

April 19, 2023

Ashley Lowery, PE
Division Traffic Engineer – Division 5
1041 Prison Camp Road
Durham, NC 27705

Subject: **Request for Speed Limit Reductions on Mailman Road (SR 2513)**
 Knightdale, Wake County

Dear Ms. Lowery:

The Town of Knightdale is requesting NCDOT reduce the speed limits on the following roadway:

- **Mailman Road (SR 2513) from Smithfield Road (SR-2233) to Knightdale-Eagle Rock Road (SR-2500):** Reduction requested from 50 mph to 35 mph

The speed limit reduction request is based on the following items:

- **Corridor Urbanization:** Development projects are proposed and approved along Mailman Road corridors as shown in Attachment A. Mailman Road has historically operated as rural highway on the perimeter of downtown Knightdale. The nature of the roadway is transitioning to a road lined with residential subdivisions. The Town feels speeds of 45-50 mph will no longer be appropriate for these land use patterns and the increased number of development entrances. Additionally, a roundabout is planned for Mailman Road between Sawdust Lane and Sandy Forks Drive where the Mailman Post development's entrances intersect opposite sides of Mailman Road. The roundabout is an additional design feature that will help implement the 35 mph vision for the corridor.
- **NCDOT Functional Classification Map:** NCDOT's Functional Classification Map identifies Mailman Road as a "Local" roadway. NCDOT's Roadway Design Manual allows for a 35 mph design speed for local roadways.
- **Knightdale Comprehensive Transportation Plan (CTP):** The CTP's vision for Mailman Road roadways is the Town's 'Avenue' cross section. The cross section calls for 11 feet travel lanes, a 10 feet center median and 5 feet bicycle lanes with 2 feet buffers (Attachment B). The CTP calls for a speed limit of 30-35 mph for the Avenue cross section. The development projects shown in Attachment B will implement the Avenue cross section along their development frontage.
- **Vision Zero / Safe Streets for All:** The Town of Knightdale is committed to implementing a roadway system built on safe street design principles. The Avenue roadway cross section targets a 30-35 mph speed limit given bicycle facilities are in the roadway and lower

speeds result in a reduced fatality rate for bicyclists and pedestrians. The Town was awarded a USDOT Safe Streets for All Grant that will comprehensively audit major roadways in Knightdale to determine where roadway designs and development patterns warrant speed limit reductions either now or as the corridors develop. The plan will kickoff in mid 2023. This speed limit reduction request is in advance of the plan due to the Project Hope development's design constraints.

- **Project Hope development improvements and roadway design:**

The existing 50 mph speed limit creates design challenges for improvements to Mailman Road. Project Hope proposes an entrance on Mailman Road that is directly across from the cemetery driveway on Mailman Road. The 50 mph design speed results in a significant vertical alignment change to both lower and raise the profile due to the vertical crest on Mailman Road. The 50 mph design requirements also creates a concern with the construction limits along the existing cemetery (See Attachment C for profile renderings).

Please contact me should you have any questions regarding the speed limit reduction request.

Sincerely,

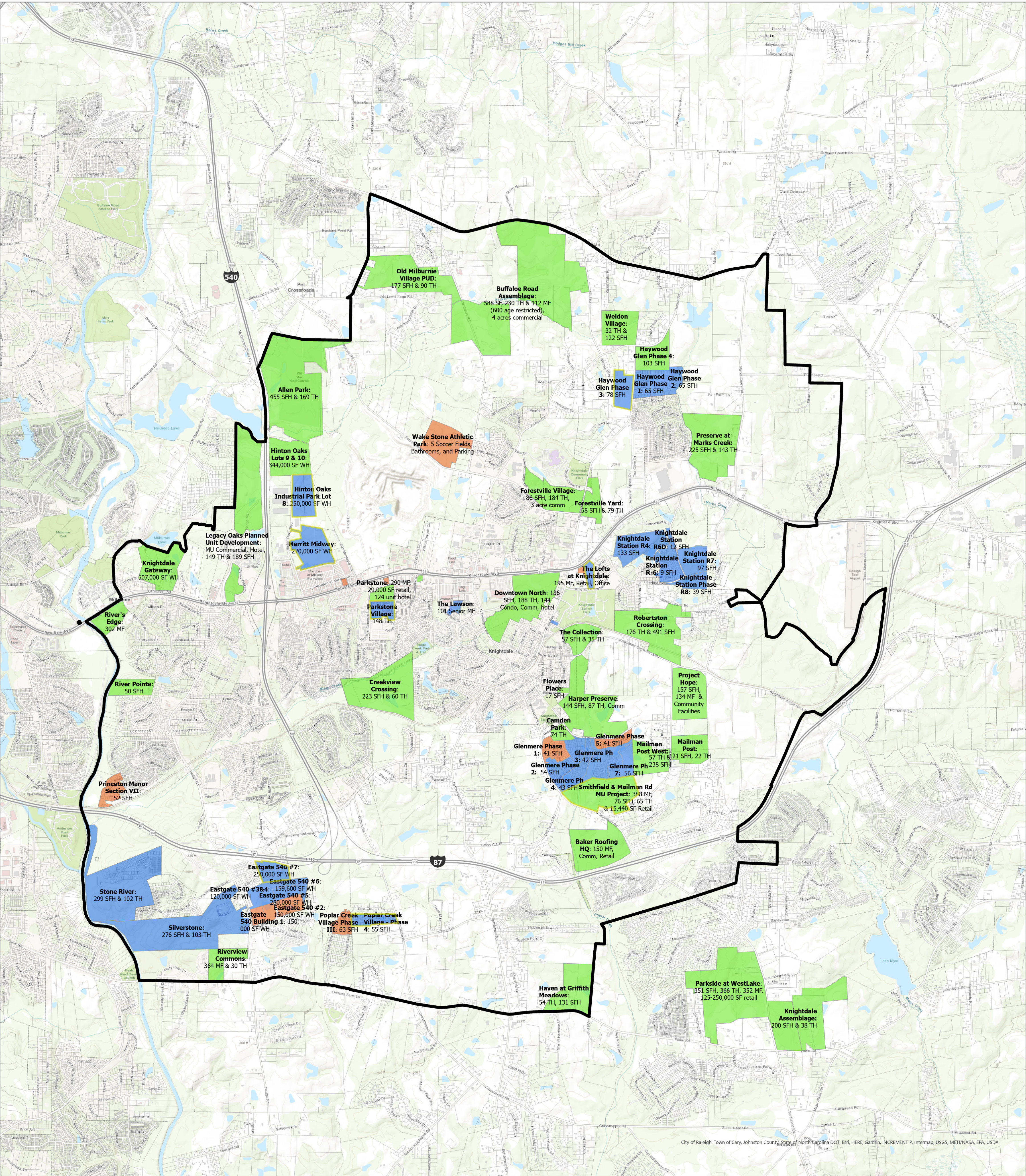


Andrew Spiliotis
Senior Planner – Transportation & Land Use

Attachments:

- Attachment A: Development Map
- Attachment B: CTP Avenue Cross Section Design
- Attachment C: Mailman Road profile renderings
- Attachment D: Project Hope Site Plan

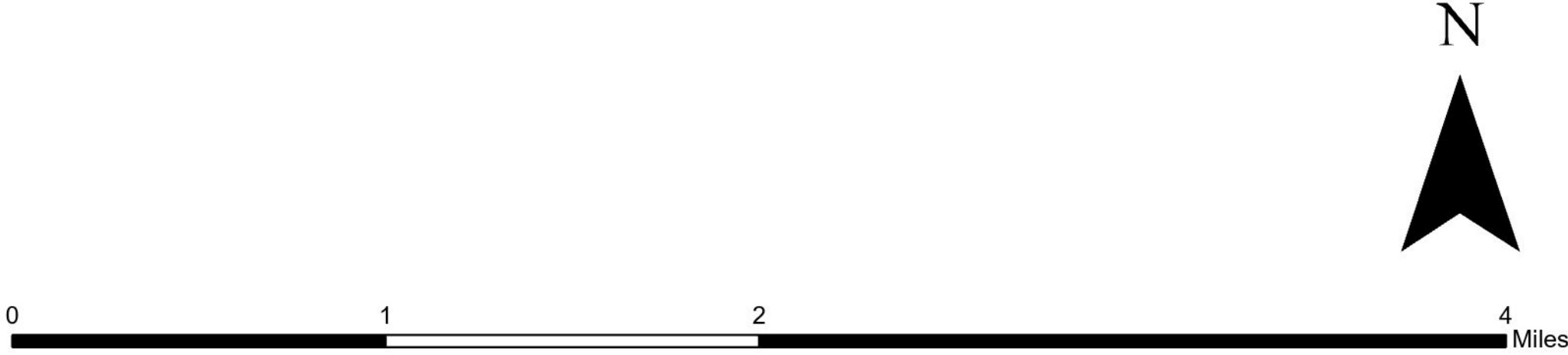
Knightdale Development Map



City of Raleigh, Town of Cary, Johnston County, North Carolina DOT, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

Legend

- Knightdale ETJ Boundary
- Approved under 2018 Comprehensive Plan
- Developments Underway:
 - Completed
 - Proposed
 - Under Construction



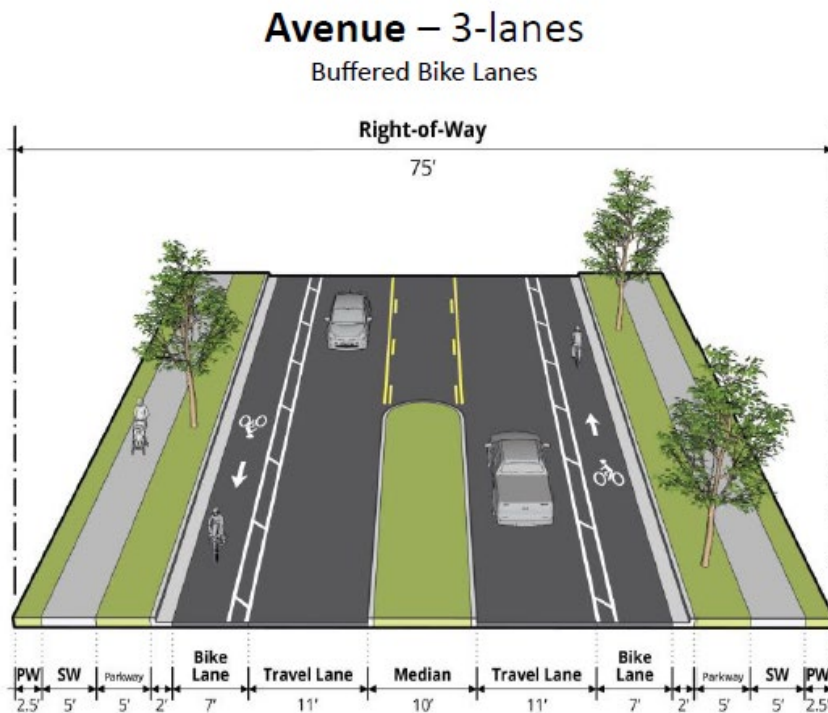
- c. **Avenue.** Avenues connect neighborhoods to town centers, and provide key north-south and east-west mobility corridors across town. Two-lane roadways contain sufficient pavement for bicyclists and motorists. Avenues are richly landscaped, since they are civic spaces that serve as gateways to the town center. Avenues should have the tallest tree canopies. Since avenues serve as the transition between the town and the neighborhoods, speeds should be kept low, typically thirty to thirty-five (30-35) mph. Avenues may also serve as major transit routes.
- i. **ROW Width.** The right-of-way width of avenues shall be seventy-five (75) feet.
 - ii. **Drive Lane Width.** The drive lane width of an avenue shall be eleven (11) feet.
 - iii. **Curb and Gutter.** A curb with a height of six (6) inches and a gutter with a width of twenty-four (24) inches shall be required along both sides of avenues.
 - iv. **Sidewalk.** Sidewalk provisions differ for the two different avenue cross section design types. A sidewalk with a width of five (5) feet shall be required on both sides of the avenue – buffered bike lane roadway type. The pedestrian and bicycle accommodations are combined into a required ten (10) foot sidepath in the avenue – sidepath roadway type.*
 - v. **Parkway.** Parkway widths differ for the two different avenue cross section design types. A parkway with a width of five (5) feet shall be located between the back of curb and the sidewalk along both sides of the avenue – buffered bike lane roadway type. A parkway with a width of six (6) feet shall be located between the back of curb and the sidewalk along both sides of the avenue – sidepath roadway type.
 - vi. **Utility Location.** Utilities shall be located in the parkway.
 - vii. **Street Trees.** Street trees shall be planted in the parkway. A minimum of one (1) canopy tree shall be planted every forty (40) feet. Where overhead utility line conflicts are present, a minimum of one (1) understory tree shall be planted every twenty (20) feet. The spacing of street trees shall take into consideration local conditions and clear vision triangles.
 - viii. **On-Street Parking.** On-street parking is reserved for the urban avenue roadway type.
 - ix. **Medians.** Medians shall be improved with a mountable curb with a height of nine (9) inches and a gutter with a width of nine (9) inches. Medians shall taper to a four (4) feet at intersections.

Median dimensions differ for the two different avenue roadway cross section types as follows:

- a) **Avenue – buffered bike lane:** Medians with a width of ten (10) feet shall be required on the avenue – buffered bike lane roadway type. Medians shall be planted with a minimum of two (2) shrubs every twenty (20) feet.
- b) **Avenue – sidepath:** Medians with a width of twelve (12) feet shall be required on the avenue – sidepath roadway type. The Land Use Administrator shall also approve when the median is paved flush with travel lanes versus a mountable curb median given this roadway cross section type does not meet the fire truck and emergency vehicle eighteen (18) feet clearance standard without utilizing the center median.
- x. **Bicycle Facilities.** Buffered bike lanes, with a width of seven (7) feet (2 feet buffer, 5 feet bike lane), shall be required along both sides of the street for the avenue – buffered bike lane roadway type. Sidepaths, with a width of ten (10) feet, shall be required along both sides of the street for the avenue – sidepath roadway type.* Bike lanes and sidepaths shall be delineated in accordance with NACTO standards.

**The Land Use Administrator may allow for one side of the roadway to be a sidepath and the other side of the roadway to be a buffered bike lane if consistent with the Town's Greenway Network Map.*

Figure 10.6: Avenue Cross Section Standards - Buffered Bike Lane



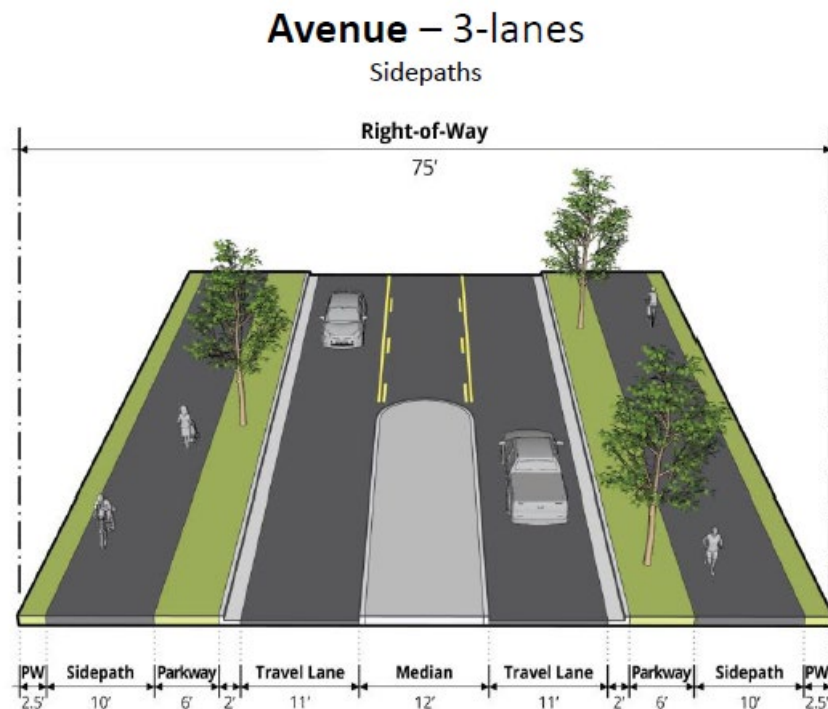
Bike lane because the Town's Greenway Network Map does not reflect a shared use path.

Use 2' buffer, 5' bike lane. Acceptable to both the Town and NCDOT

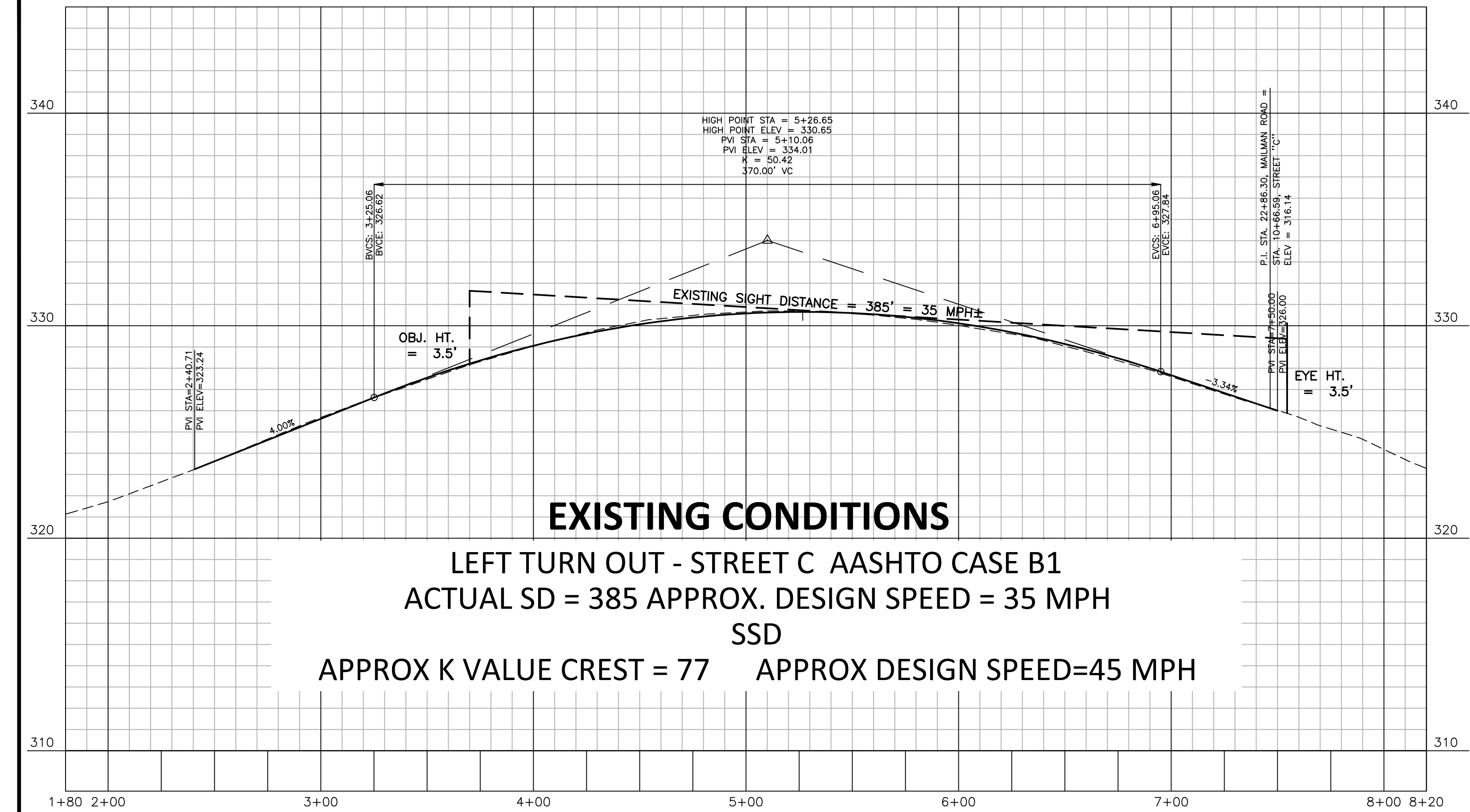
Use 10' for left turn lane. Acceptable to NCDOT.

11' travel lanes acceptable to NCDOT.

Figure 10.7: Avenue Cross Section Standards - Sidepath



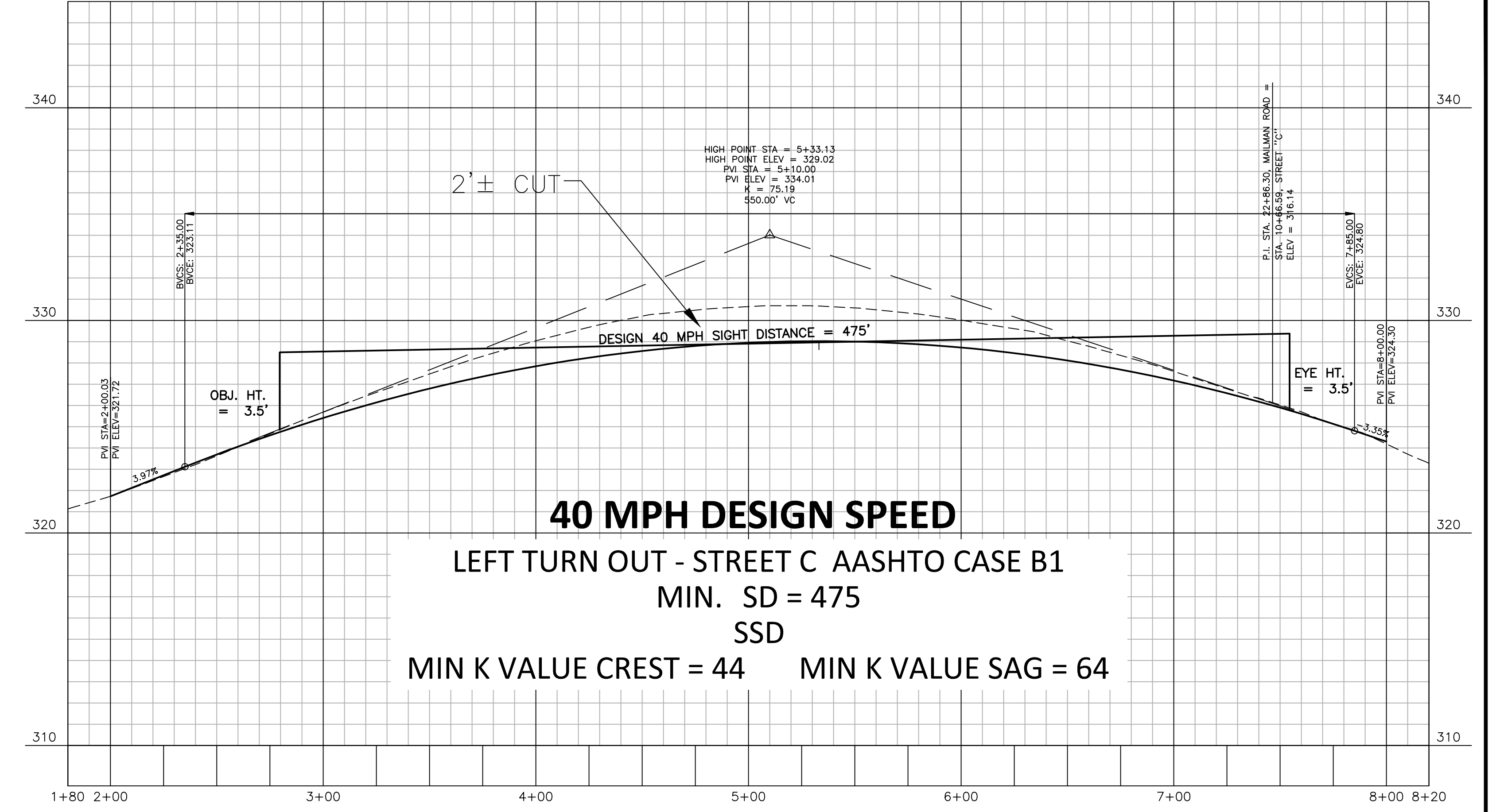
M:\Projects\LEN\LEN21006\04-Production\Engineering\Current Drawings\Office Roadway\LEN21006-RDWY-P1.dwg 2/10/2023 2:25:52 AM David Smith



EXISTING CONDITIONS

LEFT TURN OUT - STREET C AASHTO CASE B1
ACTUAL SD = 385 APPROX. DESIGN SPEED = 35 MPH
SSD

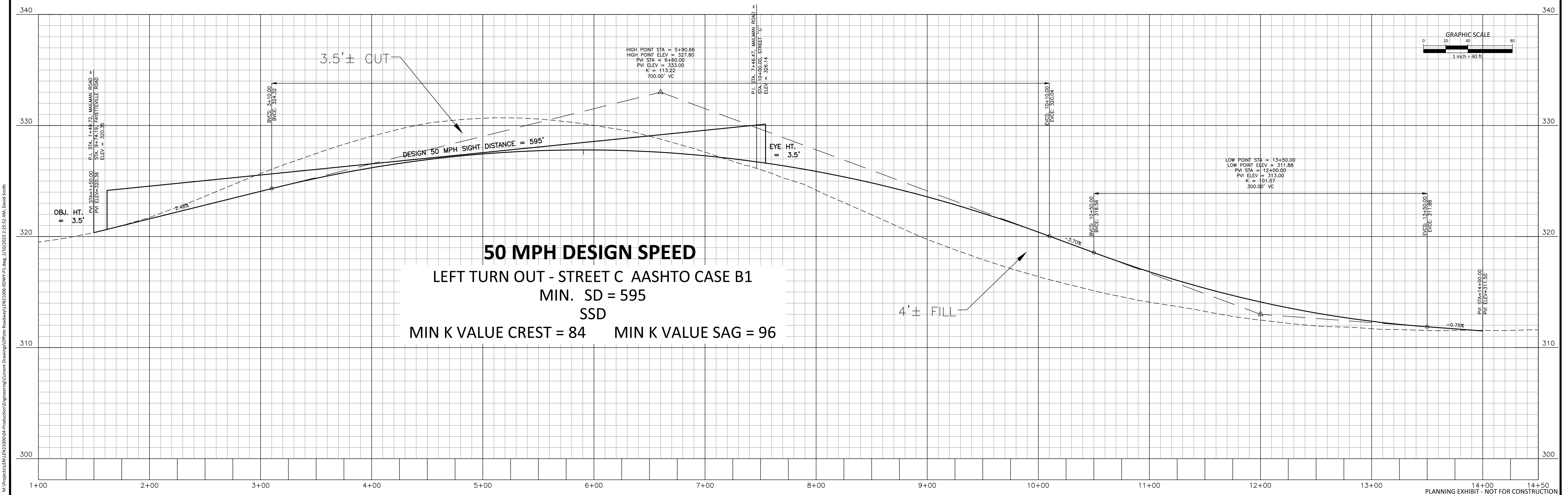
APPROX K VALUE CREST = 77 APPROX DESIGN SPEED=45 MPH



40 MPH DESIGN SPEED

LEFT TURN OUT - STREET C AASHTO CASE B1
MIN. SD = 475
SSD

MIN K VALUE CREST = 44 MIN K VALUE SAG = 64



50 MPH DESIGN SPEED

LEFT TURN OUT - STREET C AASHTO CASE B1
MIN. SD = 595
SSD

MIN K VALUE CREST = 84 MIN K VALUE SAG = 96



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STEPHEN DORN
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LENNAR



RETREAT AT ROBERTSON
CONSTRUCTION DRAWINGS
5200 KNIGHTDALE-EAGLE ROCK ROAD
KNIGHTDALE, NC 27545

PLAN INFORMATION
PROJECT NO. LEN21006
FILENAME LEN21006-RDWY-P1
CHECKED BY DLS
DRAWN BY MP
SCALE 1"=40'/1"= 4'
DATE 02/10/2023

SITE DISTANCE EXHIBIT
MAILMAN ROAD

EXH-1

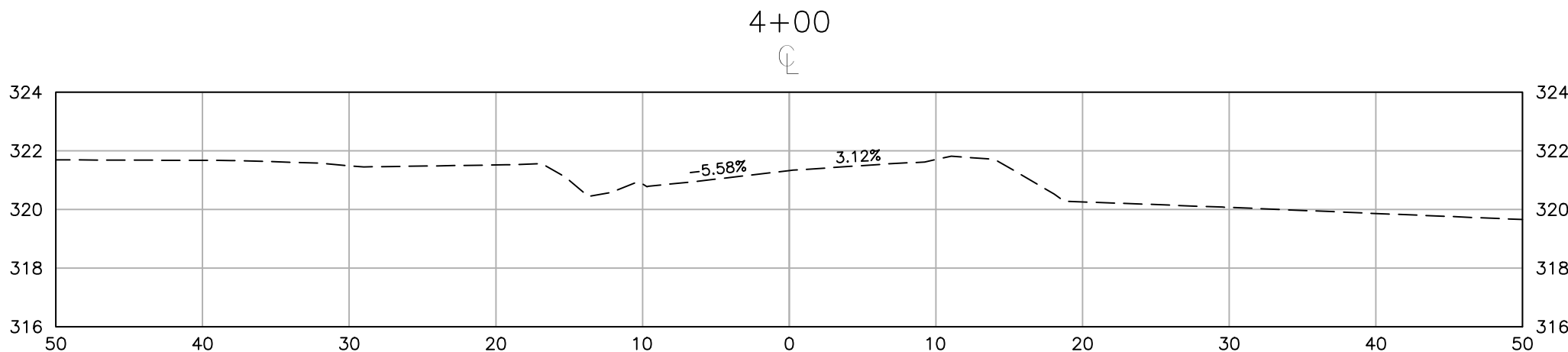
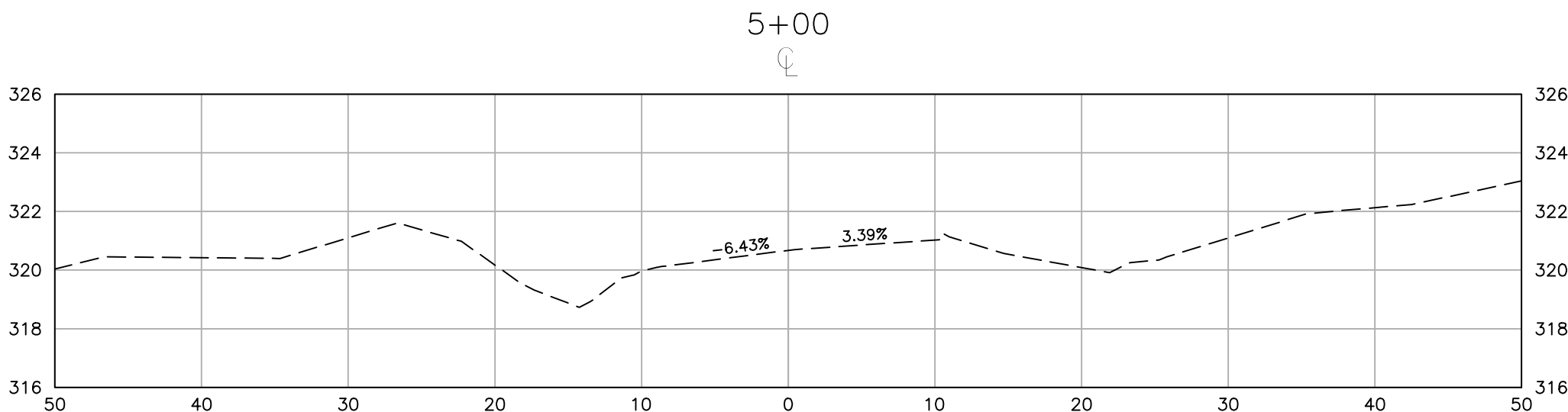
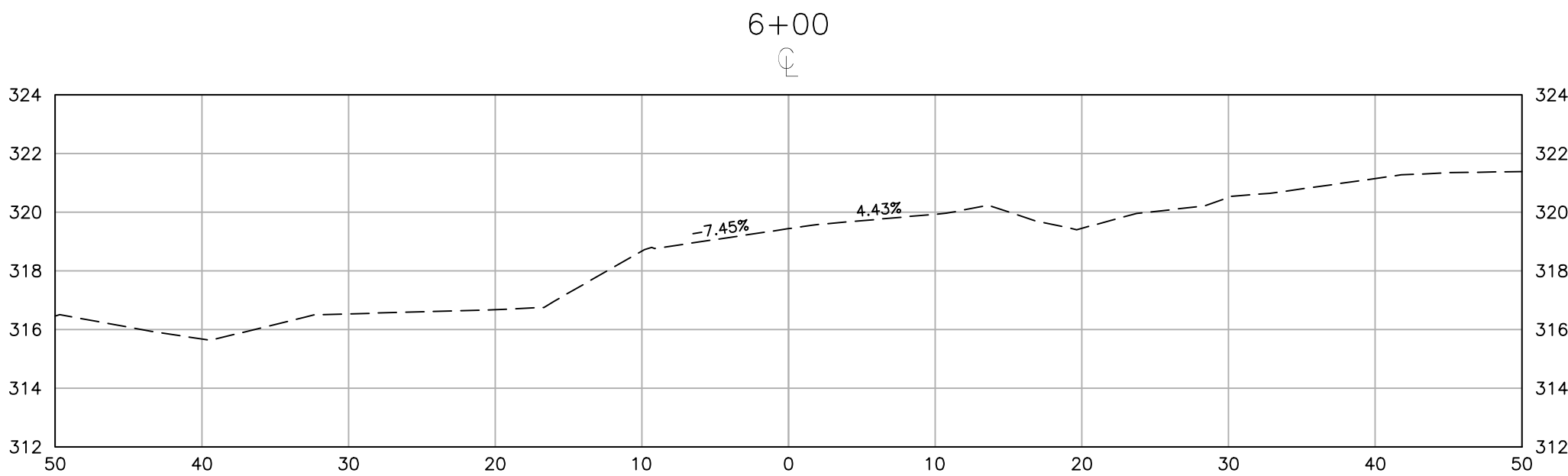
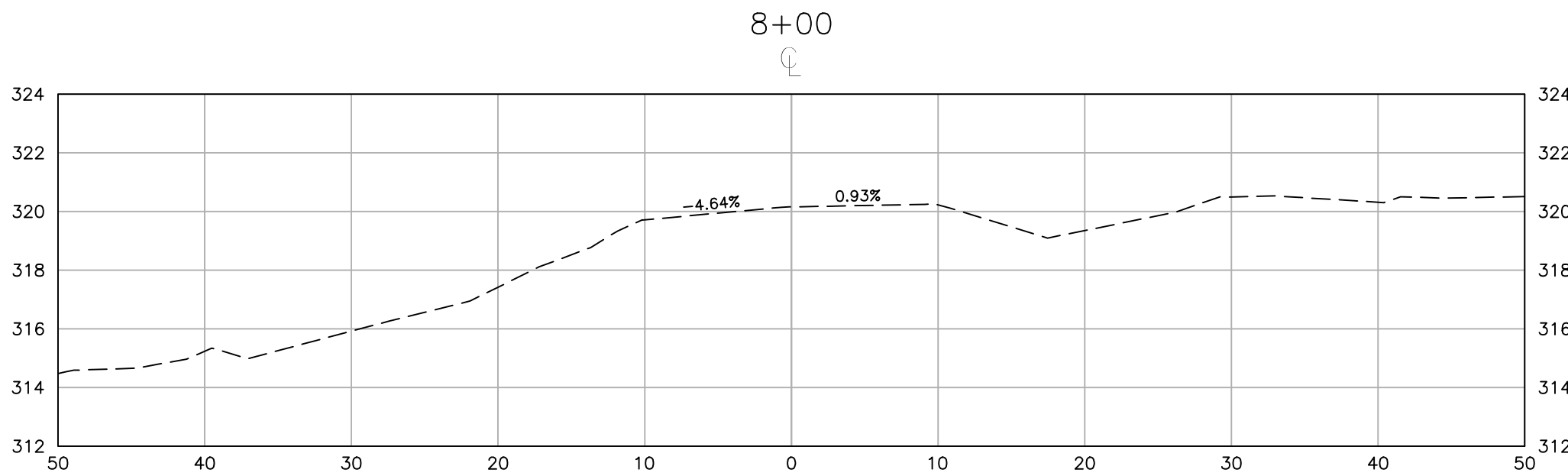
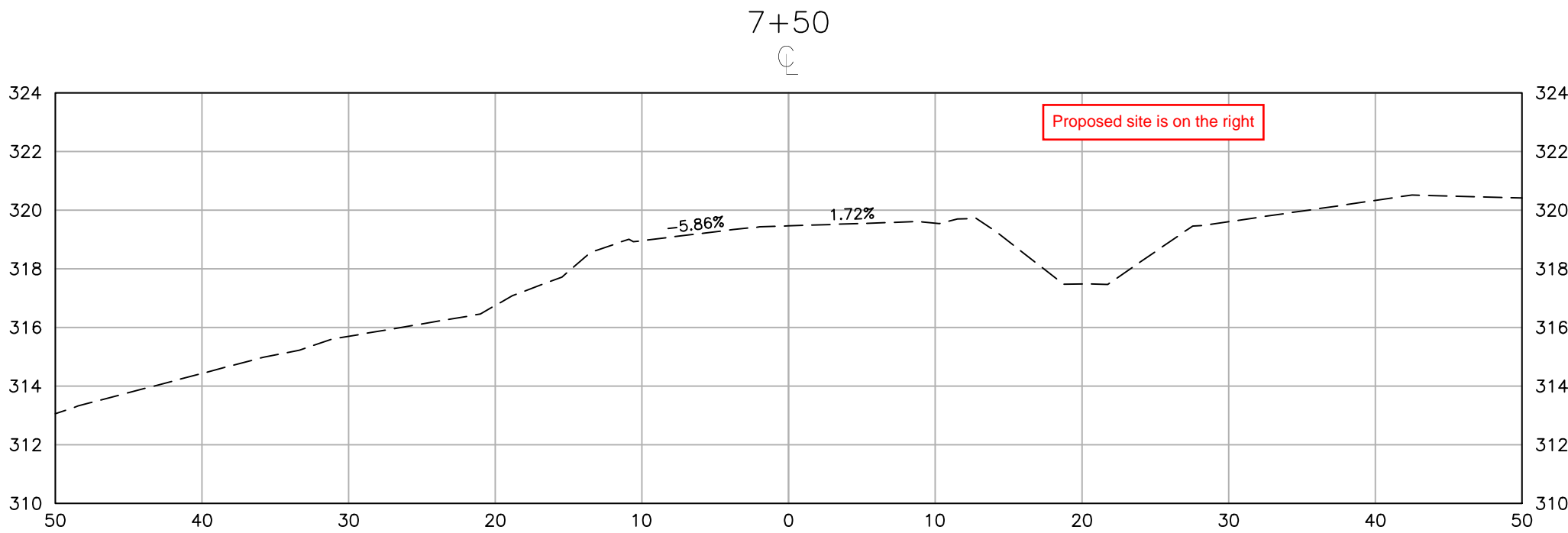
KNIGHTDALE EAGLE ROCK SUPERELEVATION

CENTERLINE RADIUS = 1560'

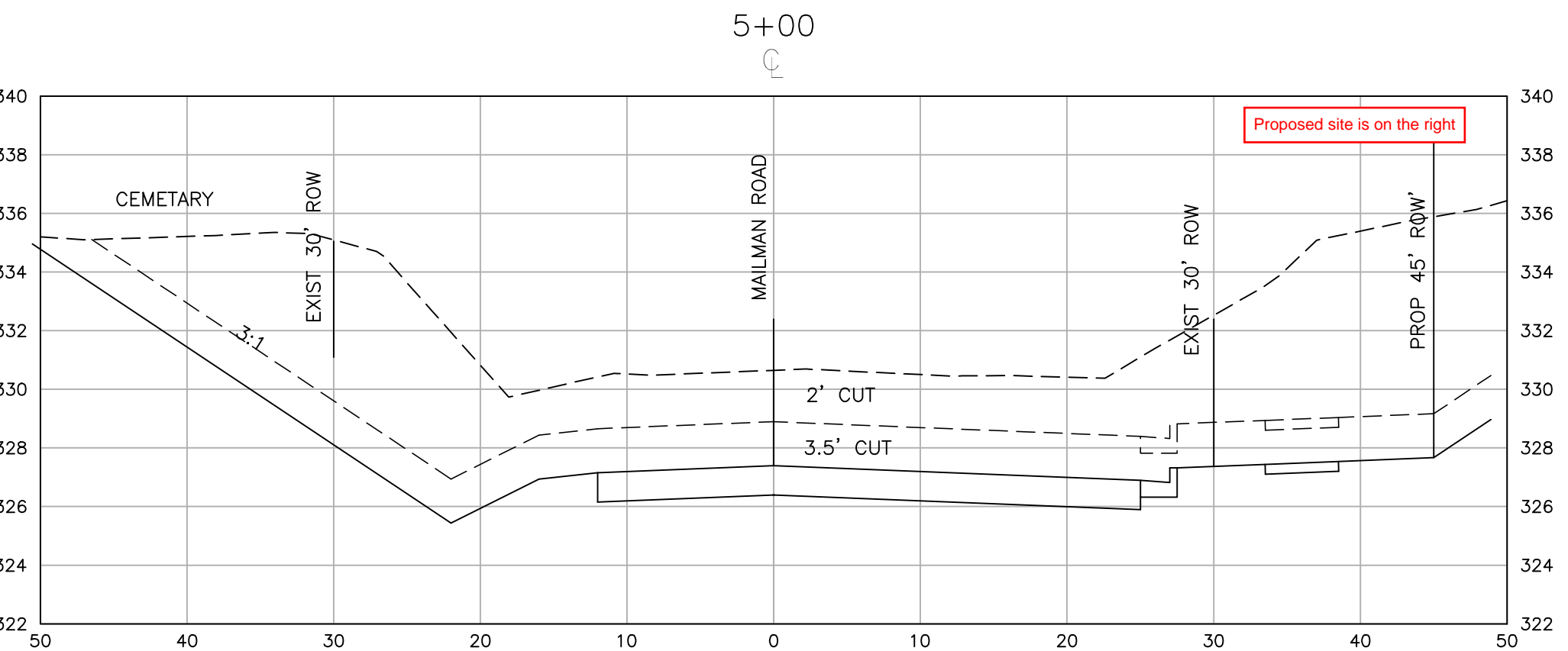
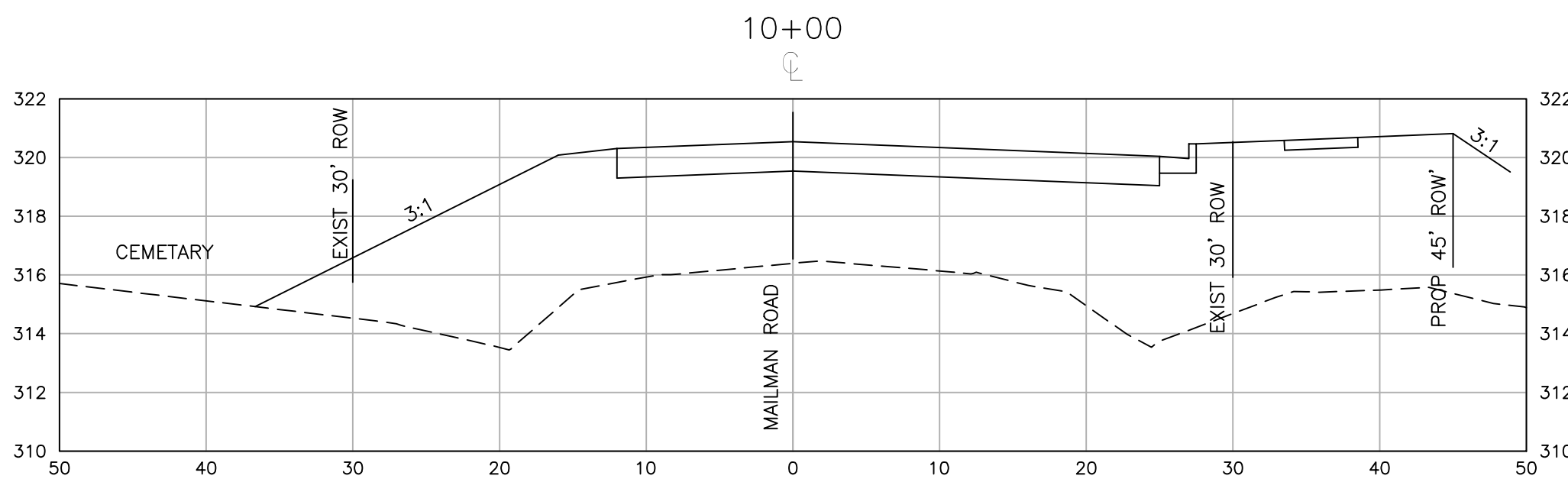
eMAX - 0.04 - FULL SUPER
V=50, e = .035
V=40, e = .029

eMAX - 0.06 - FULL SUPER
V=50, e = .05
V=40, e = .038

KNIGHTDALE EAGLE ROCK 1"=10 FT



MAILMAN ROAD 1"=10 FT



PLANNING EXHIBIT - NOT FOR CONSTRUCTION



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CONSTRUCTION DRAWINGS
5200 KNIGHTDALE-EAGLE ROCK ROAD
KNIGHTDALE, NC 27545

PLAN INFORMATION
PROJECT NO. LEN21006
FILENAME LEN21006-RDWY-P1
CHECKED BY DLS
DRAWN BY MP
SCALE 1"=40'/1" = 4'
DATE 02/10/2023

CROSS SECTIONS
MAILMAN ROAD

EXH-2



phone 919. 361. 5000

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PROJECT HOPE
MASTER PLAN
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REVISIONS

NO.	DATE	
1	09. 30. 2022	REVISED PER DRC COMMENTS
2		
3		
4		
5		
6		

PLAN INFORMATION

PROJECT NO.	LEN21006
FILENAME	LEN21006-OAS1
CHECKED BY	TEP
DRAWN BY	RF
SCALE	1" = 100'
DATE	08-22-2022

SHEET

OVERALL SITE PLAN

C2.00

