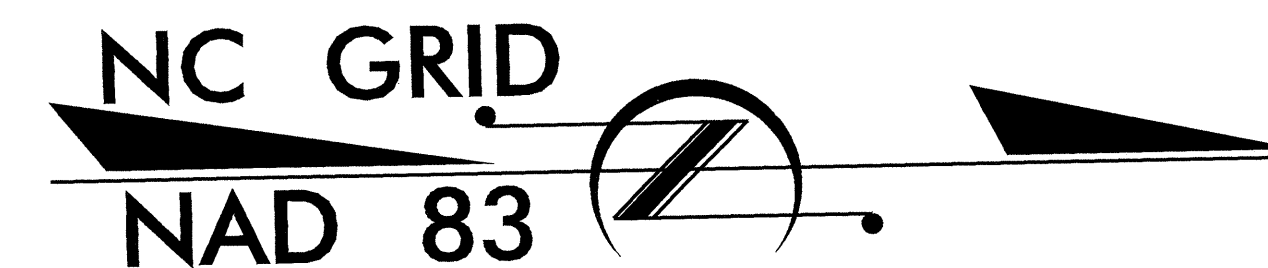
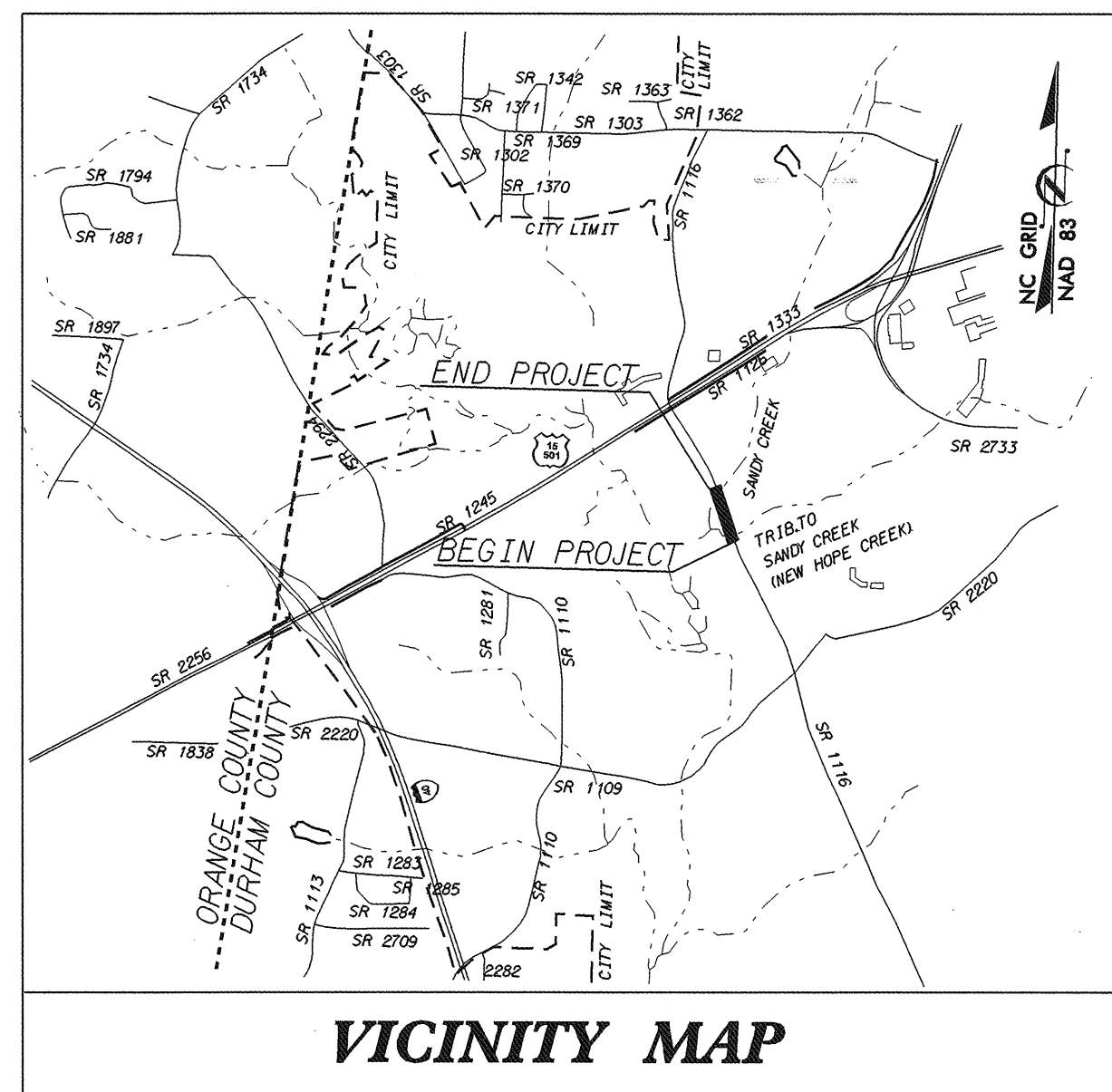


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

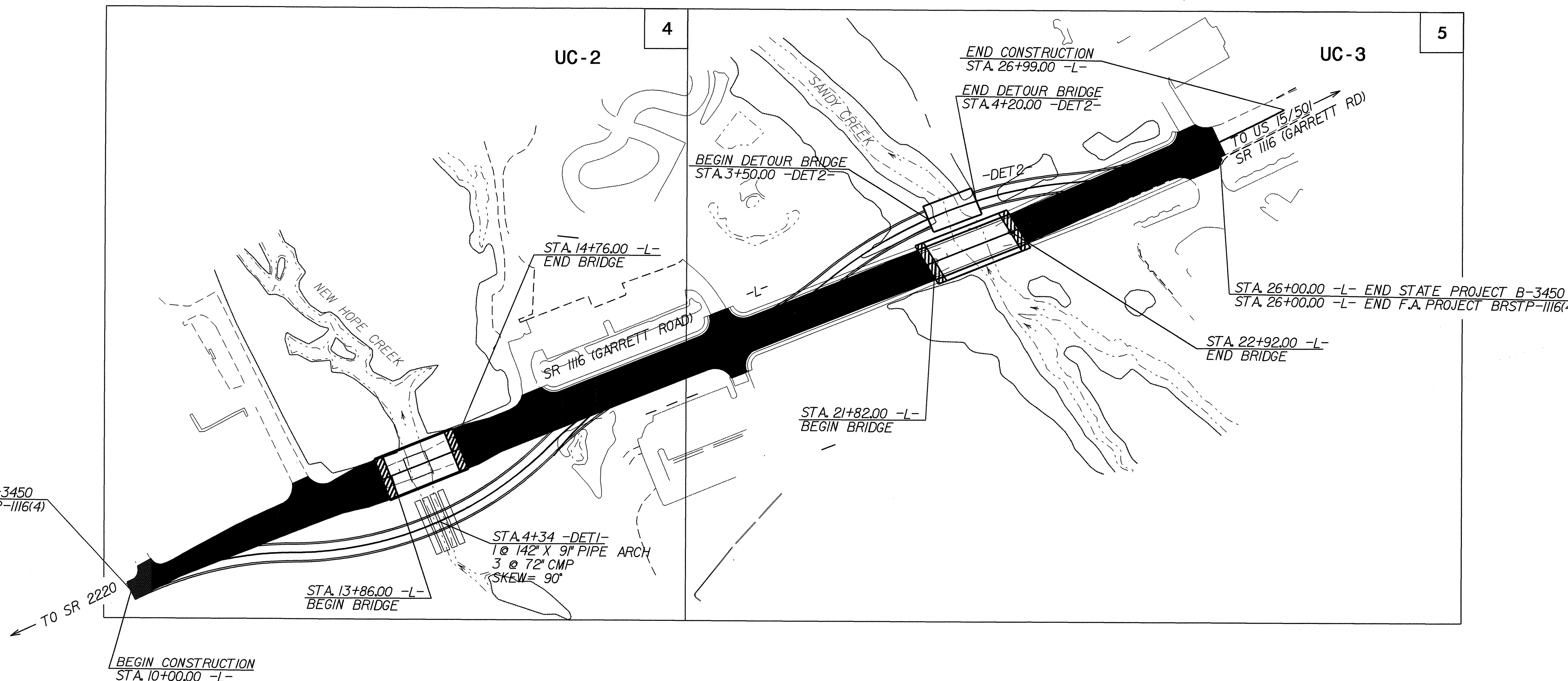
**UTILITY CONSTRUCTION PLANS
DURHAM COUNTY**

**LOCATION: BRIDGE NO. 217 OVER NEW HOPE CREEK
AND BRIDGE NO. 122 OVER SANDY CREEK
AND APPROACHES ON SR 1116**

TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, AND STRUCTURES



NOTE: THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF DURHAM.



TIP: B-3450

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2 AND UC-3	UTILITY CONSTRUCTION PLAN SHEETS
UC-4	DETAIL SHEET AND PROFILE

WATER AND SEWER OWNERS ON PROJECT
(1) CITY OF DURHAM (WATER AND SEWER)

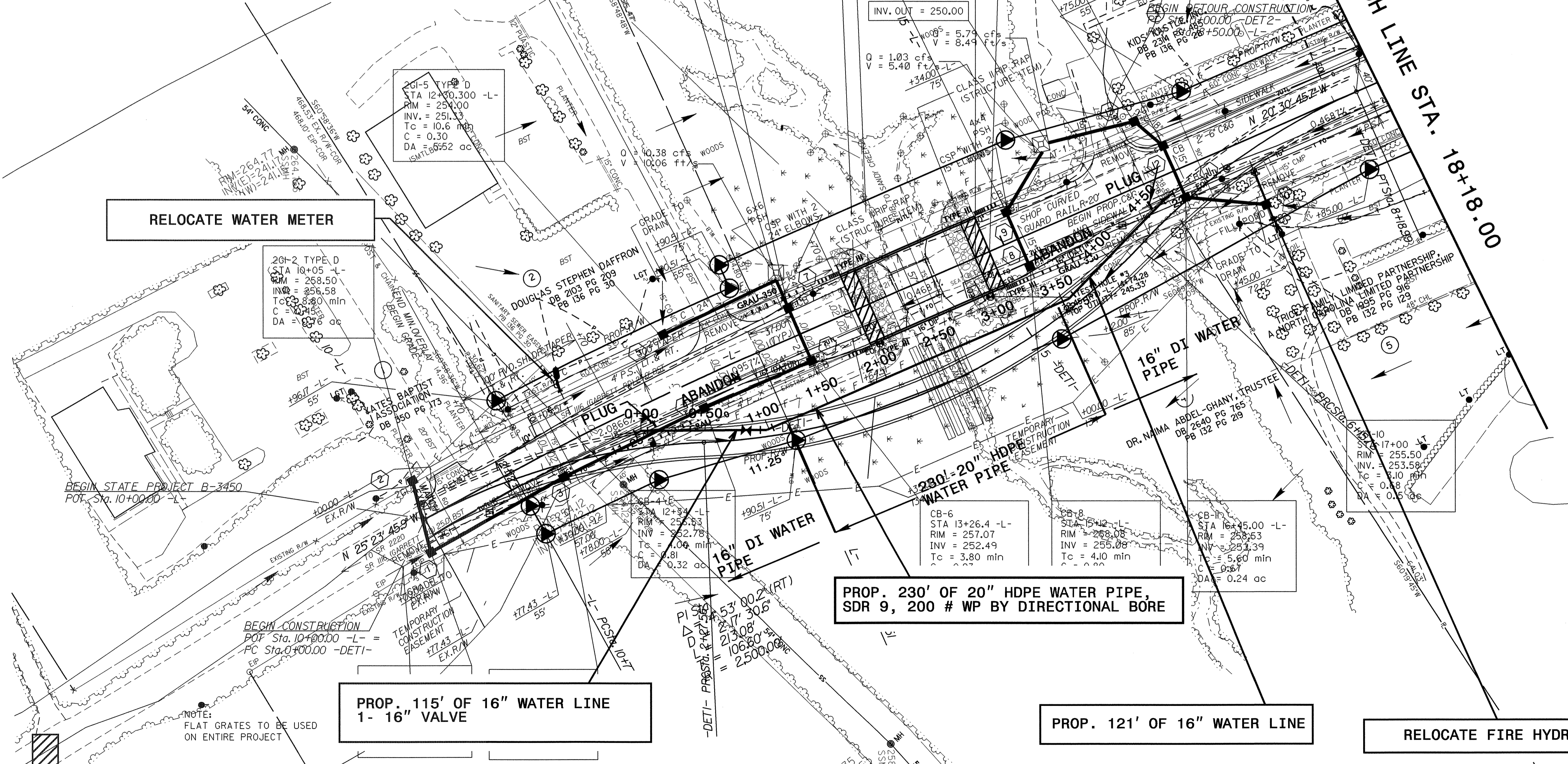
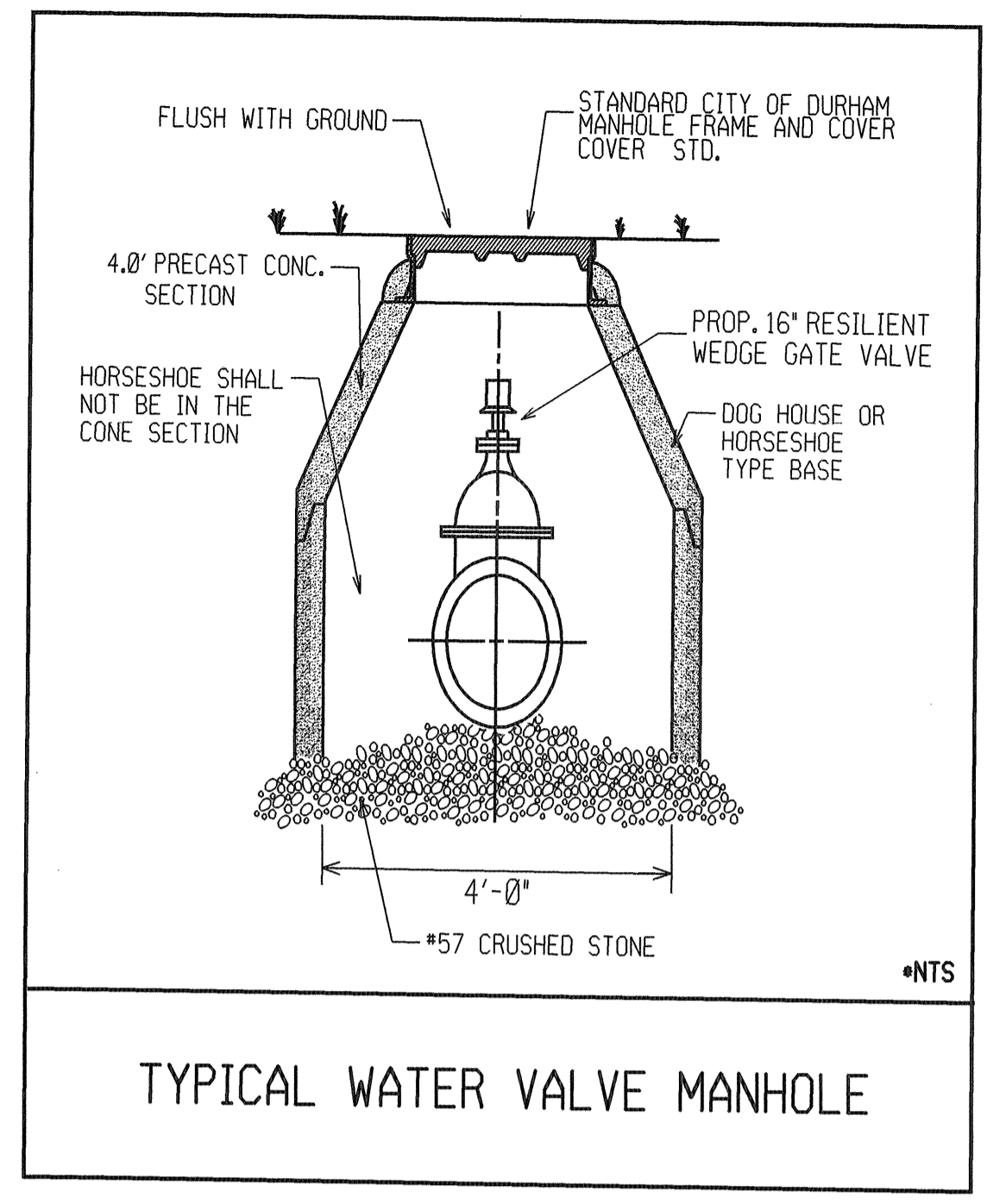
SEAL

PREPARED IN THE OFFICE OF:
**DIVISION OF HIGHWAYS
DESIGN SERVICES
UTILITY SECTION**

1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
Corey Bousquet, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Jamshid Hafshejani UTILITIES PROJECT DESIGNER

UTILITY CONSTRUCTION

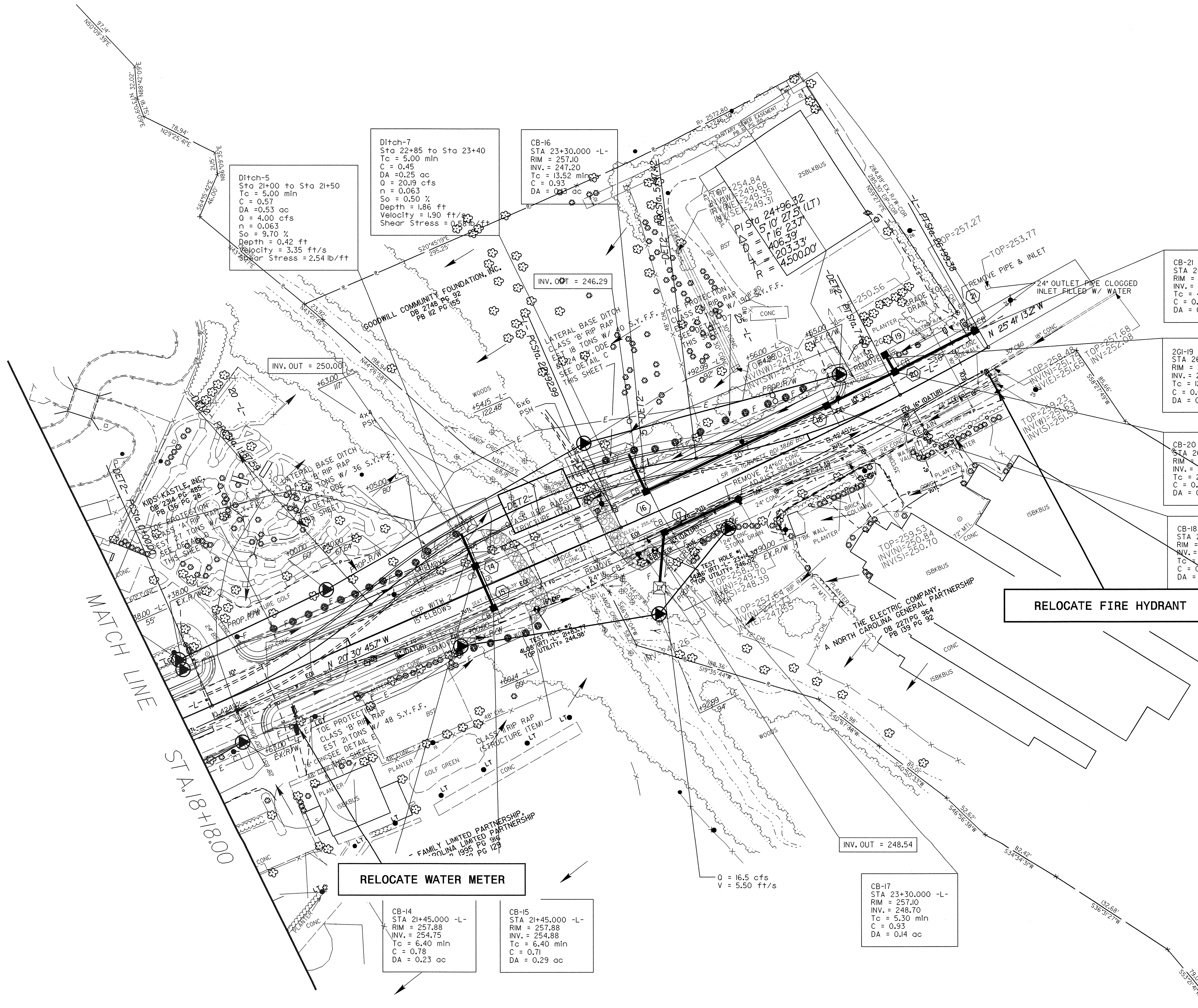


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PROJECT REFERENCE NO.	SHEET NO.
B-3450	UC-3
DESIGNED BY: JH	
DRAWN BY: JH	
CHECKED BY: CDB	
APPROVED BY: CDB	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
DESIGN SERVICES UNIT PHONE: (919) 250-4128 FAX: (919) 250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

8/17/99
 07-MAR-2007 14:05
 R:\Utilities\Road\Utility\Proj\B3450-uc-3.dgn
 \$\$\$SUSSEFRANK\$\$\$



Ditch-5
Sta 21+00 to Sta 21+50
Tc = 5.00 min
C = 0.57
DA = 0.53 ac
Q = 4.00 cfs
n = 0.063
So = 9.70 %
Depth = 0.42 ft
Velocity = 3.35 ft/s
Shear Stress = 2.54 lb/ft

Ditch-7
Sta 22+85 to Sta 23+40
Tc = 5.00 min
C = 0.45
DA = 0.25 ac
Q = 20.19 cfs
n = 0.063
So = 0.50 %
Depth = 1.86 ft
Velocity = 1.90 ft/s
Shear Stress = 0.58 lb/ft

CB-16
STA 23+30.000 -L-
RIM = 257.10
INV. = 247.20
Tc = 13.52 min
C = 0.93
DA = 0.23 ac

CB-21
STA 26+95.222 -L-
RIM = MATCH EX.
INV. = 248.30
Tc = 4.00 min
C = 0.82
DA = 0.094 ac

2GI-19 TYPE B
STA 26+05.000 -L-
RIM = 252.65
INV. = 249.65
Tc = 12.69 min
C = 0.65
DA = 0.76 ac

CB-20
STA 26+06 -L-
RIM = 256.40
INV. = 248.03
Tc = 2.90 min
C = 0.93
DA = 0.05 ac

CB-18
STA 25+30.000 -L-
RIM = 256.07
INV. = 247.80
Tc = 5.50 min
C = 0.93
DA = 0.18 ac

RELOCATE FIRE HYDRANT

RELOCATE WATER METER

CB-14
STA 21+45.000 -L-
RIM = 257.88
INV. = 254.75
Tc = 6.40 min
C = 0.78
DA = 0.23 ac

CB-15
STA 21+45.000 -L-
RIM = 257.88
INV. = 254.88
Tc = 6.40 min
C = 0.71
DA = 0.29 ac

CB-17
STA 23+30.000 -L-
RIM = 257.10
INV. = 248.70
Tc = 5.30 min
C = 0.93
DA = 0.14 ac

Q = 16.5 cfs
V = 5.50 ft/s

INV. OUT = 248.54

INV. OUT = 250.00

INV. OUT = 246.29

TOP=253.77

TOP=258.48

TOP=257.68

TOP=259.23

TOP=257.53

TOP=259.53

INV(N)=250.84

INVS=250.70

TOP=257.64

INV(N)=247.35

INVS=247.35

TOP=249.70

INV(N)=246.02

INVS=246.02

TOP=249.39

INV(N)=243.10

INVS=243.10

TOP=248.39

INV(N)=243.10

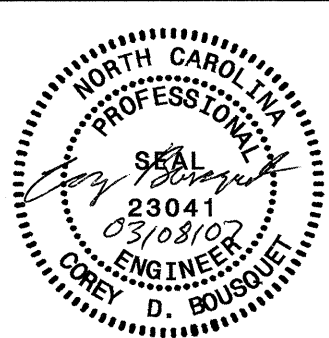
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TOP=248.39

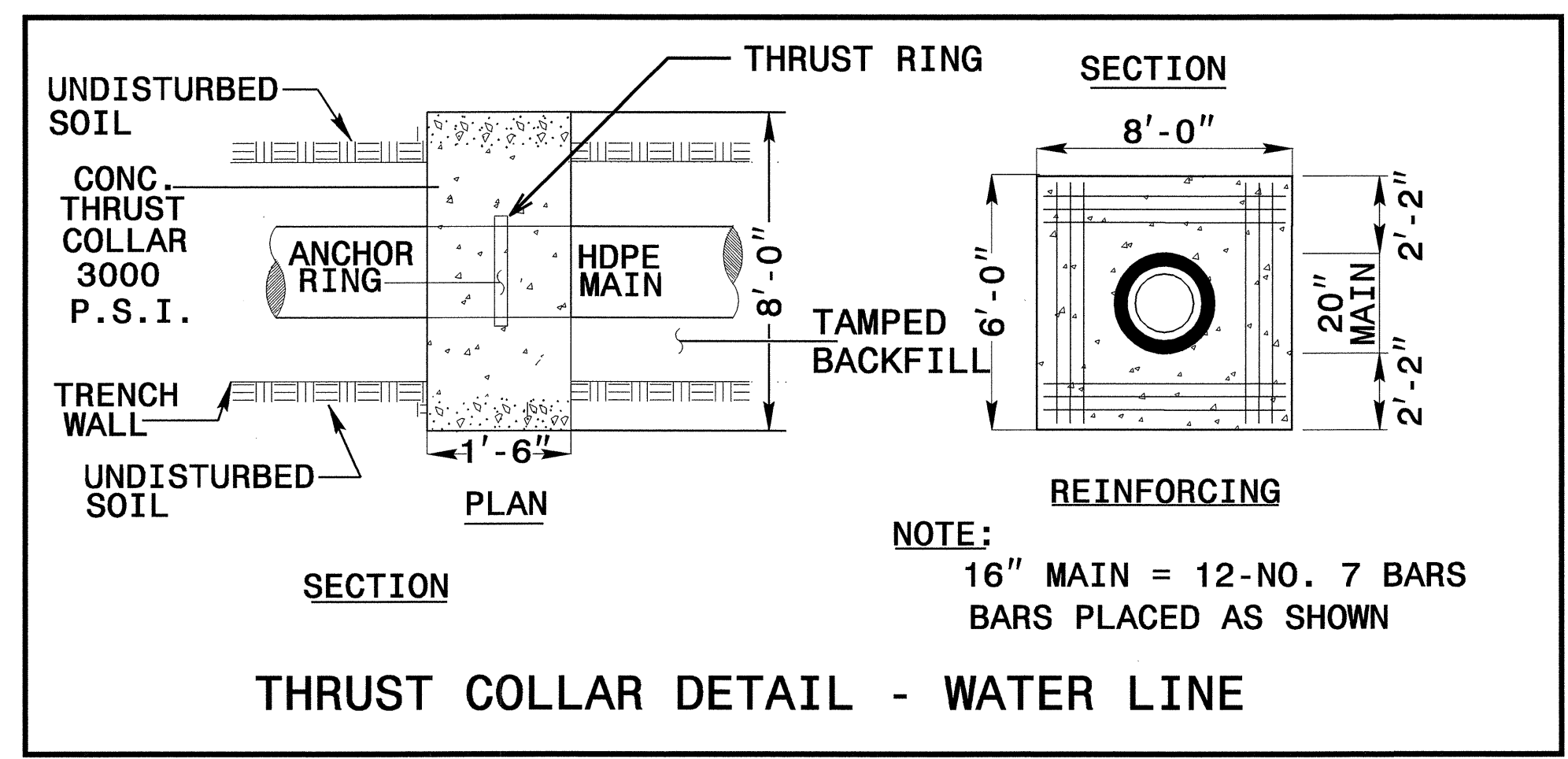
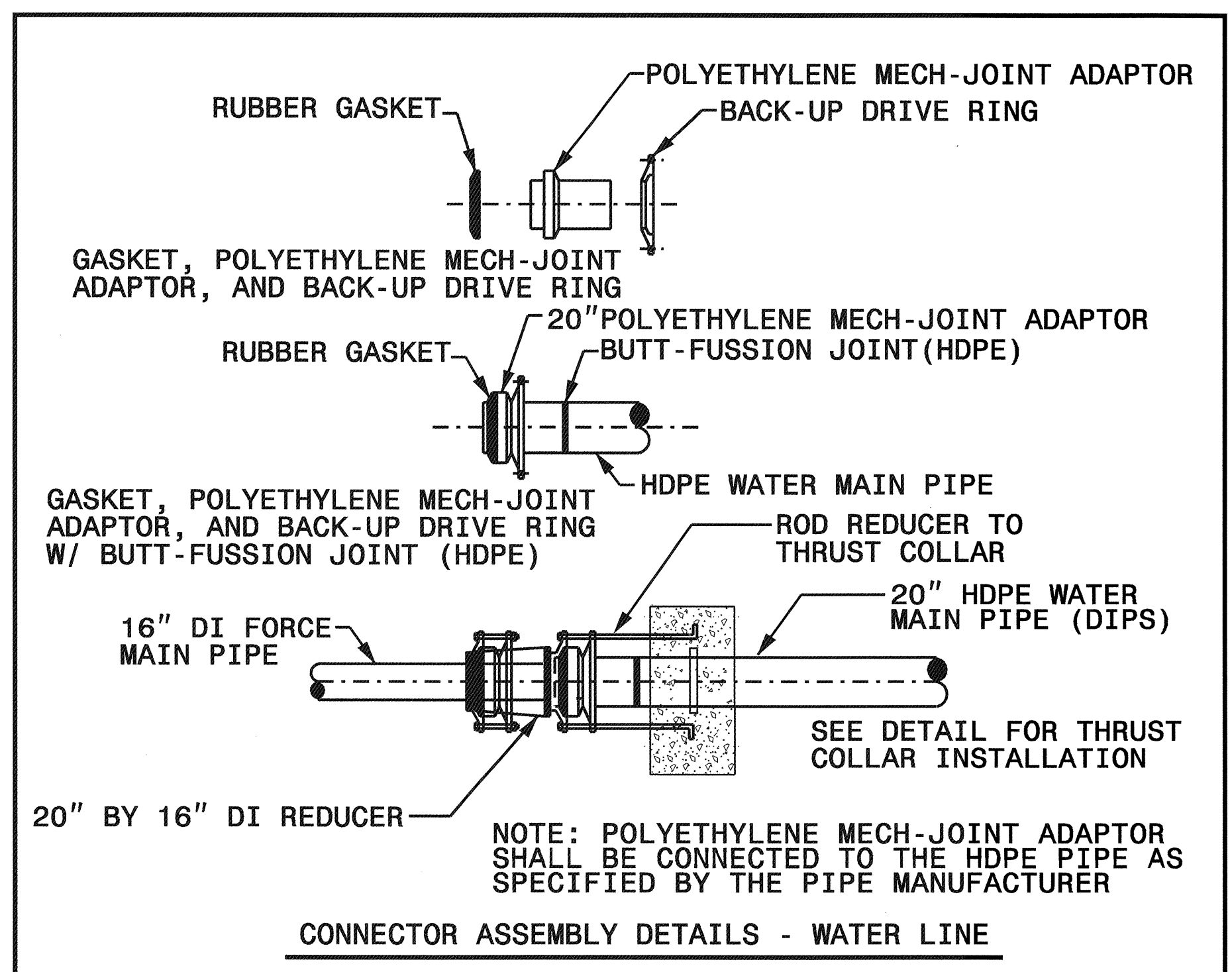
INV(N)=243.10

INVS=243.10

8/17/99
8/17/99

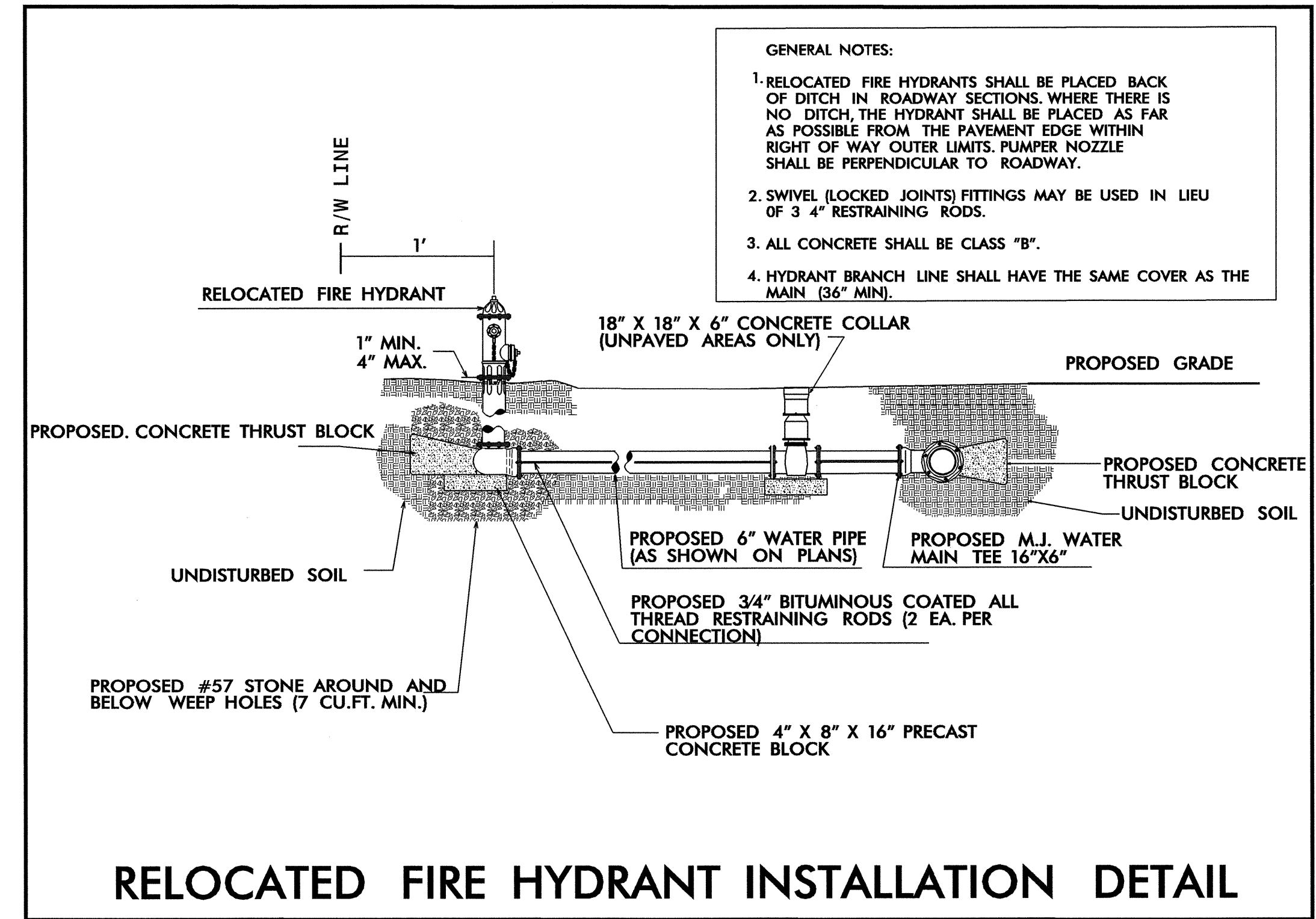
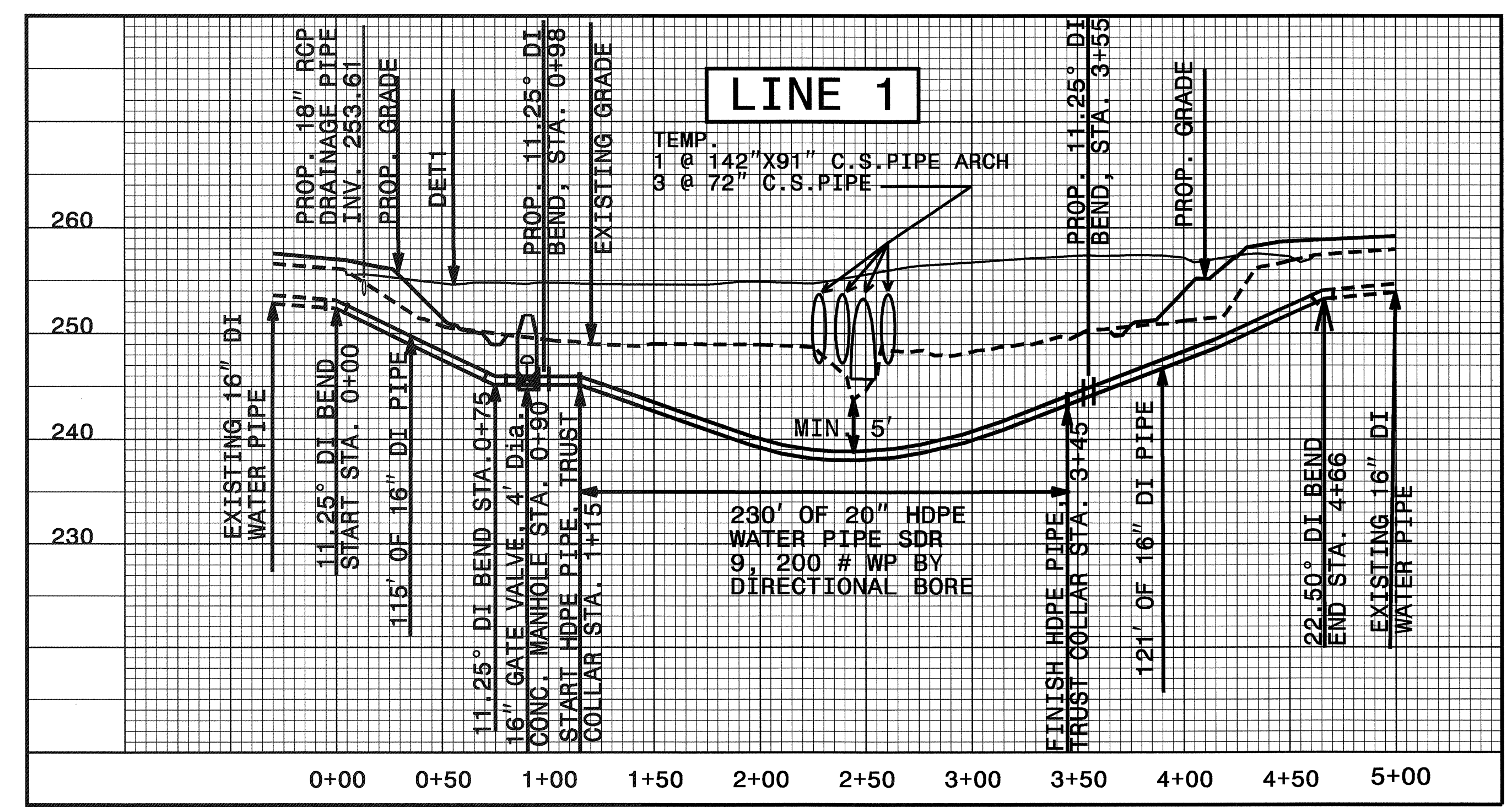
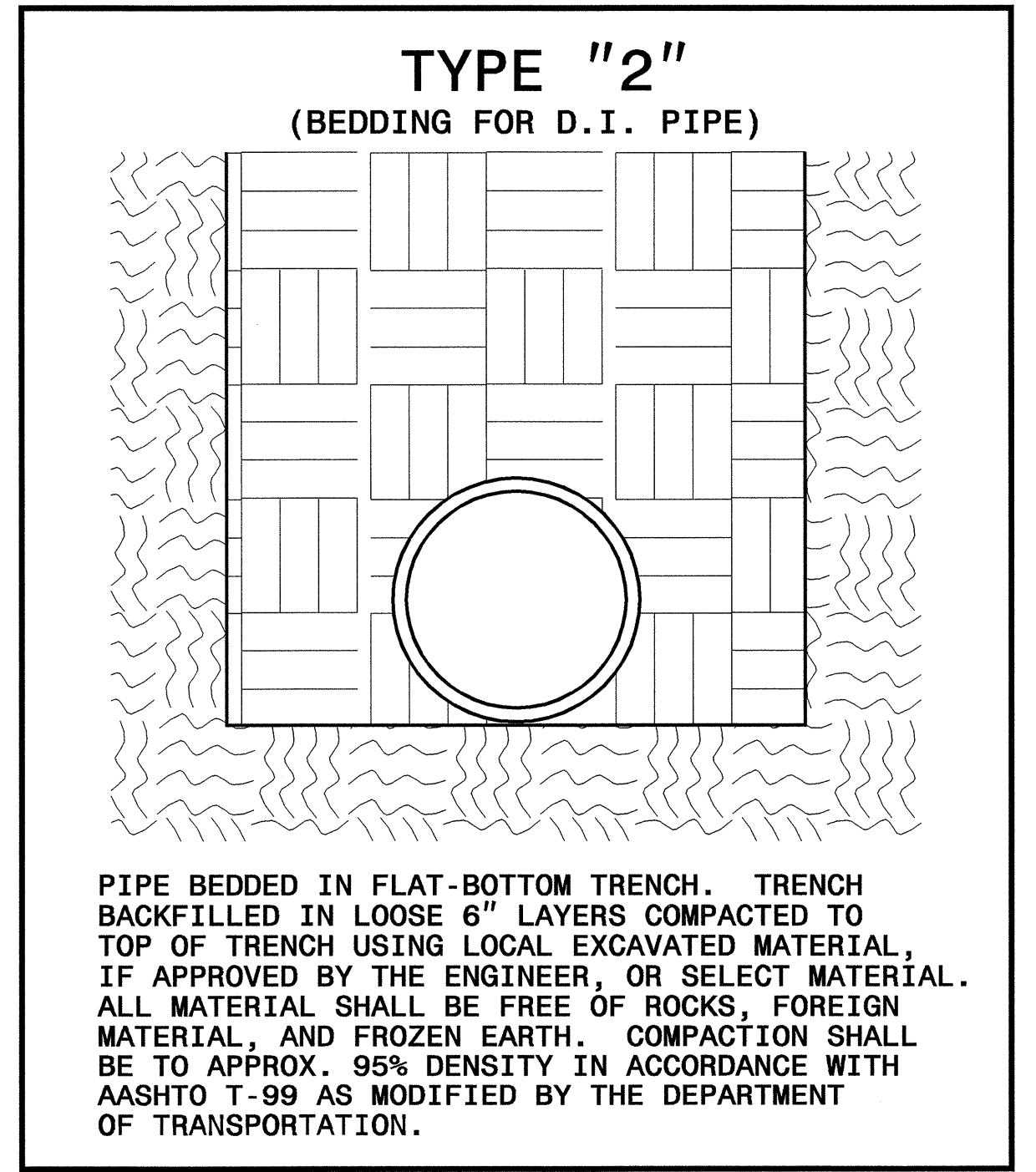


UTILITY CONSTRUCTION



MAXIMUM TRENCH WIDTH AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		



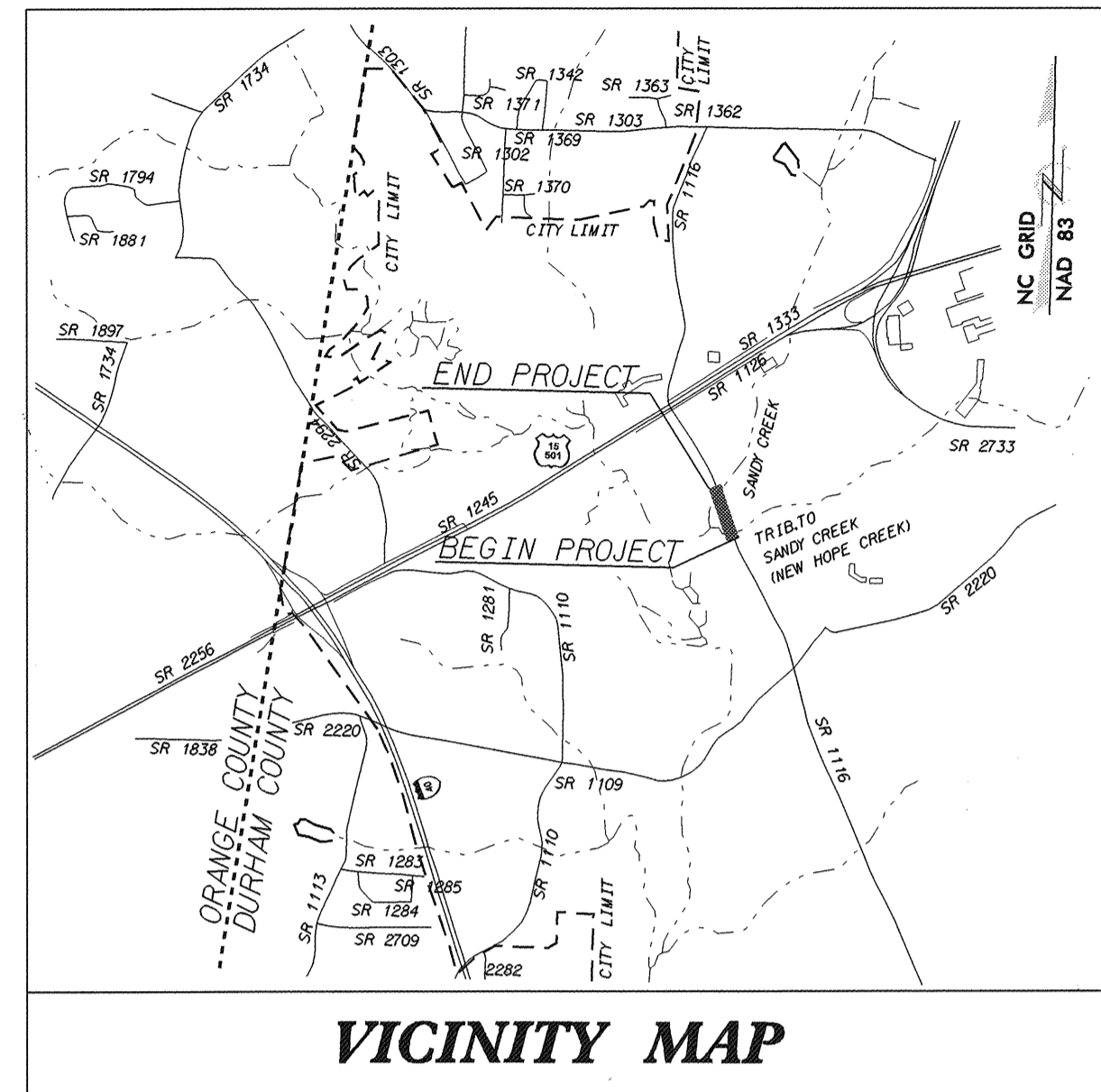
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

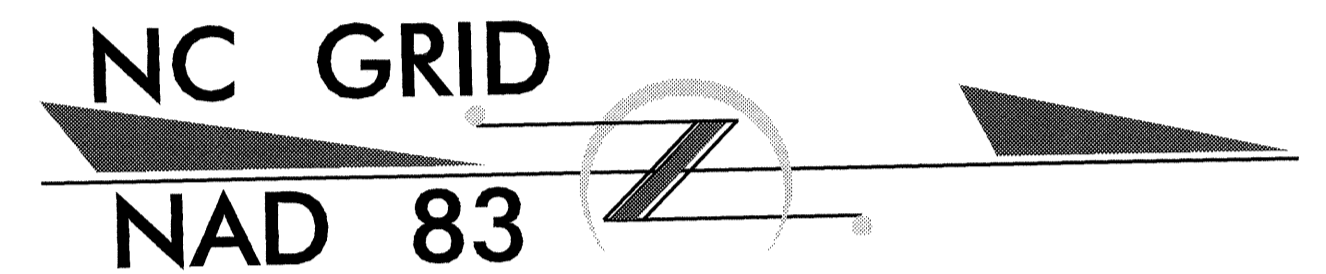
**UTILITY BY OTHERS PLANS
DURHAM COUNTY**

**LOCATION: BRIDGE NO. 217 OVER NEW HOPE CREEK
AND BRIDGE NO. 122 OVER SANDY CREEK
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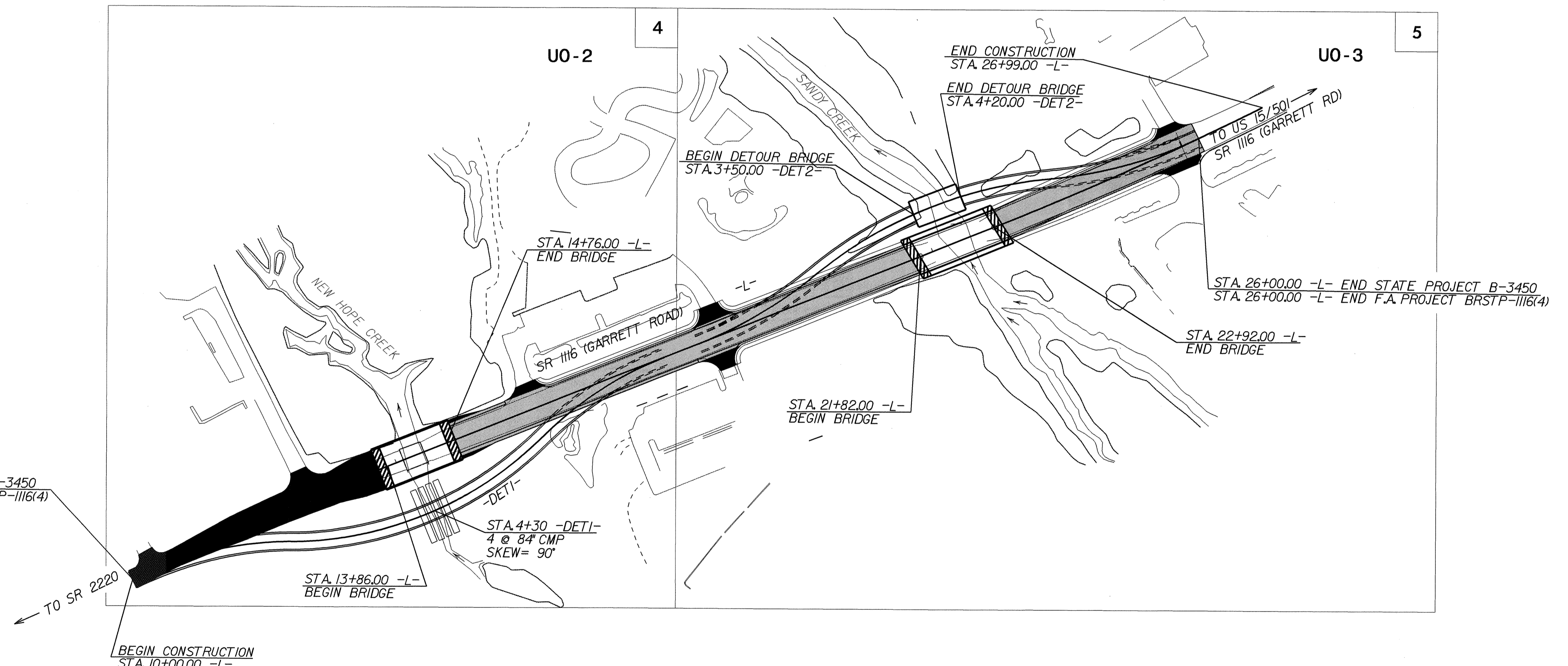
TYPE OF WORK: GRADING, DRAINAGE, PAVING, GUARDRAIL, AND STRUCTURES



VICINITY MAP



NOTE: THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF DURHAM.

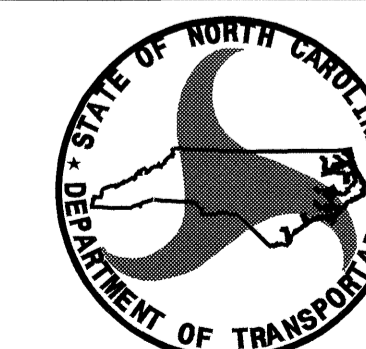


INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2 AND UO-3	UTILITY BY OTHERS PLAN SHEETS

UTILITY OWNERS ON PROJECT

- (1) Duke Power Company
- (2) Verizon Telephone Company
- (3) Progress Telecommunication
- (4) PSNC Energy
- (5) City of Durham



PREPARED IN THE OFFICE OF:
**DIVISION OF HIGHWAYS
DESIGN SERVICES
UTILITY SECTION**

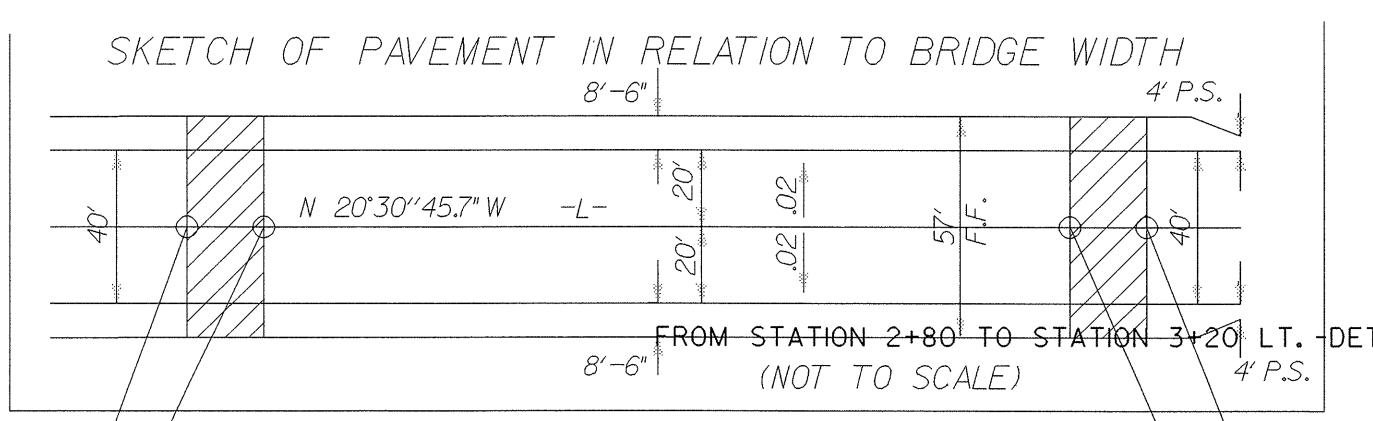
1591 MAIL SERVICES CENTER
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PHONE (919) 250-4128
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Corey Bousquet, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Jamshid Hafshejani UTILITIES PROJECT DESIGNER

TIP: B-3450

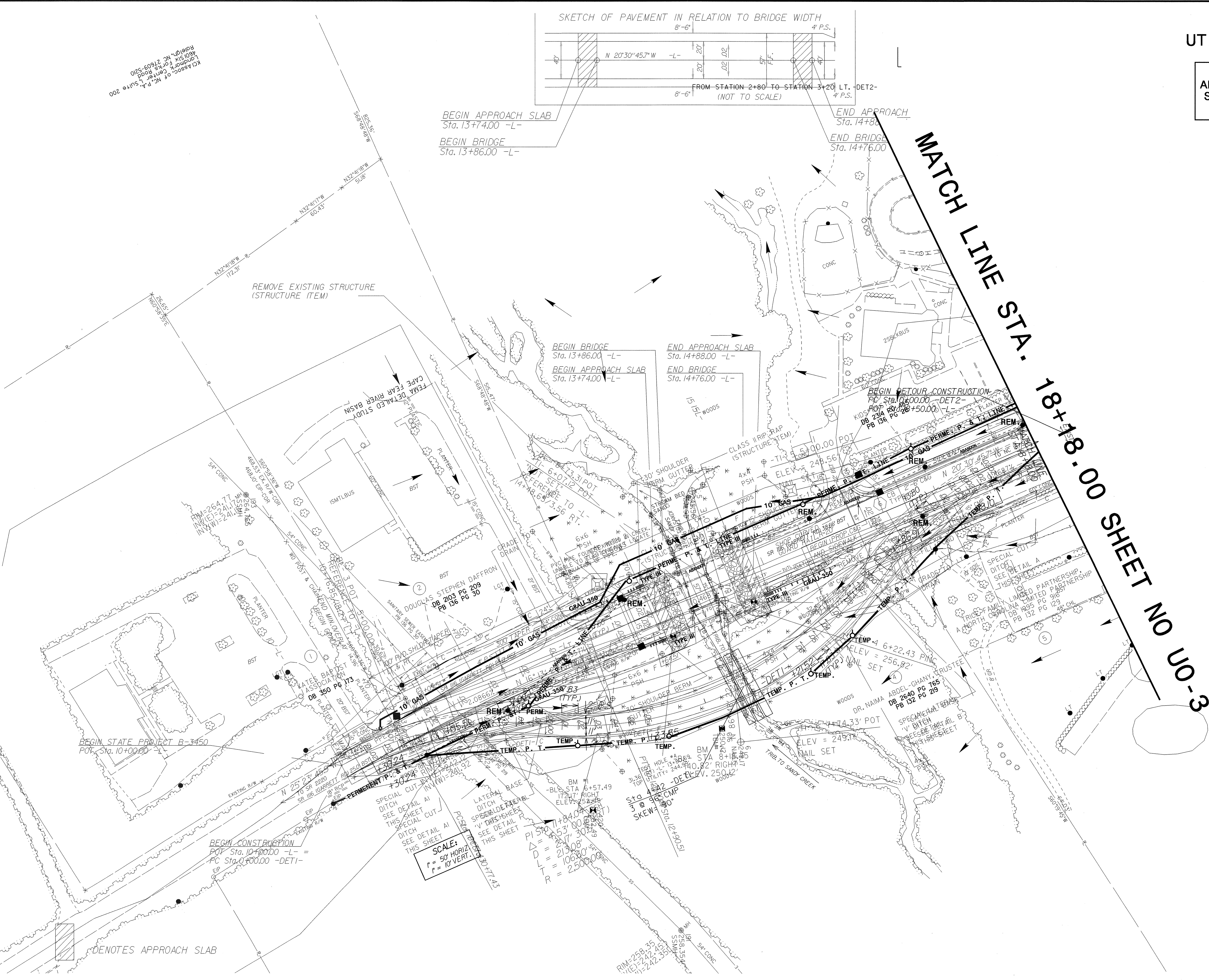
UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS



BEGIN APPROACH SLAB Sta. 13+74.00 -L-
 BEGIN BRIDGE Sta. 13+86.00 -L-
 END BRIDGE Sta. 14+76.00 -L-
 END APPROACH SLAB Sta. 14+88.00 -L-

MATCH LINE STA. 18+18.00 SHEET NO U0-3



KDI Assoc. of N.C., P.A.
 1400 Six Forks Road
 Raleigh, NC 27609-5200

8/17/99
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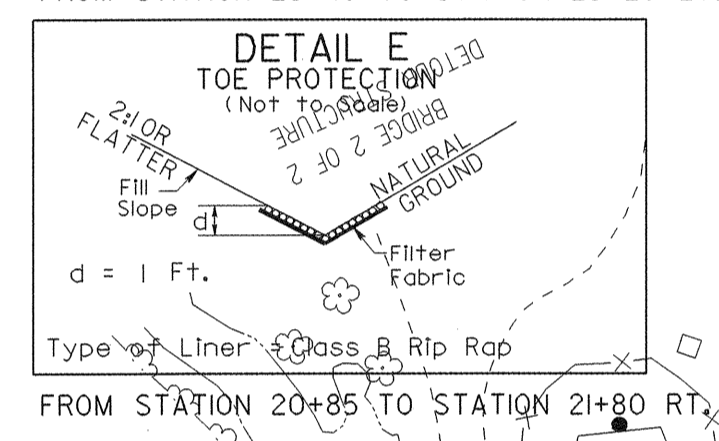
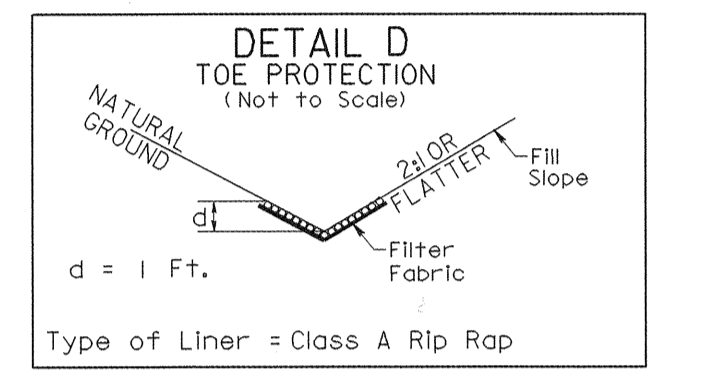
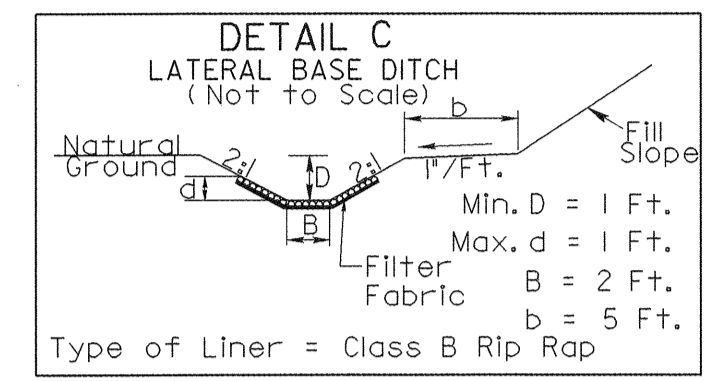
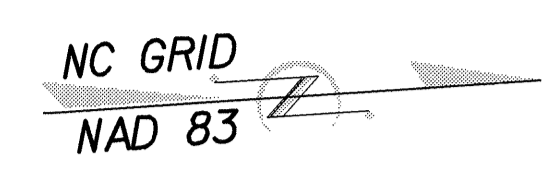
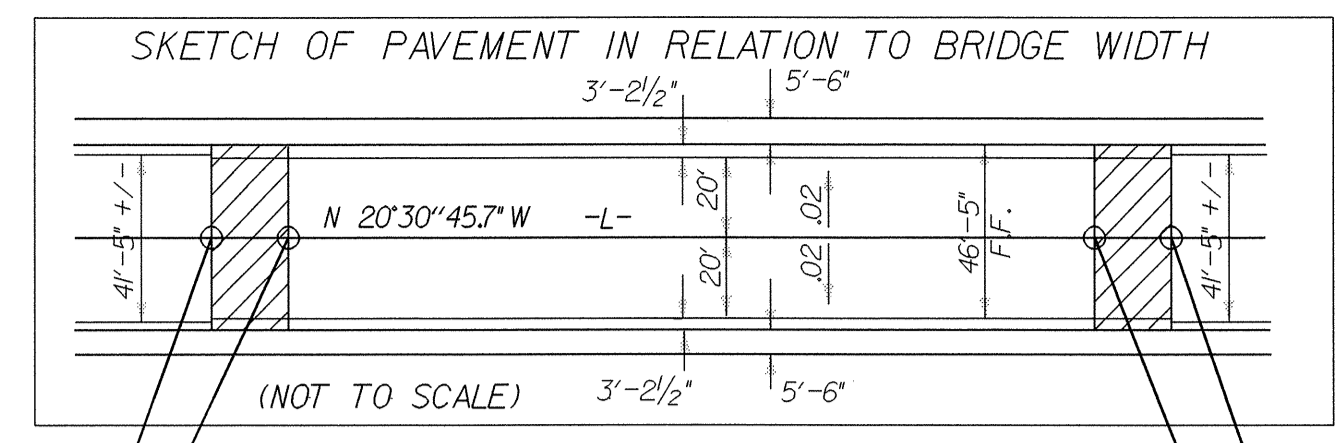
□ DENOTES APPROACH SLAB

UTILITIES BY OTHERS

NOTE:
 ALL PROPOSED UTILITY WORK
 SHOWN ON THIS SHEET WILL
 BE DONE BY OTHERS

-DET2- CURVE DATA

PI Sta	Δ	D	L	T	R	SE	RUNOFF	V
0+98.98	29°12'00.9" (LT)	15°04'40.2"	193.66'	98.98'	380.00'	SEE PLANS	SEE PLANS	35 MPH
3+99.49	56°52'59.8" (RT)	15°04'40.2"	377.26'	205.82'	380.00'	0.06	SEE PLANS	35 MPH
6+78.43	31°35'31.1" (LT)	15°04'40.2"	209.53'	107.50'	380.00'	SEE PLANS	SEE PLANS	35 MPH



MATCH LINE STA. 18+18.00 SHEET NO. UO-2

NOTES:
 1. SEE SHEETS S-1 THRU S-7 FOR STRUCTURE PLANS.
 2. SEE SHEET 6 FOR -L- GRADE & PROFILE & SHEET 7 FOR -DET2- GRADE & PROFILE.
 3. ALL PROPOSED DRIVEWAY RADII 25 FT UNLESS OTHERWISE SHOWN.
 4. FLAT GRATES TO BE USED ON ENTIRE PROJECT.

-L- CURVE DATA

PI Sta	24+96.32
Δ	5°10'27.5" (LT)
D	116' 23.7"
L	406.39'
T	203.33'
R	4500.00'
SE	0.02
RUNOFF	SEE PLANS
V	45 MPH



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