	4	YES	2.0	0.9	2.4	1.1	G.S.	
14		Y-5-	19+96 LT	OPEN	1.20	3.0	296.5	90	N/A	N/A	N/A	N/A	NO	8.1	N/A	10.3	N/A	N/A	1

2GI = 2 GRATED INLET  
SBG = SHOULDER BERM GUTTER  
CB = CATCH BASIN  
DDB = DRY DETENTION BASIN  
B = BASIN  
GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE  
OTCB = OPEN THROAT CATCH BASIN  
OPEN = OPEN END PIPE  
PSH = PRE FORMED SCOUR HOLE  
LS = LEVEL SPREADER  
\* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM  
NOTE 3: TREATMENT IS PROVIDED DOWNSTREAM

**R-2552C Johnston Co. Affected Buffer Areas Site # 10**

Date: September 15, 2004  
Dsn. By: RNS

ASSUMPTIONS FOR ROADWAY CUT DITCHES:  
"V" BOTTOM DITCH  
MINIMUM GRADE AT SAGS = 0.2%

Discharge is considered to be treated if it meets the following criteria:  
100 ft. of grass swale for every 1 acre of drainage area. AND  
2 yr. velocity is less than or equal to 2 ft./sec.

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. ha	Required length for treatment (ft.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES *		Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks	
										Z1	Z2								
16		Y-4	27+40 RT	DITCH	0.31	76.6	150	2.00	0.0	5	4	YES	1.6	0.9	2.0	1.0	G.S.	1	

2GI = 2 GRATED INLET  
 SBG = SHOULDER BERM GUTTER  
 CB = CATCH BASIN  
 DDB = DRY DETENTION BASIN  
 B = BASIN  
 GS = GRASS SWALE

BDS = BERM DRAINAGE OUTLET STRUCTURE  
 OTCB = OPEN THROAT CATCH BASIN  
 OPEN = OPEN END PIPE  
 PSH = PRE FORMED SCOUR HOLE  
 LS = LEVEL SPREADER  
 \* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

Date: September 15, 2004  
Dsn. By: RNS

**R-252C Johnston Co. Affected Buffer Areas**  
Site # 12  
ASSUMPTIONS FOR ROADWAY CUT DITCHES:  
"V" BOTTOM DITCH  
MINIMUM GRADE AT SAGS = 0.2%

Discharge is considered to be treated if it meets the following criteria:  
100 ft. of grass swale for every 1 acre of drainage area. AND  
2 yr. velocity is less than or equal to 2 ft./sec.

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A.		Required length for treatment (ft.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES *		Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
					ha	ac					Z1	Z2							
16		Y-4	26+88 M	2-GI	0.32	0.8	79.1	24	0.74	0.0	6	6	YES	2.3	0.7	2.9	0.7	G.S.	
16		Y-4	26+88 LT	2-GI	0.26	0.6	64.2	20	0.74	N/A	N/A	N/A	N/A	3.7	N/A	4.6	N/A	G.S.	3
16		Y-4	28+86 LT	2-GI	0.04	0.1	9.9	3	SAG	0.0	6	6	YES	0.4	0.3	0.5	0.3	G.S.	
16		Y-4	28+72 LT	2-GI	0.05	0.1	12.4	4	SAG	0.0	6	6	YES	0.5	0.3	0.7	0.3	G.S.	
16		Y-4	27+50 LT	2-GI	0.52	1.3	128.5	39	0.55	0.0	6	6	YES	5.5	0.8	6.8	0.9	G.S.	
16		Y-4	27+40 M	2-GI	0.36	0.9	89.0	27	0.34	0.0	6	4	YES	3.2	0.6	4.0	0.6	G.S.	
16		Y-4	26+59 LT	DITCH	1.76	4.3	434.9	133	0.70	1.0	3	3	YES	14.1	1.9	18.1	2.1	G.S.	1
15		Y-4	25+04 LT	2-GI	0.20	0.5	49.4	15	N/A	N/A	N/A	N/A	N/A	2.8	N/A	3.5	N/A	PSH	
15		L2-	149+41 M	2-GI	0.23	0.6	56.8	17	SAG	0.0	5	5	YES	1.8	0.4	2.3	0.4	G.S.	
16		L2-	150+19 RT	DITCH	1.15	2.8	284.2	87	1.00	0.00	4.00	4.00	YES	5.8	1.3	7.5	1.5	G.S.	1, 4
16		L2-	151+63 RT	2-GI	0.11	0.3	27.2	8	0.40	0.0	6	6	YES	0.8	0.4	1.0	0.4	G.S.	
16		L2-	150+25 RT	DITCH	1.31	3.2	323.7	99	1.30	0.0	6	4	YES	3.3	1.0	4.5	1.2	G.S.	1, 4

NOTE 1: TOTAL FOR THIS SYSTEM  
NOTE 3: TREATMENT IS PROVIDED DOWNSTREAM  
NOTE 4: EXISTING DITCH

BDOS = BERM DRAINAGE OUTLET STRUCTURE  
OTCB = OPEN THROAT CATCH BASIN  
OPEN = OPEN END PIPE  
PSH = PRE FORMED SCOUR HOLE  
LS = LEVEL SPREADER  
\* SIDE SLOPES TAKEN FROM CROSS SECTIONS

2GI = 2 GRATED INLET  
SBG = SHOULDER BERM GUTTER  
CB = CATCH BASIN  
DDB = DRY DETENTION BASIN  
B = BASIN  
GS = GRASS SWALE

Date: September 15, 2004  
Dsn. By: RNS

**R-252C Johnston Co. Affected Buffer Areas Site # 13**  
ASSUMPTIONS FOR ROADWAY CUT DITCHES:  
"V" BOTTOM DITCH  
MINIMUM GRADE AT SAGS = 0.2%

Discharge is considered to be treated if it meets the following criteria:  
100 ft. of grass swale for every 1 acre of drainage area. AND  
2 yr. velocity is less than or equal to 2 ft./sec.

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A.		Required length for treatment		PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES *		Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks	
					ha	(ac)	(ft.)	(m.)				Z1	Z2								
16		L2	150+55 LT																		

NOTE 1: TOTAL FOR THIS SYSTEM

- BDOS = BERM DRAINAGE OUTLET STRUCTURE
- OTCB = OPEN THROAT CATCH BASIN
- OPEN = OPEN END PIPE
- PSH = PRE FORMED SCOUR HOLE
- LS = LEVEL SPREADER
- \* SIDE SLOPES TAKEN FROM CROSS SECTIONS

- 2GI = 2 GRATED INLET
- SBG = SHOULDER BERM GUTTER
- CB = CATCH BASIN
- DDB = DRY DETENTION BASIN
- B = BASIN
- GS = GRASS SWALE

**R-252C Johnston Co. Affected Buffer Areas Site # 14**

Date: September 15, 2004  
Dsn. By: RNS

ASSUMPTIONS FOR ROADWAY CUT DITCHES:  
"V" BOTTOM DITCH  
MINIMUM GRADE AT SAGS = 0.2%

Discharge is considered to be treated if it meets the following criteria:  
100 ft. of grass swale for every 1 acre of drainage area. AND  
2 yr. velocity is less than or equal to 2 ft./sec.

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A.		Required length for treatment (ft.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID (m)	SIDE SLOPES *		Treated Discharge?	Q2 cfs	V 2 fps	Q10 cfs	V 10 fps	Treatment Provided	Remarks
					ha	(ac)					Z1	Z2							
16		L2	152+62 LT	DITCH	0.22	0.5	54.4	92	3.50	0.0	4	3	YES	2.0	1.5	2.5	1.7	G.S.	1, 4
16		L2	152+64 RT	2-GI	0.59	1.5	145.8	307	2.09	0.0	6	6	YES	3.7	1.3	4.7	1.4	G.S.	
16		RAMPD	2+40 LT	2-GI	2.20	5.4	543.6	284	0.32	0.0	6	6	YES	12.2	1.0	16.4	1.1	G.S.	
16		L2	153+33 M	2-GI	0.24	0.6	59.3	165	0.44	0.0	6	6	YES	1.6	0.5	2.0	0.5	G.S.	
16		L2	153+80 RT	DITCH	3.70	9.1	914.3	796	0.24	1.0	3	3	YES	17.5	1.3	23.7	1.5	G.S.	1
17		L2	154+64.5	2-GI	0.40	1.0	98.8	283	SAG	0.0	5	5	YES	2.8	0.4	3.5	0.5	G.S.	1
17		L2	156+20 M	2-GI	0.22	0.5	54.4	117	0.90	0.0	6	6	YES	2.0	0.7	2.5	0.7	G.S.	
17		L2	157+38.5	2-GI	0.32	0.8	79.1	101	0.80	0.0	6	4	YES	3.8	0.9	4.7	1.0	G.S.	
17		L2	156+25 RT	DITCH	1.70	4.2	420.1	207	1.63	3.0	3	3	YES	12.0	1.9	15.5	2.2	G.S.	2
17		L2	155+30 RT	DITCH	2.20	5.4	543.6	409	0.75	2.0	3	3	YES	14.4	1.8	19.0	2.0	G.S.	1

2GI = 2 GRATED INLET  
SBG = SHOULDER BERM GUTTER  
CB = CATCH BASIN  
DDB = DRY DETENTION BASIN  
B = BASIN  
GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE  
OTCB = OPEN THROAT CATCH BASIN  
OPEN = OPEN END PIPE  
PSH = PRE FORMED SCOUR HOLE  
LS = LEVEL SPREADER  
\* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM  
NOTE 2: NO CREDIT IS CLAIMED FOR THE DITCH FROM L2 STA. 156+15 TO STA. 156+25 RT AND FROM STA. 157+20 RT AHEAD  
NOTE 4: EXISTING DITCH

**R-2552C Johnston Co. Affected Buffer Areas Site # 16**

Date: September 15, 2004  
Dsn. By: RNS

**ASSUMPTIONS FOR ROADWAY CUT DITCHES:**

"V" BOTTOM DITCH  
MINIMUM GRADE AT SAGS = 0.2%

**Discharge is considered to be treated if it meets the following criteria:**

100 ft. of grass swale for every 1 acre of drainage area. AND  
2 yr. velocity is less than or equal to 2 ft./sec.

SHT. No.	Structure No.	Line	Station	STR. Type	Total D.A. (ac)	ha	Required length for treatment (ft.)	PROVIDED Length (m)	Channel Slope (%)	BASE WID. (m)	SIDE SLOPES * Z1 Z2	Treated Discharge?	Q2 cfs	V.2 fps	Q10 cfs	V.10 fps	Treatment Provided	Remarks	
21		Y-6	14+30 LT	DITCH	0.2	0.07	17.8	30	1.06	0.0	6 4	YES	0.7	0.6	0.9	0.6	G.S.	1	
21		Y-6	14+40 RT	DITCH	3.7	1.50	370.7	140	3.50	0.0	4 3	N/A	7.2	2.8	9.7	3.1	PSH	1, 5	
22		Y-6	14+90 LT	DITCH	0.5	0.19	46.9	59	0.33	0.0	3 4	YES	1.7	0.5	2.1	0.5	G.S.	1	

2GI = 2 GRATED INLET  
 SBG = SHOULDER BERM GUTTER  
 CB = CATCH BASIN  
 DBB = DRY DETENTION BASIN  
 B = BASIN  
 GS = GRASS SWALE

BDOS = BERM DRAINAGE OUTLET STRUCTURE  
 OTCB = OPEN THROAT CATCH BASIN  
 OPEN = OPEN END PIPE  
 PSH = PRE FORMED SCOUR HOLE  
 LS = LEVEL SPREADER  
 \* SIDE SLOPES TAKEN FROM CROSS SECTIONS

NOTE 1: TOTAL FOR THIS SYSTEM

NOTE 5: NO HIGHWAY PAVEMENT DRAINS TO THIS SITE

## BUFFER IMPACTS SUMMARY (English)

SITE NO.	STRUCTURE SIZE / TYPE	STATION (FROM/TO)	IMPACT						BUFFER REPLACEMENT			
			TYPE		ALLOWABLE		MITIGABLE		ZONE 1 (ft <sup>2</sup> )	ZONE 2 (ft <sup>2</sup> )		
			ROAD CROSSING	PARALLEL IMPACT	ZONE 1 (ft <sup>2</sup> )	ZONE 2 (ft <sup>2</sup> )	TOTAL (ft <sup>2</sup> )	ZONE 1 (ft <sup>2</sup> )			ZONE 2 (ft <sup>2</sup> )	
1	DUAL BRIDGES	L2 LT LN 108+84 / 110+28 L2 RT LN 109+72 / 111+02	X					23368	13433	36801		
4	750 RCP	Y1 11+06 / 11+35 RT	X		2097	861	2958					
5	1500 RCP	L2 126+12 / 126+49	X					19889	13157	33046		
6	DBL 2.7x1.8 RCBC 1200 RCP 3.7x2.4 RCBC	L2 133+87 / 134+23	X					19451	13196	32647		
9	750 RCP	Y5 20+10 / 20+30		X	549	958	1507					
10	2.7x1.8 RCBC 1800 RCP	Rp C 7+68 / 8+16	X		5479	2099	7578					
12	1200 RCP	L2 150+05 / 150+42 RT	X		2712	1087	3799					
13	1050 RCP	L2 150+27 / 150+68 LT	X		1937	850	2787					
14	2.44x1.83 RCBC 1500 STEEL PIPE 900 RCP & 600 RCP	L2 153+64 LT / 155+54 RT	X		4801	2390	7191					
16	DBL 1500 RCP	Y6 14+24 / 14+76	X		4176	2153	6329					
<b>TOTAL:</b>					<b>21751</b>	<b>10398</b>	<b>32149</b>	<b>62708</b>	<b>39786</b>	<b>102494</b>		

N.C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 JOHNSTON COUNTY  
 PROJECT: 8.T311002 (R-2552C)  
 US-70 CLAYTON BYPASS  
 FROM EAST OF SR-1560  
 TO US-70 EAST OF CLAYTON



### BUFFER IMPACTS SUMMARY (ENGLISH)


Site	Station (FROM/TO)	WETLANDS IN BUFFER		MECH. CLEARING IN BUFFER		TOTAL	
		ZONE 1 (FT^2)	ZONE 2 (FT^2)	ZONE 1 (FT^2)	ZONE 2 (FT^2)	ZONE 1 (FT^2)	ZONE 2 (FT^2)
- C-1	L2 LT LN 108+84 / 110+28 L2 RT LN 109+72 / 111+02	0	0	0	86	0	86
C-4	Y1 11+06 / 11+35 RT	0	0	0	0	0	0
- C-5	L2 126+12 / 126+49	0	0	0	0	0	0
- C-6	L2 133+87 / 134+23	15145	9795	4327	2659	19472	12454
C-9	Y5 20+10 / 20+30	0	0	0	0	0	0
C-10	Rp C 7+68 / 8+16	550	0	1379	75	1929	75
C-12	L2 150+05 / 150+42 RT	0	0	1119	75	1119	75
C-13	L2 150+27 / 150+68 LT	1014	419	662	410	1676	829
C-14	L2 153+64 LT / 155+54 RT	1410	657	1453	797	2863	1454
C-16	Y6 14+24 / 14+76	12	0	581	321	593	321
<b>TOTAL:</b>		<b>18131</b>	<b>10871</b>	<b>9521</b>	<b>4423</b>	<b>27652</b>	<b>15294</b>

N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS

JOHNSTON COUNTY  
PROJECT 8.T311002 (R-2552C)  
US-70 CLAYTON BYPASS  
FROM EAST OF SR-1560  
TO US-70 EAST OF CLAYTON

**TIP PROJECT: R-2552C**

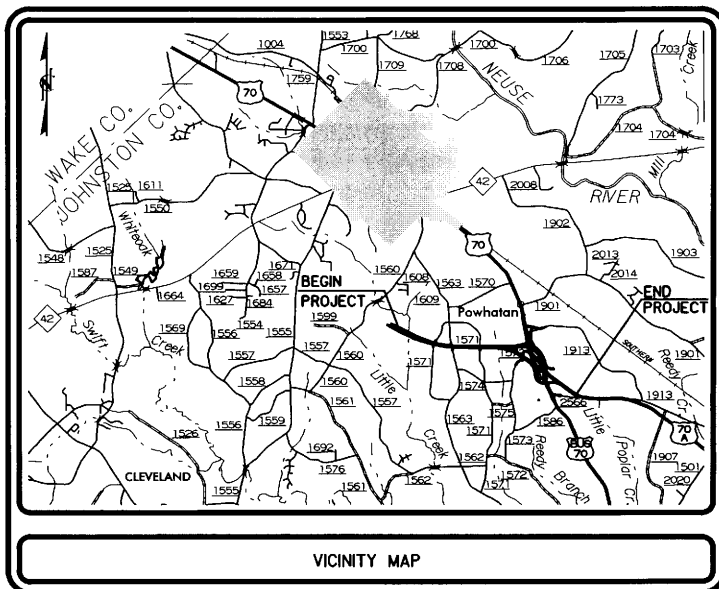
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS



ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2552C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34459.1.6	NHF-60-1(9)	P.E.	
34459.2.7		R.W. & UTIL.	

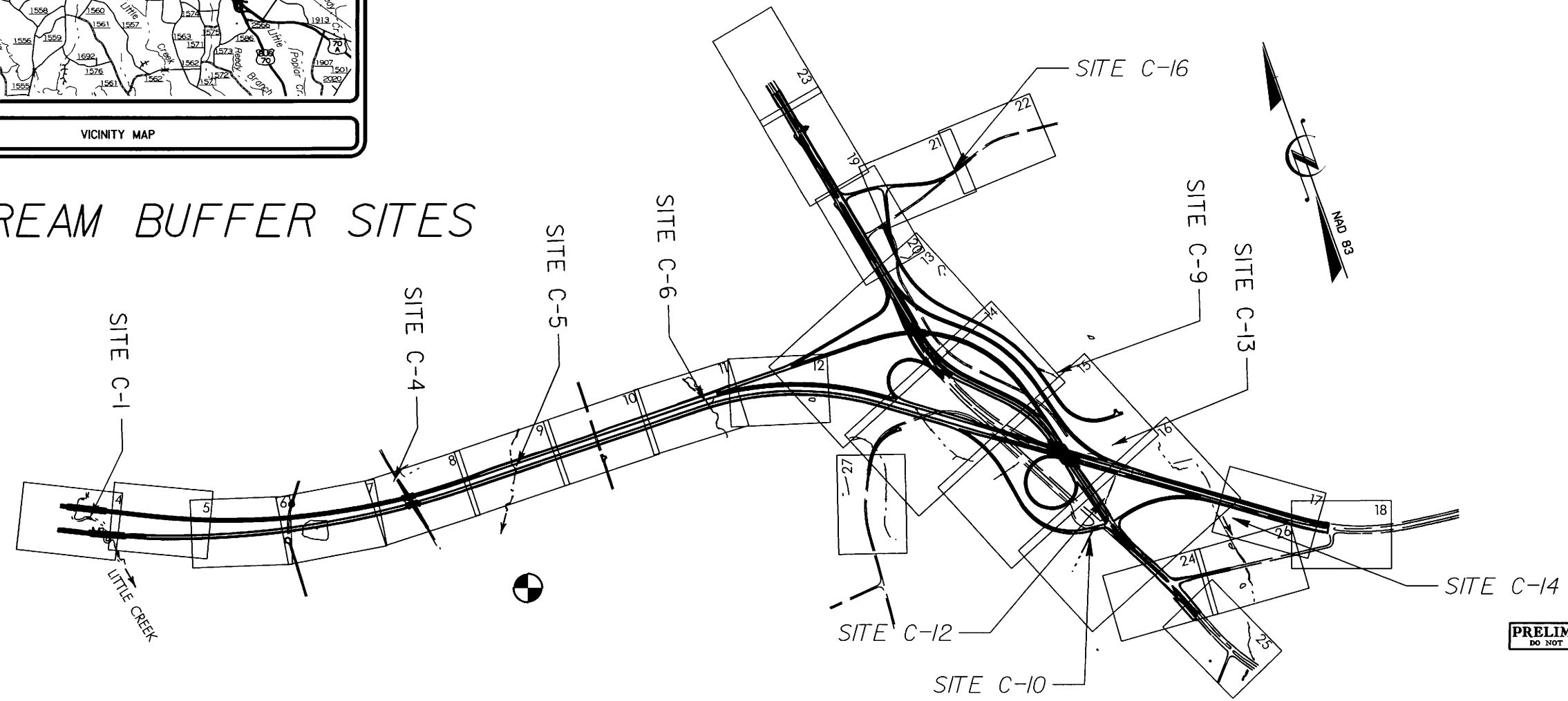
See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols



**JOHNSTON COUNTY**

**LOCATION: US 70 (CLAYTON BYPASS) FROM EAST OF SR 1560 TO US 70 EAST OF CLAYTON**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, SIGNALS, STRUCTURES AND CULVERTS**

**STREAM BUFFER SITES**



**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

**CONTRACT:**

**GRAPHIC SCALE**

5 m 0 10 m  
PLANS

5 m 0 10 m  
PROFILE (HORIZONTAL)

1 m 0 2 m  
PROFILE (VERTICAL)

**DESIGN DATA**

ADT 2005 =	29,500
ADT 2025 =	55,800
DHV =	10 %
D =	65 %
T =	16 % *
V =	110 km/h

\* TTST 10% + DUAL 6%

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT R-2552C	=	4.842 km
LENGTH STRUCTURE TIP PROJECT R-2552C	=	0.160 km
TOTAL LENGTH TIP PROJECT R-2552C	=	5.002 km

-L2-RT WAS USED TO DETERMINE STRUCTURE LENGTH

Prepared In the Office of:  
**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612  
FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

2002 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
May 16, 2003

**LETTING DATE:**  
May 17, 2005

**Stephen C. Browde, P.E.**  
PROJECT ENGINEER

**Thomas A. McCloskey, P.E.**  
PROJECT DESIGN ENGINEER

N.C.D.O.T. CONTACT:  
**Teresa Bruton, P.E.**  
PROJECT ENGINEER - DESIGN SERVICES

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**DIVISION OF HIGHWAYS**  
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER

**DEPARTMENT OF TRANSPORTATION**  
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

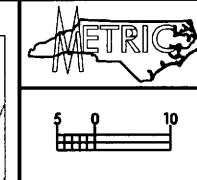
DIVISION ADMINISTRATOR

DATE

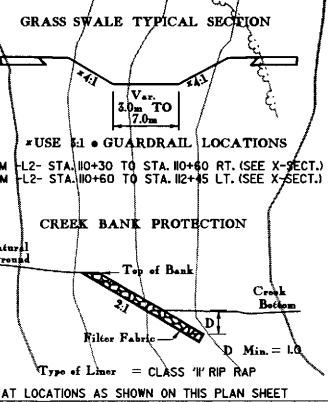
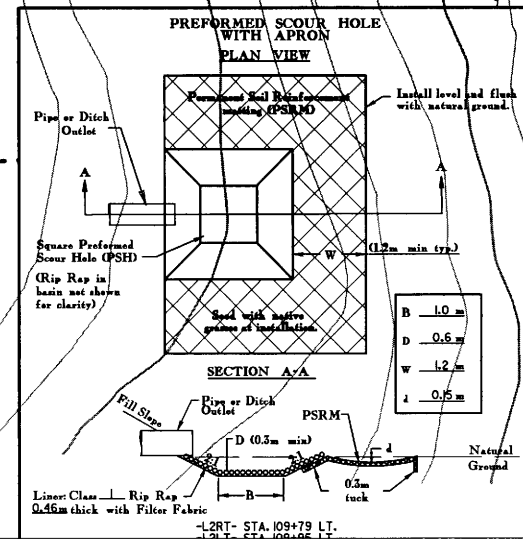
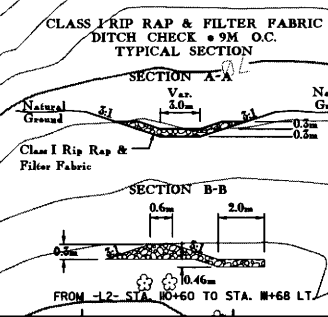
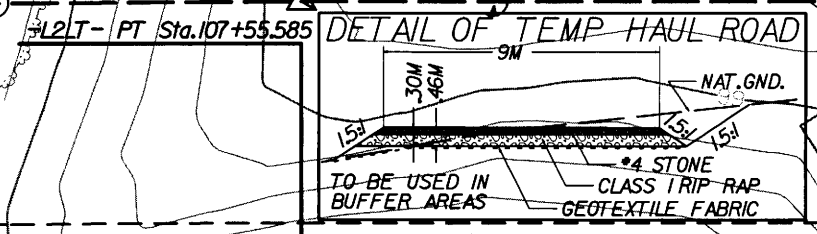
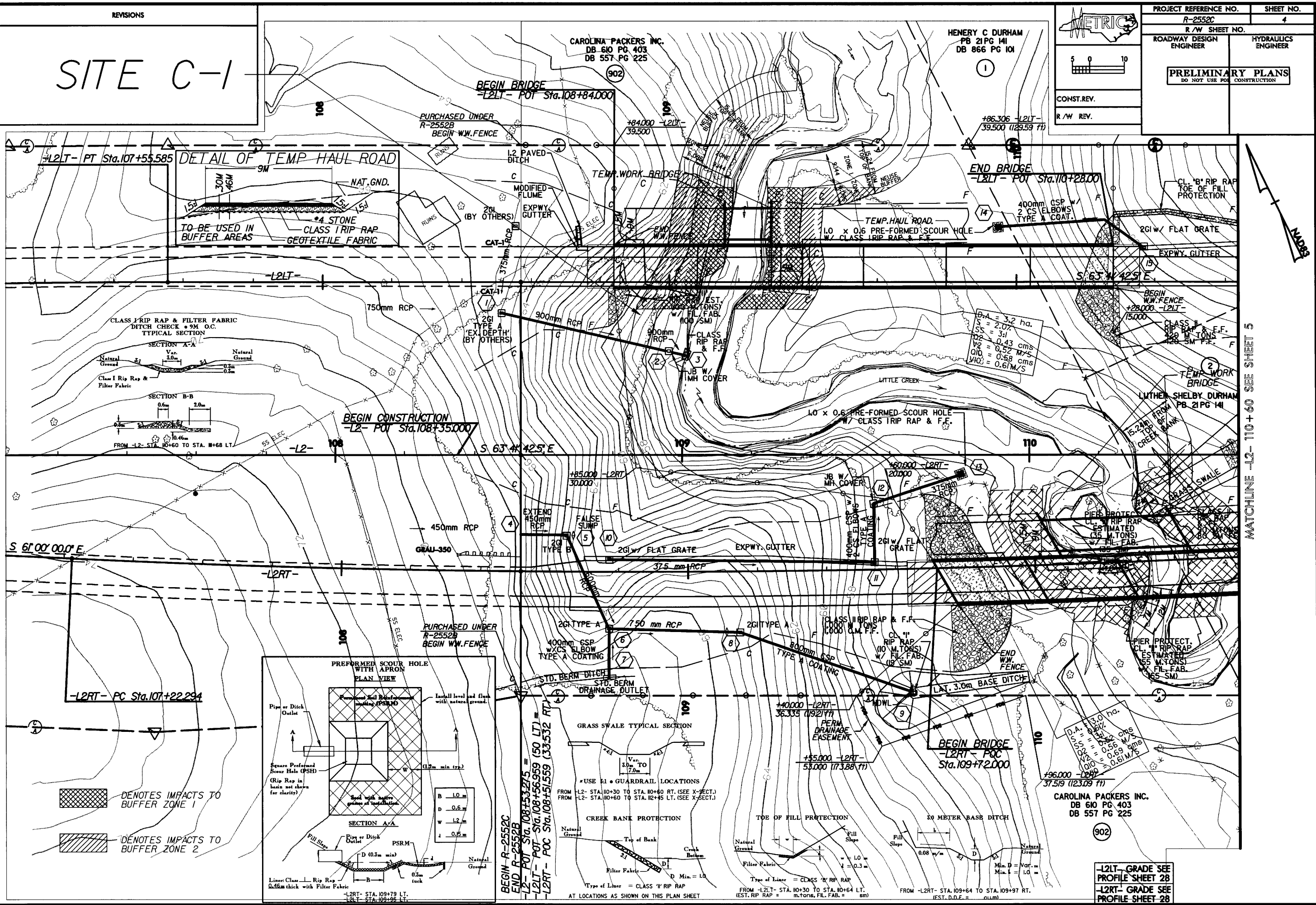
\*\*\*\*\*SYSTEMS TIME\*\*\*\*\*  
\*\*\*\*\*PLOT DATE\*\*\*\*\*  
\*\*\*\*\*PLOT TIME\*\*\*\*\*

REVISIONS

# SITE C-1



PROJECT REFERENCE NO.	R-2552C	SHEET NO.	4
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
<b>PRELIMINARY PLANS</b>			
DO NOT USE FOR CONSTRUCTION			
CONST. REV.			
R/W REV.			



D.A. = 3.2 ha.  
 S = 2.07  
 SS = 3.1  
 V2 = 0.43 cms  
 V10 = 0.52 M/S  
 V100 = 0.58 cms  
 V100 = 0.61 M/S

D.A. = 13.0 ha.  
 S = 0.67  
 SS = 1.1  
 V2 = 0.56 cms  
 V10 = 0.69 M/S  
 V100 = 0.61 M/S

CAROLINA PACKERS INC.  
 DB 610 PG 403  
 DB 557 PG 225

-L2L- GRADE SEE PROFILE SHEET 28  
 -L2R- GRADE SEE PROFILE SHEET 28

MATCHLINE -L2- 110+60 SEE SHEET 5

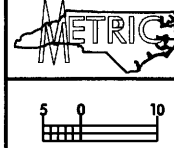
\*\*\*\*\* SYSTEMS \*\*\*\*\*  
 \*\*\*\*\* ENGINEERING \*\*\*\*\*  
 \*\*\*\*\* DRAWING \*\*\*\*\*

REVISIONS

# SITE C-1

CAROLINA PACKERS INC.  
DB 610 PG 403  
DB 557 PG 225

HENERY C DURHAM  
PB 21PG 141  
DB 866 PG 101



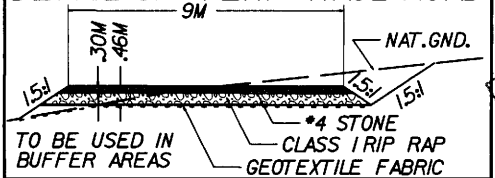
PROJECT REFERENCE NO.	R-2552C	SHEET NO.	4
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			

CONST. REV.  
R/W REV.

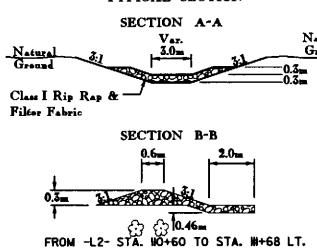
BEGIN BRIDGE  
-L2LT- POT Sta.108+84.000

-L2LT- PT Sta.107+55.585

DETAIL OF TEMP HAUL ROAD



CLASS I RIP RAP & FILTER FABRIC  
DITCH CHECK 9M O.C.  
TYPICAL SECTION

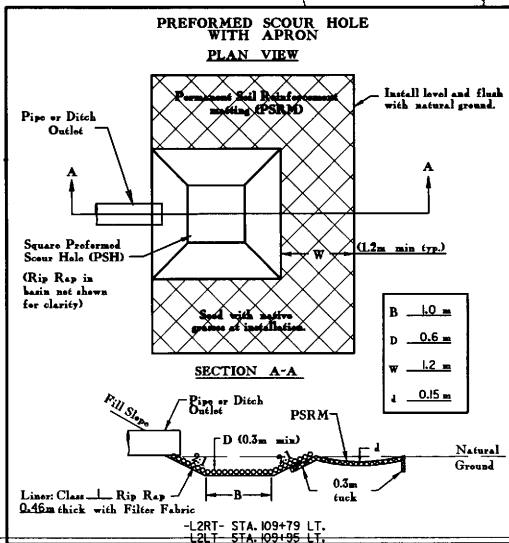


BEGIN CONSTRUCTION  
-L2- POT Sta.108+35.000

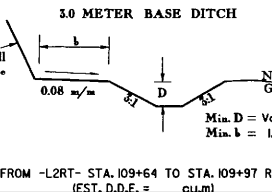
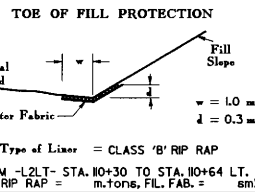
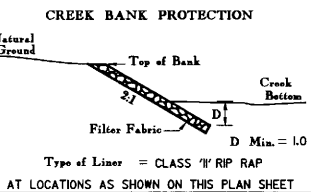
-L2RT- PC Sta.107+22.294

■ DENOTES IMPACTS TO BUFFER ZONE 1

■ DENOTES IMPACTS TO BUFFER ZONE 2

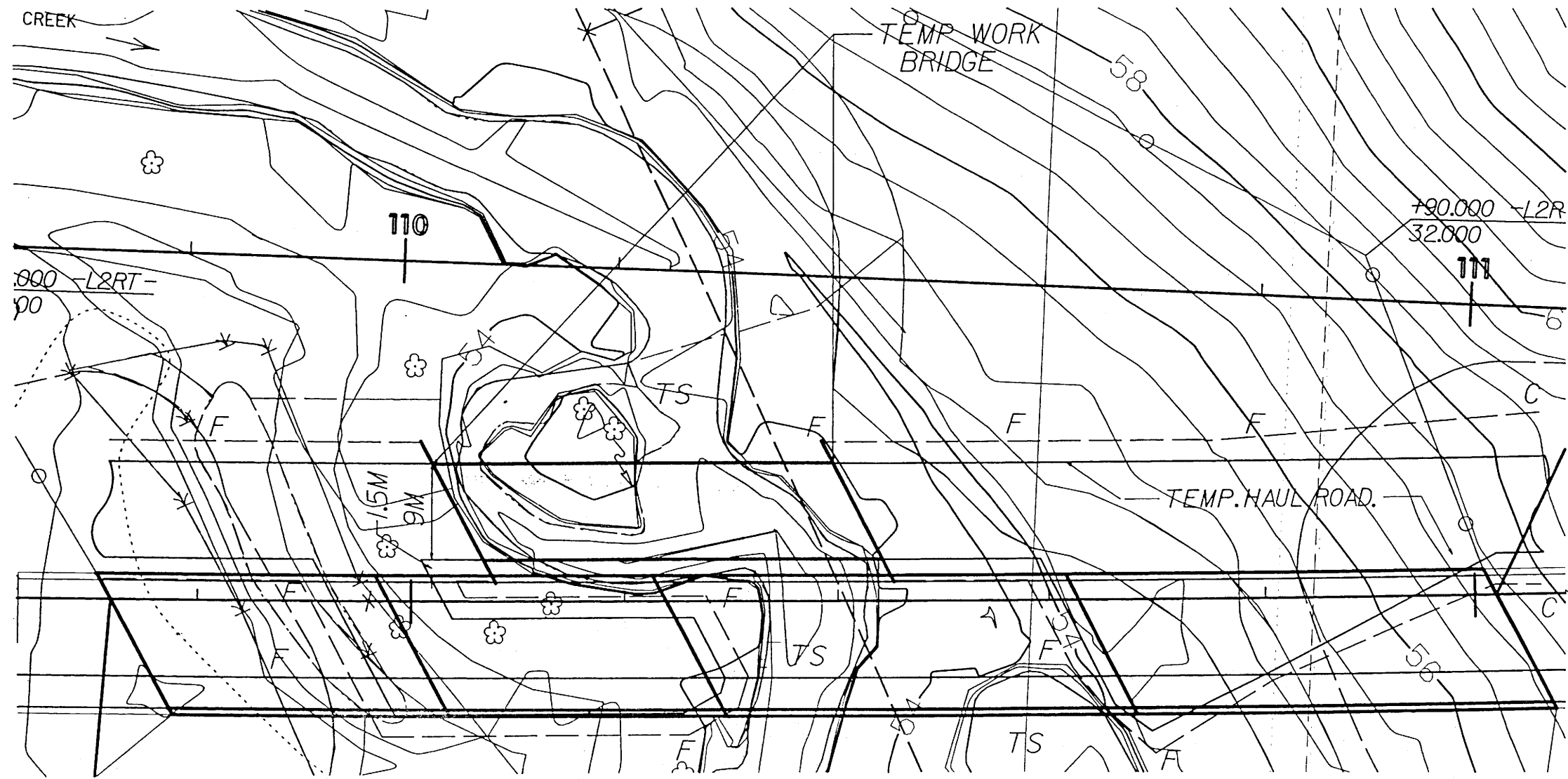


BEGIN R-2552C  
END R-2552B  
-L2- POT Sta.108+53.275  
-L2LT- POT Sta.108+56.959 (50 LT) =  
-L2RT- PC Sta.108+51.559 (33.532 RT)

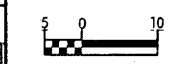


-L2LT- GRADE SEE PROFILE SHEET 28  
-L2RT- GRADE SEE PROFILE SHEET 28

MATCHLINE -L2- 110+60 SEE SHEET 5



L2-RT LN



**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

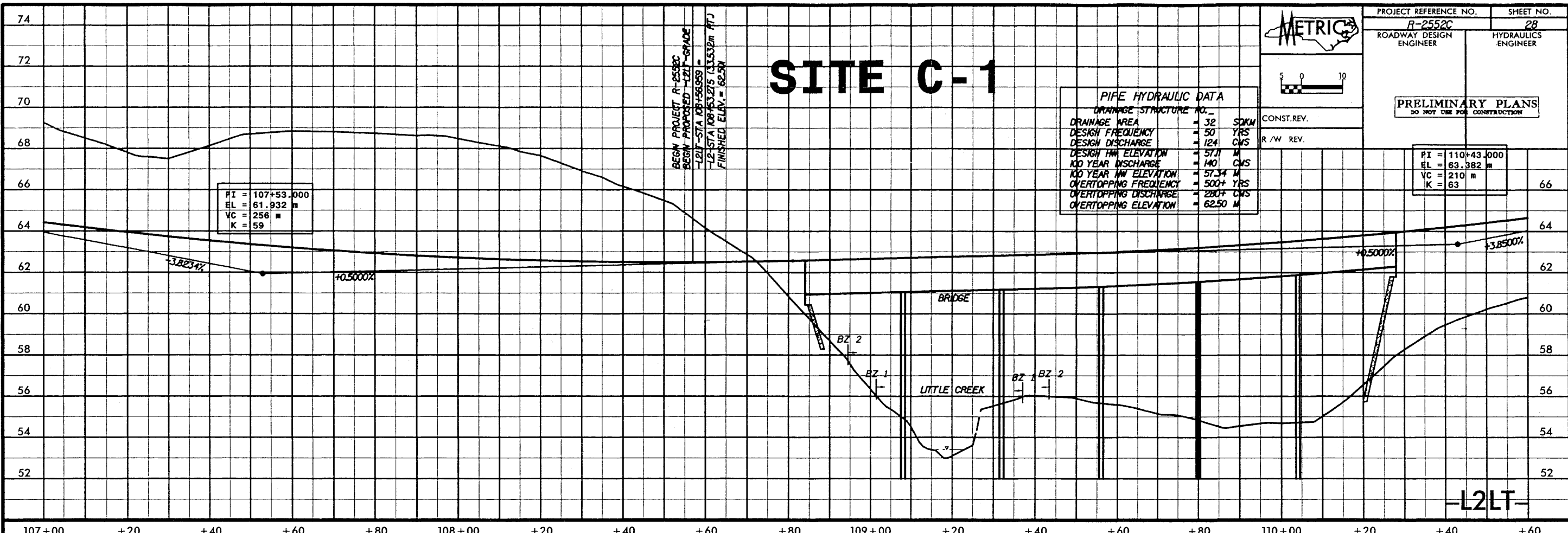
# SITE C-1

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	32
DESIGN AREA	32 SQKM
DESIGN FREQUENCY	50 YRS
DESIGN DISCHARGE	124 CWS
DESIGN HW ELEVATION	57.71 M
100 YEAR DISCHARGE	140 CWS
100 YEAR HW ELEVATION	57.34 M
OVERTOPPING FREQUENCY	500+ YRS
OVERTOPPING DISCHARGE	280+ CWS
OVERTOPPING ELEVATION	62.50 M

PI = 110+43.000	66
EL = 63.382 m	
VC = 210 m	
K = 63	

PI = 107+53.000
EL = 61.932 m
VC = 256 m
K = 59

BEGIN PROJECT R-2552C  
 BEGIN PROPOSED L2LT-GRADE  
 L2LT STA 108+43.275 (33.532m FT)  
 FINISHED ELEV. = 62.5M



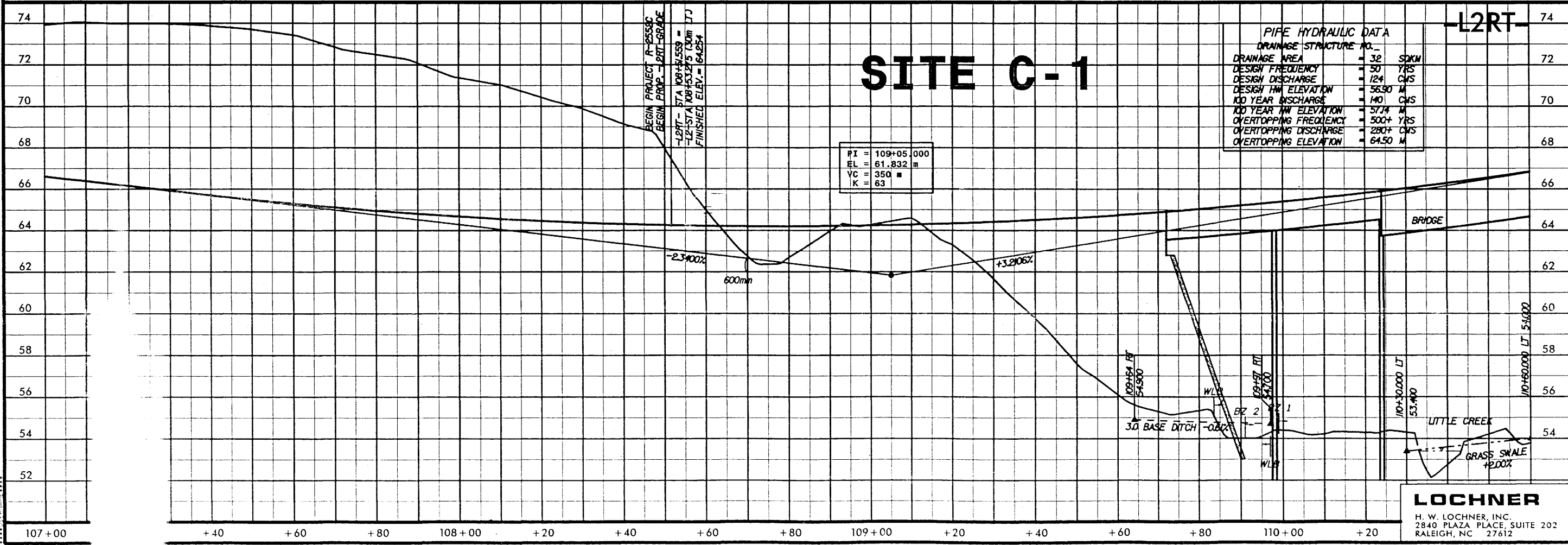
-L2LT-

# SITE C-1

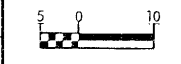
PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	32
DESIGN AREA	32 SQKM
DESIGN FREQUENCY	50 YRS
DESIGN DISCHARGE	124 CWS
DESIGN HW ELEVATION	56.90 M
100 YEAR DISCHARGE	140 CWS
100 YEAR HW ELEVATION	57.74 M
OVERTOPPING FREQUENCY	500+ YRS
OVERTOPPING DISCHARGE	280+ CWS
OVERTOPPING ELEVATION	64.50 M

PI = 109+05.000
EL = 61.832 m
VC = 350 m
K = 63

BEGIN PROJECT R-2552C  
 BEGIN PROPOSED L2RT-GRADE  
 L2RT STA 109+43.275 (33.532m FT)  
 FINISHED ELEV. = 64.25M



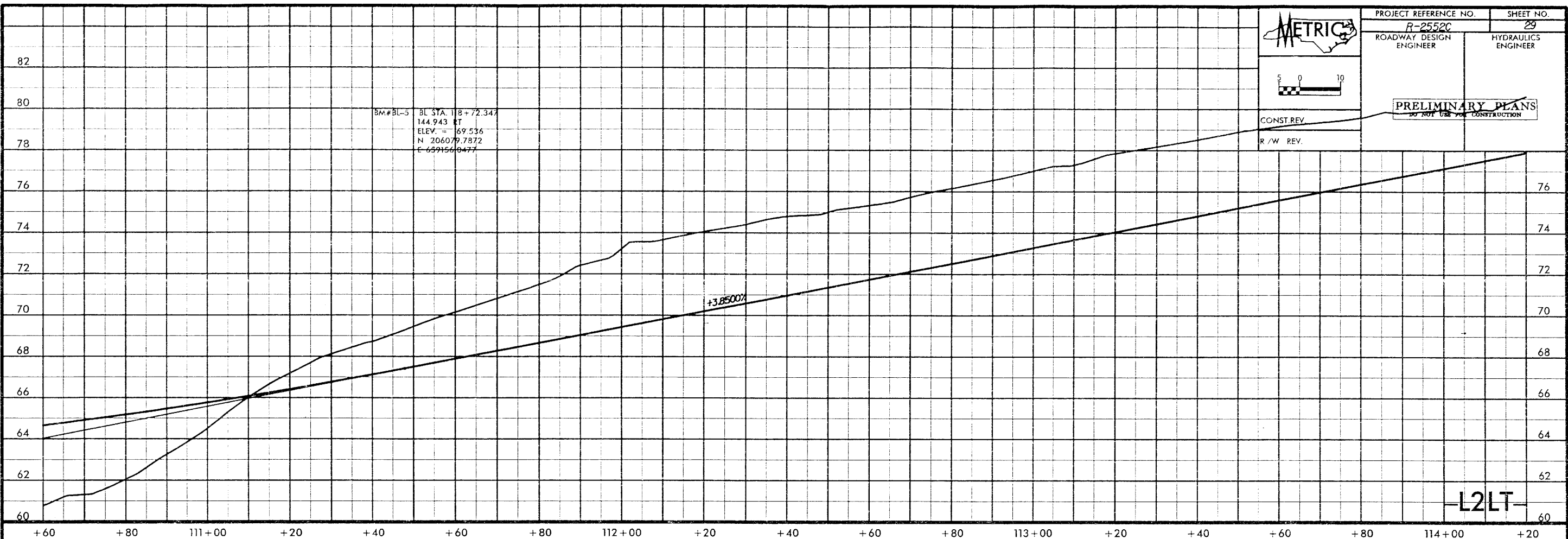
-L2RT-



PRELIMINARY PLANS  
 DO NOT USE FOR CONSTRUCTION

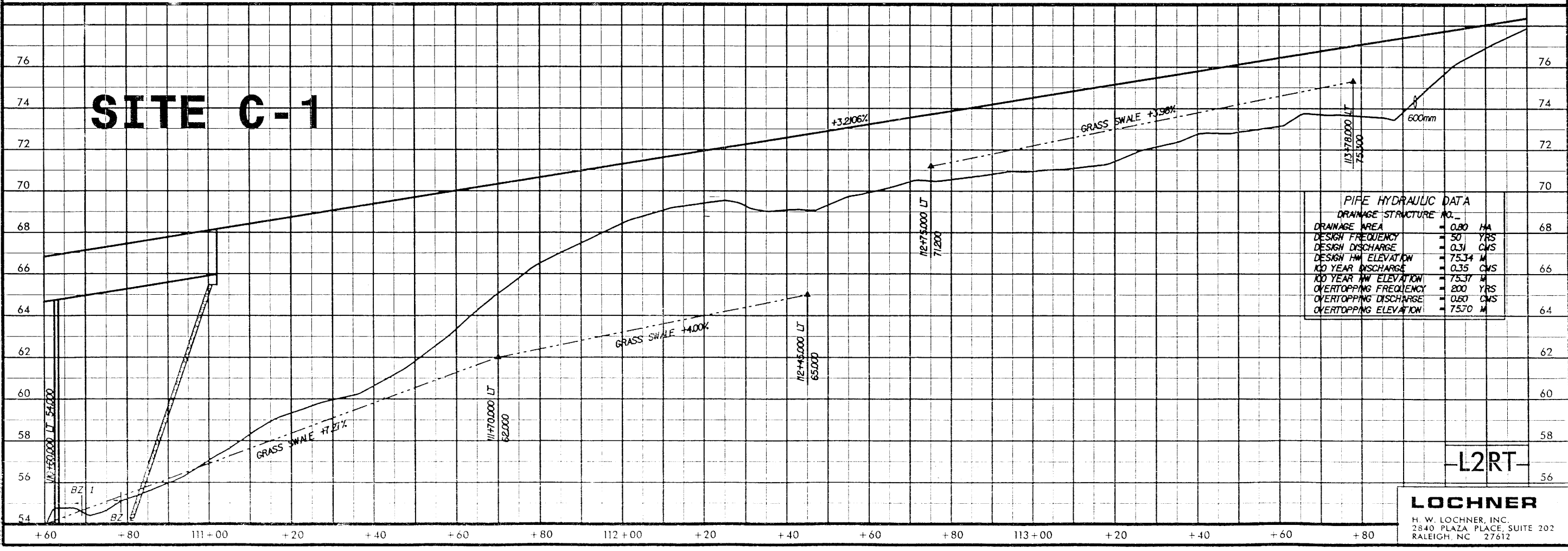
CONST. REV.  
 R/W REV.

BM#BL-3 BL STA 118+72.347  
 144.943 RT  
 ELEV. = 69.536  
 N 206079.7872  
 E 639156.0477



# SITE C-1

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 1	
DRAINAGE AREA	= 0.80 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 0.31 CWS
DESIGN HW ELEVATION	= 75.34 M
100 YEAR DISCHARGE	= 0.35 CWS
100 YEAR HW ELEVATION	= 75.37 M
OVERTOPPING FREQUENCY	= 200 YRS
OVERTOPPING DISCHARGE	= 0.60 CWS
OVERTOPPING ELEVATION	= 75.70 M





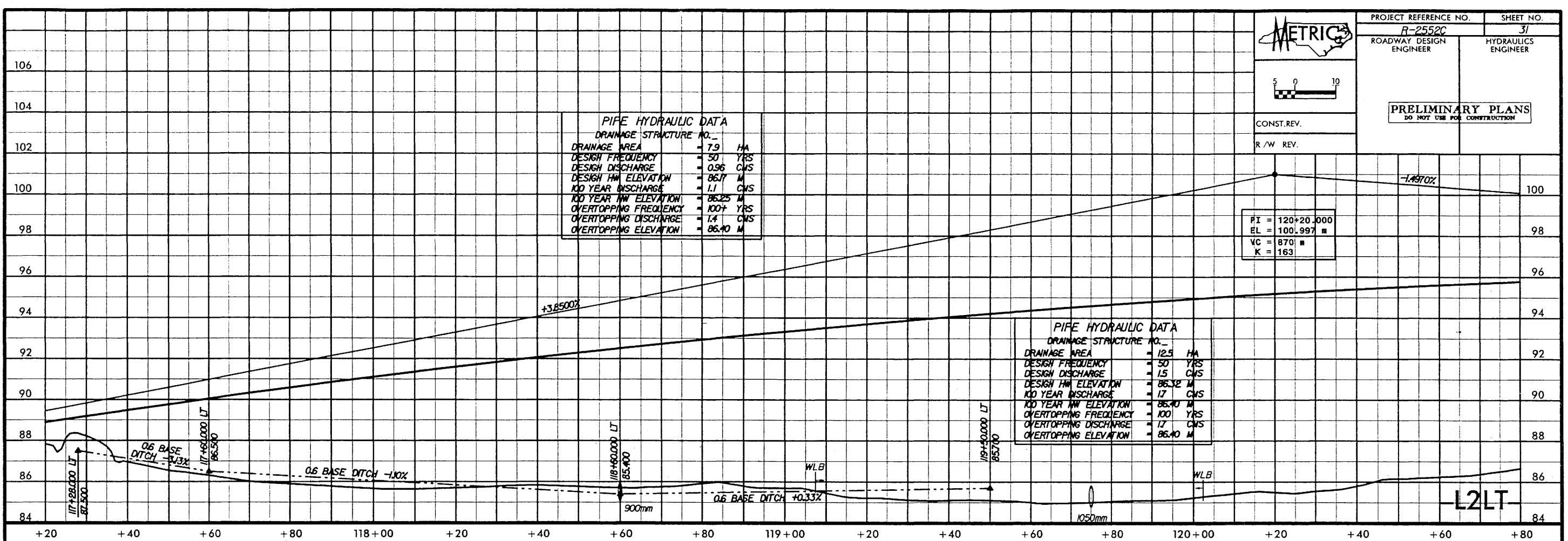
PROJECT REFERENCE NO. R-2552C	SHEET NO. 31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 1	
DRAINAGE AREA	= 7.9 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 0.96 CMS
DESIGN HW ELEVATION	= 86.17 M
100 YEAR DISCHARGE	= 1.1 CMS
100 YEAR HW ELEVATION	= 86.25 M
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING DISCHARGE	= 1.4 CMS
OVERTOPPING ELEVATION	= 86.40 M

PI = 120+20.000
EL = 100.997 m
VC = 870 m
K = 163

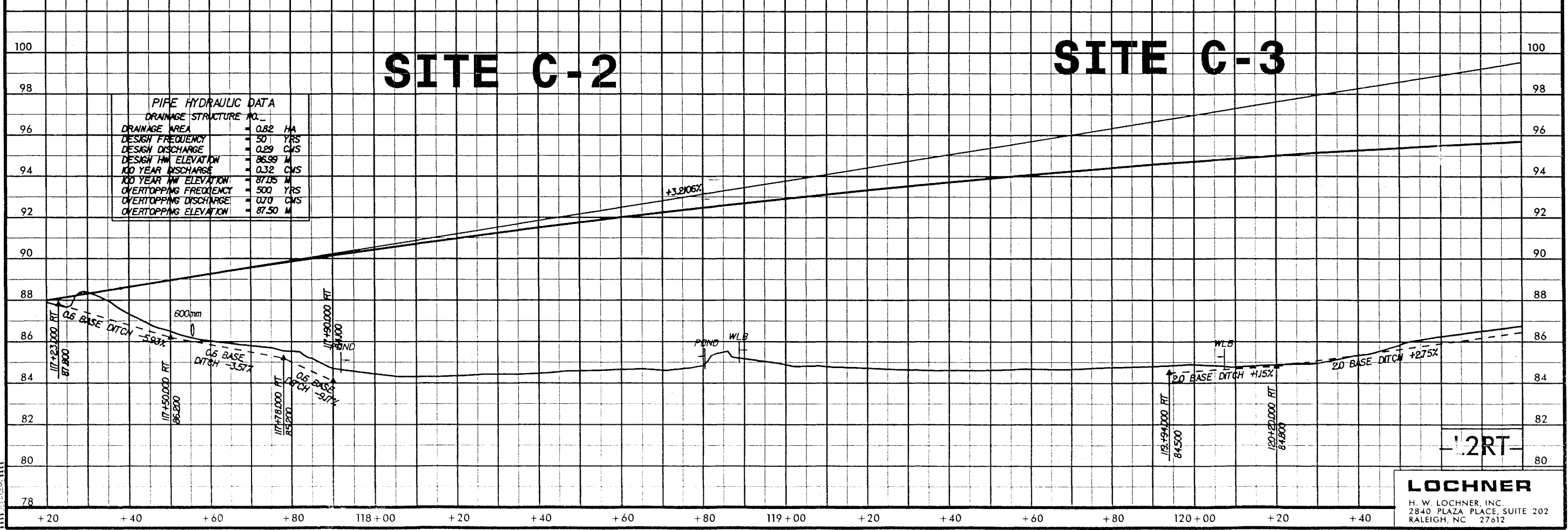
PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 2	
DRAINAGE AREA	= 12.5 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 1.5 CMS
DESIGN HW ELEVATION	= 86.32 M
100 YEAR DISCHARGE	= 1.7 CMS
100 YEAR HW ELEVATION	= 86.40 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 1.7 CMS
OVERTOPPING ELEVATION	= 86.40 M



# SITE C-2

# SITE C-3

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 3	
DRAINAGE AREA	= 0.82 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 0.29 CMS
DESIGN HW ELEVATION	= 86.99 M
100 YEAR DISCHARGE	= 0.32 CMS
100 YEAR HW ELEVATION	= 87.05 M
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING DISCHARGE	= 0.70 CMS
OVERTOPPING ELEVATION	= 87.50 M



**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612



REVISIONS

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

(20)

+84.283 -YI-  
7.620 (25.00 FT)  
D.A. = 0.30' (9.14 M)  
+84.283 -YI-  
7.620 (25.00 FT)  
Q2 = 0.051 cms  
V2 = 0.40 M/S  
Q10 = 0.068 cms  
V10 = 0.46 M/S

+100.000 -YI-  
12.190 (40.00 FT) 750mm  
+119.24 -YI-  
18.000 (59.05 FT)  
CL. "B" RIP RAP  
(5 M. TONS)  
w/ FIL. FAB. (1.9 M)

+30.000 -YI-  
12.190 (40.00 FT)  
D.A. = 0.12  
S = 2.70%  
SS = 3/4" & 1/2"  
Q2 = 0.031 cms  
V2 = 0.30 M/S  
Q10 = 0.037 cms  
V10 = 0.34 M/S

+84.283 -YI-  
12.190 (40.00 FT)  
+84.283 -YI-  
7.620 (25.00 FT)  
+100.000 -YI-  
12.190 (40.00 FT)  
+119.24 -YI-  
15.240 (50.00 FT)

+30.000 -YI-  
12.190 (40.00 FT)  
BEGIN W.W. FENCE -YI- POT Sta. 11+96.591  
BEGIN C/A

BEGIN CONSTRUCTION  
-YI- PT Sta. 10+84.283

-L2LT- POC Sta. 121+97.157  
 $\Delta = 72^\circ 25' 37.9"$   
+97.437 -L2LT-  
39.500 (129.59 FT)  
-YI- POT Sta. 12+14.221  
-L2- POS Sta. 122+13.539  
 $\Delta = 73^\circ 51' 59.8"$

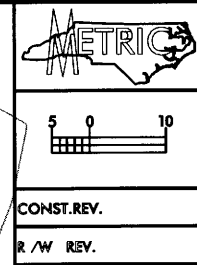
END BRIDGE  
-L2LT- POC Sta. 122+17.286

END BRIDGE  
-L2RT- POC Sta. 122+24.672

# SITE C-4

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

(20)



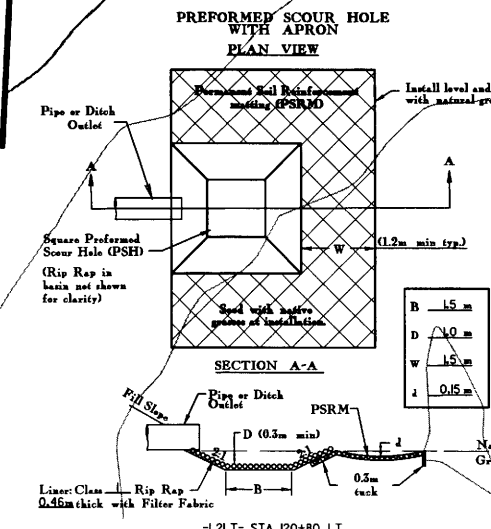
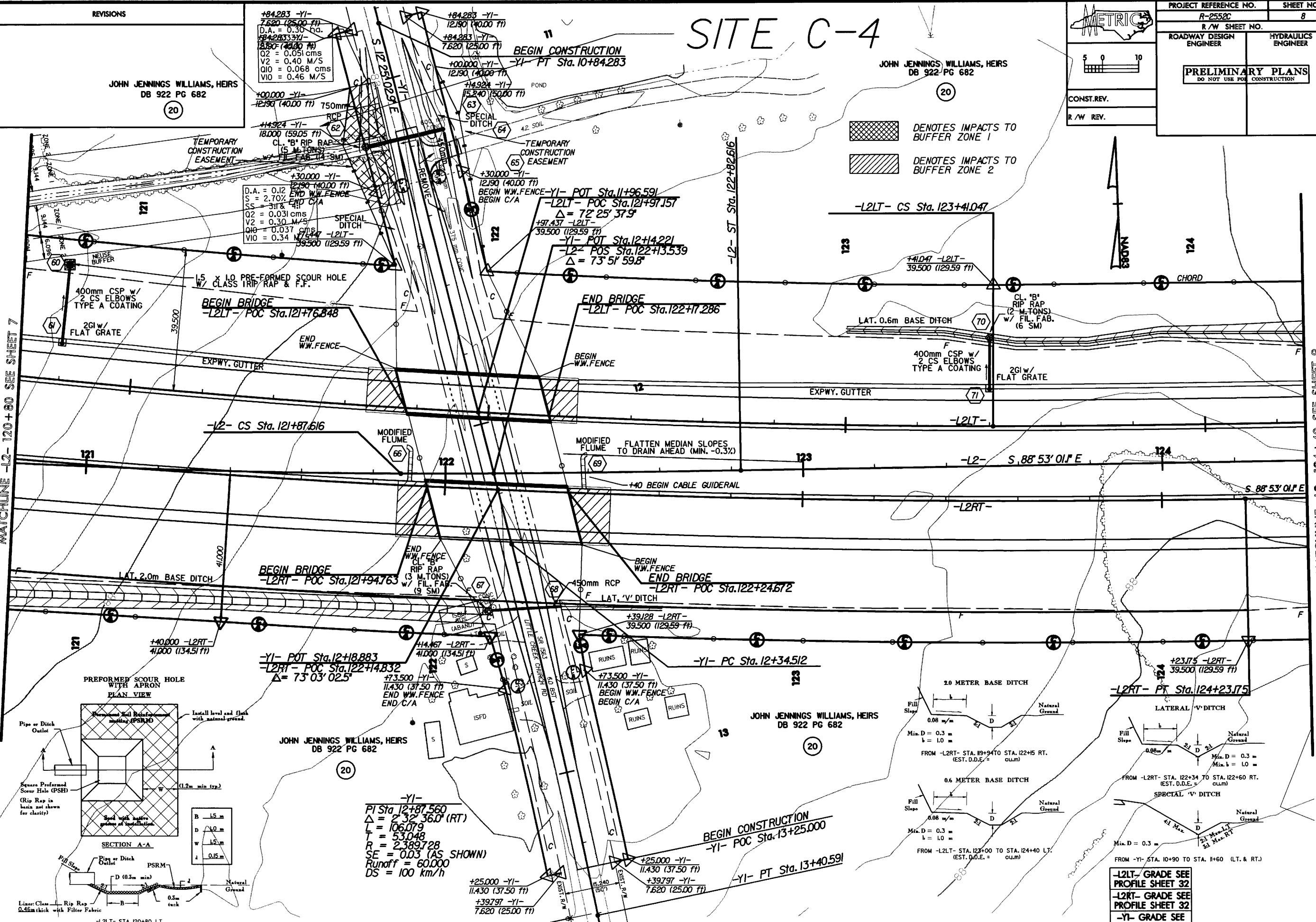
PROJECT REFERENCE NO. R-2552C	SHEET NO. 8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

DENOTES IMPACTS TO BUFFER ZONE 1  
 DENOTES IMPACTS TO BUFFER ZONE 2



MATCHLINE -L2- 120+80 SEE SHEET 7

MATCHLINE -L2- 124+40 SEE SHEET 9



JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

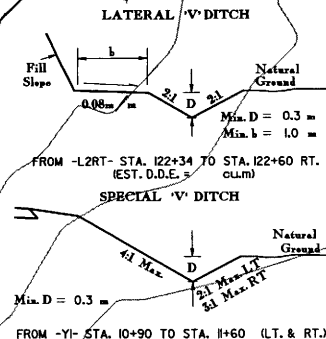
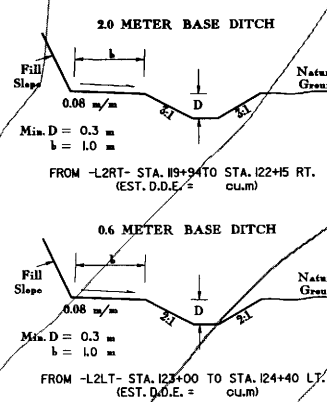
(20)

-YI-  
PI Sta. 12+87.560  
 $\Delta = 2^\circ 32' 36.0"$  (RT)  
L = 106.079  
R = 53.048  
SE = 2,389.728  
Runoff = 60,000  
DS = 100 km/h

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

(20)

BEGIN CONSTRUCTION  
-YI- POC Sta. 13+40.591



-L2LT- GRADE SEE PROFILE SHEET 32  
-L2RT- GRADE SEE PROFILE SHEET 32  
-YI- GRADE SEE PROFILE SHEET 50

\*\*\*\*\*SYTIME\*\*\*\*\*  
\*\*\*\*\*DOWNS\*\*\*\*\*  
\*\*\*\*\*PLOT\*\*\*\*\*

REVISIONS

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

20

+84.283 -YI-  
7.620 (25.00 ft)  
D.A. = 0.30 hg.  
+84.283 -YI-  
7.620 (25.00 ft)  
D.A. = 0.30 hg.  
Q2 = 0.051 cms  
V2 = 0.40 M/S  
Q10 = 0.068 cms  
V10 = 0.46 M/S

+100.000 -YI-  
12.190 (40.00 ft) 750mm RCP  
+149.24 -YI-  
18.000 (59.05 ft)  
CL. 'B' RIP RAP (5 M. TONS)  
W/ FIL. FAB. (4 SM)  
+30.000 -YI-  
12.190 (40.00 ft)  
END W.W. FENCE  
D.A. = 0.12  
S = 2.70%  
SS = 3ft & 4ft  
Q2 = 0.031 cms  
V2 = 0.30 M/S  
Q10 = 0.037 cms  
V10 = 0.34 M/S

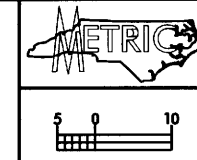
+84.283 -YI-  
12.190 (40.00 ft)  
+100.000 -YI-  
12.190 (40.00 ft)  
+149.24 -YI-  
15.240 (50.00 ft)  
POND

+30.000 -YI-  
12.190 (40.00 ft)  
BEGIN W.W. FENCE -YI- POT Sta. 11+96.591  
-L2LT- POC Sta. 121+97.157  
 $\Delta = 72' 25' 37.9''$   
+197.437 -L2LT-  
39.500 (129.59 ft)  
-YI- POT Sta. 12+14.221  
-L2- POS Sta. 122+13.539  
 $\Delta = 73' 51' 59.8''$

# SITE C-4

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

20



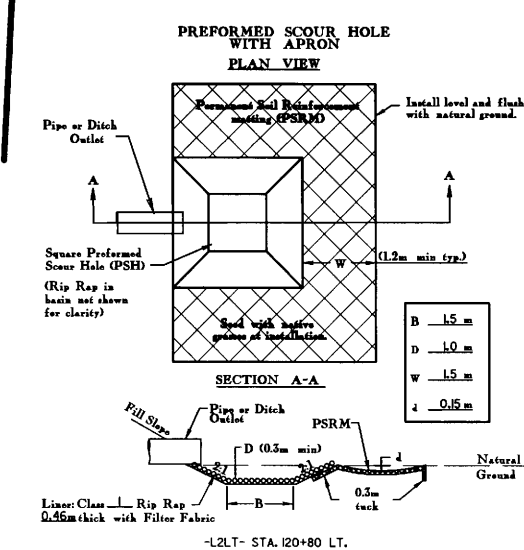
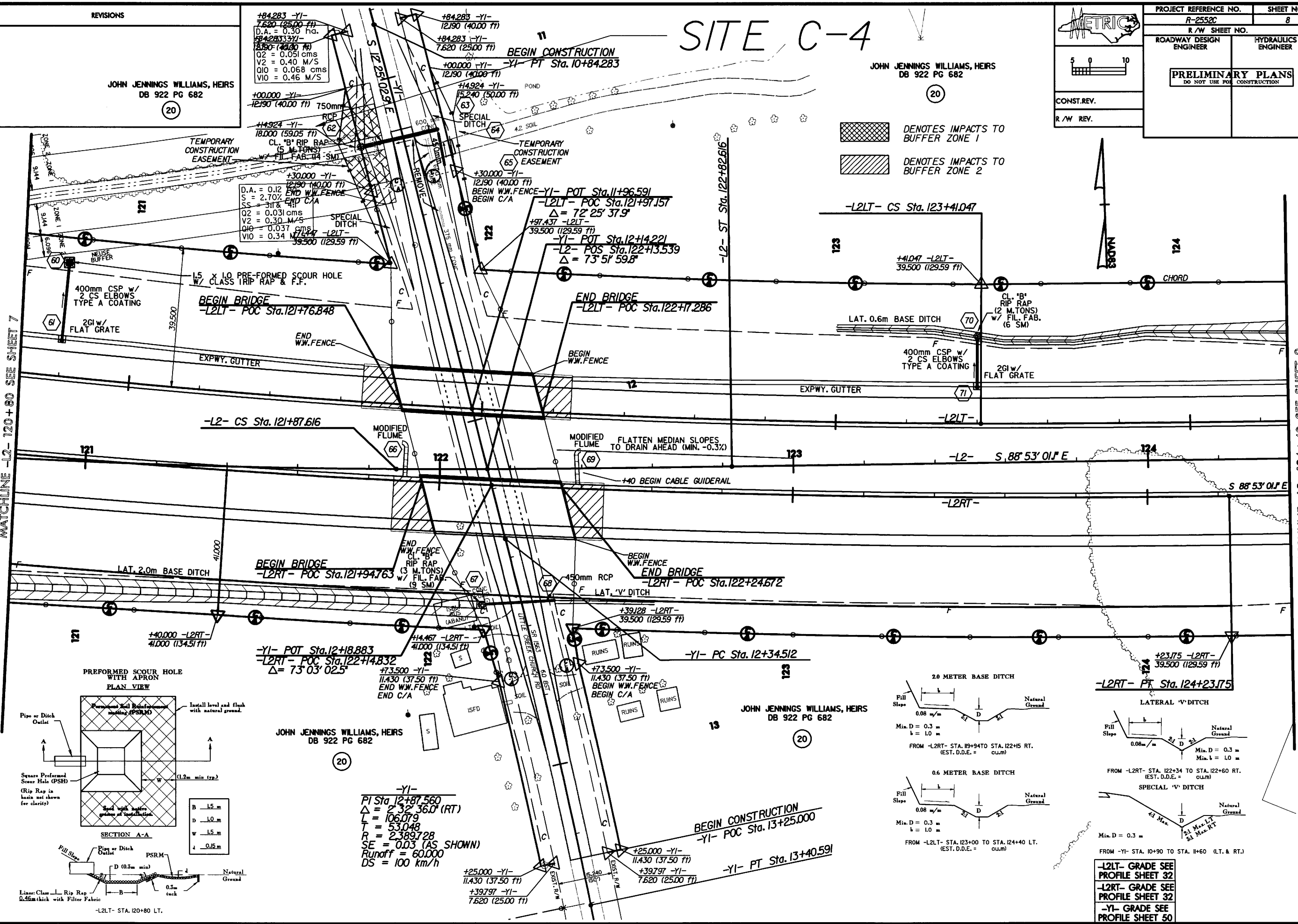
PROJECT REFERENCE NO. R-2552C	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

- DENOTES IMPACTS TO BUFFER ZONE 1
- DENOTES IMPACTS TO BUFFER ZONE 2



MATCHLINE -L2- 120+80 SEE SHEET 7

MATCHLINE -L2- 124+40 SEE SHEET 9



-YI- POT Sta. 12+18.883  
-L2RT- POC Sta. 122+14.832  
 $\Delta = 73' 03' 02.5''$

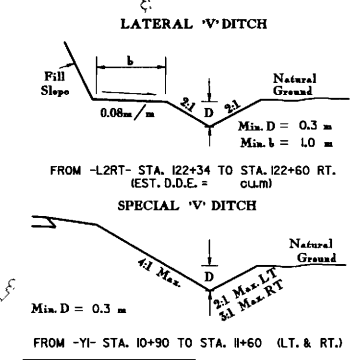
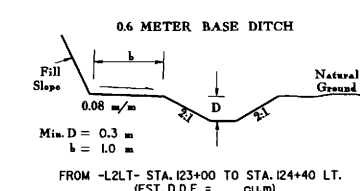
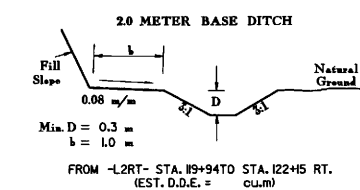
JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

20

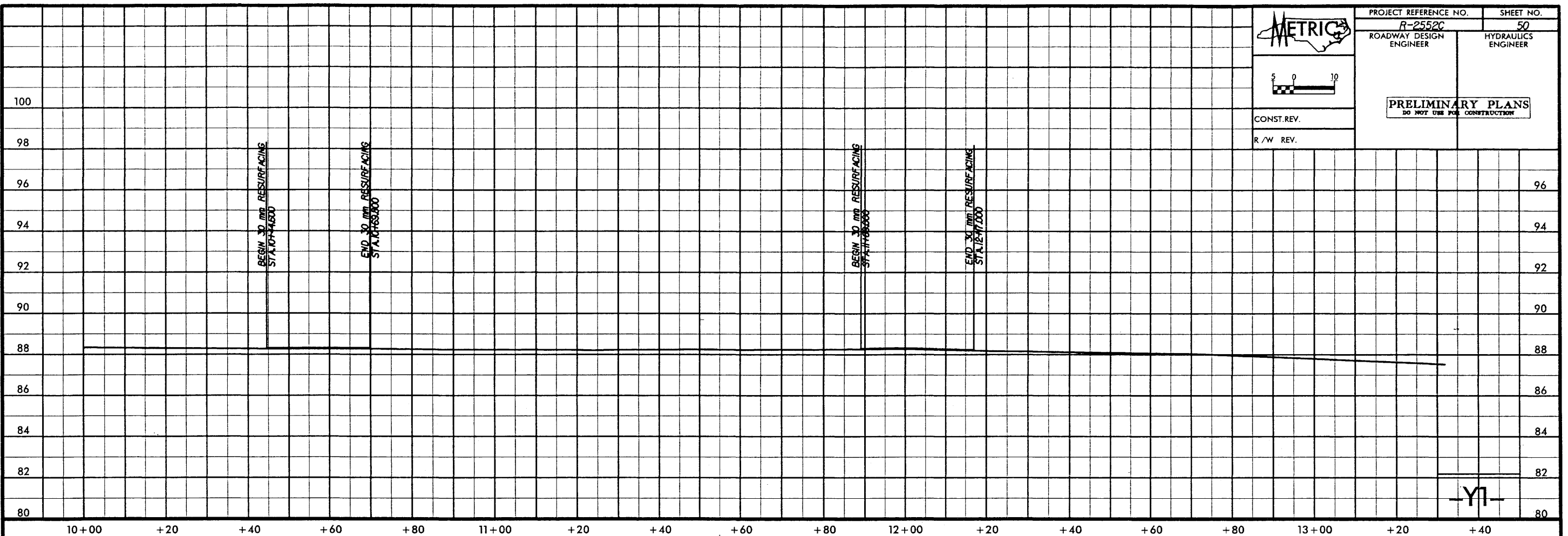
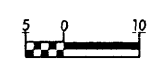
-YI-  
PI Sta. 12+87.560  
 $\Delta = 2' 32' 36.0''$  (RT)  
L = 106.079  
T = 53.048  
R = 2.389728  
SE = 0.03 (AS SHOWN)  
Runoff = 60.000  
DS = 100 km/h

+25.000 -YI-  
11.430 (37.50 ft)  
+39.797 -YI-  
7.620 (25.00 ft)

BEGIN CONSTRUCTION  
-YI- POC Sta. 13+25.000  
-YI- PT Sta. 13+40.591



-L2LT- GRADE SEE PROFILE SHEET 32  
-L2RT- GRADE SEE PROFILE SHEET 32  
-YI- GRADE SEE PROFILE SHEET 50

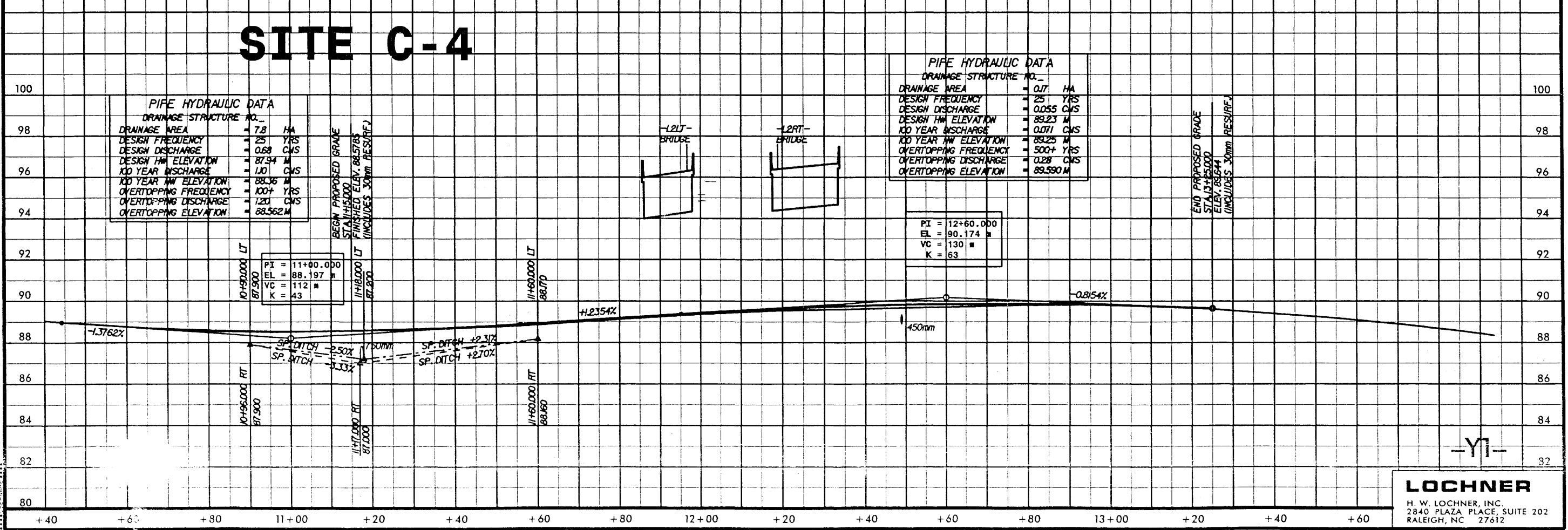


# SITE C-4

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 1	
DRAINAGE AREA	7.8 HA
DESIGN FREQUENCY	25 YRS
DESIGN DISCHARGE	0.68 CMS
DESIGN HW ELEVATION	87.94 M
100 YEAR DISCHARGE	1.10 CMS
100 YEAR HW ELEVATION	88.36 M
OVERTOPPING FREQUENCY	100+ YRS
OVERTOPPING DISCHARGE	1.20 CMS
OVERTOPPING ELEVATION	88.562 M

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 2	
DRAINAGE AREA	0.17 HA
DESIGN FREQUENCY	25 YRS
DESIGN DISCHARGE	0.055 CMS
DESIGN HW ELEVATION	89.23 M
100 YEAR DISCHARGE	0.071 CMS
100 YEAR HW ELEVATION	89.25 M
OVERTOPPING FREQUENCY	500+ YRS
OVERTOPPING DISCHARGE	0.28 CMS
OVERTOPPING ELEVATION	89.590 M

PI = 12+60.000
EL = 90.174
VC = 130
K = 63



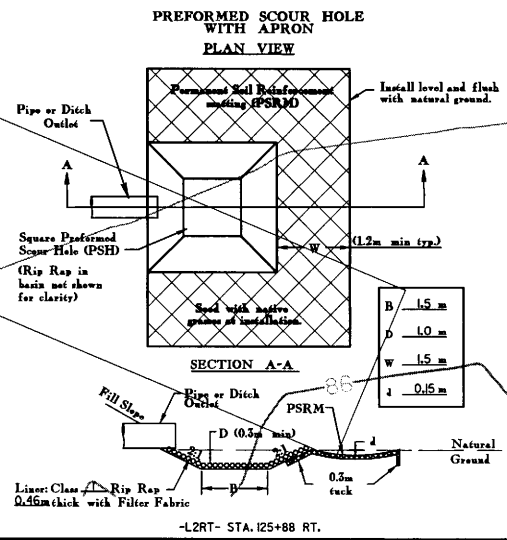
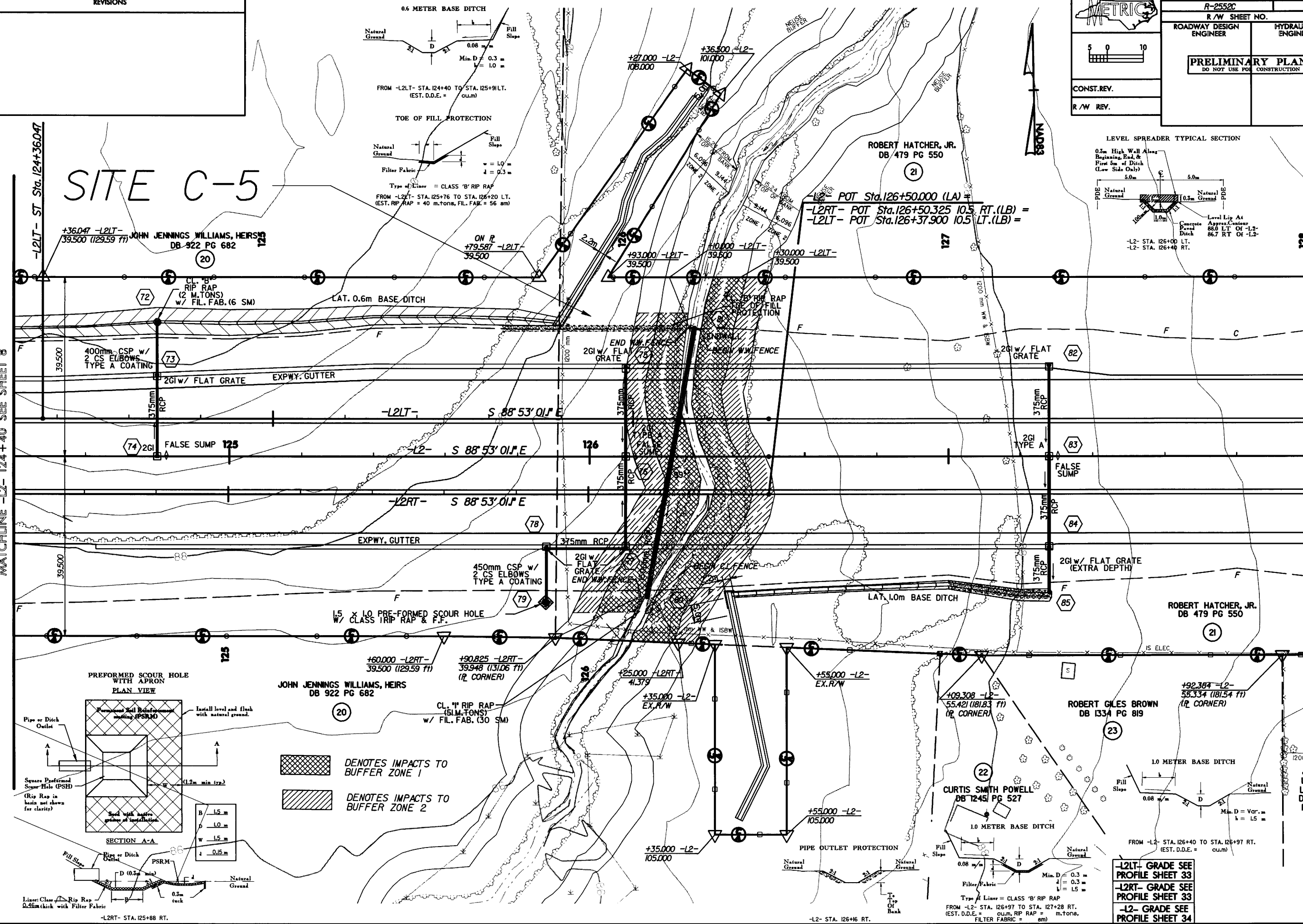
REVISIONS

PROJECT REFERENCE NO. R-2552C		SHEET NO. 9
R/W SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION		
CONST. REV.		
R/W REV.		

**SITE C-5**

MATCHLINE -L2- 124+40 SEE SHEET 8

MATCHLINE -L2- 128+00 SEE SHEET 10



**LEGEND**

DENOTES IMPACTS TO BUFFER ZONE 1

DENOTES IMPACTS TO BUFFER ZONE 2

**GRADE REFERENCES**

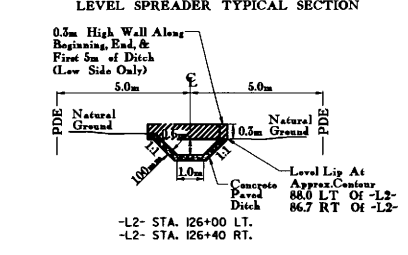
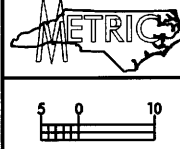
-L2LT- GRADE SEE PROFILE SHEET 33

-L2RT- GRADE SEE PROFILE SHEET 33

-L2- GRADE SEE PROFILE SHEET 34

REVISIONS

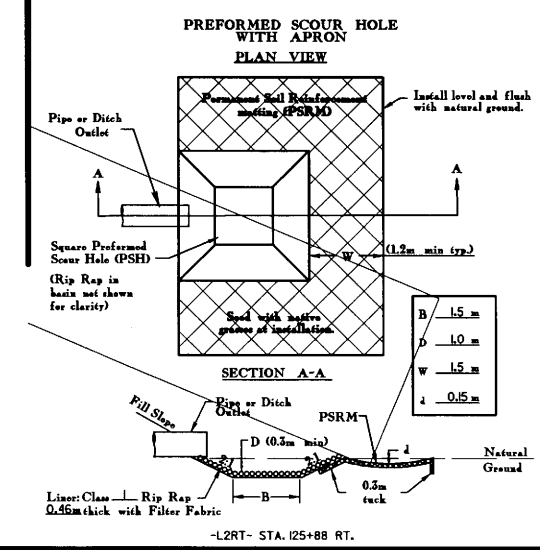
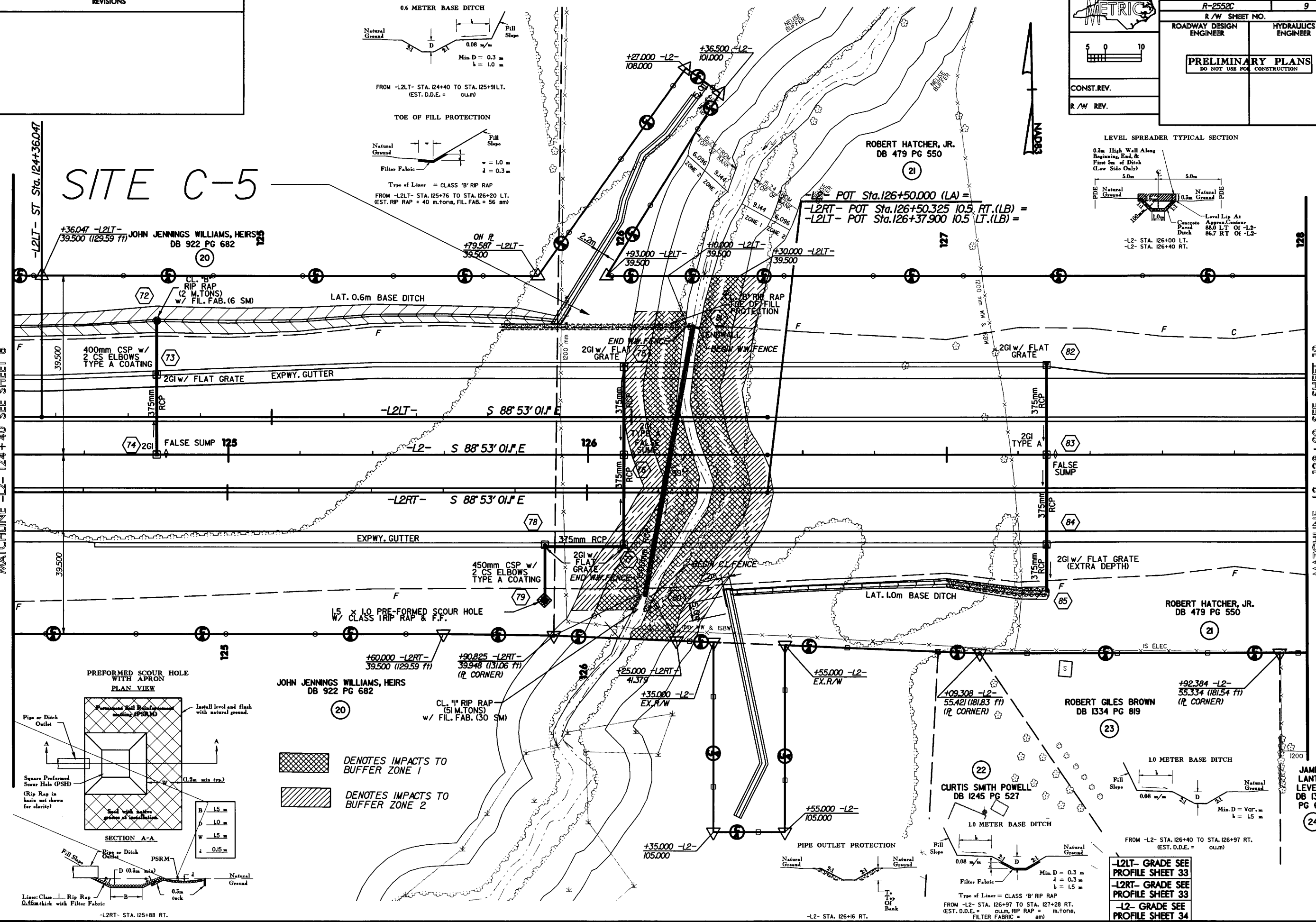
PROJECT REFERENCE NO. R-2552C	SHEET NO. 9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



# SITE C-5

MATCHLINE -L2- 124+40 SEE SHEET 8

MATCHLINE -L2- 128+00 SEE SHEET 10

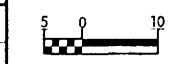


DENOTES IMPACTS TO BUFFER ZONE 1

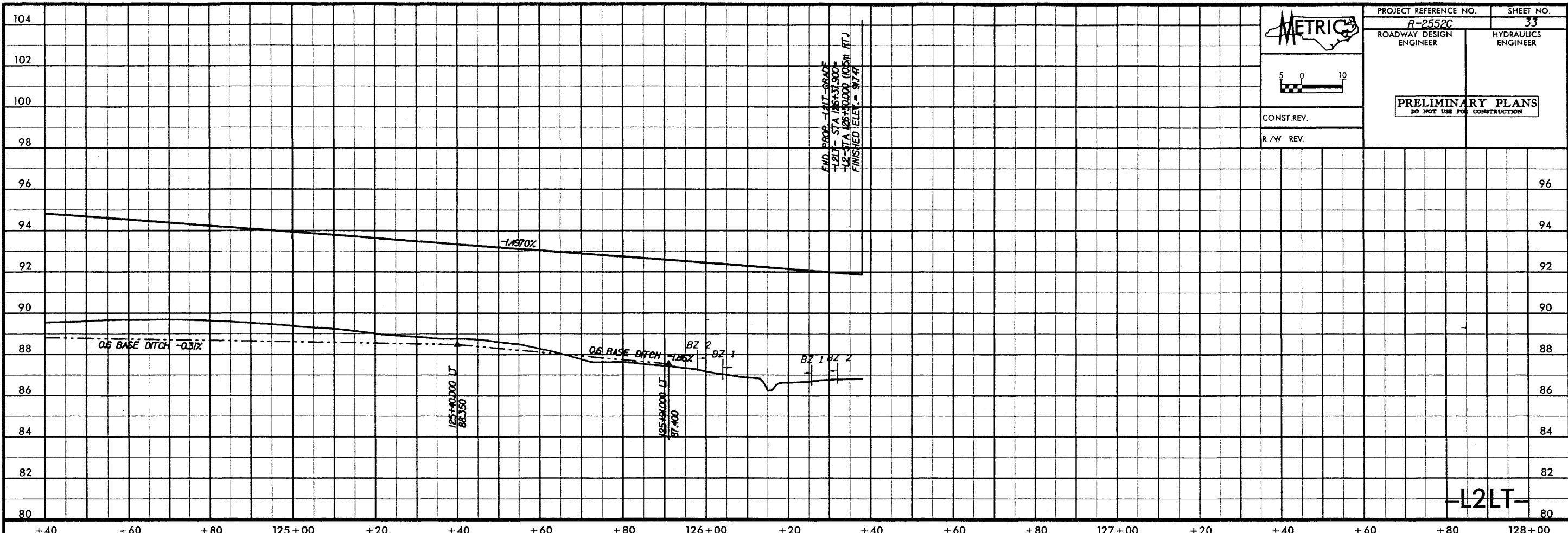
DENOTES IMPACTS TO BUFFER ZONE 2

-L2LT- GRADE SEE PROFILE SHEET 33  
 -L2RT- GRADE SEE PROFILE SHEET 33  
 -L2- GRADE SEE PROFILE SHEET 34

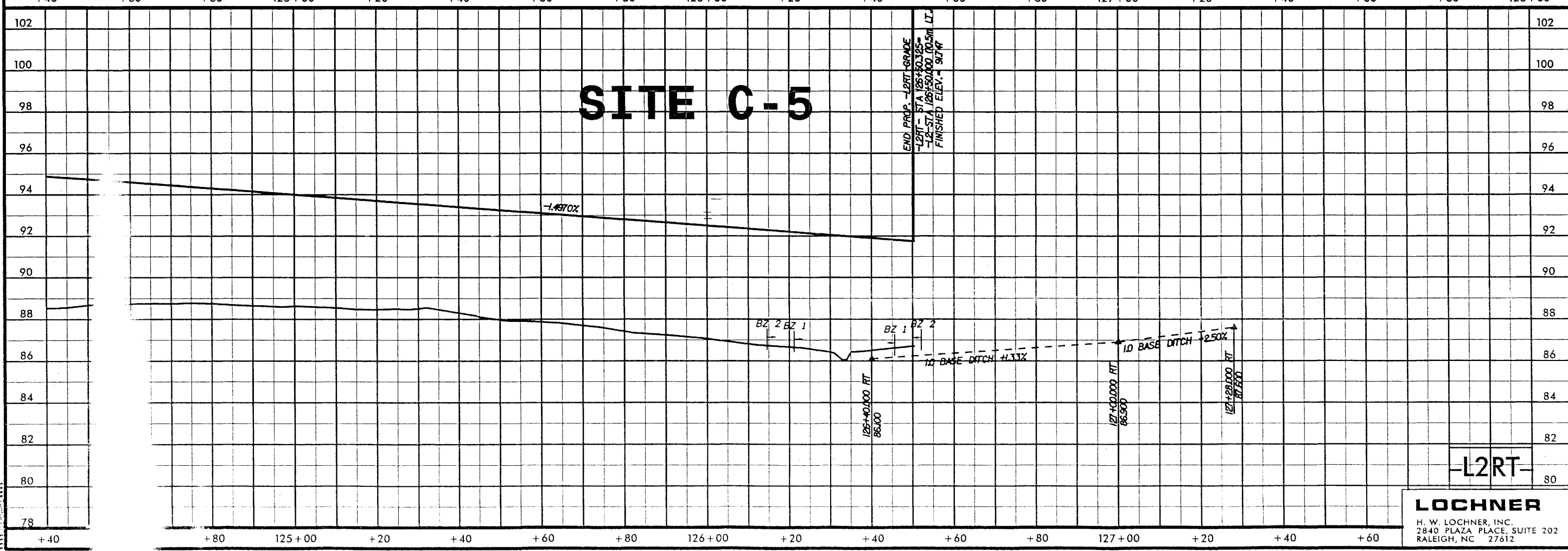
\*\*\*\*\*SYSTEMS ENGINEERING\*\*\*\*\*



PROJECT REFERENCE NO.	SHEET NO.
R-2552C	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



END PROP. -L2LT-GRADE  
 -L2LT STA 125+40.000  
 -L2 STA 126+40.000 (0.5m LT)  
 FINISHED ELEV. = 97.4'

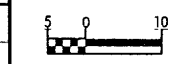


END PROP. -L2RT-GRADE  
 -L2RT STA 126+40.000  
 -L2 STA 127+40.000 (0.5m LT)  
 FINISHED ELEV. = 94.7'

# SITE C-5



PROJECT REFERENCE NO. **R-2552C** SHEET NO. **34**  
 ROADWAY DESIGN ENGINEER  
 HYDRAULICS ENGINEER  
**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

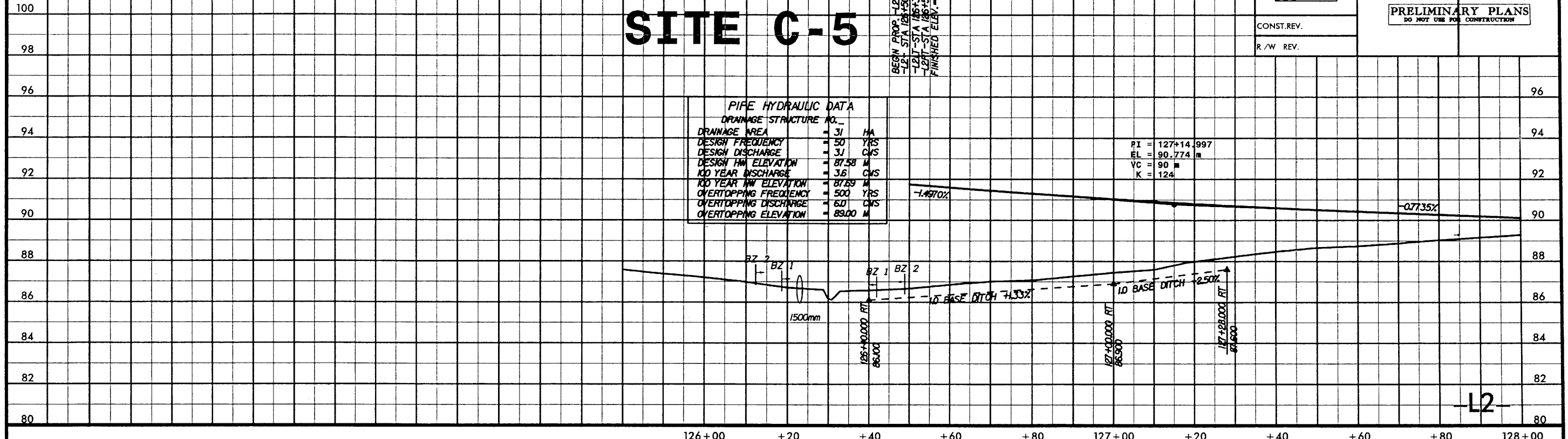


CONST. REV.  
 R/W REV.

BEGIN PROP. L2 GRADE  
 -L2+ STA 126+50.000  
 -L21+ STA 126+57.500 (0.5m LT)  
 -L21+ STA 126+53.250 (0.5m RT)  
 FINISHED ELEV. = 91.74

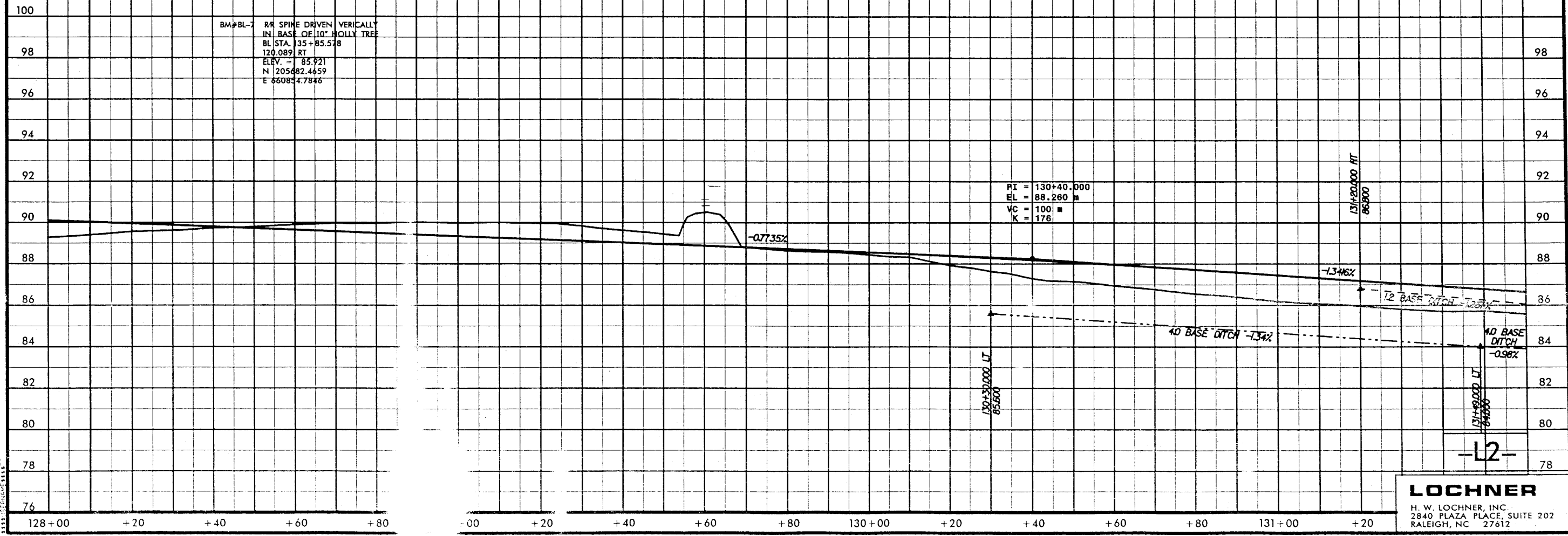
PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. _____	
DRAINAGE AREA	= 31 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 31 CMS
DESIGN HW ELEVATION	= 87.58 M
100 YEAR DISCHARGE	= 3.6 CMS
100 YEAR HW ELEVATION	= 87.69 M
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING DISCHARGE	= 60 CMS
OVERTOPPING ELEVATION	= 89.00 M

PI = 127+14.997  
 EL = 90.774 m  
 VC = 90 m  
 K = 124

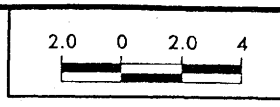


BM#BL-7 RR SPIKE DRIVEN VERTICALLY  
 IN BASE OF 10" HOLLY TREE  
 BL STA. 135+85.578  
 120.089 RT  
 ELEV. = 85.921  
 N 205682.4459  
 E 660854.7846

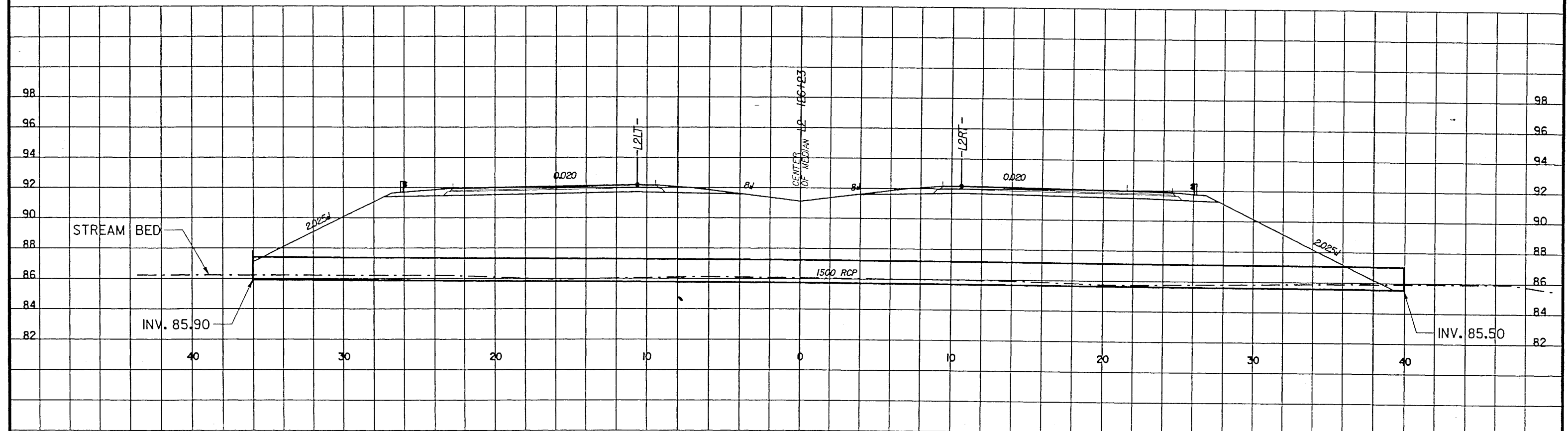
PI = 130+40.000  
 EL = 88.260 m  
 VC = 100 m  
 K = 176



**LOCHNER**  
 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612



# SITE C-5



PROFILE OF 1500 RCP  
-L2- STA. 126+23  
PLAN SHEET 9



REVISIONS

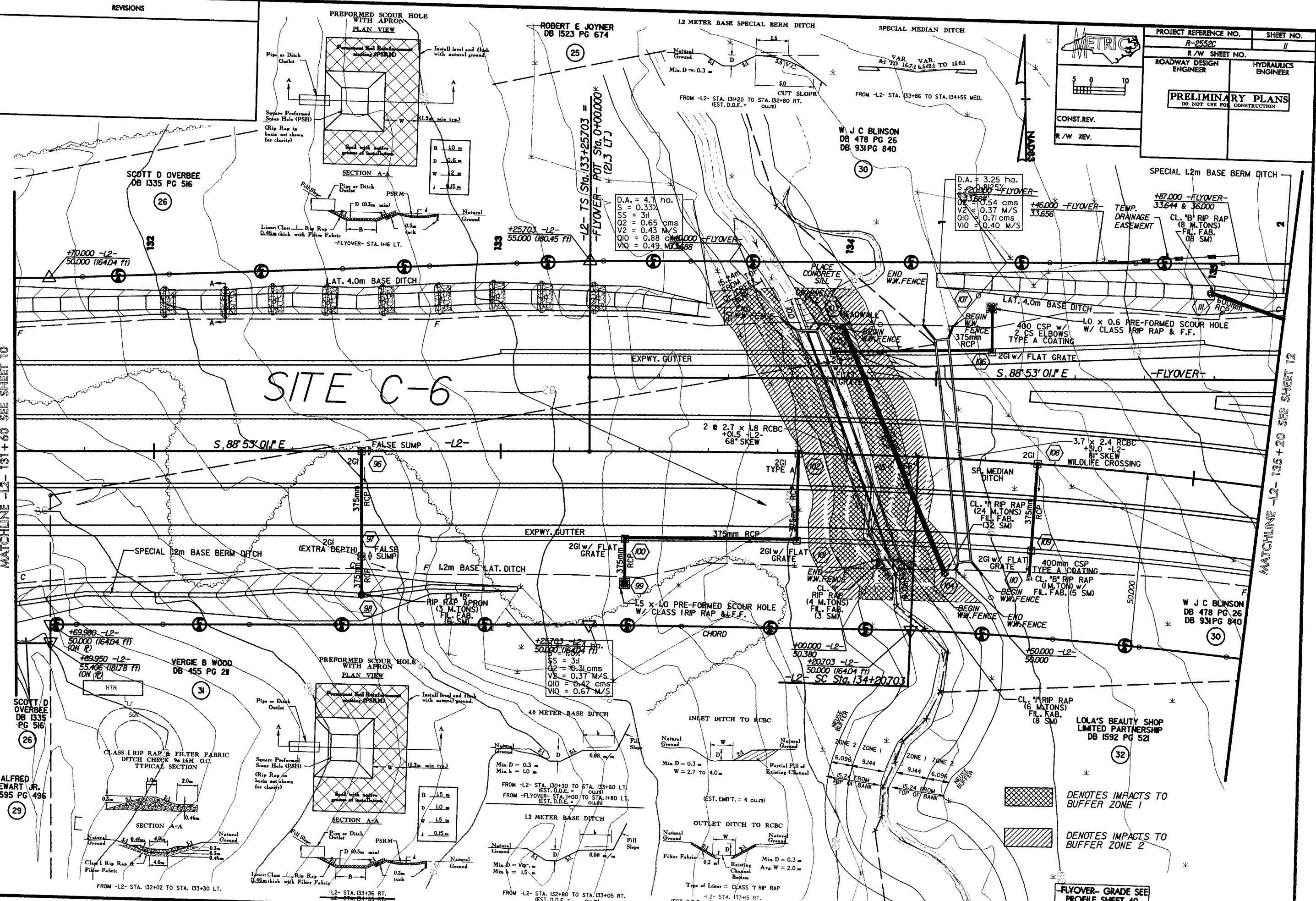


PROJECT REFERENCE NO. R-2552C	SHEET NO. 11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

MATCHLINE -L2- 131+60 SEE SHEET 10

MATCHLINE -L2- 135+20 SEE SHEET 12

# SITE C-6



ALFRED STEWART JR. DB 595 PG 496

SCOTT D OVERBEE DB 1335 PG 516

VERGIE B WOOD DB 455 PG 21

ROBERT E JOYNER DB 1523 PG 674

W J C BLINSON DB 478 PG 26 DB 931 PG 840

LOLA'S BEAUTY SHOP LIMITED PARTNERSHIP DB 1592 PG 521

-FLYOVER- GRADE SEE PROFILE SHEET 40  
-L2- GRADE SEE PROFILE SHEET 40

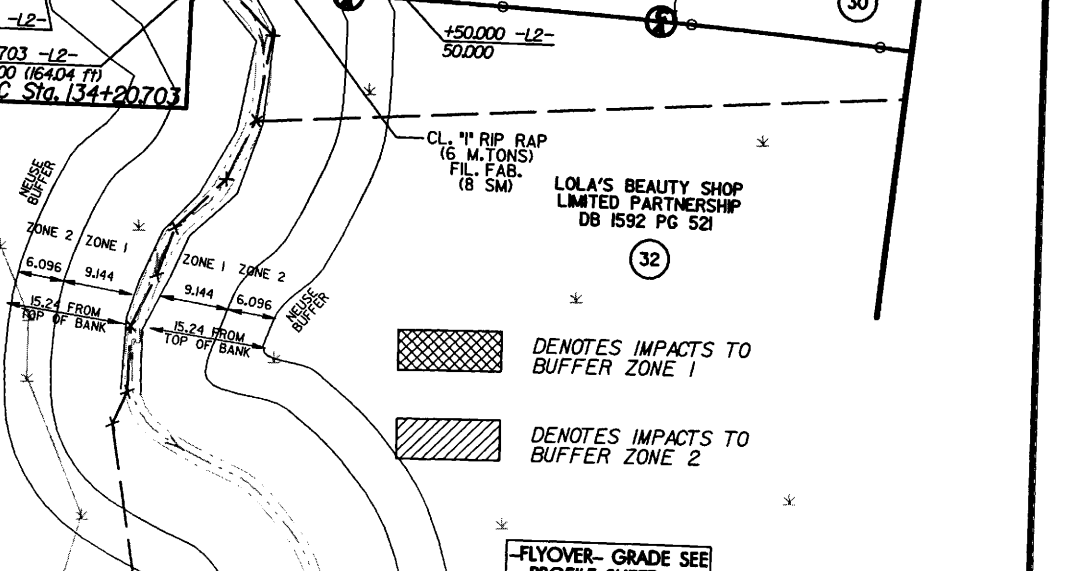
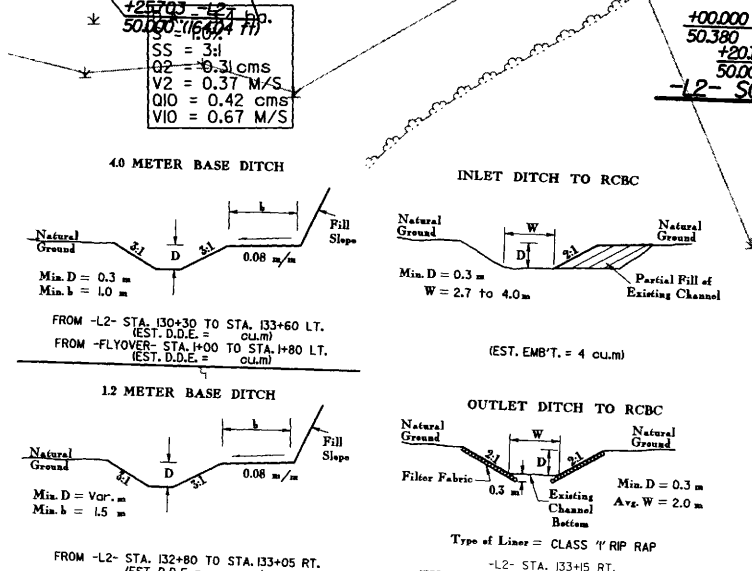
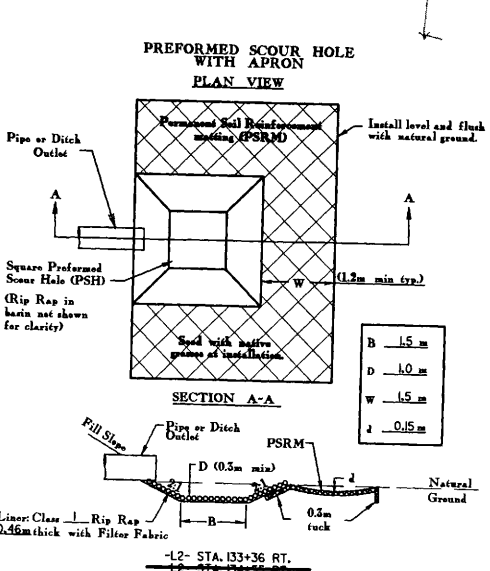
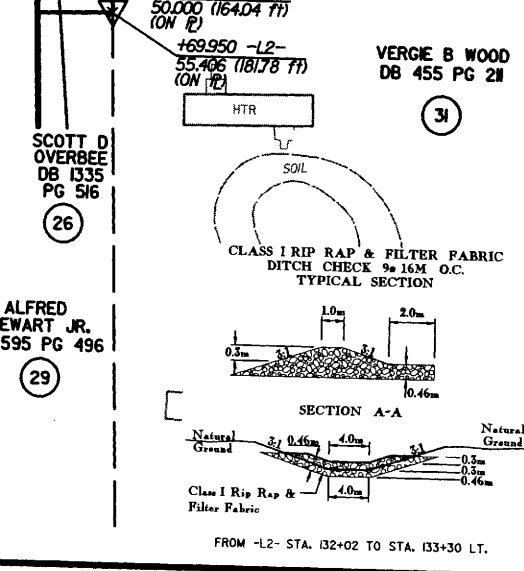
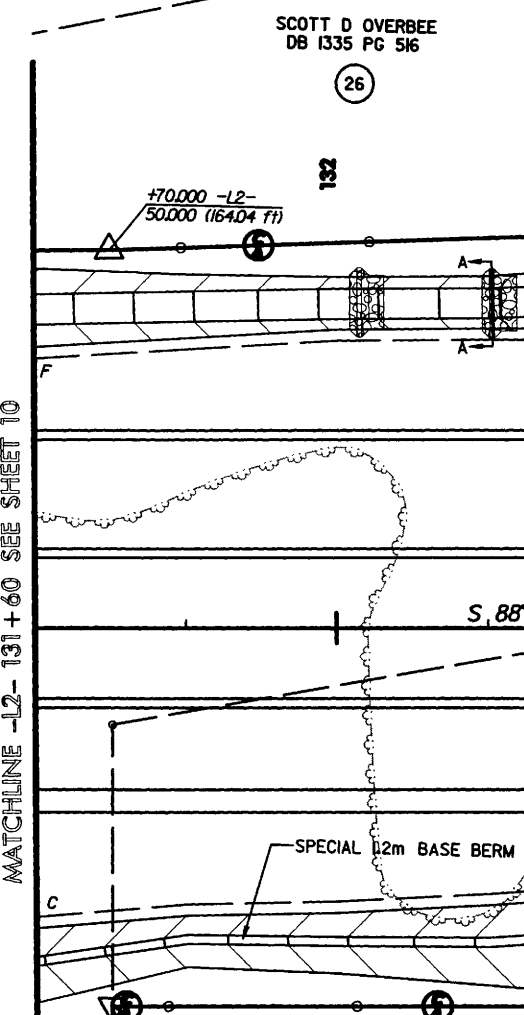
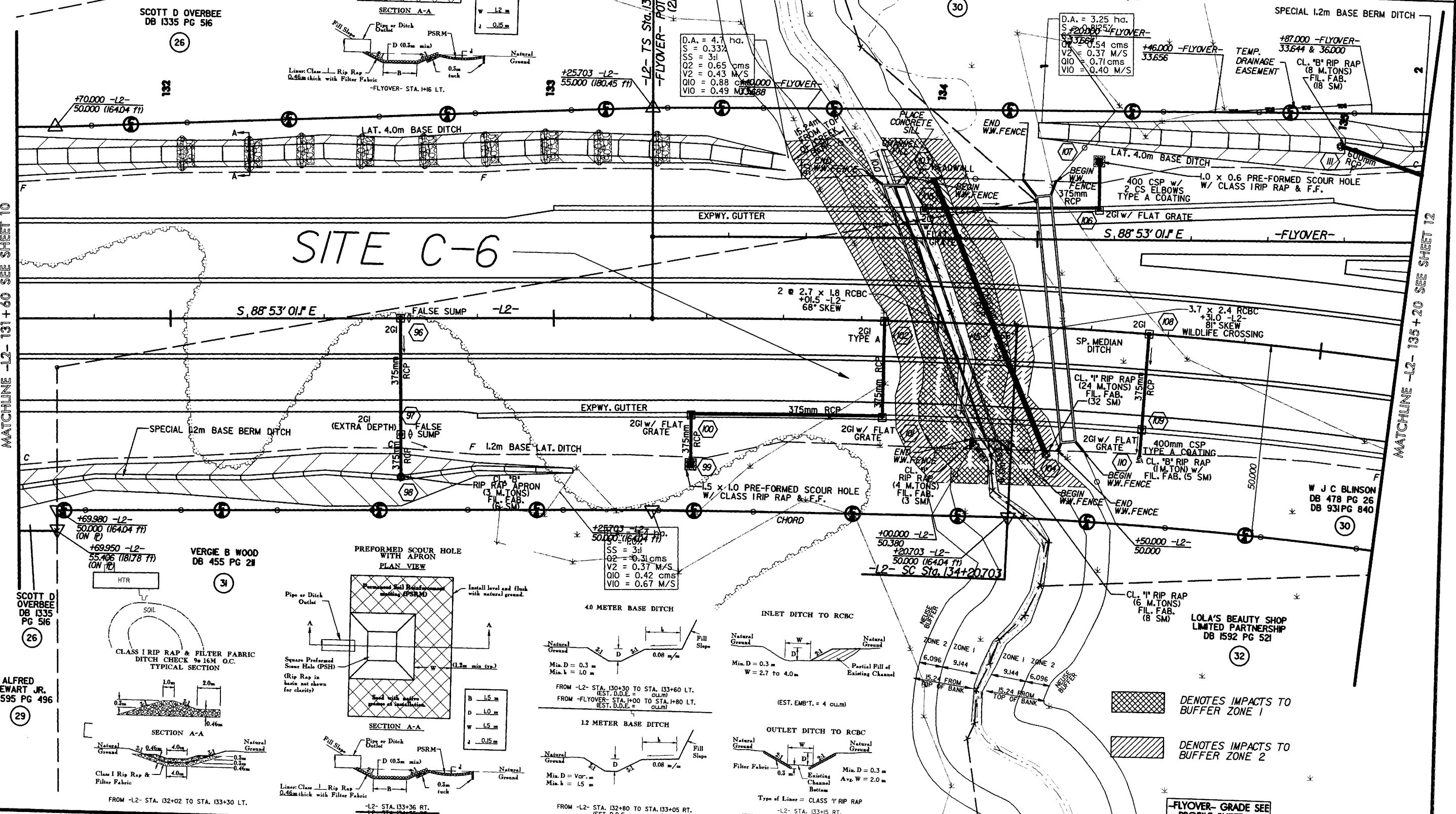
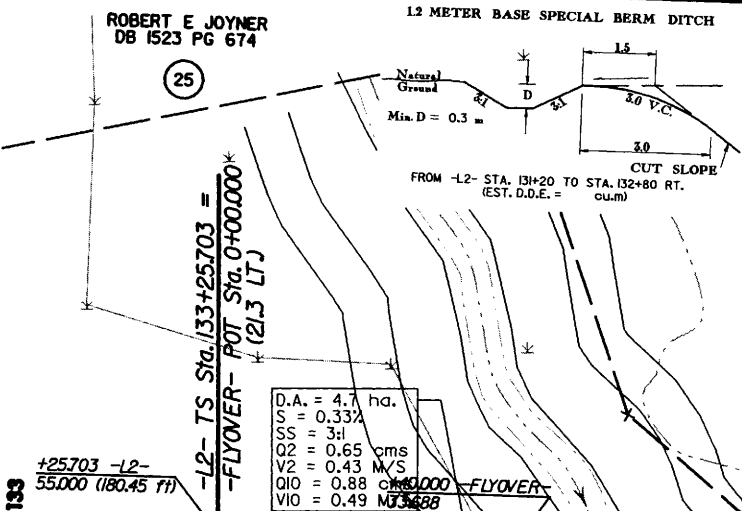
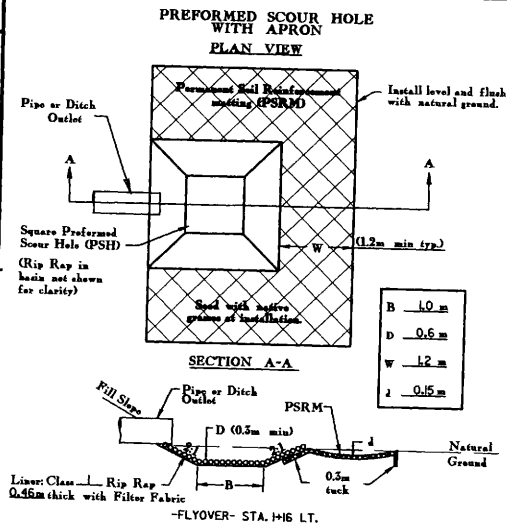
REVISIONS

PROJECT REFERENCE NO. R-2552C SHEET NO. 11  
 R/W SHEET NO.  
 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER  
**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION  
 CONST. REV. R/W REV.

# SITE C-6

MATCHLINE -L2- 131+60 SEE SHEET 10

MATCHLINE -L2- 135+20 SEE SHEET 12



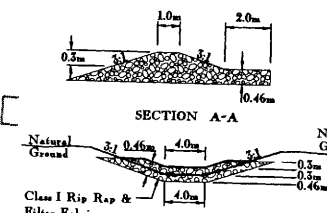
DENOTES IMPACTS TO BUFFER ZONE 1  
 DENOTES IMPACTS TO BUFFER ZONE 2

-FLYOVER- GRADE SEE PROFILE SHEET 40  
 -L2- GRADE SEE

ALFRED STEWART JR. DB 595 PG 496

SCOTT D OVERBEE DB 1335 PG 516

CLASS I RIP RAP & FILTER FABRIC DITCH CHECK 9x16M O.C. TYPICAL SECTION



VERGIE B WOOD DB 455 PG 21

PREFORMED SCOUR HOLE WITH APRON PLAN VIEW

4.0 METER BASE DITCH

INLET DITCH TO RCBC

OUTLET DITCH TO RCBC

12 METER BASE DITCH

OUTLET DITCH TO RCBC

-L2- SC Sta. 134+20703

LOLA'S BEAUTY SHOP LIMITED PARTNERSHIP DB 1592 PG 521

PROJECT REFERENCE NO. R-2552C SHEET NO. 11

R/W SHEET NO.

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

**PRELIMINARY PLANS**

DO NOT USE FOR CONSTRUCTION

CONST. REV. R/W REV.

NAD83

W J C BLINSON DB 478 PG 26 DB 931 PG 840

ROBERT E JOYNER DB 1523 PG 674

SCOTT D OVERBEE DB 1335 PG 516

# SITE C-6

**METRIC**

PROJECT REFERENCE NO. **R-2552C** SHEET NO. **35**

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

CONST. REV. R / W REV.

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

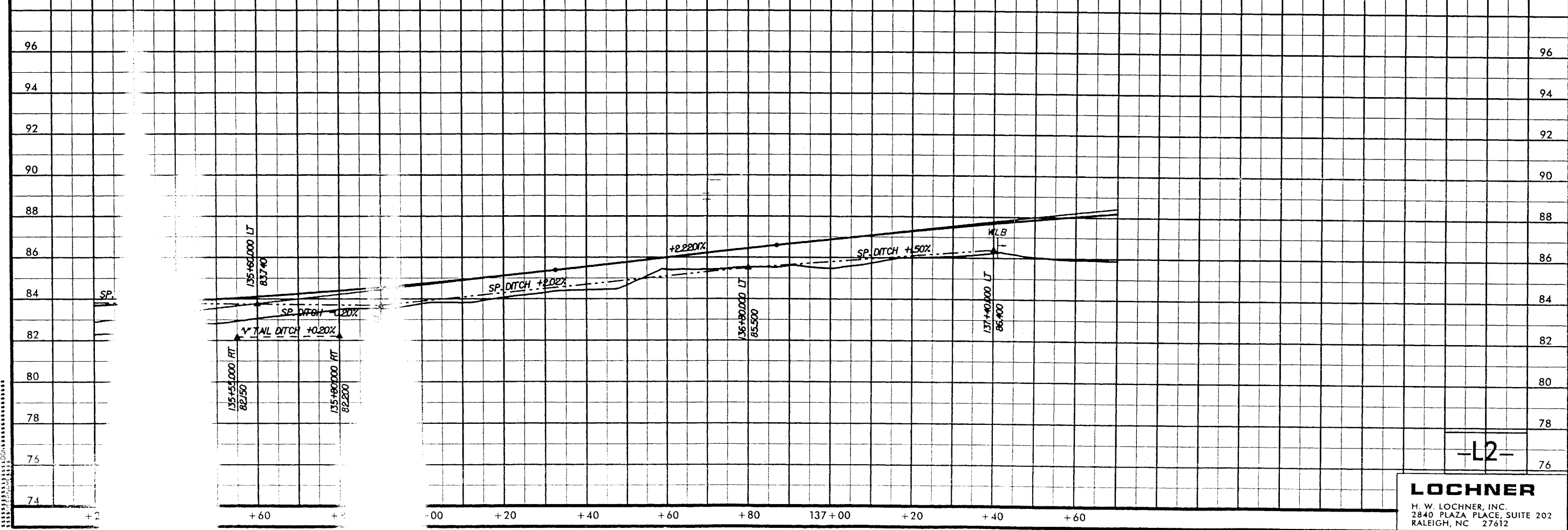
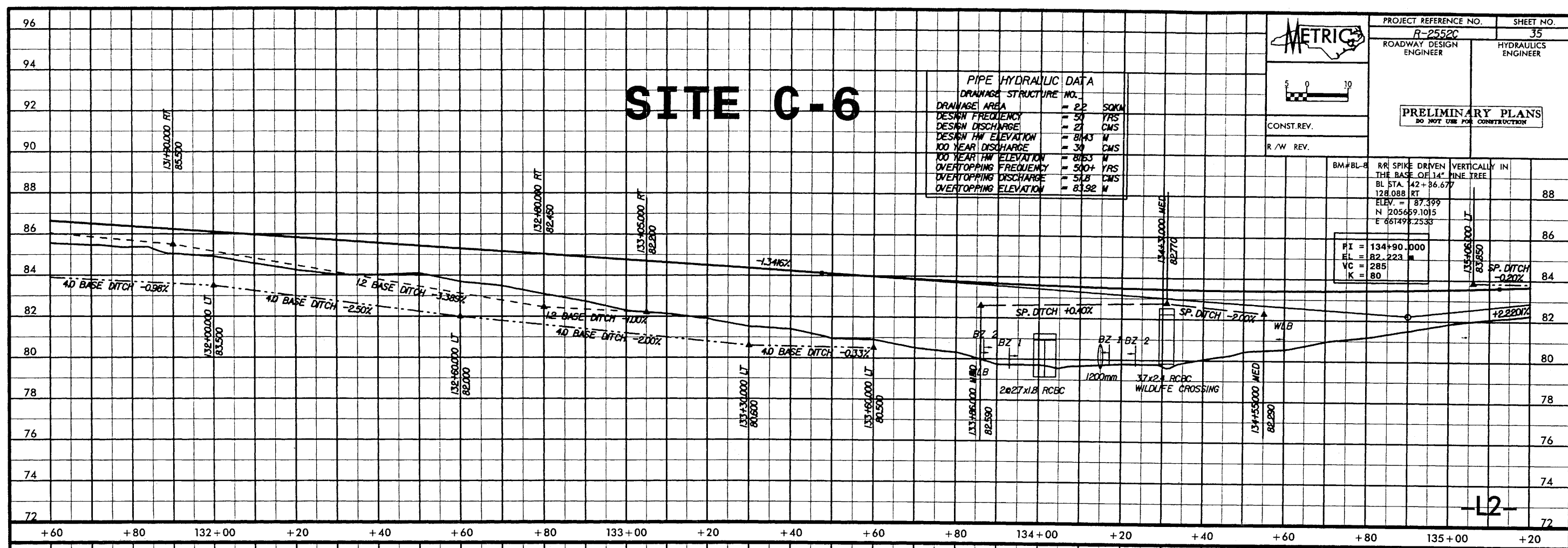
**PIPE HYDRAULIC DATA**

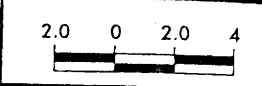
DRAINAGE STRUCTURE NO. \_\_\_\_\_

DRAINAGE AREA	= 22	SQKM
DESIGN FREQUENCY	= 50	YRS
DESIGN DISCHARGE	= 27	CMS
DESIGN HW ELEVATION	= 81.43	M
100 YEAR DISCHARGE	= 30	CMS
100 YEAR HW ELEVATION	= 81.63	M
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING DISCHARGE	= 51.8	CMS
OVERTOPPING ELEVATION	= 83.92	M

BM#BL-8 RR SPIKE DRIVEN VERTICALLY IN THE BASE OF 14" PINE TREE  
BL STA. 142+36.677  
128.088 RT  
ELEV = 87.399  
N 205659.1015  
E 461498.2533

PI = 134+90.000  
EI = 82.223  
VC = 285  
K = 80

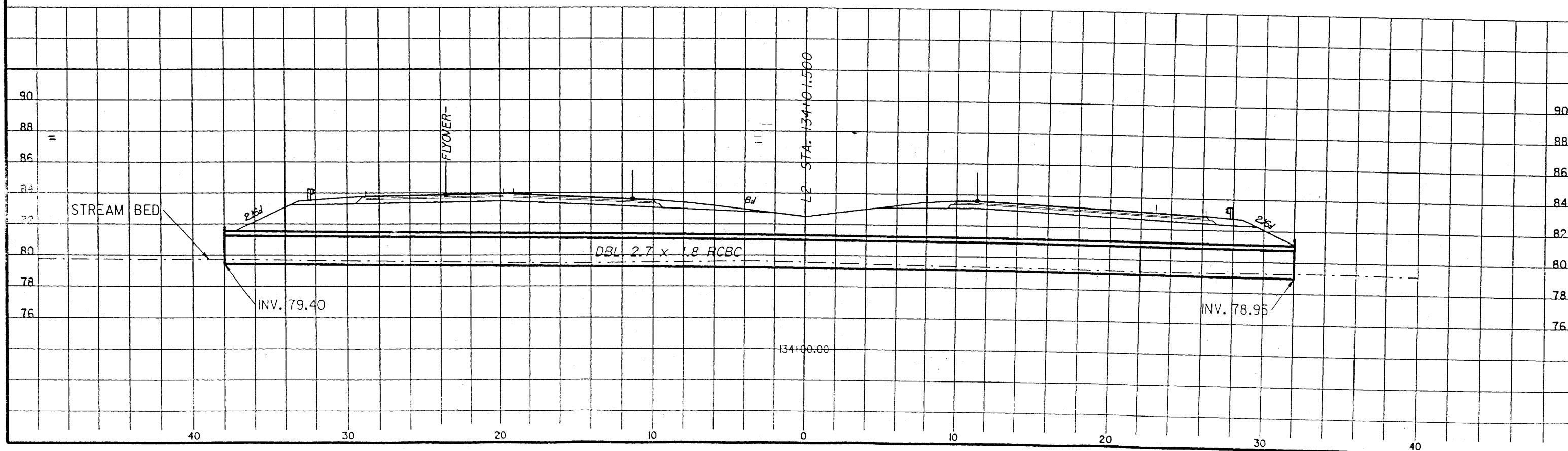


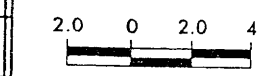


PROJECT REFERENCE NO. R-2552C SHEET NO. PP-2

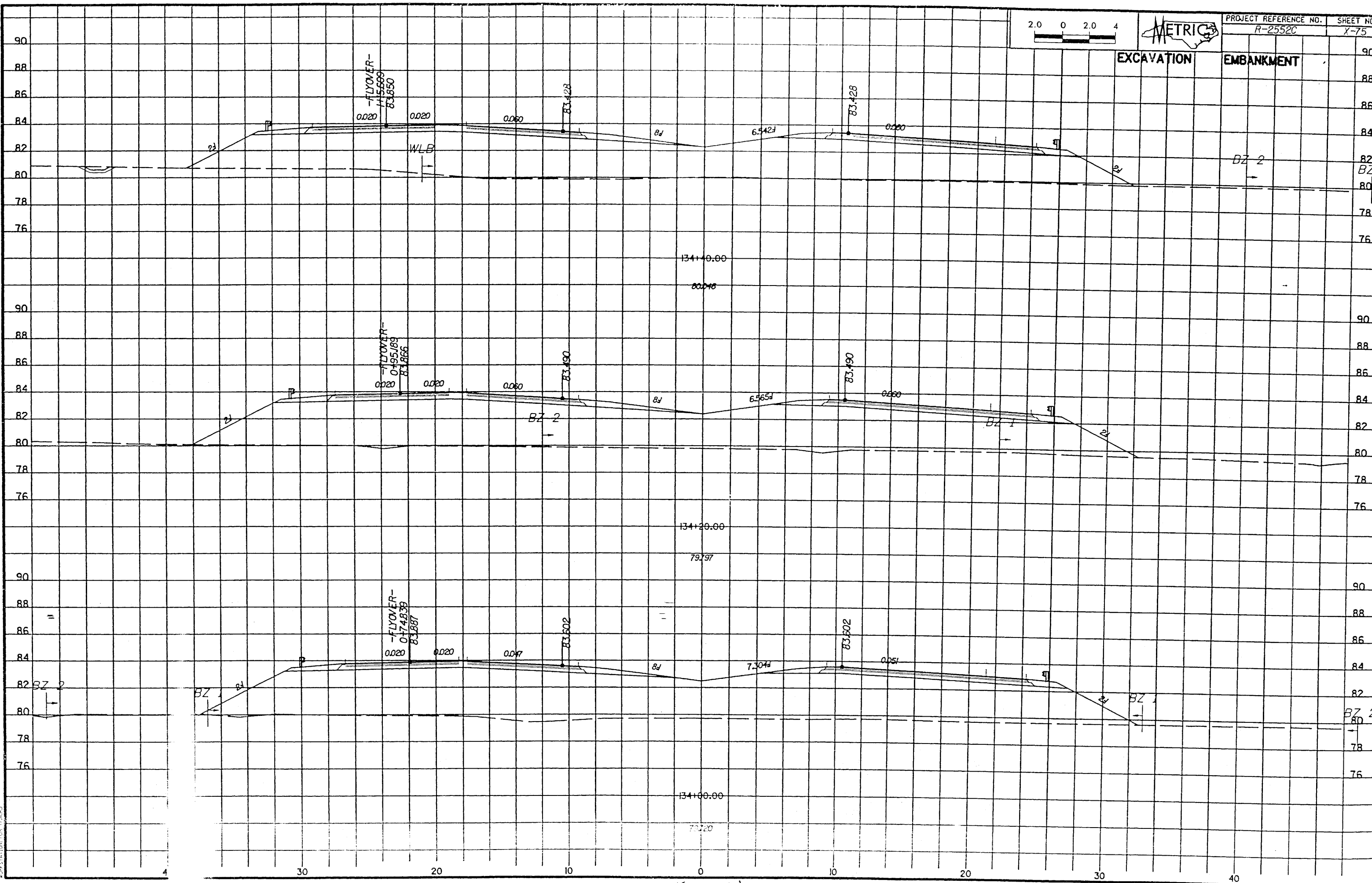
# SITE C-6

PROFILE ALONG DBL 2.4 x 1.8 RCBC  
-L2- STA. 134+01.500  
PLAN SHEET 11





EXCAVATION EMBANKMENT



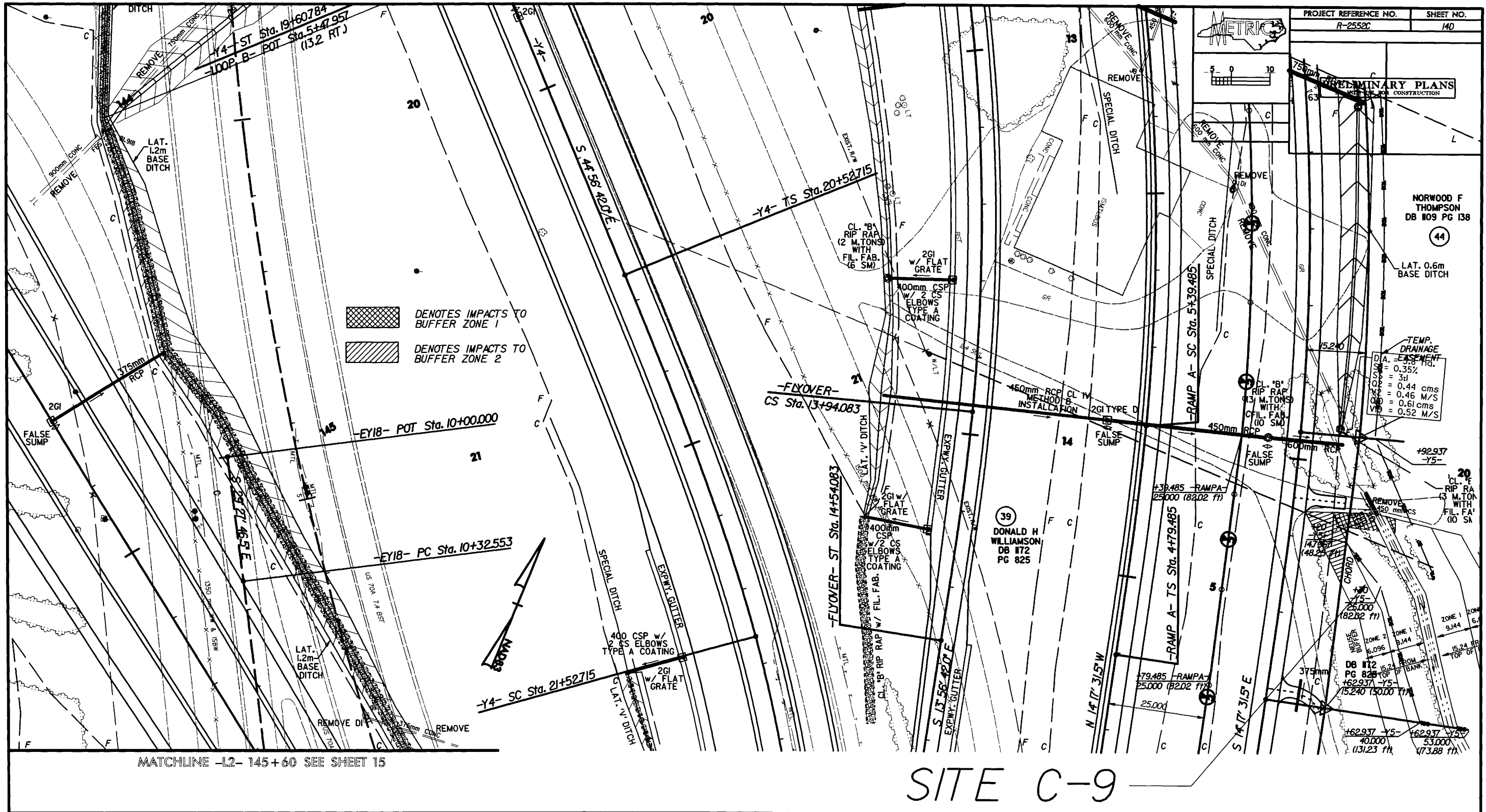
C:\p001\1001\1001.dwg

TYPICAL CROSS SECTION (SITE C-G)



# MATCH LINE 14 A-D

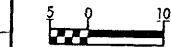
MATCH LINE 14 C-D



# SITE C-9



PROJECT REFERENCE NO. R-2552C  
ROADWAY DESIGN ENGINEER  
SHEET NO. 59  
HYDRAULICS ENGINEER



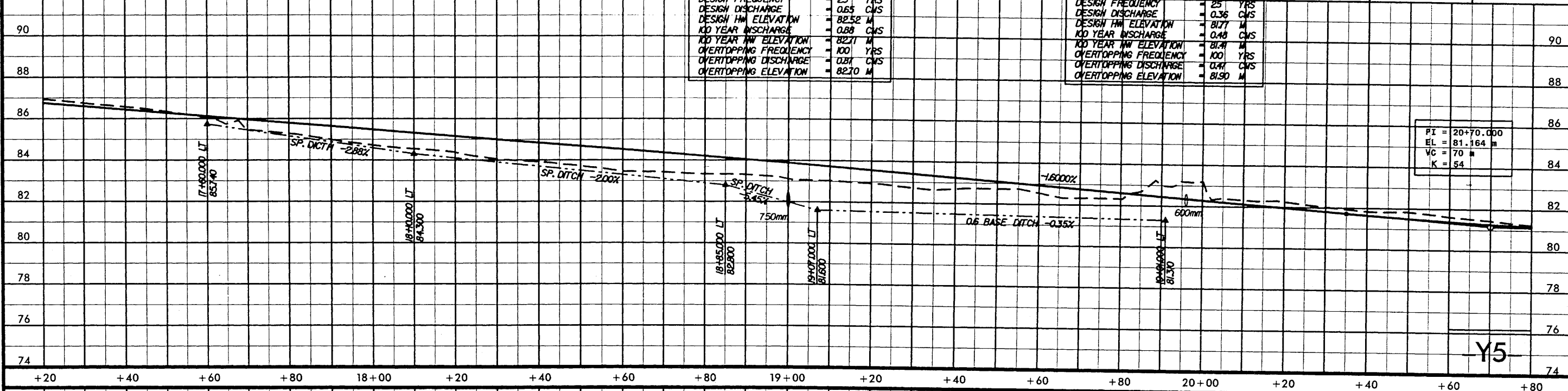
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 1	
DRAINAGE AREA	= 3.0 HA
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 0.65 CMS
DESIGN HW ELEVATION	= 82.52 M
100 YEAR DISCHARGE	= 0.88 CMS
100 YEAR HW ELEVATION	= 82.71 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 0.81 CMS
OVERTOPPING ELEVATION	= 82.70 M

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 2	
DRAINAGE AREA	= 12 HA
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 0.36 CMS
DESIGN HW ELEVATION	= 81.77 M
100 YEAR DISCHARGE	= 0.48 CMS
100 YEAR HW ELEVATION	= 81.8 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 0.41 CMS
OVERTOPPING ELEVATION	= 81.50 M

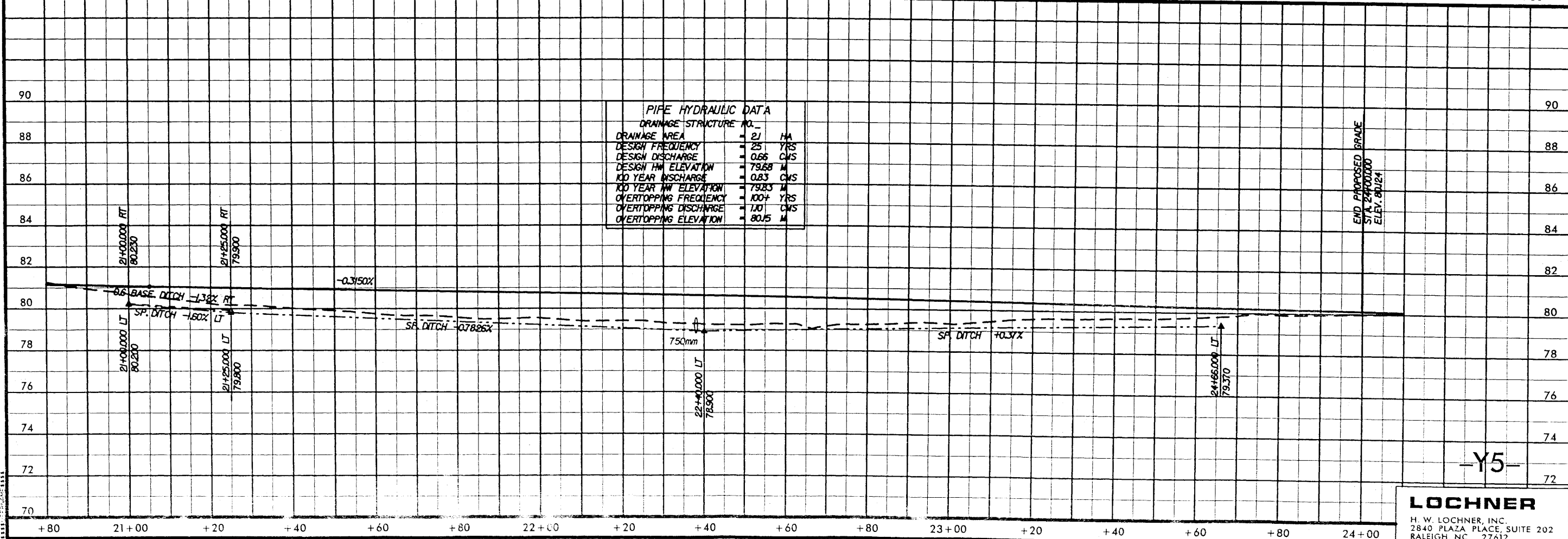
CONST. REV.  
R/W REV.

PI = 20+70.000  
EL = 81.164 m  
VC = 70 m  
K = 54



PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 3	
DRAINAGE AREA	= 21 HA
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 0.66 CMS
DESIGN HW ELEVATION	= 79.68 M
100 YEAR DISCHARGE	= 0.83 CMS
100 YEAR HW ELEVATION	= 79.83 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 1.10 CMS
OVERTOPPING ELEVATION	= 80.15 M

END PROPOSED GRADE  
STA 24+00.000  
ELEV. 80.124



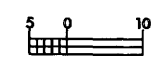


# SITE C-12

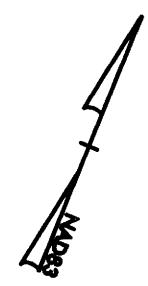


PROJECT REFERENCE NO. R-2552C SHEET NO. 16B

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



LAT. 2.4m  
BASE  
DITCH



DENOTES IMPACTS TO  
BUFFER ZONE 1

DENOTES IMPACTS TO  
BUFFER ZONE 2

# SITE C-10

JAMES WINFRED JONES  
DB 552 PG 312

+53.611 -RAMP C-  
30.000 (98.43 FT)

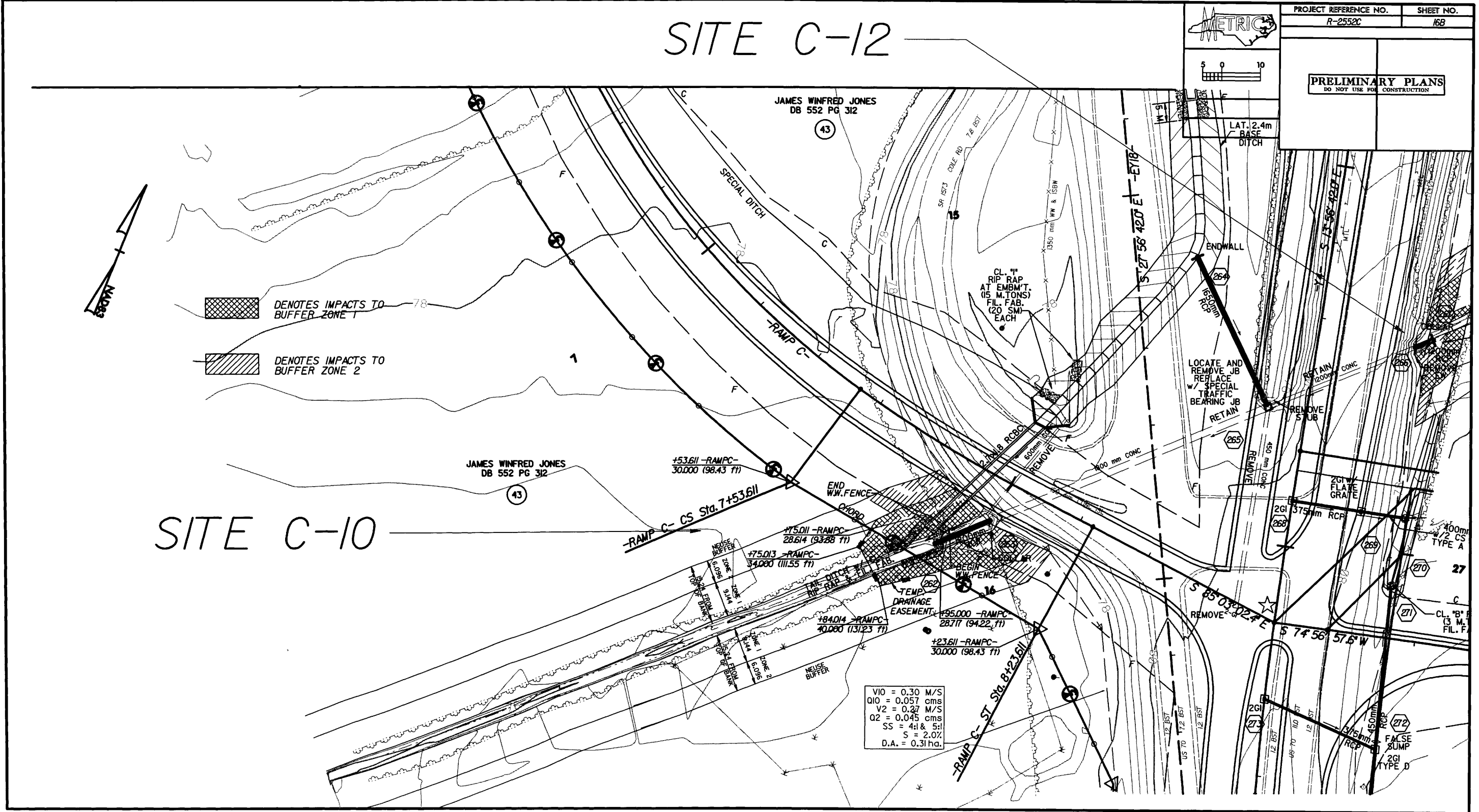
JAMES WINFRED JONES  
DB 552 PG 312

43

V10 = 0.30 M/S  
Q10 = 0.057 cms  
V2 = 0.27 M/S  
Q2 = 0.045 cms  
SS = 4:1 & 5:1  
S = 2.0%  
D.A. = 0.31 ha.

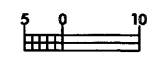
# MATCH LINE 16 B-C

MATCH LINE 16 A-B

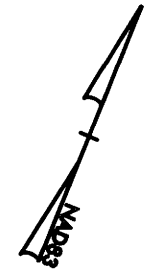



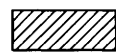
# SITE C-12

PROJECT REFERENCE NO. R-2552C SHEET NO. 16B



PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION



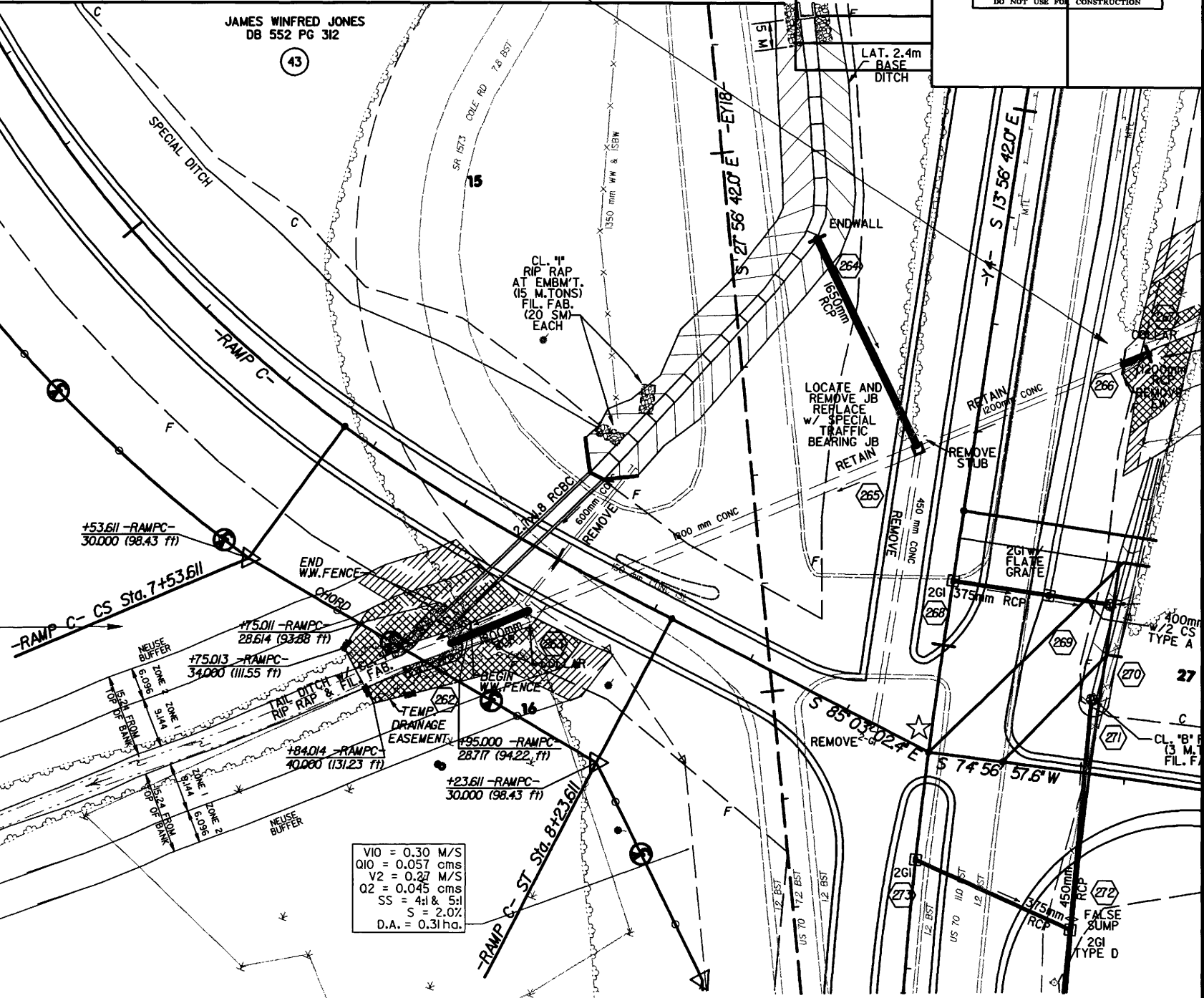
 DENOTES IMPACTS TO BUFFER ZONE 1  
 DENOTES IMPACTS TO BUFFER ZONE 2

# SITE C-10

JAMES WINFRED JONES  
DB 552 PG 312

JAMES WINFRED JONES  
DB 552 PG 312

V10 = 0.30 M/S  
Q10 = 0.057 cms  
V2 = 0.27 M/S  
Q2 = 0.045 cms  
SS = 4# & 5#  
S = 2.0%  
D.A. = 0.31 ha.

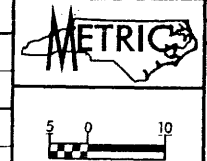


MATCH LINE 16 A-B

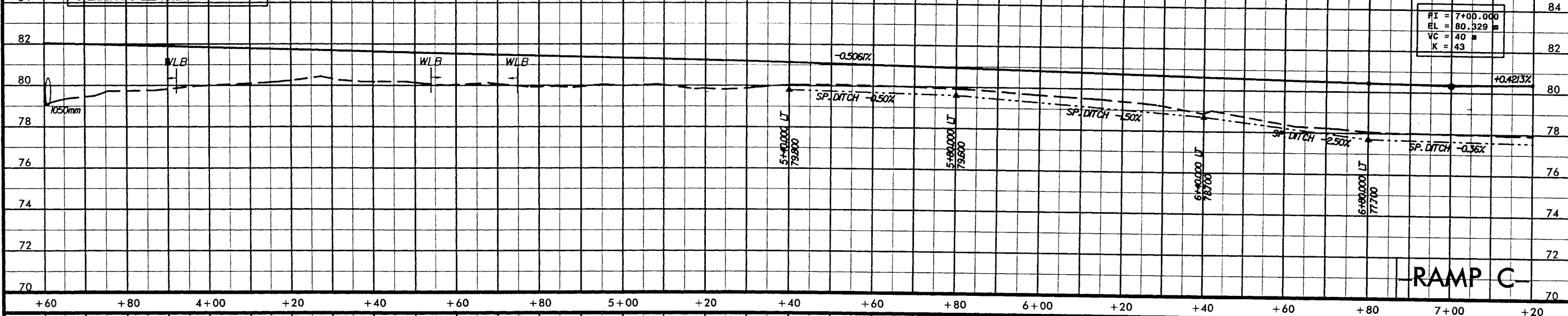
MATCH LINE 16 B-C

# SITE C-11

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 1	
DRAINAGE AREA	= 116 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 17 CMS
DESIGN HW ELEVATION	= 80.07 M
100 YEAR DISCHARGE	= 2.01 CMS
100 YEAR HW ELEVATION	= 80.08 M
OVERTOPPING FREQUENCY	= 50+ YRS
OVERTOPPING DISCHARGE	= 17.9 CMS
OVERTOPPING ELEVATION	= 80.10 M



PROJECT REFERENCE NO. R-2552C	SHEET NO. 47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

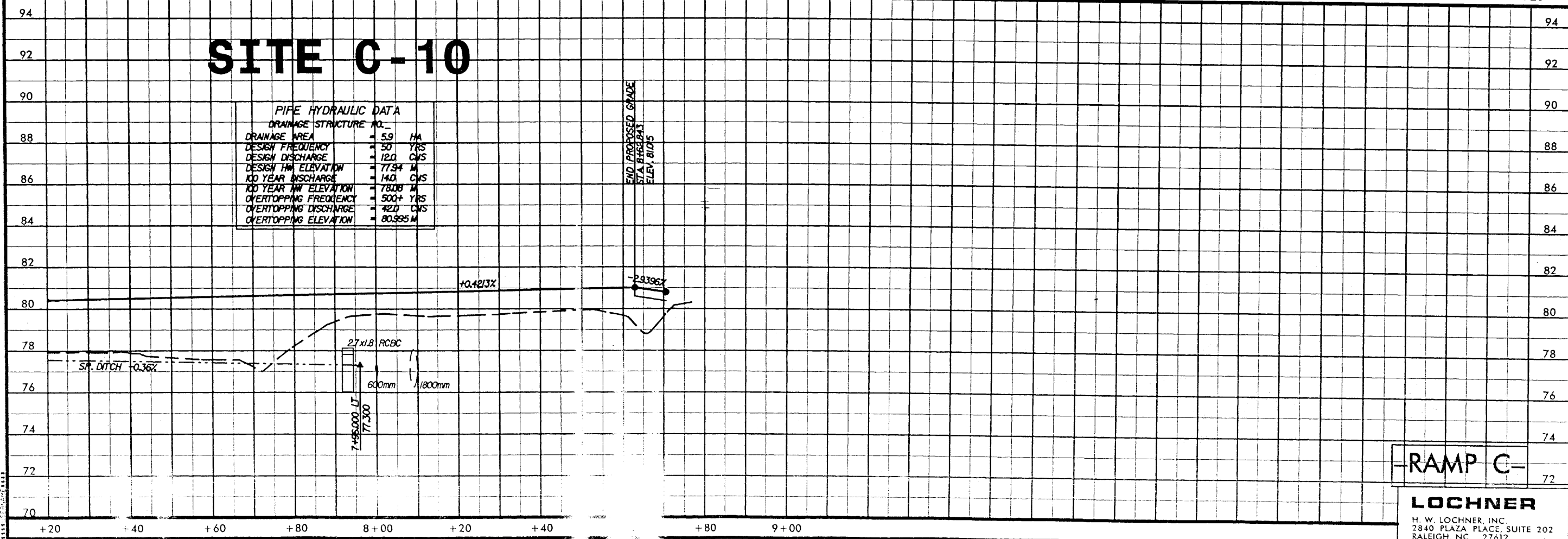


PI = 7+00.000
EL = 80.329 m
VC = 40 m
K = 43

**RAMP C**

# SITE C-10

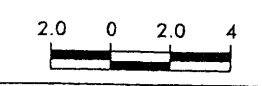
PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 2	
DRAINAGE AREA	= 5.9 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 12.0 CMS
DESIGN HW ELEVATION	= 77.94 M
100 YEAR DISCHARGE	= 1.40 CMS
100 YEAR HW ELEVATION	= 78.08 M
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING DISCHARGE	= 4.20 CMS
OVERTOPPING ELEVATION	= 80.995 M



**RAMP C**

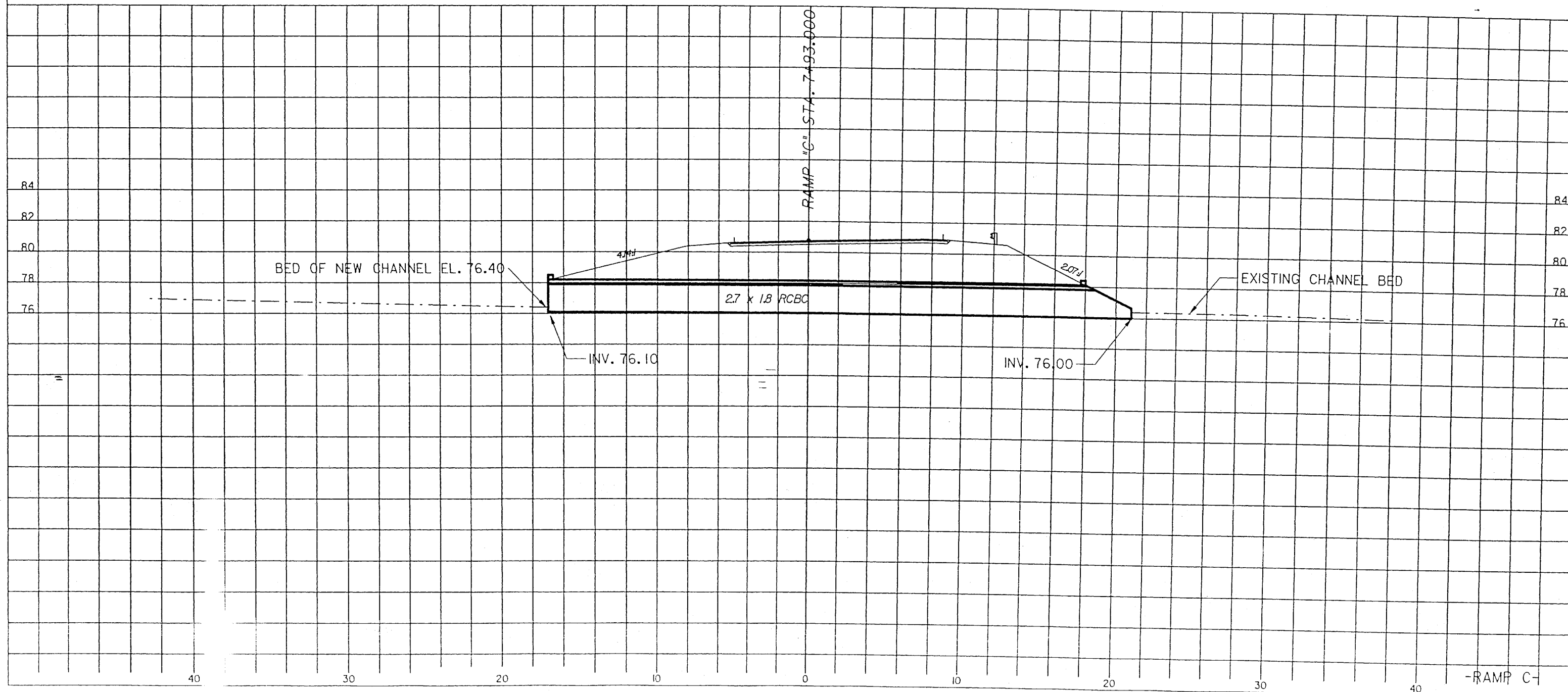
**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

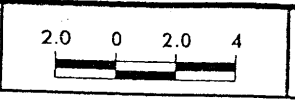
# SITE C-10



PROJECT REFERENCE NO. R-2552C SHEET NO. PP-6

PROFILE OF 2.7 x 1.8 RCBC  
RAMP C - STA. 7+93.000  
PLAN SHEET 16

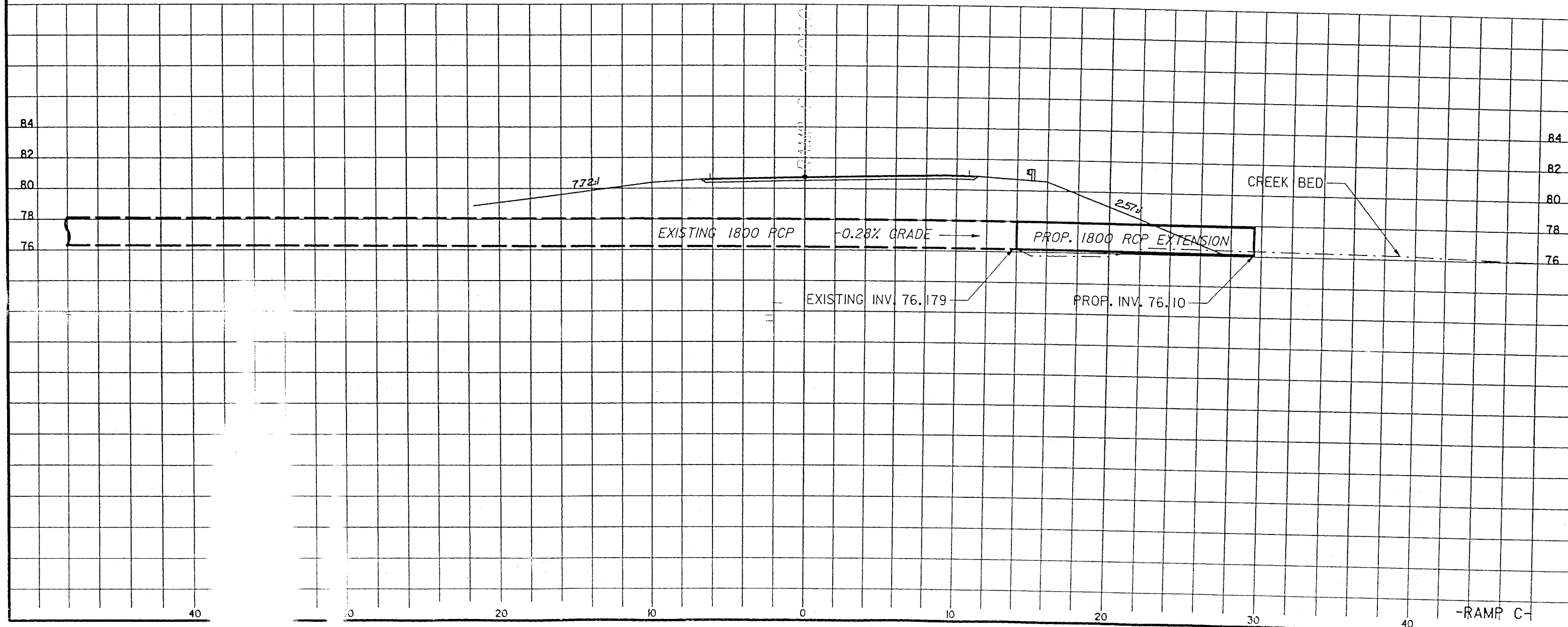




PROJECT REFERENCE NO. R-2552C SHEET NO. PP-5

# SITE C-10

PIPE PROFILE OF 1800 RCP  
RAMP C STA. 8+09.0

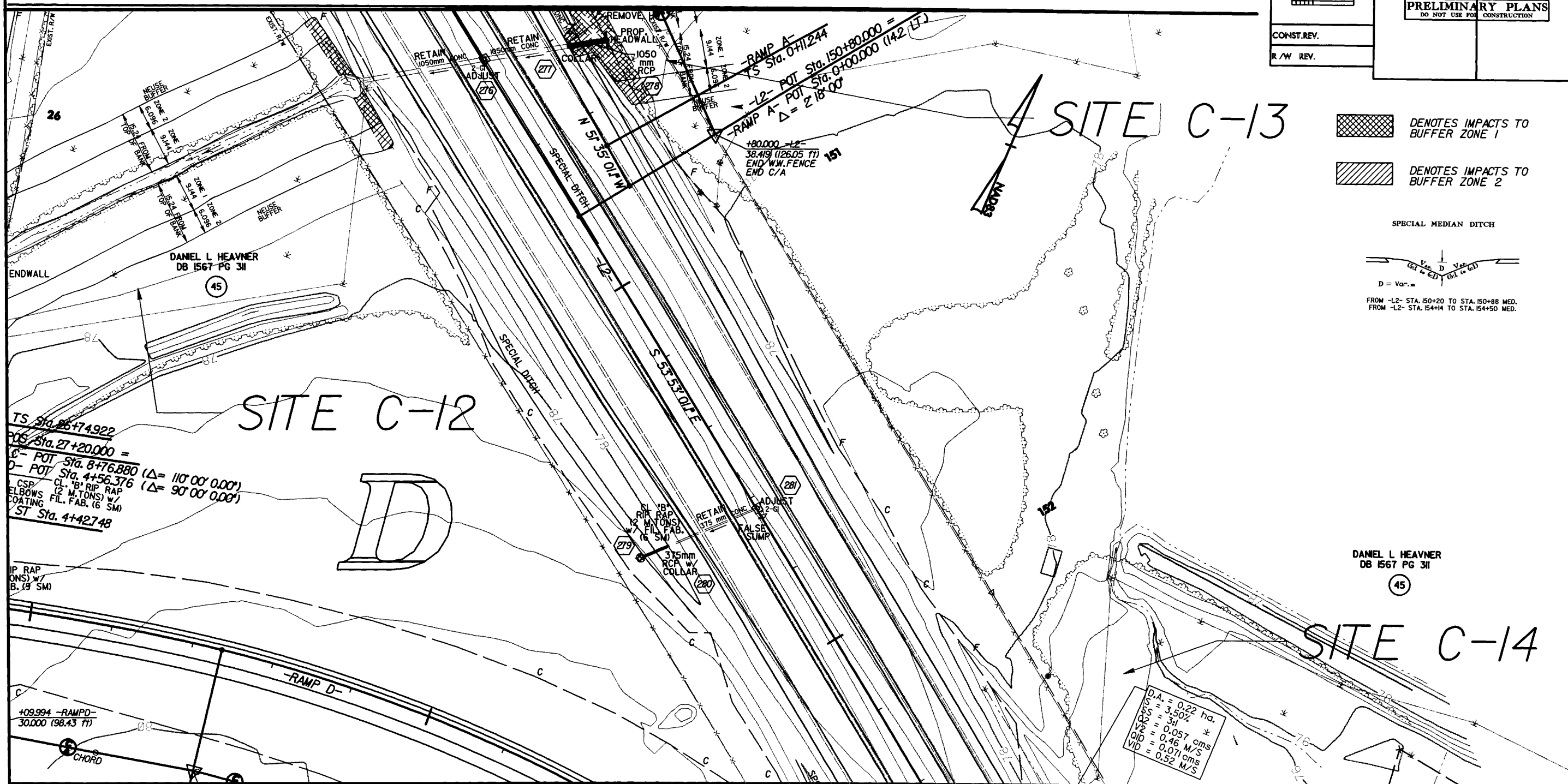
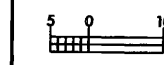


MATCH LINE 16 A-B

MATCHLINE -Y4- 25+80 SEE SHEET 15



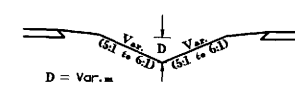
PROJECT REFERENCE NO. R-2552C	SHEET NO. 15A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



DENOTES IMPACTS TO BUFFER ZONE 1

DENOTES IMPACTS TO BUFFER ZONE 2

SPECIAL MEDIAN DITCH



FROM -L2- STA. 150+20 TO STA. 150+88 MED.  
FROM -L2- STA. 154+14 TO STA. 154+50 MED.

DANIEL L HEAVNER  
DB 1567 PG 3H

(45)

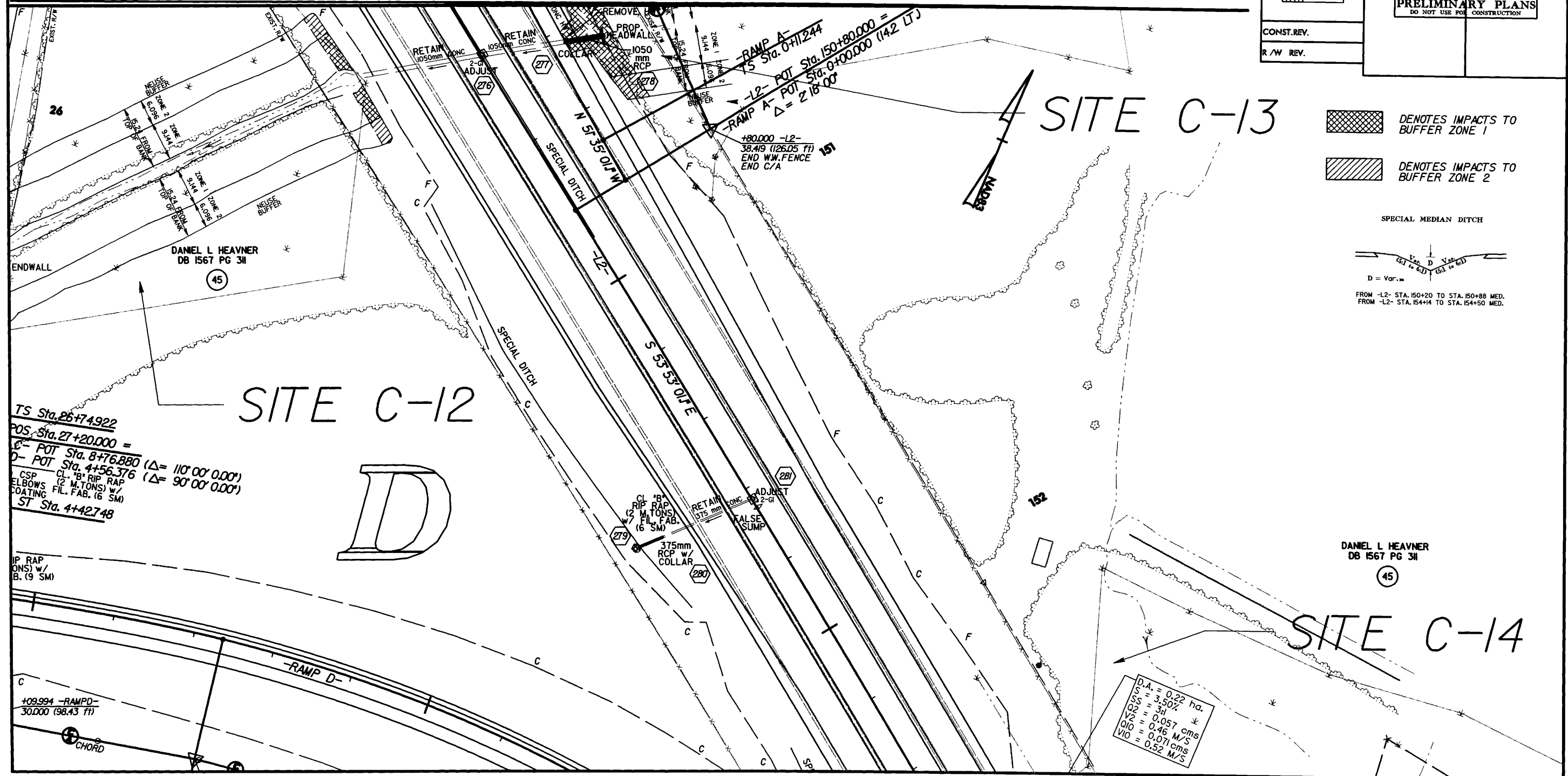
SITE C-14

MATCH LINE 16 A-D

PROJECT REFERENCE NO. R-2552C		SHEET NO. 16A	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
CONST. REV.			
R/W REV.			

MATCHLINE -Y4- 25+80 SEE SHEET 15

MATCH LINE 16 A-B



- DENOTES IMPACTS TO BUFFER ZONE 1
- DENOTES IMPACTS TO BUFFER ZONE 2
- SPECIAL MEDIAN DITCH

SITE C-12

SITE C-13

SITE C-14

D

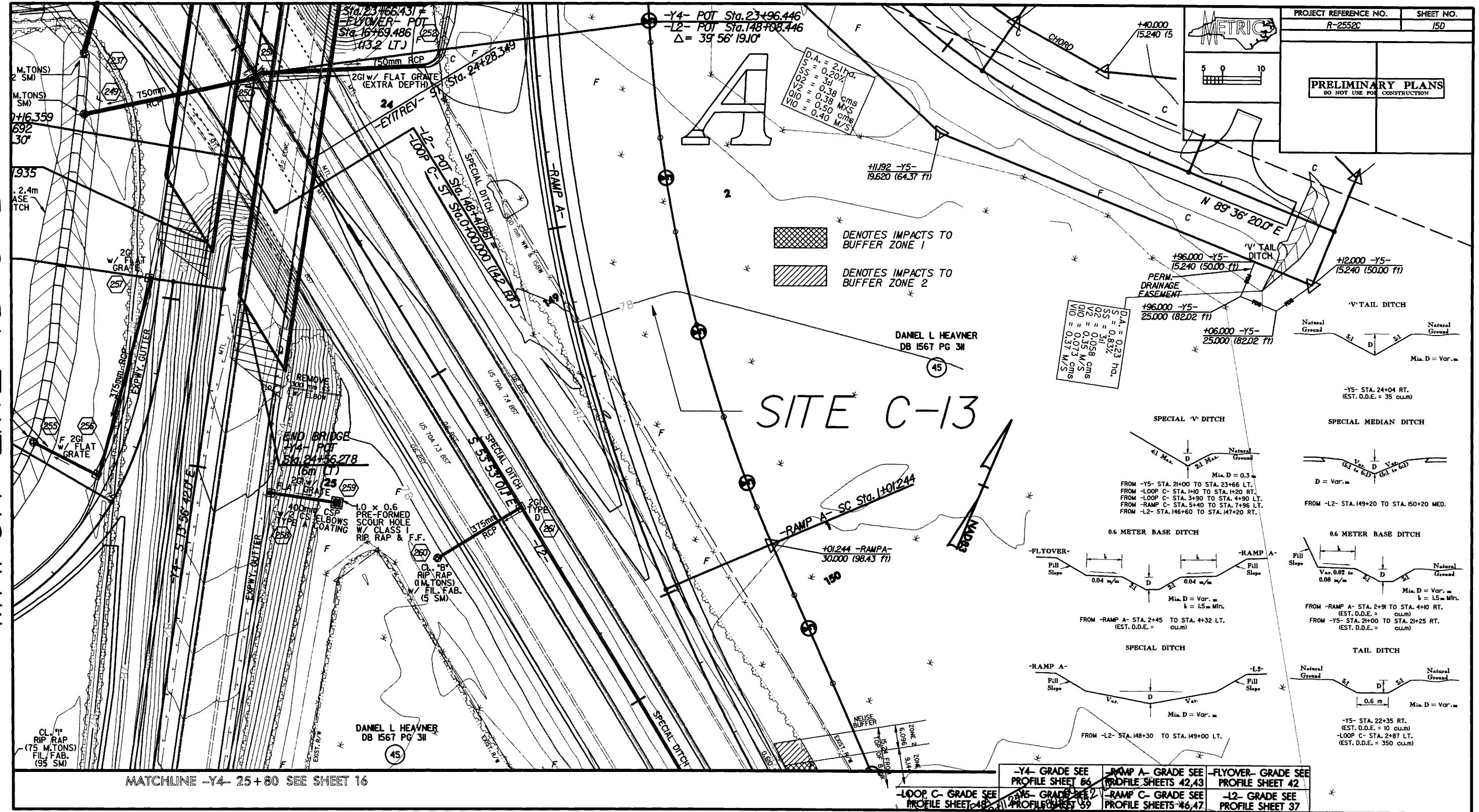
TS Sta. 26+74.922  
 POS. Sta. 27+20.000 =  
 C- POT Sta. 8+76.880 (Δ = 110' 00" 0.00')  
 D- POT Sta. 4+56.376 (Δ = 90' 00" 0.00')  
 CSP CL. "B" RIP RAP (2 M. TONS) w/ ELBOWS FIL. FAB. (6 SM) COATING ST. Sta. 4+42.748

IP RAP (ONS) w/ B. (9 SM)

MATCH LINE 16 A-D

# MATCH LINE 15 A-D

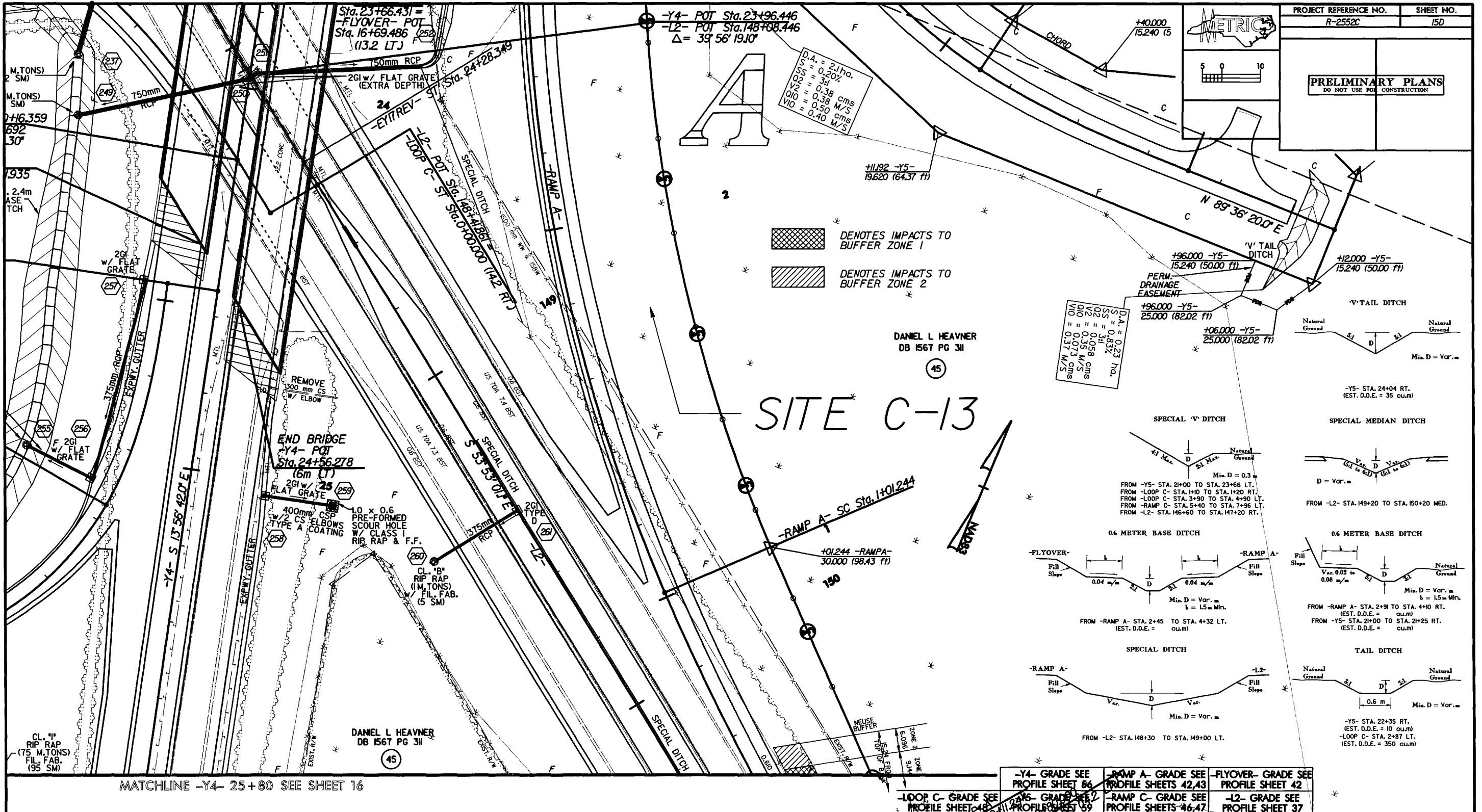
MATCH LINE 15 C-D





# MATCH LINE 15 A-D

MATCH LINE 15 C-D



PROJECT REFERENCE NO. R-2552C	SHEET NO. 15D
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

D.A. = 2.1 ha.  
S<sub>1</sub> = 0.20%  
V<sub>1</sub> = 3h  
V<sub>2</sub> = 0.38 cms  
Q<sub>10</sub> = 0.38 M/S  
V<sub>10</sub> = 0.50 cms  
V<sub>100</sub> = 0.40 M/S

DENOTES IMPACTS TO BUFFER ZONE 1  
 DENOTES IMPACTS TO BUFFER ZONE 2

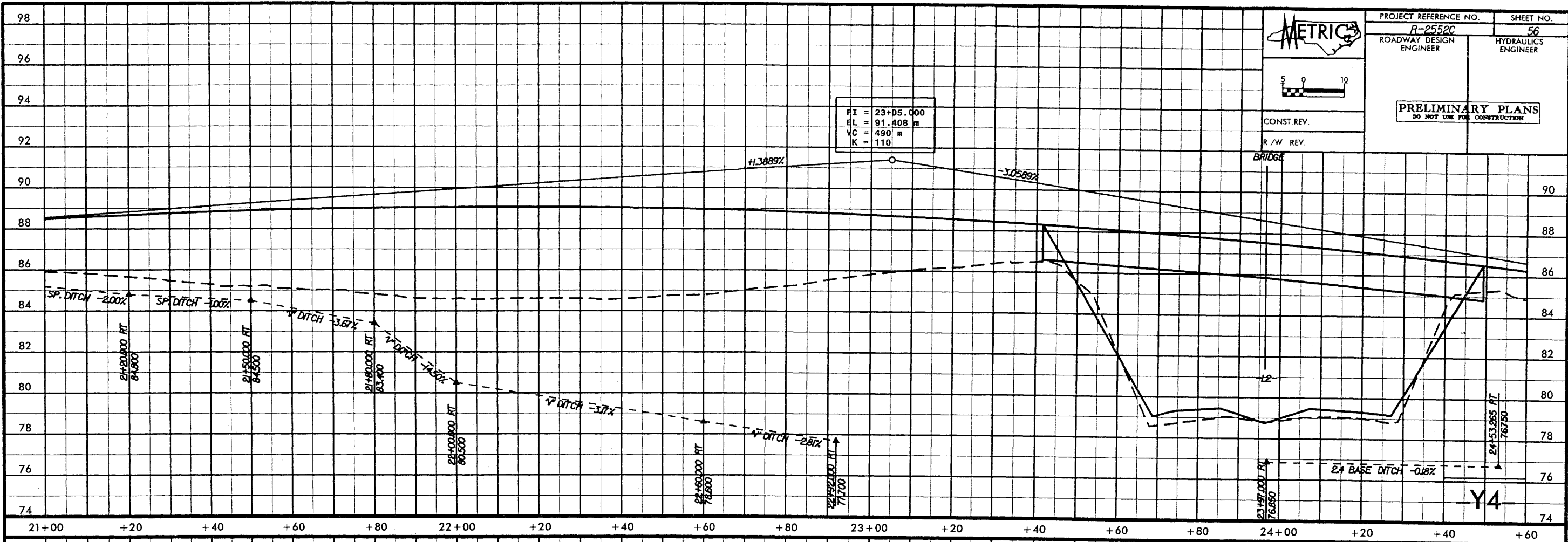
SITE C-13

DANIEL L HEAVNER  
DB 1567 PG 311  
45

D.A. = 0.23 ha.  
S<sub>1</sub> = 0.83%  
V<sub>1</sub> = 0.058 cms  
V<sub>2</sub> = 0.35 M/S  
Q<sub>10</sub> = 0.073 cms  
V<sub>10</sub> = 0.37 M/S

MATCHLINE -Y4- 25+80 SEE SHEET 16

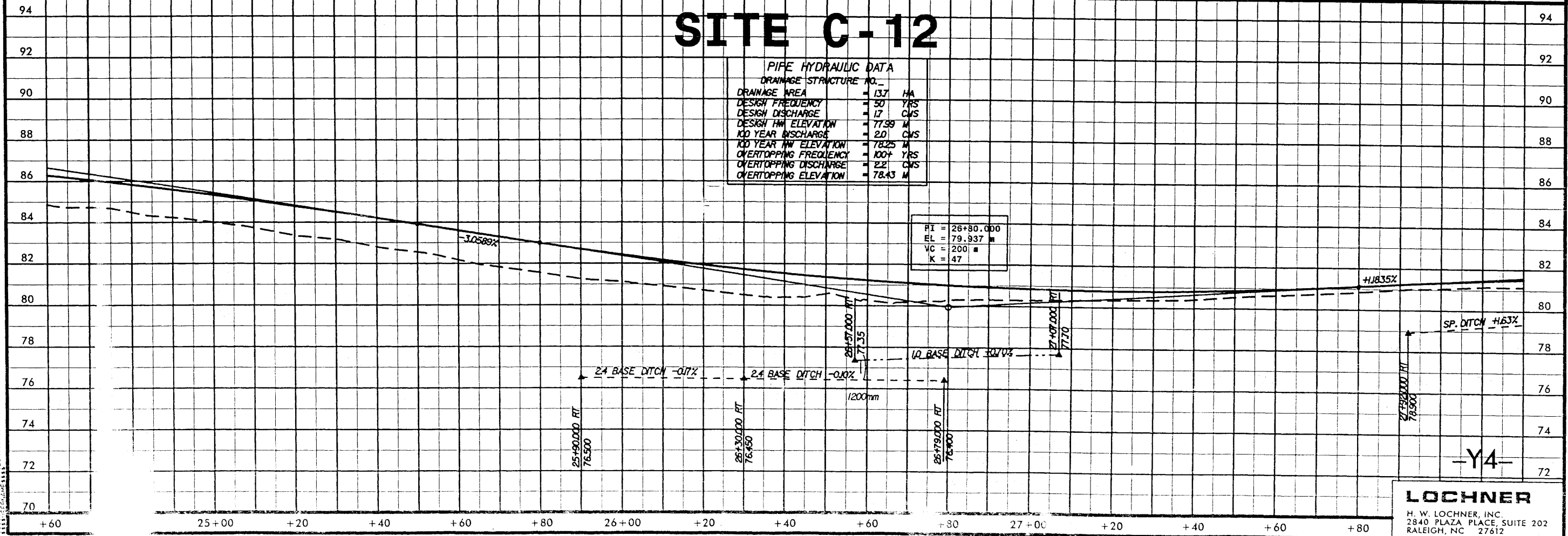
-Y4- GRADE SEE PROFILE SHEET 66	-RAMP A- GRADE SEE PROFILE SHEETS 42,43	-FLYOVER- GRADE SEE PROFILE SHEET 42
-LOOP C- GRADE SEE PROFILE SHEET 48	-RAMP C- GRADE SEE PROFILE SHEETS 46,47	-L2- GRADE SEE PROFILE SHEET 37

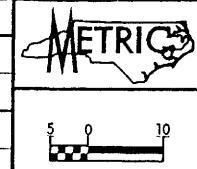


# SITE C-12

**PIPE HYDRAULIC DATA**

DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	137 HA
DESIGN FREQUENCY	50 YRS
DESIGN DISCHARGE	17 CMS
DESIGN HW ELEVATION	77.99 M
100 YEAR DISCHARGE	2.0 CMS
100 YEAR HW ELEVATION	78.25 M
OVERTOPPING FREQUENCY	100+ YRS
OVERTOPPING DISCHARGE	2.2 CMS
OVERTOPPING ELEVATION	78.43 M



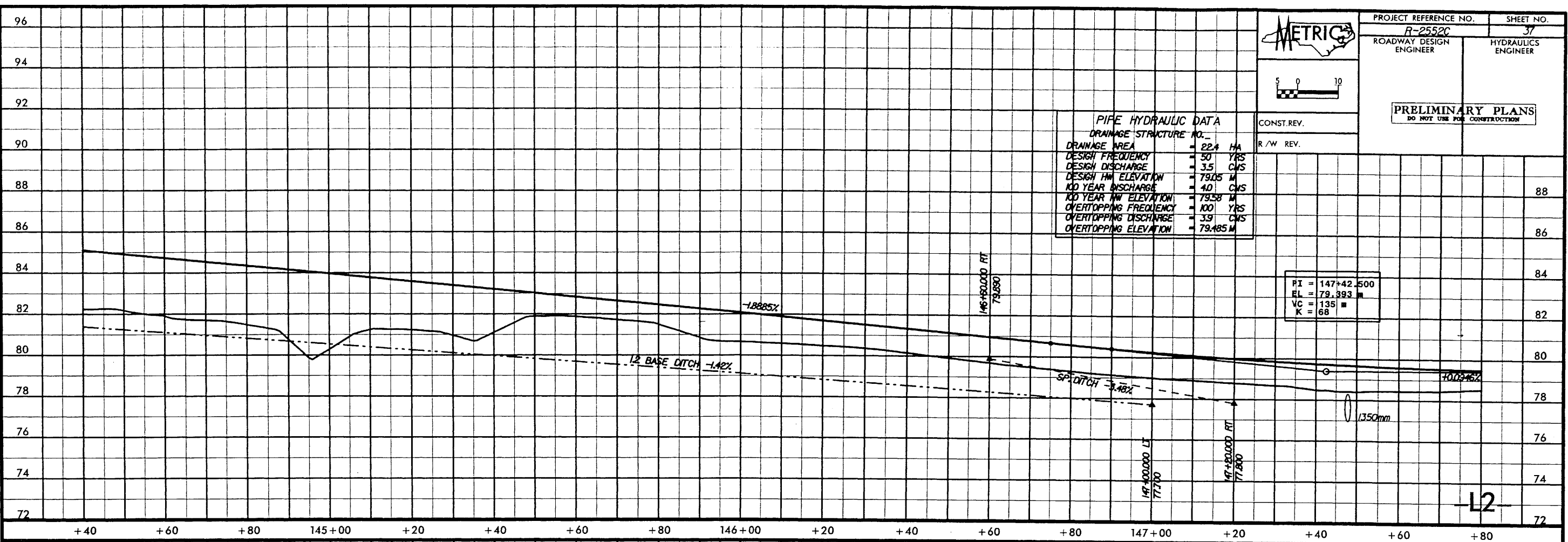


PROJECT REFERENCE NO. <b>R-2552C</b>	SHEET NO. <b>37</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. _____	
DRAINAGE AREA	= 22.4 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 3.5 CMS
DESIGN HW ELEVATION	= 79.05 M
100 YEAR DISCHARGE	= 4.0 CMS
100 YEAR HW ELEVATION	= 79.58 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 3.9 CMS
OVERTOPPING ELEVATION	= 79.485 M

CONST. REV.  
R/W REV.

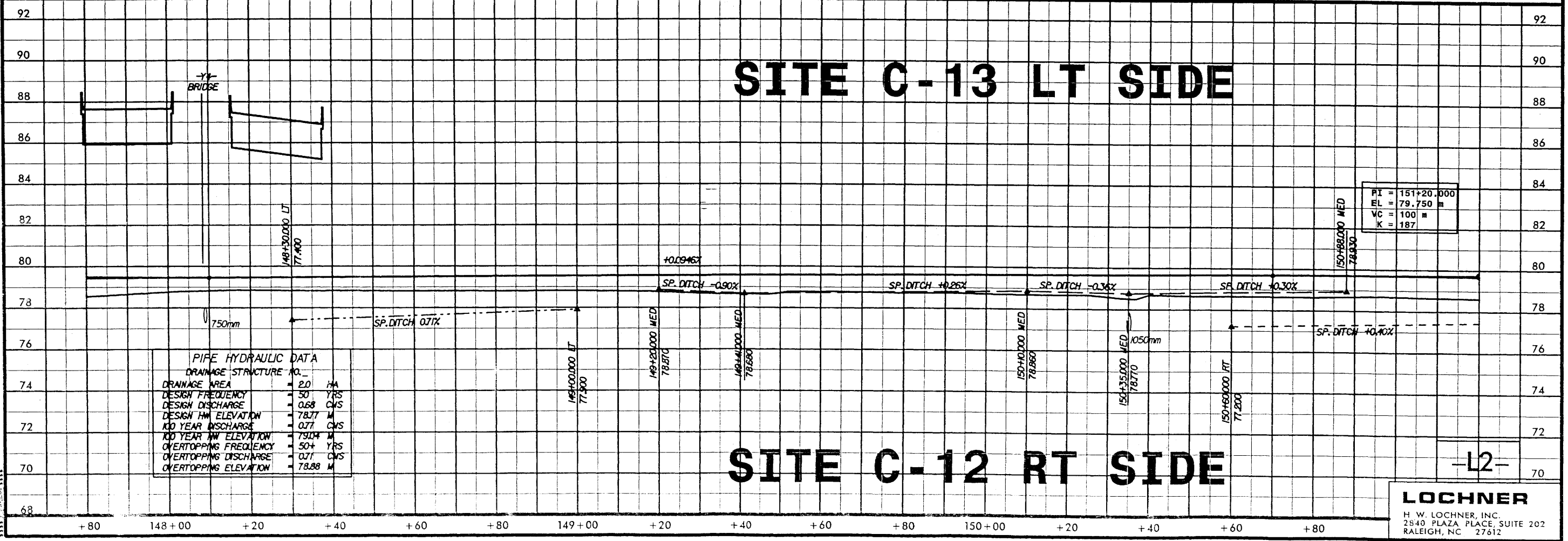
PI = 147+42.500
EL = 79.393 m
VC = 135 m
K = 68



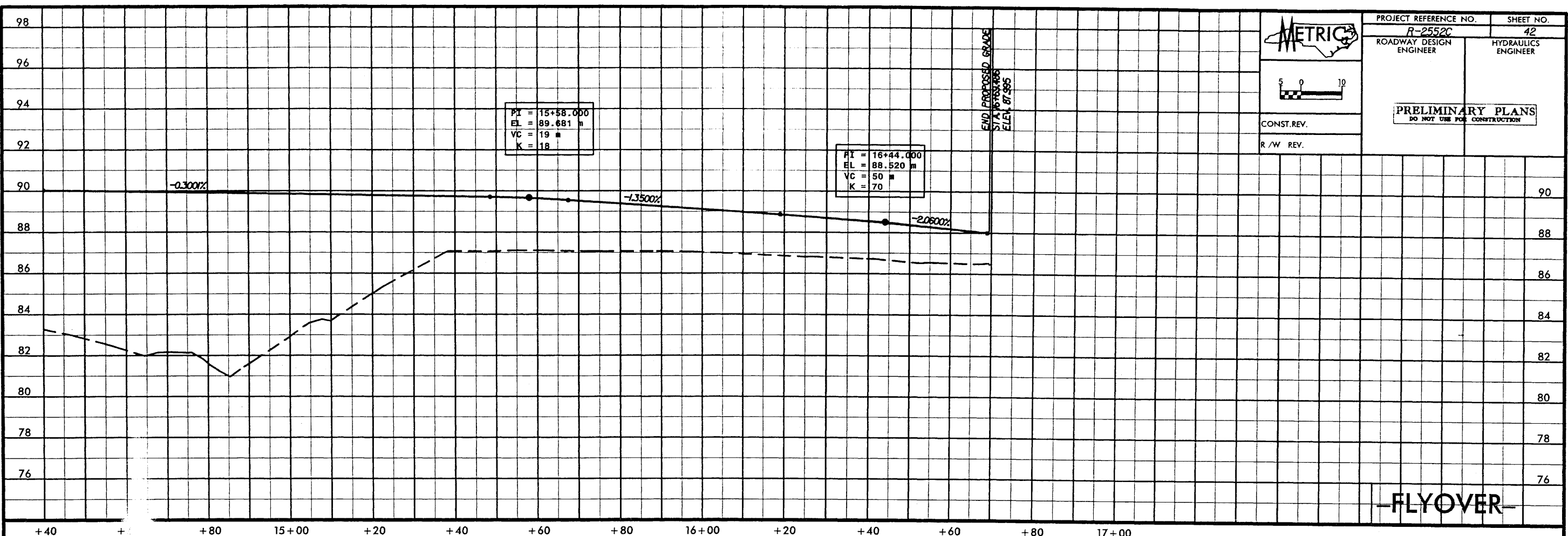
## SITE C-13 LT SIDE

PI = 151+20.000
EL = 79.750 m
VC = 100 m
K = 187

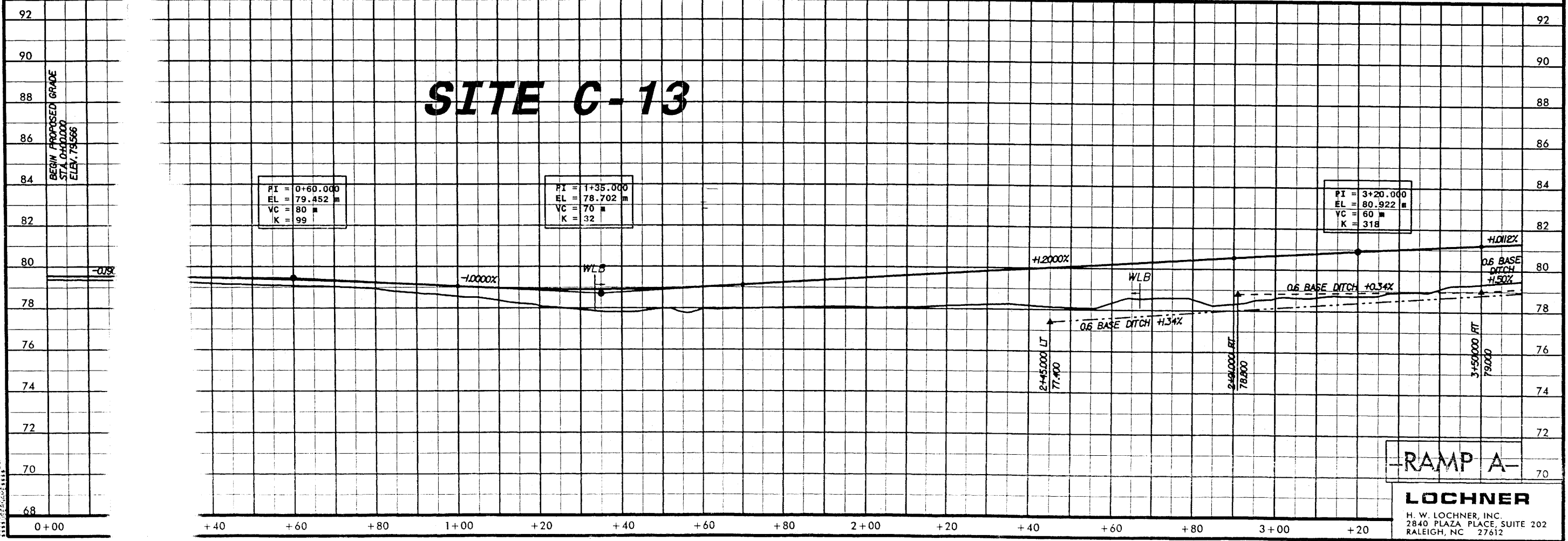
PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. _____	
DRAINAGE AREA	= 2.0 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 0.68 CMS
DESIGN HW ELEVATION	= 78.77 M
100 YEAR DISCHARGE	= 0.77 CMS
100 YEAR HW ELEVATION	= 79.04 M
OVERTOPPING FREQUENCY	= 50+ YRS
OVERTOPPING DISCHARGE	= 0.71 CMS
OVERTOPPING ELEVATION	= 78.88 M



## SITE C-12 RT SIDE

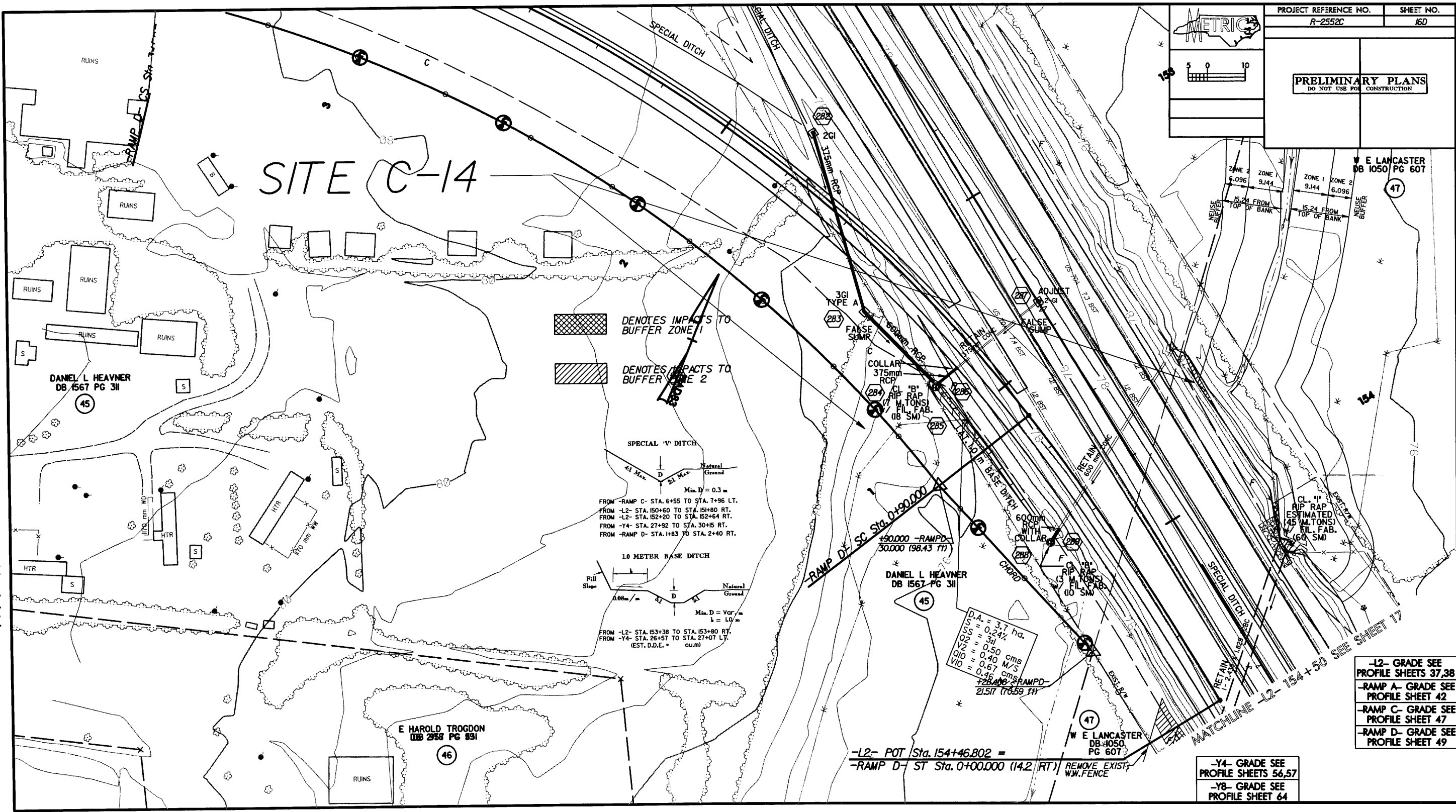


# SITE C-13



# MATCH LINE 16 A-D

MATCH LINE 16 C-D



PROJECT REFERENCE NO. R-2552C		SHEET NO. 16D	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			

DENOTES IMPACTS TO BUFFER ZONE 1  
 DENOTES IMPACTS TO BUFFER ZONE 2

**SPECIAL 'V' DITCH**

4:1 Max. D  
 2:1 Max. D  
 Natural Ground  
 Min. D = 0.3 m  
 FROM -RAMP C- STA. 6+55 TO STA. 7+96 LT.  
 FROM -L2- STA. 150+60 TO STA. 151+80 RT.  
 FROM -L2- STA. 152+20 TO STA. 152+64 RT.  
 FROM -Y4- STA. 27+92 TO STA. 30+15 RT.  
 FROM -RAMP D- STA. 1+83 TO STA. 2+40 RT.

**1.0 METER BASE DITCH**

Fill Slope  
 0.08m / m  
 D  
 Natural Ground  
 Min. D = Var. / m  
 L = 1.0 m  
 FROM -L2- STA. 153+38 TO STA. 153+80 RT.  
 FROM -Y4- STA. 26+57 TO STA. 27+07 LT.  
 (EST. D.D.E. = ou.m)

D.A. = 3.7 ha.  
 S.S. = 0.24%  
 OS = 34%  
 VS = 0.50 cms  
 VIO = 0.40 M/S  
 VIO = 0.67 cms  
 128 ANS RAMPD-  
 21517 (70.59 TH)

-L2- GRADE SEE PROFILE SHEETS 37,38  
 -RAMP A- GRADE SEE PROFILE SHEET 42  
 -RAMP C- GRADE SEE PROFILE SHEET 47  
 -RAMP D- GRADE SEE PROFILE SHEET 49

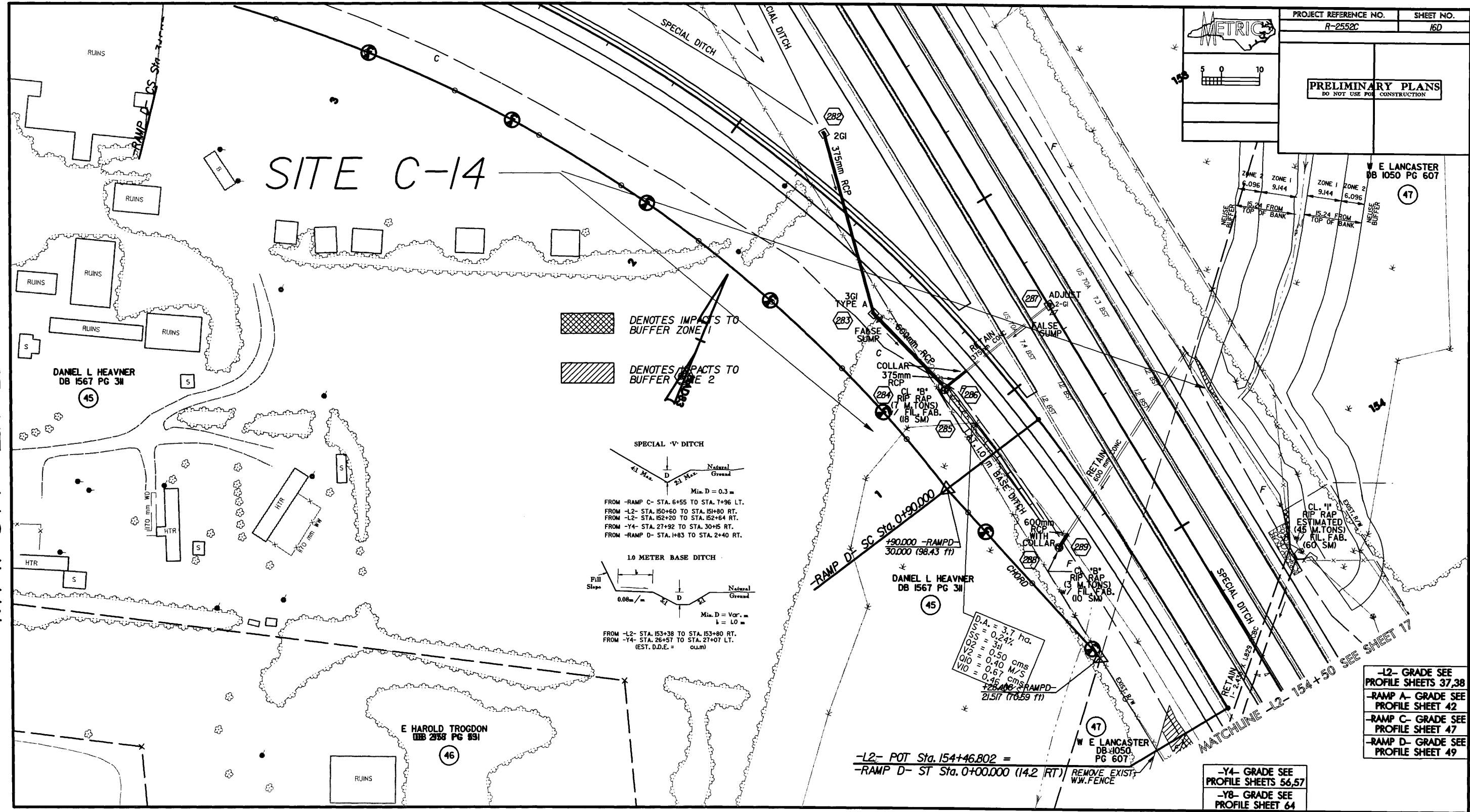
-Y4- GRADE SEE PROFILE SHEETS 56,57  
 -Y8- GRADE SEE PROFILE SHEET 64

-L2- POT Sta. 154+46.802 =  
 -RAMP D- ST Sta. 0+00.000 (14.2 RT) REMOVE EXIST. W.W. FENCE

E LANCASTER DB 1050 PG 607  
 (47)  
 ZONE 1 9.144  
 ZONE 2 6.096  
 15.24 FROM TOP OF BANK  
 15.24 FROM TOP OF BANK  
 REUSE BUFFER

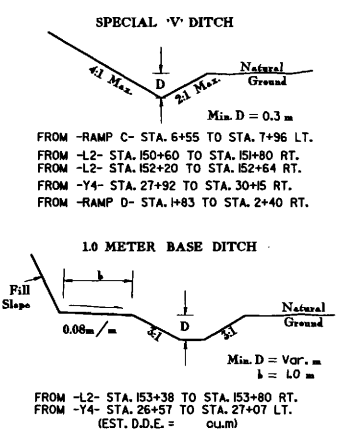
# MATCH LINE 16 A-D

MATCH LINE 16 C-D

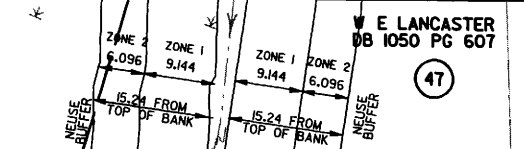


	PROJECT REFERENCE NO.	SHEET NO.
	R-2552C	16D
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION		

DENOTES IMPACTS TO BUFFER ZONE 1  
 DENOTES IMPACTS TO BUFFER ZONE 2



D.A. = 3.7 ha.  
 CS = 0.24%  
 VS = 3:1  
 VZ = 0.50 cms  
 Q10 = 0.40 M/S  
 V10 = 0.67 cms  
 V10 = 0.46 cms



-L2- GRADE SEE PROFILE SHEETS 37,38  
 -RAMP A- GRADE SEE PROFILE SHEET 42  
 -RAMP C- GRADE SEE PROFILE SHEET 47  
 -RAMP D- GRADE SEE PROFILE SHEET 49

-Y4- GRADE SEE PROFILE SHEETS 56,57  
 -Y8- GRADE SEE PROFILE SHEET 64

-L2- POT Sta. 154+46.802 =  
 -RAMP D- ST Sta. 0+00.000 (14.2 RT) REMOVE EXIST. W.W. FENCE

W E LANCASTER DB 1050 PG 607  
 (47)



DANIEL L HEAVNER DB 1567 PG 31  
 (45)

E HAROLD TROGDON DB 2358 PG 891  
 (46)

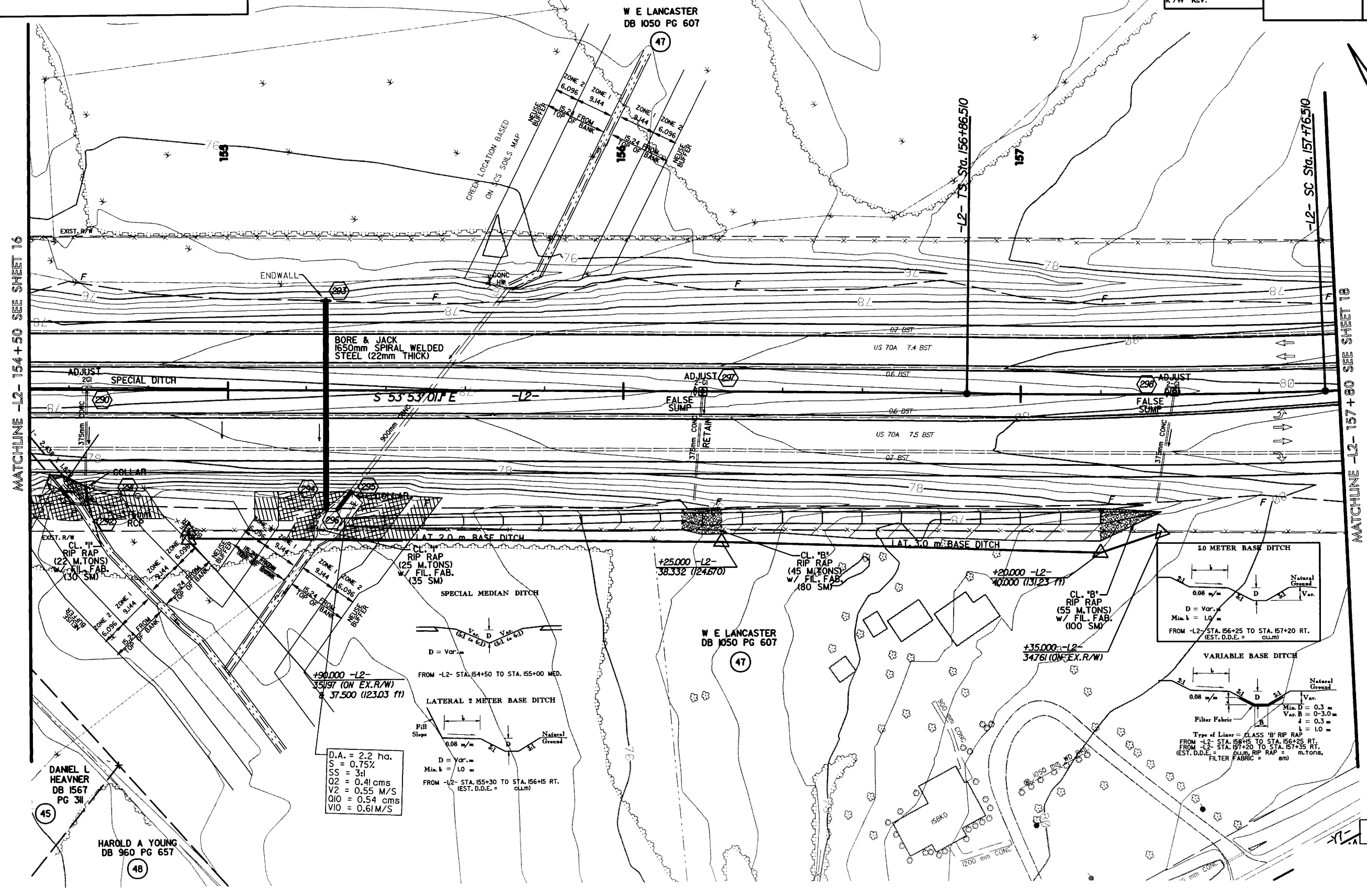
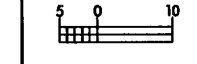
W E LANCASTER DB 1050 PG 607  
 (47)

REVISIONS

# SITE C-14

-  DENOTES IMPACTS TO BUFFER ZONE 1
-  DENOTES IMPACTS TO BUFFER ZONE 2

PROJECT REFERENCE NO. R-2552C		SHEET NO. 17	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
CONST.REV.		R/W REV.	



MATCHLINE -L2- 154+50 SEE SHEET 16

MATCHLINE -L2- 157+80 SEE SHEET 18

DANIEL L HEAVNER  
DB 1567  
PG 311

HAROLD A YOUNG  
DB 960 PG 657

D.A. = 2.2 ha.  
S = 0.75%  
SS = 3:l  
Q2 = 0.41 cms  
V2 = 0.55 M/S  
Q10 = 0.54 cms  
V10 = 0.61 M/S

$D = \text{Var.} = \frac{D}{(6.1 + 6.2)} \left( \frac{6.1 + 6.2}{6.1} \right)$

FROM -L2- STA. 154+50 TO STA. 155+00 MED.

LATERAL 2 METER BASE DITCH

Fill Slope  $\frac{0.08 \text{ m/m}}{1}$

$D = \text{Var.} = \frac{D}{(6.1 + 6.2)} \left( \frac{6.1 + 6.2}{6.1} \right)$

Min. b = 1.0 m

FROM -L2- STA. 155+30 TO STA. 156+15 RT.  
(EST. D.D.E. = c.u.m)

3.0 METER BASE DITCH

$\frac{0.08 \text{ m/m}}{1}$

$D = \text{Var.} = \frac{D}{(6.1 + 6.2)} \left( \frac{6.1 + 6.2}{6.1} \right)$

Min. b = 1.0 m

FROM -L2- STA. 156+25 TO STA. 157+20 RT.  
(EST. D.D.E. = c.u.m)

VARIABLE BASE DITCH

$\frac{0.08 \text{ m/m}}{1}$

$D = \text{Var.} = \frac{D}{(6.1 + 6.2)} \left( \frac{6.1 + 6.2}{6.1} \right)$

Min. D = 0.3 m  
Var. D = 0-3.0 m  
l = 0.3 m  
b = 1.0 m

Filter Fabric

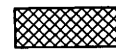
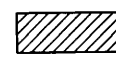
Type of Liner = CLASS 'B' RIP RAP

FROM -L2- STA. 157+20 TO STA. 157+35 RT.  
(EST. D.D.E. = c.u.m, RIP RAP = m.tons, FILTER FABRIC = sm)

-L2- GRADE SEE PROFILE SHEET 38

# SITE C-14

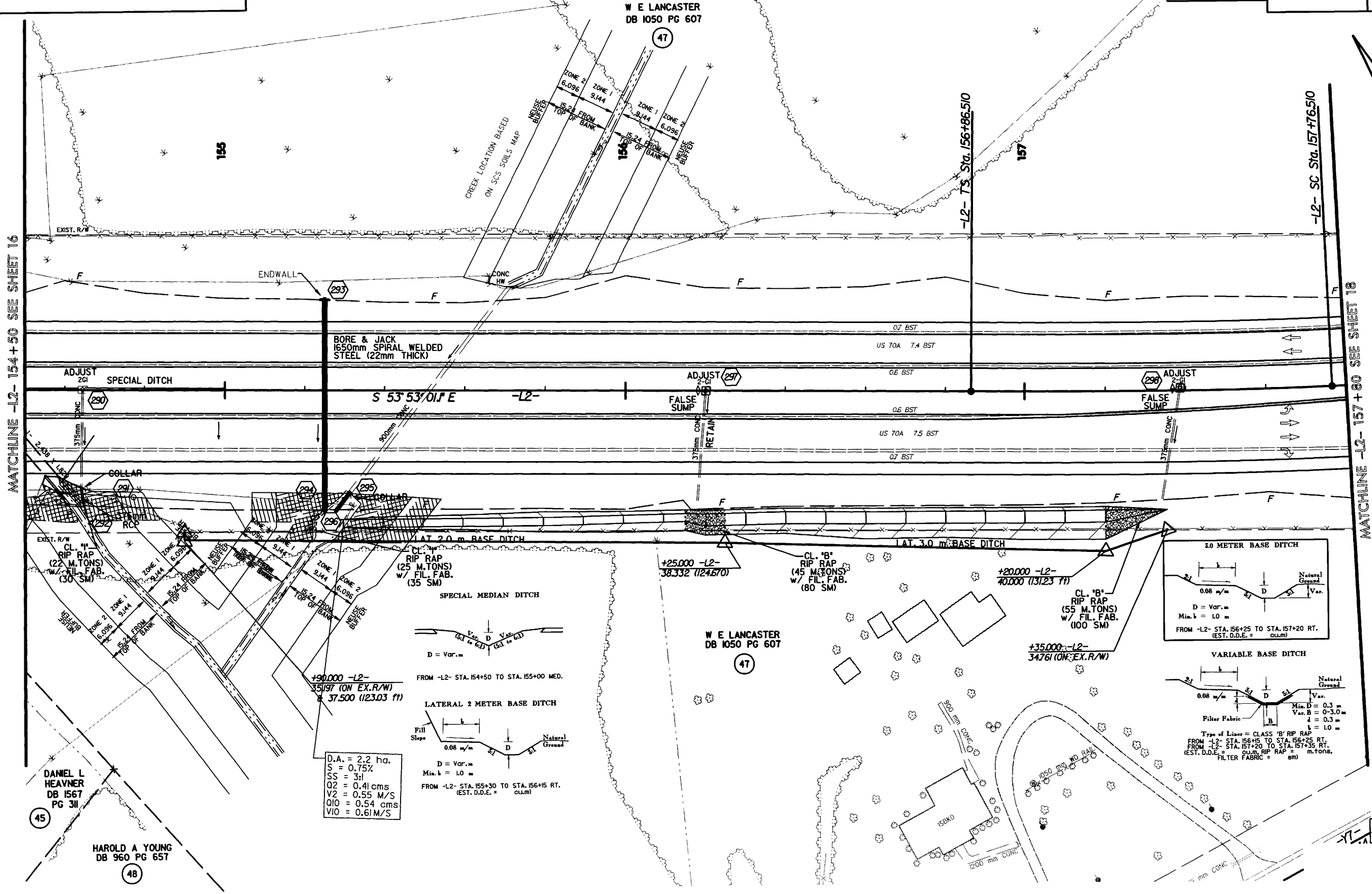
REVISIONS

 DENOTES IMPACTS TO BUFFER ZONE 1  
 DENOTES IMPACTS TO BUFFER ZONE 2

PROJECT REFERENCE NO. R-2552C		SHEET NO. 17	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
CONST. REV.			
R/W REV.			

MATCHLINE -L2- 154+50 SEE SHEET 16

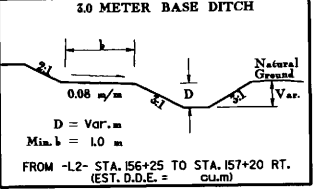
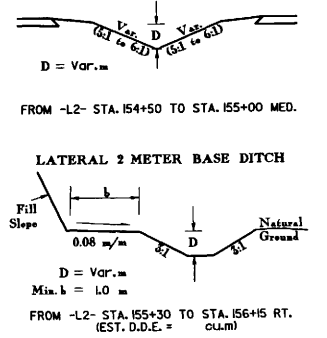
MATCHLINE -L2- 157+80 SEE SHEET 18



DANIEL L HEAVNER  
 DB 1567  
 PG 311  
 (45)

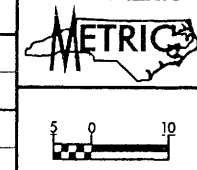
HAROLD A YOUNG  
 DB 960 PG 657  
 (48)

D.A. = 2.2 ha.  
 S = 0.75%  
 SS = 3%  
 Q2 = 0.41 cms  
 V2 = 0.55 M/S  
 Q10 = 0.54 cms  
 V10 = 0.61 M/S



-L2- GRADE SEE PROFILE SHEET 38





PROJECT REFERENCE NO. R-2552C SHEET NO. 38

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

# SITE C-14

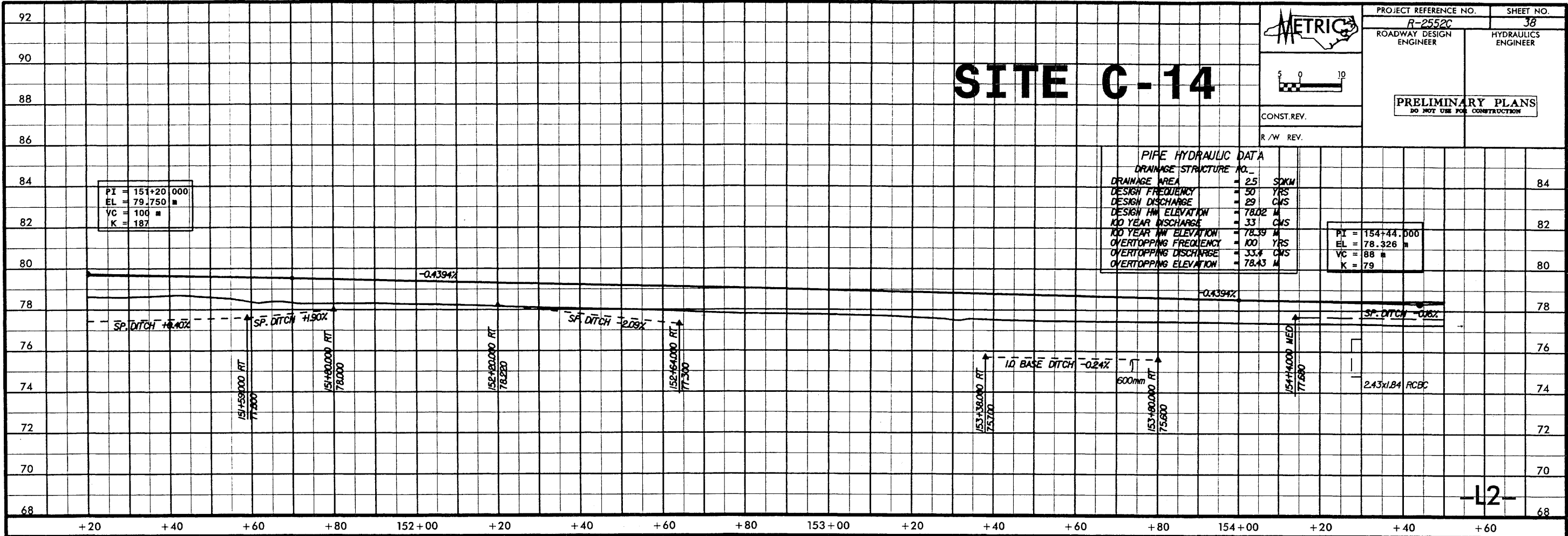
PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

CONST. REV.  
R / W REV.

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 1	
DRAINAGE AREA	= 25 SQKM
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 29 CWS
DESIGN HW ELEVATION	= 78.02 M
100 YEAR DISCHARGE	= 33 CWS
100 YEAR HW ELEVATION	= 78.39 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 33.4 CWS
OVERTOPPING ELEVATION	= 78.43 M

PI = 154+44.000
EL = 78.326 m
VC = 88 m
K = 79

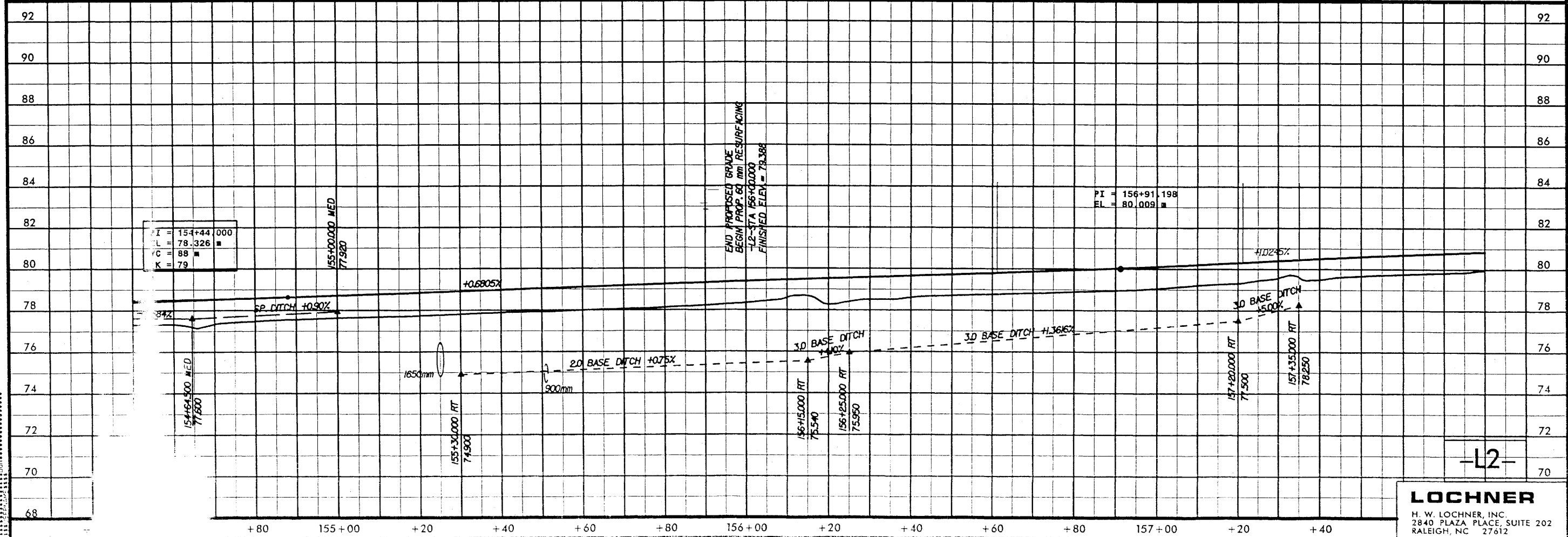
PI = 151+20.000
EL = 79.750 m
VC = 100 m
K = 187



-L2-

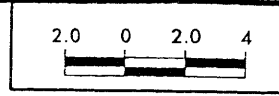
PI = 154+44.000
EL = 78.326 m
VC = 88 m
K = 79

PI = 156+91.198
EL = 80.009 m



-L2-

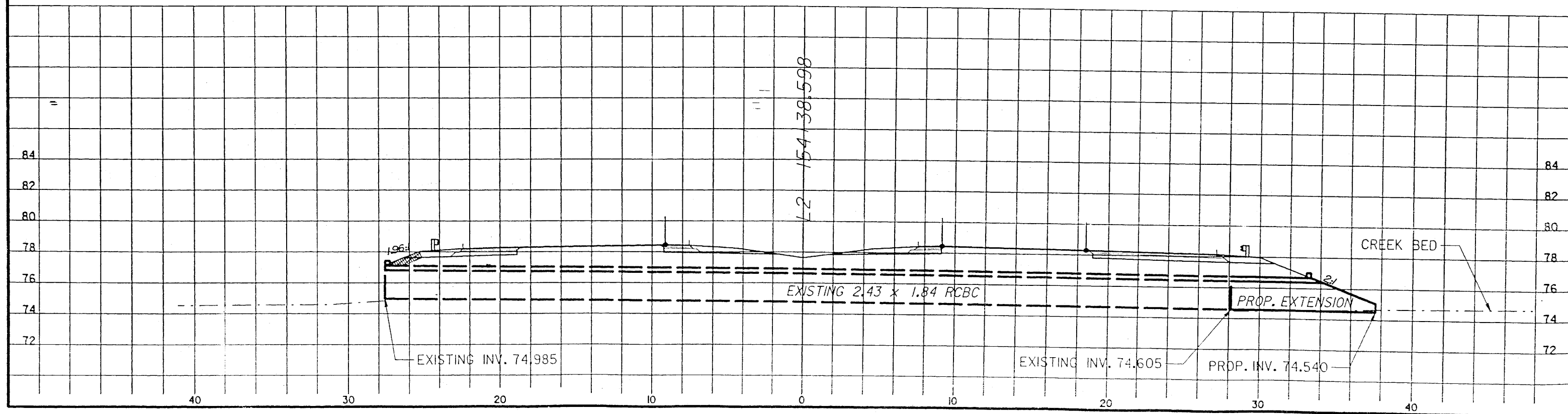
**LOCHNER**  
 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612

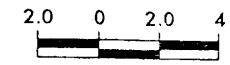


PROJECT REFERENCE NO.	SHEET NO.
R-2552C	PP-3

# SITE C-14

PROFILE OF 2.43 x 1.84 RCBC  
-L2- STA. 154+38.598  
PLAN SHEETS 16 & 17

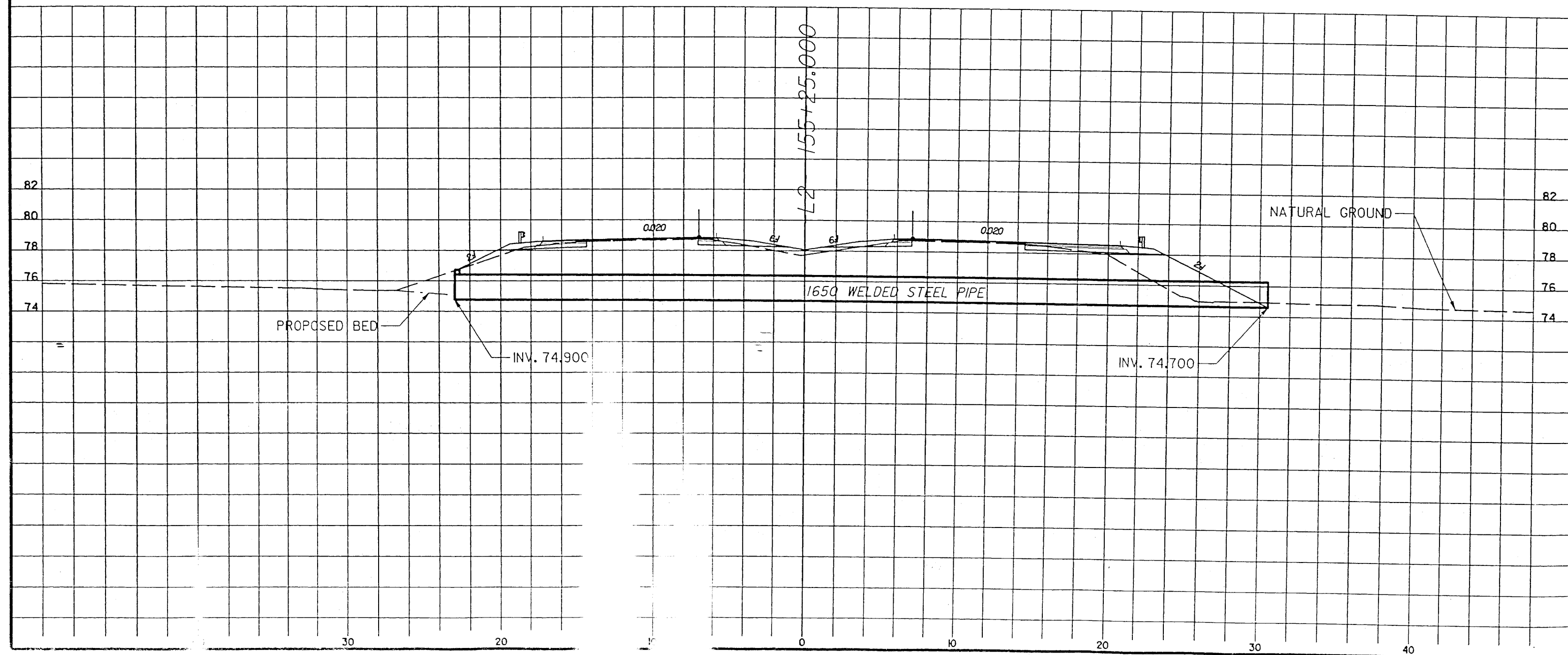




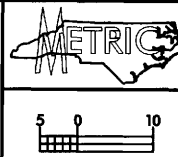
PROJECT REFERENCE NO. R-2552C SHEET NO. PP-4

# SITE C-14

PROFILE OF 1650 WELDED STEEL PIPE  
-L2- STA. 155+25.000  
PLAN SHEET 17



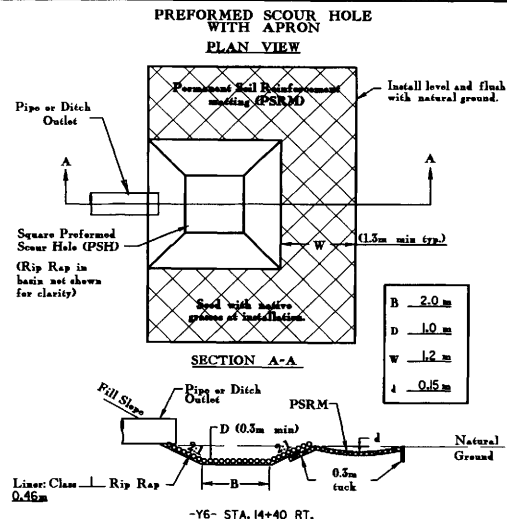
REVISIONS



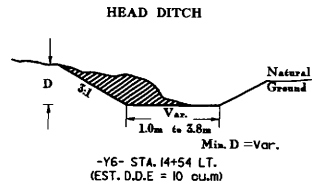
PROJECT REFERENCE NO. R-2552C	SHEET NO. 21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV. _____	
R/W REV. _____	

DENOTES IMPACTS TO BUFFER ZONE 1

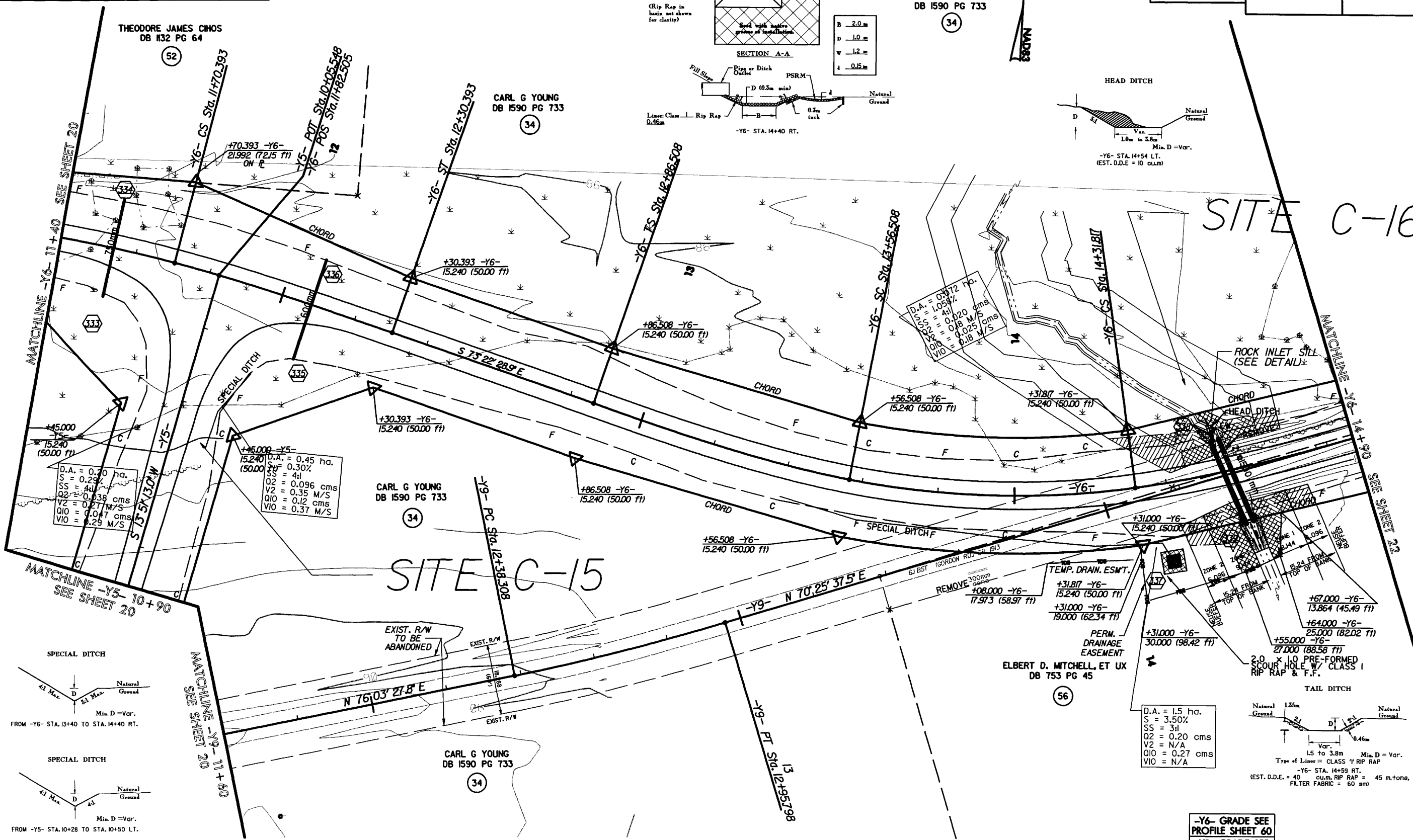
DENOTES IMPACTS TO BUFFER ZONE 2



CARL G YOUNG  
DB 1590 PG 733



SITE C-16

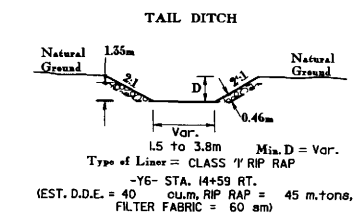


D.A. = 0.30 ha.  
S = 0.29%  
SS = 4:1  
Q2 = 0.38 cms  
V2 = 0.27 M/S  
Q10 = 0.07 cms  
V10 = 0.29 M/S

D.A. = 0.45 ha.  
S = 0.30%  
SS = 4:1  
Q2 = 0.096 cms  
V2 = 0.35 M/S  
Q10 = 0.12 cms  
V10 = 0.37 M/S

TEMP. DRAIN. ESMT.  
+31.87 -Y6- 15.240 (50.00 ft)  
+31.00 -Y6- 19.000 (62.34 ft)

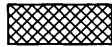
D.A. = 1.5 ha.  
S = 3.50%  
SS = 3:1  
Q2 = 0.20 cms  
V2 = N/A  
Q10 = 0.27 cms  
V10 = N/A

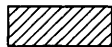


-Y6- GRADE SEE  
PROFILE SHEET 60  
-Y9- GRADE SEE  
PROFILE SHEET 62

\*\*\*\*\*SYTIME\*\*\*\*\*

REVISIONS

 DENOTES IMPACTS TO BUFFER ZONE 1

 DENOTES IMPACTS TO BUFFER ZONE 2

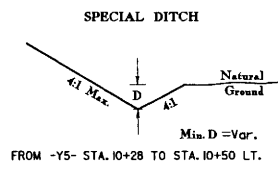
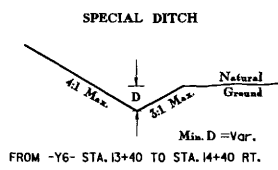
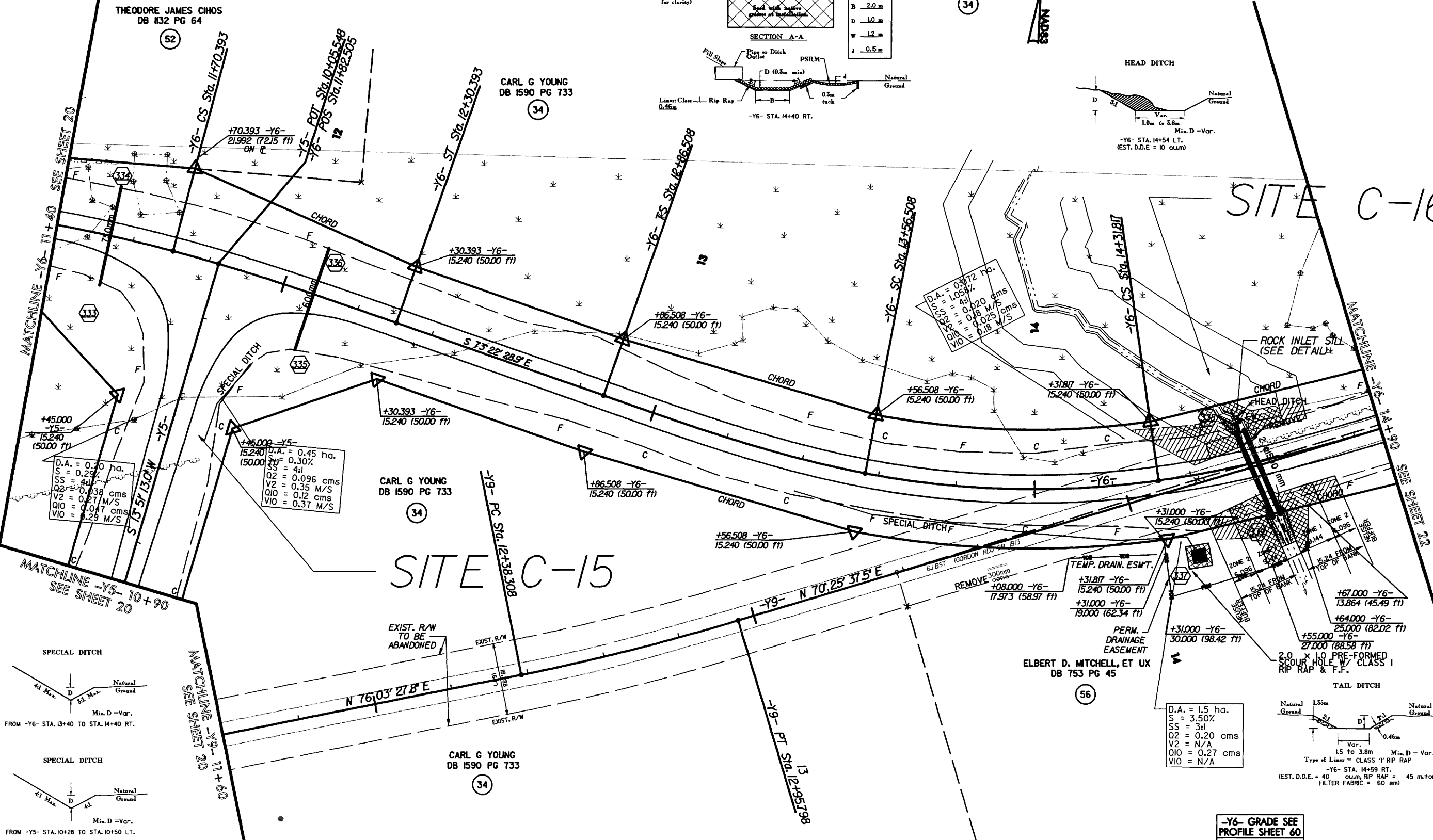
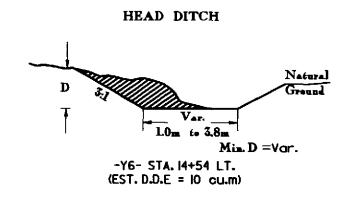
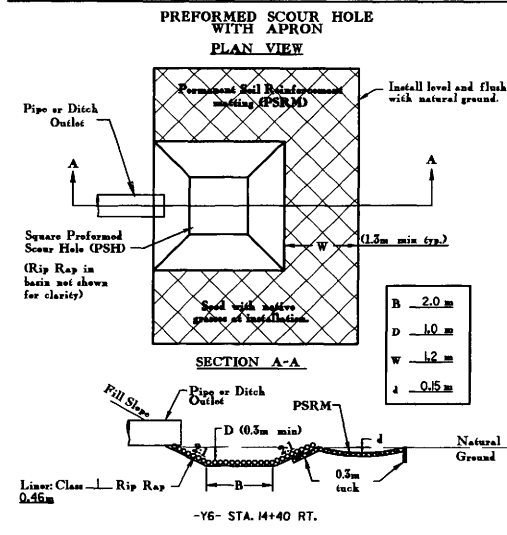
**METRIC**

5 0 10

CONST. REV. \_\_\_\_\_

R/W REV. \_\_\_\_\_

PROJECT REFERENCE NO. R-2559C	SHEET NO. 21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



-Y6- GRADE SEE PROFILE SHEET 60

-Y9- GRADE SEE PROFILE SHEET 62

\*\*\*\*\*SYSTEM TIME\*\*\*\*\*

\*\*\*\*\*DATE\*\*\*\*\*

\*\*\*\*\*TIME\*\*\*\*\*

\*\*\*\*\*USER\*\*\*\*\*

\*\*\*\*\*PROJECT\*\*\*\*\*

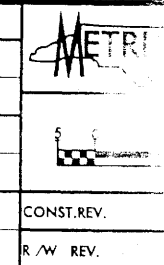
\*\*\*\*\*SHEET\*\*\*\*\*

\*\*\*\*\*SCALE\*\*\*\*\*

\*\*\*\*\*DRAWN\*\*\*\*\*

\*\*\*\*\*CHECKED\*\*\*\*\*

\*\*\*\*\*APPROVED\*\*\*\*\*

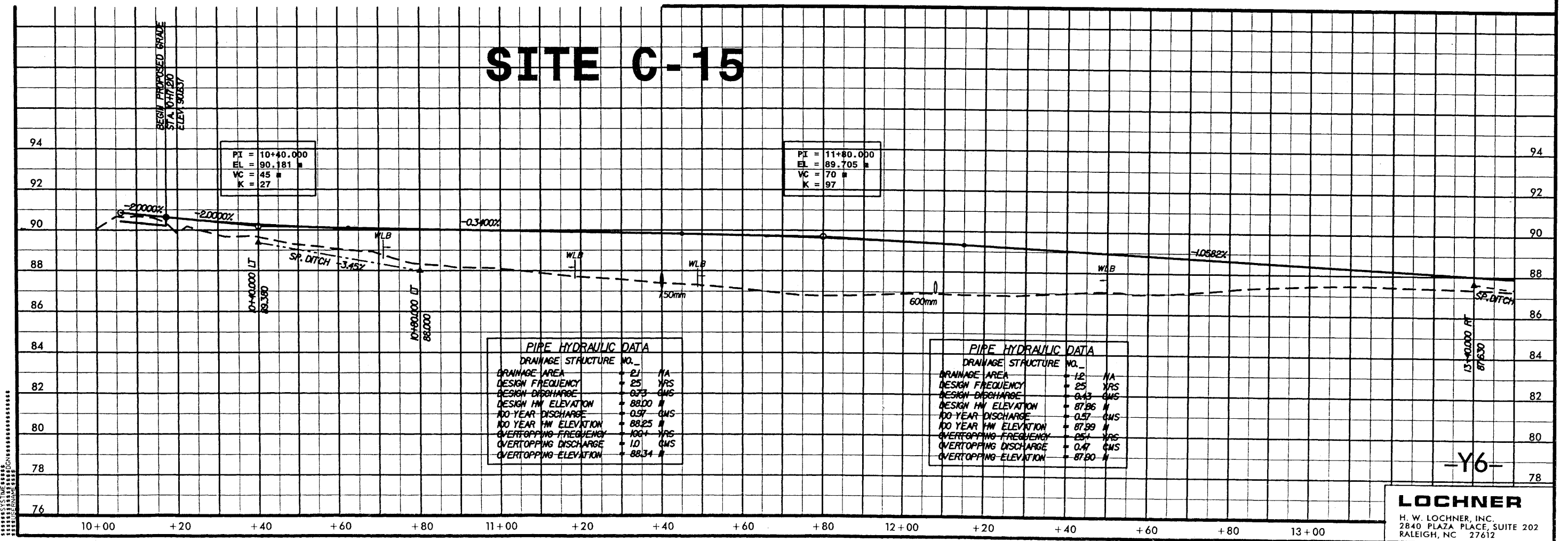


CONST. REV.  
R/W REV.

PROJECT REFERENCE NO. R-2552C	SHEET NO. 60
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

98
96
94
92
90
88
86
84
82

# SITE C-15



PI = 10+40.000
EL = 90.181 #
VC = 45 #
K = 27

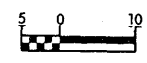
PI = 11+80.000
EL = 89.705 #
VC = 70 #
K = 97

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 21	
DRAINAGE AREA	+ 21 HA
DESIGN FREQUENCY	+ 25 YRS
DESIGN DISCHARGE	+ 0.73 CMS
DESIGN HW ELEVATION	+ 88.00 #
100 YEAR DISCHARGE	+ 0.97 CMS
100 YEAR HW ELEVATION	+ 88.25 #
OVERTOPPING FREQUENCY	+ 100+ YRS
OVERTOPPING DISCHARGE	+ 1.0 CMS
OVERTOPPING ELEVATION	+ 88.34 #

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 12	
DRAINAGE AREA	+ 12 HA
DESIGN FREQUENCY	+ 25 YRS
DESIGN DISCHARGE	+ 0.43 CMS
DESIGN HW ELEVATION	+ 87.86 #
100 YEAR DISCHARGE	+ 0.57 CMS
100 YEAR HW ELEVATION	+ 87.89 #
OVERTOPPING FREQUENCY	+ 25+ YRS
OVERTOPPING DISCHARGE	+ 0.47 CMS
OVERTOPPING ELEVATION	+ 87.90 #

-Y6-

# SITE C-16



CONST. REV.  
R / W REV.

PROJECT REFERENCE NO. R-2552C SHEET NO. 61

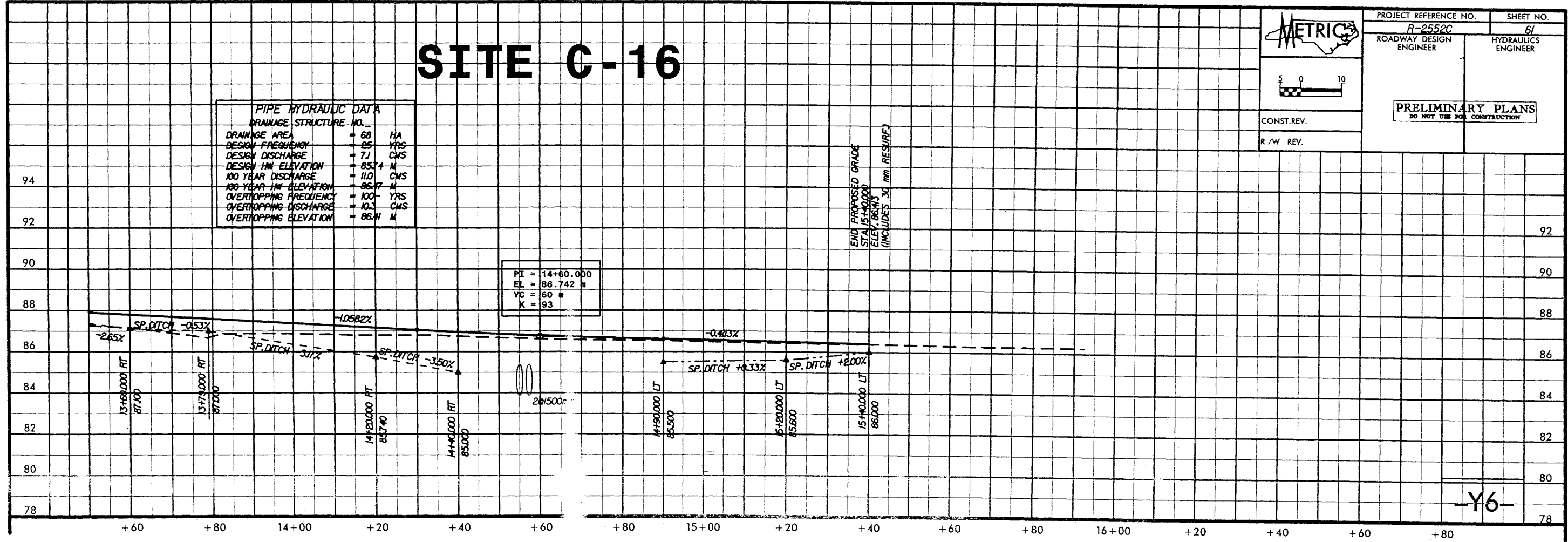
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

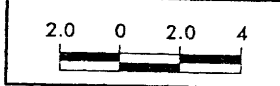
PIPE HYDRAULIC DATA		
DRAINAGE STRUCTURE NO. 68		
DRAINAGE AREA	= 68	HA
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 7.1	CMS
DESIGN HW ELEVATION	= 85.74	M
100 YEAR DISCHARGE	= 11.0	CMS
100 YEAR HW ELEVATION	= 86.47	M
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 10.3	CMS
OVERTOPPING ELEVATION	= 86.41	M

PI = 14+60.000  
EL = 86.742 m  
VC = 60 m  
K = 93

END PROPOSED GRADE  
STA 15+00.00  
ELEV 86.413  
(INCLUDES 30 mm RESURF.)



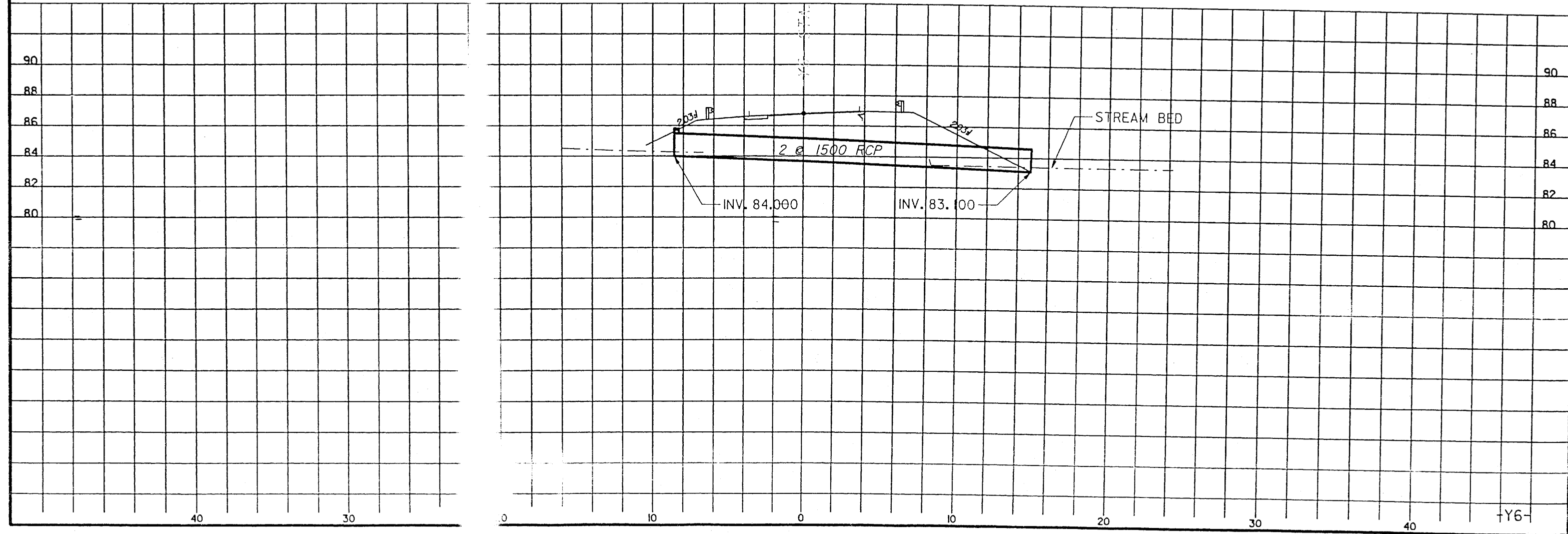
-Y6-



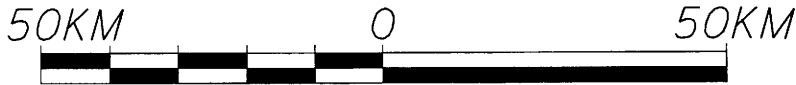
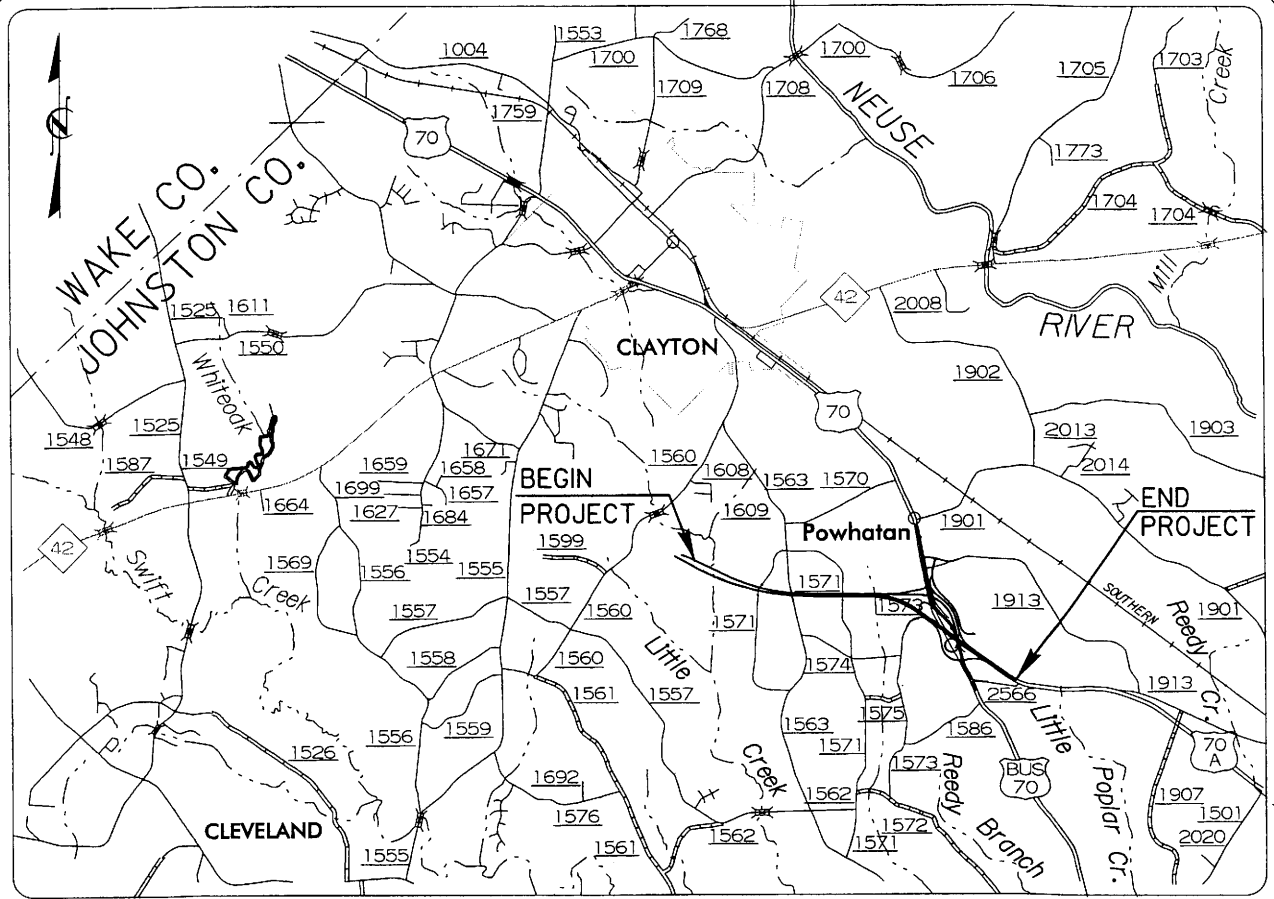
PROJECT REFERENCE NO.	SHEET NO.
R-2552C	PP-7

# SITE C-16

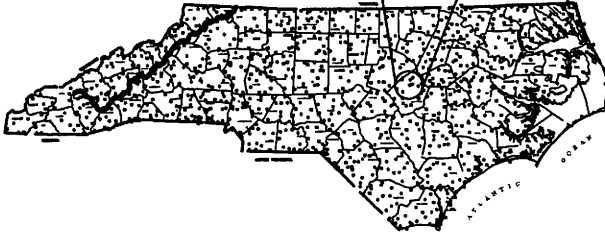
PROFILE OF DOUBLE 1500 RCP  
-Y6- STA. 14+56.200  
PLAN SHEET 21



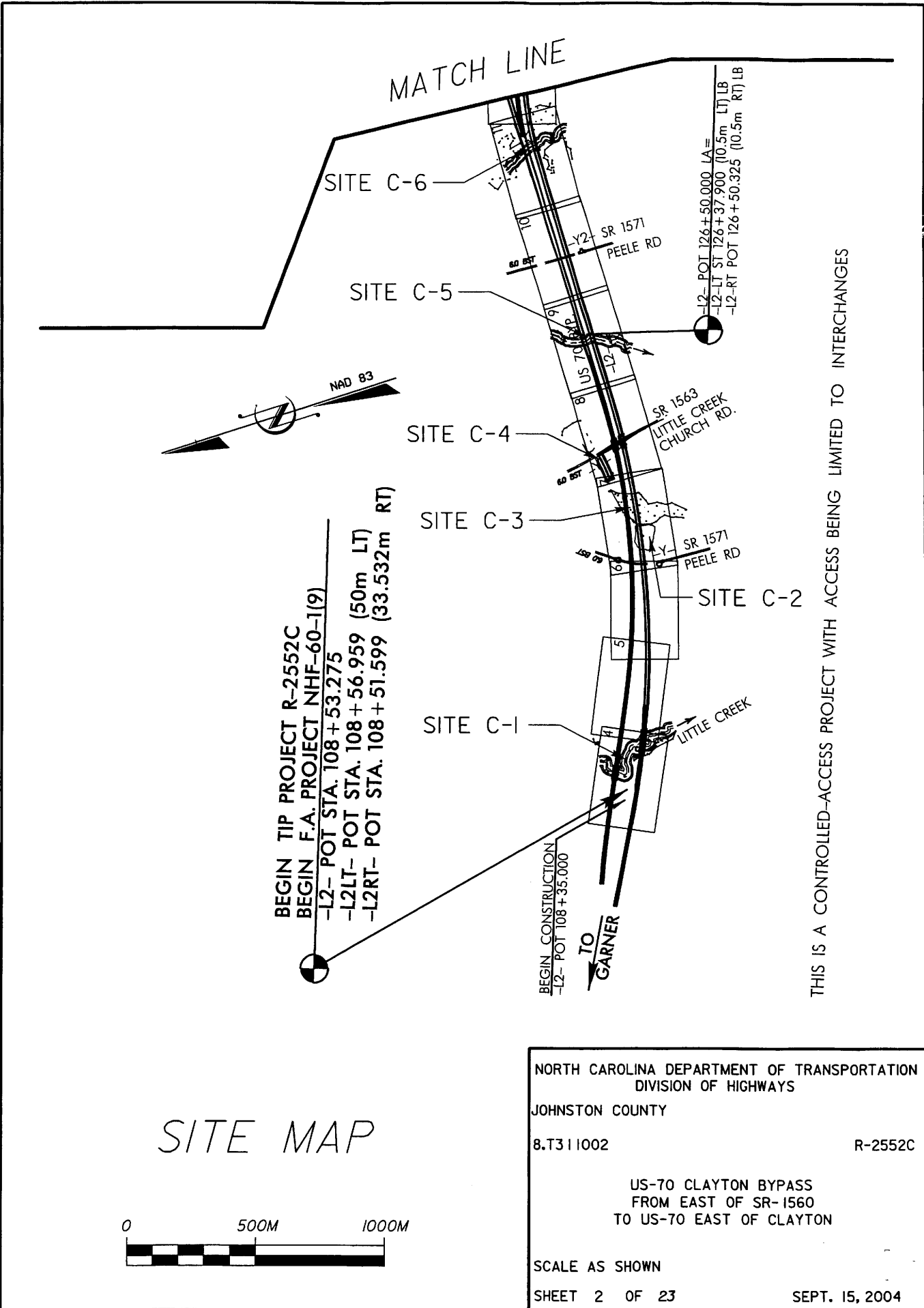




VICINITY MAP



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 JOHNSTON COUNTY  
 B.T311002 R-2552C  
 US-70 CLAYTON BYPASS  
 FROM EAST OF SR-1560  
 TO US-70 EAST OF CLAYTON  
 SCALE AS SHOWN  
 SHEET 1 OF 23  
 SEPT. 15, 2004



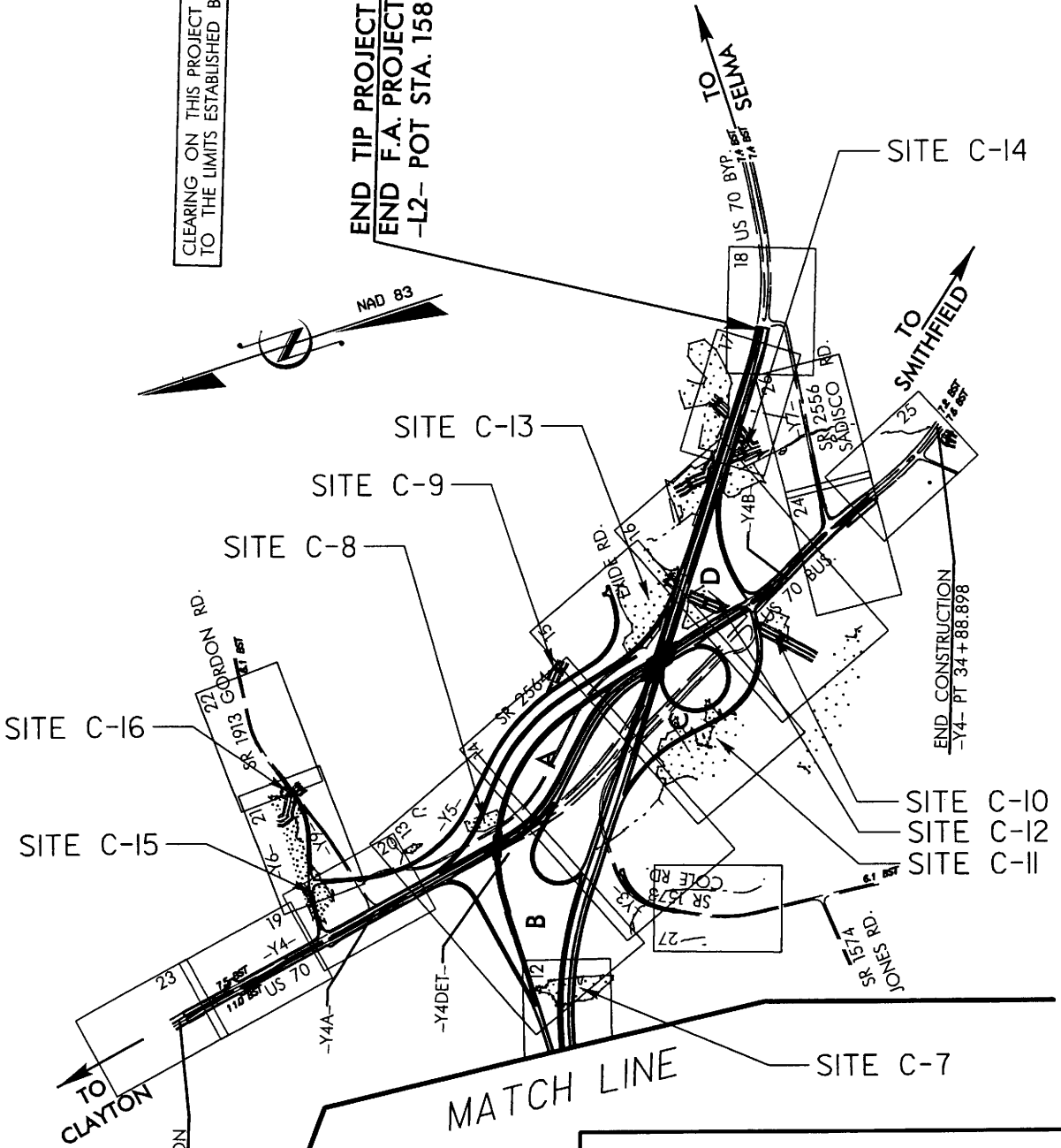
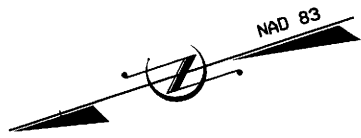
THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

SITE MAP

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 JOHNSTON COUNTY  
 8.T311002 R-2552C  
 US-70 CLAYTON BYPASS  
 FROM EAST OF SR-1560  
 TO US-70 EAST OF CLAYTON  
 SCALE AS SHOWN  
 SHEET 2 OF 23  
 SEPT. 15, 2004

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

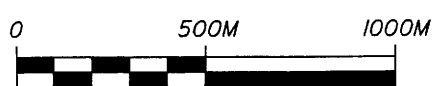
END TIP PROJECT R-2552C  
END F.A. PROJECT NHF-60-1(9)  
-L2- POT STA. 158 + 55.000



BEGIN CONSTRUCTION  
-Y4- POT 5 + 65.000

END CONSTRUCTION  
-Y4- PT 34 + 88.898

# SITE MAP



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
JOHNSTON COUNTY  
8.T311002 R-2552C  
US-70 CLAYTON BYPASS  
FROM EAST OF SR-1560  
TO US-70 EAST OF CLAYTON  
SCALE AS SHOWN  
SHEET 3 OF 23  
SEPT. 15, 2004

**PROPERTY OWNERS  
NAME AND ADDRESS**

<b>PARCEL No.</b>	<b>OWNER'S NAME</b>	<b>ADRESS</b>
902	Carolina Packers, Inc.	P. O. Drawer 1109 Smithfield, NC 27577
2	Luther Shelby Durham	4483 Little Creek Church Road Clayton, NC 27520
14	Teresa Montgomery	3731 Peele Road Clayton, NC 27520
15	TAP Properties, LLC	273-D Blue Pond Road Clayton, NC 27520
16	Brenda C. Holt & Connie M. Boykin	3687 Peele Road Clayton, NC 27520
20	John Jennings Williams, Heirs	4335 Little Creek Church Road Clayton, NC 27520
21	Robert Hatcher, Jr.	2498 Peele Road Clayton, NC 27520
26	Scott D. Overbee	P. O. Box 1051 Clayton, NCD LK27520
30	W. J. C. Blinson	7595F US 70W Clayton, NC 27520
31	Vergie B. Wood	616 Barbour St. Clayton, NC 27520
32	Lola's Beauty Shop Limited Partnership	3307 Little Creek Church Road Clayton, NC 27520
35	Norwood Godwin Jones, Jr., et. al.	804 Chestnut Drive Smithfield, NC 27577
38	Carl B. Dean	2000 Neuse Colony Drive Clayton, NC 27520
39	Donald H. Williamson	P. O. Box 605 1546 Piney Grove Church Road Kenly, NC 27542

**N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
JOHNSTON COUNTY  
PROJECT: 8.T311002                      R-2552C**

**US-70 CLAYTON BYPASS  
FROM EAST OF SR-1560 TO US-70 EAST OF CLAYTON**

**PROPERTY OWNERS  
NAME AND ADDRESS**

PARCEL No.	OWNER'S NAME	ADRESS
43	William R. Jones	P. O. Box 393 Pine Level, NC 27568
45	Daniel L. Heavner	P. O. Box 2346 Smithfield, NC 27577
47	W. E. Lancaster	31 Sadisco Road Clayton, NC 27520
34	Worth Gurley	318 S. McDowell St. Raleigh, NC 27601
52	Theodore James Cihos	7744 U.S. Hwy. 70 West Clayton, NC 27520
56	Elbert D. Mitchell	2367 Gordon Road Clayton, NC 27520

**N.C. DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 JOHNSTON COUNTY  
 PROJECT: 8.T311002 R-2552C**

**US-70 CLAYTON BYPASS  
 FROM EAST OF SR-1560 TO US-70 EAST OF CLAYTON**

WETLAND PERMIT IMPACT SUMMARY (English)												
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS				SURFACE WATER IMPACTS					
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)	
1	L2 108+50/ 111+00	DUAL BRIDGES	0.04	0.03		0.04				0.25	115	
2	L2 117+92/ 118+80	900 RCP				0.06		1.54				
3	L2 118+87/ 120+07	1050 RCP	2.26			0.11						
4	Y1 11+17 RT.	750 RCP						0.00		0.00	26	
5	L2 126+23	1500 RCP						0.03		0.01	282	
6	L2 133+86/ 134+59	DBL. 2.7 x 1.8 RCBC & 1200 RCP & 3.7 x 2.4 RCBC	1.77		0.01	0.40		0.06		0.02	272	
7	L2 137+41/ 138+19	1200 RCP	1.18		0.36	0.13			0.06			
8	Rp. A 9+59/ 10+09	750 RCP	1.06									

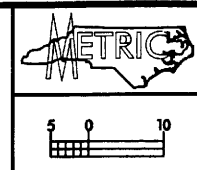
**N.C. DEPT. OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**JOHNSTON COUNTY**  
**PROJECT 8.T311002 (R-2552C)**  
**US-70 CLAYTON BYPASS**  
**FROM EAST OF SR-1560**  
**TO US-70 EAST OF CLAYTON**  
 SHEET 18 OF 23      September 15, 2004

**WETLAND PERMIT IMPACT SUMMARY (English)**

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS						
			Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation In Wetlands (ac)	Mechanized Clearing (Method III) (ac)	Fill In SW (Natural) (ac)	Fill In SW (Pond) (ac)	Temp. Fill In SW (ac)	Existing Channel Impacted (ft)	Natural Stream Design (ft)			
9	Y5 20+00 LT	600 RCP	0.01			0.02				0.00				
10	Rp. C 8+00 RT	2.7 x 1.8 RCBC & 1800 RCP	0.02			0.04	0.02			0.00			52	
11	Rp C 2+80/ 5+30	1200 RCP & 600 RCP	0.97		0.36	0.27								
12	Y4 25+12/ 26+57	1200 RCP				0.03	0.00			0.00			16	
13	Rp. A 0+00/ 2+92	1050 RCP	0.97			0.22	0.01						30	
14	L2 152+63/ 156+08	2.44 x 1.82 RCBC 1600 STEEL PIPE 900 RCP 600 RCP	0.12		0.02	0.21	0.01			0.01			33	
15	Y6 10+71/ 12+50	750 RCP & 600 RCP	1.09		0.00	0.29								
16	Y6 13+95/ 14+90	DBL. 1500 RCP			0.01	0.05	0.01			0.01			52	
<b>PROJECT TOTALS:</b>			<b>9.49</b>	<b>0.03</b>	<b>0.76</b>	<b>1.87</b>	<b>0.14</b>	<b>1.60</b>	<b>0.30</b>	<b>878</b>	<b>0</b>			

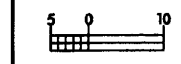
**N.C. DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS**

**JOHNSTON COUNTY  
PROJECT 8.T311002 (R-2552C)  
US-70 CLAYTON BYPASS  
FROM EAST OF SR-1560  
TO US-70 EAST OF CLAYTON**

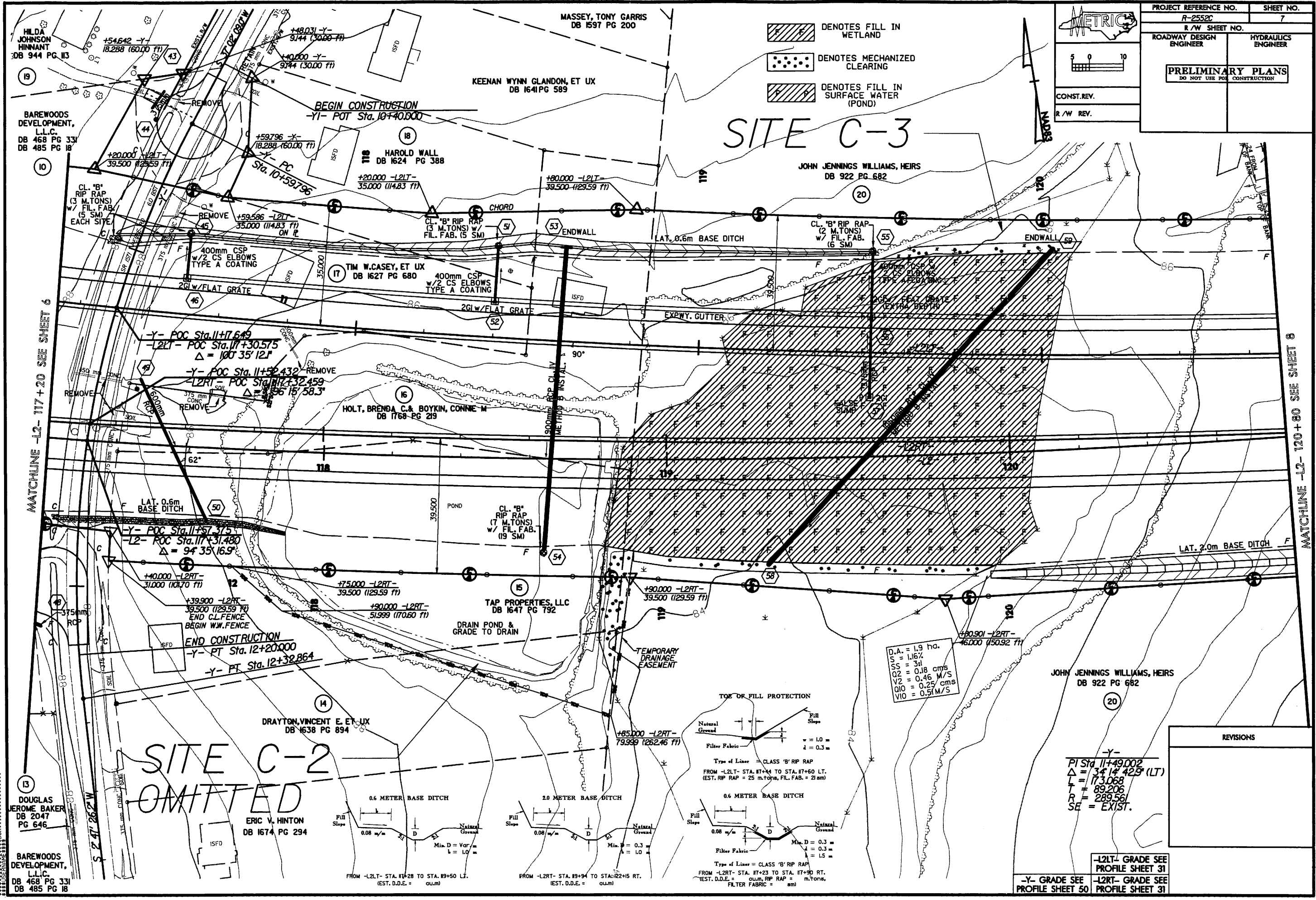


PROJECT REFERENCE NO. R-2552C	SHEET NO. 7
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	CONSTRUCTION ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	R/W REV.

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN SURFACE WATER (POND)



# SITE C-3

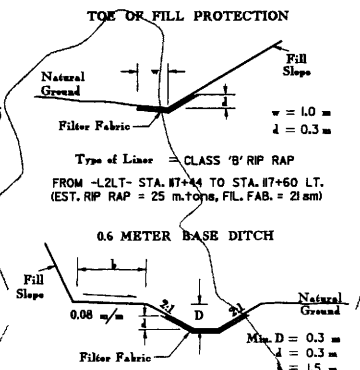
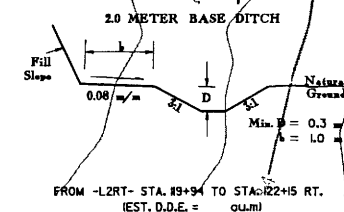
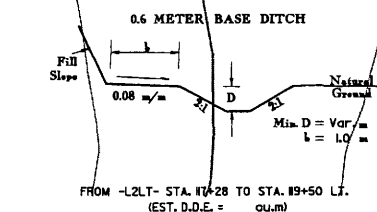


## SITE C-2 OMITTED

DOUGLAS JEROME BAKER  
DB 2047 PG 646

BAREWOODS DEVELOPMENT, L.L.C.  
DB 468 PG 331  
DB 485 PG 18

ERIC V. HINTON  
DB 1674 PG 294



D.A. = 1.9 ha.  
S = 1.16%  
SS = 3H  
V2 = 0.46 M/S  
Q10 = 0.25 cms  
V10 = 0.51 M/S

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682


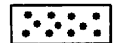

PT Sta. 11+49.002  
Δ = 34' 4" 42.9' (LT)  
L = 173.068  
T = 89.206  
R = 289.561  
SE = EXIST.

REVISIONS

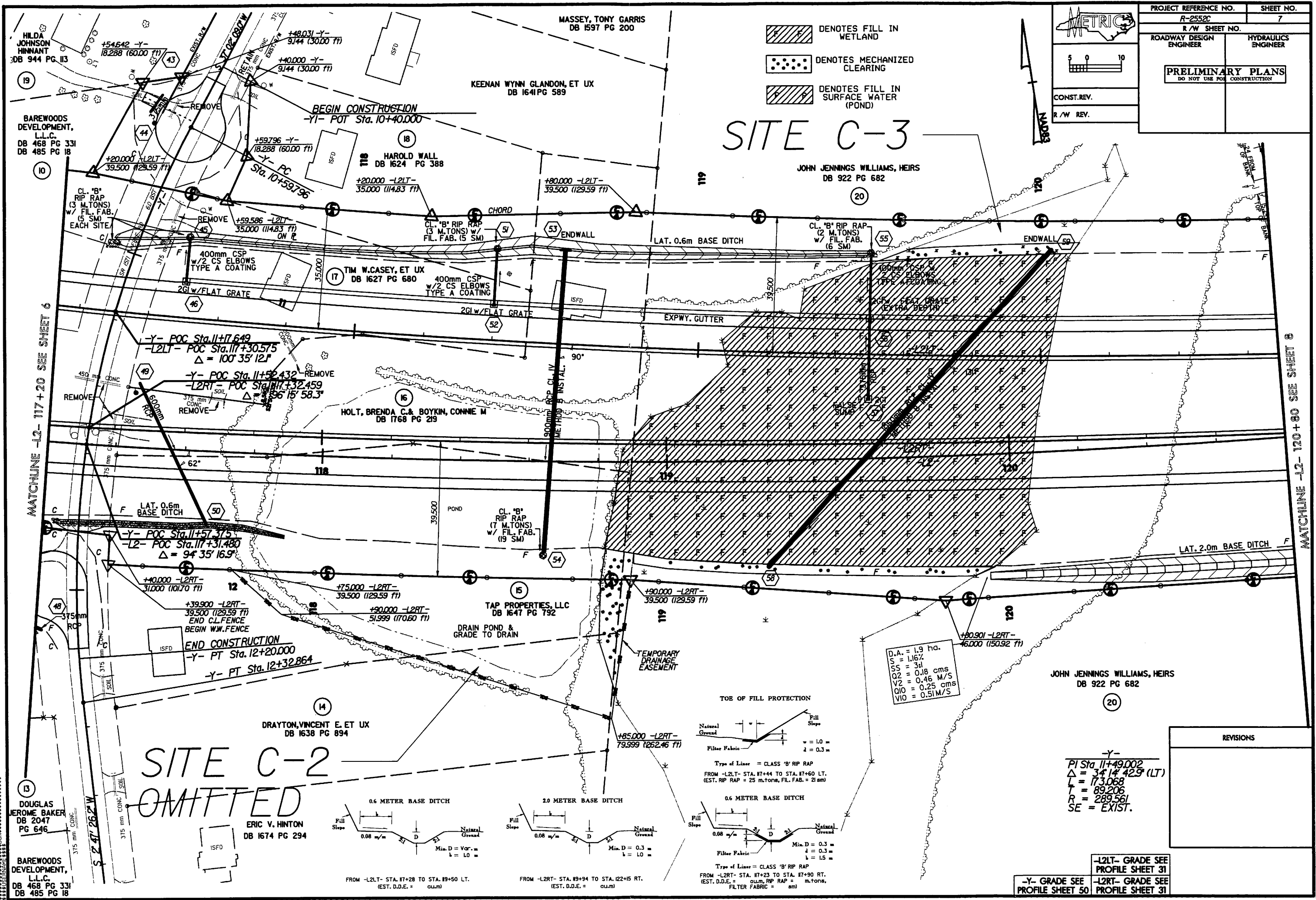
-L2LT- GRADE SEE PROFILE SHEET 31  
-Y- GRADE SEE PROFILE SHEET 50  
-L2RT- GRADE SEE PROFILE SHEET 31



PROJECT REFERENCE NO. R-2552C		SHEET NO. 7	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
CONST. REV.		R/W REV.	

-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING
-  DENOTES FILL IN SURFACE WATER (POND)

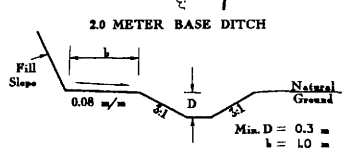
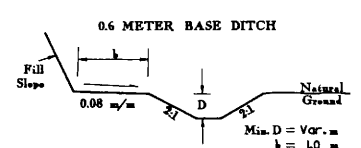
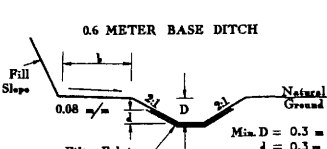
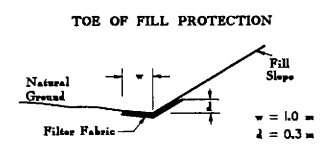
# SITE C-3



MATCHLINE -L2- 117+20 SEE SHEET 6

MATCHLINE -L2- 120+80 SEE SHEET 8

D.A. = 1.9 ha.  
S = 1.16%  
SS = 34  
V2 = 0.48 M/S  
Q10 = 0.25 cms  
V10 = 0.51 M/S



JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

-Y-  
PI Sta. 11+49.002  
 $\Delta = 34' 14" 42.9" (LT)$   
L = 173.068  
T = 89.206  
R = 289.561  
SE = EXIST.

REVISIONS

-L2LT- GRADE SEE PROFILE SHEET 31  
-Y- GRADE SEE PROFILE SHEET 50  
-L2RT- GRADE SEE PROFILE SHEET 31

# SITE C-2 OMITTED

ERIC V. HINTON  
DB 1674 PG 294

DOUGLAS JEROME BAKER  
DB 2047 PG 646

BAREWOODS DEVELOPMENT, L.L.C.  
DB 468 PG 331  
DB 485 PG 18

HILDA JOHNSON HINNANT  
DB 944 PG 113

BAREWOODS DEVELOPMENT, L.L.C.  
DB 468 PG 331  
DB 485 PG 18

MASSEY, TONY GARRIS  
DB 1597 PG 200

KEENAN WYNN GLANDON, ET UX  
DB 1641 PG 589

HAROLD WALL  
DB 1624 PG 388

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

TIM W. CASEY, ET UX  
DB 1627 PG 680

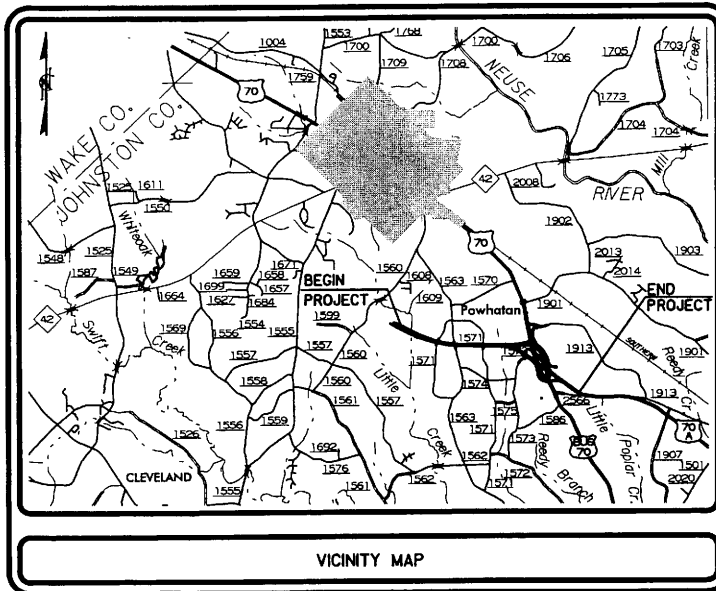
HOLT, BRENDA C. & BOYKIN, CONNIE M  
DB 1768 PG 219

TAP PROPERTIES, LLC  
DB 1647 PG 792

DRAYTON, VINCENT E. ET UX  
DB 1638 PG 894


**TIP PROJECT: R-2552C**

See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols



# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

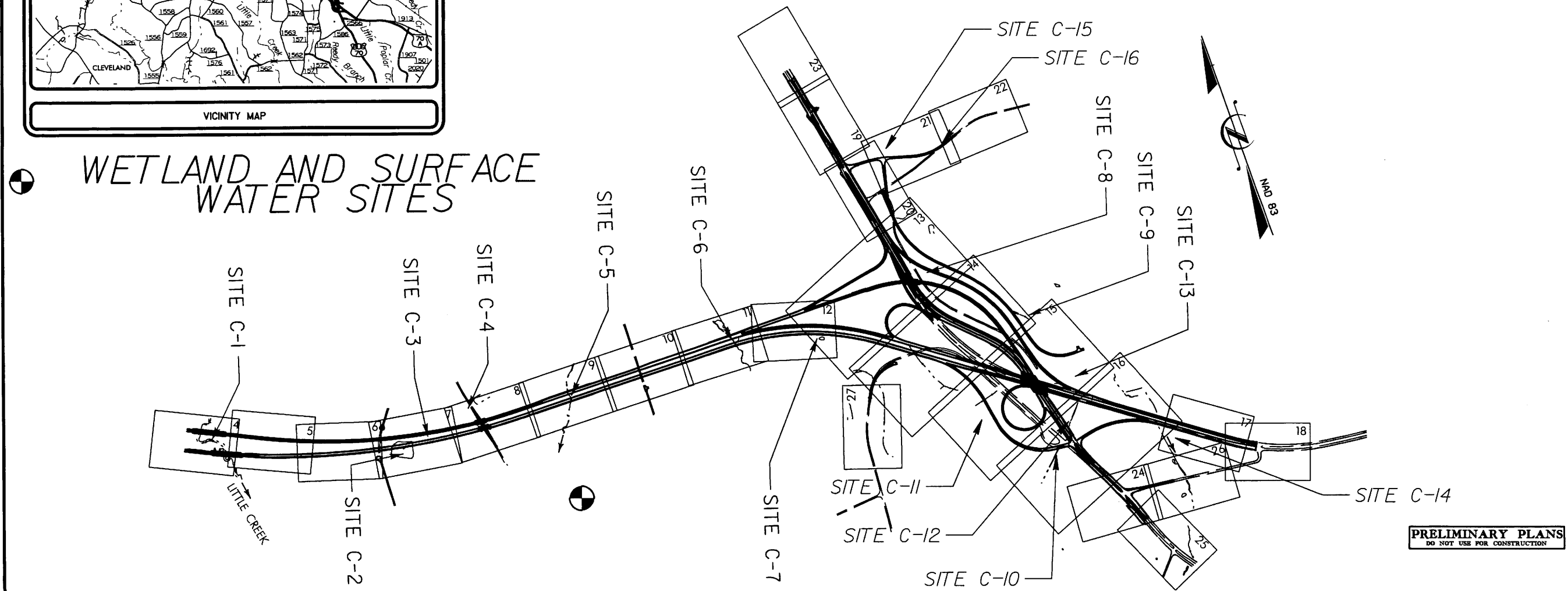
## JOHNSTON COUNTY



ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

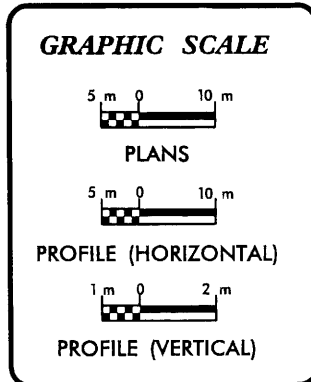
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2552C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34459.1.6	NHF-60-1(9)	P.E.	
34459.2.7		R.W. & UTIL.	

**LOCATION: US 70 (CLAYTON BYPASS) FROM EAST OF SR 1560 TO US 70 EAST OF CLAYTON**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, SIGNALS, STRUCTURES AND CULVERTS**



**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

**CONTRACT:**



**DESIGN DATA**

ADT 2005 =	29,500
ADT 2025 =	55,800
DHV =	10 %
D =	65 %
T =	16 % *
V =	110 km/h
* TTST 10% + DUAL 6%	

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT R-2552C	=	4.842 km
LENGTH STRUCTURE TIP PROJECT R-2552C	=	0.160 km
TOTAL LENGTH TIP PROJECT R-2552C	=	5.002 km

-L2-RT WAS USED TO DETERMINE STRUCTURE LENGTH

Prepared In the Office of:  
**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612  
FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: May 16, 2003

LETTING DATE: May 17, 2005

**Stephen C. Browde, P.E.**  
PROJECT ENGINEER

**Thomas A. McCloskey, P.E.**  
PROJECT DESIGN ENGINEER

N.C.D.O.T. CONTACT:  
**Teresa Bruton, P.E.**  
PROJECT ENGINEER - DESIGN SERVICES

**HYDRAULICS ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_ P.E.

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

STATE DESIGN ENGINEER

**DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED  
DIVISION ADMINISTRATOR

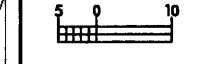
DATE

REVISIONS

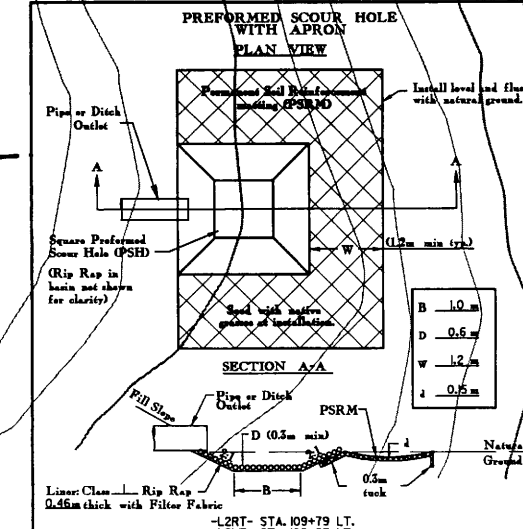
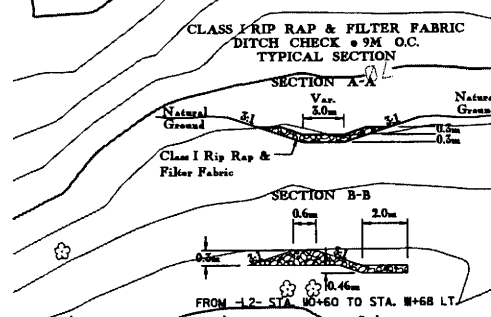
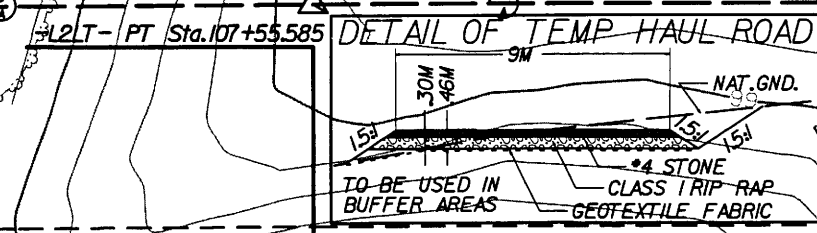
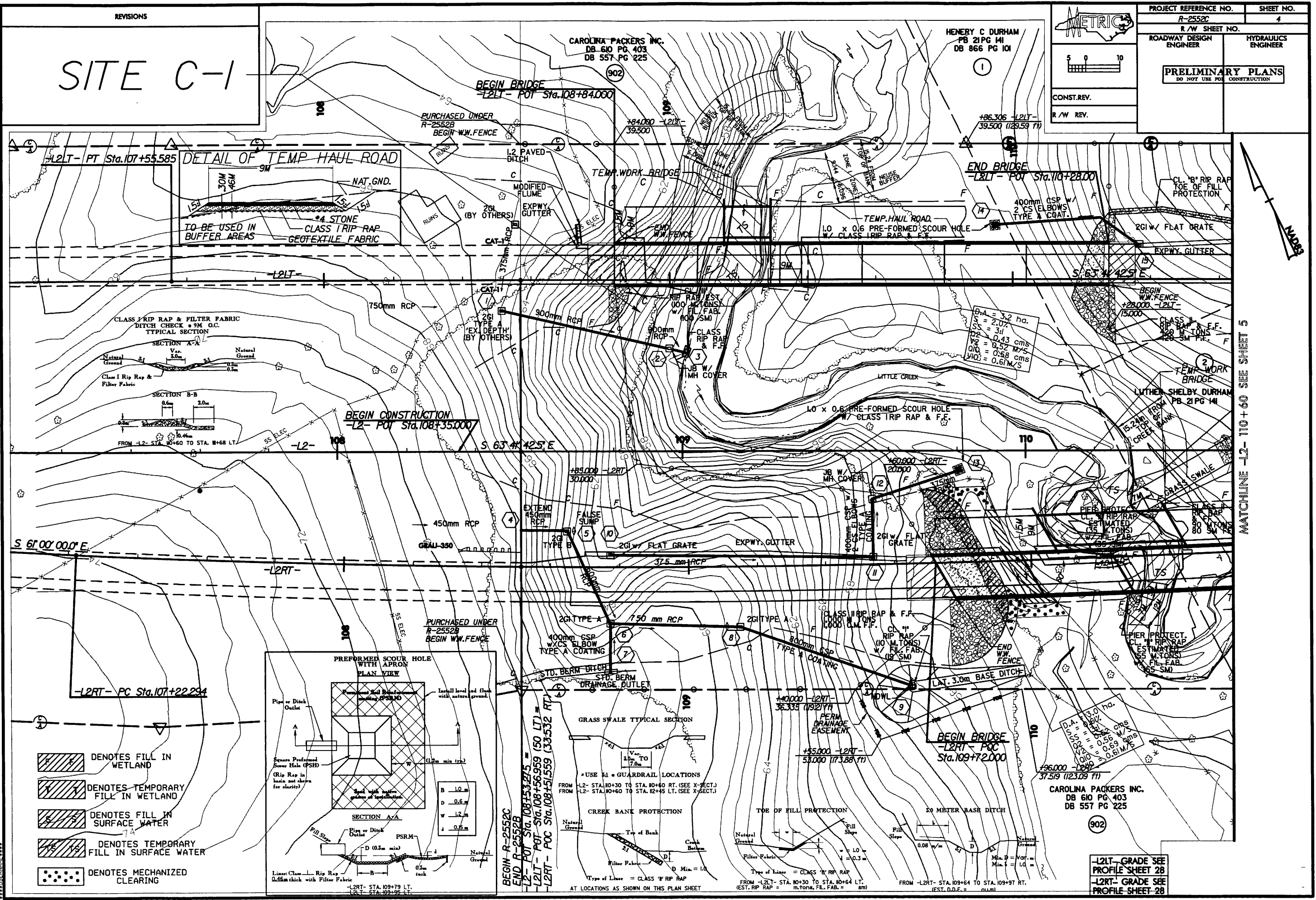
# SITE C-1



PROJECT REFERENCE NO. R-2552C	SHEET NO. 4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



CONST. REV.  
R/W REV.



- DENOTES FILL IN WETLAND
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES FILL IN SURFACE WATER
- DENOTES TEMPORARY FILL IN SURFACE WATER
- DENOTES MECHANIZED CLEARING

MATCHLINE -L2- 110+60 SEE SHEET 5

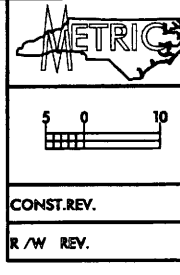
-L2LT- GRADE SEE PROFILE SHEET 28  
-L2RT- GRADE SEE PROFILE SHEET 28

REVISIONS

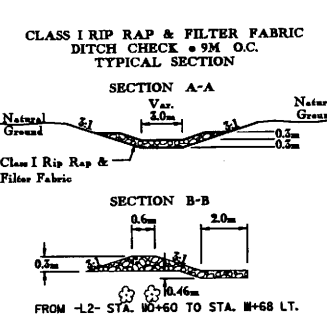
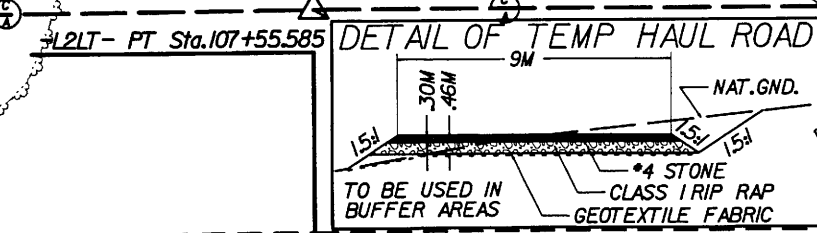
# SITE C-1

CAROLINA PACKERS INC.  
DB 610 PG 403  
DB 557 PG 225

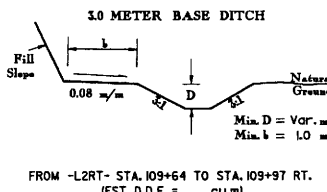
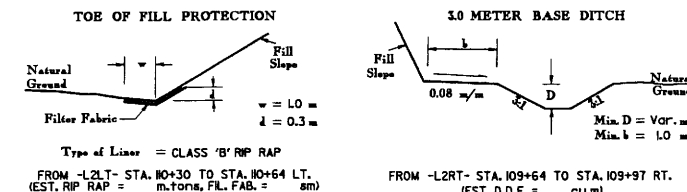
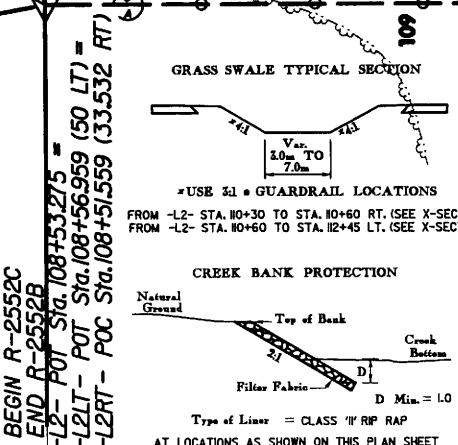
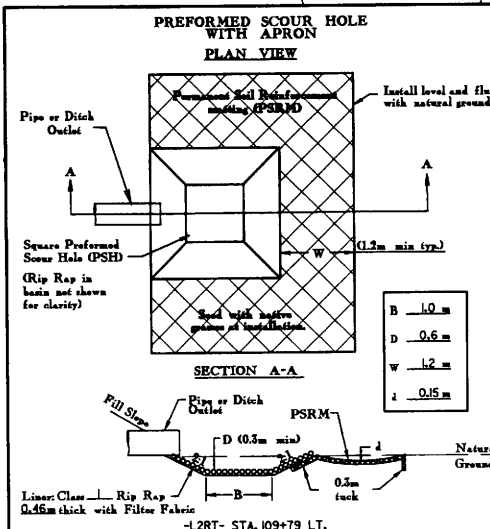
HENERY C DURHAM  
PB 21PG 141  
DB 866 PG 101



PROJECT REFERENCE NO.	R-2552C
SHEET NO.	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



- DENOTES FILL IN WETLAND
- DENOTES TEMPORARY FILL IN WETLAND
- DENOTES FILL IN SURFACE WATER
- DENOTES TEMPORARY FILL IN SURFACE WATER
- DENOTES MECHANIZED CLEARING



CAROLINA PACKERS INC.  
DB 610 PG 403  
DB 557 PG 225

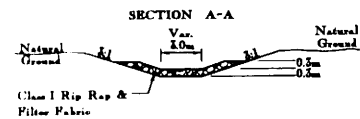
-L2LT- GRADE SEE PROFILE SHEET 2B  
-L2RT- GRADE SEE PROFILE SHEET 28

MATCHLINE -L2- 110+60 SEE SHEET 5

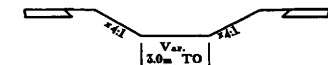
REVISIONS

15 15 DENOTES TEMPORARY FILL IN SURFACE WATER

CLASS 'B' RIP RAP & FILTER FABRIC DITCH CHECK @ 9M O.C. TYPICAL SECTION



GRASS SWALE TYPICAL SECTION



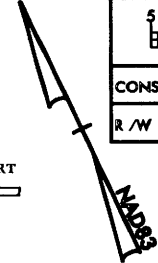
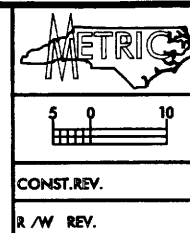
\*USE 2:1 GUARDRAIL LOCATIONS FROM -L2- STA. 10+30 TO STA. 10+60 RT. (SEE X-SECT.) FROM -L2- STA. 10+60 TO STA. 12+45 LT. (SEE X-SECT.)

GRASS SWALE TYPICAL SECTION



FROM -L2- STA. 12+75 TO STA. 13+78 LT.

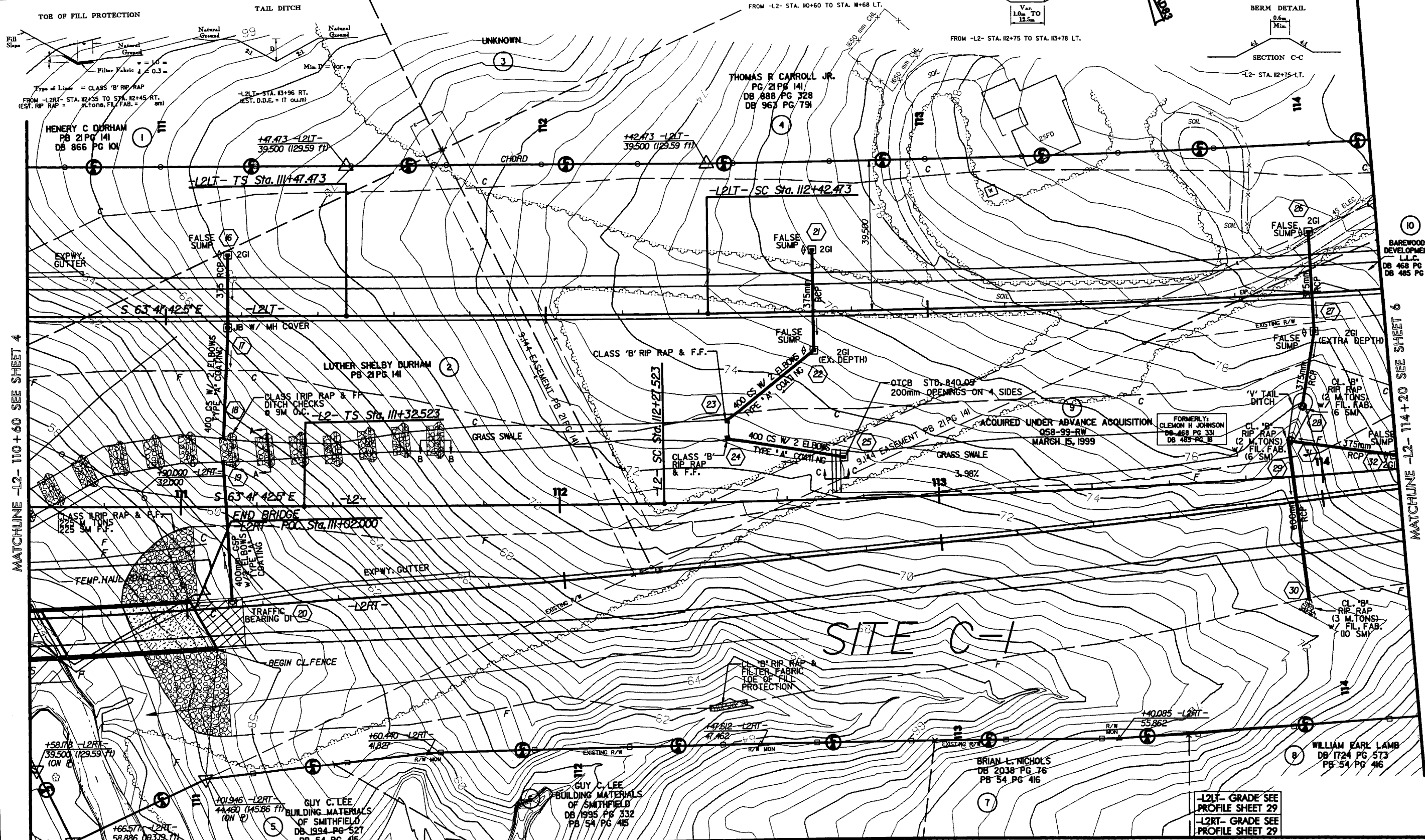
PROJECT REFERENCE NO. R-2552C		SHEET NO. 5	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
CONST. REV.		R/W REV.	



BERM DETAIL



SECTION C-C  
-L2- STA. 12+75 LT.



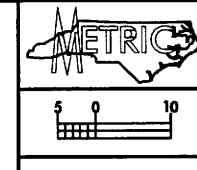
MATCHLINE -L2- 110+60 SEE SHEET 4

MATCHLINE -L2- 114+20 SEE SHEET 6

SITE C-1

-L2LT- GRADE SEE PROFILE SHEET 29  
-L2RT- GRADE SEE PROFILE SHEET 29

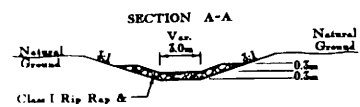
REVISIONS



PROJECT REFERENCE NO. R-2552C	SHEET NO. 5
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	CONSTRUCTION
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	R/W REV.

DENOTES TEMPORARY FILL IN SURFACE WATER

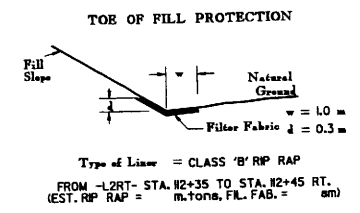
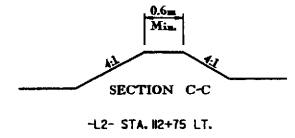
CLASS I RIP RAP & FILTER FABRIC DITCH CHECK @ 9M O.C. TYPICAL SECTION



GRASS SWALE TYPICAL SECTION



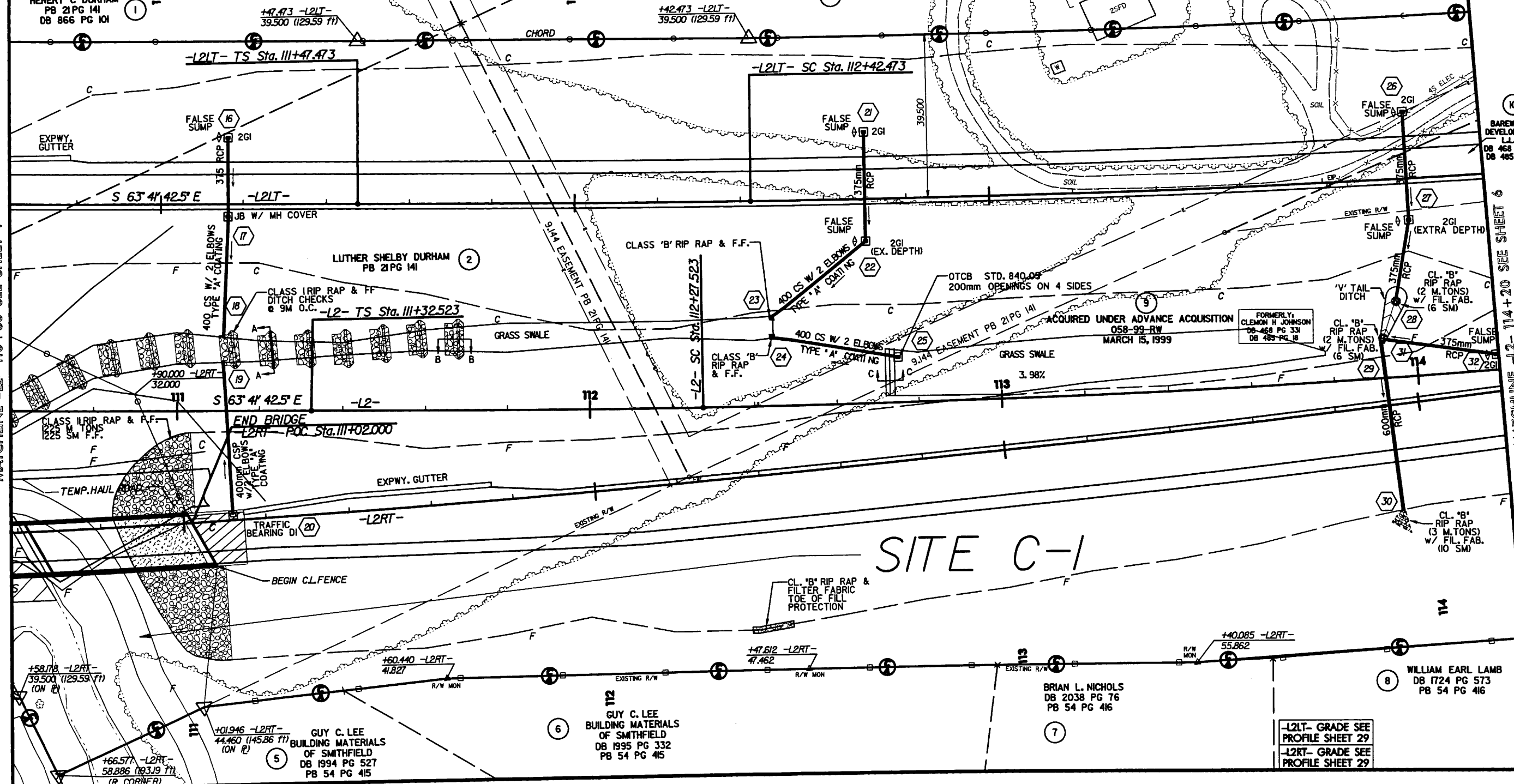
BERM DETAIL



HENERY C DURHAM  
PB 21 PG 141  
DB 866 PG 101

THOMAS R CARROLL JR.  
PG 21 PG 141  
DB 888 PG 328  
DB 963 PG 791

L-2- STA. 112+75 LT.



MATCHLINE -L2- 110+60 SEE SHEET 4

MATCHLINE -L2- 114+20 SEE SHEET 6

SITE C-1

-L2LT- GRADE SEE PROFILE SHEET 29  
-L2RT- GRADE SEE PROFILE SHEET 29

+58.778 -L2RT-  
39.500 (129.59 FT)  
(ON R)

+66.577 -L2RT-  
58.886 (193.19 FT)  
(R CORNER)

+01946 -L2RT-  
44.460 (145.86 FT)  
(ON R)

GUY C. LEE  
BUILDING MATERIALS  
OF SMITHFIELD  
DB 1994 PG 527  
PB 54 PG 415

+60.440 -L2RT-  
41.827

112  
GUY C. LEE  
BUILDING MATERIALS  
OF SMITHFIELD  
DB 1995 PG 332  
PB 54 PG 415

+47.612 -L2RT-  
47.462

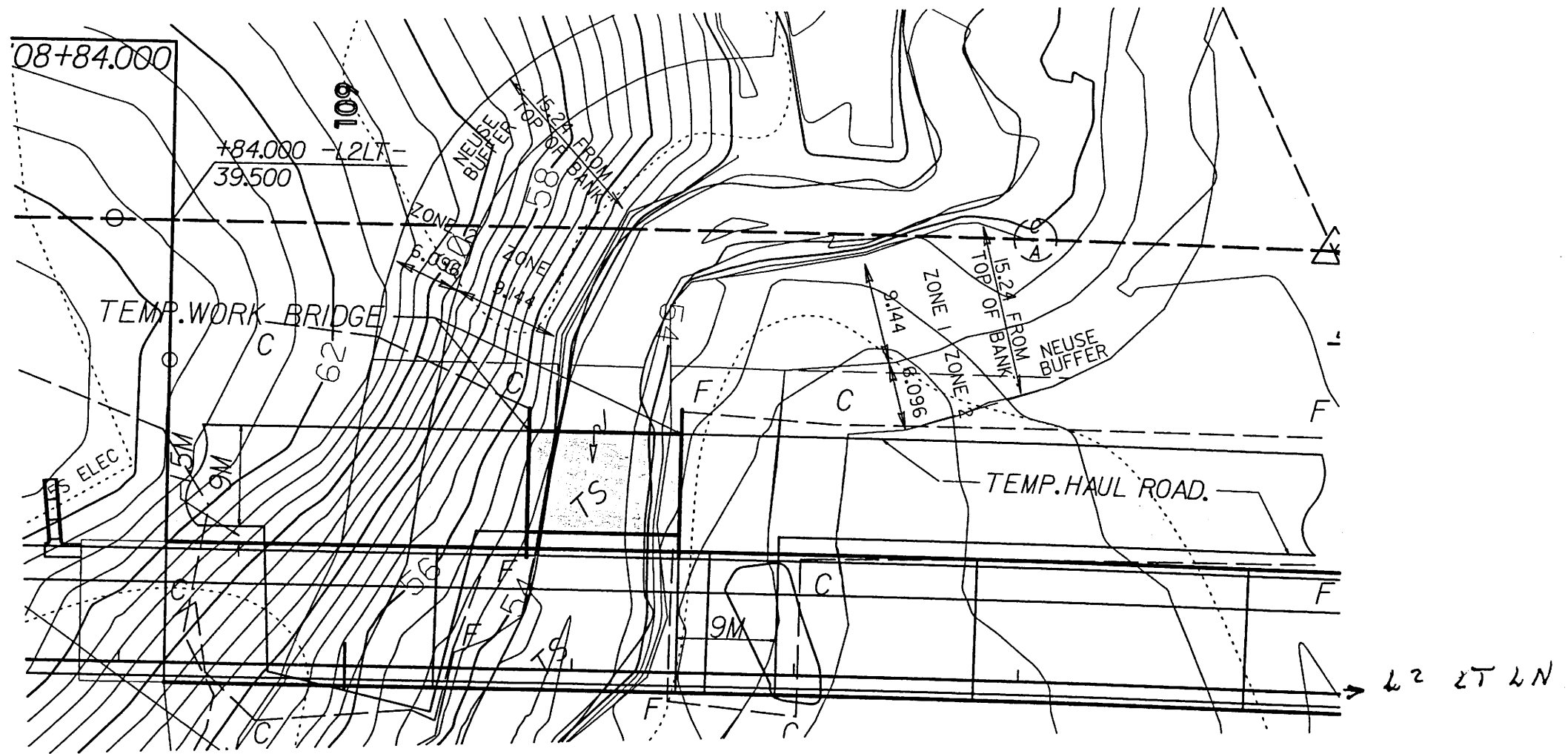
BRIAN L. NICHOLS  
DB 2038 PG 76  
PB 54 PG 416

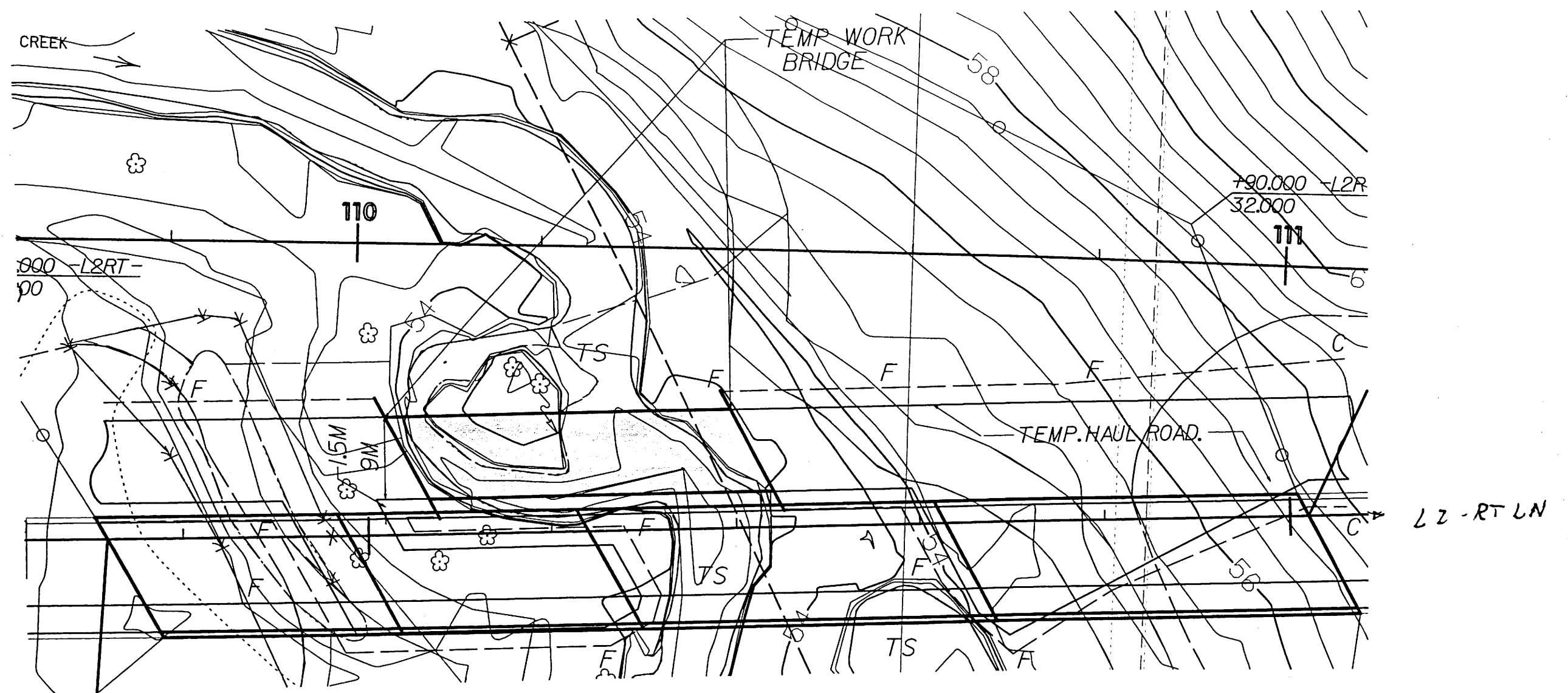
WILLIAM EARL LAMB  
DB 1724 PG 573  
PB 54 PG 416

BAREWOODS DEVELOPMENT, L.L.C.  
DB 468 PG 331  
DB 485 PG 18

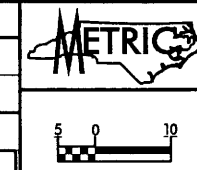
FORMERLY:  
CLEMON H JOHNSON  
DB 468 PG 331  
DB 485 PG 18

ACQUIRED UNDER ADVANCE ACQUISITION  
058-99-RW  
MARCH 15, 1999









PRELIMINARY PLANS  
 DO NOT USE FOR CONSTRUCTION

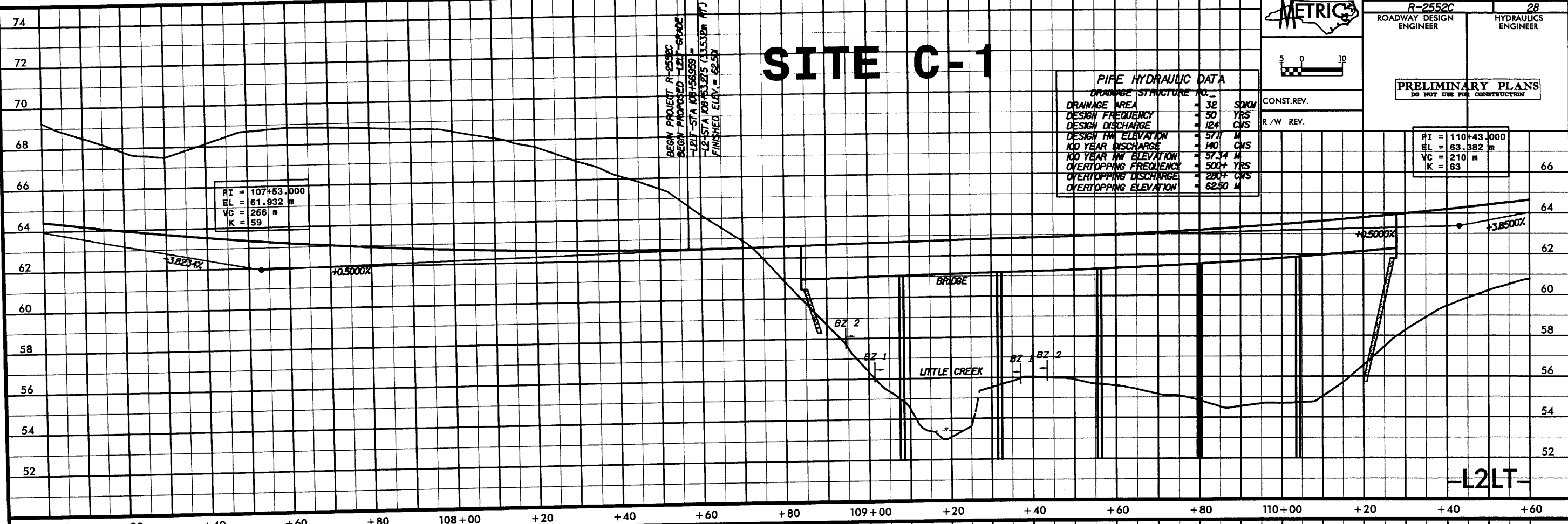
# SITE C-1

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	32
DRAINAGE AREA	32 SQKM
DESIGN FREQUENCY	50 YRS
DESIGN DISCHARGE	124 CMS
DESIGN HW ELEVATION	57.71 M
100 YEAR DISCHARGE	140 CMS
100 YEAR HW ELEVATION	57.34 M
OVERTOPPING FREQUENCY	500+ YRS
OVERTOPPING DISCHARGE	280+ CMS
OVERTOPPING ELEVATION	62.50 M

HI = 110+43.000	66
EL = 63.382 m	
VC = 210 m	
K = 63	

BEGIN PROJECT R-2552C  
 BEGIN PROPOSED -L2LT- GRADE  
 -L2LT- STA 107+53.000 =  
 -L2- STA 108+53.275 (15.32m AT)  
 FINISHED ELEV. = 62.50

PI = 107+53.000
EL = 61.932 m
VC = 256 m
K = 59



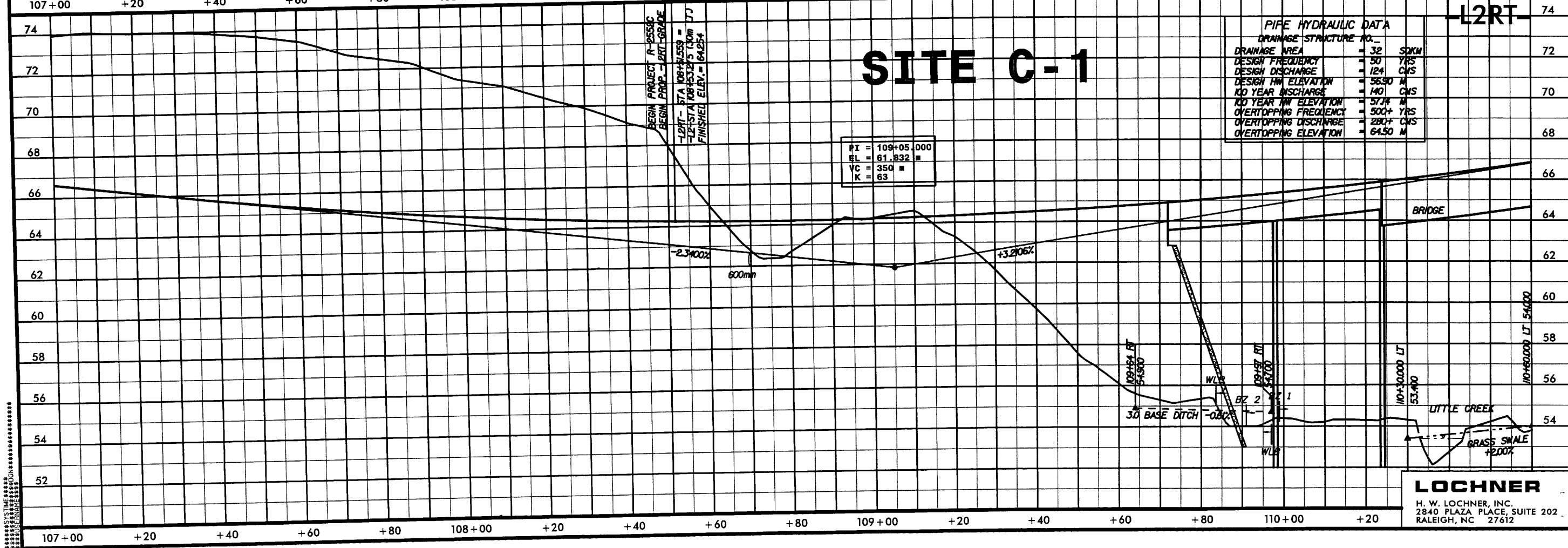
-L2LT-

# SITE C-1

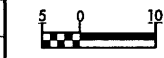
PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	32
DRAINAGE AREA	32 SQKM
DESIGN FREQUENCY	50 YRS
DESIGN DISCHARGE	124 CMS
DESIGN HW ELEVATION	56.90 M
100 YEAR DISCHARGE	140 CMS
100 YEAR HW ELEVATION	57.74 M
OVERTOPPING FREQUENCY	500+ YRS
OVERTOPPING DISCHARGE	280+ CMS
OVERTOPPING ELEVATION	64.50 M

PI = 109+05.000
EL = 61.832 m
VC = 350 m
K = 63

BEGIN PROJECT R-2552C  
 BEGIN PROPOSED -L2RT- GRADE  
 -L2RT- STA 108+45.559 =  
 -L2- STA 108+53.275 (15.32m AT)  
 FINISHED ELEV. = 64.254



-L2RT-



**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

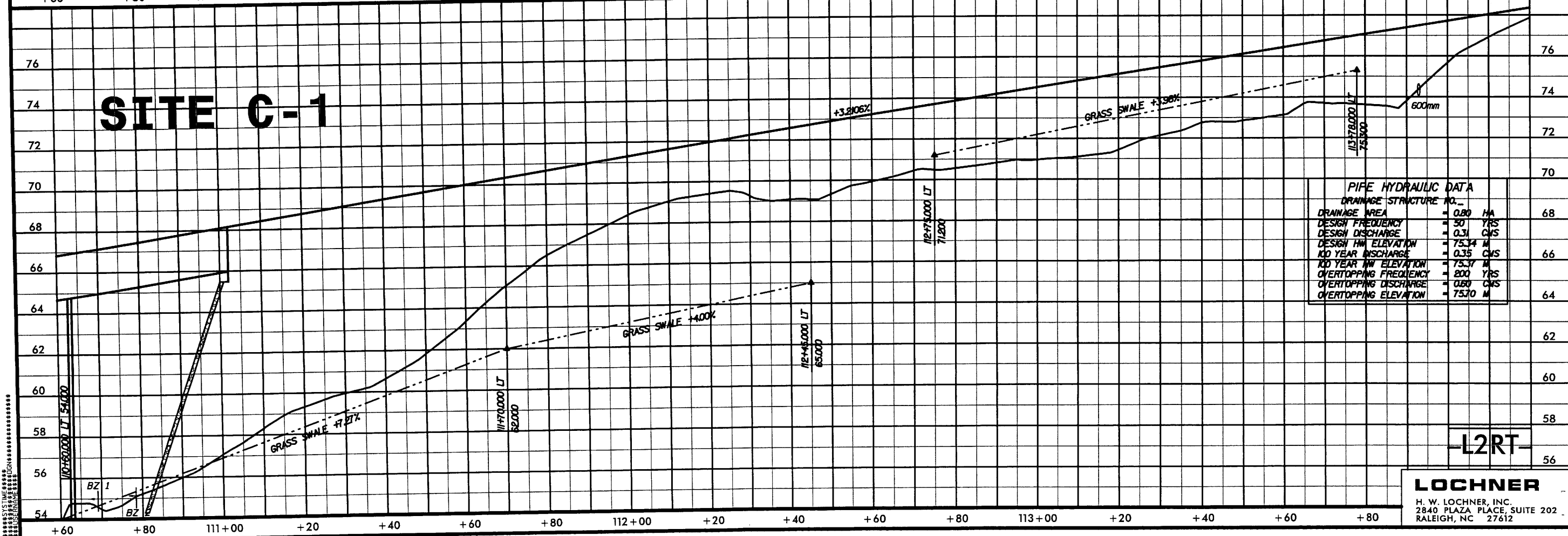
CONST. REV.  
 R/W REV.

BM#BL-5 BL STA. 118+72.347  
 144.943 RT  
 ELEV. = 69.536  
 N 206079.7872  
 E 629156.0477



**L2LT**

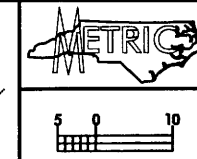
**SITE C-1**



PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. _____	
DRAINAGE AREA	= 0.80 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 0.31 CMS
DESIGN HW ELEVATION	= 75.34 M
100 YEAR DISCHARGE	= 0.35 CMS
100 YEAR HW ELEVATION	= 75.37 M
OVERTOPPING FREQUENCY	= 200 YRS
OVERTOPPING DISCHARGE	= 0.60 CMS
OVERTOPPING ELEVATION	= 75.70 M

**L2RT**

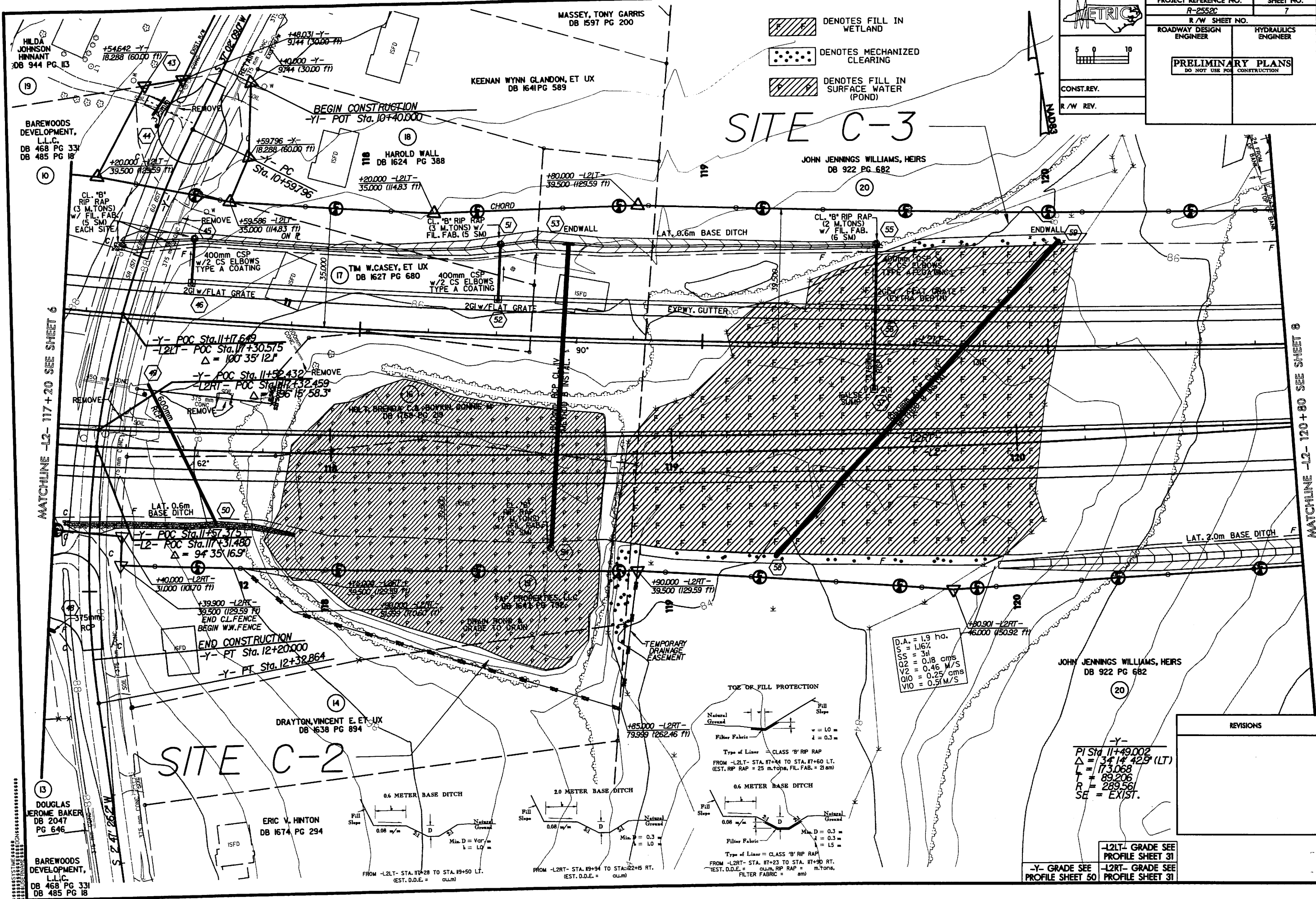
\*\*\*\*\*  
 SYSTEM TIME \*\*\*\*\*  
 \*\*\*\*\*  
 \*\*\*\*\*



PROJECT REFERENCE NO. R-2552C	SHEET NO. 7
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	CONSTRUCTION
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN SURFACE WATER (POND)

# SITE C-3



MATCHLINE -L2- 117+20 SEE SHEET 6

MATCHLINE -L2- 120+80 SEE SHEET 8

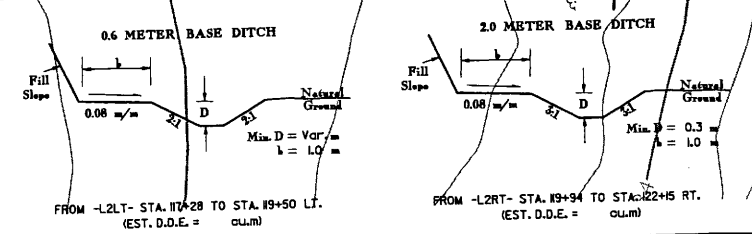
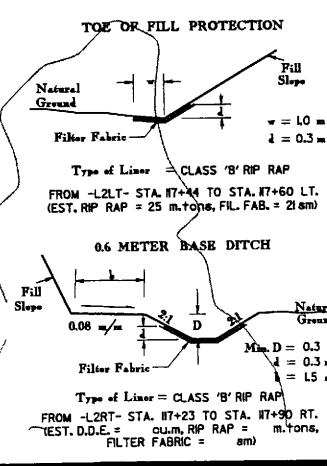
D.A. = 1.9 ha.  
S = 1.16%  
SS = 34  
V2 = 0.18 cms  
Q2 = 0.46 M/S  
Q10 = 0.25 cms  
V10 = 0.51 M/S

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

REVISIONS

-Y-  
PI Sta. 11+49.002  
 $\Delta = 34' 14" 42.9" (LT)$   
L = 173.068  
R = 89.206  
SE = EXIST.

-L2LT- GRADE SEE PROFILE SHEET 31  
-Y- GRADE SEE PROFILE SHEET 50  
-L2RT- GRADE SEE PROFILE SHEET 31



# SITE C-2

DOUGLAS JEROME BAKER  
DB 2047  
PG 646

BAREWOODS DEVELOPMENT, L.L.C.  
DB 468 PG 331  
DB 485 PG 18

ERIC V. HINTON  
DB 1674 PG 294

DRAYTON, VINCENT E. ET UX  
DB 1638 PG 894

-Y- POC Sta. 11+37.315  
-L2- POC Sta. 11+31.480  
 $\Delta = 94' 35" 16.9"$

-Y- POC Sta. 11+52.432 REMOVE  
-L2RT- POC Sta. 11+32.459  
 $\Delta = 156' 15" 58.3"$

+20.000 -L2LT- 39.500 (1129.59 FT)  
+59.796 -Y- 18.288 (160.00 FT)  
+59.586 -L2LT- 35.000 (114.83 FT) ON RT.

HAROLD WALL  
DB 1624 PG 388

KEENAN WYNN GLANDON, ET UX  
DB 1641 PG 589

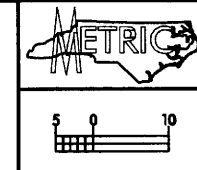
MASSEY, TONY GARRIS  
DB 1597 PG 200

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

HILDA JOHNSON HINNANT  
DB 944 PG 13

BAREWOODS DEVELOPMENT, L.L.C.  
DB 468 PG 331  
DB 485 PG 18

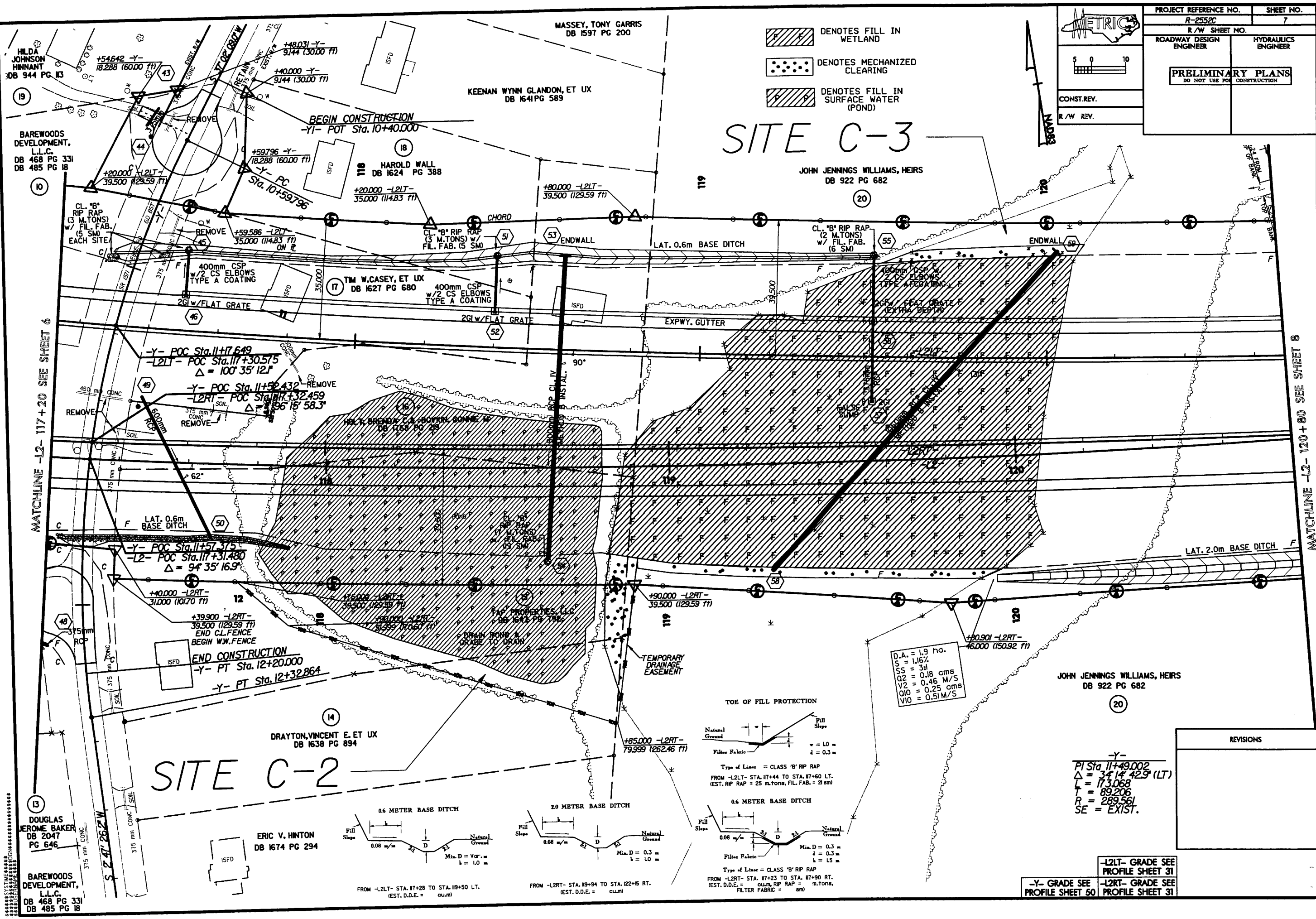
BAREWOODS DEVELOPMENT, L.L.C.  
DB 468 PG 331  
DB 485 PG 18



PROJECT REFERENCE NO.	SHEET NO.
R-2552C	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b>	
DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

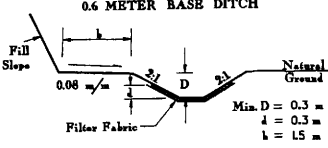
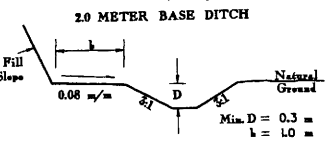
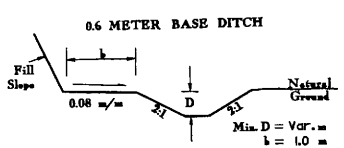
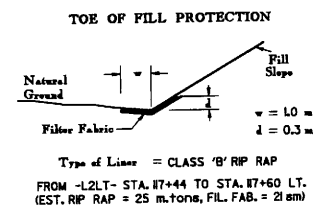
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN SURFACE WATER (POND)

SITE C-3



SITE C-2

D.A. = 1.9 ha.  
 S = 1.16%  
 SS = 3%  
 V2 = 0.18 cms  
 Q10 = 0.25 cms  
 V10 = 0.51 M/S



-L2LT- GRADE SEE PROFILE SHEET 31  
 -Y- GRADE SEE PROFILE SHEET 50  
 -L2RT- GRADE SEE PROFILE SHEET 31

REVISIONS

DOUGLAS JEROME BAKER DB 2047 PG 646  
 BAREWOODS DEVELOPMENT, L.L.C. DB 468 PG 331 DB 485 PG 18

ERIC V. HINTON DB 1674 PG 294

DRAYTON, VINCENT E. ET UX DB 1638 PG 894

-Y- POC Sta. 11+57.315  
 -L2- POC Sta. 11+31.480  
 $\Delta = 94^{\circ} 35' 16.9''$

-Y- POC Sta. 11+7.649  
 -L2LT- POC Sta. 11+30.515  
 $\Delta = 100^{\circ} 35' 12.1''$

-Y- POC Sta. 11+52.432 REMOVE  
 -L2RT- POC Sta. 11+32.459  
 $\Delta = 136^{\circ} 15' 58.3''$

+10,000 -L2RT- 31,000 (10170 ft)  
 +39,900 -L2RT- 39,500 (12959 ft)  
 END CL. FENCE  
 BEGIN W.W. FENCE

END CONSTRUCTION  
 -Y- PT Sta. 12+20.000  
 -Y- PT Sta. 12+32.864

BEGIN CONSTRUCTION  
 -Y- POT Sta. 10+40.000

+20,000 -L2LT- 39,500 (12959 ft)  
 +59,796 -Y- 18,288 (6000 ft)  
 +48,031 -Y- 9,744 (3000 ft)  
 +40,000 -Y- 9,744 (3000 ft)

HAROLD WALL DB 1624 PG 388

TIM W. CASEY, ET UX DB 1627 PG 680

KEENAN WYNN GLANDON, ET UX DB 1641 PG 589

JOHN JENNINGS WILLIAMS, HEIRS DB 922 PG 682

MASSEY, TONY GARRIS DB 1597 PG 200

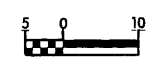
HILDA JOHNSON HINNANT DB 944 PG 183

BAREWOODS DEVELOPMENT, L.L.C. DB 468 PG 331 DB 485 PG 18

BAREWOODS DEVELOPMENT, L.L.C. DB 468 PG 331 DB 485 PG 18

MATCHLINE -L2- 120+80 SEE SHEET 8

MATCHLINE -L2- 117+20 SEE SHEET 6



PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

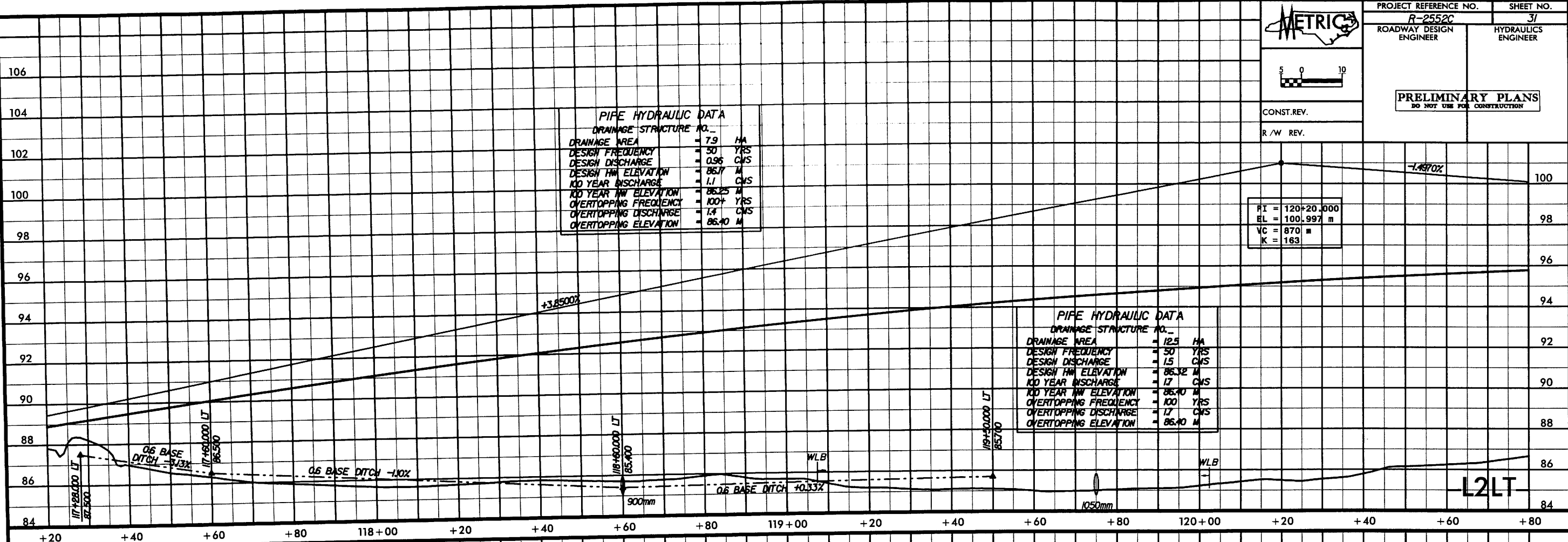
CONST. REV.

R/W REV.

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 1	
DRAINAGE AREA	= 7.9 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 0.96 CMS
DESIGN HW ELEVATION	= 86.7 M
100 YEAR DISCHARGE	= 1.1 CMS
100 YEAR HW ELEVATION	= 86.25 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 1.4 CMS
OVERTOPPING ELEVATION	= 86.40 M

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 2	
DRAINAGE AREA	= 12.5 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 1.5 CMS
DESIGN HW ELEVATION	= 86.32 M
100 YEAR DISCHARGE	= 1.7 CMS
100 YEAR HW ELEVATION	= 86.40 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 1.7 CMS
OVERTOPPING ELEVATION	= 86.40 M

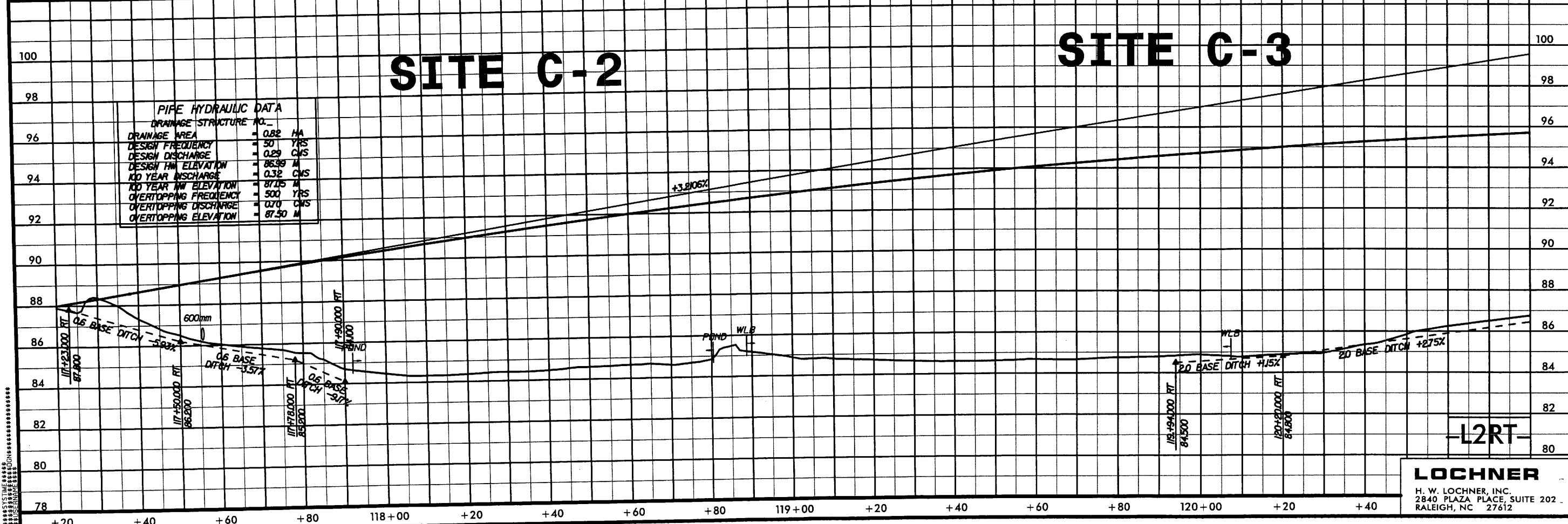
PI	= 120+20,000
EL	= 100.997 m
VC	= 870 m
K	= 163



# SITE C-2

# SITE C-3

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 3	
DRAINAGE AREA	= 0.82 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 0.29 CMS
DESIGN HW ELEVATION	= 86.98 M
100 YEAR DISCHARGE	= 0.32 CMS
100 YEAR HW ELEVATION	= 87.05 M
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING DISCHARGE	= 0.70 CMS
OVERTOPPING ELEVATION	= 87.50 M



5 0 10

CONST. REV.

R/W REV.

PROJECT REFERENCE NO. R-2552C	SHEET NO. 8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

# SITE C-4

## REVISIONS

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

+84.283 -YI-  
7.620 (25.00 ft)  
D.A. = 0.30 m/s  
+84.283 -YI-  
7.620 (25.00 ft)  
D.A. = 0.051 cms  
V2 = 0.40 M/S  
Q10 = 0.068 cms  
V10 = 0.46 M/S

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

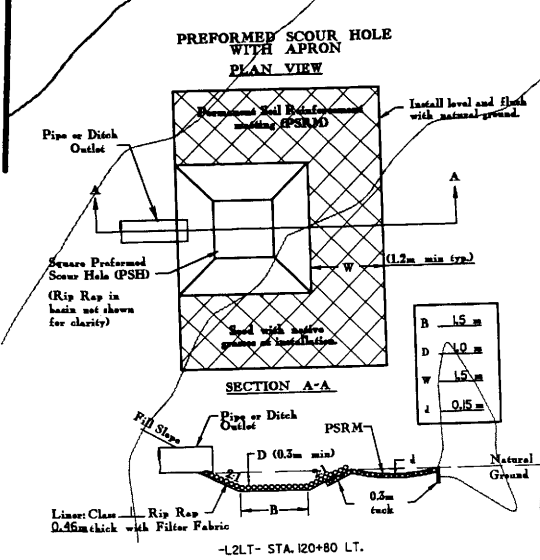
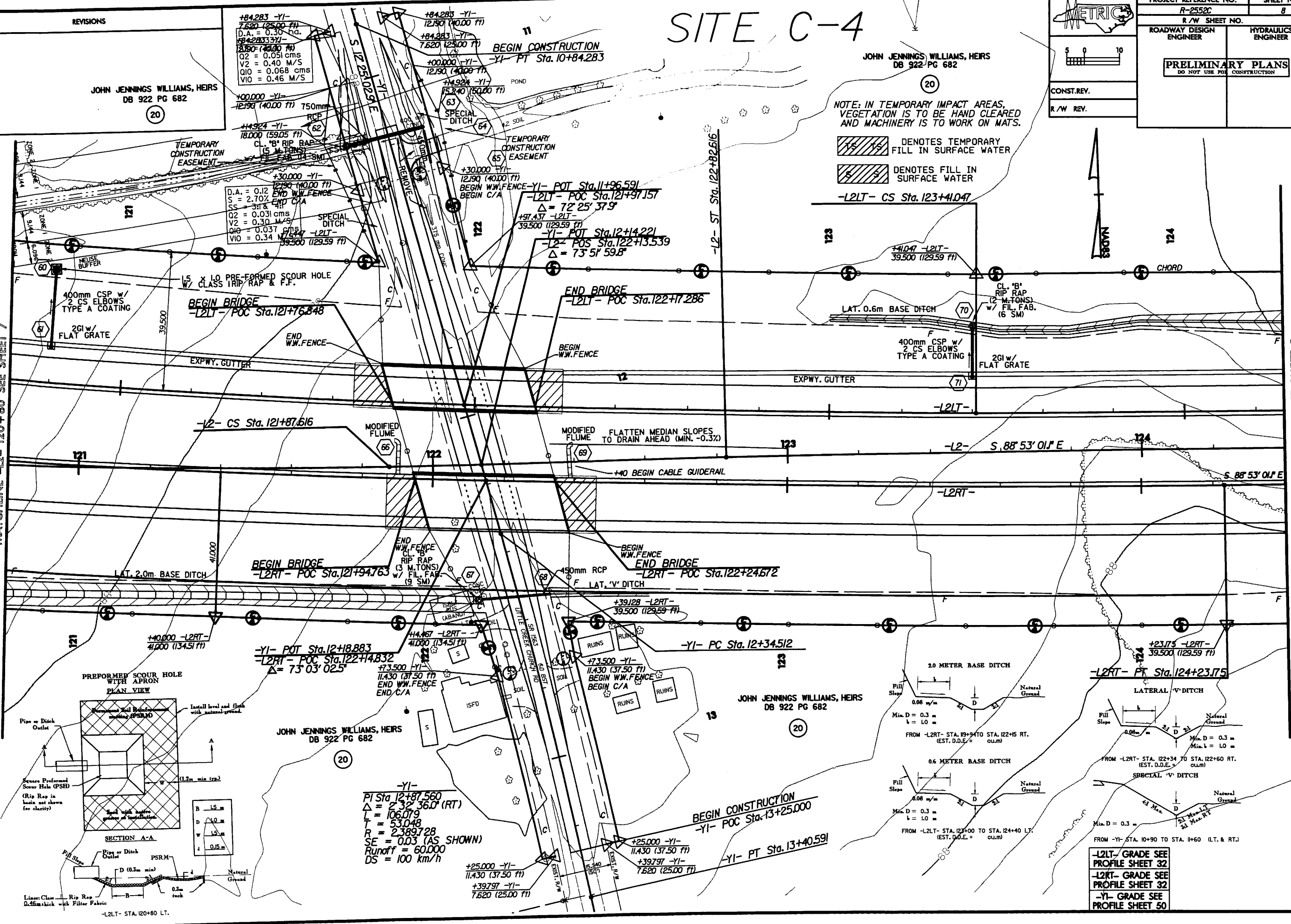
NOTE: IN TEMPORARY IMPACT AREAS,  
VEGETATION IS TO BE HAND CLEARED  
AND MACHINERY IS TO WORK ON MATS.

DENOTES TEMPORARY  
FILL IN SURFACE WATER

DENOTES FILL IN  
SURFACE WATER

MATCHLINE -L2- 120+80 SEE SHEET 7

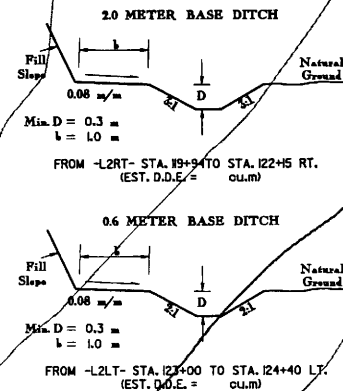
MATCHLINE -L2- 124+40 SEE SHEET 9



JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

-YI-  
PI Sta. 12+87.560  
 $\Delta = 2' 32'' 36.0''$  (RT)  
L = 106.079  
T = 53.048  
R = 2389.728  
SE = 0.03 (AS SHOWN)  
Runoff = 60.000  
DS = 100 km/h

BEGIN CONSTRUCTION  
-YI- POC Sta. 13+25.000

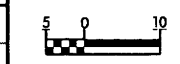


-L2LT- GRADE SEE  
PROFILE SHEET 32

-L2RT- GRADE SEE  
PROFILE SHEET 32

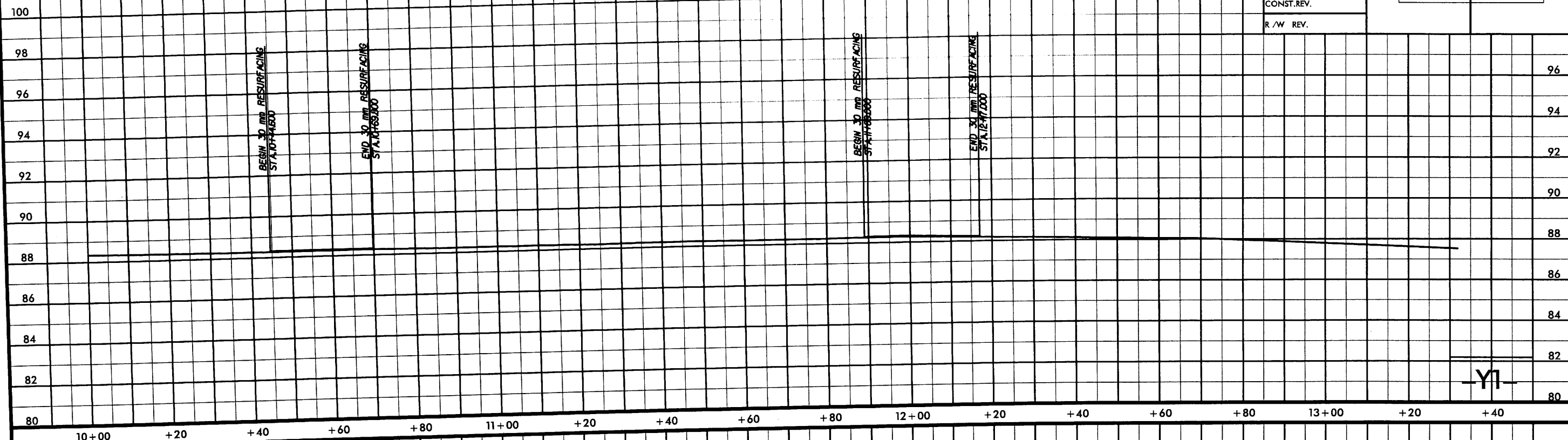
-YI- GRADE SEE  
PROFILE SHEET 50





**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

CONST. REV.  
R/W REV.



# SITE C-4

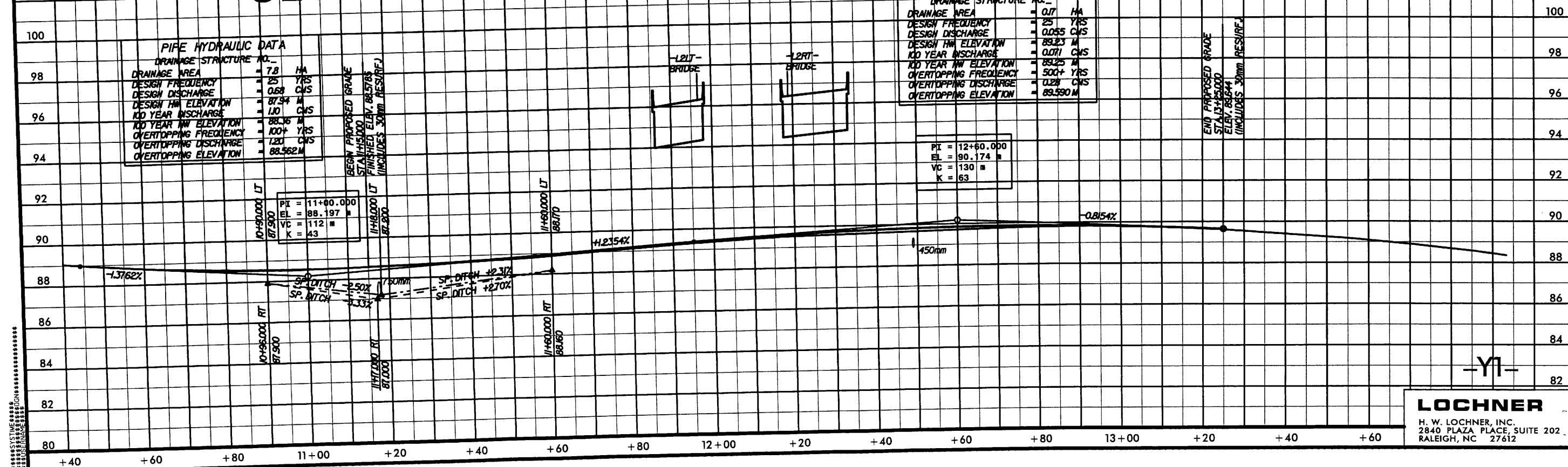
**PIPE HYDRAULIC DATA**

DRAINAGE STRUCTURE NO.	7.8	HA
DRAINAGE AREA	25	YRS
DESIGN FREQUENCY	0.68	CMS
DESIGN DISCHARGE	87.94	M
DESIGN HW ELEVATION	1.10	CMS
100 YEAR DISCHARGE	88.06	M
100 YEAR HW ELEVATION	100+	YRS
OVERTOPPING FREQUENCY	1.20	CMS
OVERTOPPING DISCHARGE	88.562	M
OVERTOPPING ELEVATION		

**PIPE HYDRAULIC DATA**

DRAINAGE STRUCTURE NO.	0.17	HA
DRAINAGE AREA	25	YRS
DESIGN FREQUENCY	0.055	CMS
DESIGN DISCHARGE	89.23	M
DESIGN HW ELEVATION	0.071	CMS
100 YEAR DISCHARGE	89.25	M
100 YEAR HW ELEVATION	500+	YRS
OVERTOPPING FREQUENCY	0.28	CMS
OVERTOPPING DISCHARGE	89.590	M
OVERTOPPING ELEVATION		

PI = 12+60.000  
 EL = 90.174 m  
 VC = 130 m  
 K = 63





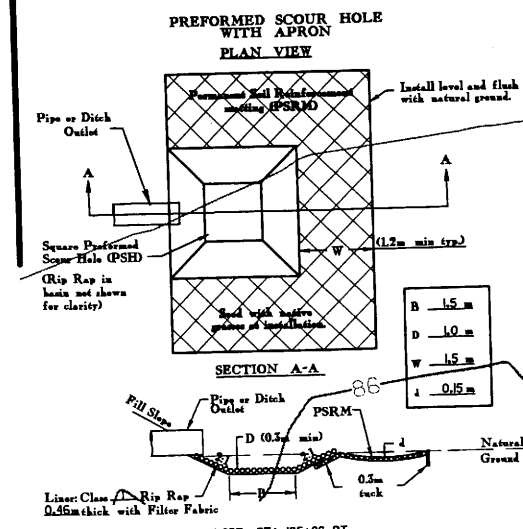
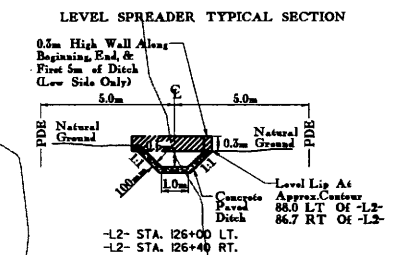
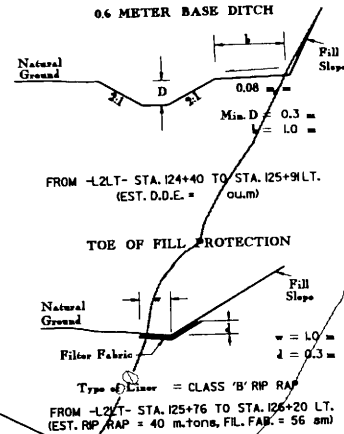
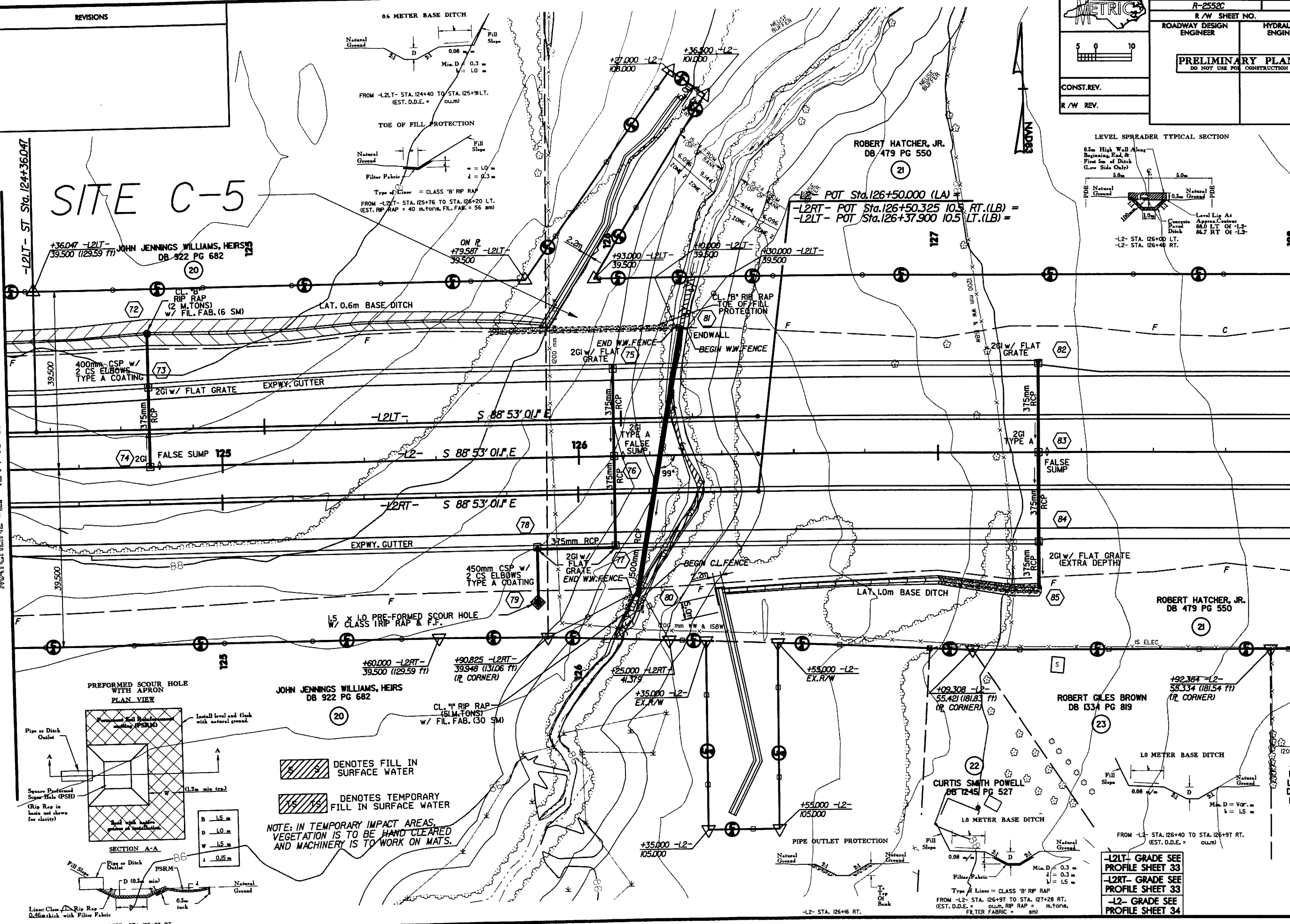
REVISIONS

PROJECT REFERENCE NO.		SHEET NO.	
R-2552C		9	
R/W SHEET NO.		ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER		PRELIMINARY PLANS	
DO NOT USE FOR CONSTRUCTION			
CONST. REV.		R/W REV.	

# SITE C-5

MATCHLINE -L2- STA. 124+36.047

MATCHLINE -L2- 128+00 SEE SHEET 10



DENOTES FILL IN SURFACE WATER  
 DENOTES TEMPORARY FILL IN SURFACE WATER  
**NOTE: IN TEMPORARY IMPACT AREAS, VEGETATION IS TO BE HAND CLEARED AND MACHINERY IS TO WORK ON MATS.**

-L2LT- GRADE SEE PROFILE SHEET 33  
 -L2RT- GRADE SEE PROFILE SHEET 33  
 -L2- GRADE SEE PROFILE SHEET 34

+36.047 -L2LT- JOHN JENNINGS WILLIAMS, HEIRS DB 922 PG 682  
 39.500 (129.59 FT)

ROBERT HATCHER, JR.  
 DB 479 PG 550

ROBERT HATCHER, JR.  
 DB 479 PG 550

ROBERT GILES BROWN  
 DB 133A PG 819

CURTIS SMITH POWELL  
 DB 1245 PG 527

JAMES LANTEI  
 DB 1390 PG 613

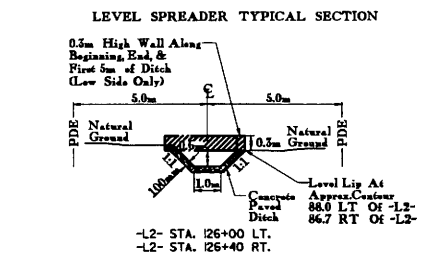
MATCHLINE -L2- 124+40 SEE SHEET 8

MATCHLINE -L2- 128+00 SEE SHEET 10

REVISIONS

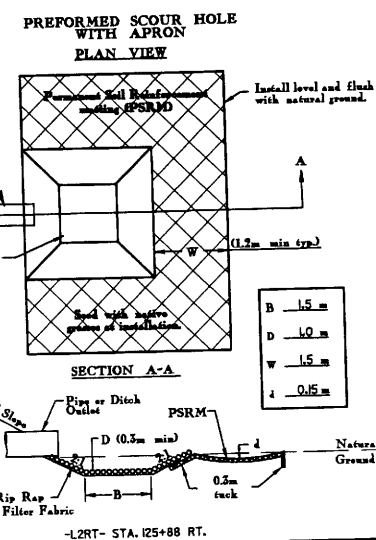
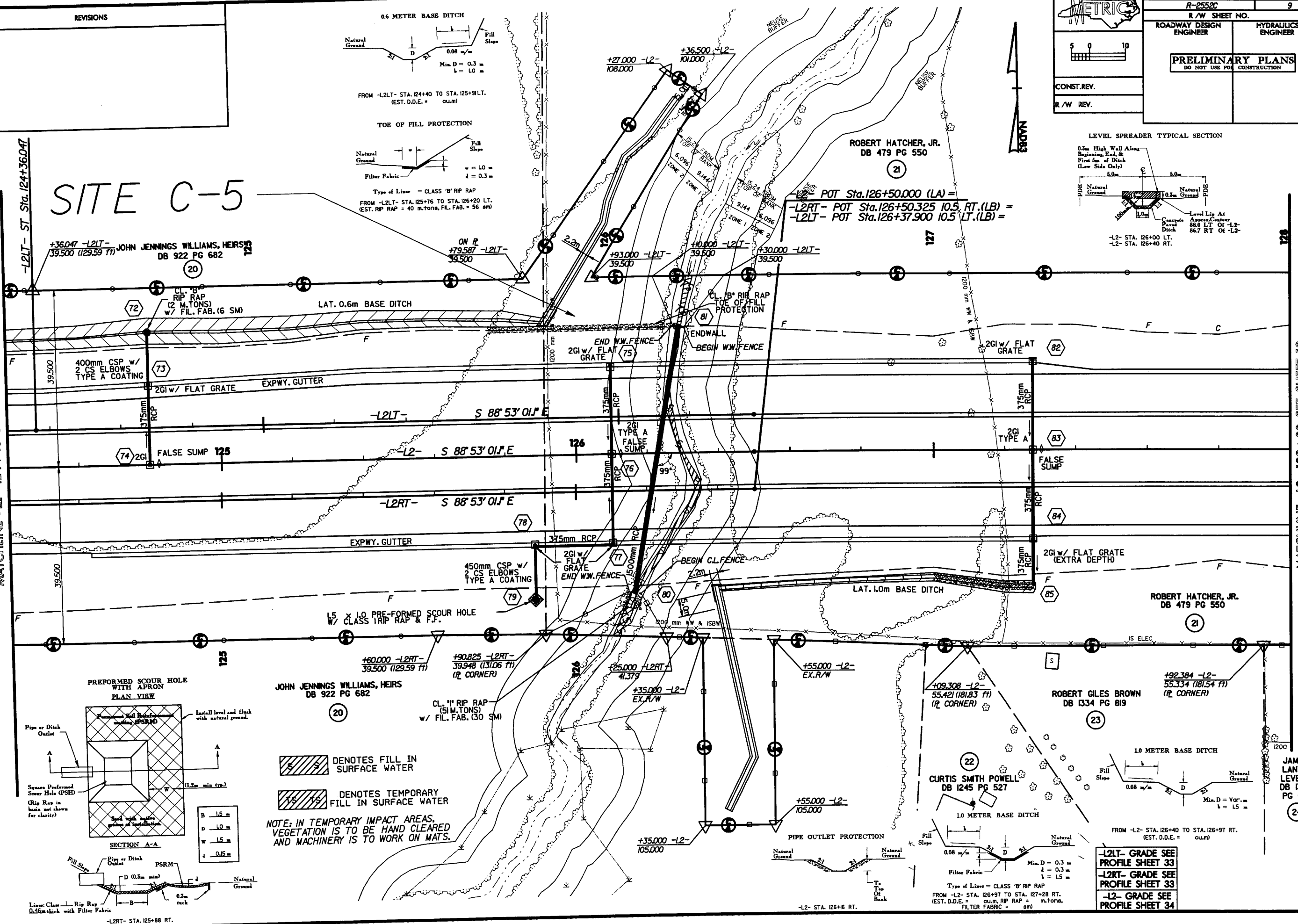
PROJECT REFERENCE NO.		SHEET NO.	
R-2552C		9	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b>			
DO NOT USE FOR CONSTRUCTION			
CONST. REV.			
R/W REV.			

# SITE C-5



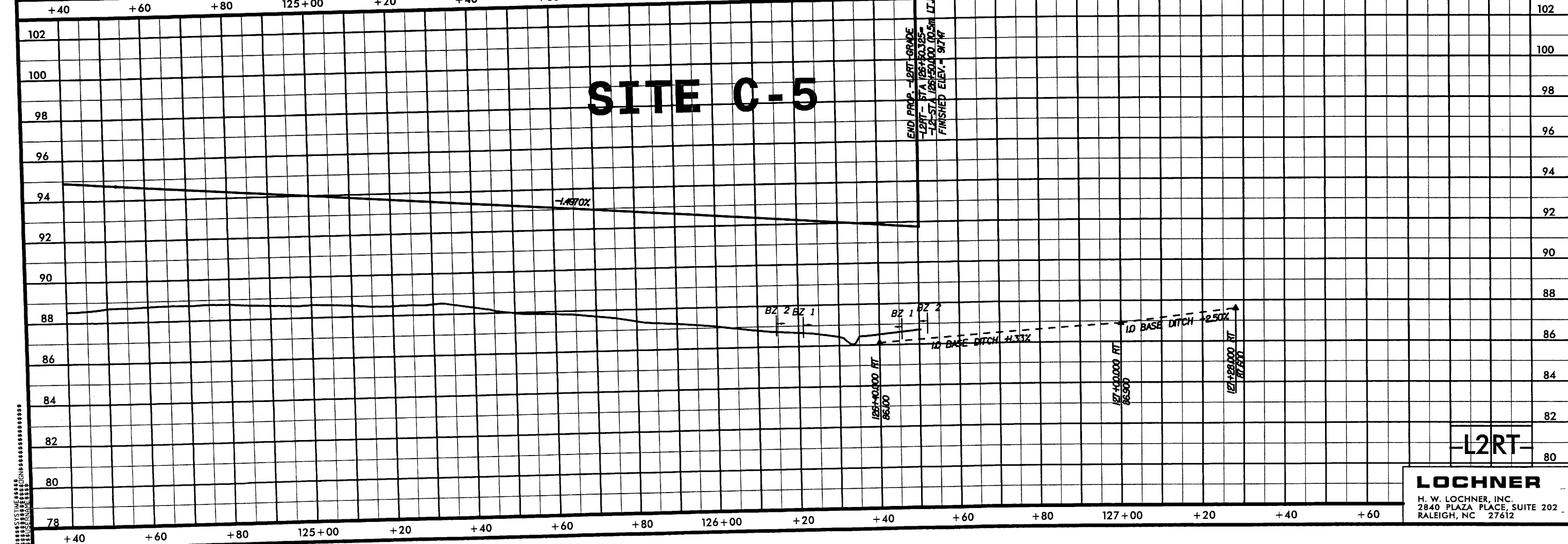
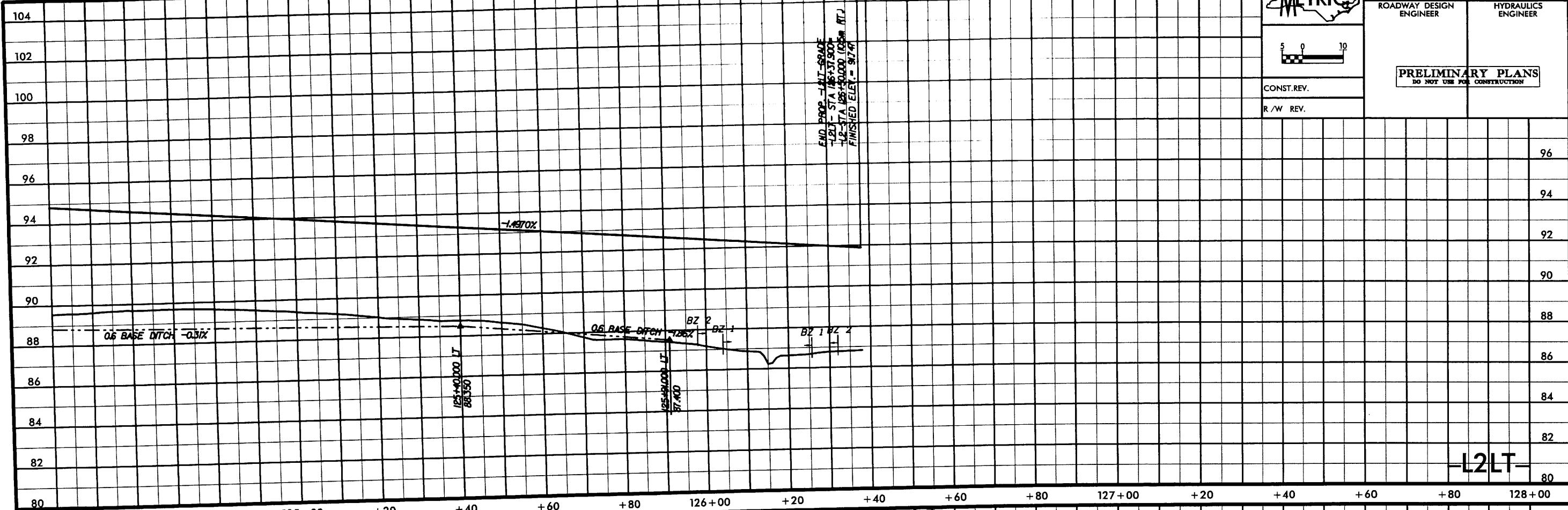
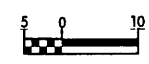
MATCHLINE -L2- 124+40 SEE SHEET 8

MATCHLINE -L2- 128+00 SEE SHEET 10



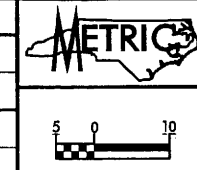


PROJECT REFERENCE NO. R-2552C	SHEET NO. 33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

# SITE C-5

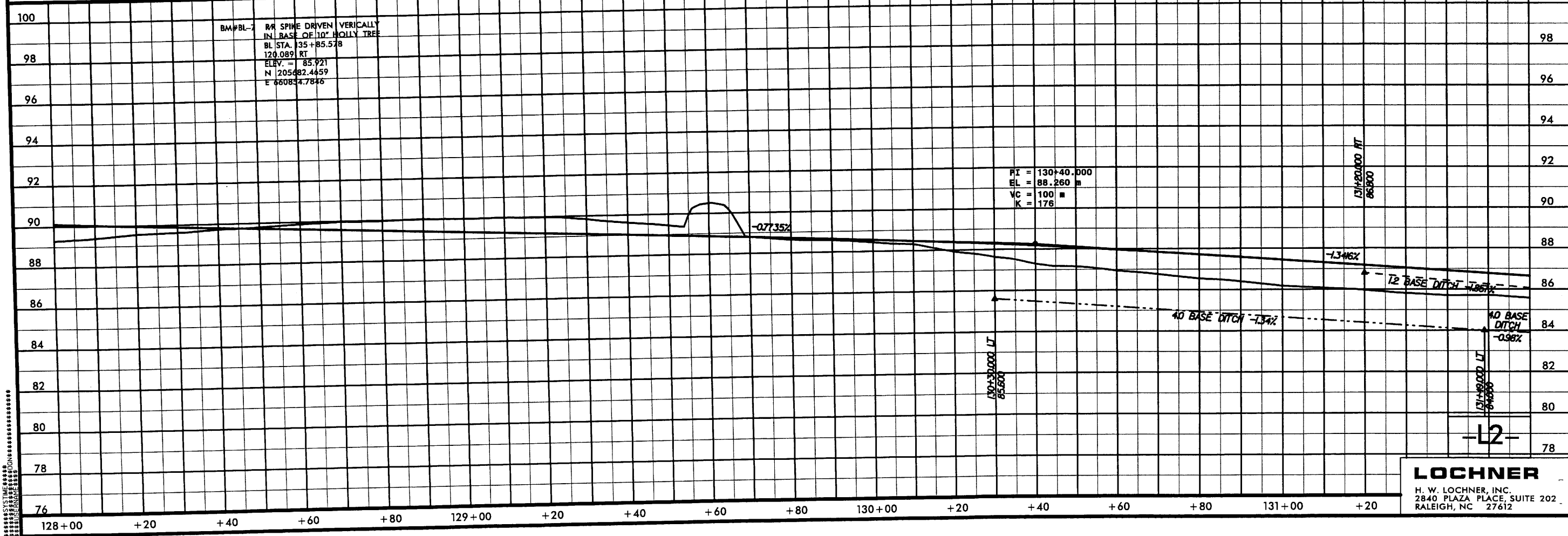
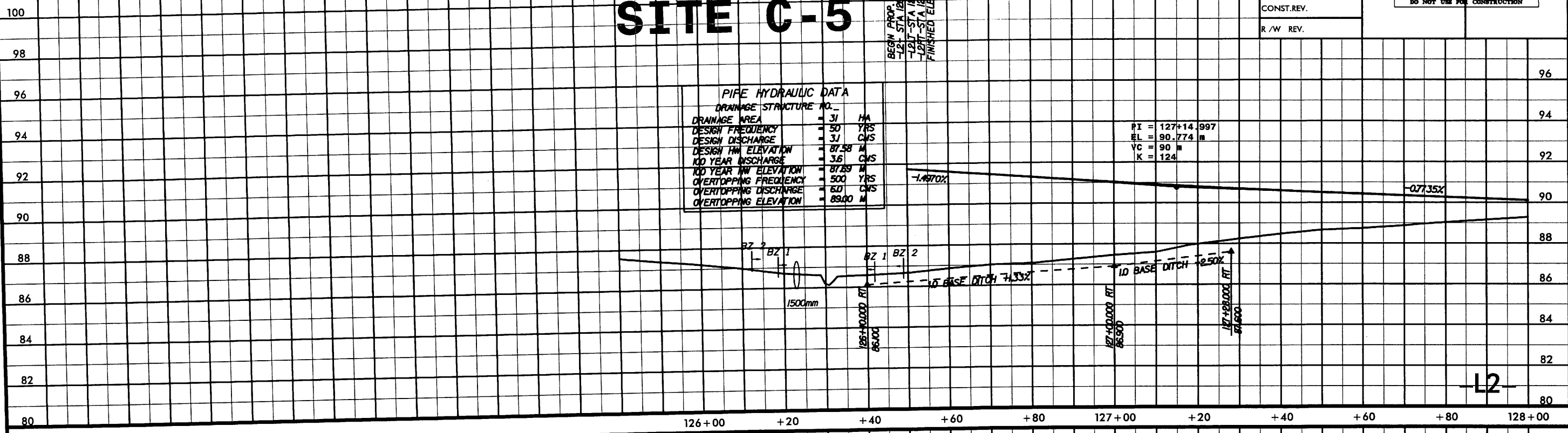


PROJECT REFERENCE NO. **R-2552C** SHEET NO. **34**  
 ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER  
**PRELIMINARY PLANS**  
 DO NOT USE FOR CONSTRUCTION

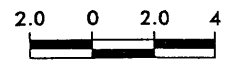
BEGIN PROP. L2-BRAKE  
 -L2- STA 126+50.000  
 -L2- STA 127+00.000 (10.5m LT) =  
 -L2- STA 126+50.325 (10.5m RT) =  
 FINISHED ELEV. = 89.74

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	HA
DESIGN AREA	31
DESIGN FREQUENCY	50 YRS
DESIGN DISCHARGE	31 CMS
DESIGN HW ELEVATION	87.58 M
100 YEAR DISCHARGE	3.6 CMS
100 YEAR HW ELEVATION	87.89 M
OVERTOPPING FREQUENCY	500 YRS
OVERTOPPING DISCHARGE	6.0 CMS
OVERTOPPING ELEVATION	89.00 M

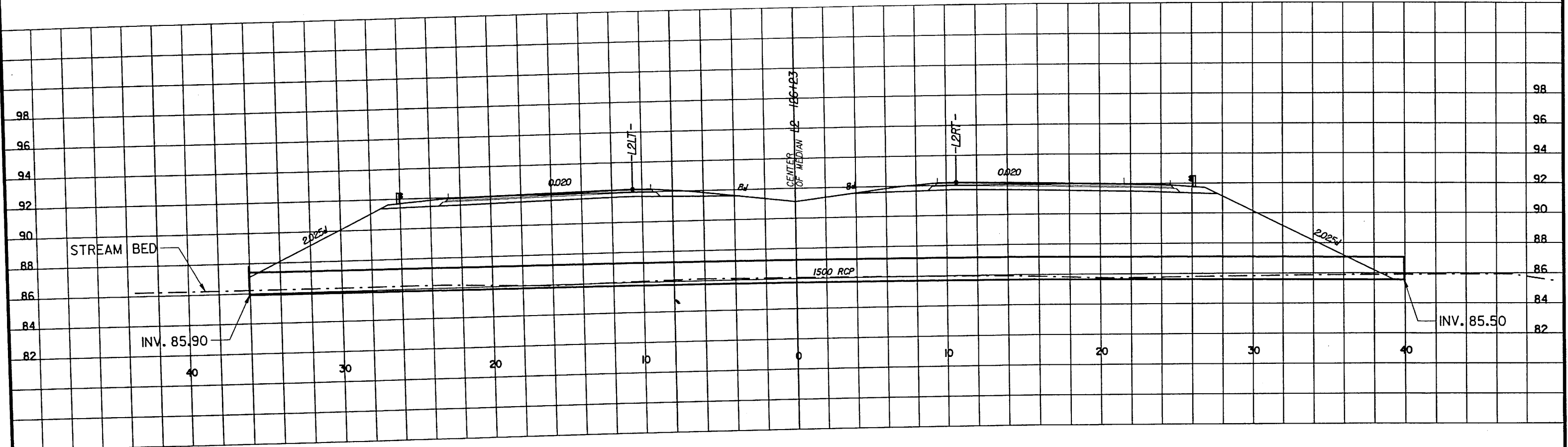
PI = 127+14.997  
 EL = 90.774 m  
 VC = 90 m  
 K = 124



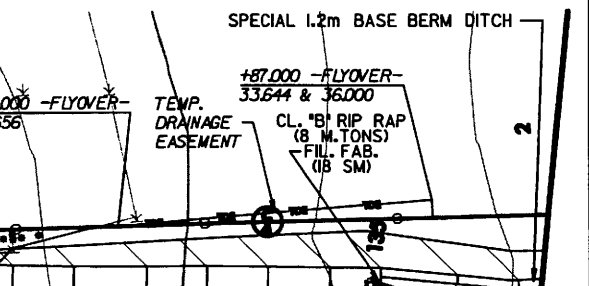
**LOCHNER**  
 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612



# SITE C-5

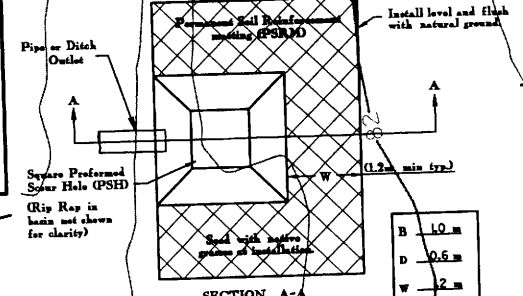


PROFILE OF 1500 RCP  
-L2- STA. 126+23  
PLAN SHEET 9

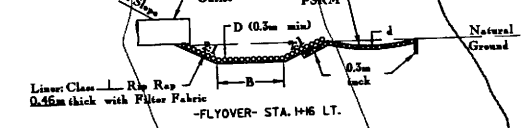


REVISIONS

PREFORMED SCOUR HOLE WITH APRON PLAN VIEW



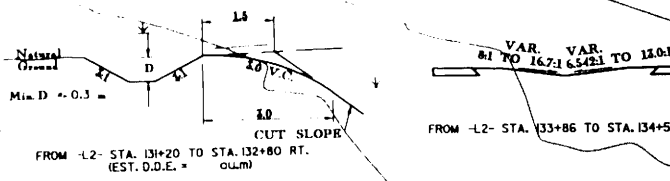
SECTION A-A



ROBERT E JOYNER DB 1523 PG 674

1.3 METER BASE SPECIAL BERM DITCH

SPECIAL MEDIAN DITCH



SCOTT D OVERBEE DB 1335 PG 516

26

+70,000 -L2- 50,000 (164.04 FT)

+25,703 -L2- 55,000 (180.45 FT)

D.A. = 4.7 ha.  
S = 0.33%  
SS = 3:1  
Q2 = 0.65 cms  
V2 = 0.43 M/S  
Q10 = 0.88 cms  
V10 = 0.49 M/S

W J C BLINSON DB 478 PG 26 DB 931 PG 840

30

D.A. = 3.25 ha.  
S = 0.82%  
SS = 3:1  
Q2 = 0.54 cms  
V2 = 0.37 M/S  
Q10 = 0.71 cms  
V10 = 0.40 M/S

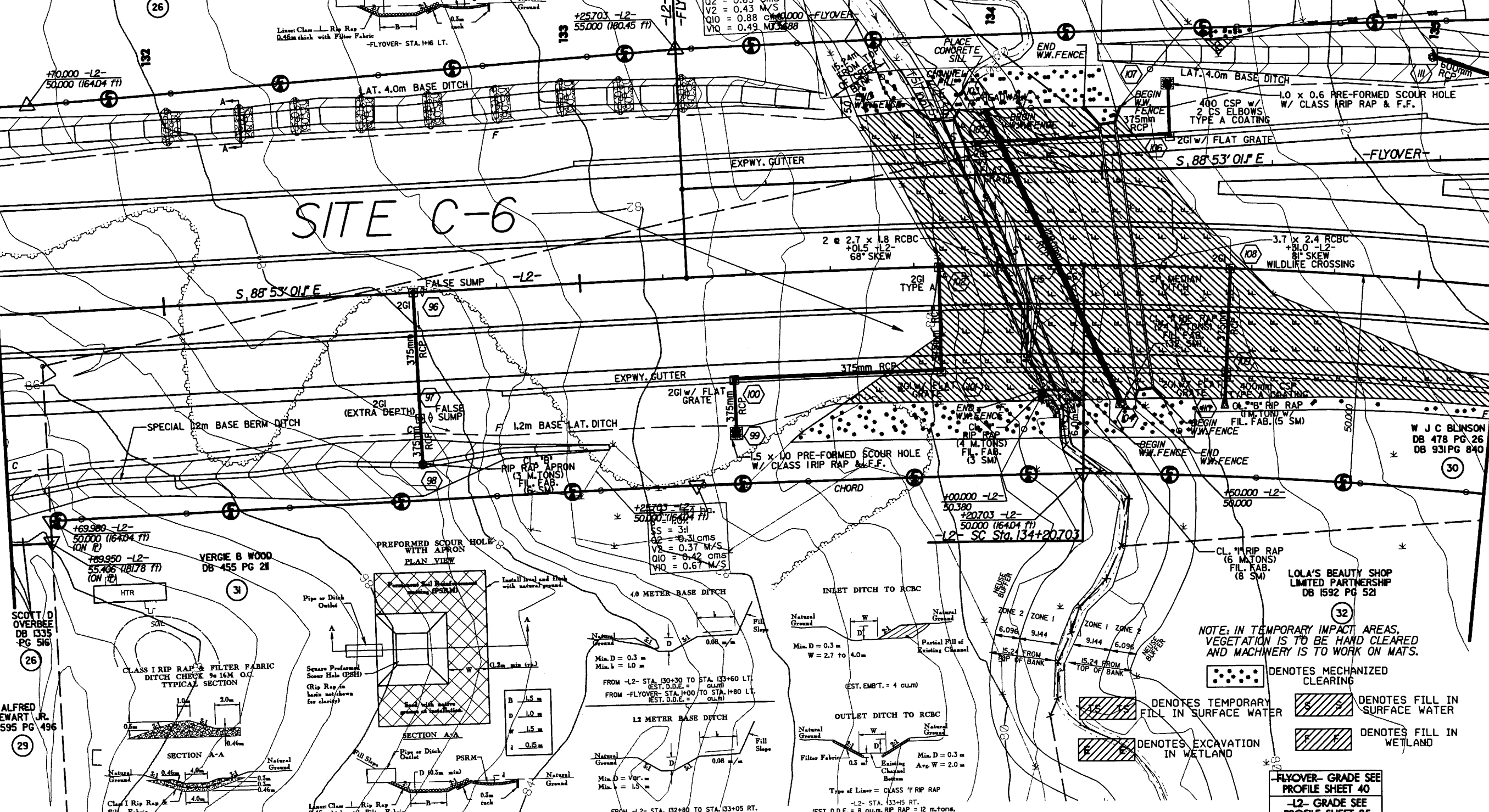
SPECIAL 1.2m BASE BERM DITCH

+87,000 -FLYOVER- 33,644 & 36,000  
TEMP. DRAINAGE EASEMENT  
CL. 'B' RIP RAP (8 M. TONS) FIL. FAB. (8 SM)

# SITE C-6

MATCHLINE -L2- 131 + 60 SEE SHEET 10

MATCHLINE -L2- 135 + 20 SEE SHEET 12



SCOTT D OVERBEE DB 1335 PG 516

26

ALFRED STEWART JR. DB 595 PG 496

29

VERGIE B WOOD DB 455 PG 211

31

LOLA'S BEAUTY SHOP LIMITED PARTNERSHIP DB 1592 PG 521

32

W J C BLINSON DB 478 PG 26 DB 931 PG 840

30

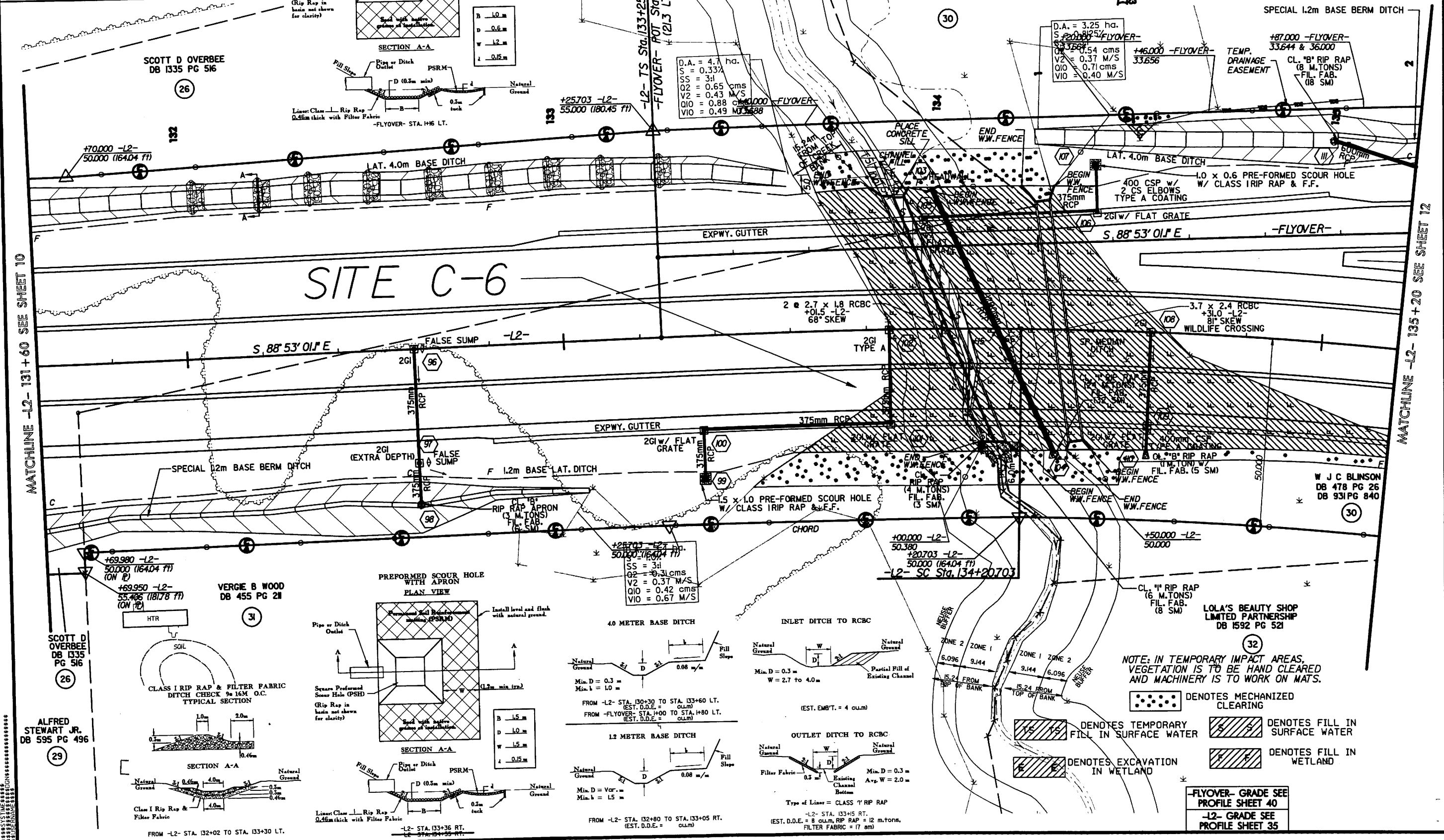
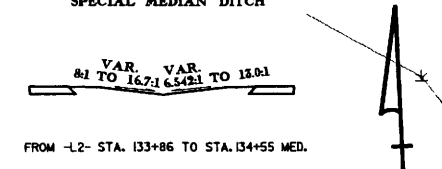
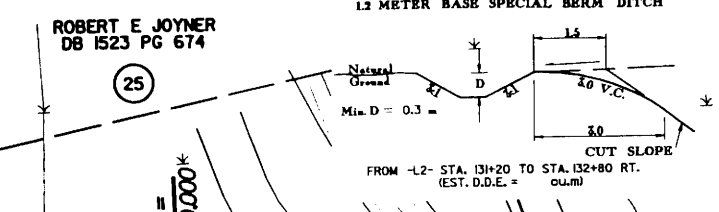
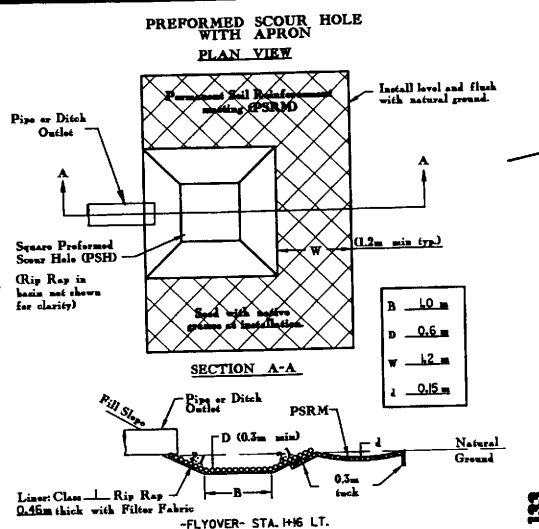
NOTE: IN TEMPORARY IMPACT AREAS, VEGETATION IS TO BE HAND CLEARED AND MACHINERY IS TO WORK ON MATS.

- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY FILL IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN SURFACE WATER
- DENOTES FILL IN WETLAND

FLYOVER- GRADE SEE PROFILE SHEET 40  
-L2- GRADE SEE PROFILE SHEET 35

PROJECT REFERENCE NO.		SHEET NO.	
R-2552C		11	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER		
<b>PRELIMINARY PLANS</b>			
DO NOT USE FOR CONSTRUCTION			
CONST. REV.			
R/W REV.			

REVISIONS	



SCOTT D OVERBEE  
DB 1335 PG 516

ROBERT E JOYNER  
DB 1523 PG 674

W J C BLINSON  
DB 478 PG 26  
DB 931 PG 840

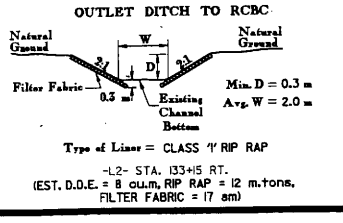
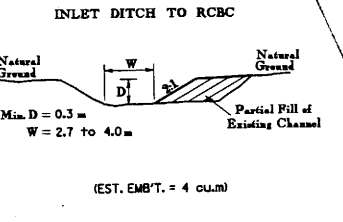
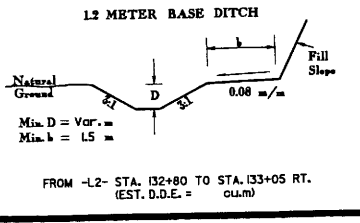
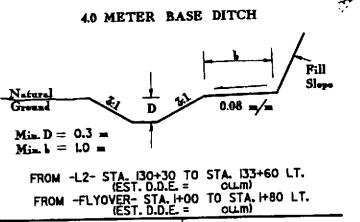
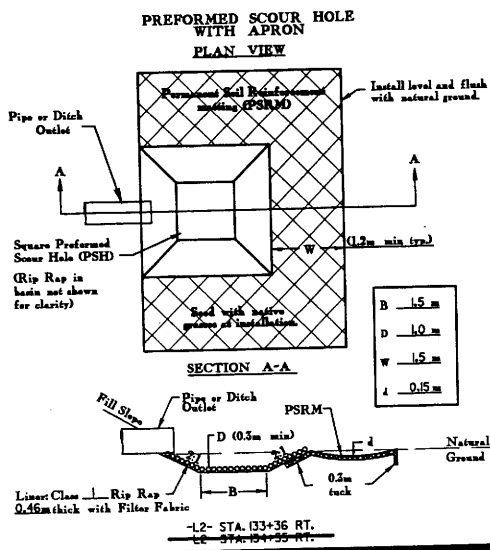
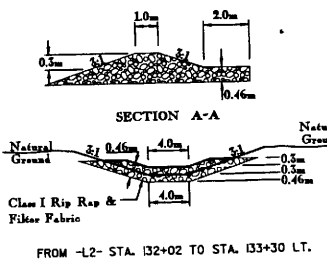
SCOTT D OVERBEE  
DB 1335 PG 516

VERGIE B WOOD  
DB 455 PG 21

ALFRED STEWART JR.  
DB 595 PG 496

LOLA'S BEAUTY SHOP  
LIMITED PARTNERSHIP  
DB 1592 PG 521

CLASS I RIP RAP & FILTER FABRIC  
DITCH CHECK 9x16M O.C.  
TYPICAL SECTION



NOTE: IN TEMPORARY IMPACT AREAS,  
VEGETATION IS TO BE HAND CLEARED  
AND MACHINERY IS TO WORK ON MATS.

- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY FILL IN SURFACE WATER
- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN SURFACE WATER
- DENOTES FILL IN WETLAND

-FLYOVER- GRADE SEE  
PROFILE SHEET 40  
-L2- GRADE SEE  
PROFILE SHEET 35

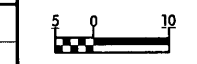
MATCHLINE -L2- 131 + 60 SEE SHEET 10

MATCHLINE -L2- 135 + 20 SEE SHEET 12



# SITE C-6

PIPE HYDRAULIC DATA	
DRAINAGE AREA	= 2.2 SQKM
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 27 CMS
DESIGN HW ELEVATION	= 81.43 M
100 YEAR DISCHARGE	= 30 CMS
100 YEAR HW ELEVATION	= 81.63 M
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING DISCHARGE	= 51.8 CMS
OVERTOPPING ELEVATION	= 83.92 M



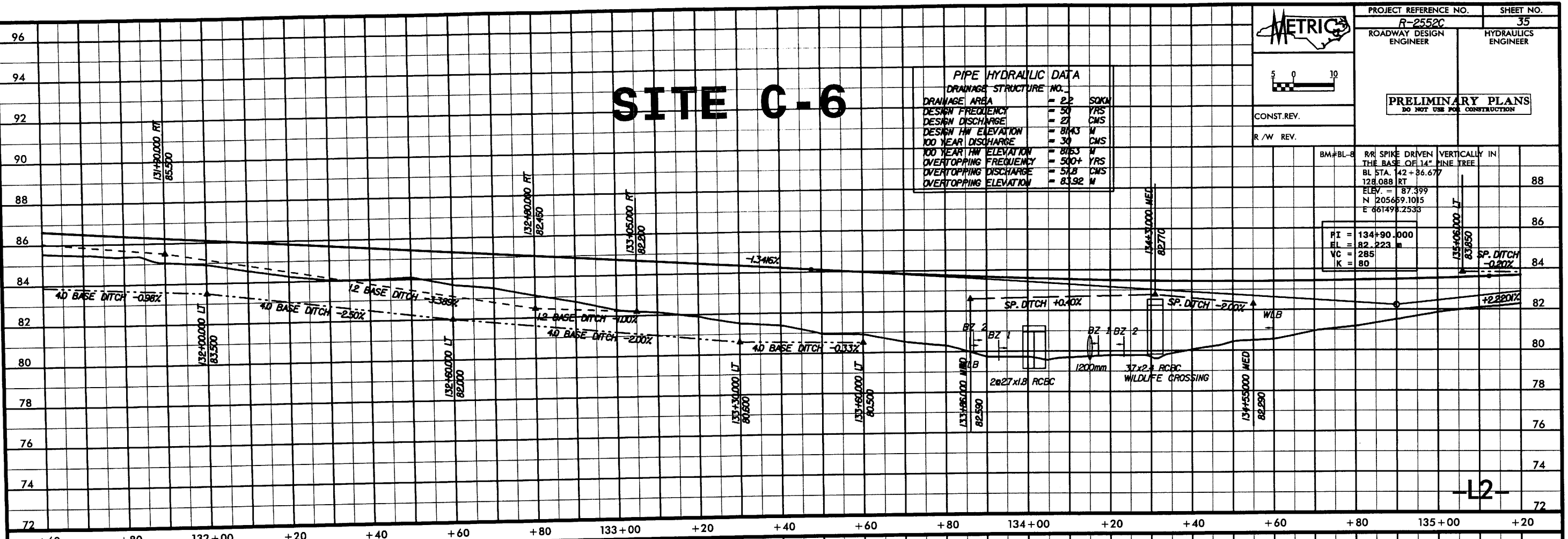
**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

CONST. REV.

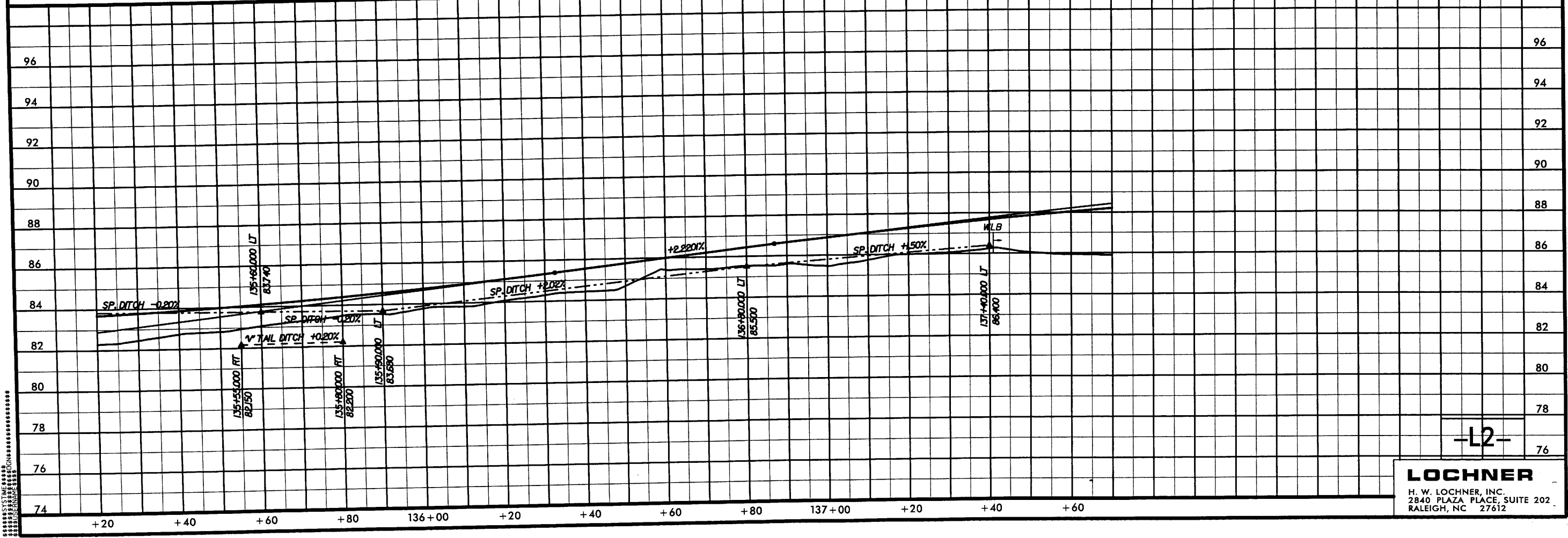
R/W REV.

BM#BL-8 R/R SPIKE DRIVEN VERTICALLY IN THE BASE OF 14" PINE TREE  
 BL STA. 142+86.677  
 128.088 RT  
 ELEV. = 87.399  
 N 205689.1015  
 E 661498.2533

PI = 134+90.000  
 EL = 82.223 m  
 VC = 285  
 K = 80



-L2-

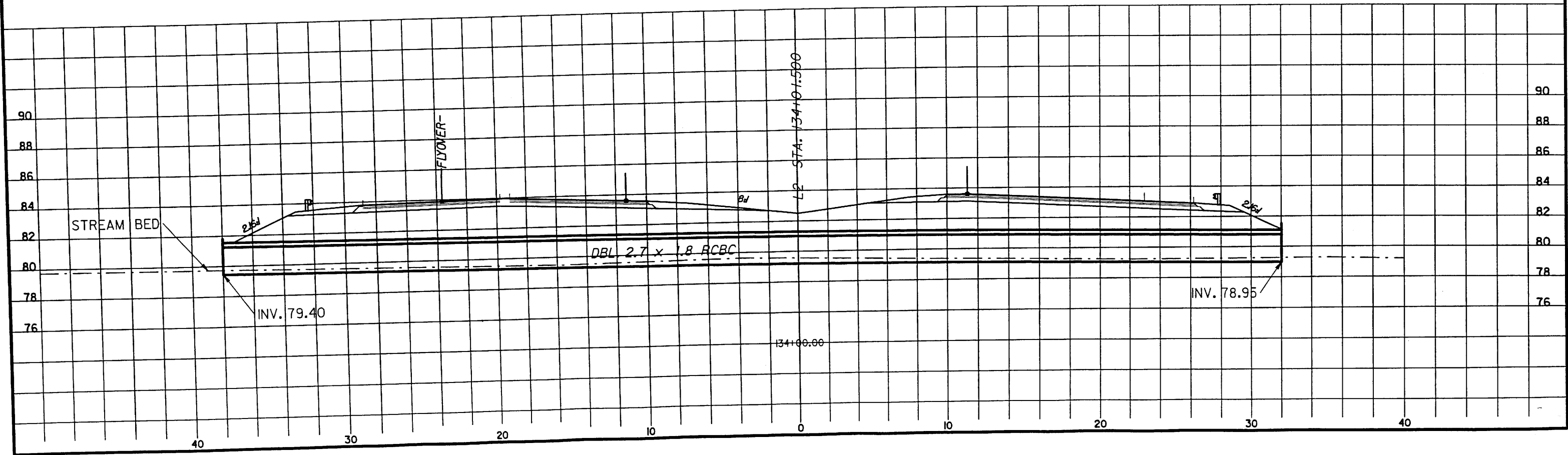


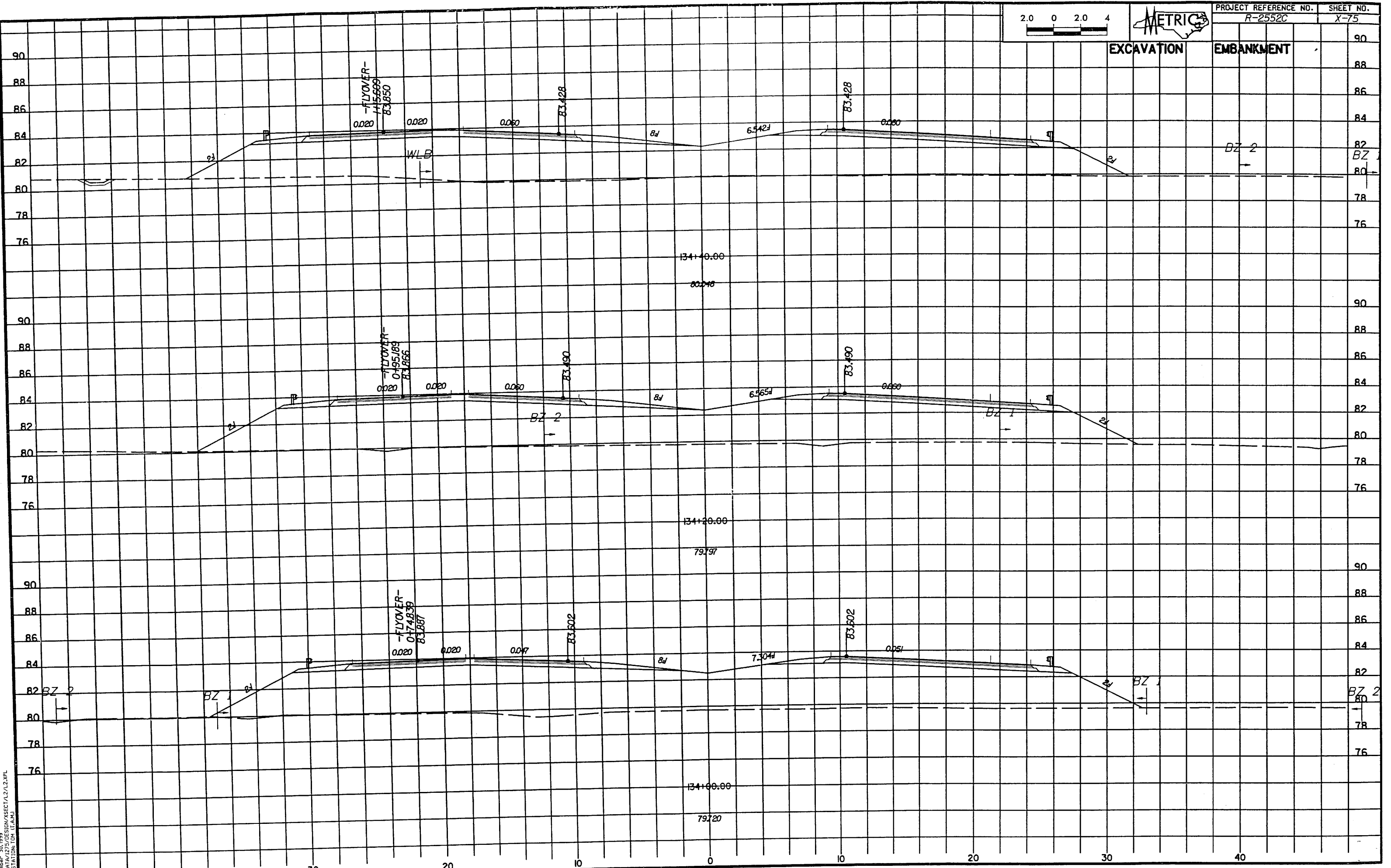
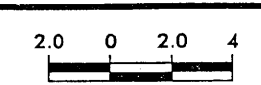
-L2-



# SITE C-6

PROFILE ALONG DBL 2.4 x 1.8 RCBC  
 -L2- STA. 134+01.500  
 PLAN SHEET 11





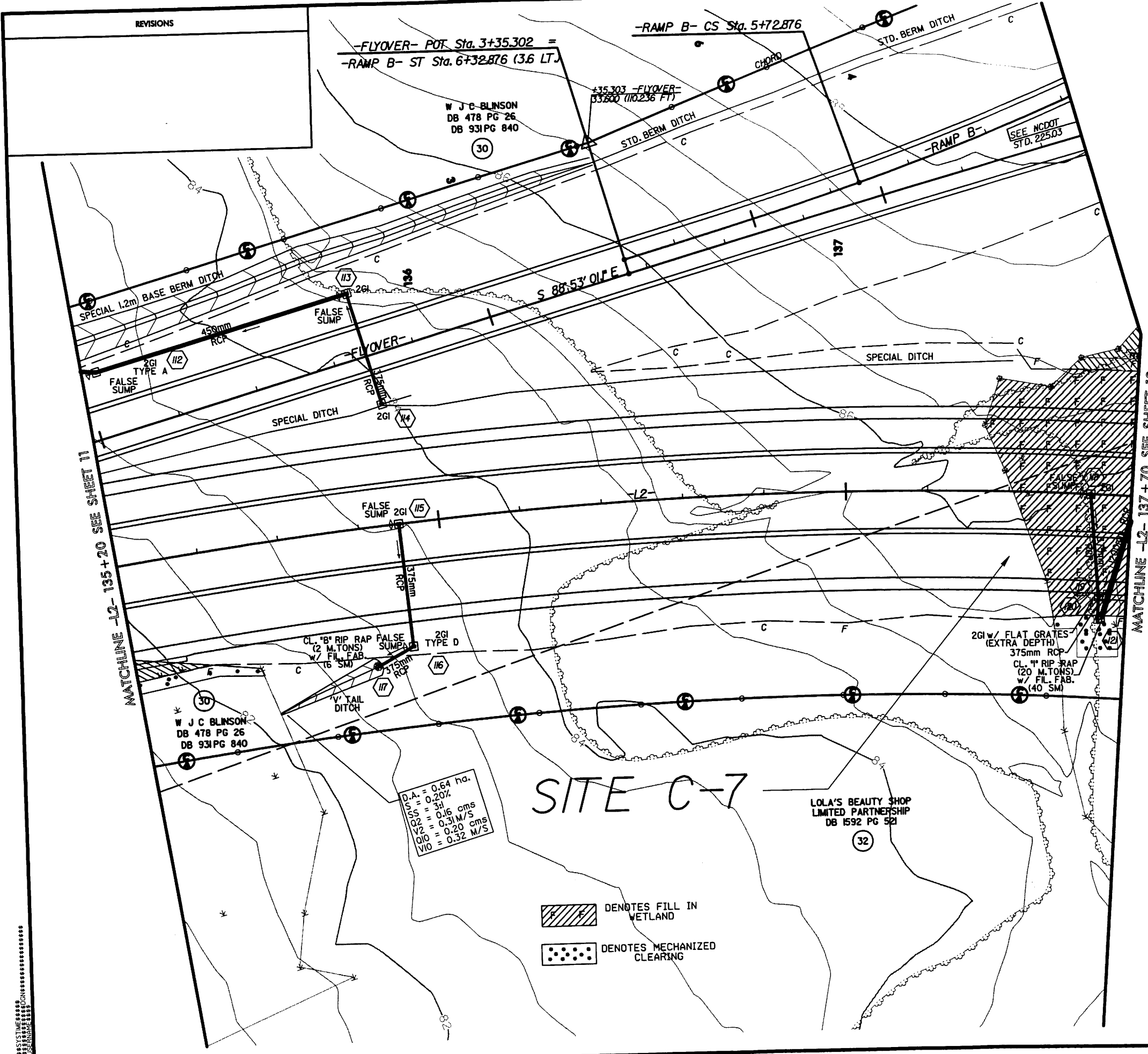
TYPICAL CROSS SECTION (SITE C-G)

December 30, 1999  
 U:\DATA\1275\DESIGN\XSECT\A2\1.2.XPL  
 WORKSTATION: TOM (T.A.M.)

**METRIC**

CONST. REV.  
R/W REV.

PROJECT REFERENCE NO. R-2552C	SHEET NO. 12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



MATCHLINE -L2- 135+20 SEE SHEET 11

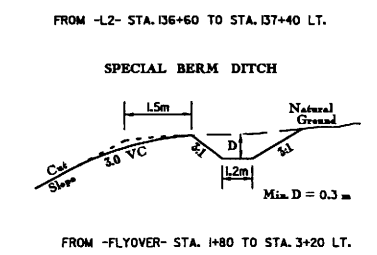
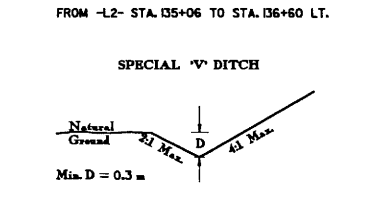
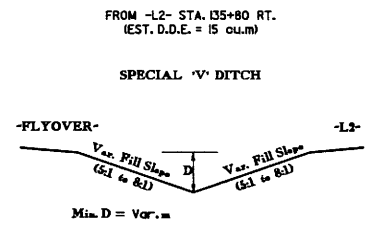
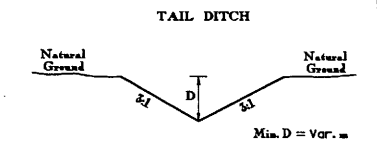
MATCHLINE -L2- 137+70 SEE SHEET 13

REVISIONS

--	--

D.A. = 0.64 ha.  
S = 0.20%  
SS = 3h  
Q2 = 0.16 cms  
V2 = 0.31 M/S  
Q10 = 0.20 cms  
V10 = 0.32 M/S

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

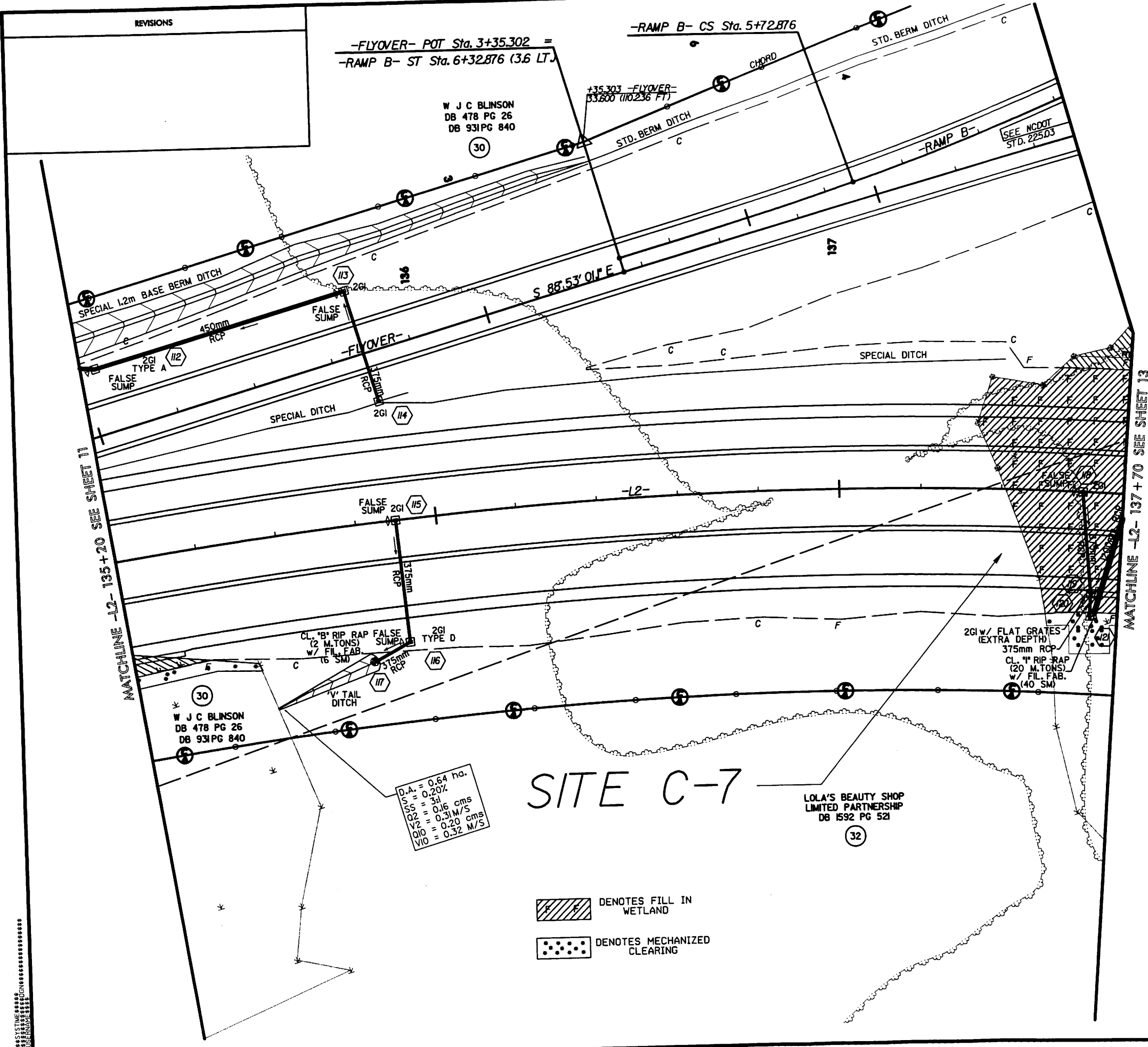


FROM -FLYOVER- STA. 1+80 TO STA. 3+20 LT.

-RAMP B- GRADE SEE PROFILE SHEET 45  
-FLYOVER- GRADE SEE PROFILE SHEET 40  
-L2- GRADE SEE PROFILE SHEET 35

\*\*\*\*\*SYTIME\*\*\*\*\*  
\*\*\*\*\*PLANNING\*\*\*\*\*  
\*\*\*\*\*DESIGN\*\*\*\*\*  
\*\*\*\*\*CONSTRUCTION\*\*\*\*\*

PROJECT REFERENCE NO. R-2552C		SHEET NO. 12	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
CONST. REV.			
R/W REV.			



REVISIONS	

MATCHLINE -L2- 135+20 SEE SHEET 11

MATCHLINE -L2- 137+70 SEE SHEET 13

D.A. = 0.64 ha.  
S = 0.20%  
SS = 3h  
Q2 = 0.16 cms  
V2 = 0.31 M/S  
Q10 = 0.20 cms  
V10 = 0.32 M/S

- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING

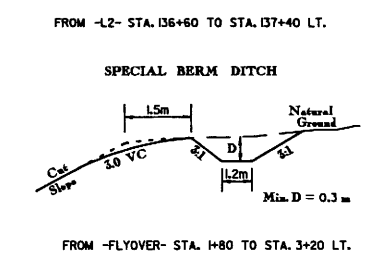
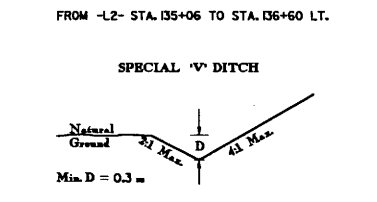
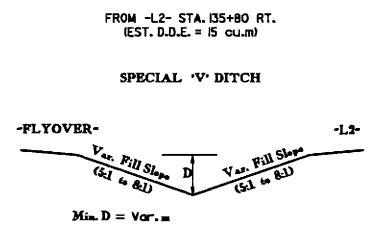
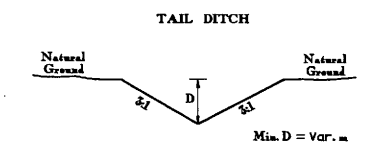
SITE C-7

LOLA'S BEAUTY SHOP  
LIMITED PARTNERSHIP  
DB 1592 PG 521

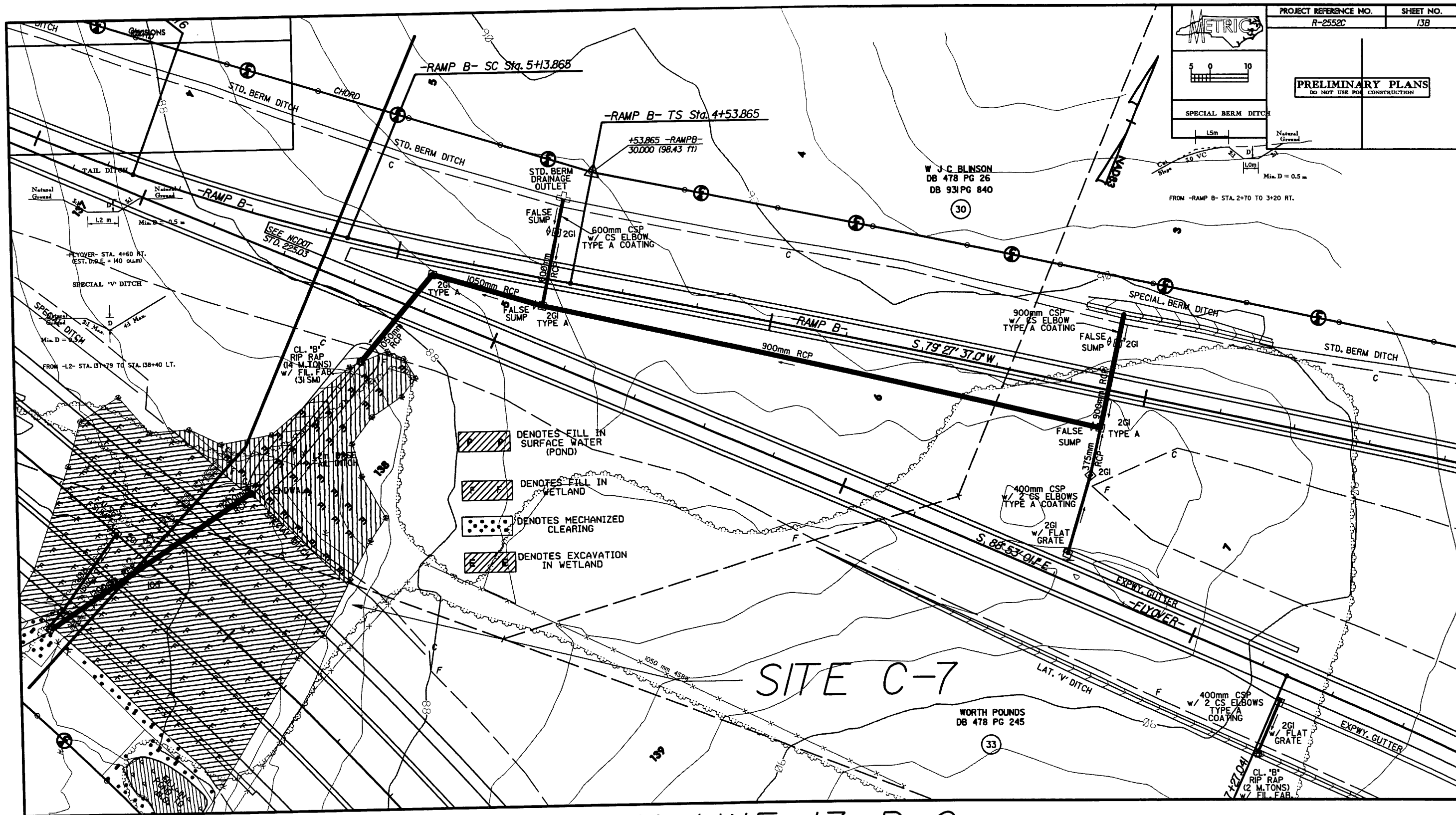
W J C BLINSON  
DB 478 PG 26  
DB 931 PG 840

CL. 18" RIP RAP FALSE SUMP  
w/ FIL. FAB.  
(16 SM)

2GI w/ FLAT GRATES  
(EXTRA DEPTH)  
375mm RCP  
CL. 18" RIP RAP  
(20 M.TONS)  
w/ FIL. FAB.  
(40 SM)

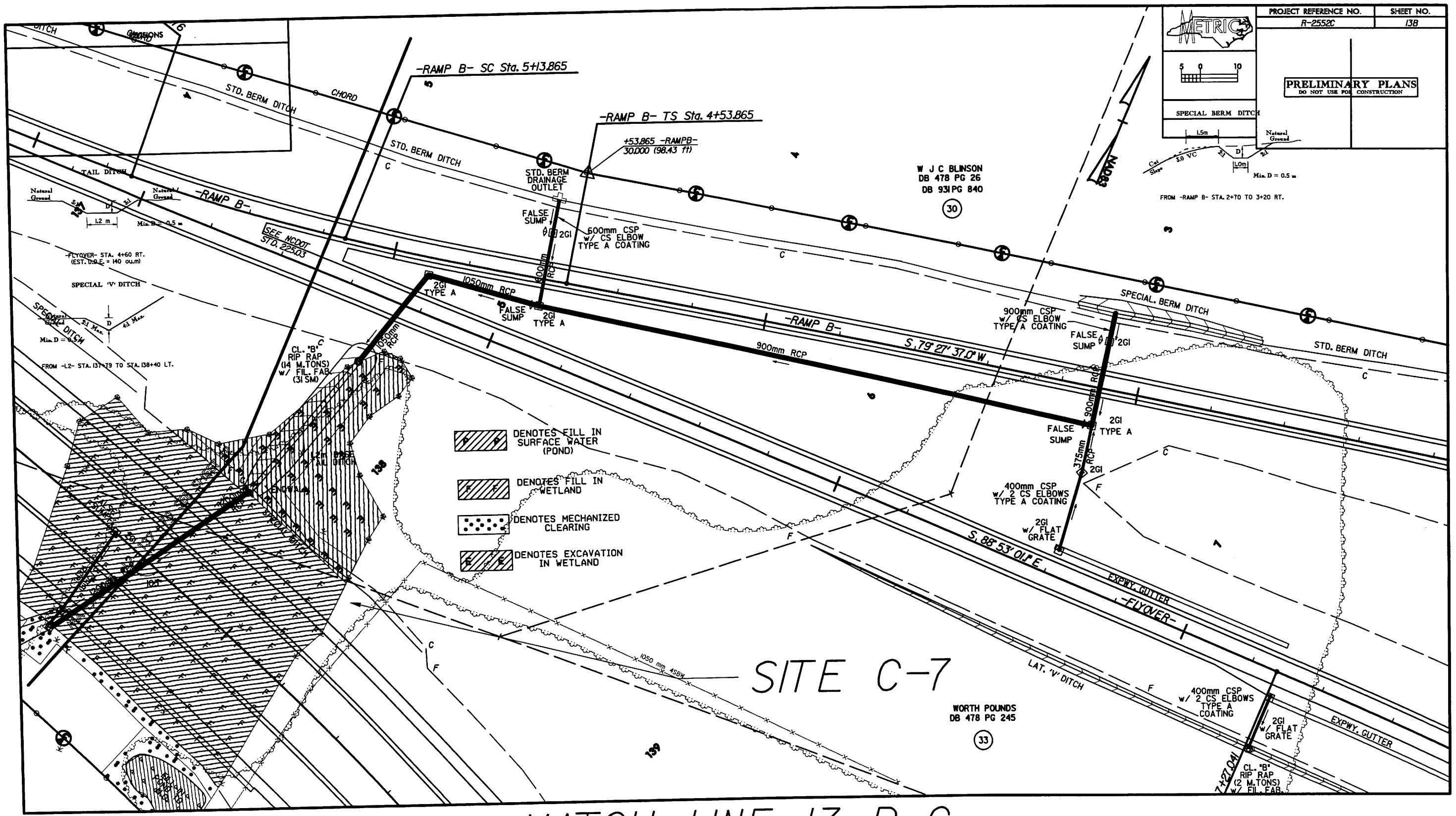


-RAMP B- GRADE SEE PROFILE SHEET 45  
-FLYOVER- GRADE SEE PROFILE SHEET 40  
-L2- GRADE SEE PROFILE SHEET 35



MATCH LINE 13 B-C

MATCH LINE 13 A-B



	PROJECT REFERENCE NO.	SHEET NO.
	R-2552C	13B
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION		

SPECIAL BERM DITCH  
 1.5m  
 Natural Ground  
 Min. D = 0.5 m  
 FROM -RAMP B- STA. 2+70 TO 3+20 RT.

- DENOTES FILL IN SURFACE WATER (POND)
- DENOTES FILL IN WETLAND
- DENOTES MECHANIZED CLEARING
- DENOTES EXCAVATION IN WETLAND


MATCH LINE 13 A-B

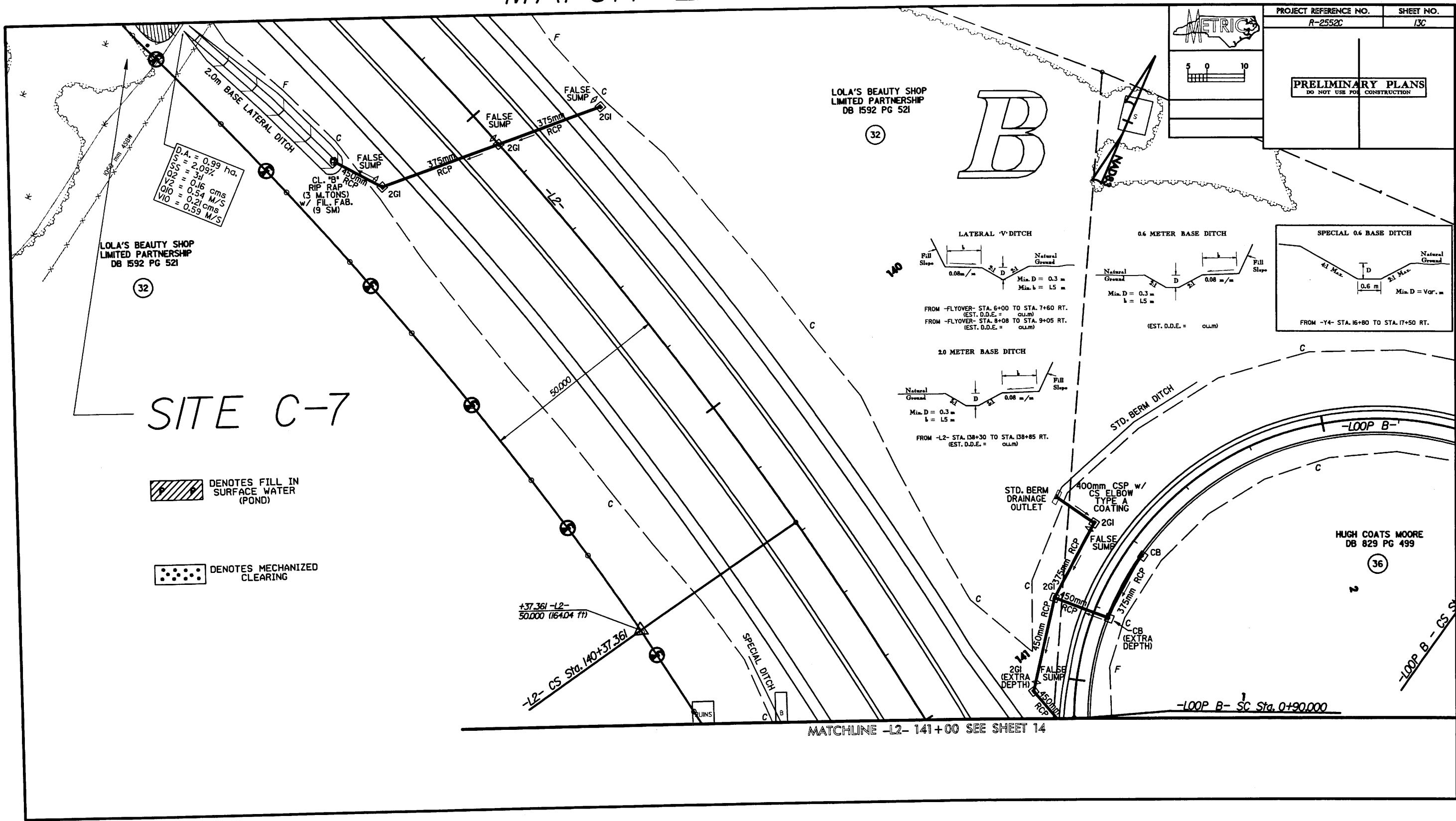
MATCH LINE 13 B-C

SITE C-7



# MATCH LINE 13 B-C

	PROJECT REFERENCE NO.	SHEET NO.
	R-2552C	13C
<b>PRELIMINARY PLANS</b> <small>DO NOT USE FOR CONSTRUCTION</small>		



D.A. = 0.99 ha.  
 S = 2.09%  
 Q<sub>2</sub> = 3 l/s  
 V<sub>2</sub> = 0.16 cms  
 Q<sub>10</sub> = 0.54 M/S  
 V<sub>10</sub> = 0.21 cms  
 V<sub>10</sub> = 0.59 M/S

LOLA'S BEAUTY SHOP  
 LIMITED PARTNERSHIP  
 DB 1592 PG 521

32

SITE C-7

 DENOTES FILL IN SURFACE WATER (POND)

 DENOTES MECHANIZED CLEARING

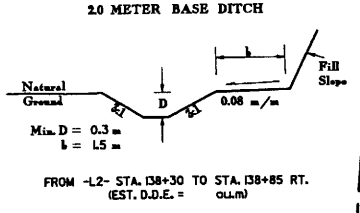
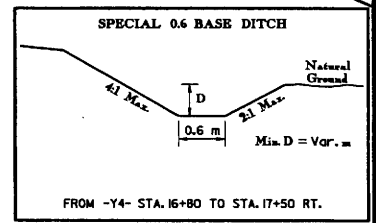
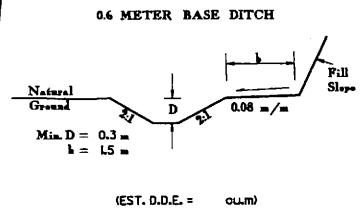
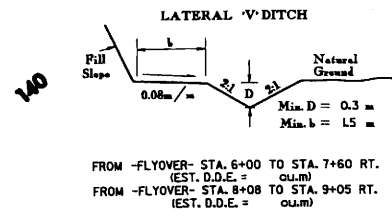
+37.361 -L2-  
 50.000 (164.04 FT)

-L2- CS Sta. 140+37.361

LOLA'S BEAUTY SHOP  
 LIMITED PARTNERSHIP  
 DB 1592 PG 521

32

B



STD. BERM DRAINAGE OUTLET

400mm CSP w/  
 CS ELBOW  
 TYPE A  
 COATING

2GI

FALSE SUMP

2GI

450mm RCP

375mm RCP

CB (EXTRA DEPTH)

FALSE SUMP

450mm RCP

2GI (EXTRA DEPTH)

HUGH COATS MOORE  
 DB 829 PG 499

36

-LOOP B- SC Sta. 0+90.000

MATCHLINE -L2- 141+00 SEE SHEET 14

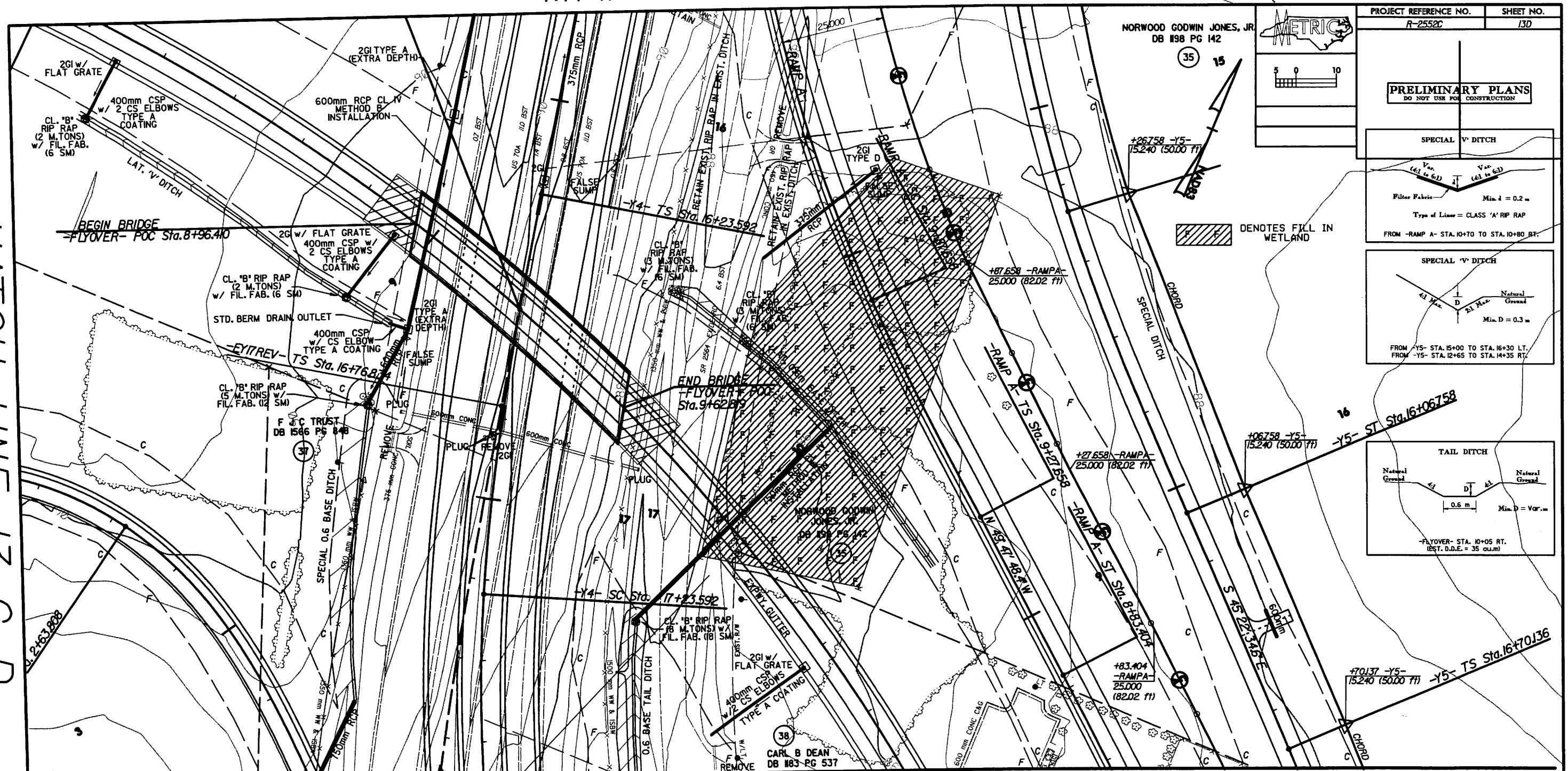
MATCH LINE 13 C-D



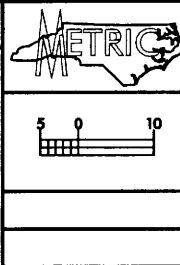


# MATCH LINE 13 A-D

MATCH LINE 13 C-D

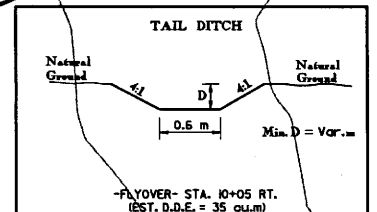
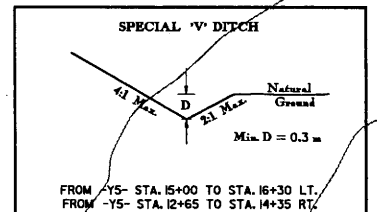
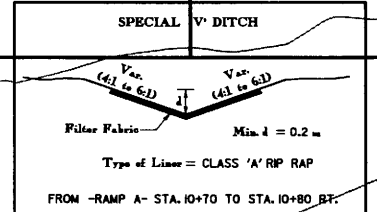


NORWOOD GODWIN JONES, JR.  
DB #98 PG 142



PROJECT REFERENCE NO. R-2552C	SHEET NO. 13D
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**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION



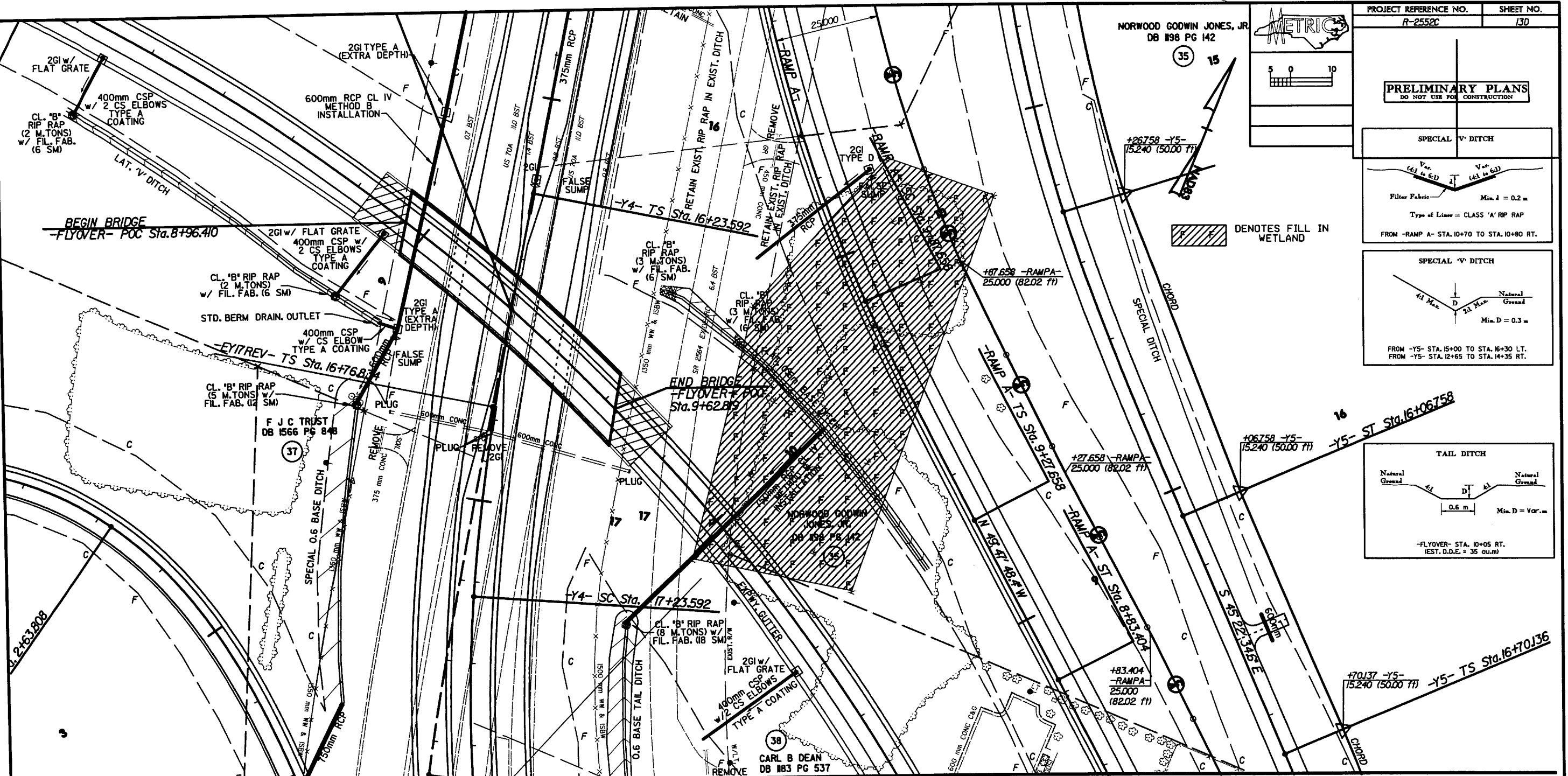
SITE C-8

MATCH LINE 14 A

-Y4- GRADE SEE PROFILE SHEET 55	-RAMP A- GRADE SEE PROFILE SHEETS 43,44	-LOOP B- GRADE SEE PROFILE SHEET 45
-FLYOVER- GRADE SEE PROFILE SHEETS 40,41	-Y5- GRADE SEE PROFILE SHEET 58	-RAMP B- GRADE SEE PROFILE SHEETS 44,45
		-L2- GRADE SEE PROFILE SHEET 36

# MATCH LINE 13 A-D

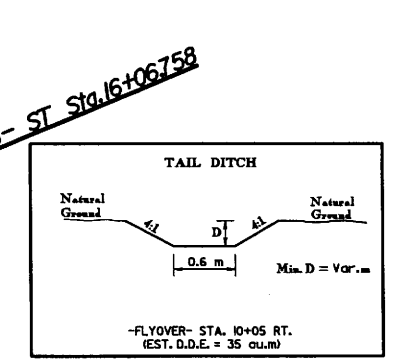
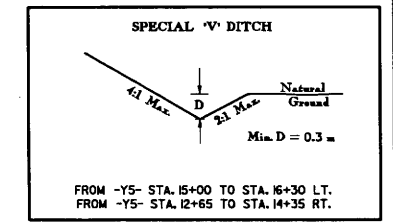
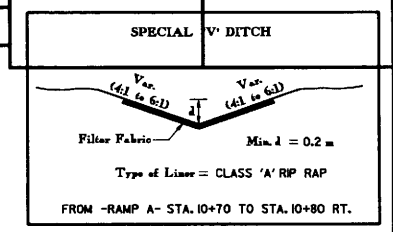
MATCH LINE 13 C-D



**METRIC**

PROJECT REFERENCE NO.	SHEET NO.
R-2552C	13D

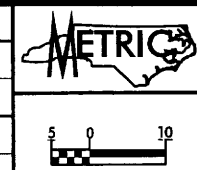
**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION



SITE C-8

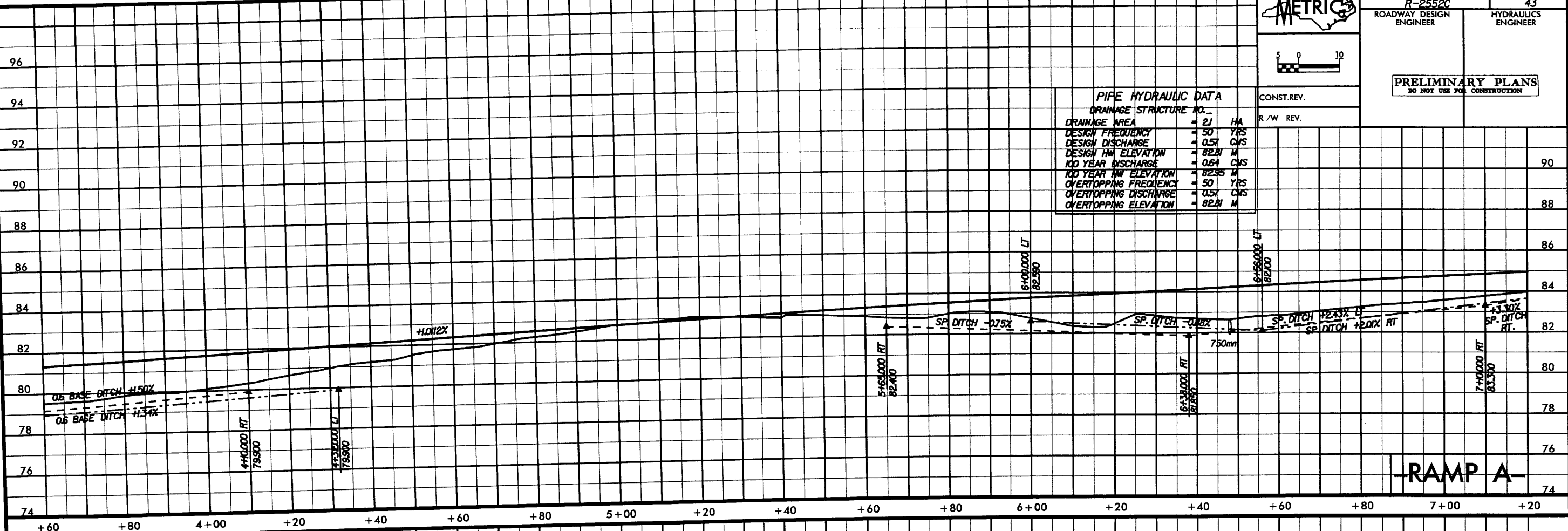
MATCH LINE 14 A

-Y4- GRADE SEE PROFILE SHEET 55	-RAMP A- GRADE SEE PROFILE SHEETS 43,44	-LOOP B- GRADE SEE PROFILE SHEET 45
-FLYOVER- GRADE SEE PROFILE SHEETS 40,41	-Y5- GRADE SEE PROFILE SHEET 58	-RAMP B- GRADE SEE PROFILE SHEETS 44,45
		-L2- GRADE SEE PROFILE SHEET 36



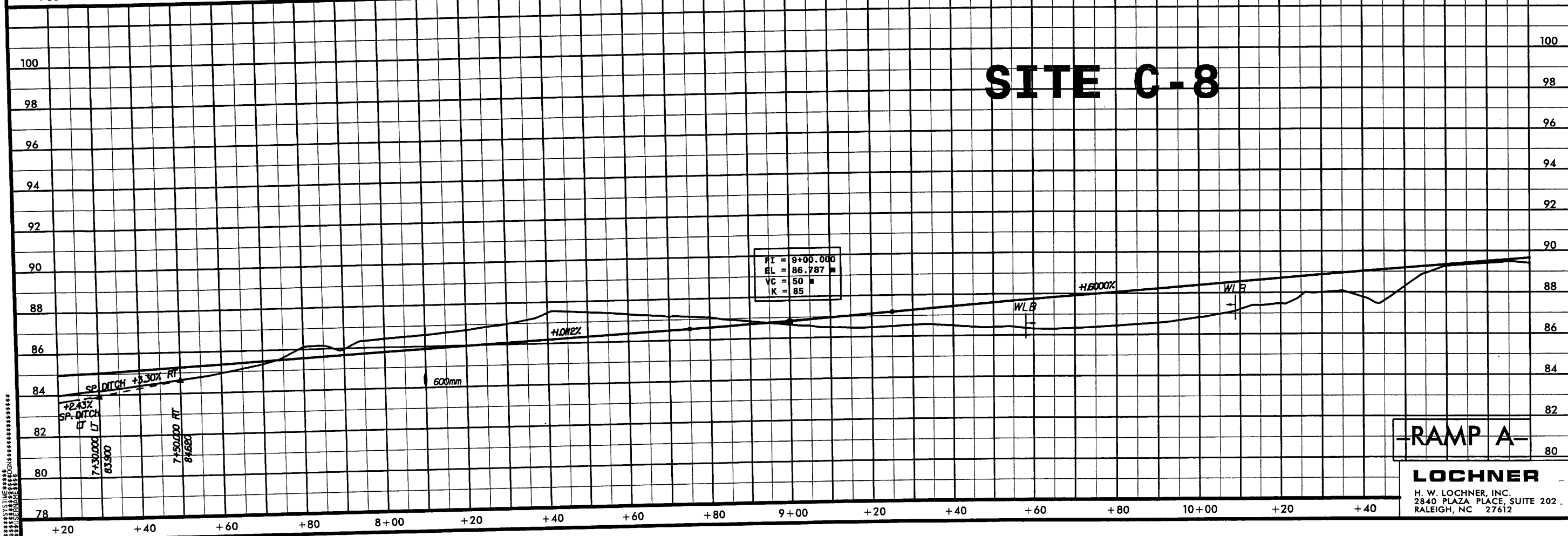
PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	21
DRAINAGE AREA	21 HA
DESIGN FREQUENCY	50 YRS
DESIGN DISCHARGE	0.57 CMS
DESIGN HW ELEVATION	82.81 M
100 YEAR DISCHARGE	0.64 CMS
100 YEAR HW ELEVATION	82.95 M
OVERTOPPING FREQUENCY	50 YRS
OVERTOPPING DISCHARGE	0.57 CMS
OVERTOPPING ELEVATION	82.81 M

CONST. REV.  
R/W REV.



**RAMP A**

# SITE C-8

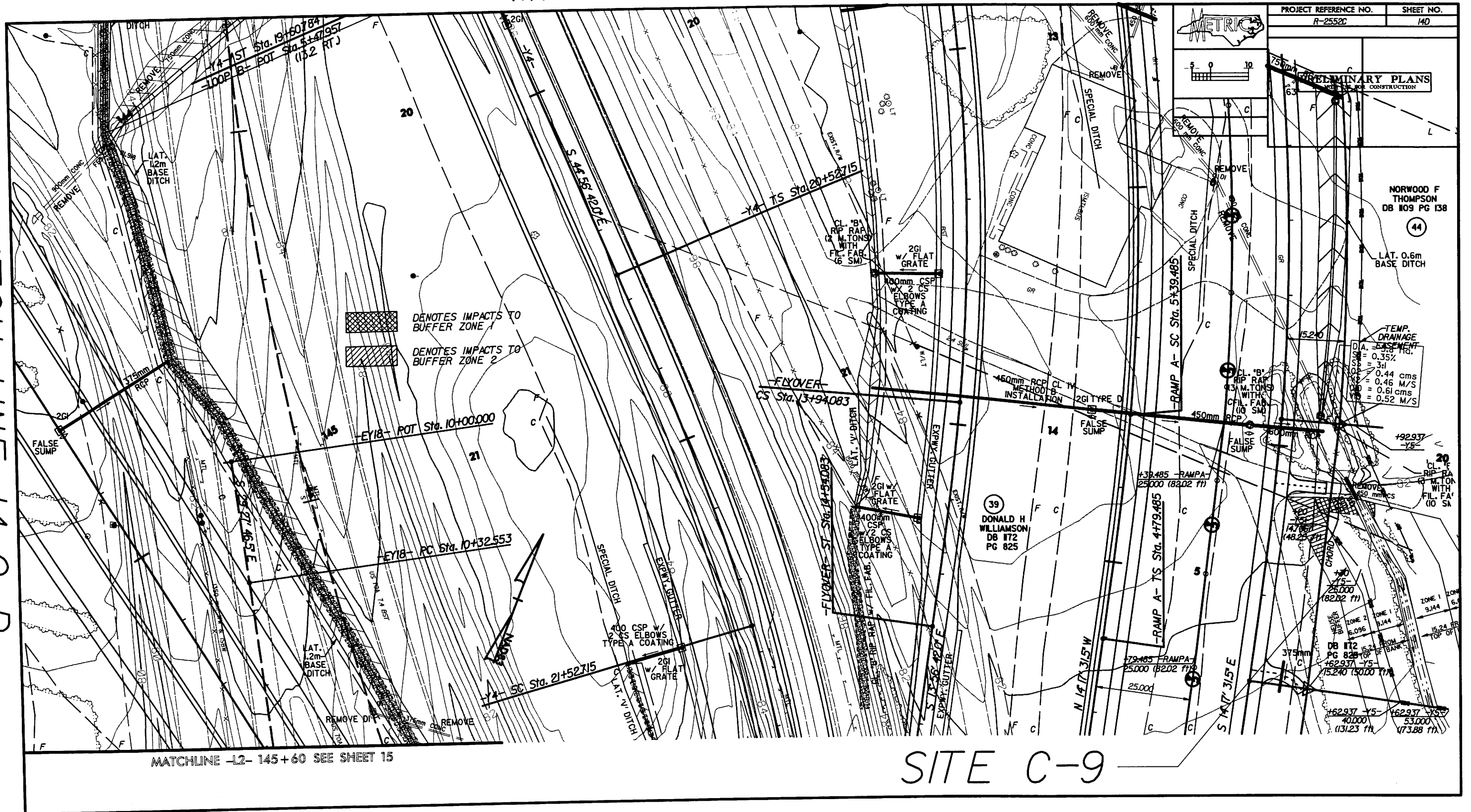


**RAMP A**

**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

# MATCH LINE 14 A-D

MATCH LINE 14 C-D



MATCHLINE -L2- 145+60 SEE SHEET 15

SITE C-9

PROJECT REFERENCE NO. R-2552C		SHEET NO. 140	
<b>PRELIMINARY PLANS</b> CONSTRUCTION			

NORWOOD F THOMPSON  
DB #09 PG 138  
LAT. 0.6m  
BASE DITCH

TEMP. DRAINAGE  
D.A. 5.38  
S = 0.35%  
V = 0.44 cms  
V = 0.46 M/S  
V = 0.61 cms  
V = 0.52 M/S

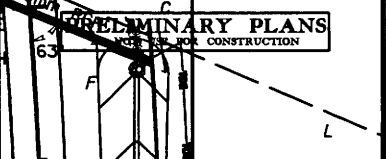
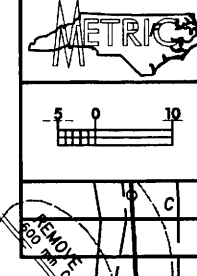
39  
DONALD H WILLIAMSON  
DB #72  
PG 825

DB #72  
PG 825  
15240 (15000 ft)  
162937 -Y5-  
40000  
162937 -Y5-  
53000  
17388 ft

# MATCH LINE 14 A-D

MATCH LINE 14 C-D

PROJECT REFERENCE NO.	SHEET NO.
R-2552C	140



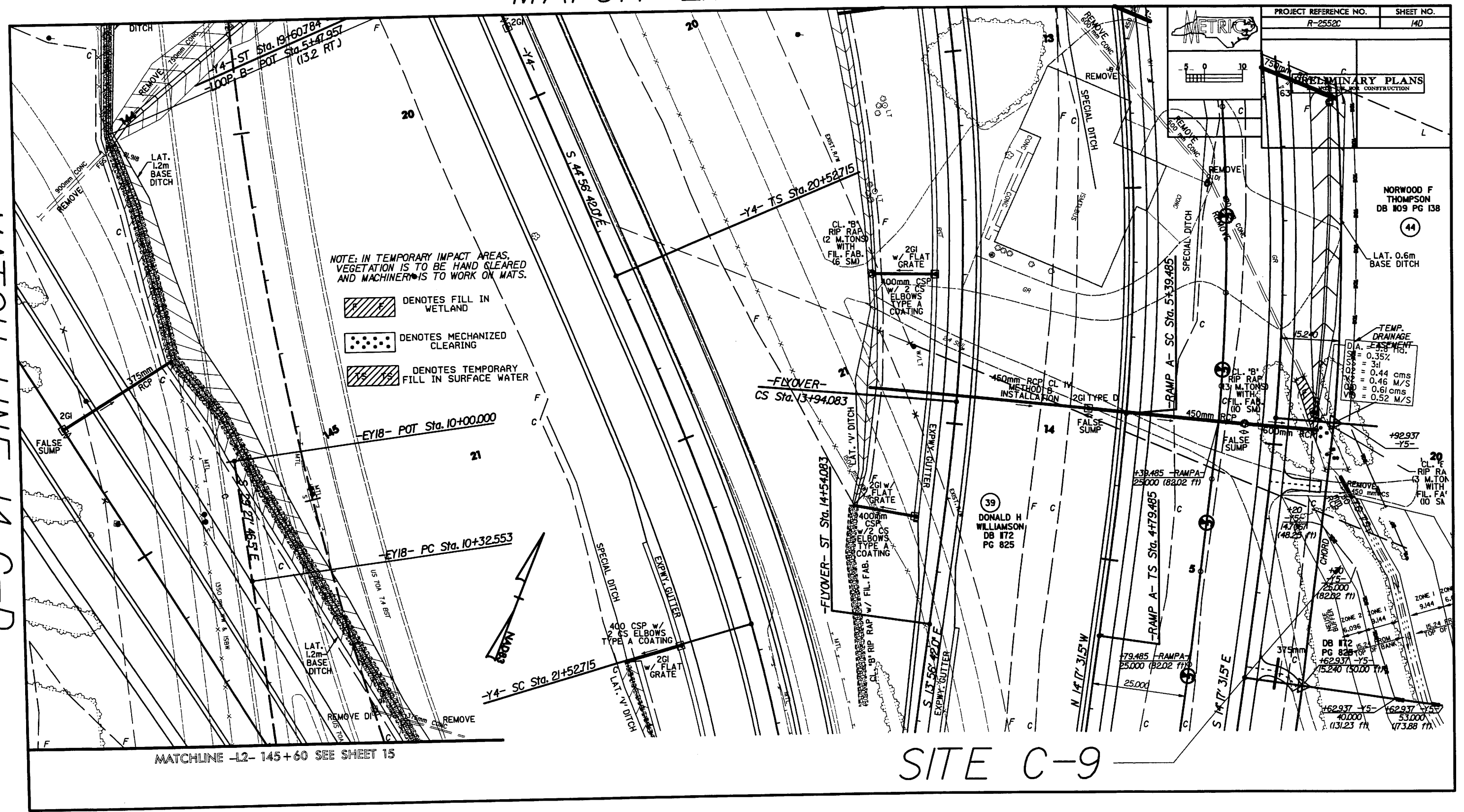
NORWOOD F THOMPSON  
DB #09 PG 138  
LAT. 0.6m  
BASE DITCH

TEMP. DRAINAGE EASEMENT  
D.A. = 3.8%  
S = 0.35%  
S = 3.1%  
S = 0.44 cms  
S = 0.46 M/S  
S = 0.61 cms  
S = 0.52 M/S

- NOTE: IN TEMPORARY IMPACT AREAS, VEGETATION IS TO BE HAND CLEARED AND MACHINERY IS TO WORK ON MATS.
- DENOTES FILL IN WETLAND
  - DENOTES MECHANIZED CLEARING
  - DENOTES TEMPORARY FILL IN SURFACE WATER

MATCHLINE -L2- 145+60 SEE SHEET 15

SITE C-9



# SITE C-9



PROJECT REFERENCE NO. **R-2552C**  
ROADWAY DESIGN ENGINEER

SHEET NO. **59**  
HYDRAULICS ENGINEER

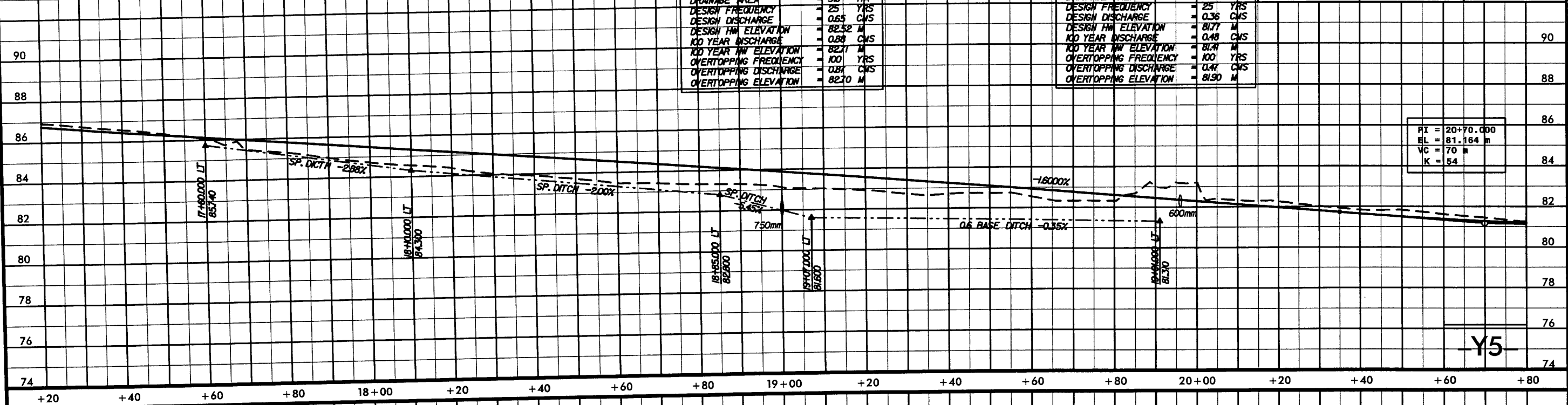
**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 1	
DRAINAGE AREA	= 3.0 HA
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 0.65 CMS
DESIGN HW ELEVATION	= 82.52 M
100 YEAR DISCHARGE	= 0.88 CMS
100 YEAR HW ELEVATION	= 82.71 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 0.81 CMS
OVERTOPPING ELEVATION	= 82.70 M

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 2	
DRAINAGE AREA	= 12 HA
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 0.36 CMS
DESIGN HW ELEVATION	= 81.77 M
100 YEAR DISCHARGE	= 0.48 CMS
100 YEAR HW ELEVATION	= 81.4 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 0.41 CMS
OVERTOPPING ELEVATION	= 81.90 M

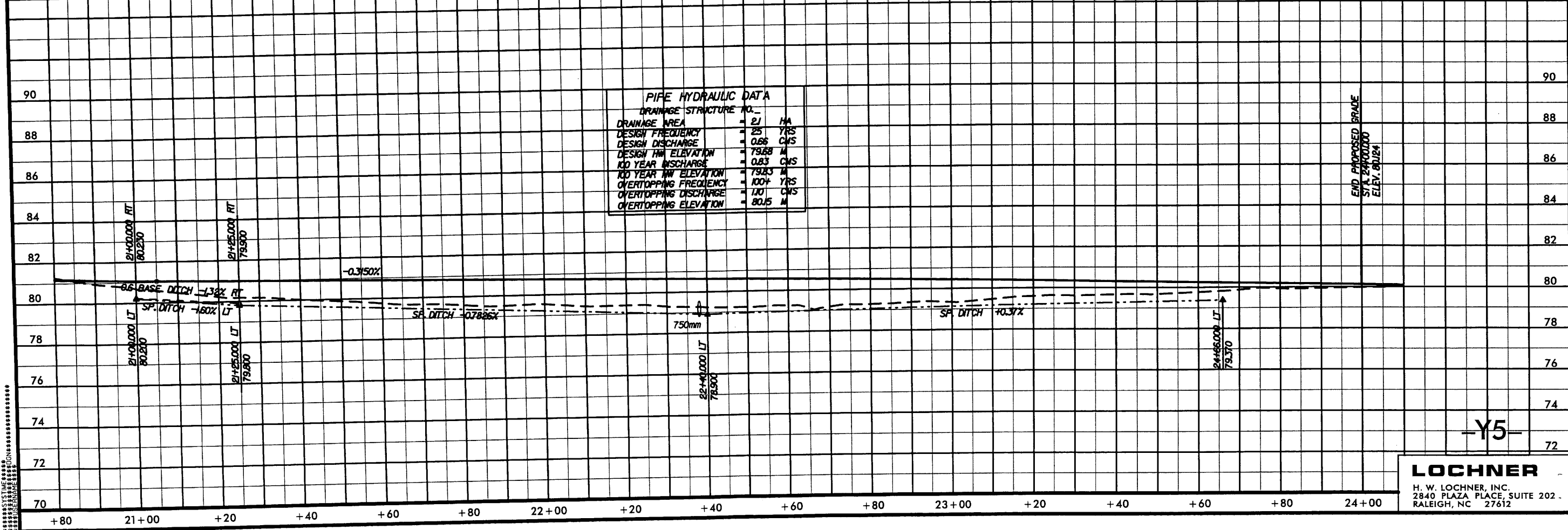
CONST. REV.  
R/W REV.

PI = 20+70.000  
EL = 81.164 m  
VC = 70 m  
K = 54



PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 3	
DRAINAGE AREA	= 21 HA
DESIGN FREQUENCY	= 25 YRS
DESIGN DISCHARGE	= 0.66 CMS
DESIGN HW ELEVATION	= 79.68 M
100 YEAR DISCHARGE	= 0.83 CMS
100 YEAR HW ELEVATION	= 79.83 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 1.10 CMS
OVERTOPPING ELEVATION	= 80.15 M

END PROPOSED GRADE  
STA 24+00.000  
ELEV. 80.124



**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612





# SITE C-12





PROJECT REFERENCE NO. R-2552C SHEET NO. 16B



**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

LAT. 2.4m  
BASE  
DITCH

NOTE: IN TEMPORARY IMPACT AREAS,  
VEGETATION IS TO BE HAND CLEARED  
AND MACHINERY IS TO WORK ON MATS.

-  DENOTES MECHANIZED CLEARING
-  DENOTES TEMPORARY FILL IN SURFACE WATER
-  DENOTES FILL IN SURFACE WATER
-  DENOTES FILL IN WETLAND

# SITE C-10

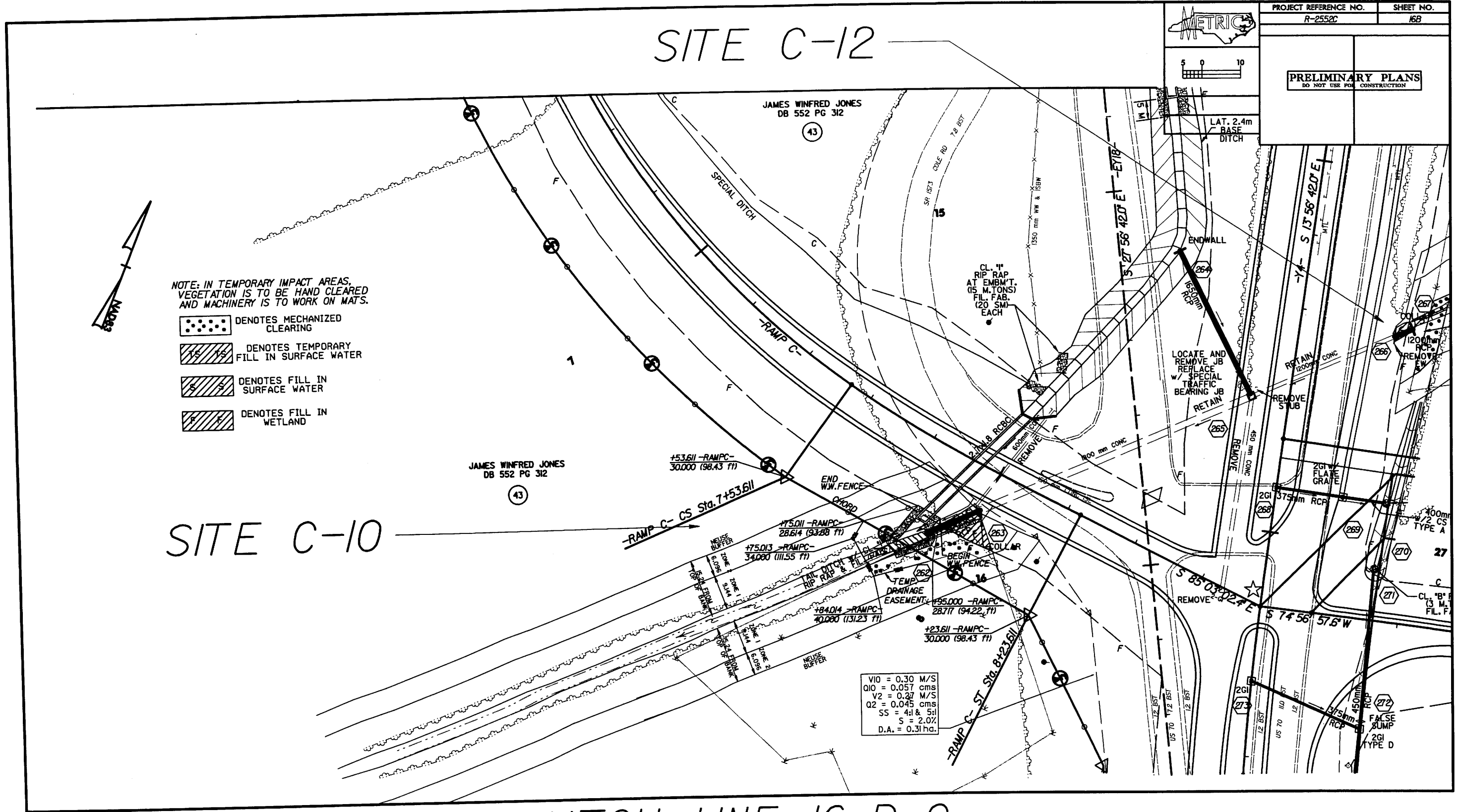
JAMES WINFRED JONES  
DB 552 PG 312

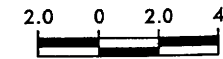
JAMES WINFRED JONES  
DB 552 PG 312

V10 = 0.30 M/S  
Q10 = 0.057 cms  
V2 = 0.27 M/S  
Q2 = 0.045 cms  
SS = 4:1 & 5:1  
S = 2.0%  
D.A. = 0.31 hd.

MATCH LINE 16 A-B

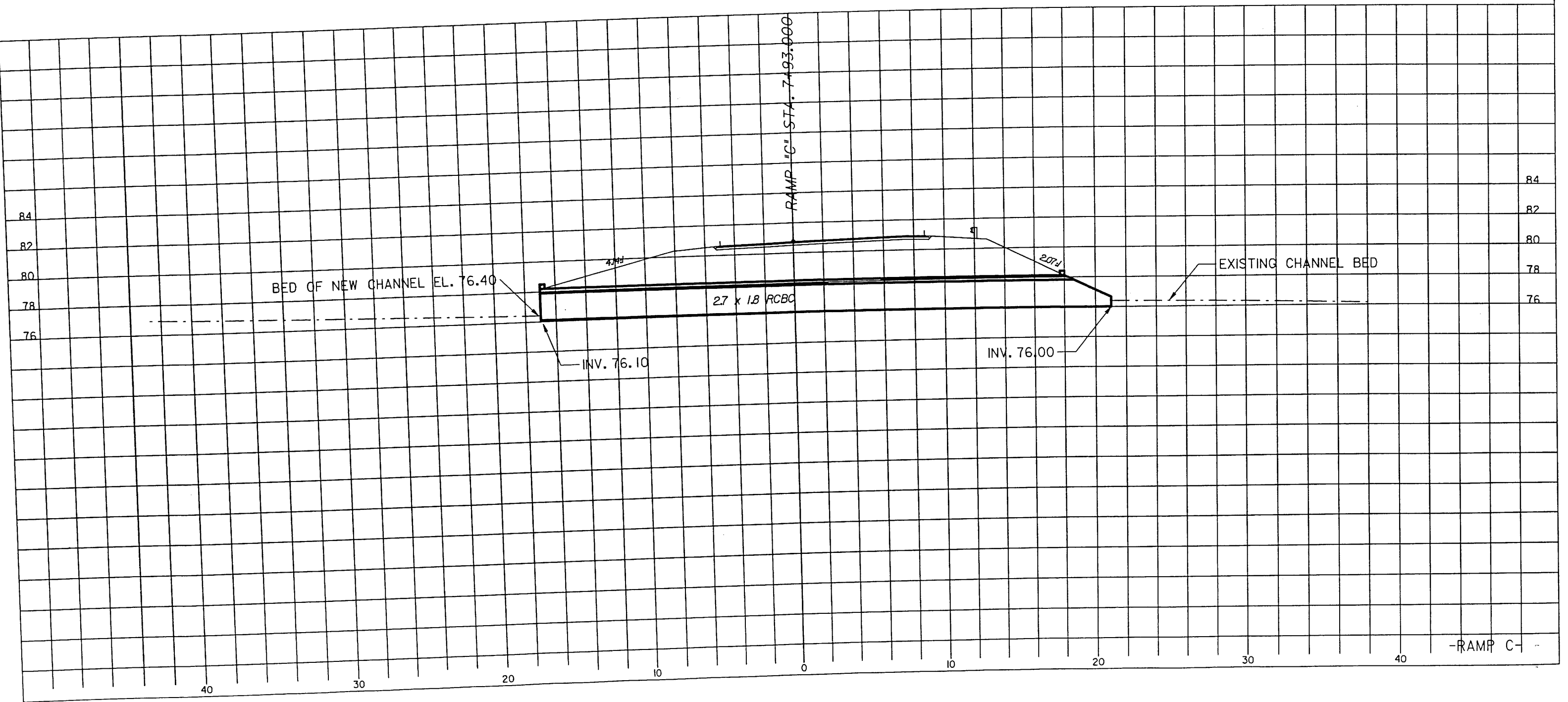
MATCH LINE 16 B-C

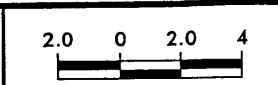




# SITE C-10

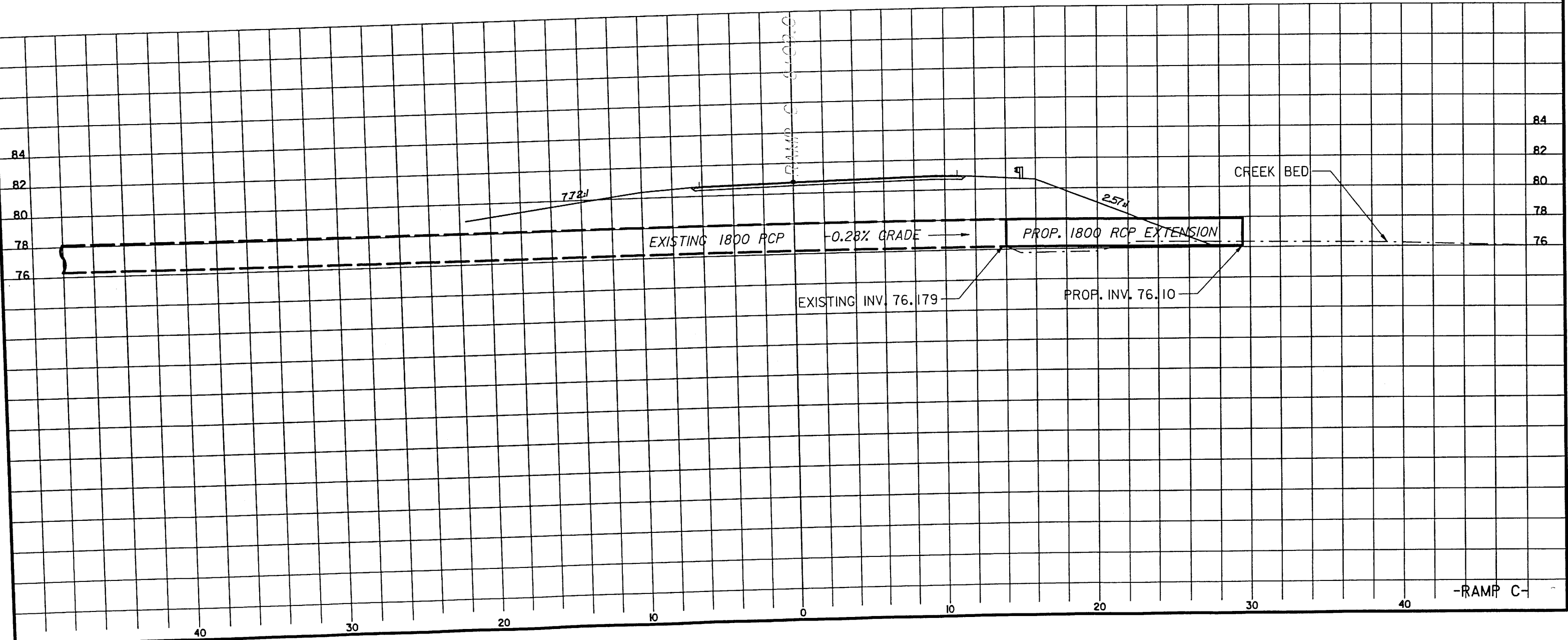
PROFILE OF 2.7 x 1.8 RCBC  
RAMP C - STA. 7+93.000  
PLAN SHEET 16

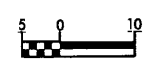




# SITE C-10

PIPE PROFILE OF 1800 RCP  
RAMP C STA. 8+09.0



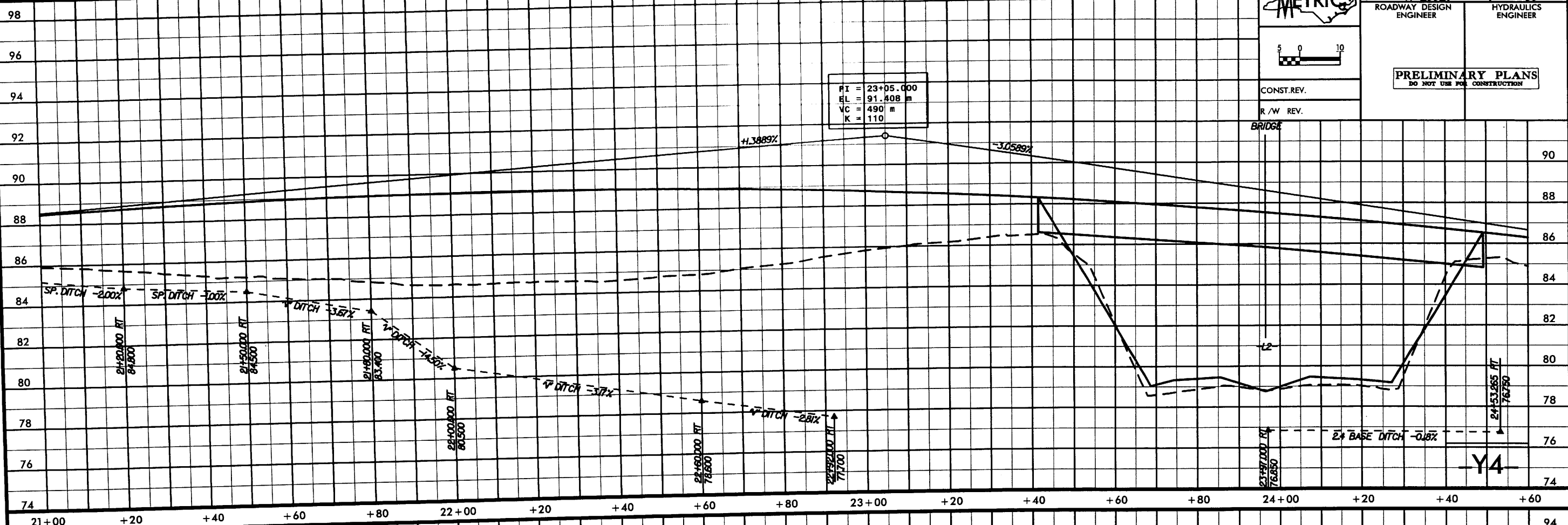


PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

CONST. REV.

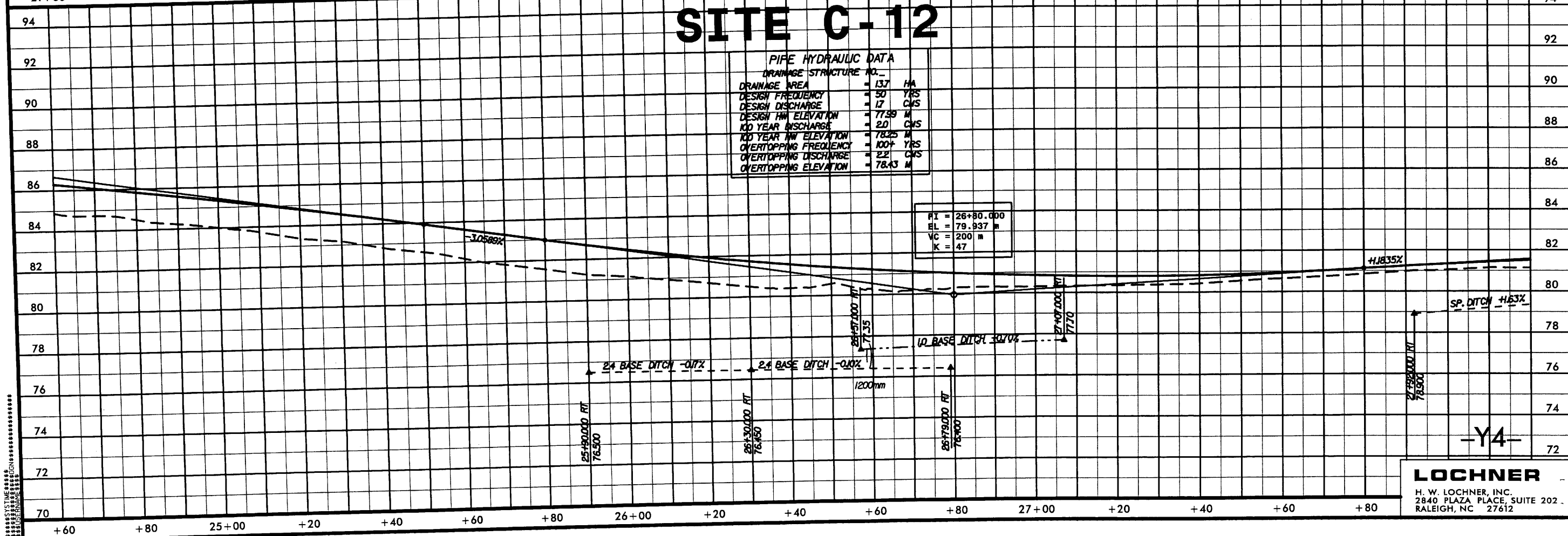
R/W REV.

BRIDGE



# SITE C-12

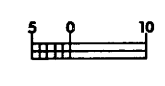
PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. _____	
DRAINAGE AREA	= 137 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 17 CMS
DESIGN HW ELEVATION	= 77.99 M
100 YEAR DISCHARGE	= 2.0 CMS
100 YEAR HW ELEVATION	= 78.25 M
OVERTOPPING FREQUENCY	= 100+ YRS
OVERTOPPING DISCHARGE	= 2.2 CMS
OVERTOPPING ELEVATION	= 78.43 M



MATCHLINE -12- 145+60 SEE SHEET 14



PROJECT REFERENCE NO. R-2552C SHEET NO. 15B



PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

THE STEPHENS CENTER INC.  
DB #789-2086 PG 541  
(67)

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

SITE C-II

JAMES WINFRED JONES  
DB 552 PG 312  
(43)

DONALD H WILLIAMSON  
DB #72 PG 825  
(39)

-RAMP C- CS Sta. 3+13.771

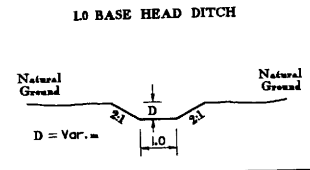
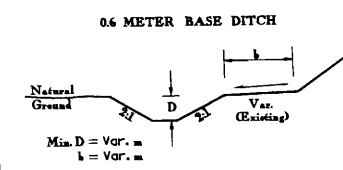
+13.771-RAMP C-  
30,000 (98.43 FT)

-EYEB- PT Sta. 11+65.023

-RAMP C- ST Sta. 4+03.771

+03.771-RAMP C-  
30,000 (98.43 FT)

-RAMP C- TS Sta. 4+49.417



FROM -LOOP C- STA. 0+82 TO STA. 1+96 LT.  
(EST. D.O.E. = cu.m)

-LOOP C- STA. 1+20 RT.  
(EST. D.O.E. = 720 cu.m)

MATCH LINE 15 B-C

MATCH LINE 15 A-B

LOOP C- ST Sta. 0+90.000

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
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FIL FAB. (41 SM)

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(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

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(88 M.TONS) w/  
FIL FAB. (41 SM)

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(88 M.TONS) w/  
FIL FAB. (41 SM)

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FIL FAB. (41 SM)

CL. #B RIP RAP  
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FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

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FIL FAB. (41 SM)

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(88 M.TONS) w/  
FIL FAB. (41 SM)

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FIL FAB. (41 SM)

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FIL FAB. (41 SM)


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(88 M.TONS) w/  
FIL FAB. (41 SM)



CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

CL. #B RIP RAP  
(88 M.TONS) w/  
FIL FAB. (41 SM)

MATCHLINE -L2- 145+60 SEE SHEET 14

	PROJECT REFERENCE NO.	SHEET NO.
	R-2552C	15B
<b>PRELIMINARY PLANS</b> <small>DO NOT USE FOR CONSTRUCTION</small>		

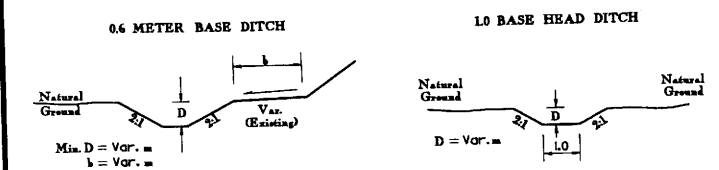
 DENOTES MECHANIZED CLEARING  
 DENOTES FILL IN WETLAND

THE STEPHENS CENTER INC.  
 DB 1172 PG 2085 PG 54  
 (67)

DONALD H WILLIAMSON  
 DB 1172 PG 825  
 (39)

JAMES WINFRED JONES  
 DB 552 PG 312  
 (43)

SITE C-II



FROM -LOOP C- STA. 0+82 TO STA. 1+96 LT.  
 (EST. D.D.E. = cu.m)

-LOOP C- STA. 1+20 RT.  
 (EST. D.D.E. = 720 cu.m)

-RAMP C- TS Sta. 4+49.417

-RAMP C- ST Sta. 4+03.771

+13.771 -RAMP C- 30.000 (98.43 FT)

-RAMP C- CS Sta. 3+13.771

-EYIB- PT Sta. 11+65.023

MATCH LINE 15 B-C

MATCH LINE 15 A-B

-LOOP C-

CL. "B" RIP RAP  
 (18 M. TONS) w/  
 FIL. FAB. (41 SM)

LAT. 0.6m

GRADE TO DRAIN

FALSE CUT

1.0m BASE HEAD DITCH

RETAIN EXIST. RIP RAP IN EXIST. DITCH

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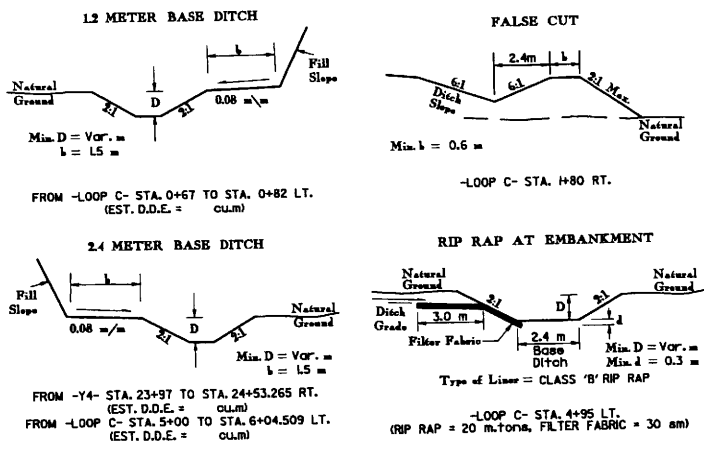
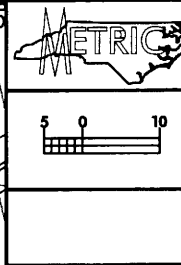
REMOVE

REMOVE

# MATCH LINE 15 B-C

PROJECT REFERENCE NO. R-2552C  
SHEET NO. 15C

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION



## SITE C-II

MINIMUM INVERT ELEVATION = 79.53  
DO NOT DRAIN WETLANDS

+19.47 -RAMP C- 30.000 (98.43 FT)  
-RAMP C- SC Sta. 5+19.47

CL. 'B' RIP RAP (5 M.TONS) w/ FIL. FAB. (12 SM)




REMOVE  
315 mm CONC  
-Y4- POT Sta. 24+53.265  
-LOOP C- ST Sta. 6+04.509 (13.2 RT.)

400mm CSP w/ 2 CS ELBOWS TYPE A COATING

CL. 'B' RIP RAP (2 M.TONS) w/ FIL. FAB. (6 SM)

-LOOP C- CS Sta. 5+44.509

CL. 'B' RIP RAP AT EMBANKMENT (10 M.TONS) FIL. FAB. (15 SM)

-  DENOTES MECHANIZED CLEARING
-  DENOTES EXCAVATION IN WETLAND
-  DENOTES FILL IN WETLAND

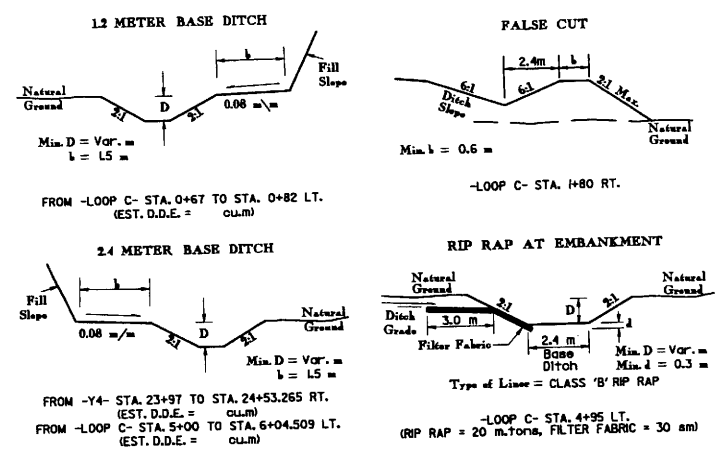
JAMES WINFRED JONES  
DB 552 PG 312

43

MATCH LINE 15 C-D

# MATCH LINE 15 B-C

PROJECT REFERENCE NO. R-2552C	SHEET NO. 15C
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



**SITE C-II**

MINIMUM INVERT ELEVATION = 79.53  
DO NOT DRAIN WETLANDS

+19.47 -RAMP C-  
30.000 (98.43 FT)  
-RAMP C- SC Sta. 5+19.47

CL. 'B' RIP RAP (5 M.TONS) w/ FIL. FAB. (12 SM)

REMOVE  
315 mm CONC  
-Y4- POT Sta. 24+53.265  
-LOOP C- ST Sta. 6+04.509 (13.2 RT)




400mm CSP w/ 2 CS ELBOWS TYPE A COATING

CL. 'B' RIP RAP (2 M.TONS) w/ FIL. FAB. (6 SM)

-LOOP C- CS Sta. 5+44.509  
CL. 'B' RIP RAP AT EMBANKMENT (10 M.TONS) w/ FIL. FAB. (5 SM)

2-GR F REMOVE

2.1 x 1.8 RCBC

-  DENOTES MECHANIZED CLEARING
-  DENOTES EXCAVATION IN WETLAND
-  DENOTES FILL IN WETLAND

JAMES WINFRED JONES  
DB 552 PG 312

43

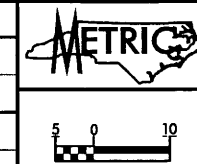
MATCH LINE 15 C-D



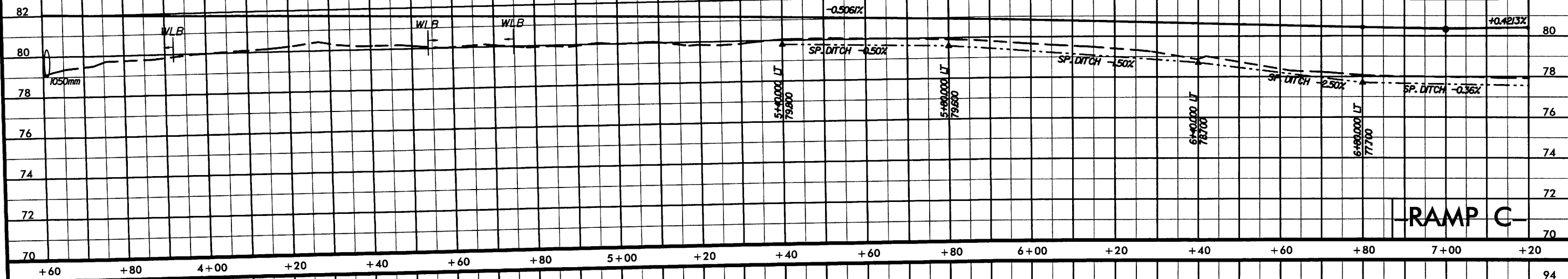


# SITE C-11

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. _____	
DRAINAGE AREA	= 11.6 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 17 CMS
DESIGN HW ELEVATION	= 80.07 M
100 YEAR DISCHARGE	= 20 CMS
100 YEAR HW ELEVATION	= 80.8 M
OVERTOPPING FREQUENCY	= 50+ YRS
OVERTOPPING DISCHARGE	= 17.9 CMS
OVERTOPPING ELEVATION	= 80.0 M



PROJECT REFERENCE NO. R-2552C	SHEET NO. 47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	

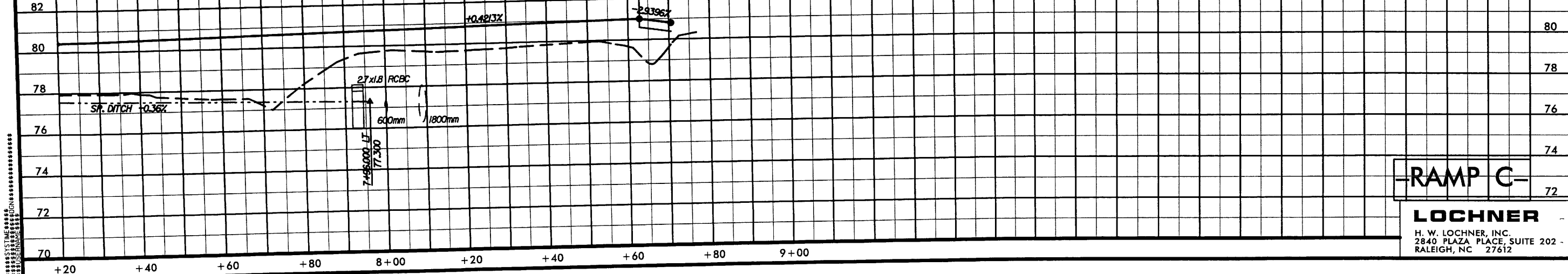


PI = 7+00.000
EL = 80.929 m
VC = 40 m
K = 43

**RAMP C**

# SITE C-10

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. _____	
DRAINAGE AREA	= 5.9 HA
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 12.0 CMS
DESIGN HW ELEVATION	= 77.34 M
100 YEAR DISCHARGE	= 14.0 CMS
100 YEAR HW ELEVATION	= 78.08 M
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING DISCHARGE	= 42.0 CMS
OVERTOPPING ELEVATION	= 80.995 M



**RAMP C**

**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202 -  
RALEIGH, NC 27612



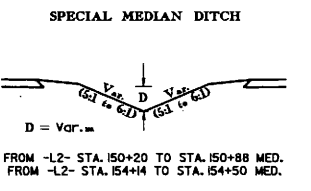
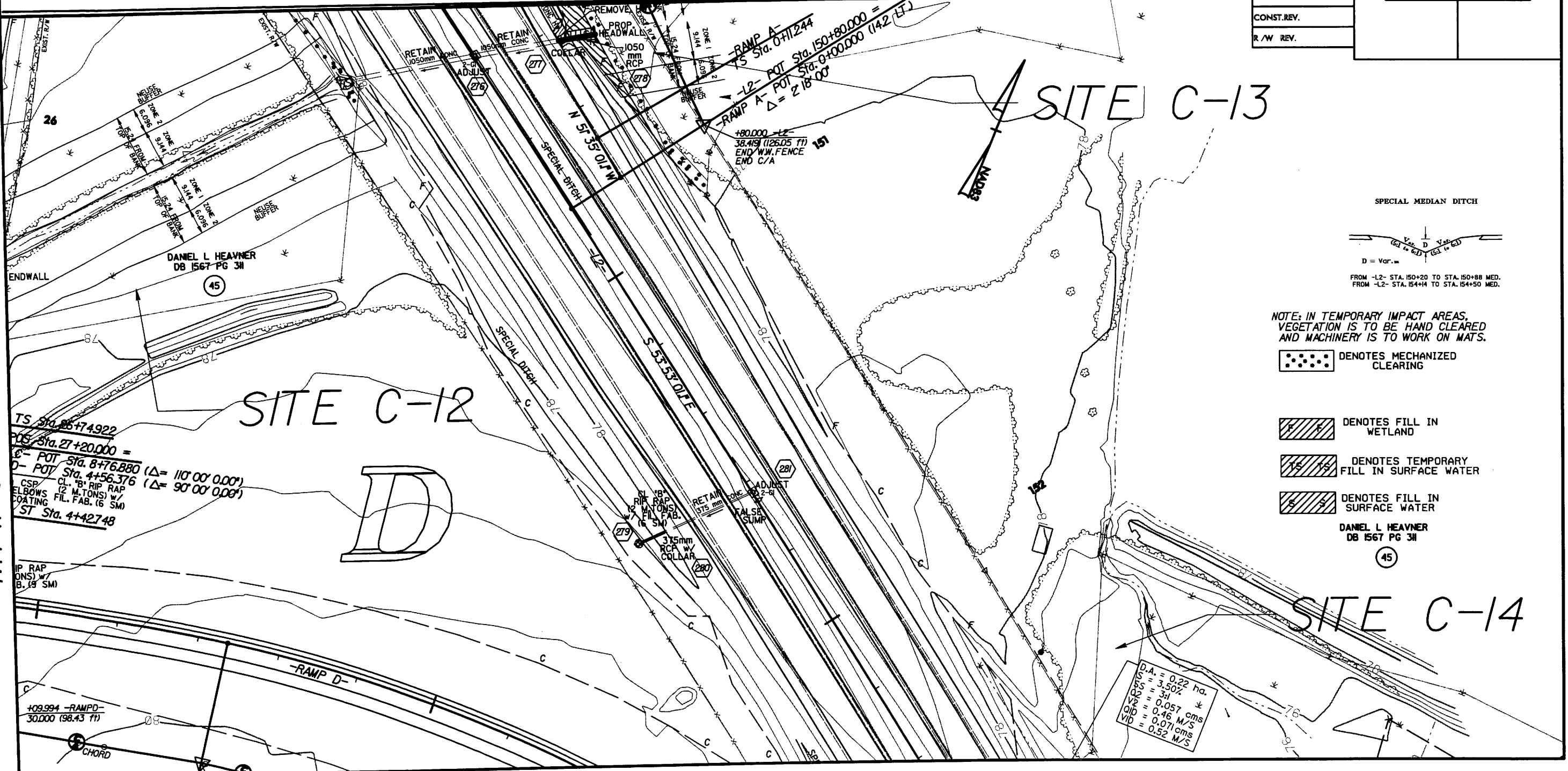
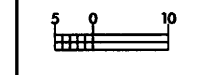


MATCH LINE 16 A-B

MATCHLINE -Y4- 25+80 SEE SHEET 15



PROJECT REFERENCE NO. R-2552C	SHEET NO. 16A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



NOTE: IN TEMPORARY IMPACT AREAS, VEGETATION IS TO BE HAND CLEARED AND MACHINERY IS TO WORK ON MATS.

- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES TEMPORARY FILL IN SURFACE WATER
- DENOTES FILL IN SURFACE WATER

DANIEL L HEAVNER  
DB 1567 PG 3II  
45

MATCH LINE 16 A-D

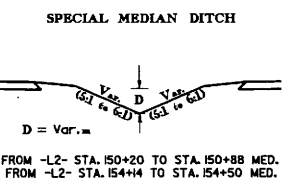
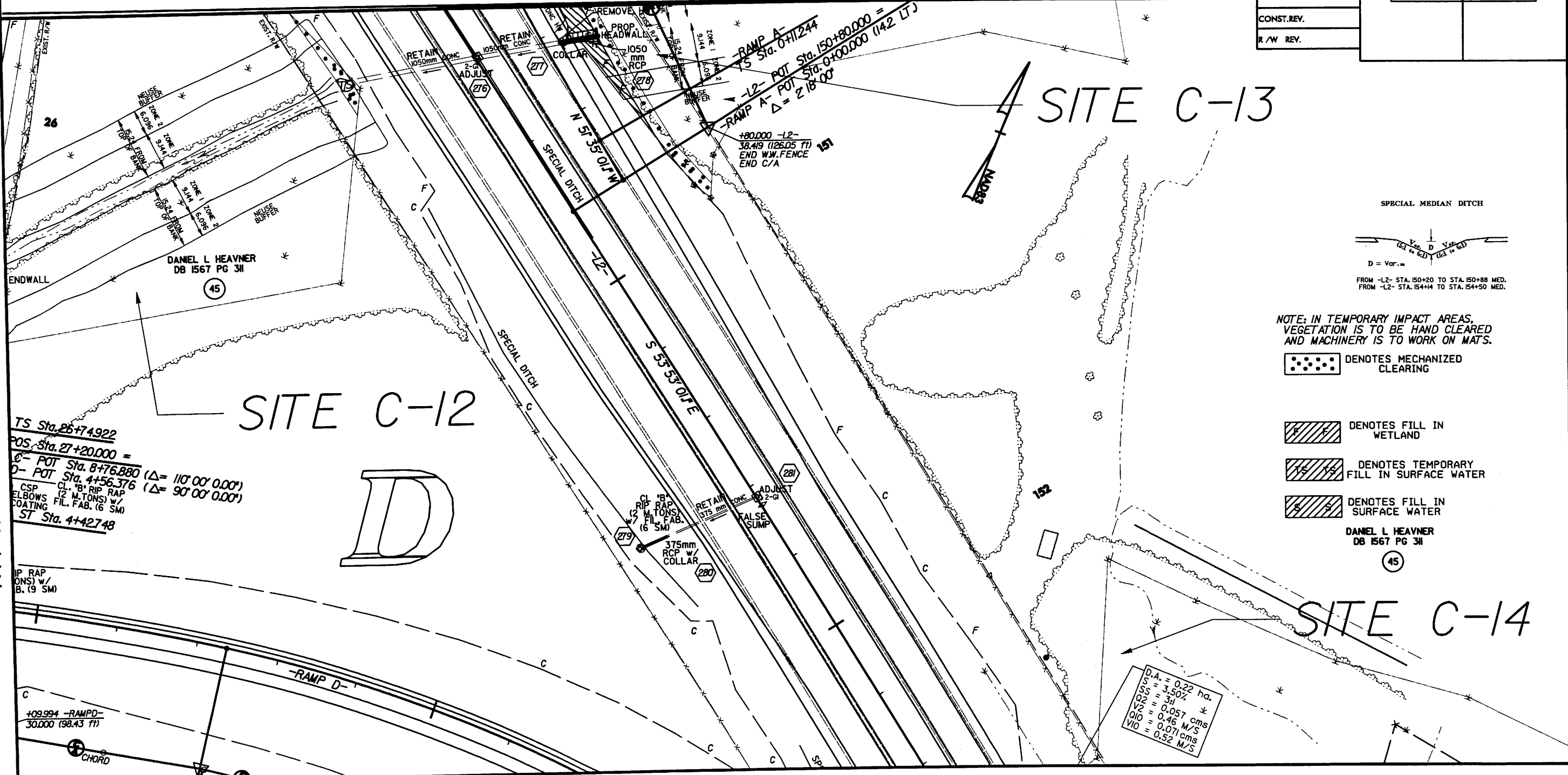


PROJECT REFERENCE NO. R-2552C	SHEET NO. 16A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



MATCHLINE -Y4- 25+80 SEE SHEET 15

MATCH LINE 16 A-B



NOTE: IN TEMPORARY IMPACT AREAS, VEGETATION IS TO BE HAND CLEARED AND MACHINERY IS TO WORK ON MATS.

- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES TEMPORARY FILL IN SURFACE WATER
- DENOTES FILL IN SURFACE WATER

DANIEL L HEAVNER  
DB 1567 PG 31  
45

D.A. = 0.22 ha  
 SS = 3.50%  
 VS = 3h  
 VQ = 0.057  
 Q10 = 0.46 cms  
 V10 = 0.071 cms  
 V10 = 0.52 M/S

TS Sta. 26+74.922  
 POS. Sta. 27+20.000 =  
 E- POT Sta. 8+76.880 ( $\Delta = 110' 00'' 0.00'$ )  
 D- POT Sta. 4+56.376 ( $\Delta = 90' 00'' 0.00'$ )  
 CSP CL. 18" RIP RAP  
 ELBOWS (2 M. TONS) W/ FAB. (6 SM)  
 COATING  
 ST Sta. 4+427.48



SITE C-12

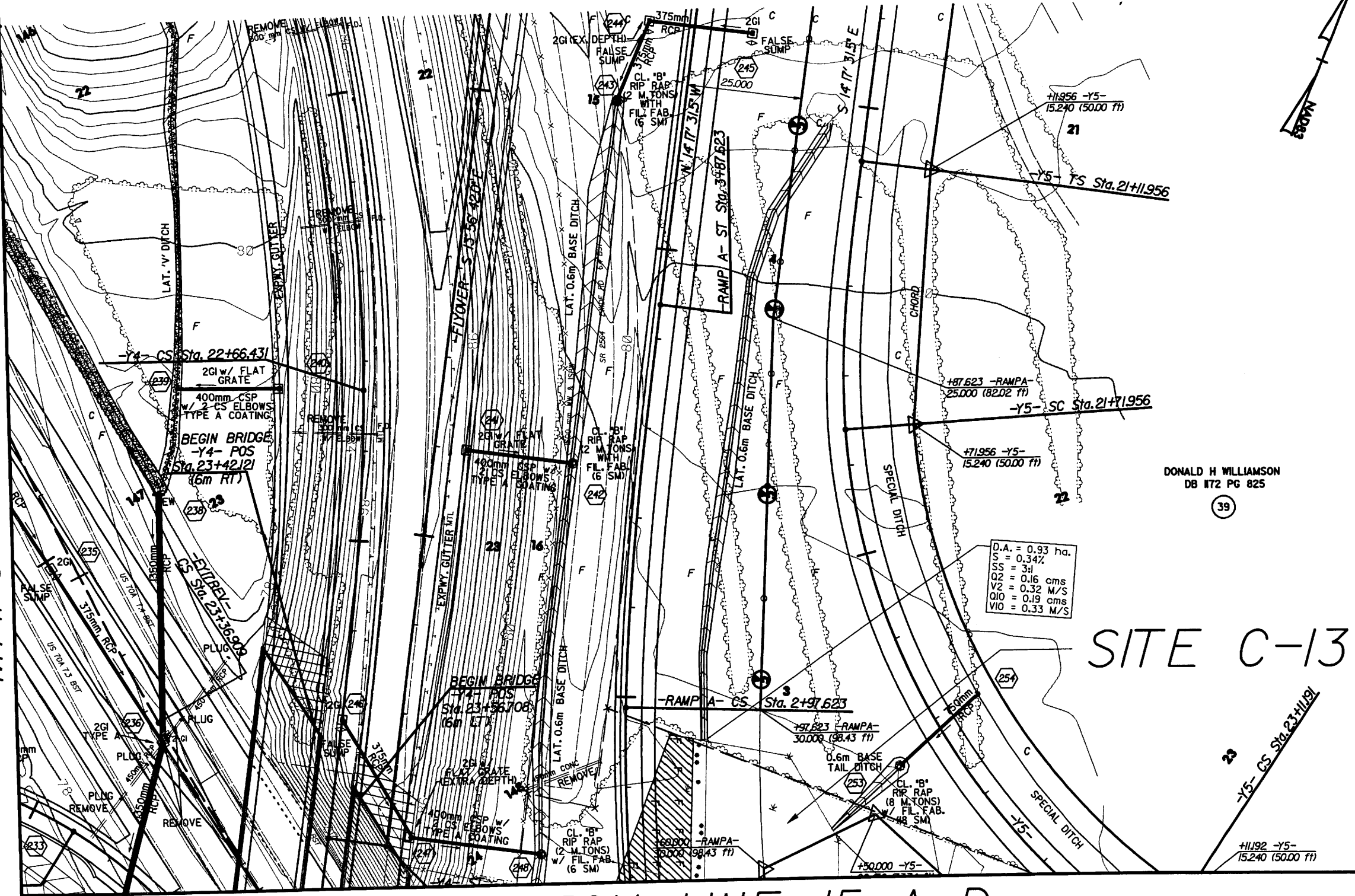
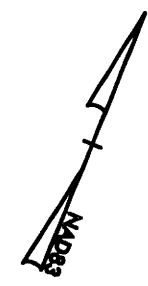
SITE C-13

SITE C-14

MATCH LINE 16 A-D

MATCH LINE 15 A-B



	PROJECT REFERENCE NO.	SHEET NO.
	R-2552C	15A
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION		
CONST. REV.		
R/W REV.		

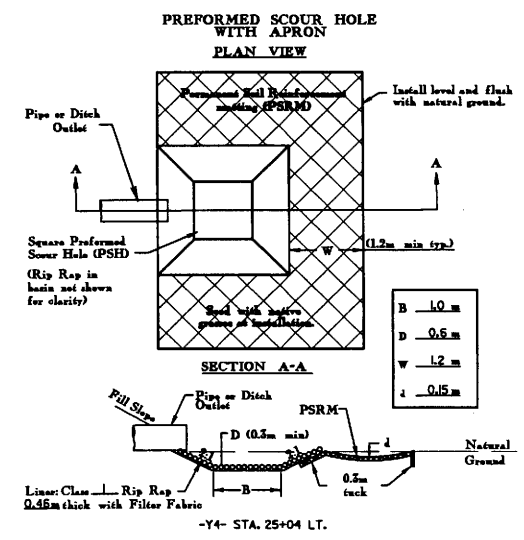


DONALD H WILLIAMSON  
DB 172 PG 825

SITE C-13

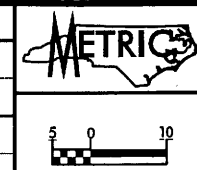
MATCH LINE 15 A-D

-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING





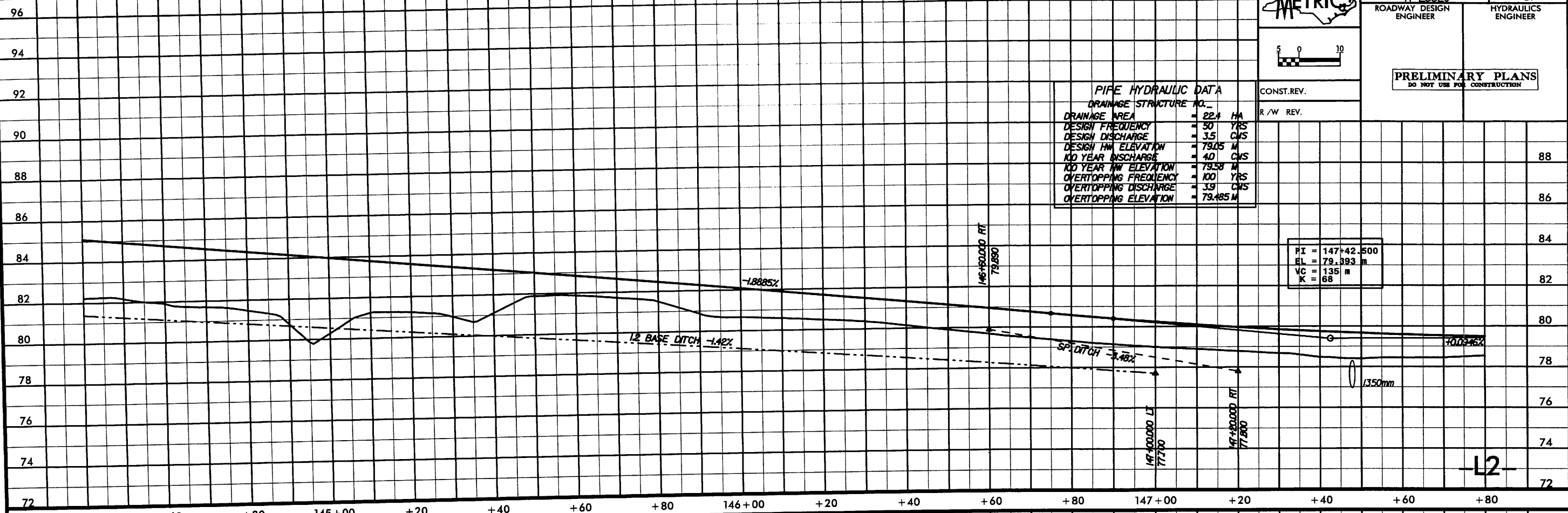




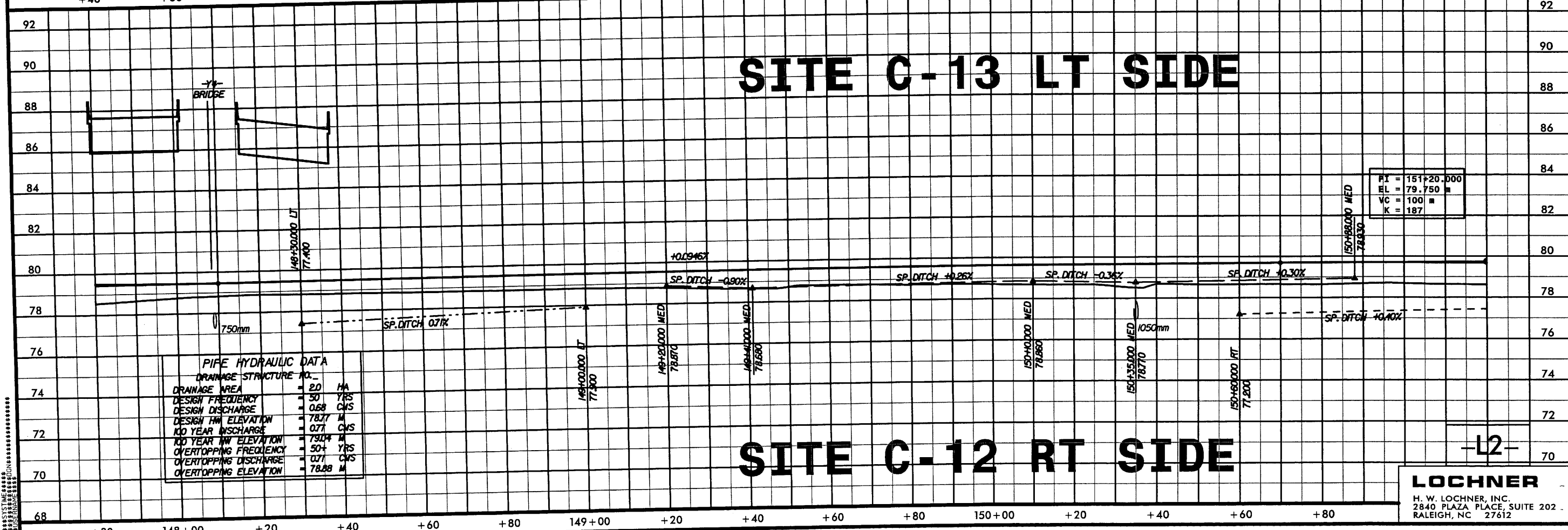
**PIPE HYDRAULIC DATA**

DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	22.4 HA
DESIGN FREQUENCY	50 YRS
DESIGN DISCHARGE	3.5 CMS
DESIGN HW ELEVATION	79.05 M
100 YEAR DISCHARGE	4.0 CMS
100 YEAR HW ELEVATION	79.58 M
OVERTOPPING FREQUENCY	100 YRS
OVERTOPPING DISCHARGE	3.9 CMS
OVERTOPPING ELEVATION	79.485 M

CONST. REV.  
 R/W REV.

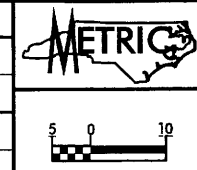


# SITE C-13 LT SIDE

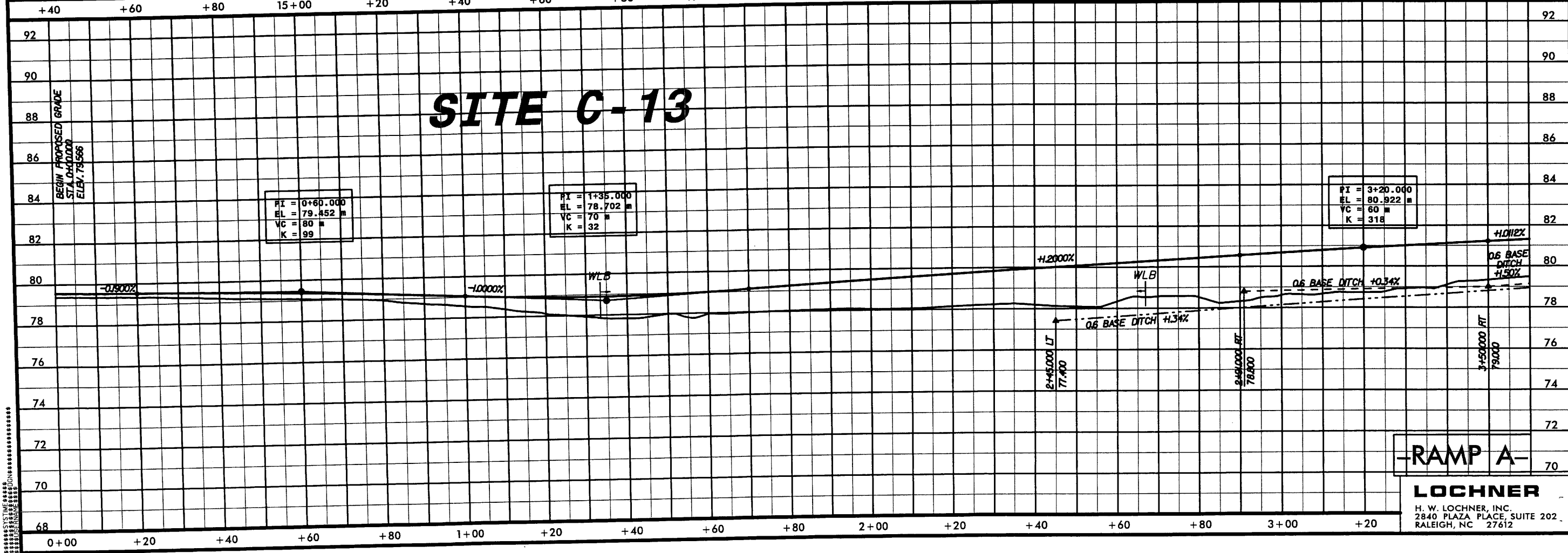
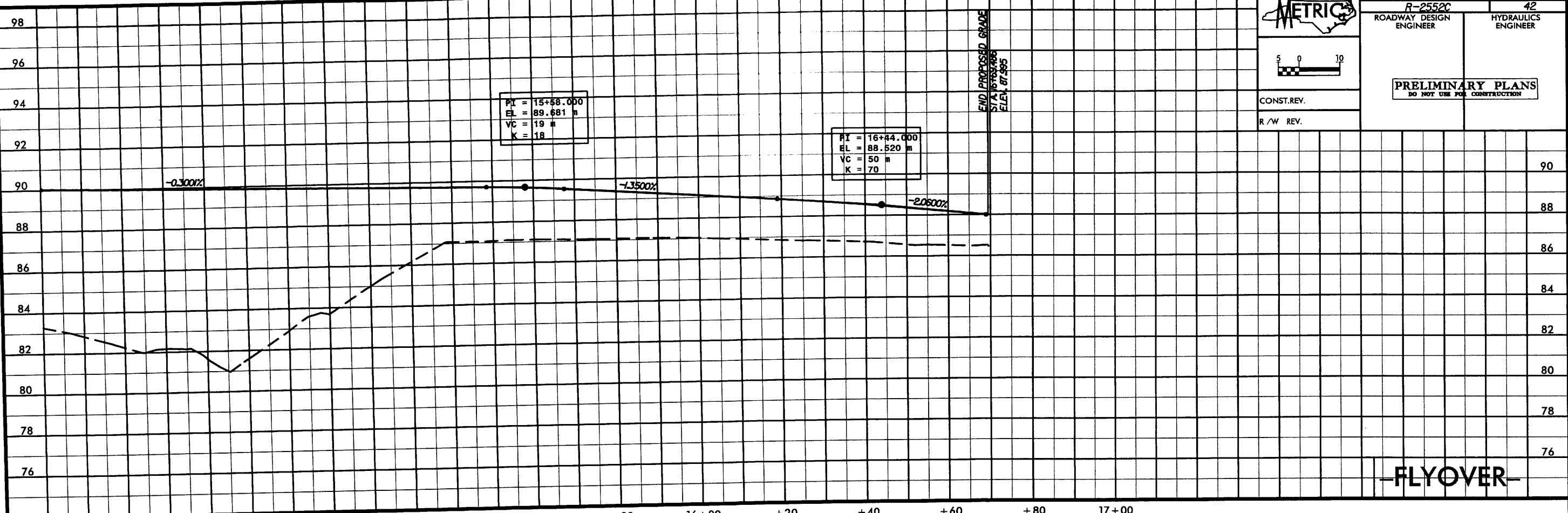


**PIPE HYDRAULIC DATA**

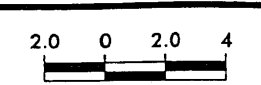
DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	2.0 HA
DESIGN FREQUENCY	50 YRS
DESIGN DISCHARGE	0.68 CMS
DESIGN HW ELEVATION	78.77 M
100 YEAR DISCHARGE	0.77 CMS
100 YEAR HW ELEVATION	79.04 M
OVERTOPPING FREQUENCY	50+ YRS
OVERTOPPING DISCHARGE	0.71 CMS
OVERTOPPING ELEVATION	78.88 M



PROJECT REFERENCE NO. R-2552C	SHEET NO. 42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R / W REV.	

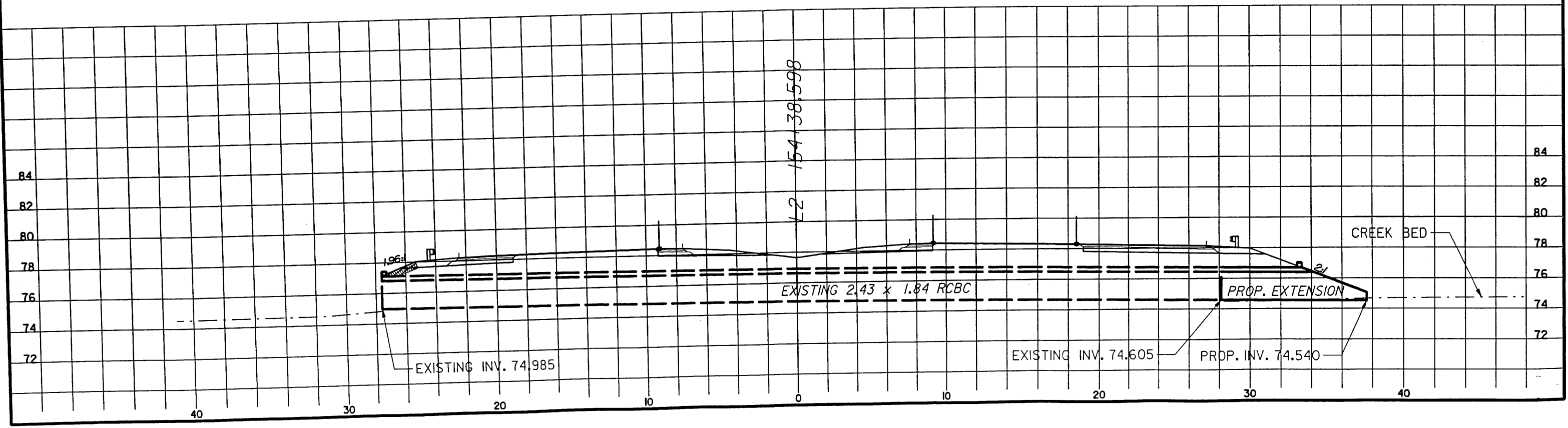


**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612



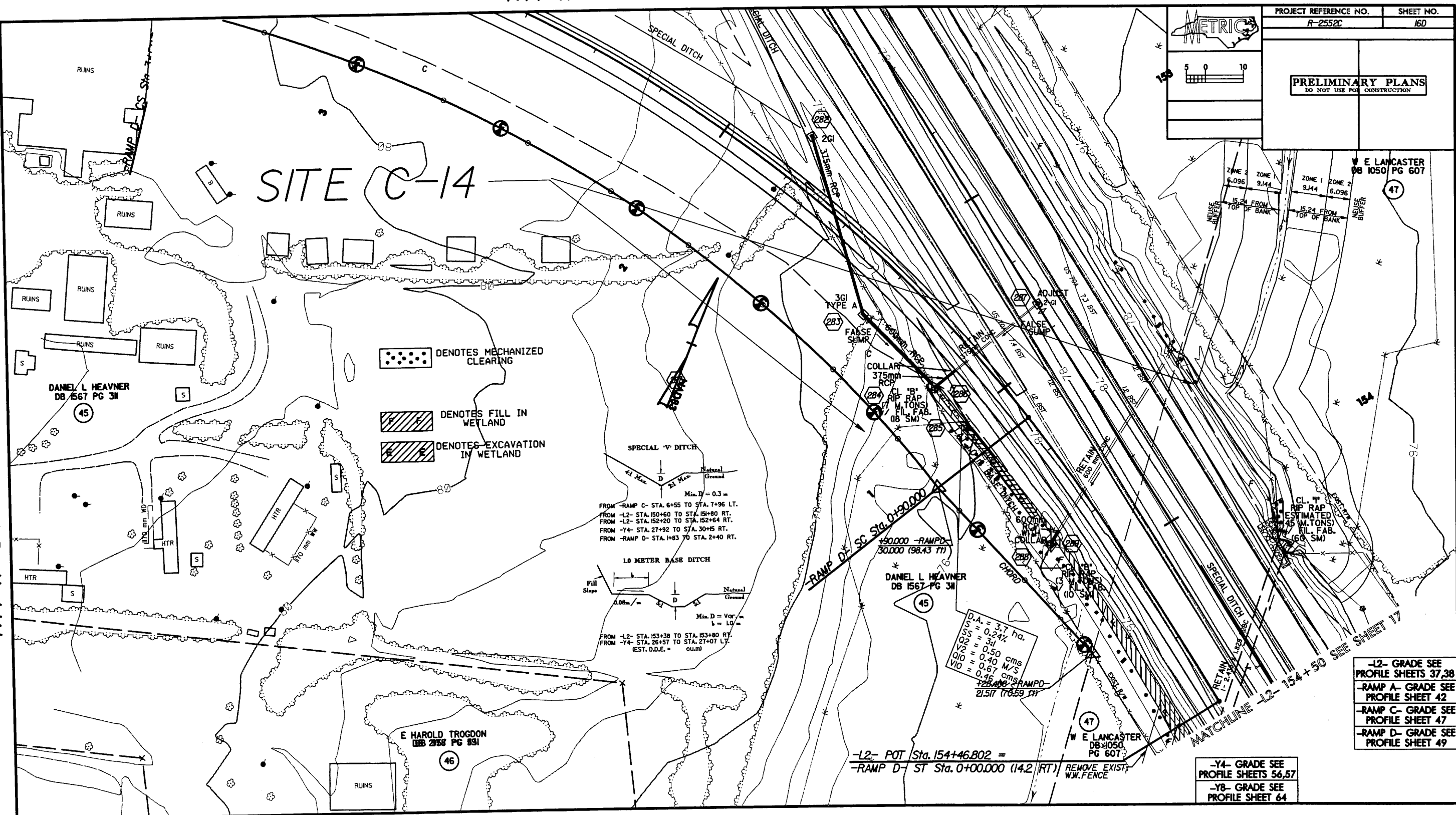
# SITE C-14

PROFILE OF 2.43 x 1.84 RCBC  
-L2- STA. 154+38.598  
PLAN SHEETS 16 & 17



# MATCH LINE 16 A-D

MATCH LINE 16 C-D



PROJECT REFERENCE NO. R-2552C SHEET NO. 16D

**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND

**SPECIAL 'V' DITCH**  
 4:1 Max. 2:1 Min. Min. D = 0.3 m  
 FROM -RAMP C- STA. 6+55 TO STA. 7+96 LT.  
 FROM -L2- STA. 150+60 TO STA. 151+80 RT.  
 FROM -L2- STA. 152+20 TO STA. 152+64 RT.  
 FROM -Y4- STA. 27+92 TO STA. 30+5 RT.  
 FROM -RAMP D- STA. 1+83 TO STA. 2+40 RT.

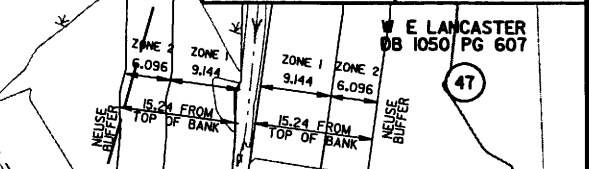
**10 METER BASE DITCH**  
 0.08m / m 2:1 Min. D = Var. / m  
 l = 10 m  
 FROM -L2- STA. 153+38 TO STA. 153+80 RT.  
 FROM -Y4- STA. 26+57 TO STA. 27+07 LT.  
 (EST. D.D.E. = 0.0m)

D.A. = 3.7 ha.  
 S = 0.24%  
 Q2 = 3l  
 V2 = 0.50 cms  
 Q10 = 0.40 M/S  
 Q10 = 0.67 cms  
 V10 = 0.46 cms  
**128.46' RAMP D**  
 21.51' (70.59 FT)

-L2- POT Sta. 154+46.802 =  
 -RAMP D- ST Sta. 0+00.000 (14.2 RT) REMOVE EXIST' W.W.FENCE

-Y4- GRADE SEE PROFILE SHEETS 56,57  
 -Y8- GRADE SEE PROFILE SHEET 64

-L2- GRADE SEE PROFILE SHEETS 37,38  
 -RAMP A- GRADE SEE PROFILE SHEET 42  
 -RAMP C- GRADE SEE PROFILE SHEET 47  
 -RAMP D- GRADE SEE PROFILE SHEET 49





# SITE C-14

REVISIONS

NOTE: IN TEMPORARY IMPACT AREAS,  
VEGETATION IS TO BE HAND CLEARED  
AND MACHINERY IS TO WORK ON MATS.

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLAND

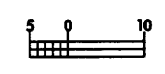
DENOTES EXCAVATION IN WETLAND

DENOTES TEMPORARY FILL IN SURFACE WATER

DENOTES FILL IN SURFACE WATER

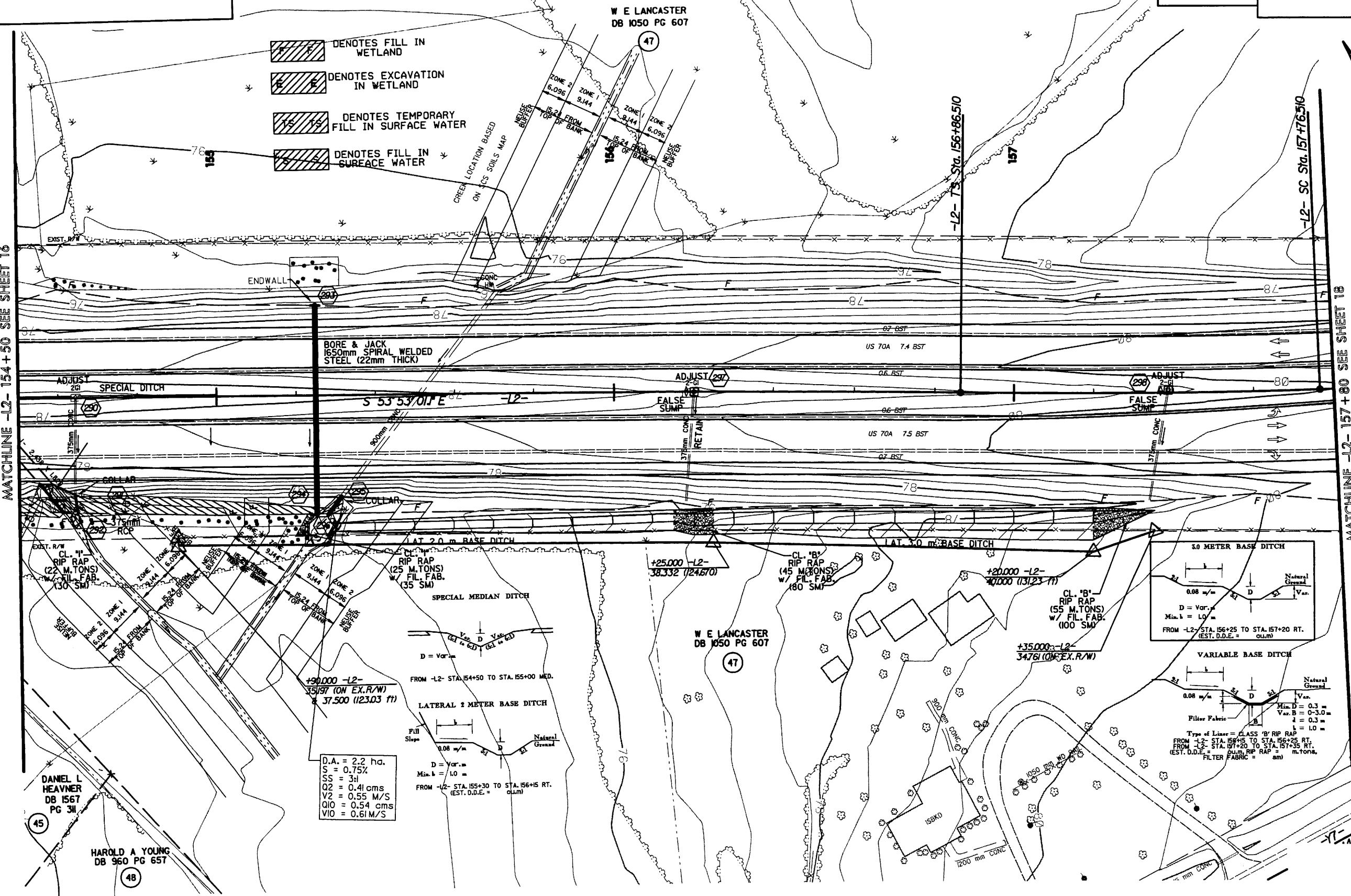


PROJECT REFERENCE NO. R-2552C	SHEET NO. 7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	
CONST. REV.	
R/W REV.	



MATCHLINE -L2- 154+50 SEE SHEET 16

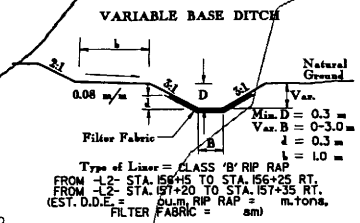
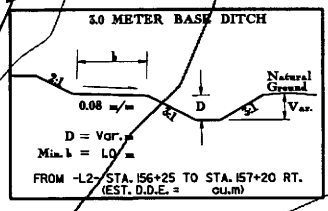
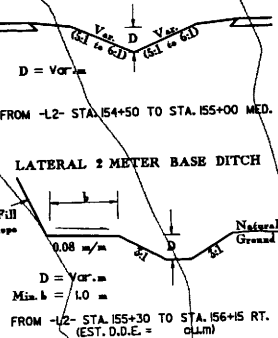
MATCHLINE -L2- 157+80 SEE SHEET 18



DANIEL L HEAVNER  
DB 1567  
PG 31

HAROLD A YOUNG  
DB 960 PG 657

D.A. = 2.2 ha.  
S = 0.75%  
SS = 3h  
Q2 = 0.41 cms  
V2 = 0.55 M/S  
Q10 = 0.54 cms  
V10 = 0.61 M/S



-L2- GRADE SEE PROFILE SHEET 38

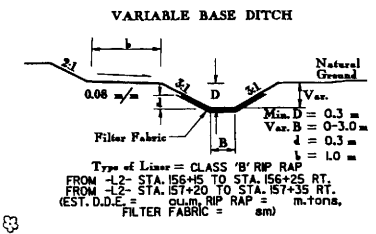
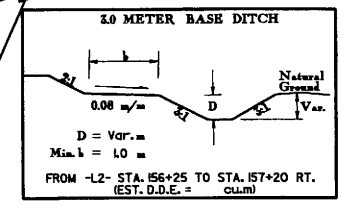
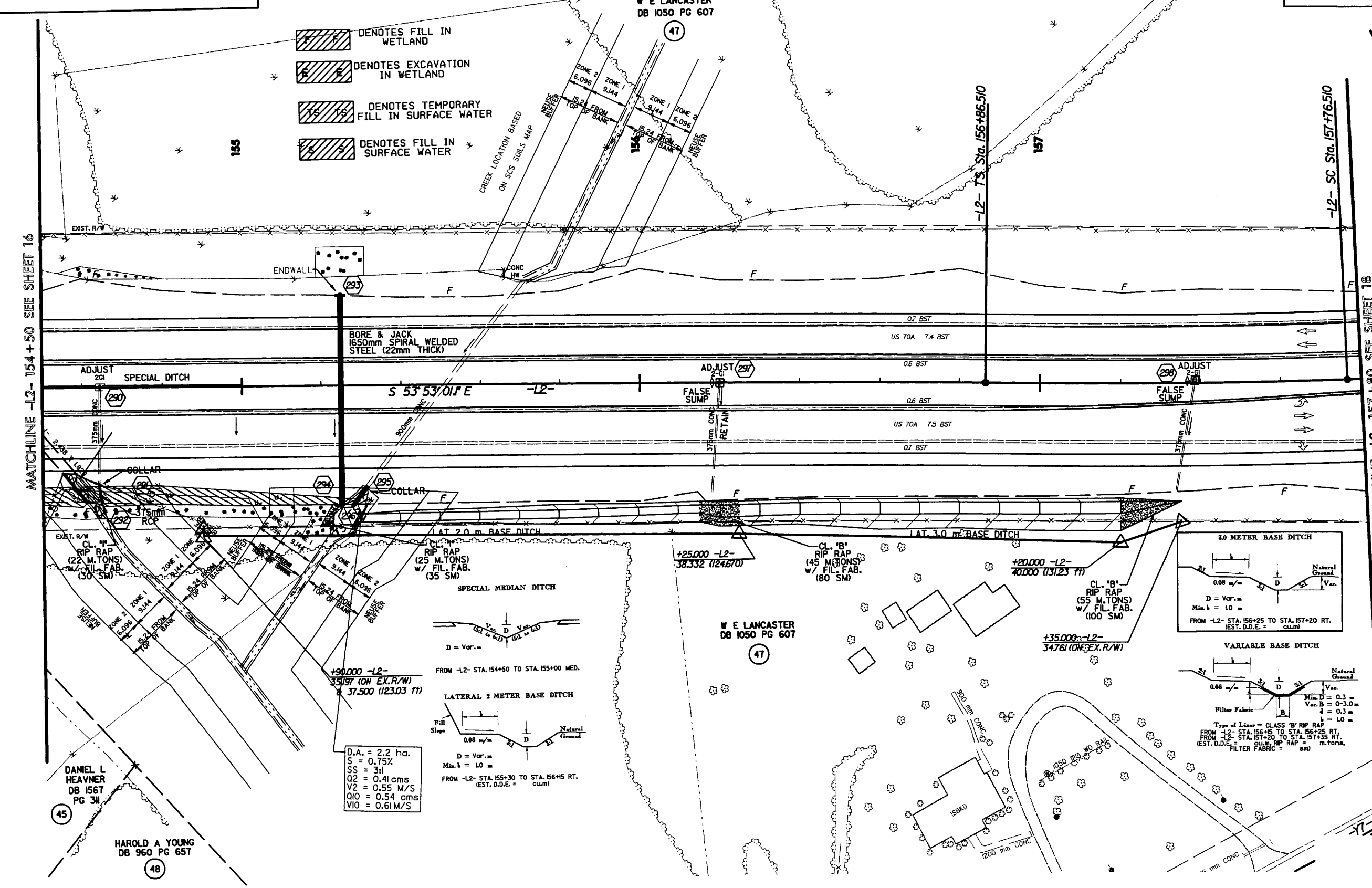
PROJECT REFERENCE NO. R-2552C		SHEET NO. 17	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION			
CONST. REV.			
R/W REV.			

REVISIONS

# SITE C-14

NOTE: IN TEMPORARY IMPACT AREAS, VEGETATION IS TO BE HAND CLEARED AND MACHINERY IS TO WORK ON MATS.

- DENOTES MECHANIZED CLEARING
- DENOTES FILL IN WETLAND
- DENOTES EXCAVATION IN WETLAND
- DENOTES TEMPORARY FILL IN SURFACE WATER
- DENOTES FILL IN SURFACE WATER

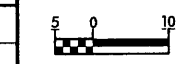


D.A. = 2.2 ha.  
S = 0.75%  
SS = 3:1  
Q2 = 0.41 cms  
V2 = 0.55 M/S  
Q10 = 0.54 cms  
V10 = 0.61 M/S

-L2- GRADE SEE  
PROFILE SHEET 38



# SITE C-14



**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

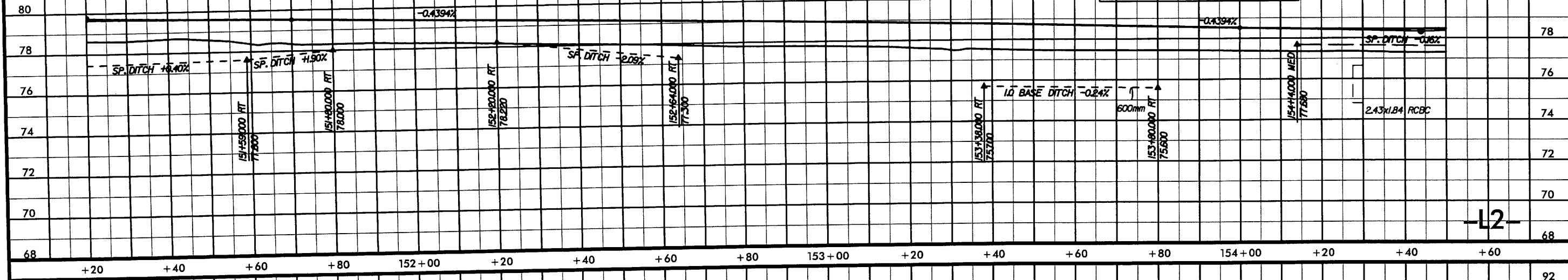
CONST. REV.

R/W REV.

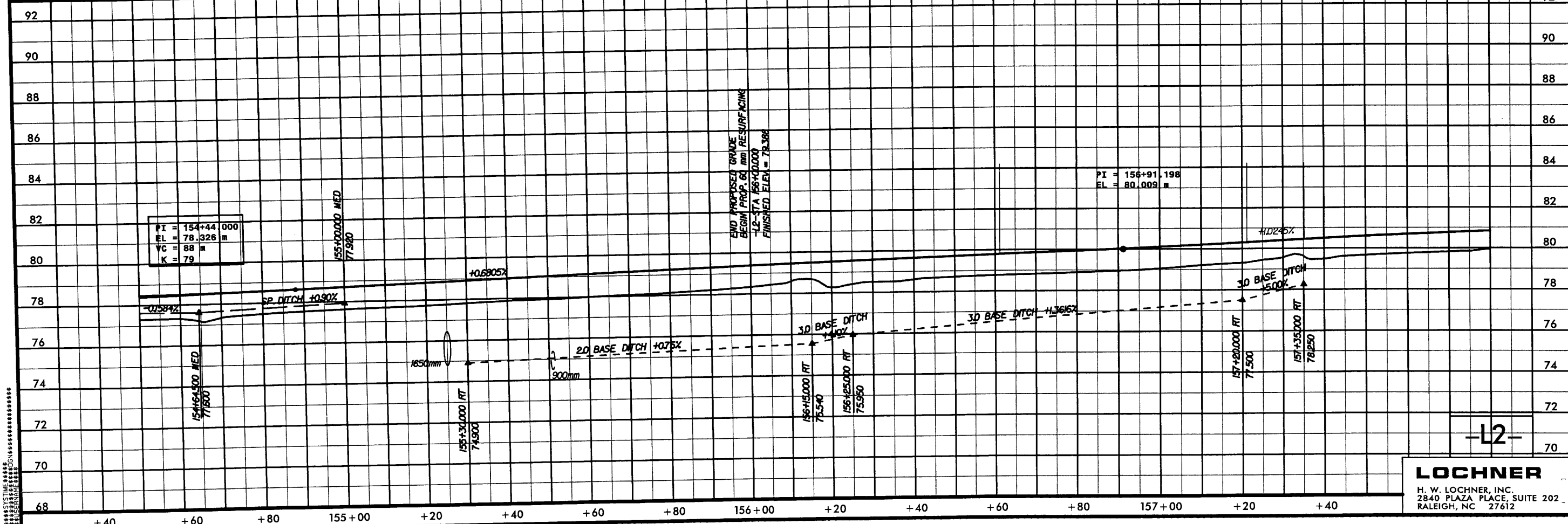
PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO.	
DRAINAGE AREA	= 2.5 SQKM
DESIGN FREQUENCY	= 50 YRS
DESIGN DISCHARGE	= 29 CMS
DESIGN HW ELEVATION	= 78.02 M
100 YEAR DISCHARGE	= 33 CMS
100 YEAR HW ELEVATION	= 78.39 M
OVERTOPPING FREQUENCY	= 100 YRS
OVERTOPPING DISCHARGE	= 33.7 CMS
OVERTOPPING ELEVATION	= 78.43 M

PI = 151+20.000  
EL = 79.750 m  
VC = 100 m  
K = 187

PI = 154+44.000  
EL = 78.326 m  
VC = 88 m  
K = 79

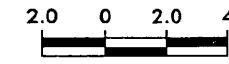


-L2-



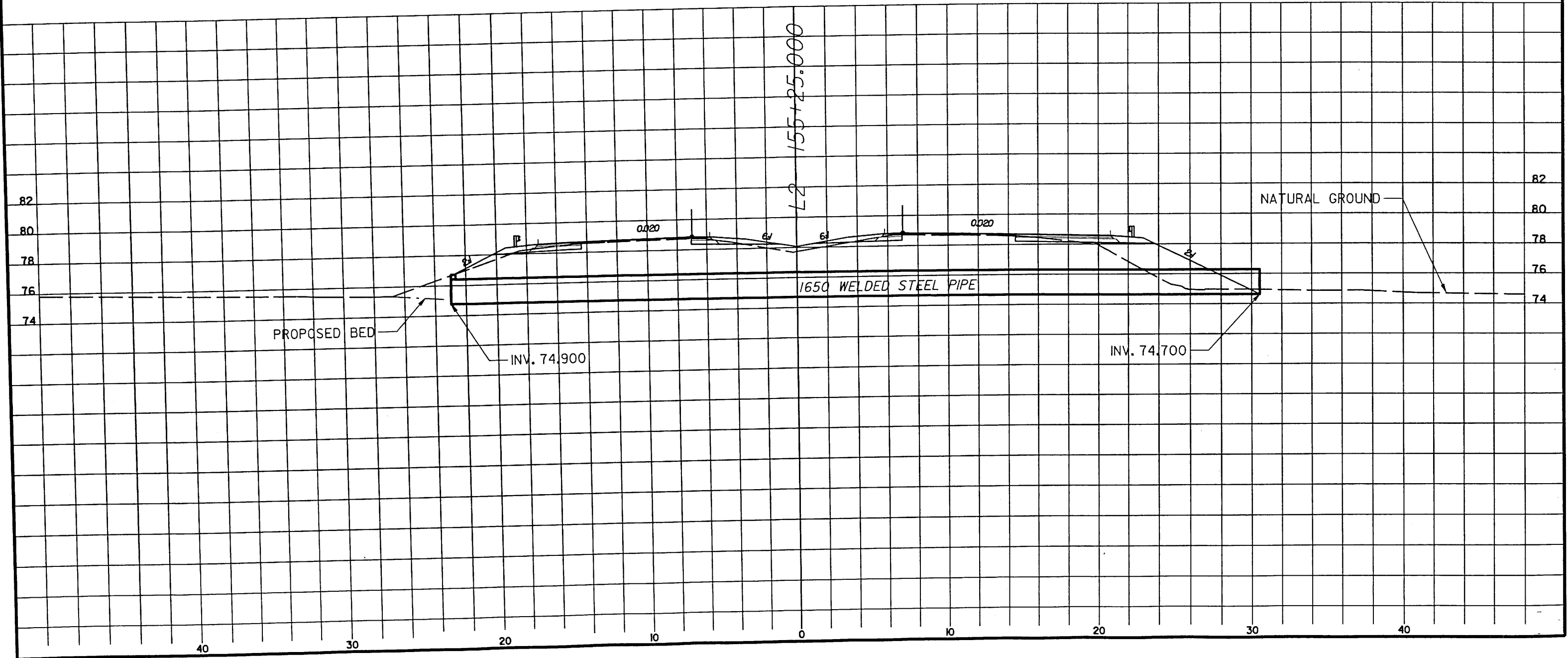
-L2-





# SITE C-14

PROFILE OF 1650 WELDED STEEL PIPE  
-L2- STA. 155+25.000  
PLAN SHEET 17

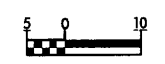












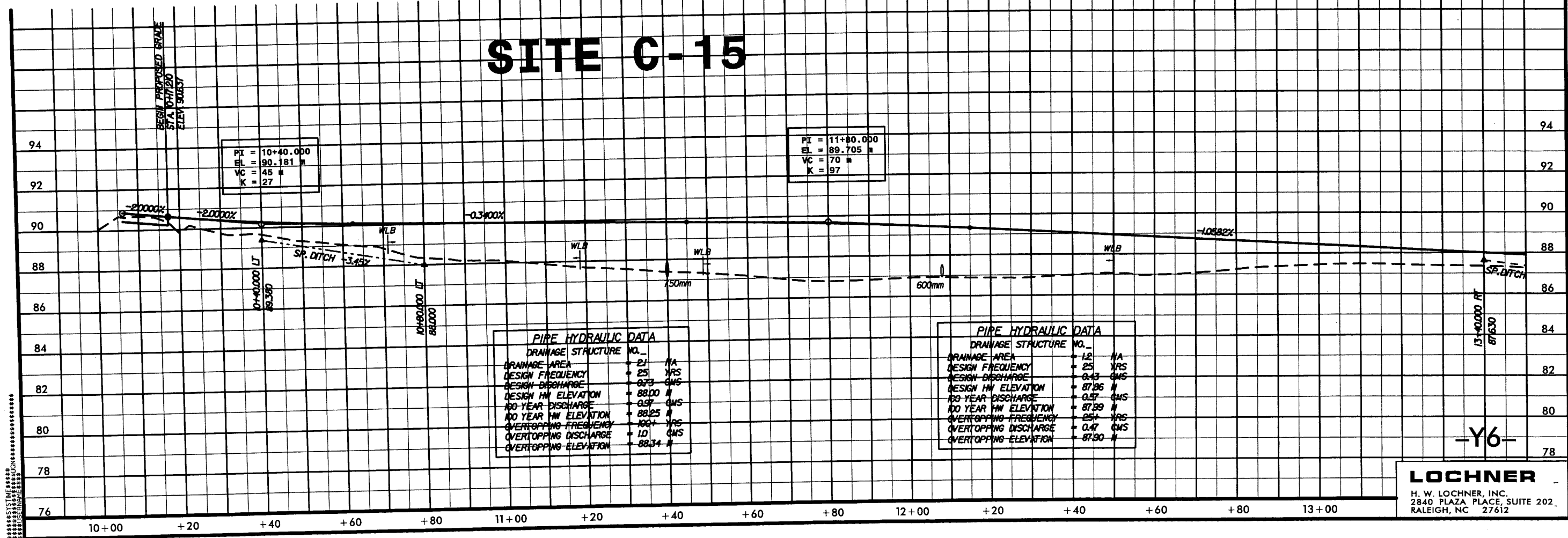
**PRELIMINARY PLANS**  
DO NOT USE FOR CONSTRUCTION

CONST. REV.

R/W REV.

98  
96  
94  
92  
90  
88  
86  
84  
82

# SITE C-15



PI = 10+40.000  
EL = 90.181 m  
VC = 45 m  
K = 27

PI = 11+80.000  
EL = 89.705 m  
VC = 70 m  
K = 97

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 21	
DRAINAGE AREA	+ 21 HA
DESIGN FREQUENCY	+ 25 YRS
DESIGN DISCHARGE	+ 0.73 CMS
DESIGN HW ELEVATION	+ 88.00 m
100 YEAR DISCHARGE	+ 0.97 CMS
100 YEAR HW ELEVATION	+ 88.25 m
OVERTOPPING FREQUENCY	+ 100+ YRS
OVERTOPPING DISCHARGE	+ 1.0 CMS
OVERTOPPING ELEVATION	+ 88.34 m

PIPE HYDRAULIC DATA	
DRAINAGE STRUCTURE NO. 12	
DRAINAGE AREA	+ 12 HA
DESIGN FREQUENCY	+ 25 YRS
DESIGN DISCHARGE	+ 0.43 CMS
DESIGN HW ELEVATION	+ 87.86 m
100 YEAR DISCHARGE	+ 0.57 CMS
100 YEAR HW ELEVATION	+ 87.99 m
OVERTOPPING FREQUENCY	+ 25+ YRS
OVERTOPPING DISCHARGE	+ 0.47 CMS
OVERTOPPING ELEVATION	+ 87.90 m

-Y6-

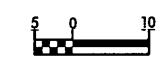
\*\*\*\*\*SYSTEMS\*\*\*\*\*  
\*\*\*\*\*CONSTRUCTION\*\*\*\*\*  
\*\*\*\*\*DRAWING\*\*\*\*\*  
\*\*\*\*\*DATE\*\*\*\*\*

# SITE C-16

PIPE HYDRAULIC DATA		
DRAINAGE STRUCTURE NO. 68		
DRAINAGE AREA	= 68	HA
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 7.1	CMS
DESIGN HW ELEVATION	= 85.74	M
100 YEAR DISCHARGE	= 11.0	CMS
100 YEAR HW ELEVATION	= 86.7	M
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING DISCHARGE	= 10.3	CMS
OVERTOPPING ELEVATION	= 86.4	M

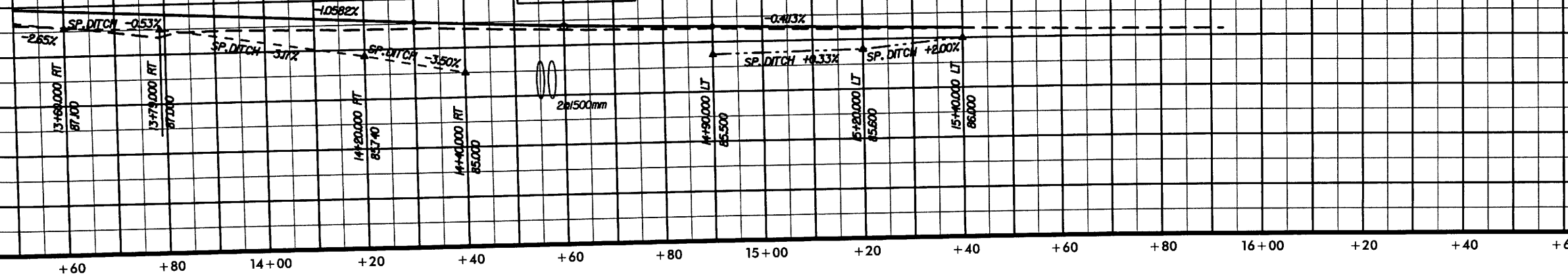
PI = 14+60.000  
 EL = 86.742 M  
 VC = 60 M  
 K = 93

END PROPOSED GRADE  
 STA 15+00.000  
 ELEV. 86.413  
 (INCLUDES 30 mm RESURF)

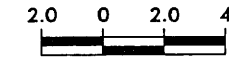


CONST. REV.  
 R / W REV.

PROJECT REFERENCE NO. R-2552C	SHEET NO. 61
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	

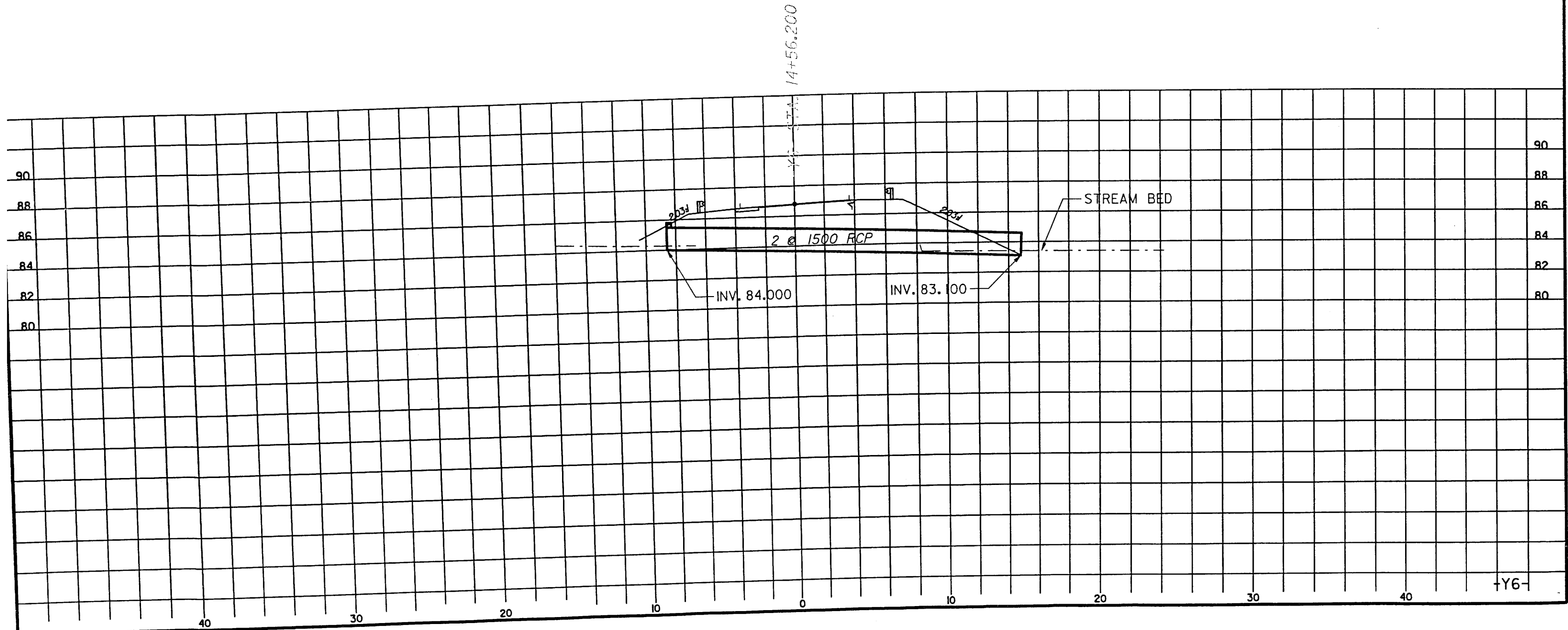


-Y6-



# SITE C-16

PROFILE OF DOUBLE 1500 RCP  
-Y6- STA. 14+56.200  
PLAN SHEET 21





**TIP PROJECT: R-2552C**

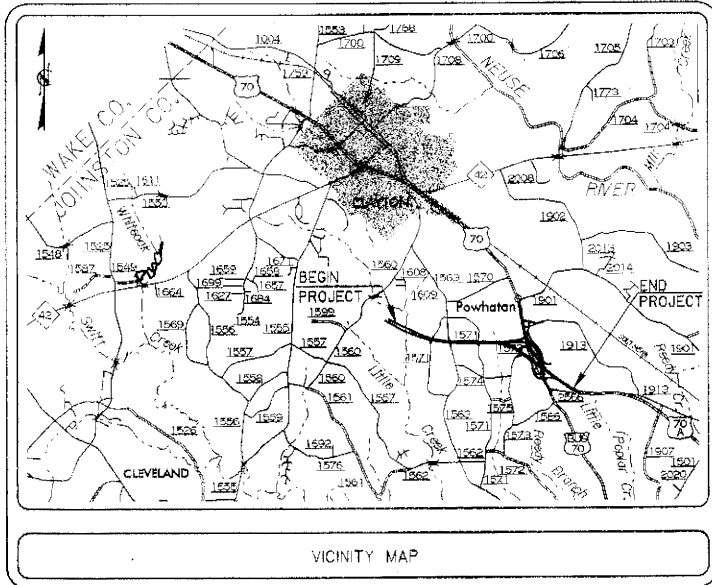
# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS



ALL DIMENSIONS IN THESE PLANS ARE IN METERS AND/OR MILLIMETERS UNLESS OTHERWISE SHOWN

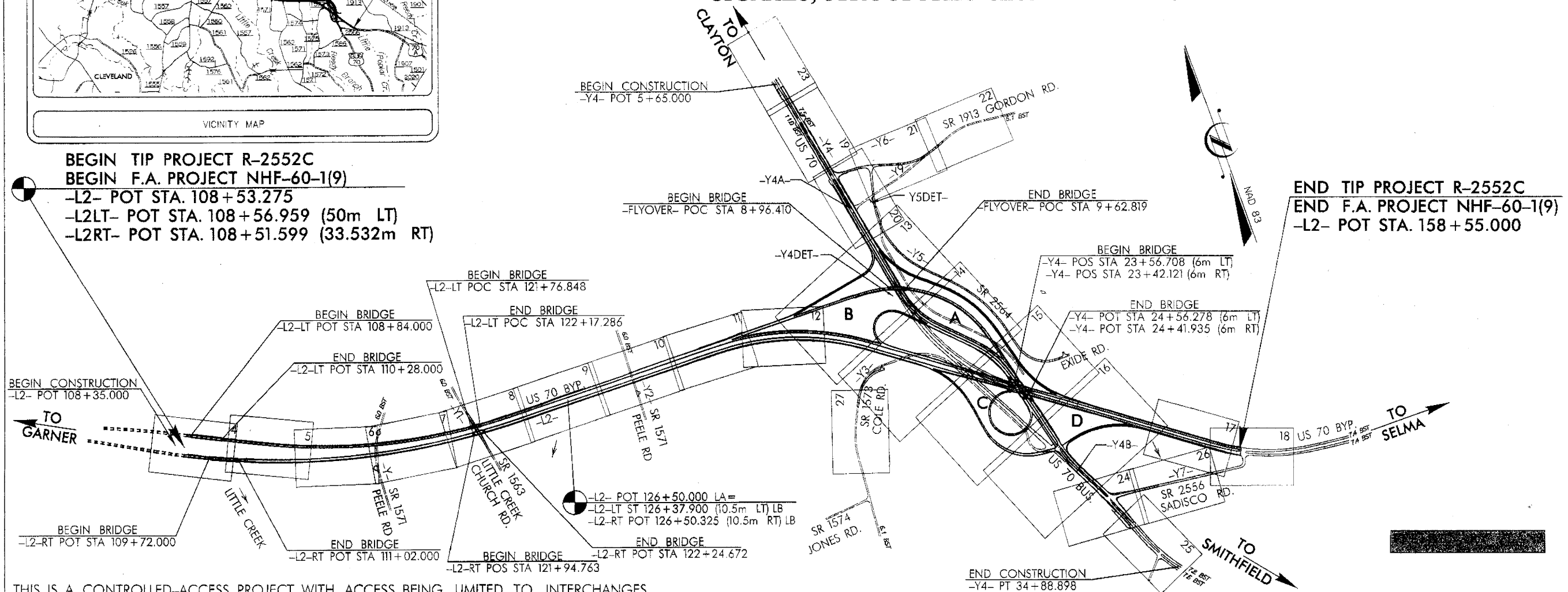
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2552C	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34459.1.6	NHF-60-1(9)	P.E.	
34459.2.7		R.W. & UTIL.	

See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols



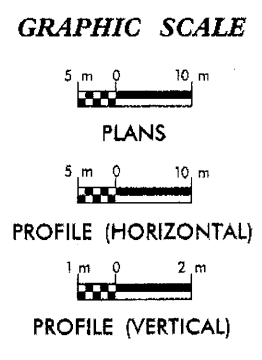
## JOHNSTON COUNTY

**LOCATION: US 70 (CLAYTON BYPASS) FROM EAST OF SR 1560 TO US 70 EAST OF CLAYTON**  
**TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, SIGNALS, STRUCTURES AND CULVERTS**



THIS IS A CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

**CONTRACT:**



**DESIGN DATA**

ADT 1999 =	21,500
ADT 2025 =	55,800
DHV =	10 %
D =	65 %
T =	16 % *
V =	110 km/h

\* TTST 10% + DUAL 6%

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT R-2552C	=	4.842 km
LENGTH STRUCTURE TIP PROJECT R-2552C	=	0.160 km
TOTAL LENGTH TIP PROJECT R-2552C	=	5.002 km

-L2-RT WAS USED TO DETERMINE STRUCTURE LENGTH

Prepared in the Office of:  
**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612  
FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

2002 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
October 18, 2005

**LETTING DATE:**  
October 18, 2005

**Stephen C. Browde, P.E.**  
PROJECT ENGINEER

**Thomas A. McCloskey, P.E.**  
PROJECT DESIGN ENGINEER

N.C.D.O.T. CONTACT:  
**Teresa Bruton, P.E.**  
PROJECT ENGINEER - DESIGN SERVICES

**HYDRAULICS ENGINEER**

\_\_\_\_\_  
SIGNATURE: \_\_\_\_\_ P.E.

**ROADWAY DESIGN ENGINEER**

\_\_\_\_\_  
SIGNATURE: \_\_\_\_\_ P.E.

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**

\_\_\_\_\_  
STATE DESIGN ENGINEER P.E.

**DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**

\_\_\_\_\_  
APPROVED DIVISION ADMINISTRATOR

\_\_\_\_\_  
DATE

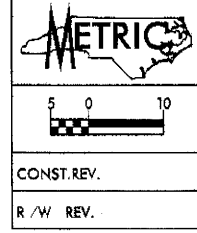
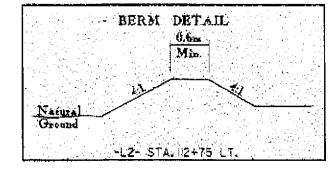
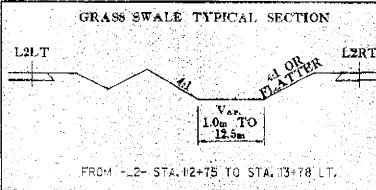
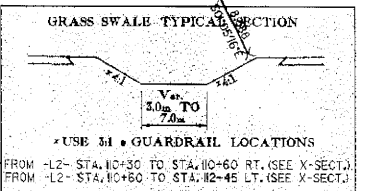
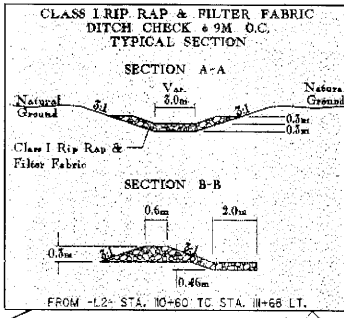
DRAWN BY: J. H. HARRIS, ENGINEER, 2552C-1, RDY, 1/15/05



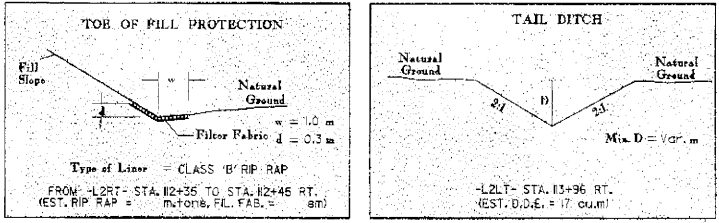
REVISIONS

**-L2-**  
 PIs Sta 111+95.858 PI Sta 117+4.075 PIs Sta 122+19.284  
 $\theta_s = 1^{\circ}08'02.3''$   $\Delta = 22^{\circ}55'13.9''$  (LT)  $\theta_s = 1^{\circ}08'02.3''$   
 $L_s = 95,000$   $L = 960,093$   $L_s = 95,000$   
 $LT = 63,335$   $T = 486,553$   $LT = 63,335$   
 $ST = 31,668$   $R = 2,400,000$   $ST = 31,668$

**-L2LT-**  
 PIs Sta 112+10.807 PI Sta 117+99.379 PIs Sta 123+72.715  
 $\theta_s = 1^{\circ}00'08.7''$   $\Delta = 23^{\circ}11'01.2''$  (LT)  $\theta_s = 1^{\circ}00'08.7''$   
 $L_s = 95,000$   $L = 1,098,574$   $L_s = 95,000$   
 $LT = 63,334$   $T = 556,906$   $LT = 63,334$   
 $ST = 31,668$   $R = 2,715,000$   $ST = 31,668$   
 $SE = 0.03$   
 $DS = 110 \text{ km/h}$

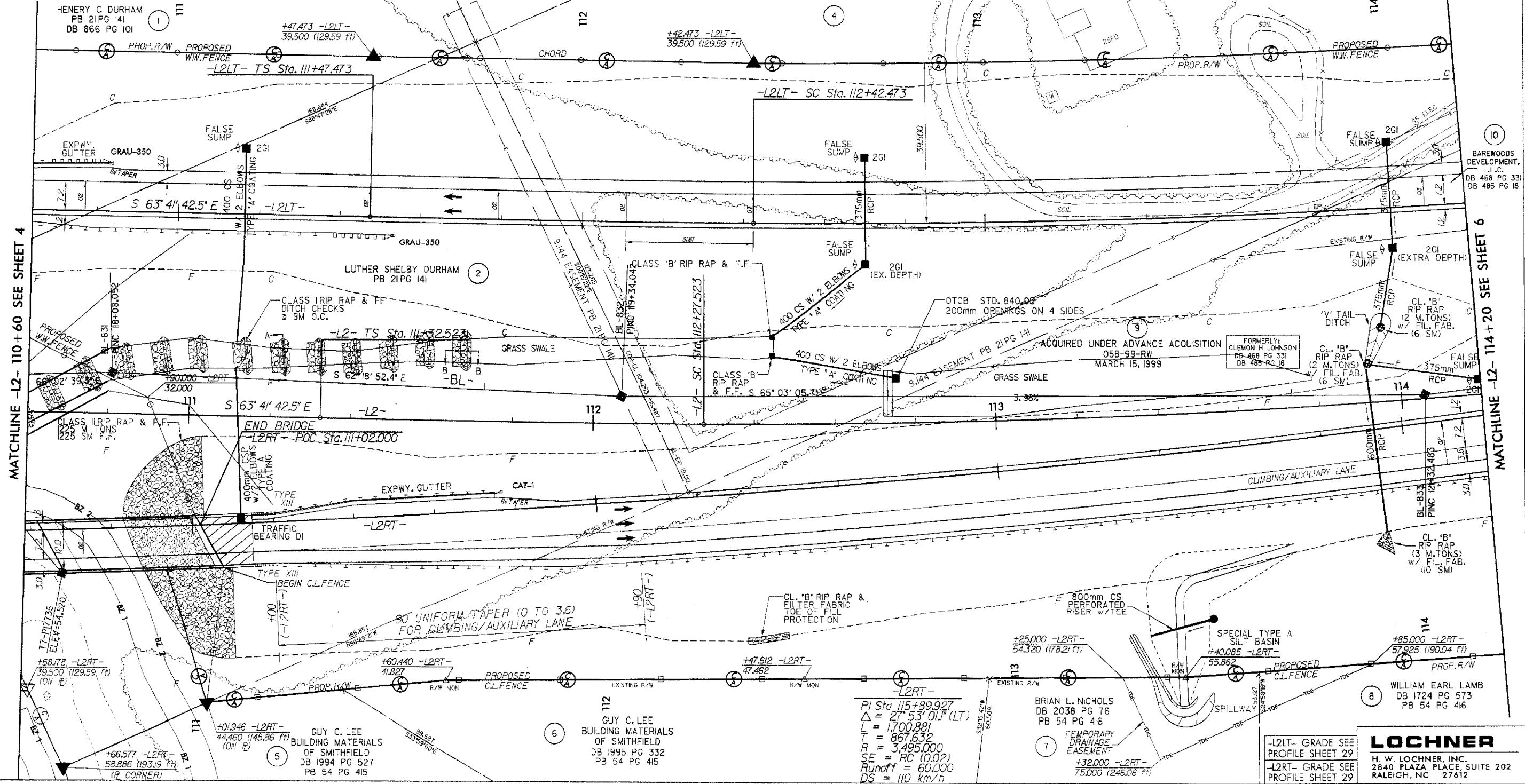


PROJECT REFERENCE NO.	R-25520	SHEET NO.	5
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



MATCHLINE -L2- 110+60 SEE SHEET 4

MATCHLINE -L2- 114+20 SEE SHEET 6



**-L2RT-**  
 PI Sta 115+99.927  
 $\Delta = 27^{\circ}53'01.1''$  (LT)  
 $L = 1,700,881$   
 $R = 867,632$   
 $T = 3,495,000$   
 $SE = RC (0.02)$   
 $Runoff = 60,000$   
 $DS = 110 \text{ km/h}$

**LOCHNER**  
 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612

DATE: 08/15/05  
 DRAWN: JAV/STW  
 CHECKED: JAV/STW  
 REVISIONS: REV. 1: PSH/ML/DON

REVISIONS

**-L2LT-**

PI Sta 112+0.807	PI Sta 117+99.379	PI Sta 123+72.715
$\Delta = 1^{\circ}00'08.7''$	$\Delta = 23^{\circ}11'01.2''$ (LT)	$\Delta = 1^{\circ}00'08.7''$
Ls = 95,000	L = 1,098.574	Ls = 95,000
LT = 63.334	T = 556.906	LT = 63.334
ST = 31.668	R = 2715.000	ST = 31.668
	SE = 0.03	
	DS = 110 km/h	

THOMAS R CARROLL JR.  
PG 2 PG 141  
DB 888 PG 328

9.144 EASEMENT PB 21 PG 141  
329.817  
586°49'54"E

BAREWOODS DEVELOPMENT, L.L.C.  
DB 468 PG 331  
DB 485 PG 18



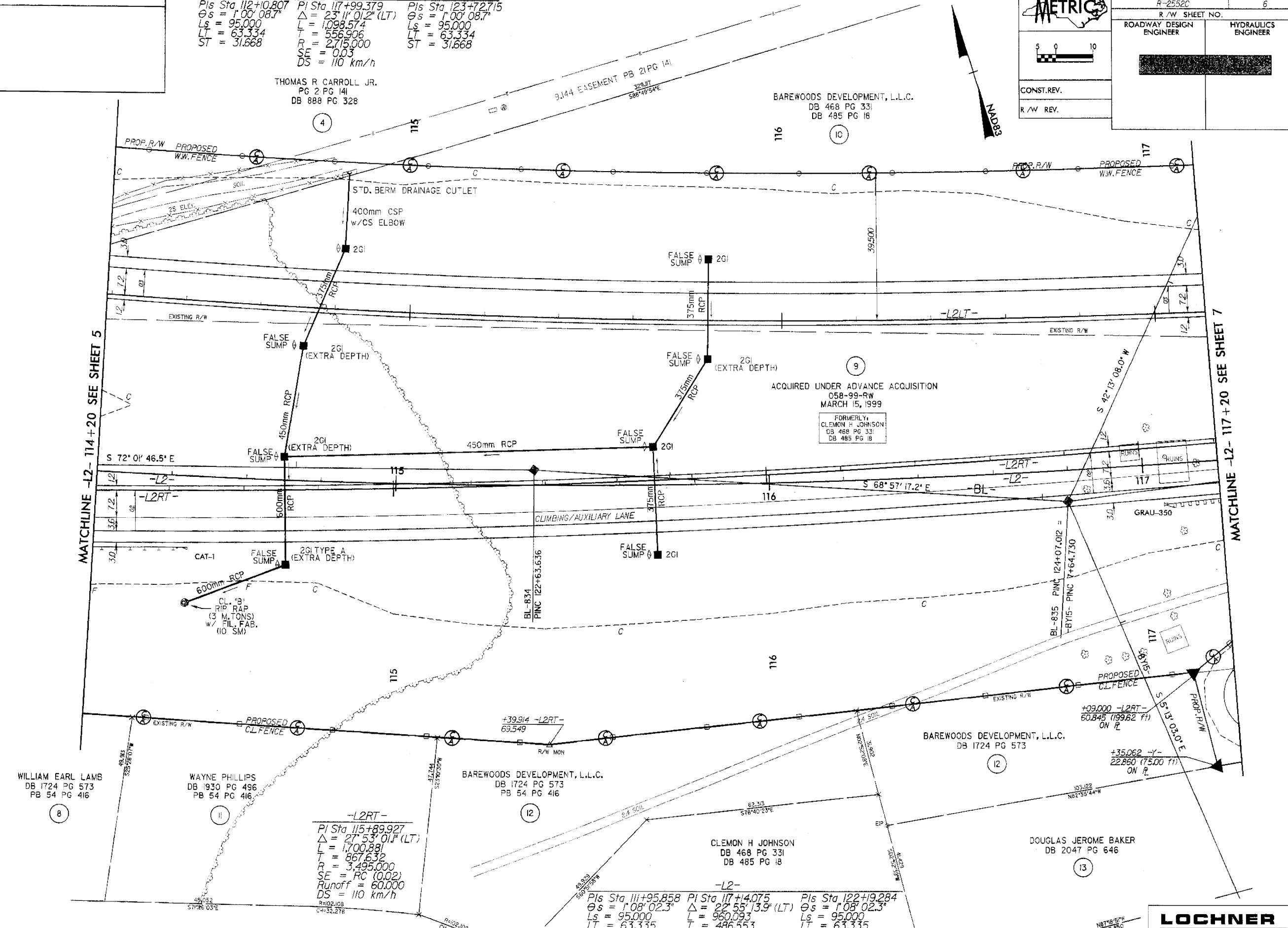
CONST. REV.

R/W REV.

PROJECT REFERENCE NO. R-25520	SHEET NO. 6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATCHLINE -L2- 114+20 SEE SHEET 5

MATCHLINE -L2- 117+20 SEE SHEET 7



WILLIAM EARL LAMB  
DB 1724 PG 573  
PB 54 PG 416

WAYNE PHILLIPS  
DB 1930 PG 496  
PB 54 PG 416

BAREWOODS DEVELOPMENT, L.L.C.  
DB 1724 PG 573  
PB 54 PG 416

CLEMON H JOHNSON  
DB 468 PG 331  
DB 485 PG 18

BAREWOODS DEVELOPMENT, L.L.C.  
DB 1724 PG 573

DOUGLAS JEROME BAKER  
DB 2047 PG 646

**-L2RT-**

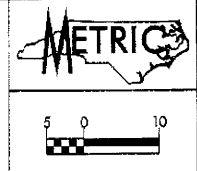
PI Sta 115+89.927	$\Delta = 27^{\circ}53'01.1''$ (LT)
L = 1,700.881	T = 867.632
R = 3,495.000	SE = RC (0.02)
Runoff = 60,000	DS = 110 km/h
R=102.108	C=32.278

**-L2-**

PI Sta 111+95.858	PI Sta 117+14.075	PI Sta 122+19.284
$\Delta = 1^{\circ}08'02.3''$	$\Delta = 22^{\circ}55'13.9''$ (LT)	$\Delta = 1^{\circ}08'02.3''$
Ls = 95,000	L = 960.093	Ls = 95,000
LT = 63.335	T = 486.553	LT = 63.335
ST = 31.668	R = 2,400.000	ST = 31.668

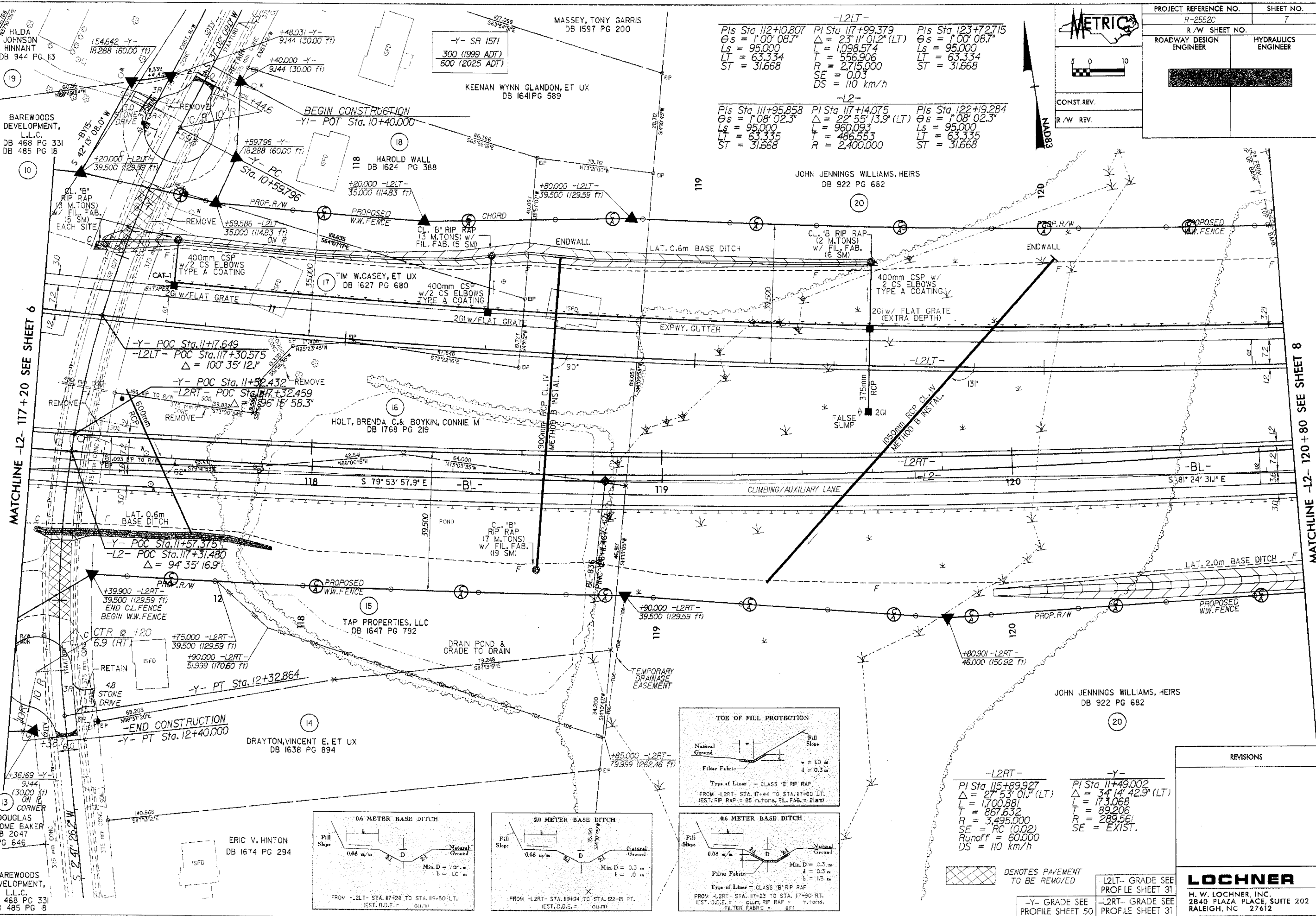
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BY: PSH/KE/EGN

PROJECT REFERENCE NO.	R-2552C	SHEET NO.	7
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



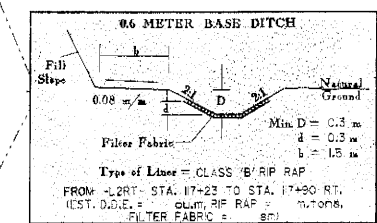
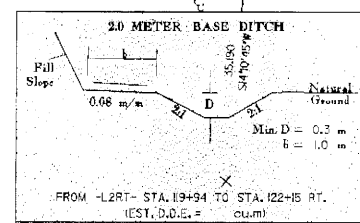
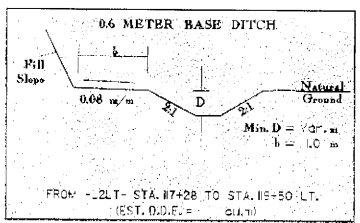
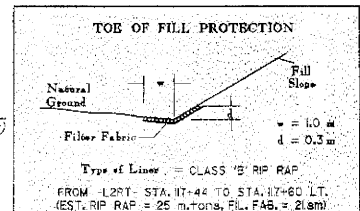
CONST. REV.  
R/W REV.

-L2LT-		
Pls Sta 112+10.807 θs = 1°00'08.7" Ls = 95,000 LT = 63,334 ST = 31,668	PI Sta 117+99.379 Δ = 23°11'01.2" (LT) L = 1,098,574 T = 556,906 R = 2,715,000 SE = 0.03 DS = 110 km/h	Pls Sta 123+72.715 θs = 1°00'08.7" Ls = 95,000 LT = 63,334 ST = 31,668
-L2-		
Pls Sta 111+95.858 θs = 1°08'02.3" Ls = 95,000 LT = 63,335 ST = 31,668	PI Sta 117+14.075 Δ = 22°55'13.9" (LT) L = 960,093 T = 486,553 R = 2,400,000	Pls Sta 122+19.284 θs = 1°08'02.3" Ls = 95,000 LT = 63,335 ST = 31,668



MATCHLINE -L2- 117+20 SEE SHEET 6

MATCHLINE -L2- 120+80 SEE SHEET 8



-L2RT-		-Y-	
PI Sta 115+89.927 Δ = 27°53'01.1" (LT) L = 1,700,881 T = 867,632 R = 3,495,000 SE = RC (0.02) Runoff = 60,000 DS = 110 km/h	PI Sta 11+49.002 Δ = 34°14'42.9" (LT) L = 173,068 T = 89,206 R = 289,561 SE = EXIST.		

☒ DENOTES PAVEMENT TO BE REMOVED

-L2LT- GRADE SEE PROFILE SHEET 31  
-L2RT- GRADE SEE PROFILE SHEET 50  
-Y- GRADE SEE PROFILE SHEET 31

REVISIONS

**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

23-JUN-2004 1:40 3A:VALLEY/12%DESIGN/DESIGN/ROD\_PSH07.DGN

REVISIONS

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

(20)

+84.283 -YI-  
7.620 (25.00 FT)

+84.283 -YI-  
12.190 (40.00 FT)

+100.000 -YI-  
12.190 (40.00 FT)

+14.924 -YI-  
18.000 (59.05 FT)

+30.000 -YI-  
12.190 (40.00 FT)

+71.447 -L2LT-  
39.500 (129.59 FT)

+40.000 -L2RT-  
41.000 (134.51 FT)

-YI- POT Sta. 12+18.883  
-L2RT- POC Sta. 122+14.832  
 $\Delta = 73^{\circ} 03' 02.5''$

-L2RT-  
PI Sta. 115+89.927  
 $\Delta = 27^{\circ} 53' 01.1''$  (LT)  
 $L = 1,700.881$   
 $T = 867.632$   
 $R = 3,495.000$   
 $SE = RC (0.02)$   
 $Runoff = 60,000$   
 $DS = 110 \text{ km/h}$

-YI-  
PI Sta. 12+87.560  
 $\Delta = 2^{\circ} 32' 36.0''$  (RT)  
 $L = 106.079$   
 $T = 53.048$   
 $R = 2,389.728$   
 $SE = 0.03$  (AS SHOWN)  
 $Runoff = 60,000$   
 $DS = 100 \text{ km/h}$

+73.500 -YI-  
11.430 (37.50 FT)

+41.467 -L2RT-  
41.000 (134.51 FT)

+39.797 -YI-  
7.620 (25.00 FT)

+25.000 -YI-  
11.430 (37.50 FT)

+39.797 -YI-  
7.620 (25.00 FT)

+25.000 -YI-  
11.430 (37.50 FT)

+39.797 -YI-  
7.620 (25.00 FT)

+25.000 -YI-  
11.430 (37.50 FT)

+39.797 -YI-  
7.620 (25.00 FT)

+25.000 -YI-  
11.430 (37.50 FT)

+39.797 -YI-  
7.620 (25.00 FT)

+84.283 -YI-  
12.190 (40.00 FT)

+84.283 -YI-  
7.620 (25.00 FT)

+100.000 -YI-  
12.190 (40.00 FT)

+14.924 -YI-  
15.240 (50.00 FT)

+30.000 -YI-  
12.190 (40.00 FT)

+97.437 -L2LT-  
39.500 (129.59 FT)

+40.000 -L2RT-  
41.000 (134.51 FT)

-YI- POT Sta. 12+18.883  
-L2RT- POC Sta. 122+14.832  
 $\Delta = 73^{\circ} 03' 02.5''$

-L2RT-  
PI Sta. 115+89.927  
 $\Delta = 27^{\circ} 53' 01.1''$  (LT)  
 $L = 1,700.881$   
 $T = 867.632$   
 $R = 3,495.000$   
 $SE = RC (0.02)$   
 $Runoff = 60,000$   
 $DS = 110 \text{ km/h}$

-YI-  
PI Sta. 12+87.560  
 $\Delta = 2^{\circ} 32' 36.0''$  (RT)  
 $L = 106.079$   
 $T = 53.048$   
 $R = 2,389.728$   
 $SE = 0.03$  (AS SHOWN)  
 $Runoff = 60,000$   
 $DS = 100 \text{ km/h}$

+73.500 -YI-  
11.430 (37.50 FT)

+41.467 -L2RT-  
41.000 (134.51 FT)

+39.797 -YI-  
7.620 (25.00 FT)

+25.000 -YI-  
11.430 (37.50 FT)

+39.797 -YI-  
7.620 (25.00 FT)

+25.000 -YI-  
11.430 (37.50 FT)

+39.797 -YI-  
7.620 (25.00 FT)

+25.000 -YI-  
11.430 (37.50 FT)

+39.797 -YI-  
7.620 (25.00 FT)

+25.000 -YI-  
11.430 (37.50 FT)

+39.797 -YI-  
7.620 (25.00 FT)

-YI- SR 1563  
3600 (1999 ADT)  
6900 (2025 ADT)

BEGIN CONSTRUCTION  
-YI- PT Sta. 10+84.283

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

(20)

-L2LT-  
PIs Sta. 112+10.807 PI Sta. 117+99.379 PIs Sta. 123+72.715  
 $\theta_s = 1^{\circ} 00' 08.7''$   $\Delta = 23^{\circ} 11' 01.2''$  (LT)  $\theta_s = 1^{\circ} 00' 08.7''$   
 $L_s = 95,000$   $L = 1,098.574$   $L_s = 95,000$   
 $LT = 63.334$   $T = 556.906$   $LT = 63.334$   
 $ST = 31.668$   $R = 2,715,000$   $ST = 31.668$   
 $SE = 0.03$   
 $DS = 110 \text{ km/h}$

-L2LT- CS Sta. 123+41.047

+41.047 -L2LT-  
39.500 (129.59 FT)

-L2LT- POC Sta. 121+97.157  
 $\Delta = 72^{\circ} 25' 37.9''$

-YI- POT Sta. 12+14.221  
-L2- POS Sta. 122+13.539  
 $\Delta = 73^{\circ} 51' 59.8''$

-L2LT- POC Sta. 122+17.286

-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

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-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

-L2LT- POC Sta. 122+24.672

JOHN JENNINGS WILLIAMS, HEIRS  
DB 922 PG 682

(20)

NOTE: SEE GUIDE FOR PAVING  
SHOULDERS UNDER BRIDGES  
(S/D'S. 610.01, 610.02, & 610.03)

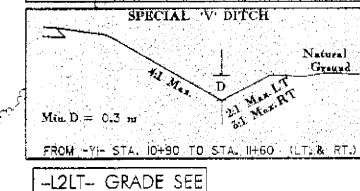
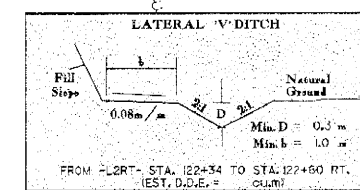
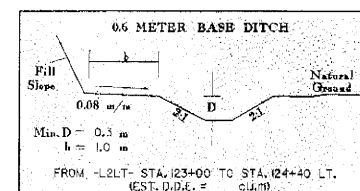
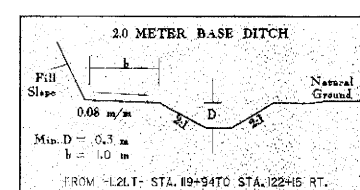
BEGIN CONSTRUCTION  
-YI- POC Sta. 13+25.000

-YI- PT Sta. 13+40.591

-YI- PT Sta. 13+40.591

-YI- PT Sta. 13+40.591

-L2-  
PIs Sta. 111+95.858 PI Sta. 117+14.075 PIs Sta. 122+19.284  
 $\theta_s = 1^{\circ} 08' 02.3''$   $\Delta = 22^{\circ} 55' 13.9''$  (LT)  $\theta_s = 1^{\circ} 08' 02.3''$   
 $L_s = 95,000$   $L = 960.093$   $L_s = 95,000$   
 $LT = 63.335$   $T = 486.553$   $LT = 63.335$   
 $ST = 31.668$   $R = 2,400,000$   $ST = 31.668$



-L2LT- GRADE SEE  
PROFILE SHEET 32  
-L2RT- GRADE SEE  
PROFILE SHEET 32  
-YI- GRADE SEE  
PROFILE SHEET 50

**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

METRIC logo, scale bar (0-10), and project reference information.

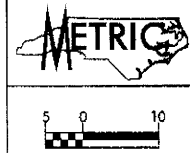
Table with project reference number (R-2552C), sheet number (8), and roles for Roadway Design Engineer and Hydraulics Engineer.

MATCHLINE -L2- 120 + 80 SEE SHEET 7

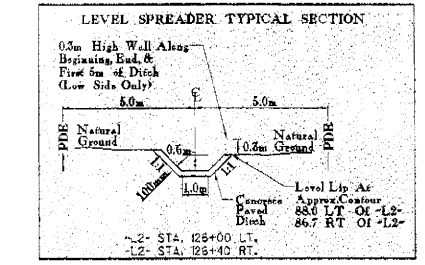
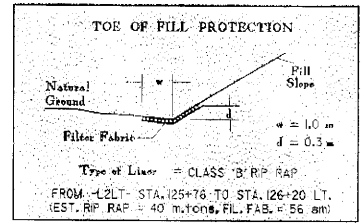
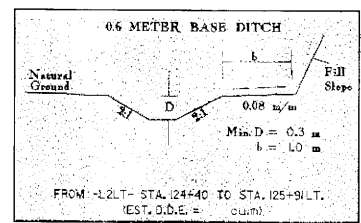
MATCHLINE -L2- 124 + 40 SEE SHEET 9

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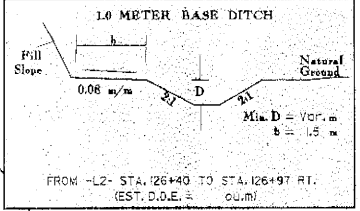
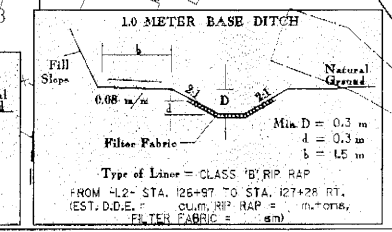
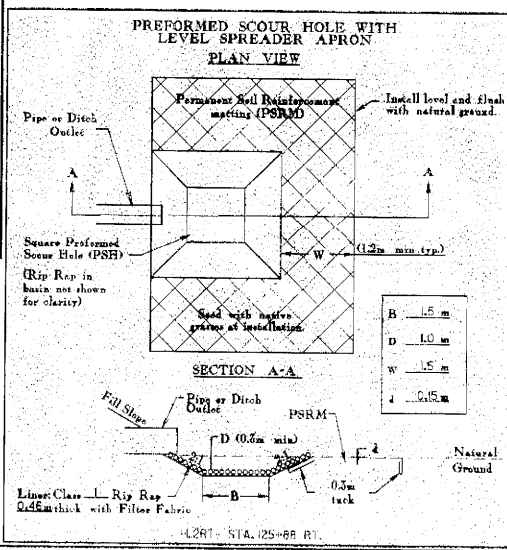
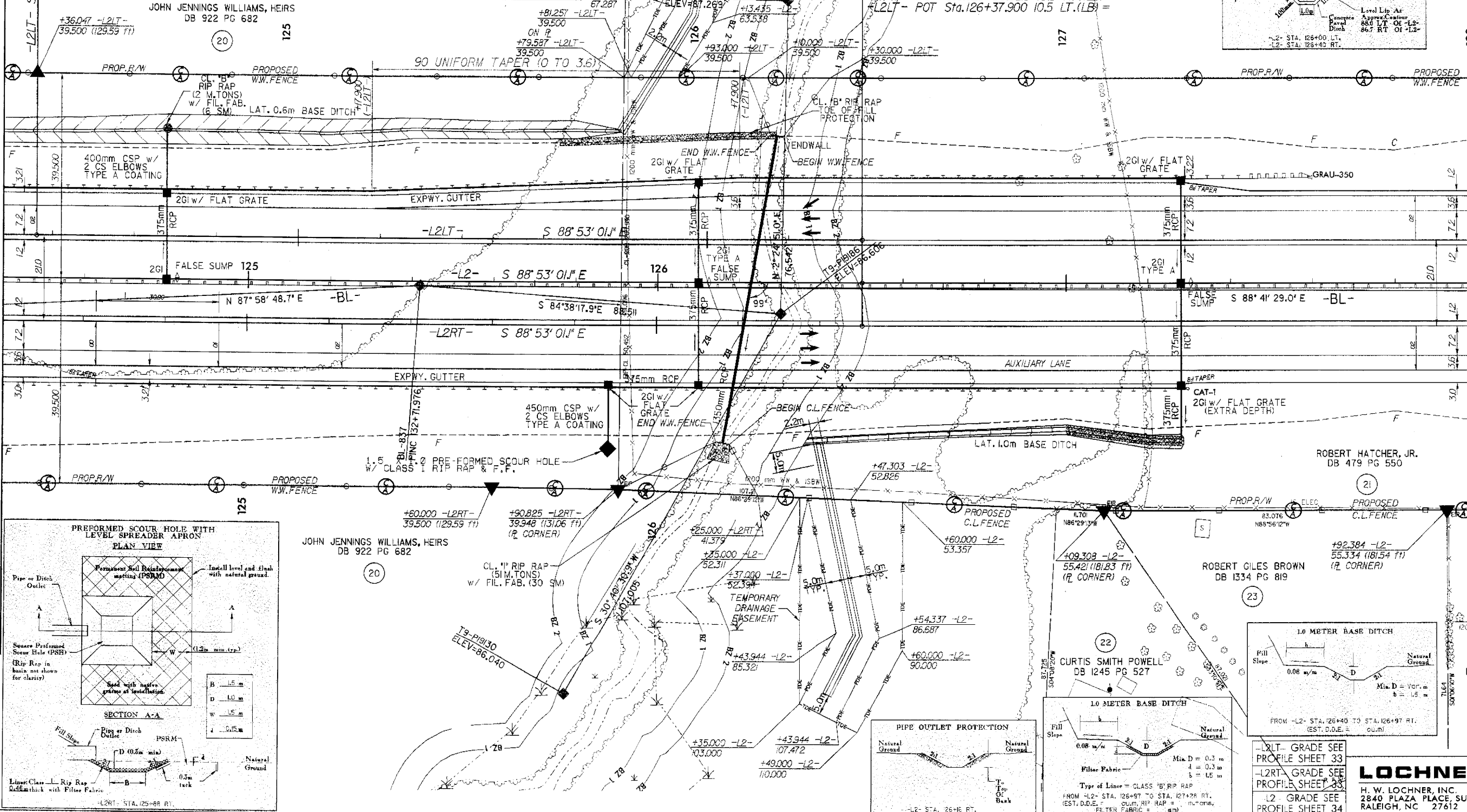
REVISIONS



PROJECT REFERENCE NO.	R-25520	SHEET NO.	9
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
CONST. REV.		R/W REV.	



-L2LT-  
 Pts Sta 112+10.807  
 $\theta_s = 1'00'' 08.7''$   
 $L_s = 95.000$   
 $LT = 63.334$   
 $ST = 31.668$   
 PI Sta 117+99.379  
 $\Delta = 23' 11'' 01.2'' (LT)$   
 $L_s = 1098.574$   
 $R = 556.906$   
 $SE = 0.03$   
 $DS = 110 \text{ km/h}$   
 Pts Sta 123+72.715  
 $\theta_s = 1'00'' 08.7''$   
 $L_s = 95.000$   
 $LT = 63.334$   
 $ST = 31.668$



-L2LT- GRADE SEE PROFILE SHEET 33  
 -L2RT- GRADE SEE PROFILE SHEET 33  
 -L2- GRADE SEE PROFILE SHEET 34

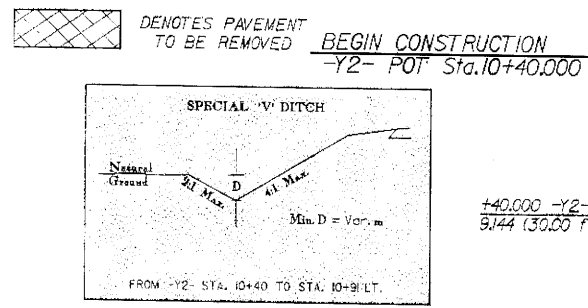
**LOCHNER**  
 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612

MATCHLINE -L2- 124+40 SEE SHEET 8

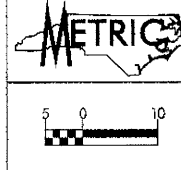
MATCHLINE -L2- 128+00 SEE SHEET 10

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 PLOT: 125520-09.dwg  
 PLOT DATE: 03/22/04 11:40 AM  
 PLOT BY: JAL

REVISIONS



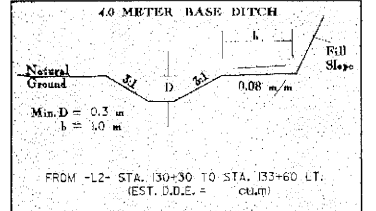
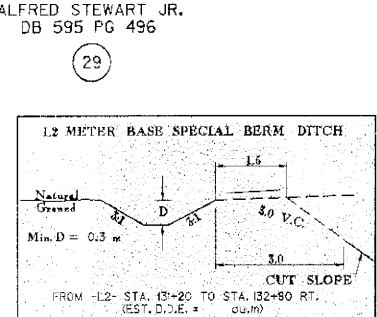
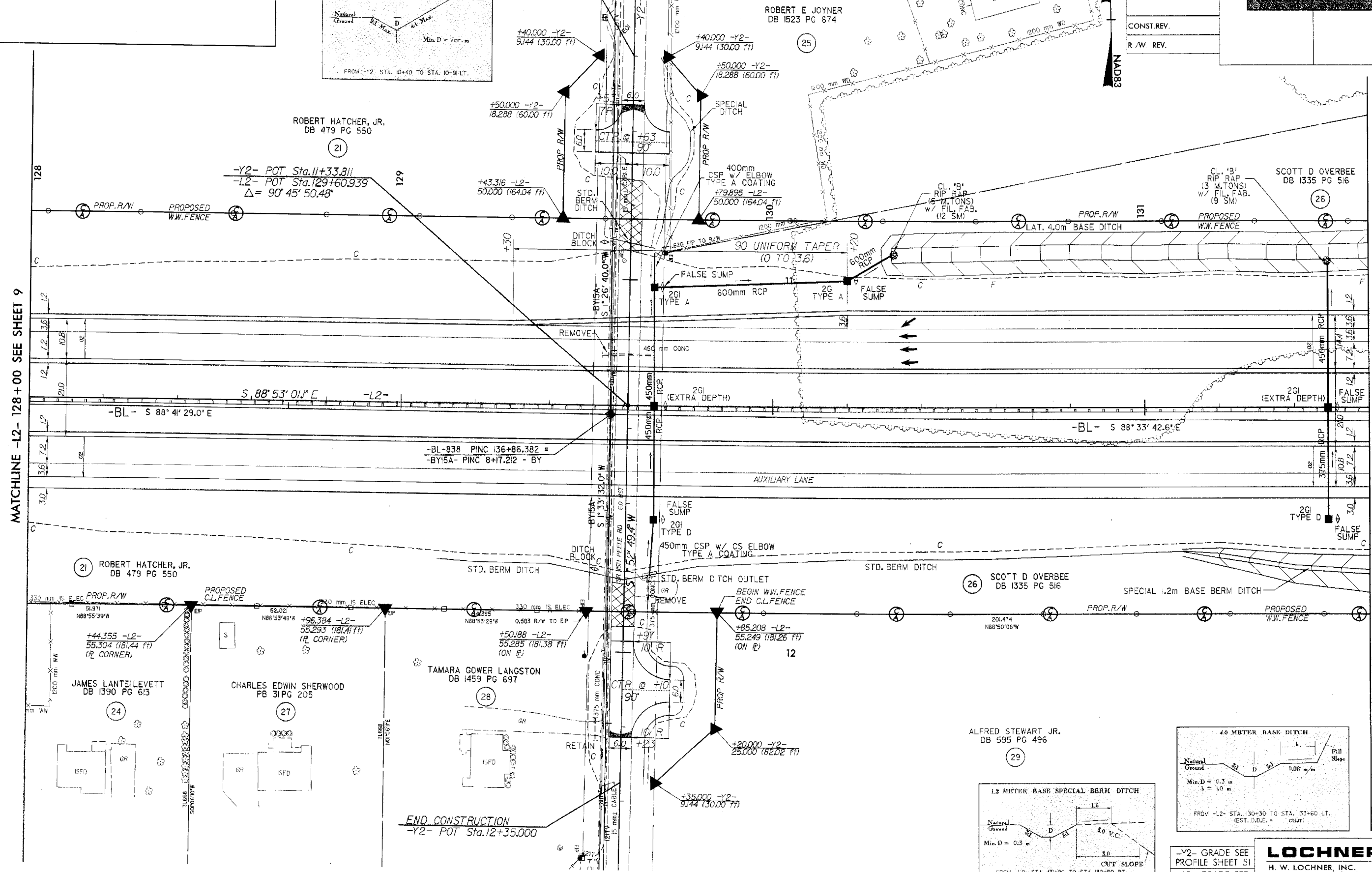
-Y2- SR 1571  
200 (1999 ADT)  
500 (2025 ADT)



PROJECT REFERENCE NO. R-2552C	SHEET NO. 10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
[Redacted Signature]	
CONST. REV.	
R/W REV.	

MATCHLINE -L2- 128+00 SEE SHEET 9

MATCHLINE -L2- 131+60 SEE SHEET 11



-Y2- GRADE SEE PROFILE SHEET S1  
-L2- GRADE SEE PROFILE SHEET 34

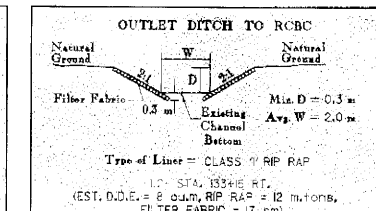
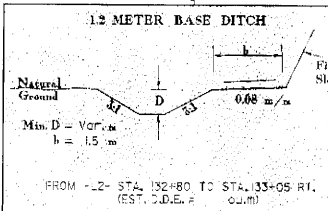
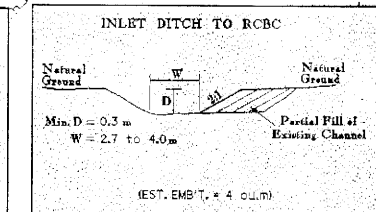
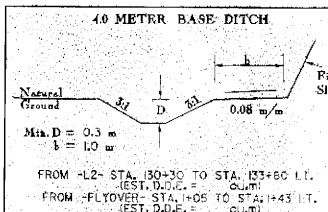
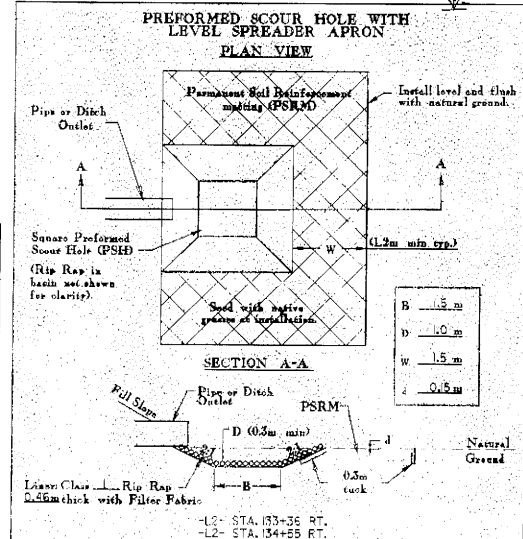
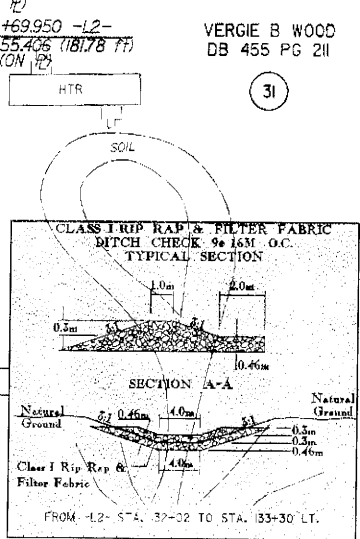
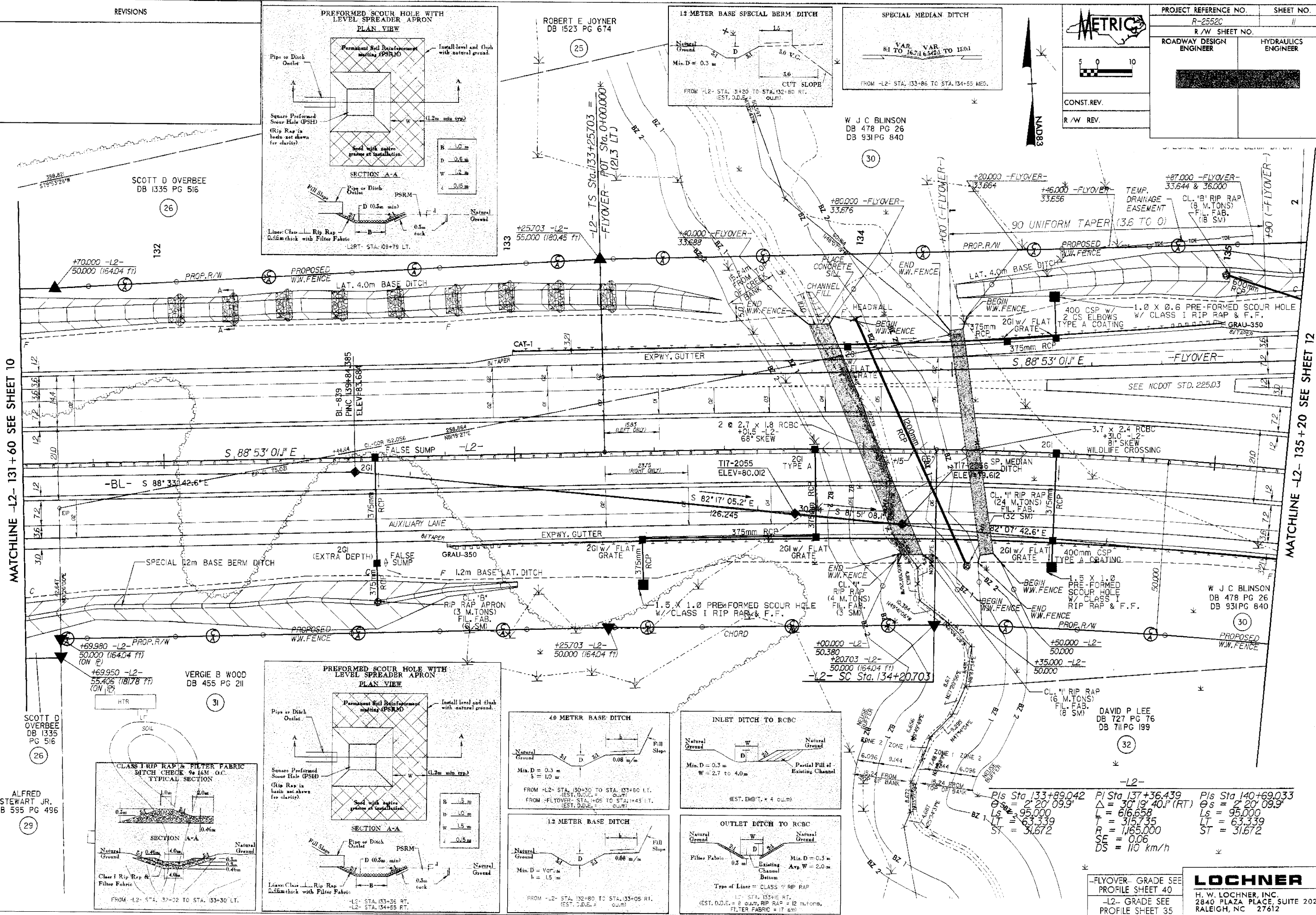
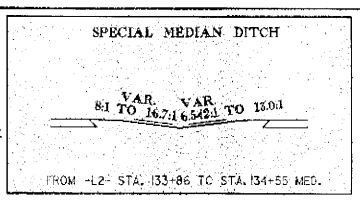
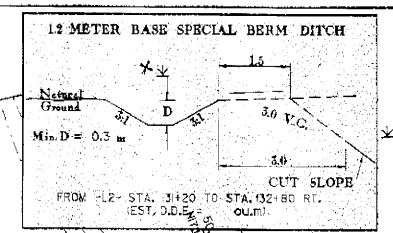
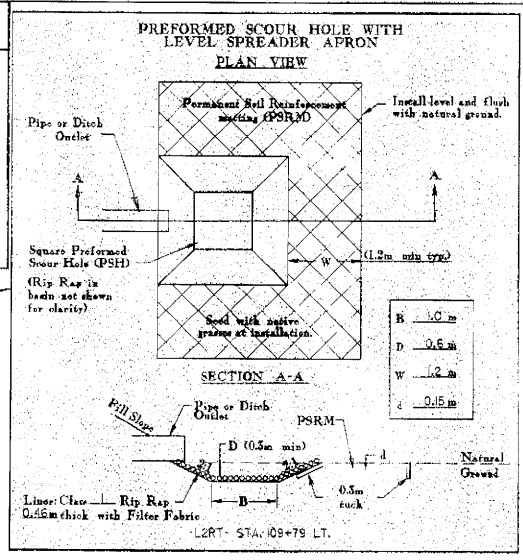
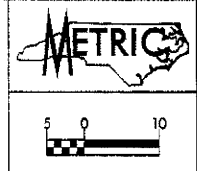
**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

DATE PLOTTED: 11/15/2011 10:58:58 AM  
PLOTTER: HP PLOTTER  
SCALE: 1"=40'



REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2552C	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
CONST. REV.	
R/W REV.	



MATCHLINE -L2- 131+60 SEE SHEET 10

MATCHLINE -L2- 135+20 SEE SHEET 12

ALFRED STEWART JR. DB 595 PG 496

SCOTT D OVERBEE DB 1335 PG 516

VERGIE B WOOD DB 455 PG 211

ROBERT E JOYNER DB 1523 PG 674

W J C BLINSON DB 478 PG 26 DB 931 PG 840

DAVID P LEE DB 727 PG 76 DB 711 PG 199

Sta 133+89.042  
 $\theta = 2^{\circ} 20' 09.9''$   
 $L_s = 95.000$   
 $L = 63.339$   
 $R = 31.672$   
 $SE = 0.06$   
 $DS = 110 \text{ km/h}$

Sta 137+36.439  
 $\Delta = 30^{\circ} 19' 40.1'' \text{ (RT)}$   
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 $L = 616.658$   
 $T = 315.735$   
 $ST = 63.339$

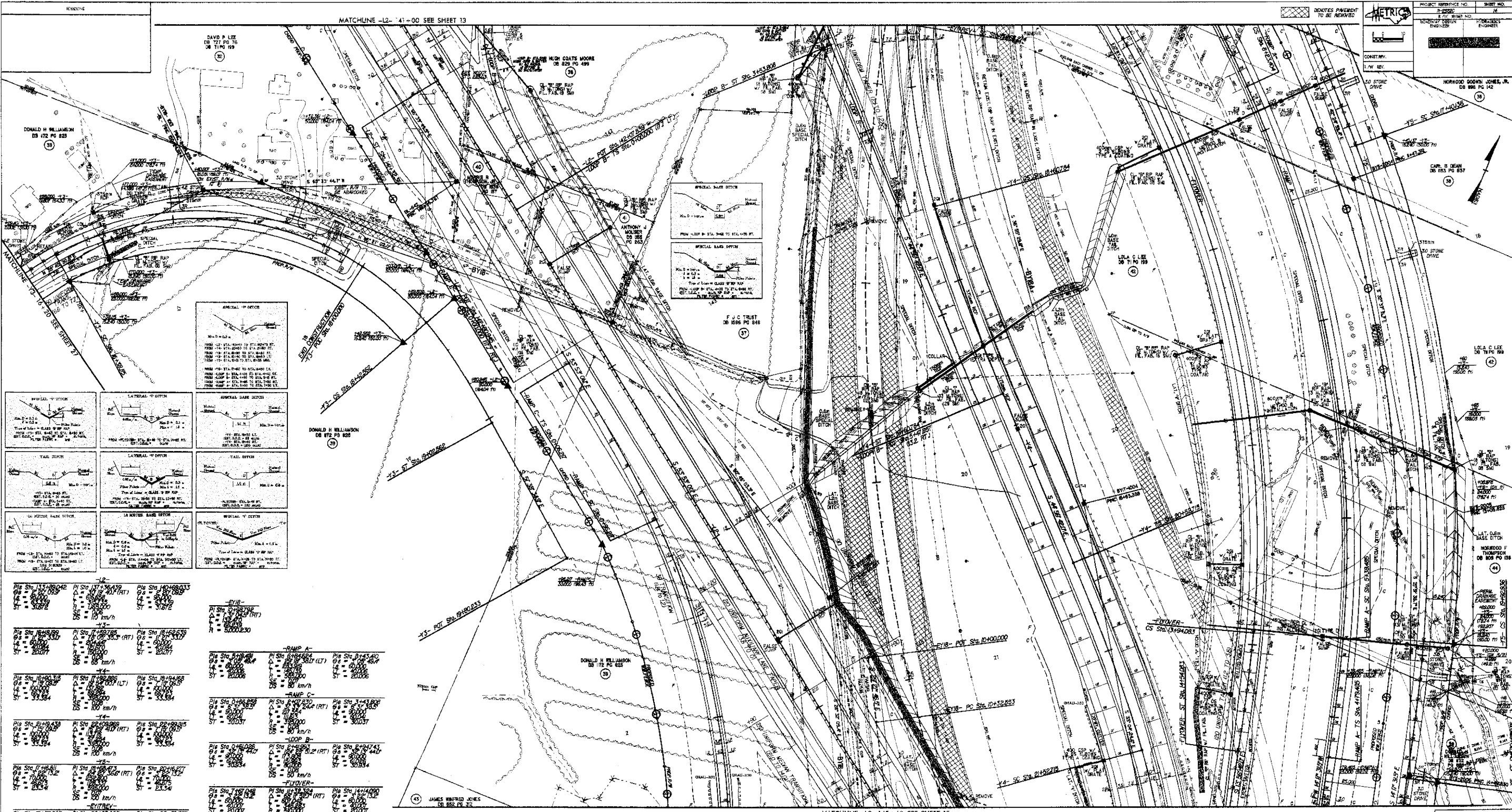
Sta 140+69.033  
 $\theta = 2^{\circ} 20' 09.9''$   
 $L_s = 95.000$   
 $L = 63.339$   
 $ST = 31.672$

-FLYOVER- GRADE SEE PROFILE SHEET 40  
 -L2- GRADE SEE PROFILE SHEET 35

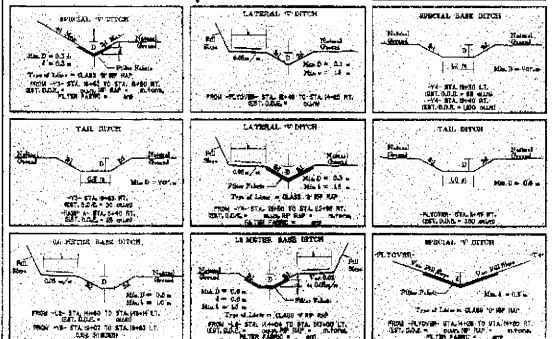
**LOCHNER**  
 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612







PROJECT REFERENCE NO. 14  
 SHEET NO. 14  
 CONTRACTOR: METRICA  
 DESIGNER: HARRISON JONES, JR.  
 ENGINEER: HARRISON JONES, JR.  
 DATE: 08/28/04  
 COUNTY: ...  
 LAW: ...



<p>PI STATIONING</p> <table border="1"> <tr><td>PI Sta. 115+00.00</td><td>PI Sta. 117+00.00</td><td>PI Sta. 140+00.00</td></tr> <tr><td>GA = 0.00</td><td>GA = 0.00</td><td>GA = 0.00</td></tr> <tr><td>LA = 0.00</td><td>LA = 0.00</td><td>LA = 0.00</td></tr> <tr><td>ST = 0.00</td><td>ST = 0.00</td><td>ST = 0.00</td></tr> <tr><td>DS = 0.00</td><td>DS = 0.00</td><td>DS = 0.00</td></tr> </table>	PI Sta. 115+00.00	PI Sta. 117+00.00	PI Sta. 140+00.00	GA = 0.00	GA = 0.00	GA = 0.00	LA = 0.00	LA = 0.00	LA = 0.00	ST = 0.00	ST = 0.00	ST = 0.00	DS = 0.00	DS = 0.00	DS = 0.00	<p>PI STATIONING</p> <table border="1"> <tr><td>PI Sta. 118+00.00</td><td>PI Sta. 120+00.00</td><td>PI Sta. 142+00.00</td></tr> <tr><td>GA = 0.00</td><td>GA = 0.00</td><td>GA = 0.00</td></tr> <tr><td>LA = 0.00</td><td>LA = 0.00</td><td>LA = 0.00</td></tr> <tr><td>ST = 0.00</td><td>ST = 0.00</td><td>ST = 0.00</td></tr> <tr><td>DS = 0.00</td><td>DS = 0.00</td><td>DS = 0.00</td></tr> </table>	PI Sta. 118+00.00	PI Sta. 120+00.00	PI Sta. 142+00.00	GA = 0.00	GA = 0.00	GA = 0.00	LA = 0.00	LA = 0.00	LA = 0.00	ST = 0.00	ST = 0.00	ST = 0.00	DS = 0.00	DS = 0.00	DS = 0.00	<p>PI STATIONING</p> <table border="1"> <tr><td>PI Sta. 119+00.00</td><td>PI Sta. 122+00.00</td><td>PI Sta. 144+00.00</td></tr> <tr><td>GA = 0.00</td><td>GA = 0.00</td><td>GA = 0.00</td></tr> <tr><td>LA = 0.00</td><td>LA = 0.00</td><td>LA = 0.00</td></tr> <tr><td>ST = 0.00</td><td>ST = 0.00</td><td>ST = 0.00</td></tr> <tr><td>DS = 0.00</td><td>DS = 0.00</td><td>DS = 0.00</td></tr> </table>	PI Sta. 119+00.00	PI Sta. 122+00.00	PI Sta. 144+00.00	GA = 0.00	GA = 0.00	GA = 0.00	LA = 0.00	LA = 0.00	LA = 0.00	ST = 0.00	ST = 0.00	ST = 0.00	DS = 0.00	DS = 0.00	DS = 0.00
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LA = 0.00	LA = 0.00	LA = 0.00																																													
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PI Sta. 119+00.00	PI Sta. 122+00.00	PI Sta. 144+00.00																																													
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DS = 0.00	DS = 0.00	DS = 0.00																																													
<p>PI STATIONING</p> <table border="1"> <tr><td>PI Sta. 121+00.00</td><td>PI Sta. 124+00.00</td><td>PI Sta. 146+00.00</td></tr> <tr><td>GA = 0.00</td><td>GA = 0.00</td><td>GA = 0.00</td></tr> <tr><td>LA = 0.00</td><td>LA = 0.00</td><td>LA = 0.00</td></tr> <tr><td>ST = 0.00</td><td>ST = 0.00</td><td>ST = 0.00</td></tr> <tr><td>DS = 0.00</td><td>DS = 0.00</td><td>DS = 0.00</td></tr> </table>	PI Sta. 121+00.00	PI Sta. 124+00.00	PI Sta. 146+00.00	GA = 0.00	GA = 0.00	GA = 0.00	LA = 0.00	LA = 0.00	LA = 0.00	ST = 0.00	ST = 0.00	ST = 0.00	DS = 0.00	DS = 0.00	DS = 0.00	<p>PI STATIONING</p> <table border="1"> <tr><td>PI Sta. 123+00.00</td><td>PI Sta. 126+00.00</td><td>PI Sta. 148+00.00</td></tr> <tr><td>GA = 0.00</td><td>GA = 0.00</td><td>GA = 0.00</td></tr> <tr><td>LA = 0.00</td><td>LA = 0.00</td><td>LA = 0.00</td></tr> <tr><td>ST = 0.00</td><td>ST = 0.00</td><td>ST = 0.00</td></tr> <tr><td>DS = 0.00</td><td>DS = 0.00</td><td>DS = 0.00</td></tr> </table>	PI Sta. 123+00.00	PI Sta. 126+00.00	PI Sta. 148+00.00	GA = 0.00	GA = 0.00	GA = 0.00	LA = 0.00	LA = 0.00	LA = 0.00	ST = 0.00	ST = 0.00	ST = 0.00	DS = 0.00	DS = 0.00	DS = 0.00	<p>PI STATIONING</p> <table border="1"> <tr><td>PI Sta. 125+00.00</td><td>PI Sta. 128+00.00</td><td>PI Sta. 150+00.00</td></tr> <tr><td>GA = 0.00</td><td>GA = 0.00</td><td>GA = 0.00</td></tr> <tr><td>LA = 0.00</td><td>LA = 0.00</td><td>LA = 0.00</td></tr> <tr><td>ST = 0.00</td><td>ST = 0.00</td><td>ST = 0.00</td></tr> <tr><td>DS = 0.00</td><td>DS = 0.00</td><td>DS = 0.00</td></tr> </table>	PI Sta. 125+00.00	PI Sta. 128+00.00	PI Sta. 150+00.00	GA = 0.00	GA = 0.00	GA = 0.00	LA = 0.00	LA = 0.00	LA = 0.00	ST = 0.00	ST = 0.00	ST = 0.00	DS = 0.00	DS = 0.00	DS = 0.00
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DS = 0.00	DS = 0.00	DS = 0.00																																													
PI Sta. 123+00.00	PI Sta. 126+00.00	PI Sta. 148+00.00																																													
GA = 0.00	GA = 0.00	GA = 0.00																																													
LA = 0.00	LA = 0.00	LA = 0.00																																													
ST = 0.00	ST = 0.00	ST = 0.00																																													
DS = 0.00	DS = 0.00	DS = 0.00																																													
PI Sta. 125+00.00	PI Sta. 128+00.00	PI Sta. 150+00.00																																													
GA = 0.00	GA = 0.00	GA = 0.00																																													
LA = 0.00	LA = 0.00	LA = 0.00																																													
ST = 0.00	ST = 0.00	ST = 0.00																																													
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24 JUN 2004 11:40 AM  
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 14274.DWG

-13- GRADE SEE PROFILE SHEET 13  
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 -100- GRADE SEE PROFILE SHEET 100

**LOCHNER**  
 INCORPORATED  
 2810 ALAZA PLACE, SUITE 202  
 RALEIGH, NC 27612

DATE: 01/11/04  
 DRAWN BY: J. W. LOCHNER  
 CHECKED BY: J. W. LOCHNER  
 PROJECT NO: 44-0000  
 SHEET NO: 44-0000-01

MATCHLINE -L2- 145+60 SEE SHEET 14

**METRIC**

PROJECT REFERENCE NO. 44-0000  
 SHEET NO. 44-0000-01

DATE: 01/11/04  
 DRAWN BY: J. W. LOCHNER  
 CHECKED BY: J. W. LOCHNER

SCALE: 1" = 40'

DATE: 01/11/04  
 DRAWN BY: J. W. LOCHNER  
 CHECKED BY: J. W. LOCHNER

DONALD H. WILLIAMSON  
 DB 472 PO 825

DONALD H. WILLIAMSON  
 DB 472 PO 825

JAMES WIMPERS JONES  
 DB 852 PO 302

DONALD H. WILLIAMSON  
 DB 472 PO 825

DANIEL L. HEAVNER  
 DB 847 PO 30

NOTE: SEE GUIDE FOR PAVING SHOULDERS UNDER BRIDGES (STD'S 6003, 6102, 6103, & 62200)

DANIEL L. HEAVNER  
 DB 847 PO 30

JAMES WIMPERS JONES  
 DB 852 PO 302

**SECTION 1: 1/4" RAMP BARS WITH 1/2" RAMP ROAD DETAIL**

**SECTION 2: 1/2" RAMP BARS WITH 1/2" RAMP ROAD DETAIL**

**SECTION 3: 1/2" RAMP BARS WITH 1/2" RAMP ROAD DETAIL**

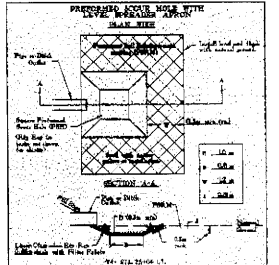
**SECTION 4: 1/2" RAMP BARS WITH 1/2" RAMP ROAD DETAIL**

**SECTION 5: 1/2" RAMP BARS WITH 1/2" RAMP ROAD DETAIL**

**SECTION 6: 1/2" RAMP BARS WITH 1/2" RAMP ROAD DETAIL**

PI STA 2145000 G1 = 2145000 L1 = 2145000 ST = 2145000	PI STA 2145000 G1 = 2145000 L1 = 2145000 ST = 2145000	PI STA 2145000 G1 = 2145000 L1 = 2145000 ST = 2145000
PI STA 2145000 G1 = 2145000 L1 = 2145000 ST = 2145000	PI STA 2145000 G1 = 2145000 L1 = 2145000 ST = 2145000	PI STA 2145000 G1 = 2145000 L1 = 2145000 ST = 2145000
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PI STA 2145000 G1 = 2145000 L1 = 2145000 ST = 2145000	PI STA 2145000 G1 = 2145000 L1 = 2145000 ST = 2145000	PI STA 2145000 G1 = 2145000 L1 = 2145000 ST = 2145000
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32-JAN-2004 11:40 J.W. LOCHNER DESIGNER J.W. LOCHNER CHECKER

MATCHLINE -Y4- 25+80 SEE SHEET 16

**LOCHNER**

H. W. LOCHNER, INC.  
 1000 W. HARRIS BLVD. SUITE 207  
 BALTIMORE, MD 21201

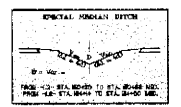
DELETED PAVEMENT TO BE REMOVED

**METRICS**

PROJECT: TERRACE INC. SHEET NO. 11  
 1.17.00 SHEET NO. 11  
 ROADWAY DESIGN: HYDRAULIC  
 ENGINEER: WINDHORST

CONTRACT NO. 11-0000  
 DATE: 11/11/11

RAMP A		
PI STA 114+00.00	PI STA 114+00.00 (RT)	PI STA 114+00.00
LA = 500.00	LA = 500.00 (RT)	LA = 500.00
ST = 500.00	ST = 500.00	ST = 500.00
DS = 500.00	DS = 500.00	DS = 500.00



MATCHLINE -Y4- 25+80 SEE SHEET 15

**D**

-Y4-		
PI STA 21+00.00	PI STA 21+00.00 (LT)	PI STA 21+00.00
LA = 200.00	LA = 200.00 (LT)	LA = 200.00
ST = 200.00	ST = 200.00	ST = 200.00
DS = 200.00	DS = 200.00	DS = 200.00

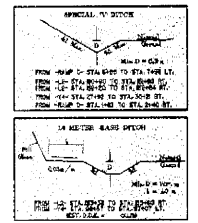
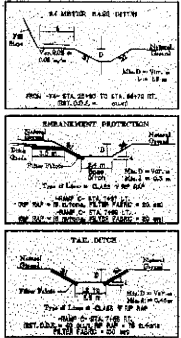
-Y4-		
PI STA 21+00.00	PI STA 21+00.00 (RT)	PI STA 21+00.00
LA = 200.00	LA = 200.00 (RT)	LA = 200.00
ST = 200.00	ST = 200.00	ST = 200.00
DS = 200.00	DS = 200.00	DS = 200.00

-RAMP C-		
PI STA 41+00.00	PI STA 41+00.00 (LT)	PI STA 41+00.00
LA = 200.00	LA = 200.00 (LT)	LA = 200.00
ST = 200.00	ST = 200.00	ST = 200.00
DS = 200.00	DS = 200.00	DS = 200.00

-RAMP D-		
PI STA 41+00.00	PI STA 41+00.00 (RT)	PI STA 41+00.00
LA = 200.00	LA = 200.00 (RT)	LA = 200.00
ST = 200.00	ST = 200.00	ST = 200.00
DS = 200.00	DS = 200.00	DS = 200.00



11-0000 SHEET 11  
 11-0000 SHEET 11  
 11-0000 SHEET 11  
 11-0000 SHEET 11

**LOCHNER**  
 11-0000 SHEET 11  
 11-0000 SHEET 11

11-0000 SHEET 11  
 11-0000 SHEET 11

NORMAN C. BROWN  
 11-0000 SHEET 11

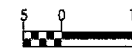
MATCHLINE -Y4- 29+60 SEE SHEET 24

MATCHLINE -L2- 104+50 SEE SHEET 17

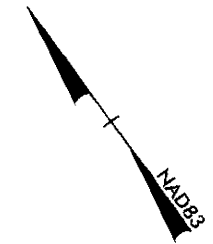
REVISIONS



PROJECT REFERENCE NO. R-2552C	SHEET NO. 17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
[Redacted]	
CONST. REV.	
R/W REV.	

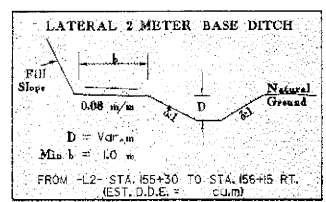
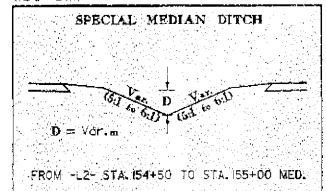
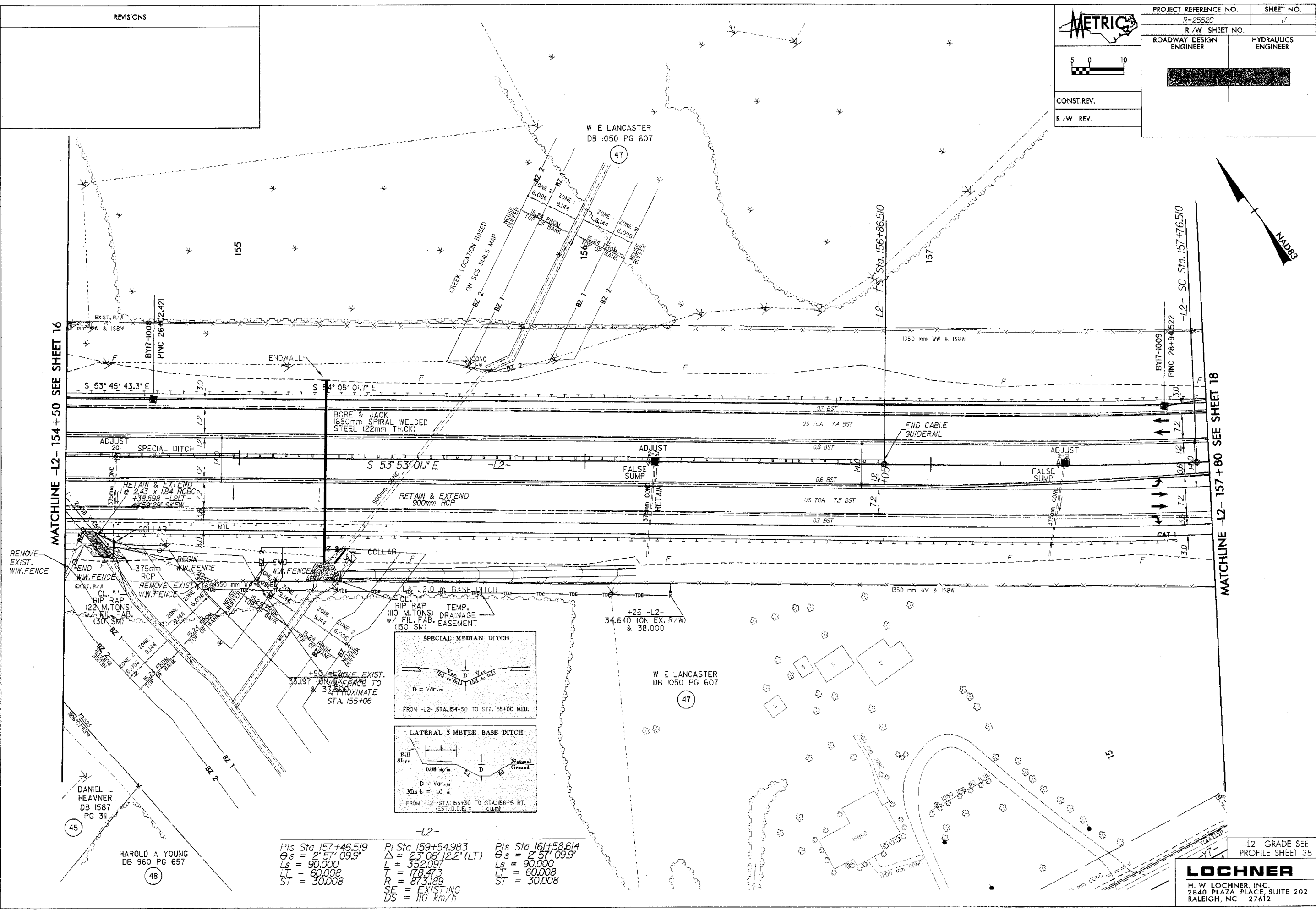


CONST. REV.  
R/W REV.



MATCHLINE -L2- 154+50 SEE SHEET 16

MATCHLINE -L2- 157+80 SEE SHEET 18



-L2-

Pls Sta 157+46.519 Gs = 2° 57' 09.9" Ls = 90.000 T = 60.008 ST = 30.008	Pl Sta 159+54.983 Δ = 23° 06' 12.2" (LT) L = 352.097 T = 178.473 R = 873.189 SE = EXISTING DS = 110 km/h	Pls Sta 161+58.614 Gs = 2° 57' 09.9" Ls = 90.000 T = 60.008 ST = 30.008
---	--	---

HAROLD A YOUNG  
DB 960 PG 657

DANIEL L HEAVNER  
DB 1567 PG 311

**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

-L2- GRADE SEE  
PROFILE SHEET 38

25-10-2004 10:41 AM C:\DATA\1275\PROJECTS\2552C-RD-FBI-7.DWG

REVISIONS	

14800	-L2-	US 70 A	14900
33000			33000
400		500	
800		800	
1996 ADT	-EY20-	SR 2556	
2025 ADT			
400			
800			

**METRIC**

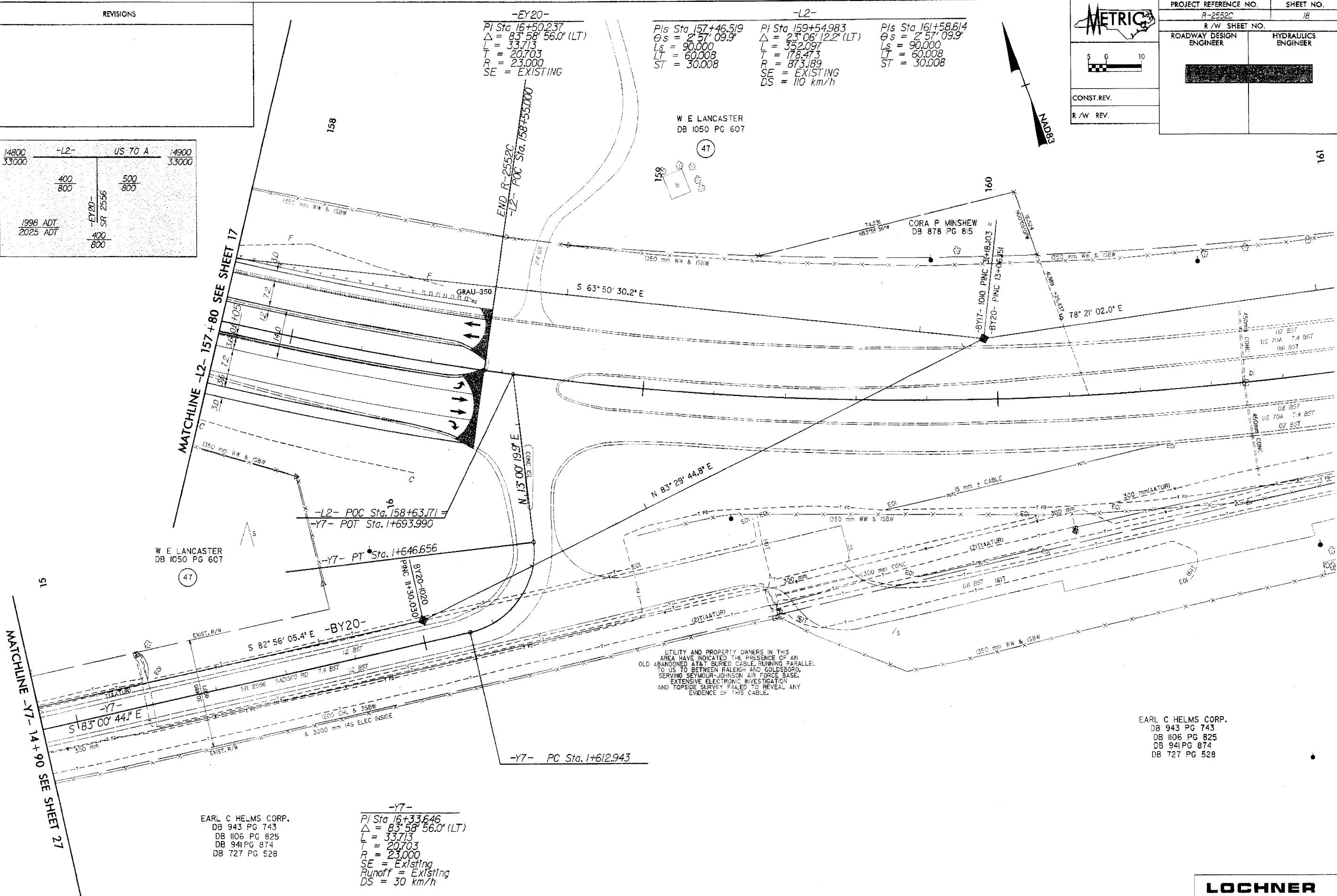
5 0 10

CONST. REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2552C	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

161



EARL C HELMS CORP.  
DB 943 PG 743  
DB 1106 PG 825  
DB 941 PG 874  
DB 727 PG 528

-Y7-  
PI Sta 16+33.646  
 $\Delta = 83^{\circ} 58' 56.0''$  (LT)  
L = 33.713  
T = 20.703  
R = 23.000  
SE = Existing  
Runoff = Existing  
DS = 30 km/h

EARL C HELMS CORP.  
DB 943 PG 743  
DB 1106 PG 825  
DB 941 PG 874  
DB 727 PG 528

-L2- GRADE SEE  
PROFILE SHEET 39

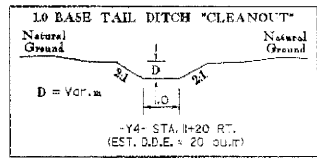
**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

10/11/2006 11:46 AM  
 C:\ADT\1275\DESIGN\PROJECTS\ROY\_P\RD18.DWG  
 Metric.dwg





REVISIONS



**-Y6-**  
 PI Sta 11+09.967  
 $\theta_s = 4^\circ 21' 5.7''$   
 $L_s = 60.000$   
 $LT = 40.012$   
 $ST = 20.011$

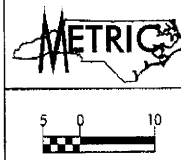
**-Y5-**  
 PI Sta 11+50.192  
 $\Delta = 5^\circ 51' 56.1''$  (RT)  
 $L = 40.438$   
 $T = 20.237$   
 $R = 395.000$   
 $SE = 0.0$   
 $Runoff = 0.07$   
 $DS = 80 \text{ km/h}$

**-Y4-**  
 PI Sta 11+71.787  
 $\theta_s = 4^\circ 48' 07.8''$   
 $L_s = 80.000$   
 $LT = 53.362$   
 $ST = 26.693$

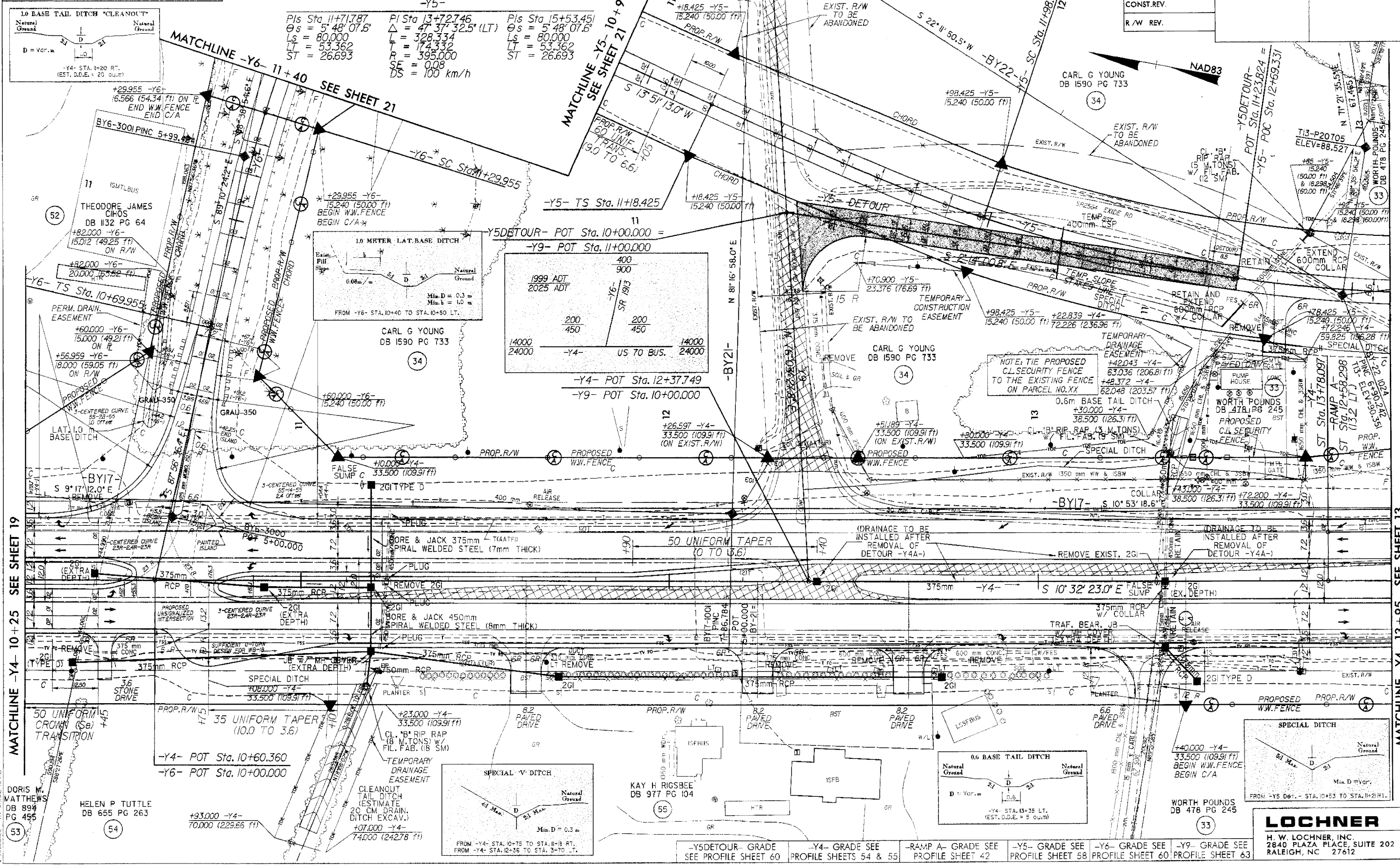
**-Y3-**  
 PI Sta 13+72.746  
 $\Delta = 4^\circ 37' 32.5''$  (LT)  
 $L = 328.334$   
 $T = 174.332$   
 $R = 395.000$   
 $SE = 0.08$   
 $DS = 100 \text{ km/h}$

**-Y2-**  
 PI Sta 15+53.451  
 $\theta_s = 5^\circ 48' 07.8''$   
 $L_s = 80.000$   
 $LT = 53.362$   
 $ST = 26.693$

DENOTES PAVEMENT TO BE REMOVED



PROJECT REFERENCE NO.	R-2552C	SHEET NO.	20
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
CONST. REV.		R/W REV.	



MATCHLINE -Y4- 10+25 SEE SHEET 19

MATCHLINE -Y4- 13+95 SEE SHEET 13

DORIS W. MATTHEWS  
 DB 894 PG 455

HELEN P TUTTLE  
 DB 655 PG 263

KAY H RIGSBEE  
 DB 977 PG 104

WORTH POUNDS  
 DB 478 PG 245

**LOCHNER**  
 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612

-Y5DETOUR- GRADE SEE PROFILE SHEET 60  
 -Y4- GRADE SEE PROFILE SHEETS 54 & 55  
 -RAMP A- GRADE SEE PROFILE SHEET 42  
 -Y5- GRADE SEE PROFILE SHEET 58  
 -Y6- GRADE SEE PROFILE SHEET 60  
 -Y9- GRADE SEE PROFILE SHEET 63



REVISIONS

-Y6-

PI Sta 13+33.231	PI Sta 13+94.502	PI Sta 14+55.202
$\Theta_s = 8' 43' 8.11''$	$\Delta = 18' 45' 37.4''$ (LT)	$\Theta_s = 8' 43' 8.11''$
$L_s = 70.000$	$L = 75.309$	$L_s = 70.000$
$LT = 46.723$	$T = 37.995$	$LT = 46.723$
$ST = 23.385$	$R = 230.000$	$ST = 23.385$
	$SE = 0.0$	
	Runoff = 0.08	
	DS = 80 km/h	



PROJECT REFERENCE NO. R-2552C	SHEET NO. 22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
[Redacted]	
CONST. REV.	
R/W REV.	



CONST. REV.  
R/W REV.



CARL G YOUNG  
DB 1590 PG 733

(34)

BY6-3006 PINC 10+78.178

BY6-3007 POT 12+28.205

A. M. WIGGINS, ET UX  
DB 487 PG 477

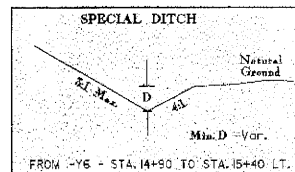
WOODS

WOODS

A. M. WIGGINS, ET UX  
DB 487 PG 477

ELBERT D. MITCHELL, ET UX  
DB 753 PG 45

(56)



25 - 4/11/2024 10:40 AM C:\PROJECTS\2552C\RDY\DWG\2552C.DWG  
 PLOT BY: [Redacted]  
 PLOT DATE: 4/11/2024 10:40 AM

**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

-Y6- GRADE SEE  
PROFILE SHEET 61

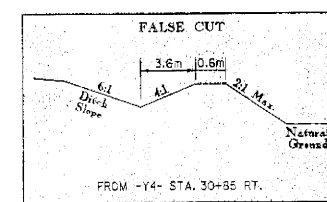
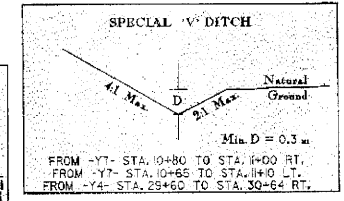
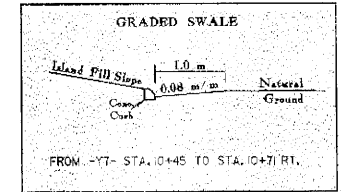
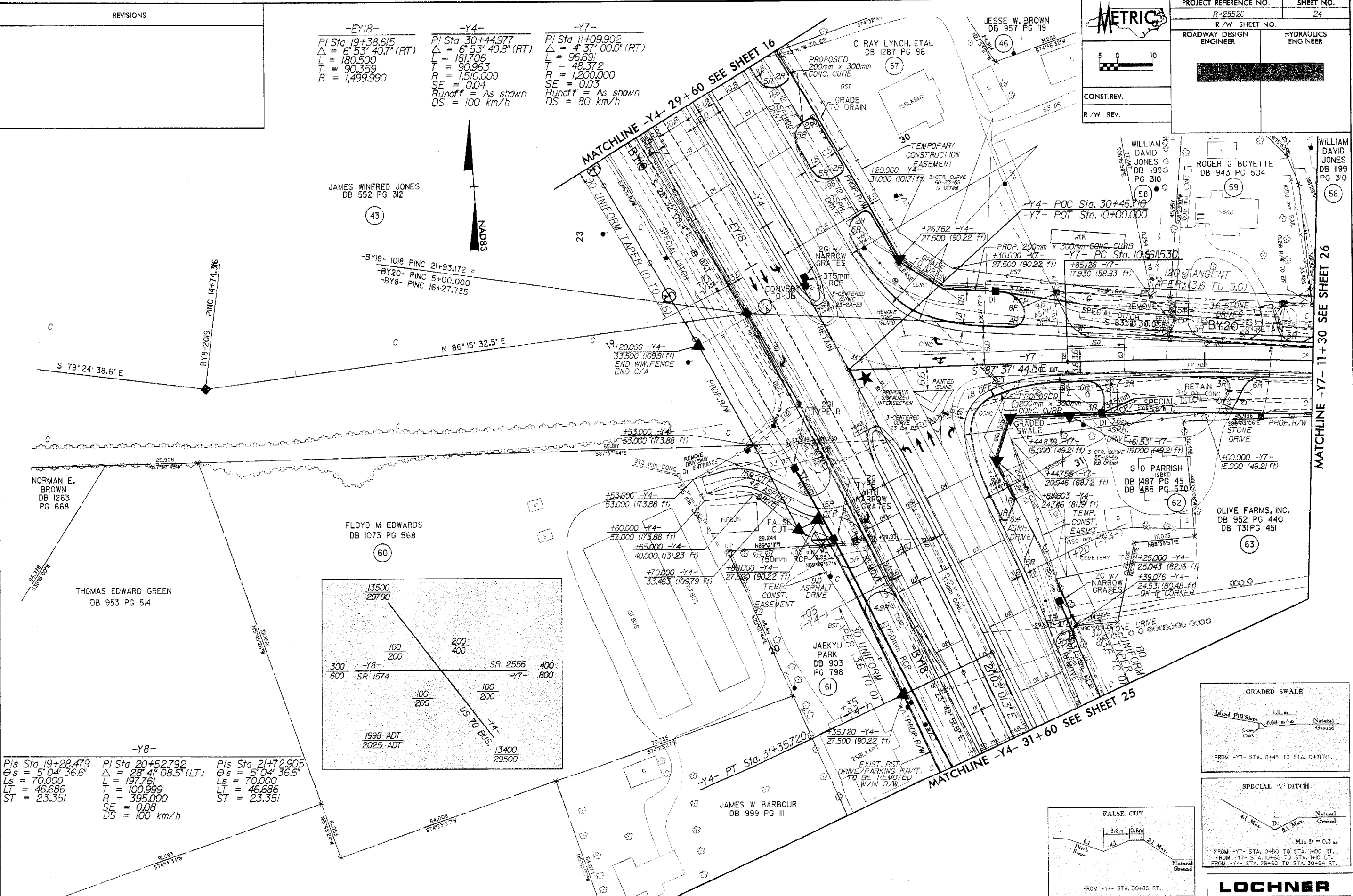


REVISIONS

PROJECT REFERENCE NO.		SHEET NO.	
R-2552C		24	
R/W SHEET NO.		[REDACTED]	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
[REDACTED]		[REDACTED]	
CONST. REV.		[REDACTED]	
R/W REV.		[REDACTED]	

-Y1B-	-Y4-	-Y7-
PI Sta 19+38.615 Δ = 6° 53' 40.7" (RT) L = 180.500 T = 90.359 R = 1,499.990	PI Sta 30+44.977 Δ = 6° 53' 40.8" (RT) L = 181.706 T = 90.963 R = 1,510.000 SE = 0.04 Runoff = As shown DS = 100 km/h	PI Sta 11+09.902 Δ = 4° 37' 00.0" (RT) L = 96.691 T = 48.372 R = 1,200.000 SE = 0.03 Runoff = As shown DS = 80 km/h

-Y8-	PI Sta 20+52.792	PI Sta 21+72.905
PIs Sta 19+28.479 θs = 5° 04' 36.6" Ls = 70.000 LT = 46.686 ST = 23.351	PI Sta 20+52.792 Δ = 28° 41' 08.5" (LT) L = 197.751 T = 100.999 R = 395.000 SE = 0.08 DS = 100 km/h	PIs Sta 21+72.905 θs = 5° 04' 36.6" Ls = 70.000 LT = 46.686 ST = 23.351



-Y4- GRADE SEE PROFILE SHEET 57

-Y7- GRADE SEE PROFILE SHEET 61

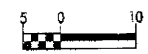
**LOCHNER**  
H. W. LOCHNER, INC.  
2840 PLAZA PLACE, SUITE 202  
RALEIGH, NC 27612

23-PLAN-2004 (17-4)  
 L.A. 12/15/05  
 DESIGNER: R. ROY, P. HAZARDEN  
 CHECKER: A. J. W. B.

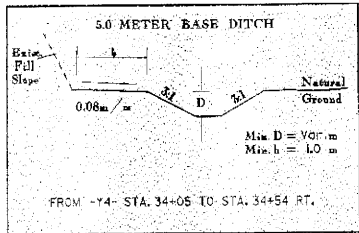
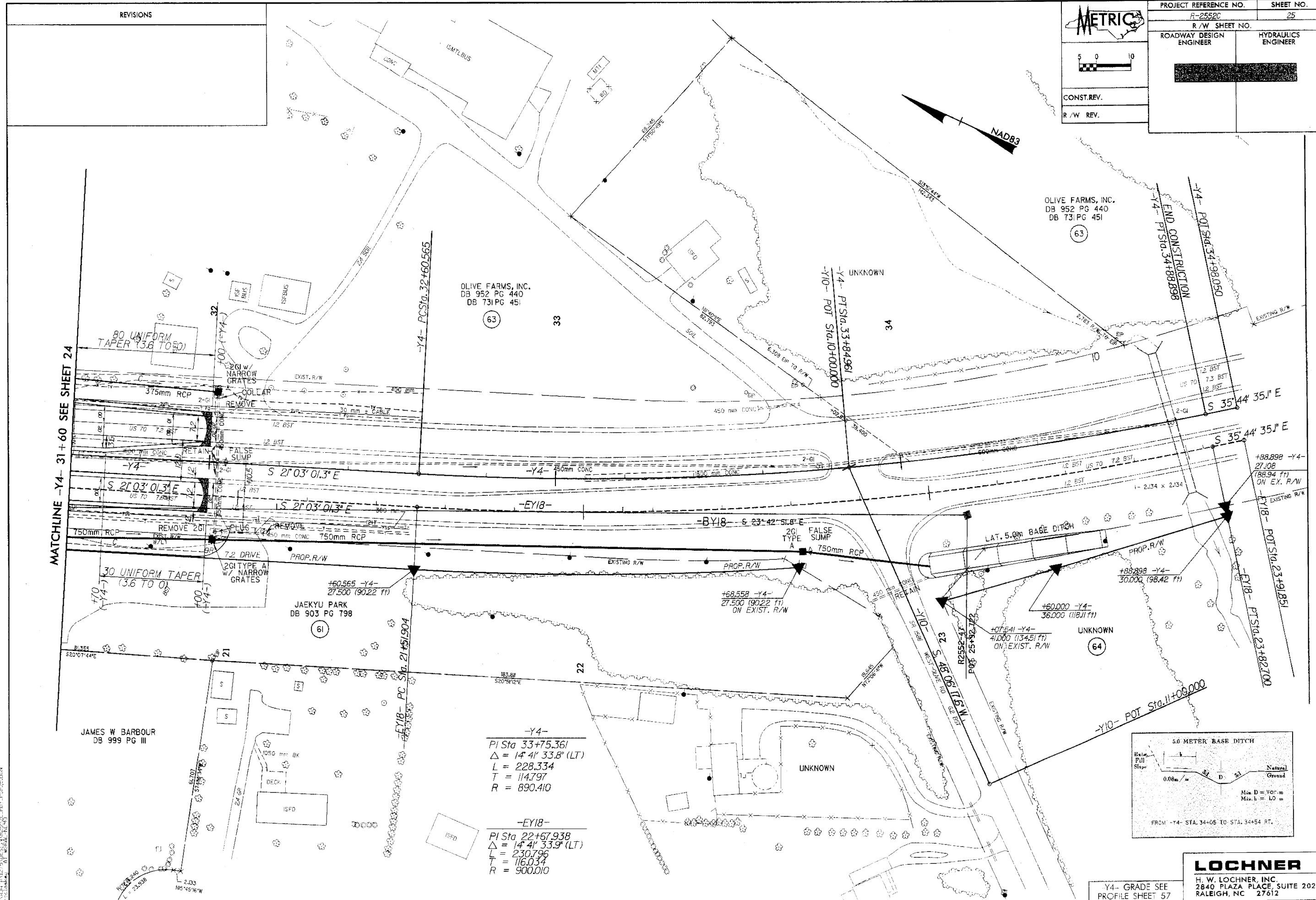
REVISIONS



PROJECT REFERENCE NO.	R-2552C	SHEET NO.	25
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
CONST. REV.			
R/W REV.			



CONST. REV.  
R/W REV.



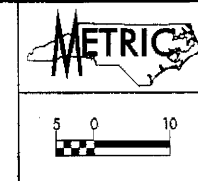
**LOCHNER**  
 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612

-Y4- GRADE SEE PROFILE SHEET 57

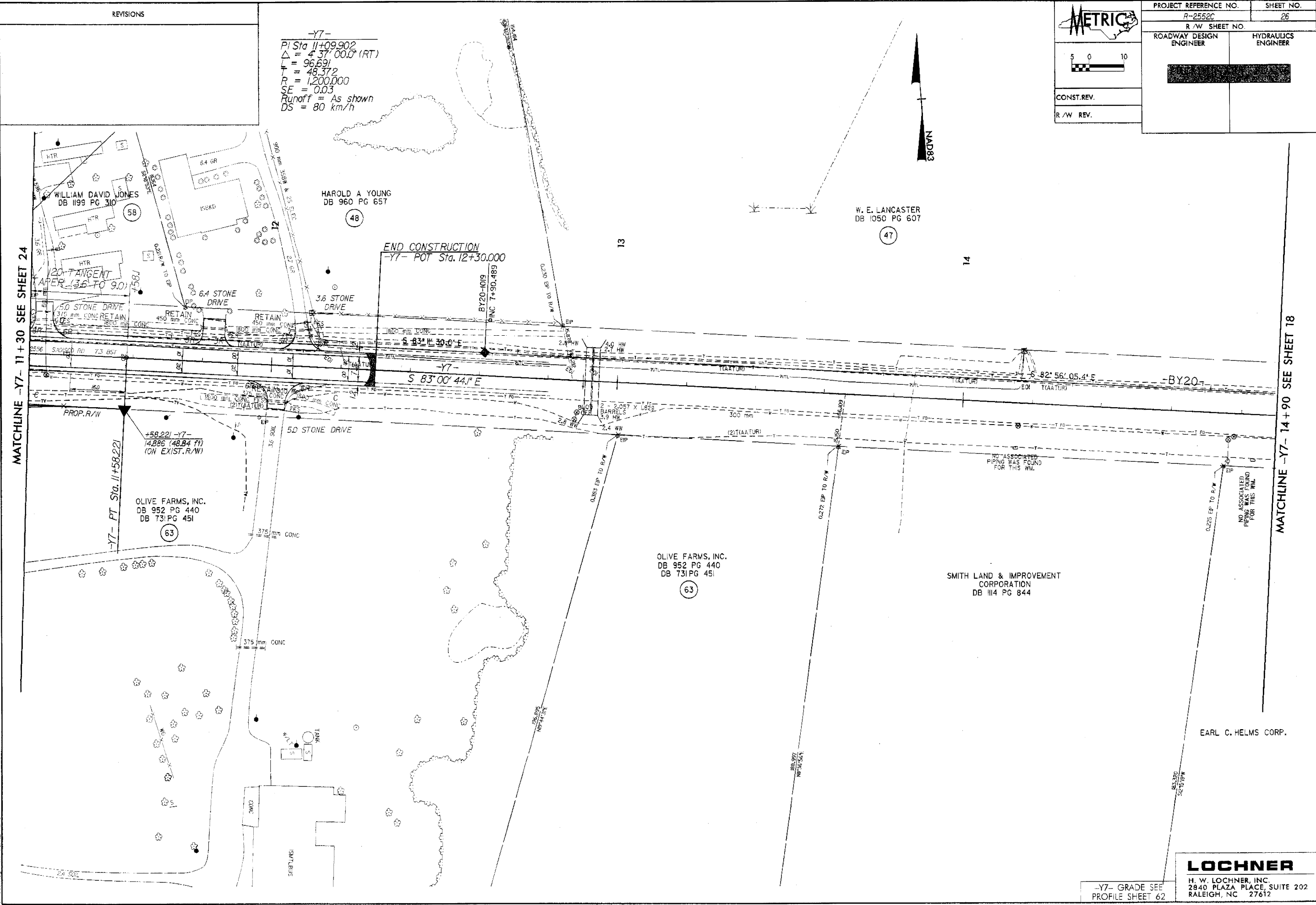
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 25-11-2004 (7)  
 25-11-2004 (6)  
 25-11-2004 (5)  
 25-11-2004 (4)  
 25-11-2004 (3)  
 25-11-2004 (2)  
 25-11-2004 (1)

REVISIONS

-Y7-  
 PI Sta 11+09.902  
 $\Delta = 437' 00.0" (RT)$   
 $L = 96.691'$   
 $R = 1,200.000'$   
 $SE = 0.03$   
 Runoff = As shown  
 DS = 80 km/h



PROJECT REFERENCE NO. R-2552C	SHEET NO. 26
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
[Redacted Signature]	
CONST. REV.	
R/W REV.	



MATCHLINE -Y7- 11+30 SEE SHEET 24

MATCHLINE -Y7- 14+90 SEE SHEET 18

C:\AN\2004\17\1\DESIGN\2552C-ROY\_PSH26.DWG  
 05/12/04 12:57:50  
 17/1/2004 12:57:50

-Y7- GRADE SEE PROFILE SHEET 62

**LOCHNER**  
 H. W. LOCHNER, INC.  
 2840 PLAZA PLACE, SUITE 202  
 RALEIGH, NC 27612



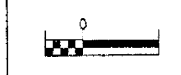
REVISIONS



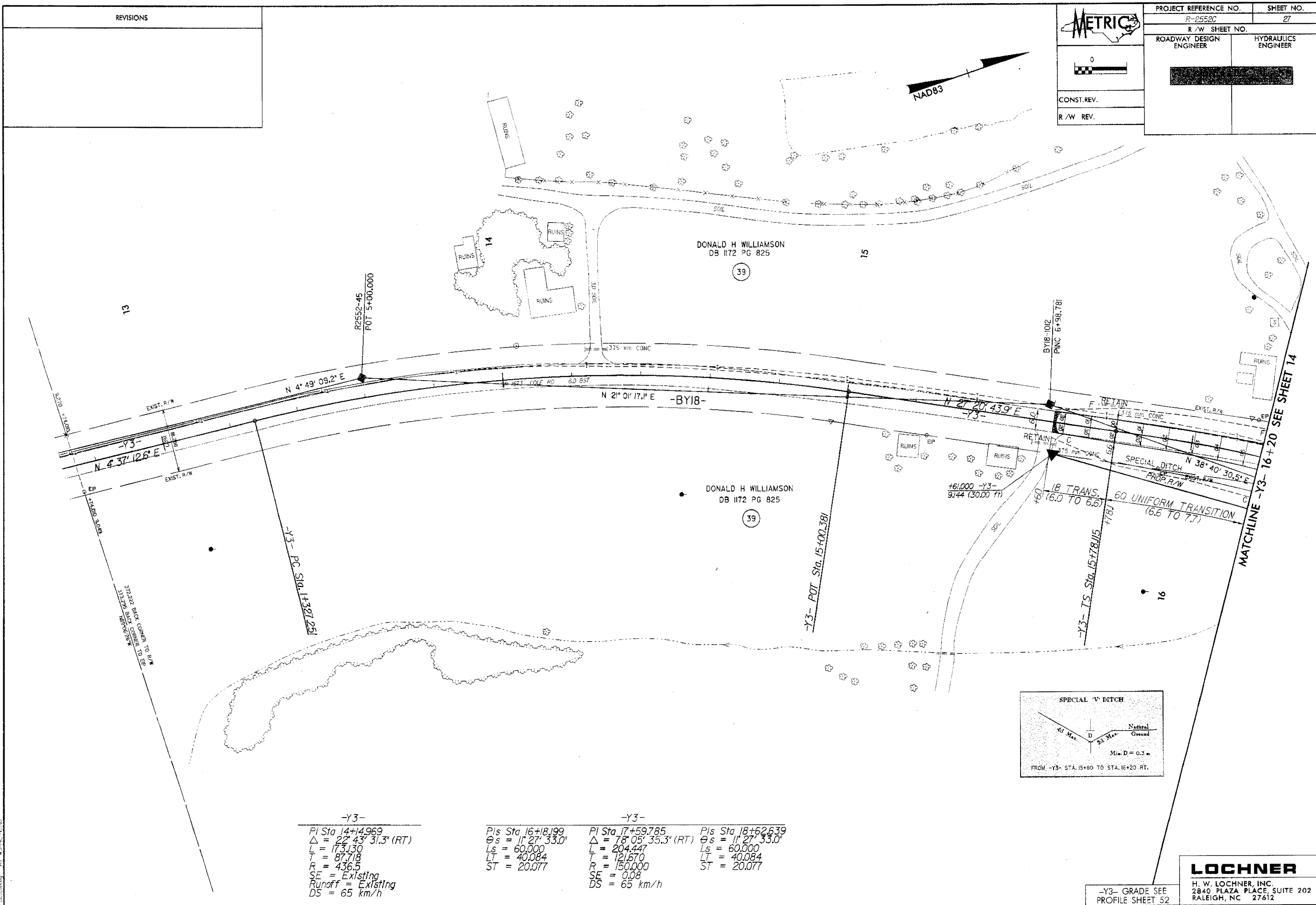
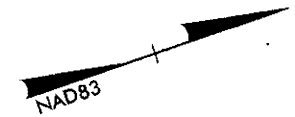
PROJECT REFERENCE NO. R-2552C SHEET NO. 27

R/W SHEET NO.

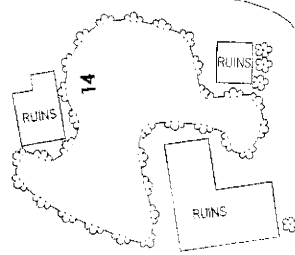
ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER



CONST. REV. R/W REV.



13



DONALD H WILLIAMSON DB 1172 PG 825

39

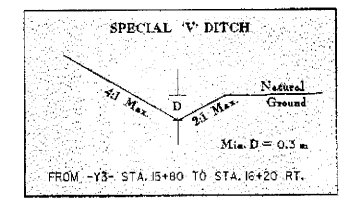
15

DONALD H WILLIAMSON DB 1172 PG 825

39

16

MATCHLINE -Y3- 16+20 SEE SHEET 14



-Y3-  
 PI Sta 14+14.969  
 $\Delta = 22^\circ 43' 31.3''$  (RT)  
 $L = 173.130$   
 $T = 87.718$   
 $R = 436.5$   
 SE = Existing  
 Runoff = Existing  
 DS = 65 km/h

-Y3-  
 PIs Sta 16+18.199  
 $\Delta = 11^\circ 27' 33.0''$   
 $L = 60.000$   
 $T = 40.084$   
 $ST = 20.077$

-Y3-  
 PI Sta 17+59.785  
 $\Delta = 78^\circ 05' 35.3''$  (RT)  
 $L = 204.447$   
 $T = 121.670$   
 $R = 150.000$   
 SE = 0.08  
 DS = 65 km/h

PIs Sta 18+62.639  
 $\Delta = 11^\circ 27' 33.0''$   
 $L = 60.000$   
 $LT = 40.084$   
 $ST = 20.077$

-Y3- GRADE SEE PROFILE SHEET 52

LOCHNER H. W. LOCHNER, INC. 2840 PLAZA PLACE, SUITE 202 RALEIGH, NC 27612

27 JAN 2005 11:41 AM ESTIMATED: 2507 PS: 27.DGN