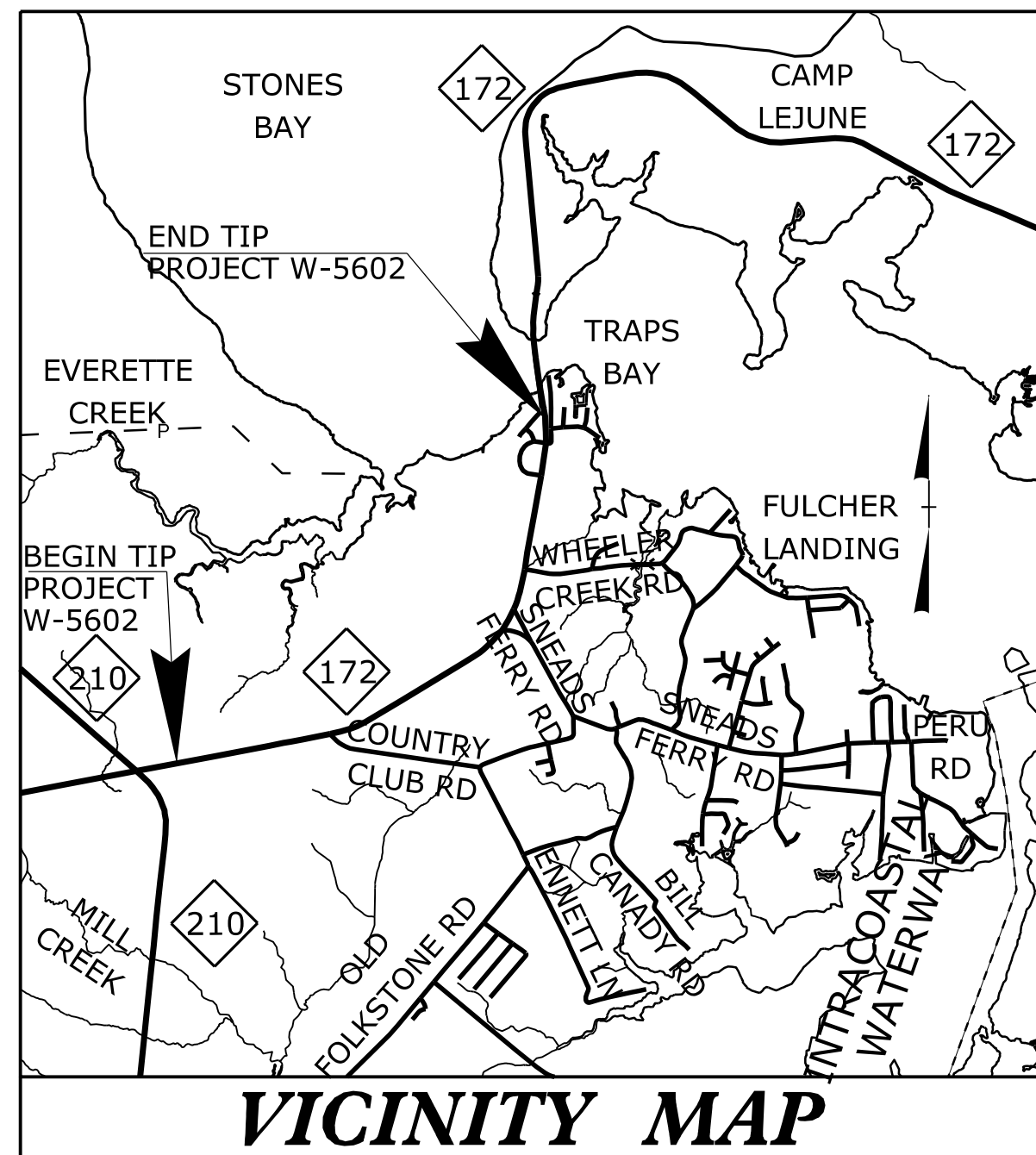


TIP PROJECT: W-5602



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS
ON SLOW COUNTY**

**LOCATION: NC 172 (SNEADS FERRY RD.) FROM NC 210
TO BRIDGE #17**

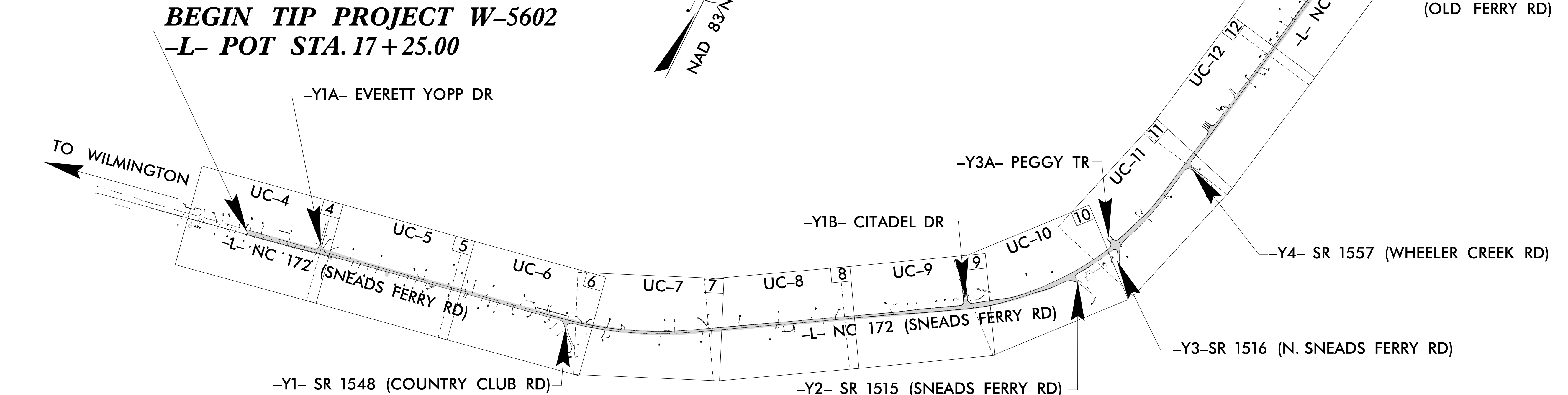
TYPE OF WORK: WATER & SEWER RELOCATIONS

END TIP PROJECT W-5602

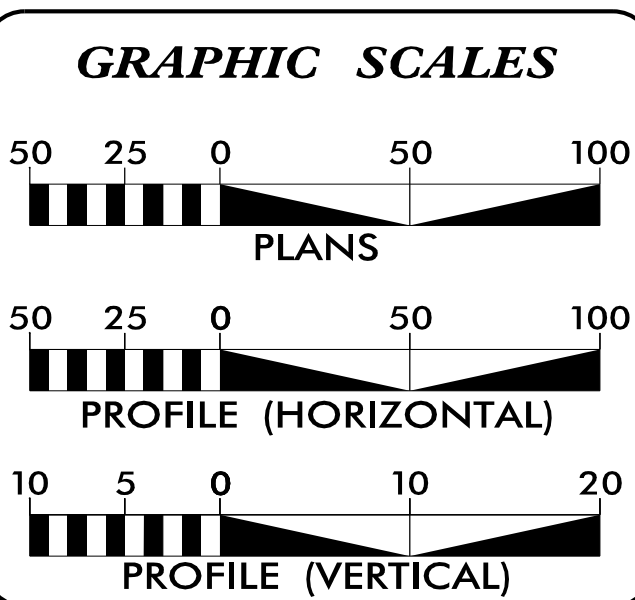
-L- POT STA. 160+00.00

T.I.P. NO.	SHEET NO.
W-5602	UC-1

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	UTILITY SYMBOLOGY
UC-3	NOTES
UC-3A THRU UC-3B	DETAILS
UC-4 THRU UC-14	UTILITY CONSTRUCTION SHEETS
UC-15 THRU UC-26	PROFILE SHEETS

WATER AND SEWER OWNERS ON PROJECT

(A) Onslow Water & Sewer Authority (ONWASA)

PREPARED IN THE OFFICE OF:

HINDE ENGINEERING
License No. C-2639
401 Harrison Oaks Blvd., Suite 145 Cary, NC 27513
Ph. (919) 853-0001

R. B. Wilkins, P.E. UTILITIES PROJECT MANAGER
C. D. Bousquet, P.E. UTILITIES PROJECT ENGINEER
C. M. Wilkins UTILITIES PROJECT DESIGNER

SEAL

11/7/2018 3:05:03 PM EST

DIVISION OF HIGHWAYS UTILITIES UNIT
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Chad D. Kimes, P.E. DIVISION CONTACT #1
Kevin G. Bowen, P.E. DIVISION CONTACT #2
Lonny Sleeper DIVISION CONTACT #3
Steve Davis DIVISION CONTACT #4

07-NOV-2018 13:45 S:\Server_Files\PROJECTS\2016\A20161002.00_CALYX_W-5602_Sneads Ferry Road\Design\Utilities\Engineering\UC\Proj\W5602_ut_1sh_UC01.psh.dgn

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	REM FH
Water Meter	
Relocate Water Meter	
Remove Water Meter	REM WM
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

NOTE
PAY ITEM


EXISTING UTILITIES SYMBOLS

Power Pole		*Underground Power Line	
Telephone Pole		*Underground Telephone Cable	
Joint Use Pole		*Underground Telephone Conduit	
Utility Pole		*Underground Fiber Optics Telephone Cable	
Utility Pole with Base		*Underground TV Cable	
H-Frame Pole		*Underground Fiber Optics TV Cable	
Power Transmission Line Tower		*Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		*Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		*Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		*Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
CATV Pedestal		SUE Test Hole	
Gas Valve		Water Meter	
Gas Meter		Water Valve	
Located Miscellaneous Utility Object		Fire Hydrant	
Abandoned According to Utility Records	AATUR	Sanitary Sewer Cleanout	
End of Information	E.O.I.		

*For Existing Utilities
Utility Line Drawn from Record (Type as Shown)
Designated Utility Line (Type as Shown)

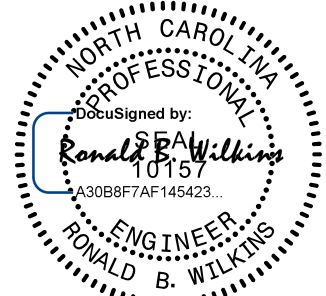
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 REV: 2/1/2012

UTILITY CONSTRUCTION



License No. C-2639
401 Harrison Oaks Blvd., Suite 145 Cary, NC 27513

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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-3
DESIGNED BY: RBW	
DRAWN BY: RBW	
CHECKED BY: CLS	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	11/7/2018 3:05:03 PM EST
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018, AND THE ONSLOW WATER AND SEWER AUTHORITY (ONWASA) MANUAL OF STANDARDS, SPECIFICATIONS AND DETAILS, LATEST EDITION (MAY 2016). PAYMENT FOR UTILITY ITEMS SHOWN ON THESE PLANS WILL BE MADE IN ACCORDANCE WITH THE NCDOT STANDARD SPECIFICATIONS OR THE PROJECT SPECIAL PROVISIONS.
2. THE EXISTING UTILITIES BELONG TO ONSLOW WATER & SEWER AUTHORITY (ONWASA). CONTACT PERSON IS MR. DAVID M. MOHR, P.E. - ENGINEERING DIRECTOR.
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

LIST OF STANDARD DRAWINGS

1515.01 WATER METER

UTILITY CONSTRUCTION

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NOT TO SCALE

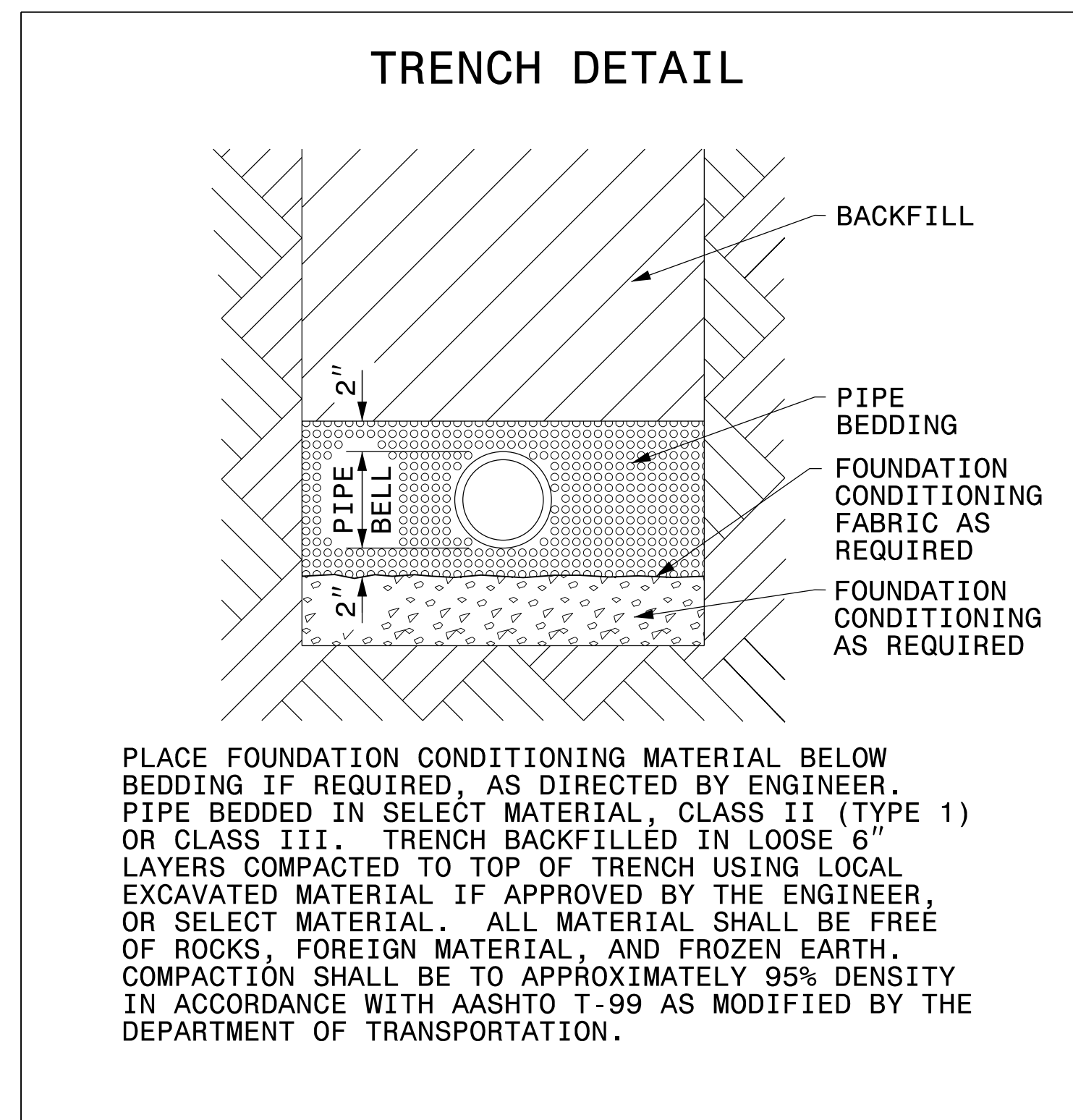


**DOCUMENT NOT CONSIDERED FINAL
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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-3A
DESIGNED BY: RBW	
DRAWN BY: RBW	
CHECKED BY: CLS	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
11/7/2018 PM EST UTILITY CONSTRUCTION PLANS ONLY	

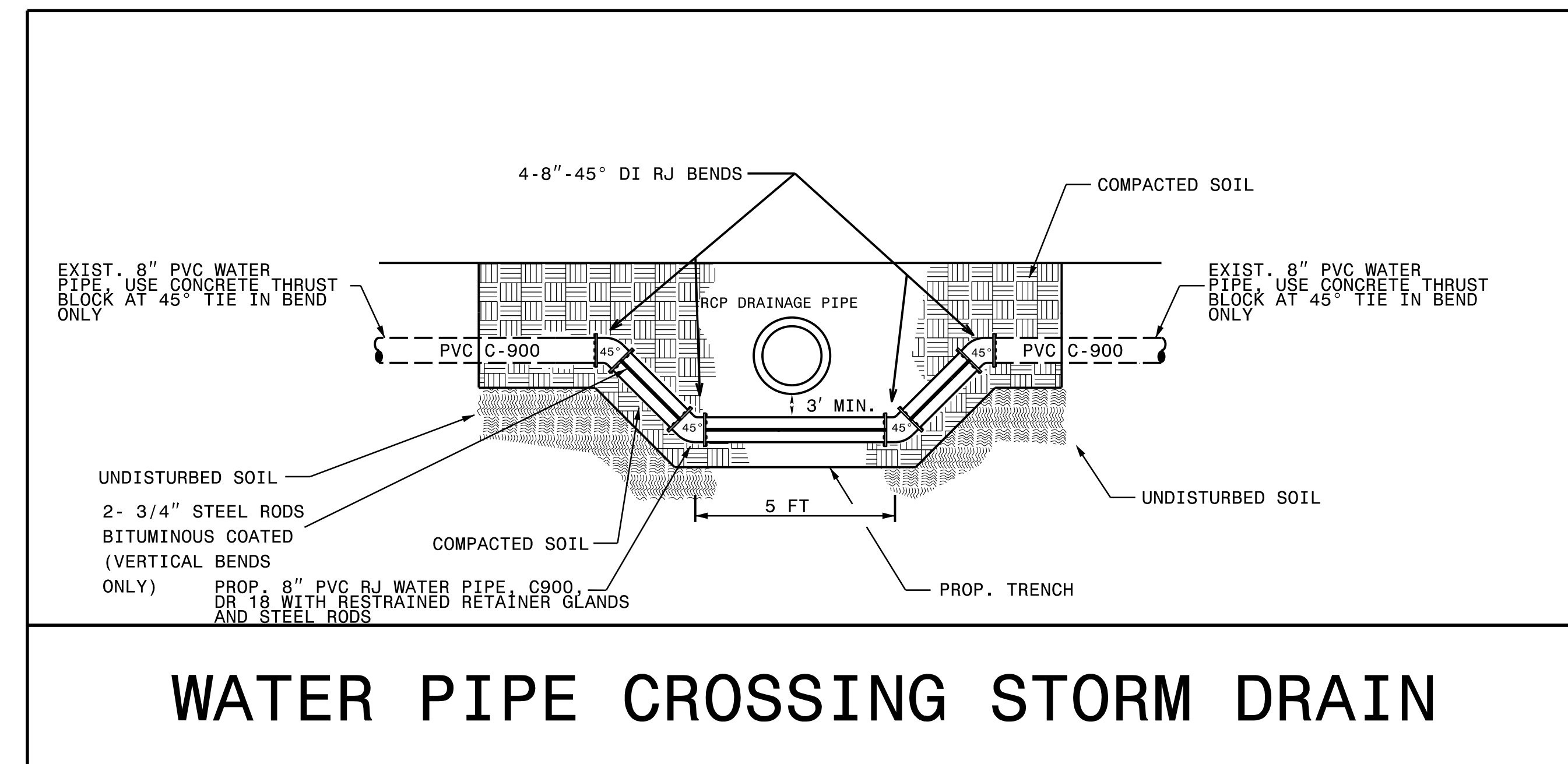
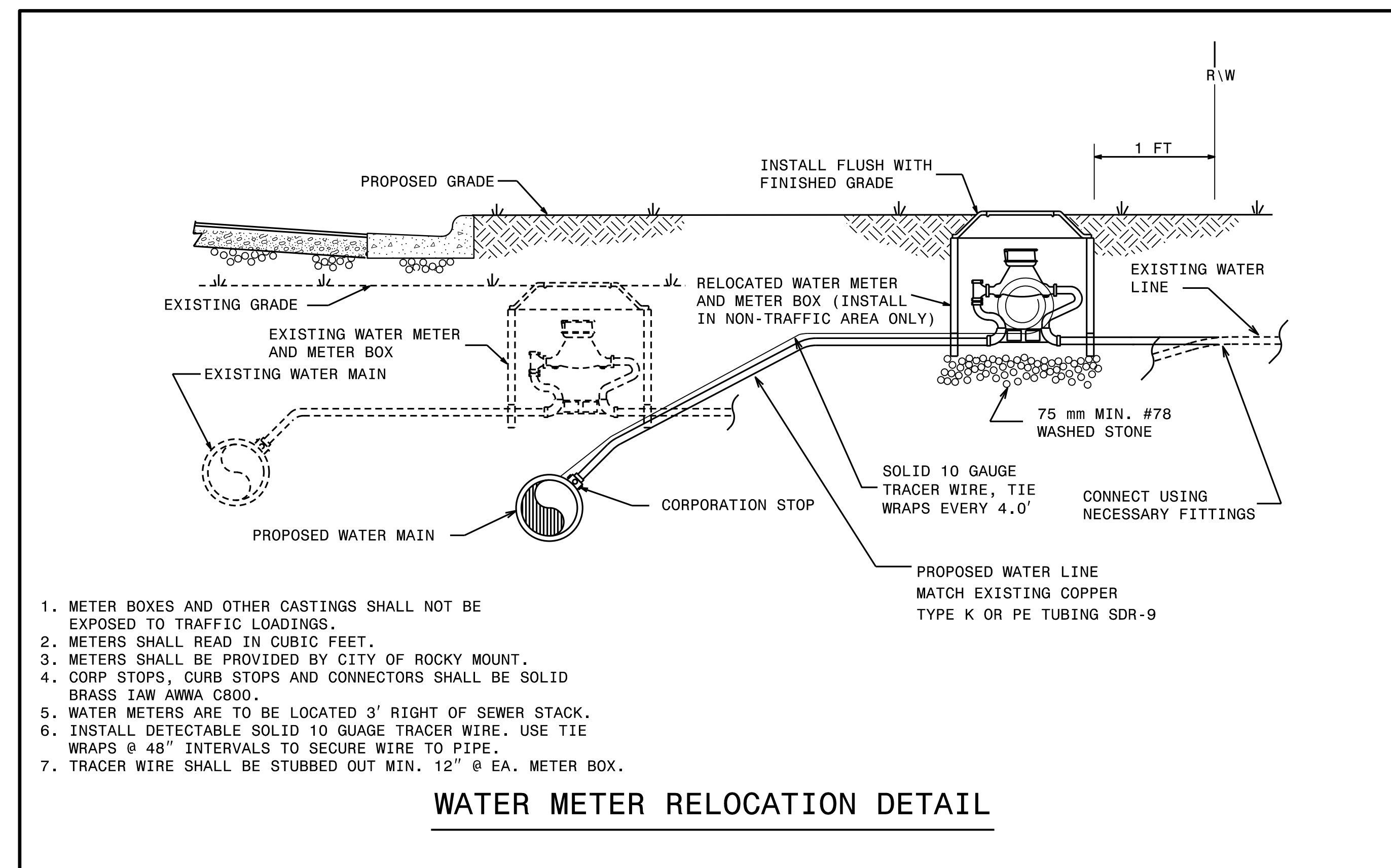
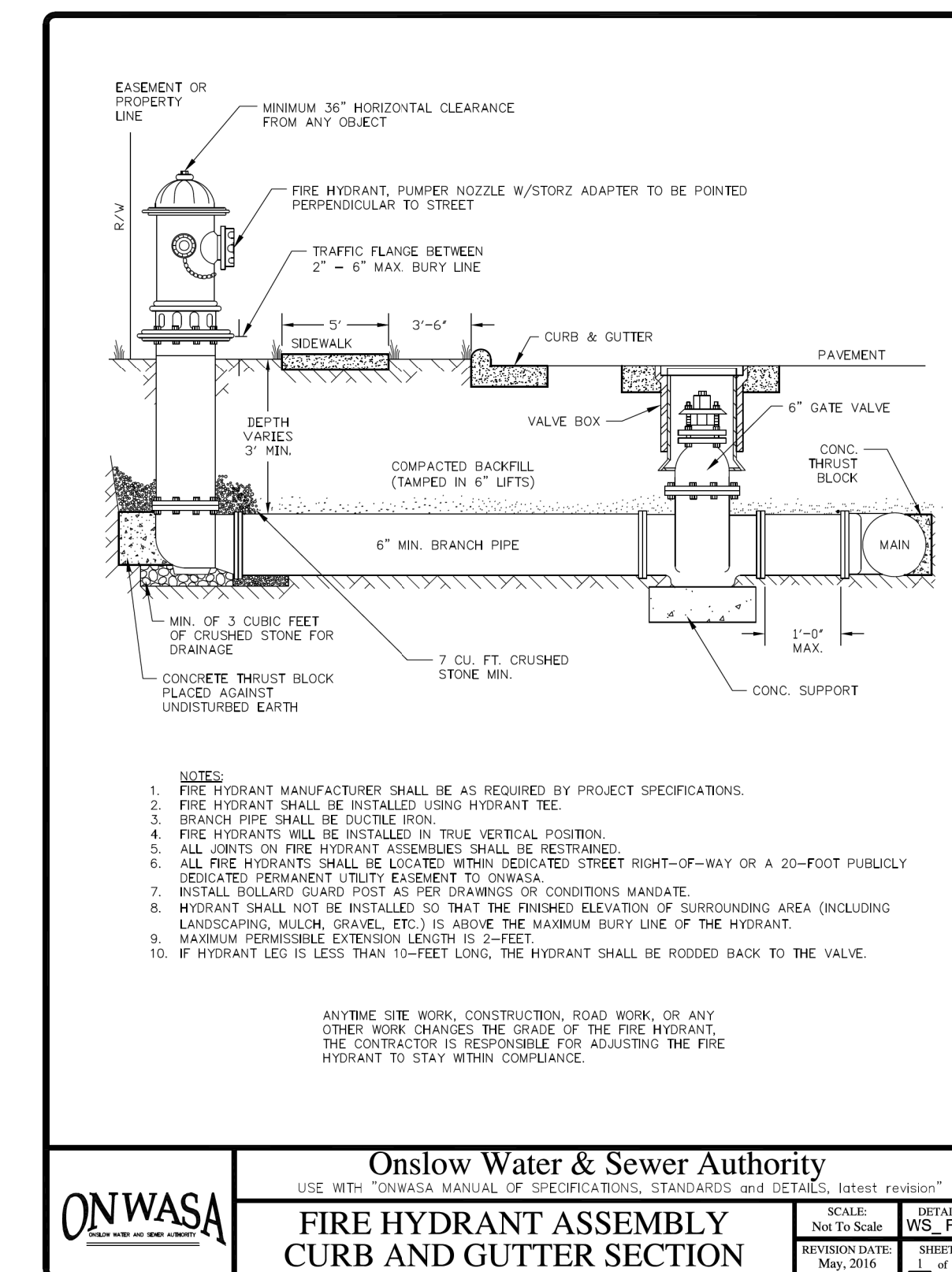
PROJECT TYPICAL DETAILS

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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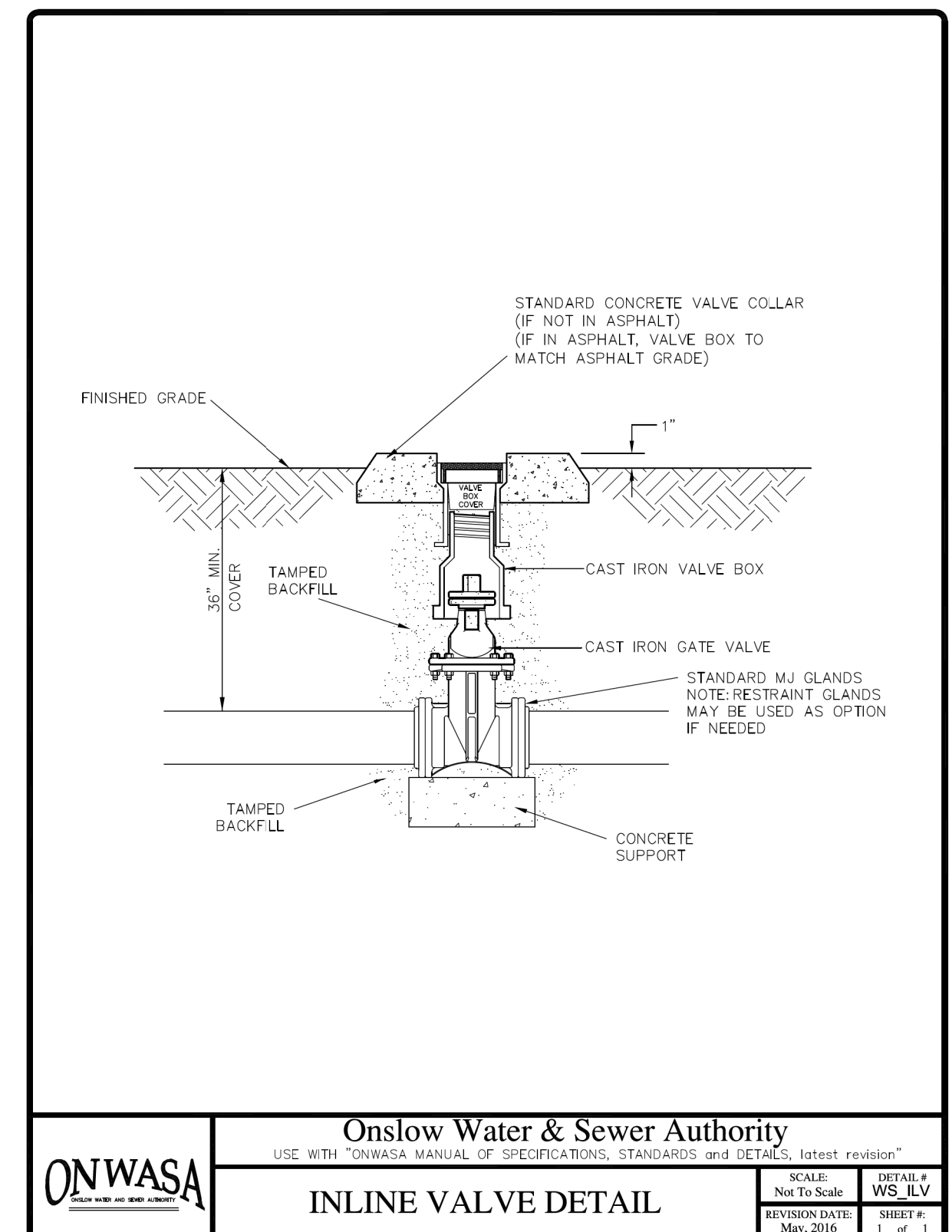
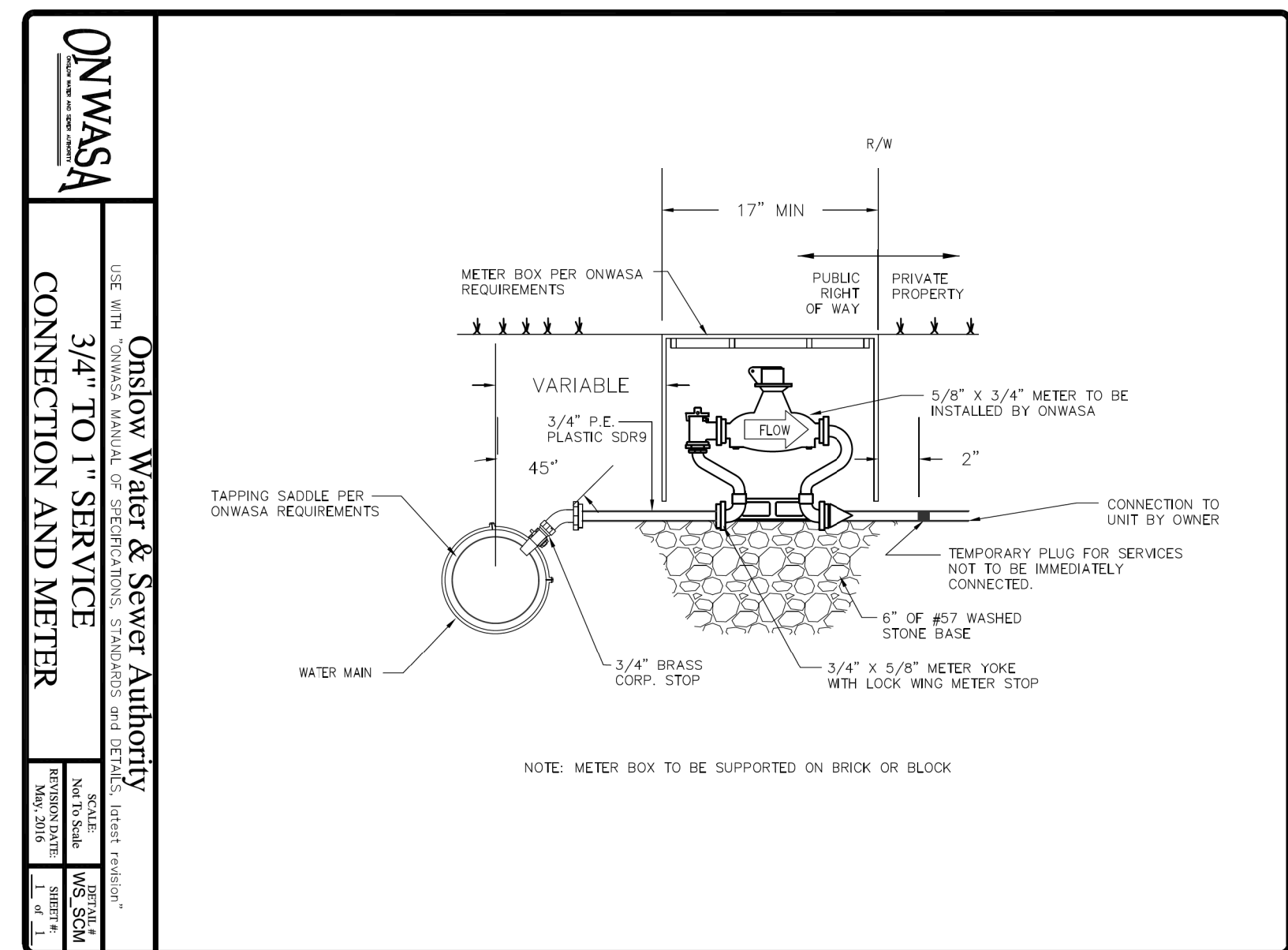
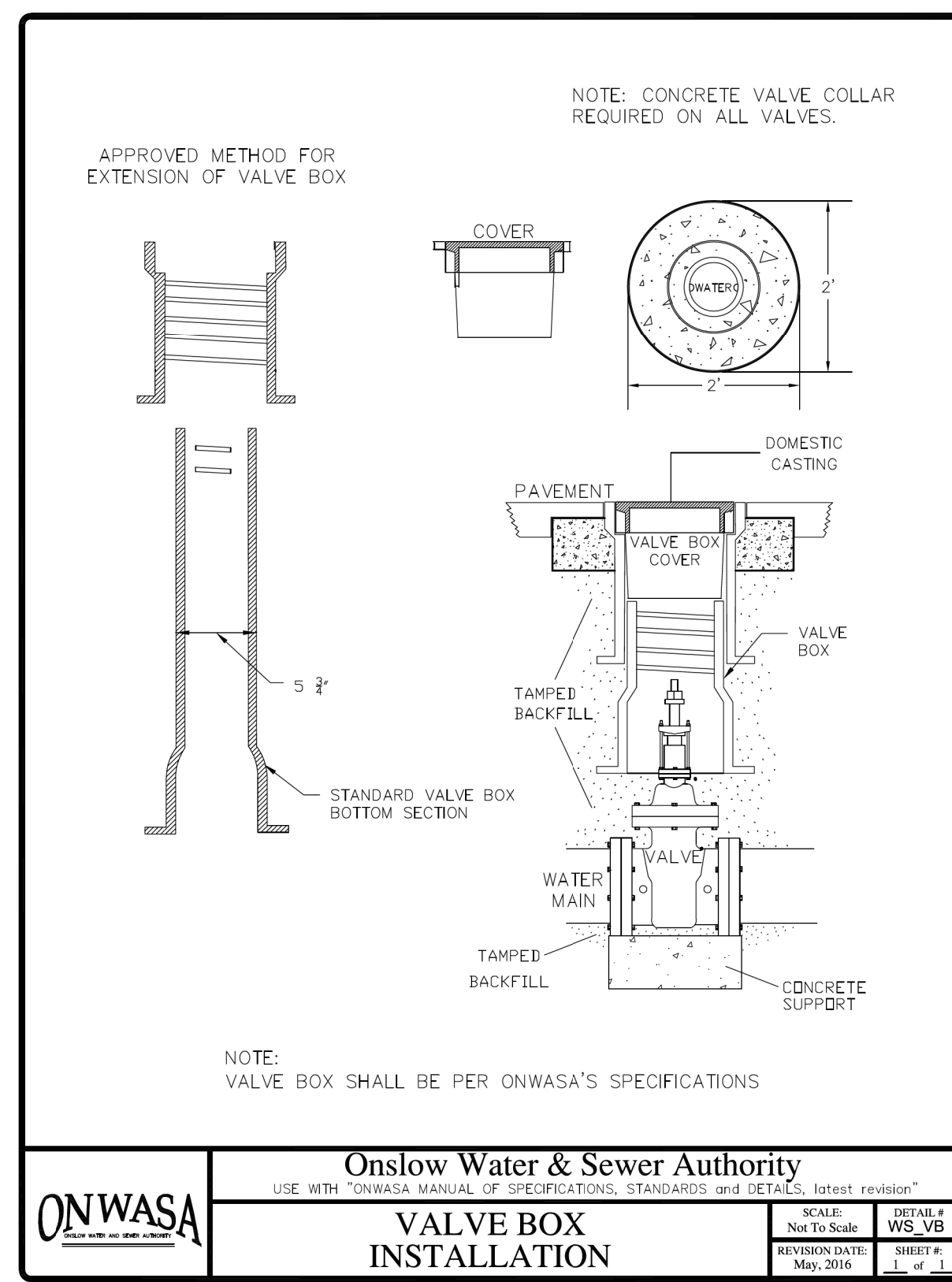
PROJECT TYPICAL DETAILS

HINDE ENGINEERING
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 401 Harrison Oaks Blvd., Suite 145 Cary, NC 27513

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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-3B
DESIGNED BY: RBW	
DRAWN BY: RBW	
CHECKED BY: CLS	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
11/7/2018 3:03:03 PM EST UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

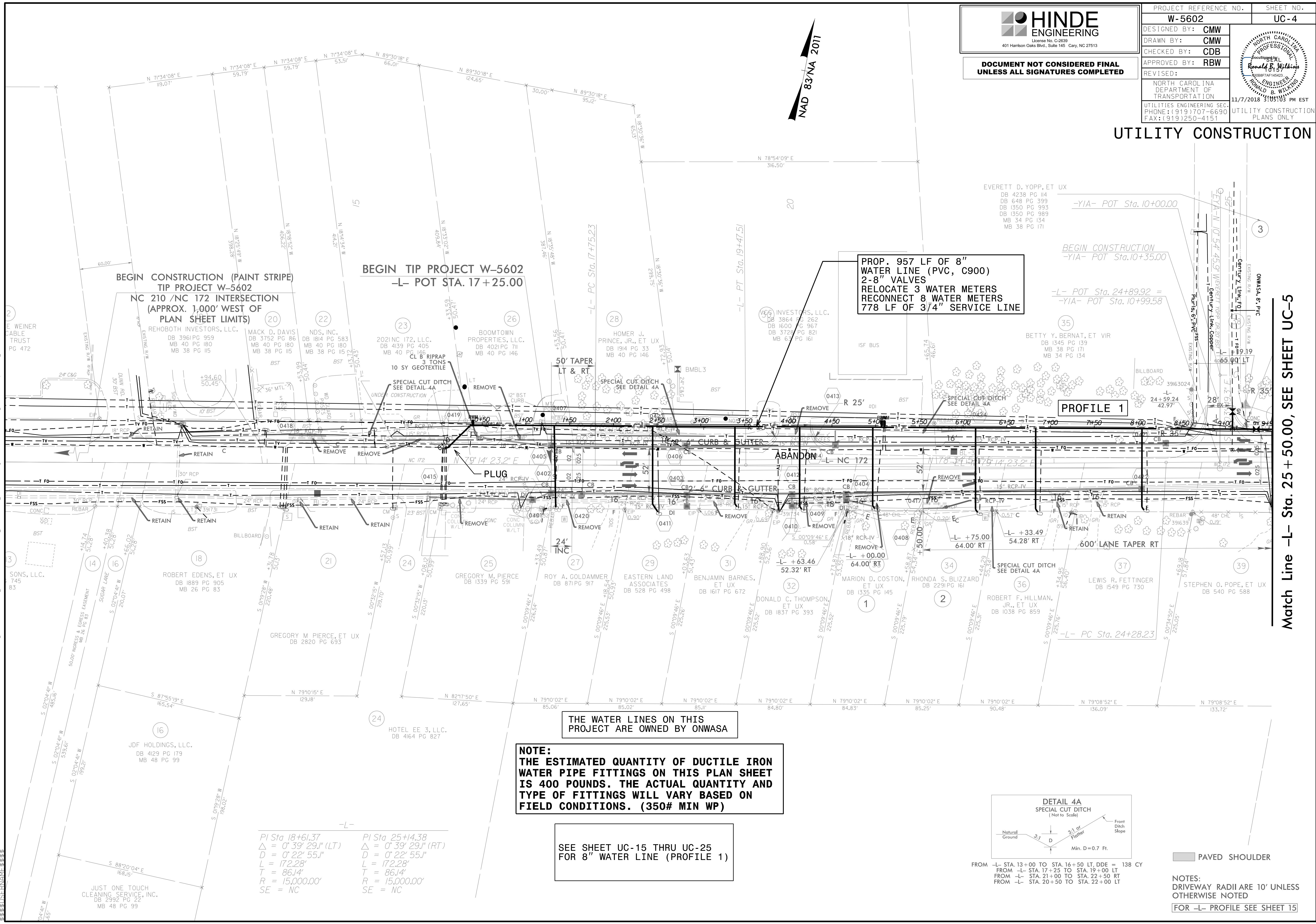


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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-4
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 11/7/2018 3:15:03 PM EST UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



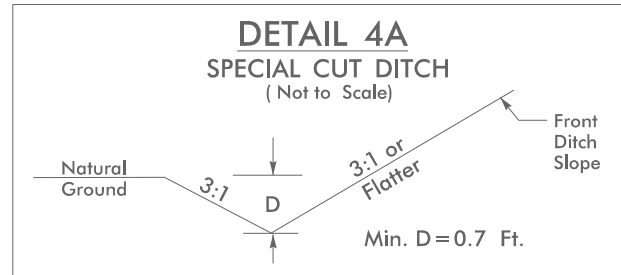
**PROF. 957 LF OF 8" WATER LINE (PVC, C900)
 2-8" VALVES
 RELOCATE 3 WATER METERS
 RECONNECT 8 WATER METERS
 778 LF OF 3/4" SERVICE LINE**

PROFILE 1

THE WATER LINES ON THIS PROJECT ARE OWNED BY ONWSA

**NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 400 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS. (350# MIN WP)**

SEE SHEET UC-15 THRU UC-25 FOR 8" WATER LINE (PROFILE 1)



FROM -L- STA. 13+00 TO STA. 16+50 LT, DDE = 138 CY
 FROM -L- STA. 17+25 TO STA. 19+00 LT
 FROM -L- STA. 21+00 TO STA. 22+50 RT
 FROM -L- STA. 20+50 TO STA. 22+00 LT

PAVED SHOULDER

**NOTES:
 DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
 FOR -L- PROFILE SEE SHEET 15**

PI Sta 18+61.37
 $\Delta = 0' 39' 29.1''$ (LT)
 $D = 0' 22' 55.1''$
 $L = 172.28'$
 $T = 86.14'$
 $R = 15,000.00'$
 SE = NC

PI Sta 25+14.38
 $\Delta = 0' 39' 29.1''$ (RT)
 $D = 0' 22' 55.1''$
 $L = 172.28'$
 $T = 86.14'$
 $R = 15,000.00'$
 SE = NC

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Match Line -L- Sta. 25 + 50.00, SEE SHEET UC-5

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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-5
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 1/7/2018 3:09:03 PM EST
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

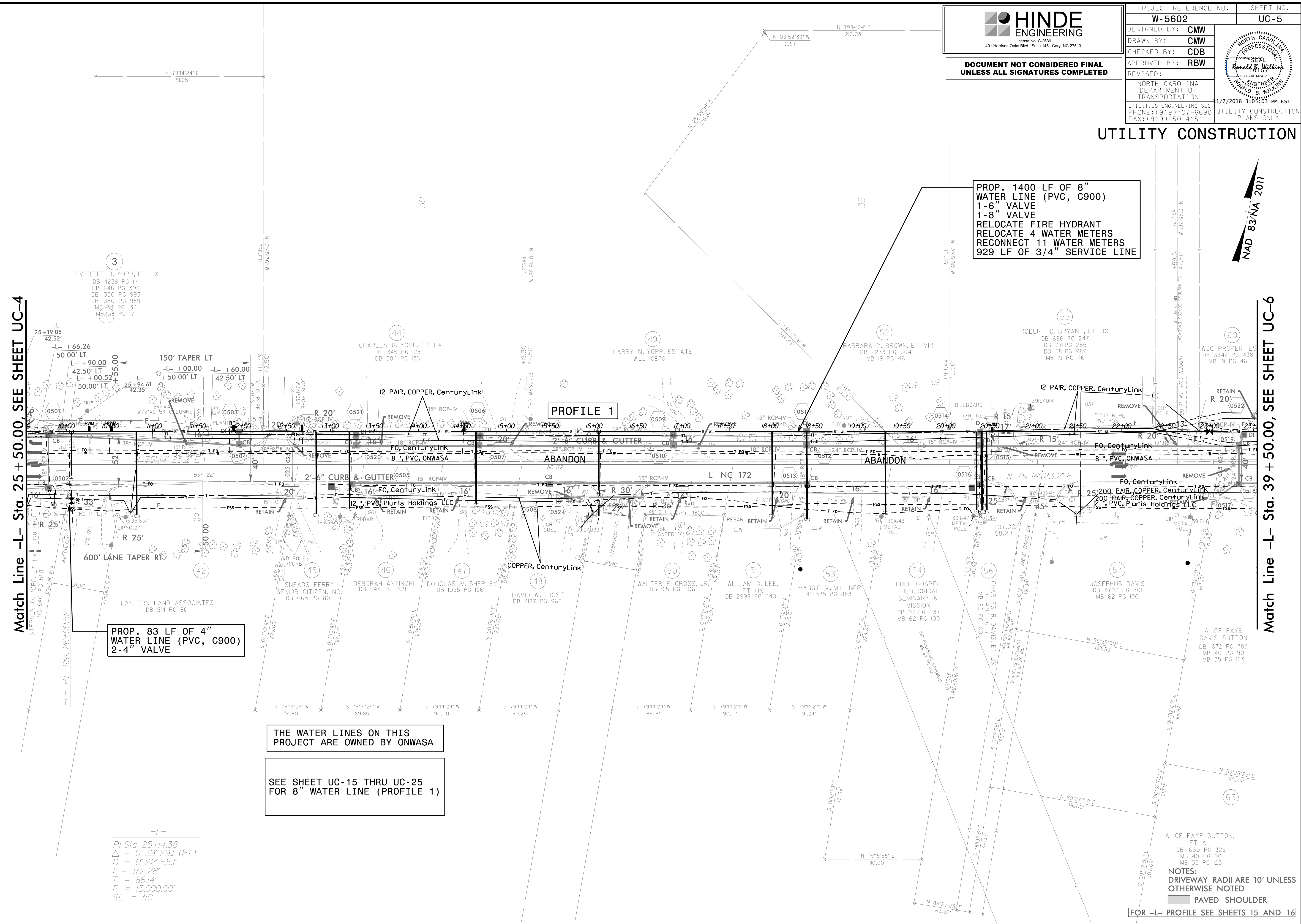
UTILITY CONSTRUCTION

NAD 83/NA 2011

PROP. 1400 LF OF 8" WATER LINE (PVC, C900)
 1-6" VALVE
 1-8" VALVE
 RELOCATE FIRE HYDRANT
 RELOCATE 4 WATER METERS
 RECONNECT 11 WATER METERS
 929 LF OF 3/4" SERVICE LINE

Match Line -L- Sta. 25 + 50.00 SEE SHEET UC-4

Match Line -L- Sta. 39 + 50.00 SEE SHEET UC-6



3
 EVERETT D. YOPP, ET UX
 DB 4238 PG 114
 DB 648 PG 399
 DB 1350 PG 993
 DB 1350 PG 989
 MB 34 PG 134
 MB 438 PG 171

44
 CHARLES G. YOPP, ET UX
 DB 1345 PG 128
 DB 584 PG 135

49
 LARRY N. YOPP, ESTATE
 WILL 10E701

52
 BARBARA Y. BROWN, ET VIR
 DB 2233 PG 604
 MB 19 PG 46

55
 ROBERT D. BRYANT, ET UX
 DB 696 PG 247
 DB 771 PG 255
 DB 781 PG 989
 MB 19 PG 46

60
 W.J.C. PROPERTIES
 DB 3342 PG 438
 MB 19 PG 46

PROP. 83 LF OF 4" WATER LINE (PVC, C900)
 2-4" VALVE

THE WATER LINES ON THIS PROJECT ARE OWNED BY ONWASA

SEE SHEET UC-15 THRU UC-25 FOR 8" WATER LINE (PROFILE 1)

-L-
 PI Sta 25+14.38
 $\Delta = 0^\circ 39' 29.1" (RT)$
 $D = 0^\circ 22' 55.1"$
 $L = 172.28'$
 $T = 86.14'$
 $R = 15,000.00'$
 $SE = NC$

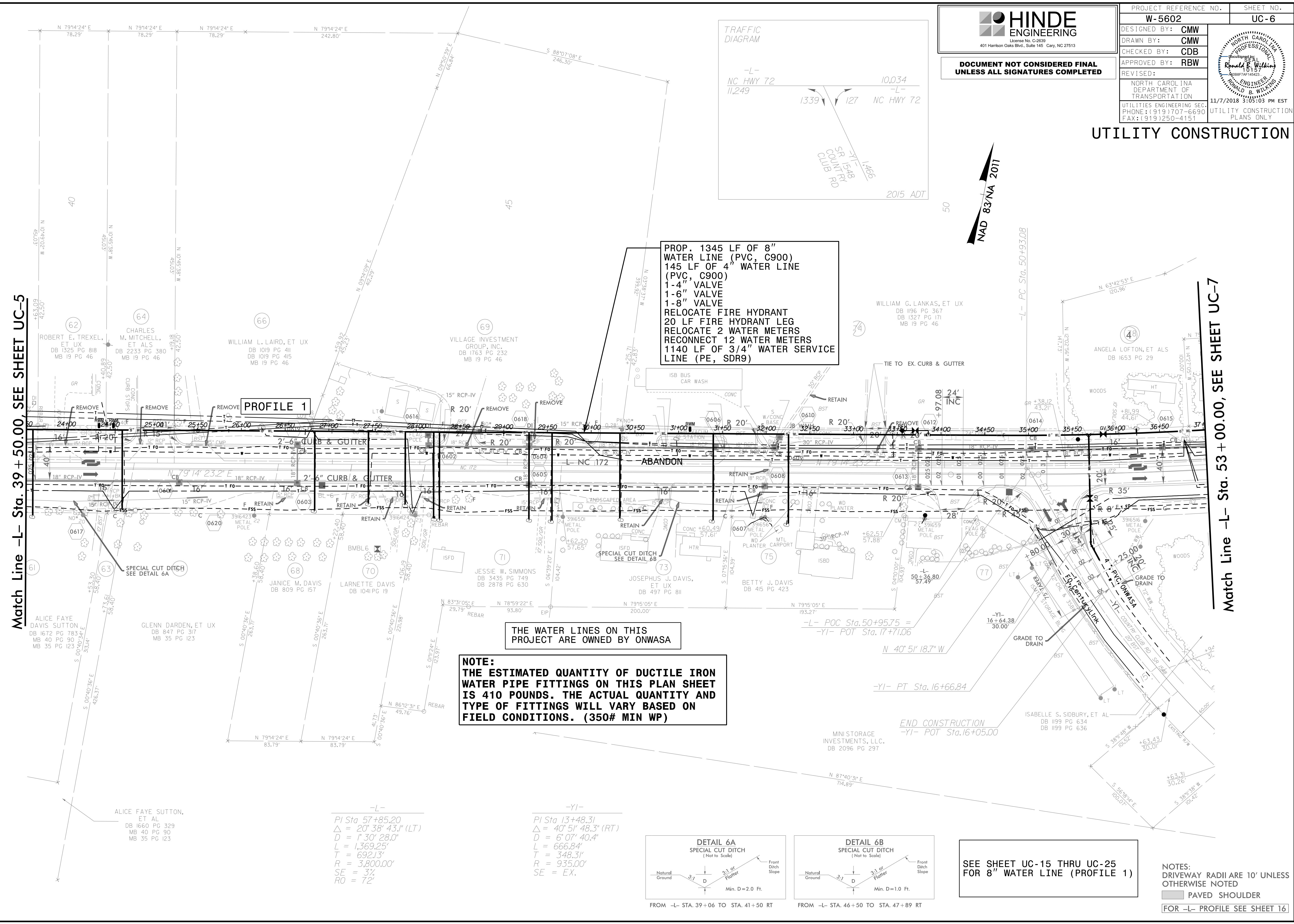
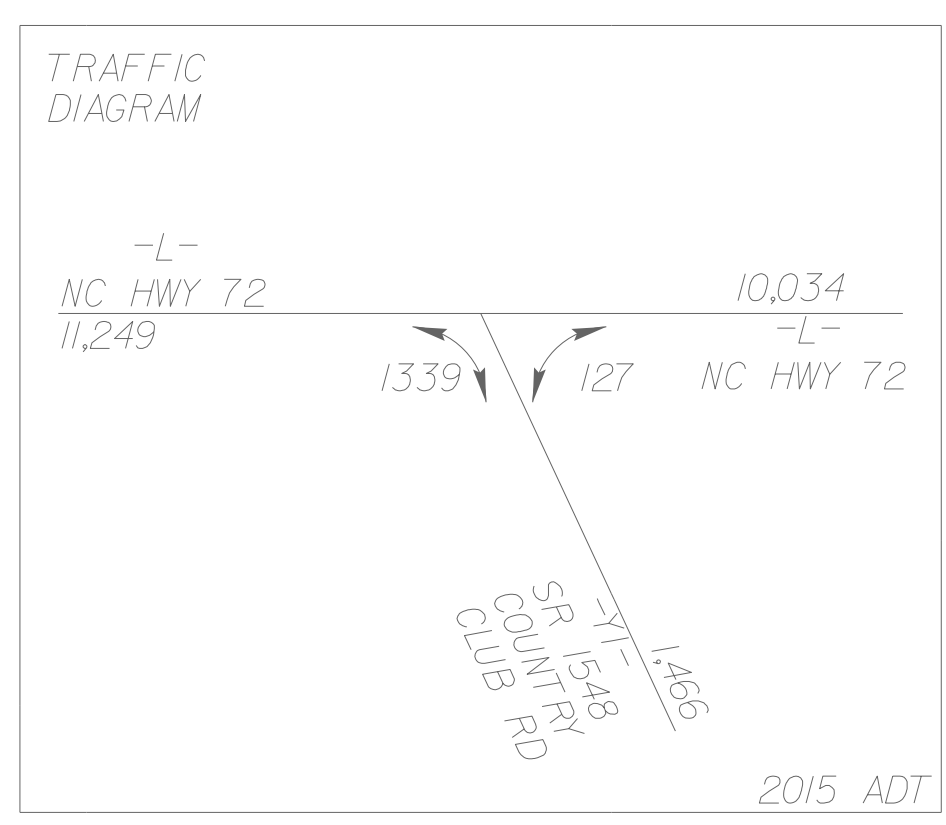
NOTES:
 DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
 PAVED SHOULDER

FOR -L- PROFILE SEE SHEETS 15 AND 16

S:\7-NOV-2018 13:55\PROJECTS\2016\A20161002\00_CALXX_W-5602_Sneads Ferry Road\Design\Utilities\Engineering\UC\Proj\W5602-ut-rdg5_UC05_psh.dgn

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401 Harrison Oaks Blvd., Suite 145 Cary, NC 27513

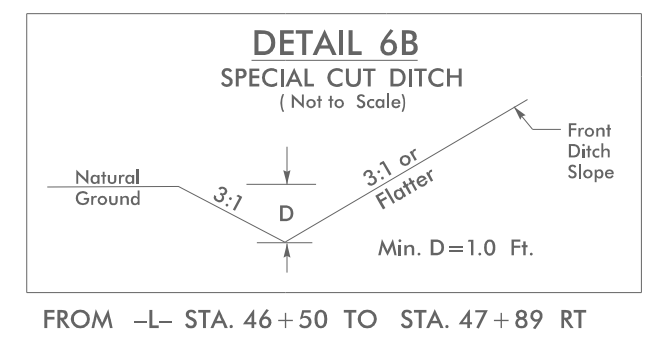
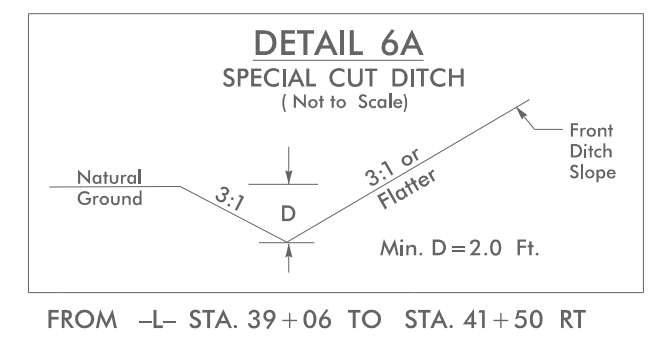
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-L-
PI Sta 57+85.20
Δ = 20° 38' 43.1" (LT)
D = 1' 30" 28.0"
L = 1,369.25'
T = 692.13'
R = 3,800.00'
SE = 3/4"
RO = 72'

-YI-
PI Sta 13+48.31
Δ = 40° 51' 48.3" (RT)
D = 6' 07" 40.4"
L = 666.84'
T = 348.31'
R = 935.00'
SE = EX.



SEE SHEET UC-15 THRU UC-25 FOR 8" WATER LINE (PROFILE 1)

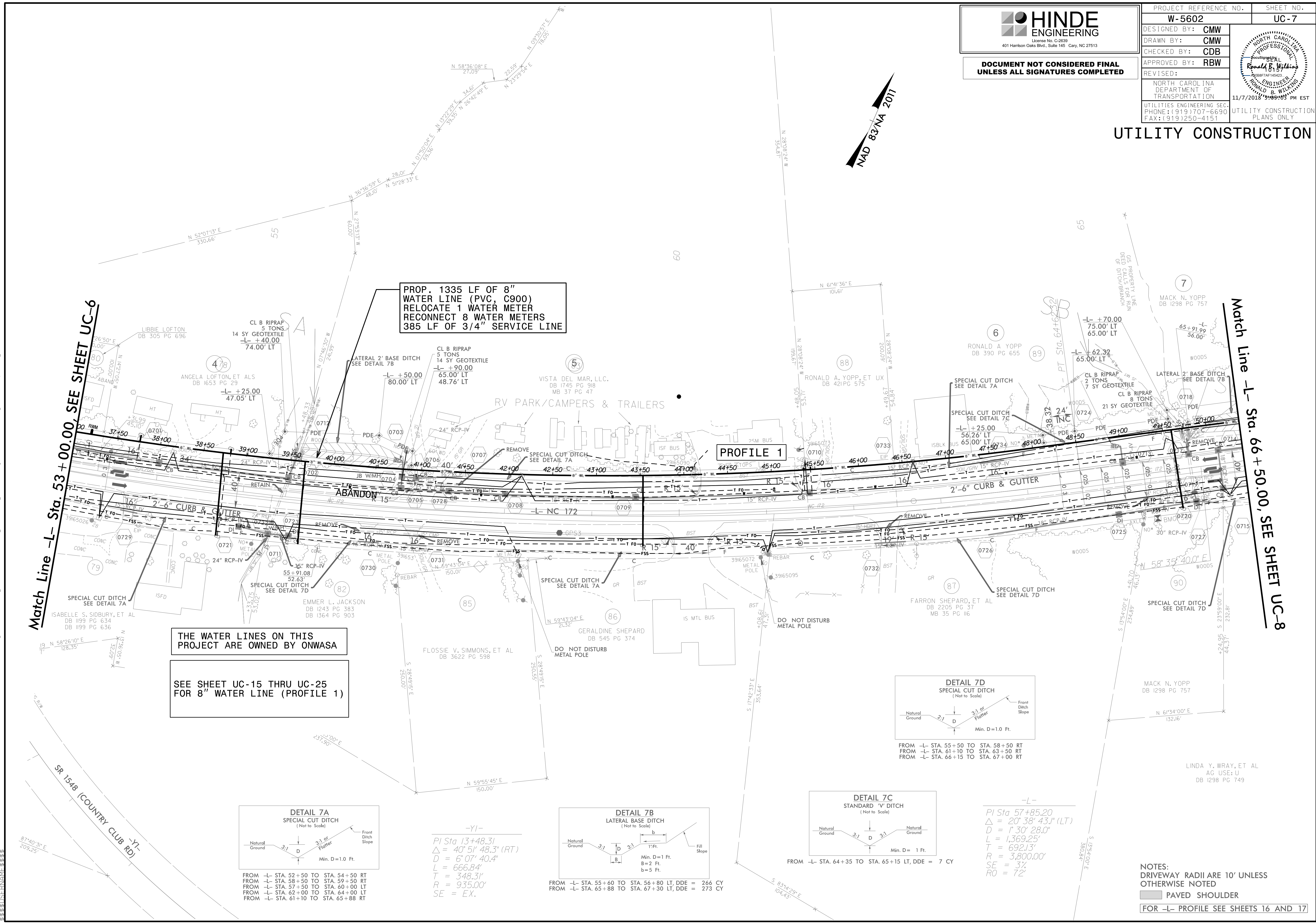
NOTES:
DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
PAVED SHOULDER
FOR -L- PROFILE SEE SHEET 16

HINDE ENGINEERING
 License No. C-2639
 401 Harrison Oaks Blvd., Suite 145 Cary, NC 27513

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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-7
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 11/7/2018 3:09:03 PM EST	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



**PROP. 1335 LF OF 8" WATER LINE (PVC, C900)
 RELOCATE 1 WATER METER
 RECONNECT 8 WATER METERS
 385 LF OF 3/4" SERVICE LINE**

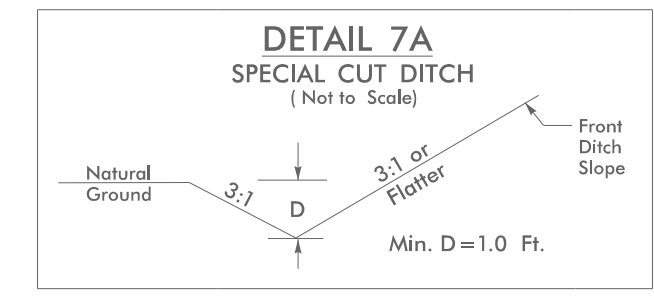
PROFILE 1

THE WATER LINES ON THIS PROJECT ARE OWNED BY ONWASA

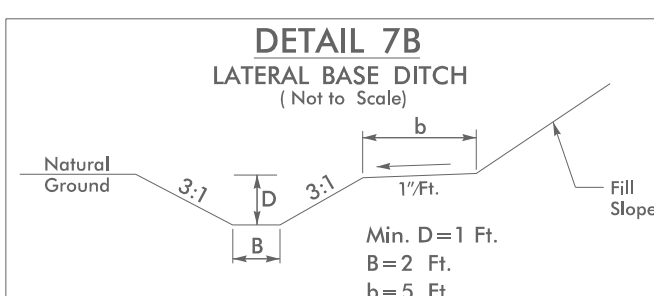
SEE SHEET UC-15 THRU UC-25 FOR 8" WATER LINE (PROFILE 1)

Match Line -L- Sta. 53 + 00.00, SEE SHEET UC-6

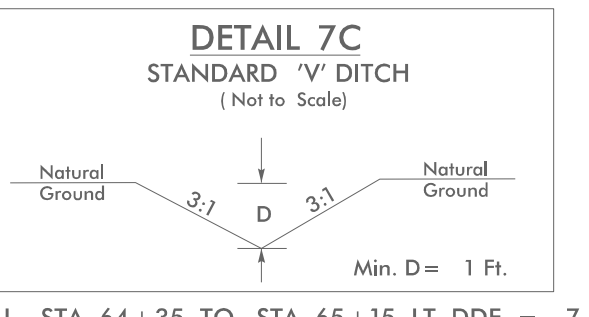
Match Line -L- Sta. 66 + 50.00, SEE SHEET UC-8



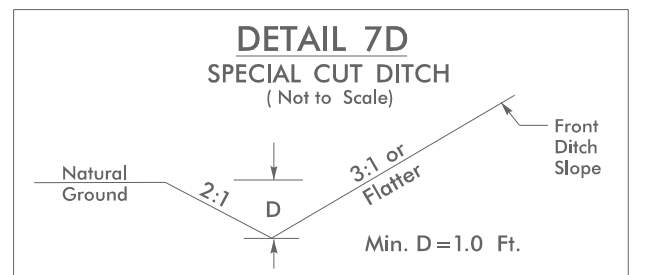
FROM -L- STA. 52+50 TO STA. 54+50 RT
 FROM -L- STA. 58+50 TO STA. 59+50 RT
 FROM -L- STA. 57+50 TO STA. 60+00 LT
 FROM -L- STA. 62+00 TO STA. 64+00 LT
 FROM -L- STA. 61+10 TO STA. 65+88 RT



FROM -L- STA. 55+60 TO STA. 56+80 LT, DDE = 266 CY
 FROM -L- STA. 65+88 TO STA. 67+30 LT, DDE = 273 CY



FROM -L- STA. 64+35 TO STA. 65+15 LT, DDE = 7 CY



FROM -L- STA. 55+50 TO STA. 58+50 RT
 FROM -L- STA. 61+10 TO STA. 63+50 RT
 FROM -L- STA. 66+15 TO STA. 67+00 RT

-YI-
 PI Sta 13+48.31
 $\Delta = 40' 51'' 48.3''$ (RT)
 $D = 6' 07'' 40.4''$
 $L = 666.84'$
 $T = 348.31'$
 $R = 935.00'$
 $SE = EX.$

-L-
 PI Sta 57+85.20
 $\Delta = 20' 38'' 43.1''$ (LT)
 $D = 1' 30'' 28.0''$
 $L = 1,369.25'$
 $T = 692.13'$
 $R = 3,800.00'$
 $SE = 3'$
 $RO = 72'$

NOTES:
 DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
 PAVED SHOULDER
 FOR -L- PROFILE SEE SHEETS 16 AND 17

S:\S\PROJECTS\2016\A20161002\00_CALXX_W-5602_Sneads Ferry Road\Design\Utilities\Engineering\UC\Proj\W5602-ut-rdy7_UC07_psh.dgn
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HINDE ENGINEERING
 License No. C-2639
 401 Harrison Oaks Blvd., Suite 145 Cary, NC 27513

**DOCUMENT NOT CONSIDERED FINAL
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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-8
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
UTILITY CONSTRUCTION PLANS ONLY 11/7/2018 3:03:03 PM EST	

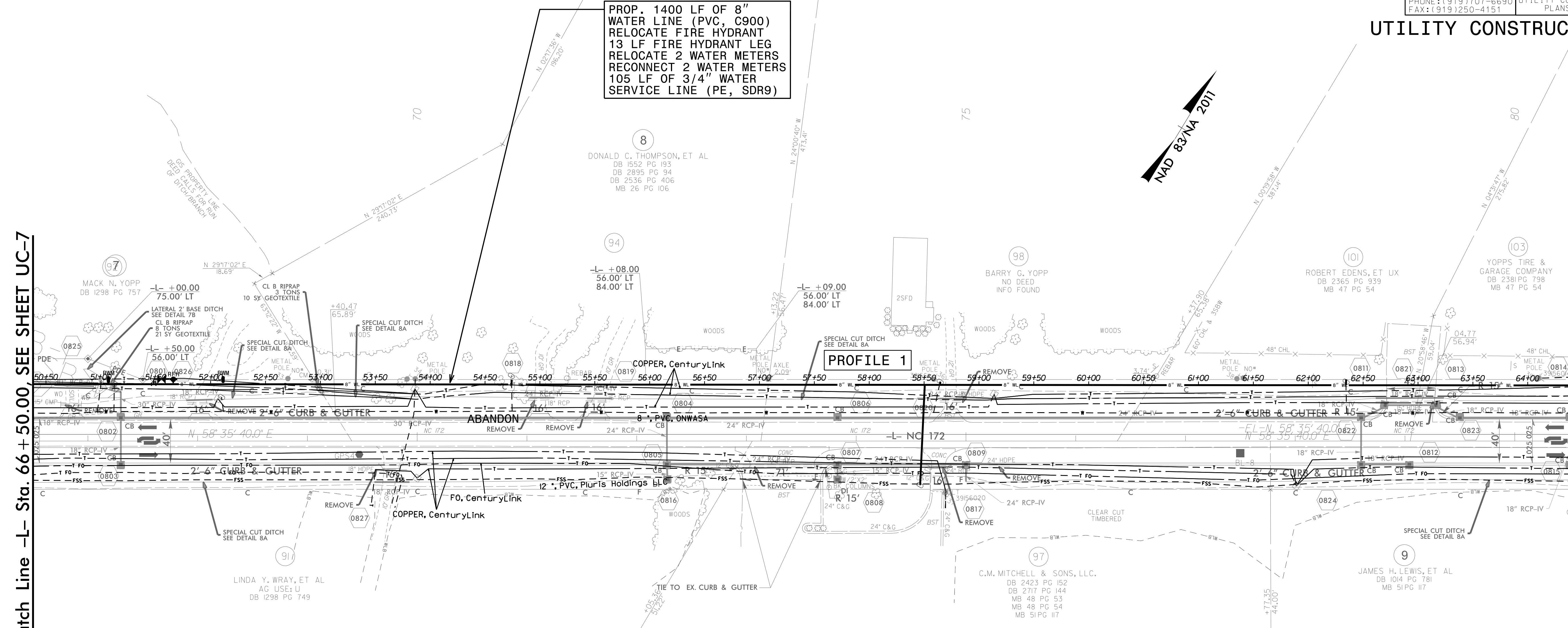
UTILITY CONSTRUCTION

**PROP. 1400 LF OF 8" WATER LINE (PVC, C900)
 RELOCATE FIRE HYDRANT
 13 LF FIRE HYDRANT LEG
 RELOCATE 2 WATER METERS
 RECONNECT 2 WATER METERS
 105 LF OF 3/4" WATER SERVICE LINE (PE, SDR9)**

PROFILE 1

Match Line -L- Sta. 66+50.00 SEE SHEET UC-7

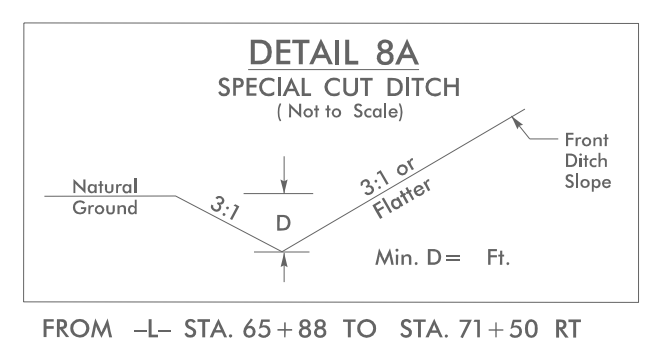
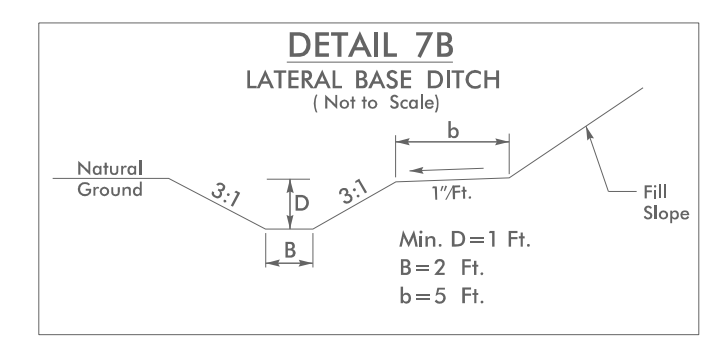
Match Line -L- Sta. 80+50.00, SEE SHEET UC-9



THE WATER LINES ON THIS PROJECT ARE OWNED BY ONWASA

**NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 435 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS. (350# MIN WP)**

SEE SHEET UC-15 THRU UC-25 FOR 8" WATER LINE (PROFILE 1)



FROM -L- STA. 55+60 TO STA. 56+80 LT, DDE = 266 CY
 FROM -L- STA. 65+88 TO STA. 67+30 LT, DDE = 273 CY

FROM -L- STA. 65+88 TO STA. 71+50 RT
 FROM -L- STA. 75+00 TO STA. 89+00 RT
 FROM -L- STA. 67+50 TO STA. 69+10 LT
 FROM -L- STA. 69+14 TO STA. 84+50 LT

NOTES:
 DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
 PAVED SHOULDER
 FOR -L- PROFILE SEE SHEET 17

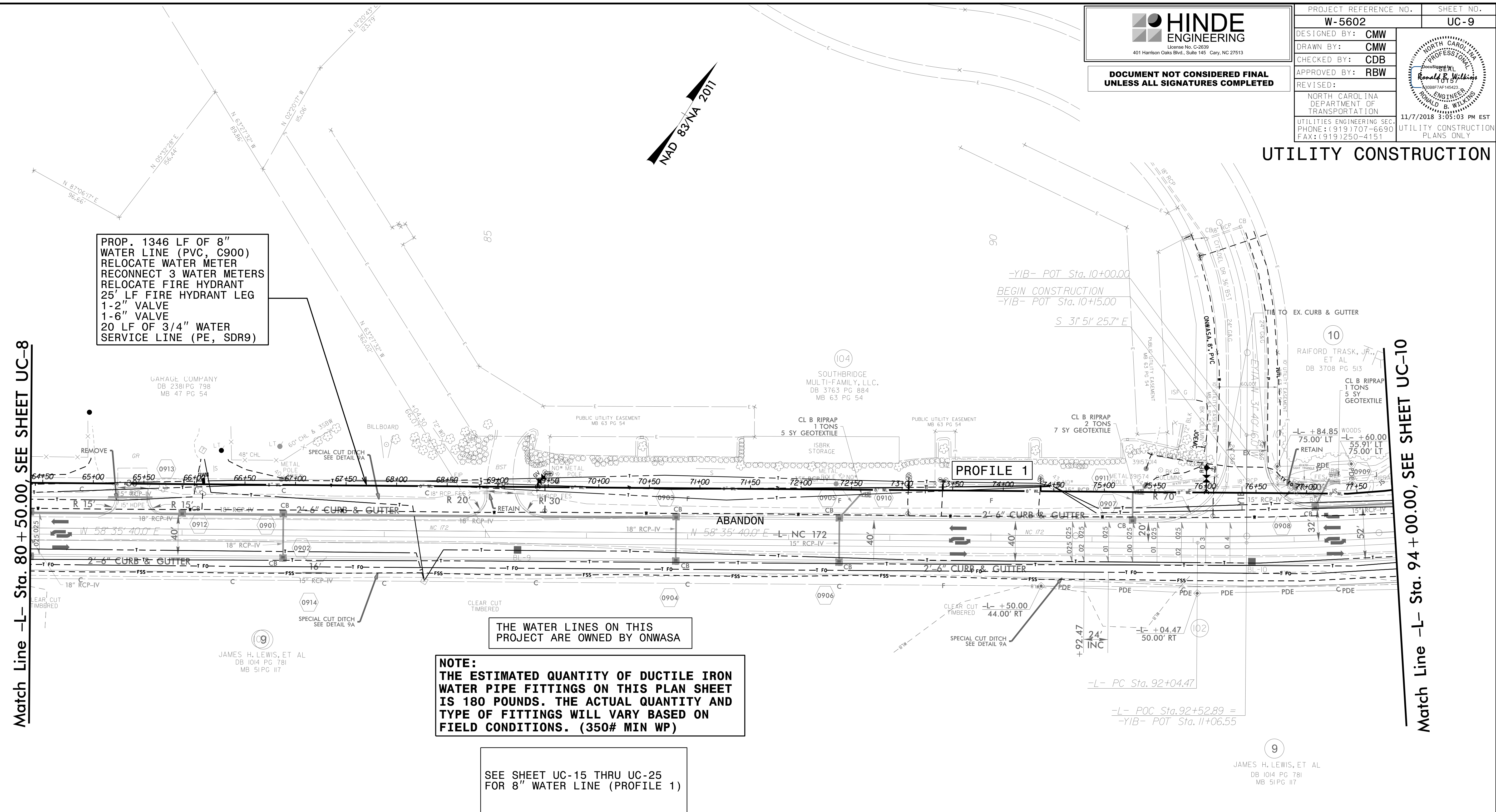
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 11/15/2018 10:15:55 AM
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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-9
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
11/7/2018 3:05:03 PM EST UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

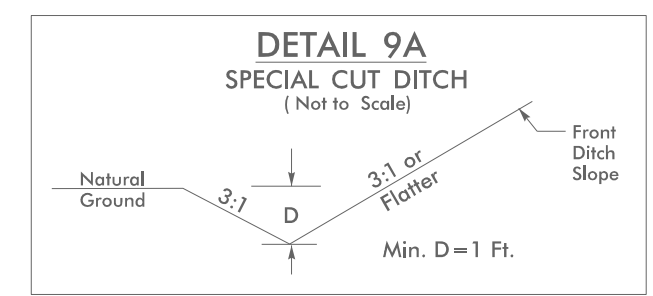


PROP. 1346 LF OF 8" WATER LINE (PVC, C900)
 RELOCATE WATER METER
 RECONNECT 3 WATER METERS
 RELOCATE FIRE HYDRANT
 25' LF FIRE HYDRANT LEG
 1-2" VALVE
 1-6" VALVE
 20 LF OF 3/4" WATER SERVICE LINE (PE, SDR9)

THE WATER LINES ON THIS PROJECT ARE OWNED BY ONWASA

NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 180 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS. (350# MIN WP)

SEE SHEET UC-15 THRU UC-25 FOR 8" WATER LINE (PROFILE 1)



FROM -L- STA. 69+14 TO STA. 84+50 LT
 FROM -L- STA. 74+00 TO STA. 89+00 RT
 FROM -L- STA. 90+00 TO STA. 105+04 RT

-L-
 PI Sta 105+08.09
 $\Delta = 48' 24' 36.7''$ (LT)
 $D = 1' 58' 32.6''$
 $L = 2,450.26'$
 $T = 1,303.62'$
 $R = 2,900.00'$
 $SE = 4\%$
 $RO = 96'$

NOTES:
 DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
 PAVED SURFACE
 FOR -L- PROFILE SEE SHEETS 17

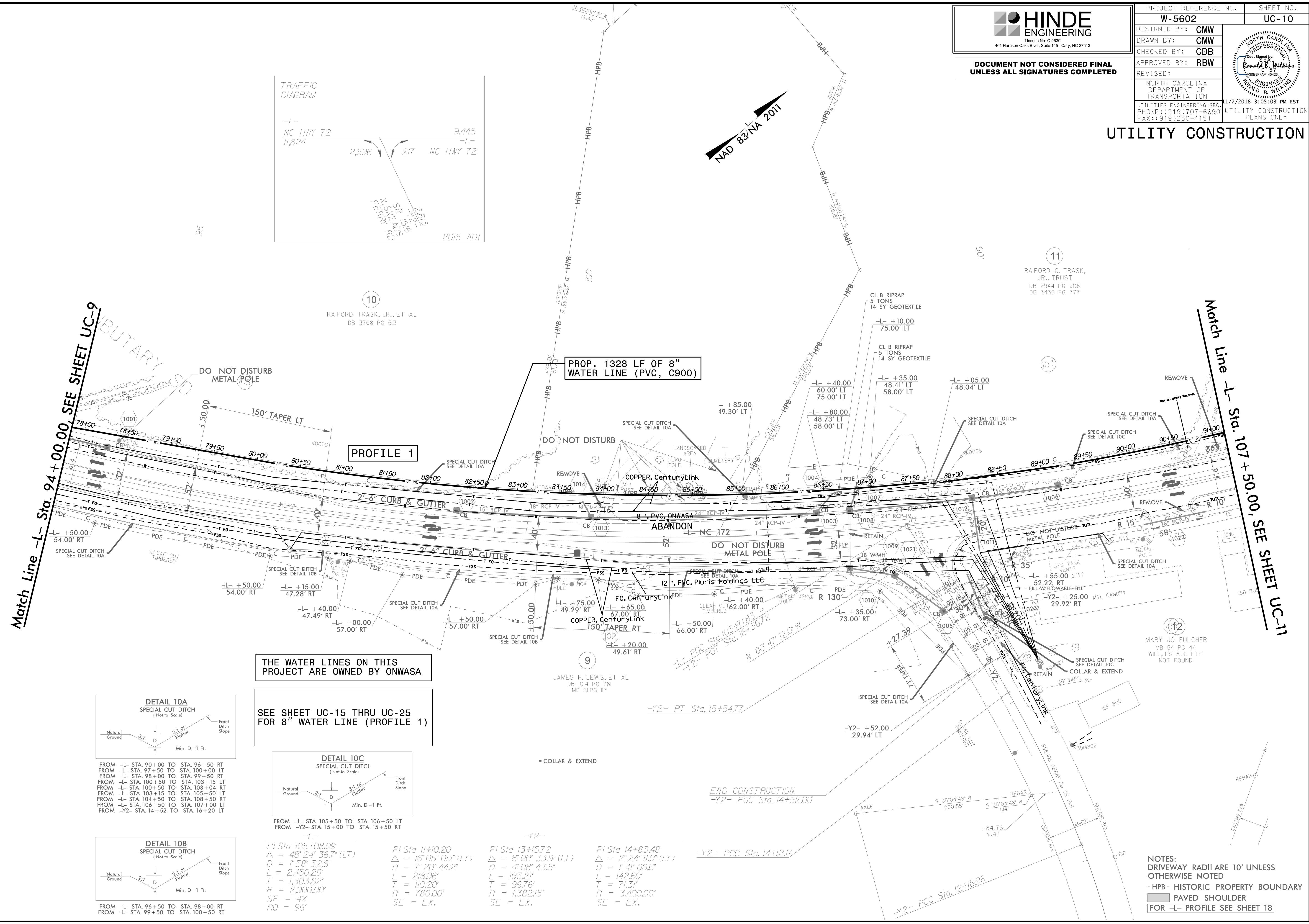
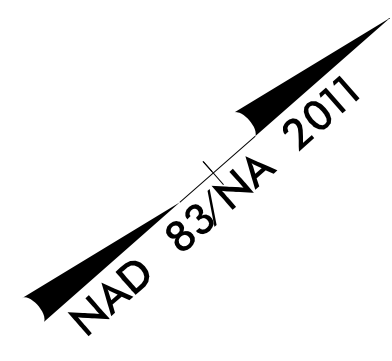
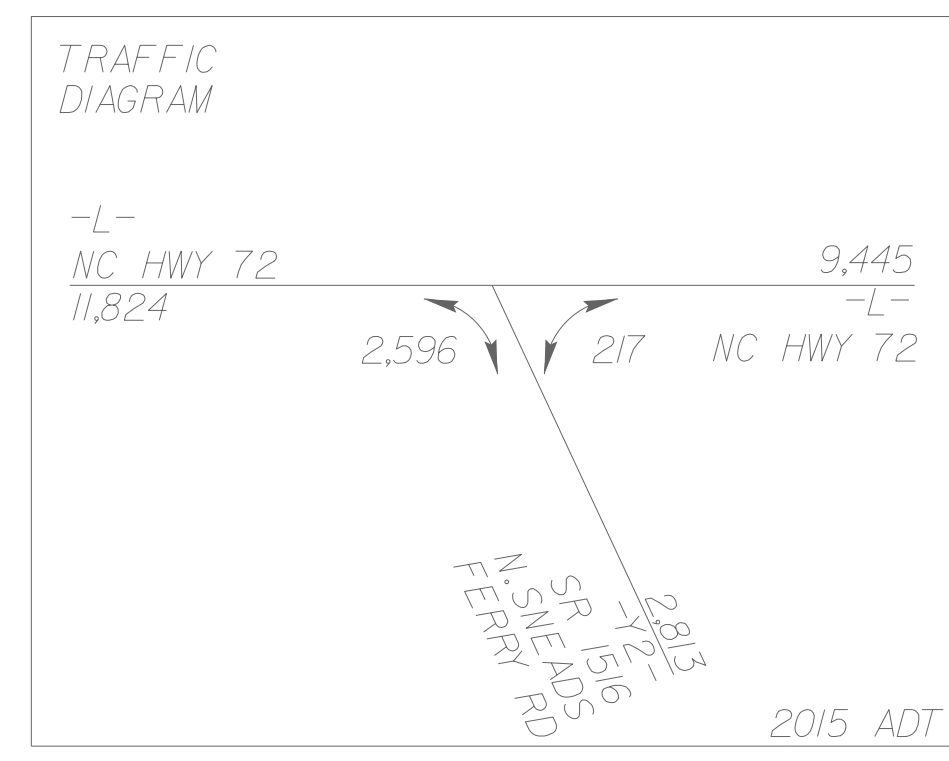
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 License No. C-2639
 401 Harrison Oaks Blvd., Suite 145 Cary, NC 27513

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PROJECT REFERENCE NO.	SHEET NO.
W-5602	UC-10
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	1/7/2018 3:05:03 PM EST UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



Match Line -L- Sta. 94 + 00.00 SEE SHEET UC-9

Match Line -L- Sta. 107 + 50.00, SEE SHEET UC-11

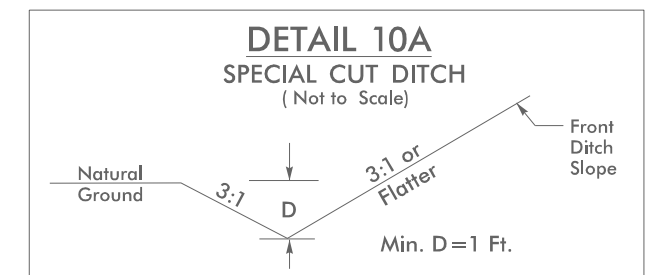
10 RAIFORD TRASK, JR., ET AL
 DB 3708 PG 513

9 JAMES H. LEWIS, ET AL
 DB 1014 PG 781
 MB 51PG 117

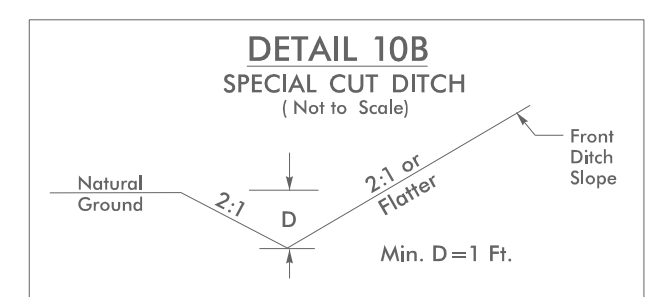
12 MARY JO FULCHER
 MB 54 PG 44
 WILL, ESTATE FILE
 NOT FOUND

THE WATER LINES ON THIS PROJECT ARE OWNED BY ONWASA

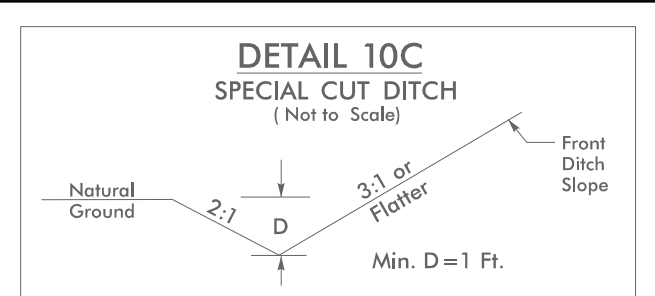
SEE SHEET UC-15 THRU UC-25 FOR 8" WATER LINE (PROFILE 1)



FROM -L- STA. 90+00 TO STA. 96+50 RT
 FROM -L- STA. 97+50 TO STA. 100+00 LT
 FROM -L- STA. 98+00 TO STA. 99+50 RT
 FROM -L- STA. 100+00 TO STA. 103+15 LT
 FROM -L- STA. 100+50 TO STA. 103+04 RT
 FROM -L- STA. 103+15 TO STA. 105+50 LT
 FROM -L- STA. 104+50 TO STA. 108+50 RT
 FROM -L- STA. 106+50 TO STA. 107+00 LT
 FROM -Y2- STA. 14+52 TO STA. 16+20 LT



FROM -L- STA. 96+50 TO STA. 98+00 RT
 FROM -L- STA. 99+50 TO STA. 100+50 RT



FROM -L- STA. 105+50 TO STA. 106+50 LT
 FROM -Y2- STA. 15+00 TO STA. 15+50 RT

-L-	-Y2-	-L-	-Y2-
PI Sta 105+08.09	PI Sta 11+02.20	PI Sta 13+15.72	PI Sta 14+83.48
Δ = 48' 24" 36.7" (LT)	Δ = 16' 05" 01" (LT)	Δ = 8' 00" 33.9" (LT)	Δ = 2' 24" 11.0" (LT)
D = 1' 58" 32.6"	D = 7' 20" 44.2"	D = 4' 08" 43.5"	D = 1' 41" 06.6"
L = 2,450.26'	L = 218.96'	L = 193.21'	L = 142.60'
T = 1,303.62'	T = 110.20'	T = 96.76'	T = 71.31'
R = 2,900.00'	R = 780.00'	R = 1,382.15'	R = 3,400.00'
SE = 4%	SE = EX.	SE = EX.	SE = EX.
RO = 96'			

S:\NOV-2018\15155\PROJECTS\2016\A20161002\00_CAL\XX_W-5602_Sneads_Ferry_Road\Design\Utilities\Engineering\UC\Pro\W5602-ut-rd\10_UC10_psh.dgn
 11/15/2018 1:55 PM

NOTES:
 DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
 -HPB- HISTORIC PROPERTY BOUNDARY
 PAVED SHOULDER
 FOR -L- PROFILE SEE SHEET 18

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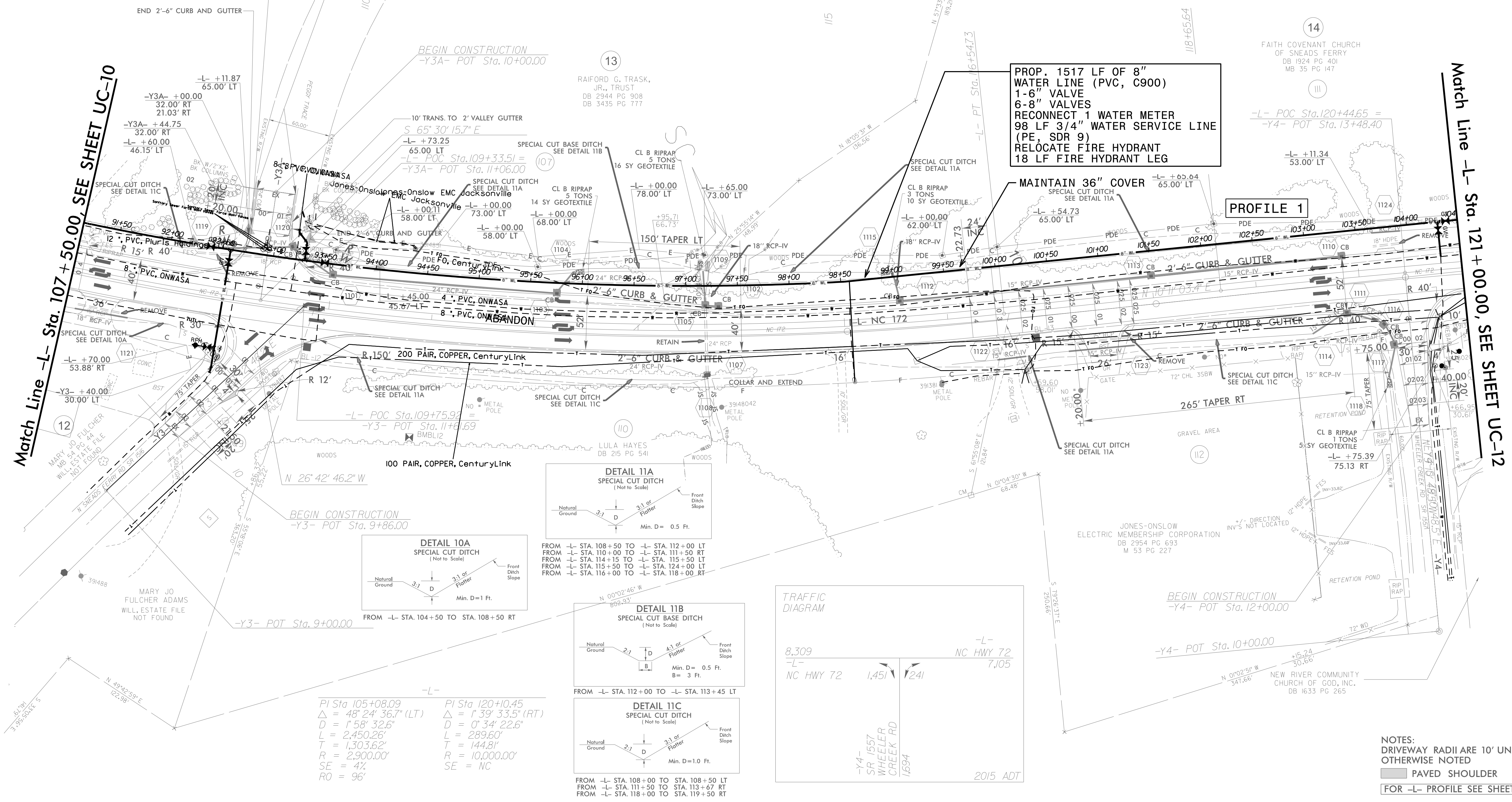
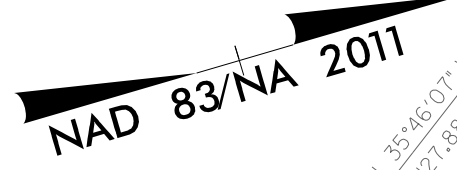
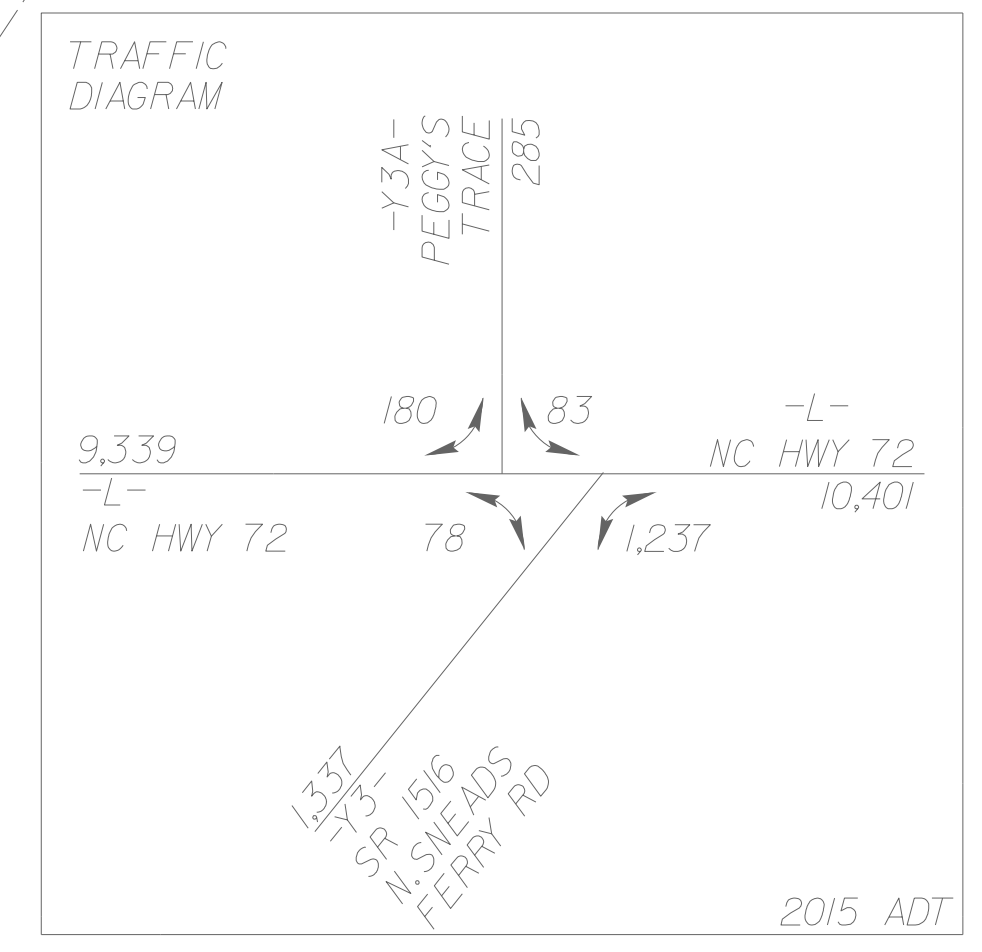
PROJECT REFERENCE NO. W-5602	SHEET NO. UC-11
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
11/7/2018 3:05:03 PM EST UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

THE WATER LINES ON THIS PROJECT ARE OWNED BY ONWASA

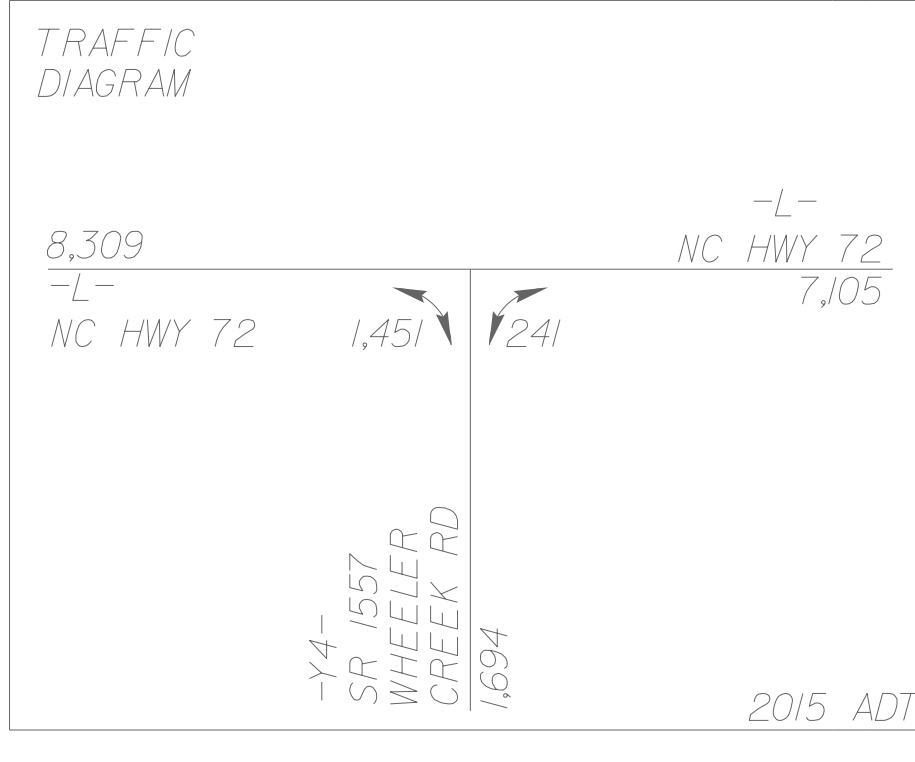
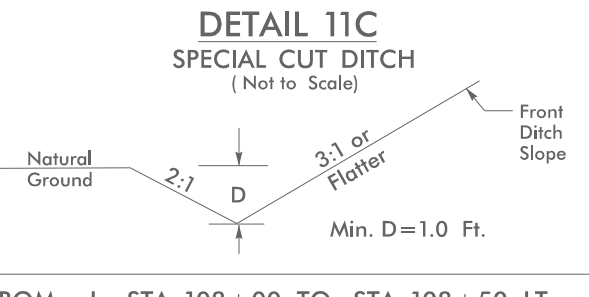
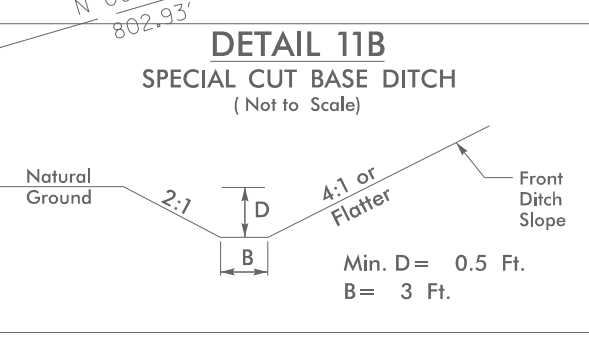
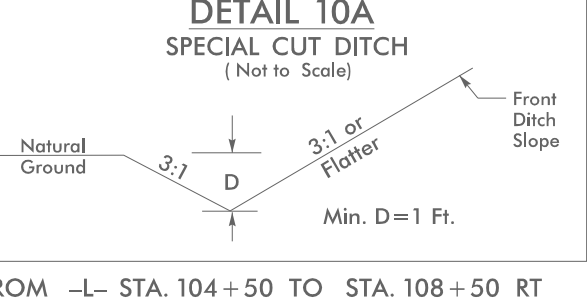
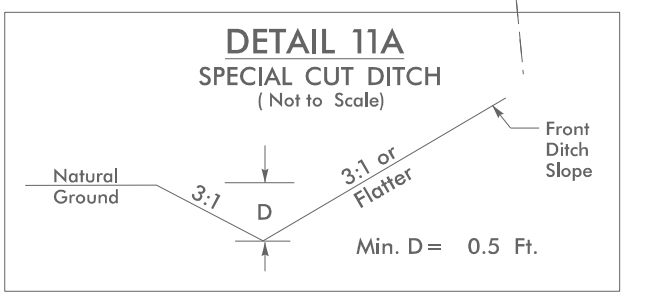
NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 850 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS. (350# MIN WP)

SEE SHEET UC-15 THRU UC-25 FOR 8" WATER LINE (PROFILE 1)



Match Line -L- Sta. 107 + 50.00, SEE SHEET UC-10

Match Line -L- Sta. 121 + 00.00, SEE SHEET UC-12



PI Sta 105+08.09
 $\Delta = 48' 24' 36.7''$ (LT)
 $D = 1' 58' 32.6''$
 $L = 2,450.26'$
 $T = 1,303.62'$
 $R = 2,900.00'$
 $SE = 4\%$
 $RO = 96'$

PI Sta 120+10.45
 $\Delta = 1' 39' 33.5''$ (RT)
 $D = 0' 34' 22.6''$
 $L = 289.60'$
 $T = 144.81'$
 $R = 10,000.00'$
 $SE = NC$

NOTES:
 DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
 PAVED UNDERLAY
 FOR -L- PROFILE SEE SHEETS 18

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PROJECT REFERENCE NO.	W-5602	SHEET NO.	UC-12
DESIGNED BY:	CMW		
DRAWN BY:	CMW		
CHECKED BY:	CDB		
APPROVED BY:	RBW		
REVISED:		NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	11/7/2018 1:09:03 PM EST
UTILITIES ENGINEERING SEC.	PHONE: (919) 707-6690	UTILITY CONSTRUCTION PLANS ONLY	
	FAX: (919) 250-4151		

UTILITY CONSTRUCTION

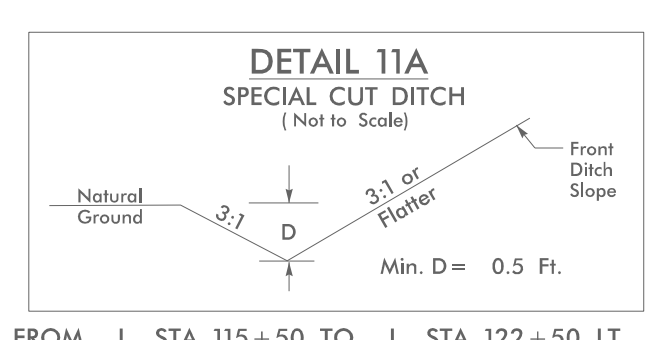
NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 335 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS. (350# MIN WP)

PROP. 1423 LF OF 8" WATER LINE (PVC, C900)
2-8" VALVES
RELOCATE 2 WATER METERS
RECONNECT 1 WATER METER
110 LF OF 3/4" WATER SERVICE LINE (PE, SDR9)

THE WATER LINES ON THIS PROJECT ARE OWNED BY ONWASA

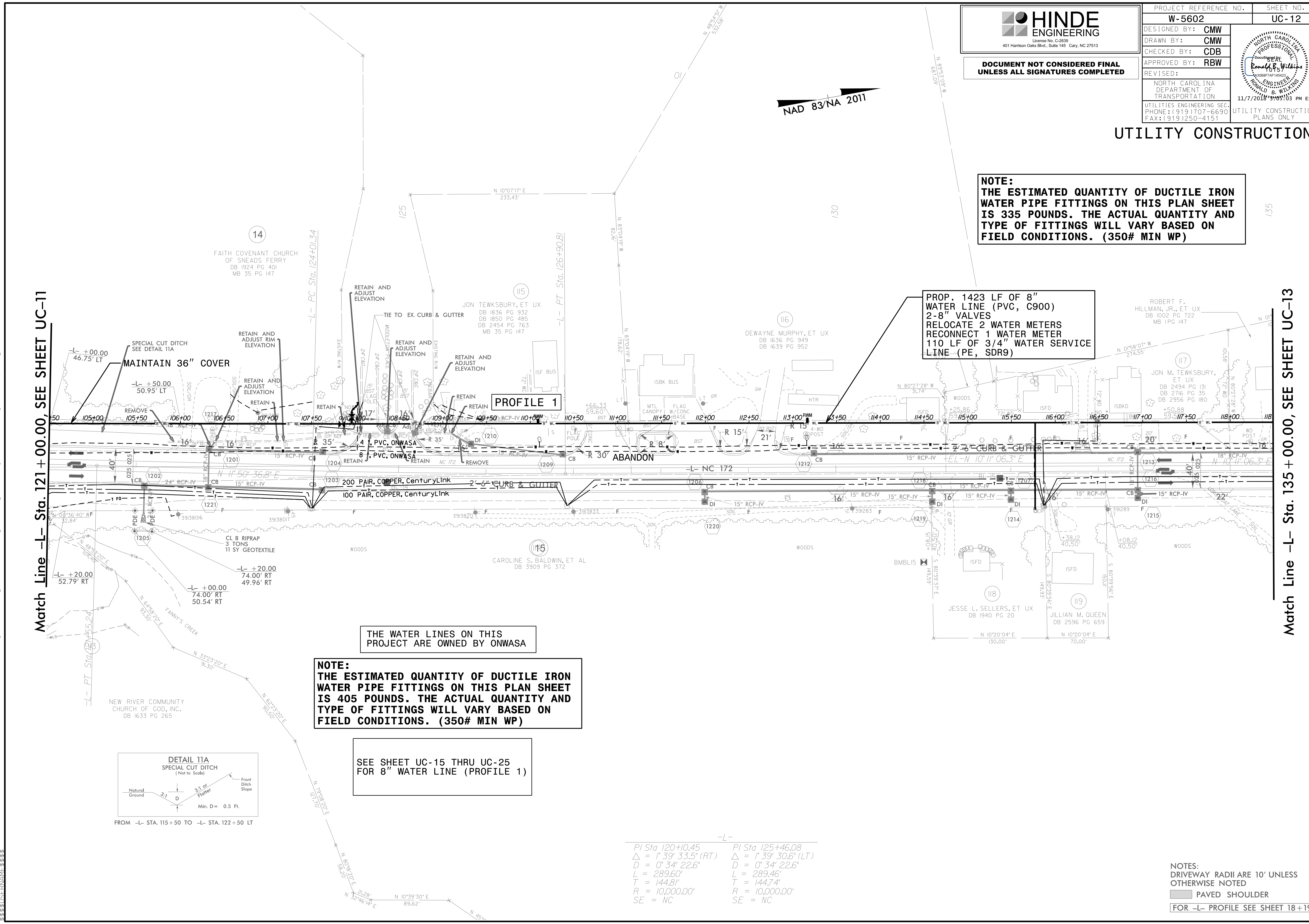
NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 405 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS. (350# MIN WP)

SEE SHEET UC-15 THRU UC-25 FOR 8" WATER LINE (PROFILE 1)



PI Sta 120+10.45	PI Sta 125+46.08
Δ = 1° 39' 33.5" (RT)	Δ = 1° 39' 30.6" (LT)
D = 0° 34' 22.6"	D = 0° 34' 22.6"
L = 289.60'	L = 289.46'
T = 144.81'	T = 144.74'
R = 10,000.00'	R = 10,000.00'
SE = NC	SE = NC

NOTES:
DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
PAVED SHOULDER
FOR -L- PROFILE SEE SHEET 18+19



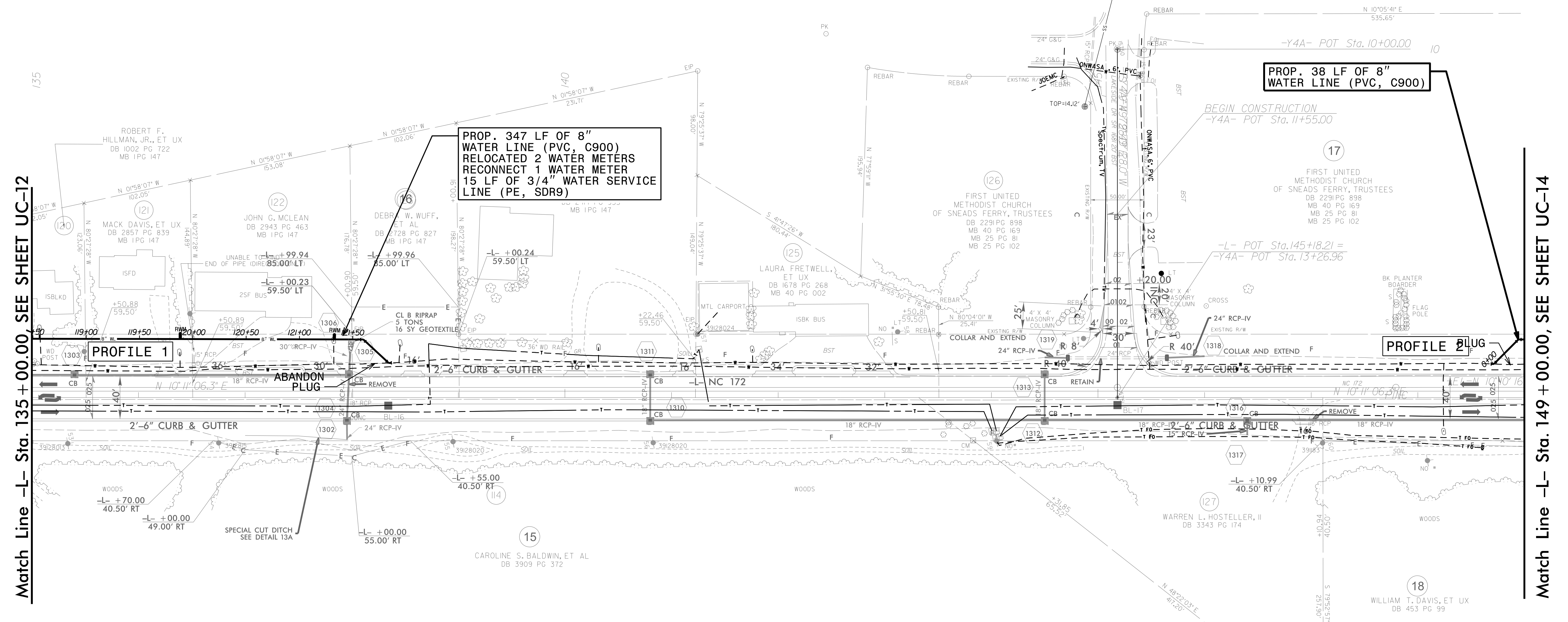
Match Line -L- Sta. 121+00.00, SEE SHEET UC-11

Match Line -L- Sta. 135+00.00, SEE SHEET UC-13

S:\Projects\2018\1355\PROJECTS\2018\A20161002\00\CALXX-W-5602_Sneads Ferry Road\Design\Utilities\Engineering\UC-Proj\W5602-ut-rd\12_UC12_psh.dgn

UTILITY CONSTRUCTION

NAD 83/NA 2011



Match Line -L- Sta. 135 + 00.00 SEE SHEET UC-12

Match Line -L- Sta. 149 + 00.00, SEE SHEET UC-14

**PROP. 347 LF OF 8" WATER LINE (PVC, C900)
RELOCATED 2 WATER METERS
RECONNECT 1 WATER METER
15 LF OF 3/4" WATER SERVICE LINE (PE, SDR9)**

PROP. 38 LF OF 8" WATER LINE (PVC, C900)

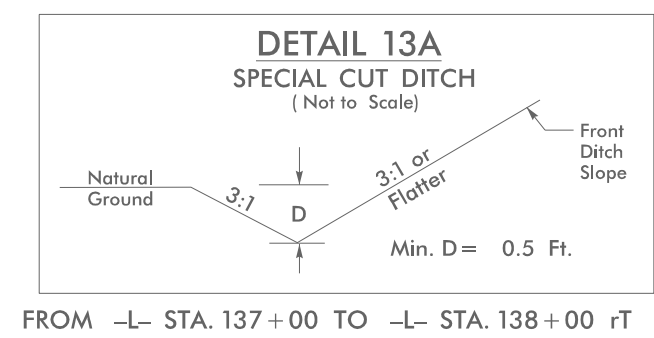
PROFILE 1

PROFILE 2

THE WATER LINES ON THIS PROJECT ARE OWNED BY ONWASA

NOTE:
THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 620 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS. (350# MIN WP)

SEE SHEET UC-15 THRU UC-25 FOR 8" WATER LINE (PROFILE 1)
SEE SHEET UC-26 FOR 8" WATER LINE (PROFILE 2)



NOTES:
DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
PAVED SHOULDER
FOR -L- PROFILE SEE SHEETS 19

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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-14
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	
11/7/2018 3:03:03 PM EST UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION

THE WATER LINES ON THIS PROJECT ARE OWNED BY ONWASA

NOTE:
 THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 530 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS. (350# MIN WP)

SEE SHEET UC-26 FOR 8" WATER LINE (PROFILE 2)

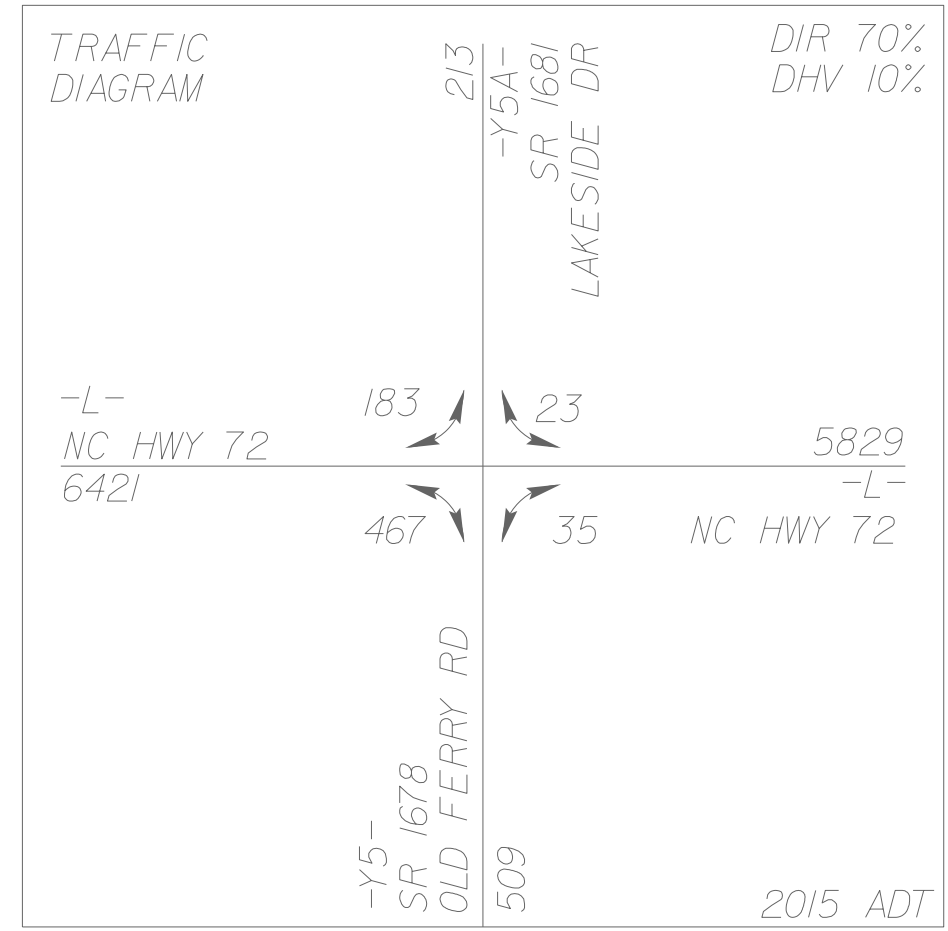
END TIP PROJECT W-5602
 -L- POT STA. 160+00.00

END CONSTRUCTION (OVERLAY / GUARDRAIL)
 TIP PROJECT W-5602
 THRU LIMITS OF EXISTING GUARDRAIL ON NORTH SIDE OF BRIDGE (EXCLUDE BRIDGE)

Match Line -L- Sta. 149+00.00 SEE SHEET UC-13

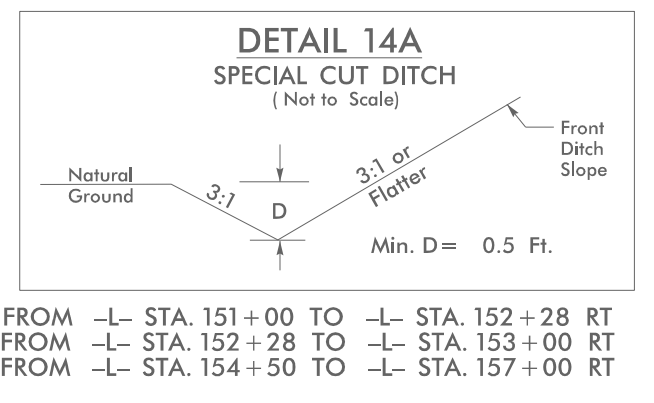
PROP. 433 LF OF 8" WATER LINE (PVC, C900)
 29 LF OF 4" WATER LINE (PVC, C900)
 1-4" VALVE
 1-8" VALVE
 RELOCATE WATER METER
 98 LF 3/4" WATER SERVICE LINE (PE, SDR 9)

PROFILE 2



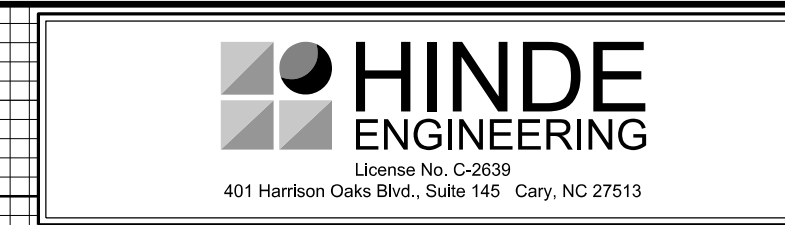
-L-
 PI Sta 154+82.76
 $\Delta = 17^{\circ} 52' 46.3"$ (LT)
 $D = 1^{\circ} 58' 32.6"$
 $L = 904.96'$
 $T = 456.19'$
 $R = 2,900.00'$
 $SE = 4\%$
 $RO = 96'$

-Y5-
 PI Sta 13+80.62
 $\Delta = 97^{\circ} 30' 00.0"$ (RT)
 $D = 7^{\circ} 37' 18.1"$
 $L = 136.13'$
 $T = 91.22'$
 $R = 80.00'$
 $SE = EX.$



NOTES:
 DRIVEWAY RADII ARE 10' UNLESS OTHERWISE NOTED
 PAVED SHOULDER
 FOR -L- PROFILE SEE SHEET 19 & 20
 FOR -Y5- PROFILE SEE SHEET 20

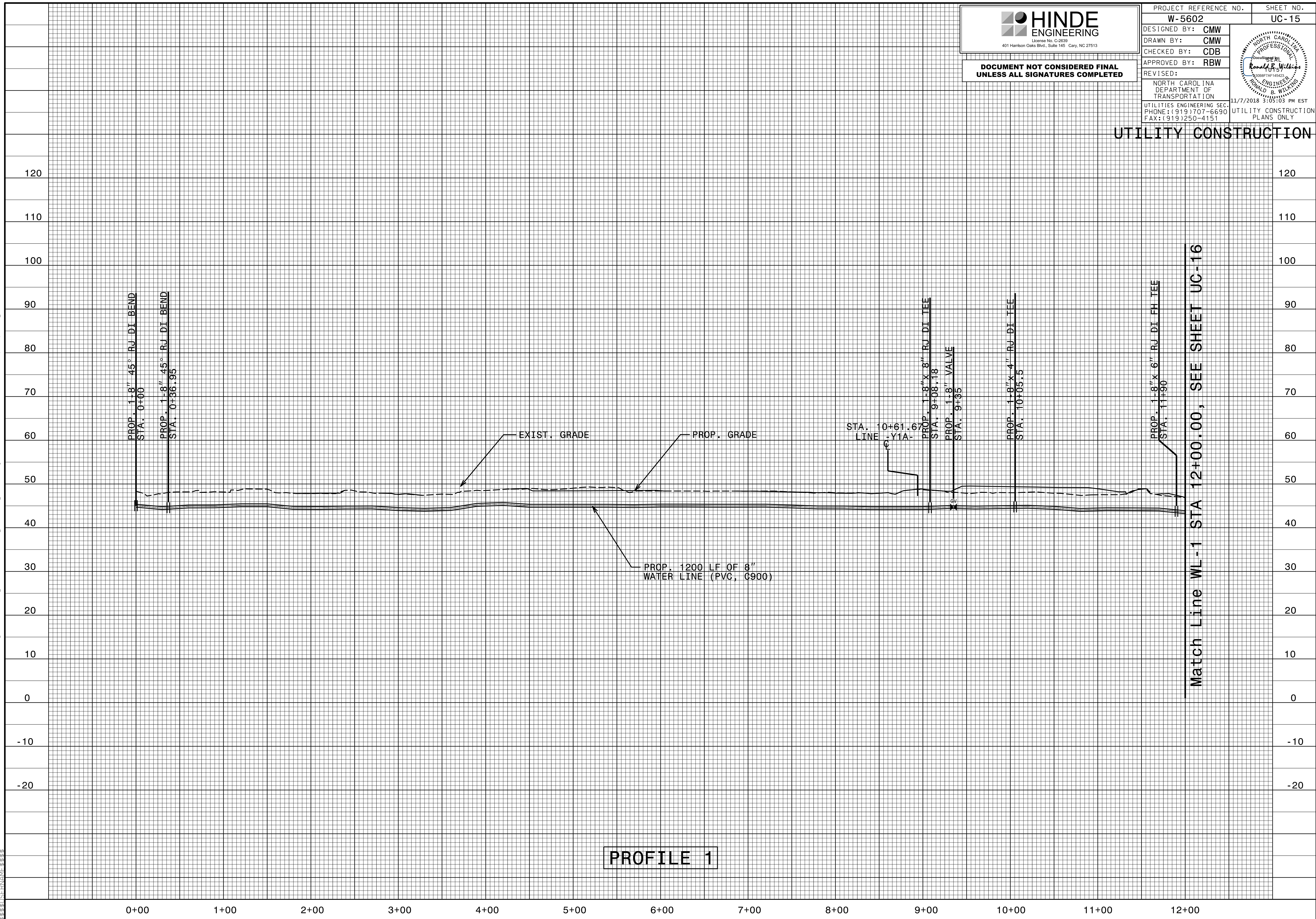
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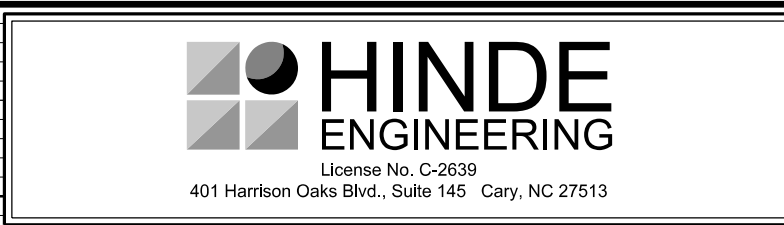
PROJECT REFERENCE NO. W-5602	SHEET NO. UC-15
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	11/7/2018 3:08:03 PM EST UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



PROFILE 1

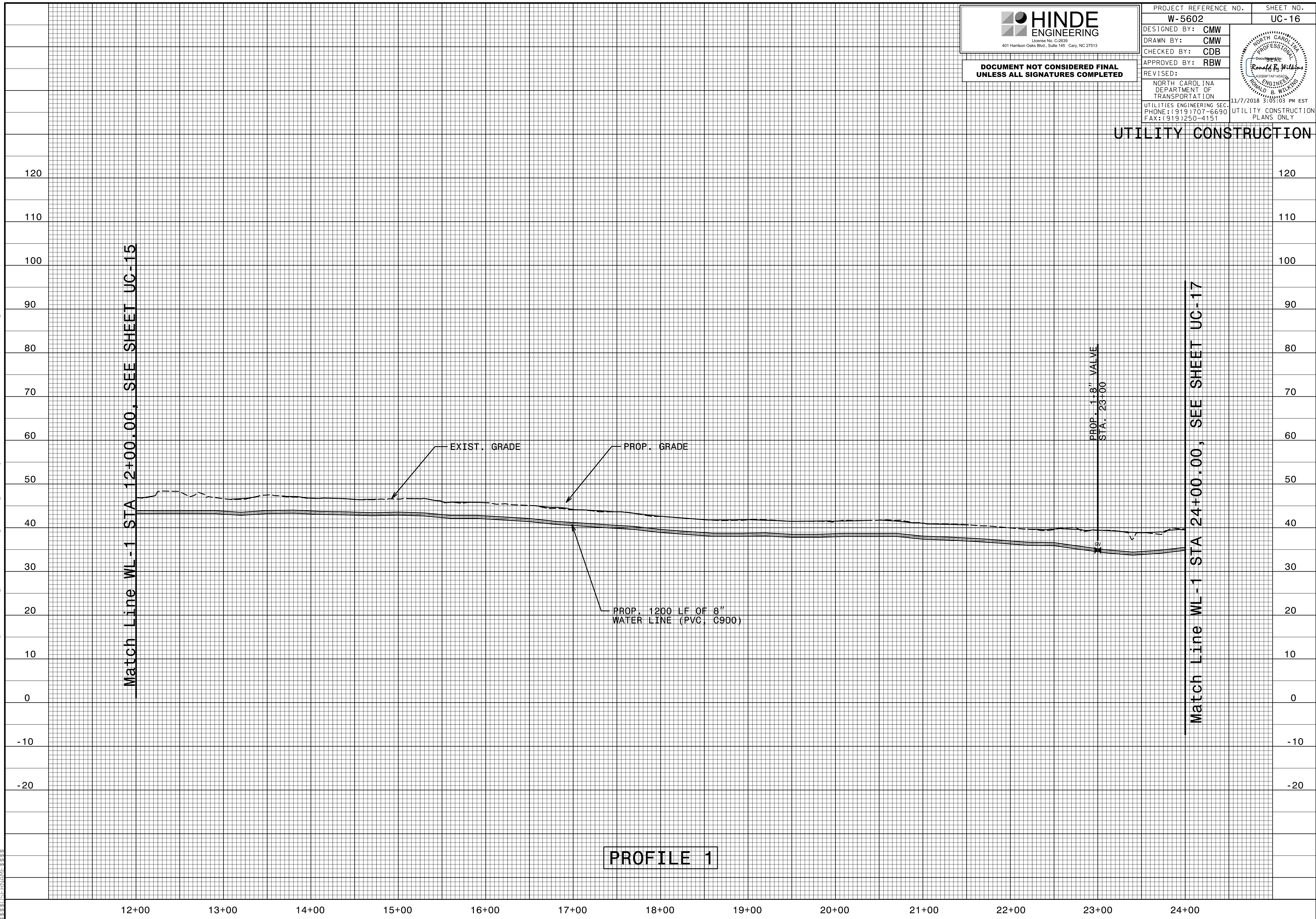
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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-16
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 11/7/2018 3:03:03 PM EST
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

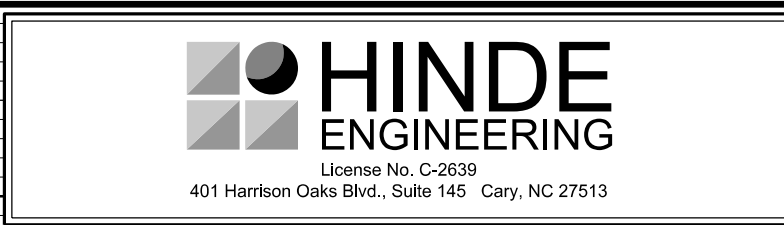


Match Line WL-1 STA 12+00.00, SEE SHEET UC-15

Match Line WL-1 STA 24+00.00, SEE SHEET UC-17

PROFILE 1

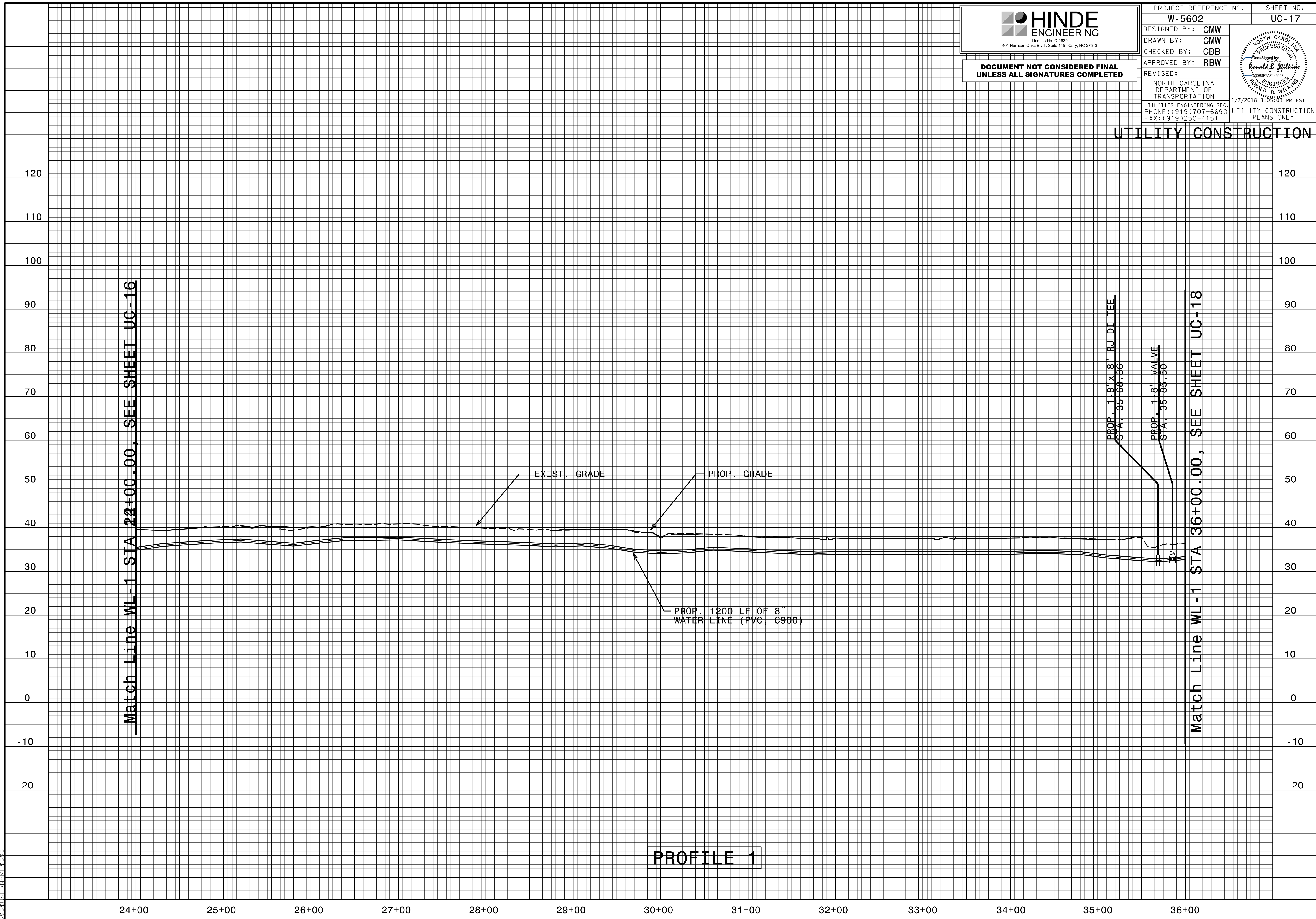
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UNLESS ALL SIGNATURES COMPLETED**

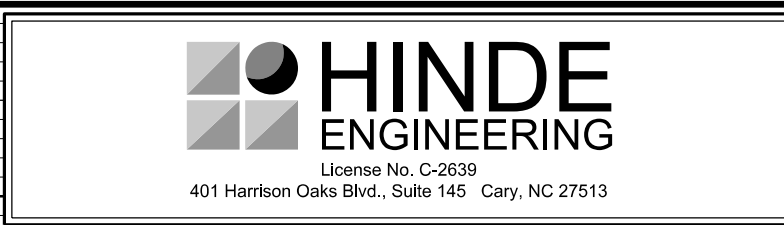
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DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	11/7/2018 3:09:03 PM EST UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



PROFILE 1

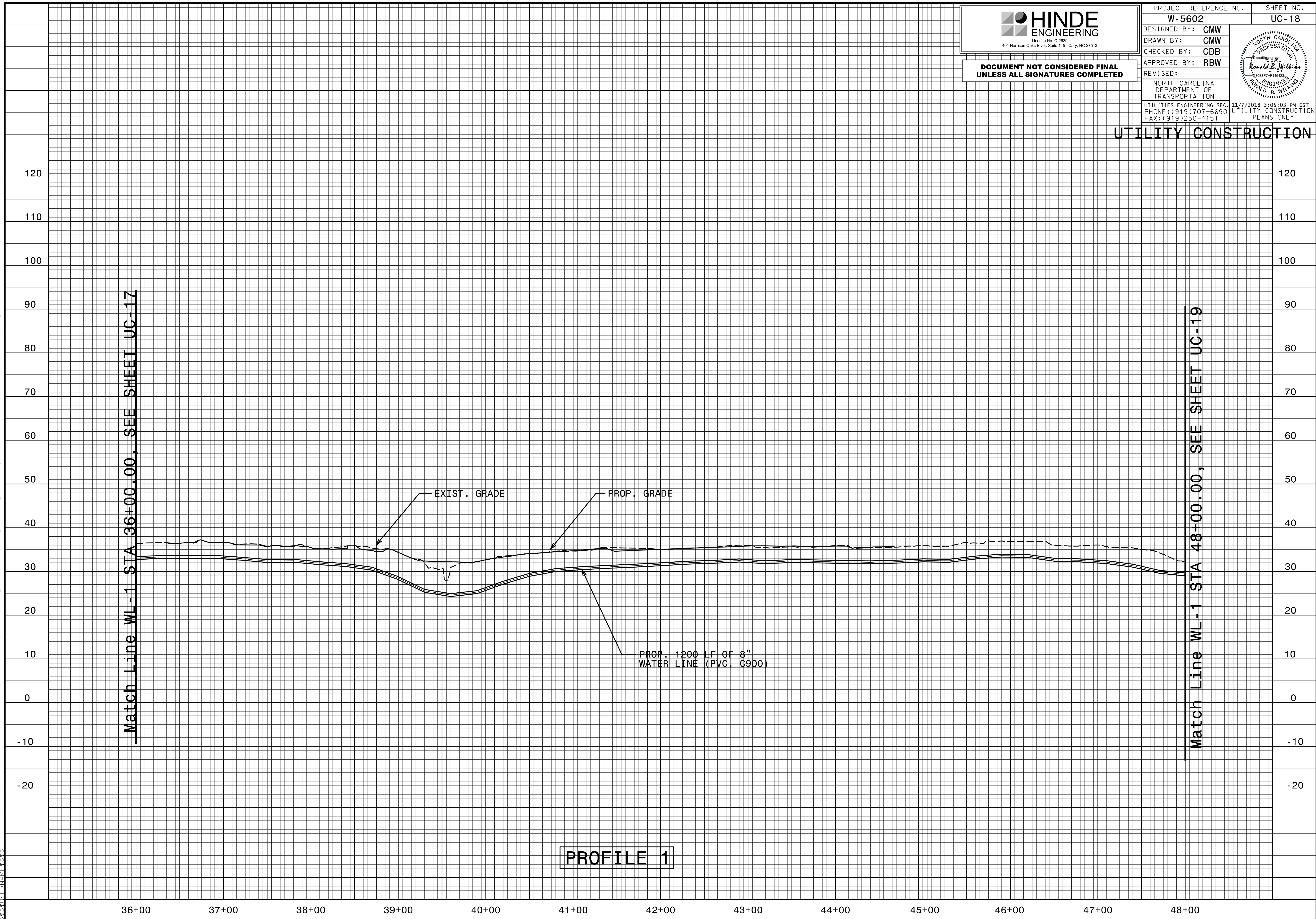
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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-18
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	11/7/2018 3:05:03 PM EST UTILITY CONSTRUCTION PLANS ONLY

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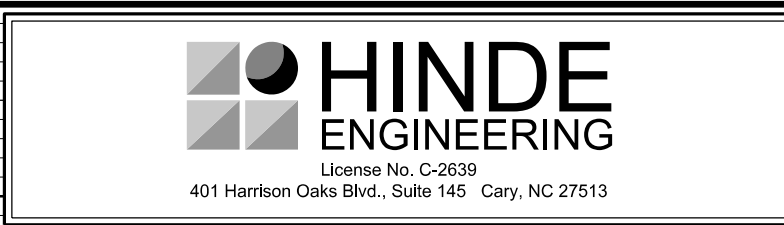


Match Line WL-1 STA 36+00.00, SEE SHEET UC-17

Match Line WL-1 STA 48+00.00, SEE SHEET UC-19

PROFILE 1

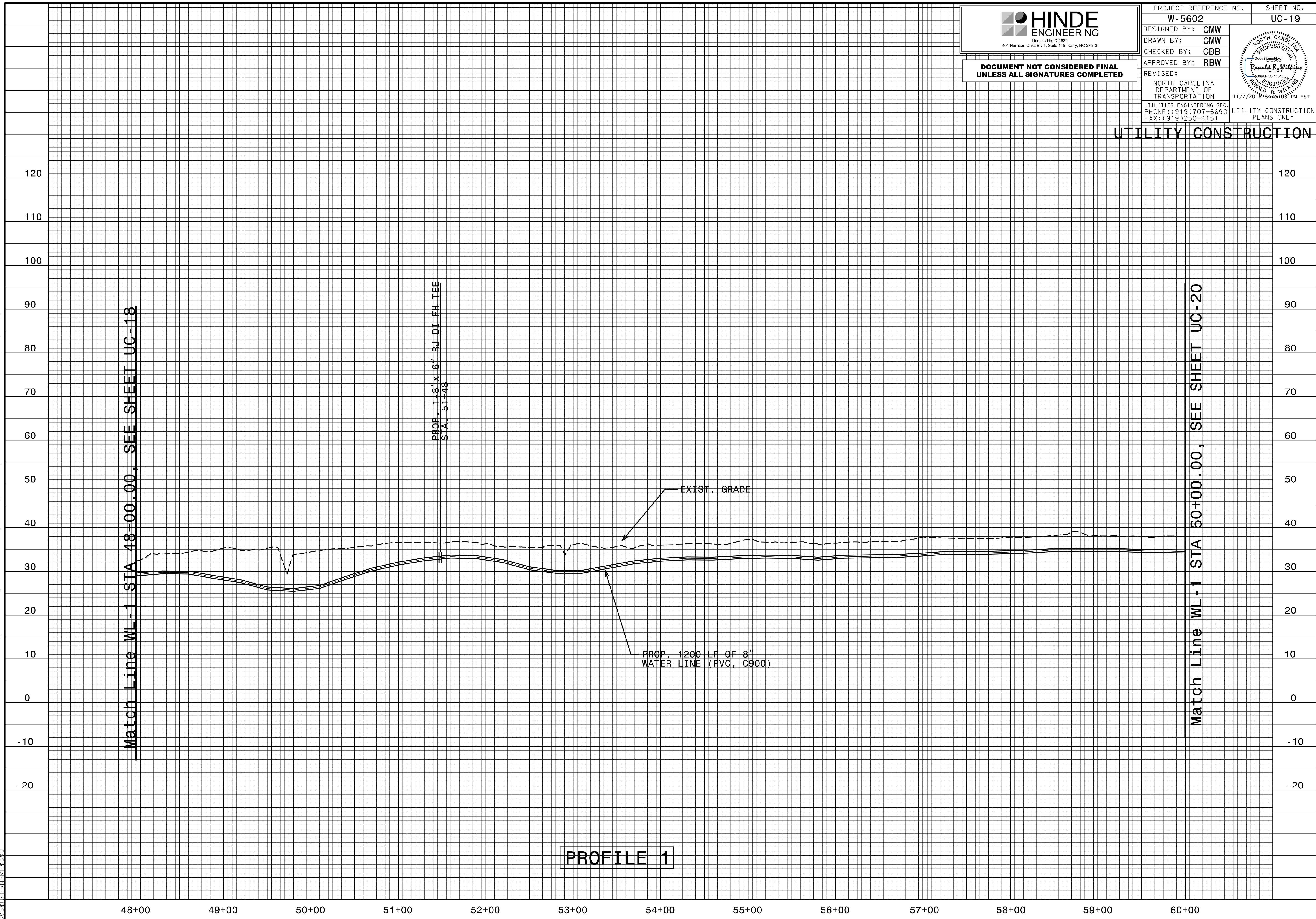
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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-19
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



Match Line WL-1 STA 48+00.00, SEE SHEET UC-18

PROP. 1.8" X 6" RJ DI FH TEE
STA. 51+48

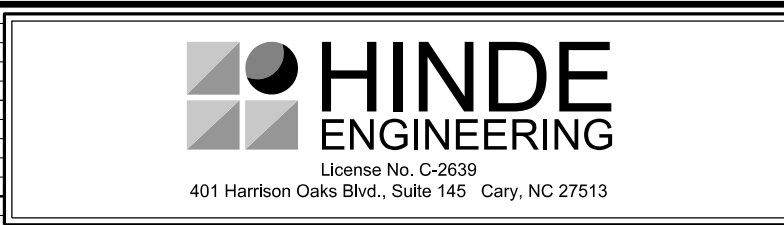
EXIST. GRADE

PROP. 1200 LF OF 8"
WATER LINE (PVC, C900)

Match Line WL-1 STA 60+00.00, SEE SHEET UC-20

PROFILE 1

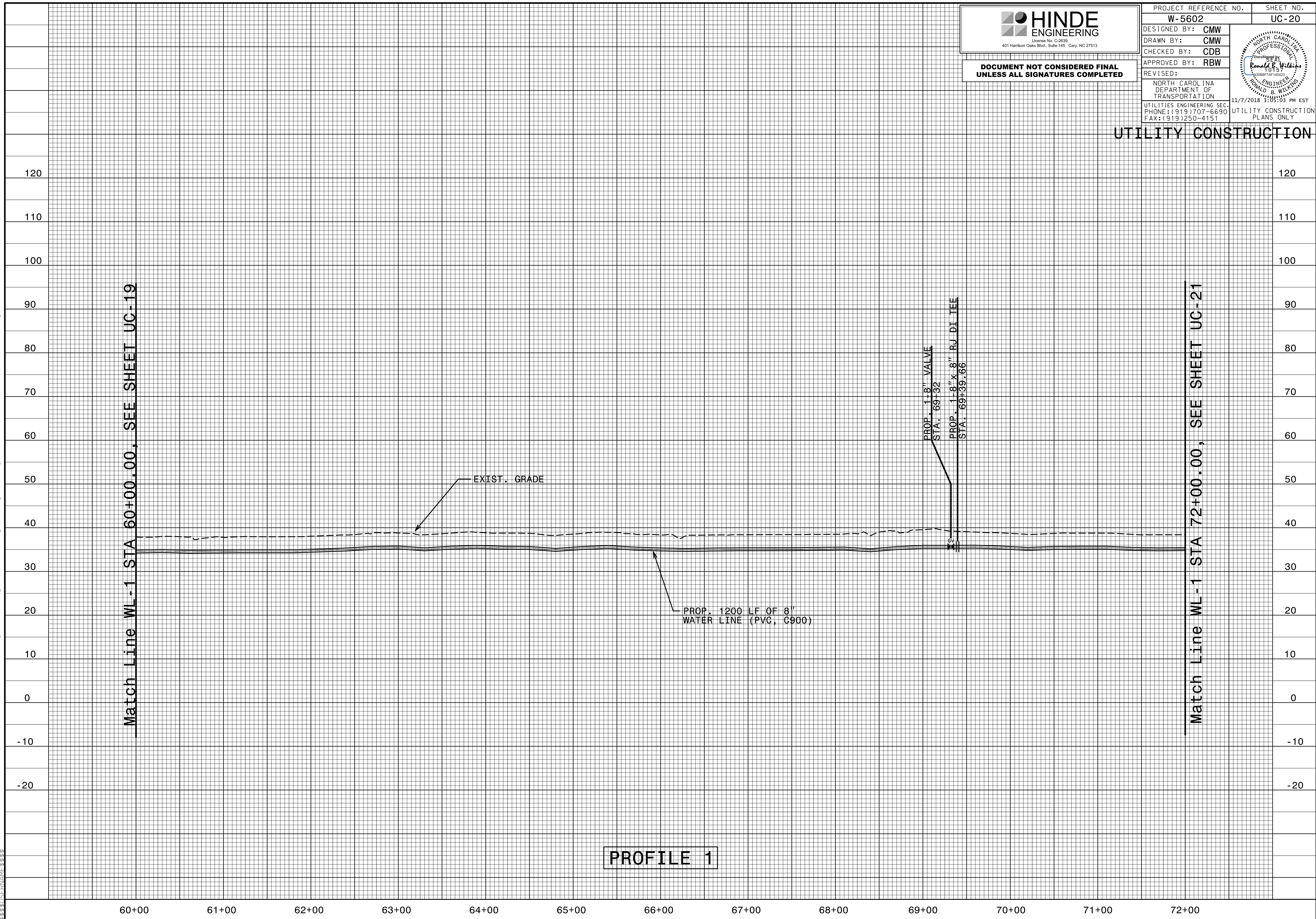
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UNLESS ALL SIGNATURES COMPLETED

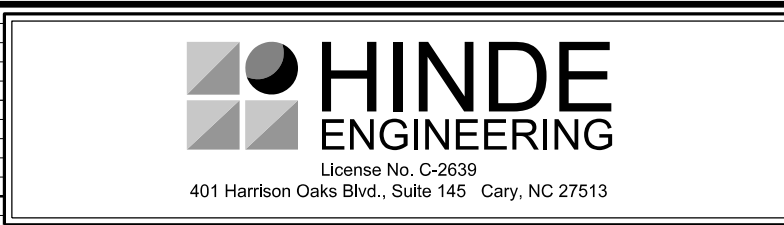
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DESIGNED BY: CMW	
DRAWN BY: CMW	
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APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	11/7/2018 3:08:05 PM EST UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



PROFILE 1

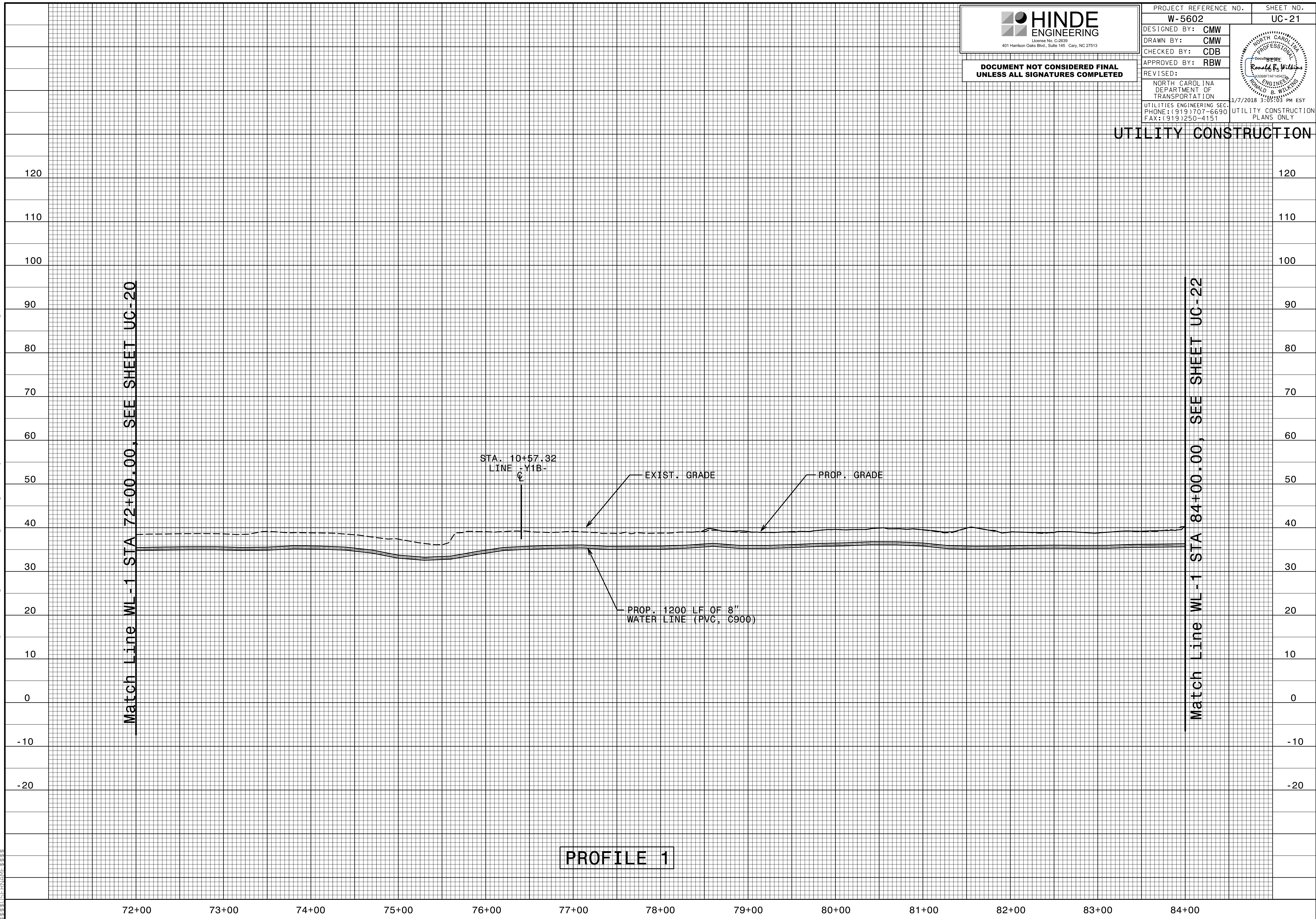
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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-21
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	11/7/2018 3:09:03 PM EST UTILITY CONSTRUCTION PLANS ONLY

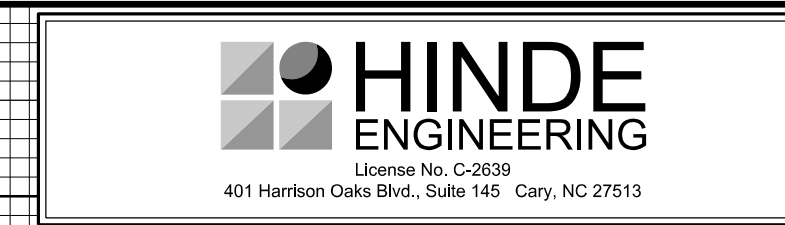
UTILITY CONSTRUCTION



PROFILE 1

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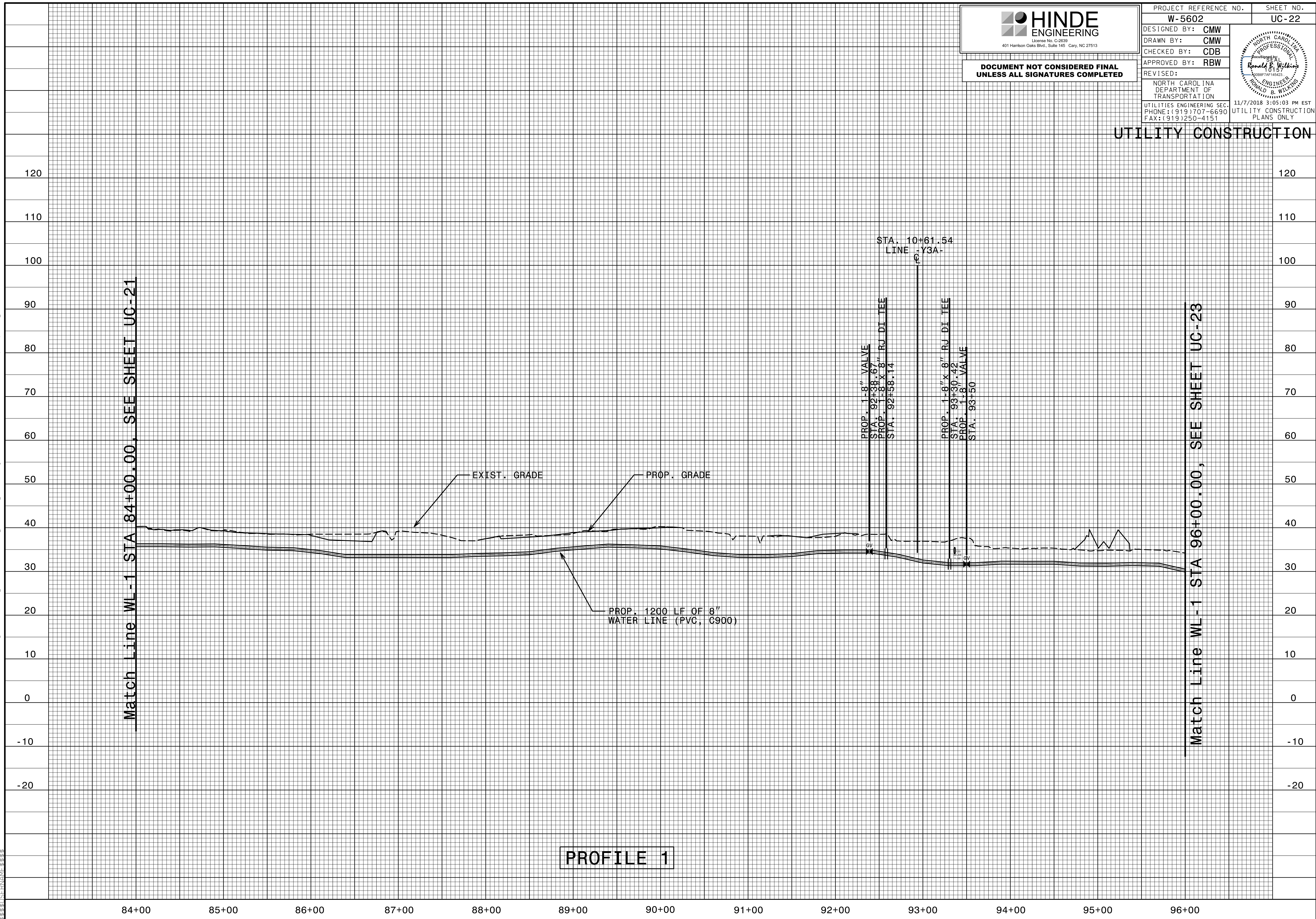
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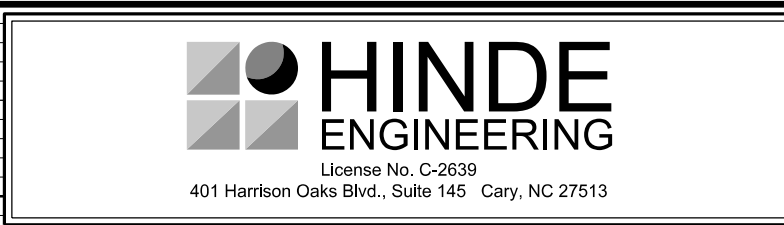
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DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	11/7/2018 3:05:03 PM EST UTILITY CONSTRUCTION PLANS ONLY

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PROFILE 1

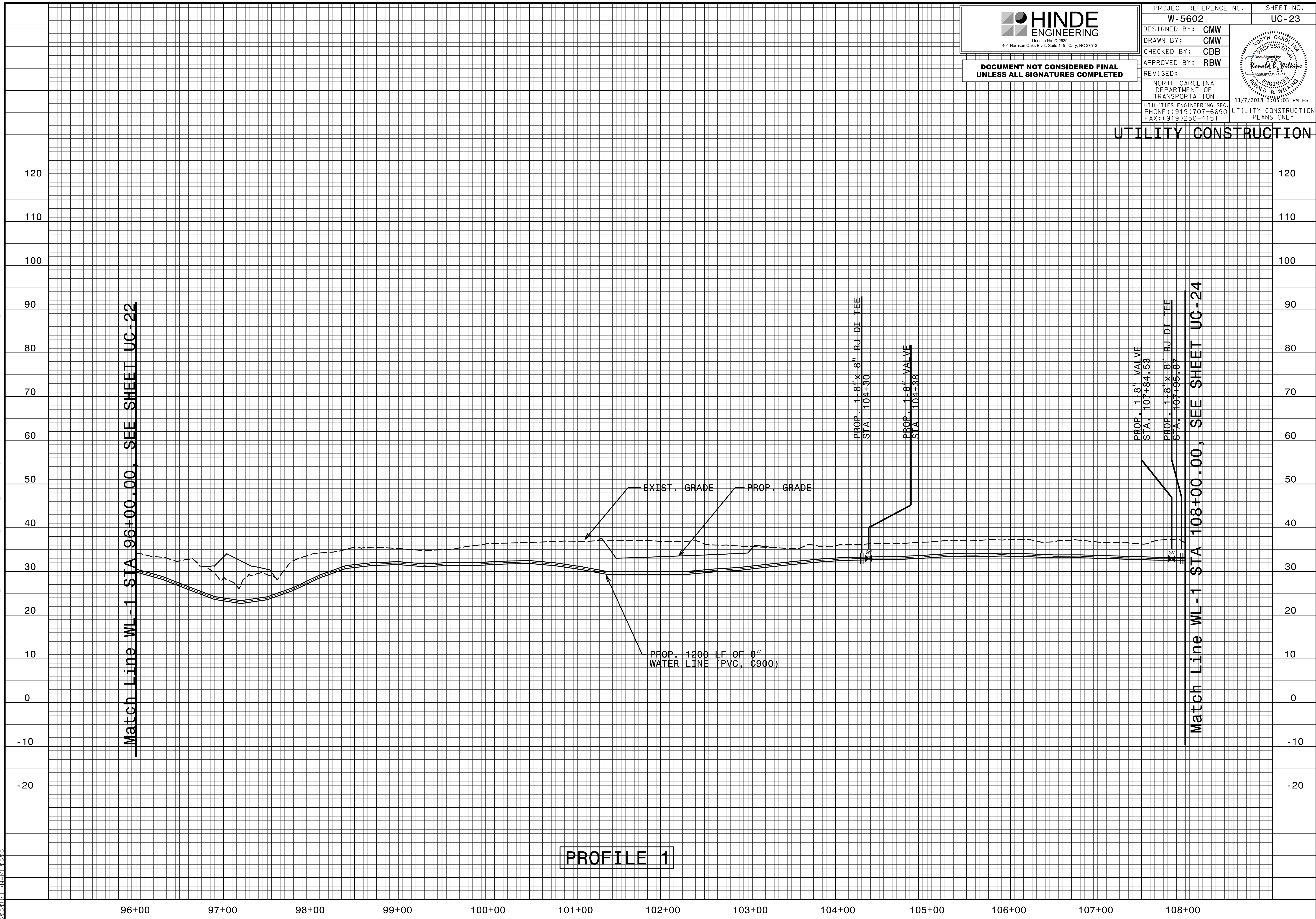
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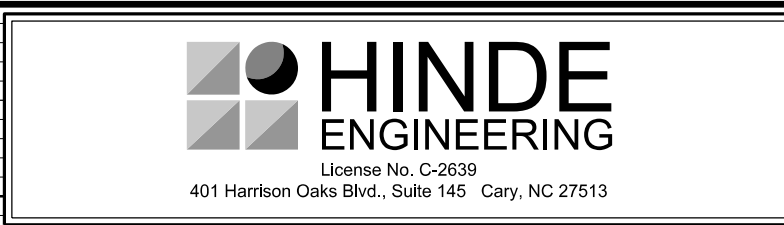
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DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISD:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 11/7/2018 10:03 PM EST	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



PROFILE 1

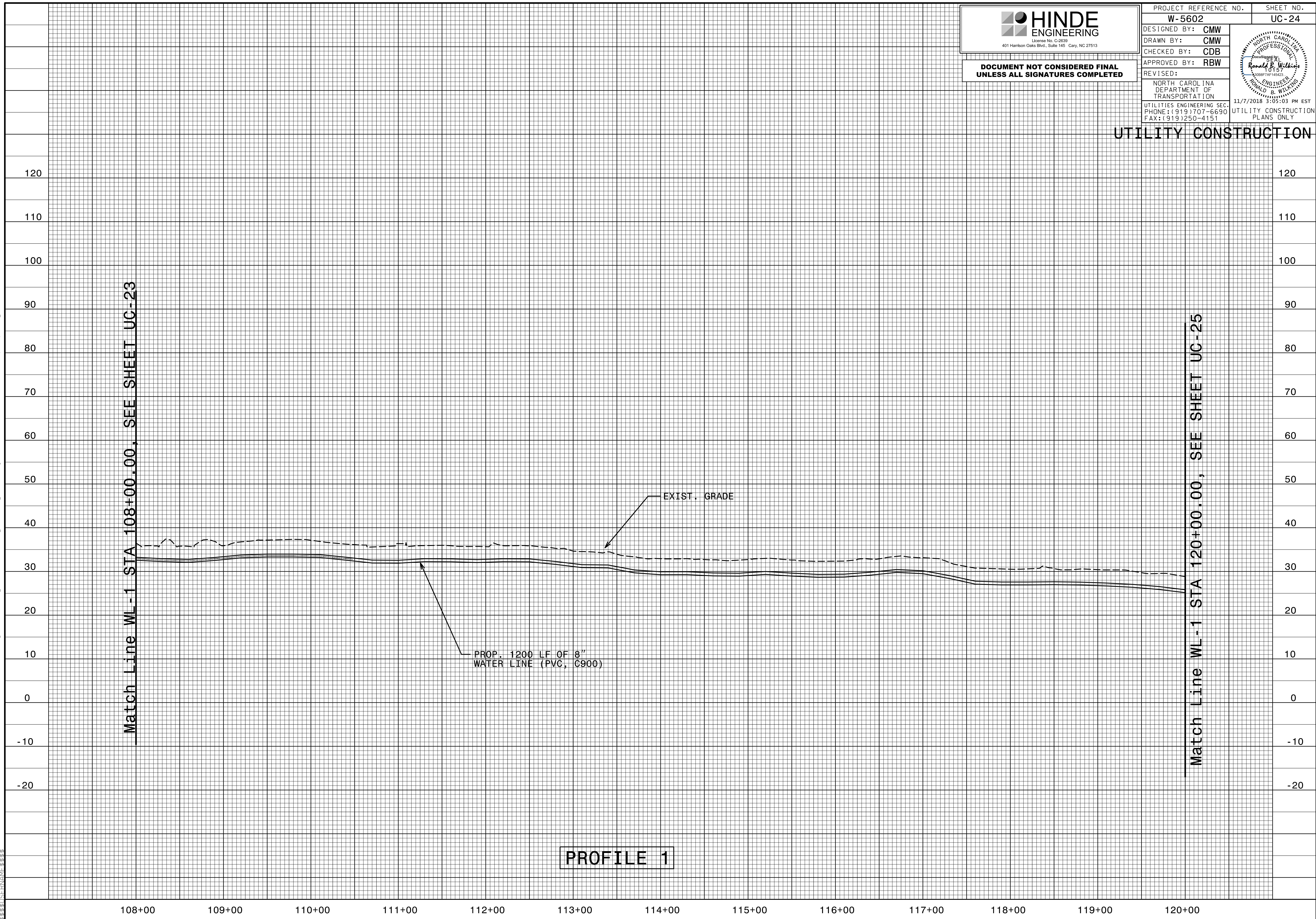
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PROJECT REFERENCE NO. W-5602	SHEET NO. UC-24
DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	11/7/2018 3:05:03 PM EST UTILITY CONSTRUCTION PLANS ONLY

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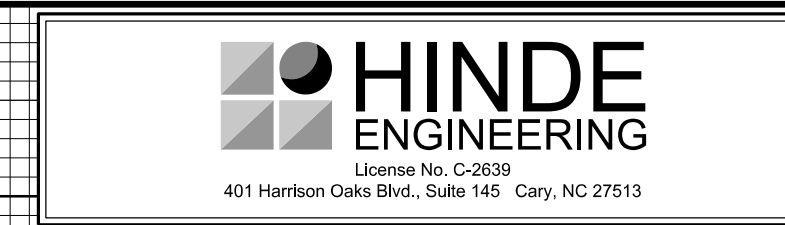


Match Line WL-1 STA 108+00.00, SEE SHEET UC-23

Match Line WL-1 STA 120+00.00, SEE SHEET UC-25

PROFILE 1

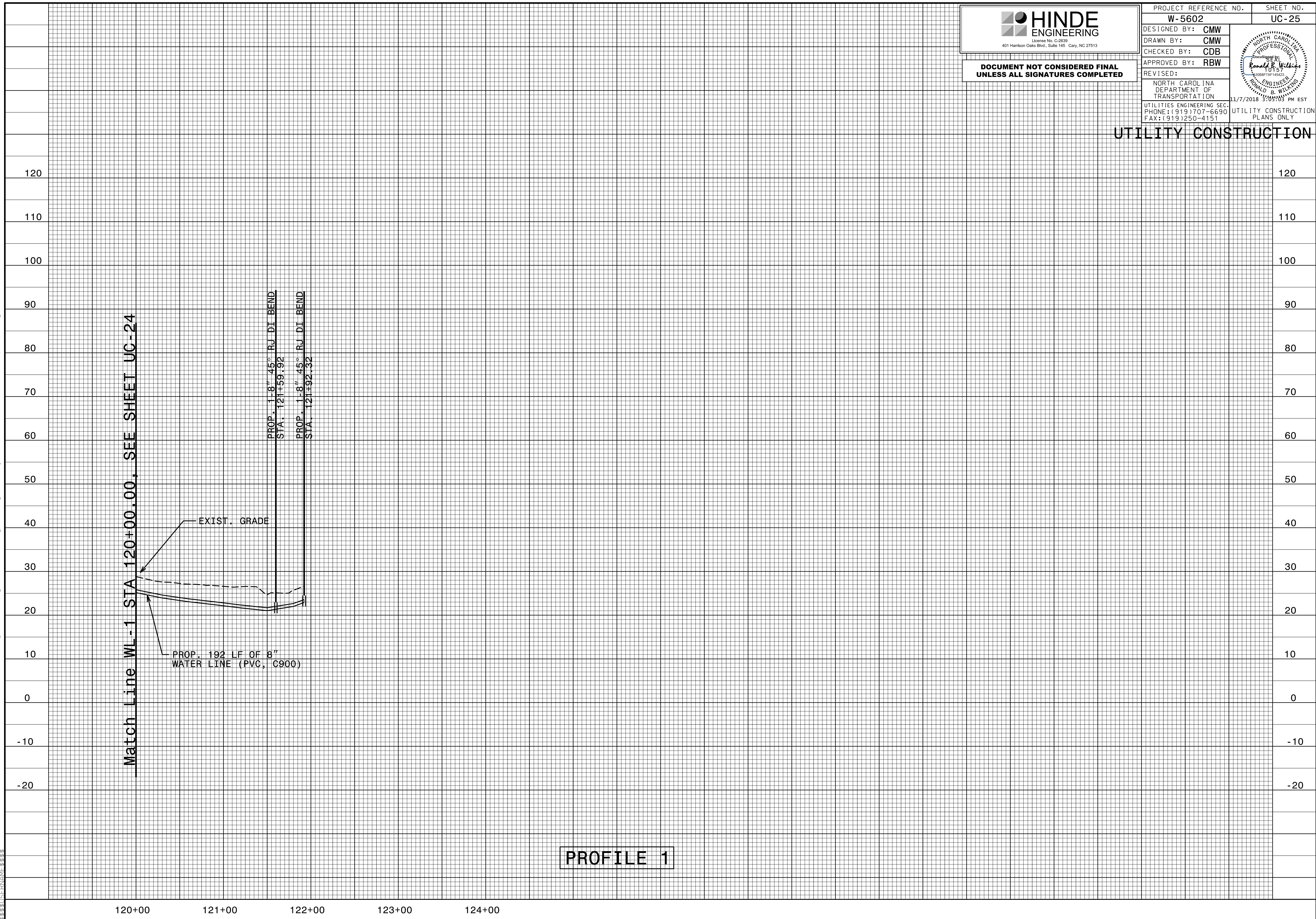
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PROJECT REFERENCE NO.	W-5602	SHEET NO.	UC-25
DESIGNED BY:	CMW		
DRAWN BY:	CMW		
CHECKED BY:	CDB		
APPROVED BY:	RBW		
REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		11/7/2018 3:09:03 PM EST	
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UTILITY CONSTRUCTION



Match Line WL-1 STA 120+00.00. SEE SHEET UC-24

EXIST. GRADE

PROP. 192 LF OF 8" WATER LINE (PVC, C900)

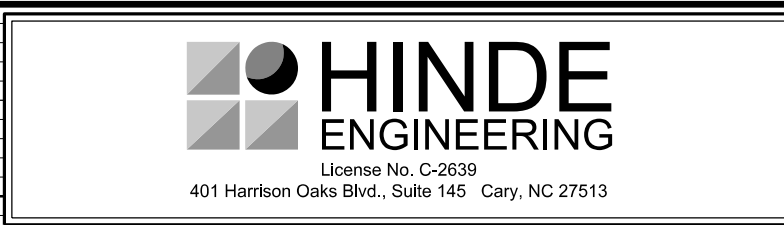
PROP. 1-8" 45° RJ DI BEND
STA. 121+59.92

PROP. 1-8" 45° RJ DI BEND
STA. 121+92.32

PROFILE 1

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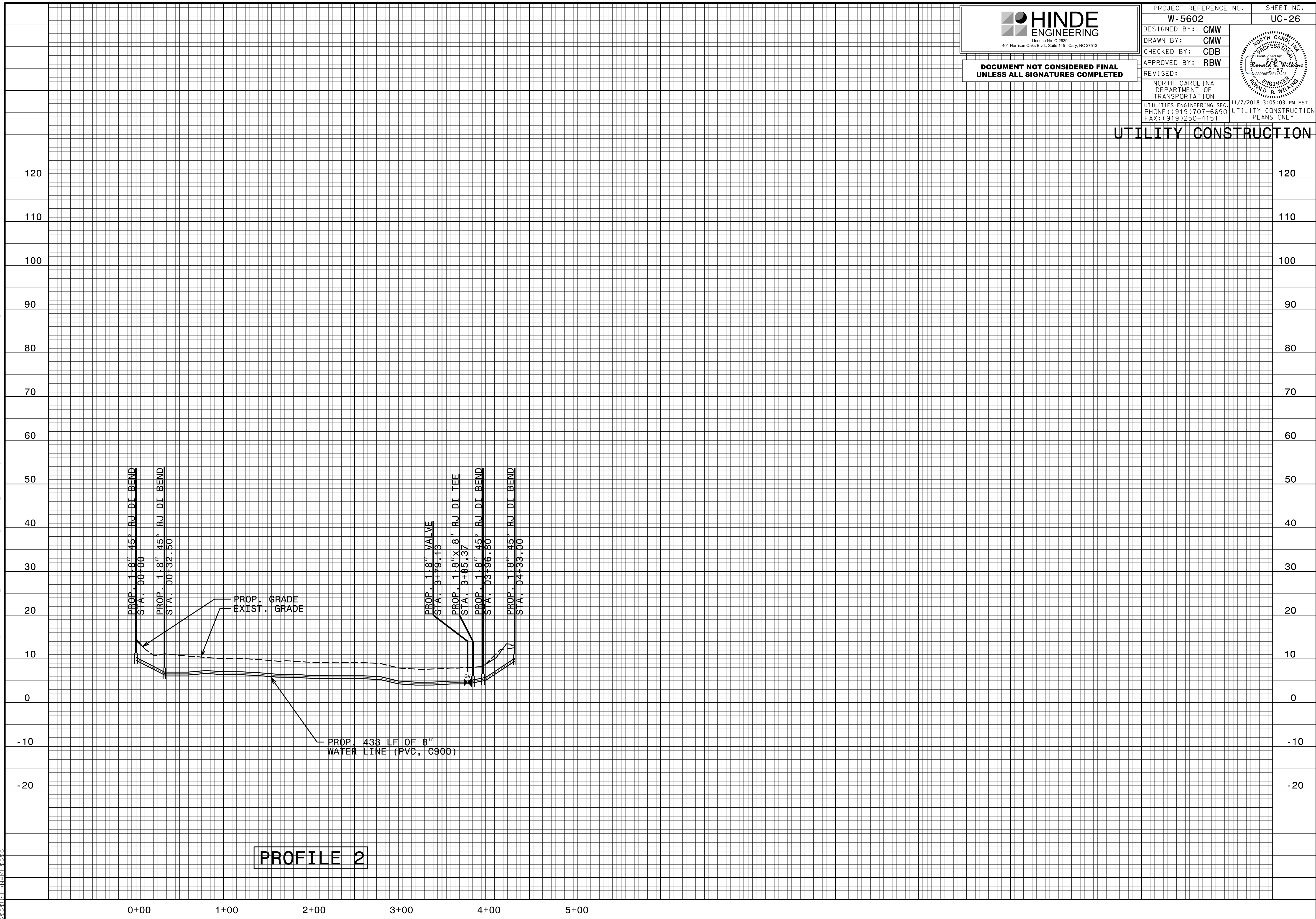
120+00 121+00 122+00 123+00 124+00



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DESIGNED BY: CMW	
DRAWN BY: CMW	
CHECKED BY: CDB	
APPROVED BY: RBW	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151	11/7/2018 3:05:03 PM EST UTILITY CONSTRUCTION PLANS ONLY

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PROFILE 2

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