



**Department of
Transportation**

ANDREW M. CUOMO
Governor

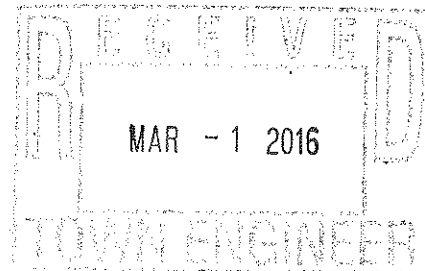
MATTHEW J. DRISCOLL
Commissioner

TODD WESTHUIS, P.E.
Regional Director

FILE

March 1, 2017

Honorable Robert Greenstein, Town Supervisor
Town of New Castle
200 South Greeley Avenue
Chappaqua, NY 10514



RE: SEQR # 17-002
Chappaqua Streetscape and Infrastructure
Improvement Project, NYS Route 120
Chappaqua, Westchester County

Dear Supervisor Greenstein,

The New York State Department of Transportation (NYSDOT) has reviewed the project primary submission dated December 23, 2016, revised plans dated January 18, 2017 and additional information received thereafter, including the Drainage Report prepared February 2017.

In consideration of the Town's desire to let this project for 2017 construction, our Region has performed an abbreviated review of the plans. As such, we may have additional comments as our review process for permit issuance moves to completion.

Based upon our review to date, our comments are included in the attached report. Although the attached report describes what is needed in detail, the following are the most prominent:

TRAFFIC -Intersection of Greeley Ave. and Quaker Road:

- The submitted traffic analysis indicates that the conversion to a teardrop intersection causes large increases in the intersection delay in the eastbound Quaker Street to northbound South Greeley Avenue (eastbound Route 120) movement. See additional comments regarding this movement in our report. Additional or alternative traffic mitigations should be investigated to improve operations at this intersection.

Pedestrian Crosswalks, ADA & Sidewalk:

- The plans show brick crosswalks across the state highway. Please note that based upon traffic volumes, these types of crosswalks are not allowed on state roadways. Our experience indicates a serious maintenance concern with brick/concrete pavers in the roadway. Imprinted pavement at the crosswalks will be considered. We would need to see the details.

h 1, 2017

Greenstein

ge 2

- The proposed sidewalk and driveway apron details must fully comply with current ADA standards. Additional detail may be required to demonstrate compliance.
- The sidewalks need to provide a continuous 4' wide minimum pedestrian access route that is not interrupted by tree grates, street furniture or other amenities
- All proposed public sidewalk must be within publicly owned property.
- Crosswalks are extremely lengthy along proposed "teardrop" before any refuge area. Combine this with the slip right turn movement from Greeley onto Route 120 will prove difficult for pedestrians.

Underground Utilities:

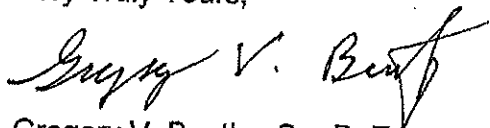
- We have concerns with the extent and staging of the proposed utility work. We understand that the work on the state highway is proposed to be done at night with the road reopened each day. Given the extent and depths of the utility work, this will be a lengthy and difficult approach.
- The proposed storm drain trunk line design presents several significant concerns.

Construction inspection:

Please be aware that all work within the state right of way shall be performed to current NYSDOT Specifications. The Town will be required to provide Construction Inspection services by a licensed NYS Professional Engineer. The Engineer's qualifications shall be submitted to the NYSDOT for acceptance. The Construction Inspection Engineer shall perform full time inspection of the work, arrange for required materials testing, provide quality assurance, prepare daily reports, and prepare as-built plans.

If you have any questions or require clarification, please feel free to contact me at (845) 437-3325. We look forward to meeting with you in your office tomorrow.

Very Truly Yours,



Gregory V. Bentley Sr., P. E.
Regional Highway Work Permit Coordinator
NYSDOT Traffic & Safety

Cc: L. Zimmer, P. E., Traffic Safety & Mobility Group
M. LaRose, Assistant Residential Engineer, Residency 8-8
E. Goff, P. E. Resident Engineer, Residency 8-8
Westchester County Planning
D. Weiss, P.E., WSP



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Regional Director

Project Submission Review Report
(Submission dated 12/23/16 and Final Plans dated 1/18/17)

Hamlet of Chappaqua
STREETSCAPE AND INFRASTRUCTURE IMPROVEMENT
PROJECT SEQR 17-002
Route 120
Town of New Castle
Westchester County

Poughkeepsie, NY 12603

The New York State Department of Transportation (NYSDOT) has reviewed the project primary submission dated December 23, 2016, plans dated January 18, 2017 and additional information received thereafter, including the Drainage Report prepared February 2017.

In consideration of the Town's desire to let this project for 2017 construction, our Region has performed an abbreviated review of the plans. As such, we may have additional comments as our review process for permit issuance moves to completion. Based upon our review to date, our comments are as follows listed below.

General Comments

1. The Town will be responsible for full maintenance of any sidewalk trees, crosswalks, granite curbing, storm drains, sanitary sewers, water, and lighting utilities, including all service connections. Please clearly indicate this in the Maintenance Jurisdiction Table. Include State maintenance of the relocated eastbound leg of Route 120.
2. The proposed teardrop intersection design at Quaker Street and South Greeley Avenue realigns eastbound NYS Route 120 to the south leg of the triangle intersection. The State requires ownership of the relocated roadway. Please confirm ownership.
3. The submitted traffic analysis indicates that the conversion to a teardrop intersection causes large increases in the intersection delay in the eastbound Quaker Street to northbound South Greeley Avenue (eastbound Route 120) movement. See additional comments regarding this movement below. Additional or alternative traffic mitigations should be investigated to improve operations at this intersection.
4. The proposed teardrop design introduces a substantial amount of additional pavement to the intersection. The results include longer pedestrian crossings along the west side of North Greeley Avenue. Consider enlarging the proposed triangular mall islands on the ends of Quaker Street and the reducing the 26 feet wide southbound lane adjacent to the teardrop to reduce pavement, avoid driver confusion and increase pedestrian refuge/reduce crossing distances.
5. The feasibility of a roundabout alternative is required to be first considered under NYSDOT Highway Design Manual Section 5.9.1. We have examined the alternative offset roundabout design for the Quaker Street/South Greeley Road intersection which has been brought to our attention and believe it may have some merit. We understand that the Town Board, as Lead Agency under SEQRA, has considered this alternative design and eliminated it from further consideration. Please confirm our understanding. Please answer same question for the intersection at King Street and North Greeley Avenue.

6. All work within the State right of way shall be performed to current NYSDOT Specifications. The Town will be required to provide Construction Inspection services by a licensed NYS Professional Engineer. The engineer's qualifications shall be submitted to the NYSDOT for acceptance. The Construction Inspection Engineer shall perform full time inspection of the work, arrange for required materials testing, provide quality assurance, prepare daily reports, and prepare as-built plans.

Plan Comments

7. There are locations in the plans where it does not appear that the Pedestrian Access Route will have the required 4' horizontal clearance, free from curbs, tree grates, decorative steel railings and street furniture. This 4' clearance must be maintained for ADA compliance.
8. The southbound lane adjacent to the teardrop at the Route 120 /Quaker Road/S. Greeley Ave. intersection has a wide southbound lane on S. Greeley Ave. The teardrop and triangles should be expanded to narrow the lane width. Weaving to the turn lanes at the next intersection should be discouraged at this location, and we feel that narrowing the lane will accomplish this. There is the added benefit of providing a buffer against the sidewalk that crosses this intersection. Pedestrian warning signs should be posted on Quaker Rd. not only on the right side, but also on both sides of the island and at the teardrop, with reflective post strips. Because these pedestrian crossings are uncontrolled, and should be posted on both the left and right sides at both crosswalks. We also recommend an advanced warning sign southbound on the approach to the crosswalk, because it will be driven much like a slip ramp. Pedestrian warning signs at the stop-controlled part of the intersection should be removed.
9. The proposed signal at S. Greeley Ave. and King St. should take pedestrian movements into consideration in the signal phasing and shown in the Table of Operations. We suggest that the northbound right turn movement from S. Greeley Ave. to King St. have a separate signal head, so that when Pedestrian B phase on the eastern leg is called, the rights can be stopped, but the northbound and southbound through movements can go independently. Also, an advanced pedestrian phase should be considered for the Pedestrian A phase on the southern leg so that the pedestrians can get a chance to get part way across S. Greeley Ave. before allowing the westbound lefts coming from Rt. King St. to go. At this signal, there should be one curb ramp per crossing direction. Stop bars may have to be adjusted to accomplish this.
10. Please indicate the NYSDOT ROW on the drawings.
11. Please include the NYSDOT highway reference marker locations on the drawings.

12. Drawing GEN – 03: Please add NYSDOT Sidewalk engineering directive ED 15-004.
13. Drawing GEN – 03: Note TMC notification procedure and hourly restrictions.
14. Drawing GEN – 03: Clarify maintenance jurisdiction table for all entities.
15. Drawing GEN – 03: Add NYSDOT winter work notes. Please indicate proposed construction schedule limits including winter shutdown dates.
16. Drawing GEN-03: Add NYSDOT Landscape notes.
17. Drawing GEN – 03: Provide a construction zone night time lighting plan. Night work is generally not allowed on NYS Roadways under a Highway Work Permit. We agree that night work may be necessary and present the better option for the proposed work. The Town or it's contractor must perform all necessary public notification including daily notification of the TMC and outreach to local businesses and residents. The Contractor will be required to comply with all NYSDOT requirements for night work and to properly bag restore and reopen the State Highway to operation daily.
18. Drawing SSD-01 and WMD - 01: Include a roadway temporary steel plate utility excavation/trench cover detail.
19. Drawing GDD-01, GDD-03, WMD-01: Emphasize that batch basin frame and grates, water valve boxes, etc. are to be adjusted flush to final finished grade asphalt pavement.
20. Drawing RDP-04: Show turning radius for design vehicle moving from the proposed northbound right turn lane on South Greeley Avenue to eastbound King Street. Please include westbound to southbound move.
21. Drawing SGN-04, the crosshatch needs to be tapered or curved on the northeast quadrant. The stop sign on the southeast corner should be removed at this signalized intersection.
22. Speed differential and weave distance should be considered at the merge on westbound on NYS Route 120 (Quaker Street). Please submit analysis.
23. Crosswalks are extremely lengthy along proposed "teardrop" before any refuge area.
24. Streetscape Plans - Plantings in curb bulb-out areas should be low so as not to impede the visibility of pedestrians attempting to cross the street.

25. Drawing SSP-10 - The kiosk, seating wall and planter proposed for the southeast corner of King St. and North Greeley Ave. should be located outside of the State Right of Way. If left in the right of way, a Use and Occupancy Permit will be required.
26. Because the traffic signal will be owned and maintained by the NYSDOT, all equipment and work will be completed in accordance with NYSDOT specifications.
27. The Signal Number will be W – 632. Please show this signal number on plans.
28. Provide mast arm analysis.
29. A Cable modem must be installed in the signal cabinet for Ethernet connectivity.
30. Each loop shall have its own lead in.
31. Show PED numbers and phases on plans.
32. Please provide the purpose and intent of the right turn arrow.
33. It is noted that there are no west facing signals installed on Head C and D. Please explain.
34. A contact name and phone number of the signal designer is required.
35. Number loops as shown.
36. There should be Pedestrian indications for West King Street.

Synchro Comments

General

37. Based upon the SYNCHRO provided, the Build scenario shows extensive delays at the Quaker St (Route 120) and Greeley Ave. intersection. This creates extensive queue lengths on Route 120 which can back up all the way to the Mill Rd./Quaker Rd. intersection. Highly recommend mitigation to alleviate this issue. Reconfiguration and/or a traffic signal is recommended to reduce queue length.
38. Within the lane settings *Area Type CBD* should be toggled on.
39. Multiple lane widths across the project area appear to vary from 12 feet, however in Synchro all lane widths are set to 12 feet, please correct this for all location in all models.

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40. Within the volume settings of Synchro *Adjacent Parking Lane* is toggled off throughout the project area for all models of Synchro however there is a significant amount on street parking within the project area. Please correct.

Intersection of King Street and Greeley Ave:

41. For existing and no build models the northbound right movement within the signing settings of Synchro should have the *right turn channelized* toggled to yield control.
42. For all build models at this intersection within the phasing settings the pedestrian calls per hour is set to 0, however these crosswalks are heavily used by pedestrians. Please correct.

Intersection of Greeley Ave. and Quaker Road:

43. Synchro models show that the teardrop models complicate the north east left movement. Turning left off of Quaker Road onto Greeley Ave. performs worse under build conditions. Existing delay is 79.3 seconds and existing with teardrop is 129.9 seconds for left turning vehicles during the AM. No Build ETC+30 delay is 146.1 seconds and teardrop ETC+30 delay is 223.7 seconds for left turning vehicles off Quaker Road onto Greeley Ave. during the AM. PM models show the left hand movement from Quaker Road onto Greeley Ave suffers very similar increases in delay when implementing the teardrop. SimTraffic shows the left turning vehicles on Quaker Road attempting to turn onto Greeley generates queues that can back up all the way into the Mill Road/Quaker Road intersection. Investigating additional mitigations for left turning vehicles would be beneficial, including a signal at the southern intersection of Quaker Road and Greeley Avenue. By adding a signal to this location, the delay is reduced to approximately 20 seconds and alleviates the long queue lengths for the eastbound intersection of Greeley Ave and Quaker Road under the proposed teardrop models. A queue detection loop may be required on Northbound South Greeley Ave. to assure that the northbound queue does not extend into the Woodburn Ave. intersection.

Utilities

44. Consolidated Edison currently has a permit application before this office for installation of underground gas mains and service connections throughout the State Highway within the project area for the Town Streetscape project. Please confirm that the plans submitted by Con Edison are compatible with the Town's proposed design plans and comprehensive with regard to any needed gas main and service work, including the appropriate abandonment of any remaining gas lines.
45. Underground utility work is in the middle of the roadway. Did not see an alternate route proposed because of needed road closure, adequate phasing plans or Work-zone Protection of Traffic.

46. The proposed drainage trunk main between Station S0+00 and Station S15+00 consists of 1,500 feet of drain with an average grade of less than 0.2 percent, twin 24-inch diameter pipes with two different pipe coefficients running into an elliptical pipe. The proposed ductile iron pipes will penetrate the pavement subgrade and less than one foot of cover in one location. The pipe also has a proposed outlet control valve. We acknowledge the description of the existing and proposed drainage conditions contained in the Drainage Report. However, we are concerned that the proposed flat pipe profile and varying cross-sections and materials will yield a system that may not function well and is difficult to maintain. The proposed cover and penetration into the pavement subgrade are not acceptable as proposed. Additional design options should be examined. Can the outlet be lowered at all if brought to stream instead of culvert? Can any of the flow be diverted to another outlet? Can the system be split and/or relocated under the sidewalk or roadway center line in order improve cover and/or grade?
47. Drain No. DMH-P01 on profile sheet DP-01 calls out equivalent in and out inverts of 300.92 but graphically depicts a hydraulic jump manhole. Please confirm inverts.
48. Please provide cut sheet for TideFlex outlet control valve called for at Station S0+00 on Profile Sheet DP-01.
49. Details need to be provided for crossings of the temporary water main under the State Highway and at crosswalks. Calling for contractor coordination after permitting is not acceptable.
50. Please clarify what overhead utility work and pole relocations are required.
51. Given the extent of the proposed work on South Greeley Avenue, undergrounding of overhead utilities should be considered.
52. Deep sheeting will be required for some of the utility work. How will that be accomplished?
53. Several existing sewer and water utilities are being excavated and removed when it appears that abandonment and filling in place would be an easier and less expensive option. Please explain reasoning for deep excavation removals.
54. Proposed tree planting appears to conflict with existing overhead utilities. Has this been considered?

Pavement



-
55. CLSM shall not be used under asphalt pavement. It will deteriorate and turn to sand with freeze & thaw. If CLSM is used, it shall be under a full pavement section and 12" of sub-base.
56. Underdrain shall be added to drain the sub-base.
57. The State highway full depth pavement section should be 2", with 2 ½" binder and 8" of base course on 12" sub-base – This matches what the Department previously constructed here.

Typical Sections & Details

58. In any areas where curb is being replaced adjacent to existing pavement, a minimum 2' excavation in front of the curb face is required. Provide a detail.

Pedestrian Crosswalks, ADA & Sidewalk

59. The plans show brick crosswalk across the state highway. Chapter 18 of the Highway Design Manual (HDM) says "Pavers are currently prohibited by the FHWA in roads with traffic volumes greater than 8,000 AADT." The AADT of Route 120 exceeds 9000 VPD. Our experience indicates a serious maintenance concern with brick/concrete pavers in the roadway. Imprinted pavement at the crosswalks will be considered. Please submit revised details.
60. The values shown on the table "Critical Elements for the Design, Layout and Acceptance of Pedestrian Facilities" shall be used to ensure that pedestrian facilities in the public right of way are ADA compliant. Please refer to engineering directive ED15-004. When submitting proposed permit projects for NYSDOT review, the applicant's engineer will need to include a letter or statement within the transmittal letter that the submitted design is compliant with ED15-004 and all other applicable codes, standards, and specifications. The applicant will also need to provide inspection services as indicated. In particular, the applicant's engineer will perform the required pre-pour concrete form inspection, completed construction inspection, and submit a signed, sealed document confirming compliance with ED15-004 and all other applicable codes, standards, and specifications. In instances where nonstandard features cannot be avoided a justification form will need to be completed under the process promulgated under the Highway Design Manual Chapter 2 (Refer to Exhibit 2-15A).
61. Sheet RDD-01 mentions ramp. The ramps should follow standard sheet 608-01 and if a proposed ramp differs from one of the standard types, a detail should be provided.
62. Sheet RDD-01 also shows a stop sign on the northbound approach, despite a signal being proposed at this intersection.

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63. Sheet SSP-04 shows pedestrian signs at the Greeley Ave/King St intersection. These signs should not be used at a signalized intersection.
64. Generally speaking, new construction should avoid corner apex curb ramps, unless conditions are so restricted that there is no other option. The preferred configuration is one curb ramp per direction.
65. As a general comment on the signing plans, pedestrian warning signs should not be posted at intersections controlled by a signal, stop or yield sign. Back-to-back postings with reflective post strips are recommended for all pedestrian warning signs (and school child crossing signs) at locations not controlled by signals, stop or yield signs.
66. The proposed surface treatment sidewalks, crosswalks, and driveway aprons must comply with the Reduced Vibration Zone requirements that are outlined in Chapter 18, Section 18.6.5.3 of the Highway Design Manual.
67. All proposed public sidewalk must be within publicly owned property.
68. The sidewalks need to provide a continuous 4' wide minimum pedestrian access route that is not interrupted by tree grates, street furniture or other amenities.
69. The proposed crosswalks need comply with Engineering Instruction 12-005 – Section 601 Architectural Pavements Special Specifications.

Pavement Markings & Signage

Sheet 183:

70. Sign 38/48 and 38/50 should not be used at STOP controlled intersection
71. Show location of signs 32/46 and 32/50.
72. No crosswalks shown on drawing.

Sheet 184:

73. Signs 54/9 and 54/12 should be placed near side of intersection at stop bar.
74. Signs 53/48, 53/50, 107/48 and 107/50 should not be used at signal controlled intersections.

Sheet 186:

75. Signs 116/48 and 116/50 should not be used at signal controlled intersections.
76. Sign 110/9 and 110/10 should be farther from the intersection if possible.

Sheet 187:

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77. Crosswalk at K8+800 +/- needs back to back pedestrian signs with an advance school crossing assembly and an AHEAD panel.
 78. Refer to page 49 of NYS Supplement to the 2009 MUTCD for the advance placement of signs.
 79. Sign 128/17 should be installed before the advance pedestrian assembly if used at all.
 80. Plans should show gap in double yellow for side road intersections.

Submission Guidance

Regional Permit Coordinator
NYS Department of Transportation
4 Burnett Blvd.
Poughkeepsie, NY 12603
(845) 437-3396

Permit Engineer, Residency 8-8
NYS Department of Transportation
85 Route 100
Katonah, NY 10536
(845) 232-5065

Thank you for the opportunity to offer comments with respect to this project.

End of report



Department of
Transportation

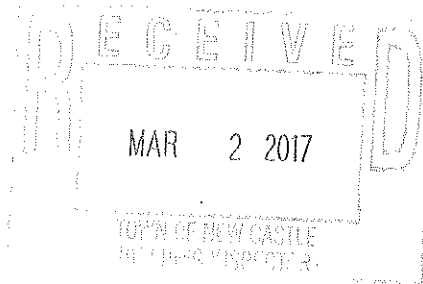
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TODD WESTHUIS, P.E.
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March 2, 2017

Honorable Robert Greenstein
Town Supervisor
Town of New Castle
200 South Greeley Avenue
Chappaqua, NY 10514



Re: Additional Plan Comments # 1
SEQR # 17-002
Chappaqua Streetscape and Infrastructure
Improvement Project, NYS Route 120
Chappaqua, Westchester County

Dear Supervisor Greenstein:

The New York State Department of Transportation (NYSDOT) has reviewed the project primary submission dated December 23, 2016, revised plans dated January 18, 2017 and additional information received thereafter, including the Drainage Report prepared February 2017.

Our review has yielded additional comments beyond those contained in our Project Review Submission Report Dated March 1, 2017. The comments are listed below. We have continued the comment numbering system in yesterday's report.

NOTES

Excavation Notes –

81. Add or incorporate the following note regarding the use of Shields and Shoring Item 552.17 in close proximity to live traffic, structures, or utilities:

ANY EXCAVATION WHICH EXCEEDS FIVE FEET IN DEPTH AND HAS LIVE TRAFFIC, STRUCTURES, OR UTILITIES WITHIN A 1V:1H PROJECTION FROM THE BOTTOM OF THE EXCAVATION SHALL UTILIZE A SHORING SYSTEM WHICH PROVIDES DIRECT SUPPORT OF THE TRENCH WALLS FOR THE FULL HEIGHT OF THE EXCAVATION (A TRENCH BOX DOES NOT MEET THIS REQUIREMENT). THE CONTRACTOR SHALL PROVIDE VERIFICATION (I.E., MANUFACTURER'S DATA SHEETS AND/OR P.E. DESIGN COMPUTATIONS) TO THE NYSDOT DEMONSTRATING THAT THE SYSTEM CHOSEN CAN ACCOMMODATE THE ANTICIPATED SOIL, WATER AND SURCHARGE LOADS. ALL COSTS INCLUDED UNDER ITEM 552.17.

TYPICAL SECTIONS

Asphalt Pavement Section for Full Depth Reconstruction –

82. (NOTE: THIS COMMENT SUPERCEDES COMMENT NO. 57) The Region 8 Materials Group recommends the following pavement section for all areas of NYSDOT roadway to undergo full depth construction:

- 1.5" of Item 402.096103
- 2" of Item 402.196903.
- 7.5" of Item 402.376903 (2 lifts)

Mill and Resurface Typical Sections –

83. Per the Region 8 Materials Group, the proposed 2.5" milling depth and asphalt overlay may be reduced to 2.0" unless site conditions warrant otherwise.

84. Replace top course asphalt Item 402.096103 with Item 402.126103.

Standard Drainage Trench Detail (Drawing GDD-02) -

97. The 1'-0" clearance between the pipe and trench wall is not in compliance with Standard Sheet 203-04. Remove these dimensions from the detail.
98. Revise to show the pavement sawcut and removed to 24" beyond the trench walls.

Drainage Trench Detail – Unsuitable Soil (Drawing GDD-02) -

99. Revise to show the pavement sawcut and removed to 24" beyond the trench walls.
100. Revise the asphalt pavement section to match the above mentioned recommendations by the Region 8 Materials Group.

WATERMAIN

Water Main Details (Drawing WMD-01) –

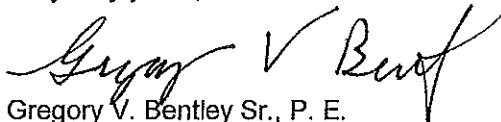
101. Revise the water main details to comply with NYSDOT Standard Sheet 663-01, Water Main Installation Details.

SANITARY SEWER

Sanitary Sewer Trench Detail (Drawing SSD-01) –

102. Revise the Sanitary Sewer Trench Detail to comply with NYSDOT Standard Sheet 664-01, Sanitary Sewer Main Pipe Installation Details.
103. The plans need to detail how the pavement will be maintained while all utilities are replaced. Existing pavement with should be replaced with temporary pavement during utility work and when utility work is completed replace all pavement/subbase. We don't want new pavement installed in all different patch work sections – all the cold joints would reflect through.
104. Section K4+75 will need to be modified to cover the new drainage and gas.
105. All of the new curb set on Route 120 should have an underdrain.
106. Section 15+75 shows twin drainage pipes set high, up into the subbase. An option here could be to install/surround the pipes below the subbase in crushed stone and drain the pipe stone at the catch basins with a stub.

Very truly yours,



Gregory V. Bentley Sr., P. E.
Regional Highway Work Permit Coordinator

Cc: L. Zimmer, P. E., Traffic Safety & Mobility Group
M. LaRose, Assistant Residential Engineer, Residency 8-8
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