This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

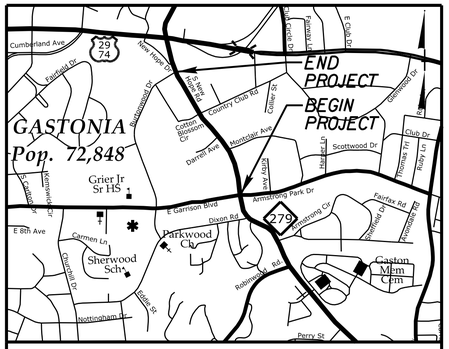
The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

09/08/99

TIP PROJECT: C-4934

CONTRACT: DL00111

See Sheet 1-A For Index of Sheets



VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

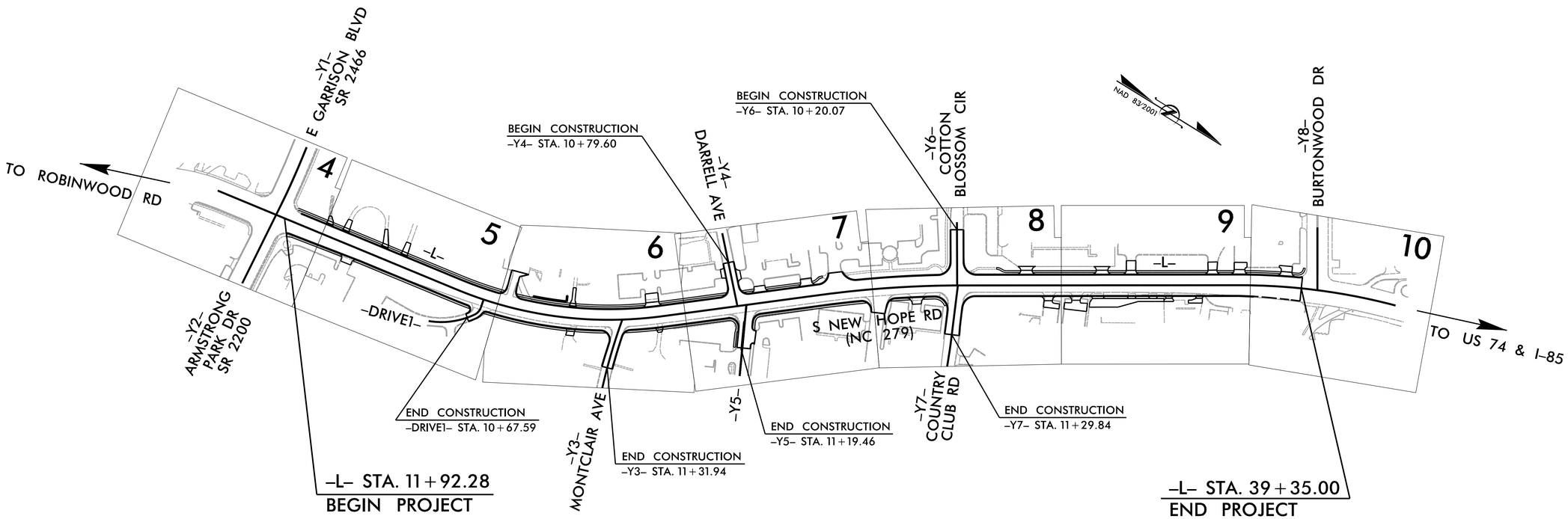
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	C-4934	1	115

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
44034.1.1	CMS-279(S)	PE
44034.2.1	CMS-279(S)	R/W
44034.3.1	CMS-279(S)	CONST.

Gaston County

LOCATION: NC 279 (S NEW HOPE RD) WIDENING BETWEEN SR 2200 (ARMSTRONG PARK DR) / SR 2466 (E GARRISON BLVD) AND BURTONWOOD DR

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB & GUTTER, SIDEWALK, RETAINING WALL



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

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

DESIGN DATA

ADT 2010 = 22,000
ADT 2035 = 24,700
V = 40 MPH
FUNC CLASS = URBAN COLLECT.

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT C-4934 = 0.519 MI.

TOTAL LENGTH TIP PROJECT C-4934 = 0.519 MI.

NCDOT CONTACT: MICHAEL POE, PE
DIVISION 12

PLANS PREPARED FOR THE NCDOT BY:

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 16, 2016

LETTING DATE: AUGUST 25, 2016

DAVID B. TAYLOR, PE
PROJECT ENGINEER

SHANE I. SHARPE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Michael M Darby (Jul 26, 2016)
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
P.E.

ROADWAY DESIGN ENGINEER

David B. Taylor (Jul 25, 2016)
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

7/25/2016
...\B2328_Gastonia_NewHopeRd_psh01_TSH.dgn
5:36:58 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	1A

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor
David B. Taylor (Jul 28, 2016)

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
2A-1 THRU 2A-3	PAVEMENT SCHEDULE, PAVING DETAILS, AND TYPICAL SECTIONS
2C-1 THRU 2C-3	SPECIAL DETAILS
2G-1 THRU 2G-2	GEOTECHNICAL DETAILS
3B-1	ROADWAY SUMMARIES & ROW DATA SHEET
3D-1 THRU 3D-3	DRAINAGE SUMMARY
3P-1	PARCEL INDEX SHEET
4 - 10	PLAN SHEETS
11 - 15	ROADWAY PROFILE SHEETS
16	RETAINING WALL ENVELOPE
TMP-1 THRU TMP-5	TRANSPORTATION MANAGEMENT PLAN
PMP-1 THRU PMP-4	PAVEMENT MARKING PLAN
EC-1 THRU EC-10	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-5	SIGNING PLAN
SIG-1 THRU SIG-12	SIGNAL PLAN
UO-1 THRU UO-9	UTILITIES BY OTHERS PLAN
X-1A	CROSS SECTION SUMMARY SHEET
X-0	CROSS SECTION SHEET INDEX
X-1 THRU X-35	CROSS SECTIONS

NCDOT 2012 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-17-2012
REV. 10-30-2012

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
240.01	Guide for Berm Ditch Construction
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates (For use with Std. Dwg 840.14 and 840.15)
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.30	Driveway Drop Inlet
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet (For Cast Iron Double Frame and Grates)
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.51	Brick Manhole - 12" thru 36" Pipe
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
848.06	Curb Ramp - Existing Curb & Gutter
852.01	Concrete Islands
866.01	Chain Link Fence

CITY OF GASTONIA STANDARD DRAWINGS

DRAWER 71B - SANITARY SEWER AND WATER DETAILS

71B-8	STANDARD FIRE HYDRANT INSTALLATION FOR WATER MAIN IN STREET
71B-9	FIRE HYDRANT LEG & DEAD END DETAIL
71B-10A	COMPOUND METER INSTALLATION (VAULT DETAIL)
71B-19	SANITARY SEWER LATERAL CONNECTION (FOR CLEANOUT DETAIL)
71B-20	3/4" X 5/8" WATER TAP AND METER DETAILS
71B-20B	1" WATER SERVICE
71B-20C	2" WATER SERVICE
71B-27	VERTICAL BLOCKING
71D-9	24" CURB & GUTTER
71D-11	ROLLED TYPE VALLEY GUTTER
71D-34	2'-6" CURB & GUTTER TO 2'-0" VALLEY GUTTER

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SIDE ROADS:

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

BERM DITCHES:

BERM DITCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 240.01 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 OR 848.03 AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

FOR PARCELS WITH MULTIPLE DRIVEWAYS, THE CONTRACTOR MAY CLOSE ACCESS TO NO MORE THAN ONE (1) DRIVEWAY AT ANY TIME.

NOTIFY THE ENGINEER TWENTY-EIGHT (28) CALENDAR DAYS PRIOR TO PLACEMENT OF CONCRETE FOR ANY DRIVEWAY. CONTRACTOR TO COORDINATE WITH PROPERTY OWNERS FOURTEEN (14) DAYS PRIOR TO CLOSING A DRIVEWAY. COORDINATION TO INCLUDE PROPERTY OWNER'S PREFERENCE FOR WHEN DRIVEWAY CONSTRUCTION WILL OCCUR (I.E. WEEKEND VS. WEEKDAY). CONTRACTOR TO PROVIDE A FORTY-EIGHT (48) HOUR CONFIRMATION TO THE PROPERTY OWNER PRIOR TO CLOSING A DRIVEWAY.

STREET TURNOUT:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE CONSTRUCTION OF THE RETAINING AT 18+87 LT TO 19+80 LT (-WALL1-) WILL BE INCIDENTAL TO THE CONTRACT PRICE FOR THE CIP GRAVITY RETAINING WALL AS PER SPECIAL PROVISION GT-1.

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE THE CITY OF GASTONIA [JUSTIN PEARSON (WATERLINES): (704) 214-7295], PSNC ENERGY [SCOTT RICE: (704) 718-4105], AT&T, RST FIBER, TIME WARNER CABLE AND LEVEL 3 COMMUNICATIONS.

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

REPLACE ANY WATER OR SEWER SERVICES NOT CONTRUCTED WITH CURRENT STANDARD MATERIALS.

WATER METER RELOCATIONS SHOULD NOT LEAVE A COUPLING UNDER THE PAVEMENT. IF THIS OCCURS, TAPS NEED TO BE RENEWED TO THE MAIN.

WATER METERS TO BE RELOCATED BEHIND THE SIDEWALK AT ROW LINE AS SHOWN ON CITY STD DRAWINGS.

SANITARY SEWER CLEANOUTS TO BE RELOCATED TO THE RIGHT OF WAY AS SHOWN ON CITY STD DRAWINGS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT (IRON PIN BY CONTRACTOR). (CAP PROVIDED BY NCDOT)

CURB RAMPS

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

TEMPORARY CONSTRUCTION EASEMENTS IN PARKING LOTS

ALL EXISTING DESIGNATED PARKING SPACES WITHIN TCE SHALL REMAIN UNOBSTRUCTED WHEN WORK IS NOT PERFORMED ON PARKING AREAS. CONTRACTOR VEHICLES WILL NOT BE PERMITTED TO PARK IN DESIGNATED PARKING SPACES WITHIN TCE. NO EQUIPMENT OR MATERIALS SHALL BE STORED IN DESIGNATED PARKING SPACES SPACES WITHIN TCE.

7/2/99
7/26/2016
2:26:25 PM
Gastonia_NewHopeRd_psh01A.dgn

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
C-4934	1B

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
C-4934	1C-1

SURVEY CONTROL SHEET C-4934

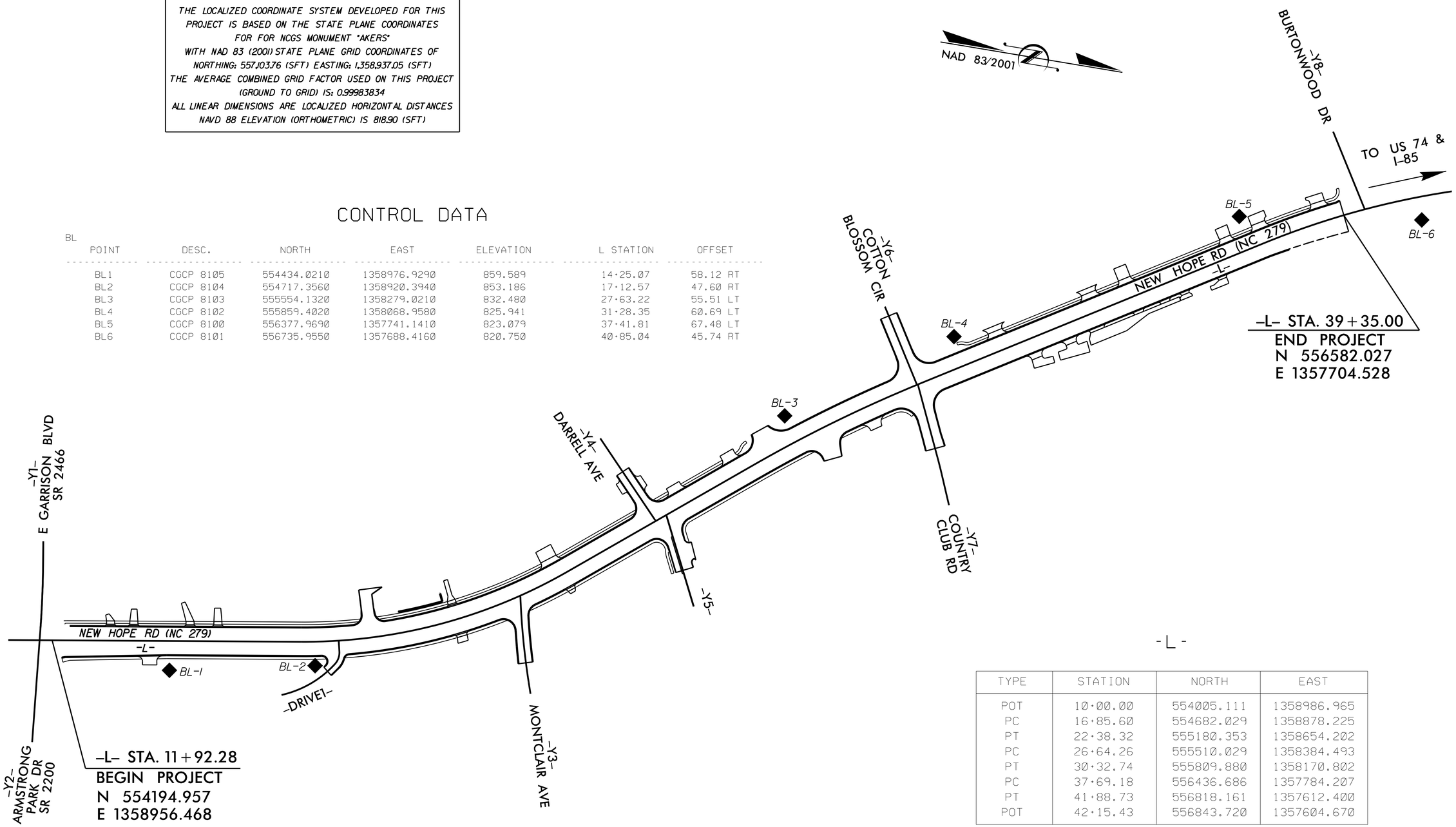
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES FOR FOR NCGS MONUMENT "AKERS"
WITH NAD 83 (2001) STATE PLANE GRID COORDINATES OF NORTHING: 557,103.76 (SFT) EASTING: 1,358,937.05 (SFT)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99983834
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
NAVD 88 ELEVATION (ORTHOMETRIC) IS 818.90 (SFT)

CONTROL DATA

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL1	CGCP 8105	554434.0210	1358976.9290	859.589	14+25.07	58.12 RT
BL2	CGCP 8104	554717.3560	1358920.3940	853.186	17+12.57	47.60 RT
BL3	CGCP 8103	555554.1320	1358279.0210	832.480	27+63.22	55.51 LT
BL4	CGCP 8102	555859.4020	1358068.9580	825.941	31+28.35	60.69 LT
BL5	CGCP 8100	556377.9690	1357741.1410	823.079	37+41.81	67.48 LT
BL6	CGCP 8101	556735.9550	1357688.4160	820.750	40+85.04	45.74 RT



-L-

TYPE	STATION	NORTH	EAST
POT	10+00.00	554005.111	1358986.965
PC	16+85.60	554682.029	1358878.225
PT	22+38.32	555180.353	1358654.202
PC	26+64.26	555510.029	1358384.493
PT	30+32.74	555809.880	1358170.802
PC	37+69.18	556436.686	1357784.207
PT	41+88.73	556818.161	1357612.400
POT	42+15.43	556843.720	1357604.670

NOTE: DRAWING NOT TO SCALE

6/2/99
7/22/2016
R:\3854_Gastonia_NewHopeRd_psh\01C-1.dgn
R:\3854.pxi

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

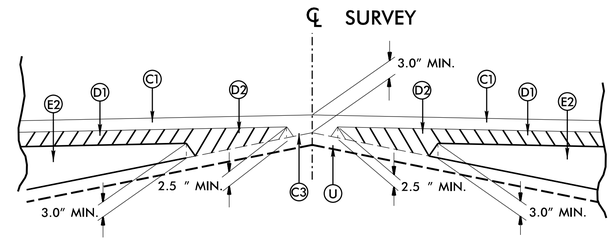
PROJECT REFERENCE NO.	SHEET NO.
C-4934	2A-1

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor
David B. Taylor (Jul 26, 2016)

PAVEMENT SCHEDULE

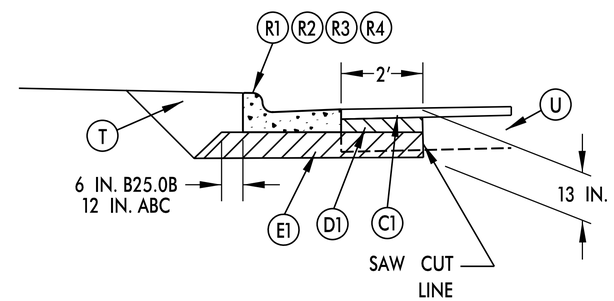
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 1.5″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1″ DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1.5″ IN DEPTH OR GREATER THAN 2″ IN DEPTH.
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.
E1	PROP. APPROX. 6″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5.5″ IN DEPTH.
E3	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
J1	PROP. 8″ AGGREGATE BASE COURSE (ABC)
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R1	2′-6″ CONCRETE CURB AND GUTTER (NCDOT STD. 846.01)
R2	2′-0″ CONCRETE CURB AND GUTTER (SEE DETAIL, THIS SHEET)
R3	2′-0″ ROLLED VALLEY GUTTER (SEE DETAIL, THIS SHEET)
R4	1′-6″ CONCRETE CURB AND GUTTER (SEE DETAIL, THIS SHEET)
R5	9″ x 12″ Concrete Curb
R6	5″ MONOLITHIC CONCRETE ISLAND (NCDOT STD. 852.01)
S	4″ CONCRETE SIDEWALK (NCDOT STD. 848.01)
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	2″ MILLING
V2	1.5″ MILLING
V3	VARIABLE DEPTH MILLING (1.5″ - 3″)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

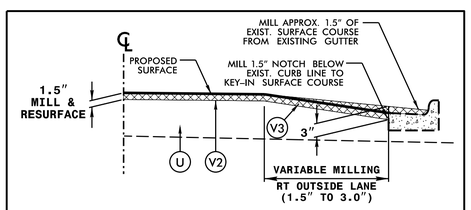


Detail Showing Method Of Wedging

STANDARD WEDGING DETAIL



SAW CUT DETAIL



MILLING DETAIL AT EXISTING CURB AND GUTTER

LINE	FROM STATION	TO STATION
–L–	38+09.58 RT	39+35.00 RT

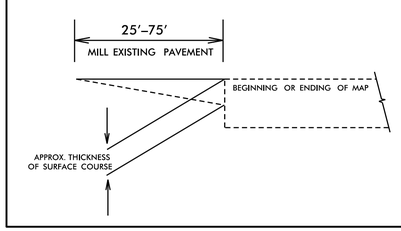
MILLING AT PAVEMENT TIE–INS

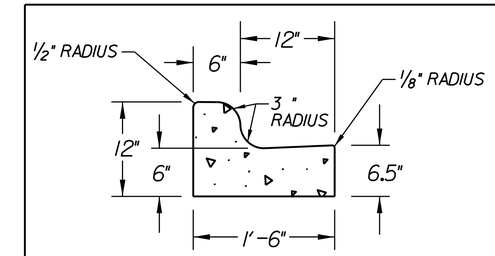
NOTES TO CONTRACTOR

For surface mixes over 1″ in thickness, mill the existing pavement in accordance with the following sketch as directed by the Engineer.

Locations shall include ties at the beginning and ending point of each resurfacing map.

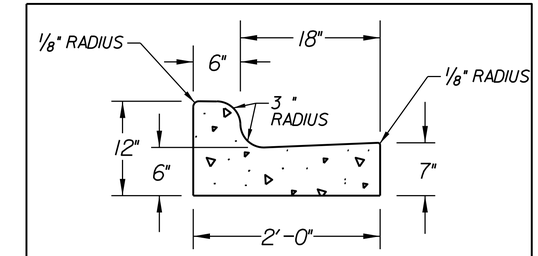
Perform the work in accordance with Section 607 of the January 2012 North Carolina Department of Transportation Standard Specifications for Roads and Structures. Resurfacing will be accomplished at the same time as the milling operation.





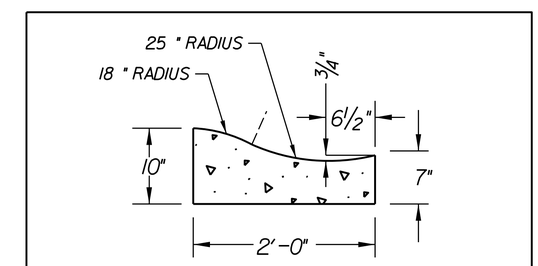
1′–6″ CONC. CURB & GUTTER DETAIL

FOR MATCHING EXISTING CURB & GUTTER AT PRIVATE PARKING LOTS AND DRIVEWAYS



2′–0″ CONC. CURB & GUTTER DETAIL

FOR MATCHING EXISTING CURB & GUTTER AT PRIVATE PARKING LOTS AND DRIVEWAYS



2′–0″ ROLLED TYPE VALLEY GUTTER

FOR MATCHING EXISTING ROLLED TYPE GUTTER ON –Y3–

6/2/99
7/22/2016
12:22:28 PM
R:\Gastonia_NewHopeRd.psh\02_TYP.dgn

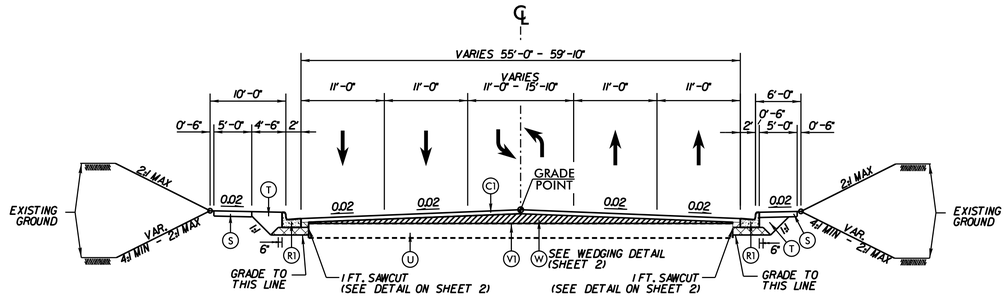
HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
C-4934	2A-2

ROADWAY DESIGN ENGINEER

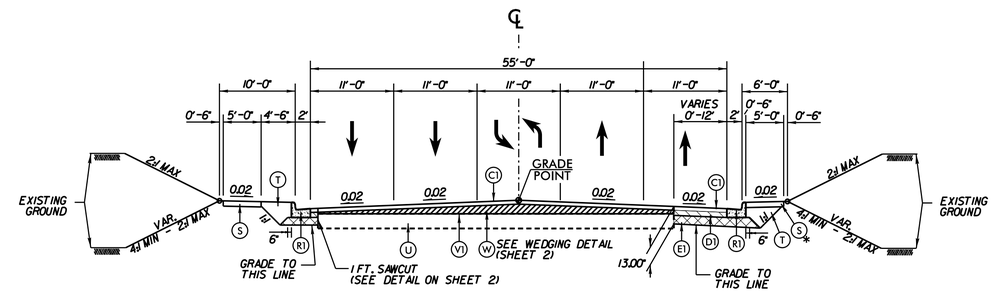
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR

David B. Taylor
David B. Taylor Ltd. 29336



TYPICAL SECTION NO. 1

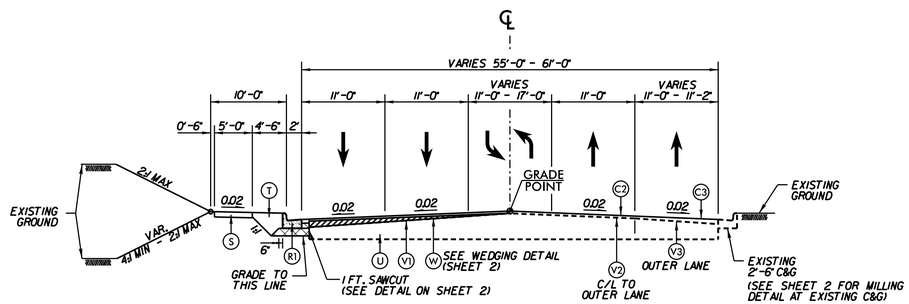
LINE	FROM STATION	TO STATION
-L-	11+92.28	15+07.00



*NOTE: NO SIDEWALK FROM 30+37.07 TO 38+09.58 RT

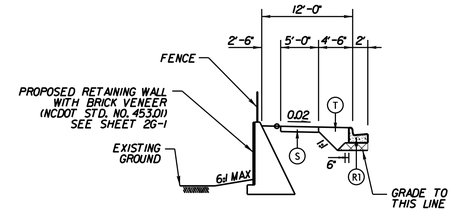
TYPICAL SECTION NO. 2

LINE	FROM STATION	TO STATION
-L-	15+07.00	38+09.58



TYPICAL SECTION NO. 3

LINE	FROM STATION	TO STATION
-L-	38+09.58	39+35.00



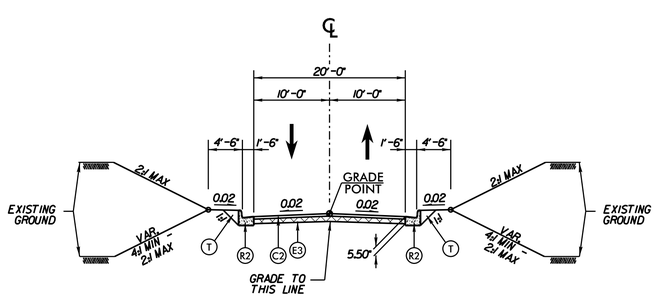
RETAINING WALL SECTION DETAIL

TO BE USED WITH TYPICAL SECTION NO. 2
-L- STATION 18+87.18 LT TO 19+80.30 LT

ABBREVIATED PAVEMENT SCHEDULE
(SEE SHEET 2 FOR FULL SCHEDULE)

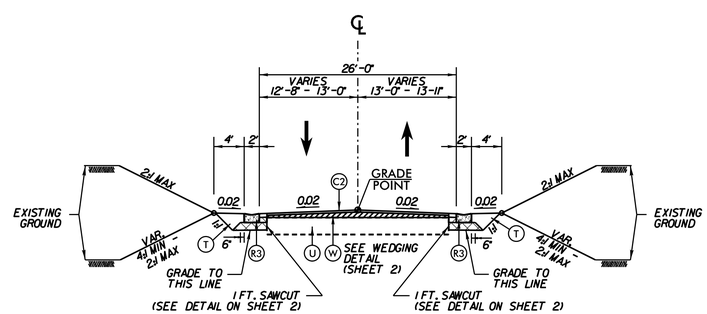
C1	3" S9.5B
C2	1.5" S9.5B
C3	VARIABLE S9.5B
D1	4" I19.0B
D2	VARIABLE I19.0B
E1	6" B25.0B
E2	VARIABLE B25.0B
E3	4" B25.0B
J1	8" ABC
P	PRIME COAT
R1	2'-6" CURB & GUTTER
R2	2'-0" CURB & GUTTER
R3	2' VALLEY CURB
R4	1'-6" CURB & GUTTER
R5	9" x 12" CONC. CURB
R6	5" MONO. CONC. ISLAND
S	SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	2" MILLING
V2	1.5" MILLING
V3	1.5" - 3" MILLING
W	WEDGING

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



TYPICAL SECTION NO. 4

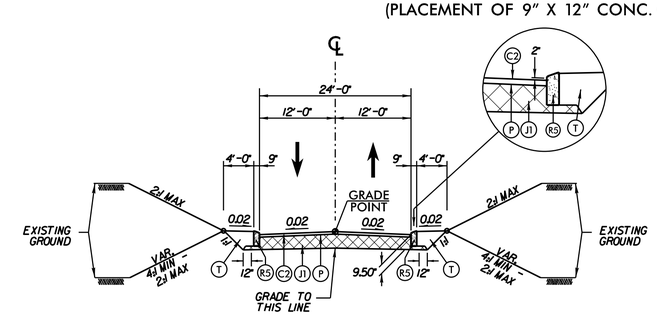
LINE	FROM STATION	TO STATION
-DRIVE1-	10+26.00	10+67.59



TYPICAL SECTION NO. 5

LINE	FROM STATION	TO STATION
-Y3-	10+27.81	11+31.94

INSET A
(PLACEMENT OF 9" X 12" CONC. CURB)



PRIVATE STREET TYPE DRIVEWAY AT -L- STA. 18+24.83 LT

6/2/99
7/22/2016
R:\3000 PM\Gastonia_NewHopeRd.psh\02_TYP.dgn

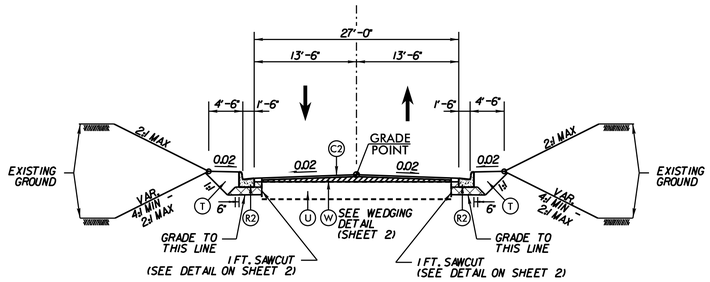
HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

PROJECT REFERENCE NO.	SHEET NO.
C-4934	2A-3

ROADWAY DESIGN ENGINEER

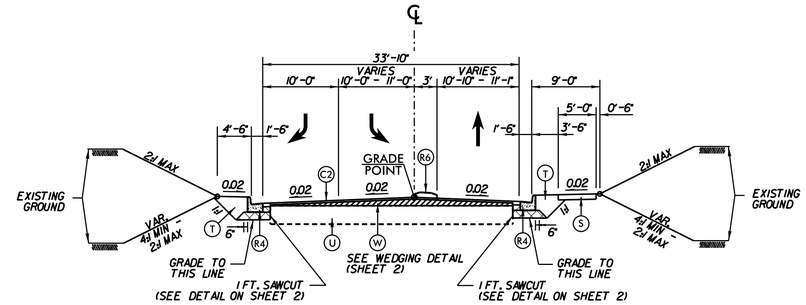
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR

David B. Taylor
David B. Taylor (jw) (jb) (dbt)



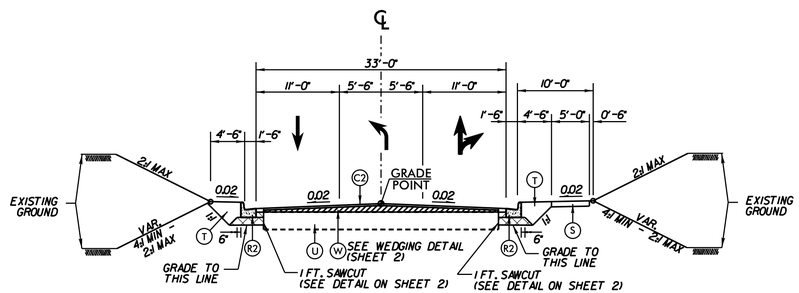
TYPICAL SECTION NO. 6

LINE	FROM STATION	TO STATION
-Y4-	10+79.60	11+69.60



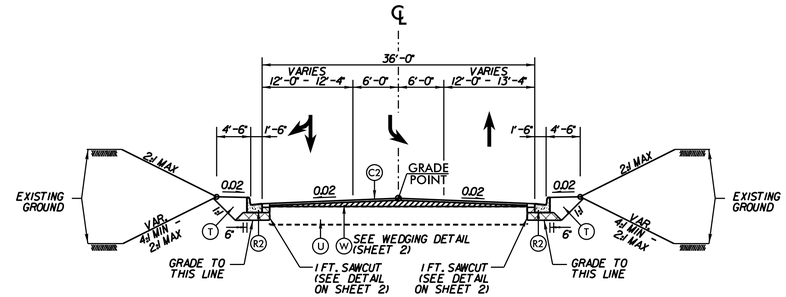
TYPICAL SECTION NO. 7

LINE	FROM STATION	TO STATION
-Y5-	10+26.69	11+19.46



TYPICAL SECTION NO. 8

LINE	FROM STATION	TO STATION
-Y6-	10+20.07	11+40.07



TYPICAL SECTION NO. 9

LINE	FROM STATION	TO STATION
-Y7-	10+26.21	11+29.84

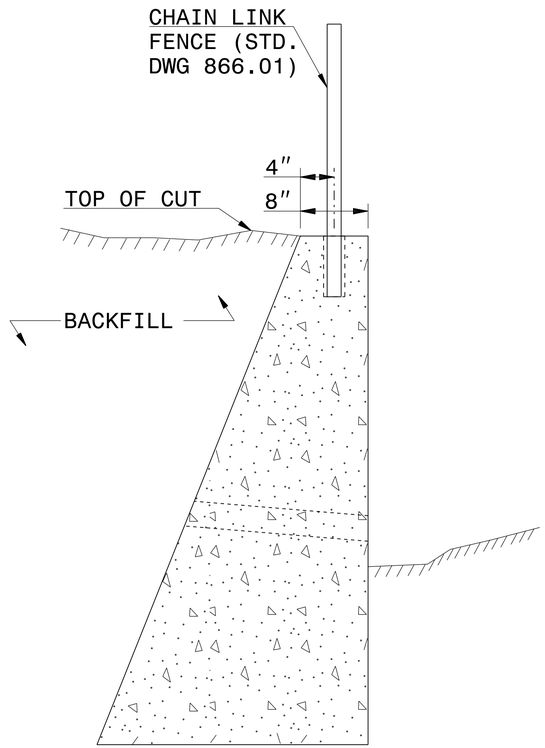
ABBREVIATED PAVEMENT SCHEDULE
(SEE SHEET 2 FOR FULL SCHEDULE)

C1	3" S9.5B
C2	1.5" S9.5B
C3	VARIABLE S9.5B
D1	4" I19.0B
D2	VARIABLE I19.0B
E1	6" B25.0B
E2	VARIABLE B25.0B
E3	4" B25.0B
J1	8" ABC
P	PRIME COAT
R1	2'-6" CURB & GUTTER
R2	2'-0" CURB & GUTTER
R3	2' VALLEY CURB
R4	1'-6" CURB & GUTTER
R5	9" x 12" CONC. CURB
R6	5" MONO. CONC. ISLAND
S	SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V1	2" MILLING
V2	1.5" MILLING
V3	1.5" - 3" MILLING
W	WEDGING

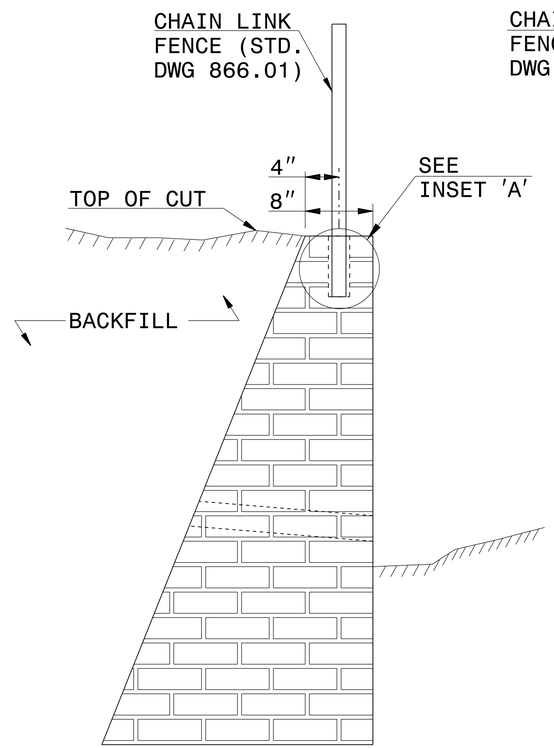
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

6/2/99
7/22/2016
7/18/2016
R:\3400\Gastonia_NewHopeRd_psh\02_TYP.dgn
R:\3400*.pxi

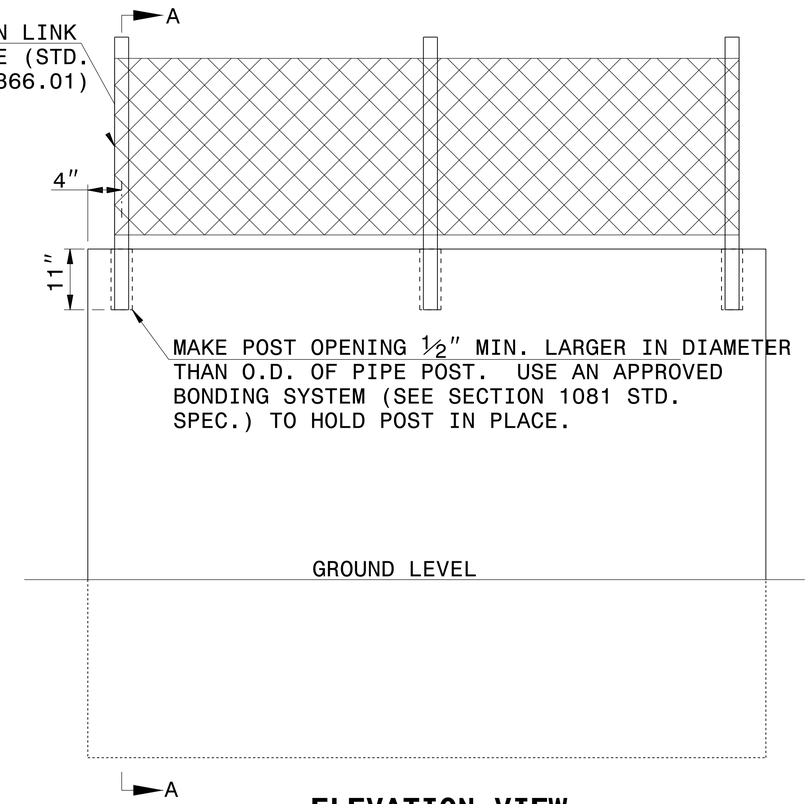
PROJECT REFERENCE NO.	SHEET NO.
C-4934	2C-1



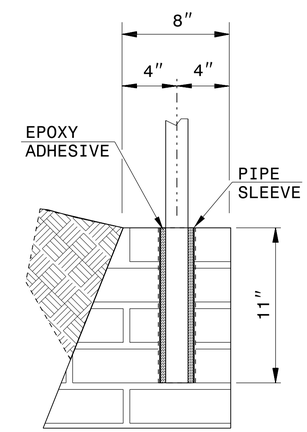
SECTION A-A
CONCRETE RETAINING WALL



SECTION A-A
BRICK MASONRY RETAINING WALL



ELEVATION VIEW
OF RETAINING WALL



INSET 'A'

GENERAL NOTES:

EMBED CHAIN LINK FENCE 11″ INTO PROPOSED WALL WITH EPOXY OR CONCRETE GROUT ANCHORING SYSTEM AS DIRECTED BY THE ENGINEER. PRE-MEASURE AND CENTER THE PROPOSED RAILING CENTERED ON TOP OF WALL FOR POST SPACINGS. USE A ROTARY DRILL TO DRILL FOR HOLES IN THE CONCRETE . NO IMPACT DRILLS WILL BE ALLOWED, TO ELIMINATE ANY POSSIBILTY OF STRUCTURAL DAMAGES TO THE PROPOSED WALL.

INSTALL PIPE SLEEVES IN THE BRICK RETAINING WALL (SEE INSET 'A') AND REFER TO STD. SPECIFICATION 1081 FOR PROPER ANCHOR SYSTEM.

Joel S. Howerton
Joel S. Howerton (Jul 26, 2016)

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CHAIN LINK FENCE ON RETAINING WALL

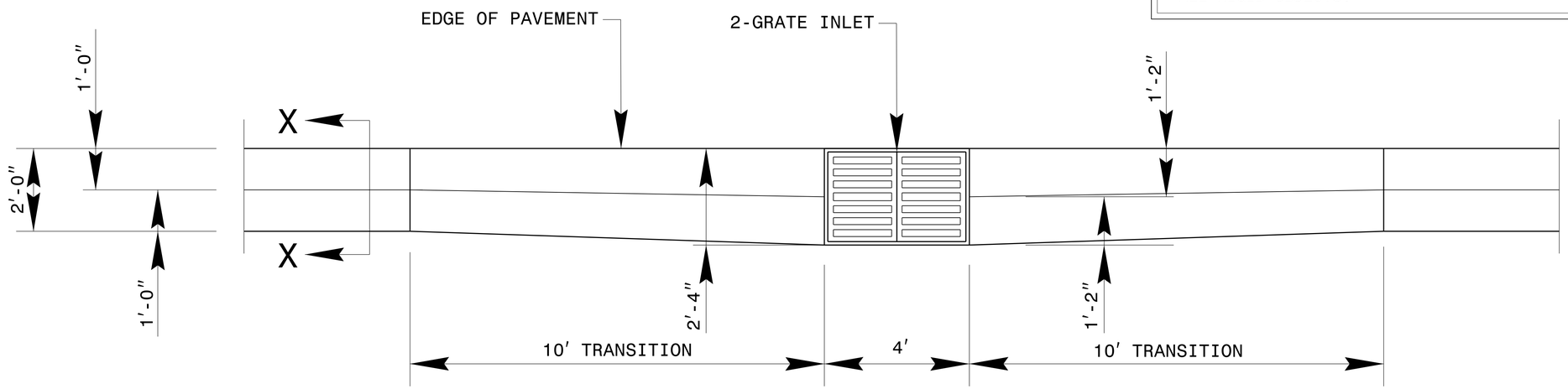
ORIGINAL BY:	L. Robinson	DATE:	Nov. 1996
MODIFIED BY:	E.E. Ward	DATE:	Nov. 2001
CHECKED BY:		DATE:	
FILE SPEC.:	usr/detials/metric/842d03.dgn		

$$$$SYSTEM$$$$
$$$$SCALE$$$$
$$$$USERNAME$$$$

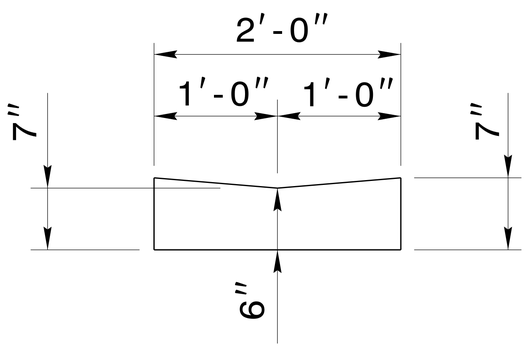
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
C-4934	2C-2

GENERAL NOTES:
- PLACE CONTRACTION JOINTS AT 10′ INTERVALS, EXCEPT THAT A 15′ SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10′ INTERVALS.
- JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1½″ DEEP.
- FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90′ INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



2-GI IN VALLELY GUTTER PLAN VIEW



VALLEY GUTTER SECTION X-X

Joel S. Howerton
Joel S. Howerton (Jul 26, 2016)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

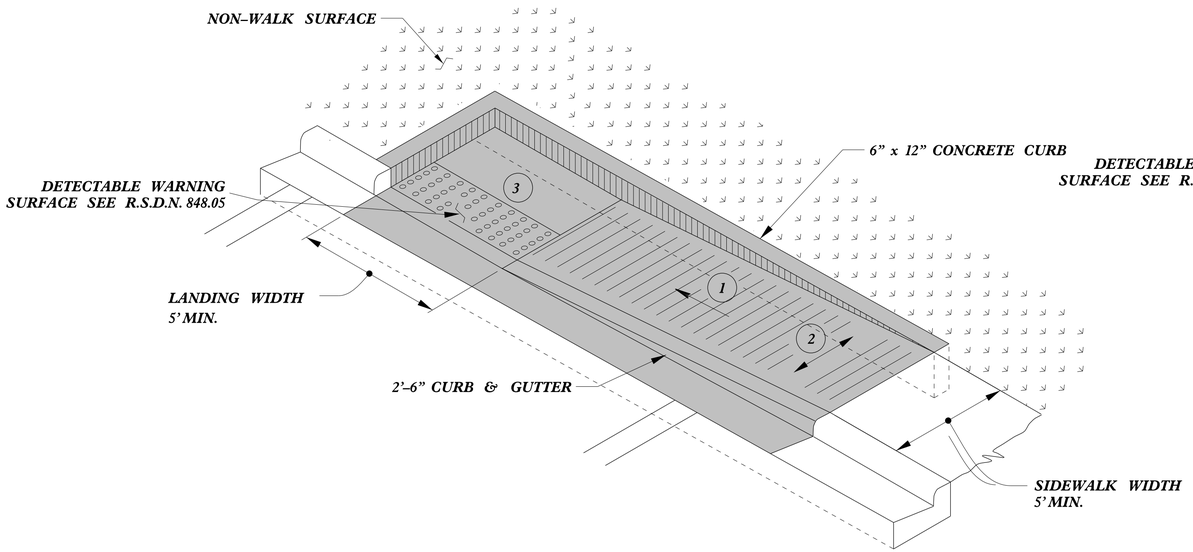
CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-707-6950 FAX 919-250-4119

2-GI IN VALLEY GUTTER

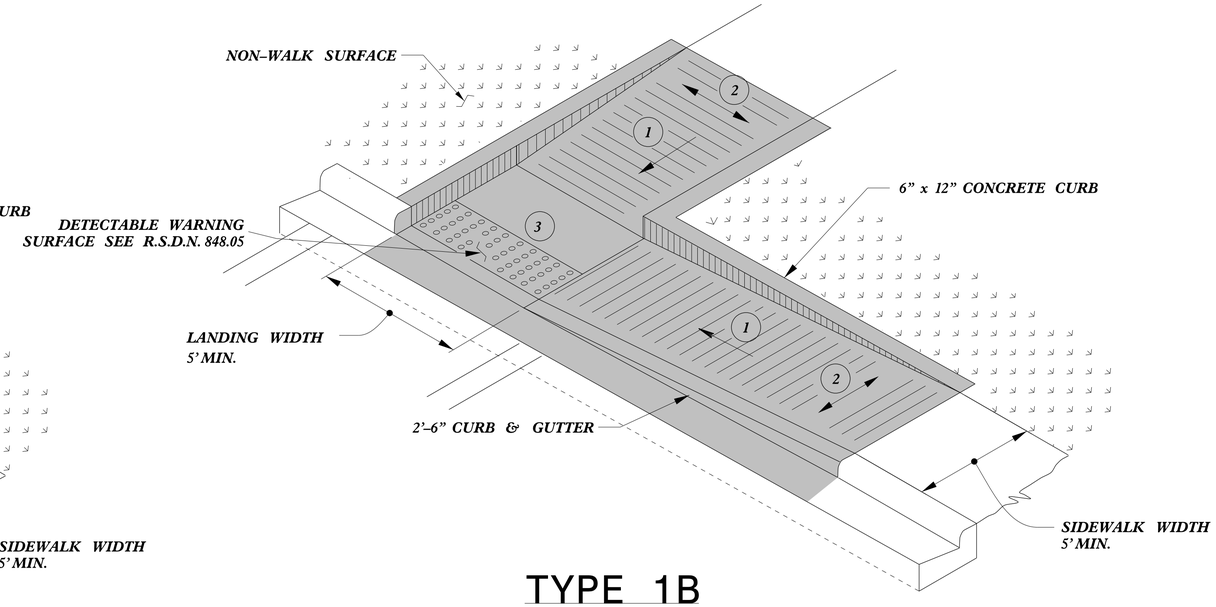
ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 02-20-12
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/english/misc/2gi in valley gutter.dgn

$$$$SYSTEM$$$$
$$$$SCALE$$$$
$$$$USERNAME$$$$

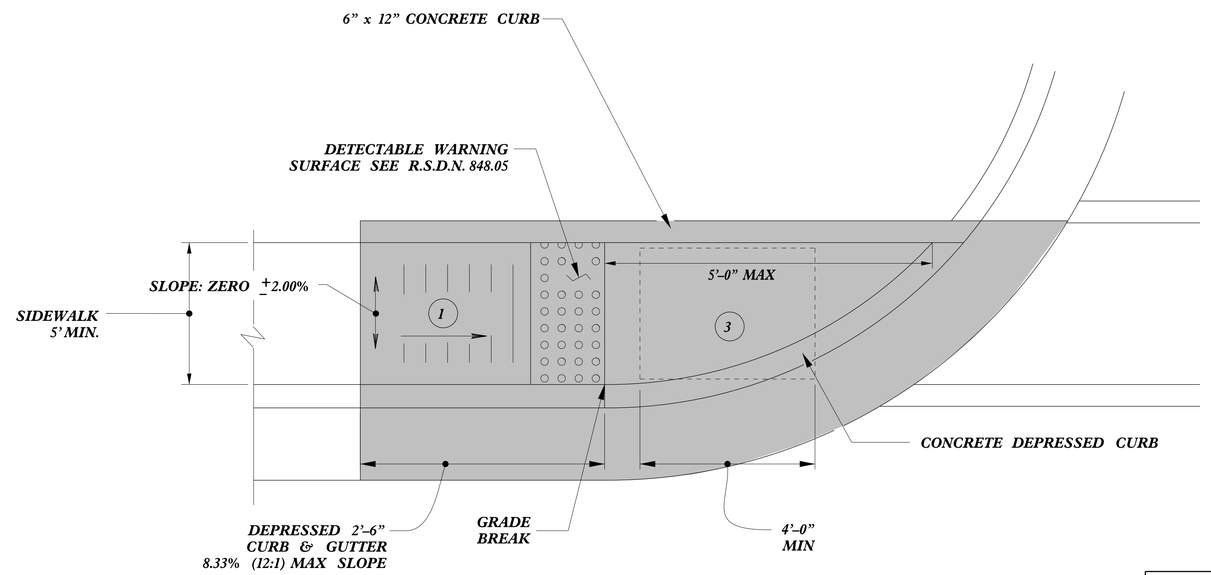
PROJECT REFERENCE NO.	SHEET NO.
C-4934	2C-3



TYPE 1A



TYPE 1B



TYPE 1

PAY LIMITS FOR 1 CURB RAMP

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 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

Joel S. Howerton
Joel S. Howerton (Jul 26, 2018)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS

Directional Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

5/14/99

$$$$SYSTEM$$$$
$$$$USERNAME$$$$
$$$$DGNFILE$$$$
$$$$SCALE$$$$

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 020175 ENGINEER ELIZABETH C. HOWEY

Elizabeth C. Howey (Jul 28, 2015)

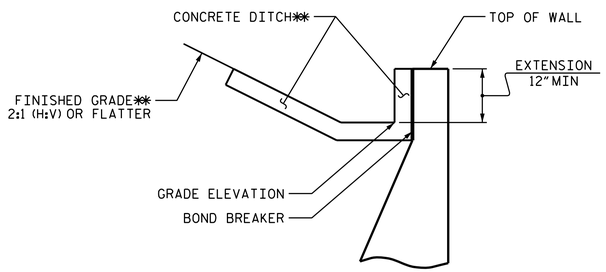
SIGNATURE DATE

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR

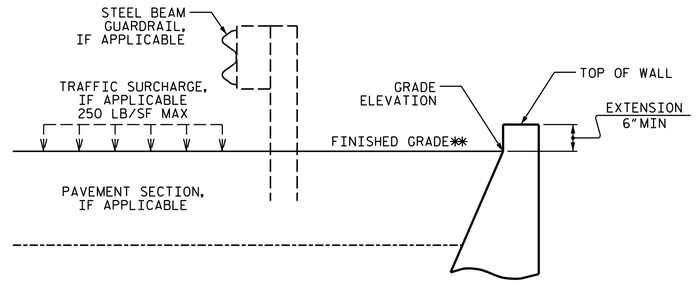
David B. Taylor (Jul 27, 2015)

SIGNATURE DATE



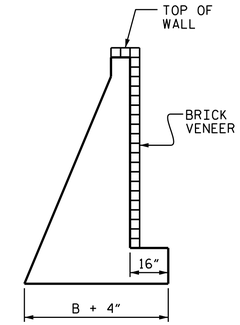
SLOPE CASE

✱✱SEE ROADWAY PLANS FOR CONCRETE DITCH AND FINISHED GRADE DETAILS.



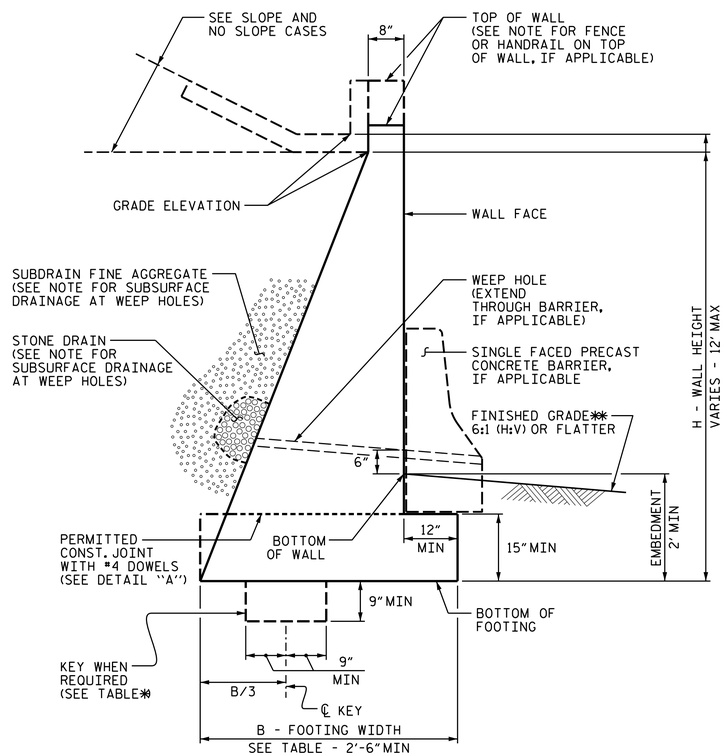
NO SLOPE CASE

✱✱SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



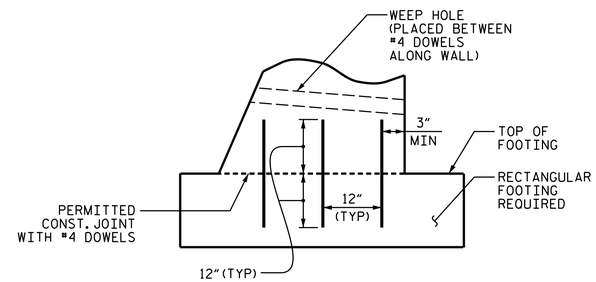
BRICK VENEER DETAIL

(WHEN APPLICABLE)



STANDARD CIP GRAVITY WALL

✱✱SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



DETAIL "A"

H (FT)	3 - < 6	6 - 9	> 9 - 12
SLOPE CASE	.66	.70✱	.75✱
NO SLOPE CASE WITH TRAFFIC SURCHARGE	.80	.75✱	.70✱
NO SLOPE CASE WITHOUT TRAFFIC SURCHARGE	.60	.60	.60

B/H RATIO (B = 2'-6"MIN)

✱✱KEY IS REQUIRED FOR "SLOPE CASE" OR "NO SLOPE CASE WITH TRAFFIC SURCHARGE" WHEN H IS 6' OR GREATER.

NOTES:

FOR STANDARD CAST-IN-PLACE (CIP) GRAVITY RETAINING WALLS, SEE CAST-IN-PLACE GRAVITY RETAINING WALLS PROVISION.

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

FOR SINGLE FACED PRECAST CONCRETE BARRIER, SEE ROADWAY PLANS AND SECTION 857 OF THE STANDARD SPECIFICATIONS.

FOR FENCES OR HANDRAILS ON TOP OF WALLS, SEE ROADWAY PLANS FOR FENCE OR HANDRAIL ATTACHMENT DETAILS.

FOR SUBSURFACE DRAINAGE AT WEEP HOLES, SEE ARTICLE 414-8 OF THE STANDARD SPECIFICATIONS.

STANDARD CIP GRAVITY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
- UNIT WEIGHT, γ = 120 LB/CF
- FRICTION ANGLE, ϕ = 35 DEGREES (GROUNDWATER WITHIN 7' OF BOTTOM OF FOOTING)
- FRICTION ANGLE, ϕ = 30 DEGREES (GROUNDWATER MORE THAN 7' BELOW BOTTOM OF FOOTING)
- COHESION, c = 0 LB/SF

DO NOT USE STANDARD CIP GRAVITY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE OR GROUNDWATER IS ABOVE BOTTOM OF FOOTING.

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

BEFORE BEGINNING STANDARD CIP GRAVITY WALL CONSTRUCTION, SURVEY WALL LOCATIONS AND SUBMIT WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. FOR WALL ENVELOPES, INCLUDE BOTTOM OF WALL, EXISTING GROUND AND GRADE ELEVATIONS AND OTHER ELEVATIONS AS NEEDED AT INTERVALS OF 25' OR LESS ALONG WALLS. DO NOT START WALL CONSTRUCTION UNTIL WALL ENVELOPES ARE ACCEPTED.

FOR BRICK VENEERS, SUBMIT BRICK SAMPLES FOR APPROVAL BEFORE BEGINNING STANDARD CIP GRAVITY WALL CONSTRUCTION.

DO NOT PLACE CONCRETE FOR FOOTINGS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

WHEN CONSTRUCTING STANDARD CIP GRAVITY WALLS WITH A CONSTRUCTION JOINT AS SHOWN IN DETAIL "A", PROVIDE A MINIMUM OF 3 EQUALLY SPACED #4 DOWELS AT INTERVALS OF 1'-6" ALONG WALLS.

PROJECT NO.: C-4934

GASTON COUNTY

STATION: -L- 18+87.18 LT TO 19+80.30 LT

SHEET 1 OF 1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 453.01

STANDARD CAST-IN-PLACE (CIP) GRAVITY RETAINING WALL

DATE: 3-17-15

SHEET NO. 2G-1

PROJECT REFERENCE NO.	SHEET NO.
C-4934	2G-2

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 020175 ENGINEER ELIZABETH C. HOWLEY

Elizabeth C. Howley (Jul 28, 2016)

SIGNATURE DATE

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR

David B. Taylor

David B. Taylor (Jul 27, 2016)

SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

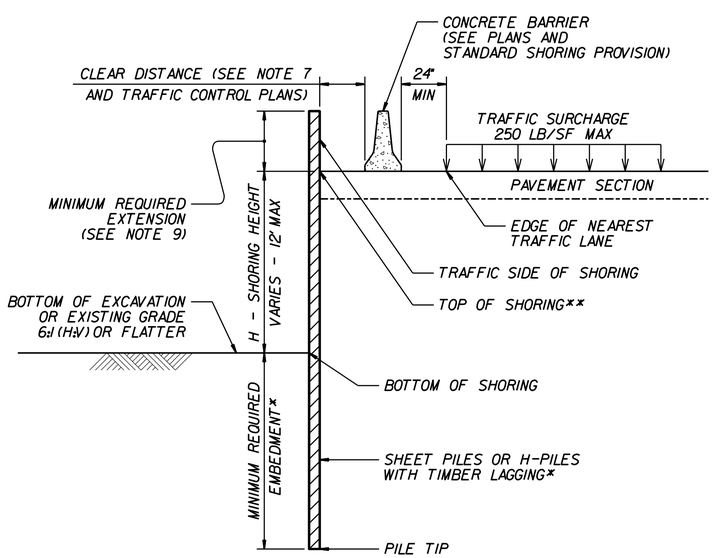
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BEWTEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

*DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".

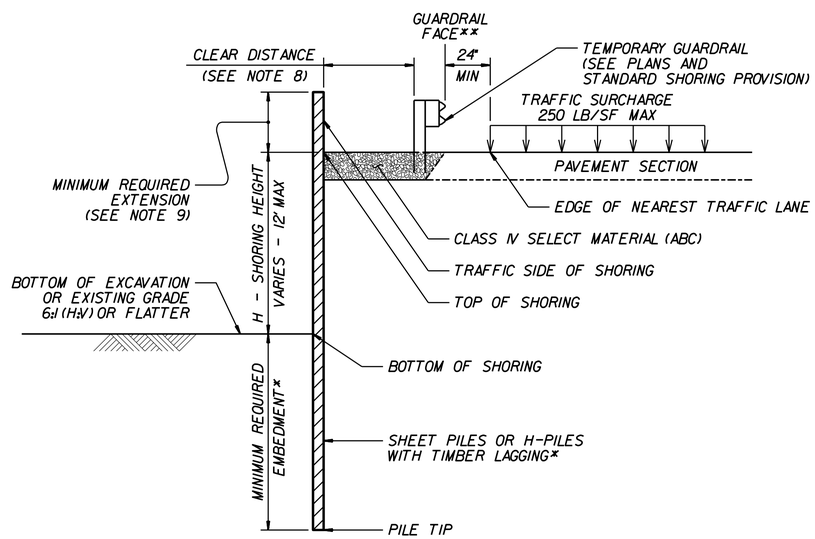
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
11. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



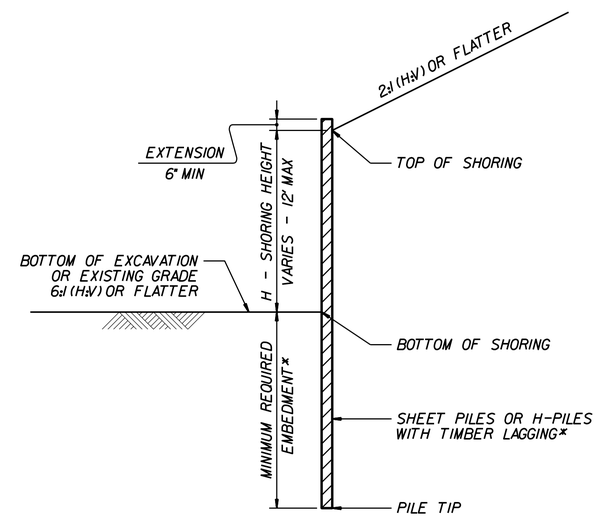
CONCRETE BARRIER

**TOP OF SHORING = EDGE OF PAVEMENT



TEMPORARY GUARDRAIL

**GUARDRAIL FACE = EDGE OF PAVEMENT



STANDARD TEMPORARY SHORING

(SLOPE CASE)

*SEE TABLE ABOVE.

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

*SEE TABLE ABOVE.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

3/15/06

COMPUTED BY:	AAA	DATE:	00-00-00
CHECKED BY:	AAA	DATE:	00-00-00

PROJECT REFERENCE NO.	SHEET NO.
C-4934	3B-1

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

RIGHT OF WAY AREA DATA

(SEE ALSO – PARCEL INDEX SHEET 3P-1)

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RT.	AREA REMAINING LT.	TEMP. CONSTRUCTION EASEMENT (TCE)	PERM. DRAINAGE EASEMENT (PDE)	PERM. UTILITY EASEMENT (PUE)	PERM. DRAINAGE & UTILITY EASEMENT (DUE)
1	WATSON INSURANCE AGENCY, INC.	1.14 AC	0.02 AC	–	1.12 AC	0.04 AC			
2	WELLS FARGO BANK, NATIONAL ASSOC.	1.67 AC	0 AC	1.67 AC	–	0.04 AC			
3	THE WATSON LIMITED PARTNERSHIP	1.43 AC	0.02 AC	–	1.41 AC	0.10 AC			
4	MCLEAN PROPERTIES, LLC	8.22 AC	0.08 AC	8.14 AC	–	0.09 AC	0.09 AC	0.001 AC	0.004 AC
5	THOMAS C. WATSON JR.	1.93 AC	0.03 AC	–	1.90 AC	0.14 AC			
6	STRATFORD OAKS HOUSING ASSOC. INC.	2.04 AC	0.04 AC	–	2.00 AC	0.23 AC			
7	ZHAI XIAO HUI AND ZHAO YAN	0.69 AC	0.02 AC	–	0.67 AC	0.09 AC			
8	RONNIE DILWORTH	0.45 AC	0.03 AC	0.42 AC	–	0.03 AC	0.01 AC	0.002 AC	
9	REMOVED								
10	DAVID C. GARRETT	0.37 AC	0 AC	–	0.37 AC	0.02 AC			
11	ONEILL CLINE	0.64 AC	0.04 AC	0.60 AC	–	0.04 AC	0.004 AC	0.002 AC	
12	COMMERCIAL VENTURES ASSOC.	1.13 AC	0 AC	–	1.13 AC	0.02 AC			
13	NAN TOWERS, LLC	0.60 AC	0 AC	–	0.60 AC	0.06 AC			
14	CAROLINA TRUST BANK	2.85 AC	0 AC	2.85 AC	–	0.07 AC			
15	BANK OF THE OZARKS, INC.	1.38 AC	0.03 AC	–	1.35 AC	0.07 AC			
16	E.C. GRIFFITH CO.	1.11 AC	0 AC	1.11 AC	–	0.12 AC			
17	PARK STERLING BANK	2.44 AC	0 AC	–	2.44 AC	0.02 AC			
18	JAMES S. JR & BETTY L. LYNN	0.79 AC	0.01 AC	0.78 AC	–	0.08 AC		0.004 AC	
19	CAROLYN W. JOHNSON	0.80 AC	0.02 AC	0.78 AC	–	0.03 AC			
20	ALLIANCE REAL ESTATE II, LLC	0.39 AC	0 AC	–	0.39 AC	0.02 AC		0.004 AC	
21	PIONEER GIRL SCOUT COUNCIL, INC.	1.56 AC	0.11 AC	1.45 AC	–	0.22 AC			
22	LIBERTY NORTH CAROLINA, INC.	0.11 AC	0 AC	–	0.11 AC				
23	FIRST STATES INVESTORS 4100A, LP	1.38 AC	0.05 AC	–	1.33 AC	0.08 AC			
24	GASTON MEDICAL CENTER, INC.	1.16 AC	0.04 AC	1.12 AC	–	0.11 AC			
25	MYERS MEMORIAL UNITED METHODIST CHURCH	3.67 AC	0.04 AC	–	3.63 AC	0.13 AC			
26	DMW LIMITED PARTNERSHIP	0.46 AC	0.03 AC	0.43 AC	–	0.03 AC			
27	JOHN ALBERT RHYNE, JR.	8.40 AC	0 AC	8.40 AC	–	0.04 AC			
28	WESTERN AUTO SUPPLY CO.	0.92 AC	0.02 AC	–	0.90 AC	0.07 AC		0.001 AC	

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANKMENT +%	BORROW	WASTE
–L–	1,564		2,073	509	
–DRIVE1–	29		3		26
–Y3–	25		8		17
–Y4–	29		6		23
–Y5–	49		3		46
–Y6–	39		15		24
–Y7–	46		6		40
SHOULDER MATERIAL				260	
EST 5% TO REPLACE TOP SOIL ON BORROW PIT				30	
SUBTOTAL	1,781		2,114	799	176
WASTE IN LIEU OF BORROW				–176	
TOTAL	1,781		2,114	623	
SAY	1,790			630	

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	ASPHALT REMOVAL (SY)	CONCRETE REMOVAL (SY)
	(ASPHALT REMOVAL FOR 1' SAWCUT AREAS)				
–L–	12+27	39+34	LT	244	
–L–	12+12	38+10	RT	251	
–Y3–	10+40	11+32	LT	10	
–Y3–	10+66	11+32	RT	7	
–Y4–	10+80	10+95	LT	2	
–Y4–	10+80	11+32	RT	6	
–Y5–	10+55	11+13	LT	6	
–Y5–	10+72	11+13	RT	5	
–Y6–	10+20	10+95	LT	8	
–Y6–	10+20	10+96	RT	8	
–Y7–	10+69	11+30	LT	7	
–Y7–	10+79	11+30	RT	6	
			TOTAL:	560	
			SAY:	560	

CHS-2UA5111R74

COMPUTED BY:	BRS	DATE:	11/23/2015
CHECKED BY:	MMD	DATE:	11/23/2015

PROJECT NO.	SHEET NO.
C-4934	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

QUANTITIES FOR DRAINAGE STRUCTURES — NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	A: 0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	ADJUST C.B.	ADJUST M.H.	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 15+36	29	RT	0501		850.1				1			1		1																	
			0501	0502		847.1	847.0																								
L 15+54	29	RT	0502		850.0				1			1		1																	
			0502	0508		847.0	846.6																								
L 15+95	24	RT	0503		844.5																							0.3990			COLLAR & EXTEND EX 15" RCP / REMOVE EX CB
L 16+17	30	LT	0504		848.7																				1						
			0504	0506		843.5	841.9																							328	REMOVE EX 18" RCP
DRIVE1 10+39	9	LT	0505		848.9				1										1	27											FRAME W/ GRATE QUANTITY IS LINEAR FEET
			0505	0507		845.4	843.5																								
L 17+86	30	LT	0506		844.9				1	2.4		1			1																
			0506	0604		837.5	835.4	0.5																							
L 17+85	33	RT	0507		847.6				1														1	1							
			0507	0619		843.5	840.4																								
L 15+94	29	RT	0508		849.6				1	0.1		1		1																	
			0508	0503		844.5	844.5																								
L 17+86	37	LT	0509		844.8				1	2.3											1										JUNCTION BOX W/ SLAB LID
			0509	0506		837.5	837.5																								
L 19+22	45	RT	0602		845.0				1	0.4						1	1														
			0602	0619		839.6	839.4	1.2																						17	REMOVE EX 12" RCP
L 19+38	18	RT	0603		836.8																							0.3990			COLLAR & EXTEND EX 15" RCP / REMOVE EX CB
L 19+58	30	LT	0604		841.3																				1						
L 19+80	43	RT	0606		843.2				1							1	1														
			0606	0619		841.0	840.4																								
L 20+83	44	RT	0607		841.6				1							1	1														REMOVE EX CB
			0607	0614		838.4	836.0	0.5																			3		0.090		PLUG & FILL EX 15" RCP
Y3 10+94	14	RT	0609		844.0				1									1				1									
			0609	0610		841.3	840.4	0.3																							
Y3 10+76	14	RT	0610		843.1				1									1				1									
			0610	0607		840.4	838.4	0.3																							
L 21+35	30	LT	0611		838.6				1			1			1																
			0611	0613		835.6	835.0																								
L 21+85	29	LT	0613		838.0				1			1			1																
			0613	0702		835.0	833.9																								
L 22+14	33	RT	0614		840.2				1														1	1							REMOVE EX CB
			0614	0704		836.0	834.0	0.6																			7		0.090		PLUG & FILL EX 15" RCP
L 22+14	41	RT	0615		839.8				1							1	1														
			0615	0614		836.7	836.0																								
L 18+12	40	LT	0617		844.0				1										1	24											FRAME W/ GRATE QUANTITY IS LINEAR FEET
			0617	0509		840.5	840.4																								
L 19+32	33	RT	0619		844.6				1	2.3													1	1							REMOVE EX MH
			0619	0603		837.3	836.8	1.6																						11	REMOVE EX 12" RCP
L 23+15	44	LT	0701		836.4																					1					
L 23+15	29	LT	0702		836.9																				1						
			0702	0701		830.0	828.1	0.5																						12	REMOVE EX 18" RCP
L 23+14	30	RT	0703		837.4				1	0.8		1		1																	REMOVE EX CB
			0703	0702		831.6	830.0	0.4																						43	REMOVE EX 18" RCP
L 23+14	36	RT	0704		838.1																					1					
			0704	0703		831.8	831.6	0.4																						16	REMOVE EX 2 @ 12" RCP
L 24+08	30	RT	0706		836.0				1			1		1																	
			0706	0703		833.0	832.7																								
							SHEET TOTALS		20	8.3		8		5	3	4	4	2	2	51	1	2	3	3	3	2	10	0.7980	0.180	427	

FROM	TO	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)														DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III														R. C. PIPE CLASS IV													
		12	15	18	24	30	36	42	48	54	60	66	72	78	84						12	15	18	24	30	36	42	48	54	60	66	72	78	84	12	15	18	24	30	36	42	48	54	60	66	72	78	84
0501	0502																					16																										
0502	0508																					40																										
0504	0506																					164																										
0505	0507																					28																										
0506	0604																					164																										
0507	0619																					152																										
0508	0503																					4																										
0509	0506																				8																											
0602	0619																					16																										
0606	0619																					48																										
0607	0614																					136																										
0609	0610																					16																										
0610	0607																					28																										
0611	0613																					48																										
0613	0702																					128																										
0614	0704																					100																										
0615	0614																					8																										
0617	0509																				28																											
0619	0603																					16																										
0702	0701																							16																								
0703	0702																							56																								
0704	0703																							8																								
0706	0703																					92																										
SHEET TOTALS																					36	1204		80																								

ABBREVIATIONS

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

CHS-2UA5111R74

COMPUTED BY:	BRS	DATE:	11/23/2015
CHECKED BY:	MMD	DATE:	11/23/2015

PROJECT NO.	SHEET NO.
C-4934	3D-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	54	60	66	72	78	84		DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	78	84		R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	54	60	66	72	78	84		QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G		D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	ADJUST C.B.	ADJUST M.H.	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
Y5 10+54	17 RT	0708		837.3																																																						1			1			1																	
Y5 10+53	12 RT	0709		833.0																																																																											0.3990			COLLAR & EXTEND EX 15" RCP / REMOVE EX CB
		0709	0708		833.0	832.9																								4																																																				
Y5 10+49	22 LT	0710		836.6																																																																									1						
L 25+43	29 LT	0711		834.2																																																						1			1			1																	
		0711	0712		831.2	831.0																								16																																																				
L 25+60	29 LT	0712		834.0																																																						1			1			1																	
		0712	0716		831.0	827.5																								100																																																				
L 26+40	30 RT	0714		832.4																																																						1			1		1																		
		0714	0717		829.4	829.2	1.4																							8																																																		15	REMOVE EX 9" PLASTIC PIPE
L 26+51	17 RT	0715		827.4																																																																											0.3990			COLLAR & EXTEND EX 15" RCP / REMOVE EX CB
L 26+62	30 LT	0716		833.0																																																																									1						
L 26+49	30 RT	0717		832.2																																																						1			1		1																		
		0717	0715		827.6	827.4	1.4																							12																																																				
L 28+84	30 RT	0801		828.2																																																						1			1		1																		
		0801	0802		825.2	824.1																								76																																																					
L 29+62	30 RT	0802		827.1																																																						1			1		1																		
		0802	0814		824.1	824.1																								24																																																					
L 29+70	43 LT	0803		827.9																																																						1	0.5							1	1														
		0803	0804		822.4	822.3																								16																																																					
L 29+78	30 LT	0804		828.3																																																																									1						REMOVE EX MH (STA. 30+01)
		0804	0810		822.3	820.7	1.1																							112																																																			103	REMOVE EX 15" RCP
Y7 10+75	20 RT	0806		826.1																																																						1			1	1																			REMOVE EX CB
		0806	0805		823.7	823.5																									60																																																			66	REMOVE EX 18" RCP
Y7 10+84	20 LT	0808		825.7																																																																									1						
L 30+92	29 LT	0810		826.5																																																						1	0.8		1			1																	REMOVE EX MH, REMOVE EX CB (STA. 30+74)
L 31+79	29 LT	0812		825.6																																																						1			1			1																	
		0812	0901		822.6	821.9																								136																																																					
L 32+40	30 RT	0813		825.4																																																						1			1		1																		
		0813	0902		822.4	822.0																								72																																																					
Y7 10+45	36 RT	0814		827.2																																																						1													1										JUNCTION BOX W/ SLAB LID
		0814	0806		824.1	823.9																								36																																																					
L 33+15	29 LT	0901		824.9																																																						1			1			1																	
		0901	0904		821.9	821.8																								48																																																					
L 33+14	30 RT	0902		825.0																																																						1			1		1																		
		0902	0914		822.0	821.8																								60																																																					
L 33+65	29 LT	0904		824.8																																																																									1						
		0904	0914		819.7	818.7																								56																																																			55	REMOVE EX 15"/18" RCP
L 34+20	30 RT	0905		824.8																																																						1			1			1																	
		0905	0914		820.9	820.8																								44																																																					
L 35+53	29 LT	0907		824.6																																																						1			1			1																	
		0907	0913		821.3	820.8																								172																																																					
L 35+60	30 RT	0908		824.5																																																						1			1		1																		
		0908	0905		821.3	820.9																								140																																																					
L 36+00	29 LT	0909		824.5																																																						1			1	1																			
		0909	0907		821.5	821.3																								44																																																					
L 36+00	30 RT	0910		824.5																																																						1			1	1																			
		0910	0908		821.5	821.3																								40																																																					
L 36+06	29 LT	0911		824.5																																																						1			1	1																			
		0911	0909		821.5	821.5																								4																																																				
SHEET TOTALS																													1220	60																												21	1.3		19	4	7	8		1	1				1				5			0.7980		239	

ABBREVIATIONS

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

CHS-2UA5111R74

COMPUTED BY:	BRS	DATE:	11/23/2015
CHECKED BY:	MMD	DATE:	11/23/2015

PROJECT NO.	SHEET NO.
C-4934	3D-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
L 36+06	30 RT	0912		824.5			
		0912	0910		821.5	821.5	
L 33+81	29 LT	0913		824.8			
		0913	0904		820.8	820.8	
L 33+75	30 RT	0914		824.8			
L 39+17	35 RT	1001		822.0			

Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)

LINE & STATION	12	15	18	24	30	36	42	48	54	60	66	72	78	84		DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC
L 36+06																				
L 33+81																				
L 33+75																				
L 39+17																				
SHEET TOTALS																				
PROJECT TOTALS																				

R. C. PIPE CLASS III

LINE & STATION	12	15	18	24	30	36	42	48	54	60	66	72	78	84	
L 36+06															
		4													
L 33+81															
		16													
L 33+75															
L 39+17															
SHEET TOTALS		20													
PROJECT TOTALS	36	2444	60	80											

R. C. PIPE CLASS IV

LINE & STATION	12	15	18	24	30	36	42	48	54	60	66	72	78	84	
L 36+06															
L 33+81															
L 33+75															
L 39+17															
SHEET TOTALS															
PROJECT TOTALS															

QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)); FRAME, GRATES, AND HOOD STD. 840.03 — GRATE TYPE

LINE & STATION	0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	E	F	G	
L 36+06	1			1	1			
L 33+81	1			1	1			
L 33+75	1	1.3		1	1			
L 39+17								
SHEET TOTALS	3	1.3		3	3			
PROJECT TOTALS	44	10.9		30	7	12	11	

LINE & STATION	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.D.I. STD. 840.35	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	ADJUST C.B.	ADJUST M.H.	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 36+06																
L 33+81																
L 33+75																REMOVE EX CB
L 39+17										1						
SHEET TOTALS										1						
PROJECT TOTALS	5	5	2	2	51	2	2	3	3	9	2	10	1.5960	0.180	666	

ABBREVIATIONS

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

PROJ. REFERENCE NO.	SHEET NO.
C-4934	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4, 5	WATSON INSURANCE AGENCY, INC.
2	4, 5	WELLS FARGO BANK, NATIONAL ASSOC.
3	5	THE WATSON LIMITED PARTNERSHIP
4	5,6	MCLEAN PROPERTIES, LLC
5	5	THOMAS C. WATSON JR.
6	5,6	STRATFORD OAKS HOUSING ASSOC. INC.
7	6	ZHAI XIAO HUI AND ZHAO YAN
8	6	RONNIE DILWORTH
9	-	REMOVED
10	6	DAVID C. GARRETT
11	6	ONEILL CLINE
12	6	COMMERCIAL VENTURES ASSOC.
13	6, 7	NAN TOWERS, LLC
14	6, 7	CAROLINA TRUST BANK
15	7	BANK OF THE OZARKS, INC.
16	7	E.C. GRIFFITH CO.
17	7, 8	PARK STERLING BANK
18	7, 8	JAMES S. JR & BETTY L. LYNN
19	8	CAROLYN W. JOHNSON
20	8	ALLIANCE REAL ESTATE II, LLC
21	8, 9	PIONEER GIRL SCOUT COUNCIL, INC.
22	8	LIBERTY NORTH CAROLINA, INC.
23	8, 9	FIRST STATES INVESTORS 4100A, LP
24	9	GASTON MEDICAL CENTER, INC.
25	9	MYERS MEMORIAL UNITED METHODIST CHURCH
26	9	DMW LIMITED PARTNERSHIP
27	9, 10	JOHN ALBERT RHYNE, JR.
28	9, 10	WESTERN AUTO SUPPLY CO.

PARCEL No.	SHEET No.	PROPERTY OWNER NAME

PROJECT REFERENCE NO.	SHEET NO.
C-4934	4
R/W SHEET NO.	

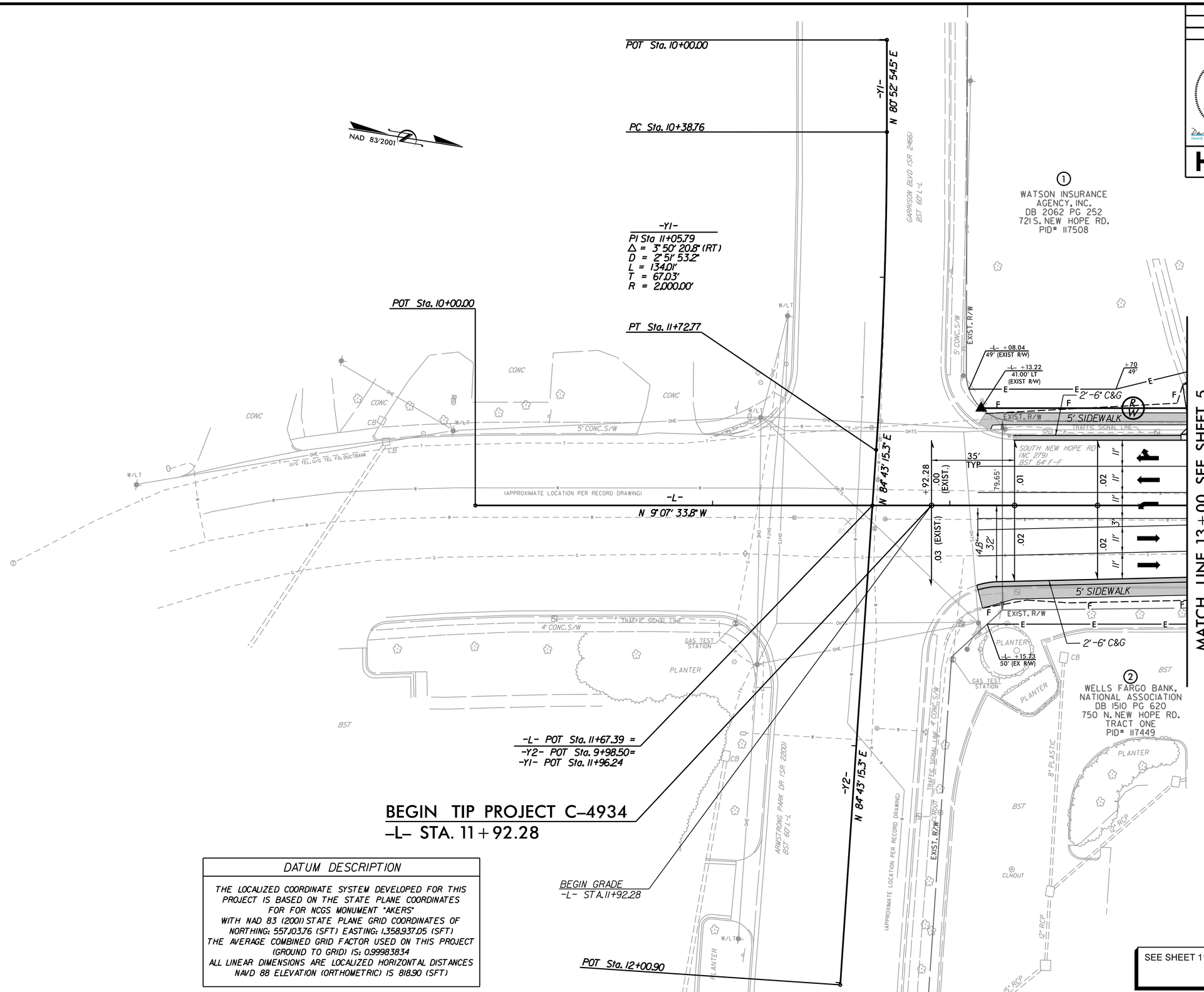
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor (Jul 28, 2016)

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
Michael M Darby (Jul 28, 2016)

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

REVISIONS

8/17/99



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES FOR FOR NCGS MONUMENT "AKERS"
WITH NAD 83 (2001) STATE PLANE GRID COORDINATES OF NORTHING: 557,103.76 (SFT) EASTING: 1,358,937.05 (SFT)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99983834
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
NAVD 88 ELEVATION (ORTHOMETRIC) IS 818.90 (SFT)

SEE SHEET 11 FOR -L- PROFILE

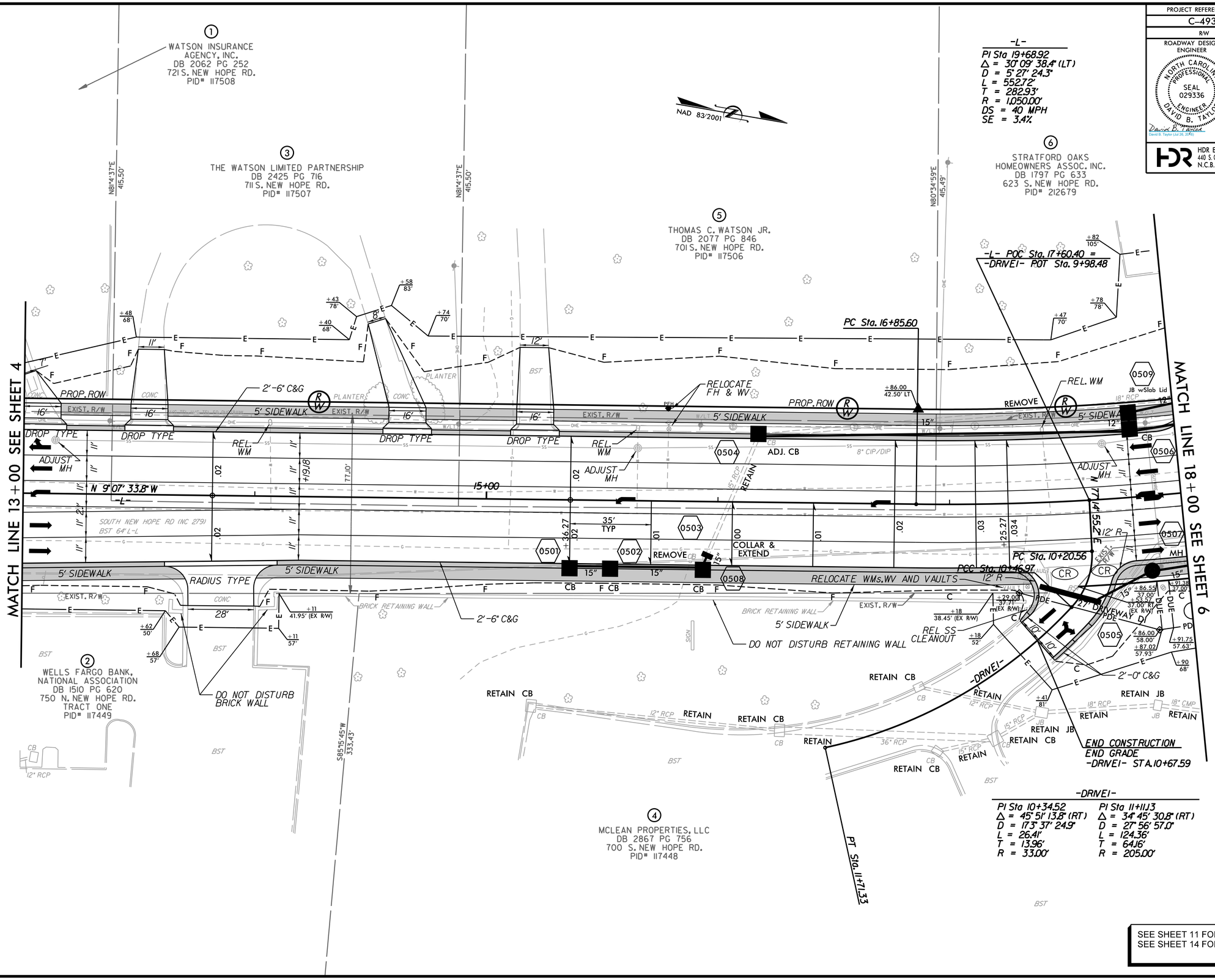
7/26/2016
7:38:22 AM
35554 Gastonia_NewHopeRd_psh04.dgn

PROJECT REFERENCE NO.	SHEET NO.
C-4934	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor (Jul 26, 2018)

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
Michael M Darby (Jul 26, 2018)

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116



SEE SHEET 11 FOR -L- PROFILE
SEE SHEET 14 FOR -DRIVE1- PROFILE

REVISIONS

8/17/99

7/26/2018
10:22:26 AM
33616 PM
Gastonia_NewHopeRd_psh05.dgn

PROJECT REFERENCE NO.	SHEET NO.
C-4934	6
R/W SHEET NO.	

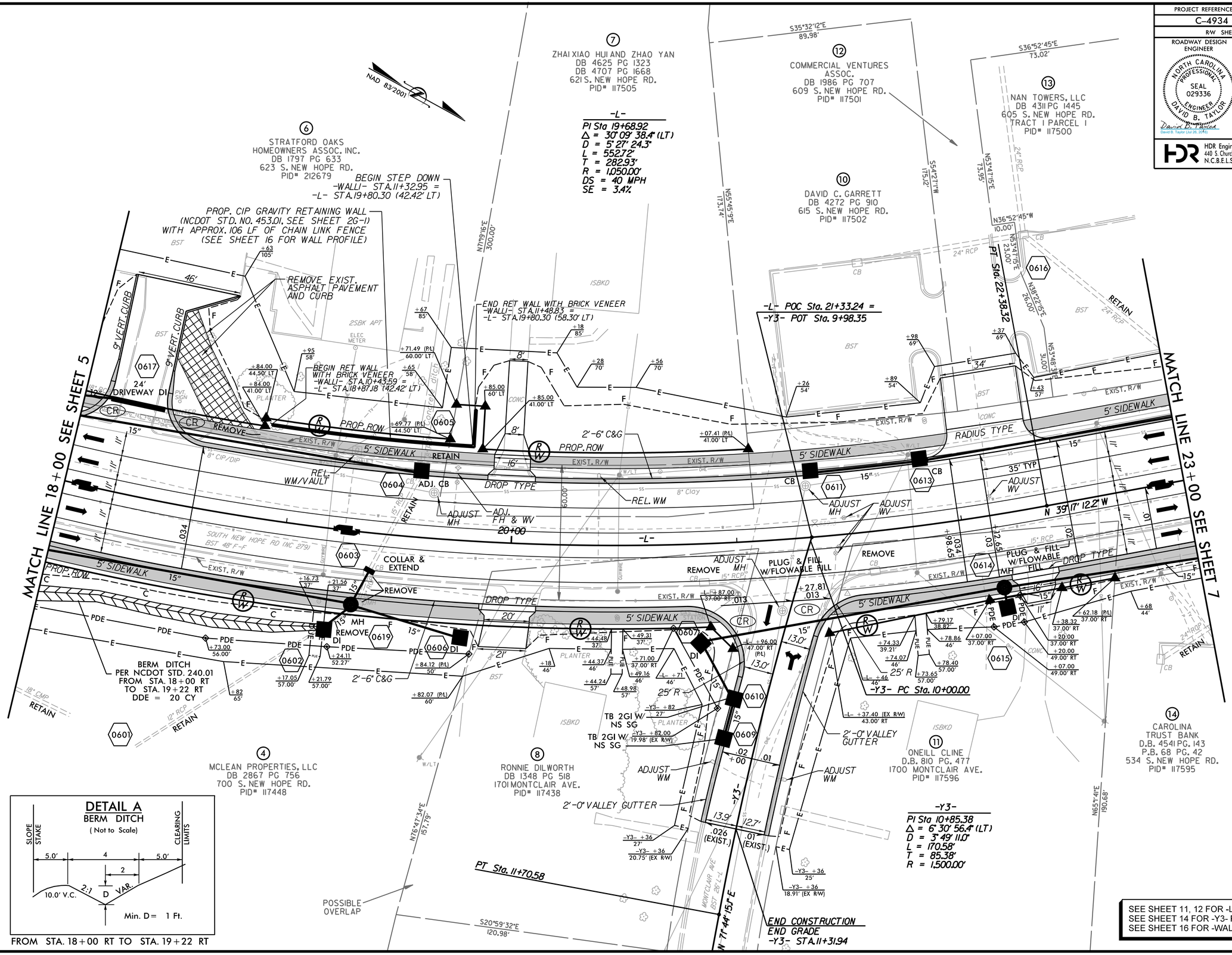
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor (Jul 26, 2016)

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
Michael M Darby (Jul 26, 2016)

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

REVISIONS

8/17/99

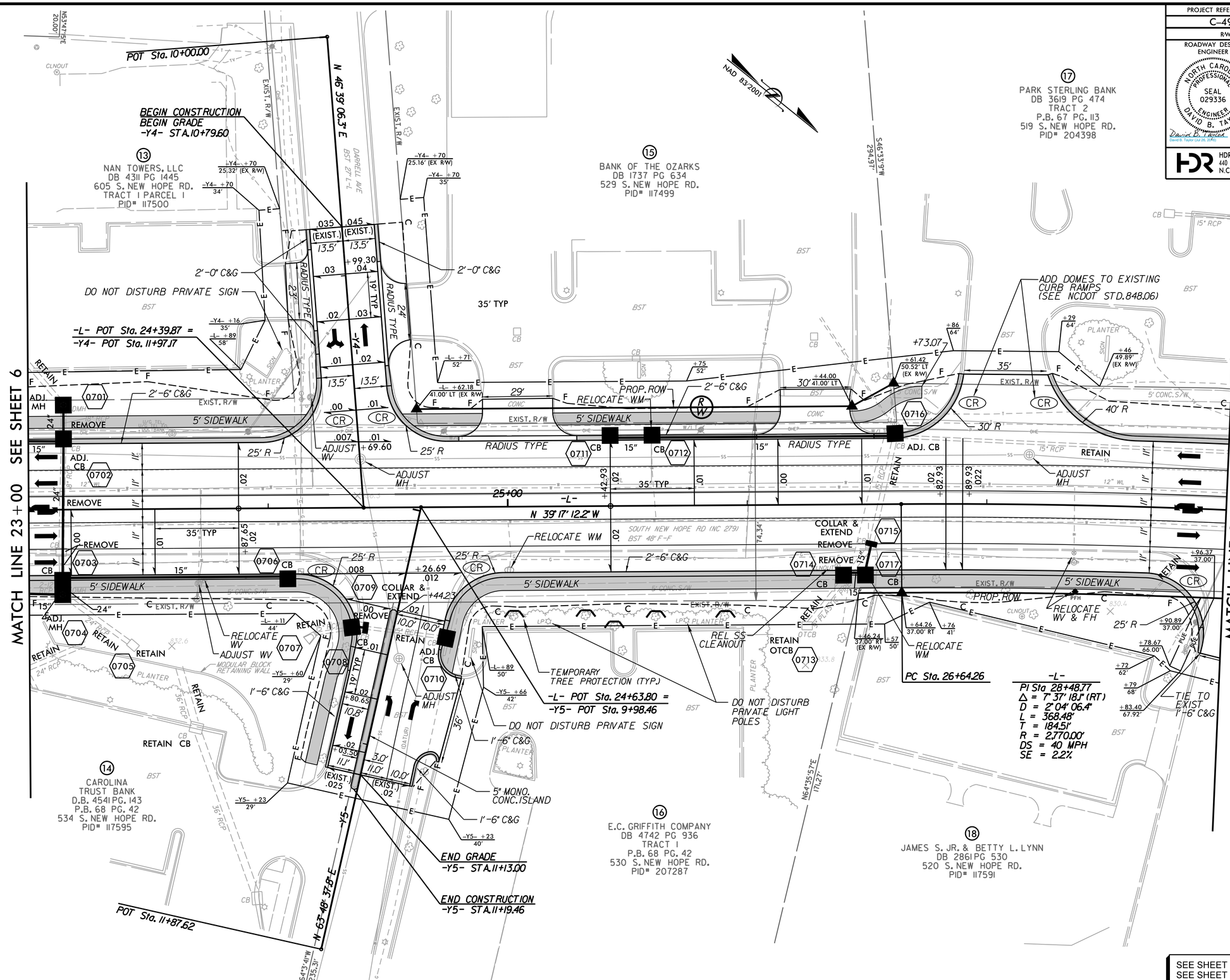


PROJECT REFERENCE NO.	SHEET NO.
C-4934	7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor (Jul 26, 2016)

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
Michael M Darby (Jul 26, 2016)

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116



SEE SHEET 12 FOR -L- PROFILE
SEE SHEET 15 FOR -Y4- PROFILE
SEE SHEET 15 FOR -Y5- PROFILE

REVISIONS

8/17/99

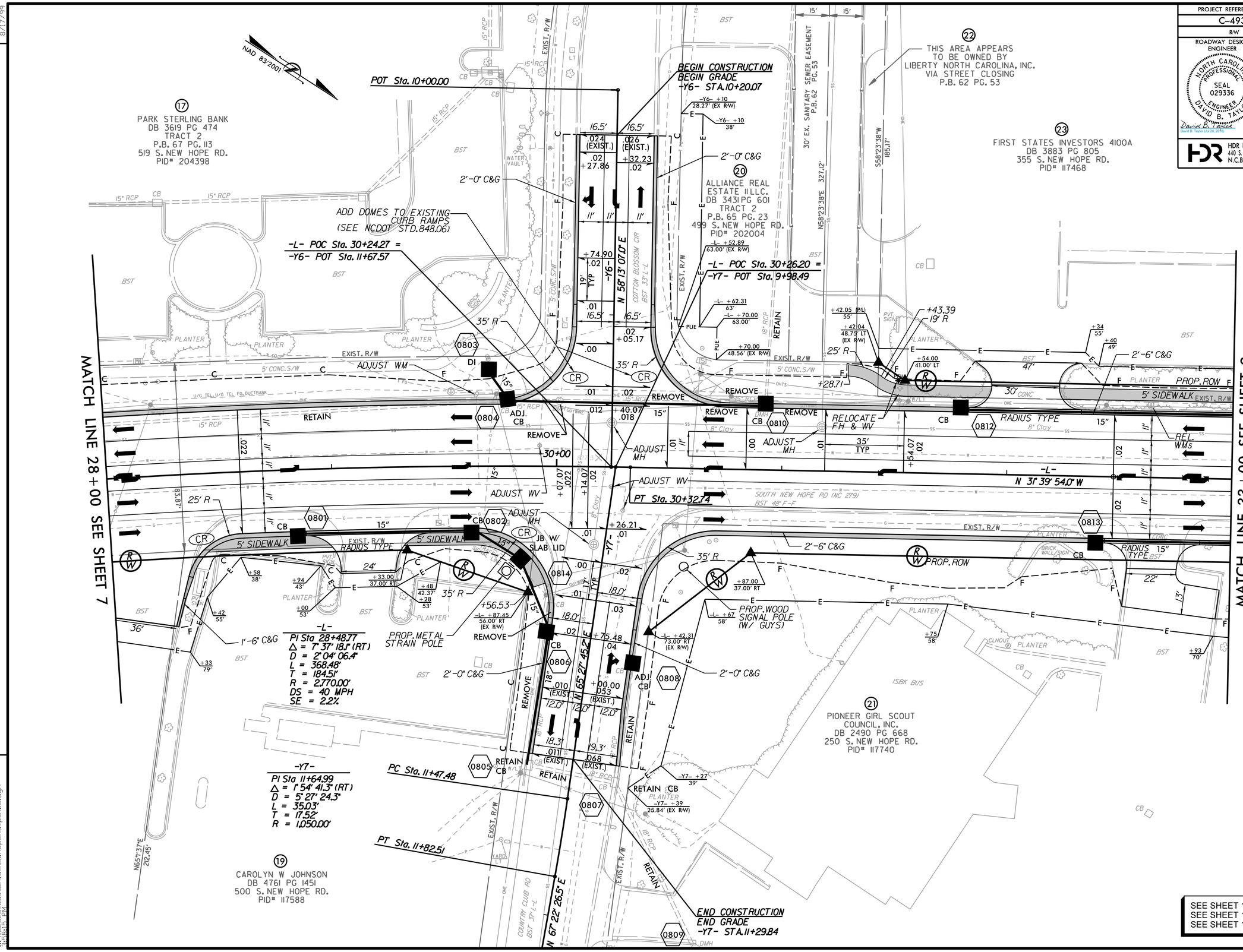
7/26/2016
R:\Roadway\Proj\C4934_Gastonia_NewHopeRd_psh07.dgn
3:57:17 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor (Jul 26, 2016)

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
Michael M Darby (Jul 26, 2016)

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116



REVISIONS

8/17/99

7/26/2016
r:\8_Design\Gastonia_NewHopeRd.psh08.dgn
3:08:15 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	9
R/W SHEET NO.	

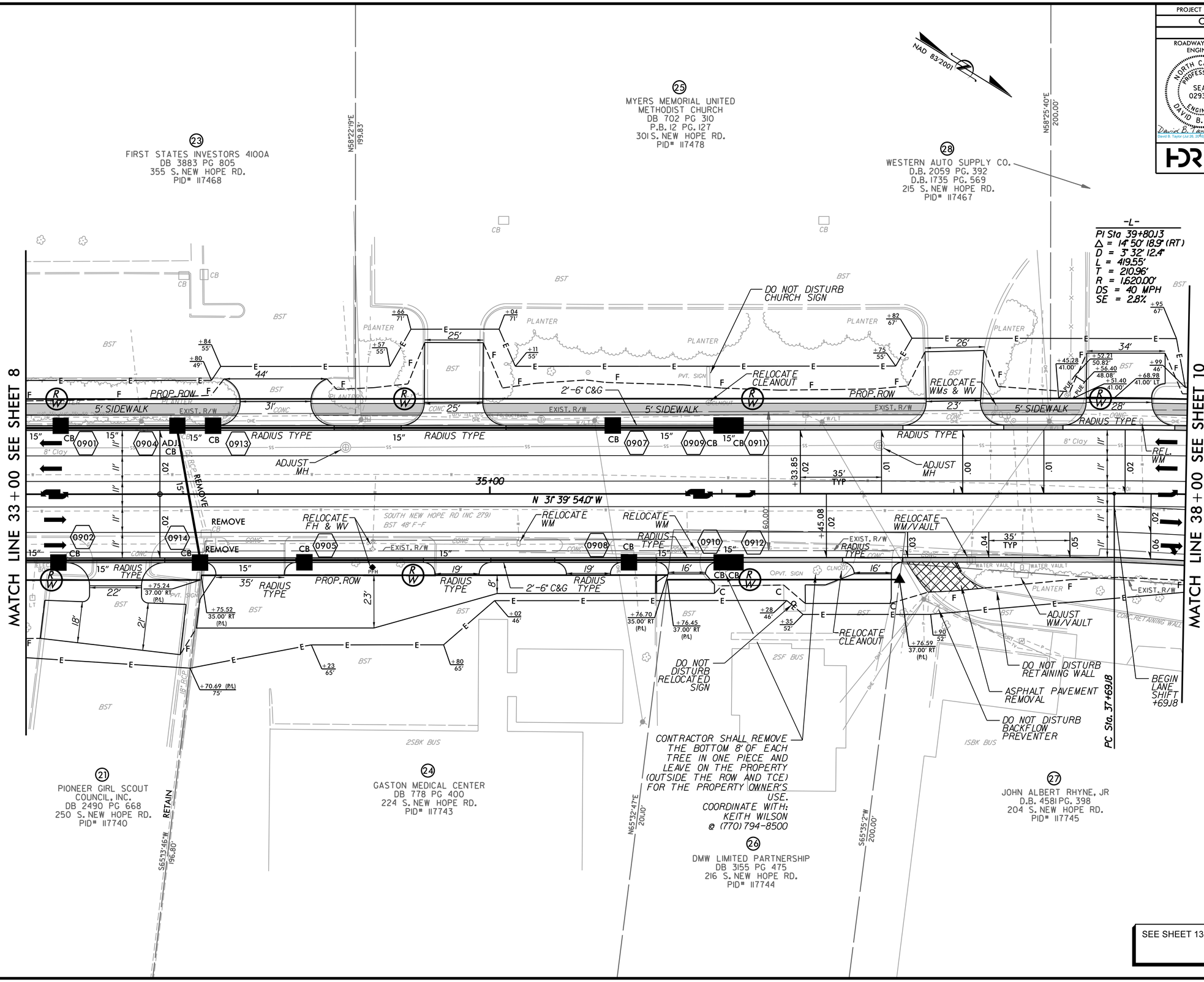
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor (Jul 26, 2018)

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
Michael M Darby (Jul 26, 2018)

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

REVISIONS

8/17/99



SEE SHEET 13 FOR -L- PROFILE

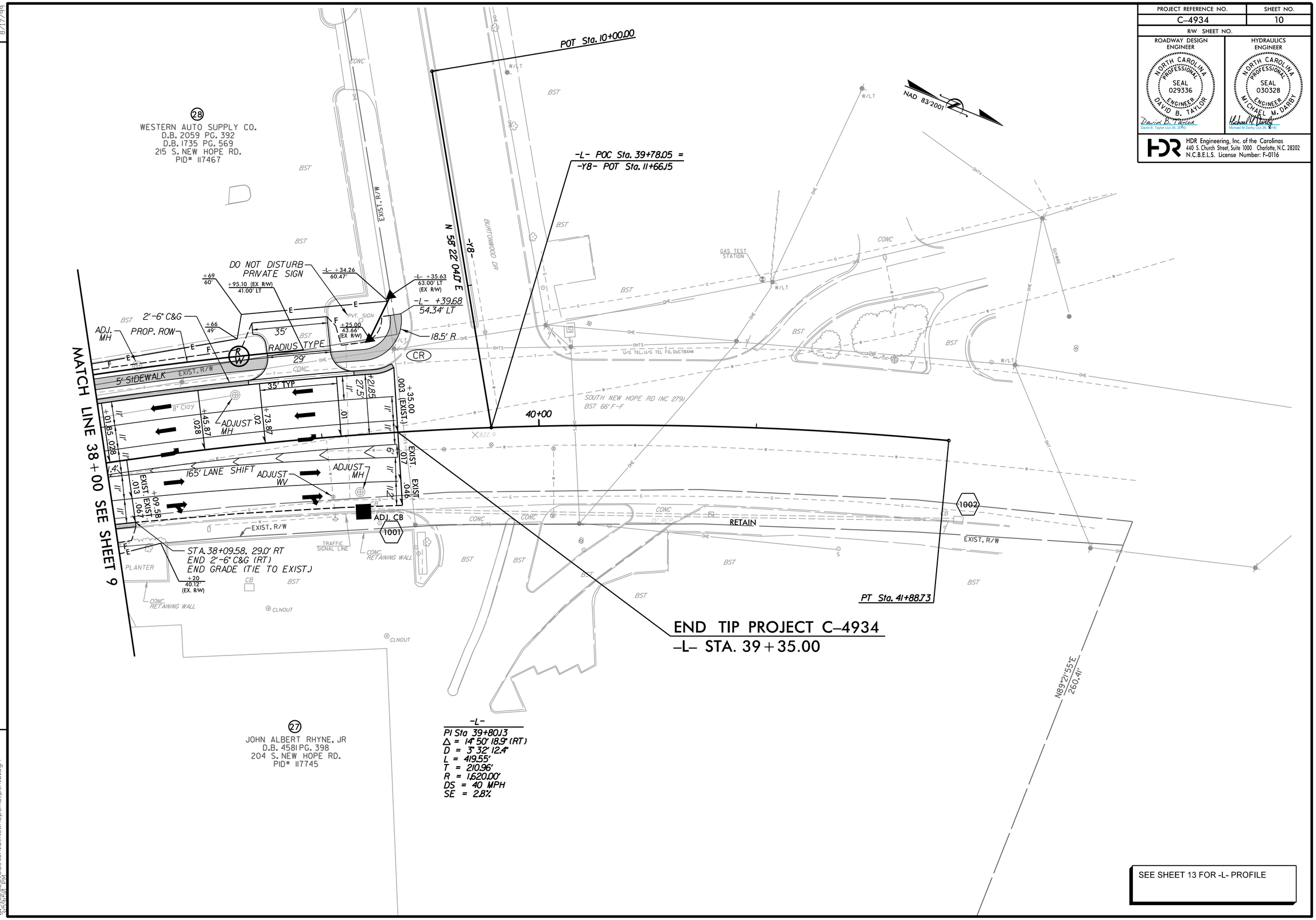
7/26/2018
10:29:21 AM
C:\Projects\Gastonia_NewHopeRd_psh09.dgn

PROJECT REFERENCE NO.	SHEET NO.
C-4934	10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor (Jul 26, 2016)

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
Michael M Darby (Jul 26, 2016)

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116



SEE SHEET 13 FOR -L- PROFILE

REVISIONS

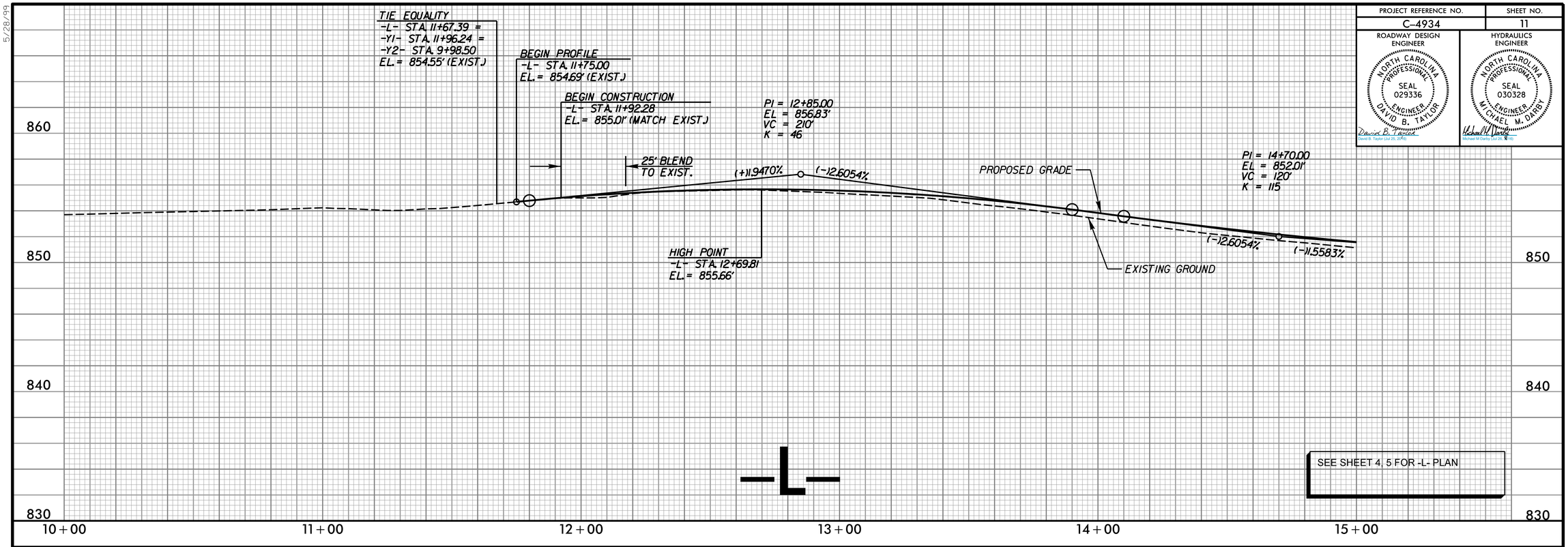
8/17/99

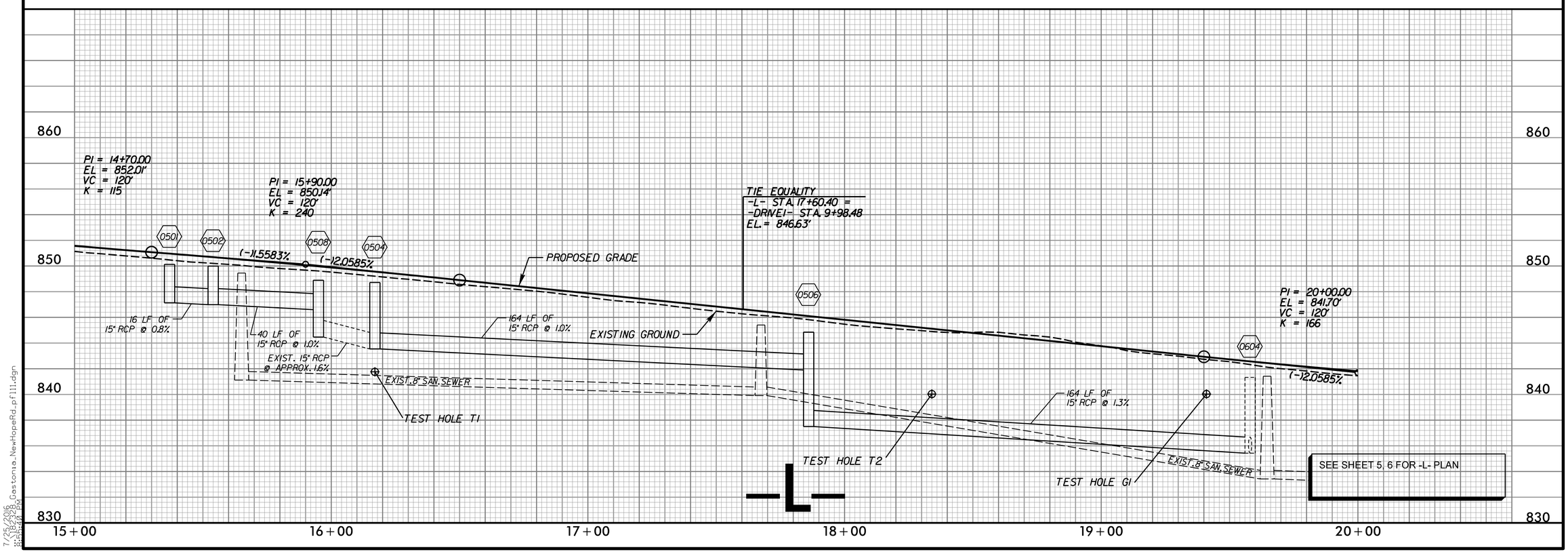
7/26/2016
1:26:20 PM
Gastonia_NewHopeRd_psh10.dgn

PROJECT REFERENCE NO.	SHEET NO.
C-4934	11

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor
David B. Taylor (ul) 05.28.99

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MITCHELL M. DARBY
Michael M. Darby
Michael M. Darby (ul) 05.28.99





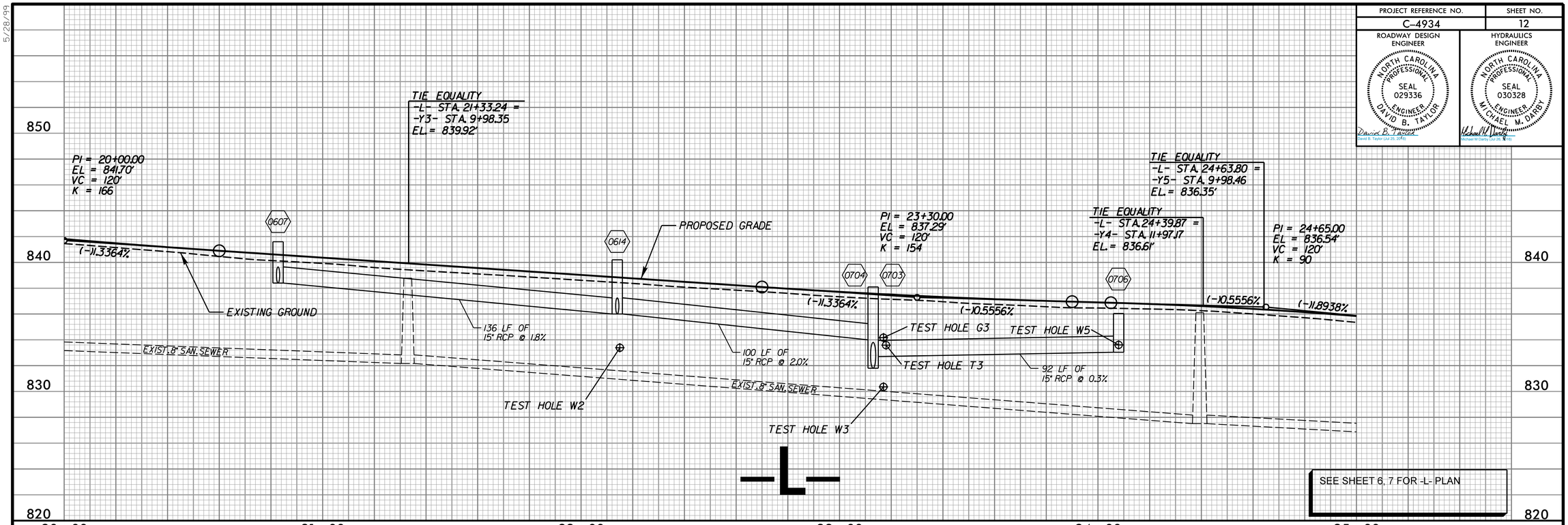
5/28/99

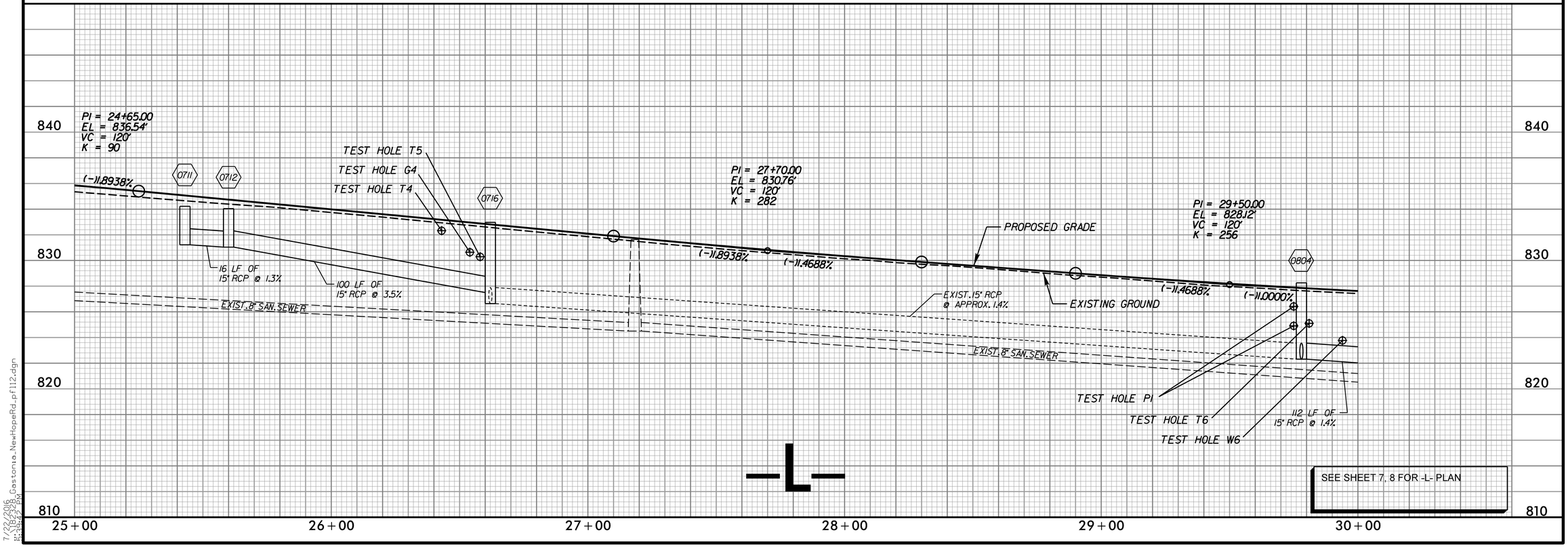
7/25/2016
12:32:28 PM
Gastonia_NewHopeRd_pf111.dgn

PROJECT REFERENCE NO.	SHEET NO.
C-4934	12

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor
David B. Taylor Jul 25, 2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
Michael M Darby
Michael M Darby Jul 25, 2016





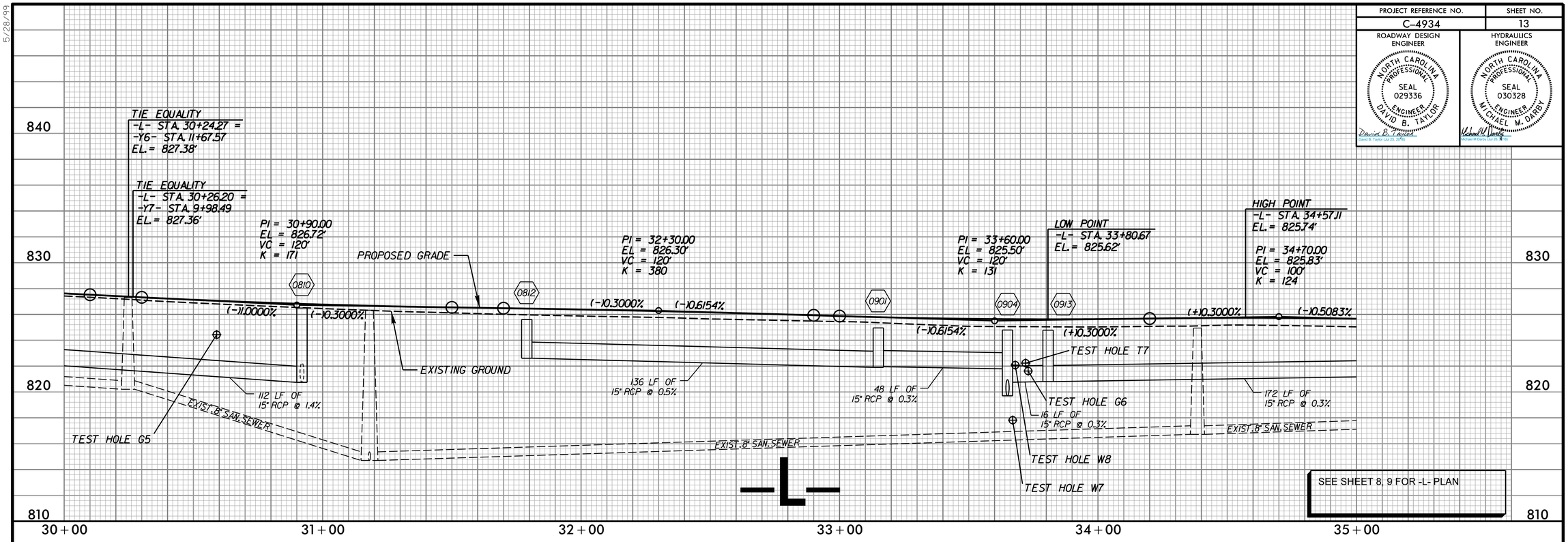
5/28/99

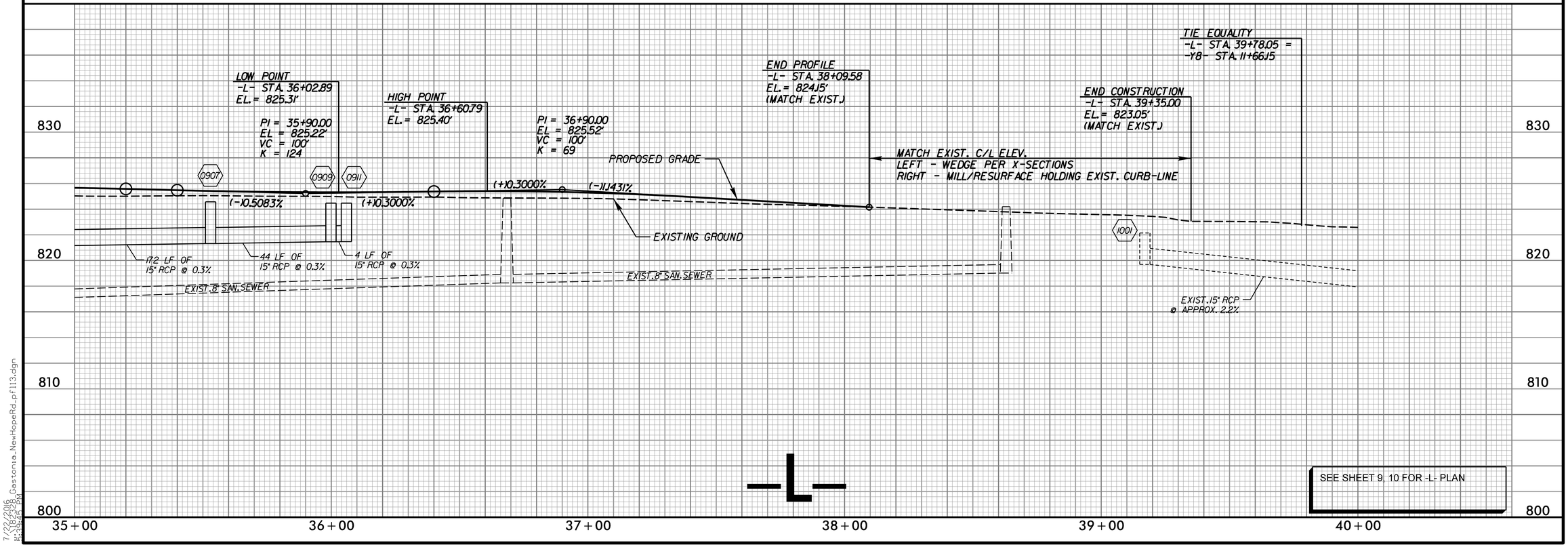
7/22/2016
C:\Projects\R-5301B_Gastonia_NewHopeRd_pf112.dgn
8:39:42 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	13

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor
David B. Taylor Jul 25, 2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
Michael M. Darby
Michael M. Darby Jul 25, 2016





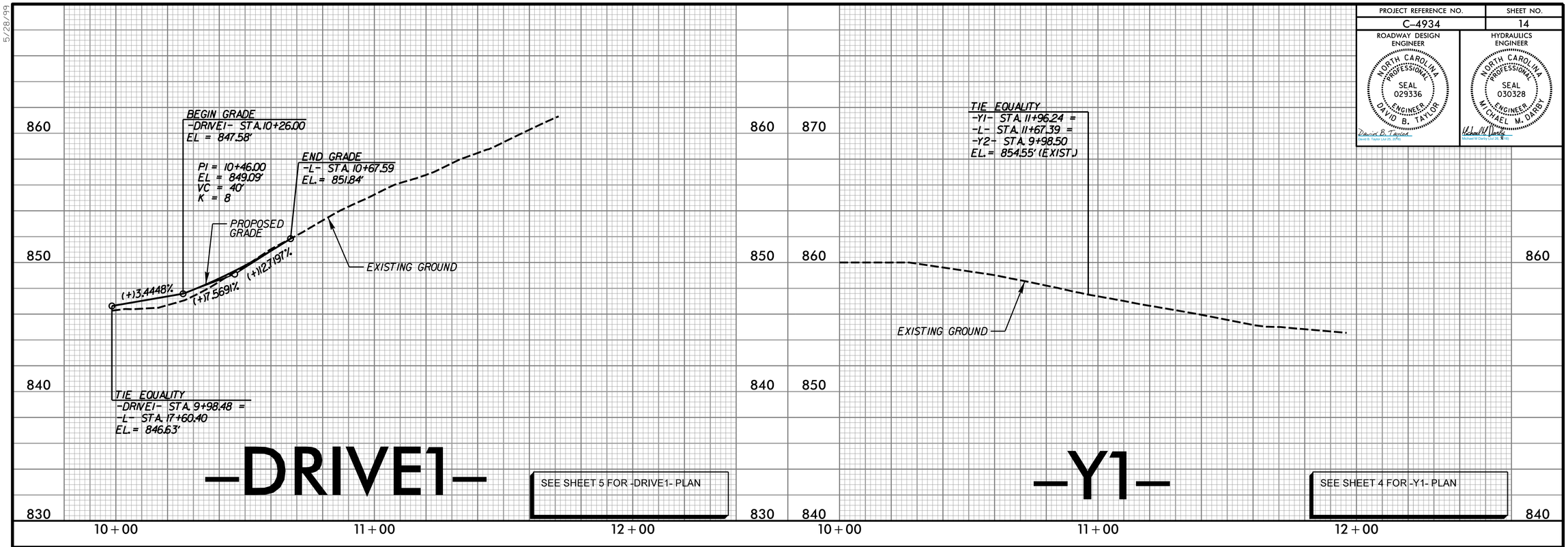
5/28/99

7/22/2016
C:\Projects\Gastonia_NewHopeRd_pf113.dgn
8:39:26 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor
David B. Taylor (Jul 28, 2016)

NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MICHAEL M. DARBY
Michael M. Darby
Michael M. Darby (Jul 28, 2016)



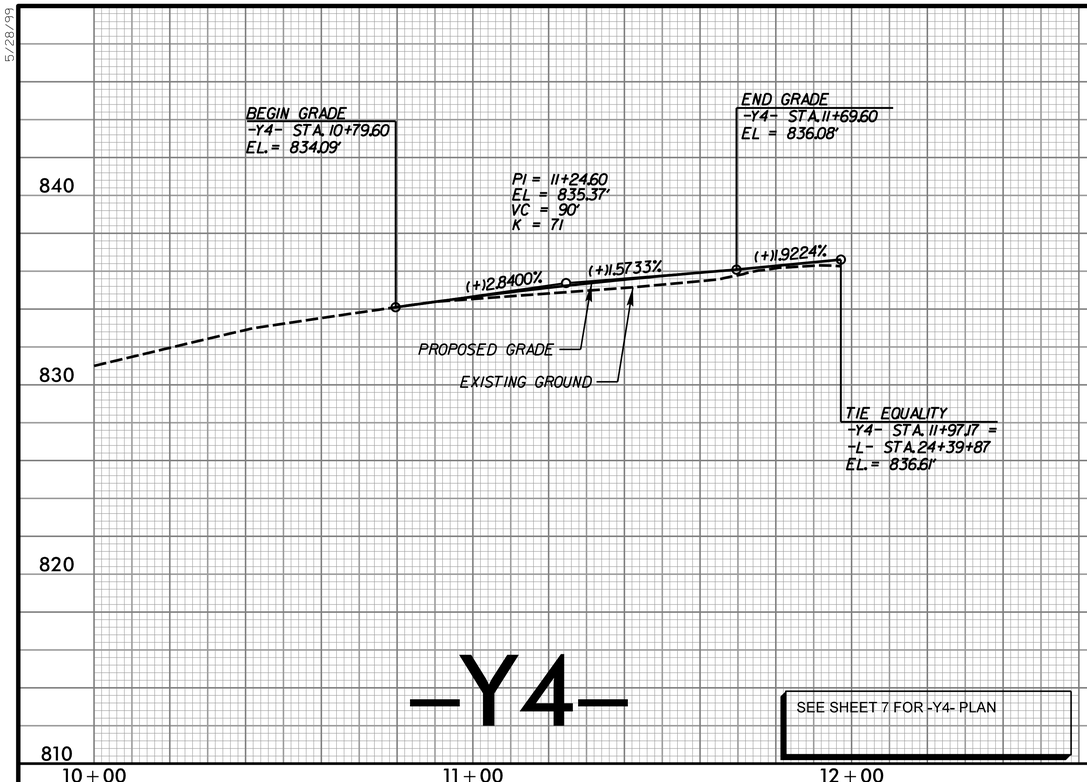
5/28/99

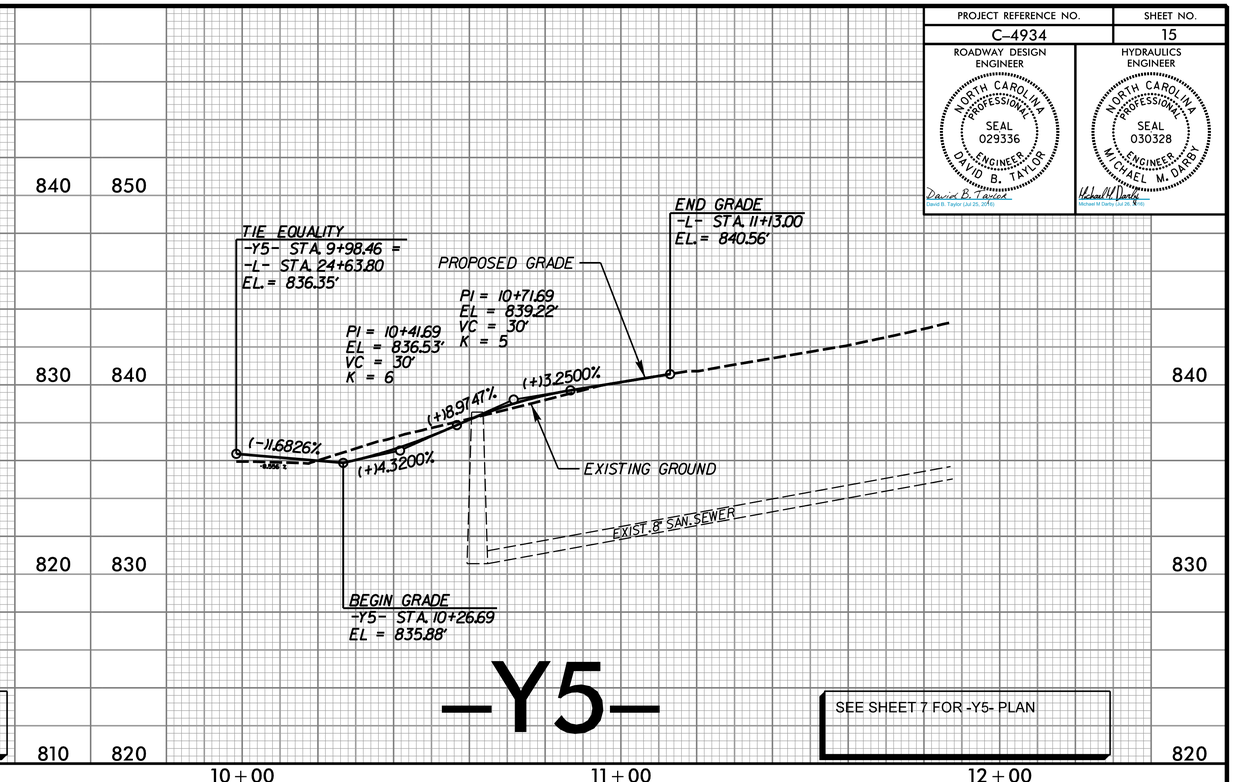
7/22/2016
10:02:28 AM
R:\Gastonia_NewHopeRd_pf114.dgn

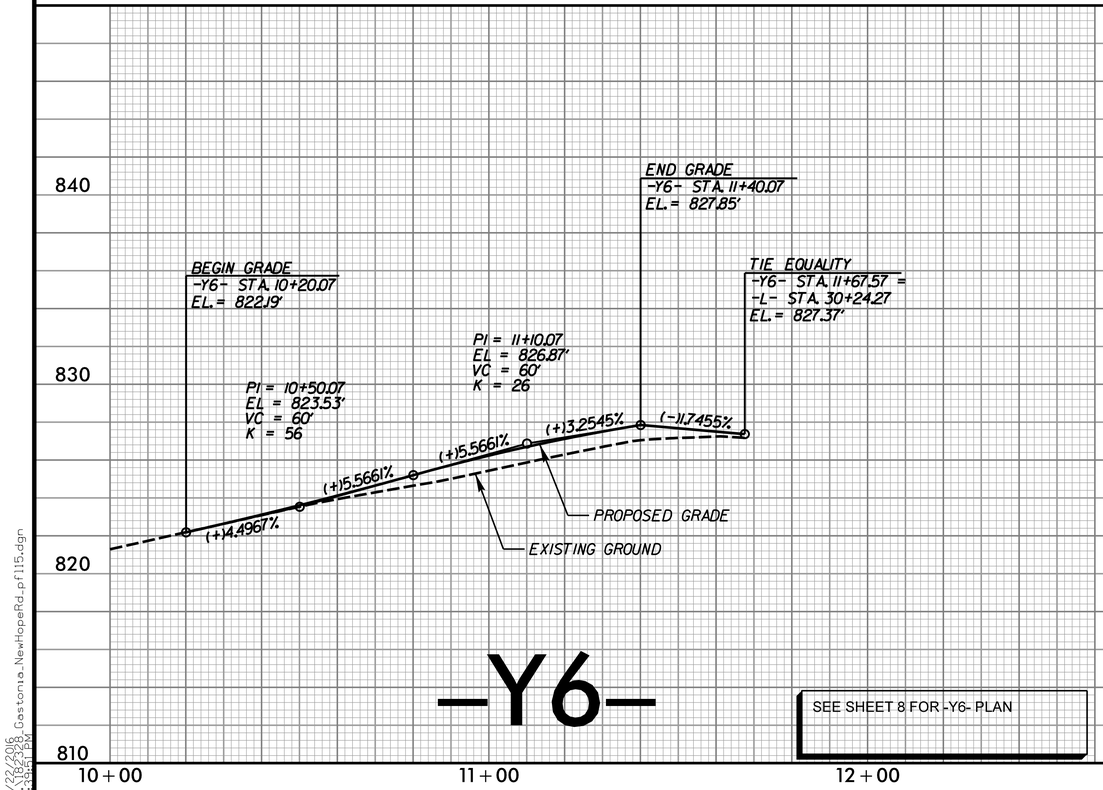
PROJECT REFERENCE NO.	SHEET NO.
C-4934	15

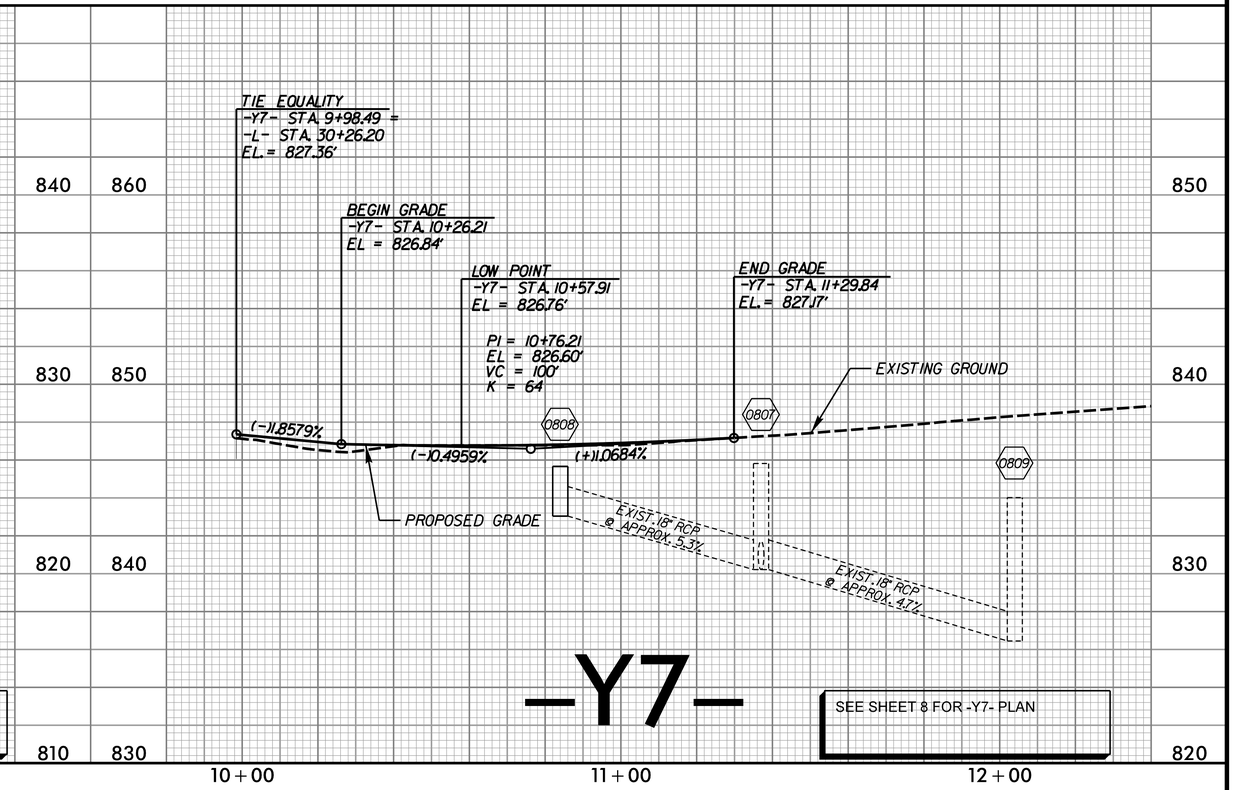
ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR
David B. Taylor
David B. Taylor, Jul 25, 2016

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 030328 ENGINEER MITCHAEL M. DARBY
Michael M. Darby
Michael M. Darby, Jul 25, 2016









5/28/99

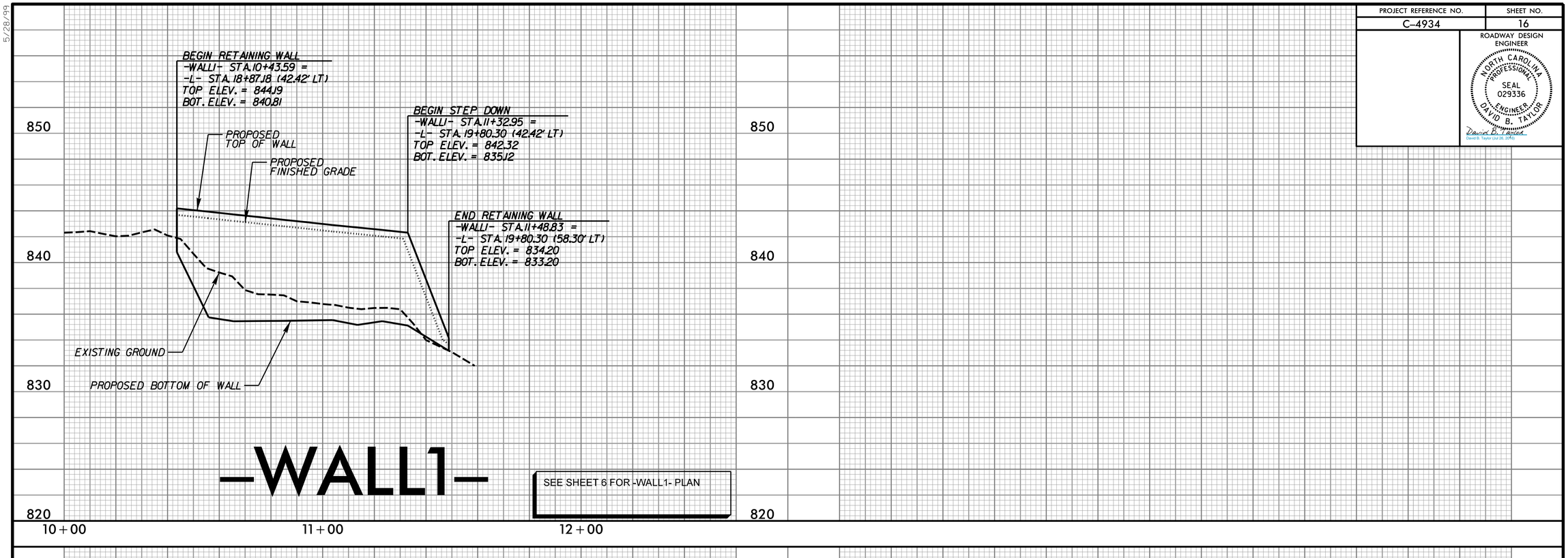
7/22/2016
C:\SDP\Projects\Gastonia_NewHopeRd_pf115.dgn
8:39:51 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	16

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 029336 ENGINEER DAVID B. TAYLOR

David B. Taylor
David B. Taylor (jul 28, 2016)



SEE SHEET 6 FOR -WALL1- PLAN

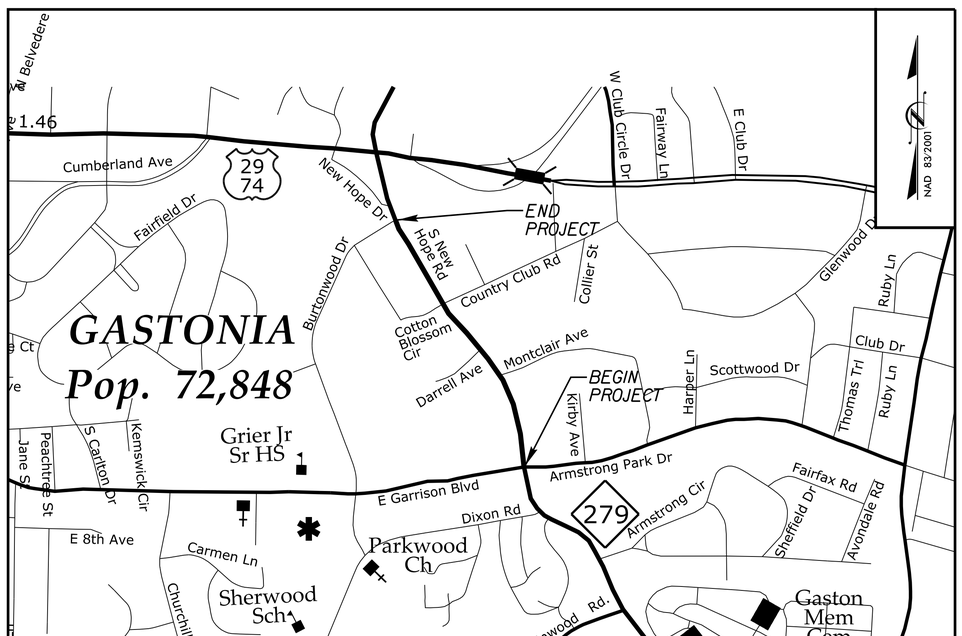
5/28/99
7/22/2016
12:06:26 PM
R:\Proj\C4934_Gastonia_NewHopeRd_pf116.dgn

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

GASTON COUNTY

LOCATION: NC 279 (S NEW HOPE RD) WIDENING BETWEEN SR 2200 (ARMSTRONG PARK DR) / SR 2466 (E GARRISON BLVD) AND BURTONWOOD DR



VICINITY MAP

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

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

J. S. BOURNE, P.E. — STATE TRAFFIC MANAGEMENT ENGINEER
JAY WOOLARD, P.E. — TRAFFIC CONTROL PROJECT ENGINEER
R. M. GARRETT — TRAFFIC CONTROL PROJECT DESIGN ENGINEER
_____ TRAFFIC CONTROL DESIGN ENGINEER

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

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKING
TMP-2	PROJECT NOTES
TMP-2A	SPECIAL DETAILS
TMP-3	PHASING
TMP-4	PHASE 1
TMP-5	PHASE 2

PLAN PREPARED BY: HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

BENJAMIN SCHOENBAUER, P.E. — TRAFFIC CONTROL PROJECT ENGINEER
_____ TRAFFIC CONTROL DESIGN ENGINEER

02/06/15 DATE SUBMITTED
SUBMITTAL:
- [ ] STAGING CONCEPT
- [ ] MIDPOINT
- [x] PRE-FINAL
- [ ] FINAL

DO NOT USE FOR CONSTRUCTION

APPROVED: Benjamin P. Schoenbauer
DATE: Benjamin P. Schoenbauer (Jul 26, 2016)

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 035496 ENGINEER BENJAMIN SCHOENBAUER

SHEET NO. TMP-1

C-4934

TIP PROJECT:

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: dataylor DATE: 7/25/2016 TIME: 4:28:47 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\00024\00000000182328\13.00_CAD\Traffic\TrafficControl\TCP\C-4934_TMP_TMP-01.dgn

PROJ. REFERENCE NO.	SHEET NO.
C-4934	TMP-1A

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- NORTH ARROW
- EXIST. PVMT.
- PROPOSED PVMT.
- WORK AREA
- PAVEMENT REMOVAL AREA (SEE ROADWAY PLANS)

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

SIGNALS

EXISTING — PROPOSED — TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

PA	4" WHITE EDGE LINE (PAINT)
PC	4" WHITE 10'-30'/SP. SKIP (PAINT)
PD	4" WHITE 2'-13'/SP. MINI-SKIP (PAINT)
PI	4" DOUBLE YELLOW CENTER (PAINT)
P2	24" WHITE STOP BAR (PAINT)
QA	LEFT ARROW (PAINT)
QB	RIGHT ARROW (PAINT)
QC	STRIAGHT ARROW (PAINT)
QD	STRIAGHT LEFT ARROW (PAINT)
QE	STRIAGHT RIGHT ARROW (PAINT)

APPROVED: Stephen P. Schonhoen DATE:
Stephen P. Schonhoen (Jul 26, 2016)

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 035496 ENGINEER BENJAMIN SCHOENBAUER

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

ROADWAY STANDARD DRAWINGS & LEGEND

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: datoylor DATE: 7/25/2016 TIME: 4:28:48 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\0000000001823281\13.00.CAD\Traffic\TrafficControl\TCP\C-4934_TMP-01.dgn

PROJ. REFERENCE NO.	SHEET NO.
C-4934	TMP-2

HDR Engineering, Inc. of the Carolinas
440 S. Church St. Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

PROJECT NOTES

GENERAL NOTES

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

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

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	
1.-L- (NC 279/S. NEW HOPE RD) (FROM BEGIN PROJECT TO -Y5- DARRELL AVE) ALL OTHER ROADS	MONDAY-FRIDAY:	7:00A.M.-9:00A.M. 3:00P.M.-6:00P.M.
2.-L- (NC 279/S. NEW HOPE RD) (FROM -Y5-DARRELL AVE TO END PROJECT) ALL -L- CLOSING 2 LANES (SEE TMP-2A)	MONDAY-FRIDAY: SATURDAY-SUNDAY:	5:00A.M.-8:00P.M. 8:00A.M.-6:00P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

-L- (NC 279/S. NEW HOPE RD)
ALL OTHER ROADS

HOLIDAY

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

2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 7:00 A.M. DECEMBER 31ST TO 6:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 7:00 A.M. THURSDAY AND 6:00 P.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M. TUESDAY TO 6:00 P.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

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

LANE CLOSURE REQUIREMENTS

D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

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

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

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

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

H) DO NOT INSTALL MORE THAN 1 MILE OF LANE CLOSURE, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.

I) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION.

PAVEMENT EDGE DROP OFF REQUIREMENTS

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

   BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

   BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

   BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

K) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 200' IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

L) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

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

O) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 200' IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

P) WHEN LANE CLOSURES ARE NOT IN EFFECT, SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

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

PAVEMENT MARKINGS AND MARKERS

R) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL ROADS	PAINT	N/A

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

T) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

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

V) TRACE THE EXISTING AND/OR PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO REMOVAL AND/OR INSTALLATION. PLACE DRUMS, CONES, OR TUBULAR MARKERS TO DELINEATE ANY EXISTING AND/OR PROPOSED MONOLITHIC ISLANDS AFTER REMOVAL AND/OR BEFORE INSTALLATION.

MISCELLANEOUS

W) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.

X) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 200 FT AND 200 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

Y) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.

Z) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.)

LOCAL NOTES

1) NO WORK SHALL BE PERMITTED WITHIN TEMPORARY CONSTRUCTION EASEMENTS (TCE) ON COMMERCIAL PARCELS AS FOLLOWS:

   DAY AND TIME RESTRICTIONS

   MONDAY-FRIDAY: 7:00A.M.-6:00P.M.

2) CONTRACTOR SHALL MAINTAIN ALL VEHICULAR AND PEDESTRIAN ACCESS AS REQUIRED BY STANDARD SPECIFICATIONS 1101-14 AND 1101-15.

3) SEE ROADWAY GENERAL NOTES FOR ADDITIONAL NOTES ON DRIVEWAYS AND TEMPORARY CONSTRUCTION EASEMENTS IN PARKING LOTS.

APPROVED: Stephen C. Schulduke, Acting Director of Transportation Mobility & Safety Division, 12/18/2016 DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 035496 ENGINEER BENJAMIN SCHOENBAUER

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

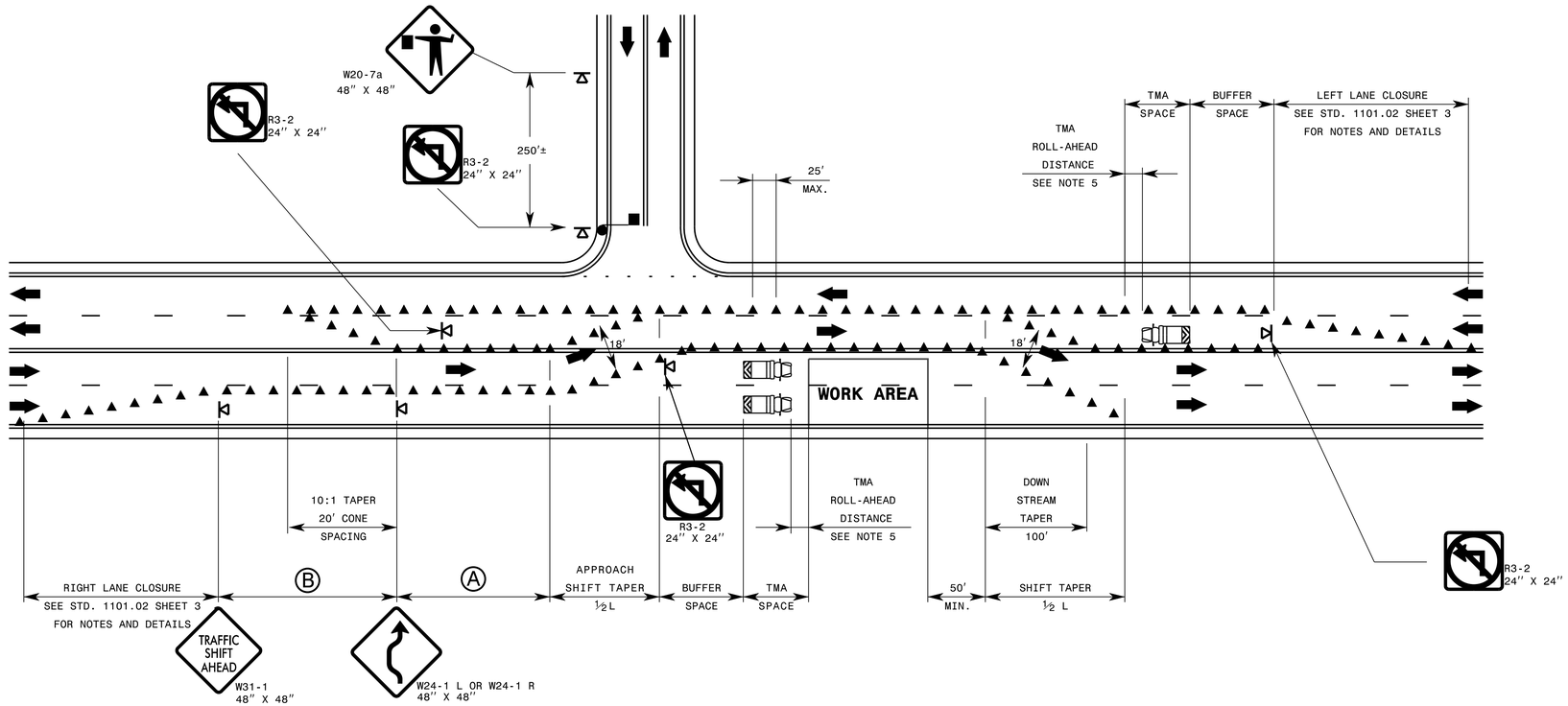
PROJECT NOTES
(GENERAL NOTES)

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: dataylor DATE: 7/25/2016 TIME: 4:28:52 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\00000000018232 8\13.00_CAD\Traffic\TrafficControl\TCP\C-4934_TMP_TMP-02.dgn

PROJ. REFERENCE NO.	SHEET NO.
C-4934	TMP-2A

HDR Engineering, Inc. of the Carolinas
440 S Church St, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

TEMPORARY LANE CLOSURES
4-LANE, 2-WAY ROADWAY
2 THRU LANES CLOSED



GENERAL NOTES

1- REFER TO STD. 1101.11, FOR "L" DISTANCE AND SIGN SPACING.

2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.

3- PLACE CONES ADJACENT TO THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT. PLACE CONES SEPARATING OPPOSING TRAFFIC AT THE MAXIMUM SPACING OF 25 FEET.

4- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE BEGINNING OF THE APPROACH SHIFT TAPER (REFER TO STD. 1101.11 SHEET 2).

5- TMA'S ARE REQUIRED WHEN A BUFFER SPACE CANNOT BE ATTAINED, OR WHEN DIRECTED BY THE ENGINEER OR AS SHOWN IN THE PLANS. WHEN USED, POSITION TMA'S TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY THE MANUFACTURER.

6- DRUMS OR SKINNY-DRUMS MAY BE USED IN LIEU OF CONES. REFER TO ROADWAY STANDARD DRAWING 1180.01 FOR SKINNY-DRUM REQUIREMENTS.

7- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

LEGEND

- TMA
- FLAGGER
- CONE
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW

TEMPORARY LANE CLOSURES
4-LANE, 2-WAY ROADWAY
2 THRU LANES CLOSED

APPROVED: Benjamin F. Schoenbauer DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 035496 ENGINEER BENJAMIN SCHOENBAUER

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

SPECIAL DETAIL
TEMPORARY LANE CLOSURE
4-LANE, 2-WAY ROADWAY
2 THRU LANES CLOSED

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: datoylor DATE: 7/25/2016 TIME: 4:28:57 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\0000000018232813.00.CAD\Traffic\TrafficControl\TCP\C-4934_TMP_TMP-02A.dgn

PHASING

PROJ. REFERENCE NO.	SHEET NO.
C-4934	TMP-3

HDR Engineering, Inc. of the Carolinas
440 S. Church St, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

NOTES:
INSTALL WORK ZONE ADVANCE WARNING SIGNS USING RSD 1101.01, SHEET 2 OF 3 PRIOR TO BEGINNING ANY WORK. (SEE GENERAL NOTE "N" ON SHEET TMP-2)

RETURN TRAFFIC TO THE CURRENT TRAFFIC PATTERN AT THE END OF EACH WORK PERIOD UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER. (SEE LOCAL NOTES ON SHEET TMP-2)

MAINTAIN VEHICULAR ACCESS TO ALL RESIDENCES AND BUSINESSES DURING THE LIFE OF THE CONTRACT UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER. (SEE LOCAL NOTES ON SHEET TMP-2)

COMPLETE ANY PROPOSED WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANE.

LAW ENFORCEMENT MAY BE USED AT SIGNALIZED INTERSECTIONS, IN ADDITION TO TRAFFIC CONTROL STATED IN THE PHASING BELOW.

COMPLETE PAVING, UP TO EXISTING EDGE AND ELEVATION OR UP TO BUT NOT INCLUDING THE FINAL SURFACE COURSE, UNTIL PHASE 3 OR AS DIRECTED BY ENGINEER.

PHASE 1

STEP 1:

USING LANE CLOSURES (RSD 1101.02, SHEETS 1, 3, 7 AND 12 OF 15, AND TMP-2A), PLACE DRUMS, OTHER TRAFFIC CONTROL DEVICES AND TEMPORARY PAVEMENT MARKINGS FOR PHASE 1 PATTERNS. REMOVE ALL CONFLICTING PAVEMENT MARKINGS. (SEE SHEET TMP-4)

STEP 2:

USING LANE CLOSURES (RSD 1101.02, SHEETS 3 AND 7 OF 15, AND TMP-2A), CONSTRUCT EACH PIPE THAT CROSSES -L- IN A CONTINUOUS MANNER. EXCAVATIONS MUST BE BACK-FILLED AT THE END OF EACH WORK PERIOD.

USING LANE CLOSURES (RSD 1101.02, SHEETS 1, 3 AND 7 OF 15, AND TMP-2A) AND LAW ENFORCEMENT, CONSTRUCT TEMPORARY TRAFFIC SIGNAL AT INTERSECTION OF -L- (S NEW HOPE RD) AND -Y6- (COTTON BLOSSOM CIR) / -Y7- (COUNTRY CLUB RD). (SEE SHEET TMP-4, ROADWAY PLANS, AND SIGNALIZATION PLANS)

USING LANE CLOSURES (RSD 1101.02, SHEETS 1, 3 AND 7 OF 15, AND TMP-2A), CONSTRUCT PROPOSED IMPROVEMENTS ON RIGHT SIDE. PAVEMENT ELEVATIONS AND DRAINAGE STRUCTURES SHALL BE CONSTRUCTED IN SUCH A MANNER THAT POSITIVE DRAINAGE IS MAINTAINED AT ALL TIMES. (SEE SHEET TMP-4 AND ROADWAY PLANS)

STEP 3:

USING LANE CLOSURES (RSD 1101.02, SHEETS 1, 3 AND 7 OF 15, AND TMP-2A), CONSTRUCT PAVEMENT WIDENING ON RIGHT SIDE SUCH THAT PAVEMENT WIDENING Y-LINE / DRIVEWAY CONNECTIONS MATCH EDGE AND ELEVATIONS OF -L- (S NEW HOPE RD) TRAVEL LANES AT THE END OF PHASE 1. (WEDGE EXISTING TRAVEL LANES TO MATCH ELEVATIONS).

PHASE 2

STEP 1:

USING LANE CLOSURES (RSD 1101.02, SHEETS 1, 3, 7 AND 12 OF 15, AND TMP-2A), INSTALL TEMPORARY TRAFFIC SIGNAL MODIFICATIONS, PLACE DRUMS, OTHER TRAFFIC CONTROL DEVICES AND TEMPORARY PAVEMENT MARKINGS FOR PHASE 2 PATTERNS. REMOVE ALL CONFLICTING PAVEMENT MARKINGS. (SEE SHEET TMP-5)

STEP 2:

USING LANE CLOSURES (RSD 1101.02, SHEETS 1, 3 AND 7 OF 15, AND TMP-2A), CONSTRUCT PROPOSED IMPROVEMENTS ON LEFT SIDE. PAVEMENT ELEVATIONS AND DRAINAGE STRUCTURES SHALL BE CONSTRUCTED IN SUCH A MANNER THAT POSITIVE DRAINAGE IS MAINTAINED AT ALL TIMES. (SEE SHEET TMP-5 AND ROADWAY PLANS)

STEP 3:

USING LANE CLOSURES (RSD 1101.02, SHEETS 1, 3 AND 7 OF 15, AND TMP-2A), CONSTRUCT PAVEMENT WIDENING ON LEFT SIDE SUCH THAT PAVEMENT WIDENING Y-LINE / DRIVEWAY CONNECTIONS MATCH EDGE AND ELEVATIONS OF -L- (S NEW HOPE RD) TRAVEL LANES AT THE END OF PHASE 2. (WEDGE EXISTING TRAVEL LANES TO MATCH ELEVATIONS).

PHASE 3

MAINTAIN ALL TRAFFIC IN PHASE 2 PATTERNS AT THE END OF EACH WORK PERIOD UNTIL ALL PAVEMENT WEDGING AND RESURFACING IS COMPLETED. (SEE SHEET TMP-5)

STEP 1:

USING LANE CLOSURES (RSD 1101.02, SHEETS 1, 3, 7 AND 12 OF 15, AND TMP-2A) AND/OR LAW ENFORCEMENT, PERFORM THE FOLLOWING:

- COMPLETE INSTALLATION OF FINAL SIGNALS (SEE SIGNALIZATION PLANS),
- INSTALL ALL REMAINING FINAL SIGNING (SEE SIGNING PLANS),
- COMPLETE ALL PAVEMENT WEDGING AND RESURFACING,
- PLACE TEMPORARY MARKING IN THE FINAL PATTERN (SEE PAVEMENT MARKING PLANS), ACTIVATE FINAL SIGNAL, AND OPEN ALL LANES TO THE FINAL TRAFFIC PATTERNS.

STEP 2:

USING LANE CLOSURES (RSD 1101.02, SHEETS 1, 3, 7 AND 12 OF 15, AND TMP-2A), AS NECESSARY, PLACE FINAL SURFACE COURSE AND FINAL PAVEMENT MARKINGS AND MARKERS ON ALL ROADS, THEN RETURN TRAFFIC TO THE FINAL TRAFFIC PATTERNS. (SEE FINAL PAVEMENT MARKING PLAN)

STEP 3:

REMOVE ALL TRAFFIC CONTROL DEVICES.

APPROVED: Stephen F. Wiedenbeck Stephen F. Wiedenbeck (Jul 26, 2016) DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 035496 ENGINEER BENJAMIN SCHOENBAUER

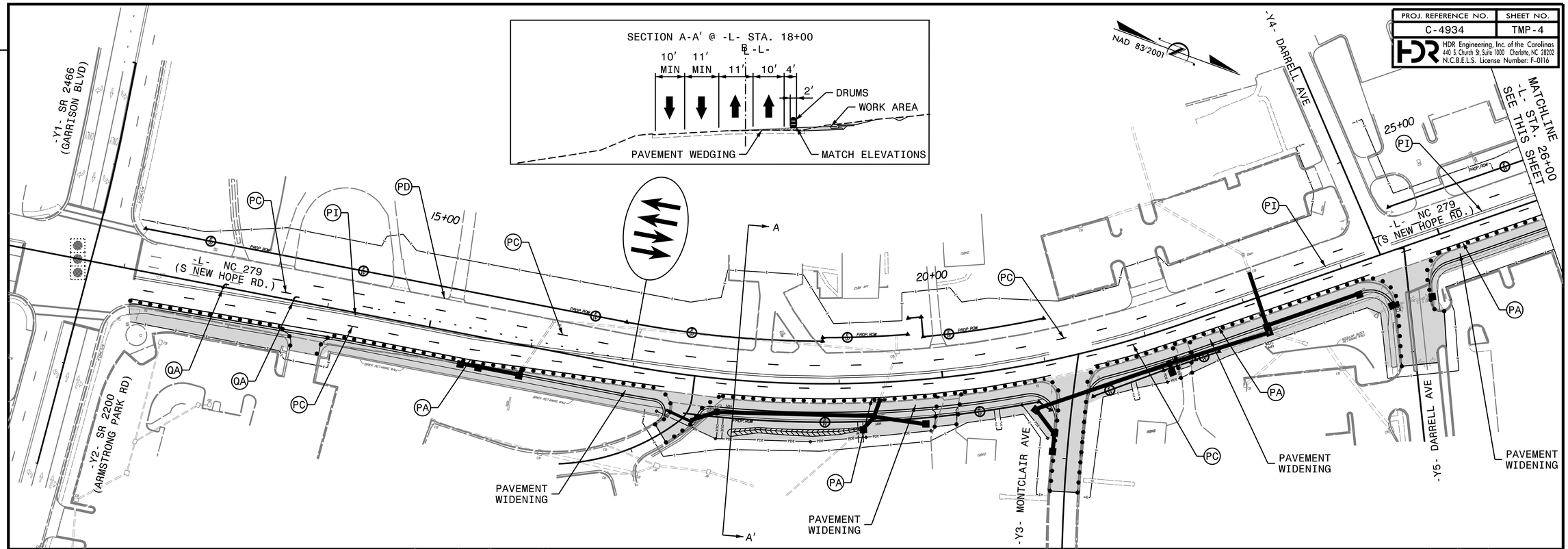
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

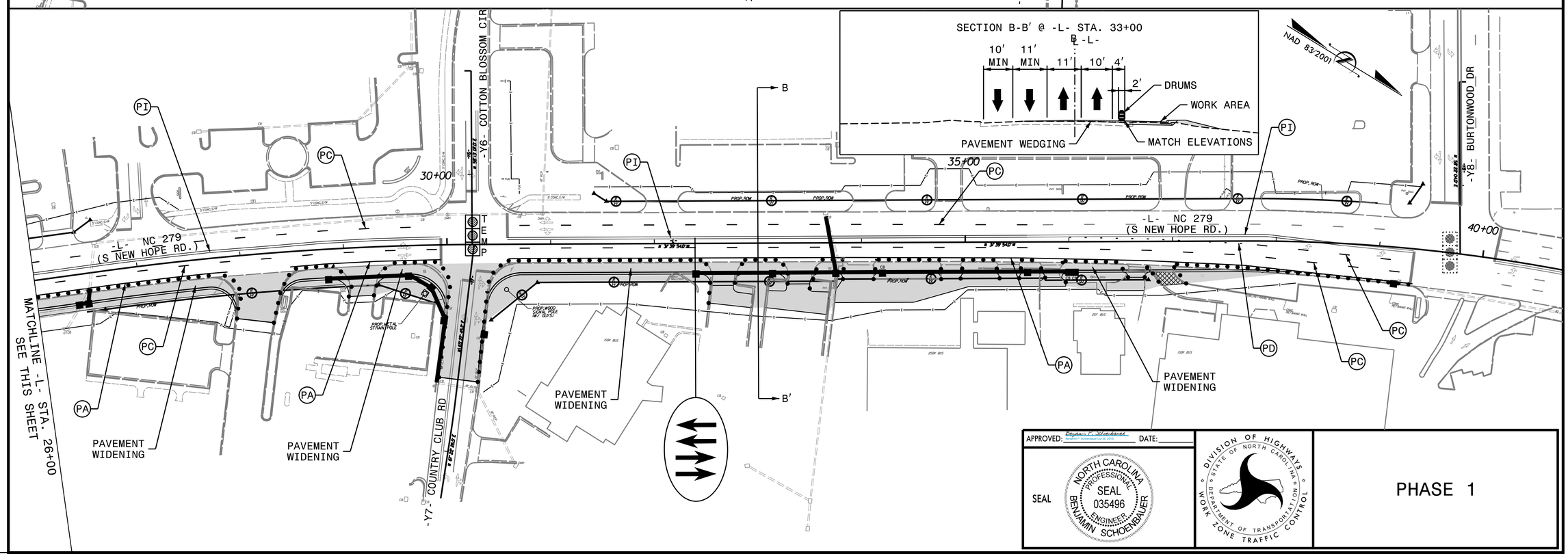
PHASING

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: dataylor DATE: 7/25/2016 TIME: 4:29:01 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\0000000018232813.00_CAD\Traffic\TrafficControl\TCP\C-4934_TMP_TMP-03.dgn

PROJ. REFERENCE NO.	SHEET NO.
C-4934	TMP-4

HDR Engineering, Inc. of the Carolinas
440 S. Church St, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116





APPROVED: Stephen P. Wheatley DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 035496 ENGINEER BENJAMIN SCHOENBAUER

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

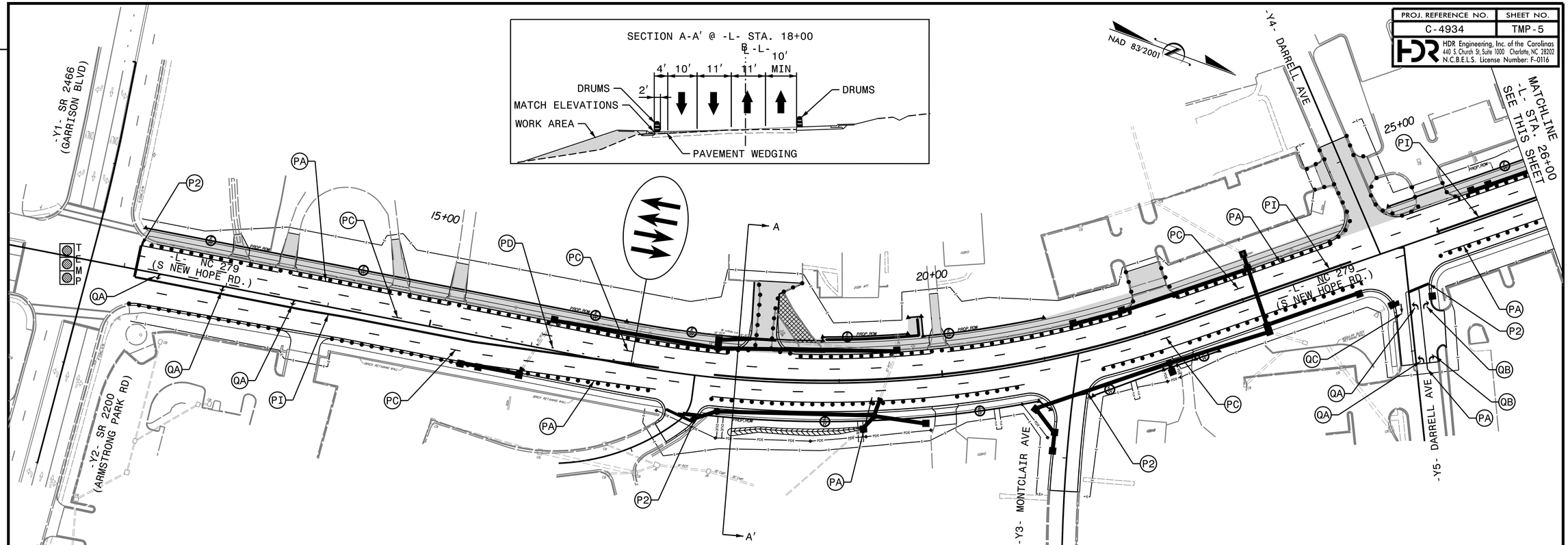
PHASE 1

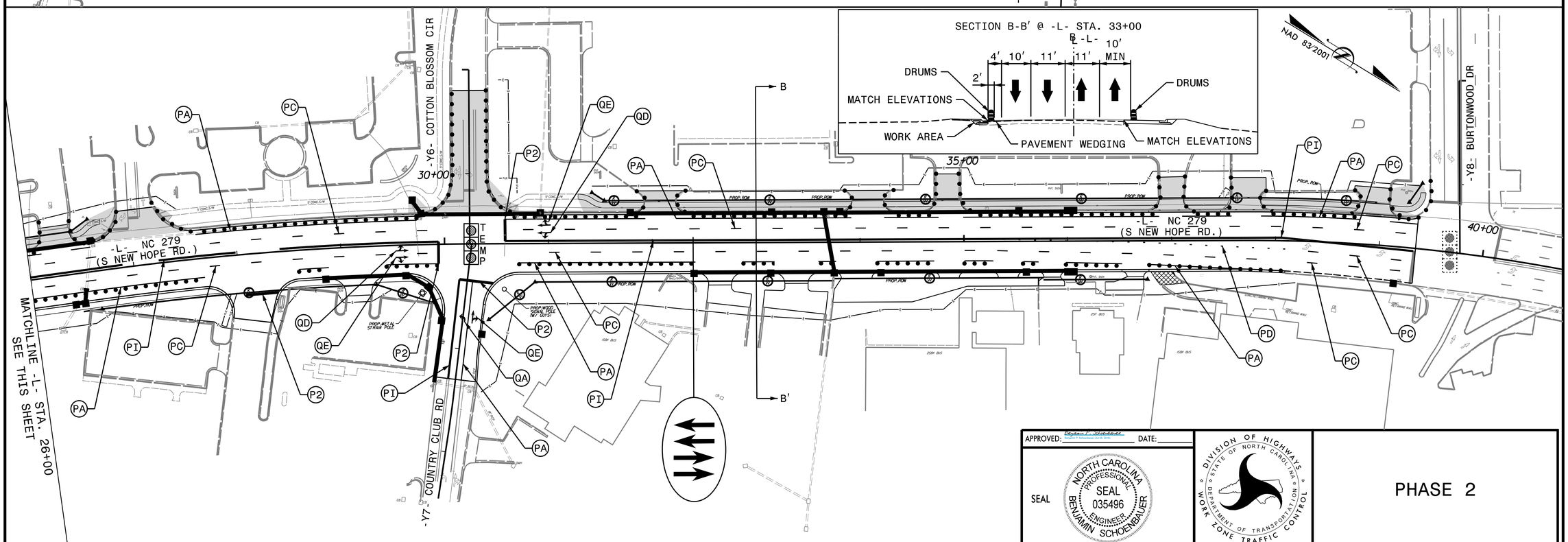
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: dotaylor DATE: 7/25/2016 TIME: 6:38:14 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\0002240\00000000018232B\13.00.CAD\Traffic\TrafficControl\TCP\C-4934_TMP-04.dgn

PROJ. REFERENCE NO.	SHEET NO.
C-4934	TMP-5

HDR Engineering, Inc. of the Carolinas
440 S. Church St, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116





APPROVED: Stephen P. Schonhardt Stephen P. Schonhardt (Jul 26, 2016) DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 035496 ENGINEER BENJAMIN SCHOENBAUER

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

PHASE 2

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: dataylor DATE: 7/25/2016 TIME: 6:38:37 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\00000000018232B\13.00.CAD\Traffic\TrafficControl\TCP\C-4934_TMP_TMP-05.dgn

TIP NO.	SHEET NO.
C-4934	PMP-1

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
GASTON COUNTY

LOCATION: NC 279 (S NEW HOPE RD) WIDENING BETWEEN SR 2200 (ARMSTRONG PARK DR) /SR 2466 (E GARRISON BLVD) AND BURTONWOOD DR

T.I.P. PROJECT: C-4934

CONTRACT: DL00111

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

GENERAL NOTES

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

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
ALL ROADS	THERMOPLASTIC	SNOWPLOWABLE

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

E) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

INDEX

SHEET NO.	DESCRIPTION
PMP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, INDEX OF SHEETS, AND GENERAL NOTES
PMP-1A	PAVEMENT MARKING SCHEDULE
PMP-1B	CROSSWALK PAVEMENT MARKING GUIDANCE DETAIL
PMP-2 AND PMP-4	PAVEMENT MARKING PLANS

PLAN PREPARED FOR: N.C.D.O.T. SIGNING AND DELINEATION UNIT

KELVIN JORDAN — SIGNING & DELINEATION REGIONAL ENGINEER

_____ — SIGNING & DELINEATION PROJECT DESIGN ENGINEER/TECHNICIAN

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

APPROVED: Michelle Ward
Michelle Ward (Jul 26, 2016)

NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

DATE:

PLANS PREPARED BY:

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

DAVID B. TAYLOR, PE	ROADWAY PROJECT MANAGER
MICHELLE WARD, P.E.	PAVEMENT MARKING PROJECT ENGINEER
CHRIS HARNDEN	PAVEMENT MARKING PROJECT DESIGNER

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: datoylor DATE: 7/25/2016 TIME: 4:24:08 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\0000000001182328\13.00_CAD\Traffic\Pavement Markings\C-4934_PMP_PMP-01.dgn

TIP NO.	SHEET NO.
C-4934	PMP-1A

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

PAVEMENT MARKING SCHEDULE

T2	THERMOPLASTIC 24″ WHITE STOPBAR
T8	THERMOPLASTIC 4″ 2′-6′/SP. WHITE MINI-SKIP
TC	THERMOPLASTIC 4″ 10′-30′/SP. WHITE SKIP
TD	THERMOPLASTIC 4″ 3′-9′/SP. WHITE MINI-SKIP
TE	THERMOPLASTIC 4″ WHITE SOLID LANE LINE
TF	THERMOPLASTIC 4″ 10′-30′/SP. YELLOW SKIP
TI	THERMOPLASTIC 4″ YELLOW DOUBLE CENTER
TH	THERMOPLASTIC 4″ YELLOW SINGLE CENTER
TN	THERMOPLASTIC 8″ WHITE GORELINE
TO	THERMOPLASTIC 8″ WHITE DIAGONAL
TP	THERMOPLASTIC 8″ YELLOW DIAGONAL
TQ	THERMOPLASTIC 8″ WHITE CROSSWALK LINE
UA	THERMOPLASTIC LEFT TURN ARROW
UB	THERMOPLASTIC RIGHT TURN ARROW
UC	THERMOPLASTIC STRAIGHT ARROW
UF	THERMOPLASTIC COMBO STRAIGHT-RIGHT ARROW

REVISIONS

APPROVED: Michelle Ward DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

PAVEMENT MARKING SCHEDULE

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: dataylor DATE: 7/25/2016 TIME: 4:24:09 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\00000000018232813.00_CAD\Traffic\Pavement Markings\C-4934_PMP_PMP-01.dgn

TIP NO.	SHEET NO.
C-4934	PMP-1B

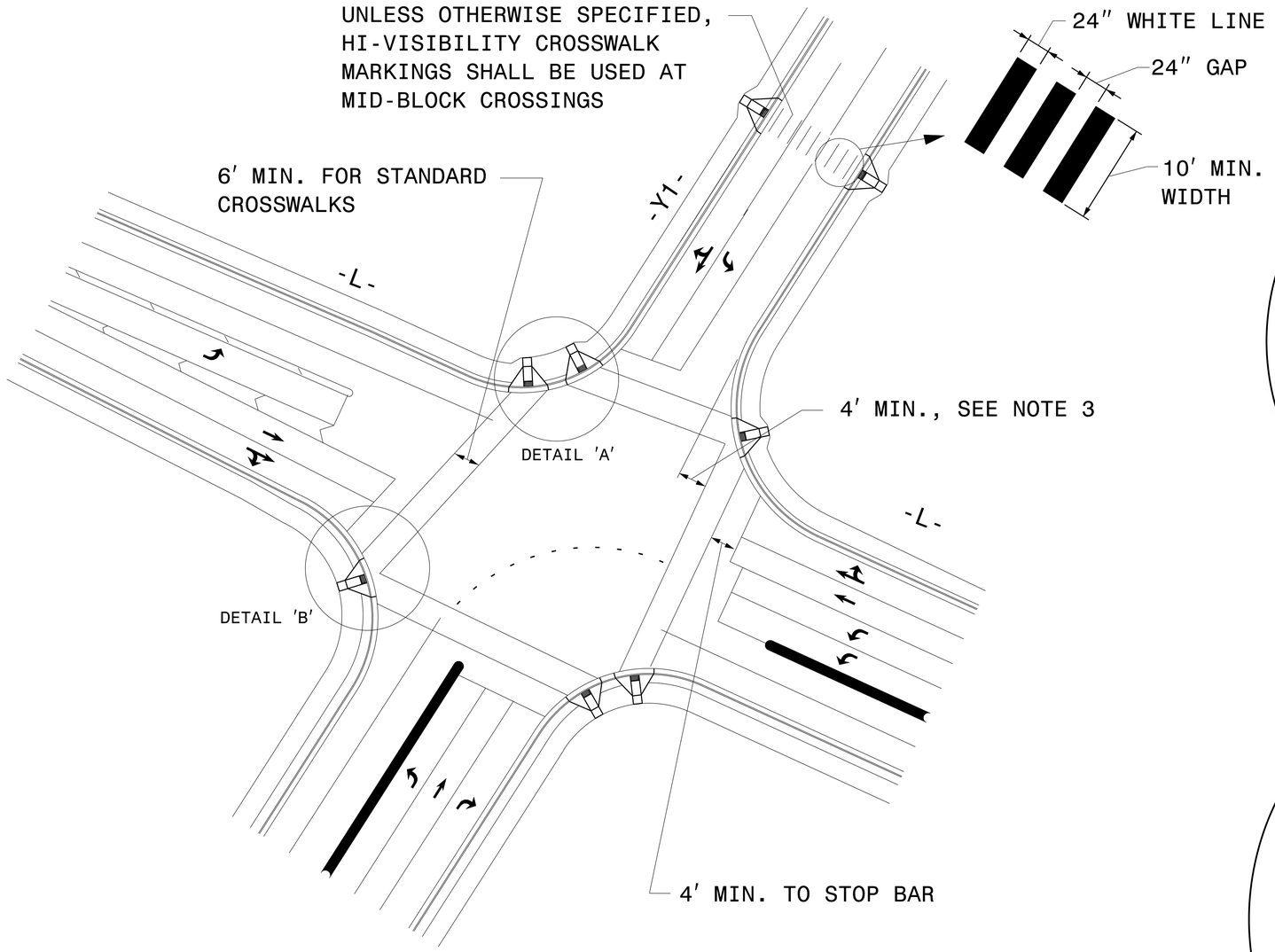
APPROVED: Michelle Ward
Michelle Ward (Jul 26, 2016)

DATE:

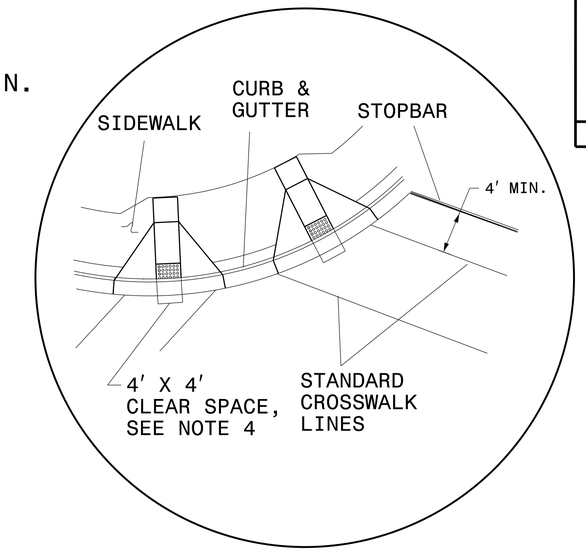
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

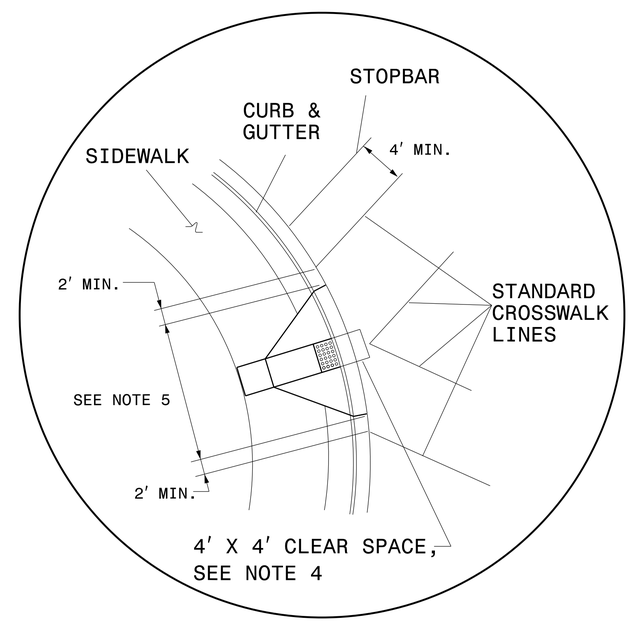
REVISIONS



GUIDANCE DETAIL FOR CROSSWALK MARKINGS



DETAIL 'A'- DUAL CURB RAMPS



DETAIL 'B'- SINGLE DIAGONAL CURB RAMP

NOTES:

1. USE THE DETAILS ABOVE AND THE FOLLOWING NOTES FOR GUIDANCE IN PLACING CROSSWALK MARKINGS NOT STATIONED ON THE DETAIL SHEETS OR WHEN FIELD ADJUSTMENTS REQUIRED MOVING STATIONED MARKINGS AS DIRECTED BY THE ENGINEER. REFER TO NCDOT ROADWAY STANDARD DRAWINGS, MUTCD AND ADA STANDARDS FOR ADDITIONAL GUIDANCE.

2. THE CROSSWALK MARKINGS SHOWN ON THE ABOVE DETAILS ARE FOR REFERENCE ONLY. ONLY INSTALL CROSSWALK MARKINGS WHERE SHOWN ON THE DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER. THE CROSSWALK MARKING TYPE, STANDARD OR HI-VISIBILITY, SHALL BE INSTALL AS SPECIFIED ON THE DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER.

3. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL IS 4' MIN.

4. BEYOND THE BOTTOM GRADE BRAKE, A CLEAR SPACE OF 4' X 4' MINIMUM SHALL BE PROVIDED WITHIN THE MARKINGS.

5. SINGLE DIAGONAL CURB RAMPS WITH FLARED SIDES SHALL HAVE A SEGMENT OF CURB 2 FEET LONG MINIMUM LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING, SEE DETAIL 'B'.

6. CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE TO THE LATEST NCDOT ROADWAY STANDARD DRAWINGS.

CROSSWALK PAVEMENT MARKING GUIDANCE DETAIL

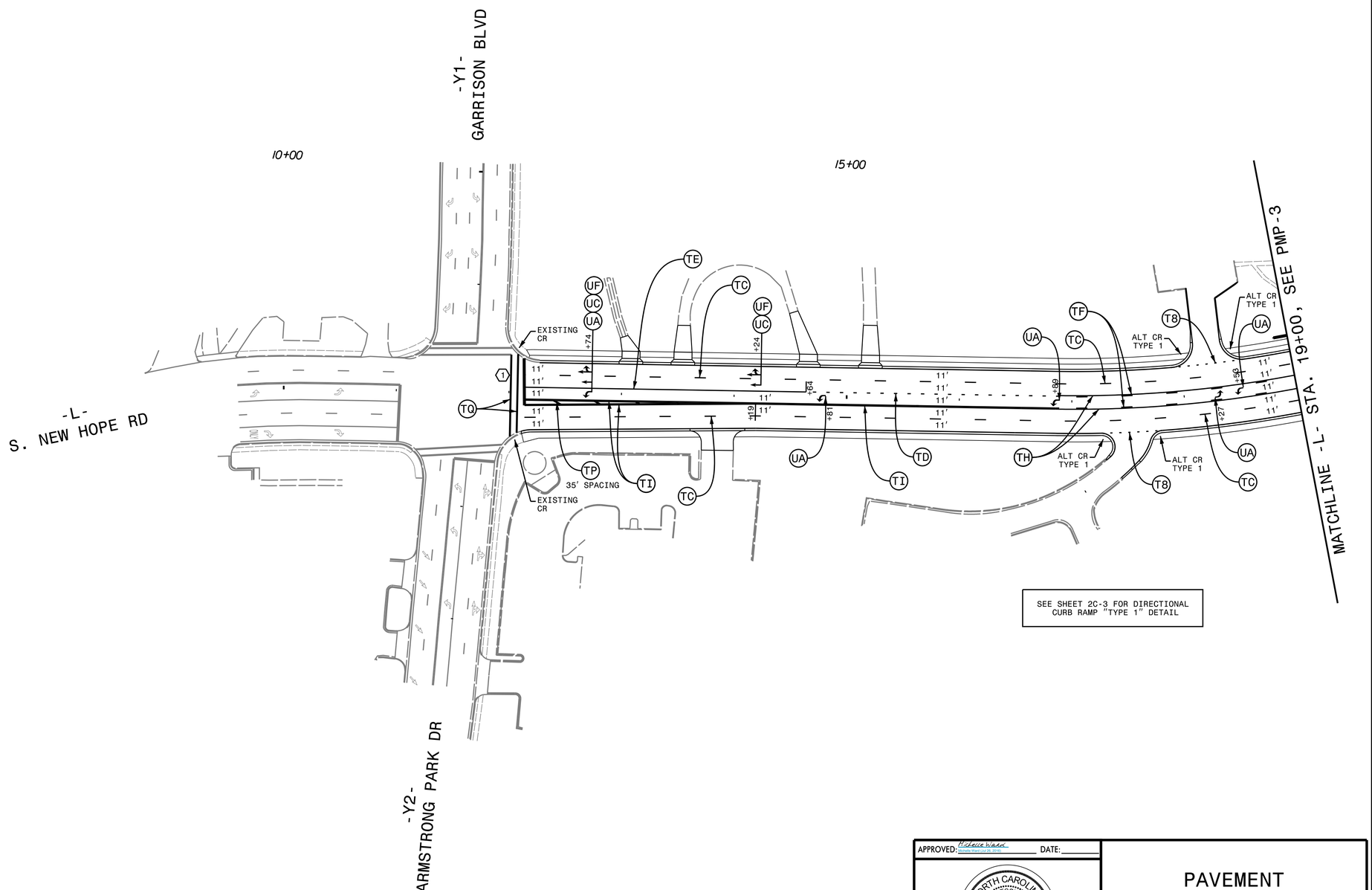
7/25/2016
DGN: ...\PPTPAO\SouthEast_Tampa\Documents\000224\000000000182328\13.00_CAD\Traffic\Pavement Markings\C-4934_PMP_PMP-01.dgn
4:24:09 PM

8/13

TIP NO.	SHEET NO.
C-4934	PMP-2

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

T2 STOPBAR LOCATIONS	
1	-L- STA. 12+14.01, 10.61' RT to -L- STA. 12+13.04, 31.28' LT



SEE SHEET 2C-3 FOR DIRECTIONAL CURB RAMP "TYPE 1" DETAIL

APPROVED: Michelle Ward DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

PAVEMENT MARKING PLAN

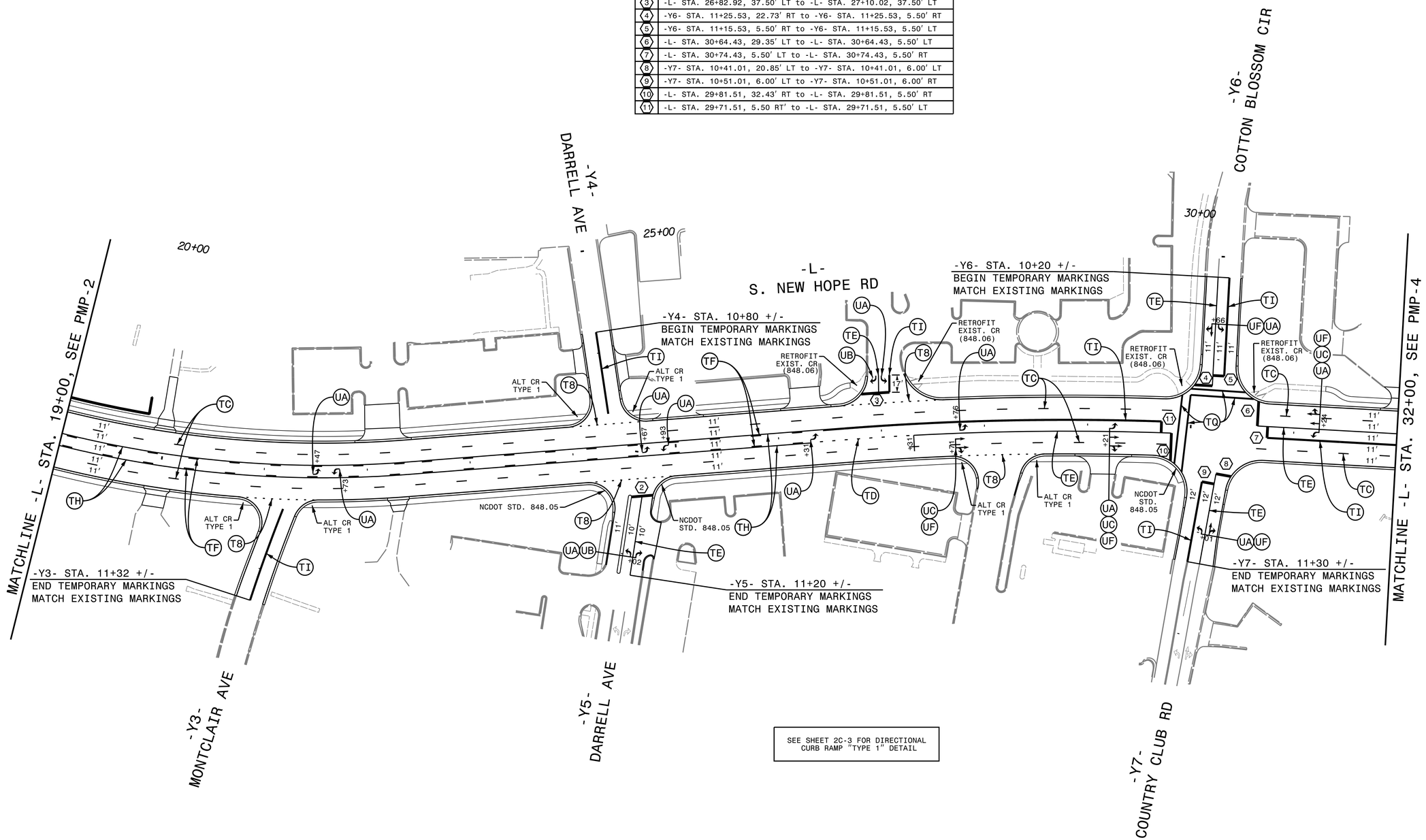
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: datoylor DATE: 7/26/2016 TIME: 3:14:27 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\00000000182328\13.00_CAD\Traffic\Pavement Markings\C-4934_PMP_PMP-02.dgn

TIP NO.	SHEET NO.
C-4934	PMP-3

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

(T2) STOPBAR LOCATIONS	
2	-Y5- STA. 10+44.23, 0.00′ LT to -Y5- STA. 10+39.52, 20.25′ LT
3	-L- STA. 26+82.92, 37.50′ LT to -L- STA. 27+10.02, 37.50′ LT
4	-Y6- STA. 11+25.53, 22.73′ RT to -Y6- STA. 11+25.53, 5.50′ RT
5	-Y6- STA. 11+15.53, 5.50′ RT to -Y6- STA. 11+15.53, 5.50′ LT
6	-L- STA. 30+64.43, 29.35′ LT to -L- STA. 30+64.43, 5.50′ LT
7	-L- STA. 30+74.43, 5.50′ LT to -L- STA. 30+74.43, 5.50′ RT
8	-Y7- STA. 10+41.01, 20.85′ LT to -Y7- STA. 10+41.01, 6.00′ LT
9	-Y7- STA. 10+51.01, 6.00′ LT to -Y7- STA. 10+51.01, 6.00′ RT
10	-L- STA. 29+81.51, 32.43′ RT to -L- STA. 29+81.51, 5.50′ RT
11	-L- STA. 29+71.51, 5.50 RT′ to -L- STA. 29+71.51, 5.50′ LT



SEE SHEET 2C-3 FOR DIRECTIONAL CURB RAMP "TYPE 1" DETAIL

APPROVED: Michelle Ward DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

PAVEMENT MARKING PLAN

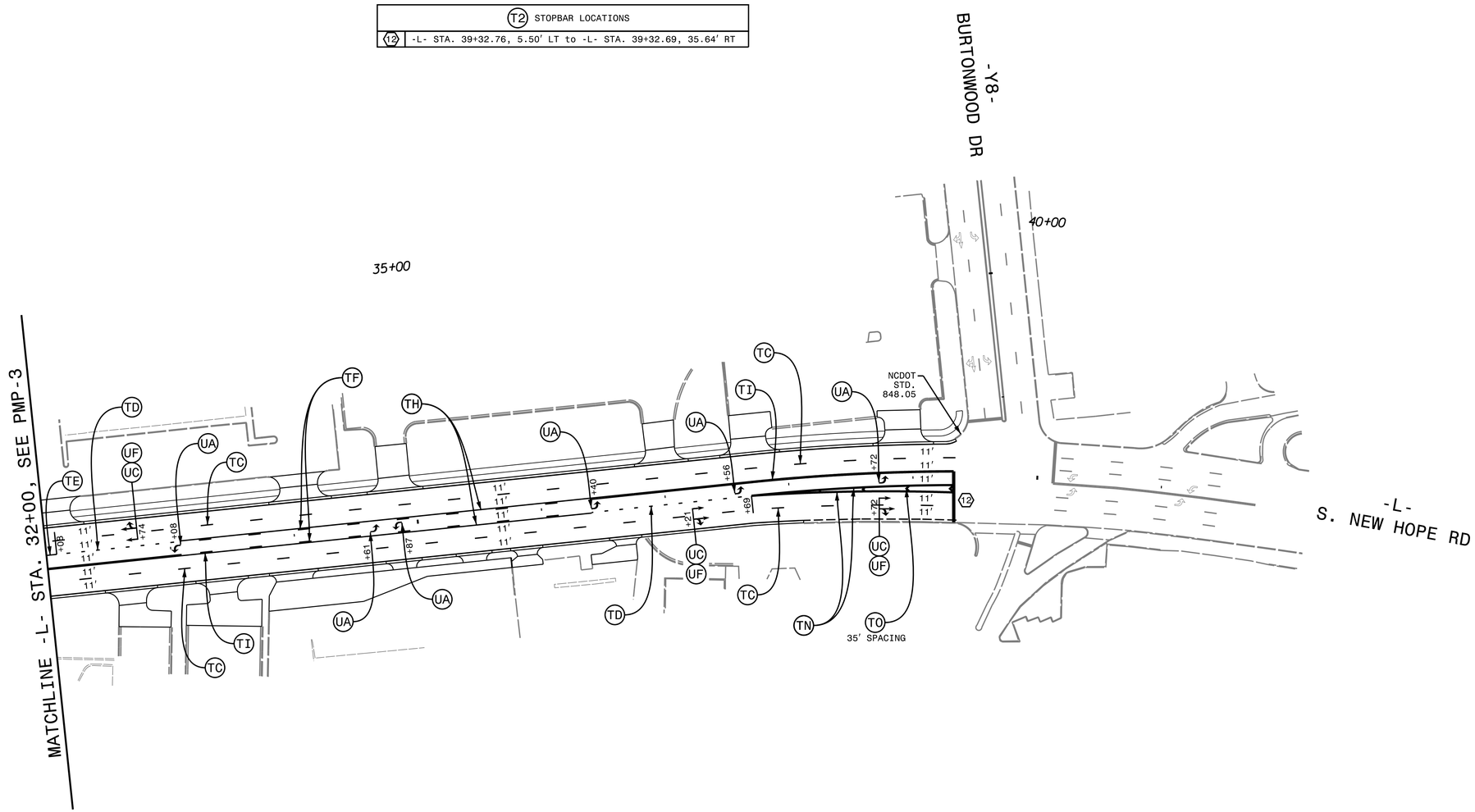
REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: datoylor DATE: 7/26/2016 TIME: 3:10:15 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\00000000182328\13.00_CAD\Traffic\Pavement Markings\C-4934_PMP_PMP-03.dgn

TIP NO.	SHEET NO.
C-4934	PMP-4

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

T2	STOPBAR LOCATIONS
12	-L- STA. 39+32.76, 5.50' LT to -L- STA. 39+32.69, 35.64' RT



APPROVED: Michelle Ward (Michelle Ward (Jul 28, 2016)) DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 033789 ENGINEER MICHELLE WARD

PAVEMENT MARKING PLAN

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_tcp.tbl
USER: dataylor DATE: 7/26/2016 TIME: 3:10:47 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\0000000001823 28\13.00_CAD\Traffic\Pavement Markings\C-4934_PMP_PMP-04.dgn

TIP PROJECT: C-4934

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

GASTON COUNTY

LOCATION: NC 279 (S NEW HOPE RD) WIDENING BETWEEN SR 2200 (ARMSTRONG PARK DR) /SR 2466 (E GARRISON BLVD) AND BURTONWOOD DR

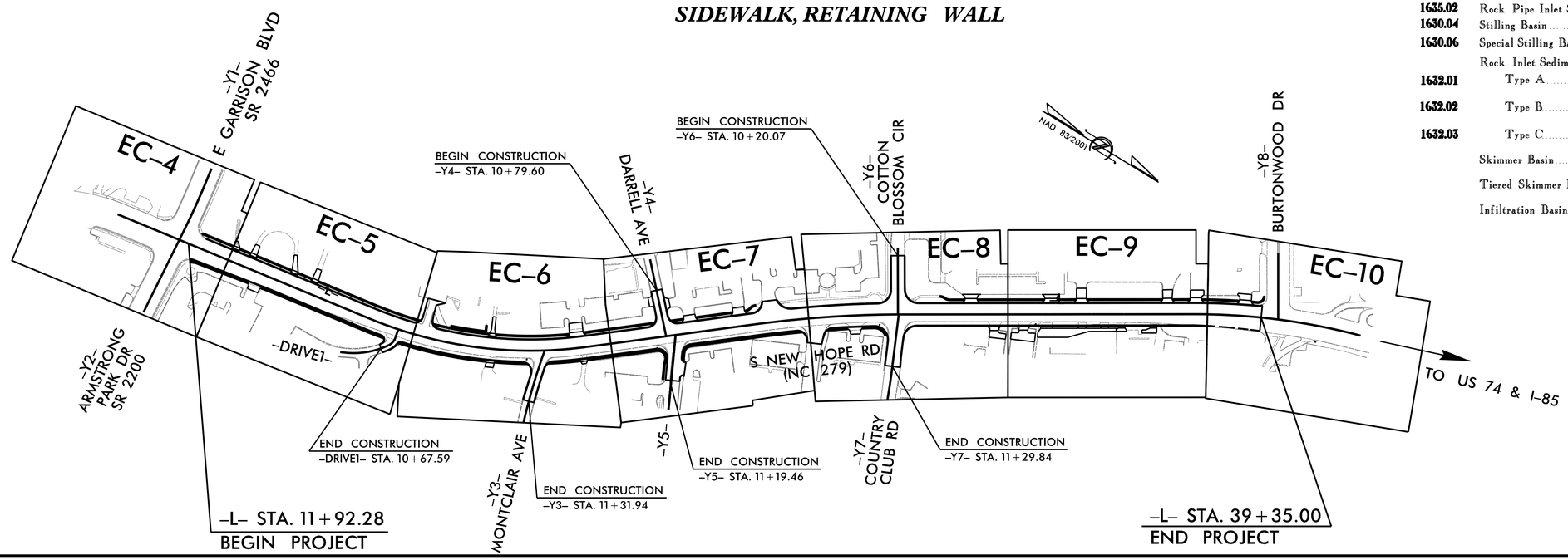
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB & GUTTER, SIDEWALK, RETAINING WALL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	C-4934	EC-1	9

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44034.1.1	CMS-279(S)	PE
44034.2.1	CMS-279(S)	R/W
44034.3.1	CMS-279(S)	CONST.

EROSION AND SEDIMENT CONTROL MEASURES

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



GRAPHIC SCALE

10 0 20 40

PLANS

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

Prepared in the Office of:

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

2012 STANDARD SPECIFICATIONS

Designed by:

Wyatt D. Yelverton, PE, CPESC ***3609***

NAME *LEVEL III CERTIFICATION NO.*

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Reviewed by:

Jeremy Goodwin, PE, CPESC, CPSWQ

Roadside Enviornmental Engineer
Divisions 6, 11 & 12

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

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

7/14/2016
...\182288_C4934_Gaston_NewHope_EC01_TSH.dgn

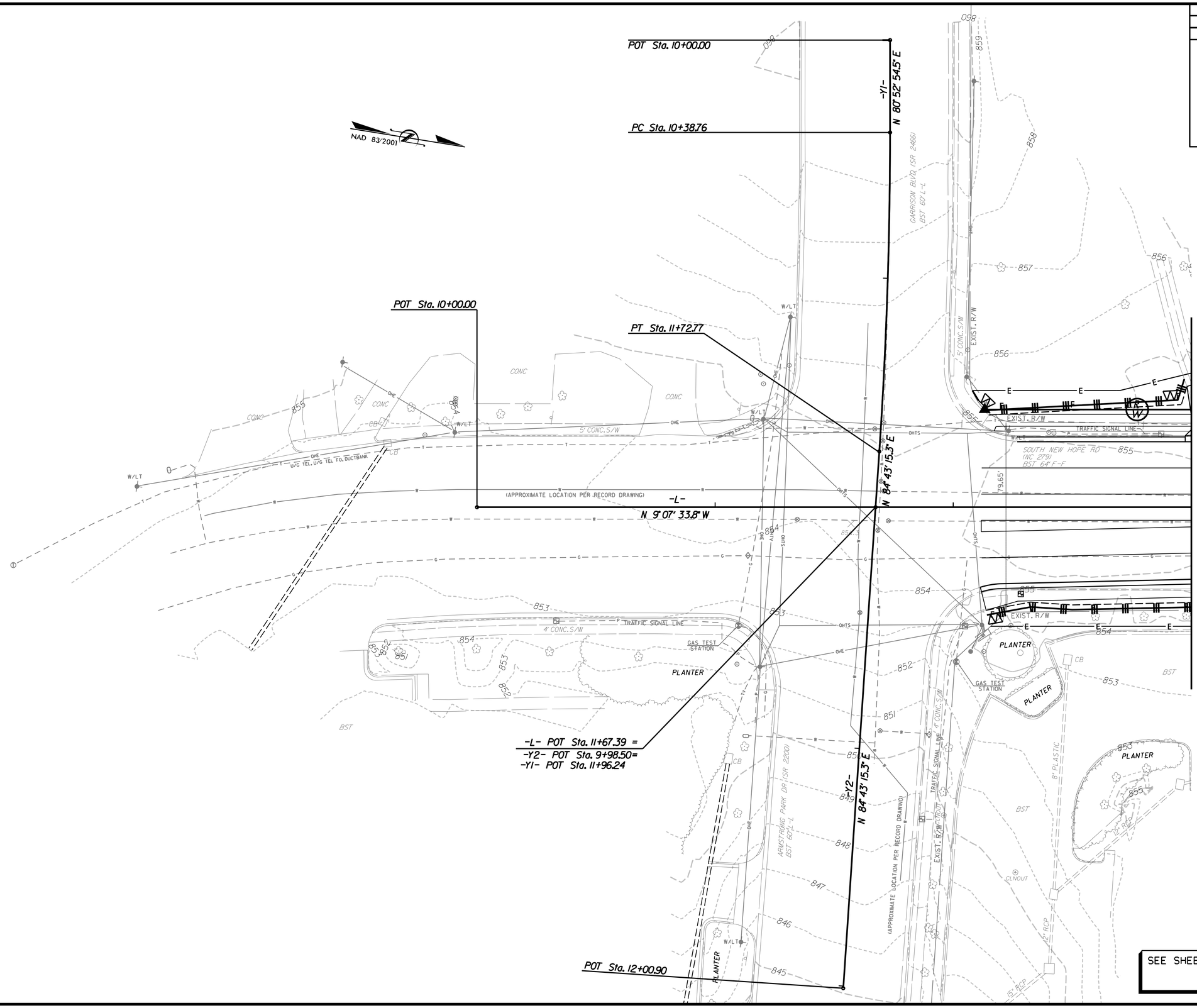
PROJECT REFERENCE NO.	SHEET NO.
C-4934	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

PROJECT REFERENCE NO.	SHEET NO.
C-4934	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SEE SHEET 11 FOR -L- PROFILE

REVISIONS

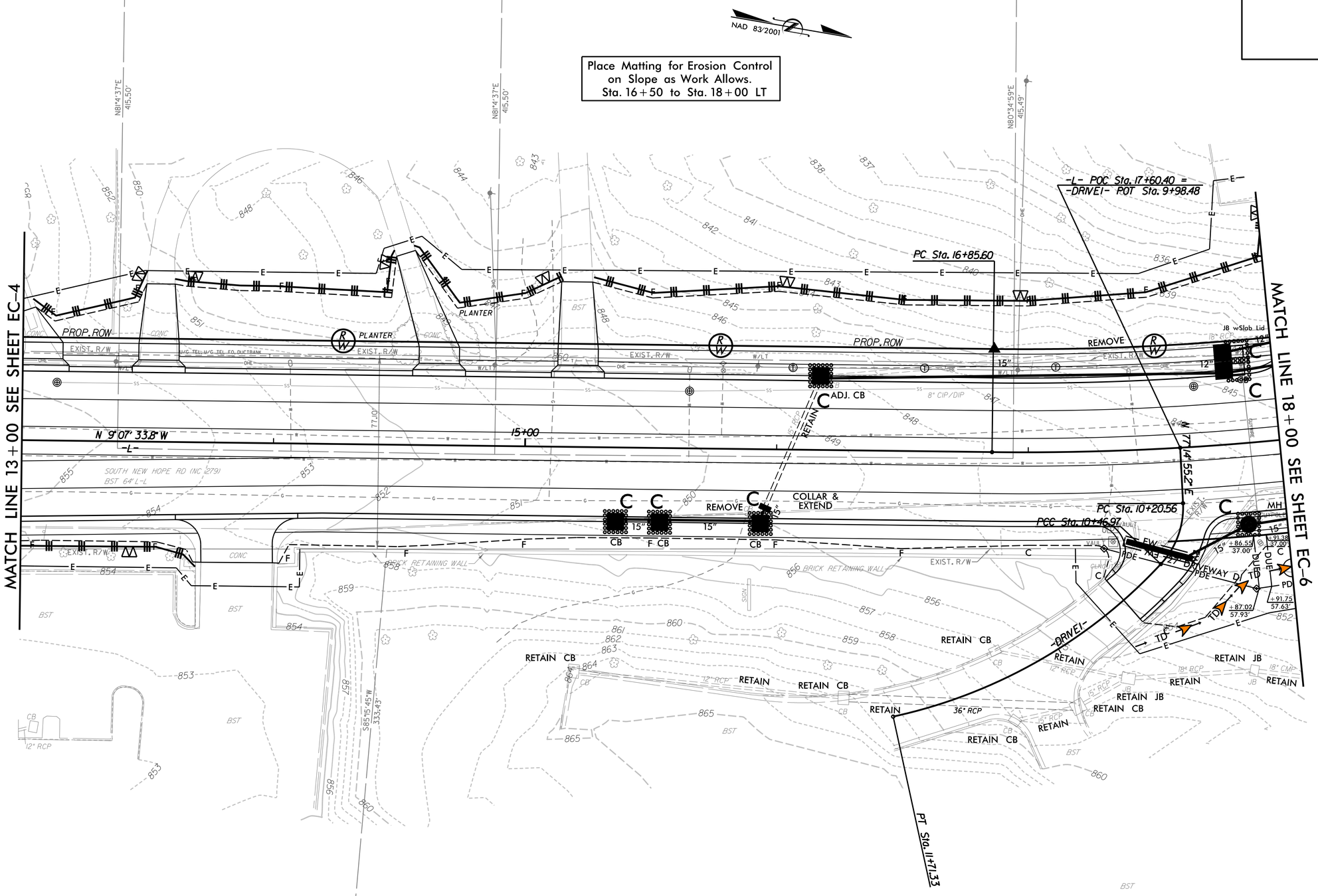
8/17/99

7/14/2015
18:28:28 Gastonia_NewHope_EC04.dgn
4:29:41 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

8/17/99



7/14/2016
1:29:46 PM
Gastonia_NewHope_EC05.dgn

PROJECT REFERENCE NO.	SHEET NO.
C-4934	EC-6/CONST.6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

8/17/99

Place Matting for Erosion Control on Slope as Work Allows.
Sta. 18+30 to Sta. 18+75 LT
Sta. 20+20 to Sta. 22+00 LT
Sta. 22+40 to Sta. 23+00 LT

NAD 83/2001

MATCH LINE 18+00 SEE SHEET EC-5

MATCH LINE 23+00 SEE SHEET EC-7

-L- POC Sta. 21+33.24 =
-Y3- POT Sta. 9+98.35

PT Sta. 22+38.32

-Y3- PC Sta. 10+00.00

PT Sta. 11+70.58

N 39°17' 12.2" W

N 71°44' 15.1" E

20+00

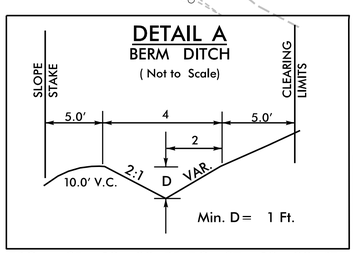
-L-

-Y3-

24' DRIVEWAY DI
MS EW
MS PLANTER
REMOVE
PROP. ROW
EXIST. R/W
RETAIN
ADJ. CB
CB
COLLAR & EXTEND
MH TD
REMOVE
PLUG & FILL W/FLOWABLE FILL
PLUG & FILL W/FLOWABLE FILL
MH
DI
FD
TD
PDE
PLANTER
TB 2GI W/ NS SG
TB 2GI W/ NS SG
BERM DITCH PER NCDOT STD. 240.01 FROM STA. 18+00 RT TO STA. 19+22 RT DDE = 20 CY
ELEC METER
2SBK APT
ISBKD
SOUTH NEW HOPE RD (NC 279)
24" RCP
15" RCP
18" CMP
12" RCP
8" CIP/DIP
8" Clay
CONC
BST
S35°32'12"E 89.98'
S36°52'45"E 73.02'
N71°19'16"E 300.00'
N55°45'9"E 173.74'
S54°27'11"W 175.12'
N53°47'15"E 73.95'
N36°52'45"W 10.00'
N53°47'15"E 23.00'
N38°22'15"E 26.00'
N53°48' 31.00'
N76°41'34"E 151.79'
S20°59'32"E 120.98'
N65°41'41"E 190.68'

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
Sta. 18+00 to Sta. 19+23 RT

DETAIL A
BERM DITCH
(Not to Scale)

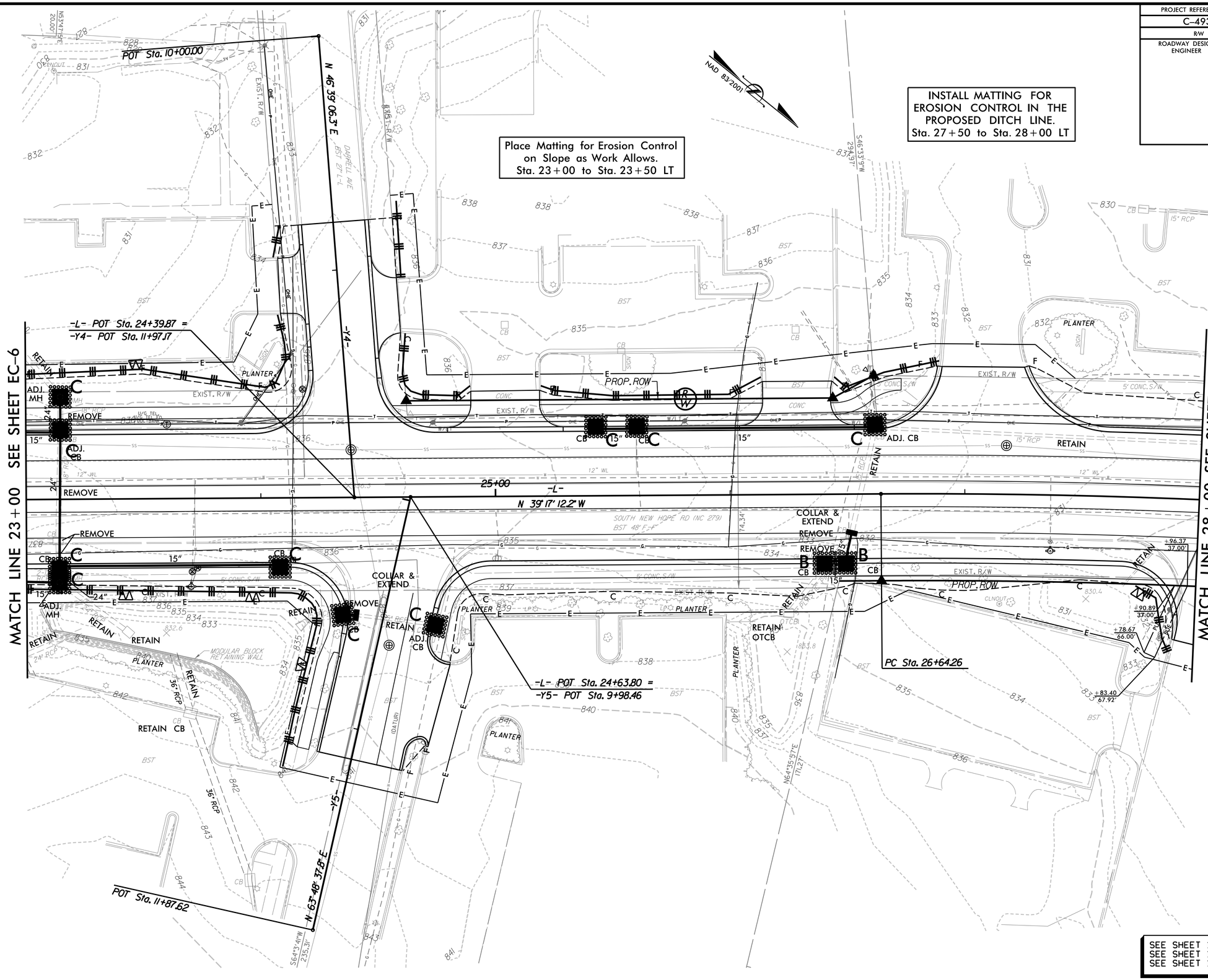


FROM STA. 18+00 RT TO STA. 19+22 RT

SEE SHEET 11, 12 FOR -L- PROFILE
SEE SHEET 14 FOR -Y3- PROFILE

7/14/2016
12:16:08
Gastonia_NewHope_EC06.dgn
4:25:50 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	EC-7/CONST.7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

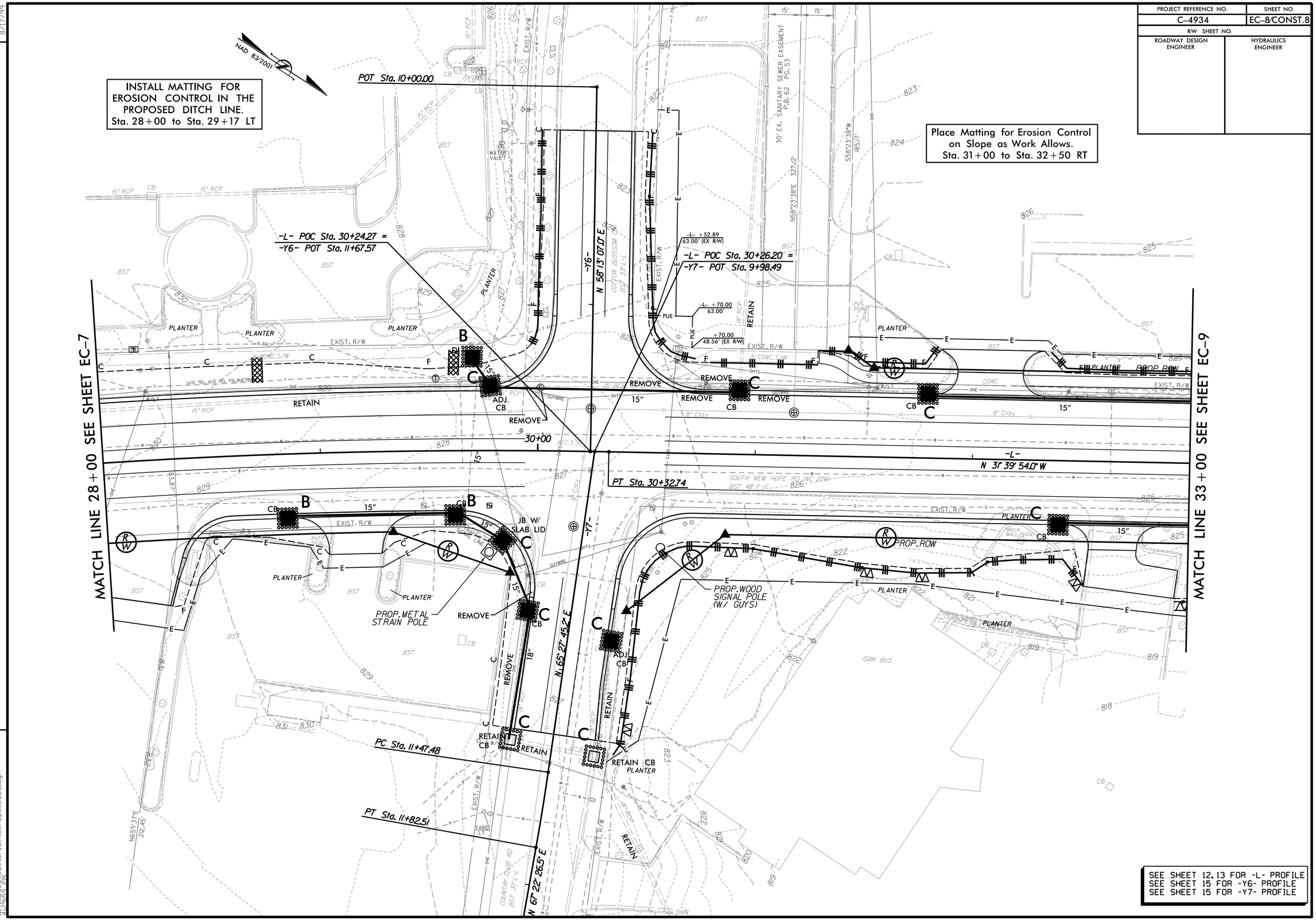


REVISIONS

8/17/99

7/14/2015
1:8238_Gastonia_NewHope_EC07.dgn
4:29:54 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	EC-8/CONST.8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



REVISIONS

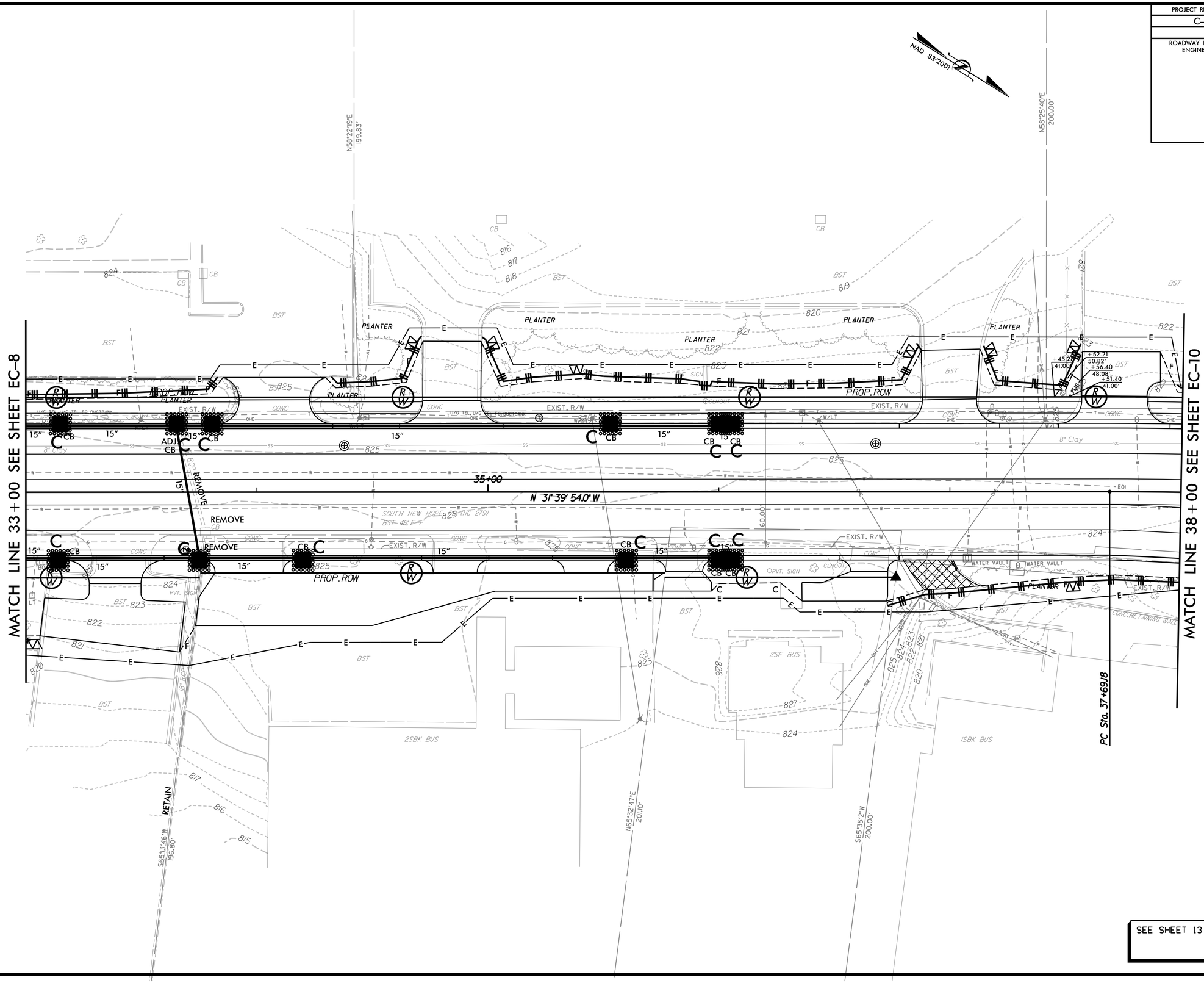
8/17/99

7/14/2016
R:\Hydraulics\28_Gastonia_NewHope_EC08.dgn
4:25:59 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	EC-9/CONST.9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

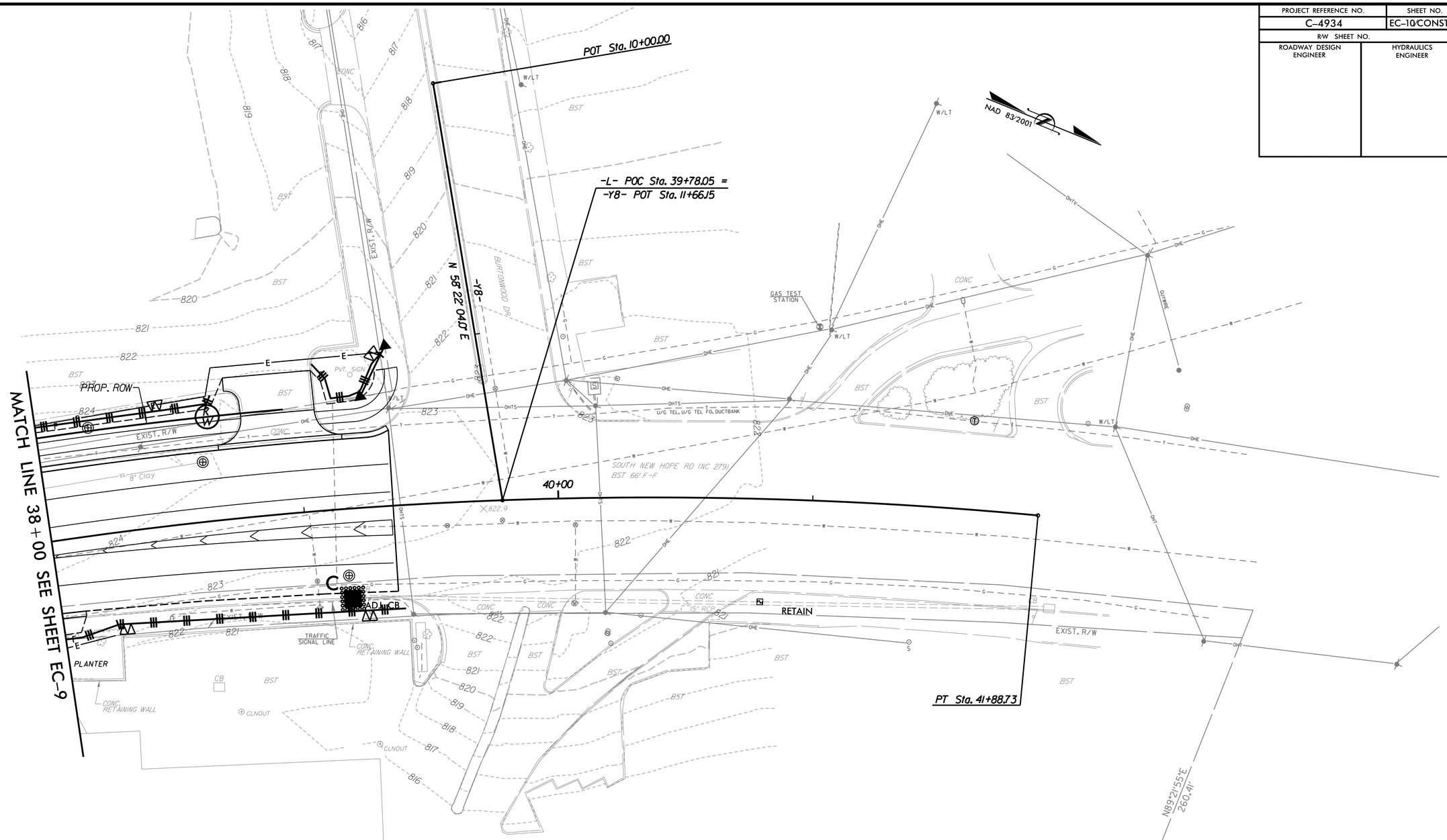
8/17/99



SEE SHEET 13 FOR -L- PROFILE

7/14/2016
11:16:28 Gastonia_NewHope_EC09.dgn
4:30:04 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	EC-10/CONST.10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



SEE SHEET 13 FOR -L- PROFILE

REVISIONS

8/17/99

7/14/2015
r:\1828_Gastonia_NewHope_EC10.dgn
4:32:09 PM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	SIGN-1

APPROVED: David H Kerns (Jul 26, 2016)

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030881 ENGINEER DAVID H. KERNS

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
GASTON COUNTY

LOCATION: NC 279 (S NEW HOPE RD) WIDENING BETWEEN SR 2200 (ARMSTRONG PARK DR)/SR 2466 (E GARRISON BLVD) AND BURTONWOOD DR

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON U CHANNEL POSTS

PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2 RELOCATE SIGN, TYPE D

GENERAL NOTES

- SIGNS FURNISHED BY STATE
- ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3LB STEEL U-CHANNEL	170	LF
4102000000	904	SIGN ERECTION, TYPE E	9	EA
4108000000	904	SIGN ERECTION, TYPE F	1	EA
4116100000	904	SIGN ERECTION, RELOCATE SIGN TYPE D	1	EA
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	8	EA

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	E AND F SHEETS
SIGN-3-5	SIGNING PLAN SHEETS

PLANS PREPARED BY: HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

D KERNS, PE SIGNING ENGINEER

SIGNING DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

T.I.P.: C-4934

CONTRACT: 20120069

7/22/2016
8:41:26 PM
pw:\\pwpTPA01:SouthEast_Tampa\Documents\000224\00000000018232B\13.00_CAD\Traffic\Signing\CADD\C-4934_sgn_TSH.dgn

PROJECT REFERENCE NO.	SHEET NO.
C-4934	SIGN-2

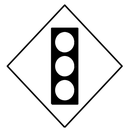
APPROVED: David H. Kerns (Jul 26, 2016)

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030881 ENGINEER DAVID H. KERNS

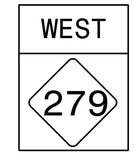
(401) QUANTITY REQ'D 1



30 X 30
W3-3

ONE "U" POST PER SIGN

(501) QUANTITY REQ'D 1



24 X 12
24 X 24

ONE "U" POST PER SIGN

(402) QUANTITY REQ'D 1

30 X 36
R2-1

ONE "U" POST PER SIGN

(403) QUANTITY REQ'D 2

24 X 36
R3-9b

ONE "U" POST PER SIGN

(404) QUANTITY REQ'D 6

30 X 30
R1-1

ONE "U" POST PER SIGN

(405) QUANTITY REQ'D 1

24 X 24
R5-2

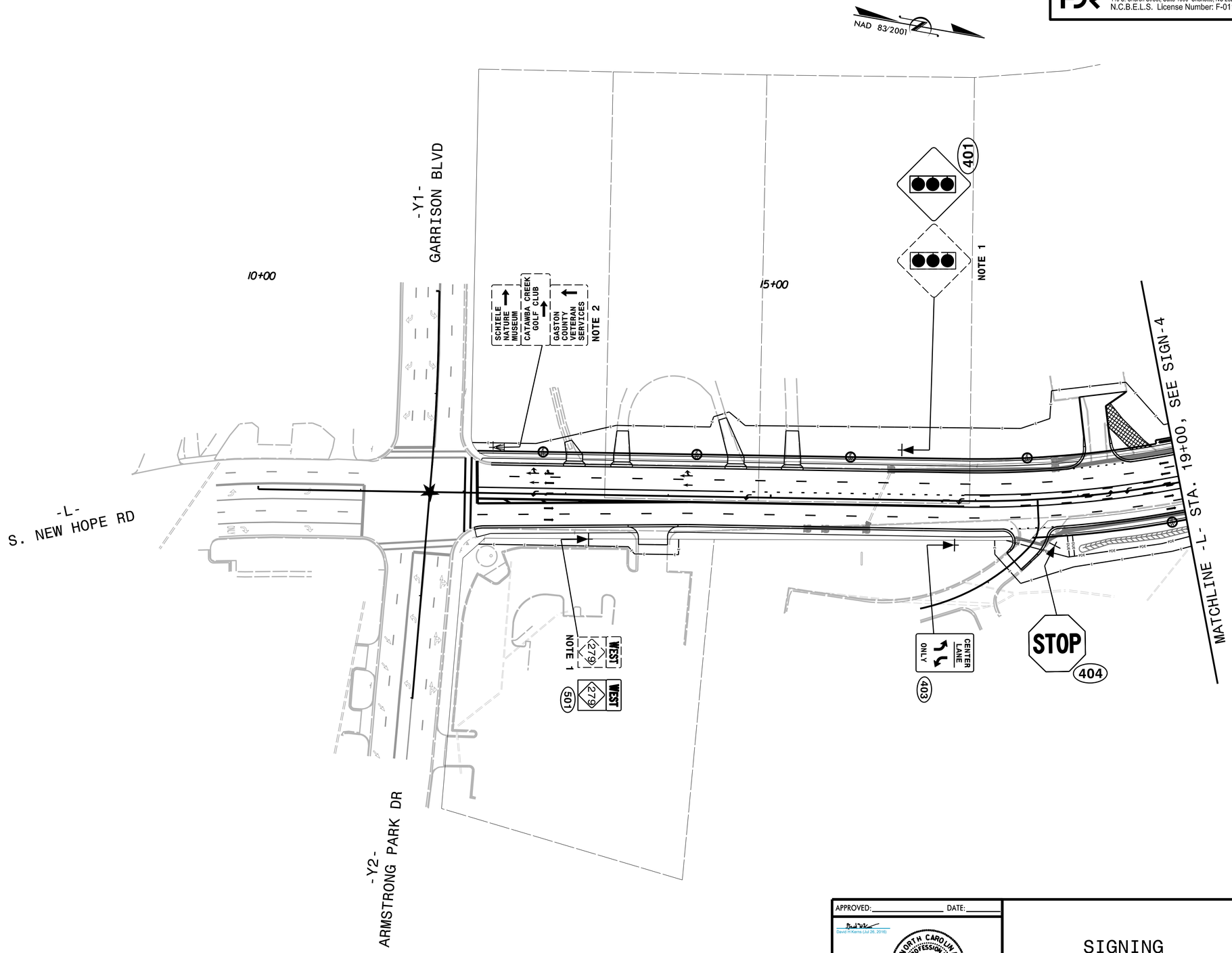
ONE "U" POST PER SIGN

TYPE "E" AND "F" SIGNS

7/22/2016
8:41:27 PM
PW:\\PBPTPA01:SouthEast_Tampa\Documents\0002224\00000000018232813.00_CADD\Traffic\Signing\CADD\C-4934_sgn_TSH.dgn

TIP NO.	SHEET NO.
C-4934	SIGN-3

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116



★ SIGNALIZED INTERSECTION

APPROVED: _____ DATE: _____

David H Kerns (Jul 26, 2016)

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030881 ENGINEER DAVID H. KERNS

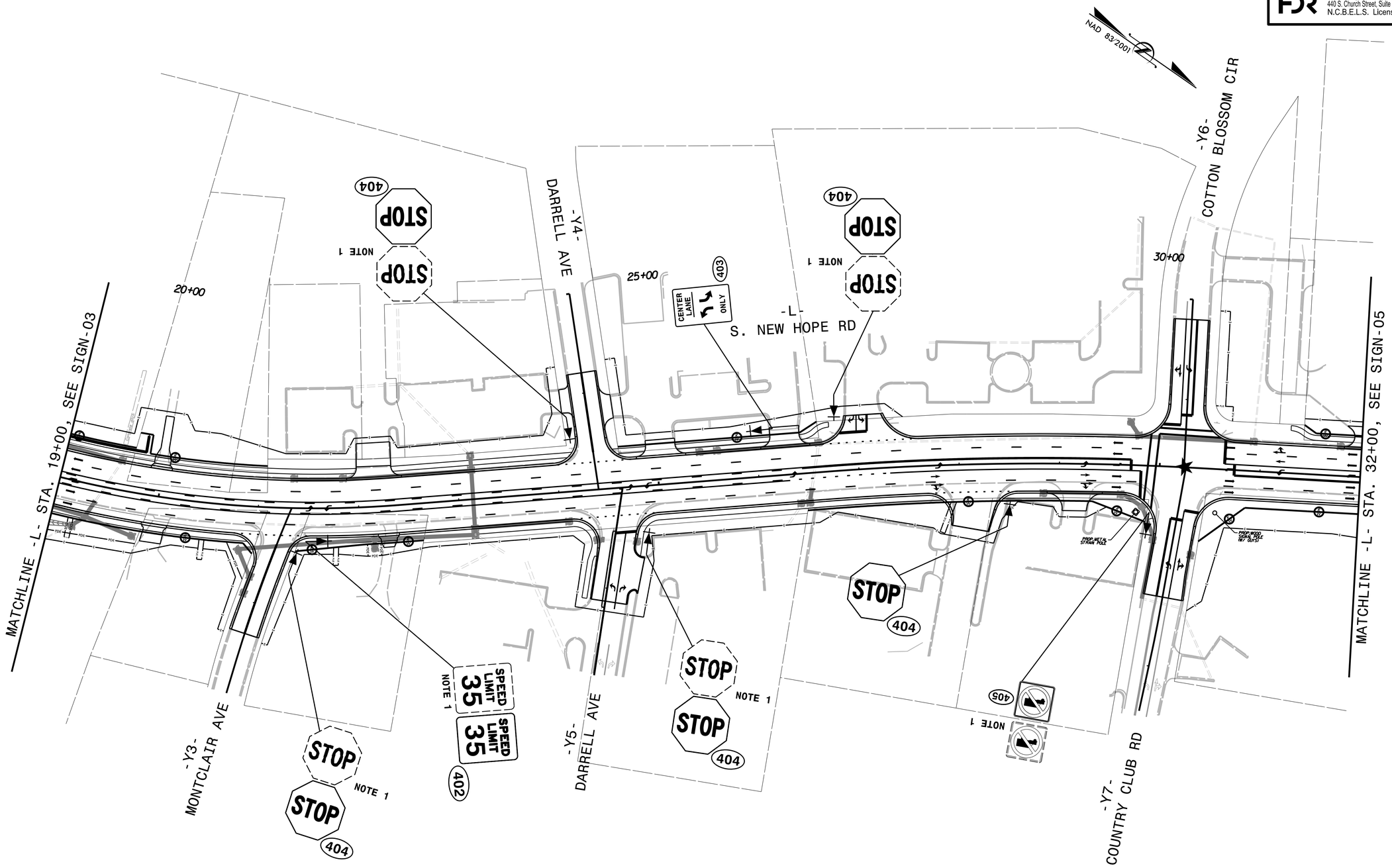
SIGNING PLAN

REVISIONS

PLOT DRIVER: pdf.pltcfg DATE: 7/22/2016 PENTABLE: NCDOT_sign.tbl
USER: dotaylor TIME: 5:41:32 PM
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\00000000182328\13.00.CAD\Traffic\Signing\CADD\C-4934_sgn_psh03.dgn

TIP NO.	SHEET NO.
C-4934	SIGN-04

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116



APPROVED: _____ DATE: _____

David H Kerns (Jul 26, 2016)

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030881 ENGINEER DAVID H. KERNS

SIGNING PLAN

PLOT DRIVER: pdf.pltcfg
USER: datoylor
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\000224\00000000182328\13.00_CAD\Traffic\Signing\CADD\C-4934_sgn_psh04.dgn

DATE: 7/22/2016
PENTABLE: NCDOT_sign.tbl
TIME: 5:41:36 PM

REVISIONS

TIP NO.	SHEET NO.
C-4934	SIGN-05

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F-0116

APPROVED: _____ DATE: _____

David H Kerns (Jul 26, 2016)

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 030881 ENGINEER DAVID H. KERNS

SIGNING PLAN

PLOT DRIVER: pdf.pltcfg
USER: dataylor
FILE: pw:\\PWAPPTPA01:SouthEast_Tampa\Documents\00022A\0000000001823 28\13.00_CAD\Traffic\Signing\CADD\C-4934_sgn_psh05.dgn

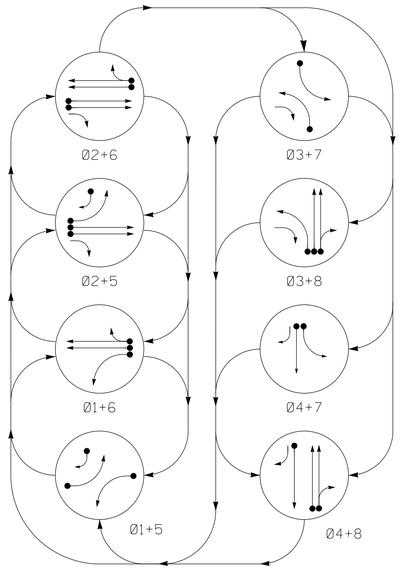
DATE: 7/22/2016
TIME: 5:41:39 PM

PENTABLE: NCDOT_sign.tbl

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 1

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	03+07	03+08	04+07	04+08	FLASH
11	↚	↚	̸R	̸R	̸R	̸R	̸R	̸R	̸R
21	R	R	G	G	R	R	R	R	Y
22	R	R	G	G	R/→	R/→	R	R	Y
31	̸R	̸R	̸R	̸R	↚	↚	̸R	̸R	̸R
41	R	R	R	R	R	R	G	G	R
42	R/→	R	R/→	R	R	R	G	G	R
51	↚	̸R	↚	̸R	̸R	̸R	̸R	̸R	̸R
61,62	R	G	R	G	R	R	R	R	Y
71	̸R	̸R	̸R	̸R	↚	̸R	↚	̸R	̸R
81,82	R	R	R	R	R	G	R	G	R

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	6X40	0	**	**	1	Y	Y	-	-	3	-	**
2A *	6X6	70	EXISTING	-	2	Y	Y	-	-	-	-	-
2B *	6X6	70	EXISTING	-	2	Y	Y	-	-	-	-	-
3A *	6X60	0	EXISTING	-	3	Y	Y	-	-	3	-	-
4A *	6X60	0	EXISTING	-	4	Y	Y	-	-	-	-	-
5A *	6X60	+5	EXISTING	-	5	Y	Y	-	-	3	-	-
5B *	6X60	0	EXISTING	-	5	Y	Y	-	-	15	-	-
6A	6X6	70	**	**	6	Y	Y	-	-	-	-	**
6B	6X6	70	**	**	6	Y	Y	-	-	-	-	**
7A *	6X60	0	EXISTING	-	7	Y	Y	-	-	3	-	-
8A *	6X60	0	EXISTING	-	8	Y	Y	-	-	-	-	-
8B *	6X60	0	EXISTING	-	8	Y	Y	-	-	10	-	-

* See note #8

** Video Detection Zone

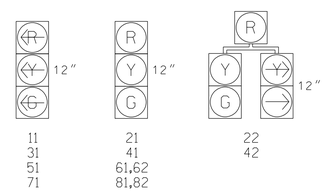
8 Phase
Fully Actuated
(Gastonia City System)

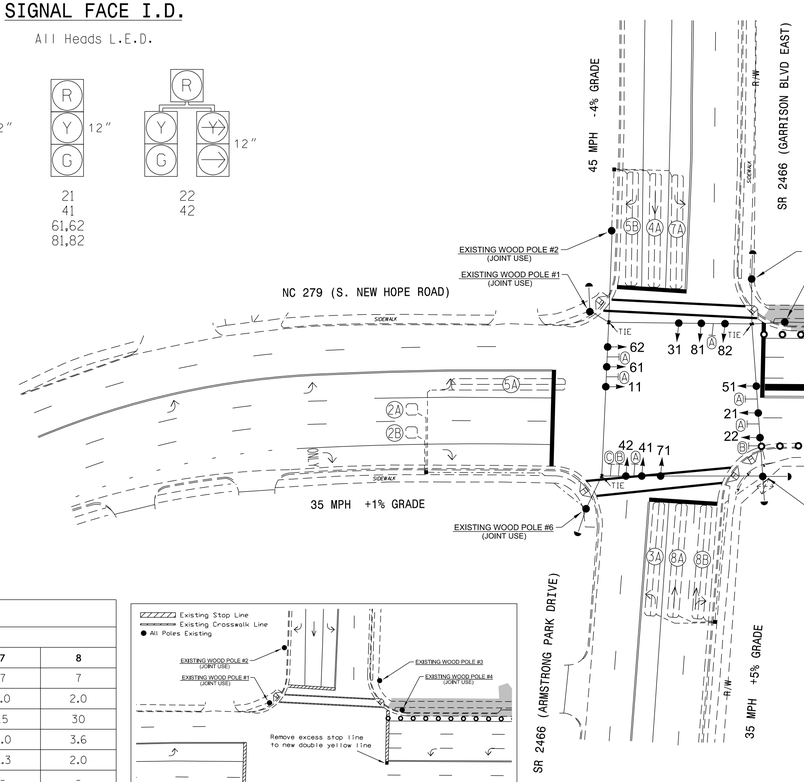
NOTES

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 or phase 5 may be lagged.
4. Phase 3 or phase 7 may be lagged.
5. Reposition existing signal heads numbered 11, 61, and 62.
6. Set all detector units to presence mode.
7. A video imaging loop emulator detection system is used to provide traffic detection on the southbound NC 279 approach during this temporary phase. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
8. The size, number of turns, and location of existing detection loops could not be verified.
9. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
10. Existing Yellow Change Interval for phases 1, 2, 3, 5, 6, and 7 may be decreased by 0.3 seconds per week until the required value is reached.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
12. City system data: Controller Asset # 0079

SIGNAL FACE I.D.

All Heads L.E.D.





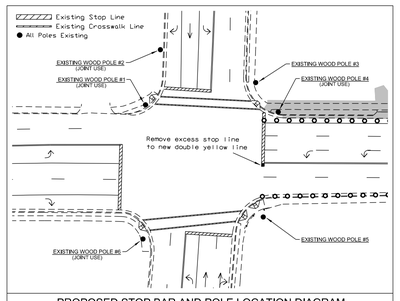
LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Video Detection Area	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	R/W
	Directional Arrow	
	Construction Zone	
N/A	Construction Zone Drums	
N/A	Street Sign	A
N/A	"NO TURN ON RED" Sign (R10-11)	B
N/A	Right Arrow "ONLY" Sign (R3-5R)	C

OASIS 2070L TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	10	7	7	7	10	7	7
Extension 1 *	2.0	3.0	2.0	1.0	1.0	3.0	1.0	2.0
Max Green 1 *	15	30	15	30	15	30	15	30
Yellow Clearance	3.0	3.8	3.0	4.9	3.0	3.9	3.0	3.6
Red Clearance	2.8	1.8	2.8	1.6	2.9	1.6	2.3	2.0
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	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.



PROPOSED STOP BAR AND POLE LOCATION DIAGRAM
NOT TO SCALE

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
ITS & Signals Unit

Temporary Design - Phase 2

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 279 (S New Hope Road)
at
SR 2466 (Garrison Boulevard East/
Armstrong Park Drive)

Division 12 Gaston County Gastonia

PLAN DATE: December 2015 REVIEWED BY:
PREPARED BY: R. Hinshaw REVIEWED BY:

SCALE 0 40 1"=40'

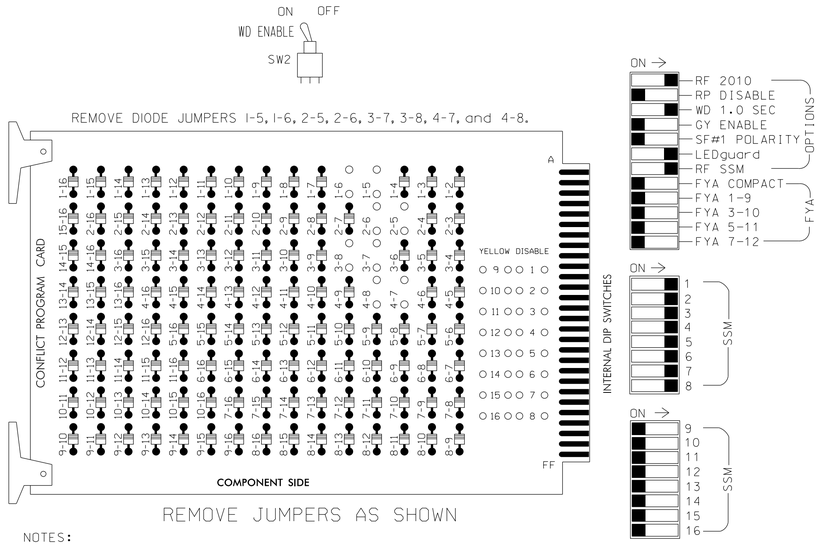
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032117 ROYAL HINSHAW
DocuSigned by: R. Royal Hinshaw 12/15/2015
SIGNATURE DATE
SIG. INVENTORY NO. 12-0079T

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 2

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches 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 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 2 and 6 for Start Up In Green.
4. Enable Simultaneous Gap-Out for all phases.
5. The cabinet and controller are part of the Gastonia City System.

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.	11	21,22	NU	22	31	41,42	NU	42	51	61,62	NU	71	81,82	NU
RED		128				101				134			107	
YELLOW		129				102				135			108	
GREEN		130				103				136			109	
RED ARROW	125				116				131			122		
YELLOW ARROW	126			117	117			132	132			123		
GREEN ARROW	127			118	118			133	133			124		

NU = Not Used

EQUIPMENT INFORMATION

DocuSigned by: F. Royal Hinshaw

CONTROLLER.....2070L
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8
PHASES USED.....1,2,3,4,5,6,7,8
OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT	Ø2	SLOT	SLOT	Ø3	Ø4	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	FS
			2A			3A	4A								DC ISOLATOR
	L	EMPTY	Ø2	EMPTY	EMPTY	NOT USED	NOT USED	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	ST
			2B												DC ISOLATOR
FILE "J"	U	SLOT	Ø5	SLOT	SLOT	Ø7	Ø8	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT
			5A			7A	8A								
	L	EMPTY	Ø5	EMPTY	EMPTY	NOT USED	Ø8	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY
			5B				8B								

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
2A	TB2-5,6	I2U	39	1	2	2	Y	Y	-	-	-
2B	TB2-7,8	I2L	43	5	12	2	Y	Y	-	-	-
3A	TB4-5,6	I5U	58	20	3	3	Y	Y	-	-	3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y	-	-	-
5A	TB3-5,6	J2U	40	2	6	5	Y	Y	-	-	3
5B	TB3-7,8	J2L	44	6	16	5	Y	Y	-	-	15
7A	TB5-5,6	J5U	57	19	7	7	Y	Y	-	-	3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y	-	-	-
8B	TB5-11,12	J6L	46	8	18	8	Y	Y	-	-	10

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

Install a loop emulation detection system for vehicle detection zones 1A, 6A, and 6B. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0079T
DESIGNED: December 2015
SEALED: 12/15/2015
REVISED:

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
_____
ITS & Signals Unit

Temporary Design - Phase 2

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 279 (New Hope Road)
at
SR 2466 (Garrison Blvd East / Armstrong Park Drive)

Division 12 Gaston County Gastonia

PLAN DATE: December 2015	REVIEWED BY:
PREPARED BY: R. Hinshaw	REVIEWED BY:

REVISIONS	INIT.	DATE

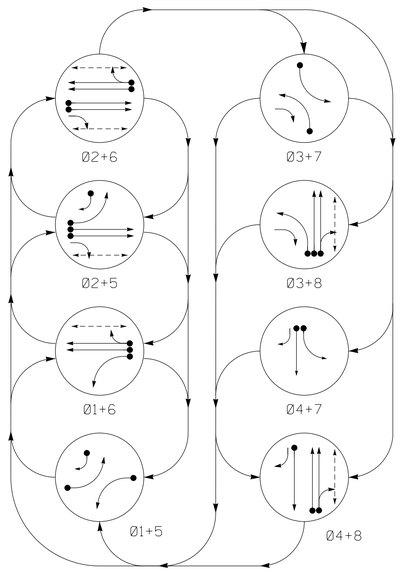
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER ROYAL HINSHAW

DocuSigned by: F. Royal Hinshaw 12/15/2015
SIGNATURE DATE

SIG. INVENTORY NO. 12-0079T

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 3

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

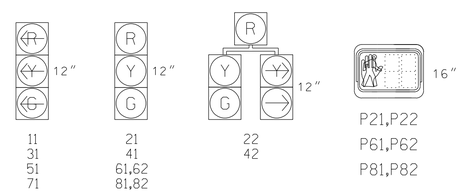
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 01+05	01+06	02+05	02+06	03+07	03+08	04+07	04+08	FLASH
11	↚	↚	R̸	R̸	R̸	R̸	R̸	R̸	R̸
21	R	R	G	G	R	R	R	R	Y
22	R	R	G	G	R↘	R↘	R	R	Y
31	R̸	R̸	R̸	R̸	↚	↚	R̸	R̸	R̸
41	R	R	R	R	R	R	G	G	R
42	R↘	R	R↘	R	R	R	G	G	R
51	↚	R̸	↚	R̸	R̸	R̸	R̸	R̸	R̸
61,62	R	G	R	G	R	R	R	R	Y
71	R̸	R̸	R̸	R̸	↚	R̸	↚	R̸	R̸
81,82	R	R	R	R	R	G	R	G	R
P21,P22	DW	DW	W	W	DW	DW	DW	DW	DRK
P61,P62	DW	W	DW	W	DW	DW	DW	DW	DRK
P81,P82	DW	DW	DW	DW	DW	W	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

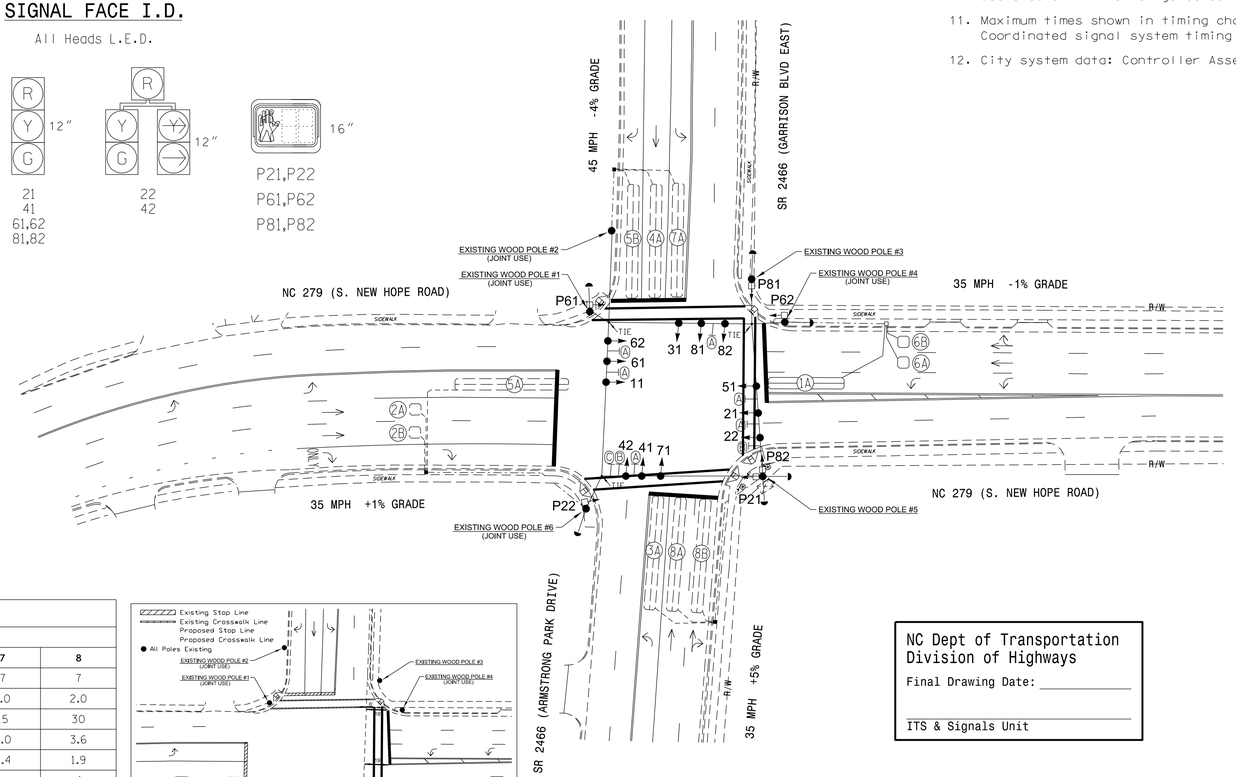
INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	3	-	-
2A *	6X6	70	EXISTING	-	2	Y	Y	-	-	-	-	-
2B *	6X6	70	EXISTING	-	2	Y	Y	-	-	-	-	-
3A *	6X60	0	EXISTING	-	3	Y	Y	-	-	3	-	-
4A *	6X60	0	EXISTING	-	4	Y	Y	-	-	-	-	-
5A *	6X60	+5	EXISTING	-	5	Y	Y	-	-	3	-	-
5B *	6X60	0	EXISTING	-	5	Y	Y	-	-	15	-	-
6A	6X6	70	4	Y	6	Y	Y	-	-	-	-	-
6B	6X6	70	4	Y	6	Y	Y	-	-	-	-	-
7A *	6X60	0	EXISTING	-	7	Y	Y	-	-	3	-	-
8A *	6X60	0	EXISTING	-	8	Y	Y	-	-	-	-	-
8B *	6X60	0	EXISTING	-	8	Y	Y	-	-	10	-	-

* See note #6

8 Phase
Fully Actuated
(Gastonia City System)

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 or phase 5 may be lagged.
4. Phase 3 or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. The size, number of turns, and location of existing detection loops could not be verified.
7. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
8. Program pedestrian heads to count down the flashing "DON'T WALK" time only.
9. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
10. Pedestrian pedestal locations are conceptual and for reference only. See sheets P1 - P3 for guidance.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
12. City system data: Controller Asset # 0079



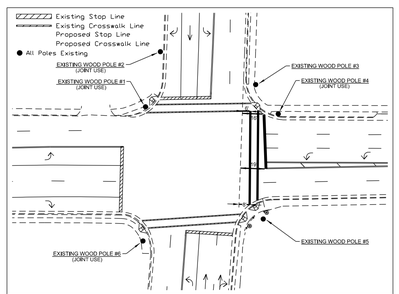
LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Type I Pushbutton Post	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Guardrail	
N/A	Right of Way	
	Directional Arrow	
N/A	Street Sign	Ⓐ
N/A	"NO TURN ON RED" Sign (R10-11)	Ⓑ
N/A	Right Arrow "ONLY" Sign (R3-5R)	Ⓒ

OASIS 2070L TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	10	7	7	7	10	7	7
Extension 1 *	2.0	3.0	2.0	1.0	1.0	3.0	1.0	2.0
Max Green 1 *	15	30	15	30	15	30	15	30
Yellow Clearance	3.0	3.8	3.0	4.9	3.0	3.9	3.0	3.6
Red Clearance	2.8	2.0	2.4	1.5	2.8	1.6	2.4	1.9
Walk 1 *	-	7	-	-	-	7	-	4
Don't Walk 1	-	18	-	-	-	19	-	18
Seconds Per Actuation *	-	-	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	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.



PROPOSED STOP BAR AND POLE LOCATION DIAGRAM
NOT TO SCALE

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
ITS & Signals Unit

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

Signal Upgrade - Final Design

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 40 1"=40'

NC 279 (S New Hope Road)
at
SR 2466 (Garrison Boulevard East/
Armstrong Park Drive)

Division 12 Gaston County Gastonia

PLAN DATE: December 2015	REVIEWED BY: R. Hinshaw
PREPARED BY: C. Reich	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER ROYAL HINSHAW

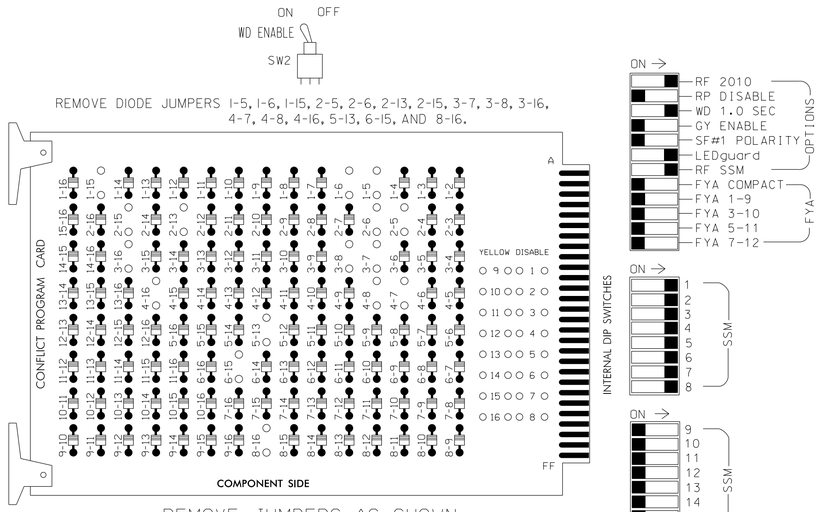
DocuSigned by:
R. Royal Hinshaw 12/15/2015
SIGNATURE DATE

SIG. INVENTORY NO. 12-0079

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 4

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 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 2 and 6 for Start Up In Green.
4. Enable Simultaneous Gap-Out for all phases.
5. The cabinet and controller are part of the Gastonia City 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,S6P, S7,S8,S8P
PHASES USED.....1,2,2 PED,3,4,5,6,6 PED, 7,8,8 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.	11	21,22	P21, P22	22	31	41,42	NU	42	51	61,62	P61, P62	71	81,82	P81, P82
RED		128				101				134			107	
YELLOW		129				102				135			108	
GREEN		130				103				136			109	
RED ARROW	125				116				131			122		
YELLOW ARROW	126			117	117			132	132			123		
GREEN ARROW	127			118	118			133	133			124		
✋			113								119			110
🚶			115								121			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	Ø 1 1A	Ø 2 2A	SLOT EMPTY	SLOT EMPTY	Ø 3 3A	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
	L	NOT USED	Ø 2 2B			NOT USED	NOT USED						NOT USED	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø 5 5A	Ø 6 6A	SLOT EMPTY	Ø 7 7A	Ø 8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		Ø 5 5B	Ø 6 6B		NOT USED	Ø 8 8B								

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	TB2-5,6	I2U	39	1	2	2	Y	Y	-	-	-
2B	TB2-7,8	I2L	43	5	12	2	Y	Y	-	-	-
3A	TB4-5,6	I5U	58	20	3	3	Y	Y	-	-	3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y	-	-	-
5A	TB3-5,6	J2U	40	2	6	5	Y	Y	-	-	3
5B	TB3-7,8	J2L	44	6	16	5	Y	Y	-	-	15
6A	TB3-9,10	J3U	64	26	36	6	Y	Y	-	-	-
6B	TB3-11,12	J3L	77	39	46	6	Y	Y	-	-	-
7A	TB5-5,6	J5U	57	19	7	7	Y	Y	-	-	3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y	-	-	-
8B	TB5-11,12	J6L	46	8	18	8	Y	Y	-	-	10
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2 PED					
P61,P62	TB8-7,9	I13U	68	30	PED 6	6 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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0079
DESIGNED: December 2015
SEALED: 12/15/2015
REVISED:

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
ITS & Signals Unit

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

Signal Upgrade - Final Design

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 279 (New Hope Road)
at
SR 2466 (Garrison Blvd East / Armstrong Park Drive)

Division 12 Gaston County Gastonia

PLAN DATE: December 2015 REVIEWED BY:
PREPARED BY: R. Hinshaw REVIEWED BY:

REVISIONS	INIT.	DATE

750 N.Greenfield Pkwy.Garner,NC 27529

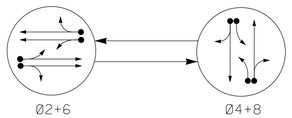
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER ROYAL HINSHAW

DocuSigned by:
R. Royal Hinshaw 12/15/2015
SIGNATURE DATE

SIG. INVENTORY NO. 12-0079

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 5

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+6	PHASE Ø4+8	FLASH
22,23	G	R	Y
41,42	R	G	R
62,63	G	R	Y
81,82	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.

R
Y 12"
G

22,23
41,42
62,63
81,82

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

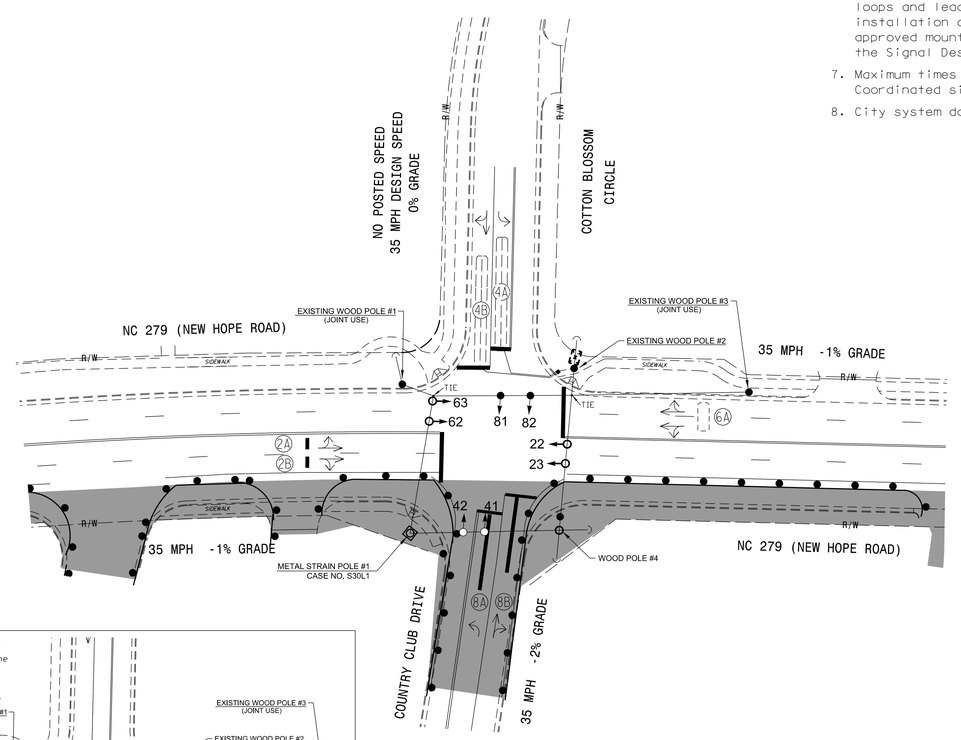
INDUCTIVE LOOPS						DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	70	**	**	2	Y	Y	-	-	-	-	**
2B	6X6	70	**	**	2	Y	Y	-	-	-	-	**
4A *	6X60	+2	EXISTING	-	4	Y	Y	-	-	3	-	-
4B *	6X60	+2	EXISTING	-	4	Y	Y	-	-	10	-	-
6A *	6X15	95	EXISTING	Y	6	Y	Y	-	-	-	-	-
8A	6X40	0	**	**	8	Y	Y	-	-	3	-	**
8B	6X40	0	**	**	8	Y	Y	-	-	10	-	**

* See Note #4
** Video Detection Zone

2 Phase
Fully Actuated
(Gastonia City System)

NOTES

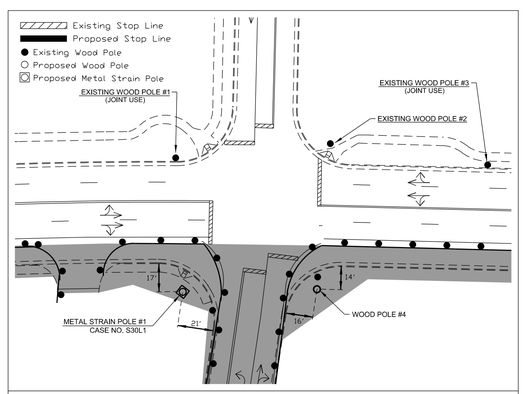
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. The size, number of turns, and location of existing detection loops could not be verified.
5. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
6. A video imaging loop emulator detection system is used to provide traffic detection during this temporary phase on approaches where the existing loops and lead-ins have been rendered inoperable by construction. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the direction schemes shown on the Signal Design Plans.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. City system data: Controller Asset 1354.



OASIS 2070L TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green 1 *	10	7	10	7
Extension 1 *	3.0	1.0	3.0	2.0
Max Green 1 *	45	25	45	25
Yellow Clearance	3.9	3.8	3.9	4.0
Red Clearance	1.0	1.4	1.2	1.3
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
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.



PROPOSED STOP BAR AND POLE LOCATION DIAGRAM
NOT TO SCALE

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Metal Strain Pole	
	Signal Pole with Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Street Sign	
	Construction Zone	
	Construction Zone Drums	
	Video Detection Area	

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
ITS & Signals Unit

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

Signal Upgrade - Temporary Phase 1

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 279 (New Hope Road)
at
Country Club Road /
Cotton Blossom Circle

Division 12 Gaston County Gastonia

PLAN DATE: December 2015 REVIEWED BY: R. Hinshaw
PREPARED BY: L Boyer REVIEWED BY:

SCALE 0 40 1"=40'

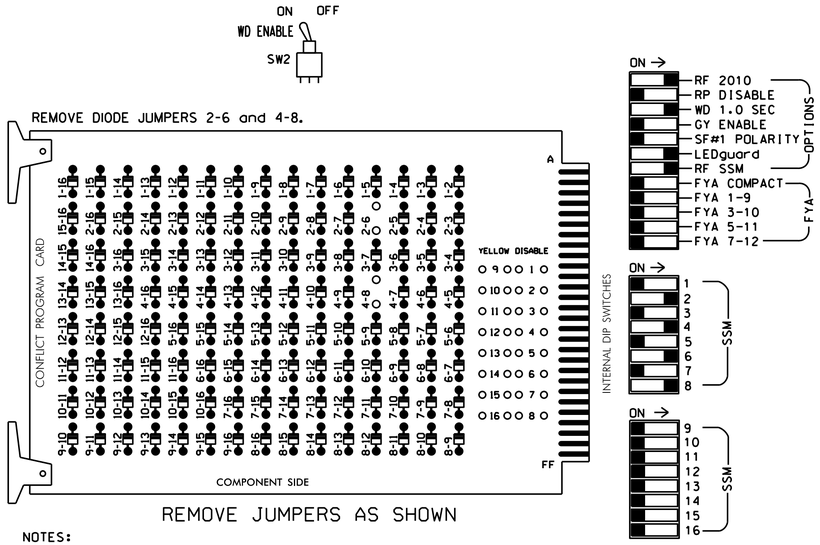
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER ROYAL HINSHAW
DocuSigned by: R. Royal Hinshaw 12/15/2015
SIGNATURE DATE
SIG. INVENTORY NO. 12-1354T1

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 6

EDI MODEL 2010ECL 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 unused monitor channels, tie unused red monitor inputs 1,3,5, 7,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Program phases 2 and 6 for Start Up In Green.
4. Enable Simultaneous Gap-Out feature, on controller unit, for all phases.
5. Program phases 4 and 8, on controller unit, for Dual Entry.
6. The cabinet and controller are part of the Gastonia City System.

FIELD CONNECTION 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	22,23	NU	NU	41,42	NU	NU	62,63	NU	NU	81,82	NU
RED		128			101			134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												
✋												
🚶												

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S2,S4,S6,S8
PHASES USED.....2,4,6,8
OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L						Ø4 4B								ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø6 6A	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	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY

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
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			

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

Install a loop emulation detection system for vehicle detection for Zones 2A, 2B, 8A, and 8B. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-1354T1
DESIGNED: December 2015
SEALED: 12/15/2015
REVISED:

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
ITS & Signals Unit

Signal Upgrade - Temporary Phase 1

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.daveniportworld.com
NCBELS FIRM LICENSE NO. C-2522

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

NC 279 (New Hope Road)
at
Country Club Drive/
Cotton Blossom Circle

Division 12 Gaston County Gastonia

PLAN DATE: December 2015		REVIEWED BY: R Hinshaw	
PREPARED BY: L Boyer		REVIEWED BY:	

REVISIONS	INIT.	DATE

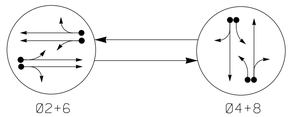
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER ROYAL HINSHAW

Docusigned by:
F. Royal Hinshaw 12/15/2015
SIGNATURE DATE

SIG. INVENTORY NO. 12-1354T1

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 7

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

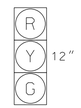
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+6	PHASE Ø4+8	FLASH
22,23	G	R	Y
41,42	R	G	R
62,63	G	R	Y
81,82	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



22,23
41,42
62,63
81,82

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

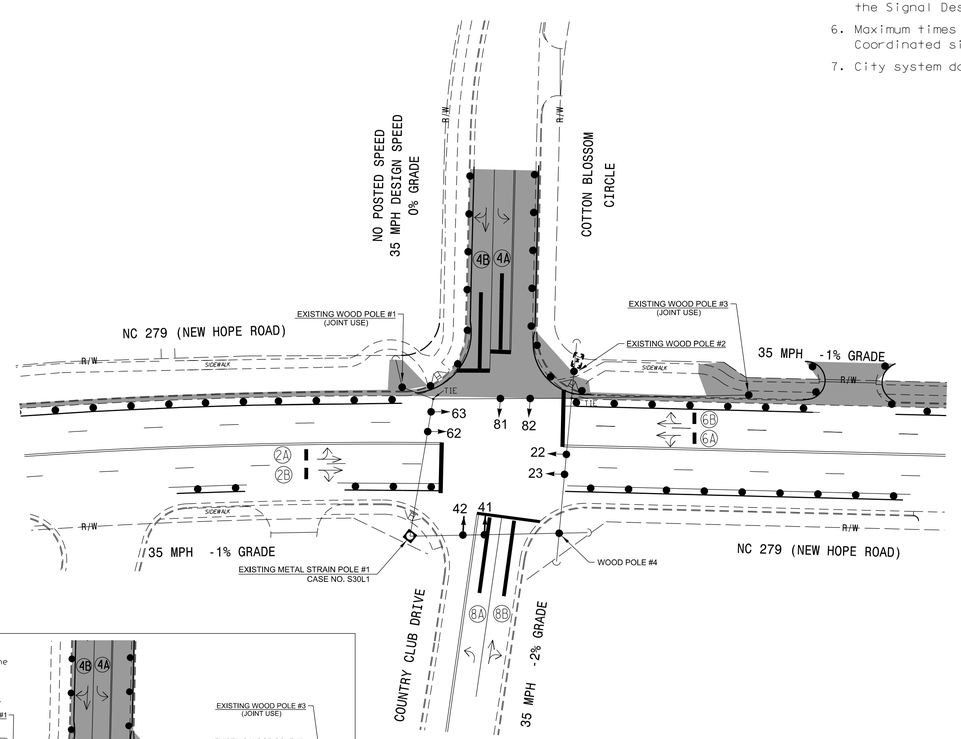
INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A, 2B	6X6	70	**	**	2	Y	Y	-	-	-	-	**
4A	6X40	+2	**	**	4	Y	Y	-	-	3	-	**
4B	6X40	+2	**	**	4	Y	Y	-	-	10	-	**
6A, 6B	6x6	70	**	**	6	Y	Y	-	-	-	-	**
8A	6X40	0	**	**	8	Y	Y	-	-	3	-	**
8B	6X40	0	**	**	8	Y	Y	-	-	10	-	**

** Video Detection Zone

2 Phase
Fully Actuated
(Gastonia City System)

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. Reposition existing signal heads numbered 21, 22, 61 and 62.
5. A video imaging loop emulator detection system is used to provide traffic detection during this temporary phase on approaches where the existing loops and lead-ins have been rendered inoperable by construction. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the direction schemes shown on the Signal Design Plans.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
7. City system data: Controller Asset 1354.



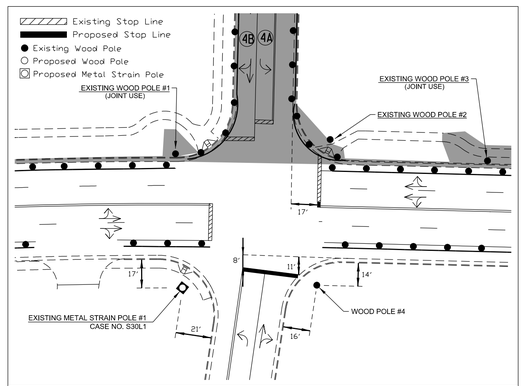
LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Metal Strain Pole	
	Signal Pole with Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Street Sign	
	Construction Zone	
	Construction Zone Drums	
	Video Detection Area	

OASIS 2070L TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green 1 *	10	7	10	7
Extension 1 *	3.0	2.0	3.0	2.0
Max Green 1 *	45	25	45	25
Yellow Clearance	3.9	3.8	3.9	4.0
Red Clearance	1.0	1.4	1.0	1.3
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
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.



PROPOSED STOP BAR AND POLE LOCATION DIAGRAM
NOT TO SCALE

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
_____
ITS & Signals Unit

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

Signal Upgrade - Temporary Phase 2

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

NC 279 (New Hope Road)
at
Country Club Road /
Cotton Blossom Circle

Division 12 Gaston County Gastonia

PLAN DATE: December 2015 REVIEWED BY: R. Hinshaw
PREPARED BY: L Boyer REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER F. ROYAL HINSHAW

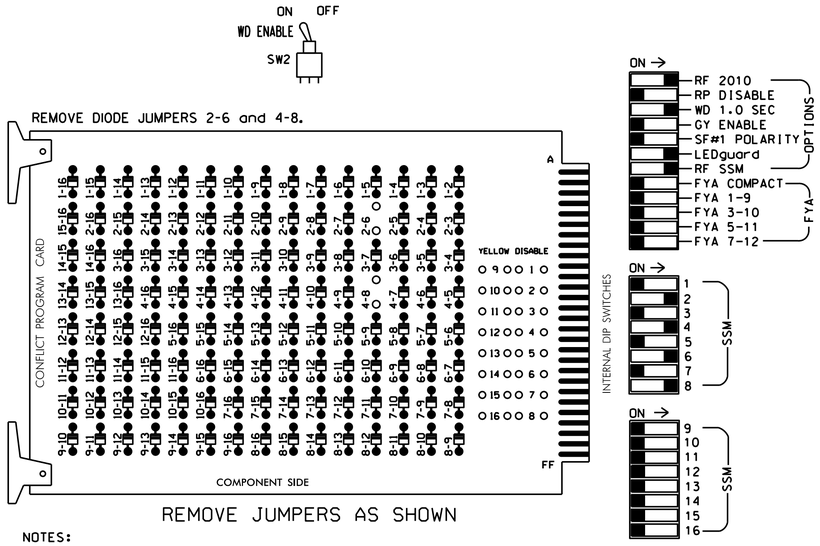
DocuSigned by: F. Royal Hinshaw 12/15/2015
SIGNATURE DATE

SIG. INVENTORY NO. 12-1354T2

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 8

EDI MODEL 2010ECL 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 unused monitor channels, tie unused red monitor inputs 1,3,5, 7,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Program phases 2 and 6 for Start Up In Green.
4. Enable Simultaneous Gap-Out feature for all phases.
5. Program phases 4 and 8 for Dual Entry.
6. The cabinet and controller are part of the Gastonia City System.

FIELD CONNECTION 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	22,23	NU	NU	41,42	NU	NU	62,63	NU	NU	81,82	NU
RED		128			101			134			107	
YELLOW		129			102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												
✋												
🚶												

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S2,S4,S6,S8
PHASES USED.....2,4,6,8
OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L														ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	SLOT EMPTY	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														

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

FS = FLASH SENSE
ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a loop emulation detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-1354
DESIGNED: December 2015
SEALED: 12/15/2015
REVISED:

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
_____
ITS & Signals Unit

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

Signal Upgrade - Temporary Phase 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

NC 279 (New Hope Road)
at
Country Club Drive/
Cotton Blossom Circle

Division 12 Gaston County Gastonia

PLAN DATE: December 2015	REVIEWED BY: R Hinshaw		
PREPARED BY: L Boyer	REVIEWED BY:		
REVISIONS		INIT.	DATE

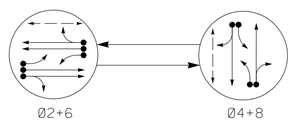
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER ROYAL HINSHAW

DocuSigned by: R. Royal Hinshaw 12/15/2015
SIGNATURE DATE
SIG. INVENTORY NO. 12-1354T2

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 9

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

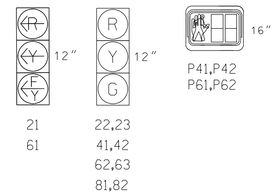
TABLE OF OPERATION

SIGNAL FACE	PHASE 02+6	PHASE 04+8	FLASH
21	~~F Y~~	~~R~~	~~Y~~
22,23	G	R	Y
41,42	R	G	R
61	~~F Y~~	~~R~~	~~Y~~
62,63	G	R	Y
81,82	R	G	R
P41,P42	DW	W	DRK
P61,P62	W	DW	DRK

W - Walk
DW - Don't Walk
DRK - Dark

SIGNAL FACE I.D.

All Heads L.E.D.



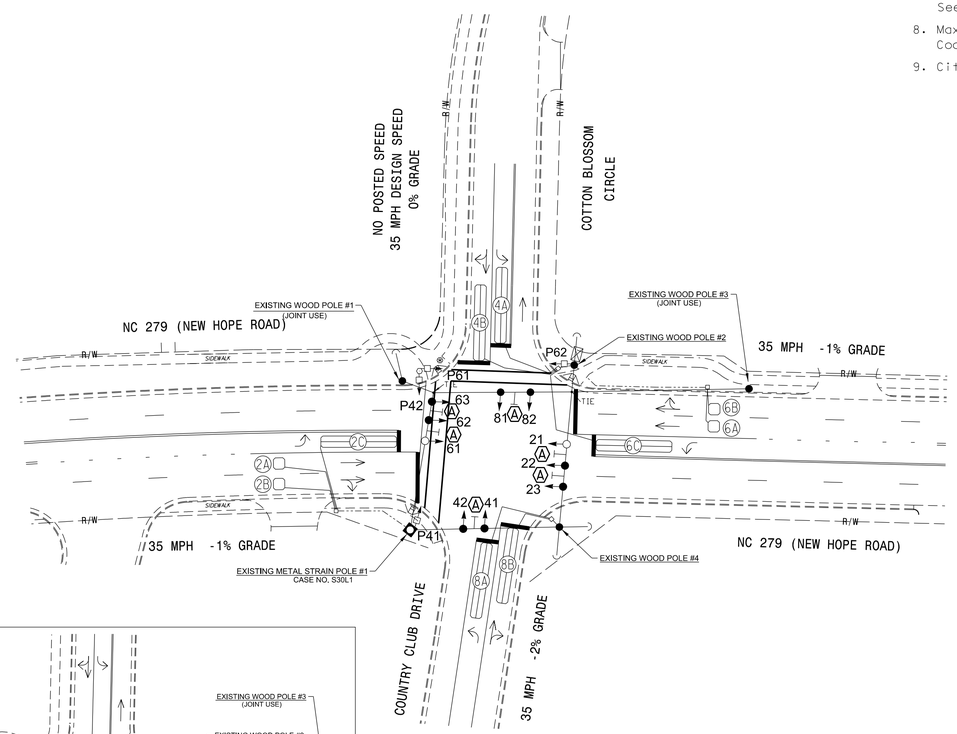
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

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
2A, 2B	6X6	70	3	Y	2	Y	Y	-	-	-	-	Y
2C	6X40	0	2-4-2	Y	2	Y	Y	-	-	-	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	10	-	Y
6A, 6B	6X6	70	3	Y	6	Y	Y	-	-	-	-	Y
6C	6X40	0	2-4-2	Y	6	Y	Y	-	-	-	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	3	-	Y
8B	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	-	Y

2 Phase
Fully Actuated
(Gastonia City System)

NOTES

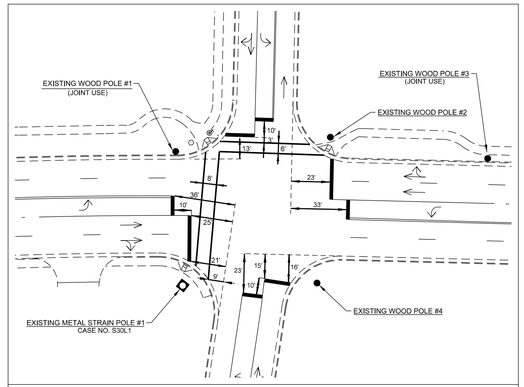
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Program pedestrian heads to count down the flashing "DON'T WALK" time only.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Pedestrian pedestal locations are conceptual and for reference only. See sheets P1 - P3 for guidance.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. City system data: Controller Asset 1354.



OASIS 2070L TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 6	PHASE 8
Min Green 1 *	10	7	10	7
Extension 1 *	3.0	2.0	3.0	2.0
Max Green 1 *	45	25	45	25
Yellow Clearance	3.9	3.8	3.9	4.0
Red Clearance	1.5	1.5	1.5	1.5
Walk 1 *	-	7	7	-
Don't Walk 1	-	18	14	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL	-
Vehicle Call Memory	YELLOW	-	YELLOW	-
Dual Entry	-	ON	-	ON
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.



PROPOSED STOP BAR AND POLE LOCATION DIAGRAM
NOT TO SCALE

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
_____
ITS & Signals Unit

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Metal Strain Pole	
	Signal Pole with 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	
	Street Sign	

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

Signal Upgrade - Final Design

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 279 (New Hope Road)
at
Country Club Road /
Cotton Blossom Circle

Division 12 Gaston County Gastonia

PLAN DATE: December 2015	REVIEWED BY: R. Hinshaw
PREPARED BY: C. Reich	REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

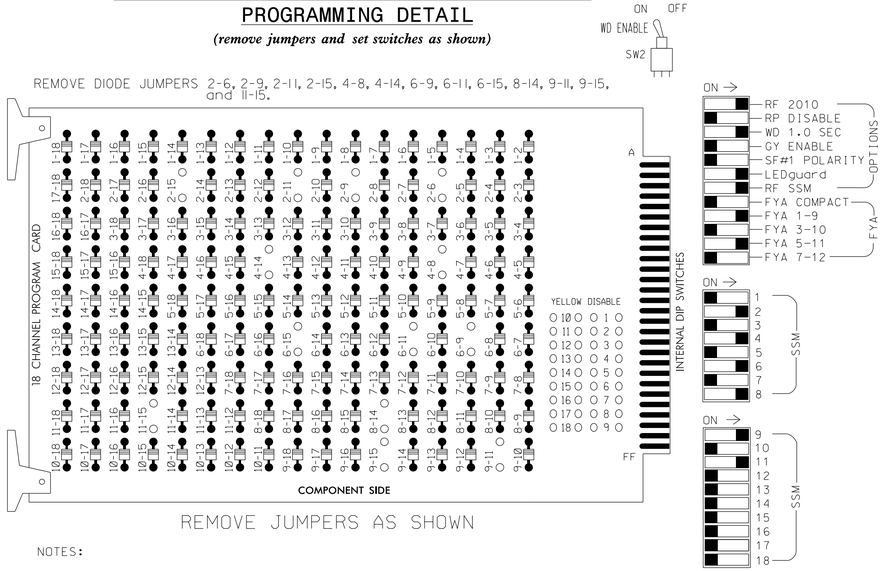
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER ROYAL HINSHAW

DocuSigned by: F. Royal Hinshaw 12/15/2015
SIGNATURE DATE
SIG. INVENTORY NO. 12-1354

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 10

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches 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. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

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. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
6. The cabinet and controller are part of the Gastonia City System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332 /W/ AUX
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S5,S6,S8,S9,S11,AUX S1,AUX S4.
PHASES USED.....2,4,4PED,6,6PED,8.
OVERLAP "A".....6
OVERLAP "B".....NOT USED
OVERLAP "C".....2
OVERLAP "D".....NOT USED

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	22,23	NU	NU	41,42	P41, P42	NU	62,63	P61, P62	NU	81,82	NU	61 ★	NU	NU	21 ★	NU	NU
RED		128			101			134			107							
YELLOW		129			102			135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW																		
✋						104			119									
🚶						106			121									

NU = Not Used

★ See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)

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

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
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y	-	-	-
2C	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,6B	TB3-5,6	J2U	40	2	6	6	Y	Y	-	-	-
6C	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	-	-	10
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					

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

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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:              ¦123456789101112131415 16
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:              ¦123456789101112131415 16
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

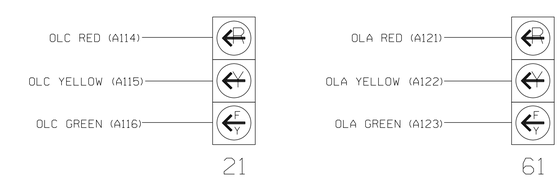
OVERLAP PROGRAMMING COMPLETE

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.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
ITS & Signals Unit

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-1354
DESIGNED: December 2015
SEALED: 12/15/2015
REVISED:

Signal Upgrade - Final Design

ELECTRICAL AND PROGRAMMING DETAILS FOR:

750 N.Greenfield Pkwy,Garner,NC 27529

NC 279 (New Hope Road)
at
Country Club Road /
Cotton Blossom Circle

Division 12 Gaston County Gastonia

PLAN DATE: December 2015	REVIEWED BY:
PREPARED BY: R. Hinshaw	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER ROYAL HINSHAW

DocuSigned by: F. Royal Hinshaw 12/15/2015
SIGNATURE DATE

SIG. INVENTORY NO. 12-1354

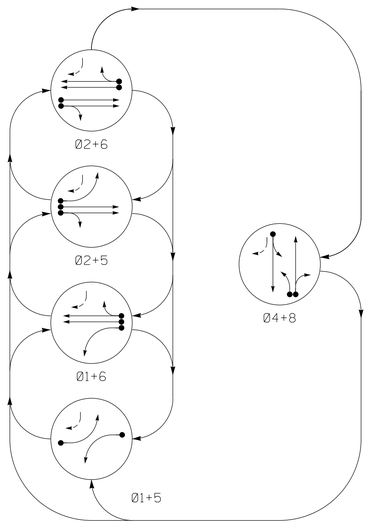
Preliminary Design 11-23-15

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 11

PHASING DIAGRAM

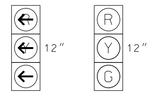


PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.



11
51

21,22
41,42
61,62
81,82

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~
61,62	R	G	R	G	R	Y
81,82	R	R	R	R	G	R

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

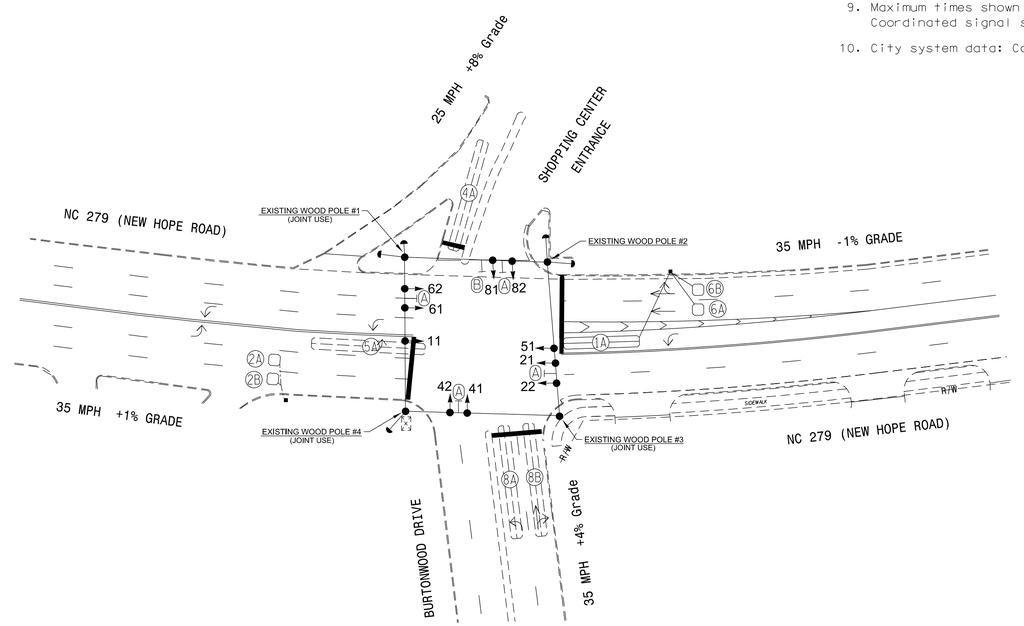
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	3	-	-
2A,2B	6X6	70	3	Y	2	Y	Y	-	-	-	-	-
4A *	6X60	+5	EXISTING	-	4	Y	Y	-	-	-	-	-
5A *	6X60	+5	EXISTING	-	5	Y	Y	-	-	3	-	-
6A,6B	6X6	70	4	Y	6	Y	Y	-	-	-	-	-
8A *	6X60	+5	EXISTING	-	8	Y	Y	-	-	-	-	-
8B *	6X60	+5	EXISTING	-	8	Y	Y	-	-	10	-	-

* See note #6

5 Phase
Fully Actuated
(Gastonia City System)

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 or phase 5 may be lagged.
4. Reposition existing signal head numbered 11.
5. Set all detector units to presence mode.
6. The size, number of turns, and location of existing detection loops could not be verified.
7. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
8. Existing Yellow Change Interval for phases 1, 4, and 5 may be decreased by 0.3 seconds per week until the required value is reached.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
10. City system data: Controller Asset # 0152



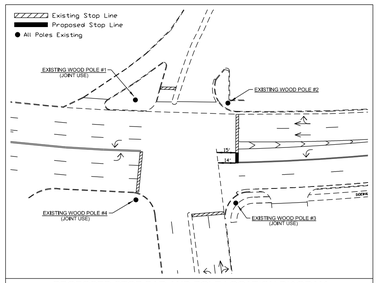
LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	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	
N/A	Street Sign	A
N/A	"LEFT TURN YIELD" Sign	B

OASIS 2070L TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Min Green 1 *	7	10	7	7	10	7
Extension 1 *	1.0	3.0	2.0	1.0	3.0	2.0
Max Green 1 *	20	45	30	20	45	30
Yellow Clearance	3.0	3.8	3.0	3.0	3.9	3.6
Red Clearance	1.9	1.3	2.9	1.8	1.4	2.2
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
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.



PROPOSED STOP BAR AND POLE LOCATION DIAGRAM
NOT TO SCALE

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____

ITS & Signals Unit

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

Signal Upgrade - Final Design

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 279 (New Hope Road) at Burtonwood Drive

Division 12 Gaston County Gastonia

PLAN DATE: December 2015	REVIEWED BY: R. Hinshaw
PREPARED BY: C. Reich	REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER ROYAL HINSHAW

DocuSigned by:
R. Royal Hinshaw 12/15/2015
SIGNATURE DATE

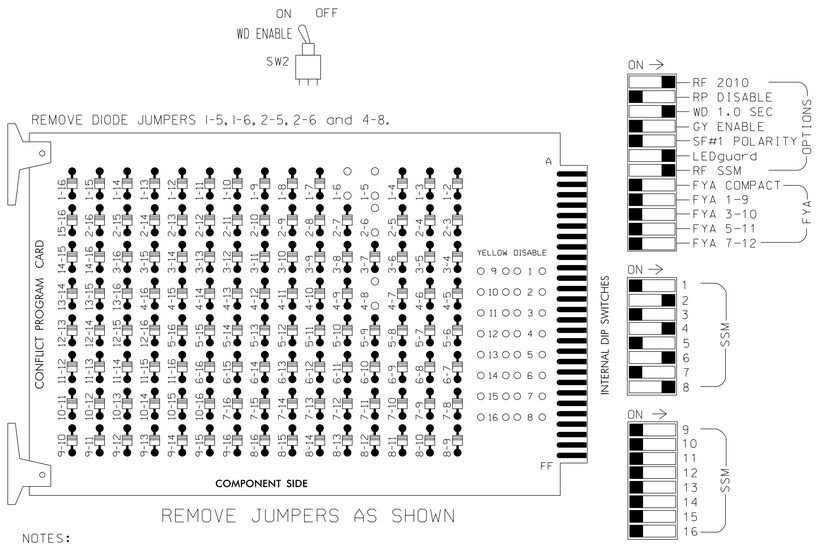
SIG. INVENTORY NO. 12-0152

Preliminary Design 11-23-15

PROJECT REFERENCE NO.	SHEET NO.
C-4934	Sig. 12

EDI MODEL 2010ECL 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 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 2 and 6 for Start Up In Green.
4. Enable Simultaneous Gap-Out for all phases.
5. Program phases 4 and 8 for Dual Entry.
6. The cabinet and controller are part of the Gastonia City System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S4,S5,S6,S8
PHASES USED.....1,2,4,5,6,8
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.	11	21.22	NU	NU	41.42	NU	51	61.62	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					
GREEN ARROW	127						133					

NU = Not Used

▽1 INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1	Ø 2	SLOT	SLOT	SLOT	Ø 4	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	FS
		1A	2A,2B				4A								DC ISOLATOR
	L	NOT USED	NOT USED	EMPTY	EMPTY	EMPTY	NOT USED	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	ST
															DC ISOLATOR
FILE "J"	U	Ø 5	Ø 6	SLOT	SLOT	SLOT	Ø 8	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT
		5A	6A,6B				8A								
	L	NOT USED	NOT USED	EMPTY	EMPTY	EMPTY	Ø 8 8B	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY

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	-	-	-
4A	TB4-9,10	I6U	41	3	4	4	Y	Y	-	-	-
5A	TB3-1,2	J1U	55	17	5	5	Y	Y	-	-	3
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y	-	-	-
8A	TB5-9,10	J6U	42	4	8	8	Y	Y	-	-	-
8B	TB5-11,12	J6L	46	8	18	8	Y	Y	-	-	10

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
_____
ITS & Signals Unit

Project #: 11-604

DAVENPORT
HOME OFFICE:
305 WEST FOURTH STREET, SUITE 2A
WINSTON-SALEM, NC 27101
336.744.1636 www.davenportworld.com
NCBELS FIRM LICENSE NO. C-2522

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 12-0152
DESIGNED: December 2015
SEALED: 12/15/2015
REVISED:

REVISION ▽1 SEAL

NORTH CAROLINA PROFESSIONAL SEAL 032117 ENGINEER ROYAL HINSHAW

DocuSigned by: F. Royal Hinshaw 12/15/2015
SIGNATURE DATE

Signal Upgrade - Final Design

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 279 (New Hope Road)
at
Burtonwood Drive

Division 12 Gaston County Gastonia

PLAN DATE:	December 2004	REVIEWED BY:	T. Joyce
PREPARED BY:	James Peterson	REVIEWED BY:	

REVISIONS	INIT.	DATE
▽1 Signal Plan updated in conjunction with widening project; input file changed (2B, 6B)	SRH	12/15/2015

SEAL

Not a certified document as to the Original Document but Only as to the Revisions - This document originally issued and sealed by George C. Brown, #022013, on May 13, 2005. This document is only certified as to the revisions.

SIGNATURE DATE

SIG. INVENTORY NO. 12-0152

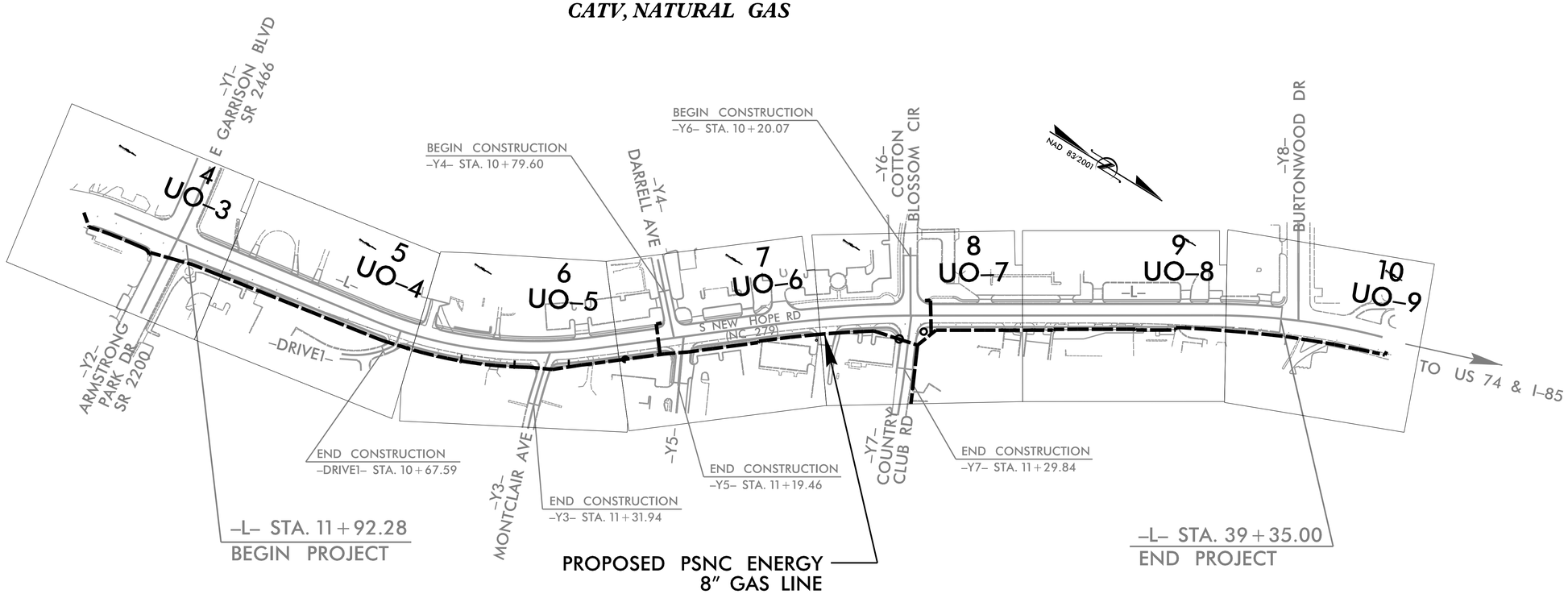
T.I.P. NO.	SHEET NO.
C–4934	UO–1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
GASTON COUNTY

LOCATION: *NC 279 (S NEW HOPE RD) WIDENING BETWEEN SR 2200 (ARMSTRONG PARK DR) /SR 2466 (E GARRISON BLVD) AND BURTONWOOD DR*

TYPE OF WORK: *POWER DISTRIBUTION, TELECOMMUNICATIONS, CATV, NATURAL GAS*



TIP PROJECT: C–4934

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

4 2 0 4 8
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO–1	TITLE SHEET
UO–2	UTILITY SYMBOLOGY SHEET
UO–3 THRU UO–9	UTILITY BY OTHERS PLAN SHEETS

UTILITY OWNERS ON PROJECT

(A) POWER – CITY OF GASTONIA
(B) TELECOMMUNICATIONS – AT&T, RST, LEVEL 3
(C) CATV – TIME WARNER CABLE
(D) NATURAL GAS – PSNC ENERGY

PLANS PREPARED BY:
HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, NC 28202
N.C.B.E.L.S. License Number: F–0116

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99
7/15/2016
...\182328_Gastonia_NewHope_UO01_02.dgn
10:03:33 AM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	U0-2

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

UTILITIES BY OTHERS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PBFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RBFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT
- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole
- Power Manhole
- Telephone Manhole
- Sanitary Sewer Manhole
- Hand Hole for Cable
- Power Transformer
- Telephone Pedestal
- CATV Pedestal
- Gas Valve
- Gas Meter
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.
- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — T
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — T
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown)

REV: 2/1/2012

5/14/99

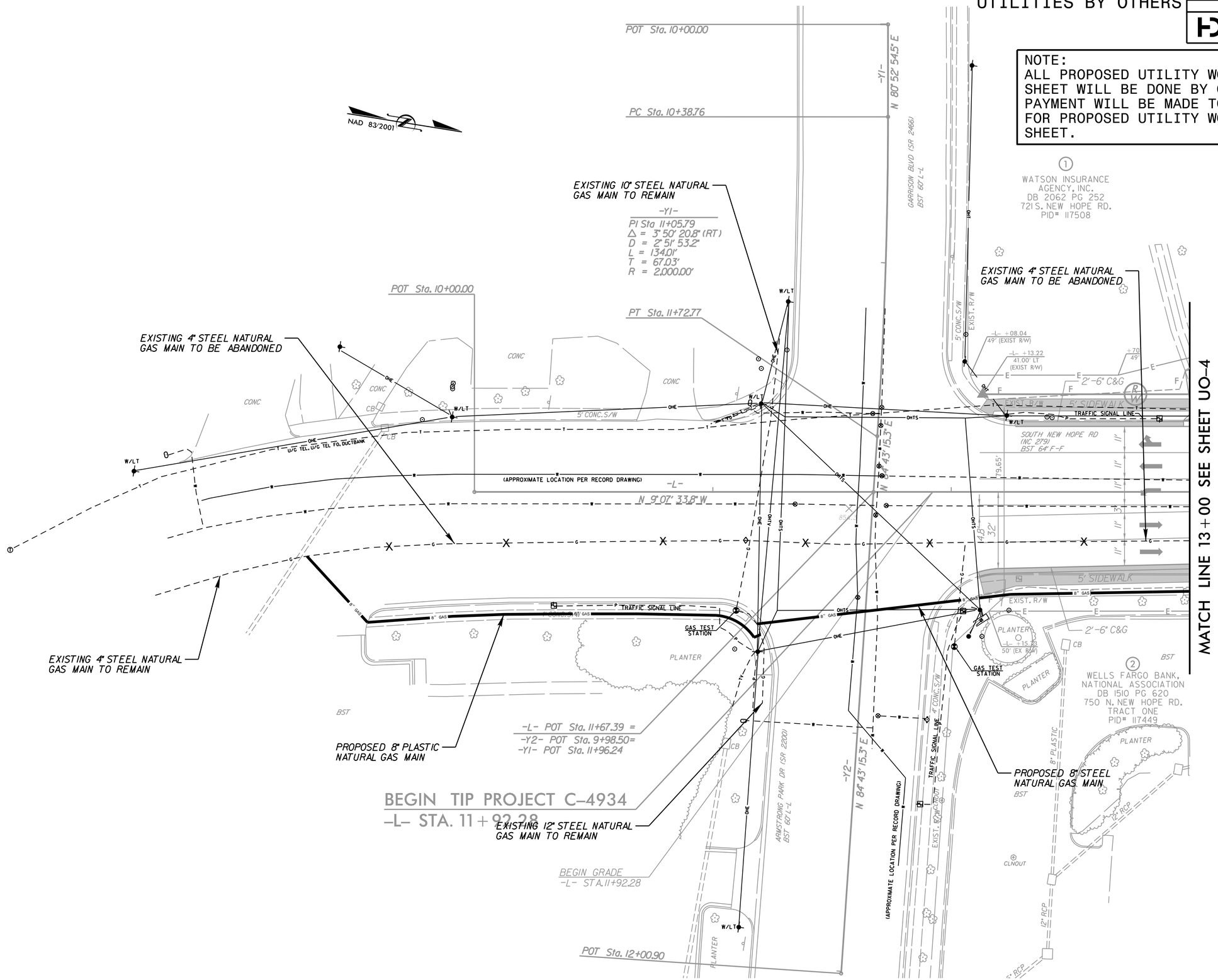
...\182706_C4934_Catawba_NewHope_U001_02.dgn
7/05/2016
10:20:44 AM

UTILITIES BY OTHERS

PROJECT REFERENCE NO.	SHEET NO.
C-4934	UO-3

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.



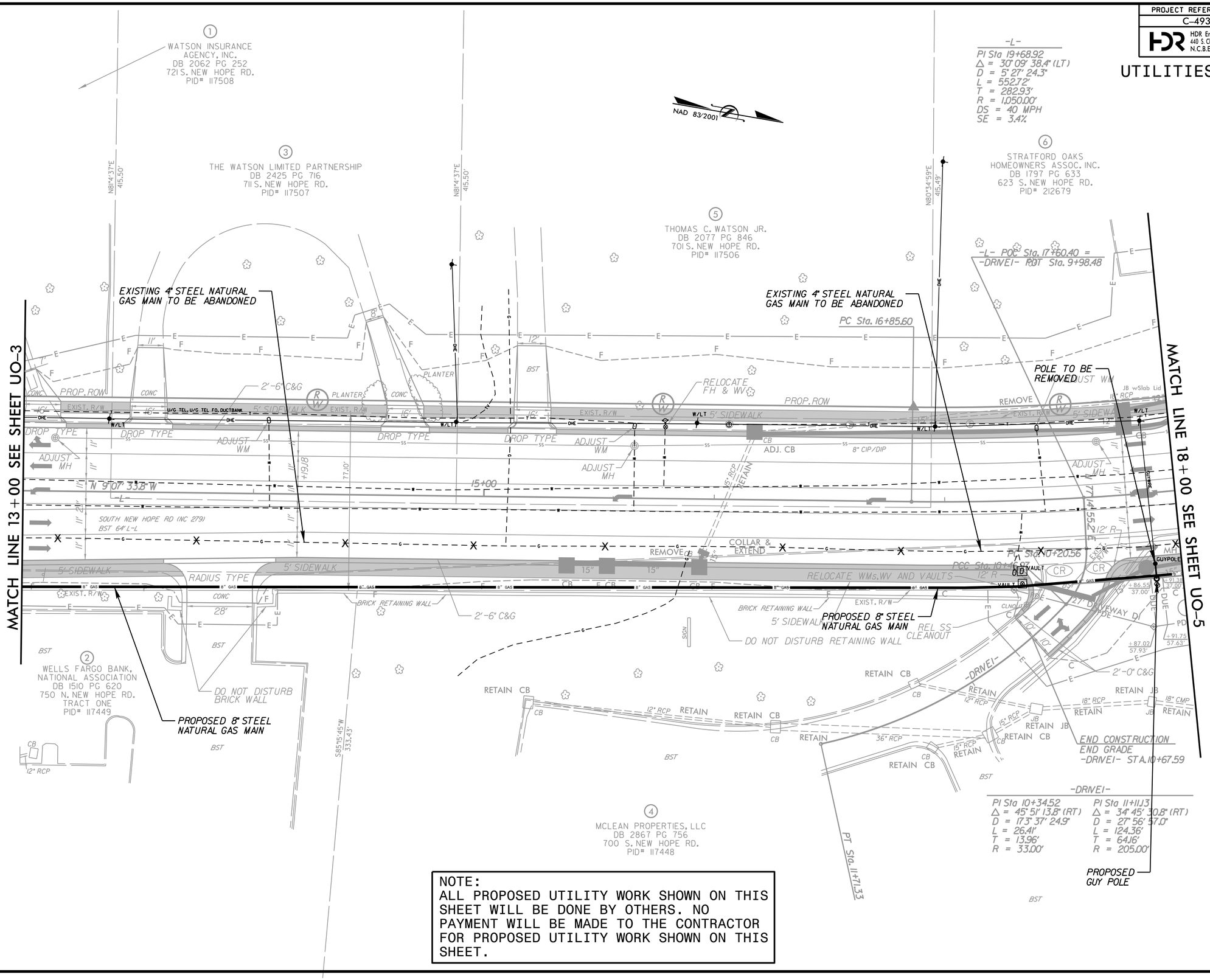
8/17/99

7/15/2015
X:\6334128_Gastonia_NewHope_U003.dgn
10:03:40 AM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	UO-4

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

UTILITIES BY OTHERS



NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

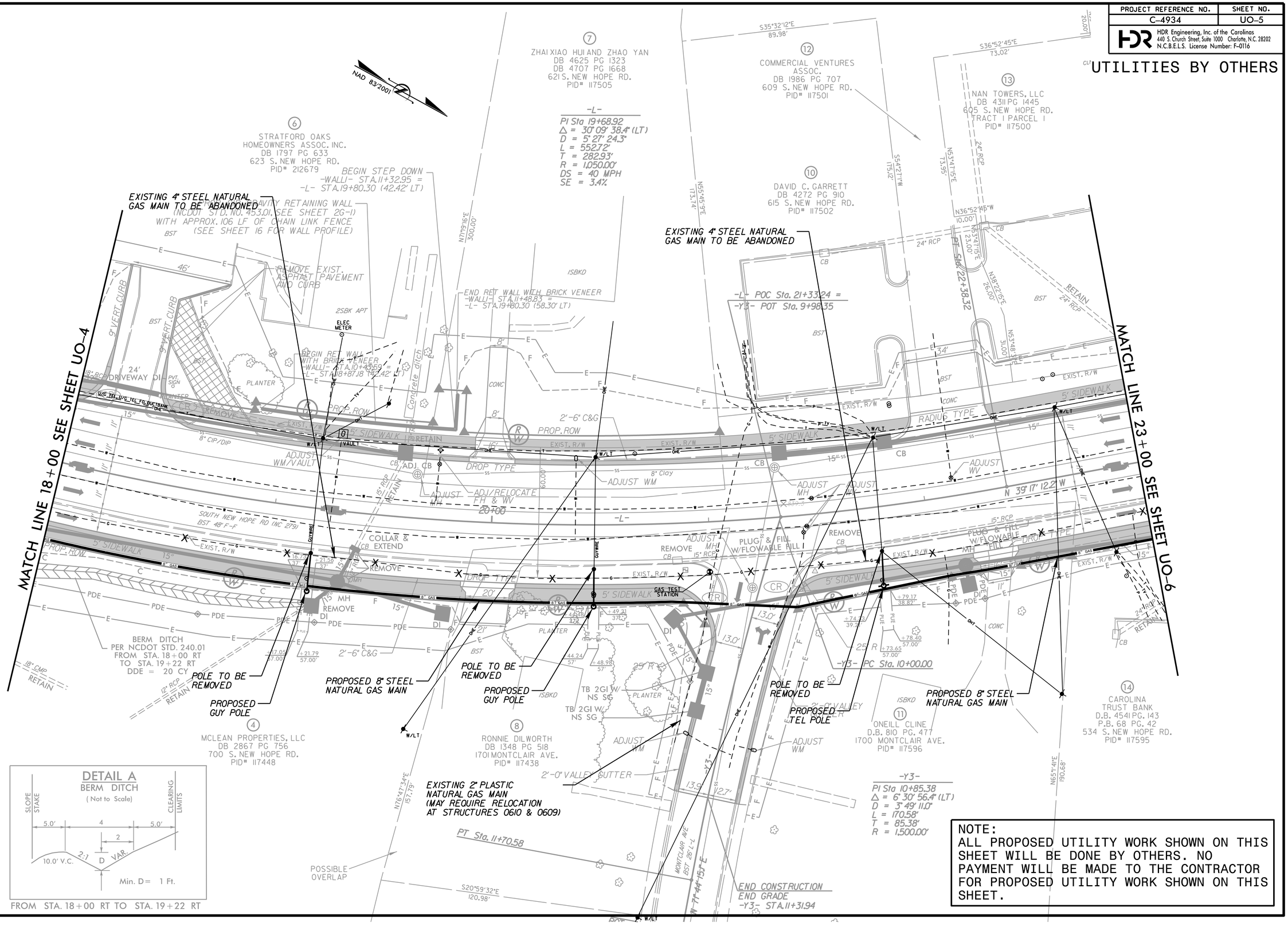
8/17/99

7/15/2015
163238 Gastonia_NewHope_U0104.dgn
10:03:45 AM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	UO-5

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

UTILITIES BY OTHERS



NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

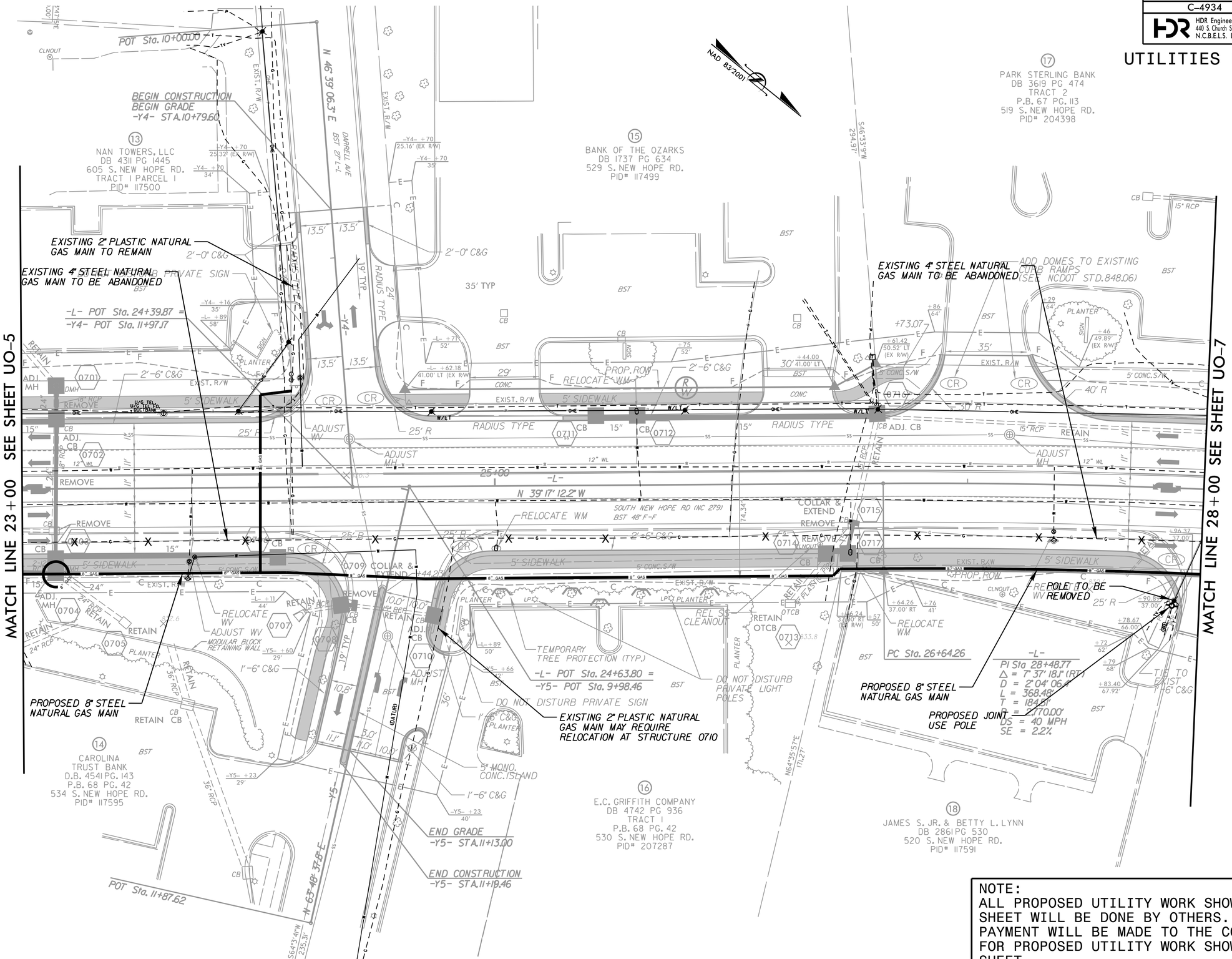
8/17/99

7/15/2016
12:03:49 AM
C:\Projects\28_Gastonia_NewHope_U005.dgn

PROJECT REFERENCE NO.	SHEET NO.
C-4934	UO-6

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

UTILITIES BY OTHERS



NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

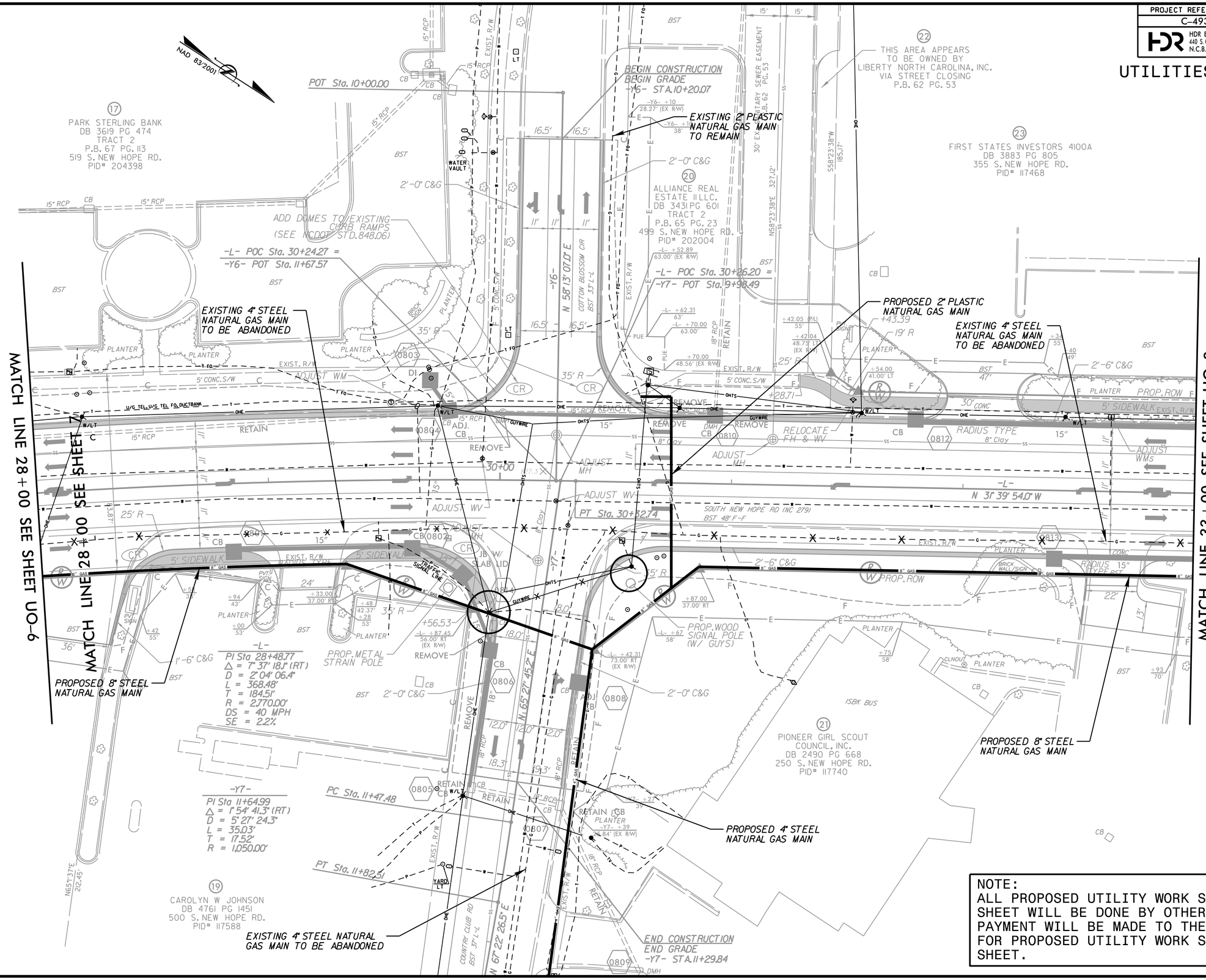
8/17/99

7/15/2016
I:\2016\2016128_Gastonia_NewHope_U006.dgn
10:30:54 AM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	UO-7

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

UTILITIES BY OTHERS



NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

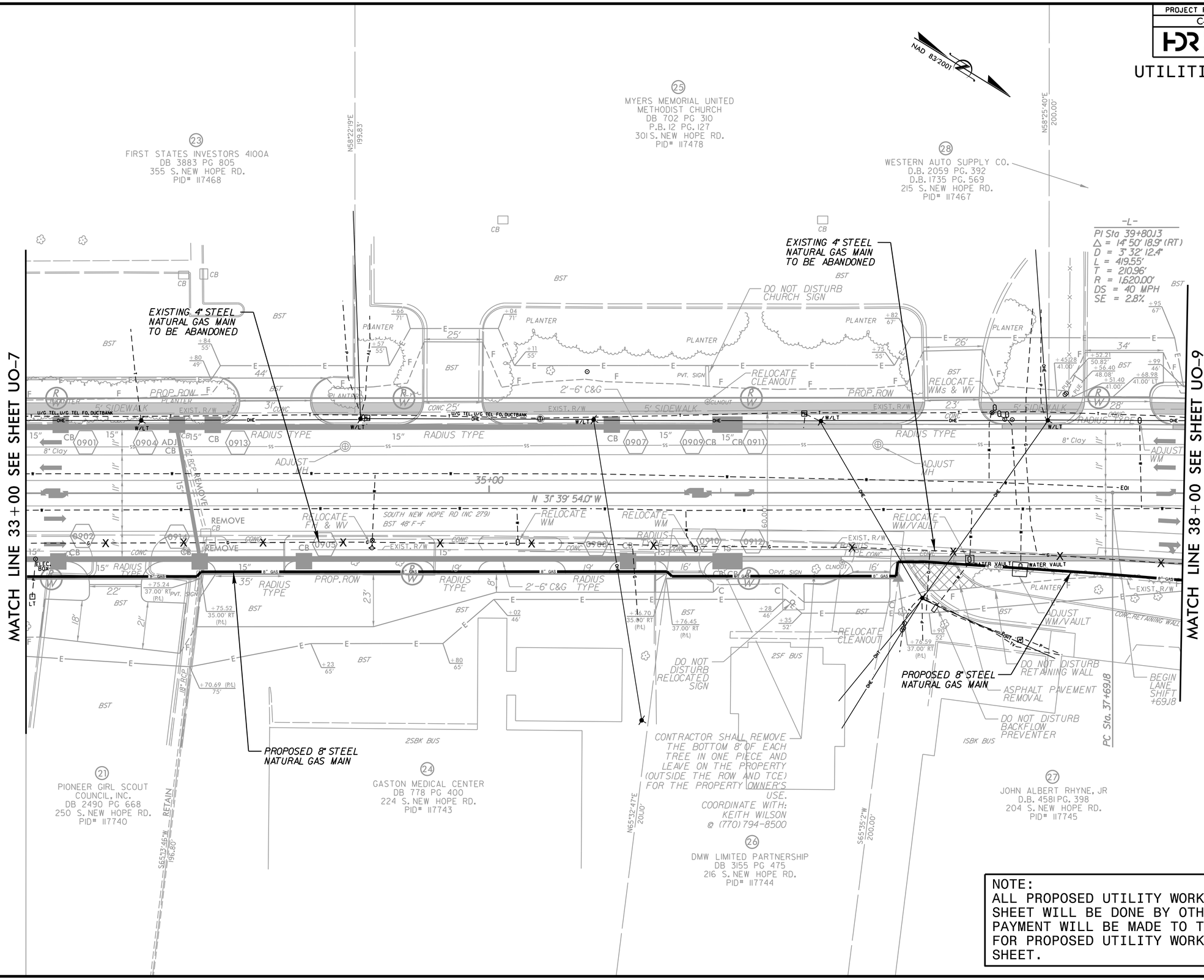
8/17/99

7/15/2016
10:03:59 AM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	UO-8

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

UTILITIES BY OTHERS



NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

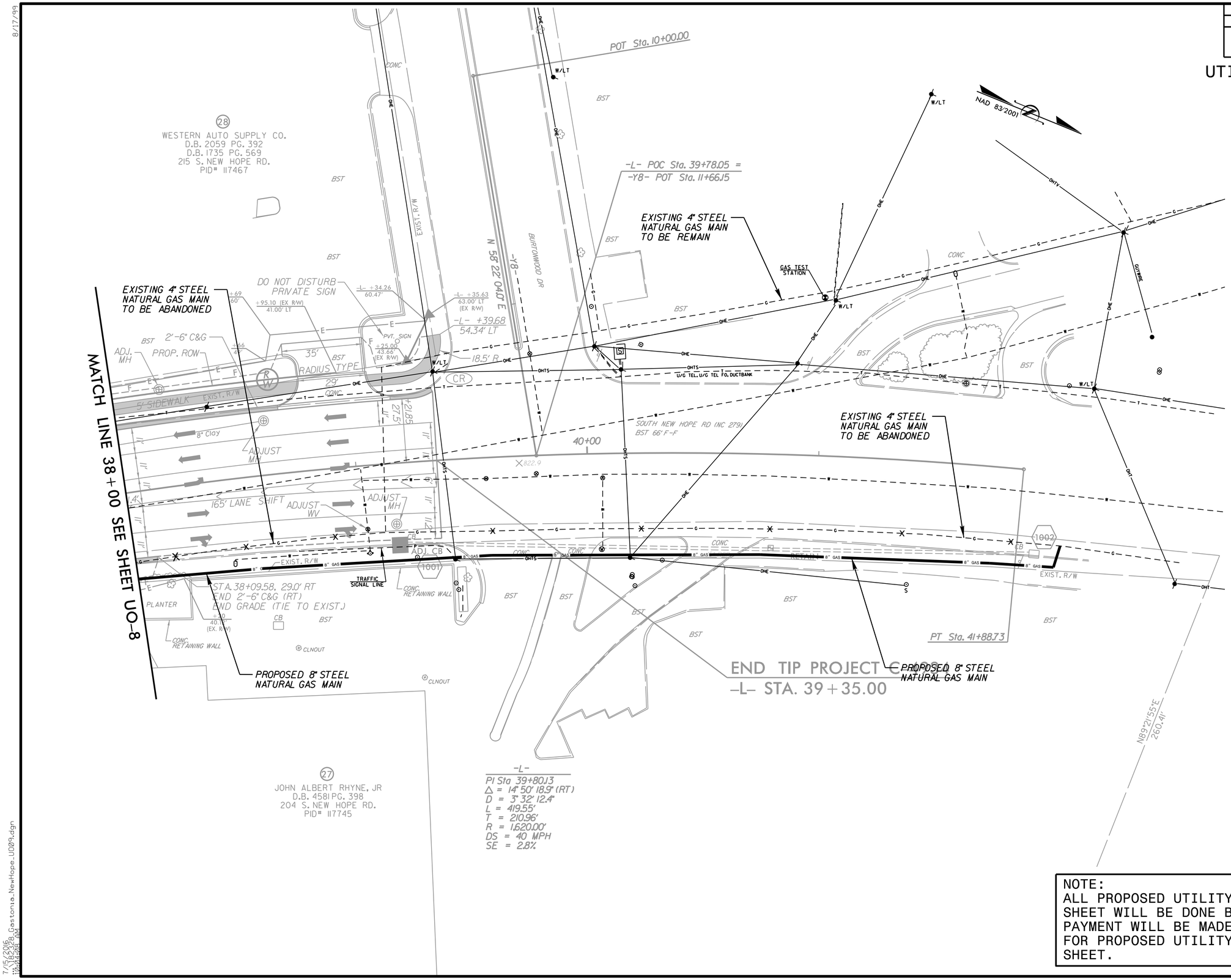
8/17/99

7/15/2016
C:\Bentley\Projects\Gastonia_NewHope_U008.dgn
10:44:03 AM

PROJECT REFERENCE NO.	SHEET NO.
C-4934	UO-9

HDR Engineering, Inc. of the Carolinas
440 S. Church Street, Suite 1000 Charlotte, N.C. 28202
N.C.B.E.L.S. License Number: F-0116

UTILITIES BY OTHERS



NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

8/17/99

7/15/2016
R:\62128_Gastonia_NewHope_UO09.dgn
12:04:03 AM

PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing, breaking of existing pavement and removal of existing pavement will be paid for at the lump sum price for "Grading".

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT OR SHRINKAGE.

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
12+00.00	0	0
12+50.00	9	3
13+00.00	13	4
13+08.00	1	0
13+50.00	5	3
13+54.00	0	2
13+86.00	3	42
14+00.00	1	25
14+50.00	8	83
14+65.00	3	21
15+00.00	7	51
15+21.00	6	24
15+50.00	10	27
16+00.00	21	68
16+50.00	24	79
17+00.00	27	82
17+50.00	21	88
18+00.00	31	137
18+24.83	19	73
18+50.00	18	37
18+72.71	18	13
19+00.00	44	12
19+50.00	90	31
20+00.00	32	60
20+50.00	10	103
21+00.00	12	92
21+50.00	12	55
22+00.00	10	30
22+17.16	3	3
22+29.25	2	1
22+50.00	5	13
23+00.00	23	55
23+50.00	37	48
24+00.00	48	34
24+50.00	37	10
25+00.00	39	0
25+04.19	5	0
25+50.00	58	2
26+00.00	73	5
26+28.19	41	1
26+50.00	29	3
26+53.00	4	1
26+60.00	9	2
26+70.00	14	2
26+80.00	15	3
26+90.00	15	1
27+00.00	14	0
27+07.22	10	0
27+50.00	56	1
28+00.00	43	3
28+13.27	6	1
28+50.00	29	2
28+75.00	28	2

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
29+00.00	21	2
29+17.33	9	1
29+50.00	22	4
29+70.00	9	3
30+00.00	5	5
30+50.00	15	5
31+00.00	22	13
31+50.00	24	54
31+75.00	9	42
32+00.00	9	32
32+07.39	2	6
32+50.00	18	20
32+67.39	8	3
33+00.00	16	9
33+40.39	20	13
33+50.00	4	1
34+00.00	15	3
34+08.39	2	0
34+50.00	17	12
34+86.39	14	11
35+00.00	5	3
35+20.00	14	9
35+41.54	14	10
35+50.00	5	4
35+83.39	21	15
36+00.00	18	6
36+25.00	39	7
36+50.00	30	7
36+65.39	10	5
37+00.00	10	10
37+50.00	15	15
37+71.41	7	4
38+00.00	8	5
38+09.58	2	3
38+50.00	4	13
39+00.00	2	8

Station Drive1	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+50.00	0	0
10+67.59	29	3

Station Y3	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+50.00	0	0
11+00.00	17	6
11+31.94	8	1

Station Y4	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+79.60	0	0
11+00.00	11	1
11+50.00	18	4

Station Y5	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+50.00	0	0
11+00.00	43	2
11+13.00	6	1

Station Y6	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+20.07	0	0
10+50.00	16	0
11+00.00	17	3
11+40.38	6	10

Station Y7	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+50.00	0	0
11+00.00	29	3
11+29.84	17	2

CROSS SECTION SHEET INDEX

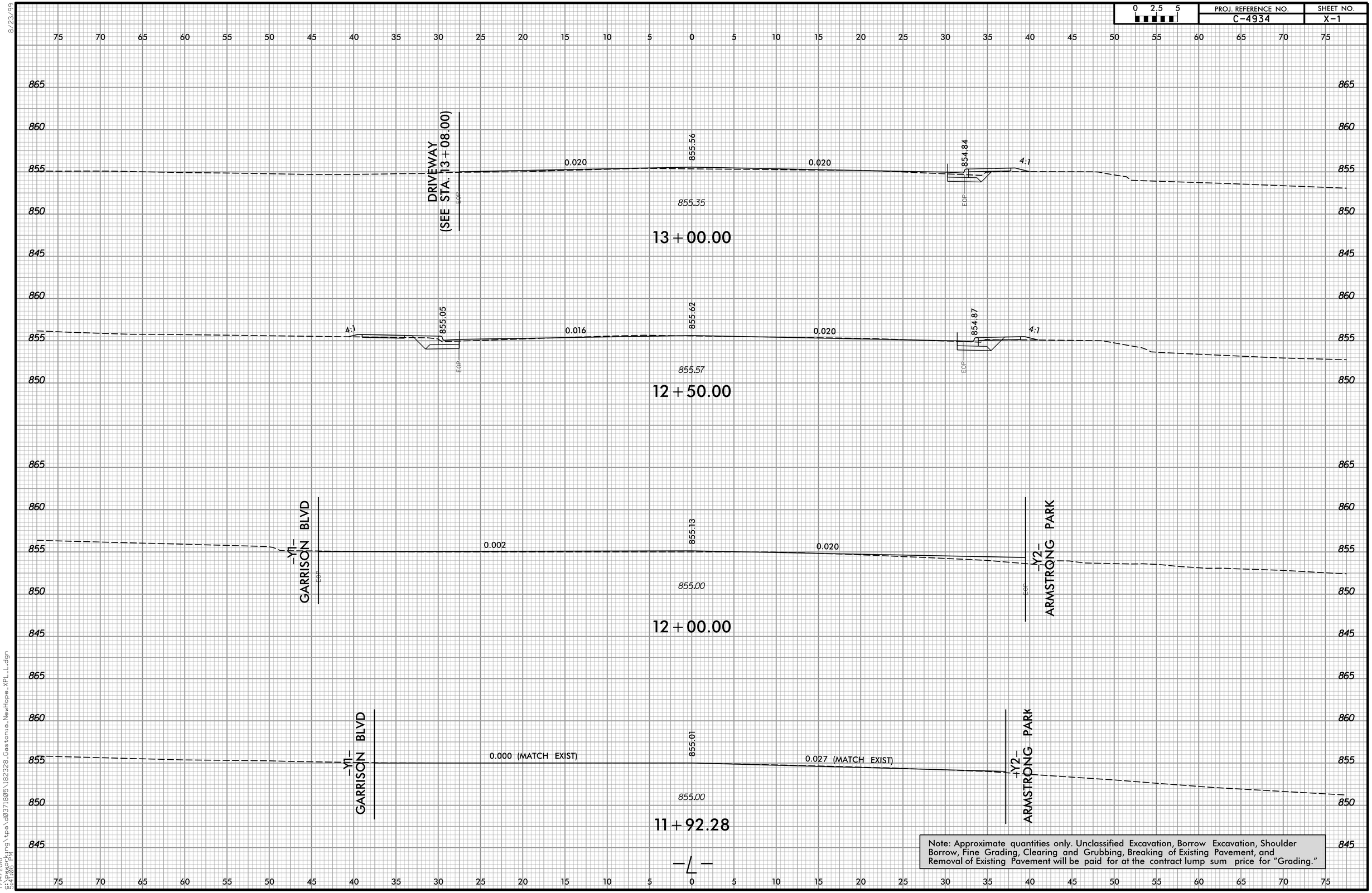
PROJECT NO. C–4934

ALIGNMENT	SHEET NUMBER
–L–	X–1 TO X–25
–Y3–	X–26
–Y4–	X–27
–Y5–	X–28
–Y6–	X–29
–Y7–	X–30
–WALL1– (ALONG –L–)	X–31– TO X–35

8/23/99

7/14/2016
5:41:02 PM
C:\Workspace\ing\tpa\d0371805\182328_Gastonia_NewHope_XPL_1A.dgn

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-1

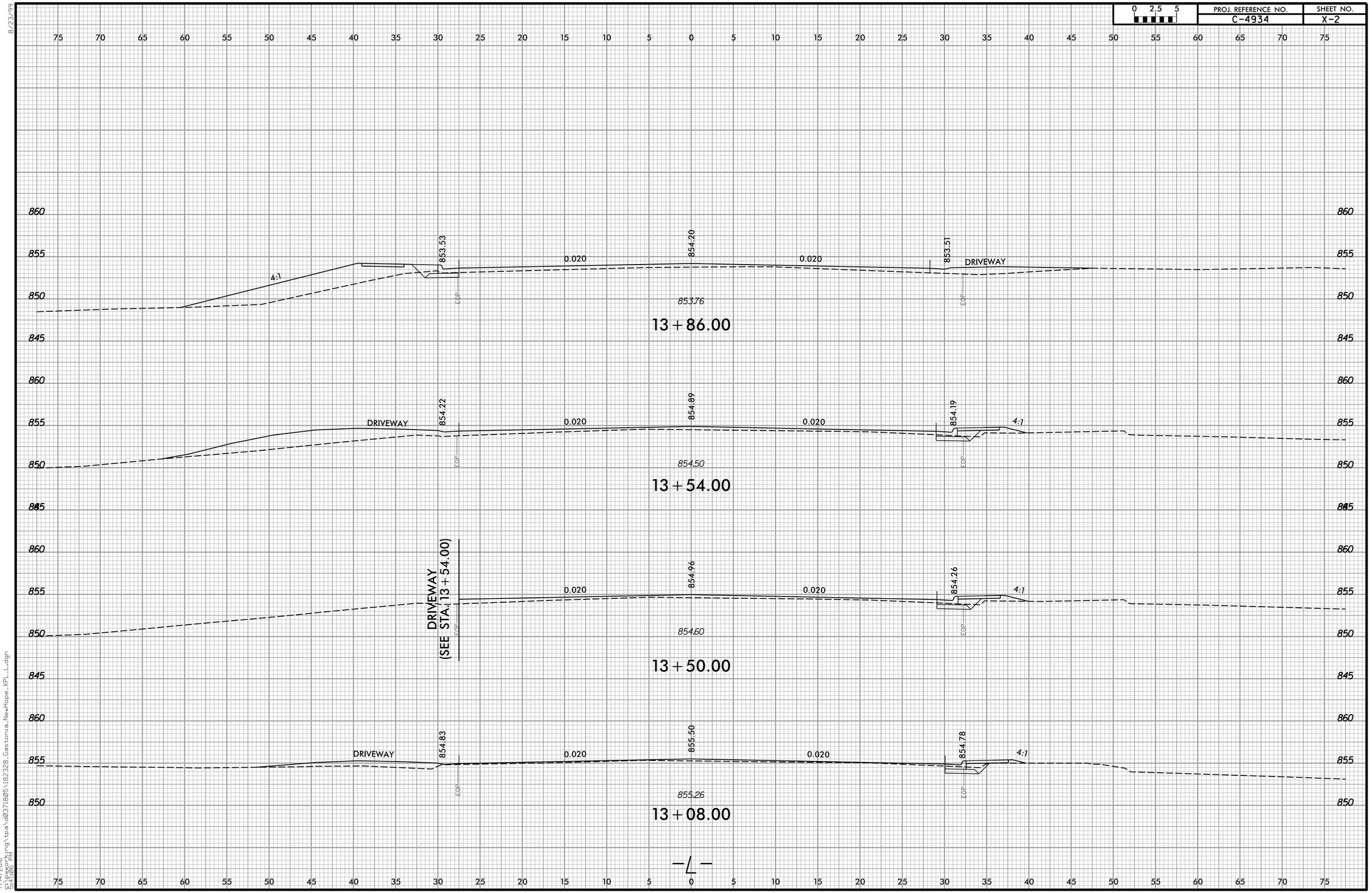


Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

8/23/99

7/14/2016
C:\pwworking\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:06 PM

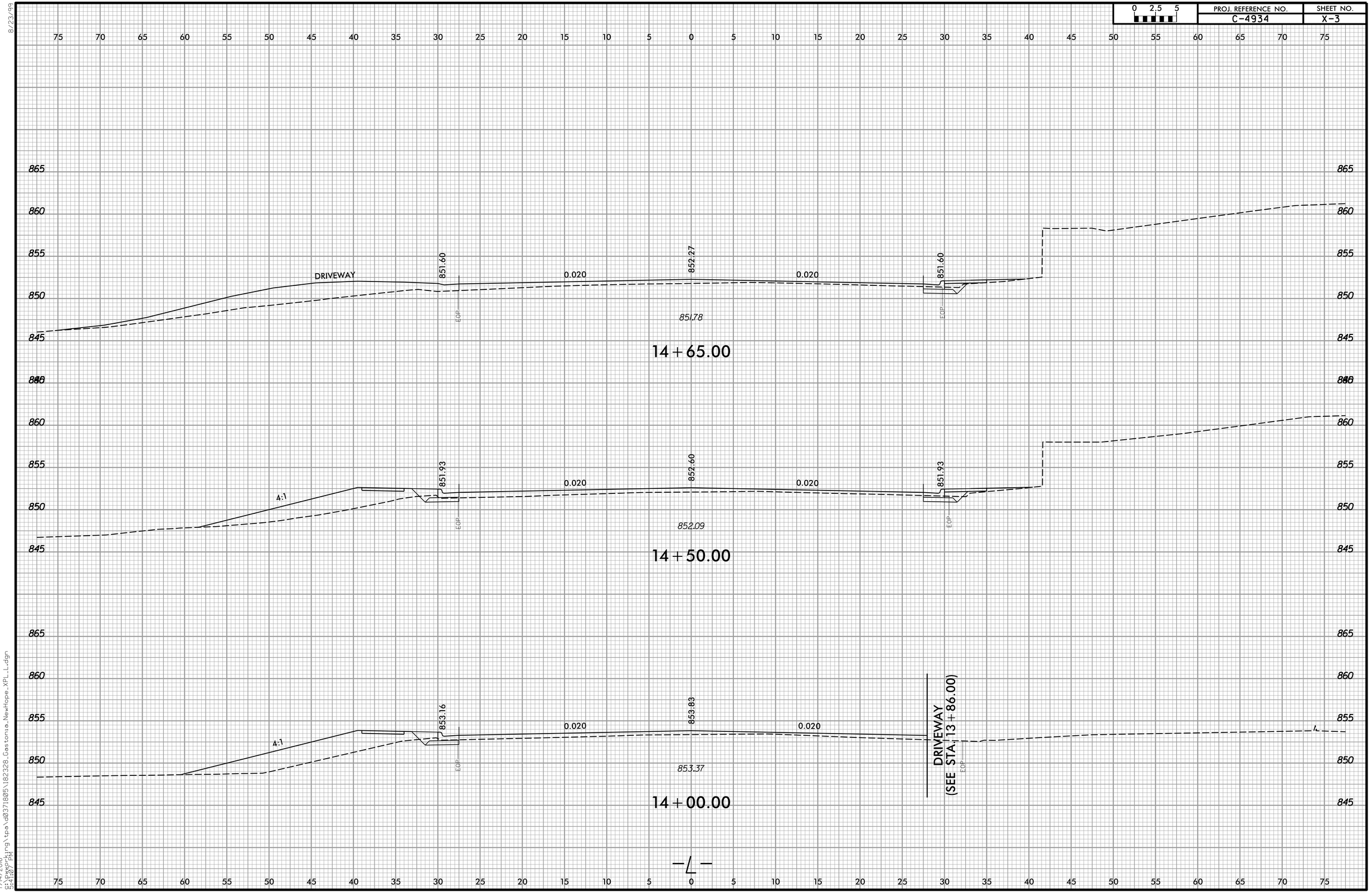
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-2



8/23/99

7/14/2016
C:\Projecting\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:06 PM

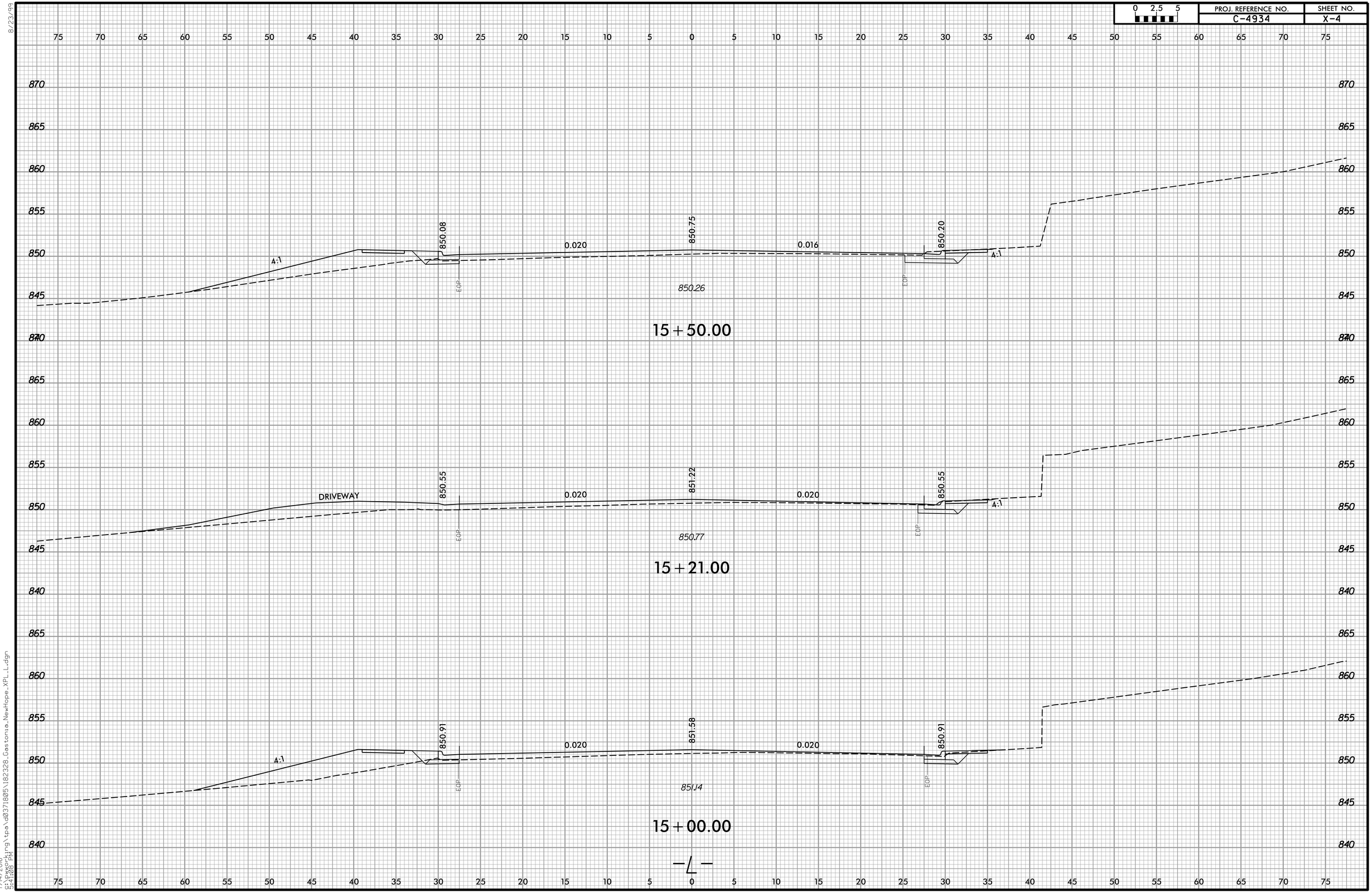
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-3



8/23/99

7/14/2016
C:\Users\pwworking\tpa\d0371805\182328_Gestonia_NewHope_XPL_L.dgn
5:41:07 PM

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-4

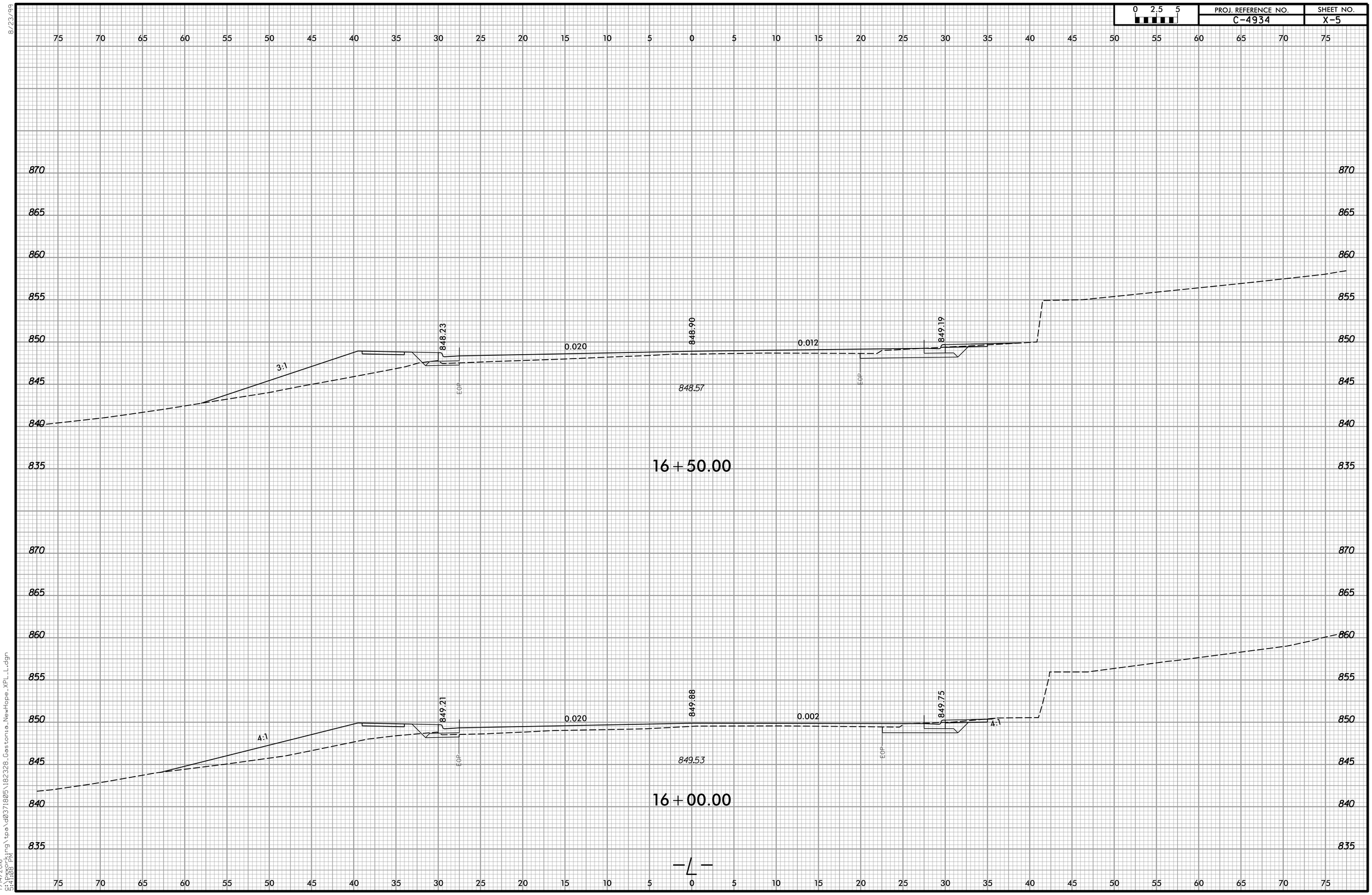


8/23/99

7/14/2016
5:41:08 PM
C:\Working\pavd0371805\182328_Gestonia_NewHope_XPL_L.dgn

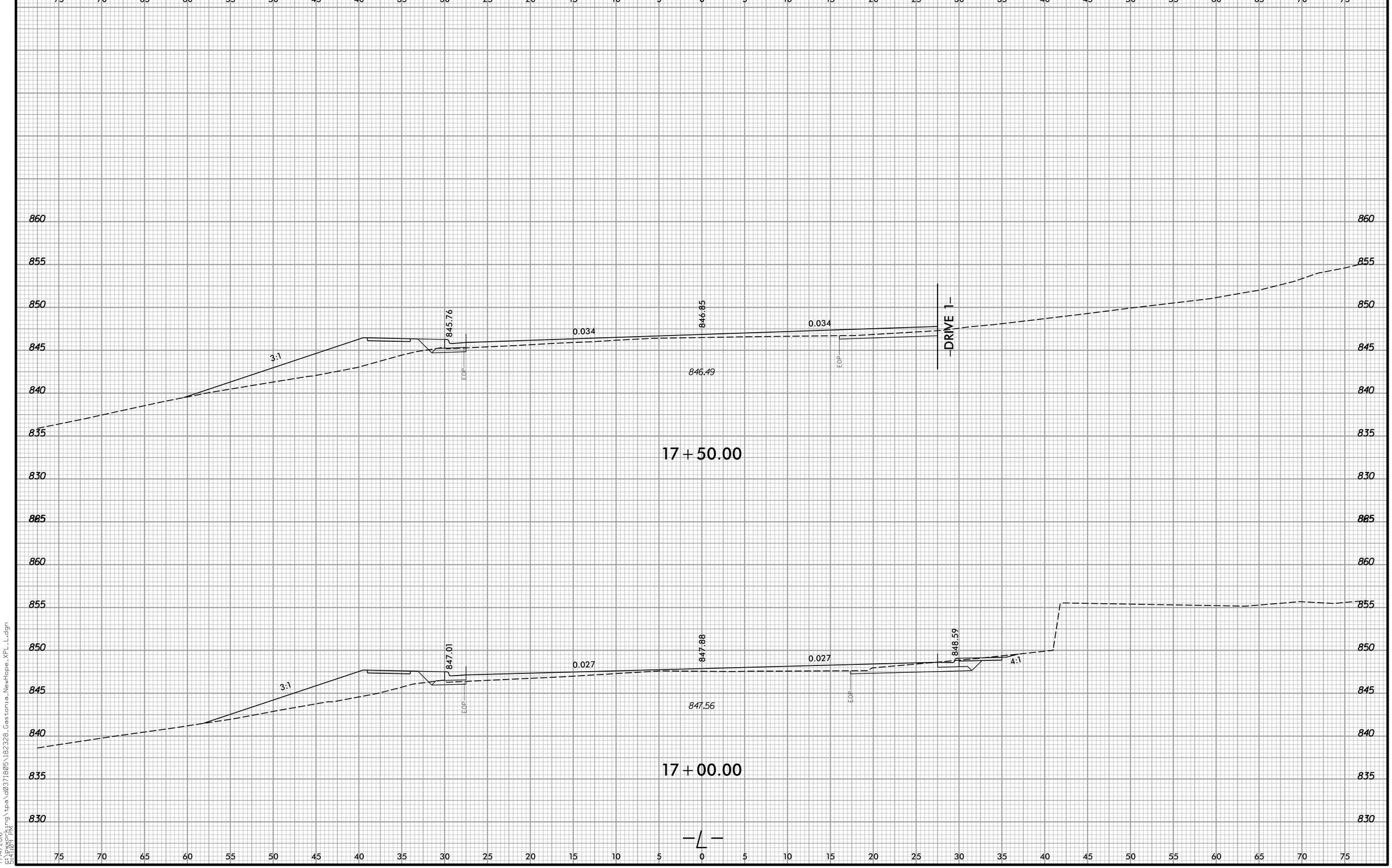
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-5



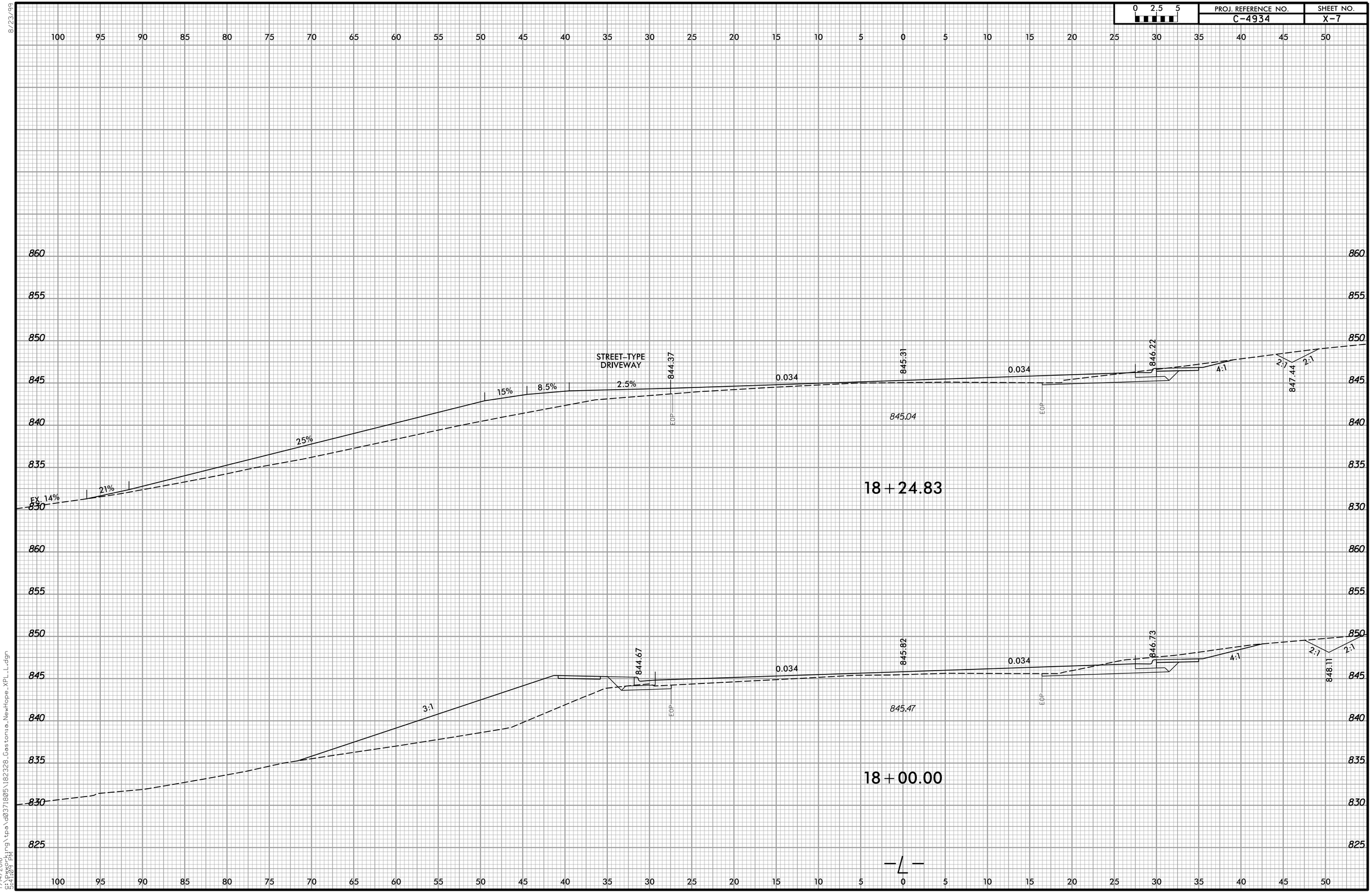
7/14/2016
C:\Users\kyng\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:08 PM

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-6

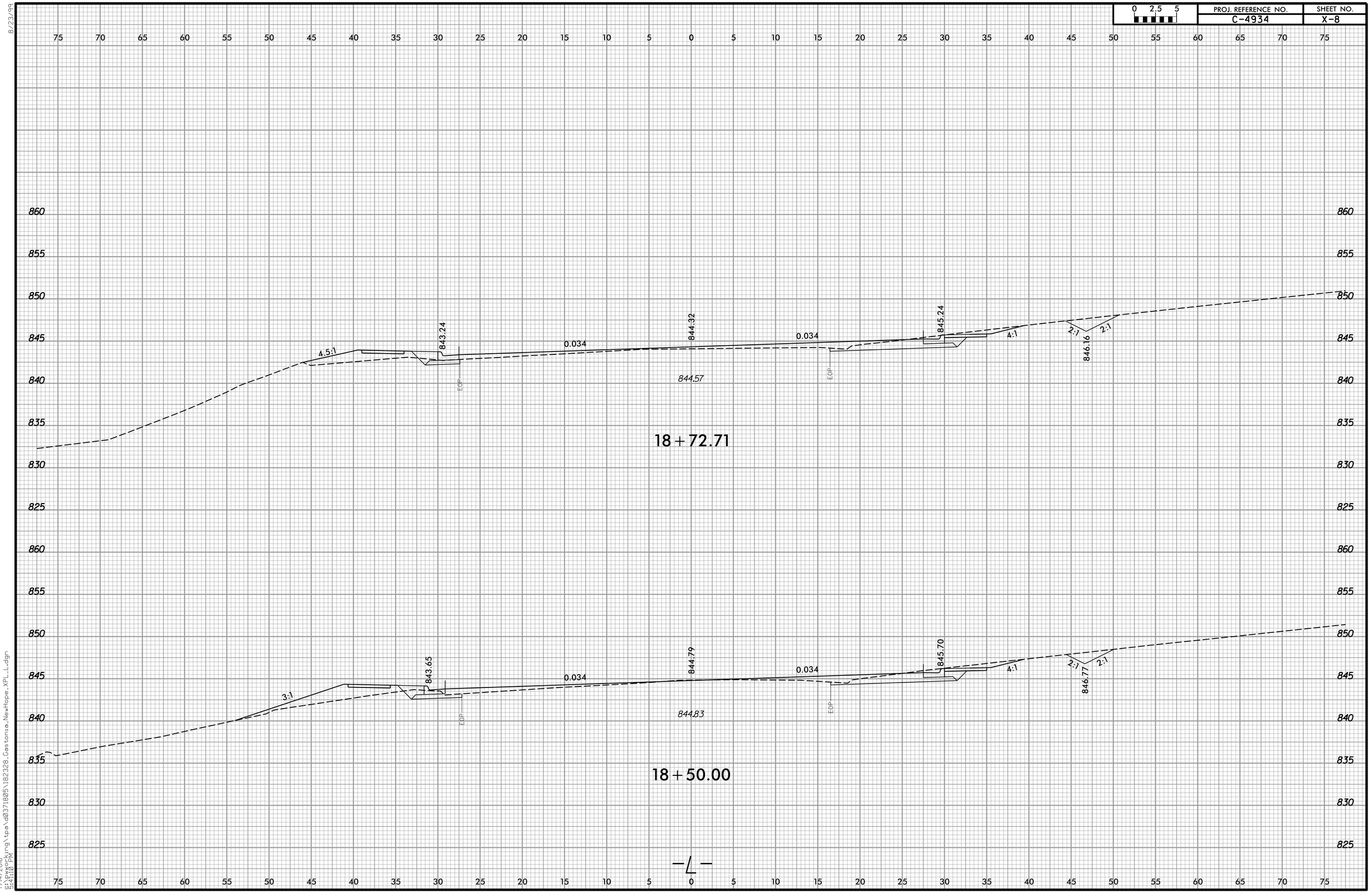


8/23/99

7/14/2016
C:\Projecting\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:09 PM

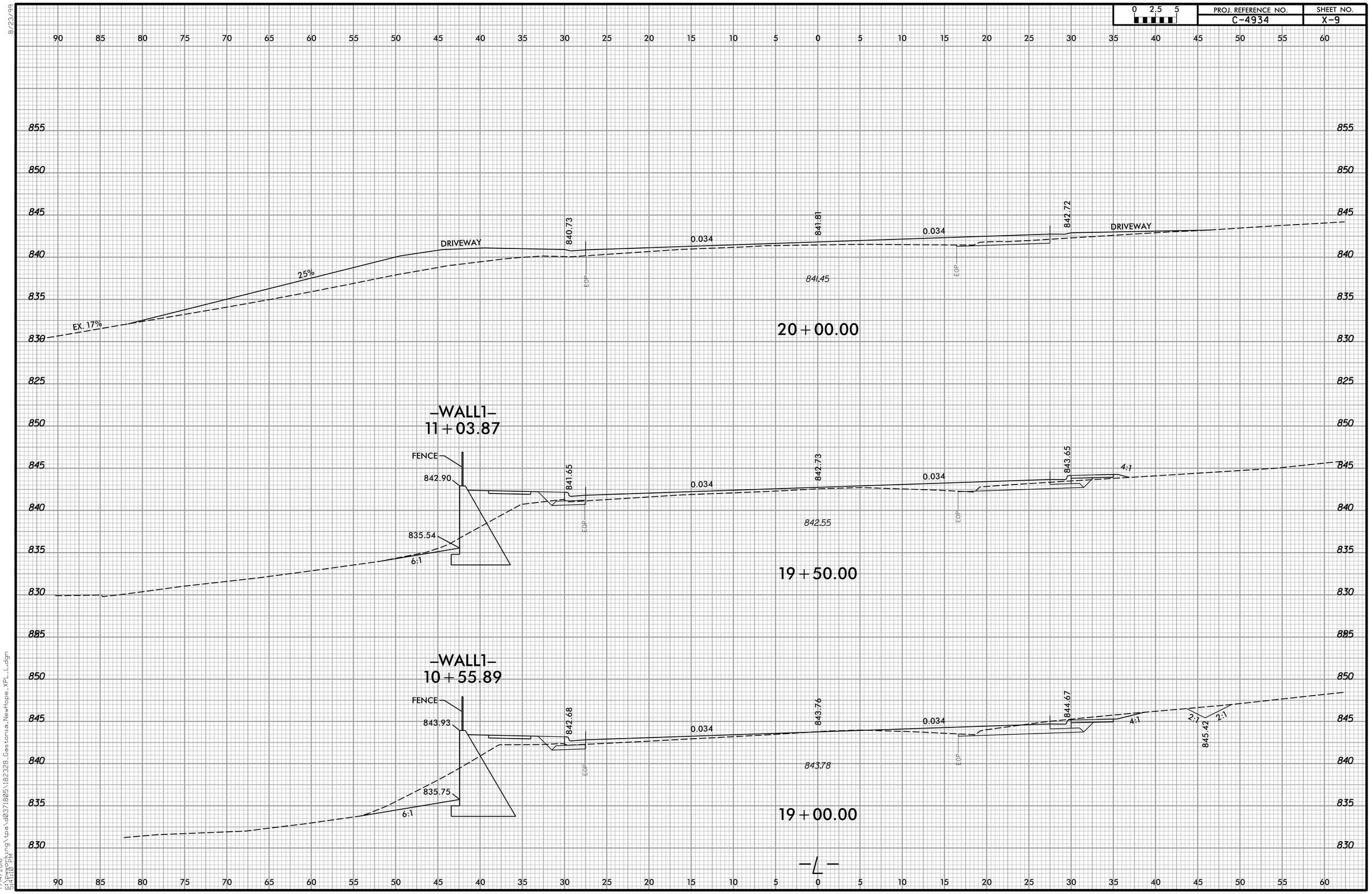

0 2.5 5
PROJ. REFERENCE NO.
C-4934
SHEET NO.
X-7
STREET-TYPE DRIVEWAY
15%
8.5%
2.5%
0.034
844.37
845.31
846.22
847.44
845.04
EOP
25%
21%
EX. 14%
4:1
2:1
18+24.83
3:1
844.67
845.82
846.73
848.11
845.47
18+00.00
-L-
8/23/99
7/14/2006
5:41:09 PM

PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-8

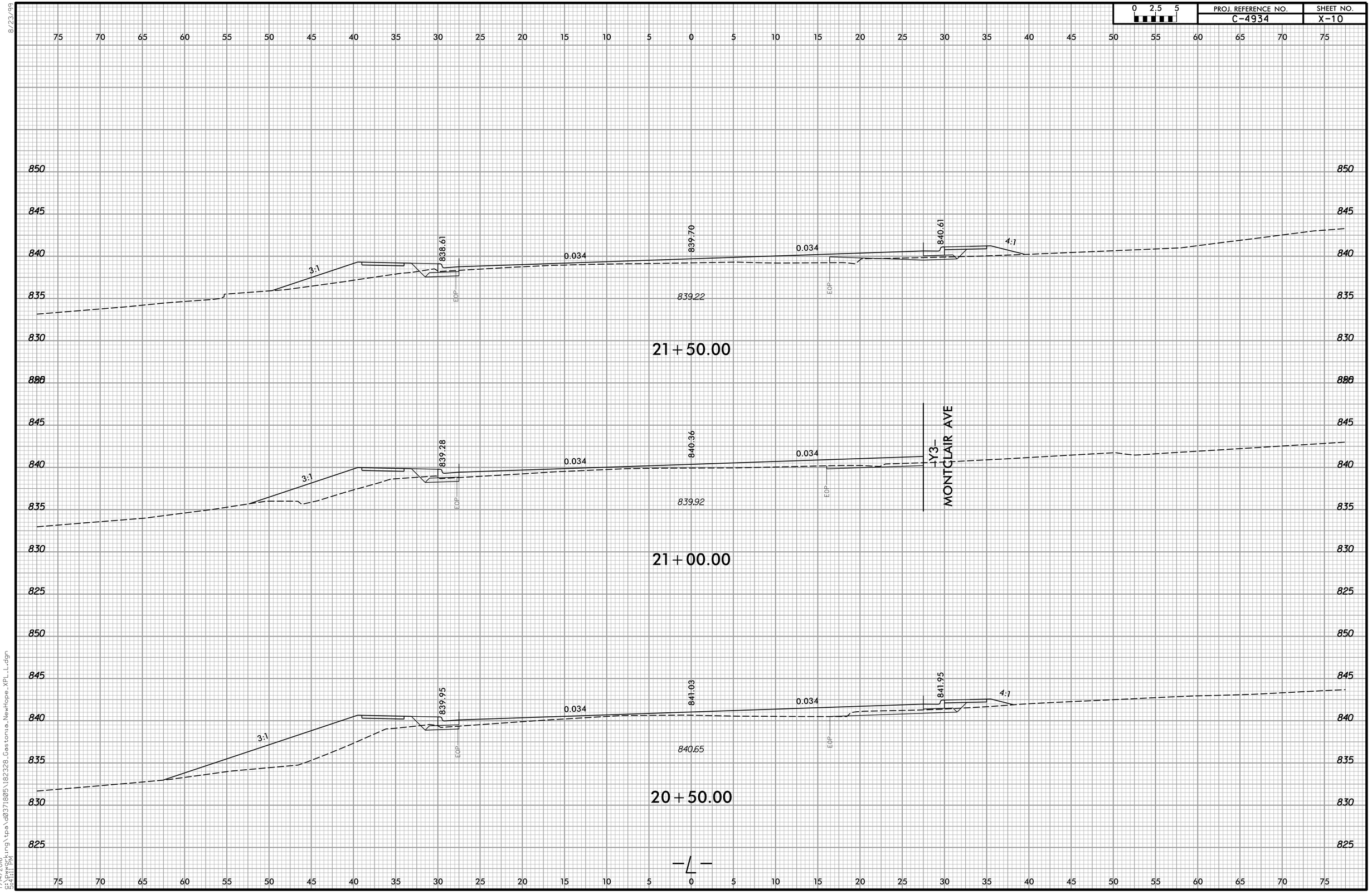


8/23/99

7/14/2016
5:41:10 PM
c:\pwworking\tpa\d0371805\182328_Gestonia_NewHope_XPL_L.dgn


0 2.5 5
PROJ. REFERENCE NO.
C-4934
SHEET NO.
X-9
DRIVEWAY
840.73
0.034
841.81
0.034
842.72
DRIVEWAY
25%
EX. 17%
EOP
841.45
20+00.00
-WALL1-
11+03.87
FENCE
842.90
835.54
6:1
841.65
0.034
842.73
0.034
843.65
4:1
842.55
19+50.00
-WALL1-
10+55.89
FENCE
843.93
835.75
6:1
842.68
0.034
843.76
0.034
844.67
4:1
2:1
2:1
845.42
843.78
19+00.00
-L-
8/23/99
7/14/2016
5:41:10 PM

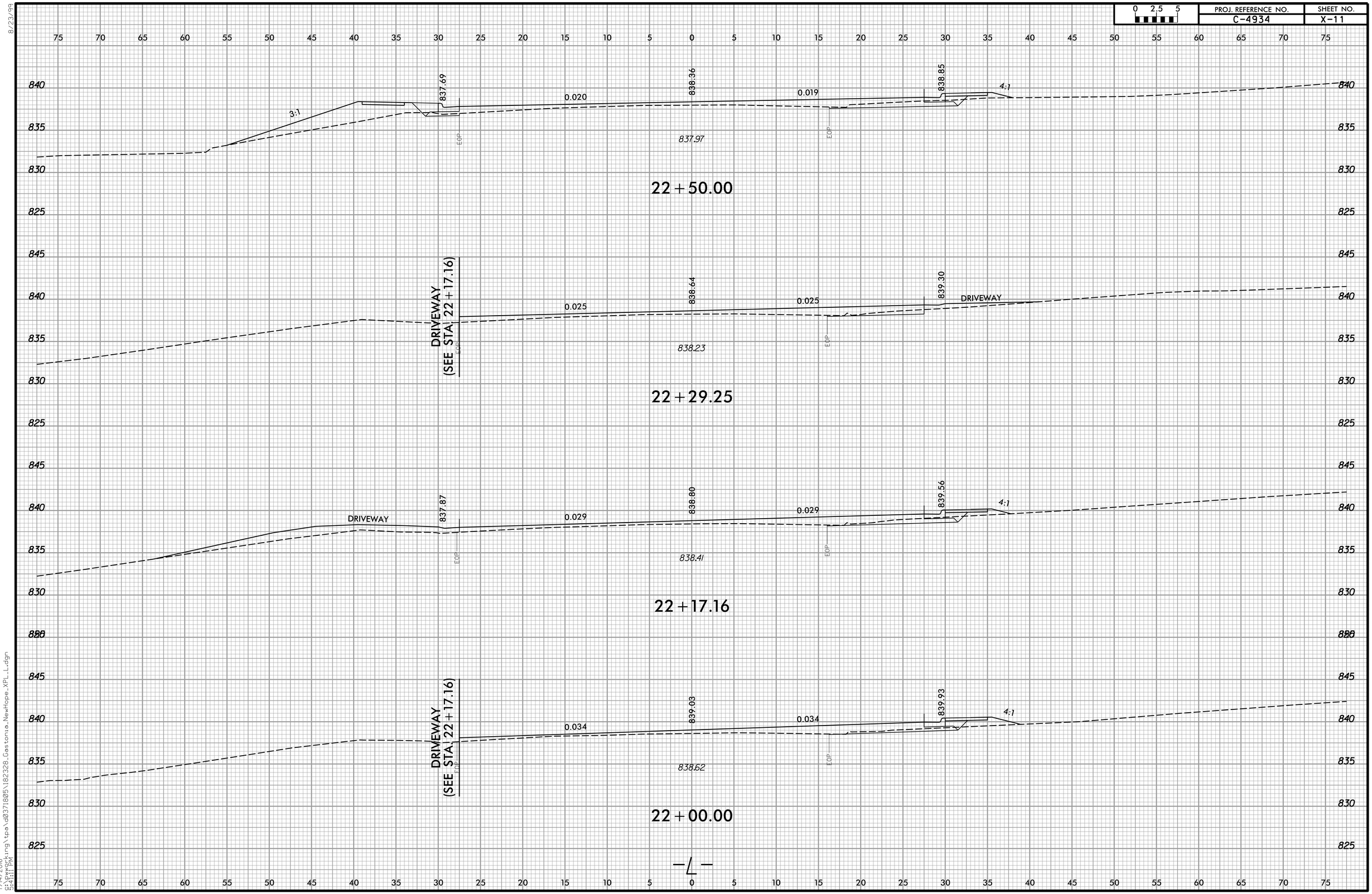
PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-10



8/23/99

7/14/2016
5:41:11 PM
d:\projecting\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn

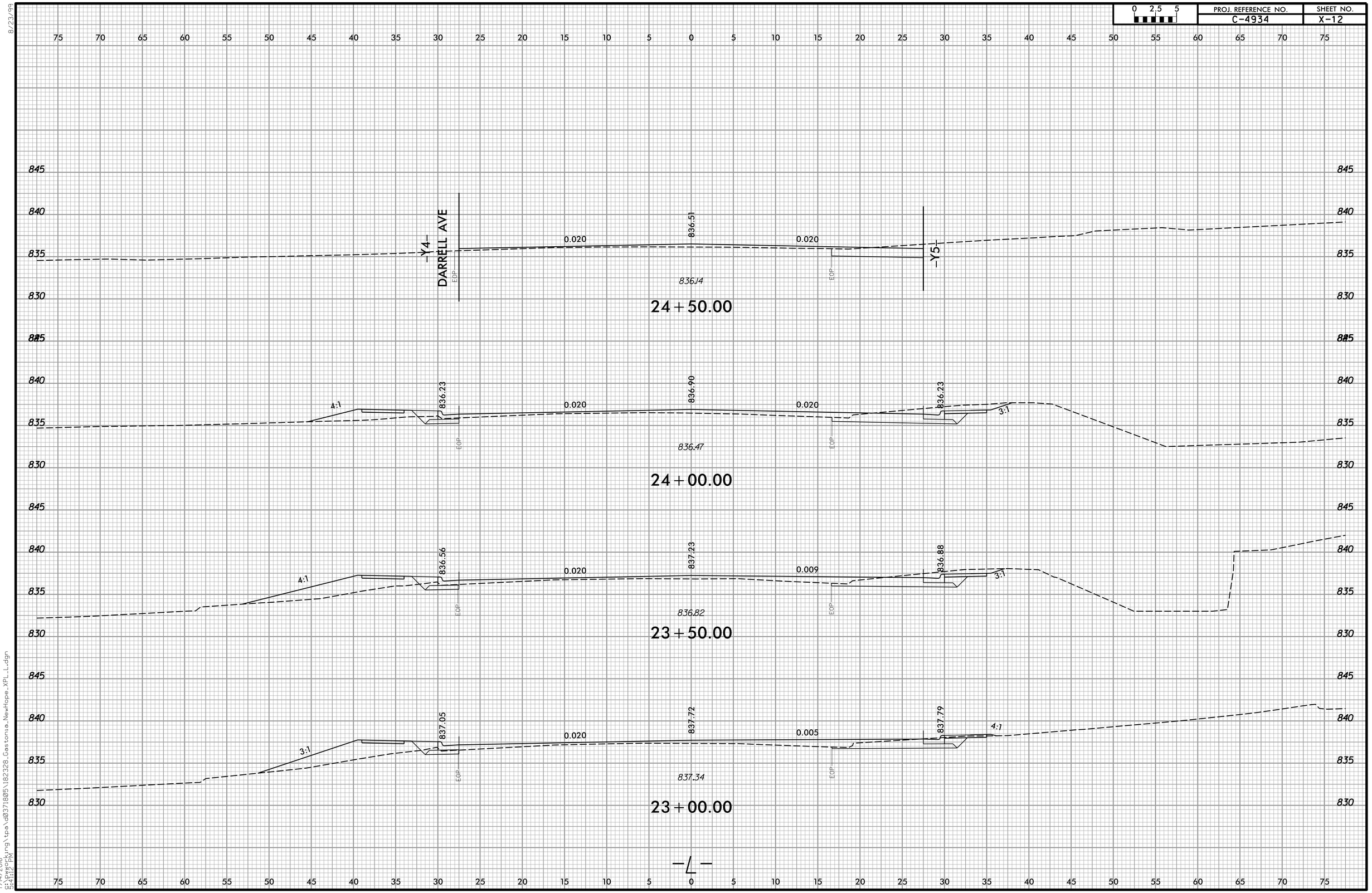
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-11



8/23/99

7/14/2016
C:\Working\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:11 PM

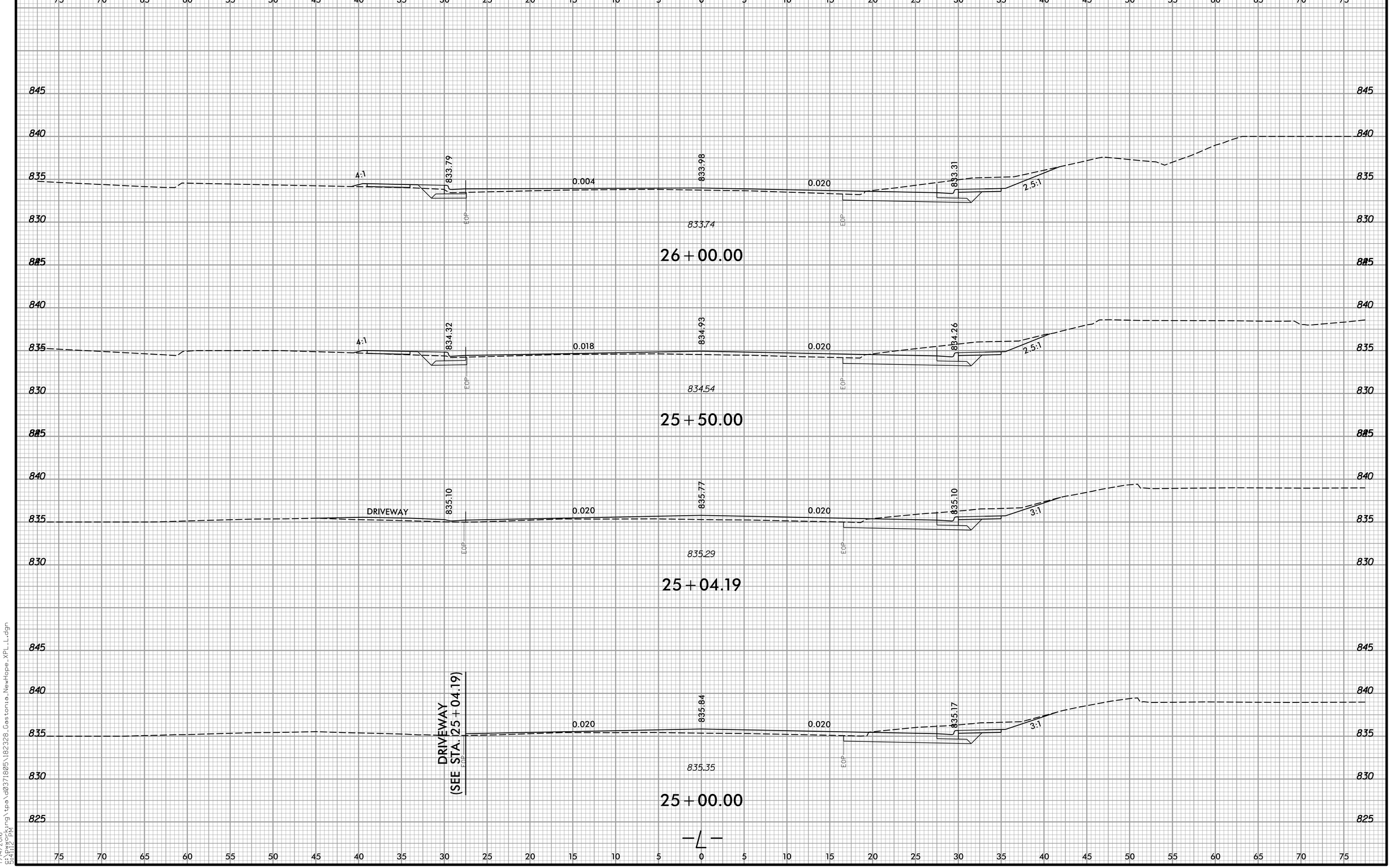
PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-12



8/23/99

7/14/2016
5:41:12 PM
c:\pwworking\tpa\d0371805\182328_Gestonia_NewHope_XPL_L.dgn

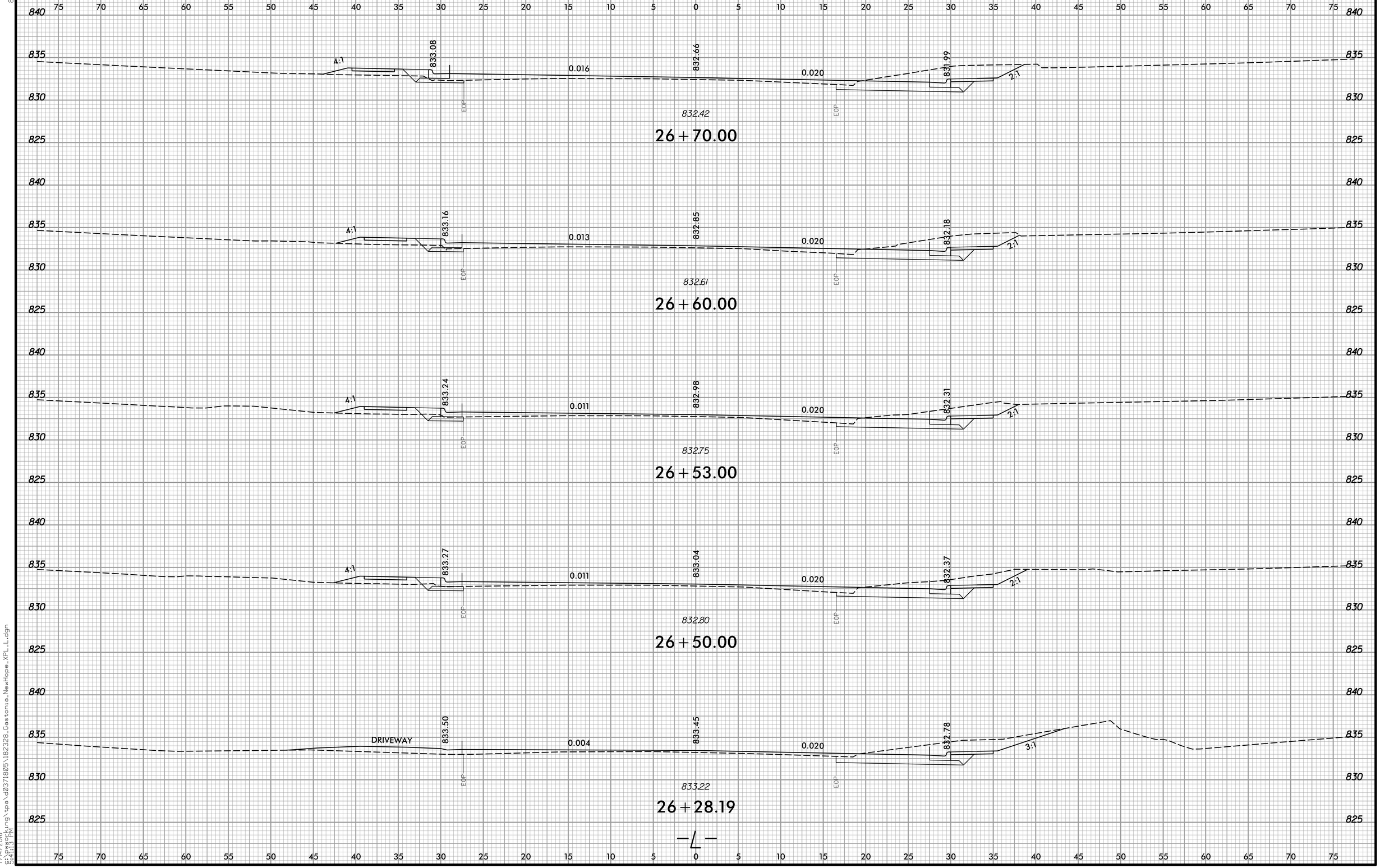
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-13



8/23/99

7/14/2016
C:\pwworking\tpa\d0371805\182328_Gestonia_NewHope_XPL_L.dgn
5:41:12 PM

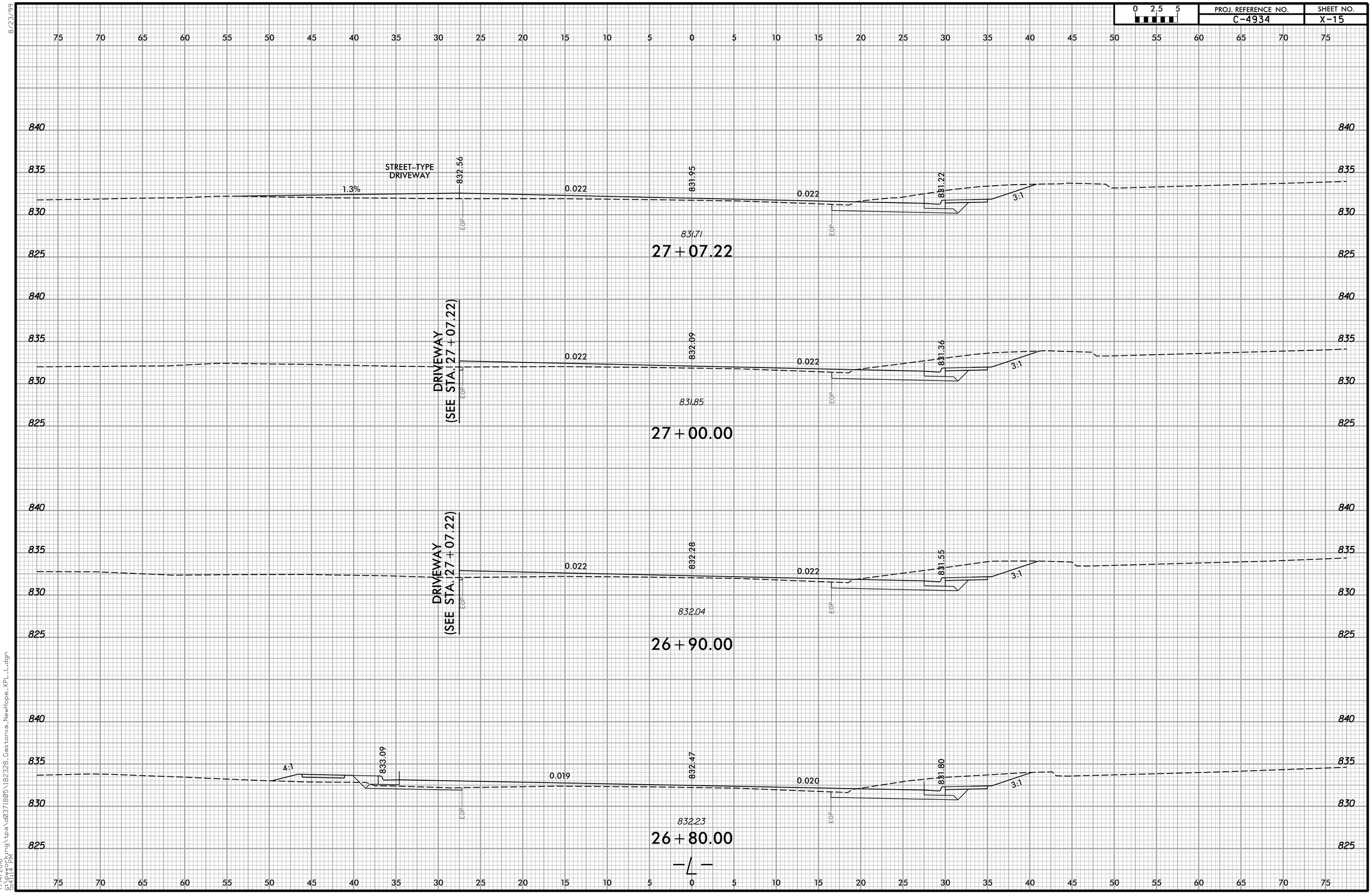
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-14



8/23/99

7/14/2016
C:\Working\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:13 PM

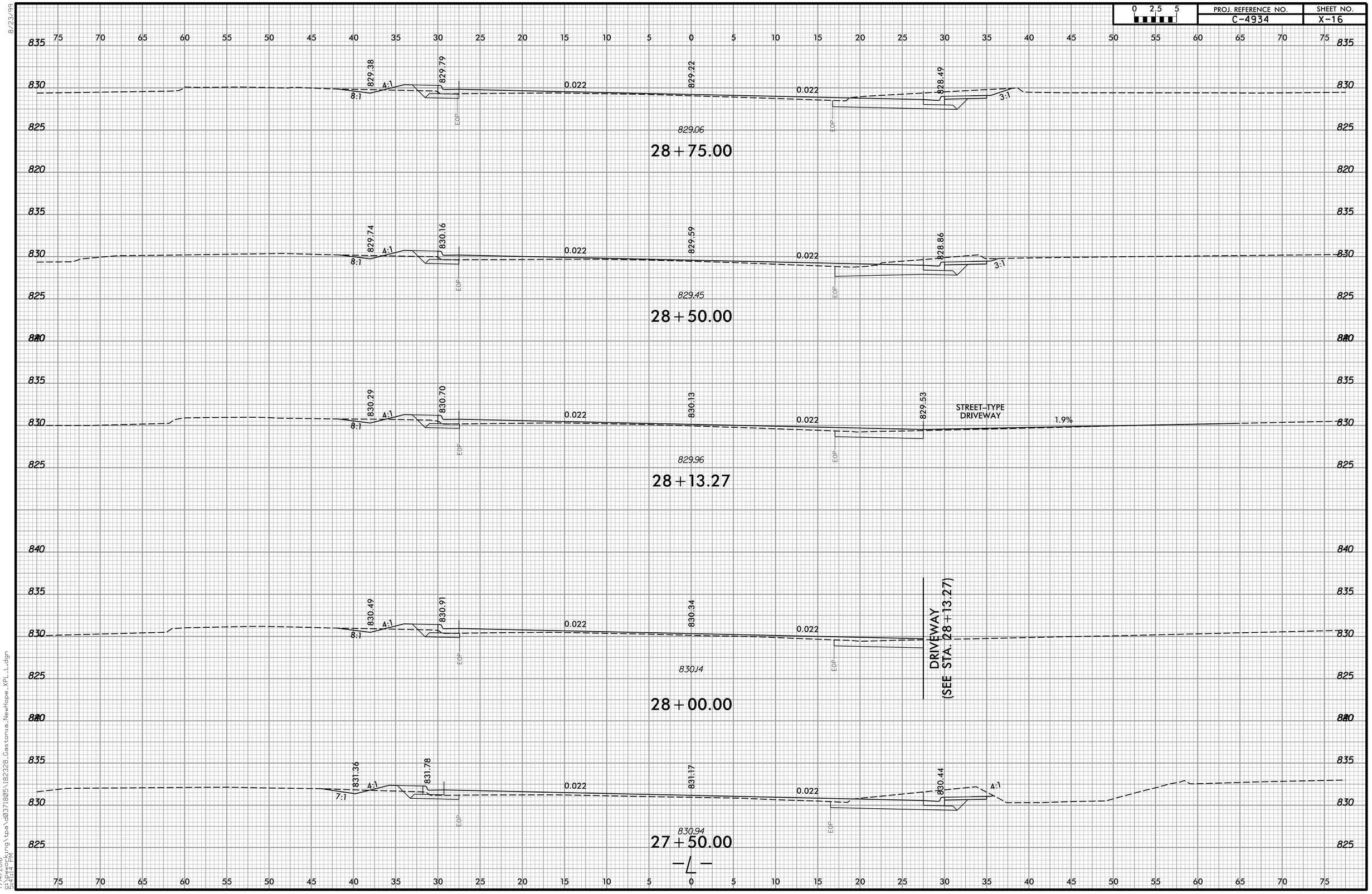
PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-15



8/23/99

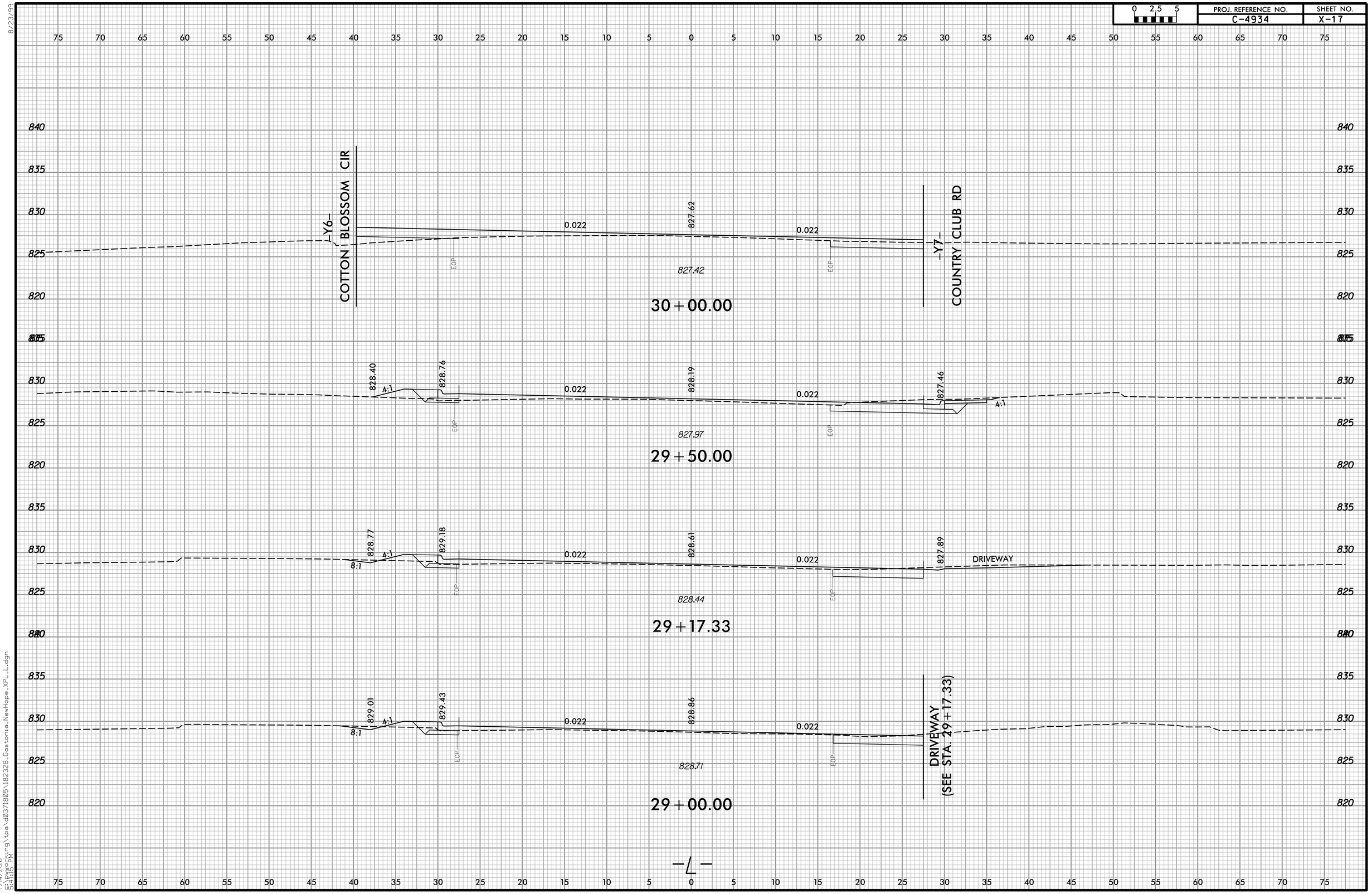
7/14/2016
C:\Pwworking\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:14 PM

PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-16

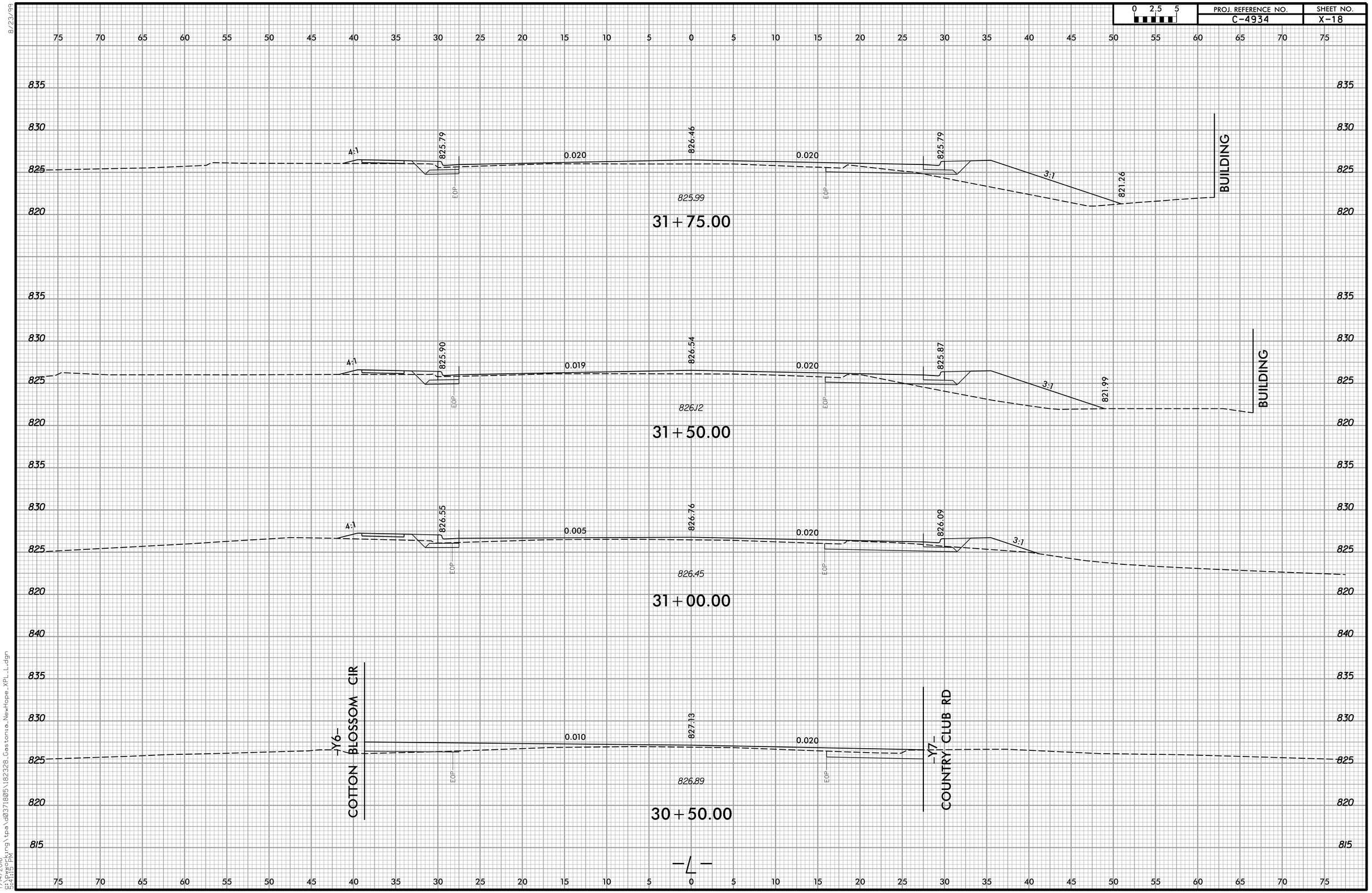


8/23/99

7/14/2016
C:\pwworking\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:42 PM


0 2.5 5
PROJ. REFERENCE NO.
C-4934
SHEET NO.
X-17
8/23/99
-Y6-
COTTON BLOSSOM CIR
-Y7-
COUNTRY CLUB RD
0.022
827.62
827.42
EOP
30+00.00
828.40
828.76
4:1
828.19
827.46
827.97
29+50.00
828.77
829.18
8:1
828.61
827.89
DRIVEWAY
828.44
29+17.33
829.01
829.43
828.86
828.71
29+00.00
DRIVEWAY
(SEE STA. 29+17.33)
-L-
7/14/2016
C:\Users\kng\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:15 PM

PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-18

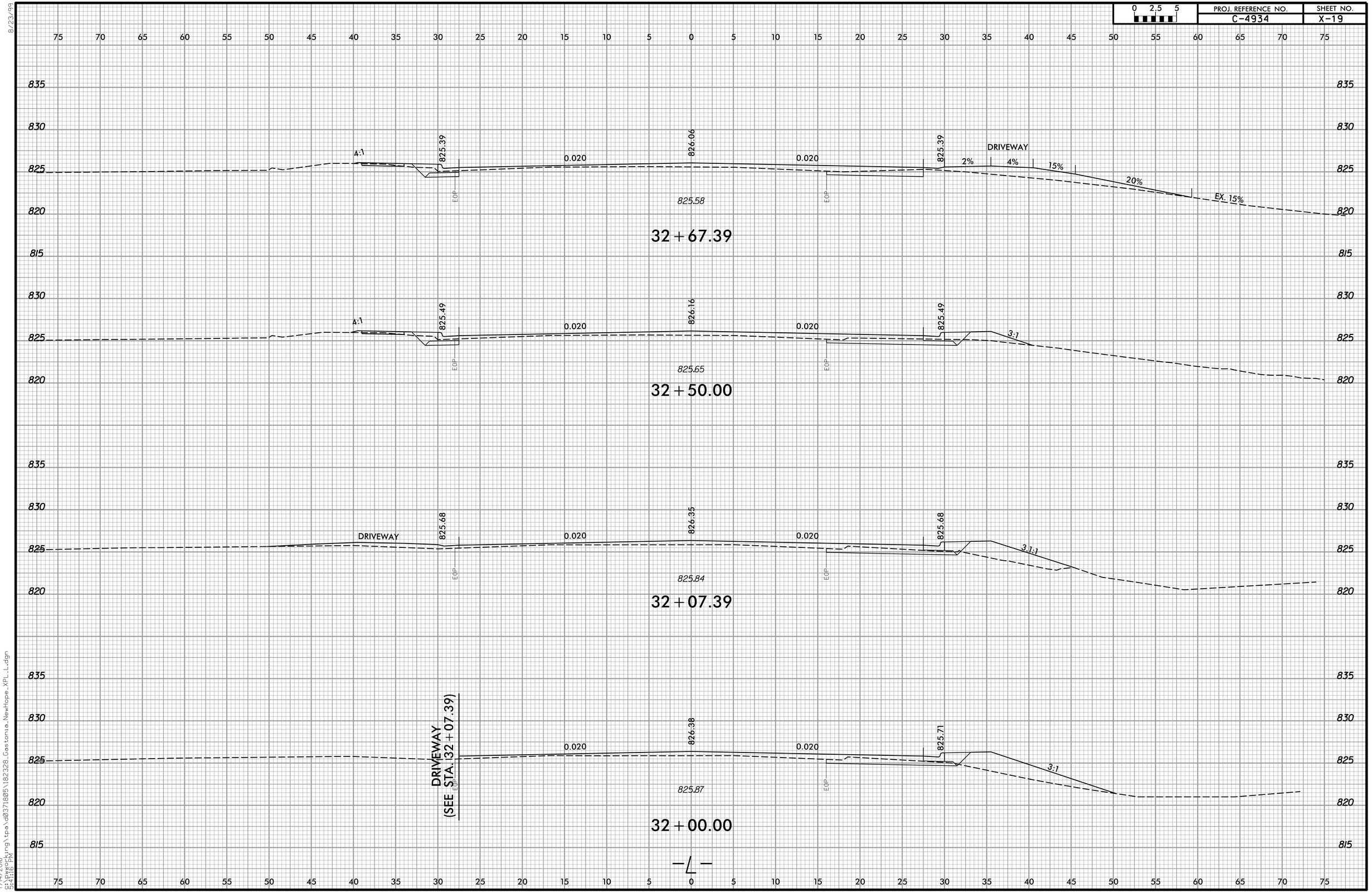


8/23/99

7/14/2016
5:41:15 PM
C:\Users\kyung\pw\d0371805\182328_Gastonia_NewHope_XPL_L.dgn

PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-19

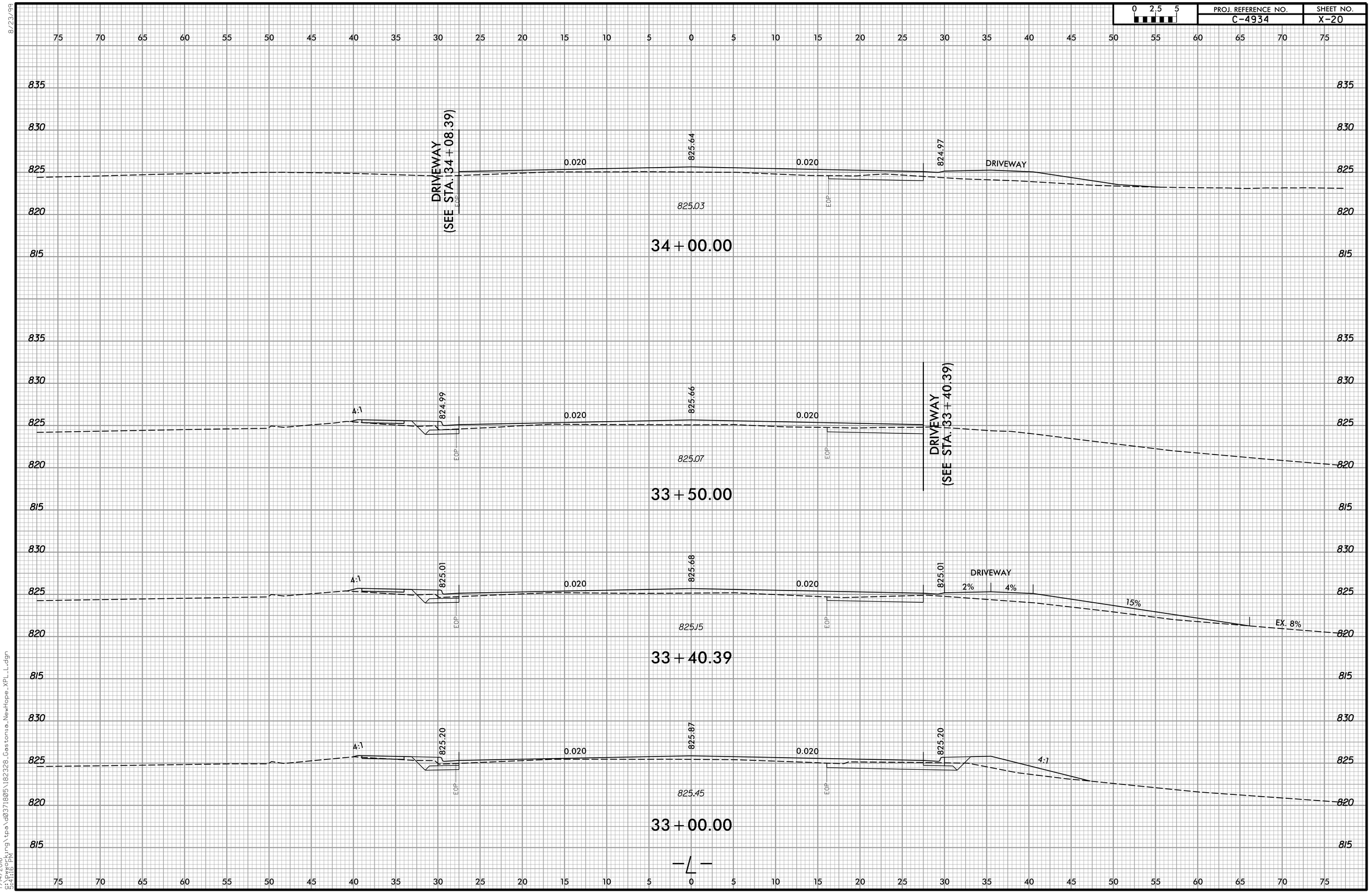
0 2.5 5



8/23/99

7/14/2016
5:41:16 PM
c:\pwworking\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn

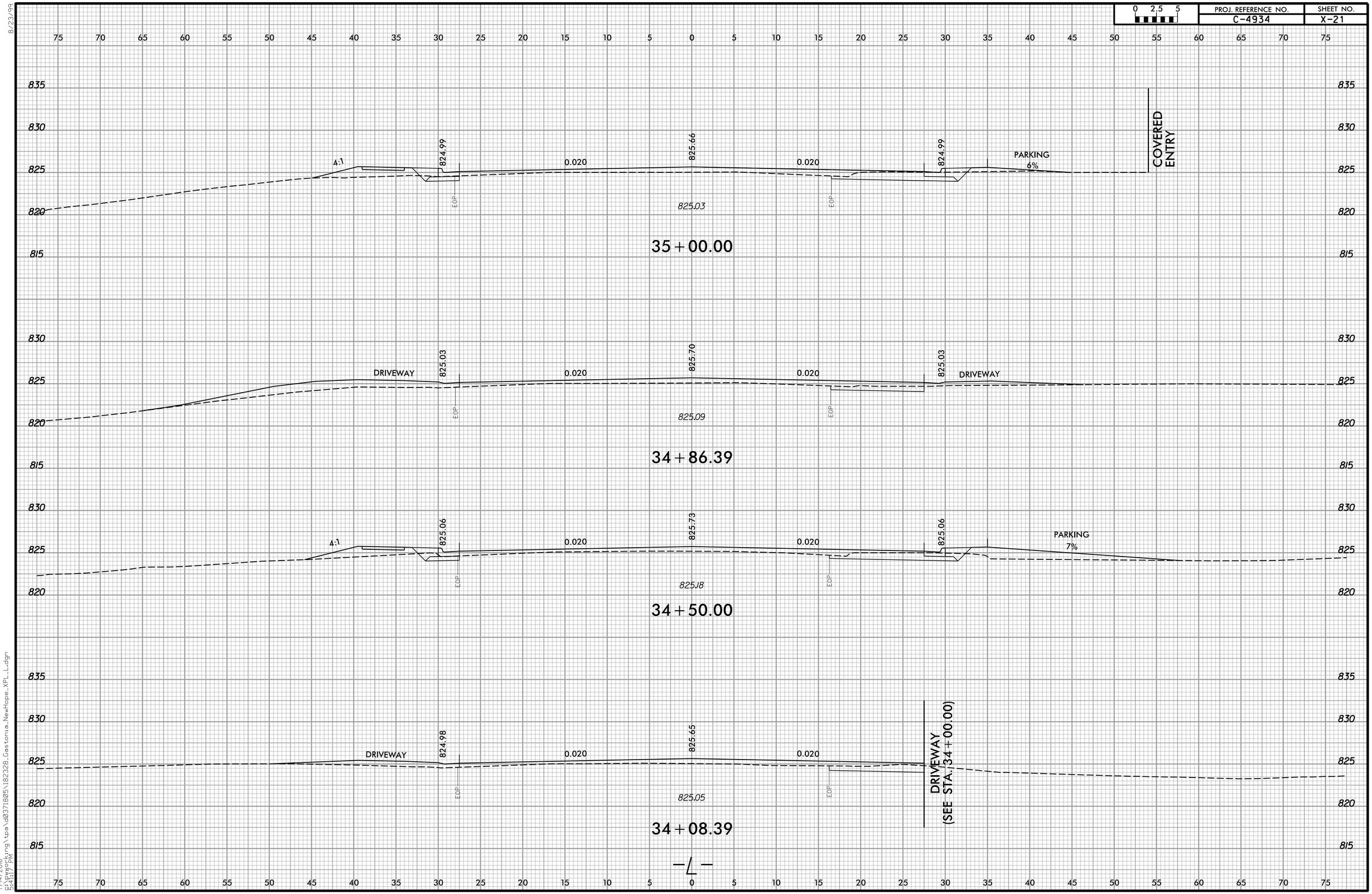
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-20



8/23/99

7/14/2016
C:\pwworking\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:16 PM

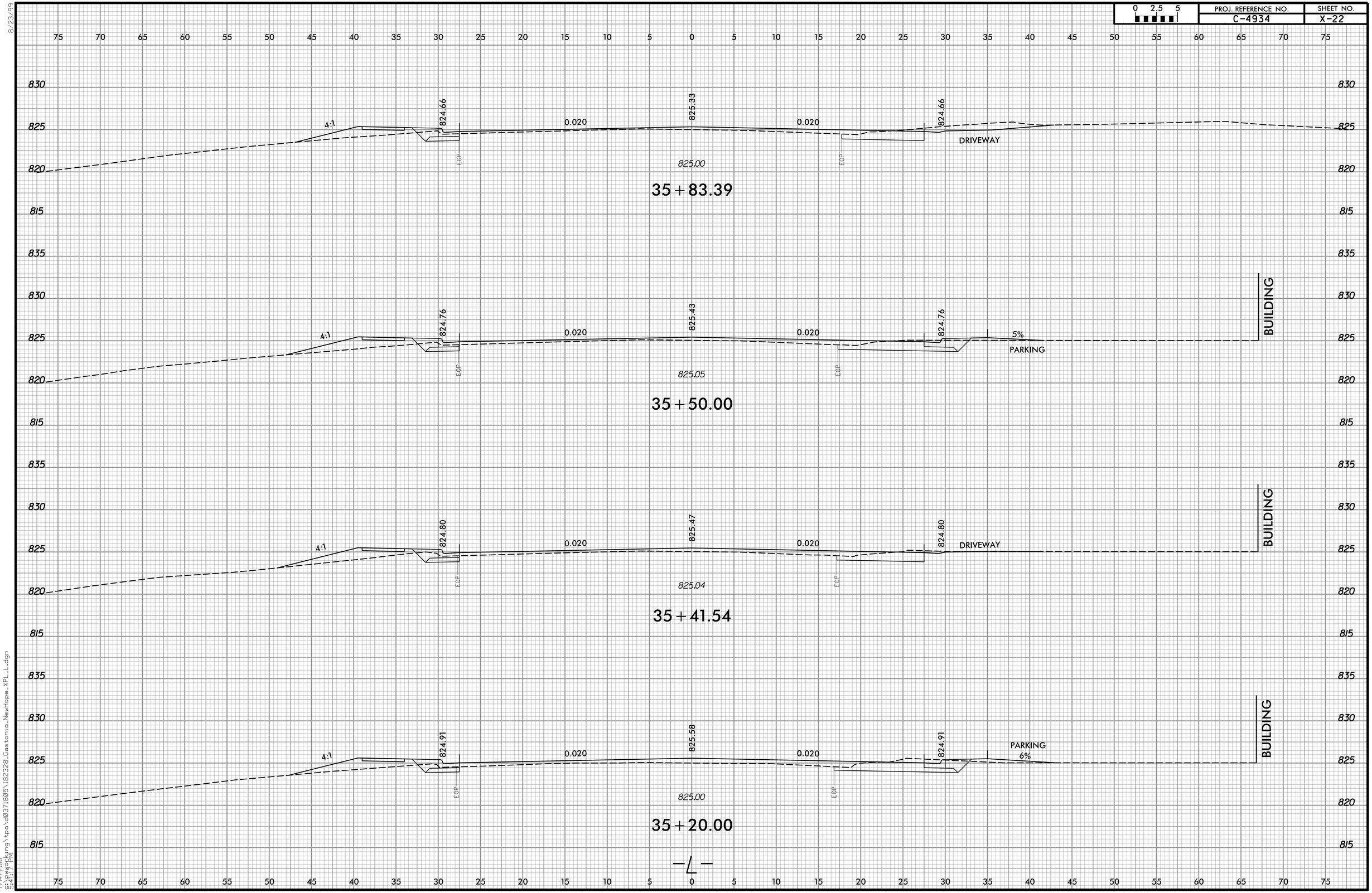
PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-21



8/23/99

7/14/2016
C:\Pwworking\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:19 PM

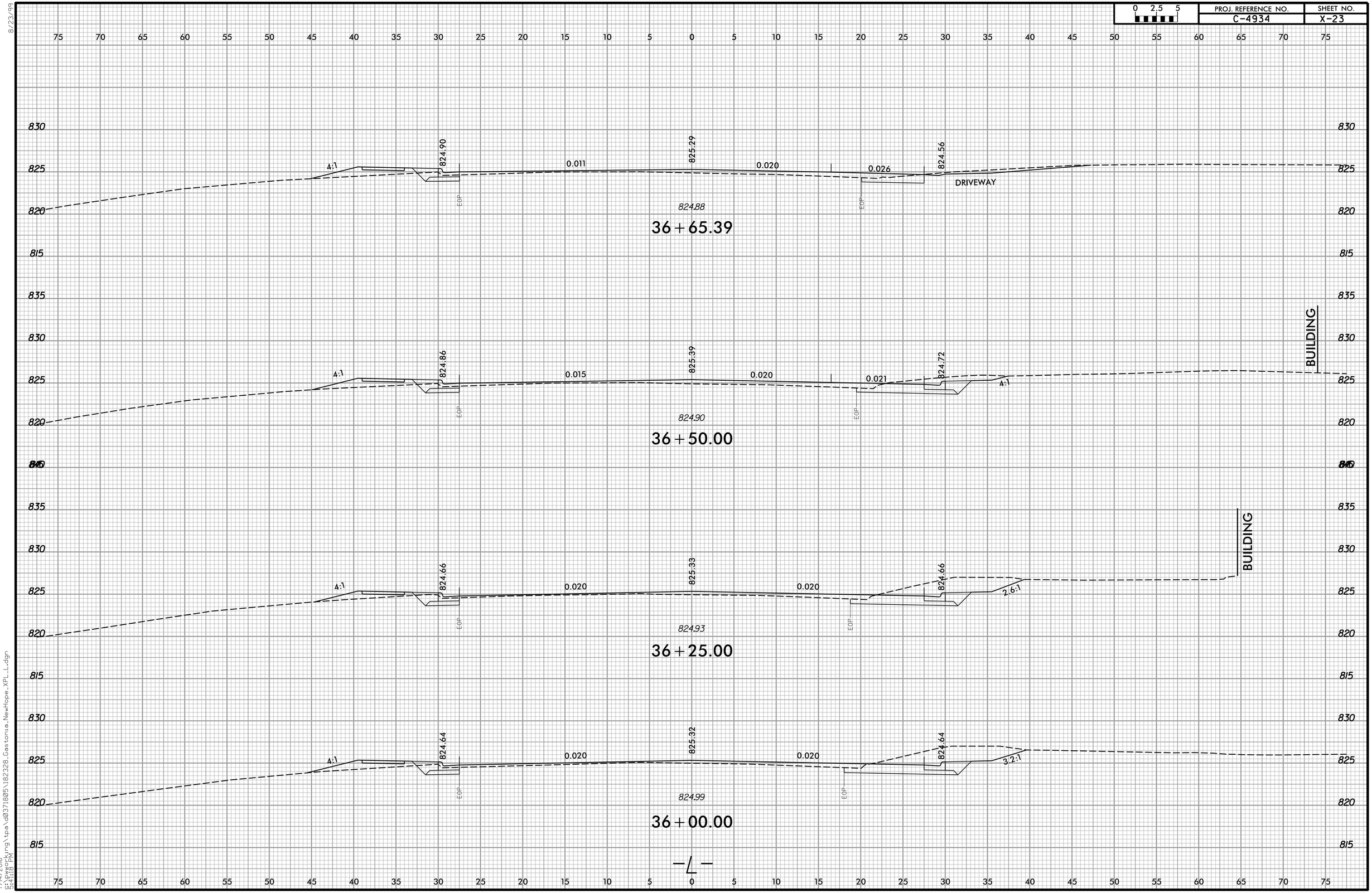
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-22



8/23/99

7/14/2016
5:41:19 PM
c:\pwworking\tpa\d0371805\182328_Gestonia_NewHope_XPL_L.dgn

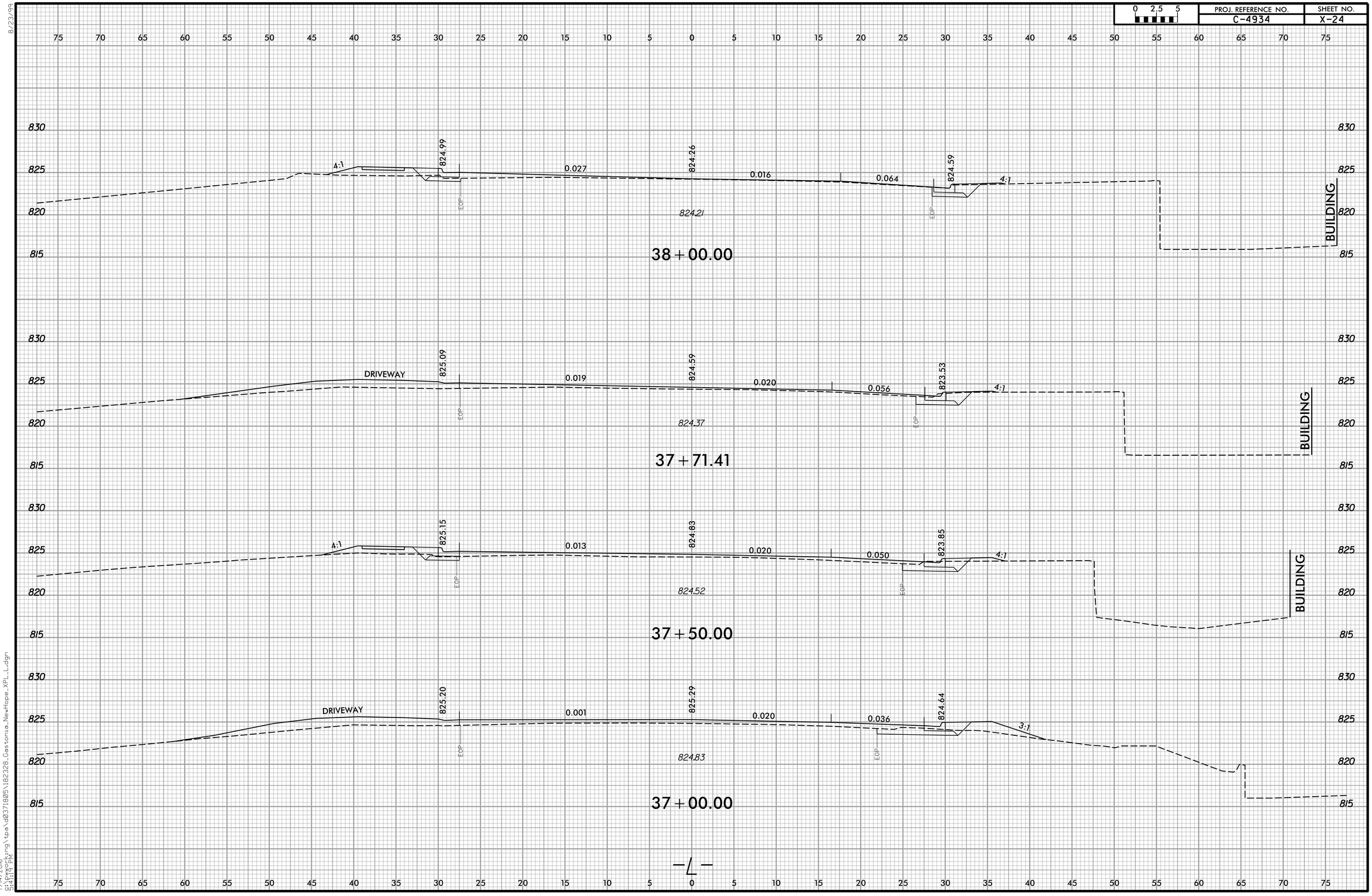
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-23



8/23/99

7/14/2016
5:41:18 PM
d:\projects\pavd\0371805\182328_Gestonia_NewHope_XPL_L.dgn

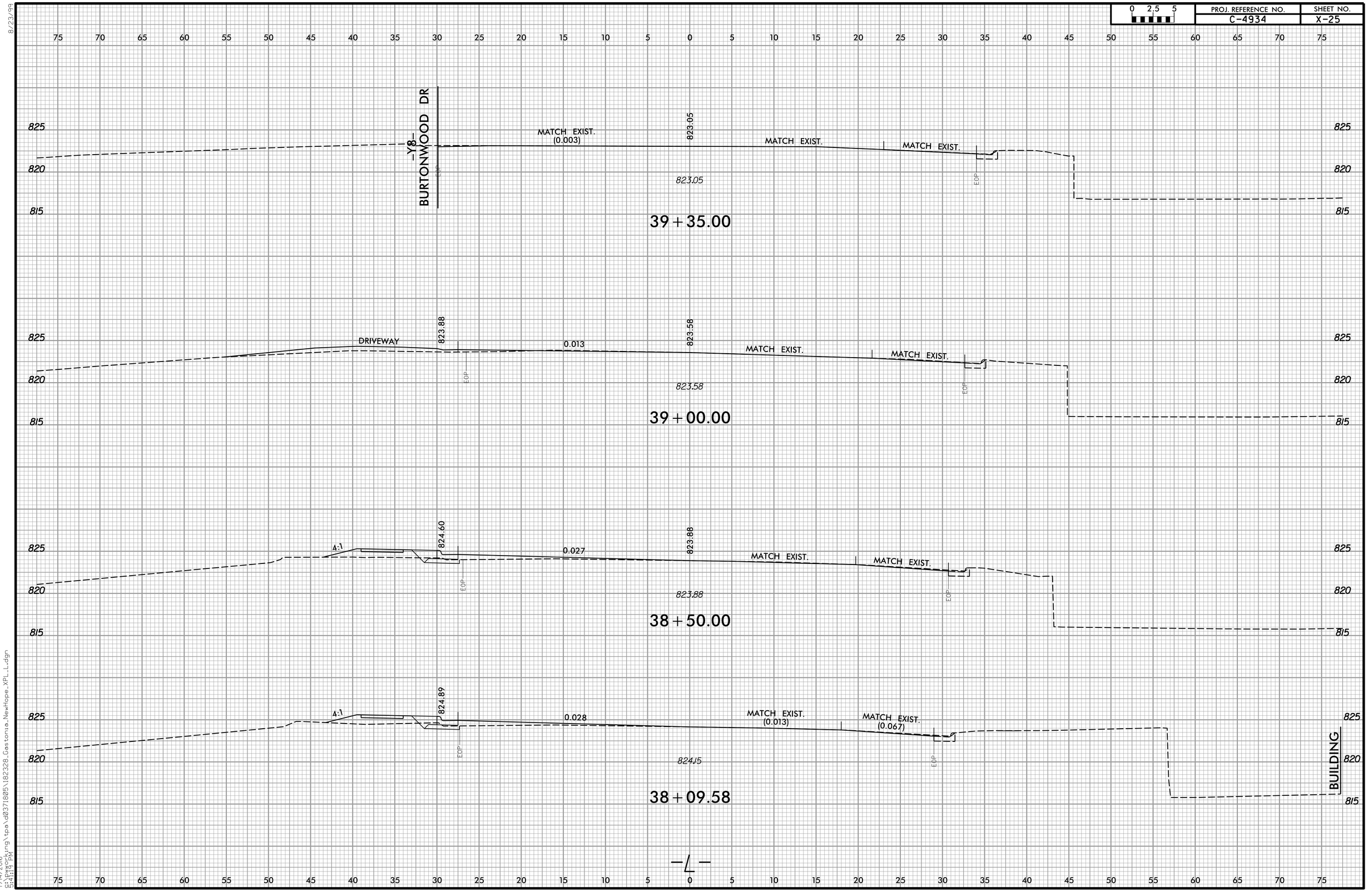
PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-24



8/23/99

7/14/2016
C:\Working\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:19 PM

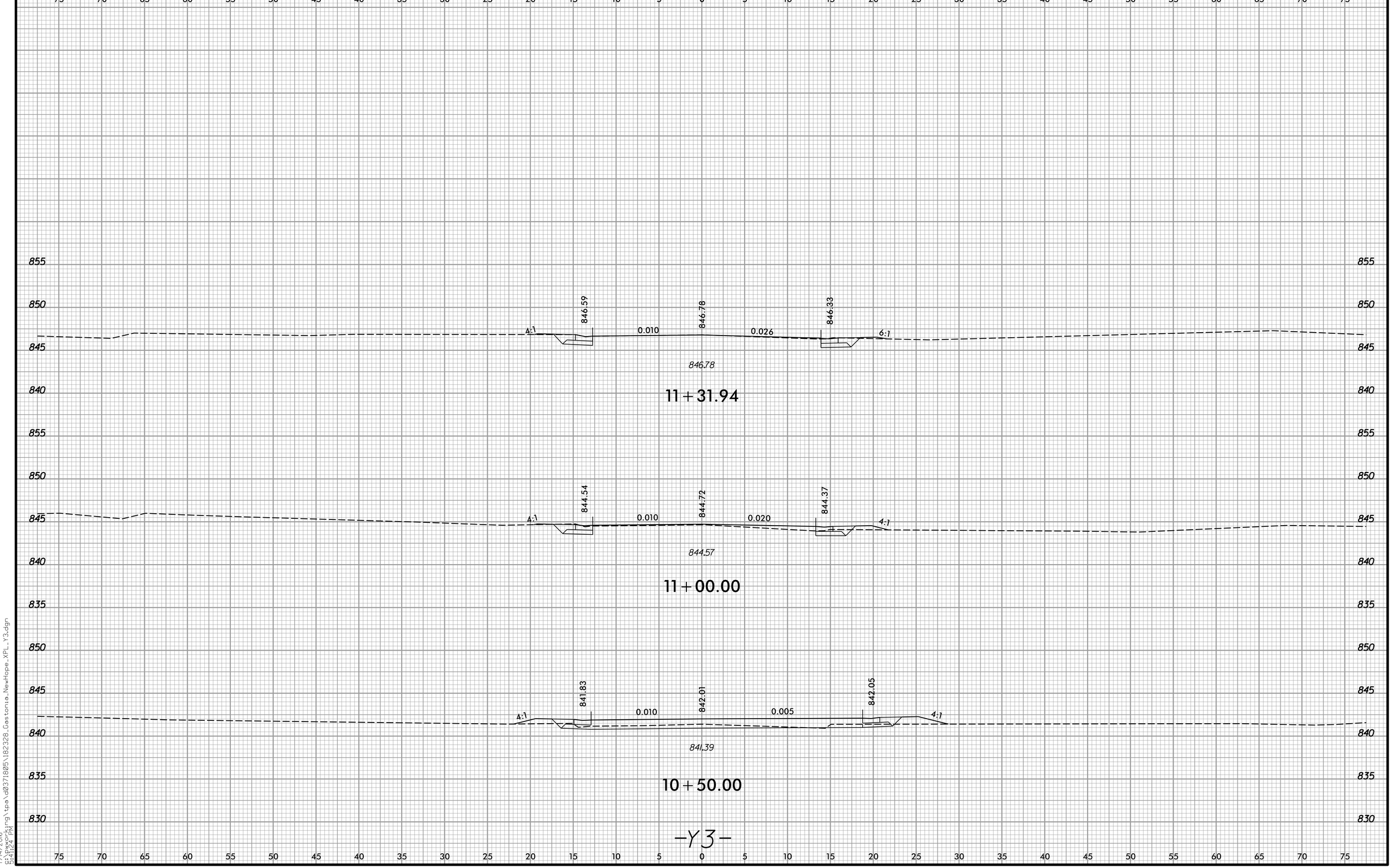
PROJ. REFERENCE NO.	SHEET NO.
C-4934	X-25



8/23/99

7/14/2016
C:\Working\tpa\d0371805\182328_Gastonia_NewHope_XPL_L.dgn
5:41:19 PM

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-26

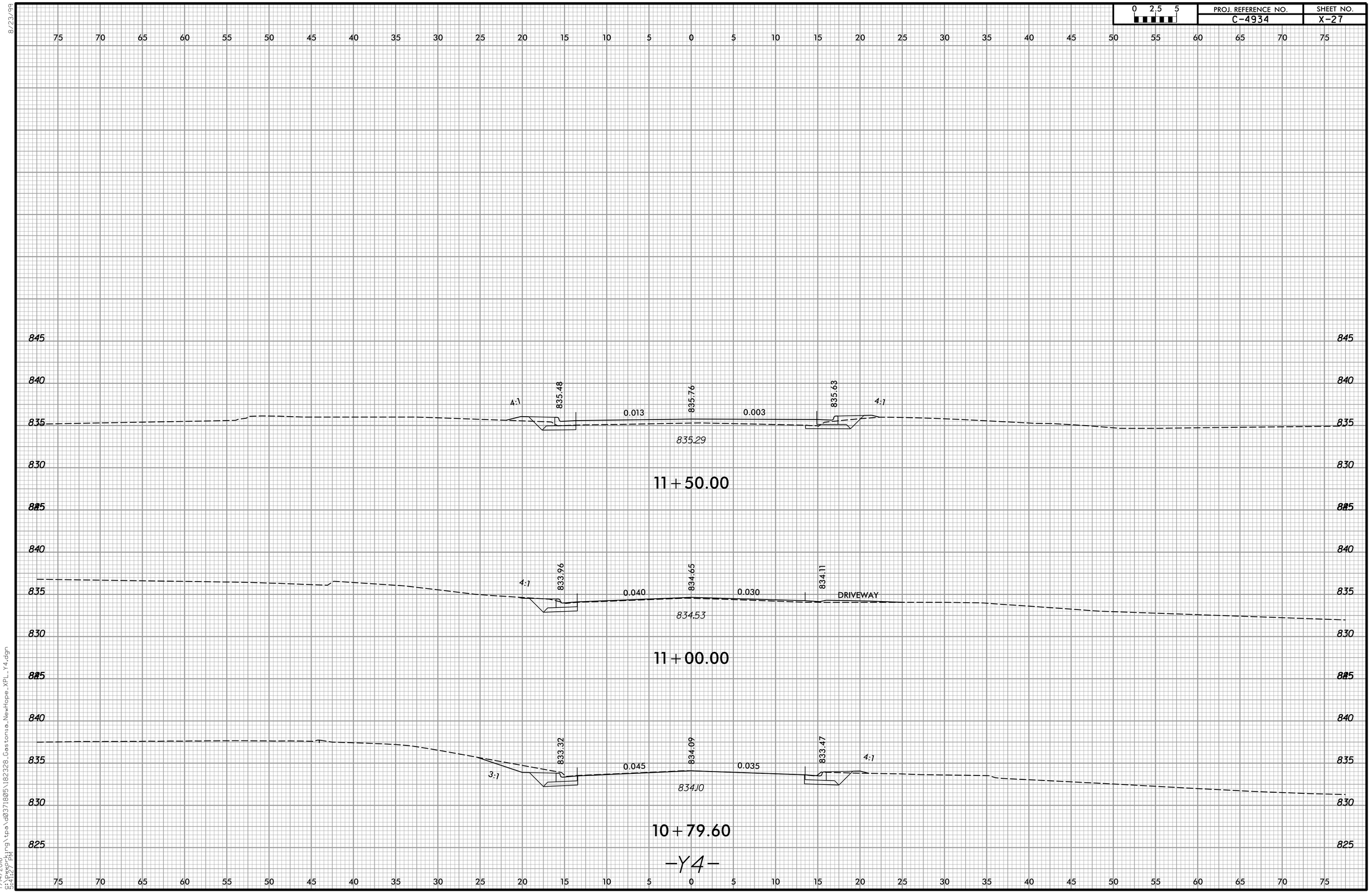


8/23/99

7/14/2016
C:\Pwworking\tpa\d0371805\182328_Gestonia_NewHope_XPL_Y3.dgn
5:41:24 PM

8/23/99

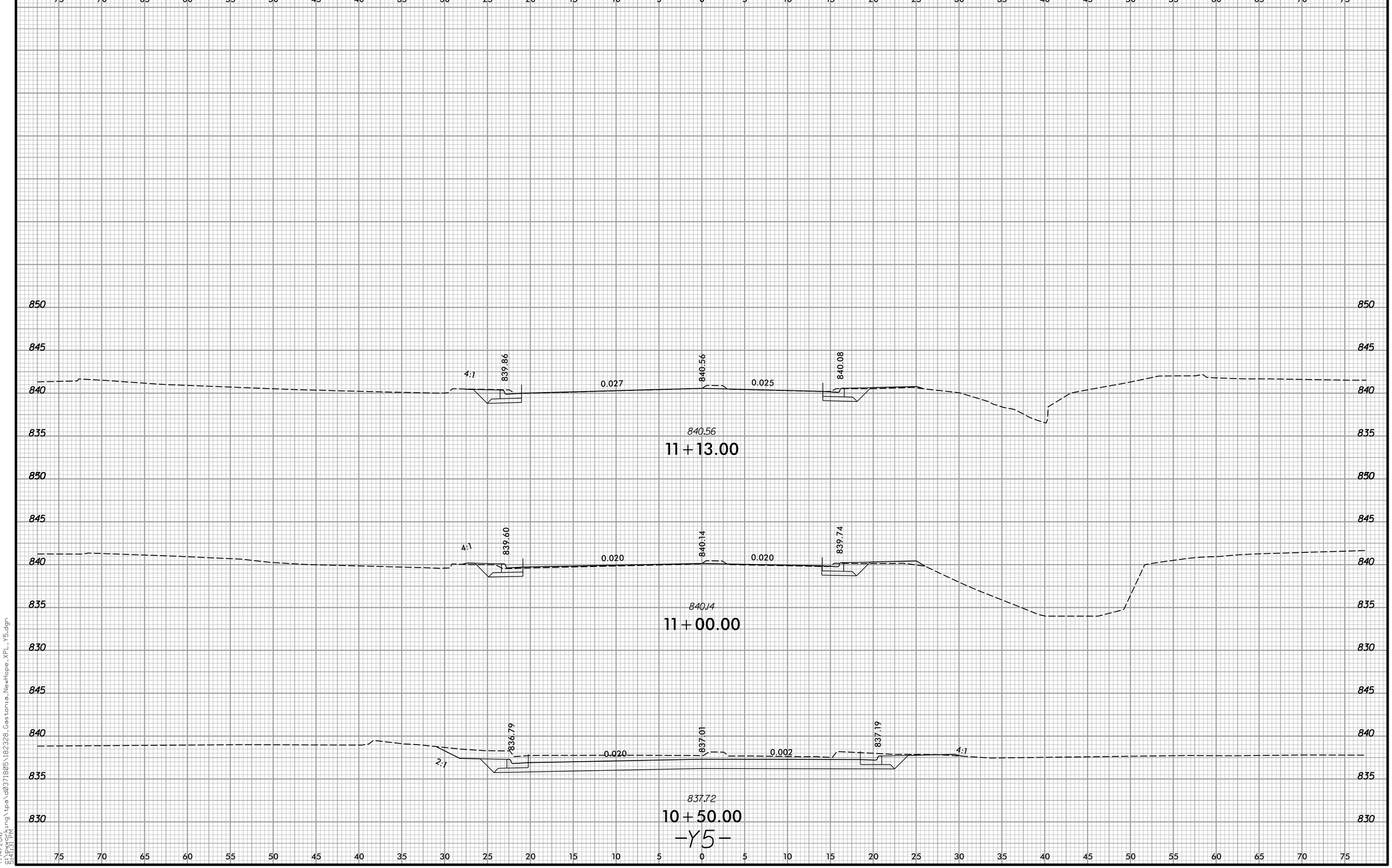
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-27



7/14/2016
C:\Users\pavd\Working\pavd0371805\182328_Gestonia_NewHope_XPL_Y4.dgn
5:41:29 PM

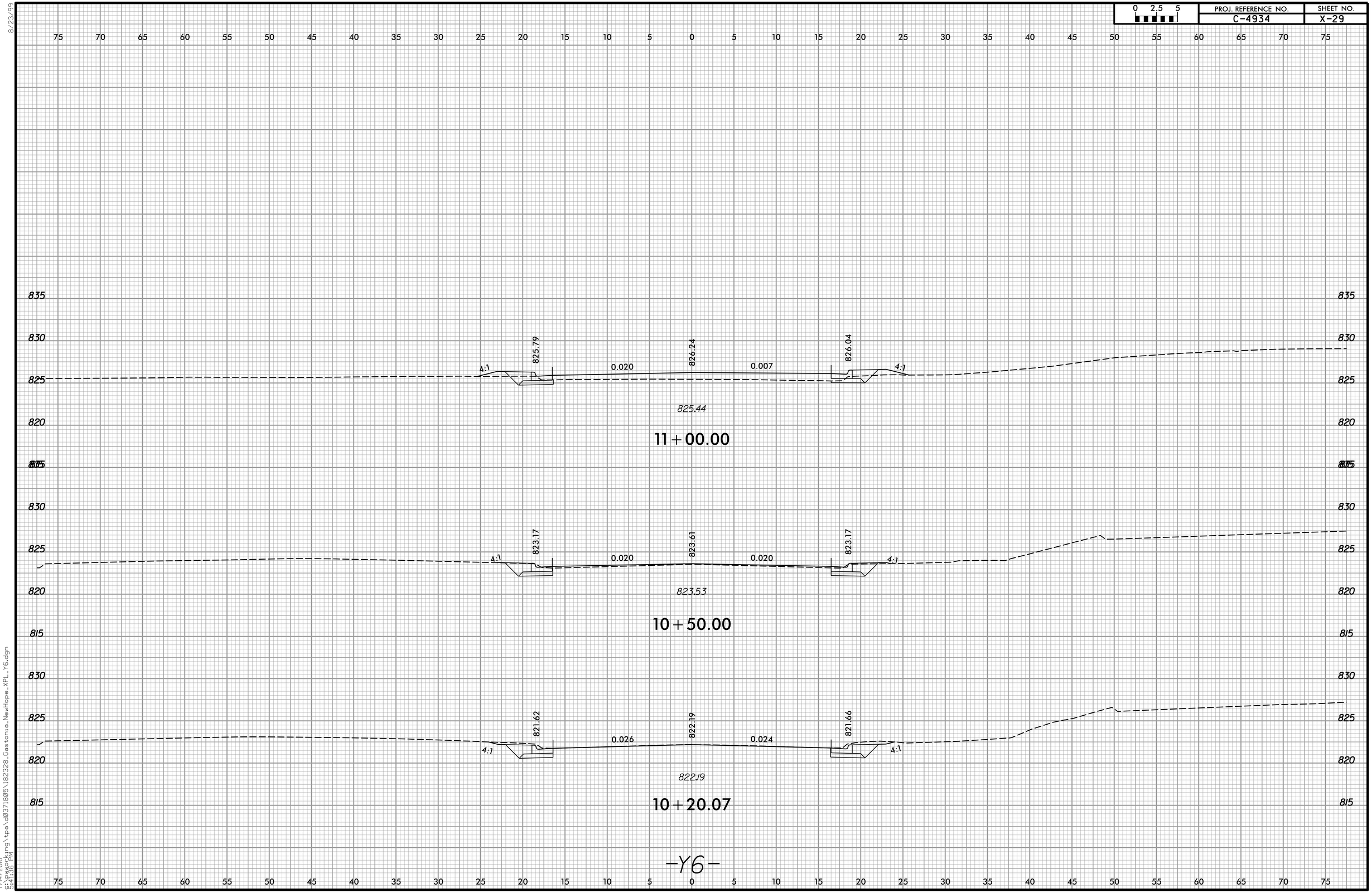
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-28



7/14/2016
5:41:31 PM
C:\Working\tpa\d0371805\182328_Gestonia_NewHope_XPL_Y5.dgn

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-29

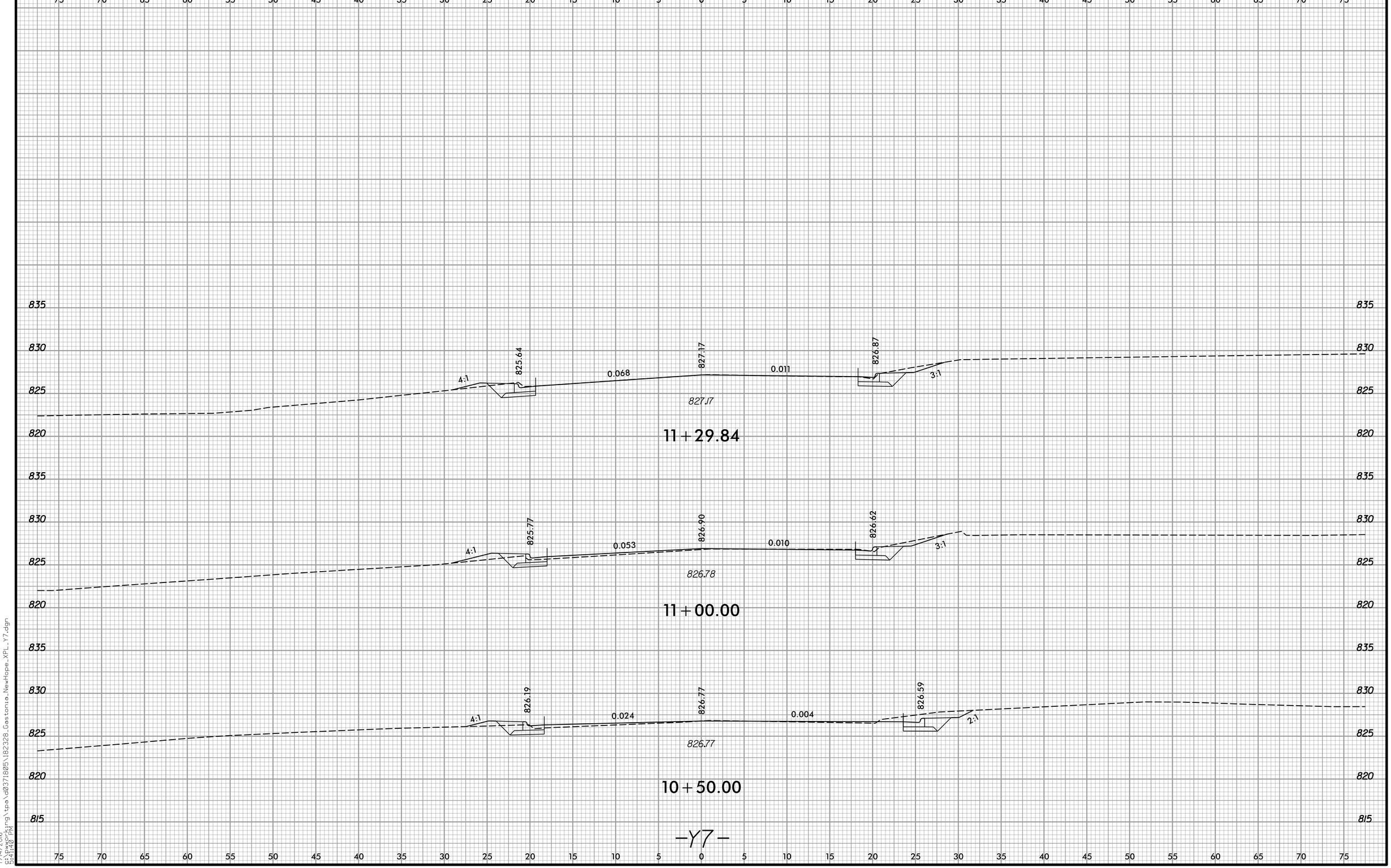


8/23/99

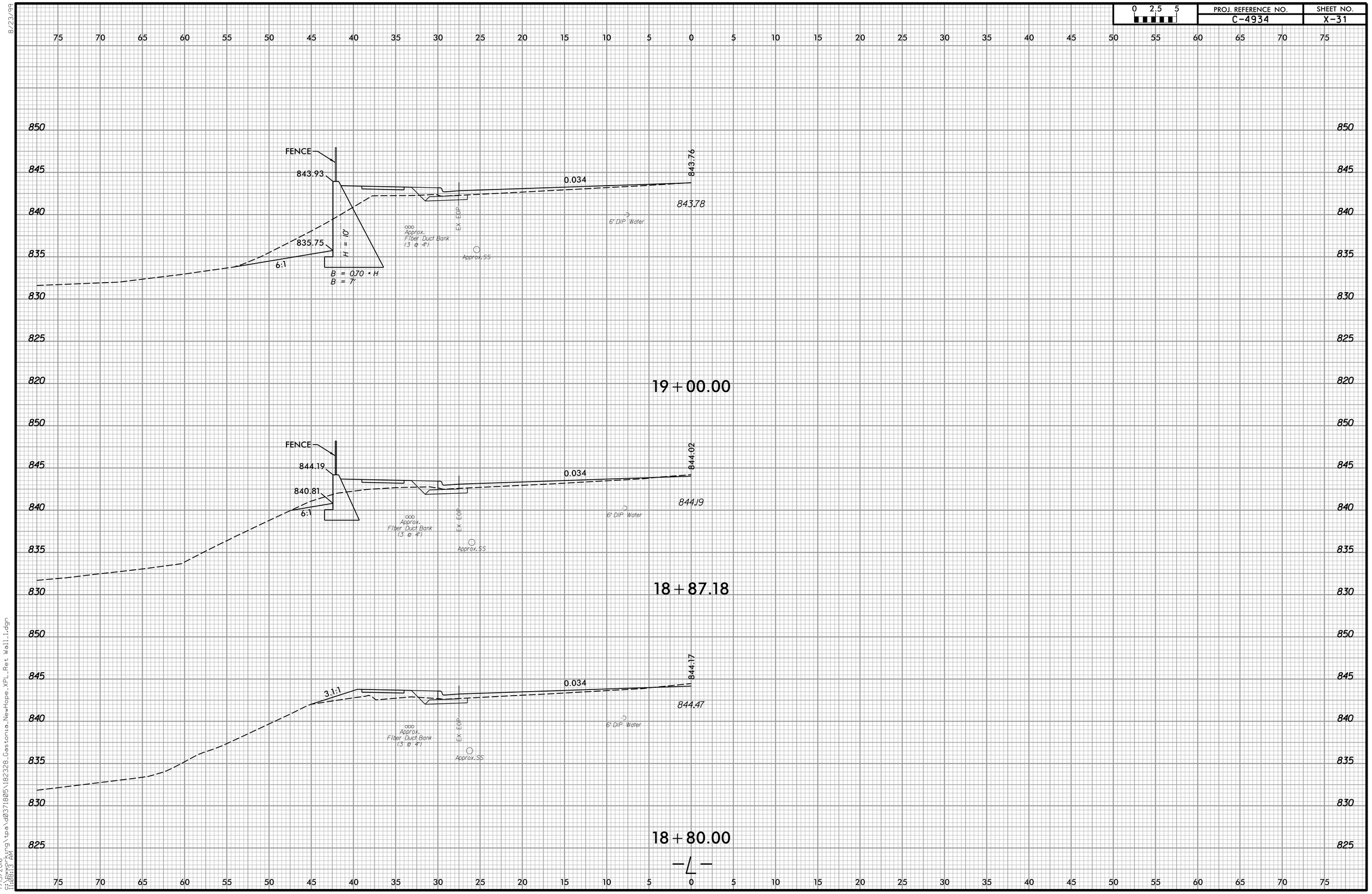
7/14/2016
5:41:36 PM
c:\pwworking\tpa\d0371805\182328_Gestonia_NewHope_XPL_Y6.dgn

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-30



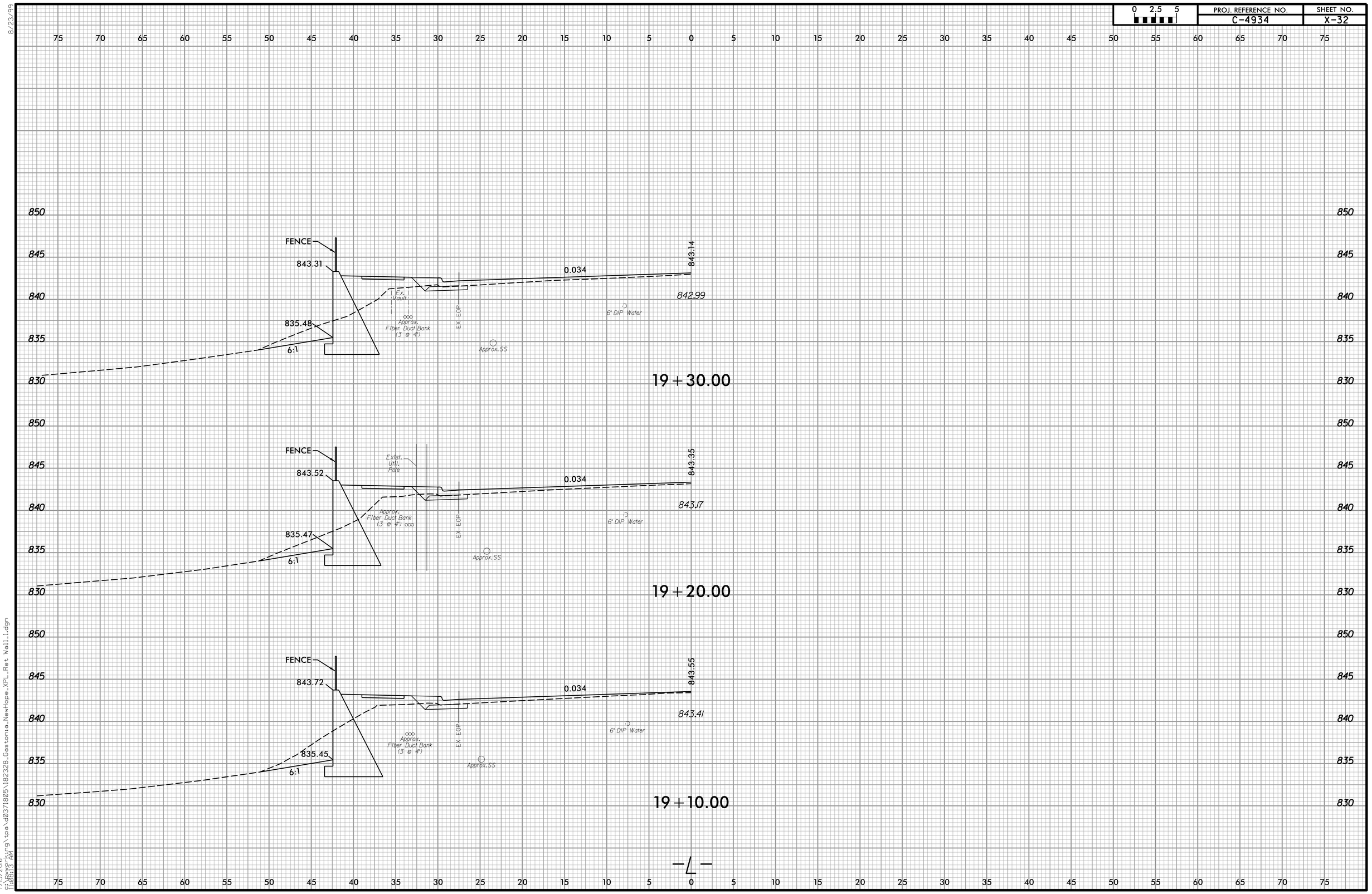
7/14/2016
C:\pwworking\tpa\d0371805\182328_Gestonia_NewHope_XPL_Y7.dgn
5:41:40 PM



8/23/99

7/15/2016
G:\Working\tpa\d0371805\182328_Gastonia_NewHope_XPL_Ret Wall_1.dgn
11:08:13 AM

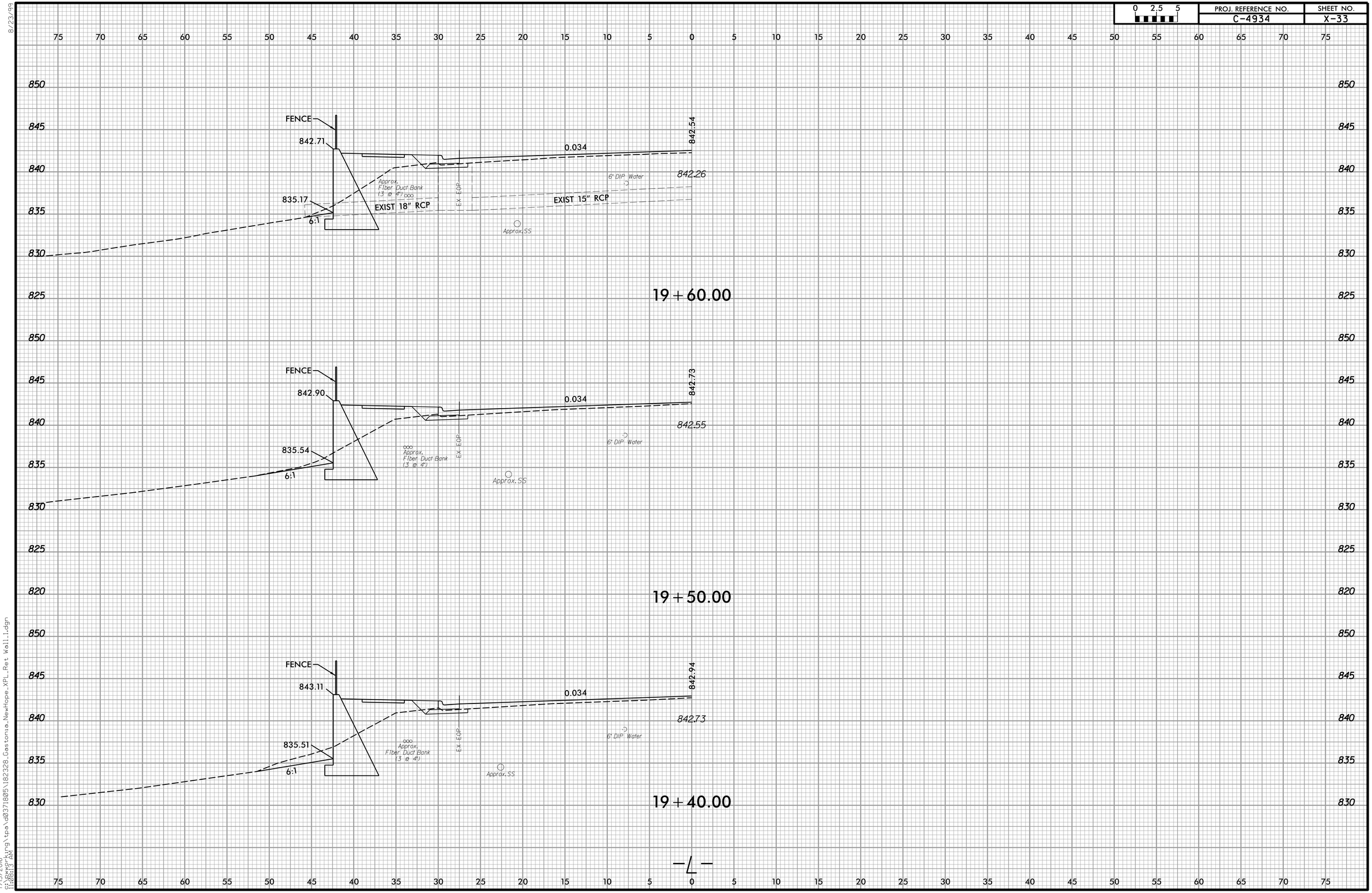
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-32



8/23/99

7/15/2016
G:\Working\tpa\d0371805\182328_Gastonia_NewHope.XPL_Ret Wall_1.dgn
11:08:13 AM

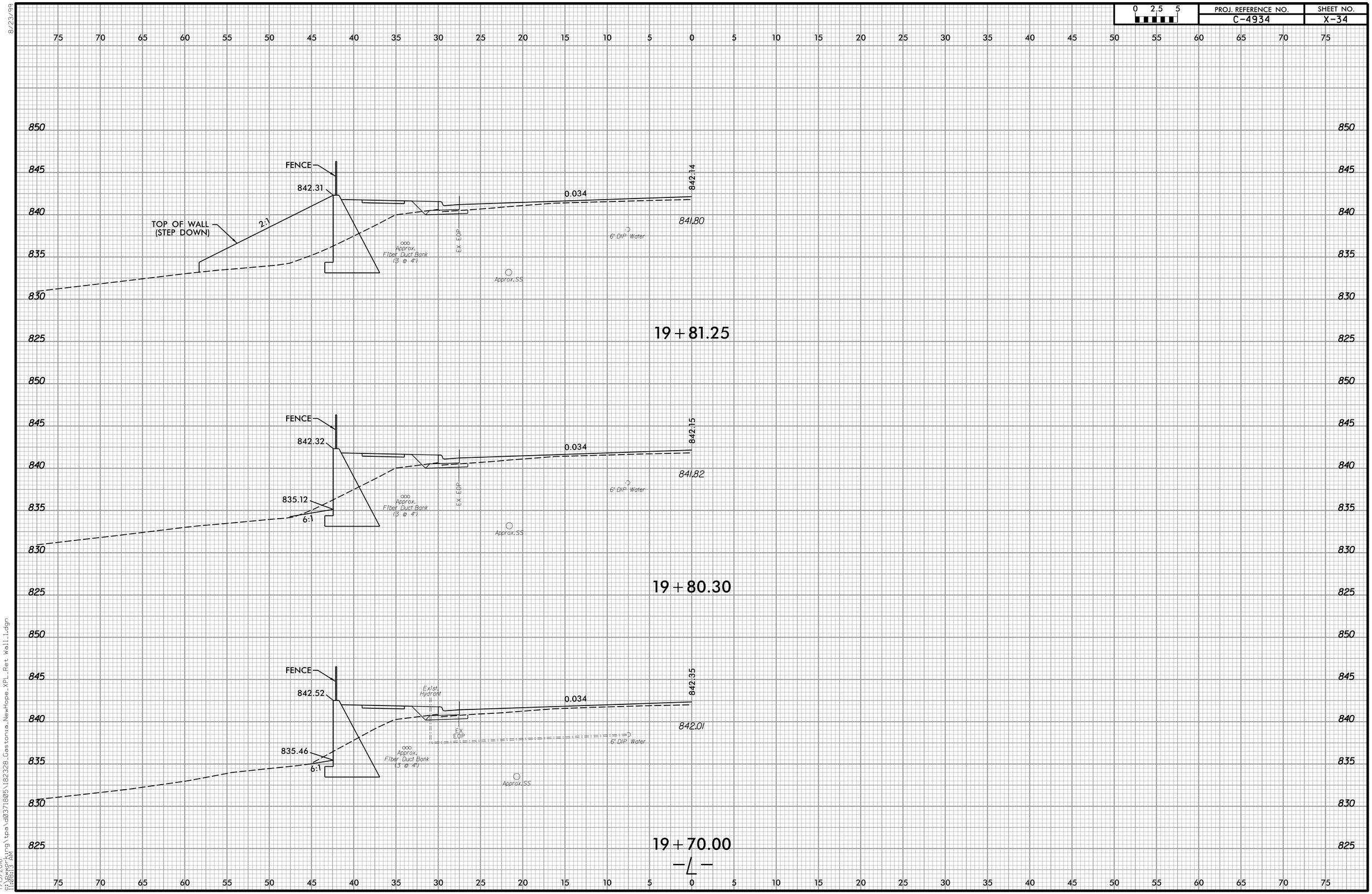
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-33



8/23/99

7/15/2016
10:08:13 AM
Drawing\tpa\03718805\182328_Gastonia_NewHope_XPL_Ret Wall_1.dgn

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-34



8/23/99

7/15/2016
C:\pwworking\tpa\d0371805\182328_Gastonia_NewHope_XPL_Ret Wall_1.dgn
11:08:13 AM

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	C-4934	X-35

7/15/2016
C:\Pwworking\tpa\d0371805\182328_Gastonia_NewHope_XPL_Ret Wall_1.dgn
11:08:13 AM