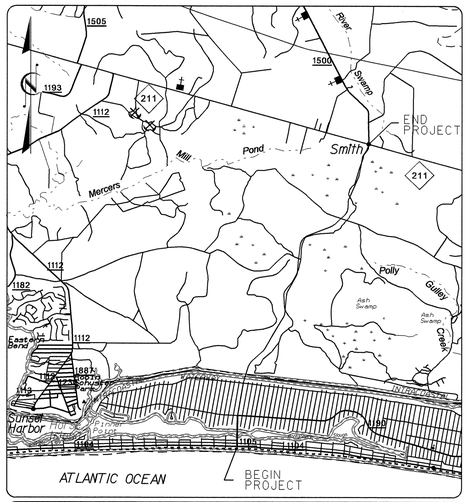
TIP PROJECT: R-2245

CONTRACT: C201550

T.I.P. NO.	SHEET NO.
R-2245	UC-1



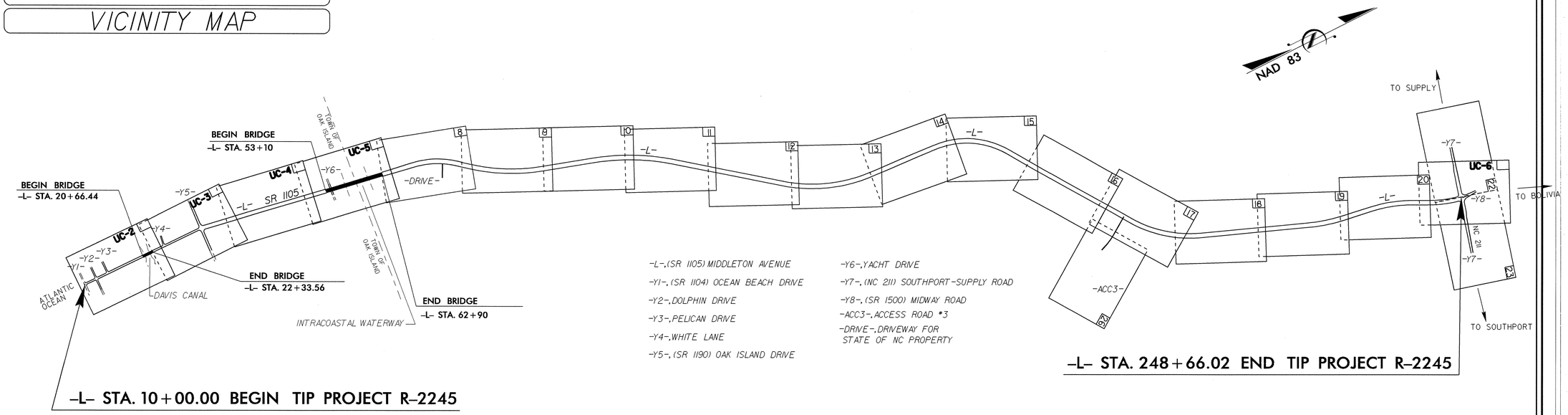
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
BRUNSWICK COUNTY

LOCATION: NEW ROUTE FROM SR 1104 (OCEAN BEACH DRIVE) TO NC 211 (SECOND BRIDGE TO OAK ISLAND)

TYPE OF WORK: UTILITIES RELOCATION

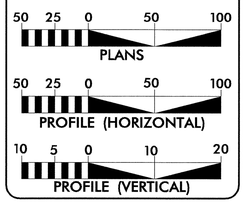


-L- STA. 10+00.00 BEGIN TIP PROJECT R-2245

-L- STA. 248+66.02 END TIP PROJECT R-2245

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III .
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF OAK ISLAND.
ACCESS IS NOT CONTROLLED FROM OCEAN BEACH DRIVE TO 835' SOUTH OF YACHT DRIVE.
ACCESS CONTROL IS LIMITED TO POINTS AS SHOWN ON THE PLANS FROM 835' SOUTH OF YACHT DRIVE TO NC 211.

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2 THRU UC-6	UTILITY CONSTRUCTION PLAN SHEETS
UC-7 THRU UC-8	PROFILE SHEETS
UC-9	DETAIL SHEET

WATER AND SEWER OWNERS ON PROJECT

(1) WATER – TOWN OF OAK ISLAND
(2) WATER – BRUNSWICK COUNTY
(3) SANITARY SEWER – BRUNSWICK COUNTY
(4) SANITARY SEWER – TOWN OF OAK ISLAND

SEAL

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
PROJECT 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*
Steve McKee, P.E.	*UTILITIES SQUAD LEADER PROJECT ENGINEER*
John Hinton, P.E.	*UTILITIES PROJECT DESIGNER*

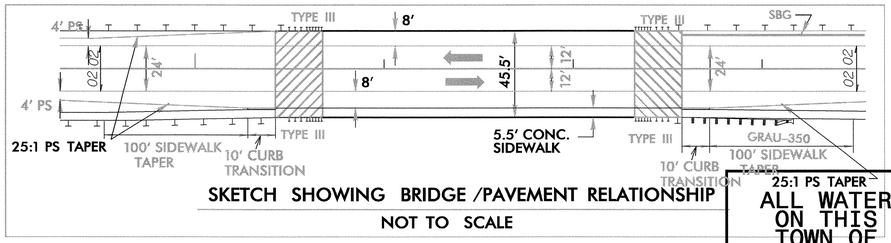
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2245	UC-2
DESIGNED BY: NSH	
DRAWN BY: NSH	
CHECKED BY: JSM	
APPROVED BY: JSM	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16832 3/2/10 JAMES S. MCKEE

UTILITY CONSTRUCTION

NAD 83



SKETCH SHOWING BRIDGE /PAVEMENT RELATIONSHIP

NOT TO SCALE

ALL WATER AND SANITARY SEWER LINES ON THIS PROJECT ARE OWNED BY THE TOWN OF OAK ISLAND AND BRUNSWICK COUNTY

ALL PROPOSED WATER PIPE 4" AND LARGER SHALL BE PVC C-900/C-905, DR-18. ALL PROPOSED HYDRANT WATER PIPE SHALL BE DUCTILE IRON, PC 350

BEGIN TIP PROJECT R-2245
-L- POT Sta. 10+00.43 =
-Y1- POT Sta. 11+99.95 =

BEGIN CONSTRUCTION -Y1- STA. 10+00.00

PROPOSED 120' - 4" WATER LINE 1-4" VALVE

PROPOSED 117' 12" WATER LINE 1-12" VALVE

PROPOSED 196' ABANDON 8" UTILITY PIPE (AC WATER)

TIE TO EXISTING 6" WATER LINE

PROPOSED (2) 45 DEGREE BENDS

PROPOSED (2) 45 DEGREE BENDS

TIE TO EXISTING 8" WATER LINE

PROPOSED RELOCATE FIRE HYDRANT

END CONSTRUCTION -Y1- STA. 13+00.00

-Y1- POT STA. 14+00.00

MAINTAIN DRAINAGE FROM EAST SIDE OF GARAGE TO NORTH SIDE

-Y2- POT STA. 10+00.00

BEGIN CONSTRUCTION -Y2- STA. 11+00.00

TIE TO EXISTING 12" WATER LINE

PROPOSED 105' ABANDON 12" UTILITY PIPE (AC WATER)

PROPOSED (2) 45 DEGREE BENDS

MAINTAIN SURFACE DRAINAGE

PROPOSED 45' ABANDON 8" UTILITY PIPE (AC WATER)

PROPOSED 55' - 8" WATER LINE 1-8" VALVES

PROPOSED RECONNECT WATER METER

PROPOSED RELOCATE FIRE HYDRANT

END CONSTRUCTION -Y2- STA. 13+80.00

-Y2- POT STA. 14+07.11

-L- POT STA. 14+21.68 =

-Y3- POT STA. 12+10.27

-Y3- POT STA. 10+00.00

BEGIN CONSTRUCTION -Y3- STA. 11+00.00

ABANDON 2" UTILITY PIPE (PVC WATER)

ABANDON 4" UTILITY PIPE (PVC WATER)

TIE TO EXISTING 2" WATER LINE

PROPOSED (2) 45 DEGREE BENDS

RECONNECT EXISTING FIRE HYDRANT

PROPOSED (2) 90 DEGREE BENDS

TIE TO EXISTING 12" WATER LINE

PROPOSED 20' 12" WATER LINE

HAND CLEARING WILL BE REQUIRED IN AREAS DESIGNATED BY THE PERMITS AND AS DIRECTED BY THE ENGINEER.

BEGIN BRIDGE -L- STA. 20+66.44

BEGIN APPROACH SLAB -L- STA. 20+42.44

PROPOSED 1296' ABANDON 8" UTILITY PIPE (AC WATER)

PROPOSED 1088' ABANDON 12" UTILITY PIPE (AC WATER)

PROPOSED 875' - 12" WATER LINE 3-12" VALVES

-L- STA. 20+36.93 =

-BL- 48 PINC 15+18.44 (13.83' RT)

END APPROACH SLAB -L- STA. 22+57.56

END BRIDGE -L- STA. 22+33.56

PROPOSED 413' TRENCHLESS INSTALLATION OF 12" WATER LINE IN SOIL. PROPOSED 413'-12" WATER LINE. THE MATERIAL USED FOR TRENCHLESS INSTALLATION PIPE INSIDE DIMENSION SHALL BE EQUIVALENT TO 12" INSIDE DIAMETER.

BM200 ELEVATION = 7.55' N 61472.08 E 2254632.2 STATION 15+14.91 62.10' RIGHT BOLT IN LEFT FRONT LEG OF WATER TOWER

1 GINGER GRAVELL DB 1697 PG 240

2 KAREN K. HARRIS DB 192 PG 696 MB 2½ PG 185

3 GERALD L. GOUGER DB 1098 PG 122

4 DB 1789 PG 784 MB 2½ PG 242 MB 2½ PG 186-189

5 SEAHORSE VENTURES, LLC DB 2172 PG 650 MB 2 ½ PG 262

6 TOWN OF OAK ISLAND DB 435 PG 518 DB 1130 PG 732 MB 2 ½ PG 185 MB W PG 304 MB 18 PG 209

7 OAK ISLAND ELKS LODGE #2769 DB 927 PG 107 DB 927 PG 113 DB 974 PG 652 DB 956 PG 799 DB 974 PG 654 MB W PG 204 MB Y PG 64

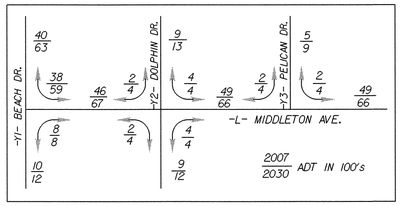
8 DB 1789 PG 784 MB 2½ PG 242 MB 2½ PG 186-189 GAYLE S. FAUCETTE, et al

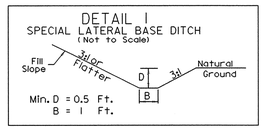
9 TOWN OF OAK ISLAND DB 1878 PG 817

10 GARY V. PETERSON DB 714 PG 92 MB 6 PG 174

11 MARION C. DEETER DB 1753 PG 233 MB 13 PG 21

90 EMMETT C. GUNNERSON DB 565 PG 1055 MB 6 PG 174





-L- STA 22+07 to 24+04 RT

MATCH TO SHEET UC-3

02-MAR-2007 07:28
...ues\r2245_ut_sht04_uc02_psh_rev.dgn

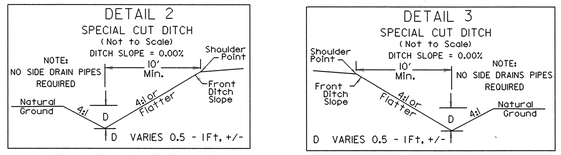
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2245	UC-3
DESIGNED BY: NSH	
DRAWN BY: NSH	
CHECKED BY: JSM	
APPROVED BY: JSM	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 16832 ENGINEER JAMES S. MCKEE 3/2/07

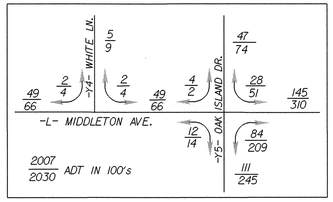
NAD 83

UTILITY CONSTRUCTION



-L- STA 33+72 to 34+75 LT EL=23.40
-L- STA 35+38 to 36+02 LT EL=23.90
-L- STA 36+50 to 37+13 LT EL=24.20

-L- STA 32+25 to 33+13 RT EL=22.10
-L- STA 34+30 to 34+78 RT EL=23.00
-L- STA 36+14 to 37+10 RT EL=24.20



ALL WATER AND SANITARY SEWER LINES ON THIS PROJECT ARE OWNED BY THE TOWN OF OAK ISLAND AND BRUNSWICK COUNTY

ALL PROPOSED WATER PIPE 4" AND LARGER SHALL BE PVC C-900/C-905, DR-18. ALL PROPOSED HYDRANT WATER PIPE SHALL BE DUCTILE IRON, PC 350

MATCH TO SHEET UC-2

MATCH TO SHEET UC-4

BEGIN CONSTRUCTION -Y4- STA. 10+50.00

END CONSTRUCTION -Y5- STA. 17+21.27

-Y4- POT STA. 10+00.00

-Y5- POT STA. 10+00.00

-L- POC STA. 31+43.86 = -Y5- POT STA. 14+13.09

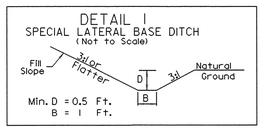
-L- PC STA. 30+78.92

-L- PT STA. 32+06.36

-Y5- POT STA. 18+20.00

-L- STA. 24+63.30 20.68' RT= -BL- 53 PINC 19+42.86

-L- STA 22+07 to 24+04 RT



-L-
PI Sta 31+42.78
△= 9° 07' 38.4" (RT)
D = 7° 09' 43.1"
L = 127.44'
T = 63.86'
R = 800.00'
SE = 0.02
Runoff = 62'

PROPOSED 150' - 4" WATER LINE 1-4" VALVE

TIE TO EXISTING 2" WATER LINE

PROPOSED (2) 45 DEGREE BENDS

PROPOSED (2) RECONNECT WATER METERS

ABANDON 2" UTILITY PIPE (PVC WATER)

PROPOSED 755' ABANDON 8" UTILITY PIPE (AC WATER)

PROPOSED 85' ABANDON 12" UTILITY PIPE (AC WATER)

TIE TO EXISTING 12" WATER LINE

PROPOSED (2) 45 DEGREE BENDS

PROPOSED 153' 12" WATER LINE 1-12" VALVE

ABANDON 6" UTILITY PIPE (PVC WATER)

PROPOSED 37'-TRENCHLESS INSTALLATION OF 12" WATER LINE IN SOIL. PROPOSED 37'-12" WATER LINE. THE MATERIAL USED FOR TRENCHLESS INSTALLATION PIPE INSIDE DIMENSION SHALL BE EQUIVALENT TO 12" INSIDE DIAMETER.

PROPOSED RELOCATE FIRE HYDRANT

PROPOSED 1293' 12" WATER LINE 3-12" VALVES

PROPOSED 845' ABANDON 12" UTILITY PIPE (AC WATER)

PROPOSED 248' 14" WATER LINE 1-12" VALVE

PROPOSED 275' ABANDON 14" UTILITY PIPE (AC WATER)

PROPOSED (5) RECONNECT WATER METERS

PROPOSED (2) 45 DEGREE BENDS

TIE TO EXISTING 14" WATER LINE

PROPOSED RELOCATE FIRE HYDRANT

PROPOSED (5) RECONNECT WATER METERS

ADJUST VALVE

DO NOT DISTURB TRANSFORMER

200' TAPER

SPECIAL CUT DITCH SEE DETAIL 2

SPECIAL CUT DITCH SEE DETAIL 3

STORM CHAMBER SEE DETAIL SHEET 2-L

TRAFFIC BEARING SPLITTER BOX SEE DETAIL SHEET 2-L

SPECIAL BASE DITCH (TYP. DETAIL)

100' SIDEWALK TAPER

PROPOSED SIGNAL

(90) EMMETT C. GUNNERSON DB 565 PG 1055 MB 6 PG 174

GARY V. PETERSON DB 714 PG 923 MB 6 PG 174

BM201 ELEVATION = 18.90' N 62460.13 E 2254463.94 L STATION 24+99.53 125.17' LEFT RRS SET IN 10" OAK

(10) MARION C DEETER DB 1753 PG 233 MB 13 PG 21

(13) JANE M. GOINS DB 196 PG 208 MB 6 PG 174

(20) MARVIN HERNDON, ETAL DB 586 PG 257 MB 13 PG 21

(24) ELLEN J. HERNDON DB 586 PG 253 MB 13 PG 21

(27) TOWN OF OAK ISLAND DB 1413 PG 1036 MB 6 PG 39

(26) TOWN OF OAK ISLAND DB 1413 PG 1036 MB 6 PG 39

(28) RUTH L. REAVIS DB 332 PG 822 DB 299 PG 797 DB 161 PG 381 DB 161 PG 383 DB 289 PG 069 MB 6 PG 34

(29) CARLENE K. HENDRIX DB 463 PG 280 MB 6 PG 34

(31) JOSEPH O. HEAVNER, JR, etal DB 1134 PG 1029 MB 6 PG 34

(30) BETTY B. TILLMAN DB 553 PG 632 MB 6 PG 34

(34) STEPHAN R. WEINLAND DB 1995 PG 137 MB 6 PG 34 DB 1008 PG 591

(38) RONALD B. POSTON, TRUSTEE DB 1334 PG 412 MB 6 PG 34

(35) CAM INVESTMENTS, INC DB 2150 PG 1130 MB 6 PG 34

(36) GARY L. KAILBOURNE DB 1465 PG 481 MB 6 PG 34

(39) GARY G. COOPER DB 1908 PG 1196 DB 2038 PG 992 MB 6 PG 34

(SIDES OF SYN BASIN NOT SHOWN FOR CLARITY) CHISLED "X" FOR BM ON TOP OF PIPE FILL SLOPE OUTLET PIPE 15' 2H 4'

02-MAR-2007 07:50
c:\projects\r2245\plan\r2245_ut_sht05_uc03_psh_rev.dgn

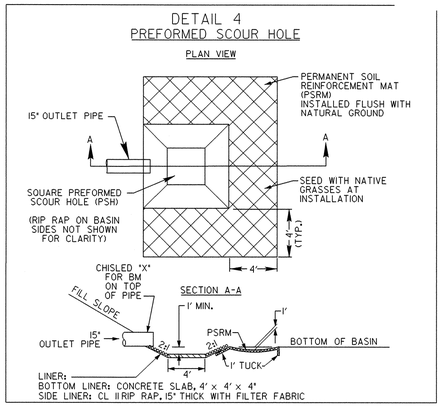
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2245	UC-4
DESIGNED BY: NSH	
DRAWN BY: NSH	
CHECKED BY: JSM	
APPROVED BY: JSM	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 16833 ENGINEER JAMES S. MCKEE 9/21/06

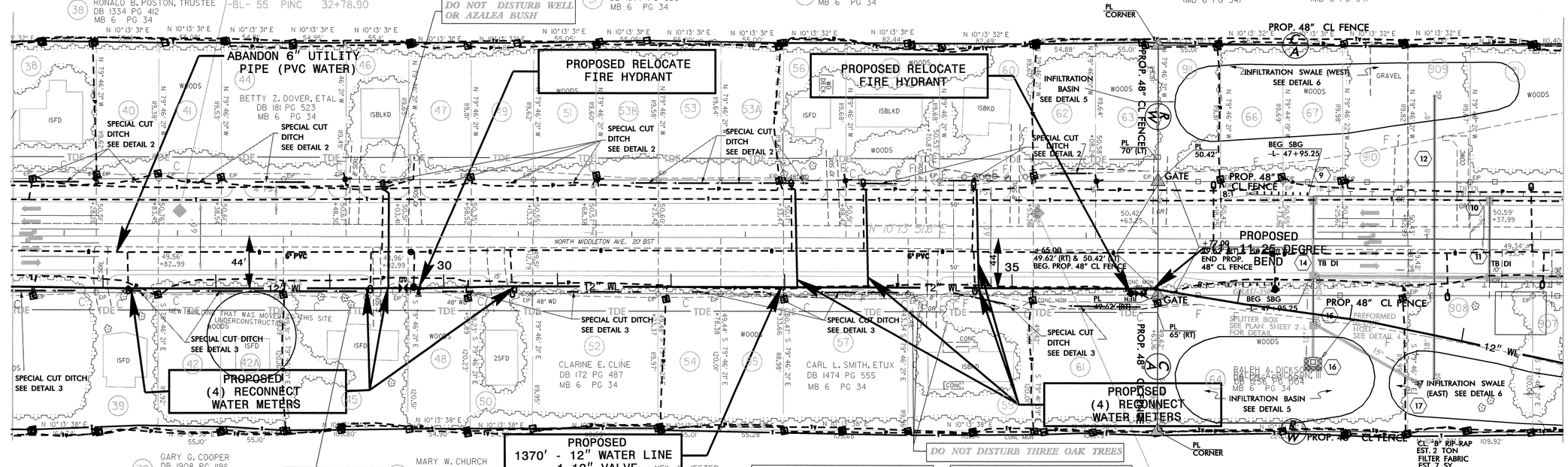
UTILITY CONSTRUCTION

NAD 83



ALL WATER AND SANITARY SEWER LINES ON THIS PROJECT ARE OWNED BY THE TOWN OF OAK ISLAND AND BRUNSWICK COUNTY

ALL PROPOSED WATER PIPE 4" AND LARGER SHALL BE PVC C-900/C-905, DR-18. ALL PROPOSED HYDRANT WATER PIPE SHALL BE DUCTILE IRON, PC 350



(49) MINDI W. SINK, ETAL DB 1484 PG 1112 MB 6 PG 34

(47) ROBERT WALSER, SR. DB 972 PG 965 MB 6 PG 34

(46) JANET H. DENNIS DB 1274 PG 1103 MB 6 PG 34

(41) JOHN ROACH JAMES DB 1008 PG 591 MB 6 PG 34

(40) HARMON H. JAMES, JR. DB 1008 PG 596 MB 6 PG 34

(38) RONALD B. POSTON, TRUSTEE DB 1334 PG 412 MB 6 PG 34

(53) WILLIAM B. WARRICK DB 1658 PG 231 MB 6 PG 34

(53B) DAWN T. WARRICK DB 1658 PG 227 MB 6 PG 34

(51) JOHN L. WALSER DB 1077 PG 630 MB 6 PG 34

(58) DONNA L. BROWN, ETALS DB 1926 PG 862 MB 6 PG 34

(56) ANNIE E. HAMPTON DB 2072 PG 1133 MB 6 PG 34

(63) MARVIN C. MARTIN, SR. DB 1390 PG 266 MB 6 PG 34

(62) PAUL M. SAWYER DB 1789 PG 683 MB 6 PG 34

(60) ROBERT W. CONNER DB 1986 PG 377 MB 6 PG 34

(67) PAUL E. MOORE, JR. DB 1223 PG 689 MB 6 PG 34

(66) FRANK LEE DB 817 PG 476 MB 6 PG 34

(911) NCDOT (formerly-KEN BLACK) (DB 1099 PG 823) (MB 6 PG 34)

(71) GEORGE L. FISHER, ETAL DB 1181 PG 593 MB 6 PG 34

(909) NCDOT (formerly-FREDA M. RICH) (DB 1580 PG 881) (MB 6 PG 34)

(910) NCDOT (formerly-DOUGLASS JOHNSON) (DB 1561 PG 316) (MB 6 PG 34)

(39) GARY G. COOPER DB 1908 PG 1196 DB 2038 PG 992 MB 6 PG 34

(42) ARTHUR SKIPPER DB 1999 PG 778 MB 6 PG 34

(42A) KIMBERLY S. ANDERSON DB 1999 PG 775 MB 6 PG 34

(45) MARY W. CHURCH DB 1174 PG 175 DB 1145 PG 381 MB 6 PG 34

(48) H. EMANUEL GHENT DB 1249 PG 1181 MB 6 PG 34

(50) DENISE M. WEST DB 1830 PG 945 MB 6 PG 34

(52) CLARINE E. CLINE DB 172 PG 487 MB 6 PG 34

(57) CARL L. SMITH, ETUX DB 1474 PG 555 MB 6 PG 34

(55) ANNE J. CONNER DB 1008 PG 606 MB 6 PG 34

(59) MARSHALL R. CARROLL DB 1895 PG 1128 MB 6 PG 34

(61) J. R. CORBETT DB 596 PG 210 DB 596 PG 212 MB 6 PG 34

(908) NCDOT (formerly-KATHERINE W. HICKS) DB 169 PG 55 MB 6 PG 34

(907) NCDOT (formerly-DONALD W. BATCHELOR) DB 836 PG 759 MB 6 PG 34

(64) RALPH A. DICKSON, II DB 1258 PG 1004 MB 6 PG 34

DETAIL 2
SPECIAL CUT DITCH
(Not to Scale)
NOTE: NO SIDE PIPES REQUIRED
DITCH SLOPE = 0.00%
10' Min.
Shoulder Point
Front ditch Slope
Natural Ground
4:1 or Flatter
D
VARIES 0.5 - 1Ft, +/-

-L- STA 36+50 to 37+13	LT	EL=24.20	
-L- STA 37+58 to 37+68	LT	EL=24.50	
-L- STA 38+13 to 38+24	LT	EL=24.60	
-L- STA 38+68 to 39+37	LT	EL=24.90	
-L- STA 39+75 to 39+89	LT	EL=25.00	
-L- STA 40+28 to 40+44	LT	EL=25.00	
-L- STA 40+88 to 40+98	LT	EL=25.00	
-L- STA 41+43 to 41+53	LT	EL=25.40	
-L- STA 41+98 to 43+55	LT	EL=25.70	
-L- STA 43+97 to 44+34	LT	EL=25.70	
-L- STA 44+73 to 45+18	LT	EL=26.20	
-L- STA 45+65 to 46+10	LT	EL=26.20	

DETAIL 3
SPECIAL CUT DITCH
(Not to Scale)
NOTE: NO SIDE PIPES REQUIRED
DITCH SLOPE = 0.00%
10' Min.
Shoulder Point
Front ditch Slope
Natural Ground
4:1 or Flatter
D
VARIES 0.5 - 1Ft, +/-

-L- STA 36+14 to 37+10	RT	EL=24.20	
-L- STA 37+50 to 37+68	RT	EL=24.50	
-L- STA 38+13 to 39+58	RT	EL=24.80	
-L- STA 40+33 to 40+61	RT	EL=25.50	
-L- STA 41+43 to 42+08	RT	EL=25.60	
-L- STA 42+53 to 42+63	RT	EL=25.80	
-L- STA 43+08 to 43+19	RT	EL=26.00	
-L- STA 43+64 to 44+45	RT	EL=26.20	
-L- STA 44+83 to 45+39	RT	EL=26.50	
-L- STA 45+84 to 46+48	RT	EL=26.90	

NOTES:

1) FOR -L- PROFILE SEE SHEET 28.

2) PERMANENT RAMPS ARE WIDENESS OTHERWISE NOTED

5/14/99

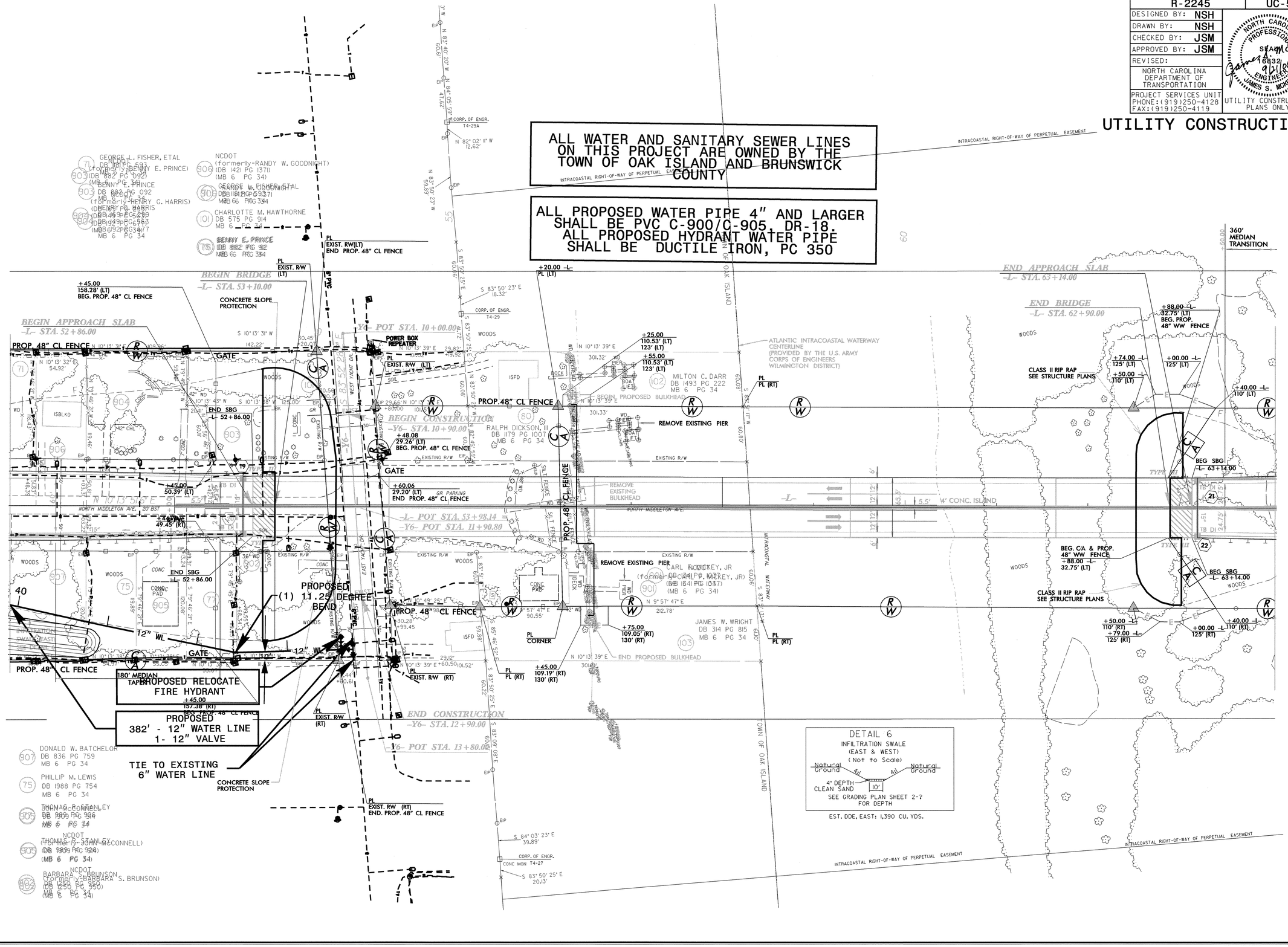
PROJECT REFERENCE NO.	SHEET NO.
R-2245	UC-5
DESIGNED BY: NSH	
DRAWN BY: NSH	
CHECKED BY: JSM	
APPROVED BY: JSM	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
PROJECT SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 16832 ENGINEER JAMES S. MCKEE 9/21/06

UTILITY CONSTRUCTION

ALL WATER AND SANITARY SEWER LINES ON THIS PROJECT ARE OWNED BY THE TOWN OF OAK ISLAND AND BRUNSWICK COUNTY

ALL PROPOSED WATER PIPE 4" AND LARGER SHALL BE PVC C-900/C-905, DR-18. ALL PROPOSED HYDRANT WATER PIPE SHALL BE DUCTILE IRON, PC 350



PROJECT REFERENCE NO.	SHEET NO.
R-2245	UC-6

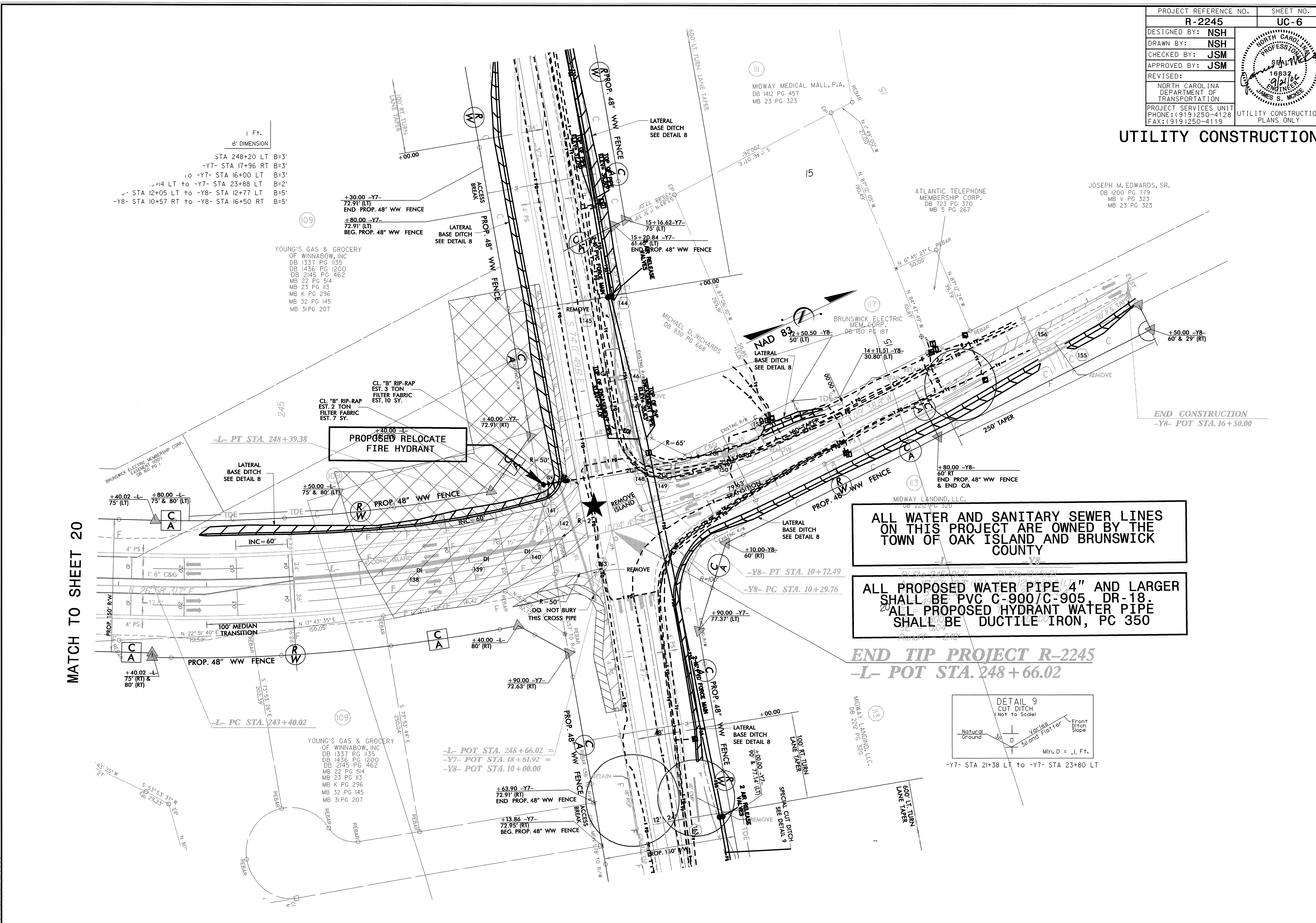
DESIGNED BY: NSH
DRAWN BY: NSH
CHECKED BY: JSM
APPROVED BY: JSM
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



MATCH TO SHEET 20
ALL WATER AND SANITARY SEWER LINES ON THIS PROJECT ARE OWNED BY THE TOWN OF OAK ISLAND AND BRUNSWICK COUNTY
ALL PROPOSED WATER PIPE 4" AND LARGER SHALL BE PVC C-900/C-905, DR-18. ALL PROPOSED HYDRANT WATER PIPE SHALL BE DUCTILE IRON, PC 350
PROPOSED RELOCATE FIRE HYDRANT
END TIP PROJECT R-2245
-L- POT STA. 248+66.02
END CONSTRUCTION
-Y8- POT STA. 16+50.00
-L- PT STA. 248+39.38
-L- PC STA. 243+40.02
-L- POT STA. 248+66.02 =
-Y7- POT STA. 18+61.92 =
-Y8- POT STA. 10+00.00
-Y8- PT STA. 10+72.49
-Y8- PC STA. 10+29.76
YOUNG'S GAS & GROCERY OF WINNABOW, INC
MIDWAY MEDICAL MALL, P.A.
ATLANTIC TELEPHONE MEMBERSHIP CORP.
JOSEPH M. EDWARDS, SR.
BRUNSWICK ELECTRIC MEM. CORP.
MICHAEL D. RICHARDS
MIDWAY LANDIND, LLC.
PROP. 48" WW FENCE
LATERAL BASE DITCH SEE DETAIL 8
DO NOT BURY THIS CROSS PIPE
NAD 83
DETAIL 9
CUT DITCH
(Not to Scale)
-Y7- STA 21+38 LT to -Y7- STA 23+80 LT
STA 248+20 LT B=3'
-Y7- STA 17+96 RT B=3'
-Y8- STA 10+57 RT to -Y8- STA 16+50 RT B=5'

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
R2245	UC-7
DESIGNED BY: DWP	
DRAWN BY: DWP	
CHECKED BY: JSM	
APPROVED BY: JSM	
REVISED:	

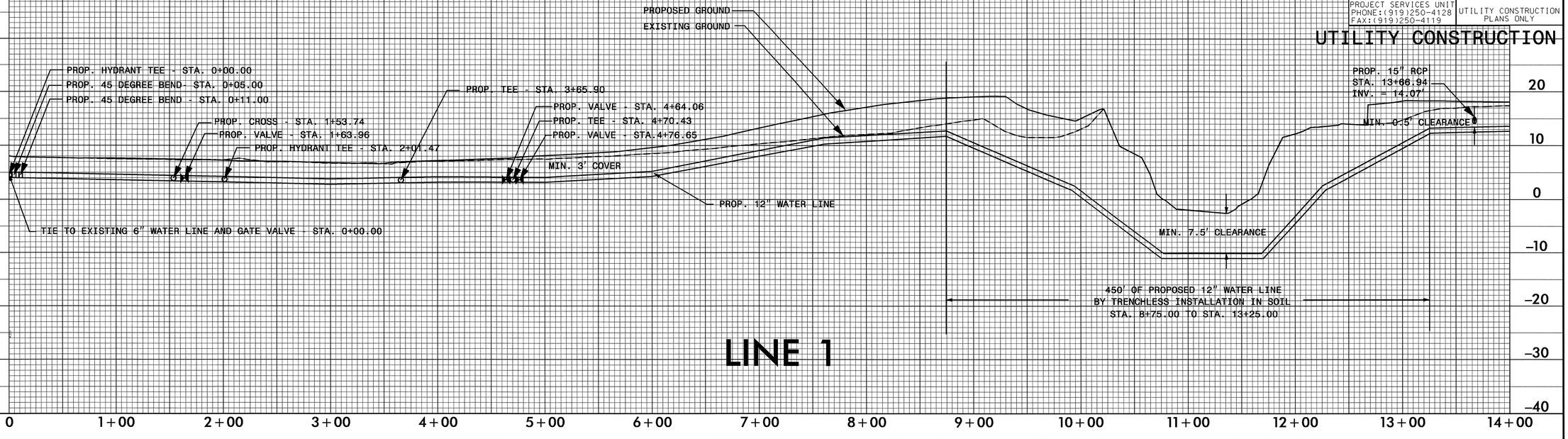
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

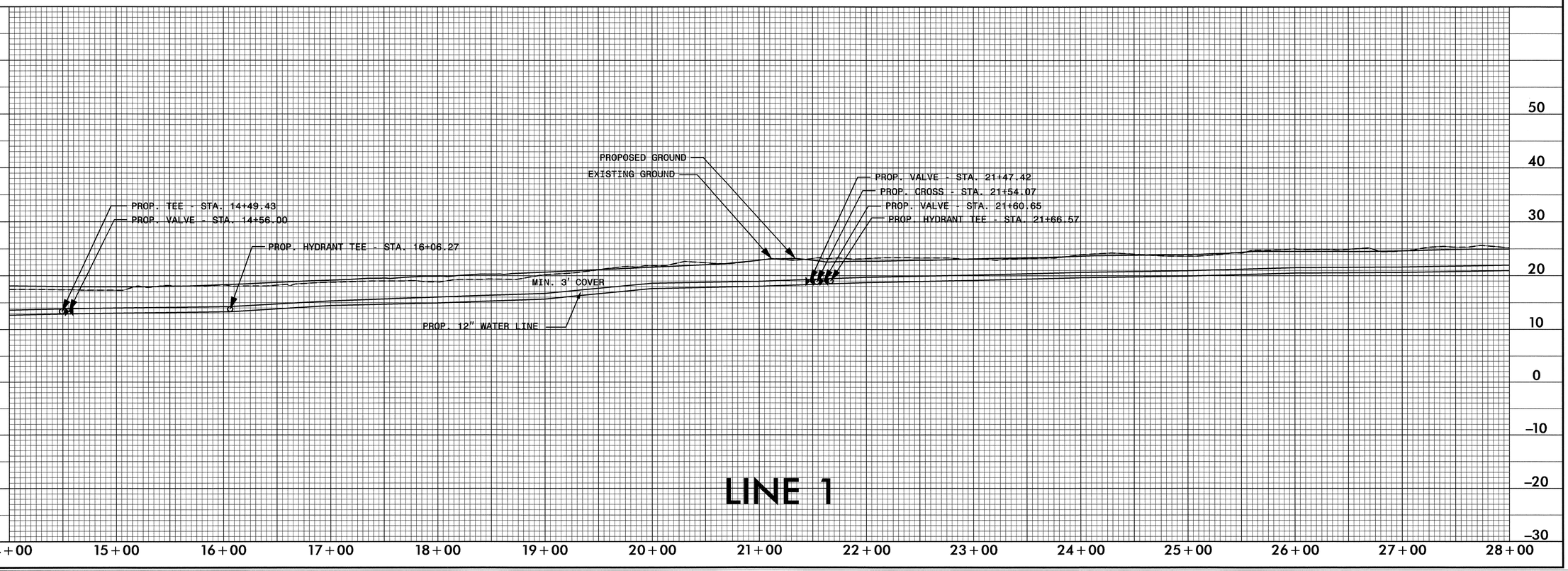
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16932 JAMES S. MCKEE

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



LINE 1



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21-SEP-2006 11:32
r:\utilities\rdu_ut\pro\profile1.dgn
$$$$CFNAME$$$$

5/28/99

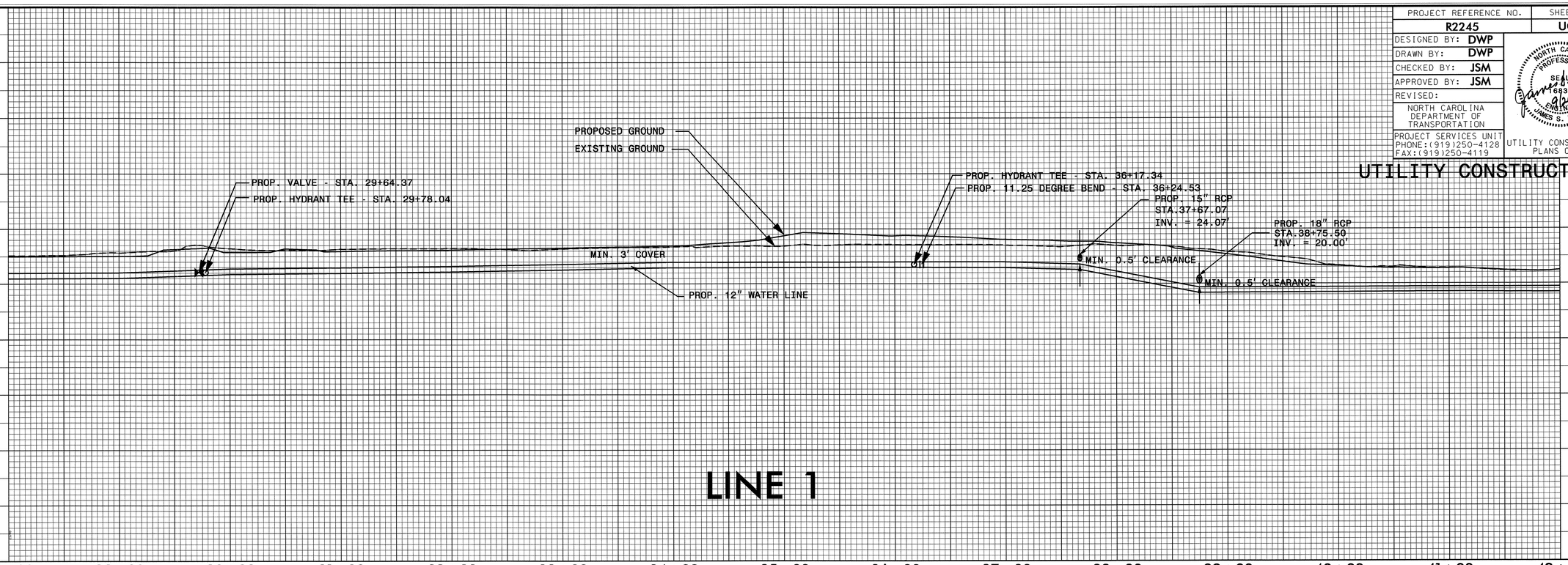
PROJECT REFERENCE NO.	SHEET NO.
R2245	UC-8
DESIGNED BY: DWP	
DRAWN BY: DWP	
CHECKED BY: JSM	
APPROVED BY: JSM	
REVISED:	

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT SERVICES UNIT
PHONE:(919)250-4128
FAX:(919)250-4119

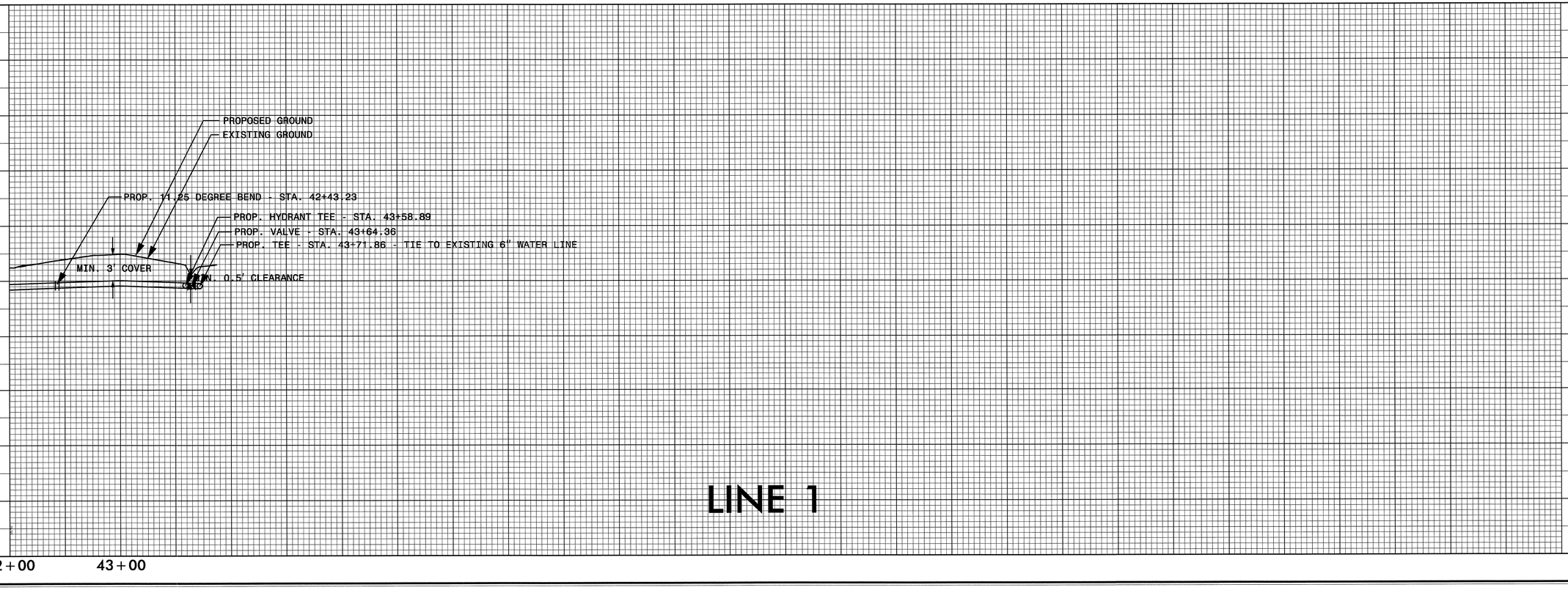
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 16832 JAMES S. MCKEE 9/21/06

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



LINE 1



LINE 1

21-SEP-2006 10:32
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$$$$USERNAME$$$$

8/17/99

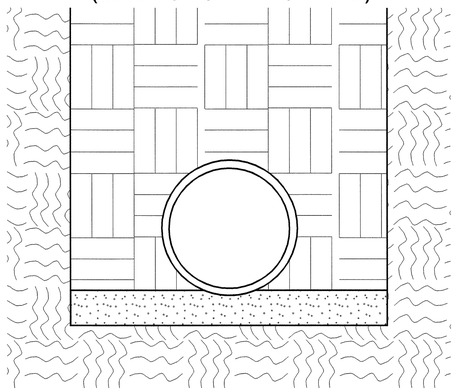
PROJECT REFERENCE NO.	SHEET NO.
R-2245	UC-9
DESIGNED BY: JLH	
DRAWN BY: JLH	
CHECKED BY: JSM	
APPROVED BY: JSM	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
DESIGN SERVICES UNIT PHONE:(919)250-4128 FAX:(919)250-4119	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 16932 ENGINEER JAMES S. MCKEE 9/21/06

UTILITY CONSTRUCTION

CLASS "C"

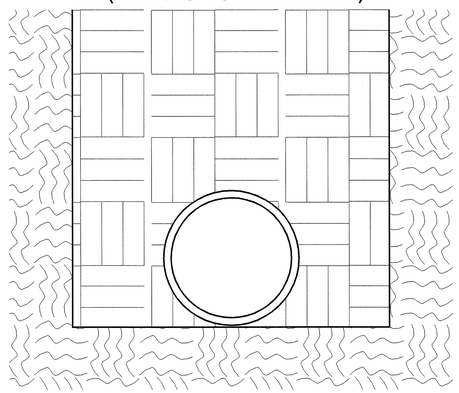
(BEDDING FOR P.V.C. PIPE)



PIPE BEDDED IN LOOSE MATERIAL, LIGHTLY TAMPED WITH A MINIMUM OF 6" UNDER PIPE. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL, IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

TYPE "2"

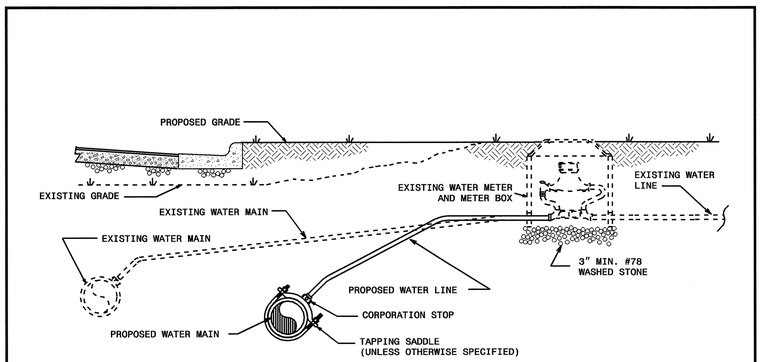
(BEDDING FOR D.I. PIPE)



PIPE BEDDED IN FLAT-BOTTOM TRENCH. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL, IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROX. 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

MAXIMUM TRENCH WIDTH
AT TOP OF PIPE

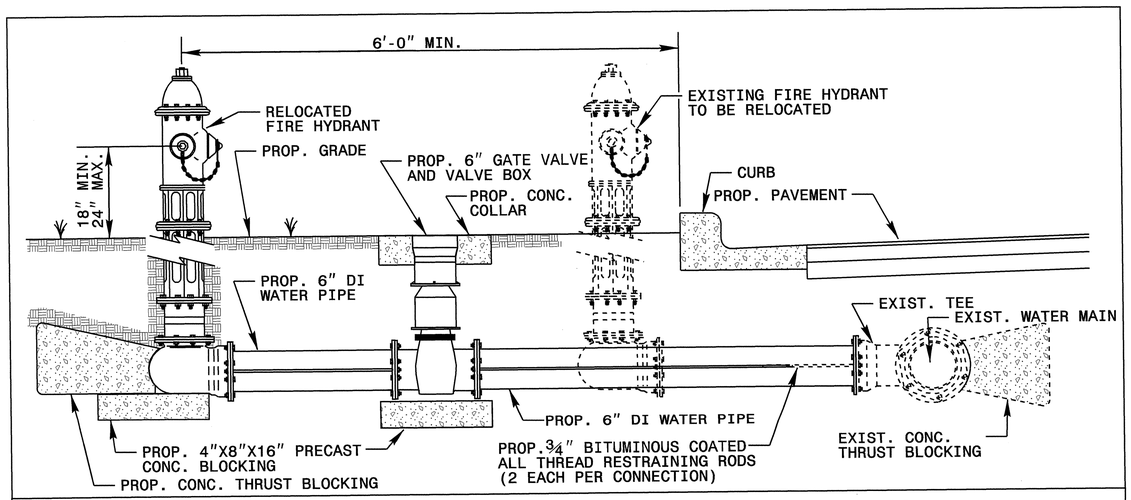
NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		



NOTES:

1. 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.
2. THE NEW WATER SERVICE LINE SHALL BE INSTALLED WITH A MINIMUM OF 36" COVER BELOW FINISHED GRADE.

RECONNECT EXISTING WATER METER DETAIL

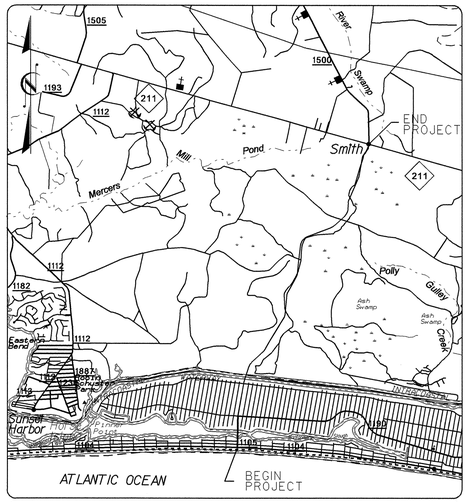


FIRE HYDRANT RELOCATION DETAIL

T.I.P. NO.	SHEET NO.
R–2245	UO–1

TIP PROJECT: R–2245

CONTRACT: C201550



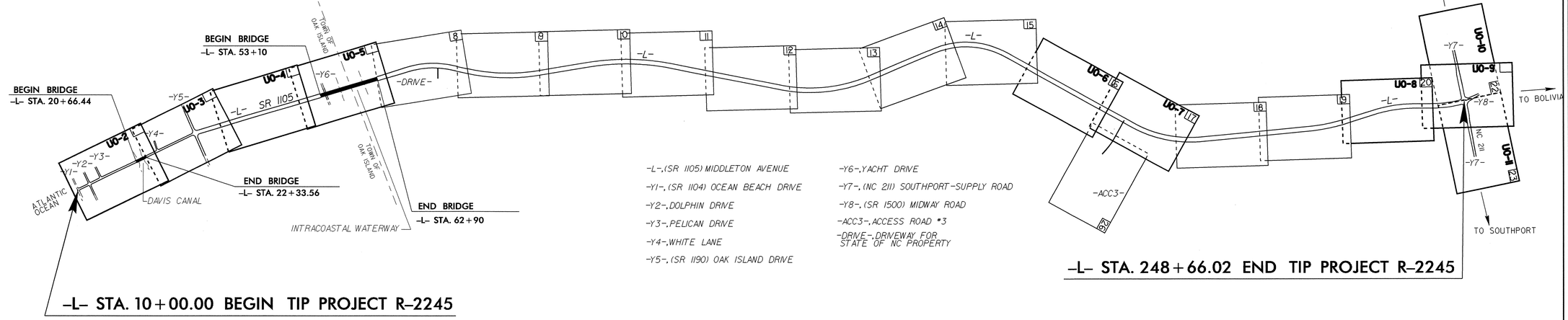
VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY BY OTHERS PLANS
BRUNSWICK COUNTY

LOCATION: NEW RIVER FROM S.R. 1104 (OCEAN BEACH DRIVE) TO N.C. HIGHWAY 211 (SECOND BRIDGE TO OAK ISLAND)

TYPE OF WORK: UTILITIES RELOCATION



–L– STA. 10+00.00 BEGIN TIP PROJECT R–2245

–L– STA. 248+66.02 END TIP PROJECT R–2245

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.
A PORTION OF THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF OAK ISLAND.
ACCESS IS NOT CONTROLLED FROM OCEAN BEACH DRIVE TO 835′ SOUTH OF YACHT DRIVE.
ACCESS CONTROL IS LIMITED TO POINTS AS SHOWN ON THE PLANS FROM 835′ SOUTH OF YACHT DRIVE TO NC 211.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

UTILITY OWNERS ON PROJECT

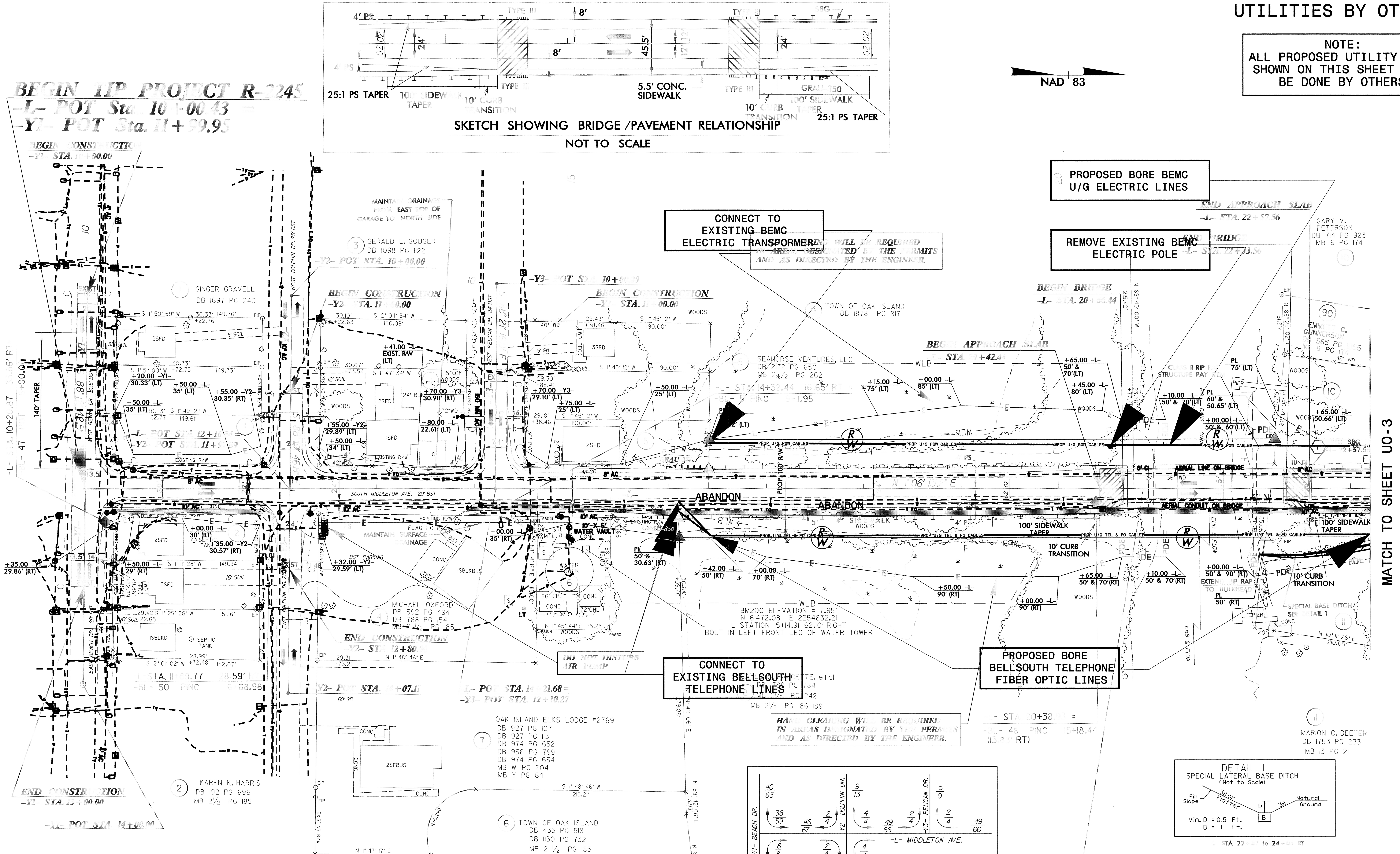
(1) BRUNSWICK ELECTRIC MEMBERSHIP CORPORATION – ELECTRIC TRANSMISSION AND DISTRIBUTION
(2) ATLANTIC TELEPHONE MEMBERSHIP CORPORATION – TELEPHONE
(3) BELLSOUTH – TELEPHONE
(4) TIME WARNER – CABLE TELEVISION
(5) TOWN OF OAK ISLAND – WASTEWATER COLLECTION

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
PROJECT 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*
Steve McKee, P.E. — *UTILITIES SQUAD LEADER PROJECT ENGINEER*
Donald Proper — *UTILITIES PROJECT DESIGNER*

UTILITIES BY OTHERS

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


SKETCH SHOWING BRIDGE /PAVEMENT RELATIONSHIP
NOT TO SCALE
25:1 PS TAPER
100' SIDEWALK TAPER
10' CURB TRANSITION
5.5' CONC. SIDEWALK
TYPE III
NAD 83
BEGIN TIP PROJECT R-2245
-L- POT Sta.. 10+00.43 =
-Y1- POT Sta. 11+99.95
BEGIN CONSTRUCTION
-Y1- STA. 10+00.00
CONNECT TO EXISTING BEMC ELECTRIC TRANSFORMER
PROPOSED BORE BEMC U/G ELECTRIC LINES
REMOVE EXISTING BEMC ELECTRIC POLE
END APPROACH SLAB
-L- STA. 22+57.56
END BRIDGE
-L- STA. 22+33.56
BEGIN BRIDGE
-L- STA. 20+66.44
BEGIN APPROACH SLAB
-L- STA. 20+42.44
HAND CLEARING WILL BE REQUIRED IN AREAS DESIGNATED BY THE PERMITS AND AS DIRECTED BY THE ENGINEER.
ABANDON
AERIAL LINE ON BRIDGE
AERIAL CONDUIT ON BRIDGE
CONNECT TO EXISTING BELLSOUTH TELEPHONE LINES
PROPOSED BORE BELLSOUTH TELEPHONE FIBER OPTIC LINES
DO NOT DISTURB AIR PUMP
BM200 ELEVATION = 7.95'
N 61472.08 E 2254632.21
L STATION 15+14.91 62.10' RIGHT
BOLT IN LEFT FRONT LEG OF WATER TOWER
END CONSTRUCTION
-Y1- STA. 13+00.00
-Y1- POT STA. 14+00.00
-Y2- POT STA. 10+00.00
BEGIN CONSTRUCTION
-Y2- STA. 11+00.00
END CONSTRUCTION
-Y2- STA. 12+80.00
-Y2- POT STA. 14+07.11
-Y3- POT STA. 10+00.00
BEGIN CONSTRUCTION
-Y3- STA. 11+00.00
-L- POT STA. 14+21.68=
-Y3- POT STA. 12+10.27
MAINTAIN DRAINAGE FROM EAST SIDE OF GARAGE TO NORTH SIDE
GINGER GRAVELL DB 1697 PG 240
GERALD L. GOUGER DB 1098 PG 1122
KAREN K. HARRIS DB 192 PG 696 MB 2½ PG 185
MICHAEL OXFORD DB 592 PG 494 DB 788 PG 154 MB 2½ PG 185
OAK ISLAND ELKS LODGE #2769
TOWN OF OAK ISLAND DB 1878 PG 817
TOWN OF OAK ISLAND DB 435 PG 518 DB 1130 PG 732 MB 2½ PG 185 MB W PG 304 MB 18 PG 209
SEAHORSE VENTURES, LLC DB 2172 PG 650 MB 2½ PG 262
GARY V. PETERSON DB 714 PG 923 MB 6 PG 174
MARION C. DEETER DB 1753 PG 233 MB 13 PG 21
SOUTH MIDDLETON AVE. 20' BST
-L- MIDDLETON AVE.
ADT IN 100's
DETAIL 1
SPECIAL LATERAL BASE DITCH
(Not to Scale)
Min. D = 0.5 Ft.
B = 1 Ft.
-L- STA 22+07 to 24+04 RT
MATCH TO SHEET UO-3

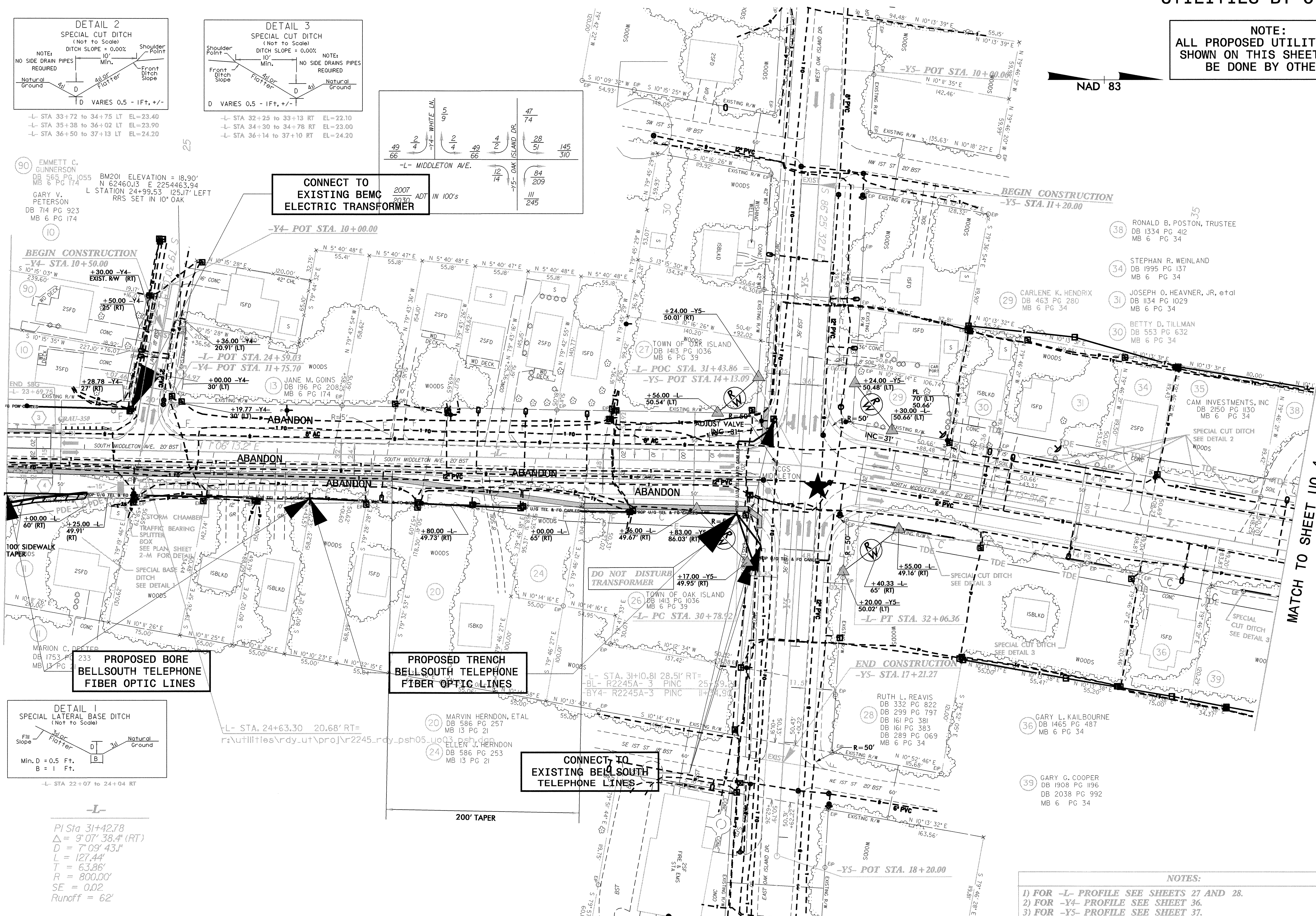
NOTES:

1) FOR -L- PROFILE SEE SHEET 27.
2) FOR -Y1-, -Y2- AND -Y3- PROFILES SEE SHEET 36.
3) FOR STRUCTURE PLANS SEE SHEETS S- TO S-.
4) DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.
5) PAVED SHOULDER TAPERS ARE 8:1 UNLESS OTHERWISE NOTED.
6) -Y- LINE RADII ARE 30' UNLESS OTHERWISE NOTED.
7) FOR CURB TRANSITION SEE DETAIL SHEET 2-I.
8) FOR ROCK PLATING (-L- STA. 15+50.00 TO STA. 16+25.00) SEE DETAIL SHEET 2-O.
9) FOR REINFORCED SLOPE (-L- STA. 16+25.00 TO STA. 20+50.00) SEE DETAIL SHEET 2-P.

PROJECT REFERENCE NO.	SHEET NO.
R-2245	U0-3

UTILITIES BY OTHERS

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



-L-

PI Sta 31+42.78
Δ = 9°07' 38.4" (RT)
D = 7°09' 43.1"
L = 127.44'
T = 63.86'
R = 800.00'
SE = 0.02
Runoff = 62'

NOTES:
1) FOR -L- PROFILE SEE SHEETS 27 AND 28.
2) FOR -Y4- PROFILE SEE SHEET 36.
3) FOR -Y5- PROFILE SEE SHEET 37.
4) DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.
5) PAVED SHOULDER TAPERS ARE 8:1 UNLESS OTHERWISE NOTED.
6) -Y- LINE RADII ARE 30' UNLESS OTHERWISE NOTED.

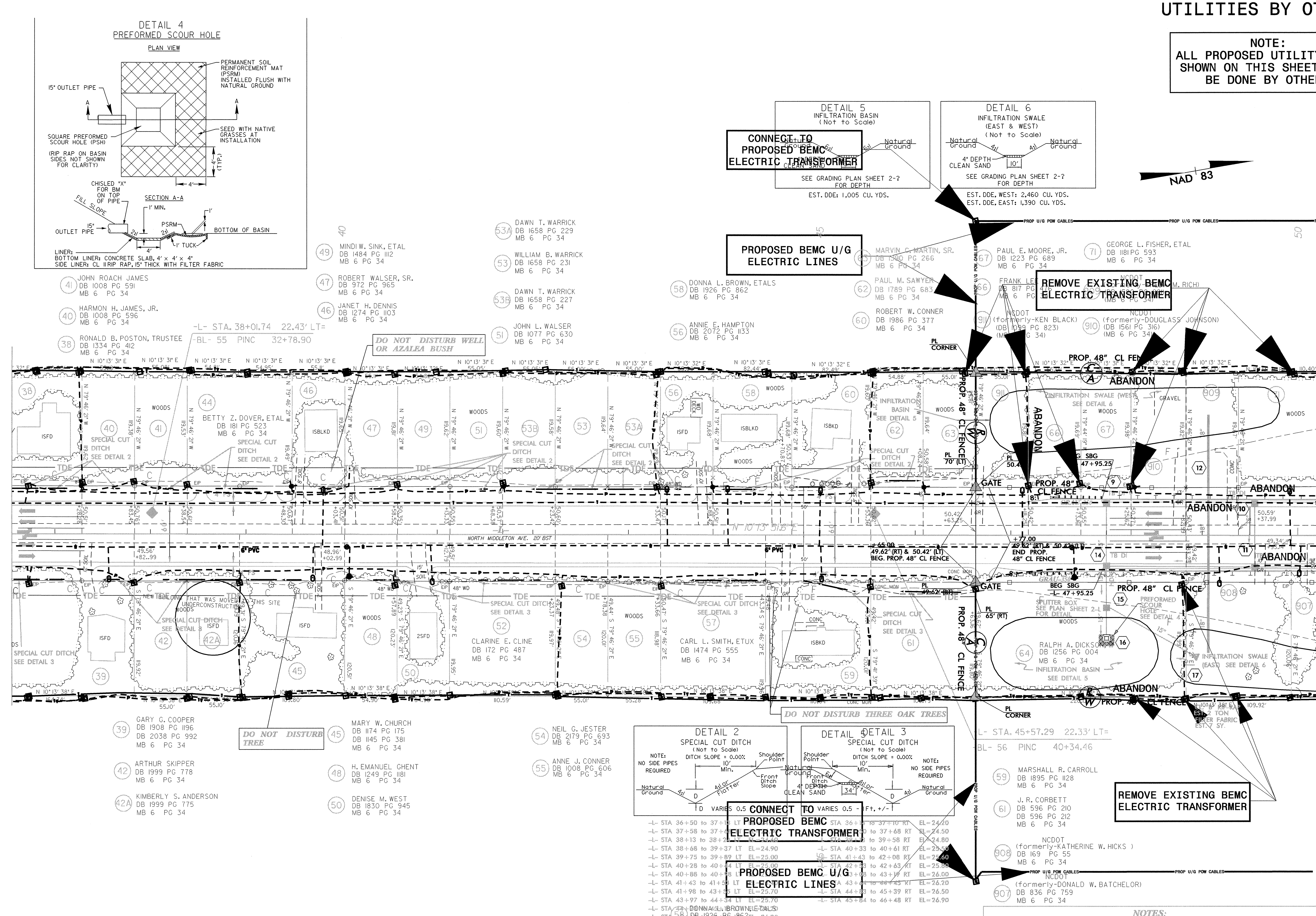
5/14/99

28-SEP-2006 07:09
r:\utilities\rdy_ut\proj\r2245_rdy_psh05_uo03_psh.dgn

PROJECT REFERENCE NO.	SHEET NO.
R-2245	UO-4

UTILITIES BY OTHERS

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



NOTES:
1) FOR -L- PROFILE SEE SHEET 28.
2) DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED.
3) PAVED SHOULDER TAPERS ARE 8:1 UNLESS OTHERWISE NOTED.

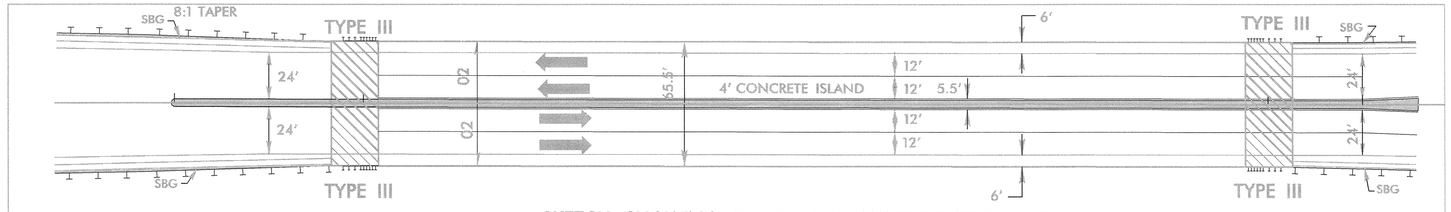
28-SEP-2006 08:41
8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2245	U0-5

UTILITIES BY OTHERS

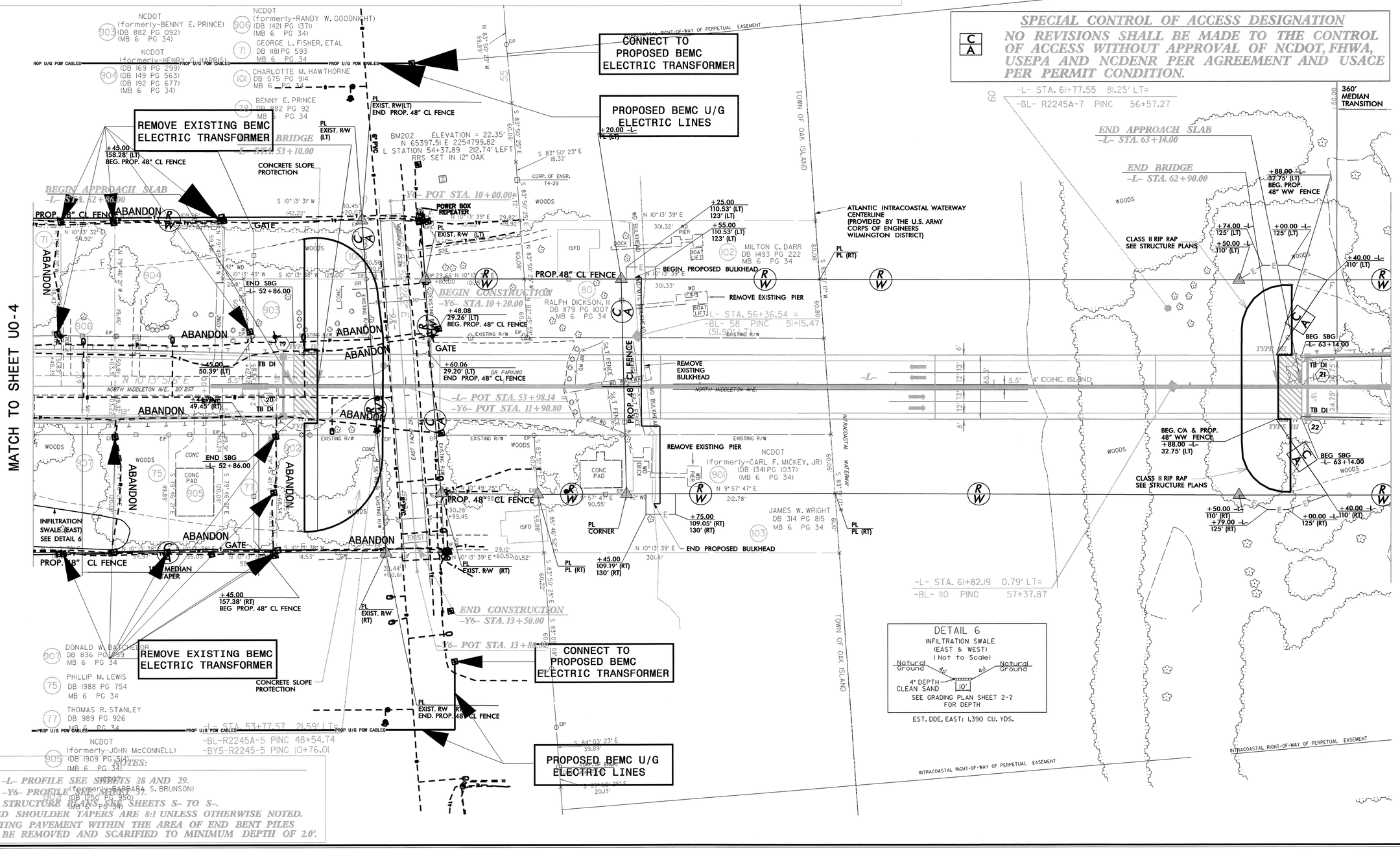
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

NAD 83



SKETCH SHOWING BRIDGE /PAVEMENT RELATIONSHIP

NOT TO SCALE



NOTES:

1) FOR –L– PROFILE SEE SHEETS 28 AND 29.
2) FOR –Y6– PROFILE SEE SHEET 27.
3) FOR STRUCTURE DETAILS SEE SHEETS S– TO S–.
4) PAVED SHOULDER TAPERS ARE 8:1 UNLESS OTHERWISE NOTED.
5) EXISTING PAVEMENT WITHIN THE AREA OF END BENT PILES SHALL BE REMOVED AND SCARIFIED TO MINIMUM DEPTH OF 2.0'.

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2245	U0-6

UTILITIES BY OTHERS

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

NAD 83

175 180 185

LaDANE WILLIAMSON
DB 1142 PG 233
MB 3 PG 89
MB 3 PG 90
(106)

-L- STA. 185+38.05 3.41' RT=
-BL- 81 PINC 181+24.85

BURY EQUALIZER PIPE 1.0'

+00.00 -L-
75' (LT)

BURY EQUALIZER PIPE 1.0'

RW CA

4' PS

6" C&G

1' 6" C&G

N 56° 20' 46.8" E

PROP. 150' R/W

48" EQUALIZER

24"

17.5'

4.75'

99 98 100 101

WLB

4' CONC. ISLAND

GATE

+00.00

REMOVE EXISTING
BEMC ELECTRIC POLE

+08.00 -L-
75' (RT)
BEG. PROP. 48" WW FENCE

PROPOSED BEMC
ELECTRIC POLE

+92.00 -L-
75' (RT)
END PROP. 48" WW FENCE

200' MEDIAN TURN
LANE TAPER

+00.00 -L-
75' (RT)

BRUNSWICK ELECTRIC MEMBERSHIP CORP.
EASEMENT (DOT)
DB 163 PG 7

LaDANE WILLIAMSON
DB 1142 PG 233
MB 3 PG 89
MB 3 PG 90
(106)

(107)
RESERVE DEVELOPMENT CO., LLC
DB 2021PG 1343
MB 24 PG 344

MATCH TO SHEET U0-7

SPECIAL CONTROL OF ACCESS DESIGNATION

C A

NO REVISIONS SHALL BE MADE TO THE CONTROL OF ACCESS WITHOUT APPROVAL OF NCDOT, FHWA, USEPA AND NCDENR PER AGREEMENT AND USACE PER PERMIT CONDITION.

NOTES:

1) FOR -L- PROFILE SEE SHEETS 32 AND 33.
2) PAVED SHOULDER TAPERS ARE 8:1 UNLESS OTHERWISE NOTED.

10-JAN-2007 14:27
...utilities\rdy\r-2245_rdy_psh16_u006_psh.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-2245	U0-7

UTILITIES BY OTHERS

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

SPECIAL CONTROL OF ACCESS DESIGNATION

C A

NO REVISIONS SHALL BE MADE TO THE CONTROL OF ACCESS WITHOUT APPROVAL OF NCDOT, FHWA, USEPA AND NCDENR PER AGREEMENT AND USACE PER PERMIT CONDITION.

MATCH TO SHEET U0-6

NAD 83

106 LaDANE WILLIAMSON
DB 1142 PG 233
MB 3 PG 89
MB 3 PG 90

-L- STA. 191+65.02 16.85' RT=
-BL- R2245-I5 PINC 187+51.96

S. 85° 48' 01" W
126.30'

EIP

-L- STA. 198+11.51 9.75' RT=
-BL- 82 PINC 193+99.42

BM210 ELEVATION = 60.17'
N 76939.66 E 2261064.34
L STATION 189+38.08 249.39' LEFT
RRS SET IN 12" PINE

PROPOSED ELECTRIC POLE
USE TALLER POLE
NO CLEARING

REMOVE EXISTING
BEMC ELECTRIC POLE

107 RESERVE DEVELOPMENT CO., LLC
DB 2021PG 1343
MB 24 PG 344

109 YOUNG'S GAS & GROCERY OF WINNABOW, INC
DB 1337 PG 135
DB 1436 PG 1200
DB 2145 PG 462
MB 22 PG 514
MB 23 PG 113
MB K PG 296
MB 32 PG 145
MB 31PG 207

200' MEDIAN TURN LANE TAPER

BURY AQUAMOD PIPE 1.0'

+93.00 -L- 82.34' (LT) BEG. PROP. 48" WW FENCE

+77.00 -L- EXIST. R/W (LT) END PROP. 48" WW FENCE

BURY 42" EQUALIZER PIPE

L123.42' 46.46' COR TO CL

GATE

50' TAPER | 50' | 50' TAPER

+00.00 -L- 85' (RT)

+30.00 -L- 75' (RT)

+50.00 -L- 75' (RT)

+86.97 -L- 75' (LT)

CL "B" RIP-RAP EST. 1 TON FILTER FABRIC EST. 5 SY.

-L- PC STA. 192+86.97

INC=60'

4,582 sq. ft.
C=0.9
Q=0.38 cfs
L=0.0035 ft/ft
e=0.0188 ft/ft
Qin=0.38
Qby=negl.
Spread=2.6'

2,645 sq. ft.
C=0.9
Q=0.22 cfs
L=0.0035 ft/ft
e=0.0500 ft/ft
Qin=0.22
Qby=negl.
Spread=2.8'
DI not needed here

9.75' CONC ISLAND

PROP. 150' R/W

10,093 sq. ft.
C=0.9
Q=0.83 cfs
L=0.0035 ft/ft
e=0.0500 ft/ft
Qin=0.77
Qby=0.06
Spread=4.6'

104 TB DI

10,561 sq. ft.
C=0.9
Q=0.83+0.06+0.121cfs = 1.054 cfs
L=0.0080 ft/ft
e=0.0500 ft/ft
Qin=1.093
Qby=0.00
Spread=2.97'

200+00
8.75' Rt
15,993 sq. ft.
C=0.77
Q=1.14 cfs
L=0.0044 ft/ft
e=0.0500 ft/ft
Qin=1.019
Qby=0.121
Spread=3.48'

+00.00 -L- 75' (LT)

+00.00 -L- 75' (RT)

+50.00 -L- 80' (RT)

CL "B" RIP-RAP EST. 1 TON FILTER FABRIC EST. 5 SY.

CL "B" RIP-RAP EST. 1 TON FILTER FABRIC EST. 5 SY.

+47.31 -L- 75' (RT)

+49.33 -L- 75' (RT)

+21.47 -ACC3- 50' (LT)

-L- POT STA. 192+55.00 =
-ACC3- POT STA. 10+00.00

+28.90 -ACC3- 50' (RT)

50' PROP. R/W | 50' PROP. R/W

-ACC3-

S 29° 25' 52.7" E

4 @ 60" x 46" CORR. ALUM. PIPE-ARCH
FOR ANIMAL PASSAGE
WITH CONTINUOUS ALUMINUM HEADWALLS
ON BOTH ENDS
SEE DETAIL SHEET 2-N

BURY PIPE 3.0' AND BACKFILL

-L-
PI Sta 199+05.68
Δ = 34° 52' 18.9" (LT)
D = 2° 54' 30.3"
L = 1,199.00'
T = 618.72'
R = 1,970.00'
SE = 0.05
Runoff = 300'

PL -L-
PL (RT)

NOTES:

1) FOR -L- PROFILE SEE SHEET 33.
2) ACCESS ROAD TO BE CONSTRUCTED BY OTHERS.
3) PAVED SHOULDER TAPERS ARE 8:1 UNLESS OTHERWISE NOTED.
4) SEE SHEET 2-J FOR 50' TRANSITION FROM 1'-6" C&G TO 2'-9" C&G (-L- STA. 197+08.78 RT.).

5/14/99

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2245	U0-8

UTILITIES BY OTHERS

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

NAD 83

CONNECT TO EXISTING BEMC ELECTRIC TRANSMISSION LINES

CONNECT TO EXISTING BEMC ELECTRIC DISTRIBUTION LINES

PROPOSED BEMC O/H TRANSMISSION AND DISTRIBUTION LINES COMBINED

EXISTING BEMC TRANSMISSION LINES

EXISTING BEMC DISTRIBUTION LINES

PROPOSED BEMC ELECTRIC TRANSMISSION POLES NO CLEARING

REMOVE EXISTING BEMC ELECTRIC DISTRIBUTION POLES

-L-
PI Sta 225+84.62
Δ = 12° 09' 43.1" (LT)
D = 1° 58' 32.6"
L = 615.57'
T = 308.95'
R = 2,900.00'
S.E. = 0.04

BM212 ELEVATION = 55.52'
N 80407.77 E 2262706.47
L STATION 231+37.05 391.22' LEFT
RRS SET IN 10" PINE

-L- PT STA. 228+91.24

-L- STA. 229+41.42 23.38' LT=
-BL- 86 PINC 225+25.71

-L- STA. 240+05.50 7.60' LT=
-BL- 87 PINC 235+88.64

-L- PT STA. 240+54.44

+91.24 -L- 75' (LT)
+76.23 -L- 75' (LT)
+40.00 -L- 75' (LT) END PROP. 48" WW FENCE
+52.00 -L- 75' (LT) BEG. PROP. 48" WW FENCE
+54.44 -L- 75' (LT)
+91.24 -L- 75' (RT)
+76.23 -L- 75' (RT)
+54.44 -L- 75' (RT)

PROP. 48" WW FENCE
PROP. 150' R/W
PROP O/H POW LINES (TRANS)
PROP O/H POW LINES
BRUNSWICK ELECTRIC MEMBERSHIP CORP. EASEMENT (DOT) DB 1801 PG 1
INC = 60'
GATE
REMOVE
REMOVE
REMOVE
REMOVE

CL "B" RIP-RAP EST. 1 TON FILTER FABRIC EST. 5 SY.

YOUNG'S GAS & GROCERY OF WINNABOW, INC
DB 1337 PG 1135
DB 1436 PG 1200
DB 2145 PG 462
MB 22 PG 514
MB 23 PG 113
MB K PG 296
MB 32 PG 145
MB 31PG 207

(107) RESERVE DEVELOPMENT CO., LLC
DB 2021PG 1343
MB 24 PG 344

-L-
PI Sta 237+18.05
Δ = 17° 39' 46.9" (RT)
D = 2° 36' 15.7"
L = 678.21'
T = 341.82'
R = 2,200.00'
SE = 0.05
Runoff = 300'

SPECIAL CONTROL OF ACCESS DESIGNATION

C A — *NO REVISIONS SHALL BE MADE TO THE CONTROL OF ACCESS WITHOUT APPROVAL OF NCDOT, FHWA, USEPA AND NCDENR PER AGREEMENT AND USACE PER PERMIT CONDITION.*

NOTES:

1) FOR -L- PROFILE SEE SHEETS 34 AND 35.
2) PAVED SHOULDER TAPERS ARE 8:1 UNLESS OTHERWISE NOTED.
3) SEE SHEET 2-J FOR 50' TRANSITION FROM 1'-6" C&G TO 2'-9" C&G (-L- STA. 228+91.24 RT., -L- STA. 233+76.23 LT., AND -L- STA. 245+50.44 LT.).

MATCH TO SHEET U0-9

PROJECT REFERENCE NO.	SHEET NO.
R-2245	U0-9

UTILITIES BY OTHERS

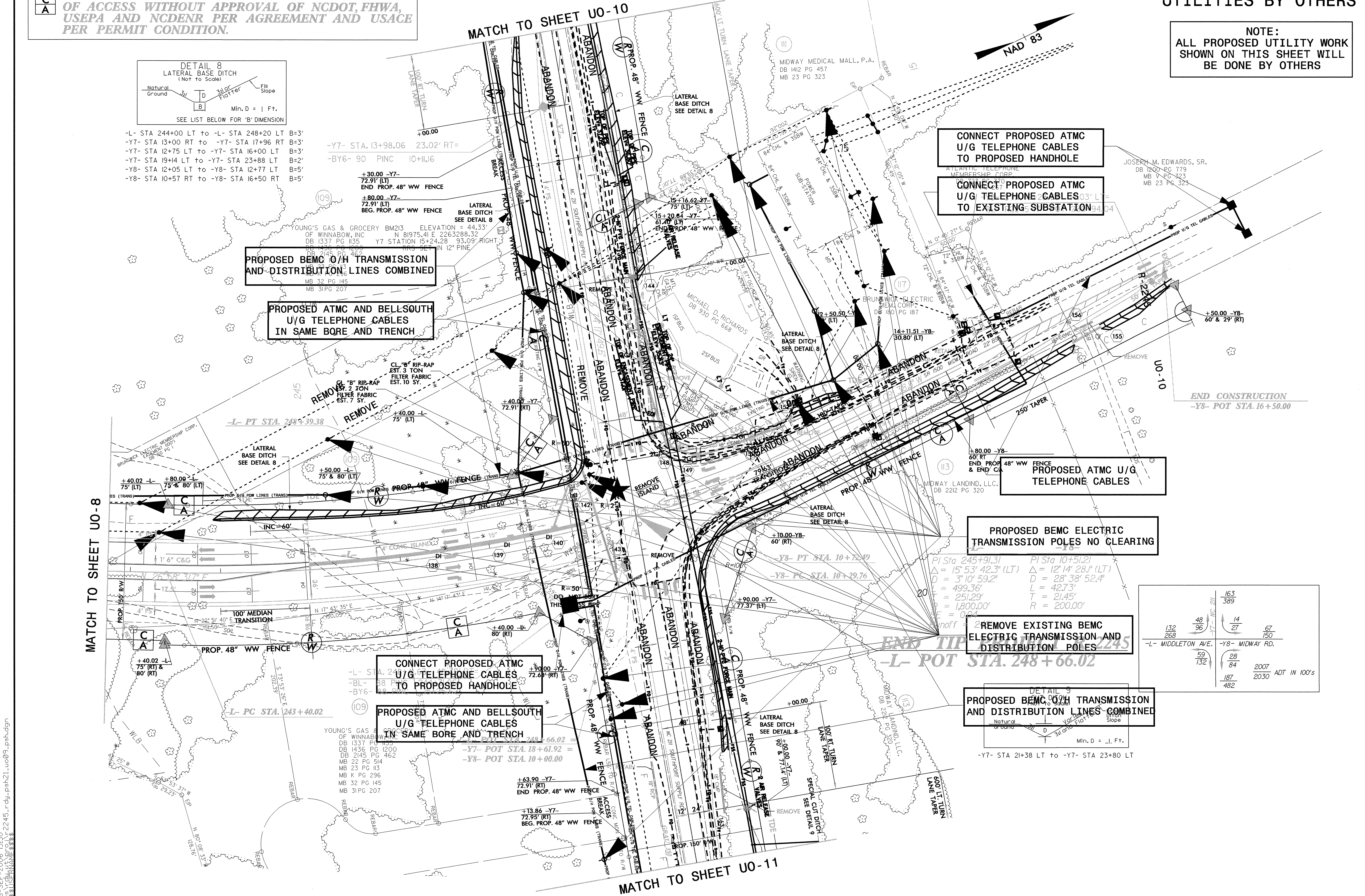
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

SPECIAL CONTROL OF ACCESS DESIGNATION

C/A *NO REVISIONS SHALL BE MADE TO THE CONTROL OF ACCESS WITHOUT APPROVAL OF NCDOT, FHWA, USEPA AND NCDENR PER AGREEMENT AND USACE PER PERMIT CONDITION.*

DETAIL 8
LATERAL BASE DITCH
(Not to Scale)
SEE LIST BELOW FOR 'B' DIMENSION

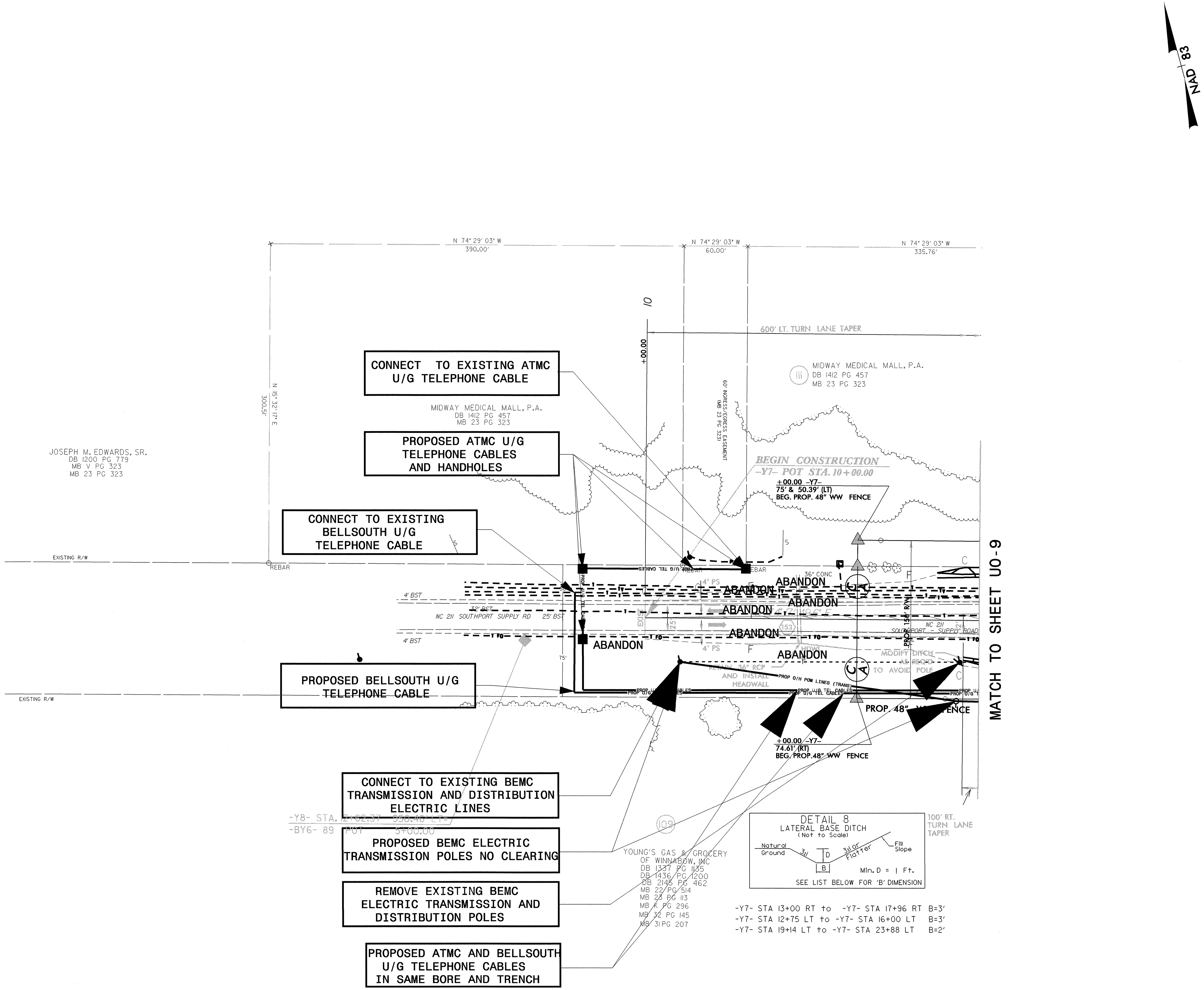
-L- STA 244+00 LT to -L- STA 248+20 LT B=3'
-Y7- STA 13+00 RT to -Y7- STA 17+96 RT B=3'
-Y7- STA 12+75 LT to -Y7- STA 16+00 LT B=3'
-Y7- STA 19+14 LT to -Y7- STA 23+88 LT B=2'
-Y8- STA 12+05 LT to -Y8- STA 12+77 LT B=5'
-Y8- STA 10+57 RT to -Y8- STA 16+50 RT B=5'



PROJECT REFERENCE NO.	SHEET NO.
R-2245	UO-10

UTILITIES BY OTHERS

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



5/14/99

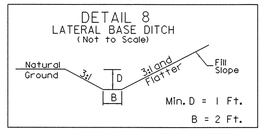
28-SEP-2006 13:58

5/14/99

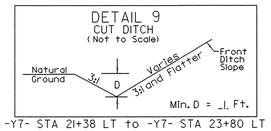
PROJECT REFERENCE NO.	SHEET NO.
R-2245	U0-11

UTILITIES BY OTHERS

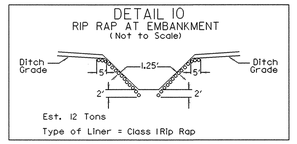
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS



-Y7- STA 19+14 LT to -Y7- STA 21+38 LT



-Y7- STA 21+38 LT to -Y7- STA 23+80 LT
-Y7- STA 24+10 LT to -Y7- STA 27+75 LT

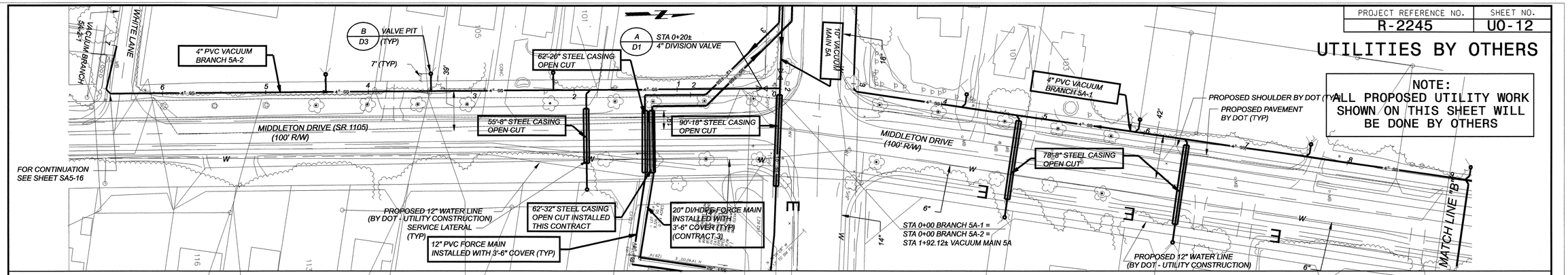


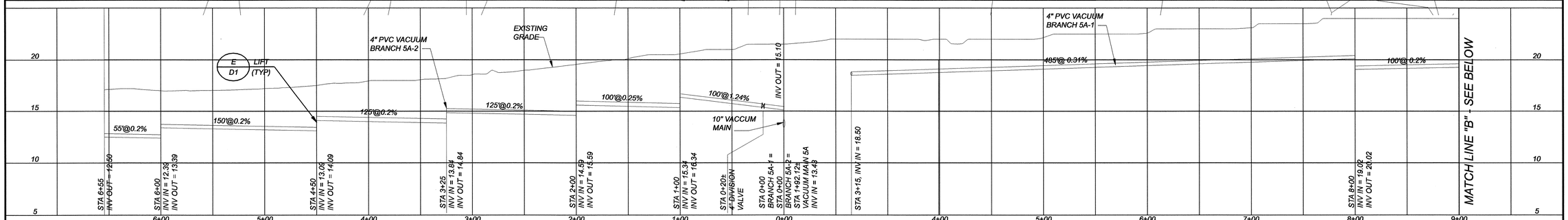
-Y7- STA 23+98 LT

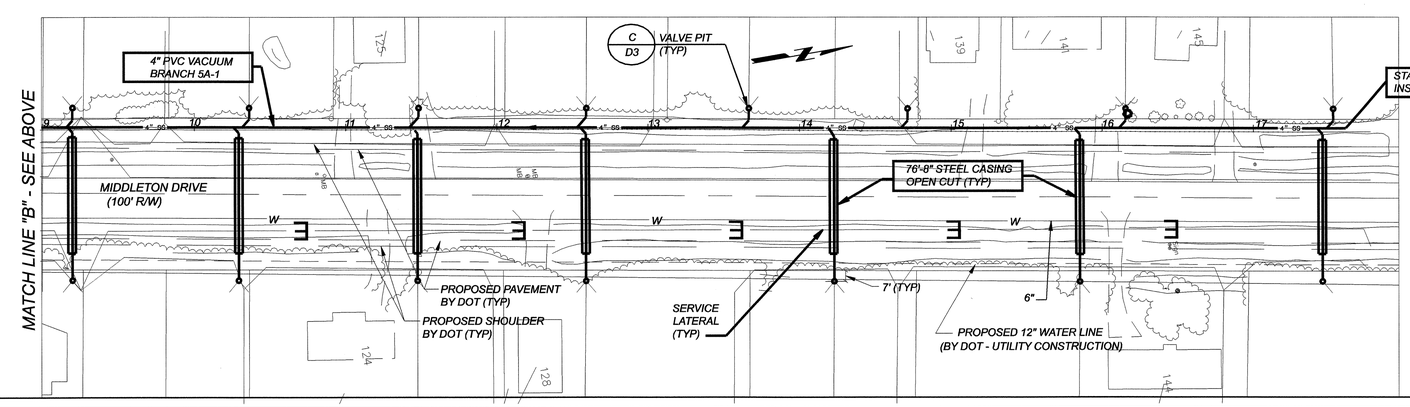
PROJECT REFERENCE NO.	SHEET NO.
R-2245	U0-12

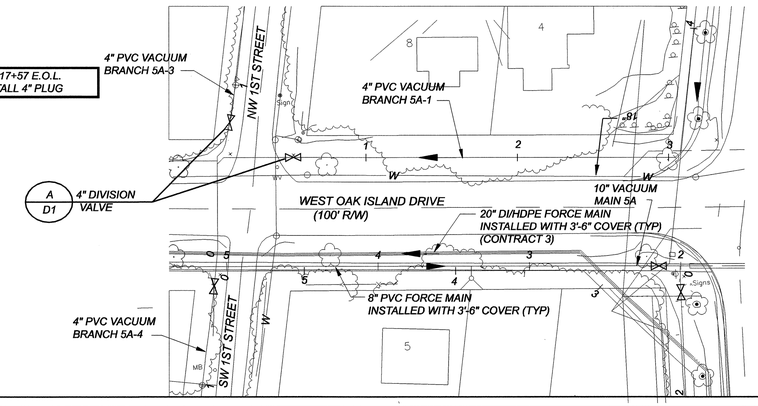
UTILITIES BY OTHERS

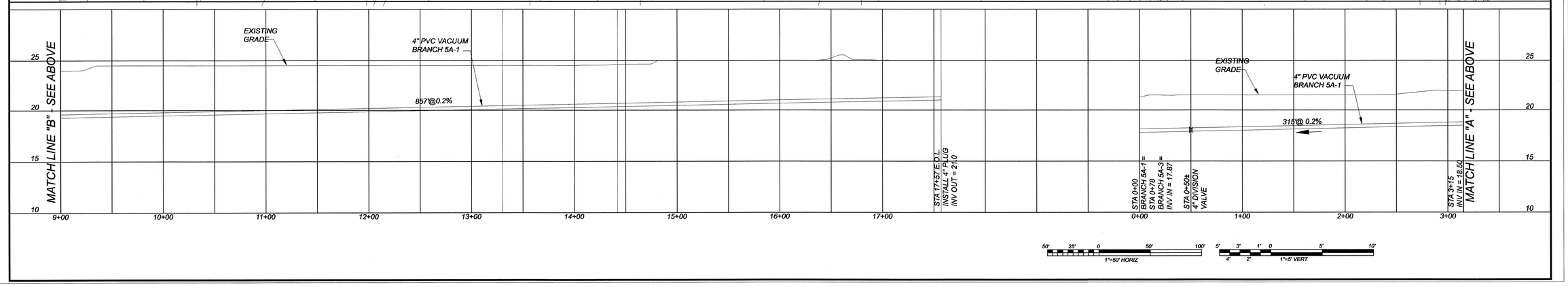
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS











1"=50' HORIZ

1"=5' VERT

PROJECT REFERENCE NO.	SHEET NO.
R-2245	U0-13

UTILITIES BY OTHERS

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

MATCH LINE - SEE BELOW

VACUUM BRANCH 5A-7 | NW 3RD STREET | STA. 8+18± 10" DIVISION VALVE | VACUUM BRANCH 5A-5 | NW 2ND STREET | TYPE "A" INTERSECTION (TYP) F D2 | VACUUM BRANCH 5A-3 | NW 1ST STREET | STA 2+14± 10" DIVISION VALVE | VACUUM BRANCH 5A-2 | MIDDLETON DRIVE | EAST OAK ISLAND DRIVE (SR 1190) (100' R/W)

8" PVC FORCE MAIN INSTALLED WITH 3'-6" COVER (TYP)

WEST OAK ISLAND DRIVE (100' R/W)

20" DI/HDPE FORCE MAIN INSTALLED WITH 3'-6" COVER (TYP) (CONTRACT 3)

10" VACUUM MAIN 5A

10" VACUUM MAIN 5B

18" MIN | 24" | VACUUM BRANCH 5A-8 | SW 3RD STREET | 10" VACUUM MAIN 5A | VACUUM BRANCH 5A-6 | SW 2ND STREET | VACUUM BRANCH 5A-4 | SW 1ST STREET | B D3 VALVE PIT (TYP) | 12" PVC FORCE MAIN 5A | VACUUM BRANCH 5A-2 | MIDDLETON DRIVE | 90'-20" STEEL CASING (OPEN CUT) | VACUUM STATION NO. 5 | VACUUM STATION 5 AND MIDDLETON LIFT STATION

STA. 11+10.60± VACUUM MAIN 5A =
STA. (0-17.52) BRANCH 5A-7 =
STA. 0+17.52 BRANCH 5A-8

STA. 8+08.50± VACUUM MAIN 5A =
STA. (0-17.69) BRANCH 5A-5 =
STA. 0+17.69 BRANCH 5A-6

STA. 5+07.26± VACUUM MAIN 5A =
STA. (0-20.81) BRANCH 5A-5 =
STA. 0+20.81 BRANCH 5A-6

MATCH LINE - SEE BELOW

F D1 LIFT (TYP) | 100'@0.2% | 400'@0.2% | EXISTING GRADE | 10" 450'@0.2% | 300' @ 0.72% | 90'-20" STEEL CASING (OPEN CUT)

STA. 11+50
VALVE IN = 12.35
INV OUT = 13.85

STA. 11+10.60±
VACUUM MAIN 5A =
STA. (0-17.52)
BRANCH 5A-7 =
STA. 0+17.52
BRANCH 5A-8
INV IN = 15.00

STA. 8+08.50±
VACUUM MAIN 5A =
STA. (0-17.69)
BRANCH 5A-5 =
STA. 0+17.69
BRANCH 5A-6
INV IN = 15.00

STA 7+50
INV IN = 13.05
INV OUT = 14.55

STA. 5+07.26±
VACUUM MAIN 5A =
STA. (0-20.81)
BRANCH 5A-5 =
STA. 0+20.81
BRANCH 5A-6
INV IN = 15.50

STA 3+00
INV IN = 13.65

STA. 2+14±
8" DIVISION VALVE

STA 1+95

STA 1+06

STA. 2+01±
VACUUM MAIN 6B =
STA. (0+00)
BRANCH 5A-1 =
STA. 0+00
BRANCH 5A-2
INV IN = 15.10

STA. 0+00 VACUUM MAIN 5A =
INV IN 11.50

12+00 | 11+00 | 10+00 | 9+00 | 8+00 | 7+00 | 6+00 | 5+00 | 4+00 | 3+00 | 2+00 | 1+00

MATCH LINE SA5-3

VACUUM BRANCH 5A-17 | NW 8TH STREET | STA 26+23± 8" DIVISION VALVE | VACUUM BRANCH 5A-15 | NW 7TH STREET | STA 20+23± 8" DIVISION VALVE | VACUUM BRANCH 5A-13 | NW 6TH STREET | G D1 DIVISION VALVE (TYP) | VACUUM BRANCH 5A-11 | NW 5TH STREET | TYPE "A" INTERSECTION (TYP) F D2 | STA. 14+22± 10" DIVISION VALVE | VACUUM BRANCH 5A-9 | NW 4TH STREET

6" PVC FORCE MAIN INSTALLED WITH 3'-6" COVER (TYP)

WEST OAK ISLAND DRIVE (100' R/W)

8" PVC FORCE MAIN INSTALLED WITH 3'-6" COVER (TYP)

STA 17+25± 8" DIVISION VALNE

20" DI/HDPE FORCE MAIN INSTALLED WITH 3'-6" COVER (TYP)(CONTRACT 3)

8" VACUUM MAIN 5A

VACUUM BRANCH 5A-18 | SW 8TH STREET | VACUUM BRANCH 5A-16 | SW 7TH STREET | VACUUM BRANCH 5A-14 | SW 6TH STREET | VACUUM BRANCH 5A-12 | SW 5TH STREET | 10" VACUUM MAIN 5A | VACUUM BRANCH 5A-10 | SW 4TH STREET | 12" PVC FORCE MAIN INSTALLED WITH 3'-6" COVER (TYP)

STA. 26+13.44± VACUUM MAIN 5A =
STA. (0-17.52) BRANCH 5A-17 =
STA. 0+17.52 BRANCH 5A-18

STA. 23+13.05± VACUUM MAIN 5A =
STA. (0-17.28) BRANCH 5A-15 =
STA. 0+17.28 BRANCHES 5A-16

STA. 20+13.16± VACUUM MAIN 5A =
STA. (0-16.82) BRANCH 5A-13 =
STA. 0+16.82 BRANCHES 5A-14

STA. 17+15.22± VACUUM MAIN 5A =
STA. (0-19.43) BRANCH 5A-11 =
STA. 0+19.43 BRANCHES 5A-12

STA. 14+12.84± VACUUM MAIN 5A =
STA. (0-18.79) BRANCH 5A-9 =
STA. 0+18.79 BRANCHES 5A-10

MATCH LINE SA5-3

STA 26+23± 8" DIVISION VALVE | EXISTING GRADE | 8" PVC | 10" PVC | STA 17+25± 8" DIVISION VALVE | STA 14+27± 10" DIVISION VALVE | 400'@0.2% | 8" 600'@0.2% | 10" 400'@0.2%

STA. 26+13.44±
VACUUM MAIN 5A =
STA. (0-17.52)
BRANCH 5A-17 =
STA. 0+17.52
BRANCH 5A-18
INV IN = 13.47

STA. 23+13.05±
VACUUM MAIN 5A =
STA. (0-17.28)
BRANCH 5A-15 =
STA. 0+17.28
BRANCHES 5A-16
INV IN = 13.50

STA 22+50
INV IN = 11.55
INV OUT = 13.05

STA. 20+13.16±
VACUUM MAIN 5A =
STA. (0-16.82)
BRANCH 5A-13 =
STA. 0+16.82
BRANCHES 5A-14
INV IN = 14.00

STA. 17+15.22±
VACUUM MAIN 5A =
STA. (0-19.43)
BRANCH 5A-11 =
STA. 0+19.43
BRANCHES 5A-12
INV IN = 13.20

STA 16+50
INV IN = 11.85
INV OUT = 13.35

STA. 14+12.84±
VACUUM MAIN 5A =
STA. (0-18.79)
BRANCH 5A-9 =
STA. 0+18.79
BRANCHES 5A-10
INV IN = 14.06

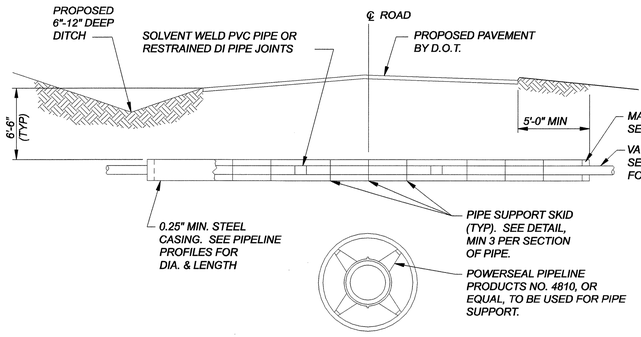
26+00 | 25+00 | 24+00 | 23+00 | 22+00 | 21+00 | 19+00 | 18+00 | 17+00 | 16+00 | 15+00 | 14+00 | 13+00

1"=50' HORIZ | 1"=5' VERT

PROJECT REFERENCE NO.	SHEET NO.
R-2245	U0-14

UTILITIES BY OTHERS

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



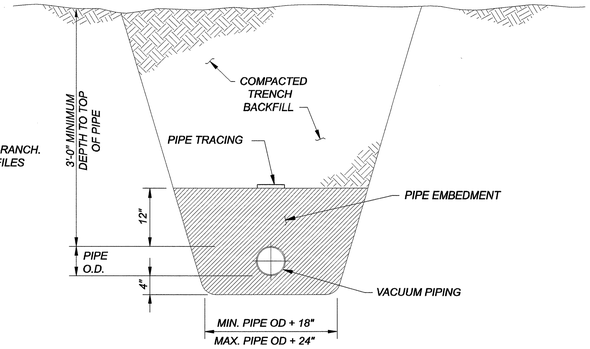
DETAIL
NO SCALE

NOTE:

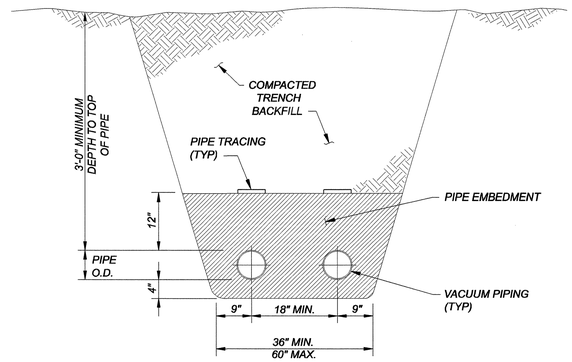
1. ENCASEMENTS SHALL EXTEND FROM DITCH LINE IN ALL SECTIONS, FIVE (5) FEET BEYOND THE TOE OF SLOPES IN FILL SECTIONS, AND TEN (10) FEET BEYOND THE EDGE OF PAVEMENT IN SECTIONS WITH NO DITCH OR FILL AREA.
2. MINIMUM COVER TO TOP OF CASING SHALL BE 3'-6".
3. INSIDE DIAMETER OF CASING PIPE SHALL BE A MINIMUM 4-INCHES GREATER THAN THE OUTSIDE DIAMETER OF THE CARRIER PIPE BELL OR COUPLING.
4. ALL JOINTS FOR DI PIPE WITHIN THE CARRIER PIPE SHALL BE MECHANICAL RESTRAINED JOINTS.

MINIMUM CASING PIPE SCHEDULE	
CARRIER PIPE DIAMETER	CASING PIPE DIAMETER
3"	8"
4"	10"
6"	14"
8"	16"
10"	18"
12"	20"
20"	32"

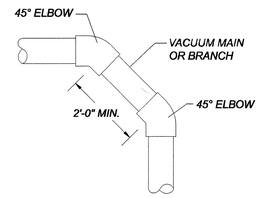
TYPICAL BORE AND JACK OR OPEN CUT WITH CASING DETAIL — A
NO SCALE



TYPICAL TRENCH SECTION — B
NO SCALE



TYPICAL TRENCH SECTION (2-LINE) — C
NO SCALE



CHANGE IN DIRECTION — D
NO SCALE

VACUUM SYSTEM INSTALLATION REQUIREMENTS

LIFTS:

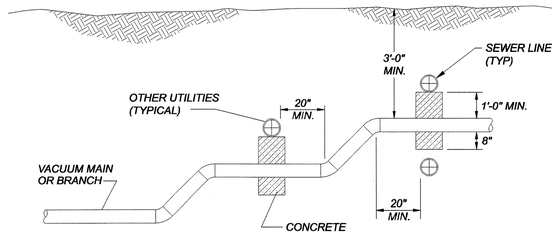
1. MINIMUM SLOPE BETWEEN LIFTS 0.20% X LENGTH OR 0.25 FT. FALL, WHICHEVER IS GREATER (FOR 4" AND LARGER VACUUM LINES).
2. FOR 3" SERVICE LATERALS, MINIMUM SLOPE BETWEEN LIFTS = 0.2% X LENGTH OR 0.20 FEET FALL, WHICHEVER IS GREATER.
3. MINIMUM SPACING BETWEEN LIFTS - 20'-0".
4. MAXIMUM ELEVATIONS IN ANY ONE LIFT - 3'-0".

CROSSOVER CONNECTIONS (SERVICE LINE OR BRANCH CONNECTION TO MAIN):

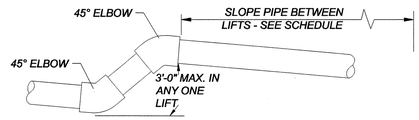
1. MINIMUM SPACING BETWEEN ANY TWO CROSSOVER CONNECTIONS - 5'-0".
2. MINIMUM DISTANCE FROM TOP OF LIFT TO ANY CROSSOVER CONNECTION - 6'-0".
3. ALL CROSSOVER CONNECTIONS MUST ENTER OVER TOP OF THE MAIN (WYE IN VERTICAL POSITION OR 45 DEGREE ALTERNATE ALIGNMENT.)
4. LONG TURN 90° PERMITTED AS PART OF CROSSOVER TO MAIN CONNECTION AT MAIN LINE ONLY.

SERVICE LINES:

1. MINIMUM LENGTH OF PIPING FROM MAIN TO VALVE PIT = 5'-0".
2. SLOPE FROM VALVE PIT TO MAIN--2" OR 0.20% FALL (WHICHEVER IS GREATER).
3. MINIMUM DISTANCE FROM VALVE PIT TO LIFT IN SERVICE LINE - 5'-0".
4. MINIMUM DISTANCE FROM LIFT IN SERVICE LINE TO CROSSOVER CONNECTION - 5'-0".



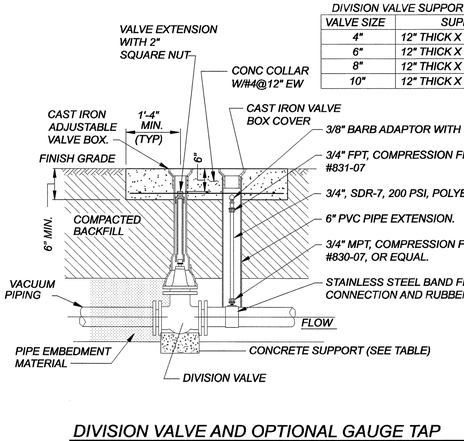
TYPICAL UTILITY CROSSING — E
NO SCALE



SLOPE SCHEDULE		
PIPE DIAMETER	MINIMUM FALL	0.2% OF DISTANCE
3"	0.20 FT	0.2% 100 FT ▲
4"	0.25 FT	0.2% 125 FT ▲
6"	0.25 FT	0.2% 125 FT ▲
8"	0.25 FT	0.2% 125 FT ▲
10"	0.25 FT	0.2% 125 FT ▲

USE WHICHEVER SLOPE IS GREATER BETWEEN LIFTS. ABOVE THIS LENGTH IN ▲ DISTANCE, THE 0.2% SLOPE IS GREATER. ANYTHING SHORTER THAN THIS DISTANCE SHOULD USE MINIMUM FALL INDICATED. WHEN NOT BETWEEN TWO LIFTS, USE 0.2% SLOPE.

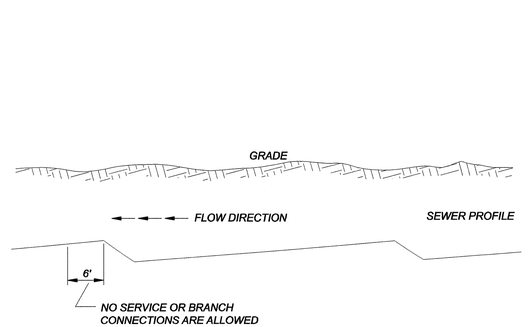
LIFT DETAIL AND SLOPE SCHEDULE — F
NO SCALE



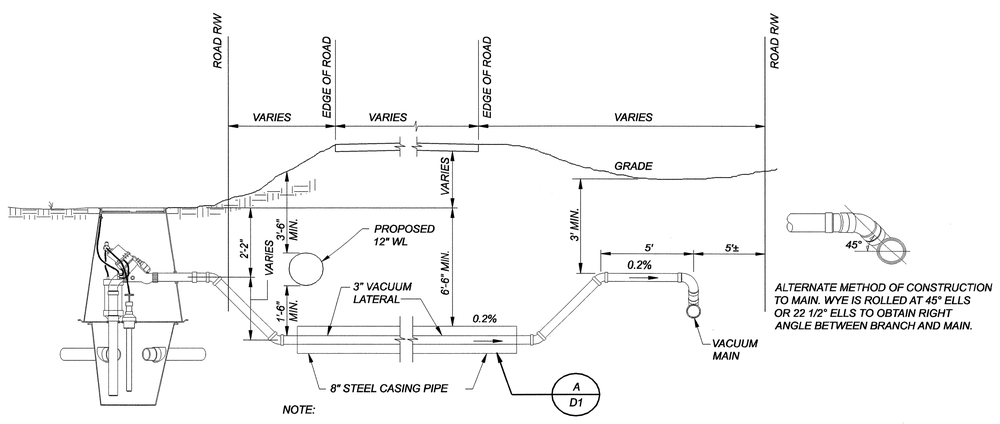
DIVISION VALVE SUPPORT INFORMATION

VALVE SIZE	SUPPORT SIZE
4"	12" THICK X 1'-9" SQUARE
6"	12" THICK X 1'-9" SQUARE
8"	12" THICK X 1'-9" SQUARE
10"	12" THICK X 1'-9" SQUARE

DIVISION VALVE AND OPTIONAL GAUGE TAP — G
NO SCALE



RESTRICTED VACUUM SEWER CONNECTIONS — H
NO SCALE

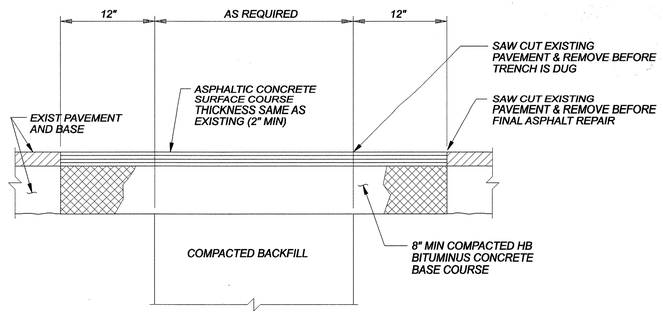


NOTE:

1. FALL BETWEEN LIFTS SHALL BE IN ACCORDANCE WITH AIRVAC REQUIREMENTS.

ALTERNATE METHOD OF CONSTRUCTION TO MAIN. WYE IS ROLLED AT 45° ELLS OR 22 1/2° ELLS TO OBTAIN RIGHT ANGLE BETWEEN BRANCH AND MAIN.

TYPICAL 3 INCH VACUUM LATERAL CONNECTION W/ CASING PIPE — J
NO SCALE



ROAD REPAIR DETAIL — K
NO SCALE