



A map of the study area showing the location of the study site. The map includes Richard Rozelle Dr, Suzanne Dr, Rozelle's Ferry Road, and Hart Road. A star symbol marks the 'SITE' location.

VICINITY MAP

SHEET NO. 1	COVER SHEET
SHEET NO. 2	PERMIT, GENERAL NOTES AND STREET SECTION
SHEET NO. 3	WATER DISTRIBUTION SHEET
SHEET NO. 4	WATER DISTRIBUTION SHEET (ATHERTON MILL ROAD)
SHEET NO. 5	SEWER PLAN & PROFILE (RICHARD ROZZELLE DRIVE, EXMH-253978 TO MH-3) (SHUFFLETOWN DRIVE, MH-4 TO MH-5)
SHEET NO. 6	SEWER PLAN & PROFILE (JOE MORRISON LN, EXMH-1 TO EXMH-2)

NOTE:
CLT WATER WILL BE ENFORCING THE REQUIREMENTS OF THE NEW DESIGN
MANUAL FOR THIS PROJECT

NOTE:
THIS PROJECT IS CONTINGENT ON THE COMPLETION OF HART ROAD DUPLEXES
(CW-2024-00069)

MUNICIPALITY: CITY OF CHARLOTTE
 NCDOT ENCROACHMENT NO: N/A
 CDOT PERMIT NO:
 NCDEQ PERMIT NO: N/A

N.C.P.E.

N.C.R.L.S. (AS BUILT)

SIZE	LENGTH	SIZE	LENGTH
8"	759 LF		

SUMMARY OF WATER MAINS & FIRE HYDRANTS			
SIZE	LENGTH	SIZE	LENGTH
8"	1281 LF		

TOTAL NO. OF FIRE HYDRANTS: 1

TOTAL NO. UNITS SERVED: 40

PROJECT NAME: HART ROAD PHASE 2

JOB NO: CW-2025-00065

DATE OF ACTIVATION:

DATE AS BUILT: BY:

ASPHALT (PROFILE)	
BOTTOM OF BANK (TOE)	
BRIDGE	
BUILDING	
CHECK DAM STD. 6.83	
CONCRETE (PROFILE)	
CREEK, DITCH OR BRANCH	
CURB & GUTTER	
EDGE OF ROADWAY	
EXISTING FIRE HYDRANT	
EXIST. WATER OR SAN. SEWER EASEMENT	
EXISTING IRON PIN	
EXISTING WATER VALVE	
EXISTING WATER MAIN	
EXISTING S& SANITARY SEWER	
EXIST. SAN. SEWER MANHOLE STRUCTURE	
EXISTING GAS MAIN	
EXISTING GAS SERVICE	
FENCE (LABEL TYPE)	
GAS VALVE	
GRAVEL (PROFILE)	
GROUND PROFILE	
GUARD RAIL	
MARSH, POND, WETLAND OR LAKE	
OVERHEAD ELECTRIC	
PIERS	
POWER POLE/GUY WIRE	
PROPERTY LINE	
PROPOSED AIR RELEASE	
PROPOSED FIRE HYDRANT	
PROPOSED WATER MAIN (MARKED EVERY 100')	
PROP. WATER OR SAN. SEWER EASEMENT	
PROP. WATER OR SAN. SEWER TAP	
PROP. WATER VALVE	
PROPOSED S& SANITARY SEWER	
PROP. SAN. SEWER MANHOLE STRUCTURE	
RIP - RAP	
ROAD/STREET R/W	
SEDIMENT FENCE (SILT FENCE) STD. 6.62	
SIDEWALK	
STREET SIGN (LABEL TYPE)	
STORM DRAIN/CATCH BASIN, YARD AND DROP INLET	
TEMPORARY CONSTRUCTION EASEMENT	
TEMPORARY SEDIMENT TRAP STD. 6.60	
TEMPORARY DIVERSION STD. 6.20	
TEMPORARY STREAM CROSSING STD. 6.70	
TOP OF BANK (TOB)	
TOWER LINE	
TREE & BUSH	
UNDERGROUND CABLE	
UNDERGROUND ELECTRIC	
UNDERGROUND TELEPHONE	
RAILROAD	
WATER METER	

NOTE: LINE WEIGHTS ARE NOT DELINEATED HERE. THEY ARE CONTROLLED THROUGH CLTWater PLOTSTYLE.

DESIGN COMPANY: GATEWAY DESIGN GROUP, PLLC

PLANS PREPARED BY: GREG EMERY, P.E.

EMAIL ADDRESS: greg@gatewaydesigngroup.com

ADDRESS: 8516 FOXBRIDGE DR, WEDDINGTON, NC 28104

PHONE: 828-989-9207

DATE DESIGN COMPLETED: SEPTEMBER 2024

SURVEY COMPANY: CAROLINA GEOMATICS, PLLC

SURVEYED BY: CHEVIS KING, PLS

ADDRESS: 469 HOSPITAL DR, SUITE D, GASTONIA, NC 28054

PHONE: (980) 329-3382

DATE SURVEY COMPLETED: NOVEMBER 2023

DEVELOPER: SAVALEX HOMES LLC

CONTACT: KEVIN BRUNGARDT

EMAIL ADDRESS: kevinbrungardt@alumni.stanfordgsb.org

ADDRESS: 2206 WRENWOOD POND CT, CHARLOTTE NC 28211

PHONE: (214) 402-4545

CONTRACTOR: TBD

PLAN REVIEWER: STEVEN HITE (CHARLOTTE WATER)

INSIDE CHARLOTTE: ☒ YES () NO:

TOPO NO: 489, 490

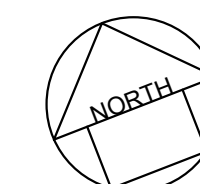
COMPLEX PROJECT: () YES (✓) NO

PID: 03122262

North Carolina 811
www.nc811.org

1. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING APPROPRIATE PARTIES AND ASSURING THAT EXISTING UTILITIES ARE LOCATED PRIOR TO BEGINNING CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES USING FLAG MEN, ETC., AS NECESSARY TO INSURE SAFETY.
3. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO STANDARDS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION AND LOCAL MUNICIPALITIES.
4. SHORING WILL BE ACCORDING TO OSHA TRENCHING STANDARDS PART 1926 SUBPART P, OR AS AMENDED.

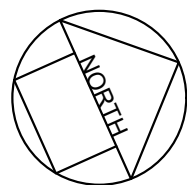
CONSTRUCTION SHALL BE IN ACCORDANCE WITH
CHARLOTTE WATER STANDARD SPECIFICATIONS.



HORIZONTAL 1 inch = 80 ft.

GRAPHIC SCALE

(IN FEET)
HORIZONTAL 1 inch = 40 ft.



NOTE:
CLT WATER WILL BE ENFORCING THE REQUIREMENTS OF THE NEW DESIGN
MANUAL FOR THIS PROJECT

DIPRA CALCULATIONS

PROJECT DATA

TYPE OF FITTING

Combined Horizontal B

ANGLE OF BENDS

11.25°

DIAMETER OF BENDS

(IN)

8

KNOWN LENGTH (L)

(FT)

4

LAYING CONDITION

Type 2

SOIL DESIGNATION

Silt 1

DEPTH OF COVER (FT)

3

DESIGN PRESSURE (PSI)

200

SAFETY FACTOR

2.0

CALCULATE



COMBINED HORIZONTAL
BENDS

UNIT FRICTIONAL FORCE
L1 (LBS/FT)

118

UNIT BEARING
RESISTANCE (LBS/FT)

132

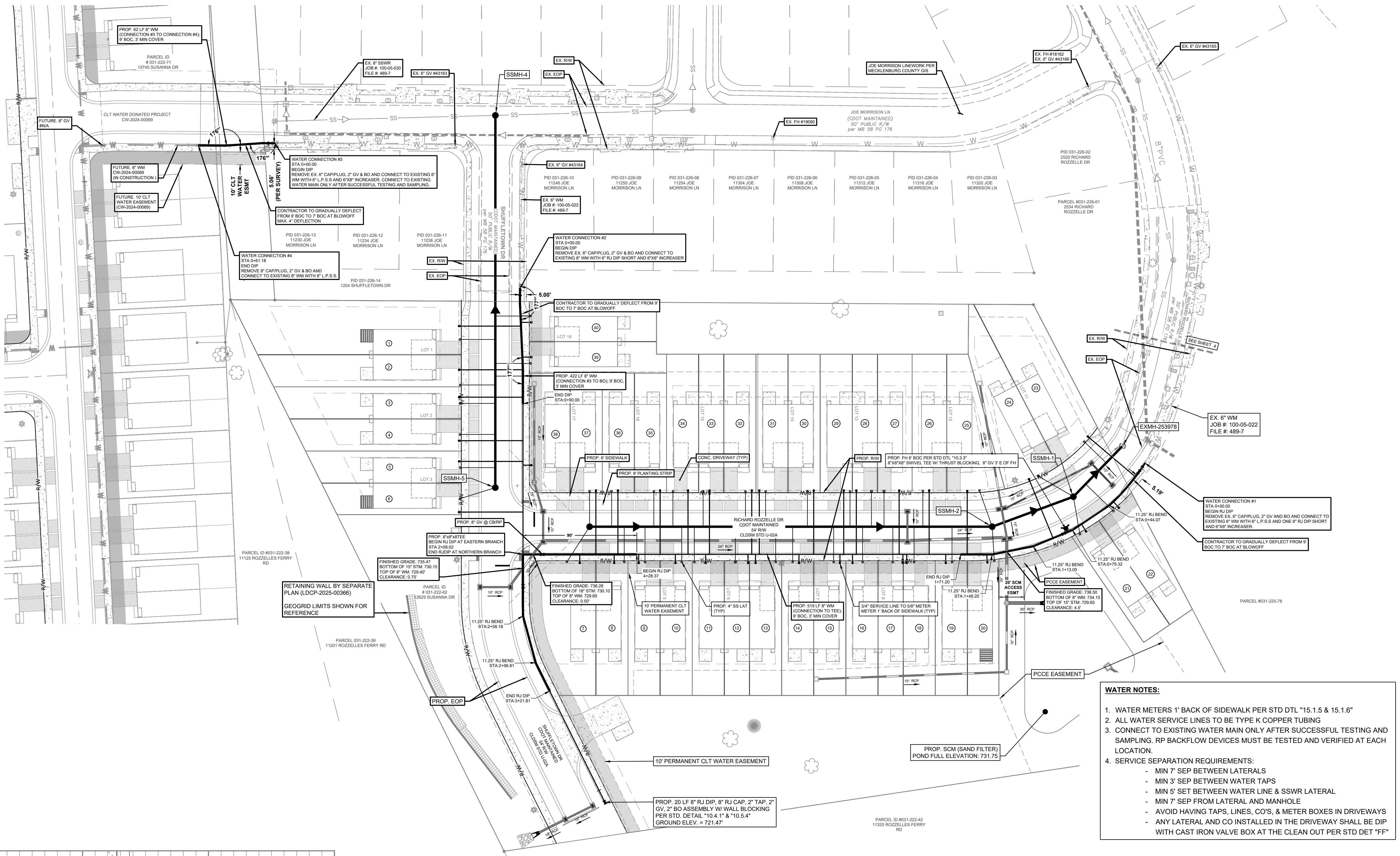
REQUIRED RESTRAINED
LENGTH FOR EACH SIDE OF
THE BEND

BARE L1 (FT)

23.6

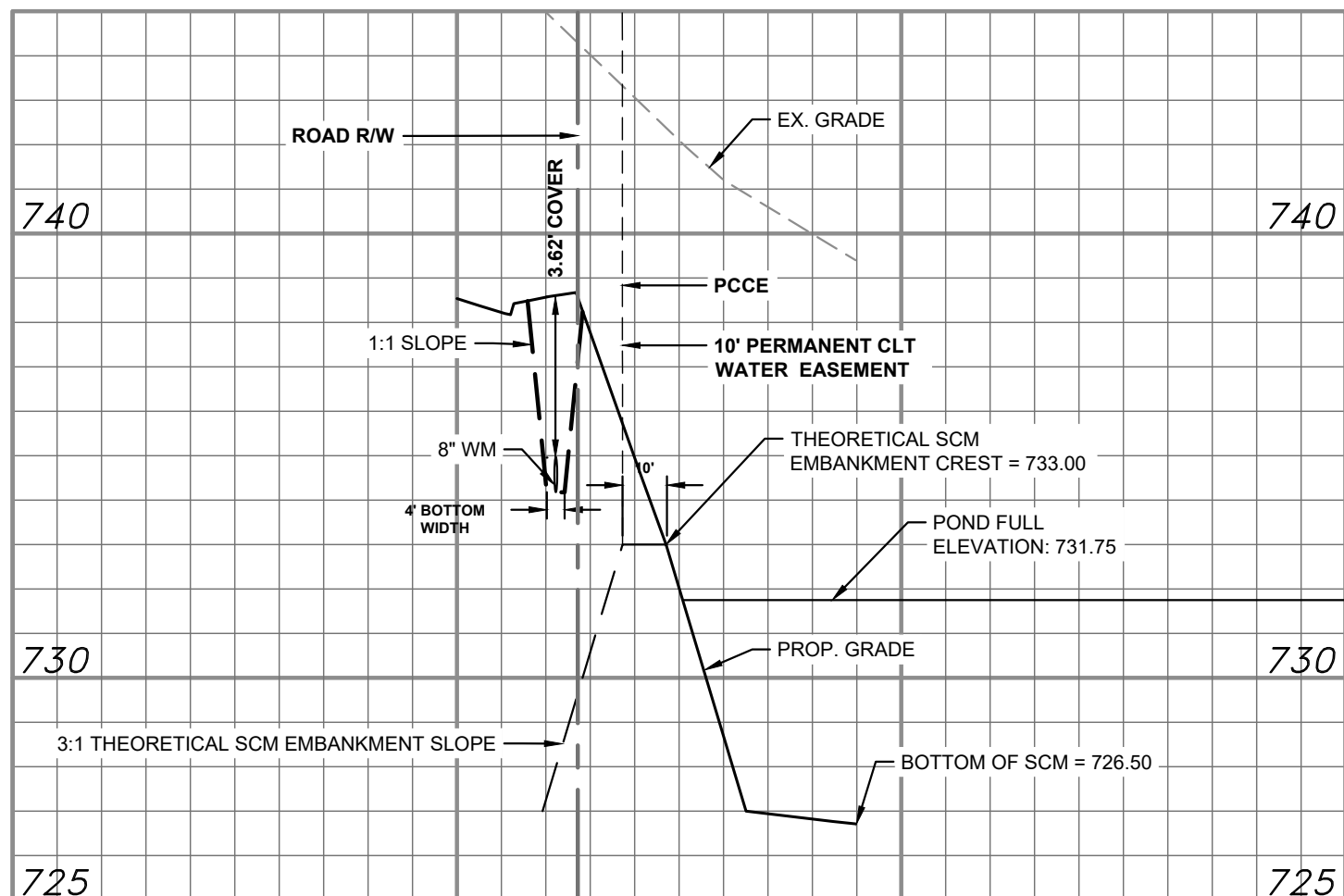
POLYWRAPPED L1 (FT)

30.1

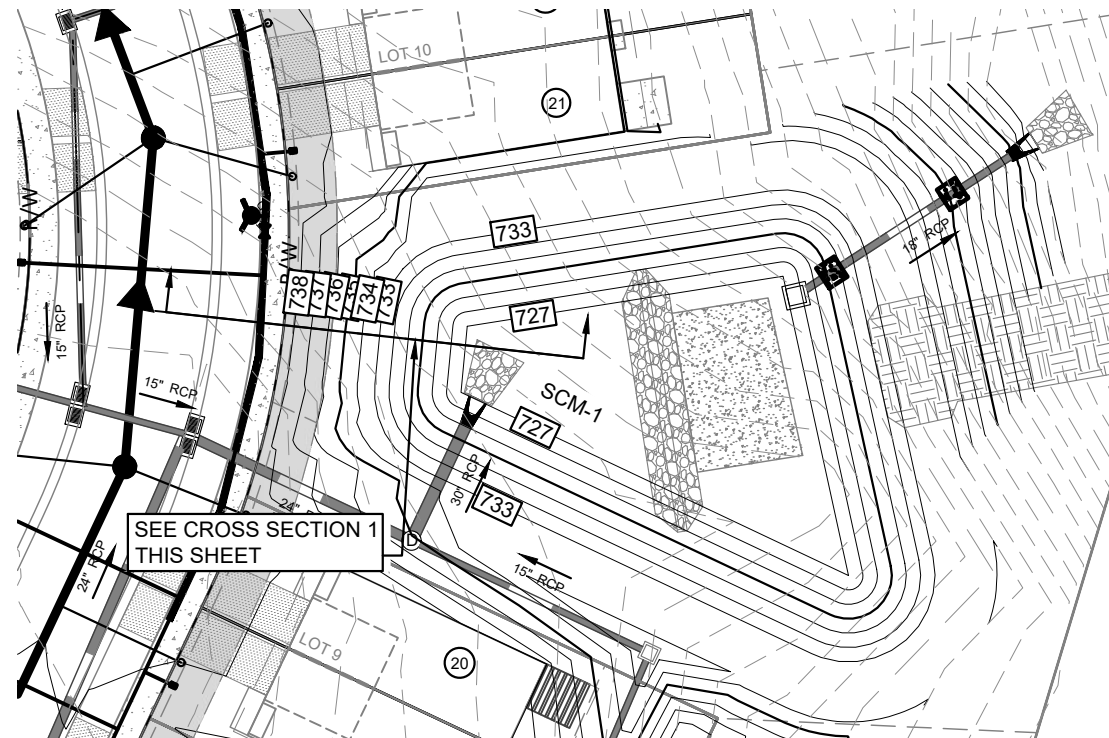


WATER NOTES:

1. WATER METERS 1' BACK OF SIDEWALK PER STD DTL "15.1.5 & 15.1.6"
2. ALL WATER SERVICE LINES TO BE TYPE K COPPER TUBING
3. CONNECT TO EXISTING WATER MAIN ONLY AFTER SUCCESSFUL TESTING AND SAMPLING. RP BACKFLOW DEVICES MUST BE TESTED AND VERIFIED AT EACH LOCATION.
4. SERVICE SEPARATION REQUIREMENTS:
 - MIN 7' SEP BETWEEN LATERALS
 - MIN 3' SEP BETWEEN WATER TAPS
 - MIN 5' SET BETWEEN WATER LINE & SSWR LATERAL
 - MIN 7' SEP FROM LATERAL AND MANHOLE
 - AVOID HAVING TAPS, LINES, CO'S, & METER BOXES IN DRIVEWAYS
 - ANY LATERAL AND CO INSTALLED IN THE DRIVEWAY SHALL BE DIP WITH CAST IRON VALVE BOX AT THE CLEAN OUT PER STD DET "FF"



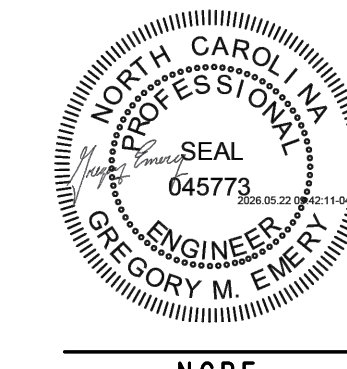
CROSS SECTION #1



GRAPHIC SCALE

(IN FEET)
HORIZONTAL 1 inch = 40 ft.

APPROVALS (SEALS)



N.C.R.L.S. (AS BUILT)

GATEWAY DESIGN
GROUP, PLLC

8516 FOXBRIDGE DR
WEDDINGTON, NC 28104
910-840-2661
NC FIRM # P-2147

CHARLOTTE
WATER

CHARLOTTE WATER
CHARLOTTE, NORTH CAROLINA

CW-2025-00065

Job No. File No.

PLAN Scales 1" = 40'

PROFILE Hor. N/A

Vert. N/A

As Built 05-22-26

DATE

DESIGNED BY

DRAWN BY

PROJECT-ENGR

APPROVED BY

DATE

SANITARY SEWER AND
WATER DISTRIBUTION PLAN TO SERVE
HART ROAD PHASE 2

WATER DISTRIBUTION SHEET

Sheet
3

Of
6

A CITY OF CHARLOTTE DEPARTMENT

4/23/20, 1:27 PM

Thrust Restraint Calculator - DIPRA

PROJECT DATA

TYPE OF FITTING ☒

Vertical Offset

ANGLE OF BENDS ☒

45 °

DIAMETER OF BENDS (in) ☒

8

KNOWN LENGTH (L) (FT) ☒

2.93

LAYING CONDITION ☒

Type 2

SOIL DESIGNATION ☒

Silt 1

DEPTH OF COVER (FT) ☒

3

DESIGN PRESSURE (PSI) ☒

200

SAFETY FACTOR ☒

2.0

CALCULATE

VERTICAL OFFSET

UNIT FRICTIONAL FORCE L1 (LB5/FT)

118

UNIT FRICTIONAL FORCE L2 (LB5/FT)

118

UNIT BEARING RESISTANCE (LB5/FT)

0

REQUIRED RESTRAINED LENGTH FOR EACH SIDE OF THE BEND:

BARE L1 (FT)

178.1

BARE L2 (FT)

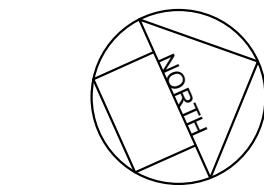
113.0

POLYWRAPPED L1 (FT)

255.7

POLYWRAPPED L2 (FT)

140.6

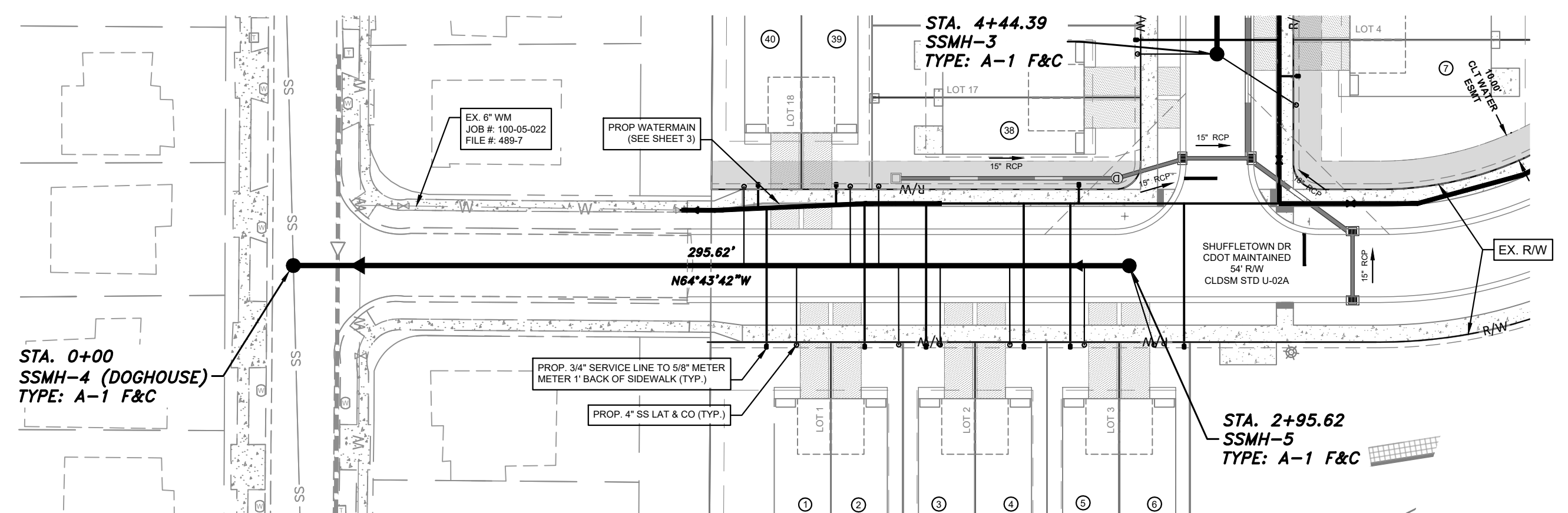
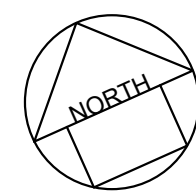
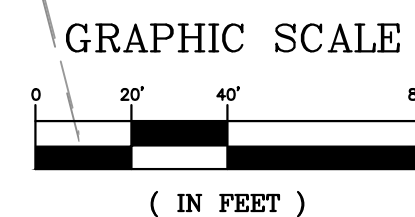


HORIZONTAL 1 inch = 40 ft.

1. NOTIFY CLT WATER INSPECTOR PRIOR TO STARTING CONSTRUCTION
2. DETERMINE CONNECTION LOCATIONS AND ADJUST AS NECESSARY
3. LOCATE AND TEST OPERATE ALL VALVES NECESSARY FOR THE SHUTDOWN TO DETERMINE OPERABILITY.
4. INSTALL PROP. WATER MAIN TEST PLUG/PLUGS TO END, INCLUDING ALL SERVICES AND MISC. FITTINGS.
5. TEST AND CERTIFY BACKFLOW DEVICES, FILL, FLUSH, PRESSURE TEST AND LEAK TEST PROP. WM.
6. CHLORINATE AND DISINFECT PROP. WM
7. UPON CLT WATER APPROVAL, SCHEDULE SHUTDOWN. AFFECTED CUSTOMERS SHOULD BE NOTIFIED 72 HOURS IN ADVANCE. WATER OUTAGE SHALL BE LIMITED TO NO MORE THAN 6 HOURS.
8. COMPLETE CREWS WILL BE REQUIRED AT CONNECTION POINT TO MINIMIZE OUTAGE TIME.
9. CLOSE ALL VALVES NECESSARY TO ISOLATE MAINS AT CONNECTION POINTS.
10. OPEN EX. FH OR OTHER SOURCE TO RELEASE PRESSURE.
11. OPEN BO AT LOW POINT TO BEGIN Dewatering. EXCAVATIONS SHALL BE UNDERCUT AND DE-WATER PUMPS SHALL BE REQUIRED SO THAT NO WATER MAY RE-ENTER THE PIPE DURING CUT-INS AND PIPE Dewatering PROCESS.
12. ONCE PIPES ARE DRAINED, CUT EXISTING 8" WM. INSTALL 8"x8"x8" RMJ SWIVEL TEE AND 8" GV. ALL PIPE AND FITTINGS SHALL BE RESTRAINED JOINT WITH BLOCKING, AS NECESSARY. ALL PIPE AND FITTINGS INVOLVED IN THE CONNECTIONS SHALL BE KEPT CLEAN/STERILE AND WASHED WITH CHLORINE AND RINSED WITH POTABLE WATER PRIOR TO INSTALLATION.
13. UPON COMPLETION, PIPE SHALL BE BACKFILLED WITH CRUSHED STONE, LEAVING INSPECTION POINTS AT ALL PIPE FITTINGS.
14. WITH CLT WATER APPROVAL, SLOWLY REFILL WATER MAIN, BLOW OFF AIR, AND FLUSH AS NECESSARY.
15. PIPE AND FITTINGS SHALL BE INSPECTED FOR LEAKS UNDER FULL SYSTEM STATIC PRESSURE.
16. FORM AND POUR BLOCKING AS NOTED.
17. UPON APPROVAL, FULLY REOPEN ALL VALVES THAT WERE OPERATED TO DEWATER PIPE, AND BACKFILL EXCAVATIONS AS NECESSARY.

1. WATER METERS 1" BACK OF SIDEWALK PER STD DTL "15.1.5 & 15.1.6"
2. ALL WATER SERVICE LINES TO BE TYPE K COPPER TUBING
3. CONNECT TO EXISTING WATER MAIN ONLY AFTER SUCCESSFUL TESTING AND SAMPLING. RP BACKFLOW DEVICES MUST BE TESTED AND VERIFIED AT EACH LOCATION.
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 - ANY LATERAL AND CO INSTALLED IN THE DRIVEWAY SHALL BE DIP WITH CAST IRON VALVE BOX AT THE CLEAN OUT PER STD DET "FF"

A CITY OF CHARLOTTE DEPARTMENT



NOTE:
ALL LATERALS SHALL HAVE 4' OF COVER AT THE PROPERTY LINE.

NOTE:
ALL 4" & 6" LATERALS CONNECTING TO MANHOLES SHALL MATCH CROWNS.

SANITARY SEWER NOTES:

1. ALL SANITARY SEWER LATERALS MATERIALS FROM TEE TO CO SHALL MATCH THE MAIN MATERIAL UNLESS OTHERWISE DIRECTED.
 2. ANY AREA TO BE FILLED W/ STRUCTURAL FILL WILL REQUIRE FULL GEOTECHNICAL SOIL COMPACTION TESTING & ENGINEER REPORT.
 3. ALL SANITARY SEWER LATERAL CLEANOUTS TO BE PLACED 1' OUTSIDE BACK OF SIDEWALK WHEN BACK OF SIDEWALK IS AT PUBLIC RIGHT OF WAY. OTHERWISE PLACE CLEAN OUT 1' OUTSIDE PUBLIC RIGHT OF WAY
 4. SERVICE SEPARATION REQUIREMENTS:
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- DRIVEWAYS
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APPROVALS (SEALS)



N.C.R.L.S. (AS BUILT)

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910-840-2661
NC FIRM # P-2147

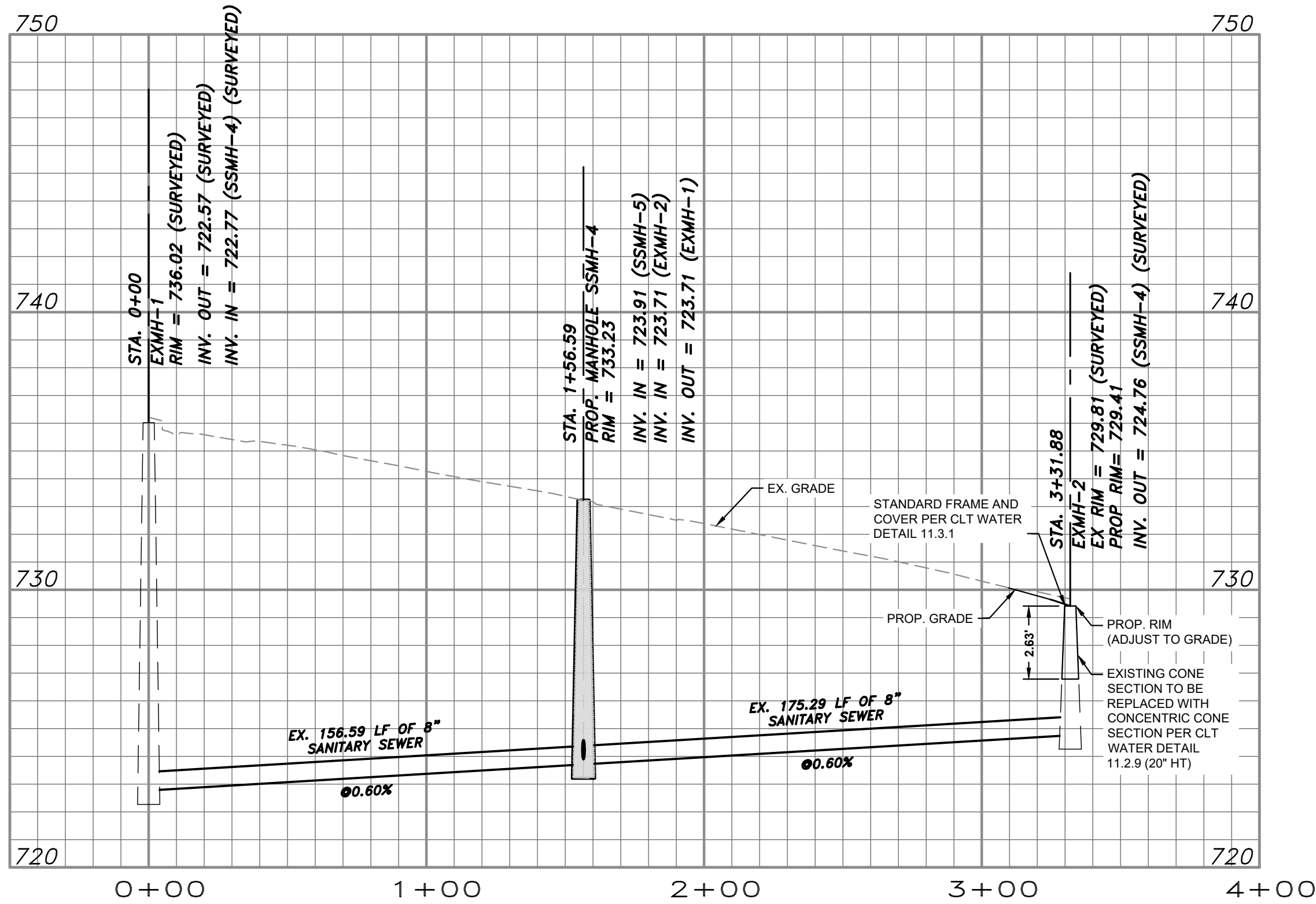
CHARLOTTE
WATER

CHARLOTTE WATER
CHARLOTTE, NORTH CAROLINA

CW-2025-00065		SANITARY SEWER AND WATER DISTRIBUTION PLAN TO SERVE HART ROAD PHASE 2
Job No.	File No.	
Scales		
PLAN	1" = 40'	

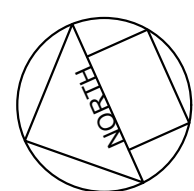
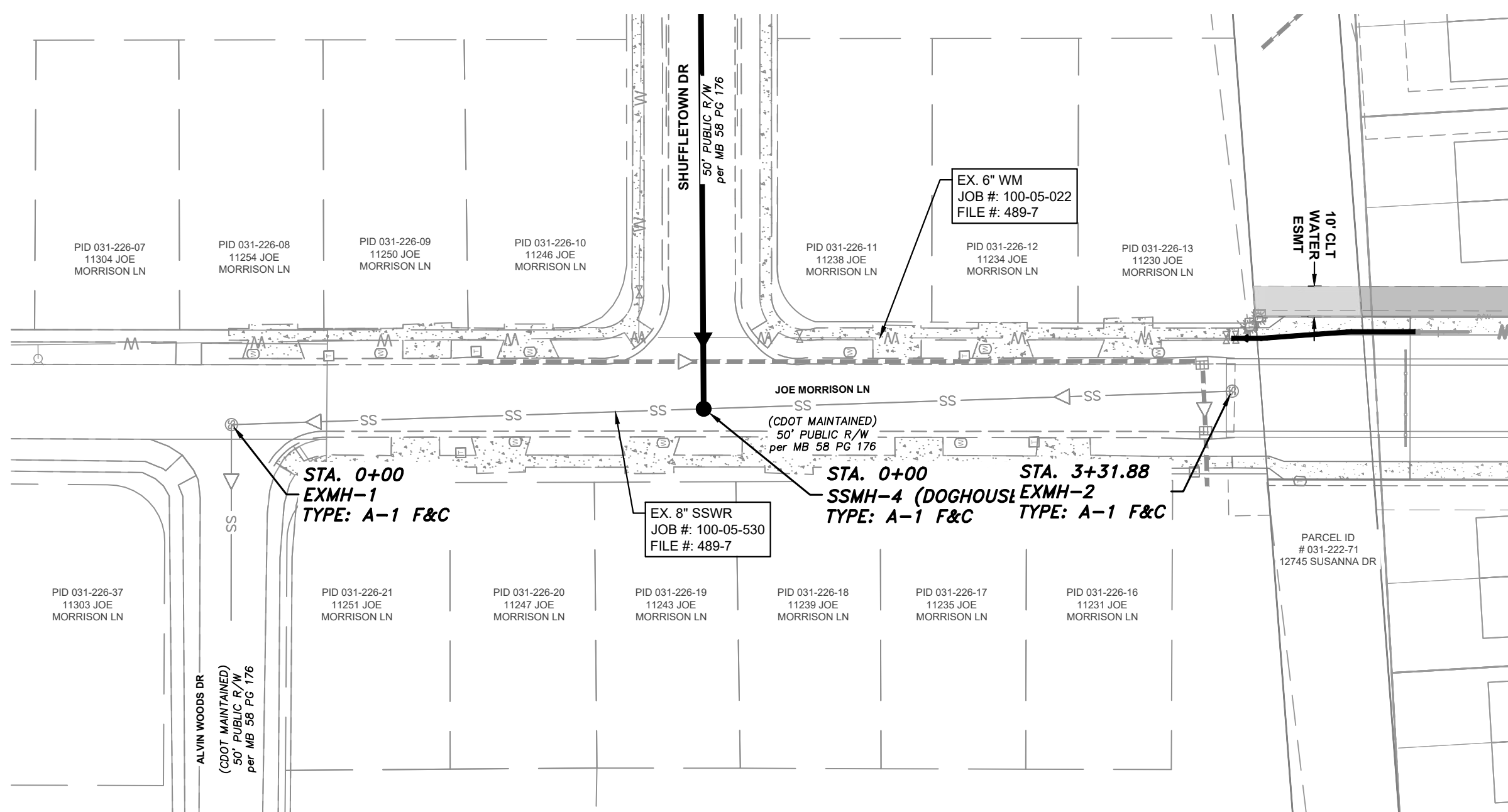
PROFILE Hor. <u>1" = 40'</u> Vert. <u>1" = 4'</u>	<i>RICHARD ROZZELLE DR</i> <i>SHUFFLETOWN DR</i>
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As Built		05-22-26 Date		(EX MH-253978- TO MH-3)(MH-4 TO MH-5)					
CAROLINA GEOMATICS	GE	GE	GE				Sheet	Of	
	Designed By	Drawn By	Project-Engr	Approved By	Date		5	6	

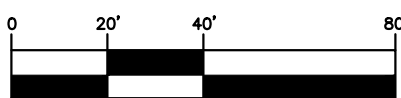


(EXMH-1- TO EXMH-2)

JOE MORRISON LANE
(CDOT MAINTAINED)



GRAPHIC SCALE



(IN FEET)

HORIZONTAL 1 inch = 40 ft.

NOTE:
ALL LATERALS SHALL HAVE 4' OF COVER AT THE PROPERTY LINE.

NOTE:
ALL 4" & 6" LATERALS CONNECTING TO MANHOLES SHALL MATCH CROWNS.

SANITARY SEWER NOTES:

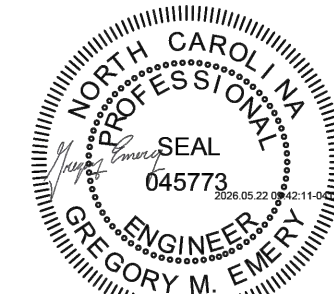
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APPROVALS (SEALS)



N.C.P.E.

N.C.R.L.S. (AS BUILT)

**GATEWAY DESIGN
GROUP, PLLC**

8516 FOXBRIDGE DR
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910-840-2661
NC FIRM # P-2147

CHARLOTTE WATER
CHARLOTTE, NORTH CAROLINA

CW-2025-00065

Job No. File No.

Scales

PLAN 1" = 40'

PROFILE Hor. 1" = 40'

Vert. 1" = 4'

As Built Date 05-22-26

CAROLINA GEOMATICS

Surveyed By

Designed By

Drawn By

Project-Engr

Approved By

Date

Sheet 6

Of 6

**SANITARY SEWER AND
WATER DISTRIBUTION PLAN TO SERVE
HART ROAD PHASE 2**

**JOE MORRISON LN
(EXMH-1 TO EXMH-2)**