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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	EB-5829	1	30

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45969.1.1	N/A	PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

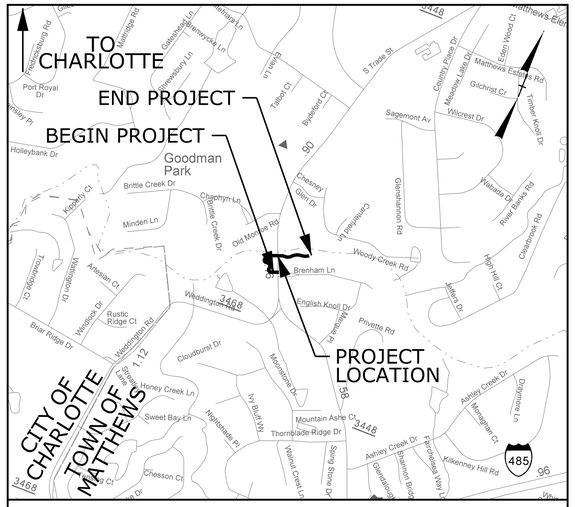
MECKLENBURG COUNTY

TIP PROJECT: EB–5829

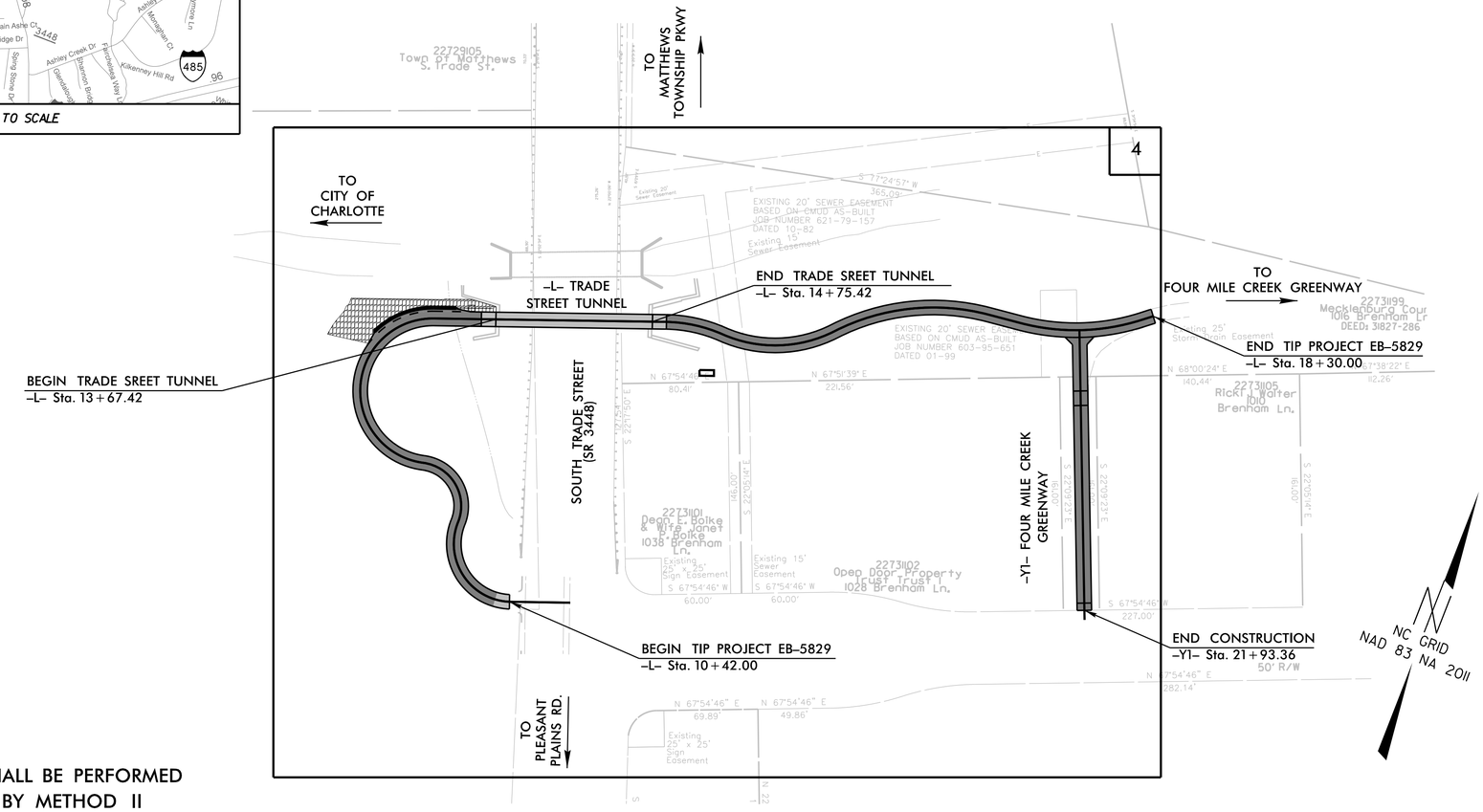
CONTRACT:

LOCATION: ***GREENWAY CONNECTION FROM BRENHAM LN. TO FOUR MILE CREEK GREENWAY BY TRADE STREET TUNNEL***

TYPE OF WORK: ***GRADING, DRAINAGE, PAVING, AND RETAINING WALL***



VICINITY MAP – NOT TO SCALE



NCDOT CONTACT:
DUSTIN SIMPSON
NCDOT – DIVISION 10
716 W. MAIN STREET
ALBEMARLE, NC 28001

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

PLANS: 50 25 0 50 100

PROFILE (HORIZONTAL): 50 25 0 50 100

PROFILE (VERTICAL): 10 5 0 10 20

DESIGN DATA

2018	=	N/A
2040	=	N/A
K	=	N/A
D	=	N/A
T	=	N/A
V	=	N/A

FUNCTIONAL CLASSIFICATION: N/A

* N/A TTST N/A DUAL SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT EB–5829 = 0.149 MILES
TOTAL LENGTH TIP PROJECT EB–5829 = 0.149 MILES

PLANS PREPARED FOR THE NCDOT BY: Kimley»Horn © 2022

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

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: *N/A*

LETTING DATE: *5/18/2022*

BEN TAYLOR, P.E. — *PROJECT ENGINEER*

DJ BEAVER, P.E. — *PROJECT DESIGN ENGINEER*

DUSTIN SIMPSON — *NCDOT CONTACT DM-STIP PROJECT MANAGER*

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER BENJAMIN S. TAYLOR

4/14/22 *P.E.*
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 031788 ENGINEER DJ BEAVER

4/14/22 *P.E.*
SIGNATURE:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

K:\CHL_PRJ\0036526 – EB-5829 (Trade St Tunnel)\Roadway\Proj\EB-5829_rdy_tshdgn

4/14/2022

REVISIONS

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, LIST OF ROADWAY STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS SHEET
2A-1 THRU 2A-2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND MISCELLANEOUS DETAILS
2C-1	DETAIL SHEET
3B-1	SUMMARY OF EARTHWORK SHEET AND PAVEMENT REMOVAL
3D-1	DRAINAGE SUMMARY SHEET
4	PLAN SHEET
5	PROFILE SHEETS
E-1	ELECTRICAL LIGHTING PLAN SHEET
EC-1 THRU EC-5	EROSION CONTROL PLAN SHEETS
X-1A	CROSS-SECTION INDEX
X-2 THRU X-7	CROSS-SECTIONS
S-1	TUNNEL PLAN AND GENERAL NOTES
S-2	TUNNEL SECTIONS AND DETAILS
W-1	RETAINING WALL PLAN
W-2	RETAINING WALL DETAILS AND NOTES

GENERAL NOTES

2018 SPECIFICATIONS

EFFECTIVE: 06-03-2019
REVISED: 02-06-2020

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. THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARY OF UNION COUNTY.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

UNION POWER
MARK MCCLAMROCK
704-221-2355
Mark.mclamrock@union-power.com

PIEDMONT NATURAL GAS
MICHAEL CORRIGAN
980-722-8705
MCorrigan@maserconsulting.com

SPECTRUM
RYAN GODWIN
980-406-1721
Timothy.Godwin@charter.com

SEGRA
ROBERT ROBINSON
803-726-8337
Robert.Robinson@SEGRA.com

WINDSTREAM
BRENT WHITLOCK
803-577-5888
Brent.Whitlock@BYERS.COM

CENTURYLINK
MICHAEL CASEY
980-215-5007
michael.e.casey@centurylink.com

CONTERRA
ERIC WOODS
540-605-0653
ewoods@conterra.com

VERIZON
ANTHONY PACE
980-505-2489
Anthony.pace@verizon.com

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

ROADWAY STANDARD DRAWINGS

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFFECTIVE: 01-16-2018
REVISED: 01-06-2020

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	
200.03	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
310.03	CROSS PIPE END SECTION
310.10	DRIVEWAY PIPE CONSTRUCTION
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD I
DIVISION 8 - INCIDENTALS	
840.04	CONCRETE OPEN THROAT CATCH BASIN - 12" THRU 48" PIPE
840.18	CONCRETE GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.24	FRAMES AND NARROW SLOT SAG GRATES
846.01	CONCRETE CURB, GUTTER AND CURB & GUTTER
866.01	CHAIN LINK FENCE
876.02	GUIDE FOR RIP RAP AT PIPE OUTLETS

Kimley»Horn ©2021

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

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	1A
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 031788 ENGINEER BENJAMIN S. TAYLOR

4/8/2022

HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

4/8/2022

REVISIONS

4/8/2022

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	1B

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 — TH
- 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 — TH
- 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.*) — ?UTL
- 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.

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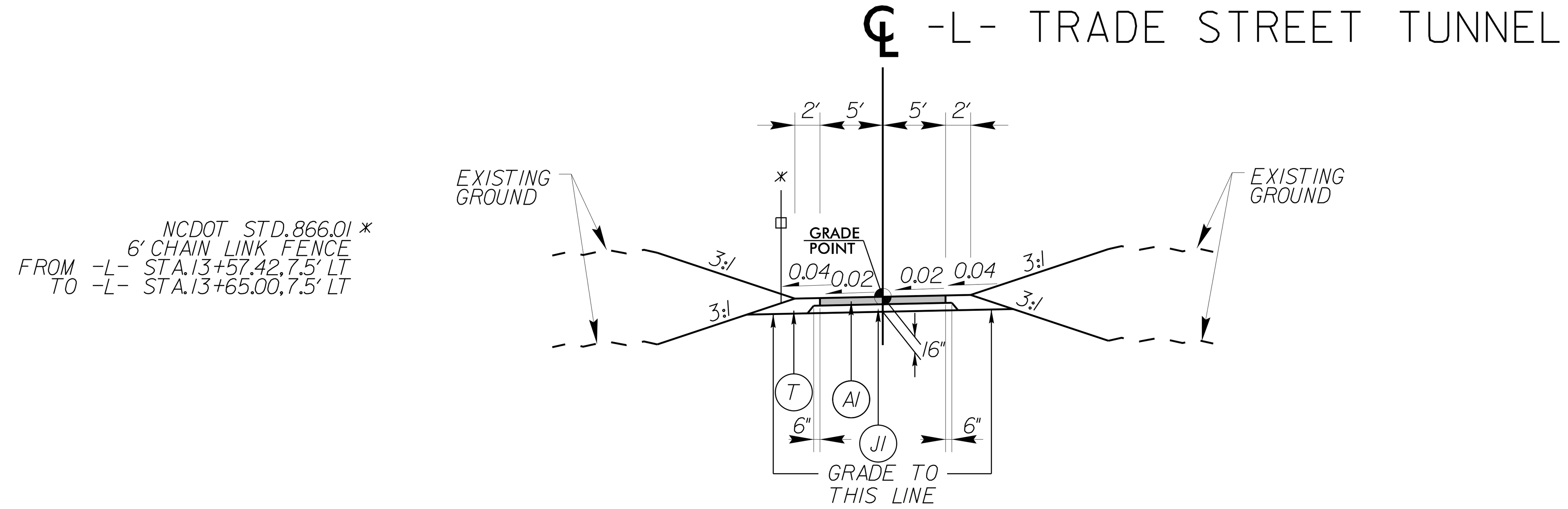
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031788 ENGINEER BENJAMIN S. TAYLOR 4/8/2022	NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER 4/8/2022

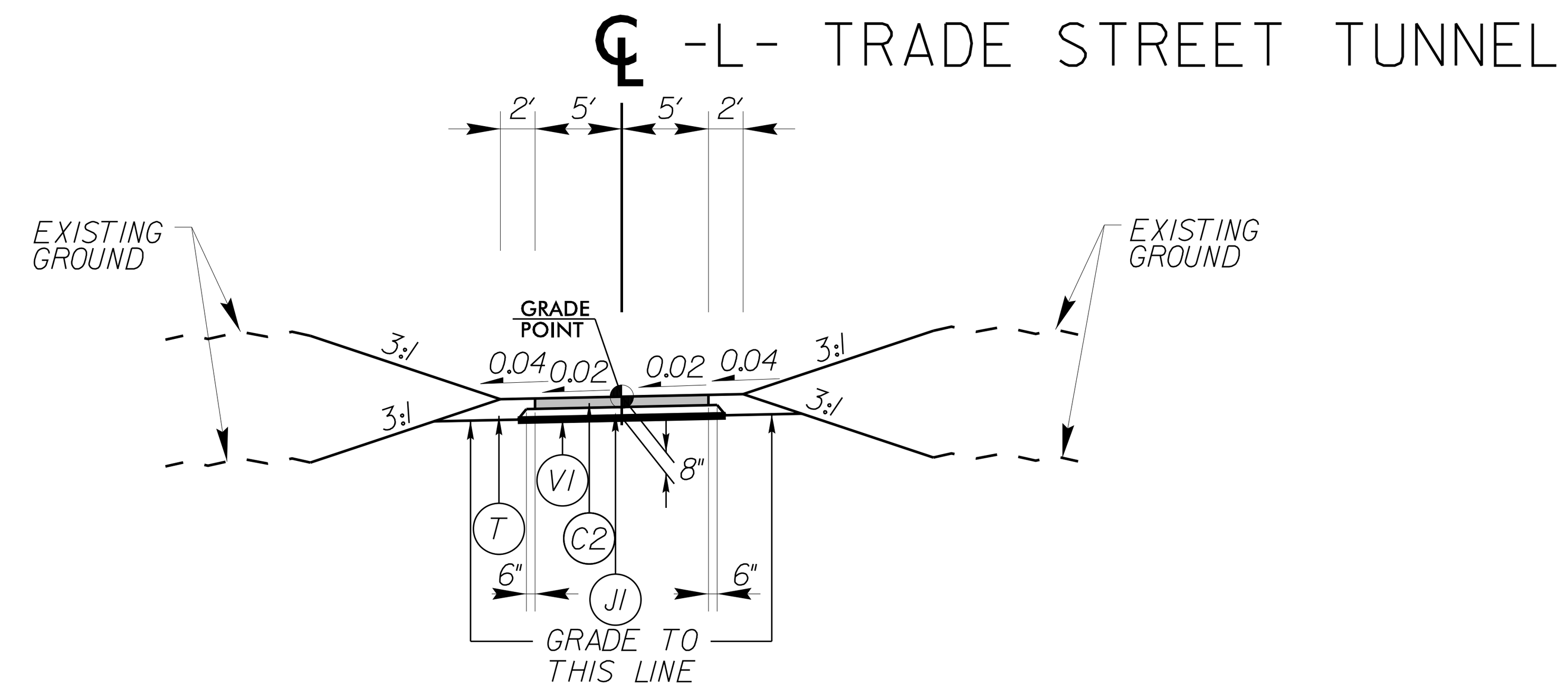
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



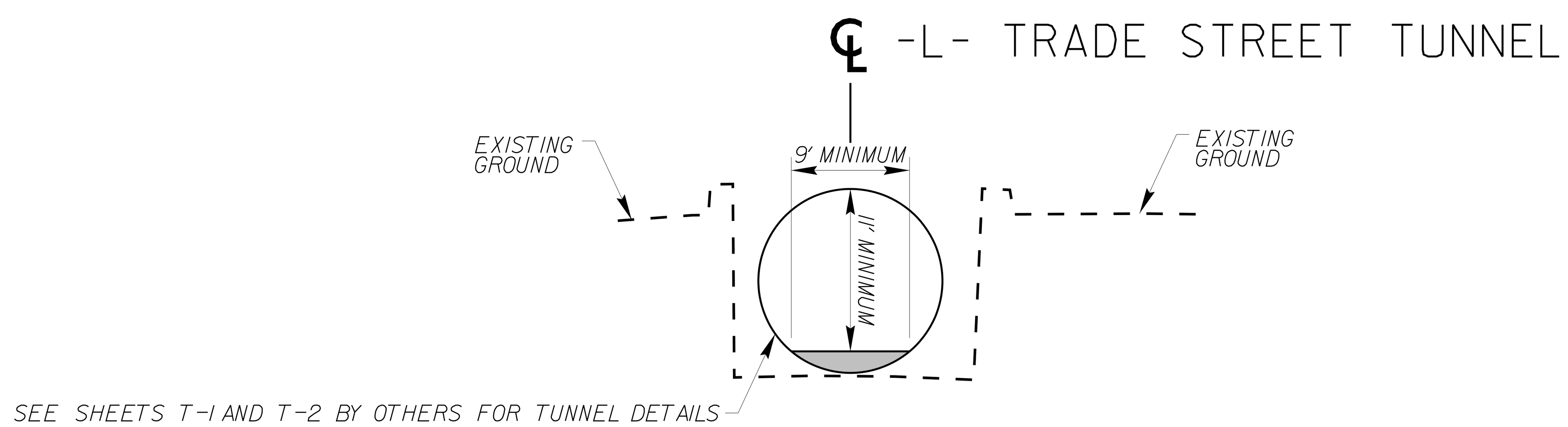
TYPICAL SECTION NO. 1

-L- STA 10+42.00 to 10+52.00
-L- STA 13+57.42 to 13+67.42
-L- STA 14+75.42 to 14+85.42



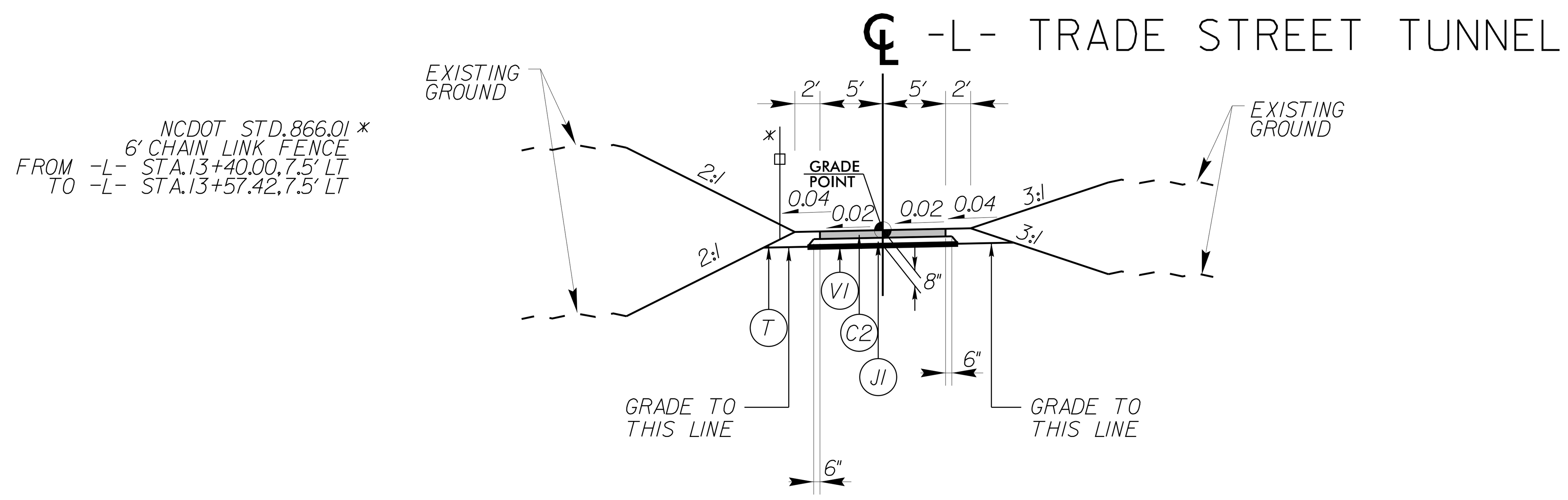
TYPICAL SECTION NO. 2

-L- STA 10+52.00 to 10+64.00
-L- STA 11+25.00 to 12+45.00
-L- STA 14+85.42 to 18+30.00



TYPICAL SECTION NO. 3

-L- STA 13+67.42 to 14+75.42



TYPICAL SECTION NO. 4

-L- STA 10+64.00 TO 11+25.00
-L- STA 12+45.00 TO 12+85.00
-L- STA 13+40.00 TO 13+57.42

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

A1	10" REINFORCED CONCRETE GREENWAY WITH FIBER
C1	PROPOSED APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN ONE LIFT
C2	PROPOSED APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
J1	PROPOSED 6" AGGREGATE BASE COURSE
T	EARTH MATERIAL
V1	PROPOSED BIXIAL GEOGRID
Z1	PROPOSED RETAINING WALL

NOTES:
1. SEE PLAN SHEET 4 FOR RETAINING WALL LOCATION AND SHEET 2B-1 FOR RETAINING WALL DETAILS.
2. PAVEMENT EDGE SLOPES 1:1 UNLESS OTHERWISE INDICATED

4/8/2022

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	2A-2
RW SHEET NO.	

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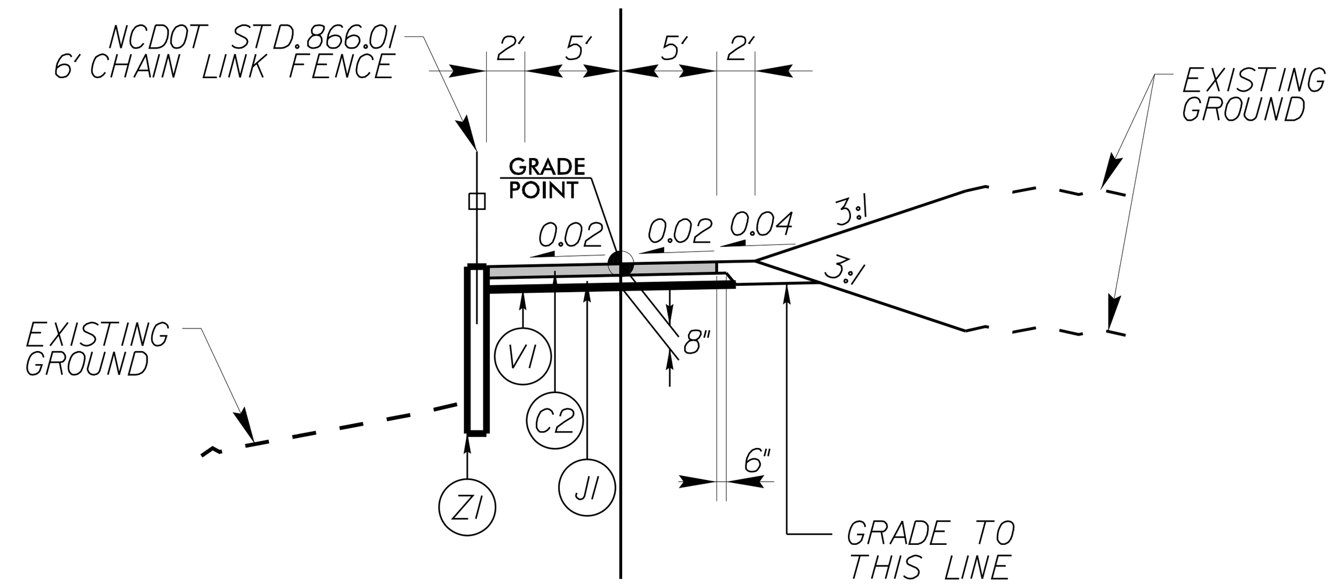
CHARLOTTE, N.C. 28202

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031788 ENGINEER BENJAMIN S. TAYLOR	NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER
4/8/2022	4/8/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS

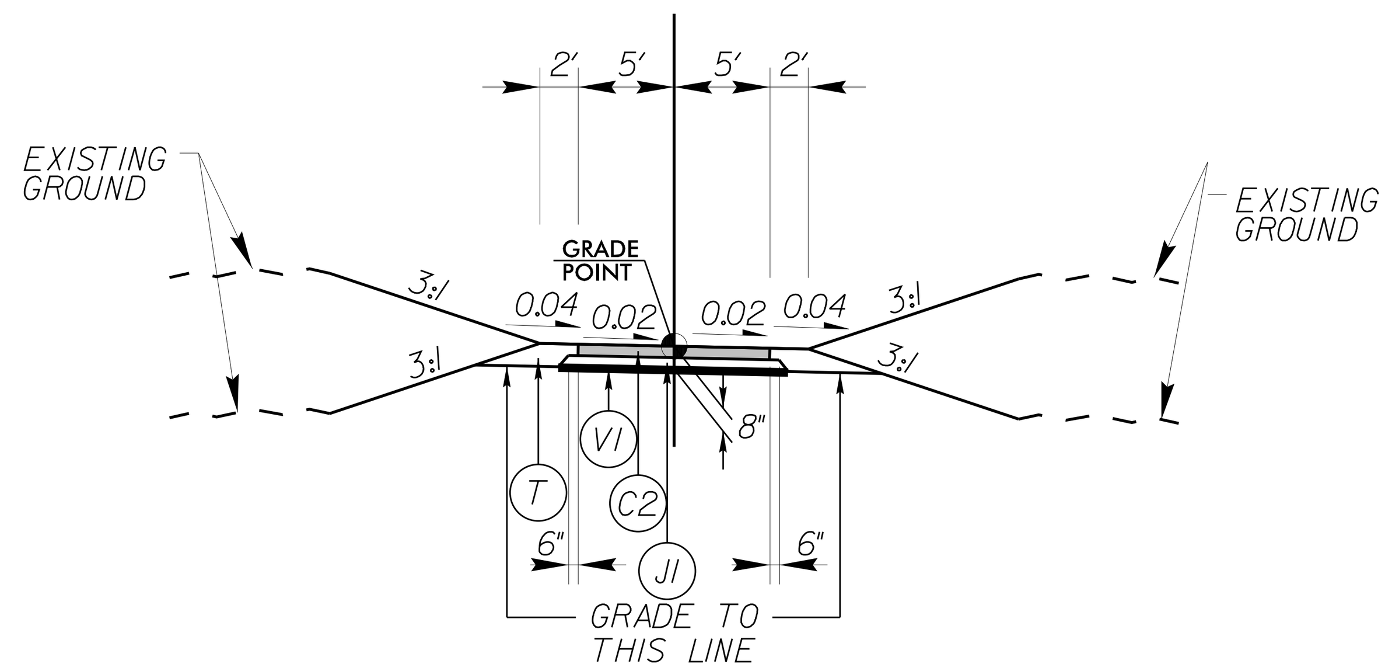
℄ -L- TRADE STREET TUNNEL



TYPICAL SECTION NO. 4A

-L- STA 12+85.00 TO 13+40.00

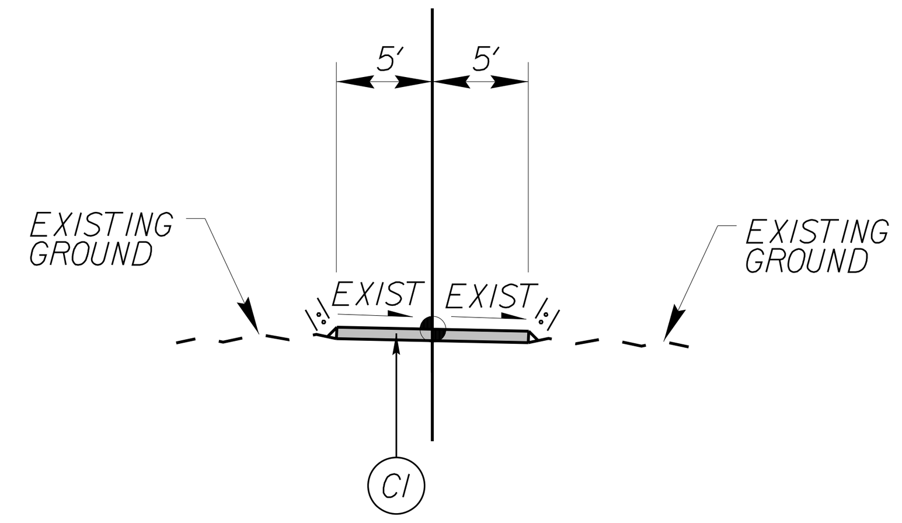
℄ -Y1- FOUR MILE CREEK GREENWAY



TYPICAL SECTION NO. 5

-Y1- STA 20+05.00 TO 20+52.00

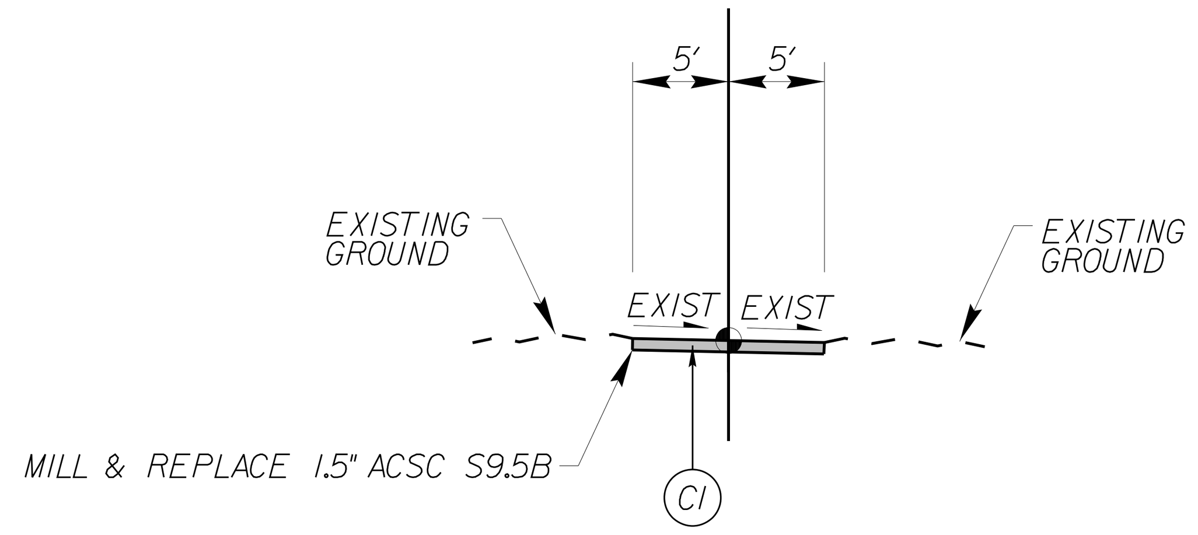
℄ -Y1- FOUR MILE CREEK GREENWAY



TYPICAL SECTION NO. 6

-Y1- STA 20+52.00 TO 21+88.00

℄ -Y1- FOUR MILE CREEK GREENWAY



TYPICAL SECTION NO. 6

-Y1- STA 21+88.00 TO 21+93.36

PAVEMENT SCHEDULE
(FINAL PAVEMENT DESIGN)

A1	10" REINFORCED CONCRETE GREENWAY WITH FIBER
C1	PROPOSED APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ.YD. IN ONE LIFT
C2	PROPOSED APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ.YD. IN EACH OF TWO LAYERS.
J1	PROPOSED 6" AGGREGATE BASE COURSE
T	EARTH MATERIAL
V1	PROPOSED BIXIAL GEOGRID
Z1	PROPOSED RETAINING WALL

NOTES:
1. SEE PLAN SHEET 4 FOR RETAINING WALL LOCATION AND SHEET 2B-1 FOR RETAINING WALL DETAILS.
2. PAVEMENT EDGE SLOPES 1:1 UNLESS OTHERWISE INDICATED

4/8/2022

5/14/99

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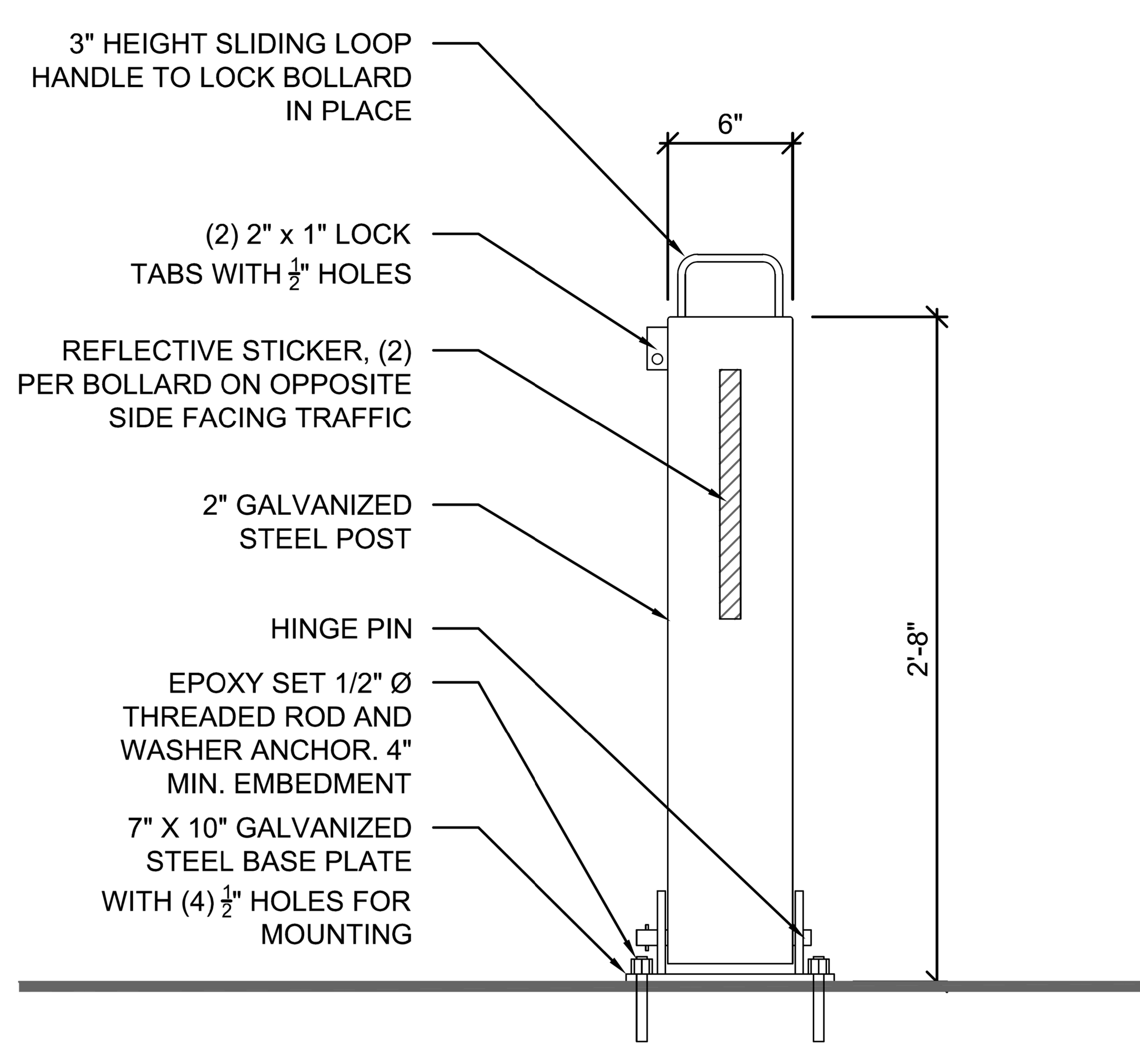
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

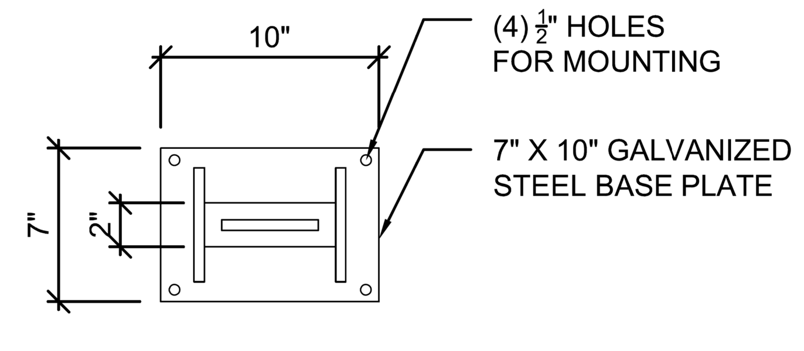
PROJECT REFERENCE NO.	SHEET NO.
EB-5829	2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 031788 — 4/8/2022	SEAL 032615 — 4/8/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS



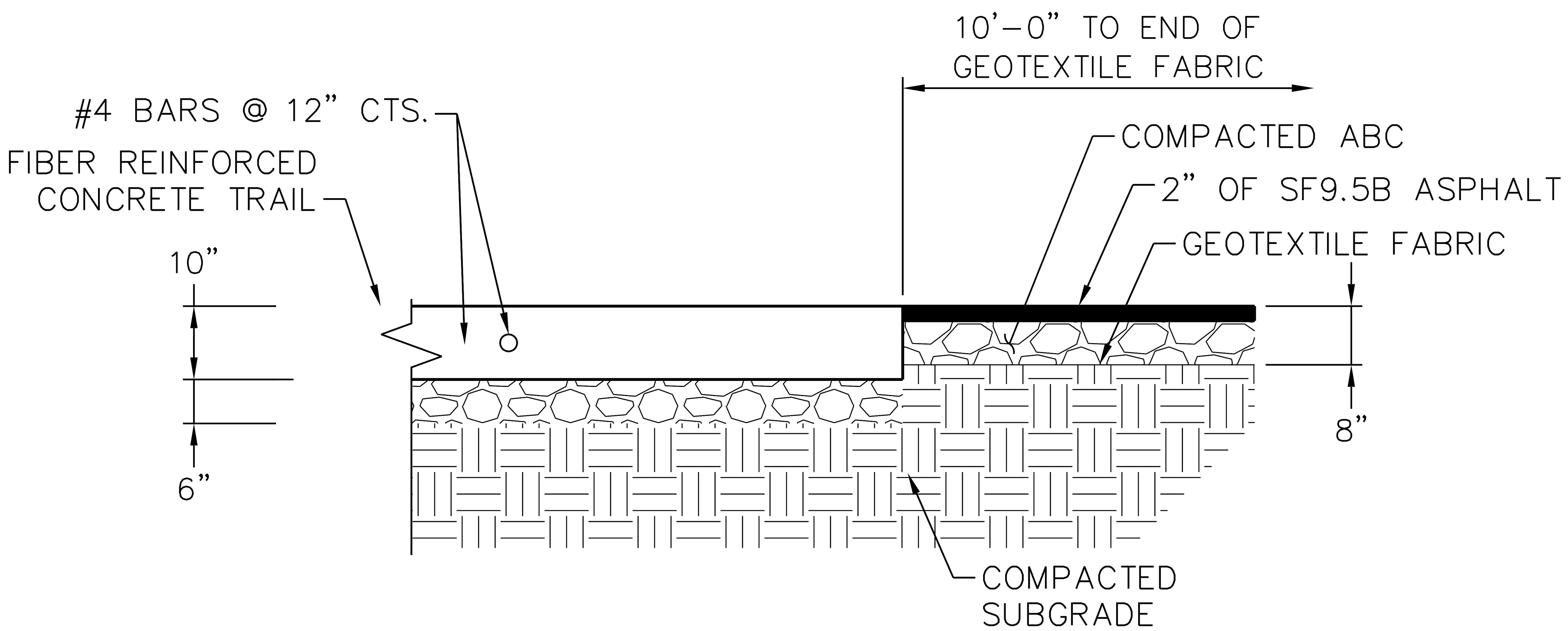
Bollard Elevation



Mounting Plate Plan

Notes:
1. Provide 12"x12"x12" min. concrete footing if placing bollard in asphalt pavement.
2. Provide thickened slab, 6" min. thickness, if placing bollard in light duty 4" concrete pavement.
3. Mount directly into concrete pavement of 6" or greater thickness.

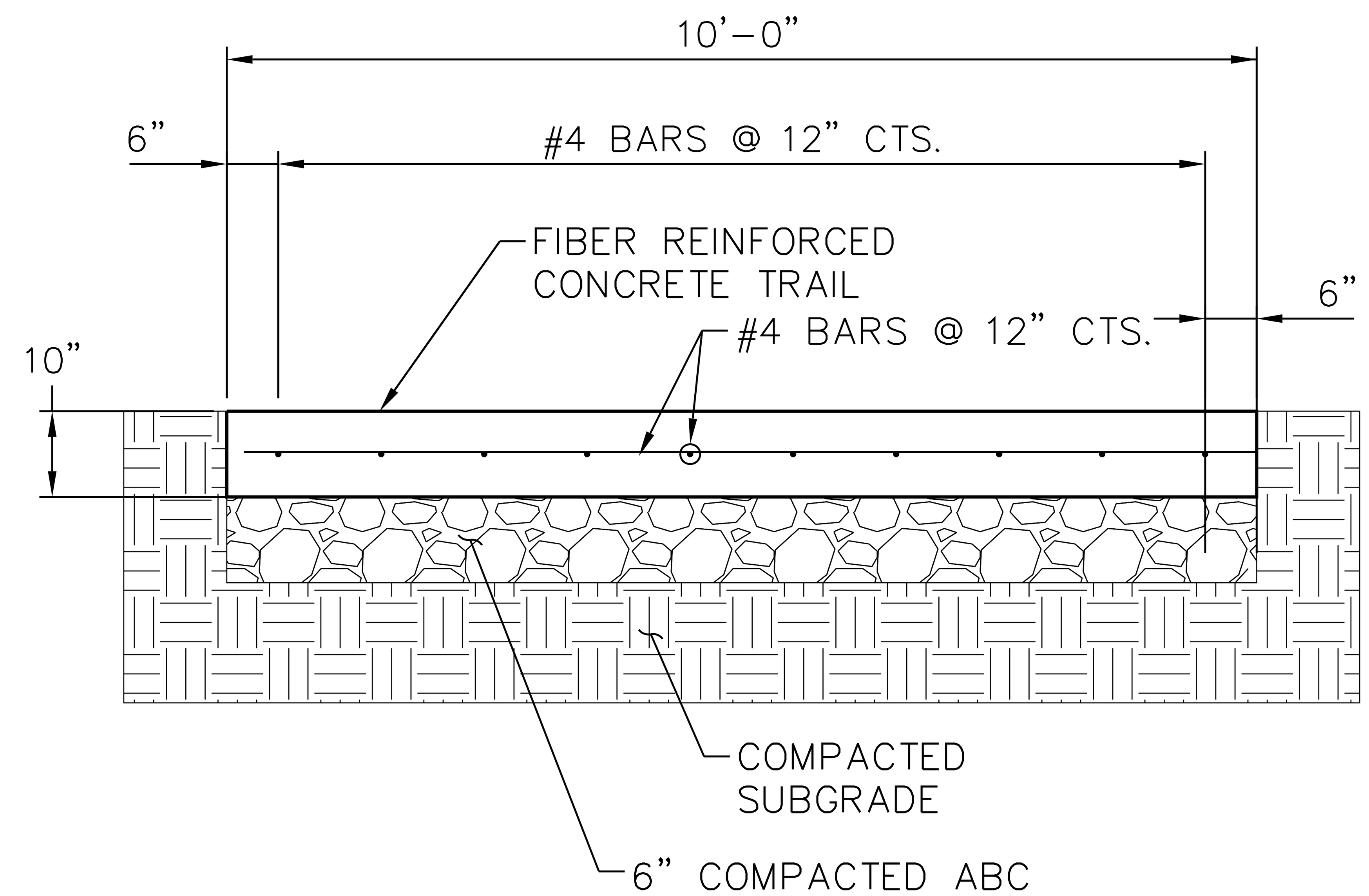
REVISIONS	MECKLENBURG COUNTY ASSET & FACILITY MANAGEMENT and PARK AND RECREATION DEPARTMENTS	JOB NO.
		Design Guideline 10.07P
	COLLAPSIBLE STEEL BOLLARD	SHEET 1
	DATE: August, 2018 SCALE: NTS	OF 1



ASPHALT / CONCRETE CONNECTION DETAIL

NTS

NOTE: GEOTEXTILE TO EXTEND FULL WIDTH OF TRANSITION



CONCRETE GREENWAY DETAIL

NTS

5/14/99

4/8/2022

5/14/99

REVISIONS

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CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	3B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 031788 ENGINEER BENJAMIN T. MILLER

4/8/2022

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JONATHAN A. JONES

4/8/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+20%	BORROW	WASTE
–L– STA 10+42.00 TO STA 18+30.00	70	0	2942	2872	0
–Y1– STA 20+05.00 TO STA 20+52.00	7	0	41	34	0
PROJECT TOTALS	77	0	2983	2906	0
GRAND TOTALS	77	0		2906	
TOPSOIL 5%				145	
SAY	100	0		3400	

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
–L–	STA 17+90.00	STA 18+30.00	RT	50
–Y1–	STA 20+10.00	STA 20+52.00	LT	50
SUBTOTAL:				100
TEMPORARY WEDGING FROM WZTC:				50
TOTAL:				150
SAY:				200

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."

4/8/2022

5/14/99

REVISIONS

4/11/2022

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

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	3D-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LL2951

COMPUTED BY: DJB DATE: 3/16/22

CHECKED BY: JDL DATE: 3/16/22

PROJECT NO.	SHEET NO.
EB-5829	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	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE	Drainage Pipe THICKNESS OR GAUGE	C. S. PIPE SIZE	C. S. PIPE THICKNESS OR GAUGE	R. C. PIPE CLASS III	R. C. PIPE CLASS IV	R. C. PIPE CLASS V	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 300.01, 300.11 (UNLESS NOTED OTHERWISE) CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) A: 0' THRU 5' LIN. FT.	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	D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	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. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	8' X 6' OUTLET CONTROL STRUCTURE STD. 840.14	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	ADJUST C.B.	ADJUST D.I.	ADJUST M.H.	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
-L- 13+26	26 RT	0403		633.8																1																					REMOVE EX JB W/MH. TIE PROP JB W/MH TO EX 15" RCP
		0403	0404		629.3	627.9		20																																	
-L- 13+00	14 RT	0404		630.0																1								1													
		0404	0405		627.2	626.8							38																												
-L- 17+64	9 LT	0411		626.7																1	3.1																			TIE PROP JB W/MH TO EX 24" RCP
		0411	0412		618.8	618.4											24																							
-L- 17+40	0 CL	0415	0416		622.0	618.4											64																							
-L- 13+14	8 RT																																						40	REMOVE EX JB AND EX 15" CMP
-L- 17+63	11 LT																																						10	REMOVE EX FLARED END SECTION
SHEET TOTALS								20					38	88						3	3.1							1						2	2				50	
PROJECT TOTALS								20					38	88						3	3.1							1						2	2				50	

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

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	4

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

RW SHEET NO.

ROADWAY DESIGN ENGINEER — SEAL 031788 — 4/8/2022
HYDRAULICS ENGINEER — SEAL 032615 — 4/8/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

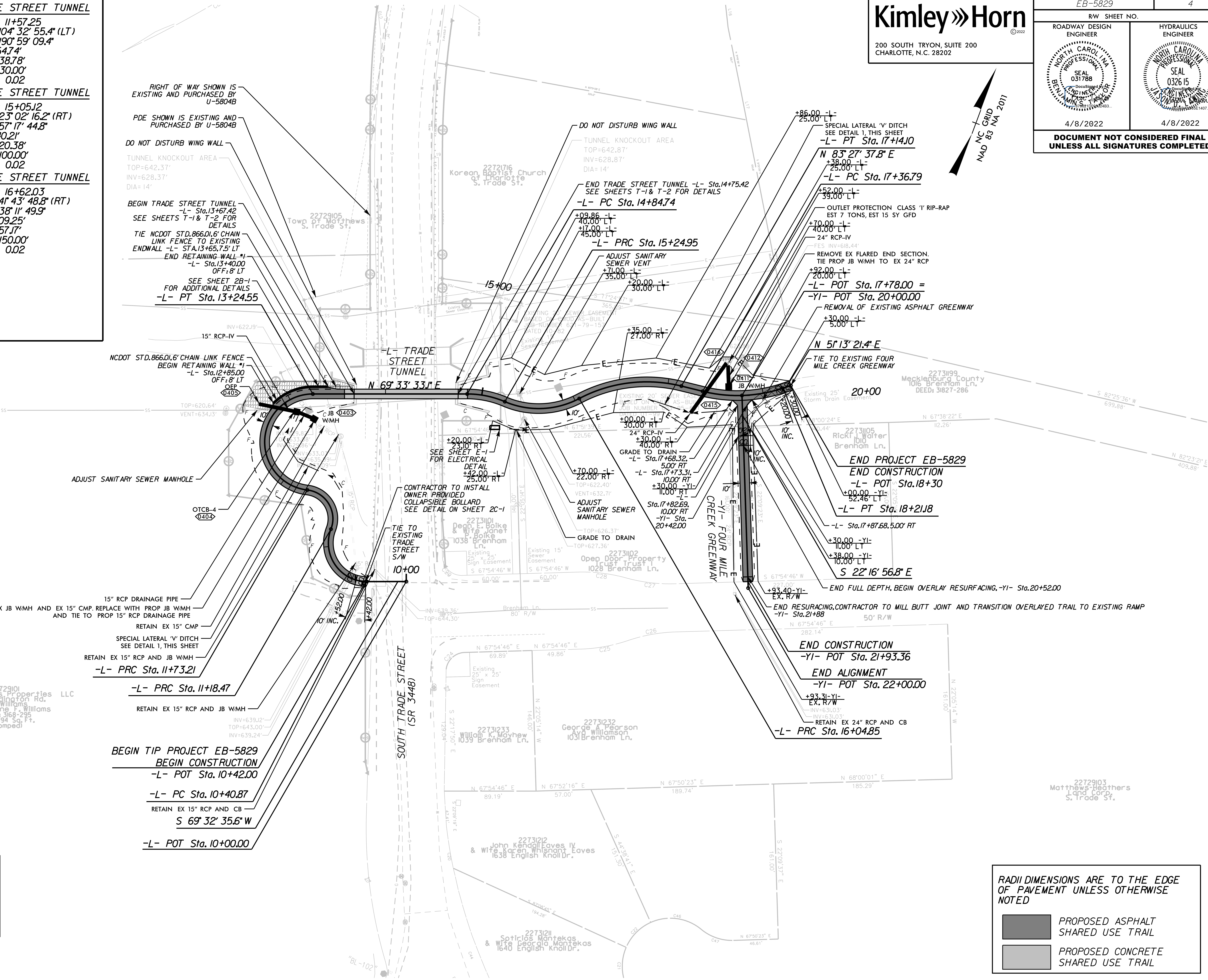
FOR -L- & -Y1- PROFILES, SEE SHEET 5

-L- TRADE STREET TUNNEL	-L- TRADE STREET TUNNEL
PI Sta 10+99.24	PI Sta 11+57.25
Δ = 111° 09' 07.4" (RT)	Δ = 104° 32' 55.4" (LT)
D = 143° 14' 22.0"	D = 190° 59' 09.4"
L = 77.60'	L = 54.74'
T = 58.37'	T = 38.78'
R = 40.00'	R = 30.00'
SE = 0.02	SE = 0.02

-L- TRADE STREET TUNNEL	-L- TRADE STREET TUNNEL
PI Sta 12+48.88	PI Sta 15+05.12
Δ = 17° 24' 45.5" (RT)	Δ = 23° 02' 16.2" (RT)
D = 114° 35' 29.6"	D = 57° 17' 44.8"
L = 151.33'	L = 40.21'
T = 868.82'	T = 20.38'
R = 50.00'	R = 100.00'
SE = 0.02	SE = 0.02

-L- TRADE STREET TUNNEL	-L- TRADE STREET TUNNEL
PI Sta 15+67.75	PI Sta 16+62.03
Δ = 50° 52' 00.3" (LT)	Δ = 41° 43' 48.8" (RT)
D = 63° 39' 43.1"	D = 38° 11' 49.9"
L = 79.90'	L = 109.25'
T = 42.80'	T = 57.17'
R = 90.00'	R = 150.00'
SE = 0.02	SE = 0.02

-L- TRADE STREET TUNNEL
PI Sta 17+80.13
Δ = 32° 14' 16.4" (LT)
D = 38° 11' 49.9"
L = 84.40'
T = 43.35'
R = 150.00'
SE = 0.02

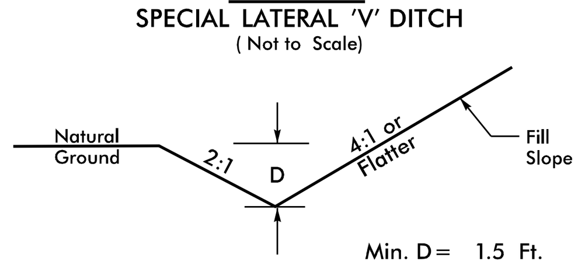


RADII DIMENSIONS ARE TO THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED

PROPOSED ASPHALT SHARED USE TRAIL

PROPOSED CONCRETE SHARED USE TRAIL

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 11+50 TO STA. 13+00 -L- (RT)
FROM STA. 16+80 TO STA. 17+30 -L- (RT)

REVISIONS

4/8/2022

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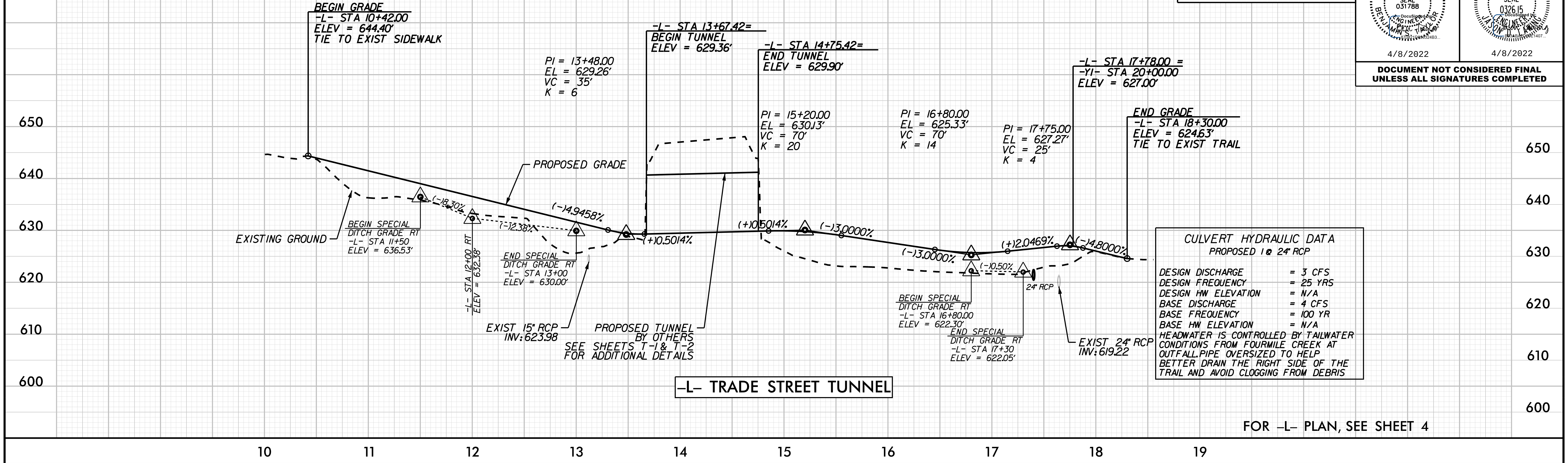
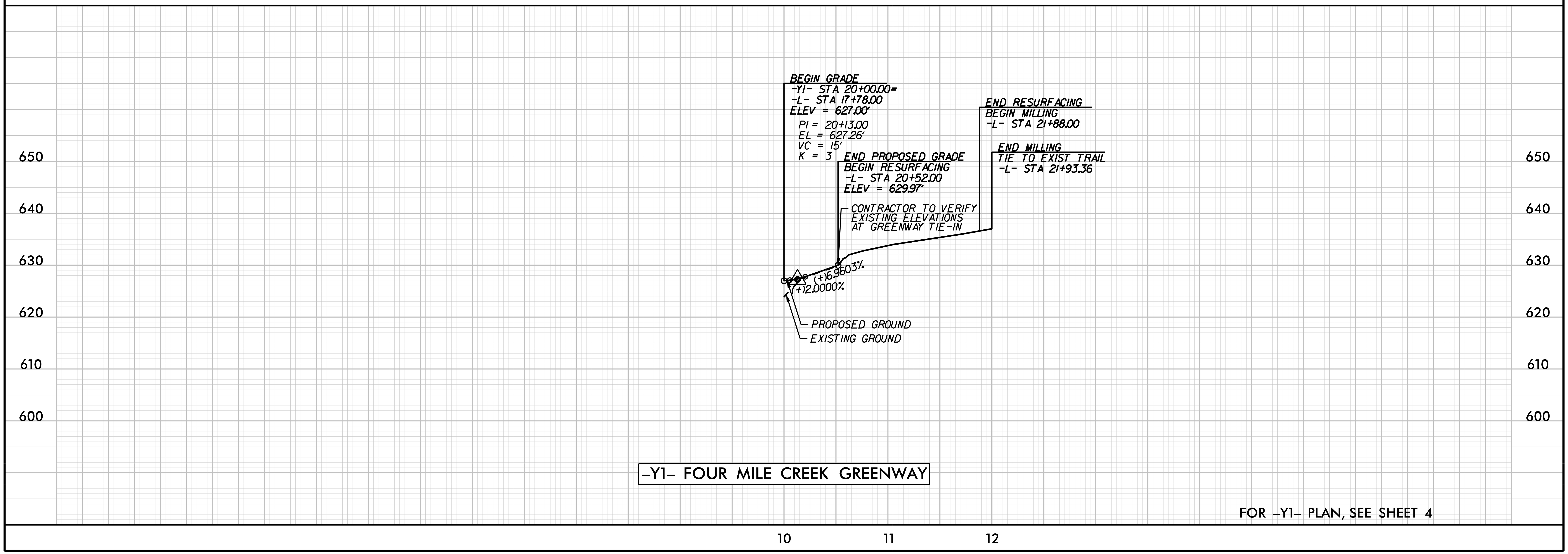
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031788 ENGINEER BENJAMIN S. TAYLOR 4/8/2022	NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER 4/8/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

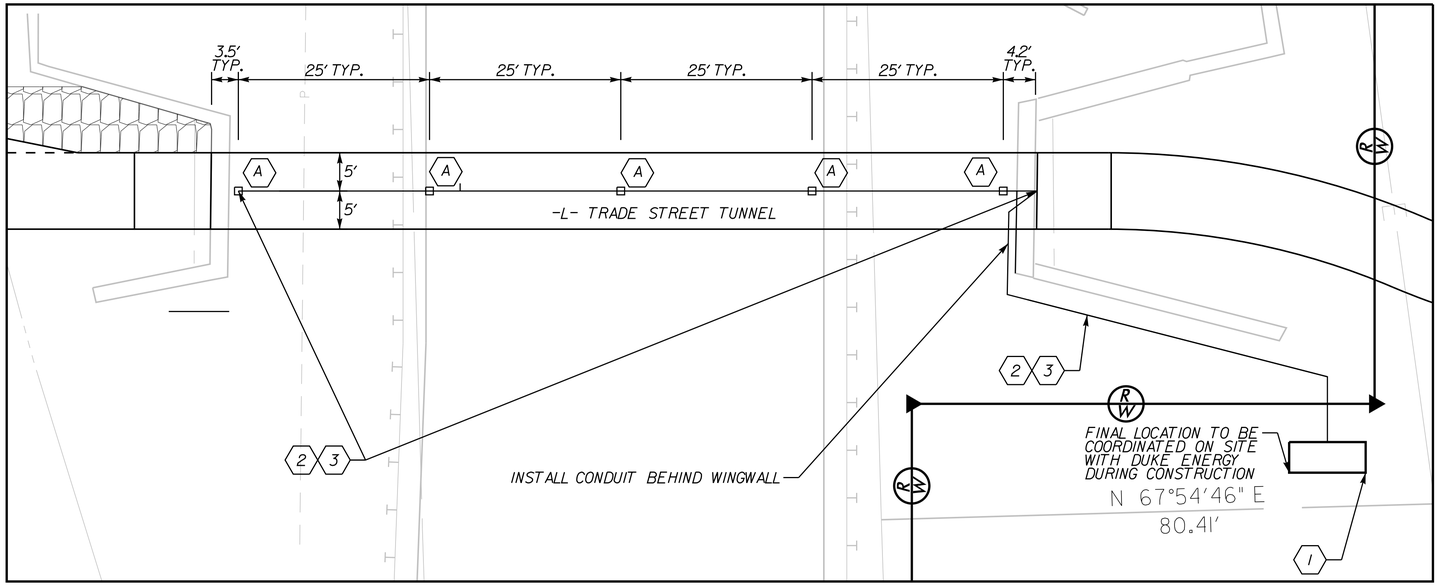

BEGIN GRADE
-L- STA 10+42.00
ELEV = 644.40'
TIE TO EXIST SIDEWALK
-L- STA 13+67.42=
BEGIN TUNNEL
ELEV = 629.36'
-L- STA 14+75.42=
END TUNNEL
ELEV = 629.90'
PI = 13+48.00
EL = 629.26'
VC = 35'
K = 6
PI = 15+20.00
EL = 630.13'
VC = 70'
K = 20
PI = 16+80.00
EL = 625.33'
VC = 70'
K = 14
PI = 17+75.00
EL = 627.27'
VC = 25'
K = 4
-L- STA 17+78.00 =
-Y1- STA 20+00.00
ELEV = 627.00'
END GRADE
-L- STA 18+30.00
ELEV = 624.63'
TIE TO EXIST TRAIL
PROPOSED GRADE
EXISTING GROUND
BEGIN SPECIAL
DITCH GRADE RT
-L- STA 11+50
ELEV = 636.53'
-L- STA 12+00 RT
ELEV = 632.38'
END SPECIAL
DITCH GRADE RT
-L- STA 13+00
ELEV = 630.00'
(-)18.30%
(-)2.38%
(-)4.9458%
(+)0.5014%
(+)0.5014%
(-)3.0000%
(-)3.0000%
(+)2.0469%
(-)4.8000%
(-)0.50%
24" RCP
EXIST 15" RCP
INV: 623.98
PROPOSED TUNNEL
BY OTHERS
SEE SHEETS T-1 & T-2
FOR ADDITIONAL DETAILS
BEGIN SPECIAL
DITCH GRADE RT
-L- STA 16+80.00
ELEV = 622.30'
END SPECIAL
DITCH GRADE RT
-L- STA 17+30
ELEV = 622.05'
EXIST 24" RCP
INV: 619.22
CULVERT HYDRAULIC DATA
PROPOSED 1 @ 24" RCP
DESIGN DISCHARGE = 3 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = N/A
BASE DISCHARGE = 4 CFS
BASE FREQUENCY = 100 YR
BASE HW ELEVATION = N/A
HEADWATER IS CONTROLLED BY TAILWATER CONDITIONS FROM FOURMILE CREEK AT OUTFALL.PIPE OVERSIZED TO HELP BETTER DRAIN THE RIGHT SIDE OF THE TRAIL AND AVOID CLOGGING FROM DEBRIS
650
640
630
620
610
600
-L- TRADE STREET TUNNEL
FOR -L- PLAN, SEE SHEET 4
10
11
12
13
14
15
16
17
18
19


BEGIN GRADE
-Y1- STA 20+00.00=
-L- STA 17+78.00
ELEV = 627.00'
PI = 20+13.00
EL = 627.26'
VC = 15'
K = 3
END PROPOSED GRADE
BEGIN RESURFACING
-L- STA 20+52.00
ELEV = 629.97'
END RESURFACING
BEGIN MILLING
-L- STA 21+88.00
END MILLING
TIE TO EXIST TRAIL
-L- STA 21+93.36
CONTRACTOR TO VERIFY
EXISTING ELEVATIONS
AT GREENWAY TIE-IN
(+)16.9603%
(+)2.0000%
PROPOSED GROUND
EXISTING GROUND
650
640
630
620
610
600
-Y1- FOUR MILE CREEK GREENWAY
FOR -Y1- PLAN, SEE SHEET 4
10
11
12

4/8/2022

5/14/99

REVISIONS



TUNNEL LIGHTING PLAN

SCALE: 1" = 10'

KEY NOTES:

1. COUNTY TO PROVIDE COMBINATION PANEL, DISCONNECT, INCLUDING INSTALL OF CONCRETE BASE & CONDUIT (AT PANEL BASE). NCDOT CONTRACTOR RESPONSIBLE FOR PROVIDING & INSTALLING GROUNDING RODS AND GROUNDING WIRE PER NEC.
2. CONDUIT SIZE: 3/4" RIGID
3. CONDUCTOR SIZE: 2-12 AWG, 1-12 AWG GROUND
A. LED LIGHT FIXTURE

4/14/2022

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

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	E-1
RW SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 031788 ENGINEER BENJAMIN T. MAY	NORTH CAROLINA PROFESSIONAL SEAL 032615 ENGINEER JOSHUA M. ...
4/14/22	4/14/22

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE, STATE BUILDING CODES AND THE LOCAL BUILDING CODES. ALL COMPONENTS SHALL BE UL LISTED.

2. THE CONTRACTOR SHALL INTERCONNECT THE LIGHTING BRANCH CIRCUIT INTO THE COMBINATION SERVICE AND DISCONNECT PALNE PROVIDED BY OTHER.

3. PROVIDE ADDITIONAL SUPPORT FOR DEVICES, FIXTURES, EQUIPMENT, AND FEEDERS WHERE THE CONSTRUCTION IS NOT SUITABLE FOR DIRECT MOUNTING.

4. VERIFY CEILING SYSTEMS AND PROVIDE MOUNTING ACCESSORIES, TRIMS AND ALL REQUIRED MOUNTING HARDWARE TO SUIT THE PARTICULAR INSTALLATION.

5. BRANCH CIRCUIT CONDUCTORS SHALL BE 12 AWG MINIMUM.

6. BRANCH CIRCUIT CONDUCTORS SHAL BE COPPER.

7. ALL WIRE TERMINATIONS SHALL BE RATED FOR AT LEAST 75 DEGREES C.

8. ALL FEEDERS AND CIRCUITRY SHALL BE TORQUED PER THE PANEL.

9. BREAKERS AND PARTICULAR EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

10. MANUFACTURER'S NAME AND MODEL NUMBER ARE GIVEN FOR DESCRIPTIVE PURPOSES, TO INDICATE A QUALITY STANDARD, AND ARE NOT INTENDED TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DEEMED EQUAL AND APPROVED BY THE DEPARTMENT WILL BE ACCEPTED.

11. FOR ANY METAL CONDUIT ENTERING AN ENCLOSURE WHERE A PRE-PUNCHED CONCENTRIC OR ECCENTRIC KNOCKOUT IS USED, THE CONTRACTOR SHALL ENSURE ADEQUATE BONDING BETWEEN THE METAL CONDUIT AND ENCLOSURE BY INSTALLING A BONDING JUMPER AROUND THE CONCENTRIC OR ECCENTRIC KNOCKOUT.

12. CIRCUITRY TO SWITCHES, RECEPTACLES AND ALL OTHER DEVICES SHALL BE TERMINATED ON THE DEVICES SCREW TERMINALS.

13. COORDINATE ANY AND ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION SO AS TO AVOID CONFLICT DURING CONSTRUCTION.

14. PROTECT EXISTING UNDERGROUND UTILITIES DURING CONSTRUCTION.

15. ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE LABEL LISTED BY AN APPROVED THIRD PARTY TESTING AGENCY.

16. ALL CONDUIT SHALL BE A MINIMUM OF 36 INCHES BELOW GRADE WHERE ROUTED UNDERGROUND.

17. INSTALL RIGID GALVANIZED STEEL (RGS) CONDUIT ABOVE GROUND, AND POLYVINYL CHLORIDE (PVC) SCHEDULE 40 CONDUIT UNDERGROUND.

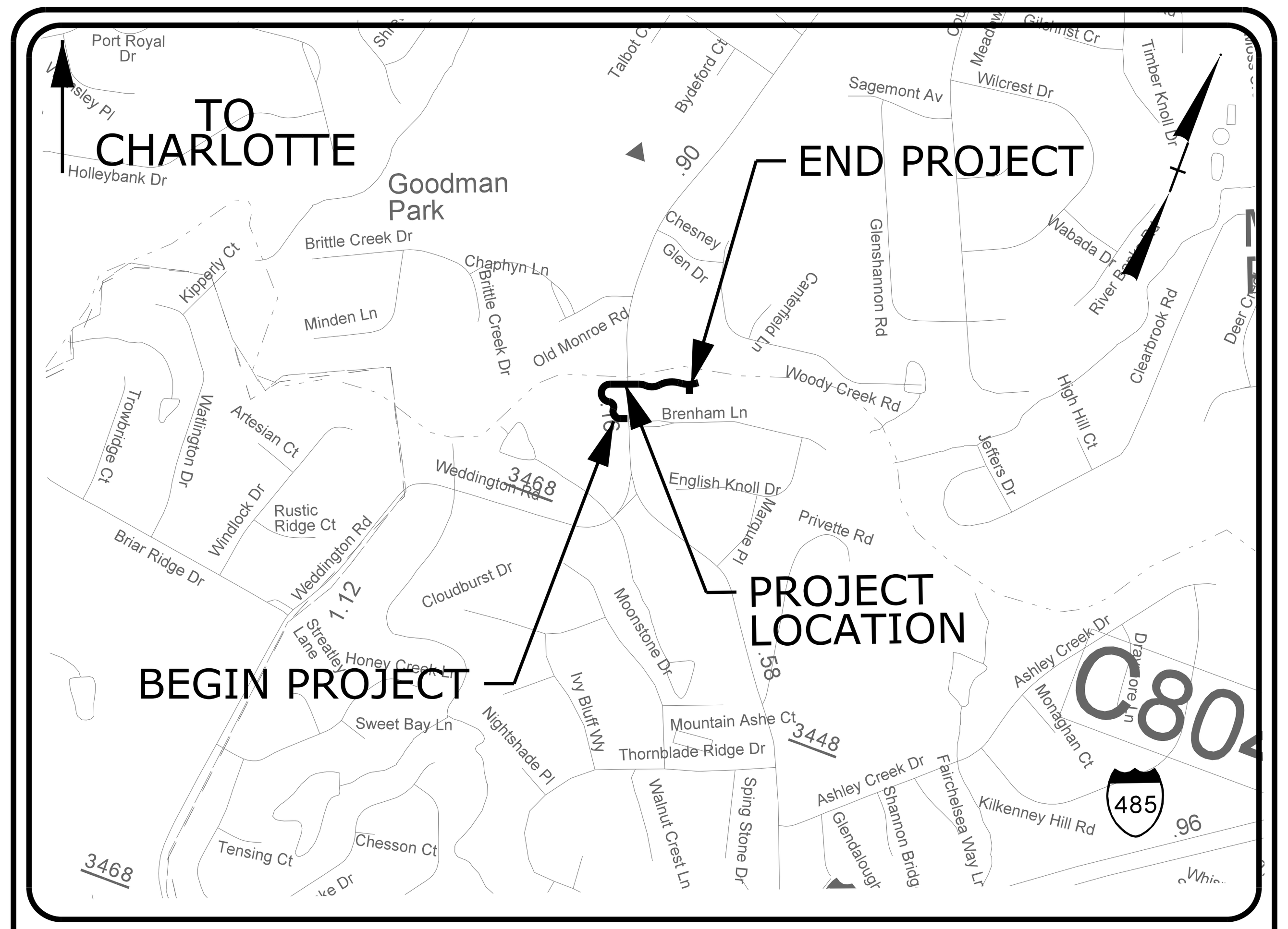
TIP PROJECT: EB-5829

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	EB-5829	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45969.1.1	N/A	PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

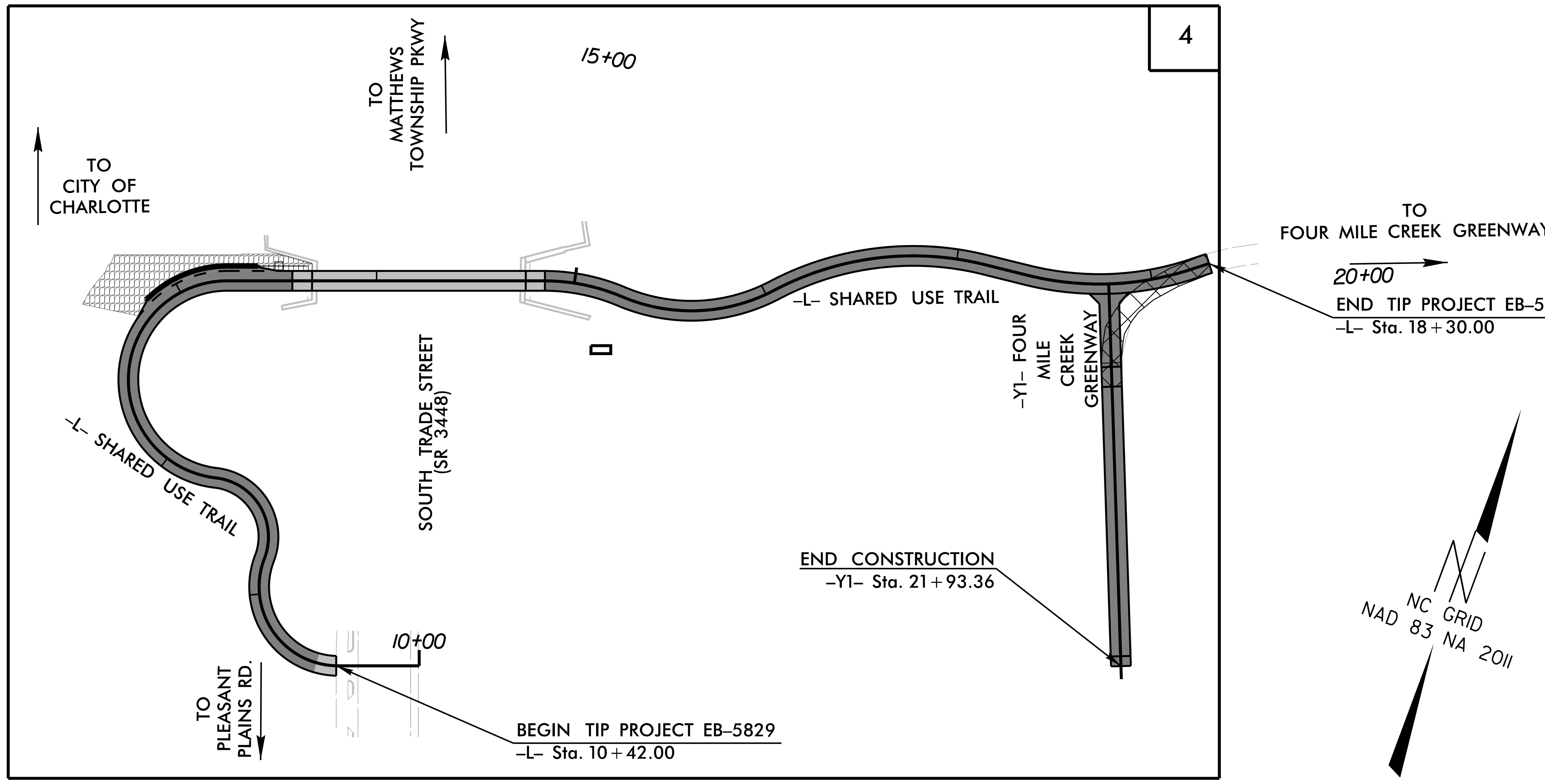
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
MECKLENBURG COUNTY



VICINITY MAP
NOT TO SCALE

LOCATION: *GREENWAY CONNECTION FROM BRENHAM LN. TO FOUR MILE CREEK GREENWAT BY TRADE STREET TUNNEL*

TYPE OF WORK: *GRADING, DRAINAGE, PAVING, & GREENWAY INSTALLATION*



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	CW / 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

50 25 0 50 100
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

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

Prepared in the Office of:
KIMLEY HORN
200 SOUTH TRYON STREET, SUITE 200
CHARLOTTE, NORTH CAROLINA 28202

Designed by:
SPENCER GREEN, P.E. ***#4244***
NAME *LEVEL III CERTIFICATION NO.*

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		

5/14/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	EC-2A

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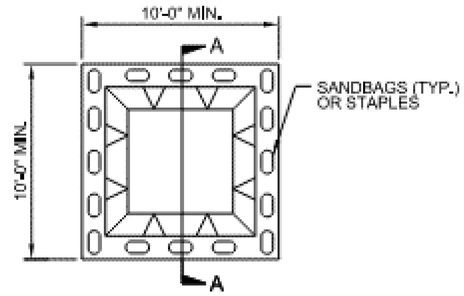
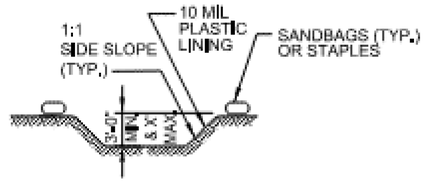
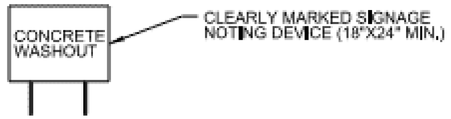
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER







PLAN

SECTION A-A

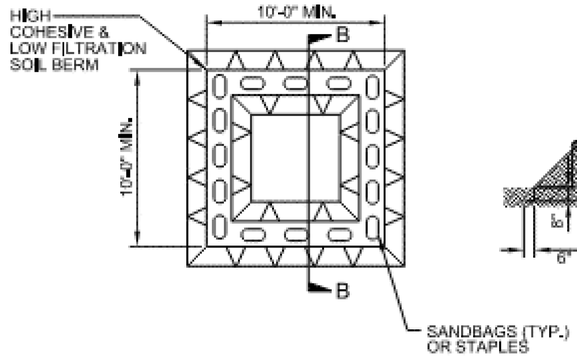
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

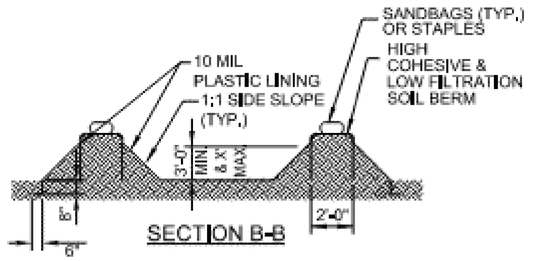
2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

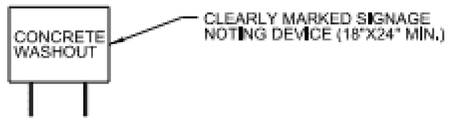
BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE





SECTION B-B



PLAN

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

4/7/2022

COIR FIBER WATTLE DETAIL

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	EC-2B

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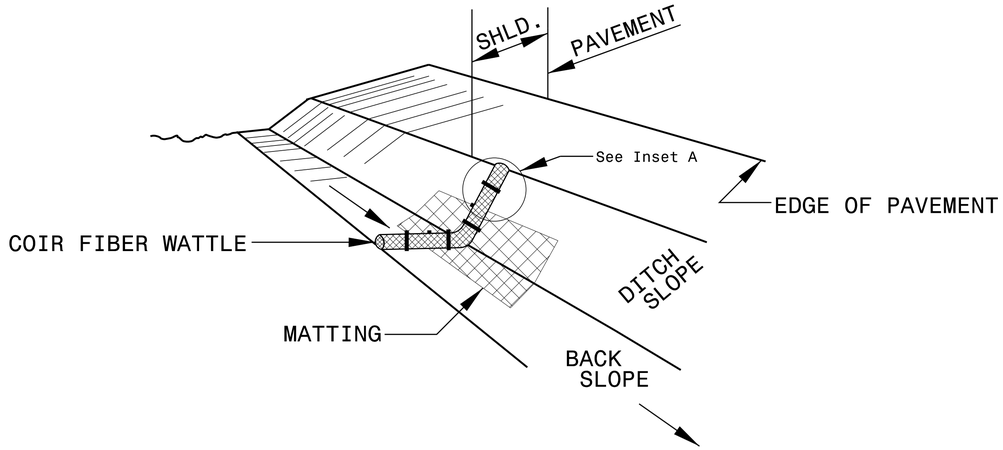
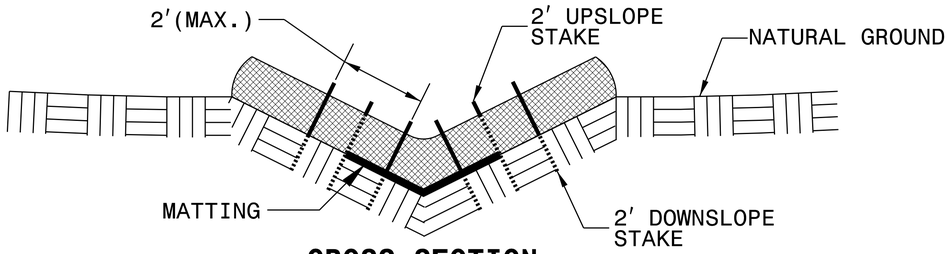
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

REVISIONS

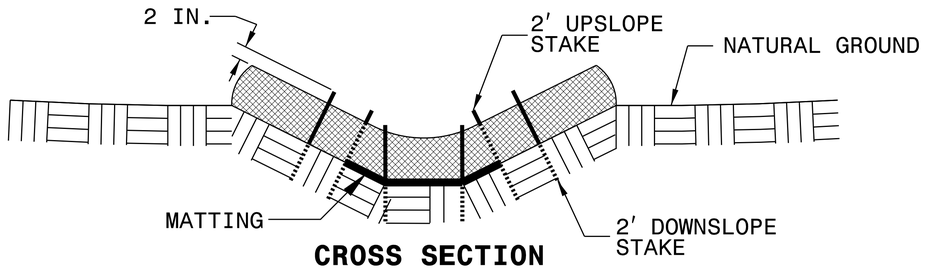
5/14/99



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

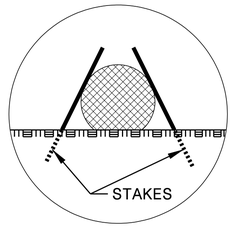
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

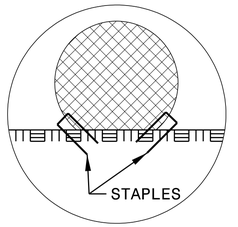
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

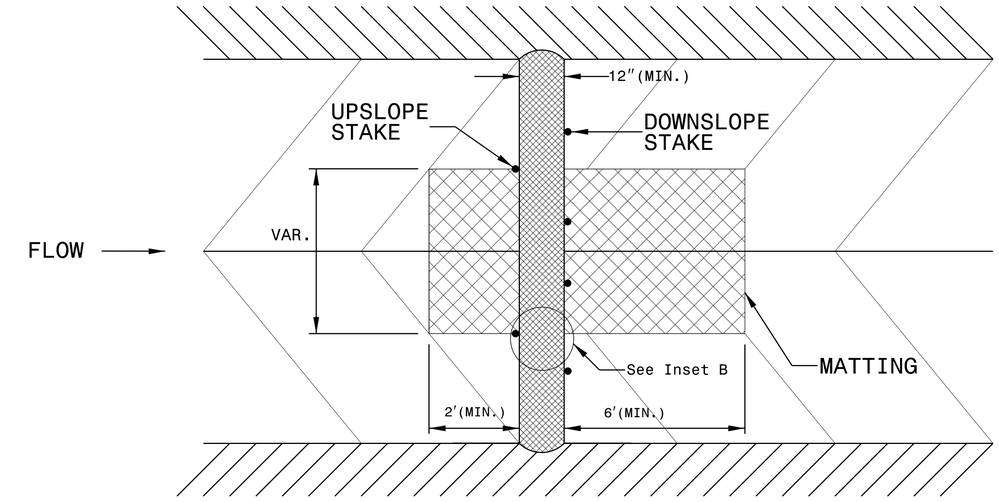
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



INSET A



INSET B



TOP VIEW

4/7/2022

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	EC-2C

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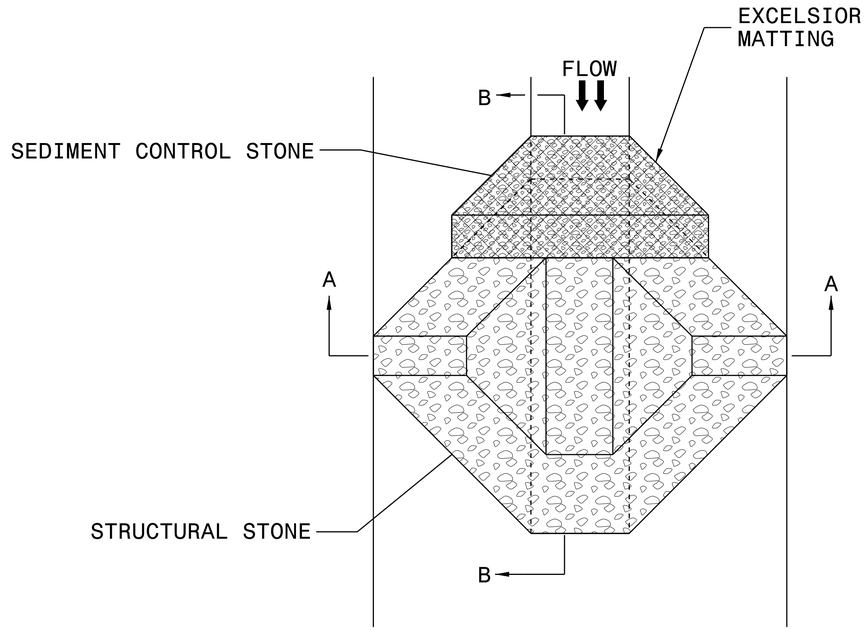
200 SOUTH TRYON, SUITE 200
CHARLOTTE, N.C. 28202

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN

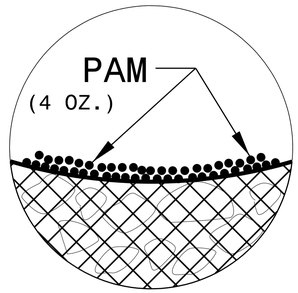
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

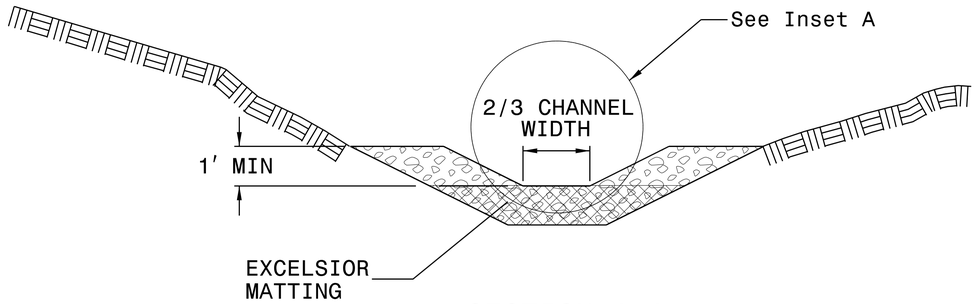
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

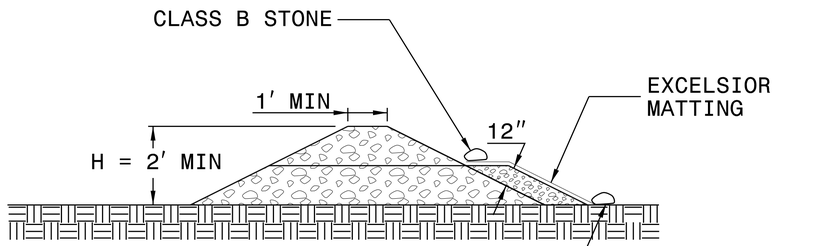
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

REVISIONS

5/14/99

4/7/2022

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

REVISIONS

5/14/99

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
SLOPES:				RIGHT	
4:2	-L-	12+00	13+00	RT	105
4:2	-L-	16+80	17+30	RT	55

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
SLOPES:					
4:2	-L-	11+50	12+00	RT	55

4/7/2022

5/14/99

REVISIONS

E&SC PLANS	PROJECT REFERENCE NO.	SHEET NO.
	EB-5829	EC-3A

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

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.

4/7/2022

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	EC-4/CONST.4

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

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NC GRID
NAD 83 NA 2011

REVISIONS

5/14/99

4/7/2022

-L- TRADE STREET TUNNEL

SOUTH TRADE STREET (SR 3448)

-YI- FOUR MILE CREEK GREENWAY

TUNNEL KNOCKOUT AREA
TOP=642.37'
INV=628.37'
DIA= 14'

TUNNEL KNOCKOUT AREA
TOP=642.87'
INV=628.87'
DIA= 14'

22721716
Korean Baptist Church
of Charlotte
S. Trade St.

22729105
Town of Matthews
S. Trade St.

22729101
Williams Business Properties LLC
1700 Weddington Rd.
R. L. Williams
& Wife Jane F. Williams
DEED: 368-295
+829,894 Sq. Ft.
(Comped)

22729103
Matthews-Heathers
Land Corp.
S. Trade St.

22731101
Dean E. Bolke
& Wife Janet
E. Bolke
1038 Brenham
Ln.

22731102
Open Door Property
Trust I
1028 Brenham Ln.

22731105
Ricki L. Walter
1010
Brenham Ln.

22731199
Mecklenburg County
1016 Brenham Ln.
DEED: 31827-286

22731211
Sotirios Mantekas
& Wife Georgia Mantekas
1640 English Knoll Dr.

22731212
John Kendall Eaves IV
& Wife Karen Whisnant Eaves
1638 English Knoll Dr.

22731232
George A Pearson
a/k/a Williamson
1031 Brenham Ln.

22731233
William K. Mayhew
1039 Brenham Ln.

+86.00 -L- 25.00 LT
+38.00 -L- 25.00 LT
+52.00 -L- 39.00 LT
+09.86 -L- 40.00 LT
+17.00 -L- 45.00 LT
+70.00 -L- 40.00 LT
+71.00 -L- 35.00 LT
+20.00 -L- 30.00 LT
+92.00 -L- 20.00 LT
+30.00 -L- 5.00 LT
+35.00 -L- 27.00 RT
+00.00 -L- 30.00 RT
+20.00 -L- 23.10 RT
+30.00 -L- 40.00 RT
+42.00 -L- 25.00 RT
+70.00 -L- 22.00 RT
+30.00 -YI- 11.00 RT
+00.00 -YI- 52.46 LT
+30.00 -YI- 11.00 LT
+38.00 -YI- 10.00 LT
+93.40 -YI- EX. R/W
+93.31-YI- EX. R/W

50' R/W

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	EC-5/CONST.4

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

REVISIONS
5/14/99

4/7/2022

NAD 83 NC GRID NA 2011

-L- TRADE STREET TUNNEL

SOUTH TRADE STREET (SR 3448)

-YI- FOUR MILE CREEK GREENWAY

15+00

20+00

10+00

TUNNEL KNOCKOUT AREA
TOP=642.37'
INV=628.37'
DIA=14'

TUNNEL KNOCKOUT AREA
TOP=642.87'
INV=628.87'
DIA=14'

22721716
Korean Baptist Church
of Charlotte
S. Trade St.

22729105
Town of Matthews
S. Trade St.

22729101
Williams Business Properties LLC
1700 Weddington Rd.
R.L. Williams
& Wife Jane F. Williams
DEED 368-295
+829,894 SQ. FT.
(Comped)

22729103
Matthews-Heathers
Land Corp.
S. Trade St.

22731101
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& Wife Janet
E. Bolke
1038 Brenham Ln.

22731102
Opep Door Property
Trust Trust 1
1028 Brenham Ln.

22731105
Ricki L. Walter
1010
Brenham Ln.

22731199
Mecklenburg County
1016 Brenham Ln.
DEED 31827-286

22731211
Sotirios Mantekas
& Wife Georgia Mantekas
1640 English Knoll Dr.

22731212
John Kengall Eaves IV
& Wife Karen Whisnant Eaves
1638 English Knoll Dr.

22731232
George A Pearson
AKA Williamson
1031 Brenham Ln.

22731233
William K. Mayhew
1039 Brenham Ln.

15" RCP-IV
INV=622.19'
TOP=620.64'
VENT=634.43'
OEP 0405
JB W/MH 0403
0402
OTCB-4 0404
0401
0400
INV=639.36'
TOP=644.30'
INV=639.12'
TOP=643.00'
INV=639.24'
0416
0412
0411
JB W/MH
0415
0410
INV=631.03'
TOP=644.30'

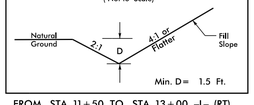
+09.86 -L- 40.00' LT
+17.00 -L- 45.00' LT
+71.00 -L- 35.00' LT
+20.00 -L- 30.00' LT
+35.00 -L- 27.00' RT
+20.00 -L- 23.10' RT
+42.00 -L- 25.00' RT
+70.00 -L- 22.00' RT
+00.00 30.00' RT
24" RCP-IV
+30.00 -L- 40.00' RT
GRADE TO DRAIN
+30.00 -YI- 11.00' RT
GRADE TO DRAIN
+86.00 -L- 25.00' LT
SPECIAL LATERAL 'V' DITCH
SEE DETAIL 1, THIS SHEET
+38.00 -L- 25.00' LT
+52.00 -L- 39.00' LT
OUTLET PROTECTION CLASS 'I' RIP-RAP
EST 7 TONS, EST 15 SY GFD
+70.00 -L- 40.00' LT
24" RCP-IV
FES. INV=618.44'
REMOVE EX FLARED END SECTION.
TIE PROP JB W/MH TO EX 24" RCP
+92.00 -L- 20.00' LT
+30.00 -L- 5.00' LT
+00.00 -YI- 52.46' LT
+30.00 -YI- 11.00' LT
+38.00 -YI- 10.00' LT
+93.40-YI- EX. R/W
+93.31-YI- EX. R/W
RETAIN EX 24" RCP AND CB

15" RCP DRAINAGE PIPE
REMOVE EX JB W/MH AND EX 15" CMP. REPLACE WITH PROP JB W/MH AND TIE TO PROP 15" RCP DRAINAGE PIPE
RETAIN EX 15" CMP
SPECIAL LATERAL 'V' DITCH SEE DETAIL 1, THIS SHEET
RETAIN EX 15" RCP AND JB W/MH
RETAIN EX 15" RCP AND JB W/MH
RETAIN EX 15" RCP AND CB

Existing 20' SEWER EASEMENT LOCATED ON-EMCUMBERS-BUILT PER NUMBER 6279-116 DATED 10-82
Existing 15' Sewer Easement
Existing 25' Storm Drain Easement
Existing 25' x 25' Sign Easement
50' R/W

N 46°51'42" E 35.00'
N 68°33'16" E 641.85'
N 67°51'39" E 221.56'
N 67°38'22" E 112.26'
S 82°25'36" W 639.88'
N 82°23'21" E 409.88'
S 67°54'46" W 60.00'
N 67°54'46" E 282.14'
N 67°54'46" E 69.89'
N 67°54'46" E 49.86'
N 67°54'46" E 89.19'
N 67°52'16" E 57.00'
N 67°50'23" E 189.74'
N 68°00'01" E 185.29'
S 22°05'14" E 129.04'
N 22°05'14" W 146.00'
N 22°05'14" W 161.00'
S 22°09'37" E 161.00'
S 44°38'41" E 15.30'
S 67°50'23" E 194.28'
N 67°50'23" E 46.61'

DETAIL 1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



FROM STA. 11+50 TO STA. 13+00 -L- (RT)
FROM STA. 16+80 TO STA. 17+30 -L- (RT)

PROJ. REFERENCE NO.	SHEET NO.
EB-5829	X-1

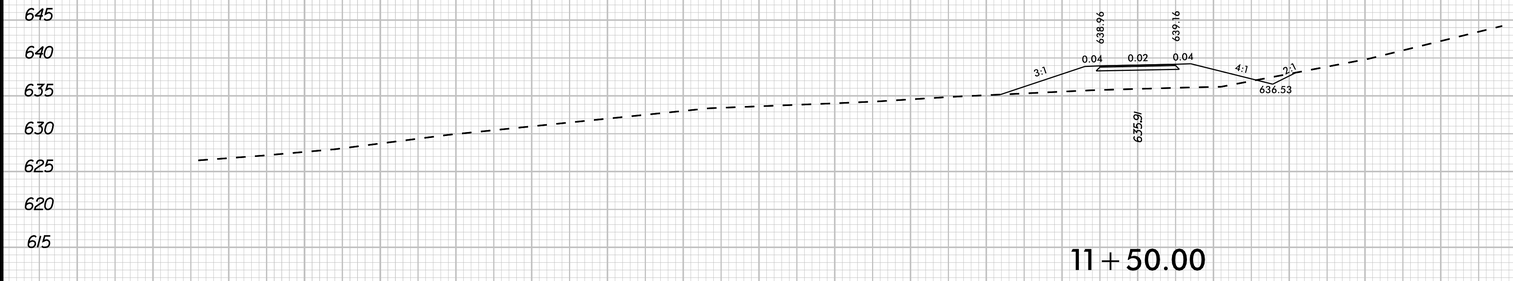
EB–5829
CROSS–SECTION INDEX

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."

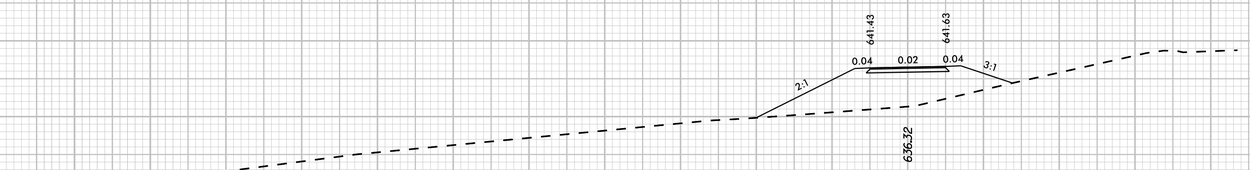
0 5 10

PROJ. REFERENCE NO.	SHEET NO.
EB-5829	X-2

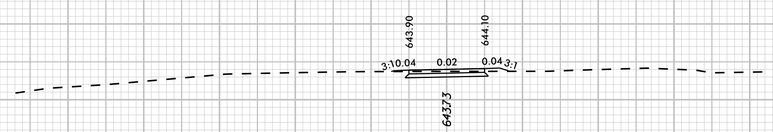
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



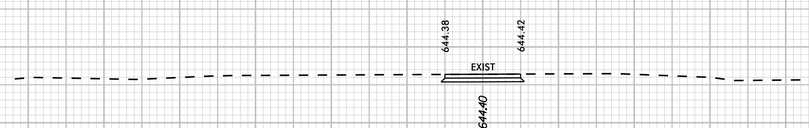
11+50.00



11+00.00



10+50.00



10+42.00

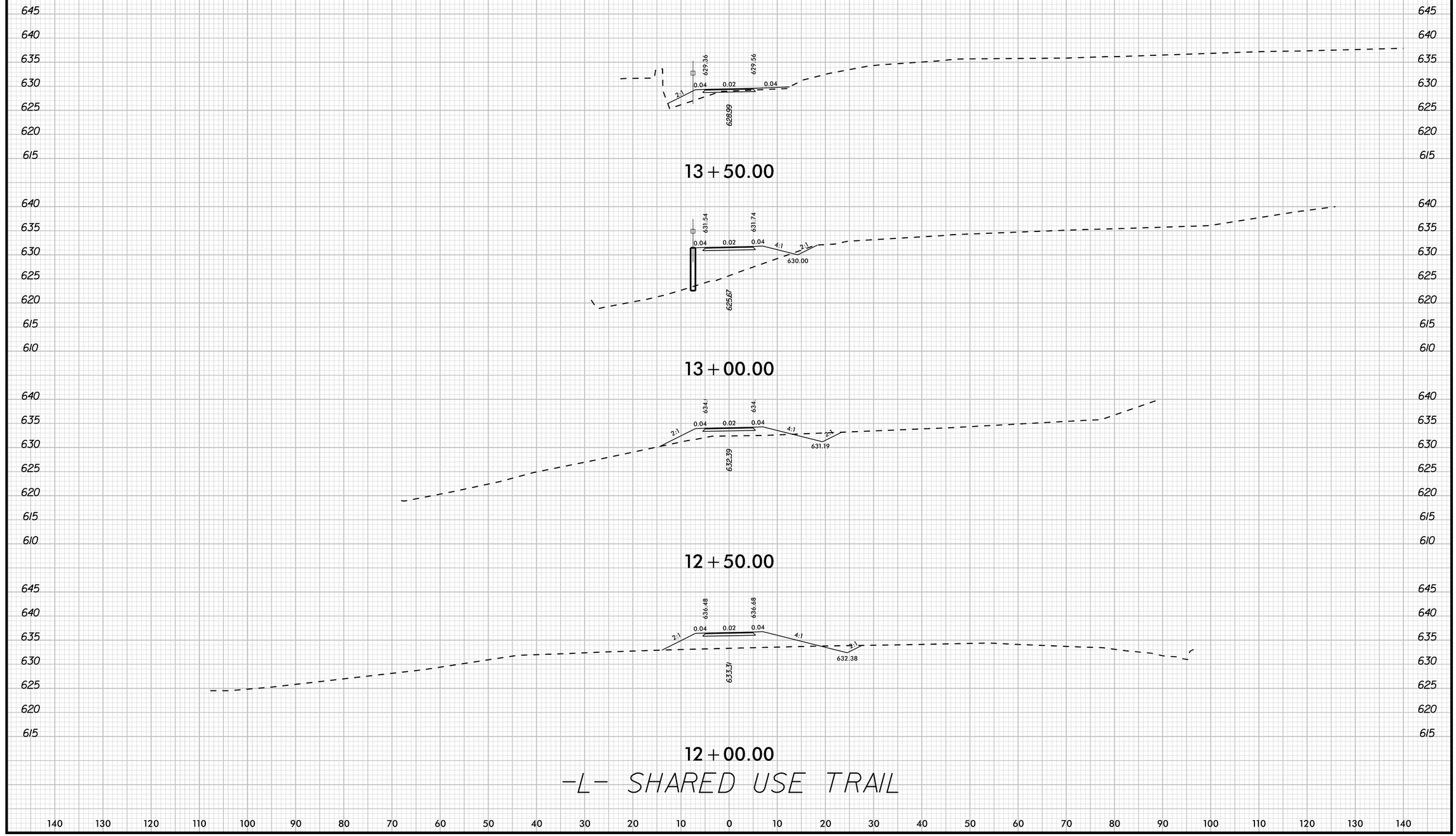
-L- SHARED USE TRAIL

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

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
EB-5829	X-3

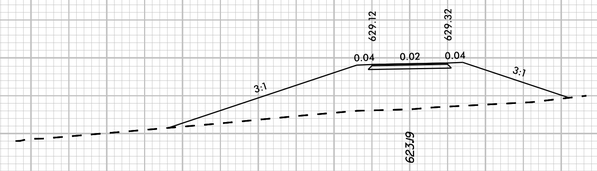
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	EB-5829	X-4

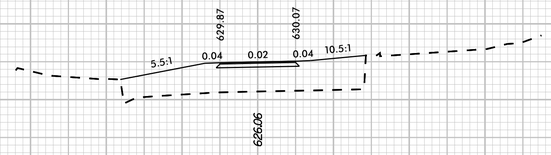
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

640 635 630 625 620 615 610



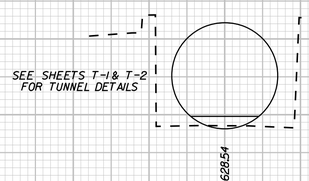
15+50.00

645 640 635 630 625 620 615



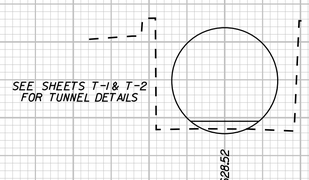
15+00.00

645 640 635 630 625 620



14+50.00

650 645 640 635 630 625 620



14+00.00

-L- SHARED USE TRAIL

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0 5 10

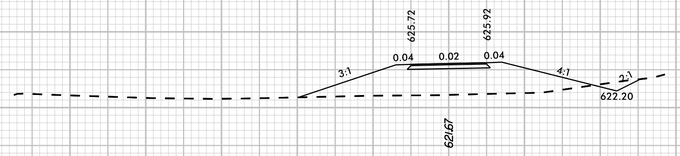
PROJ. REFERENCE NO.	SHEET NO.
EB-5829	X-5

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

635
630
625
620
615
610

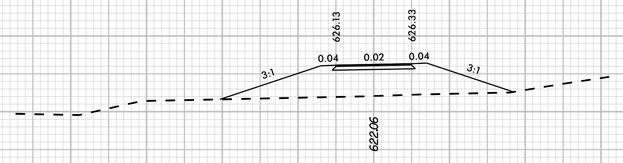
17+50.00

640
635
630
625
620
615
610



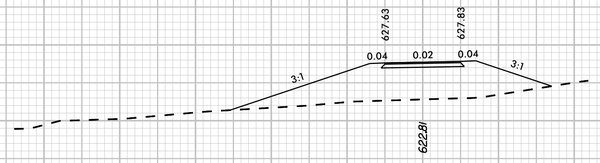
17+00.00

640
635
630
625
620
615
610



16+50.00

640
635
630
625
620
615
610



16+00.00

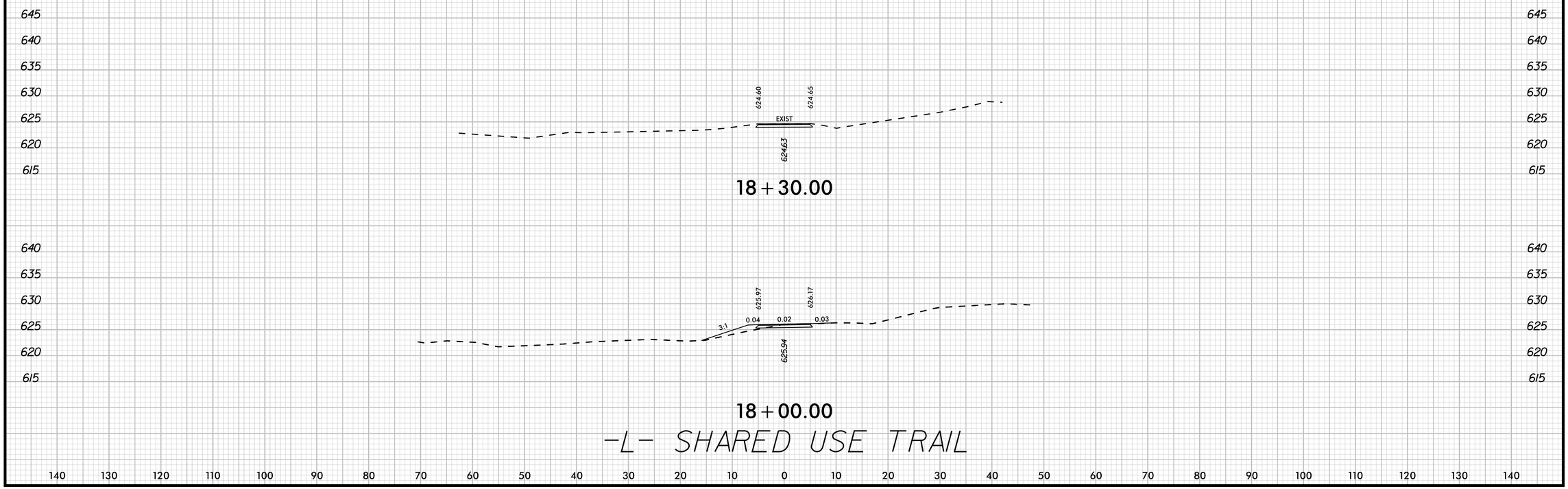
-L- SHARED USE TRAIL

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

0 5 10

PROJ. REFERENCE NO.	SHEET NO.
EB-5829	X-6

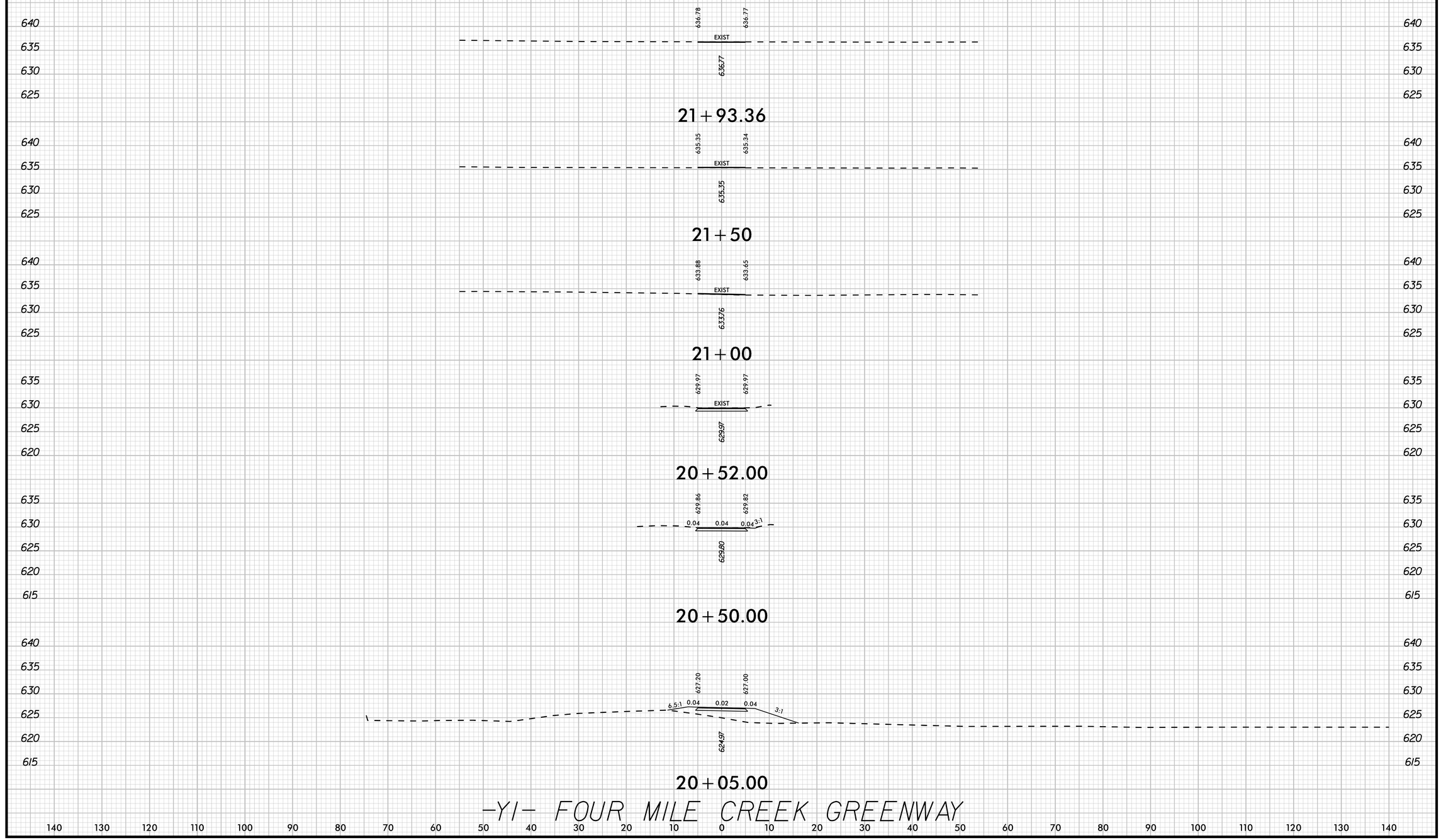
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



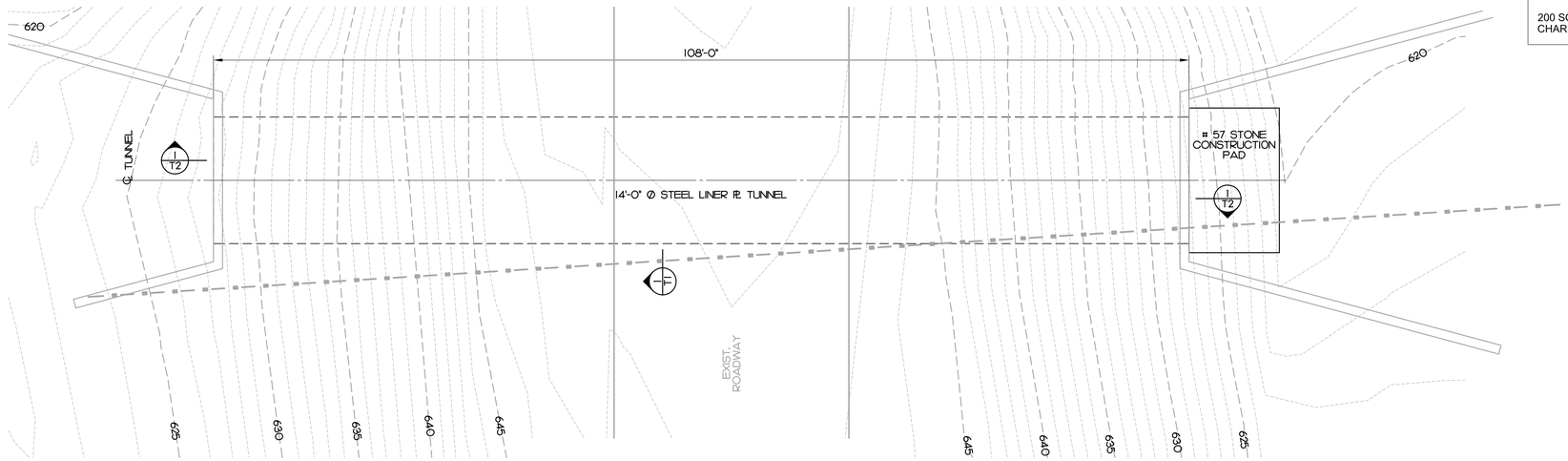
0 5 10

PROJ. REFERENCE NO.	SHEET NO.
EB-5829	X-7

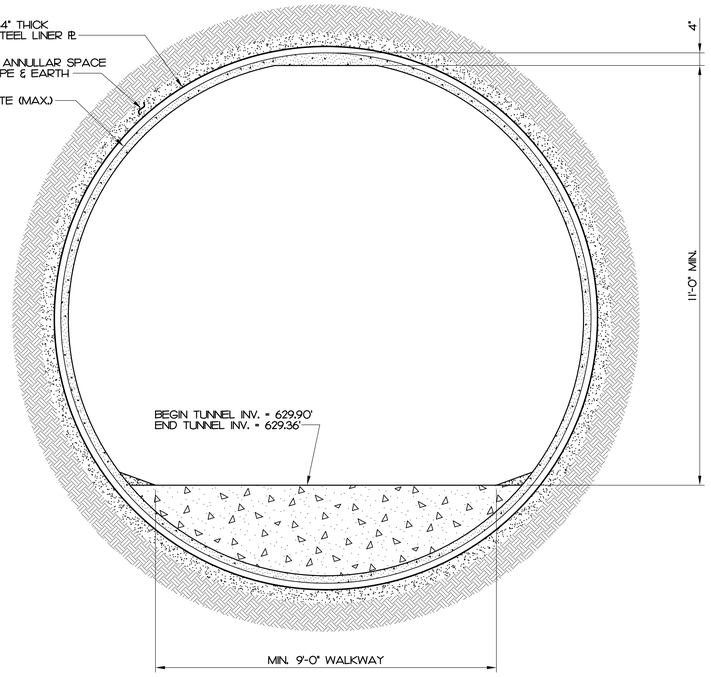
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



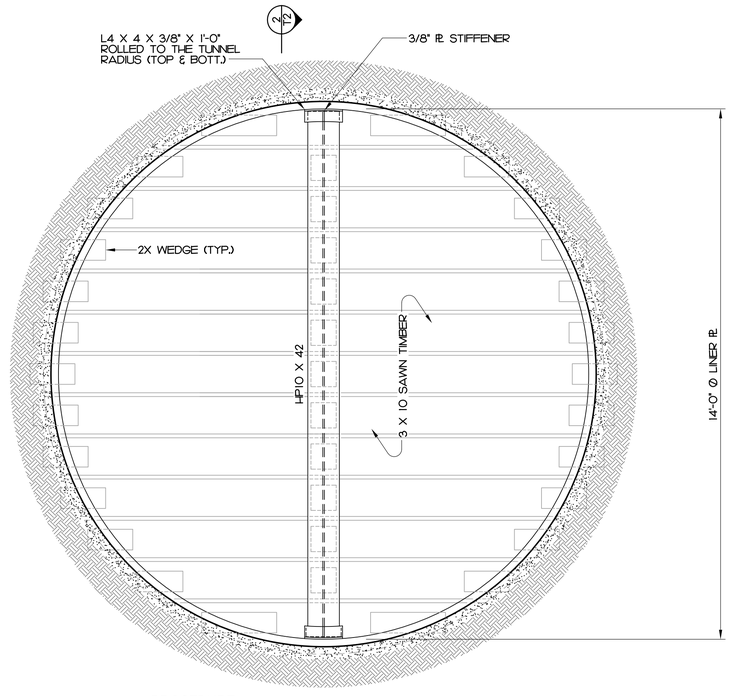
REVISIONS



TUNNEL PLAN
SCALE: 1/8" = 1'-0"



1/T1 SECTION
1/2" = 1'-0"



PROCEDURE

1. PLACE 3 X 10 SAWN TIMBER IN END OF PIPE.
2. WELD ROLLED ANGLES & HP10 POST INTO PLACE.
3. PLACE SOLID BLOCKING BETWEEN HP10 & SAWN TIMBER.
4. WEDGE 3 X 10 SAWN TIMBER TIGHT AS SHOWN IN SECTION 2/T2.

LINER PL TUNNEL BREAST BOARD

A/T1 DETAIL
1/2" = 1'-0"

GENERAL NOTES

I. LINER PLATE INSTALLATION NOTES:
- A. MATERIAL SPECIFICATIONS:
  1. STEEL LINER PLATES:
     - i. CARBON STEEL SHEETS OF PLATES CONFORMING TO ASTM A569 WITH A MINIMUM Fy = 29,000 psi.
     - ii. GALVANIZE ALL PLATES IN ACCORDANCE WITH AASHTO M111-94 AND ALL NUTS, BOLTS, WASHERS IN ACCORDANCE WITH ASTM A153.
  2. SHOTCRETE WILL COMPLY WITH ACI 506R AND HAVE A MINIMUM 2 DAY STRENGTH EQUAL TO 2000 PSI AND A MINIMUM 28-DAY STRENGTH EQUAL TO 4000 PSI. TEST SHOTCRETE IN ACCORDANCE WITH ACI 506R RECOMMENDATIONS.
  3. SEE STRUCTURAL DRAWINGS FOR CONCRETE SPECIFICATION FOR HEADWALL & INVERT CONCRETE.
- B. INSTALLATION:
  1. CONSTRUCT LEVEL STONE CONSTRUCTION PAD SUFFICIENT TO ESTABLISH LINE AND GRADE.
  2. THE TUNNEL SHALL BE CONSTRUCTED USING 0.164 INCH (8 GAGE) X 18 INCH WIDE (2) FLANGE LINER PLATES AND SHALL CONFORM TO THE LINE AND GRADE SHOWN ON THE CONTRACT DOCUMENTS. LINER PLATES SHALL BE ASSEMBLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COURSES OF PLATES SHALL BE STAGGERED 1/2 PLATE WHEN THE COURSE CONTAINS ALL WHOLE PLATES. WHEN THE COURSE CONTAINS A 1/2 PLATE, THE COURSE SHALL BE STAGGERED 1/4 PLATE WITH THE 1/2 PLATES BEING PLACED ON OPPOSITE SIDES OF THE TUNNEL IN ALTERNATE COURSES.
  3. THE TUNNELING OPERATION SHALL PROCEED ONLY A DISTANCE SUFFICIENT FOR PLACING TWO SECTIONS OF TUNNEL LINER AND MUST CONFORM TO THE REQUIREMENTS GIVEN IN NCDOT STANDARD SPECIFICATIONS SECTION 1550-4 (C). THE TUNNEL LINER PLATES MUST BE PLACED BEFORE PROCEEDING FURTHER.
  4. THE SPACE OUTSIDE THE LINER PLATES IS TO BE HELD TO A MAXIMUM OF (1) INCH AND SHALL BE GROUTED WITH 1:3 PORTLAND CEMENT AND SAND GROUT PUMPED AT A PRESSURE NO GREATER THAN 10 PSI. COMPLETELY FILL ALL VOIDS CREATED BY EXCAVATION AND INSTALLATION OF THE LINER PLATES THROUGH 2 INCH OPENINGS PROVIDED IN THE TOP OF THE STEEL LINER PLATES. TUNNEL CONTRACTOR MAY CHOOSE TO GROUT WITH A "NEAT CEMENT" MIX USING (5) GALLONS OF WATER TO EACH 94 LB. BAG OF PORTLAND CEMENT. GROUTING WILL BE DONE WITH INSTALLATION OF THE LINER PLATES SO THAT AT NO TIME WILL THE GROUTING OPERATION BE FURTHER THAN 10 FEET FROM THE FRONT END OR HEAD OF TUNNEL CONSTRUCTION. AT THE END OF EACH DAY'S OPERATIONS THE SPACE OUTSIDE THE LINER PLATES IS TO BE GROUTED. GROUT WILL BE PRESSURE INJECTED INTO EACH GROUT HOLE. IF THE GROUT FROM ONE HOLE SHOULD FLOW ALONG THE LINER PLATE SO AS TO PLUG THE NEXT GROUT HOLE, THE PLUGGED HOLE WILL BE OPENED BY PUNCHING THROUGH THE GROUT LAYER SO THAT EACH HOLE MAY BE USED FOR GROUTING. THE GROUTING OPERATION WILL BE CONTINUED AT EACH HOLE UNTIL ALL SPACES OUTSIDE THE LINER PLATES ARE FILLED AND NO GROUT WILL FLOW.
  5. PROVIDE BREASTBOARD CLOSURE PER DETAIL A/T1 WHEN THE TUNNELLING OPERATION IS HALTED FOR MORE THAN (6) HOURS OR WHENEVER GROUND CONDITIONS AT THE FACE OF THE TUNNEL REQUIRE BREASTBOARDING.
  6. THE ENTIRE OPERATION SHALL BE SUBJECT TO INSPECTION BY THE NCDOT RESIDENT ENGINEER, MORRISON ENGINEERS, OR A THIRD PARTY SPECIAL INSPECTOR. ALL MATERIALS SHALL BE SUBJECT TO INSPECTION BY THE SAME.

II. TUNNEL CONTRACTOR REQUIREMENTS:
- A. TUNNEL CONTRACTOR WILL HAVE A MINIMUM OF (5) YEARS OF TUNNEL EXPERIENCE AND (3) PROJECTS OF A SIMILAR SIZE AND SCOPE. PROJECT NAME, PROJECT ENGINEER OF RECORD, AND PROJECT OWNER WITH CONTACT INFORMATION WILL BE PROVIDED FOR MORRISON ENGINEERS, KIMLEY- HORN & ASSOCIATES AND NCDOT REVIEW AND APPROVAL.
- B. TUNNEL CONTRACTOR WILL ESTABLISH A BASELINE SURVEY, PRIOR TO START OF TUNNELING. TUNNEL CONTRACTOR WILL TAKE SHOTS ON A DAILY BASIS PROVIDING A COPY OF FIELD NOTES TO MORRISON ENGINEERS AND KIMLEY-HORN & ASSOCIATES. SEE SETTLEMENT MONITORING PLAN ON SHEET T-2.
- C. TUNNEL CONTRACTOR SHALL ADHERE TO CONSTRUCTION REQUIREMENTS AS OUTLINED IN NCDOT STANDARD SPECIFICATIONS SECTION 1550-3.
- D. SHOP DRAWINGS SUBMITTAL:
  1. PROVIDE LINER PLATE MANUFACTURER'S DATA SHEET SHOWING PLATE THICKNESS, RING GEOMETRY AND GROUT HOLE LOCATIONS.
  2. SHOTCRETE MIX DESIGN, NOZZLE MAN CERTIFICATION AND DATA SHEET FOR WWF. INCLUDE WWF CONNECTION TO LINER PLATE DETAIL.

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CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	S-1

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Cary NC 27513
919.851.2021 office | 919.851.2024 fax
www.morrisonengineers.com

STRUCTURAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 18756 ENGINEER JOHN T. MORRISON 3/16/2022

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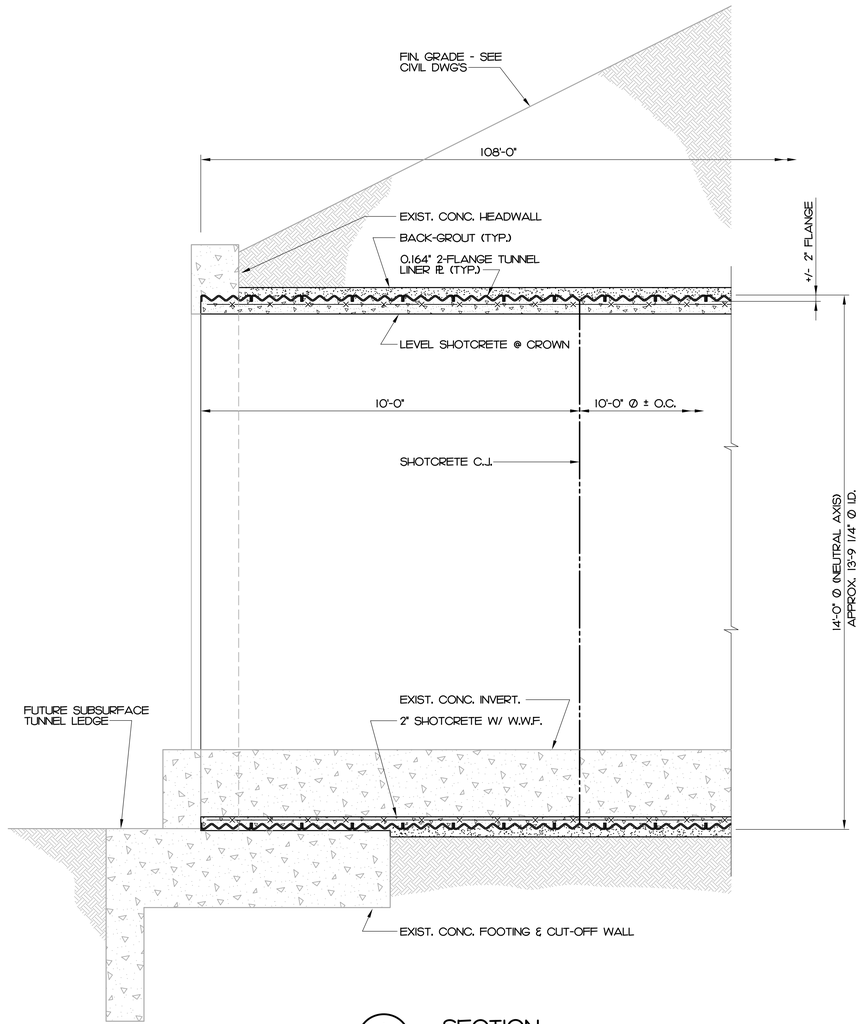
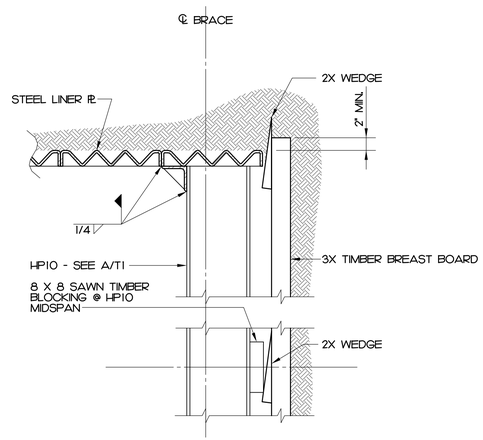
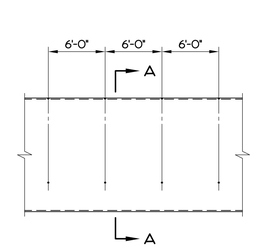
REVISIONS



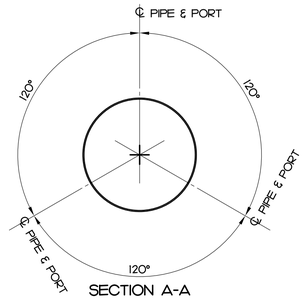
1 / T2 SECTION
1/2" = 1'-0"



2 / T2 SECTION
1" = 1'-0"



ELEVATION

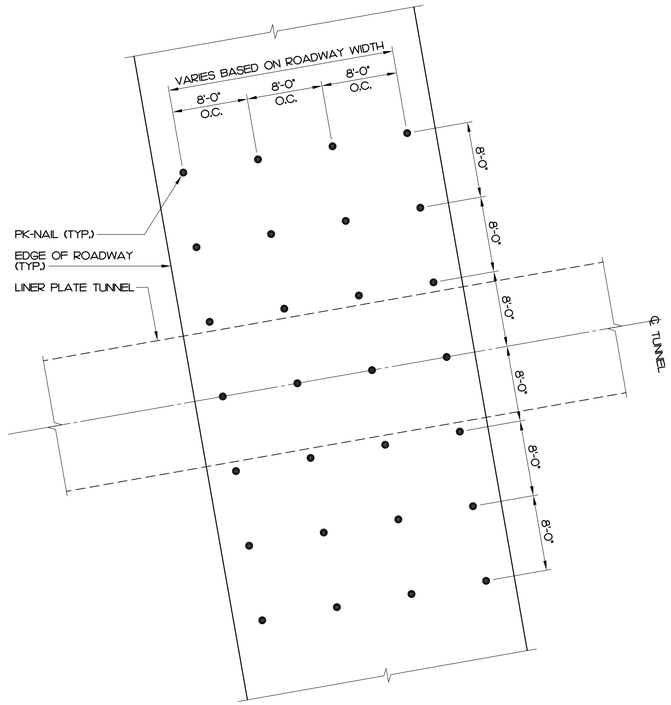


SECTION A-A

NOTES

1. PROVIDE SET OF (3) 2" Ø HOLES IN EVERY 4TH LINER PLATE RING OR 6' O.C. AS SHOWN. PORTS SHALL BE FACTORING INSTALLED AND THREADED TO RECEIVE PIPE THREAD PLUGS.

A / T2 SECTION
1/8" = 1'-0"



SETTLEMENT MONITORING PLAN
SCALE: 1/8" = 1'-0"

SETTLEMENT MONITORING NOTES

1. PK-NAILS WILL BE INSTALLED AS SHOWN ON THIS PLAN & BASELINE ELEVATIONS SURVEYED PRIOR TO THE START OF PIT EXCAVATION.
2. PK-NAILS SHALL BE 2" LONG AND HAVE A RIBBED THREAD ALONG ITS SHANK WITH A CONICAL POINT. THE NAIL HEAD SHALL HAVE AN INDENT IN THE CENTER TO RECEIVE A SURVEYOR'S PLUMB BOB. THE NAILS SHALL BE MANUFACTURED FROM HARDENED, ZINC-PLATED STEEL.
3. EACH NAIL SHALL HAVE AN IDENTIFICATION TAG WHICH WILL BE 1-1/2" IN DIAMETER AND 3/32" THICK AND HAVE A PUNCH NUMBER FOR IDENTIFICATION. EACH NAIL SHALL BE DRIVEN INTO THE ASPHALT THROUGH A CENTRAL HOLE IN THE IDENTIFICATION TAG.
4. THE CONTRACTOR'S SURVEYOR WILL TAKE DAILY SHOTS AT LOCATIONS SHOWN ON THIS DRAWING ONCE TUNNEL IS WITHIN THE THEORETICAL 1:1 MEASURED FROM THE EDGE OF THE ROADWAY SURFACE.
5. SURVEY DATA WILL BE SUBMITTED TO THE ENGINEER ON A WEEKLY BASIS, HOWEVER TUNNEL OPERATIONS SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY IF MEASURED SETTLEMENT REACHED 0.02' OR ANY LESSER AMOUNT REQUIRED BY NCDOT.
6. MONITORING WILL CONTINUE ON A DAILY BASIS UNTIL TUNNEL IS COMPLETE.

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CHARLOTTE, N.C. 28202

PROJECT REFERENCE NO.	SHEET NO.
EB-5829	S-2

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STRUCTURAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 10756 ENGINEER JOHN T. MORRISON
3/16/2022

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PROJECT REFERENCE NO.	SHEET NO.
45969.1.1 (EB-5829)	W-1

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028893 ENGINEER MICHAEL H. STEPHENS

DocuSigned by: 03/24/2022 C44768209314CC...

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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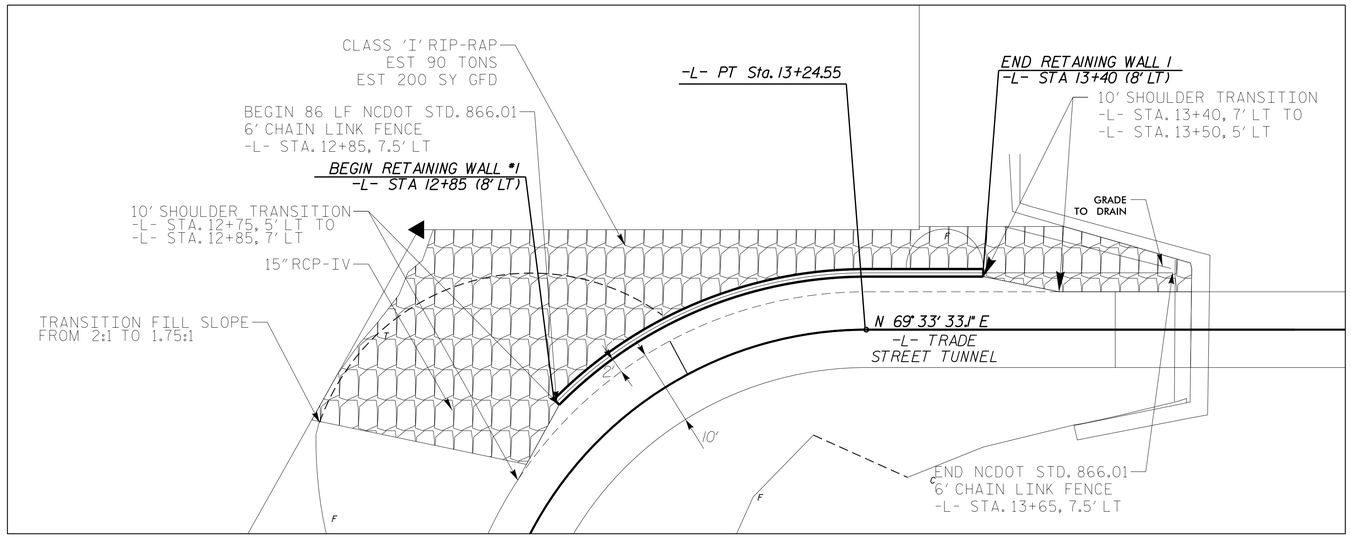
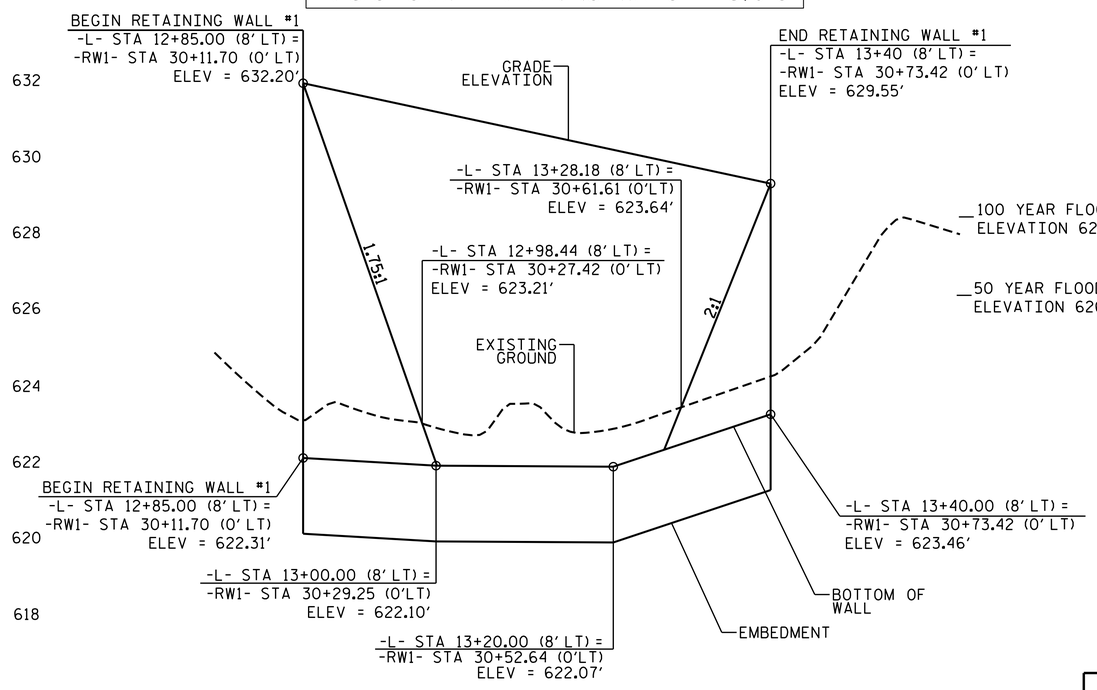


RETAINING WALL NO. 1 PLAN

PRECAST GRAVITY RETAINING WALLS = 590 SF



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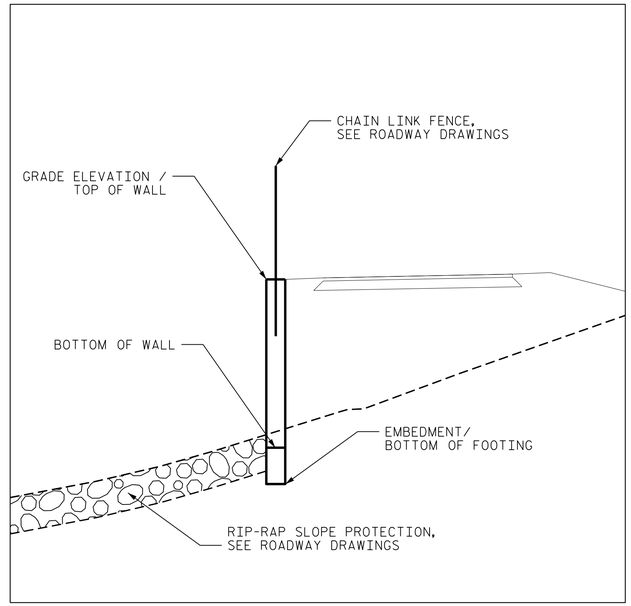
RETAINING WALL NO. 1 ELEVATION



CROSS SECTION – STA 13+00 –L–

31

PREPARED BY: MHS	DATE: 3/24/22
REVIEWED BY: ENW	DATE: 3/24/22

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL NO. 1 PRECAST GRAVITY WALL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

PROJECT REFERENCE NO.	SHEET NO.
45969.1.1 (EB-5829)	W-2

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028893 ENGINEER MICHAEL H. STEPHENS

DocuSigned by: 03/24/2022
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SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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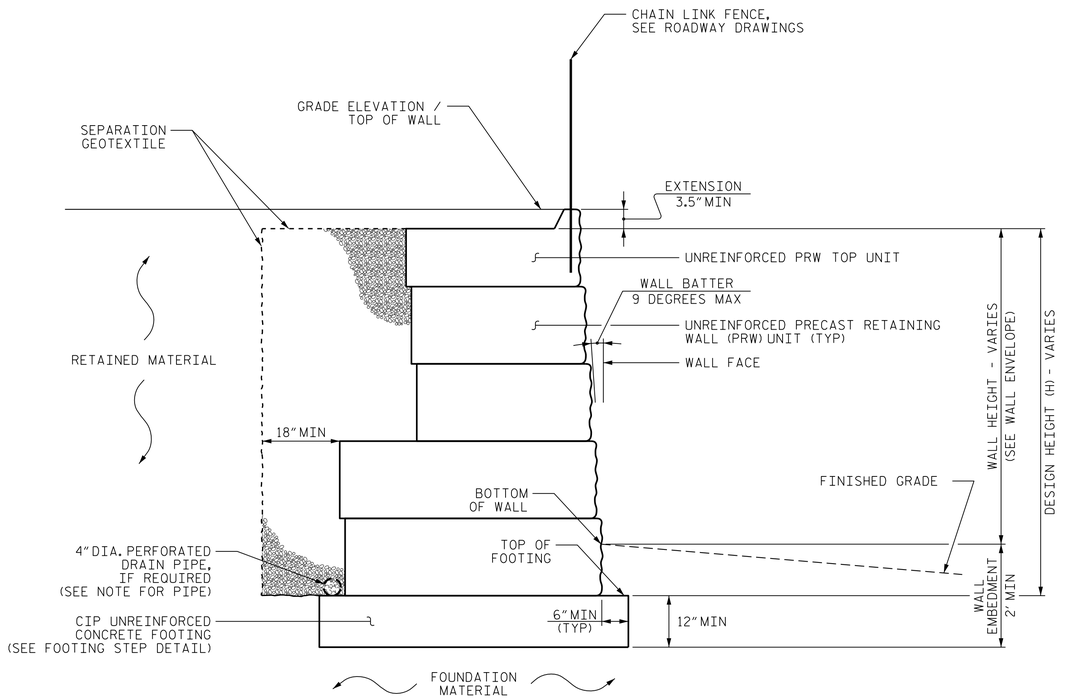
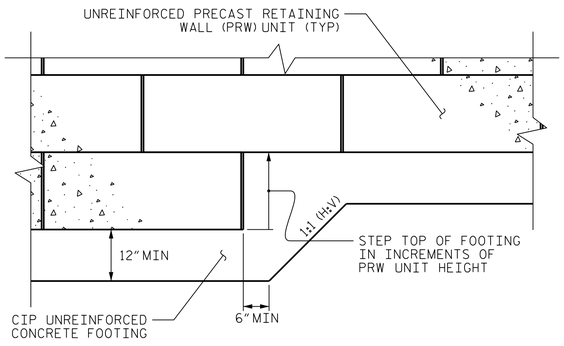


PRECAST GRAVITY WALL - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



FOOTING STEP DETAIL

NOTES:

FOR PRECAST GRAVITY RETAINING WALLS, SEE SECTION 455 OF THE STANDARD SPECIFICATIONS.

FOR CHAIN LINK FENCE, SEE ROADWAY PLANS.

A DRAIN PIPE IS REQUIRED FOR RETAINING WALL NO. 1.

BEFORE BEGINNING PRECAST GRAVITY WALL DESIGN FOR RETAINING WALL NO. 1, SURVEY WALL LOCATION AND SUBMIT A REVISED WALL PROFILE VIEW (WALL ENVELOPE) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPE IS ACCEPTED.

DESIGN RETAINING WALL NO. 1 FOR DESIGN HEIGHTS EQUAL TO THE WALL HEIGHT PLUS DEPTH TO TOP OF FOOTING (DIFFERENCE BETWEEN GRADE ELEVATION AND TOP OF FOOTING ELEVATION).

DESIGN RETAINING WALL NO. 1 FOR THE FOLLOWING:
1) MAXIMUM FACTORED VERTICAL PRESSURE ON FOUNDATION MATERIAL = 2,000 PSF
2) MINIMUM WALL EMBEDMENT ELEVATION = 2 FT
3) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) PCF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) PSF
RETAINED	120	30	0
FOUNDATION	115	28	0

DESIGN RETAINING WALL NO. 1 FOR A LIVE LOAD SURCHARGE OF 250 PSF.

DO NOT PLACE CONCRETE FOR FOOTINGS FOR RETAINING WALL NO. 1 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

PREPARED BY: MHS	DATE: 3/24/22
REVIEWED BY: ENV	DATE: 3/24/22

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

RETAINING WALL NO. 1 PRECAST GRAVITY WALL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		