



PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

February 18, 2016

U.S. Army Corps of Engineers
Asheville Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

SUBJECT: Withdraw of the November 16, 2015 Application for Modification, AND Application for Modification with Additional Information for Section 404 Individual Permit and Section 401 Individual Water Quality Certification for the US-74 Monroe Connector/Bypass in Union and Mecklenburg Counties. STIP R-3329 and STIP R-2559, Division 10, Debit WBS Element 34533.1.TA1 in the amount of \$570.

Reference: US Army Corps of Engineers (USACE) 404 Permit issued May 8, 2015; Action ID: SAW-2009-00876
NC Division of Water Resources (NCDWR) 401 Water Quality Certification Permit issued March 6, 2015; NCDWR Project No. 02-0672 V3

Dear Ms. Amschler:

The North Carolina Department of Transportation (NCDOT) is in the process of constructing the Monroe Connector/Bypass, as authorized by the USACE and NCDWR as referenced above. NCDOT is requesting a permit modification for ten Permit Sites: 3, 5, 29, 30, 37, 46, 47, 48, 54, and 57, which are detailed below. Two other sites, 6 and 60, have revisions in jurisdictional areas that do not require a permit modification (see below).

The design team is reissuing 28 permit drawings, included in this permit application package, with revisions that are within jurisdictional areas: 15-16, 27-28, 31-32, 115, 118-123, 127, 147-148, 152-153, 180-181, 183-184, 213-214, 229-230, 239-240 & 261. Revised impact summary tables are also included. The design team is also reissuing 32 permit drawings sheets with revisions that are outside of jurisdictional areas: 2, 4-11, 17-20, 25-26, 44-47, 50, 62-65, 72-73, 75, 140-141, 146, 165-166. Though none of these sheets have changes in jurisdictional impacts, they are being provided for the Corps and DWR's files.

Permit sites with revised jurisdictional impacts are detailed below:

Permit Site 3 (Revised Permit Drawings 15 and 16 of 267):

In addition to the previously permitted impacts (130 lf of permanent stream impacts, 24 lf of bank stabilization, and 31 lf of temporary stream impacts), the final designs for the relocation of the sewer/water lines will result in temporary surface water impacts to stream S016 (UT to North Fork Crooked Creek). **There will be 19 lf (< 0.01 acre) of temporary surface water impacts.**



Permit Site 5 (Revised Permit Drawings 27 and 28 of 267):

In addition to the previously permitted 0.05 acre of wetland fill, 0.02 acre of mechanized clearing, 114 lf of permanent stream impacts, and 12 lf of temporary stream impacts, the installation of a water line will result in the **temporary excavation of 0.01 acre in wetland WX207.**

Permit Site 6 (Revised Permit Drawings 31 and 32 of 267):

Due to design revisions of the multi-use path adjacent to US 74, there will be a **reduction in mechanized clearing from 0.04 to 0.03 acre to wetland W013.**

Permit Site 29 (Revised Permit Drawings 118 and 119 of 267):

In addition to the previously permitted 241 lf of permanent stream impacts, 123 lf of bank stabilization, and 38 lf of temporary stream impacts, **a gas line relocation will result in 0.02 acre and 55 lf of temporary impacts to S076 (East Fork Stewarts Creek).**

Permit Site 30 (Revised Permit Drawings 122 and 123 of 267):

In addition to the previously permitted 375 lf of permanent stream impacts, 206 lf of bank stabilization, and 43 lf of temporary stream impacts, **additional temporary surface water impacts of less than 0.01 acre (11 lf) to stream S080 and 0.02 acre of hand clearing in wetland W86** are anticipated to install overhead power and cable lines.

Permit Site 37 (Revised Permit Drawings 147, 148, 152, and 153 of 267):

In addition to the previously permitted 0.28 acre of permanent wetland impacts, and 0.01 acre of mechanized clearing, an **additional 0.03 acre of wetland W103 will be hand cleared** in order to install overhead power, telephone, cable, and fiber optic lines.

Permit Site 46 (Revised Permit Drawings 180 and 181 of 267):

Heavy rains in recent months have caused the banks at this site to become unstable. There are three relatively small areas that have had rip rap added to stabilize the banks. There are other areas where large portions of the bank have begun to slump, but failure does not appear imminent. However, to be prepared to stabilize any areas along the entire site that fail, it is requested that the permit be modified to allow bank stabilization along both sides of Richardson Creek. **Bank stabilization impacts will increase from 38 lf to 255 lf (<0.01 acre to 0.05 acre).**

Also, a temporary barge is needed to cross the creek in order to construct the bridge. In order to minimize impacts and take advantage of existing materials, the temporary crossing will consist of two stacked barges placed on wooded mats in the middle of the creek. Steel mats will be used to connect the barges to either side of the creek. The crossing will only be installed as needed, and removed immediately once the crossing is complete. Further, the crossing will only be performed in low-flow conditions. **The temporary barge will increase temporary surface water impacts by 0.04 acre** (where there was previously no proposed impact).

Permit Site 47 (Revised Permit Drawings 183 and 184 of 267):

This is the bridge crossing of Rays Fork Creek (S112). The construction of a spanning bridge was permitted to impact 43 lf (<0.01 ac) of stream for bank stabilization. Those permanent impacts have not changed.

As you are aware from our correspondence on August 21, 2015, in order to improve construction access, and expedite construction in jurisdictional areas, the contractor has established a temporary bridge crossing of Rays Fork (Permit Site 47). Please note that this was inadvertently referred to this as Permit Site 48 in the August 21, 2015 correspondence. The bridge details are attached (60 Foot Standard Temp Bridge Detail).

Impacts to Rays Fork were avoided, as the bridge abutments were kept approximately 10 feet away from the top of bank.

While impacts are still not anticipated, it is requested that **30 linear feet (lf) (0.02 acre) of temporary stream bank stabilization be authorized** in the scenario that stream bank destabilization impacts occurs during construction or bridge removal. Any bank stabilization measures will be removed and the area revegetated upon completion of construction.

Permit Site 48 (Revised Permit Drawings 183 and 184 of 267):

During the relocation of the sanitary sewer utility, two minor impact revisions occurred:

1. The fill slope had to be slightly altered, as such what was initially going to be 0.01 acre of temporary fill became permanent fill, **increasing that total from 0.06 to 0.07 acre.**
2. **There will be 0.01 acre of temporary excavation in wetlands** to install the utility line. The area will be revegetated with native vegetation upon completion.

This impact is shown in blow up revised permit drawing 183 of 267.

Permit Site 54 (Revised Permit Drawings 213 and 214 of 267):

As noted in our correspondence on October 26, 2015, Site 54 is the crossing of Meadow Branch and the associated high quality wetland. As initially permitted, it was anticipated that it would be necessary to have 2 temporary work pads - along either side of the bridge - with work fingers extending towards the middle. However, taking the bridge design, access, and sensitive environmental conditions into consideration, the bridges can be constructed from a single work pad between the two bridges with the work fingers extending outwards. This minimization will **reduce the temporary impacts by 0.15 acre, from 0.52 to 0.37 acre.** The areas previously impacted by the work pads, will now only be impacted by hand clearing. This **increases the hand clearing at Site 54 by 0.15 acre, from 0.78 to 0.93 acre.** Permanent fill will remain the same (0.01 acre).

Permit Site 57 (Revised Permit Drawings 229 and 230 of 267):

As you are aware from our correspondence on August 21, 2015, prior to the start of construction, environmental staff re-flagged jurisdictional areas for crews to install orange construction "avoidance" fencing. At the time, Site 57 was an active pasture. At some point between flagging and fencing installation, the flagging was removed. This precipitated several other events eventually resulting in the fill of a section of the Site 57 wetland, not previously authorized for fill. This resulted in approximately **500 ft² (<0.01 acre) of permanent wetland impacts.** Upon discovery and reporting of the error, the contractor was prepared to remove the fill and return the site to pre-construction conditions. However, after further discussion with Division 10 and Natural Environment Section, this impact allows for an expedited construction of the adjacent permanent pipe crossing. With this consideration, it was agreed to leave the temporary fill in place, expedite construction of the pipes, and remove the fill and return the area to its

natural state. The permanent crossing is expected to be completed in the next three weeks and the unauthorized crossing will then be removed.

Permit Site 60 (Revised Permit Drawing 239 and 240 of 267):

The new US 74 will cross at the confluence of streams S161 and S162 (UTs to Salem Creek). A culvert has been installed up gradient of which a small headcut is forming in stream S162 within wetland W176. Based upon a field review with the regulatory agencies on December 8, 2015, a riprap cross vein / pad (or cascade) will be installed in an attempt to eliminate the head cutting and maintain the integrity of the wetland. The cascade will consist of approximately 15 tons of Class I rip rap and fill approximately 15 lf of surface water. The installation will not result in further impacts to the wetland, as it will take place in the already permitted mechanized clearing area. This impact is therefore not included in the impact summary table. The area down gradient of the newly installed culvert will be reexamined at the Corps next visit to see if the wetland will require remedial work.

Impact Summary

The requested modifications are summarized as follows:

- Permit Site 3: Increase of 19 lf (<0.01 acre) of temporary impacts due to utility relocation
- Permit Site 5: Increase of 0.01 acre of temporary wetland excavation due to utility relocation
- Permit Site 6: Decrease of 0.01 acre of mechanized clearing in wetland
- Permit Site 29: Increase of 55 lf (0.02 acre) of temporary impacts due to utility relocation
- Permit Site 30: Increase of 11 lf (<0.01 acre) of temporary stream impacts and 0.02 acre of wetland hand clearing due to utility relocation
- Permit Site 37: Increase of 0.03 acre of wetland hand clearing
- Permit Site 46: Increase of 217 lf of permanent impacts due to bank stabilization,
 - Increase of 0.04 acre of permanent surface water impacts due to bank stabilization, and
 - Increase of 0.04 acre of temporary surface water impacts due to stream crossing
- Permit Site 47: Increase of 30 lf (0.02 acre) of temporary bank stabilization
- Permit Site 48: Increase of 0.01 acre of permanent wetland fill
 - Decrease of 0.01 acre of temporary fill in wetlands
 - Increase of 0.01 acre of temporary excavation in wetlands to install a utility line
- Permit Site 54: Decrease of 0.15 acre of temporary wetland impacts
 - Increase of 0.15 acre of hand clearing
- Permit Site 57: Increase of <0.01 acre of temporary wetland impacts
- Permit Site 60: 15 lf of temporary impacts to minimize stream/wetland impacts in already permitted area (no change in impacts)

Totals: Increase permanent stream impacts by 217 lf (0.04 acre), totaling 15,712 lf
Increase temporary stream impacts by 0.08 acre (115 lf), totaling 0.22 acre (1,149 lf)
Increase permanent wetland fill by 0.01 acre, totaling 5.67 acre
Decrease temporary wetland fill by 0.16 acre, totaling 0.47 acre
Increase wetland hand clearing by 0.20 acre, totaling 0.98 acre
Decrease mechanized wetland clearing by 0.01 acre, totaling 0.79 acre
Increase temporary excavation of wetland by 0.02 acre, totaling 0.15 acre

Mitigation

Overall, this permit modification increases permanent stream impacts by 217 lf (0.04 acre), temporary stream impacts by 115 lf (0.08 acre), increases permanent wetland fill by 0.01 acre, decreases temporary wetland fill by 0.16 acre, increases wetland hand clearing by 0.20 acre, decreases mechanized wetland clearing by 0.01 acre, and increases temporary excavation of wetland by 0.02 acre. None of these impacts, excluding the bank stabilization at Site 46, require additional mitigation (note: the increase of 0.01 acre of permanent wetland fill is offset by the 0.01 acre decrease in mechanized clearing).

As for the 217 lf of bank stabilization at Site 46, this amount is being requested to allow immediate access to address any of this area that may fail, as such it is anticipated that an amount much less will ultimately be required. As these amounts are currently unknown, and may be below the thresholds required for mitigation, no mitigation is being proposed at this time. If permanent impacts become necessary, appropriate mitigation will be requested.

Regulatory Approvals

Application is hereby made for a Department of the Army Section 404 Individual Permit Modification for the above-described activities for the proposed TIP Project R-3329/2559. The revised permit drawings and impact tables are attached.

We are also hereby requesting a Section 401 Individual Water Quality Certification Modification from NCDWR. In compliance with Section 143-215.3D (e) of the NCAC, we will provide \$570.00 to act as payment for processing the Section 401 permit.

Thank you for your time and assistance with this project. Please contact Michael Turchy at either maturchy@ncdot.gov or (919) 707-6157 if you have any questions or need additional information.

Sincerely,



for Richard W. Hancock, P.E., Manager
Project Development and Environmental Analysis Unit

cc: NCDOT Permit Application Standard Distribution List

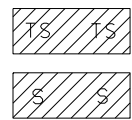
Permit Drawings

with

Changes to

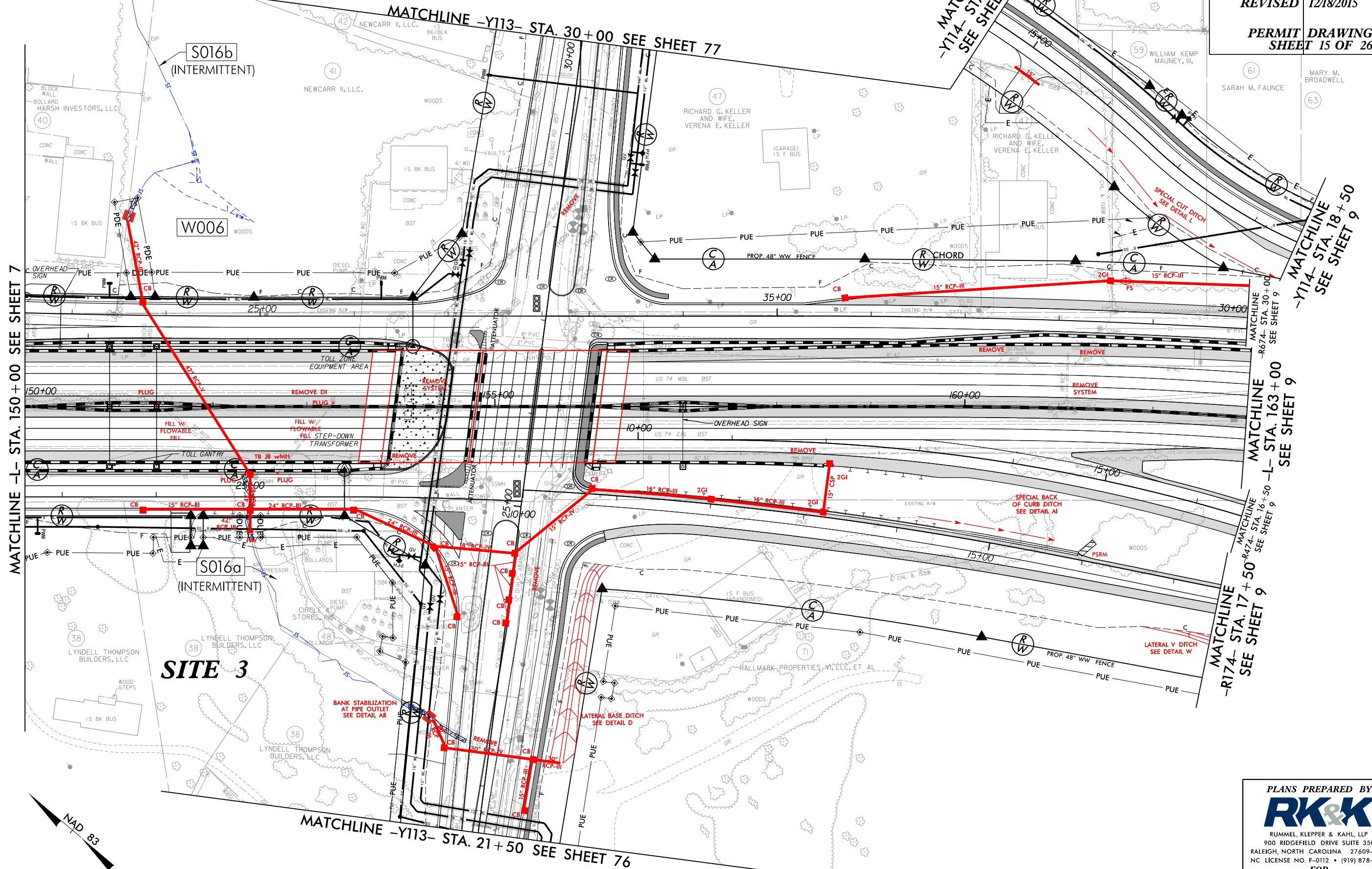
Permitted Impacts

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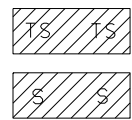
TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
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PROJECT REFERENCE NO. R-3329 / R-2559	SHEET NO. 8
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED 12/18/2015	
PERMIT DRAWING SHEET 15 OF 267	



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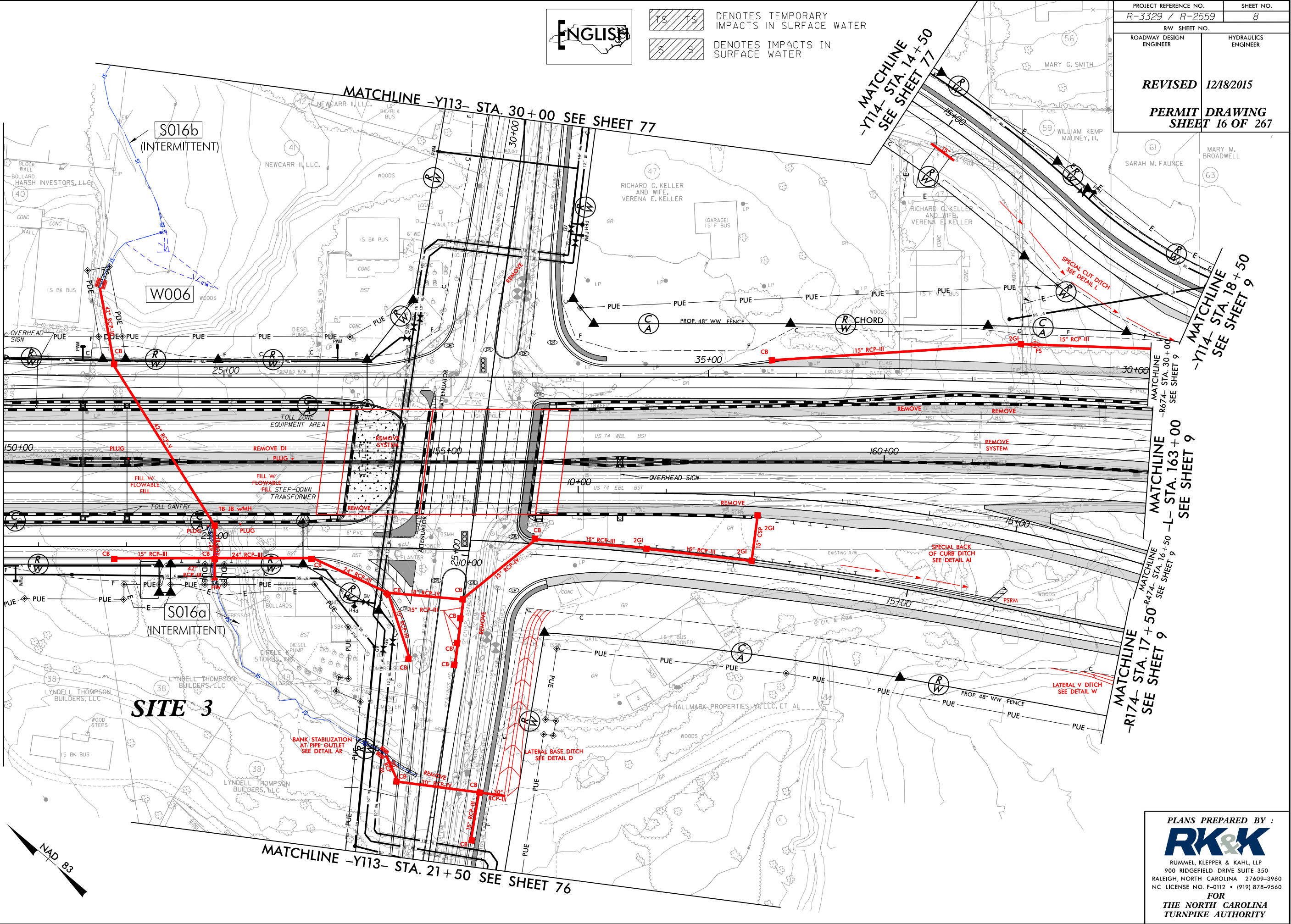
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PROJECT REFERENCE NO. R-3329 / R-2559	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED 12/18/2015	
PERMIT DRAWING SHEET 16 OF 267	

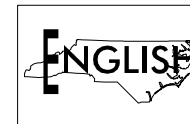
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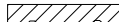
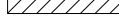
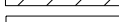


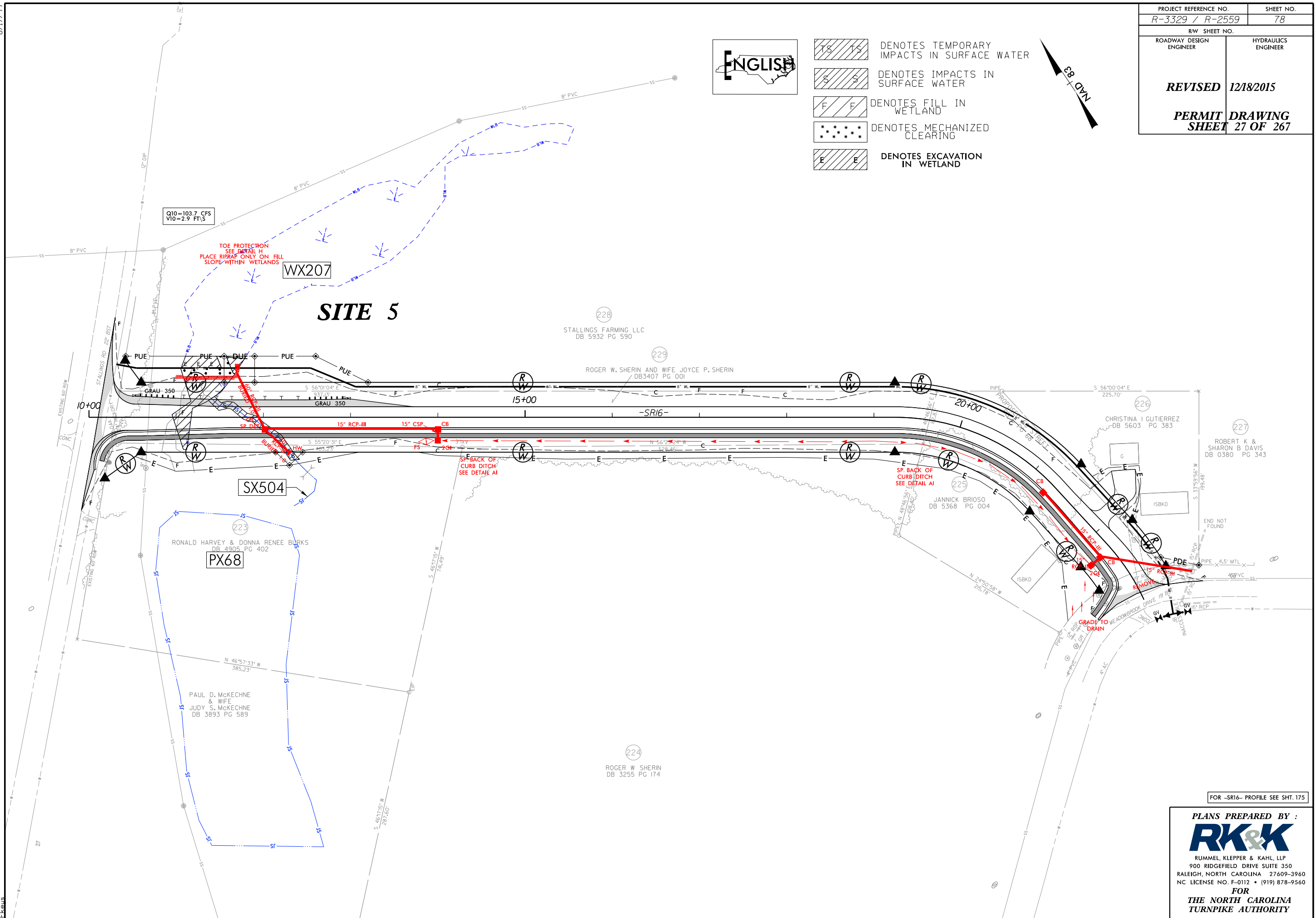
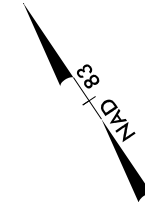
MATCHLINE -Y114- STA. 18+50
SEE SHEET 9

MATCHLINE -R174- STA. 17+50
SEE SHEET 9

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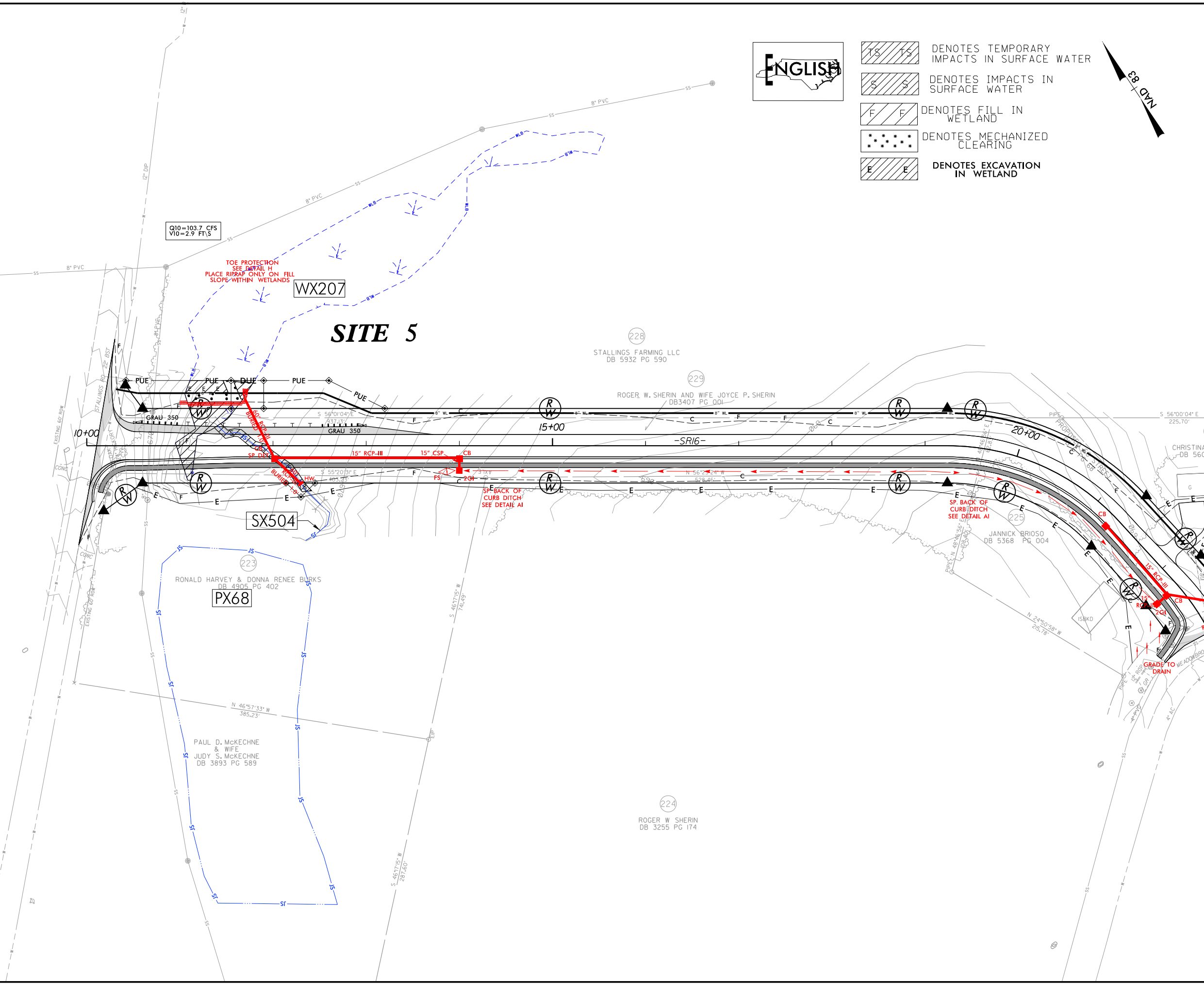
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|  | DENOTES TEMPORARY
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|  | DENOTES IMPACTS IN
SURFACE WATER |
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WETLAND |
|  | DENOTES MECHANIZED
CLEARING |
|  | DENOTES EXCAVATION
IN WETLAND |



FOR -SR16- PROFILE SEE SHT. 175

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

PROJECT REFERENCE NO.		SHEET NO.	
<i>R-3329 / R-2559</i>		<i>78</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<i>REVISED</i>		<i>12/18/2015</i>	
<i>PERMIT SHEET</i>		<i>DRAWING 28 OF 267</i>	

FOR -SR16- PROFILE SEE SHT. 175

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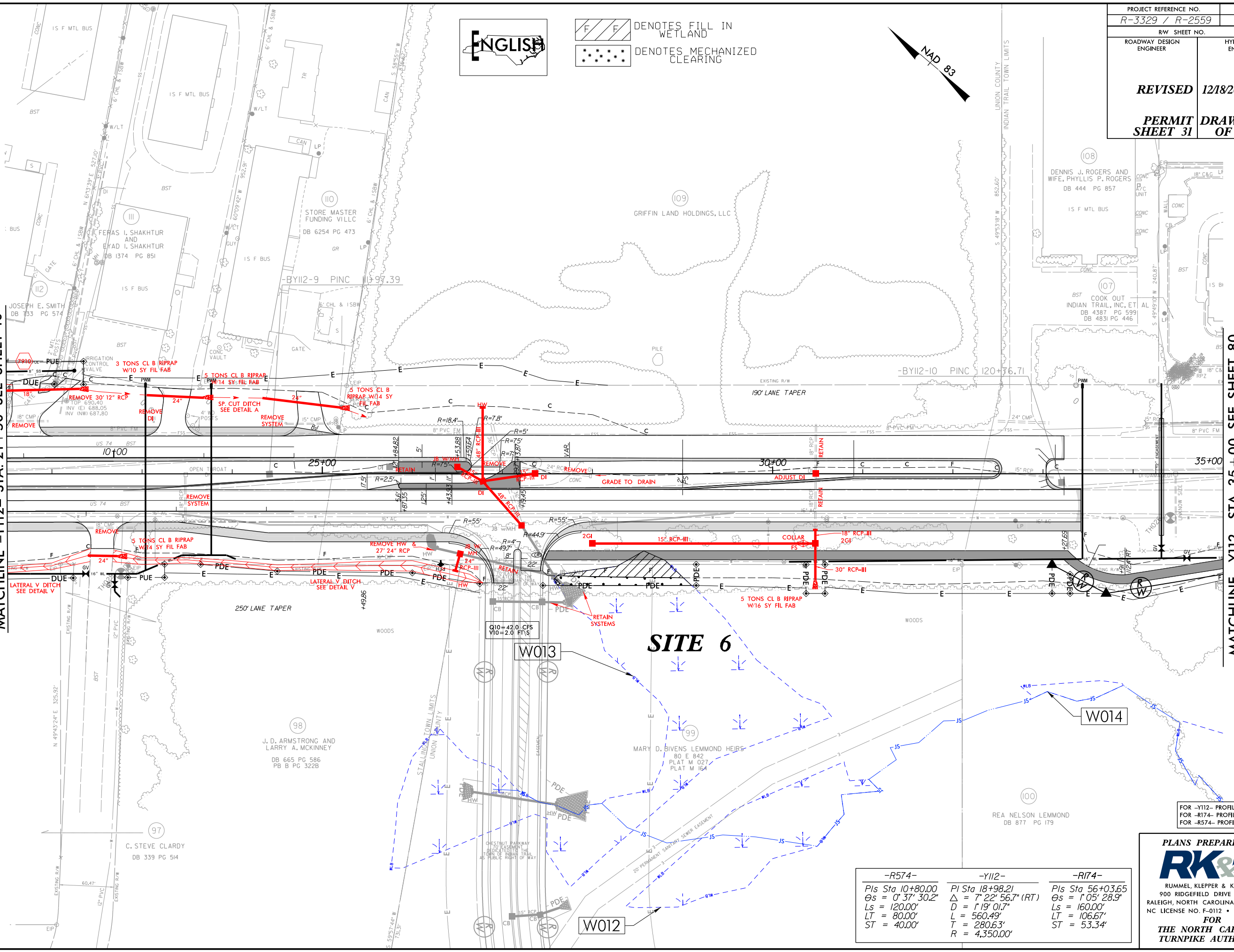
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MATCHLINE -Y112- STA. 21+50 SEE SHEET 10

MATCHLINE -Y112- STA. 35+00 SEE SHEET 80



F F DENOTES FILL IN WETLAND
... DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO. R-3329 / R-2559		SHEET NO. 79	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		REVISED 12/18/2015	
PERMIT SHEET 31		DRAWING OF 267	

-R574-	-Y112-	-R174-
Pls Sta 10+80.00 Gs = 0' 37' 30.2" Ls = 120.00' LT = 80.00' ST = 40.00'	Pl Sta 18+98.21 Δ = 7' 22' 56.7" (RT) L = 560.49' T = 280.63' R = 4,350.00'	Pls Sta 56+03.65 Gs = 1' 05' 28.9" Ls = 160.00' LT = 106.67' ST = 53.34'

FOR -Y112- PROFILE SEE SHT. 174
FOR -R174- PROFILE SEE SHT. 169
FOR -R574- PROFILE SEE SHT. 172

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REVISED 12/18/2015

PERMIT SHEET 32 | **DRAWING OF 267**



 DENOTES FILL IN WETLAND
DENOTES MECHANIZED CLEARING

~~NAD 83~~

MATCHLINE -Y112- STA. 21+50 SEE SHEET 10

WATERWAY
MATCHLINE -Y112- STA. 35+00 SEE SHEET 80

OR -Y112- PROFILE SEE SHT. 174
OR -R174- PROFILE SEE SHT. 169
OR -R574- PROFILE SEE SHT. 172

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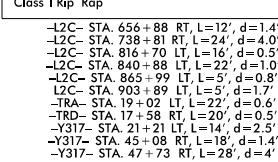
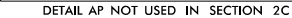
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-R574-		-Y112-		-R174-	
<i>Pis</i>	<i>Sta</i> 10+80.00	<i>Pl</i>	<i>Sta</i> 18+98.21	<i>Pis</i>	<i>Sta</i> 56+03.65
$\phi_s =$	0° 37' 30.2"	$\Delta =$	7° 22' 56.7" (RT)	$\phi_s =$	1° 05' 28.9"
<i>Ls</i>	= 120.00'	<i>D</i>	= 1° 19' 01.7"	<i>Ls</i>	= 160.00'
<i>LT</i>	= 80.00'	<i>L</i>	= 560.49'	<i>LT</i>	= 106.67'
<i>ST</i>	= 40.00'	<i>T</i>	= 280.63'	<i>ST</i>	= 53.34'
		<i>R</i>	= 4,350.00'		

SITE 6



BASIN #	LOCATION (AT OUTLET)
1	-L- STA. 791+20 RT
2	
3	
4	
5	
6	
7	
8	

*ALL DIMENSIONS APPROXIMATE IN FEET

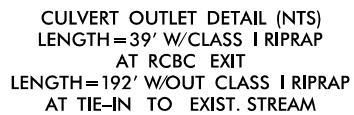
NOTE:
 W_o = DIAMETER OF PIPE,
 WIDTH OF BOX OR
 SPAN OF PIPE-ARCH
 CULVERTS

5/05

STEWARTS CREEK
-L- STA. 669+18

STEWARTS CREEK
-L- STA. 702+70

STEWARTS CREEK
-L- STA. 805 + 89



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SBG & EXPRESSWAY GUTTER LOCATIONS				
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SBG	-L2C-	670+00	671+05	RT



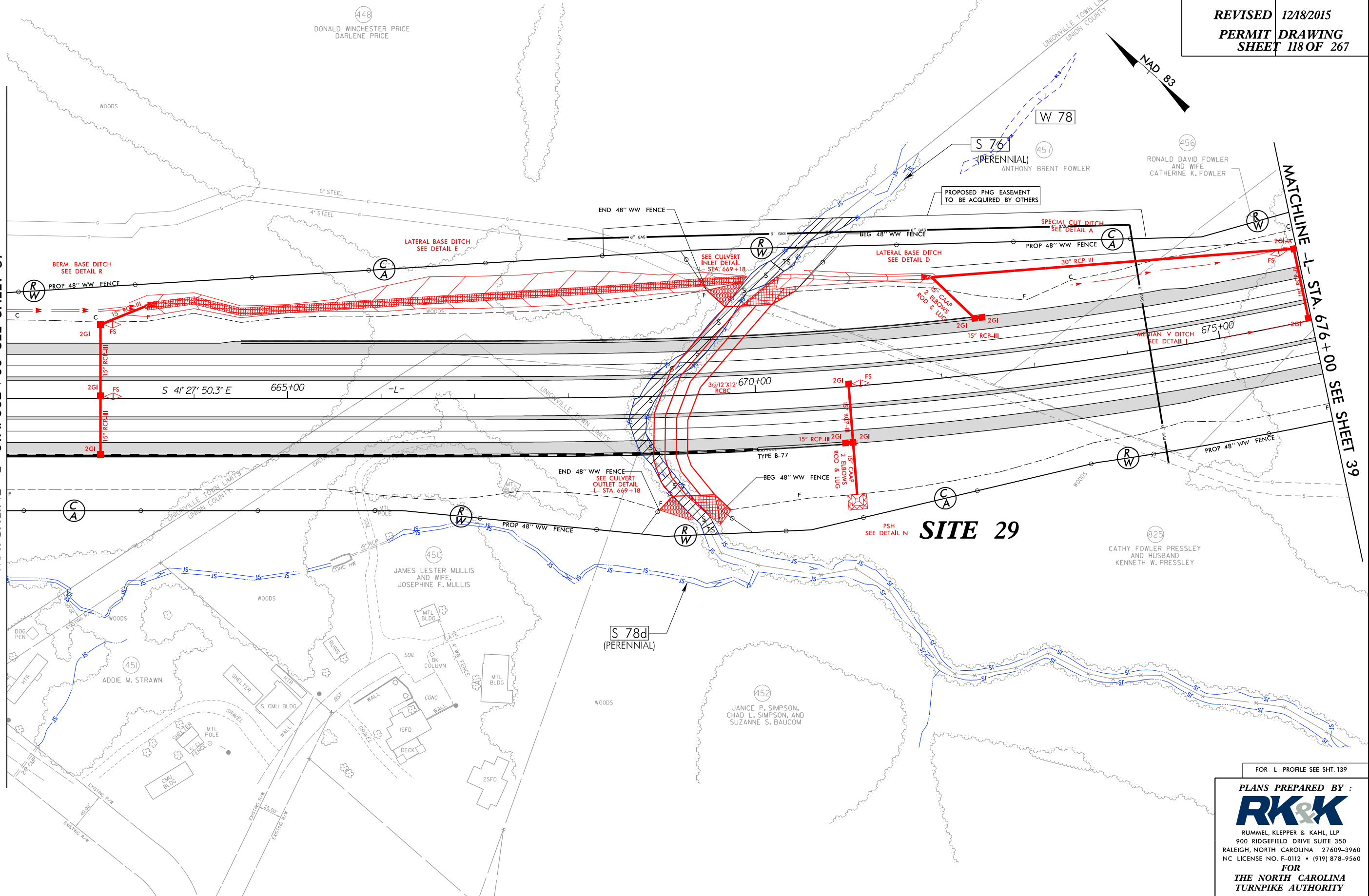
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. R-3329 / R-2559		SHEET NO. 38
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED 12/18/2015		PERMIT DRAWING SHEET 118 OF 267

MATCHLINE -L- STA. 662+00 SEE SHEET 37

MATCHLINE -L- STA. 676+00 SEE SHEET 39



FOR -L- PROFILE SEE SHT. 139

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SBG & EXPRESSWAY GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
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SBG	-L2C-	670+00	671+05	RT



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

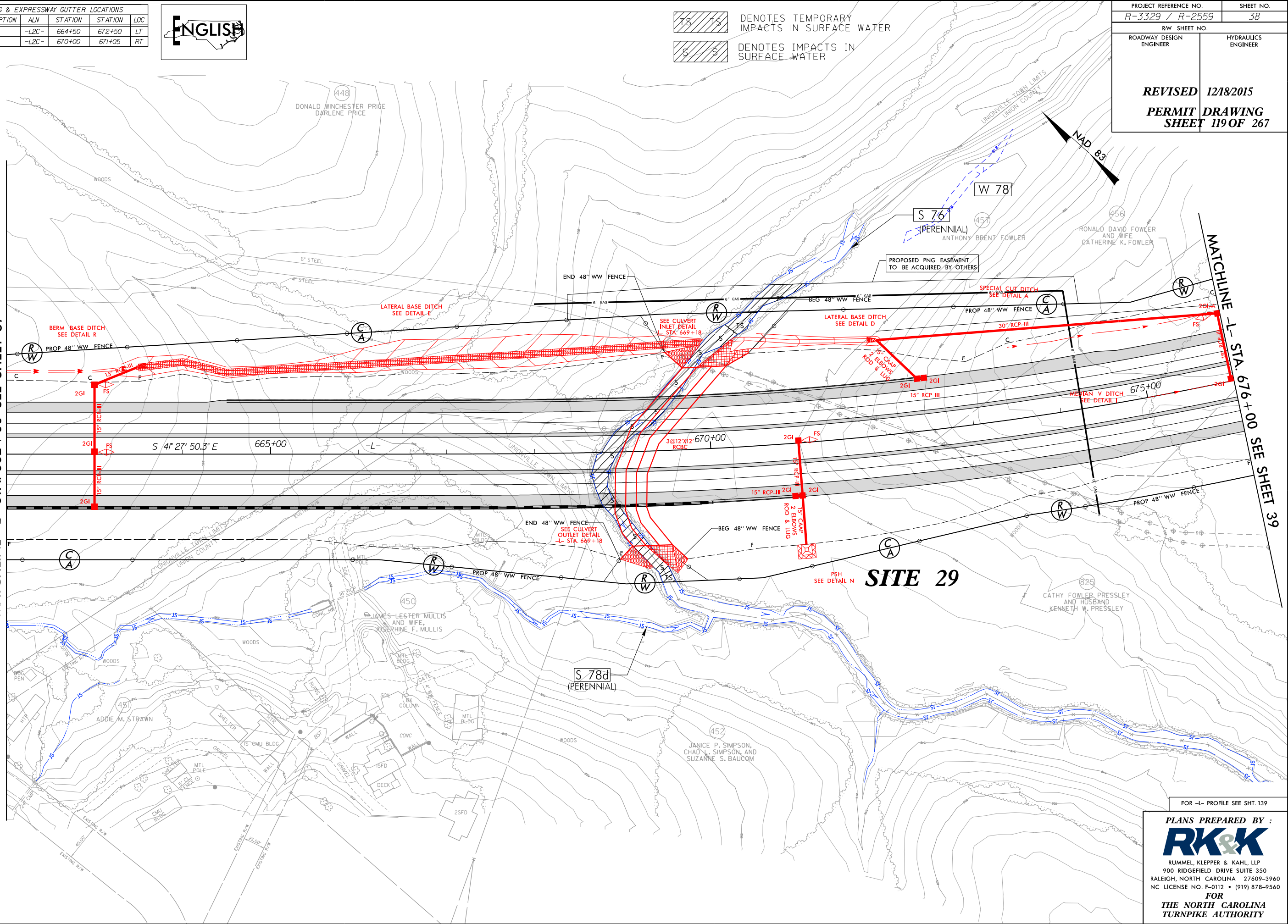


DENOTES IMPACTS IN
SURFACE WATER

PROJECT REFERENCE NO. R-3329 / R-2559		SHEET NO. 38	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		REVISED 12/18/2015	
		PERMIT DRAWING SHEET 119 OF 267	

MATCHLINE -L- STA. 662+00 SEE SHEET 37

MATCHLINE -L- STA. 676+00 SEE SHEET 39

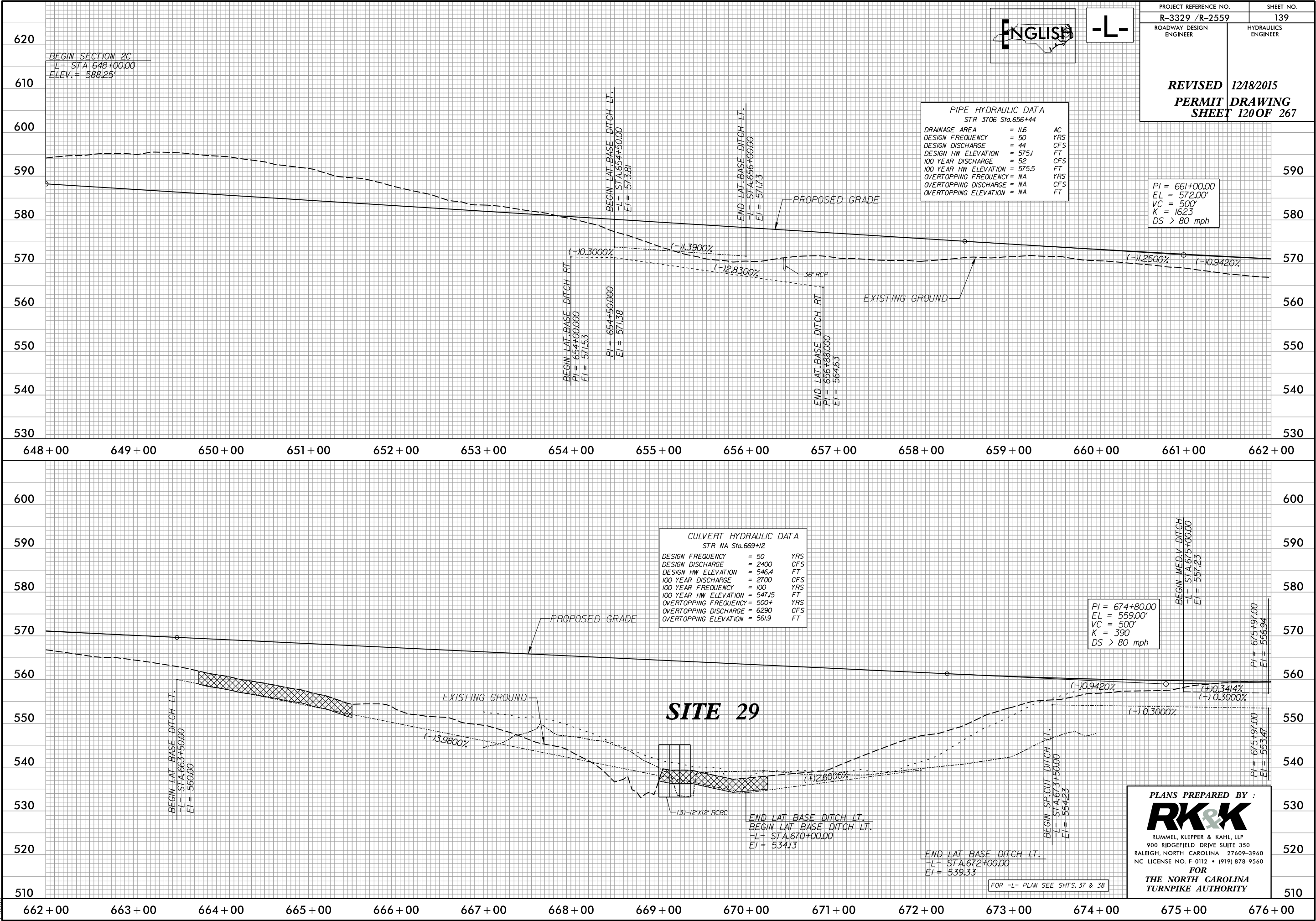


FOR -L- PROFILE SEE SHT. 139

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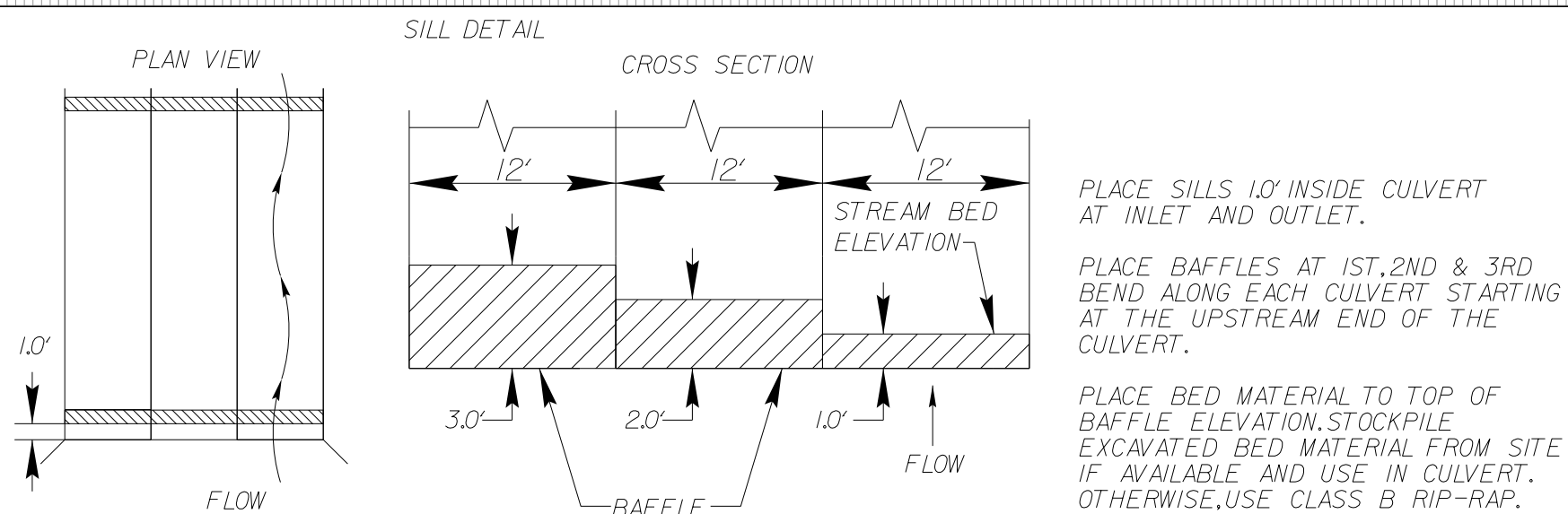
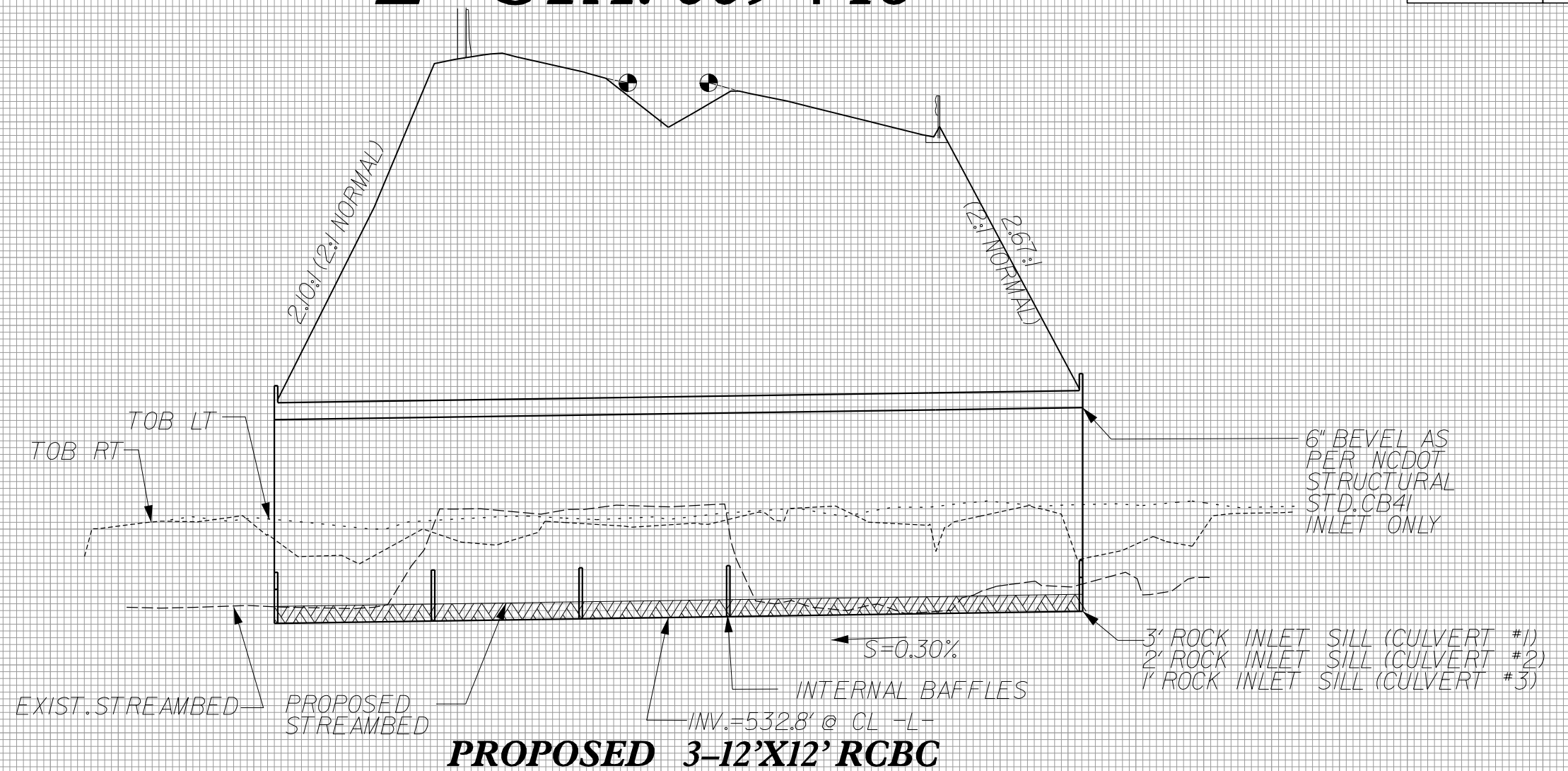
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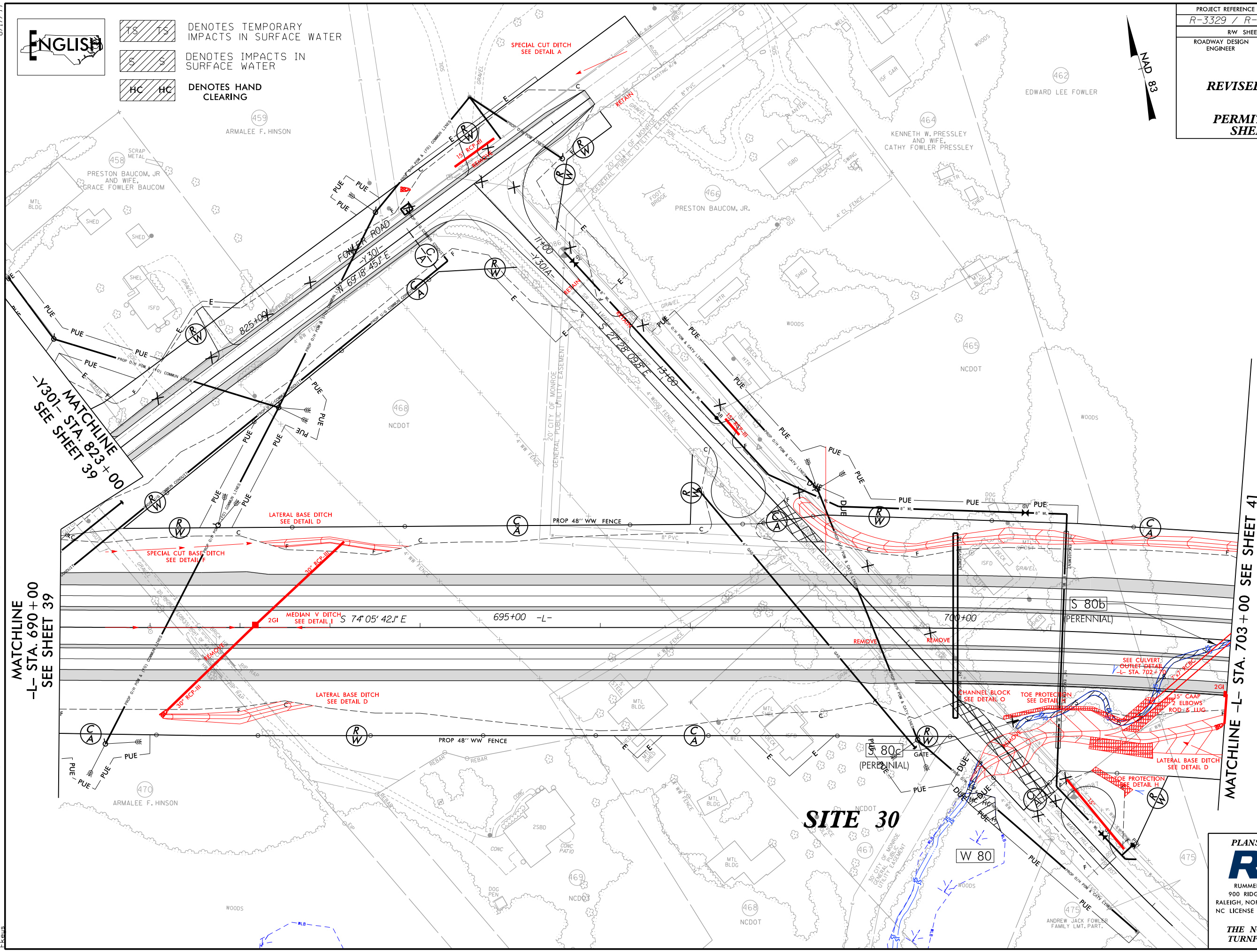
12/15/2015
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Elevs





SITE 29
-L- STA. 669+18



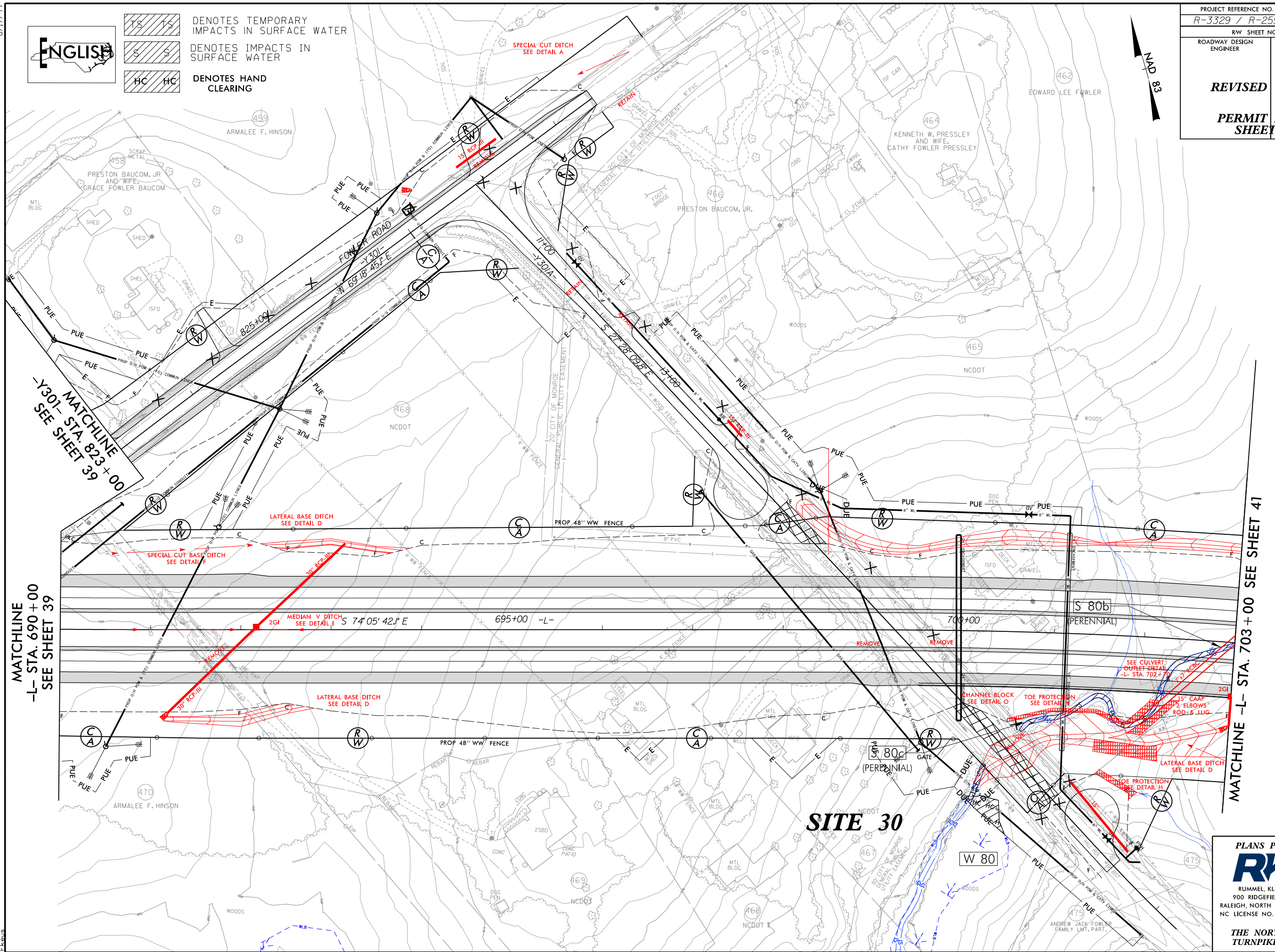
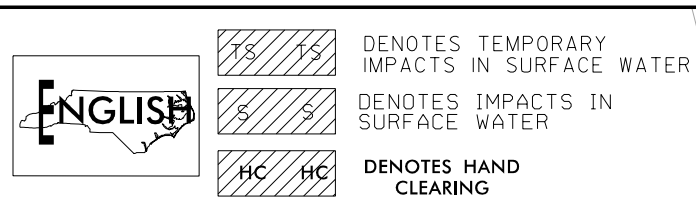


8/17/99

12/15/2015
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12/15/2012
R: /Hydra

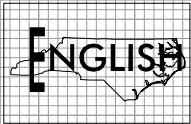


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5/14/99

12/15/2015
R:\Hydraulics\PERMITS\Environmental\Drawings\Section2C\R3329_R2559_HYD_PRM_WET_PFL2C2.dgn
Elevs

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140



PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED	12/18/2015	
PERMIT SHEET	DRAWING	127 OF 267

SITE 30 ***-L- STA. 702+97***

570

566

562

558

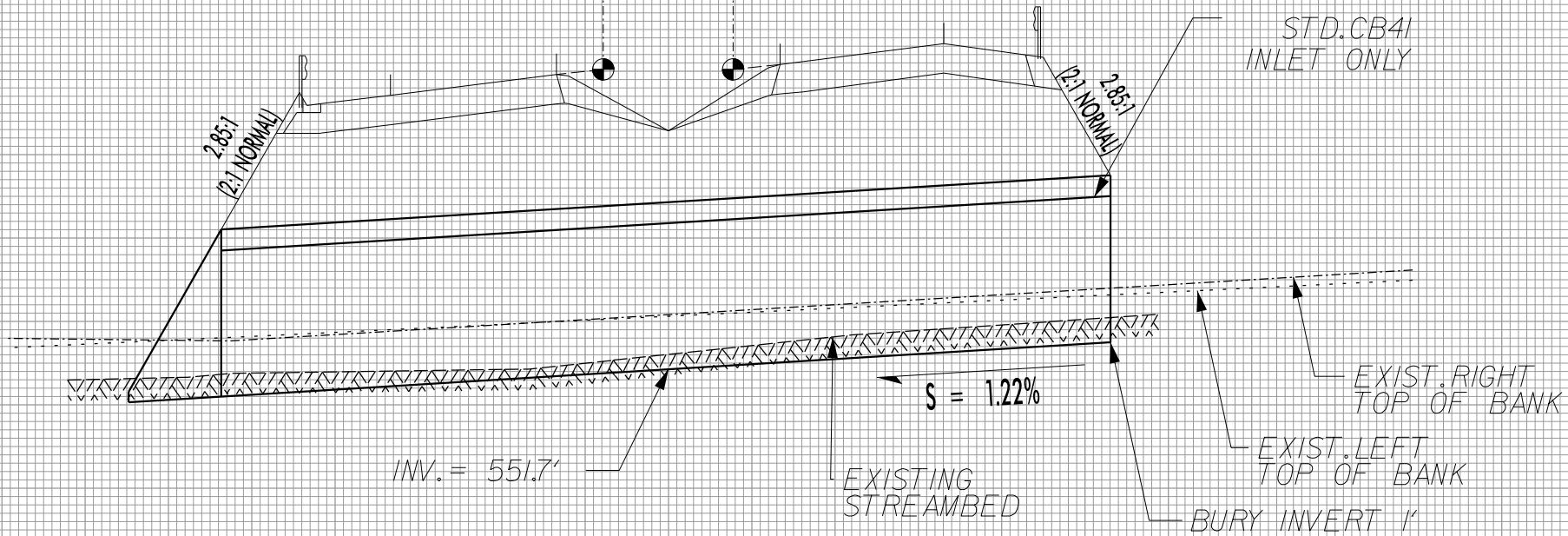
554

550

546

542

538



570

566

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554

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546

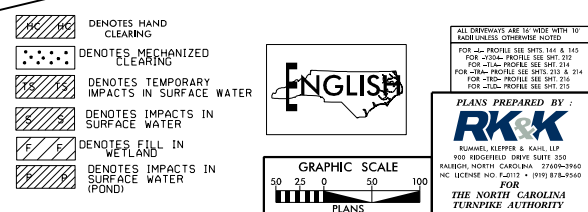
542

538

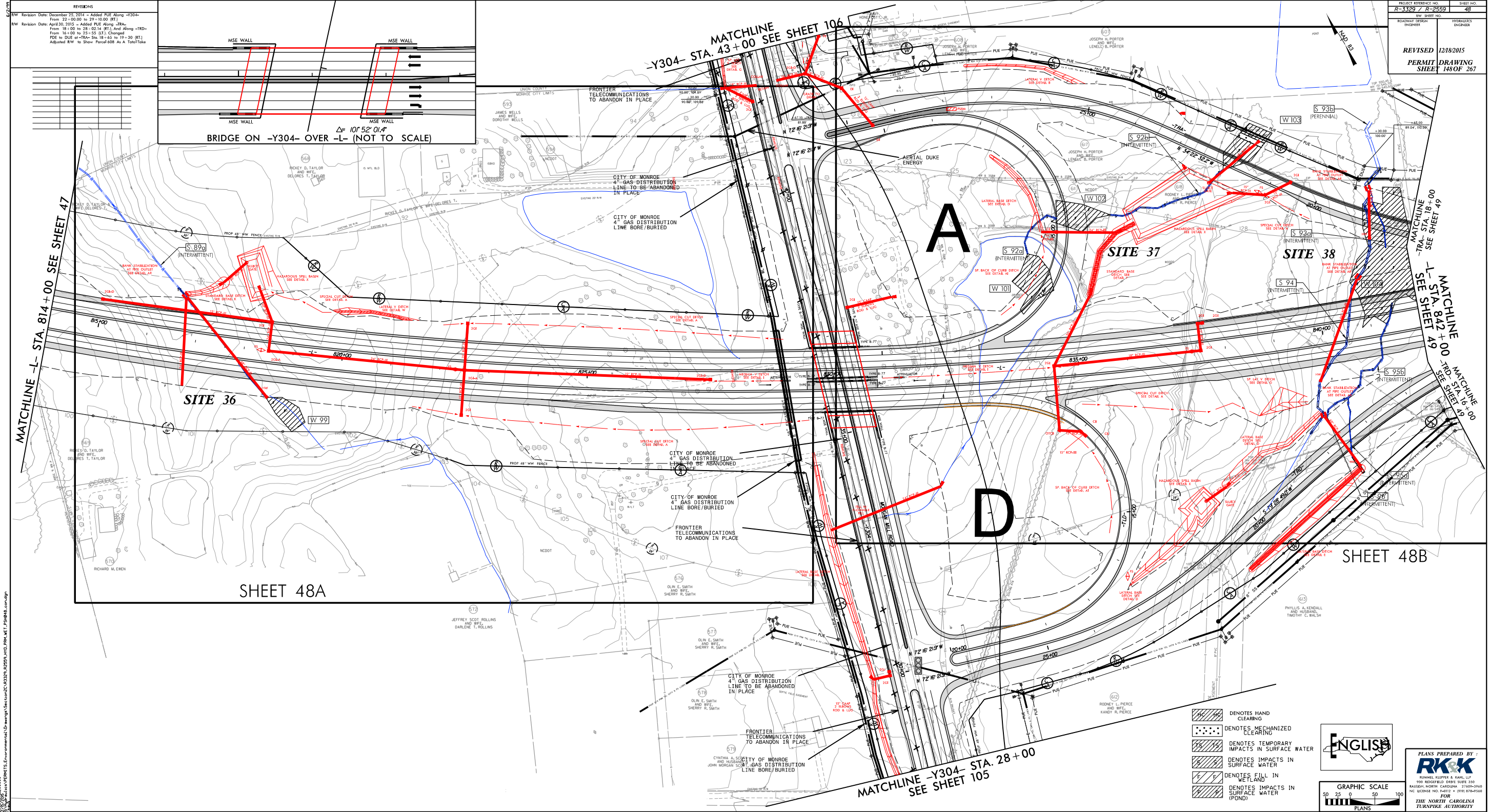
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BURIED 1.0\'

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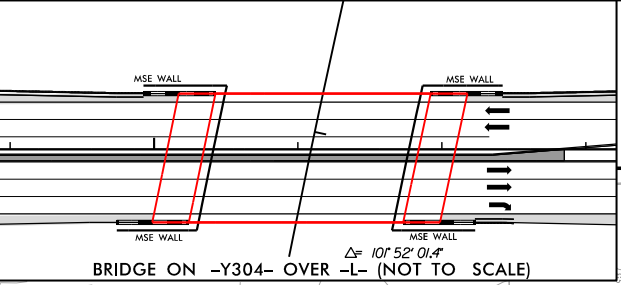
SBB & EXPRESSWAY GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBB	-L2C-	836+00	836+50	RT
EXPWYG	-L2C-	837+00	839+50	LT
SBB	-L2C-	839+50	844+25	LT
SBB	-Y30A-	30+00	34+92	RT
SBB	-Y30A-	37+23	37+50	RT
SBB	-Y30A-	37+42	43+90	LT
EXPWYG	-TRA-	12+61	23+00	RT
SBB	-TR0-	10+00	20+44	LT



PROJECT REFERENCE NO.		SHEET NO.	
R-3329 / R-2559		48	
REV. SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
REVISED 12/18/2015 PERMIT DRAWING SHEET 147 OF 267			

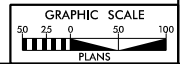


REVISIONS	
REV	Revision Date: December 25, 2014 - Added PUE Along -Y304- From 22+00.00 to 29+00.00 (RT)
REV	Revision Date: April 30, 2015 - Added PUE Along -Y304- From 16+00 to 28+00 (RT) and Along -Y304- From 16+00 to 25+00 (RT) Changed PUE to DUE at 16+00 Sta 18+00 to 19+00 (RT) Adjusted RW to Show Parcel 608 as A Total Take



PROJECT REFERENCE NO.	R-3329 / R-2559
SHEET NO.	48
REVISED	12/18/2015
PERMIT DRAWING SHEET	148 OF 267

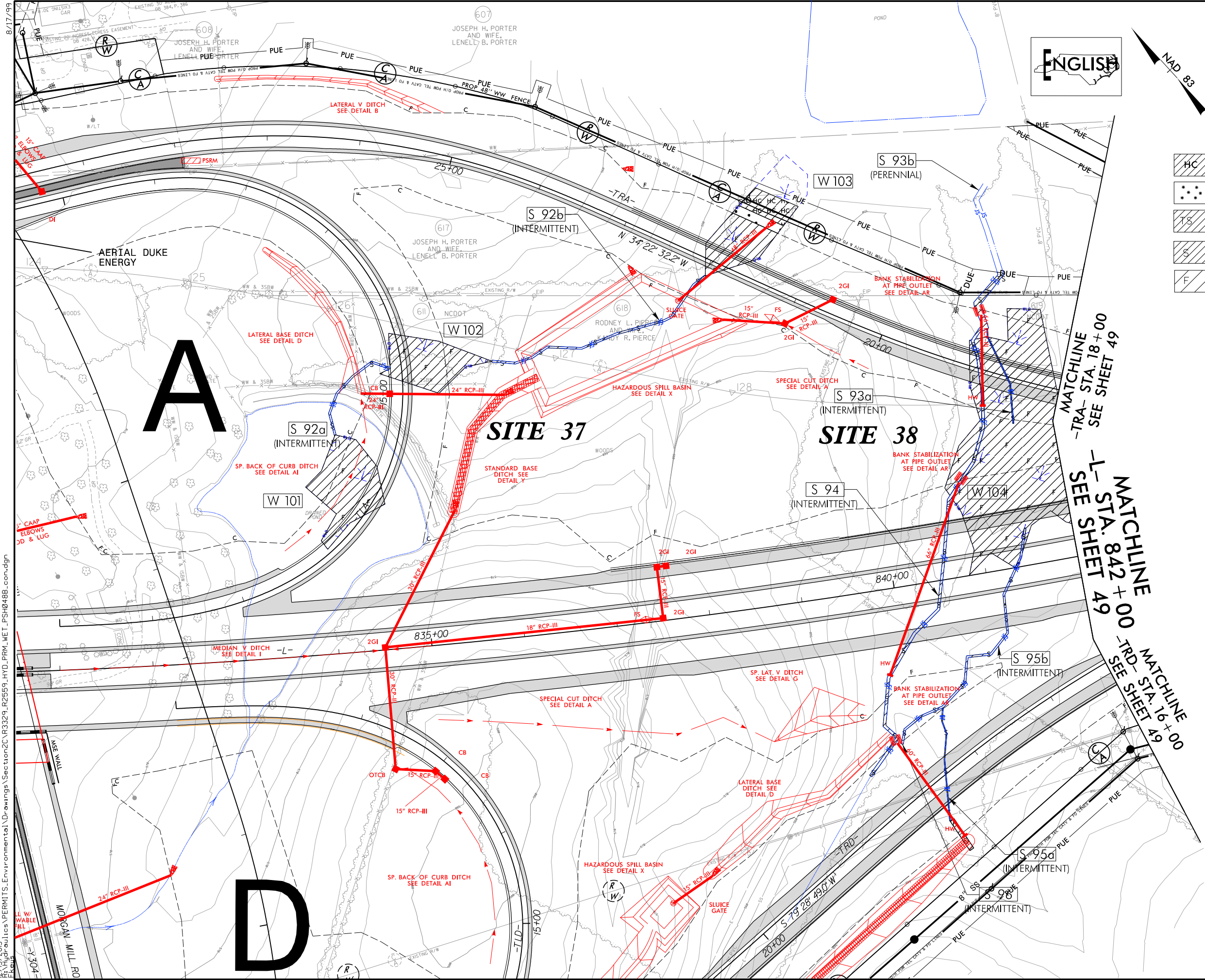
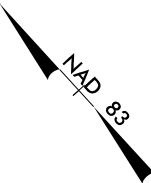
- DENOTES HAND CLEARING
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)



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PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	48B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED	12/18/2015
PERMIT	DRAWING
SHEET	153 OF 267

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



12/15/2015 R:\Hydraulics\PERMITS\Environmental\Drawings\Section2C\R3329_R2559_HYD_PRM_WET_PSH048B.con.dgn

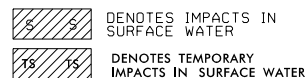
PLANS PREPARED BY :

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P:\Hydraulics\Permit Environmental\R3329_R2559_hyd-prm_PSH_056.dgn



655

ROBERT GILES, ET AL.

SITE 46

MATCHLINE -L- STA. 940+00 SEE SHEET 55

[illegible]

TEMPORARY BARGE FOR
TEMPORARY BRIDGE CROSSING

BANK STABILIZATION

PROP. 48" WW FENCE

RICHARDSON CREEK

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	56
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWINGS
SHEET 180 OF 267

REVISÉ: 1 /26 /2016



MATCHLINE -L- STA. 954+00 SEE SHEET 57

660
WILLIAMS III, ET AL.

FOR -L- PROFILE SEE SHT.150

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8/17/99



DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	56
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR A/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PERMIT DRAWINGS
SHEET 181 OF 267

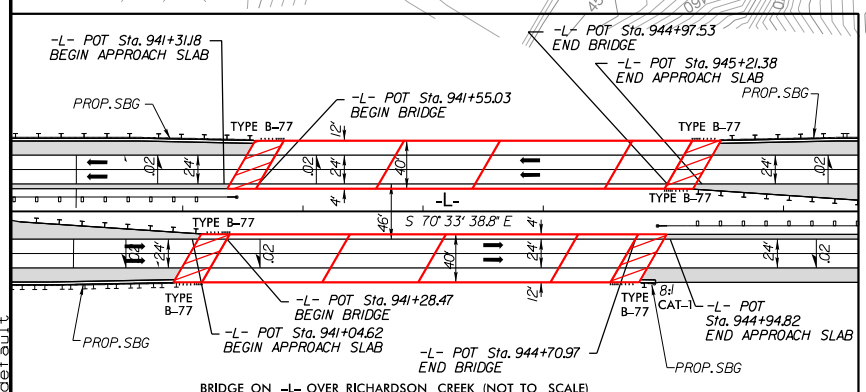
REVISED: 1/26/2016



SITE 46

MATCHLINE -L- STA. 940+00 SEE SHEET 55

MATCHLINE -L- STA. 954+00 SEE SHEET 57



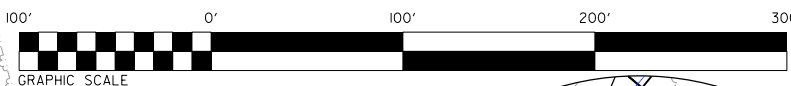
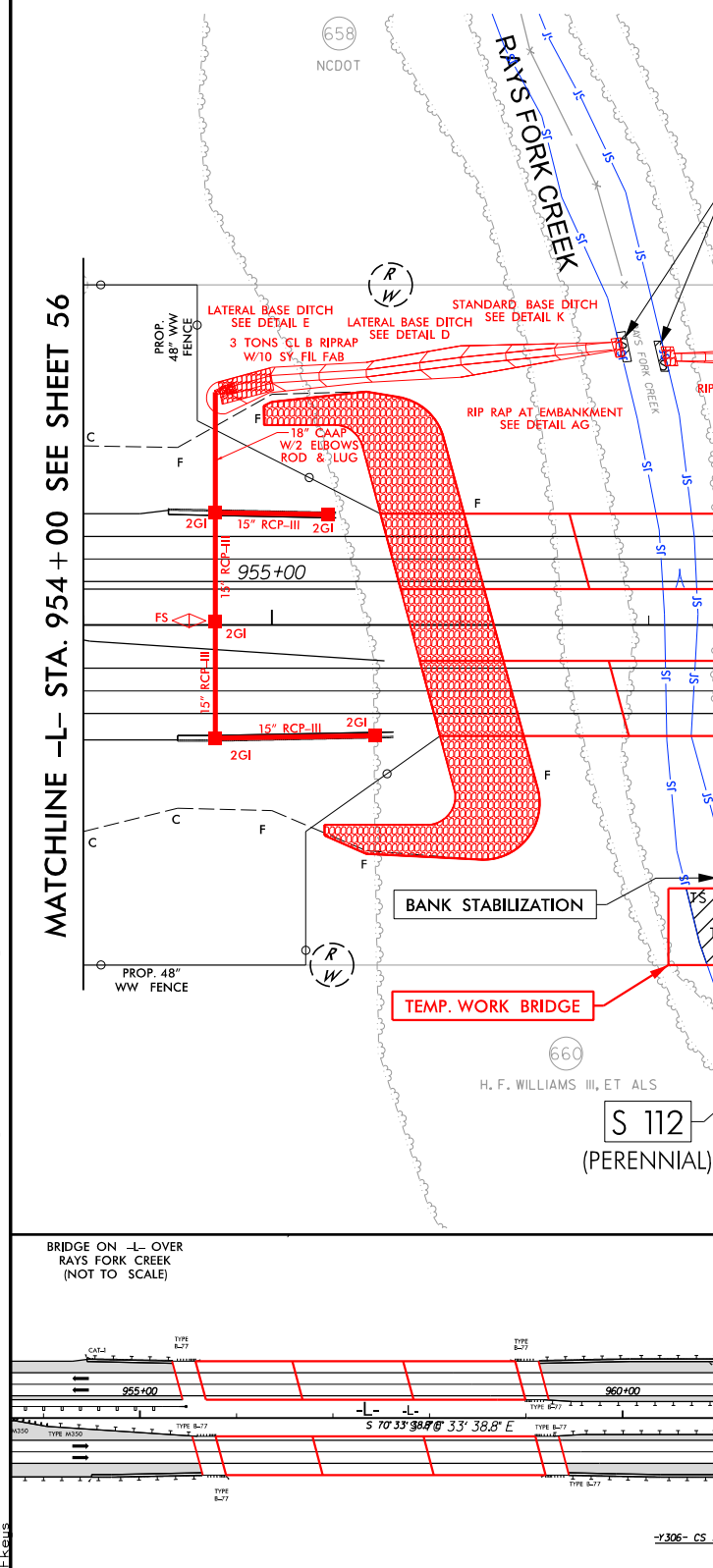
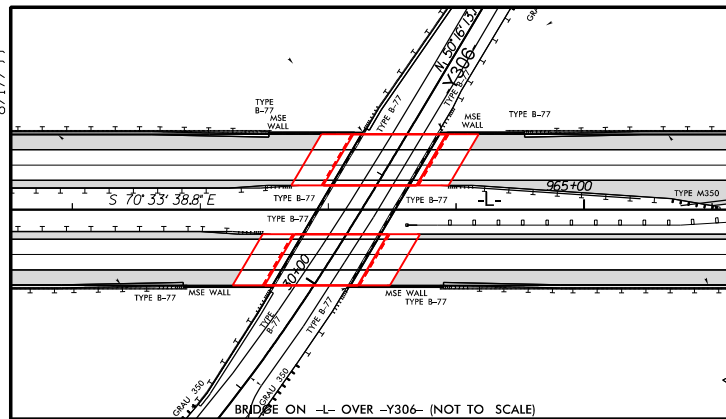
BRIDGE ON -L- OVER RICHARDSON CREEK (NOT TO SCALE)

FOR -L- PROFILE SEE SHT.150

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(919) 851-1912
(919) 851-1918 (FAX)
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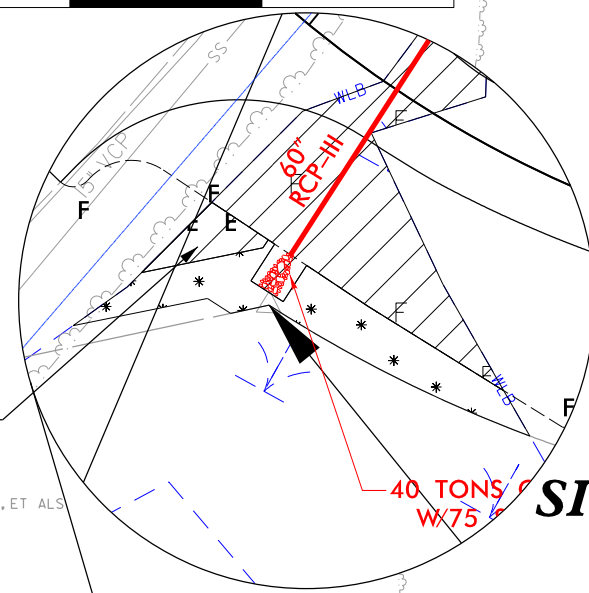
8/17/99

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

0.01 AC. TEMP. EXCAVATION IN WETLAND



PERMIT DRAWINGS
SHEET 183 OF 267
REVISED: 11/16 /2015



PROJECT REFERENCE NO. R-3329 / R-2559	SHEET NO. 57
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

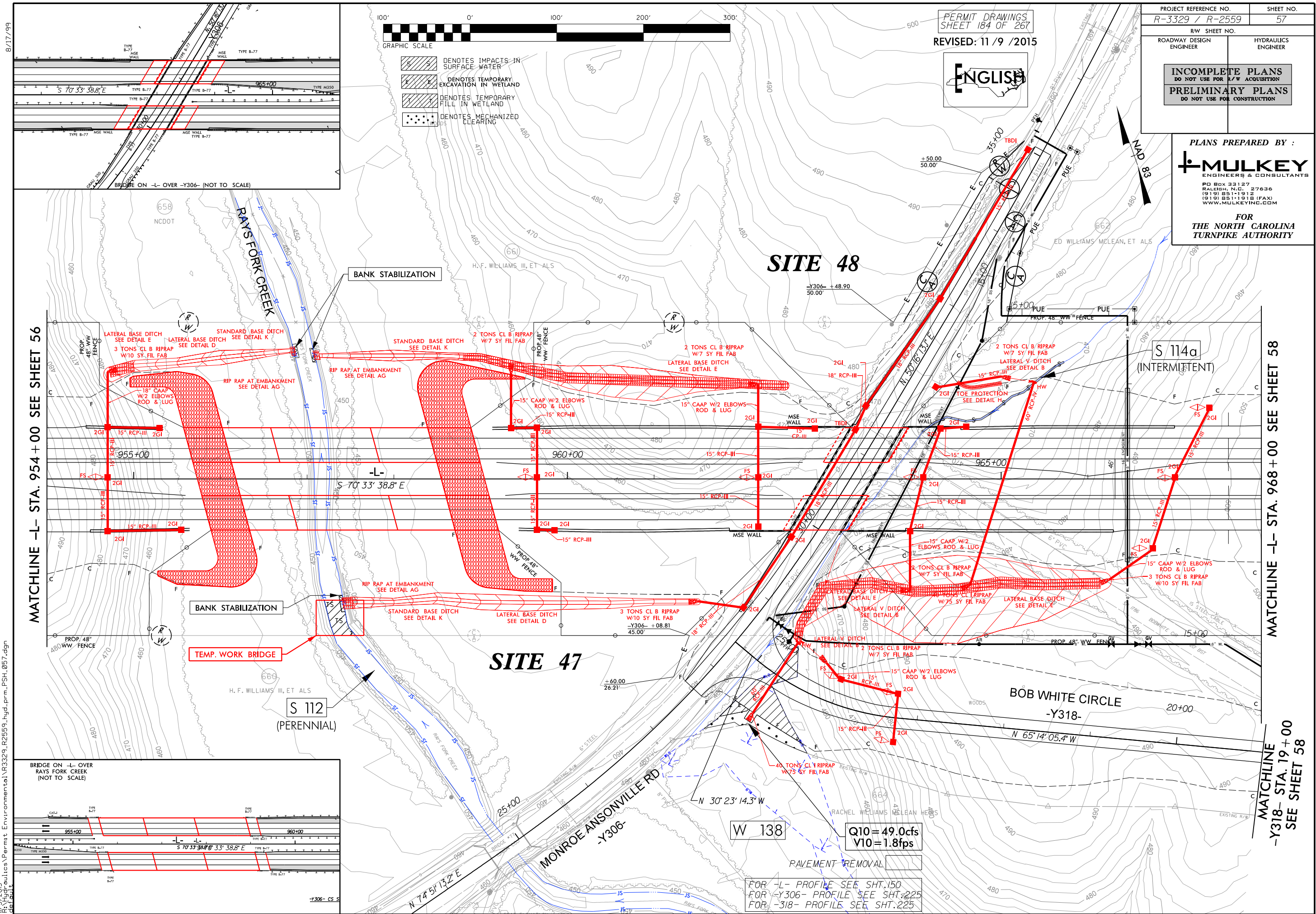
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MATCHLINE -L- STA. 954+00 SEE SHEET 56

MATCHLINE -L- STA. 968+00 SEE SHEET 58

MATCHLINE
-Y318- STA. 19+00
SEE SHEET 58

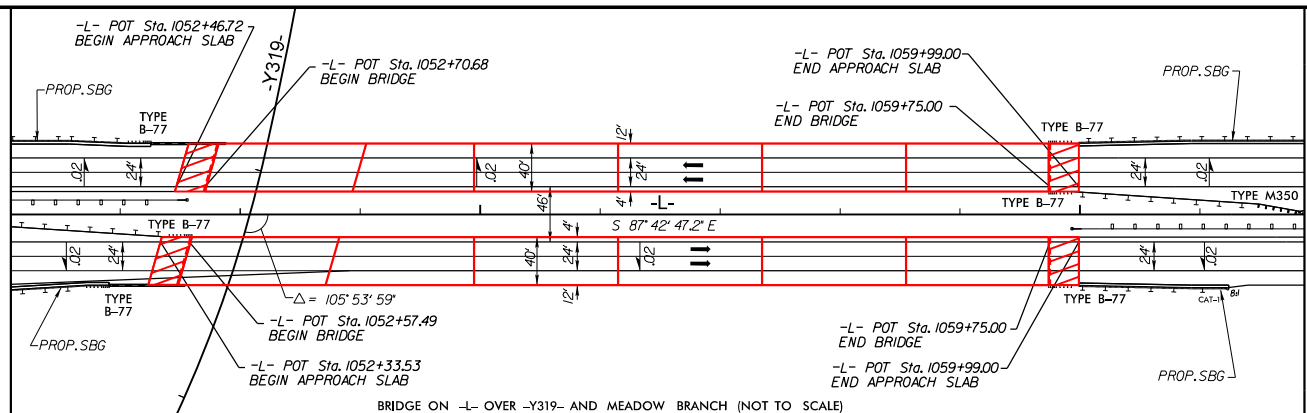
FOR -L- PROFILE SEE SHT.150
FOR -Y306- PROFILE SEE SHT.225
FOR -318- PROFILE SEE SHT.225



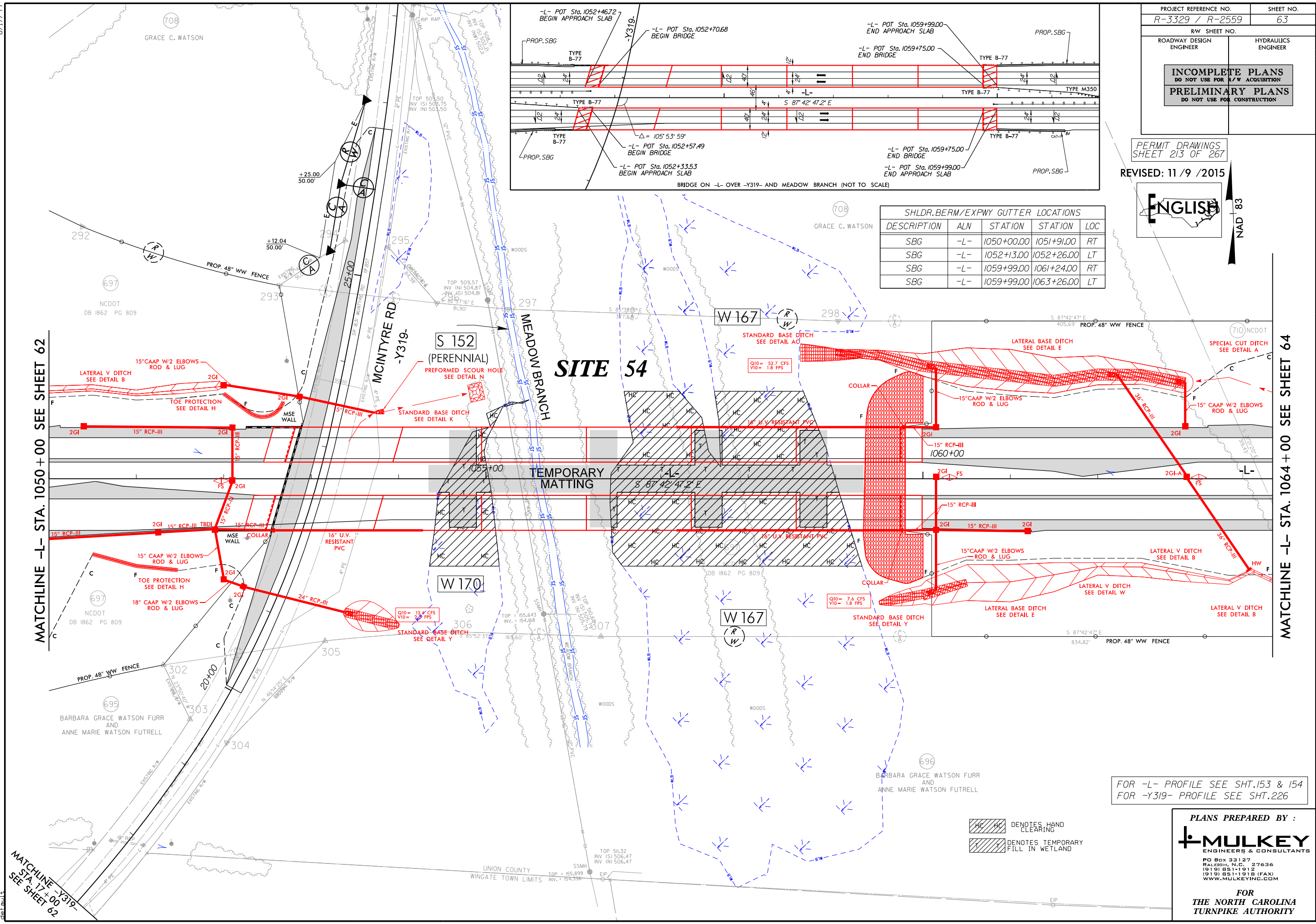
8/17/99

PROJECT REFERENCE NO.		SHEET NO.	
R-3329 / R-2559		63	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

PERMIT DRAWINGS
SHEET 213 OF 267
REVISED: 11/9/2015



SHLDR.BERM/EXPWY GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	1050+00.00	1051+91.00	RT
SBG	-L-	1052+13.00	1052+26.00	LT
SBG	-L-	1059+99.00	1061+24.00	RT
SBG	-L-	1059+99.00	1063+26.00	LT



FOR -L- PROFILE SEE SHT.153 & 154
FOR -Y319- PROFILE SEE SHT.226

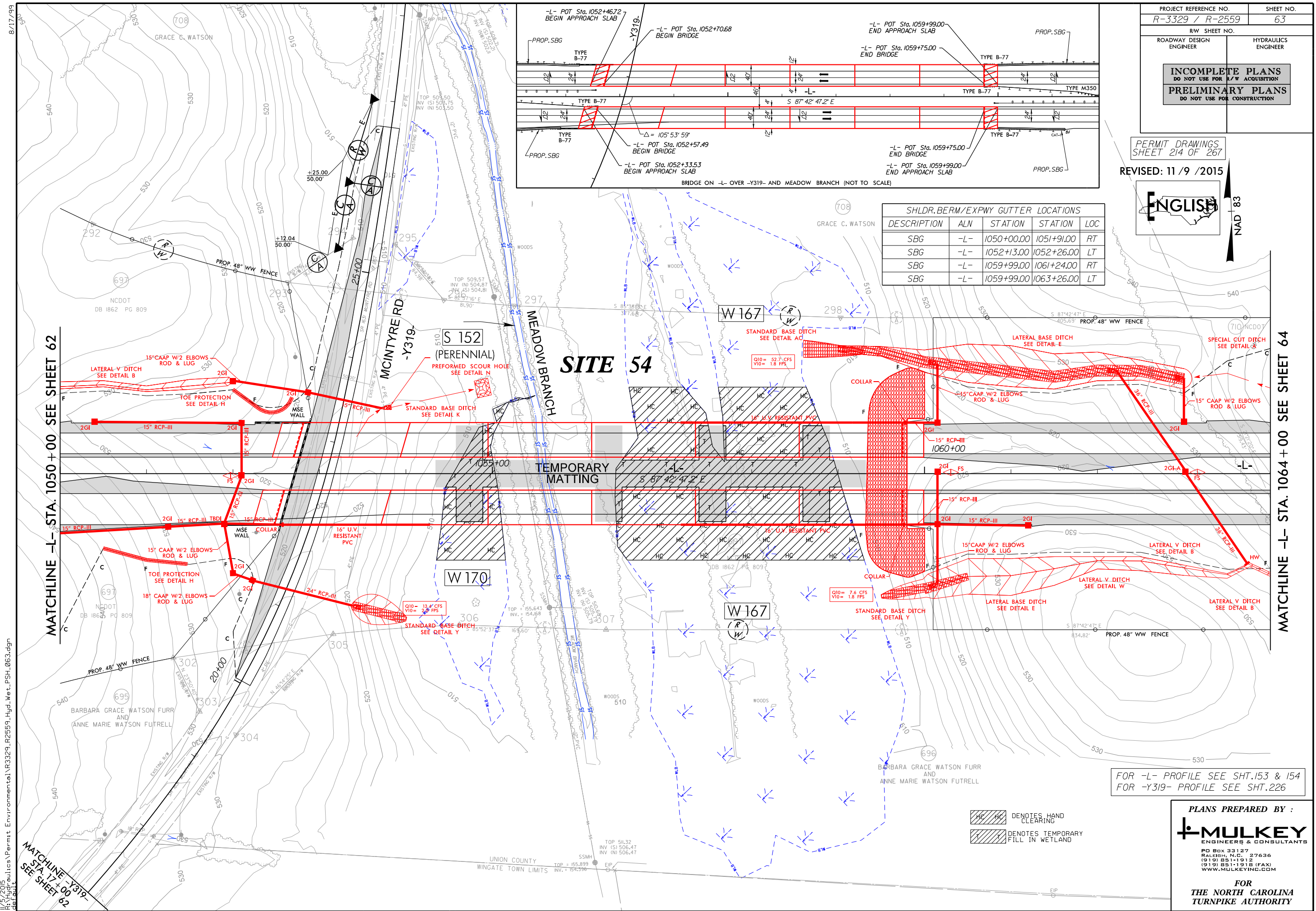
PLANS PREPARED BY :

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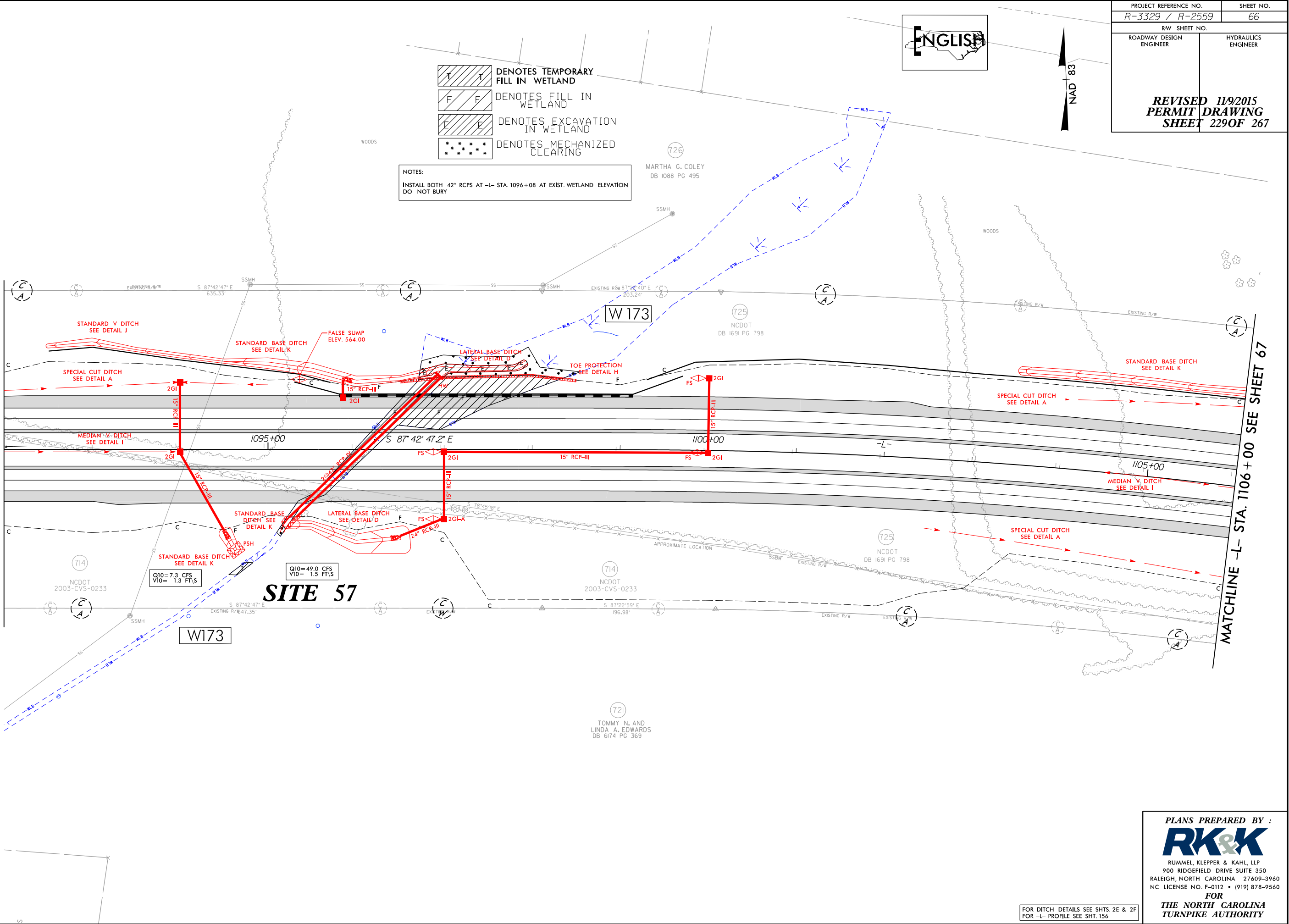


8/17/99

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MATCHLINE -L- STA. 1092 + 00 SEE SHEET 65

MATCHLINE -L- STA. 1106 + 00 SEE SHEET 67



PROJECT REFERENCE NO. <i>R-3329 / R-2559</i>		SHEET NO. <i>66</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<i>REVISED 11/9/2015</i> <i>PERMIT DRAWING</i> <i>SHEET 229 OF 267</i>			

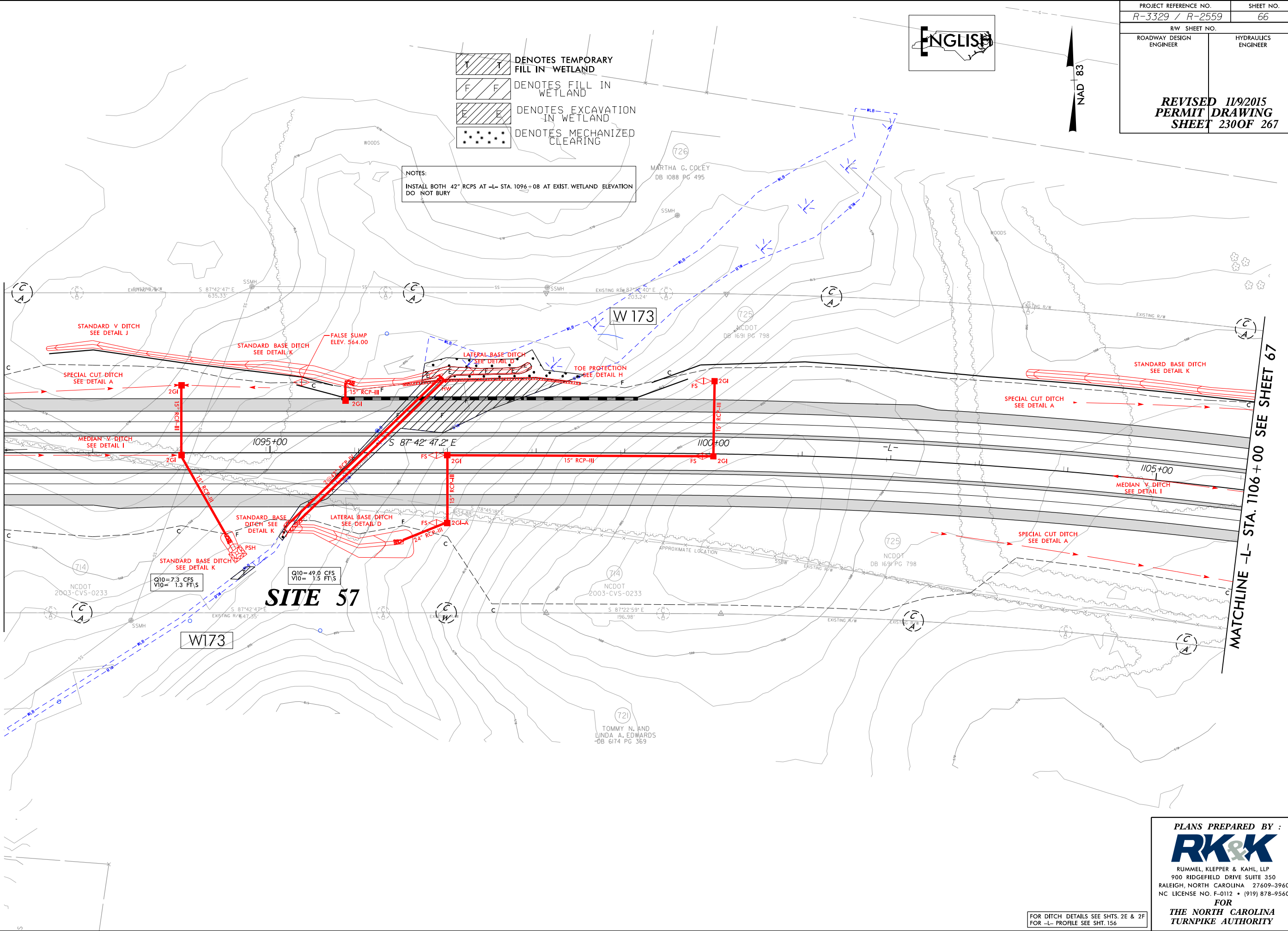
FOR DITCH DETAILS SEE SHTS. 2E & 2F
FOR -L- PROFILE SEE SHY. 156

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8/17/99

I:\6/2015
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Elev

MATCHLINE -L- STA. 1092 + 00 SEE SHEET 65

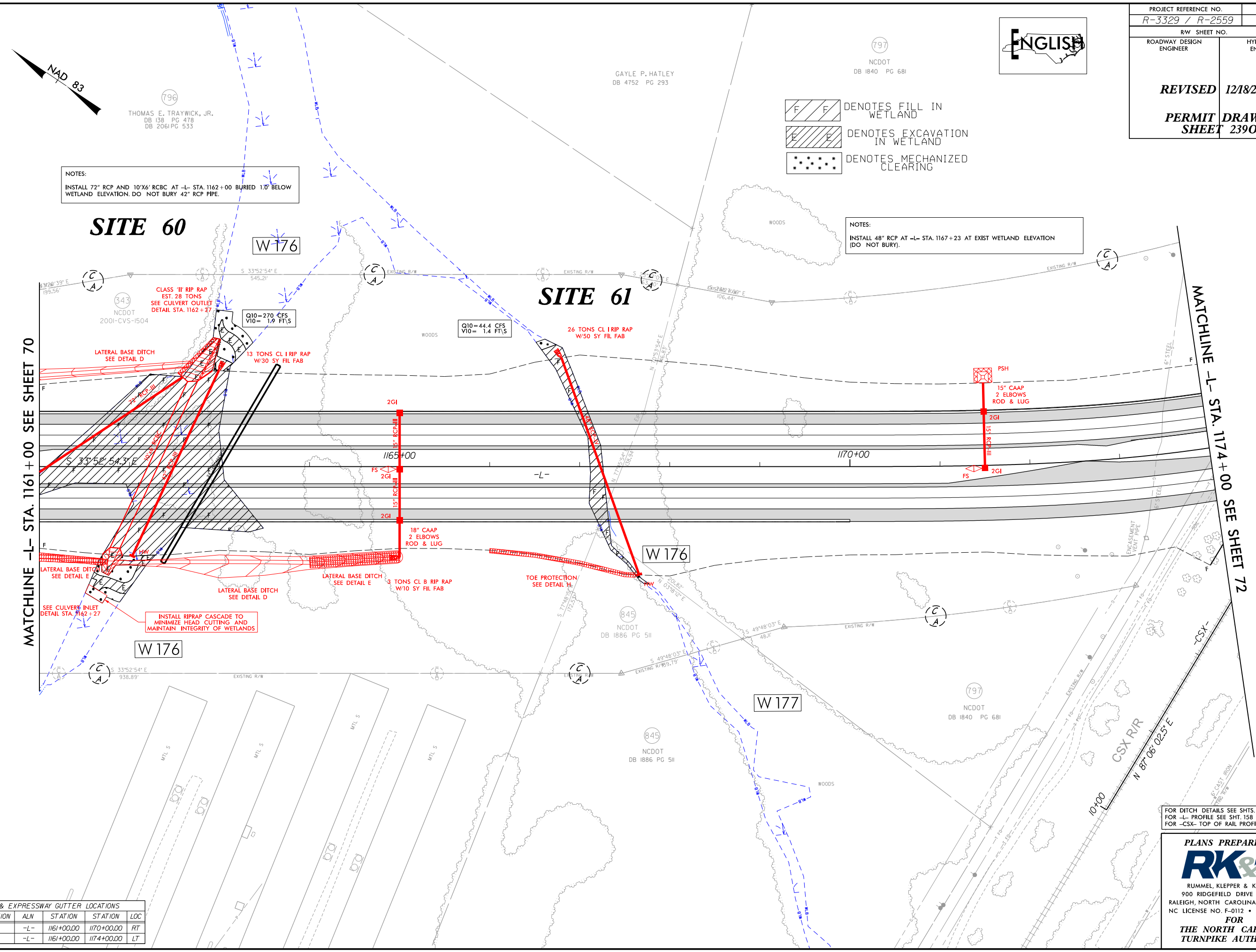


FOR DITCH DETAILS SEE SHTS. 2E & 2F
FOR -L- PROFILE SEE SHY. 156

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8/17/2015



MATCHLINE -L- STA. 1161+00 SEE SHEET 70

MATCHLINE -L- STA. 1174+00 SEE SHEET 72

SBG & EXPRESSWAY GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	1161+00.00	1170+00.00	RT
SBG	-L-	1161+00.00	1174+00.00	LT

PROJECT REFERENCE NO.		SHEET NO.	
R-3329 / R-2559		71	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
REVISED		12/18/2015	
PERMIT SHEET		DRAWING 239 OF 267	

PLANS PREPARED BY :

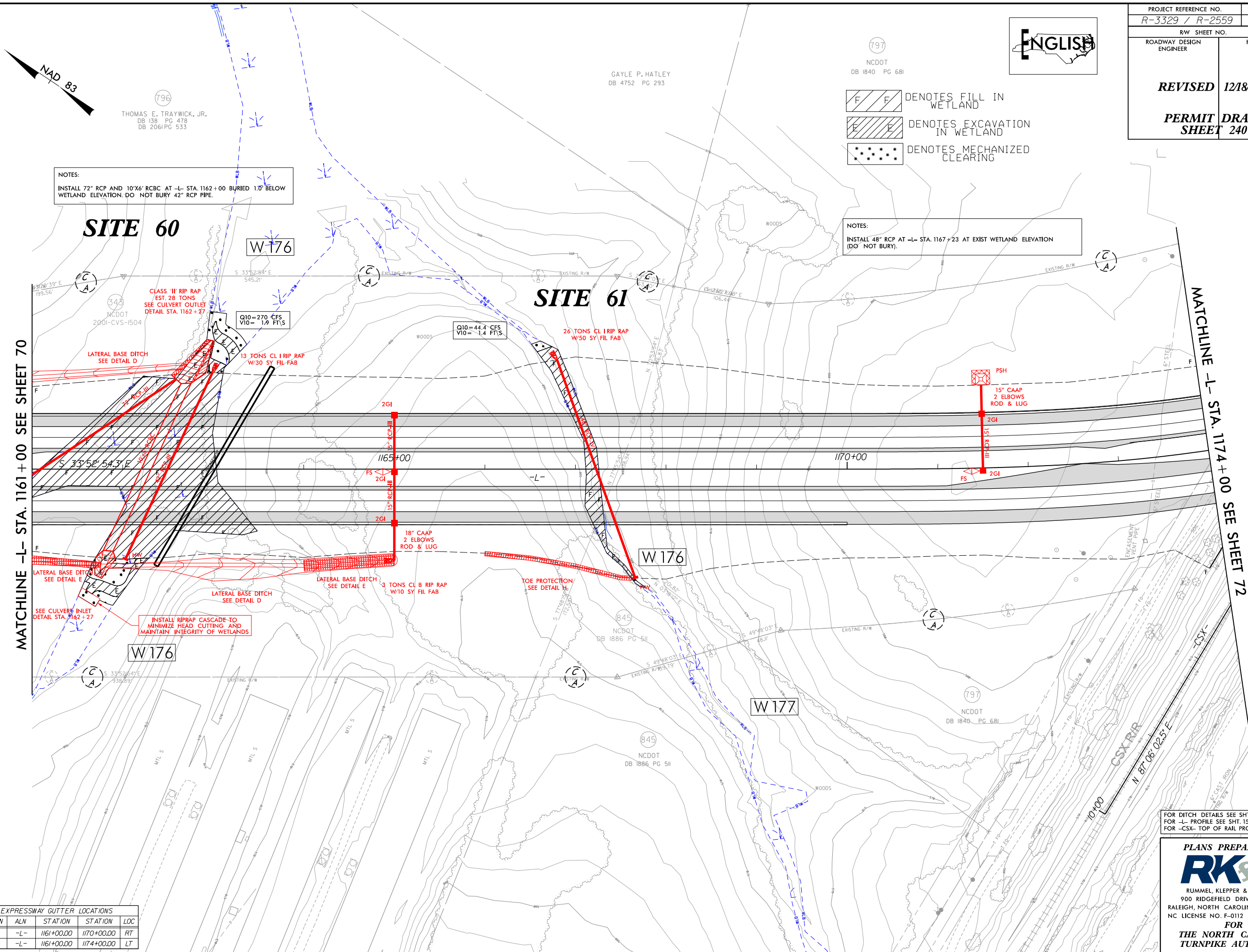
RK&K

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FOR
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FOR DITCH DETAILS SEE SHTS. 2E & 2F
FOR -L- PROFILE SEE SHT. 158
FOR -CSX- TOP OF RAIL PROFILE SEE SHT. 235

8/17/99
12/17/2015
R:\Hydraulics\PERMITS\Environmental\Drawings\Section3B\3B\3329_R2559_HDY_PRM_WET_PSH071L.con.dgn



NOTES:
INSTALL 72" RCP AND 10'X6' RCBC AT -L- STA. 1162+00 BURIED 1.0' BELOW WETLAND ELEVATION. DO NOT BURY 42" RCP PIPE.

NOTES:
INSTALL 48" RCP AT -L- STA. 1167+23 AT EXIST WETLAND ELEVATION (DO NOT BURY).

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

SBG & EXPRESSWAY GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	1161+00.00	1170+00.00	RT
SBG	-L-	1161+00.00	1174+00.00	LT

PROJECT REFERENCE NO. R-3329 / R-2559		SHEET NO. 71
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED 12/18/2015		
PERMIT SHEET 240 OF 267		DRAWING 240 OF 267

FOR DITCH DETAILS SEE SHTS. 2E & 2F
FOR -L- PROFILE SEE SHT. 158
FOR -CSX- TOP OF RAIL PROFILE SEE SHT. 235

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WETLAND PERMIT IMPACT SUMMARY - DESIGN SECTION 2C												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	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)
28	-L- 656+17 TO - 657+71 RT	36" RCP						<0.01		72		
		BANK STABILIZATION						<0.01	<0.01	62	10	
29	-L- 669+50	3@12'X12' RCBC						0.09		241		
		BANK STABILIZATION						0.04	0.01	123	38	
		UTILITY RELOCATION							0.02		55	
30	-L- 700+11 TO - 705+91	7'X7' RCBC						0.04	<0.01	375	33	
		BANK STABILIZATION						0.02	<0.01	206	10	
		UTILITY RELOCATION					0.02		<0.01		11	
31	-L- 718+00	FILL IN WETLANDS	0.09									
32	-L- 738+80 RT	72" RCP & PIPE REMOVAL	0.02					0.01	<0.01	59	20	
		BANK STABILIZATION						<0.01	<0.01	24	10	
33	-L- 752+51 TO - 769+15 LT	FILL IN WETLANDS 30" RCP	1.61			0.28						
34	-L- 805+06 LT	15" RCP						<0.01	<0.01	13	10	
35	-L- 805+89	10'X7' RCBC						0.01		185		
		BANK STABILIZATION						0.01	0.01	82	74	
36	-L- 817+63	48" RCP	0.07					0.01		260		
		BANK STABILIZATION						<0.01	<0.01	16	10	
37	-TLA- 13+07 - 15+68; -TRA- 22+00 LT	FILL IN WETLANDS 24" & 48" RCP	0.28			0.01	0.03	0.02		380		
38	-L- 841+00 LT & RT	60" RCP & 2 66" RCPs	0.57					0.06		1016		
		BANK STABILIZATION						0.01	<0.01	95	24	
39 ¹	-L- 849+00 RT	FILL IN POND						0.22				
40 ¹	-L- 856+00 RT	FILL IN POND						0.90				
41 ²	-L- 866+50	42" RCP						0.12		279		
		BANK STABILIZATION						<0.01	<0.01	34	10	
42	-L- 890+87 TO -L- 893+14	FILL IN STREAM						0.03	<0.01	276	13	
43	-L- 893+00	84" RCP	0.01			<0.01		0.05		299	11	
		BANK STABILIZATION						0.01	<0.01	28	10	
44	-L- 903+70	54" RCP	0.13			0.02		0.02		179		
		BANK STABILIZATION						<0.01	<0.01	18	10	
45 ¹	-Y302- 152+00 RT	24" RCP						0.05				
SUBTOTAL DESIGN SECTION 2C:			2.78	0.00	0.00	0.31	0.05	1.73	0.06	4322	359	

*Rounded totals are the sum of actual impacts
¹ Fill in surface water due to draining pond
² 0.10ac of fill in surface water due to draining pond

Values in blue are the revised impacts.

Revised 12/18/2015

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
WBS - 34533.5.TA1 (R-3329/2559)

WETLAND PERMIT IMPACT SUMMARY - DESIGN SECTION 3A												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	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)
46	-L-942+33 to 944+18	Bridge							0.04			
		Bank Stabilization						0.05		255		
47	-L- 956+83 to 957+44	Temp. Bridge / Bank Stabilization							0.02		30	
		Bank Stabilization						<0.01		43		
48 ¹	-Y306- 27+69 to 28+79 Rt	Roadway Fill	0.07		0.01	0.03						
	-Y306- 31+58 to 33+11 Rt	60" RCP						0.01		193		
49	-Y318- 16+03 to 15+65	9'x7' RCBC							<0.01		20	
		Bank Stabilization						<0.01		52		
50	-L- 973+14 to 980+36	9'x7' RCBC	0.06					0.09	<0.01	905	18	
	-L- 981+50 to 986+25 Lt	Roadway Fill	0.04									
51	-L- 1001+08 to 1003+00	66" RCP-III						0.02	<0.01	115	20	
		Bank Stabilization						<0.01		11		
52	-Y308- 34+43 to 31+75 Lt	Roadway Fill						0.86	<0.01	545	10	
53	-L- 1038+42	2@10'x6' RCBC						0.10		985		
		Bank Stabilization						0.02	<0.01	165	19	
		Utility Relocation							<0.01		41	
54 ²	-L- 1055+58 to 1059+27	Bridge	0.01	0.37			0.93					
SUBTOTAL DESIGN SECTION 3A:			0.18	0.37	0.01	0.03	0.93	1.11	0.09	3269	158	0.00

¹ Excavation in wetlands is a temporary impact for installation of utility line.

² Permanent Fill in Wetland impacts due to the proposed bents is 453.6 sq. ft (0.01 ac.) included above.

Values in blue are the revised impacts.

Revised 1/26/2016

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

UNION COUNTY
WBS - 34533.5.TA1 (R-3329/R-2559)

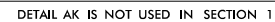
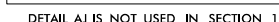
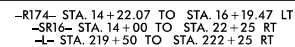
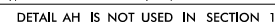
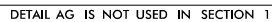
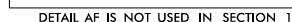
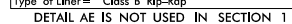
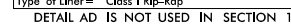
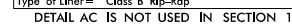
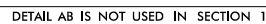
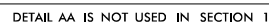
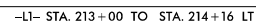
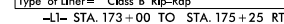
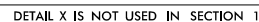
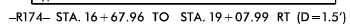
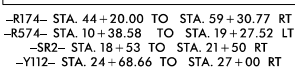
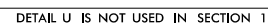
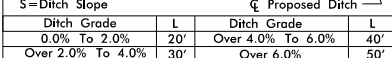
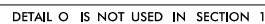
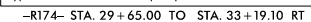
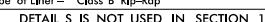
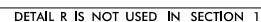
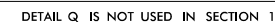
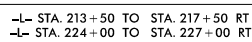
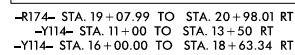
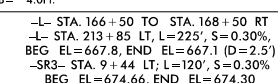
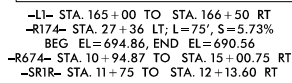
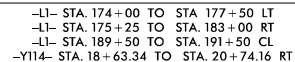
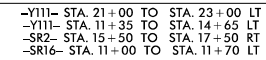
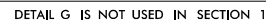
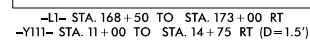
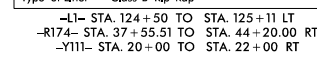
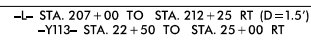
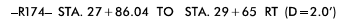
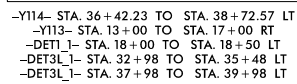
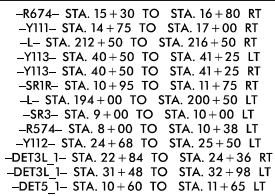
Permit Drawings

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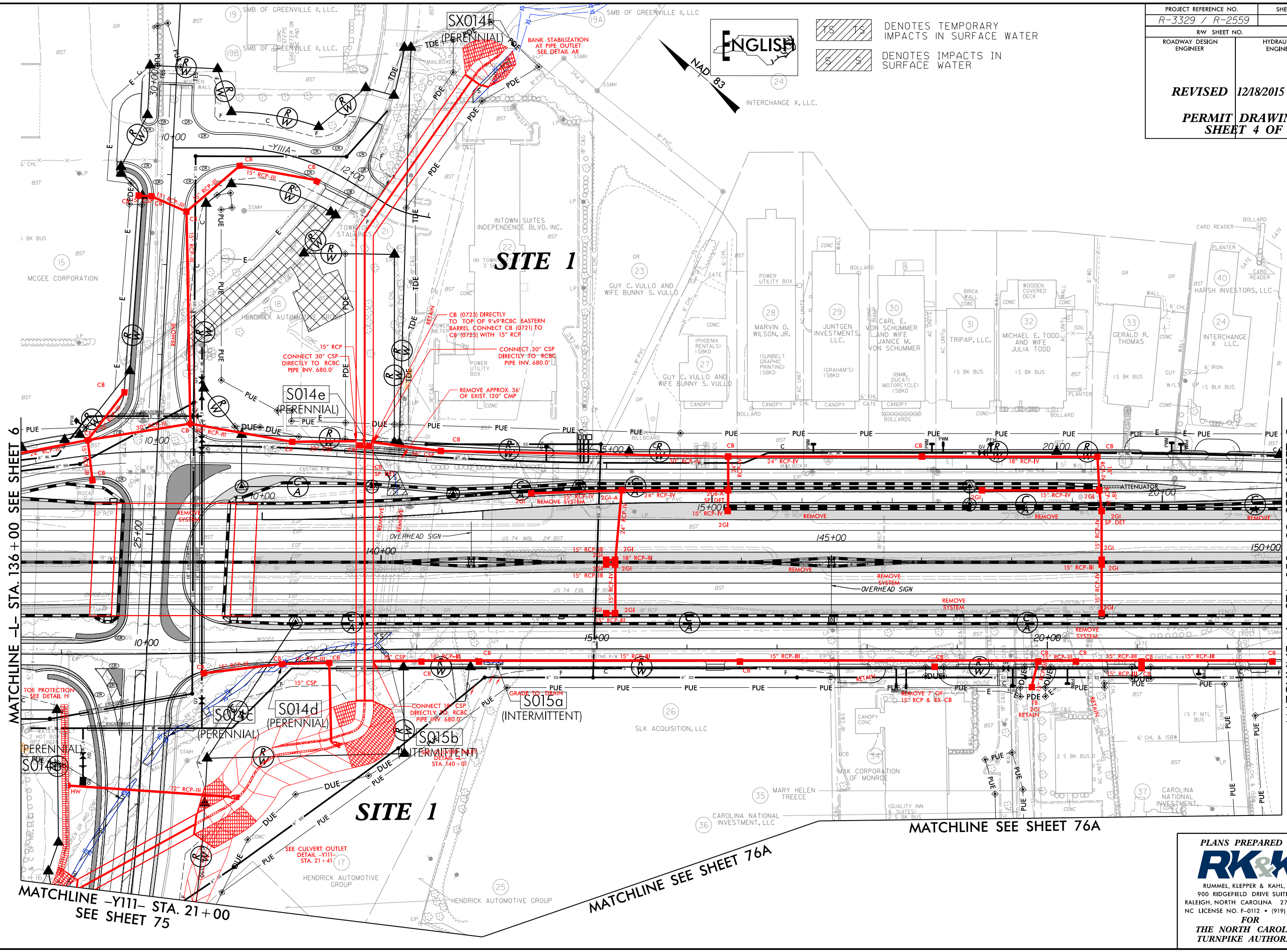
Revisions Outside

of

Jurisdictional Areas



8/17/99



PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED 12/18/2015	
PERMIT DRAWING SHEET 4 OF 267	

MATCHLINE -L- STA. 136+00 SEE SHEET 6

MATCHLINE -L- STA. 150+00 SEE SHEET 8

MATCHLINE -Y111- STA. 21+00
SEE SHEET 75

MATCHLINE SEE SHEET 76A

MATCHLINE SEE SHEET 76A

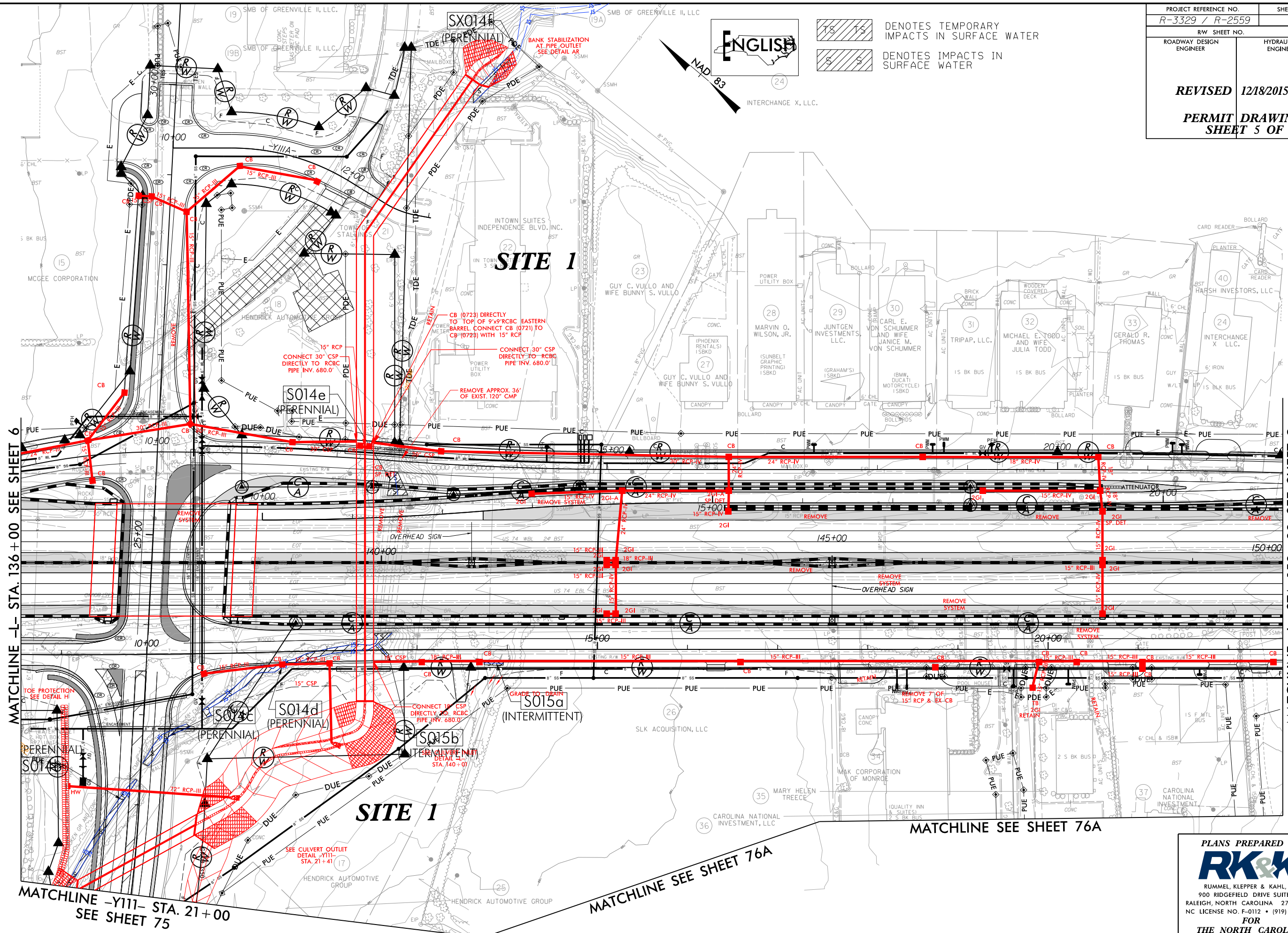
PLANS PREPARED BY :

RK&K

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900 RIDGEFIELD DRIVE SUITE 350
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NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/17/99



TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED 12/18/2015	
PERMIT DRAWING SHEET 5 OF 267	

MATCHLINE -L- STA. 136+00 SEE SHEET 6

MATCHLINE -L- STA. 150+00 SEE SHEET 8

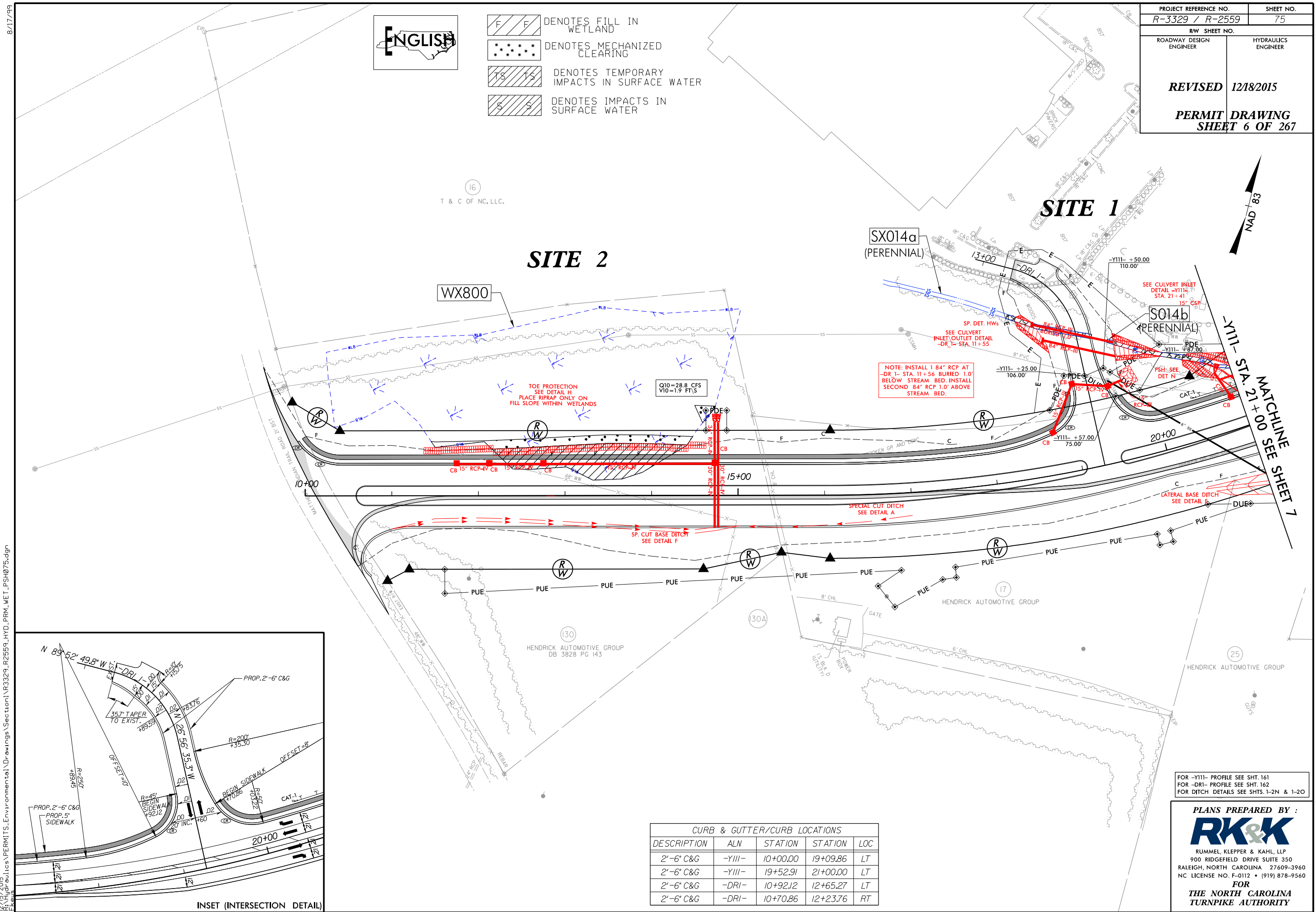
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MATCHLINE SEE SHEET 76A

MATCHLINE SEE SHEET 76A

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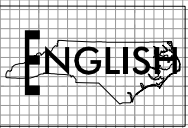
CURB & GUTTER/CURB LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
2'-6" C&G	-YIII-	10+00.00	19+09.86	LT
2'-6" C&G	-YIII-	19+52.91	21+00.00	LT
2'-6" C&G	-DRI-	10+92.12	12+65.27	LT
2'-6" C&G	-DRI-	10+70.86	12+23.76	RT



LATERAL BASE
SEE DETAIL

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5/28/99



-L-

PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		121
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
REVISED 12/18/2015		
PERMIT DRAWING		
SHEET 8 OF 267		

CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 1600	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 690.8	FT
BASE DISCHARGE	= 1700	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 692.2	FT
OVERTOPPING DISCHARGE	= 1946	CFS
OVERTOPPING FREQUENCY	= 100+	YRS
OVERTOPPING ELEVATION	= 696J	FT

PI = 137+50.00
EL = 723.80'
VC = 590'
K = 151
DS = 60mph

-L- STA.137+44.91
-YIII- STA.24+69J6
ELEV.= 720.88'
MCKEE RD.

-L- STA.138+67.88 =
-SRLT 2- STA.10+00.00
ELEV.= 721.51'

PI = 144+50.00
EL = 716.35'
VC = 690'
K = 136
DS = 60mph

SITE 1

20'x19' RBCB

135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00

PI = 155+40.00
EL = 759.95'
VC = 1,210'
K = 151
DS = 60mph

Q TOLL ZONES 1-1& 1-2
-L- STA.151+15.00

-L- STA.156+52.41 =
-R474- STA.10+00.00
ELEV.= 747.43'

-L- STA.155+41.78 =
-YIII3- STA.26+07.57
ELEV.= 747.85'
STALLINGS RD.

EXISTING GROUND

PROPOSED GRADE

149+00 150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00 161+00 162+00 163+00

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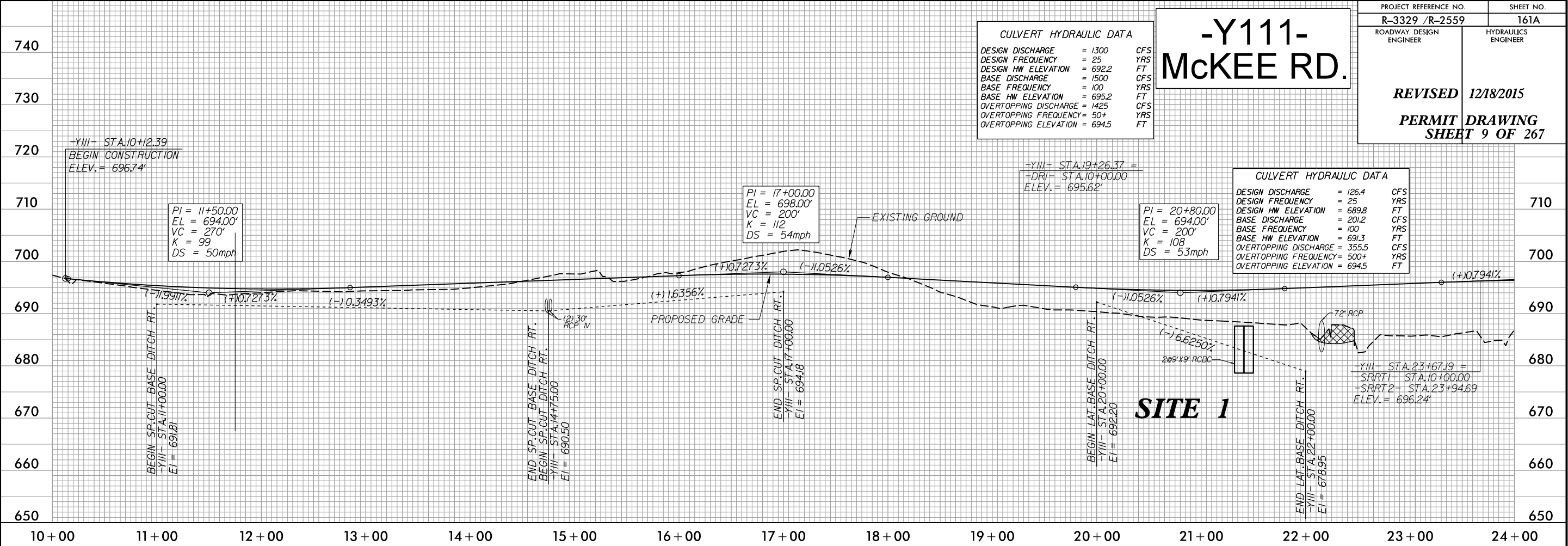
FOR
**THE NORTH CAROLINA
TURNPIKE AUTHORITY**

PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		161A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED 12/18/2015		
PERMIT DRAWING		
SHEET 9 OF 267		

-Y111- McKEE RD.

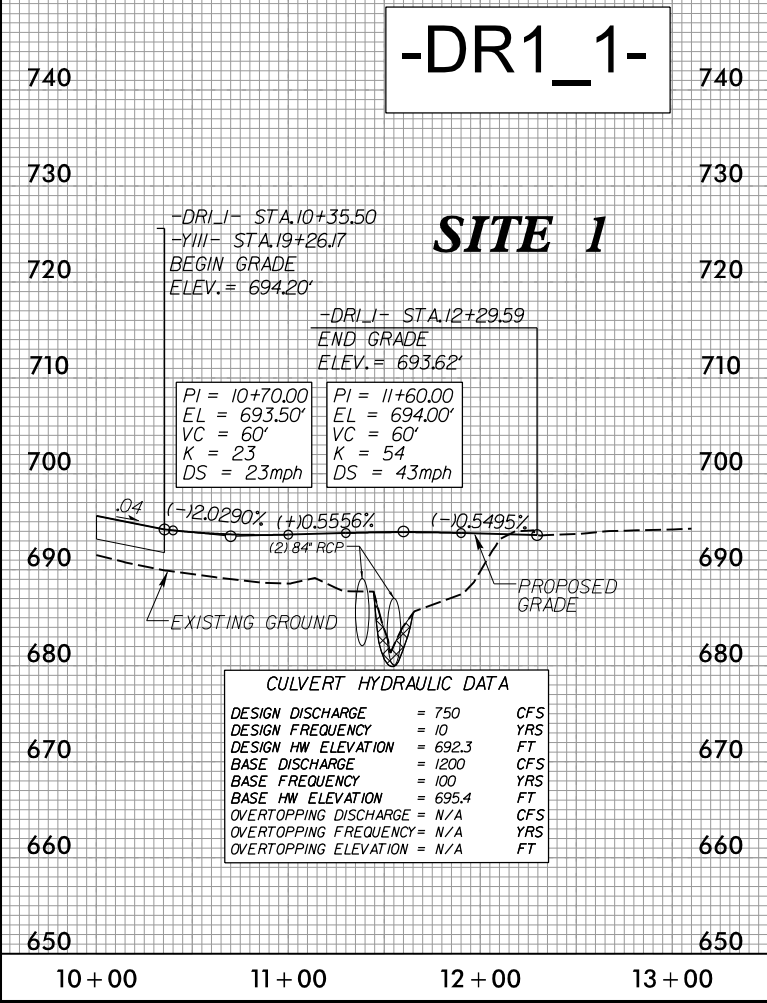
CULVERT HYDRAULIC DATA		
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DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 692.2	FT
BASE DISCHARGE	= 1500	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 695.2	FT
OVERTOPPING DISCHARGE	= 1425	CFS
OVERTOPPING FREQUENCY	= 50+	YRS
OVERTOPPING ELEVATION	= 694.5	FT

CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 126.4	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 689.8	FT
BASE DISCHARGE	= 201.2	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 691.3	FT
OVERTOPPING DISCHARGE	= 355.5	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 694.5	FT



-DR1_1-

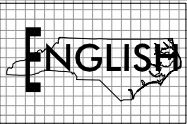
SITE 1



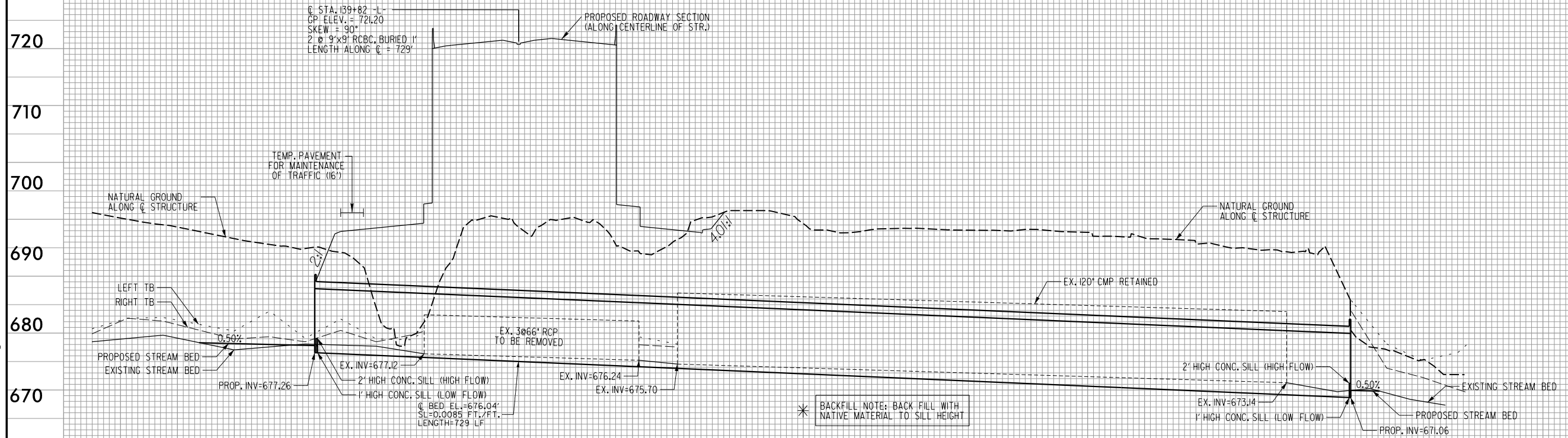
5/14/99
12/15/2015
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Elev

SITE 1

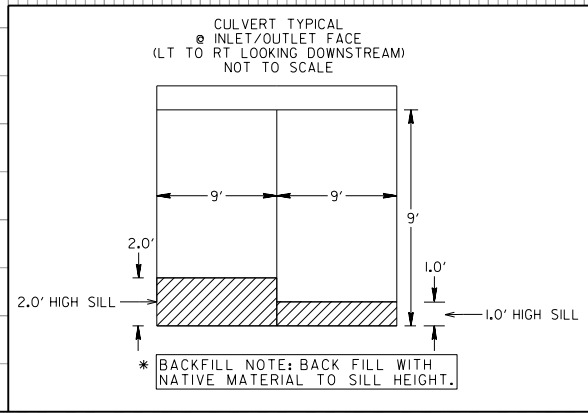
-L- 139+82



PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED	12/18/2015	
PERMIT SHEET	DRAWING 10 OF 267	



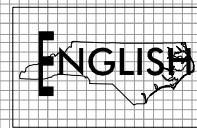
PROPOSED (2) - 9'X9' RCBC



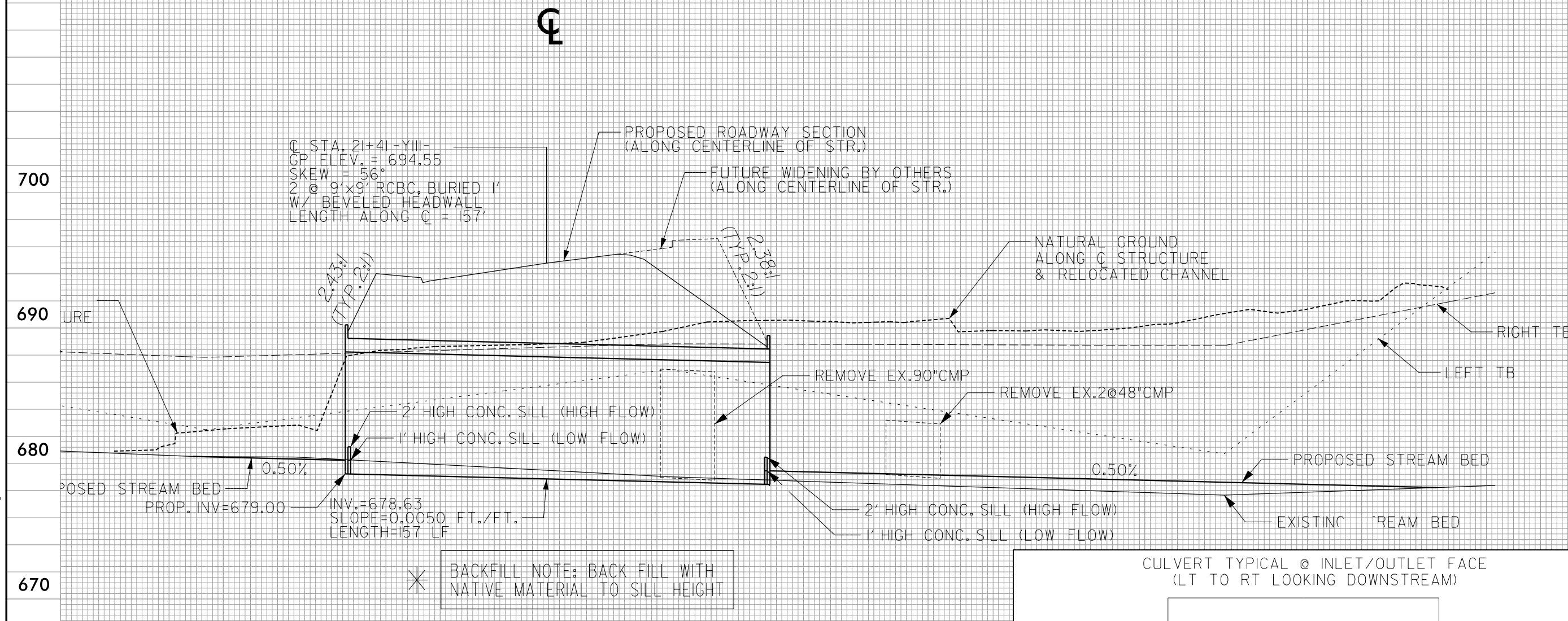
NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

5/14/99
12/15/2015
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SITE 1 -YIII- 21+50

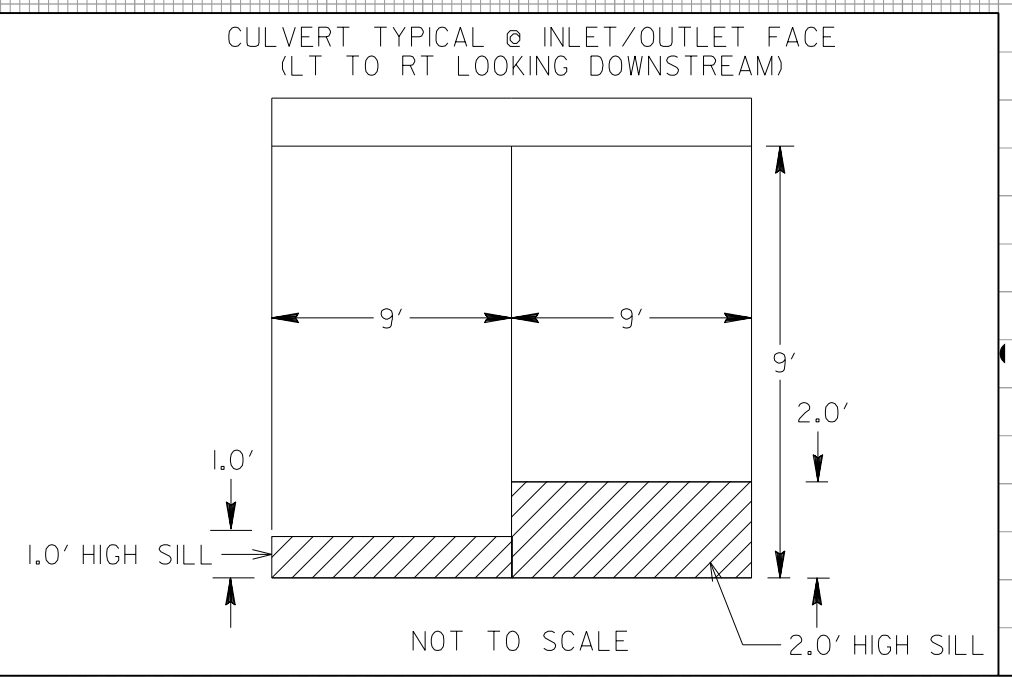


PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
REVISED	12/18/2015	
PERMIT SHEET	DRAWING	11 OF 267

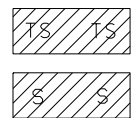


PROPOSED (2) - 9'X9' RCBC

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

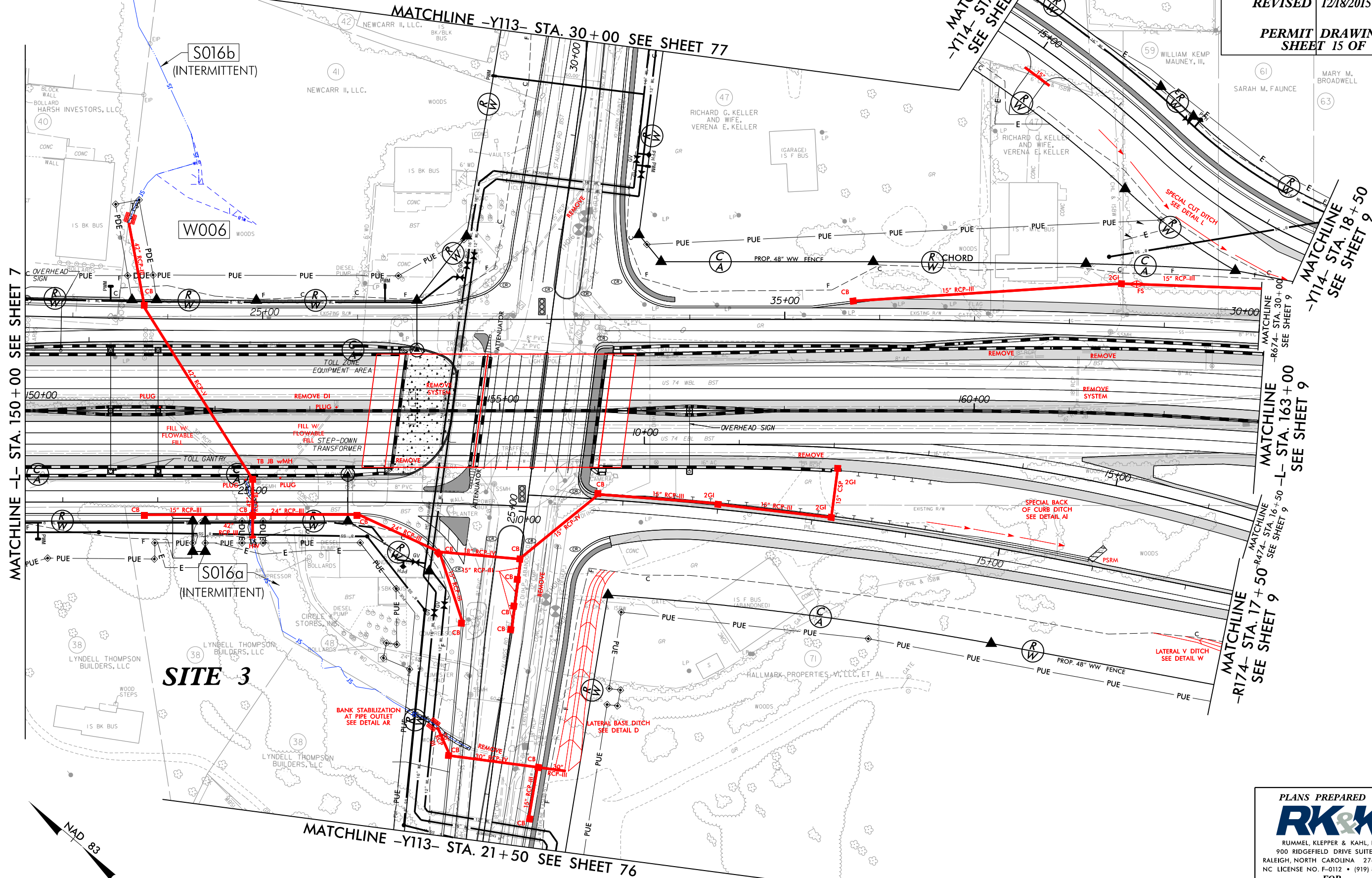


8/17/99



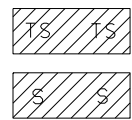
TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. R-3329 / R-2559	SHEET NO. 8
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED 12/18/2015	
PERMIT DRAWING SHEET 15 OF 267	



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8/17/99



TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. R-3329 / R-2559	SHEET NO. 8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED 12/18/2015	
PERMIT DRAWING SHEET 16 OF 267	

MATCHLINE -L- STA. 150+00 SEE SHEET 7

MATCHLINE -Y113- STA. 30+00 SEE SHEET 77

MATCHLINE -Y114- STA. 14+50 SEE SHEET 77

MATCHLINE -Y114- STA. 18+50 SEE SHEET 9

MATCHLINE -R174- STA. 17+50 SEE SHEET 9
MATCHLINE -R674- STA. 163+00 SEE SHEET 9

MATCHLINE -Y113- STA. 21+50 SEE SHEET 76

SITE 3

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REVISIONS

APRIL 30, 2015 - CHANGED PARCEL #72 TO #71

JUNE 9, 2015 - CHORDED ROW ON PARCEL #93

OCT 22, 2015 - REVISED TCE & ADDED PUE ON PARCELS #73 & #332

OCT 22, 2015 - DELETED TCE & ADDED PUE ON PARCELS #64, #65, #69, #70, #74, #85 & #84

ADDED PUE AND CHANGED PUE TO DUE ON PARCEL 76A ADDED PARCEL 832 FOR NEW PUE

ADDED PUE ON PARCELS #76, #85, #93 & #94

REVISED PUE FOR PARCELS #71, #91, #199 & #992

NOV 4, 2015 - REVISED PUE FOR PARCELS 76, 84, 93, 94, 832 & 119

DELETED PUE & REVISED DUE TO PUE FOR PARCEL 76A

ADDED PUE FOR PARCEL 91

DELETED TCE AND REVISED PUE FOR PARCELS 73 & 332

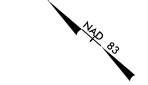
ADDED CHORD TO ROW & REVISED PUE FOR PARCELS 71

PROJECT REFERENCE NO. R-3329 Z R-2559

SHEET NO. 9

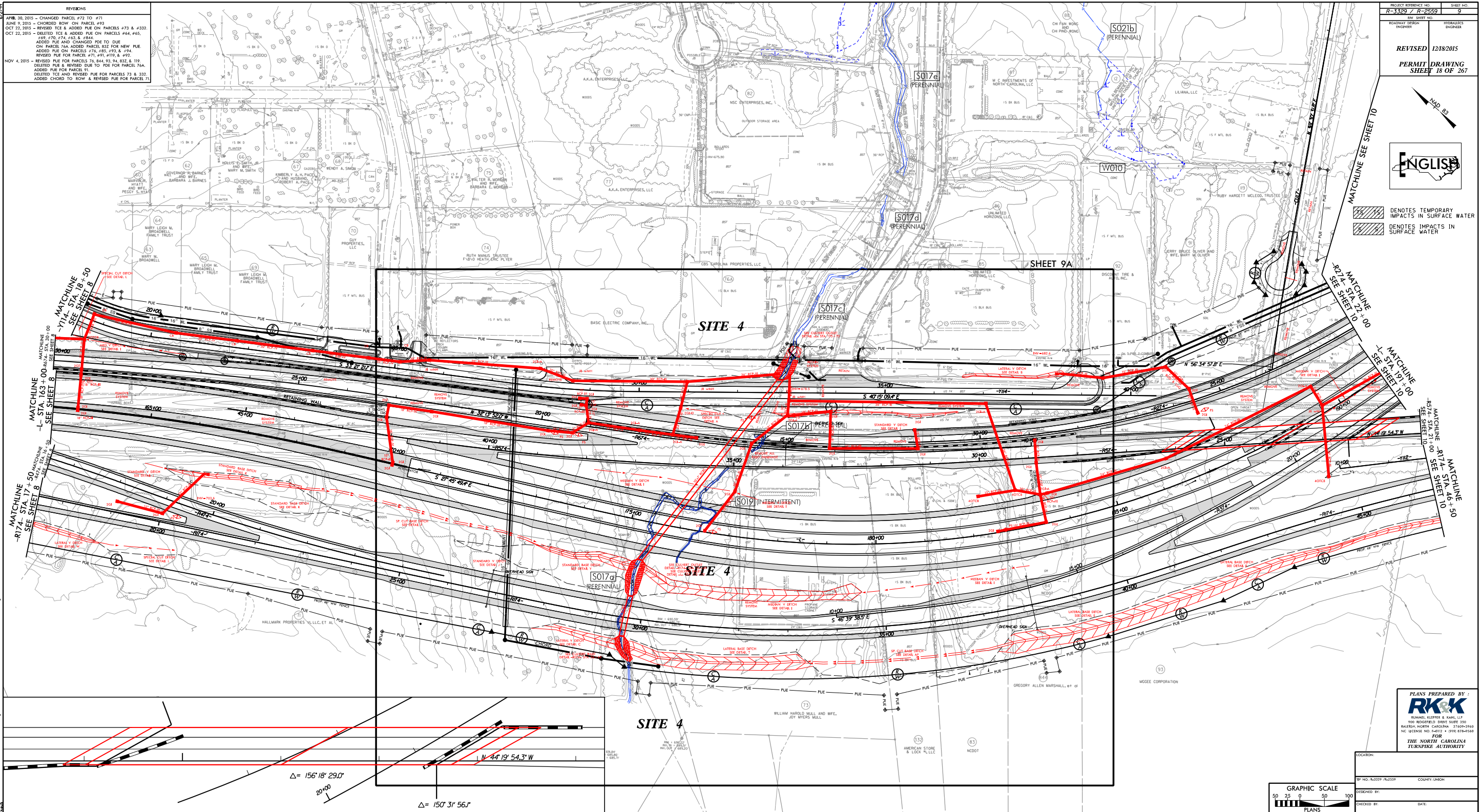
REVISED 12/18/2015

PERMIT DRAWING SHEET 18 OF 267



/// DENOTES TEMPORARY IMPACTS IN SURFACE WATER

/// DENOTES IMPACTS IN SURFACE WATER



PLANS PREPARED BY:

RK&K

100 RIDGEFIELD DRIVE SUITE 350

WAXTON, NORTH CAROLINA 27580-3540

NC LICENSE NO. 44012 & 4191 878-9548

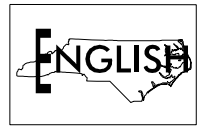
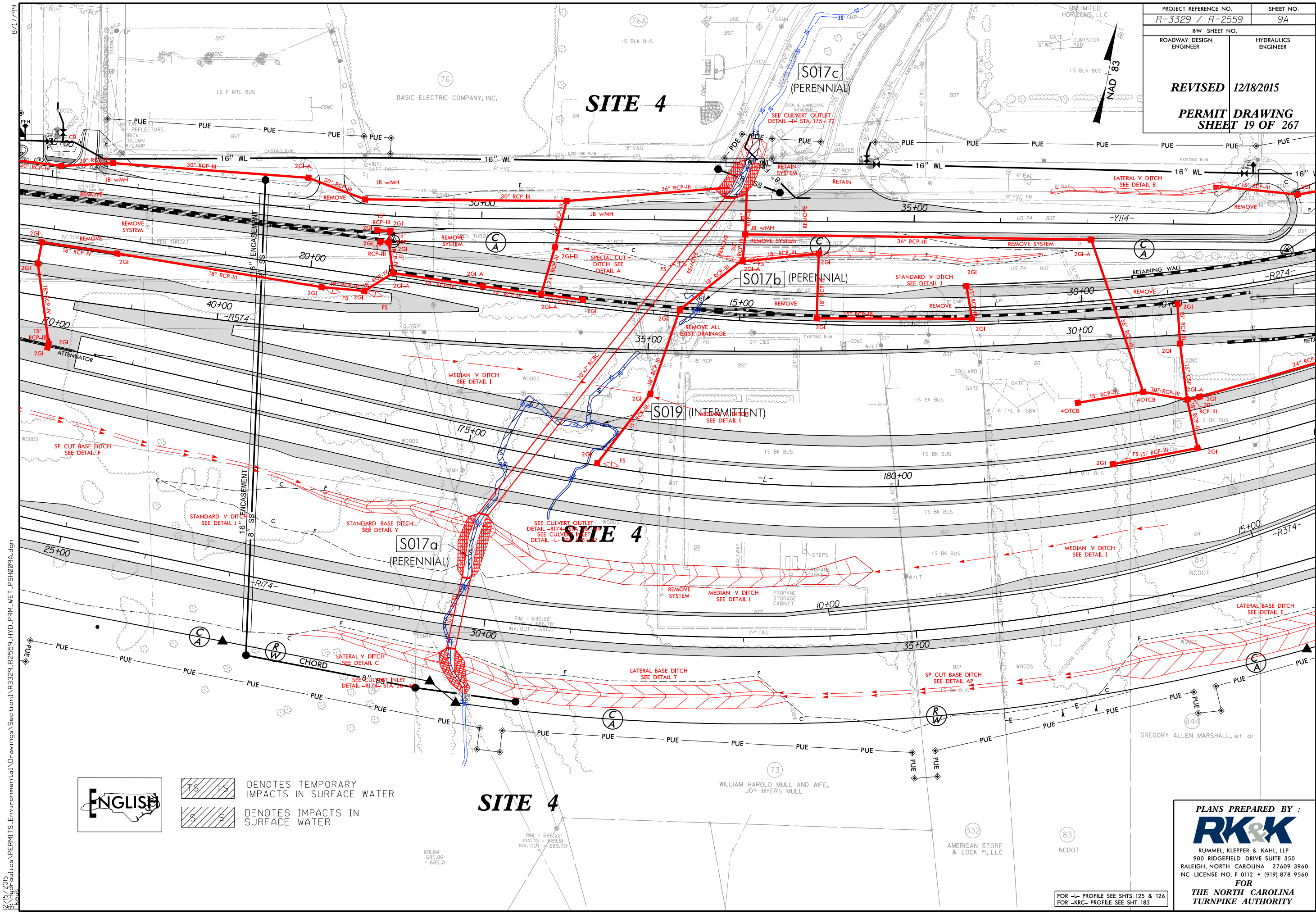
FOR THE NORTH CAROLINA TURNPIKE AUTHORITY

LOCATION:

TP NO. R-3329 Z R-2559 COUNTY: UNION

DESIGNED BY: _____

CHECKED BY: _____ DATE: _____



TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

SITE 4

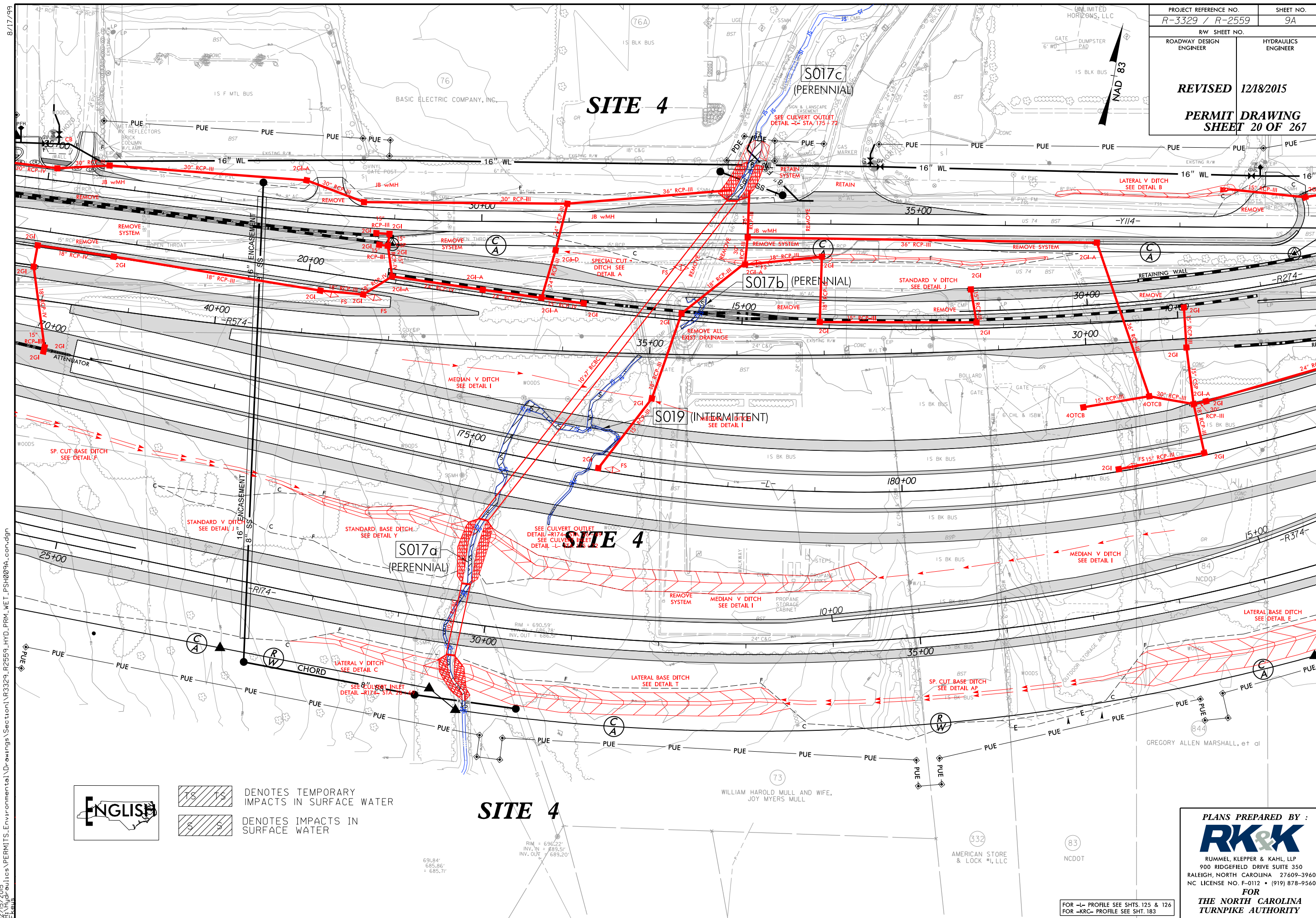
PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
**THE NORTH CAROLINA
TURNPIKE AUTHORITY**

FOR -L- PROFILE SEE SHTS. 125 & 126
FOR -KRC- PROFILE SEE SHIT. 183



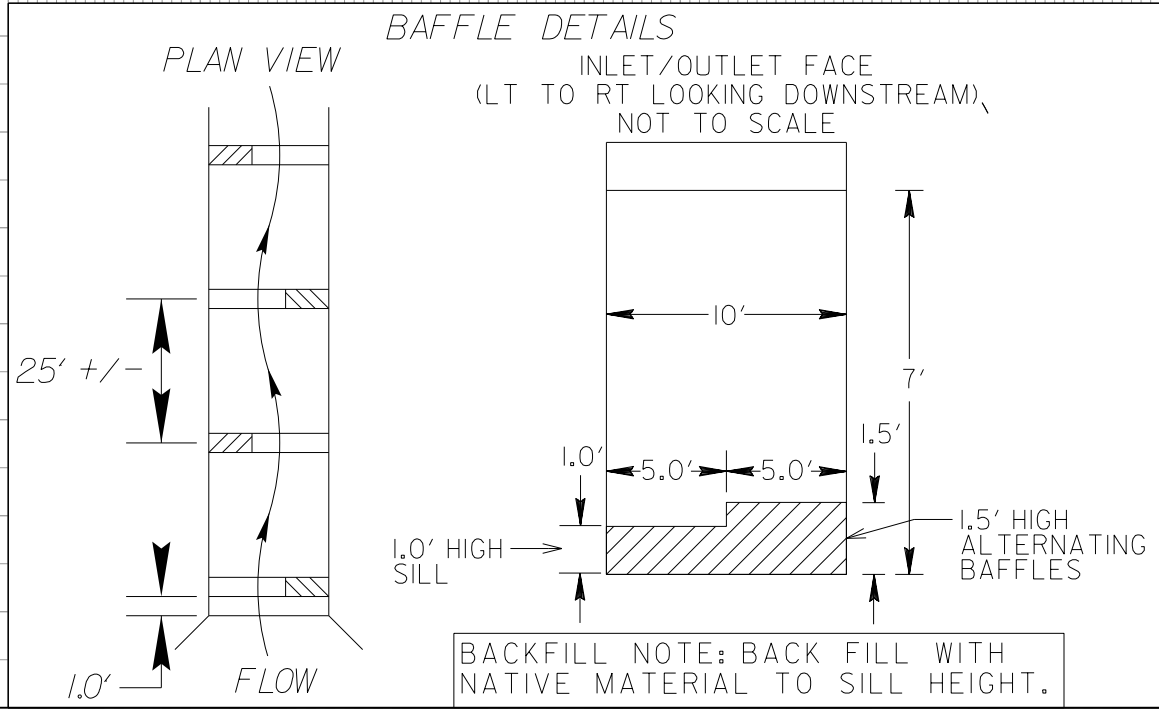
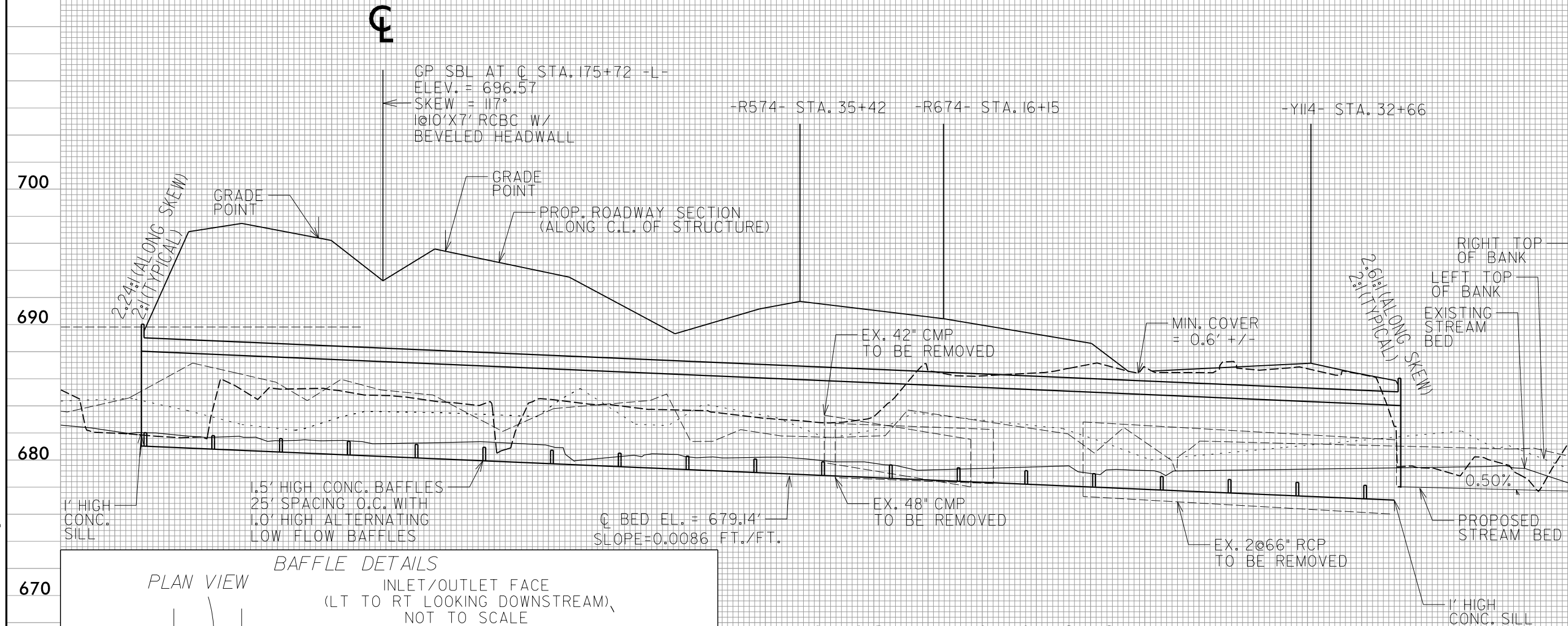
PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

5/14/99
12/15/2015
R:\Hydraulics\PERMITS\Environmental\Drawings\Section\3329_R2559_HYD_PRM_WET_PFL1_2.dgn

ENGLISH

PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
REVISED	12/18/2015	
PERMIT SHEET	DRAWING 25 OF 267	

SITE 4 -L- 175+72

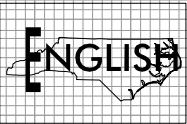


PROPOSED 10'X7' RCBC WITH BAFFLES

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

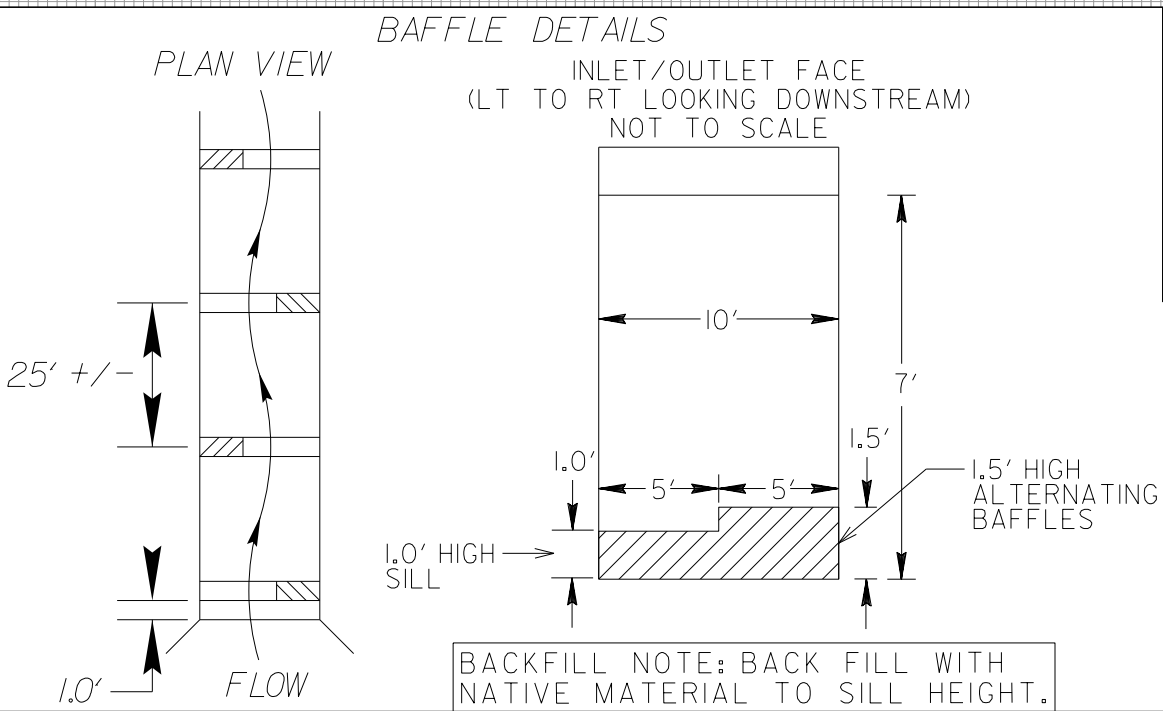
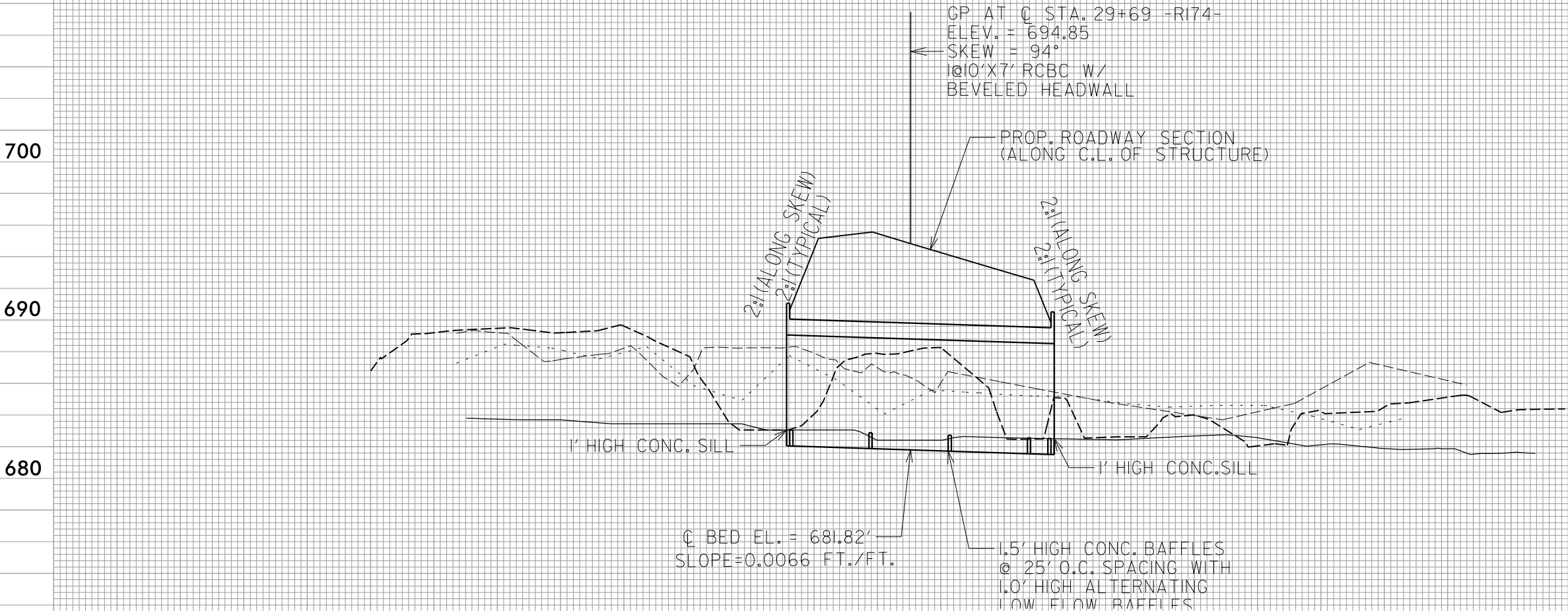
5/14/99
12/15/2015
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PROJECT REFERENCE NO.		SHEET NO.	
R-3329 /R-2559			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
REVISED		12/18/2015	
PERMIT SHEET		DRAWING 26 OF 267	

SITE 4

-R174- STA. 29+69



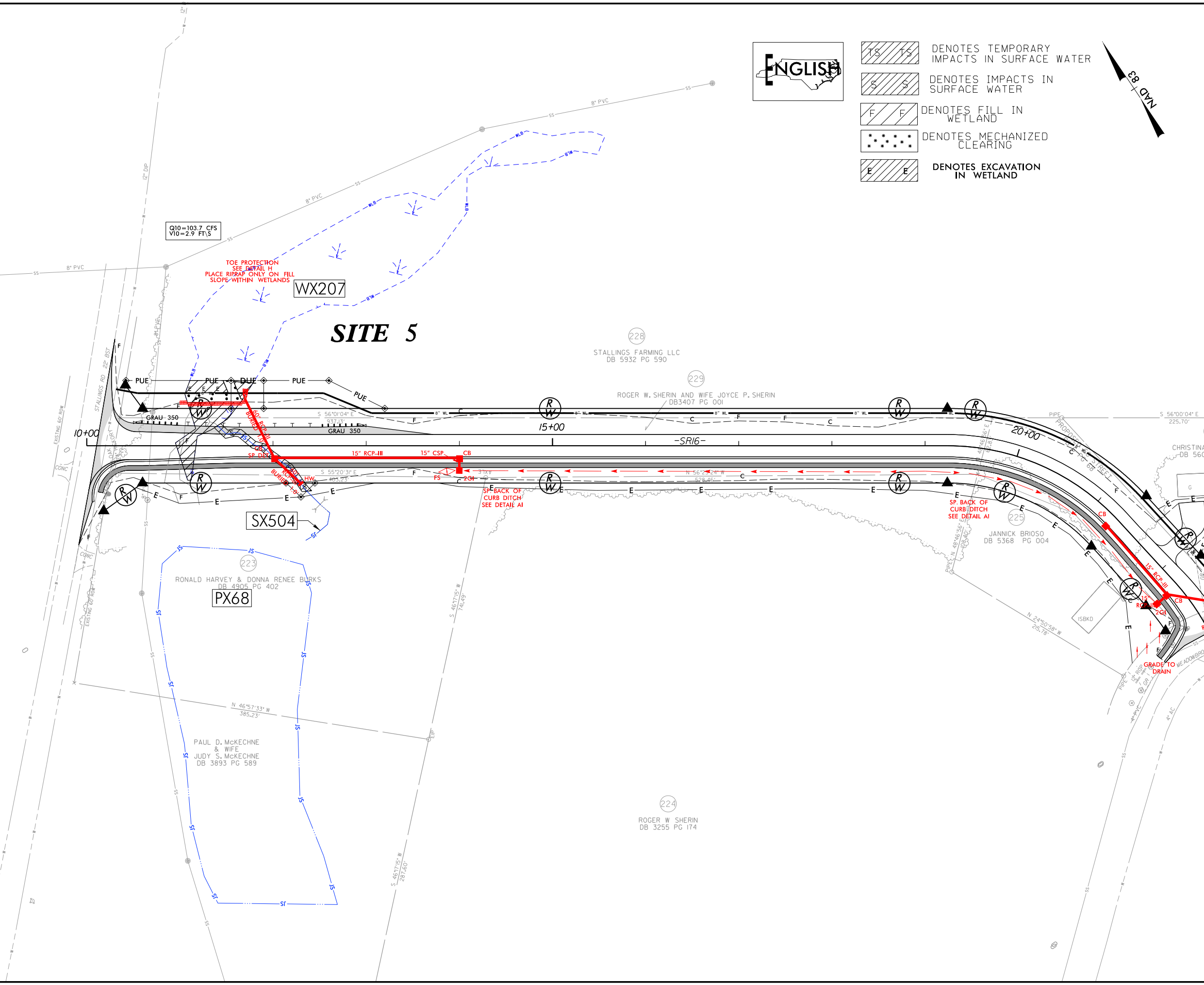
PROPOSED 10'X7' RCBC WITH BAFFLES

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

BACKFILL NOTE: BACK FILL WITH NATIVE MATERIAL TO SILL HEIGHT.

8/17/99
12/17/2015
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E:\



PROJECT REFERENCE NO.		SHEET NO.	
R-3329 / R-2559		78	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
REVISED		12/18/2015	
PERMIT SHEET		DRAWING 27 OF 267	

FOR -SR16- PROFILE SEE SHT. 175

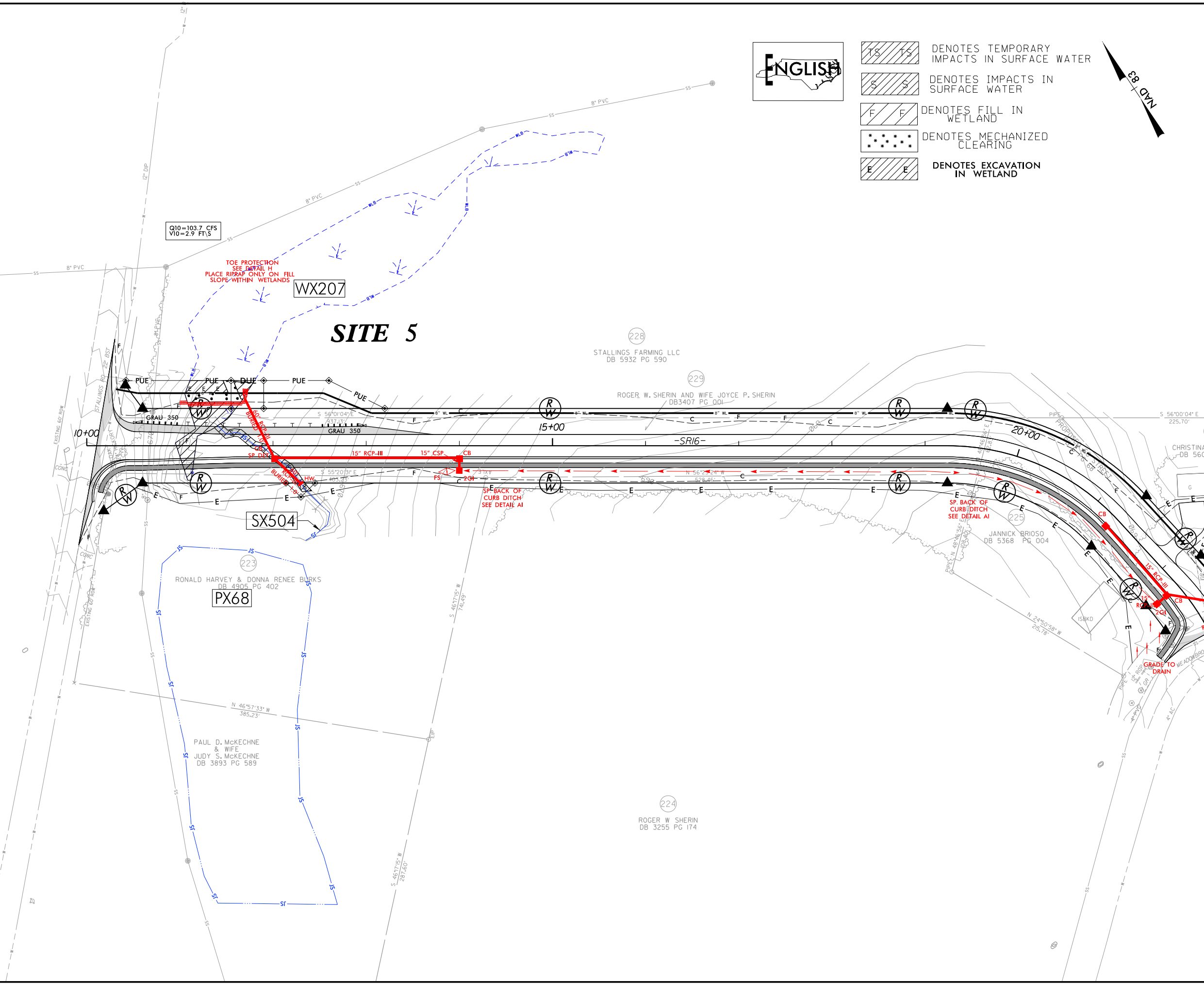
PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/17/99
12/17/2015
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- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- S S DENOTES IMPACTS IN SURFACE WATER
- F F DENOTES FILL IN WETLAND
- * * * * * DENOTES MECHANIZED CLEARING
- E E DENOTES EXCAVATION IN WETLAND

PROJECT REFERENCE NO.		SHEET NO.	
<i>R-3329 / R-2559</i>		<i>78</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
<i>REVISED</i>		<i>12/18/2015</i>	
<i>PERMIT SHEET</i>		<i>DRAWING 28 OF 267</i>	

FOR -SR16- PROFILE SEE SHT. 175

PLANS PREPARED BY :

RK&K

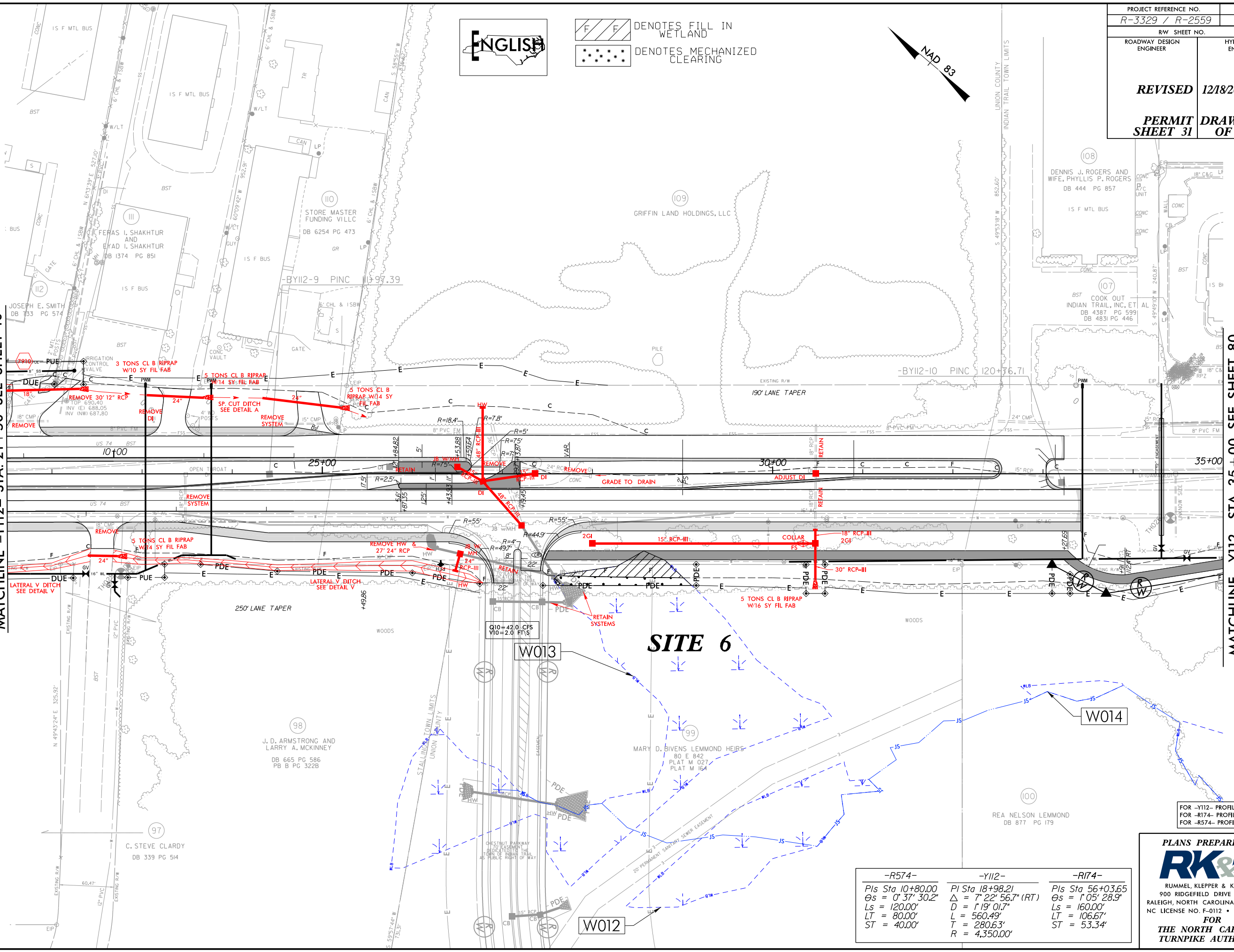
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/17/99
12/17/2015
R:\Hydrolics\PERMITS\Environmental\Drawings\Section1\R3329_R2559_HYD_PRM_WET_PSH079.dgn

MATCHLINE -Y112- STA. 21+50 SEE SHEET 10

MATCHLINE -Y112- STA. 35+00 SEE SHEET 80



Denotes Fill in Wetland
Denotes Mechanized Clearing

PROJECT REFERENCE NO. R-3329 / R-2559		SHEET NO. 79	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		REVISED 12/18/2015	
PERMIT SHEET 31		DRAWING OF 267	

-R574-	-Y112-	-R174-
Pls Sta 10+80.00 Gs = 0' 37' 30.2" Ls = 120.00' LT = 80.00' ST = 40.00'	Pl Sta 18+98.21 Δ = 7' 22' 56.7" (RT) L = 560.49' T = 280.63' R = 4,350.00'	Pls Sta 56+03.65 Gs = 1' 05' 28.9" Ls = 160.00' LT = 106.67' ST = 53.34'

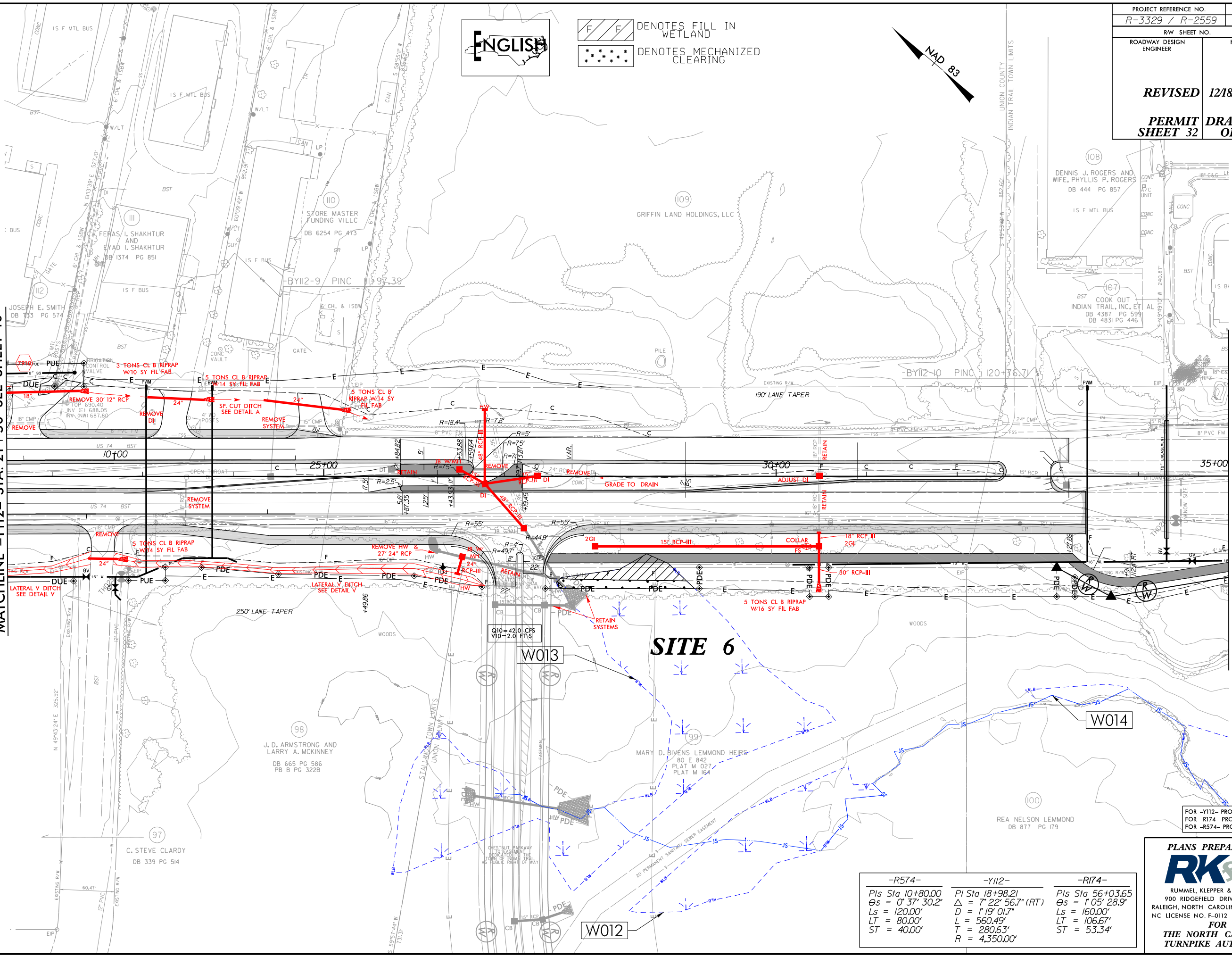
PLANS PREPARED BY :
RK&K
Rummel, Klepper & Kahl, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

FOR -Y112- PROFILE SEE SHT. 174
FOR -R174- PROFILE SEE SHT. 169
FOR -R574- PROFILE SEE SHT. 172

8/17/99
12/17/2015
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MATCHLINE -Y112- STA. 21+50 SEE SHEET 10

MATCHLINE -Y112- STA. 35+00 SEE SHEET 80



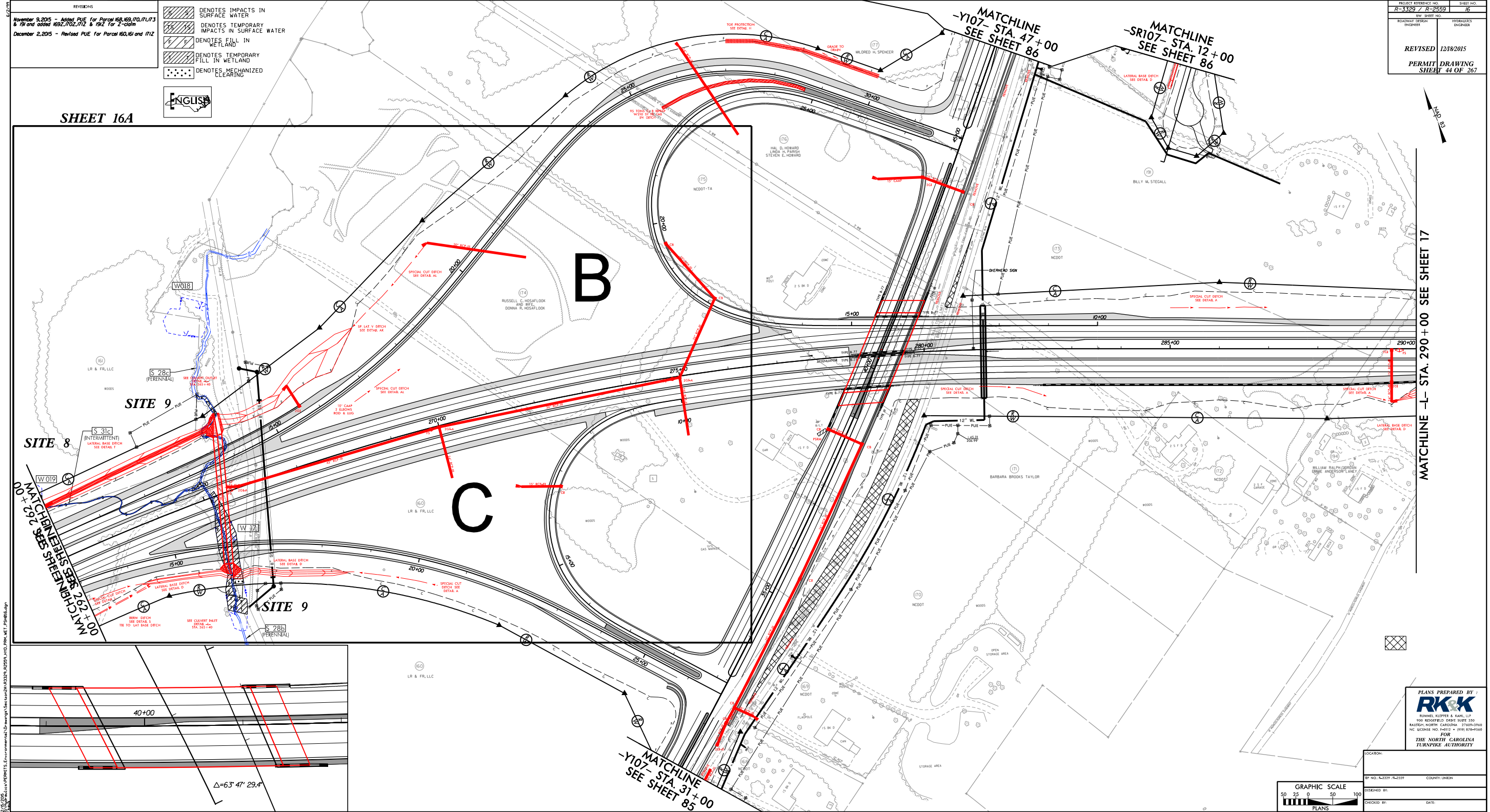
F F DENOTES FILL IN WETLAND
***** DENOTES MECHANIZED CLEARING

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	79
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED 12/18/2015	
PERMIT SHEET 32	DRAWING OF 267

-R574-	-Y112-	-R174-
Pls Sta 10+80.00 Gs = 0' 37' 30.2" Ls = 120.00' LT = 80.00' ST = 40.00'	Pl Sta 18+98.21 Δ = 7' 22' 56.7" (RT) D = 1' 19' 01.7" L = 560.49' T = 280.63' R = 4,350.00'	Pls Sta 56+03.65 Gs = 1' 05' 28.9" Ls = 160.00' LT = 106.67' ST = 53.34'

PLANS PREPARED BY :
RK&K
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900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

FOR -Y112- PROFILE SEE SHT. 174
FOR -R174- PROFILE SEE SHT. 169
FOR -R574- PROFILE SEE SHT. 172



REVISIONS
November 9, 2015 - Added PUE for Parcel 169, 170, 171, 173 & 191 and added 169, 170, 172 & 192 for 2-claim
December 2, 2015 - Revised PUE for Parcel 160, 161 and 172

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



SHEET 16A

PROJECT REFERENCE NO.	R-3329 / R-2559	SHEET NO.	16
ROADWAY DESIGN	INCHES	PERMITS	BOOKER
REVISED	12/18/2015	PERMIT DRAWING	SHEET 44 OF 267

MATCHLINE -L- STA. 290 + 00 SEE SHEET 17

PLANS PREPARED BY :

RK&K

MINNIE KEPPER & KIM LIP
100 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27605-3140
NC LICENSE NO. 4-0192 & 0193 878-9548

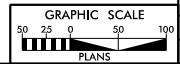
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

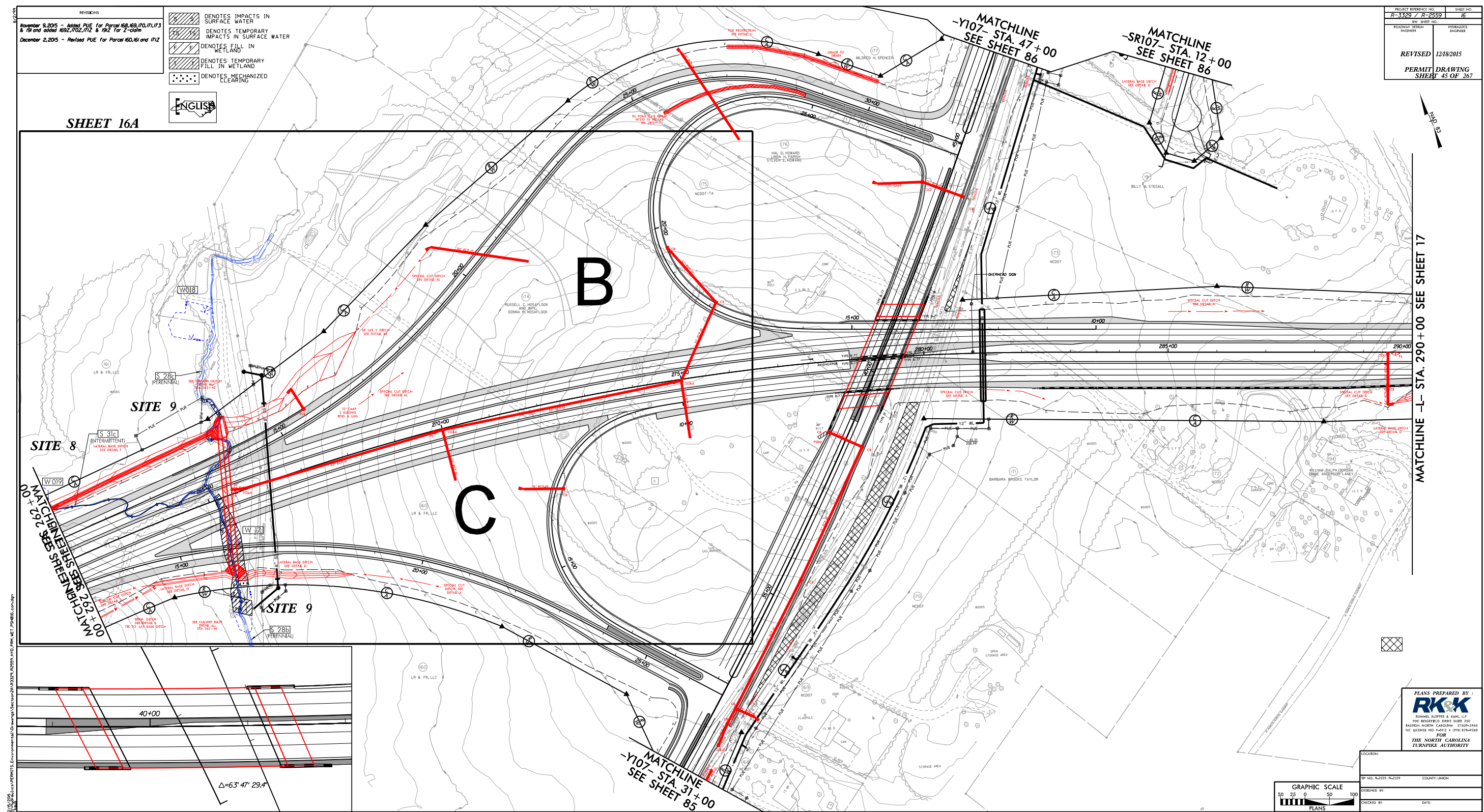
LOCATION:

TP NO. R-3329 / R-2559 COUNTY/UNION

DESIGNED BY:

CHECKED BY: DATE:





8/17/99



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

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	16A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED	12/18/2015
PERMIT DRAWING	SHEET 46 OF 267

SITE 8

SITE 9

SITE 9

B

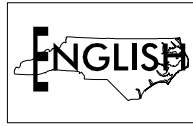
C

MATCHLINE SEE SHEET 15
STA. 262+00

FOR -L- PROFILE SEE SHTS. 125 & 126
FOR -KRC- PROFILE SEE SHIT. 183

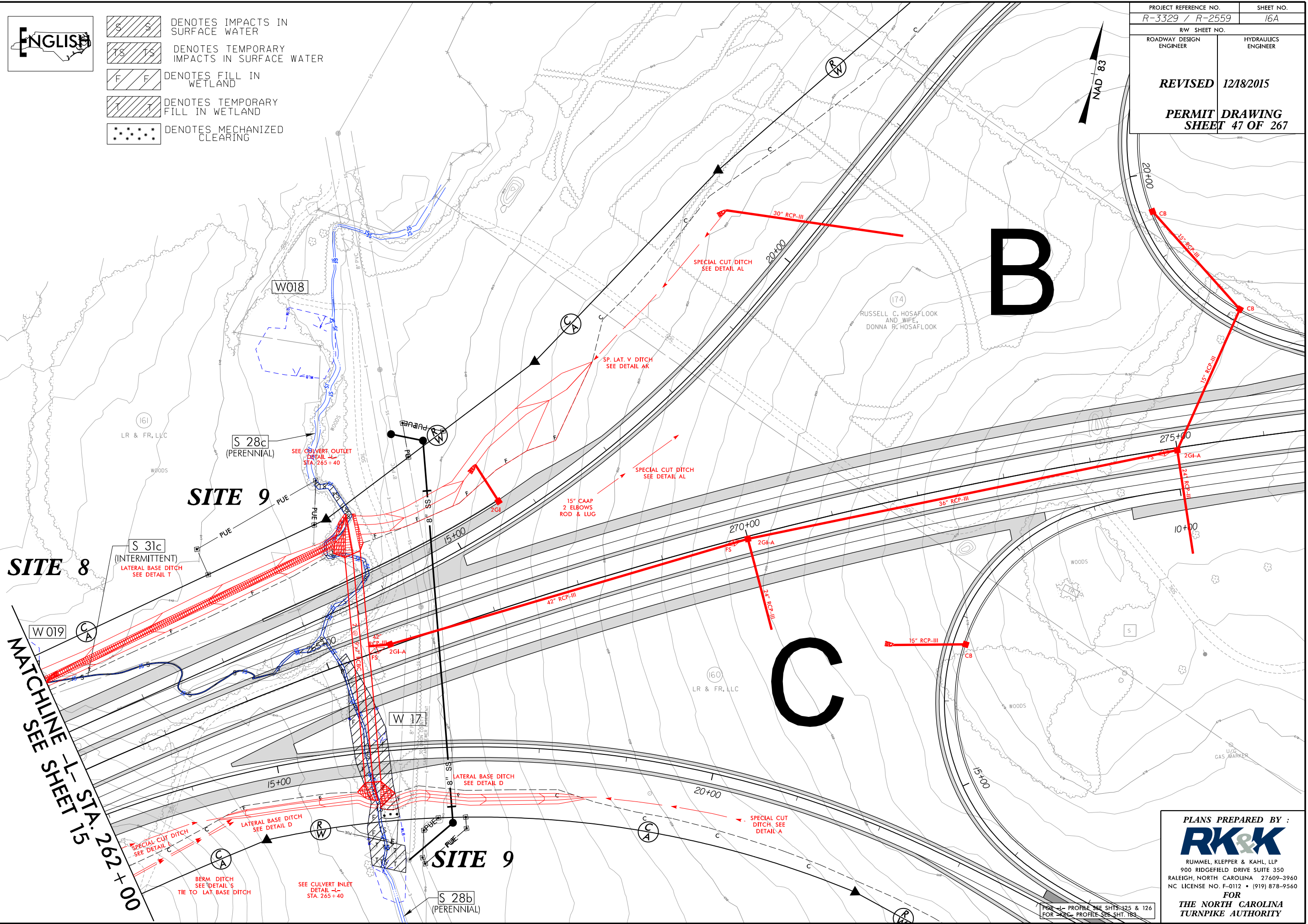
PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/17/99



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

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	16A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED 12/18/2015	
PERMIT DRAWING SHEET 47 OF 267	



12/15/2015
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E:\Users\j\Documents\12/15/2015

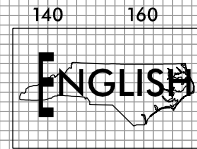
FOR - I - PROFILE SEE SHTS. 125 & 126
FOR - RCP - PROFILE SEE SHIT. 185

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

5/14/99

12/5/2015
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Elev

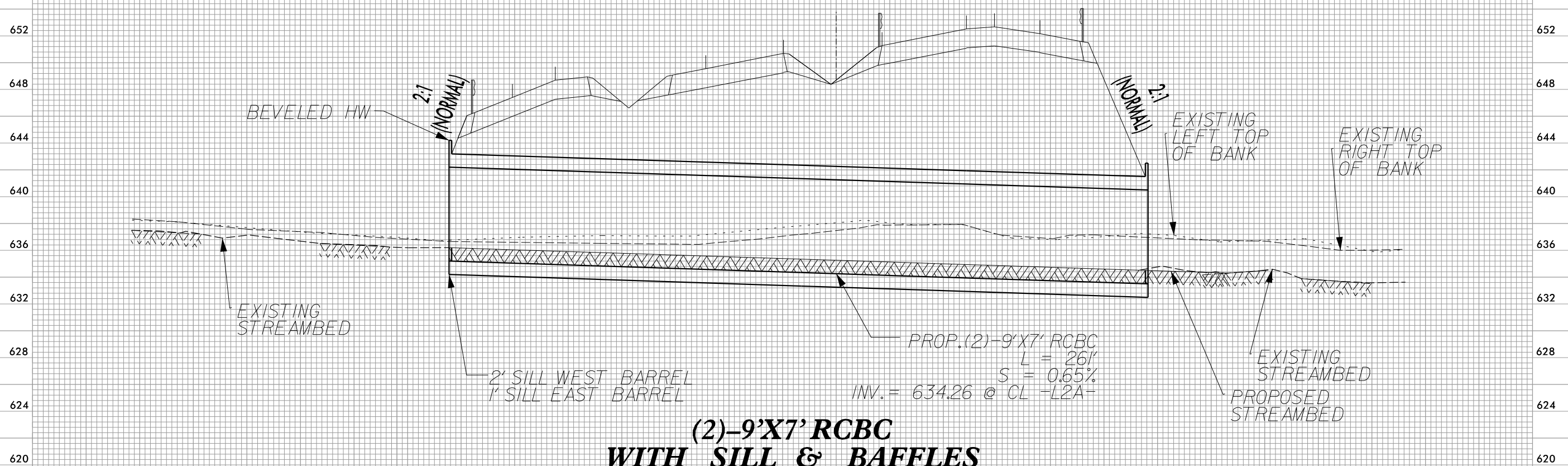
160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160



PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED 12/18/2015		
PERMIT SHEET	DRAWING	50 OF 267

SITE 9

-L- STA. 265+40

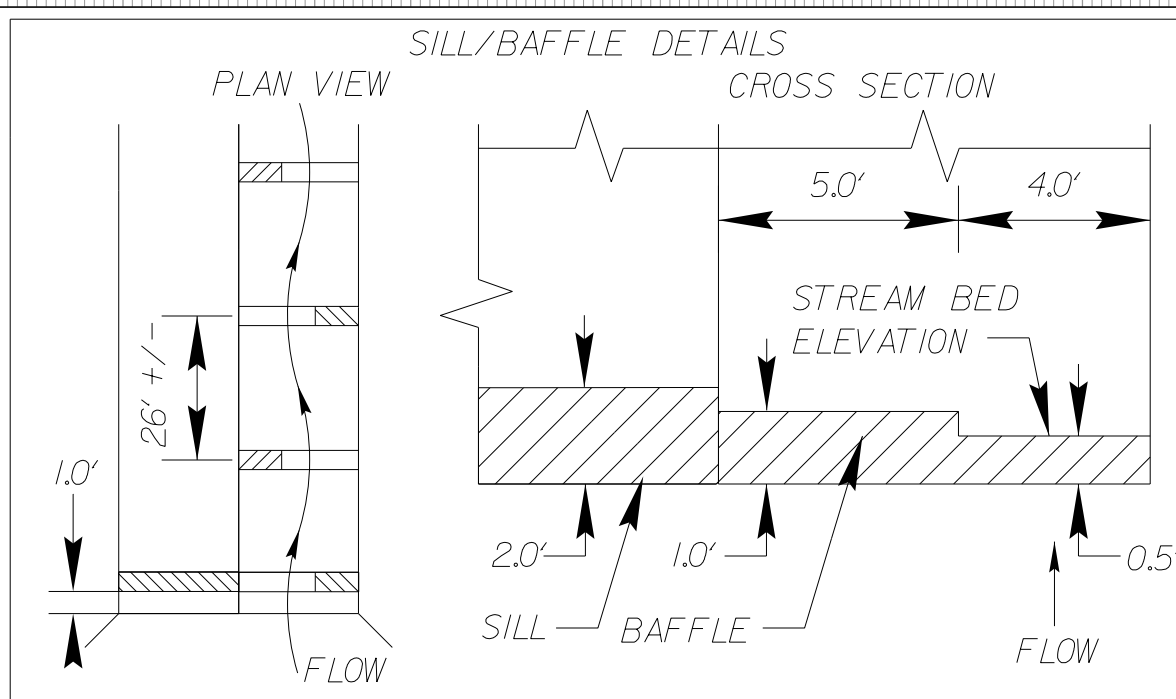


(2)-9'X7' RCBC WITH SILL & BAFFLES

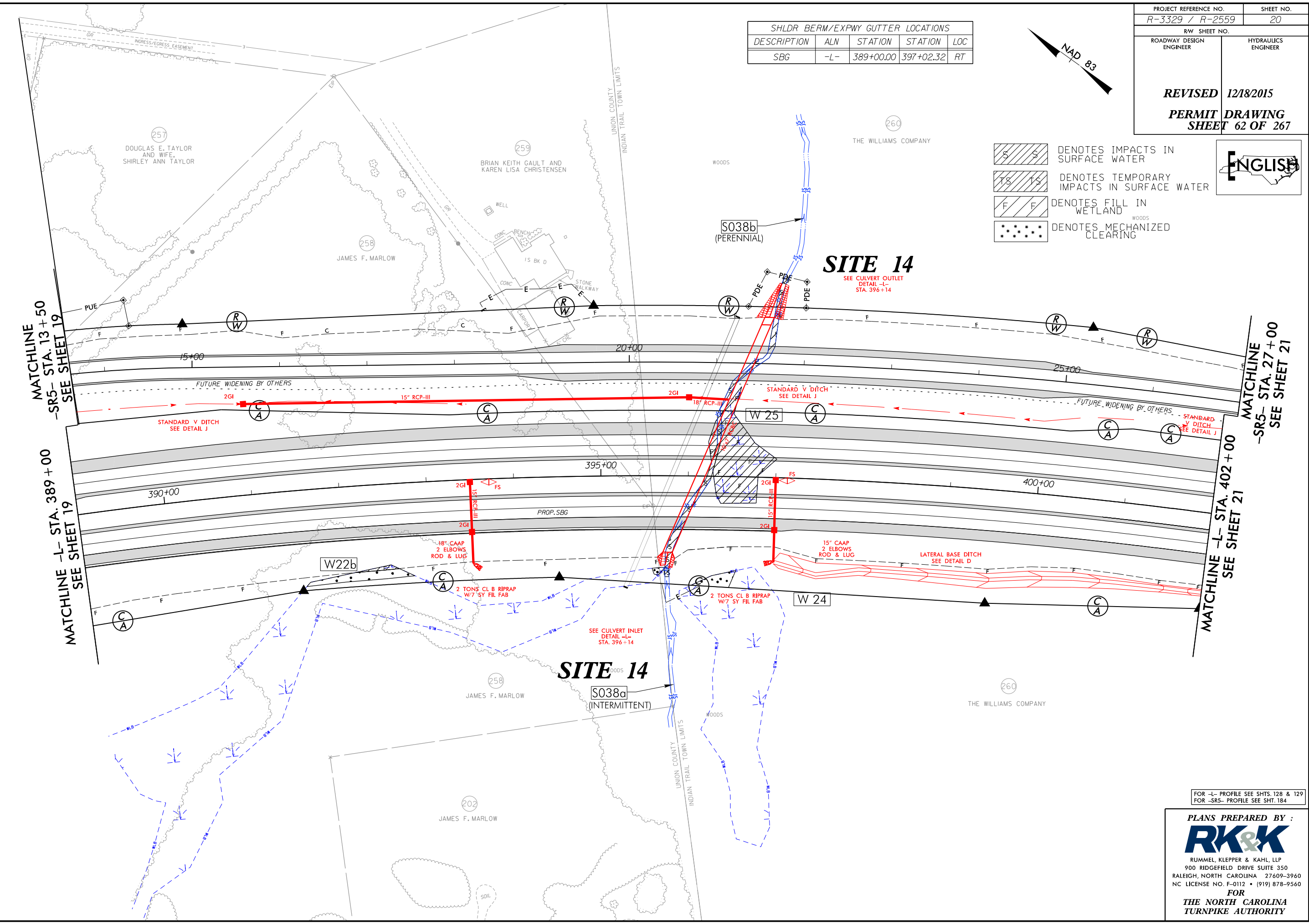
PLACE SILLS 1.0' INSIDE CULVERT AT INLET AND OUTLET.

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.



8/17/99
12/5/2015
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R. Williams



SHLDR BERM/EXPWY GUTTER LOCATIONS			
DESCRIPTION	ALN	STATION	STATION
SBG	-L-	389+00.00	397+02.32

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

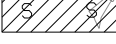


PROJECT REFERENCE NO. R-3329 / R-2559	SHEET NO. 20
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED 12/18/2015	PERMIT DRAWING SHEET 62 OF 267

FOR -L- PROFILE SEE SHTS. 128 & 129
FOR -SR5- PROFILE SEE SHT. 184

PLANS PREPARED BY :
RK&K
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900 RIDGEFIELD DRIVE SUITE 350
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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

SHLDR BERM/EXPWY GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	389+00.00	397+02.32	RT


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

ENGLISH

SITE 14
SEE CULVERT OUTLET
DETAIL -L-
STA. 396+14

MATCHLINE
-SR5- STA. 13+50
SEE SHEET 19

MATCHLINE -L- STA. 389+00
SEE SHEET 19

MATCHLINE -L- STA. 402 + 00
SEE SHEET 21

MATCHLINE -SR5- STA. 27 + 00
SEE SHEET 21

SITE 14
S038a
(INTERMITTENT)

FOR -L- PROFILE SEE SHTS. 128 & 129
FOR -SR5- PROFILE SEE SHT. 184

PLANS PREPARED BY :
RK&K
 RUMMEL, KLEPPER & KAHL, LLP
 900 RIDGEFIELD DRIVE SUITE 350
 LEIGH, NORTH CAROLINA 27609-3960
 LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

5/28/99

REVISIONS

October 9, 2015 - Construction Revision: Tail Plaza Drainage

12/15/2015
R:\Hydraulics\PERMITS\Environmental\Drawings\Section2A\R3329_R2559_HYD_PRM_WET_PFL_129.dgn
Elevations

SITE 14

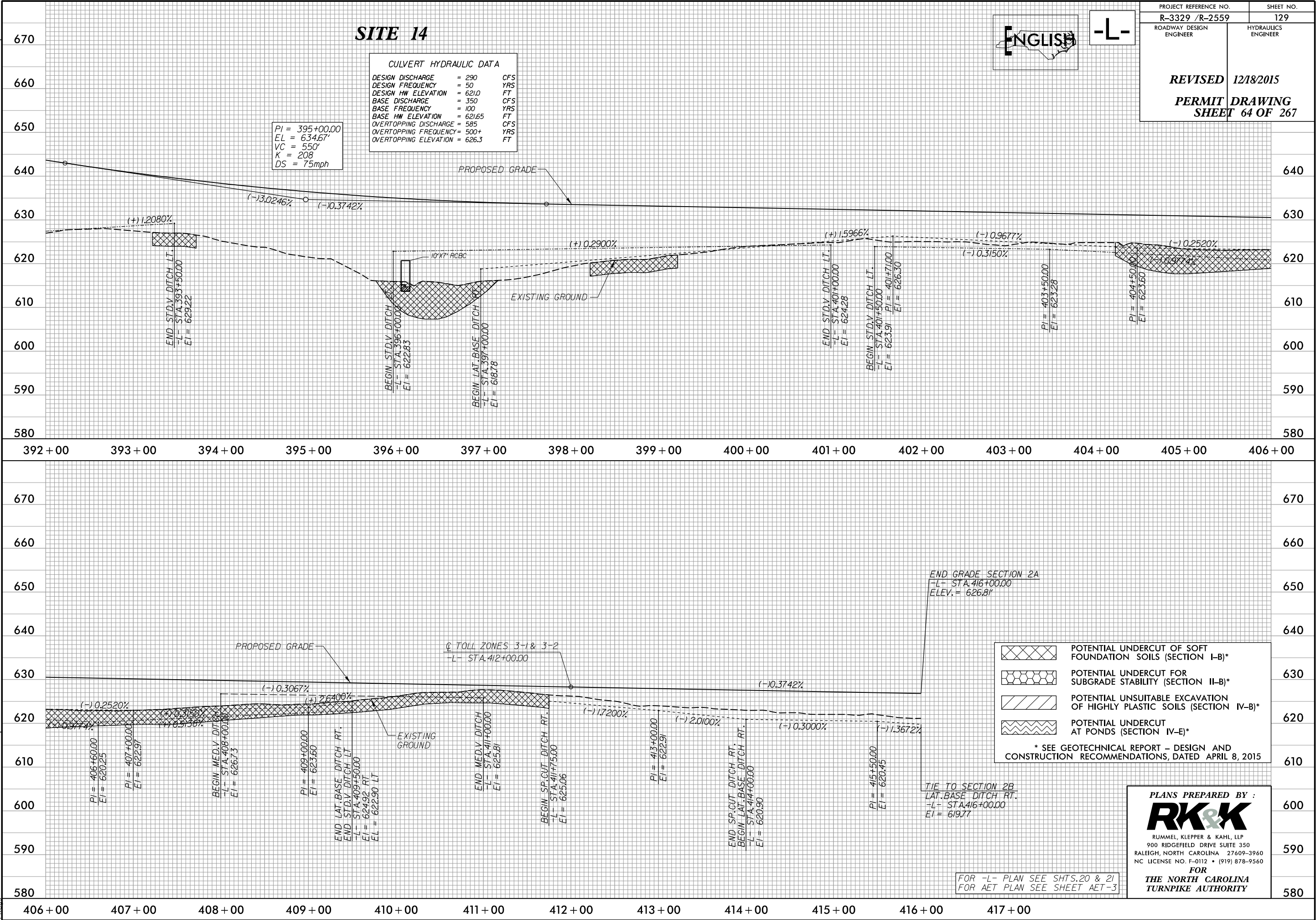
CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 290	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 621.0	FT
BASE DISCHARGE	= 350	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 621.65	FT
OVERTOPPING DISCHARGE	= 585	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= 626.3	FT

PI = 395+00.00
EL = 634.67'
VC = 550'
K = 208
DS = 75mph

ENGLISH

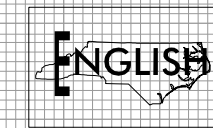
-L-

PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		129
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED 12/18/2015		
PERMIT DRAWING		
SHEET 64 OF 267		



5/14/99
12/15/2015
R:\Hydraulics\PERMITS\Environmental\Drawings\Section2A\R3329_R2559_HYD_PRM_WET_PFL244.dgn
Elev

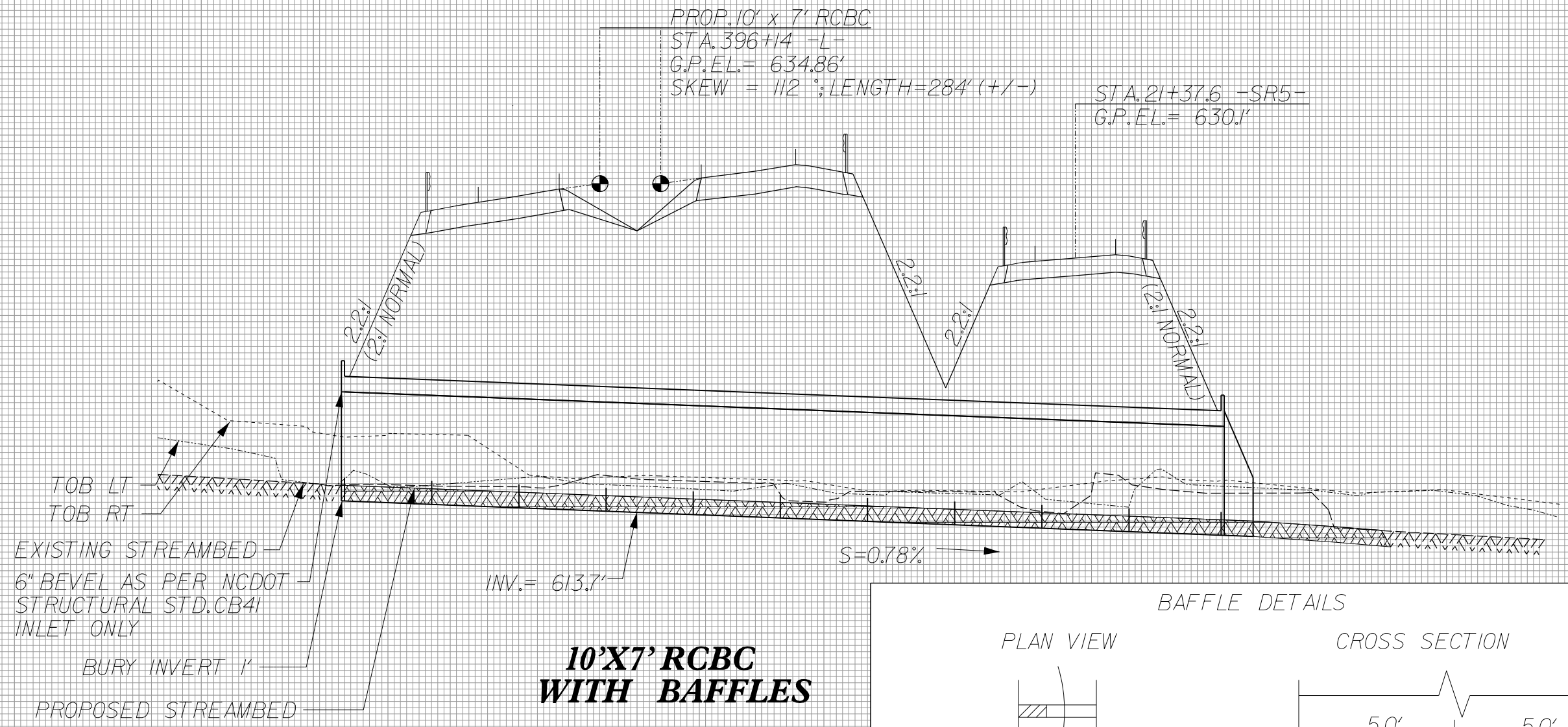
160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160



PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED 12/18/2015		
PERMIT SHEET	DRAWING	65 OF 267

SITE 14

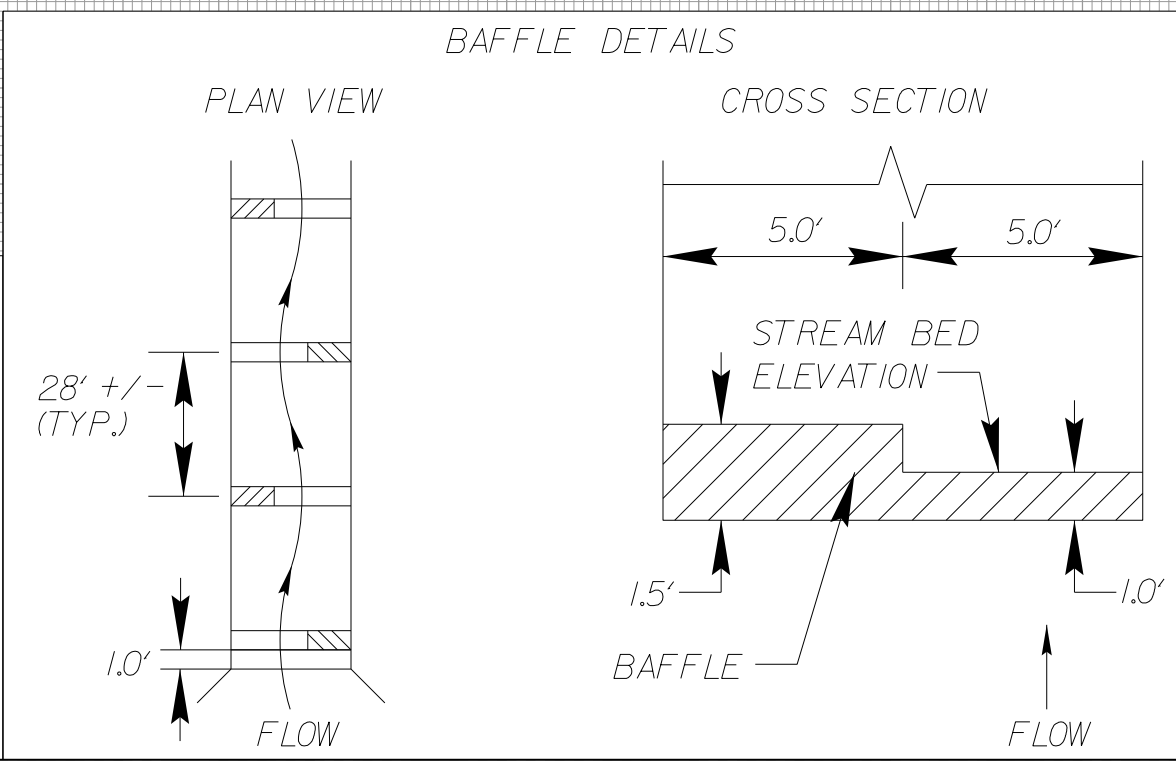
-L- STA. 396+14



PLACE BAFFLES 1.0' INSIDE CULVERT AT INLET AND OUTLET.

ALTERNATE BAFFLE SECTIONS TO FORCE STREAM TO MEANDER LEFT TO RIGHT ALONG THE LENGTH OF THE CULVERT.

NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.





DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN
SURFACE WATER

SITE 16

S043
(INTERMITTENT)

VIVIAN S. HONEYCUTT
TRUSTEE

S039C
(PERENNIAL)

SEE CULVERT OUTLET
DETAIL STA. 424+00
PDE
17 TONS CL I RIPRAP

PREFORMED SCOUR HOLE
SEE DETAIL N

SPECIAL CUT DITCH
SEE DETAIL A



SEE DETAIL D
PROP. 48" WW

9

MATCHLINE
 -SR5- STA. 54 + 50
 SEE SHEET 23

MATCHLINE
-L- STA. 430 + 00 SEE SHEET 23

PAVEMENT REMOVAL 

PLANS PREPARED BY :

RK&K

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FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

FOR DITCH DETAILS SEE SHTS. 2H & 2I
FOR -L- PROFILE SEE SHT. 130 FOR -SR5- PROFILE SEE SHT. 202



English

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

DENOTES IMPACTS IN
SURFACE WATER

SITE 16

~~NAD 83~~

S043
(INTERMITTENT)

REVISED | 12/18/2015

PERMIT | DRAWING
SHEET 73 OF 267

MATCHLINE
-L- STA. 416+00 SEE SHEET 21

MATCHLINE
-SR5- STA. 41+00 SEE SHEET 21

MATCHLINE
-SR5- STA. 54 + 50
SEE SHEET 23

MATCHLINE
-L- STA. 430 + 00 SEE SHEET 23

FOR DITCH DETAILS SEE SHTS.
2H & 2I

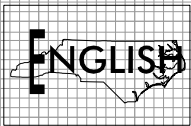
FOR -L- PROFILE SEE SHT. 130
FOR -SR5- PROFILE SEE SHT. 202

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
LEIGH, NORTH CAROLINA 27609-3960
LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

5/14/99

12/15/2015
R:\Hydraulics\PERMITS\Environmental\Drawings\Section2B\R3329_R2559_HDY_PRM_WET_PFL2B1.dgn

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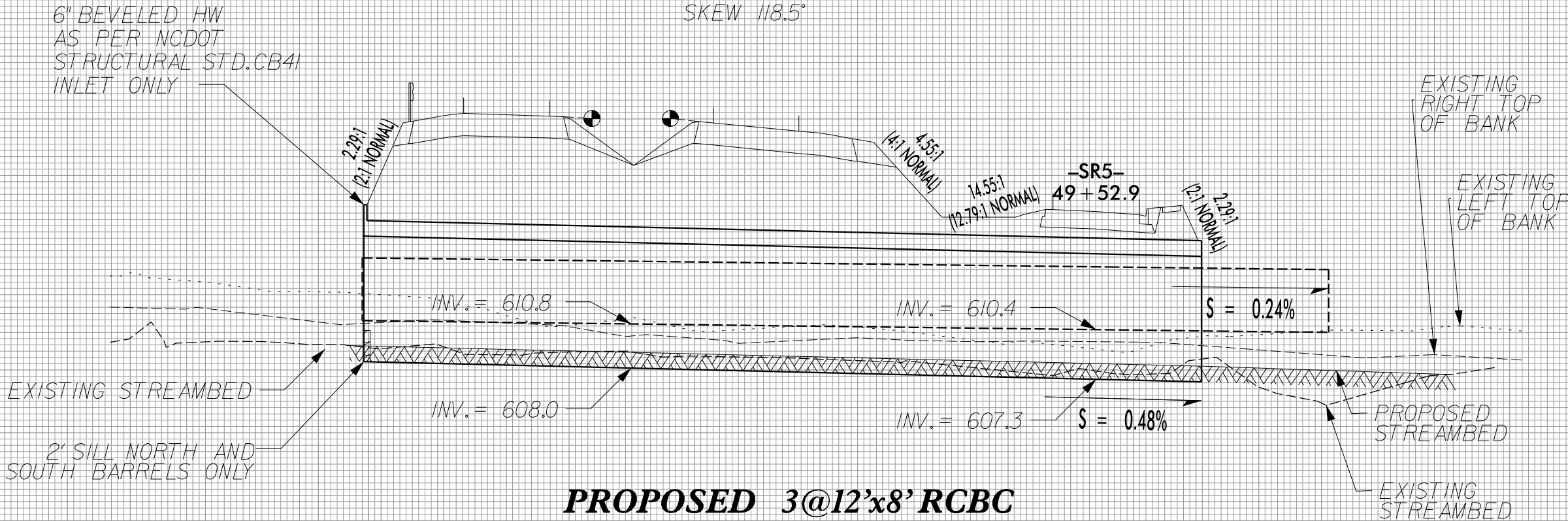
PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED 12/18/2015		
PERMIT SHEET 75 OF 267		DRAWING

SITE 16

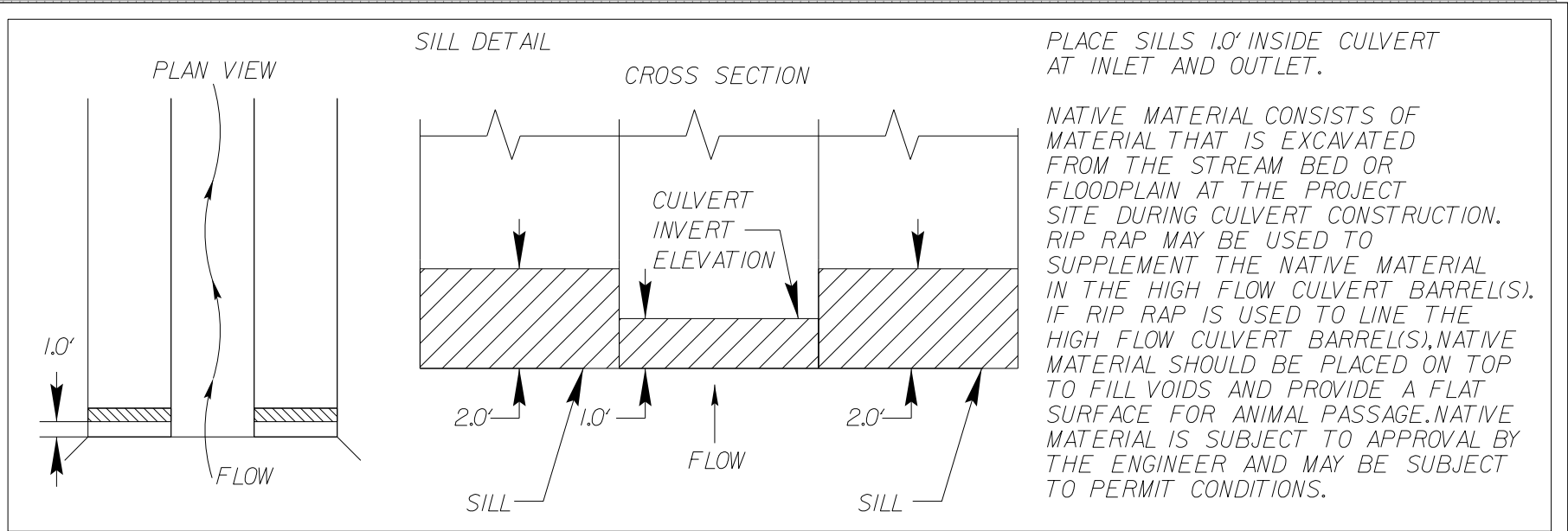
-L- STA. 424+00

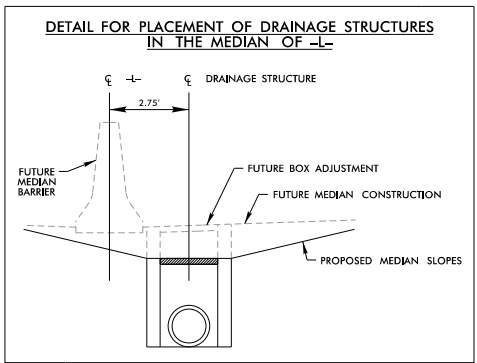
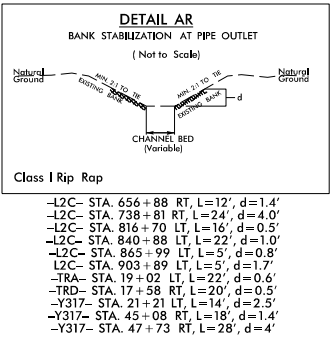
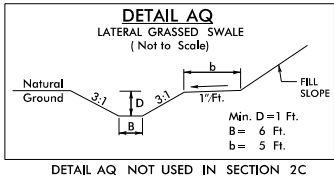
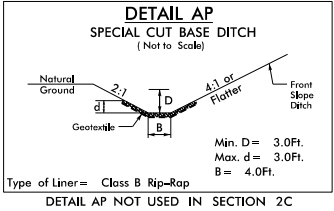
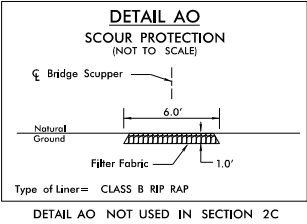
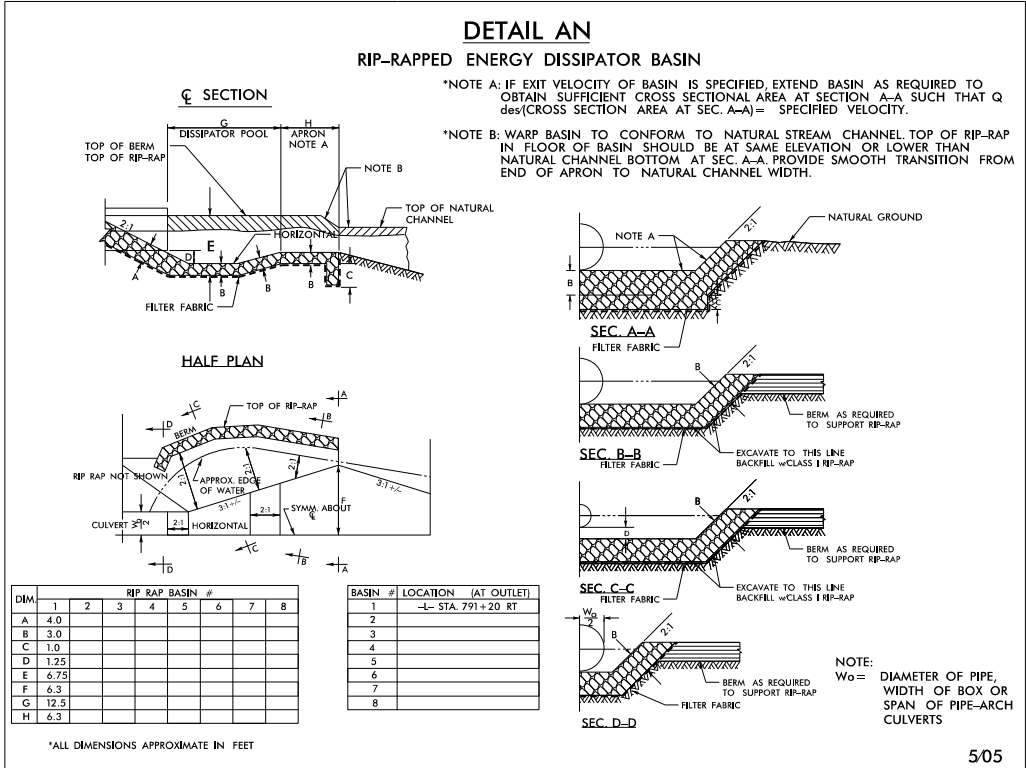
© STA. 424+11.44 -L-
PROP. (3)-12'X8' RCBC + 48" RCP
G.P. ELEV. = 623.89
SKEW 118.5°

630
620
610
600

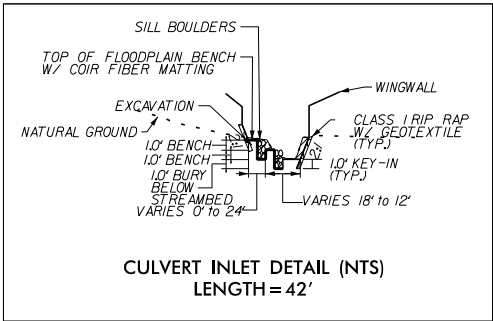


PROPOSED 3@12'x8' RCBC

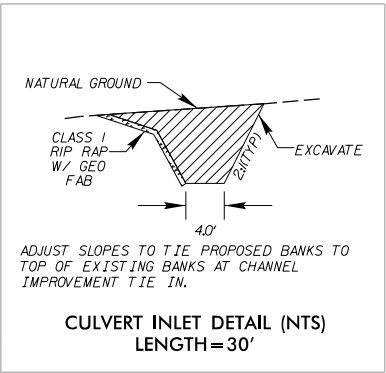




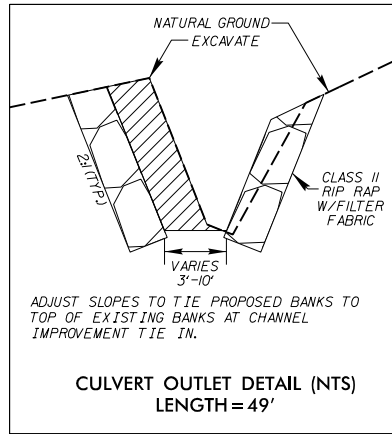
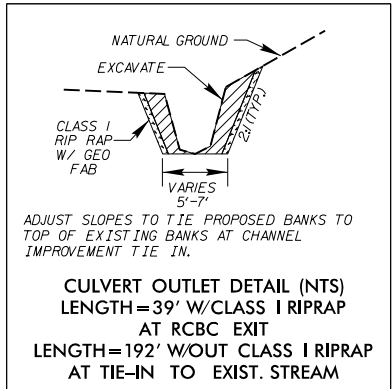
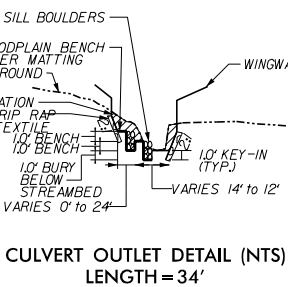
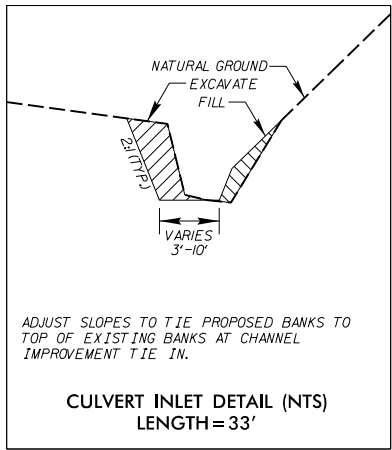
EAST FORK
STEWARTS CREEK
-L- STA. 669+18



UT TO
STEWARTS CREEK
-L- STA. 702+70



UT TO
STEWARTS CREEK
-L- STA. 805+89



8/17/99
\$\$\$\$\$TME\$\$\$\$\$
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\$\$\$\$\$TME\$\$\$\$\$
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SBG & EXPRESSWAY GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L2C-	664+50	672+50	LT
SBG	-L2C-	670+00	671+05	RT



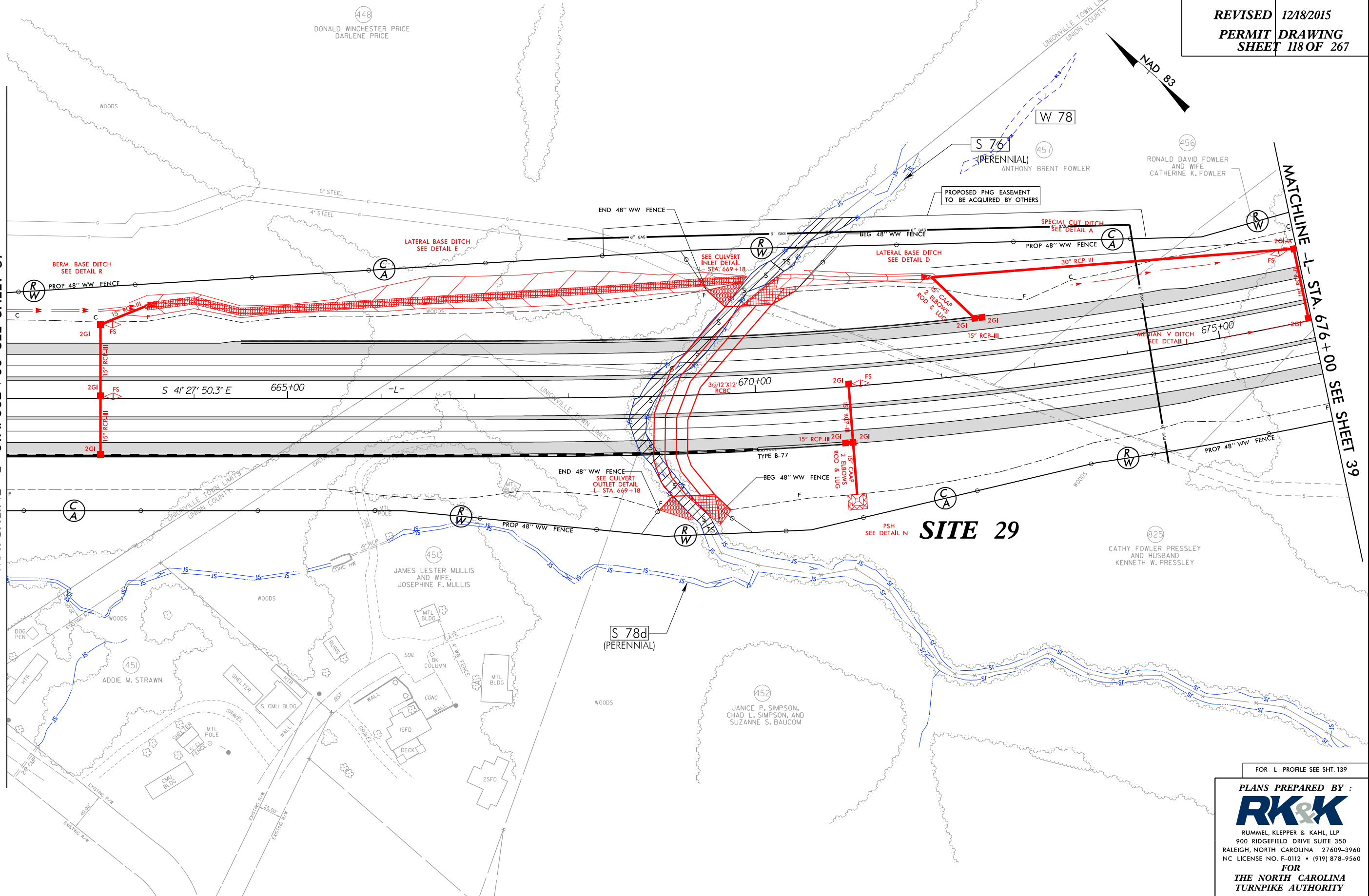
TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

S S DENOTES IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. R-3329 / R-2559		SHEET NO. 38	
RW SHEET NO.		ROADWAY DESIGN ENGINEER	
HYDRAULICS ENGINEER		REVISED 12/18/2015	
PERMIT SHEET 118 OF 267		DRAWING	

MATCHLINE -L- STA. 662+00 SEE SHEET 37

MATCHLINE -L- STA. 676+00 SEE SHEET 39



FOR -L- PROFILE SEE SHT. 139

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

8/17/99

SBG & EXPRESSWAY GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L2C-	664+50	672+50	LT
SBG	-L2C-	670+00	671+05	RT



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

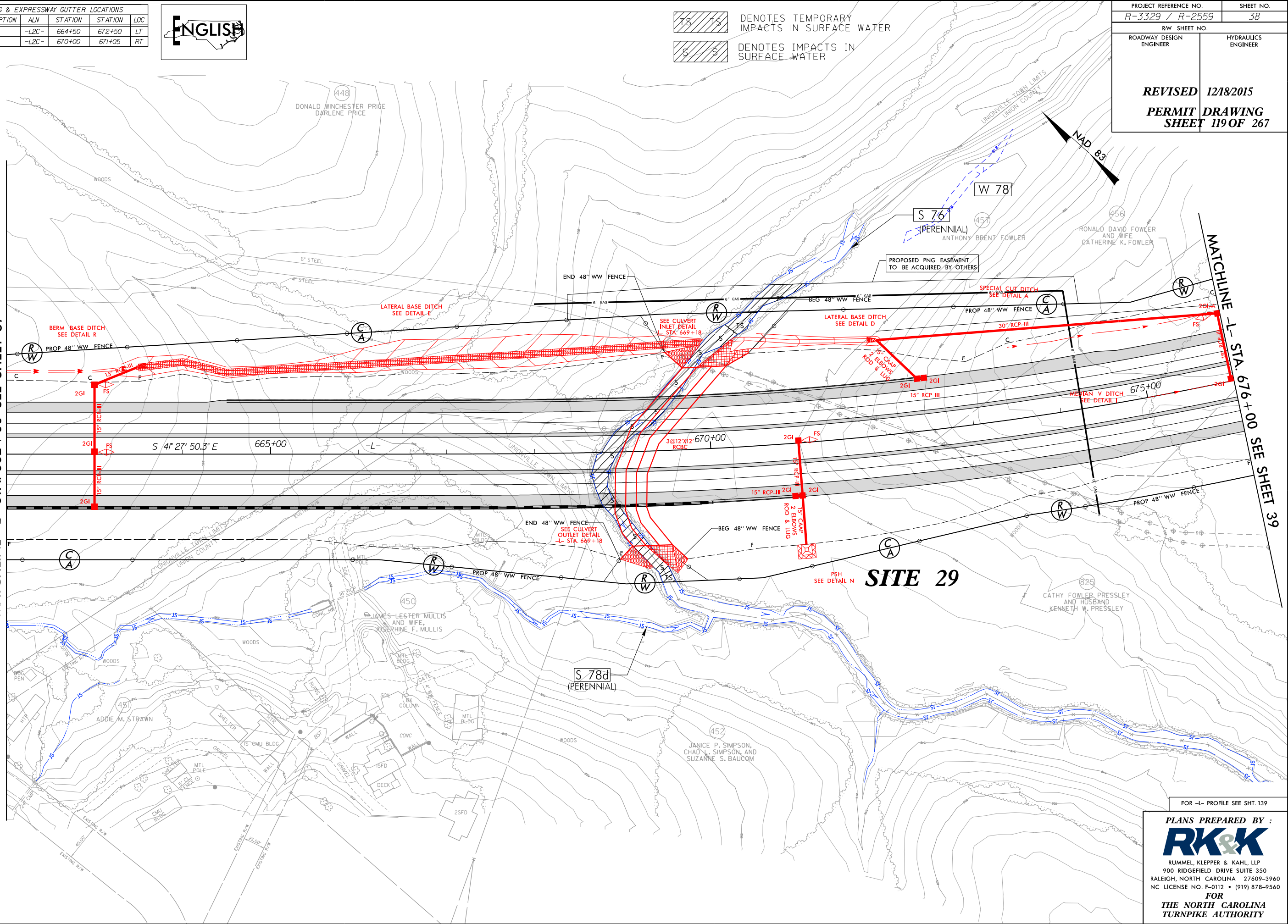


DENOTES IMPACTS IN
SURFACE WATER

PROJECT REFERENCE NO. R-3329 / R-2559		SHEET NO. 38	
RW SHEET NO.		HYDRAULICS ENGINEER	
ROADWAY DESIGN ENGINEER		REVISED 12/18/2015	
		PERMIT DRAWING	
		SHEET 119 OF 267	

MATCHLINE -L- STA. 662+00 SEE SHEET 37

MATCHLINE -L- STA. 676+00 SEE SHEET 39

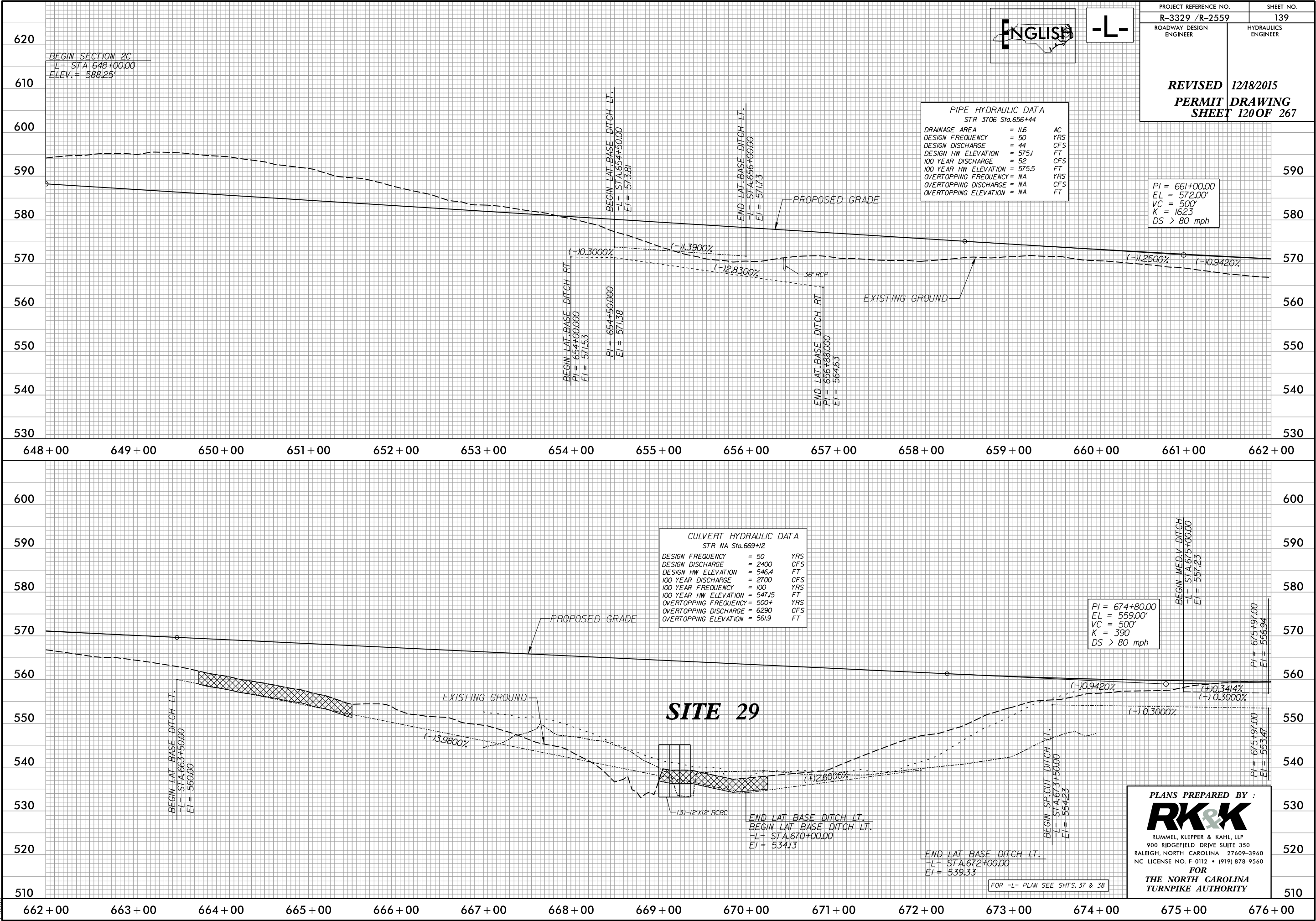


FOR -L- PROFILE SEE SHT. 139

PLANS PREPARED BY :
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NC LICENSE NO. F-0112 • (919) 878-9560
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TURNPIKE AUTHORITY

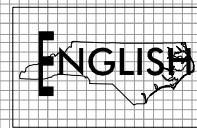
5/28/99

12/15/2015
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Elevs



5/14/99
12/15/2015
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Elev

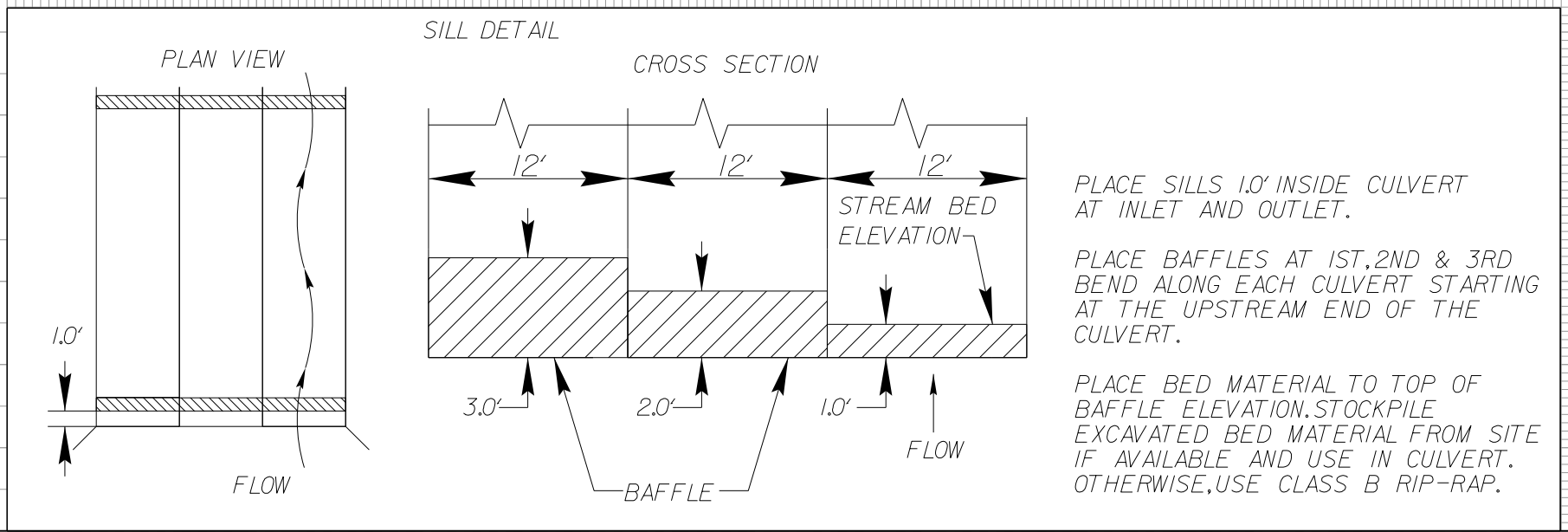
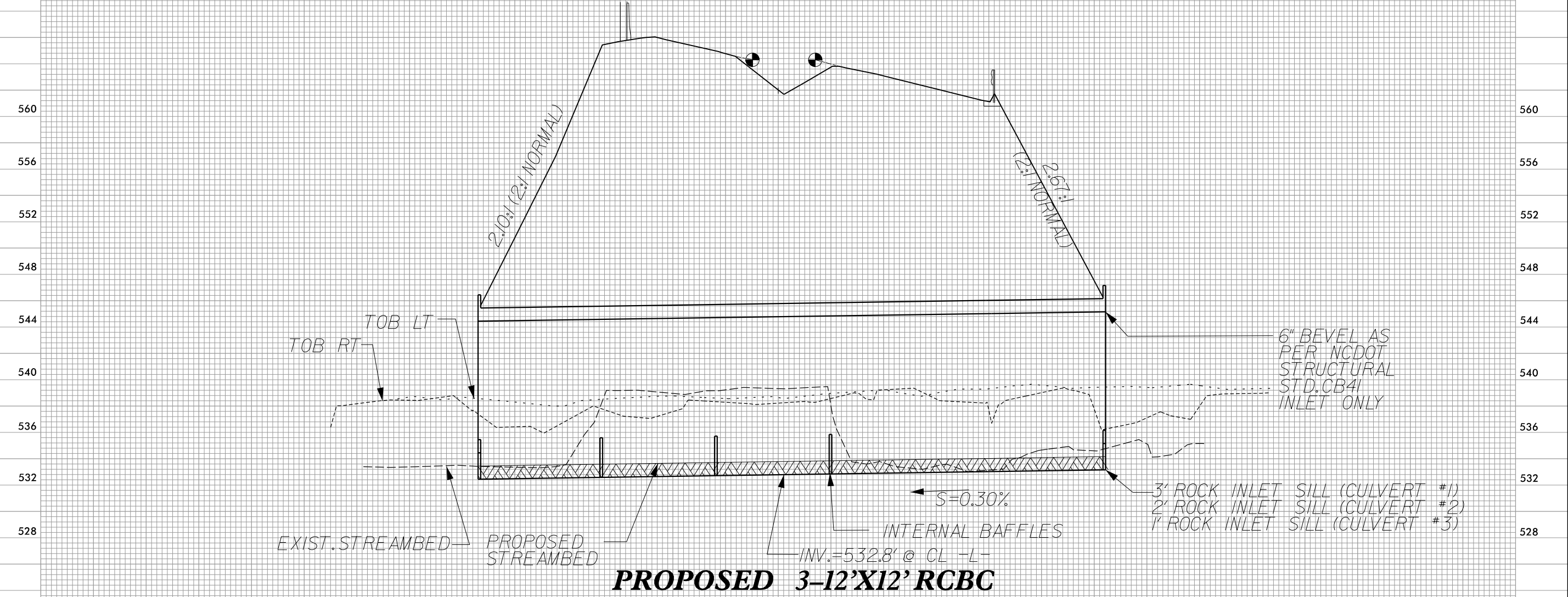
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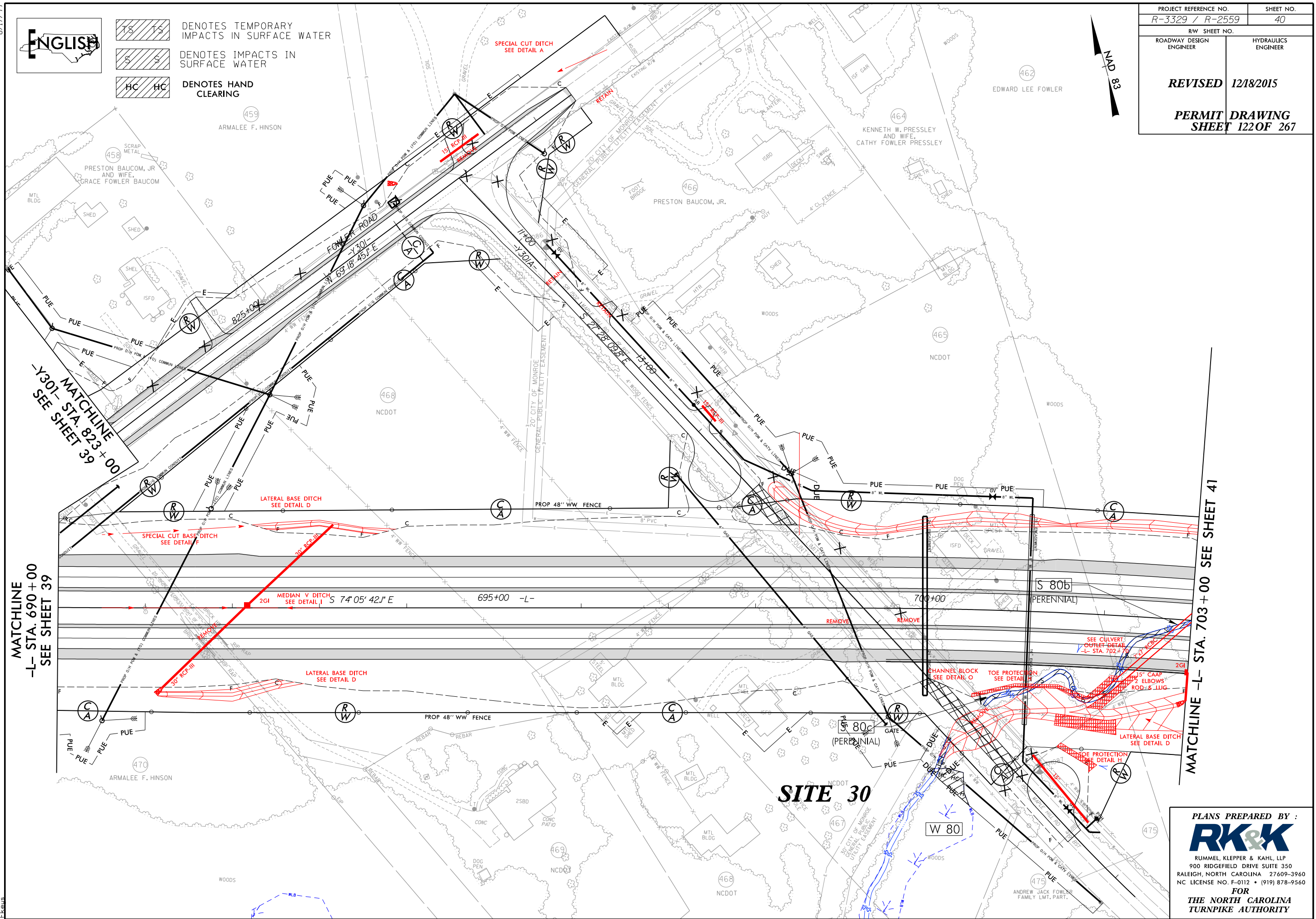


PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED 12/18/2015		
PERMIT SHEET 121 OF 267	DRAWING SHEET 121 OF 267	

SITE 29

-L- STA. 669+18



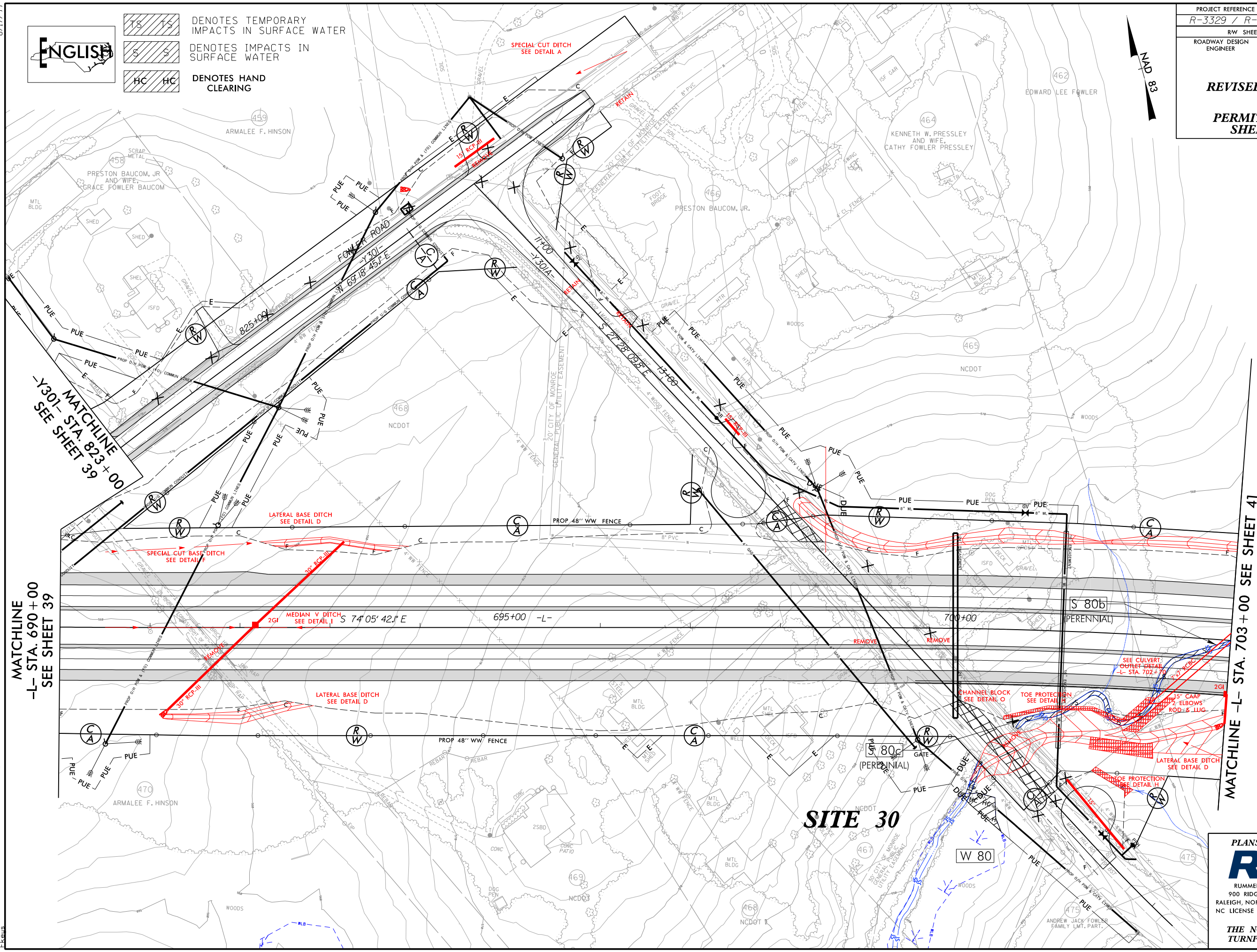


12/15/2015
 \$\$\$\$ TIME \$\$\$
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	DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES IMPACTS IN SURFACE WATER
	DENOTES HAND CLEARING

83
NAD



MATCHLINE
-L- STA. 690 + 00
SEE SHEET 39

MATCHLINE -L- STA. 703 + 00 SEE SHEET 41

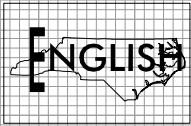
SITE 30

PLANS PREPARED BY :
RK&K
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560
FOR
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TURNPIKE AUTHORITY

5/14/99

12/15/2015
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Elevs

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PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED	12/18/2015	
PERMIT SHEET	DRAWING	127 OF 267

SITE 30 ***-L- STA. 702+97***

570

566

562

558

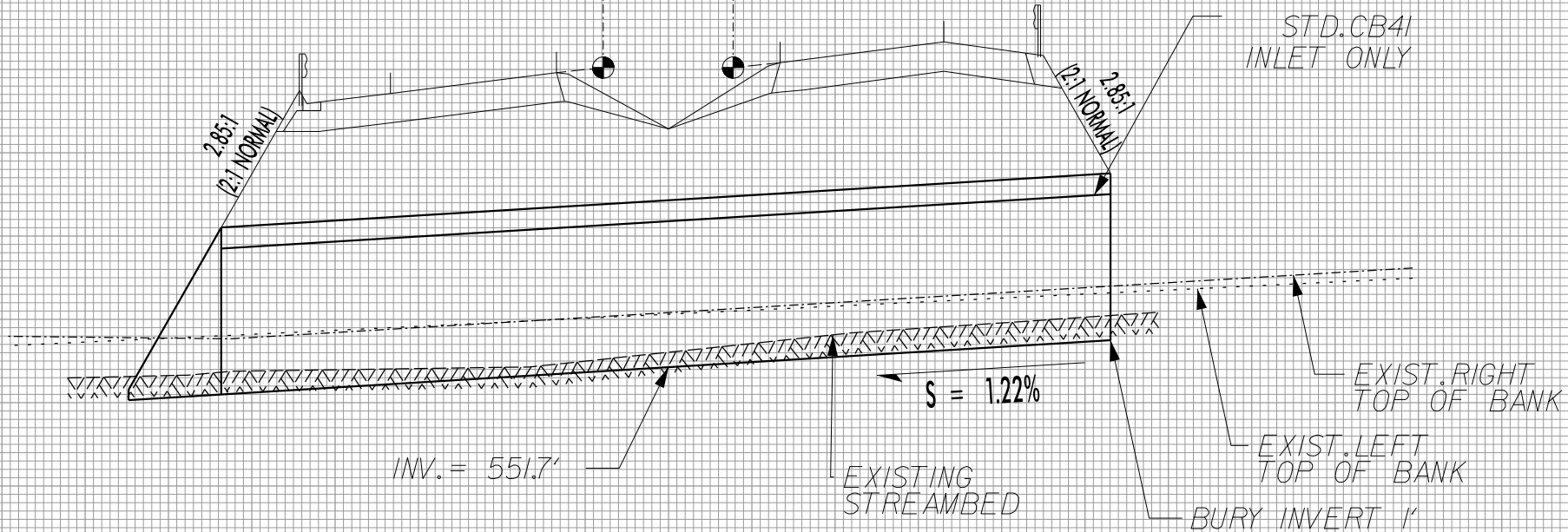
554

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562

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554

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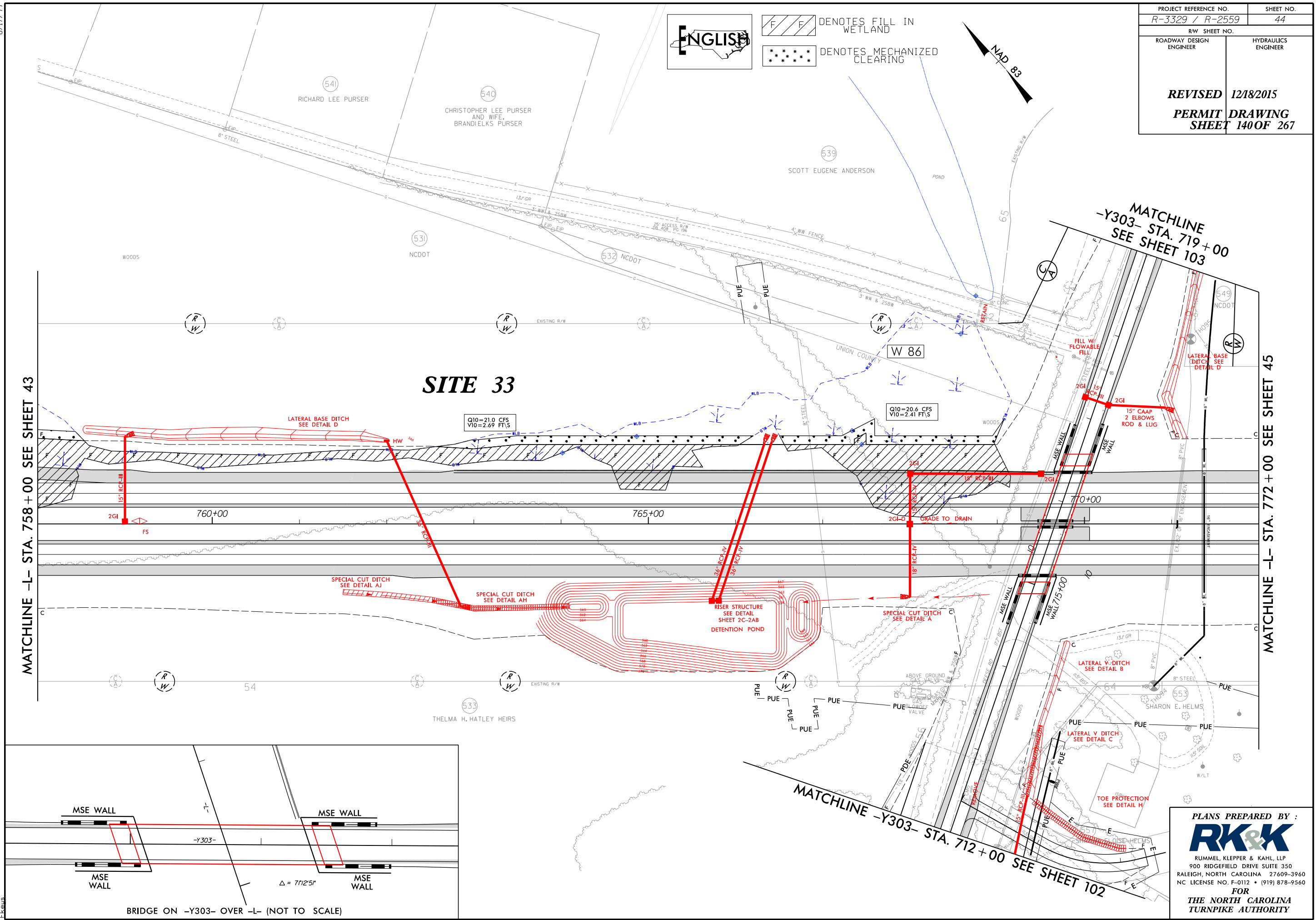
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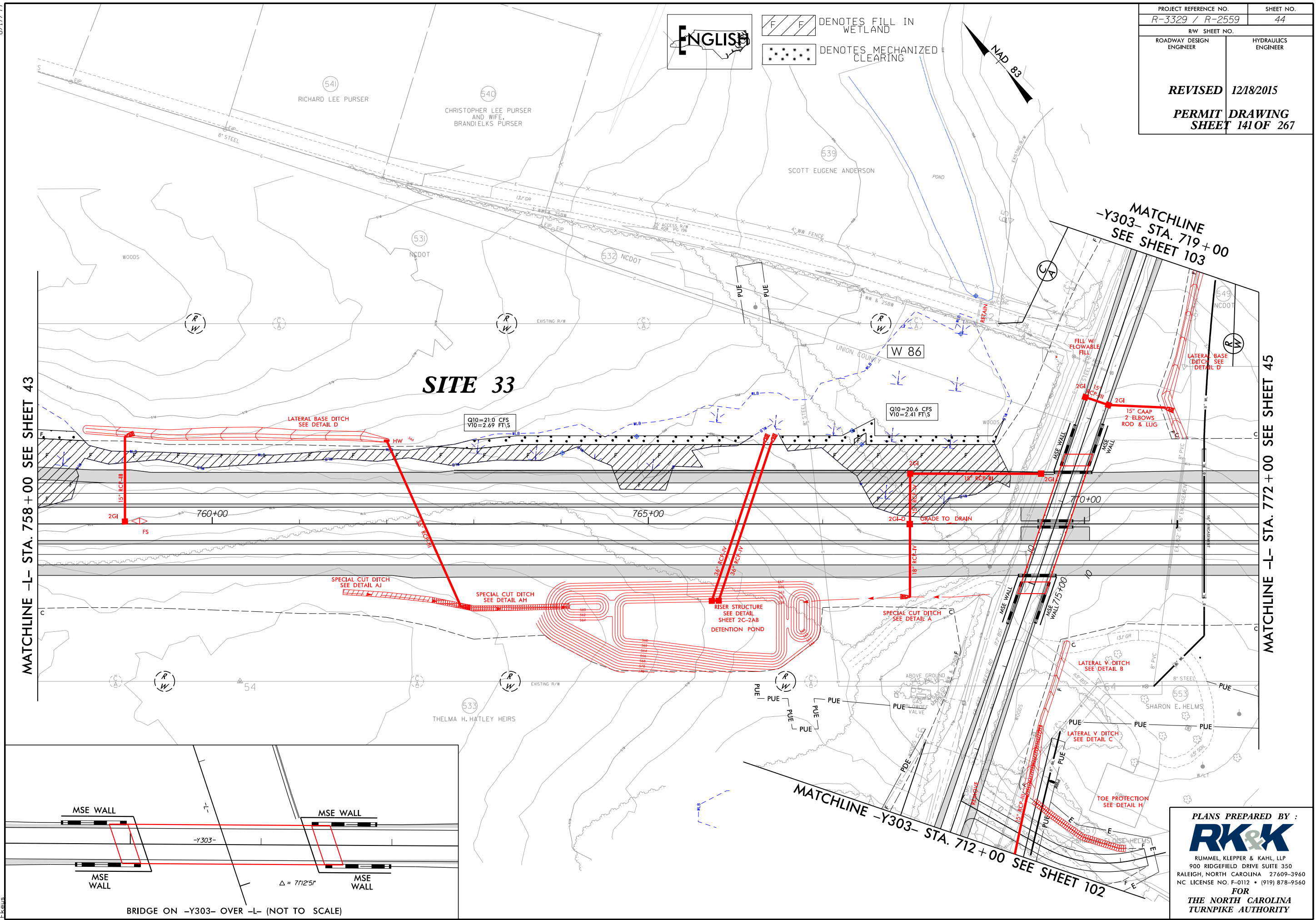
542

538

PROPOSED 7'X7' RCBC
BURIED 1.0'

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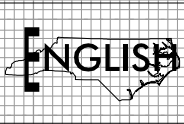




5/14/99

12/15/2015
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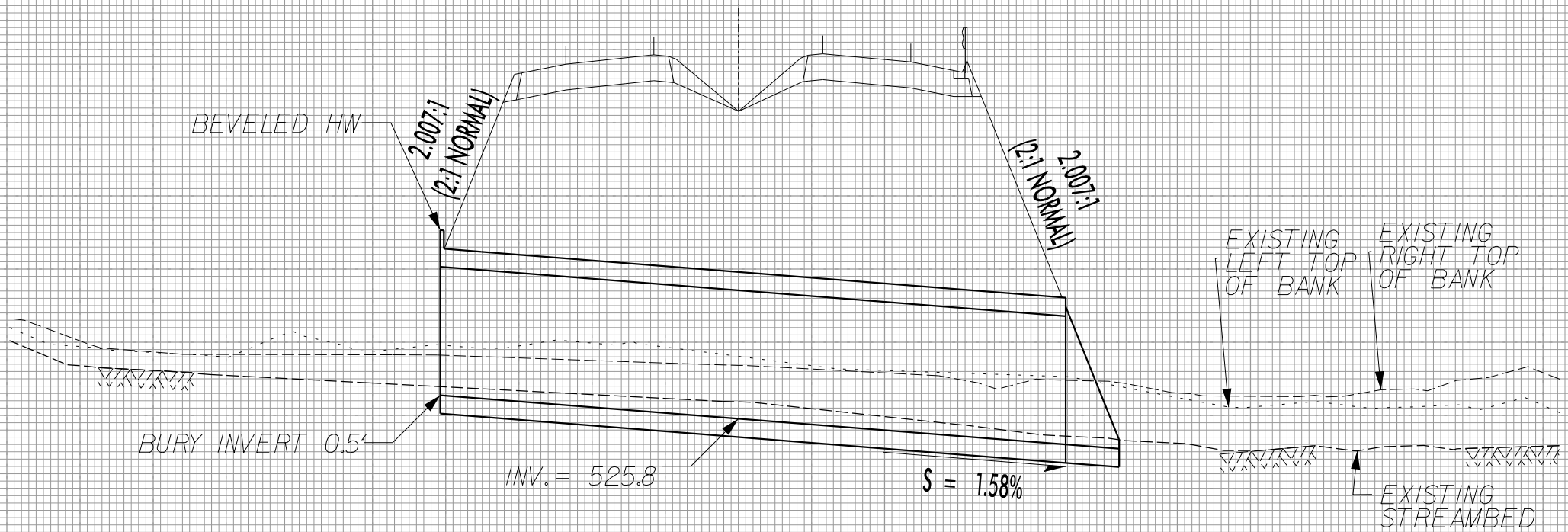
PROJECT REFERENCE NO.		SHEET NO.
R-3329 /R-2559		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
REVISED	12/18/2015	
PERMIT SHEET	DRAWING 146 OF 267	

SITE 35

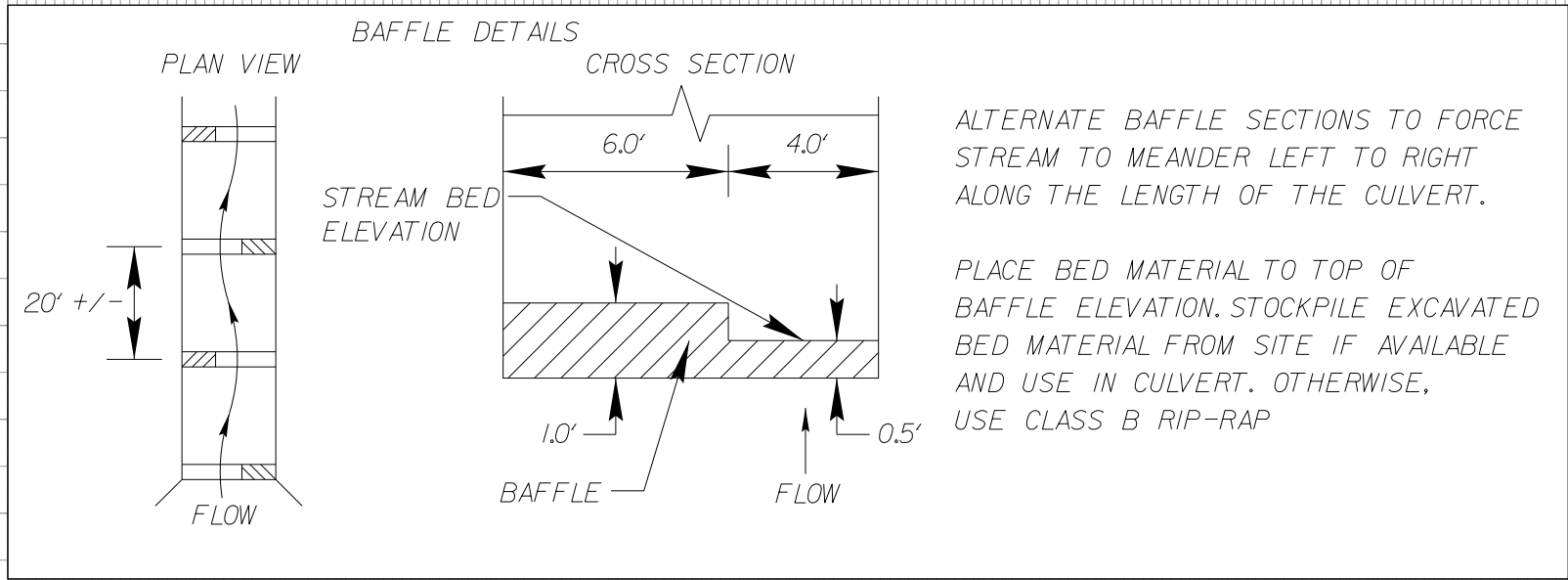
-L- STA. 805 + 89

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542
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522
518

550
546
542
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534
530
526
522
518



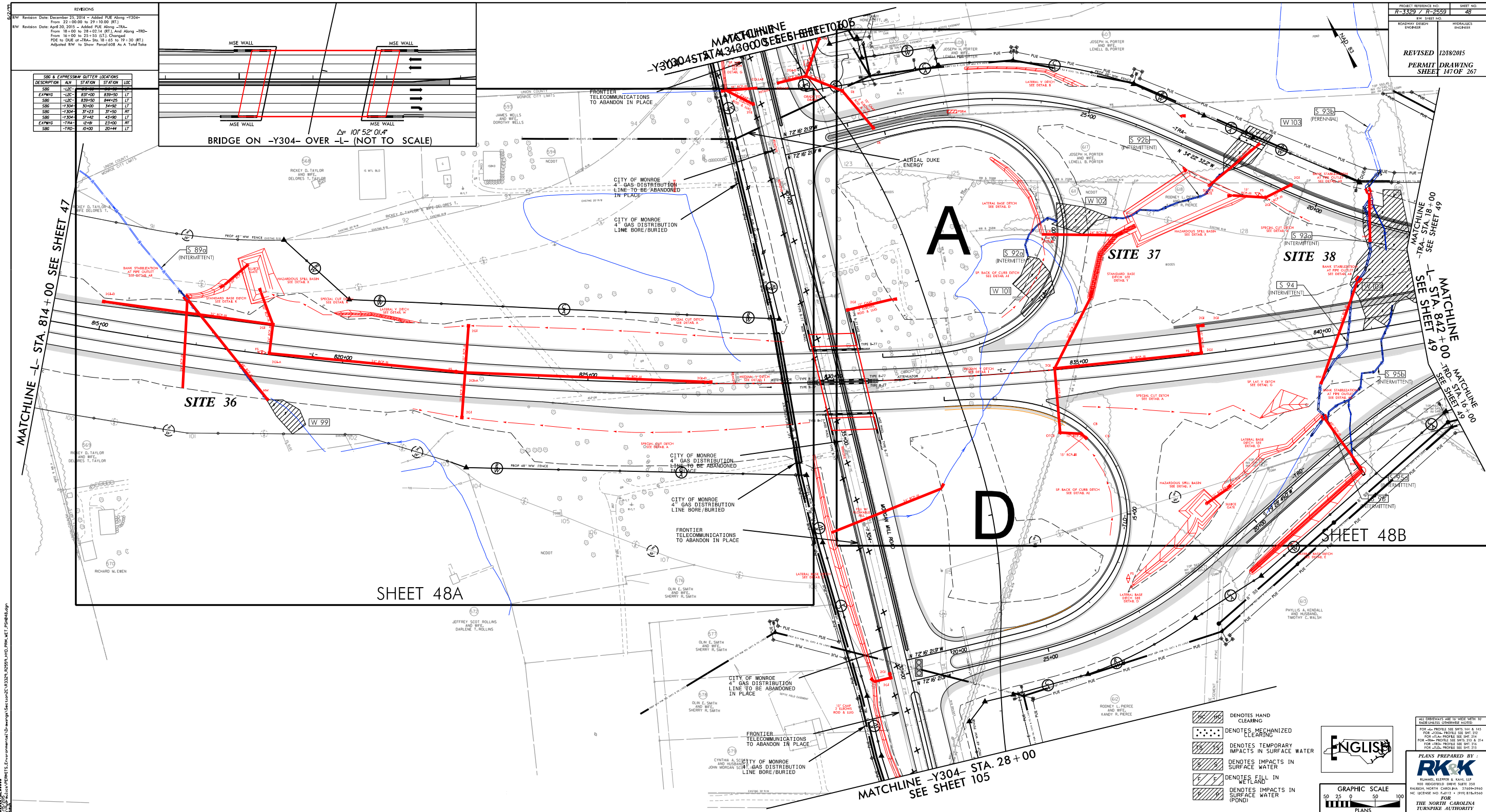
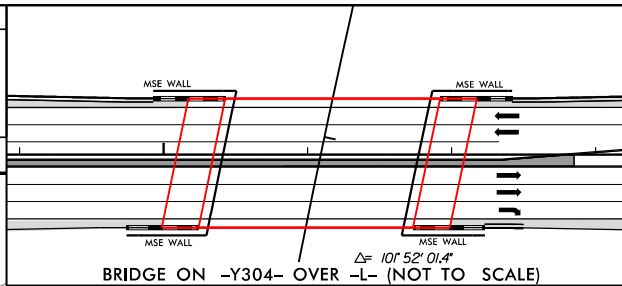
PROPOSED 10'X7' RCBC

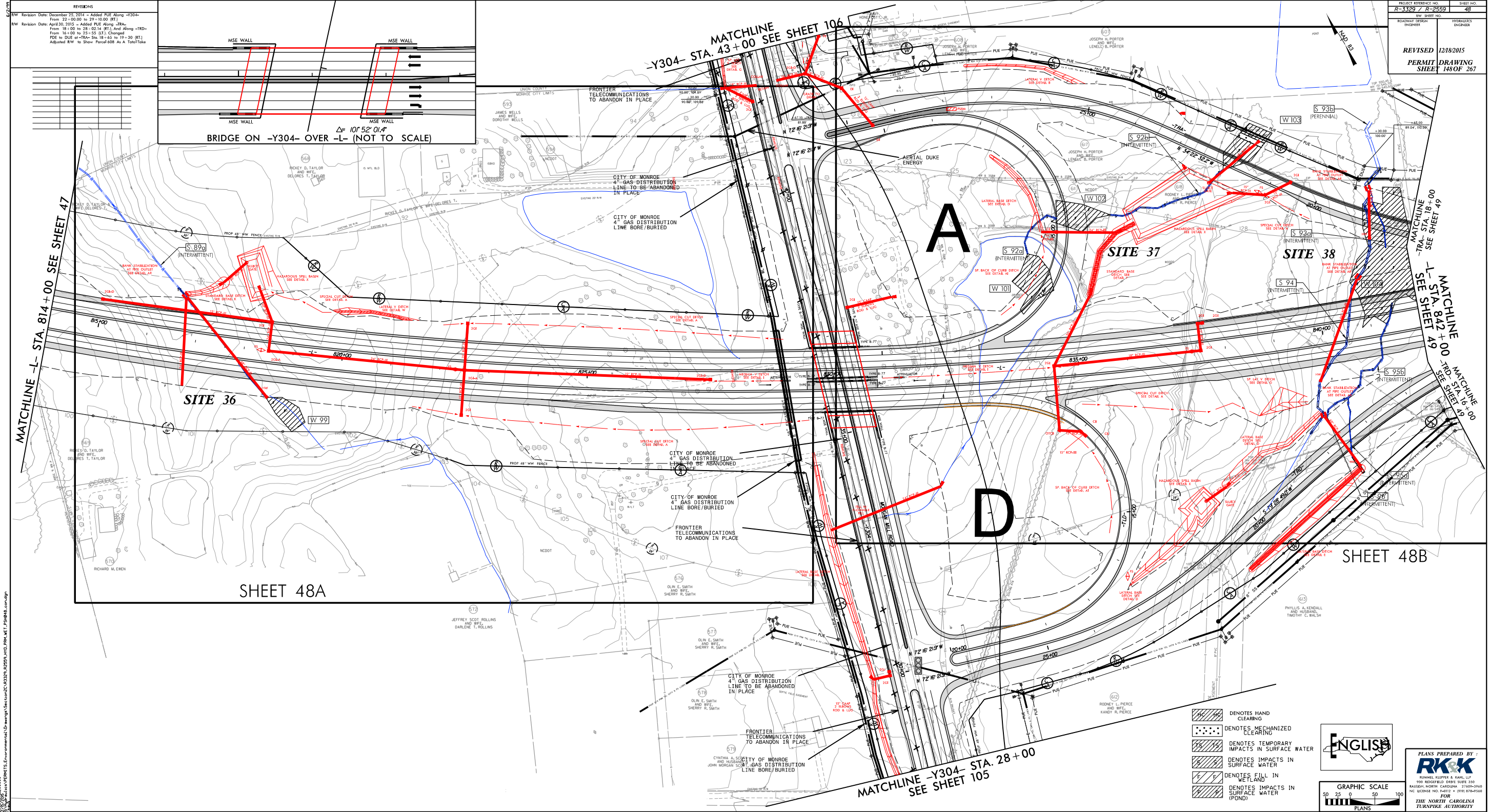


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REVISIONS
RW Revision Date: December 25, 2014 - Added PUE Along -Y304-
From 22+00.00 to 29+10.00 (RT.)
RW Revision Date: April 20, 2015 - Added PUE Along -Y304-
From 18+00 to 28+02.14 (RT.) And Along -TRD-
From 18+00 to 28+02.14 (RT.) Changed
POE to DUE at -TRA- Sta. 18+65 to 19+30 (RT.)
Adjusted RW to Show Parcel 608 As A Total Take

SBO & EXPRESSWAY CUTTER LOCATIONS				
DESCRIPTION	STA	STATION	STATION	LOC
SBO	-L-2C	837+00	839+50	LT
EXPRESS	-L-2C	837+00	839+50	LT
SBO	-L-2C	839+50	844+25	LT
SBO	-L-2C	844+25	849+00	LT
SBO	-L-2C	849+00	854+00	LT
SBO	-L-2C	854+00	859+00	LT
SBO	-L-2C	859+00	864+00	LT
SBO	-L-2C	864+00	869+00	LT
SBO	-L-2C	869+00	874+00	LT
SBO	-L-2C	874+00	879+00	LT
SBO	-L-2C	879+00	884+00	LT
SBO	-L-2C	884+00	889+00	LT
SBO	-L-2C	889+00	894+00	LT
SBO	-L-2C	894+00	899+00	LT
SBO	-L-2C	899+00	904+00	LT
SBO	-L-2C	904+00	909+00	LT
SBO	-L-2C	909+00	914+00	LT
SBO	-L-2C	914+00	919+00	LT
SBO	-L-2C	919+00	924+00	LT
SBO	-L-2C	924+00	929+00	LT
SBO	-L-2C	929+00	934+00	LT
SBO	-L-2C	934+00	939+00	LT
SBO	-L-2C	939+00	944+00	LT
SBO	-L-2C	944+00	949+00	LT
SBO	-L-2C	949+00	954+00	LT
SBO	-L-2C	954+00	959+00	LT
SBO	-L-2C	959+00	964+00	LT
SBO	-L-2C	964+00	969+00	LT
SBO	-L-2C	969+00	974+00	LT
SBO	-L-2C	974+00	979+00	LT
SBO	-L-2C	979+00	984+00	LT
SBO	-L-2C	984+00	989+00	LT
SBO	-L-2C	989+00	994+00	LT
SBO	-L-2C	994+00	999+00	LT
SBO	-L-2C	999+00	1000+00	LT

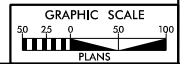




REVISIONS	
REV	Revision Date: December 25, 2014 - Added PUE Along -Y304- From 22+00.00 to 29+00.00 (RT)
REV	Revision Date: April 30, 2015 - Added PUE Along -TRA- From 16+00 to 28+02.44 (RT) And Along -Y304- From 16+00 to 25+55 (RT) Changed PUE to DUE at 16+00 Sta 18+00 to 19+30 (RT) Adjusted RW to Show Parcel 608 as A Total Take

PROJECT REFERENCE NO.	R-3329 / R-2559
SHEET NO.	48
REVISED	12/18/2015
PERMIT DRAWING SHEET	148 OF 267

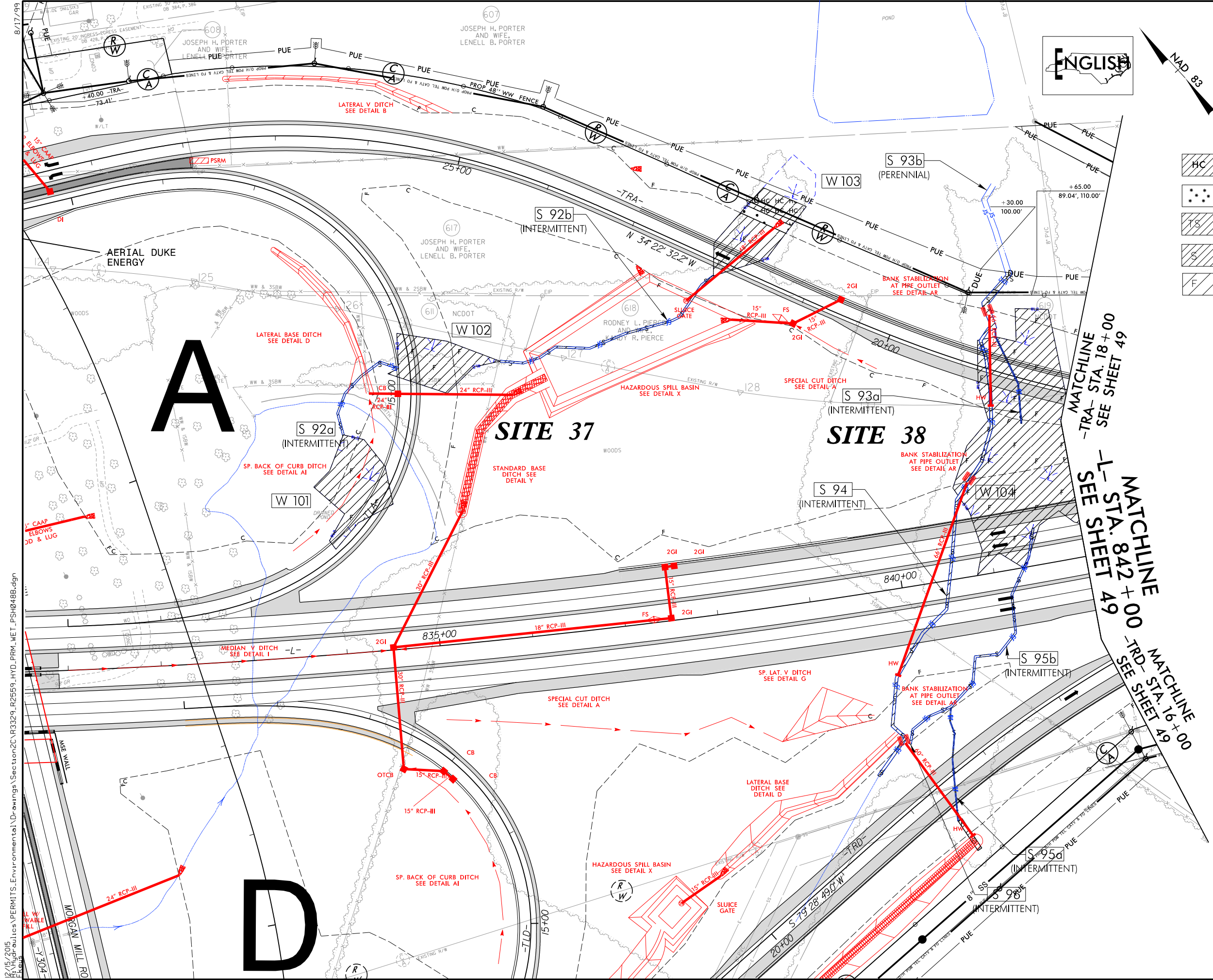
- DENOTES HAND CLEARING
- DENOTES MECHANIZED CLEARING
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND
- DENOTES IMPACTS IN SURFACE WATER (POND)



PLANS PREPARED BY:
RK&K
RUMMEL KLEPPER & KAHN, LLP
1000 WOODFIELD DRIVE, SUITE 330
RALEIGH, NORTH CAROLINA 27605-2648
NC LICENSE NO. 4-0017 - 0791 RTA-00446
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	48B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED	12/18/2015
PERMIT SHEET	DRAWING SHEET 152 OF 267

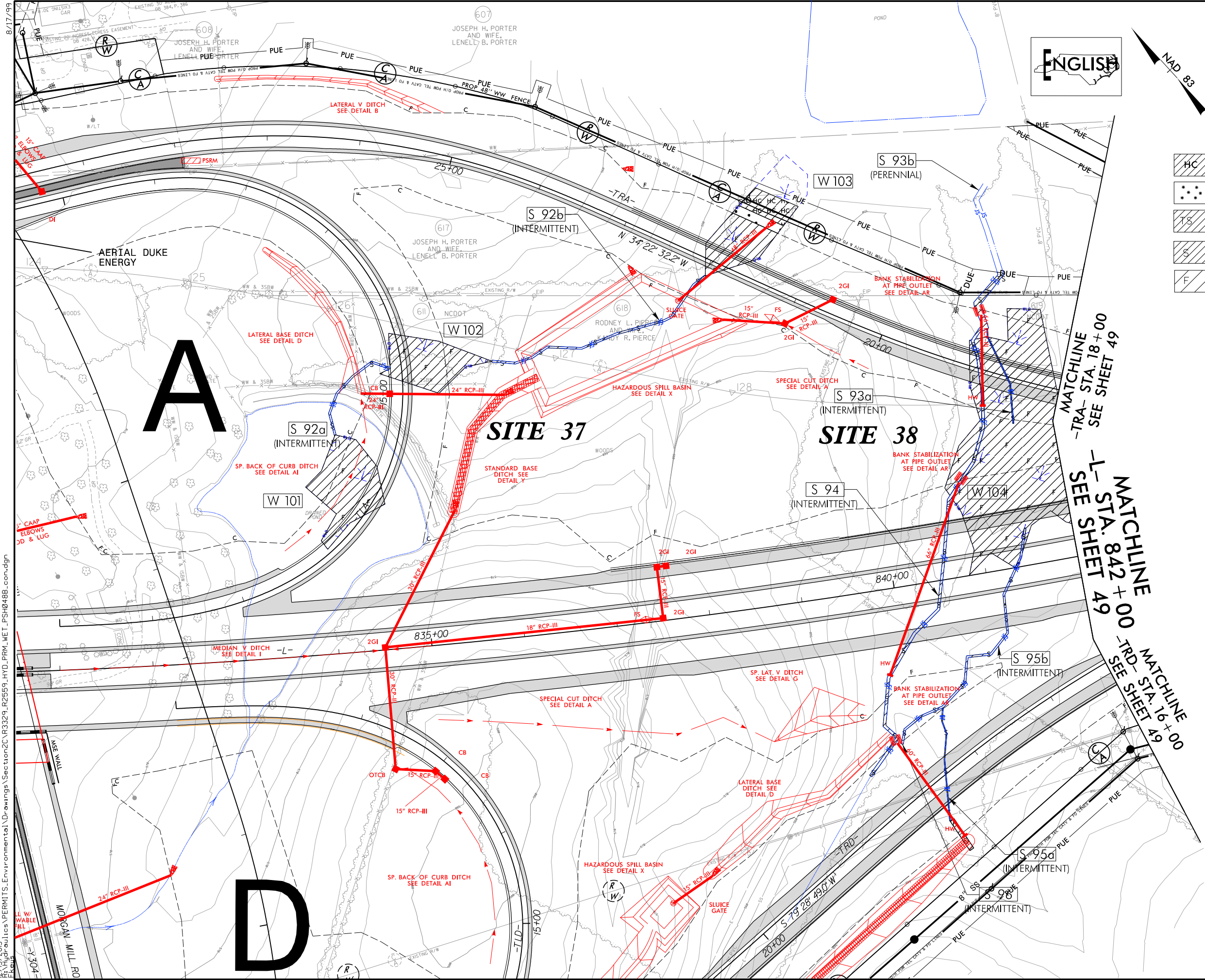
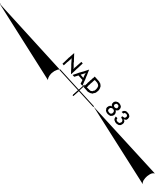
- HC HC DENOTES HAND CLEARING
- ***** DENOTES MECHANIZED CLEARING
- TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- S S DENOTES IMPACTS IN SURFACE WATER
- F F DENOTES FILL IN WETLAND



12/15/2015 R:\Hydraulics\PERMITS\Environmental\Drawings\Section2C\R3329_R2559_HYD_PRM_WET_PSH048B.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	48B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
REVISED	12/18/2015
PERMIT DRAWING SHEET	153 OF 267

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



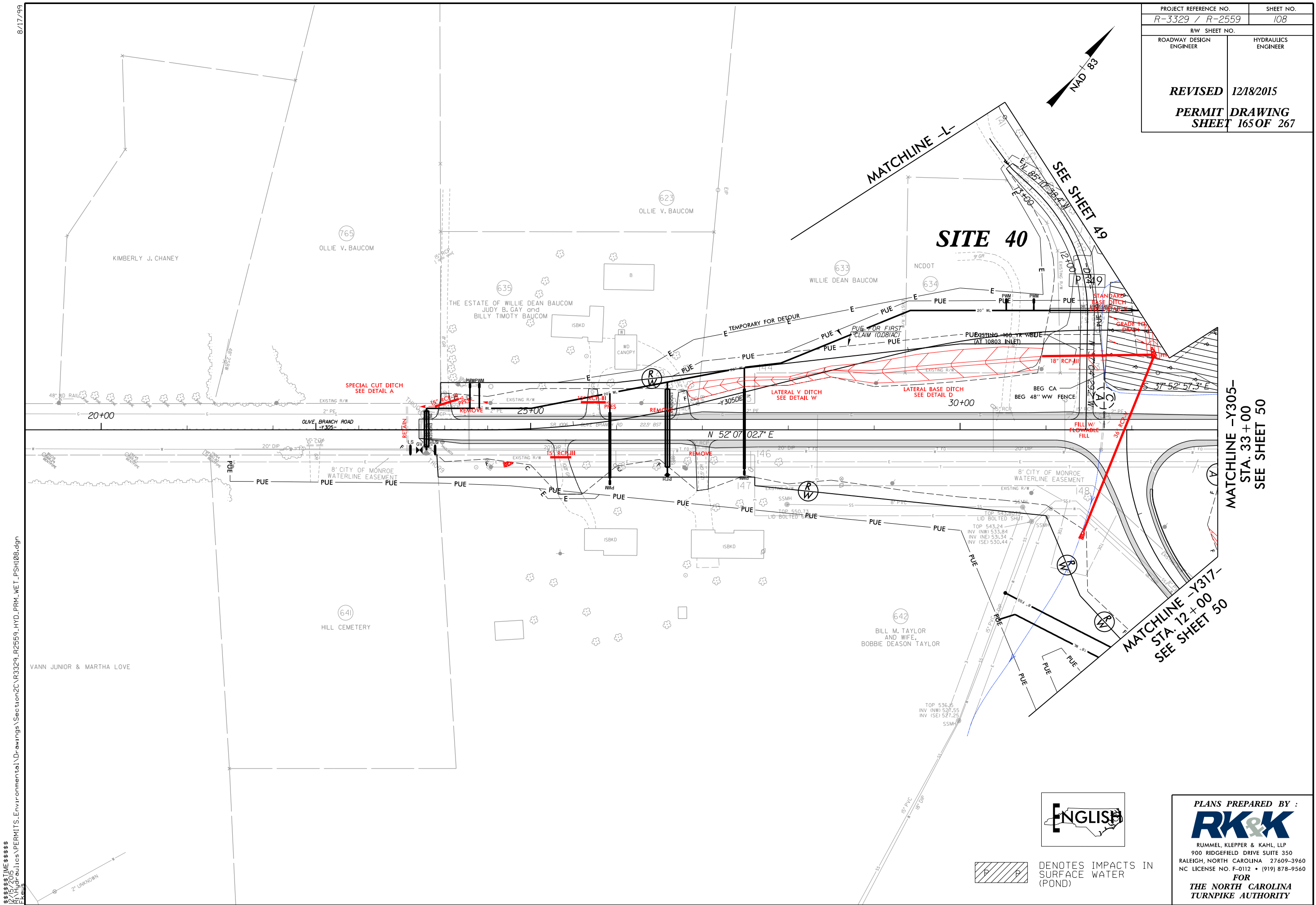
12/15/2015 R:\Hydraulics\PERMITS\Environmental\Drawings\Section2C\R3329_R2559_HYD_PRM_WET_PSH048B.con.dgn

PLANS PREPARED BY :

RK&K

RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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NC LICENSE NO. F-0112 • (919) 878-9560

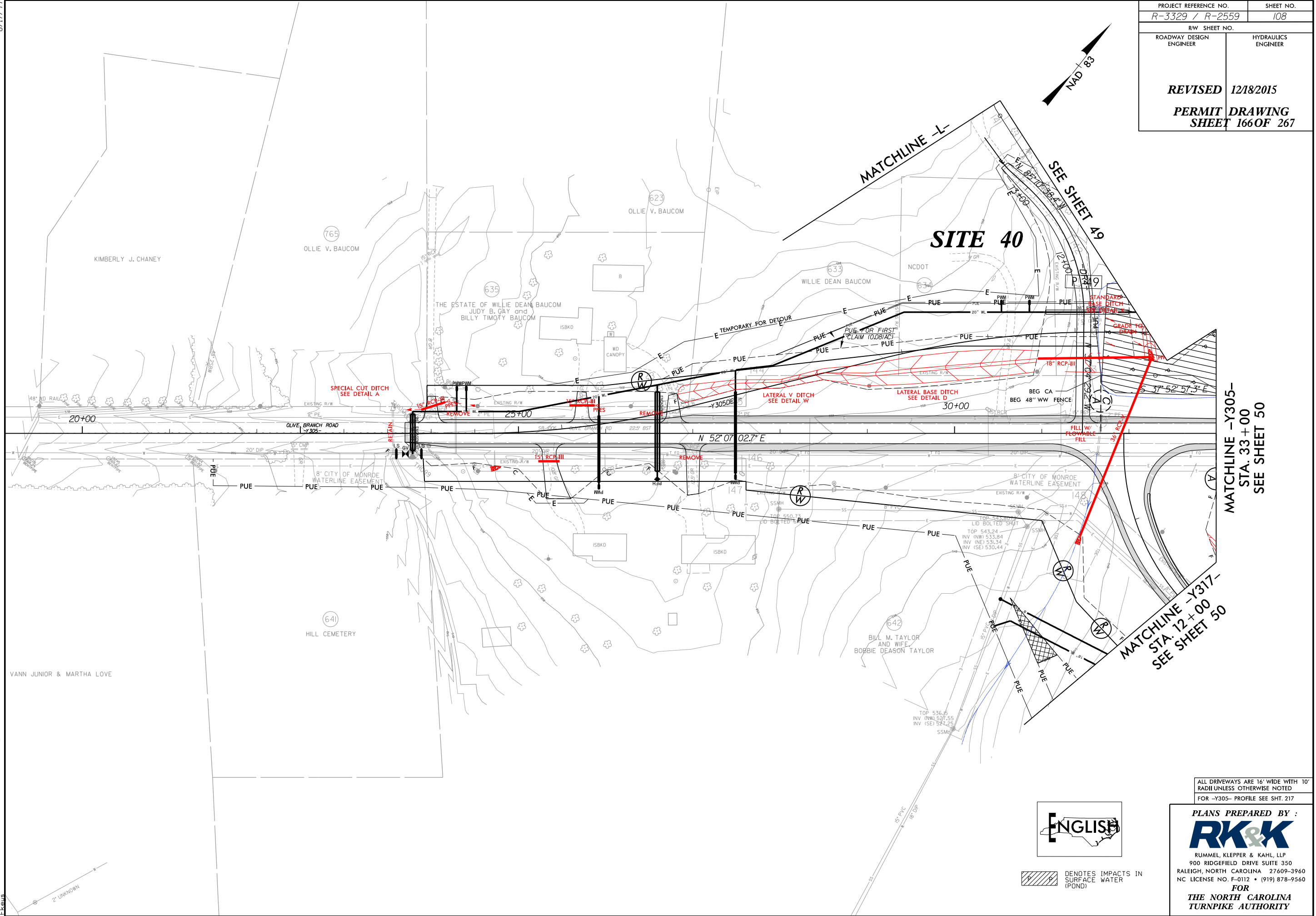
FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY



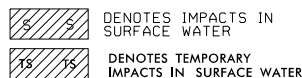
8/17/99

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655

ROBERT GILES, ET AL.

SITE 46

MATCHLINE -L- STA. 940+00 SEE SHEET 55

[illegible]

TEMPORARY BARGE FOR
TEMPORARY BRIDGE CROSSING

BANK STABILIZATION

PROP. 48" WW FENCE

0 10 20 30 40 50 60 70 80 90 100
feet

MATCHLINE -I- STA. 954+00 SEE SHEET 57

(658)
NCDOT

660
H. F. WILLIAMS III, ET AL.

FOR -L- PROFILE SEE SHT.150

PLANS PREPARED BY :

MULKEY
ENGINEERS & CONSULTANTS

FOR
THE NORTH CAROLINA
TURNPIKE AUTHORITY

PROJECT REFERENCE NO.	SHEET NO.
R-3329 / R-2559	56
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWINGS
SHEET 180 OF 267

REVISÉ: 1 /26 /2016



8/17/99

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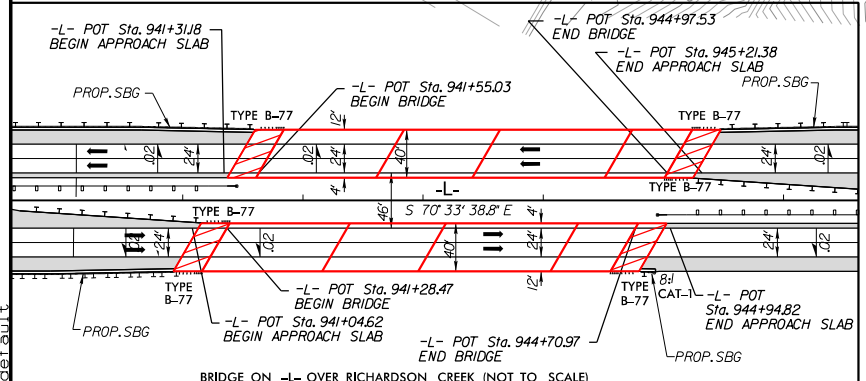
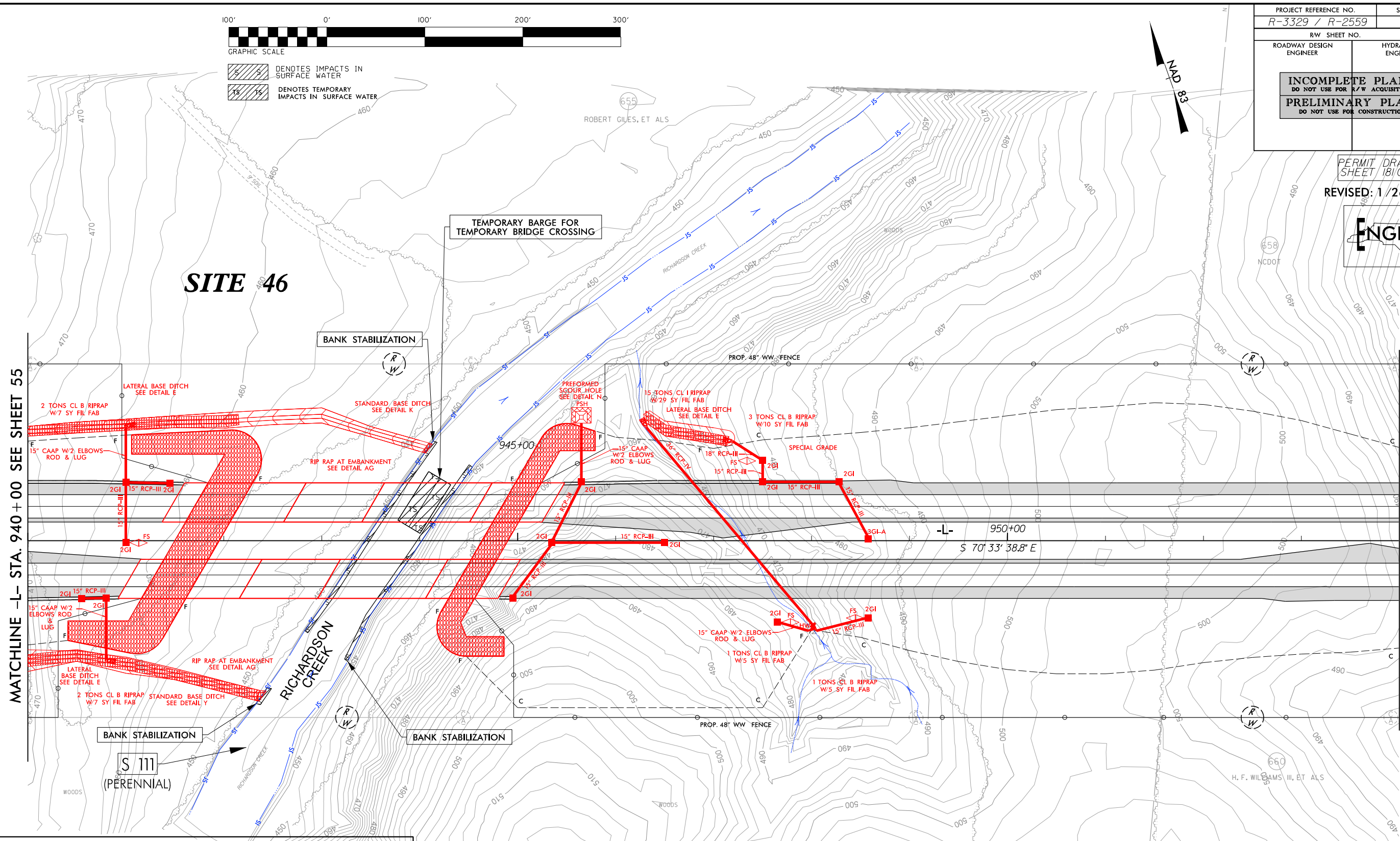


5/5 DENOTES IMPACTS IN SURFACE WATER
15/15 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

PROJECT REFERENCE NO. R-3329 / R-2559	SHEET NO. 56
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

PERMIT DRAWINGS
SHEET 181 OF 267

REVISED: 1/26/2016



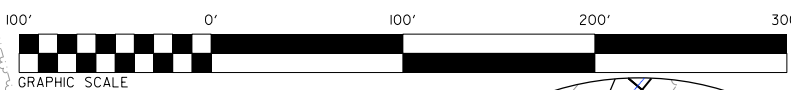
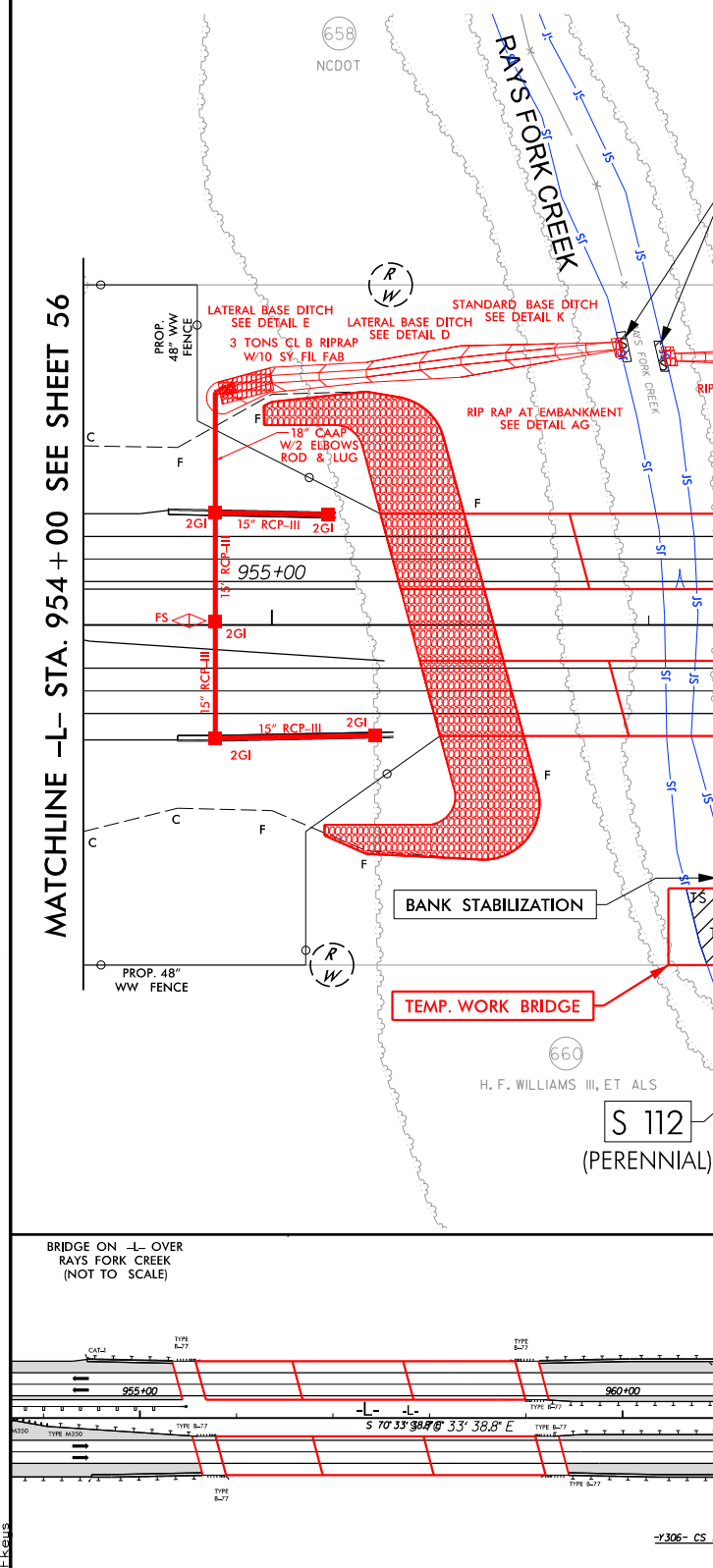
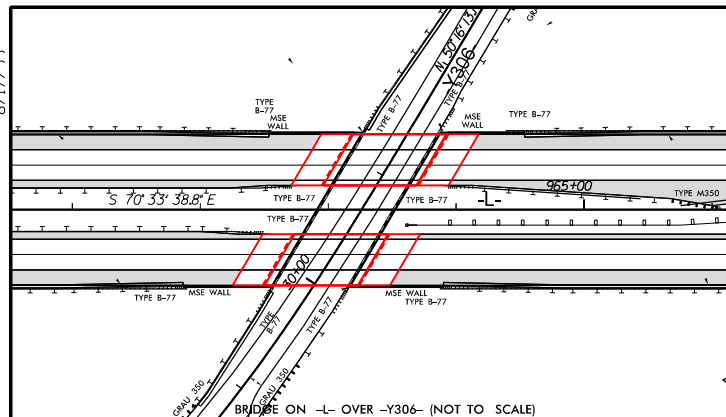
FOR -L- PROFILE SEE SHT.150

PLANS PREPARED BY :
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RALEIGH, N.C. 27636
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(919) 851-1918 (FAX)
WWW.MULKEYINC.COM

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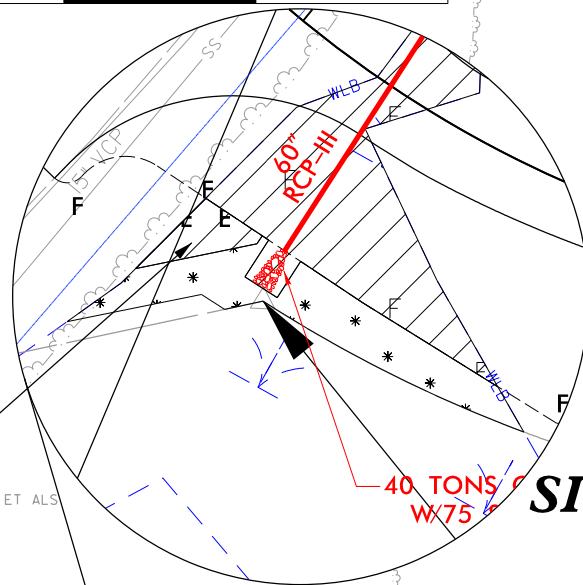
8/17/99

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

0.01 AC. TEMP. EXCAVATION IN WETLAND



SITE 48

SITE 47

PERMIT DRAWINGS
SHEET 183 OF 267
REVISED: 11/16/2015

ENGLISH

PROJECT REFERENCE NO. R-3329 / R-2559	SHEET NO. 57
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

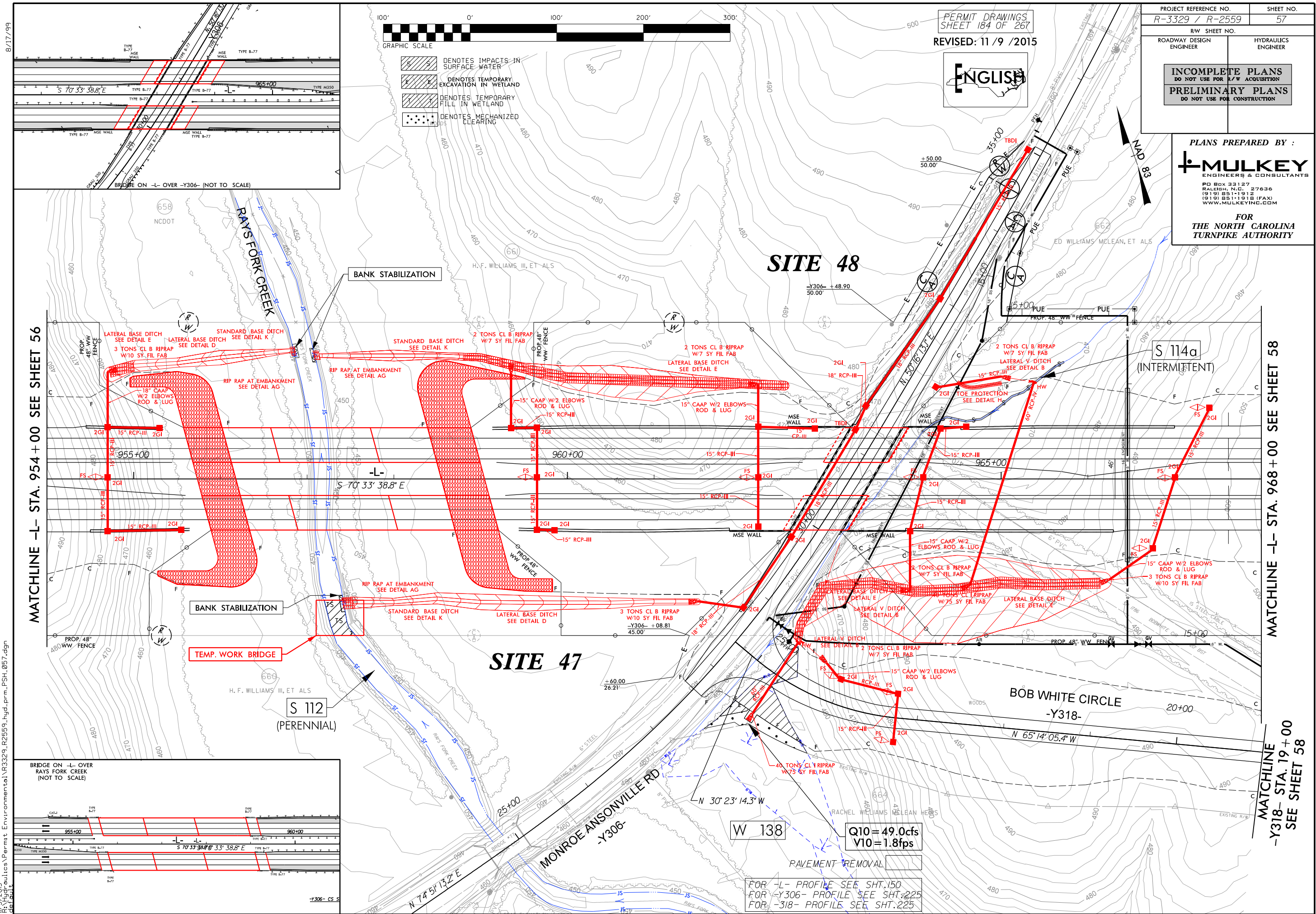
PLANS PREPARED BY :
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MATCHLINE -L- STA. 954+00 SEE SHEET 56

MATCHLINE -L- STA. 968+00 SEE SHEET 58

MATCHLINE
-Y318- STA. 19+00
SEE SHEET 58

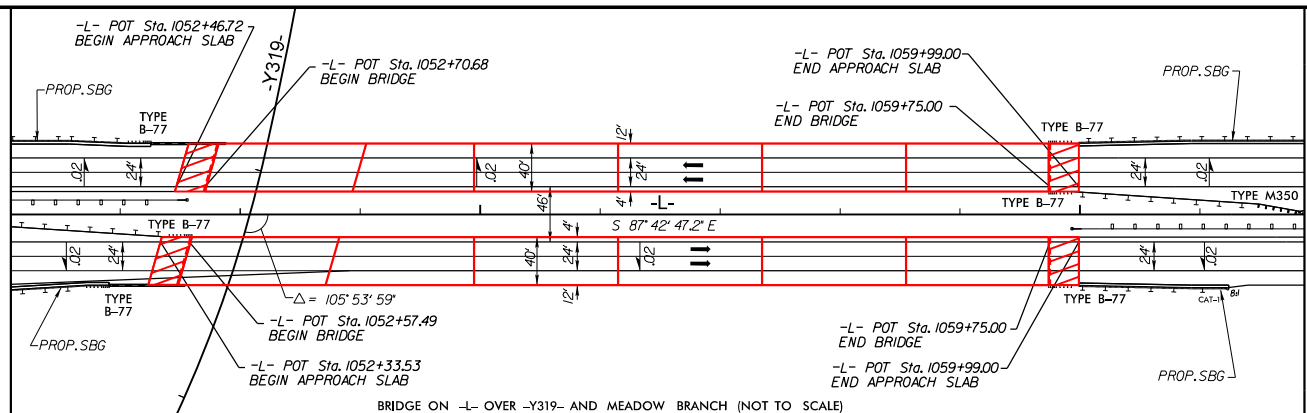
FOR -L- PROFILE SEE SHT.150
FOR -Y306- PROFILE SEE SHT.225
FOR -Y318- PROFILE SEE SHT.225



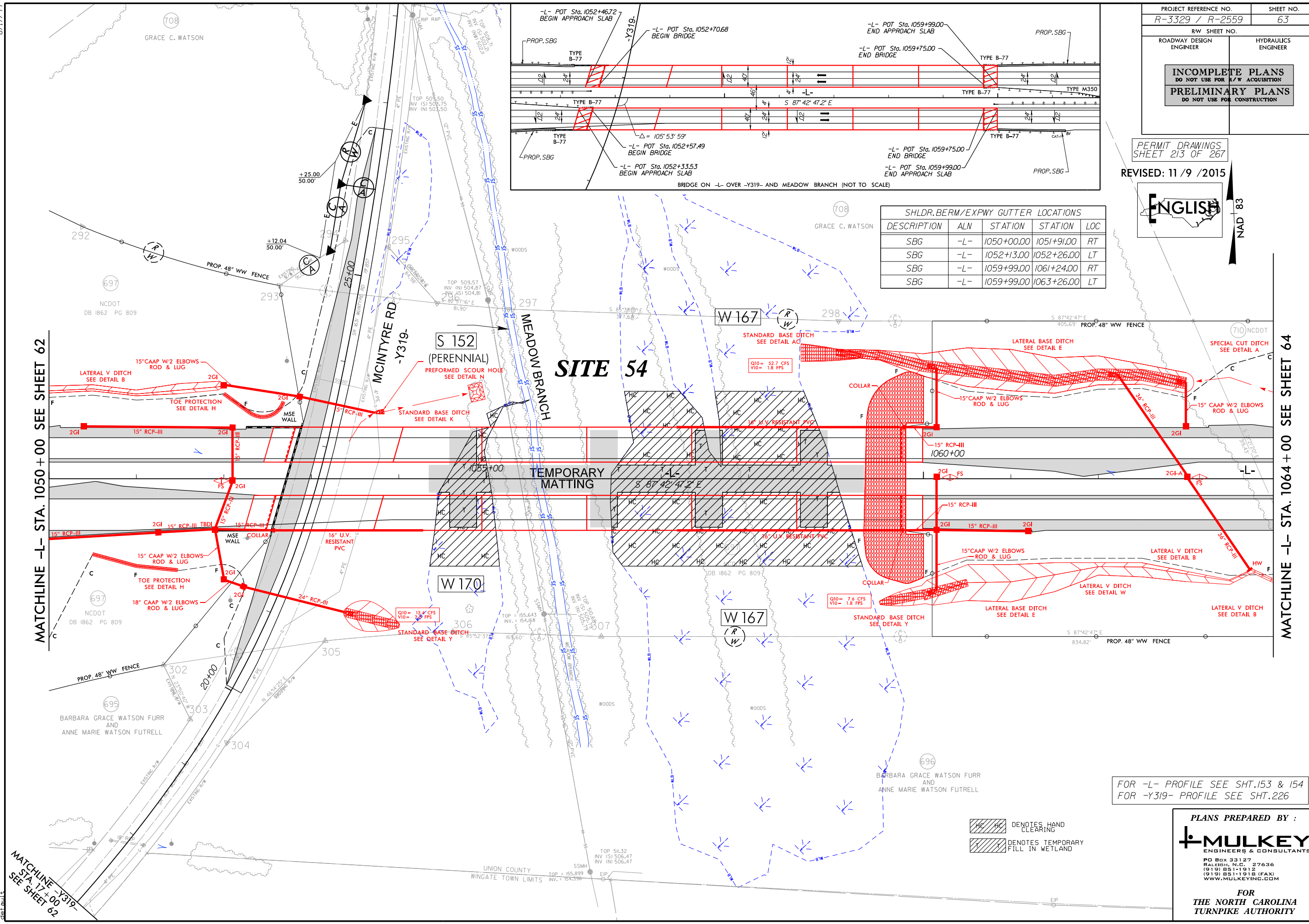
8/17/99

PROJECT REFERENCE NO.		SHEET NO.	
R-3329 / R-2559		63	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER			HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

PERMIT DRAWINGS
SHEET 213 OF 267
REVISED: 11/9/2015



SHLDR.BERM/EXPWY GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	1050+00.00	1051+91.00	RT
SBG	-L-	1052+13.00	1052+26.00	LT
SBG	-L-	1059+99.00	1061+24.00	RT
SBG	-L-	1059+99.00	1063+26.00	LT



FOR -L- PROFILE SEE SHT.153 & 154
FOR -Y319- PROFILE SEE SHT.226

HC HC DENOTES HAND CLEARING
HC HC DENOTES TEMPORARY FILL IN WETLAND

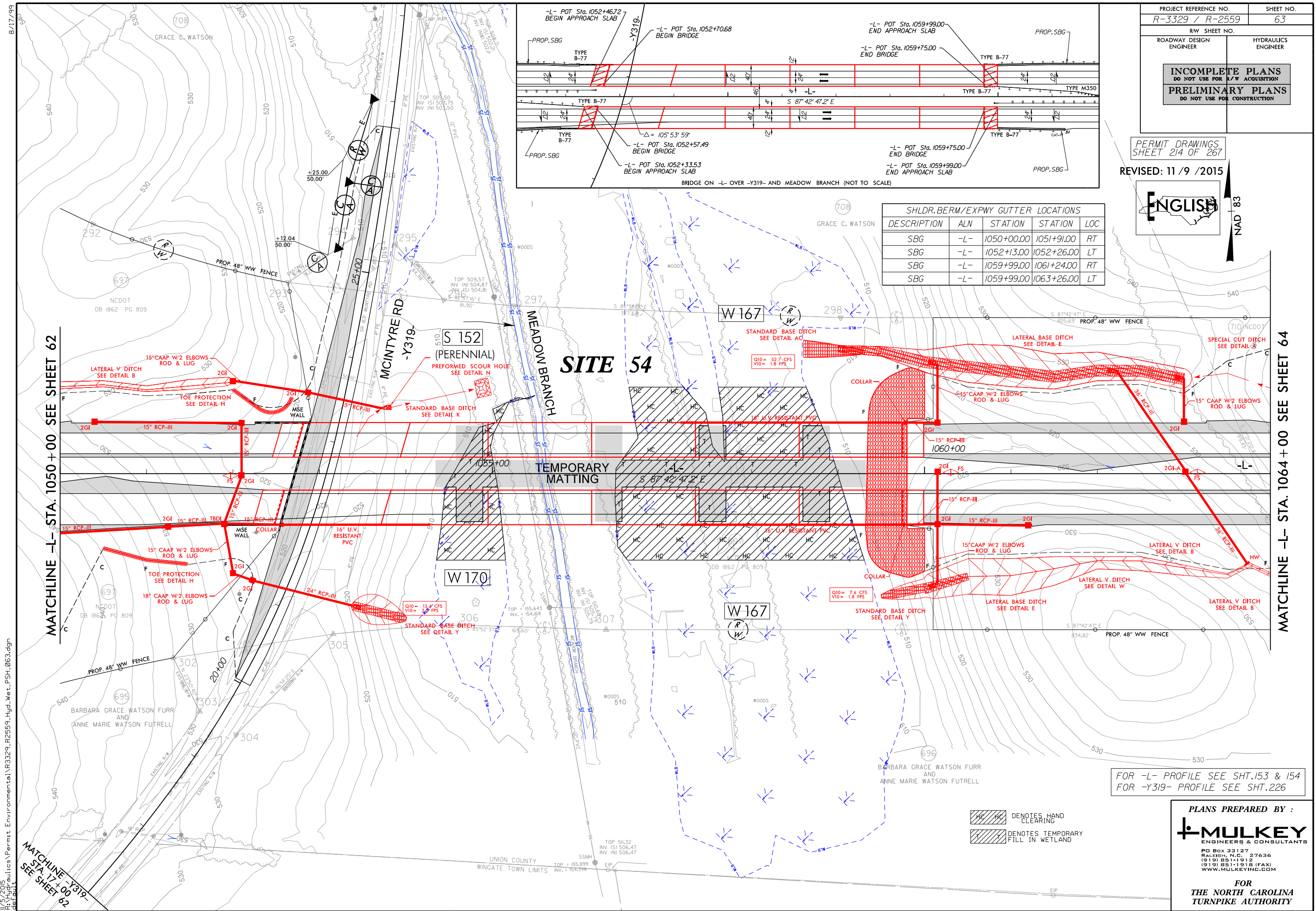
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REVISED 11/9/2015
PERMIT DRAWING
SHEET 229 OF 267

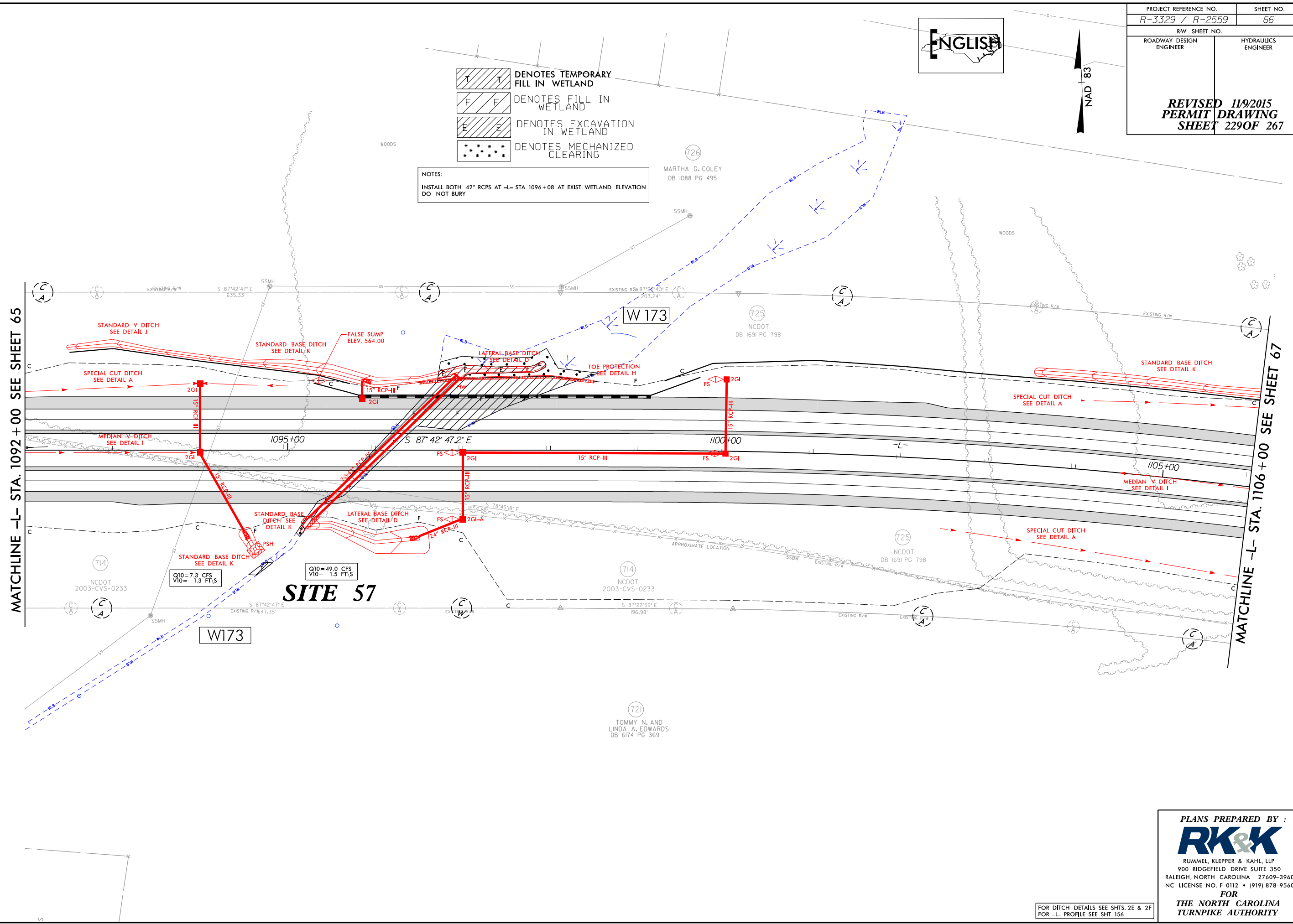
PLANS PREPARED BY :



RUMMEL, KLEPPER & KAHL, LLP
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LICENSE NO. F-0112 • (919) 878-9560

**FOR
THE NORTH CAROLINA
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FOR DITCH DETAILS SEE SHTS. 2E & 2F
FOR -L- PROFILE SEE SHT. 156



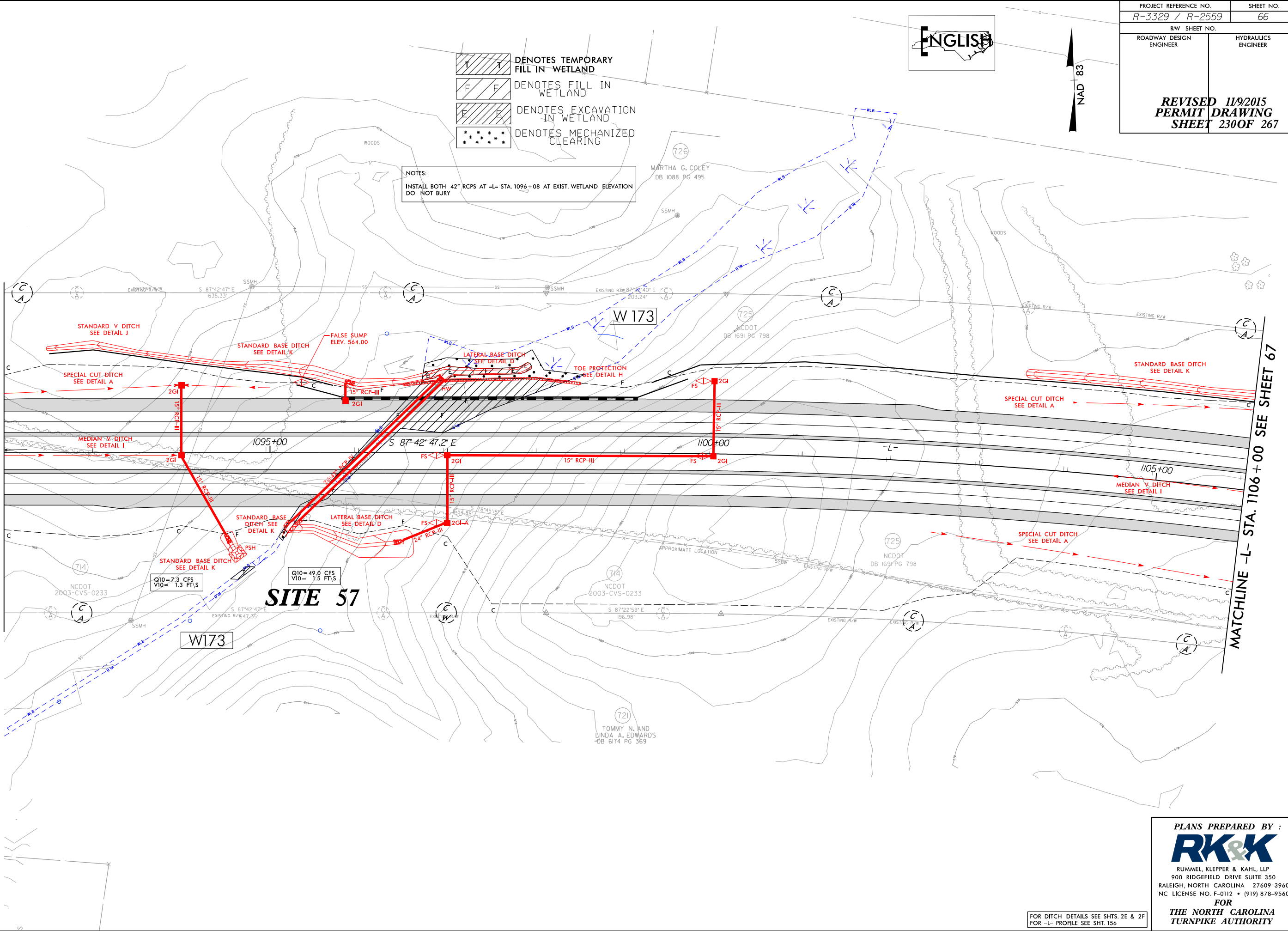
8/17/99

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E:\kennel

8/17/99

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E:\

MATCHLINE -L- STA. 1092 + 00 SEE SHEET 65

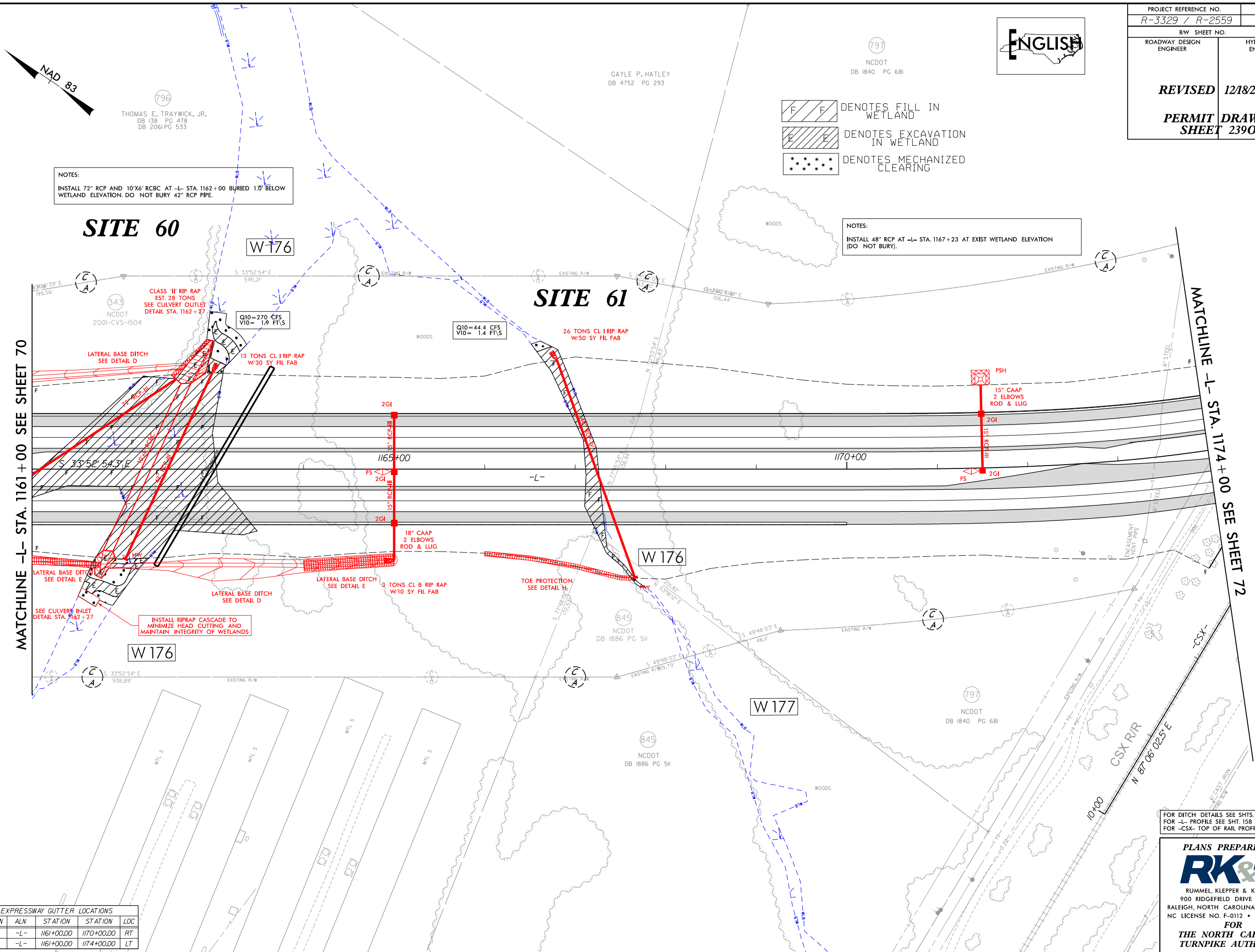


FOR DITCH DETAILS SEE SHTS. 2E & 2F
FOR -L- PROFILE SEE SHY. 156

PLANS PREPARED BY :
RK&K
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8/17/99

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NOTES:
INSTALL 72" RCP AND 10'X6' RCBC AT -L- STA. 1162+00 BURIED 1.0' BELOW WETLAND ELEVATION. DO NOT BURY 42" RCP PIPE.

NOTES:
INSTALL 48" RCP AT -L- STA. 1167+23 AT EXIST WETLAND ELEVATION (DO NOT BURY).

SBG & EXPRESSWAY GUTTER LOCATIONS				
DESCRIPTION	ALN	STATION	STATION	LOC
SBG	-L-	1161+00.00	1170+00.00	RT
SBG	-L-	1161+00.00	1174+00.00	LT

FOR DITCH DETAILS SEE SHTS. 2E & 2F
FOR -L- PROFILE SEE SHT. 158
FOR -CSX- TOP OF RAIL PROFILE SEE SHT. 235

PLANS PREPARED BY :

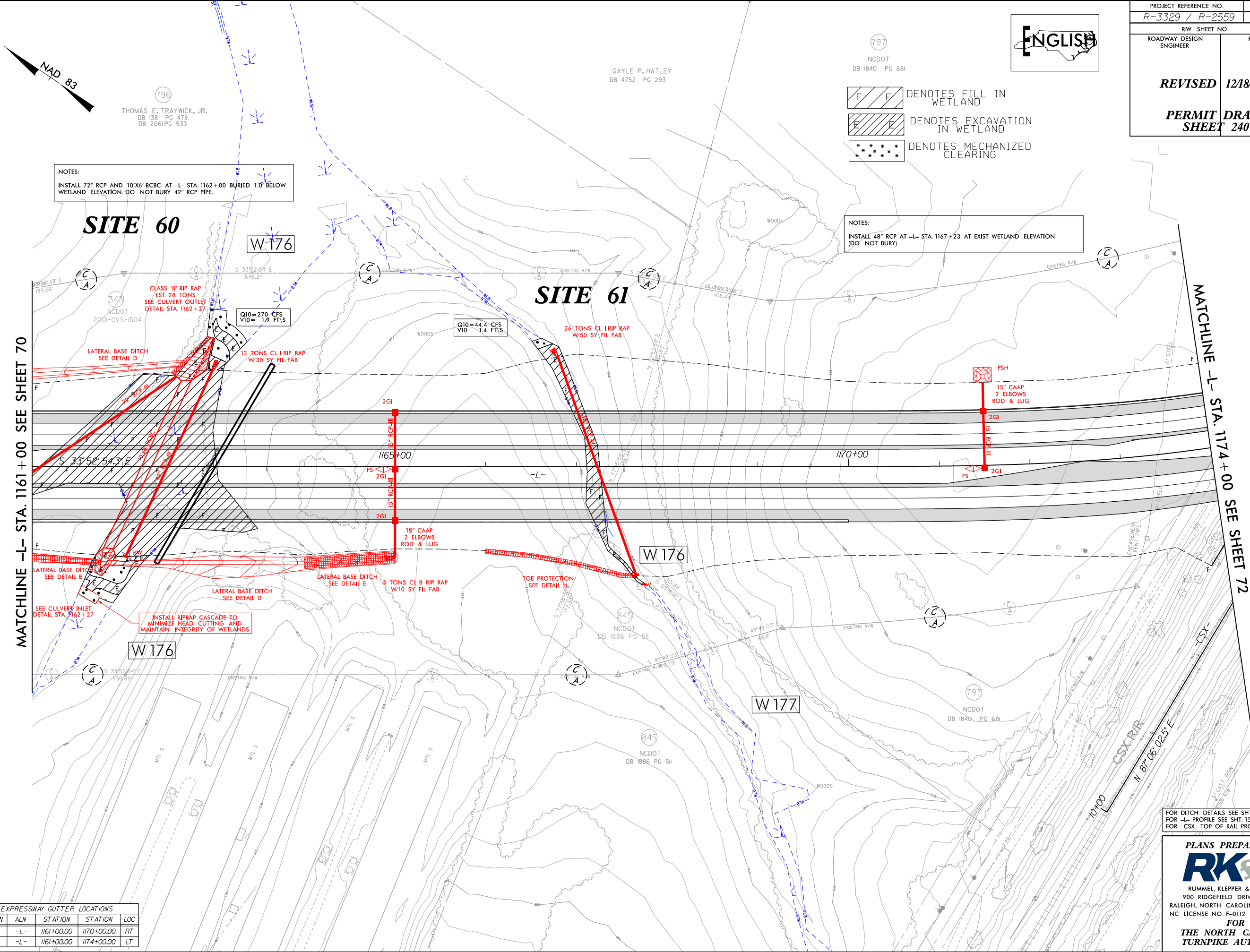
RK&K

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8/17/99

12/17/2015
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PROJECT REFERENCE NO.		SHEET NO.	
R-3329 / R-2559		71	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
REVISED		12/18/2015	
PERMIT SHEET		DRAWING 240 OF 267	

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