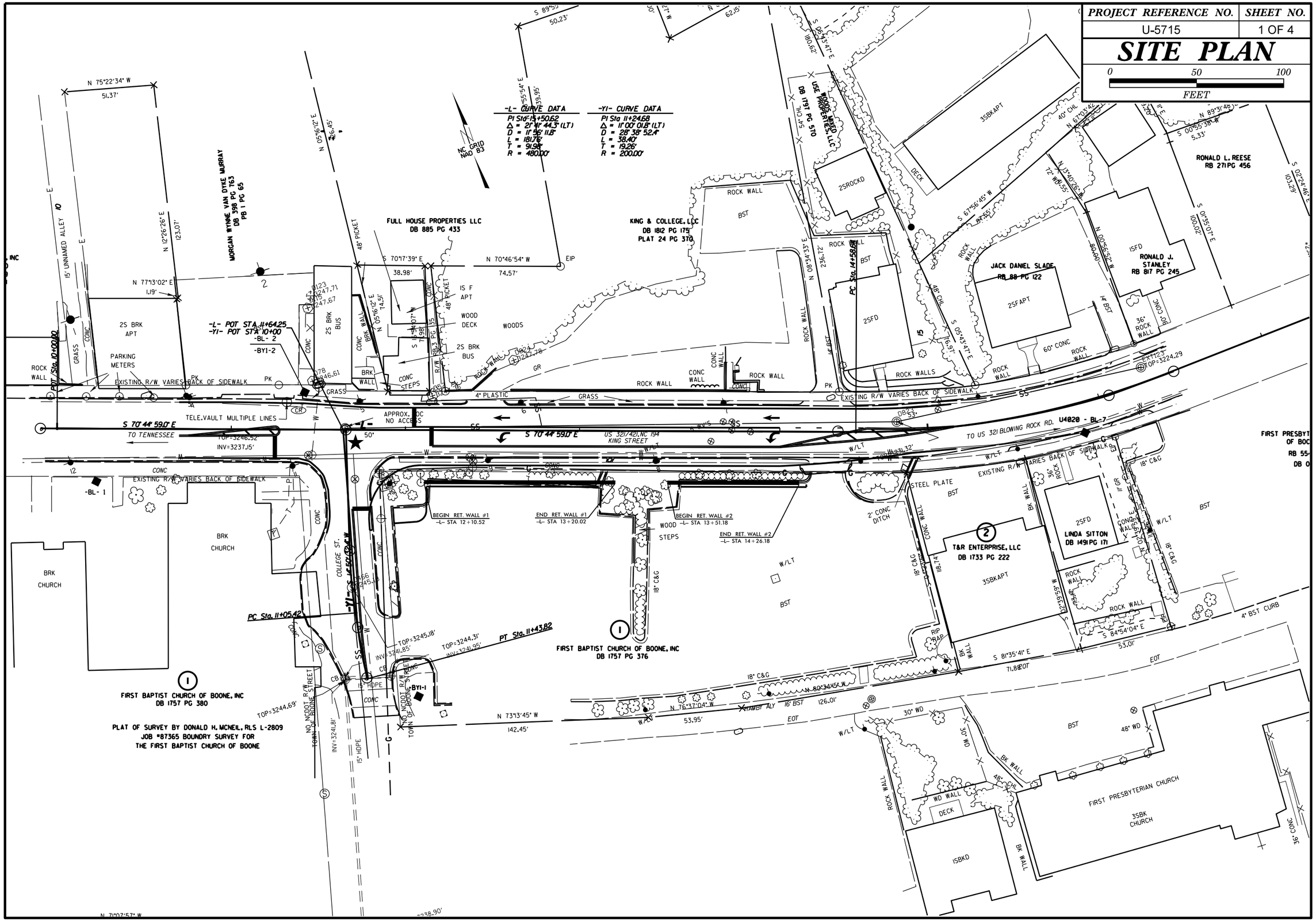
PROJECT REFERENCE NO.	SHEET NO.
U-5715	1 OF 4

SITE PLAN

0 50 100
FEET



Mattern & Craig
ENGINEERS • SURVEYORS
FIRM LICENSE No. C-1154
12 BROAD STREET
ASHEVILLE, NORTH CAROLINA 28801
(828) 254-2201
FAX (828) 254-4562

PROJECT REFERENCE NO.	SHEET NO.
U-5715	SHEET 2 OF 4

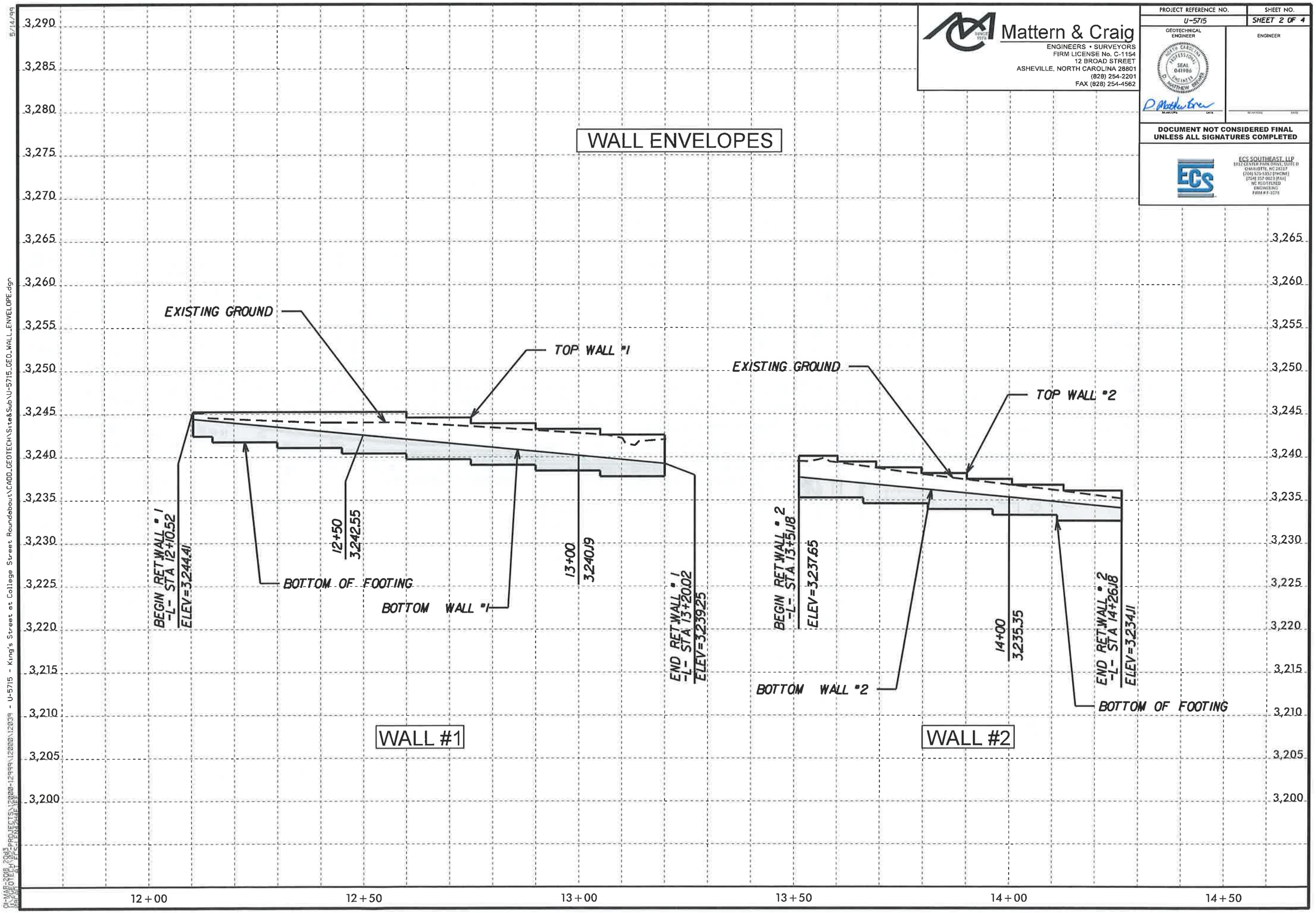
GEOTECHNICAL ENGINEER — SEAL 041986 — REGISTERED PROFESSIONAL ENGINEER — D. MATTHEW BREWER

ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ECS SOUTHEAST, LLP
3832 CENTER PARK DRIVE, SUITE D
CHARLOTTE, NC 28217
(704) 523-5352 (PHONE)
(704) 357-0023 (FAX)
NC REGISTERED ENGINEERING FIRM # F-1078

WALL ENVELOPES



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PROJECTS\12000-12999\12000\12039 - U-5715 - King's Street at College Street Roundabout\CADD_GEOTECH\Site&Sub\U-5715_GEO_WALL_ENVELOPE.dgn

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 041986 ENGINEER D. MATTHEW BROWER

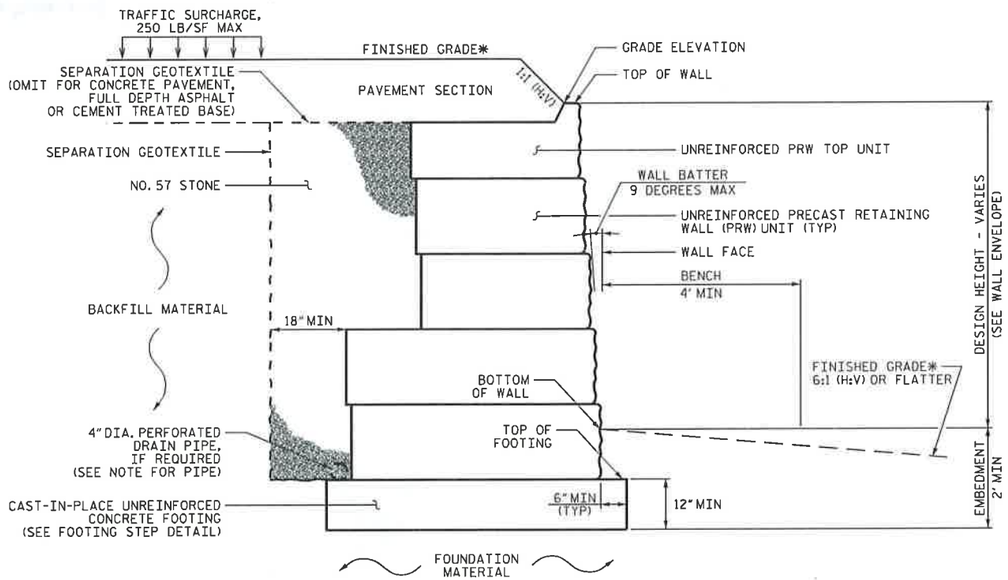
D. Matthew Brower

SIGNATURE DATE

ENGINEER

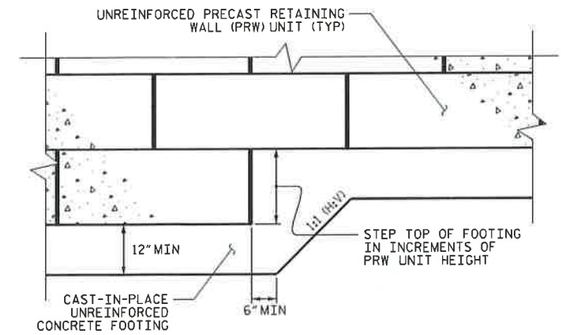
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

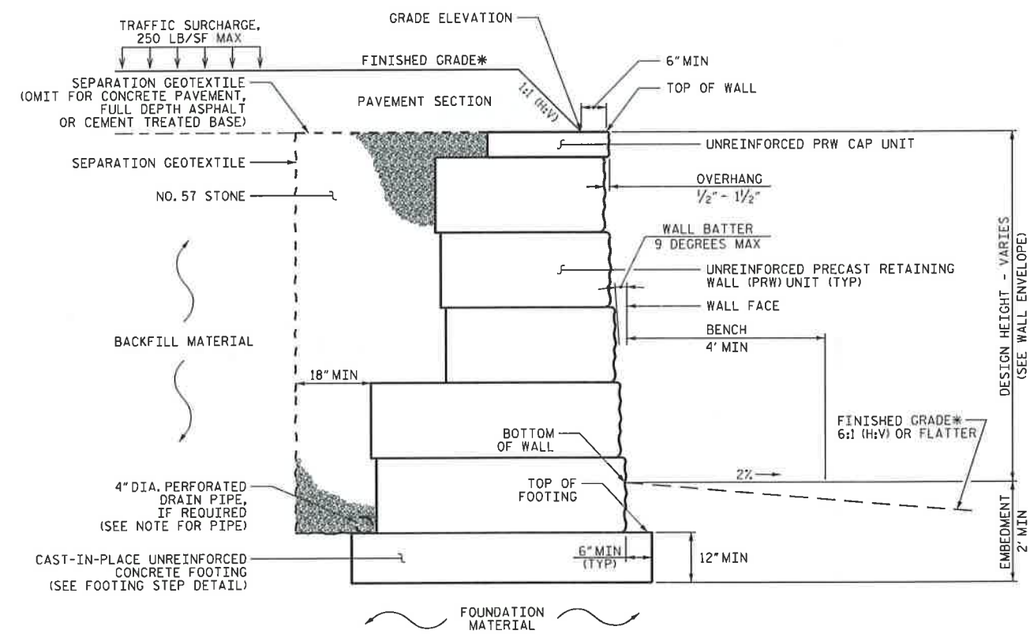


PRECAST GRAVITY WALL WITH TOP PRW UNIT - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



FOOTING STEP DETAIL



PRECAST GRAVITY WALL WITH CAP PRW UNIT - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

NOTES:

FOR PRECAST GRAVITY RETAINING WALLS, SEE PRECAST GRAVITY RETAINING WALLS PROVISION.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

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 WALL HEIGHTS EQUAL TO THE DESIGN 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 = 1900 LB/SF
2) MINIMUM EMBEDMENT DEPTH = 2 FT
3) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) LB/SF
BACKFILL	115	26	0
FOUNDATION	115	26	0

DESIGN RETAINING WALL NO. 1 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

IF PRESENT, DESIGN RETAINING WALL NO. 1 FOR DRAINAGE PIPES THAT EXTEND THROUGH OR UNDER THE WALL, WHERE APPLICABLE.

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

PROJECT NO.: U-5715

LOCATION: WATAUGA COUNTY

STATION: WALL 1: STA 12+10.52 TO 13+20.02

SHEET 3 OF 4

Prepared in the Office of:

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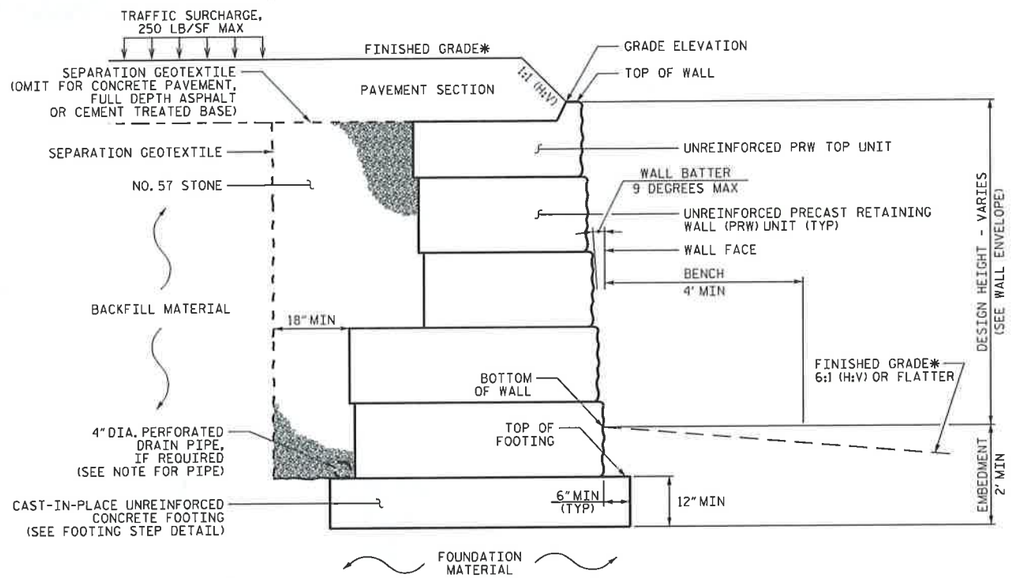
NC REGISTERED ENGINEERING FIRM # F-1078

STD CELL Wall_PrecastGravity_noSlope

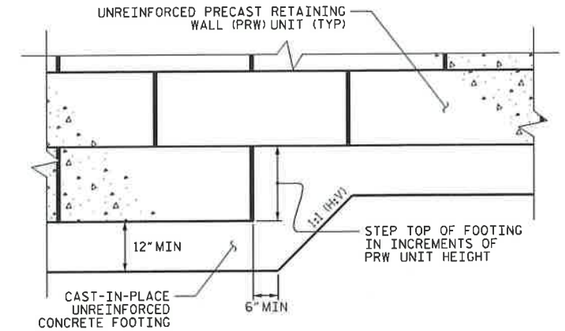
PRECAST GRAVITY WALL WITHOUT BACK SLOPE - TYPICALS NOTES & FOOTING STEP DETAIL

DATE: 10/4/17

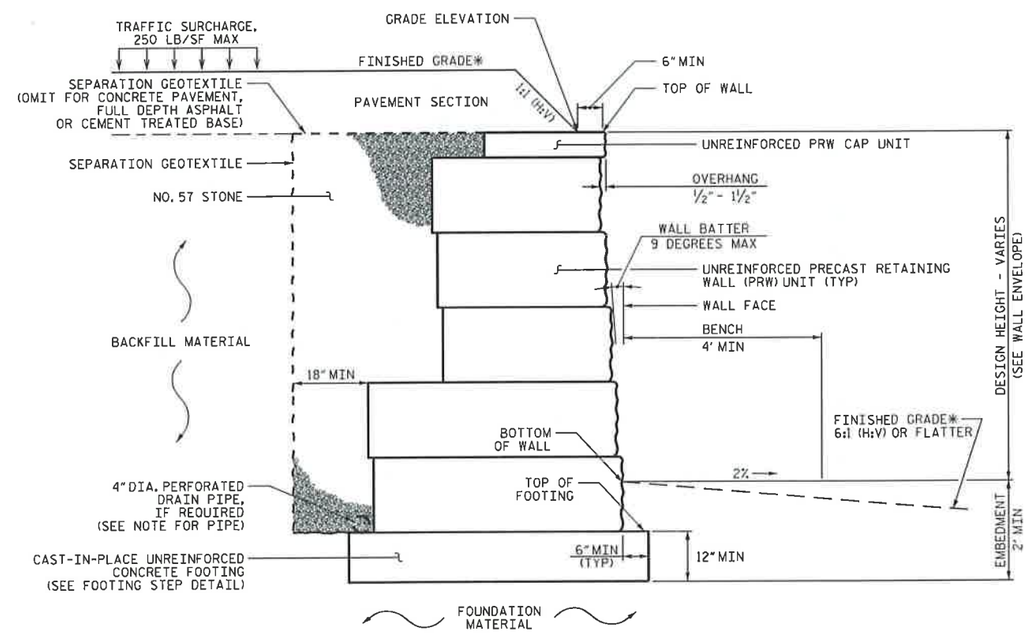


PRECAST GRAVITY WALL WITH TOP PRW UNIT - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



FOOTING STEP DETAIL



PRECAST GRAVITY WALL WITH CAP PRW UNIT - TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 041986 ENGINEER D. MATTHEW BRENER

D. Matthew Brener

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NOTES:

FOR PRECAST GRAVITY RETAINING WALLS, SEE PRECAST GRAVITY RETAINING WALLS PROVISION.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

A DRAIN PIPE IS REQUIRED FOR RETAINING WALL NO. 2.

BEFORE BEGINNING PRECAST GRAVITY WALL DESIGN FOR RETAINING WALL NO. 2, 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. 2 FOR WALL HEIGHTS EQUAL TO THE DESIGN 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 = 1900 LB/SF
2) MINIMUM EMBEDMENT DEPTH = 2 FT
3) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) LB/SF
BACKFILL	115	26	0
FOUNDATION	115	26	0

DESIGN RETAINING WALL NO. 2 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

IF PRESENT, DESIGN RETAINING WALL NO. 2 FOR DRAINAGE PIPES THAT EXTEND THROUGH OR UNDER THE WALL, WHERE APPLICABLE.

DO NOT PLACE CONCRETE FOR FOOTINGS FOR RETAINING WALL NO. 2 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

PROJECT NO.: U-5715
LOCATION: WATAUGA COUNTY
STATION: WALL 2: STA 13+51.18 TO 14+26.18
SHEET 4 OF 4

Prepared in the Office of:

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NC REGISTERED ENGINEERING FIRM # F-1078

STD CELL Wall_PrecastGravity_noSlope

PRECAST GRAVITY WALL WITHOUT BACK SLOPE - TYPICALS NOTES & FOOTING STEP DETAIL

DATE: 10/4/17