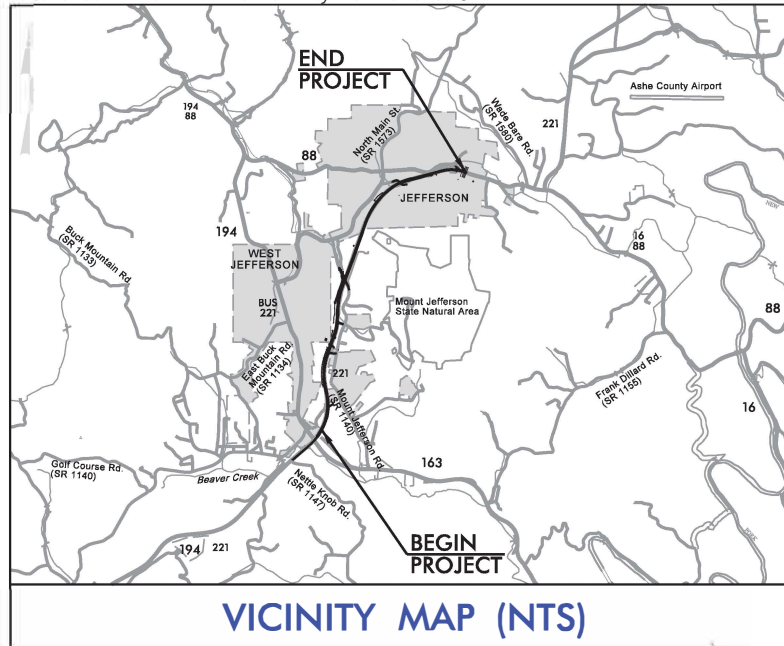


TIP PROJECT: R-2915E

CONTRACT: C204356

See Sheet 1-A For Index of Sheets, General Notes, and List of Standards
See Sheet 1-B For Conventional Symbols
See Sheet 1C-1-1C-4 For Survey Control Sheets



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

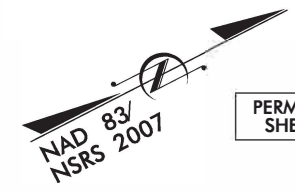
ASHE COUNTY

LOCATION: US 221 FROM US 221 BYPASS TO
US 221 BUSINESS/NC 88 IN JEFFERSON

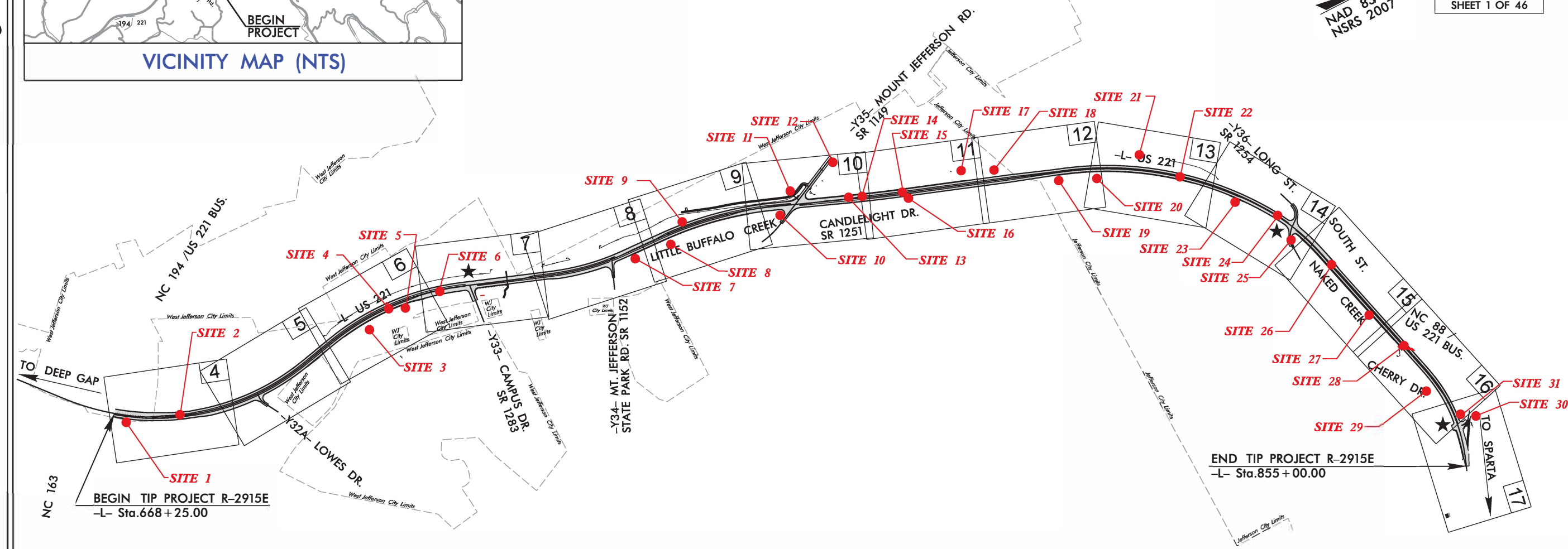
TYPE OF WORK: GRADING, DRAINAGE, PAVING, WIDENING,
RESURFACING, CULVERTS, AND SIGNALS

WETLAND AND STREAM IMPACTS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2915E	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34518.1.FR6	STP-0221(45)	PE	
34518.2.6	STP-0221(45)	R/W	
34518.2.7	STP-0221(45)	UTIL.	
34518.3.8	STP-0221(45)	CONST.	



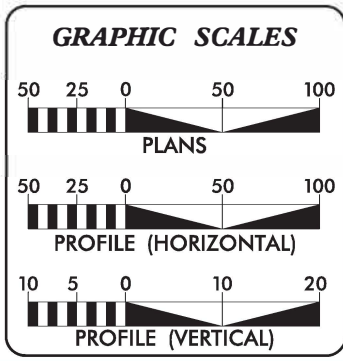
PERMIT DRAWING
SHEET 1 OF 46



THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON PLANS.

★ PROPOSED TRAFFIC SIGNAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA	
ADT 2019	= 15,900
ADT 2039	= 19,400
K	= 8%
D	= 55%
T	= 6%*
V	= 60 MPH
FUNC. CLASSIFICATION	= RURAL ARTERIAL
* TTST	= 3% + DUALS = 3%

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT R-2915E	= 3.533 mi
LENGTH CULVERT TIP PROJECT R-2915E	= 0.004 mi
TOTAL LENGTH TIP PROJECT R-2915E	= 3.537 mi
NCDOT CONTACT	
Joe Laws, P.E. PROJECT ENGINEER - DIVISION II	

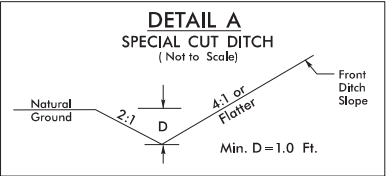
PLANS PREPARED BY:	
RK&K RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE, SUITE 350 RALEIGH, NORTH CAROLINA 27609 NC LICENSE NO. F-0112	
FOR NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
2018 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: MAY 8, 2018	Scott D. Blevins, P.E. PROJECT ENGINEER RK&K, LLP
LETTING DATE: SEPTEMBER 17, 2019	Cathy S. Houser, P.E. PROJECT DESIGN ENGINEER RK&K, LLP

HYDRAULICS ENGINEER	
SIGNATURE:	P.E.
ROADWAY DESIGN ENGINEER	
SIGNATURE:	P.E.

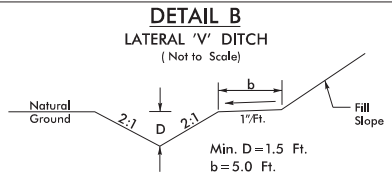


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

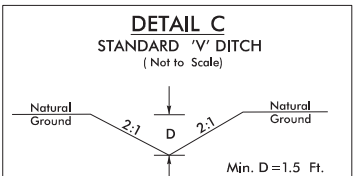
PERMIT DRAWING
SHEET 2 OF 46



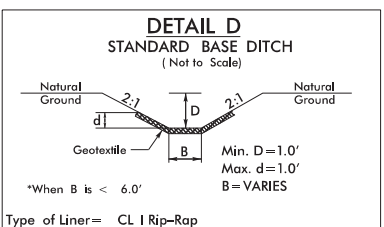
-L- STA. 669+50 TO STA. 670+00 LT
-L- STA. 675+25 TO STA. 676+00 RT
-L- STA. 677+00 TO STA. 691+50 LT
-L- STA. 767+50 TO STA. 772+00 RT



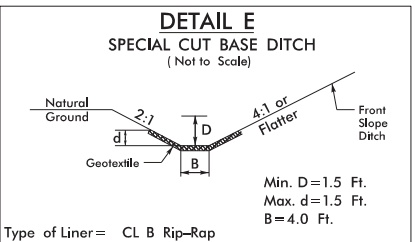
-L- STA. 670+25 TO STA. 670+50 RT
-L- STA. 676+00 TO STA. 677+03 RT
-L- STA. 677+21 TO STA. 677+50 RT
-L- STA. 693+00 TO STA. 694+50 LT
-L- STA. 707+50 TO STA. 708+25 LT
-L- STA. 805+05 TO STA. 805+19 LT
-L- STA. 816+50 TO STA. 817+75 RT
-L- STA. 826+80 TO STA. 827+50 LT
-Y36- STA. 15+24 TO STA. 16+43 RT



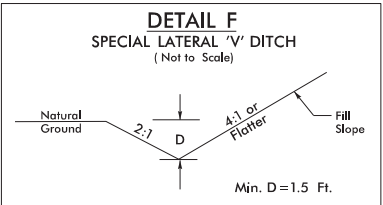
-L- STA. 734+90 RT, L=55', BEG. ELEV=3116.00,
END ELEV=3114.99, S=1.84%



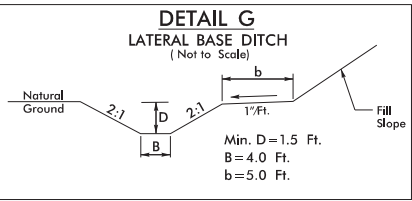
Type of Liner = CL I Rip-Rap
-L- STA. 771+06 LT, B=1.5', L=44', BEG. ELEV=3080.32,
END ELEV=3085.00, S=10.8%
-L- STA. 780+92 LT, B=4', L=34', BEG. ELEV=3087.26,
END ELEV=3090.0, S=8.1%
-L- STA. 793+00 RT, B=4', L=48', BEG. ELEV=3035.50,
END ELEV=3025.26, S=21.3%
-L- STA. 812+65 LT, B=4', L=24', BEG. ELEV=2907.0,
END ELEV=2904.96, S=8.5%



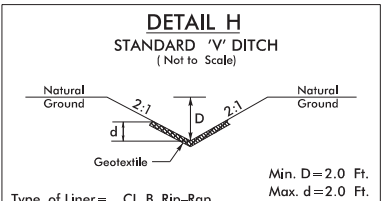
Type of Liner = CL B Rip-Rap
-L- STA. 839+00 TO STA. 841+77 RT



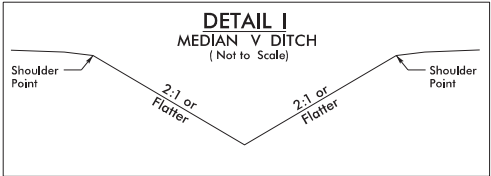
-L- STA. 729+50 TO STA. 732+15 RT
-L- STA. 741+50 TO STA. 743+00 LT
-L- STA. 757+00 TO STA. 758+00 RT
-Y34- STA. 11+00 TO STA. 12+30 RT



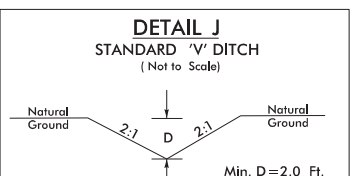
-L- STA. 694+50 TO STA. 704+50 LT
-L- STA. 705+32 TO STA. 707+50 LT
-L- STA. 708+25 TO STA. 711+00 LT
-L- STA. 796+00 TO STA. 797+50 LT
-L- STA. 810+50 TO STA. 816+50 RT
-L- STA. 820+00 TO STA. 826+80 LT



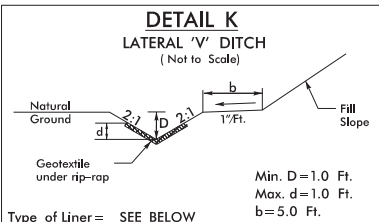
Type of Liner = CL B Rip-Rap
-L- STA. 740+00 TO STA. 740+37 RT, L=37'
BEG. ELEV=3101.0, END ELEV=3100.0, S=2.7%
-L- STA. 836+82 TO STA. 837+14 RT, L=43'
BEG. ELEV=2872.0, END ELEV=2870.28, S=4.0%



-L- STA. 754+50 TO STA. 756+72 LT

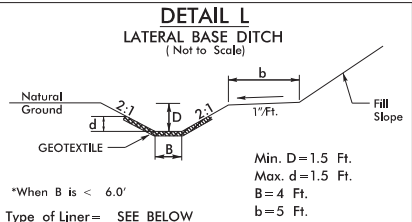


-L- STA. 700+00 TO STA. 701+29 RT
BEG. ELEV=3068.15, END ELEV=3067.75, S=0.3%



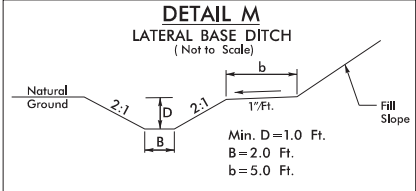
Type of Liner = SEE BELOW

-L- STA. 670+50 TO STA. 671+50 RT, PSRM
-L- STA. 802+00 TO STA. 805+05 LT, CL I
-L- STA. 804+00 TO STA. 806+00 RT, CL B

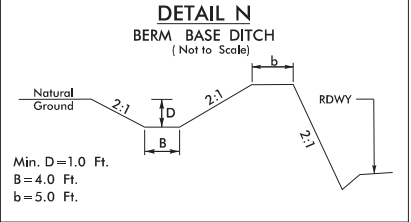


Type of Liner = SEE BELOW

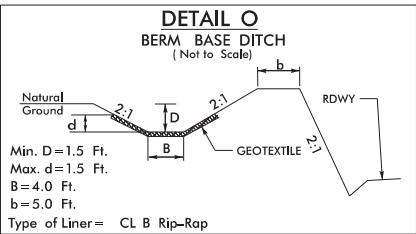
-L- STA. 704+50 TO STA. 705+32 LT, CL B
-L- STA. 797+50 TO STA. 799+13 LT, CL B
-L- STA. 809+73 TO STA. 810+50 RT, CL I
-L- STA. 838+00 TO STA. 838+92 LT, CL B



-L- STA. 788+50 TO STA. 793+00 LT

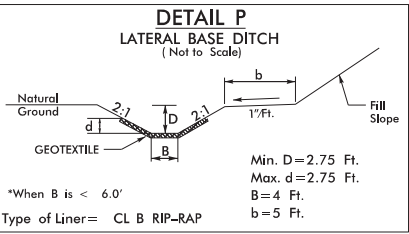


-L- STA. 714+50 TO STA. 721+25 LT
-L- STA. 738+50 TO STA. 741+00 LT
-SR1- STA. 15+16 TO STA. 17+38 LT



Type of Liner = CL B Rip-Rap

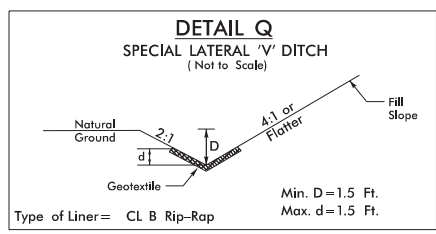
-L- STA. 721+25 TO STA. 732+00 LT



*When B is < 6.0'

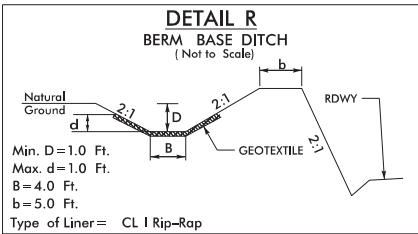
Type of Liner = CL B RIP-RAP

-L- STA. 711+34 TO STA. 714+75 RT



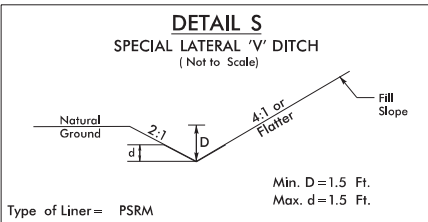
Type of Liner = CL B Rip-Rap

-SR1- STA. 10+00 TO STA. 10+53 LT



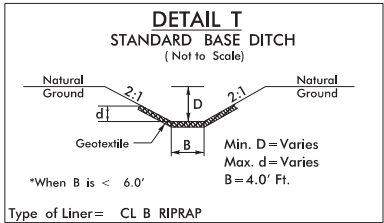
Type of Liner = CL I Rip-Rap

-L- STA. 741+00 TO STA. 743+00 LT



Type of Liner = PSRM

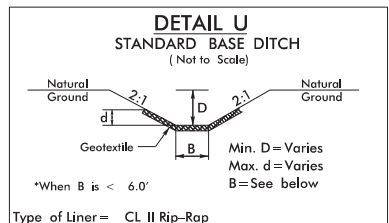
-SR1- STA. 11+70 TO STA. 15+16 LT



*When B is < 6.0'

Type of Liner = CL B RIPRAP

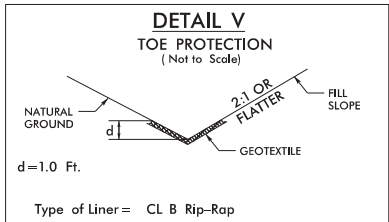
-L- STA. 844+69 LT, S=0.43% L=35'
BEG. ELEV=2862.50, END ELEV=2862.35, D & d=2.0'



*When B is < 6.0'

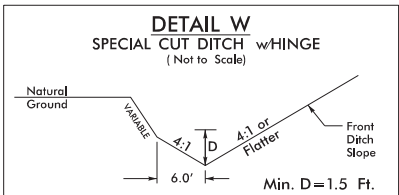
Type of Liner = CL II Rip-Rap

-L- STA. 763+26 RT, B=4.0', L=25', BEG. ELEV=3107.59,
END ELEV=3104.72, S=11.5%, D=1.0', d=1.0'
-L- STA. 765+60 RT, B=5', L=15', BEG. ELEV=3109.0,
END ELEV=3108.5, S=3.3%, D=2.5', d=2.5'

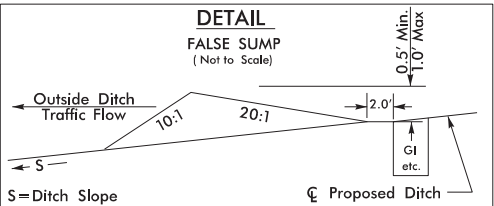


Type of Liner = CL B Rip-Rap

-L- STA. 711+15 TO STA. 714+00 LT
-L- STA. 768+50 TO STA. 770+30 LT
-L- STA. 793+50 TO STA. 795+42 LT

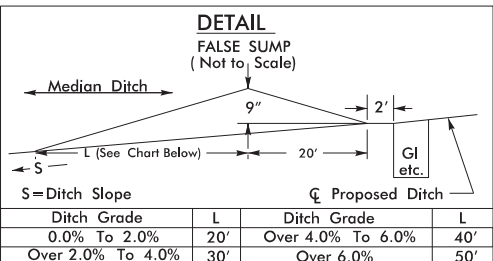


-L- STA. 720+15 TO STA. 723+50 RT
-L- STA. 726+00 TO STA. 727+50 RT
-L- STA. 761+50 TO STA. 767+50 RT
-L- STA. 774+00 TO STA. 783+50 RT
-L- STA. 841+77 TO STA. 849+50 RT



S=Ditch Slope

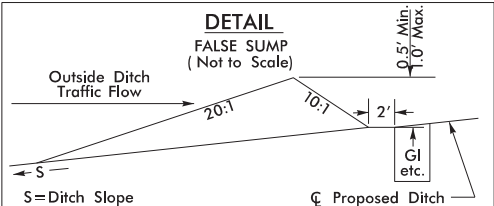
Proposed Ditch



S=Ditch Slope

Proposed Ditch

Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'



S=Ditch Slope

Proposed Ditch

RK&K

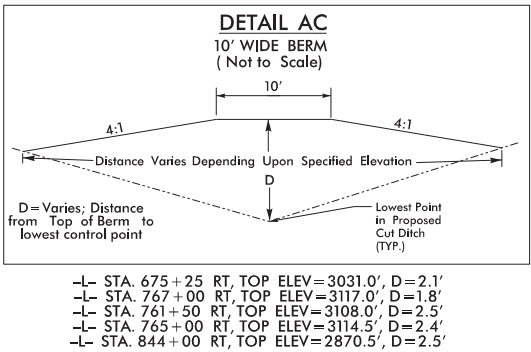
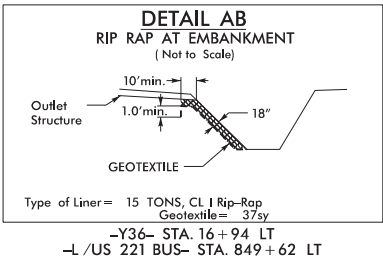
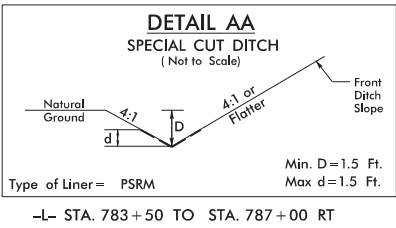
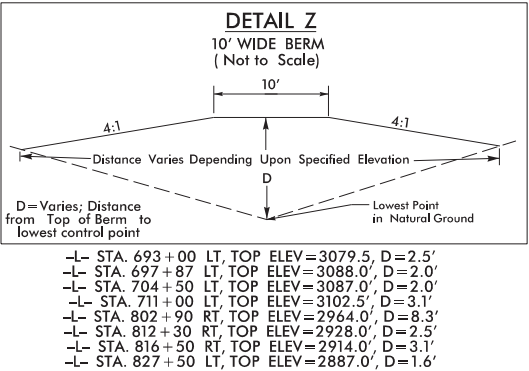
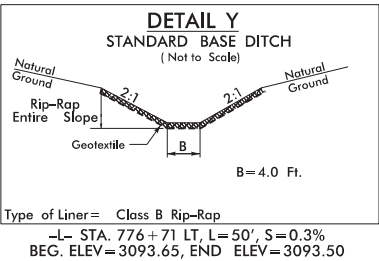
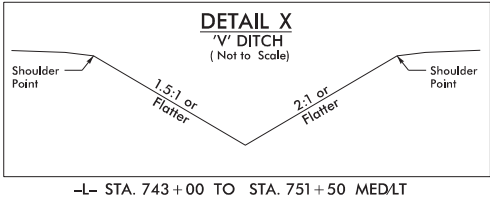
P: (919) 878-9560
900 Ridgefield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-0112

Engineers | Construction Managers | Planners | Scientists
www.rkk.com

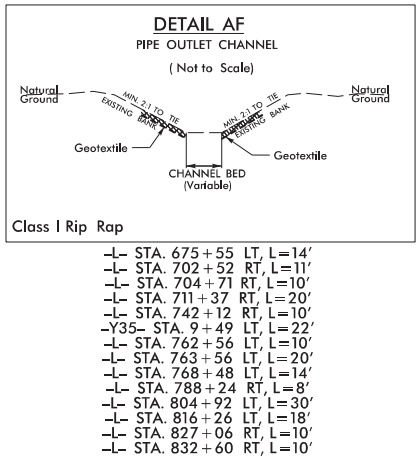
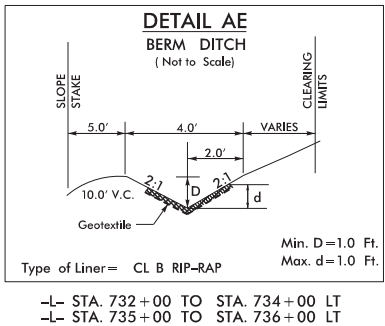
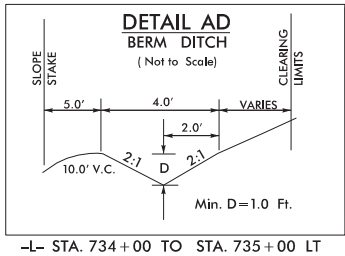
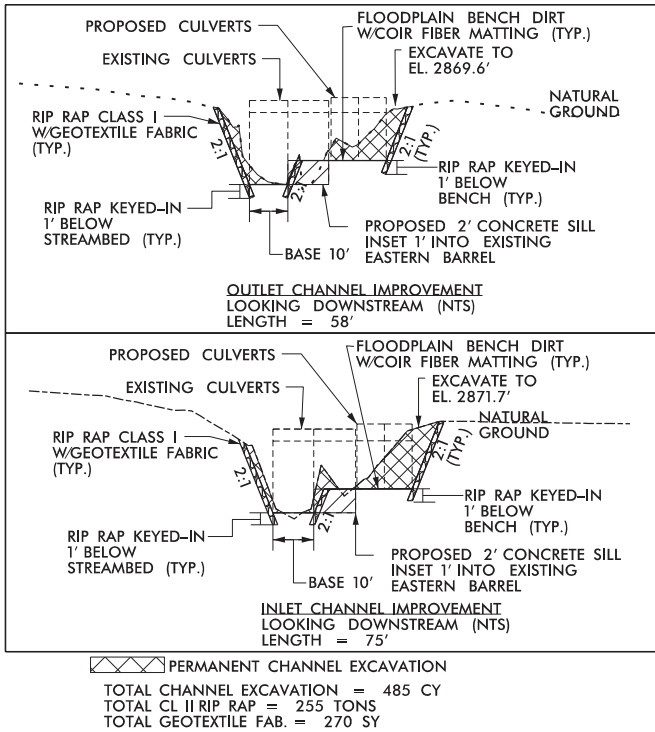
Responsive People | Creative Solutions

PROJECT REFERENCE NO.	SHEET NO.
R-2915E	2D-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

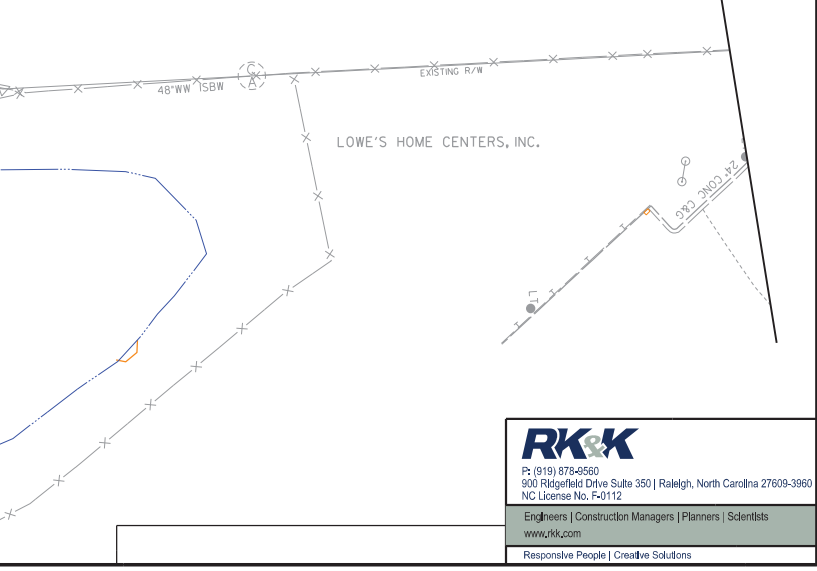
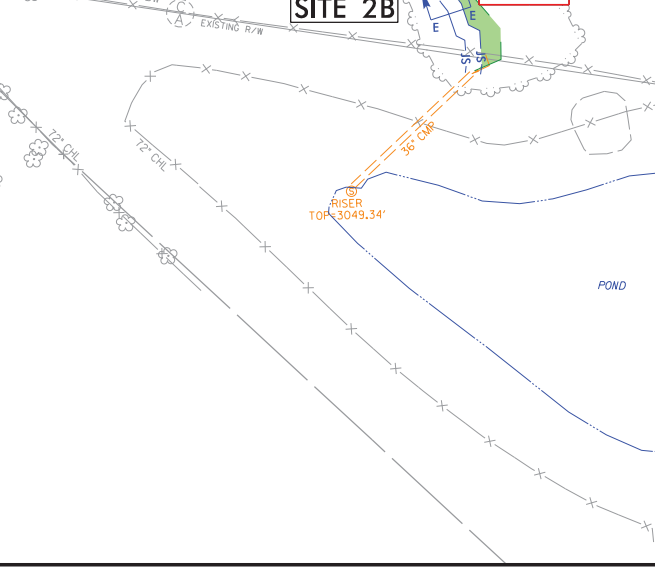
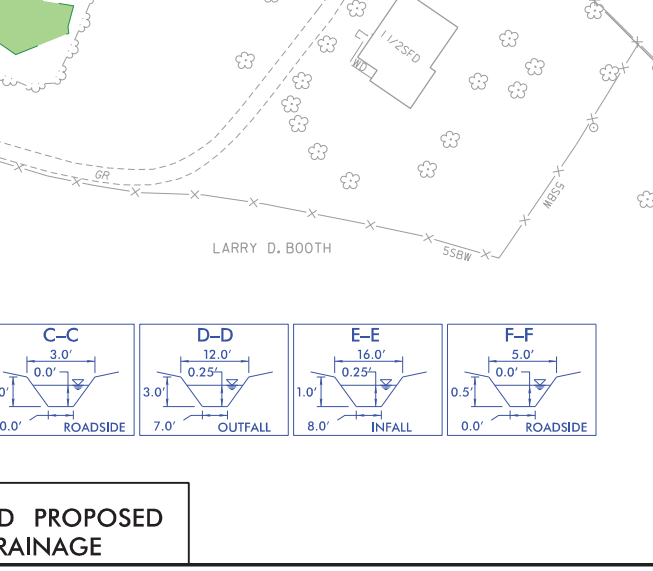
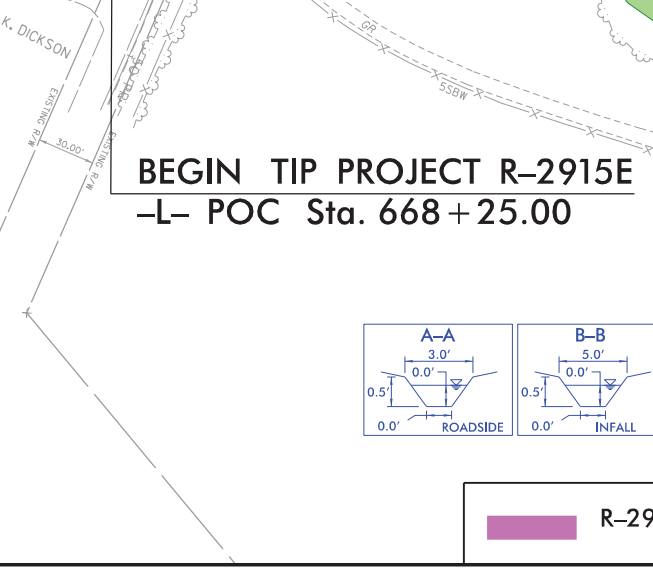
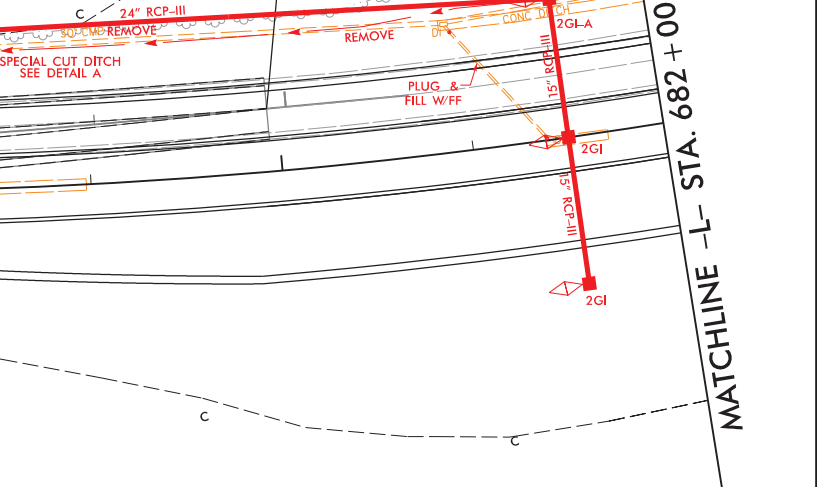
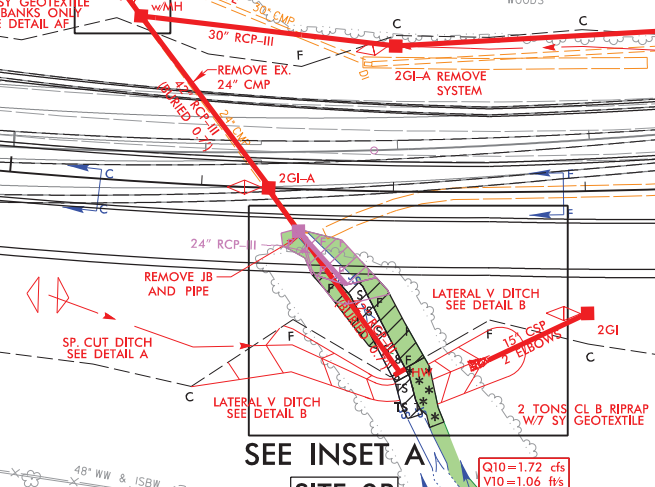
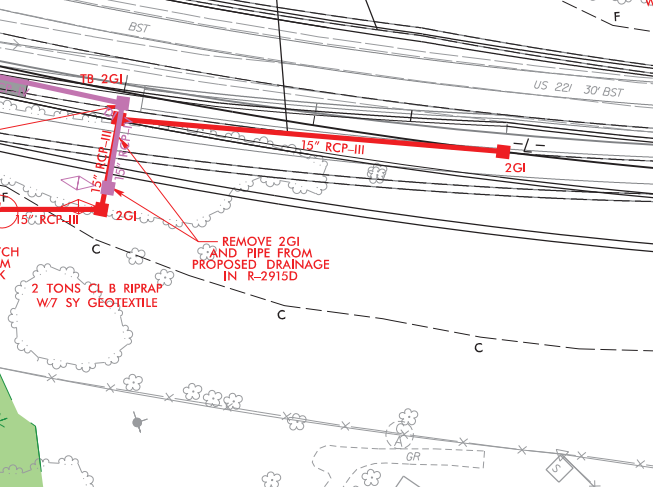
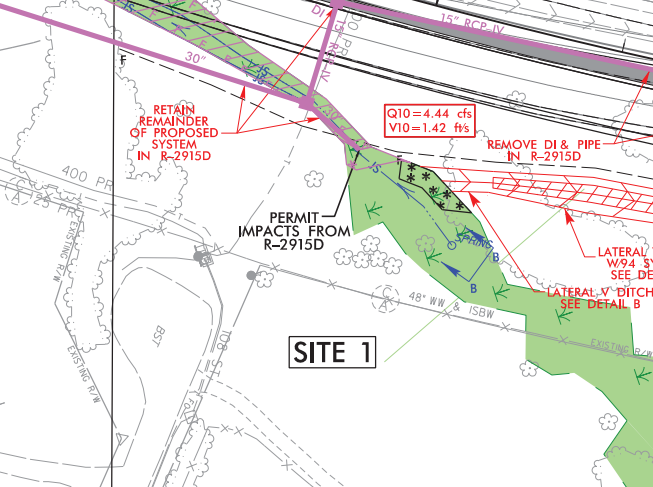
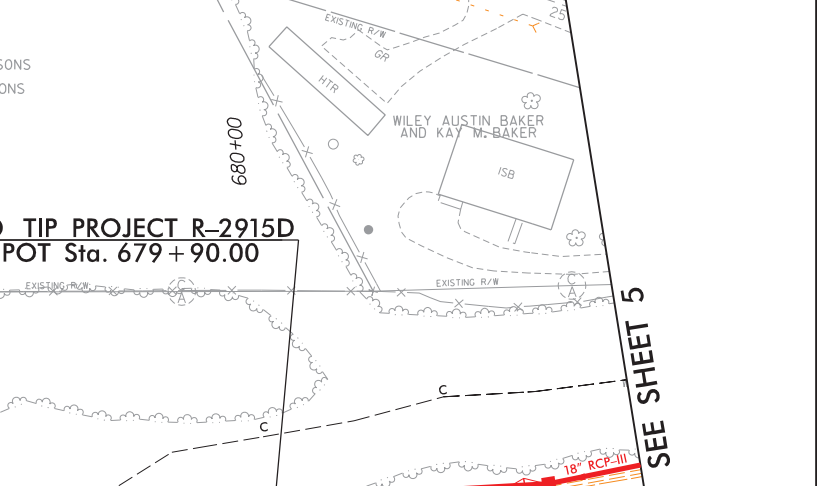
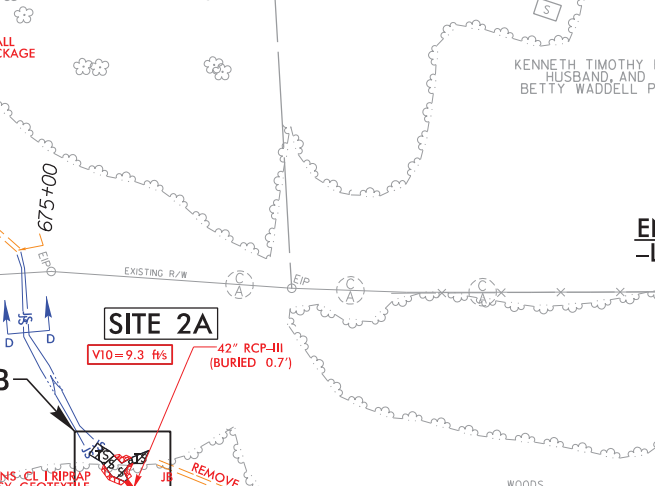
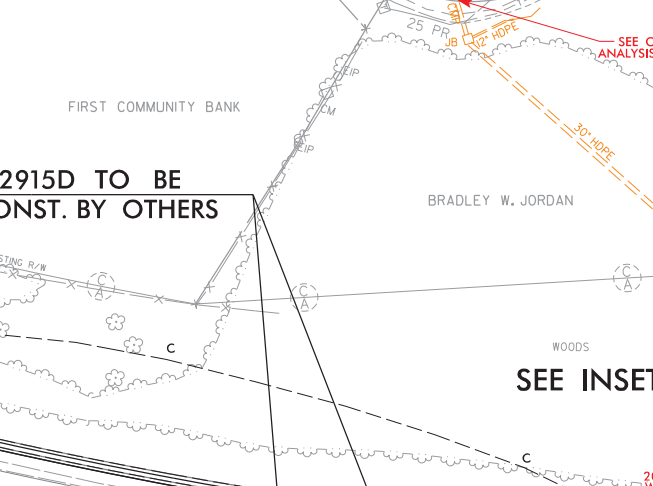
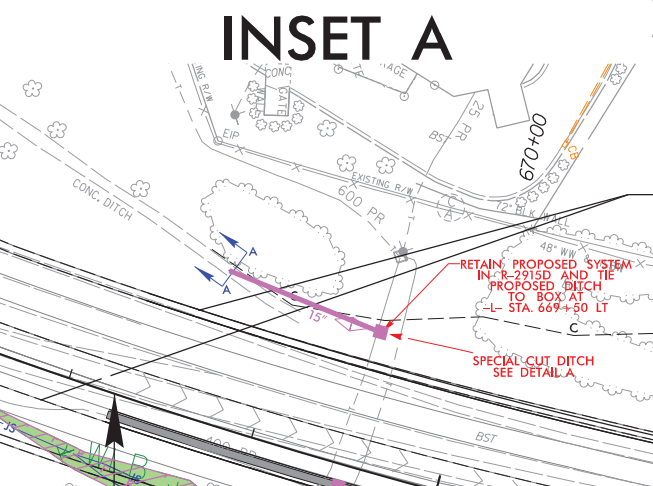
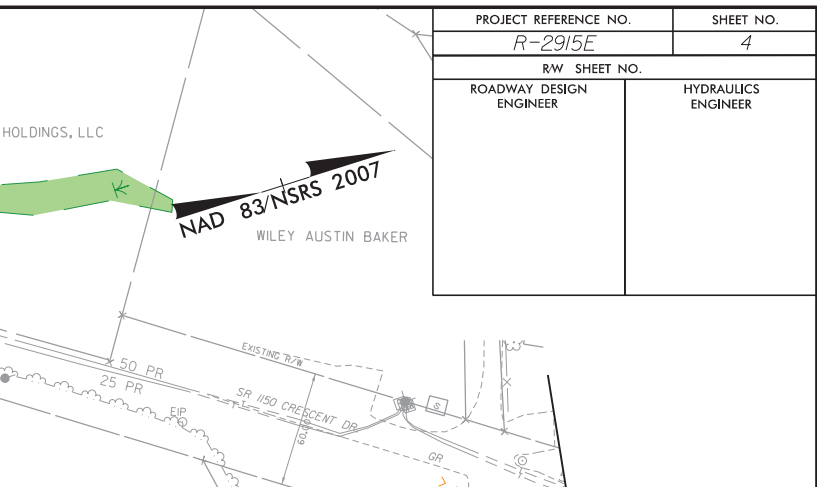
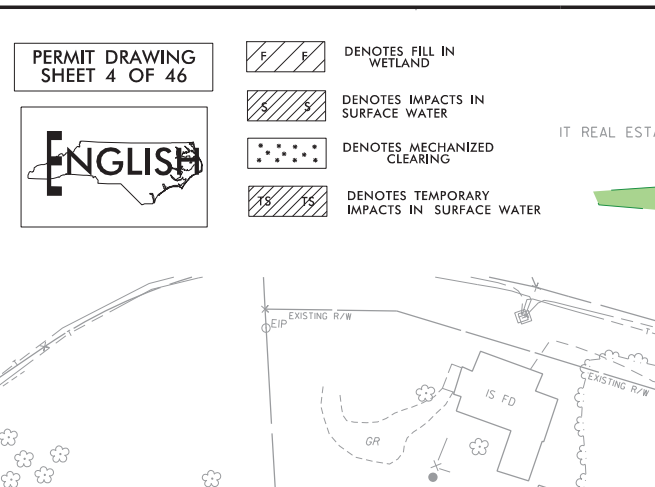
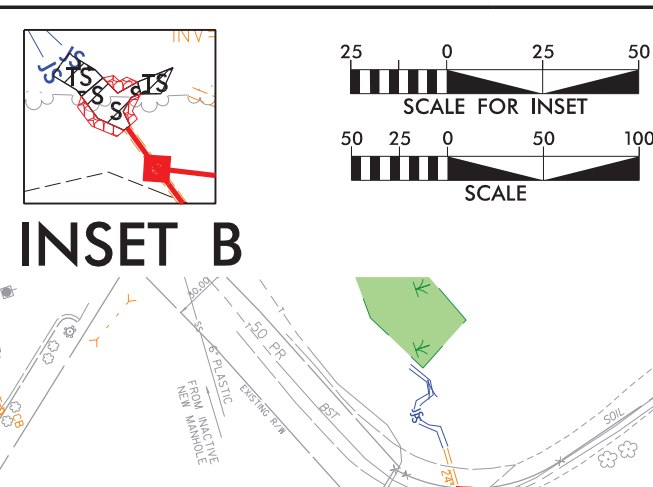
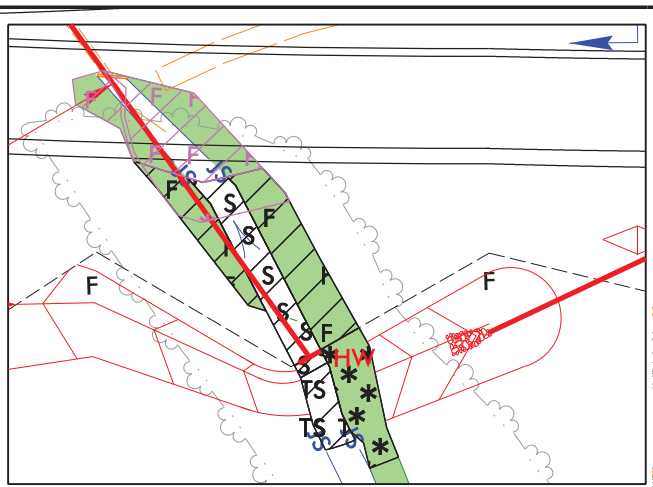
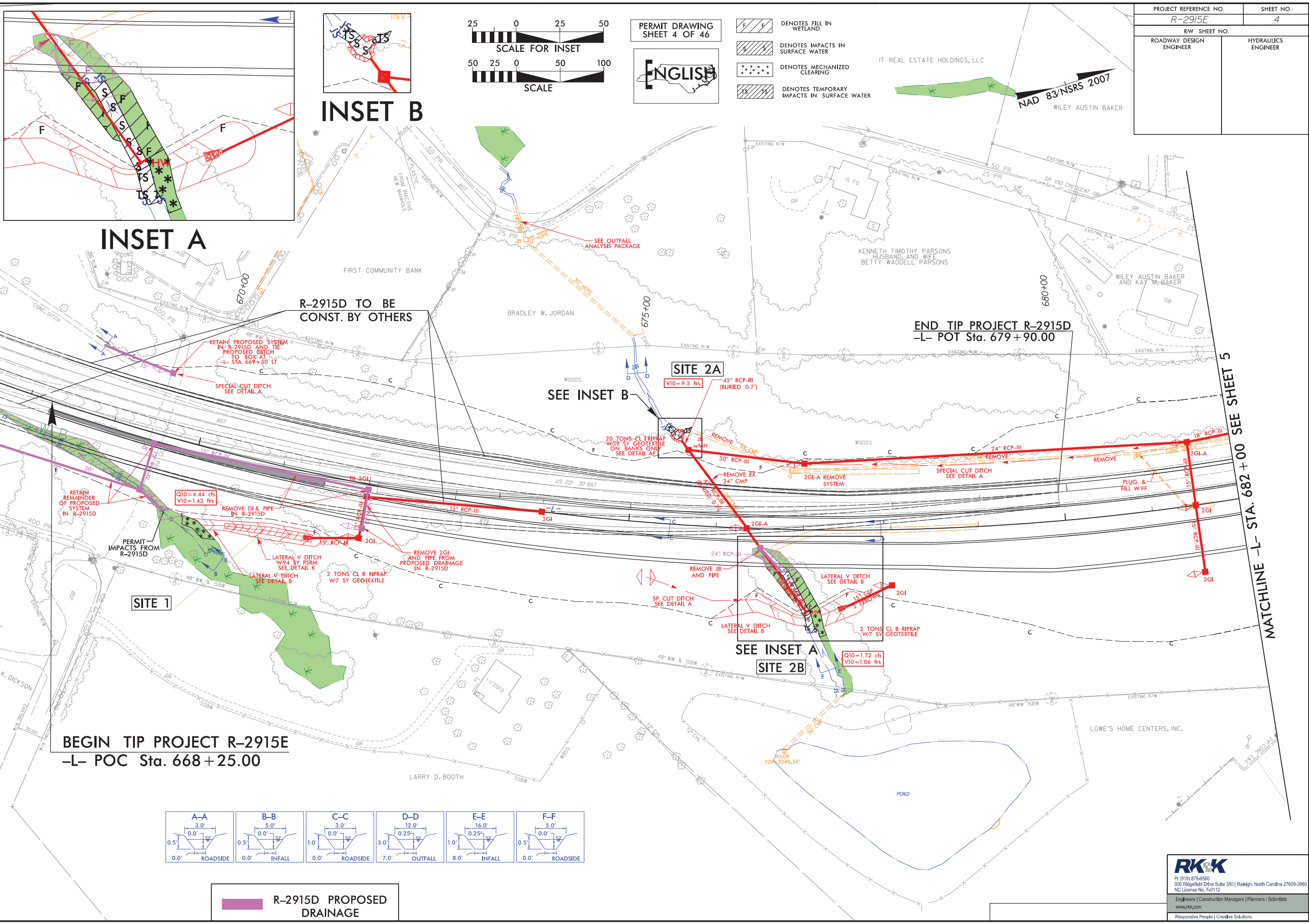
PERMIT DRAWING
SHEET 3 OF 46



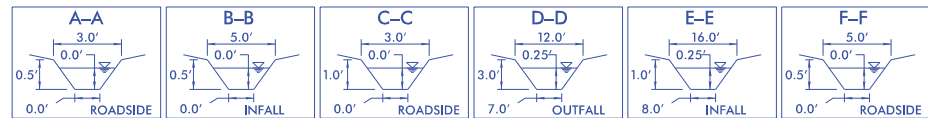
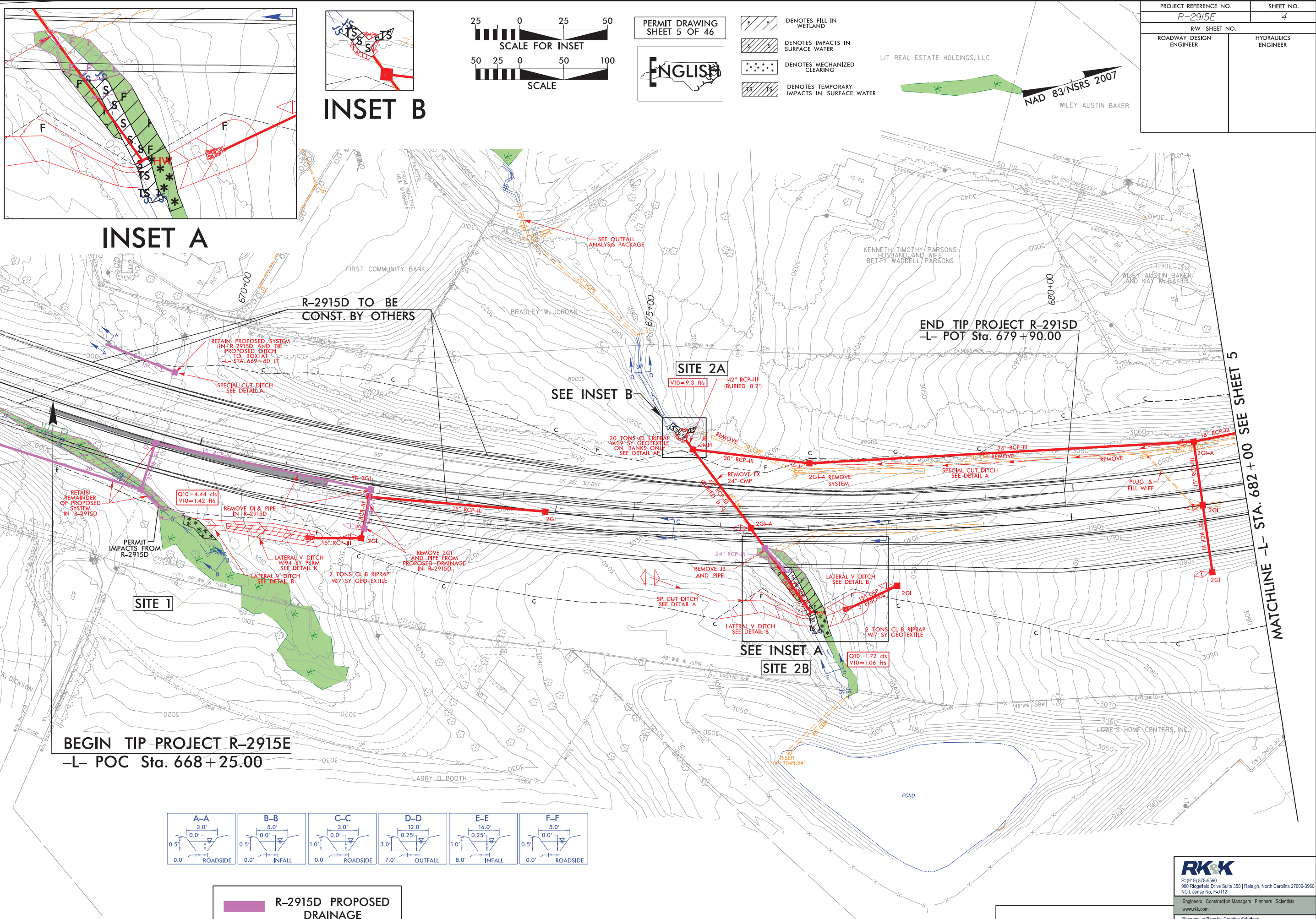
CULVERT @ -L- STA. 838+56



8/17/99
3/14/2018
R:\Hydraulics\PERMITS\Environmental\Drawings\4C\R-2915E_PRM_WET_psh04.dgn



8/17/99
3/4/2019
R:\Hydraulics\PERMITS\Environmental\Drawings\4C\R-2915E_Prm_Wet_psh04.dgn
aburke



R-2915D PROPOSED DRAINAGE

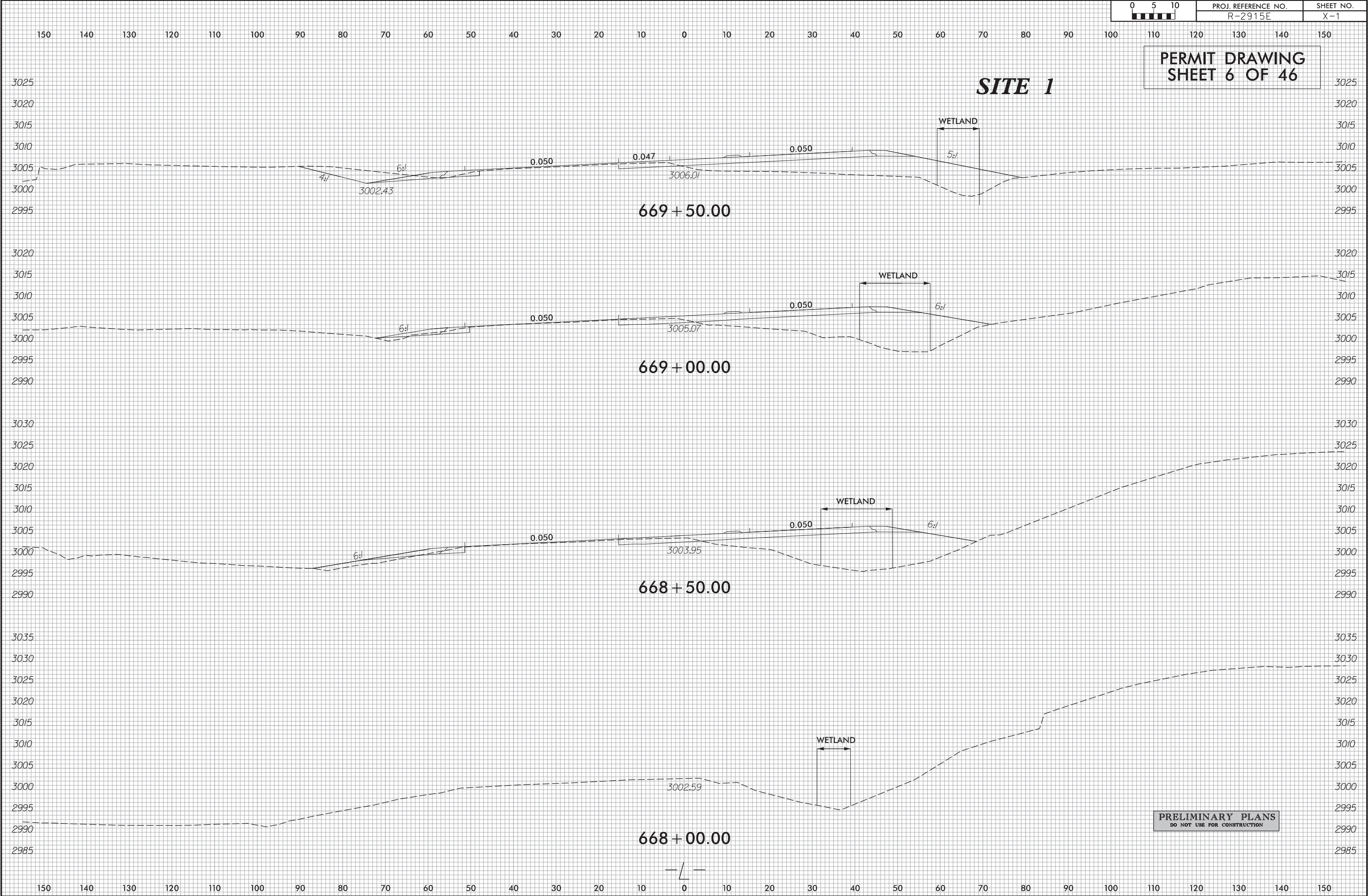
PROJECT REFERENCE NO. <i>R-2915E</i>		SHEET NO. 4	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		WILEY AUSTIN BAKER	

RK&K
P: (919) 878-9560
900 Ragsdale Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-0112
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

6/23/16

3/14/2019
R:\Hydraulics\PERMITS-Environmental\Drawings\4\ R-2915E-PRM-WET-XPL-L.DGN
dburke

0 5 10 	PROJ. REFERENCE NO.	SHEET NO.
	R-2915E	X-1

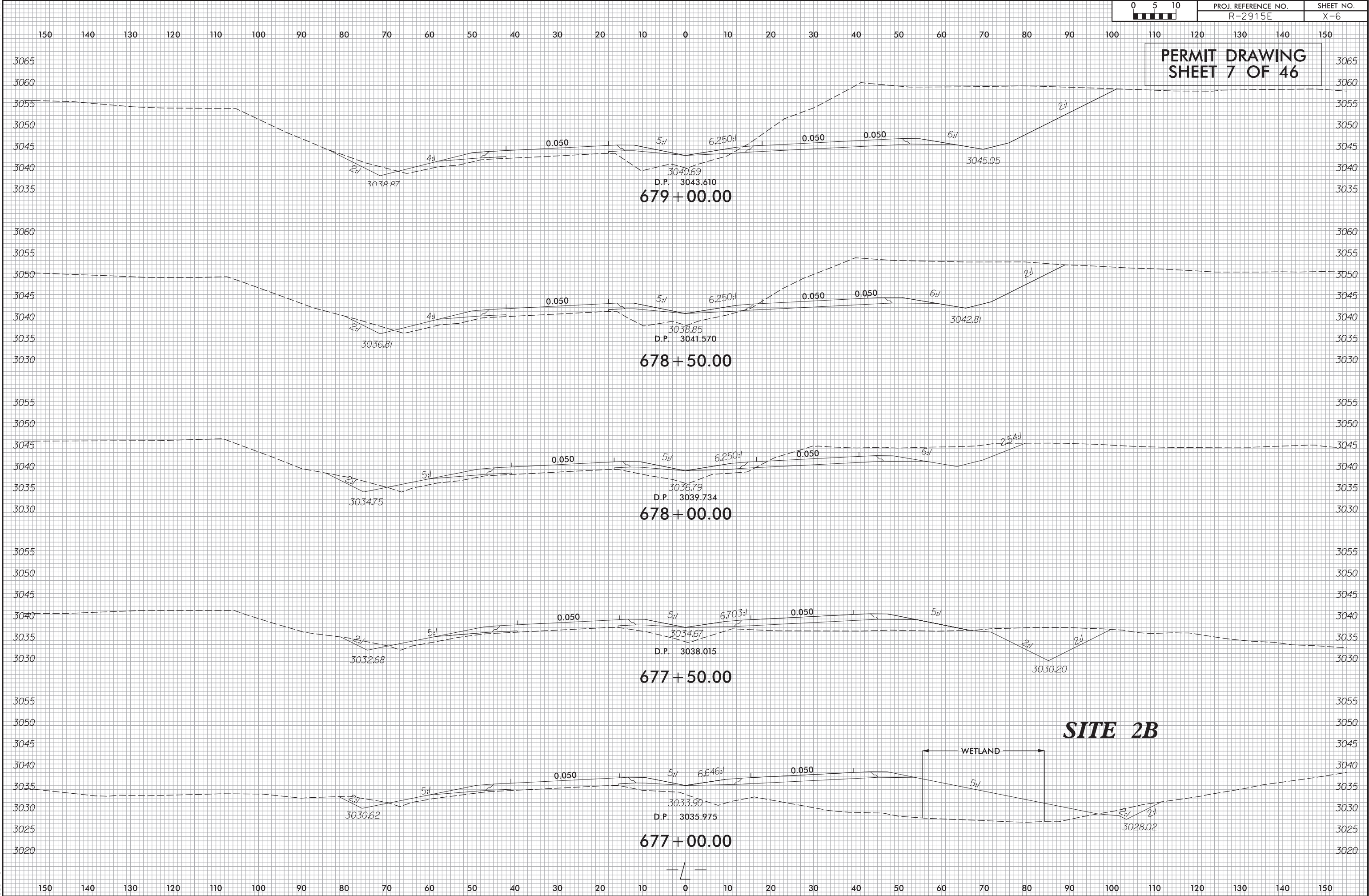


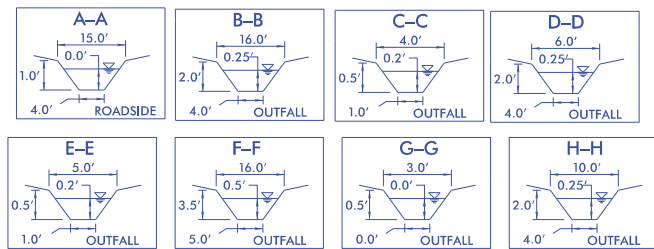
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
R-2915E	X-6

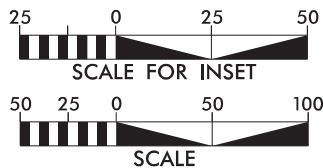
PERMIT DRAWING
SHEET 7 OF 46



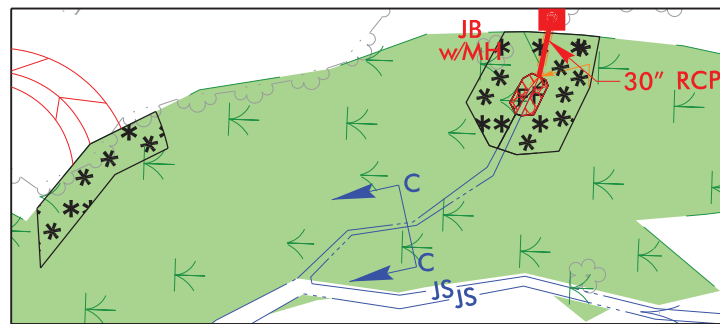


PERMIT DRAWING
SHEET 8 OF 46

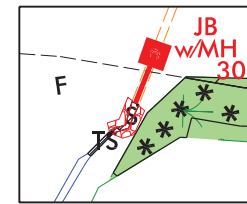
	DENOTES FILL IN WETLAND
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING
	DENOTES TEMPORARY IMPACTS IN SURFACE WATER



JAMES E. DUVALL AND WIFE,
THELMA W. DUVAL

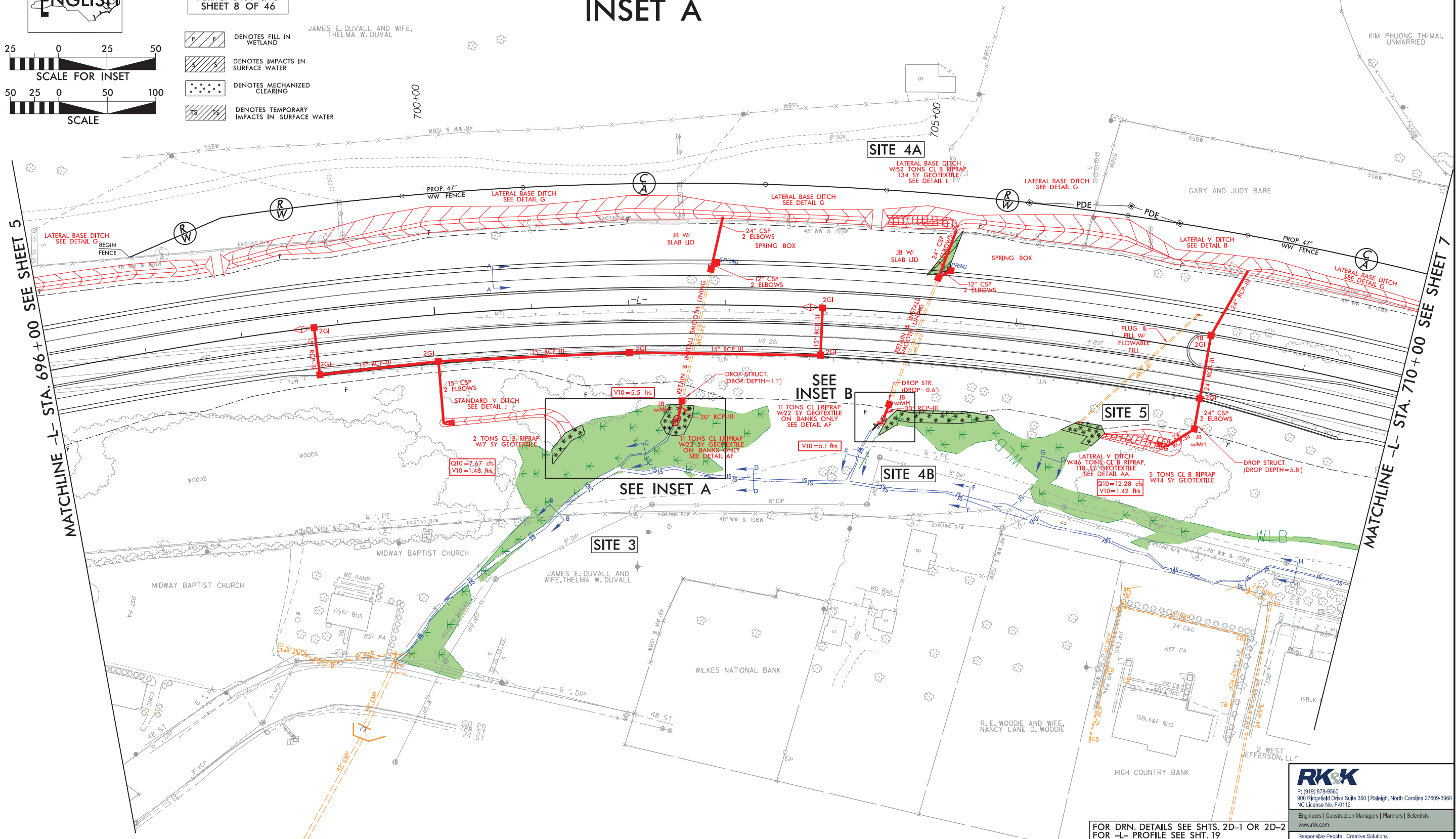


INSET A



INSET B

NAD 83/NSRS 2007

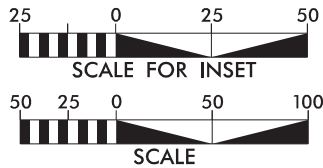
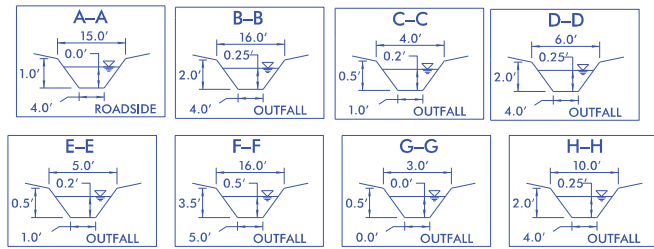


P: (919) 878-9560
900 Ridgefield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-0112

Engineers | Construction Managers | Planners | Scientists

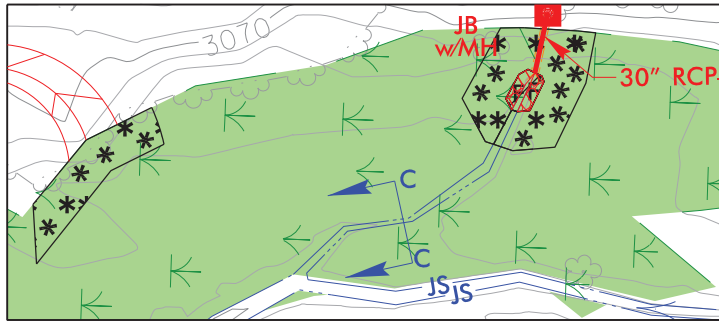
www.rkk.com

FOR DRN. DETAILS SEE SHTS. 2D-1 OR 2D-2
FOR -L- PROFILE SEE SHT. 19

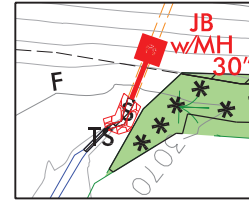


PERMIT DRAWING
SHEET 9 OF 46

- Denotes FILL IN WETLAND
- Denotes IMPACTS IN SURFACE WATER
- Denotes MECHANIZED CLEARING
- Denotes TEMPORARY IMPACTS IN SURFACE WATER



INSET A



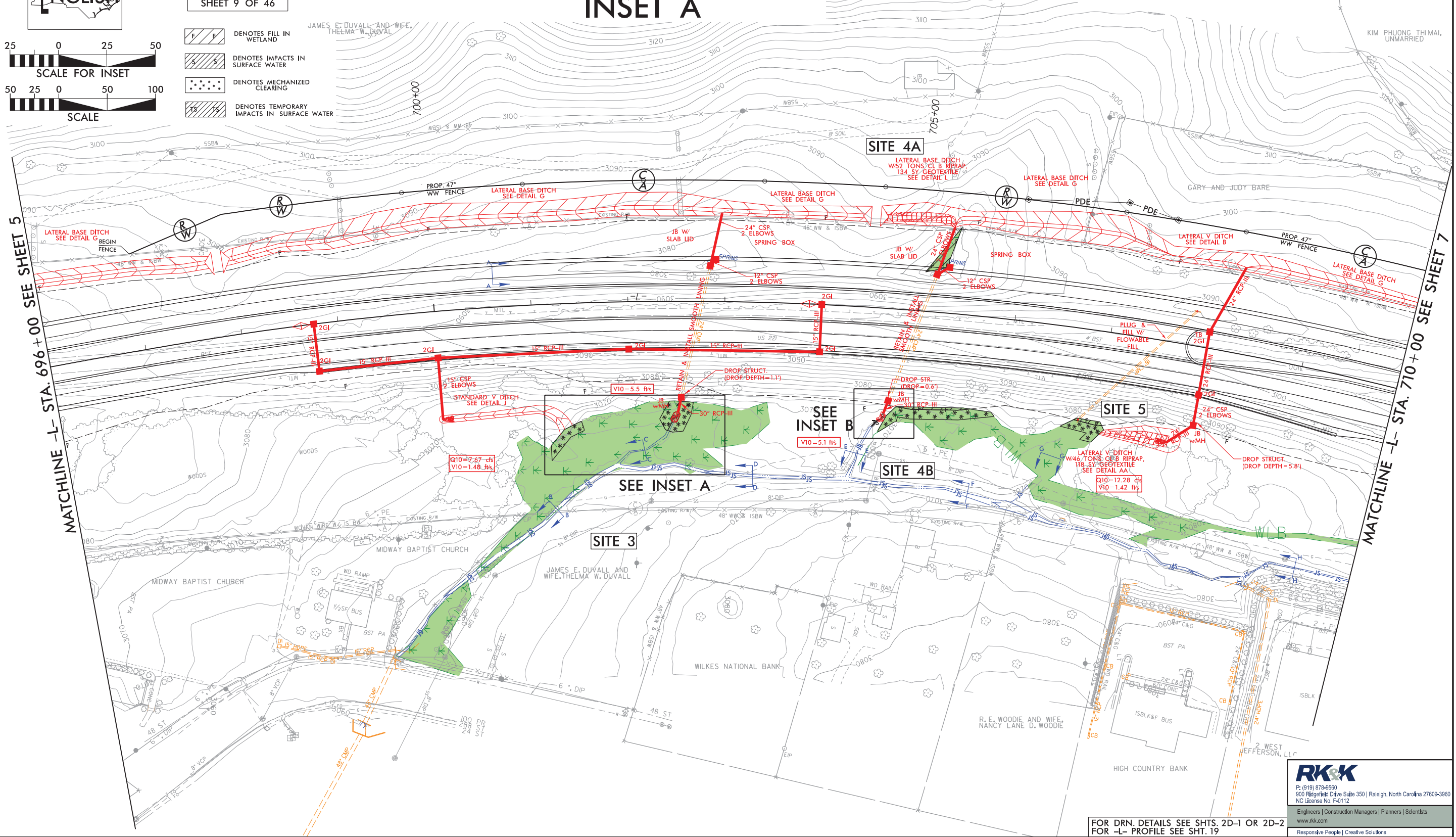
INSET B

NAD 83/NSRS 2007

PROJECT REFERENCE NO.		SHEET NO.	
R-2915E		6	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -L- STA. 696+00 SEE SHEET 5

MATCHLINE -L- STA. 710+00 SEE SHEET 7



P: (919) 878-9550
900 Fitzgerald Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-0112

Engineers | Construction Managers | Planners | Scientists

www.rkk.com

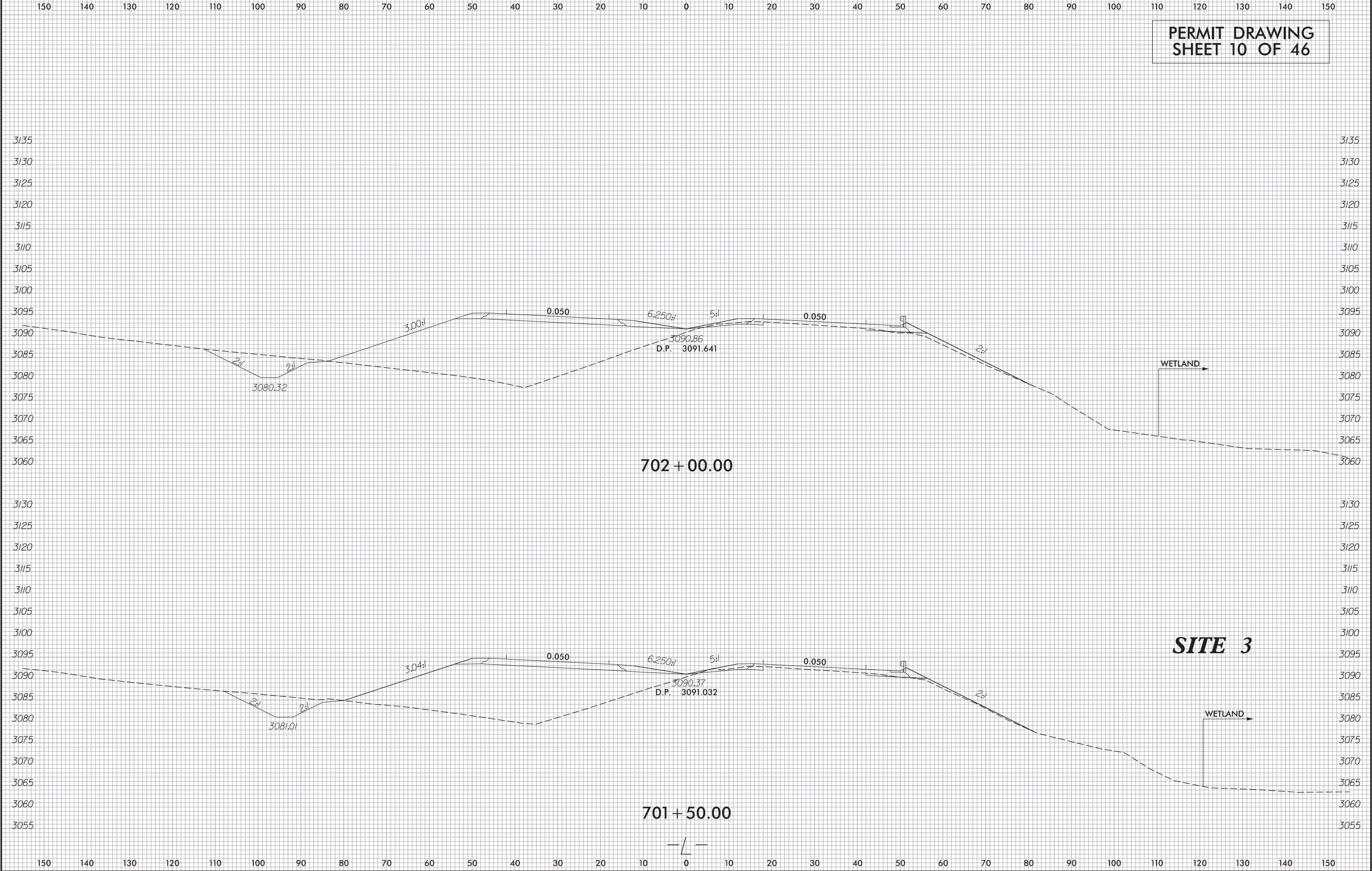
Responsive People | Creative Solutions

FOR DRN. DETAILS SEE SHTS. 2D-1 OR 2D-2
FOR -L- PROFILE SEE SHT. 19

6/23/16

0 5 10 	PROJ. REFERENCE NO.	SHEET NO.
	R-2915E	X-24

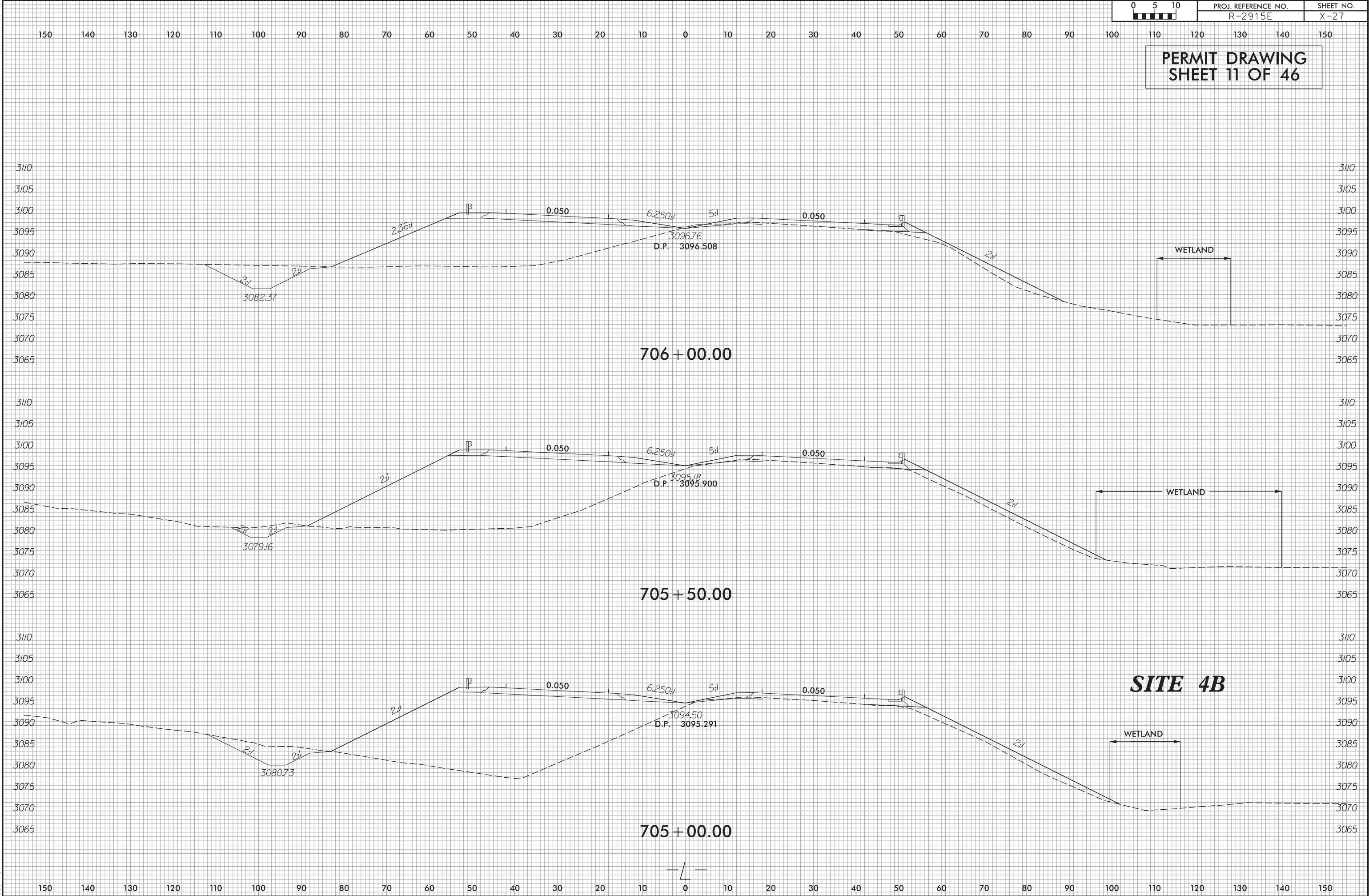
PERMIT DRAWING
SHEET 10 OF 46



6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	R-2915E	X-27

PERMIT DRAWING
SHEET 11 OF 46

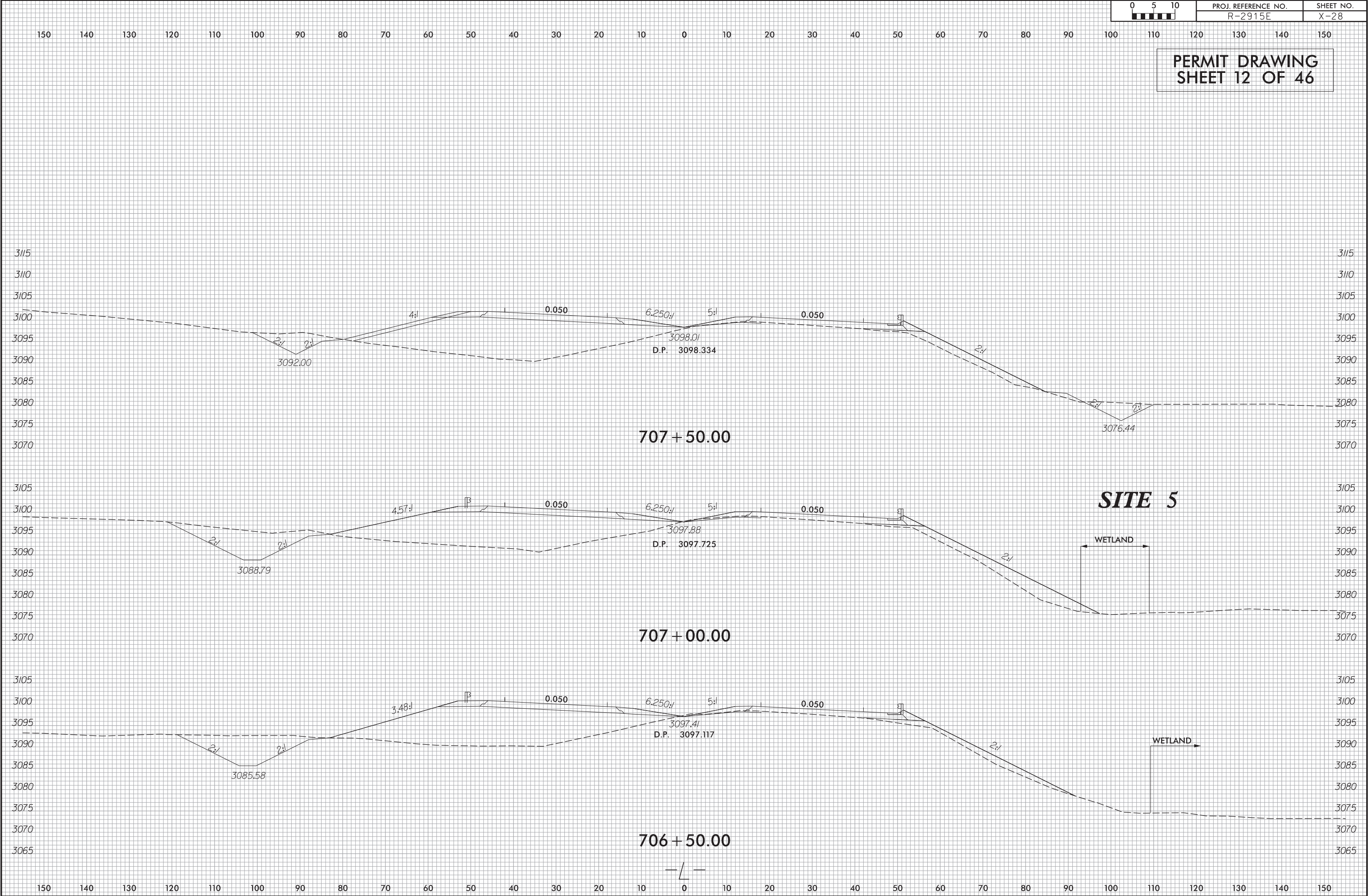


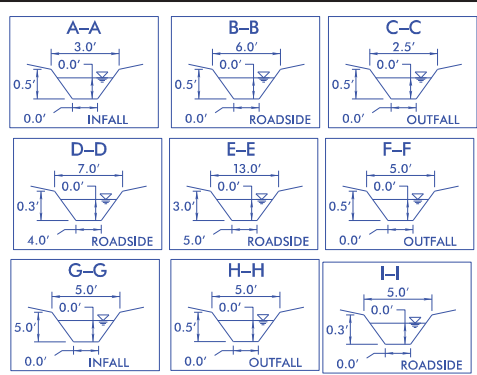
6/23/16

3/14/2019
R:\Hydraulics\PERMITS-Environmental\Drawings\4\ R-2915E-PRM_WET_XPL_L.DGN
Burke

0 5 10 	PROJ. REFERENCE NO.	SHEET NO.
	R-2915E	X-28

PERMIT DRAWING
SHEET 12 OF 46





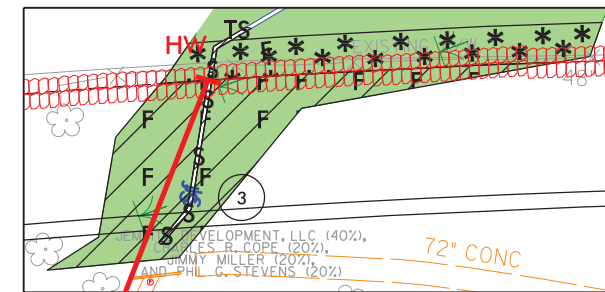
PERMIT DRAWING
SHEET 13 OF 46



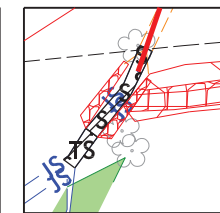
SCALE FOR INSET

SCALE

- Denotes Fill in Wetland
- Denotes Impacts in Surface Water
- Denotes Mechanized Clearing
- Denotes Temporary Impacts in Surface Water



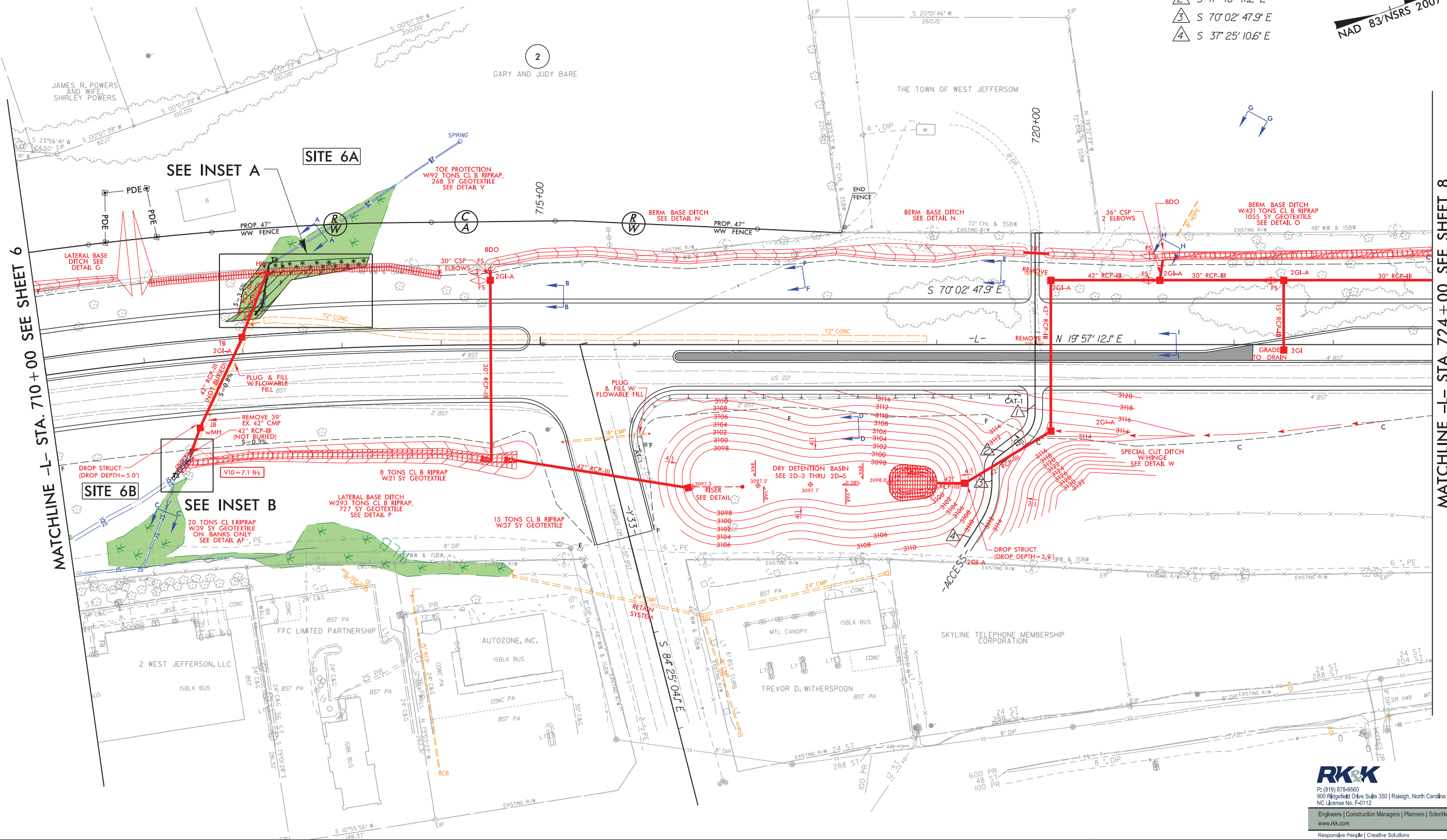
INSET A



INSET B

- S 70° 02' 47.9" E
- S 17° 40' 41.2" E
- S 70° 02' 47.9" E
- S 37° 25' 10.6" E

NAD 83/NSRS 2007



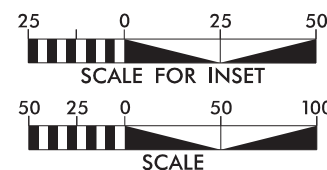
MATCHLINE -L- STA. 724 + 00 SEE SHEET 8

RK&K

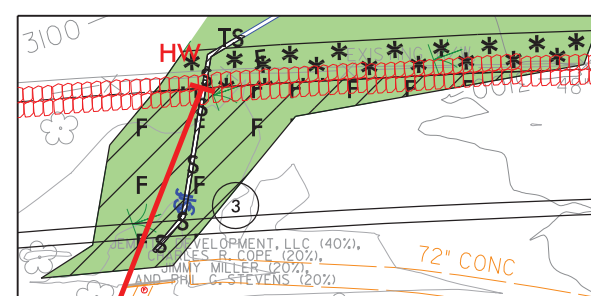
P: (919) 878-9550
900 Pigeonfield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-4112

Engineers | Construction Managers | Planners | Scientists
www.rkk.com

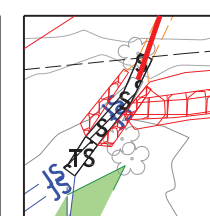
Responsive People | Creative Solutions



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

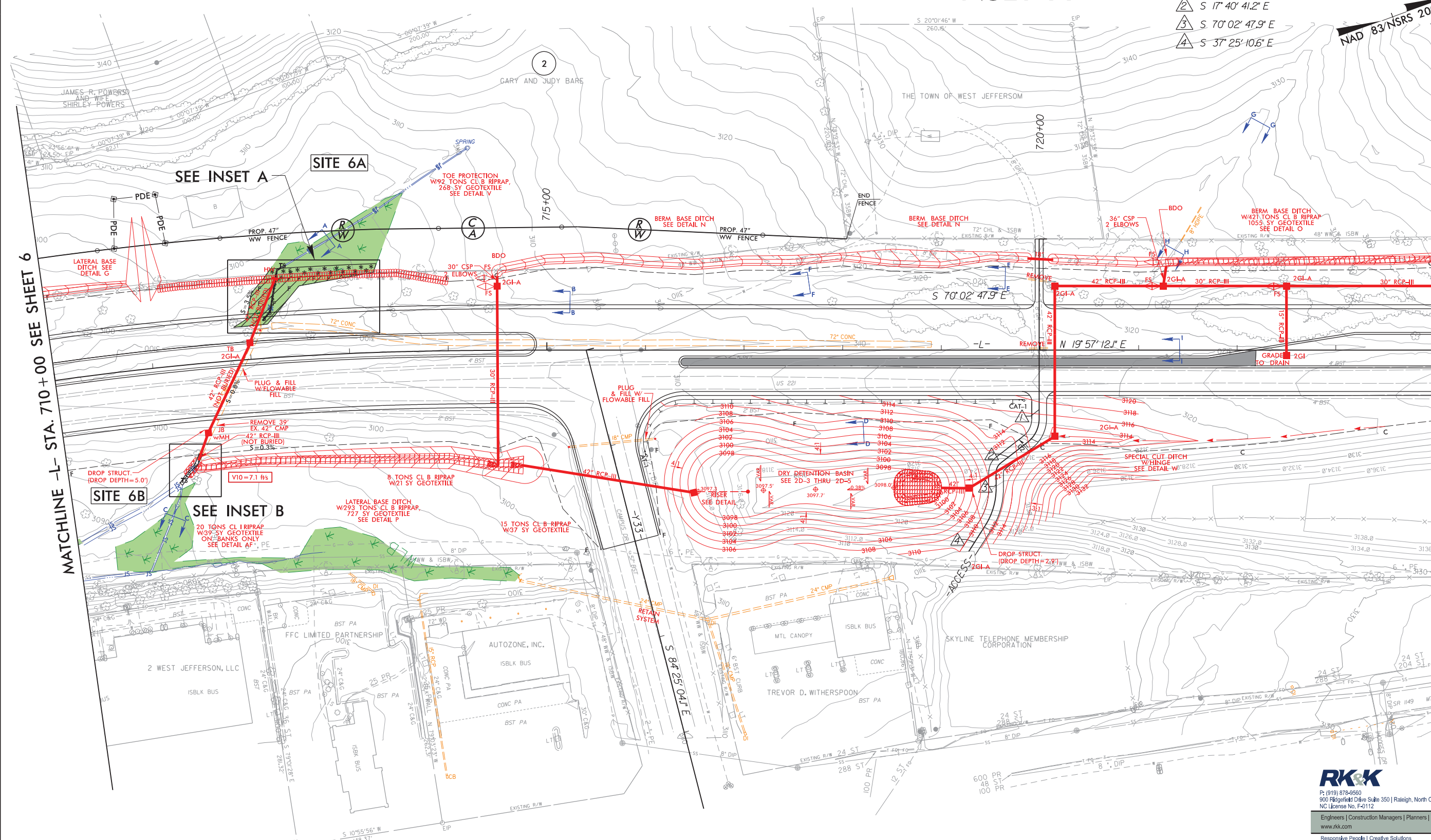


INSET A



INSET B

- ① S 70° 02' 47.9" E
② S 17° 40' 41.2" E
③ S 70° 02' 47.9" E
④ S 37° 25' 10.6" E

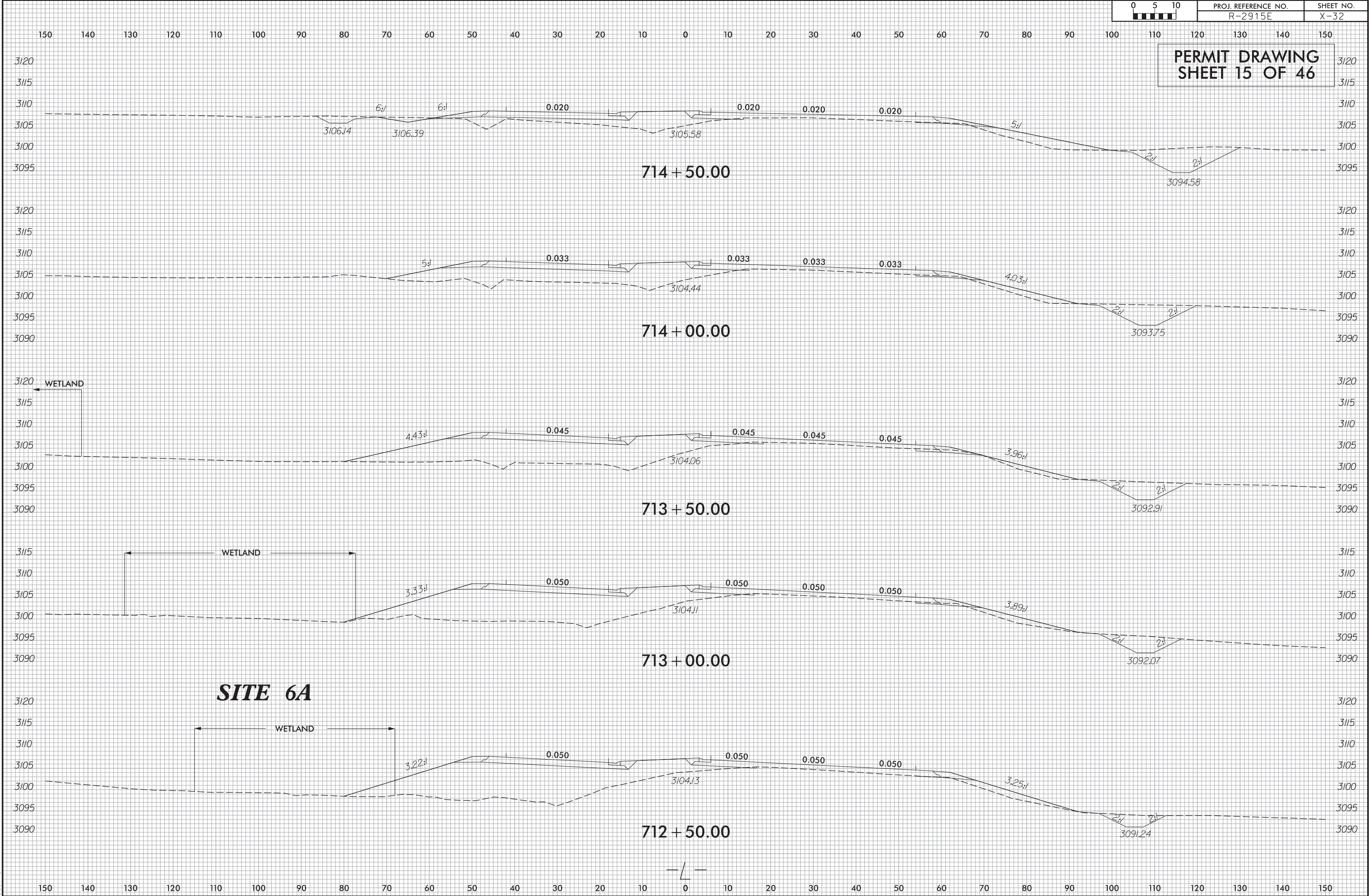


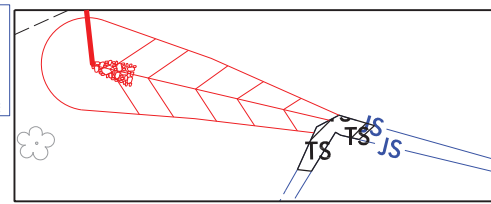
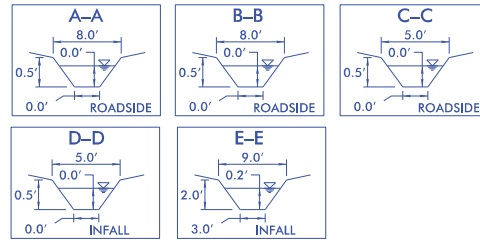
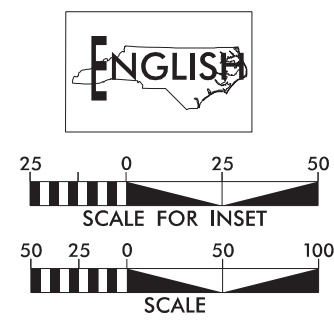
6/23/16

3/14/2019
R:\Hydraulics\PERMITS\Environmental\Drawings\4C\R-2915E\PRJ\WET_XPL_L.DGN
Burke

0510	PROJ. REFERENCE NO.	SHEET NO.
	R-2915E	X-32

PERMIT DRAWING
SHEET 15 OF 46





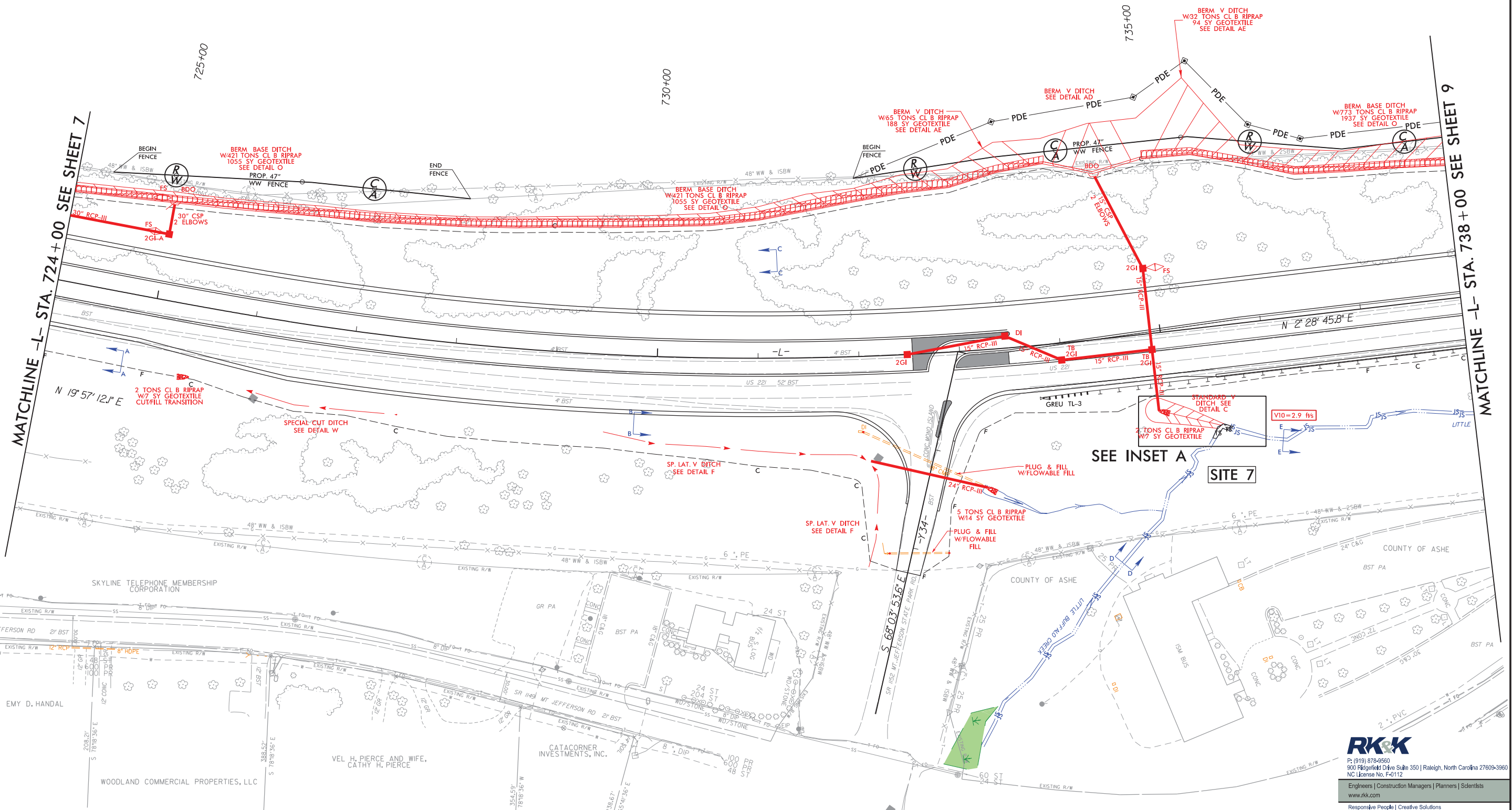
INSET A

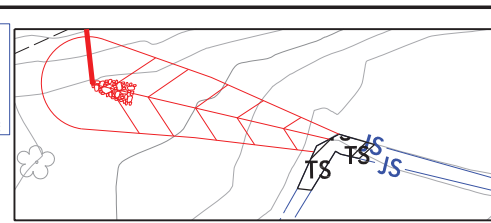
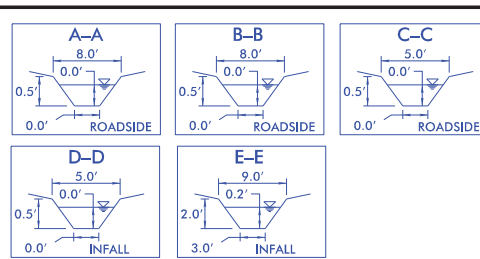
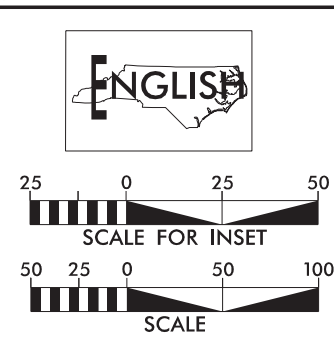
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 16 OF 46

NAD 83/NSRS 2007

JEMSITE DEVELOPMENT, LLC (40%),
CHARLES R. COPE (20%),
JIMMY MILLER (20%),
AND PHIL G. STEVENS (20%)



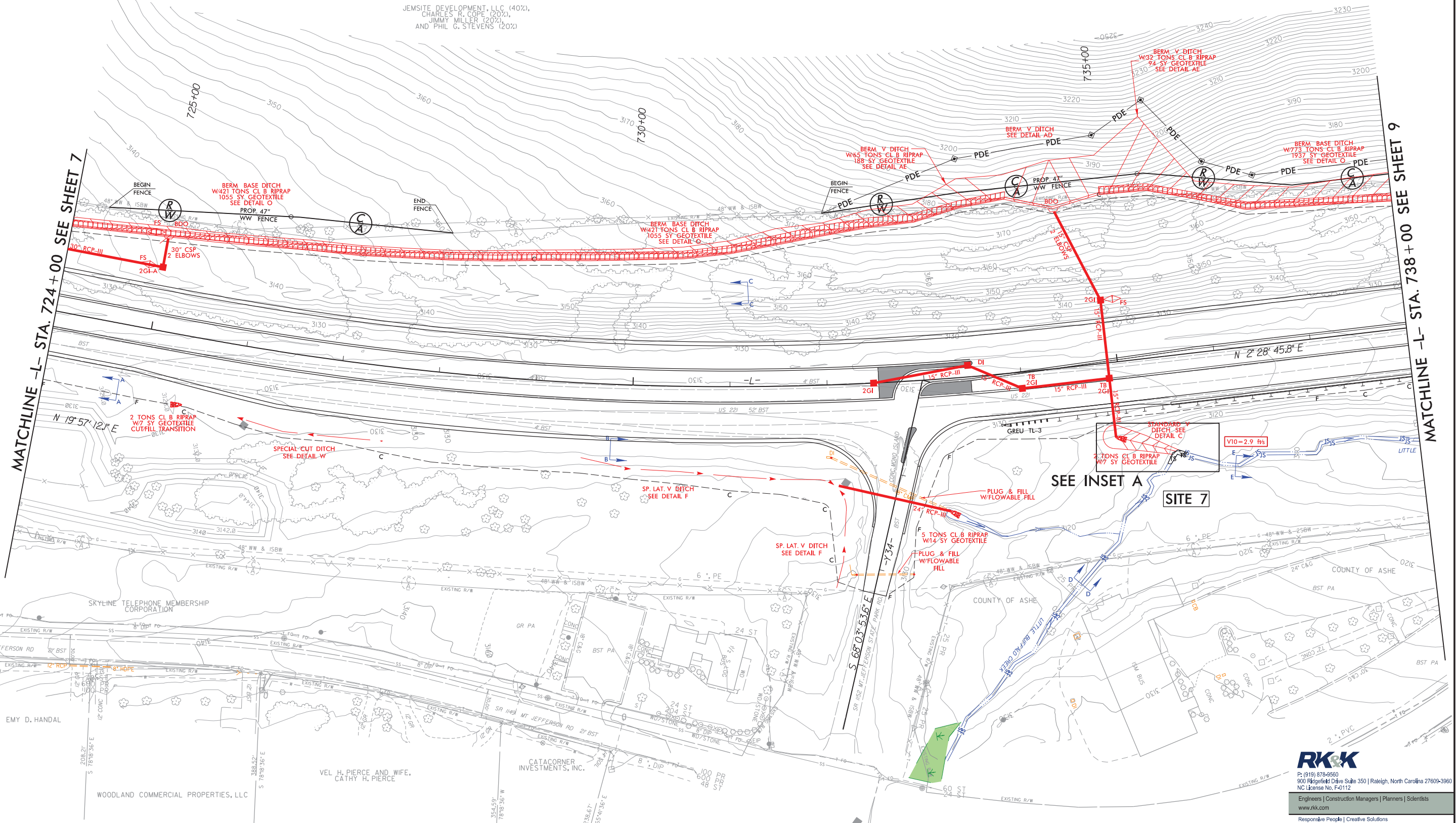


INSET A

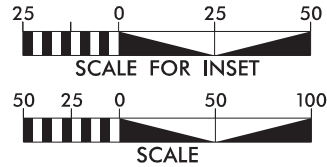
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 17 OF 46

NAD 83/NSRS 2007



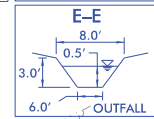
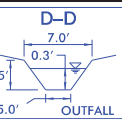
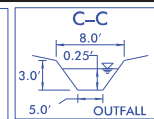
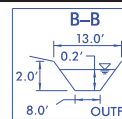
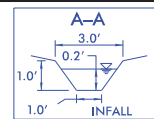
8/17/99



PERMIT DRAWING
SHEET 18 OF 46

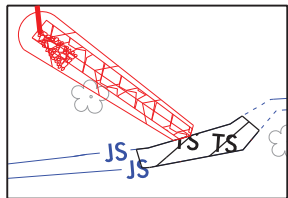
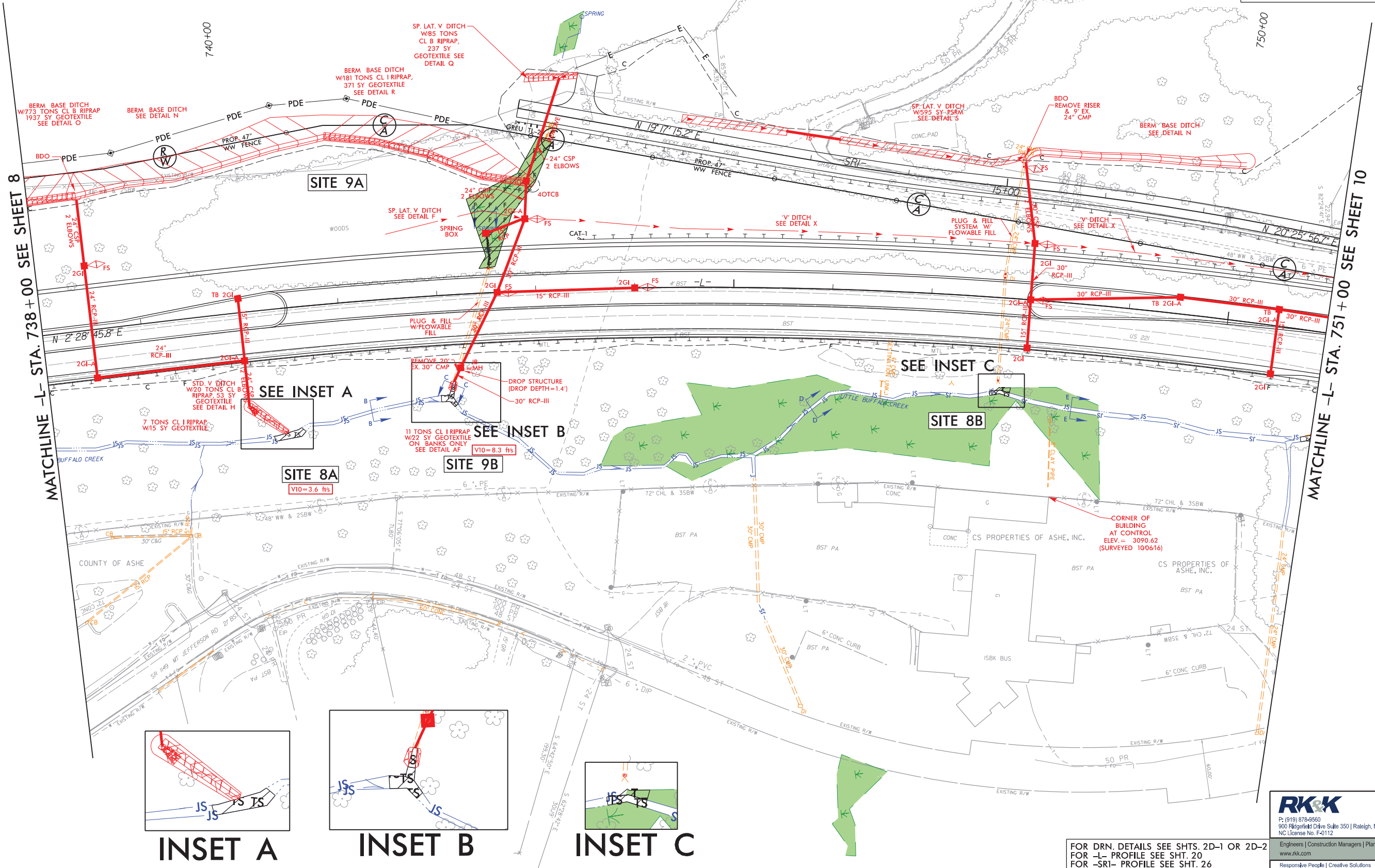
JEMSITE DEVELOPMENT, LLC (40%),
CHARLES R. COPE (20%),
JIMMY MILLER (20%),
AND PHIL G. STEVENS (20%)

- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY FILL IN WETLAND

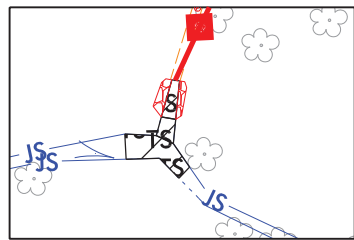


NAD 83/NSRS 2007

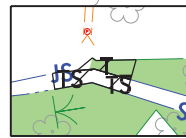
PROJECT REFERENCE NO. <i>R-2915E</i>		SHEET NO. <i>9</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



INSET A

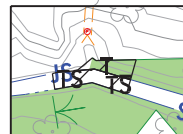


INSET B



INSET C

FOR DRN. DETAILS SEE SHTS. 2D-1 OR 2D-2
FOR -L- PROFILE SEE SHT. 20
FOR -SR- PROFILE SEE SHT. 26



INSET C

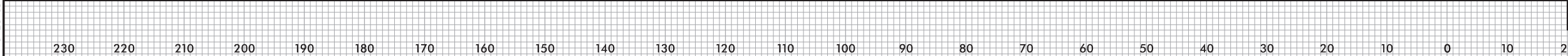
RK&K
P: (919) 878-9560
900 Ridgely Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-0112

Engineers | Construction Managers | Planners | Scientists
www.rkk.com

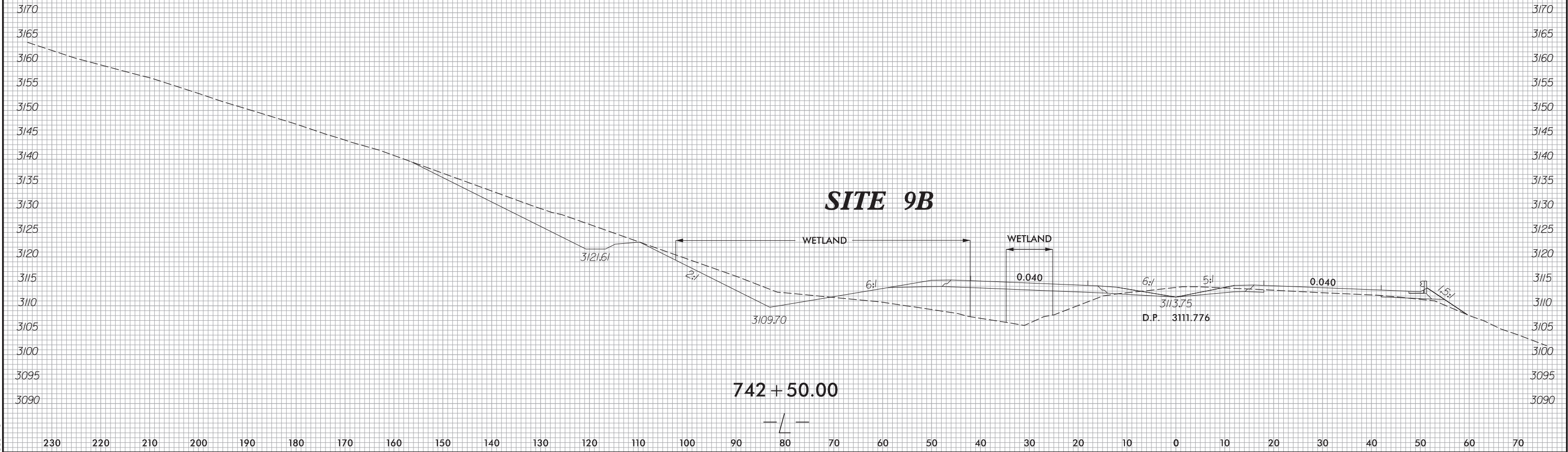
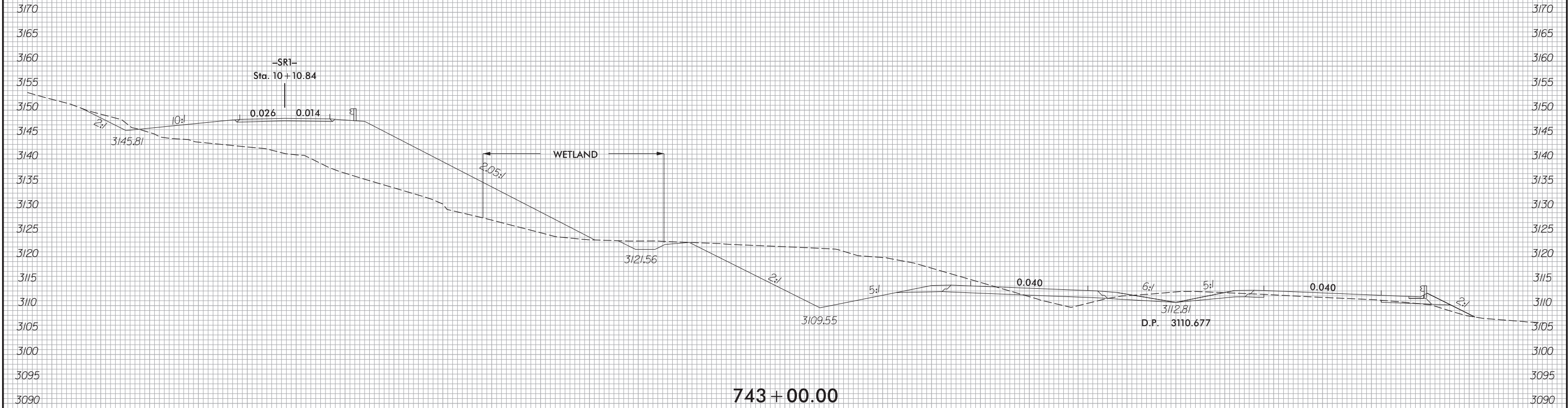
Responsive People | Creative Solutions

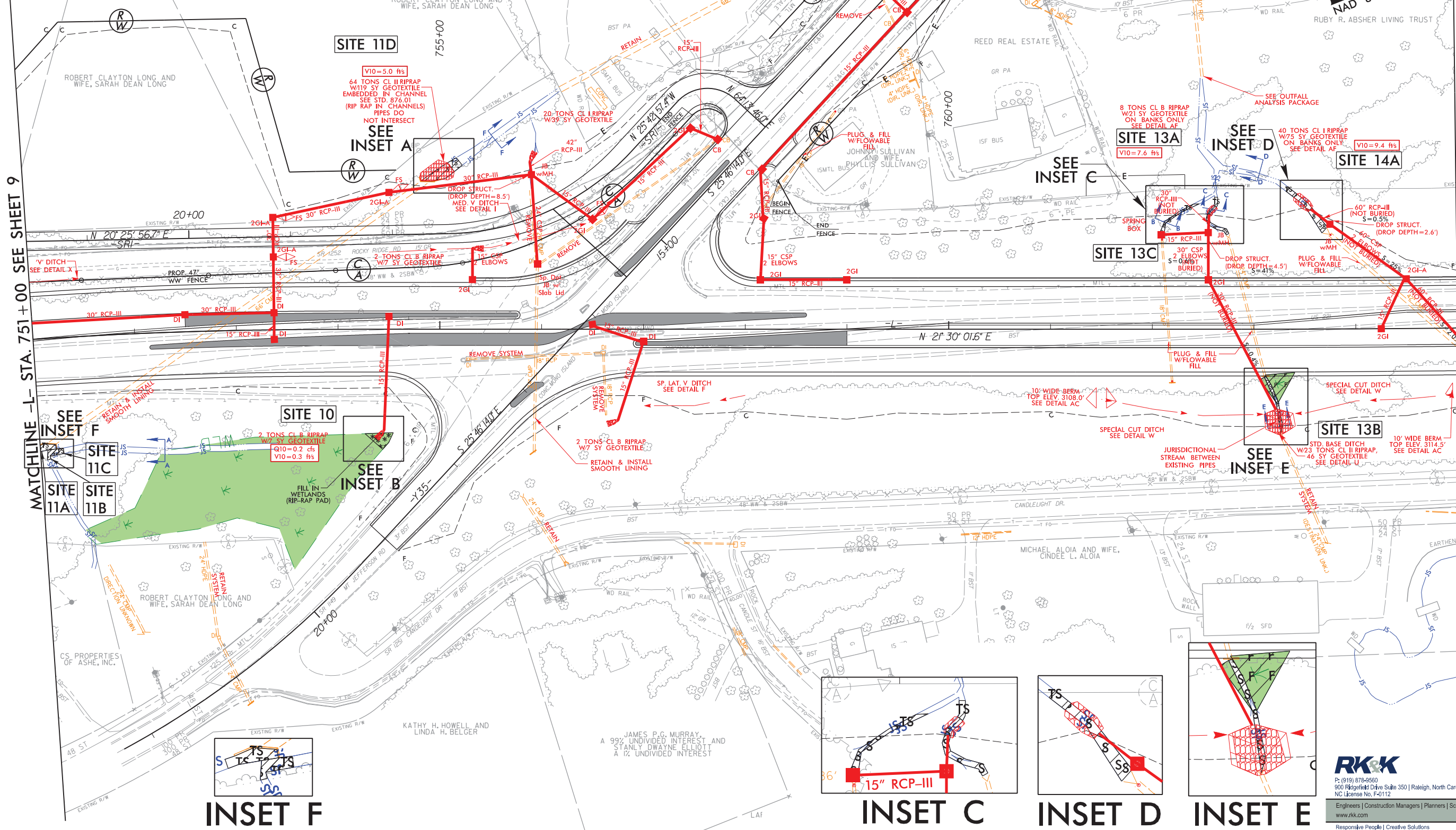
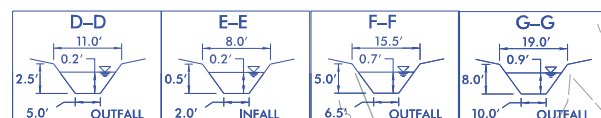
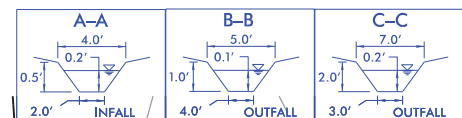
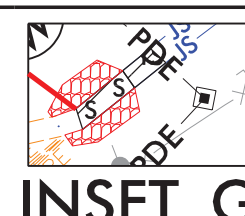
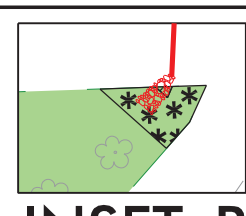
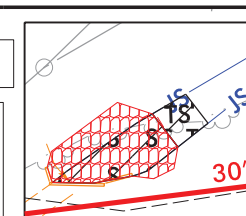
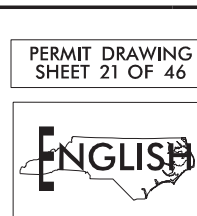
6/23/16

0510	PROJ. REFERENCE NO.	SHEET NO.
	R-2915E	X-53

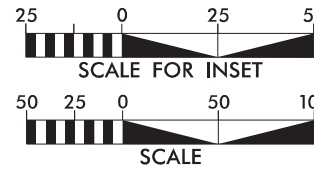


PERMIT DRAWING
SHEET 20 OF 46





8/17/99



DENOTES FILL IN WETLAND

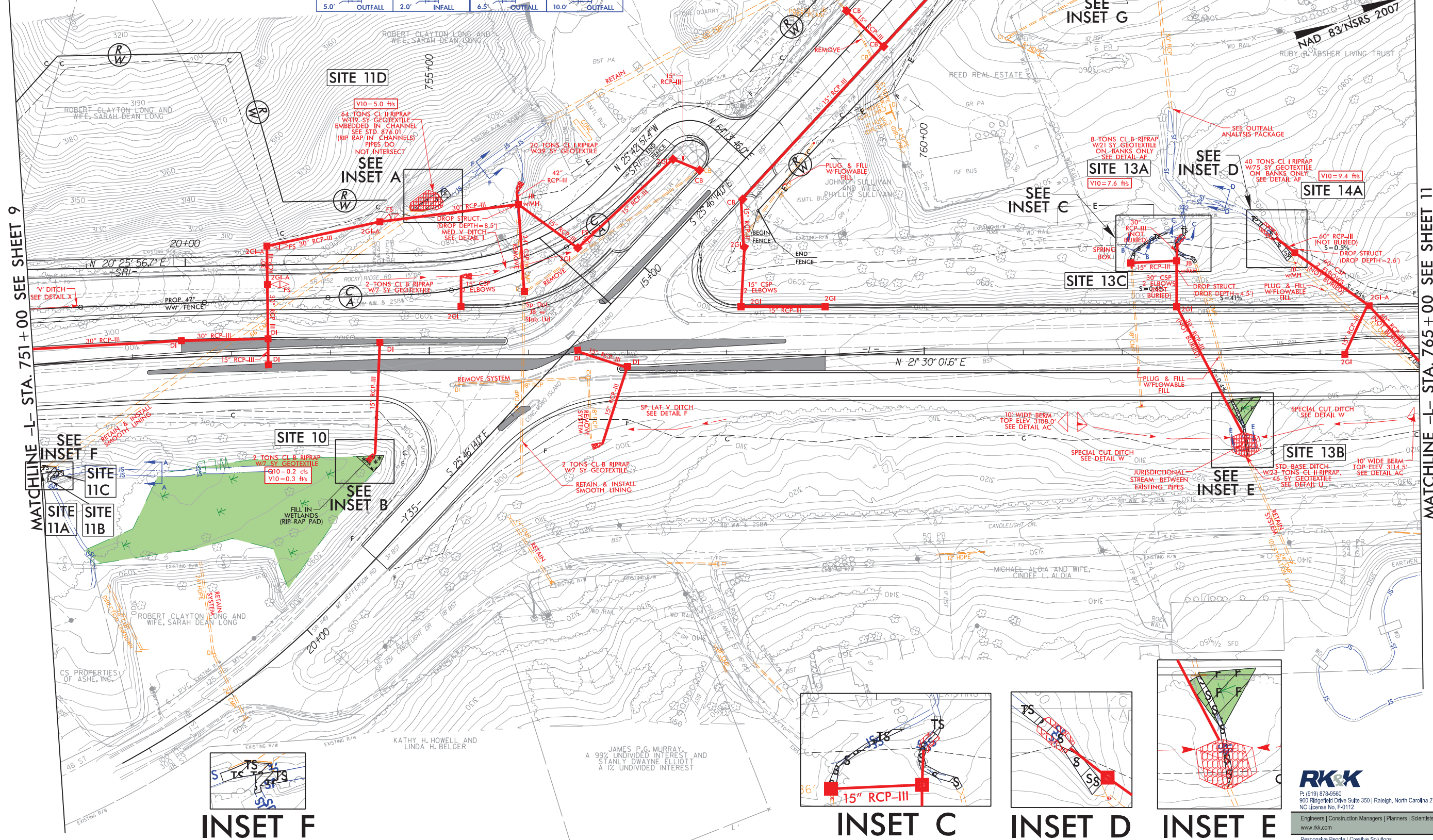
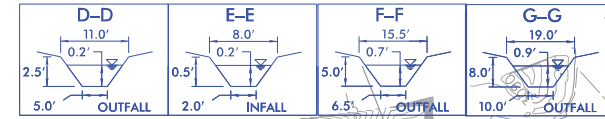
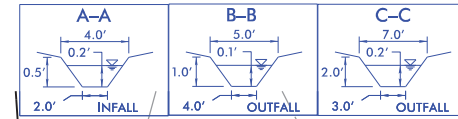
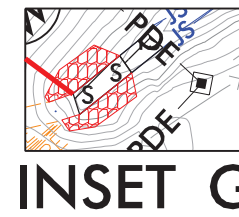
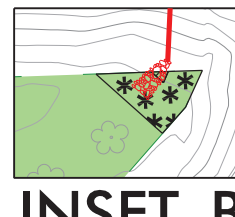
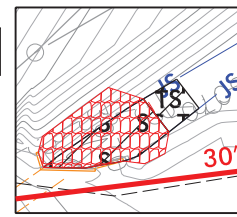
DENOTES IMPACTS IN SURFACE WATER

DENOTES MECHANIZED CLEARING

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING SHEET 22 OF 46

ENGLISH



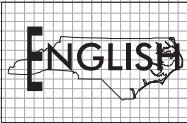
PROJECT REFERENCE NO.	SHEET NO.
R-2915E	10
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

5/14/99

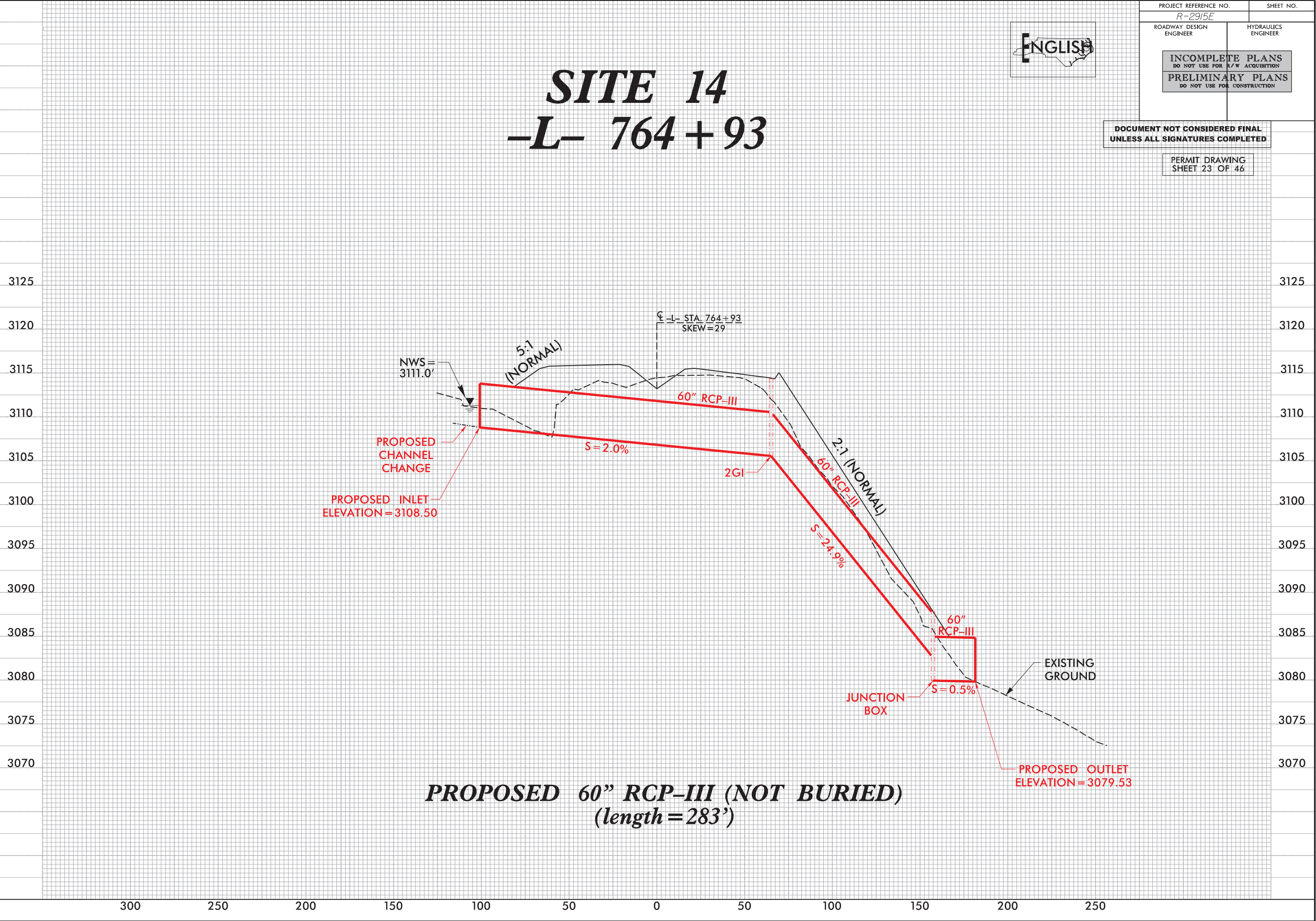
3/14/2018
R:\Hydro\Projects\PERMITS\Environmental\Drawings\4C\R-2915E_PRM_WET_PSH10_PIPEPFL.dgn
dwg

SITE 14

-L- 764+93



PROJECT REFERENCE NO.		SHEET NO.	
R-2915E			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PERMIT DRAWING SHEET 23 OF 46			



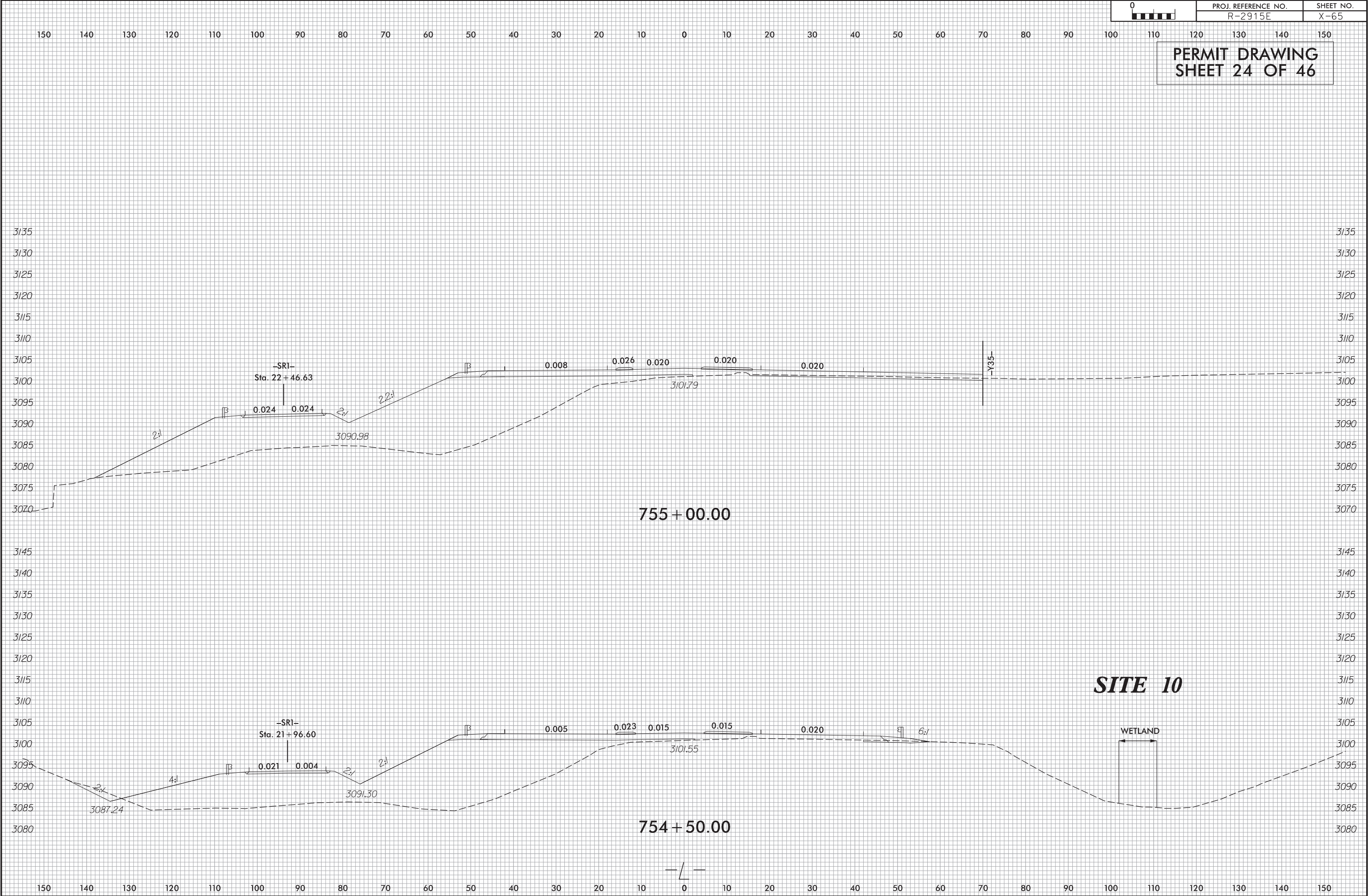
6/23/16

3/14/2019
R:\Hydraulics\PERMITS-Environmental\Drawings\4\ R-2915E-PRM_WET_XPL_L.DGN
dwg ke

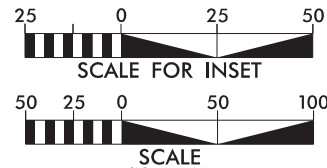


PROJ. REFERENCE NO.	SHEET NO.
R-2915E	X-65

PERMIT DRAWING
SHEET 24 OF 46

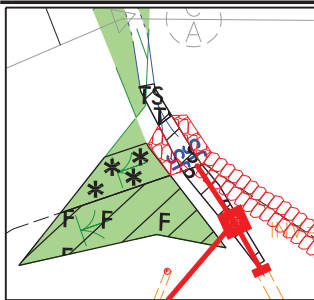


8/17/99

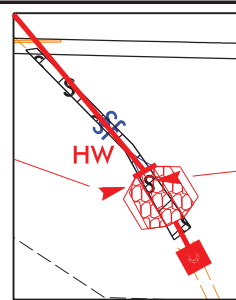


- F F DENOTES FILL IN WETLAND
- S S DENOTES IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

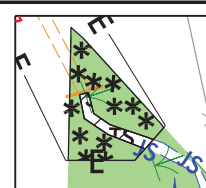
PERMIT DRAWING
SHEET 25 OF 46



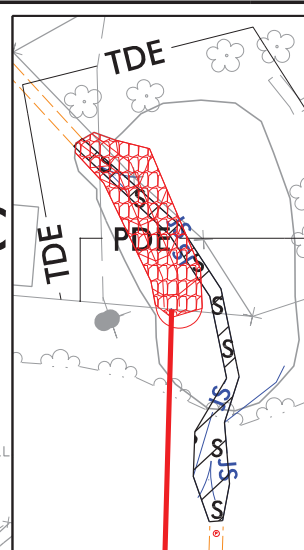
INSET A



INSET B



INSET C

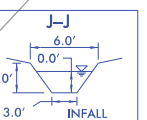
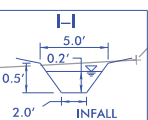
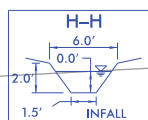
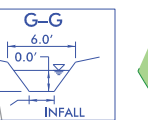
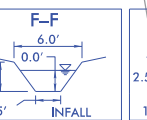
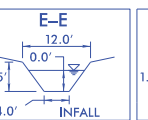
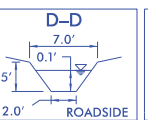
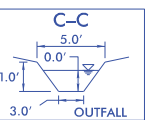
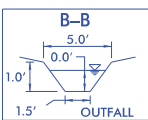
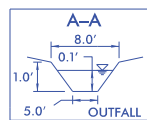
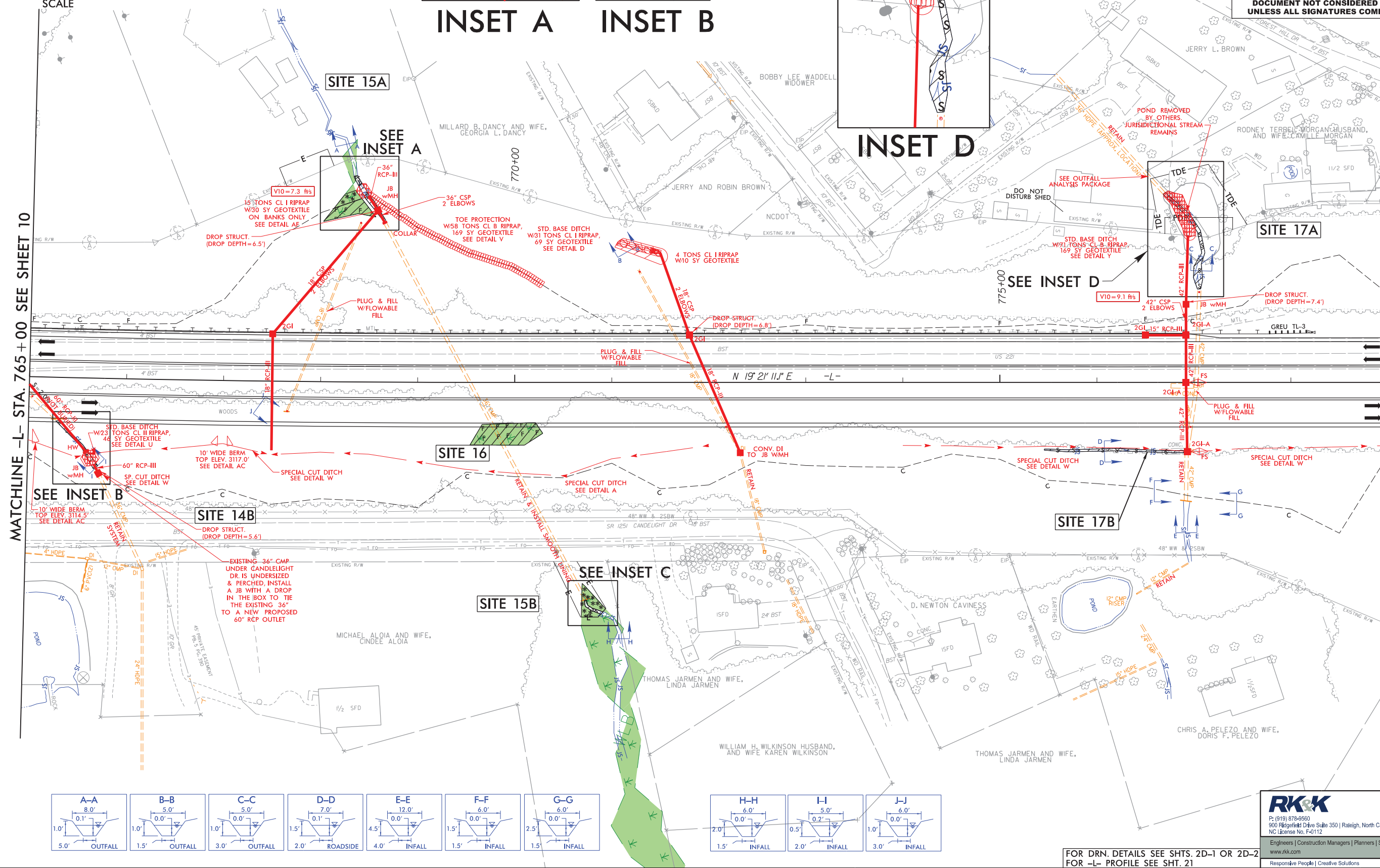


INSET D

PROJECT REFERENCE NO. <i>R-2915E</i>		SHEET NO. <i>11</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -L- STA. 765+00 SEE SHEET 10

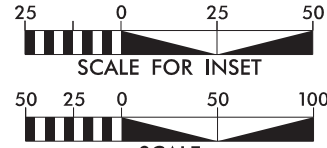
MATCHLINE -L- STA. 779+00 SEE SHEET 12



P: (919) 878-9500
900 Pigeonfield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-0112
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

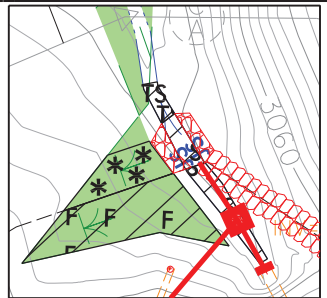
FOR DRN. DETAILS SEE SHTS. 2D-1 OR 2D-2
FOR -L- PROFILE SEE SH. 21

8/17/99

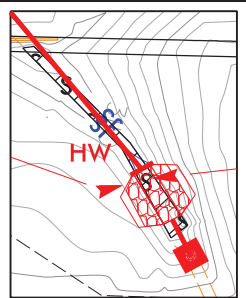


- F F DENOTES FILL IN WETLAND
- S S DENOTES IMPACTS IN SURFACE WATER
- DENOTES MECHANIZED CLEARING
- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

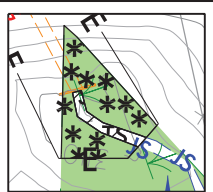
PERMIT DRAWING
SHEET 26 OF 46



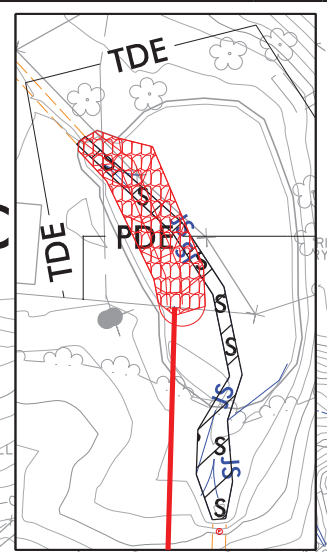
INSET A



INSET B



INSET C

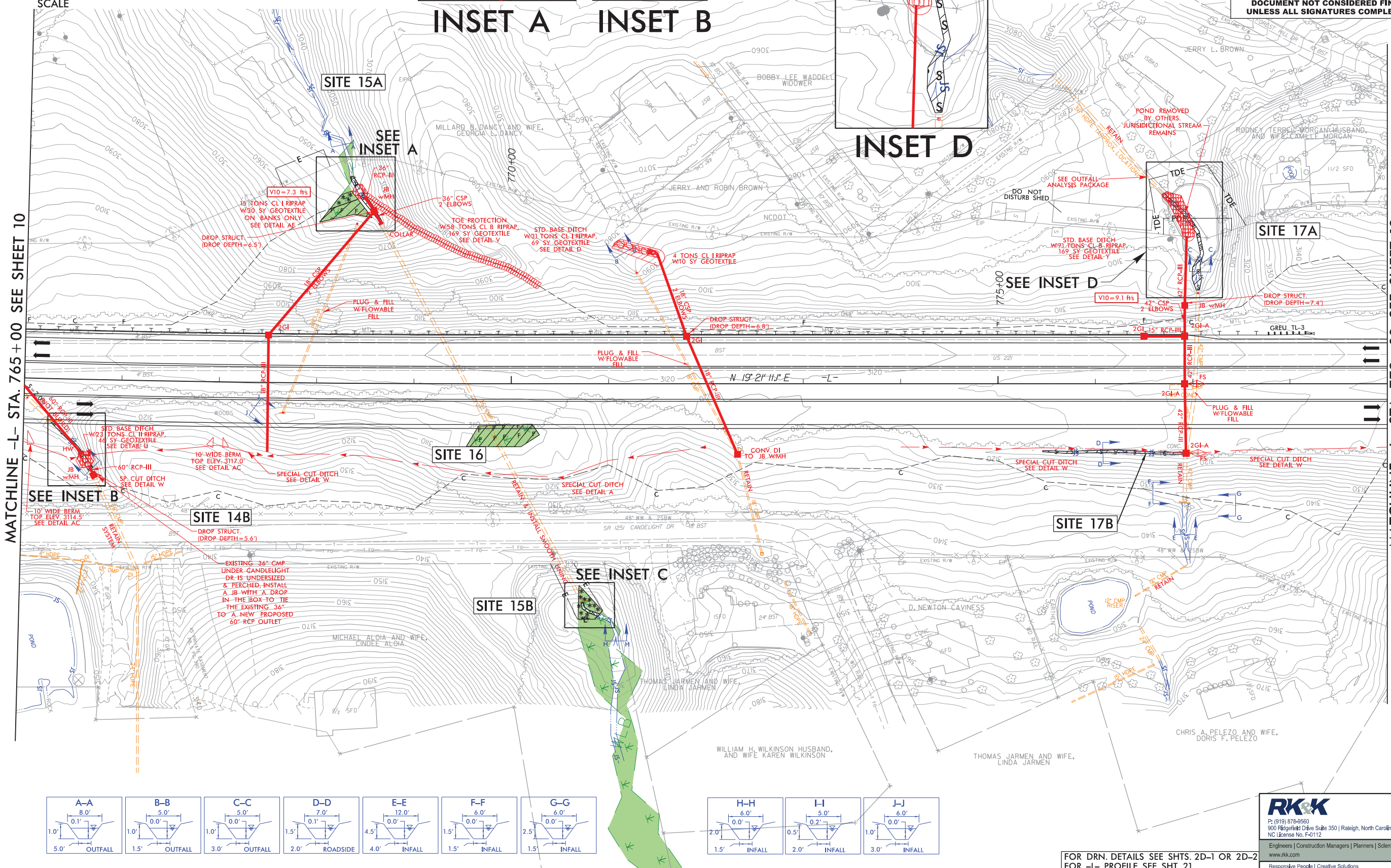


INSET D

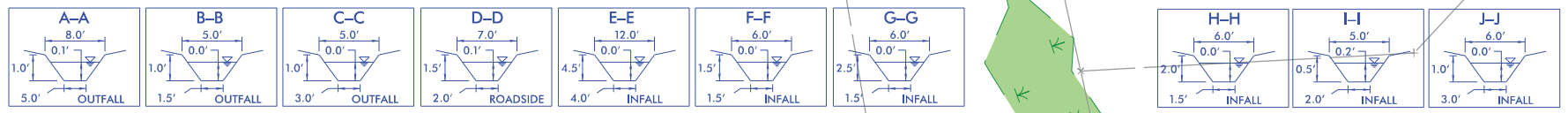
NAD 83/NSRS 2007

PROJECT REFERENCE NO. <i>R-2915E</i>		SHEET NO. <i>11</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -L- STA. 765+00 SEE SHEET 10



MATCHLINE -L- STA. 779+00 SEE SHEET 12



FOR DRN. DETAILS SEE SHTS. 2D-1 OR 2D-2
FOR -L- PROFILE SEE SH. 21

RK&K

P: (919) 878-9550
900 Pigeonfield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-4112

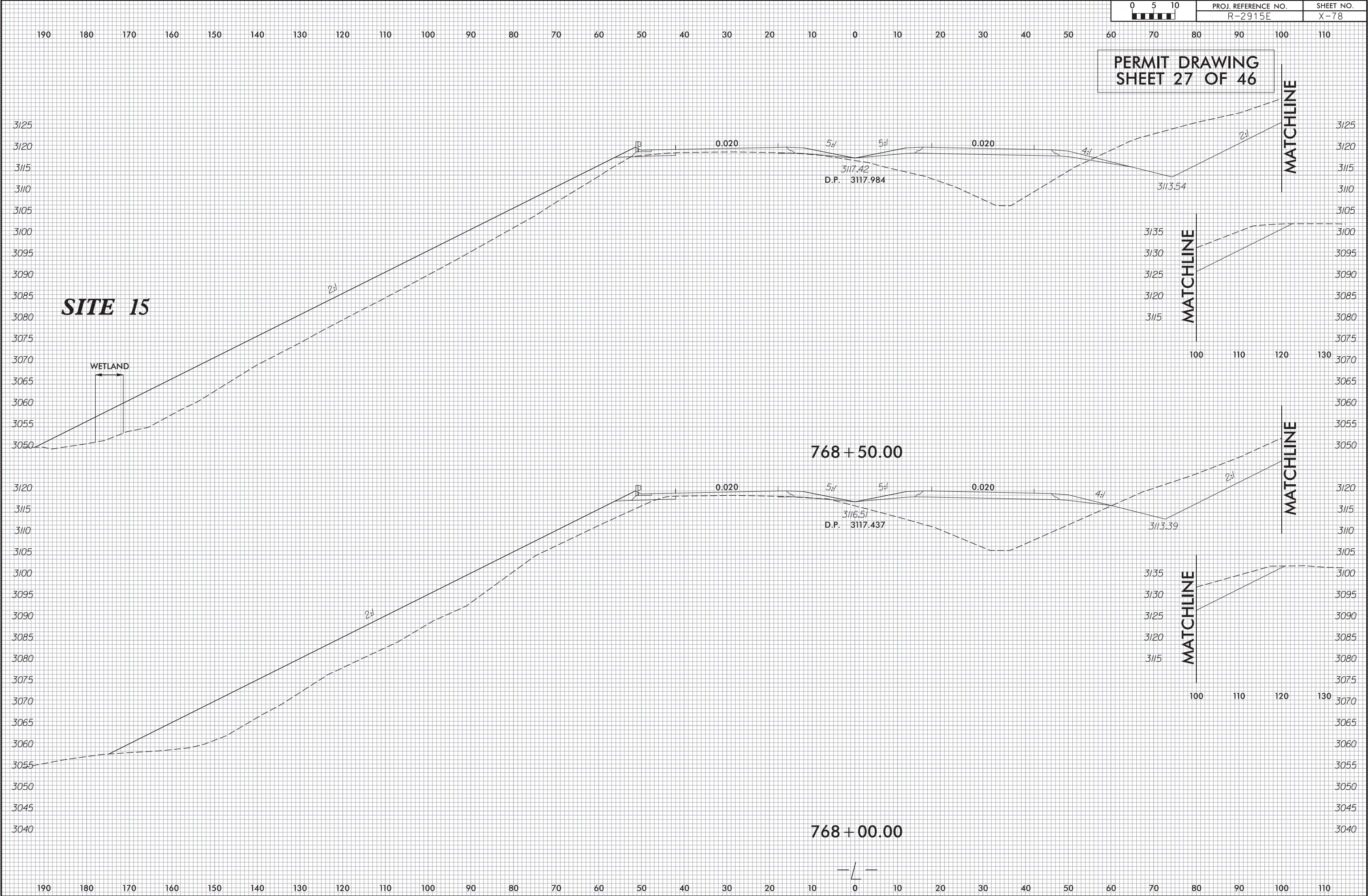
Engineers | Construction Managers | Planners | Scientists
www.rkk.com

Responsive People | Creative Solutions

3/18/2018
R:\Hydro\Hydro\PERMITS\Environmental\Drawings\4C\R-2915E_Prm_Wet_psh11.con.dgn
in:editor

6/23/16

3/14/2019
R:\Hydraulics\PERMITS\Environmental\Drawings\4C\R-2915E.PRW.WET.XPL.L.DGN
Burke

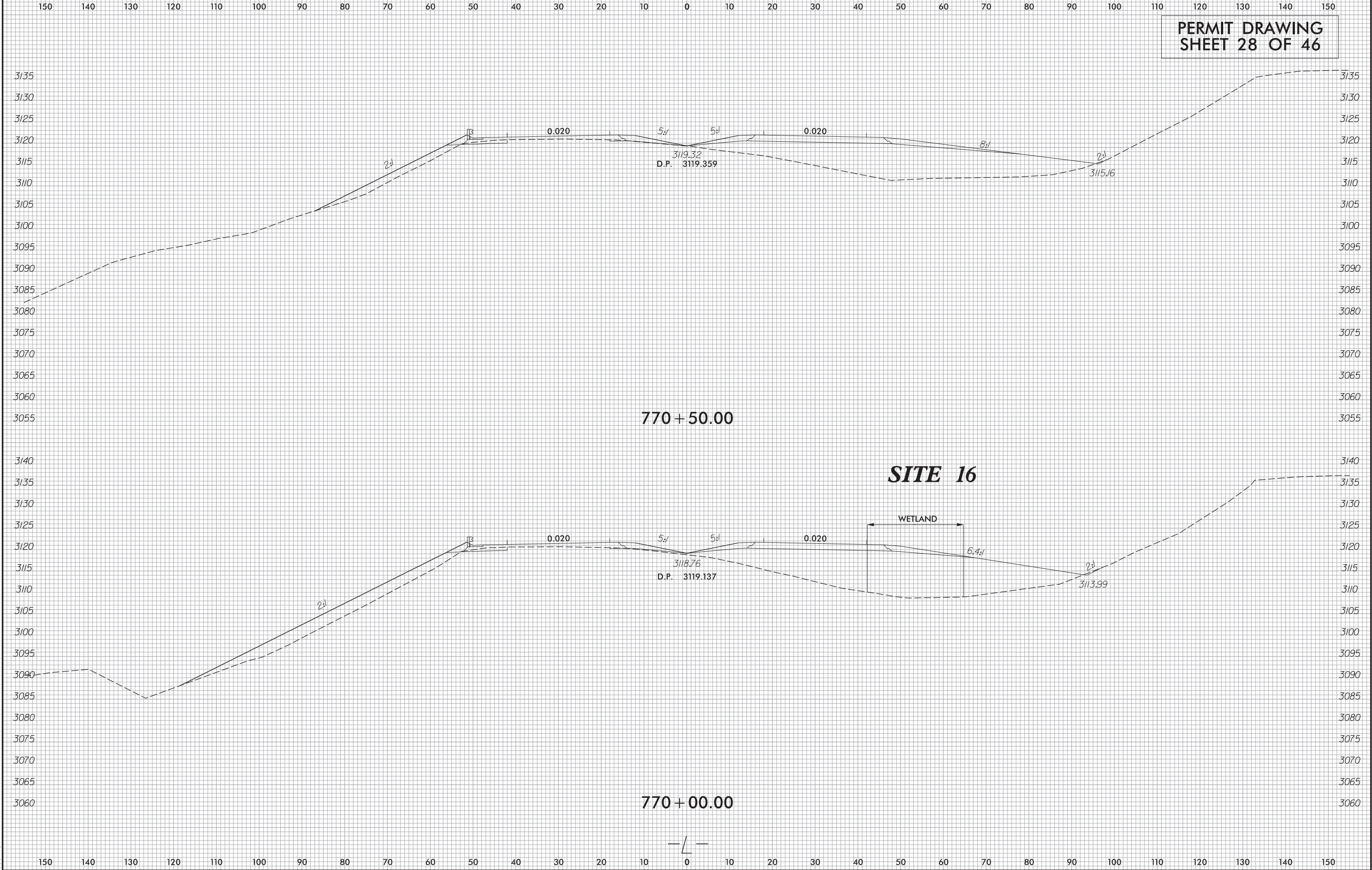


6/23/16

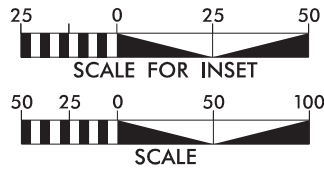
3/14/2019
R:\Hydraulics\PERMITS-Environmental\Drawings\4C\R-2915E-PRM-WET-XPL-L.DGN
durke

0 5 10 	PROJ. REFERENCE NO.	SHEET NO.
	R-2915E	X-80

PERMIT DRAWING
SHEET 28 OF 46



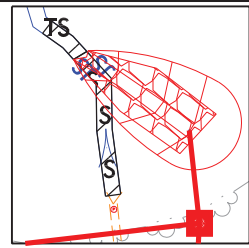
8/17/99



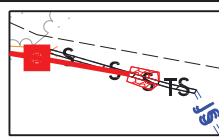
SS DENOTES IMPACTS IN SURFACE WATER

TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 29 OF 46



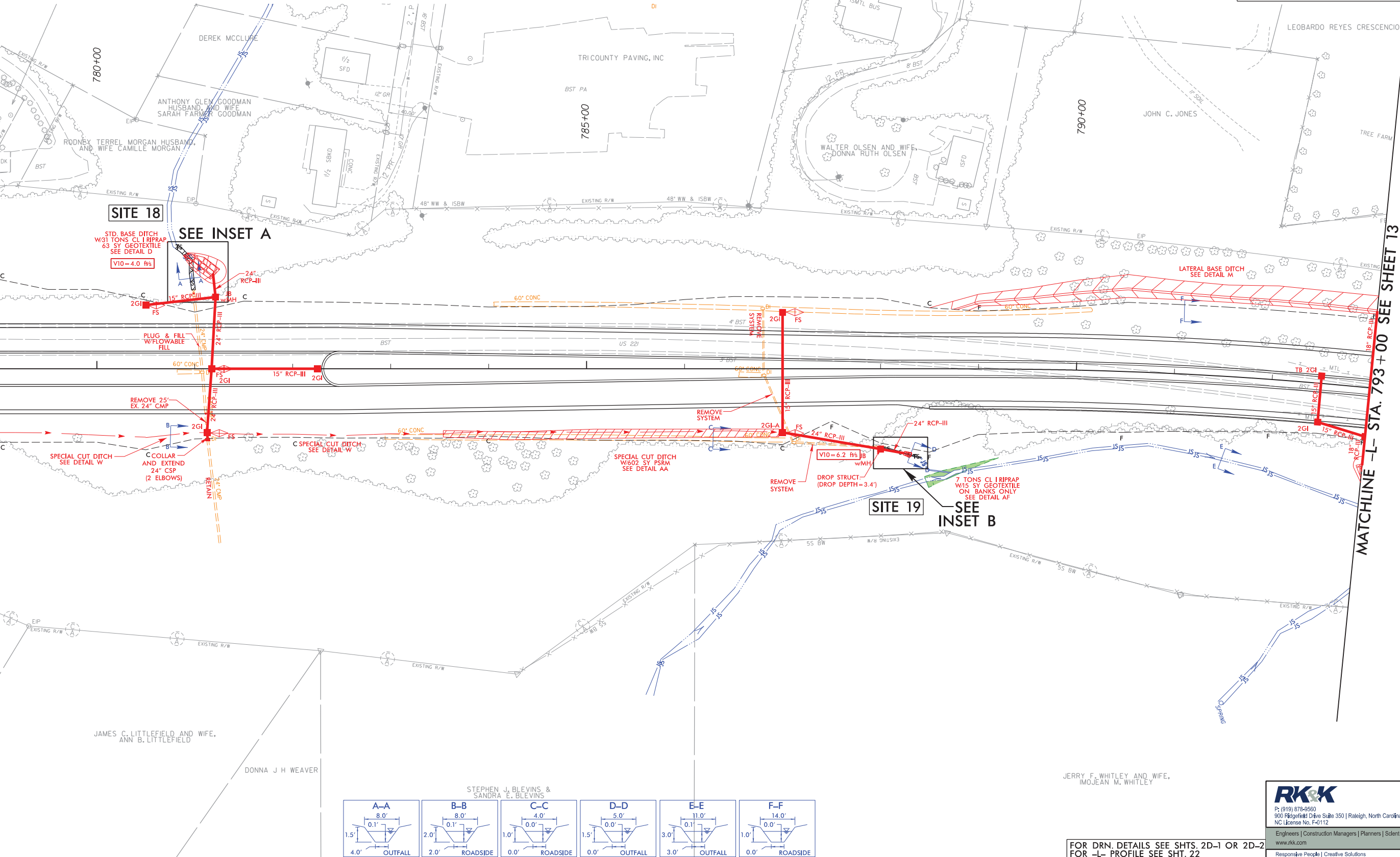
INSET A



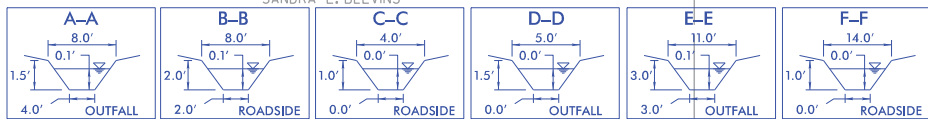
INSET B

PROJECT REFERENCE NO. <i>R-2915E</i>		SHEET NO. <i>12</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -L- STA. 779 + 00 SEE SHEET 11



MATCHLINE -L- STA. 793 + 00 SEE SHEET 13



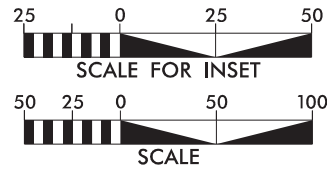
FOR DRN. DETAILS SEE SHTS. 2D-1 OR 2D-2
FOR -L- PROFILE SEE SHT. 22

RK&K
P: (919) 878-9550
900 Pigeonfield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-4112

Engineers | Construction Managers | Planners | Scientists
www.rkk.com

Responsive People | Creative Solutions

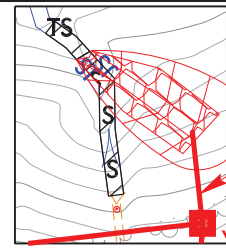
8/17/99



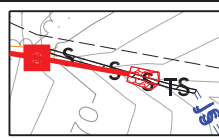
SS DENOTES IMPACTS IN
SURFACE WATER

TS TS DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 30 OF 46



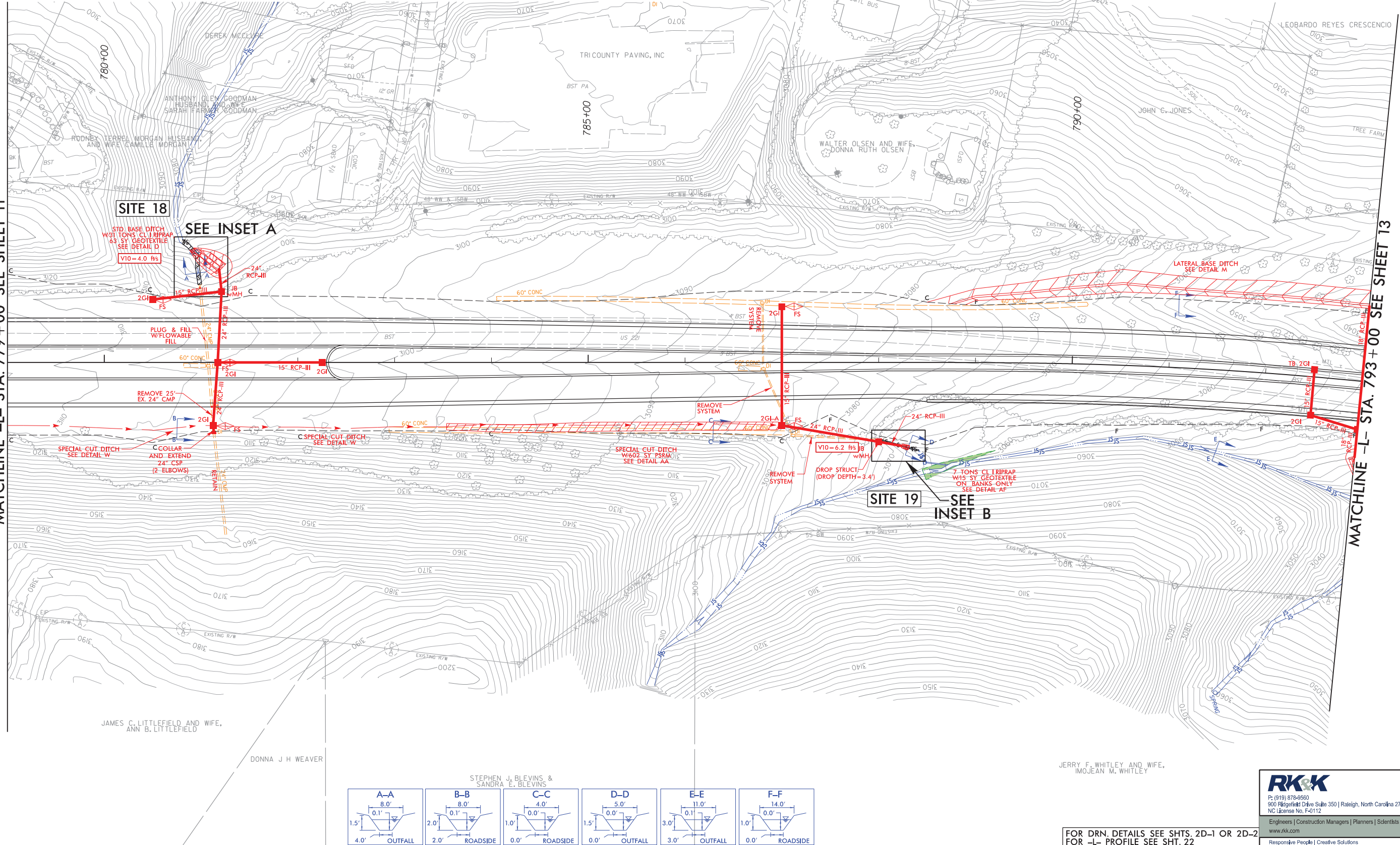
INSET A



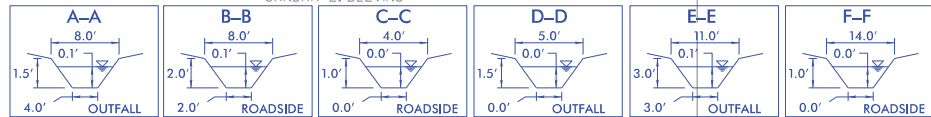
INSET B

PROJECT REFERENCE NO. <i>R-2915E</i>		SHEET NO. <i>12</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -L- STA. 779 + 00 SEE SHEET 11



MATCHLINE -L- STA. 793 + 00 SEE SHEET 13

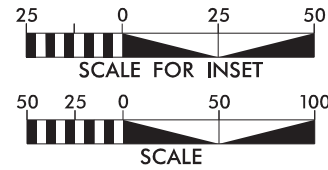


FOR DRN. DETAILS SEE SHTS. 2D-1 OR 2D-2
FOR -L- PROFILE SEE SHT. 22

RK&K
P: (919) 878-9550
900 Pigeonfield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-4112

Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

8/17/99

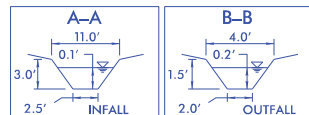
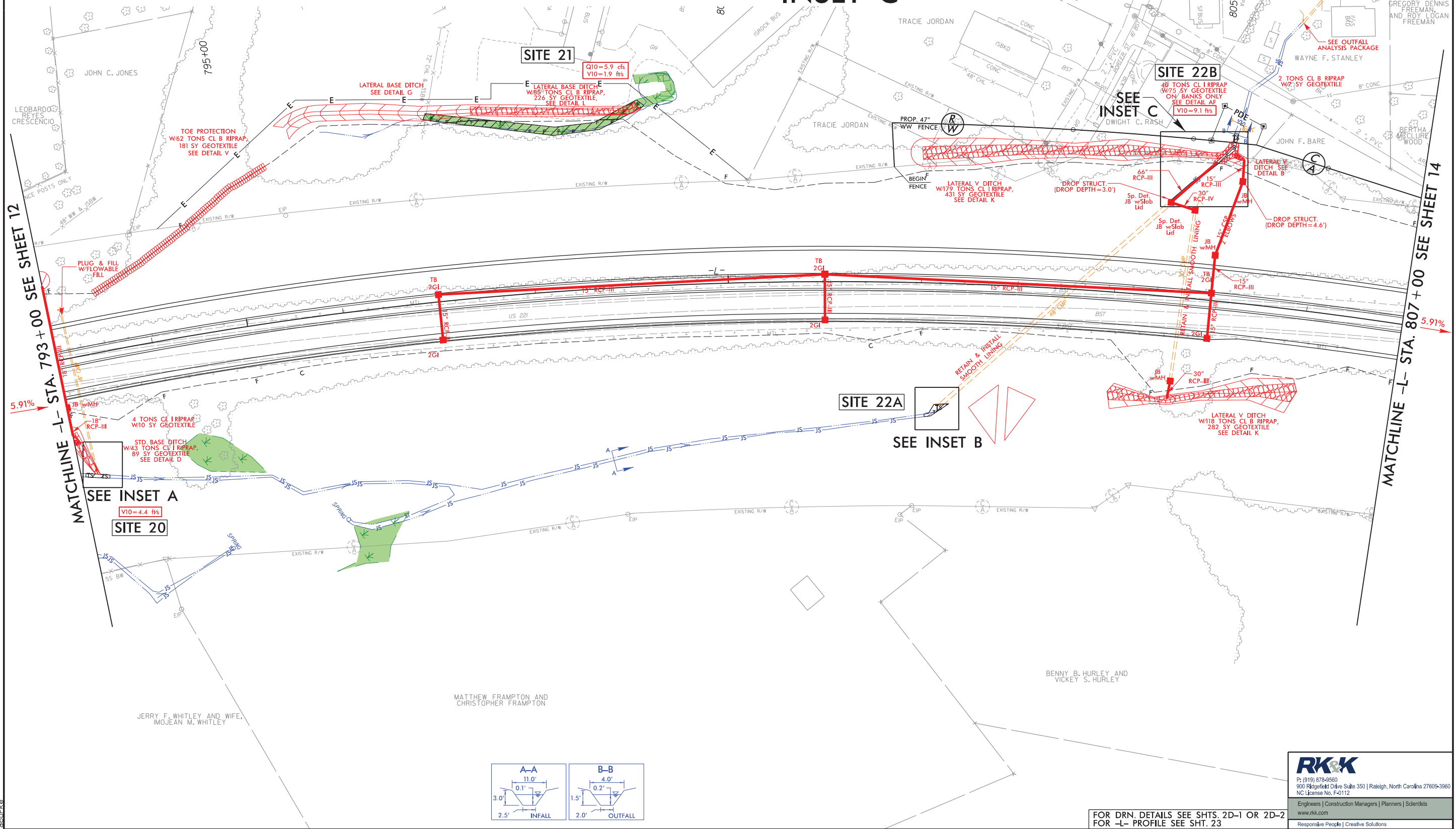


- PERMIT DRAWING
SHEET 31 OF 46
- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 - S S DENOTES IMPACTS IN SURFACE WATER
 - F F DENOTES FILL IN WETLAND
 - E E DENOTES EXCAVATION IN WETLAND
 - DENOTES MECHANIZED CLEARING

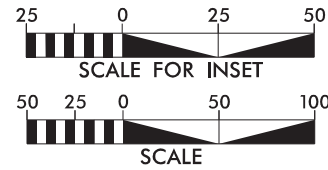
INSET A INSET B

INSET C

PROJECT REFERENCE NO. <i>R-2915E</i>		SHEET NO. <i>13</i>	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



8/17/99

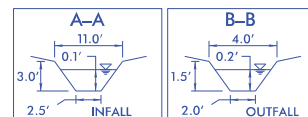
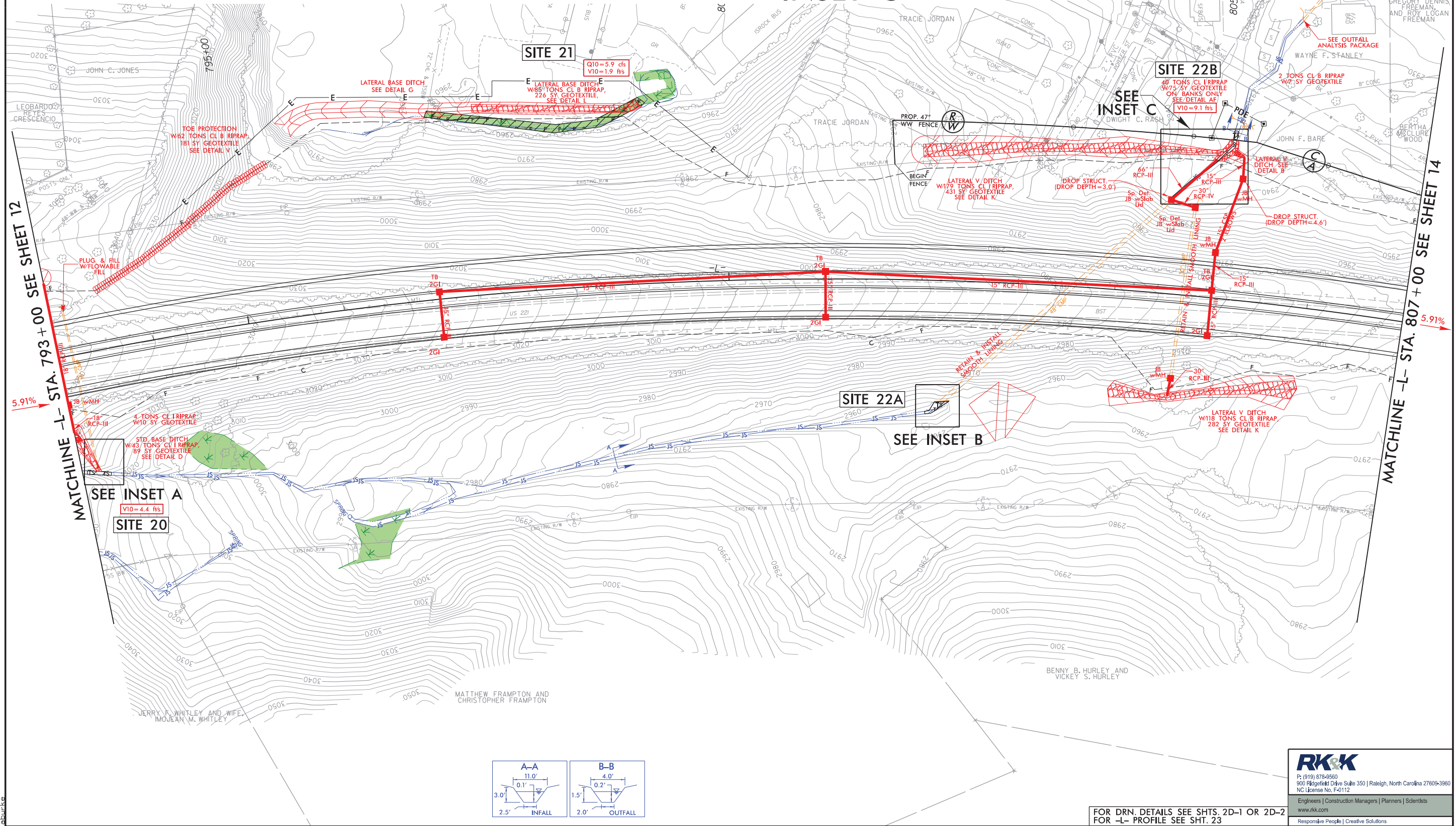


- PERMIT DRAWING
SHEET 32 OF 46
- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
 - S S DENOTES IMPACTS IN SURFACE WATER
 - F F DENOTES FILL IN WETLAND
 - E E DENOTES EXCAVATION IN WETLAND
 - DENOTES MECHANIZED CLEARING

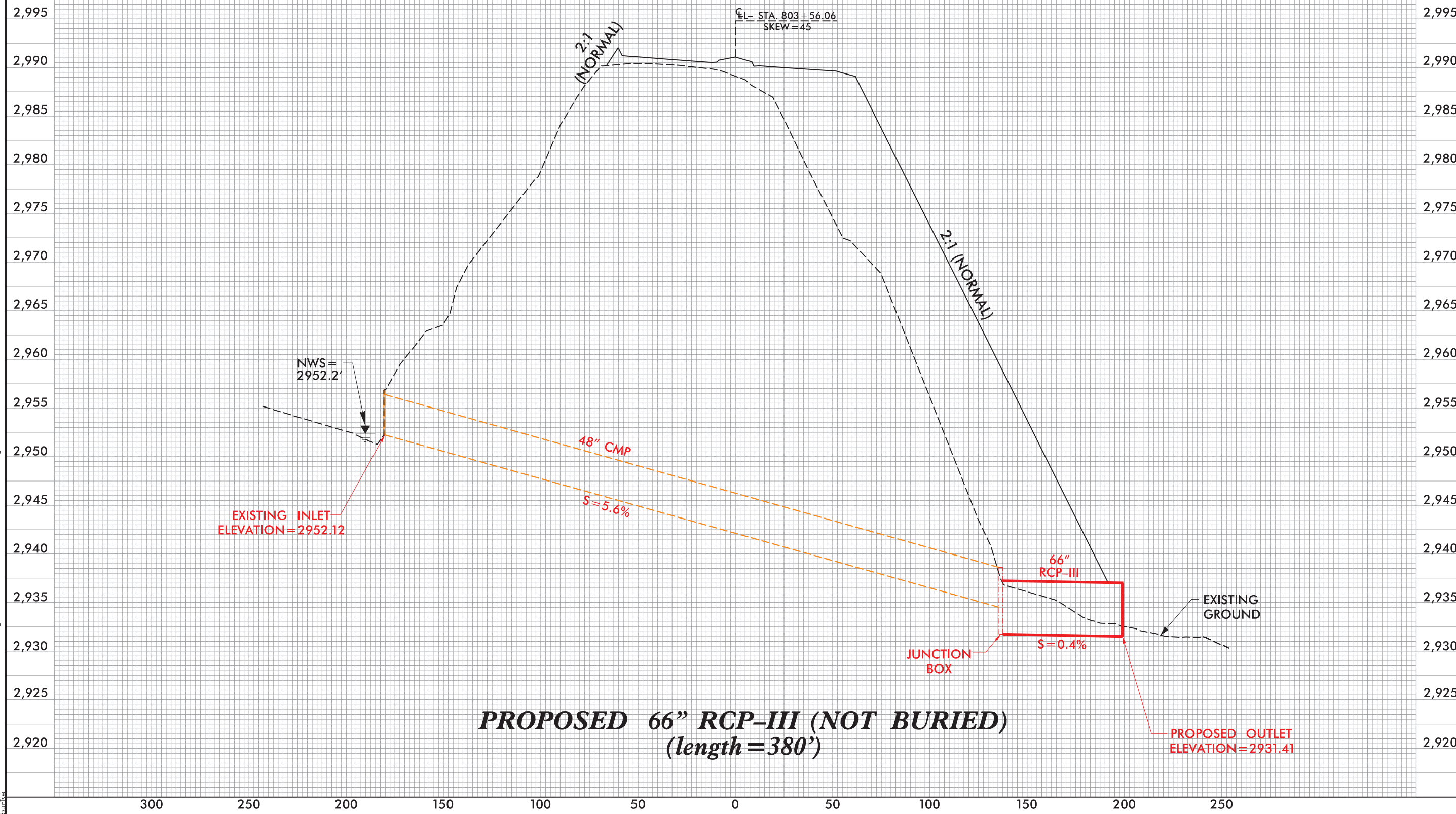
INSET A INSET B

INSET C

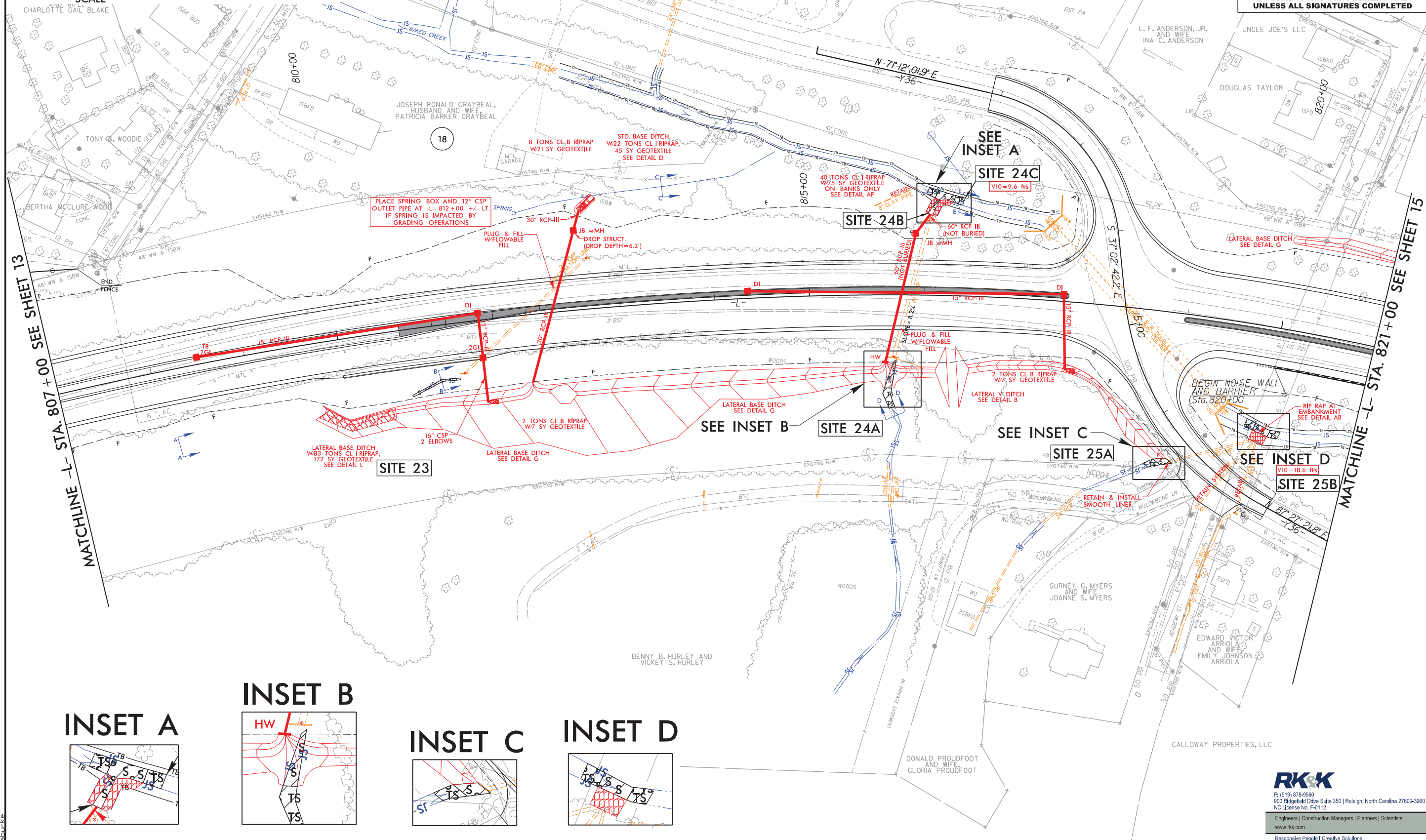
PROJECT REFERENCE NO. R-2915E		SHEET NO. 13	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



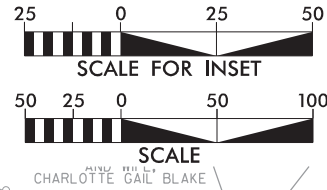
--	--

[illegible]

PROJECT REFERENCE NO.	SHEET NO.
<i>R-2915E</i>	<i>14</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



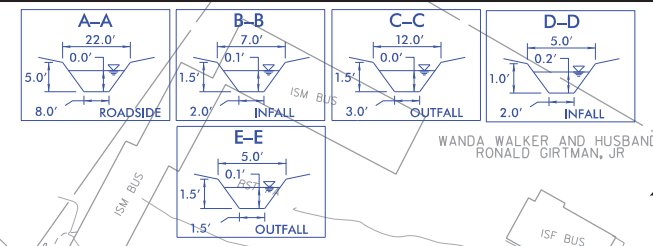
8/17/99



DENOTES IMPACTS IN SURFACE WATER

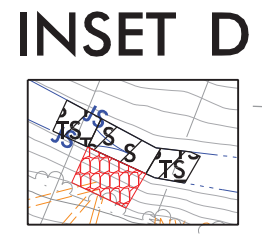
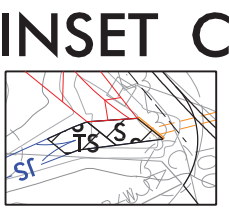
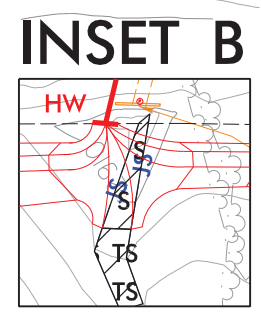
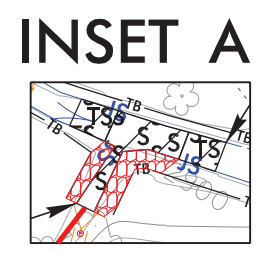
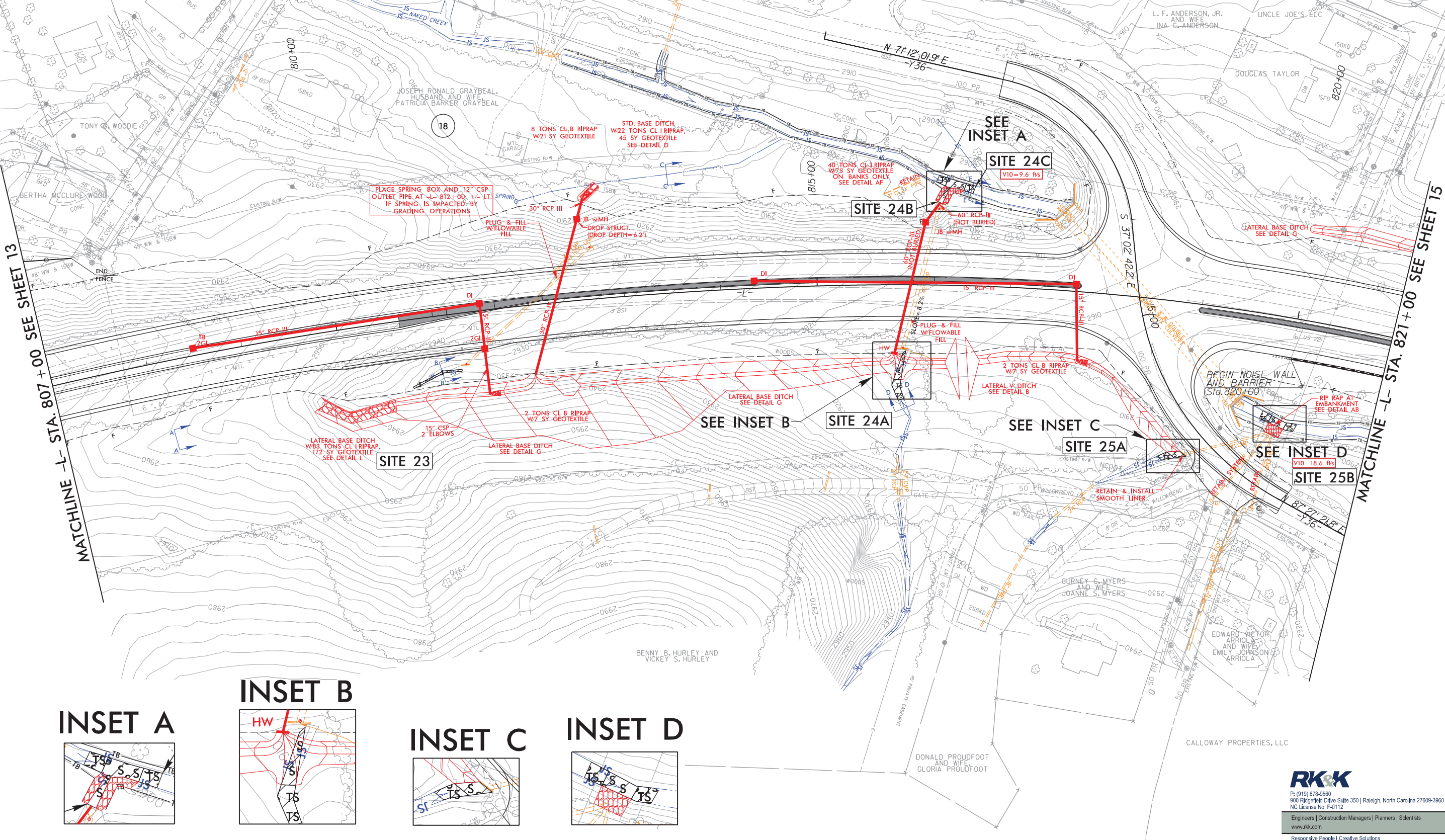
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING SHEET 35 OF 46



PROJECT REFERENCE NO.	SHEET NO.
R-2915E	14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

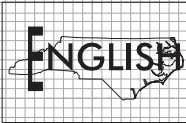


5/14/99

3/14/2019 2:41 PM C:\Users\PERMIT\Documents\Drawings\4C\R-2915E_PRM_WET_PSH14_PIPEPFL.dgn

SITE 24

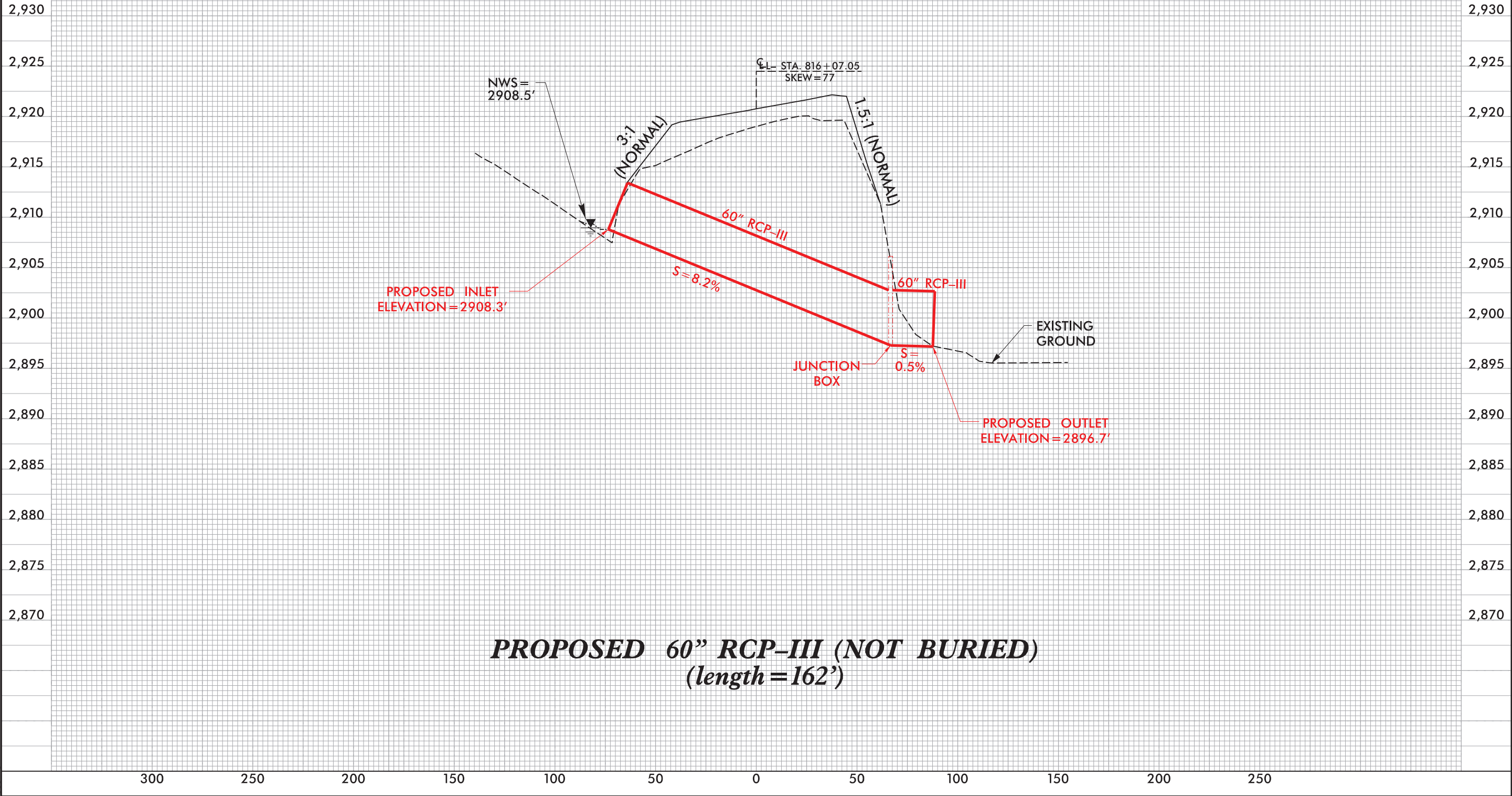
-L- 816 + 07



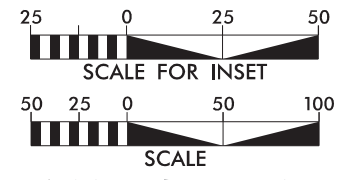
PROJECT REFERENCE NO.		SHEET NO.
R-2915E		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 36 OF 46

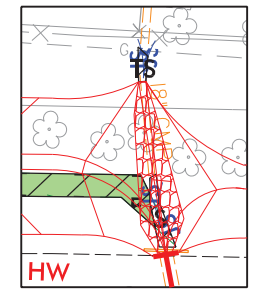


8/17/99
3/14/2018
R:\Hydro\Drawings\4C\R-2915E_Prm_Wet_psh15.dgn

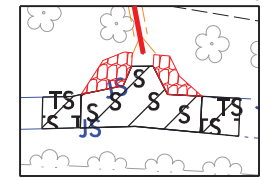


- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

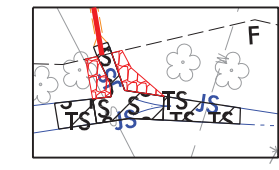
PERMIT DRAWING
SHEET 37 OF 46



INSET A

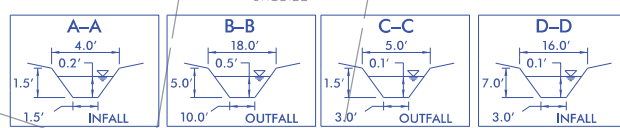
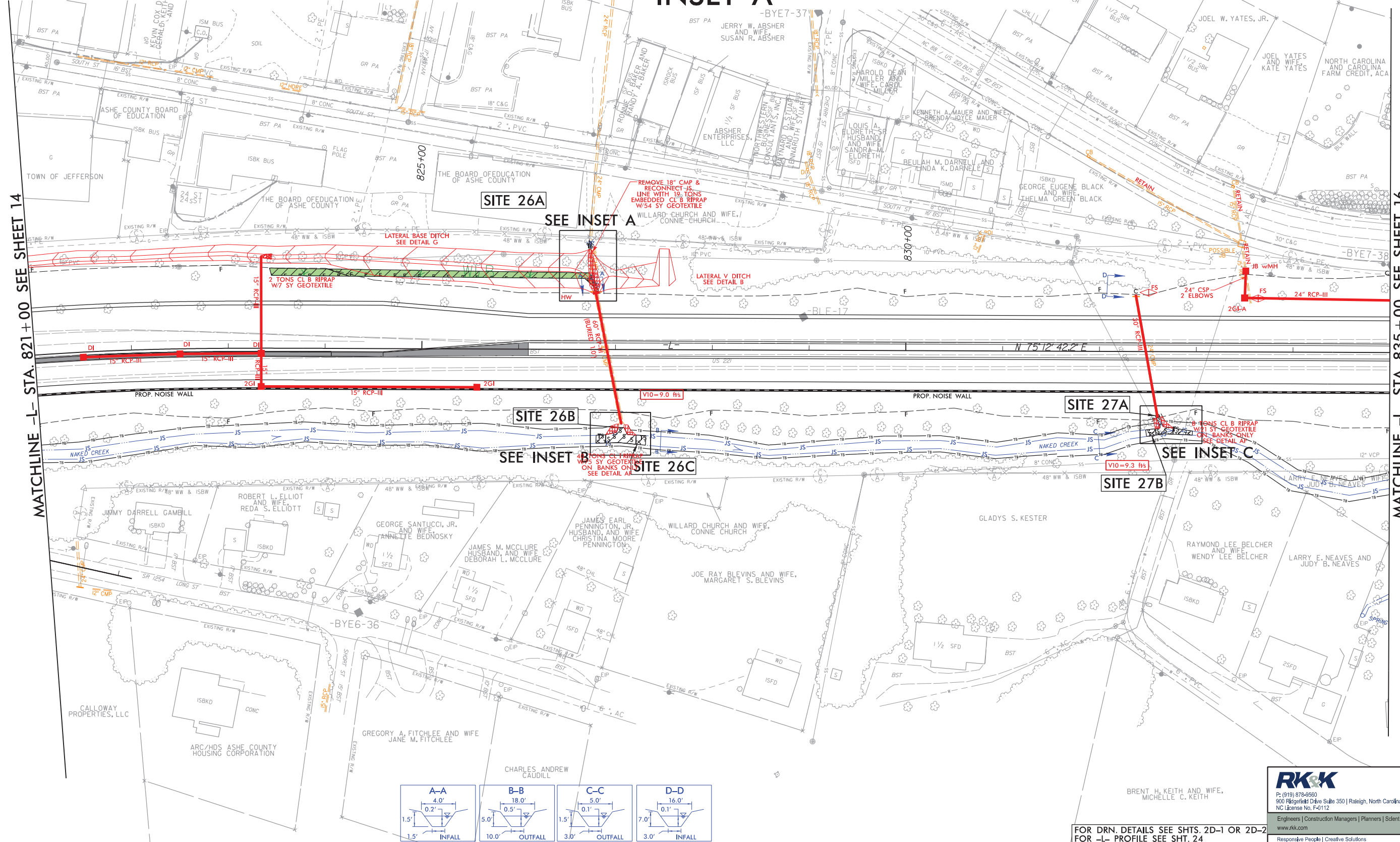


INSET B



INSET C

PROJECT REFERENCE NO. <i>R-2915E</i>		SHEET NO. <i>15</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

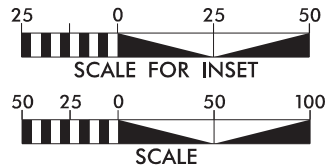


FOR DRN. DETAILS SEE SHTS. 2D-1 OR 2D-2
FOR -L- PROFILE SEE SHT. 24

RK&K
P: (919) 878-9550
900 Roperfield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-4112

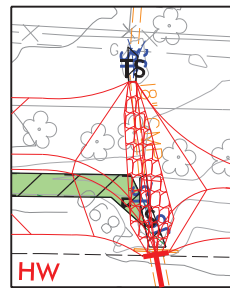
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

8/17/99

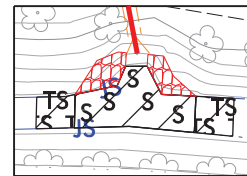


- DENOTES EXCAVATION IN WETLAND
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

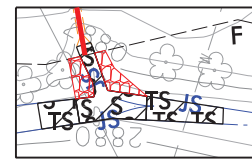
PERMIT DRAWING
SHEET 38 OF 46



INSET A

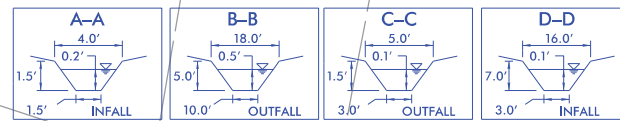
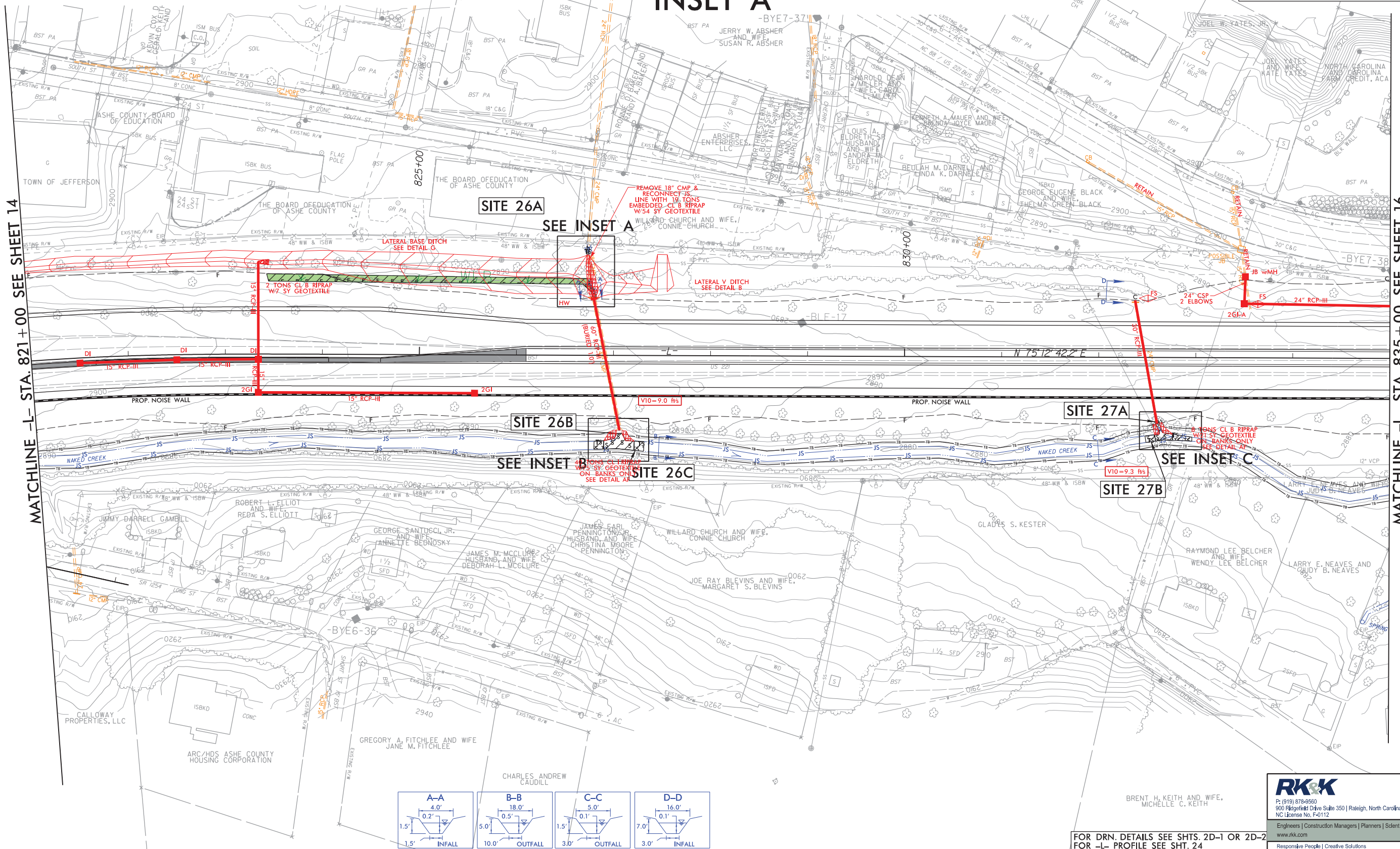


INSET B



INSET C

PROJECT REFERENCE NO.		SHEET NO.	
R-2915E		15	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



RK&K
P: (919) 878-9550
900 Roperfield Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-0112

Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

FOR DRN. DETAILS SEE SHTS. 2D-1 OR 2D-2
FOR -L- PROFILE SEE SHT. 24

3/14/2018 R:\Hydro\Hydraulics\PERMITS\Environmental\Drawings\4C\R-2915E_Prm_Wet_psh15.condgn

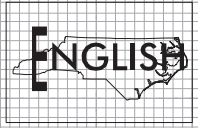
MATCHLINE -L- STA. 821+00 SEE SHEET 14

MATCHLINE -L- STA. 835+00 SEE SHEET 16

5/14/99

Z:\4\2019\Bulites\PERMITS\Environmental\Drawings\4C\R-2915E_PRM_WET_PSH15_PIPEPFL.dgn
2/14/2019 2:44:06 PM
Bulites

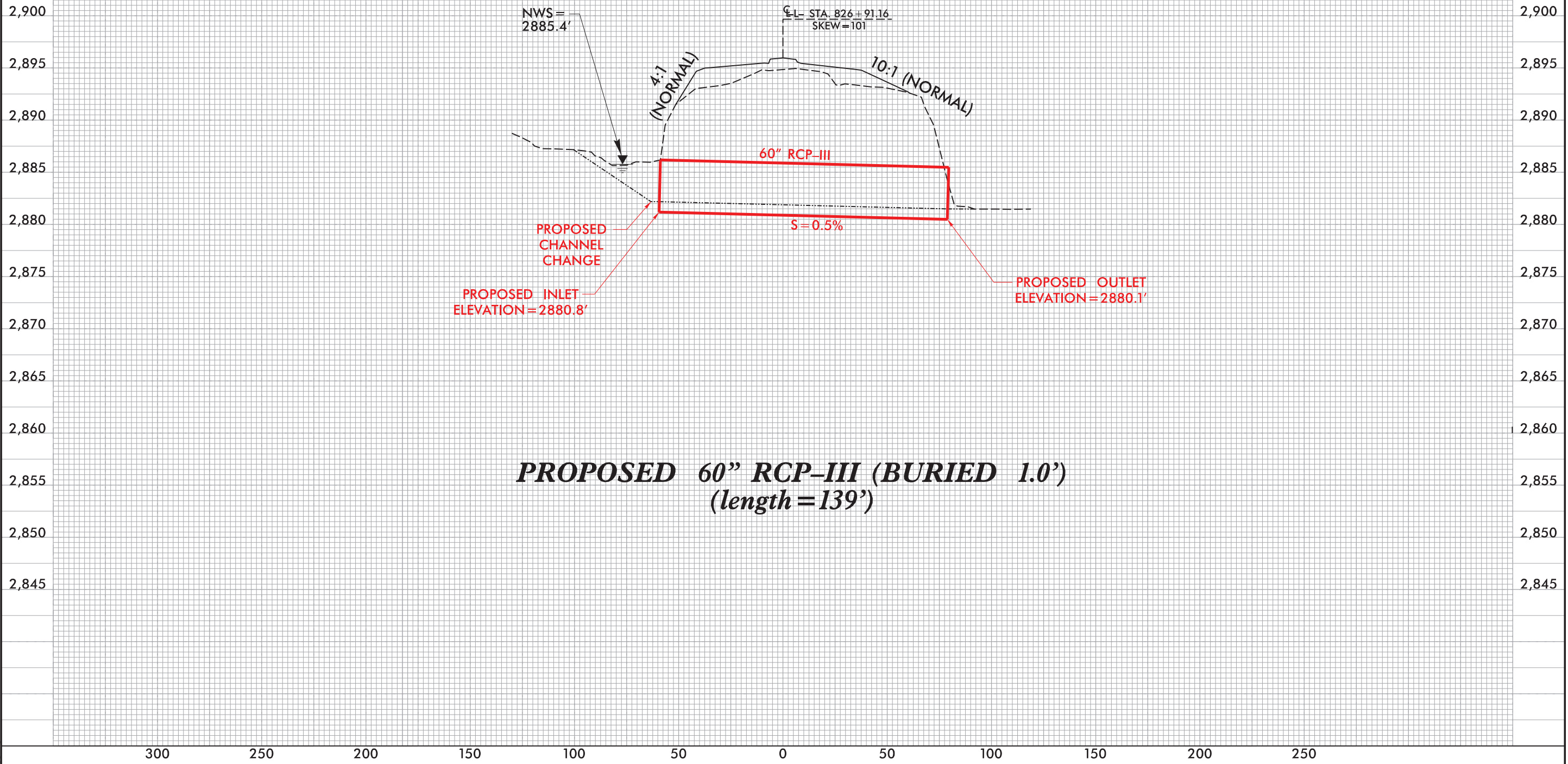
SITE 26 -L- 826 + 91

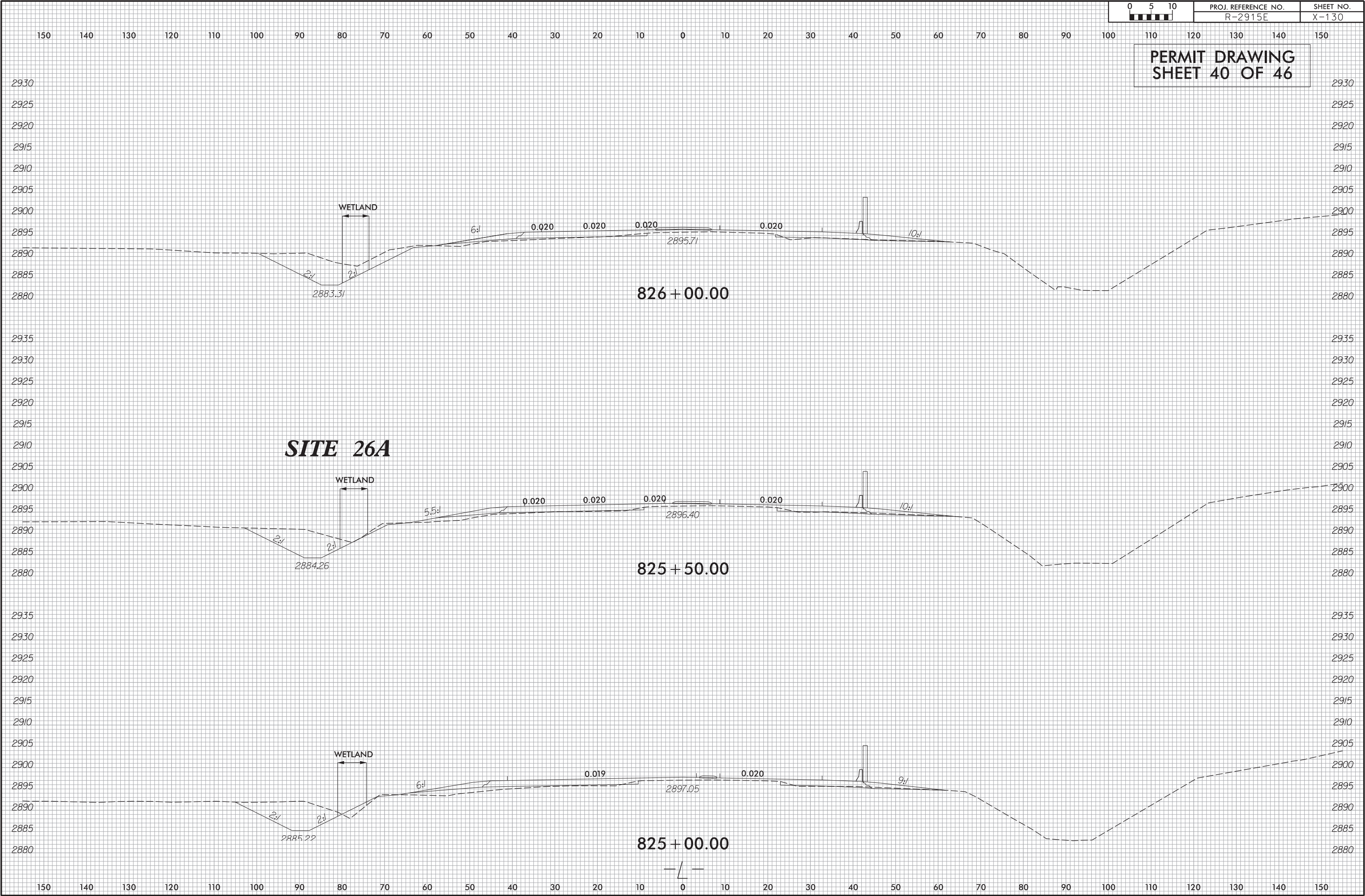


PROJECT REFERENCE NO.		SHEET NO.
R-2915E		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

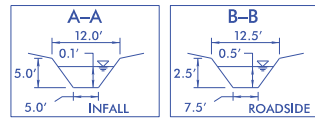
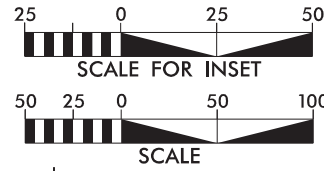
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 39 OF 46





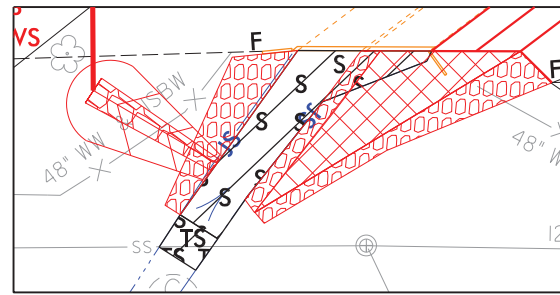
8/17/99



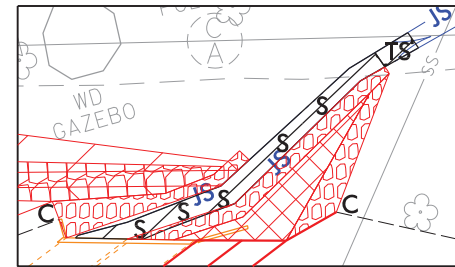
DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

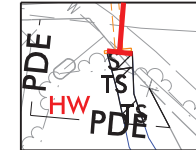
PERMIT DRAWING SHEET 41 OF 46



INSET A



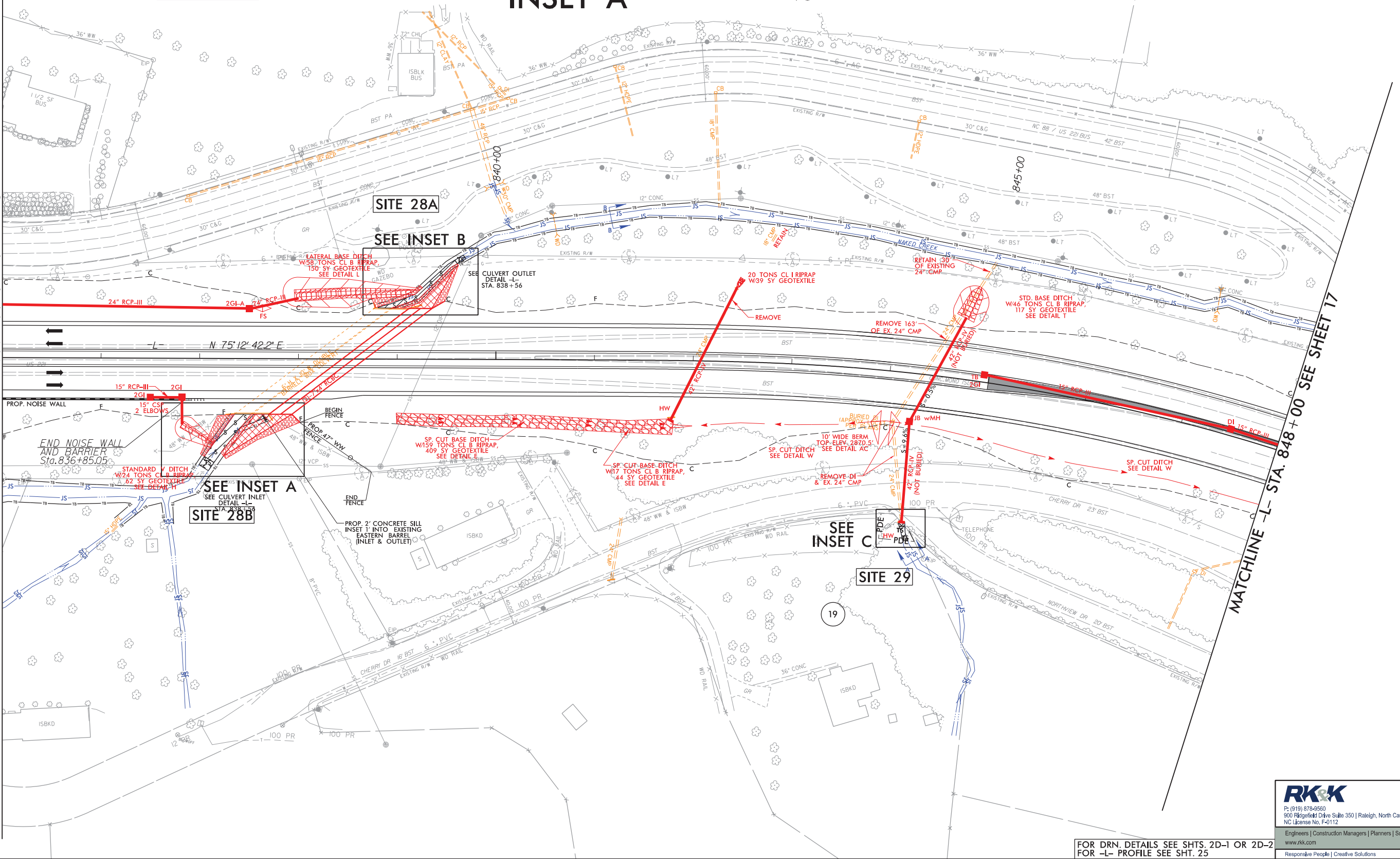
INSET B



INSET C

PROJECT REFERENCE NO.	SHEET NO.
R-2915E	16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MATCHLINE -L- STA. 835+00 SEE SHEET 15



MATCHLINE -L- STA. 848+00 SEE SHEET 17



P: (919) 878-9550
900 Fitzgerald Drive Suite 350 | Raleigh, North Carolina 27609-3960
NC License No. F-0112

Engineers | Construction Managers | Planners | Scientists

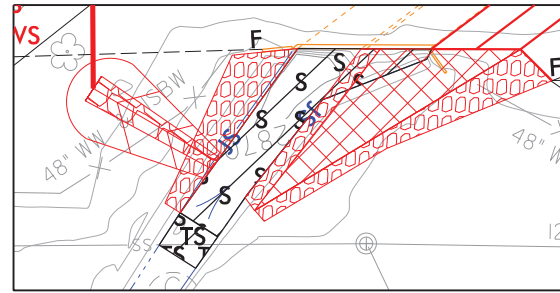
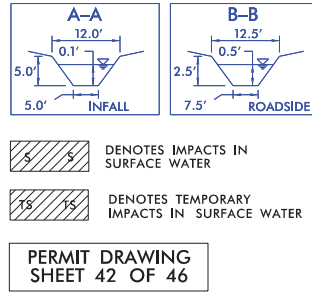
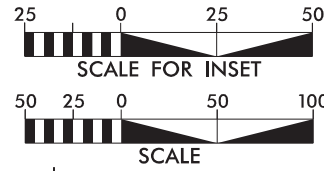
www.rkk.com

Responsive People | Creative Solutions

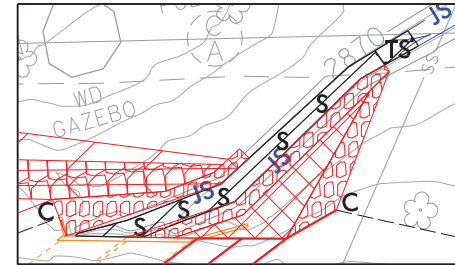
FOR DRN. DETAILS SEE SHTS. 2D-1 OR 2D-2
FOR -L- PROFILE SEE SHT. 25

3/14/2018
R:\Hydro\Hydro\PERMITS\Environmental\Drawings\4C\R-2915E_PRM_WET_psh16.dgn

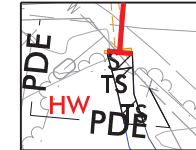
8/17/99



INSET A



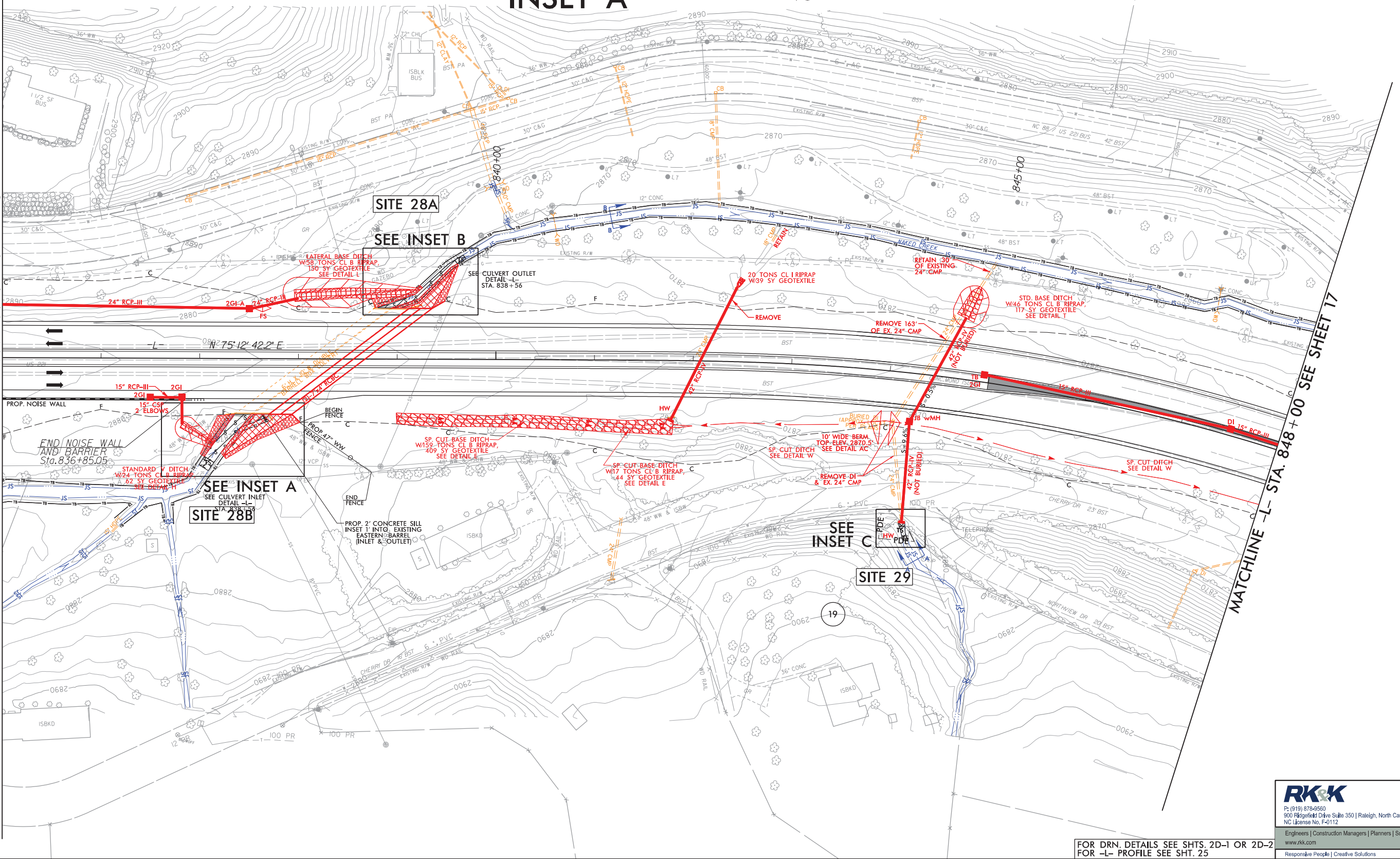
INSET B



INSET C

PROJECT REFERENCE NO.	R-2915E	SHEET NO.	16
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

MATCHLINE -L- STA. 835+00 SEE SHEET 15

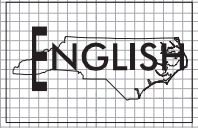


5/14/99

3/14/2019 2:44 PM C:\Users\PERMIT\Documents\Drawings\4C\R-2915E_PRM_WET_PSH16_PIPEPFL.dgn

SITE 28

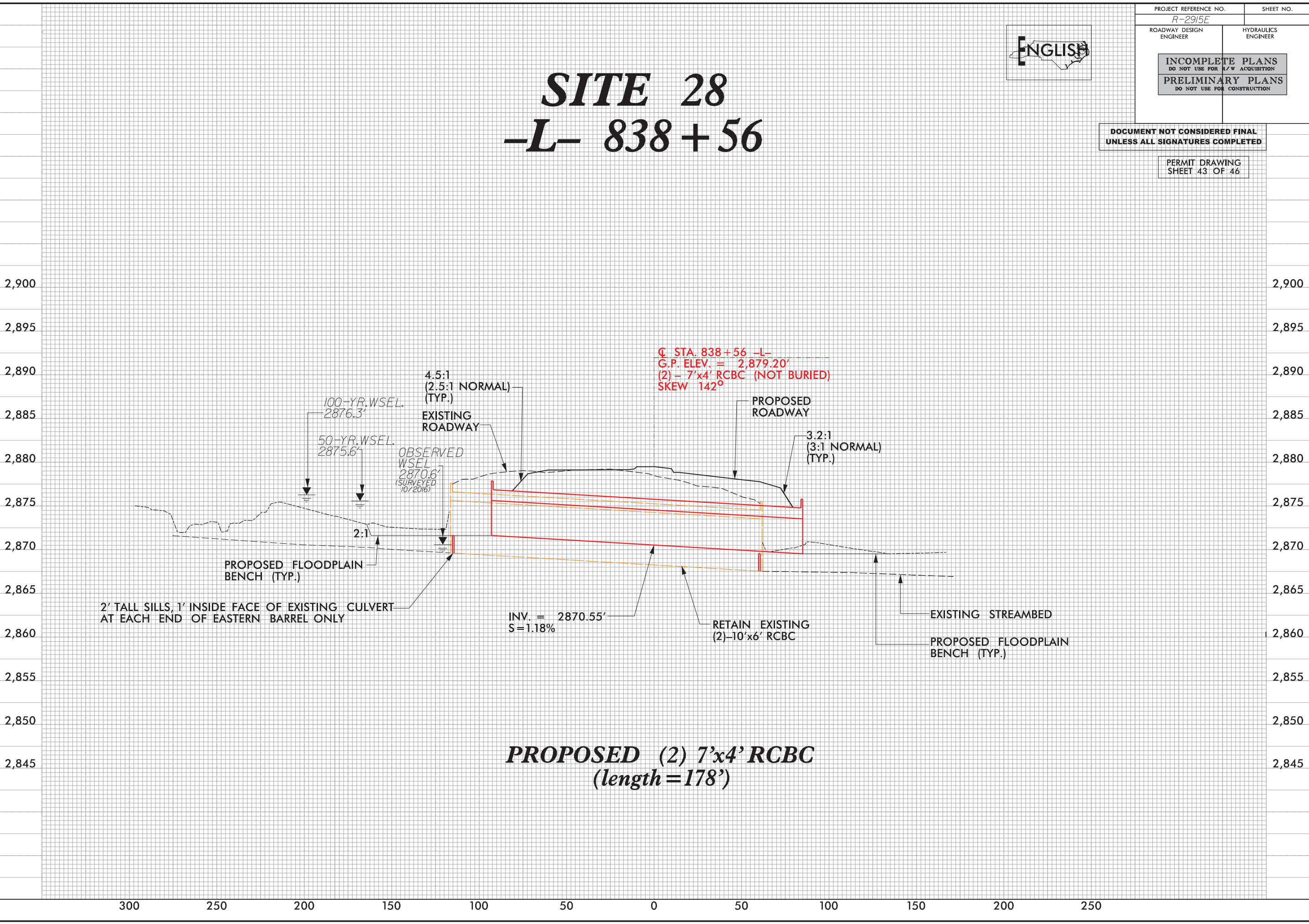
-L- 838+56



PROJECT REFERENCE NO.		SHEET NO.
R-2915E		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

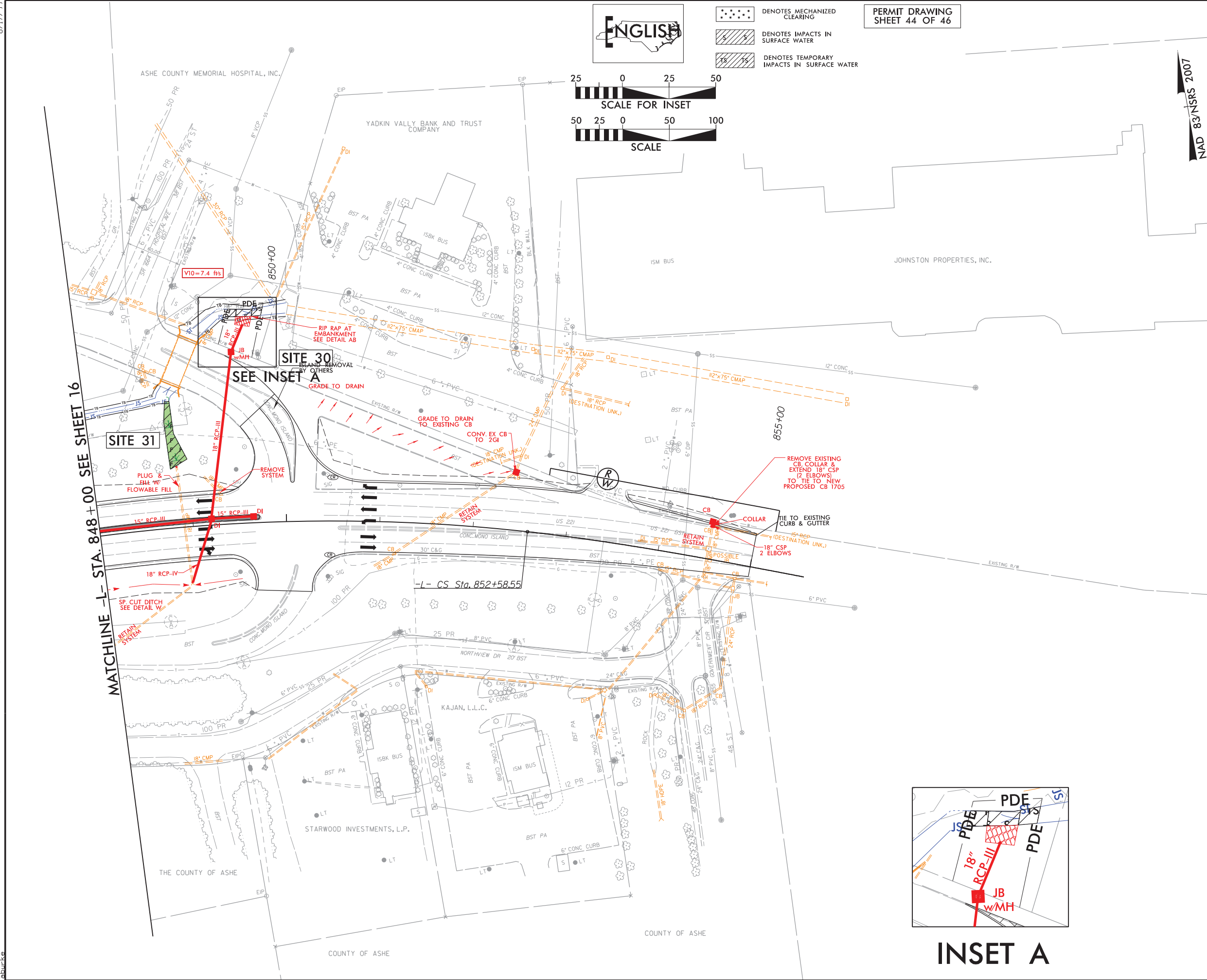
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 43 OF 46

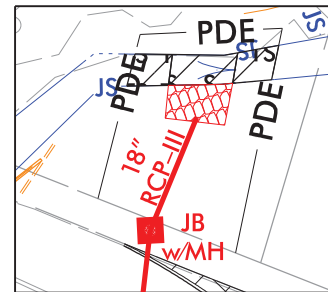


8/17/99

3/14/2018
R:\Hydraulics\PERMITS\Environmental\Drawings\4C\R-2915E_PRM_WET_psh17.dgn
chuck



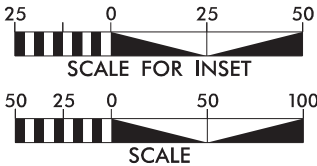
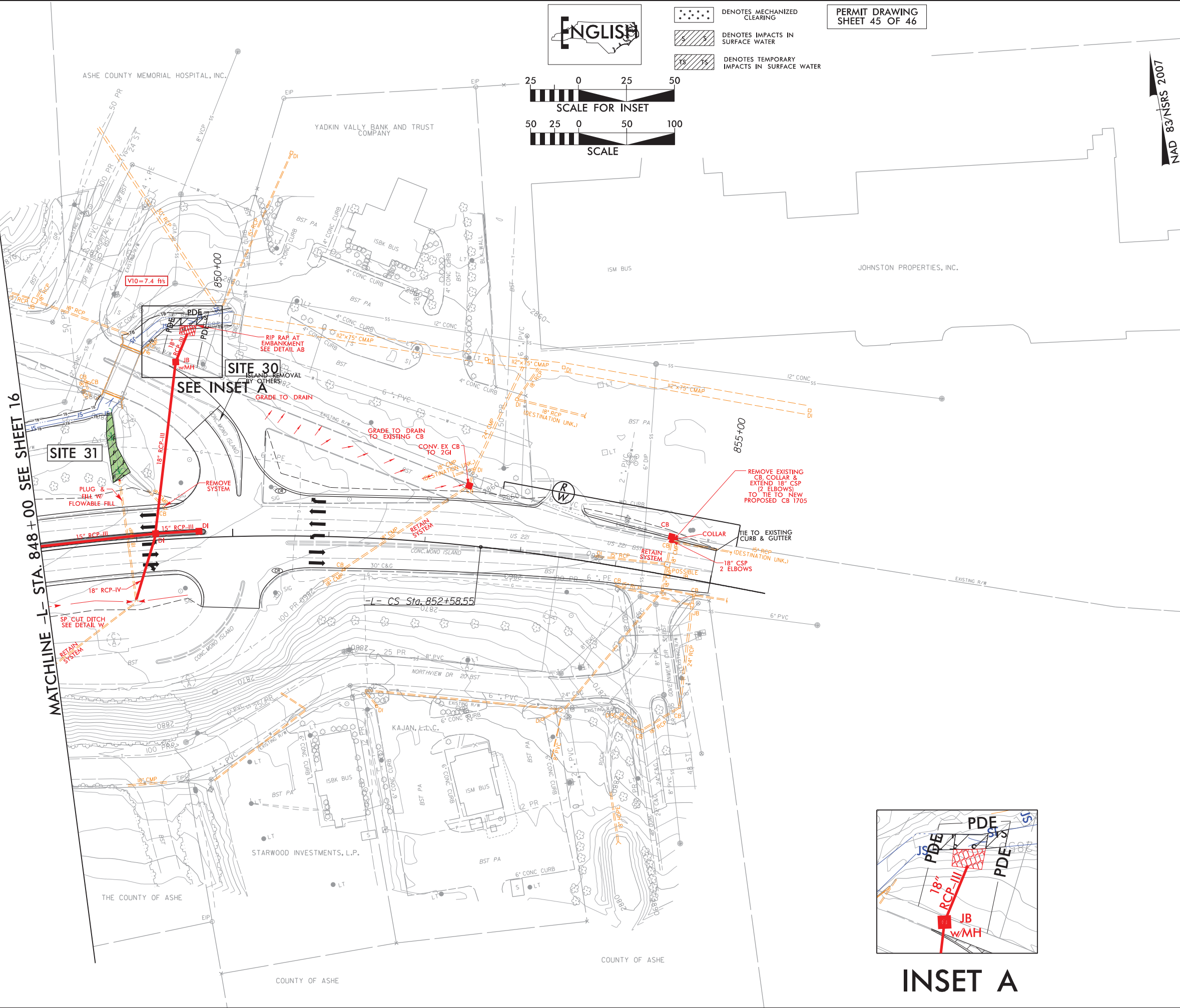
PROJECT REFERENCE NO.		SHEET NO.	
<i>R-2915E</i>		<i>17</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



INSET A

8/17/99

3/14/2018
R:\Hydro\p\PERMITS\Environmental\Drawings\4C\R-2915E_PRM_WET_psh17_con.dgn
chuck

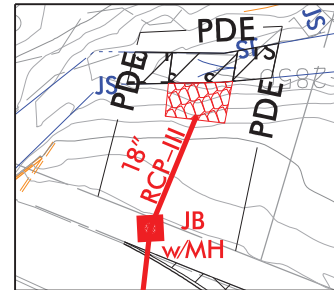


- DENOTES MECHANIZED CLEARING
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 45 OF 46

NAD 83/NSRS 2007

PROJECT REFERENCE NO. <i>R-2915E</i>		SHEET NO. <i>17</i>	
R/W SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



INSET A

WETLAND AND SURFACE WATER IMPACTS SUMMARY												
Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 670+03 to 670+45 RT	DITCH				< 0.01						
2A	-L- 675+33 to 675+66 LT	BANK STABILIZATION						< 0.01	< 0.01	14	17	
2B	-L- 676+43 to 677+27 RT	42" RCP-III	0.02			< 0.01		0.01	< 0.01	57	21	
3	-L- 701+14 to 702+66 RT	DITCH				0.01						
		30" RCP-III	< 0.01			0.02						
4A	-L- 705+04 to 705+37 LT	FILL	< 0.01									
		30" RCP-III	< 0.01									
4B	-L- 704+66 to 704+84 RT	BANK STABILIZATION						< 0.01	< 0.01	11	10	
5	-L- 706+60 to 707+07 RT	DITCH & EXIST. 18" CMP	< 0.01			0.01						
6A	-L- 711+85 to 713+30 LT	42" RCP-III	0.04			0.02		< 0.01	< 0.01	52	10	
6B	-L- 711+15 to 711+42 RT	BANK STABILIZATION						< 0.01	< 0.01	27	10	
7	-L- 735+40 to 735+61 RT	DITCH							< 0.01		24	
8A	-L- 740+22 to 740+56 RT	DITCH							< 0.01		32	
8B	-L- 747+64 to 747+86 RT	PLUG/FILL & HEADCUT		< 0.01					< 0.01		20	
9A	-L- 742+35 to 743+21 LT	24" CSP, 30" RCP-III	0.09					< 0.01		33		
	-L- 742+06 to 742+11 RT	BANK STABILIZATION-TRIB						< 0.01	< 0.01	10	7	
9B	-L- 741+98 to 742+15 RT	BANK STABILIZATION- LITTLE BUFFALO CREEK							< 0.01		19	
10	-L- 754+26 to 754+54 RT	15" RCP-III	< 0.01			< 0.01						
11A		Existing 66" CMP							< 0.01		22	
11B	-L- 750+89 to 751+24 RT								< 0.01		10	
11C									< 0.01		11	
11D									< 0.01	< 0.01	27	10
12	-Y35- 9+25 to 9+50 LT	BANK STABILIZATION						< 0.01	< 0.01	17	10	
		30" RCP-III						< 0.01		31		
13A	-L- 762+53 to 762+76 LT	BANK STABILIZATION						< 0.01	< 0.01	11	10	
13B	-L- 763+07 to 763+40 RT	30" RCP-III	0.01					< 0.01		60		
13C	-L- 762+53 to 762+38 LT	SPRING BOX						< 0.01	< 0.01	25	23	
		60" RCP-III						< 0.01		23		
14A	-L- 763+31 to 763+73 LT	BANK STABILIZATION						< 0.01	< 0.01	23	10	
14B	-L- 765+28 to 765+72 RT	60" RCP-III						< 0.01		63		
15A	-L- 768+02 to 768+66 LT	36" RCP-III	0.01			< 0.01		< 0.01		31		
		BANK STABILIZATION						< 0.01	< 0.01	15	10	
15B	-L- 770+68 to 770+93 RT	EXIST. 36" CMP				0.01			< 0.01		23	
16	-L- 769+54 to 770+29 RT	EXIST. 36" CMP	0.03									
17A	-L- 776+79 to 777+26 LT	42" RCP-III						0.01		115		
17B	-L- 775+45 to 776+91 RT	DITCH						< 0.01		146		
18	-L- 780+80 to 781+00 LT	24" RCP-III & DITCH						< 0.01	< 0.01	39	12	
		24" RCP-III						< 0.01		22		
19	-L- 788+03 to 788+42 RT	BANK STABILIZATION						< 0.01	< 0.01	8	10	
20	-L- 793+05 to 793+30 RT	DITCH							< 0.01		25	
21	-L- 797+03 to 799+22 LT	FILL & DITCH	0.03		0.01	< 0.01						
22A	-L- 802+05 to 802+32 RT	EXIST. 48" CMP							< 0.01		22	
22B	-L- 804+49 to 805+11 LT	66" RCP-III						< 0.01		61		
		BANK STABILIZATION						< 0.01	< 0.01	31	10	
23	-L- 810+70 to 811+24 RT	FILL						< 0.01		55		
24A	-L- 815+76 to 815+87 RT	60" RCP-III						< 0.01	< 0.01	30	22	
24B		BANK STABILIZATION- TRIB						< 0.01		18		
24C	-L- 816+22 to 816+61 LT	BANK STABILIZATION- NAKED CREEK						< 0.01	< 0.01	20	20	
25A	-Y36- 16+29 to 16+46 RT	EXIST. 24" CMP						< 0.01	< 0.01	13	12	
25B	-Y36- 16+72 to 17+17 LT	BANK STABILIZATION						< 0.01	< 0.01	17	20	
26A	-L- 823+43 to 826+83 LT	DITCH & 60" RCP-III	0.01		0.04			< 0.01	< 0.01	19	8	
26B		BANK STABILIZATION-TRIB						< 0.01		8		
26C	-L- 826+80 to 827+32 RT	BANK STABILIZATION- NAKED CREEK						< 0.01	< 0.01	32	20	
27A		BANK STABILIZATION-TRIB						< 0.01		15		
27B	-L- 832+48 to 832+87 RT	BANK STABILIZATION- NAKED CREEK						< 0.01	< 0.01	18	30	
28A	-L- 838+81 to 839+70 LT	BANK STABILIZATION						0.01	< 0.01	88	10	
28B	-L- 837+00 to 837+71 RT	BANK STABILIZATION						0.02	< 0.01	59	10	
29	-L- 844+25 to 844+38 RT	42" RCP-IV						< 0.01	< 0.01	5	15	
30	-L- 849+47 to 849+82 LT	BANK STABILIZATION						< 0.01	< 0.01	17	21	
31	-L- 848+81 to 848+99 LT	PLUG/FILL	0.02									
TOTALS*:			0.28	< 0.01	0.05	0.13		0.14	0.07	1366	576	0
*Rounded totals are sum of actual impacts												
NOTES: 1. Temporary Surface Water Impacts are expected during installation of the existing pipes that require a smooth liner												
NC DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS MARCH 2019 ASHE R-2915E												
SHEET 46 OF 46												