REFERENCE: B-5541

PROJECT: 55041

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

APPENDIX A

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *HAYWOOD*

PROJECT DESCRIPTION *REPLACE BRIDGE NO. 236 ON I-40 OVER SR 1513 IN HAYWOOD COUNTY*

PAVEMENT & SUBGRADE INVESTIGATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5541	1	

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO PERFORM INDEPENDENT SUBSURFACE INVESTIGATIONS AND MAKE INTERPRETATIONS AS NECESSARY TO CONFIRM CONDITIONS ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

Q. HILL

CG2 EXPLORATION

INVESTIGATED BY *J. HOLLAND*

DRAWN BY *J. HOLLAND*

CHECKED BY *J. CRENSHAW*

SUBMITTED BY *SCHNABEL ENG.*

DATE *AUGUST 2024*

Schnabel ENGINEERING

NORTH CAROLINA LICENSED SEAL 2818 GEOLOGIST JASON A. HOLLAND

Signed by: Jason A Holland

08/20/2024

DF15142D0C8B4B6... SIGNATURE DATE

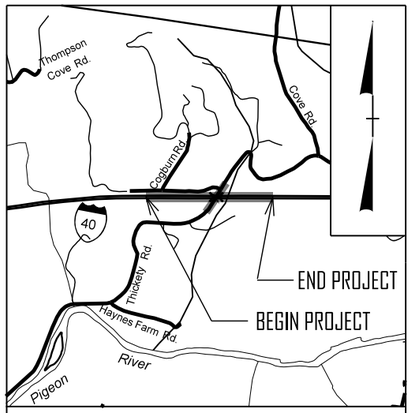
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

09/08/99

TIP PROJECT: B-5541

CONTRACT:

See Sheet 1A For Index of Sheets



VICINITY MAP (NTS)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

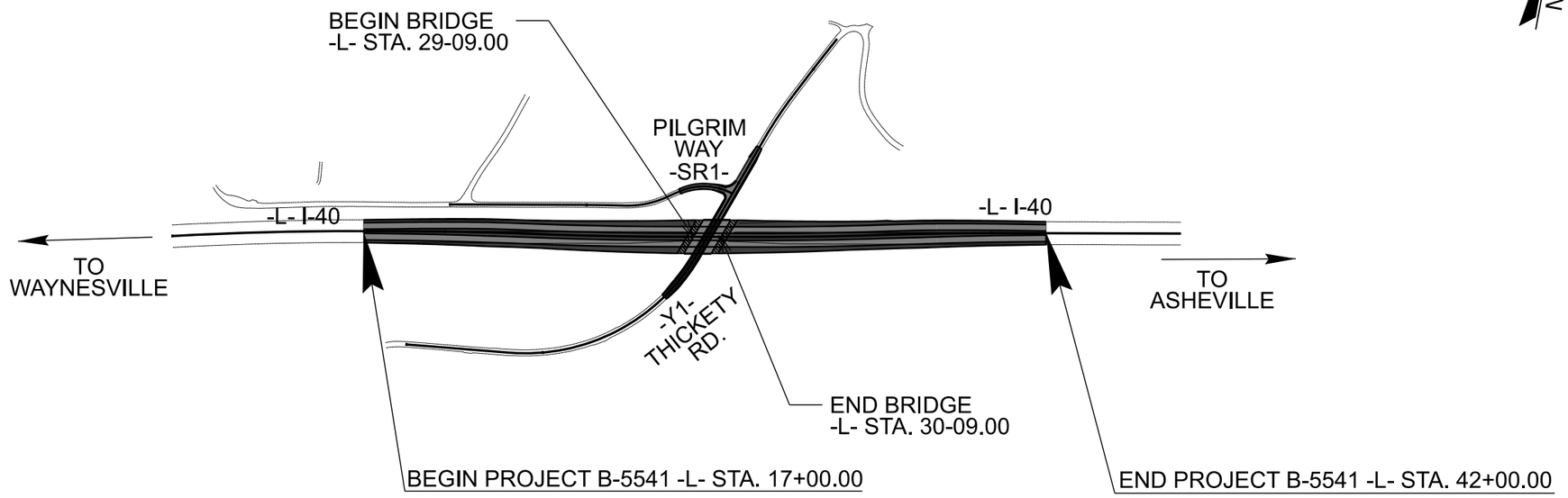
LOCATION: *BRIDGE NO. 236 OVER SR 1513 ON I-40*

TYPE OF WORK: *GRADING, PAVING, DRAINAGE AND STRUCTURES*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5541		
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
55041.1.1		P.E.	

DESIGN RECOMMENDATION PLAN SET

NAD 83
NA 2011



THERE IS FULL CONTROL OF ACCESS ON THIS PROJECT.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD ???

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2024 = 60000
ADT 2044 = 77500
K = 8 %
D = 55 %
T = 15 % *
V = 65 MPH
* TTST =12%DUAL 3%
FUNC CLASS =
INTERSTATE
STATE WIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5541 = 0.471 MILES

LENGTH STRUCTURE TIP PROJECT B-5541 = 0.021 MILES

TOTAL LENGTH TIP PROJECT B-5541 = 0.492 MILES

Prepared in the Office of:
NV5 ENGINEERS & CONSULTANTS, INC.
8514 MCALPINE PARK DRIVE, STE 135
CHARLOTTE, NC 28211
Ph: 704.527.7300 www.NV5.com
NC License # F-0333
formerly CALYX Engineers & Consultants

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH 15, 2024

LETTING DATE: JUNE 17, 2025

CHRIS ANDERSON, PE
PROJECT ENGINEER

DYLAN MCCANN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

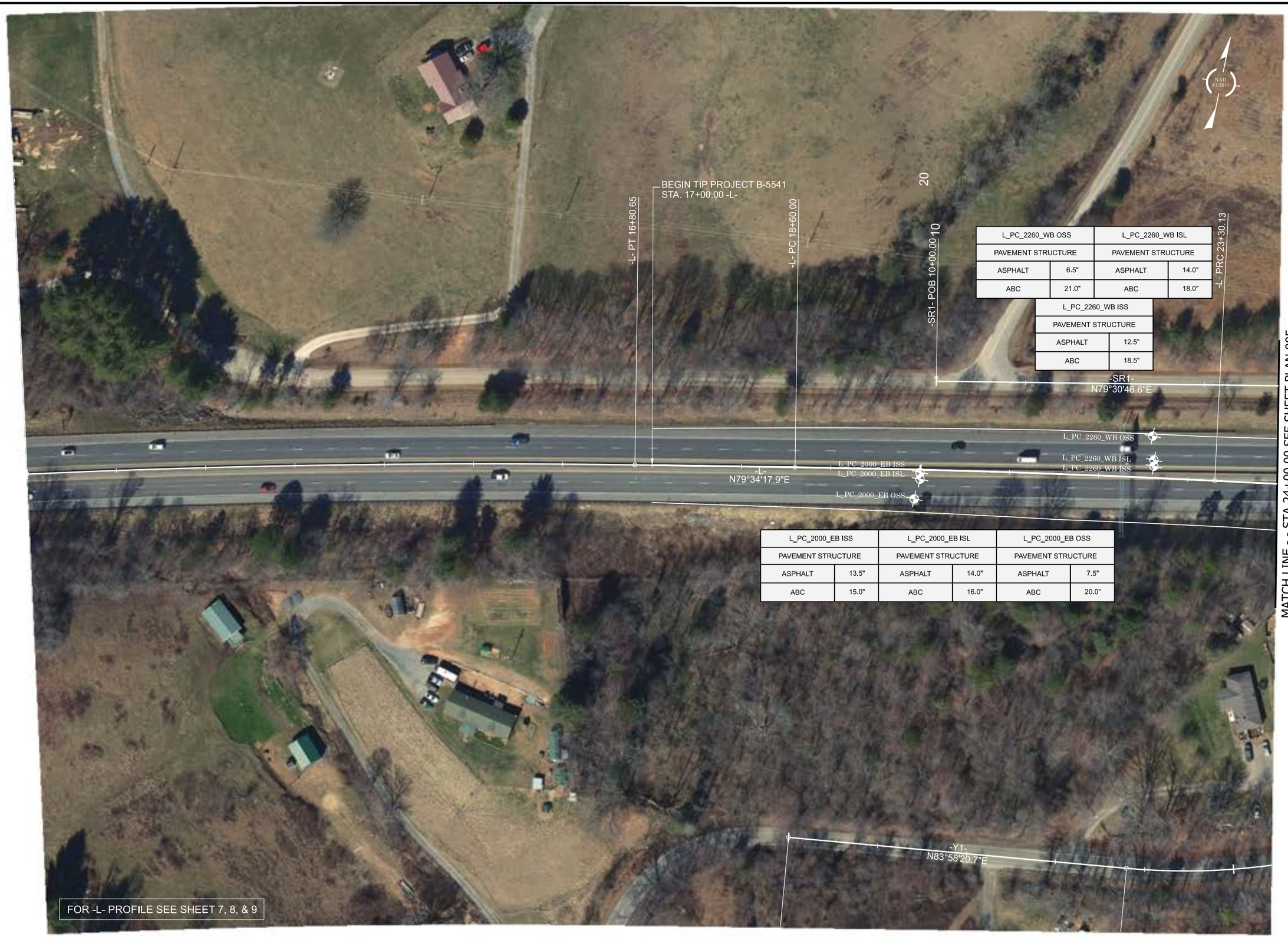
SIGNATURE: *P.E.*

ROADWAY DESIGN ENGINEER

SIGNATURE: *P.E.*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

5/26/20



L_PC_2260_WB OSS		L_PC_2260_WB ISL	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
ASPHALT	6.5"	ASPHALT	14.0"
ABC	21.0"	ABC	18.0"

L_PC_2260_WB ISS	
PAVEMENT STRUCTURE	
ASPHALT	12.5"
ABC	18.5"

L_PC_2000_EB ISS		L_PC_2000_EB ISL		L_PC_2000_EB OSS	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
ASPHALT	13.5"	ASPHALT	14.0"	ASPHALT	7.5"
ABC	15.0"	ABC	16.0"	ABC	20.0"

B-5541

R/W | 4

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

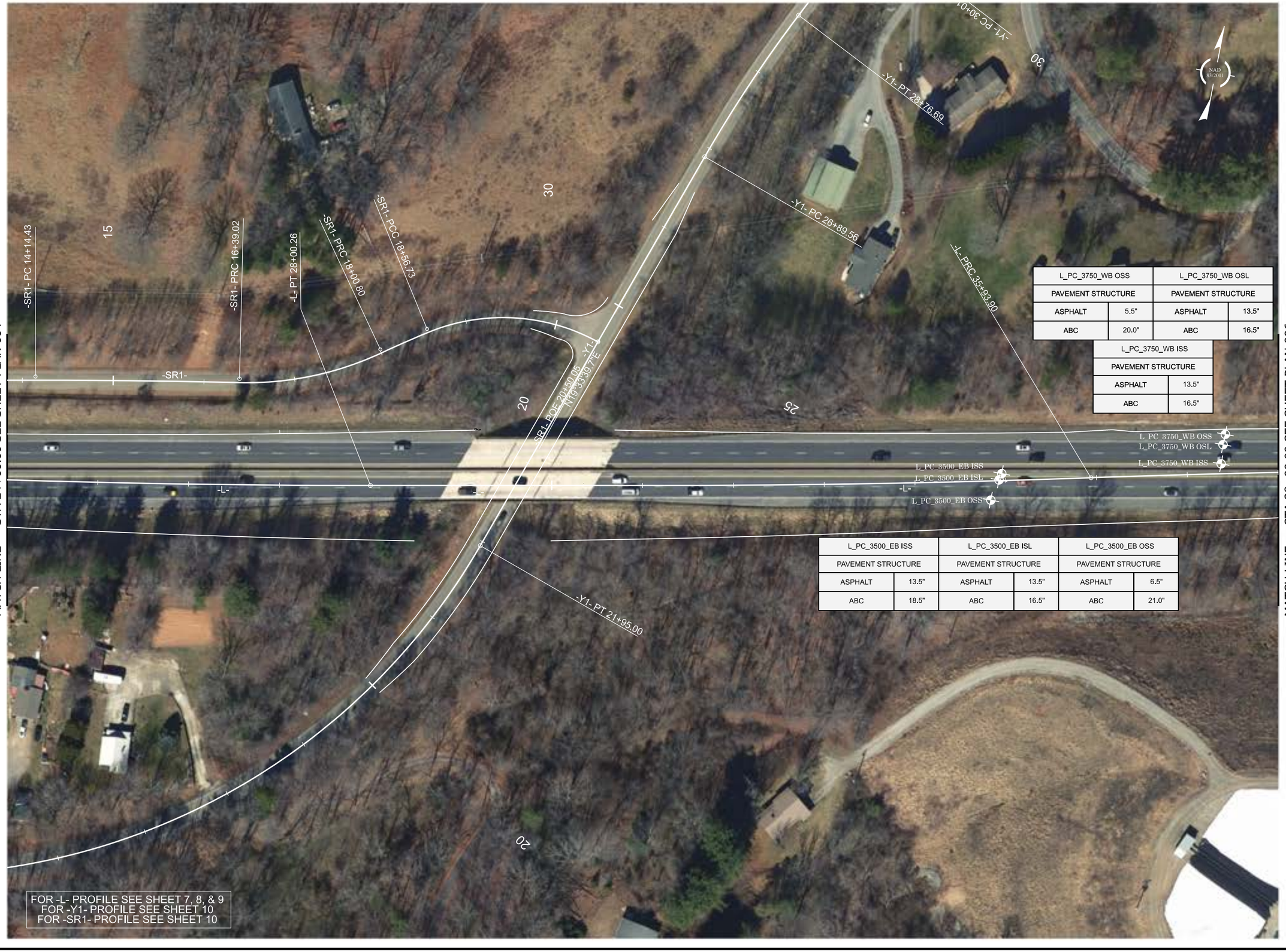
PREPARED BY

NV5 ENGINEERS & CONSULTANTS, INC.
8914 MCALPINE PARK DRIVE, SUITE 120
CHARLOTTE, NC 28211
P: 704.557.7300 www.NV5.com
NC Board # 1410

REVISIONS

5/26/20

MATCH LINE - - STA 24+00.00 SEE SHEET PLAN 004



L_PC_3750_WB OSS	
PAVEMENT STRUCTURE	
ASPHALT	5.5"
ABC	20.0"

L_PC_3750_WB OSL	
PAVEMENT STRUCTURE	
ASPHALT	13.5"
ABC	16.5"

L_PC_3750_WB ISS	
PAVEMENT STRUCTURE	
ASPHALT	13.5"
ABC	16.5"

L_PC_3750_WB OSS
L_PC_3750_WB OSL
L_PC_3750_WB ISS

L_PC_3500_EB ISS
L_PC_3500_EB ISL
L_PC_3500_EB OSS

L_PC_3500_EB ISS		L_PC_3500_EB ISL		L_PC_3500_EB OSS	
PAVEMENT STRUCTURE		PAVEMENT STRUCTURE		PAVEMENT STRUCTURE	
ASPHALT	13.5"	ASPHALT	13.5"	ASPHALT	6.5"
ABC	18.5"	ABC	16.5"	ABC	21.0"

MATCH LINE - - STA 38+00.00 SEE SHEET PLAN 006

FOR -L- PROFILE SEE SHEET 7, 8, & 9
FOR -Y1- PROFILE SEE SHEET 10
FOR -SR1- PROFILE SEE SHEET 10

B-5541
R/W | 5

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

NAD 83/2011

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PREPARED BY

NV5
NV5 ENGINEERS & CONSULTANTS, INC.
8914 MCALPINE PARK DRIVE, SUITE 155
CHARLOTTE, NC 28211
P: 704.557.7300 www.NV5.com
NC Firm # 7433

REVISIONS

5/26/20

B-5541

R/W | 6

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
HAYWOOD COUNTY

ROADWAY DESIGN UNIT

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PREPARED BY

NV5 ENGINEERS & CONSULTANTS, INC.
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CHARLOTTE, NC 28211
P: 704.557.7300 www.NV5.com
NC Lic# P-0233

REVISIONS

PAVEMENT INVESTIGATION DATA SHEET

Project:	55041.1.1	**Route:**	I-40	**Prepared by:** J. Holland	**Date:** 4/17/2024
TIP:	B-5541	**County:**	Haywood	**Reviewed by:**	**Date:**

		Width [3]				Pavement Structure / Thickness [3]						Subgrade [4]						State Plane Coordinates	
Position [1] (Sta._Direction_Lane,Shldr.)	Cut/Fill [2] (Est. of Amount)	Lane(s)	Shoulder(s)	Offset Distance	Crown "C" or Super "S"	Pavement Layering	Total to Subgrade (in.)	Asphalt (in.)	Concrete (in.)	ABC (in.)	CTBC (in.)	Description	Sample ID	AASHTO Classification	Soil Moisture	Probe Depth	Asphalt Notes	Northing	Easting
-L- STA 20+00																			
L_PC_2000_EB_ISS	CUT ± 5.0'	ISL 12.0'	ISS 6.0'	1.5' FY	C	Asphalt ABC	28.5	13.5	-	15.0	-	RES: Reddish-brown, silty SAND, little mica (2.4' - 5.0')	-	A-2-4	M	5.0'	No pavement distress observed	677,165	843,489
L_PC_2000_EB_ISL	CUT ± 5.0'	ISL 12.0'	ISS 6.0'	4.0' FY	C	Asphalt ABC	30.0	14.0	-	16.0	-	RES: Brown, orange, silty SAND, little mica (2.5' - 5.0')	S-3	A-2-4(0)	13%	5.0'	Recent overlay. No pavement distress observed	677,158	843,490
L_PC_2000_EB_OSS	CUT ± 5.0'	OSL 12.0'	OSS 11.5'	3.5' FW	C	Asphalt ABC	27.5	7.5	-	20.0	-	RES: Brown, orange, silty SAND, little mica (2.3' - 5.0')	-	A-2-4	M	5.0'	No pavement distress observed	677,135	843,488
-L- STA 22+60																			
L_PC_2260_WB_OSS	CUT ± 12.0'	OSL 12.0'	OSS 11.0'	5.0' FW	C	Asphalt ABC	27.5	6.5	-	21.0	-	RES: White, tan, silty SAND, some mica (2.3' - 5.0')	S-13	A-2-4(0)	18%	5.0'	No pavement distress observed	677,256	843,737
L_PC_2260_WB_ISL	CUT ± 13.0'	ISL 12.5'	ISS 6.0'	4.0' FY	C	Asphalt ABC	32.0	14.0	-	18.0	-	RES: Tan, brown, silty SAND, little mica (2.7' - 5.0')	S-9	A-2-4(0)	8%	5.0'	Recent overlay. No pavement distress observed	677,230	843,743
L_PC_2260_WB_ISS	CUT ± 14.0'	ISL 12.5'	ISS 6.0'	1.5' FY	C	Asphalt ABC	31.0	12.5	-	18.5	-	RES: Tan, white, silty SAND, some mica (2.6' - 5.0')	-	A-2-4	M	5.0'	No pavement distress observed	677,223	843,744
-L- STA 35+00																			
L_PC_3500_EB_ISS	CUT ± 12.0'	ISL 11.5'	ISS 6.0'	1.5' FY	C	Asphalt ABC	32.0	13.5	-	18.5	-	RES: Tan, sandy SILT, trace mica (2.7' - 5.0')	S-6	A-4(0)	10%	5.0'	No pavement distress observed	677,436	844,960
L_PC_3500_EB_ISL	CUT ± 12.0'	ISL 11.5'	ISS 6.0'	4.0' FY	C	Asphalt ABC	30.0	13.5	-	16.5	-	RES: Tan, sandy SILT, trace mica (2.5' - 5.0')	-	A-4	M	5.0'	Recent overlay. No pavement distress observed	677,428	844,958
L_PC_3500_EB_OSS	CUT ± 12.0'	OSL 12.0'	OSS 12.5'	3.5' FW	C	Asphalt ABC	27.5	6.5	-	21.0	-	RES: Brown, orange, silty CLAY, little mica (2.3' - 5.0')	S-2	A-7-6(4)	77%	5.0'	No pavement distress observed	677,405	844,953
-L- STA 37+50																			
L_PC_3750_WB_OSS	CUT ± 15.0'	OSL 12.0'	OSS 11.0'	7.0' FW	C	Asphalt ABC	25.5	5.5	-	20.0	-	RES: White, tan, silty SAND, some mica (2.1' - 5.0')	S-10 S-11	A-2-4(0) A-2-4(0)	4% 13%	5.0'	No pavement distress observed	677,523	845,194
L_PC_3750_WB_OSL	CUT ± 13.0'	OSL 12.0'	OSS 11.0'	2.5' FW	C	Asphalt ABC	30.0	13.5	-	16.5	-	RES: Tan, brown, sandy SILT, little mica (2.5' - 5.0')	-	A-4	M	5.0'	Recent overlay. No pavement distress observed	677,511	845,194
L_PC_3750_WB_ISS	CUT ± 10.0'	ISL 12.0'	ISS 6.0'	0.5' FY	C	Asphalt ABC	30.0	13.5	-	16.5	-	RES: Tan, sandy CLAY, trace mica (2.5' - 5.0')	S-7	A-6(1)	15%	5.0'	No pavement distress observed	677,490	845,195

Notes:

1. Refer to plan sheets for pavement investigation locations.
2. Cut/Fill are rough estimates based on a review of existing topographic features and are for reference only.
3. Values are based on field measurements at time of investigation.
4. Soil descriptions, classifications, and moisture are based on visual-manual methods, unless otherwise noted.

Abbrevations:

OSL = Outside Lane
ISL = Inside Lane
CL = Center Lane
LTL = Left Turn Lane
CTL = Center Turn Lane
RTL = Right Turn Lane
DECEL = Deceleration Lane
ACCEL = Acceleration Lane
OSS = Outside Shoulder
ISS = Inside Shoulder
GM = Grass Median
OGS = Outside Grass Shoulder
PS = Paved Shoulder
RT LN = Right Lane
LT LN = Left Lane
COL = Collector Lane
D = Dry Soil
RT = Right
LT = Left
(I) = Inside
(O) = Outside
M = Moist Soil
NB = Northbound
SB = Southbound
FW = From White
FY = From Yellow
W = Wet Soil
ABC = Aggregate Base Course
CTBC = Cement-Treated Base Course
RES = Residual Soil
R.E. = Roadway Embankment

Schnabel ENGINEERING

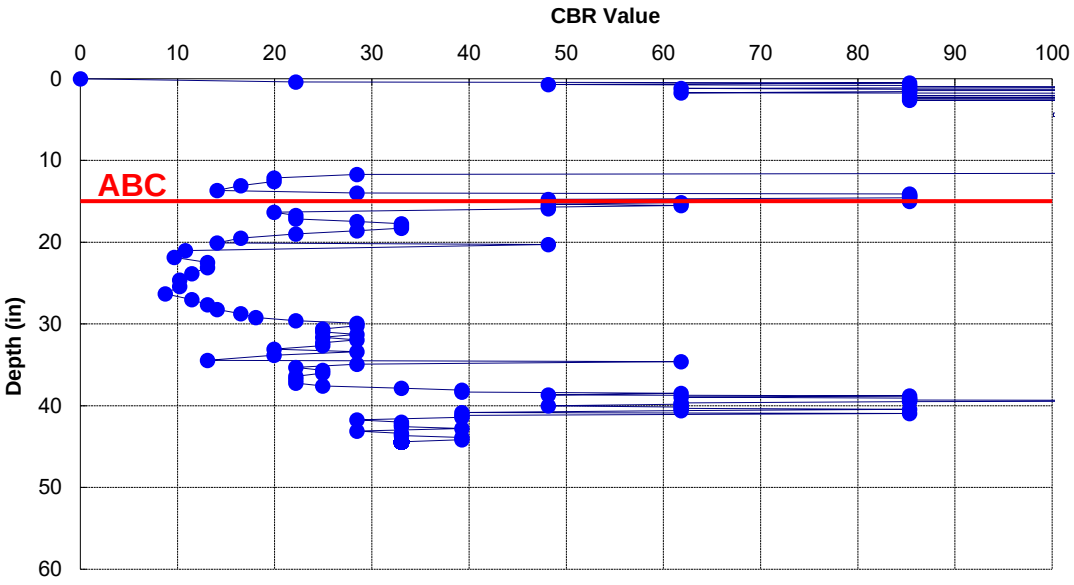
CONE PENETROMETER RESULTS

PROJECT NO.	B-5541
PROJECT NAME	2-Lane Extension of SR 1630
ROUTE	Replace Bridge No. 236 on I-40
COUNTY	Haywood

GEOLOGIST	Quinton Hill
GEOTECH(S)	C. Odom
	Z. Taylor
	N/A

L_PC_2000_EB ISS 1

Datum = Top of subbase 3/12/2024

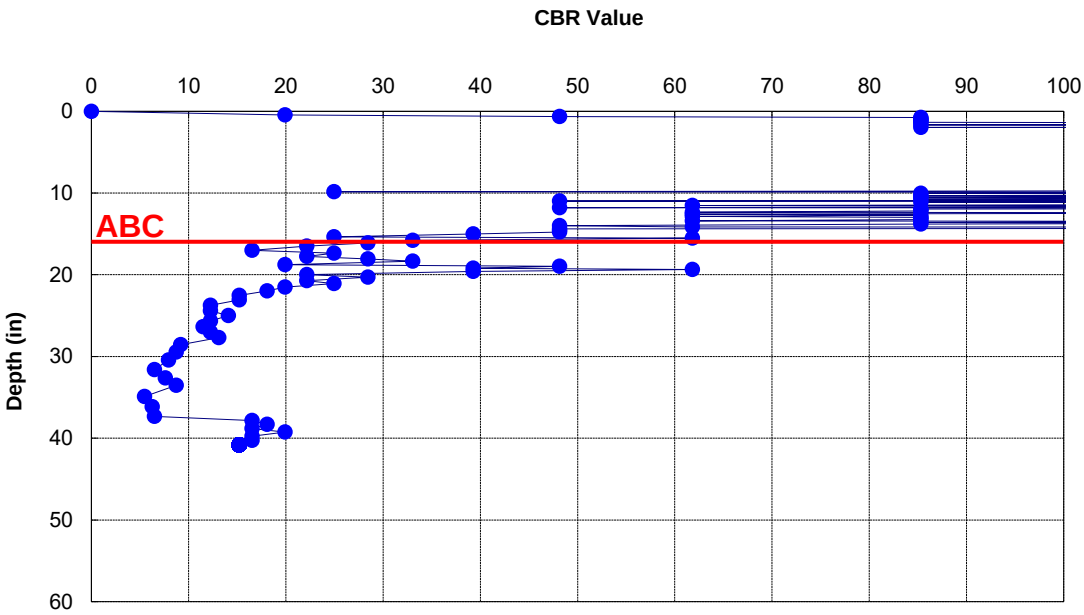


Interval 0.0 to 15.0	
# of Values	246
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	14.1

Interval 15.0 to 44.4	
# of Values	86
Avg CBR	36.6
Wghtd Avg.	-
Max CBR	100+
Min CBR	8.7

L_PC_2000_EB ISL 2

Datum = Top of subbase 3/12/2024



Interval 0.0 to 16.0	
# of Values	274
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	19.9

Interval 16.0 to 40.8	
# of Values	42
Avg CBR	18.9
Wghtd Avg.	-
Max CBR	61.8
Min CBR	5.4

CONE PENETROMETER RESULTS

PROJECT NO.	B-5541
PROJECT NAME	2-Lane Extension of SR 1630
ROUTE	Replace Bridge No. 236 on I-40
COUNTY	Haywood

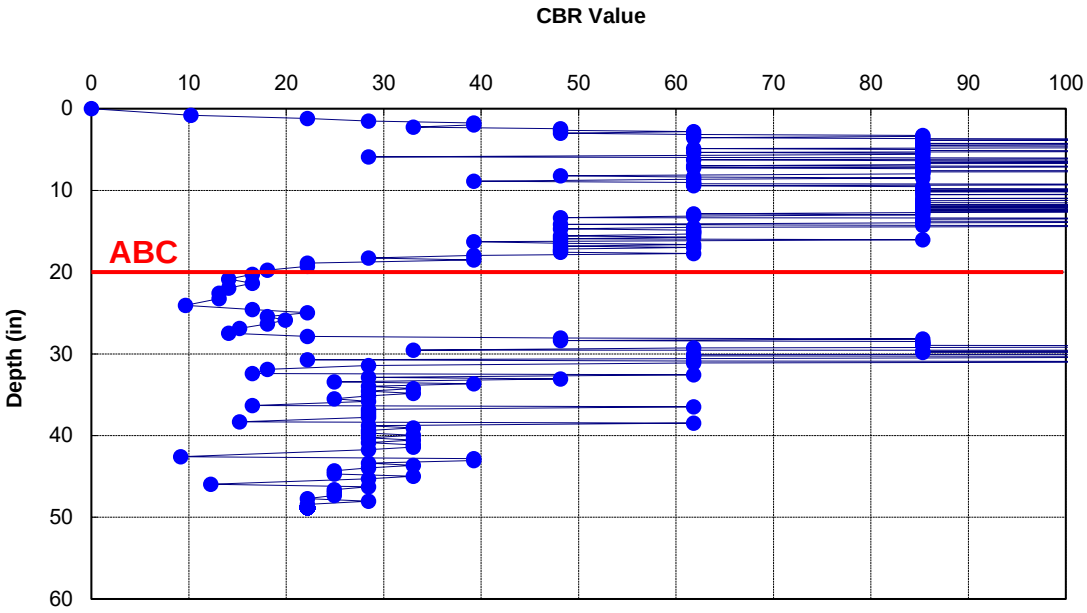
GEOLOGIST	Quinton Hill
GEOTECH(S)	C. Odom
	Z. Taylor
	N/A

L_PC_2000_EB OSS 3

Datum = Top of subbase 3/12/2024

Interval 0.0 to 20.0	
# of Values	137
Avg CBR	89.8
Wghtd Avg.	-
Max CBR	100+
Min CBR	10.2

Interval 20.0 to 48.8	
# of Values	91
Avg CBR	47.9
Wghtd Avg.	-
Max CBR	100+
Min CBR	9.2

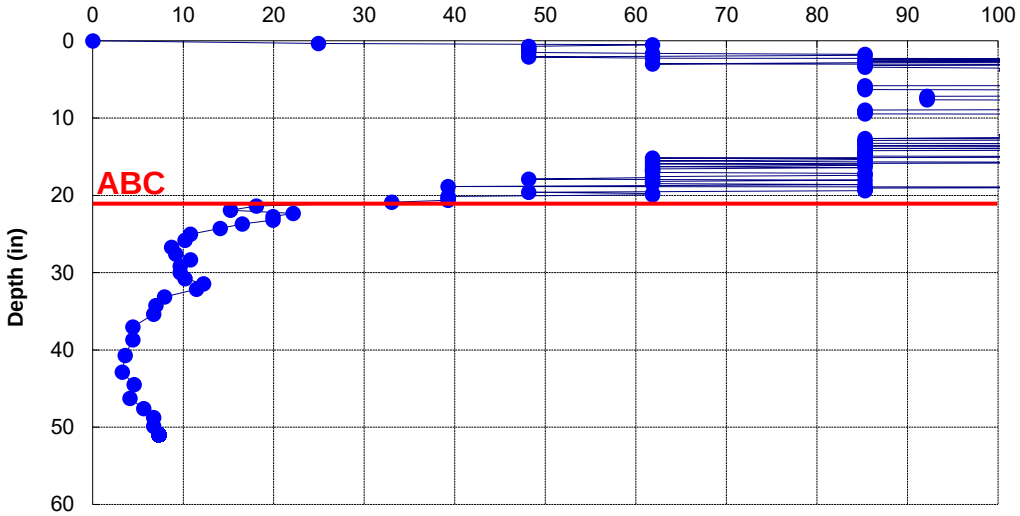


L_PC_2260_WB OSS 4

Datum = Top of subbase 3/14/2024

Interval 0.0 to 21.0	
# of Values	202
Avg CBR	100+
Wghtd Avg	-
Max CBR	100+
Min CBR	18.1

Interval 21.0 to 50.9	
# of Values	29
Avg CBR	9.8
Wghtd Avg	-
Max CBR	22.2
Min CBR	3.3



CONE PENETROMETER RESULTS

PROJECT NO.	B-5541
PROJECT NAME	2-Lane Extension of SR 1630
ROUTE	Replace Bridge No. 236 on I-40
COUNTY	Haywood

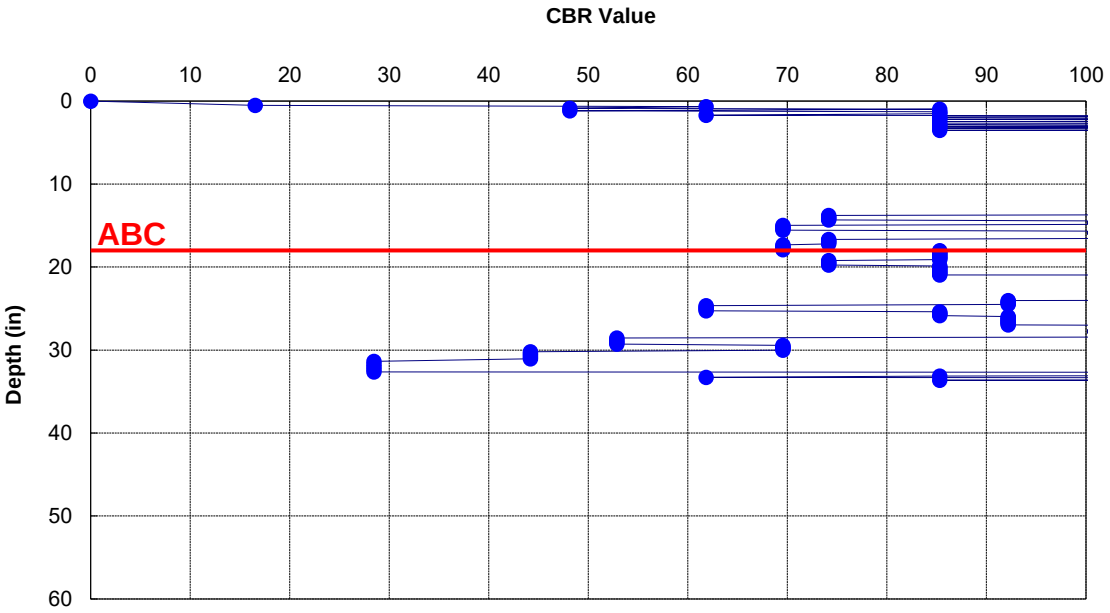
GEOLOGIST	Quinton Hill
GEOTECH(S)	C. Odom
	Z. Taylor
	N/A

L_PC_2260_WB ISL 5

Datum = Top of subbase 3/14/2024

Interval 0.0 to 18.0	
# of Values	241
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	16.5

Interval 18.0 to 36.9	
# of Values	216
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	28.4

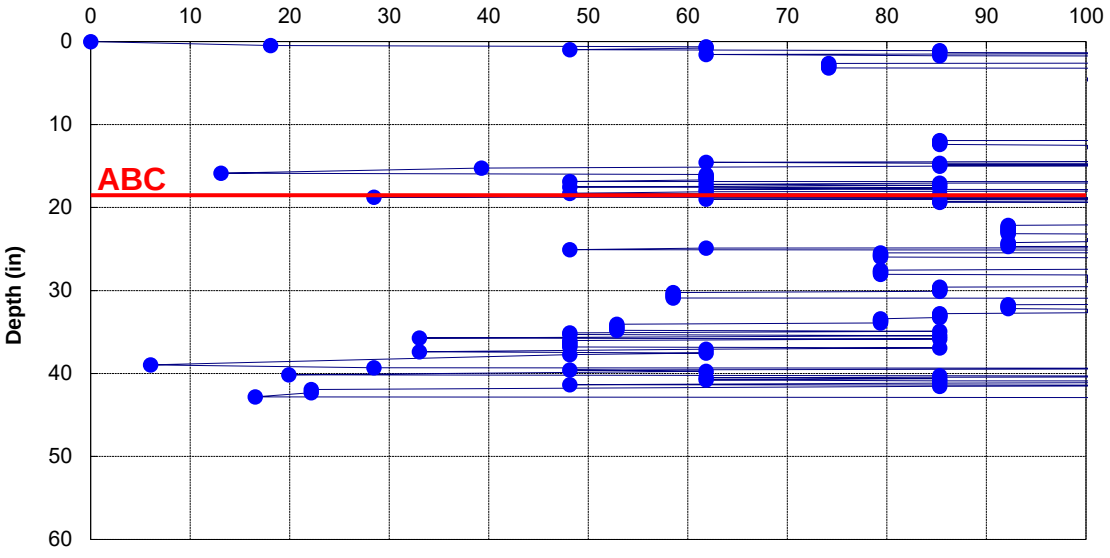


L_PC_2260_WB ISS 6

Datum = Top of subbase 3/14/2024

Interval 0.0 to 18.5	
# of Values	265
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	13.1

Interval 18.5 to 45.0	
# of Values	222
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	6.0



CONE PENETROMETER RESULTS

PROJECT NO.	B-5541
PROJECT NAME	2-Lane Extension of SR 1630
ROUTE	Replace Bridge No. 236 on I-40
COUNTY	Haywood

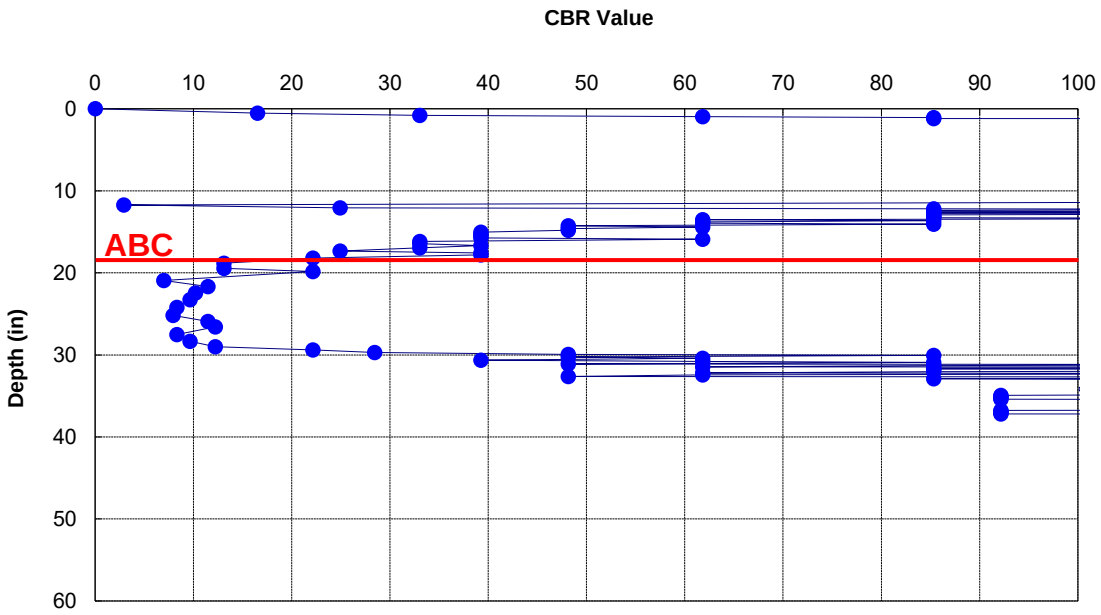
GEOLOGIST	Quinton Hill
GEOTECH(S)	C. Odom
	Z. Taylor
	N/A

L_PC_3500_EB ISS 7

Datum = Top of subbase 3/12/2024

Interval 0.0 to 18.5	
# of Values	278
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	2.9

Interval 18.5 to 41.8	
# of Values	200
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	7.0

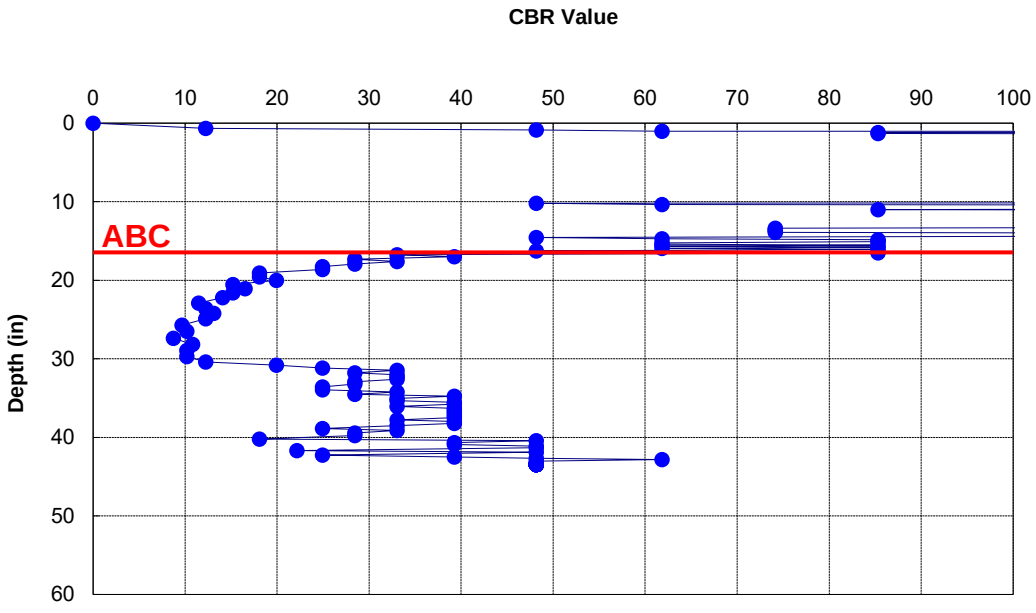


L_PC_3500_EB ISL 8

Datum = Top of subbase 3/12/2024

Interval 0.0 to 16.5	
# of Values	347
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	12.2

Interval 16.5 to 43.4	
# of Values	72
Avg CBR	29.6
Wghtd Avg.	-
Max CBR	61.8
Min CBR	8.7



CONE PENETROMETER RESULTS

PROJECT NO.	B-5541
PROJECT NAME	2-Lane Extension of SR 1630
ROUTE	Replace Bridge No. 236 on I-40
COUNTY	Haywood

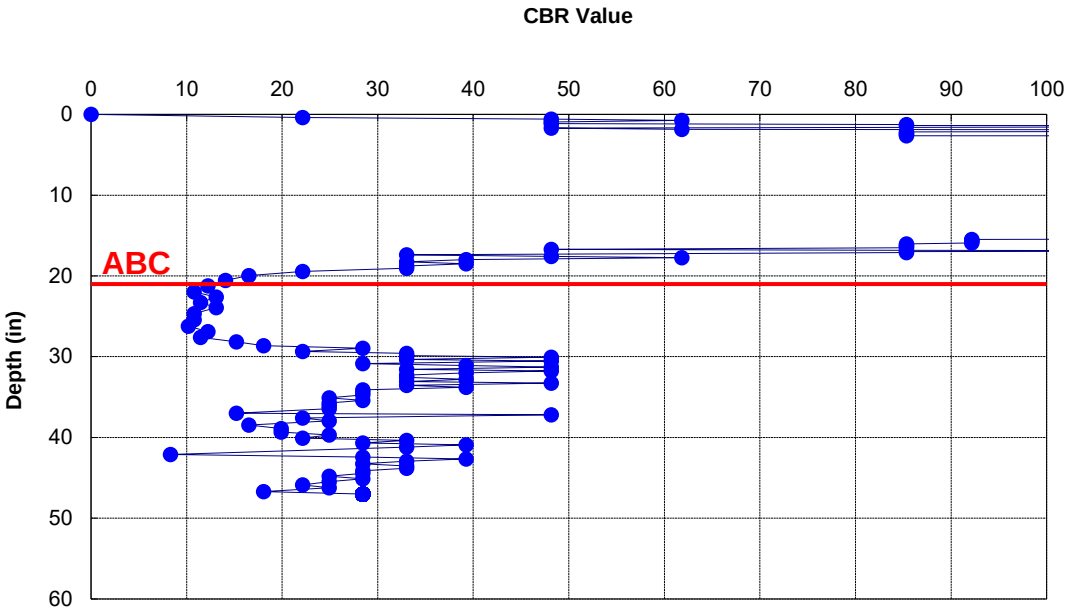
GEOLOGIST	Quinton Hill
GEOTECH(S)	C. Odom
	Z. Taylor
	N/A

L_PC_3500_EB OSS 9

Datum = Top of subbase 3/12/2024

Interval 0.0 to 21.0	
# of Values	266
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	12.2

Interval 21.0 to 47.0	
# of Values	68
Avg CBR	27.5
Wghtd Avg.	-
Max CBR	48.1
Min CBR	8.3

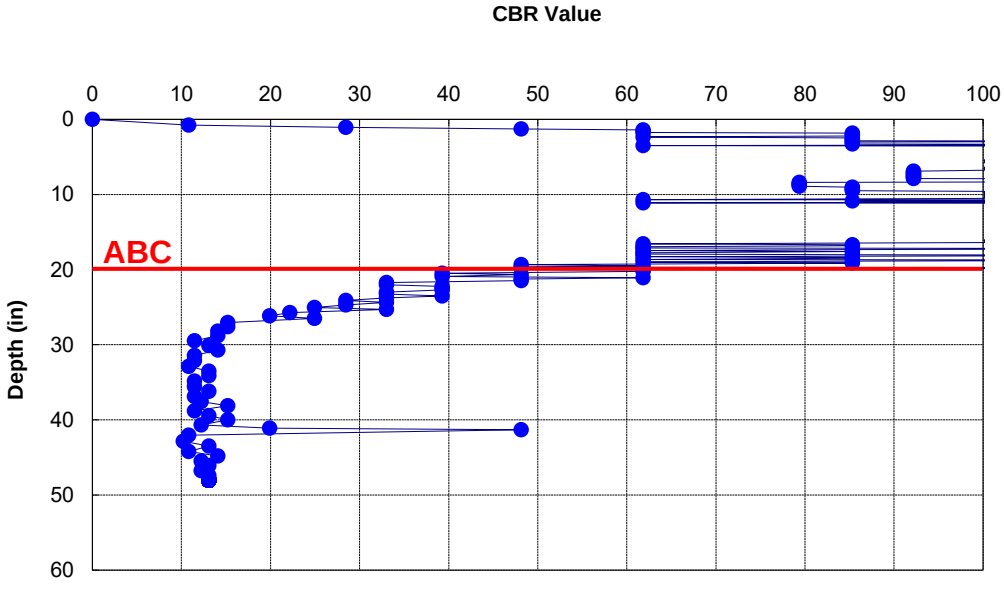


L_PC_3750_WB OSS 10

Datum = Top of subbase 3/14/2024

Interval 0.0 to 20.0	
# of Values	202
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	10.8

Interval 20.0 to 48.0	
# of Values	58
Avg CBR	23.4
Wghtd Avg.	-
Max CBR	61.8
Min CBR	10.2



CONE PENETROMETER RESULTS

PROJECT NO.	B-5541
PROJECT NAME	2-Lane Extension of SR 1630
ROUTE	Replace Bridge No. 236 on I-40
COUNTY	Haywood

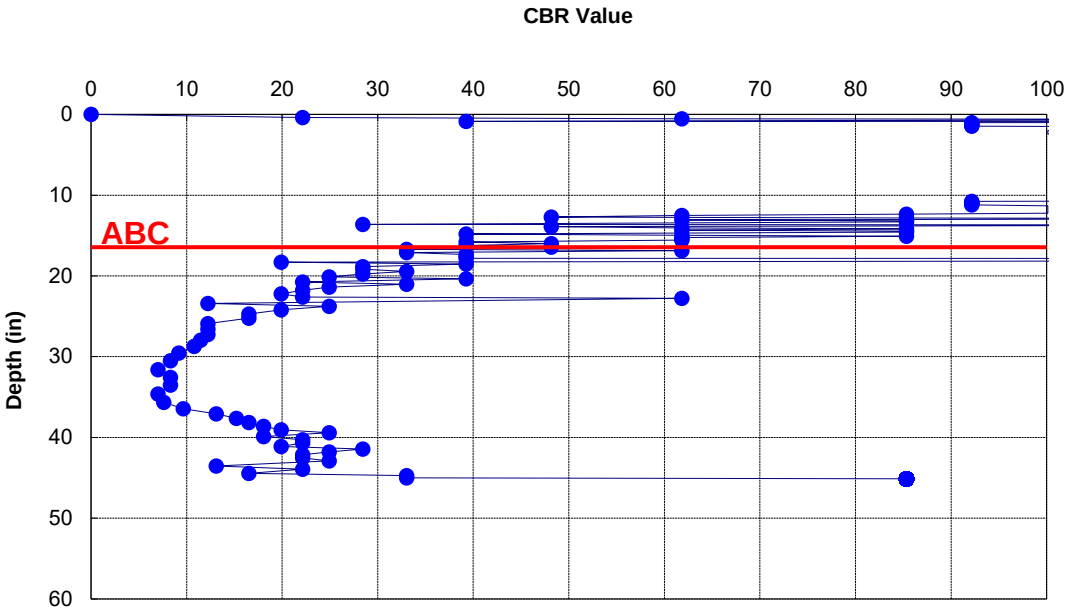
GEOLOGIST	Quinton Hill
GEOTECH(S)	C. Odom
	Z. Taylor
	N/A

L_PC_3750_WB OSL 11

Datum = Top of subbase 3/14/2024

Interval 0.0 to 16.5	
# of Values	202
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	22.2

Interval 16.5 to 45.1	
# of Values	60
Avg CBR	28.0
Wghtd Avg.	-
Max CBR	100+
Min CBR	7.0

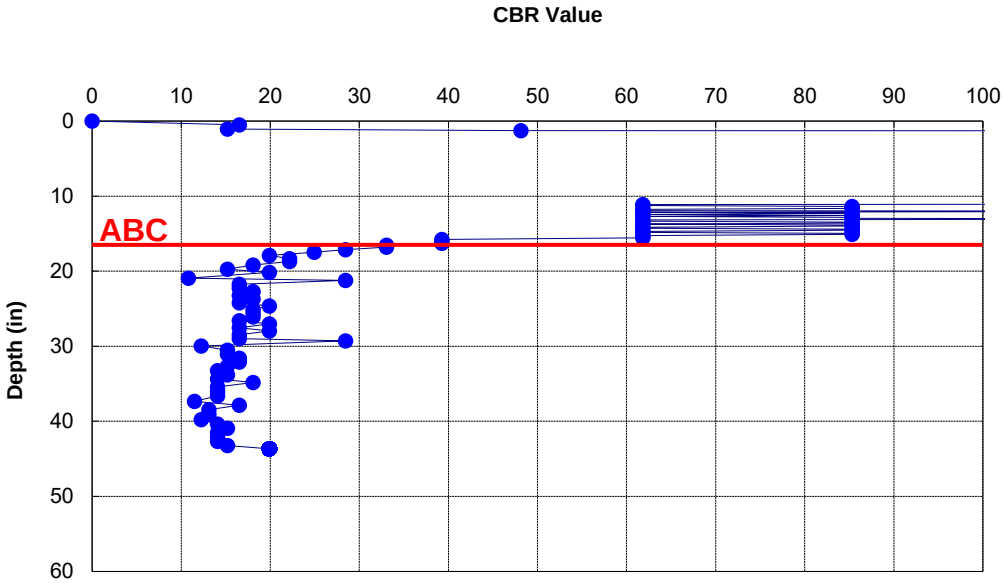


L_PC_3750_WB ISS 12

Datum = Top of subbase 3/13/2024

Interval 0.0 to 16.5	
# of Values	295
Avg CBR	100+
Wghtd Avg.	-
Max CBR	100+
Min CBR	15.2

Interval 16.5 to 43.7	
# of Values	53
Avg CBR	17.4
Wghtd Avg.	-
Max CBR	33.0
Min CBR	10.8



PAVEMENT CORE PHOTOGRAPHS
TIP No. B-5541|Haywood County, NC

L_PC_2000_EB_ISS

TOP

BOTTOM

TOP

BOTTOM

L_PC_2000_EB_ISL

L_PC_2000_EB_OSS

TOP

BOTTOM

TOP

BOTTOM

L_PC_2260_WB_OSS

PAVEMENT CORE PHOTOGRAPHS
TIP No. B-5541|Haywood County, NC

L_PC_2260_WB_ISL

TOP

BOTTOM

TOP

BOTTOM

L_PC_2260_WB_ISS

L_PC_3500_EB_ISS

TOP

BOTTOM

TOP

BOTTOM

L_PC_3500_EB_ISL

PAVEMENT CORE PHOTOGRAPHS
TIP No. B-5541|Haywood County, NC

L_PC_3500_EB_OSS

TOP

BOTTOM

TOP

BOTTOM

L_PC_3750_WB_OSS

L_PC_3750_WB_OSL

TOP

BOTTOM

TOP

BOTTOM

L_PC_3750_WB_ISS

Project: 55041.1.1
TIP: B-5541

PAVEMENT CORE EVALUATION FOR I-40
HAYWOOD COUNTY, NC

Prepared by: J. Jenkins
Reviewed by: J. Crenshaw

CORE LOCATION				SUBBASE		PAVEMENT CORE EVALUATION			
Line	Station Total Pavement (in.)	Lane Direction	Lane Location	Layer Type	Layer Thick-ness (in.)	Layer Type	Layer Thick-ness (in.)	# of Lifts	REMARKS
-L-	20+00	EB	ISS	ABC	15.0	S	5.00	3	Low severity oxidation and stripping in 1st two lifts.
						B	8.50	3	Low severity stripping at boundary of 2nd/3rd lift.
	13.50								
-L-	20+00	EB	ISL	ABC	16.0	OGFC	1.00	1	
						S	1.50	1	
						I	4.00	1	
						S	3.75	3	Mechanical break at lift interface.
	14.00					B	3.75	1	Low severity stripping.
-L-	20+00	EB	OSS	ABC	20.0	S	7.50	4	Aggregate size ≤12.5mm. Bottom 1" is larger bound aggregate.
								0	
	7.50							0	
-L-	22+60	WB	OSS	ABC	21.0	S	6.50	3	Aggregate size ≤12.5mm. Bottom 1" is larger bound aggregate.
								0	
	6.50							0	
-L-	22+60	WB	ISL	ABC	18.0	OGFC	1.00	1	
						S	1.50	1	
						I	4.00	1	Mechanical break at lift interface.
						S	3.75	3	
	14.00					B	3.75	1	
-L-	22+60	WB	ISS	ABC	18.5	S	5.00	3	Aggregate size ≤12.5mm. Delamination 2.5" from top.
						B	7.50	3	
	12.50							0	
-L-	35+00	EB	ISS	ABC	18.5	S	5.50	3	Aggregate size ≤12.5mm. Low severity stripping near bottom of 3rd lift.
						I	5.00	2	Mechanical break within 1st lift.
	13.50					B	3.00	1	
-L-	35+00	EB	ISL	ABC	16.5	OGFC	1.00	1	
						S	9.00	6	Aggregate size ≤12.5mm. 4th lift 0.5", possible OGFC.
	13.50					B	3.50	1	
-L-	35+00	EB	OSS	ABC	21.0	S	6.50	3	Aggregate size ≤12.5mm.
								0	
	6.50							0	
-L-	37+50	WB	OSS	ABC	20.0	S	6.00	3	Aggregate size ≤12.5mm.
								0	
	6.00							0	
-L-	37+50	WB	OSL	ABC	16.5	OGFC	1.00	1	
						S	4.00	2	Aggregate size ≤12.5mm.
	13.50					I	8.50	4	3rd lift is 1" of surface mix.
-L-	37+50	WB	ISS	ABC	16.5	S	5.50	3	Aggregate size ≤12.5mm.
						I	5.00	2	
	13.50					B	3.00	1	

Abbrevations:

OSL = Outside Lane CTL = Center Turn Lane OSS = Outside Shoulder PS = Paved Shoulder RT = Right NB = Northbound ABC = Aggregate Base Course
ISL = Inside Lane RTL = Right Turn Lane ISS = Inside Shoulder RT LN = Right Lane LT = Left SB = Southbound RES = Residual Soil
CL = Center Lane DECEL = Deceleration Lane GM = Grass Median LT LN = Left Lane (I) = Inside FW = From White R.E. = Roadway Embankment
LTL = Left Turn Lane ACCEL = Acceleration Lane OGS = Outside Grass Shoulder COL = Collector Lane (O) = Outside FY = From Yellow

Pavement Layer Types:

(S) = Surface (I) = Intermediate (B) = Base SD = Sand Asphalt C = Concrete MS/CS = Mat Seal or Chip Seal OGFC = Open Graded Friction Course UT = Ultra-thin Bonded Wearing Cours
PADC = Permeable Asphalt Drainage Course DS = Drainage Sand CTBC = Cement Treated Base Course PC = Prime Coat S-C = Soil Cement S-L = Soil Lime
N.E. = Not Encountered FEA = Flat and Elongated Aggregate

Note: Core evaluation provided for information only.

Schnabel ENGINEERING

REPLACE BRIDGE NO. 236 ON I-40 OVER SR 1513 IN HAYWOOD COUNTY

PAVEMENT INVESTIGATION SOIL TEST RESULTS -L-

SAMPLE NO.	BORING ID	OFFSET DISTANCE	DEPTH INTERVAL (ft)	AASHTO CLASS.	L.L	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-3	L_PC_2000_EB ISL	4' FY	4.0-5.0	A-2-4 (0)	31	8	37.6	30.3	6.5	25.6	87.2	62.5	33.1	13	-
S-13	L_PC_2260_WB OSS	5' FW	4.0-5.0	A-2-4 (0)	NP	NP	41.6	29.3	7.5	21.6	84	55.3	28.9	18	-
S-9	L_PC_2260_WB ISL	4' FY	4.0-5.0	A-2-4 (0)	NP	NP	39.2	38	3.5	19.4	90.6	68.7	25.4	8	-
S-2	L_PC_3500_EB OSS	3.5' FW	4.0-5.0	A-7-6 (4)	45	18	27.5	31.7	18.1	22.6	93.9	75.1	43.8	77	-
S-6	L_PC_3500 EB ISS	1.5' FW	4.0-5.0	A-4 (0)	29	6	31.8	35.5	12.8	19.9	90.8	70.2	36.1	10	-
S-10	L_PC_3750_WB OSS	7' FW	2.1-3.0	A-2-4 (0)	NP	NP	50.2	26.2	11	12.6	80.2	50.8	24.1	4	-
S-11	L_PC_3750_WB OSS	7' FW	4.0-5.0	A-2-4 (0)	NP	NP	41.2	32.1	5.7	21	84.4	55.9	27.7	13	-
S-7	L_PC_3750_WB ISS	0.5' FY	4.0-5.0	A-6 (1)	39	11	30.2	33.2	14.3	22.2	92.7	72.2	40	15	-

Notes:

1. Refer to Pavement Investigation Data Sheet for station abbreviations

BULK SAMPLE SOIL TESTS SUMMARY FOR -L-

Station	Offset (ft)	Sample ID	Depth Interval (ft)	AASHTO Soil Class. (Group Index)	L.L.	P.I.	% Passing (Sieves)			Max. Dry Density (pcf)	Optimum Moisture Content (%)	CBR Value		CBR Swell (%)
							10	40	200			0.1"	0.2"	
25+00	80' RT	BS-2	0.0 - 10.0	A-6 (5)	40	16	89.3	67.3	50.3	107.1	17.3	3.4	3.8	2.5
34+50	80' RT	BS-1	0.0 -10.0	A-7-5 (4)	52	15	96.2	75.7	46	107.2	18.8	2.7	3.4	4.7

Notes: 1. Refer to laboratory transmittal for additional information

BULK SAMPLE SOIL TESTS SUMMARY FOR -Y1-

Station	Offset (ft)	Sample ID	Depth Interval (ft)	AASHTO Soil Class. (Group Index)	L.L.	P.I.	% Passing (Sieves)			Max. Dry Density (pcf)	Optimum Moisture Content (%)	CBR Value (Corrected)		CBR Swell (%)
							10	40	200			0.1"	0.2"	
26+00	15' LT	BS-3	0.0 - 10.0	A-2-6 (0)	37	12	64.9	40.3	20.5	119.6	14	12	13.3	4.1

Notes: 1. Refer to laboratory transmittal for additional information