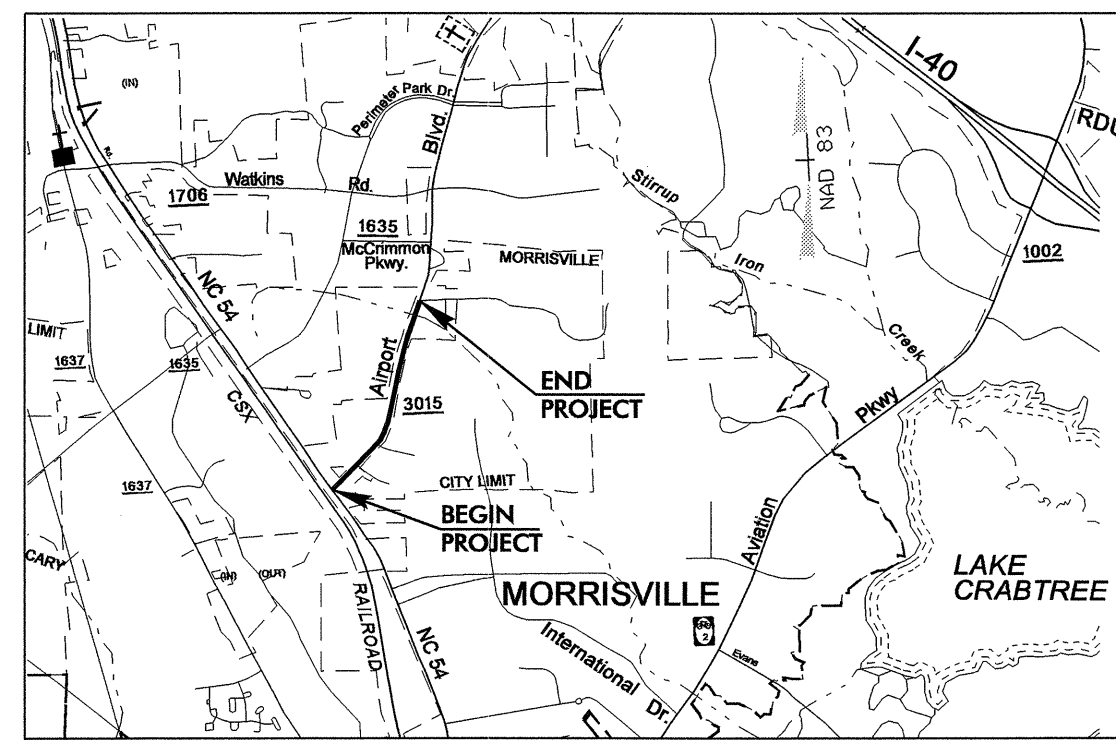


TIP: U-3344A

CONTRACT NO.: C201144



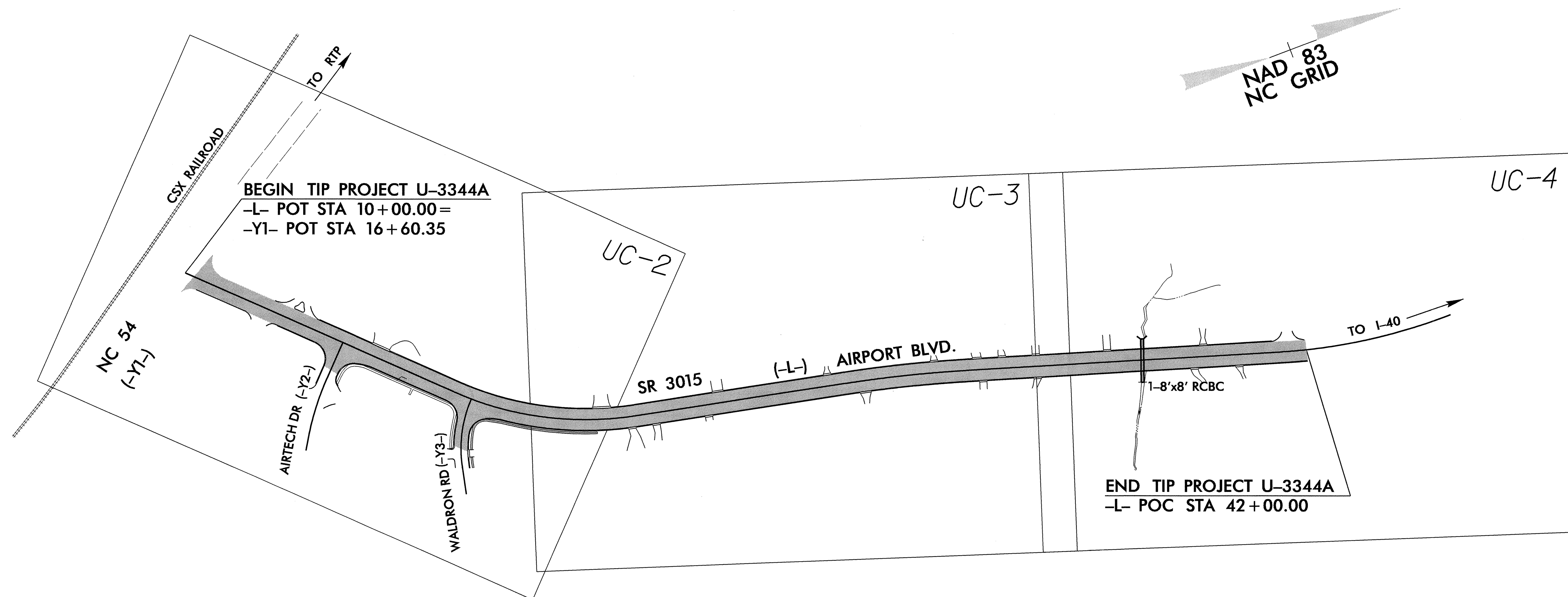
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS
WAKE COUNTY**

T.I.P. NO.	SHEET NO.
U-3344A	UC-1

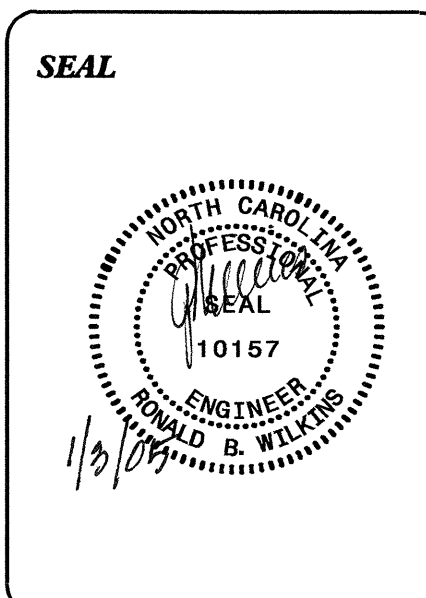
**LOCATION: MORRISVILLE - SR 3015 (AIRPORT BLVD.)
FROM NC 54 TO McCRIMMON PARKWAY**



INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2 THRU UC-4	UTILITY CONSTRUCTION PLAN SHEETS
UC-5	DETAILS SHEET

WATER AND SEWER OWNERS ON PROJECT

(1) WATER - TOWN OF MORRISVILLE
 (2) SANITARY SEWER - TOWN OF MORRISVILLE



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

1591 MAIL SERVICES CENTER
 RALEIGH, NC 27689-1591
 PHONE (919) 250-4128
 FAX (919) 250-4119

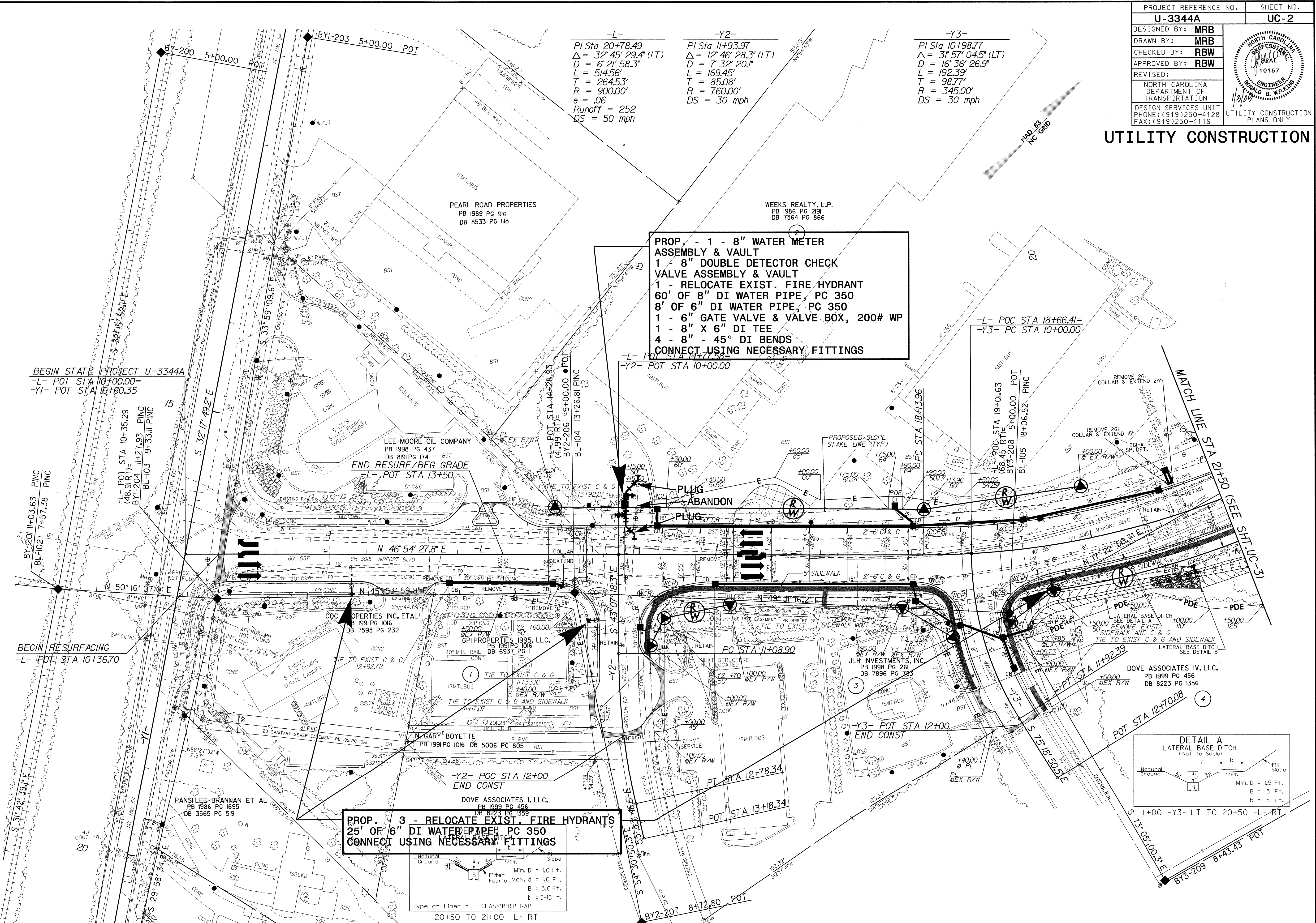
Roger Worthington, P.E. UTILITIES SECTION ENGINEER
R. B. WILKINS, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
MICHAEL R. BRIGHT UTILITIES PROJECT DESIGNER

8/17/99

21-DEC-2004 09:33
R:\Utilities\Fdu\U3344As4.ut\UC2.psh.dgn
mrb

PROJECT REFERENCE NO.	SHEET NO.
U-3344A	UC-2
DESIGNED BY: MRB	
DRAWN BY: MRB	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DESIGN SERVICES UNIT PHONE: (919)250-4128 FAX: (919)250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

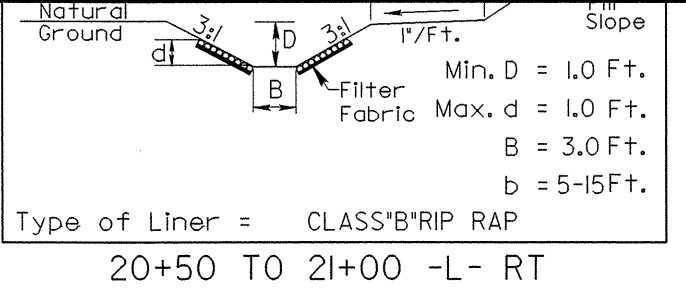
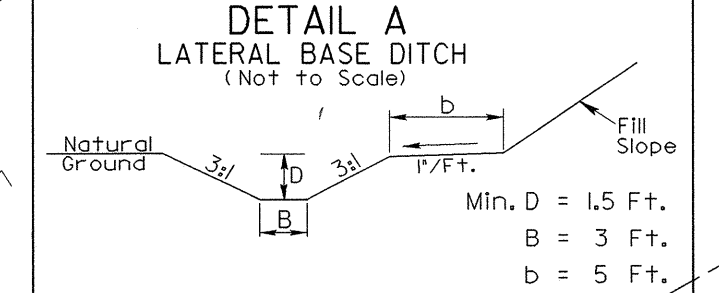
UTILITY CONSTRUCTION



-L-	-Y2-	-Y3-
PI Sta 20+78.49	PI Sta 11+93.97	PI Sta 10+98.77
$\Delta = 32^\circ 45' 29.4"$ (LT)	$\Delta = 12^\circ 46' 28.3"$ (LT)	$\Delta = 31^\circ 57' 04.5"$ (LT)
D = 6' 21' 58.3"	D = 7' 32' 20.1"	D = 16' 36' 26.9"
L = 514.56'	L = 169.45'	L = 192.39'
T = 264.53'	T = 85.08'	T = 98.77'
R = 900.00'	R = 760.00'	R = 345.00'
e = .06	DS = 30 mph	DS = 30 mph
Runoff = 252		
DS = 50 mph		

PROP. 1 - 8" WATER METER ASSEMBLY & VAULT
1 - 8" DOUBLE DETECTOR CHECK VALVE ASSEMBLY & VAULT
1 - RELOCATE EXIST. FIRE HYDRANT
60' OF 8" DI WATER PIPE, PC 350
8' OF 6" DI WATER PIPE, PC 350
1 - 6" GATE VALVE & VALVE BOX, 200# WP
1 - 8" X 6" DI TEE
4 - 8" - 45° DI BENDS
CONNECT USING NECESSARY FITTINGS

PROP. 3 - RELOCATE EXIST. FIRE HYDRANTS
25' OF 6" DI WATER PIPE, PC 350
CONNECT USING NECESSARY FITTINGS

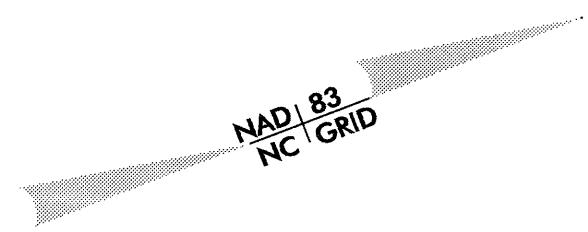


NOTE: ALL DRIVEWAYS ARE 24' UNLESS OTHERWISE NOTED

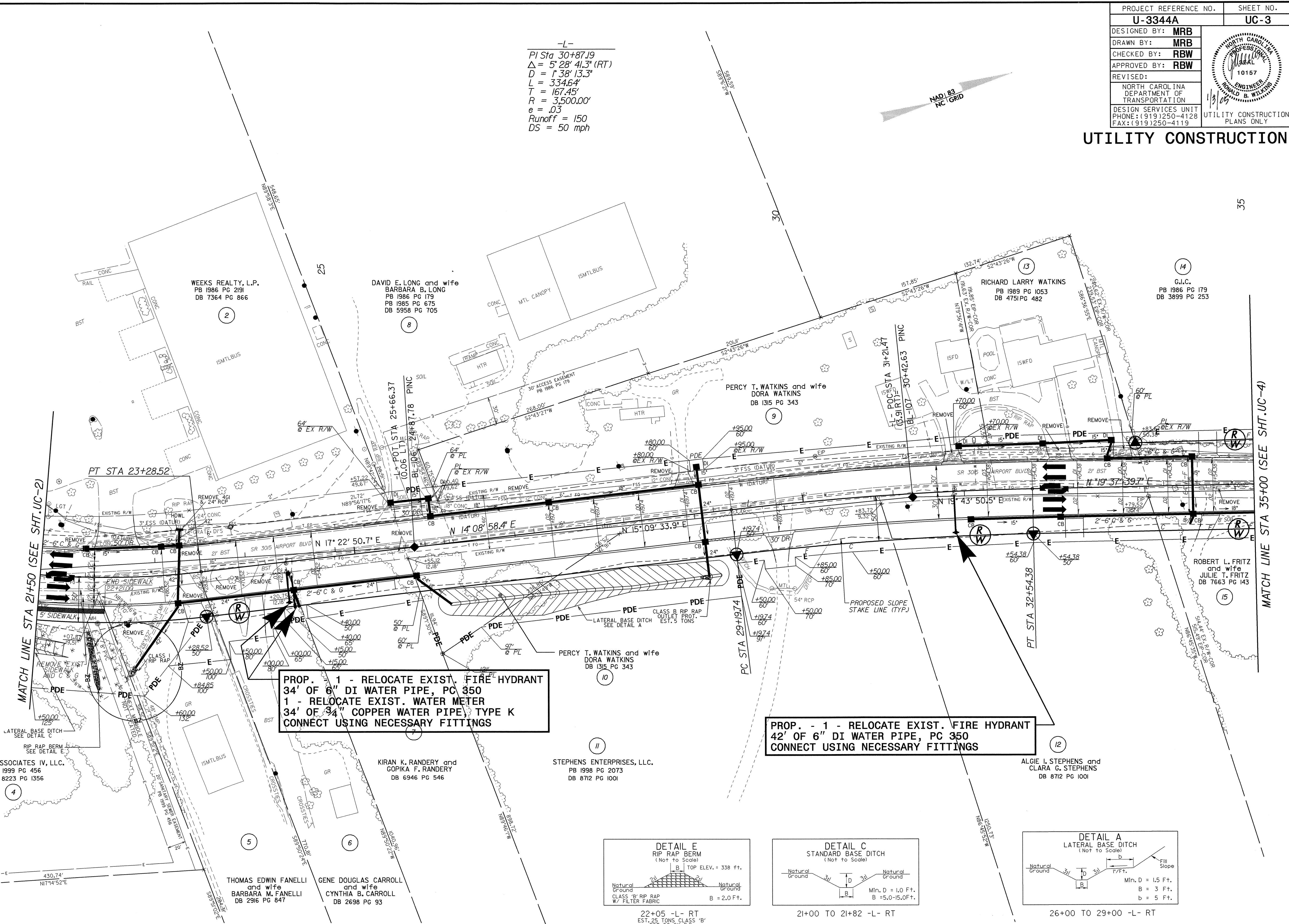
SEE SHEET 7 FOR -L- PROFILE
SEE SHEET 8 FOR -Y2- & -Y3- PROFILE

UTILITY CONSTRUCTION

-L-
 PI Sta 30+87.19
 $\Delta = 5' 28' 41.3" (RT)$
 $D = 1' 38' 13.3"$
 $L = 334.64'$
 $T = 167.45'$
 $R = 3,500.00'$
 $e = .03$
 Runoff = 150
 DS = 50 mph

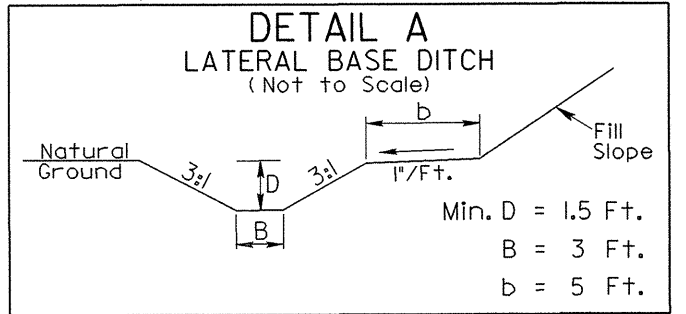
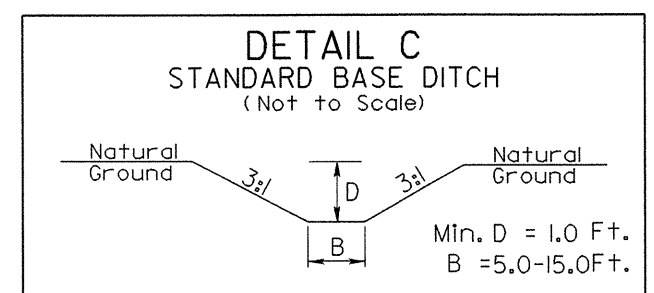
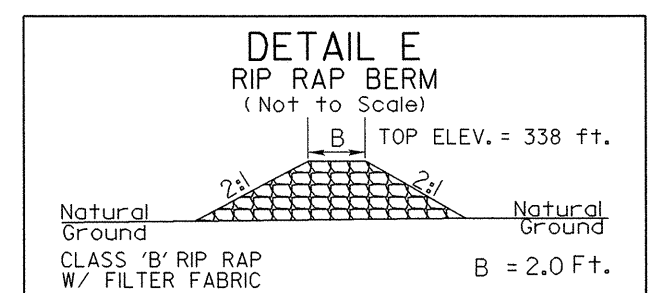


8/17/99
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 mbrubart AT P51222287



PROP. - 1 - RELOCATE EXIST. FIRE HYDRANT
 34' OF 6" DI WATER PIPE, PC 350
 1 - RELOCATE EXIST. WATER METER
 34' OF 3/4" COPPER WATER PIPE, TYPE K
 CONNECT USING NECESSARY FITTINGS

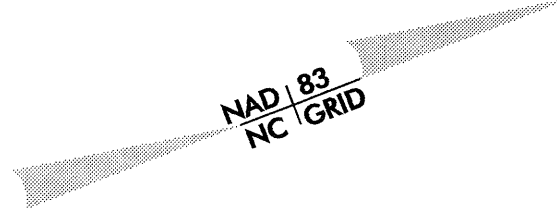
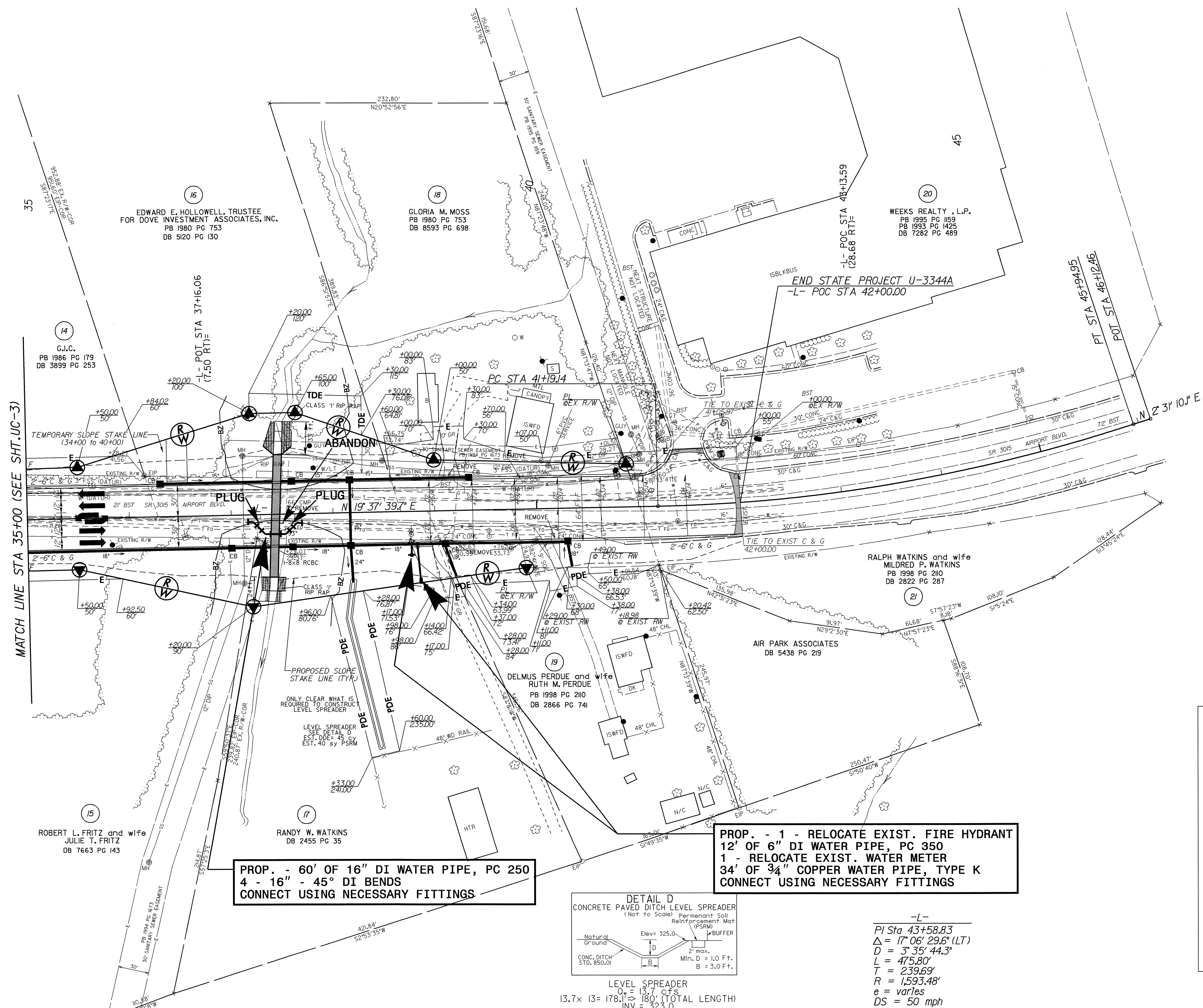
PROP. - 1 - RELOCATE EXIST. FIRE HYDRANT
 42' OF 6" DI WATER PIPE, PC 350
 CONNECT USING NECESSARY FITTINGS



22+05 -L- RT EST. 25 TONS CLASS 'B' EST. 50 SY F.F.
 21+00 TO 21+82 -L- RT
 26+00 TO 29+00 -L- RT

8/17/99

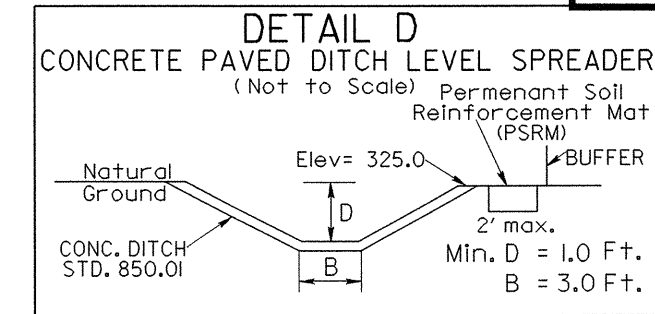
PROJECT REFERENCE NO.	SHEET NO.
U-3344A	UC-4
DESIGNED BY: MRB	
DRAWN BY: MRB	
CHECKED BY: RBW	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
DESIGN SERVICES UNIT PHONE: (919) 250-4128 FAX: (919) 250-4119	
UTILITY CONSTRUCTION PLANS ONLY	



MATCH LINE STA 35+00 (SEE SHT. UC-3)

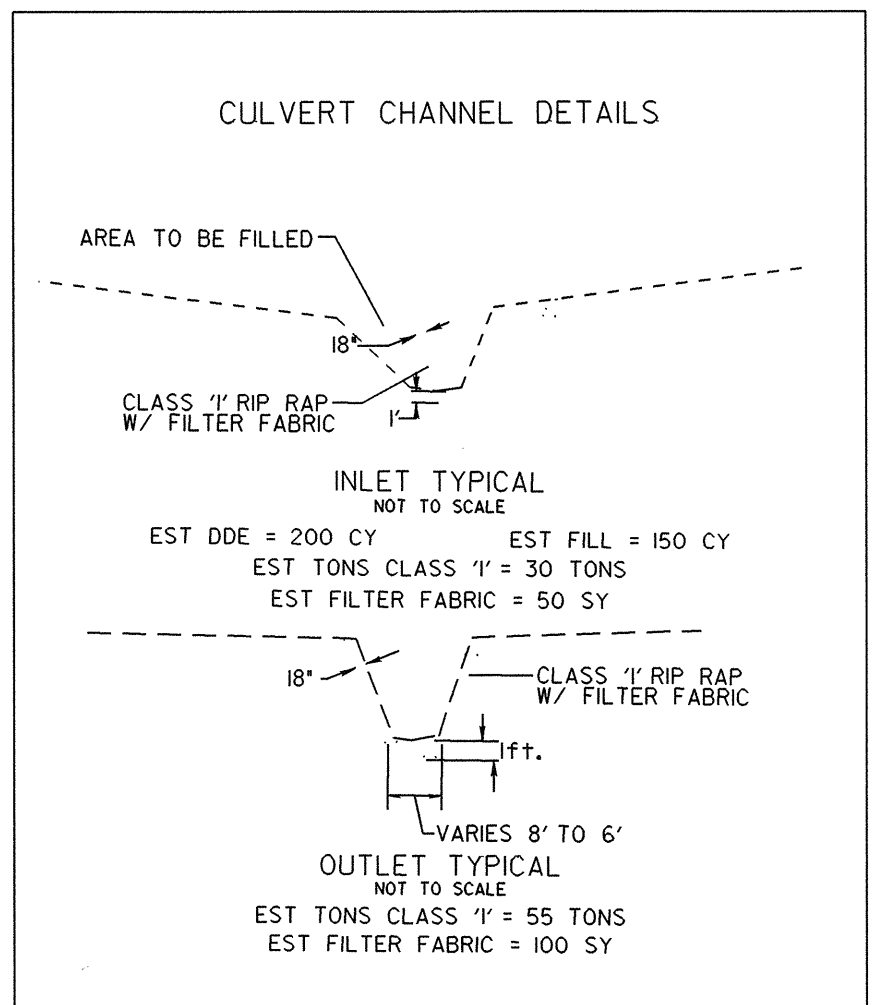
**PROP. - 1 - RELOCATE EXIST. FIRE HYDRANT
 12' OF 6" DI WATER PIPE, PC 350
 1 - RELOCATE EXIST. WATER METER
 34' OF 3/4" COPPER WATER PIPE, TYPE K
 CONNECT USING NECESSARY FITTINGS**

**PROP. - 60' OF 16" DI WATER PIPE, PC 250
 4 - 16" - 45° DI BENDS
 CONNECT USING NECESSARY FITTINGS**



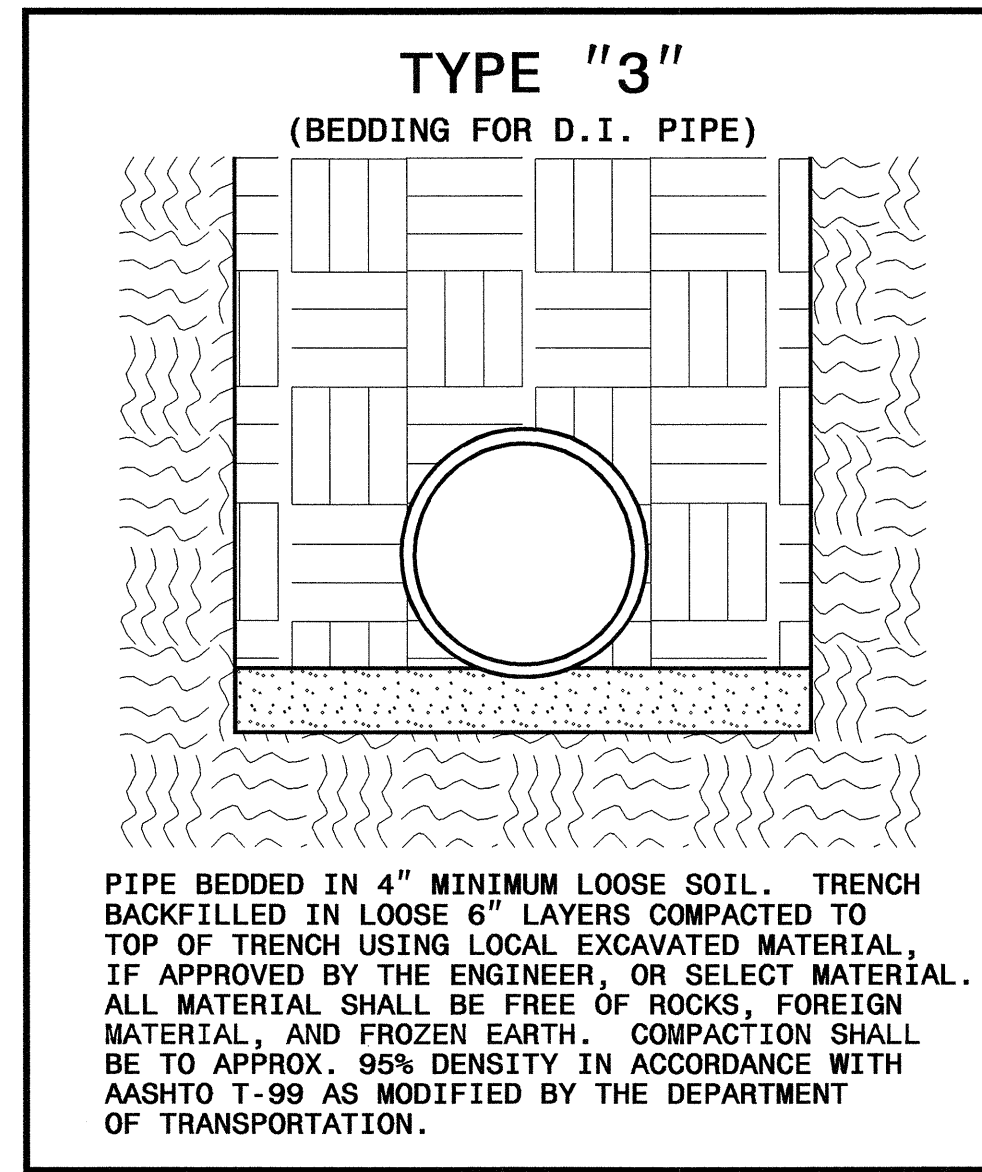
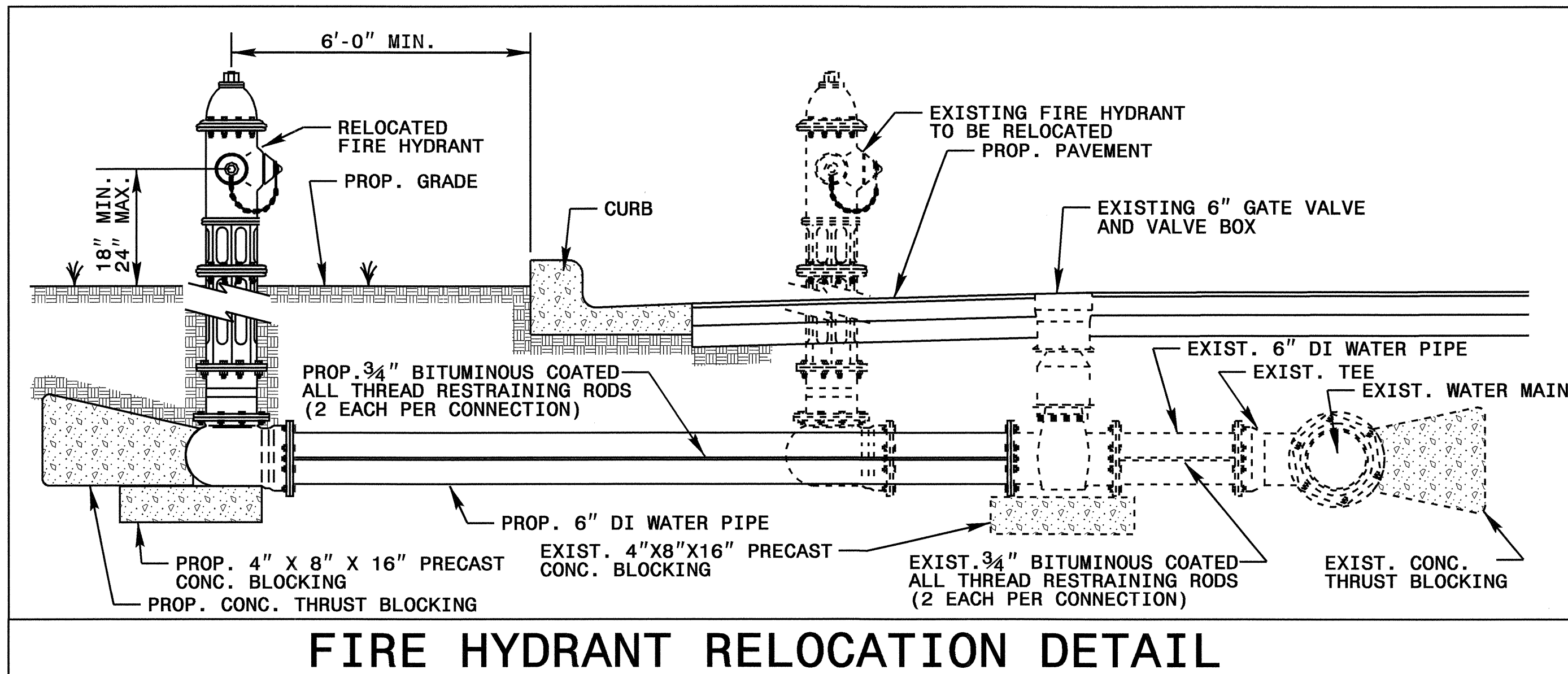
LEVEL SPREADER
 $Q_s = 13.7 \text{ CFS}$
 $13.7 \times 13 = 178.1' \Rightarrow 180'$ (TOTAL LENGTH)
 INV. = 323.0

-L-
 PI Sta 43+58.83
 $\Delta = 17^\circ 06' 29.6" \text{ (LT)}$
 $D = 3^\circ 35' 44.3"$
 $L = 475.80'$
 $T = 239.69'$
 $R = 1,593.48'$
 $e = \text{varies}$
 $DS = 50 \text{ mph}$



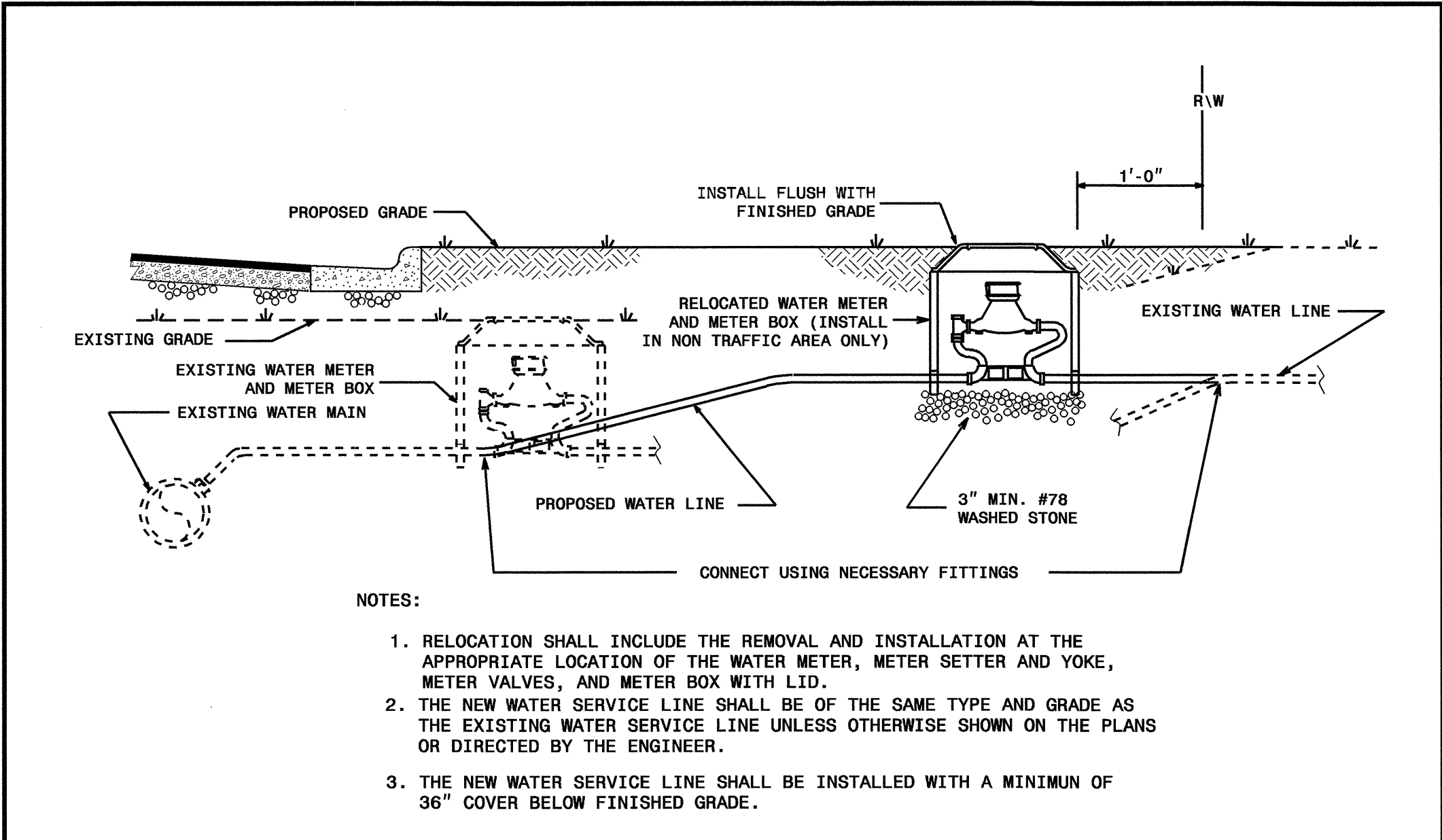
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 mchatt AT 12/22/07

UTILITY CONSTRUCTION



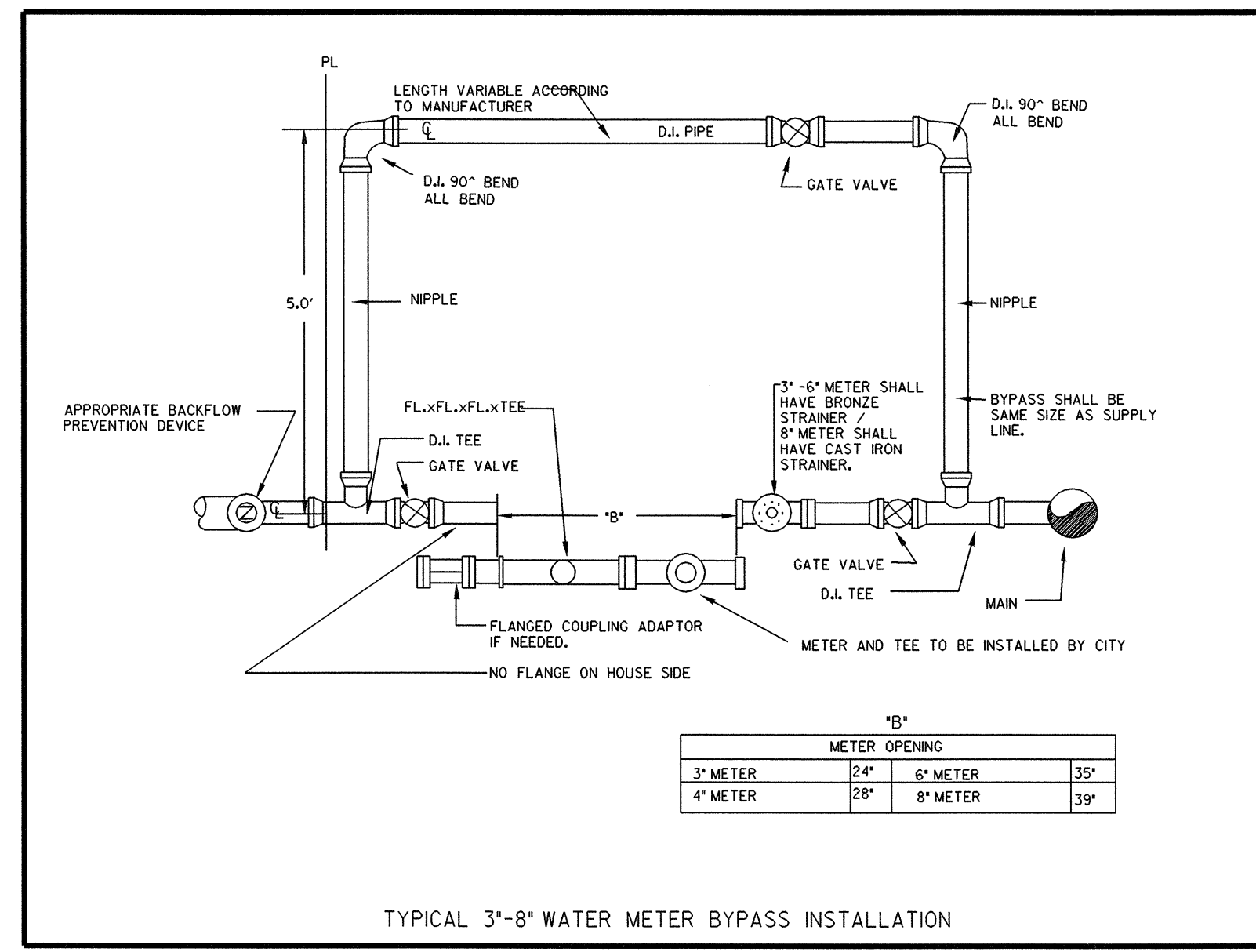
MAXIMUM TRENCH WIDTH AT TOP OF PIPE

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		



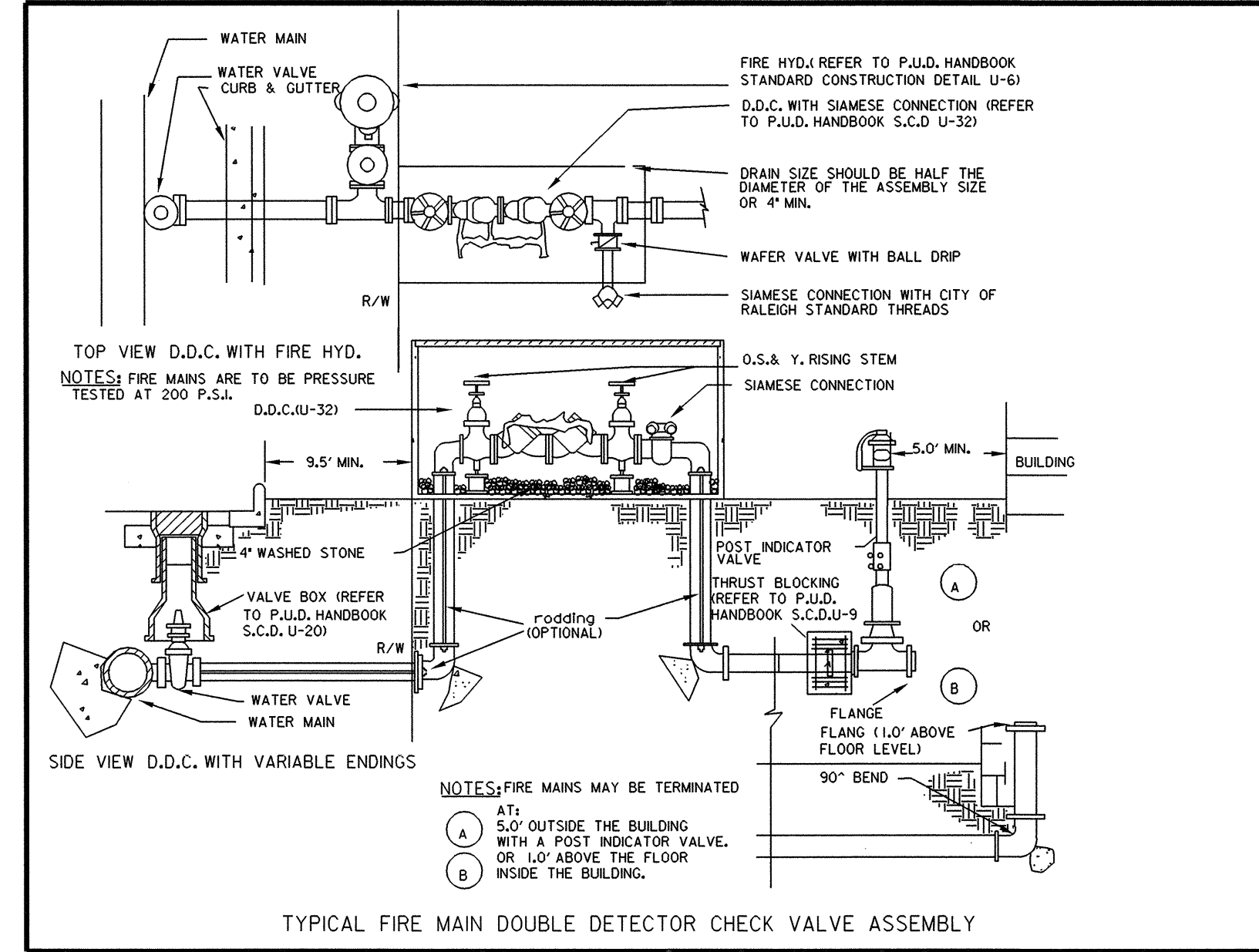
- NOTES:
1. RELOCATION SHALL INCLUDE THE REMOVAL AND INSTALLATION AT THE APPROPRIATE LOCATION OF THE WATER METER, METER SETTER AND YOKE, METER VALVES, AND METER BOX WITH LID.
 2. THE NEW WATER SERVICE LINE SHALL BE OF THE SAME TYPE AND GRADE AS THE EXISTING WATER SERVICE LINE UNLESS OTHERWISE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.
 3. THE NEW WATER SERVICE LINE SHALL BE INSTALLED WITH A MINIMUM OF 36" COVER BELOW FINISHED GRADE.

WATER METER RELOCATION DETAIL



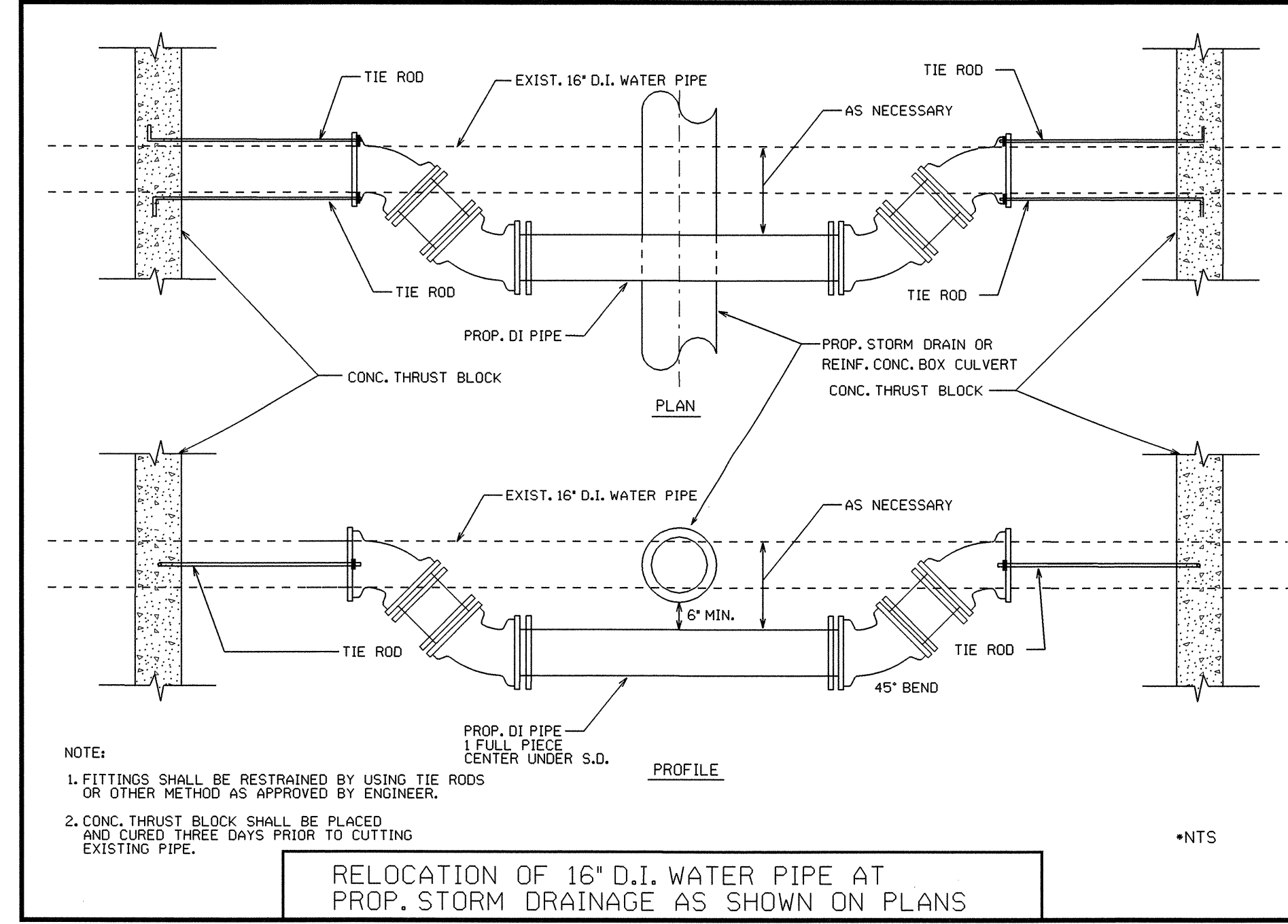
METER OPENING			
3" METER	24"	6" METER	35"
4" METER	28"	8" METER	39"

TYPICAL 3"-8" WATER METER BYPASS INSTALLATION



- NOTES: FIRE MAINS ARE TO BE PRESSURE TESTED AT 200 P.S.I.
- NOTES: FIRE MAINS MAY BE TERMINATED
- A: 5.0' OUTSIDE THE BUILDING WITH A POST INDICATOR VALVE.
 - B: OR 1.0' ABOVE THE FLOOR INSIDE THE BUILDING.

TYPICAL FIRE MAIN DOUBLE DETECTOR CHECK VALVE ASSEMBLY

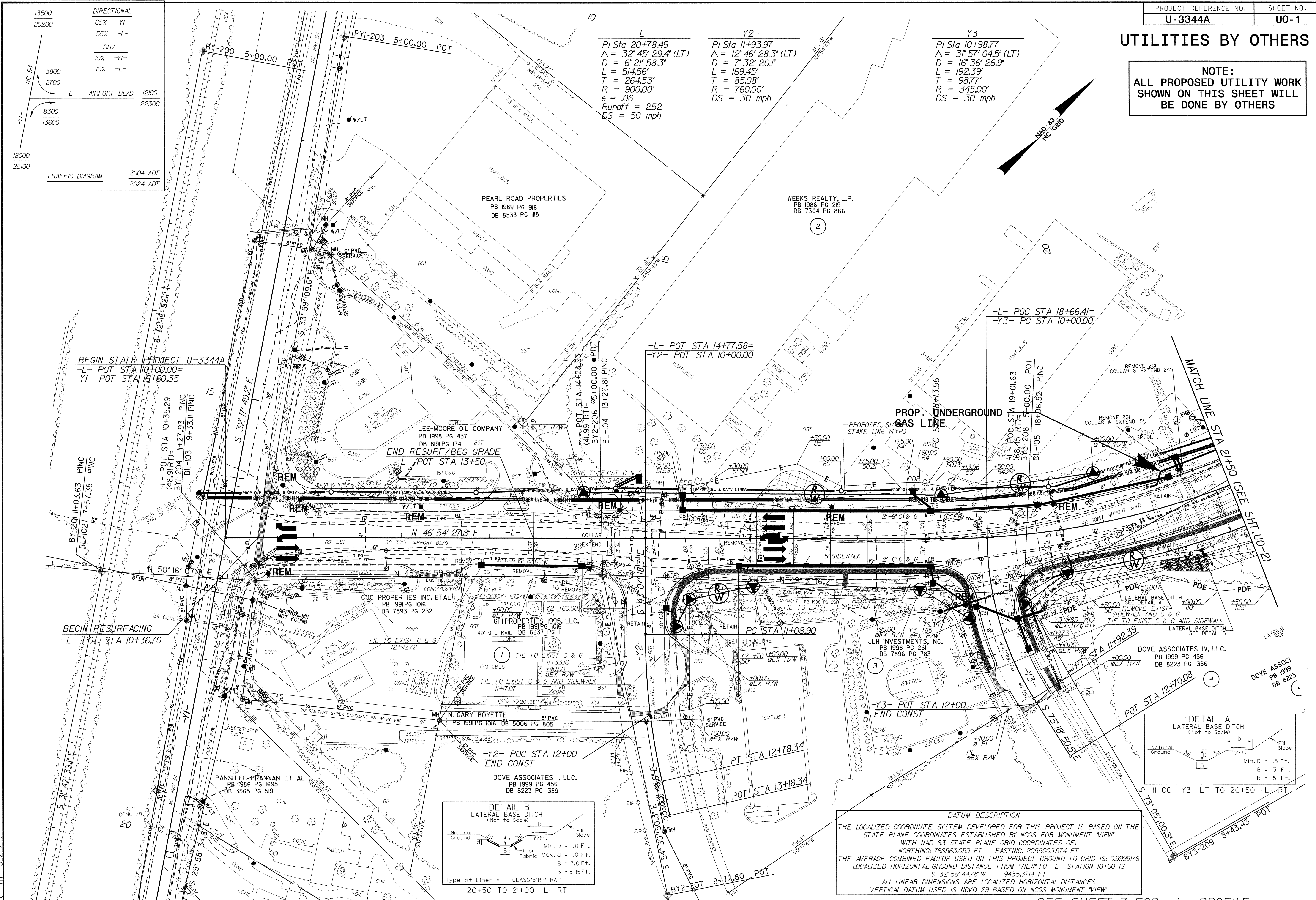
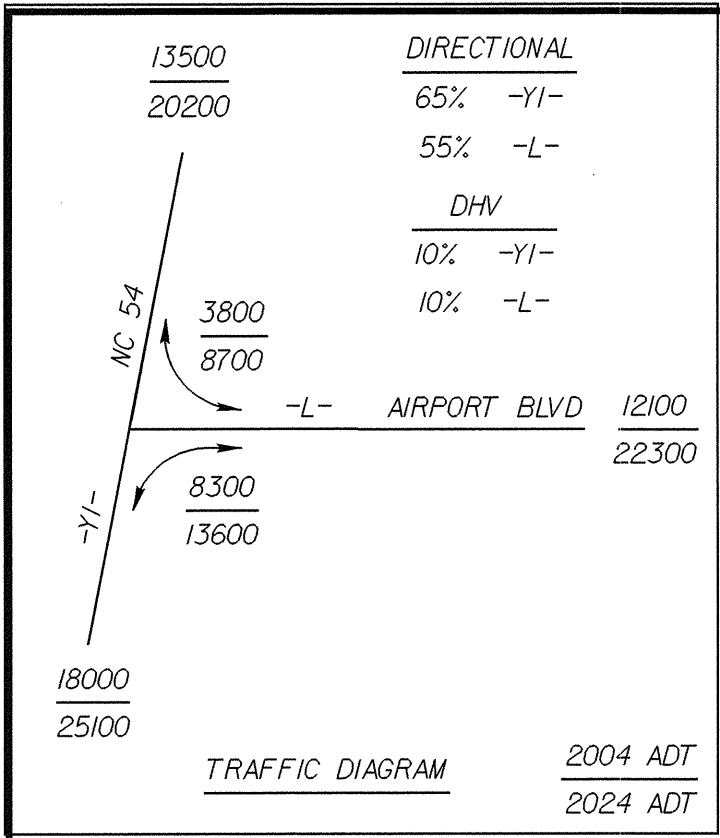


- NOTE:
1. FITTINGS SHALL BE RESTRAINED BY USING TIE RODS OR OTHER METHOD AS APPROVED BY ENGINEER.
 2. CONC. THRUST BLOCK SHALL BE PLACED AND CURED THREE DAYS PRIOR TO CUTTING EXISTING PIPE.

RELOCATION OF 16" D.I. WATER PIPE AT PROP. STORM DRAINAGE AS SHOWN ON PLANS

UTILITIES BY OTHERS

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



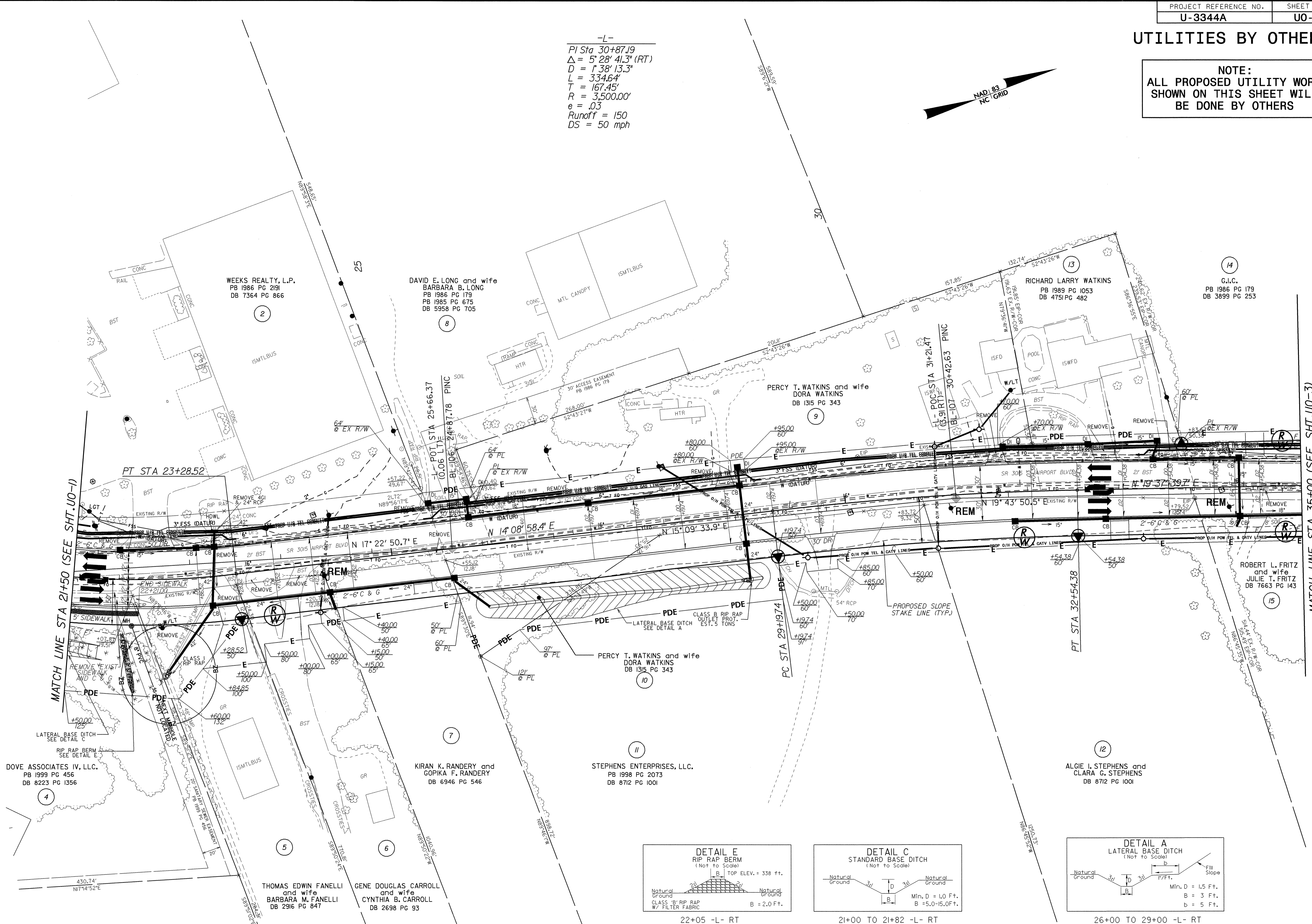
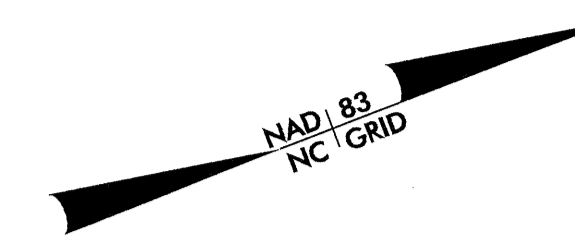
NOTE: ALL DRIVEWAYS ARE 24' UNLESS OTHERWISE NOTED
SEE SHEET 7 FOR -L- PROFILE
SEE SHEET 8 FOR -Y2- & -Y3- PROFILE

8/17/99
27-MAR-2006 12:00
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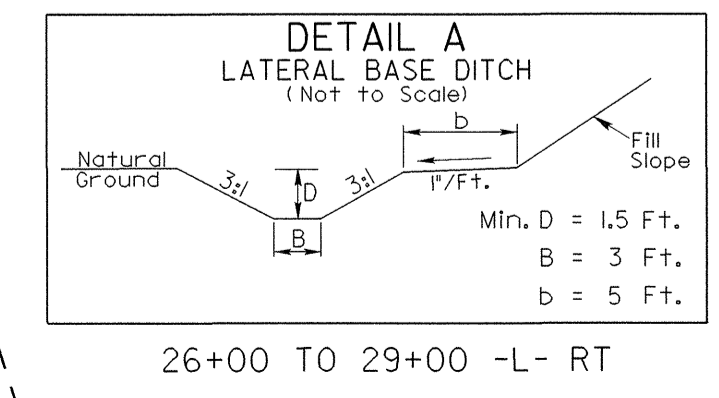
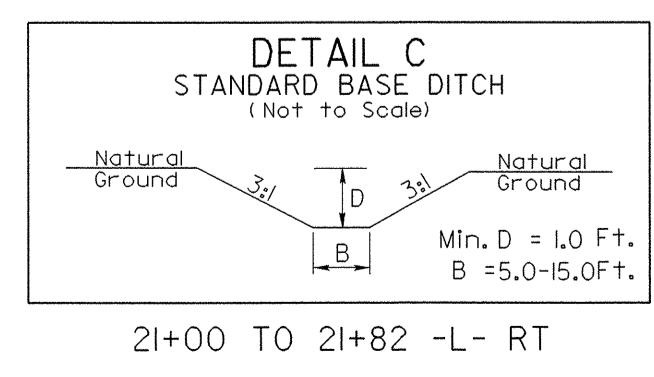
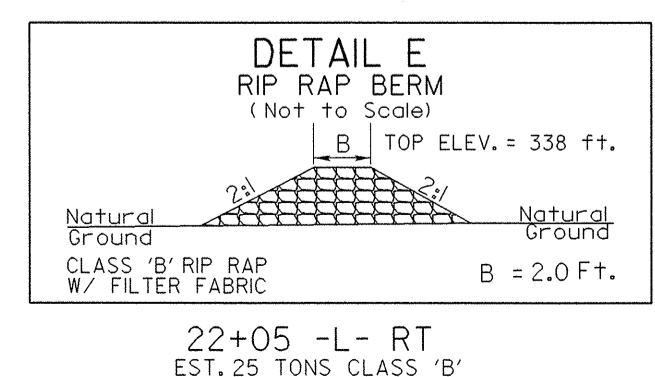
UTILITIES BY OTHERS

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

-L-
PI Sta 30+87.19
 $\Delta = 5' 28' 41.3''$ (RT)
 $D = 334.64'$
 $L = 167.45'$
 $R = 3,500.00'$
 $e = .03$
Runoff = 150
DS = 50 mph



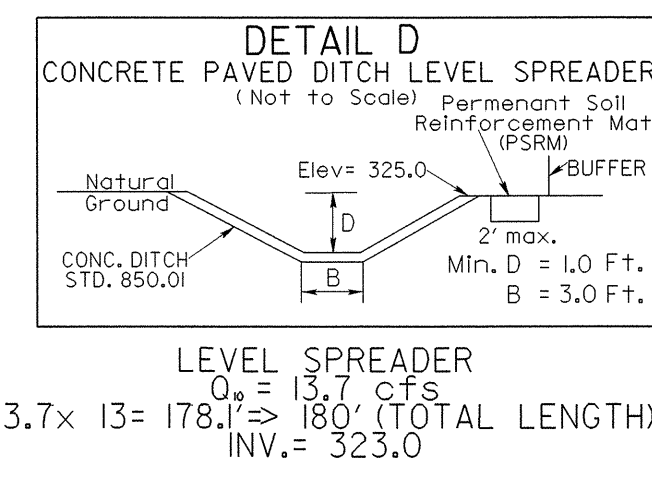
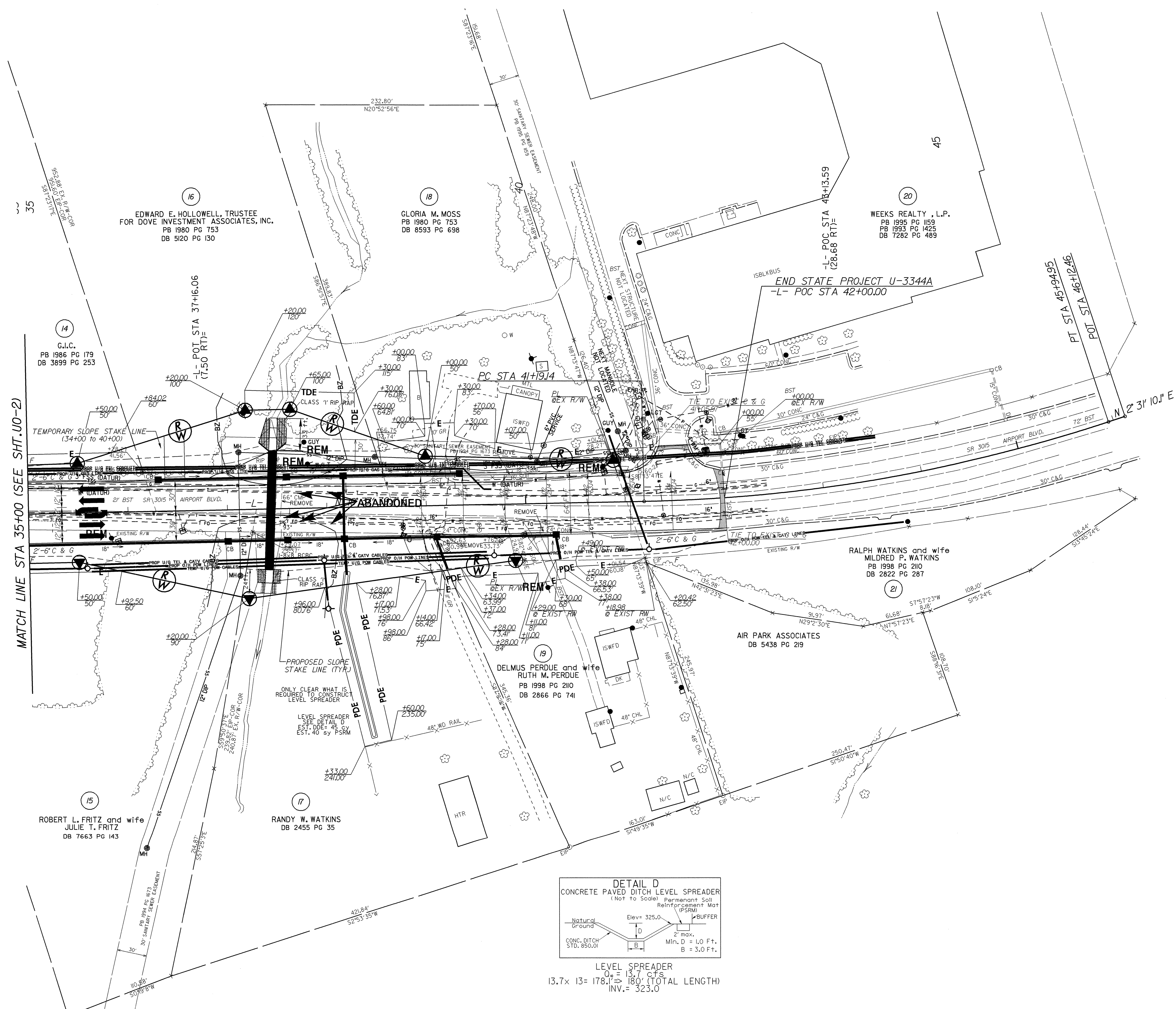
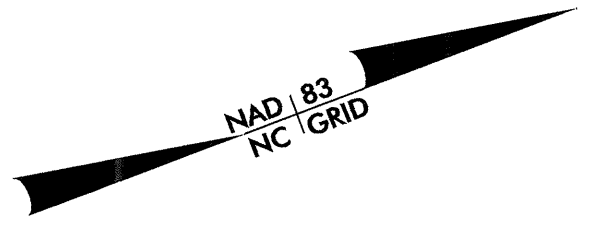
8/17/99
27-MAR-2006 12:00
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PROJECT: UO-2



NOTE: ALL DRIVEWAYS ARE 24' UNLESS OTHERWISE NOTED SEE SHEET 7 FOR -L- PROFILE

UTILITIES BY OTHERS

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



NOTE: ALL DRIVEWAYS ARE 24' UNLESS OTHERWISE NOTED SEE SHEET 8 FOR -L- PROFILE

8/17/99
 27-MAR-2006 12:01
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