See Sheet IA For Index of Sheets
See Sheet IB For Conventional Symbols

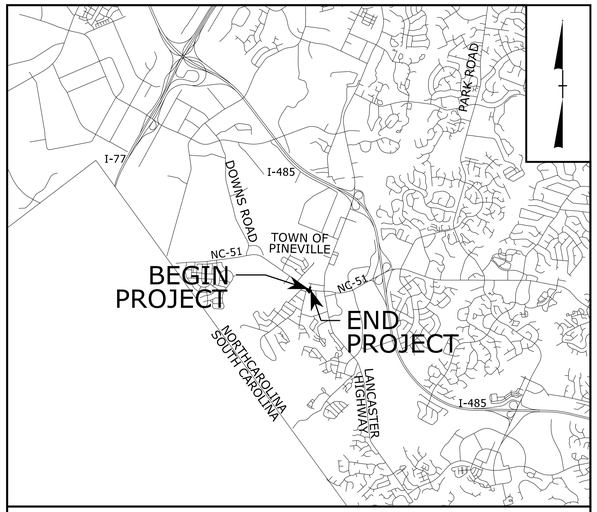
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	EB–5949	1	46

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
N/A	0051036	PE
N/A	0051036	R/W
48422.3.1	0051036	CON

MECKLENBURG COUNTY

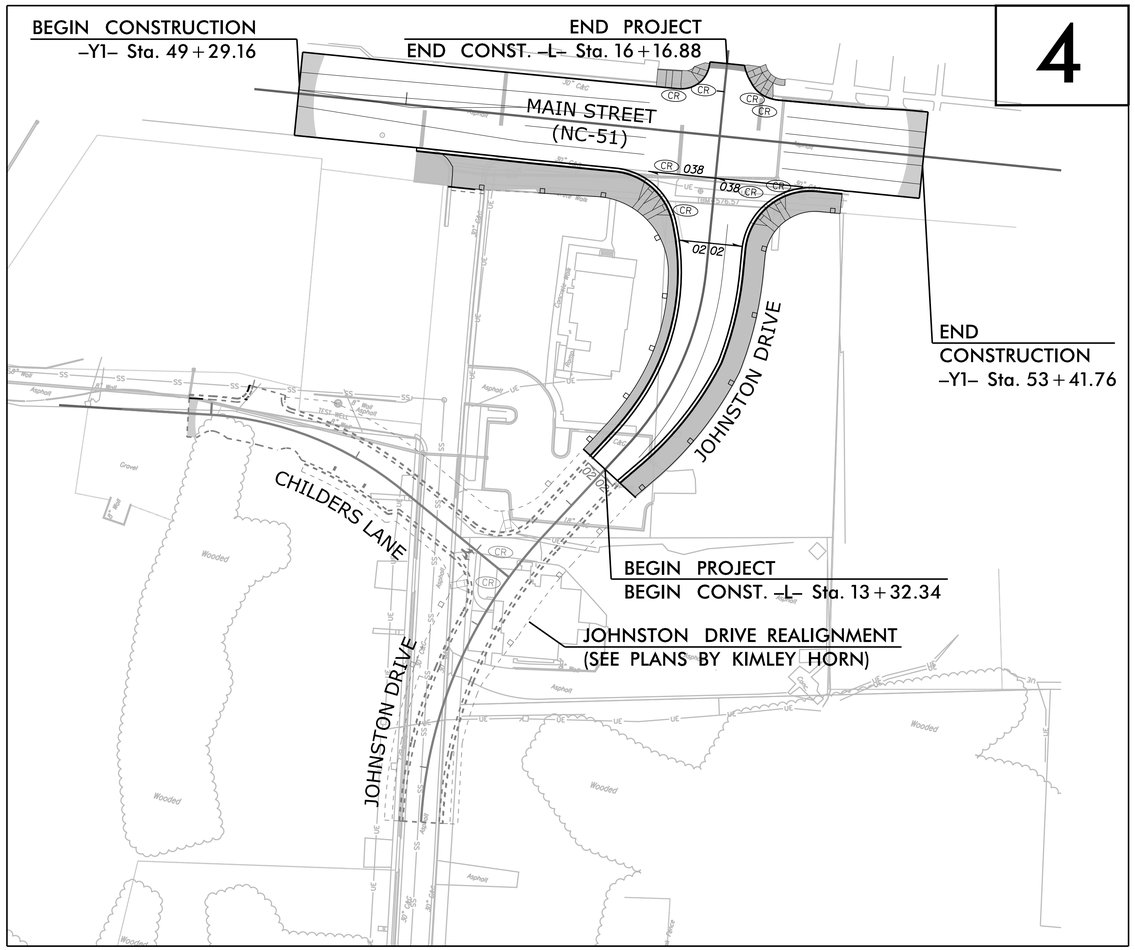
LOCATION: ***NC–51 (MAIN STREET) IMPROVEMENTS***
TYPE OF WORK: ***GRADING, DRAINAGE, PAVING, AND TRAFFIC SIGNAL***

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



VICINITY MAP

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF PINEVILLE.



NCDOT CONTACT:
JEB SMITH, E.I.
NCDOT – DIVISION 10, DISTRICT 2
7605 DISTRICT DRIVE
CHARLOTTE, NC 28213

CONTRACT:

GRAPHIC SCALES

PLANS: 50 25 0 50 100
PROFILE (HORIZONTAL): 50 25 0 50 100
PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

ADT 2018 = 2700 VPD
ADT 2040 = 2850 VPD
K = 10%
D = 59%
T = 2%*
V = 30 MPH
FUNCTIONAL CLASSIFICATION: MINOR COLLECTOR
* 1% TTST 1% DUAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT = 0.078 MILES

PLANS PREPARED FOR THE TOWN OF PINEVILLE BY:

Kimley»Horn
© , 2021
200 South Tryon, Suite 200
Charlotte, North Carolina 28202
NC License #F-0102

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: *08/24/2018*

LETTING DATE: *09/30/21*

TONY SPACEK, P.E.
PROJECT ENGINEER

BRANDON MURR, E.I.T.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACEK

DocuSigned by:
Tony Spacek
P.E. 1/7/2022
SIGNATURE:

TOWN OF PINEVILLE

Pineville
NORTH CAROLINA

K:\CHL_PRJ\018036 Town of Pineville\003 Johnston Dr Alignment – Design\04_CADD\02_PLANS\NC 51 Improvements\036003-RDOI-COVR.dgn
1/7/2022

EB-5949
MECKLENBURG COUNTY

INDEX OF SHEETS

2018 SPECIFICATIONS

GENERAL NOTES

GRADE LINE:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THE PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING RADII NOTED ON THE PLANS.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

POWER: ELECTRICITIES OF NC INC.
STUART BRITT
sbritt@electricities.org

TELEPHONE: WINDSTREAM
TIM WOODWARD
tim.l.woodward@windstream.com

CABLE: TELICS
DANNY LITTLE (704) 254-4289

GAS: PNG
PAUL LEMONS
paul.lemons@piedmontng.com

CABLE: TWC
GREGG BROWN
Gregg.Brown@twcable.com

WATER: CHARLOTTE WATER
WILLIAM DEAL, P.E.
wdeal@ci.charlotte.nc.us

SEWER: CHARLOTTE WATER
WILLIAM DEAL, P.E.
wdeal@ci.charlotte.nc.us

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON PLANS.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS SHALL BE PLACED BY OTHERS.

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" HIGHWAY DESIGN BRANCH - N. C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N. C., DATED JANUARY, 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	METHOD OF CLEARING - METHOD II
225.02	GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
225.04	METHOD OF OBTAINING SUPERELEVATION - TWO LANE PAVEMENT
DIVISION 3 - PIPE CULVERTS	
300.01	METHOD OF PIPE INSTALLATION
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	PAVEMENT REPAIRS
DIVISION 8 - INCIDENTALS	
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.01	BRICK CATCH BASIN - 12" THRU 54" PIPE
840.02	CONCRETE CATCH BASIN - 12" THRU 54" PIPE
840.03	FRAMES, GRATES, AND HOOD
840.25	ANCHORAGE FOR FRAMES - BRICK OR CONCRETE OR PRECAST
840.31	CONCRETE JUNCTION BOX
840.53	PRECAST MANHOLE WITH MASONARY BASE
840.54	MANHOLE FRAME AND COVER
846.01	CONCRETE CURB, GUTTER AND CURB & GUTTER
848.02	DRIVEWAY TURNOUT - RADIUS TYPE
848.05	CURB RAMP - PROPOSED GUTTER
848.06	CURB RAMP - EXISTING CURB AND GUTTER

PROJECT REFFERENCE NO.	SHEET NO.
EB-5949	1-B

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
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 — S
Well — W
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 — FLOW
False Sump

RAILROADS:

Standard Gauge — CSX TRANSPORTATION
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 — RW
Proposed Right of Way Line with Iron Pin and Cap Marker — RW
Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
Proposed Control of Access Line with Concrete C/A Marker — CA
Existing Control of Access — CA
Proposed Control of Access — CA
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 — S
Storm Sewer — S

UTILITIES:

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

TELEPHONE:
Existing Telephone Pole
Proposed Telephone Pole
Telephone Manhole — T
Telephone Pedestal — T
Telephone Cell Tower
U/G Telephone Cable Hand Hole — HH
U/G Telephone Cable LOS B (S.U.E.*) — T
U/G Telephone Cable LOS C (S.U.E.*) — T
U/G Telephone Cable LOS D (S.U.E.*) — T
U/G Telephone Conduit LOS B (S.U.E.*) — TC
U/G Telephone Conduit LOS C (S.U.E.*) — TC
U/G Telephone Conduit LOS D (S.U.E.*) — TC
U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:
Water Manhole — W
Water Meter
Water Valve
Water Hydrant
U/G Water Line LOS B (S.U.E*) — W
U/G Water Line LOS C (S.U.E*) — W
U/G Water Line LOS D (S.U.E*) — W
Above Ground Water Line — A/G Water

TV:
TV Pedestal — C
TV Tower
U/G TV Cable Hand Hole — HH
U/G TV Cable LOS B (S.U.E.*) — TV
U/G TV Cable LOS C (S.U.E.*) — TV
U/G TV Cable LOS D (S.U.E.*) — TV
U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

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

SANITARY SEWER:
Sanitary Sewer Manhole
Sanitary Sewer Cleanout
U/G Sanitary Sewer Line — SS
Above Ground Sanitary Sewer — A/G Sanitary Sewer
SS Forced Main Line LOS B (S.U.E.*) — FSS
SS Forced Main Line LOS C (S.U.E.*) — FSS
SS Forced Main Line LOS D (S.U.E.*) — FSS

MISCELLANEOUS:
Utility Pole
Utility Pole with Base
Utility Located Object
Utility Traffic Signal Box — S
Utility Unknown U/G Line LOS B (S.U.E.*) — PUTL
U/G Tank; Water, Gas, Oil
Underground Storage Tank, Approx. Loc. — UST
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.

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

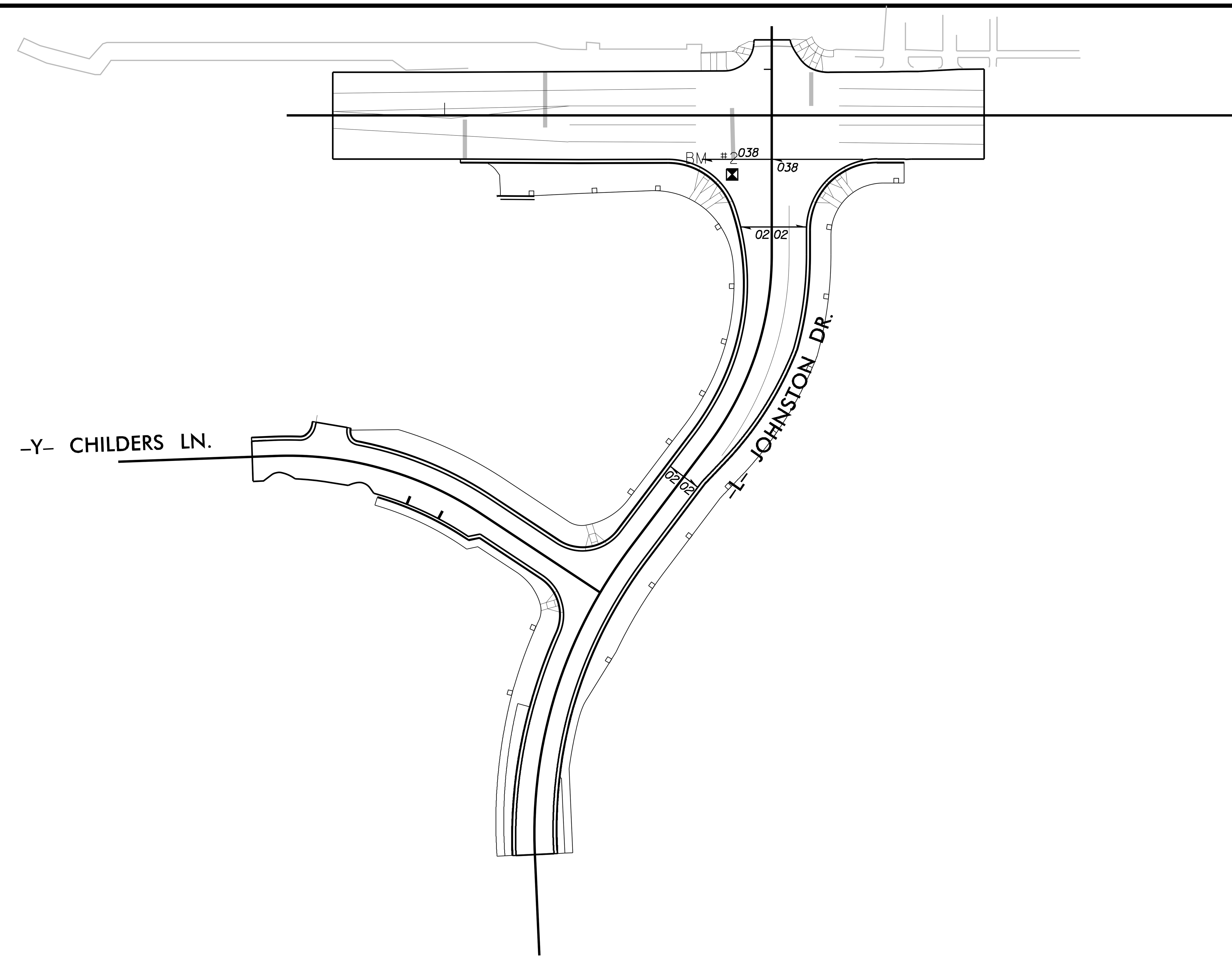
PROJECT REFERENCE NO.	SHEET NO.
EB-5949	1-C

R/W SHEET NO.

RIGHT-OF-WAY REV.

CONST. REV.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



50 25 0 50 100

BM #4

BM #1

BM #3

NGS Mont. "M 097"
NC Grid NAD 83
N: 488,677.72
E: 1,432,011.87
Elevation=590.19' (NAVD 88)

EIP

****
BM-1 ELEVATION = 567.08'
N 491081.9691 E 1433856.4285
****

****
BM-2 ELEVATION = 576.57'
N 491393.5412 E 1434655.4686
L STATION 15+33.37 8.87' LT.
****

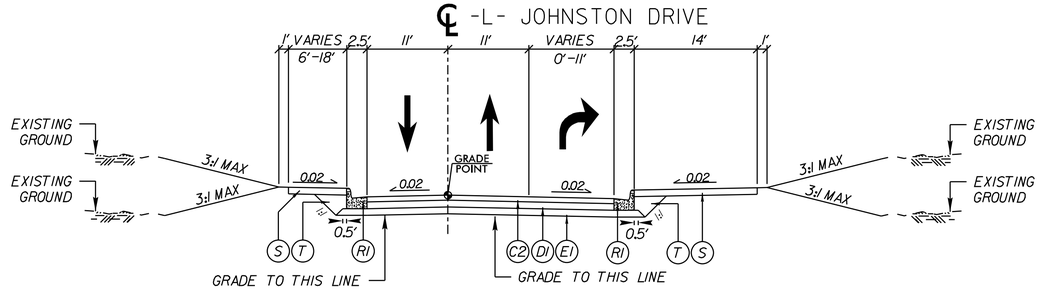
****
BM-3 ELEVATION = 583.70'
N 490842.5561 E 1434372.5374
****

****
BM-4 ELEVATION = 591.06'
N 490845.2160 E 1435114.8423
****

DATUM DESCRIPTION

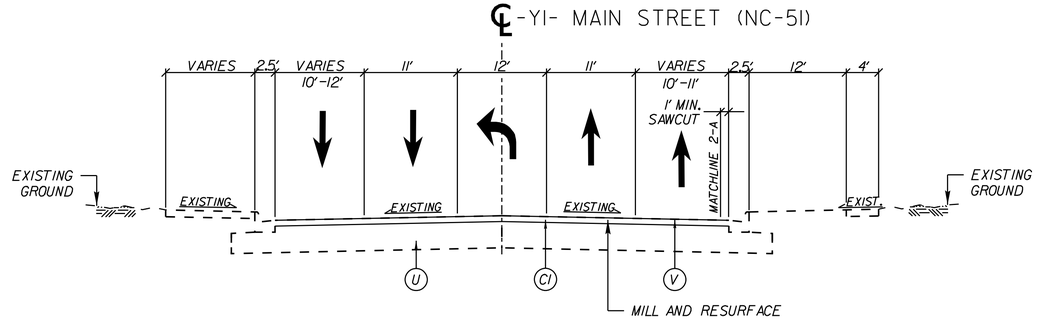
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY RB PHARR FOR NGS MONUMENT "M 097"
WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 488677.72(ft) EASTING: 1432011.87(ft)
ELEVATION: 590.19(ft)
THE COMPLETE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99985372
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

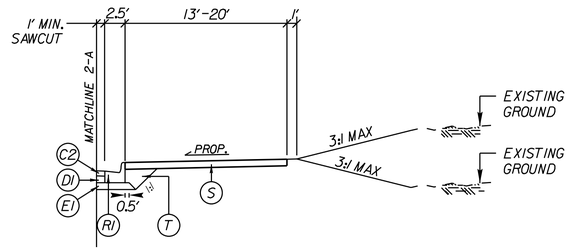
NOTES:
1) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
2) SEE PLANS FOR TAPER LOCATIONS.
3) SEE PLANS FOR CURB AND GUTTER LOCATIONS.
4) SIDEWALK WIDTH & OFFSET FROM BACK OF CURB WILL VARY. SEE PLANS FOR SPECIFIC LOCATIONS.
5) USE WEDGING AS NECESSSARY (SEE DETAIL THIS SHEET).



TYPICAL SECTION NO. 1

-L- STA.13+32.34 TO STA.15+45.00
N.T.S.



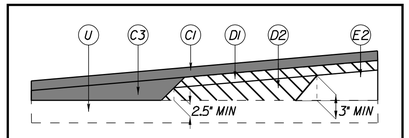


TYPICAL SECTION NO. 2A

-Y1- STA.50+10.00 TO STA.52+91.00
N.T.S.

TYPICAL SECTION NO. 2

-Y1- STA.49+29.16 TO STA.53+41.76
N.T.S.



WEDGING DETAIL FOR RESURFACING

Kimley»Horn

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

PROJECT REFERENCE NO.	SHEET NO.
EB-5949	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACEK

10/14/2021

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039271 ENGINEER CHRISTOPHER R. BROOKS

DocuSigned by:
DB55A8D015D9412...

PAVEMENT SCHEDULE

C1	PROPOSED APPROX.1.5" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD.
C2	PROPOSED APPROX.3" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
C3	PROPOSED VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ.YD.PER DEPTH.TO BE PLACED NOT LESS THAN 1½" OR GREATER THAN 2" IN DEPTH.
D1	PROPOSED APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE I19.0C. AT AN AVERAGE RATE OF 456 LBS. PER SQ.YD.
D2	PROPOSED VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C. AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD.PER 1" DEPTH.TO BE PLACED IN LAYERS NOT LESS THAN 2½" OR GREATER THAN 4" IN DEPTH.
E1	PROPOSED APPROX. 5" ASPHALT CONCRETE BASE COURSE,TYPE B25.0C. AT AN AVERAGE RATE OF 570 LBS. PER SQ.YD.
E2	PROPOSED VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C. AT AN AVERAGE RATE OF 114 LBS. PER SQ.YD.PER 1" DEPTH.TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5½" IN DEPTH.
R1	PROPOSED 2'-6" CONCRETE CURB & GUTTER
S	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING EXISTING PAVEMENT (1.5")
W	WEDGING DETAIL FOR RESURFACING

Kimley»Horn

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

PROJECT REFERENCE NO.	SHEET NO.
EB-5949	2B-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACEK

9/7/2021

DocuSigned by:
DB55A8D015D9412...

PAVEMENT DESIGN ENGINEER

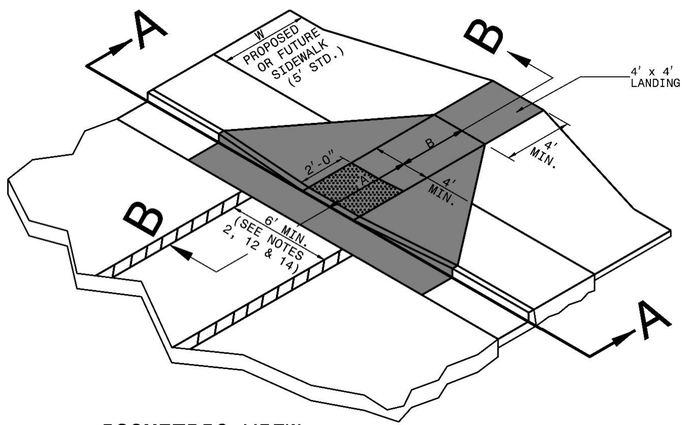
1-18

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR

CURB RAMP

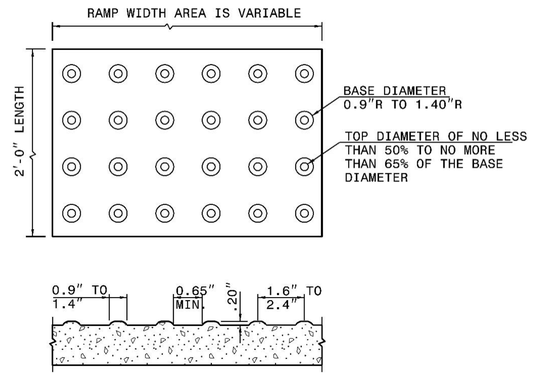
PROPOSED CURB AND GUTTER



ISOMETRIC VIEW

PAY LIMITS FOR CURB RAMP

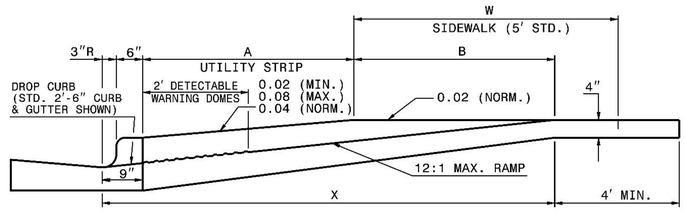
NOTES:
1. DETECTABLE WARNING DOMES WILL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
2. DETECTABLE WARNING DOMES WILL CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



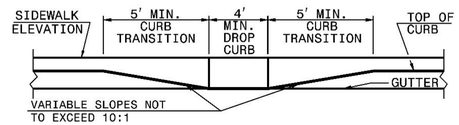
DETECTABLE WARNING DOMES

W	A	W+A+9"	X	B
5'	0.0'	5.8'	5.8'	5.0'*
6'	0.0'	6.8'	6.8'	6.0'**
7'	0.0'	7.8'	7.3'	6.5'**
8'	0.0'	8.8'	7.3'	6.5'**
5'	2.0'	7.8'	7.8'	5.0'
5'	2.5'	8.3'	8.1'	4.8'
5'	3.0'	8.8'	8.3'	4.4'
5'	3.5'	9.3'	8.4'	4.1'
5'	4.0'	9.8'	8.6'	3.8'
5'	4.5'	10.3'	8.7'	3.4'
5'	5.0'	10.8'	8.9'	3.1'

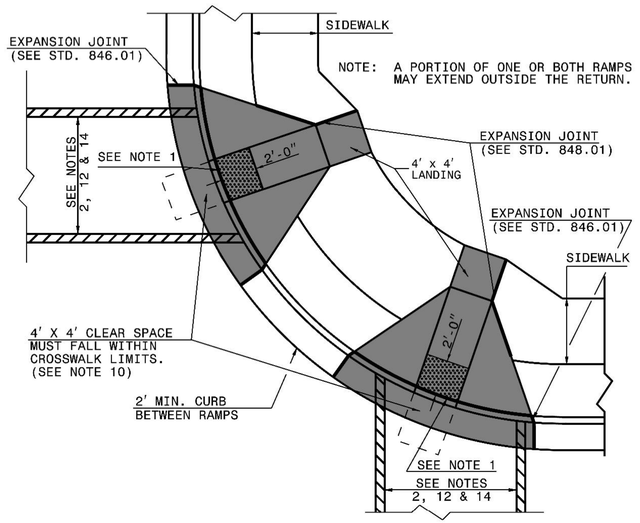
B = X-(A+9")
B = DISTANCE FROM FRONT EDGE OF SIDEWALK TO BACK POINT OF 12:1 (8.33%) SLOPE.
* BACK OF SIDEWALK DROP REQUIRED FOR ALL SIDEWALK SLOPES.
** BACK OF SIDEWALK DROP REQUIRED FOR SIDEWALK SLOPES 0.04.



SECTION B-B



SECTION A-A



PLAN VIEW

DUAL RAMPS
ANY RADII
(4' MIN. FLOOR WIDTH)

SHEET 1 OF 3

848.05

PROJECT REFERENCE NO.	SHEET NO.
EB-5949	3B-1

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–Y1–	–Y1– STA. 50+35	–Y1– STA. 52+91	RT	140
TOTAL:				140
SAY:				150

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
–L– STA 13+32 TO STA 15+45	1223	60	0	0	1223
–Y1– STA 50+50 TO STA 53+00	26	0	35	9	0
PROJECT TOTALS	1244	60	35	9	1283
ADDITIONAL UNDERCUT		100			100
REMOVAL OF CONTAMINATED SOIL		34			34
WASTE TO REPLACE BORROW				–9	–9
GRAND TOTALS	1249	194	35	0	1408
SAY	2000			0	

NOTE: APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, REMOVAL OF EXISTING PAVEMENT, AND BREAKING OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING."

LD60205

COMPUTED BY: AJW DATE:

CHECKED BY: BWM DATE:

PROJECT NO.	SHEET NO.
18136	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 12	15	18	24	30	36	R. C. PIPE CLASS III 12	15	18	24	30	36	R. C. PIPE CLASS IV 12	15	18	24	30	36	R. C. PIPE CLASS V 12	15	18	24	30	36
			0401	0402		569.0	568.7															48										
JOHNSTON 15+13	26	RT	0401		573.1																											
			0402	0415		568.7	568.5															52										
JOHNSTON 15+12	25	LT	0402		573.2																											
			0403	0429		569.4	568.0															32										
JOHNSTON 13+63	17	RT	0403		572.3																											
			0404	0406		566.8	565.4															56										
MAIN 50+33	57	RT	0413		567.0																											
			0413	0414		564.1	564.0															16										
MAIN 50+34	40	RT	0414		566.3																											
MAIN 51+39	34	RT	0415		571.1																											
			0429	0405		568.0	567.9															32										
MAIN 50+56	41	RT	0434		567.2																											
			0434	0436		565.3	565.2															16										
MAIN 50+57	57	RT	0436		567.4																											
MAIN 50+34	30	RT	0438		566.3																											
			0438	0414		563.1	563.0															12										
SHEET TOTALS																						264										
PROJECT TOTALS																						264										

LINE & STATION	FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05
	0401	0402													
JOHNSTON 15+13	0401					1			1	1					
	0402	0415													
JOHNSTON 15+12	0402					1			1			1			
	0403	0429													
JOHNSTON 13+63	0403					1			1			1			
	0404	0406													
MAIN 50+33	0413					1			1	1					
	0413	0414													
MAIN 50+34	0414														
MAIN 51+39	0415					1									
	0429	0405													
MAIN 50+56	0434														
	0434	0436													
MAIN 50+57	0436					1			1	1					
MAIN 50+34	0438					1			1		1				
	0438	0414													
SHEET TOTALS						7			6	3	1	2			
PROJECT TOTALS						7			6	3	1	2			

LINE & STATION	FROM	TO	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	##" SPRING BOX PIPE	SPRING BOX STD. 840.41	
	0401	0402																											
JOHNSTON 15+13	0401																												
	0402	0415																											
JOHNSTON 15+12	0402																												
	0403	0429																											
JOHNSTON 13+63	0403																												
	0404	0406																											
MAIN 50+33	0413																												
	0413	0414																											
MAIN 50+34	0414																												
MAIN 51+39	0415																				1									
	0429	0405																											
MAIN 50+56	0434																												
	0434	0436																											
MAIN 50+57	0436																												
MAIN 50+34	0438																												
	0438	0414																											
SHEET TOTALS																					1									
PROJECT TOTALS																					1									

LINE & STATION	FROM	TO	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
	0401	0402														
JOHNSTON 15+13	0401															
	0402	0415														
JOHNSTON 15+12	0402															
	0403	0429														
JOHNSTON 13+63	0403															
	0404	0406														
MAIN 50+33	0413															
	0413	0414														
MAIN 50+34	0414			1	1											
MAIN 51+39	0415		1	1												
	0429	0405														
MAIN 50+56	0434			1	1											
	0434	0436														
MAIN 50+57	0436															
MAIN 50+34	0438															
	0438	0414														
SHEET TOTALS			1	3	2											
PROJECT TOTALS			1	3	2											

ABBREVIATIONS

- **C.A.A.** CORRUGATED ALUMINIUM ALLOY
- **C.B.** CATCH BASIN
- **C.S.** CORRUGATED STEEL
- **D.I.** DROP INLET
- **G.D.I.** GRATED DROP INLET
- **H.D.P.E.** HIGH DENSITY POLYETHYLENE
- **J.B.** JUNCTION BOX
- **M.H.** MANHOLE
- **N.S.** NARROW SLOT
- **P.V.C.** POLYVINYL CHLORIDE
- **R.C.** REINFORCED CONCRETE
- **T.B.D.I.** TRAFFIC BEARING DROP INLET
- **T.B.J.B.** TRAFFIC BEARING JUNCTION BOX
- **W.S.** WIDE SLOT

CURB ALIGNMENTS – Y1C1 & Y1C2

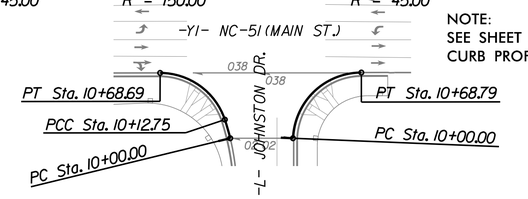
–Y1C1–

PI Sta 10+44.98
△ = 71° 13' 26.1" (LT)
D = 127° 19' 26.2"
L = 55.94'
T = 32.23'
R = 45.00'

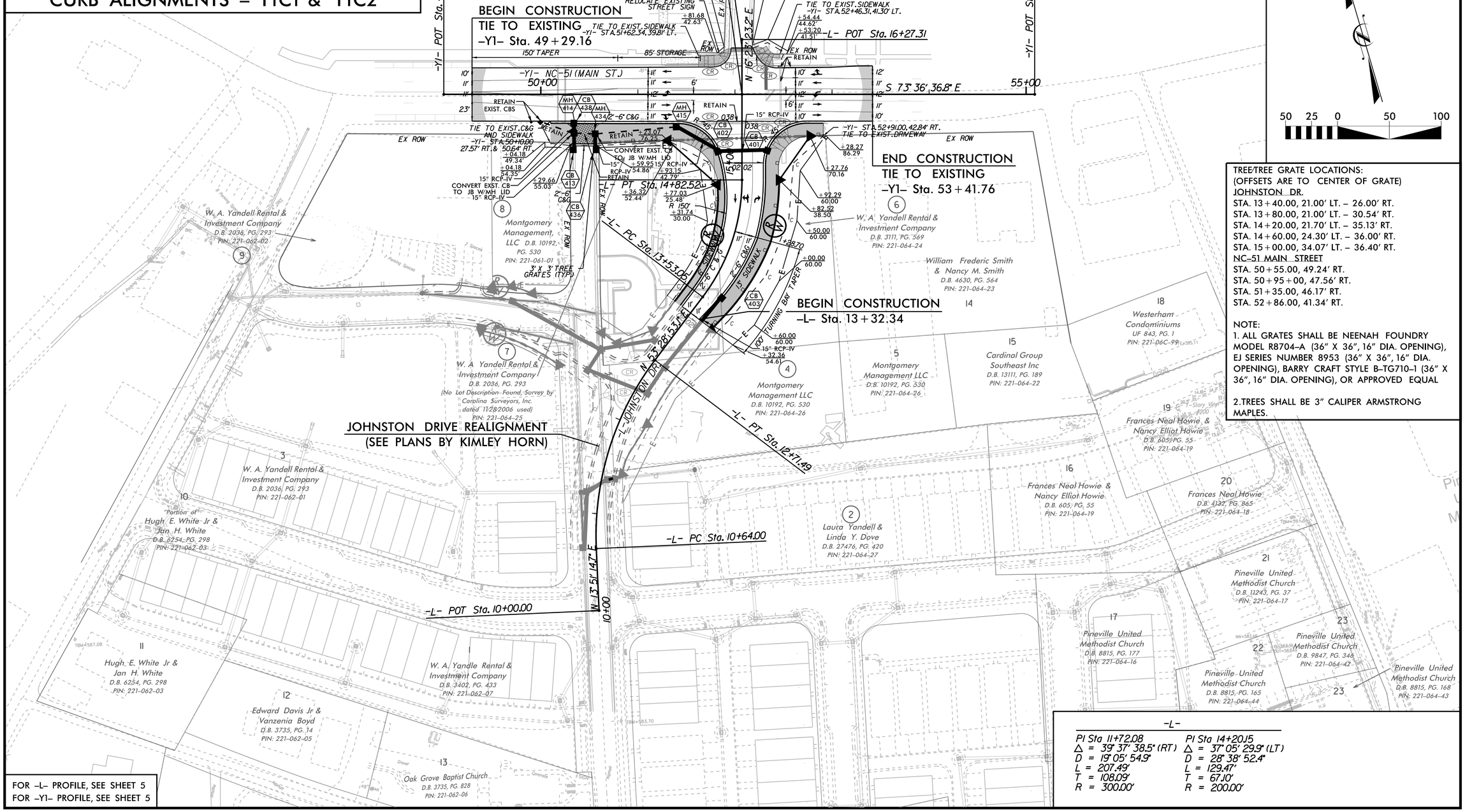
PI Sta 10+06.38
△ = 4° 52' 11.0" (LT)
D = 38° 11' 49.9"
L = 12.75'
T = 6.38'
R = 150.00'

–Y1C2–

PI Sta 10+43.14
△ = 87° 35' 10.9" (RT)
D = 127° 19' 26.2"
L = 68.79'
T = 43.14'
R = 45.00'



NOTE:
SEE SHEET 5 FOR CURB PROFILES



NOTE:
SEE SHEET 5 FOR CURB PROFILES

FOR –L– PROFILE, SEE SHEET 5
FOR –Y1– PROFILE, SEE SHEET 5

–L–

PI Sta 11+72.08
△ = 39° 37' 38.5" (RT)
D = 19° 05' 54.9"
L = 207.49'
T = 108.09'
R = 300.00'

PI Sta 14+20.15
△ = 37° 05' 29.9" (LT)
D = 28° 38' 52.4"
L = 129.47'
T = 67.10'
R = 200.00'

TREE/TREE GRATE LOCATIONS:
(OFFSETS ARE TO CENTER OF GRATE)
JOHNSTON DR.
STA. 13+40.00, 21.00' LT. – 26.00' RT.
STA. 13+80.00, 21.00' LT. – 30.54' RT.
STA. 14+20.00, 21.70' LT. – 35.13' RT.
STA. 14+60.00, 24.30' LT. – 36.00' RT.
STA. 15+00.00, 34.07' LT. – 36.40' RT.
NC–51 MAIN STREET
STA. 50+55.00, 49.24' RT.
STA. 50+95+00, 47.56' RT.
STA. 51+35.00, 46.17' RT.
STA. 52+86.00, 41.34' RT.

NOTE:
1. ALL GRATES SHALL BE NEENAH FOUNDRY MODEL R8704–A (36" X 36", 16" DIA. OPENING), EJ SERIES NUMBER 8953 (36" X 36", 16" DIA. OPENING), BARRY CRAFT STYLE B–TG710–1 (36" X 36", 16" DIA. OPENING), OR APPROVED EQUAL

2.TREES SHALL BE 3" CALIPER ARMSTRONG MAPLES.

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

RIGHT–OF–WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
EB–5949	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACEK
DocuSigned by: 1/7/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

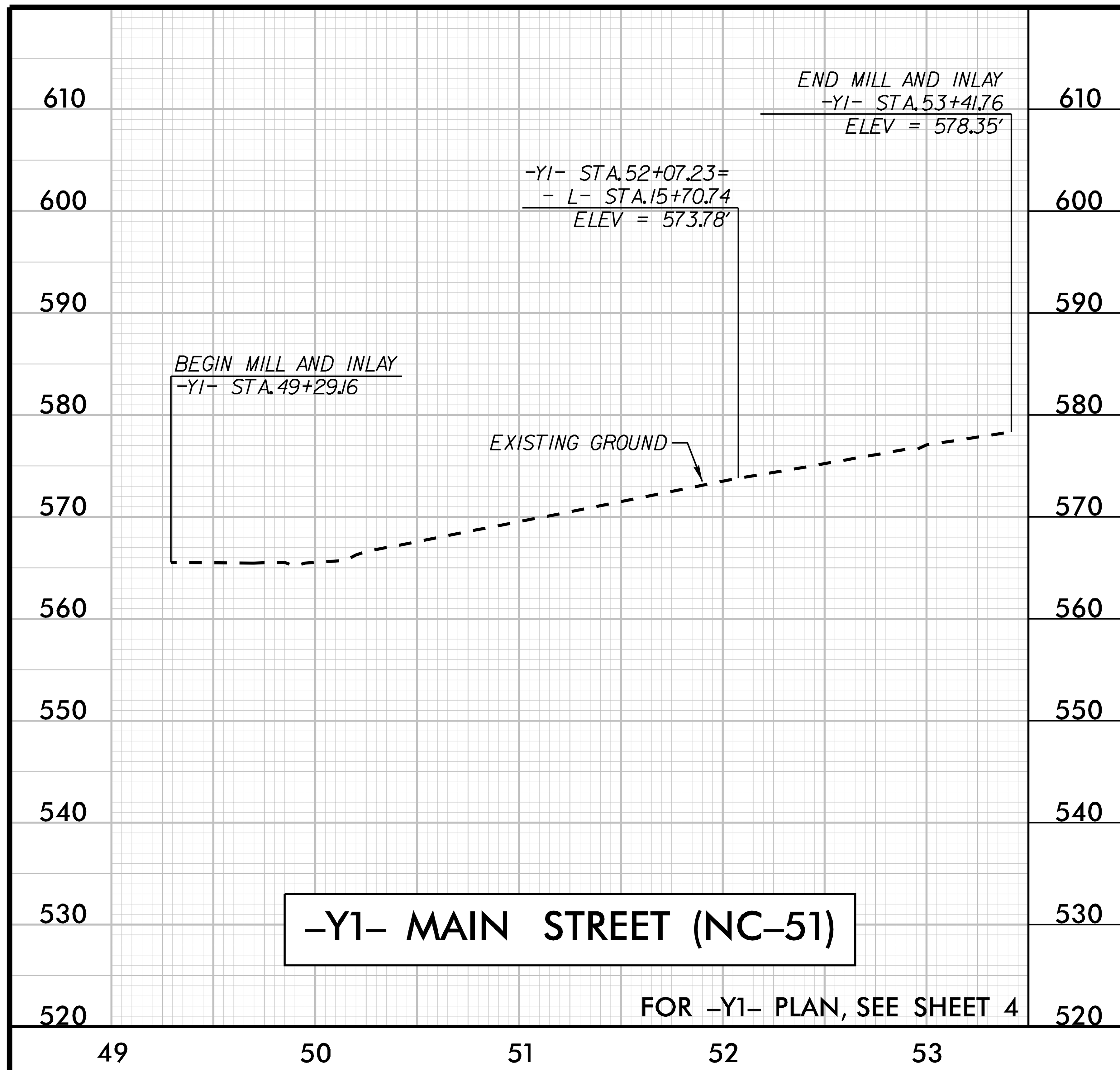
Kimley»Horn

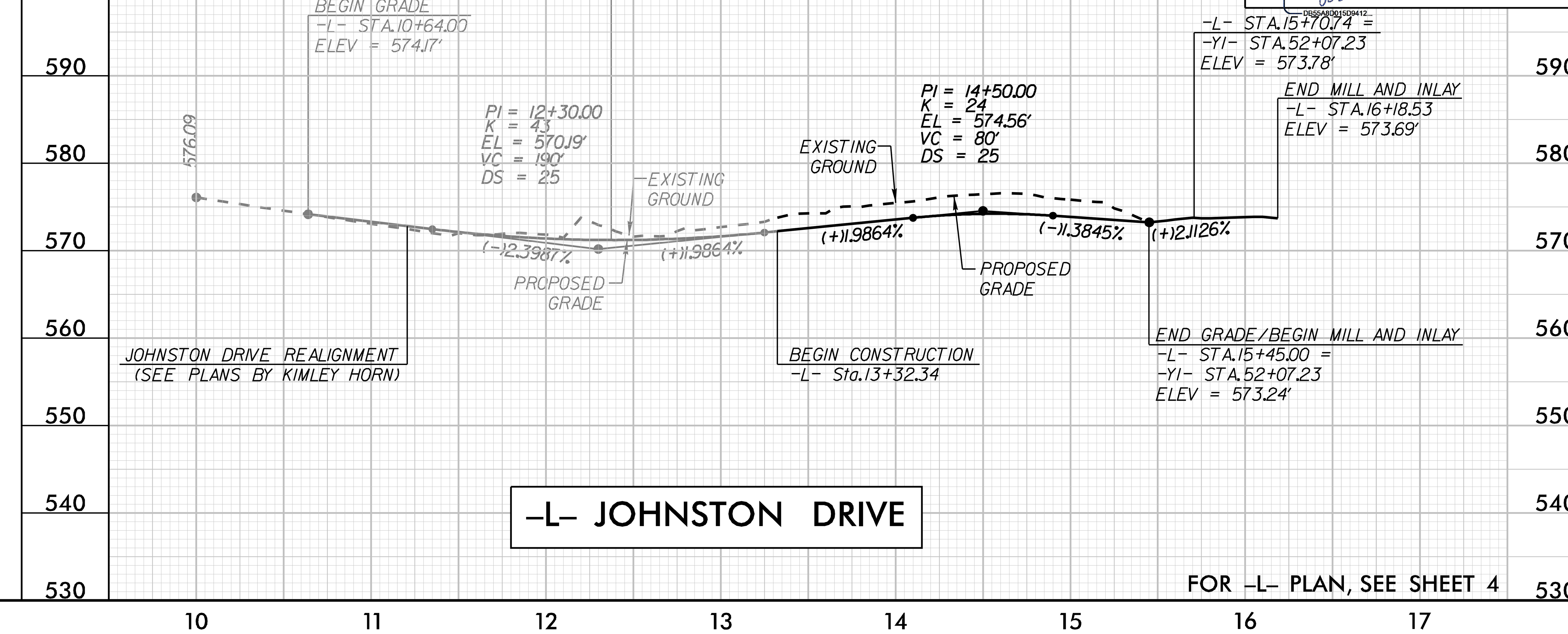
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

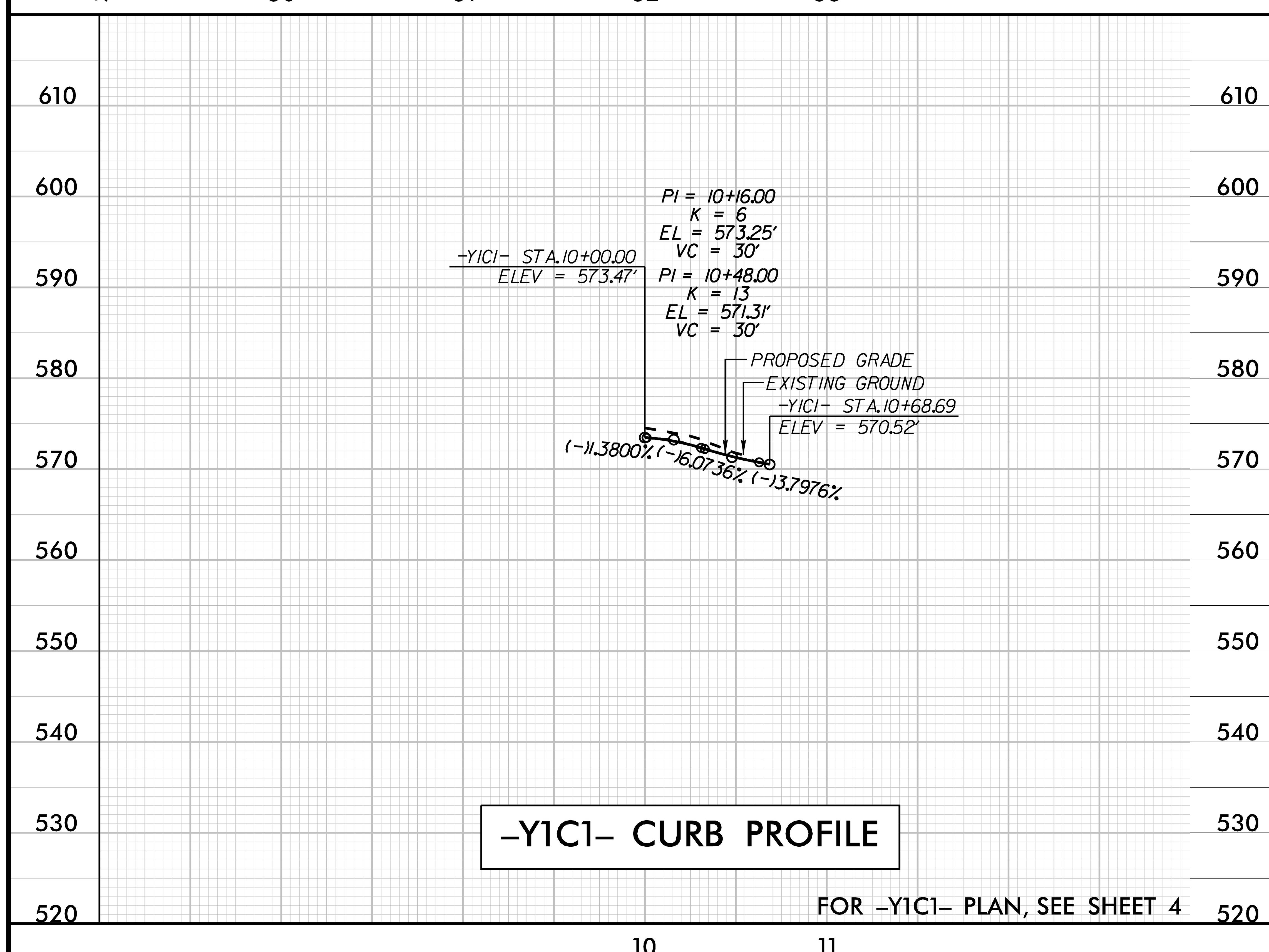
PROJECT REFERENCE NO.	SHEET NO.
EB-5949	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

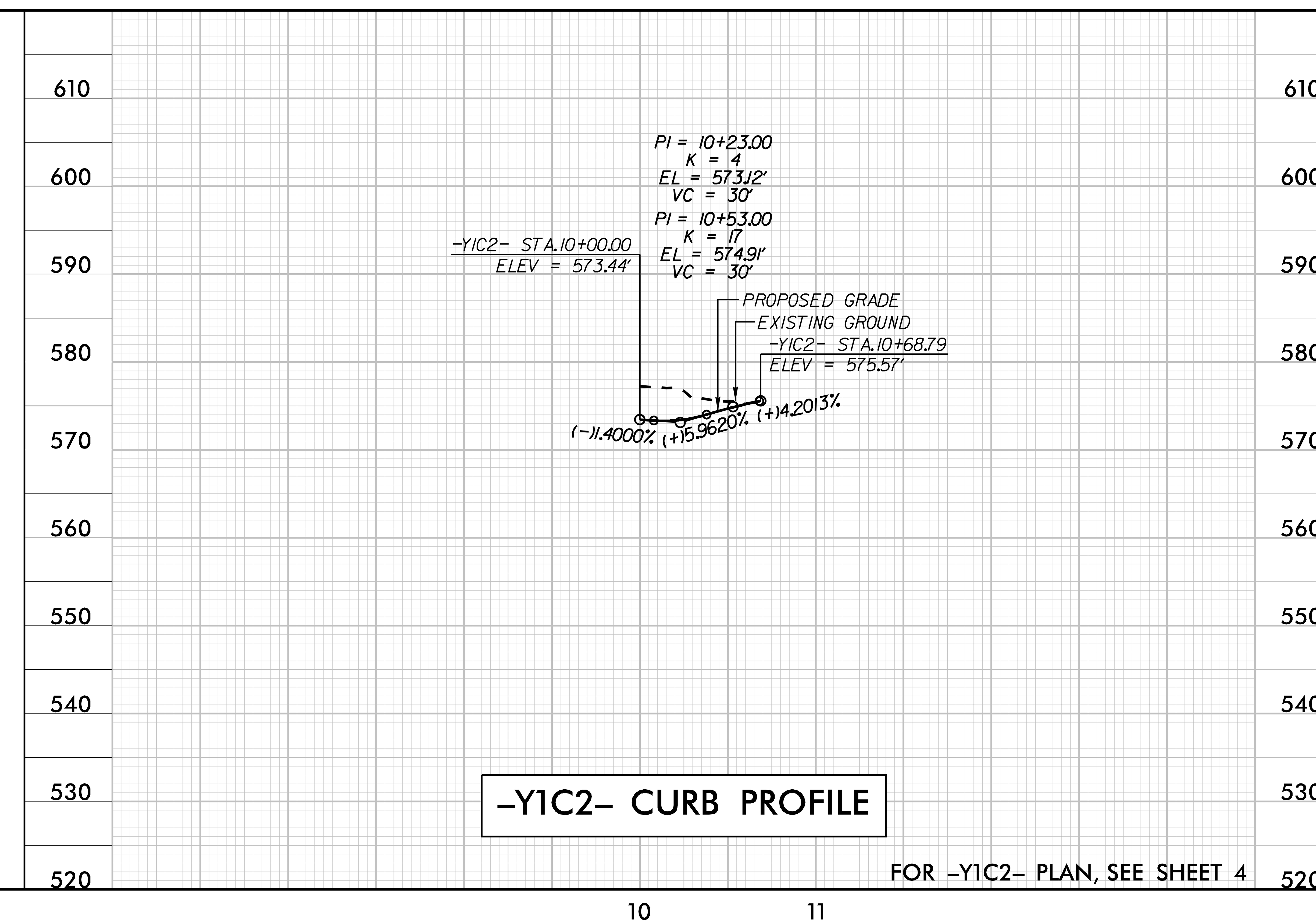
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034207 ANTHONY J. SPACEK 9/7/2021

DocuSigned by: DB55A8D015D9412...





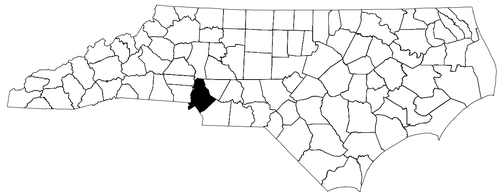


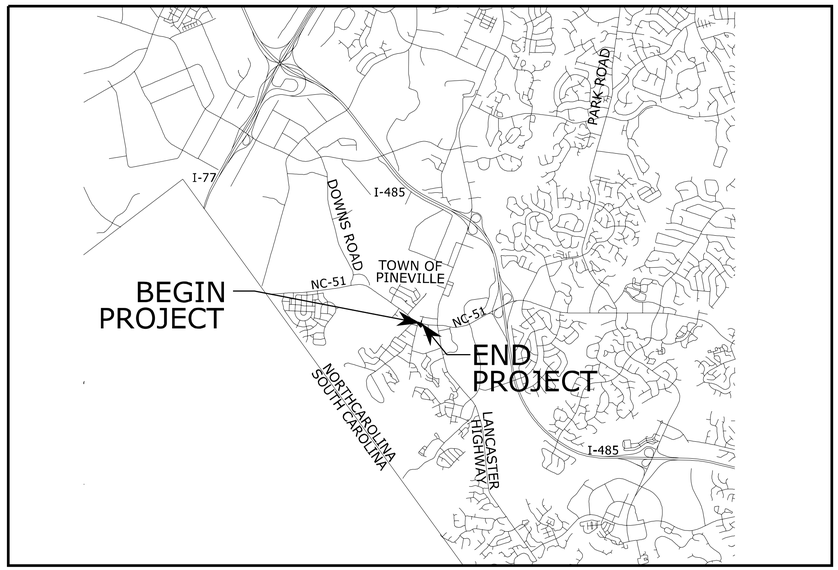


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MECKLENBURG COUNTY





INDEX OF SHEETS

SHEET NO.
TMP-1

TIP PROJECT:

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

_____ STATE TRAFFIC MANAGEMENT ENGINEER

_____ TRAFFIC CONTROL PROJECT ENGINEER

_____ TRAFFIC CONTROL DESIGN ENGINEER

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

Kimley»Horn

TONY SPACEK, P.E. — TRAFFIC CONTROL PROJECT ENGINEER

BEN VONDENBRINK — TRAFFIC CONTROL PROJECT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACEK

DocuSigned by: Anthony J Spacek DE55A8D015D9412...

9/7/2021

APPROVED: _____

DATE: _____

K:\CHL_PRJ\018036 Town of Pineville\003 Johnston Dr Alignment - Design\04_CADD\02_PLANS\WC 5i Improvements\036003-RDI4-TCP-COVR-.dgn

8/25/2021

PROJ. REFERENCE NO.	SHEET NO.
EB-5949	TMP-2

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL

TEMPORARY PAVEMENT MARKING

PAVEMENT MARKING LINES

PA - PAINT (4" WHITE, 2X)	EDGELINE
PB - PAINT (4" YELLOW, 2X)	EDGELINE
PE - PAINT (4" WHITE, 2X)	SOLID LANE LINE
PI - PAINT (4" YELLOW, 2X)	DOUBLE CENTER LINE
P2 - PAINT (24" WHITE, 2X)	STOP BAR

PAVEMENT MARKING SYMBOLS

- QA - PAINT 2X (LEFT TURN ARROW)
- QB - PAINT 2X (RIGHT TURN ARROW)
- QC - PAINT 2X (STRAIGHT ARROW)

PERMANENT PAVEMENT MARKING

PAVEMENT MARKING LINES

TA - THERMOPLASTIC (4" WHITE, 90 MILS)	EDGELINE
TB - THERMOPLASTIC (4" YELLOW, 90 MILS)	EDGELINE
TC - THERMOPLASTIC (4" WHITE, 90 MILS)	10' SKIP
TD - THERMOPLASTIC (4" WHITE, 90 MILS)	3' x 9'/SP MINI-SKIP
TE - THERMOPLASTIC (4" WHITE, 90 MILS)	SOLID LANE LINE
TF - THERMOPLASTIC (4" YELLOW, 90 MILS)	10' SKIP
TH - THERMOPLASTIC (4" YELLOW, 90 MILS)	SINGLE CENTER LINE
TI - THERMOPLASTIC (4" YELLOW, 90 MILS)	DOUBLE CENTER LINE
TP - THERMOPLASTIC (8" YELLOW, 90 MILS)	DIAGONAL LINE
TQ - THERMOPLASTIC (8" WHITE, 90 MILS)	CROSSWALK LINE
T1 - THERMOPLASTIC (16" WHITE, 90 MILS)	RR X
T2 - THERMOPLASTIC (24" WHITE, 90 MILS)	STOP BAR
T8 - THERMOPLASTIC (4" WHITE, 90 MILS)	2'-6'/SP MINI-SKIP

PAVEMENT MARKING SYMBOLS/CHARACTERS

UA - THERMOPLASTIC (WHITE, 90 MILS)	LEFT TURN ARROW
UB - THERMOPLASTIC (WHITE, 90 MILS)	RIGHT TURN ARROW
UC - THERMOPLASTIC (WHITE, 90 MILS)	STRAIGHT ARROW
UD - THERMOPLASTIC (WHITE, 90 MILS)	COMBO LEFT/STRAIGHT ARROW
UE - THERMOPLASTIC (WHITE, 90 MILS)	COMBO RIGHT/STRAIGHT ARROW
UI - THERMOPLASTIC (WHITE, 90 MILS)	ALPHANUMERIC CHARACTER

SIGNALS

EXISTING PROPOSED

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

APPROVED:_____ DATE:_____

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACEK

DocuSigned by: [signature] 9/7/2021

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

K:\CHL_PRJ\0|8036 Town of Pineville\003 Johnston Dr Alignment - Design\04_CADD\02_PLANS\WC 5\ Improvements\036003-RD14-TCP-COVR-.dgn

8/25/2021

PROJ. REFERENCE NO.	SHEET NO.
EB-5949	TMP-3

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OFTHE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

PROJECT NOTES

A. DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

B. REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER. LANE CLOSURES ON NC 51 ARE ONLY PERMITTED M-F, 9AM-4PM. ALL TRAVEL LANES SHALL BE REOPENED TO TRAFFIC EVERY DAY OUTSIDE OF THESE TIMES.

C. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

D. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

E. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

F. DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

G. BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER.

H. DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 350 FEET IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

SIGNING

I. INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

J. ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

K. INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 ft IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

L. INSTALL TEMPORARY BARRIER ACCORDING TO THE TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE UNLESS OTHERWISE SHOWN ON THE PLANS. CONTRACTOR SHALL USE ANY METHODS NECESSARY TO ENSURE THAT ANY BARRIER NOT DIRECTLY PLACED ON AN ASPHALT OR A CONCRETE SURFACE IS STABLE AND LEVEL.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE/RESET TEMPORARY BARRIER UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW, BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW, BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

M. PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS:

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

TRAFFIC PATTERN ALTERATIONS

N. NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

TRAFFIC CONTROL DEVICES

O. SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE NOT IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED, REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.

P. PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

Q. PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES (DRUMS, CONES OR SKINNY DRUMS) PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

R. ONLY UNIFORMED POLICE OFFICERS SHALL DIRECT TRAFFIC THROUGH SIGNALIZED INTERSECTIONS. THE TRAFFIC SIGNAL MAY BE PUT INTO FLASHING OPERATION OR MAY REMAIN IN NORMAL OPERATION AT THE DISCRETION OF THE OFFICER.

OFFICERS SHALL BE PROPERLY ATTIRED AND SHALL DIRECT TRAFFIC WITH HAND MOTIONS. FLASHLIGHTS WITH RED CONES SHOULD BE USED AT NIGHT. OFFICERS MAY ALSO USE A WHISTLE TO SIGNAL WHEN THEY ARE CHANGING THE DIRECTION OF THE RIGHT OF WAY.

PAVEMENT MARKINGS AND MARKERS

S. INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER	
All		Thermo	Permanent Raised

T. INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
All		Paint

U. PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

V. TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

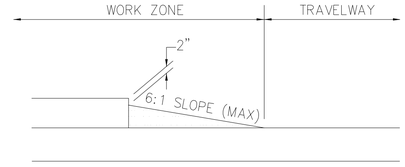
W. REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

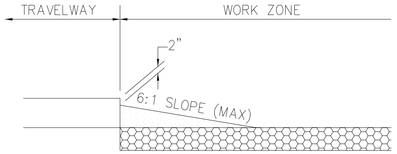
TEMPORARY / FINAL SIGNS

X. NOTIFY THE ENGINEER TWO (2) MONTHS BEFORE A TRAFFIC SIGNAL INSTALLATION BY OTHERS IS REQUIRED.

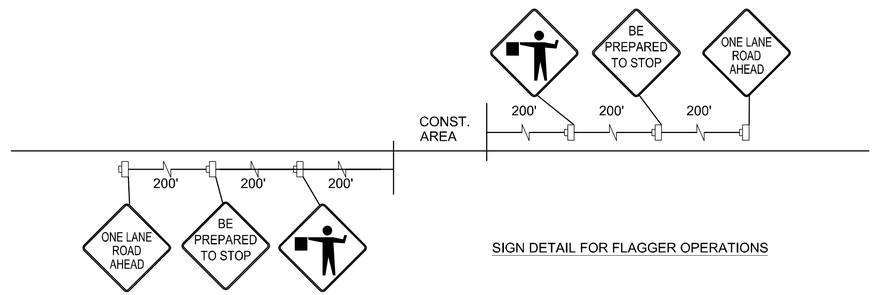
MISCELLANEOUS

Y. IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAYS TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION, AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) AND RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO D. TRAFFIC PATTERN ALTERATIONS





TEMPORARY PAVEMENT WEDGING DETAILS



SIGN DETAIL FOR FLAGGER OPERATIONS

APPROVED:_____ DATE:_____

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACK

DocuSigned by: Anthony J Spack

9/7/2021

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

K:\CHL_PRJ\08036 Town of Pinevill\e\003 Johnston Dr Alignment - Design\04_CADD\02_PLANS\WC 5\ Improvements\036003-RD14-TCP-COVR-dgn

8/25/2021

PROJ. REFERENCE NO.	SHEET NO.
EB-5949	TMP-4

CONSTRUCTION PHASING

PHASE I

CONSTRUCT FULL DEPTH PAVEMENT, CURB AND GUTTER, SIDEWALK, AND DRAINAGE STRUCTURES ALONG NEW -L- JOHNSTON DRIVE ALIGNMENT EAST OF EXISTING SEGMENT AND SOUTH OF -Y1- MAIN STREET.

STEP 1: PRIOR TO BEGINNING CONSTRUCTION, INSTALL ALL ADVANCED WARNING SIGNAGE THORUHGOUT PROJECT IN ACCORDANCE WITH THE PLANS AND NCDOT STANDARD DRAWING SERIES.
STEP 2: PLACE WORK ZONE SIGNS AND BARRICADES IN ACCORDANCE WITH THE PLANS AND NCDOT STANDARD DRAWING SERIES 1101.
STEP 3: CONSTRUCT PAVEMENT (EXCLUDING FINAL SURFACE COURSE), CURB AND GUTTER , SIDEWALK, STORM DRAINAGE, AND DRIVEWAYS AT THE LOCATIONS SHOWN IN THE PLANS.
STEP 4: PROVIDE WEDGING AS NECESSARY TO TIE NEW CONSTRUCTION INTO EXISTING PAVEMENT FOR SMOOTH TRANSITIONS AND POSITIVE DRAINAGE USING NECESSARY LANE CLOSURES.
STEP 5: MAINTAIN EXISTING SIGNAL OPERATION AT NC-51 & CHURCH ST INTERSECTION UNTIL NEW SIGNAL POLES ARE INSTALLED AND CONNECTED AT INTERSECTION

PHASE II

CONSTRUCT NEW SEGMENT OF PAVEMENT, CURB AND GUTTER, AND DRAINAGE STRUCTURES ALONG NEW -L- JOHNSTON DRIVE ALIGNMENT SOUTH OF EXISTING -Y1- MAIN STREET.

STEP 1: MAINTAIN WORK ZONE SIGNS AND BARRICADES ALONG -L- JOHNSTON DRIVE USED DURING PHASE I.
STEP 2: INSTALL DETOUR SIGNAGE THORUHGOUT PROJECT IN ACCORDANCE WITH TMP-7D AND NCDOT STANDARD DRAWING SERIES 1101.
STEP 3: PLACE WORK ZONE SIGNS AND BARRICADES IN ACCORDANCE WITH TMP-5 THROUGH TMP-8 AND NCDOT STANDARD DRAWING SERIES 1101.
STEP 4: PLACE TEMPORARY LANE CLOSURE ALONG EASTBOUND LANE OF MAIN STREET AS SHOWN IN PHASE I PLANS AND USING ROADWAY STANDARD DRAWINGS 1101.02 FOR TEMPORARY LANE CLOSURES. LANE CLOSURES CAN ONLY OCCUR DURING WEEKDAY DAYTIME HOURS (MON-FRI, 9AM-4PM). ALL LANES MUST BE REOPENED TO TRAFFIC OUTSIDE OF THESE TIMES.
STEP 5: PLACE TEMPORARY ROAD CLOSURE ALONG PROPOSED JOHNSTON DRIVE BETWEEN MAIN STREET AND MEYER LANE AS SHOWN IN PHASE II PLANS AND USING ROADWAY STANDARD DRAWINGS 1101.02 FOR TERMPORARY LANE CLOSURES. LANE CLOSURES CAN ONLY OCCUR DURING WEEKDAY DAYTIME HOURS (MON-FRI, 9AM-4PM). ALL LANES MUST BE REOPENED TO TRAFFIC OUTSIDE OF THESE TIMES.
STEP 6: CONSTRUCT PAVEMENT (EXCLUDING FINAL SURFACE COURSE), CURB AND GUTTER , SIDEWALK, STORM DRAINAGE, AND DRIVEWAYS AT THE LOCATIONS SHOWN IN THE PLANS.
STEP 7: PROVIDE WEDGING AS NECESSARY TO TIE NEW CONSTRUCTION INTO EXISTING PAVEMENT FOR SMOOTH TRANSITIONS AND POSITIVE DRAINAGE USING NECESSARY LANE CLOSURES.

PHASE III

REMOVE EXISTING PAVEMENT FOR -L- JOHNSTON DRIVE TO -Y1- MAIN STREET.

STEP 1: REMOVE WORK ZONE SIGNS AND BARRICADES ALONG -L- JOHNSTON DRIVE USED DURING PHASE I AND II TO PROVIDE FULL ACCESS TO NEW -L- JOHNSTON DRIVE.
STEP 2: SWITCH TRAFFIC OVER TO NEWLY CONSTRUCTED -L- JOHNSTON DRIVE.
STEP 3: PLACE WORK ZONE SIGNS AND BARRICADES IN ACCORDANCE WITH TMP-8 AND NCDOT STANDARD DRAWING SERIES 1101.
STEP 4: PLACE TEMPORARY LANE CLOSURE ALONG EASTBOUND LANE OF MAIN STREET AS SHOWN IN PHASE III PLANS AND USING ROADWAY STANDARD DRAWINGS 1101.02 FOR TEMPORARY LANE CLOSURES. LANE CLOSURES ON NC 51 ARE ONLY PERMITTED M-F, 9AM-4PM. ALL TRAVEL LANES SHALL BE REOPENED TO TRAFFIC EVERY DAY OUTSIDE OF THESE TIMES.
STEP 5: REMOVE EXISTING PAVEMENT NOT TO BE USED ON NEW -L- JOHNSTON DRIVE ALIGNMENTS.
STEP 6: COMPLETE MILL AND INLAY IN APPLICABLE AREAS ALONG EXISTING -Y1- MAIN STREET AS SHOWN.
STEP 7: CONSTRUCT PAVEMENT (EXCLUDING FINAL SURFACE COURSE), CURB AND GUTTER , SIDEWALK, STORM DRAINAGE, AND DRIVEWAYS AT THE LOCATIONS SHOWN IN THE PLANS.
STEP 8: PROVIDE WEDGING AS NECESSARY TO TIE NEW CONSTRUCTION INTO EXISTING PAVEMENT FOR SMOOTH TRANSITIONS AND POSITIVE DRAINAGE USING NECESSARY LANE CLOSURES.
STEP 9: PLACE TEMPORARY LANE CLOSURE ALONG WESTBOUND LANE OF MAIN STREET AS SHOWN IN PHASE III PLANS AND USING ROADWAY STANDARD DRAWINGS 1101.02 FOR TEMPORARY LANE CLOSURES. LANE CLOSURES CAN ONLY OCCUR DURING WEEKDAY DAYTIME HOURS (MON-FRI, 9AM-4PM). ALL LANES MUST BE REOPENED TO TRAFFIC OUTSIDE OF THESE TIMES.
STEP 10: CONSTRUCT CURB RAMPS AND SIDEWALK ALONG NORTHERN SIDE OF -Y1- MAIN STREET.
STEP 11: INSTALL SIGNAL UPGRADES AT THE NEW INTERSECTION OF -L- JOHNSTON DRIVE AND -Y1- MAIN STREET. REMOVE EXISTING SIGNAL FROM EXISTING INTERSECTION OF -L- JOHNSTON DRIVE AND -Y1- MAIN STREET.

PHASE IV (NOTES ONLY)

COMPLETE CONSTRUCTION BY MILLING NC 51 (MAIN ST.), PLACING FINAL SURFACE COURSE AND PAVEMENT MARKINGS

STEP 1: INSTALL FINAL SURFACE COURSE AS SHOWN ON THE PLANS AND AS SEEN IN NCDOT 1101.02.
STEP 2: INSTALL FINAL PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS ACCORDING TO PLAN SHEETS PM-1 TO PM-8. THIS WORK SHALL BE LIMITED TO OFF-PEAK HOURS (9AM-4PM). USE NCDOT 1101.02 SHEET 11 OF 14 FOR MOVING OPERATION CARAVAN AS NECESSARY DURING INSTALLATION.
STEP 3: REMOVE ALL REMAINING TEMPORARY CONTROL DEVICES.

GENERAL NOTE

1.CONTRACTOR TO ENSURE POSITIVE DRAINAGE AT ALL EDGE OF PAVEMENT LOCATIONS.

2.LANE CLOSURES ON NC 51 ARE ONLY PERMITTED M-F, 9AM-4PM. ALL TRAVEL LANES SHALL BE REOPENED TO TRAFFIC EVERY DAY OUTSIDE OF THESE TIMES.

APPROVED:_____ DATE:_____

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACEK

DocuSigned by: 9/7/2021

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

K:\CHL_PRJ\08036 Town of Pineville\003 Johnston Dr Alignment - Design\04_CADD\02_PLANS\NC 51 Improvements\036003-RD14-TCP-COVR.dgn

8/25/2021

PHASE 1

RETAIN EXISTING STRIPE

R9-11a
24" X 12"
SIDEWALK CLOSED
CROSS HERE
2" MAX
PEDESTRIAN BARRICADE

RETAIN EXISTING SIGNAL POLE DURING PHASE 1

RETAIN EXISTING STRIPE

MAIN.ST

S POLK ST

R9-11a
24" X 12"
SIDEWALK CLOSED
CROSS HERE
2" MAX
PEDESTRIAN BARRICADE

02 02

JOHNSTON DR.

JOHNSTON DRIVE REALIGNMENT
(SEE PLANS BY KIMLEY HORN)

8 Montgomery Management, LLC D.B. 10192, PG. 530 PIN: 221-061-01

6 W. A Yandell Rental & Investment Company D.B. 3111, PG. 569 PIN: 221-064-24

William Frederic Smith & Nancy M. Smith D.B. 4630, PG. 564 PIN: 221-064-23

14

18 Westerham Condominiums UF 843, PG. 1 PIN: 221-06C-99

15 Cardinal Group Southeast Inc D.B. 13111, PG. 189 PIN: 221-064-22

5 Montgomery Management LLC D.B. 10192, PG. 530 PIN: 221-064-26

4 Montgomery Management LLC D.B. 10192, PG. 530 PIN: 221-064-26

7 A Yandell Rental & nvestment Company D.B. 2036, PG. 293 Description Found, Survey by Carolina Surveyors, Inc. dated 11/28/2006 used) PIN: 221-064-25

19 Frances Neal Howie & Nancy Elliot Howie D.B. 605, PG. 55 PIN: 221-064-19

16 Frances Neal Howie & Nancy Elliot Howie D.B. 605, PG. 55 PIN: 221-064-19

20 Frances Neal Howie D.B. 4132, PG. 865 PIN: 221-064-18

2 Laura Yandell & Linda Y. Dove D.B. 27476, PG. 420 PIN: 221-064-27

21 Pineville United Methodist Church D.B. 11243, PG. 37 PIN: 221-064-17

17 Pineville United Methodist Church D.B. 8815, PG. 177 PIN: 221-064-16

22 Pineville United Methodist Church D.B. 8815, PG. 165 PIN: 221-064-44

23 Pineville United Methodist Church D.B. 9847, PG. 346 PIN: 221-064-42

23 Pineville United Methodist Church D.B. 8815, PG. 168 PIN: 221-064-43

Pineville United Methodist Church

Board of Trustees of Pineville United Methodist Church D.B. 11442, PG. 643 PIN: 221-064-45

Bellefield Properties D.B. 30952, PG. PIN: 221-064-

LEGEND

- WORK ZONE
- DRUM
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW
- PEDESTRIAN BARRICADE
- PEDESTRIAN DETOUR

50 25 0 50 100

Kimley»Horn

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

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
EB-5949	TMP-5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACK

9/7/2021

DocuSigned by:
DB55ABD01SD9412...

HYDRAULICS ENGINEER

PHASE II

NOTE:

1) SEE SHEET TMP-7 FOR DETOUR PLAN.

RIGHT LANE CLOSED AHEAD
W20-5 R
48" X 48"

W4-2R
48" X 48"

RIGHT LANE CLOSED
W20-5 R
48" X 48"

200' SPACING | 200' SPACING | 200' SPACING | 125' MERGE TAPER

R11-2
48" X 30"
ROAD CLOSED
TYPE III BARRICADE(S)

RETAIN EXISTING STRIPE

MAIN.ST

038 CR | 038 CR | CR | 02 02

CHILDERS LN.

JOHNSTON DR.

JOHNSTON DRIVE REALIGNMENT
(SEE PLANS BY KIMLEY HORN)

9 W. A. Yandell Rental & Investment Company
D.B. 2036, PG. 293
PIN: 221-062-02

8 Montgomery Management, LLC D.B. 10192, PG. 530
PIN: 221-061-01

7 W. A. Yandell Rental & Investment Company
D.B. 2036, PG. 293
(No Lot Description Found, Survey by Carolina Surveyors, Inc. dated 11/28/2006 used)
PIN: 221-064-25

6 W. A. Yandell Rental & Investment Company
D.B. 3111, PG. 569
PIN: 221-064-24

William Frederic Smith & Nancy M. Smith
D.B. 4630, PG. 564
PIN: 221-064-23

14

18 Westerham Condominiums
UF 843, PG. 1
PIN: 221-06C-99

4 Montgomery Management LLC
D.B. 10192, PG. 530
PIN: 221-064-26

5 Montgomery Management LLC
D.B. 10192, PG. 530
PIN: 221-064-26

15 Cardinal Group Southeast Inc
D.B. 13111, PG. 189
PIN: 221-064-22

19 Frances Neal Howie & Nancy Elliot Howie
D.B. 605, PG. 55
PIN: 221-064-19

3 W. A. Yandell Rental & Investment Company
D.B. 2036, PG. 293
PIN: 221-062-01

10 "Portion of" Hugh E. White Jr. & Jan H. White
D.B. 6254, PG. 298
PIN: 221-062-03

16 Frances Neal Howie & Nancy Elliot Howie
D.B. 605, PG. 55
PIN: 221-064-19

20 Frances Neal Howie
D.B. 4132, PG. 865
PIN: 221-064-18

2 Laura Yandell & Linda Y. Dove
D.B. 27476, PG. 420
PIN: 221-064-27

21 Pineville United Methodist Church
D.B. 11243, PG. 37
PIN: 221-064-17

17 Pineville United Methodist Church
D.B. 8815, PG. 177
PIN: 221-064-16

22 Pineville United Methodist Church
D.B. 8815, PG. 165
PIN: 221-064-14

23 Pineville United Methodist Church
D.B. 9847, PG. 346
PIN: 221-064-42

23 Pineville United Methodist Church
D.B. 8815, PG. 1
PIN: 221-064-

12 Edward Davis Jr & Vanzenia Boyd
D.B. 3735, PG. 14
PIN: 221-062-05

13 Oak Grove Baptist Church
D.B. 3735, PG. 828
PIN: 221-062-06

W. A. Yandle Rental & Investment Company
D.B. 3402, PG. 433
PIN: 221-062-07

LEGEND

- WORK ZONE
- DRUM
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW
- TYPE III BARRICADE

Kimley»Horn

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

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
EB-5949	TMP-6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACECK

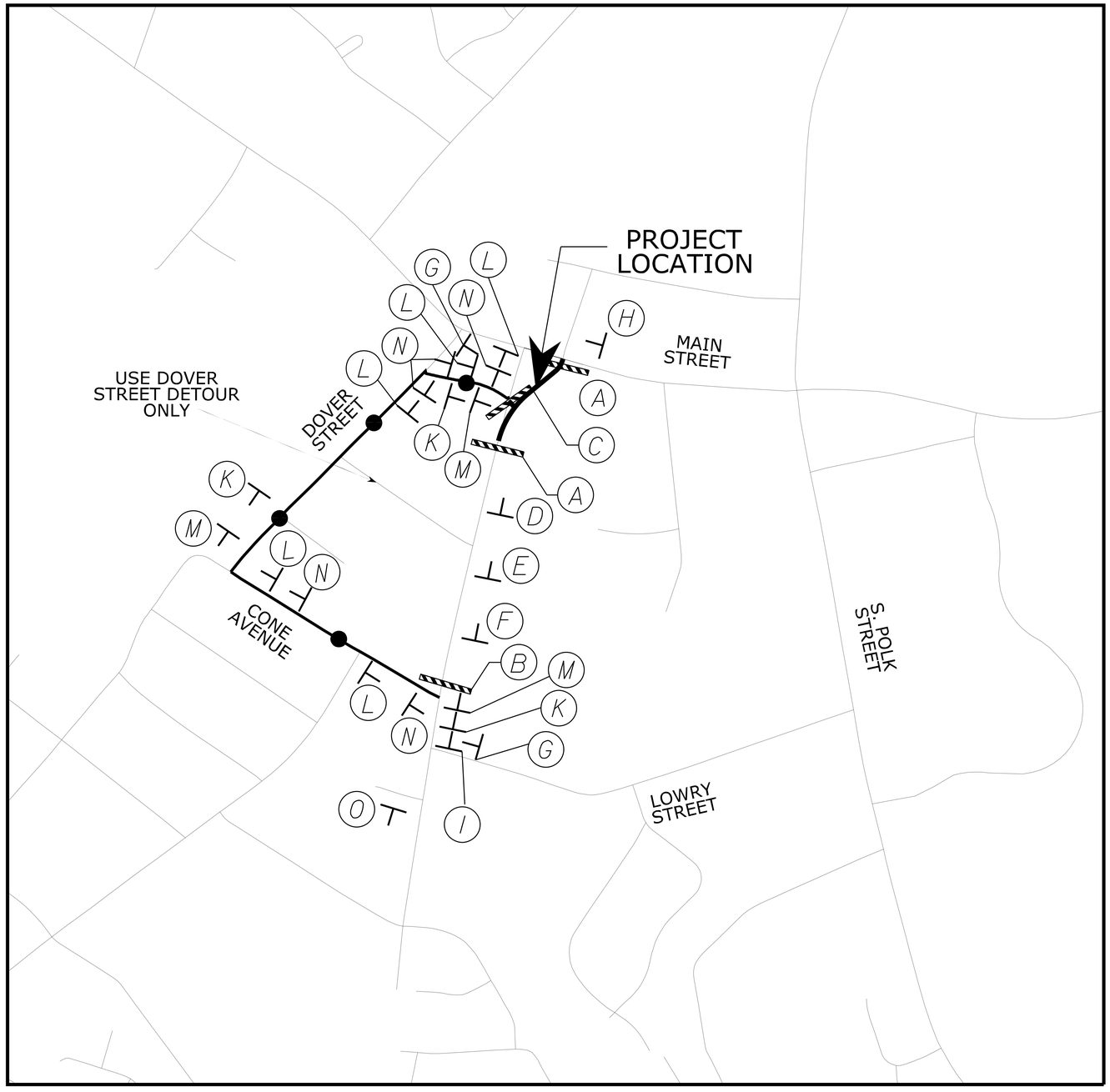
9/7/2021

HYDRAULICS ENGINEER

DocuSigned by:
DB58A8D615D9412...

50 25 0 50 100

PROJ. REFERENCE NO.	SHEET NO.
EB-5949	TMP-7



SCALE: 1" = 50'

D — ROAD CLOSED 500 FT — W20-3B 48" X 48"

E — ROAD CLOSED 1000 FT — W20-3C 48" X 48"

F — ROAD CLOSED AHEAD — W20-3A 48" X 48"

G — ROAD CLOSED AHEAD — W20-3A 48" X 48" — NEXT RIGHT — SP-4R 42" X 12"

H — ROAD CLOSED AHEAD — W20-3A 48" X 48" — NEXT LEFT — SP-4L 42" X 12"

I — DETOUR AHEAD — W20-2 48" X 48"

J — JOHNSTON DRIVE (301) SEE SHEET SD-1 — DETOUR — M4-8 24" X 12" — M6-3 21" X 15"

K — JOHNSTON DRIVE (302) SEE SHEET SD-1 — DETOUR — M4-8 24" X 12" — M5-1 M 21" X 15"

L — JOHNSTON DRIVE (303) SEE SHEET SD-1 — DETOUR — M4-8 24" X 12" — M5-1 R 21" X 15"

M — JOHNSTON DRIVE (304) SEE SHEET SD-1 — DETOUR — M4-8 24" X 12" — M6-1 L 21" X 15"

N — JOHNSTON DRIVE (305) SEE SHEET SD-1 — DETOUR — M4-8 24" X 12" — M6-1 21" X 15"

O — END DETOUR — M4-8 A 24" X 18"

NOTE:

1.) SEE NCDOT STD.DRAWING 1101.11 SHEET 4 OF 4 FOR SIGN SPACING

LEGEND
- DETOUR ROUTE
- STATIONARY SIGN

A — R11-2 48" X 30" — ROAD CLOSED — TYPE III BARRICADE(S)

B — 60" x 30" — ROAD CLOSED TO THRU TRAFFIC — DETOUR — M4-10L 48" x 18" — TYPE III BARRICADE

C — R11-2 48" x 30" — ROAD CLOSED — DETOUR — M4-10R 48" x 18" — TYPE III BARRICADE

APPROVED: _____ DATE: _____

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACEK

DocuSigned by: Anthony J Spacek 9/7/2021

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TRANSPORTATION MANAGEMENT PLAN

K:\CHL_PRJ\01803G Town of Pineville\003 Johnston Dr Alignment - Design\04_CADD\02_PLANS\WC 51 Improvements\036003-RD14-TCP2-PLAN2-.dgn

8/25/2021

PHASE III

Kimley»Horn

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

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
EB-5949	TMP-8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACEK

9/7/2021

HYDRAULICS ENGINEER

DocuSigned by:
DB55A8D015D9412...

50 25 0 50 100

ONE LANE ROAD AHEAD W20-4 48" X 48"

BE PREPARED TO STOP W3-4 48" X 48"

W20-7 A 48" X 48"

+/- 200' SPACING

100'

100' TAPER

RETAIN EXISTING STRIPE

TIE TO EXISTING PAVEMENT MARKINGS

MAIN.ST

11' MIN.

20' TYP.

RIGHT LANE CLOSED AHEAD W20-5 R 48" X 48"

W4-2R 48" X 48"

RIGHT LANE CLOSED W20-5 R 48" X 48"

+/- 200' SPACING

CHILDERS LN.

JOHNSTON DR.

1	W. A. Yandle Rental & Investment Company D.B. 3402, PG. 433 PIN: 221-062-07
2	Laura Yandell & Linda Y. Dove D.B. 27476, PG. 420 PIN: 221-064-27
3	W. A. Yandell Rental & Investment Company D.B. 2036, PG. 293 PIN: 221-062-01
4	Montgomery Management LLC D.B. 10192, PG. 530 PIN: 221-064-26
5	Montgomery Management LLC D.B. 10192, PG. 530 PIN: 221-064-26
6	W. A. Yandell Rental & Investment Company D.B. 3111, PG. 569 PIN: 221-064-24
7	W. A. Yandell Rental & Investment Company D.B. 2036, PG. 293 (No Lot Description Found, Survey by Carolina Surveyors, Inc. dated 11/28/2006 used) PIN: 221-064-25
8	Montgomery Management, LLC D.B. 10192, PG. 530 PIN: 221-061-01
9	W. A. Yandell Rental & Investment Company D.B. 2036, PG. 293 PIN: 221-062-02
10	"Portion of" Hugh E. White Jr & Jan H. White D.B. 6254, PG. 298 PIN: 221-062-03
12	Edward Davis Jr & Vanzenia Boyd D.B. 3735, PG. 14 PIN: 221-062-05
13	Oak Grove Baptist Church D.B. 3735, PG. 828 PIN: 221-062-06
14	William Frederic Smith & Nancy M. Smith D.B. 4630, PG. 564 PIN: 221-064-23
15	Cardinal Group Southeast Inc D.B. 13111, PG. 189 PIN: 221-064-22
16	Frances Neal Howie & Nancy Elliot Howie D.B. 605, PG. 55 PIN: 221-064-19
17	Pineville United Methodist Church D.B. 8815, PG. 177 PIN: 221-064-16
18	Westerham Condominiums UF 843, PG. 1 PIN: 221-06C-99
19	Frances Neal Howie & Nancy Elliot Howie D.B. 605, PG. 55 PIN: 221-064-19
20	Frances Neal Howie D.B. 3132, PG. 865 PIN: 221-064-18
21	Pineville United Methodist Church D.B. 11243, PG. 37 PIN: 221-064-17
23	

LEGEND

- WORK ZONE
- DRUM
- PORTABLE SIGN
- FLAGGER
- DIRECTION OF TRAFFIC FLOW
- TYPE III BARRICADE

PAVEMENT MARKING LINES

PA - PAINT (4" WHITE, 2X) EDGELINE
PB - PAINT (4" YELLOW, 2X) EDGELINE
PC - PAINT (4" WHITE, 2X) 4" X 10' SKIP
PD - PAINT (4" WHITE, 2X) 4" X 2' SKIP
PE - PAINT (4" WHITE, 2X) SOLID LANE LINE
PI - PAINT (4" YELLOW, 2X) DOUBLE CENTER LINE
P2 - PAINT (24" WHITE, 2X) STOP BAR
P3 - PAINT (24", WHITE 2X) CROSSWALK LINES

PAVEMENT MARKING SYMBOLS

QA - PAINT 2X (LEFT TURN ARROW)
QB - PAINT 2X (RIGHT TURN ARROW)
QC - PAINT 2X (STRAIGHT ARROW)
QD - PAINT 2X (COMBINATION STRAIGHT & LEFT TURN ARROW)

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

PROJECT REFERENCE NO.	SHEET NO.
EB-5949	PMP-1
R/W SHEET NO.	

RIGHT-OF-WAY REV.

CONST. REV.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034207 ENGINEER ANTHONY J. SPACEK

9/7/2021

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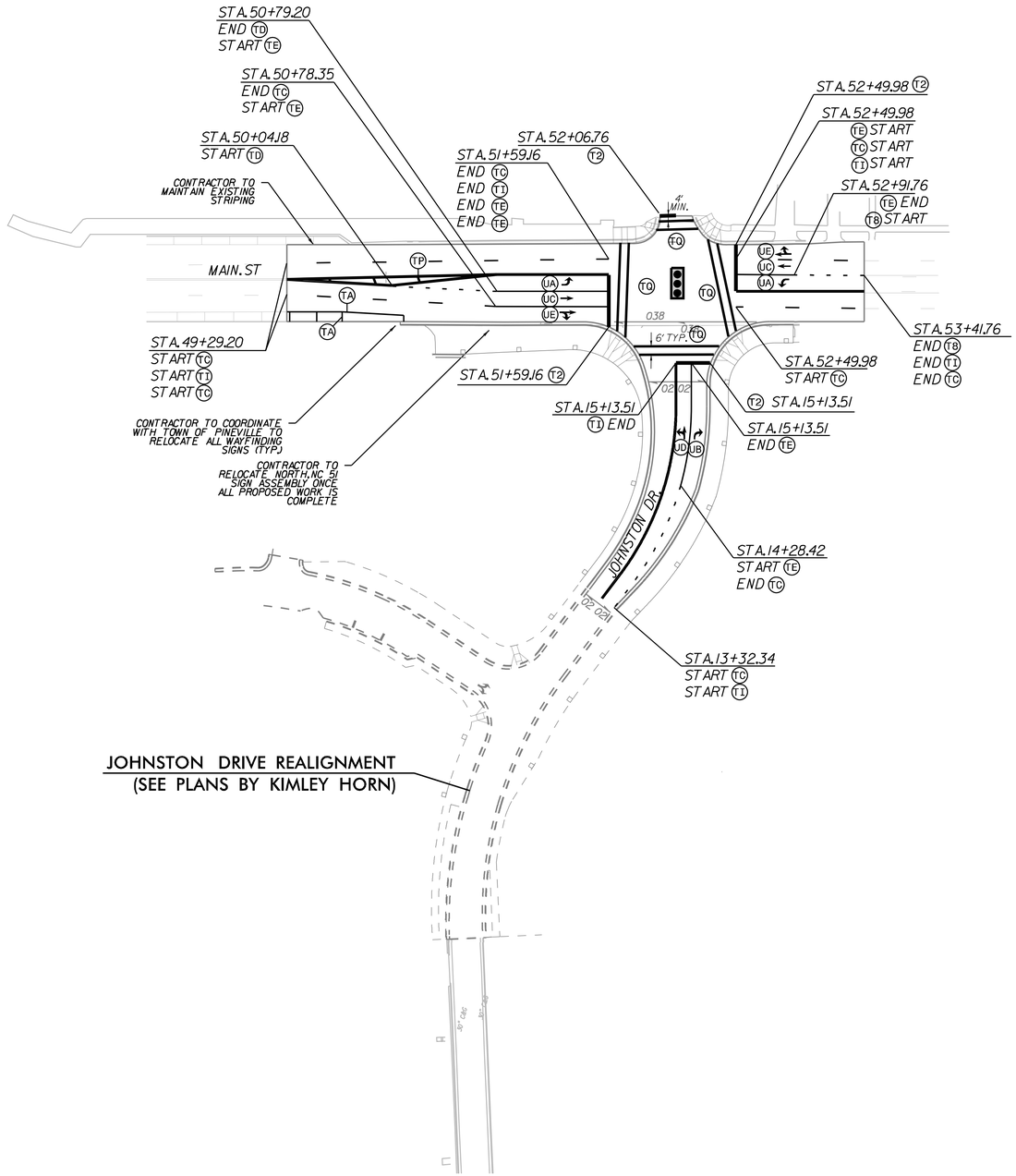
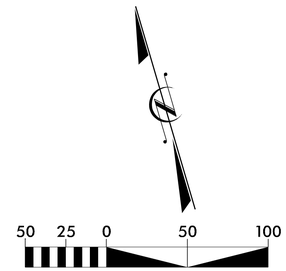




PAVEMENT MARKING LINES

TA - THERMOPLASTIC (4" WHITE, 90 MILS)	EDGELINE
TB - THERMOPLASTIC (4" YELLOW, 90 MILS)	EDGELINE
TC - THERMOPLASTIC (4" WHITE, 90 MILS)	10' SKIP
TD - THERMOPLASTIC (4" WHITE, 90 MILS)	3' x 9'/SP MINI-SKIP
TE - THERMOPLASTIC (4" WHITE, 90 MILS)	SOLID LANE LINE
TF - THERMOPLASTIC (4" YELLOW, 90 MILS)	10' SKIP
TH - THERMOPLASTIC (4" YELLOW, 90 MILS)	SINGLE CENTER LINE
TI - THERMOPLASTIC (4" YELLOW, 90 MILS)	DOUBLE CENTER LINE
TP - THERMOPLASTIC (8" YELLOW, 90 MILS)	DIAGONAL LINE
TQ - THERMOPLASTIC (8" WHITE, 90 MILS)	CROSSWALK LINE
T1 - THERMOPLASTIC (16" WHITE, 90 MILS)	RR X
T2 - THERMOPLASTIC (24" WHITE, 90 MILS)	STOP BAR
T8 - THERMOPLASTIC (4" WHITE, 90 MILS)	2'-6'/SP MINI-SKIP

PAVEMENT MARKING SYMBOLS/CHARACTERS

UA - THERMOPLASTIC (WHITE, 90 MILS)	LEFT TURN ARROW
UB - THERMOPLASTIC (WHITE, 90 MILS)	RIGHT TURN ARROW
UC - THERMOPLASTIC (WHITE, 90 MILS)	STRAIGHT ARROW
UD - THERMOPLASTIC (WHITE, 90 MILS)	COMBO LEFT/STRAIGHT ARROW
UE - THERMOPLASTIC (WHITE, 90 MILS)	COMBO RIGHT/STRAIGHT ARROW
UI - THERMOPLASTIC (WHITE, 90 MILS)	ALPHANUMERIC CHARACTER

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	EB–5949	1	5

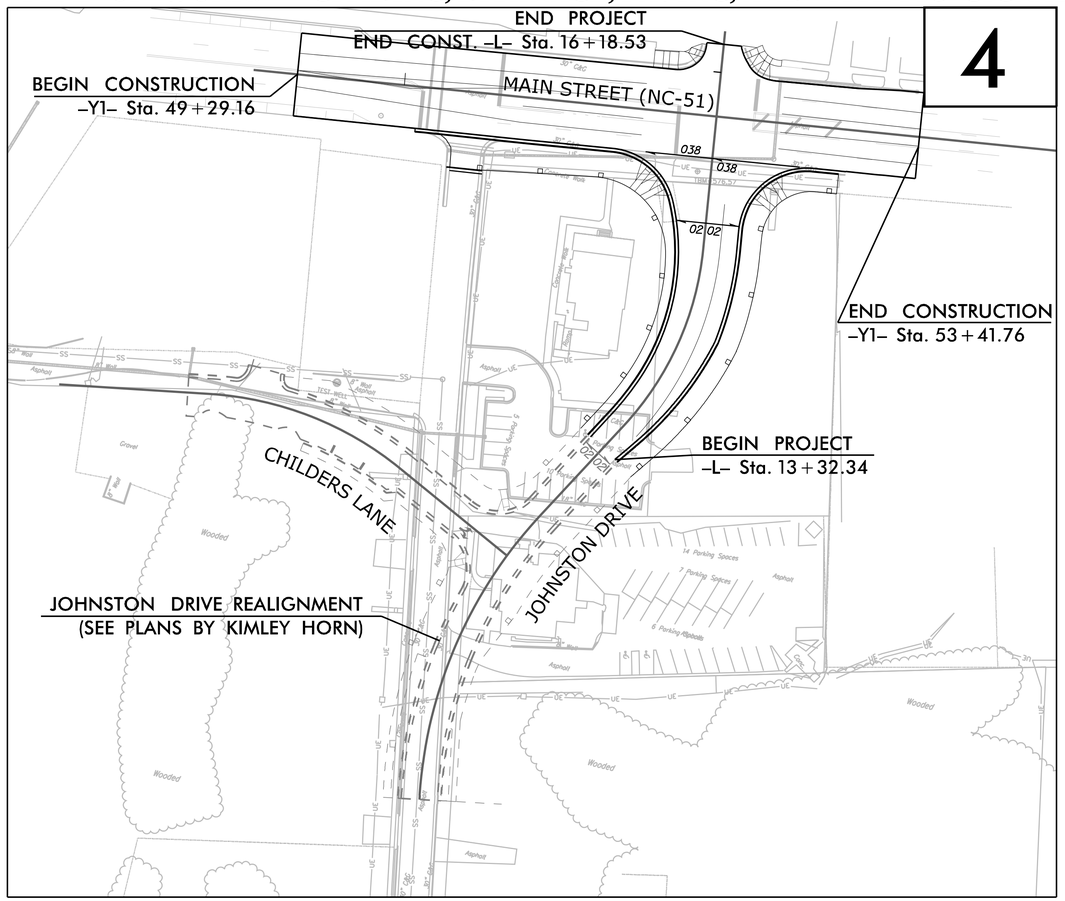
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
N/A	0051036	PE
N/A	0051036	R/W
48422.3.1	0051036	CON

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

MECKLENBURG COUNTY

LOCATION: ***NC–51 (MAIN STREET) IMPROVEMENTS***

TYPE OF WORK: ***GRADING, DRAINAGE, PAVING, AND TRAFFIC SIGNAL***



EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

GRAPHIC SCALE

25 0 50
PLANS

25 0 50
PROFILE (HORIZONTAL)

5 0 10
PROFILE (VERTICAL)

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared in the Office of:

Kimley»Horn ©2019

NC LICENSE: P-0102
200 SOUTH TRYON STREET, SUITE 200
CHARLOTTE, NORTH CAROLINA 28202
PHONE: (704) 333-5131

Designed by:

BEN VONDENBRINK ***4285***

NAME *LEVEL III CERTIFICATION NO.*

Reviewed In the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2019 STANDARD SPECIFICATIONS

Reviewed by:

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

CONTRACT:

K:\CHL_PRJ\0\8036 Town of Pineville\003 Johnston Dr Alignment - Design\04_CADD\02_PLANS\WC 5\ Improvements\036003-RDI6-EROS-COVR-.dgn

8/25/2021

PROJECT REFFERENCE NO.	SHEET NO.
EB-5949	EC-2

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	**Stabilize within this many calendar days after ceasing land disturbance**	**Timeframe variations**
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

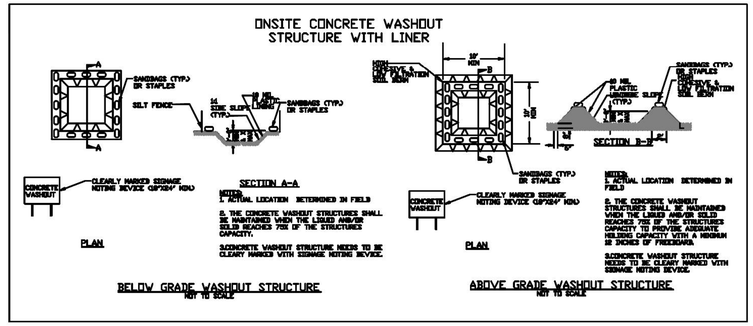
PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

NORTH CAROLINA
Environmental Quality



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (anc this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDCs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NORTH CAROLINA *Environmental Quality*

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

END CONSTRUCTION
–L– Sta. 16+18.53

–L– Sta. 15+70.74 =
–Y1– Sta. 52+07.23

BEGIN CONSTRUCTION
–Y1– Sta. 49+29.16

END CONSTRUCTION
–Y1– Sta. 53+41.76

BEGIN PROJECT
–L– Sta. 10+64.00

8 Montgomery Management, LLC D.B. 10192, PG. 530 PIN: 221-061-01

9 W. A. Yandell Rental & Investment Company D.B. 2036, PG. 293, PIN: 221-062-02

6 W. A Yandell Rental & Investment Company D.B. 3111, PG. 569 PIN: 221-064-24

William Frederic Smith & Nancy M. Smith D.B. 4630, PG. 564 PIN: 221-064-23

14

18 Westerham Condominiums UF 843, PG. 1 PIN: 221-06C-99

7 W. A Yandell Rental & Investment Company D.B. 2036, PG. 293 (No Lot Description Found, Survey by Carolina Surveyors, Inc. dated 11/28/2006 used) PIN: 221-064-25

4 Montgomery Management LLC D.B. 10192, PG. 530 PIN: 221-064-26

5 Montgomery Management LLC D.B. 10192, PG. 530 PIN: 221-064-26

15 Cardinal Group Southeast Inc D.B. 13111, PG. 189 PIN: 221-064-22

19 Frances Neal Howie & Nancy Elliot Howie D.B. 605, PG. 65 PIN: 221-064-19

3 W. A. Yandell Rental & Investment Company D.B. 2036, PG. 293 PIN: 221-062-01

10 "Portion of" Hugh E. White Jr & Jan H. White D.B. 6254, PG. 298 PIN: 221-062-03

16 Frances Neal Howie & Nancy Elliot Howie D.B. 605, PG. 55 PIN: 221-064-19

20 Frances Neal Howie D.B. 4132, PG. 865 PIN: 221-064-18

2 Laura Yandell & Linda Y. Dove D.B. 27476, PG. 420 PIN: 221-064-27

21 Pineville United Methodist Church D.B. 11243, PG. 37 PIN: 221-064-17

17 Pineville United Methodist Church D.B. 8815, PG. 177 PIN: 221-064-16

23 Pineville United Methodist Church D.B. 9847, PG. 346 PIN: 221-064-42

22 Pineville United Methodist Church D.B. 8815, PG. 165 PIN: 221-064-44

Pineville United Methodist Church D.B. 8815, PG. 168 PIN: 221-064-43

11 Hugh E. White Jr & Jan H. White D.B. 6254, PG. 298 PIN: 221-062-03

12 Edward Davis Jr & Vanzenia Boyd D.B. 3735, PG. 14 PIN: 221-062-05

W. A. Yandle Rental & Investment Company D.B. 3402, PG. 433 PIN: 221-062-07

13 Oak Grove Baptist Church D.B. 3735, PG. 828 PIN: 221-062-06

50 25 0 50 100

Kimley»Horn
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
EB-5949	EC-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

Kimley»Horn

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

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
EB-5949	EC-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

50 25 0 50 100

END CONSTRUCTION
–L– Sta. 16+18.53

–L– Sta. 15+70.74 =
–Y1– Sta. 52+07.23

BEGIN CONSTRUCTION
–Y1– Sta. 49+29.16

–Y1– POT Sta. 49+00.00

–Y1– NC-51 (MAIN ST.)
50+00

N 16° 23' 23.2" E

–L– POT Sta. 16+27.31

–Y1– POT Sta. 55+08.82

S 73° 36' 36.8" E

55+00

038

038

END CONSTRUCTION
–Y1– Sta. 53+41.76

–L– PT Sta. 14+82.52

–L– PC Sta. 13+53.65

N 5° 28' 53.1" E

–L– JOHNSTON DR

–L– PT Sta. 12+71.49

JOHNSTON DRIVE REALIGNMENT
(SEE PLANS BY KIMLEY HORN)

BEGIN PROJECT
–L– Sta. 10+64.00

–L– PC Sta. 10+64.00

N 13° 51' 14.7" E

–L– POT Sta. 10+00.00

10+00

8 Montgomery Management, LLC D.B. 10192, PG. 530 PIN: 221-061-01

9 W. A. Yandell Rental & Investment Company D.B. 2036, PG. 293 PIN: 221-062-02

6 W. A Yandell Rental & Investment Company D.B. 3111, PG. 569 PIN: 221-064-24

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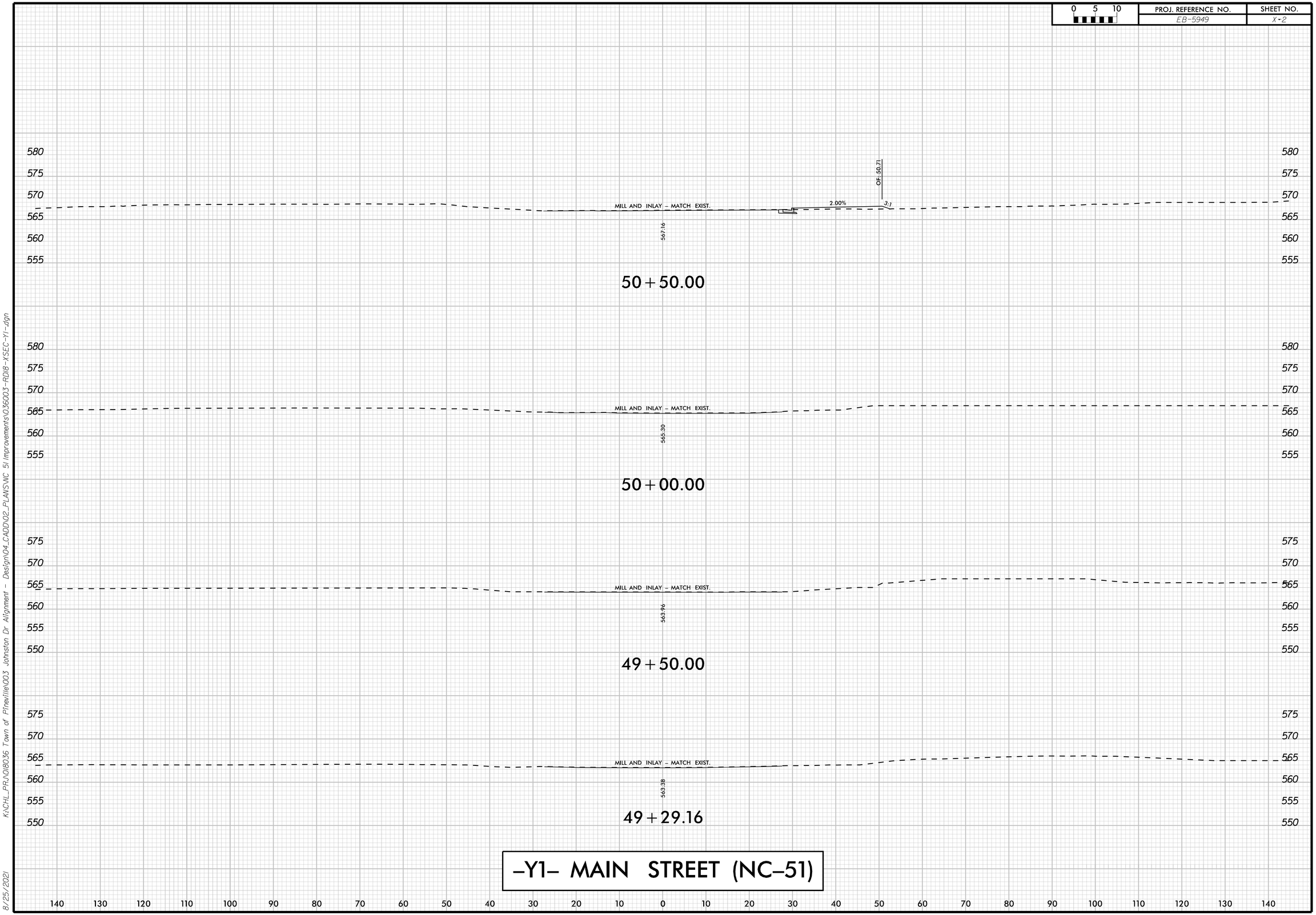
13 Oak Grove Baptist Church D.B. 3735, PG. 828 PIN: 221-062-06

PROJ. REFERENCE NO.	SHEET NO.
EB-5949	X-1

MAIN STREET (NC-51)
CROSS SECTION INDEX

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	EB-5949	X-2



–Y1– MAIN STREET (NC–51)

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8/25/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	EB-5949	X-3

590
585
580
575
570
565

MILL AND INLAY – MATCH EXIST.

574.93

52 + 50.00

585
580
575
570
565
560

MILL AND INLAY – MATCH EXIST.

573.19

52 + 00.00

585
580
575
570
565
560

OF: 50.64

MILL AND INLAY – MATCH EXIST. 2.00% 3:1

571.06

51 + 50.00

580
575
570
565
560
555

OF: 48.86

MILL AND INLAY – MATCH EXIST. 2.00% 3:1

569.09

51 + 00.00

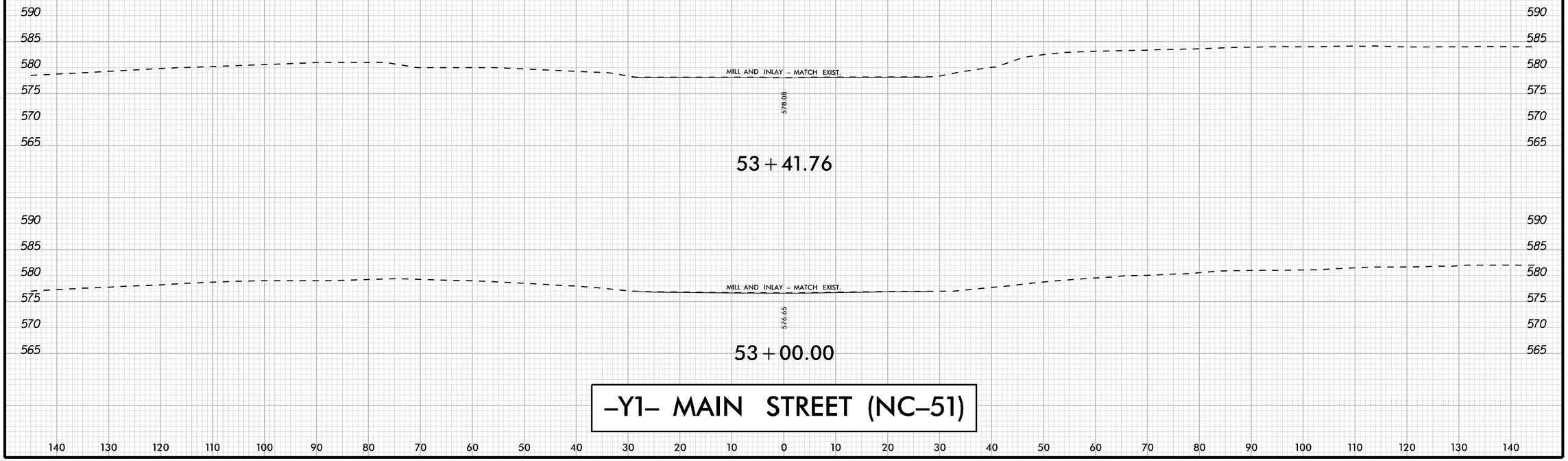
–Y1– MAIN STREET (NC–51)

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

K:\CHL_PRJ\018036 Town of Pineville\003 Johnston Dr Alignment – Design\04_CADD\02_PLANS\NC 51 Improvements\036003-RDIB-XSEC-Y1.dgn

8/25/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	EB-5949	X-4



–Y1– MAIN STREET (NC–51)

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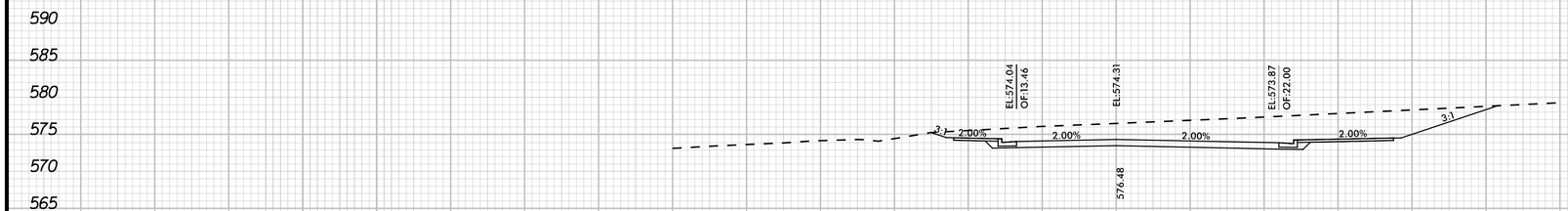
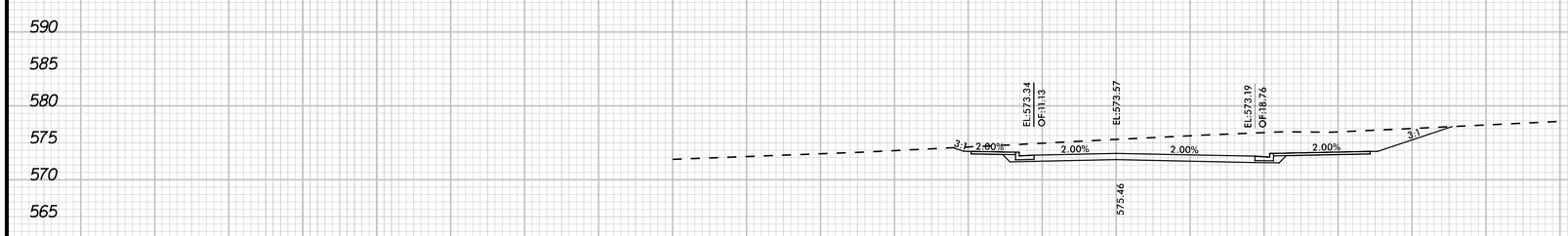
8/25/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	EB-5949	X-5



14+50.00



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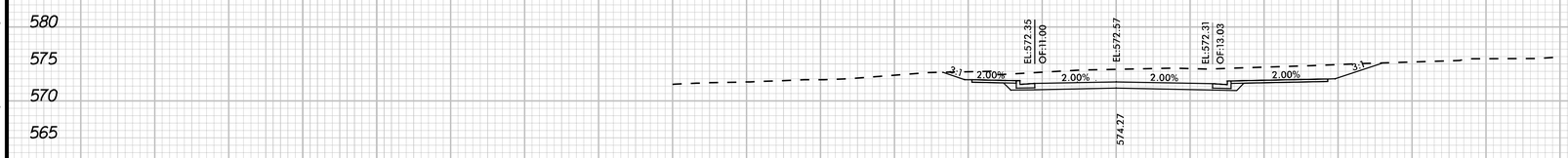


13+50.00

13+32.34

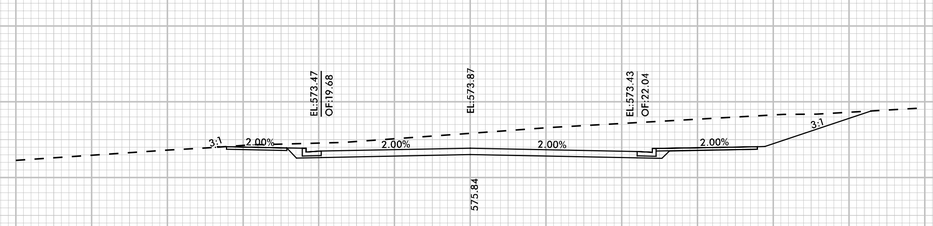
–L– JOHNSTON DRIVE

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

K:\CHL_PRJ\018036 Town of Pineville\003 Johnston Dr Alignment - Design\04_CADD\02_PLANS\WC 5\ Improvements\036003-RDIB-XSEC-L-.dgn

8/25/2021

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	EB-5949	X-6



590 585 580 575 570 565

590 585 580 575 570 565

15+00.00

–L– JOHNSTON DRIVE

140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140

8/25/2021

K:\CHL_PRJ\018036 Town of Pineville\003 Johnston Dr Alignment - Design\04_CADD\02_PLANS\WC 5i Improvements\036003-RDIB-XSEC-L-dgn

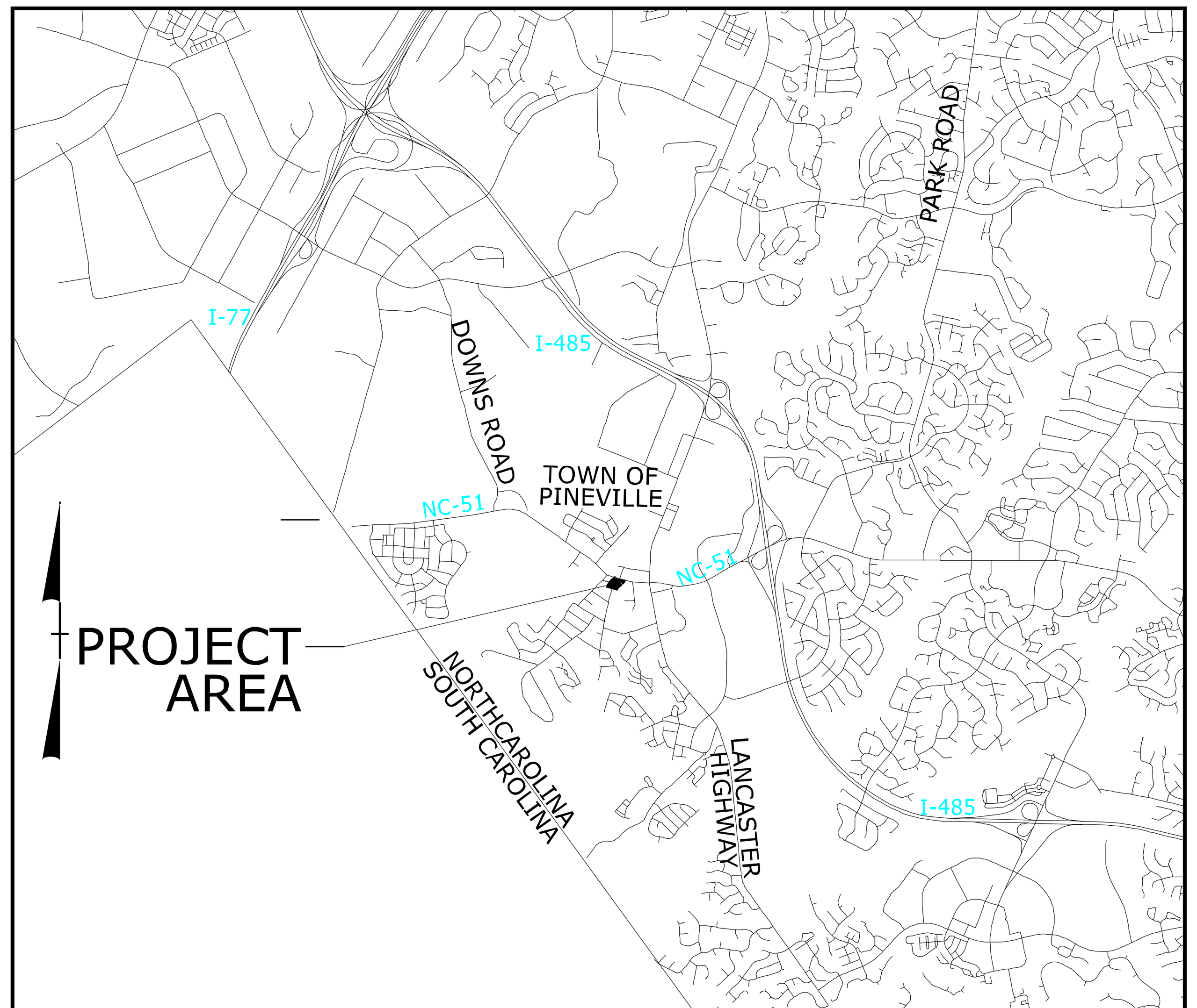
09/08/99

PROJECT NO.	SHEET NO.
018036003	UC-1

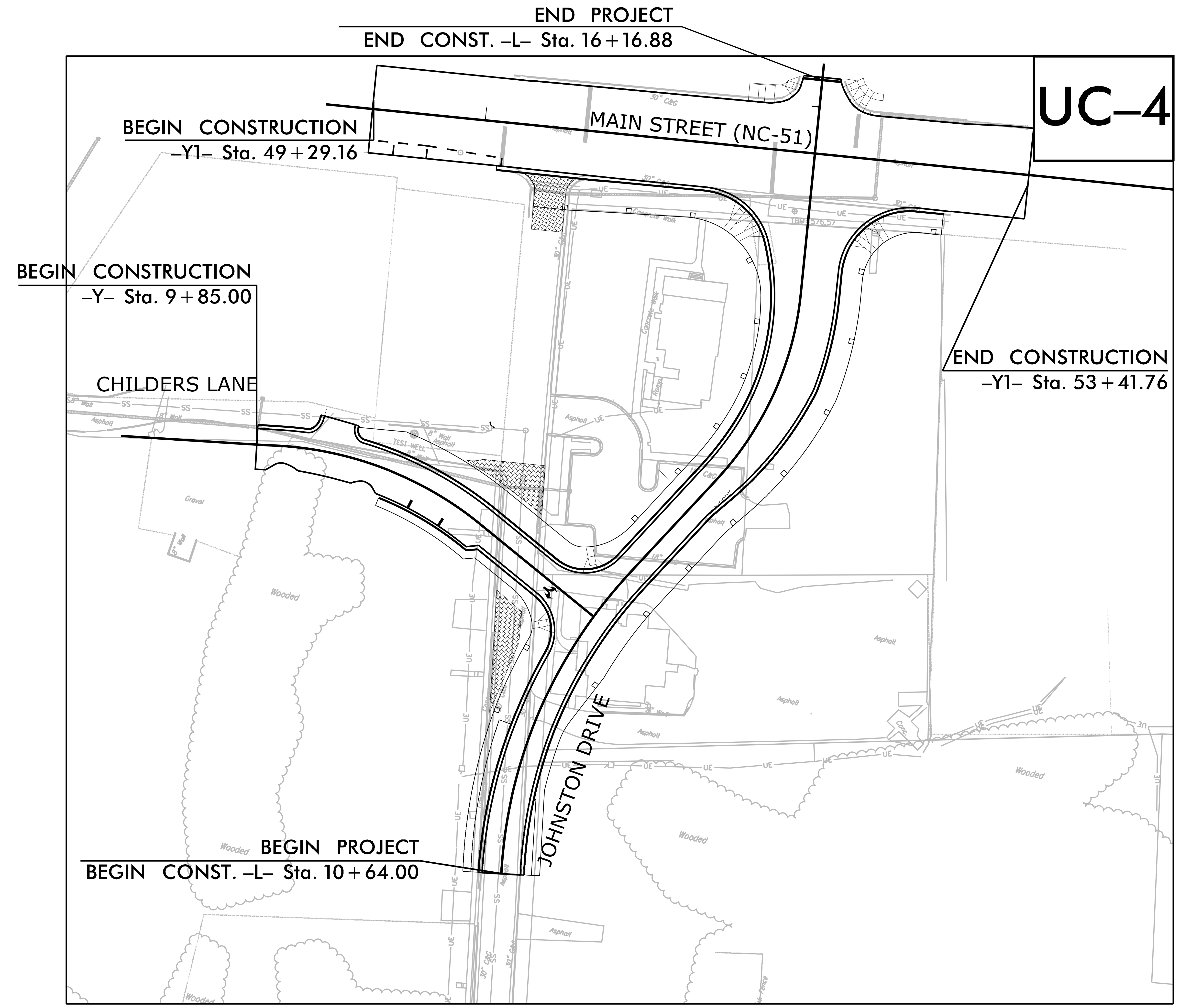
MECKLENBURG COUNTY

LOCATION: JOHNSTON DRIVE FROM SOUTH OF CHILDERS LANE TO NC-51 (MAIN STREET)

TYPE OF WORK: UTILITY CONSTRUCTION



VICINITY MAP



APPLICATION FOR PERMIT FOR WATER MAIN EXTENSION

PROJECT NAME: JOHNSTON DRIVE REALIGNMENT
TOWN OF PINEVILLE

CLTWATER PROJECT NO.: ____________

PROJECT DESCRIPTION: REPLACE APPROX. 650 LF OF 6" DI PC 350 WATER MAIN AND APPURTENANCES ALONG REALIGNED JOHNSTON DRIVE IN PINEVILLE.

DESIGNED BY:
FIRM: KIMLEY-HORN & ASSOCIATES, INC.
ENGINEER: DANIEL G. BULA, P.E.
ADDRESS: 200 SOUTH TRYON STREET, SUITE 200
CHARLOTTE, NORTH CAROLINA 28202
PHONE: 704-409-1805

THIS APPLICATION IS MADE UNDER AND IN FULL ACCORD WITH THE PROVISIONS OF CHAPTER 130A-317 OF THE NORTH CAROLINA GENERAL STATUTES, AND SUCH OTHER STATUTES AS RELATED TO PUBLIC WATER SYSTEMS. CLTWATER HAS BEEN GRANTED AUTHORITY TO ISSUE PERMITS FOR EXTENSION OF WATER MAINS PURSUANT TO 15A NCAC 18C.1801. THE APPLICANT AGREES THAT NO SIGNIFICANT CHANGE OR DEVIATION FROM THE PLANS AND SPECIFICATIONS APPROVED BY CLTWATER WILL BE MADE WITHOUT THE WRITTEN CONSENT AND APPROVAL OF CLTWATER OR ITS AUTHORIZED REPRESENTATIVE. A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF NORTH CAROLINA SHALL SUBMIT A STATEMENT REFLECTING THAT ADEQUATE OBSERVATIONS DURING AND UPON COMPLETION OF CONSTRUCTION INDICATES THAT CONSTRUCTION WAS COMPLETED IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.

PERMIT NO.: ____________

APPROVED BY: ____________ DATE: ____________

JOSEPH C. WILSON, PE, CHIEF ENGINEER
CHARLOTTE WATER
5100 BROOKSHIRE BLVD.
CHARLOTTE, NORTH CAROLINA 28216

NCDOT CONTACT:
JEB SMITH, E.I.
NCDOT – DIVISION 10, DISTRICT 2
7605 DISTRICT DRIVE
ALBEMARLE, NC 28001

*NOTE TO CONTRACTOR: ALL WATER MAINS SHALL BE RESTRAINED JOINT DI PIPE.

DOCUMENT NOT CONSIDERED FINAL UNTIL ALL SIGNATURES ARE COMPLETED

CONTRACT: 018036003

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

WATER AND SEWER OWNERS ON PROJECT

(A) WATER – CLTWATER
(B) SANITARY SEWER – CLTWATER

PREPARED IN THE OFFICE OF
Kimley»Horn ©2018
NC LICENSE #F-0102
P.O. BOX 33068
RALEIGH, NORTH CAROLINA 27636
PHONE: (919) 677-2000

DANIEL G. BULA, PE — CONSULTANT CONTACT #1
MATTHEW A. SHOESMITH, PE — CONSULTANT CONTACT #2

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 046031 ENGINEER DANIEL G. BULA
DocuSigned by: Daniel G. Bula
63070A0121DD4F5...
2/10/2020

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

PROJECT REFFERENCE NO.	SHEET NO.
018036003	UC-2

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
- 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 — S
- Well — W
- 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 — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- 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 — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- 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 — S
- Storm Sewer — S

UTILITIES:

POWER:

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

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- U/G Telephone Cable LOS B (S.U.E.*) — T
- U/G Telephone Cable LOS C (S.U.E.*) — T
- U/G Telephone Cable LOS D (S.U.E.*) — T
- U/G Telephone Conduit LOS B (S.U.E.*) — TC
- U/G Telephone Conduit LOS C (S.U.E.*) — TC
- U/G Telephone Conduit LOS D (S.U.E.*) — TC
- U/G Fiber Optics Cable LOS B (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS C (S.U.E.*) — T FO
- U/G Fiber Optics Cable LOS D (S.U.E.*) — T FO

WATER:

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

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Cable LOS B (S.U.E.*) — TV
- U/G TV Cable LOS C (S.U.E.*) — TV
- U/G TV Cable LOS D (S.U.E.*) — TV
- U/G Fiber Optic Cable LOS B (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS C (S.U.E.*) — TV FO
- U/G Fiber Optic Cable LOS D (S.U.E.*) — TV FO

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — PUTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- 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.

UTILITY CONSTRUCTION

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

PROJECT REFERENCE NO.	SHEET NO.
018036003	UC-3

DESIGNED BY: DGB
DRAWN BY: DGB
CHECKED BY: MAS
APPROVED BY: ---
REVISED:

NORTH CAROLINA PROFESSIONAL SEAL 046031 ENGINEER DANIEL G. BULA
Daniel G. Bula
2/10/2020
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

STANDARD NCDOT NOTES:

1. ALL 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 UNION COUNTY.

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.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. THE CONTRACTOR SHALL:
   - PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION.
   - NOTIFY THE 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 DEPIC THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE,AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES.THE CONTRACTOR SHALL MAKE INVESTIGATIONS FOR DETERMING THE EXACT LOCATION,SIZE,AND MATERIAL OF 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 CONDITION OR BETTER AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. THE 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. THE CONTRACTOR SHALL MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT THE 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.

GENERAL NOTES:

1. ELEVATIONS SHOWN ARE IN FEET ABOVE MEAN SEA LEVEL.

2. LOCATIONS OF EXISTING SHOWN UTILITIES ARE APPROXIMATE.CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING EXACT LOCATION,ORIENTATION, AND ELEVATION OF EXISTING UTILITIES PRIOR TO EXCAVATION FOR THE FORCE MAIN.

3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SHOULD ANY FIELD CONDITIONS BE ENCOUNTERED THAT VARY FROM THE INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS.

4. UNLESS OTHERWISE SHOWN OR SPECIFIED,ALL WATER LINE TRENCH BEDDING SHALL BE PER DETAIL KH2.

5. BURIED TELEPHONE AND CATV CABLES (FIBER OPTICS AND CONVENTIONAL) ARE KNOWN TO VARY DUE TO INSTALLATION TECHNIQUES.THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COORDINATING WITH THE UTILITY COMPANY TO DETERMINE SPECIFIC CABLE LOCATIONS AND NOTIFYING THE ENGINEER OF THE EXACT ELEVATION OF THE CABLES.THE CONTRACTOR SHALL BE RESOPNSIBLE FOR ALL COSTS ASSOCIATED WITH LOCATING,RELOCTING,OR REPAIRING BURIED CABLES ALONG THE PROPOSED WATER LINE ROUTE.

6. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL SHEETING REQUIRED FOR THE INSTALLATION OF THE WATER MAIN.ALL EXCAVATIONS SHALL BE KEPT WITHIN THE DESIGNATED EASEMENT AND/OR RIGHT-OF-WAY WIDTHS.SHEETING SHALL BE INSTALLED AS REQUIRED TO PROTECT EXISTING UTILITIES.

7. THE CONTRACTOR SHALL RESTORE GRADE TO PRE-CONSTRUCTION CONDITION UNLESS OTHERWISE NOTED ON THE DRAWINGS.

8. CONTRACTOR SHALL PROVIDE A MEANS TO KEEP ALL NEW PIPING ISOLATED FROM EXISTING PIPING UNTIL ALL NEW PIPING HAS BEEN PRESSURE TESTED, FLUSHED,AND ACCEPTED BY UNION COUNTY FOR SERVICE.

9. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION,ELEVATION,ORIENTATION, DIMENSIONS,MATERIALS,ETC.,OF EXISTING PIPE PRIOR TO ORDERING MATERIAL AND SHALL USE NECESSARY FITTINGS FOR THE CONNECTION.

10. CONTRACTOR SHALL RELOCATE EXISTING UNDERGROUND CABLES AS REQUIRED TO ACCOMMODATE INSTALLATION OF PROPOSED WATER MAIN.COST SHALL BE PAID BY THE CONTRACTOR.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH UNION COUNTY FOR ANY ADDITIONAL INFORMATION ON EXISTING WATER AND SEWER UTILITIES.

12. ALL PIPE SHALL HAVE RESTRAINED PIPE JOINT.IF A BEND OR FITTING IS RELOCATED BY THE CONTRACTOR FOR HIS CONVENIENCE THEN THE REQUIRED LENGTH OF RESTRAINED JOINTS SHALL BE MAINTAINED AT NO ADDITIONAL COST TO THE OWNER.IF ADDITIONAL BENDS OR FITTINGS ARE INSTALLED BY THE CONTRACTOR FOR HIS CONVENIENCE,THEN THE CONTRACTOR SHALL INSTALL THE REQUIRED LENGTH OF RESTRAINED JOINTS AS DETERMINED BY THE ENGINEER,AT NO ADDITIONAL COST TO THE OWNER.

13. ALL PRESSURIZED PIPE FITTINGS SHALL BE RESTRAINED JOINT.

14. WATER LINE ALIGNMENTS SHOWN ON THE DRAWINGS ARE BASED ON STANDARD FITTINGS AVAILABLE FOR DUCTILE IRON PIPE.JOINT DEFLECTIONS SHALL NOT EXCEED 75 PERCENT OF MANUFACTURER'S RECOMMENDED DEFLECTION.

15. DETECTOR TAPE IS REQUIRED FOR ALL BURIED PIPE.

16. ALL MANHOLE COVERS AND VALVE BOX LIDS FOR WATER LINE SHALL BE FURNISHED PER UNION COUNTY STANDARDS.

STANDARD UTILITY NOTES:

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH UNION COUNTY DESIGN STANDARDS,DETAILS & SPECIFICATIONS.

2. UTILITY SEPARATION REQUIREMENTS:
   A. A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER.IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED,FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.HOWEVER,THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
   B. WHEN INSTALLING WATER &/OR SEWER MAINS,THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'.IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS,THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
   C. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION,OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN,DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
   D. 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES,UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER.
   E. MAINTAIN 18" MIN.VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 24" MIN.VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED,SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN.CLEARANCE (PER DETAIL KH4).
   F. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN.VERTICAL SEPARATION REQUIRED.

3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY UNION COUNTY PRIOR TO CONSTRUCTION.

4. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT.ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 72 HOUR ADVANCE NOTICE TO UNION COUNTY.

S

5. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS.

6. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW.

7. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.

PROJECT SPECIFIC NOTES:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL UNION COUNTY AND/OR NCDOT STANDARDS AND SPECIFICATIONS.

2. ALL PROPOSED WATER LINE PIPE AND FITTINGS 12-INCHES IN DIAMATER AND SMALLER SHALL BE RESTRAINED JOINT PC 350 DUCTILE IRON PIPE.ALL PROPOSED WATER LINE PIPE AND FITTINGS 16-INCHES IN DIAMETER AND LARGER SHALL BE RESTRAINED JOINT PC 250 DUCTILE IRON PIPE.

3. A THRUST RESTRAINT DESIGN PRESSURE OF 350 PSI SHALL BE USED.

4. THE CONTRACTOR SHALL SUBMIT A DETAILED PLAN,OUTLINING ALL PRECAUTIONS AND PROVISIONS FOR TEMPORARY MAINTENANCE OF WATER SERVICE TO THE ENGINEER AND OWNER FOR APPROVAL PRIOR TO INTERRUPTING WATER SERVICE OR INSTALLING ANY COMPONENT OF THE TEMPORARY BYPASS SYSTEM.THE PLAN SHALL INCLUDE AT A MINIMUM:
   1. PIPING
      A. PIPE SIZE AND MATERIAL
      B. SPAN AND PROPOSED SUPPORTS FOR AERIAL CROSSING(S)
      C. PRESSURE TESTING,DISINFECTION,FLUSHING,AND SAMPLING METHODS IN ACCORDANCE WITH CHARLOTTE WATER REQUIREMENTS.
      D. LINE STOP WITH BYPASS,OR OTHER CONNECTION TO EXISTING PIPING
      E. SCHEDULE AND DURATION OF USE
   2. ANY PLAN WHICH REQUIRES THE USED OF ELEVATED STRUCTURES OR OTHER SPECIAL SUPPORTS,E.G.AERIAL CROSSINGS AND OTHER BRIDGES, SHALL REQUIRE CERTIFICATION BY A NORTH CAROLINA PROFESSIONAL ENGINEER.THE CONTRACTOR SHALL PROVIDE THE CERTIFICATION(S) AT NO ADDITIONAL COST TO THE OWNER.

5. BYPASS PREPARATION AND OPERATION SHALL NOT COMMENCE UNTIL APPROVAL OF THE SUBMITTALS REQUESTED.

6. THE CONTRACTOR SHALL ALLOW SUFFICIENT TIME FOR REVIEW AND APPROVAL OF THE SUBMITTED PLAN AND SHALL NOT BE ENTITLED TO ANY DELAY CLAIMS RELATED TO REVIEW,REJECTION,RESUBMITTAL,MODIFICATIONS,OR ANY OTHER ACTIONS NECESSARY TO OBTAIN AN APPROVED PLAN.

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

PROJECT REFERENCE NO.	SHEET NO.
018036003	UC-3A

DESIGNED BY: DGB
DRAWN BY: DGB
CHECKED BY: MAS
APPROVED BY: ---
REVISED:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046031 DANIEL G. BULA 2/10/2020

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

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

NO SCALE — STANDARD NO. AA — VERSION NO. V1.0 — VERSION DATE 8.3.2011

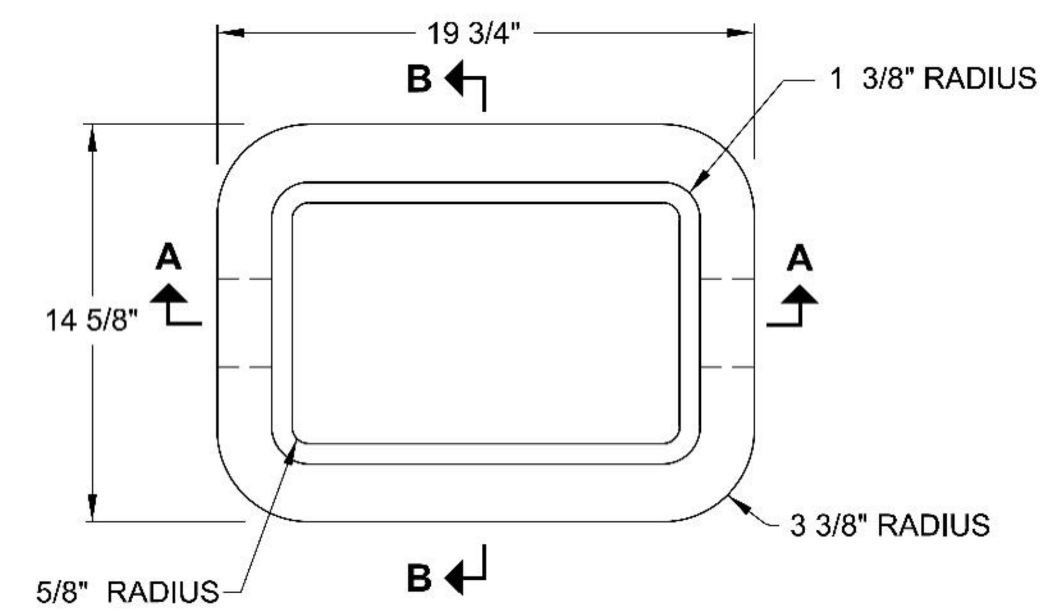
CHARLOTTE-MECKLENBURG UTILITIES — STANDARD DETAILS — WATER — CHARLOTTE

MANUFACTURERS:

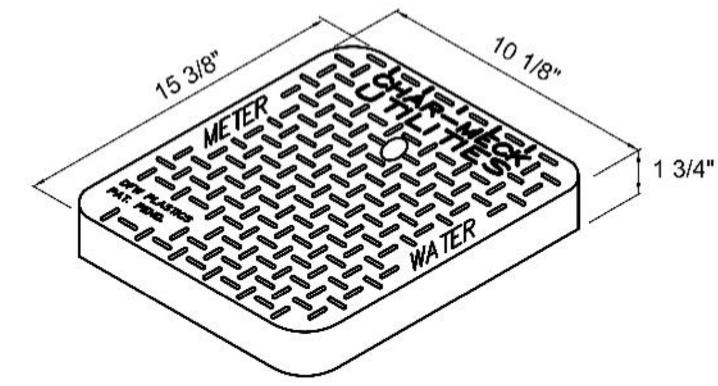
SOUTHERN METER C.H. 5/8" x 3/4" METER BOX BODY
BROOKS #36MB METER BOX BODY
OLDCASTLE #MB36 METER BODY
BES #CO9W METER BOX BODY
CHRISTY B9 METER BOX BODY

NOTES:

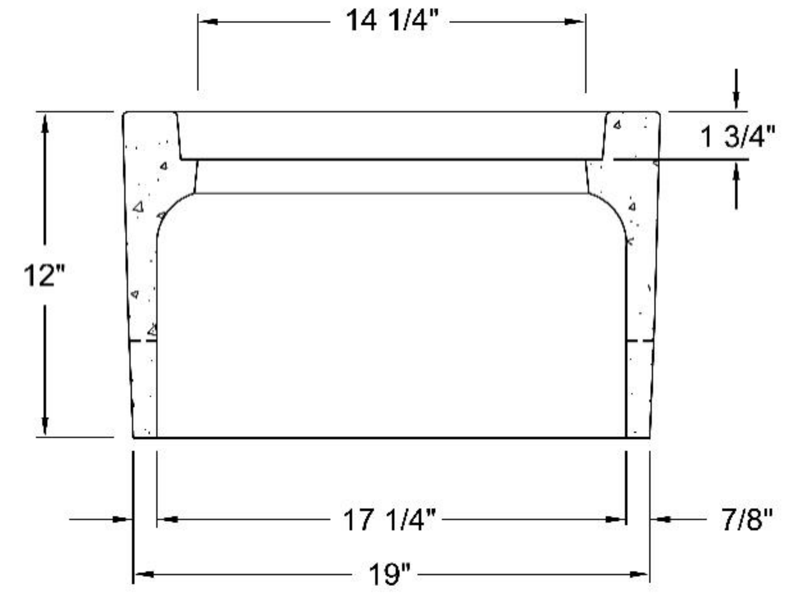
A. METER BOX SHALL ACCOMMODATE COMPANION PLASTIC METER BOX LID - SEE STANDARD DETAIL.
B. MINOR DIMENSION VARIATIONS ARE PERMITTED , BASED ON MANUFACTURER'S PRODUCT LINES, PROVIDED THE CMUD STANDARD PLASTIC LID FITS PROPERLY.
C. CONCRETE SHALL BE MINIMUM f ' c = 3000 PSI COMPRESSIVE STRENGTH.
D. DESIGN SHALL CONFORM TO ASTM C858-SPECIFICATIONS FOR " UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURE ".
E. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C 857.
F. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND A 82.



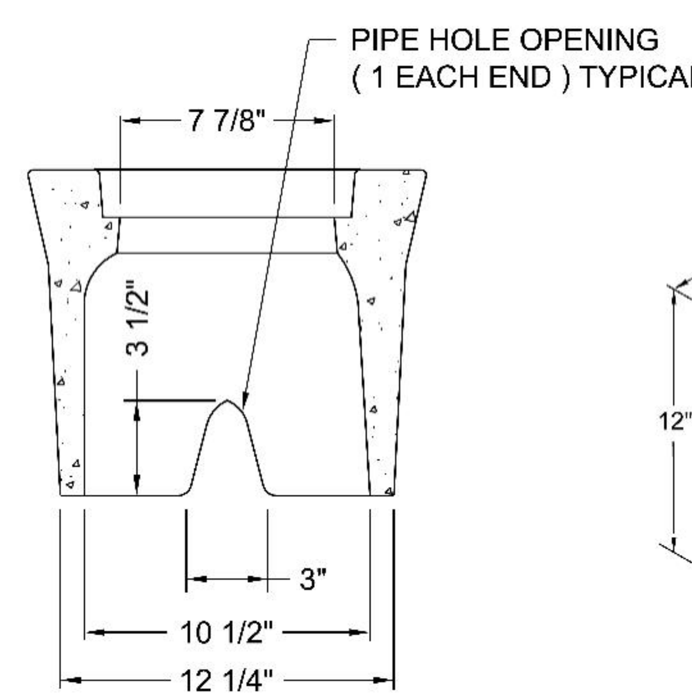
PLAN VIEW



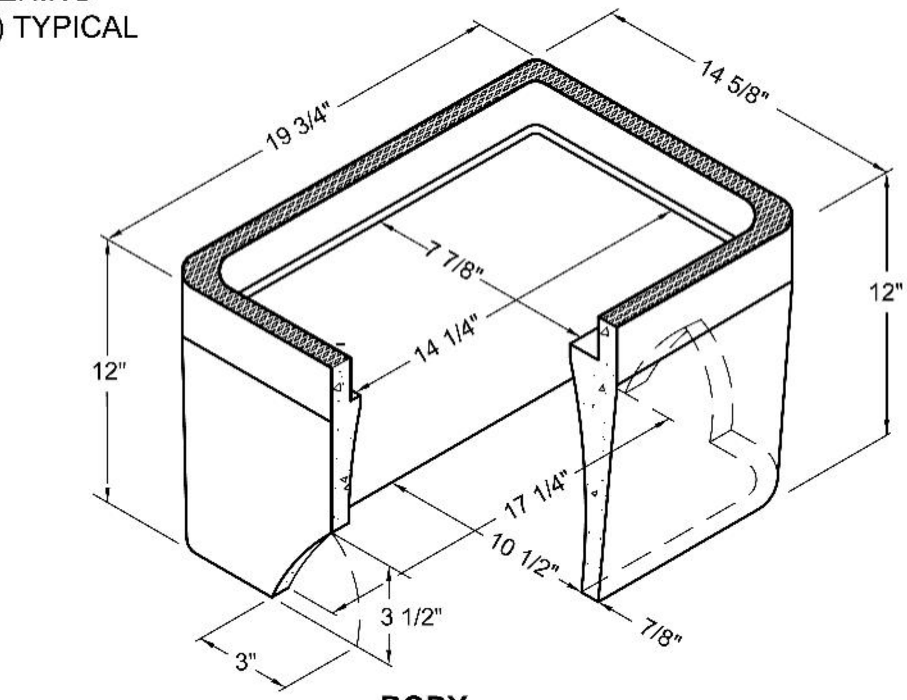
PLASTIC LID



SECTION VIEW A-A



SECTION VIEW B-B



BODY

WEIGHT - 70 LB. (MIN.) - 85 LB (MAX.)

PRECAST CONCRETE METER BOX FOR 1 - INCH WATER SERVICE

NO SCALE — STANDARD NO. BB — VERSION NO. V1.0 — VERSION DATE 8.23.2011

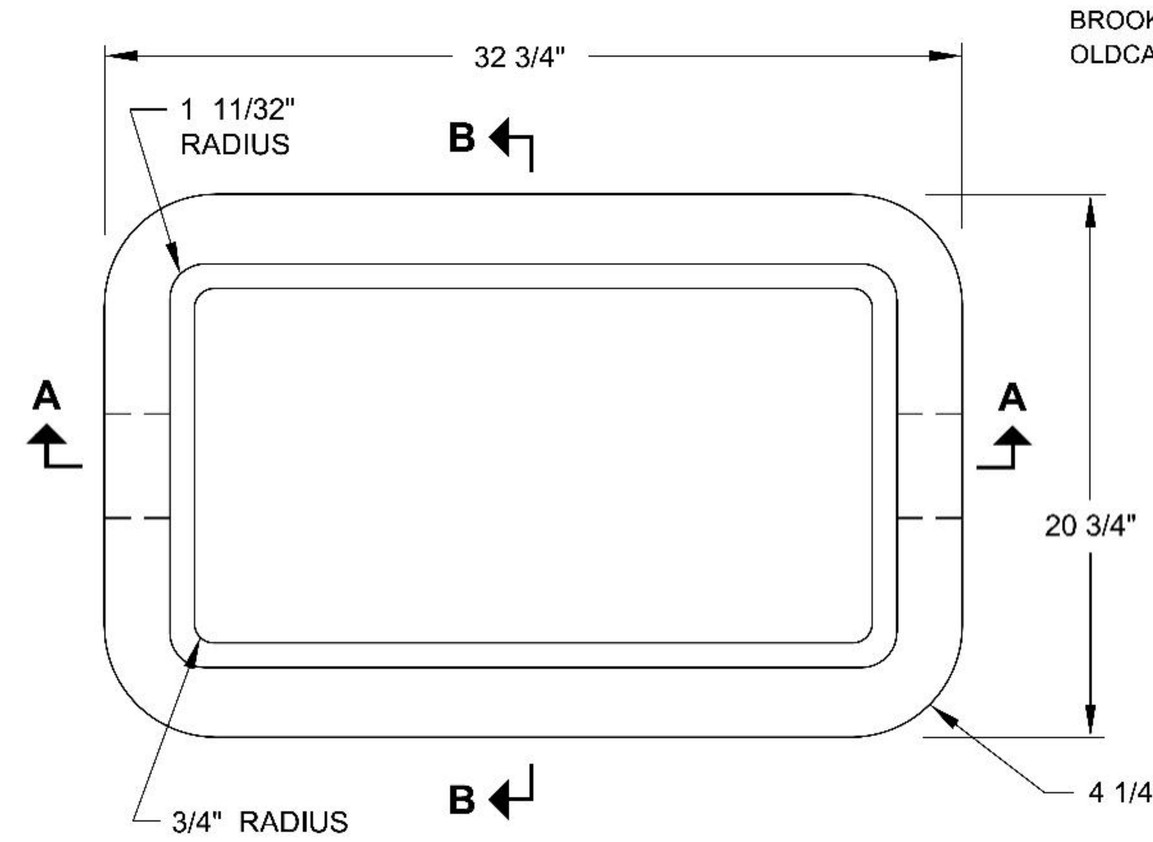
CHARLOTTE-MECKLENBURG UTILITIES — STANDARD DETAILS — WATER — CHARLOTTE

MANUFACTURERS:

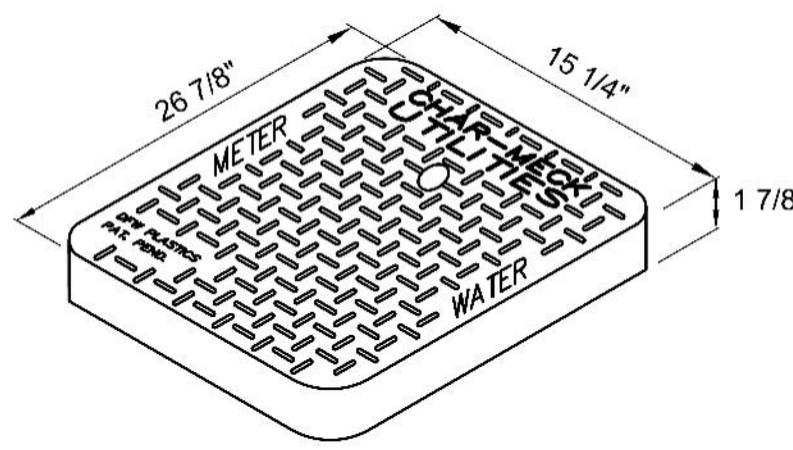
SOUTHERN METER #C.H. 2 METER BOX BODY
BROOKS #65MB METER BOX BODY
OLDCASTLE PRECAST #MB65 METER BOX BODY

NOTES:

A. METER BOX SHALL ACCOMMODATE COMPANION PLASTIC METER BOX LID - SEE STANDARD DETAIL.
B. MINOR DIMENSION VARIATIONS ARE PERMITTED BASED ON MANUFACTURER'S PRODUCT LINES, PROVIDED THE CMUD STANDARD PLASTIC LID FITS PROPERLY.
C. CONCRETE SHALL BE MINIMUM f ' c = 3000 PSI COMPRESSIVE STRENGTH.
D. DESIGN SHALL CONFORM TO ASTM C858-SPECIFICATIONS FOR " UNDERGROUND PRECAST CONCRETE UTILITY.
E. STEEL REINFORCING DESIGN SHALL CONFORM TO ASTM C 857.
F. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND A 82.



PLAN VIEW



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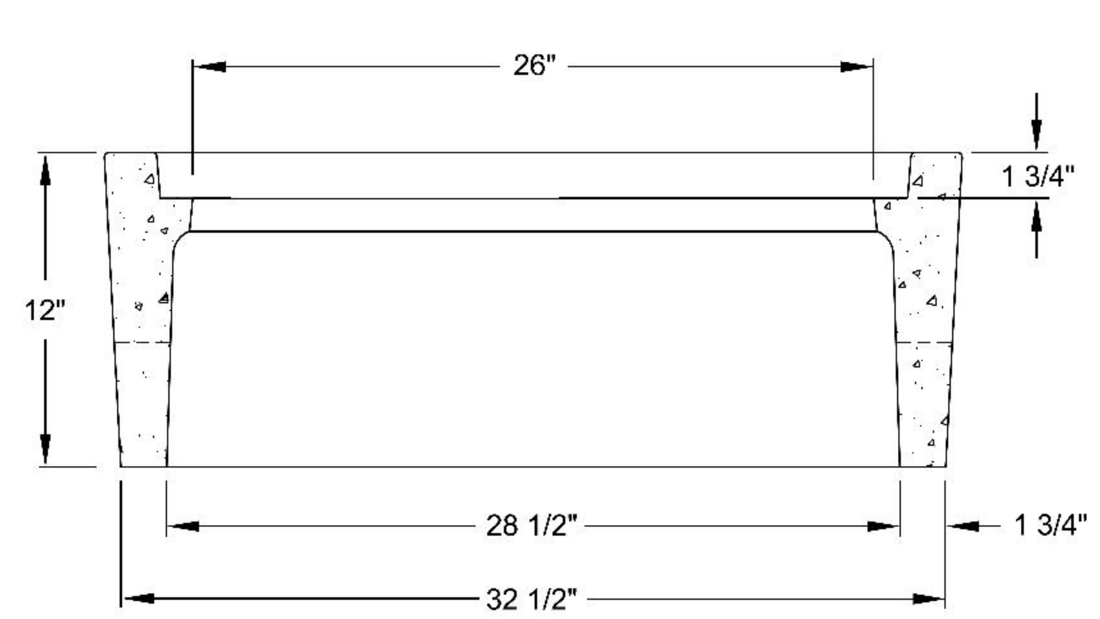
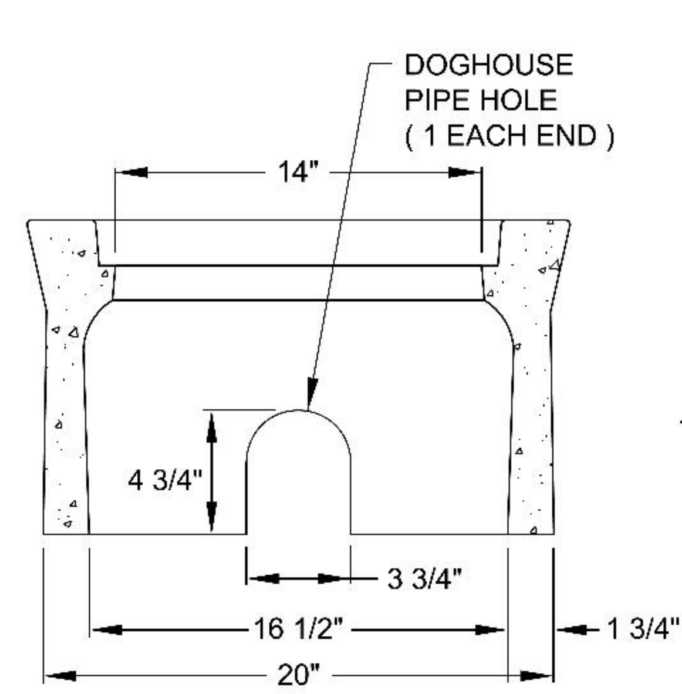
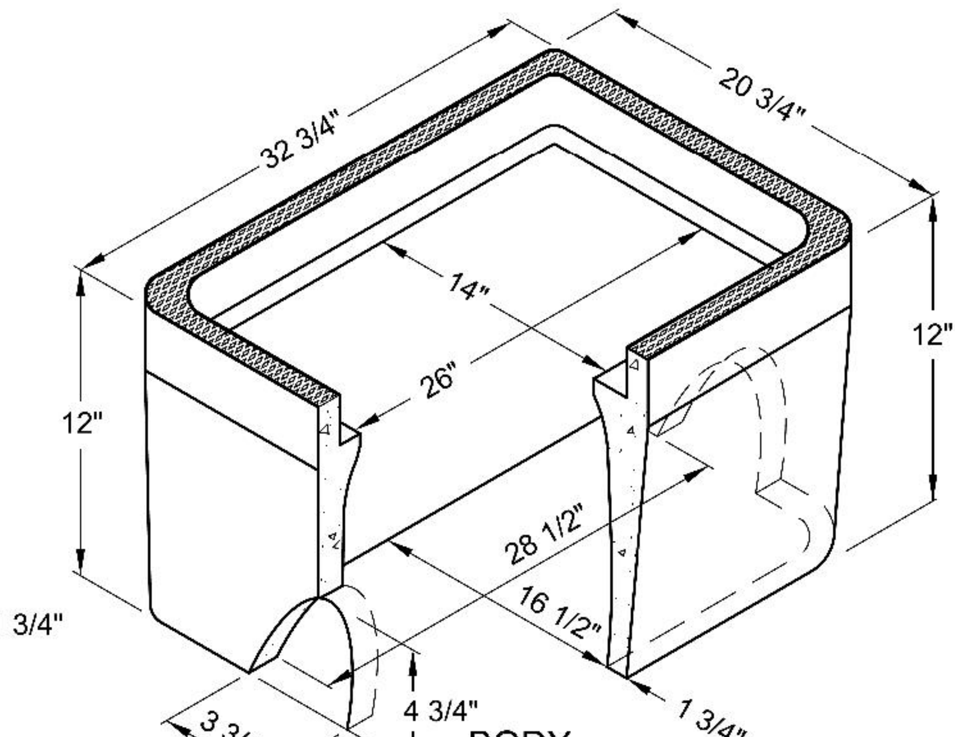


SECTION VIEW A-A



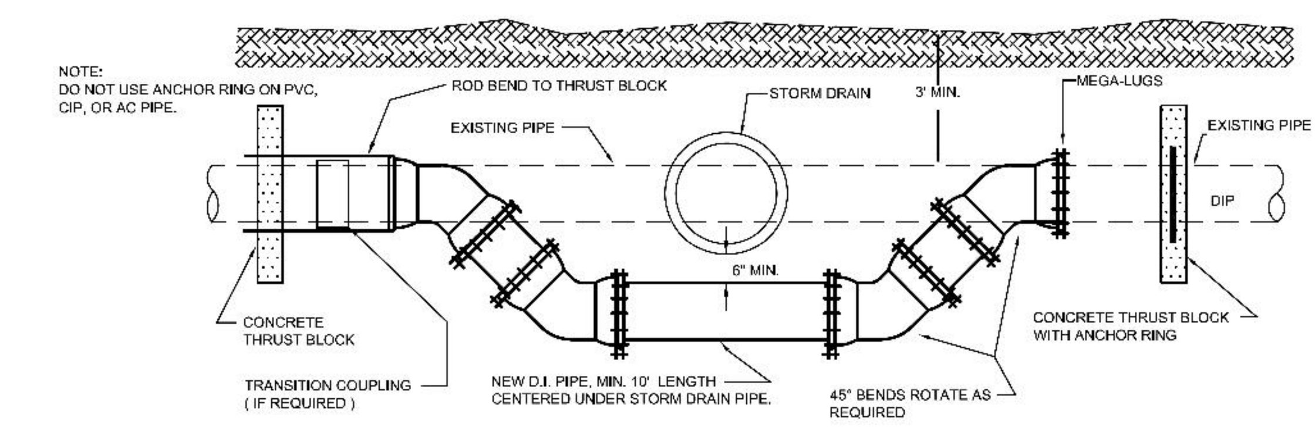
SECTION VIEW B-B



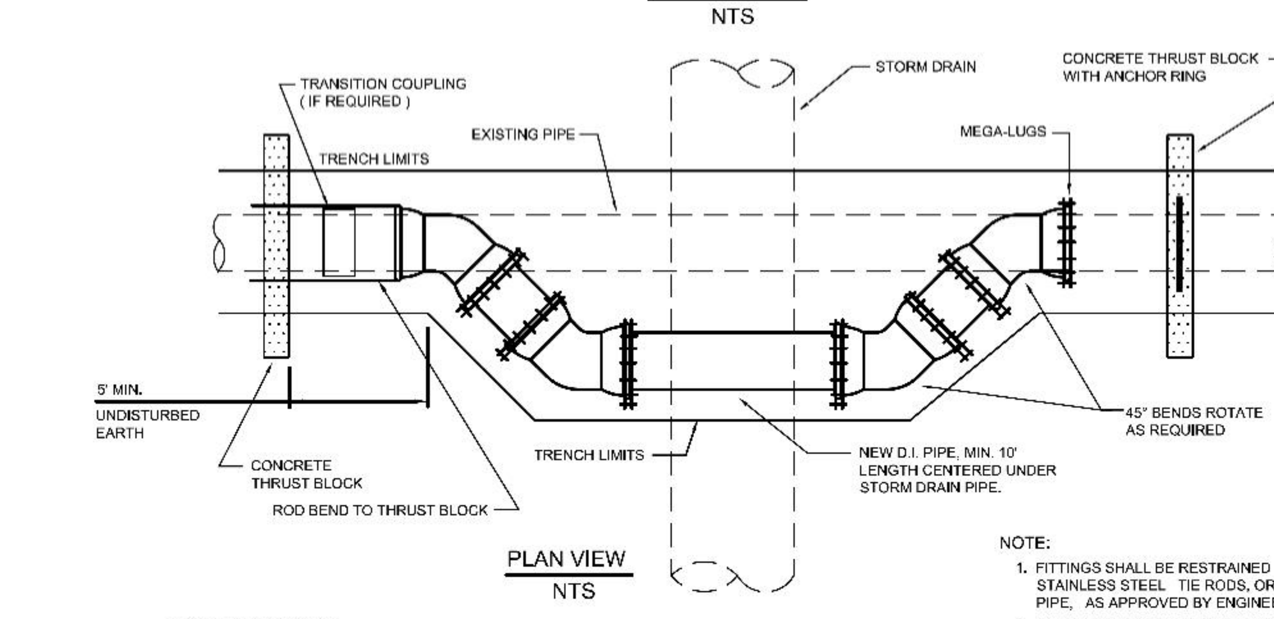
BODY

WEIGHT - 150 LB. (MIN.) - 170 LB (MAX.)

LOWERING OF 6" TO 12" WATER MAIN

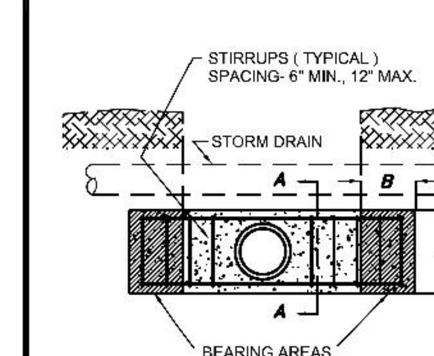


PROFILE VIEW
NTS

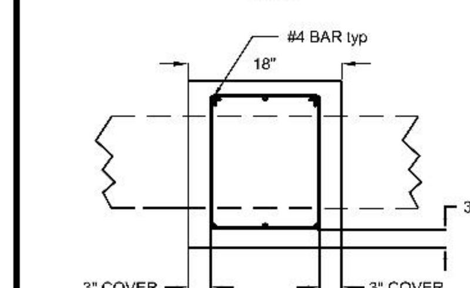


PLAN VIEW
NTS

NOTE:
1. FITTINGS SHALL BE RESTRAINED USING MEGALUGS, STAINLESS STEEL TIE RODS, OR RESTRAINED JOINT PIPE, AS APPROVED BY ENGINEER.
2. BEARING AREAS (AxB) DETERMINED BY ACTUAL SOIL CONDITIONS. SHOULD BE BASED ON 200 PSI TEST PRESSURE. SEE CHART BELOW.



THRUST BLOCK DETAIL
NTS



SECTION A-A

RESULTANT THRUST AT FITTINGS AT 200 PSI WATER PRESSURE.

NOM. PIPE DIAMETER	TOTAL POUNDS, 45° BEND
4 INCH	2770
6 INCH	5724
8 INCH	9846
10 INCH	14812
12 INCH	20948

THE FOLLOWING OFTEN-USED SOIL VALUES FOR THE DEPTHS OF 4 FEET ARE LISTED ONLY AS A GUIDE*. THE ENGINEER SHOULD SELECT THESE BEARING VALUES FOR EACH SOIL TYPE AND DEPTH OF COVER ENCOUNTERED ON THE SPECIFIC PIPELINE PROJECT. APPROPRIATE SAFETY FACTORS SHOULD BE APPLIED TO COVER FUTURE CHANGES IN PIPE DEPTH, SOIL BEARING CAPACITIES, ETC.

SOIL	BEARING LOAD (lbs/sq.ft.)
MUCK	0
SOFT CLAY	1,000
SILT	1,500
SANDY SILT	3,000
SAND	4,000
SANDY CLAY	6,000
HARD CLAY	9,000

* NO RESPONSIBILITY CAN BE ASSUMED FOR THE ACCURACY OF THE DATA IN THIS TABLE DUE TO THE WIDE VARIATION OF BEARING LOAD CAPABILITIES FOR EACH SOIL TYPE.

CHARLOTTE—MECKLENBURG UTILITY DEPARTMENT
ENGINEERING DIVISION
CHARLOTTE, NORTH CAROLINA

Job No. — File No.
PLAN NTS
PROFILE Hor. NTS Vert.
As Built — Date

STANDARD DETAIL WATER
LOWERING OF 6" TO 12" WATER MAIN

No.	Date	By	Revision

Surveyed By	Designed By	Drawn By	Project-Engr	Approved By	Date	Sheet	Of
		BDM				29	

SDS9/LDWG
5/08/02

K:\CHL_PRJ\018036 Town of Pineville\003 Johnston Dr Alignment - Design\09_OTHER KHA DISCIPLINES\UTILITIES\CADD\036003-UC03A-DETL.dgn

2/10/2020

K:\CHL_PRJ\018036 Town of Pineville\003 Johnston Dr Alignment - Design\09_OTHER KHA DISCIPLINES\UTILITIES\CADD\036003-UC03A-DETL.dgn

2/10/2020

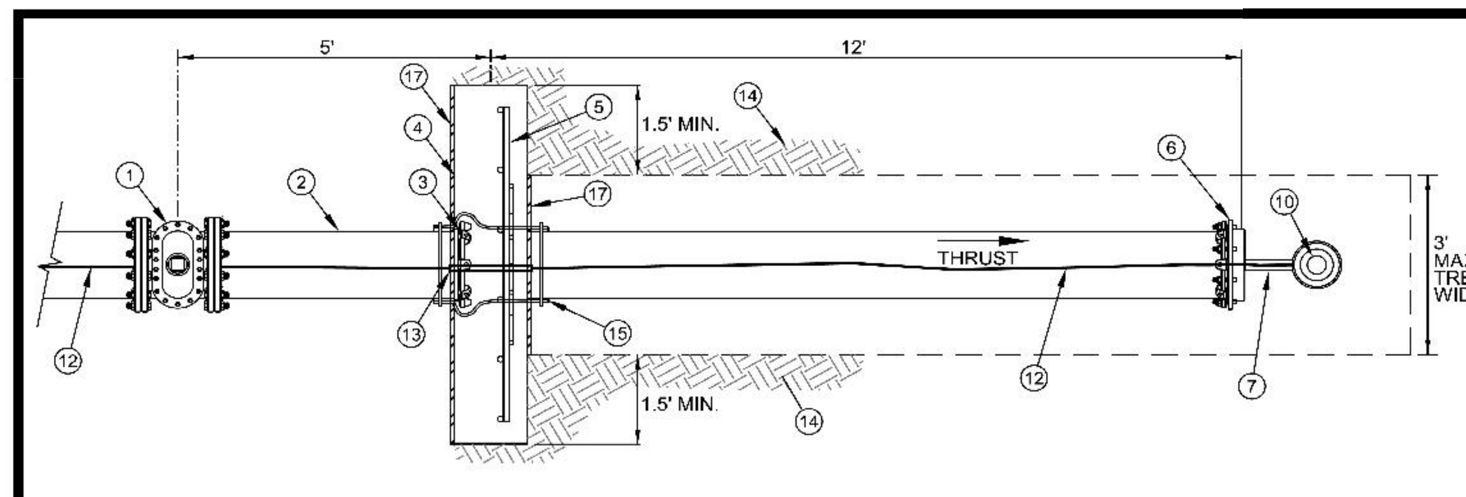
Kimley»Horn
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
018036003	UC-3B

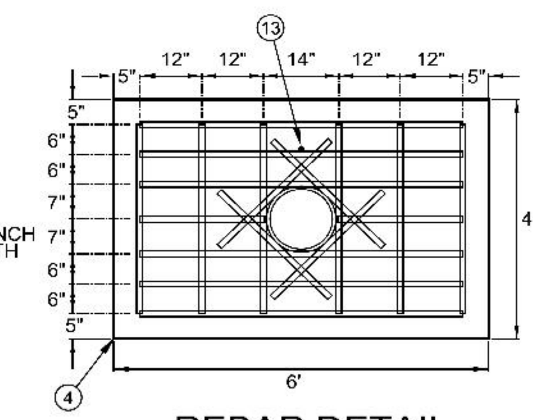
DESIGNED BY:	DGB
DRAWN BY:	DGB
CHECKED BY:	MAS
APPROVED BY:	---
REVISED:	

NORTH CAROLINA PROFESSIONAL SEAL 046031 ENGINEER DANIEL G. BULA
Daniel G. Bula
2/10/2020
UTILITY CONSTRUCTION PLANS ONLY

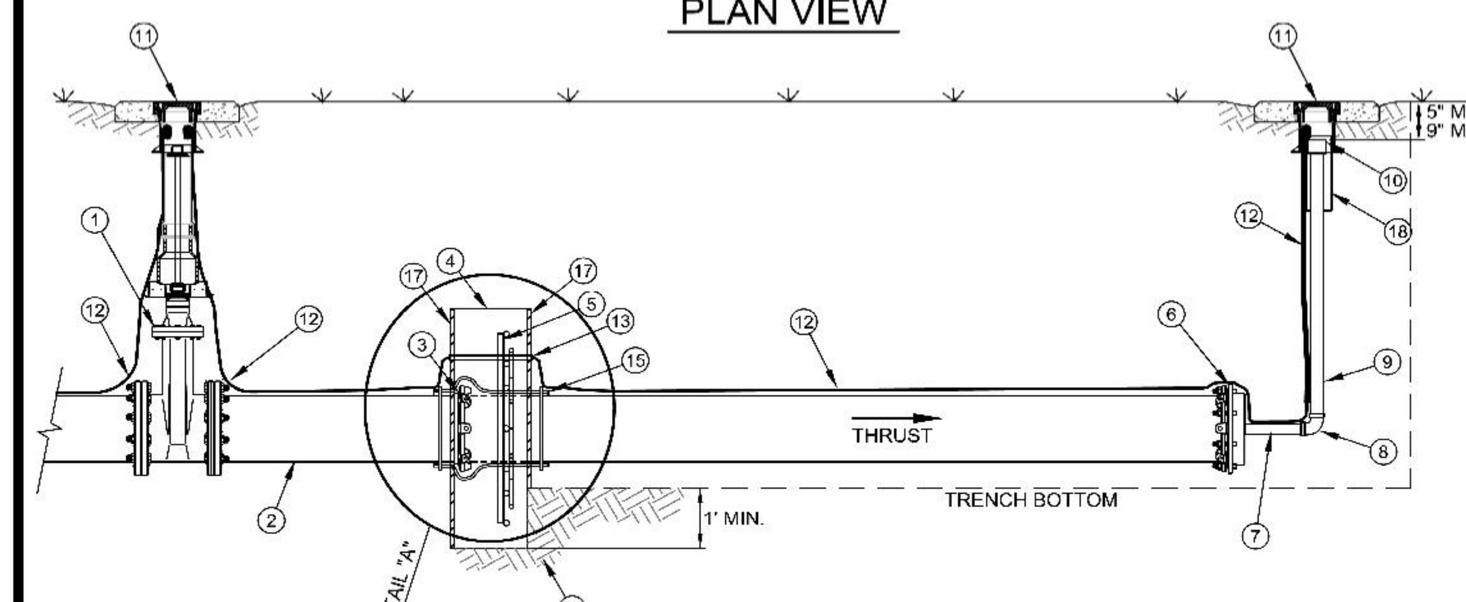
UTILITY CONSTRUCTION



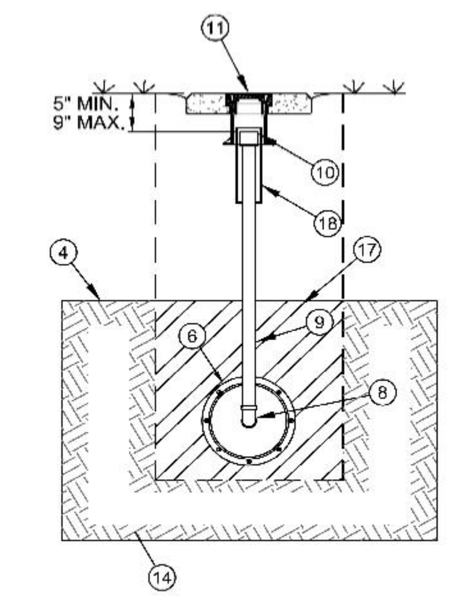
PLAN VIEW



REBAR DETAIL



ELEVATION VIEW



END VIEW

NO.	DESCRIPTION
1	END OF LINE GATE VALVE (MJ X MJ)
2	DIP - (PE x PE) - REMOVE BELL - LENGTH = 17 FT~ 19 FT
3	WEDGE ACTION THRUST RESTRAINT GLAND
4	CONCRETE WALL BLOCK (F'c = 3600 PSI MIN) 6 FT x 4 FT x WIDTH (W)
5	REBARS - GRADE 60 PER ASTM A615 - SEE REBAR SCHEDULES
6	MJ CAP - WITH WEDGE ACTION RESTRAINT GLAND, TAP 2" THREADED OUTLET (FNPT)
7	2" RED BRASS NIPPLE SCH 40 (MNPT x MNPT) - LENGTH = 12 INCH
8	2" RED BRASS 90° BEND (FNPT x FNPT)
9	2" RED BRASS NIPPLE SCH 40 (MNPT x MNPT) - LENGTH AS REQUIRED
10	2" GALVANIZED MALLEABLE IRON COUPLING (FNPT x FNPT)
11	STANDARD VALVE BOX ASSEMBLY - SEE DETAIL
12	AWG #12 GAUGE COPPER TRACER WIRE - WITH BLUE INSULATION (30MIL HDPE) TERMINATE WITH 24-INCH EXCESS WIRE (COILED) IN VALVE BOX (TYP.)
13	1" SCH 40 PVC ELECTRICAL CONDUIT - LENGTH AS REQUIRED
14	UNDISTURBED SOIL
15	HIGH DENSITY CROSS LAMINATED POLYETHYLENE FILM TUBE (HDCLPE) AWWA C105 - 4 MILS EACH x 2 LAYER - 8 MILS TOTAL
16	HDPE ADHESIVE TAPE OR HDPE ZIP LOCK TIES
17	PLYWOOD FORM
18	5" CAST IRON SOIL PIPE (L = 15") OR VALVE BOX BOTTOM SECTION

NOTES:

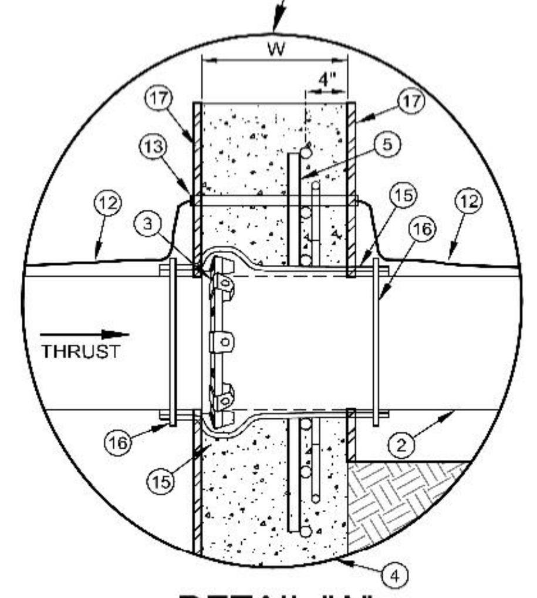
A. 12 - INCH MAINS REQUIRE THIS INSTALLATION.
B. 6 - INCH THROUGH 10 - INCH MAINS REQUIRE THIS INSTALLATION WHEN SOFT SOILS ARE ENCOUNTERED, OR WHEN REQUIRED BY THE ENGINEER.
C. WHEN DIRECTED BY THE ENGINEER, THE CONCRETE WALL BLOCK SIZE MAY BE ADJUSTED, BASED ON ACTUAL SOIL CLASSIFICATION AND PIPE DIAMETER.
D. FULLY RESTRAINED JOINT PIPE MAY BE USED IN LIEU OF THIS DETAIL - SEE RESTRAINED JOINT PIPE DETAILS.
E. ALTERNATE DETAIL "A" (USING A REVERSED BELL) MAY BE USED IN LIEU OF DETAIL "A".

NO.	ALTERNATE DESCRIPTION
	WHEN USING 2-INCH HDPE (IPS) BLOW-OFF PIPE WITH STAINLESS STEEL, BRASS OR BRONZE MNPT ENDS, USE THE FOLLOWING PRODUCTS:
7	2" SDR 9 HDPE (POLY) - IPS PIPE (MNPT x MNPT) - LENGTH AS REQUIRED - 12 - INCH MINIMUM.
9	2" SDR 9 HDPE (POLY) - IPS PIPE (MNPT x MNPT) - LENGTH AS REQUIRED.

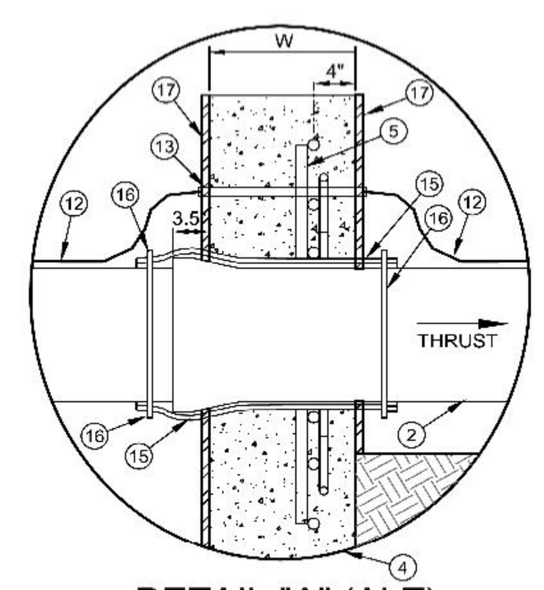
NO SCALE

STANDARD NO. DD | VERSION NO. 1.0 | VERSION DATE 8.23.2011

DEAD END THRUST - WALL BLOCKING AND 2-INCH BLOW-OFF ASSEMBLY 6-INCH THROUGH 12-INCH MAINS



DETAIL "A"

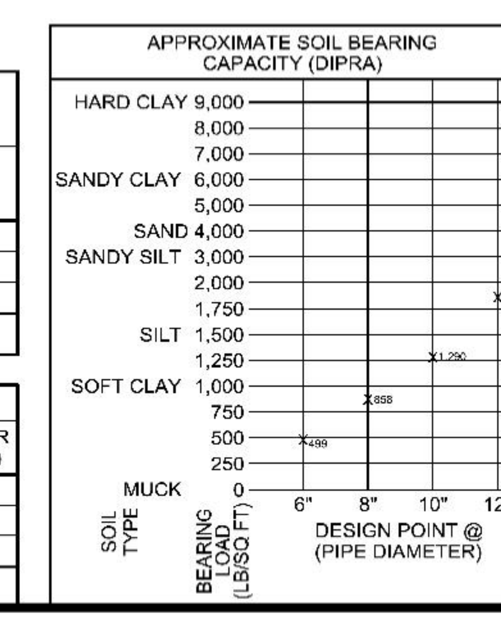


DETAIL "A" (ALT)

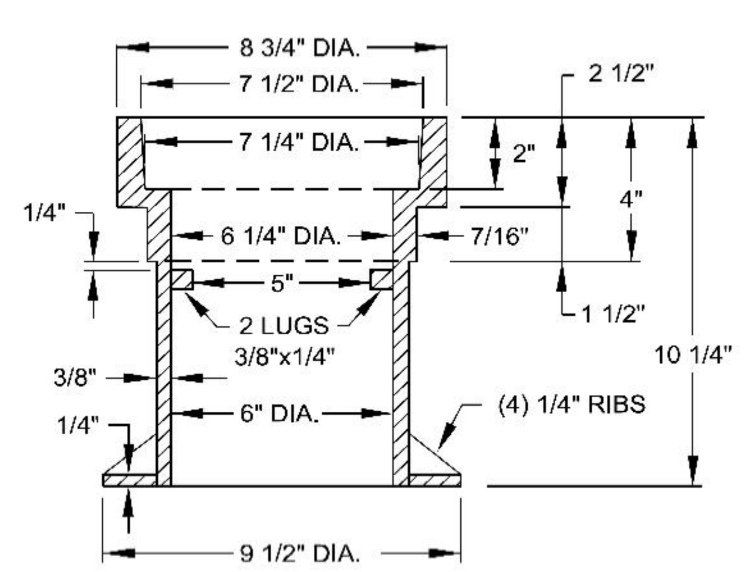
APPROX. DEAD END THRUST (DIPRA) AT 200 PSI WATER PRESSURE		UNDISTURBED SOIL BEARING AREA	APPROX. SOIL PRESSURE	W (WIDTH) (MINIMUM)	CONCRETE VOLUME (APPROXIMATE)	
PIPE DIAMETER (INCHES)	TOTAL THRUST (POUNDS)	SQUARE FEET	BEARING LOAD (LB/SQ FT)	INCHES	FT³	CY
6	7,478	15	499	10	20	0.74
8	12,866	15	858	12	24	0.89
10	19,354	15	1,290	12	24	0.89
12	27,370	15	1,825	14	28	1.04

REBAR SCHEDULE		
TYPE	LENGTH (INCHES)	NUMBER REQUIRED
VERTICAL	38	6
HORIZONTAL	62	6
HORIZONTAL	24	2
DIAGONAL	30	4

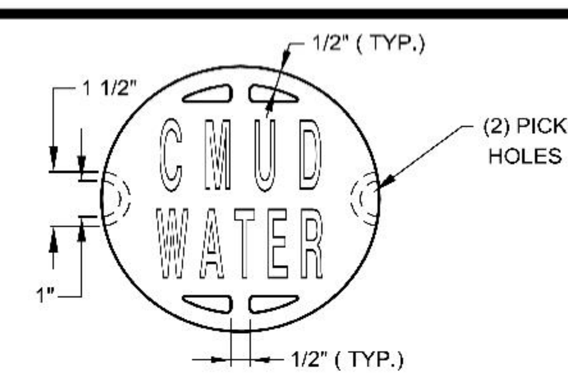
REBAR DIAMETER SCHEDULE			
PIPE DIAMETER	BAR SIZE	TOTAL REBAR LENGTH (FT)	TOTAL REBAR WEIGHT (LB)
6"	#6	64	96
8"	#7	64	131
10"	#8	64	171
12"	#9	64	218



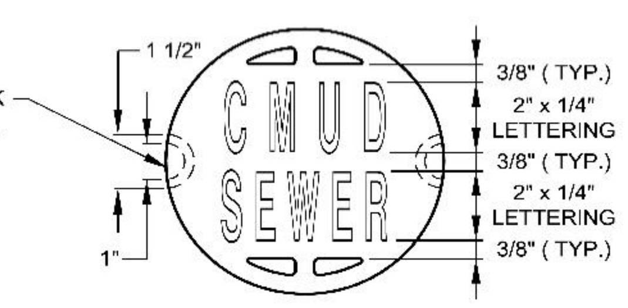
CHARLOTTE-MECKLENBURG UTILITIES
STANDARD DETAILS
WATER
CHARLOTTE



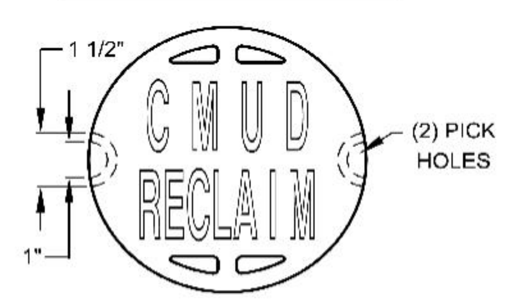
VALVE BOX - TOP SECTION
SECTION VIEW



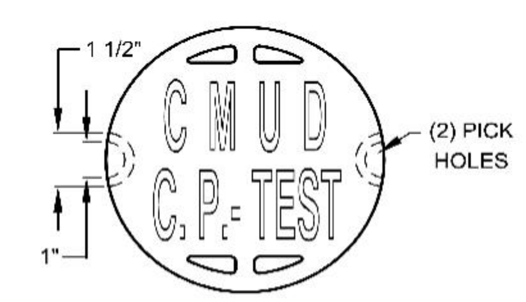
WATER COVER - TOP VIEW



SEWER COVER - TOP VIEW

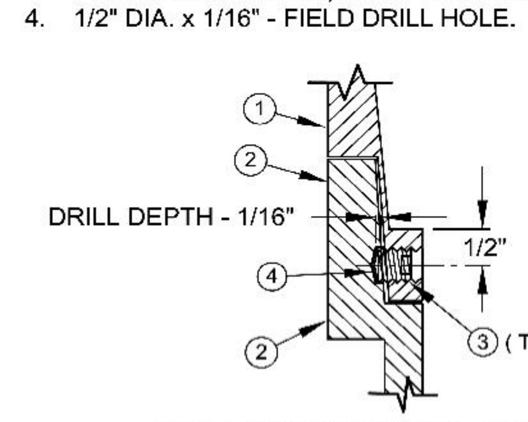


RECLAIMED WATER - TOP VIEW

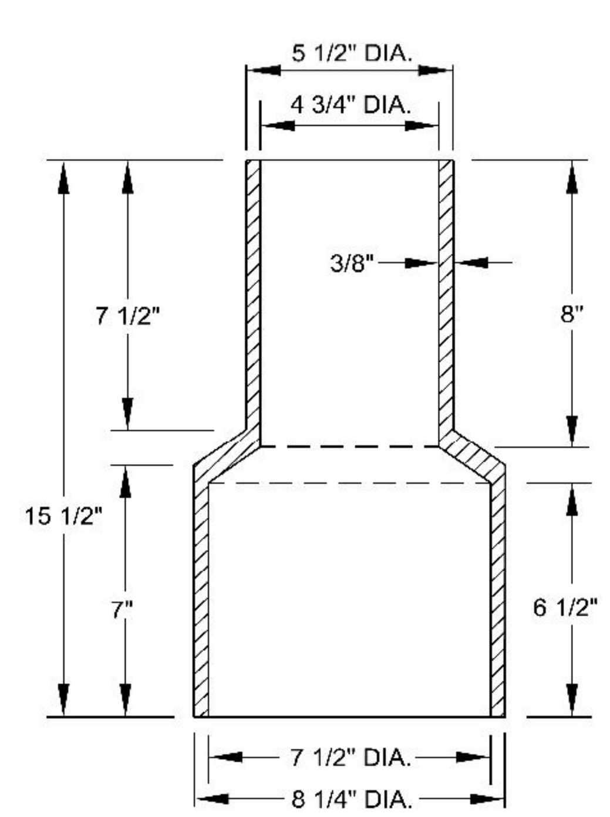


CATHODIC PROTECTION COVER
TOP - VIEW

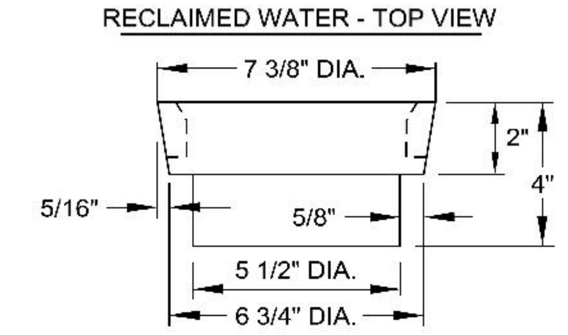
NO:	DESCRIPTION
1.	TYPE I ADJUSTMENT RISER.
2.	VALVE BOX - TOP SECTION.
3.	18 - 8 SS 3/8"-16 x 3/8" HEX SET SCREW WITH PERMANENT THREAD LOCK (RED) - LOCTITE # 271, PERMABOND HM128, OR APPROVED EQUAL.
4.	1/2" DIA. x 1/16" - FIELD DRILL HOLE.



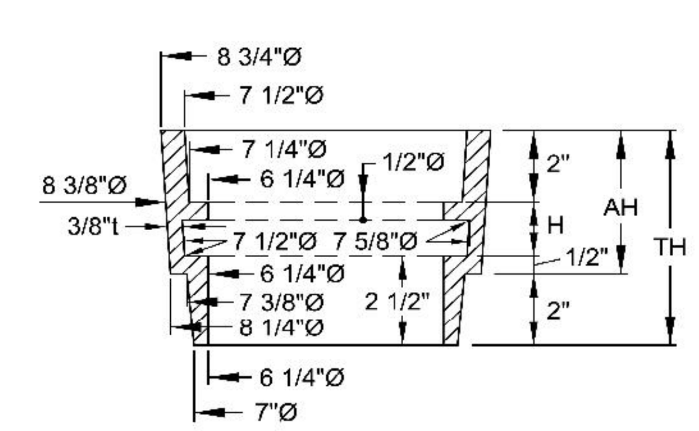
TYPE I CROSS SECTION - ASSEMBLY



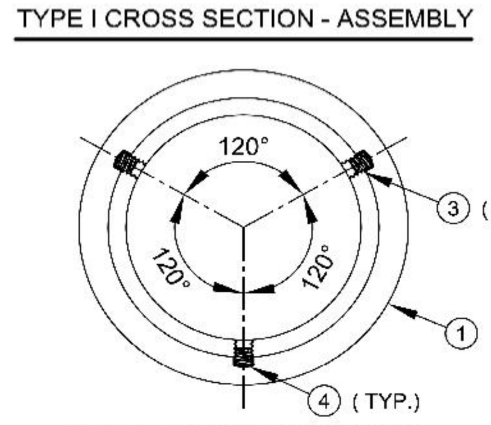
VALVE BOX - BOTTOM SECTION
SECTION VIEW



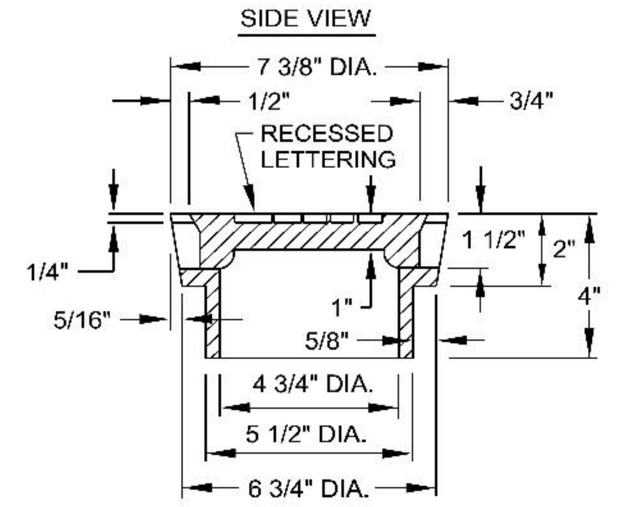
SIDE VIEW



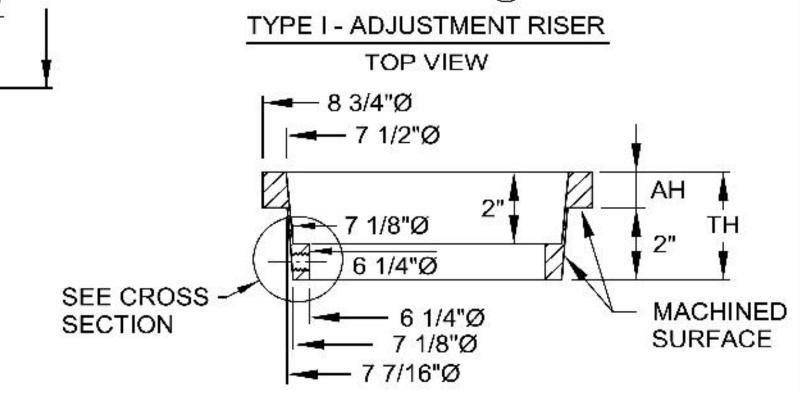
TYPE II - ADJUSTMENT RISER
SECTION VIEW



TYPE I - ADJUSTMENT RISER
TOP VIEW



COVER - SECTION VIEW



TYPE I - ADJUSTMENT RISER
SECTION VIEW

NOTES:

A. LOAD RATING - HEAVY DUTY.
B. FERROUS CASTINGS MATERIAL - ASTM A48 - CLASS 35 GRAY IRON.
C. COATING - UNDIPPED OR ASPHALT VARNISH.
D. WEIGHT - 0% MINUS TOLERANCE.
E. CASTINGS SHALL CONFORM TO DIMENSION AND WEIGHT REQUIREMENTS.
F. TYPE II ADJUSTMENT RISERS MAY BE STACKED.
G. TYPE I ADJUSTMENT RISERS MAY NOT BE STACKED.

WEIGHT POUNDS	MINIMUM
TOP SECTION	31
BOTTOM SECTION	34
COVER	19
TOTAL	84

TYPE II - ADJUSTMENT RISER			
TH - TOTAL HEIGHT	AH - ADJUSTMENT HEIGHT	H	MINIMUM WEIGHT - LBS
< 4 1/2"	< 2 1/2"	NOT APPROVED	NOT APPROVED
4 1/2"	2 1/2"	0	16
5"	3"	1/2"	20
6"	4"	1 1/2"	22.5
7"	5"	2 1/2"	25
8"	6"	3 1/2"	27
10"	8"	5 1/2"	32

TYPE I - ADJUSTMENT RISER		
TH - TOTAL HEIGHT	AH - ADJUSTMENT HEIGHT	MIN. WEIGHT LBS
3"	1"	7
3 1/2"	1 1/2"	9
4"	2"	15
> 4"	NOT APPROVED	N/A

NO SCALE

STANDARD NO. FF | VERSION NO. V1.1 | VERSION DATE 11.2.2010

CAST IRON VALVE BOX (12" AND SMALLER VALVES - ONLY)

CHARLOTTE-MECKLENBURG UTILITIES
STANDARD DETAILS
WATER/SEWER/RECLAIM/CP
CHARLOTTE

DocuSign Envelope ID: 6922EEBF-84B0-402E-A886-E163F58771D6

PROJECT REFERENCE NO.	SHEET NO.
018036003	UC-3C

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

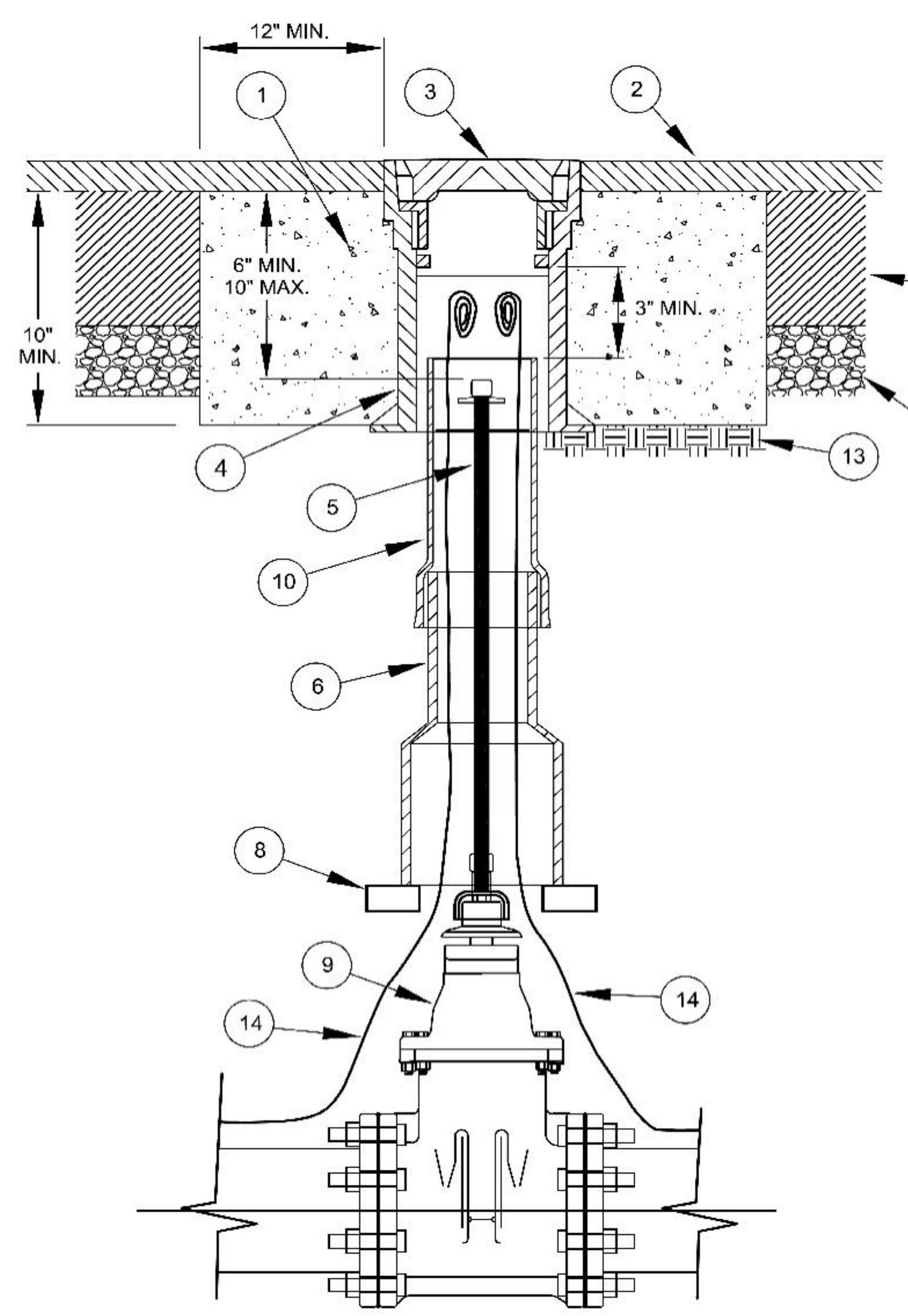
DESIGNED BY:	DGB
DRAWN BY:	DGB
CHECKED BY:	MAS
APPROVED BY:	---
REVISED:	

NORTH CAROLINA PROFESSIONAL SEAL 046081 ENGINEER DANIEL G. BULA
Daniel G. Bula 2/10/2020

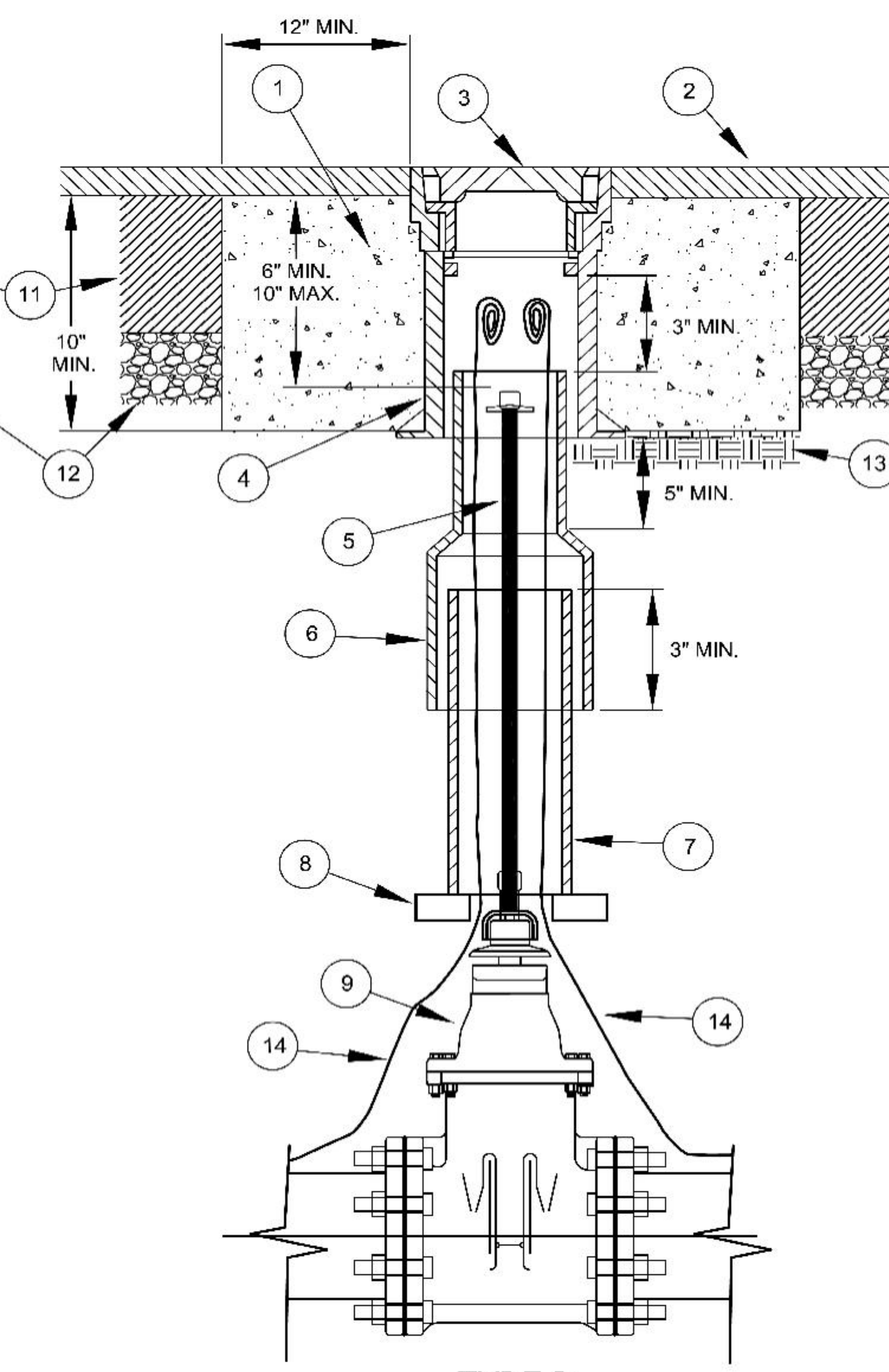
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

VERTICAL VALVE BOX ADJUSTMENT FOR PAVEMENT RESURFACING



TYPE A
USING CAST IRON SOIL PIPE



TYPE B
USING PVC PIPE

NO. DESCRIPTION

1. CONCRETE PAD - CAST IN PLACE.
2. FINAL ASPHALT SURFACE COURSE.
3. VALVE BOX COVER.
4. TOP SECTION VALVE BOX.
5. EXTENSION STEM AS REQUIRED.
6. BOTTOM SECTION VALVE BOX.
7. 6" PVC PIPE (C900 OR SDR26).
8. STANDARD CONCRETE BRICK - 2 EACH.
9. GATE VALVE (OR BALL VALVE, AS APPLICABLE).
10. 5" DIA. CAST IRON SOIL PIPE - BELL OF PIPE WILL RECEIVE BOTTOM SECTION OF VALVE BOX.
11. EXISTING OR NEW PAVEMENT.
12. COMPACTED AGGREGATE BASE COURSE (CABC).
13. COMPACTED SUBGRADE.
14. AWG #12 GAUGE COPPER TRACER WIRE (THWN) WITH BLUE INSULATION, TERMINATE WITH 24 INCH EXCESS WIRE (COILED) AT METER BOX AND VALVE BOX (TYP.)

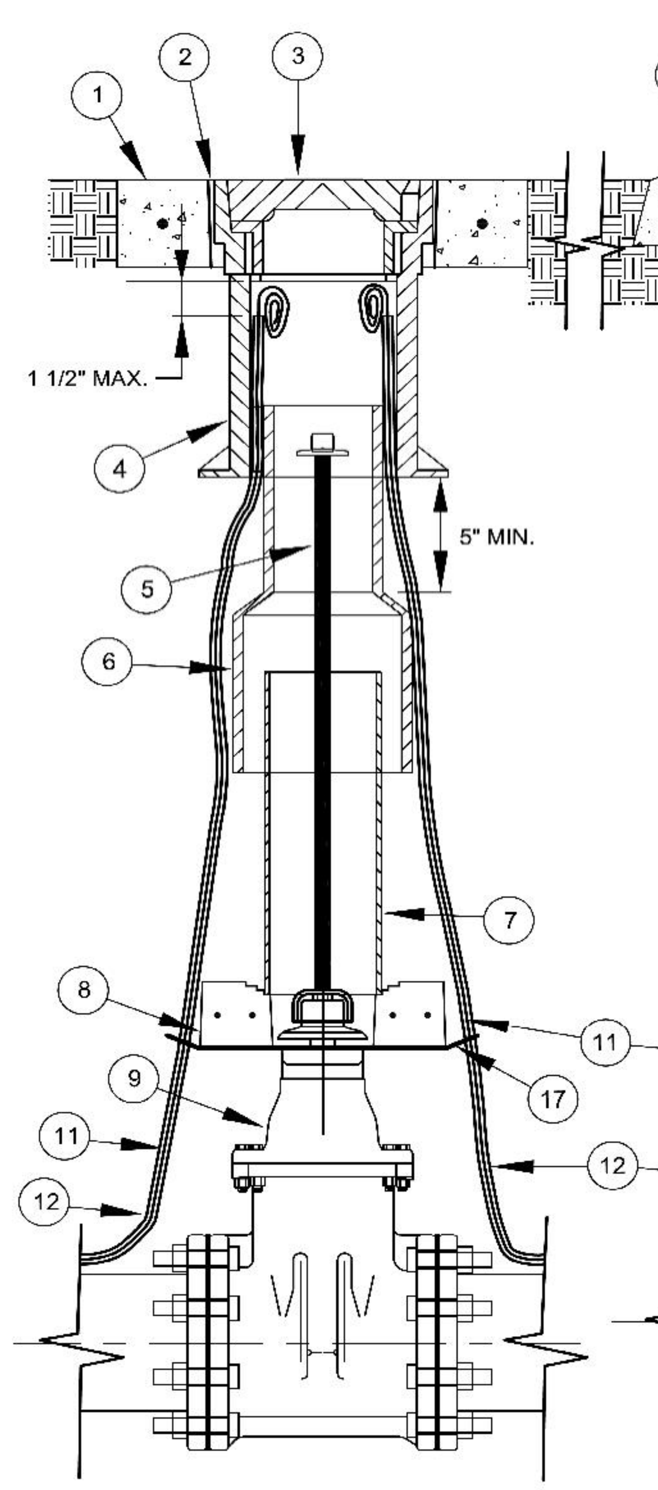
NOTES:

A. WATER VALVE ADJUSTMENTS WILL BE COMPLETED AT LEAST 36 HOURS BEFORE RESURFACING.
B. 12" MINIMUM WIDTH OF EXCAVATION AROUND VALVE BOX.
C. DISTURBED AREAS AROUND STRUCTURE ADJUSTMENTS ARE TO BE TAMPED AND FILLED WITH 4000 PSI "HIGH EARLY" PORTLAND CEMENT CONCRETE.
D. ALL DAMAGED OR MISALIGNED VALVE BOXES ARE TO BE REPORTED TO INSPECTOR, OTHERWISE CONTRACTOR ASSUMES RESPONIBILITY FOR DAMAGE OR MISALIGNMENT.
E. IF THE VERTICAL ADJUSTMENT CAUSES LESS THAN ONE INCH OVERLAP BETWEEN TOP SECTION AND RISER PIPE, CONTRACTOR WILL REMOVE AND REPLACE RISER PIPE FROM BOTTOM SECTION TO TOP TO PROVIDE 3 INCHES OF OVERLAP IN TOP SECTION FOR TYPE A OR IF THE VERTICAL ADJUSTMENT CAUSES LESS THAN ONE INCH OVERLAP BETWEEN TOP SECTION AND BOTTOM SECTION, CONTRACTOR WILL REMOVE AND RESET BOTTOM SECTION TO PROVIDE A MINIMUM OF 3 INCHES OVERLAP AT TOP SECTION/BOTTOM SECTION JOINT SECTION & BOTTOM SECTION/RISER PIPE JOINT FOR TYPE B.
F. ALL CONCRETE SHALL BE VIBRATED IN ACCORDANCE WITH N.C. DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
G. TOP & BOTTOM SECTION TO BE CENTERED OVER NUT, NOT TO BEAR ON VALVE BODY.
H. PROVIDE CLEARANCE BETWEEN VALVE BOX/BRICK AND THE VALVE.
I. VALVE BOX ASSEMBLY SHALL CONSIST OR NO MORE THAN 3 VERTICAL SECTIONS - 1 TOP SECTION, 1 - BOTTOM SECTION AND 1 - PIPE RISER SECTION.

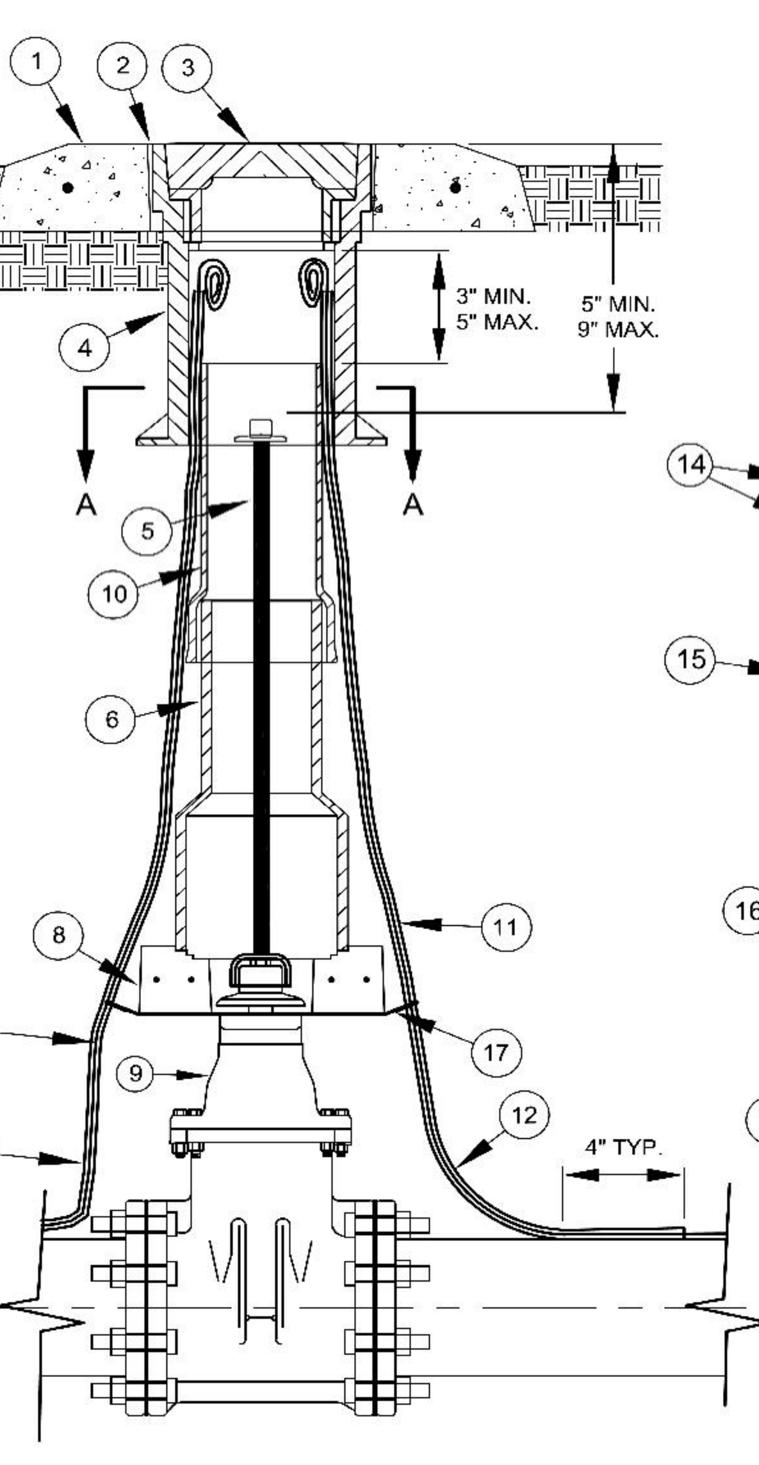
NO SCALE
STANDARD NO. GG
VERSION NO. V1.0
VERSION DATE 9.13.2010

CHARLOTTE-MECKLENBURG UTILITIES
STANDARD DETAILS
WATER
CHARLOTTE

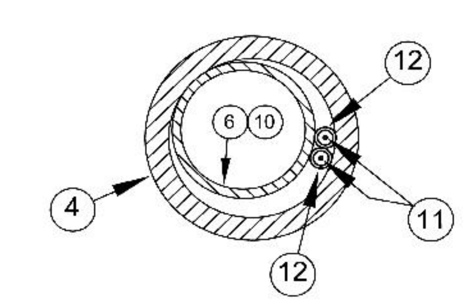
VALVE BOX ASSEMBLY INSTALLATION - 12" AND SMALLER VALVES



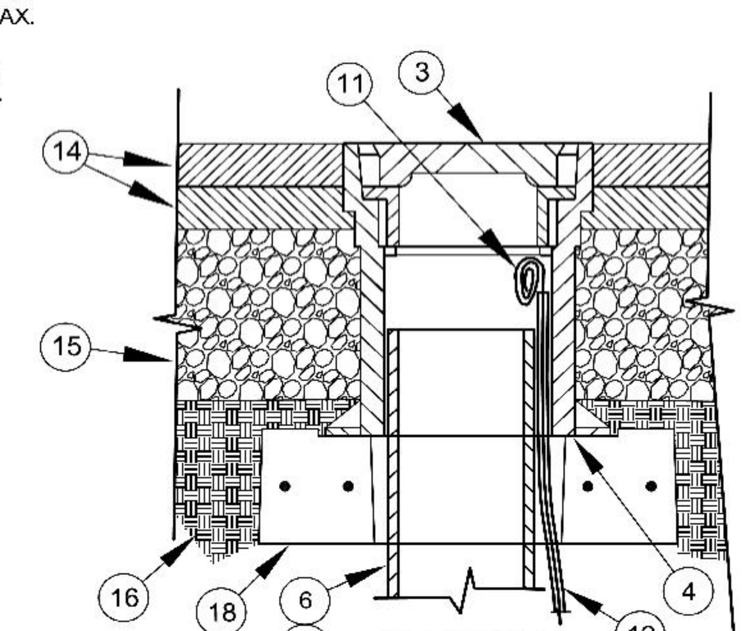
TYPE 1
USING PVC PIPE



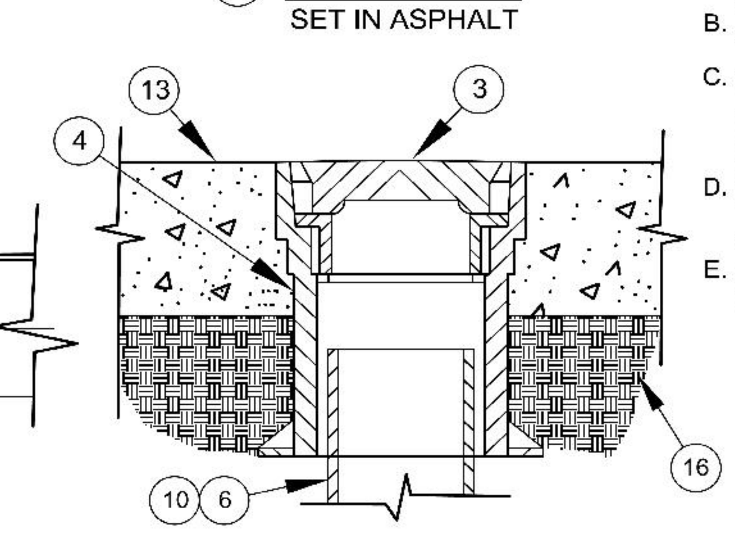
TYPE 2
USING CAST IRON SOIL PIPE



SECTION A-A



ALTERNATE A
SET IN ASPHALT



ALTERNATE B
CAST IN CONCRETE

NO. DESCRIPTION

1. 18" x 18" PRECAST (OR CAST IN PLACE) CONCRETE PAD OR 24" DIAMETER PRECAST PAD.
2. NON - SHRINK GROUT - IN ANNULAR SPACE.
3. VALVE BOX COVER.
4. TOP SECTION VALVE BOX.
5. EXTENSION STEM AS REQUIRED. SEE NOTES
6. BOTTOM SECTION VALVE BOX.
7. 6" PVC PIPE (C900 OR SDR 26).
8. PRECAST CONCRETE FOOTING - TYPE II - SEE DETAIL.
9. GATE VALVE (OR BALL VALVE, AS APPLICABLE).
10. 5" DIA. CAST IRON SOIL PIPE - BELL OF PIPE WILL RECEIVE BOTTOM SECTION OF VALVE BOX.
11. AWG #12 GAUGE COPPER TRACER WIRE (THWN) WITH BLUE INSULATION, TERMINATE WITH 24 INCH EXCESS WIRE (COILED) AT METER BOX AND VALVE BOX (TYP.)
12. 1/4" OR 3/8" ID CONDUIT - SDR 9 PEX TUBING - ASTM F 876.
13. CONCRETE (ROADWAY, DRIVEWAY OR SIDEWALK)
14. ASPHALT PAVEMENT.
15. COMPACTED AGGREGATE BASE COURSE (CABC) OR ASPHALT BASE COURSE.
16. COMPACTED SUBGRADE.
17. NONWOVEN GEOTEXTILE FABRIC - 18" x 18" - 2 LAYERS - MIRAFI #140N OR CARTHAGE MILLS # FX - 40HS.
18. PRECAST CONCRETE FOOTING - TYPE I - SEE DETAIL.

NOTES:

A. CONCRETE FOOTING TO BE CENTERED OVER VALVE NUT, AND SHALL NOT BEAR ON VALVE BODY.
B. PROVIDE CLEARANCE BETWEEN VALVE FOOTING AND THE VALVE.
C. WHEN OPERATING NUT DEPTH EXCEEDS 3'-0" BELOW FINISHED GRADE, PROVIDE EXTENSION STEM WITH STANDARD 2" SQUARE OPERATING NUT IN TOP SECTION OF VALVE BOX. SEE STANDARD DETAIL.
D. VALVE BOX ASSEMBLY SHALL CONSIST OF NO MORE THAN 3 VERTICAL SECTIONS - 1 TOP SECTION, 1 - BOTTOM SECTION, AND 1 - PIPE RISER SECTION.
E. CONCRETE PADS SHALL NOT BE USED IN PAVEMENT (CONCRETE OR ASPHALT), SIDEWALKS OR DRIVEWAYS.

NO SCALE
STANDARD NO. HH
VERSION NO. V1.0
VERSION DATE 1.14.2011

CHARLOTTE-MECKLENBURG UTILITIES
STANDARD DETAILS
WATER
CHARLOTTE

K:\CHL_PRJ\018036 Town of Pineville\003 Johnston Dr Alignment - Design\09_OTHER KHA DISCIPLINES\UTILITIES\CADD\036003-UC03A-DETL.dgn

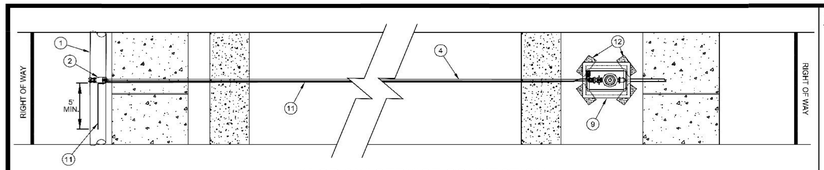
2/10/2020

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

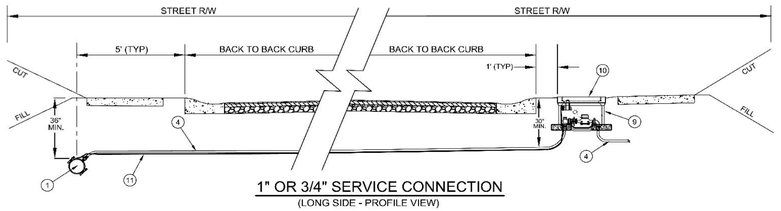
PROJECT REFERENCE NO.	SHEET NO.
018036003	UC-3D
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: MAS	
APPROVED BY: ---	
REVISED:	

NORTH CAROLINA PROFESSIONAL SEAL 049081 ENGINEER DANIEL G. BULA
2/10/2020
UTILITY CONSTRUCTION PLANS ONLY

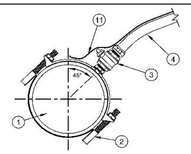
UTILITY CONSTRUCTION



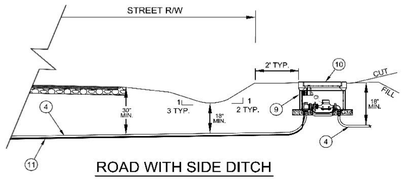
1" OR 3/4" SERVICE CONNECTION
(LONG SIDE - PLAN VIEW)



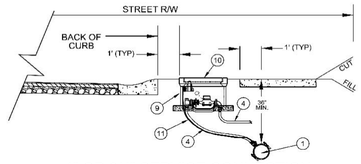
1" OR 3/4" SERVICE CONNECTION
(LONG SIDE - PROFILE VIEW)



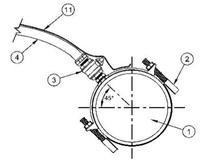
DETAIL AT MAIN
(LONG SIDE)



ROAD WITH SIDE DITCH



1" OR 3/4" SERVICE CONNECTION
(SHORT 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.

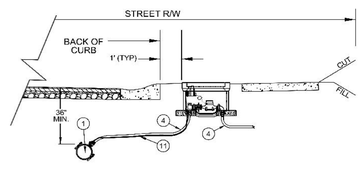
NOTE:
A. MIN. DISTANCE CENTER TO CENTER ON SERVICES OR TO BELLS OR SPIGOTS SHALL BE 3'-0" AS MEASURED ALONG THE MAIN.
B. CENTER ANGLE BALL VALVE - 90° CONNECTOR (⑤ - ⑧) IN METER BOX.
C. SHOWN AS 3/4" SERVICE, USE 1" COMPONENTS FOR 1" DOMESTIC WATER SERVICE.
D. TRACER WIRE IS NOT REQUIRED WITH ALL COPPER TUBING SERVICE.
E. WHEN METER BOX MUST BE PLACED IN CONCRETE, IT SHALL BE COMPLETELY IN, AND CENTERED IN CONCRETE PANEL, PER CDOT / NCDOT REQUIREMENTS.
F. CMUD MAINTENANCE ENDS WITH 90° CONNECTOR ⑧.

NO SCALE
STANDARD NO. K - 1
DRAWING 1.1
REVISION 5.13.2011

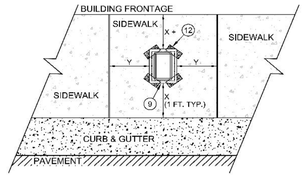
3/4" AND 1" DOMESTIC WATER SERVICE CONNECTION

CHARLOTTE-MECKLENBURG UTILITIES
STANDARD DETAILS
WATER

CHARLOTTE



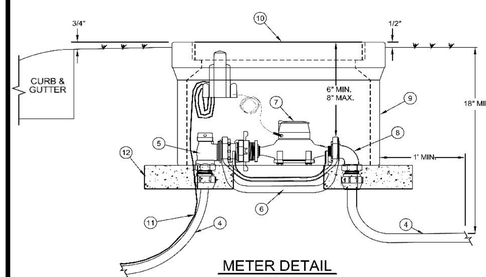
1" OR 3/4" SERVICE CONNECTION
(SHORT SIDE - IN PAVEMENT)



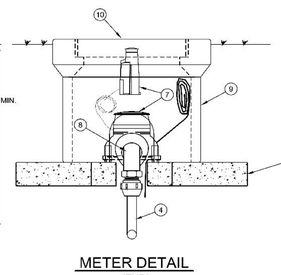
METER BOX IN SIDEWALK
(REQUIRES PRIOR CMU APPROVAL)

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.

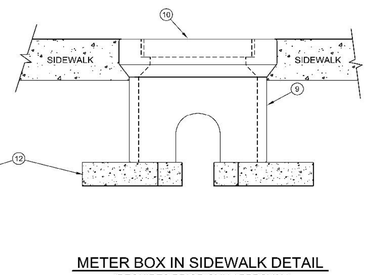
NO SCALE
STANDARD NO. K - 2
DRAWING 1.1
REVISION 5.13.2011



METER DETAIL
(SIDE)



METER DETAIL
(END)



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

NOTE:
A. MIN. DISTANCE CENTER TO CENTER ON SERVICES OR TO BELLS OR SPIGOTS SHALL BE 3'-0" AS MEASURED ALONG THE MAIN.
B. CENTER ANGLE BALL VALVE - 90° CONNECTOR (⑤ - ⑧) IN METER BOX.
C. SHOWN AS 3/4" SERVICE, USE 1" COMPONENTS FOR 1" DOMESTIC SERVICE.
D. TRACER WIRE IS NOT REQUIRED WITH ALL COPPER TUBING SERVICE.
E. WHEN METER BOX MUST BE PLACED IN CONCRETE, IT SHALL BE COMPLETELY IN, AND CENTERED IN CONCRETE PANEL, PER CDOT / NCDOT REQUIREMENTS.
F. CMUD MAINTENANCE ENDS WITH 90° CONNECTOR ⑧.

3/4" AND 1" DOMESTIC WATER SERVICE CONNECTION

CHARLOTTE-MECKLENBURG UTILITIES
STANDARD DETAILS
WATER

CHARLOTTE

K:\CHL_PR\018036 Town of Pineville\003 Johnston Dr Alignment - Design\09_OTHER KHA DISCIPLINES\UTILITIES\CADD\036003-UC03A-DETL.dgn
2/10/2020

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

PROJECT REFERENCE NO.	SHEET NO.
018036003	UC-3E
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: MAS	
APPROVED BY: ---	
REVISED:	

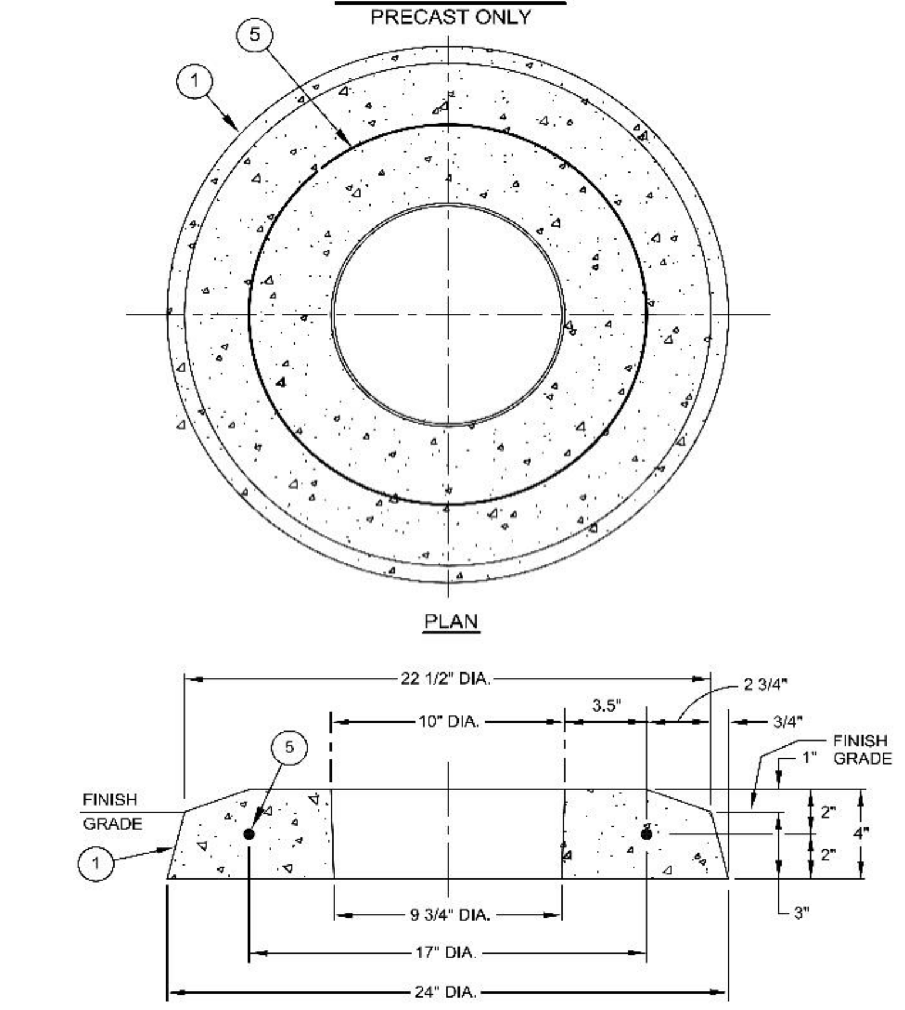
NORTH CAROLINA PROFESSIONAL SEAL 046081 ENGINEER DANIEL G. BULA 2/10/2020

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

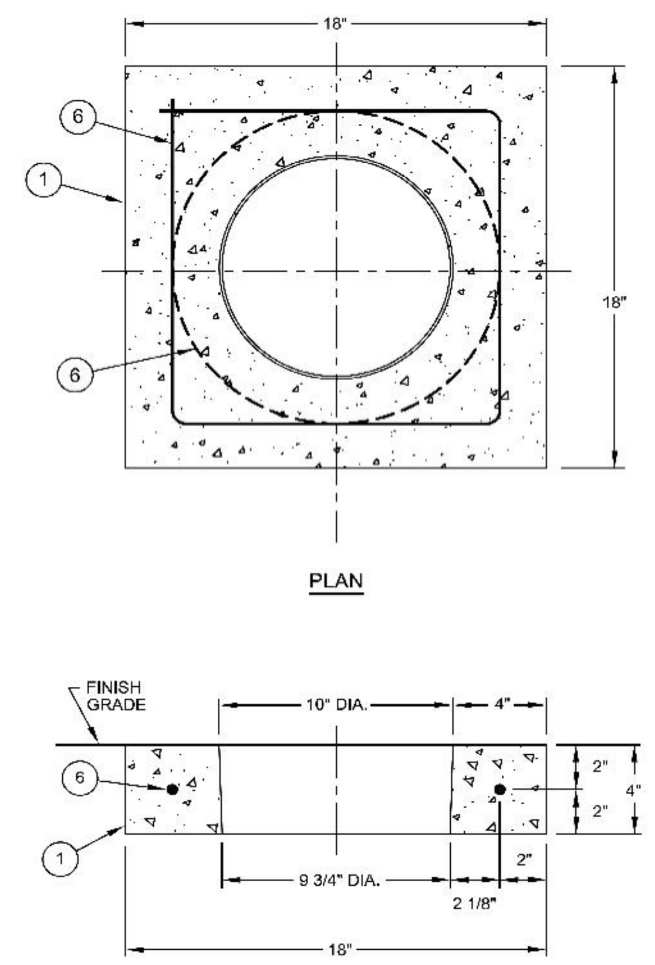
VALVE BOX - CONCRETE GRADE RINGS AND FOOTINGS (12" AND SMALLER VALVES - ONLY)

TYPE A - GRADE RING
PRECAST ONLY



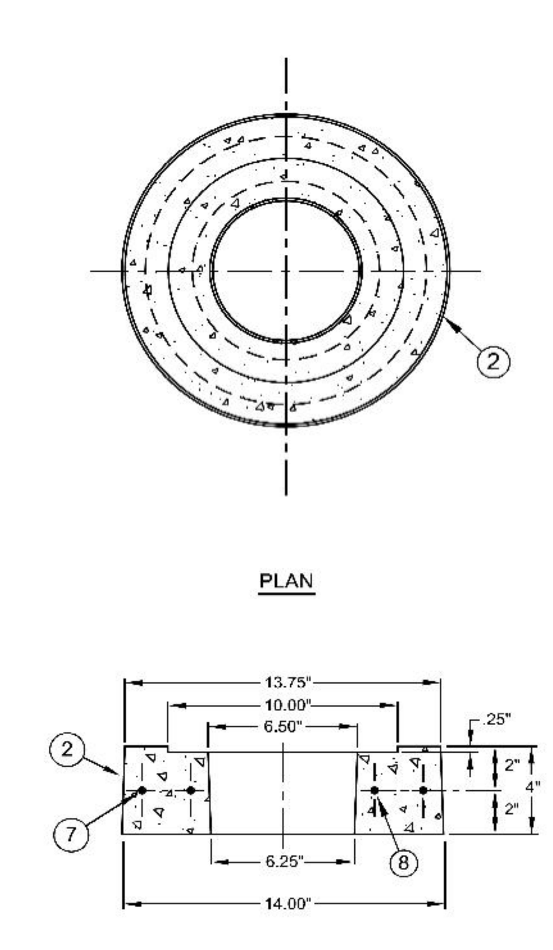
SECTION

TYPE B - GRADE RING
PRECAST OR CAST IN PLACE



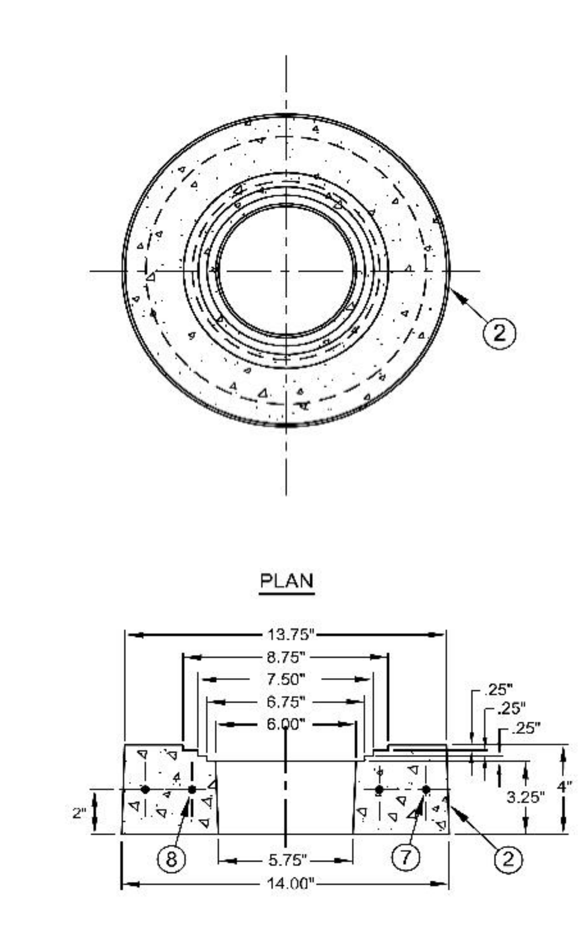
SECTION

TYPE I - FOOTING - TOP SECTION
PRECAST ONLY

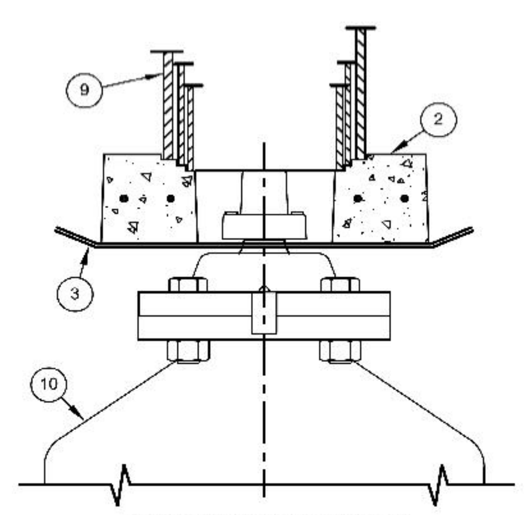


SECTION VIEW

TYPE II - FOOTING - BOTTOM SECTION
PRECAST ONLY



SECTION VIEW



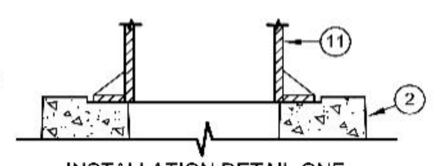
INSTALLATION DETAIL TWO
SECTION VIEW

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

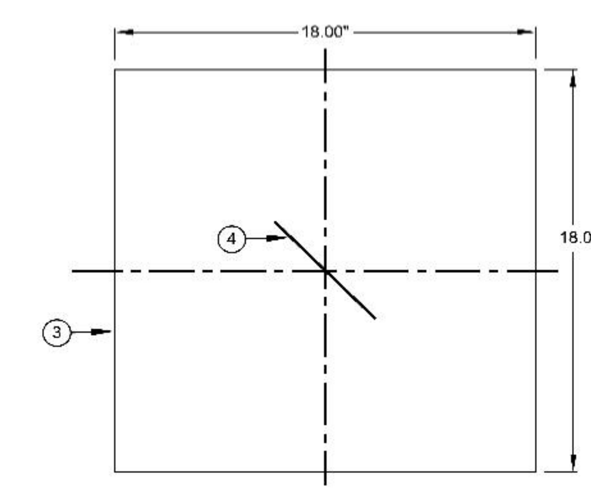
a. CONCRETE – f'c = 4000 PSI (PRECAST), OR 3600 PSI (CAST-IN-PLACE).
b. STEEL REINFORCEMENT – REBARS – GRADE 60 (60,000 PSI) – ASTM A-615, OR WELDED WIRE FABRIC – ASTM A-185.
c. NON WOVEN GEOTEXTILE FABRIC – CARTHAGE MILLS #FX-40HS, MIRAFI #140N, OR APPROVED EQUAL.



INSTALLATION DETAIL ONE
SECTION VIEW

NOTES:

A. FOR PRECAST GRADE RINGS – FILL VOID BETWEEN GRADE RING AND CAST IRON VALVE BOX TOP SECTION WITH NON-SHRINK GROUT.
B. FOR CAST-IN-PLACE GRADE RINGS – TOP SECTION OF CAST IRON VALVE BOX SHALL BE CAST IN THE CONCRETE.
C. TYPE A GRADE RINGS SHALL BE REQUIRED ON ROAD SHOULDERS WITHOUT CURB.
D. TYPE I FOOTINGS SHALL BE REQUIRED IN NEW CONSTRUCTION WHEN THE CAST IRON VALVE BOX IS LOCATED DIRECTLY IN THE ASPHALT.
E. TYPE II FOOTINGS SHALL BE REQUIRED AT ALL VALVE INSTALLATIONS.
F. 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.



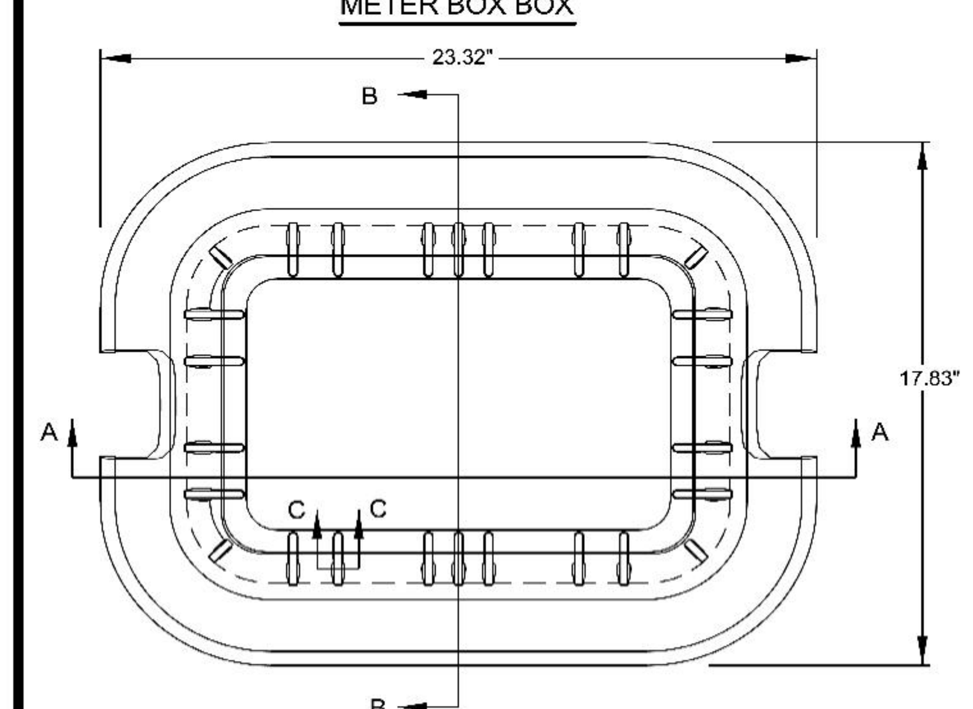
NON WOVEN GEOTEXTILE FABRIC x 2 EACH

NO SCALE
STANDARD NO. MM
VERSION NO. V1.0
VERSION DATE 11.2.2010

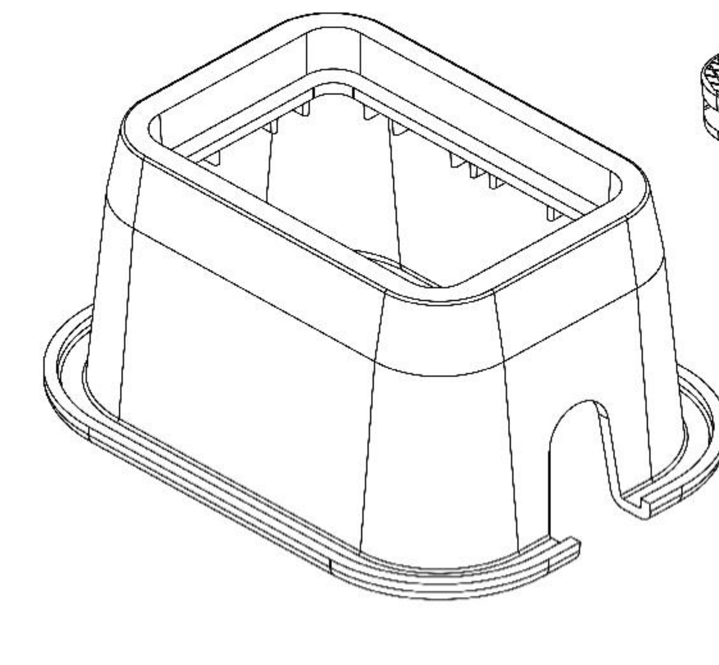
CHARLOTTE-MECKLENBURG UTILITIES
STANDARD DETAILS
WATER/SEWER/RECLAIM/CP
CHARLOTTE

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

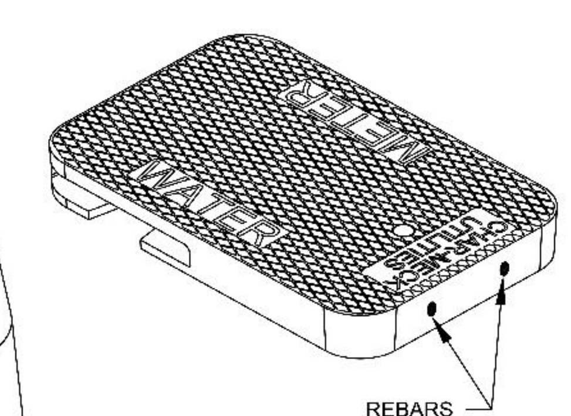
METER BOX BOX



PLAN VIEW

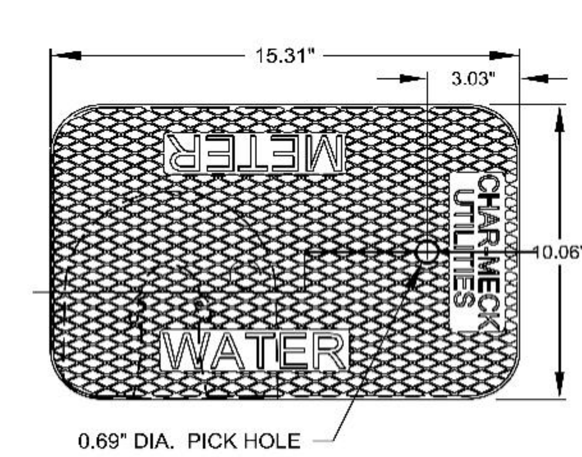


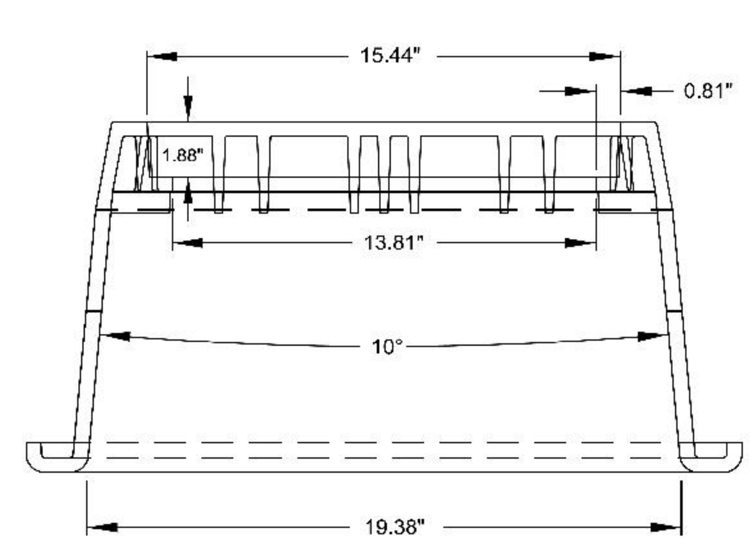
BODY



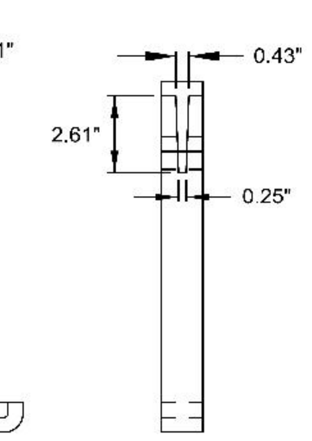
PLASTIC LID

LID

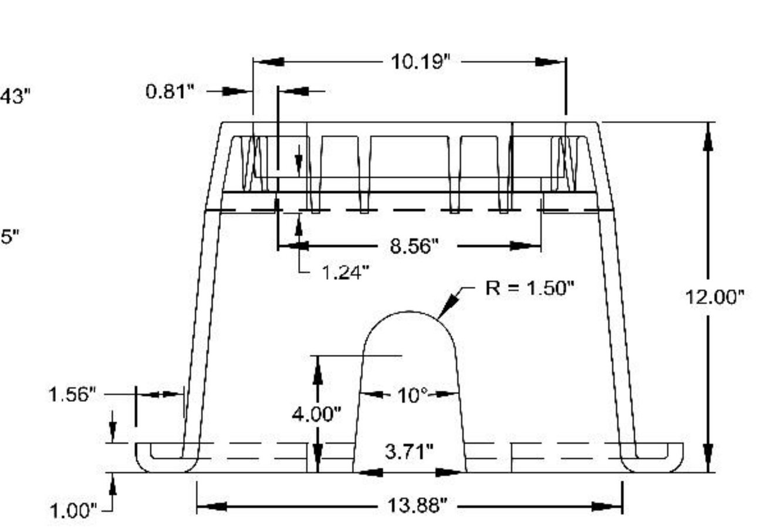




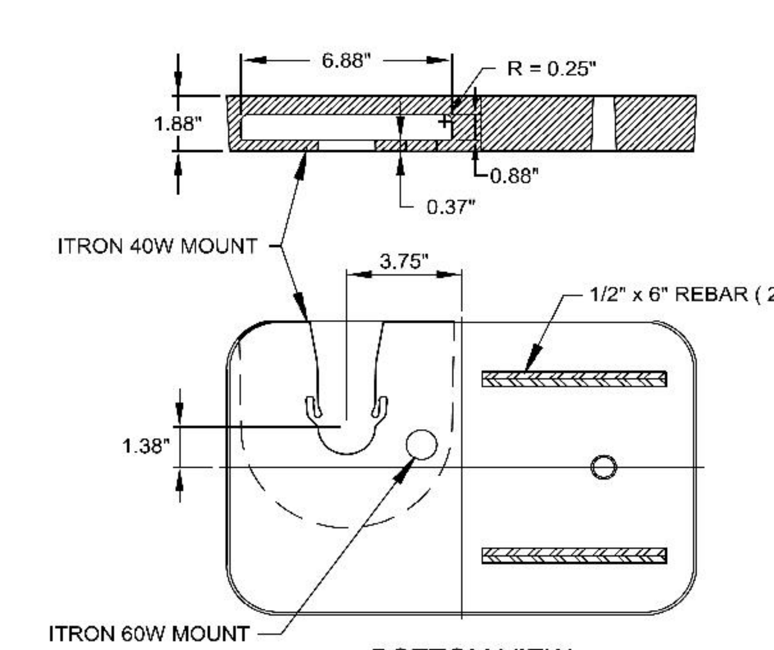
SECTION A-A



SECTION C-C
RIB DETAIL



SECTION B - B



BOTTOM VIEW

NOTES:

A. MATERIAL SHALL BE HIGH DENSITY POLYETHYLENE.
B. LOAD RATING = HS20.
C. COLOR SHALL BE CHARLOTTE GRAY.
D. 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 NO. OO
VERSION NO. V1.0
VERSION DATE 8.23.2011

CHARLOTTE-MECKLENBURG UTILITIES
STANDARD DETAILS
WATER
CHARLOTTE

K:\CHL_PRJ\018036 Town of Pineville\003 Johnston Dr Alignment - Design\09_OTHER KHA DISCIPLINES\UTILITIES\CADD\036003-UC03A-DETL.dgn

2/10/2020

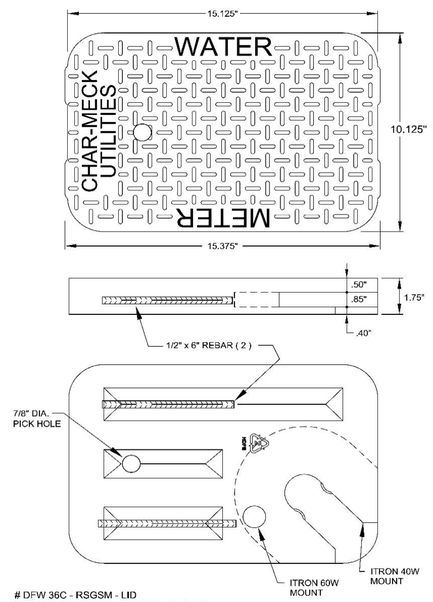
Kimley»Horn
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
018036003	UC-3F
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: MAS	
APPROVED BY: ---	
REVISED:	

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048861 DANIEL G. BULL
DocuSigned by: Daniel G. Bull
2/10/2020
UTILITY CONSTRUCTION PLANS ONLY

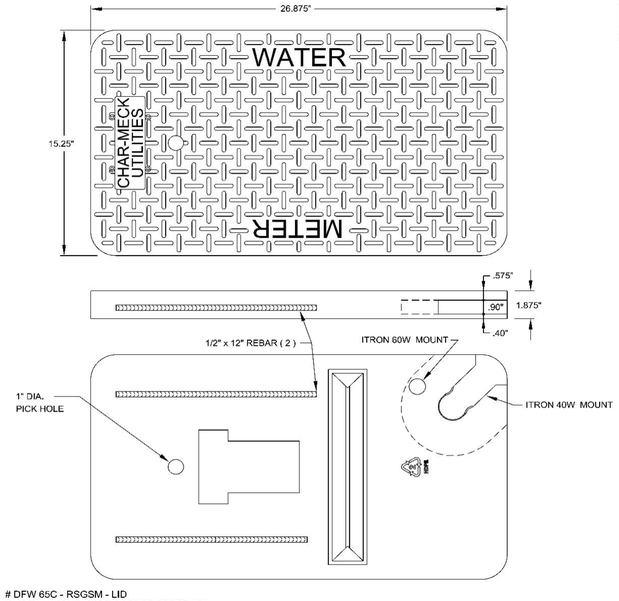
UTILITY CONSTRUCTION

3/4 - INCH SERVICE LID



DFW 36C - RSGSM - LID
WEIGHT - INCLUDING REBARS - 6.50 LBS.

1 - INCH SERVICE LID



DFW 65C - RSGSM - LID
WEIGHT - INCLUDING REBARS - 23.50 LBS.

NOTES:
- MATERIAL - HIGH DENSITY POLYETHYLENE (HDPE) - RECYCLED
- COLOR - CHARLOTTE GREY
- LOAD RATING - HEAVY DUTY
- MANUFACTURER - DFW PLASTICS INC. OR APPROVED EQUAL

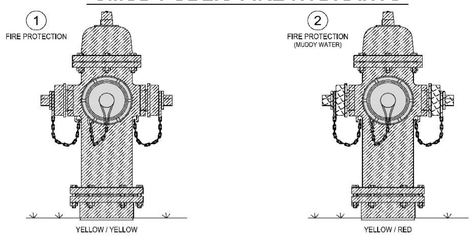
NO SCALE
STANDARD NO. PP
VERSION NO. V1.0
EFFECTIVE DATE 7/11/2011

WATER METER BOX - PLASTIC LID
FOR 3/4 - INCH AND 1 - INCH WATER SERVICES

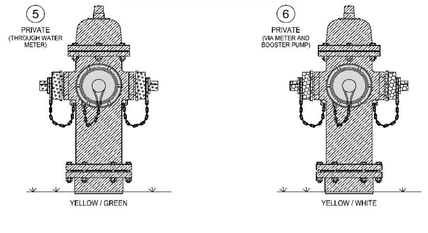
CHARLOTTE-MECKLENBURG UTILITIES
STANDARD DETAILS
WATER

CHARLOTTE

CMUD PUBLIC FIRE HYDRANTS



PRIVATE FIRE HYDRANTS



CMUD / CFD COLOR LEGEND	
COLOR:	HATCH TYPE:
OSHA SAFETY YELLOW	
OSHA SAFETY BLUE	
OSHA SAFETY PURPLE	
OSHA SAFETY RED	
OSHA SAFETY GREEN	
OSHA SAFETY WHITE	

NOTES:
A. PUBLIC FIRE HYDRANTS ARE (1) CONNECTED DIRECTLY TO CMUD WATER DISTRIBUTION SYSTEM, (2) OWNED AND MAINTAINED BY CMUD, AND (3) LOCATED WITHIN THE ROAD RIGHT-OF-WAY OR CMUD WATER MAIN EASEMENT.
B. PRIVATE FIRE HYDRANTS ALL NON-PUBLIC FIRE HYDRANTS, INCLUDING HYDRANTS (1) SERVED VIA CMUD WATER METER, (2) SERVED VIA PRIVATE WATER SYSTEM, AND ARE (3) LOCATED OUTSIDE THE ROAD RIGHT-OF-WAYAND (4) PRIVATELY OWNED AND MAINTAINED.

FOR CLARITY, CONSIDER USING STANDARD DETAIL U.V.-COLOR AND A COLOR PRINTER. ALL PAINTED SURFACES ARE SOLID COLORS - HATCHING DEPICTED FOR USE WITH BLACK ONLY PRINTERS.

CMUD AND CHARLOTTE FIRE DEPARTMENT STANDARDS
COLOR SCHEME FOR CMUD PUBLIC FIRE HYDRANTS

FIRE HYDRANT CLASSIFICATION:	BARREL	SQUARE TOP / BONNET	STORZ PUMPER NOZZLE	IRON PUMPER NOZZLE	IRON HOSE NOZZLE
1 - FIRE PROTECTION	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW	NOT PAINTED	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW
2 - FIRE PROTECTION/ MUDDY FLOW	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW	NOT PAINTED	OSHA SAFETY RED	OSHA SAFETY RED
3 - AIR RELEASE	OSHA SAFETY BLUE	OSHA SAFETY BLUE	NOT PAINTED	OSHA SAFETY BLUE	OSHA SAFETY BLUE
3 - BLOW-OFF	OSHA SAFETY BLUE	OSHA SAFETY BLUE	NOT PAINTED	OSHA SAFETY BLUE	OSHA SAFETY BLUE
4 - REUSE/ RECLAIM	OSHA SAFETY PURPLE	OSHA SAFETY PURPLE	NOT PAINTED	OSHA SAFETY PURPLE	OSHA SAFETY PURPLE

CHARLOTTE FIRE DEPARTMENT STANDARDS
COLOR SCHEME FOR PRIVATE FIRE HYDRANTS

CLASSIFICATION:	BARREL	TOP / BONNET	STORZ PUMPER NOZZLE	IRON PUMPER NOZZLE	IRON HOSE NOZZLE
5 - PRIVATE THROUGH WATER METER	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW	NOT PAINTED	OSHA SAFETY GREEN	OSHA SAFETY GREEN
6 - PRIVATE via METER AND FIRE BOOSTER PUMP	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW	NOT PAINTED	OSHA SAFETY WHITE	OSHA SAFETY WHITE
7 - PRIVATE (6-INCH AND SMALLER MAIN OR LIMITED SUPPLY)	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW	NOT PAINTED	OSHA SAFETY BLUE	OSHA SAFETY BLUE
8 - PRIVATE (2.5-INCH OUTLET YARD HYDRANT)	OSHA SAFETY RED	OSHA SAFETY RED	N / A	N / A	OSHA SAFETY RED

INDUSTRY STANDARD - **NOT** ADOPTED OR USED BY CMUD/CFD
AWWA C-502 UNIFORM COLOR SCHEME FOR FIRE HYDRANTS
NFPA 291 RECOMMENDED PRACTICE FOR MARKING FIRE HYDRANTS

CLASSIFICATION:	FLOW CAPACITY (GPM AT 20 PSI RESIDUAL)	BARREL	TOP / BONNET	PUMPER NOZZLE	HOSE NOZZLE
CLASS AA	1500 OR GREATER	CHROME YELLOW	LIGHT BLUE	LIGHT BLUE	LIGHT BLUE
CLASS A	1000 TO 1499	CHROME YELLOW	GREEN	GREEN	GREEN
CLASS B	500 TO 999	CHROME YELLOW	ORANGE	ORANGE	ORANGE
CLASS C	LESS TO 500	CHROME YELLOW	RED	RED	RED

NO SCALE
STANDARD NO. PP
VERSION NO. V1.0
EFFECTIVE DATE V.V. - 8/W HATCH 8.05.2011

FIRE HYDRANT PAINT/COLOR SCHEMES
CMUD/CHARLOTTE FIRE DEPT. STANDARDS
PUBLIC AND PRIVATE HYDRANTS

CHARLOTTE-MECKLENBURG UTILITIES
STANDARD DETAILS
WATER

CHARLOTTE

2/10/2020 K:\CHL_PR\018036 Town of Pineville\003 Johnston Dr Alignment - Design\09_OTHER KHA DISCIPLINES\UTILITIES\CADD\018036003-UC03A-DETL.dgn

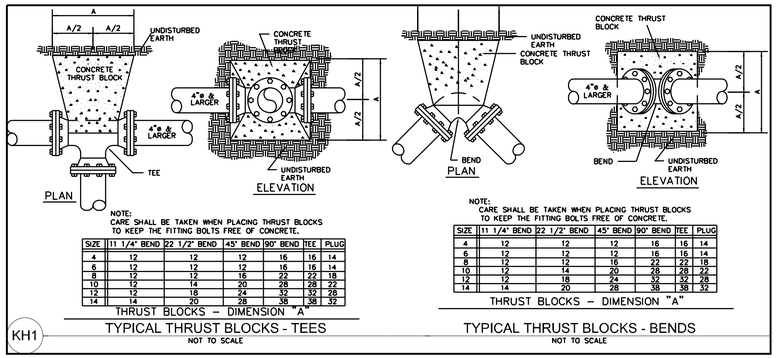
Kimley»Horn
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
018036003	UC-3G
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: MAS	
APPROVED BY: ---	
REVISED:	

NORTH CAROLINA PROFESSIONAL SEAL 046884 ENGINEER DANIEL G. BULA
DocuSigned by: Daniel G Bula
2/10/2020

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



NOTE:
CARE SHALL BE TAKEN WHEN PLACING THRUST BLOCKS TO KEEP THE FITTING BOLTS FREE OF CONCRETE.

SIZE	11 1/4" BEND	22 1/2" BEND	45° BEND	90° BEND	TEE	PLUG
4	12	12	12	16	16	14
6	12	12	12	16	16	14
8	12	12	16	22	22	18
10	12	14	20	28	28	22
12	12	18	24	32	32	28
14	14	20	28	38	38	32

THRUST BLOCKS – DIMENSION "A"

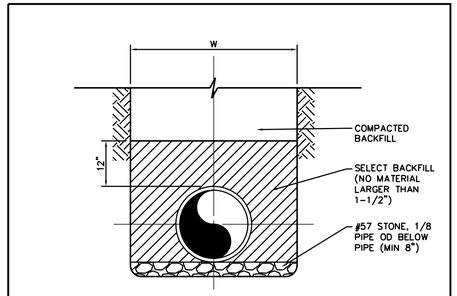
KH1 TYPICAL THRUST BLOCKS - TEES
NOT TO SCALE

NOTE:
CARE SHALL BE TAKEN WHEN PLACING THRUST BLOCKS TO KEEP THE FITTING BOLTS FREE OF CONCRETE.

SIZE	11 1/4" BEND	22 1/2" BEND	45° BEND	90° BEND	TEE	PLUG
4	12	12	12	16	16	14
6	12	12	12	16	16	14
8	12	12	16	22	22	18
10	12	14	20	28	28	22
12	12	18	24	32	32	28
14	14	20	28	38	38	32

THRUST BLOCKS – DIMENSION "A"

TYPICAL THRUST BLOCKS - BENDS
NOT TO SCALE

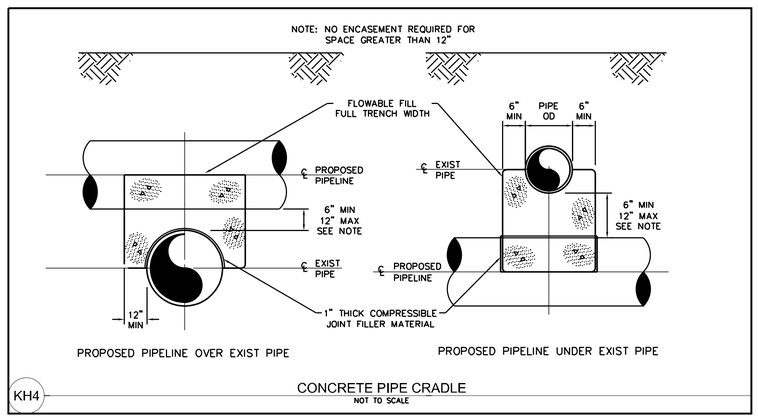


KH2 TYPE B TRENCH BEDDING
NOT TO SCALE

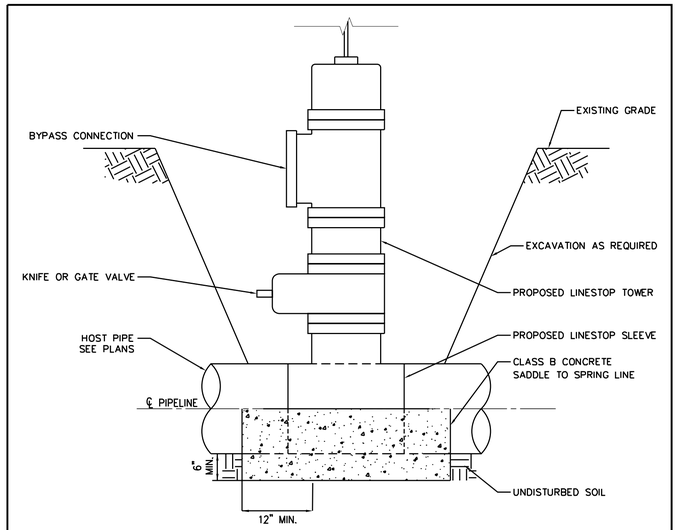
TRENCH EXCAVATION LIMITS	
INTERNAL DIAMETER OF PIPE	W WIDTH OF TRENCH MAX / W=MIN
4"-6"	3'-9" / 2'-0"
8"-10"	3'-9" / 2'-2"
12"	3'-9" / O.D.+2'
14"-16"	4'-2" / O.D.+2'
18"	4'-4" / O.D.+2'
20"-21"	4'-8" / O.D.+2'
24"	4'-11" / O.D.+2'
27"	5'-9" / O.D.+2'
30"	6'-7" / O.D.+2'
36"	7'-4" / O.D.+2'
42"	8'-2" / 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'-6" / O.D.+2'
96"	13'-0" / O.D.+2'
108"	14'-0" / O.D.+2'
DEPTH OF CUT	S MAXIMUM PAVEMENT REPLACEMENT WIDTH
0-6'	S=W+4'
>6-8'	S=W+8'
>8-10'	S=W+12'
>10-12'	S=W+16'
>12-14'	S=W+20'
>14-16'	S=W+24'
>16-18'	S=W+28'
>18'	S=W+32'

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

KH3 TRENCH EXCAVATION LIMITS



KH4 CONCRETE PIPE CRADLE
NOT TO SCALE



NOTE:
1. CONTRACTOR SHALL PROVIDE GASKET, FLANGE, AND SST BOLTS TO BE INSTALLED AFTER REMOVAL OF LINESTOP TOWER.

KH5 LINE STOP WITH BYPASS
NOT TO SCALE

2/10/2020 K:\CHL_PRJ\018036 Town of Pineville\003 Johnston Dr Alignment - Design\09_OTHER KHA DISC\PLINES\UTILITIES\CADD\036003-UC03A-DETL.dgn

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

NOTES:
1. LINE STOP WITH BYPASS WORK SHALL BE COMPLETED BY A CHARLOTTE WATER-APPROVED CONTRACTOR THAT CAN PROVE HAVING PERFORMED TEN (10) SIMILAR LINE STOPS WITHIN THE PAST FIVE (5) YEARS.

PROJECT REFERENCE NO.	SHEET NO.
018036003	UC-4
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: MAS	
APPROVED BY: ---	
REVISED:	

NORTH CAROLINA PROFESSIONAL SEAL 040731 ENGINEER DANIEL G. BULA
2/10/2020
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

50 25 0 50 100

SHUT DOWN VALVE 420 LF
SHUT DOWN VALVE 410 LF
8" LINE STOP W/ MIN.8" BYPASS (SEE NOTE 1)
8" VALVE 5 LF WEST OF TEE
8"x6" RJ TEE
8" VALVE 5 LF EAST OF TEE
8" LINE STOP W/ MIN.8" BYPASS (SEE NOTE 1)
6" VALVE
FIRE HYDRANT
225 LF OF 6" DI PC 350 RJ WATER LINE
6" 22.5° RJ BEND
RELOCATE EXISTING WATER METER
42 LF OF WATER SERVICE LINE (CONTRACTOR TO FIELD VERIFY SIZE)
6" 11.25° RJ BEND
263 LF OF 6" DI PC 350 RJ WATER LINE
6" RJ TEE START WATER LINE -W2- STA 10+00.00
6" VALVES (3)
6" 22.5° RJ BEND
6" 45° RJ BEND
6" 45° RJ BEND
CONNECT TO EXISTING 6" PVC WATER LINE WITH 6" MJ TRANSITION COUPLING END WATER LINE -W1- STA 14+87.40
REMOVE FIRE HYDRANT
ABANDON 436 LF OF EXISTING 6" WATER LINE
FIRE HYDRANT
6" MJ CAP AND BLOCKING END WATER LINE -W2- STA 12+62.09
6" VALVE
178 LF OF 6" DI PC 350 RJ WATER LINE
RECONNECT EXISTING WATER METER
38 LF OF WATER SERVICE LINE (CONTRACTOR TO FIELD VERIFY SIZE)
RELOCATE EXISTING WATER METER
41 LF OF WATER SERVICE LINE (CONTRACTOR TO FIELD VERIFY SIZE)
UTILITY CONSTRUCTION BY OTHERS
MAIN ST.
DOVER ST.
JOHNSTON DR.
CHILDERS LN.

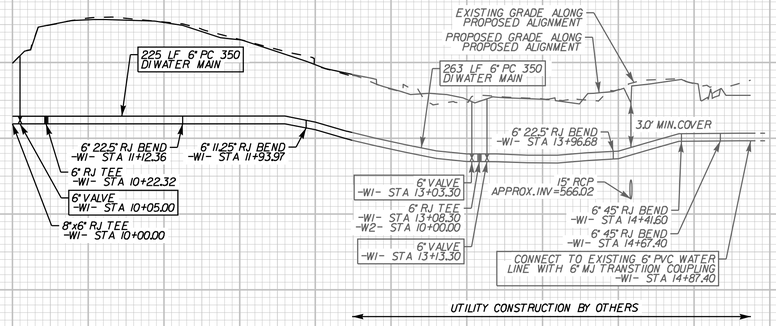
Kimley»Horn
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
018036003	UC-5
DESIGNED BY: DGB	
DRAWN BY: DGB	
CHECKED BY: MAS	
APPROVED BY: ---	
REVISED:	

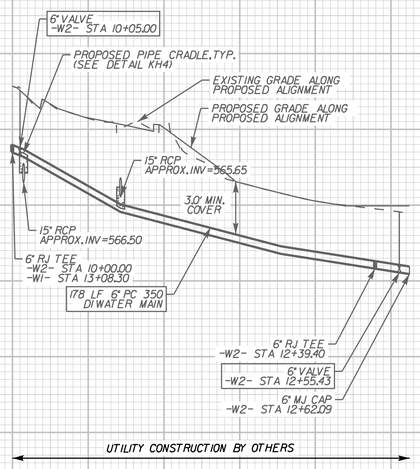
NORTH CAROLINA PROFESSIONAL SEAL 040001 ENGINEER DANIEL G. BUJA
2/10/2020

UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION



-WI- SEE SHEET UC-4 FOR PLAN



-W2- SEE SHEET UC-4 FOR PLAN