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DEVIATION REQUEST AND DECISION FORM

Updated: 6/26/2019

PROJECT INFORMATION

1

Project Name : Estates at Cathedral Pines
Schedule No.(s) : 6200000411
Legal Description : TR IN SE4 SEC 2-12-66 DES AS FOLS: BEG AT SW COR OF SE4 SEC 2, TH N 00<49'17" W 1583.77 FT, N 89<17'56" E 965.20 FT, S 00<49'17" E 1583.77 FT TO A PT ON S LN OF SD SE4, TH S 89<17'56" W 965.20 FT TO POB, TOG WITH INGRESS-EGRESS EASEMENT DES BY REC #200027778

APPLICANT INFORMATION

Company : William Guman & Associates, Ltd.
Name : Bill Guman
☐ Owner ☒ Consultant ☐ Contractor
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Colorado Springs, CO 80903

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FAX Number : -
Email Address : bill@guman.net

ENGINEER INFORMATION

Company : LSC Transportation Consultants, Inc.
Name : Jeffrey C. Hodsdon
Mailing Address : 2504 E. Pikes Peak Ave
Suite 304
Colorado Springs, CO 80909
Phone Number : 719-633-2868
FAX Number : 719-633-5430
Email Address : jeff@LSCtrans.com

Colorado P.E. Number : 31684

OWNER, APPLICANT, AND ENGINEER DECLARATION

To the best of my knowledge, the information on this application and all additional or supplemental documentation is true, factual and complete. I am fully aware that any misrepresentation of any information on this application may be grounds for denial. I have familiarized myself with the rules, regulations and procedures with respect to preparing and filing this application. I also understand that an incorrect submittal will be cause to have the project removed from the agenda of the Planning Commission, Board of County Commissioners and/or Board of Adjustment or delay review until corrections are made, and that any approval of this application is based on the representations made in the application and may be revoked on any breach of representation or condition(s) of approval.

Claine Cawfield

Signature of owner (or authorized representative)

6/11/24

Date

Engineer's Seal, Signature
And Date of Signature



DEVIATION REQUEST (Attach diagrams, figures, and other documentation to clarify request) (Date: **Minor Rev. 5/15/2024 to 3/29/24 version**) This deviation request is for intersection spacing and a few other geometric/roadway design elements on **Hamptonshire Point**. As such, this deviation includes several itemized parts/elements. Please refer to deviation exhibits 1 – 6b. Deviation Exhibit 1 shows the location of this street on the site plan map.

Note: for reference, Deviation Exhibit No. 1 also shows the location of the **Land Development Code Waiver** for private roads (please refer to the separate waiver request document). Deviation Exhibit No. 2 shows the detailed locations of the parts/elements of this deviation.

Parts 4a and 4b are for the proposed mid-block gate location on Hamptonshire Point. These parts cover intersection grade and stopping sight distance on the westbound approach to the gate. While not for a bona-fide "street intersection," this part has been included based on LSC's engineering judgement. The proposed gate will likely create a "stop-condition" for motorists, similar to an intersection.

A deviation from the standards of or in Sections **2.3.2** of the Engineering Criteria Manual (ECM) is requested.

Identify the specific ECM standard which a deviation is requested:

This deviation request is for intersection spacing and a few other geometric/roadway design elements on **Hamptonshire Point**:

Part 1:

Section 2.3.2, Table 2-5: Roadway Design Standards for Rural Collectors and Locals

Local roadway intersection spacing shall be 330 feet (centerline spacing). Please refer to Deviation Exhibit No. 3.

Part 2:

Section 2.3.2, Table 2-5: Roadway Design Standards for Rural Collectors and Locals

The minimum centerline curve radius on local roadways shall be 300 feet. Please refer to Deviation Exhibit No. 4.

Part 3:

Section 2.3.4.A, Table 2-12: Design Controls for Stopping Sight Distances on Crest Vertical Curves

K-values less than 19 shall not be permitted on a roadway with a design speed of 30 mph. Please refer to Deviation Exhibit No. 5.

Parts 4a and 4b below are for the proposed gate location on Hamptonshire Point:

Part 4a:

Intersection Grades approaching the proposed gate on Hamptonshire Point

Section 2.3.7.C.4, Table 2-22: Intersection Grades by Roadway Functional Classification

Identify the specific ECM standard which a deviation is requested:

Intersection grades on Rural Local roadways shall be between 1-4 percent. While not for a bona-fide "street intersection," this part addresses the proposed mid-block gate location on Hamptonshire Point. This has been included based on LSC's engineering judgement, as the proposed gate will likely create a "stop-condition" for motorists, similar to an intersection. Please refer to Deviation Exhibit No. 6a.

Part 4b:

Stopping sight distance on the westbound approach to the proposed gate location on Hamptonshire Point

ECM Section 2.3.6.D, Table 2-17: Stopping Sight Distances at Grade. The stopping sight distance for 30-mph design speed (speed-by-classification) on a Rural Local roadway per ECM Table Section 2.3.2, Table 2-5, and stopping sight distance on a grade, as per ECM Section 2.3.6.D, Table 2-18. Please refer to Deviation Exhibit No. 6b.

State the reason for the requested deviation:

The deviations for Hamptonshire Point are requested due to the topography of the site, the limited location for an access to Winslow Drive to meet intersection sight distance, and the shape of the parcel and the limited options for minimum 2.5-acre lot size and road layout, the requirement for the entry street, Hamptonshire Point to intersect Winslow Drive at a right angle, and the need to meet intersection grades at the Winslow Drive/Hamptonshire Point and Hamptonshire Point/Sterling Manor Heights intersections. Locating the site-access street in a location that meets intersection sight distance along Winslow (needed to be located higher on the hill on Winslow) caused grade challenges for the internal roads.

The gate location has been shown mid-block on Hamptonshire Point. The ECM does not contain criteria specifically for private road gates, as private roads are not County standard. However, components of ECM criteria would apply to a private road gate, and as such the analysis of the gate location is included in this deviation. This deviation presents analysis of the gate location shown on the plans with respect to applicable ECM roadway grade and sight distance criteria.

Explain the proposed alternative and compare to the ECM standards (May provide applicable regional or national standards used as basis):

Part 1

ECM's standard requires intersection spacing of 330 feet (centerline-to-centerline) on Rural Local roads. The centerline spacing along Hamptonshire Point between the Sterling Manor Heights/Hamptonshire Point intersection and the Winslow Drive/Hamptonshire Point intersection would be 300 feet.

Part 2

The minimum centerline curve radius on local roadways shall be 300 feet, while a short segment of proposed horizontal curve on Hamptonshire Point would have a 200-foot radius (100 feet short of the ECM standard),

Part 3

The proposed K-value on Hamptonshire Point is 7, while the ECM requires that roadways with a design speed of 30 mph use a K-value of 19 when designing for the rate of vertical curvature.

Part 4 - The proposed gate location on Hamptonshire Point

The gate location has been shown mid-block on Hamptonshire Point. Please refer to Deviation Exhibits 6a and 6b. The options for placement of the gate are limited due to the short roadway length, vertical profile and the need for some vehicle stacking distance at the gate, and separation from the intersection of Winslow/Hamptonshire. This deviation presents analysis of the gate. Please refer to Deviation Exhibit 6a and 6b. Given the analysis results, an alternative location closer to the internal intersection of Hamptonshire Point/Sterling Manor Heights could be considered. Also, some mitigation measures are included for consideration with the gate placement and design.

The gate analysis is presented in Deviation Exhibits 6a and 6b.

Intersection Grades approaching the proposed gate on Hamptonshire Point

Section 2.3.7.C.4, Table 2-22: Intersection Grades by Roadway Functional Classification

Intersection grades on Rural Local roadways shall be between 1-4 percent. The proposed grade is **8 percent in the eastbound direction and 4 percent in the westbound direction**. While not for a bona-fide street intersection, proposed gate will likely create

Explain the proposed alternative and compare to the ECM standards (May provide applicable regional or national standards used as basis):

a "stop-condition" for motorists, similar to an intersection. There is a potential/possible "stop condition" for exiting traffic with the proposed gate (similar to an intersection) on a grade >4%. However, the gate system selected for use may be capable of opening so exiting vehicles do not need to stop on the eastbound approach to the gate.

Stopping Sight Distance on the westbound approach to the proposed gate location on Hamptonshire Point

ECM Section 2.3.6.D, Table 2-17: Stopping Sight Distances at Grade. The stopping sight distance for 30-mph design speed (speed-by-classification) on a Rural Local roadway per ECM Table Section 2.3.2, Table 2-5, is 227 feet on a grade of up to 9 percent (per ECM Section 2.3.6.D, Table 2-18). The available stopping sight distance is 85 feet to the proposed gate and 50 feet to the estimated tail-end of one passenger vehicle queued at the gate.

LIMITS OF CONSIDERATION

(At least one of the conditions listed below must be met for this deviation request to be considered.)

- ☐ The ECM standard is inapplicable to the particular situation.
- ☒ Topography, right-of-way, or other geographical conditions or impediments impose an undue hardship and an equivalent alternative that can accomplish the same design objective is available and does not compromise public safety or accessibility.
- ☐ A change to a standard is required to address a specific design or construction problem, and if not modified, the standard will impose an undue hardship on the applicant with little or no material benefit to the public.

Provide justification:

Parts 1-3

The deviations for Hamptonshire Point are requested due to the topography of the site, the limited location for an access to Winslow Drive to meet intersection sight distance, and the shape of the parcel and the limited options for minimum 2.5-acre lot size and road layout, the requirement for the entry street, Hamptonshire Point to intersect Winslow Drive at a right angle, and the need to meet intersection grades at the Winslow Drive/Hamptonshire Point and Hamptonshire Point/Sterling Manor Heights intersections. Locating the site access street in a location that meets intersection sight distance along Winslow (needed to be located higher on the hill on Winslow) caused grade challenges for the internal roads.

Part 4

The gate location has been shown mid-block on Hamptonshire. Please refer to Deviation Exhibits 6a and 6b. The options for placement of the gate are limited due to the short roadway length, vertical profile and the need for some vehicle stacking distance at the gate, and separation from the intersection of Winslow/Hamptonshire. This deviation presents analysis of the gate. Please refer to Deviation Exhibit 6a and 6b. Given the analysis results, an alternative location closer to the internal intersection of Hamptonshire Point/Sterling Manor Heights could be considered, however the current location shows a 4 percent grade on the westbound approach, versus 8 percent farther west.. Also, some mitigation measures are included for consideration with the gate placement and design.

CRITERIA FOR APPROVAL

Per ECM section 5.8.7 the request for a deviation may be considered if the request is not based exclusively on financial considerations. The deviation must not be detrimental to public safety or surrounding property. The applicant must include supporting information demonstrating compliance with all of the following criteria:

The deviation will achieve the intended result with a comparable or superior design and quality of improvement.

Additional justification details specific to each part:

Part 1:

The proposed spacing is only 50 feet short of the ECM standard, there would be no east leg of the intersection of Winslow Drive/Hamptonshire Point and no west leg of the Hamptonshire Point/Sterling Manor Heights. This site-specific road configuration is significantly different from the more generic configuration which the ECM standard is intended to cover. As shown in Deviation Exhibit 3, the ECM standard covers the generic/hypothetical local street spacing scenario with series of local cross streets, with through traffic at the design speed through a series of local street intersections. The spacing criteria of 330' was established largely due to stopping sight distance for the design speed along the through roadway. Vehicle speeds along this street will be limited and the 330' for stopping sight distance for eastbound/westbound motorists would not be necessary. This will be a small subdivision with low traffic volumes.

Parts 2 and 3:

Vehicles speeds would be relatively low as this location is just west of the T intersection with Winslow and there will be a stop condition for eastbound traffic just to the east. Although the "design-speed-by-classification" of Hamptonshire Point would be 30 mph, it is unlikely that eastbound vehicles would be traveling at the design speed through the horizontal or vertical curve due to 1) the overall short length of Hamptonshire Point, 2) the 8%-4% uphill grade, and 3) the stop condition just east of the vertical curve with the stop sign approaching Winslow Drive. As such, using a K-value for a design speed of 25 mph ($K = 12$) is more appropriate than using that for a design speed of 30 mph ($K = 19$). Westbound traffic will travel through this vertical curve at a slower speed after just having completed a turning movement from northbound or southbound Winslow Drive.

If necessary, due to the combination of factors and the criteria in ECM 2.3.3 (I), consideration for installing centerline striping from the stop line at the Winslow intersection west through the length of the vertical curve to the proposed gate location. Roadside reflector post markers could also be considered through the shallow curve for winter driving conditions.

Part 2:

The proposed centerline curve radius of 200 feet is needed to meet the requirement for the entry street, Hamptonshire Point, to intersect Winslow Drive at a right angle. The length of this horizontal curve is only 30 feet with a shallow deflection angle. Eastbound and westbound vehicle speeds through this curve would be limited as described above. Exiting vehicles (traveling uphill) would be approaching a stop sign.

Part 3:

The proposed K-value on Hamptonshire Point would meet the minimum rate of vertical curvature (12) for a roadway with a design speed of 25 mph.

Part 4:

The gate location has been shown mid-block on Hamptonshire. The gate analysis is presented in Deviation Exhibits 6a and 6b. The options for placement of the gate are limited due to the short roadway length, vertical profile and the need for some vehicle stacking distance at the gate, and separation from the intersection of Winslow/Hamptonshire. This deviation presents analysis of the gate. Given the analysis results, an alternative location closer to the internal intersection of Hamptonshire Point/Sterling Manor Heights could be considered. The following mitigation measures could be considered with the gate placement and design.

- Ensure that the height of the gate or roadside portion of the gate assembly (and/or roadside sign/object marker) is sufficiently high enough for vehicles turning from Winslow Drive onto Hamptonshire Point to see the gate location ahead.
- Install a "gate ahead" warning sign approximately 50-75 feet upstream of the gate (to the east).
- Install a pavement heating system beneath the roadway surface on Hamptonshire Point to keep the roadway surface free of snow and ice.
- Install a mechanism that automatically opens the gate so that exiting vehicles do not need to stop on the 8 percent grade.

The deviation will not adversely affect safety or operations.

Part 1:

The requested spacing of 300 feet vs. 330 feet is reasonable given the site-specific road configuration with stop signs on each end, as described above. Vehicle speeds along this street will be limited and the 330' for stopping sight distance for eastbound/westbound motorists would not be necessary.

Parts 2 and 3:

Eastbound and westbound vehicle speeds through this curve would be limited as described above. The above section identifies potential minor mitigation measures that could be implemented, if deemed necessary, due to the combination of factors and the criteria in ECM 2.3.3 (I).

Part 3:

Deviation Exhibit 5 presents the sight-distance analysis across the vertical curve on Hamptonshire. Per Table 3-2 of AASHTO's *A Policy on Geometric Design of Highways and Streets*, the required stopping sight distance on a roadway with a 6-9 percent downgrade is 85 feet, while the required stopping sight distance for a roadway with 6-9 percent upgrades is 73 feet. As indicated in Deviation Exhibit 5, both of these stopping sight distance requirements would be met.

Additionally, K-values on Winslow Drive have been set to meet a 25-mph posted speed limit even though vehicles will be traveling closer to 10-15 mph rather than 25 mph.

Part 4:

The gate location has been shown mid-block on Hamptonshire. The gate analysis is presented in Deviation Exhibits 6a and 6b. The options for placement of the gate are limited due to the short roadway length, vertical profile, and the need for some vehicle stacking distance at the gate, and separation from the intersection of Winslow/Hamptonshire. Deviation Exhibit 6b presents the sight distance analysis for the gate location. This analysis may be conservative in that it assumes motorists will not see the gate and the associated "stop condition" prior to completing the turn onto Hamptonshire from Winslow. Guest or non-resident motorists entering the subdivision from Winslow may see the gate (and realize the upcoming stop condition at the gate) prior to turning from Winslow. Residents will obviously be aware of the gate and will anticipate the need to stop or slow, as applicable.

The stop condition on an eight-percent grade in the eastbound direction would not be ideal, but it could potentially be mitigated with pavement design and/or a system to keep the street in the vicinity of the gate free of ice/snow. While potentially conservative, the westbound sight distance approaching the gate would be difficult to mitigate due to the spacing. An advance warning sign(s) on Winslow on the approaches to the Hamptonshire intersection may be confusing to drivers and may not be allowed by the County. Given the analysis results, an alternative location closer to the internal intersection of Hamptonshire Point/Sterling Manor Heights could be considered where the sight distance would be met. However, the current location keeps the westbound grades at 4 percent.

The deviation will not adversely affect maintenance and its associated cost.

Roadways within the proposed development will be private rather than public, so the HOA, not the County, will be responsible for maintenance. Please see the Land Design Code (LDC) waiver for private roads included with the submittal for more details.

The deviation will not adversely affect aesthetic appearance.

The shorter access spacing will not affect the aesthetics as the spacing is reasonably close to the ECM standard and the configuration is two T intersections on each end.

Roadway cross-sections will be constructed to County standards.

The deviation meets the design intent and purpose of the ECM standards.

The proposed deviations, given the site-specific characteristics, will allow the greater objectives mentioned above to be met, not adversely affecting operations or safety given the analysis presented in that section of the deviations. Potential mitigation measures are presented above for consideration, if deemed necessary based on actual operations in the field, or if otherwise beneficial.

The deviation meets the control measure requirements of Part I.E.3 and Part I.E.4 of the County's MS4 permit, as applicable.

The requested deviations meet control measure requirements of Part I.E.3 and Part I.E.4 of the MS4 Permit.

REVIEW AND RECOMMENDATION:

Approved by the ECM Administrator

This request has been determined to have met the criteria for approval. A deviation from Section 2.3.2 of the ECM is hereby granted based on the justification provided.

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Denied by the ECM Administrator

This request has been determined not to have met criteria for approval. A deviation from Section _____ of the ECM is hereby denied.

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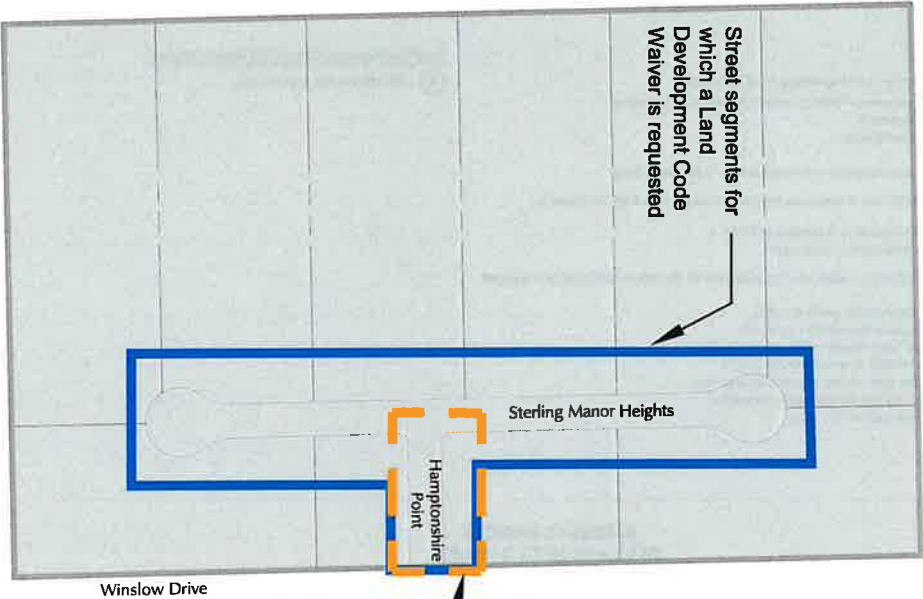
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ECM ADMINISTRATOR COMMENTS/CONDITIONS:

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Site property boundary



Saxon Hollow Road

Street segment for which a ECM deviation is requested

Street segments for which a Land Development Code Waiver is requested

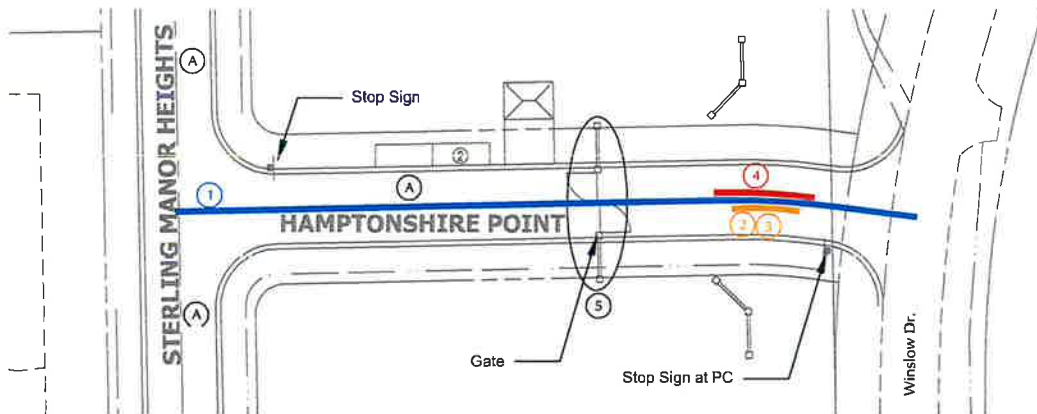
Winslow Drive

Hampshire Point

Sterling Manor Heights



Deviation Exhibit 1
Deviation and Waiver Vicinity Map
Estates at Cathedral Pines (LSC# S224150)



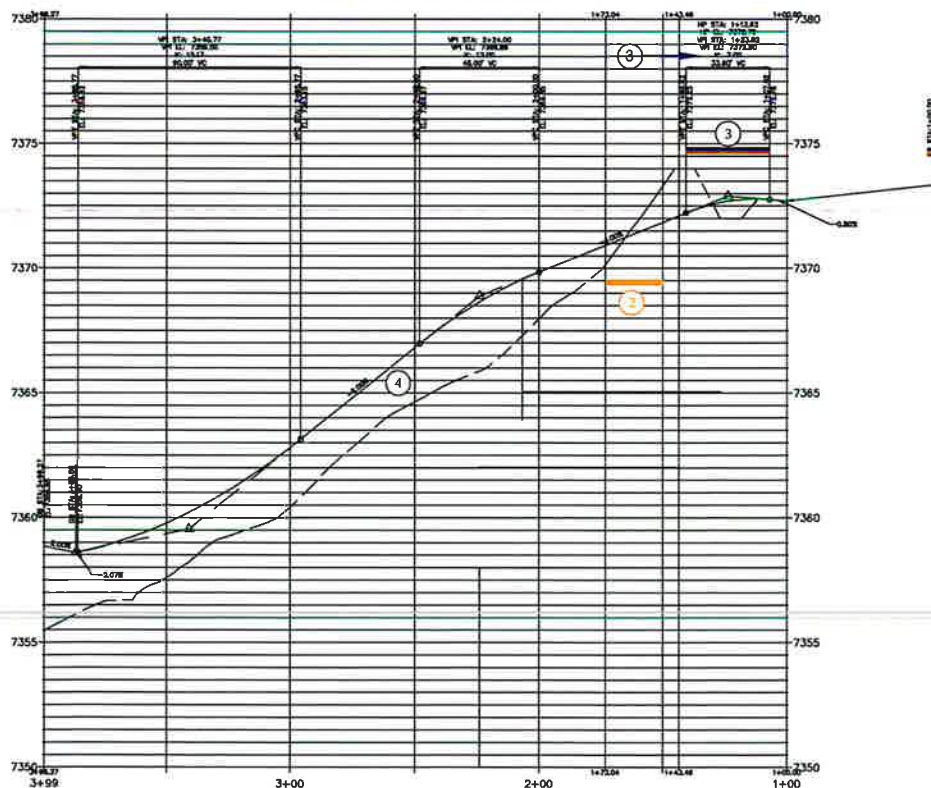
Deviation Requests

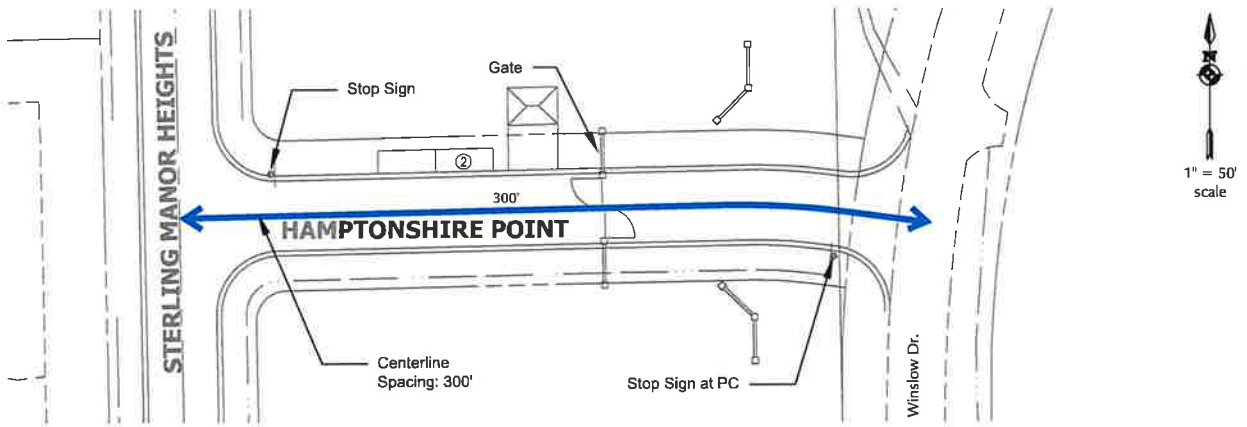
- ① ECM Table 2-5 -- Intersection spacing along a Rural Local Road
 Segment of Hamptonshire Point for which deviation is requested
 330' = ECM requirement
 300' = proposed conditions
- ② ECM Table 2-5 -- Minimum centerline curve radius for a Rural Local Road
 Location of centerline curve radius on Hamptonshire Pt. for which deviation is requested
- ③ Table 2-12 -- K value less than ECM minimum of 19 for a design speed (by road classification) of 30 mph
 Location of vertical curve radius on Hamptonshire Pt. for which deviation is requested
- ④ Table 2-5 -- Eastbound Intersection grade of > 4% (exceeding the ECM minimum intersection approach grade)- Potential/possible "stop condition" for exiting traffic with the proposed gate (similar to an intersection) on a grade > 4%. However, the gate system selected for use may be capable of opening so exiting vehicles do not need to stop on the eastbound approach to the gate.

Land Development Code (LDC) Waiver Request

- Ⓐ LDC Waiver for private roads

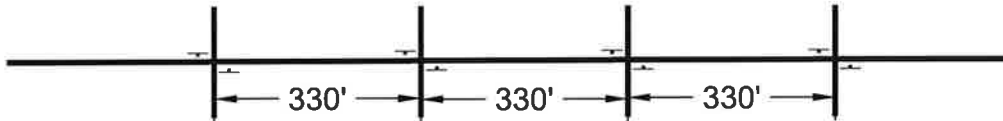
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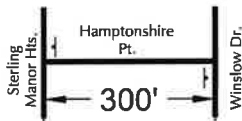
ECM Standard

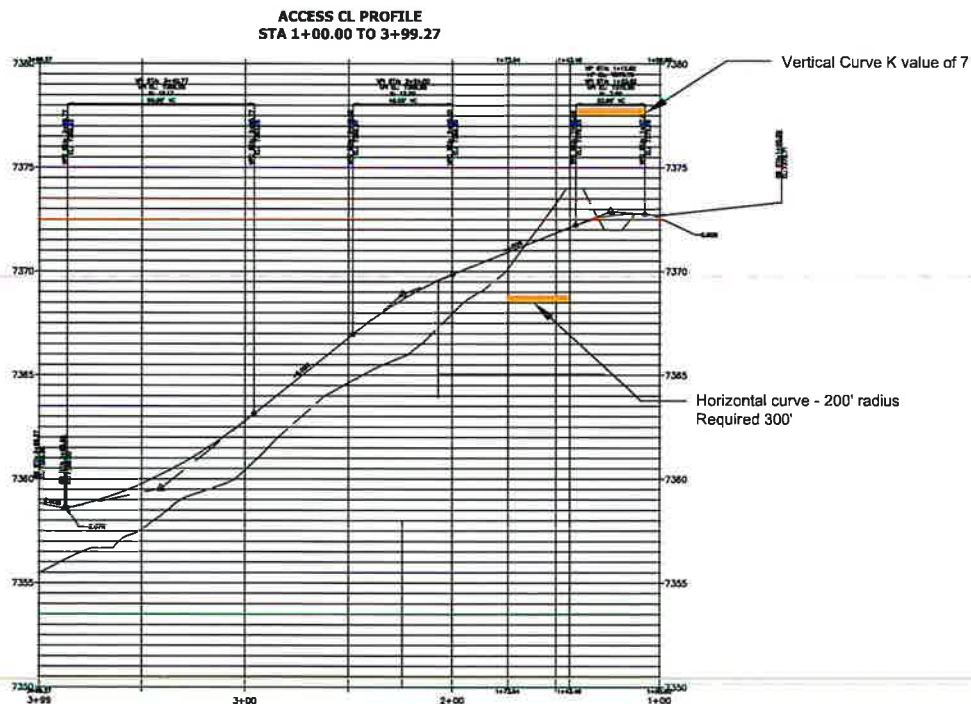
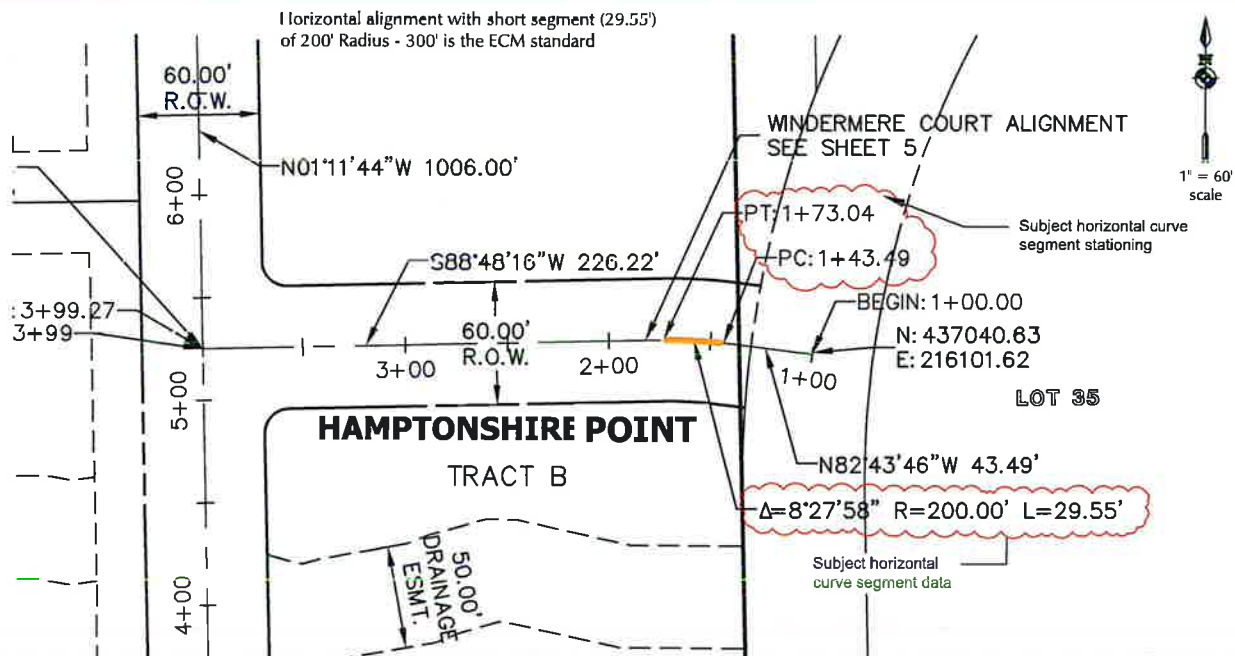
ECM standard covers this hypothetical local street spacing scenario with series of local cross streets, with through traffic at the design speed through a series of local street intersections. The spacing criteria of 330' was established largely due to stopping sight distance for the design speed along the through roadway.

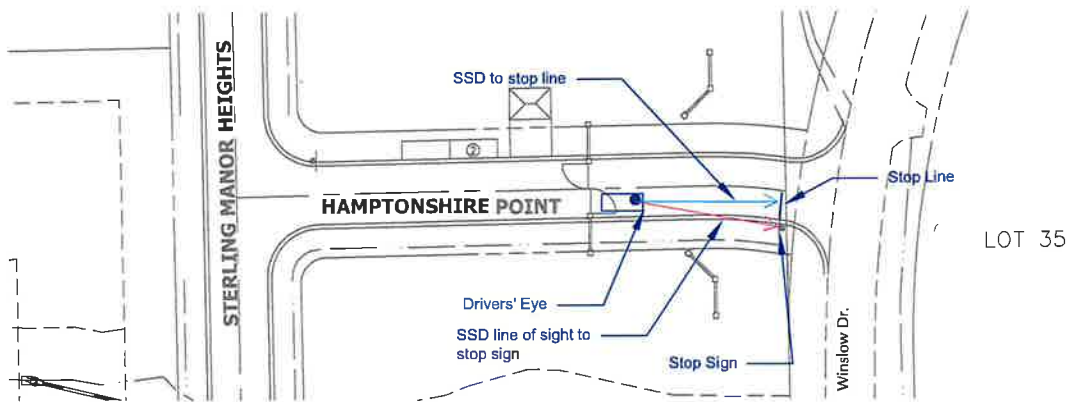


Site-Specific Situation

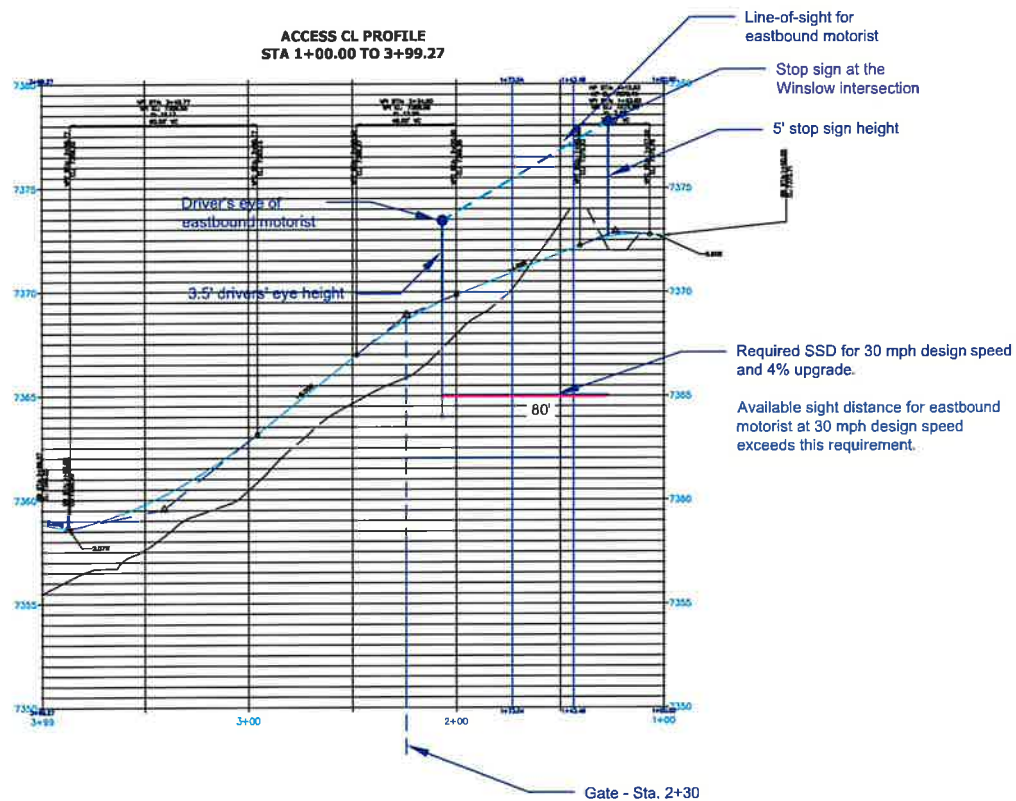
In this situation, the 300' Hamptonshire Pt. segment, there is no "through" traffic at the intersection with Sterling Manor Hts. and Winslow Dr., and likely with stop signs for east and westbound traffic on each end, at these T intersections.







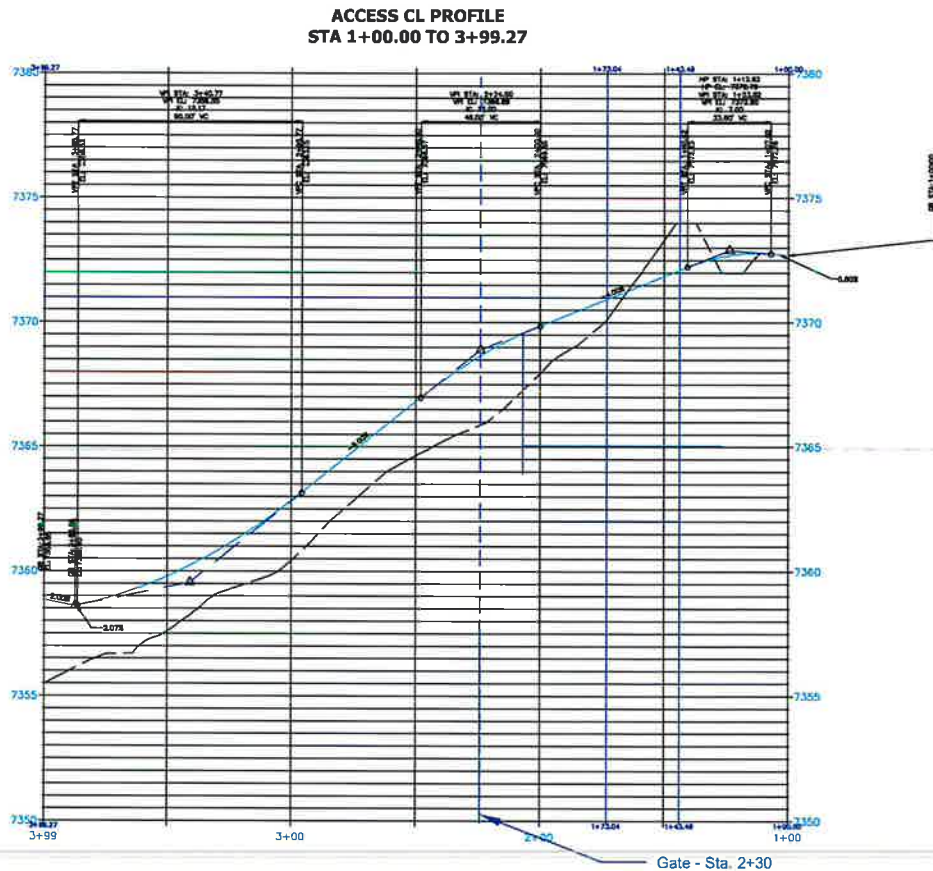
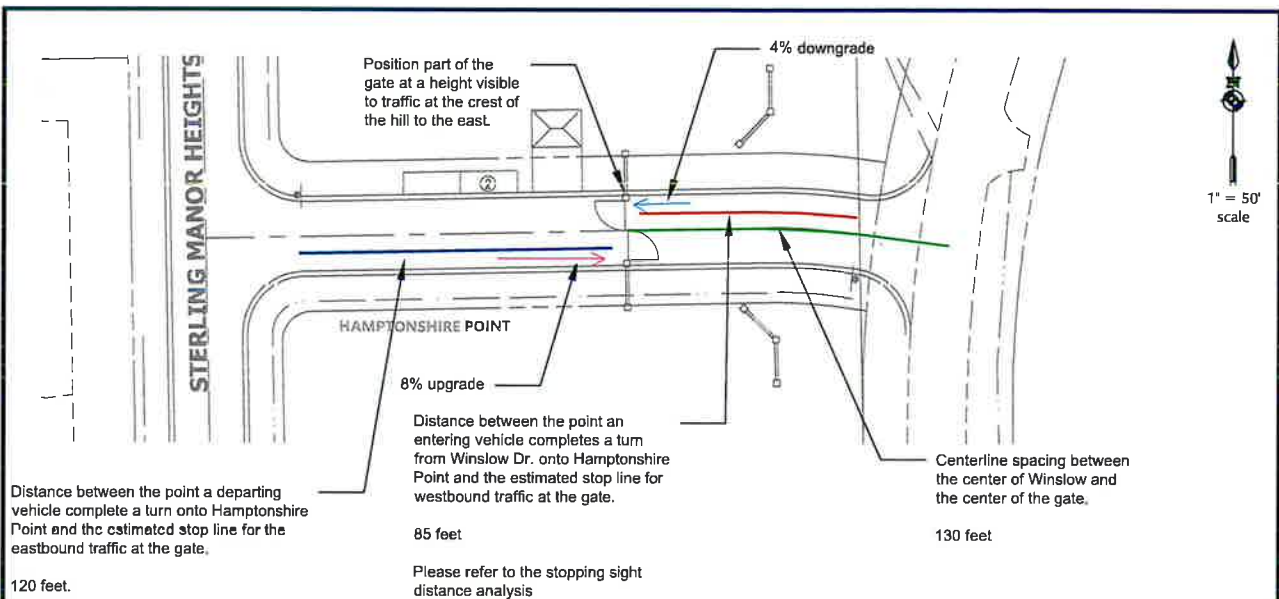
1" = 60'
scale

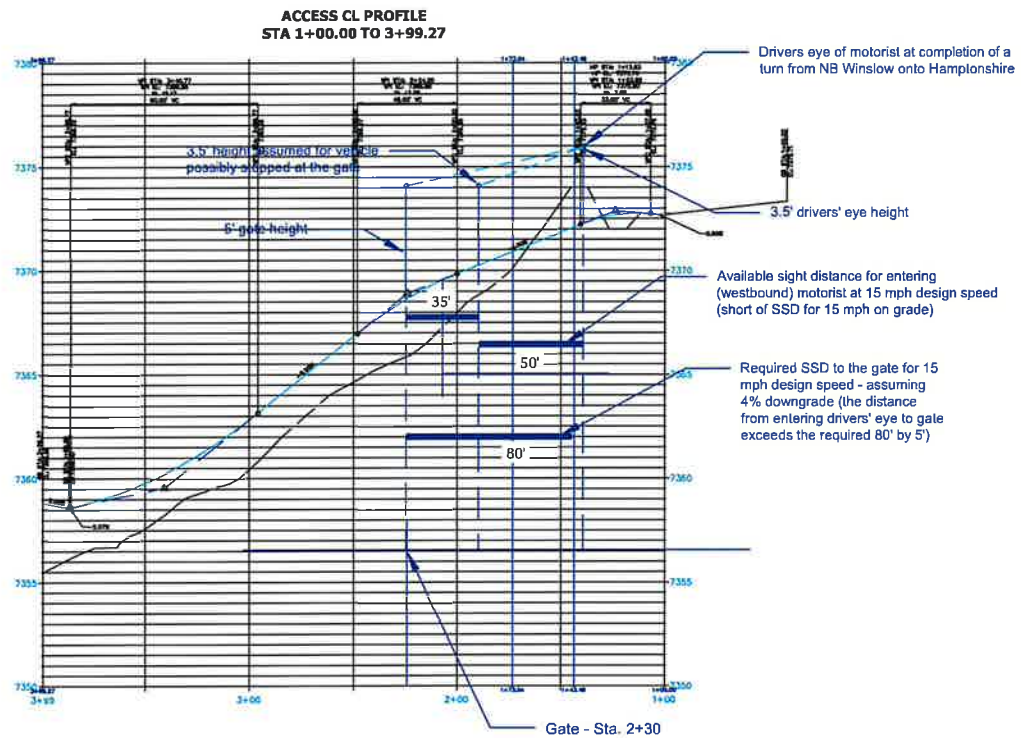
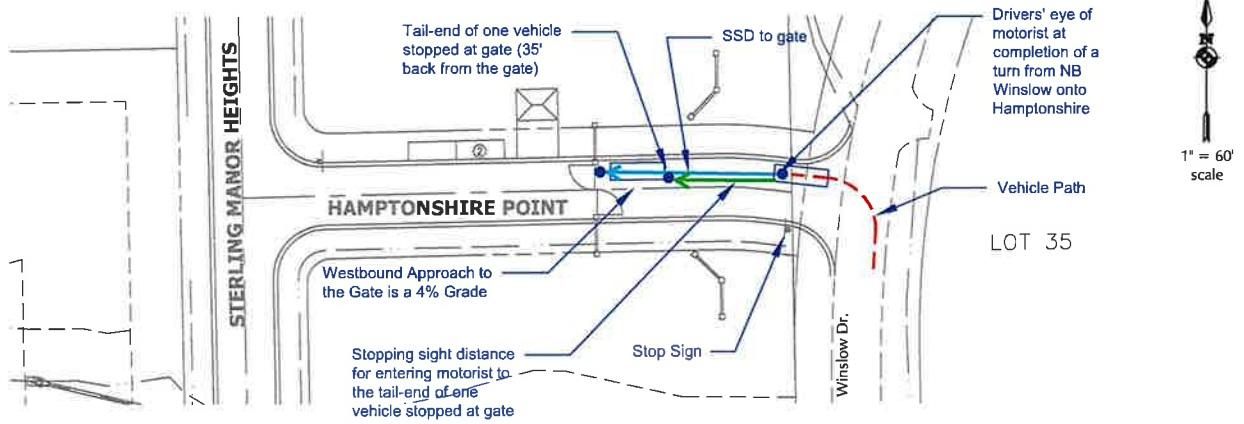


*Analysis of stopping sight distance in the eastbound direction for a motorist exiting the subdivision at the vertical curve on Hamptonshire

Deviation Exhibit 5 Stopping Sight Distance (SSD) - Exiting Vehicle*

Estates at Cathedral Pines (LSC# S224150)





*Analysis of stopping sight distance for a motorist entering the subdivision in the westbound direction on Hamptonshire following a turn from northbound or southbound Winslow.

Stopping Sight Distance - Entering Vehicle*

Deviation Exhibit 6b
Estates at Cathedral Pines (LSC# S224150)

