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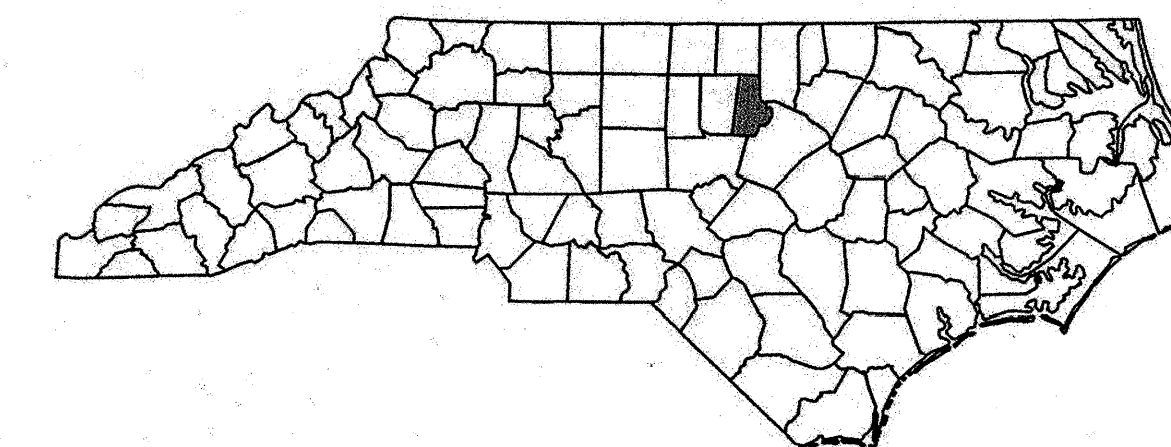
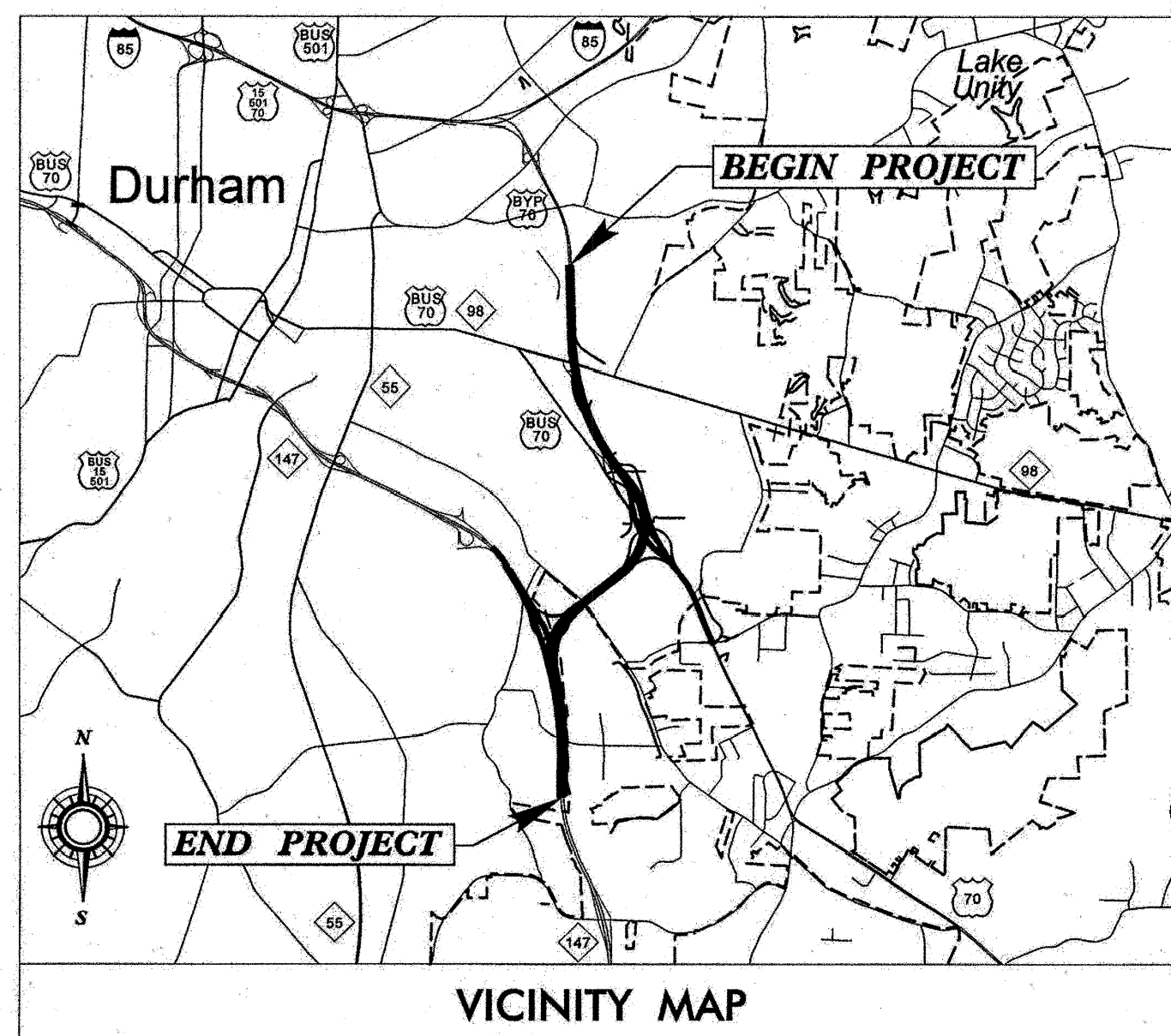
See Sheet 1-A For Index of Sheets

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## DURHAM COUNTY

**LOCATION: NORFOLK SOUTHERN AND CSX RAILWAY CROSSING OF DURHAM EAST CONNECTOR IN DURHAM, NC NEAR MILEPOST NS D-85.0 AND CSX SB-152.5**  
**TYPE OF WORK: GRADING, DRAINAGE, TRACKWORK, AND STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-0071	TW-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	



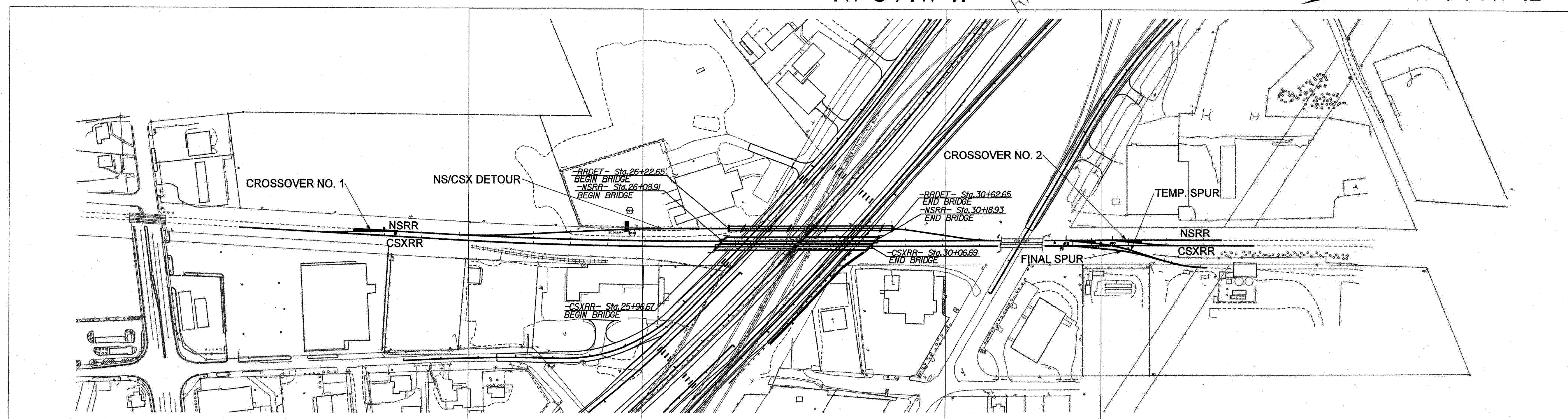
**CONTRACT: U-0071**

**CONTRACT: U-0071**

TW-7 /TW-10

TW-8 /TW-11

TW-9 /TW-12



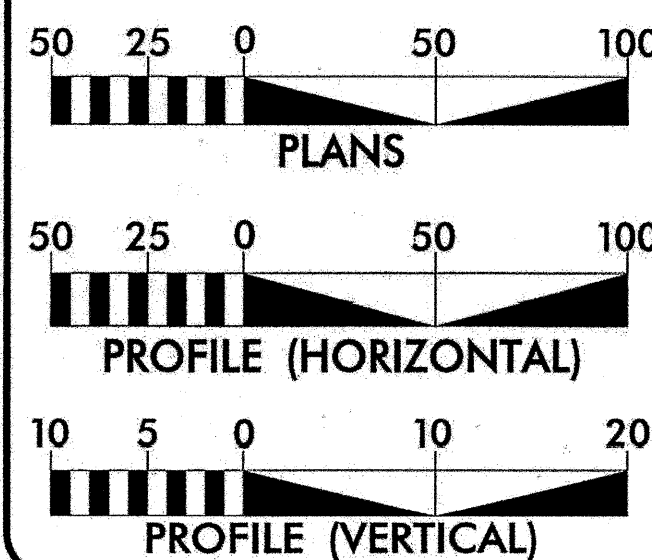
### INDEX OF SHEETS

SHEET NUMBER	TITLE
TW-1	TITLE SHEET
TW-2	CONVENTIONAL SYMBOLS
TW-3	TYPICAL SECTIONS
TW-4 THRU TW-5	TRACK PHASING SHEETS
TW-6	TRACK GEOMETRY
TW-7 THRU TW-9	PLAN SHEETS THRU CONSTRUCTION PHASE I
TW-10 THRU TW-12	PLAN SHEETS THRU CONSTRUCTION PHASE II
TW-13 THRU TW-17	PROFILE SHEETS
X-1R	CROSS SECTION SUMMARY
X-318 THRU X-337	CROSS SECTIONS

#### NCDOT CONTACT:

**BRENDA MOORE, PE**  
ENGINEERING COORDINATION  
PROJECT ENGINEER  
ROADWAY DESIGN UNIT

#### GRAPHIC SCALES



#### DESIGN DATA

ADT =  
ADT =  
DHV = %  
D = %  
T = % \*  
V = MPH  
\* TTST = DUAL  
FUNC CLASS =

#### PROJECT LENGTH

Prepared In the Office of:  
**DIVISION OF HIGHWAYS**  
1000 Birch Ridge Dr., Raleigh NC, 27610

#### 2012 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
SEPTEMBER 2011

**LETTING DATE:**  
SEPTEMBER 2014

**DOUGLAS B. SAUNDERS, PE**  
PROJECT ENGINEER

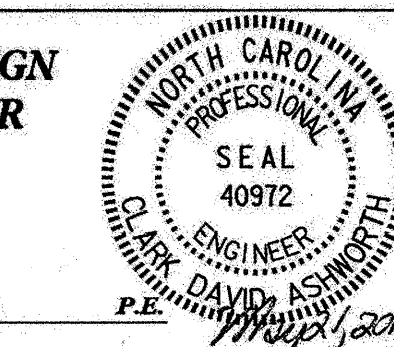
**CLARK DAVID ASHWORTH, PE**  
PROJECT DESIGN ENGINEER

#### HYDRAULICS ENGINEER

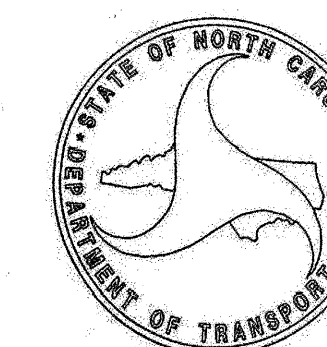
SIGNATURE: \_\_\_\_\_ P.E.

**RAIL DESIGN ENGINEER**

SIGNATURE: \_\_\_\_\_



**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**



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Note: Not to Scale

\*S.U.E. = Subsurface Utility Engineering

# CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Property Corner	✕
Property Monument	EDM
Parcel/Sequence Number	123
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB
Known Soil Contamination: Area or Site	☠ ☠
Potential Soil Contamination: Area or Site	☠ ?

## BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	✕
Foundation	▭
Area Outline	▭
Cemetery	+
Building	▭
School	▭
Church	▭
Dam	▭

## HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	JS
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	▽
Proposed Lateral, Tail, Head Ditch	▭
False Sump	▽

## RAILROADS:

Standard Gauge	-----
RR Signal Milepost	CSX TRANSPORTATION MILEPOST 35
Switch	SWITCH
RR Abandoned	-----
RR Dismantled	-----

## RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	○
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite RW Marker	○
Proposed Control of Access Line with Concrete C/A Marker	○
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	E
Proposed Temporary Construction Easement	E
Proposed Temporary Drainage Easement	TDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Drainage / Utility Easement	DUE
Proposed Permanent Utility Easement	PUE
Proposed Temporary Utility Easement	TUE
Proposed Aerial Utility Easement	AUE
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

## ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	C
Proposed Slope Stakes Fill	F
Proposed Curb Ramp	CR
Existing Metal Guardrail	T T T T
Proposed Guardrail	T T T T
Existing Cable Guiderail	▭
Proposed Cable Guiderail	▭
Equality Symbol	⊕
Pavement Removal	▭

## VEGETATION:

Single Tree	☀
Single Shrub	☀
Hedge	~~~~~
Woods Line	~~~~~

Orchard	☀ ☀ ☀ ☀
Vineyard	Vineyard

## EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊕
Storm Sewer	S

## UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	▭
H-Frame Pole	●
Recorded U/G Power Line	P
Designated U/G Power Line (S.U.E.*)	P

## TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Booth	▭
Telephone Pedestal	▭
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	▭
Recorded U/G Telephone Cable	T
Designated U/G Telephone Cable (S.U.E.*)	T
Recorded U/G Telephone Conduit	TC
Designated U/G Telephone Conduit (S.U.E.*)	TC
Recorded U/G Fiber Optics Cable	T FO
Designated U/G Fiber Optics Cable (S.U.E.*)	T FO

## WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
Recorded U/G Water Line	W
Designated U/G Water Line (S.U.E.*)	W
Above Ground Water Line	A/G Water

## TV:

TV Satellite Dish	☀
TV Pedestal	▭
TV Tower	⊗
U/G TV Cable Hand Hole	▭
Recorded U/G TV Cable	TV
Designated U/G TV Cable (S.U.E.*)	TV
Recorded U/G Fiber Optic Cable	TV FO
Designated U/G Fiber Optic Cable (S.U.E.*)	TV FO

## GAS:

Gas Valve	◇
Gas Meter	⊕
Recorded U/G Gas Line	G
Designated U/G Gas Line (S.U.E.*)	G
Above Ground Gas Line	A/G Gas

## SANITARY SEWER:

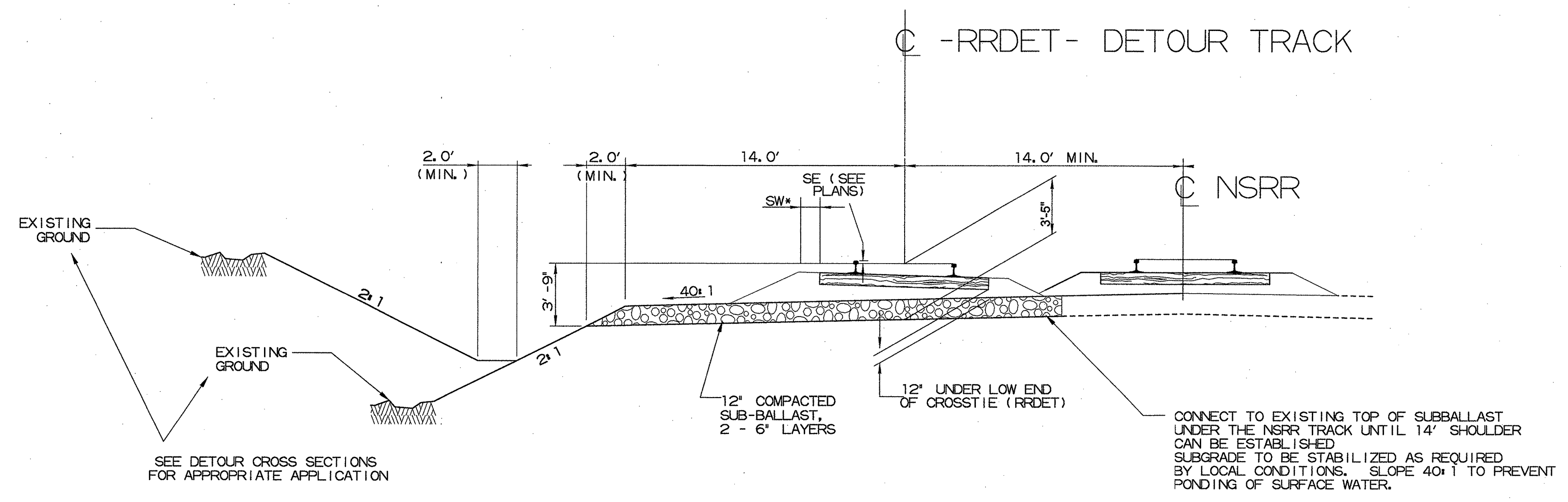
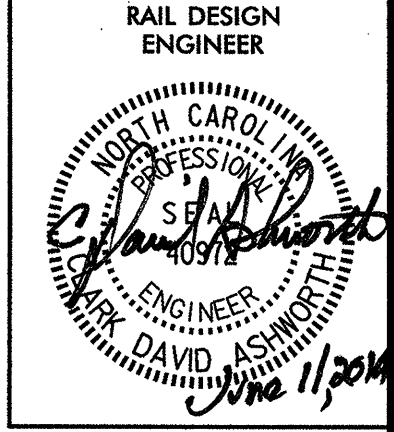
Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
Recorded SS Forced Main Line	FSS
Designated SS Forced Main Line (S.U.E.*)	FSS

## MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	▭
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line	TUTL
U/G Tank; Water, Gas, Oil	▭
Underground Storage Tank, Approx. Loc.	UST
A/G Tank; Water, Gas, Oil	▭
Geoenvironmental Boring	⊕
U/G Test Hole (S.U.E.*)	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

12/05/11 5/24/2014 10:22:34 PM H:\S\A\00021\MAIL\PSH\_01B.DGN



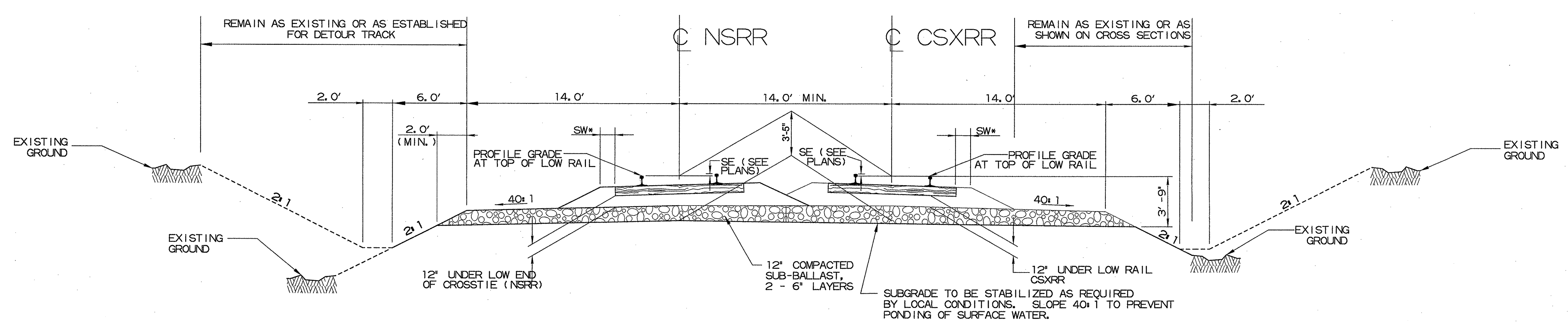


**TYPICAL SECTION NO. 1**

USE ON: -RRDET- STA. 18+00.00 TO STA. 26+22.65 (BEGIN BRIDGE)  
(END BRIDGE) STA. 30+62.65 TO STA. 33+59.29

**NSRR & RRDET**

SHOULDER WIDTH *		
BALLAST WIDTH FROM END OF TIE TO EDGE OF SLOPE		
	JOINTED RAIL	WELDED RAIL
SW (INSIDE OF CURVE)	0'	6'
SW (OUTSIDE OF CURVE)	6'	12'
SW (TANGENT BOTH SIDES)	0'	6'



**TYPICAL SECTION NO. 2**

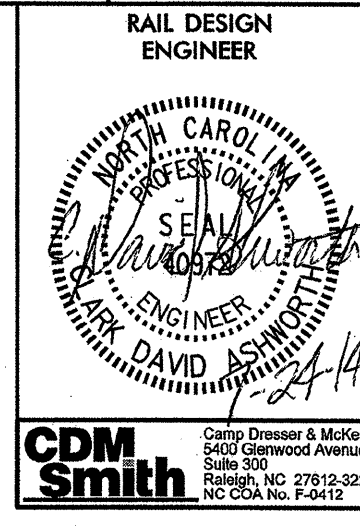
USE ON: -NSRR- STA. 16+17.82 TO STA. 26+08.91 (BEGIN BRIDGE)  
(END BRIDGE) STA. 30+18.93 TO STA. 39+50.00 (END CONSTRUCTION)

-CSXRR- STA. 13+10.00 TO STA. 25+96.67 (BEGIN BRIDGE)  
(END BRIDGE) 30+06.69 TO STA. 40+36.27 (END CONSTRUCTION)

**CSXRR**

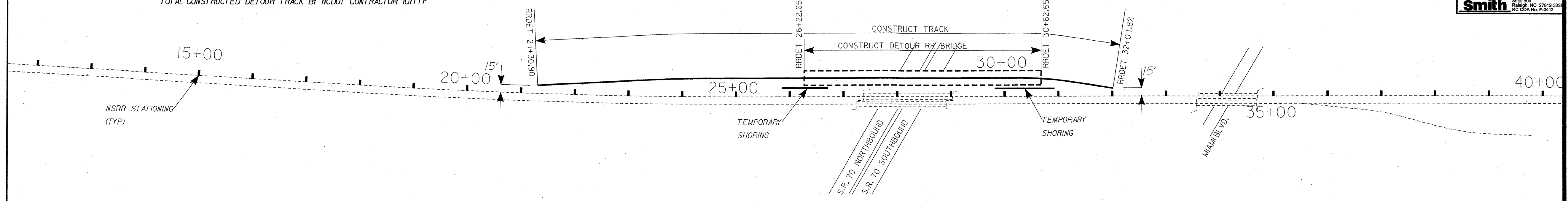
SHOULDER WIDTH *		
BALLAST WIDTH FROM END OF TIE TO EDGE OF SLOPE		
SW (INSIDE OF CURVE)		6'
SW (OUTSIDE OF CURVE)		12'
SW (TANGENT BOTH SIDES)		6'





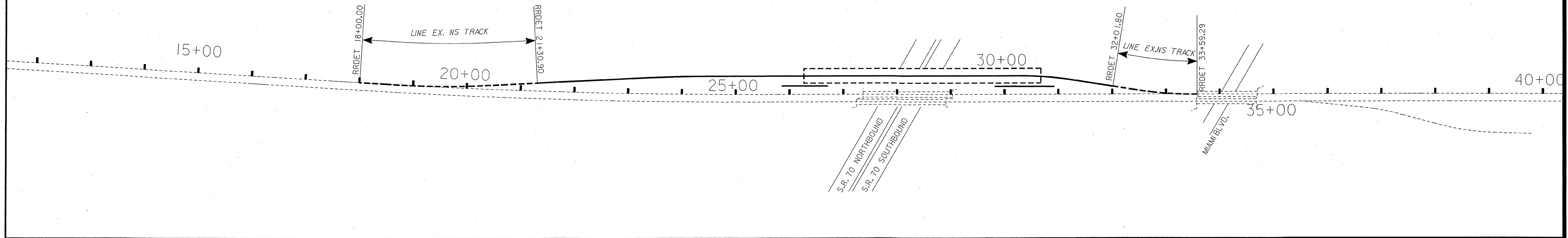
1. IT IS ASSUMED BOTH RAILROADS WILL REHABILITATE THEIR LINES AT THE "LINE" & "SURFACE" AREAS LISTED TO ACCEPTABLE QUALITY LEVEL BEFORE THIS PROJECT INTERRUPTS SERVICE TO MAINLINES AND TO SPUR OFF CSX (RESPONSIBILITY: NS & CSXT)
2. PLACE TEMPORARY SHORING AND THEN START DETOUR BRIDGE CONSTRUCTION (RESPONSIBILITY: NCDOT CONTRACTOR)
3. BUILD PROPOSED ROADBED NORTH AND SOUTH OF PROPOSED DETOUR BRIDGE UP TO FINISHED SUBBALLAST ELEVATION ON NORTH AND SOUTH END OF THE BYPASS WHILE PROPOSED DETOUR BRIDGE IS BEING BUILT (RESPONSIBILITY: NCDOT CONTRACTOR)
4. BUILD TRACK NORTH AND SOUTH OF PROPOSED DETOUR BRIDGE FROM BRIDGE APPROACHES TO WITHIN 15 FEET OF EXISTING NORFOLK SOUTHERN MAINLINE ON EACH END OF BYPASS (RESPONSIBILITY: NCDOT CONTRACTOR)
5. ONCE DETOUR BRIDGE IS COMPLETE, BUILD REMAINING TRACK OVER DETOUR BRIDGE AND CONNECT TRACK BUILT FROM ITEM 4 (RESPONSIBILITY: NCDOT CONTRACTOR)
6. RAISE AND ALIGN TRACK FROM ITEM 4 TO HORIZONTAL AND VERTICAL DATA FROM PLAN SHEETS AND MATCH TOP-OF-RAIL ELEVATION ON DETOUR BRIDGE (RESPONSIBILITY: NCDOT CONTRACTOR)

TOTAL CONSTRUCTED DETOUR TRACK BY NCDOT CONTRACTOR 1071TF



7. NS TO "LINE OVER" NS MAINLINE TRACK AT EACH END OF BYPASS AS FINALIZED IN ITEM 6 AS SHOWN ABOVE (RESPONSIBILITY: NS)

TOTAL TRACK TO RE-ALIGNED BY NS 489 TF



8. NS TO REMOVE THREE (3) EXISTING TRACK PANELS AND INSTALL THREE (3) NS STD. #10 TURNOUTS INTO EXISTING NS MAINLINE AS SHOWN; EXISTING TRACK PANELS TO BE PLACED ADJACENT TO TRACK FOR FUTURE RE-INSTALLATION (RESPONSIBILITY: NS)
9. CSXT TO LINE OVER MAINLINE (2 LOCATIONS) AND INDUSTRY SPUR TRACK TO NS TURNOUTS INSTALLED IN ITEM NO. 8 UNDER THE SAME TRACK OUTAGE PERIOD AS NS USES FOR TURNOUT INSTALLATION IN ITEM NO. 8. SEE ITEMS 10 AND 11 FOR INDUSTRY SPUR TRACK LINE OVER DETAILS (RESPONSIBILITY: CSXT)
10. REMOVE EXISTING CSXT TRACK PANEL TO THE LIMITS SHOWN BETWEEN THE TEMPORARY SPUR TURNOUT AND THE TEMPORARY MAINLINE TURNOUT (BOTH INSTALLED IN ITEM NO. 8) AND PLACE ADJACENT TO TRACKS FOR FUTURE RE-INSTALLATION IN PHASE II ITEM NO. 9; MOVE THE EXISTING INDUSTRY TURNOUT AS NEEDED FOR CLEARANCE. RETAIN EXISTING SPUR DERAIL FOR SUBSEQUENT RE-INSTALLATION USE. (RESPONSIBILITY: CSXT)
11. AFTER ITEM 10 IS COMPLETE LINE OVER EXISTING SPUR TRACK TO TEMPORARY SPUR TURNOUT INSTALLED BY NS IN ITEM NO. 8; USE A PORTION OF THE CSX MAINLINE TRACK PANEL REMOVED IN ITEM NO. 10 TO COMPLETE THE TEMPORARY INDUSTRY TRACK ALIGNMENT; INSTALL EXISTING SPUR DERAIL REMOVED IN ITEM NO. 10 TO TEMPORARY SPUR TRACK (RESPONSIBILITY: CSXT)
12. REMOVE AND SCRAP EXISTING INDUSTRY SPUR TURNOUT (RESPONSIBILITY: NCDOT CONTRACTOR)

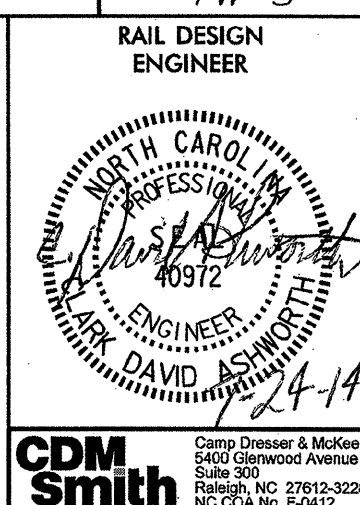
TOTAL TRACK TO BE RE-ALIGNED BY CSXT INCLUDING SPUR 393 TF  
 TOTAL EX. CSXT TRACK TO BE REMOVED BY CSXT 125 TF; 21 TF SHALL BE USED FOR CONNECTION TO TEMP-SPUR ALIGNMENT (RESPONSIBILITY: CSXT)  
 TOTAL EXISTING TRACK REMOVED BY NS 347 TF  
 TOTAL CONSTRUCTED NO. 10 TURNOUTS BY NS 3 EACH  
 TOTAL TRACK TO BE REMOVED (EX. SPUR TURNOUT) BY NCDOT CONTRACTOR (220 TF)

NO GRADEWORK IS TO BE PERFORMED WITHIN NS OR CSXT ROW BY NCDOT CONTRACTOR WITHOUT COORDINATION AND APPROVAL FROM APPROPRIATE RAILROAD

## CONSTRUCTION PHASE I (DETOUR PHASE)

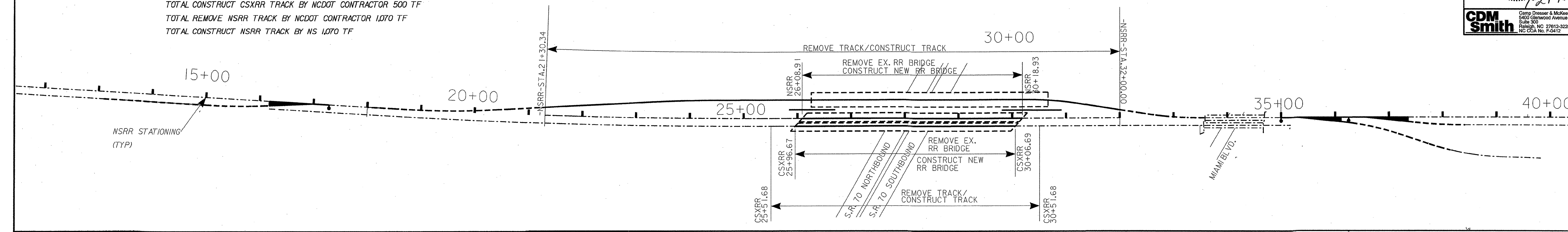
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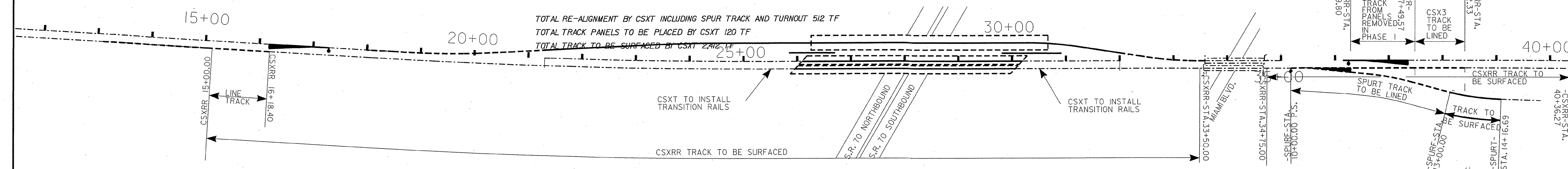
13. EXISTING CSXRR & NSRR TRACK TO BE REMOVED TO LIMITS SHOWN (RESPONSIBILITY: NCDOT CONTRACTOR)  
 14. EXISTING MAINLINE BRIDGES ON BOTH RAILROADS TO BE REMOVED AND NEW BALLAST DECK BRIDGES FOR EACH RAILROAD CONSTRUCTED (RESPONSIBILITY: NCDOT CONTRACTOR)  
 15. CONSTRUCT TRACKS TO LIMITS SHOWN INCLUDING OVER NEW BRIDGES COMPLETED IN ITEM 14 (RESPONSIBILITY: NCDOT CONTRACTOR FOR CSXRR/NS FOR NSRR)

TOTAL REMOVE CSXRR TRACK BY NCDOT CONTRACTOR 500 TF  
 TOTAL CONSTRUCT CSXRR TRACK BY NCDOT CONTRACTOR 500 TF  
 TOTAL REMOVE NSRR TRACK BY NCDOT CONTRACTOR 1070 TF  
 TOTAL CONSTRUCT NSRR TRACK BY NS 1070 TF



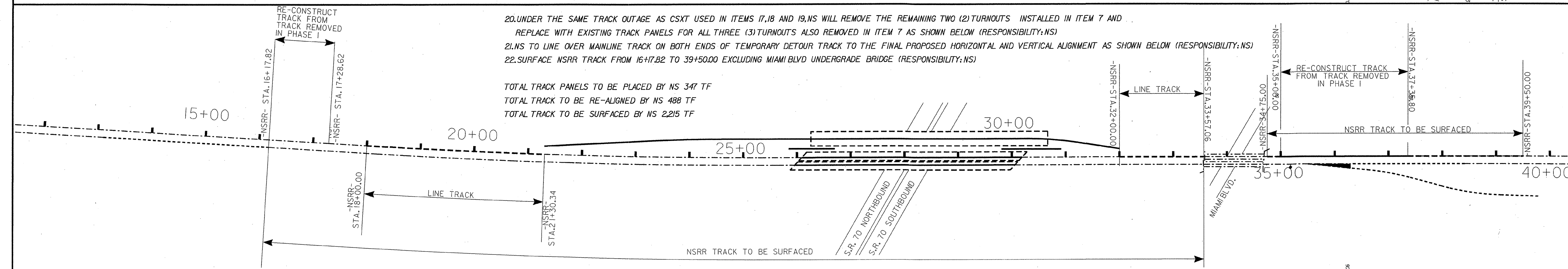
16. INSTALL TRANSITION RAILS AT EACH END OF CSXRR TRACK CONSTRUCTED IN ITEM 15 (RESPONSIBILITY: CSXT)  
 17. LINE OVER CSXT MAINLINE TRACK FROM NS TURNOUTS ON OUTER NORTH AND SOUTH LIMITS (RESPONSIBILITY: CSXT)  
 18. UNDER THE SAME TRACK OUTAGE AS ITEM NO.17, LINE OVER SPUR TRACK FROM TEMPORARY SPUR, INCLUDING THE TEMPORARY NOJO TURNOUT INSTALLED BY NS IN ITEM NO.8, TO THE PROPOSED FINAL SPUR HORIZONTAL AND VERTICAL ALIGNMENT AS SHOWN BELOW (THIS WILL REQUIRE REMOVING THE A PORTION OF THE TRACK BUILT IN PHASE I ITEM NO.11, RESTORE DERAIL TO ORIGINAL LOCATION FROM THE TEMPORARY LOCATION IN ITEM NO.11 (RESPONSIBILITY: CSXT)  
 19. RE-INSTALL TRACK PANEL REMOVED IN PHASE I ITEM NO.10 INCLUDING THE PORTION REMOVED IN ITEM NO.8 TO THE FINAL CSXRR ALIGNMENT (RESPONSIBILITY: CSXT)  
 20. SURFACE CSXRR TRACK FROM 15+00.00 TO 40+36.27 EXCLUDING MIAMI BLVD UNDERGRADE BRIDGE (RESPONSIBILITY: CSXT)

TOTAL RE-ALIGNMENT BY CSXT INCLUDING SPUR TRACK AND TURNOUT 512 TF  
 TOTAL TRACK PANELS TO BE PLACED BY CSXT 120 TF  
 TOTAL TRACK TO BE SURFACED BY CSXT 2,712 TF



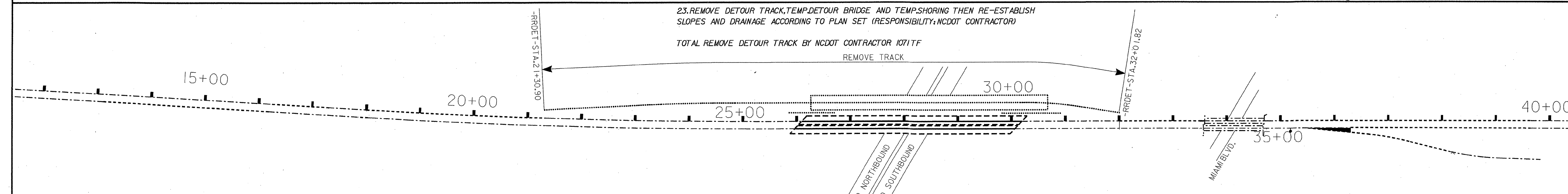
20. UNDER THE SAME TRACK OUTAGE AS CSXT USED IN ITEMS 17, 18 AND 19, NS WILL REMOVE THE REMAINING TWO (2) TURNOUTS INSTALLED IN ITEM 7 AND REPLACE WITH EXISTING TRACK PANELS FOR ALL THREE (3) TURNOUTS ALSO REMOVED IN ITEM 7 AS SHOWN BELOW (RESPONSIBILITY: NS)  
 21. NS TO LINE OVER MAINLINE TRACK ON BOTH ENDS OF TEMPORARY DETOUR TRACK TO THE FINAL PROPOSED HORIZONTAL AND VERTICAL ALIGNMENT AS SHOWN BELOW (RESPONSIBILITY: NS)  
 22. SURFACE NSRR TRACK FROM 16+17.82 TO 39+50.00 EXCLUDING MIAMI BLVD UNDERGRADE BRIDGE (RESPONSIBILITY: NS)

TOTAL TRACK PANELS TO BE PLACED BY NS 347 TF  
 TOTAL TRACK TO BE RE-ALIGNED BY NS 488 TF  
 TOTAL TRACK TO BE SURFACED BY NS 2,215 TF



23. REMOVE DETOUR TRACK, TEMP. DETOUR BRIDGE AND TEMP. SHORING THEN RE-ESTABLISH SLOPES AND DRAINAGE ACCORDING TO PLAN SET (RESPONSIBILITY: NCDOT CONTRACTOR)

TOTAL REMOVE DETOUR TRACK BY NCDOT CONTRACTOR 1071 TF



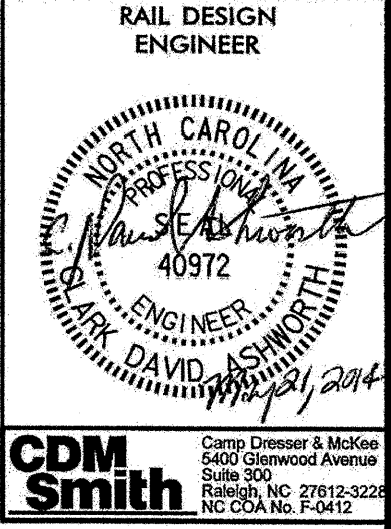
NO GRADEWORK IS TO BE PERFORMED WITHIN NS OR CSXT ROW BY NCDOT CONTRACTOR WITHOUT COORDINATION AND APPROVAL FROM APPROPRIATE RAILROAD

CONSTRUCTION PHASE II (FINAL PHASE)

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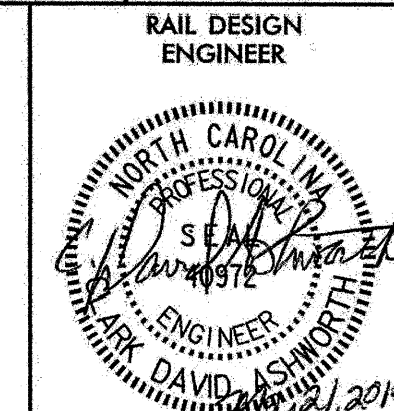
# DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA



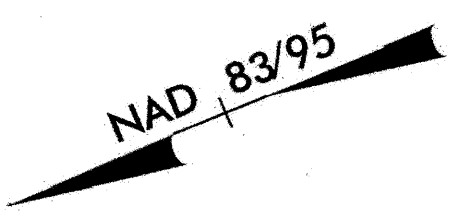
**CDM Smith**  
 Camp Dresser & McKee  
 5400 Glenwood Avenue  
 Suite 500  
 Raleigh, NC 27612-5228  
 NC REG. NO. F-0412

ALIGNMENT	POINT	STATION	NORTHING	EASTING	BEARING	DISTANCE	RADIUS	TANGENT	Dc	LENGTH	DELTA (CURVE)	THETA	LS	LT	ST	COMMENTS		
-CSX1-	POT	10+00.0000	815,418.9324	2,041,964.5358														
	PC	15+09.9548	814,960.8401	2,041,740.4702	S 26° 03' 52.3310" W	509.9548												
	PI	15+57.7231	814,917.9299	2,041,719.4816			955.3661	47.7683	6° 00' 00.0000"	95.4135	5° 43' 29.3176" (LT)							
	PT	16+05.3683	814,873.1400	2,041,702.8781														
	PI	16+97.9500	814,786.3310	2,041,670.6980	S 20° 20' 23.0134" W	92.5817												
	PS	17+29.2000	814,758.2591	2,041,656.9672	S 26° 03' 52.3310" W	31.2500											PI #10 SWITCH PS #10 SWITCH	
-RRDET-	POT	18+00.0000	814,694.1413	2,041,625.6054														
	TS	18+48.3192	814,650.7361	2,041,604.3748	S 26° 03' 52.3310" W	48.3192												
	PIS	18+89.6536	814,613.6055	2,041,586.2132								1° 14' 23.0935" (LT)	62.0000	41.3343	20.6676			
	SC	19+10.3192	814,594.8477	2,041,577.5360														
	PI	19+57.0151	814,552.4667	2,041,557.9310			1432.6854	46.6959	4° 00' 00.0000"	93.3397	3° 44' 00.9163" (LT)							
	CS	20+03.6589	814,508.8991	2,041,541.1273														
	PIS	20+24.3265	814,489.6160	2,041,533.6900									1° 14' 23.0935" (LT)	62.0000	41.3343	20.6676		
	ST	20+65.6589	814,450.7379	2,041,519.6536														
	TS	22+85.6415	814,243.8275	2,041,444.9513	S 19° 51' 05.2277" W	219.9826												
	PIS	23+26.9751	814,204.9502	2,041,430.9151									0° 37' 11.8867" (RT)	62.0000	41.3338	20.6669		
	SC	23+47.6415	814,185.5884	2,041,423.6871														
	PI	23+85.3647	814,150.2476	2,041,410.4938			2864.9344	37.7232	2° 00' 00.0000"	75.4382	1° 30' 31.5481" (RT)							
	CS	24+23.0797	814,115.2664	2,041,396.3745														
	PIS	24+43.7466	814,096.1017	2,041,388.6392														
	ST	24+85.0797	814,057.9422	2,041,372.7548														
	TS	30+15.0771	813,568.6437	2,041,169.0780	S 22° 36' 00.5491" W	529.9974												
	PIS	30+35.7445	813,549.5633	2,041,161.1355									1° 31' 20.2684" (RT)	31.0000	20.6674	10.3340		
	SC	30+46.0771	813,540.1317	2,041,156.9121														
	PI	30+75.9360	813,512.8803	2,041,144.7091			583.3847	29.8589	9° 50' 00.0000"	59.5926	5° 51' 35.7837" (RT)							
	CS	31+05.6697	813,487.0171	2,041,129.7876														
	PIS	31+16.0037	813,478.0660	2,041,124.6233									1° 31' 20.2684" (RT)	31.0000	20.6674	10.3340		
	ST	31+36.6697	813,460.4450	2,041,113.8232														
	TS	32+37.6957	813,374.3105	2,041,061.0302	S 31° 30' 16.8696" W	101.0260												
	PIS	32+58.3631	813,356.6895	2,041,050.2301									1° 31' 20.2684" (LT)	31.0000	20.6674	10.3340		
SC	32+68.6957	813,347.7383	2,041,045.0658															
PI	32+98.5546	813,321.8752	2,041,030.1443			583.3847	29.8589	9° 50' 00.0000"	59.5926	5° 51' 35.7837" (LT)								
CS	33+28.2883	813,294.6237	2,041,017.9413															
PIS	33+38.6223	813,285.1921	2,041,013.7179									1° 31' 20.2684" (LT)	31.0000	20.6674	10.3340			
ST	33+59.2883	813,266.1117	2,041,005.7755															
POT	34+55.0000	813,177.7498	2,040,968.9937	S 22° 36' 00.5491" W	95.7117													
POT	34+72.0000	813,162.0552	2,040,962.4606	S 22° 36' 00.5491" W	17.0000													
POT	35+02.2312	813,134.1455	2,040,950.8428	S 22° 36' 00.5491" W	30.2312													
PS	10+00.0000	813,134.1455	2,040,950.8428														PS #10 SWITCH	
PI	10+31.2500	813,105.2952	2,040,938.8335	S 22° 36' 00.5491" W	31.2500												PI #10 SWITCH	
PC	11+16.2500	813,030.4722	2,040,898.5034	S 28° 19' 29.8668" W	85.0000													
PI	11+68.6376	812,984.3569	2,040,873.6470			478.3386	52.3876	12° 00' 00.0000"	104.1687	12° 30' 00.8597" (RT)								
PT	12+20.4187	812,944.7148	2,040,839.3984	S 40° 49' 30.7264" W	60.0000													
PC	12+80.4187	812,899.3124	2,040,800.1732															
PI	13+49.0927	812,847.3462	2,040,755.2773			478.3386	68.6740	12° 00' 00.0000"	136.1667	16° 20' 24.0307" (LT)								
PT	14+16.5854	812,784.8481	2,040,726.8148															
POT	14+89.8962	812,718.1303	2,040,696.4305	S 24° 29' 06.6957" W	73.3108													
PS	36+25.0000	813,018.7444	2,040,902.8056															PS #10 SWITCH
PI	36+56.2500	812,989.8941	2,040,890.7963	S 22° 36' 00.5491" W	31.2500													PI #10 SWITCH
PC	37+49.2999	812,907.9849	2,040,846.6467	S 28° 19' 29.8668" W	93.0499													
PI	37+95.7379	812,867.1069	2,040,824.6132			955.3661	46.4380	6° 00' 00.0000"	92.7606	5° 33' 56.2821" (LT)								
PT	38+42.0605	812,824.2847	2,040,806.6481															
POT	41+13.3991	812,574.0730	2,040,701.6778	S 22° 45' 33.5847" W	271.3386													
POT	16+50.0000	814,828.8862	2,041,691.5129															
TS	17+98.4726	814,695.5134	2,041,626.2766	S 26° 03' 52.3310" W	148.4726													
PIS	18+39.8059	814,658.3836	2,041,608.1154									0° 08' 59.3984" (LT)	62.0000	41.3333	20.6667			
SC	18+60.4726	814,639.7951	2,041,599.0834															
PI	21+87.9414	814,345.2546	2,041,455.9688			11854.3344	327.4689	0° 29' 00.0000"	654.7693	3° 09' 52.9851" (LT)								
CS	25+15.2418	814,043.2625	2,041,329.3331															
PIS	25+35.9085	814,024.2037	2,041,321.3411									0° 08' 59.3984" (LT)	62.0000	41.3333	20.6667			
ST	25+77.2418	813,986.0443	2,041,305.4567															
POT	33+50.0000	813,272.6269	2,041,008.4875	S 22° 36' 00.5491" W	772.7582													
PINC	37+73.5728	812,881.5806	2,040,845.7094	S 22° 36' 00.5491" W	423.5728													
POT	39+50.0000	812,718.7637	2,040,777.7593	S 22° 39' 09.9776" W	176.4272													
POT	16+00.0000	814,969.7826	2,041,744.8442															
TS	18+10.8457	814,690.5500	2,041,608.2638	S 26° 03' 52.3310" W	310.8457													
PIS	18+52.1780	814,653.4202	2,041,590.1026									0° 09' 17.9982" (LT)	62.0000	41.3333	20.6667			
SC	18+72.8457	814,634.8309	2,041,581.0723															
PI	21+88.3649	814,351.0261	2,041,443.2057			11459.1923	315.5192	0° 30' 00.0000"	630.8770	3° 09' 15.7854" (LT)								
CS	25+03.7227	814,060.0649	2,041,321.1648															
PIS	25+24.3893	814,041.0068	2,041,313.1711									0° 09' 17.9982" (LT)	62.0000	41.3333	20.6667			
ST	25+65.7227	814,002.8475	2,041,297.2868															
POT	33+50.0000	813,278.7954	2,040,995.8907	S 22° 36' 00.5492" W	784.2773													
PINC	38+26.8486	812,838.5644	2,040,812.6389	S 22° 36' 00.5492" W	476.8486													
POT	41+13.6727	812,574.																





CDM Smith  
Camp Dresser & McKee  
4400 Glenwood Avenue  
Raleigh, NC 27612-2226  
NC OCA No. F-2412

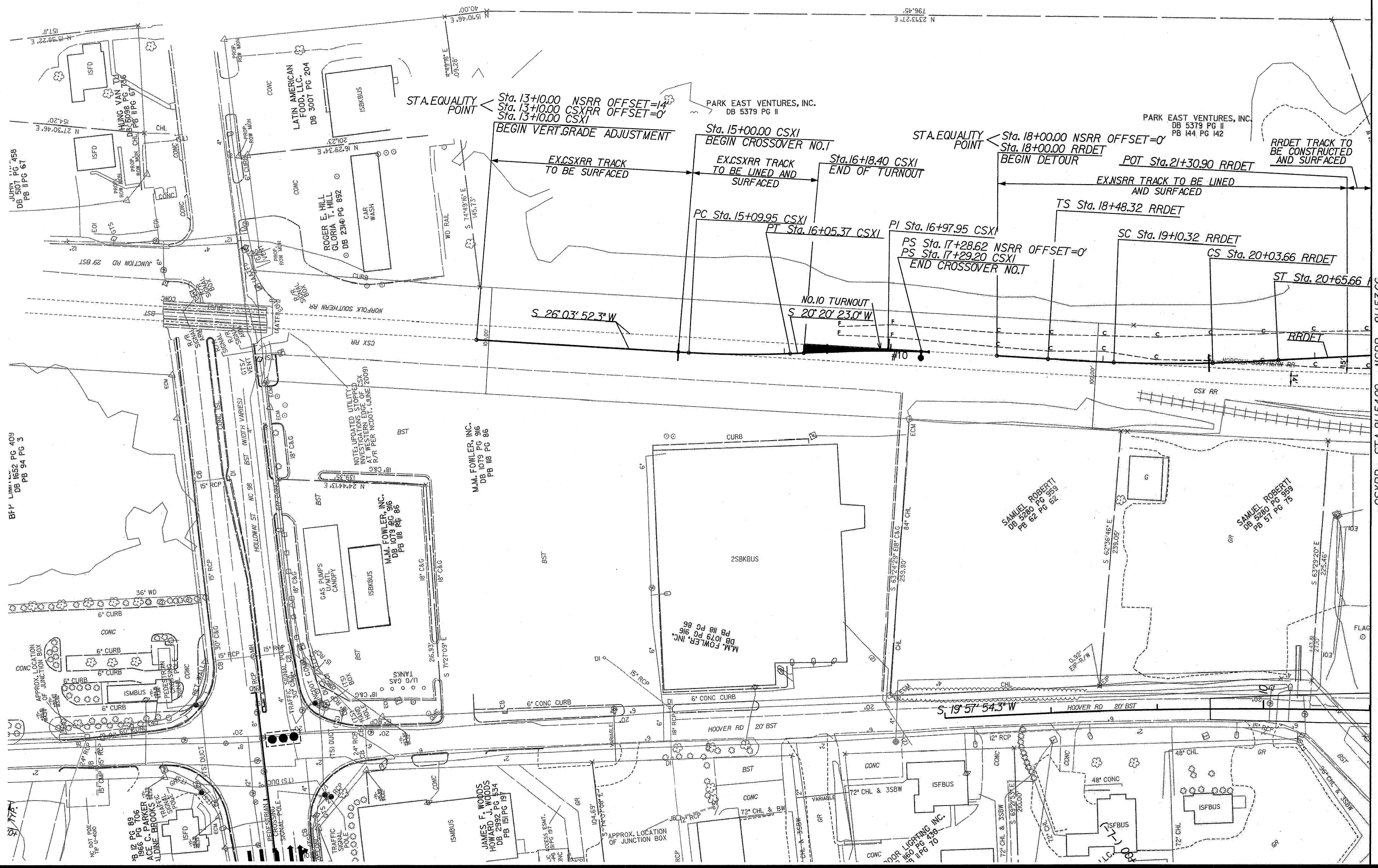


**RRDET**  
 Pls Sta 18+89.65  
 $\Theta_s = 1'14'23.1''$   
 $L_s = 62.00'$   
 $LT = 41.33'$   
 $ST = 20.67'$

**CSXI**  
 Pls Sta 15+57.72  
 $\Delta = 5'43'29.3'' (LT)$   
 $D = 6'00'00.0''$   
 $L = 95.4'$   
 $T = 47.77'$   
 $R = 955.37'$   
 $DS = 20 \text{ mph}$

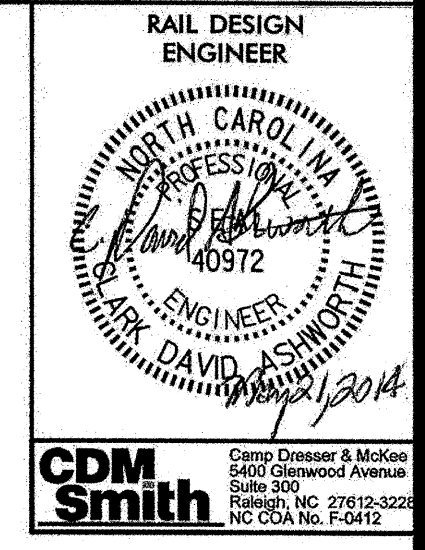
**RRDET**  
 Pls Sta 19+57.02  
 $\Delta = 3'44'00.9'' (LT)$   
 $D = 4'00'00.0''$   
 $L = 93.34'$   
 $T = 46.70'$   
 $R = 1,432.69'$   
 $e = 1''$   
 $DS = 30 \text{ mph}$

**RRDET**  
 Pls Sta 20+24.33  
 $\Theta_s = 1'14'23.1''$   
 $L_s = 62.00'$   
 $LT = 41.33'$   
 $ST = 20.67'$



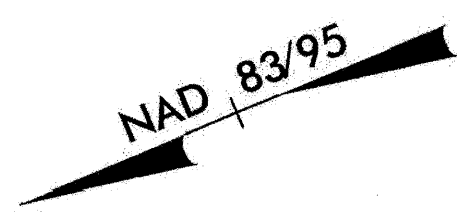
-NSRR- STA. 21+54.09 - NSRR- 21+53.66  
MATCH LINE SEE SHEET NO. 5





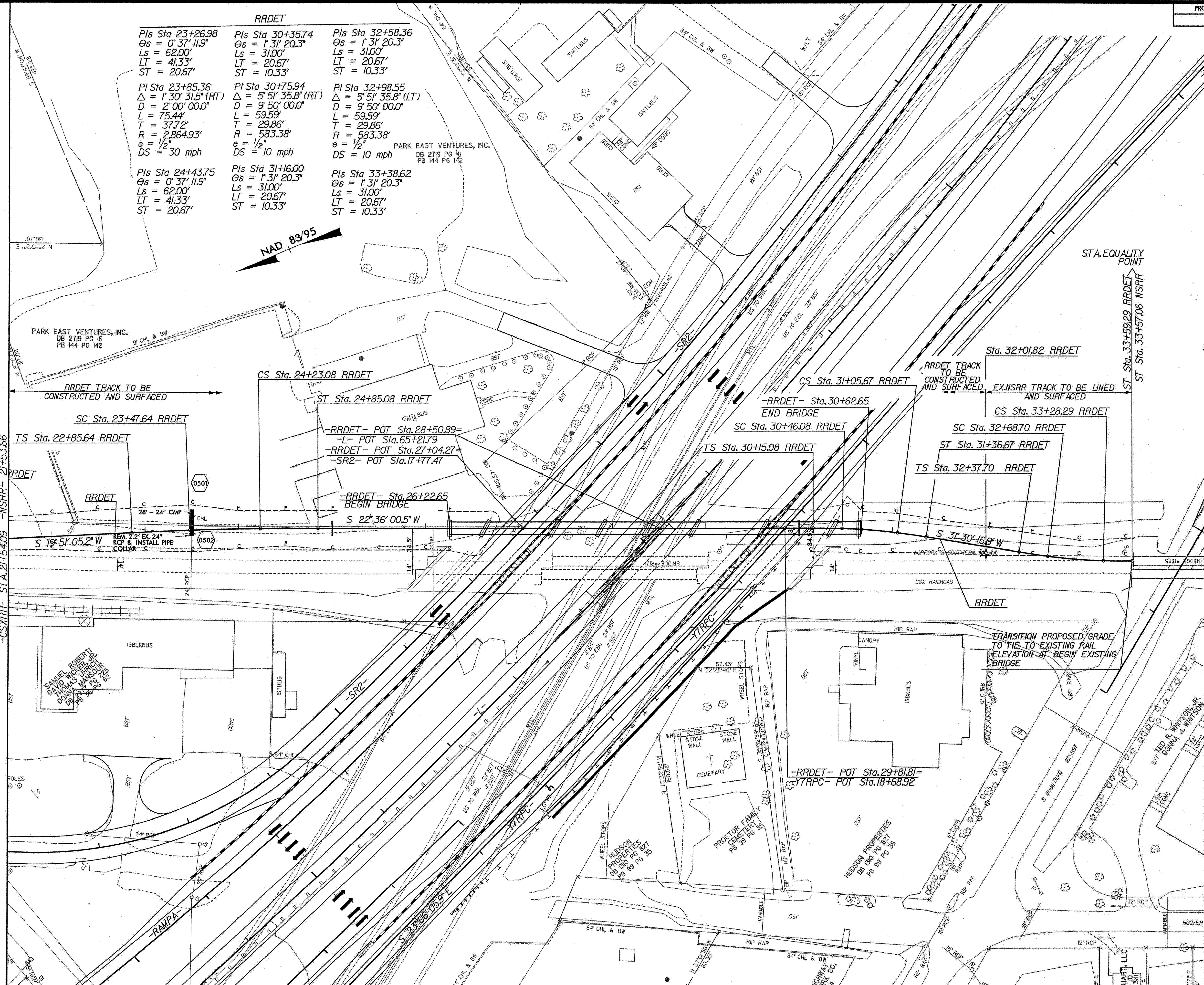
RRDET		
Pls Sta 23+26.98 Os = 0' 37' 11.9" Ls = 62.00' LT = 41.33' ST = 20.67'	Pls Sta 30+35.74 Os = 1' 31' 20.3" Ls = 31.00' LT = 20.67' ST = 10.33'	Pls Sta 32+58.36 Os = 1' 31' 20.3" Ls = 31.00' LT = 20.67' ST = 10.33'
Pl Sta 23+85.36 Δ = 1' 30' 31.5" (RT) D = 2' 00' 00.0" L = 75.44' T = 37.72' R = 2,864.93' e = 1/2" DS = 30 mph	Pl Sta 30+75.94 Δ = 5' 51' 35.8" (RT) D = 9' 50' 00.0" L = 59.59' T = 29.86' R = 583.38' e = 1/2" DS = 10 mph	Pl Sta 32+98.55 Δ = 5' 51' 35.8" (LT) D = 9' 50' 00.0" L = 59.59' T = 29.86' R = 583.38' e = 1/2" DS = 10 mph
Pls Sta 24+43.75 Os = 0' 37' 11.9" Ls = 62.00' LT = 41.33' ST = 20.67'	Pls Sta 31+16.00 Os = 1' 31' 20.3" Ls = 31.00' LT = 20.67' ST = 10.33'	Pls Sta 33+38.62 Os = 1' 31' 20.3" Ls = 31.00' LT = 20.67' ST = 10.33'

PARK EAST VENTURES, INC.  
DB 2719 PG 16  
PB 144 PG 142



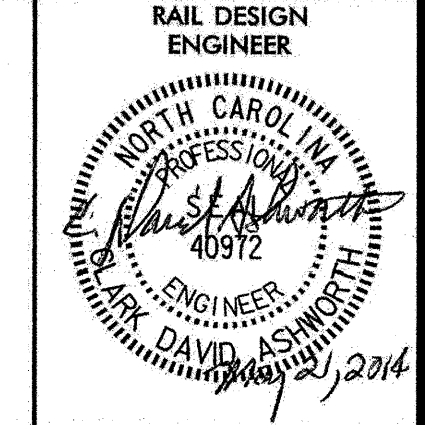
MATCH LINE SEE SHEET NO. 4  
-CSYRR- STA. 21+54.09 -NSRR- 21+53.66

MATCH LINE SEE SHEET NO. 6  
-CSYRR- STA. 34+36.90 -NSRR- 34+36.08

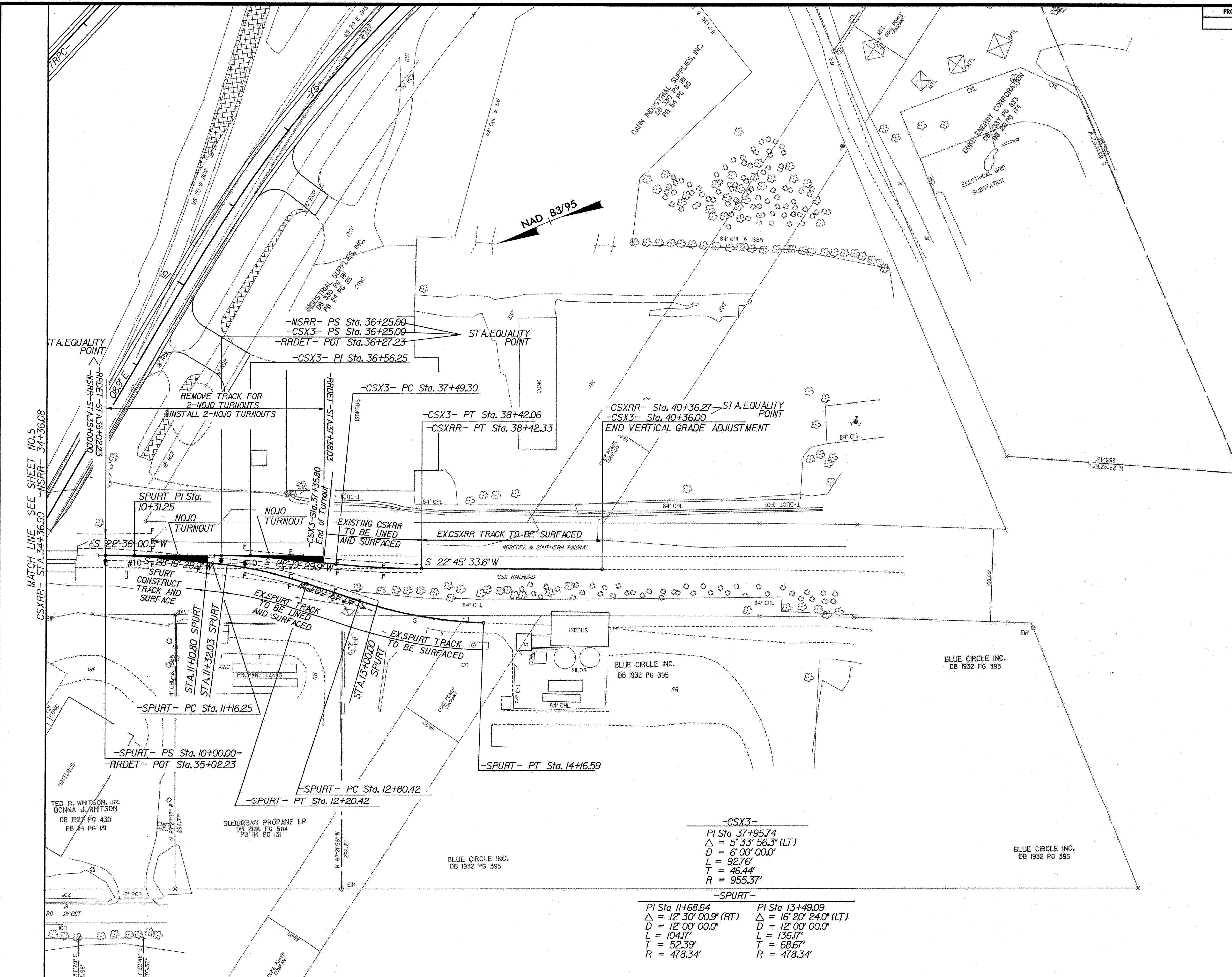


5/21/2014 6:59:33 AM  
USER: TAYLOR





CDM Smith  
 Civil Engineer & Architect  
 5400 Glenwood Avenue  
 Raleigh, NC 27612-2222  
 NC CEA No. F-0412

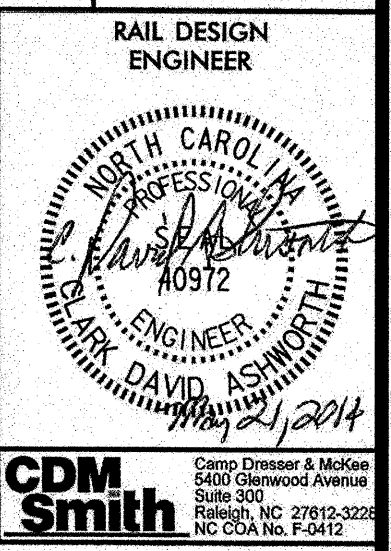


-CSX3-	
PI Sta 37+95.74	
$\Delta = 5' 33'' 56.3''$ (LT)	
$D = 6' 00'' 00.0''$	
$L = 92.76'$	
$T = 46.44'$	
$R = 955.37'$	
-SPURT-	
PI Sta 11+68.64	PI Sta 13+49.09
$\Delta = 12' 30'' 00.9''$ (RT)	$\Delta = 16' 20'' 24.0''$ (LT)
$D = 12' 00'' 00.0''$	$D = 12' 00'' 00.0''$
$L = 104.17'$	$L = 136.17'$
$T = 52.39'$	$T = 68.67'$
$R = 478.34'$	$R = 478.34'$

MATCH LINE SEE SHEET NO. 5  
 -NSRR- STA. 34+36.90 -NSRR- 34+36.08

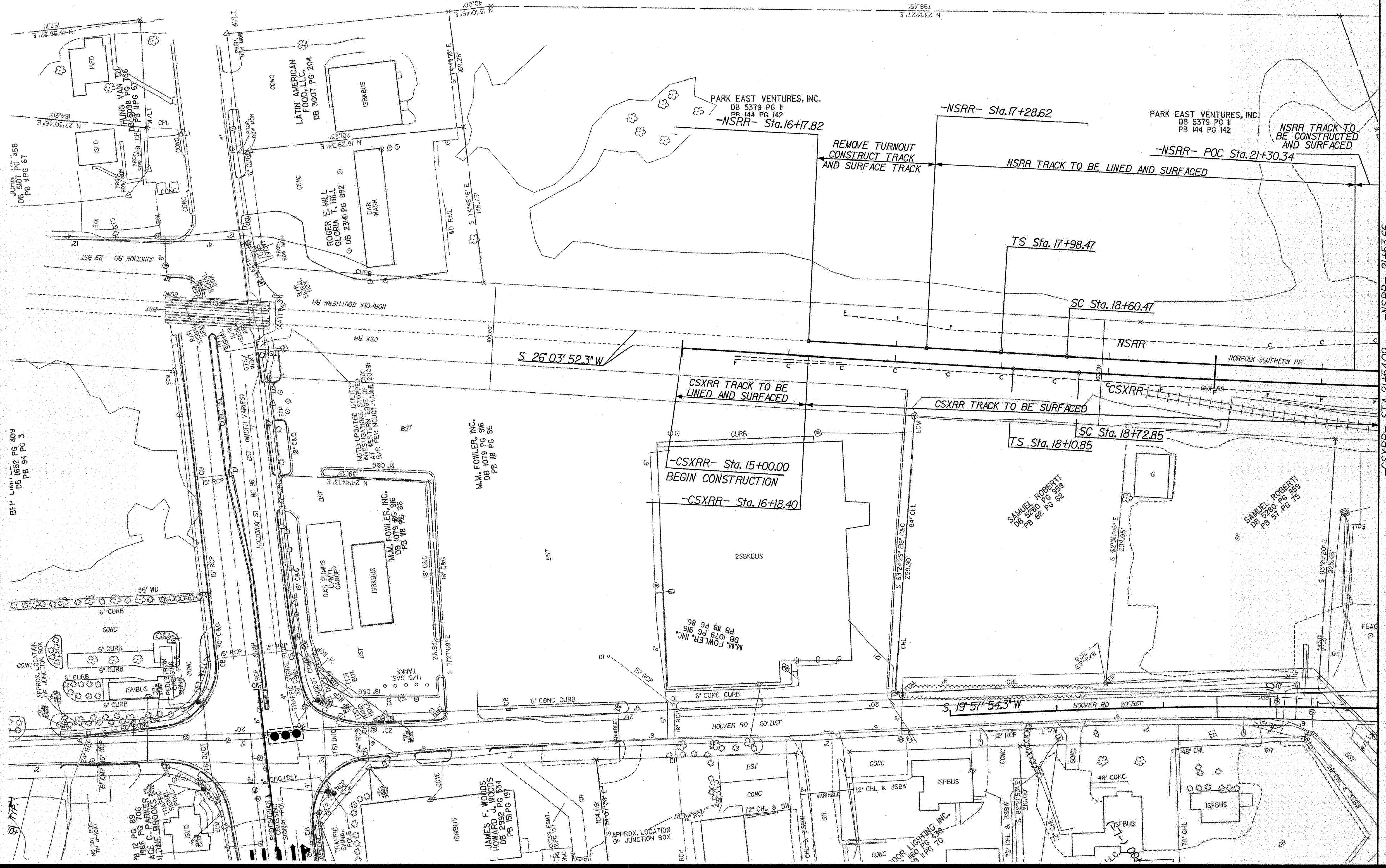
5/21/2014 6:59:40 AM  
 USER: TAYLORJB





NSRR  
 Pls Sta 18+39.81 PI Sta 21+87.94  
 $\Theta_s = 0^{\circ}08'59.4''$   $\Delta = 3^{\circ}09'53.0''$  (LT)  
 Ls = 62.00' D = 0'29'00.0"  
 LT = 41.33' L = 654.77'  
 ST = 20.67' T = 327.47'  
 R = 11,854.33'  
 DS = 40 mph

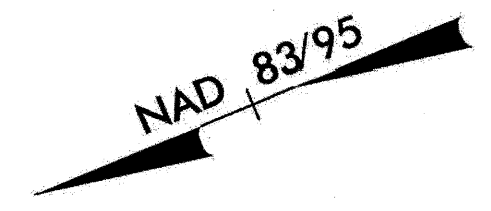
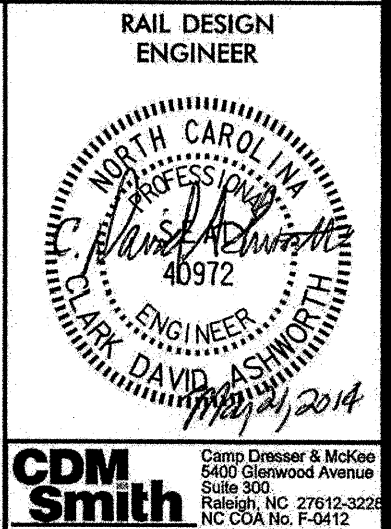
CSXRR  
 Pls Sta 18+52.18 PI Sta 21+88.36  
 $\Theta_s = 0^{\circ}09'18.0''$   $\Delta = 3^{\circ}09'15.8''$  (LT)  
 Ls = 62.00' D = 0'30'00.0"  
 LT = 41.33' L = 630.88'  
 ST = 20.67' T = 315.52'  
 R = 11,459.19'  
 DS = 40 mph



-NSRR- STA. 21+54.09 -NSRR- 21+53.66  
 MATCH LINE SEE SHEET NO. 8

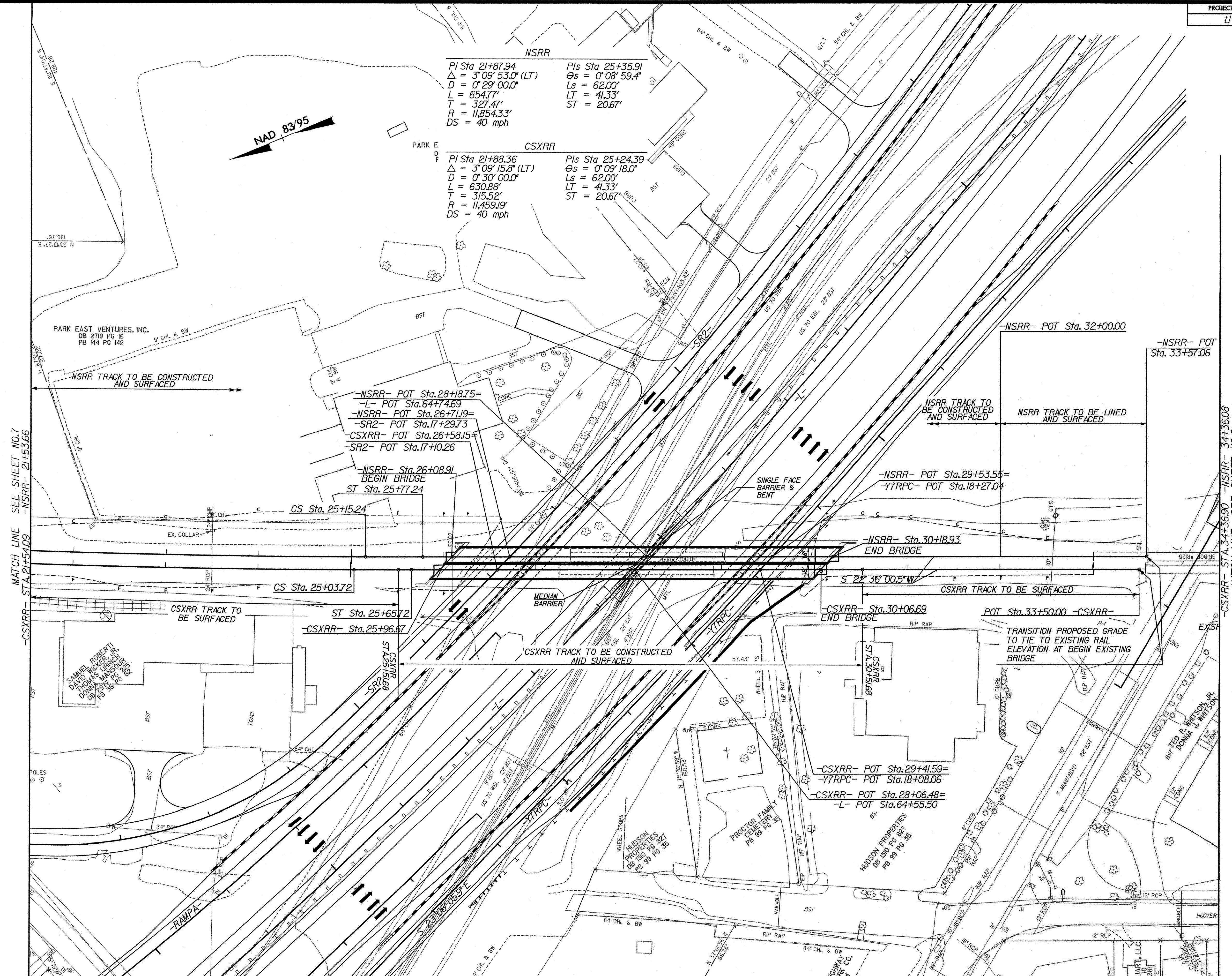
5/21/2014 6:55:46 AM  
 USER: JAYLORJB





**NSRR**  
 Pls Sta 21+87.94      Pls Sta 25+35.91  
 $\Delta = 3^{\circ}09'53.0''$  (LT)       $\Theta_s = 0^{\circ}08'59.4''$   
 $D = 0^{\circ}29'00.0''$        $L_s = 62.00'$   
 $L = 654.77'$        $LT = 41.33'$   
 $T = 327.47'$        $ST = 20.67'$   
 $R = 11,854.33'$   
 $DS = 40$  mph

**CSXRR**  
 Pls Sta 21+88.36      Pls Sta 25+24.39  
 $\Delta = 3^{\circ}09'15.8''$  (LT)       $\Theta_s = 0^{\circ}09'18.0''$   
 $D = 0^{\circ}30'00.0''$        $L_s = 62.00'$   
 $L = 630.88'$        $LT = 41.33'$   
 $T = 315.52'$        $ST = 20.67'$   
 $R = 11,459.19'$   
 $DS = 40$  mph



MATCH LINE SEE SHEET NO. 7  
 -NSRR- STA. 21+54.09  
 -CSXRR- STA. 21+53.66

-NSRR- STA. 34+36.90  
 -NSRR- STA. 34+36.08  
 MATCH LINE SEE SHEET NO. 9

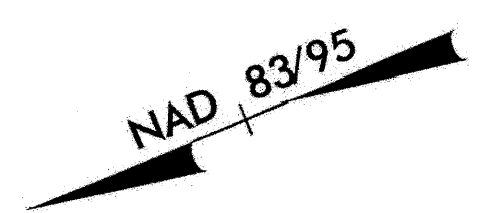
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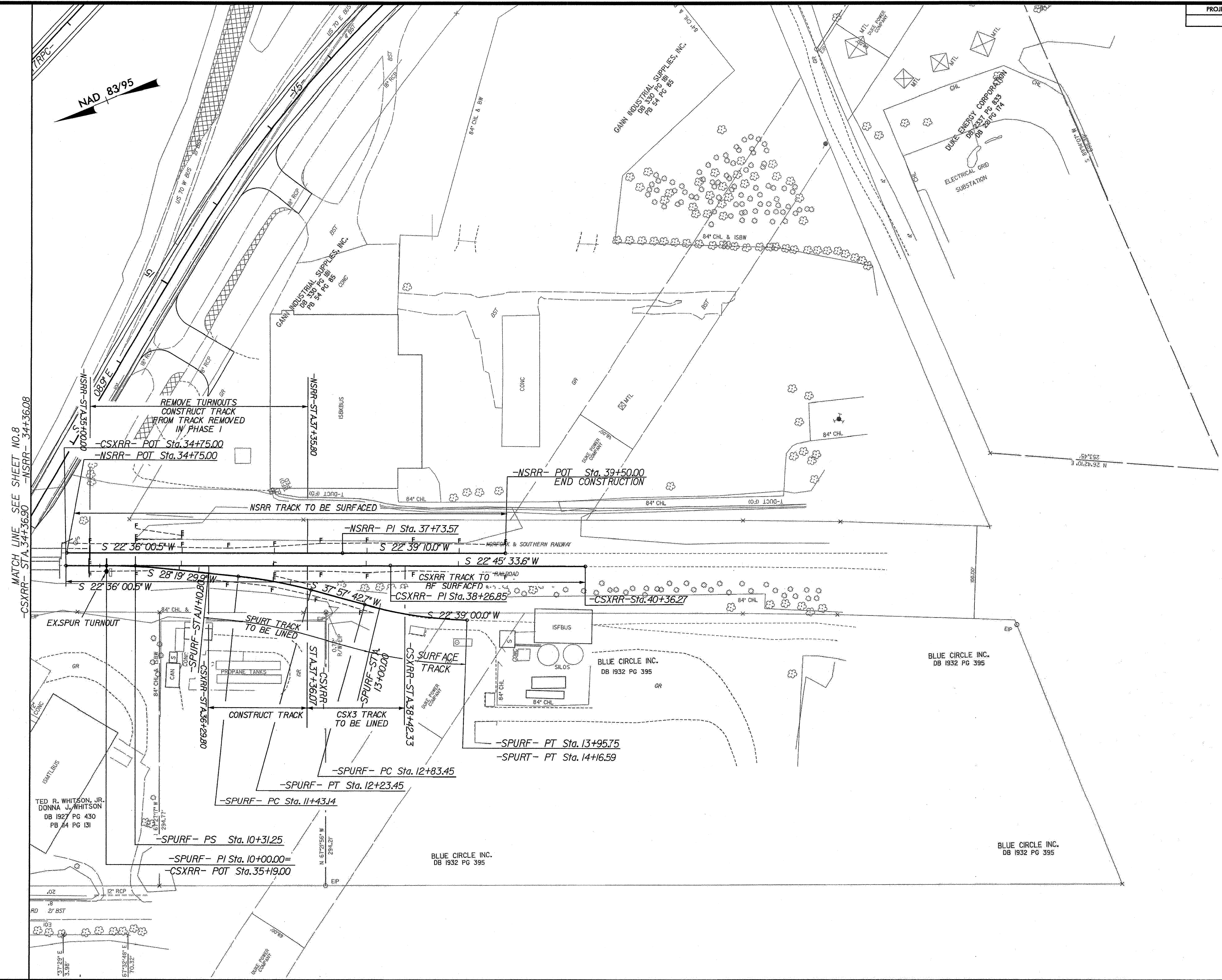
RAIL DESIGN ENGINEER

DAVID ASHMORE  
ENGINEER  
12/14/2014

**CDM Smith**  
Camp Dresser & McKee  
5400 Glenwood Avenue  
Suite 500  
Raleigh, NC 27612-2228  
NC CCR No. F-2412



MATCH LINE SEE SHEET NO.8  
-CSXRR- STA.34+36.90 -NSRR- 34+36.08

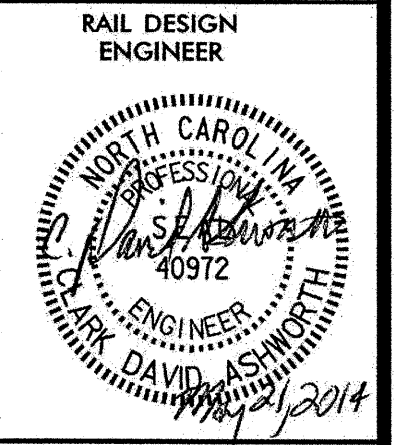


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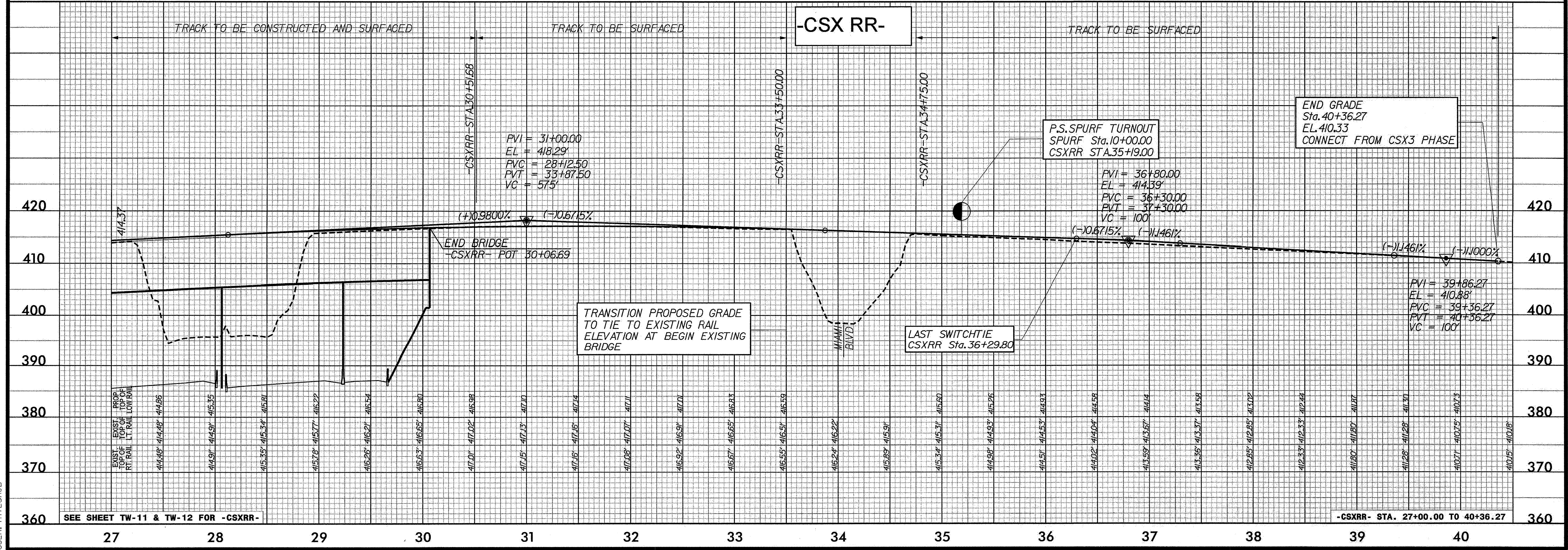
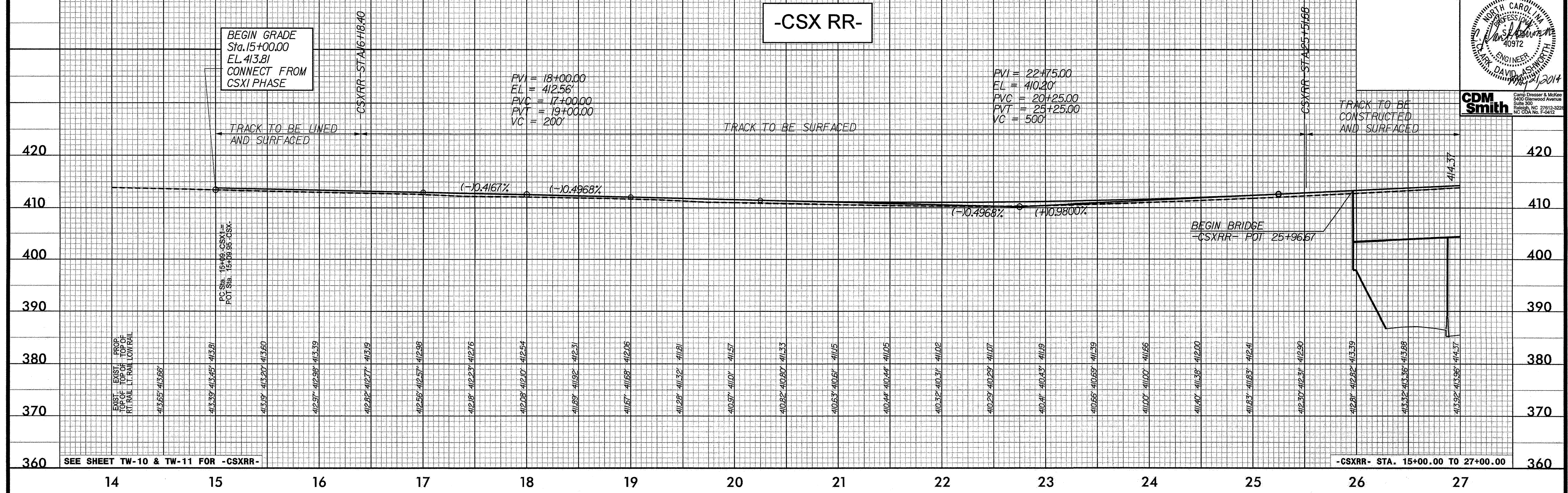


OXFORD ←

DURHAM →



CDM Smith  
Camp Dresser & McKee  
6400 Glenwood Avenue  
Suite 200  
Raleigh, NC 27612-2028  
NC CDM No. F0412



5/21/2014 7:00:04 AM  
T:\co\10071\_Rail\_PFL\_10.dgn  
USER: TAYLOR



OXFORD

-NS RR-

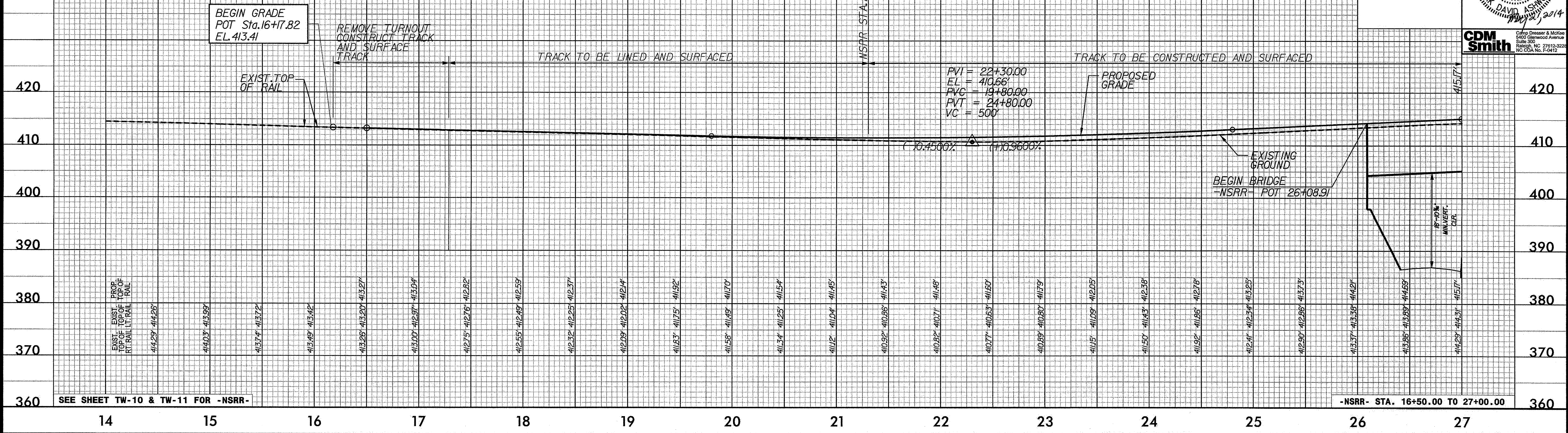
DURHAM

PROJECT REFERENCE NO. U-0071 SHEET NO. TW-14

RAIL DESIGN ENGINEER

CDM Smith

Chief Designer & Manager  
5400 Glenwood Avenue  
Suite 300  
Raleigh, NC 27612-2228  
NC CDA No. F-0412

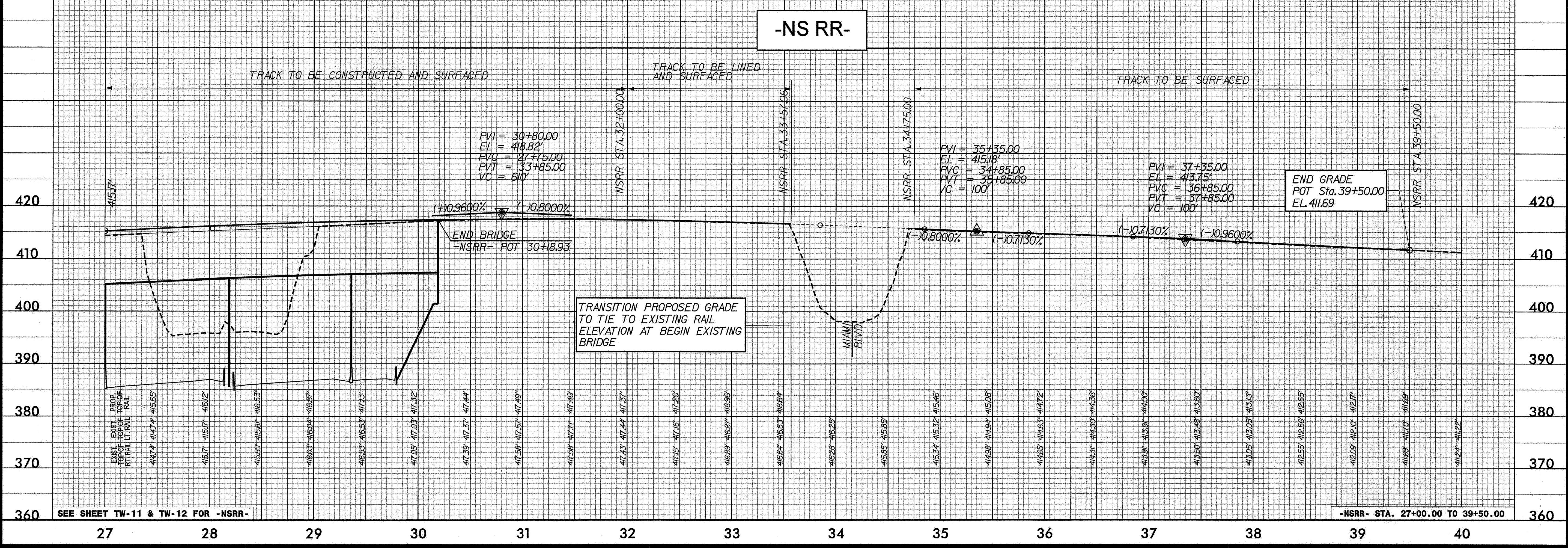


SEE SHEET TW-10 & TW-11 FOR -NSRR-

-NSRR- STA. 16+50.00 TO 27+00.00

14 15 16 17 18 19 20 21 22 23 24 25 26 27

-NS RR-



SEE SHEET TW-11 & TW-12 FOR -NSRR-

-NSRR- STA. 27+00.00 TO 39+50.00

27 28 29 30 31 32 33 34 35 36 37 38 39 40

5/21/2014 7:00:09 AM  
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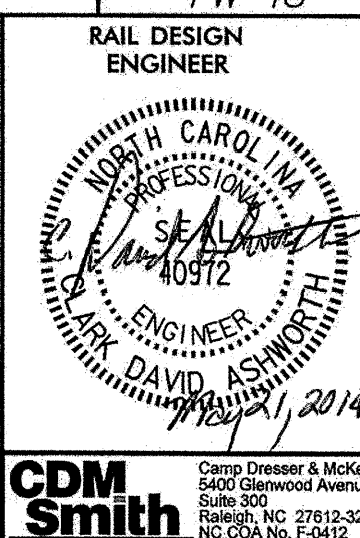




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PROJECT REFERENCE NO. U-0071 SHEET NO. TW-16



CDM Smith  
Camp Dresser & McKee  
5400 Glenwood Avenue  
Suite 200  
Raleigh, NC 27612-2228  
REG. CIVIL ENGR. NO. F04172

-CSX1-

BEGIN GRADE  
POT Sta. 13+10.00  
EL. 414.30

LAST SWITCHTIE  
Sta. 16+18.40

END GRADE  
PS CSX1 Sta. 17+29.20  
NSRR Sta. 17+28.62  
EL. 412.85

PI = 13+60.00  
EL = 414.07'  
PVC = 13+10.00  
PVT = 14+10.00  
VC = 100.00'

PI = 15+60.00  
EL = 413.70'  
PVC = 15+10.00  
PVT = 16+10.00  
VC = 100.00'

420  
410  
400  
390  
380  
370  
360

420  
410  
400  
390  
380  
370  
360

SEE SHEET TW-7 FOR -CSX1-

-CSX1- STA. 13+10.00 TO 17+29.20

10 11 12 13 14 15 16 17

CROSS OVER 1

-CSX3-

BEGIN GRADE  
PS CSX3 Sta. 36+25.00  
NSRR Sta. 36+25.00  
EL. 414.50

LAST SWITCHTIE  
Sta. 37+35.80

END GRADE  
Sta. 40+36.00  
EL. 410.33

PI = 37+86.00  
EL = 413.38'  
PVC = 37+36.00  
PVT = 38+36.00  
VC = 100'

PI = 39+86.00  
EL = 410.88'  
PVC = 39+36.00  
PVT = 40+36.00  
VC = 100'

420  
410  
400  
390  
380  
370  
360

420  
410  
400  
390  
380  
370  
360

SEE SHEET TW-9 FOR -CSX3-

-CSX3- STA. 36+25.00 TO 40+36.00

CROSS OVER 2

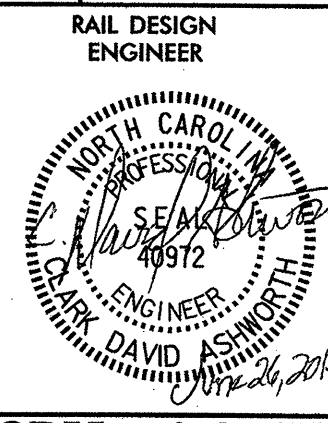
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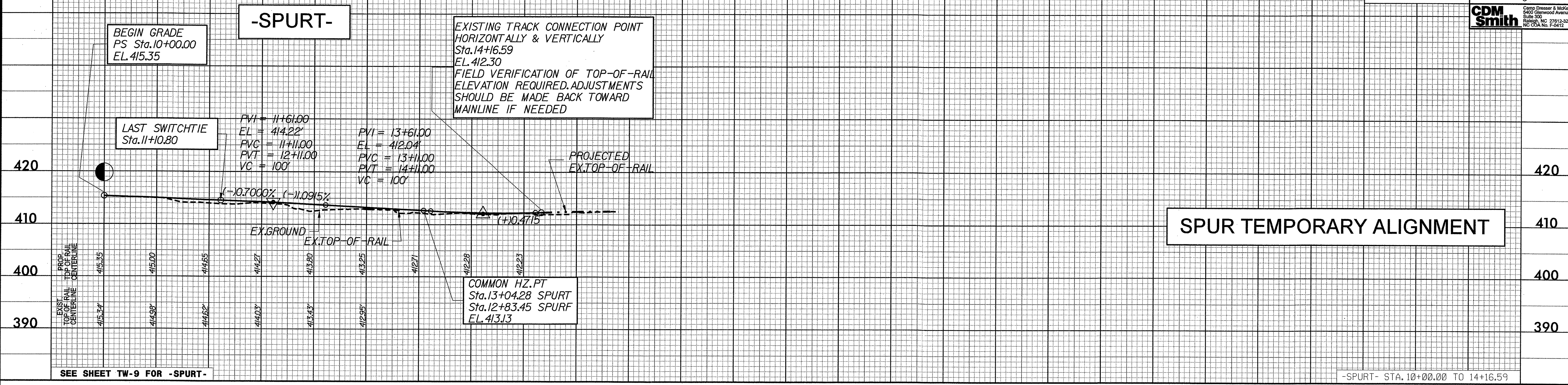
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DURHAM →

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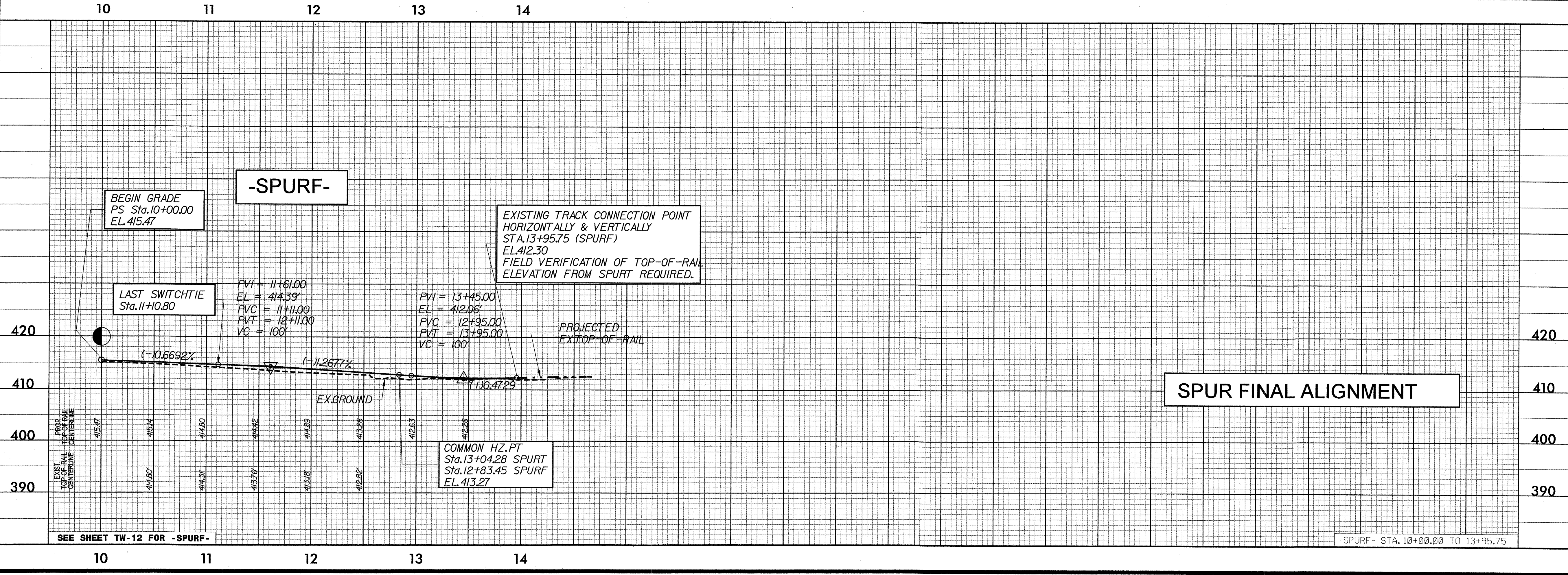


CDM Smith



SEE SHEET TW-9 FOR -SPURT-

-SPURT- STA. 10+00.00 TO 14+16.59



SEE SHEET TW-12 FOR -SPURF-

-SPURF- STA. 10+00.00 TO 13+95.75

6/26/2014 12:24:59 PM  
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