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SEE SHEET 1B FOR CONVENTIONAL PLAN SHEET SYMBOLS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
I-5973	UC-1

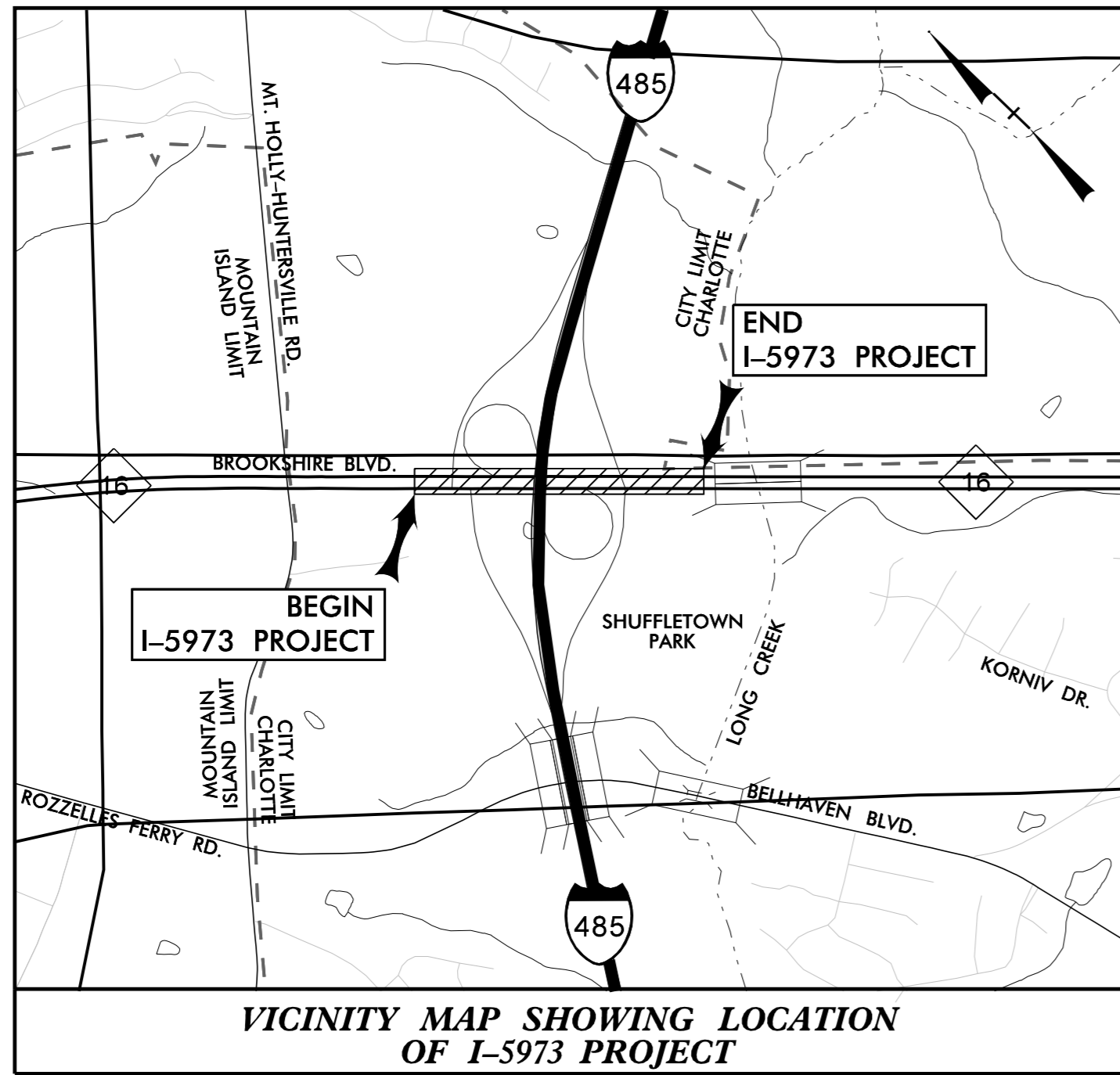
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MECKLENBURG COUNTY

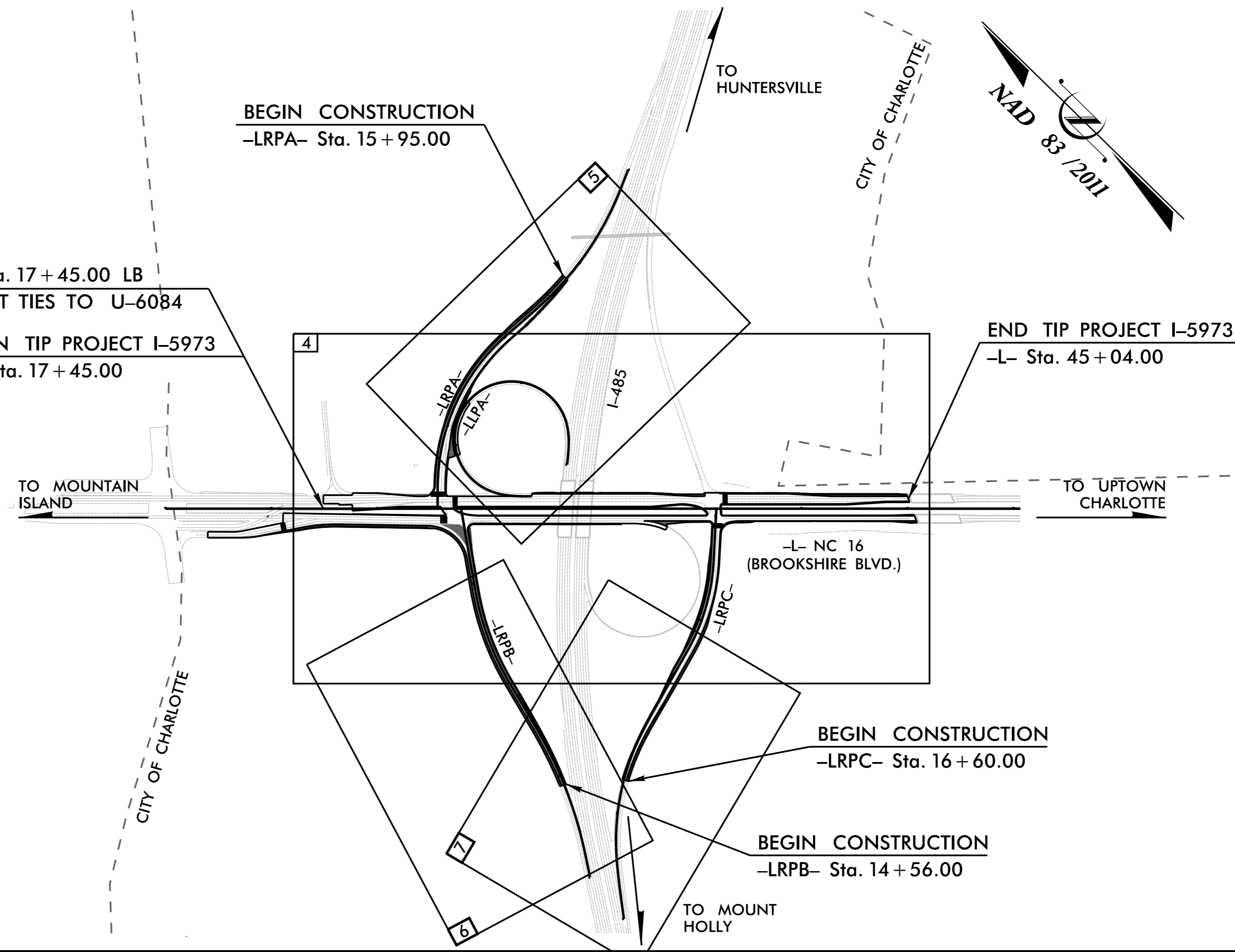
LOCATION: NC 16 (BROOKSHIRE BLVD) AND NORTHERN I-485 INTERCHANGE

TYPE OF WORK: WATER MAIN RELOCATIONS

TIP PROJECT: I-5973



25% PLANS

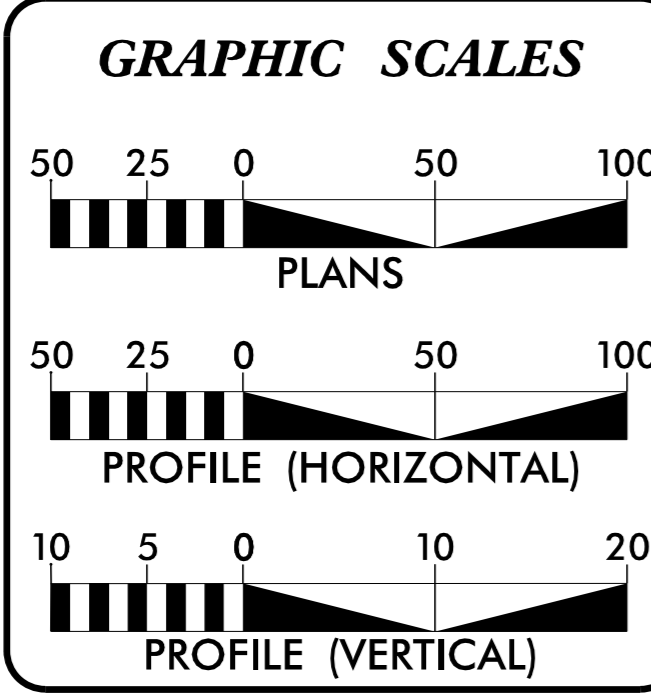


A PORTION OF THIS PROJECT IS LOCATED WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF CHARLOTTE

NCDOT CONTACT:
SEAN EPPERSON, P.E.
NCDOT - DIVISION 10
716 W. MAIN STREET
ALBEMARLE, NC 28001

OWNER:	CONTACT INFORMATION BILL DEAL, P.E. (980) 722-0786 WDEAL@CI.CHARLOTTE.NC.US
PROJECT ENGINEER:	DANIEL BULA, P.E. (704) 409-1805 DAN.BULA@KIMLEY-HORN.COM 200 SOUTH TRYON STREET, SUITE 200 CHARLOTTE, NORTH CAROLINA 28202

CONTRACT:



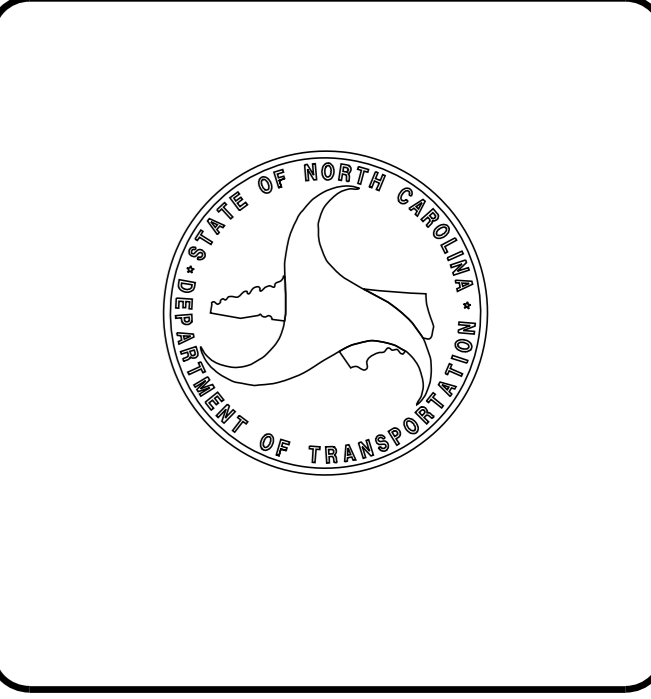
INDEX OF SHEETS	
SHEET NO.:	DESCRIPTION:
UC-1	TITLE SHEET
UC-2	NCDOT SYMBOLOGY
UC-3	GENERAL NOTES
UC-3A THRU UC-3F	STANDARD DETAILS
UC-4 THRU UC-7	UTILITY CONSTRUCTION PLAN

UTILITY OWNERS
WATER - CHARLOTTE WATER

PLANS PREPARED FOR THE NCDOT BY:	Kimley»Horn NC LICENSE #0102 200 SOUTH TRYON STREET, SUITE 200 CHARLOTTE, NORTH CAROLINA 28202 PHONE: (704) 333-5131
2018 STANDARD SPECIFICATIONS	DANIEL G. BULA, P.E. CONSULTANT CONTACT #1
	MATTHEW A. SHOESMITH, P.E. CONSULTANT CONTACT #2
	SEAN EPPERSON, P.E. NCDOT CONTACT

SEAL

SIGNATURE: _____ P.E.



8/17/2022 \\kimley-horn.com\SE_CHL\CHL_PROJ\01036453 - I-5973 (I-485 Brookshire\Utilities\Engineering\UC\Pro\280_001_I-5973_UT_TSH_UC01.dgn

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale *S.U.E. = Subsurface Utility Engineering

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	-----
Property Monument	□ ECM
Parcel/Sequence Number	①23
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-WLB-
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
Known Contamination Area: Soil	☠☠
Potential Contamination Area: Soil	☠☠
Known Contamination Area: Water	☠☠
Potential Contamination Area: Water	☠☠
Contaminated Site: Known or Potential	☠☠

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	+
Building	□
School	□
Church	□
Dam	▬

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	□
Jurisdictional Stream	-JS-
Buffer Zone 1	-BZ 1-
Buffer Zone 2	-BZ 2-
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	⌵
Proposed Lateral, Tail, Head Ditch	▬
False Sump	◁

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	○
Proposed Right of Way Line with Iron Pin and Cap Marker	○
Proposed Right of Way Line with Concrete or Granite RW Marker	○
Proposed Control of Access Line with Concrete C/A Marker	○
Existing Control of Access	○
Proposed Control of Access	○
Existing Easement Line	-E-
Proposed Temporary Construction Easement	-E-
Proposed Temporary Drainage Easement	-TDE-
Proposed Permanent Drainage Easement	-PDE-
Proposed Permanent Drainage / Utility Easement	-DUE-
Proposed Permanent Utility Easement	-PUE-
Proposed Temporary Utility Easement	-TUE-
Proposed Aerial Utility Easement	-AUE-
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-C-
Proposed Slope Stakes Fill	-F-
Proposed Curb Ramp	○ CR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	▨

VEGETATION:

Single Tree	☼
Single Shrub	☼
Hedge	-----
Woods Line	-----

Orchard	☼☼☼☼
Vineyard	□ Vineyard

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	□ CONC
Bridge Wing Wall, Head Wall and End Wall	} CONC WW {
MINOR:	
Head and End Wall	□ CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	○
Storm Sewer	-S-

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	○
Power Line Tower	□
Power Transformer	□
U/G Power Cable Hand Hole	○
H-Frame Pole	●
U/G Power Line LOS B (S.U.E.*)	-----
U/G Power Line LOS C (S.U.E.*)	-----
U/G Power Line LOS D (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	○
Telephone Pedestal	□
Telephone Cell Tower	⌵
U/G Telephone Cable Hand Hole	○
U/G Telephone Cable LOS B (S.U.E.*)	-----
U/G Telephone Cable LOS C (S.U.E.*)	-----
U/G Telephone Cable LOS D (S.U.E.*)	-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----

WATER:

Water Manhole	○
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	-A/G Water-

TV:

TV Pedestal	□
TV Tower	⊗
U/G TV Cable Hand Hole	○
U/G TV Cable LOS B (S.U.E.*)	-----
U/G TV Cable LOS C (S.U.E.*)	-----
U/G TV Cable LOS D (S.U.E.*)	-----
U/G Fiber Optic Cable LOS B (S.U.E.*)	-----
U/G Fiber Optic Cable LOS C (S.U.E.*)	-----
U/G Fiber Optic Cable LOS D (S.U.E.*)	-----

GAS:

Gas Valve	◇
Gas Meter	◇
U/G Gas Line LOS B (S.U.E.*)	-----
U/G Gas Line LOS C (S.U.E.*)	-----
U/G Gas Line LOS D (S.U.E.*)	-----
Above Ground Gas Line	-A/G Gas-

SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-A/G Sanitary Sewer-
SS Forced Main Line LOS B (S.U.E.*)	-----
SS Forced Main Line LOS C (S.U.E.*)	-----
SS Forced Main Line LOS D (S.U.E.*)	-----

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	□
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	□
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
U/G Test Hole LOS A (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

8/17/2022 \\ximley-horn.com\SE_CHLNCHL_P\PR\1036453 - 1-5973 (1-485_BrookshireUtilitiesEngineering\UC\Proj\280_002_1-5973_UT_SYM_UC02.dgn

5/14/99

REVISIONS

8/17/2022

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.
2. THE EXISTING WATER AND SEWER UTILITIES BELONG TO CHARLOTTE WATER.
3. ALL WATER LINES SHALL BE INSTALLED IN COMPLIANCE WITH THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES SHALL BE INSTALLED IN COMPLIANCE WITH THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH 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 UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
5. CONTRACTOR SHALL PROVIDE ACCESS FOR DEPARTMENT PERSONNEL AND 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, AND 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. CONTRACTOR SHALL MAKE INVESTIGATIONS TO DETERMINE EXACT LOCATION, SIZE, AND TYPE OF MATERIAL OF EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND TO AVOID DAMAGE TO EXISTING FACILITIES. CONTRACTOR SHALL REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT NOR OWNER.
7. CONTRACTOR SHALL 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. CONTRACTOR SHALL 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, OR 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.

PROJECT SPECIFIC NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH CHARLOTTE WATER STANDARD DETAILS AND THE PROJECT SPECIAL PROVISIONS.
2. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY CHARLOTTE WATER REPRESENTATIVE.
3. ALL SHORING SHALL BE IN ACCORDANCE WITH OSHA TRENCHING STANDARDS PART 1926, SUBPART B, AS AMENDED TO DATE.
4. ANY NECESSARY LANE CLOSURES SHALL FOLLOW GUIDELINES OUTLINED IN THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
5. IF THE PROPOSED WATER AND/OR SANITARY SEWER MAIN IS INSTALLED WITHIN 12" IN ANY DIRECTION (VERTICALLY OR HORIZONTALLY) OF A GAS MAIN, THE CONTRACTOR SHALL NOTIFY PIEDMONT NATURAL GAS COMPANY (704-525-5585).
6. THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES AS DIRECTED.
7. IF ADDITIONAL WORK SPACE IS NEEDED, AN ENCROACHMENT SHALL BE AGREED UPON BETWEEN CONTRACTOR AND PROPERTY OWNER.
8. THE LOCATION OF EXISTING UTILITIES SHOWN ON THE PLANS IS FOR THE USE OF THE CONTRACTOR IN PROVIDING PROTECTION FOR THE UTILITIES DURING CONSTRUCTION OPERATIONS. NCDOT, DESIGN CONSULTANT, AND/OR AGENT SHALL NOT BE HELD RESPONSIBLE FOR THE ACCURACY OF LOCATION, SIZE, DEPTH, OR COMPLETENESS OF THE INFORMATION. THE CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
9. CONTRACTOR SHALL SUPPORT AND PROTECT ANY EXISTING UNDERGROUND UTILITIES ENCOUNTERED DURING TRENCH EXCAVATION AND/OR PIPE INSTALLATION.
10. 10 FEET HORIZONTAL SEPARATION OR 18" VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN WATER MAINS OVER SEWER MAINS. WHEN WATER MAINS ARE BELOW SEWER MAINS OR MINIMUM SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE SHALL BE USED FOR BOTH MAINS TO 10 FEET ON EITHER SIDE OF THE CROSSING, AND ALL ALONG THE LENGTH OF THE MAINS WHERE THE MINIMUM SEPARATION CANNOT BE MAINTAINED.
11. CHARLOTTE WATER SHALL BE NOTIFIED TWO WEEKS PRIOR TO THE BEGINNING OF WATER AND/OR SANITARY SEWER WORK. CONTACT BILL DEAL OF CHARLOTTE WATER AT (980) 772-0786 TO PROVIDE NOTIFICATION.
12. WATER AND SEWER LINES SHALL REMAIN ACTIVE DURING CONSTRUCTION.
13. SANITARY SEWER LATERAL LOCATIONS ARE APPROXIMATE AND SUBJECT TO RELOCATION DUE TO FIELD CONDITIONS. ALL 4" SANITARY SEWER LATERALS SHALL HAVE A MIN. 1% SLOPE.
14. ALL PROPOSED WATER LINES, UNLESS OTHERWISE INDICATED ON THE PLANS, SHALL BE RESTRAINED JOINT DUCTILE IRON PIPE PRESSURE CLASS 350. ALL PROPOSED SEWER LINES, UNLESS OTHERWISE INDICATED ON THE PLANS, SHALL BE CERAMIC EPOXY LINED PUSH-ON JOINT DUCTILE IRON PIPE PRESSURE CLASS 350.
15. ALL PROPOSED WATER AND SEWER LINES SHALL BE TESTED IN ACCORDANCE WITH CHARLOTTE WATER STANDARD SPECIFICATIONS.
16. CONTRACTOR SHALL MINIMIZE SHUTDOWN TIMES OF WATER AND SEWER FACILITIES, AND COORDINATE WITH CHARLOTTE WATER AND THE LOCAL FIRE DEPARTMENT.



PROJECT REFERENCE NO.	SHEET NO.
I-5973	UC-3
DESIGNED BY: DGB	
DRAWN BY: SLG	
CHECKED BY: MAS	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

GENERAL SEQUENCE:


UTILITY CONSTRUCTION

1. FOR EACH WATER LINE AND SEWER LINE RELOCATION, THE CONTRACTOR SHALL PROVIDE THE UTILITY OWNER WITH A DETAILED INSTALLATION, CONNECTION, AND SERVICE INTERRUPTION PLAN FOR APPROVAL AT LEAST SEVEN (7) DAYS PRIOR TO THE RELOCATION. AT A MINIMUM, EACH PLAN SHALL ADDRESS THE FOLLOWING:
 - A. SEQUENCE OF CONSTRUCTION OPERATIONS.
 - B. PROCEDURE FOR FLUSHING, TESTING, AND DISINFECTION OF ALL AFFECTED PIPING AND VALVES, AS REQUIRED BY THE UTILITY OWNER.
 - C. PHASING AND SCHEDULE FOR ALL CONNECTIONS, INCLUDING PLANNED SERVICE OUTAGES, DURATION, AND CONTINGENCY PLAN.
2. NO INTERRUPTION OF SERVICE WILL BE PERMITTED UNTIL THE FOREGOING PLAN HAS BEEN APPROVED BY THE UTILITY OWNER. THE UTILITY OWNER'S PERSONNEL SHALL OPERATE THE UTILITY OWNER'S EXISTING FACILITIES INVOLVED IN THE INTERRUPTIONS OF SERVICE.
3. PLANNED SERVICE CONNECTION INTERRUPTIONS SHALL LAST NO LONGER THAN 8 HOURS UNLESS OTHERWISE APPROVED BY THE UTILITY OWNER. ALL INTERRUPTIONS OF SERVICES SHALL BE COORDINATED WITH AND SCHEDULED AT TIMES ACCEPTABLE TO THE UTILITY OWNER.
4. WRITTEN WATER SERVICE INTERRUPTION NOTICES SHALL BE PROVIDED TO ALL AFFECTED CUSTOMERS AT LEAST 72 HOURS PRIOR TO EACH PLANNED INTERRUPTION.

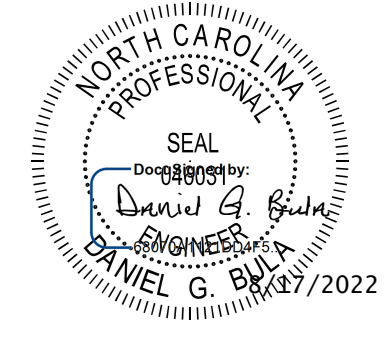
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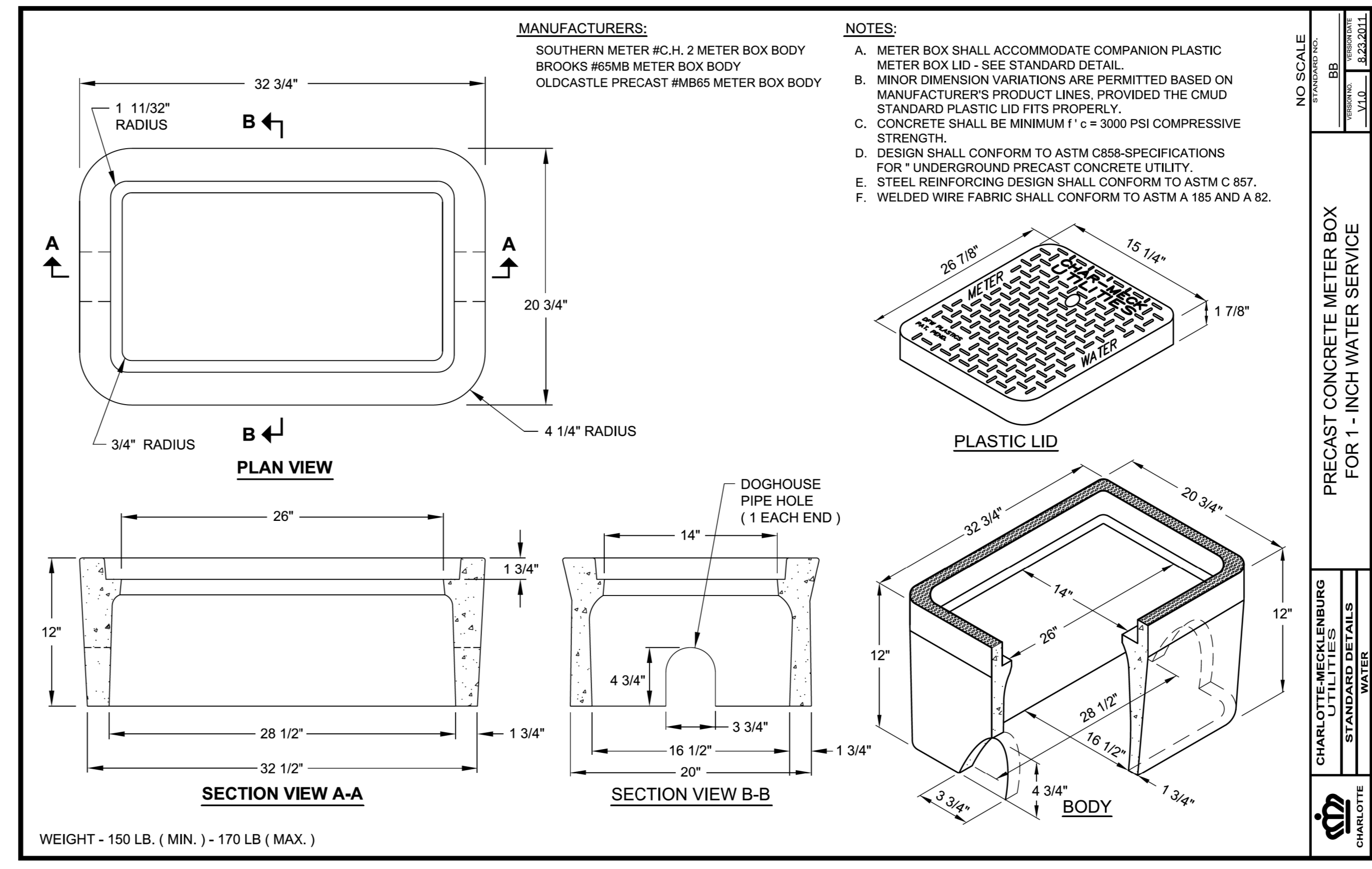
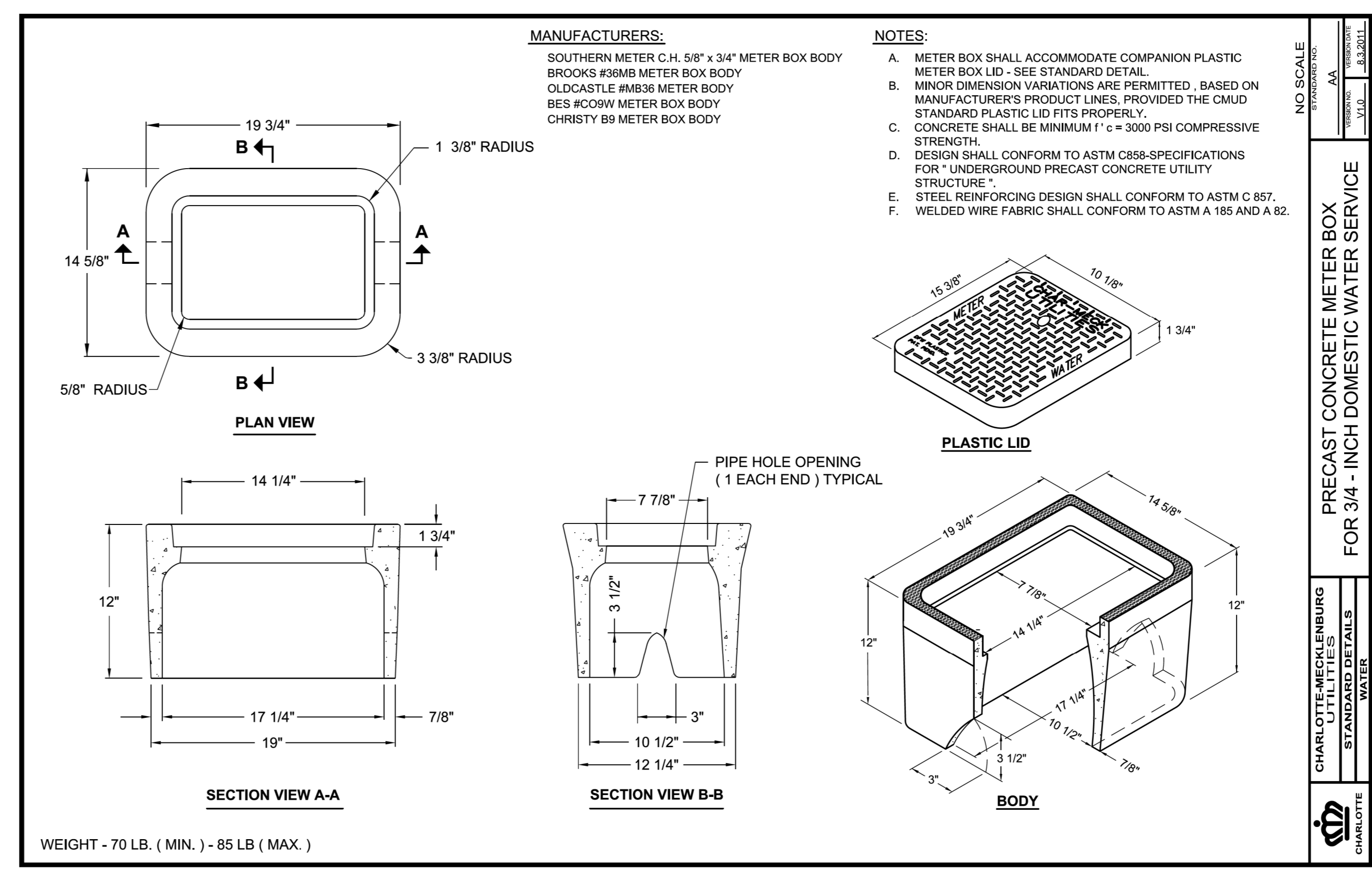
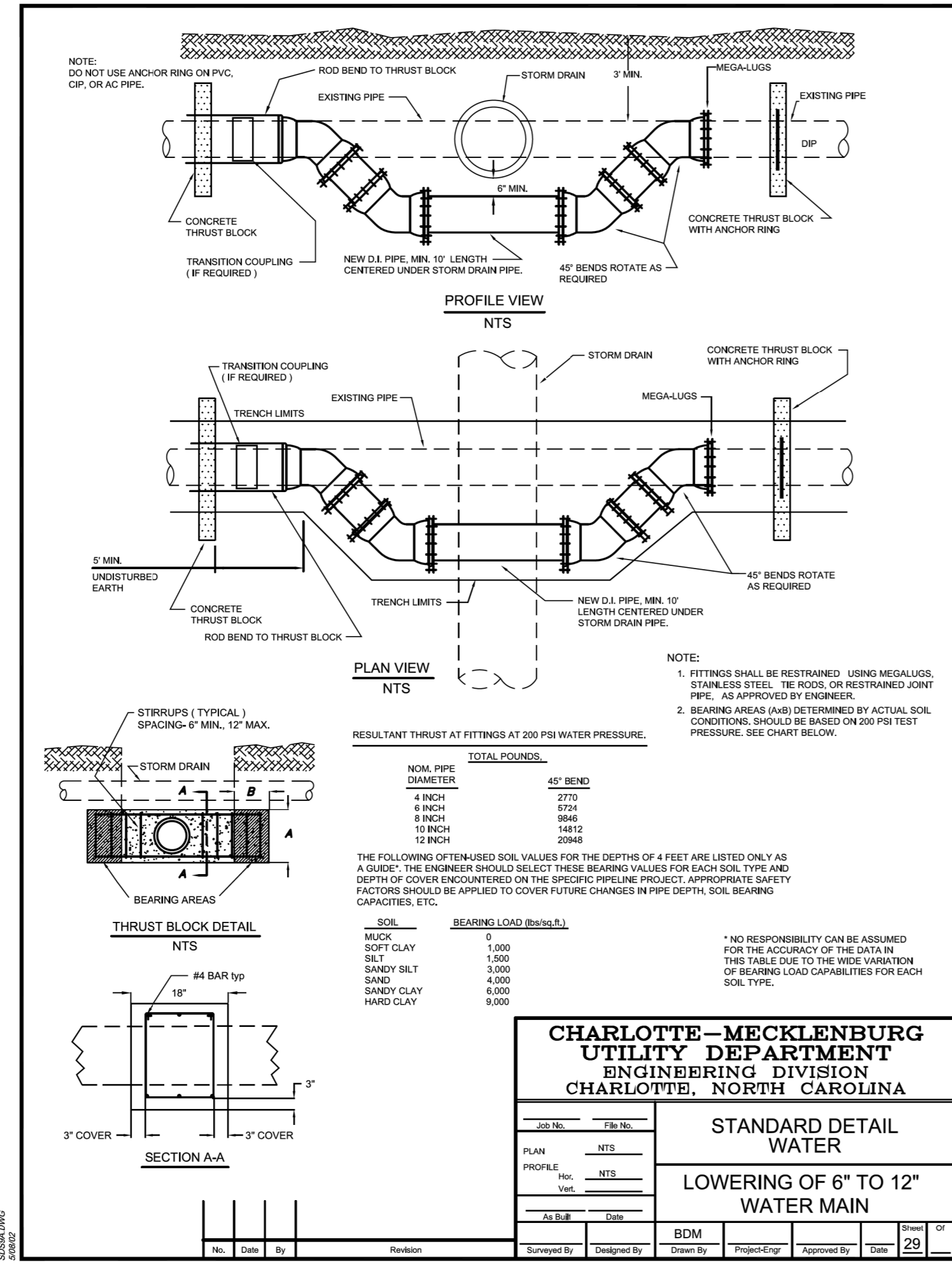
REVISIONS

8/17/2022



200 SOUTH TRYON ST, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
I-5973	UC-3A
DESIGNED BY: DGB	
DRAWN BY: SLG	
CHECKED BY: MAS	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919)707-6690	UTILITY CONSTRUCTION PLANS ONLY
FAX: (919)250-4151	



NO SCALE
STANDARD DETAIL
AA
8-23-2011
V.1.0

PRECAST CONCRETE METER BOX FOR 3/4 - INCH DOMESTIC WATER SERVICE

CHARLOTTE-MECKLENBURG UTILITIES STANDARD DETAILS WATER

CHARLOTTE

NO SCALE
STANDARD DETAIL
BB
8-23-2011
V.1.0

PRECAST CONCRETE METER BOX FOR 1 - INCH WATER SERVICE

CHARLOTTE-MECKLENBURG UTILITIES STANDARD DETAILS WATER

CHARLOTTE

Kimley»Horn
 200 SOUTH TRYON ST, SUITE 200
 CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO. 1-5973 SHEET NO. UC-3C

DESIGNED BY: DGB
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UTILITY CONSTRUCTION PLANS ONLY

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 David G. B...
 CIVIL ENGINEER
 04/17/2022

UTILITY CONSTRUCTION

1" OR 3/4" SERVICE CONNECTION
(LONG SIDE - PLAN VIEW)

1" OR 3/4" SERVICE CONNECTION
(LONG SIDE - PROFILE VIEW)

ROAD WITH SIDE DITCH

1" OR 3/4" SERVICE CONNECTION
(SHORT SIDE)

DETAIL AT MAIN
(LONG SIDE)

DETAIL AT MAIN
(SHORT SIDE)

NO. DESCRIPTION

- 1 WATER MAIN
- 2 DOUBLE STRAP SERVICE SADDLE - CC (TAPER) THREAD OUTLET
- 3 BALL CORPORATION STOP - CC (TAPER) THREAD x CTS COMPRESSION
- 4 TYPE K COPPER TUBING OR SDR9 HDPE (POLY) TUBING WITH INSERT STIFFENERS
- 5 5/8" x 3/4" ANGLE BALL VALVE WITH LOCK WINGS - CTS COMPRESSION x YOKE STAR NUT
- 6 5/8" DUCTILE IRON YOKE BAR
- 7 5/8" METER ASSEMBLY (BY CMUD) WITH AMR TRANSMITTER
- 8 5/8" x 3/4" BRASS 90° YOKE STAR NUT x CTS COMPRESSION CONNECTOR
- 9 CONCRETE METER BOX - SEE STD. DETAILS
- 10 HDPE METER BOX LID WITH AMR TRANSMITTER BRACKETS
- 11 AWG #12 GAUGE COPPER TRACER WIRE (THWN) - WITH BLUE INSULATION - TERMINATE IN METER BOX WITH 24" EXCESS WIRE (COILED)
- 12 SOLID STANDARD CONCRETE BRICKS - DIAGONAL AT CORNERS - 4 EACH.

NO SCALE
 STANDARD DETAILS
 WATER

3/4" AND 1" DOMESTIC WATER SERVICE CONNECTION

CHARLOTTE-MECKLENBURG UTILITIES STANDARD DETAILS WATER

TYPE A - GRADE RING
PRECAST ONLY

TYPE B - GRADE RING
PRECAST OR CAST IN PLACE

TYPE I - FOOTING - TOP SECTION
PRECAST ONLY

TYPE II - FOOTING - BOTTOM SECTION
PRECAST ONLY

INSTALLATION DETAIL ONE
SECTION VIEW

INSTALLATION DETAIL TWO
SECTION VIEW

NO. DESCRIPTION

- 1 CONCRETE GRADE RING.
- 2 CONCRETE FOOTING.
- 3 NON WOVEN GEOTEXTILE FABRIC x 2 EACH.
- 4 SLIT IN FABRIC - 6 INCHES LONG, ROTATE 90 DEGREES IN SECOND LAYER OF FABRIC.
- 5 #4 REBAR - 17-INCH DIAMETER.
- 6 #4 REBAR - LENGTH = 56 INCHES, OR (ALTERNATE - 14-INCH DIAMETER).
- 7 #4 REBAR - 12-INCH DIAMETER.
- 8 #4 REBAR - 8-INCH DIAMETER.
- 9 VALVE BOX ASSEMBLY - (SHOWN LEFT TO RIGHT) - VALVE BOX BOTTOM SECTION, OR 6-INCH DIAMETER C900 PVC PIPE, OR 6-INCH DIAMETER SDR 26 PVC PIPE.
- 10 VALVE - 12-INCH OR SMALLER.
- 11 TOP SECTION OF VALVE BOX.

DESIGN REQUIREMENTS

- CONCRETE - $f_c = 4000$ PSI (PRECAST), OR 3600 PSI (CAST-IN-PLACE).
- STEEL REINFORCEMENT - REBARS - GRADE 60 (60,000 PSI) - ASTM A-615, OR WELDED WIRE FABRIC - ASTM A-185.
- NON WOVEN GEOTEXTILE FABRIC - CARTRIDGE MILLS #X-40HS, MIRAFI #140N, OR APPROVED EQUAL.

NOTES:

- FOR PRECAST GRADE RINGS - FILL VOID BETWEEN GRADE RING AND CAST IRON VALVE BOX TOP SECTION WITH NON-SHRINK GROUT.
- FOR CAST-IN-PLACE GRADE RINGS - TOP SECTION OF CAST IRON VALVE BOX SHALL BE CAST IN THE CONCRETE.
- TYPE A GRADE RINGS SHALL BE REQUIRED ON ROAD SHOULDERS WITHOUT CURBS.
- TYPE I FOOTINGS SHALL BE REQUIRED IN NEW CONSTRUCTION WHEN THE CAST IRON VALVE BOX IS LOCATED DIRECTLY IN THE ASPHALT.
- TYPE II FOOTINGS SHALL BE REQUIRED AT ALL VALVE INSTALLATIONS.
- FOR INSTALLATION DETAIL TWO - ONLY ONE VALVE BOX ASSEMBLY (PART #9) SHALL BE REQUIRED; FOOTINGS SHALL NOT REST ON THE VALVE, AND SHALL BE CENTERED ON THE VALVE OPERATING NUT AS SHOWN.

NO SCALE
 STANDARD DETAILS
 WATER

VALVE BOX - CONCRETE GRADE RINGS AND FOOTINGS (12" AND SMALLER VALVES - ONLY)

CHARLOTTE-MECKLENBURG UTILITIES STANDARD DETAILS WATER

1" OR 3/4" SERVICE CONNECTION
(SHORT SIDE - IN PAVEMENT)

METER BOX IN SIDEWALK
(REQUIRES PRIOR CMU APPROVAL)

METER DETAIL
(SIDE)

METER DETAIL
(END)

METER BOX IN SIDEWALK DETAIL
(REQUIRES PRIOR CMU APPROVAL)
(BOX SHALL BE SUPPORTED BY CONCRETE SIDEWALK - AS SHOWN)

NO. DESCRIPTION

- 1 WATER MAIN
- 2 DOUBLE STRAP SERVICE SADDLE - CC (TAPER) THREAD OUTLET
- 3 BALL CORPORATION STOP - CC (TAPER) THREAD x CTS COMPRESSION
- 4 TYPE K COPPER TUBING OR SDR9 HDPE (POLY) TUBING WITH INSERT STIFFENERS
- 5 5/8" x 3/4" ANGLE BALL VALVE WITH LOCK WINGS - CTS COMPRESSION x YOKE STAR NUT
- 6 5/8" DUCTILE IRON YOKE BAR
- 7 5/8" METER ASSEMBLY (BY CMUD) WITH AMR TRANSMITTER
- 8 5/8" x 3/4" BRASS 90° YOKE STAR NUT x CTS COMPRESSION CONNECTOR
- 9 CONCRETE METER BOX - SEE STD. DETAILS
- 10 HDPE METER BOX LID WITH AMR TRANSMITTER BRACKET
- 11 AWG #12 GAUGE COPPER TRACER WIRE (THWN) - WITH BLUE INSULATION - TERMINATE IN METER BOX WITH 24" EXCESS WIRE (COILED)
- 12 SOLID STANDARD CONCRETE BRICKS - DIAGONAL AT CORNERS - 4 EACH.

NO SCALE
 STANDARD DETAILS
 WATER

3/4" AND 1" DOMESTIC WATER SERVICE CONNECTION

CHARLOTTE-MECKLENBURG UTILITIES STANDARD DETAILS WATER

METER BOX BODY
PLAN VIEW

SECTION A-A

SECTION B-B

SECTION C-C
RIB DETAIL

BOTTOM VIEW

NOTES:

- MATERIAL SHALL BE HIGH DENSITY POLYETHYLENE.
- LOAD RATING = HS20.
- COLOR SHALL BE CHARLOTTE GRAY.
- SUPPLIER / MANUFACTURER: SOUTHEASTERN DISTRIBUTORS MODEL MB 16 - HD.

METER BOX BODY WEIGHT = 13.50 LBS.

LID WEIGHT - INCLUDING REBARS = 5.30 LBS.

NO SCALE
 STANDARD DETAILS
 WATER

PLASTIC METER BOX AND LID FOR 3/4 - INCH DOMESTIC WATER SERVICE

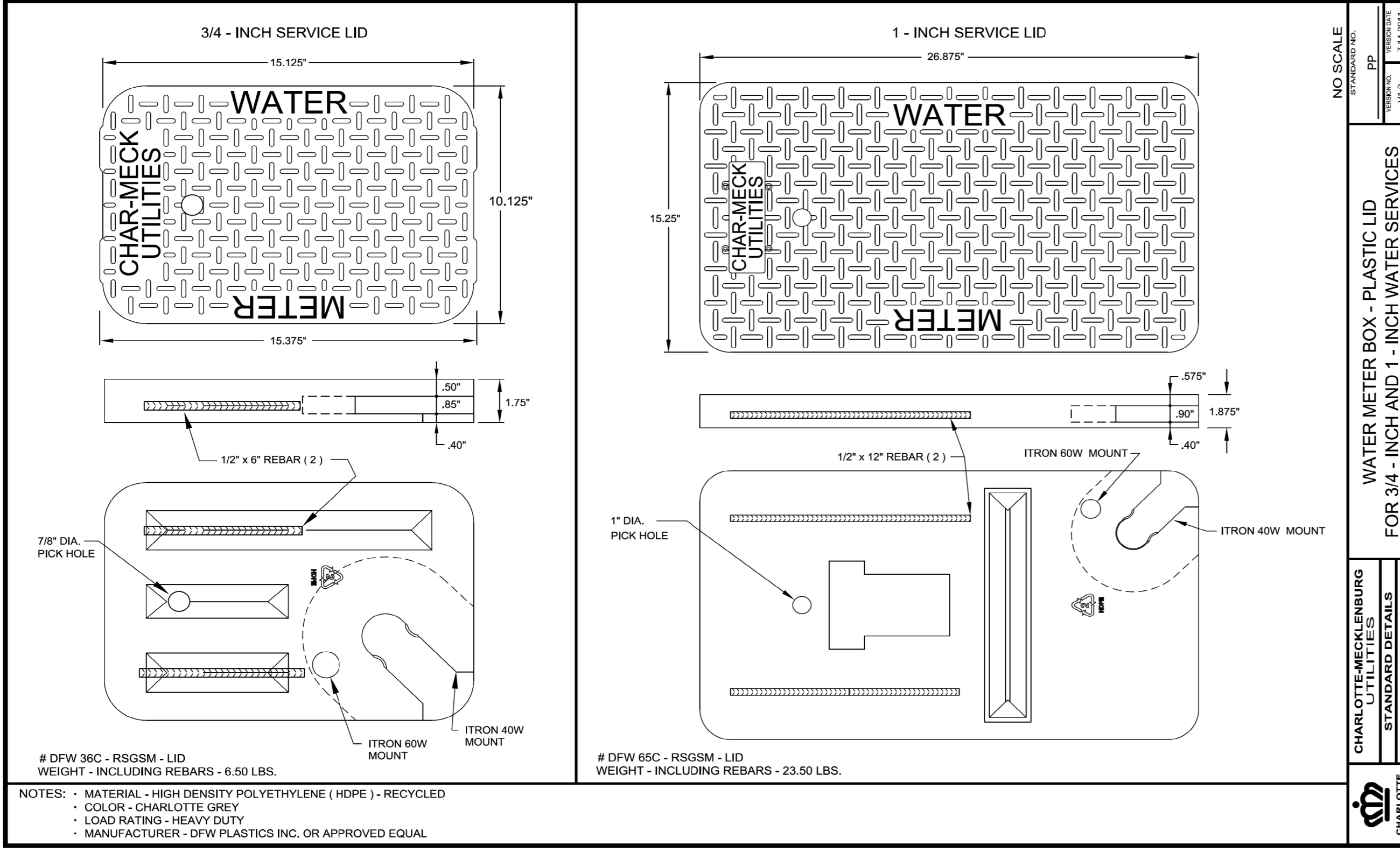
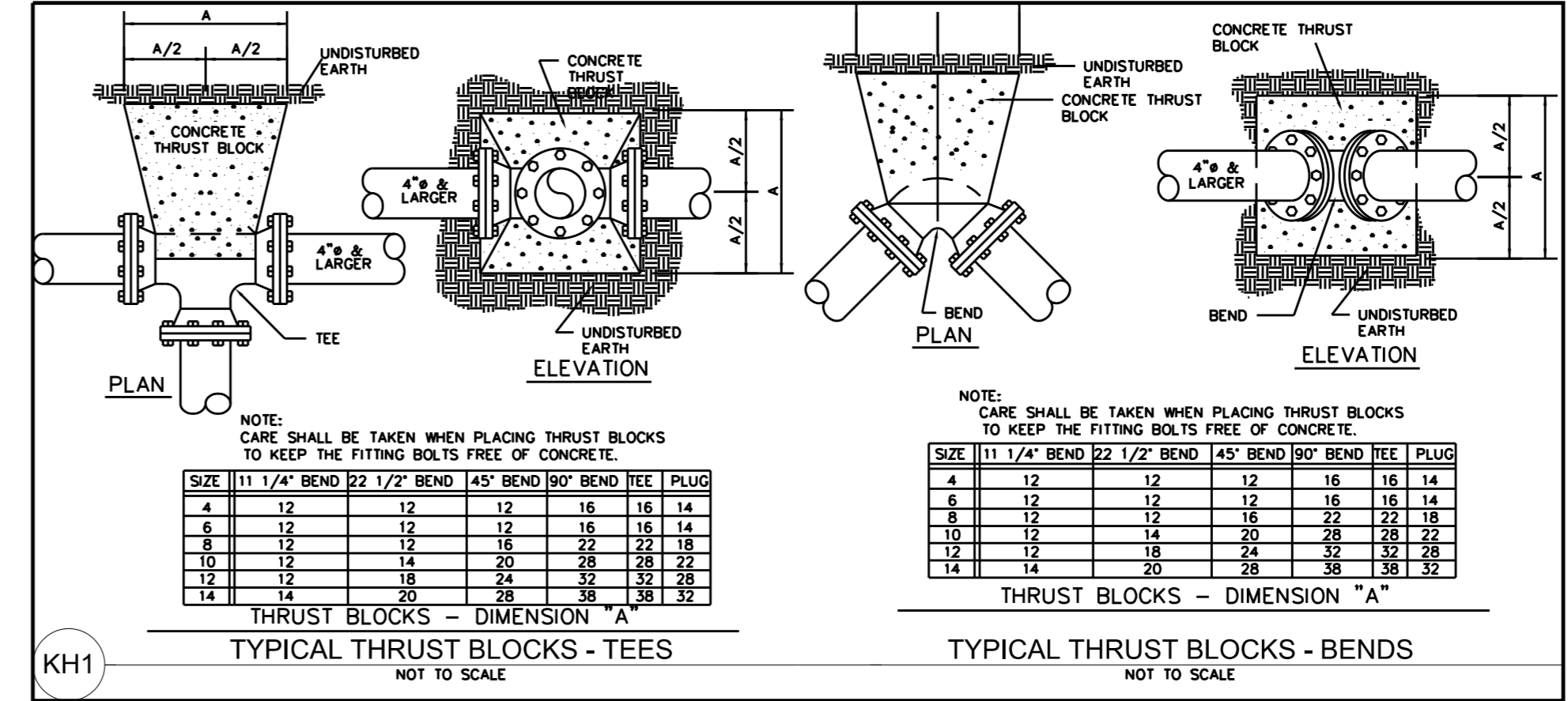
CHARLOTTE-MECKLENBURG UTILITIES STANDARD DETAILS WATER

REVISIONS

5/14/99

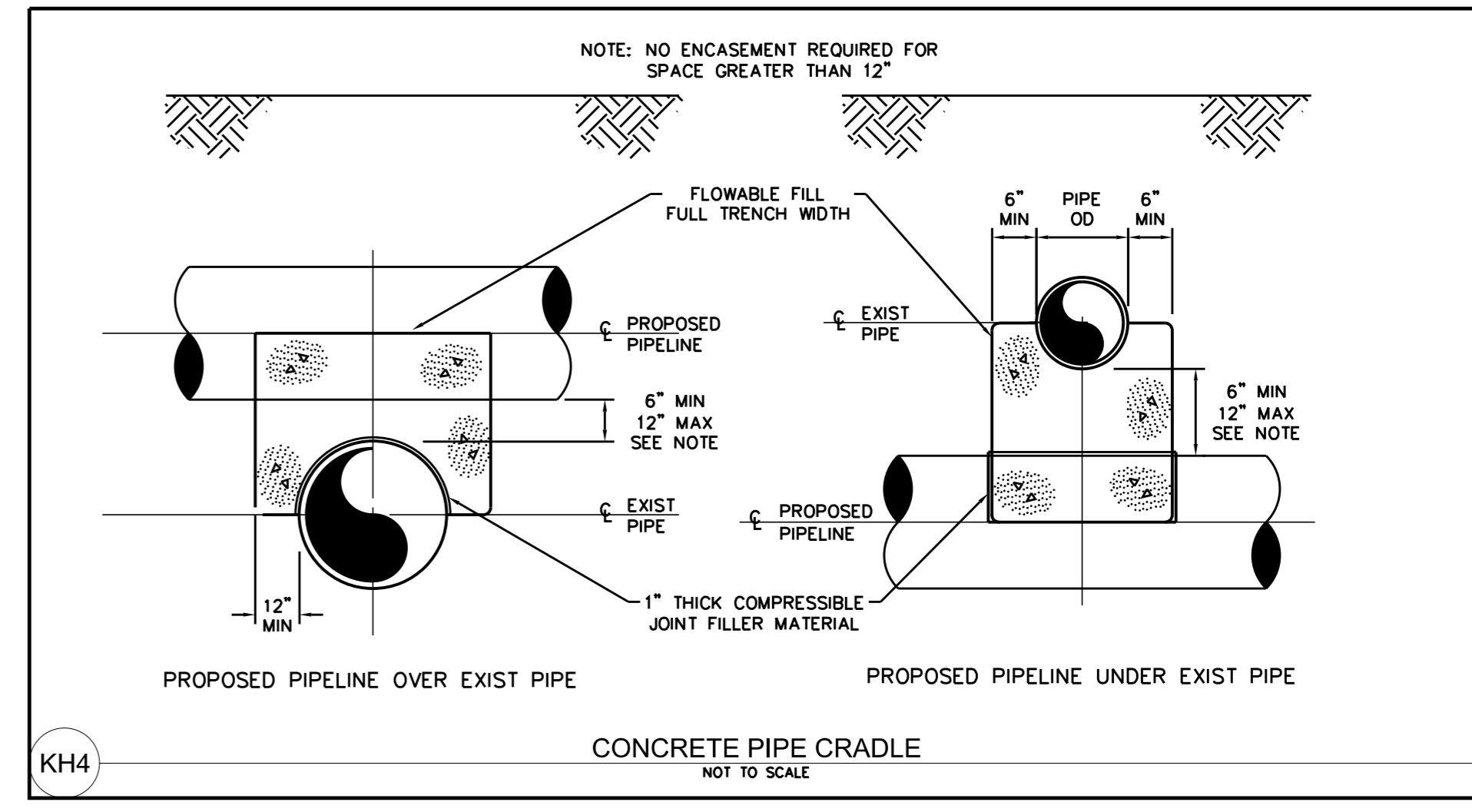
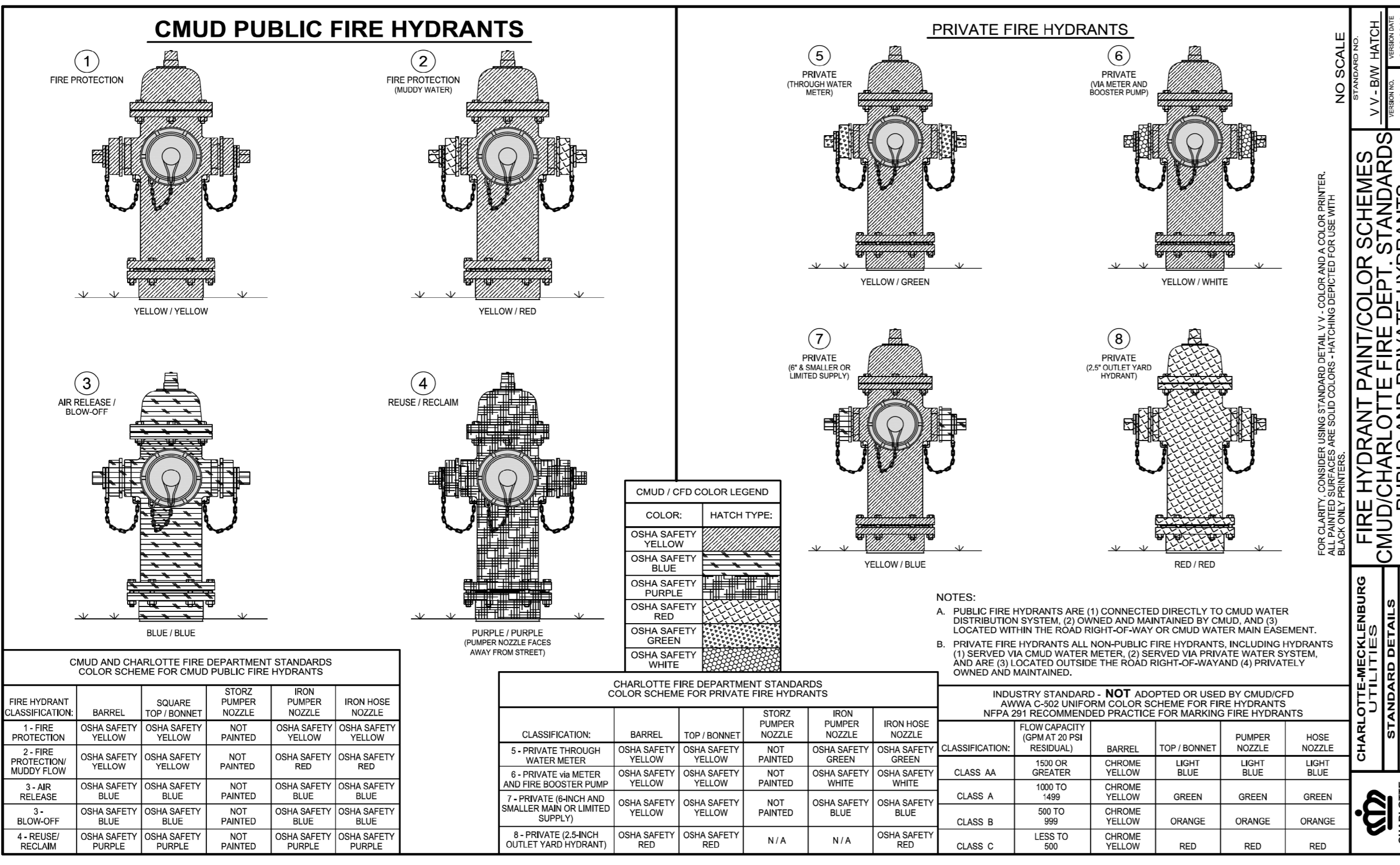
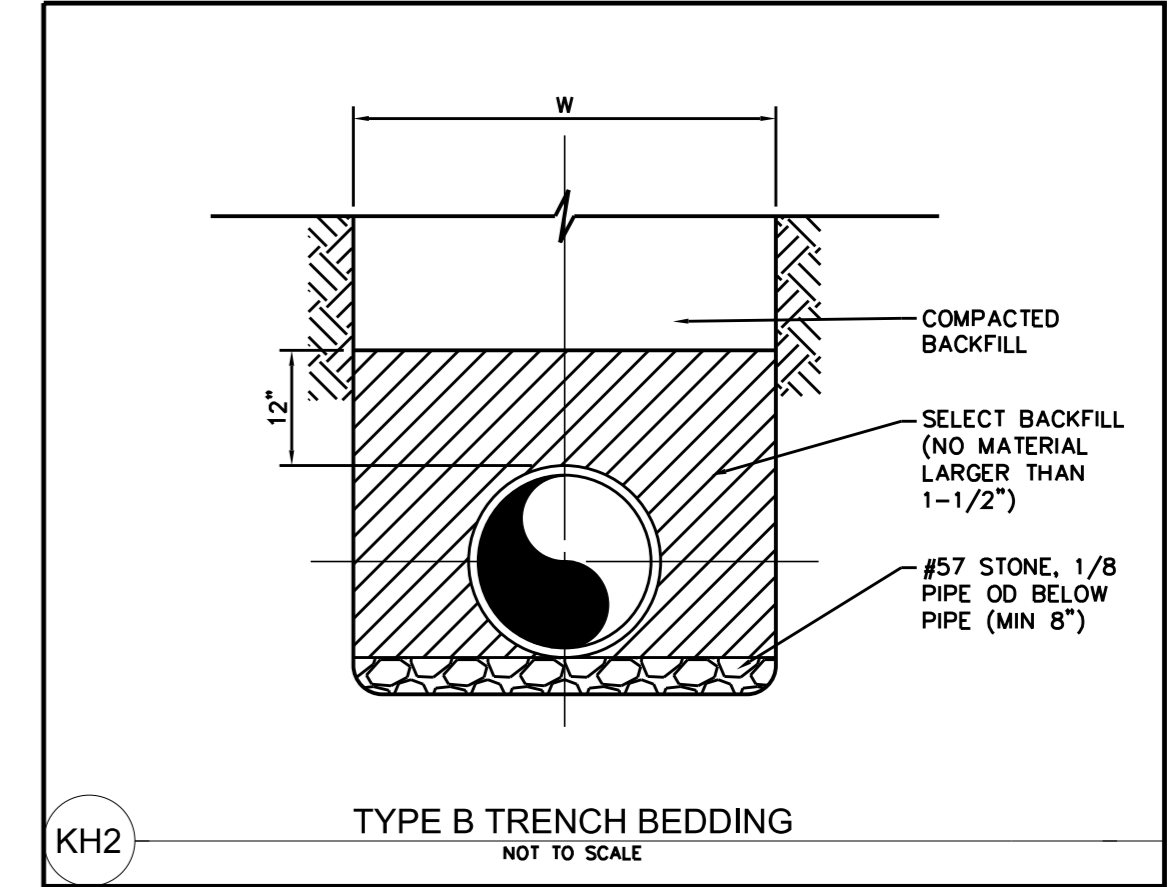
PROJECT REFERENCE NO.	SHEET NO.
I-5973	UC-3D
DESIGNED BY: DGB	
DRAWN BY: SLG	
CHECKED BY: MAS	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE: (919)707-6690 FAX: (919)250-4151	
UTILITY CONSTRUCTION PLANS ONLY	

UTILITY CONSTRUCTION



INTERNAL DIAMETER OF PIPE	WIDTH OF TRENCH	DEPTH OF CUT	S MAXIMUM PAVEMENT REPLACEMENT WIDTH
4"-6"	3'-9"	2'-0"	S=W+4'
8"-10"	3'-9"	2'-2"	S=W+8'
12"	3'-9"	O.D.+2'	S=W+12'
14"-16"	4'-2"	O.D.+2'	S=W+16'
18"	4'-4"	O.D.+2'	S=W+20'
20"-21"	4'-8"	O.D.+2'	S=W+24'
24"	4'-11"	O.D.+2'	S=W+28'
27"	5'-9"	O.D.+2'	S=W+32'
30"	6'-7"	O.D.+2'	
36"	7'-4"	O.D.+2'	
42"	8'-2"	O.D.+2'	
48"	8'-9"	O.D.+2'	
54"	9'-4"	O.D.+2'	
60"	9'-10"	O.D.+2'	
72"	11'-0"	O.D.+2'	
78"	11'-8"	O.D.+2'	
84"	12'-0"	O.D.+2'	
90"	12'-8"	O.D.+2'	
96"	13'-0"	O.D.+2'	
108"	14'-0"	O.D.+2'	

W = TRENCH WIDTH AT BOTTOM OF PIPE. TRENCH SIDE SLOPES SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.



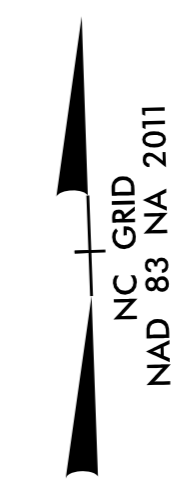
REVISIONS

8/17/2022

NO SCALE
 STANDARD DETAILS
 WATER

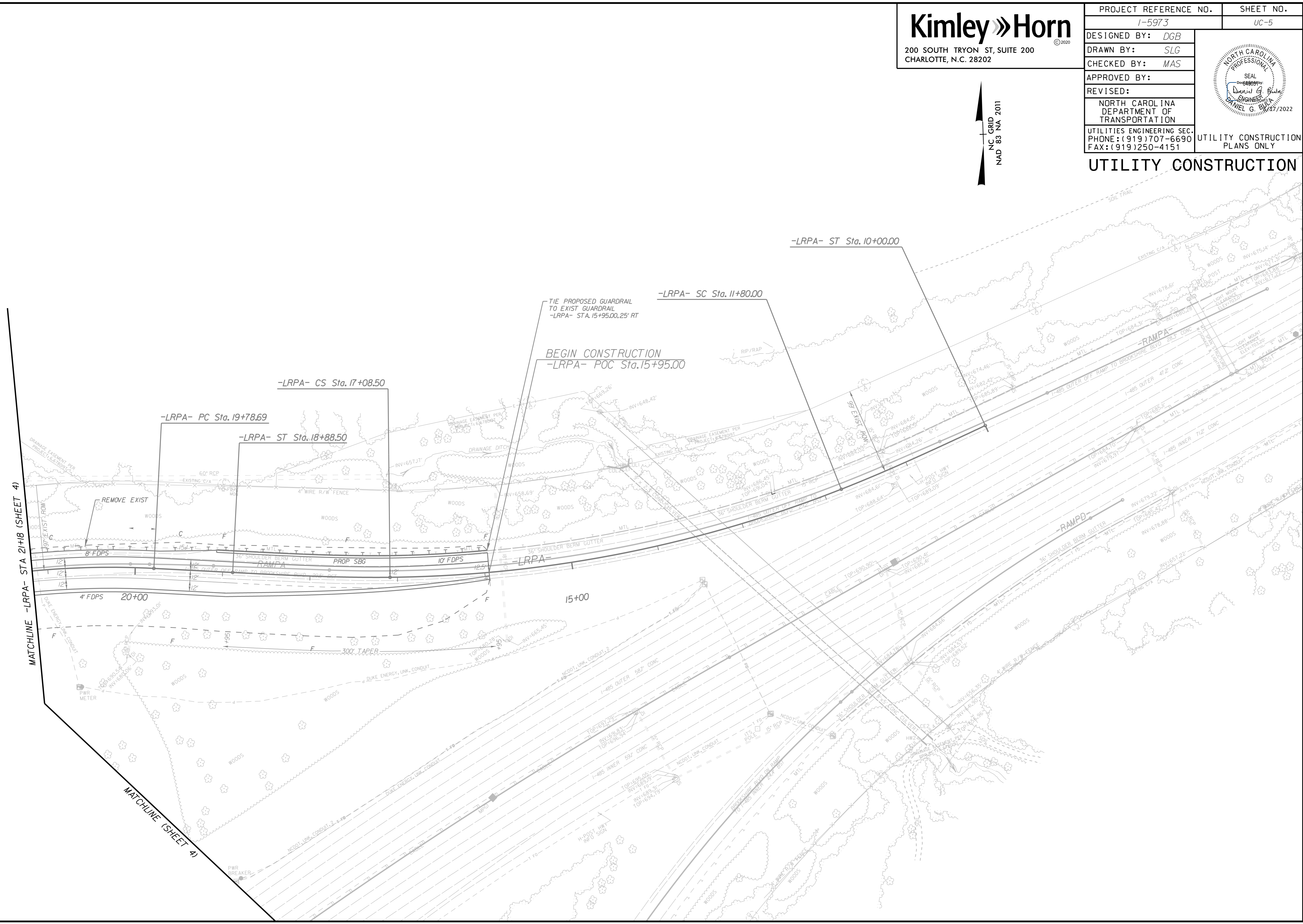
NO SCALE
 STANDARD DETAILS
 WATER

PROJECT REFERENCE NO.	1-5973	SHEET NO.	UC-5
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UTILITY CONSTRUCTION

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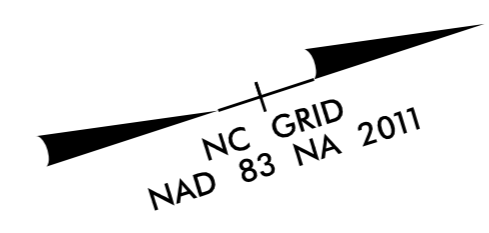


MATCHLINE -LRPA- STA 21+18 (SHEET 4)

MATCHLINE (SHEET 4)

5/14/99

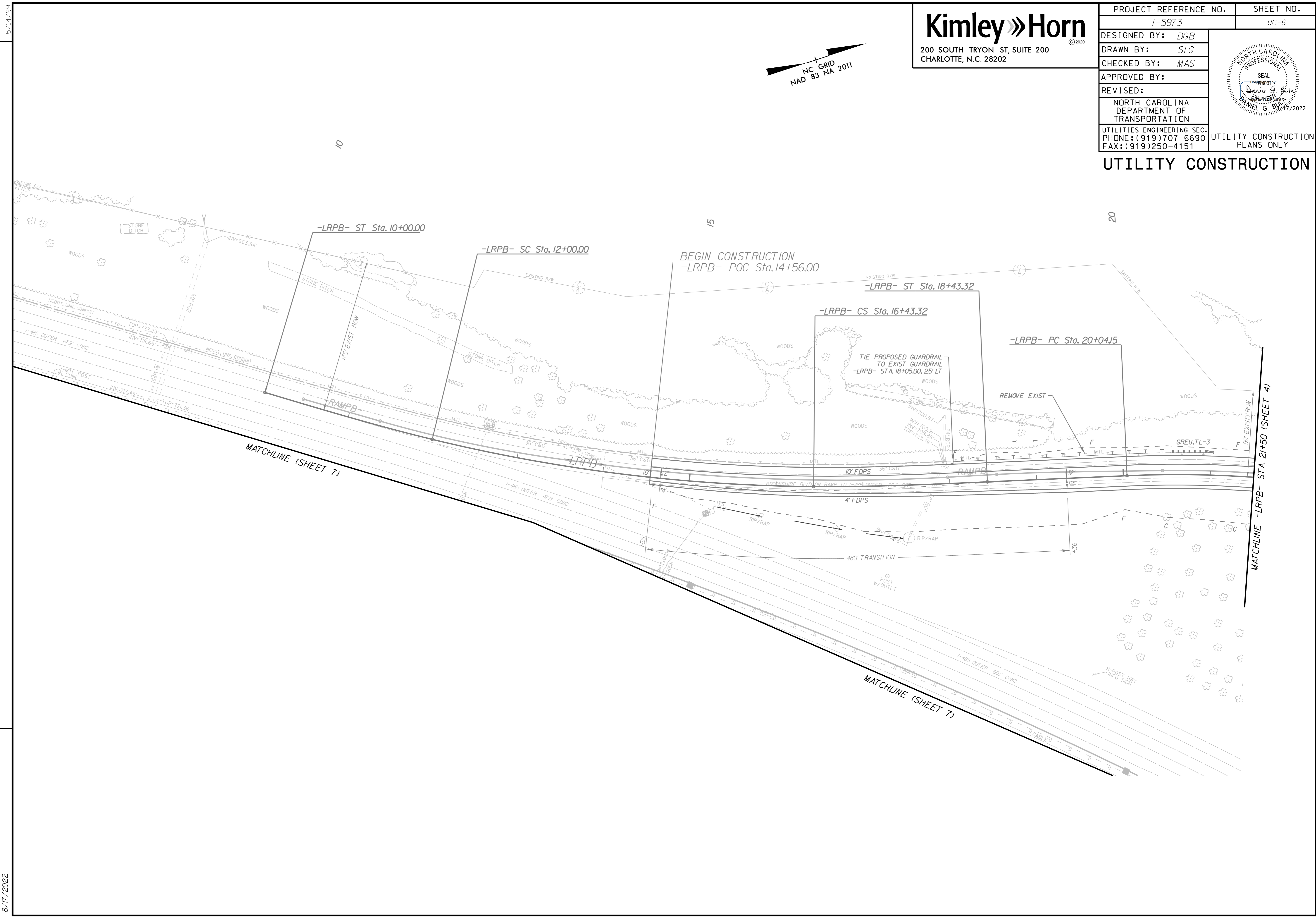
Kimley»Horn
 200 SOUTH TRYON ST, SUITE 200
 CHARLOTTE, N.C. 28202



PROJECT REFERENCE NO.	SHEET NO.
I-5973	UC-6
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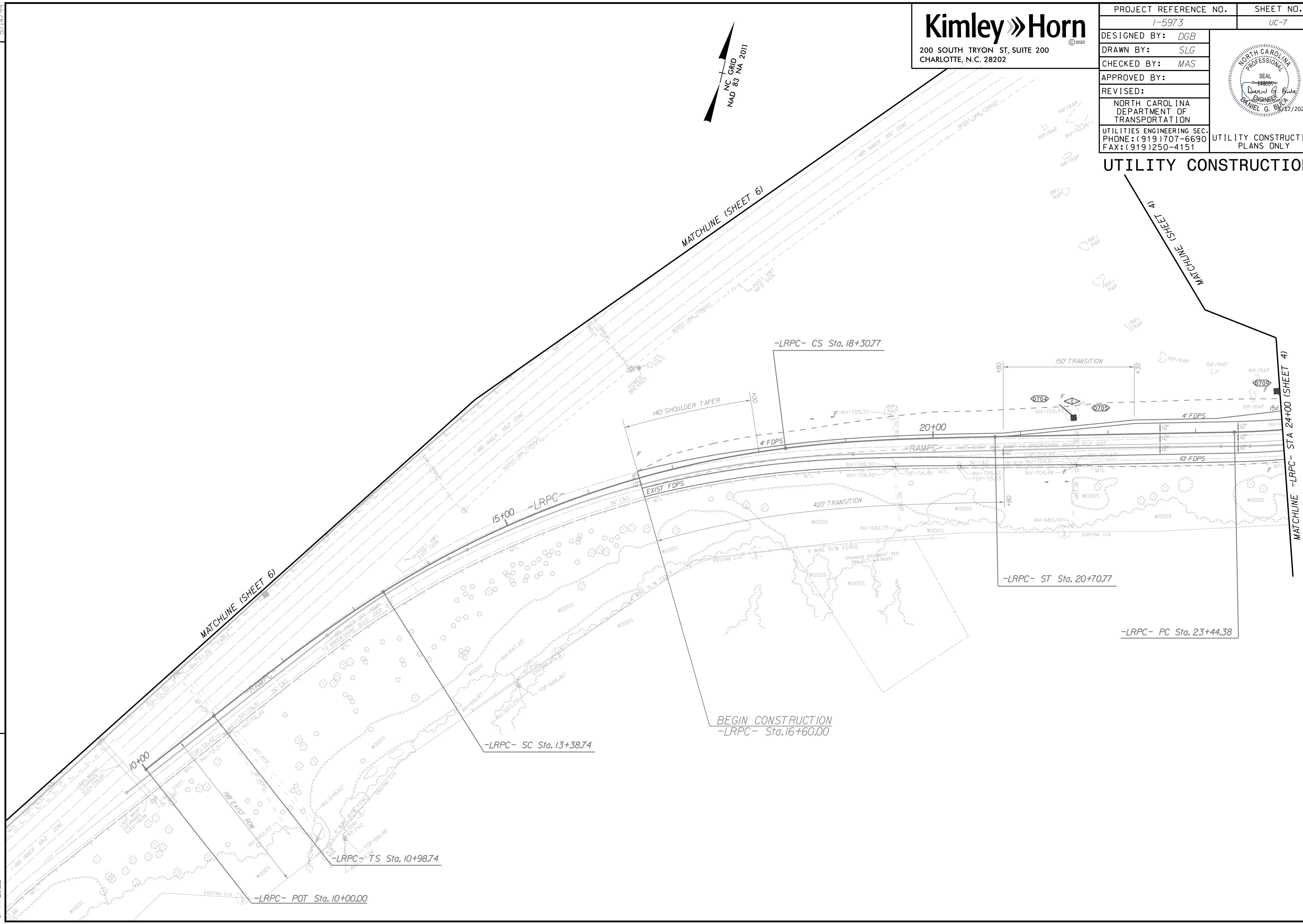
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PROJECT REFERENCE NO.	SHEET NO.
I-5973	UC-7
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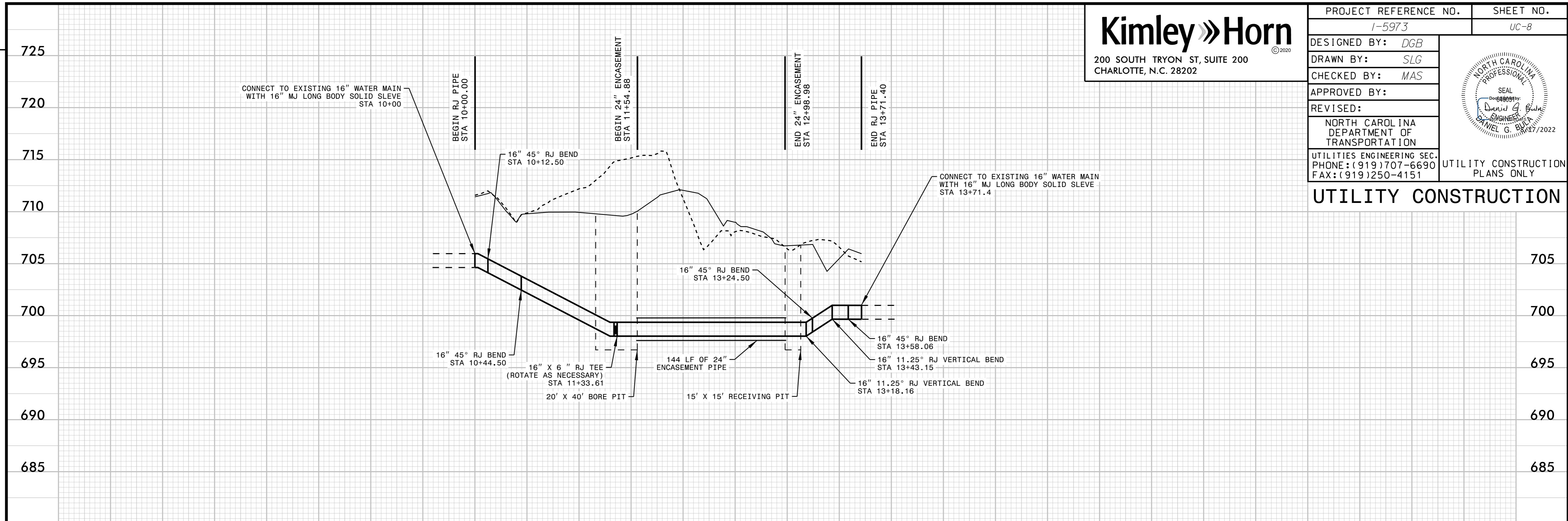
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PROJECT REFERENCE NO.	SHEET NO.
I-5973	UC-8
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CHECKED BY: MAS	
APPROVED BY:	
REVISED:	
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