City of Asheville, NC

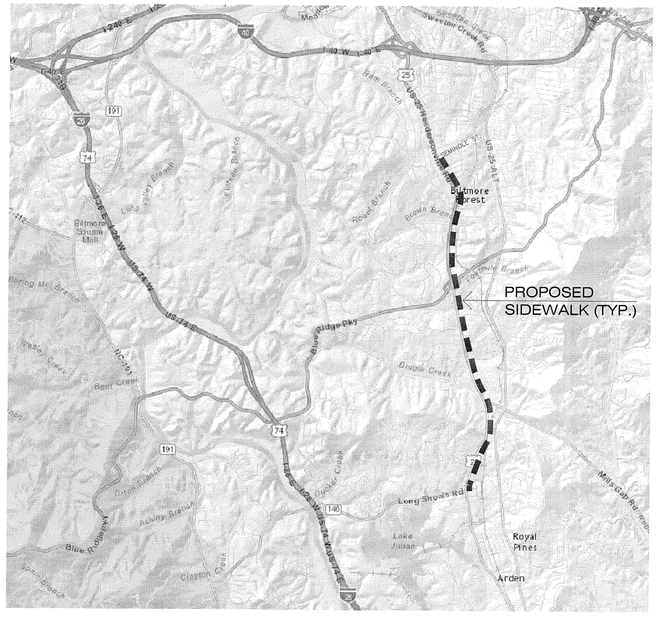
prepared by the **Capital Projects Management Division**

PO Box 7148 • Asheville, N.C. 28802 • 828-259-5617

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

CITY OF ASHEVILLE, NORTH CAROLINA

TIP NUMBER: U-5189



VICINITY MAP
N.T.S.

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	TEMP. CONSTRUCTION ESMT.
	UNDER GROUND TELEPHONE
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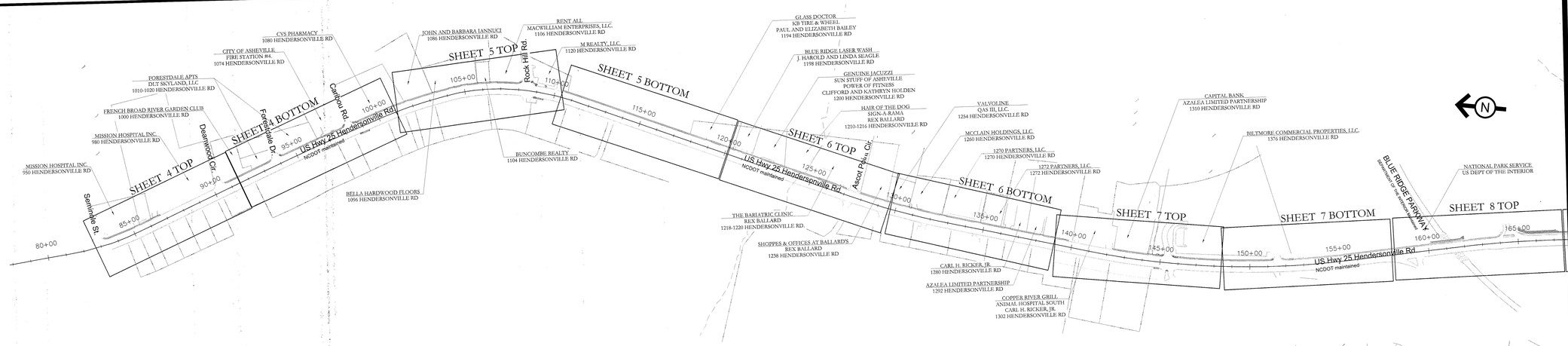
	UNDER GROUND GAS LINE
	UNDER GROUND FIBER OPTIC LINE
	EROSION CONTROL - SILT FENCE
	EXISTING BOUNDARY MONUMENT
	EXISTING SEWER MANHOLE (SS MH)
	EXISTING CLEAN OUT (C/O)
	EXISTING WATER METER (WM)
	EXISTING WATER VALVE (WV)
	EXISTING FIRE HYDRANT (FH)
	EXISTING UTILITY POLE
	EXISTING GUY WIRE (GUY)
	EXISTING NCDOT PULL BOX (PB)
	EXISTING SIGN
	EXISTING PAVEMENT MARKINGS
	PROPOSED SIDEWALK (SW)
	PROPOSED DETECTABLE WARNING SURFACE (DWS)
	PROPOSED DEMOLITION (DEMO)
	PROPOSED PAVEMENT MARKINGS

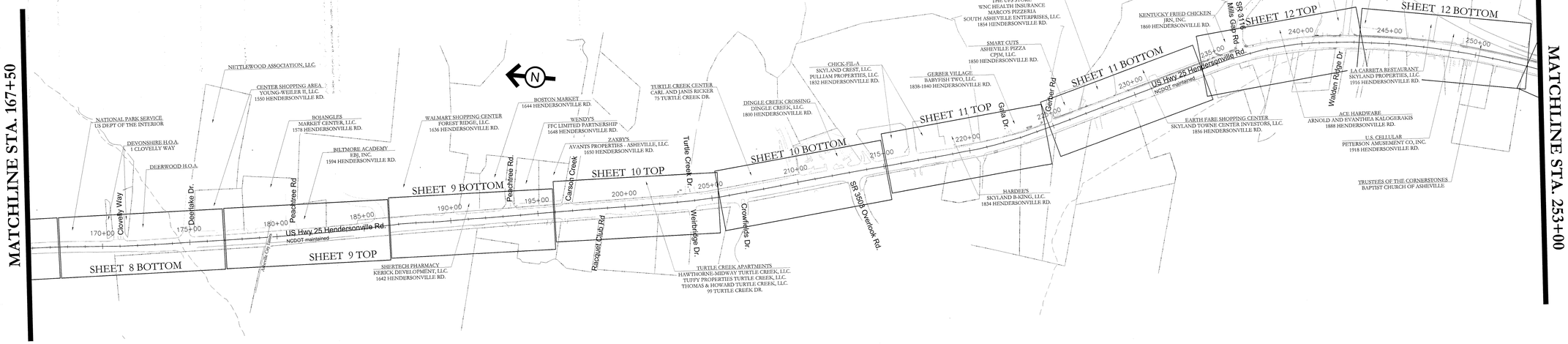
BEFORE YOU DIG !
CALL 1-800-632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW !

NORTH CAROLINA PROFESSIONAL SEAL 023159 ENGINEER CATHY

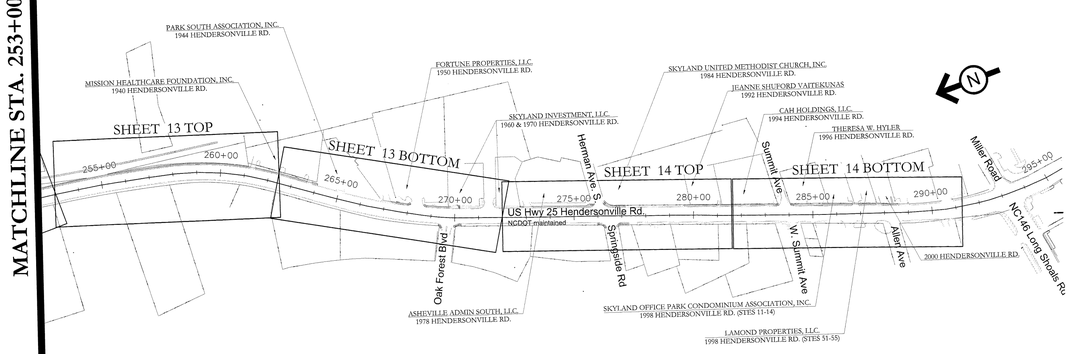


MATCHLINE STA. 167+50

MATCHLINE STA. 253+00



MATCHLINE STA. 253+00



City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

SHEET INDEX

NORTH CAROLINA PROFESSIONAL SEAL 023151 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=300'
DRAWING NAME: US Hwy25 Sidewalk.dwg

GENERAL NOTES:

WORKING HOURS

THE CONTRACTOR SHALL COMPLETE THE REQUIRED WORK OF INSTALLING, MAINTAINING, AND REMOVING THE TRAFFIC CONTROL DEVICES FOR LANE CLOSURES AND RESTORING TRAFFIC TO THE EXISTING TRAFFIC PATTERN. THE CONTRACTOR SHALL NOT CLOSE OR NARROW A LANE OF TRAFFIC ON (US 25) HENDERSONVILLE ROAD DURING THE FOLLOWING TIME RESTRICTIONS: MONDAY - SUNDAY (7 A.M. TO 7 P.M.)

IN ADDITION, THE CONTRACTOR SHALL NOT CLOSE OR NARROW A LANE OF TRAFFIC ON (US 25) HENDERSONVILLE ROAD, DETAIN AND/OR ALTER THE TRAFFIC FLOW ON OR DURING HOLIDAYS, HOLIDAY WEEKENDS, SPECIAL EVENTS, OR ANY OTHER TIME WHEN TRAFFIC IS UNUSUALLY HEAVY, INCLUDING THE FOLLOWING SCHEDULES:

HOLIDAY & HOLIDAY WEEKEND LANE CLOSURE RESTRICTIONS

FOR AN UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

1. FOR NEW YEAR'S DAY, BETWEEN THE HOURS OF [7 P.M.] DECEMBER 31ST AND [7 P.M.] JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY, THEN UNTIL [7 P.M.] THE FOLLOWING TUESDAY.
2. FOR EASTER, BETWEEN THE HOURS OF [7 P.M.] THURSDAY AND [7 P.M.] MONDAY.
3. FOR MEMORIAL DAY, BETWEEN THE HOURS OF [7 P.M.] FRIDAY AND [7 P.M.] TUESDAY.
4. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF [7 P.M.] THE DAY BEFORE INDEPENDENCE DAY AND [7 P.M.] THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY, THEN BETWEEN THE HOURS OF [7 P.M.] THE THURSDAY BEFORE INDEPENDENCE DAY AND [7 P.M.] THE TUESDAY AFTER INDEPENDENCE DAY.
5. FOR LABOR DAY, BETWEEN THE HOURS OF [7 P.M.] FRIDAY AND [7 P.M.] TUESDAY.
6. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF [7 P.M.] TUESDAY AND [7 P.M.] MONDAY.
7. FOR CHRISTMAS, BETWEEN THE HOURS OF [7 P.M.] THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND [7 P.M.] THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS DAY.

HOLIDAYS AND HOLIDAY WEEKENDS SHALL INCLUDE NEW YEAR'S, EASTER, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING, AND CHRISTMAS. THE CONTRACTOR SHALL SCHEDULE HIS WORK SO THAT LANE CLOSURES WILL NOT BE REQUIRED DURING THESE PERIODS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL

THE CONTRACTOR SHALL MAINTAIN TRAFFIC DURING OPERATIONS AND PROVIDE, INSTALL, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS, NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, AND THE CURRENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

THE CONTRACTOR SHALL NOTIFY ANY POLICE, FIRE DEPARTMENTS, AND LOCAL SCHOOL DISTRICTS AT LEAST 48 HOURS IN ADVANCE OF ANY APPROVED STREET CLOSING OR TRAFFIC CHANGE.

USE OF STREETS AND SIDEWALKS

DURING THE PROGRESS OF THE WORK, THE CONTRACTOR SHALL MAKE AMPLE PROVISION FOR BOTH VEHICULAR AND FOOT TRAFFIC ON THE ADJACENT PUBLIC ROAD AND SIDEWALKS, AND SHALL INDEMNIFY AND SAVE HARMLESS THE CITY FROM ANY EXPENSE WHATSOEVER DUE TO HIS OPERATIONS OVER ROADS AND SIDEWALKS. THE CONTRACTOR SHALL NOTIFY THE POLICE DEPARTMENT, FIRE DEPARTMENT, EMERGENCY MEDICAL SERVICES, SCHOOL OFFICIALS AND ANY OTHER GROUPS AFFECTED BY USE OF STREETS AND SIDEWALKS.

NO NON-RUBBER TIRED VEHICLES SHALL BE MOVED ON PUBLIC STREETS. EXCEPTIONS MAY BE GRANTED BY THE ENGINEER WHERE SHORT DISTANCES AND SPECIAL CIRCUMSTANCES ARE INVOLVED. GRANTING OF EXCEPTIONS MUST BE IN WRITING AND ANY RESULTING DAMAGE MUST BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND AT NO COST TO THE CITY.

ALL PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF NCDOT USING STANDARD DRAWING 654.01.

DEMOLITION AND EXCAVATIONS SHALL BE DONE IN SUCH A MANNER AS TO PROVIDE FOR SAFE WORKING CONDITIONS FOR THE EMPLOYEES, RESIDENTS AND THE PUBLIC FOR THE DURATION OF THE PROJECT. ACCESS TO BUSINESSES, BUILDINGS, HOMES, AND FACILITIES ALONG THE PROJECT SHALL BE MAINTAINED AT ALL TIMES, UNLESS DIRECTED OTHERWISE BY THE ENGINEER. RAMPS, BARRICADES, SIGNS, ETC. SHALL BE UTILIZED TO SAFELY CHANNEL PEDESTRIAN TRAFFIC THROUGH A WORK ZONE. THE CONTRACTOR MUST COORDINATE WITH THE PROPERTY/BUSINESS OWNERS AND GIVE AT LEAST 72 HOURS NOTICE PRIOR TO DETOURING OR CLOSING ANY DRIVEWAY OR BUSINESS ACCESS WITHIN THE PROJECT LIMITS. THERE WILL BE NO DIRECT PAYMENT FOR THE WORK COVERED BY THIS PROVISION AND WILL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

SAWING PAVEMENT

WHERE NECESSARY TO DISTURB PAVEMENTS OR DRIVES, THE PAVEMENT SHALL BE SAW CUT FULL DEPTH IN NEAT, STRAIGHT LINES. IF, DURING CONSTRUCTION, THE PAVEMENT IS DAMAGED BEYOND THE ORIGINAL SAW CUT, THE PAVEMENT SHALL BE RE-CUT TO NEAT LINES. COST SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS. NO SEPARATE PAYMENT WILL BE MADE.

MONUMENTS AND LANDMARKS

MONUMENTS AND LANDMARKS SHALL NOT BE DISTURBED OR REMOVED BY THE CONTRACTOR OR ANY OF HIS EMPLOYEES WITHOUT THE WRITTEN CONSENT OF THE CITY.

ENTRY TO PRIVATE PROPERTY

THE CONTRACTOR SHALL NOT, EXCEPT AFTER WRITTEN CONSENT FROM THE PROPERTY OWNER, ENTER OR OCCUPY WITH PERSONNEL, TOOLS, MATERIALS OR EQUIPMENT, PRIVATELY-OWNED LAND OR THE OWNER'S PROPERTY OR FACILITIES EXCEPT AS PROVIDED HEREIN. BEFORE ENTRY THE CONTRACTOR MUST PROVIDE A COPY OF THE WRITTEN CONSENT TO THE ENGINEER.

EASEMENT REQUIREMENTS

THE CONTRACTOR SHALL BE REQUIRED TO CONFORM TO AND COMPLY WITH ALL RESTRICTIONS AND CONDITIONS OF EASEMENTS AND SPECIAL PROVISIONS.

UTILITY NOTES

THE LOCATIONS OF THE EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND HAVE BEEN PROVIDED BY THE UTILITY OWNERS. THE CITY DOES NOT WARRANT THE INFORMATION PROVIDED AND IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL UTILITIES BEFORE BEGINNING CONSTRUCTION. ANY DAMAGE TO UTILITIES INCURRED DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED AT THE CONTRACTOR'S EXPENSE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL APPROPRIATE PARTIES PRIOR TO STARTING CONSTRUCTION.

CONTRACTOR TO CONTACT UTILITY OWNER AND/OR ENGINEER TO COORDINATE RESOLUTION OF CONFLICTS.

CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE OWNER OF UTILITY STANDARDS AND SPECIFICATIONS, UNLESS OTHERWISE NOTED.

AT&T WILL ADJUST OR RELOCATE THEIR UTILITIES AS REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE ADJUSTMENTS AND RELOCATIONS WITH AT&T.

THE CONTRACTOR SHALL CONTACT AND COORDINATE WITH NCDOT PRIOR TO COMMENCING WORK AROUND ANY SIGNALIZED INTERSECTION.

SUBSURFACE INFORMATION

THERE IS NO SUBSURFACE INFORMATION AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHALL MAKE HIS OWN INVESTIGATION AS HE DEEMS NECESSARY.

CLEARING AND GRUBBING

IN ADDITION TO SECTION 200 OF THE NCDOT STANDARD SPECIFICATIONS, ROOT PRUNING AS REQUIRED, WILL BE PERFORMED BY THE CONTRACTOR AND COORDINATED WITH THE CITY OF ASHEVILLE'S ARBORIST FOR ANY ROOTS OVER 2" IN DIAMETER. THERE WILL BE NO DIRECT PAYMENT FOR THIS ITEM AND WILL BE INCIDENTAL TO OTHER PAY ITEMS.

DRIVEWAYS / CURB RAMPS

ALL CONCRETE FOR DRIVE APRONS AND SIDEWALKS CROSSING DRIVEWAYS SHALL BE HIGH EARLY STRENGTH CONCRETE.

THE CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS AND PROVIDE A 72 HOUR NOTICE PRIOR TO ALTERING DRIVEWAY ACCESS. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS WITHIN THE PROJECT LIMITS.

CURB RAMP LOCATIONS INDICATED ON THE PLANS ARE APPROXIMATE AND WILL BE DETERMINED IN THE FIELD.

WHEN "CHASING GRADE" FOR CURB RAMPS, THE RAMP LENGTH WILL BE FIELD DETERMINED AND NEED NOT EXCEED 15 FEET.

ALL DETECTABLE WARNINGS SHALL BE CONSTRUCTED OF GRAY OR DUCTILE IRON CASTINGS.

RETAINING WALL

THE WALL PROFILE AND DETAILS SHOWN ON THE PLANS ARE INTENDED FOR REFERENCE ONLY. THE CONTRACTOR SHALL ENGAGE A GEOTECHNICAL AND/OR STRUCTURAL ENGINEER TO PREPARE FINAL DESIGN AND CONSTRUCTION DRAWINGS FOR THE WALLS. THE CONTRACTOR SHALL SUBMIT SAID DESIGN TO THE OWNER FOR APPROVAL. THE SUBMITTAL PROCESS IS ILLUSTRATED IN THE GEOTECHNICAL PROVISIONS OF THE BID DOCUMENTS.

PEDESTRIAN BOARDWALK

THE PEDESTRIAN BOARDWALK PROFILE AND DETAILS SHOWN ON THE PLANS ARE INTENDED FOR REFERENCE ONLY. THE CONTRACTOR SHALL ENGAGE A STRUCTURAL ENGINEER TO PREPARE FINAL DESIGN AND CONSTRUCTION DRAWINGS FOR THE WALLS. THE CONTRACTOR SHALL SUBMIT SAID DESIGN TO THE OWNER FOR APPROVAL. THE SUBMITTAL PROCESS IS ILLUSTRATED IN THE PRECAST CONCRETE BOARDWALK PROVISIONS OF THE BID DOCUMENTS.

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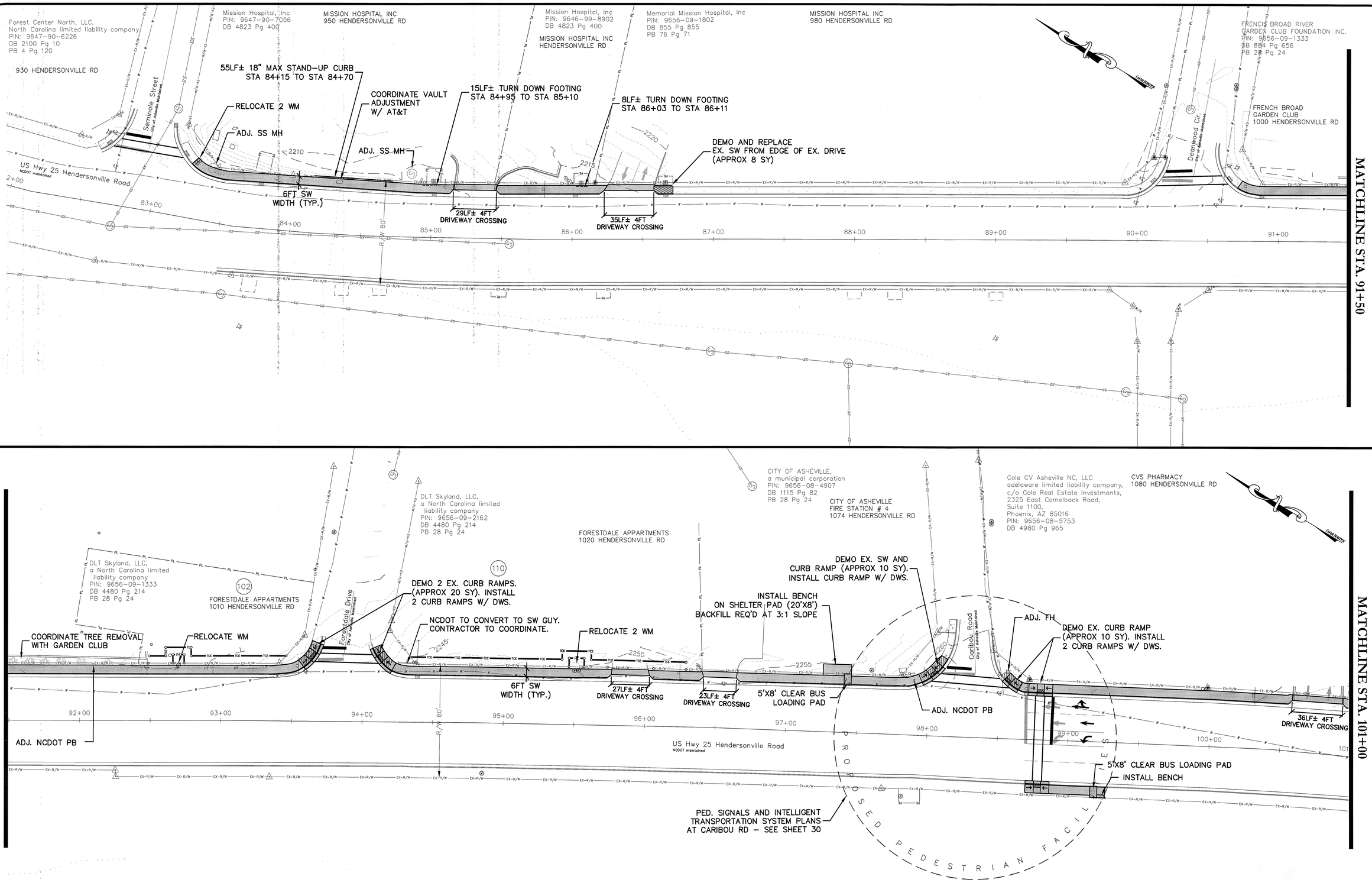
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

GENERAL NOTES

NORTH CAROLINA PROFESSIONAL SEAL 023151 ENGINEER JENNY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY	TIP No.: U5189
DRAWN: JR, JW				GRID: N/A
DESIGNED: JR, BE				DATE: APRIL 2015
CHECKED: BE				SCALE: N/A
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk.dwg



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Capital Projects Management Division

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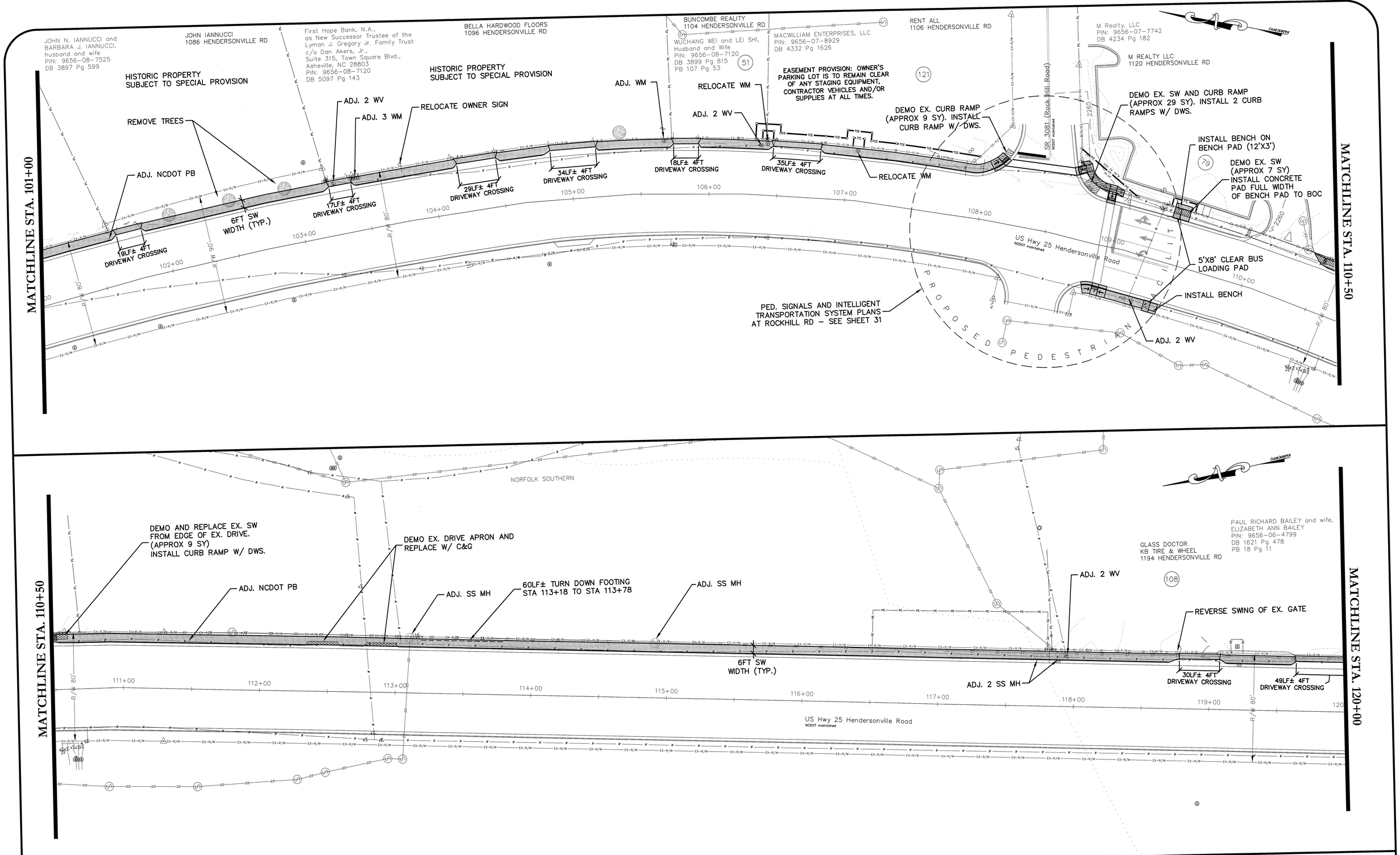
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK, STA. 82+00 TO 101+00

NORTH CAROLINA PROFESSIONAL SEAL 032351 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY	TIP No.: U5189
DRAWN: JR, SS				GRID: N/A
DESIGNED: JR, SS, BE				DATE: APRIL 2015
CHECKED: BE				SCALE: 1"=30'
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk.dwg



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HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK, STA. 101+00 TO 120+00

NORTH CAROLINA PROFESSIONAL SEAL 023151 ENGINEER CATHY D. BALL

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk.dwg

SHEET 5 OF 39

MATCHLINE STA. 120+00

J HAROLD SEAGLE and wife, LINDA C. SEAGLE
PIN: 9656-06-4681
DB 2724 Pg 765

BLUE RIDGE LASER WASH
1198 HENDERSONVILLE RD

GENUINE JACUZZI
SUN STUFF OF ASHEVILLE
POWER OF FITNESS
1200 HENDERSONVILLE RD

Clifford M. Holden and wife, Kathryn B. Holden
PIN: 9656-06-4457
DB 1743 Pg 370
PB 18 Pg 11

HAIR OF THE DOG
1210 HENDERSONVILLE RD
SIGN A RAMA
1212 HENDERSONVILLE RD
1216 HENDERSONVILLE RD
1224 HENDERSONVILLE RD
1226 HENDERSONVILLE RD

Rex E. Ballard
PIN: 9656-06-4340
DB 976 Pg 357
PB 2 Pg 40

"Brown Branch," Four Mile Branch DWQ Class: Str. 2007

THE BARIATRIC CLINC, PA
1218 HENDERSONVILLE RD
CHIROPRACTIC
1220 HENDERSONVILLE RD

Rex E. Ballard
Evelyn M. Ballard
PIN: 9656-06-4008
DB 893 Pg 478
PB 2 Pg 40

SHOPPES & OFFICES AT BALLARD'S
1238 HENDERSONVILLE RD

Rex E. Ballard
Evelyn M. Ballard
PIN: 9656-05-3876
DB 882 Pg 478

RELOCATE WM

CUT AND REMOVE EX. GRATE AS DIRECTED. (INCLUDED IN COMP. GRADING)

ADJ. SS MH

ADJ. WM

DEMO EX. SW (APPROX 4 SY)

CUT AND PATCH ASPHALT AS REQ'D

ADJ. SS MH

ADJ. WM

ADJ. WM

ADJ. SS MH

CUT AND PATCH ASPHALT AS REQ'D

DEMO EX. ISLAND (APPROX 4 SY). INSTALL 5" MONOLITHIC CONCRETE ISLAND (KEYED IN). SEE NCDOT STD. DTL. 852.01.

GRT. EL.=2203.17
INV.EL.=2200.07

ADJ. 2 WM
ADJ. FH

ADJ. WM
ADJ. SS MH

REMOVE EX. DRAINAGE STRUCTURE. INSTALL NEW OFFSET CATCH BASIN RING AND COVER TO BE SET AT NEW SW GRADE. EXTEND AND RECONNECT EX. 18" RCP AS NEEDED. SEE DTL 3/27 SIM.

GRATE ELEV.=2214.4
18" RCP INV. ELEV.=2210.4

AT&T TO CONVERT TO SW GUY. CONTRACTOR TO COORDINATE.

INSTALL 6LF± 18" MAX STAND-UP CURB BEHIND FH

10LF± TURN DOWN FOOTING

RELOCATE WM TO NW CORNER OF PE. COORDINATE W/ COA.

REMOVE EX CURB STA 127+87 TO STA 129+38

Ascot Point Circle
Private Maintained
50' Private Right of Way

35LF± 4FT DRIVEWAY CROSSING

28LF± 4FT DRIVEWAY CROSSING

38LF± 4FT DRIVEWAY CROSSING

6FT SW WIDTH (TYP.)

36LF± 4FT DRIVEWAY CROSSING

36LF± 4FT DRIVEWAY CROSSING

36LF± 4FT DRIVEWAY CROSSING

36LF± 4FT DRIVEWAY CROSSING

37LF± 4FT DRIVEWAY CROSSING

DEMO EX. SW (APPROX 21 SY)

US Hwy 25 Hendersonville Road
NCDOT maintained

EXP. JOINT

7.5FT± SW WIDTH STA 125+39 TO STA 126+43

5'X8' CLEAR BUS LOADING PAD

INSTALL BENCH

DEMO EX SW & CURB RAMP (APPROX 13 SY) INSTALL 10LF± NEW C&G

96LF± 12" MAX STAND-UP CURB, CURB TO EXTEND 6" ABOVE EX. ASPHALT GRADE STA 127+87 TO STA 128+83

7FT SW WIDTH STA 127+87 TO STA 128+82

RELOCATE GATE POST

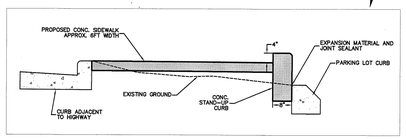
ADJ. SS MH

ADJ. WV

108LF± MODIFIED STAND-UP CURB STA 123+85 TO STA 124+95

CONVERT EXISTING DI TO OPEN THROAT INLET. CAST IN PLACE TOP W/ FRAME AND COVER NCDOT STD DTL 840.54. REINFORCE AS REQ'D. SET TOP TO SIDEWALK ELEVATION. RETROFIT TOP SO THAT THE THROAT IS LESS THAN 8 INCHES.

EXISTING DI:
GRT. EL.=2203.68
INV. EL.=2195.88



Eastwood Road
Biltmore Forest Maintained

Ridgefield Place
Biltmore Forest Maintained

QAS III, Inc., a NC Corp.
PIN: 9656-05-2773
DB 4984 Pg 4984
PB 103 Pg 35

1260 HENDERSONVILLE RD

VALVOLINE
INSTANT OIL CHANGE
1254 HENDERSONVILLE RD

McClain Holdings LLC
a North Carolina Limited Liability Company of Buncombe County, State of North Carolina
PIN: 9656-05-2577
DB 2429 Pg 525
PB 81 Pg 133

1270 (STES. 1-10) HENDERSONVILLE RD

1270 Partners LLC
a North Carolina Limited Liability Company of Buncombe County, State of North Carolina
PIN: 9656-05-2357
DB 2429 Pg 528
PB 81 Pg 133

1272 HENDERSONVILLE RD

1272 Partners LLC
PIN: 9656-05-2220
DB 1928 Pg 423
PB 67 Pg 27

1280 HENDERSONVILLE RD

Carl H. Ricker Jr.
PIN: 9656-05-3027
DB 1535 Pg 5

1292 HENDERSONVILLE RD

Azalea Limited Partnership, a North Carolina Limited Partnership
PIN: 9656-04-3807
DB 1970 Pg 695

55LF± 12" MAX STAND-UP CURB STA 129+80 TO STA 130+35

ADJ. SS MH

ADJ. WM

4' MINIMUM CLEARANCE AROUND UTILITY POLE

6FT SW WIDTH (TYP.)

ADJ. PVC C/O AND INSTALL CLEANOUT BOX SEE DTL 1/28

ADJ. SS MH

137LF± 8" MAX STAND-UP CURB STA 132+98 TO STA 134+35

ADJ. WM

86LF± 12" MAX STAND-UP CURB STA 134+97 TO STA 135+83

ADJ. SS MH

RELOCATE FH

ADJ. WV

ADJ. 2 WM

REMOVE TREES AS REQ'D

ADJ. WM

30LF± 4FT DRIVEWAY CROSSING

30LF± 4FT DRIVEWAY CROSSING

35LF± 4FT DRIVEWAY CROSSING

AT&T TO CONVERT TO SW GUY. CONTRACTOR TO COORDINATE.

33LF± 4FT DRIVEWAY CROSSING

ADJ. 2 WM

35LF± 4FT DRIVEWAY CROSSING

ADJ. 2 WM

ADJ. SS MH

ADJ. WM

30LF± 4FT DRIVEWAY CROSSING

17LF± 4FT DRIVEWAY CROSSING

18LF± 4FT DRIVEWAY CROSSING

US Hwy 25 Hendersonville Road
NCDOT maintained

AT&T TO REPLACE METAL COVER ON UTILITY POLE AND ROTATE. CONTRACTOR TO COORDINATE.

REMOVE EX. WATER FEATURE PER OWNER'S REQUEST

MATCHLINE STA. 129+50

MATCHLINE STA. 139+00

City of Asheville, NC

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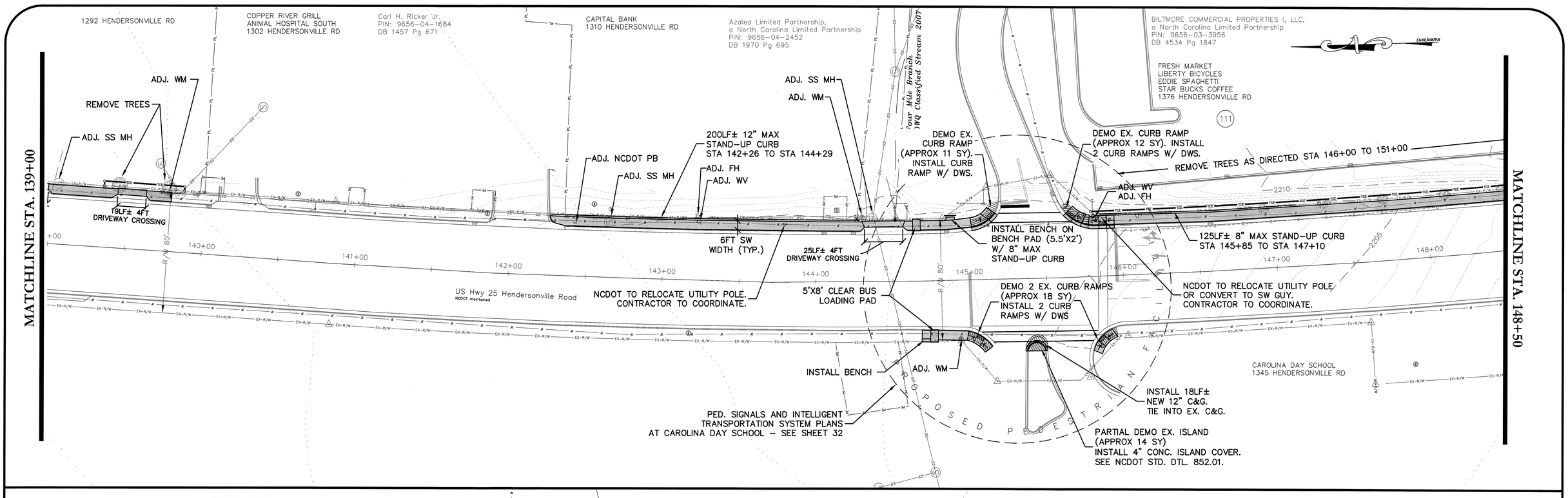
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK, STA. 120+00 TO 139+00

NORTH CAROLINA PROFESSIONAL SEAL 023151 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk.dwg



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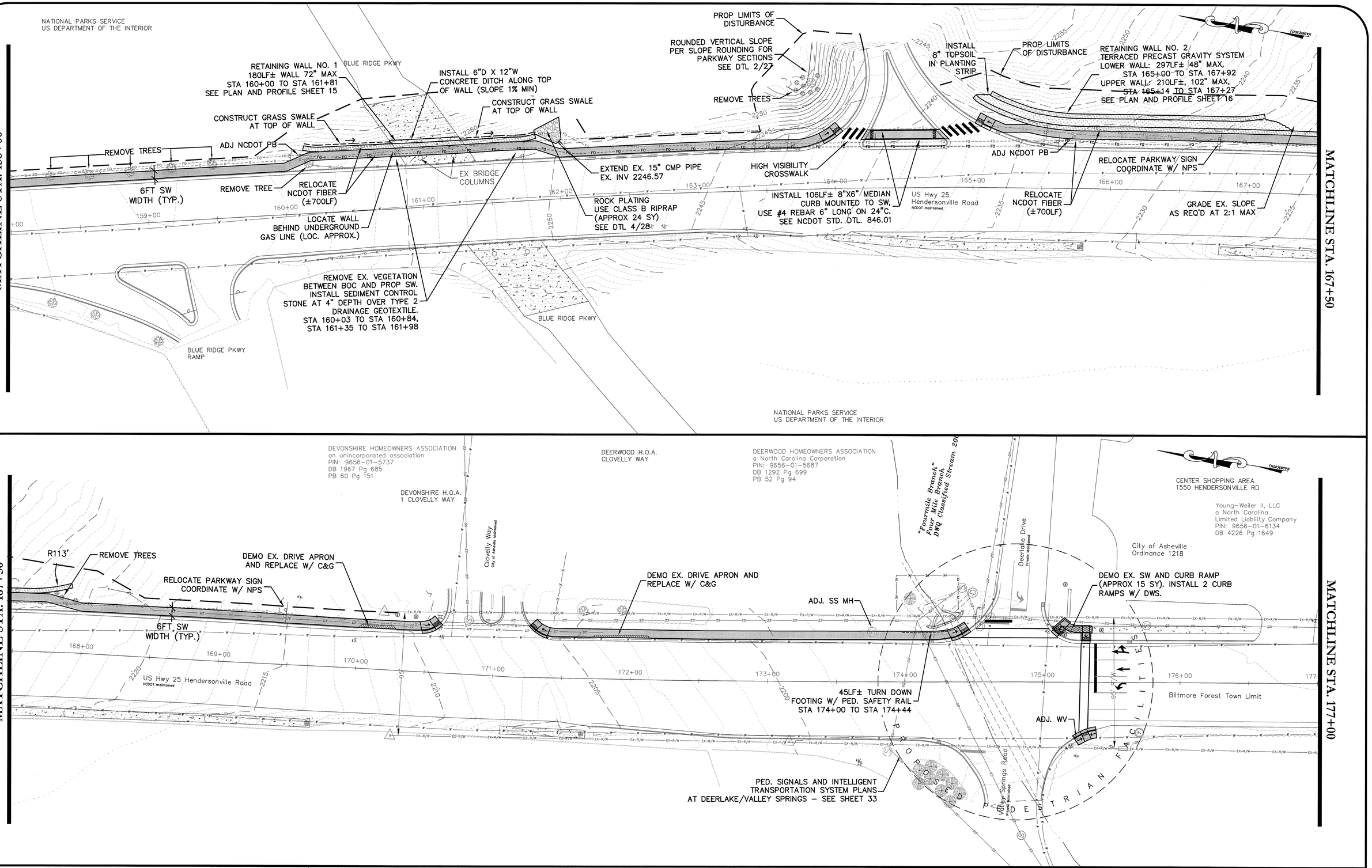
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK, STA. 139+00 TO 158+00

NORTH CAROLINA PROFESSIONAL SEAL 040215 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk.dwg



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Capital Projects Management Division
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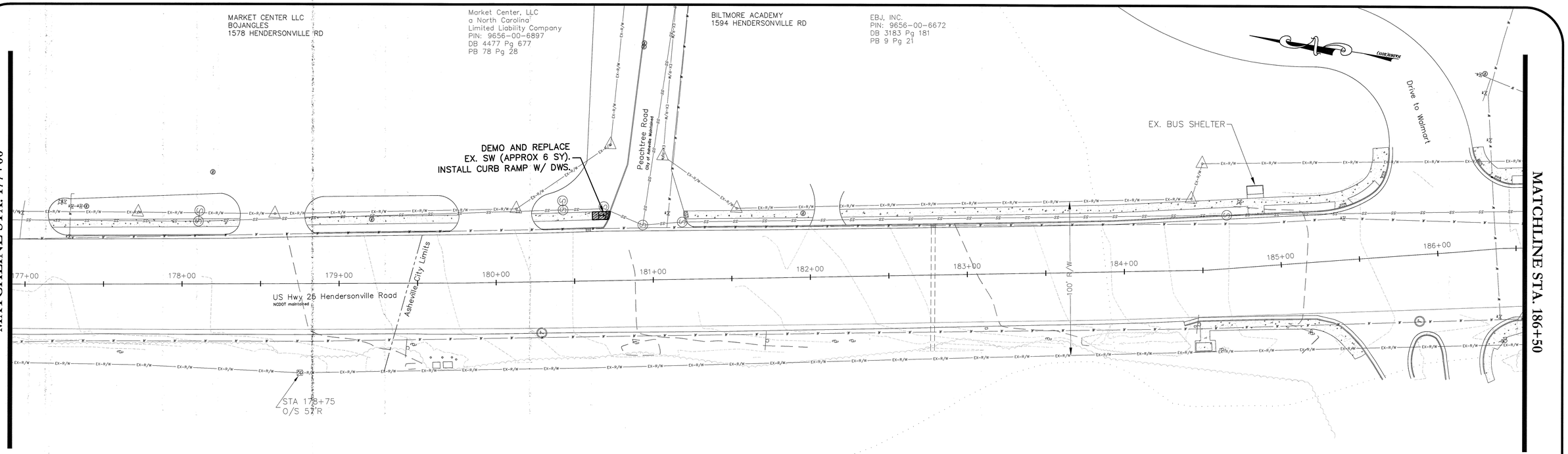
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK, STA. 158+00 TO 177+00

NORTH CAROLINA PROFESSIONAL SEAL 023151 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk.dwg



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HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK, STA. 177+00 TO 196+00

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023161 CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk.dwg

MATCHLINE STA. 196+00

240LF± 18" MAX STAND-UP CURB
STA 193+79 TO STA 196+16

RETAINING WALL NO. 3
35LF± WALL 40" MAX
STA 196+16 TO STA 196+51
TIE INTO 18" STAND-UP CURB
SEE PLAN AND PROFILE SHEET 17

REMOVE LANDSCAPING AS DIRECTED

Carson Creek Drive
Private Maintained

Hawthorne-Midway Turtle Creek, LLC 82.5383%
Tuffy Properties Turtle Creek, LLC 6.7278%
Thomas & Howard Turtle Creek, LLC 10.7339%
AS TENANTS IN COMMON
PIN: 9655-28-0036
DB 5023 Pg 1235

HAWTHORNE AT SOUTHSIDE APARTMENTS
99 TURTLE CREEK DR

RETAINING WALL NO. 4
253LF± WALL 40" MAX
STA 197+02 TO STA 199+60
TIE INTO EX. WALL
SEE PLAN AND PROFILE SHEET 17

221LF± PED. SAFETY RAIL ABOVE WALL

AT&T TO CONVERT TO SW GUY.
CONTRACTOR TO COORDINATE.

4' MINIMUM CLEARANCE AROUND UTILITY POLE

10LF± TURN DOWN FOOTING
STA 201+49 TO STA 201+59

Private Creek Drainage Area Daylighted Stream 2007

54

NOTE:
CONTRACTOR TO PROVIDE NOTICE TO PROPERTY OWNER AND COA UPON COMPLETION OF WORK WITHIN DESIGNATED TCE AREA. OWNER WILL BE GRANTED A 30 DAY INSPECTION PERIOD TO DETERMINE COMPLIANCE WITH PROVISIONS OF THE TCE.

PEDESTRIAN BOARDWALK (DESIGNED BY OTHERS) SEE PROFILE AND PLAN SHEET 22

7.5FT SW WIDTH

20'

Turtle Creek Drive
Private Maintained

75 TURTLE CREEK DR

INSTALL BENCH ON SHELTER PAD (20'X8')

DEMO CURB RAMPS. (APPROX 26 SY)
INSTALL 4 CURB RAMPS W/ DWS.

ADJ. 2 NCDOT PB

5'x8' CLEAR BUS LOADING PAD

7.5FT SW STA 196+18 TO RAMP

7FT SW WIDTH STA 197+17 TO STA 199+30

ADJ NCDOT PB

ADJ. NCDOT PB

6FT SW WIDTH (TYP.)

5.5FT SW WIDTH AROUND INLET

ADJ. NCDOT PB

LINE CREEK BANK W/ RIP RAP

86LF± CABLE SAFETY RAIL

RESHAPE EXISTING LANDSCAPING AND WATER FEATURE AS NEEDED (INCLUDED IN COMP. GRADING)

6+00 197+00 198+00 199+00 200+00 201+00 202+00 203+00 204+00 205+00

2215 2220 2225 2230

US Hwy 25 Hendersonville Road
NCDOT maintained

Racquet Club Road
City of Asheville Maintained

PROPOSED PEDESTRIAN FACILITIES

PED. SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEM PLANS AT RACQUET CLUB RD – SEE SHEET 35

Weirbridge Drive
Private Maintained

120' R/W

MATCHLINE STA. 205+50

Carl H. Ricker, Jr. and wife,
Janis L. Ricker
PIN: 9655-18-4240
DB 1528 Pg 413
PB 30 Pg 100

TURTLE CREEK CENTER
NCDOT RIGHT OF WAY
SOUTHEASTERN SPORTS
75 TURTLE CREEK DR

INSTALL 48LF± 18" C&G W/ 4" CONC. ISLAND COVER. SEE NCDOT STD. DTL. 852.01.

REMOVE TREE AND EX. LANDSCAPING.

DEMO EX. C&G (APPROX 31 SY)

DINGLE CREEK, LLC, A North Carolina Limited Liability Company
PIN: 9655-17-2780
DB 2216 Pg 105

DINGLE CREEK CROSSING
GREEN SAGE
1800 HENDERSONVILLE RD

CHICK-FIL-A
1832 HENDERSONVILLE RD

Skyland Crest, LLC, A North Carolina Limited Liability company
PIN: 9655-17-7349
DB 5065 Pg 157
PB 138 Pg 154

INSTALL PARTIAL WHEEL STOP

REMOVE AND RE-STRIPE 18' PARKING SPACES
INSTALL WHEEL STOPS 3' FROM EDGE OF PROP SW.

COORDINATE VAULT ADJUSTMENT W/ AT&T

232LF± 18" MAX STAND-UP CURB
STA 206+35 TO STA 208+67
SEE CROSS SECTIONS SHEET 23

REMOVE EX. GUARDRAIL

EX. BOC TO PROP BOC = 3'

EX. BOC TO EDGE OF PROP SW = 3' MAX

143

6.5FT SW WIDTH

REMOVE/ABANDON EX. CATCH BASIN. INSTALL SPRING BOX OUT OF SW W/ SINGLE FRAME AND GRATE. SEE NCDOT STD. DTL. 840.41 & 840.24.

ADJ. 4 WM

ADJ NCDOT PB

ADJ. WM

13LF± TURN DOWN FOOTING
STA 209+41 TO STA 209+54

REMOVE TREE

47LF± 4FT DRIVEWAY CROSSING

RELOCATE 2 WM

STA 206+01
O/S 54'L

6FT SW WIDTH (TYP.)

5FT SW WIDTH

6FT SW WIDTH (TYP.)

206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00

2210 2215

75LF± TURN-DOWN FOOTING W/ PED. SAFETY RAIL
STA 210+49 TO STA 211+04
SEE CROSS SECTION DETAIL 210+78

REMOVE TREE

DEMO EX. C&G
INSTALL 53LF± NEW C&G

US Hwy 25 Hendersonville Road
NCDOT maintained

STA 206+02
O/S 66'R

Crowfields Drive
Private Maintained

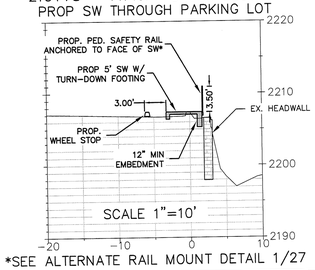
PROPOSED PEDESTRIAN FACILITIES

PED. SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEM PLANS AT OVERLOOK RD – SEE SHEET 36

PRM 1503 (Overlook Road)
NCDOT Maintained

MATCHLINE STA. 215+00

210+78 – TYPICAL CROSS SECTION:
PROP SW THROUGH PARKING LOT



*SEE ALTERNATE RAIL MOUNT DETAIL 1/27

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HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

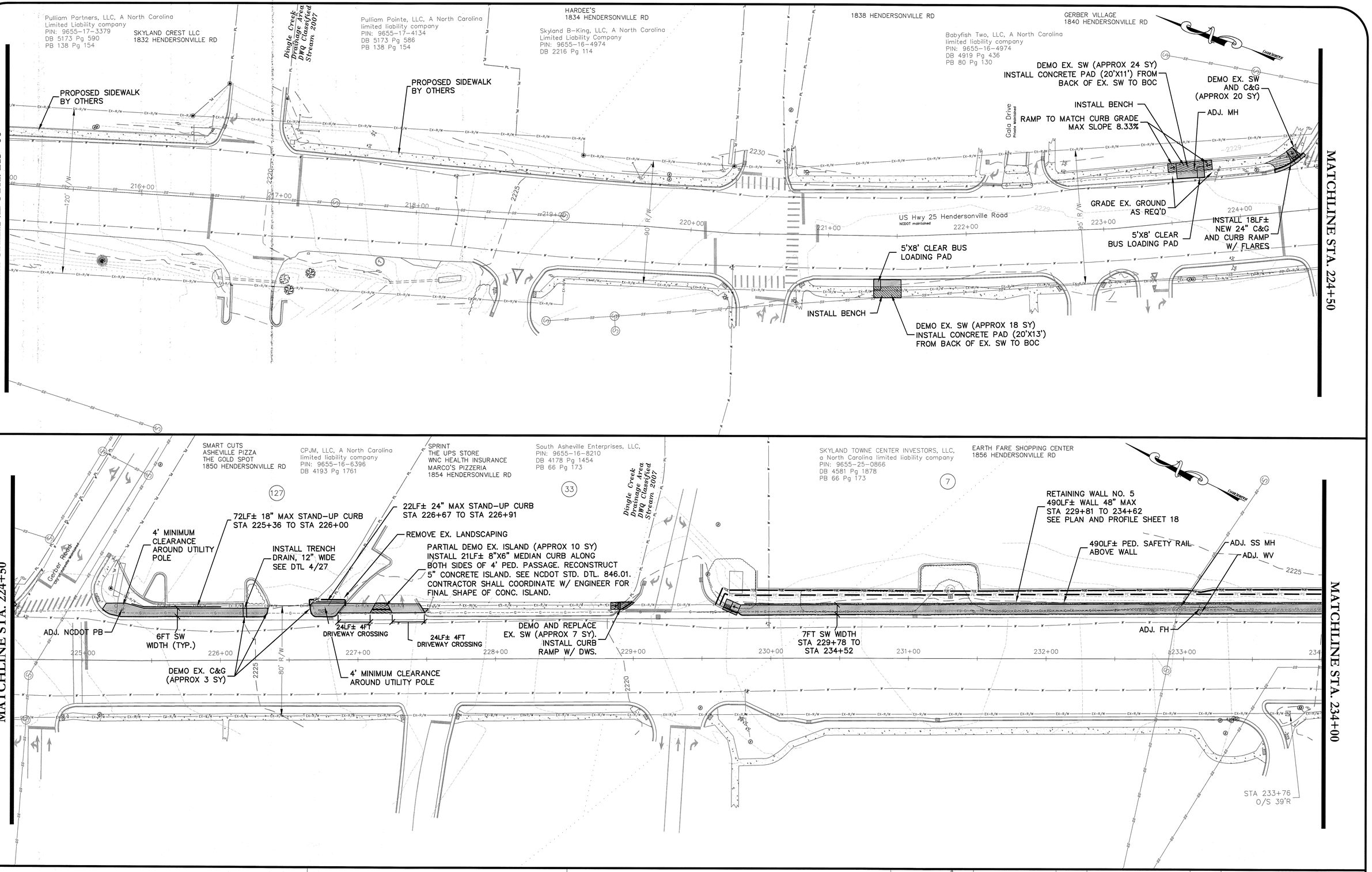
PROPOSED SIDEWALK, STA. 196+00 TO 215+00

NORTH CAROLINA PROFESSIONAL SEAL 023181 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk.dwg

SHEET 10 OF 39



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Capital Projects Management Division
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HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK, STA. 215+00 TO 234+00

SURVEYED: JW, DK	DATE	REVISION	BY	TIP No.: U5189
DRAWN: JR, SS				GRID: N/A
DESIGNED: JR, SS, BE				DATE: APRIL 2015
CHECKED: BE				SCALE: 1"=30'
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk.dwg

NORTH CAROLINA PROFESSIONAL SEAL 029815 ENGINEER CATHY D. GALL

MATCHLINE STA. 234+00

MATCHLINE STA. 243+50

KENTUCKY FRIED CHICKEN
1860 HENDERSONVILLE RD

14

JRN, INC.,
a Tennessee corporation
201 West 7th Street
Columbia, Tennessee 38401
PIN: 9655-25-1583
DB 3457 Pg 291
PB 66 Pg 173

Arnold S. Kalogerakis
Evanthea Kalogerakis,
as tenents in common for life with the remainder
to Stalios Kalogerakis and Marika Kalogerakis,
in accordance with the provisions
PIN: 9655-25-2178
DB 2068 Pg 772

ACE HARDWARE
1888 HENDERSONVILLE RD

GOODWILL INDUSTRIES OF NW NC INC
PIN: 9655-24-4840
DB 4391 Pg 682
PB 102 Pg 45
51 MILLS GAP ROAD

TD BANK
1896 HENDERSONVILLE RD
NATIONSBANK, NATIONAL
ASSOCIATION (CAROLINAS)
PIN: 9655-24-3940
DB 1862 Pg 290

3

DEMO EX. ISLAND
(APPROX 10 SY)
INSTALL 12LF± 8"X6" MEDIAN
CURB W/ 5' PED. PASSAGE
SEE NCDOT STD. DTL. 846.01

4' MINIMUM
CLEARANCE
AROUND UTILITY
POLE

DEMO 51LF± EX. BLOCK WALL
AND REPLACE W/ STD SEGMENTAL
GRAVITY WALL AT EX. HEIGHT
(APPROX 30")

RETAINING WALL NO. 6
33LF± WALL 36" MAX
STA 235+87 TO 236+11
SEE PLAN AND
PROFILE SHEET 19

30LF± PED. SAFETY
RAIL ABOVE WALL

REMOVE
LANDSCAPING
AS REQ'D

SR 3116 (Mills Gap Road)
NCDOT maintained

5'X8'
CLEAR BUS
LOADING PAD

INSTALL 6LF±
NEW 12" C&G

INSTALL 21LF±
NEW 30" C&G

DEMO EX. SW
(APPROX 36 SY)

INSTALL BUS SHELTER
ON BUS SHELTER PAD (20'X8')
SEE DETAIL 3/26

DEMO EX. SW
(APPROX 8 SY)

DEMO EX. SW (APPROX 24 SY)
INSTALL CURB RAMP W/ DWS.

53LF± TURN DOWN
FOOTING W/ PED. SAFETY RAIL
STA 240+69 TO STA 241+22

"Dingle Creek" Drainage Area
Dingle Creek Priority Area
DWQ Classified Stream 2007

4' MINIMUM CLEARANCE
AROUND UTILITY POLE

ADJ. 2 WM

ADJ. NCDOT PB

5.5FT SW WIDTH
STA 240+64 TO
STA 241+01

25LF± 4FT
DRIVEWAY CROSSING

6FT SW
WIDTH
(TYP.)

US Hwy 25 Hendersonville Road
NCDOT maintained

DEMO EX. DRIVE APRON.
REPLACE WITH C&G.
INSTALL CURB RAMP W/ DWS.

PED. SIGNALS AND INTELLIGENT
TRANSPORTATION SYSTEM PLANS
AT WALDEN RIDGE – SEE SHEET 37

PROPOSED PEDESTRIAN FACILITY

Walden Ridge Drive
City of Asheville Maintained

SOUTH POINTE LLC
PIN: 9655-24-4605
DB 2223 Pg 483

HARBOR FREIGHT
1900 HENDERSONVILLE RD

48

SKYLAND PROPERTIES LLC
C/o Dorothy M. Swicegood, Manager
210 Walnut Cover Road
Arden, NC 28704
PIN: 9655-24-3359
DB 4510 Pg 1425

15

LA CARRETA RESTUARANT
1916 HENDERSONVILLE RD

U.S. CELLULAR
1918 HENDERSONVILLE RD

PETERSON AMUSEMENT
COMPANY, INC.
PIN: 9655-24-2291
DB 1268 Pg 743

ADJ. PVC C/O AND
INSTALL CLEANOUT BOX
SEE DTL 1/28

80LF± 24" MAX STAND-UP CURB
STA 246+25 TO STA 247+03

26LF± 8" MAX STAND-UP CURB
STA 247+30 TO STA 247+55

RETAINING WALL NO. 7
282LF± WALL 62" MAX
STA 243+30 TO 246+04
SEE PLAN AND PROFILE SHEET 19

ADJ. 2 WM
ADJ. WV

EX. SIGN
W/ LIGHT

EXIST
FOUNTAIN

DEMO EX. SW
(APPROX 3 SY)

EX. ROCK WALL

Trustees of the Cornerstones
Baptist Church of Asheville NC, Inc
PIN: 9655-23-4987
DB 4662 Pg 1060
PB 93 Pg 51

DEMO EX. DRIVE APRON AND
REPLACE W/ C&G

26LF± 4FT
DRIVEWAY CROSSING

33LF± 4FT
DRIVEWAY CROSSING

ADJ. WM

DEMO EX. SW
(APPROX 9 SY)

6FT SW
WIDTH (TYP.)

8FT SW WIDTH
STA 243+30 TO
STA 245+93

CONTRACTOR TO COORDINATE
GUY WIRE RELOCATIONS WITH
APPROPRIATE UTILITY COMPANIES.

7FT SW WIDTH
STA 246+27 TO
STA 247+00

MATCHLINE STA. 243+50

MATCHLINE STA. 253+00

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Capital Projects Management Division
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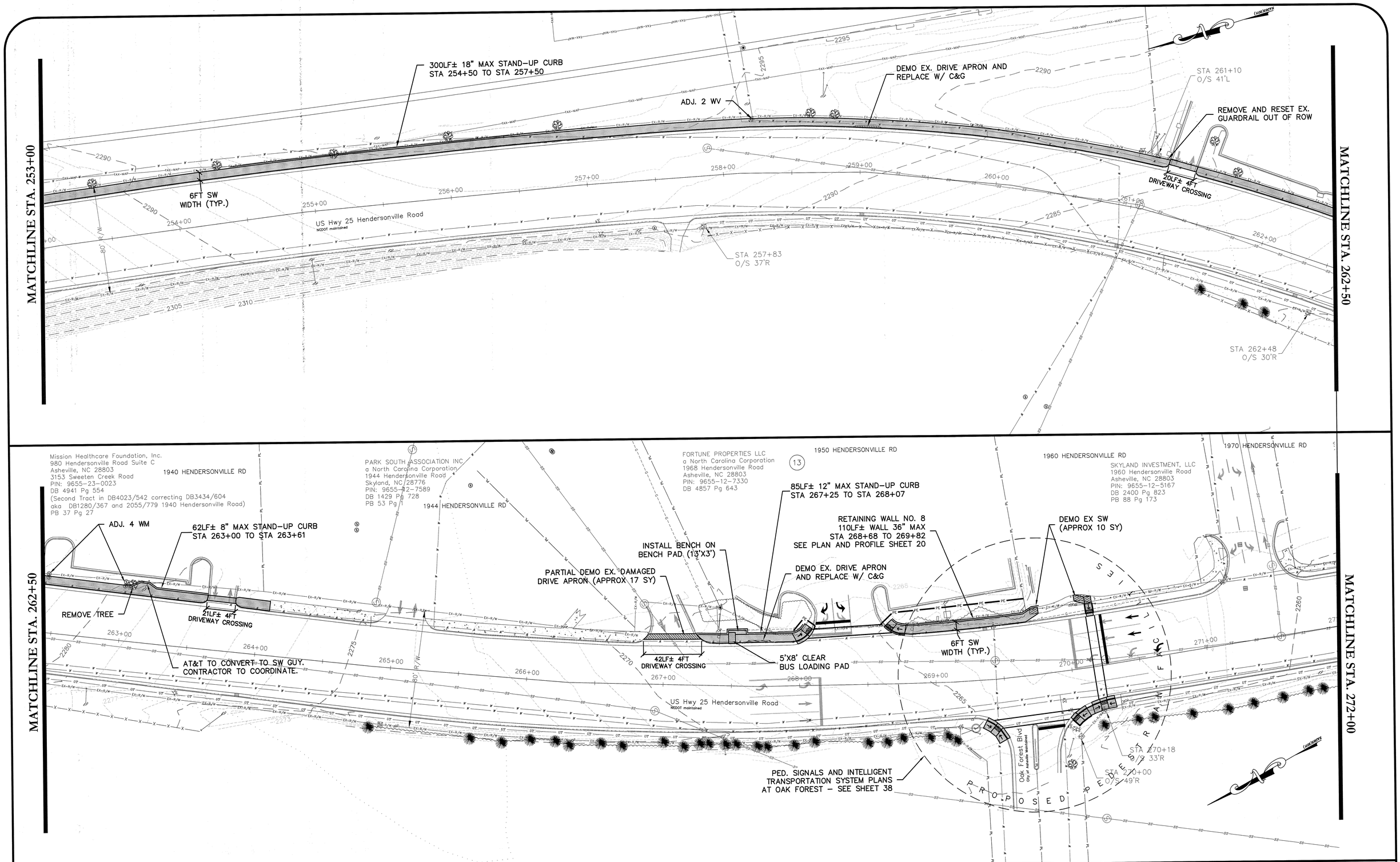
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK, STA.234+00 TO 253+00

NORTH CAROLINA PROFESSIONAL SEAL 023515 ENGINEER CINDY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk.dwg



City of Asheville, NC

Capital Projects Management Division

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HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK, STA. 253+00 TO 272+00

NORTH CAROLINA PROFESSIONAL SEAL 023151 ENGINEER CATHY D. BALL

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk.dwg

MATCHLINE STA. 272+00

SKYLAND INVESTMENT, LLC
1970 Hendersonville Road
Asheville, NC 28803
PIN: 9655-11-5909
DB 2400 Pg 823
PB 82 Pg 185

1978 HENDERSONVILLE RD

ASHEVILLE ADMIN SOUTH LLC
PIN: 9655-11-4820
DB 4748 PG 715
20

RETAINING WALL NO. 9
266LF± WALL, 24" MAX
STA 273+35 TO STA 275+86
SEE PLAN AND PROFILE SHEET 20

GRADE BEHIND WALL AT 4:1

37LF± 4FT DRIVEWAY CROSSING

REMOVE TREES AS DIRECTED STA 273+50 TO STA 275+25

6FT SW WIDTH (TYP.)

ADJ. WV
ADJ. NCDOT PB

ADJ. WM

NCDOT TO RELOCATE GUY WIRES. CONTRACTOR TO COORDINATE.

DEMO EX. SW (APPROX 55 SY)

ADJ. NCDOT PB

NCDOT TO CONVERT TO SW GUY. CONTRACTOR TO COORDINATE.

INSTALL BENCH

5'X8' CLEAR BUS LOADING PAD

1984 HENDERSONVILLE RD

SKYLAND UNITED METHODIST CHURCH INC
Trustees of
1984 Hendersonville Road
Asheville, NC 28803
PIN: 9655-11-4394
DB 958 Pg 261 see 905/370
Lots 6,4,2, C and D in Block 4 PB 1/62
PB 1 Pg 62
163

REMOVE AND RESET EXISTING FENCE

RETAINING WALL NO. 10
125LF± WALL 156" MAX
STA 279+77 TO STA 280+95
SEE PLAN AND PROFILE SHEET 21

DEMO EX. SW (APPROX 3 SY)

8FT SW WIDTH STA 279+73 TO STA 280+97

Jeanne Shuford Vaitekunas and
Betty Ledbetter Shuford
1992 Hendersonville Road
Asheville, NC 28803
PIN: 9655-11-1271
DB 1009 Pg 457 being lot 4 block 6
and 25 feet of lot 2 block 6
PB 60 Pg 50
18

90LF± 18" MAX STAND-UP CURB
STA 281+13 TO STA 282+03

RELOCATE MAILBOX

ADJ. WM

16LF± 4FT DRIVEWAY CROSSING

105LF± CHAINLINK FENCE

MATCHLINE STA. 281+50

US Hwy 25 Hendersonville Road
NCDOT maintained

Hermon Ave
City of Asheville maintained

W. Summit Ave
Private Road

Springside Rd
City of Asheville maintained

6FT SW WIDTH (TYP.)

5'X8' CLEAR BUS LOADING PAD

INSTALL BENCH ON BENCH PAD (5.5'X2')

DEMO EX. SW AND 2 CURB RAMPS (APPROX 26 SY). INSTALL CURB RAMP W/ DWS.

PROPOSED PED ST PR

PED. SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEM PLANS AT HERMAN/SPRINGSIDE – SEE SHEET 39

CAH Holdings, LLC,
a North Carolina Limited Liability Company
1994 Hendersonville Road
Asheville, NC 28803
PIN: 9655-11-1035
DB 4664 Pg 1951
PB 1 Pg 62
27

1994 HENDERSONVILLE RD

1996 HENDERSONVILLE RD

Theresa W. Hyler
1996 Hendersonville Road
Asheville, NC 28803
PIN: 9655-10-0842
DB 3505 Pg 467
PB 45 Pg 122

1998 (STES. 11 – 14) HENDERSONVILLE RD

SKYLAND OFFICE PARK CONDO. ASSOCIATION, INC.
1998 Hendersonville Road
Asheville, NC 28803
PIN: 9655-10-3632
DB 4612 Pg 436
PB 63 Pg 175
162

1998 (STES. 51 – 55) HENDERSONVILLE RD

LaMond Properties, LLC,
a North Carolina limited liability company
1998 Hendersonville Road
Suite 31
Asheville, NC 28803
PIN: 9655-00-9680
DB 5039 Pg 858
PB 45 Pg 122
75

2000 A HENDERSONVILLE RD

2000 HENDERSONVILLE RD

2002 HENDERSONVILLE RD

58LF± 18" MAX STAND-UP CURB.
STA 282+39 TO 282+97

26LF± 18" MAX STAND-UP CURB
STA 283+34 TO STA 283+60

ADJ. NCDOT PB

ADJ. WM

6FT SW WIDTH (TYP.)

35LF± 4FT DRIVEWAY CROSSING

34LF± 4FT DRIVEWAY CROSSING

RETAINING WALL NO. 11
100LF± WALL 36" MAX
STA 285+50 TO STA 286+50
SEE PLAN AND PROFILE SHEET 21

STA 261+10
O/S 41'L

ADJ. WM

5FT RAMP WIDTH

6FT SW WIDTH (TYP.)

ADJ. NCDOT PB

36LF± 4FT DRIVEWAY CROSSING

DEMO EX. DRIVE APRON AND REPLACE (APPROX 12 SY)

REMOVE TREES

ADJ. WM

24LF± 4FT DRIVEWAY CROSSING

76LF± 6" MAX STAND-UP CURB
STA 286+90 TO STA 287+66

21LF± 4FT DRIVEWAY CROSSING

40LF± TURN DOWN FOOTING
W/ PED. SAFETY RAIL
MINIMUM 4' SW AS REQ'D
STA 288+10 TO STA 288+50

Rebar & Cap Found

DEMO EX. SW (APPROX 5 SY)

AT&T TO RELOCATE GUY WIRES. CONTRACTOR TO COORDINATE.

US Hwy 25 Hendersonville Road
NCDOT maintained

W. Summit Ave
Private Road

Allen Ave
City of Asheville maintained

1987 HENDERSONVILLE RD

END STA 291+00

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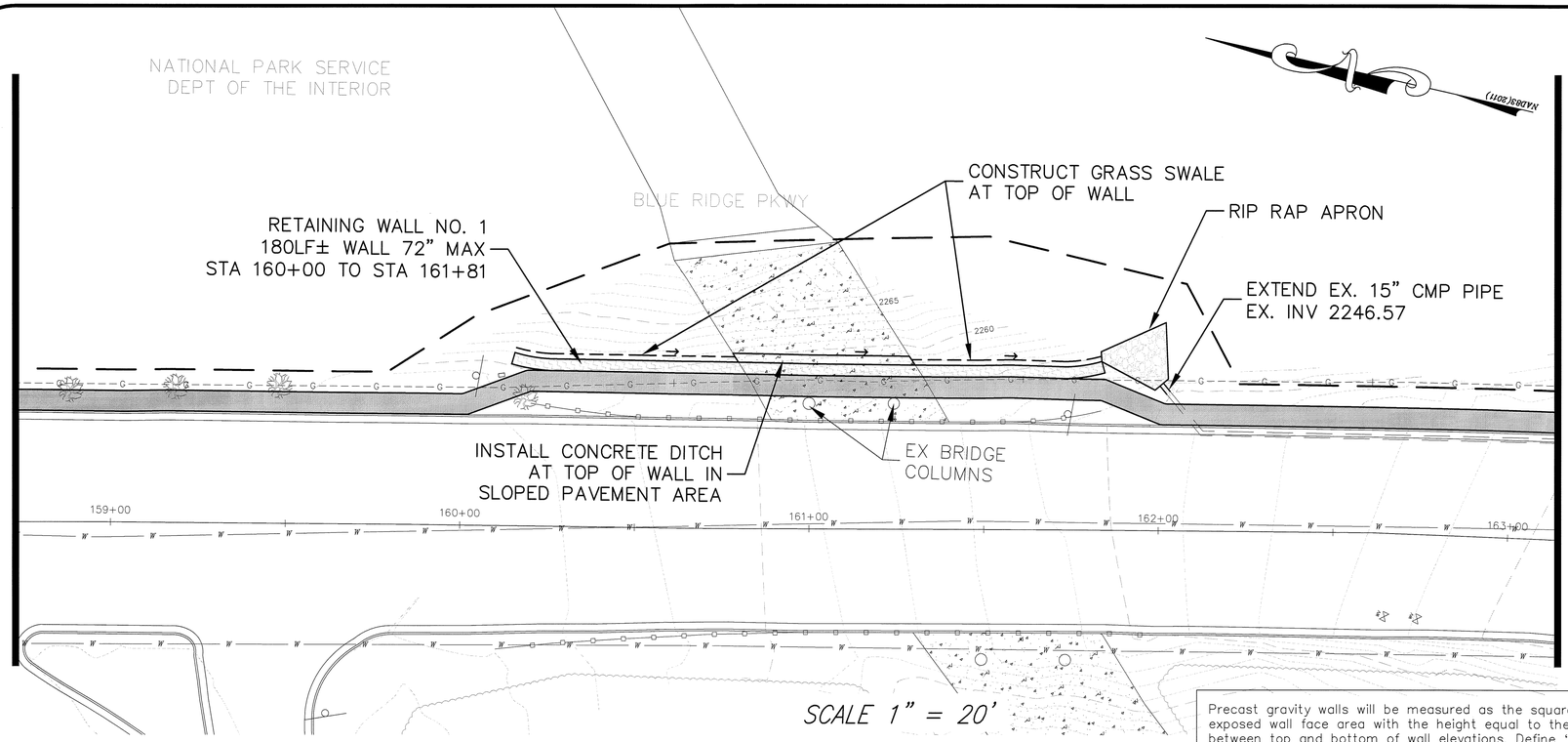
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK, STA. 272+00 TO 291+00

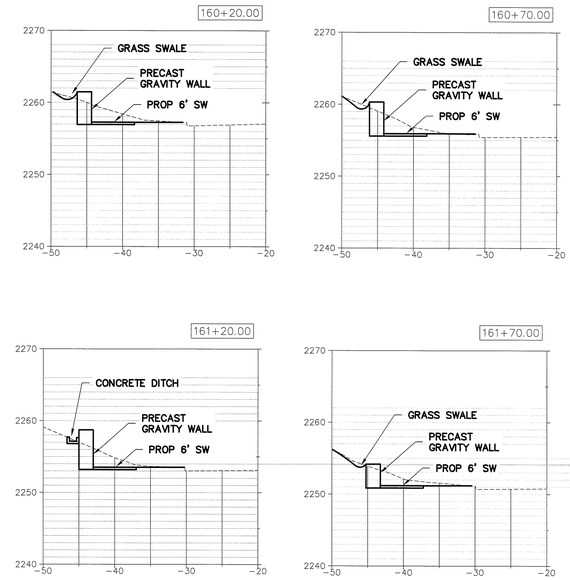
NORTH CAROLINA PROFESSIONAL SEAL 022151 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk.dwg

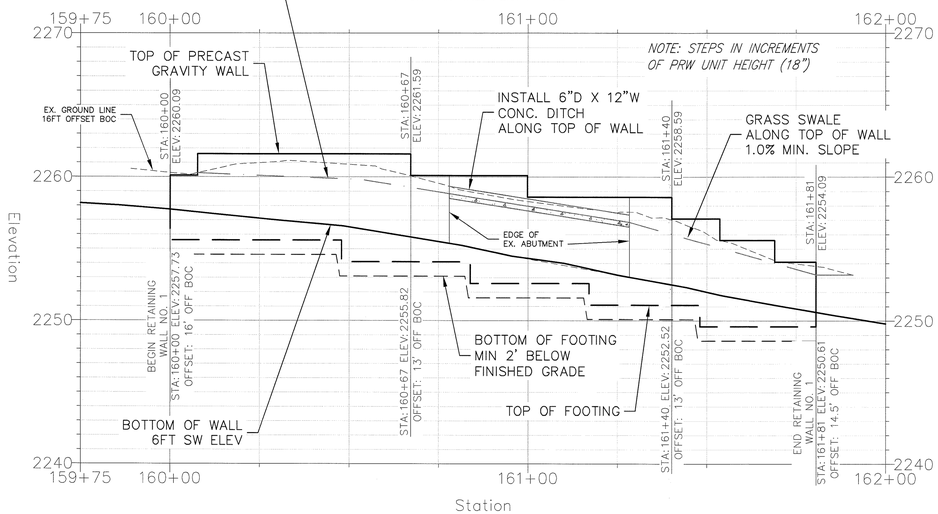


CROSS SECTIONS: STA 160+20 TO STA 161+70



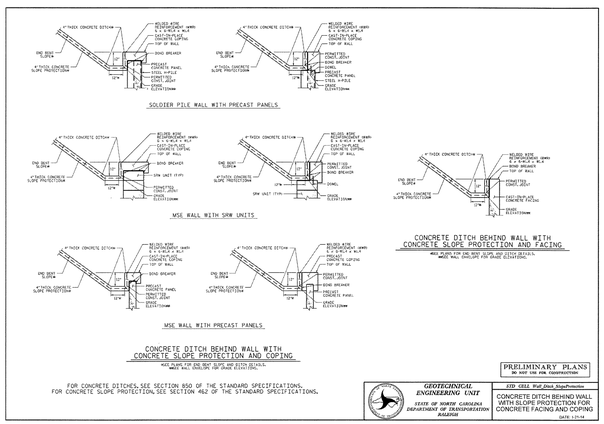
SCALE 1"=10'

Precast gravity walls will be measured as the square feet of exposed wall face area with the height equal to the difference between top and bottom of wall elevations. Define "top of wall" as top of cap or top PRW units. Define "bottom of wall" as shown in the plans and no measurement will be made for portions of precast gravity walls embedded below bottom of wall elevations.

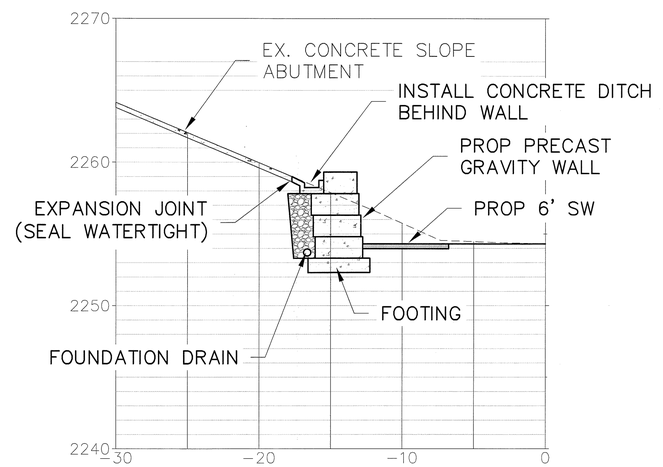


SEE WALL SCHEDULE AND NCDOT GEOTECHNICAL STANDARD FOR PRECAST GRAVITY WALL WITH BACK SLOPE FOR TYPICAL CROSS SECTION, NOTES, AND FOOTING STEP DETAILS – SHEET 25

HORIZONTAL SCALE 1"=20'
VERTICAL SCALE 1"=5'



TYPICAL CROSS SECTION DETAIL: PRECAST GRAVITY RETAINING WALL NO. 1



SCALE 1"=5'

City of Asheville, NC
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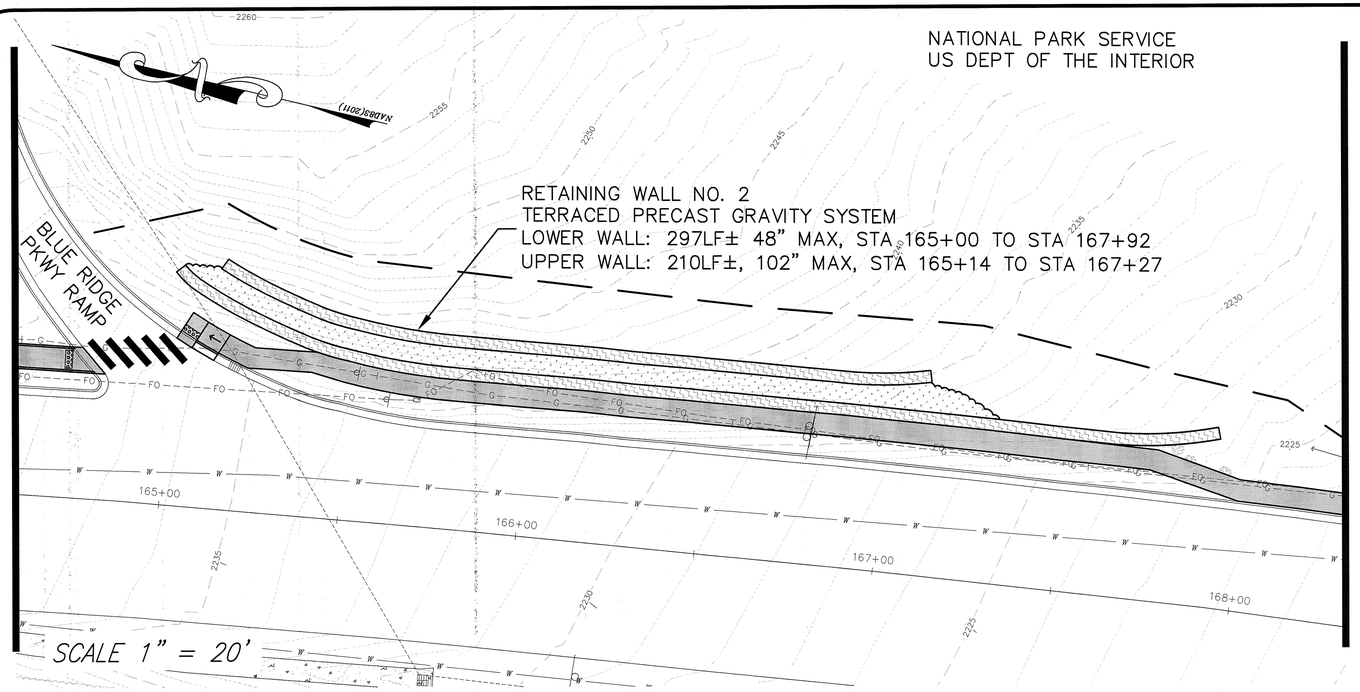
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

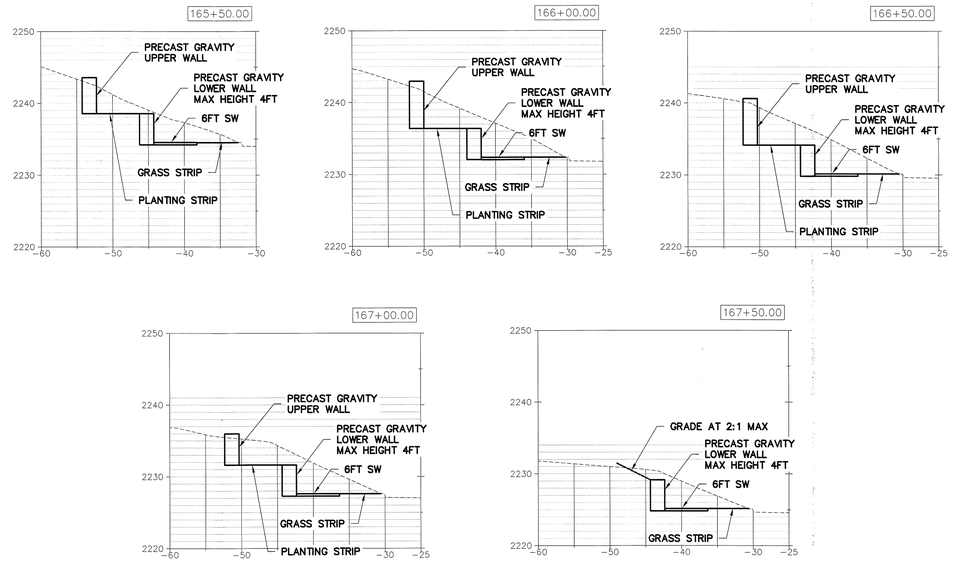
PROPOSED RETAINING WALL NO. 1 PLAN, PROFILE, AND CROSS SECTION

NORTH CAROLINA PROFESSIONAL SEAL 030315 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY	TIP No.: U5189
DRAWN: JR, JW, SS				GRID: N/A
DESIGNED: JR, BE, SS				DATE: APRIL 2015
CHECKED: BE				SCALE: VARIES
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk.dwg



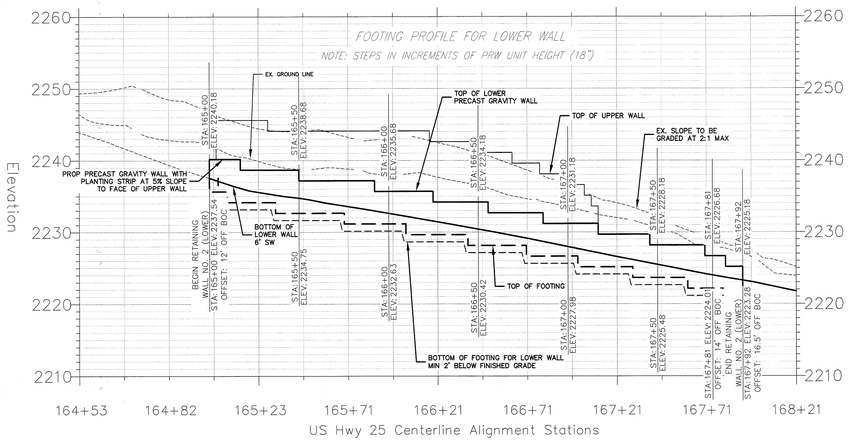
CROSS SECTIONS: STA 165+50 TO STA 167+50



SCALE 1"=10'

RETAINING WALL NO. 2 (LOWER) PROFILE

APPROX. WALL FACE AREA = 964 SF
APPROX. MAX WALL HEIGHT = 48"

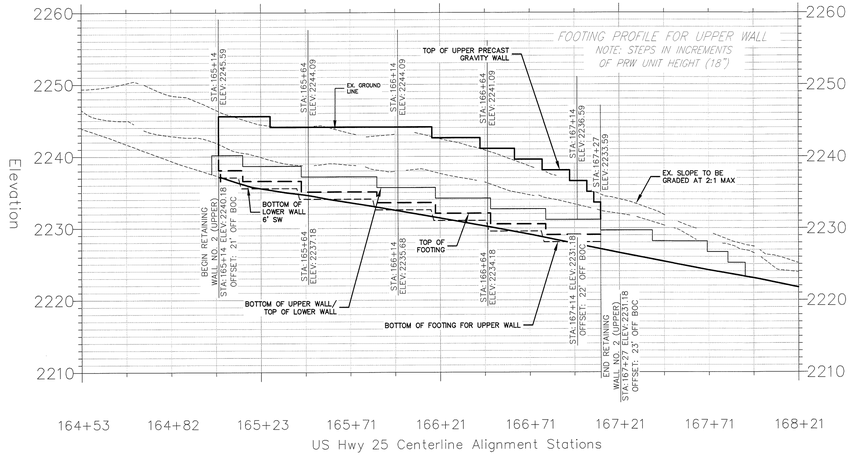


HORIZONTAL SCALE 1"=40'
VERTICAL SCALE 1"=10'

SEE WALL SCHEDULE AND NCDOT GEOTECHNICAL STANDARD FOR PRECAST GRAVITY WALL WITH BACK SLOPE FOR TYPICAL CROSS SECTION, NOTES, AND FOOTING STEP DETAILS – SHEET 25

RETAINING WALL NO. 2 (UPPER) PROFILE

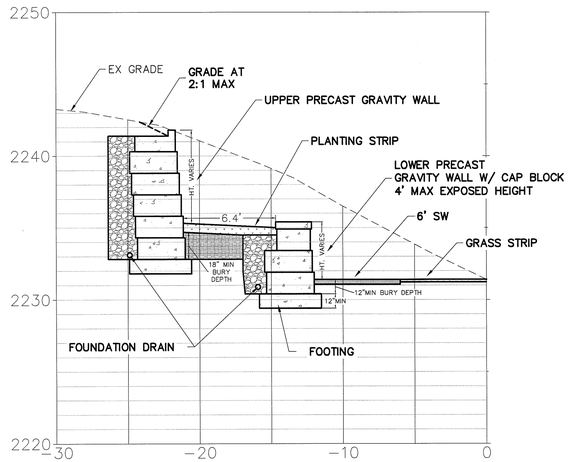
APPROX. WALL FACE AREA = 1484 SF
APPROX. MAX WALL HEIGHT = 102"



HORIZONTAL SCALE 1"=40'
VERTICAL SCALE 1"=10'

SEE WALL SCHEDULE AND NCDOT GEOTECHNICAL STANDARD FOR PRECAST GRAVITY WALL WITH BACK SLOPE FOR TYPICAL CROSS SECTION, NOTES, AND FOOTING STEP DETAILS – SHEET 25

TYPICAL CROSS SECTION DETAIL: PRECAST TERRACED RETAINING WALL



SCALE 1"=5'

Precast gravity walls will be measured as the square feet of exposed wall face area with the height equal to the difference between top and bottom of wall elevations. Define "top of wall" as top of cap or top PRW units. Define "bottom of wall" as shown in the plans and no measurement will be made for portions of precast gravity walls embedded below bottom of wall elevations.

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

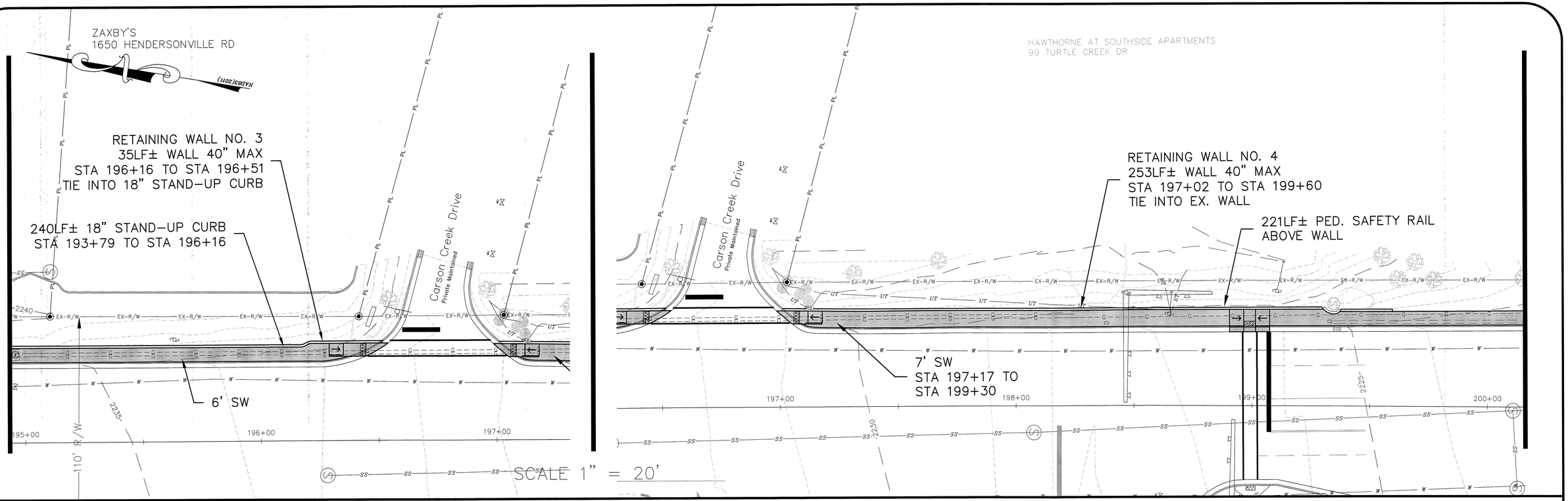
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED RETAINING WALL NO. 2 PLAN, PROFILE, AND CROSS SECTION

NORTH CAROLINA PROFESSIONAL SEAL 022617 ENGINEER CATHY D. BALL

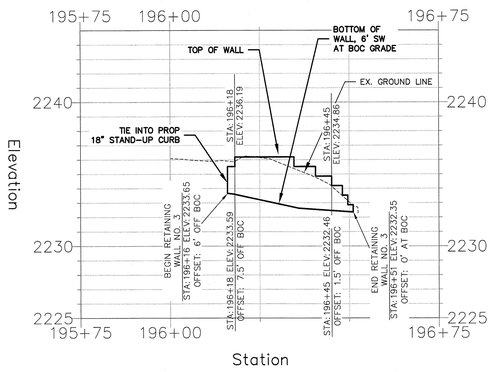
SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, JW, SS			
DESIGNED: JR, BE, SS			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: VARIES
DRAWING NAME: US Hwy25 Sidewalk.dwg



RETAINING WALL NO. 3 PROFILE

APPROX. WALL FACE AREA = 90 SF
APPROX. MAX WALL HEIGHT = 40"



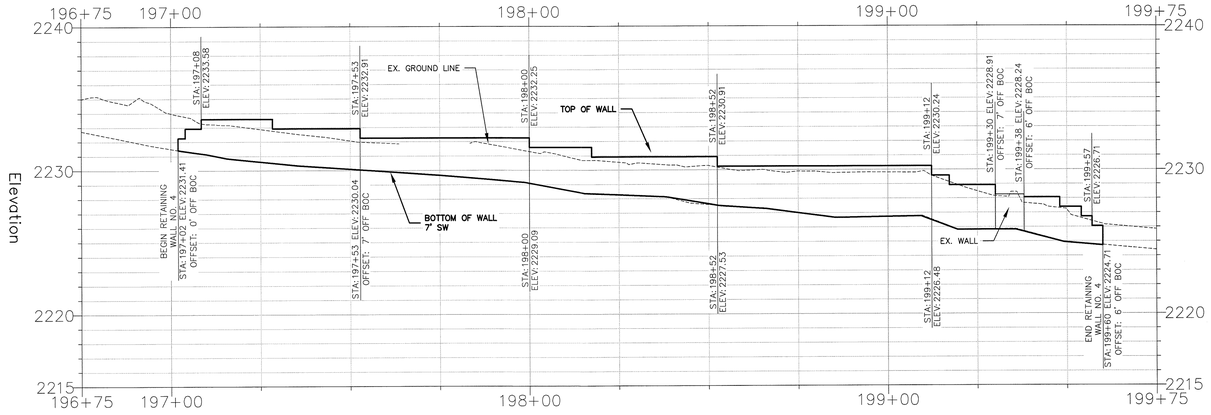
NOTE: STEPS IN INCREMENTS OF SRW UNIT HEIGHT (8")

SEE WALL SCHEDULE AND NCDOT GEOTECHNICAL STANDARD FOR SEGMENTAL GRAVITY WALL WITH FREEZE-THAW DURABLE SRW UNITS FOR TYPICAL CROSS SECTION DETAIL AND NOTES - SHEET 25

SEE CROSS SECTIONS - SHEET 23

RETAINING WALL NO. 4 PROFILE

APPROX. WALL FACE AREA = 648 SF
APPROX. MAX WALL HEIGHT = 40"



NOTE: STEPS IN INCREMENTS OF SRW UNIT HEIGHT (8")

SEE WALL SCHEDULE AND NCDOT GEOTECHNICAL STANDARD FOR SEGMENTAL GRAVITY WALL WITH FREEZE-THAW DURABLE SRW UNITS FOR TYPICAL CROSS SECTION DETAIL AND NOTES - SHEET 25

SEE CROSS SECTIONS - SHEET 23

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED RETAINING WALL NO. 3 AND 4 PLAN AND PROFILE

NORTH CAROLINA PROFESSIONAL SEAL 023151 ENGINEER CATHY D. BALL

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=20' (H) 1"=5' (V)
DRAWING NAME: US Hwy25 Sidewalk.dwg

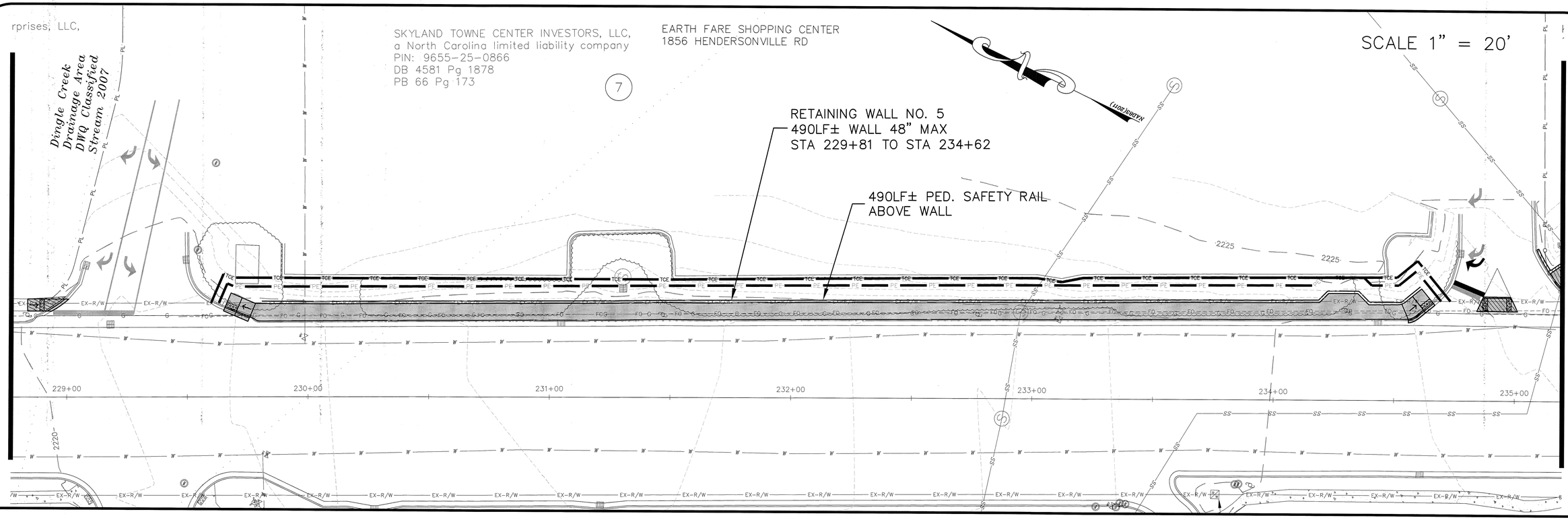
rprises, LLC,

SKYLAND TOWNE CENTER INVESTORS, LLC,
a North Carolina limited liability company
PIN: 9655-25-0866
DB 4581 Pg 1878
PB 66 Pg 173

7

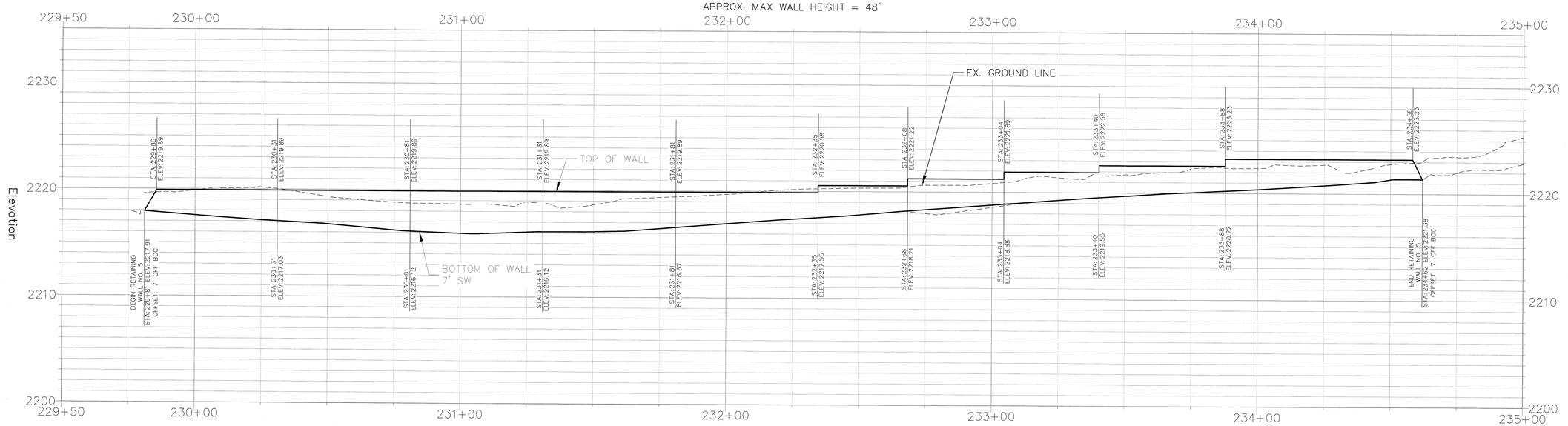
EARTH FARE SHOPPING CENTER
1856 HENDERSONVILLE RD

SCALE 1" = 20'



RETAINING WALL NO. 5 PROFILE

APPROX. WALL FACE AREA = 1394 SF
APPROX. MAX WALL HEIGHT = 48"



NOTE: STEPS IN INCREMENTS OF SRW UNIT HEIGHT (8")

SEE WALL SCHEDULE AND NCDOT GEOTECHNICAL STANDARD FOR SEGMENTAL GRAVITY WALL WITH FREEZE-THAW DURABLE SRW UNITS FOR TYPICAL CROSS SECTION DETAIL AND NOTES - SHEET 25

SEE CROSS SECTIONS - SHEET 24

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Capital Projects Management Division
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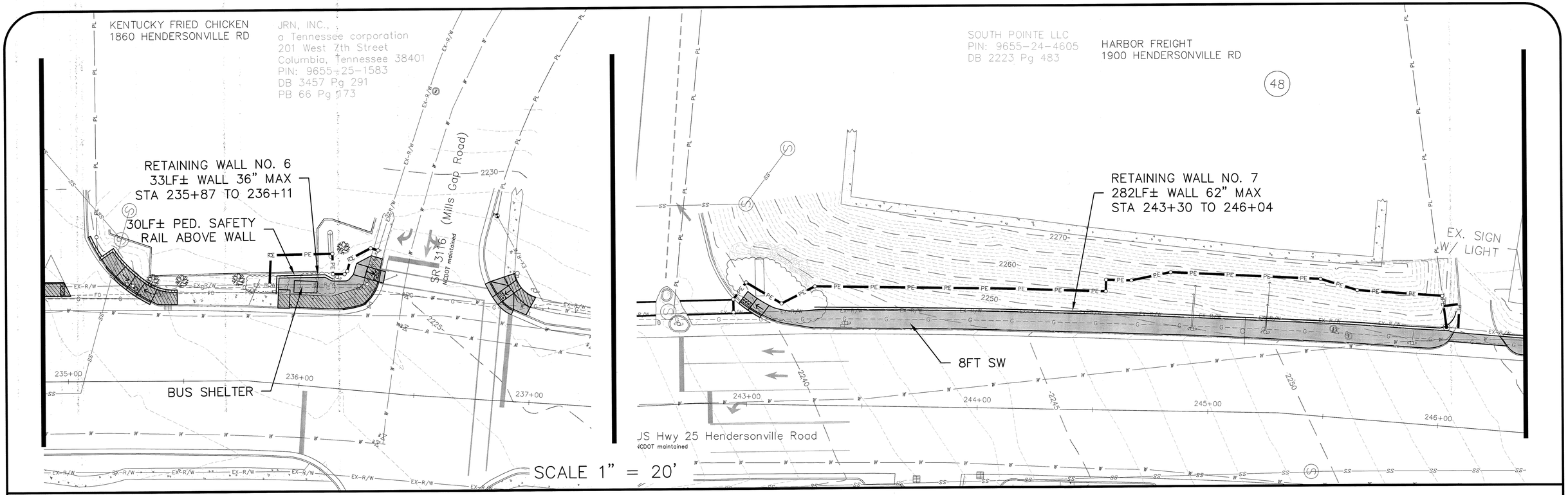
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED RETAINING WALL NO. 5 PLAN AND PROFILE

NORTH CAROLINA PROFESSIONAL SEAL 041417 ENGINEER CHRISTOPHER BALL

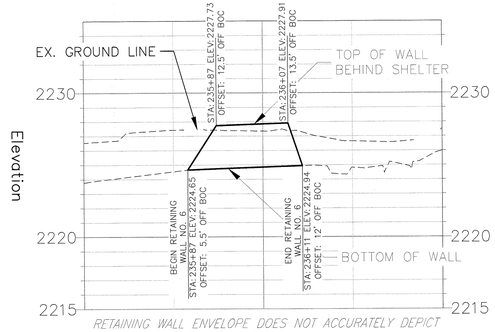
SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=20' (H) 1"=5" (V)
DRAWING NAME: US Hwy25 Sidewalk.dwg



RETAINING WALL NO. 6 PROFILE

APPROX. WALL FACE AREA = 78 SF
APPROX. MAX WALL HEIGHT = 36"



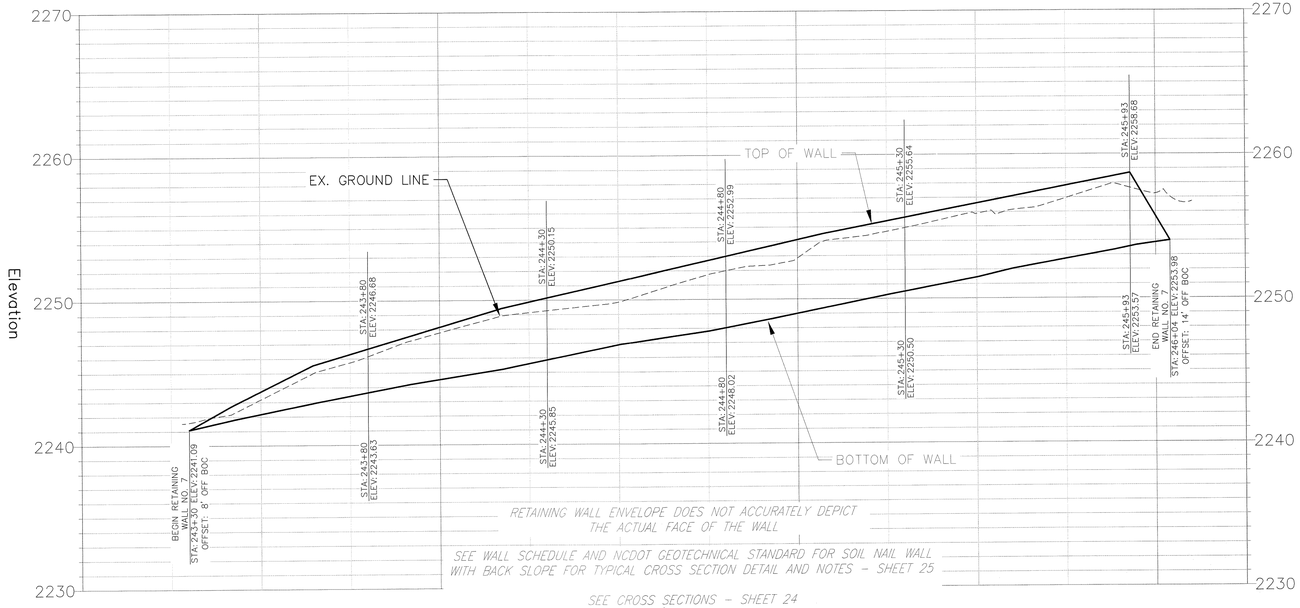
RETAINING WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL

SEE WALL SCHEDULE AND NCDOT GEOTECHNICAL STANDARD FOR SOIL NAIL WALL WITH BACK SLOPE FOR TYPICAL CROSS SECTION DETAIL AND NOTES - SHEET 25

SEE CROSS SECTIONS - SHEET 24

RETAINING WALL NO. 7 PROFILE

APPROX. WALL FACE AREA = 1113 SF
APPROX. MAX WALL HEIGHT = 62"



RETAINING WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL

SEE WALL SCHEDULE AND NCDOT GEOTECHNICAL STANDARD FOR SOIL NAIL WALL WITH BACK SLOPE FOR TYPICAL CROSS SECTION DETAIL AND NOTES - SHEET 25

SEE CROSS SECTIONS - SHEET 24

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Capital Projects Management Division
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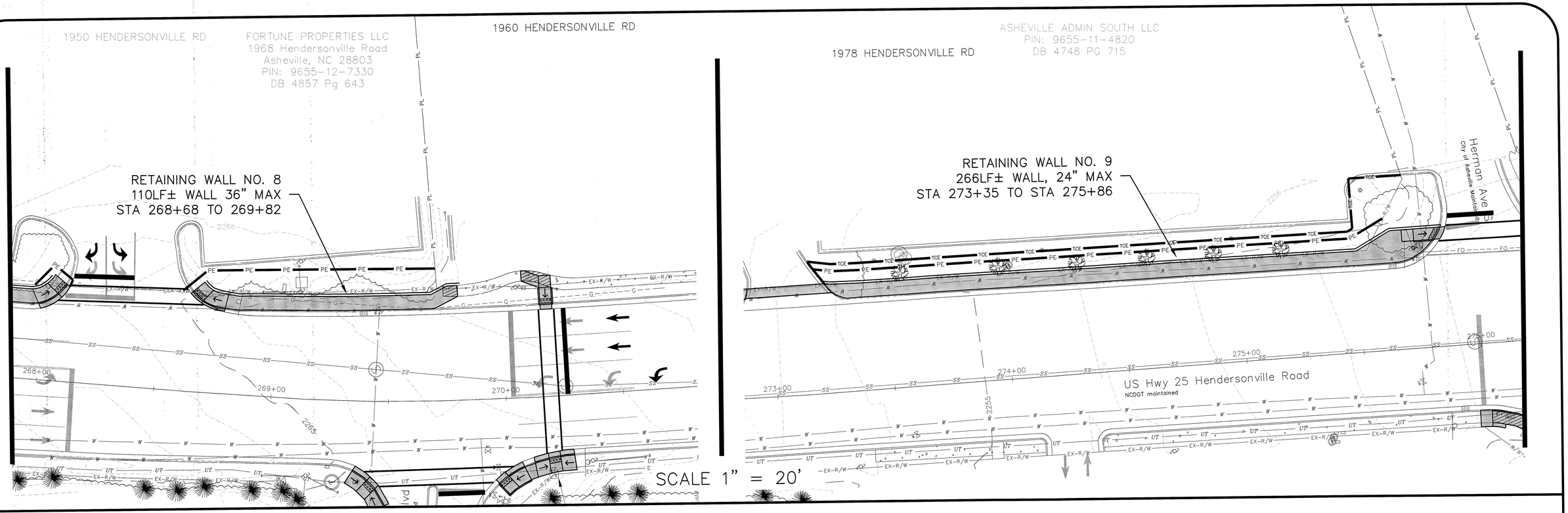
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED RETAINING WALL NO. 6 AND 7 PLAN AND PROFILE

NORTH CAROLINA PROFESSIONAL SEAL 049761 ENGINEER CARLY D. BALL

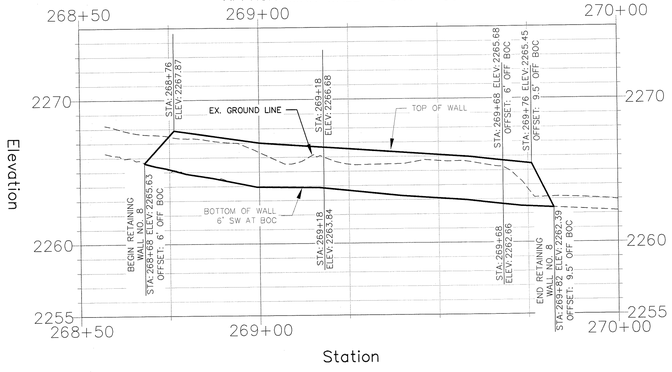
SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=20' (H) 1"=5' (V)
DRAWING NAME: US Hwy25 Sidewalk.dwg



RETAINING WALL NO. 8 PROFILE

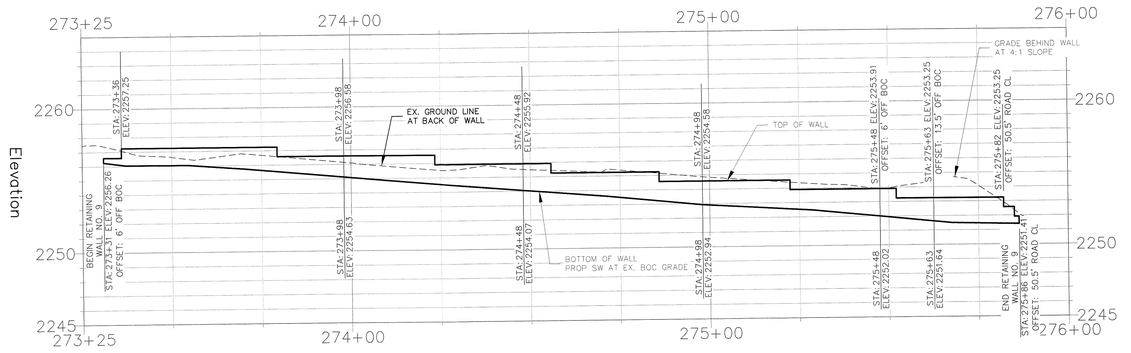
APPROX. WALL FACE AREA = 316 SF
APPROX. MAX WALL HEIGHT = 36"



SEE WALL SCHEDULE AND NCDOT GEOTECHNICAL STANDARD FOR SOIL NAIL WALL WITH BACK SLOPE FOR TYPICAL CROSS SECTION DETAIL AND NOTES - SHEET 25

SEE CROSS SECTIONS - SHEET 24

RETAINING WALL NO. 9 PROFILE



APPROX. WALL FACE AREA = 397 SF
APPROX. MAX WALL HEIGHT = 24"

RETAINING WALL ENVELOPE DOES NOT ACCURATELY DEPICT THE ACTUAL FACE OF THE WALL

SEE WALL SCHEDULE AND NCDOT GEOTECHNICAL STANDARD FOR SEGMENTAL GRAVITY WALL WITH FREEZE-THAW DURABLE SRW UNITS FOR TYPICAL CROSS SECTION DETAIL AND NOTES - SHEET 25

SEE CROSS SECTIONS - SHEET 24

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Capital Projects Management Division
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HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

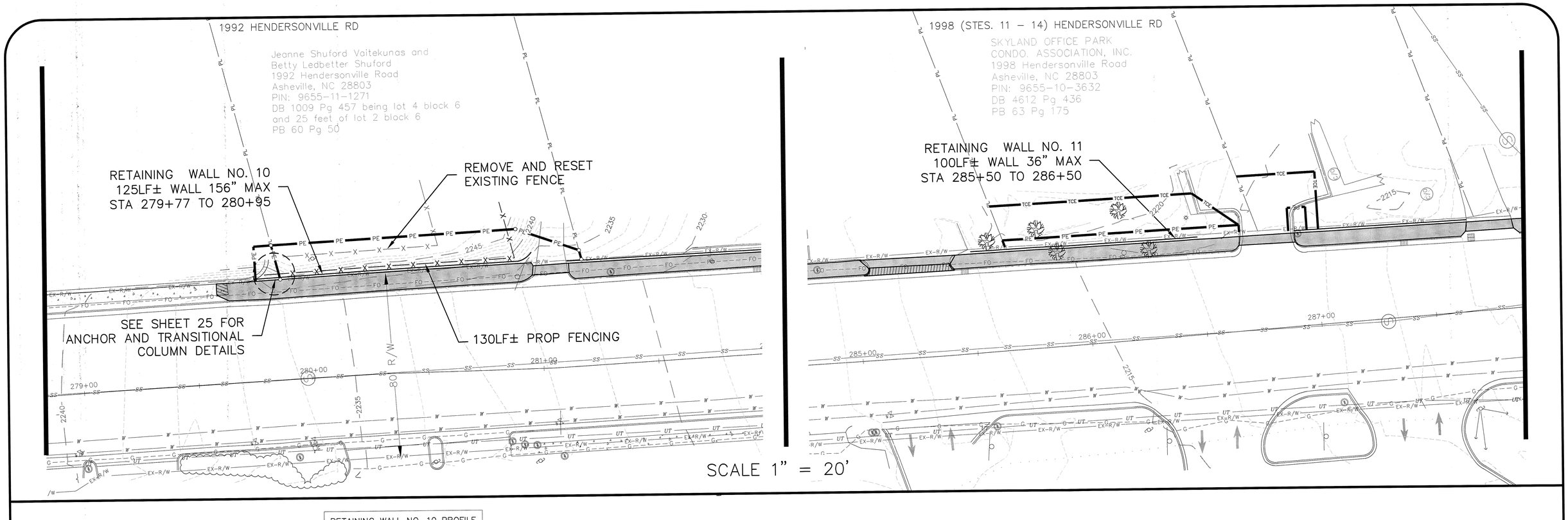
PROPOSED RETAINING WALL NO. 8 AND 9 PLAN AND PROFILE

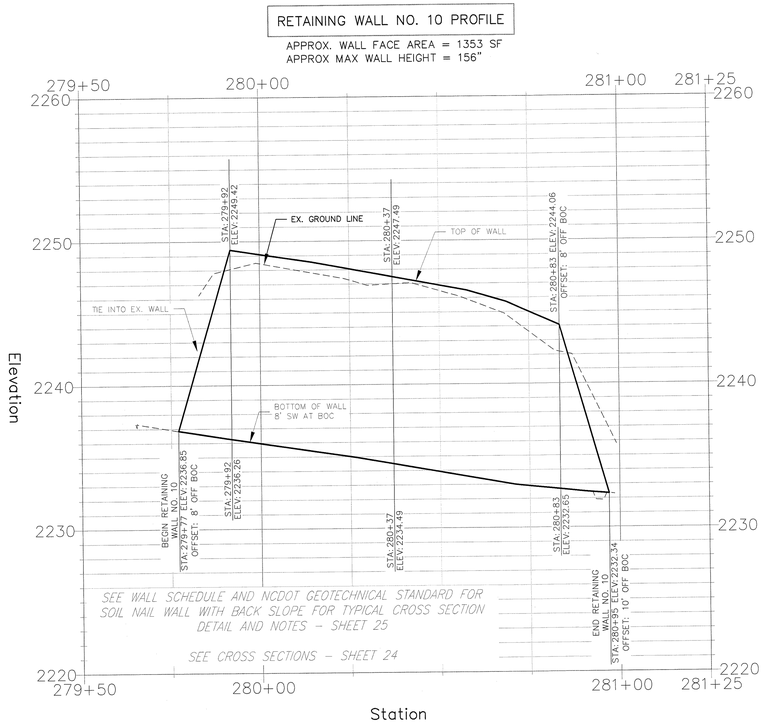
NORTH CAROLINA PROFESSIONAL SEAL 025151 ENGINEER CATHY D. BALL 5/14/15

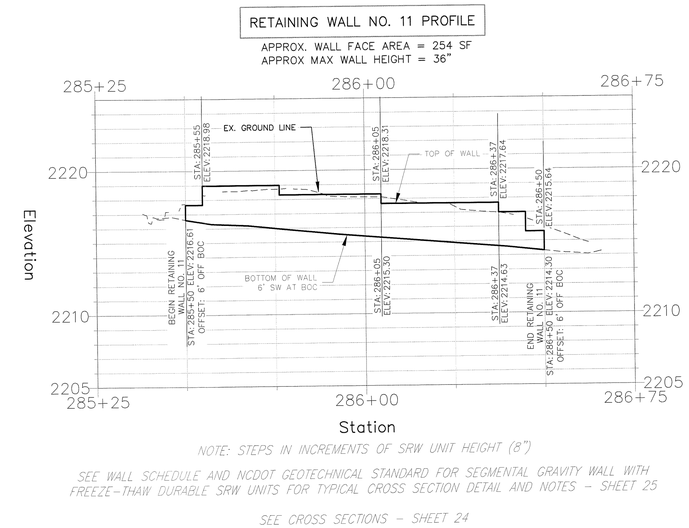
	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=20' (H) 1"=5" (V)
DRAWING NAME: US Hwy25 Sidewalk.dwg

SHEET 20 OF 39







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HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED RETAINING WALL NO. 10 AND 11 PLAN AND PROFILE

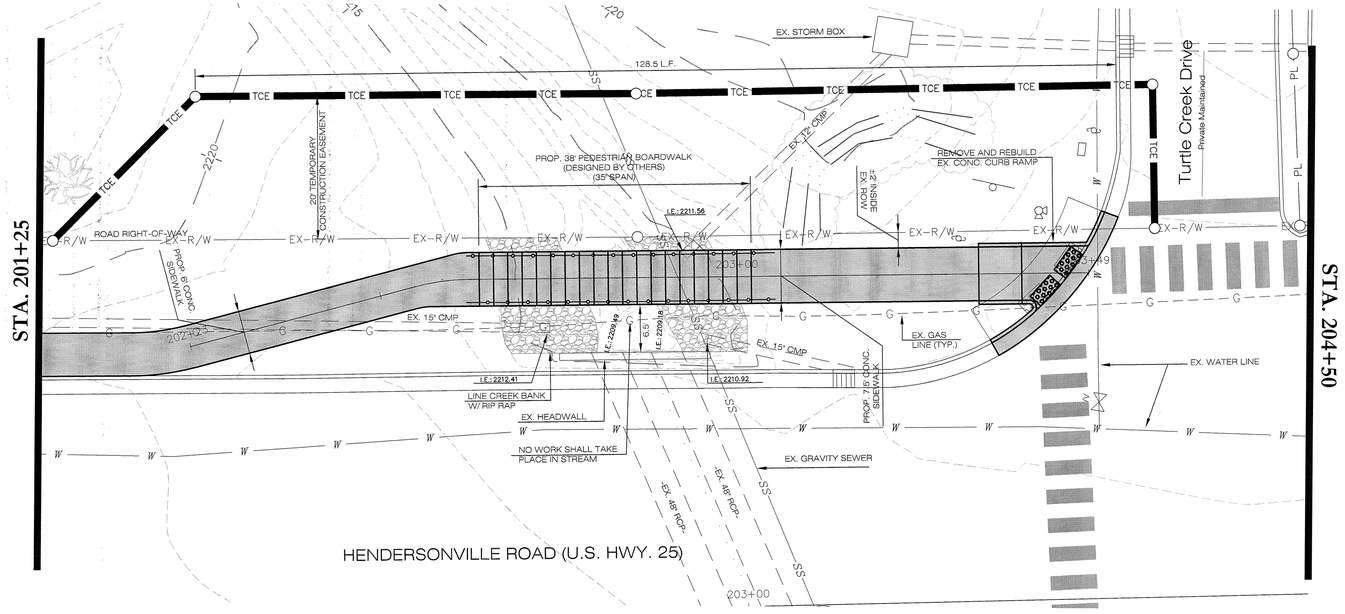
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 23151 CATHY D. BALL 5/14/15

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

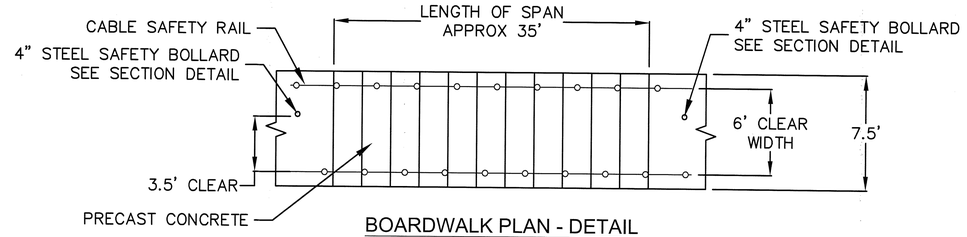
TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=20' (H) 1"=5" (V)
DRAWING NAME: US Hwy25 Sidewalk.dwg

NOTES

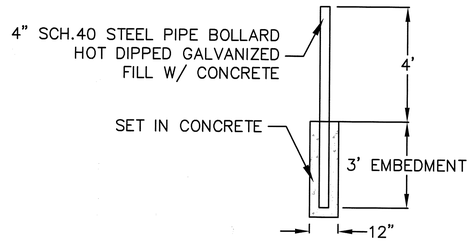
1. CONTRACTOR TO SUBMIT BOARDWALK DESIGN FOR REVIEW. SEE BOARDWALK PROVISION.
2. A GEOTECHNICAL REPORT IS NOT PROVIDED FOR THIS WORK. CONTRACTOR WILL BE RESPONSIBLE FOR THEIR OWN INVESTIGATION.



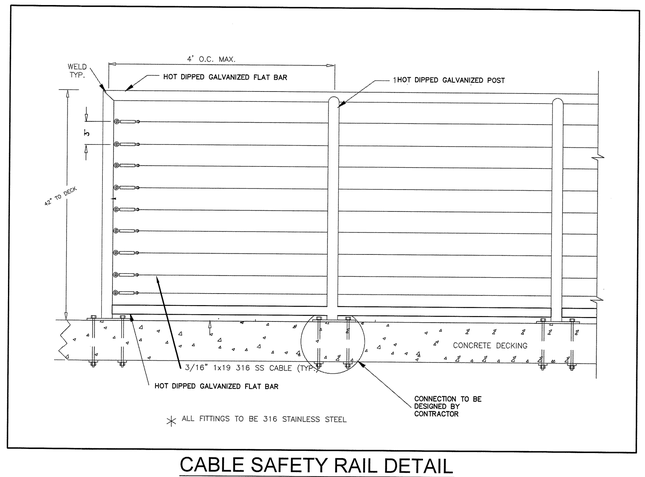
PROPOSED PEDESTRIAN BOARDWALK - PLAN
SCALE:1"=10'



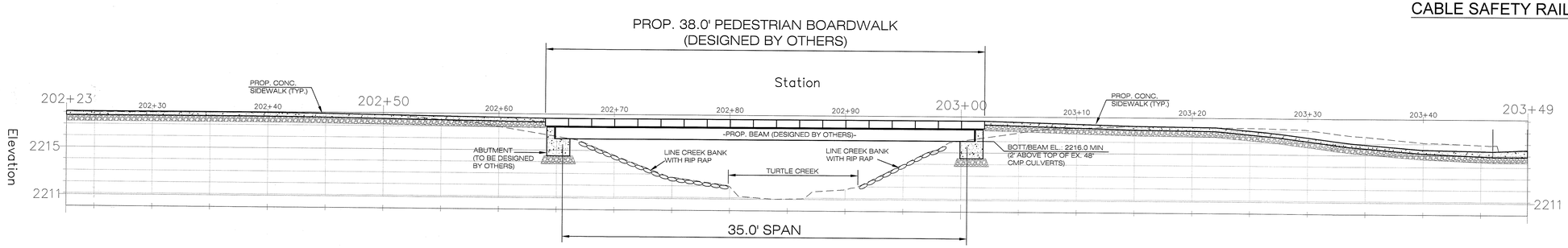
BOARDWALK PLAN - DETAIL



BOLLARD SECTION DETAIL



CABLE SAFETY RAIL DETAIL



PROPOSED PEDESTRIAN BOARDWALK - PROFILE
SCALE:1"=5'

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

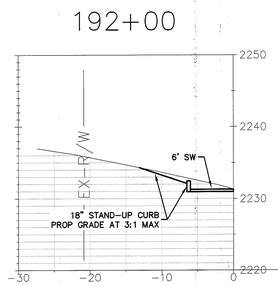
TURTLE CREEK PROPOSED PEDESTRIAN BOARDWALK

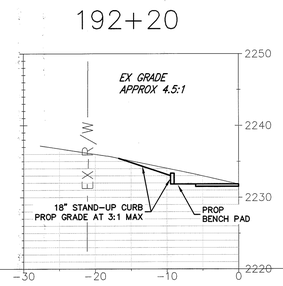
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 02815 5/14/15 CATHY D. BALL

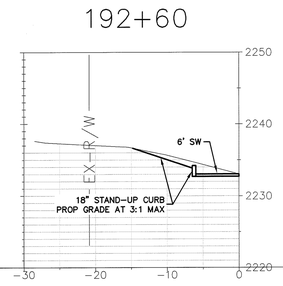
	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

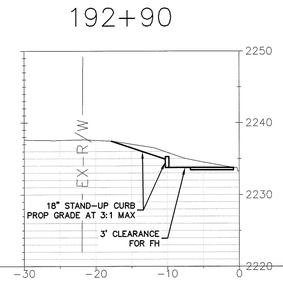
TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: VARIES
DRAWING NAME: US Hwy25 Sidewalk.dwg

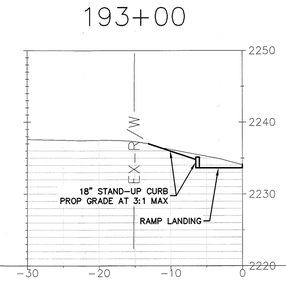
BOSTON MARKET



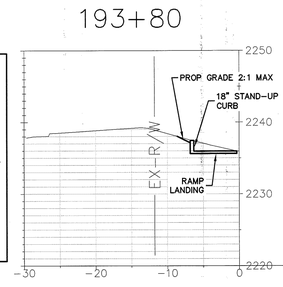


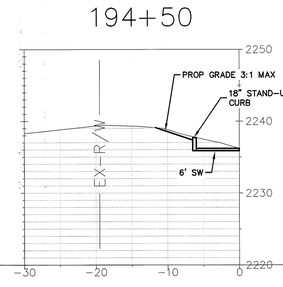


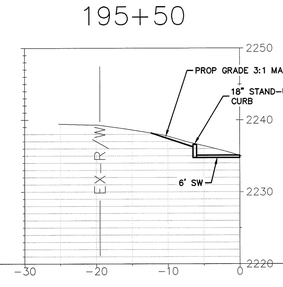


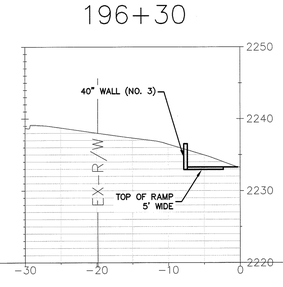


WENDY'S/ZAXBY'S



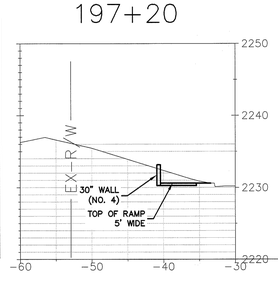


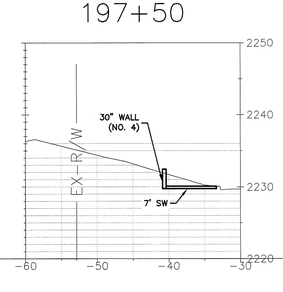


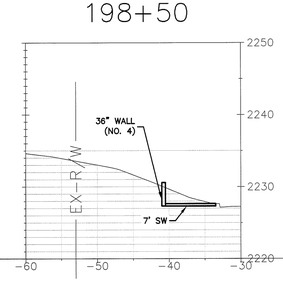


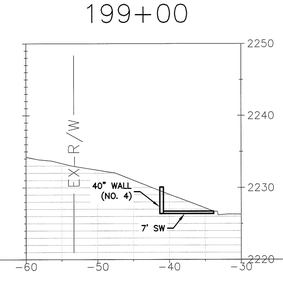
NOTE: TOP OF WALLS SHOWN IN CROSS SECTIONS MAY NOT ACCURATELY DEPICT WALL HEIGHTS. SEE RETAINING WALL PROFILES.

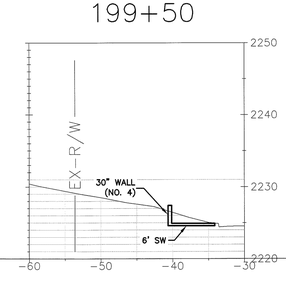
TURTLE CREEK APTS

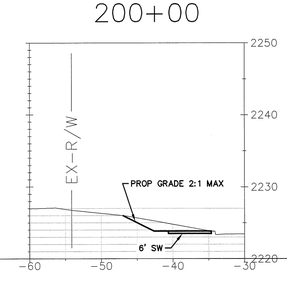




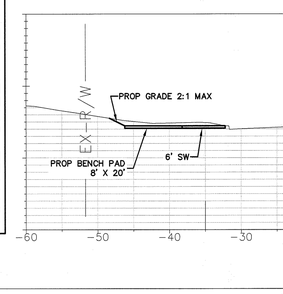


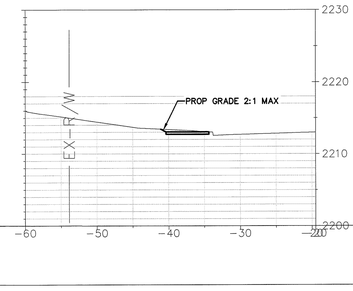


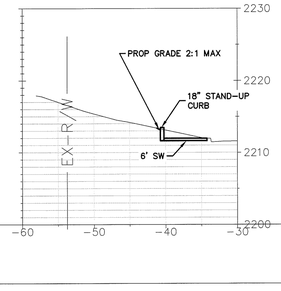


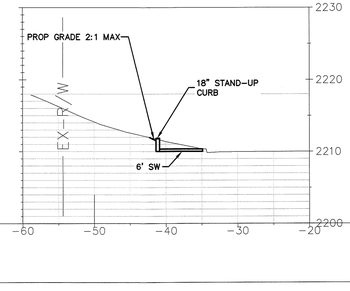


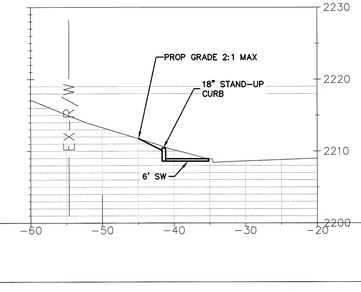
TURTLE CREEK CENTER











City of Asheville, NC

Capital Projects Management Division

P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK CROSS SECTIONS STA 192+00 TO STA 208+50

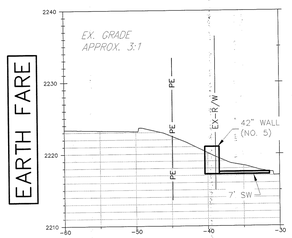
NORTH CAROLINA PROFESSIONAL SEAL 037177 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

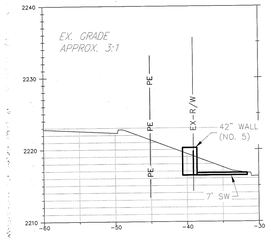
TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=10'
DRAWING NAME: US Hwy25 Sidewalk.dwg

EARTH FARE

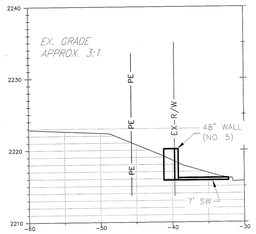
230+00



230+50



231+50



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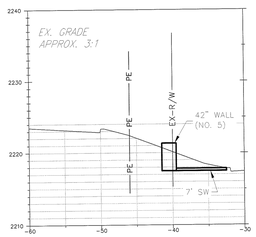
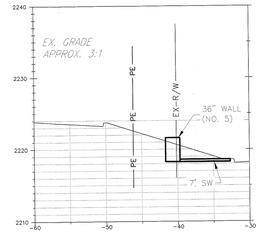
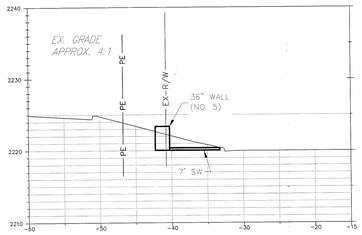


233+00



234+00



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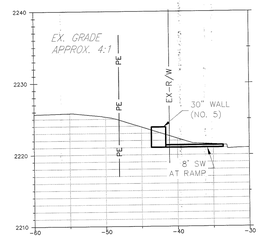
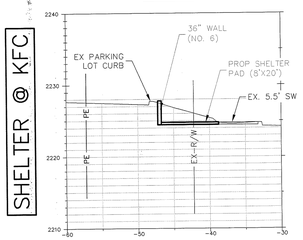
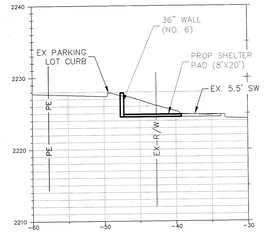


SHELTER @ KFC

235+90

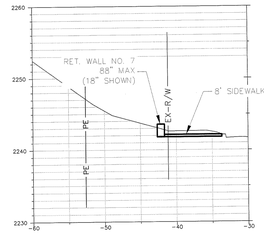


236+00

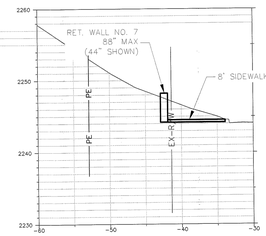


HARBOR FREIGHT

243+50



244+00



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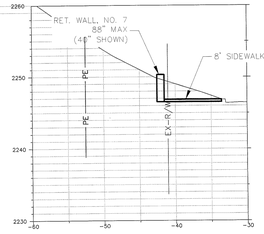

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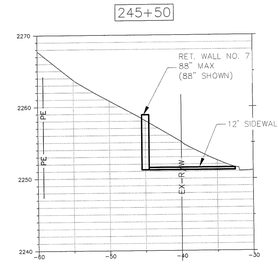

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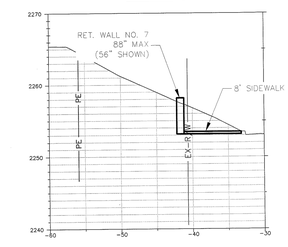
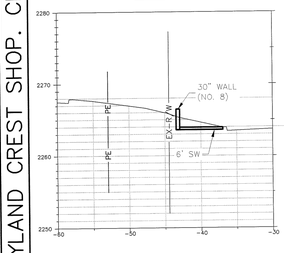
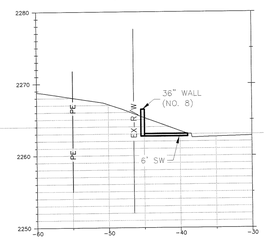


SKYLAND CREST SHOP. CENTER

269+00

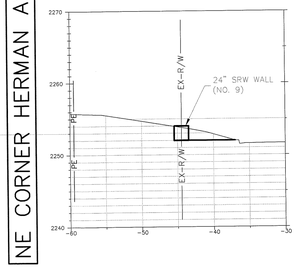


269+50

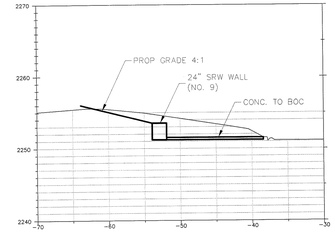


NE CORNER HERMAN AVE

275+50

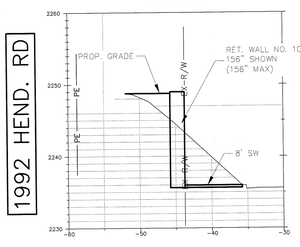


275+70



1992 HEND. RD

280+00



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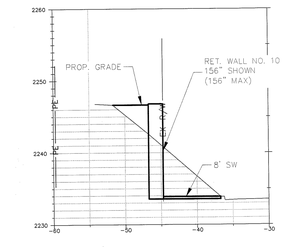
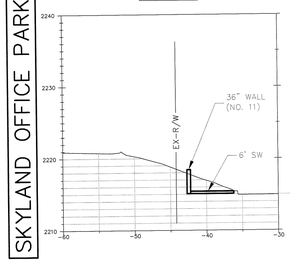
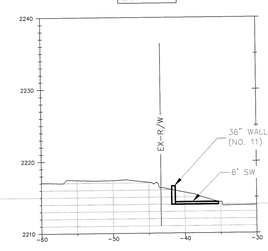


SKYLAND OFFICE PARK

286+00



286+50



NOTE: TOP OF WALLS SHOWN IN CROSS SECTIONS MAY NOT ACCURATELY DEPICT WALL HEIGHTS. SEE RETAINING WALL PROFILES.

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

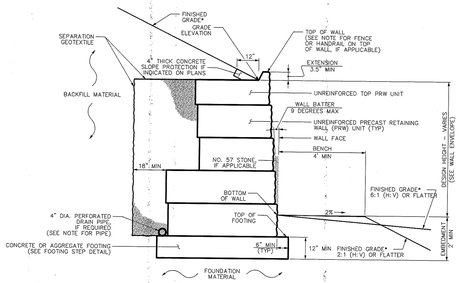
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK CROSS SECTIONS STA 230+00 TO STA 286+00

NORTH CAROLINA PROFESSIONAL SEAL 023115 ENGINEER CATHY D. BALL

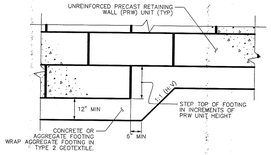
SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, SS			
DESIGNED: JR, SS, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=10'
DRAWING NAME: US Hwy25 Sidewalk.dwg



PRECAST GRAVITY WALL – TYPICAL SECTION

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



FOOTING STEP DETAIL

NOTES:

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

A DRAIN PIPE IS REQUIRED FOR RETAINING WALL NO. 1 AND 2.

BEFORE BEGINNING PRECAST GRAVITY WALL DESIGN FOR RETAINING WALL NO. 1 AND 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 WALLS NO. 1 AND 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 AND 2 FOR THE FOLLOWING:
1) MAXIMUM FOUNDATION VERTICAL STRESS ON FOUNDATION MATERIAL = 2000 LB/SF
2) MINIMUM EMBEDMENT ELEVATION = ~~___~~
3) IN-SITU ASSUMED MATERIAL PARAMETERS:

MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (Φ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	30	0
FOUNDATION	120	30	0

~~THE MINIMUM EMBEDMENT ELEVATION FOR RETAINING WALL NO. __ INCLUDES EMBEDMENT FOR SCOUR.~~

DESIGN RETAINING WALL NO. 1 AND 2 FOR SLOPING BACKFILL CONDITIONS AS SEEN IN CROSS SECTIONS.

~~DESIGN RETAINING WALL NO. __ FOR A PIPE EXTENDING THROUGH THE WALL AS SHOWN. VERIFY PIPE LOCATION AND ELEVATION BEFORE BEGINNING PRECAST GRAVITY WALL DESIGN OR CONSTRUCTION.~~

DO NOT PLACE CONCRETE OR AGGREGATE FOR FOOTINGS FOR RETAINING WALL NO. 1 AND 2 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

~~TEMPORARY SHORING IS or MAY BE REQUIRED FOR RETAINING WALL NO. __ IN ACCORDANCE WITH THE TEMPORARY SHORING PROVISION. SEE ROADWAY, STRUCTURE, or TRAFFIC CONTROL PLANS.~~

AT THE CONTRACTOR'S OPTION, "TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE USED TO CONSTRUCT RETAINING WALL NO. 1 AND 2. SEE PRECAST GRAVITY RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

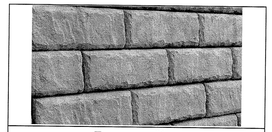
STD. CELL Wall_PrecastGravity_Slope

PRECAST GRAVITY WALL WITH BACK SLOPE – TYPICAL NOTES & FOOTING STEP DETAIL

COA REV DATE: 09-29-14

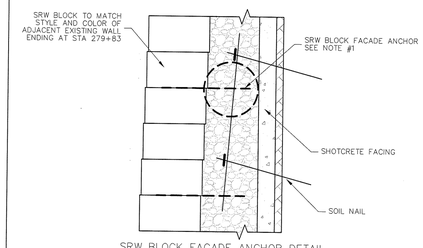
WALL SCHEDULE

Retaining Wall No.	Type	Plan / Profile Sheet No.		Linear FT	Max Height (inches)	Area (SF)	Begin Station	End Station	Facing	Rail/Fence	Special Notes
1	Precast Gravity	8	15	180	72	834	160+00	161+81	Texture #1	N/A	Trench Drain
2 (Lower)	Precast Gravity	8	16	297	48	964	165+00	167+92	Texture #1	N/A	Cap Block
2 (Upper)	Precast Gravity	8	16	210	102	1484	165+14	167+27	Texture #1	N/A	Cap Block
3	Segmental Block	10	17	35	40	90	196+16	196+51	N/A	N/A	Grass Swale Behind Wall
4	Segmental Block	10	17	253	40	648	197+02	199+60	N/A	Ped. Safety Rail	Grass Swale Behind Wall
5	Segmental Block	11-12	18	490	48	1394	229+81	234+62	N/A	Ped. Safety Rail	Grass Swale Behind Wall
6	Soil Nail	12	19	33	36	78	235+87	236+11	CIP Concrete	Ped. Safety Rail	Grass Swale Behind Wall
7	Soil Nail	12	19	282	62	1113	243+30	246+04	CIP Concrete	N/A	Cap Block and Concrete Stain Submittal; Grass Swale
8	Soil Nail	13	20	110	36	316	268+68	269+82	CIP Concrete	N/A	Grass Swale Behind Wall
9	Segmental Block	14	20	266	24	397	273+35	275+86	N/A	N/A	Grass Swale; Match Block Color to Wall #10
10	Soil Nail	14	21	125	156	1353	279+77	280+95	SRW Block	Chainlink Fence	Grass Swale Behind Wall; See Wall No. 10 Details (This Sheet)
11	Segmental Block	14	21	100	36	254	285+50	286+50	N/A	N/A	Grass Swale Behind Wall



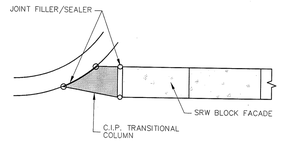
Texture #1
LIMESTONE

PRW units for walls specified with Texture #1 shall approximate the corresponding image in appearance and maintain average dimensions of 46" width and 18" height.



SRW BLOCK FACADE ANCHOR DETAIL

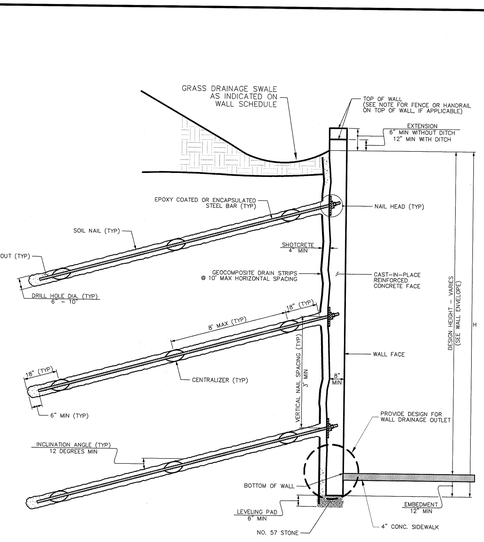
NOTES:
1. CONTRACTOR TO PROVIDE DESIGN AND DETAILS FOR SRW BLOCK FACADE ANCHOR TO COA FOR REVIEW.



C.I.P. CONCRETE TRANSITIONAL COLUMN DETAIL

NOTES:
1. CONTRACTOR TO PROVIDE DESIGN AND DETAILS FOR CAST-IN-PLACE CONCRETE TRANSITIONAL COLUMN WITH INTEGRAL COLOR TO MATCH EX. ADJACENT BLOCK WALL.

WALL NO. 10 DETAILS



SOIL NAIL WALL – TYPICAL SECTION

*SEE CONCRETE DITCH BEHIND WALL DETAILS.
**SEE PLANS FOR FINISHED GRADE OR END BENT SLOPE DETAILS.

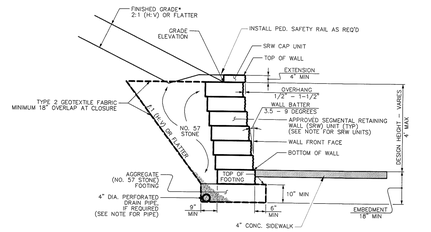
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STD CELL Wall_SoilNail

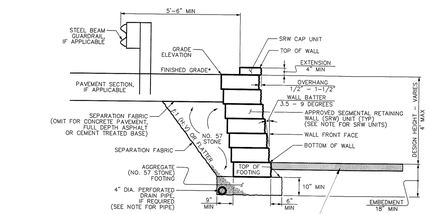
SOIL NAIL WALL WITH OR WITHOUT BACK SLOPE– TYPICAL & NOTES

COA REV DATE: 09-29-14



STANDARD SEGMENTAL GRAVITY WALL WITH BACK SLOPE

*SEE ROADWAY PLANS FOR FINISHED GRADE AND DITCH DETAILS.



STANDARD SEGMENTAL GRAVITY WALL WITHOUT BACK SLOPE

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

NOTES:

FOR STANDARD SEGMENTAL GRAVITY RETAINING WALLS, SEE SEGMENTAL GRAVITY RETAINING WALLS PROVISION.

~~DO NOT ATTACH~~ DESIGN ATTACHMENT OF FENCES OR HANDRAILS TO STANDARD SEGMENTAL GRAVITY WALLS. SEE WALL SCHEDULE FOR WALL REQUIRING FENCE OR HANDRAIL.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS WHEN SURCHARGE LOADS WILL BE LOCATED CLOSER THAN 5'-6" FROM THE BACK OF WALLS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS PRESENT BELOW WALLS.

FREEZE–THAW DURABLE SRW UNITS ARE REQUIRED IN ACCORDANCE WITH THE SEGMENTAL GRAVITY RETAINING WALLS PROVISION.

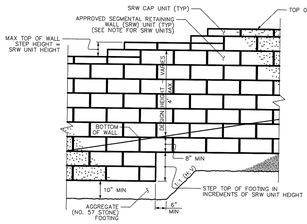
SRW UNITS ARE APPROVED FOR EITHER 2" OR 4" MAXIMUM DESIGN HEIGHTS. FOR DETAILS AND DIMENSIONS OF APPROVED SRW UNITS AND MAXIMUM DESIGN HEIGHTS, SEE: www.ncdot.org/doh/preconstruct/highway/geotech/segmgravwalls

DO NOT MIX APPROVED SRW UNITS FROM DIFFERENT VENDORS ON THE SAME STANDARD SEGMENTAL GRAVITY WALL. USE THE SAME SIZE APPROVED SRW UNITS FOR EACH WALL SECTION.

BEFORE BEGINNING STANDARD SEGMENTAL GRAVITY WALL CONSTRUCTION, SURVEY WALL LOCATIONS AND SUBMIT WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. FOR WALL ENVELOPES, INCLUDE BOTTOM OF FOOTING ELEVATIONS, FOOTING STEP ELEVATIONS AND OTHER ELEVATIONS AS NEEDED AT INTERVALS NO GREATER THAN 50' ALONG WALLS. DO NOT START WALL CONSTRUCTION UNTIL WALL ENVELOPES ARE ACCEPTED.

A DRAIN PIPE IS REQUIRED IF GROUNDWATER IS ABOVE BOTTOM OF FOOTINGS.

DO NOT PLACE NO. 57 STONE FOR FOOTINGS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



STANDARD SEGMENTAL GRAVITY WALL – PARTIAL ELEVATION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 453.03

STANDARD SEGMENTAL GRAVITY RETAINING WALL WITH FREEZE–THAW DURABLE SRW UNITS

COA REV DATE: 09-29-14

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

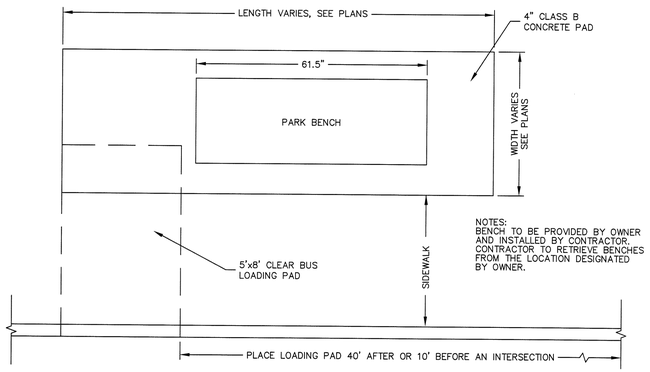
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

WALL SCHEDULE AND DETAILS

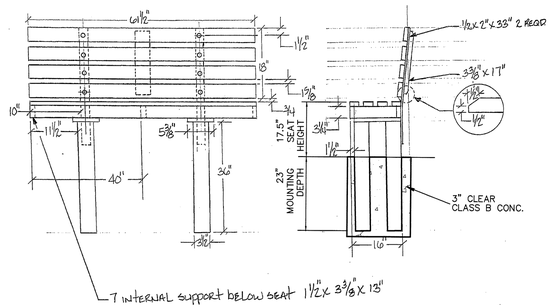
NORTH CAROLINA PROFESSIONAL SEAL 023615 ENGINEER CATHY D. BALL 9/14

	DATE	REVISION	BY
SURVEYED:			
DRAWN:			
DESIGNED:			
CHECKED:			
APPROVED:			

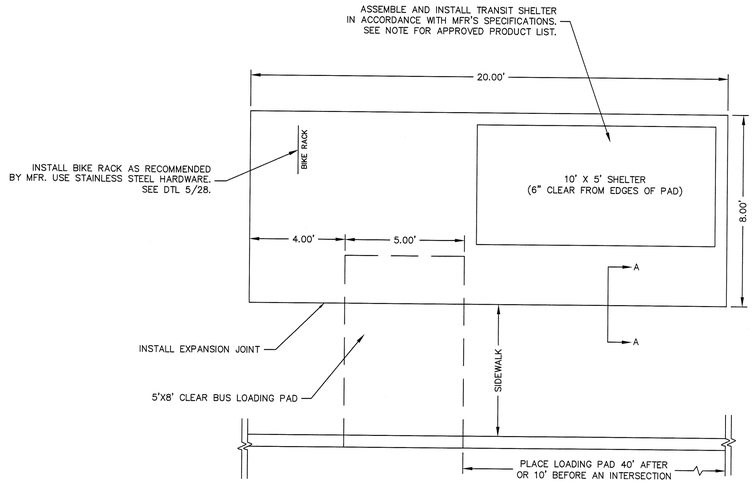
TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg



1/26 BENCH PAD
NOT TO SCALE



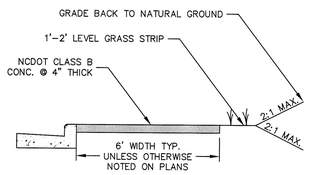
2/26 BENCH DETAIL
NOT TO SCALE



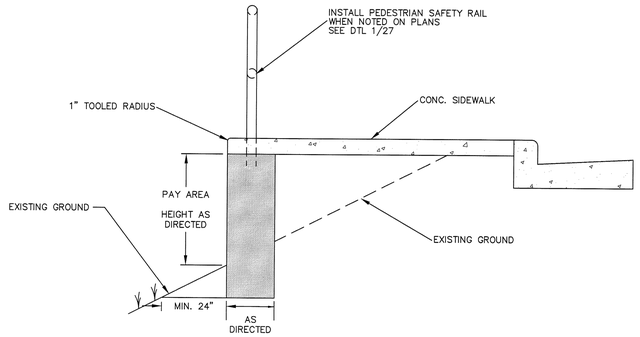
3/26 BUS SHELTER PAD
NOT TO SCALE

NOTES:
1. INSTALL APPROVED BUS SHELTER ON SHELTER FOUNDATION PAD AT STA 236+00. SEE PLANS.
2. INSTALL BUS SHELTER PAD, BIKE RACK, AND BENCH ONLY AT STA 97+40, 194+30, AND 204+50.
3. BUS SHELTER SHALL BE MEASURED AND PAID ON A PER EACH BASIS AND SHALL BE FULL COMPENSATION FOR ALL DESIGN, EQUIPMENT, LABOR, MATERIALS, AND INCIDENTALS TO INSTALL A BUS SHELTER.

APPROVED PRODUCTS INCLUDE:
1. TOLAR MFG. CO.–EURO SERIES SHELTER, MODEL NO. 10033–01
2. BRASCO INT, INC.–ECLIPSE CANTILEVER SERIES, MODEL NO. ECL510–C
3. DUO–GUARD INDUSTRIES, INC.–CANTILEVER SHELTER MODEL NO. TA510–CNTL
4. OR APPROVED EQUAL

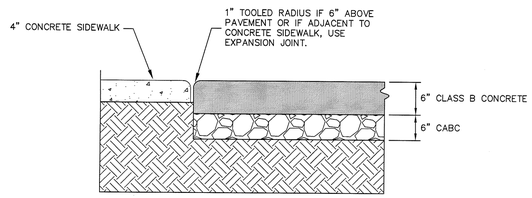


4/26 TYPICAL SIDEWALK DETAIL
NOT TO SCALE



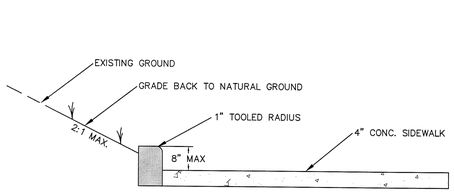
5/26 TURN–DOWN FOOTING
NOT TO SCALE

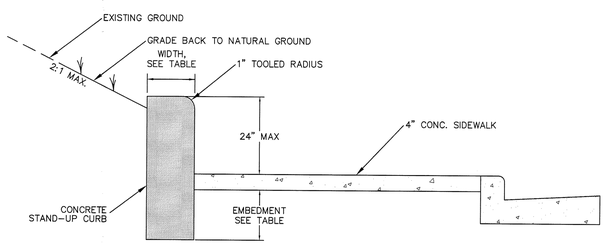
NOTES:
1. NCDOT CLASS B CONCRETE.
2. REINFORCEMENT TO BE INSTALLED AS DIRECTED.
3. ALL DIMENSIONS/QUANTITIES ANNOTATED WITH "AS DIRECTED" TO BE FIELD DETERMINED BY COA REPRESENTATIVE.
4. ITEM SHALL BE PAID IN TERMS OF SQUARE FEET.



6/26 SECTION A–A
BUS SHELTER FOUNDATION PAD
NOT TO SCALE

NOTES:
1. DESIGN TO BE USED AT ALL AREAS INDICATING 20'X8' SHELTER PAD. SEE PLANS AT STA 97+40, 194+30, 204+50, AND 236+00.





7/26 CONCRETE STAND–UP CURB
NOT TO SCALE

HEIGHT	WIDTH	EMBEDMENT
6"	6"	6"
8"	6"	6"
12"	8"	8"
18"	10"	8"
24"	10–12"	8"

NOTES:
1. NCDOT CLASS B CONCRETE.
2. ITEM STAND–UP CURB–A TO BE USED FOR EXPOSED CURB HEIGHTS LESS THAN OR EQUAL TO 12".
3. ITEM STAND–UP CURB–B TO BE USED FOR EXPOSED CURB HEIGHTS GREATER THAN 12".
4. ITEM SHALL BE PAID IN TERMS OF LINEAR FOOT.
5. REINFORCEMENT TO BE INSTALLED AS DIRECTED.
6. ALL DIMENSIONS/QUANTITIES ANNOTATED WITH "AS DIRECTED" TO BE FIELD DETERMINED BY COA REPRESENTATIVE.
7. SEE DTL 3/28 FOR CURB END DETAIL.

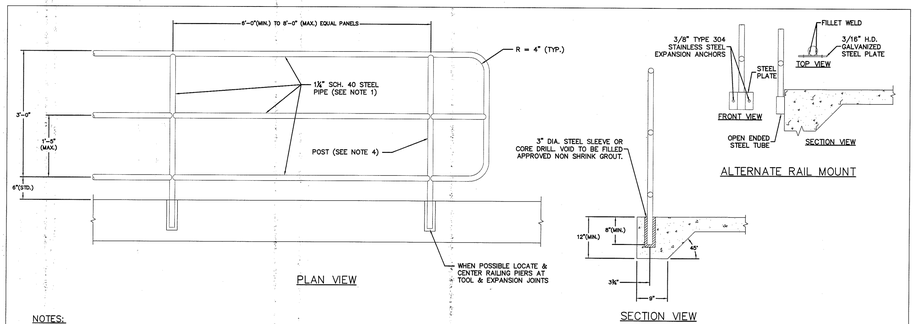
City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 033615 ENGINEER CATHY D. BALL 2/16/15

SURVEYED: JW, DK	DATE	REVISION	BY	TIP No.: U5189
DRAWN: JR, JW				GRID: N/A
DESIGNED: JR, BE				DATE: APRIL 2015
CHECKED: BE				SCALE: N/A
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk.dwg

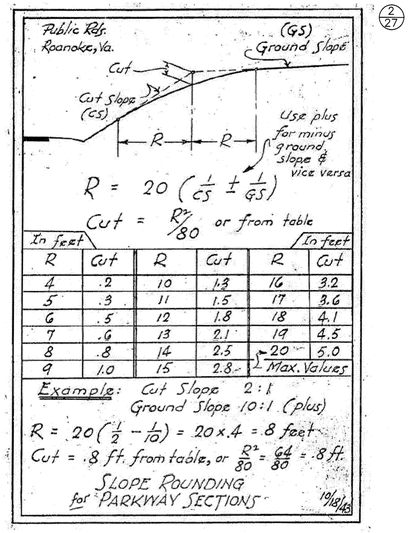


NOTES:

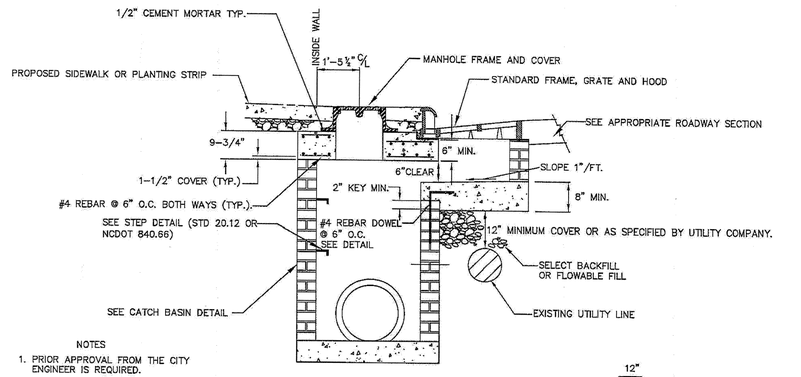
1. CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1 ¼" SCHEDULE 40 PLAIN END STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.
2. CONSTRUCT STEEL PIPE IN ACCORDANCE WITH SECTION 1074 OF THE NCDOT STANDARD SPECIFICATION.
3. WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.
4. ALL POST SECTIONS ARE TO BE CONSTRUCTED PLUMB, NOT PERPENDICULAR TO THE SIDEWALK.
5. USE APPROVED NON-SHRINK GROUT IN ACCORDANCE WITH SECTION 1003 OF THE NCDOT STANDARD SPECIFICATIONS FOR HANDRAIL FOOTINGS.
6. PLACEMENT OF HANDRAIL IN RELATION TO WALL AND SIDEWALK MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.
7. ALL ITEMS ARE TO BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM 123.

City of Asheville, NC Engineering Services Division of the Public Works Department	**PEDESTRIAN SAFETY RAILING**	REVISIONS DATE / DESCRIPTION 08/22/14 REVISED TEXT AND DRAWING	STD. NO. **3.37M**

1/27



2/27



NOTES

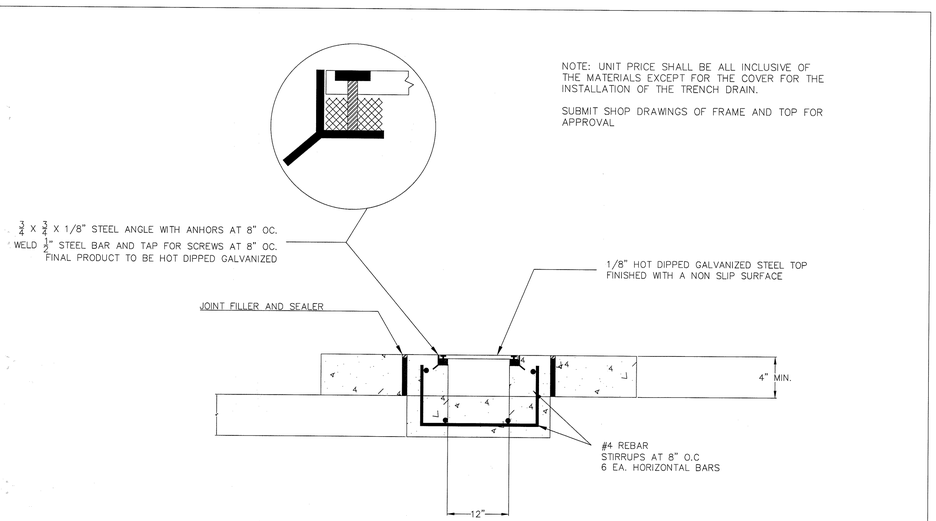
1. PRIOR APPROVAL FROM THE CITY ENGINEER IS REQUIRED.
2. THIS STRUCTURE IS TO ONLY BE USED ON CITY MAINTAINED STREETS AND NOT ON NCDOT STREETS WITHOUT THEIR PERMISSION.

OFFSET CATCH BASIN EXISTING UTILITY CONFLICT

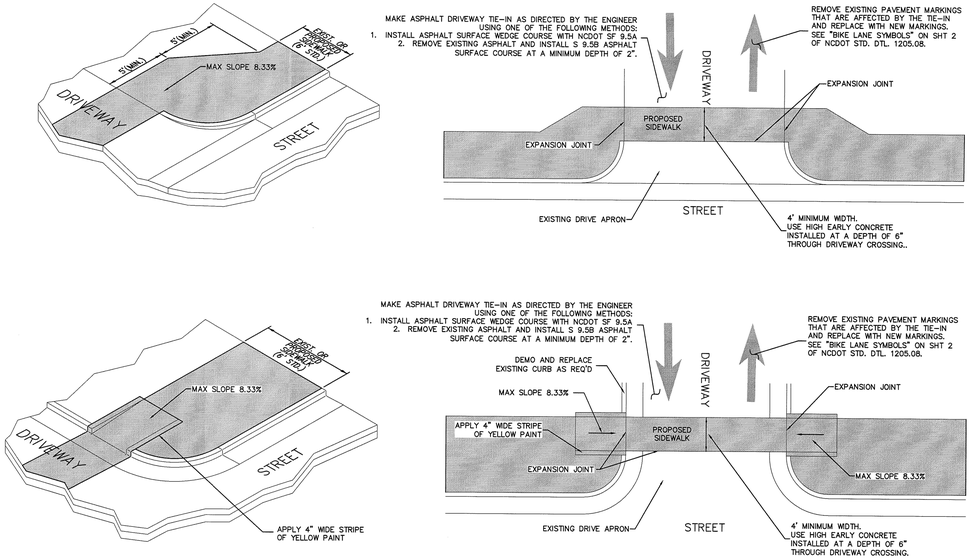
DOWEL DETAIL

NOT TO SCALE

3/27 OFFSET CATCH BASIN DETAIL
NOT TO SCALE



City of Asheville, NC Engineering Services Division of the Public Works Department	**TRENCH DRAIN**	REVISIONS DATE / DESCRIPTION	DTL. NO. 4/27

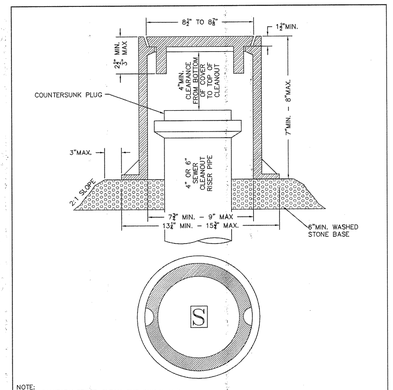


ISOMETRIC VIEWS

PLAN VIEWS

5/27 DRIVEWAY CROSSING DETAIL
NOT TO SCALE

City of Asheville, NC Capital Projects Management Division P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955	**HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS**	DETAILS	NORTH CAROLINA PROFESSIONAL SEAL 049015 ENGINEER CATHY D. BALL	SURVEYED: JW, DK DRAWN: JR, JW DESIGNED: JR, BE CHECKED: BE APPROVED: JG	DATE / REVISION / BY	TIP No.: U5189 GRID: N/A DATE: APRIL 2015 SCALE: N/A DRAWING NAME: US Hwy25 Sidewalk.dwg SHEET 27 OF 39



NOTE:
1. ALL SANITARY SEWER CLEAN OUT BOXES AND COVERS SHALL BE MANUFACTURED FROM GRAY IRON (CAST IRON) MEETING THE REQUIREMENTS OF AWWA C110 AND ASTM A536.
2. SANITARY SEWER CLEAN OUT BOXES AND COVERS MANUFACTURED BY U.S FOUNDRY (HAND HOLE RING & FC COVER, MODEL #7610), EAST JORDAN IRON WORKS (HEAVY DUTY MONUMENT BOX, MODEL #1574) OR APPROVED EQUAL.

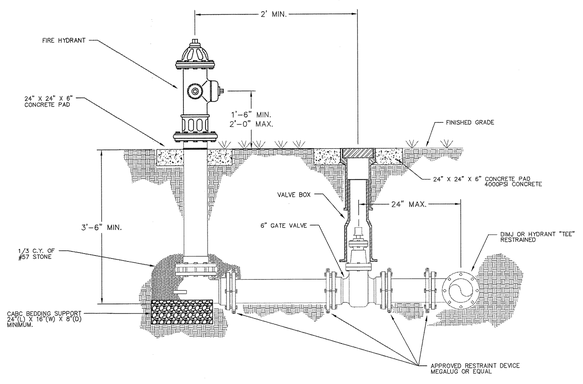
MINIMUM WEIGHT CHART	
	MIN. WEIGHT-LBS.
COVER	25
BASE	40
TOTAL UNIT	65

1/28

STANDARD DETAIL
Metropolitan Sewerage District
Buncombe County, North Carolina

CLEANOUT BOX

APPROVED: FEBRUARY 25, 2010 | 2.07-05

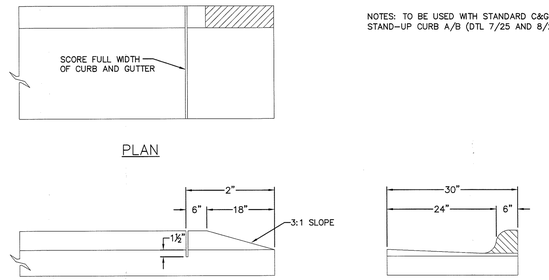


2/28

City of Asheville, NC
WATER ENGINEERING DIVISION

FIRE HYDRANT INSTALLATION

REVISIONS		STD. NO.
DATE	DESCRIPTION	
6/2009	REVISED DETAIL FROM 6.05	**W.16**



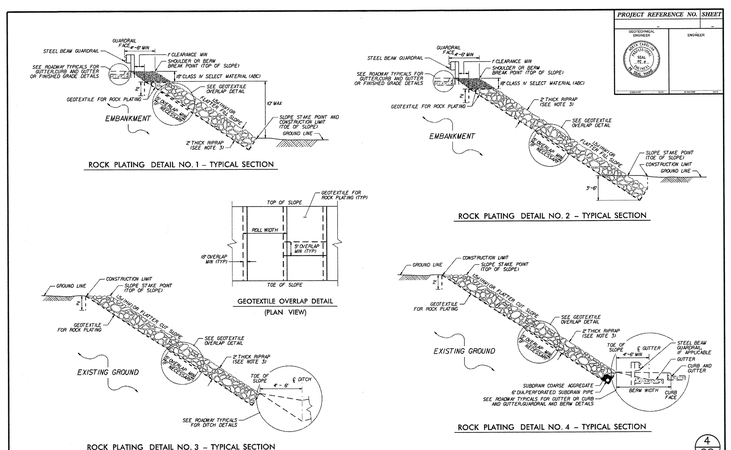
NOTES: TO BE USED WITH STANDARD C&G AND STAND-UP CURB A/B (DTL 7/25 AND 8/25)

3/28

City of Asheville, NC
Standard Specifications and Details Manual

STANDARD METHOD OF ENDING CURB & GUTTER, WALLS, & STAND-UP CURB

REVISIONS		STD. NO.
DATE	DESCRIPTION	
		3.13



4/28

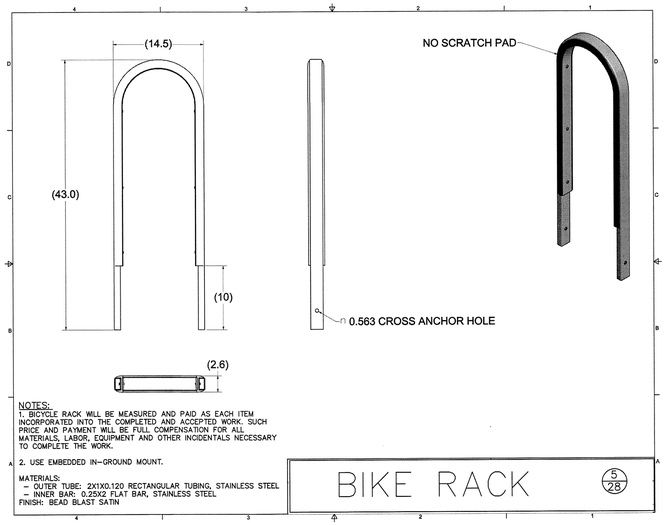
NOTES:
1. SEE ROADWAY PLANS AND SUMMARY SHEETS FOR ROCK PLATING LOCATIONS.
2. FOR STANDARD ROCK PLATING,SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.
3. USE CLASS I,I2 OR II RIPRAP UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.

GEOTECHNICAL ENGINEERING UNIT
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO.1101.01

STANDARD ROCK PLATING

DATE 2-19-13



NOTES:
1. BICYCLE RACK WILL BE MEASURED AND PAID AS EACH ITEM INCORPORATED INTO THE COMPLETED AND ACCEPTED WORK. SUCH PRICE AND PAYMENT WILL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, EQUIPMENT AND OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. USE EMBEDDED IN-GROUND MOUNT.

MATERIALS:
- OUTER TUBE: 2X1X0.120 RECTANGULAR TUBING, STAINLESS STEEL
- INNER BAR: 0.25X2 FLAT BAR, STAINLESS STEEL

FINISH: BEAD BLAST SATIN

BIKE RACK 5/28

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

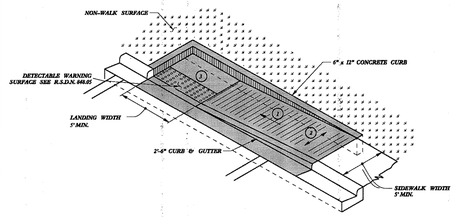
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

DETAILS

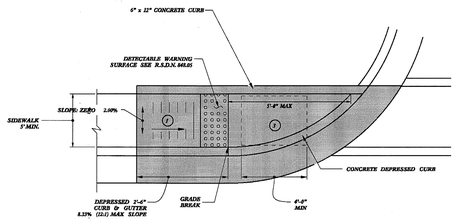
NORTH CAROLINA PROFESSIONAL SEAL 023717 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg



TYPE 1A



TYPE 1

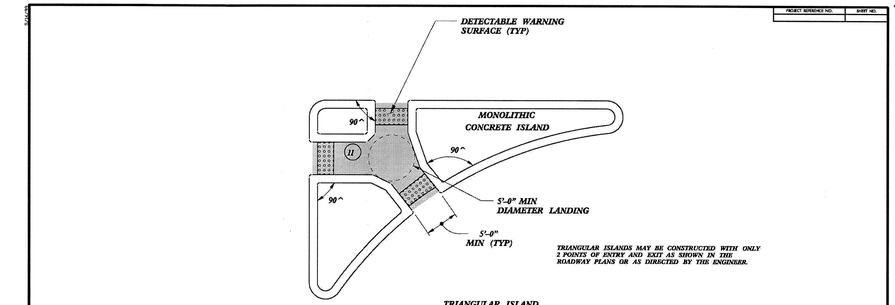
1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 840.01 SHEET 3 OF 3 FOR ALL RAMP NOTES

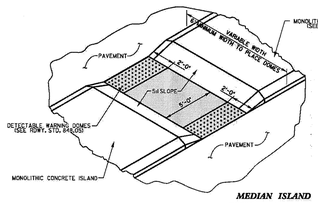
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-9900 FAX 919-250-4119

CURB RAMPS
Directional Ramps

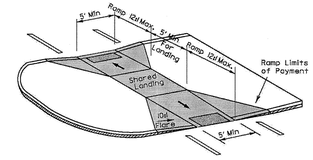
ORIGINAL BY: J.S. HOWINGTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE NAME: N:\Projects\Standard Drawings\2012 Standard Drawings\Curb Ramp Details\Curb Ramp Details.dgn



TRIANGULAR ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CUT THROUGH

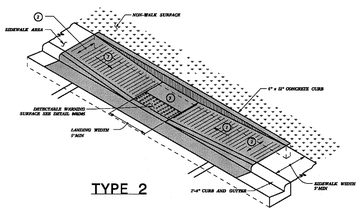


MEDIAN ISLAND CURB RAMPS

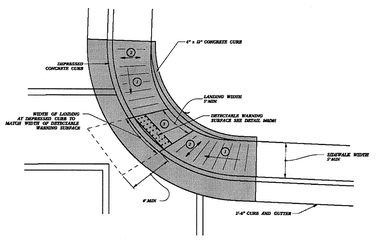
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-9900 FAX 919-250-4119

CURB RAMPS
Median or Turn Lane Islands

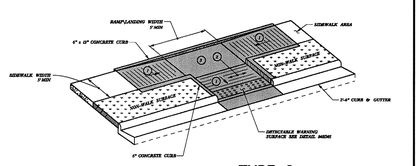
ORIGINAL BY: J.S. HOWINGTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE NAME: N:\Projects\Standard Drawings\2012 Standard Drawings\Curb Ramp Details\Curb Ramp Details.dgn



TYPE 2



TYPE 2A



TYPE 3

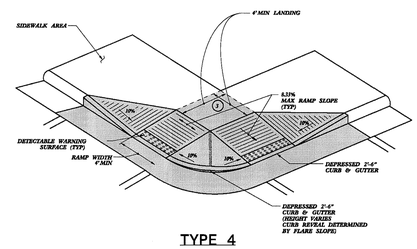
1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 840.01 SHEET 3 OF 3 FOR ALL RAMP NOTES

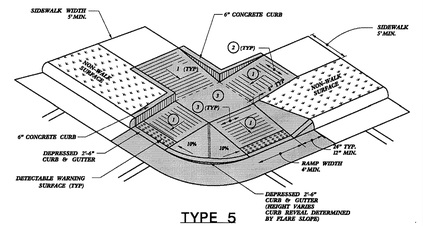
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-9900 FAX 919-250-4119

CURB RAMPS
Parallel Ramps

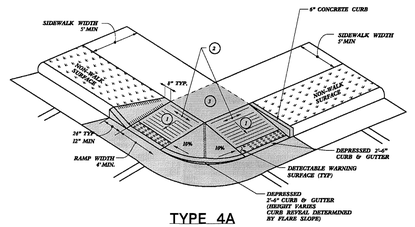
ORIGINAL BY: J.S. HOWINGTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE NAME: N:\Projects\Standard Drawings\2012 Standard Drawings\Curb Ramp Details\Curb Ramp Details.dgn



TYPE 4



TYPE 5



TYPE 4A

1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

REFER TO ROADWAY STANDARD DRAWING NUMBER 840.01 SHEET 3 OF 3 FOR ALL RAMP NOTES

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-9900 FAX 919-250-4119

CURB RAMPS
Shared Landing

ORIGINAL BY: J.S. HOWINGTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE NAME: N:\Projects\Standard Drawings\2012 Standard Drawings\Curb Ramp Details\Curb Ramp Details.dgn

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City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

DETAILS

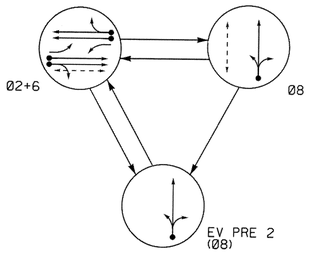
NORTH CAROLINA PROFESSIONAL SEAL 041115 ENGINEER CATHY D. BALL

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

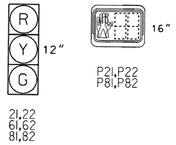
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+6	PHASE Ø8	PHASE EVP2	PHASE FLASH
21,22	G	R	R	Y
61,62	G	R	R	Y
81,82	R	G	G	R
P21,P22	W	DW	DW	DRK
P81,P82	DW	W	DW	DRK

Signal Face I.D.

All Heads L.E.D.



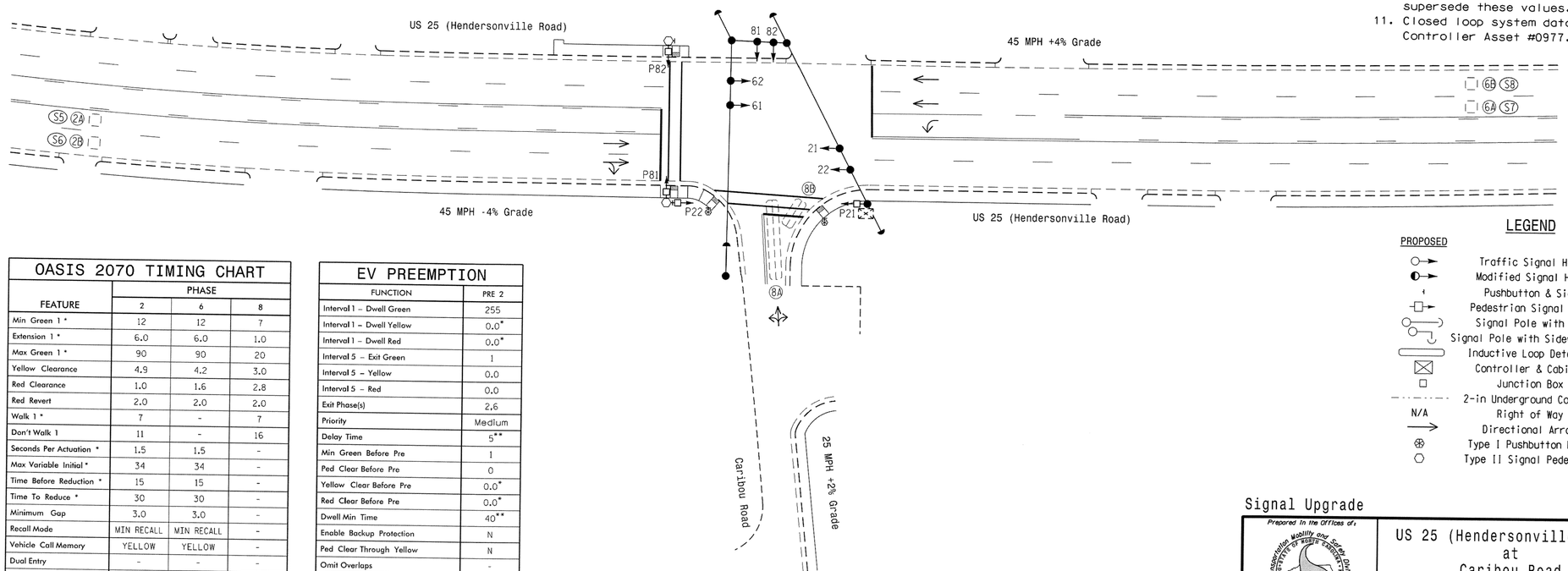
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING: PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A/S5	6X6	285	5	-	2	Y	Y	-	-	-	Y	-
2B/S6	6X6	285	5	-	2	Y	Y	-	-	-	Y	-
6A/S7	6X6	300	5	-	6	Y	Y	-	-	-	Y	-
6B/S8	6X6	300	5	-	6	Y	Y	-	-	-	Y	-
8A	6X40	+5	2-4-2	-	8	Y	Y	-	-	5	-	-
8B	6XI5	+5	2-4-2	-	8	Y	Y	-	-	15	-	-

2 Phase
Fully Actuated with
Emergency Vehicle Preemption
US 25 (Hendersonville Rd)-North CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
5. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
6. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
7. Pavement markings are existing.
8. Emergency vehicle preemption switch is located in Asheville Fire-Rescue Station 6 (1030 Hendersonville Road).
9. The Division Traffic Engineer will determine the Delay before Preempt and Preempt Dwell Min Green time for the emergency vehicle preemption timing.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
11. Closed loop system data: Controller Asset #0977.



OASIS 2070 TIMING CHART

FEATURE	PHASE 2	PHASE 6	PHASE 8
Min Green 1 *	12	12	7
Extension 1 *	6.0	6.0	1.0
Max Green 1 *	90	90	20
Yellow Clearance	4.9	4.2	3.0
Red Clearance	1.0	1.6	2.8
Red Revert	2.0	2.0	2.0
Walk 1 *	7	-	7
Don't Walk 1	11	-	16
Seconds Per Actuation *	1.5	1.5	-
Max Variable Initial *	34	34	-
Time Before Reduction *	15	15	-
Time To Reduce *	30	30	-
Minimum Gap	3.0	3.0	-
Recall Mode	MIN RECALL	MIN RECALL	-
Vehicle Call Memory	YELLOW	YELLOW	-
Dual Entry	-	-	-
Simultaneous Gap	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

EV PREEMPTION

FUNCTION	PRE 2
Interval 1 - Dwell Green	255
Interval 1 - Dwell Yellow	0.0*
Interval 1 - Dwell Red	0.0*
Interval 5 - Exit Green	1
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Exit Phase(s)	2,6
Priority	Medium
Delay Time	5**
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	40**
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-

* Time defaults to time used for phase during normal operation.
** See note 9.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Pushbutton & Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type I Pushbutton Post	
	Type II Signal Pedestal	

Signal Upgrade

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road) at Caribou Road

Division 13 Buncombe County Asheville

PLAN DATE: August 2014 REVIEWED BY: Z.M. Little
PREPARED BY: C.L. Sweeney REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 30 1"=30'

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 9/26/2014
SIG. INVENTORY NO. 13-0977

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

CARIBOU RD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

25-SEP-2014 14:06
S:\eit\SIGS\ITS Signals\Signal Design Section\Western Region\Div-13\HO-ACTIVE projects\13-0977\#130977_sig_dsn_20140925.dgn
C.L. Sweeney

PROJECT REFERENCE NO.	SHEET NO.

EDI MODEL 2010ECL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on used monitor channels, tie unused red monitor inputs 1,3,4, 5,7,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manucturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 8 for 'STARTUP PED CALL'.
7. Program phases 2 and 6 for Yellow Flash.
8. The cabinet and controller are part of the US 25 (Hendersonville Rd) - North CLS.

EQUIPMENT INFORMATION

CONTROLLER.............2070L
CABINET................332
SOFTWARE...............ECONOLITE OASIS
CABINET MOUNT..........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S2,S2P,S6,S8,S8P
PHASES USED............2,2 PED,6,8,8 PED
OVERLAPS...............NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	P21,P22 FIRE PILOT LAMP	NU	NU	NU	NU	61,62	NU	NU	81,82	P81, P82
RED		128						134			107	
YELLOW		129						135			108	
GREEN		130						136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												
(DON'T WALK)			113									110
PED YELLOW			* 114									
(WALK)			115									112

NU = Not Used
* See Lamp Notes on Sheet 2 of 2.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	SLOT EMPTY	Ø2/SYS 2A/S5	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	NOT USED	FS DC ISOLATOR
"I"	L		Ø2/SYS 2B/S6										NOT USED	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
"J"	U	SLOT EMPTY	Ø6/SYS 6A/S7	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	NOT USED
"J"	L		Ø6/SYS 6B/S8				Ø 8 8B								EV PRE2 AC ISOLATOR

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A/S5	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y	-	-	-
2B/S6	TB2-7,8	I2L	43	5	12	2/SYS	Y	Y	-	-	-
6A/S7	TB3-5,6	J2U	40	2	6	6/SYS	Y	Y	-	-	-
6B/S8	TB3-7,8	J2L	44	6	16	6/SYS	Y	Y	-	-	-
8A	TB5-9,10	J6U	42	4	8	8	Y	Y	-	-	5
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			15
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2 PED					
P81,P82	TB8-8,9	I13L	70	32	PED 8	8 PED					

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0977
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:
Prepared in the Offices of: Transportation Mobility and Safety Division, Signal Management Section, 750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road)
at
Caribou Road

Division 13 Buncombe County Asheville
PLAN DATE: August 2014 REVIEWED BY: T. Joyce
PREPARED BY: B. Simmons REVIEWED BY:
REVISIONS INIT. DATE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022013 GEORGE C. BROWN
DocuSigned by: George C. Brown 10/3/2014
SIG. INVENTORY NO. 13-0977

EMERGENCY VEH. PREEMPTION PUSHBUTTON AND INDICATOR LAMP WIRING DETAIL

(wire push-button and lamp as shown below)

IMPORTANT!

1. Make sure AC isolator inserted in Slot J14L is set for inverted input.
2. Connect terminal TB9-12B (on input panel) to AC neutral (jumper may need to be added).

LAMP NOTES

In order for the pilot lamp in the fire house to function, make the following programming changes to Output No. 33:

1. Change the function of C1 pin 35 to be an output for Preempt 2. This is accomplished by the following:
   A) From Main Menu select '6' (Outputs). Then select '1' (Output Assignments).
   B) Scroll to C1 pin 35, Output No. 33. You will see that it is not enabled.
   C) Scroll down to Preempt and input 'YES'. You will then be asked for a preempt number. Enter a '2' here.
   D) The output is now assigned for PRE-2 output.
2. If field terminal 114 has a conflict monitor wire attached, remove, tape, and label wire.
3. Make sure load resistors are in place as shown in the Load Resistor Installation Detail.
4. Install a loadswitch in Output File Slot S2P.

LOAD RESISTOR INSTALLATION DETAIL

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)

PHASE 2 PED YELLOW FIELD TERMINAL (114)
AC-

LOAD RESISTOR REMOVAL DETAIL

(remove resistor as shown below)

~~PHASE 2 WALK FIELD TERMINAL (115)~~
AC-

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)

! IMPORTANT: If present, remove load resistor from PHASE 2 WALK FIELD

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #2.

```
  PREEMPTION  #2  SETTINGS (NEXT:1-10)
 INTERVAL/TIMING ¦  CLEAR/DWELL PHASES
   GRN YEL  RED  ¦12345678910111213141516
 1 255  0.0  0.0 ¦        X
 2   0  0.0  0.0 ¦
 3   0  0.0  0.0 ¦
 4   0  0.0  0.0 ¦
 5   1  0.0  0.0 ¦  X    X
 EXIT CALLS      ¦
                OPTIONS
 PRIORITY (Y/N TO SELECT) ............MED
 DELAY TIMER (0-255 SEC) .............5 *
 MIN GREEN BEFORE PRE (0= DEFAULT)....1
 PED CLEAR BEFORE PRE (0= DEFAULT)....0
 YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
 RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
 DWELL MIN TIMER (0-255 SEC) .........40 *
 DWELL MAX TIMER (0=OFF,1-255MIN) ....0
 DWELL HOLD-OVER TIMER (0-255) .......0
 LATCH CALL? .........................Y
 LINK TO NEXT PREEMPT? ...............N
 ENABLE BACKUP PROTECTION? ...........N
 HOLD CLEAR 1 PHASES DURING DELAY? ...Y
 FAST GREEN FLASH DWELL PHASES? ......N
 PED CLEARANCE THROUGH YELLOW? .......N
 INHIBIT OVERLAP GREEN EXTENSION? ....N
 SERVICE DURING SOFTWARE FLASH? ......Y
 REST IN RED DURING DWELL INTERVAL? ..N
 FLASH DWELL INTERVAL? ...............N
 ALLOW PEDS IN DWELL INTERVAL? .......N
 RE-TIME DWELL INTERVAL? .............Y
 OVERLAPS:                 ¦ ABCDEFGHIJKLMNOP
 DWELL INT FLASH YELLOW    ¦
 OMIT OVERLAPS:            ¦
```

* Denotes timing to be determined in field.

NOTE:
'Latch Call' is enabled and STEP 1 within the Logical I/O Processor is programmed to accommodate 'Delay Time' to be determined by the Division Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0977
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

PROJECT REFERENCE NO.	SHEET NO.

PROGRAMING LOGICAL I/O PROCESSOR DETAIL

NOTE

When preempt delay time is used, Step 1 below is necessary to ensure the pilot lamp in the fire house will activate immediately after the push button is depressed:

STEP 1

From Main Menu: Press '6' (Outputs), then select '3' (Logical I/O Processor).

NOTICE OR CONDITION →

```
LOGICAL I/O COMMAND *1  (+/-COMMAND*)
IF  INPUT  ASSIGNMENT *14 IS ON
OR  ACTIVE PREEMPTION *2  IS ON

              SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT *33 ON
```

STEP 2

NOTE

In order for pilot lamp in fire house to deactivate immediately after ending preemption, program the following:

Toggle the '+' button once to access Logical I/O Command #2.

NOTICE AND CONDITION →

```
LOGICAL I/O COMMAND *2  (+/-COMMAND*)
IF  INPUT  ASSIGNMENT *14 IS OFF
AND ACTIVE PREEMPTION *2  IS OFF

              SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT *33 OFF
```

STEP 3

From Main Menu press '2' (Phase Control), then '1' (Phase Control Functions). Scroll to the bottom of the menu and enable logical processor (Act Logic 1-16) by flagging #1 and #2.

END OF PROGRAM.

Electrical Detail - Sheet 2 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:
Prepared in the Offices of: Transportation Mobility and Safety Division, Signal Management Section, 750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road)
at
Caribou Road

Division 13 Buncombe County Asheville
PLAN DATE: August 2014 REVIEWED BY: T. Joyce
PREPARED BY: B. Simmons REVIEWED BY:
REVISIONS INIT. DATE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022013 GEORGE C. BROWN
DocuSigned by: George C. Brown 10/3/2014
SIG. INVENTORY NO. 13-0977

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

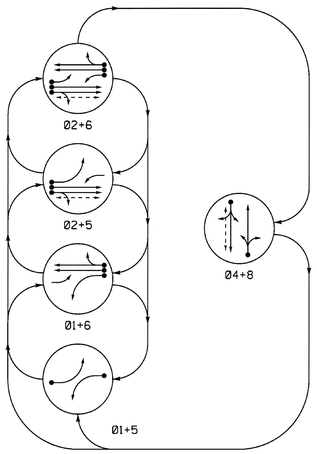
CARIBOU RD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS - ELECTRICAL DETAILS

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

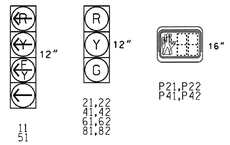
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	←/↓	←/↓	→	→Y
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	←	←/↓	←	←/↓	→	→Y
61,62	R	G	R	G	R	Y
81,82	R	R	R	R	G	R
P21,P22	DW	DW	W	W	DW	DRK
P41,P42	DW	DW	DW	DW	W	DRK

Signal Face I.D.

All Heads L.E.D.



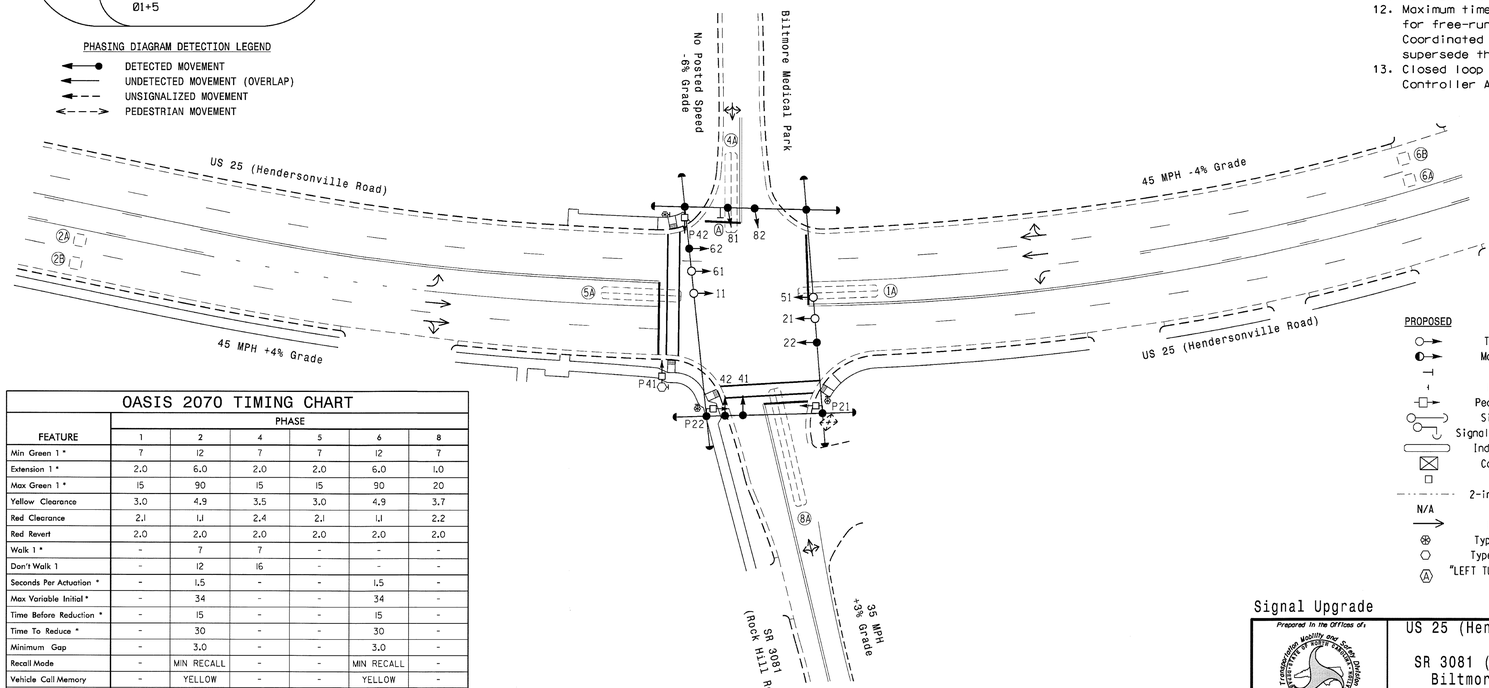
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS						DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW	LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x40	+5	2-4-2	-		1	Y	Y	-	-	15	-	-
						6	Y	Y	Y	-	3	-	-
2A	6x6	295	4	-		2	Y	Y	-	-	-	-	-
2B	6x6	295	4	-		2	Y	Y	-	-	-	-	-
4A	6x40	+5	2-4-2	-		4	Y	Y	-	-	5	-	-
5A	6x40	+11	2-4-2	-		5	Y	Y	-	-	15	-	-
						2	Y	Y	Y	-	3	-	-
6A	6x6	300	4	-		6	Y	Y	-	-	-	-	-
6B	6x6	300	4	-		6	Y	Y	-	-	-	-	-
8A	6x60	+5	2-4-2	-		8	Y	Y	-	-	5	-	-

5 Phase
Fully Actuated
US 25 (Hendersonville Rd)-North CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Disable Backup Protect for phase 2+6.
4. Phase 1 and/or phase 5 may be lagged.
5. Reposition existing signal heads numbered 22 and 62.
6. Set all detector units to presence mode.
7. Program controller to operate using FYA compact mode.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
11. Pavement markings are existing.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
13. Closed loop system data: Controller Asset #0053.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
↓	Pushbutton & Sign	↓
□→	Pedestrian Signal Head	■→
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	-----
→	Directional Arrow	→
⊛	Type I Pushbutton Post	⊛
○	Type II Signal Pedestal	●
Ⓐ	"LEFT TURN YIELD ON GREEN" Sign (R10-12)	Ⓐ

TABLE OF TIMING

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	12	7	7	12	7
Extension 1 *	2.0	6.0	2.0	2.0	6.0	1.0
Max Green 1 *	15	90	15	15	90	20
Yellow Clearance	3.0	4.9	3.5	3.0	4.9	3.7
Red Clearance	2.1	1.1	2.4	2.1	1.1	2.2
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	7	-	-	-
Don't Walk 1	-	12	16	-	-	-
Seconds Per Actuation *	-	1.5	-	-	1.5	-
Max Variable Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

OASIS 2070 TIMING CHART

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Signal Upgrade

Prepared In the Offices of:
Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Design Section
750 N. Greenfield Pkwy, Garner, NC 27529

US 25 (Hendersonville Road) at SR 3081 (Rock Hill Road)/ Biltmore Medical Park

Division 13 Buncombe County Asheville

PLAN DATE: August 2014 REVIEWED BY: Z.W. Little

PREPARED BY: C.L. Sweeney REVIEWED BY:

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030530 ZACHARY M. LITTLE

Docusigned by: Zachary M. Little 9/26/2014

SIG. INVENTORY NO. 13-0053

25-SEP-2014 09:11
S:\Traffic\Projects\5.Signals\Signal Design Section\Western Region\Div-13\Buncombe\ACTIVE projects\#13-0053#130053.sig.dan.20140925.dgn
clsweeney

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

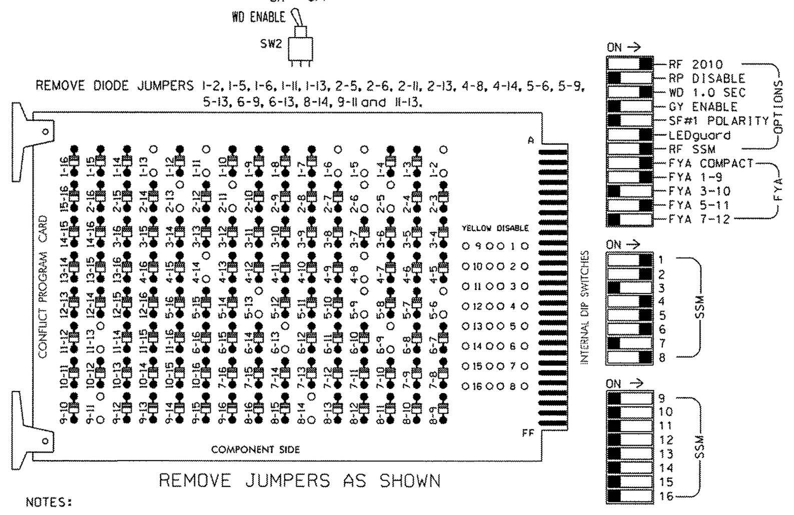
ROCK HILL RD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.
3. Special cabinet wiring is required to utilize FYA COMPACT mode. See Ped Yellow Conflict Monitor Wiring Detail on this sheet.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,7,9,10, 11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Program phases 4 and 8 for Dual Entry.
4. Enable Simultaneous Gap-Out for all phases.
5. Program phases 2 and 6 for Variable Initial and Gap Reduction.
6. Program phases 2 and 6 for Start Up In Green.
7. Program phases 2 and 4 for 'STARTUP PED CALL'.
8. Program phases 2 and 6 for Yellow Flash, and overlaps 1 as Wag Overlaps.
9. The cabinet and controller are part of the US 25 (Hendersonville Rd) - North Closed Loop Signal System.

EQUIPMENT INFORMATION

CONTROLLER.............2070L
CABINET................332
SOFTWARE...............ECONOLITE OASIS
CABINET MOUNT..........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S1,S2,S2P,S4,S4P,S5,S6,S6P,S8.
PHASES USED............1,2,4,5,6,8,2 PED,4 PED.
OVERLAP "A"............1+2
OVERLAP "B"............NOT USED
OVERLAP "C"............5+6
OVERLAP "D"............NOT USED

PROJECT REFERENCE NO.	SHEET NO.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S2P	S3	S4	S4P	S5	S6	S6P	S6P	S7	S8	S8P
CMU CHANNEL NO.	1	2	9	13	3	4	14	5	6	11	15	7	8	16
PHASE	OLA	2	1 GRN	2 PED	3	4	4 PED	OLC	6	5 GRN	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11★	21,22	11★	P21, P22	NU	41,42	P41, P42	51★	61,62	51★	NU	NU	81,82	NU
RED		128				101			134				107	
YELLOW		129				102	*		135				108	
GREEN		130				103			136				109	
RED ARROW	125							131						
YELLOW ARROW	126							132						
FLASHING YELLOW ARROW	127							133						
(DON'T WALK)				113			104							
GREEN ARROW			114							120				
(WALK)				115			106				*			

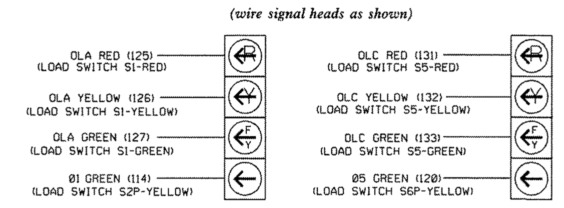
* Denotes install load resistor. See load resistor installation detail.

★ See pictorial of head wiring in detail below.

NOTE: Load Switches S1, S2P, S5, S6P require output remapping. See sheets 3 and 4 of this electrical detail for instructions.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. The sequence display for this signal requires special logic and output remapping. See sheet 2 for programming instructions.

Disable backup protect for phase 2 and 6.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1A	Ø2 2A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2PED DC ISOLATOR	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø2 2B				NOT USED						Ø4PED DC ISOLATOR		ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø6 6A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	Ø6 6B				NOT USED								

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y	Y		3
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			5
5A[2]	TB3-1,2	J1U	55	17	5	5	Y	Y			15
	-	I4U	47	9	22	2	Y	Y	Y		3
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			5
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					

NOTE:

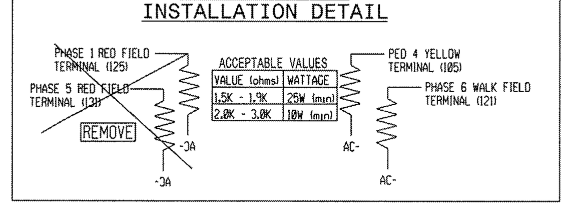
INSTALL DC ISOLATORS IN INPUT FILE SLOT I12.

[1] Add jumper from I1-W to J4-W, on rear of input file.
[2] Add jumper from J1-W to I4-W, on rear of input file.

Remove, if present, jumpers from TB2-5 to TB2-7, and from TB2-6 to TB2-8.
Remove, if present, jumpers from TB3-5 to TB3-7, and from TB3-6 to TB3-8.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL



COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0053
DESIGNED: August 2014
SEALED: 9-26-14
REVISED: N/A

ELECTRICAL DETAIL SHEET 1 OF 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at SR 3081 (Rock Hill Road)/ Biltmore Medical Park
Division 13 Buncombe County Asheville
PLAN DATE: August 2014 REVIEWED BY: JTR
PREPARED BY: James Peterson REVIEWED BY:
REVISIONS INIT. DATE
Prepared in the Offices of: 750 N.Greenfield Pkwy,Garner,NC 27529
SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 008453 JOHN T. ROWE, JR.
John T. Rowe, Jr. 9/30/2014
SIG. INVENTORY NO. 13-0053

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE       #1  IS ON
AND RED CLEAR ON PHASE #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #14 ON
SET OUTPUT  ASSIGNMENT #15 OFF
```

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE       #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #16 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE    #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #15 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #4  (+/-COMMAND#)
IF  ACTIVE PHASE       #5  IS ON
AND RED CLEAR ON PHASE #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #30 ON
SET OUTPUT  ASSIGNMENT #31 OFF
```

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #5  (+/-COMMAND#)
IF  ACTIVE PHASE       #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #32 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #6  (+/-COMMAND#)
IF  YELLOW ON PHASE    #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #31 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 14 = Overlap A Red
OUTPUT 15 = Overlap A Yellow
OUTPUT 16 = Overlap A Green
OUTPUT 30 = Overlap C Red
OUTPUT 31 = Overlap C Yellow
OUTPUT 32 = Overlap C Green
OUTPUT 33 = Phase 1 Green
OUTPUT 34 = Phase 5 Green

Note: All outputs shown above have been remapped. See sheets 3 and 4 of this electrical detail.

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|    XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

PED YELLOW CONFLICT MONITOR WIRING DETAIL

(make cabinet wiring changes as shown below)

In order to use FYA COMPACT mode on the 2010ECL-NC Monitor, the cabinet must be wired such that the (unused) Ped Yellow load switch outputs are wired to the conflict monitor as follows: From 2 PY (field term. 114) to chan. 9 green (monitor pin 13), and from 6 PY (field term. 120) to chan. 10 green (monitor pin R).

Follow the instructions below to make the appropriate connections:

STEP 1: Fold down rear panel of output file.

STEP 2: Find unused wiring harness from conflict monitor card edge connector (which should be tied and bundled together).

STEP 3: Find the conductors that correspond to the following conflict monitor card edge pins and solder wire to the appropriate terminal on the rear of the output file as shown below:

CMU-13 ———— 2PY (term. 114)
CMU-R ———— 6PY (term. 120)

NOTE: Some cabinet manufacturers use a molex plug to accomplish this wiring configuration. If connectors are used, simply plug the two connectors together that are labeled with the pin-out as shown above.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0053
DESIGNED: August 2014
SEALED: 9-26-14
REVISED: N/A

ELECTRICAL DETAIL SHEET 2 OF 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at SR 3081 (Rock Hill Road)/ Biltmore Medical Park
Division 13 Buncombe County Asheville
PLAN DATE: August 2014 REVIEWED BY: JTR
PREPARED BY: James Peterson REVIEWED BY:
John T. Rowe, Jr. 9/30/2014
13-0053

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR SIGNAL HEAD 11

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN16  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" KEY FOR OUTPUT 15

STEP 2

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:17  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" KEY FOR OUTPUT 16

STEP 3

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:18  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" UNTIL OUTPUT 33 IS REACHED.

STEP 4

```
PAGE:1  C1 PIN:35  NOT ENABLED
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:35  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:35  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

OUTPUT PROGRAMMING FOR HEAD 11 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0053
DESIGNED: August 2014
SEALED: 9-26-14
REVISED: N/A

ELECTRICAL DETAIL SHEET 3 OF 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at SR 3081 (Rock Hill Road)/ Biltmore Medical Park
Division 13 Buncombe County Asheville
PLAN DATE: August 2014 REVIEWED BY: JTR
PREPARED BY: James Peterson REVIEWED BY:
John T. Rowe, Jr. 9/30/2014
SIG. INVENTORY NO. 13-0053

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR SIGNAL HEAD 51

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN32  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" KEY FOR OUTPUT 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:33  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" KEY FOR OUTPUT 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:34  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION.PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" TWICE TO REACH OUTPUT 34.

STEP 4

```
PAGE:1  C1 PIN:36  NOT ENABLED
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:36  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

OUTPUT PROGRAMMING FOR HEAD 51 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0053
DESIGNED: August 2014
SEALED: 9-26-14
REVISED: N/A

ELECTRICAL DETAIL SHEET 4 OF 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at SR 3081 (Rock Hill Road)/ Biltmore Medical Park
Division 13 Buncombe County Asheville
PLAN DATE: August 2014 REVIEWED BY: JTR
PREPARED BY: James Peterson REVIEWED BY:
John T. Rowe, Jr. 9/30/2014
SIG. INVENTORY NO. 13-0053

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

ROCK HILL RD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS - ELECTRICAL DETAILS

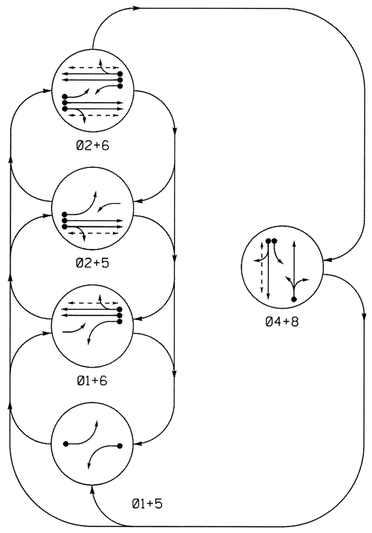
	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

SHEET 31A OF 39

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

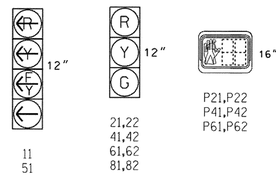
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	F/Y	F/Y	R	Y
21,22	R	R	G	G	R	Y
41,42	R	R	R	G	R	Y
51	←	F/Y	←	F/Y	R	Y
61,62	R	G	R	G	R	Y
81,82	R	R	R	G	R	Y
P21,P22	DW	DW	W	W	DW	DRK
P41,P42	DW	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



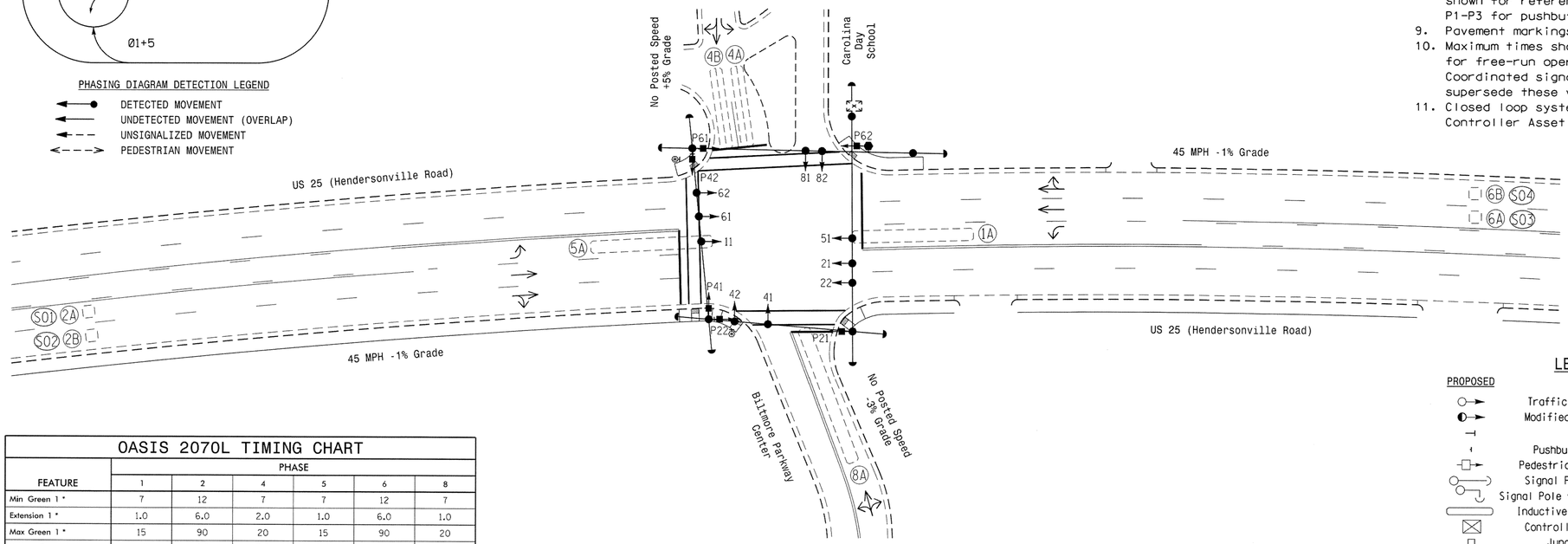
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X60	+5	EXIST	-	1	Y	Y	-	-	15	-	-
					6	Y	Y	Y	-	3	-	-
2A/S01	6X6	289	EXIST	-	2	Y	Y	-	-	-	Y	-
2B/S02	6X6	289	EXIST	-	2	Y	Y	-	-	-	Y	-
4A	6X40	0	EXIST	-	4	Y	Y	-	-	-	-	-
4B	6X40	0	EXIST	-	4	Y	Y	-	-	10	-	-
5A	6X60	+16	EXIST	-	5	Y	Y	-	-	15	-	-
					2	Y	Y	Y	-	3	-	-
6A/S03	6X6	300	EXIST	-	6	Y	Y	-	-	-	Y	-
6B/S04	6X6	300	EXIST	-	6	Y	Y	-	-	-	Y	-
8A	6X70	+2	EXIST	-	8	Y	Y	-	-	5	-	-

5 Phase
Fully Actuated
US 25 (Hendersonville Rd)-North CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Program controller to operate using FYA compact mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
9. Pavement markings are existing.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
11. Closed loop system data: Controller Asset #0528.



OASIS 2070L TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	12	7	7	12	7
Extension 1 *	1.0	6.0	2.0	1.0	6.0	1.0
Max Green 1 *	15	90	20	15	90	20
Yellow Clearance	3.0	4.6	3.0	3.0	4.6	3.3
Red Clearance	1.9	1.3	2.4	2.6	1.3	2.5
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	7	-	7	-
Don't Walk 1	-	12	17	-	17	-
Seconds Per Actuation *	-	1.5	-	-	1.5	-
Max Variable Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pushbutton & Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type I Pushbutton Post	
	Type II Signal Pedestal	

Signal Upgrade

Prepared In the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section

750 N.Greenfield Pkwy.Garner,NC 27529

US 25 (Hendersonville Road) at Biltmore Parkway Center / Carolina Day School

Division 13 Buncombe County Asheville

PLAN DATE: September 2014 REVIEWED BY: Z.M. Little

PREPARED BY: C.L. Sweeney REVIEWED BY:

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 9/26/2014 DATE

SIG. INVENTORY NO. I3-0528

25-SEP-2014 16:14
S:\Traffic\Projects\Western Region\I-13\0-ACTIVE projects\I-0528\I13-0528_sig_dsn_20140925.dgn
clsweeney

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

CAROLINA DAY SCHOOL INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

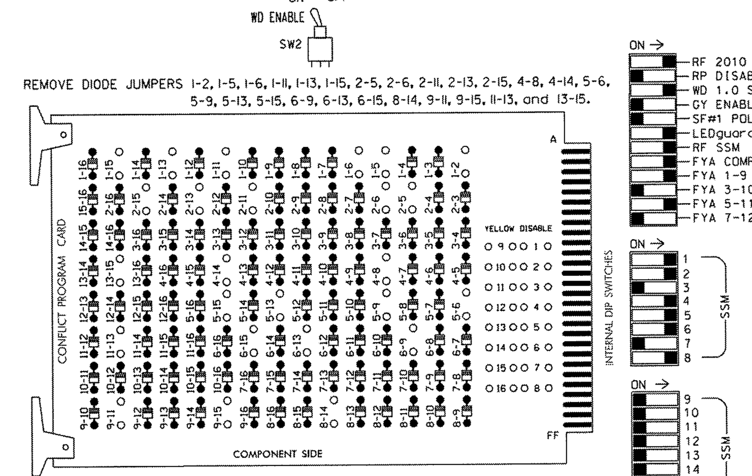
TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

ON OFF
WD ENABLE
SW2

REMOVE DIODE JUMPERS 1-2, 1-5, 1-6, 1-11, 1-13, 1-15, 2-5, 2-6, 2-11, 2-13, 2-15, 4-8, 4-14, 5-6, 5-9, 5-13, 5-15, 6-9, 6-13, 6-15, 8-14, 9-11, 9-15, 11-13, and 13-15.



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.
3. Special cabinet wiring is required to utilize FYA COMPACT mode. See Ped Yellow Conflict Monitor Wiring Detail on sheet 2 of 4. !

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,7, 9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Program phases 4 and 8 for Dual Entry.
4. Enable Simultaneous Gap-Out for all phases.
5. Program phases 2 and 6 for Variable Initial and Gap Reduction.
6. Program phases 2 and 6 for Start Up In Green.
7. Program phases 2, 4, and 6 for 'STARTUP PED CALL'.
8. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
9. The cabinet and controller are part of the US 25 (Hendersonville Rd) - North Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER..............2070L
CABINET.................332
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S1,S2,S2P,S4,S4P,S5,S6,S6P,S8
PHASES USED.............1,2,2 PED,4,4 PED,5,6,6 PED,8
OVERLAP "A".............1+2
OVERLAP "B".............NOT USED
OVERLAP "C".............5+6
OVERLAP "D".............NOT USED

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P		S3	S4	S4P	S5	S6	S6P		S7	S8	S8P
PHASE	OLA	2	2 PED	1 GRN	3	4	4 PED	OLC	6	6 PED	5 GRN	7	8	8 PED
SIGNAL HEAD NO.	11★	21,22	P21, P22	11★	NU	41,42	P41, P42	51★	61,62	P61, P62	51★	NU	81,82	NU
RED		128				101			134				107	
YELLOW		129				102			135				108	
GREEN		130				103			136				109	
RED ARROW	125							131						
YELLOW ARROW	126							132						
FLASHING YELLOW ARROW	127							133						
(DON'T WALK hand)			113				104			119				
PED YELLOW							*							
GREEN ARROW				114							120			
(WALK person)			115				106			121				

NU = Not Used

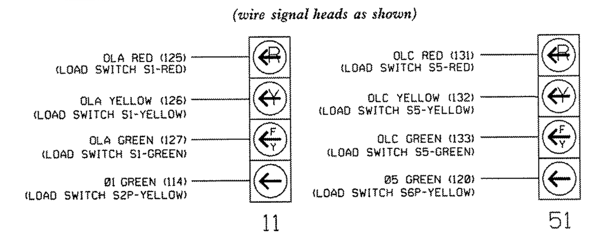
* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

NOTE: Load Switches S1, S2P, S5, S6P require output remapping. See sheets 3 and 4 of this electrical detail for instructions.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal heads 11 and 51 require special logic and output remapping. See sheet 2 of 4 for programming instructions.

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)

PHASE 4 PED YELLOW FIELD TERMINAL (105)

AC-

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	Ø1 1A	SLOT EMPTY	Ø2/SYS 2A/S01	WIRED INPUT ⊗	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2PED DC ISOLATOR	Ø6PED DC ISOLATOR	FS DC ISOLATOR
"I"	L	NOT USED		Ø2/SYS 2B/S02			Ø4 4B						Ø4PED DC ISOLATOR	NOT USED	ST DC ISOLATOR
"J"	U	Ø5 5A	SLOT EMPTY	Ø6/SYS 6A/S03	WIRED INPUT ⊗	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
"J"	L	NOT USED		Ø6/SYS 6B/S04			NOT USED								

EX.: 1A, 2A, ETC. = LOOP NO.'S

⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A¹	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y	Y		3
2A/S01	TB2-9,10	I3U	63	25	32	2/SYS	Y	Y			
2B/S02	TB2-11,12	I3L	76	38	42	2/SYS	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			10
5A²	TB3-1,2	J1U	55	17	5	5	Y	Y			15
	-	I4U	47	9	22	2	Y	Y	Y		3
6A/S03	TB3-9,10	J3U	64	26	36	6/SYS	Y	Y			
6B/S04	TB3-11,12	J3L	77	39	46	6/SYS	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			5
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	30	PED 6	6 PED					

NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

¹Add jumper from I1-W to J4-W, on rear of input file.

²Add jumper from J1-W to I4-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0528
DESIGNED: September 2014
SEALED: 9/26/2014
REVISED: N/A

Electrical Detail - Sheet 1 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Biltmore Parkway Center/ Carolina Day School
Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland REVIEWED BY:
REVISIONS INIT. DATE
Prepared in the Offices of: 750 N.Greenfield Pkwy,Garner,NC 27529
SEAL: NORTH CAROLINA PROFESSIONAL SEAL 022013 ENGINEER GEORGE C. BROWN
George C. Brown 10/3/2014 DATE
SIG. INVENTORY NO. 13-0528

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE        #1  IS ON
AND RED CLEAR ON PHASE #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #14 ON
SET OUTPUT  ASSIGNMENT #15 OFF
```
NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE        #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #16 OFF
```
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE     #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #15 ON
```
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #4  (+/-COMMAND#)
IF  ACTIVE PHASE        #5  IS ON
AND RED CLEAR ON PHASE #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #30 ON
SET OUTPUT  ASSIGNMENT #31 OFF
```
NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #5  (+/-COMMAND#)
IF  ACTIVE PHASE        #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #32 OFF
```
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #6  (+/-COMMAND#)
IF  YELLOW ON PHASE     #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #31 ON
```
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 14 = Overlap A Red
OUTPUT 15 = Overlap A Yellow
OUTPUT 16 = Overlap A Green
OUTPUT 30 = Overlap C Red
OUTPUT 31 = Overlap C Yellow
OUTPUT 32 = Overlap C Green
OUTPUT 33 = Phase 1 Green
OUTPUT 34 = Phase 5 Green

Note: All outputs shown above have been remapped. See sheets 3 and 4 of this electrical detail.

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```
← NOTICE GREEN FLASH

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|    XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```
← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

PED YELLOW CONFLICT MONITOR WIRING DETAIL

(FOR McCAIN AND SAFETRAN CABINETS ONLY)

In order to use FYA COMPACT mode on the 2010ECL-NC Monitor, the cabinet must be wired such that the (unused) Ped Yellow load switch outputs are wired to the conflict monitor as follows: From 2 PY (field term. 114) to chan. 9 green (monitor pin 13), and 6 PY (field term. 120) to chan. 10 green (monitor pin R).

This is accomplished through a Molex plug connection found on the inside panel of the output file.

Fold down rear panel of output file and find a set of 3 white Molex connectors. Plug together the two connectors labeled as shown below:

1-2PY	1-CMU-13
2-4PY	2-CMU-16
3-6PY	3-CMU-R
4-8PY	4-CMU-U

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0528
DESIGNED: September 2014
SEALED: 9/26/2014
REVISED: N/A

Electrical Detail - Sheet 2 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Biltmore Parkway Center/ Carolina Day School
Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland REVIEWED BY:
REVISIONS INIT. DATE
Prepared in the Offices of: 750 N.Greenfield Pkwy,Garner,NC 27529
SEAL: NORTH CAROLINA PROFESSIONAL SEAL 022013 ENGINEER GEORGE C. BROWN
George C. Brown 10/3/2014 DATE
SIG. INVENTORY NO. 13-0528

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL
FOR SIGNAL HEAD 11

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN16  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" KEY FOR OUTPUT 15

STEP 2

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:17  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" KEY FOR OUTPUT 16

STEP 3

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:18  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" UNTIL OUTPUT 33 IS REACHED.

STEP 4

```
PAGE:1  C1 PIN:35  NOT ENABLED
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:35  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:35  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

OUTPUT PROGRAMMING FOR HEAD 11 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0528
DESIGNED: September 2014
SEALED: 9/26/2014
REVISED: N/A

Electrical Detail - Sheet 3 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Biltmore Parkway Center/ Carolina Day School
Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland REVIEWED BY:
REVISIONS INIT. DATE
Prepared in the Offices of: 750 N.Greenfield Pkwy,Garner,NC 27529
SEAL: NORTH CAROLINA PROFESSIONAL SEAL 022013 ENGINEER GEORGE C. BROWN
George C. Brown 10/3/2014 DATE
SIG. INVENTORY NO. 13-0528

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL
FOR SIGNAL HEAD 51

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN32  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" KEY FOR OUTPUT 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:33  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" KEY FOR OUTPUT 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:34  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

PRESS "+" TWICE TO REACH OUTPUT 34.

STEP 4

```
PAGE:1  C1 PIN:36  NOT ENABLED
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

→ THE OUPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:36  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```

OUTPUT PROGRAMMING FOR HEAD 51 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0528
DESIGNED: September 2014
SEALED: 9/26/2014
REVISED: N/A

Electrical Detail - Sheet 4 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Biltmore Parkway Center/ Carolina Day School
Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland REVIEWED BY:
REVISIONS INIT. DATE
Prepared in the Offices of: 750 N.Greenfield Pkwy,Garner,NC 27529
SEAL: NORTH CAROLINA PROFESSIONAL SEAL 022013 ENGINEER GEORGE C. BROWN
George C. Brown 10/3/2014 DATE
SIG. INVENTORY NO. 13-0528

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

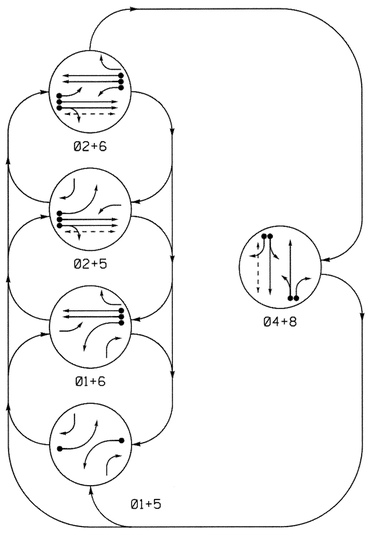
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

CAROLINA DAY SCHOOL INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS - ELECTRICAL DETAILS

SURVEYED: JW, DK	DATE	REVISION	BY	TIP No.: U5189
DRAWN: JR, JW				GRID: N/A
DESIGNED: JR, BE				DATE: APRIL 2015
CHECKED: BE				SCALE: N/A
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk.dwg

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

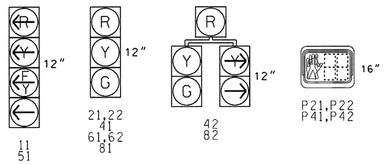
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 0 1 + 5	0 1 + 6	0 2 + 5	0 2 + 6	0 4 + 8	FLASH
11	←	←	FY	FY	R	Y
21,22	R	R	G	G	R	Y
41	R	R	R	R	G	R
42	R/	R	R/	R	G	R
51	←	FY	←	FY	R	Y
61,62	R	G	R	G	R	Y
81	R	R	R	R	G	R
82	R/	R/	R	R	G	R
P21,P22	DW	DW	W	W	DW	DRK
P41,P42	DW	DW	DW	DW	W	DRK

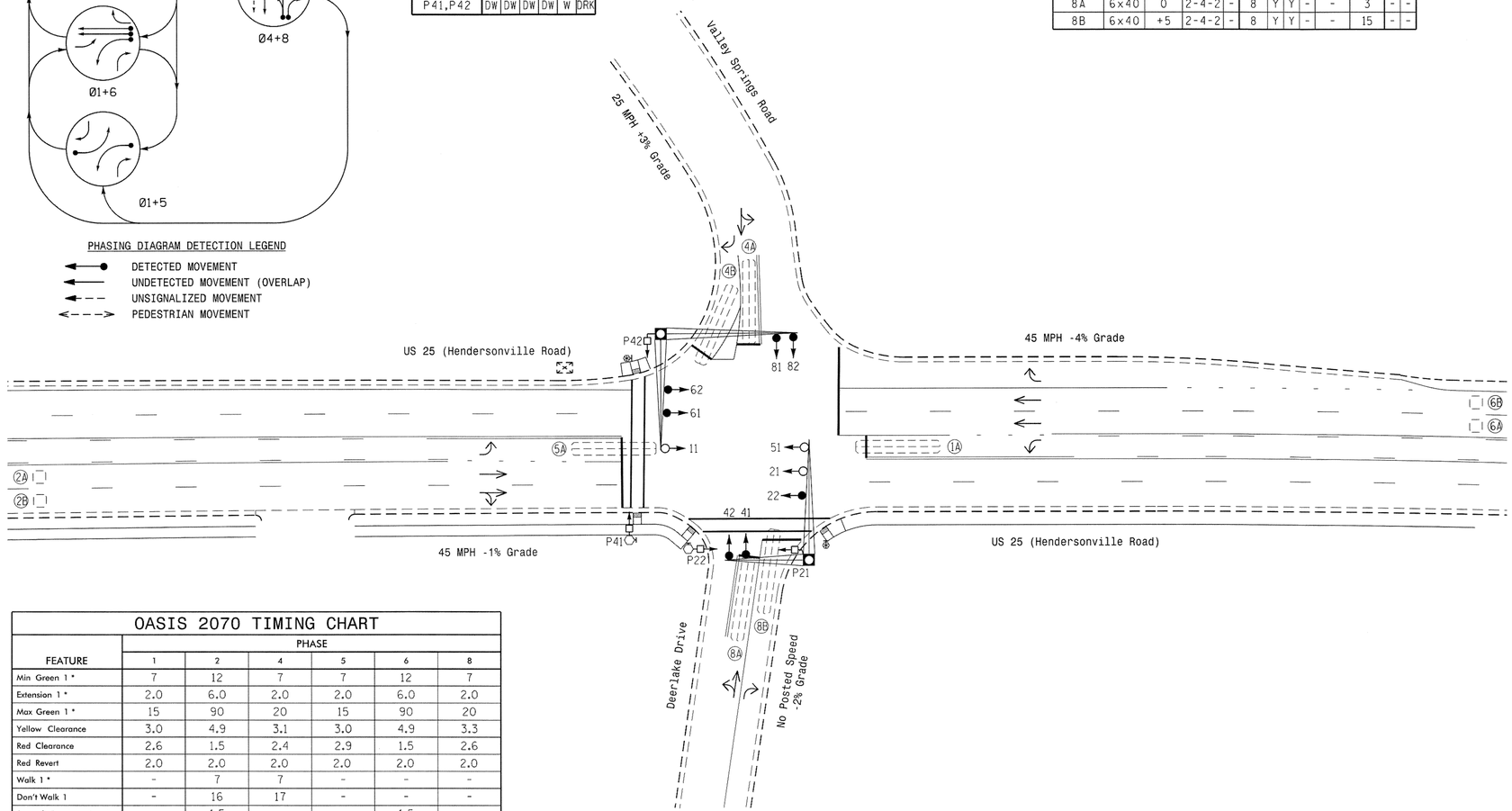
SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP / NEW CARD
1A	6x40	+5	2-4-2	-	1	Y	Y	-	-	15	- / -
					6	Y	Y	Y	-	3	- / -
2A	6x6	275	5	-	2	Y	Y	-	-	-	- / -
2B	6x6	275	5	-	2	Y	Y	-	-	-	- / -
4A	6x40	0	2-4-2	-	4	Y	Y	-	-	3	- / -
4B	6x40	+5	2-4-2	-	4	Y	Y	-	-	15	- / -
5A	6x40	+16	2-4-2	-	5	Y	Y	-	-	15	- / -
					2	Y	Y	Y	-	3	- / -
6A	6x6	300	5	-	6	Y	Y	-	-	-	- / -
6B	6x6	300	5	-	6	Y	Y	-	-	-	- / -
8A	6x40	0	2-4-2	-	8	Y	Y	-	-	3	- / -
8B	6x40	+5	2-4-2	-	8	Y	Y	-	-	15	- / -



OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	12	7	7	12	7
Extension 1 *	2.0	6.0	2.0	2.0	6.0	2.0
Max Green 1 *	15	90	20	15	90	20
Yellow Clearance	3.0	4.9	3.1	3.0	4.9	3.3
Red Clearance	2.6	1.5	2.4	2.9	1.5	2.6
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	7	-	-	-
Don't Walk 1	-	16	17	-	-	-
Seconds Per Actuation *	-	1.5	-	-	1.5	-
Max Variable Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

5 Phase
Fully Actuated
US 25 (Hendersonville Rd)-South CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Disable Backup Protect for phase 2+6.
4. Phase 1 and/or phase 5 may be lagged.
5. Reposition existing signal heads numbered 22, 61, and 62.
6. Set all detector units to presence mode.
7. Program controller to operate using FYA compact mode.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Pedestrian signal pedestals and pedestrian signal heads shall be coated in a protective black powder coating. (See Special Provisions)
10. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
11. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
12. Pavement markings are existing.
13. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
14. Closed loop system data: Controller Asset #1193.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Pushbutton & Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type I Pushbutton Post	
	Type II Signal Pedestal	

Signal Upgrade

Prepared In the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road)
at
Valley Springs Road/
Deerlake Drive

Division 13 Buncombe County Biltmore Forest

PLAN DATE: August 2014 REVIEWED BY: Z.M. Little
PREPARED BY: C.L. Sweeney REVIEWED BY:

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 9/26/2014
DOCUSIGNED BY: DATE

SIG. INVENTORY NO. 13-1193

25-SEP-2014 14:54
S:\ATS\Sdd\w15 Signals\Signal Design Section\Western Region\01-v13\0-ACTIVE projects\w13-115\w131193_sig_dsn_20140925.dgn

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

DEERLAKE DR INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

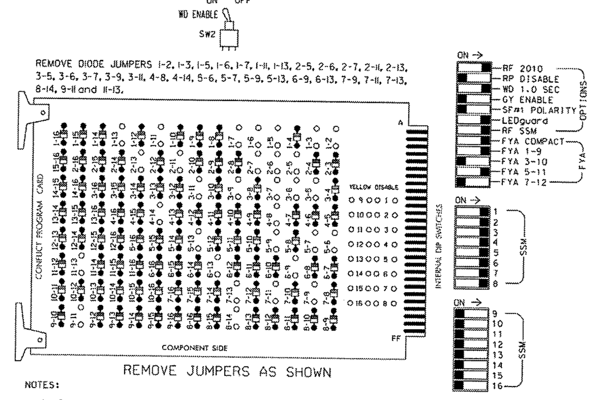
	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-2, 1-3, 1-5, 1-6, 1-7, 1-11, 1-13, 2-5, 2-6, 2-7, 2-11, 2-13, 3-5, 3-6, 3-7, 3-9, 3-11, 4-8, 4-14, 5-6, 5-7, 5-9, 5-13, 6-9, 6-13, 7-9, 7-11, 7-13, 8-14, 9-11 and 11-13.



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.
3. ! Special cabinet wiring is required to utilize FYA COMPACT mode. See Ped Yellow Conflict Monitor Wiring Detail on this sheet. !

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 9,10, 11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Program phases 4 and 8 for Dual Entry.
4. Enable Simultaneous Gap-Out for all phases.
5. Program phases 2 and 6 for Variable Initial and Gap Reduction.
6. Program phases 2 and 6 for Start Up In Green.
7. Program phases 2 and 4 for 'STARTUP PED CALL'.
8. Program phases 2 and 6 for Yellow Flash, and overlaps 1 as Wag Overlaps.
9. The cabinet and controller are part of the US 25 (Hendersonville Rd) - South Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.............2070L
CABINET................332
SOFTWARE...............ECONOLITE OASIS
CABINET MOUNT..........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S1,S2,S2P,S3,S4,S4P,S5,S6,S6P,S7,S8
PHASES USED............1,2,2 PED,4,4 PED,5,6,8
OVERLAP "A"............1+2
OVERLAP "B"............NOT USED
OVERLAP "C"............5+6
OVERLAP "D"............NOT USED
OVERLAP "E"............1
OVERLAP "F"............5

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P		S3	S4	S4P	S5	S6	S6P		S7	S8	S8P
PHASE	OLA	2	1	2 PED	OLE	4	4 PED	OLC	6	5	6 PED	OLF	8	8 PED
SIGNAL HEAD NO.	11★	21,22	11★	P21, P22	82	41,42	P41, P42	51★	61,62	51★	NU	42	81,82	NU
RED		128			✱	101			134			✱	107	
YELLOW		129				102			135				108	
GREEN		130				103			136				109	
RED ARROW	125							131						
YELLOW ARROW	126				117			132				123		
FLASHING YELLOW ARROW	127							133						
(DON'T WALK)				113			104							
PED YELLOW							✱							
GREEN ARROW			114		118					120		124		
(WALK)				115			106				✱			

NU = Not Used

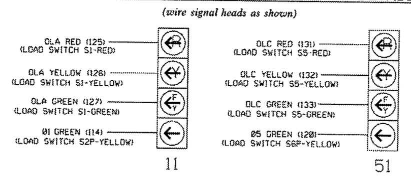
✱ Denotes install load resistor. See load resistor installation detail sheet 2.

★ See pictorial of head wiring in detail below.

NOTE: Load Switches S1, S2P, S5, S6P require output remapping. See sheets 4 and 5 of this electrical detail for instructions.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. The sequence display for this signal requires special logic and output remapping. See sheets 3, 4 and 5 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1A	Ø2 2A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø2 2B				Ø4 4B						Ø4 PED DC ISOLATOR		ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø6 6A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	Ø6 6B				Ø8 8B								

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y	Y		3
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			15
5A[2]	TB3-1,2	J1U	55	17	5	5	Y	Y			15
	-	I4U	47	9	22	2	Y	Y	Y		3
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			3
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			15
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					

NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOT I12.

[1] Add jumper from I1-W to J4-W, on rear of input file.

[2] Add jumper from J1-W to I4-W, on rear of input file.

! IMPORTANT: If present, remove jumpers from TB2-9 to TB2-11, and from TB2-10 to TB2-12.

! IMPORTANT: If present, remove jumpers from TB3-9 to TB3-11, and from TB3-10 to TB3-12.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-1193
DESIGNED: August 2014
SEALED: 9/26/2014
REVISED: N/A

Electrical Detail - Sheet 1 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Valley Springs Road/ Deerlake Drive
Division 13 — Buncombe County — Biltmore Forest
PLAN DATE: August 2014 — REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland — REVIEWED BY:
Prepared in the Offices of: 750 N.Greenfield Pkwy,Garner,NC 27529
SEAL 022013 — George C. Brown 10/3/2014
SIG. INVENTORY NO. 13-1193

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

PED YELLOW CONFLICT MONITOR WIRING DETAIL

(make cabinet wiring changes as shown below)

In order to use FYA COMPACT mode on the 2010ECL-NC Monitor, the cabinet must be wired such that the (unused) Ped Yellow load switch outputs are wired to the conflict monitor as follows: From 2 PY (field term. 114) to chan. 9 green (monitor pin 13), and from 6 PY (field term. 120) to chan. 10 green (monitor pin R).

Follow the instructions below to make the appropriate connections:

STEP 1: Fold down rear panel of output file.

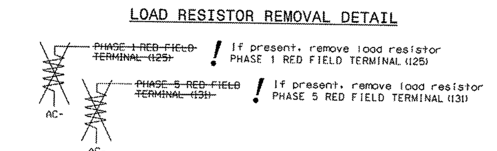
STEP 2: Find unused wiring harness from conflict monitor card edge connector (which should be tied and bundled together).

STEP 3: Find the conductors that correspond to the following conflict monitor card edge pins and solder wire to the appropriate terminal on the rear of the output file as shown below:

CMU-13 ——— 2PY (term. 114)
CMU-R ——— 6PY (term. 120)

NOTE: Some cabinet manufacturers use a molex plug to accomplish this wiring configuration. If connectors are used, simply plug the two connectors together that are labeled with the pin-out as shown above.

LOAD RESISTOR REMOVAL DETAIL



! If present, remove load resistor PHASE 1 RED FIELD TERMINAL (125)

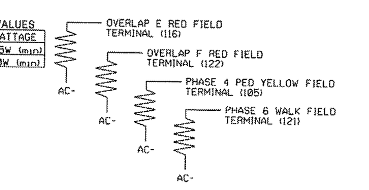
! If present, remove load resistor PHASE 5 RED FIELD TERMINAL (131)

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



REMOVAL OF BACKUP PROTECTION PROGRAMMING

(program controller as shown below)

1. From Main Menu press '2' (Phase Control), then '1' (Phase Control Functions). Remove all phases from 'Backup Protect'.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-1193
DESIGNED: August 2014
SEALED: 9/26/2014
REVISED: N/A

Electrical Detail - Sheet 2 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Valley Springs Road/ Deerlake Drive
Division 13 — Buncombe County — Biltmore Forest
PLAN DATE: August 2014 — REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland — REVIEWED BY:
SEAL 022013 — George C. Brown 10/3/2014
SIG. INVENTORY NO. 13-1193

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE        #1  IS ON
AND RED CLEAR ON PHASE  #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #14 ON
SET OUTPUT  ASSIGNMENT #15 OFF
```
NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE        #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #16 OFF
```
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE     #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #15 ON
```
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #4  (+/-COMMAND#)
IF  ACTIVE PHASE        #5  IS ON
AND RED CLEAR ON PHASE  #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #30 ON
SET OUTPUT  ASSIGNMENT #31 OFF
```
NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #5  (+/-COMMAND#)
IF  ACTIVE PHASE        #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #32 OFF
```
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #6  (+/-COMMAND#)
IF  YELLOW ON PHASE     #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #31 ON
```
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 14 = Overlap A Red
OUTPUT 15 = Overlap A Yellow
OUTPUT 16 = Overlap A Green
OUTPUT 30 = Overlap C Red
OUTPUT 31 = Overlap C Yellow
OUTPUT 32 = Overlap C Green
OUTPUT 33 = Phase 1 Green
OUTPUT 34 = Phase 5 Green

Note: All outputs shown above have been remapped. See sheets 4 and 5 of this electrical detail.

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:            :12345678910111213141516
VEH OVL PARENTS:  :XX
VEH OVL NOT VEH:  :
VEH OVL NOT PED:  :
VEH OVL GRN EXT:  :
STARTUP COLOR:  _ RED  _ YELLOW  _ GREEN
FLASH COLORS:   _ RED  _ YELLOW  X GREEN   <- NOTICE GREEN FLASH
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```
PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:            :12345678910111213141516
VEH OVL PARENTS:  :    XX
VEH OVL NOT VEH:  :
VEH OVL NOT PED:  :
VEH OVL GRN EXT:  :
STARTUP COLOR:  _ RED  _ YELLOW  _ GREEN
FLASH COLORS:   _ RED  _ YELLOW  X GREEN   <- NOTICE GREEN FLASH
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```
PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'E' SETTINGS
PHASE:            :12345678910111213141516
VEH OVL PARENTS:  :X
VEH OVL NOT VEH:  :
VEH OVL NOT PED:  :
VEH OVL GRN EXT:  :
STARTUP COLOR:  _ RED  _ YELLOW  _ GREEN
FLASH COLORS:   _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....3
```
PRESS '+' ONCE

```
PAGE 1: VEHICLE OVERLAP 'F' SETTINGS
PHASE:            :12345678910111213141516
VEH OVL PARENTS:  :    X
VEH OVL NOT VEH:  :
VEH OVL NOT PED:  :
VEH OVL GRN EXT:  :
STARTUP COLOR:  _ RED  _ YELLOW  _ GREEN
FLASH COLORS:   _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....7
```
OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-1193
DESIGNED: August 2014
SEALED: 9/26/2014
REVISED: N/A

Electrical Detail - Sheet 3 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Valley Springs Road/ Deerlake Drive
Division 13 — Buncombe County — Biltmore Forest
PLAN DATE: August 2014 — REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland — REVIEWED BY:
SEAL 022013 — George C. Brown 10/3/2014
SIG. INVENTORY NO. 13-1193

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR SIGNAL HEAD 11

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```
WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN16  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
PRESS "+" KEY FOR OUTPUT 15

STEP 2

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```
WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:17  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
PRESS "+" KEY FOR OUTPUT 16

STEP 3

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```
WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:18  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
PRESS "+" UNTIL OUTPUT 33 IS REACHED.

STEP 4

```
PAGE:1  C1 PIN:35  NOT ENABLED
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:35  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```
WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:35  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
OUTPUT PROGRAMMING FOR HEAD 11 COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-1193
DESIGNED: August 2014
SEALED: 9/26/2014
REVISED: N/A

Electrical Detail - Sheet 4 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Valley Springs Road/ Deerlake Drive
Division 13 — Buncombe County — Biltmore Forest
PLAN DATE: August 2014 — REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland — REVIEWED BY:
SEAL 022013 — George C. Brown 10/3/2014
SIG. INVENTORY NO. 13-1193

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR SIGNAL HEAD 51

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```
WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN32  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
PRESS "+" KEY FOR OUTPUT 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```
WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:33  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
PRESS "+" KEY FOR OUTPUT 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```
WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:34  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
PRESS "+" TWICE TO REACH OUTPUT 34.

STEP 4

```
PAGE:1  C1 PIN:36  NOT ENABLED
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```
WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:36  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE....................
VEHICLE OVERLAP.....................
PEDESTRIAN OVERLAP..................
WATCHDOG............................
DETECTOR RESET......................
ADVANCE BEACON......................
OUT OF PHASE FLASHER................
CONTROLLER FLASH....................
RUN FREE............................
RESERVED............................
PREEMPT.............................
SOFT PREEMPT........................
ANY PREEMPT.........................
COORDINATION PLAN...................
OFFSET..............................
PHASE CHECK.........................
PHASE ON............................
PHASE NEXT..........................
```
OUTPUT PROGRAMMING FOR HEAD 51 COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-1193
DESIGNED: August 2014
SEALED: 9/26/2014
REVISED: N/A

Electrical Detail - Sheet 5 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Valley Springs Road/ Deerlake Drive
Division 13 — Buncombe County — Biltmore Forest
PLAN DATE: August 2014 — REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland — REVIEWED BY:
SEAL 022013 — George C. Brown 10/3/2014
SIG. INVENTORY NO. 13-1193

City of Asheville, NC

Capital Projects Management Division

P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

DEERLAKE DR INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS - ELECTRICAL DETAILS

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

SHEET 33A OF 39

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM

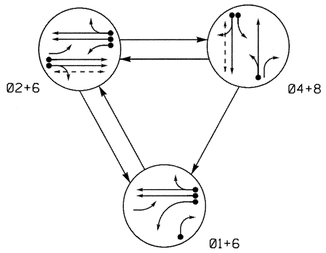
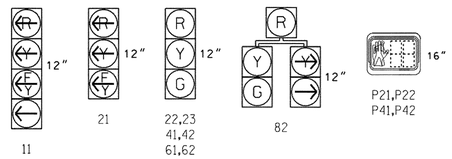


TABLE OF OPERATION

SIGNAL FACE	PHASE 01+6	PHASE 02+6	PHASE 04+8	FLASH
11	~~←~~	~~F Y~~	~~R~~	~~Y~~
21	~~F Y~~	~~F Y~~	~~R~~	~~Y~~
22,23	R	G	R	Y
41,42	R	R	G	R
61,62	G	G	R	Y
81	R	R	G	R
82	R/→	R	G	R
P21,P22	DW	W	DW	DRK
P41,P42	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x15	50	EXISTING	-	1	Y	Y	-	-	5	-	-
1B	6x30	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
2A	6x6	305	EXISTING	-	2	Y	Y	-	-	-	-	-
2B	6x6	305	EXISTING	-	2	Y	Y	-	-	-	-	-
4A	6x60	0	EXISTING	-	4	Y	Y	-	-	3	-	-
4B	6x60	0	EXISTING	-	4	Y	Y	-	-	10	-	-
6A	6x6	300	EXISTING	-	6	Y	Y	-	-	-	-	-
6B	6x6	300	EXISTING	-	6	Y	Y	-	-	-	-	-
8A	6x30	+5	EXISTING	-	8	Y	Y	-	-	-	-	-

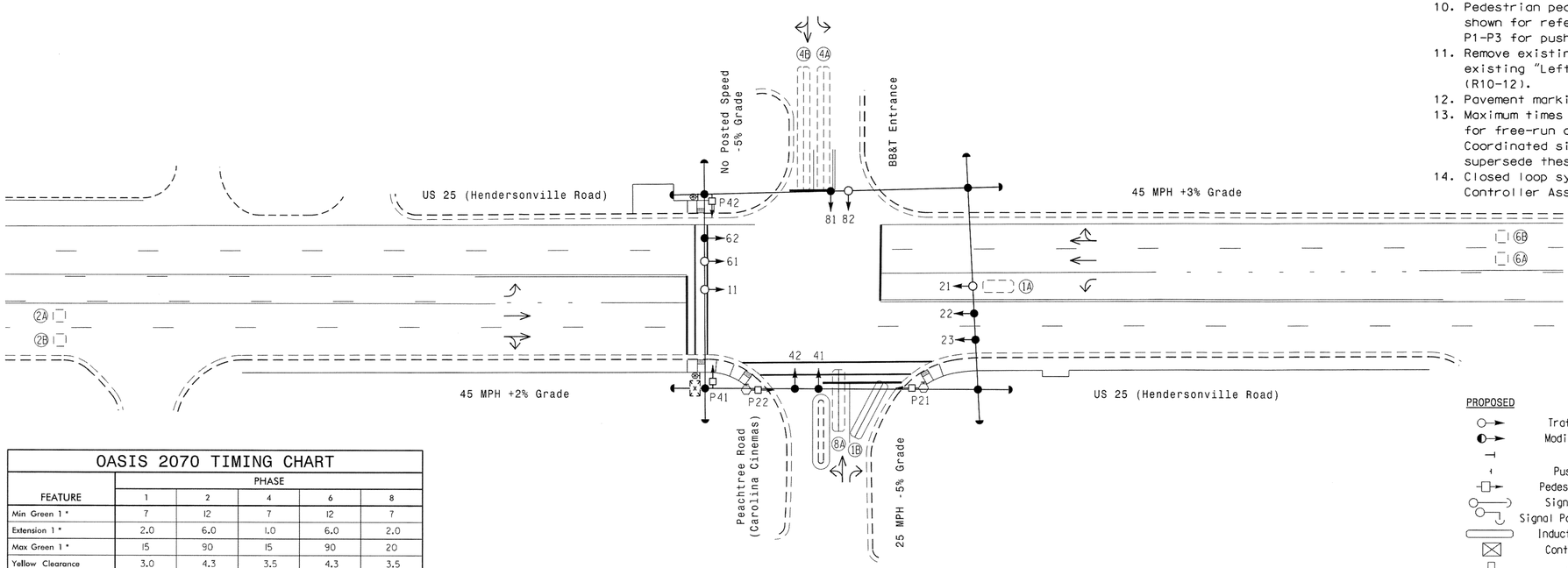
3 Phase
Fully Actuated
US 25 (Hendersonville Rd)-South CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Disable Backup Protect for phase 6.
4. Phase 1 may be lagged.
5. Reposition existing signal head numbered 22, 23, and 62.
6. Set all detector units to presence mode.
7. Program controller to operate using FYA compact mode.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
11. Remove existing "YIELD" sign (R1-2) and existing "Left Turn Yield on Green" sign (R10-12).
12. Pavement markings are existing.
13. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
14. Closed loop system data: Controller Asset #0984.

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT



OASIS 2070 TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green 1 *	7	12	7	12	7
Extension 1 *	2.0	6.0	1.0	6.0	2.0
Max Green 1 *	15	90	15	90	20
Yellow Clearance	3.0	4.3	3.5	4.3	3.5
Red Clearance	1.9	1.6	2.4	1.6	2.7
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	7	-	-
Don't Walk 1	-	22	18	-	-
Seconds Per Actuation *	-	1.5	-	1.5	-
Max Variable Initial *	-	35	-	34	-
Time Before Reduction *	-	15	-	15	-
Time To Reduce *	-	30	-	30	-
Minimum Gap	-	3.0	-	3.0	-
Recall Mode	-	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	YELLOW	-
Dual Entry	-	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pushbutton & Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type I Pushbutton Post	
	Type II Signal Pedestal	

Signal Upgrade

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 25 (Hendersonville Road) at Peachtree Road (Carolina Cinemas) / BB&T Entrance

Division 13 Buncombe County Asheville
PLAN DATE: August 2014 REVIEWED BY: Z.M. Little
PREPARED BY: C.L. Sweeney REVIEWED BY:

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 9/26/2014
ENGINEER/FIRM DATE

SIG. INVENTORY NO. I3-0984

25-SEP-2014 14:24
S:\Signals\Projects\I3-0984\I3_Signals.dgn
clsweeney

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PEACHTREE RD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

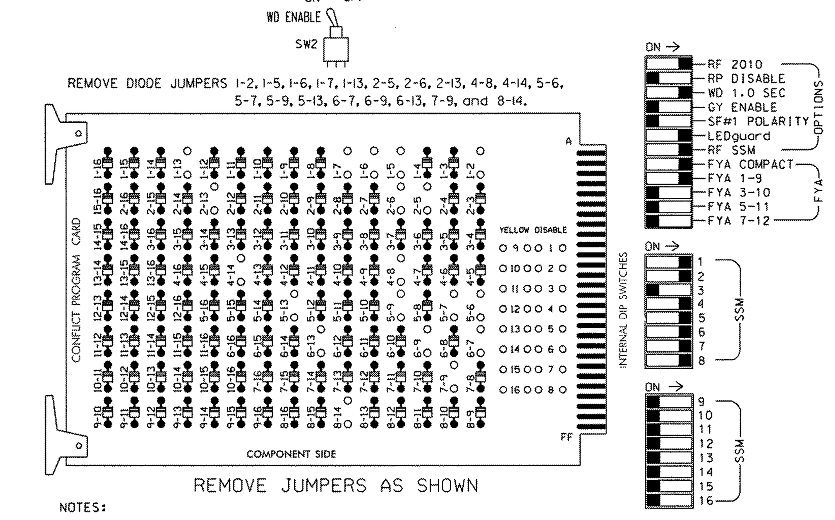
	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-2, 1-5, 1-6, 1-7, 1-13, 2-5, 2-6, 2-13, 4-8, 4-14, 5-6, 5-7, 5-9, 5-13, 6-7, 6-9, 6-13, 7-9, and 8-14.



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

! 3. IMPORTANT! 2010ECL-NC conflict monitor required for FYA operation.

! 4. Special cabinet wiring is required to utilize FYA COMPACT mode. See Ped Yellow Conflict Monitor Wiring Detail on sheet 4.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,9, 10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Program phases 4 and 8 for Dual Entry.
4. Enable Simultaneous Gap-Out for all phases.
5. Program phases 2 and 6 for Variable Initial and Gap Reduction.
6. Program phases 2 and 6 for Start Up In Green.
7. Program phases 2 and 4 for 'STARTUP PED CALL'.
8. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
9. The cabinet and controller are part of the US 25 (Hendersonville Rd) South Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.............2070L
CABINET................332
SOFTWARE...............ECONOLITE OASIS
CABINET MOUNT..........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S1,S2,S2P,S4,S4P,S5,S6,S7,S8
PHASES USED............1,2,2PED,4,4PED,6,8
OVERLAP "A"............1+2
OVERLAP "B"............NOT USED
OVERLAP "C"............6
OVERLAP "D"............NOT USED
OVERLAP "E"............1

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P		S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	OLA	2	1 GRN	2 PED	3	4	4 PED	OLC	6	6 PED	OLE	8	8 PED
SIGNAL HEAD NO.	11 ★	22,23	11 ★	P21, P22	NU	41,42	P41, P42	21 ★	61,62	NU	82	81,82	NU
RED		128				101			134		✱	107	
YELLOW		129				102	✱		135			108	
GREEN		130				103			136			109	
RED ARROW	125							131					
YELLOW ARROW	126							132			123		
FLASHING YELLOW ARROW	127							133					
(hand)				113			104						
GREEN ARROW			114								124		
(pedestrian)				115			106						

NU = Not Used

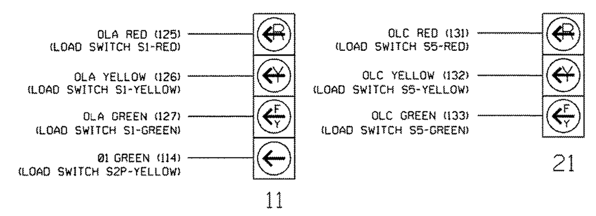
✱ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

NOTE: Load Switches S1, S2P, and S5 require output remapping. See sheets 3 and 4 of this electrical detail for instructions.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal head 11 requires special logic programming. See sheet 2 for instructions.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1A	Ø2 2A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	Ø1 1B	SLOT EMPTY	SLOT EMPTY	Ø2PED DC ISOLATOR	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø2 2B				Ø4 4B			NOT USED			Ø4PED DC ISOLATOR		ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø6 6A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		Ø6 6B				NOT USED								

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			5
1B	TB6-9,10	I9U	60	22	11	1	Y	Y			15
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			10
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					

NOTE: INSTALL DC ISOLATOR IN INPUT FILE SLOT I12.

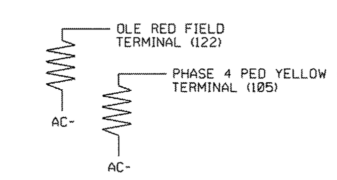
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0984
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 1 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Peachtree Road (Carolina Cinemas)/BB&T Entrance

Prepared in the Offices of: Transportation Mobility and Safety Division, Signals Management Section, 750 N.Greenfield Pkwy,Garner,NC 27529

Division 13 | Buncombe County | Asheville
PLAN DATE: August 2014 | REVIEWED BY: JTR
PREPARED BY: S. Armstrong | REVIEWED BY:
REVISIONS | INIT. | DATE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 008453 JOHN T. ROWE, JR.
John T. Rowe, Jr. 9/30/2014
SIG. INVENTORY NO. 13-0984

PROJECT REFERENCE NO. | SHEET NO.

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, AND 3.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE        #1  IS ON
AND RED CLEAR ON PHASE #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #14 ON
SET OUTPUT  ASSIGNMENT #15 OFF
```

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE        #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #16 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE     #1  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #15 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 14 = Overlap A Red
OUTPUT 15 = Overlap A Yellow
OUTPUT 16 = Overlap A Green

~~BACKUP PROTECTION NOTE~~

~~*(program controller as shown below)*~~

~~From Main Menu press '2' (Phase Control), then '1' (Phase Control Functions). Program phase 6 for 'Backup Protect'. Make sure the Red Revert times shown on the Signal Design Plans are programmed in the 'Phase Timing' menu.~~

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|     X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'E' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....7
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0984
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 2 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Peachtree Road (Carolina Cinemas)/BB&T Entrance
Division 13 | Buncombe County | Asheville
PLAN DATE: August 2014 | REVIEWED BY: JTR
PREPARED BY: S. Armstrong | REVIEWED BY:
John T. Rowe, Jr. 9/30/2014
SIG. INVENTORY NO. 13-0984

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR LOADSWITCH S1 (SIGNAL HEAD 11)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

STEP 1

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
OUTPUT ASSIGNMENT #................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN16  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 15

STEP 2

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
OUTPUT ASSIGNMENT #................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP...................._
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:17  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 16

STEP 3

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
OUTPUT ASSIGNMENT #................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:18  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" UNTIL OUTPUT 33 IS REACHED.

STEP 4

```
PAGE:1  C1 PIN:35  NOT ENABLED
OUTPUT ASSIGNMENT #................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................Y
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

→ THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:35  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:35  VEHICLE PHASE
OUTPUT ASSIGNMENT #................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP...................._
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OUTPUT PROGRAMMING FOR HEAD 11 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0984
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 3 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Peachtree Road (Carolina Cinemas)/BB&T Entrance
Division 13 | Buncombe County | Asheville
PLAN DATE: August 2014 | REVIEWED BY: JTR
PREPARED BY: S. Armstrong | REVIEWED BY:
John T. Rowe, Jr. 9/30/2014
SIG. INVENTORY NO. 13-0984

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR LOADSWITCH S5 (SIGNAL HEAD 21)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

STEP 1

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN32  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:33  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP...................._
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:34  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT.............................._
SOFT PREEMPT........................_
ANY PREEMPT.........................._
COORDINATION PLAN..................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OUTPUT PROGRAMMING FOR HEAD 21 COMPLETE

PED YELLOW CONFLICT MONITOR WIRING DETAIL

(make cabinet wiring changes as shown below)

In order to use FYA COMPACT mode on the 2010ECL-NC Monitor, the cabinet must be wired such that the (unused) Ped Yellow load switch outputs are wired to the conflict monitor as follows: From 2 PY (field term. 114) to chan. 9 green (monitor pin 13).

Follow the instructions below to make the appropriate connections:

STEP 1: Fold down rear panel of output file.

STEP 2: Find unused wiring harness from conflict monitor card edge connector (which should be tied and bundled together).

STEP 3: Find the conductors that correspond to the following conflict monitor card edge pins and solder wire to the appropriate terminal on the rear of the output file as shown below:

CMU-13 ——————— 2PY (term. 114)

NOTE: Some cabinet manufacturers use a keyed plug to accomplish this wiring configuration. If connectors are used, simply plug the two connectors together that are labeled with the pin-out as shown above.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0984
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 4 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Peachtree Road (Carolina Cinemas)/BB&T Entrance
Division 13 | Buncombe County | Asheville
PLAN DATE: August 2014 | REVIEWED BY: JTR
PREPARED BY: S. Armstrong | REVIEWED BY:
John T. Rowe, Jr. 9/30/2014
SIG. INVENTORY NO. 13-0984

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PEACHTREE RD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS - ELECTRICAL DETAILS

	DATE	REVISION	BY	
SURVEYED: JW, DK				TIP No.: U5189
DRAWN: JR, JW				GRID: N/A
DESIGNED: JR, BE				DATE: APRIL 2015
CHECKED: BE				SCALE: N/A
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk.dwg

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM

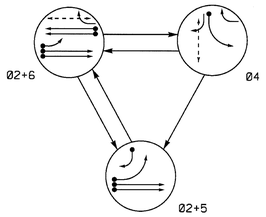
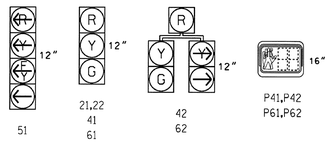


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	PHASE Ø2+6	PHASE Ø4	FLOAT
21,22	G	G	R	Y
41	R	R	G	R
42	~~R~~	R	G	R
51	—	~~F~~	~~R~~	~~Y~~
61	R	G	R	Y
62	R	G	~~R~~	Y
P41,P42	DW	DW	W	DRK
P61,P62	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A/S23	6x6	291	5	-	2	Y	Y	-	-	-	Y	-
2B/S24	6x6	291	5	-	2	Y	Y	-	-	-	Y	-
4A	6x40	0	2-4-2	-	4	Y	Y	-	-	3	-	-
5A	6x40	+9	2-4-2	-	5	Y	Y	-	-	15	-	-
					2	Y	Y	Y	-	3	-	-
5B	6x40	+5	2-4-2	-	5	Y	Y	-	-	15	-	-
6A/S21	6x6	300	5	-	6	Y	Y	-	-	-	Y	-
6B/S22	6x6	300	5	-	6	Y	Y	-	-	-	Y	-

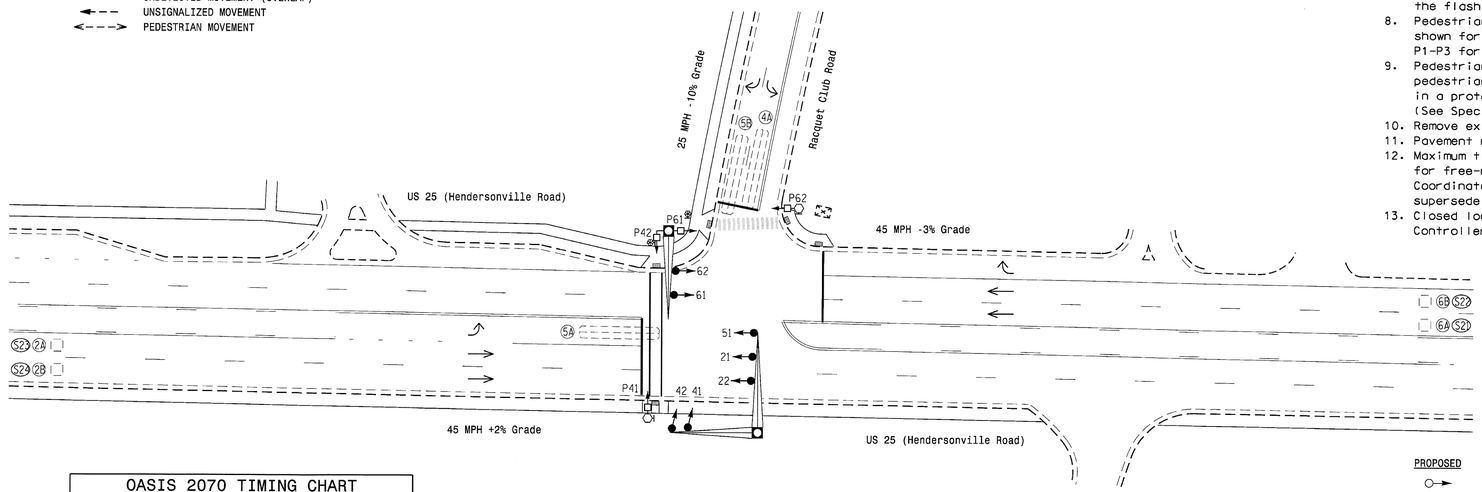
3 Phase
Fully Actuated
US 25 (Hendersonville Rd)-South CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be logged.
4. Set all detector units to presence mode.
5. Program controller to operate using FYA compact mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
9. Pedestrian signal pedestals and pedestrian signal heads shall be coated in a protective black powder coating. (See Special Provisions)
10. Remove existing "YIELD" sign (R10-12).
11. Pavement markings are existing.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
13. Closed loop system data: Controller Asset #1195.

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT



OASIS 2070 TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 5	PHASE 6
Min Green 1 *	12	7	7	12
Extension 1 *	6.0	2.0	2.0	6.0
Max Green 1 *	90	25	15	90
Yellow Clearance	4.8	3.4	3.0	4.8
Red Clearance	1.6	2.6	2.9	1.6
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	7	-	7
Don't Walk 1	-	17	-	7
Seconds Per Actuation *	1.5	-	-	1.5
Max Variable Initial *	34	-	-	34
Time Before Reduction *	15	-	-	15
Time To Reduce *	30	-	-	30
Minimum Gap	3.0	-	-	3.0
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Pushbutton & Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type I Pushbutton Post	
	Type II Signal Pedestal	

Signal Upgrade

Prepared in the Offices of:
Transportation Mobility and Safety Division
NC DEPARTMENT OF TRANSPORTATION
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road) at Racquet Club Road

Division 13 Buncombe County Asheville

PLAN DATE: August 2014 REVIEWED BY: Z.M. Little
PREPARED BY: C.L. Sweeney REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 30 1"=30'

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 9/26/2014
DATE

SIG. INVENTORY NO. 13-1195

D-OCT-2014 07:48
S:\Traffic\Projects\13-1195\Signals\Signal Design Section\Western Region\Active-13AD-ACTIVE projects\13-1195\13195_sig.dgn_20140925.dgn
C.L. Sweeney

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

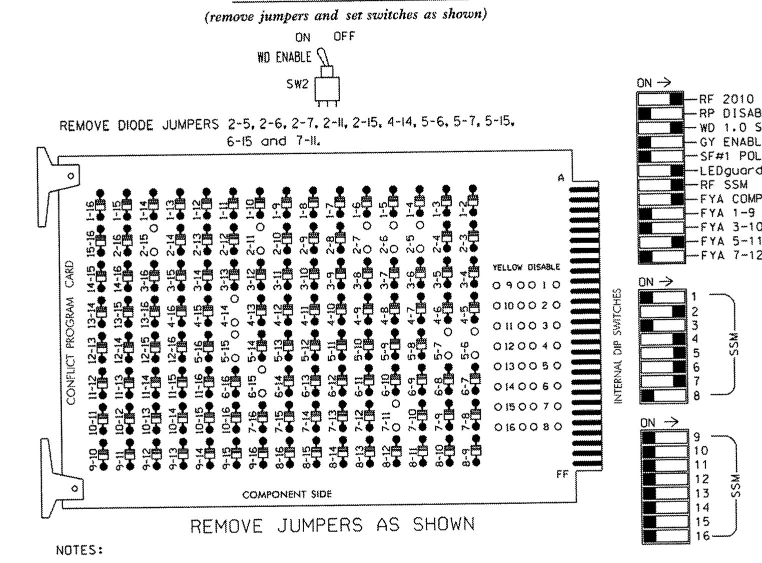
RACQUET CLUB RD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on used monitor channels, tie unused red monitor inputs 1,3, 8,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manucturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 4 and 6 for 'STARTUP PED CALL'.
7. Program phases 2 and 6 for Yellow Flash.
8. The cabinet and controller are part of the US 25 (Hendersonville Rd) - South CLS.

EQUIPMENT INFORMATION

CONTROLLER.............2070L
CABINET................332
SOFTWARE...............ECONOLITE OASIS
CABINET MOUNT..........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S2,S4,S4P,S5,S6,S6P,S7
PHASES USED............2,4,4 PED,5,6,6 PED
OVERLAP "A"............NOT USED
OVERLAP "B"............NOT USED
OVERLAP "C"............5+6
OVERLAP "D"............NOT USED
OVERLAP "E"............5

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4		S4P	S5	S6	S6P		S7	S8	S8P
PHASE	1	2	2 PED	3	4		4 PED	OLC	6	5 GRN	6 PED	OLE	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	62	P41, P42	51★	61,62	51★	P61, P62	42	NU	NU
RED		128			101				134			✱		
YELLOW		129			102				135					
GREEN		130			103				136					
RED ARROW								131						
YELLOW ARROW						102		132				123		
FLASHING YELLOW ARROW								133						
(DON'T WALK)							104				119			
GREEN ARROW						103				120		124		
PED YELLOW							✱							
(WALK)							106				121			

NU = Not Used

✱ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

NOTE: Load Switches S5 and S6P require output remapping. See sheet 3 for instructions.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	SLOT EMPTY	Ø2/SYS 2A/S23	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	NOT USED	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
	L		Ø2/SYS 2B/S24				NOT USED						Ø4 PED DC ISOLATOR	NOT USED	ST DC ISOLATOR
"J"	U	Ø5 5A	Ø5 5B	Ø6/SYS 6A/S21	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	NOT USED	Ø6/SYS 6B/S22											

EX.: 1A, 2A, ETC. = LOOP NO.'S

⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A/S23	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y			
2B/S24	TB2-7,8	I2L	43	5	12	2/SYS	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
5A¹	TB3-1,2	J1U	55	17	5	5	Y	Y			15
	-	I4U	47	9	22	2	Y	Y	Y		3
5B	TB3-5,6	J2U	40	2	6	5	Y	Y			15
6A/S21	TB3-9,10	J3U	64	26	36	6/SYS	Y	Y			
6B/S22	TB3-11,12	J3L	77	39	46	6/SYS	Y	Y			
PED PUSH BUTTONS											
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	30	PED 6	6 PED					

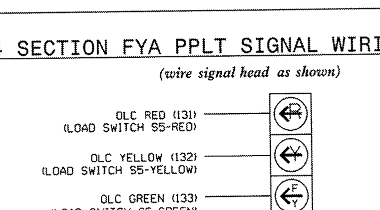
¹Add jumper from J1-W to I4-W, on rear of input file.

NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal head as shown)



NOTE

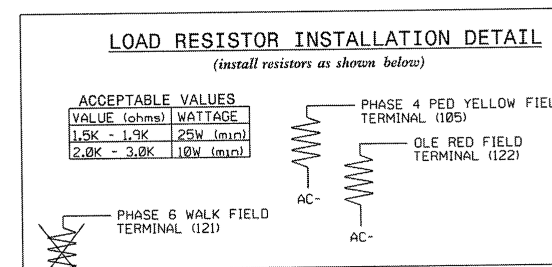
The sequence display for signal head 51 requires special logic programming. See sheet 2 of 3 for programming instructions.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



IMPORTANT! Remove resistor, if present, from Phase 6 WALK field terminal (121).

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-1195
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Racquet Club Road
Prepared in the Offices of: Transportation Mobility and Safety Division, Signals Management Section, 750 N.Greenfield Pkwy,Garner,NC 27529
Division 13 Buncombe County Asheville
PLAN DATE: August 2014 REVIEWED BY: T. Joyce
PREPARED BY: B. Simmons REVIEWED BY:
REVISIONS INIT. DATE
SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022013 GEORGE C. BROWN
George C. Brown 10/3/2014 DATE
SIG. INVENTORY NO. 13-1195

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, AND 3.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE        #5  IS ON
AND RED CLEAR ON PHASE #5  IS ON
          SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #30 ON
SET OUTPUT  ASSIGNMENT #31 OFF
```

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE        #5  IS ON
          SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #32 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE     #5  IS ON
          SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #31 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 30 = Overlap C Red
OUTPUT 31 = Overlap C Yellow
OUTPUT 32 = Overlap C Green
OUTPUT 34 = Phase 5 Green

Note: All outputs shown above have been remapped. See sheet 3.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-1195
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:           |12345678910111213141516
VEH OVL PARENTS: |    XX
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'E' SETTINGS
PHASE:           |12345678910111213141516
VEH OVL PARENTS: |    X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....7
```

OVERLAP PROGRAMMING COMPLETE

PED YELLOW CONFLICT MONITOR WIRING DETAIL

(make cabinet wiring changes as shown below)

In order to use FYA COMPACT mode on the 2010ECL-NC Monitor, the cabinet must be wired such that the (unused) Ped Yellow load switch outputs are wired to the conflict monitor as follows: From 6 PY (field term. 120) to chan. 10 green (monitor pin R).

Follow the instructions below to make the appropriate connections:

STEP 1: Fold down rear panel of output file.

STEP 2: Find unused wiring harness from conflict monitor card edge connector (which should be tied and bundled together).

STEP 3: Find the conductors that correspond to the following conflict monitor card edge pins and solder wire to the appropriate terminal on the rear of the output file as shown below:

CMU-R ———————— 6PY (term. 120)

NOTE: Some cabinet manufacturers use a keyed plug to accomplish this wiring configuration. If connectors are used, simply plug the two connectors together that are labeled with the pin-out as shown above.

Electrical Detail - Sheet 2 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Racquet Club Road
Division 13 Buncombe County Asheville
PLAN DATE: August 2014 REVIEWED BY: T. Joyce
PREPARED BY: B. Simmons REVIEWED BY:
SEAL 022013 GEORGE C. BROWN — George C. Brown 10/3/2014
SIG. INVENTORY NO. 13-1195

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR SIGNAL HEAD 51

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................-
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................-
WATCHDOG...........................-
DETECTOR RESET.....................-
ADVANCE BEACON.....................-
OUT OF PHASE FLASHER...............-
CONTROLLER FLASH...................-
RUN FREE...........................-
RESERVED...........................-
PREEMPT............................-
SOFT PREEMPT.......................-
ANY PREEMPT........................-
COORDINATION PLAN..................-
OFFSET.............................-
PHASE CHECK........................-
PHASE ON...........................-
PHASE NEXT.........................-
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN32  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................-
VEHICLE PHASE......................
PEDESTRIAN PHASE...................-
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................-
WATCHDOG...........................-
DETECTOR RESET.....................-
ADVANCE BEACON.....................-
OUT OF PHASE FLASHER...............-
CONTROLLER FLASH...................-
RUN FREE...........................-
RESERVED...........................-
PREEMPT............................-
SOFT PREEMPT.......................-
ANY PREEMPT........................-
COORDINATION PLAN..................-
OFFSET.............................-
PHASE CHECK........................-
PHASE ON...........................-
PHASE NEXT.........................-
```

PRESS "+" KEY FOR OUTPUT 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................-
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................-
WATCHDOG...........................-
DETECTOR RESET.....................-
ADVANCE BEACON.....................-
OUT OF PHASE FLASHER...............-
CONTROLLER FLASH...................-
RUN FREE...........................-
RESERVED...........................-
PREEMPT............................-
SOFT PREEMPT.......................-
ANY PREEMPT........................-
COORDINATION PLAN..................-
OFFSET.............................-
PHASE CHECK........................-
PHASE ON...........................-
PHASE NEXT.........................-
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:33  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................
PEDESTRIAN PHASE...................-
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................-
WATCHDOG...........................-
DETECTOR RESET.....................-
ADVANCE BEACON.....................-
OUT OF PHASE FLASHER...............-
CONTROLLER FLASH...................-
RUN FREE...........................-
RESERVED...........................-
PREEMPT............................-
SOFT PREEMPT.......................-
ANY PREEMPT........................-
COORDINATION PLAN..................-
OFFSET.............................-
PHASE CHECK........................-
PHASE ON...........................-
PHASE NEXT.........................-
```

PRESS "+" KEY FOR OUTPUT 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................-
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................-
WATCHDOG...........................-
DETECTOR RESET.....................-
ADVANCE BEACON.....................-
OUT OF PHASE FLASHER...............-
CONTROLLER FLASH...................-
RUN FREE...........................-
RESERVED...........................-
PREEMPT............................-
SOFT PREEMPT.......................-
ANY PREEMPT........................-
COORDINATION PLAN..................-
OFFSET.............................-
PHASE CHECK........................-
PHASE ON...........................-
PHASE NEXT.........................-
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:34  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................-
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................-
WATCHDOG...........................-
DETECTOR RESET.....................-
ADVANCE BEACON.....................-
OUT OF PHASE FLASHER...............-
CONTROLLER FLASH...................-
RUN FREE...........................-
RESERVED...........................-
PREEMPT............................-
SOFT PREEMPT.......................-
ANY PREEMPT........................-
COORDINATION PLAN..................-
OFFSET.............................-
PHASE CHECK........................-
PHASE ON...........................-
PHASE NEXT.........................-
```

PRESS "+" TWICE TO REACH OUTPUT 34.

STEP 4

```
PAGE:1  C1 PIN:36  NOT ENABLED
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................Y
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................-
VEHICLE OVERLAP....................-
PEDESTRIAN OVERLAP.................-
WATCHDOG...........................-
DETECTOR RESET.....................-
ADVANCE BEACON.....................-
OUT OF PHASE FLASHER...............-
CONTROLLER FLASH...................-
RUN FREE...........................-
RESERVED...........................-
PREEMPT............................-
SOFT PREEMPT.......................-
ANY PREEMPT........................-
COORDINATION PLAN..................-
OFFSET.............................-
PHASE CHECK........................-
PHASE ON...........................-
PHASE NEXT.........................-
```

THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:36  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................-
VEHICLE OVERLAP....................-
PEDESTRIAN OVERLAP.................-
WATCHDOG...........................-
DETECTOR RESET.....................-
ADVANCE BEACON.....................-
OUT OF PHASE FLASHER...............-
CONTROLLER FLASH...................-
RUN FREE...........................-
RESERVED...........................-
PREEMPT............................-
SOFT PREEMPT.......................-
ANY PREEMPT........................-
COORDINATION PLAN..................-
OFFSET.............................-
PHASE CHECK........................-
PHASE ON...........................-
PHASE NEXT.........................-
```

OUTPUT PROGRAMMING FOR HEAD 51 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-1195
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 3 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at Racquet Club Road
Division 13 Buncombe County Asheville
PLAN DATE: August 2014 REVIEWED BY: T. Joyce
PREPARED BY: B. Simmons REVIEWED BY:
SEAL 022013 GEORGE C. BROWN — George C. Brown 10/3/2014
SIG. INVENTORY NO. 13-1195

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

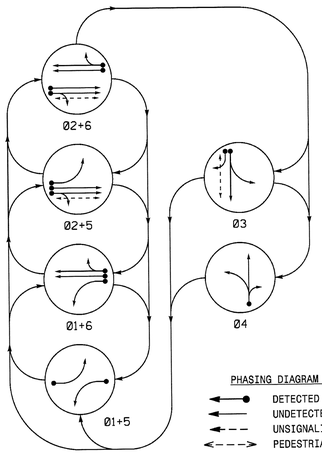
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

RACQUET CLUB RD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS - ELECTRICAL DETAILS

SURVEYED: JW, DK	DATE	REVISION	BY	TIP No.: U5189
DRAWN: JR, JW				GRID: N/A
DESIGNED: JR, BE				DATE: APRIL 2015
CHECKED: BE				SCALE: N/A
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk.dwg

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

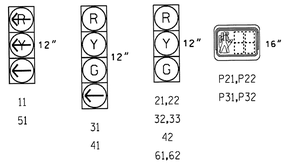
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE							
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	FLASH
11	←	←	↛	↛	↛	↛	↛
21,22	R	R	G	G	R	R	Y
31	R	R	R	R	G	R	R
32,33	R	R	R	R	G	R	R
41	R	R	R	R	R	G	R
42	R	R	R	R	R	G	R
51	←	↛	←	↛	↛	↛	↛
61,62	R	G	R	G	R	R	Y
P21,P22	DW	DW	W	W	DW	DW	DRK
P31,P32	DW	DW	DW	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



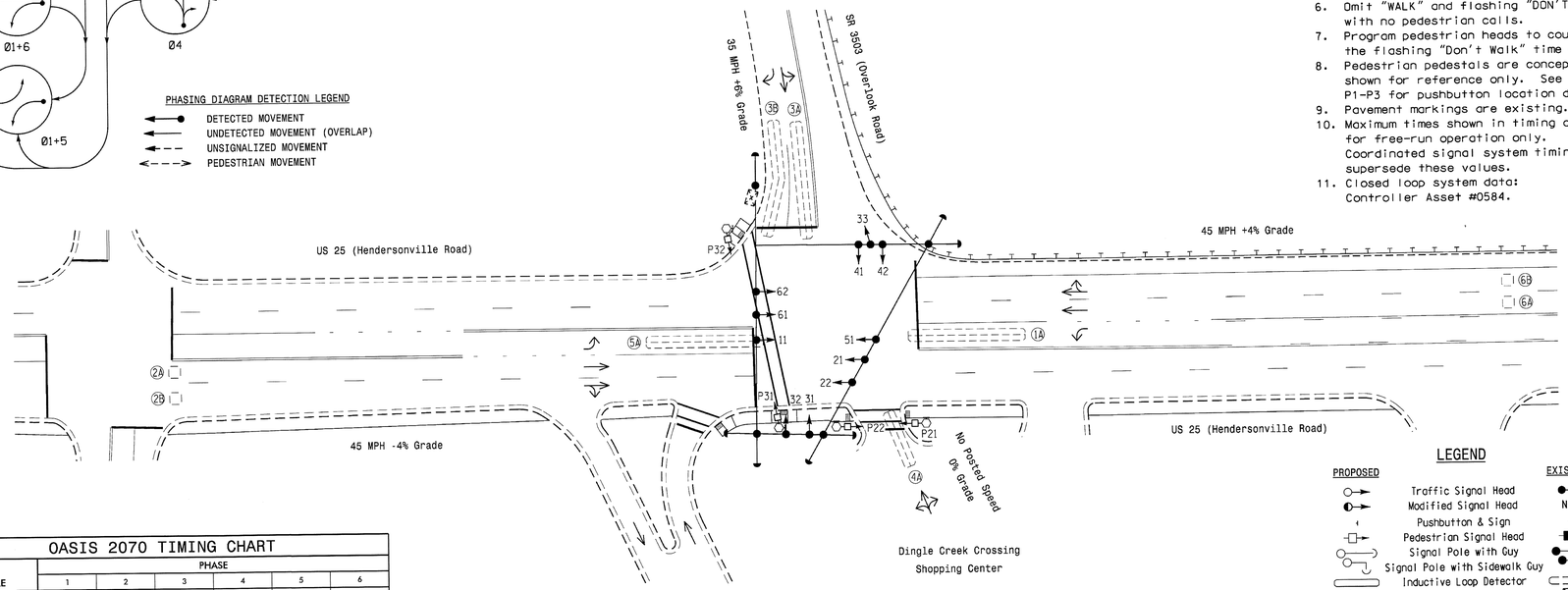
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x60	+5	Existing	-	1	Y	Y	-	-	3	-	-
2A,2B	6x6	305	Existing	-	2	Y	Y	-	-	-	-	-
3A	6x60	+5	Existing	-	3	Y	Y	-	-	3	-	-
3B	6x60	+5	Existing	-	3	Y	Y	-	-	15	-	-
4A	6x30	+5	Existing	-	4	Y	Y	-	-	10	-	-
5A	6x6	+5	Existing	-	5	Y	Y	-	-	3	-	-
6A,6B	6x6	300	Existing	-	6	Y	Y	-	-	-	-	-

6 Phase
Fully Actuated
US 25 (Hendersonville Rd)-South CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
9. Pavement markings are existing.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
11. Closed loop system data: Controller Asset #0584.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Pushbutton & Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type I Pushbutton Post	
	Type II Signal Pedestal	

OASIS 2070 TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1	1.0	6.0	1.0	2.0	1.0	6.0
Max Green 1 *	15	90	20	20	15	90
Yellow Clearance	3.0	4.9	3.5	3.2	3.0	4.2
Red Clearance	1.8	1.2	2.4	2.7	1.8	1.3
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	7	-	-	-
Don't Walk 1	-	4	24	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5
Max Variable Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	30	-	-	-	30
Minimum Gap	-	3.0	-	-	-	3.0
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Signal Upgrade

Prepared In the Offices of:
Transportation Mobility and Planning Division
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy.,Garner,NC 27529

US 25 (Hendersonville Road)
at
SR 3503 (Overlook Road)

Division 13 | Buncombe County | Asheville
PLAN DATE: August 2014 | REVIEWED BY: Z.W. Little
PREPARED BY: C.L. Sweeney | REVIEWED BY:

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030530 ZACHARY M. LITTLE

Docusigned by: Zachary M. Little 9/26/2014
SIGNATURE DATE

SIG. INVENTORY NO. 13-0584

26-SEP-2014,10:31
S:\Traffic\Projects\Signal Design Section\Western Region\13-0584*13MD-ACTIVE projects\13-0584*13056S_sig.dgn-20140925.dgn
cl.sweeney

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

OVERLOOK RD INTERSECTION:
SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

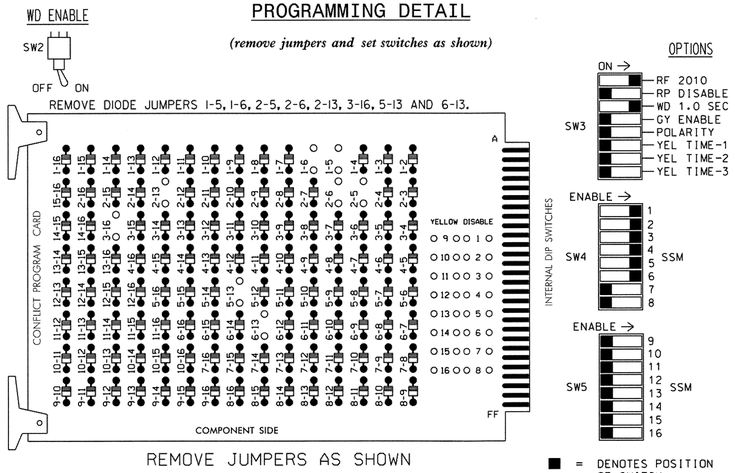
	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

PROJECT REFERENCE NO.	SHEET NO.

▽EDI MODEL 2010ECL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL1-SEL5 are present on the monitor board.

▽NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 7,8,9,10, 11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 3 for 'STARTUP PED CALL'.
7. Program phases 2 and 6 for Yellow Flash..
8. The cabinet and controller are part of the Asheville Closed Loop Signal System.

▽EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S2P,S3,S4,S5,S6,S8P
PHASES USED.....1,2,3,4,5,6,2 PED,3 PED
OVERLAPS.....NONE

▽SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3		S4		S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3		4		4 PED	5	6	6 PED	7	8	3 PED
SIGNAL HEAD NO.	11	21,22	P21, P22	31	32,33	41	42	NU	51	61,62	NU	NU	NU	P31, P32
RED		128		116	116	101	101			134				
YELLOW		129		117	117	102	102			135				
GREEN		130		118	118	103	103			136				
RED ARROW	125								131					
YELLOW ARROW	126								132					
GREEN ARROW	127			118		103			133					
✋			113											110
🚶			115											112

NU = Not Used

▽ COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

▽INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1A	Ø2 2A,2B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø3 3A	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	NOT USED	FS DC ISOLATOR
	L	NOT USED	NOT USED				Ø3 3B	NOT USED					NOT USED	Ø3 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø6 6A,6B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	NOT USED												

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

▽INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y	-	-	3
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y	-	-	-
3A	TB4-9,10	I6U	41	3	4	3	Y	Y	-	-	3
3B	TB4-11,12	I6L	45	7	14	3	Y	Y	-	-	15
4A	TB6-1,2	I7U	65	27	34	4	Y	Y	-	-	10
5A	TB3-1,2	J1U	55	17	5	5	Y	Y	-	-	3
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y	-	-	-
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2 PED					
P31,P32	TB8-8,9	I13L	70	32	PED 8	3 PED					

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

▽PED 3 PROGRAMMING DETAIL

(program controller as shown below)

CHANGING OUTPUT ASSIGNMENTS

1. FROM MAIN MENU SELECT '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS)
2. ENTER 17 (PHASE 8 DW) FOR OUTPUT ASSIGNMENT #.
3. SCROLL DOWN TO 'PEDESTRIAN PHASE' AND ENTER 'Y' REGARDLESS OF DEFAULT PROGRAMMING
4. ENTER '3' FOR 'SELECT PEDESTRIAN PHASE'. NO CHANGE NEEDED FOR 'SELECT COLOR'
5. BACKUP TO 'OUTPUT ASSIGNMENTS AND SETTINGS MENU:' BY PRESSING THE 'ESC' BUTTON ON KEYBOARD.
6. SELECT '1' (OUTPUT ASSIGNMENTS)
7. ENTER 18 (PHASE 8 W) FOR OUTPUT ASSIGNMENT #.
8. REPEAT STEPS # 3 AND # 4.

CHANGING INPUT ASSIGNMENTS

1. FROM MAIN MENU SELECT '7' (DETECTORS), THEN '2' (PEDESTRIAN DETECTOR ASSIGNMENTS)
2. CYCLE TO PED DETECTOR #8 BY REPEATEDLY DEPRESSING '+' KEY
3. MODIFY PHASE ASSIGNED TO PED DETECTOR # 8 FROM PHASE 8 TO PHASE 3

PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0584
DESIGNED: August 2014
SEALED: 9-26-14
REVISED: N/A

REVISION ▽ SEAL

NORTH CAROLINA PROFESSIONAL SEAL 008453 ENGINEER HARVEY L. WINSTEAD, JR.

DocuSigned by: John T. Rowe, Jr. 9/30/2014
641D60C145E64F5... DATE

Signal Upgrade

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Traffic Engineering and Safety Systems Branch
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
122 N. McDowell St., Raleigh, NC 27603

US 25 (Hendersonville Rd)
at
SR 3503 (Overlook Rd)

Division 13 Buncombe County Asheville

PLAN DATE:	May 2005	REVIEWED BY:	S.T. Franklin
PREPARED BY:	T.R. Terrell	REVIEWED BY:	H.L. Winstead

REVISIONS	BY	DATE
▽Added PEDs.(JP)	JPR	9/30/2014

SEAL

Not a certified document as to the Original Document but Only as to the Revisions - This document originally issued and sealed by Harvey L. Winstead, Jr., PE #07983 on 9-27-05.(date of sealing). This document is only certified as to the revisions.

SIGNATURE DATE

SIG. INVENTORY NO. 13-0584

HNTB

HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

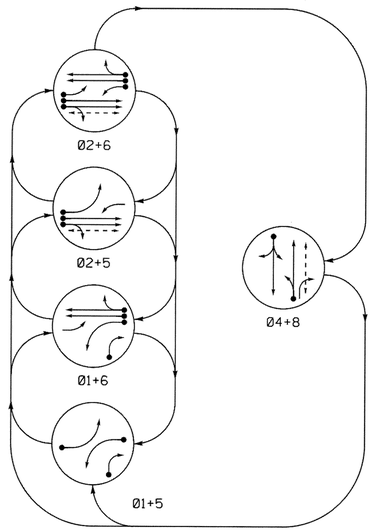
OVERLOOK RD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

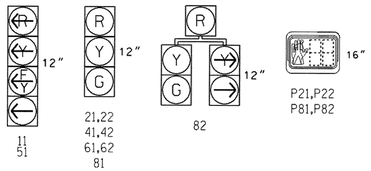
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 01+05	01+06	02+05	02+06	04+08	FLASH
11	~~—~~	~~—~~	~~F.Y.~~	~~F.Y.~~	~~R~~	~~Y~~
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	~~—~~	~~F.Y.~~	~~—~~	~~F.Y.~~	~~R~~	~~Y~~
61,62	R	G	R	G	R	Y
81	R	R	R	R	G	R
82	~~R~~	~~R~~	R	R	G	R
P21,P22	DW	DW	W	W	DW	DRK
P81,P82	DW	DW	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



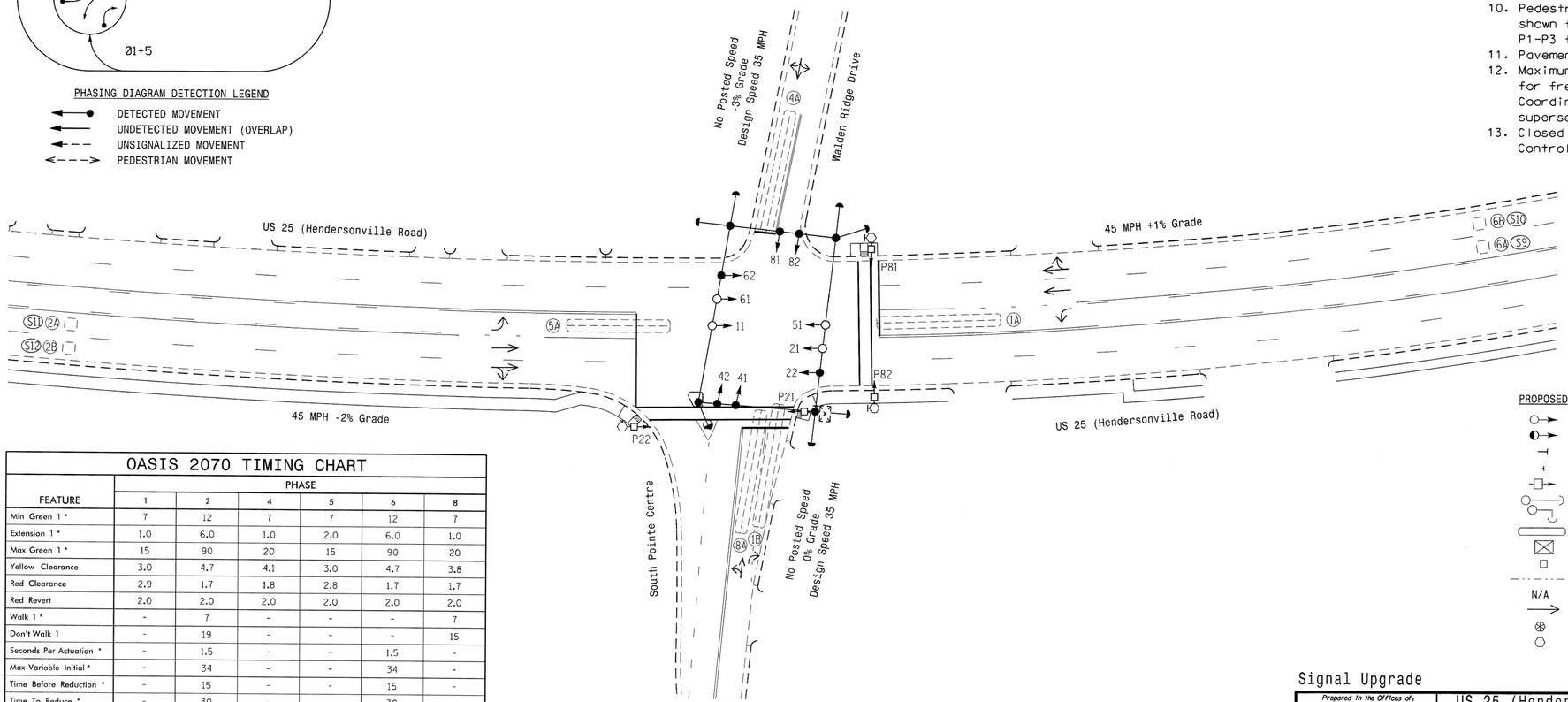
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x60	0	EXISTING	-	1	Y	Y	-	-	15	-	-
					6	Y	Y	Y	-	3	-	-
1B	6x60	+12	EXISTING	-	1	Y	Y	-	-	15	-	-
2A/S11	6x6	272	EXISTING	-	2	Y	Y	-	-	-	Y	-
2B/S12	6x6	272	EXISTING	-	2	Y	Y	-	-	-	Y	-
4A	6x60	0	EXISTING	-	4	Y	Y	-	-	5	-	-
5A	6x50	+16	EXISTING	-	5	Y	Y	-	-	15	-	-
					2	Y	Y	Y	-	3	-	-
6A/S9	6x6	290	EXISTING	-	6	Y	Y	-	-	-	Y	-
6B/S10	6x6	290	EXISTING	-	6	Y	Y	-	-	-	Y	-
8A	6x60	+9	EXISTING	-	8	Y	Y	-	-	-	-	-

5 Phase
Fully Actuated
US 25 (Hendersonville Rd)-South CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Disable Backup Protect for phase 2+6.
4. Phase 1 and/or phase 5 may be lagged.
5. Reposition existing signal head numbered 22 and 62.
6. Set all detector units to presence mode.
7. Program controller to operate using FYA compact mode.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
11. Pavement markings are existing.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
13. Closed loop system data: Controller Asset #1170.



OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	12	7	7	12	7
Extension 1 *	1.0	6.0	1.0	2.0	6.0	1.0
Max Green 1 *	15	90	20	15	90	20
Yellow Clearance	3.0	4.7	4.1	3.0	4.7	3.8
Red Clearance	2.9	1.7	1.8	2.8	1.7	1.7
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	-	-	-	7
Don't Walk 1	-	19	-	-	-	15
Seconds Per Actuation *	-	1.5	-	-	1.5	-
Max Variable Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pushbutton & Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type I Pushbutton Post	
	Type II Signal Pedestal	

Signal Upgrade

Prepared In the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road)
at
Walden Ridge Drive /
South Pointe Centre

Division 13 Buncombe County Asheville

PLAN DATE:	August 2014	REVIEWED BY:	Z.M. Little
PREPARED BY:	C.L. Sweeney	REVIEWED BY:	

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 9/26/2014 DATE

SIG. INVENTORY NO. 13-1170

25-SEP-2014 16:21
S:\#TS&SUM\TS Signals\Signal Design Section\Western Region\Div-13\MD-ACTIVE projects\13-1170\#13170_sig_dsn_20140925.dgn
clsweeney

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

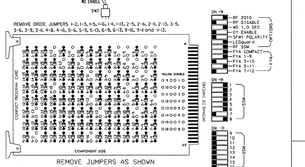
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

WALDEN RIDGE DR INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

SURVEYED: JW, DK	DATE	REVISION	BY	TIP No.: U5189
DRAWN: JR, JW				GRID: N/A
DESIGNED: JR, BE				DATE: APRIL 2015
CHECKED: BE				SCALE: N/A
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk.dwg

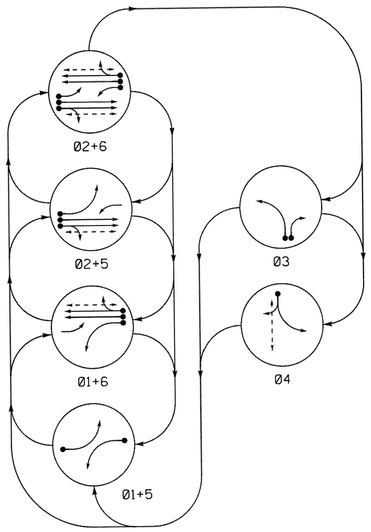
EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)


W1 (MAN)
ON
OFF
REMOVE DIODE JUMPERS 1-2,1-5,1-6,1-9,1-10,2-5,2-6,2-9,2-10,3-5,3-6,3-9,3-10,4-5,4-6,4-9,4-10,5-6,5-9,5-10,6-9,6-10,7-9 and 11-13.
CONFLICT PROGRAM CARD
CONFLICT MONITOR CARD
CONFLICT MONITOR CARD EDGE CONNECTOR
CONFLICT MONITOR CARD EDGE CONNECTOR
CONFLICT MONITOR CARD EDGE CONNECTOR

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

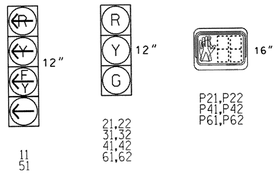
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 0 1 + 5	0 1 + 6	0 2 + 5	0 2 + 6	0 3	0 4	FLASH
11	—	—	F/Y	F/Y	~~R~~	~~R~~	~~Y~~
21,22	R	R	G	G	R	R	Y
31,32	R	R	R	R	G	R	R
41,42	R	R	R	R	R	G	R
51	—	F/Y	—	F/Y	~~R~~	~~R~~	~~Y~~
61,62	R	G	R	G	R	R	Y
P21,P22	DW	DW	W	W	DW	DW	DRK
P41,P42	DW	DW	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



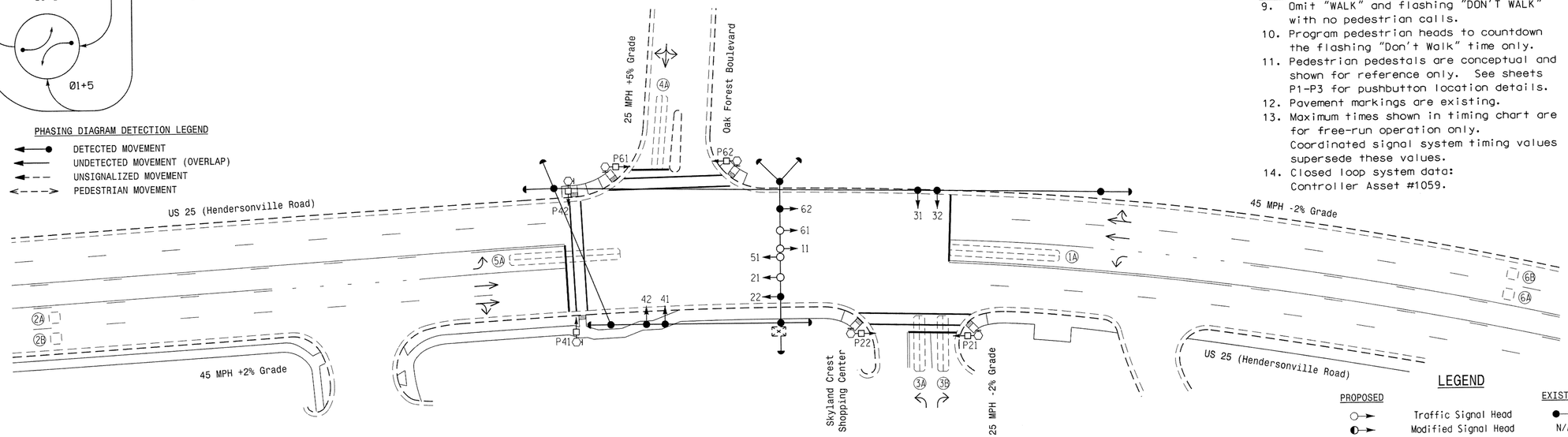
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x60	0	Existing	-	1	Y	Y	-	-	15	-	-
					6	Y	Y	Y	-	3	-	-
2A	6x6	276	Existing	-	2	Y	Y	-	-	-	-	-
2B	6x6	276	Existing	-	2	Y	Y	-	-	-	-	-
3A	6x30	+9	Existing	-	3	Y	Y	-	-	3	-	-
3B	6x30	+9	Existing	-	3	Y	Y	-	-	15	-	-
4A	6x40	0	Existing	-	4	Y	Y	-	-	-	-	-
5A	6x60	+30	Existing	-	5	Y	Y	-	-	15	-	-
					2	Y	Y	Y	-	3	-	-
6A	6x6	305	Existing	-	6	Y	Y	-	-	-	-	-
6B	6x6	305	Existing	-	6	Y	Y	-	-	-	-	-

6 Phase
Fully Actuated
US 25 (Hendersonville Rd)-South CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Disable Backup Protect for phase 2+6.
4. Phase 1 and/or phase 5 may be lagged.
5. The order of phase 3 and phase 4 may be reversed.
6. Reposition existing signal head numbered 22 and 62.
7. Set all detector units to presence mode.
8. Program controller to operate using FYA compact mode.
9. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
10. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
11. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
12. Pavement markings are existing.
13. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
14. Closed loop system data: Controller Asset #1059.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
↓	Pushbutton & Sign	↓
□→	Pedestrian Signal Head	■→
○→	Signal Pole with Guy	●→
○↘	Signal Pole with Sidewalk Guy	●↘
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	----------
→	Directional Arrow	→
⊛	Type I Pushbutton Post	⊛
⬡	Type II Signal Pedestal	⬢

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	1.0	6.0	2.0	2.0	2.0	6.0
Max Green 1 *	15	90	20	20	15	90
Yellow Clearance	3.0	4.7	3.3	3.0	3.0	4.7
Red Clearance	1.8	3.1	4.3	3.9	2.6	3.1
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	-	7	-	7
Don't Walk 1	-	13	-	16	-	16
Seconds Per Actuation *	-	1.5	-	-	-	1.5
Max Variable Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	30	-	-	-	30
Minimum Gap	-	3.0	-	-	-	3.0
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

Signal Upgrade

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 25 (Hendersonville Road)
at
Oak Forest Boulevard/
Skyland Crest Shopping Center

Division 13 Buncombe County Asheville

PLAN DATE: August 2014 REVIEWED BY: Z.M. Little
PREPARED BY: C.L. Sweeney REVIEWED BY:

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 9/26/2014 DATE

SIG. INVENTORY NO. 13-1059

25-SEP-2014 16:28
S:\TISSUM\TIS Signals\Signal Design Section\Western Region\div-13\0-ACTIVE projects\13-1059\131059_sig_dsn_20140925.dgn
CLsweeney

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

OAK FOREST BLVD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

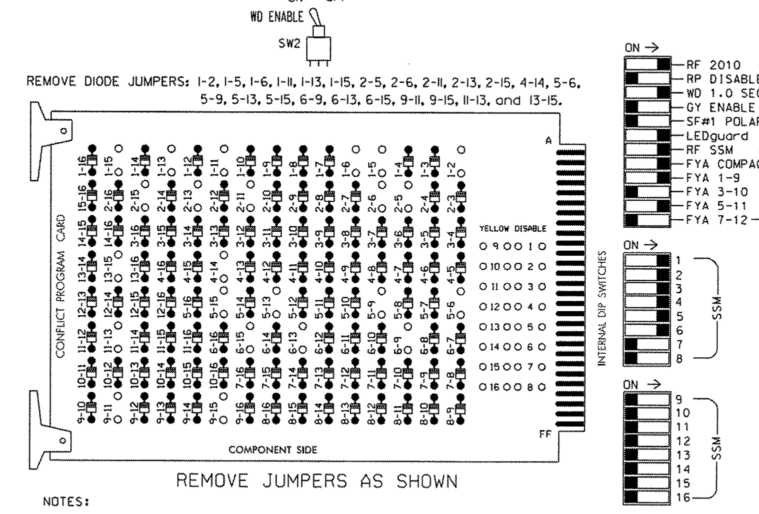
TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

ON OFF
WD ENABLE
SW2

REMOVE DIODE JUMPERS: 1-2, 1-5, 1-6, 1-11, 1-13, 1-15, 2-5, 2-6, 2-11, 2-13, 2-15, 4-14, 5-6, 5-9, 5-13, 5-15, 6-9, 6-13, 6-15, 9-11, 9-15, 11-13, and 13-15.



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.
3. IMPORTANT! 2010ECL-NC conflict monitor required for FYA operation.
4. Special cabinet wiring is required to utilize FYA COMPACT mode. See Ped Yellow Conflict Monitor Wiring Detail on sheet 2.

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 7,8, 9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2, 4, and 6 for 'STARTUP PED CALL'.
7. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
8. The cabinet and controller are part of the US 25 (Hendersonville Rd) South Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER..............2070L
CABINET.................332
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S1,S2,S2P,S3,S4,S4P,S5,S6,S6P
PHASES USED.............1,2,2PED,3,4,4PED,5,6,6PED
OVERLAP "A".............1+2
OVERLAP "B".............NOT USED
OVERLAP "C".............5+6
OVERLAP "D".............NOT USED

PROJECT REFERENCE NO.	SHEET NO.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P		S3	S4	S4P	S5	S6	S6P		S7	S8	S8P
PHASE	OLA	2	1 GRN	2 PED	3	4	4 PED	OLC	6	5 GRN	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11★	21,22	11★	P21, P22	31,32	41,42	P41, P42	51★	61,62	51★	P61, P62	NU	NU	NU
RED		128			116	101			134					
YELLOW		129			117	102	✱		135					
GREEN		130			118	103			136					
RED ARROW	125							131						
YELLOW ARROW	126							132						
FLASHING YELLOW ARROW	127							133						
(DON'T WALK)				113			104				119			
GREEN ARROW			114							120				
(WALK)				115			106				121			

NU = Not Used

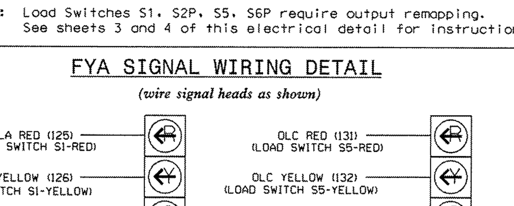
✱ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

NOTE: Load Switches S1, S2P, S5, S6P require output remapping. See sheets 3 and 4 of this electrical detail for instructions.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal heads 11 and 51 require special logic programming. See sheet 2 for instructions.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	ø1 1A	ø2 2A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	ø3 3A	ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	ø2 PED DC ISOLATOR	ø6 PED DC ISOLATOR	FS DC ISOLATOR
"I"	L	NOT USED	ø2 2B				ø3 3B	NOT USED					ø4 PED DC ISOLATOR	NOT USED	ST DC ISOLATOR
"J"	U	ø5 5A	ø6 6A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
"J"	L	NOT USED	ø6 6B												

EX.: 1A, 2A, ETC. = LOOP NO.'S

⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y	Y		3
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			3
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			15
4A	TB6-1,2	I7U	65	27	34	4	Y	Y			
5A[2]	TB3-1,2	J1U	55	17	5	5	Y	Y			15
	-	I4U	47	9	22	2	Y	Y	Y		3
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	30	PED 6	6 PED					

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

[1] Add jumper from I1-W to J4-W, on rear of input file.
[2] Add jumper from J1-W to I4-W, on rear of input file.

IMPORTANT! Remove the following jumpers, if present:
TB2-5 to TB2-7, and TB2-6 to TB2-8
TB3-5 to TB3-7, and TB3-6 to TB3-8

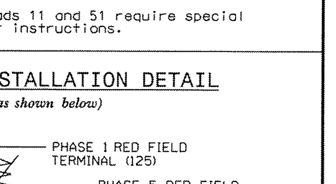
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



IMPORTANT! Remove resistors as shown above.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-1059
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 1 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:
Prepared in the Offices of:
Transportation Mobility and Safety Division, Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road)
at
Oak Forest Boulevard/
Skyland Crest Shopping Center
Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: JTR
PREPARED BY: S. Armstrong REVIEWED BY:
REVISIONS INIT. DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 008453 ENGINEER JOHN T. ROWE, JR.
DocuSigned by: John T. Rowe, Jr. 9/29/2014 DATE
SIG. INVENTORY NO. 13-1059

PROJECT REFERENCE NO.	SHEET NO.

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE       #1  IS ON
AND RED CLEAR ON PHASE #1  IS ON
          SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #14 ON
SET OUTPUT  ASSIGNMENT #15 OFF
```

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE       #1  IS ON
          SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #16 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE    #1  IS ON
          SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #15 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

PRESS '+'

```
LOGICAL I/O COMMAND #4  (+/-COMMAND#)
IF  ACTIVE PHASE       #5  IS ON
AND RED CLEAR ON PHASE #5  IS ON
          SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #30 ON
SET OUTPUT  ASSIGNMENT #31 OFF
```

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #5  (+/-COMMAND#)
IF  ACTIVE PHASE       #5  IS ON
          SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #32 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #6  (+/-COMMAND#)
IF  YELLOW ON PHASE    #5  IS ON
          SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #31 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 14 = Overlap A Red
OUTPUT 15 = Overlap A Yellow
OUTPUT 16 = Overlap A Green
OUTPUT 30 = Overlap C Red
OUTPUT 31 = Overlap C Yellow
OUTPUT 32 = Overlap C Green

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|    XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

PED YELLOW CONFLICT MONITOR WIRING DETAIL

In order to use FYA COMPACT mode on the 2010ECL-NC Monitor, the cabinet must be wired such that the (unused) Ped Yellow load switch outputs are wired directly to the conflict monitor as follows: From 2 PY (field term. 114) to chan. 9 green (monitor pin 13), and from 6 PY (field term. 120) to chan. 10 green (monitor pin R).

This may also be accomplished through a keyed plug connection found on the inside panel of the output file.

Fold down rear panel of output file and find a set of 3 white keyed connectors. Plug together the two connectors labeled as shown below:

1-2PY	1-CMU-13
2-4PY	2-CMU-16
3-6PY	3-CMU-R
4-8PY	4-CMU-U

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-1059
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 2 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:
US 25 (Hendersonville Road) at Oak Forest Boulevard/ Skyland Crest Shopping Center
Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: JTR
PREPARED BY: S. Armstrong
SEAL 008453 JOHN T. ROWE, JR.
John T. Rowe, Jr. 9/29/2014
SIG. INVENTORY NO. 13-1059

PROJECT REFERENCE NO.	SHEET NO.

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR LOADSWITCH S1 (SIGNAL HEAD 11)

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
OUTPUT ASSIGNMENT #................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN16  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

PRESS "+" KEY FOR OUTPUT 15

STEP 2

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
OUTPUT ASSIGNMENT #................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:17  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

PRESS "+" KEY FOR OUTPUT 16

STEP 3

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
OUTPUT ASSIGNMENT #................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:18  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

PRESS "+" UNTIL OUTPUT 33 IS REACHED.

STEP 4

```
PAGE:1  C1 PIN:35  NOT ENABLED
OUTPUT ASSIGNMENT #................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................Y
VEHICLE PHASE......................Y
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP...................._
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

→ THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:35  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:35  VEHICLE PHASE
OUTPUT ASSIGNMENT #................33
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP...................._
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

OUTPUT PROGRAMMING FOR HEAD 11 COMPLETE

~~BACKUP PROTECTION NOTE~~

~~*(program controller as shown below)*~~

~~From Main Menu press '2' (Phase Control), then '1' (Phase Control Functions). Program phases 2 and 6 for 'Backup Protect'. Make sure the Red Revert times shown on the Signal Design Plans are programmed in the 'Phase Timing' menu.~~

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-1059
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 3 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:
US 25 (Hendersonville Road) at Oak Forest Boulevard/ Skyland Crest Shopping Center
Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: JTR
PREPARED BY: S. Armstrong
SEAL 008453 JOHN T. ROWE, JR.
John T. Rowe, Jr. 9/29/2014
SIG. INVENTORY NO. 13-1059

PROJECT REFERENCE NO.	SHEET NO.

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR LOADSWITCH S5 (SIGNAL HEAD 51)

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN32  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

PRESS "+" KEY FOR OUTPUT 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:33  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

PRESS "+" KEY FOR OUTPUT 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

→ THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:34  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

PRESS "+" TWICE TO REACH OUTPUT 34.

STEP 4

```
PAGE:1  C1 PIN:36  NOT ENABLED
OUTPUT ASSIGNMENT #................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................Y
VEHICLE PHASE......................Y
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP...................._
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

→ THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.
→ ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:36  VEHICLE PHASE
OUTPUT ASSIGNMENT #................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE..................._
VEHICLE OVERLAP...................._
PEDESTRIAN OVERLAP................._
WATCHDOG..........................._
DETECTOR RESET....................._
ADVANCE BEACON....................._
OUT OF PHASE FLASHER..............._
CONTROLLER FLASH..................._
RUN FREE..........................._
RESERVED..........................._
PREEMPT............................_
SOFT PREEMPT......................._
ANY PREEMPT........................_
COORDINATION PLAN.................._
OFFSET............................._
PHASE CHECK........................_
PHASE ON..........................._
PHASE NEXT........................._
```

OUTPUT PROGRAMMING FOR HEAD 51 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-1059
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 4 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:
US 25 (Hendersonville Road) at Oak Forest Boulevard/ Skyland Crest Shopping Center
Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: JTR
PREPARED BY: S. Armstrong
SEAL 008453 JOHN T. ROWE, JR.
John T. Rowe, Jr. 9/29/2014
SIG. INVENTORY NO. 13-1059

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

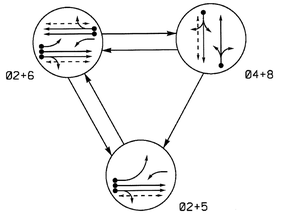
OAK FOREST BLVD INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS - ELECTRICAL DETAILS

	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N/A
DRAWING NAME: US Hwy25 Sidewalk.dwg

PROJECT REFERENCE NO.	SHEET NO.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

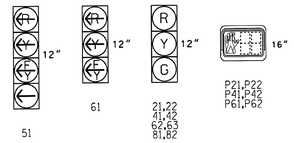
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø4+8	FLASH
21,22	G	G	R	Y
41,42	R	R	G	R
51	←-	←-	↑R	↑Y
61	←Y	←Y	↑R	↑Y
62,63	R	G	R	Y
81,82	R	R	G	R
P21,P22	W	W	DW	DRK
P41,P42	DW	DW	W	DRK
P61,P62	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



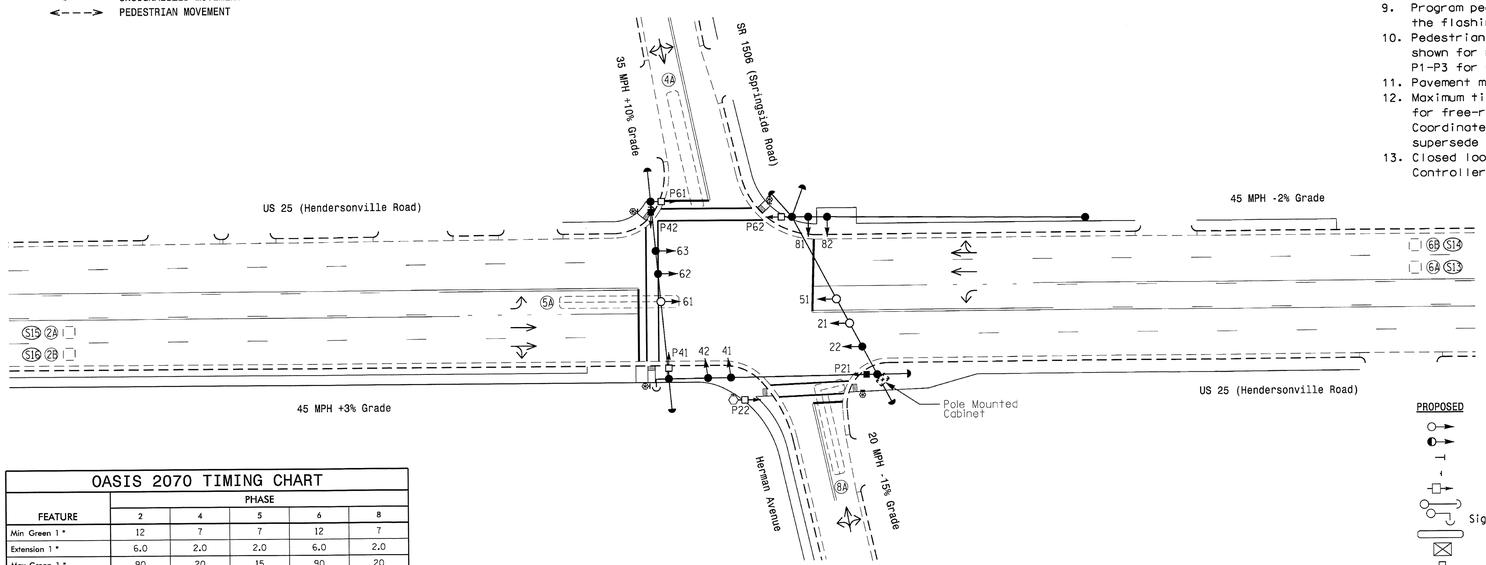
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A/SI5	6x6	284	5	-	2	Y	Y	-	-	-	Y	-
2B/SI6	6x6	284	5	-	2	Y	Y	-	-	-	Y	-
4A	6x60	+4	Existing	-	4	Y	Y	-	-	5	-	-
5A	6x60	+20	Existing	-	2	Y	Y	Y	-	3	-	-
					5	Y	Y	-	-	15	-	-
6A/SI3	6x6	300	5	-	6	Y	Y	-	-	-	Y	-
6B/SI4	6x6	300	5	-	6	Y	Y	-	-	-	Y	-
8A	6x40	+9	2-4-2	-	8	Y	Y	-	-	5	-	-

3 Phase
Fully Actuated
US 25 (Hendersonville Rd)-South CLS

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Disable Backup Protect for phase 2.
4. Phase 5 may be lagged.
5. Reposition existing signal heads numbered 22, 62, and 63.
6. Set all detector units to presence mode.
7. Program controller to operate using FYA compact mode.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
11. Pavement markings are existing.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
13. Closed loop system data: Controller Asset #0529.



OASIS 2070 TIMING CHART

FEATURE	PHASE 2	4	5	6	8
Min Green 1 *	12	7	7	12	7
Extension 1 *	6.0	2.0	2.0	6.0	2.0
Max Green 1 *	90	20	15	90	20
Yellow Clearance	4.7	3.3	3.0	4.7	3.9
Red Clearance	1.6	2.8	2.1	1.6	3.4
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1 *	7	7	-	7	-
Don't Walk 1	8	19	-	13	-
Seconds Per Actuation *	1.5	-	-	1.5	-
Max Variable Initial *	34	-	-	34	-
Time Before Reduction *	15	-	-	15	-
Time To Reduce *	30	-	-	30	-
Minimum Gap	3.0	-	-	3.0	-
Recall Mode	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	-	YELLOW	-
Dual Entry	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pushbutton & Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type I Pushbutton Post	
	Type II Signal Pedestal	

Signal Upgrade

Prepared In the Offices of:
Transportation Mobility and Safety Division
NCDEPARTMENT OF TRANSPORTATION
Signal Design Section

US 25 (Hendersonville Road)
at
SR 1506 (Springside Road)/
Herman Avenue

Division 13 Buncombe County Asheville

PLAN DATE: August 2014 REVIEWED BY: Z.W. Little

PREPARED BY: C.L. Sweeney REVIEWED BY:

750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

NORTH CAROLINA PROFESSIONAL SEAL 030530 ENGINEER ZACHARY M. LITTLE

DocuSigned by: Zachary M. Little 9/26/2014
CERTIFICATE OF COMPLETION DATE

SIG. INVENTORY NO. 13-0529

25-SEP-2014 10:19
S:\TTS\Staff\Signals\Signal Design Section\Western Region\01>13HD-ACTIVE projects\13-0529\130529_sig_dsn_20140925.dgn
clsweeney

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

HERMAN AVE INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS

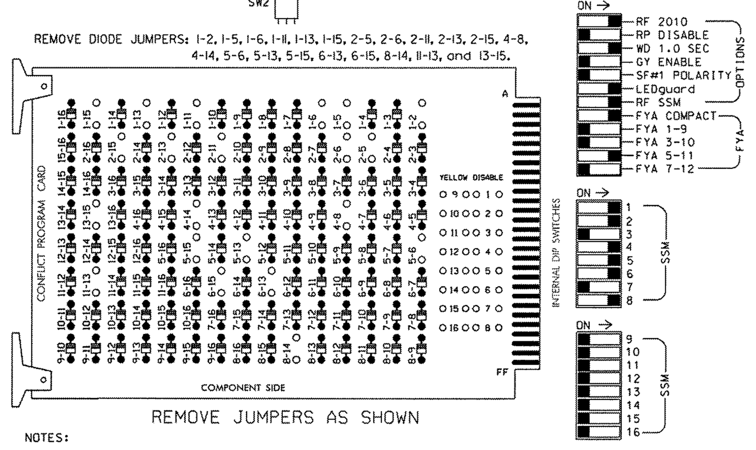
	DATE	REVISION	BY
SURVEYED: JW, DK			
DRAWN: JR, JW			
DESIGNED: JR, BE			
CHECKED: BE			
APPROVED: JG			

TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: N\A
DRAWING NAME: US Hwy25 Sidewalk.dwg

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS: 1-2, 1-5, 1-6, 1-11, 1-13, 1-15, 2-5, 2-6, 2-11, 2-13, 2-15, 4-8, 4-14, 5-6, 5-13, 5-15, 6-13, 6-15, 8-14, 11-13, and 13-15.



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.
3. IMPORTANT! 2010ECL-NC conflict monitor required for FYA operation.
4. Special cabinet wiring is required to utilize FYA COMPACT mode. See Ped Yellow Conflict Monitor Wiring Detail on this sheet.

■ = DENOTES POSITION OF SWITCH

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	SLOT	Ø2/SYS 2A/S15	SLOT	Ø4 4A	Ø5 5A	Ø6/SYS 6A/S13	SLOT	Ø8 8A	SLOT	SLOT	SLOT	Ø2 PED DC ISOLATOR	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
L	EMPTY	Ø2/SYS 2B/S16	EMPTY	NOT USED	⊗ WIRED INPUT	Ø6/SYS 6B/S14	EMPTY	NOT USED	EMPTY	EMPTY	EMPTY	Ø4 PED DC ISOLATOR	NOT USED	ST DC ISOLATOR

EX.: 1A, 2A, ETC. = LOOP NO.'S

⊗ Wired Input - turn off Channel 2.

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A/S15	TB21-3,4	I2U	39	1	2	2/SYS	Y	Y			
2B/S16	TB23-3,4	I2L	43	5	12	2/SYS	Y	Y			
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			5
5A[1]	TB21-9,10	I5U	55	17	5	5	Y	Y			15
		I5L	48	18	26	2	Y	Y	Y		3
6A/S13	TB21-11,12	I6U	40	2	6	6/SYS	Y	Y			
6B/S14	TB23-11,12	I6L	44	6	16	6/SYS	Y	Y			
8A	TB22-1,2	I8U	42	4	8	8	Y	Y			5
PED PUSH BUTTONS											
P21,P22	TB22-9,10	I12U	67	29	PED 2	2 PED					
P41,P42	TB24-9,10	I12L	69	31	PED 4	4 PED					
P61,P62	TB22-11,12	I13U	68	30	PED 6	6 PED					

NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

[1] Add jumper from I5-F to I5-W on rear of input file.

IMPORTANT! Remove the following jumpers, if present: from TB21-9 to TB23-9, and TB21-10 to TB23-10

INPUT FILE POSITION LEGEND: I2L
FILE I
SLOT 2
LOWER

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,7, 9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Program phases 4 and 8 for Dual Entry.
4. Enable Simultaneous Gap-Out for all phases.
5. Program phases 2 and 6 for Variable Initial and Gap Reduction.
6. Program phases 2 and 6 for Start Up In Green.
7. Program phases 2, 4, and 6 for 'STARTUP PED CALL'.
8. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
9. The cabinet and controller are part of the US 25 (Hendersonville Rd) South Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.............2070L
CABINET................336
SOFTWARE...............ECONOLITE OASIS
CABINET MOUNT..........POLE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED......S1,S2,S2P,S4,S4P,S5,S6,S6P,S8
PHASES USED............2,2PED,4,4PED,5,6,6PED,8
OVERLAP "A"............2
OVERLAP "B"............NOT USED
OVERLAP "C"............5+6
OVERLAP "D"............NOT USED

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

PED YELLOW CONFLICT MONITOR WIRING DETAIL

In order to use FYA COMPACT mode on the 2010ECL-NC Monitor, the cabinet must be wired such that the (unused) Ped Yellow load switch outputs are wired directly to the conflict monitor as follows: From 6 PY (field term. 120) to chan. 10 green (monitor pin R).

This may also be accomplished through a keyed plug connection found on the inside panel of the output file.

Fold down rear panel of output file and find a set of 3 white keyed connectors. Plug together the two connectors labeled as shown below:

1-2PY 1-CMU-13
2-4PY 2-CMU-16
3-6PY 3-CMU-R
4-8PY 4-CMU-U

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0529
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P		S7	S8	S8P
PHASE	OLA	2	2 PED	3	4	4 PED	OLC	6	5 GRN	6 PED	7	8	8 PED
SIGNAL HEAD NO.	61★	21,22	P21, P22	NU	41,42	P41, P42	51★	62,63	51★	P61, P62	NU	81,82	NU
RED		128			101			134				107	
YELLOW		129	✱		102	✱		135				108	
GREEN		130			103			136				109	
RED ARROW	125						131						
YELLOW ARROW	126						132						
FLASHING YELLOW ARROW	127						133						
(hand)			113			104				119			
GREEN ARROW									120				
(walk)			115			106				121			

NU = Not Used

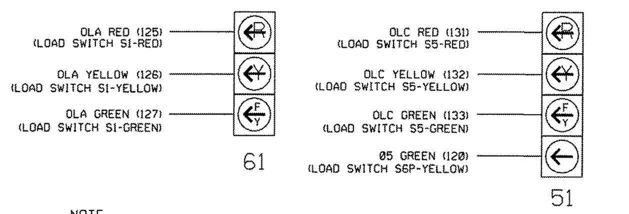
✱ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

NOTE: Load Switches S1, S5, and S6P require output remapping. See sheets 3 and 4 of this electrical detail for instructions.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

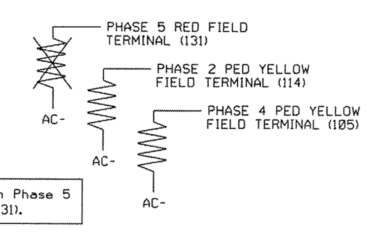
The sequence display for signal head 51 requires special logic programming. See sheet 2 for instructions.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



IMPORTANT! Remove resistor from Phase 5 Red Field Terminal (131).

Electrical Detail - Sheet 1 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at SR 1506 (Springside Road)/ Herman Avenue

Prepared in the Offices of: Transportation Mobility and Safety Division, Signals Management Section, 750 N.Greenfield Pkwy,Garner,NC 27529

Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: JTR
PREPARED BY: S. Armstrong REVIEWED BY:
REVISIONS INIT. DATE

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 008453 ENGINEER JOHN T. ROWE, JR.
John T. Rowe, Jr. 9/29/2014
SIG. INVENTORY NO. 13-0529

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, AND 3.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1   (+/-COMMAND#)
IF  ACTIVE PHASE        #5  IS ON
AND RED CLEAR ON PHASE #5   IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #30 ON
SET OUTPUT  ASSIGNMENT #31 OFF
```

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #2   (+/-COMMAND#)
IF  ACTIVE PHASE        #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #32 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

PRESS '+'

```
LOGICAL I/O COMMAND #3   (+/-COMMAND#)
IF  YELLOW ON PHASE     #5  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #31 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 30 = Overlap C Red
OUTPUT 31 = Overlap C Yellow
OUTPUT 32 = Overlap C Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:| X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:          |12345678910111213141516
VEH OVL PARENTS:|     XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

BACKUP PROTECTION NOTE

(program controller as shown below)

From Main Menu press '2' (Phase Control), then '1' (Phase Control Functions). Program phase 2 for 'Backup Protect'. Make sure the Red Revert times shown on the Signal Design Plans are programmed in the 'Phase Timing' menu.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0529
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 2 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at SR 1506 (Springside Road)/ Herman Avenue

Prepared in the Offices of: 750 N.Greenfield Pkwy,Garner,NC 27529

Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: JTR
PREPARED BY: S. Armstrong REVIEWED BY:
REVISIONS INIT. DATE

SEAL 008453 JOHN T. ROWE, JR.
John T. Rowe, Jr. 9/29/2014
SIG. INVENTORY NO. 13-0529

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR LOADSWITCH S1 (SIGNAL HEAD 61)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

STEP 1

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
OUTPUT ASSIGNMENT #................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN16  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 15

STEP 2

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
OUTPUT ASSIGNMENT #................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:17  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 16

STEP 3

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
OUTPUT ASSIGNMENT #................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...1
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:18  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OUTPUT PROGRAMMING FOR HEAD 61 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0529
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 3 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at SR 1506 (Springside Road)/ Herman Avenue

Prepared in the Offices of: 750 N.Greenfield Pkwy,Garner,NC 27529

Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: JTR
PREPARED BY: S. Armstrong REVIEWED BY:
REVISIONS INIT. DATE

SEAL 008453 JOHN T. ROWE, JR.
John T. Rowe, Jr. 9/29/2014
SIG. INVENTORY NO. 13-0529

PROJECT REFERENCE NO.	SHEET NO.
	Sig.

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR LOADSWITCH S5 (SIGNAL HEAD 51)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

STEP 1

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN32  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................30
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:33  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................31
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS A VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...3
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:34  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................32
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" TWICE TO REACH OUTPUT 34.

STEP 4

```
PAGE:1  C1 PIN:36  NOT ENABLED
OUTPUT ASSIGNMENT #................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................Y
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP...................._
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

THE OUTPUT IS SET AS "NOT ENABLED" BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE PHASE.

```
PAGE:1  C1 PIN:36  NOT ENABLED
SELECT VEHICLE PHASE (1-16).........5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:36  VEHICLE PHASE
OUTPUT ASSIGNMENT #................34
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP...................._
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OUTPUT PROGRAMMING FOR HEAD 51 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0529
DESIGNED: August 2014
SEALED: 9/26/14
REVISED: N/A

Electrical Detail - Sheet 4 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 25 (Hendersonville Road) at SR 1506 (Springside Road)/ Herman Avenue

Prepared in the Offices of: 750 N.Greenfield Pkwy,Garner,NC 27529

Division 13 Buncombe County Asheville
PLAN DATE: September 2014 REVIEWED BY: JTR
PREPARED BY: S. Armstrong REVIEWED BY:
REVISIONS INIT. DATE

SEAL 008453 JOHN T. ROWE, JR.
John T. Rowe, Jr. 9/29/2014
SIG. INVENTORY NO. 13-0529

City of Asheville, NC

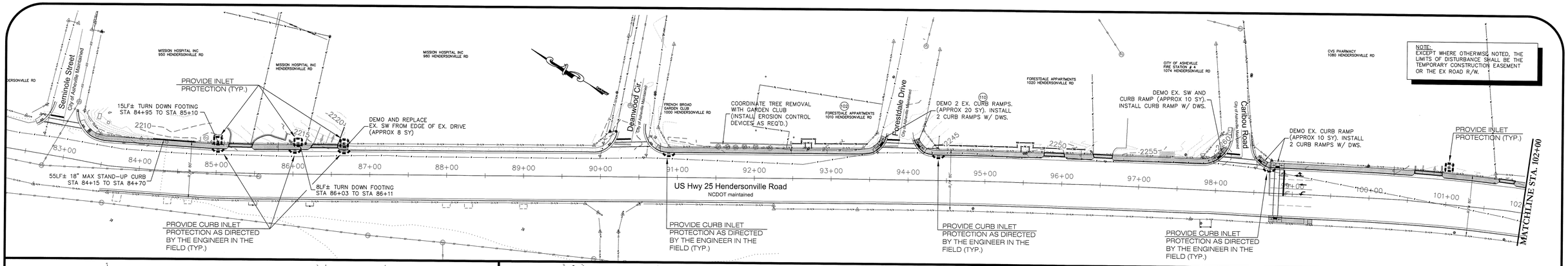
Capital Projects Management Division

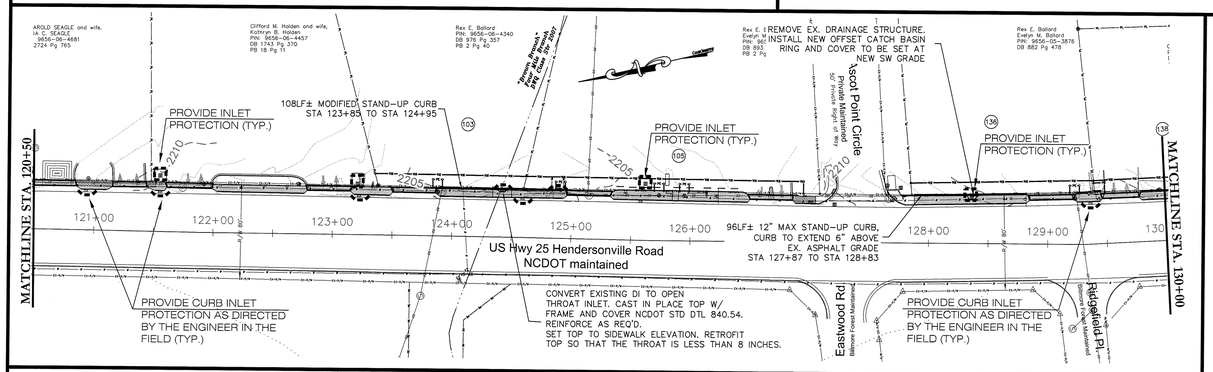
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

HERMAN AVE INTERSECTION: SIGNALS AND INTELLIGENT TRANSPORTATION SYSTEMS - ELECTRICAL DETAILS

	DATE	REVISION	BY	
SURVEYED: JW, DK				TIP No.: U5189
DRAWN: JR, JW				GRID: N/A
DESIGNED: JR, BE				DATE: APRIL 2015
CHECKED: BE				SCALE: N\A
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk.dwg





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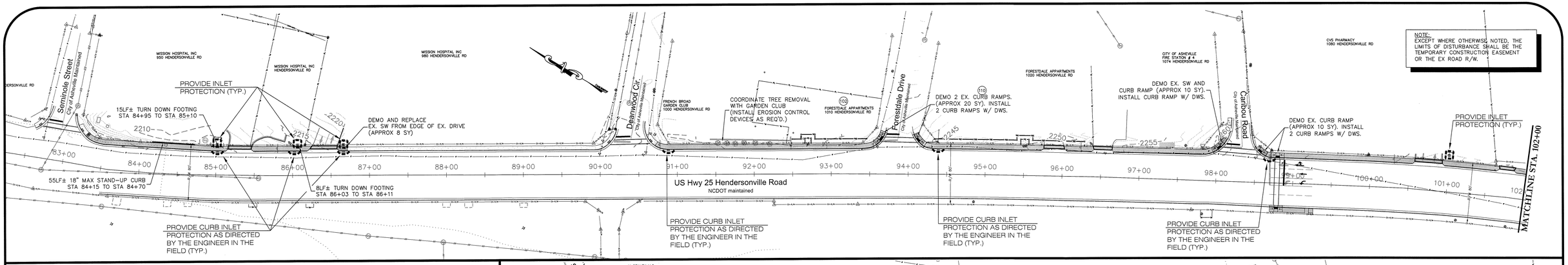
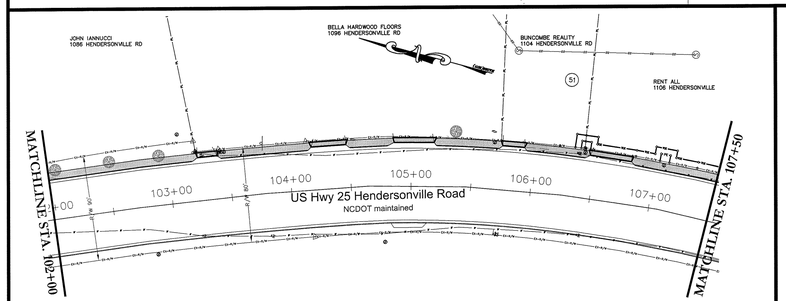
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

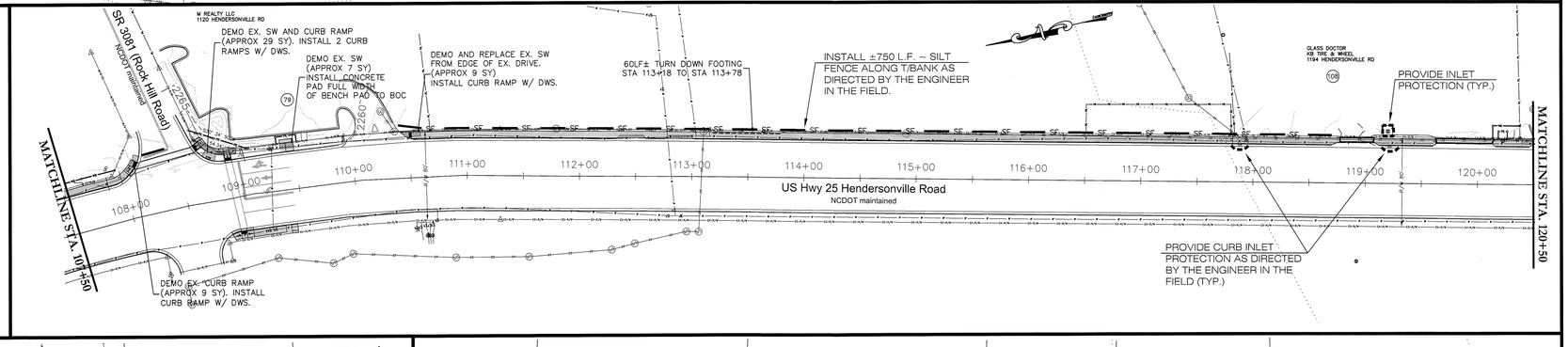
PROPOSED SIDEWALK EROSION AND SEDIMENT CONTROL PLAN STA. 82+00 TO 158+00

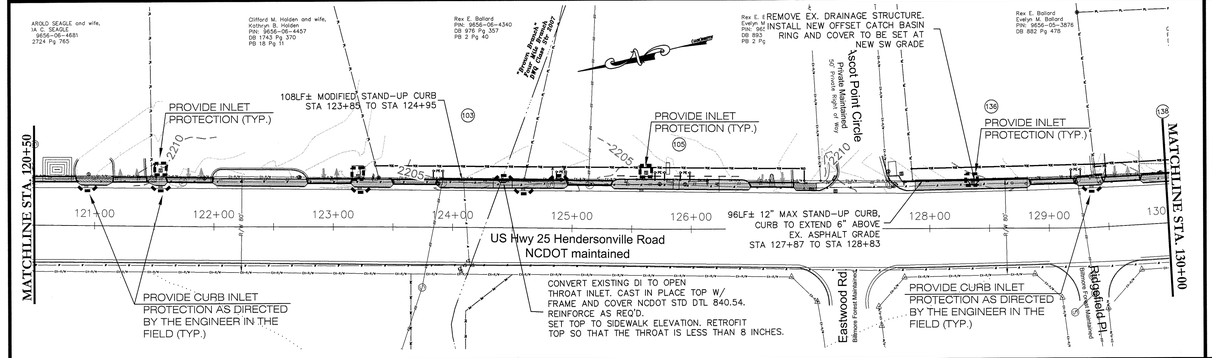
SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: SS, AF			
DESIGNED: AF			
CHECKED: AF			
APPROVED: JC			

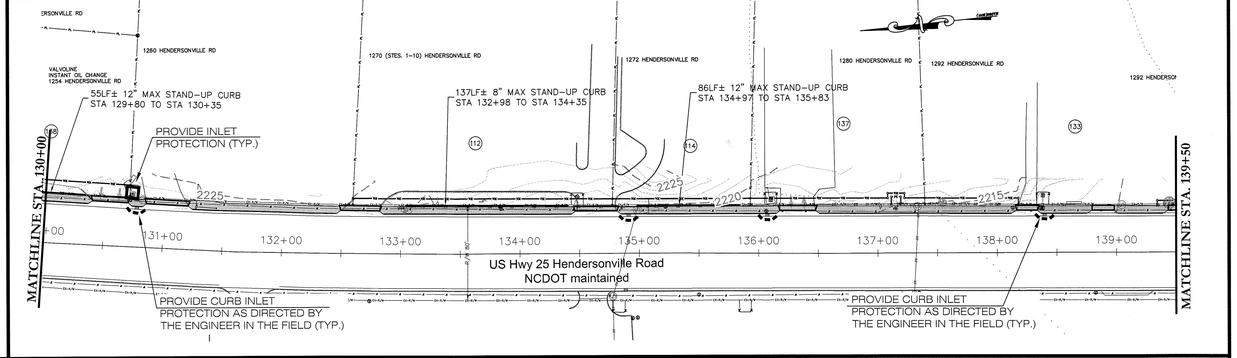
TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk Section 1 Ero...dwg

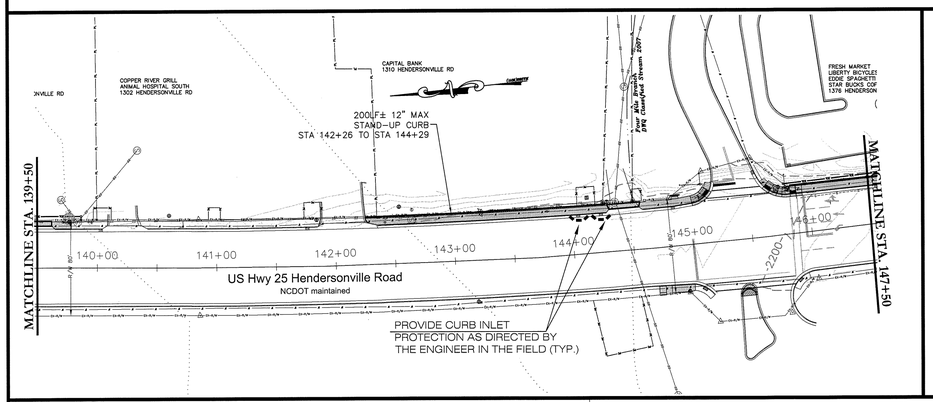


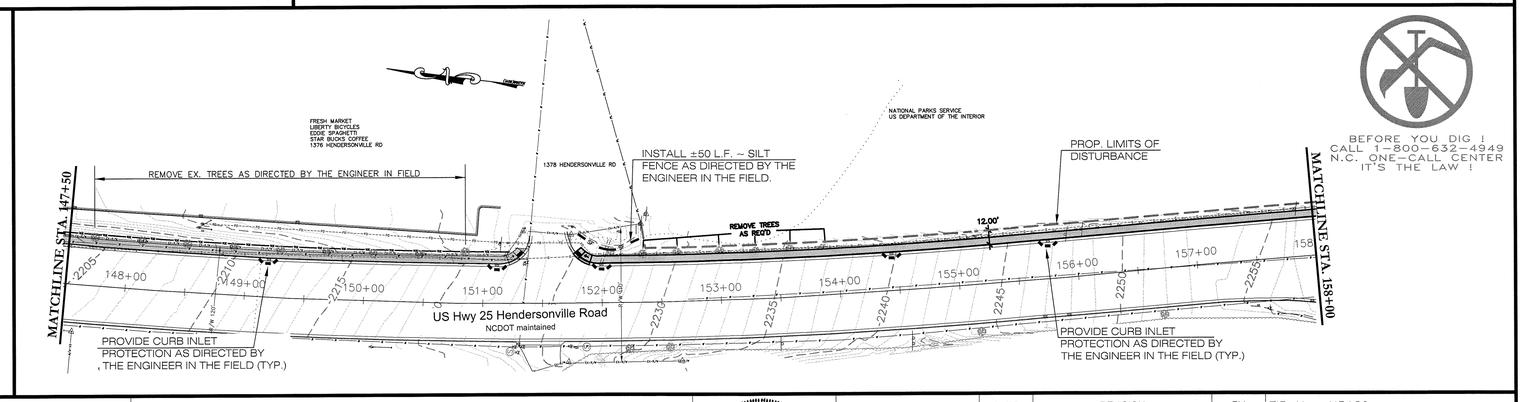












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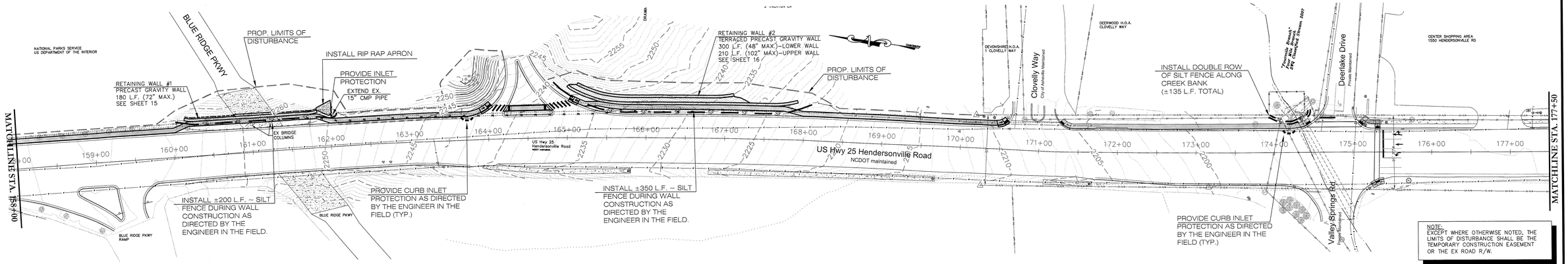
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

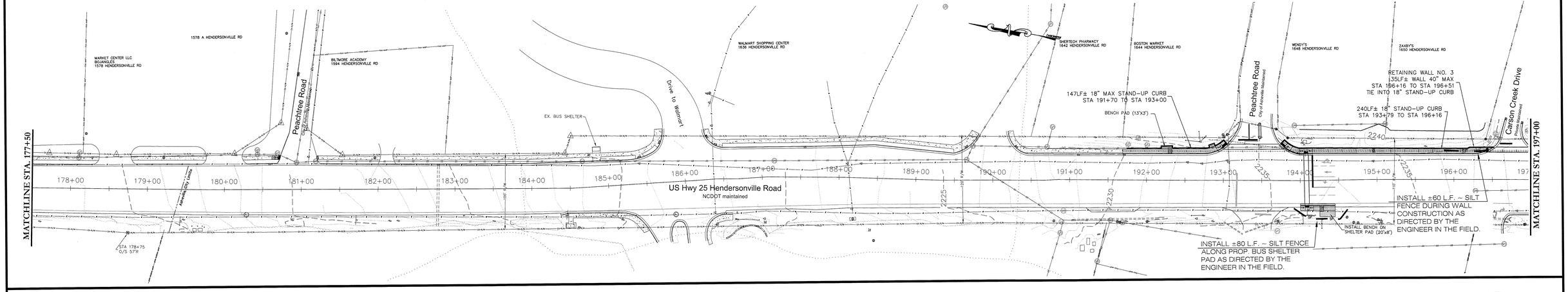
PROPOSED SIDEWALK EROSION AND SEDIMENT CONTROL PLAN STA. 82+00 TO 158+00

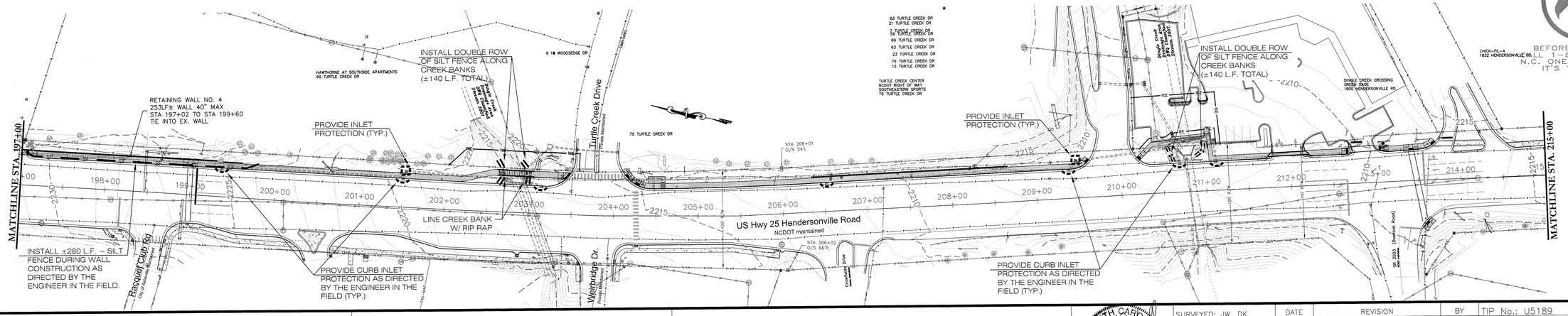
NORTH CAROLINA PROFESSIONAL SEAL 023151 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY	TIP No.: U5189
DRAWN: SS, AF				GRID: N/A
DESIGNED: AF				DATE: APRIL 2015
CHECKED: AF				SCALE: 1"=30'
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk Section 1 Ero...dwg

SHEET EC1 OF 4







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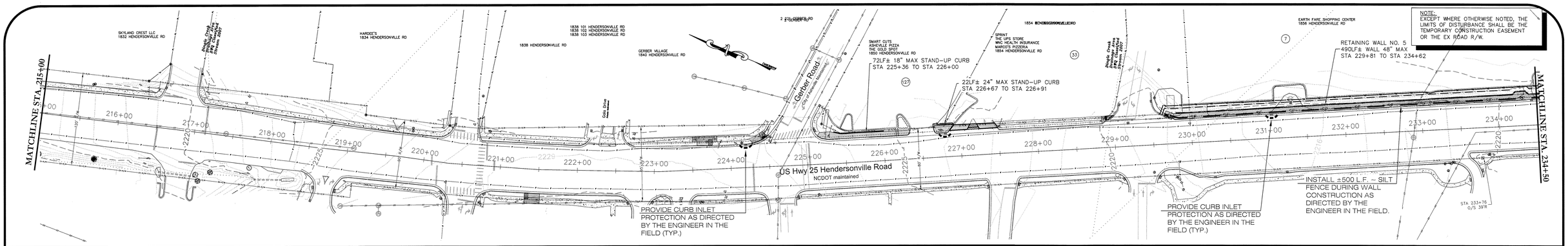
HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

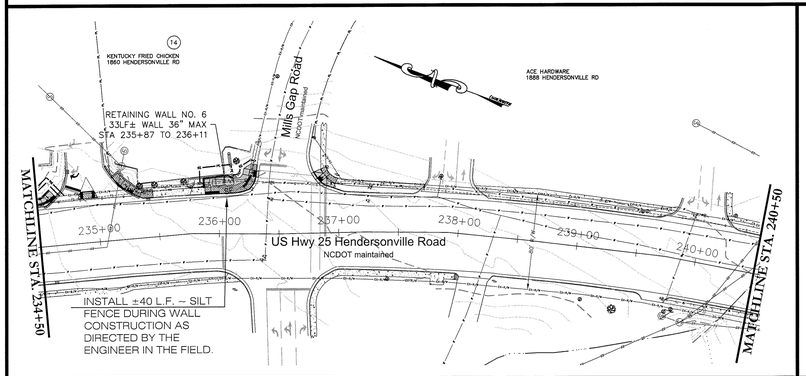
PROPOSED SIDEWALK EROSION AND SEDIMENT CONTROL PLAN STA. 158+00 TO 215+00

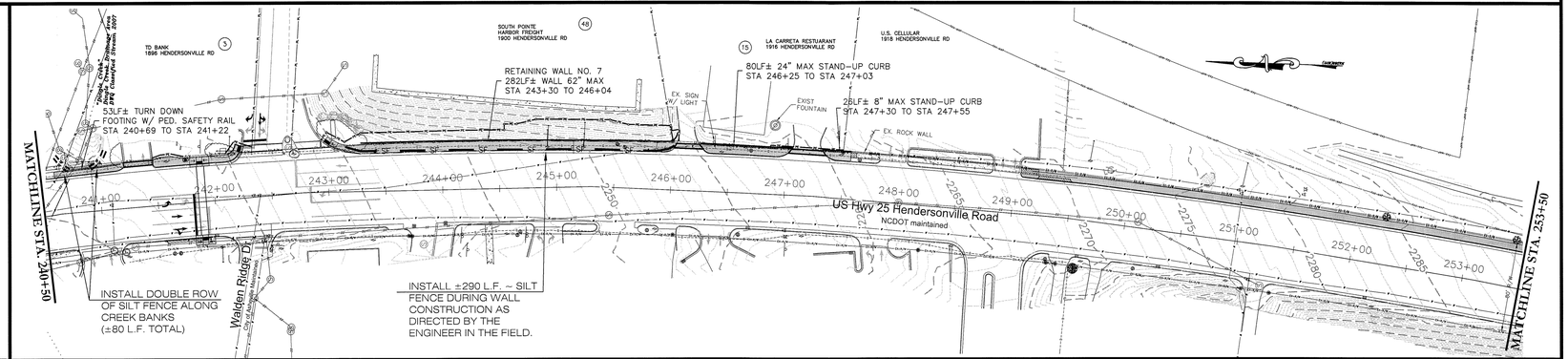
NORTH CAROLINA PROFESSIONAL SEAL 22351 ENGINEER CARY D. BALL

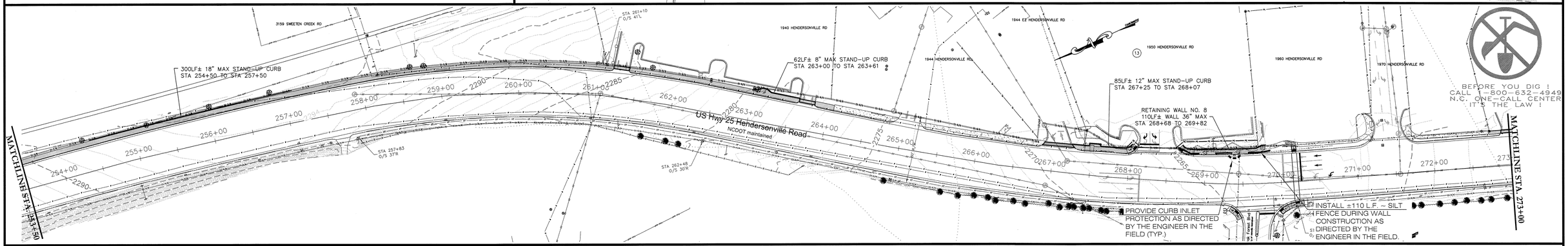
SURVEYED: JW, DK	DATE	REVISION	BY
DRAWN: SS, AF			
DESIGNED: AF			
CHECKED: AF			
APPROVED: JG			

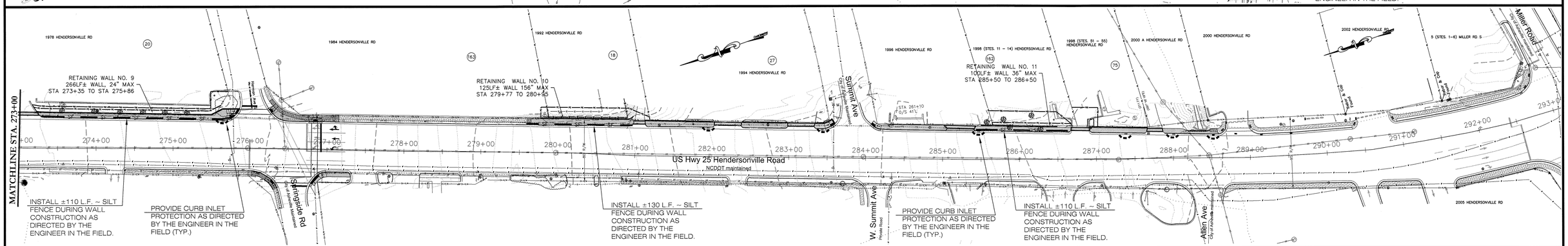
TIP No.: U5189
GRID: N/A
DATE: APRIL 2015
SCALE: 1"=30'
DRAWING NAME: US Hwy25 Sidewalk Section 2 Ero...dwg











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HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK EROSION AND SEDIMENT CONTROL STA. 215+00 TO 293+00

NORTH CAROLINA PROFESSIONAL SEAL 026215 ENGINEER CATHY D. BALL

SURVEYED: JW, DK	DATE	REVISION	BY	TIP No.: U5189
DRAWN: SS, AF				GRID: N/A
DESIGNED: AF				DATE: APRIL 2015
CHECKED: AF				SCALE: 1"=30'
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk Section 3 Ero...dwg

SHEET EC3 OF 4

STATE OF
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RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
TEMPORARY SILT FENCE

NOTE:
SILT FENCING TO BE INSTALLED AS NEEDED AND/OR AS DIRECTED BY COA INSPECTOR IN THE FIELD. SAID INSTALLATION SHALL BE INCLUDED IN CONTRACTORS EROSION CONTROL BID, NO ADDITIONAL PAYMENT WILL BE MADE.

NOTES

USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.

USE FILTRATION GEOTEXTILE A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE WIRE AS DIRECTED.

PROVIDE 5'-0" STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.

FOR MECHANICAL SLICING METHOD INSTALLATION, GEOTEXTILE SHALL BE A MAXIMUM OF 18" ABOVE GROUND SURFACE.

SHEET 1 OF 1
1605.01

Seeding Area, Dates & Types				
Area Type	Seeding Dates & Types			
	August 1 - June 1		May 1 - September 1	
	lbs/acre	Seed Type & Fertilizer	lbs/acre	Seed Type & Fertilizer
Shoulders and Median	20	Kentucky Blue Grass	20	Kentucky Blue Grass
	75	Hard Fescue	75	Hard Fescue
	25	Rye Grain	10	German or Blowtop Millet
	500	Fertilizer	500	Fertilizer
	4000	Limestone	4000	Limestone
Areas Beyond the Mowing Pattern, Waste, and Borrow Areas	100	Tall Fescue	100	Tall Fescue
	15	Kentucky Blue Grass	15	Kentucky Blue Grass
	30	Hard Fescue	30	Hard Fescue
	25	Rye Grain	10	German or Blowtop Millet
	500	Fertilizer	500	Fertilizer
	4000	Limestone	4000	Limestone

Table 7-1: Seeding and Mulching" continued on next page.

GENERAL SOIL EROSION AND SEDIMENT CONTROL NOTES:

Provisions to prevent erosion of the soil from the site shall conform to the requirements of the "North Carolina Sedimentation Pollution Control Act of 1973" as shown herein and stipulated in the "Erosion and Sediment Control Planning and Design Manual" by various agencies within the State of North Carolina. Installation shall be in a manner so as to minimize erosion of the disturbed areas and prevent sediment from leaving the site.

All disturbed areas to be grassed as soon as construction phases permit. The erosion control measures detailed hereon shall be continued until permanent drainage structures have been installed and until vegetation on planted shoulders and slopes is sufficiently established to be an effective erosion deterrent. The sediment removed from the control structures shall be disposed of at an approved waste site, provided by the contractor.

Temporary and permanent vegetative cover shall be installed in accordance with the requirements of chapter 6, section 10 and 11 of the "Planning and Design Manual" as described in note no. 1 above.

The contractor shall not restrict the use of silt fences or any other means of erosion control to the locations shown on these plans. Moreover, the contractor should constantly be aware of minimizing soil erosion and use erosion control means accordingly. The contractor shall promptly repair, improve or add erosion control measures as required by the local reviewing agency.

Sediment and erosion control measures and practices to be inspected daily. Devices shall be maintained so they function properly at all times.

Disturbed areas left idle for five (5) days, and not to final grade, will be established to temporary vegetation. Disturbed areas left idle for two weeks or more will be established to permanent vegetation. All areas to final grade will be established to permanent vegetation immediately upon completion.

Erosion and sediment control devices must be installed and inspected prior to any grading on site. Please call the appropriate permitting agency with enough lead time for an inspection to meet your schedule.

The escape of sediment from the site shall be prevented by the installation of erosion control measures and practices prior to, or concurrent with land-disturbing activities.

Maximum cut and fill slopes shall be two (2) foot horizontal to one (1) foot vertical.

Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.

When hand planting, mulch (hay or straw) should be uniformly spread over seeded area within 24 hours of seeding.

Mulch will be used as a temporary cover. On slopes that are greater than 2:1 mulch, if used, will be anchored.

Sediment/erosion control devices must be checked after each storm event. Each device is to be maintained or replaced if sediment accumulation has reached one half the capacity of the device. Additional devices must be installed if new channels have developed.

Approved Cultivars					
Cultivar Type	Cultivar Names				
Tall Fescue	2nd Millennium	Coyote	Inferno	Olympic Gold	Signia
	Avenger	Davinci	Justice	Padre	Silverstar
	Barlexas	Dynasty	Jaguar 3	Paraiso	Southern Choice II
	Barlexas II	Dominion	Kalahari	Picasso	Stetson
	Barrera	Duster	Kentucky 31	Piedmont	Tarheel
	Barrington	Endeavor	Kitty Hawk	Pure Gold	Titan Ltd
	Biltmore	Escalade	Kitty Hawk 2000	Prospect	Titanium
	Bingo	Falcon II, III, IV & V	Lexington	Quest	Tomahawk
	Bravo	Fidelity	Magellan	Rebel Exeda	Tacer
	Cayenne	Finesse II	Masterpiece	Rebel Sentry	Trooper
	Chapel Hill	Firebird	Matador	Regiment II	Turbo
	Chesapeake	Focus	Matador GT	Rembrandt	Ultimate
	Constitution	Grande II	Millennium	Rendition	Watchdog
	Chipper	Greenkeeper	Montauk	Scorpion	Wolfpack
	Coronado	Greystone	Mustang 3	Shelby	
Kentucky Bluegrass	Alpine	Award	Champagne	Midnight	Showcase
	Apollo	Bariris	Chicago II	Midnight II	Sonoma
	Arcadia	Bedazzled	Envicta	Rugby	
	Arrow	Bordeaux	Impact	Rugby II	
Hard Fescue	Chariot	Kenblue	Oxford	Rhino	Stonehenge
	Firefly	Minotaur	Reliant II	Scaldis II	Warwick
	Heron	Nordic	Reliant IV	Spartan II	
Hard Fescue	Chariot	Kenblue	Oxford	Rhino	Stonehenge
	Firefly	Minotaur	Reliant II	Scaldis II	Warwick
	Heron	Nordic	Reliant IV	Spartan II	

On cut and fill slopes greater than 2:1 erosion control matting shall be installed.

Fertilizer shall be 10-20-20 analysis. A different analysis of fertilizer may be used provided the 1-2-2 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as a 10-20-20 analysis and as directed.

Note: Consult Soil Conservation Service for additional information concerning other alternatives for vegetation of denuded areas. The above vegetation rates are those which do well under local conditions.

Temporary Seeding: Fertilizer shall be the same analysis as specified for Seeding and Mulching and applied at the rate of 400 pounds and seeded at the rate of 50 pounds per acre. German Millet or Browntop Millet shall be used in summer months and rye grain during the remainder of the year. The Engineer will determine the exact dates for using each kind of seed.

Fertilizer Topdressing: Fertilizer used for topdressing shall be 16-8-8 grade and shall be applied at the rate of 500 pounds per acre. A different analysis of fertilizer may be used provided the 2-1-1 ratio is maintained and the rate of application adjusted to provide the same amount of plant food as 16-8-8 analysis and as directed.

Supplemental Seeding: The kinds of seed and proportions shall be the same as specified for Seeding and Mulching, and the rate of application may vary from 25 to 75 pounds per acre. The actual rate per acre will be determined prior to the time of topdressing and the Contractor will be notified in writing of the rate per acre, total quantity needed, and areas on which to apply the supplemental seed. Minimum tillage equipment, consisting of a sod seeder shall be used for incorporating seed into the soil as to prevent disturbance of existing vegetation. A clodbuster (ball and chain) may be used where degree of slope prevents the use of a sod seeder.

Mowing: The minimum mowing height shall be six inches.

Soil Stabilization Schedule		
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
Perimeter Dike, 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 3:1, 14 days area 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

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DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
MATTING INSTALLATION

MATTING IN DITCHES

MATTING ON SLOPES

DIAGRAM (A)

DIAGRAM (B)

Staple Check Pattern

DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOTE:
MATTING TO BE INSTALLED ON ALL SLOPES 3:1 OR GREATER AND/OR AS DIRECTED BY COA INSPECTOR IN THE FIELD. SAID INSTALLATION SHALL BE INCLUDED IN CONTRACTORS EROSION CONTROL BID, NO ADDITIONAL PAYMENT WILL BE MADE.

NOT TO SCALE

SHEET 1 OF 1
1631.01

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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
ROCK INLET SEDIMENT TRAP TYPE C

NOTES:
1. IN AREAS WHERE THIS DETAIL IS NOT FEASIBLE AND INLET PROTECTION IS REQUIRED, CONTRACTOR SHALL USE AN NCDOT APPROVED PROPRIETARY PRODUCT.
2. WHEN USING PROPRIETARY PRODUCTS, THE CONTRACTOR SHALL ADHERE STRICTLY TO THE MANUFACTURER'S RECOMMENDATIONS.
3. PAYMENT FOR INLET PROTECTION SHALL BE IN TERMS OF EACH APPROVED INSTALLATION, FOR BOTH PROPRIETARY AND NCDOT DETAIL 1632.

SECTION A-A

NOTE
USE NO. 5 OR NO. 57 STONE FOR SEDIMENT CONTROL STONE.
USE 24 GAUGE MINIMUM WIRE MESH HARDWARE CLOTH WITH ¼ INCH MESH OPENINGS.
PLACE TOP OF WIRE MESH A MINIMUM OF ONE FOOT BELOW THE SHOULDER OR ANY DIVERSION POINT.
INSTALL WIRE MESH UNDER SEDIMENT CONTROL STONE.
USE 5' STEEL POST, INSTALLED 1.5' DEEP MINIMUM, AND OF THE SELF-FASTENER ANGLE STEEL TYPE.
SPACE POST A MAXIMUM OF 4'.

MULTI-DIRECTIONAL FLOW

SECTION Y-Y

SINGLE-DIRECTIONAL FLOW

SHEET 1 OF 1
1632.03

CONTRACTOR NOTES:

1. VARIOUS STORMWATER DEVICE IN EXIST IN THE PROJECT AREA. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO AVOID DAMAGING SAID DEVICES AND MAINTAIN FUNCTIONAL SERVICE DURING CONSTRUCTION ACTIVITIES.
2. SILT FENCING, CHECK DAMS, AND OTHER EROSION CONTROL DEVICES SHALL BE INSTALLED AS DIRECTED BY THE CITY OF ASHEVILLE INSPECTOR IN THE FIELD.
3. WORK AREA MUST BE CLEANED AT THE END OF EACH WORK DAY. CITY OF ASHEVILLE INSPECTOR HAS AUTHORITY TO HALT ALL WORK UNTIL SITE IS CLEANED TO HIS SATISFACTION.
4. EXCEPT WHERE OTHERWISE NOTED, THE LIMITS OF DISTURBANCE SHALL BE THE TEMPORARY CONSTRUCTION EASEMENT OR THE EX ROAD R/W.

TOTAL AREA TO BE DISTURBED: 185,650 S.F.
±4.2 ACRES

BEFORE YOU DIG !
CALL 1-800-632-4949
N.C. ONE-CALL CENTER
IT'S THE LAW !

City of Asheville, NC
Capital Projects Management Division
P.O. Box 7148 • Asheville, N.C. 28802 • 828-259-5955

HENDERSONVILLE ROAD (US HWY 25) SIDEWALK IMPROVEMENTS

PROPOSED SIDEWALK EROSION AND SEDIMENT CONTROL STANDARD DETAILS

	DATE	REVISION	BY	
SURVEYED:				TIP No.: U5189
DRAWN: AF				GRID: N/A
DESIGNED: AF				DATE: APRIL 2015
CHECKED: AF				SCALE: NO SCALE
APPROVED: JG				DRAWING NAME: US Hwy25 Sidewalk Section 3 Ero...dwg

SHEET EC4 OF 4