

**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

**The documents contained herein were originally issued
and sealed by the individuals whose names and license
numbers appear on each page, on the dates appearing
with their signature on that page.**

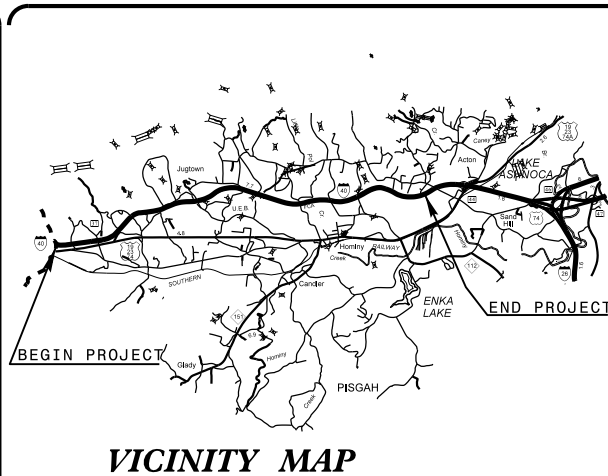
**This file or an individual page
shall not be considered a certified document.**

20-OCT-2017 10:56
 S:\Contracts\Projects\Resurfacing Projects\Division 13\I-5888A Buncombe Jan 18\I-5888A_ddc.tsh.dgn
 inowerton AT CSD-292595

09/08/99

TIP PROJECT: I-5888A

CONTRACT: C204054



VICINITY MAP

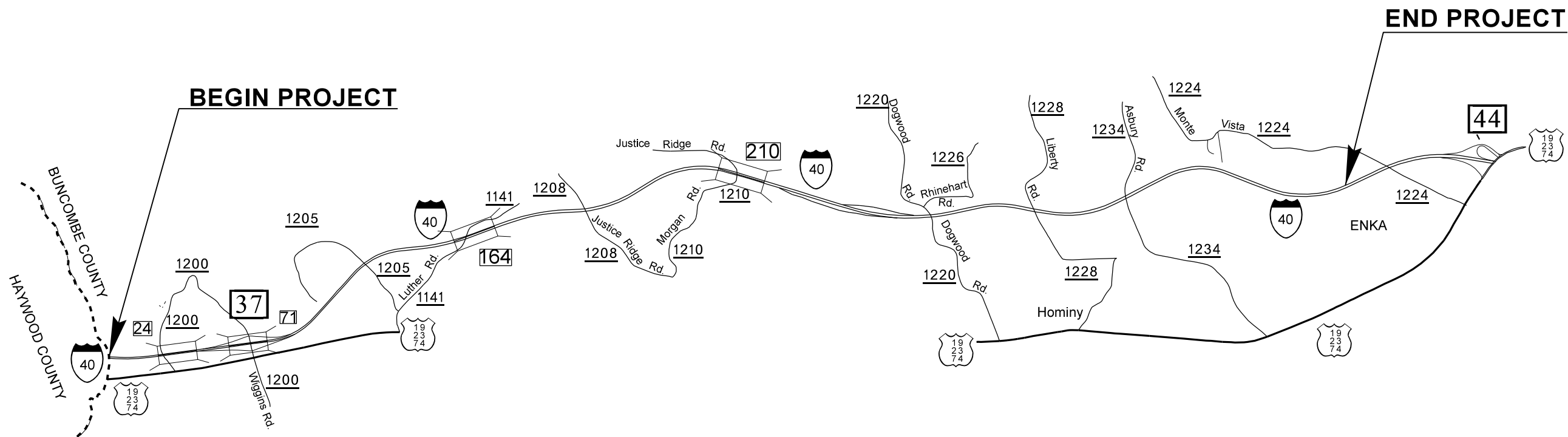
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

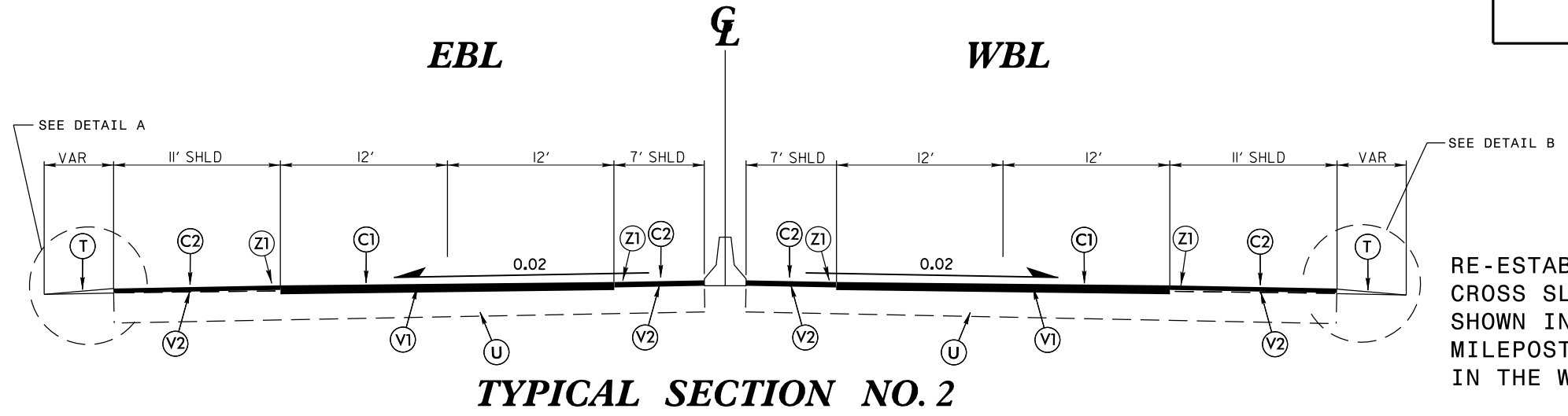
**LOCATION: HAYWOOD COUNTY LINE I-40
 MILE POST 36.76 TO MILE POST 43.5**

**TYPE OF WORK: REHABILITATION OF PAVEMENT, STRUCTURES,
 AND GUARDRAIL**

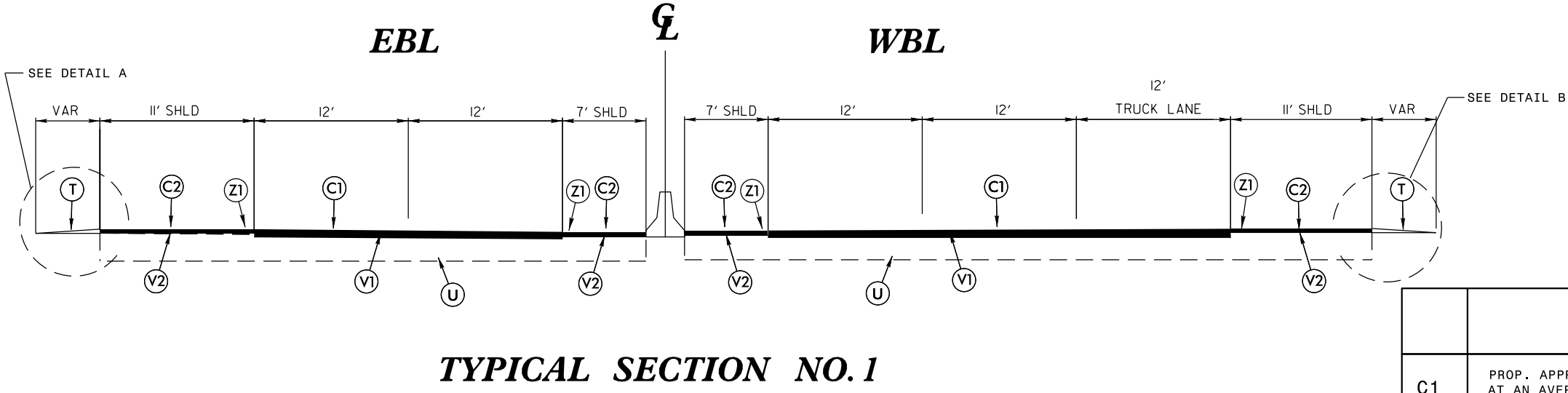
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5888A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	



PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5888A	2	



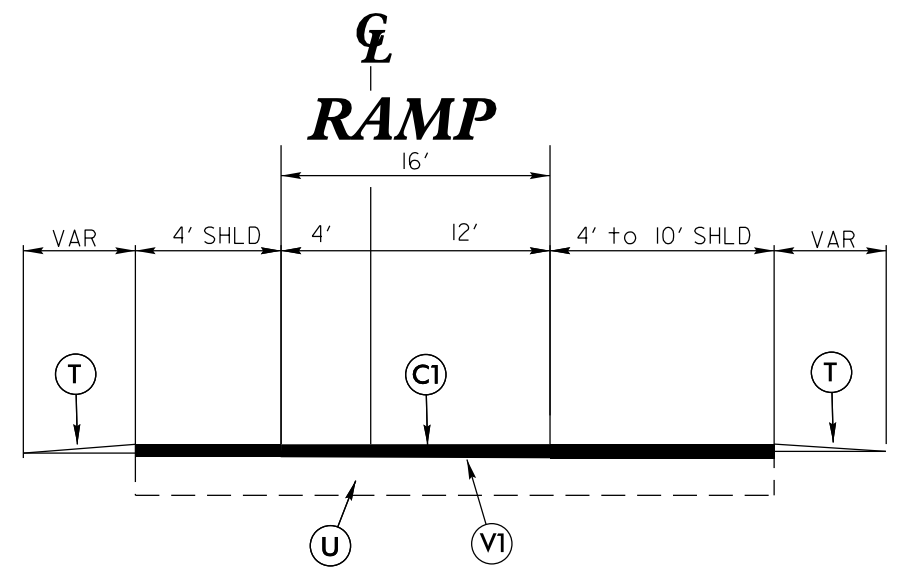
RE-ESTABLISH THE ORIGINAL CROSS SLOPE TYPICAL PER GRADE SHOWN IN TYPICAL # 2 BETWEEN MILEPOSTS 37.8 +/- AND 38.2 +/- IN THE WESTBOUND LANE.



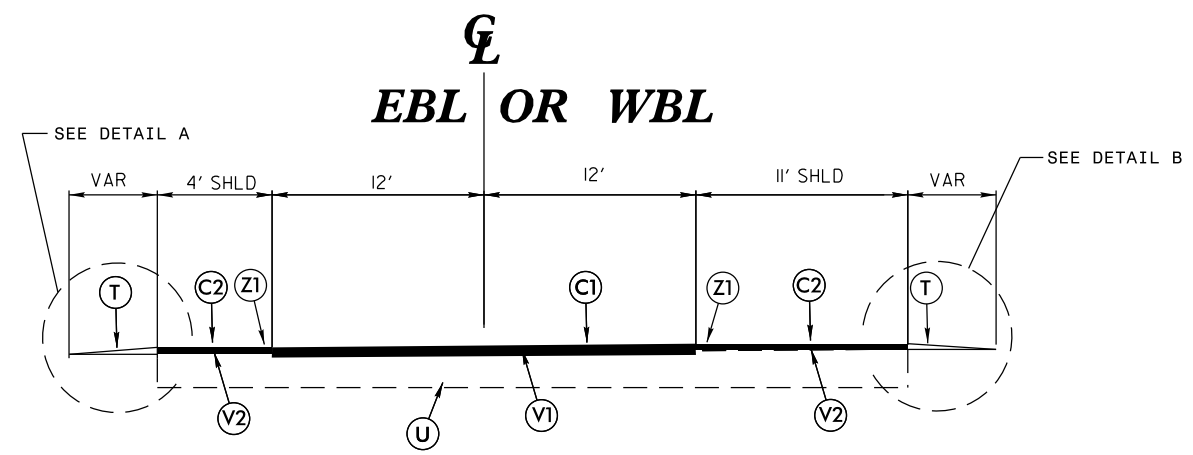
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
R	EXISTING EXPRESSWAY GUTTER
T	SHOULDER RECONSTRUCTION
U	EXISTING PAVEMENT
V1	MILL ASPHALT PAVEMENT, 2" DEPTH
V2	MILL ASPHALT PAVEMENT, 1½" DEPTH
Z1	MILLED RUMBLE STRIPS

BUNCOMBE COUNTY

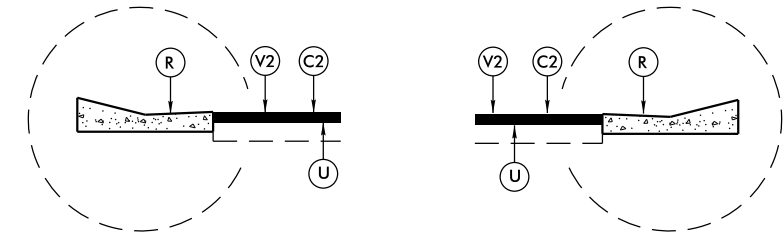
PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5888A	3	



TYPICAL SECTION NO. 4

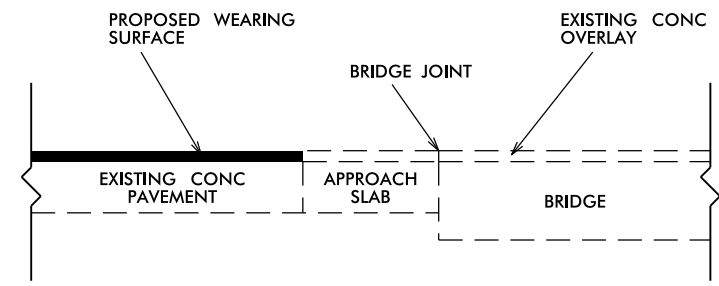


TYPICAL SECTION NO. 3



DETAIL A
VARIOUS LOCATIONS

DETAIL B
VARIOUS LOCATIONS



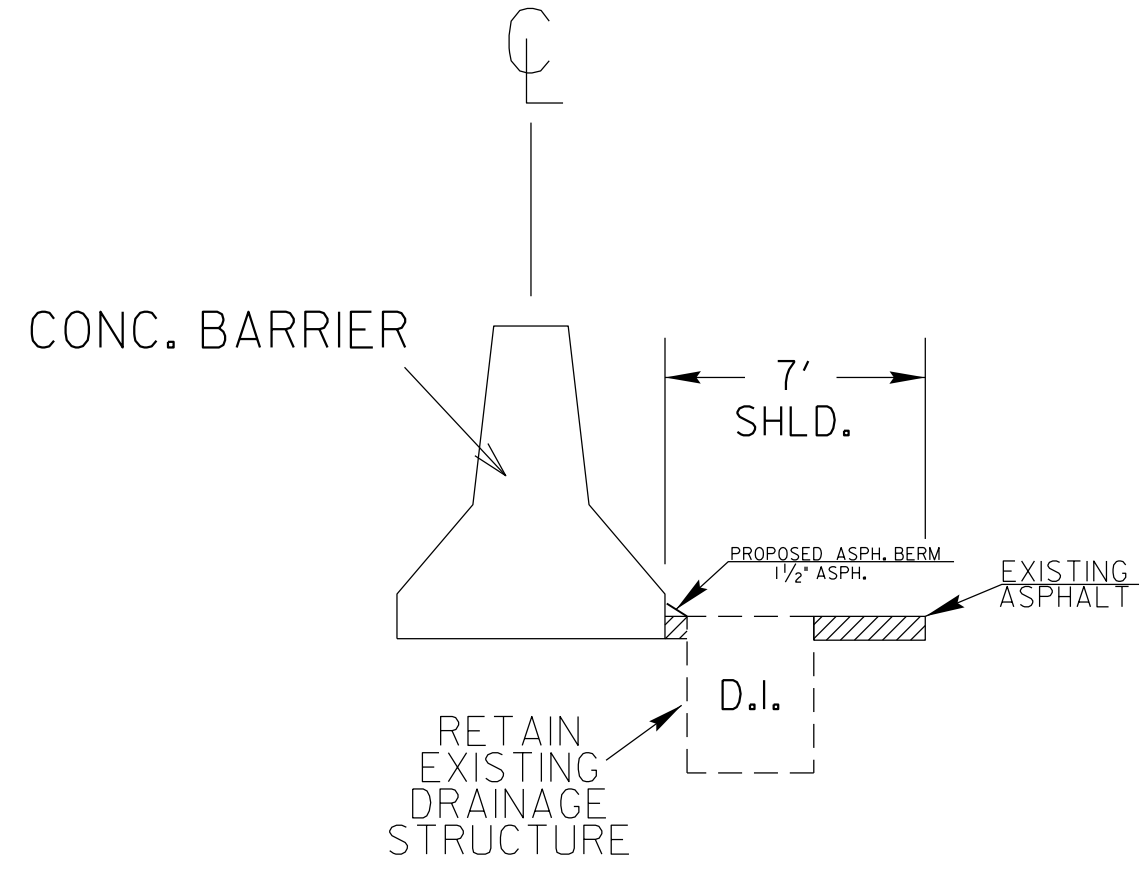
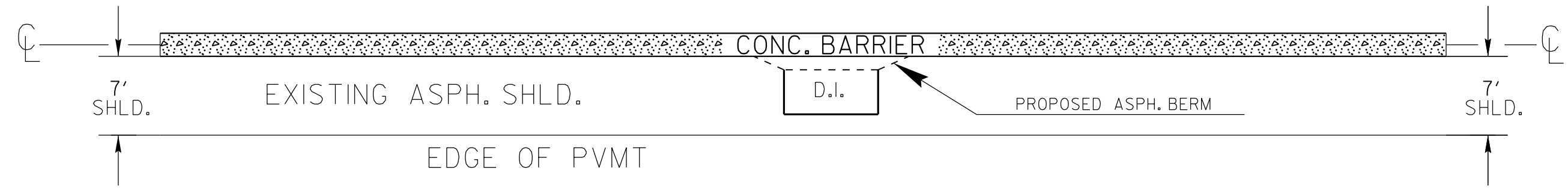
TIE-IN DETAIL AT BRIDGE

TIE PROPOSED WEARING SURFACE TO EXISTING CONC OVERLAY ON BRIDGE DECKS AND APPROACH SLABS.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
R	EXISTING EXPRESSWAY GUTTER
T	SHOULDER RECONSTRUCTION
U	EXISTING PAVEMENT
V1	MILL ASPHALT PAVEMENT, 2" DEPTH
V2	MILL ASPHALT PAVEMENT, 1½" DEPTH
Z1	MILLED RUMBLE STRIPS

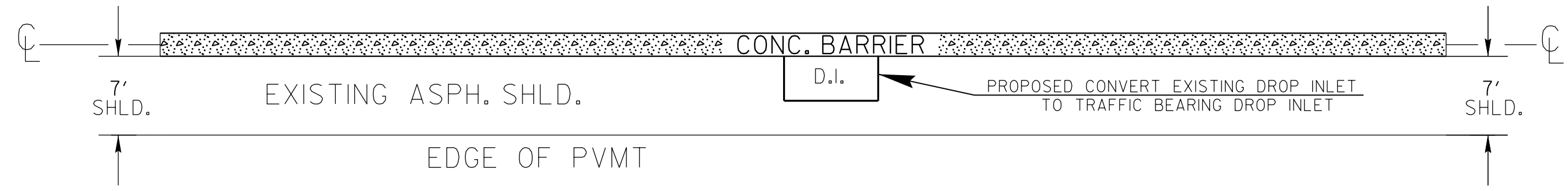
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5888A	4	



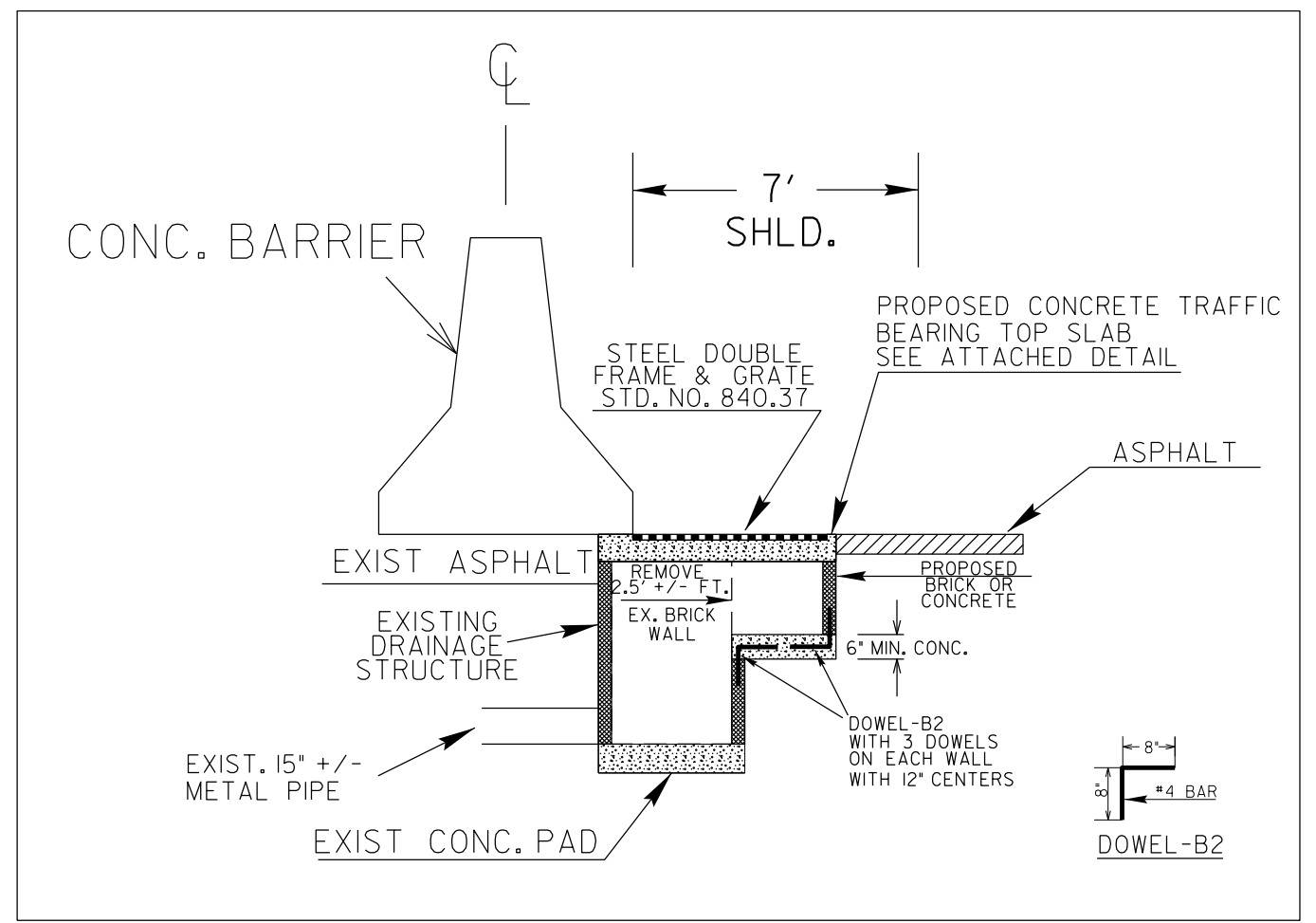
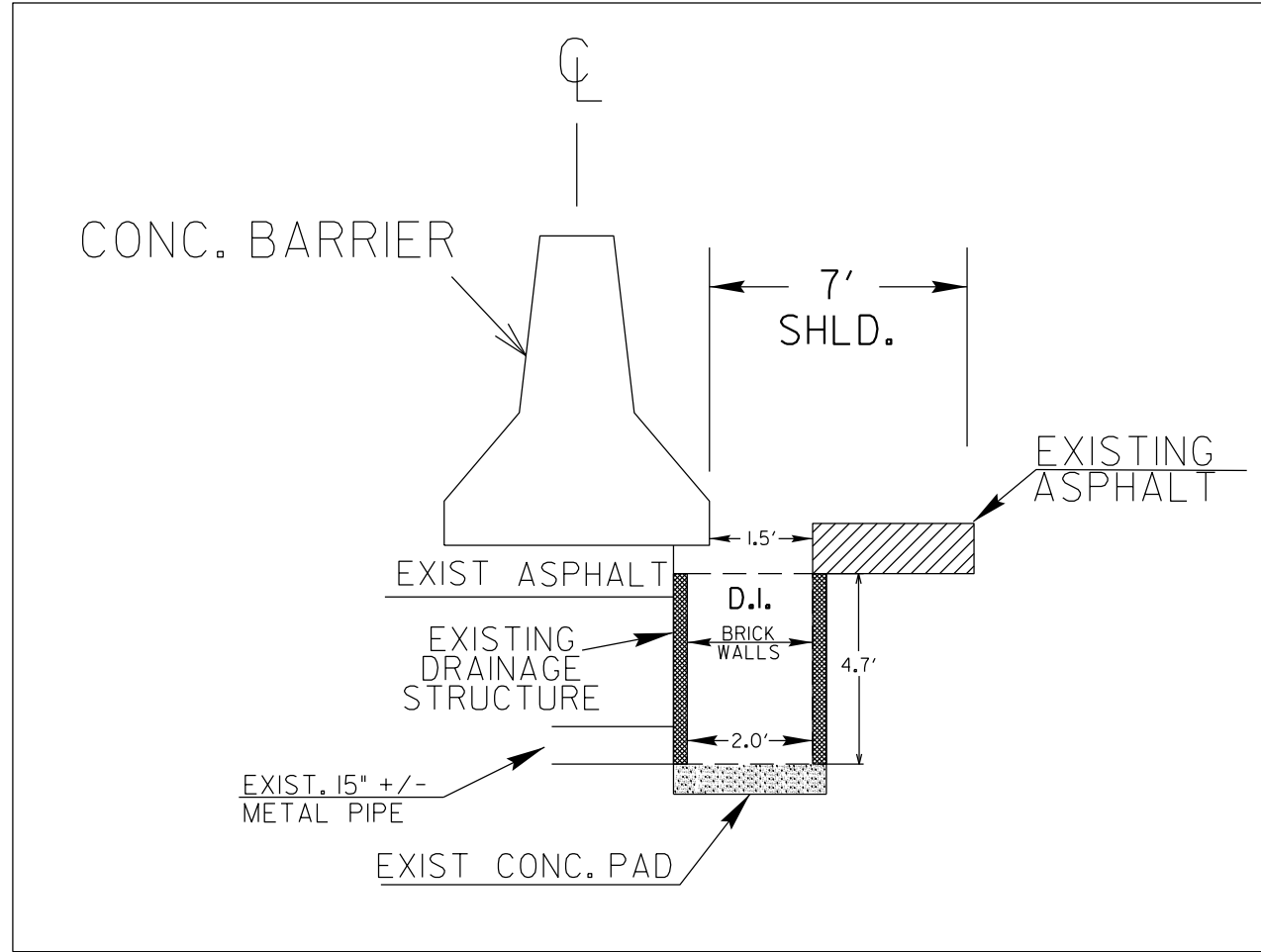
BUNCOMBE COUNTY

PROJECT NO.	SHEET NO.	TOTAL SHEETS
I-5888A	5	

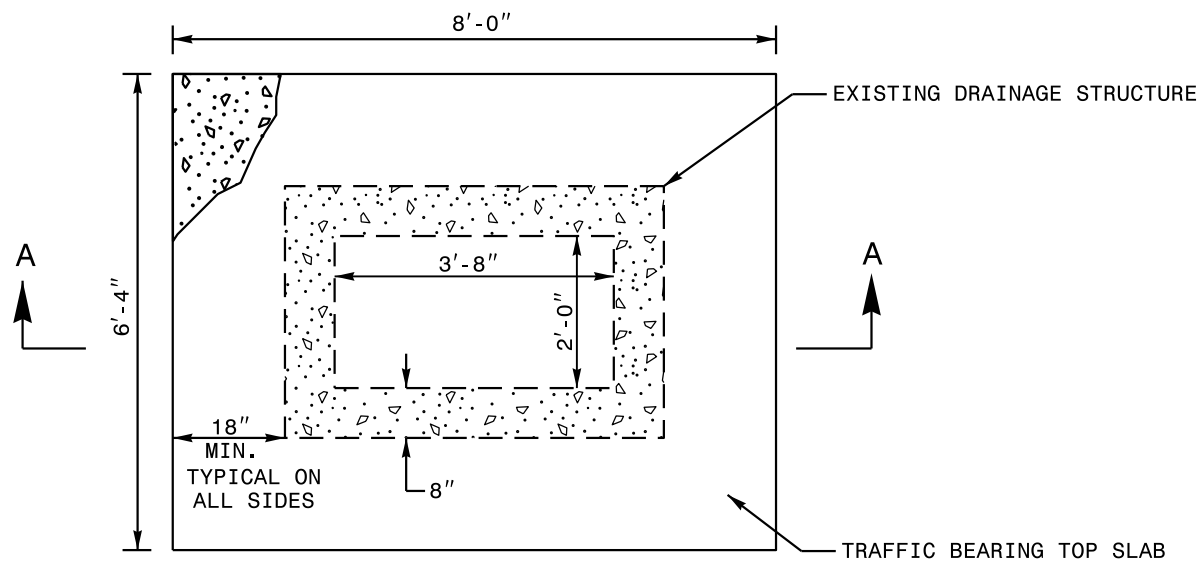


PROPOSED AT MILE POST # 38.2

EXISTING AT MILE POST # 38.2



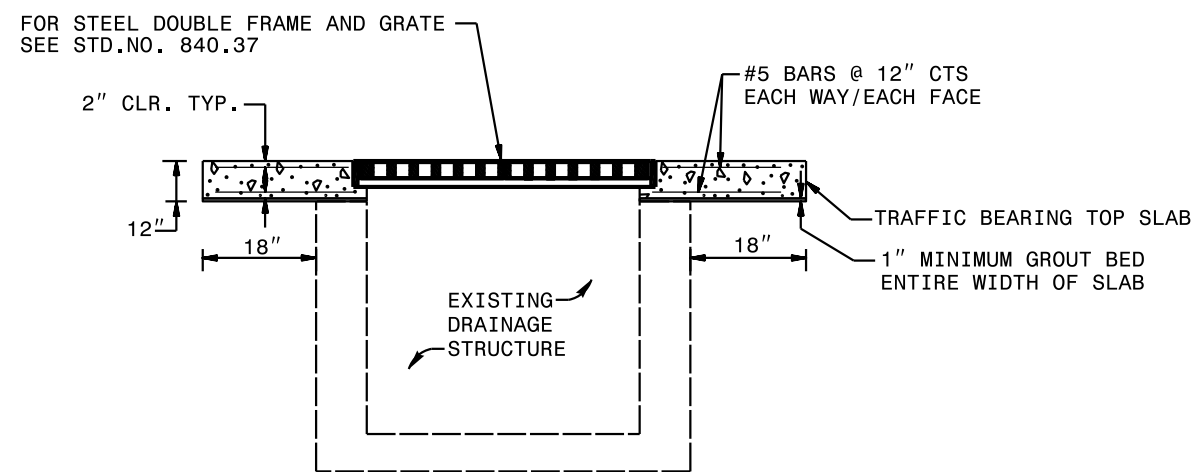
BUNCOMBE COUNTY



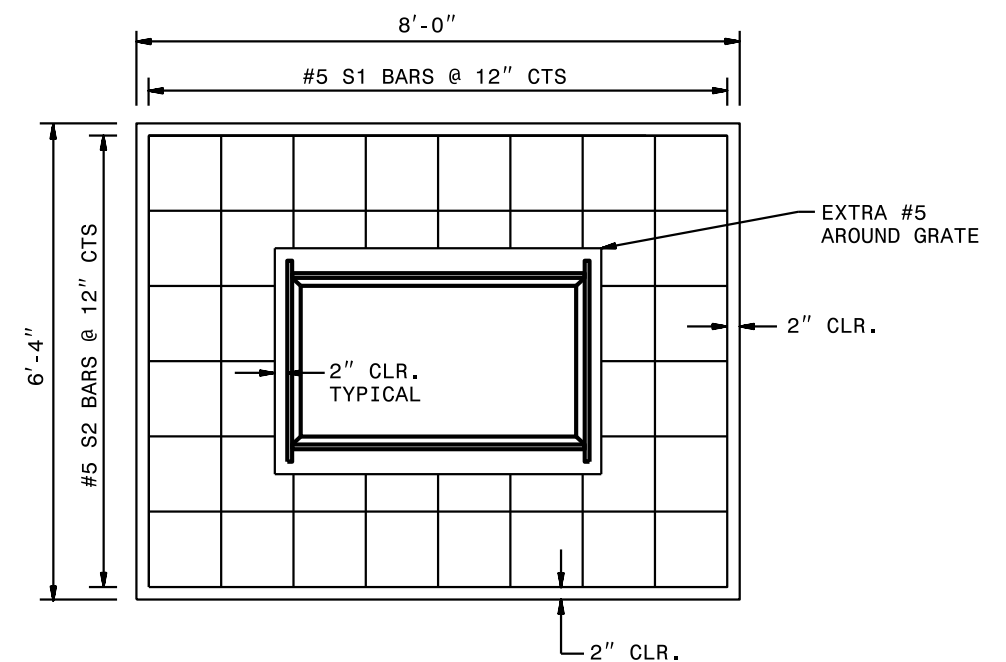
PLAN

BILL OF MATERIAL

TRAFFIC BEARING TOP SLAB				
BAR	NO.	SIZE	LENGTH	WEIGHT
S1	7	#5	7'-8"	56.0
S2	9	#5	6'-0"	56.3
TOTAL REINF. STEEL (lbs.)				112.3
CONCRETE TOTAL-(cu. yds.)				1.6



SECTION A-A



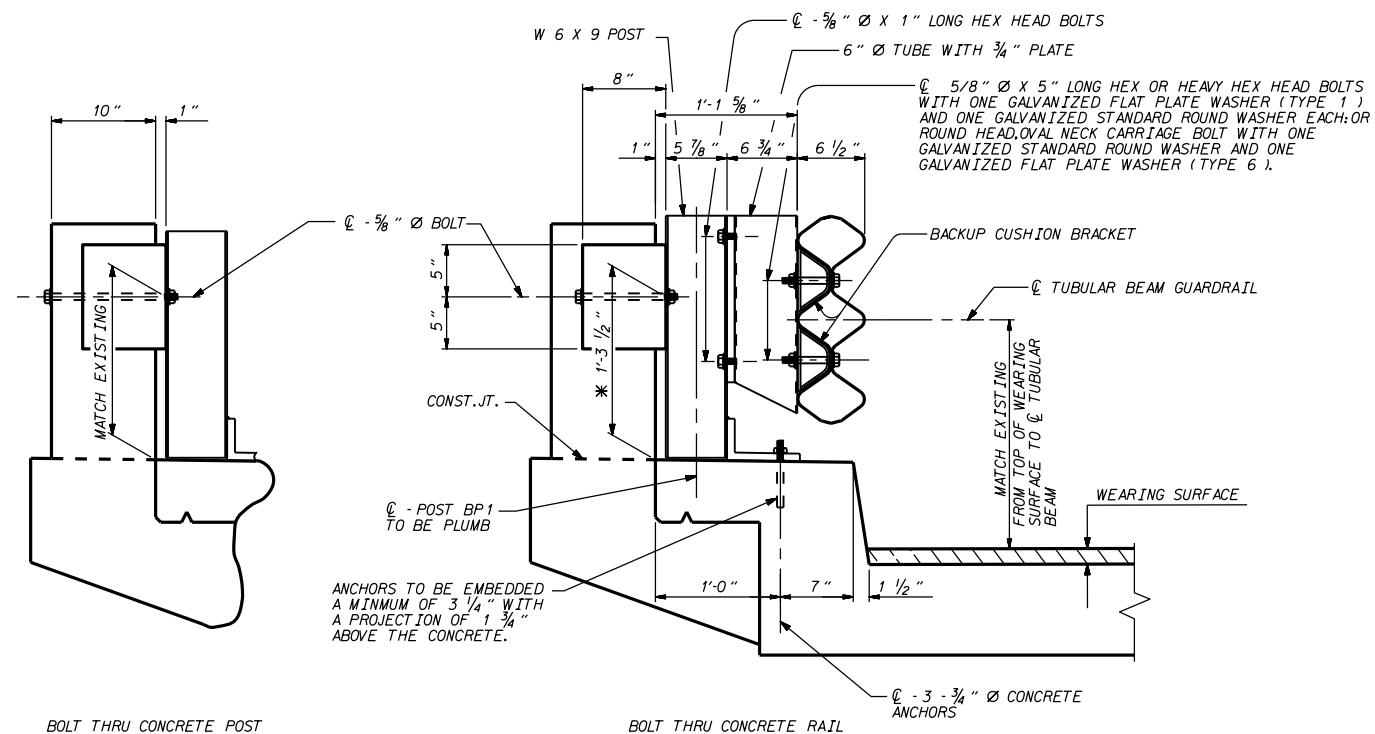
PLAN

GENERAL NOTES:

- QUANTITIES ARE FOR STEEL DOUBLE FRAME AND GRATE (STD. 840.37) OPENING
- USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE
- CONFIRM DIMENSIONS ON EACH INDIVIDUAL DROP INLET FOR CONVERSION

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
DETAIL TO CONVERT EXISTING DROP INLET TO A TRAFFIC BEARING DROP INLET	
ORIGINAL BY: E.E. WARD	DATE: 11-08-06
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: Jusr/detail/stand/trfbearinoslab.dgn	

- FIELD VERIFY THIS DIMENSION. MAINTAIN A MINIMUM OF 2' FROM THE CENTER OF THE BOLT HOLE TO THE TOP OF THE POST. THE BOLT HOLE MAY BE CUT INTO THE POST IN THE FIELD IF NEEDED.

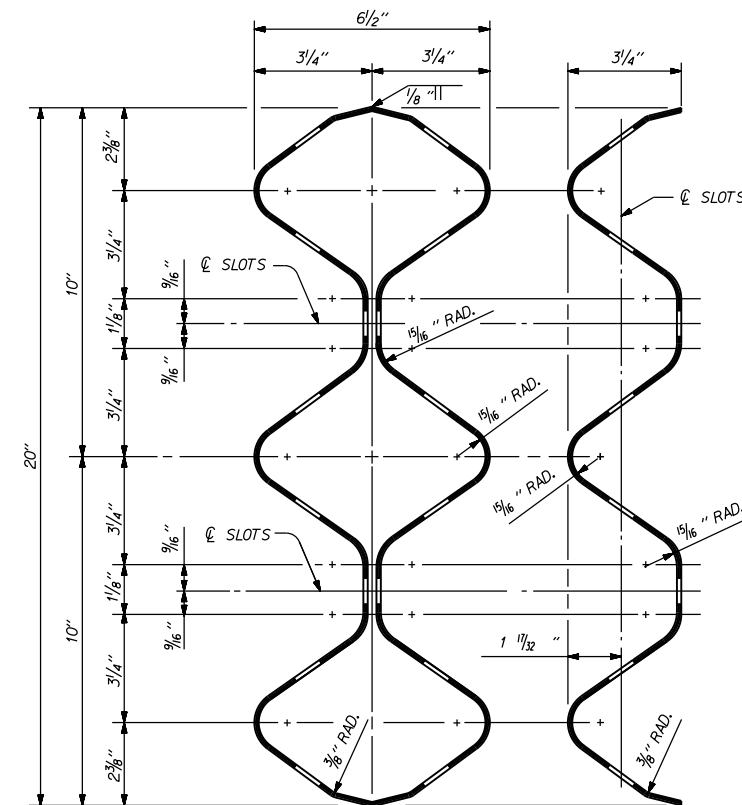


BOLT THRU CONCRETE POST

BOLT THRU CONCRETE RAIL

RETROFIT EXISTING RAIL WITH TUBULAR BEAM GUARDRAIL
(WITH WEARING SURFACE)

BP1



SECTION THRU
TUBULAR BEAM

SECTION THRU
20\"/>

GENERAL NOTES :

- THE 20' TRIPLE TUBULAR CORRUGATED BEAM RAIL SECTION SHALL BE FABRICATED BY WELDING TWO (2) 20' TRIPLE CORRUGATED BEAM RAIL ELEMENTS AS SHOWN AND THE GUARDRAIL SHALL CONFORM TO THE NCDOT STANDARD SPECIFICATIONS EXCEPT AS NOTED AND SHOWN ON THE PLANS.
- 20' TRIPLE TUBULAR CORRUGATED BEAM RAIL SHALL BE 10 GAGE.
- POSTS, BASE ANGLES AND/OR BASE PLATES, 6" DIA. TUBES, AND OFFSET BLOCKS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-36. SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A-570 GRADE 33 OR A-611 GRADE C.
- POSTS, BASE ANGLES AND/OR BASE PLATES, TUBES, BLOCKS AND SHIMS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A-123.
- POSTS ARE TO BE PLUMB. SHIMS MAY BE USED BENEATH THE ROADWAY EDGE OF THE BASE ANGLES AND/OR BASE PLATES AS NECESSARY FOR POST ALIGNMENT. PROVIDE ONE 1/8" AND TWO 1/16" STEEL SHIMS FOR 25% OF THE POSTS ON THE BRIDGE.
- "BP" POST HEIGHT TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR.
- PROPOSED RAIL POST MAY BE SHIFTED SLIGHTLY TO CLEAR REINFORCING STEEL. STANDARD SLOTS MAY BE USED IN THE RAIL TO ALLOW ADJUSTMENT.
- HOLES SHALL BE DRILLED HORIZONTAL OR VERTICAL USING A ROTARY DRILL OR A ROTARY IMPACT DRILL. IMPACT TOOLS WILL NOT BE PERMITTED. CARBIDE TIPPED BITS SHALL BE USED UNLESS REINFORCING STEEL IS ENCOUNTERED. AN APPROPRIATE BIT FOR DRILLING THROUGH REINFORCING STEEL SHALL BE USED WHEN NECESSARY. THE CONTRACTOR SHALL BE PREPARED TO DRILL THROUGH REINFORCING STEEL AT TIMES.
- POST SPACINGS AS SHOWN ON THE PLANS SHALL BE CHECKED BEFORE HOLES ARE DRILLED IN THE 20' TRIPLE TUBULAR CORRUGATED BEAM RAIL. STANDARD SLOTS WILL BE ALLOWED. FIELD PUNCHING OF THE HOLES OR SLOTS WILL NOT BE PERMITTED.
- ALL CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.
- VERTICAL SLOTS IN THE 6" TUBE ALLOW FOR SOME VERTICAL ADJUSTMENT OF RAIL HEIGHT IN ORDER TO OBTAIN THE CENTERLINE OF RAIL HEIGHT OF 1'-11" ABOVE RIDING SURFACE.
- THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES. ELECTROSLAG WELDING WILL NOT BE PERMITTED.
- LAP BEAM RAIL JOINTS IN DIRECTION OF TRAFFIC.

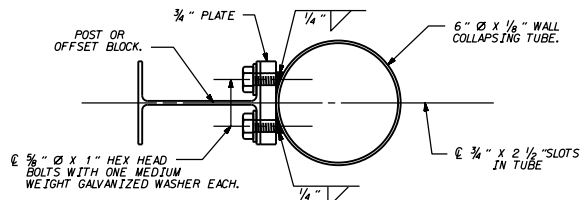
CONCRETE ANCHOR NOTES :

- FOR ADHESIVELY ANCHORED BOLTS OR DOWELS, SEE STANDARD SPECIFICATION FOR ROADS AND BRIDGES.
- EMBEDMENT SHOWN ON THE PLANS IS A MINIMUM, BUT THE MANUFACTURER'S RECOMMENDATIONS SHALL BE FOLLOWED.
- AT THE CONTRACTOR'S OPTION, STAINLESS STEEL ANCHORS MAY BE USED AS AN ALTERNATE FOR THE GALVANIZED CONCRETE ANCHORS. THEY SHALL MEET OR EXCEED THE MECHANICAL REQUIREMENTS FOR THE GALVANIZED ANCHORS. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- EXPANSION ANCHORS WILL NOT BE PERMITTED.

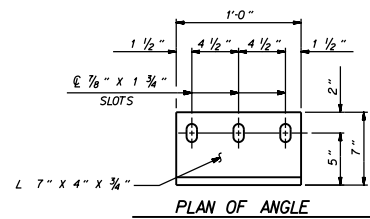
NOTES :

- TUBULAR BEAM POSTS ARE TO BE MOUNTED AGAINST THE EXISTING CONCRETE RAIL. HOLES FOR THE 5/8" DIAMETER BOLTS, THRU THE EXISTING CONCRETE RAIL OR POST, SHALL BE 3/4" DIAMETER.
- 5/8" DIAMETER BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-307 AND SHALL BE GALVANIZED TO CONFORM TO THE REQUIREMENTS OF ASTM A-153.

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
RETROFIT OF EXISTING BRIDGE RAIL WITH TUBULAR BEAM GUARDRAIL	
ORIGINAL BY: C.O. CUEVAS	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: jhowerton\guardrail\tubulartriplebeam	

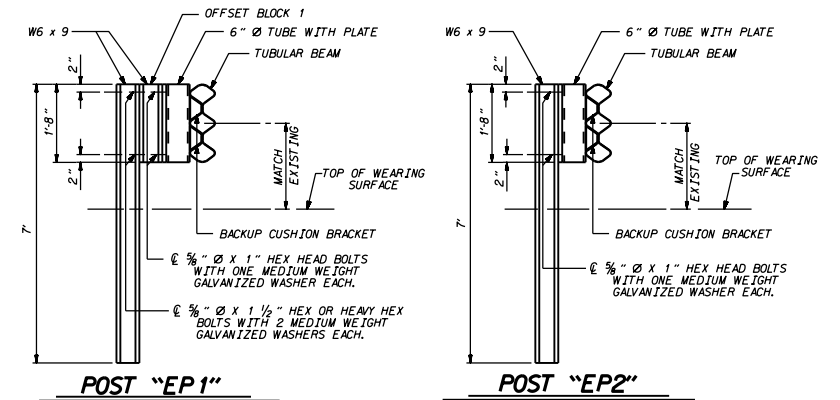


DETAIL SHOWING CONNECTION OF 6" Ø TUBE TO POST OR OFFSET BLOCK



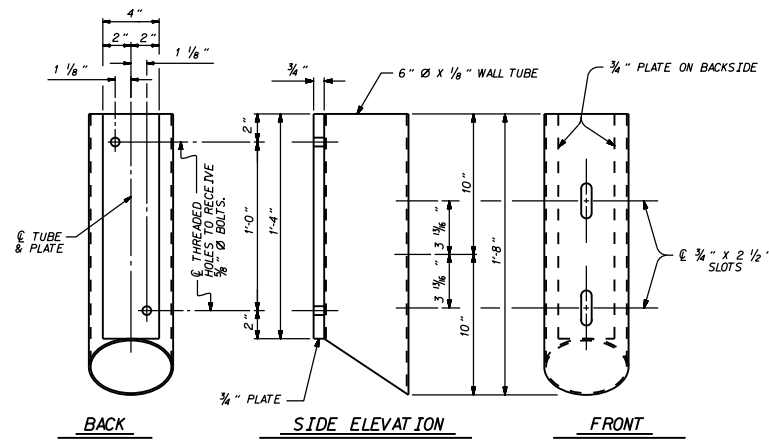
PLAN OF ANGLE

NOTE A: SLOT TO BE DRILLED ON SIDE OF WEB FACING "ONCOMING TRAFFIC".



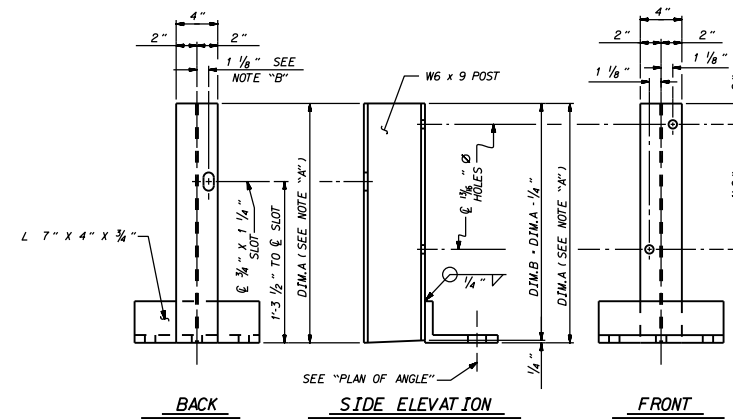
POST "EP1"

POST "EP2"

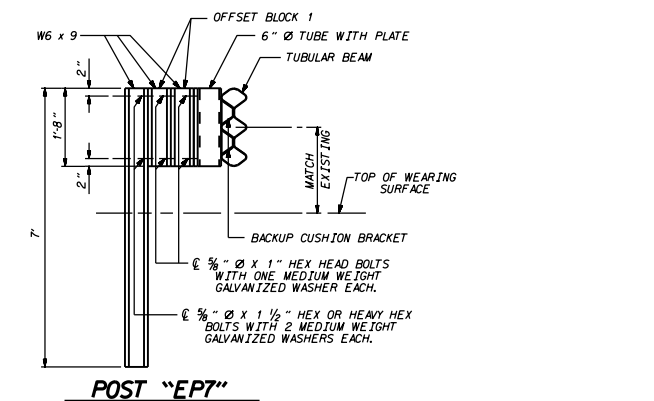


6" Ø TUBE DETAILS

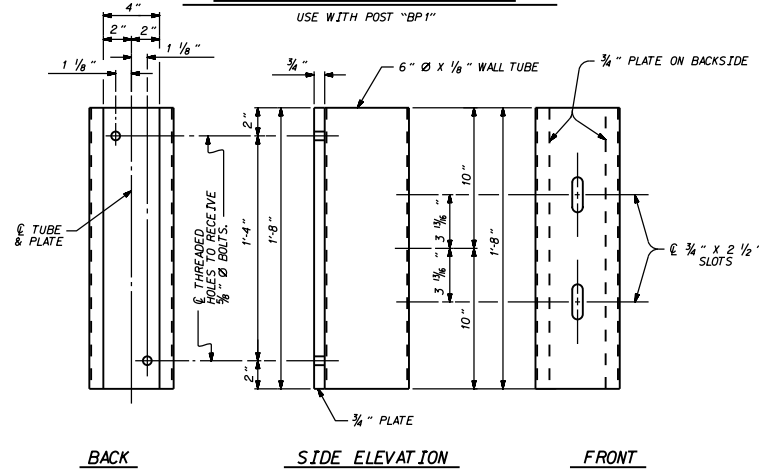
USE WITH POST "BP1"



BP1 POST DETAILS

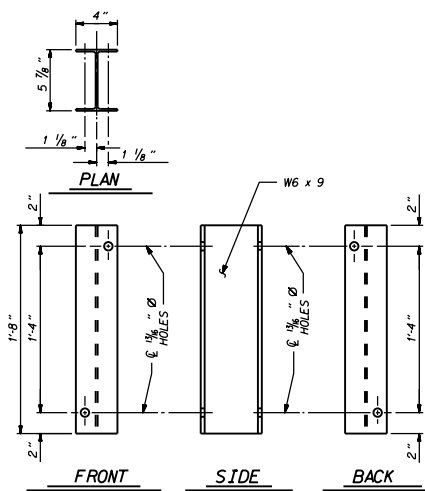


POST "EP7"

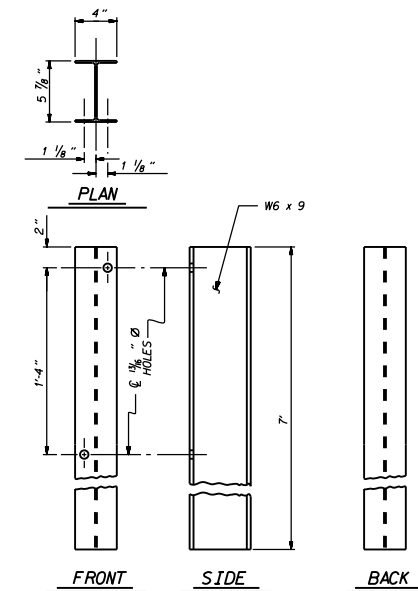


6" Ø TUBE DETAILS

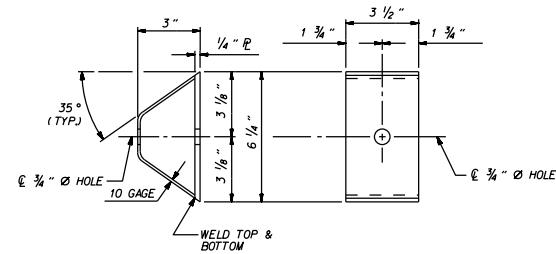
USE WITH POST "EP1, EP2, & EP7"



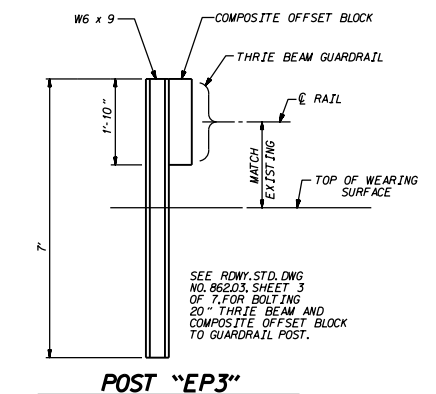
DETAILS OF OFFSET BLOCK 1



DETAIL OF POST EP1, EP2, & EP7



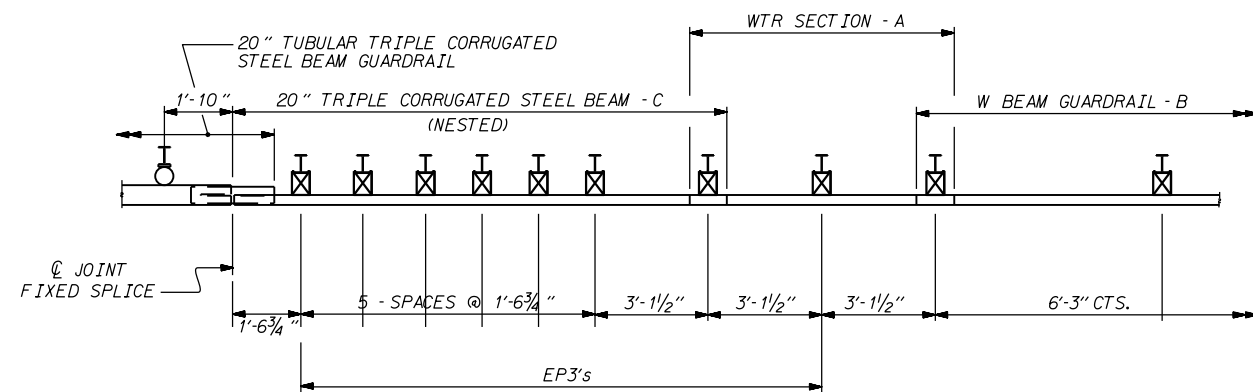
BACKUP CUSHION BRACKET



POST "EP3"

SEE RDWY. STD. DWG NO. 862D3, SHEET 3 OF 7, FOR BOLTING 20" THIRIE BEAM AND COMPOSITE OFFSET BLOCK TO GUARDRAIL POST.

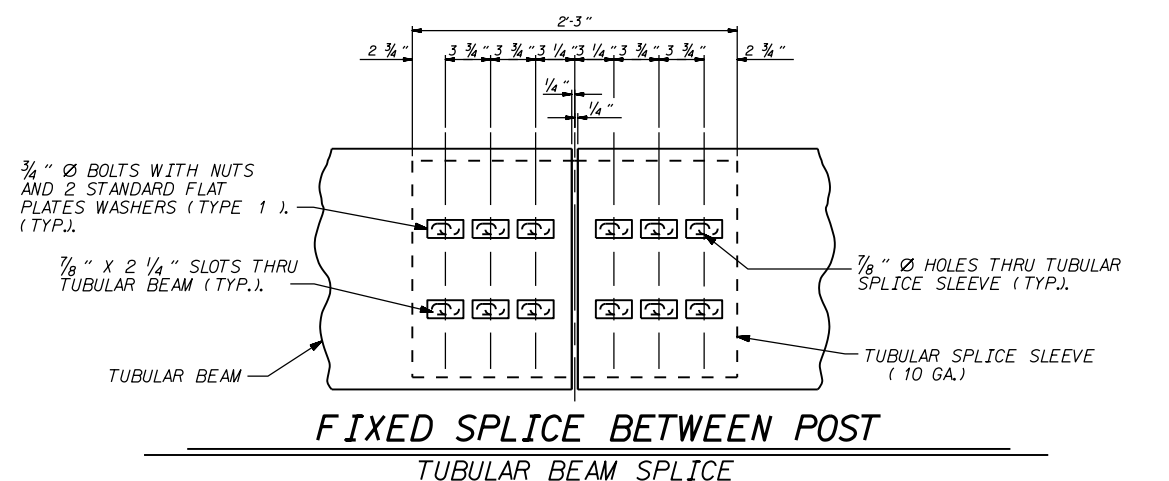
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
RETROFIT OF EXISTING BRIDGE RAIL WITH TUBULAR BEAM GUARDRAIL	
ORIGINAL BY: C.O. CUEVAS	DATE: 9-1-98
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: ds182:\usr\cesar\english\retrofit.dgn	



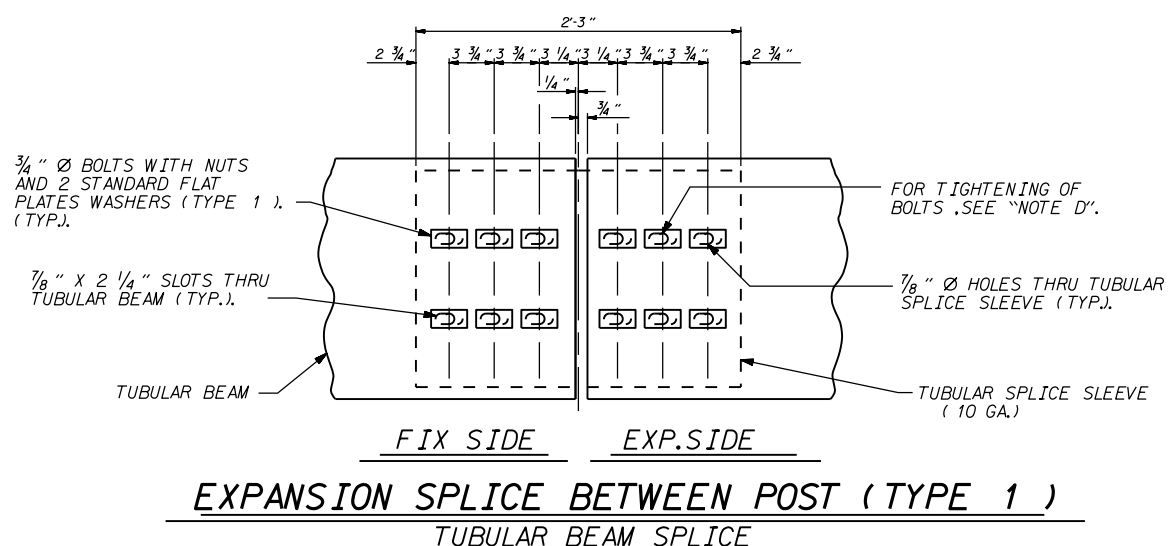
DETAIL "T"

LEGEND

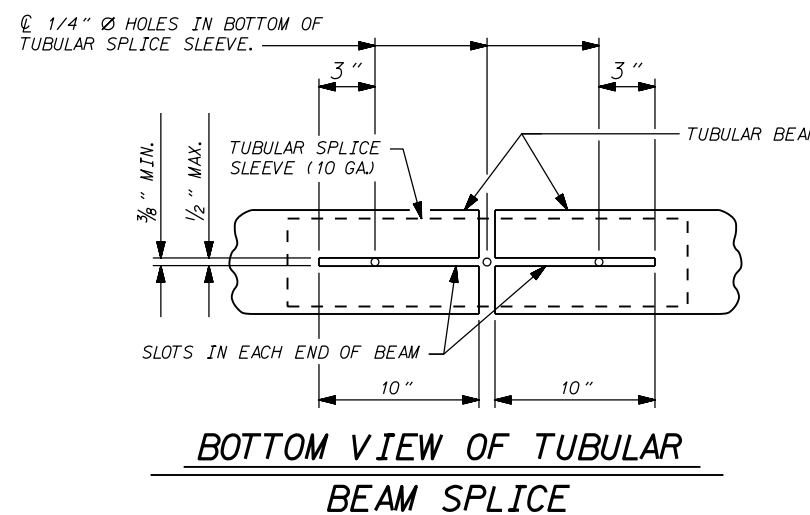
- "A" -- USE W-TR GUARDRAIL TRANSITIONAL SECTION
- "B" -- USE STANDARD GUARDRAIL
- "C" -- USE 20" TRIPLE CORRUGATED STEEL BEAM GUARDRAIL



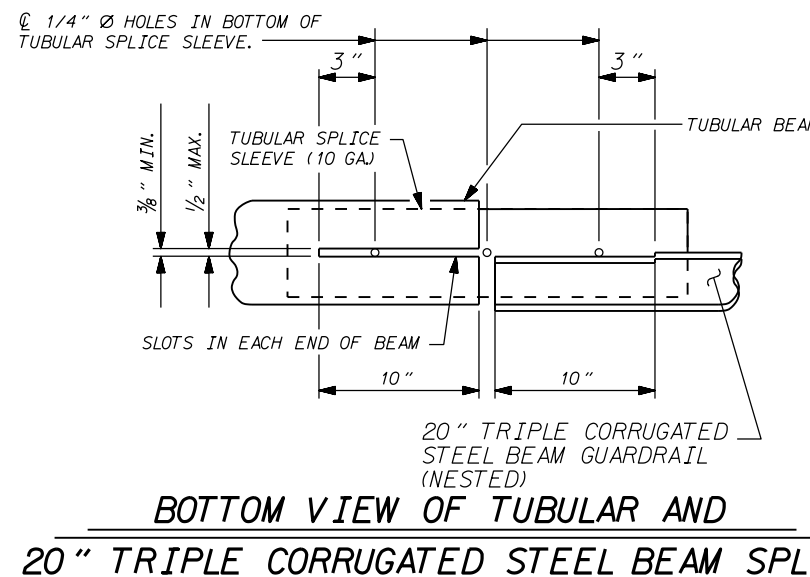
**FIXED SPLICE BETWEEN POST
TUBULAR BEAM SPLICE**



**EXPANSION SPLICE BETWEEN POST (TYPE 1)
TUBULAR BEAM SPLICE**



**BOTTOM VIEW OF TUBULAR
BEAM SPLICE**



**BOTTOM VIEW OF TUBULAR AND
20" TRIPLE CORRUGATED STEEL BEAM SPLICE**

TABLE 2 FLAT PLATE WASHER DIMENSIONS			
TYPE	DESCRIPTION	A	B
1	STANDARD WASHER	3"	1 1/2"

FLAT PLATE WASHER - TYPE 6

"NOTE D": BOLTS ON EXPANSION SIDE OF TUBULAR BEAM SPLICE SHALL BE TIGHTENED FINGER TIGHT. DOUBLE NUTS SHALL BE USED AND TIGHTENED AGAINST EACH OTHER TO PREVENT THE NUTS FROM BECOMING LOOSE ON THE BOLT.

CONTRACT STANDARDS AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119

RETROFIT OF EXISTING BRIDGE RAIL WITH TUBULAR BEAM GUARDRAIL

ORIGINAL BY: C.O. CUEVAS DATE: 9-1-98
 MODIFIED BY: DATE:
 CHECKED BY: DATE:
 FILE SPEC.: ds182:\usr\cesar\english\retrofit.dgn

PROJECT NO.	SHEET NO.	TOTAL NO.
I-5888A	10	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	0106000000-E	1245000000-E	1297000000-E	1297000000-E	1523000000-E	1524200000-E	1575000000-E	1704000000-E	1840000000-E	2165000000-E	2407000000-E	2473000000-E	2473000000-E	2473000000-E	2738000000-E	2850000000-N			
												BORROW EXCAVATION	SHOULDER RECONSTRUCTION	MILLING ASPHALT PAVEMENT, 2" DEPTH	MILLING ASPHALT PAVEMENT, 1-1/2" DEPTH	ASPHALT CONC SURFACE COURSE, TYPE S9.5C	ASPHALT CONC SURFACE COURSE, TYPE S9.5D	ASPHALT BINDER FOR PLANT MIX	POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	MILLED RUMBLE STRIPS (ASPHALT CONCRETE)	12" FUNNEL DRAIN PIPE	STEEL FRAME WITH TWO GRATES, STD 840.37	GENERIC DRAINAGE ITEM, REMOVE AND REPLACE METAL FUNNELS	GENERIC DRAINAGE ITEM REMOVE AND REPLACE CONCRETE APRON	GENERIC DRAINAGE ITEM; DRAINAGE STRUCTURE CLEANOUT	GENERIC PAVING ITEM, REM AND REPL 4" CONC PAVED DITCH	GENERIC DRAINAGE ITEM, CONVERT EXIST. DROP INLET TO TB DROP INLET		
										MI	FT	CY	SMI	SY	SY	TON	TON	TON	TON	TON	LF	LF	EA	EA	EA	EA	EA	EA		
I-5888A	Buncombe	1	I-40 EB	I-40 EB MP36.76 - MP 43.5	1, 2, 3	2	MD	NO	NO	6.74	39	603.00	12.00	94,899	58,010	5,390	11,770	318	671	135	71,174	30.00		1.00						
I-5888A	Buncombe	1	I-40 WB	I-40 WB MP36.76 - MP 43.5	1, 2, 3	2	MD	NO	NO	6.74	39	603.00	12.00	98,412	58,010	5,390	12,210	318	696	135	71,174		1.00		5	10.00	577	1.00		
I-5888A	Buncombe	1	I-40 RAMPS	EXIT 37 RAMPS	4	2	MD	NO	NO	1.06	32	94.00	2.12	19,900			2,464		140	25										
TOTAL FOR PROJ NO. I-5888A												14.54		1,300.00	26.12	213,211	116,020	10,780	26,444	636	1,507	295	142,348	30.00	1.00	1.00	5	10.00	577	1.00
GRAND TOTAL												14.54		1,300.00	26.12	213,211	116,020	10,780	26,444	636	1,507	295	142,348	30.00	1.00	1.00	5	10.00	577	1.00

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH	WIDTH	3150000000-N	3180000000-N	3210000000-N	3287000000-N	3319000000-N	3420000000-E	3075000000-E	3120000000-E	6000000000-E	6012000000-E	6036000000-E	6042000000-E	6084000000-E	7444000000-E	7456000000-E	5255000000-N		
												ADDITIONAL GUARDRAIL POSTS	GUARDRAIL ANCHOR UNITS, TYPE III MODIFIED	GUARDRAIL END UNITS, TYPE CAT-1	GUARDRAIL END UNITS, TYPE TL3	GUARDRAIL ANCHOR UNITS, TYPE B-83	GENERIC GUARDRAIL ITEM REMOVE AND REPLACE EXISTING GUARDRAIL	TRIPLE CORRUGATED STEEL BEAM GUARDRAIL	20" TUBULAR TRIPLE CORRUGATED STEEL BEAM GUARDRAIL	TEMPORARY SILT FENCE	SEDIMENT CONTROL STONE	MATTING FOR EROSION CONTROL	1/4" HARDWARE CLOTH	SEEDING & MULCHING	INDUCTIVE LOOP SAWCUT	LEAD-IN CABLE 3/8"	PORTABLE LIGHTING		
										MI	FT	EA	EA	EA	EA	EA	LF	LF	LF	LF	TON	SY	LF	AC	LF	LF	LS		
I-5888A	Buncombe	1	I-40 EB	I-40 EB MP36.76 - MP 43.5	1, 2, 3	2	MD	NO	NO	6.74	39	15.00	4.00	23.00	25.00	7.00	42,982.00	25.00	359.00	100	20	100	25	0.25	300	100	1.00		
I-5888A	Buncombe	1	I-40 WB	I-40 WB MP36.76 - MP 43.5	1, 2, 3	2	MD	NO	NO	6.74	39		2.00	17.00	19.00	9.00	42,500.00	12.50	163.00						300	100	1.00		
I-5888A	Buncombe	1	I-40 RAMPS	EXIT 37 RAMPS	4	2	MD	NO	NO	1.06	32			5.00	4.00		2,221.00												
TOTAL FOR PROJ NO. I-5888A												14.54		15.00	6.00	45.00	48.00	16.00	87,703.00	37.50	522.00	100	20	100	25	0.25	600	200	1.00
GRAND TOTAL												14.54		15.00	6.00	45.00	48.00	16.00	87,703.00	37.50	522.00	100	20	100	25	0.25	600	200	1.00

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LANES	LANE TYPE	LENGTH	WIDTH	4400000000-E	4415000000-N	4420000000-N	4430000000-N	4480000000-N	4510000000-N	4600000000-N	4600000000-N	4600000000-N	4721000000-E	4725000000-E	4810000000-E	4820000000-E	4847100000-E	4847120000-E	4855000000-E	4905000000-N						
										WORK ZONE SIGNS (STATIONARY)	WORK ZONE SIGNS (PORTABLE)	FLASHING ARROW BOARD	PORTABLE CHANGEABLE MESSAGE SIGN	DRUMS	TMA	LAW ENFORCEMENT	WORK ZONE DIGITAL SPEED LIMIT SIGNS	SEQUENTIAL FLASHING WARNING LIGHTS	WORK ZONE PRESENCE LIGHTING	THERMOPLASTIC PAVEMENT MARKING CHARACTER (120 MILS) NO TRUCKS THIS LANE	THERMOPLASTIC PAVEMENT MARKING SYMBOL (90 MILS) MERGE ARROW	PAINT PAVEMENT MARKING LINES (4") WHITE	PAINT PAVEMENT MARKING LINES (4") YELLOW	PAINT PAVEMENT MARKING LINES (8") WHITE	POLYUREA PAVEMENT MARKING LINES (6") WHITE (HIGHLY REFLECTIVE ELEMENTS)	POLYUREA PAVEMENT MARKING LINES (6") YELLOW (HIGHLY REFLECTIVE ELEMENTS)	POLYUREA PAVEMENT MARKING LINES (12") WHITE (HIGHLY REFLECTIVE ELEMENTS)	REMOVAL OF PAVEMENT MARKING LINES (6")	SNOWPLOWABLE PAVEMENT MARKERS			
								MI	FT	SF	SF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA						
I-5888A	Buncombe	1	I-40 EB	I-40 EB MP36.76 - MP 43.5	1, 2, 3	2	MD	6.74	24	270	224	3	3	300	2	300	4	16	15		4	96,722	74,827	1,528	45,056	35,760	1,528	390	538			
I-5888A	Buncombe	1	I-40 WB	I-40 WB MP36.76 - MP 43.5	1, 2, 3	2	MD	6.74	24										16	4				1,211	45,662	35,690	1,211	400	592			
I-5888A	Buncombe	1	I-40 RAMPS	EXIT 37 RAMPS	4	2	MD	1.06	32												3			2,995	6,004	3,377	2,925					
R PROJ NO. I-5888A									14.54		270	224	3	3	300	2	300	4	16	15		4	96,722	74,827	5,734	96,722	74,827	5,664	790	1,130		
GRAND TOTAL											14.54		270	224	3	3	300	2	300	4	16	15		4	96,722	74,827	5,734	96,722	74,827	5,664	790	1,130