previous study

HYDRAULIC TABLE (50-YEAR STORM)

NH000-0575-01(028)
I-575 over Noonday Creek North, Cherokee County, Georgia
P.I. No. 713640

	FULL VALLEY (ft)	*EXISTING BRIDGE* *Parallel Bridges DS/US* (ft)	*PROPOSED BRIDGE* *Widening* (ft)
FLOODSTAGE ELEVATION DOWNSTREAM BR SECTION 35328	885.72	885.78	885.62
FLOODSTAGE ELEVATION APPROACH SECTION 36148	885.81	887.34	887.18
AREA OF OPENING UNDER FLOODSTAGE (SF)	**********	1181	1173
DISCHARGE THROUGH BRIDGE (CFS)	**********	7774.0	7774.0
DISCHARGE OVER ROADWAY (CFS)	**********	0.0	0.0
MEAN VELOCITY AT BRIDGE SECTION (FT/S)	0.96	6.58	6.63
CHANNEL VELOCITY AT BRIDGE SECTION (FT/S)	1.93	7.44	7.33
2 - YEAR FLOODSTAGE ELEVATION BRIDGE SECTION 35328	879.20	879.22	879.25
BACKWATER HEIGHT	**********	1.53	1.37
BR. SEL. METHOD	**********	WSPRO/Energy only	Energy only

HYDRAULIC TABLE (100-YEAR STORM)

NH000-0575-01(028)
I-575 over Noonday Creek North, Cherokee County, Georgia
P.I. No. 713640

	FULL VALLEY (ft)	*EXISTING BRIDGE* *Parallel Bridges DS/US* (ft)	*PROPOSED BRIDGE* *Widening* (ft)
FLOODSTAGE ELEVATION DOWNSTREAM BR SECTION 35328	886.78	886.71	886.71
FLOODSTAGE ELEVATION APPROACH SECTION 36148	886.87	888.45	888.45
AREA OF OPENING UNDER FLOODSTAGE (SF)	**********	1290	1305
DISCHARGE THROUGH BRIDGE (CFS)	**********	9108.0	9108.0
DISCHARGE OVER ROADWAY (CFS)	**********	0.0	0.0
MEAN VELOCITY AT BRIDGE SECTION (FT/S)	0.92	7.06	6.98
CHANNEL VELOCITY AT BRIDGE SECTION (FT/S)	1.82	8.01	7.74
2 - YEAR FLOODSTAGE ELEVATION BRIDGE SECTION 35328	879.20	879.22	879.25
BACKWATER HEIGHT	**********	1.58	1.58
BR. SEL. METHOD	**********	Energy only/Energy only	Energy only

NH000-0575-01(028)
I-575 over Noonday Creek North, Cherokee County, Georgia
P.I. No. 713640

PROPOSED BRIDGE CLEARANCE

Widening Bridge

	English Units
MINIMUM PROFILE GRADE ELEVATION	
DEPTH OF CROSS SLOPE	
DEPTH OF SLAB AND BEAM	
BOTTOM OF BEAM ELEVATION	885.93
MINIMUM BOTTOM OF BEAM ELEVATION	885.93
50 YEAR FLOODSTAGE ELEVATION*	885.62
CLEARANCE (2 ft Required)	0.31
MINIMUM BOTTOM OF BEAM ELEVATION	885.93
100 YEAR FLOODSTAGE ELEVATION*	886.71
CLEARANCE (1 ft Required)	-0.78

*Floodstage taken from Downstream Bridge Section

Current study

HYDRAULIC TABLE (50-YEAR STORM)

NH000-0575-01(028)
I-575 over Noonday Creek North, Cherokee County, Georgia
P.I. No. 713640

	FULL VALLEY (ft)	*EXISTING/ PROPOSED* Parallel Bridges DS/US (ft)
FLOODSTAGE ELEVATION DOWNSTREAM BR SECTION 353391	885.72	885.59
FLOODSTAGE ELEVATION APPROACH SECTION 36148	885.83	887.36
AREA OF OPENING UNDER FLOODSTAGE (SF)	**********	1151
DISCHARGE THROUGH BRIDGE (CFS)	**********	774
DISCHARGE OVER ROADWAY (CFS)	**********	0.0
MEAN VELOCITY AT BRIDGE SECTION (FT/S)	**********	6.76
CHANNEL VELOCITY AT BRIDGE SECTION (FT/S)	1.99	8.59
2 - YEAR FLOODSTAGE ELEVATION BRIDGE SECTION 35391	879.21	879.24
BACKWATER HEIGHT	**********	1.53
BR. SEL. METHOD	**********	WSPRO/Energy only

HYDRAULIC TABLE (100-YEAR STORM)

NH000-0575-01(028)
I-575 over Noonday Creek North, Cherokee County, Georgia
P.I. No. 713640

	FULL VALLEY *(ft)*	*EXISTING/ PROPOSED* *Parallel Bridges DS/US* *(ft)*
FLOODSTAGE ELEVATION DOWNSTREAM BR SECTION 35391	886.78	886.66
FLOODSTAGE ELEVATION APPROACH SECTION 36148	886.88	888.69
AREA OF OPENING UNDER FLOODSTAGE (SF)	**********	1278
DISCHARGE THROUGH BRIDGE (CFS)	**********	9108
DISCHARGE OVER ROADWAY (CFS)	**********	0.0
MEAN VELOCITY AT BRIDGE SECTION (FT/S)	**********	7.13
CHANNEL VELOCITY AT BRIDGE SECTION (FT/S)	1.88	9.21
2 - YEAR FLOODSTAGE ELEVATION BRIDGE SECTION 35391	879.21	879.24
BACKWATER HEIGHT	**********	1.81
BR. SEL. METHOD	**********	Energy only/Energy only

HYDRAULIC TABLE (500-YEAR STORM)

NH000-0575-01(028)
I-575 over Noonday Creek North, Cherokee County, Georgia
P.I. No. 713640

	FULL VALLEY *(ft)*	*EXISTING/ PROPOSED* *Parallel Bridges DS/US* *(ft)*
FLOODSTAGE ELEVATION DOWNSTREAM BR SECTION 35391	889.03	889.02
FLOODSTAGE ELEVATION APPROACH SECTION 36148	889.12	891.59
AREA OF OPENING UNDER FLOODSTAGE (SF)	**********	1766
DISCHARGE THROUGH BRIDGE (CFS)	**********	12749
DISCHARGE OVER ROADWAY (CFS)	**********	0.0
MEAN VELOCITY AT BRIDGE SECTION (FT/S)	**********	7.22
CHANNEL VELOCITY AT BRIDGE SECTION (FT/S)	1.74	10.53
2 - YEAR FLOODSTAGE ELEVATION BRIDGE SECTION 35391	879.21	879.24
BACKWATER HEIGHT	**********	2.47
BR. SEL. METHOD	**********	Energy only/Energy only

NH000-0575-01(028)
I-575 over Noonday Creek North, Cherokee County, Georgia
P.I. No. 713640

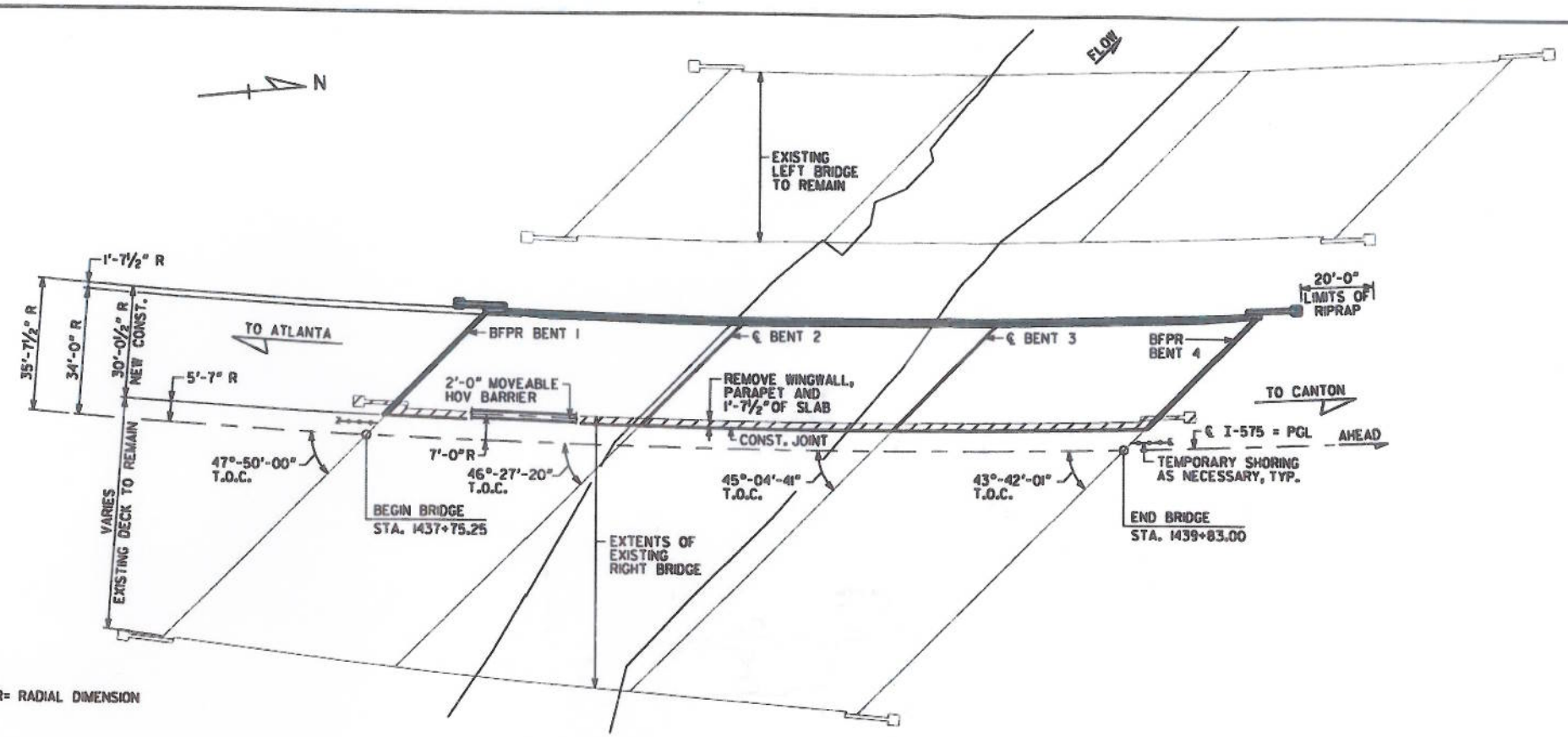
PROPOSED BRIDGE CLEARANCE

Widening Bridge

	English Units
MINIMUM PROFILE GRADE ELEVATION	
DEPTH OF CROSS SLOPE	
DEPTH OF SLAB AND BEAM	
BOTTOM OF BEAM ELEVATION	886.17
MINIMUM BOTTOM OF BEAM ELEVATION	886.17
50 YEAR FLOODSTAGE ELEVATION*	885.59
CLEARANCE (2 ft Required)	0.58
MINIMUM BOTTOM OF BEAM ELEVATION	886.17
100 YEAR FLOODSTAGE ELEVATION*	886.66
CLEARANCE (1 ft Required)	-0.49

*Floodstage taken from Downstream Bridge Section

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA	NH000-0575-01(028)		



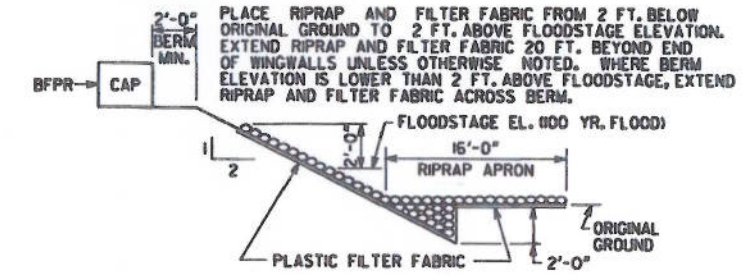
PLAN
SCALE: 1" = 20'-0"

P.I. STA. = 1443+73.82
Δ = 40°-33'-11"
D = 1°-59'-22"
T = 1064.00 FT
L = 2038.42 FT
R = 2880.00 FT

℄ I-575
HORIZONTAL CURVE DATA

+0.6261% +2.6394%
P.V.I. STA. 1443+90.00 EL. 895.87
1380 FT V.C.

I-575
GRADE DATA



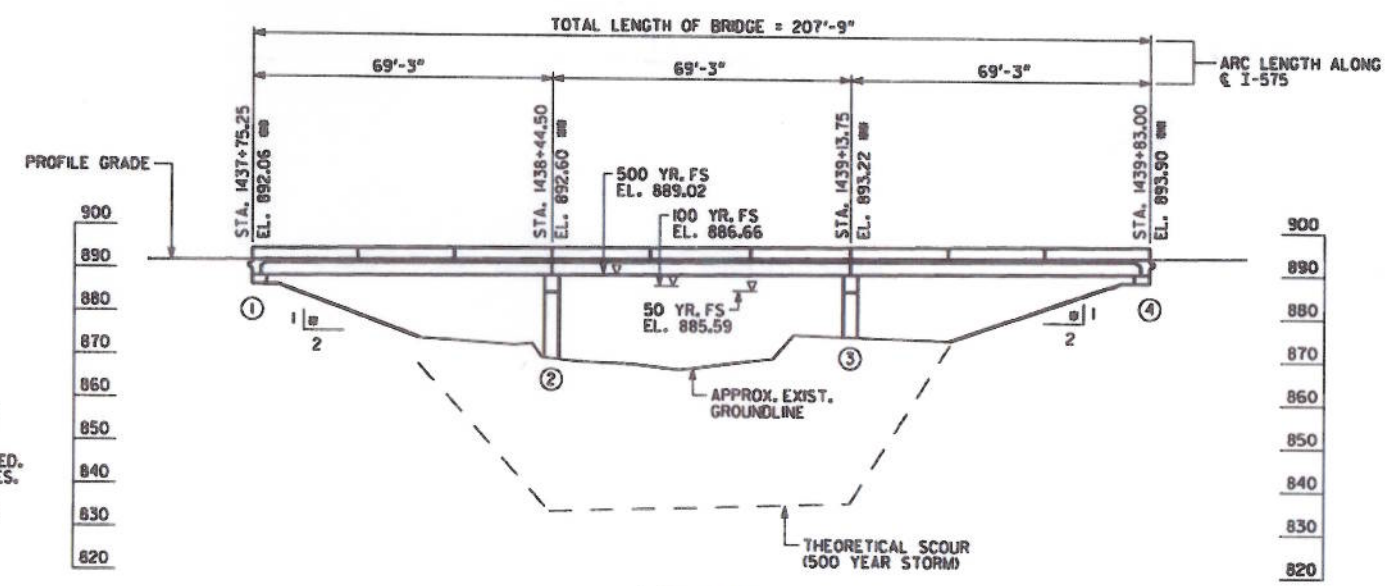
RIPRAP DETAIL
NO SCALE

BERM ELEVATIONS ⑧		
BENT	LEFT	RIGHT
1	883.97	882.19
4	885.92	884.55

⑧ NOTE: FOR BRIDGE ENDROLL STAKING PURPOSES ONLY.

NOTES:

1. ⊘ SLOPE NORMAL TO END BENTS.
2. ⊞ STATIONS ARE ALONG ℄ I-575 AT THE INTERSECTION OF ℄ I-575 AND BFPR OR ℄ BENT. ELEVATIONS ARE ALONG PGL.
3. END BENT PILES NOT SHOWN.
4. THE PROPOSED BRIDGE DECK IS TO BE BUILT ON A CONSTANT CROSS SLOPE OF 7%, SLOPING DOWN TO THE LEFT.
5. REPAIR AND REPLACE EXISTING RIPRAP AS NEEDED. EXTEND APRON ACROSS TOE OF EXISTING SLOPES.
6. THE MINIMUM BOTTOM OF BEAM ELEVATION FOR THE PROPOSED BRIDGE SHALL BE NO LOWER THAN ELEVATION 885.90
7. THE PROPOSED BRIDGE BOTTOM OF BEAM ELEVATION IS 886.17



ELEVATION
SCALE: 1" = 20'-0"

DESIGN DATA

SPECIFICATIONS ---------- AASHTO 17TH EDITION, 2002
(DESIGNED FOR SEISMIC PERFORMANCE CATEGORY B)
TYPICAL HS20-44 AND/OR MILITARY LOADING --- IMPACT ALLOWED
FUTURE PAVING ALLOWANCE ---------- 30 LBS PER SQ FT

WIDENED ~~WIDENED~~ BRIDGE CONSISTS OF

3 - 69'-3" TYPE II PSC BEAM SPAN ---------- SPECIAL DESIGN
2 - PILE END BENTS ---------- SPECIAL DESIGN
2 - CONCRETE INTERMEDIATE BENTS ---------- SPECIAL DESIGN

24" TYPE I RIP RAP

UTILITIES

NONE

DRAINAGE DATA

DRAINAGE AREA ---------- 43.2 SQ MI

FLOOD FREQUENCY	DISCHARGE THRU BRIDGE	MEAN VELOCITY	AREA OF OPENING UNDER FLOODSTAGE	BACKWATER
50 YEAR	7774 CFS	6.76 FPS	1151 SQ FT	1.53 FT
100 YEAR	9108 CFS	7.13 FPS	1278 SQ FT	1.81 FT
500 YEAR	12749 CFS	7.22 FPS	1766 SQ FT	2.47 FT

THEORETICAL SCOUR DEPTHS (FT)						
	100 YEAR STORM			500 YEAR STORM		
BENT LOCATION	GENERAL	LOCAL	TOTAL	GENERAL	LOCAL	TOTAL
BENT 2 - 3	22.7	13.3	36.0	26.8	8.4	35.2

EXISTING RIGHT BRIDGE SERIAL NO. 057-0040-0
EXISTING RIGHT BRIDGE I.D. NO. 057-00417D-007.93N
PROJECT P.I. NO. 713640

BRIDGE NO. 40

ABBAS ESHAGIEH-NEYBOUT	11/20/09
DRAWN BY	DATE
CHECKED BY	DATE
SUPERVISOR	DATE
APPROVED	DATE

REVISIONS

NO	DATE	DESCRIPTION	DRIG	CHKR	SUPV	APPR
A	6/30/09	Progress Drawings (50 11 Revision 2)	AEM	JCR	GLE	SJL
B	9/25/09	50% SUBMISSION	AEM	JCR	GLE	SJL
C	11/20/09	HYDRAULIC STUDY SUBMISSION	AEM	JCR	GLE	SJL

GTP Georgia Transportation Partners

NORTHWEST 175/1575 CORRIDOR

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

JBT J.B. Trimble, Inc.
2550 Heritage Ct. SE Suite 250
Atlanta GA 30339-3062
(770) 952-1022

GEORGIA REGISTERED PROFESSIONAL ENGINEER 27194 I-575-004 ROBERT SCHOOLFIELD

BRIDGE SHEET
1 OF 2

I-75 / I-575 NORTHWEST CORRIDOR

I-575 REVERSIBLE OVER NOONDAY CREEK NORTH
PLAN AND ELEVATION

CHEROKEE COUNTY NH000-0575-01(028)

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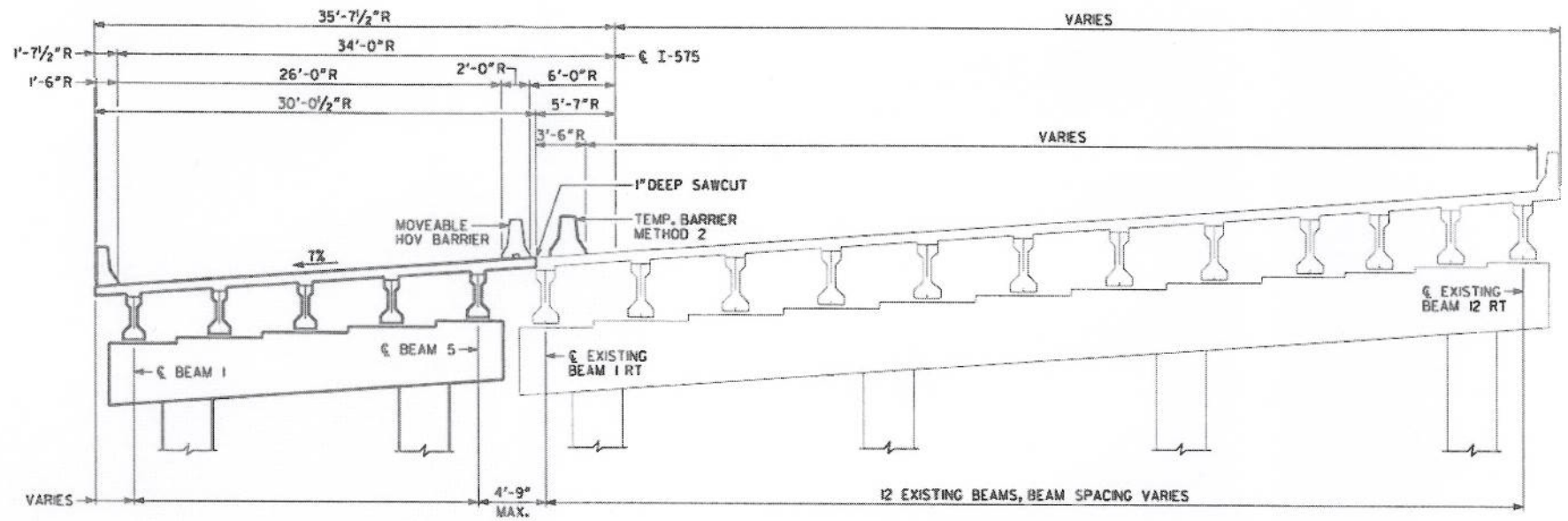
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA	NH000-0575-01(028)		



TYPICAL SECTION
(LOOKING AHEAD, RIGHT BRIDGE)

R = RADIAL DIMENSION

CONSTRUCTION SEQUENCE

1. PLACE TEMPORARY BARRIER. MAINTAIN TWO 12'-0" LANES OF TRAFFIC IN EACH DIRECTION ON EXISTING BRIDGES. MAINTAIN EXIT LANE ON EXISTING NB BRIDGE.
2. REMOVE PORTIONS OF EXISTING NORTH BOUND BRIDGE AS NECESSARY FOR NEW CONSTRUCTION.
3. CONSTRUCT NEW SUBSTRUCTURE.
4. CONSTRUCT NEW SUPERSTRUCTURE.

BRIDGE NO. 40

ABBAS ESHAGIEH-MEYBODI	11/20/09
DRAWN BY	DATE
CHECKED BY	DATE
SUPERVISOR	DATE
APPROVED	DATE

REVISIONS

NO	DATE	DESCRIPTION	ORIG	CHKR	SUPV	APPR
A	6/30/09	Progress Drawings (50 11 Revision 2)	AEM	JCR	GLE	SJL
B	9/25/09	50% SUBMISSION	AEM	JCR	GLE	SJL
C	11/20/09	HYDRAULIC STUDY SUBMISSION	AEM	JCR	GLE	SJL

GTP Georgia Transportation Partners

NORTHWEST I-75/I-575 CORRIDOR

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

JBT J.B. Trimble, Inc.
2550 Heritage Ct, SE Suite 250
Atlanta GA 30339-3062
(770) 952-1022

BRIDGE SHEET
2 OF 2

I-75 / I-575 NORTHWEST CORRIDOR

I-575 REVERSIBLE OVER NOONDAY CREEK NORTH
CONSTRUCTION SEQUENCE

CHEROKEE COUNTY NH000-0575-01(028)

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