PDN Stage 4 – Contract Standards Checklist

SPOT ID/Project TIP #: R-5901

County: Surry

4CS1 Complete PS&E Package: Review List for Final Construction Plans

Item #	Review Item	Yes	No	N/A
	General Items			
1	Ensure document sets for correspondence and roadway supporting documents are created on SharePoint according to the PS&E checklist for projects	☒	☐	☐
2	Create a combined PDF copy of all quantity sheets in the same order as the master pay item list. The first page should be the calculation of quantities cover sheet	☒	☐	☐
3	Include the note "Structures Pay Item" for items on the Roadway plans covered by Structures.	☐	☐	☒
4	Remove "PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION" labels from Final Plans sheets	☒	☐	☐
5	The "Document not considered final unless all signatures completed" sticker should appear on the plans sheets to be sealed and design files containing information used to generate them	☒	☐	☐
6	Approved Design Exception package is provided, if applicable	☒	☐	☐
7	Right of Way revision notes removed from the plans	☒	☐	☐
8	TIP number is shown on all sheets	☒	☐	☐
9	Plan sheet numbers for plans from all disciplines are included in the index of sheets for sheet 1A	☒	☐	☐
10	If the sheet numbers have changed for any parcel since the plans were sent for Right of Way acquisition, verify the R/W sheet number appears in the title block	☐	☐	☒
11	Complete and submit signed checklist for coordination of roadway and structure plans	☐	☐	☒
12	Place image of professional engineer seal with Engineer's name and license number. Multiple seals may be required on a single sheet. Electronic signatures may be applied but are not required at the initial turn in to Plans and Standards Management for plan review	☒	☐	☐
13	Verify Pavement Management has reviewed plans for shoulder drain locations	☐	☐	☒
14	If submitting printed plans, submit 34" X 22" cross section sheets if 30 sheets or less. Submit 17" X 11" cross section sheets if 31 sheets or more.	☒	☐	☐
15	Ensure all individual pdf sheets are scaled 34" Wide X 22" High except as noted for cross sections above	☒	☐	☐
16	Ensure plans include any environmental commitments	☐	☐	☒
17	Project documentation contains correspondence from Division Right of Way related to NCDOT Standard Specifications sections 210 or 215	☐	☐	☒
18	Include a parcel index sheet for projects with 2 or more plan sheets starting with sheet number 3P-1	☒	☐	☐
19	Include bridge foundation recommendations in the Correspondence Docu-set on SharePoint	☐	☐	☒
21	Ensure the required roadway supporting documentation from the PS&E checklist is provided. Refer to the Roadway Design Manual Part II, Section 13.10 for further guidance	☒	☐	☐
22	At the time final plans are submitted to r, ensure a PDF of the AWP or PIQ estimate is uploaded on SharePoint following PS&E checklist guidance	☒	☐	☐
23	Verify Geotechnical standard drawings and provisions provided are current. For Standard Drawings, compare drawing date to effective Let date shown here: https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx For Standard Provisions, compare provision date to effective Let date shown here: https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Provisions_Notes.aspx	☒	☐	☐

Item #	Review Item	Yes	No	N/A
24	Verify the Geotechnical Summary Tables produced and approved by Geotechnical Engineering match the recommendation letters	☒	☐	☐
25	Send a PDF of your plans to the Pavement Management and Hydraulic Engineer of Record for review prior to sealing their plans	☒	☐	☐
	Title Sheet			
1	Location of Project is complete and accurate	☒	☐	☐
2	County is shown	☒	☐	☐
3	Type of work includes all items shown on current tentative letting list	☒	☐	☐
4	Graphic scales are shown and accurate for plan and profile sheets	☒	☐	☐
5	Design data is shown	☒	☐	☐
6	Control of access note shown (full or partial)	☒	☐	☐
7	Approved Design Exception note shown, if applicable	☒	☐	☐
8	Vicinity map includes the following:			
A	City name and municipal limits; County names and limits	☒	☐	☐
B	Interstate, US and State Routes	☐	☐	☒
C	North arrow	☒	☐	☐
D	Beginning and end of project or project location, as appropriate	☒	☐	☐
E	Title block	☒	☐	☐
F	Offsite detours with legend as needed.	☐	☐	☒
9	Project layout on numbered superimposed sheets includes the following:			
A	Project alignment for all proposed construction (-L- lines, -Y- lines, service roads, detours, etc.)	☒	☐	☐
B	Existing roads and streets affected by construction but not a part of the project	☐	☐	☒
C	Route numbers, survey line numbers, street names, etc.	☒	☐	☐
D	Symbols for proposed bridges and culverts 20’ and over with beginning and ending stations	☐	☐	☒
E	Streams and rivers	☒	☐	☐
F	Railroads	☐	☐	☒
G	City limits	☐	☐	☒
H	State and County limits	☐	☐	☒
I	Beginning and ending stations for each project	☒	☐	☐
J	Begin and end construction outside project limits. Not needed for y-lines	☒	☐	☐
K	Destination points at beginning and ending of project	☒	☐	☐
L	North arrow	☒	☐	☐
10	Project number includes the following:			
A	Project contract number and TIP number on sheet	☒	☐	☐
B	P.E., R/W, Utility, and Construction F.A. project numbers in project identification block, if federally funded	☒	☐	☐
C	P.E., R/W, Utility, and Construction WBS elements in project identification block	☒	☐	☐
11	Length of project information correct showing Roadway, Structure, and Total Project lengths	☒	☐	☐
12	NCDOT Project Manager’s name and Firm/NCDOT Engineer of Record’s name are shown	☒	☐	☐
13	Design firm’s official name and License number is shown on each sheet where a seal is required	☒	☐	☐
14	Month, day, and year of R/W and Letting shown	☒	☐	☐
15	Areas not part of project noted	☐	☐	☒
16	Remove clearing method note	☒	☐	☐

	Index of Sheets, General Notes, and List of Standards (1A Sheet)			
1	Submit completed 1A Excel spreadsheet with boxes checked under the General Notes and List of Standard Drawings tabs upon first submittal to plan review. An index of sheets can be completed in the Excel file template or submitted as a separate document	☒	☐	☐
2	After initial review, submit a completed 1A sheet including information from the corrected Index of Sheets, General Notes, and List of Standard Drawings in a 34" x 22" PDF format	☒	☐	☐
	Conventional Symbols (1B Sheet)			
1	Add any project specific symbols to the standard 1B sheet or add symbol definitions to each affected plan sheet	☐	☐	☒
2	Verify current standard 1B sheet is included	☒	☐	☐
	Typical Sections			
1	Pavement schedule corresponds with Final Pavement Design Letter	☒	☐	☐
2	Pavement compositions labeled to correspond with pavement schedule	☒	☐	☐
3	Dimensions shown on pavement, subgrades, stabilization, shoulders, ditches, slopes, centerline to centerline, medians, sidewalks, utility strips, curb & gutter, etc.	☒	☐	☐
4	Slopes shown on pavement, shoulders, subgrade, ditches, hinge point, grading, cuts and fills, rumble strips	☒	☐	☐
5	Station to Station shown with correct alignment reference	☒	☐	☐
6	Stations are broken for bridges and equalities	☐	☐	☒
7	"Grade to this Line" label is shown and points to the subgrade	☒	☐	☐
8	Grade point or crown point shown on each typical section as appropriate	☒	☐	☐
9	Detail showing shallow undercut by station range, if applicable	☐	☐	☒
10	Detail(s) showing milling and/or wedging, if applicable	☒	☐	☐
11	Information related to paving or other construction operations which will be covered under a future project is shown	☐	☐	☒
12	Show high and low values for variable slopes and variable widths	☒	☐	☐
13	Necessary notes of explanation shown	☒	☐	☐
14	Temporary pavement typical section and design as needed	☒	☐	☐
15	Typical sections under bridges are removed except in circumstances where needed through coordination with railroads or for construction of greenways or paths	☐	☐	☒
16	Typical sections on bridges are provided	☐	☐	☒
A	Asphalt wearing surface on cored slab and box beam bridges is shown	☐	☐	☒
B	Note to "See structure plans for structure construction details" is included	☐	☐	☒
	Details (as needed)			
1	Intersections and Islands	☒	☐	☐
2	Include Rip Rap on ditch details unless covered by the Roadway Standard Drawings	☒	☐	☐
3	Temporary Shoring	☒	☐	☐
4	Bench Slopes	☐	☐	☒
5	Special Drainage Structure or Endwalls	☐	☐	☒
6	Special Ditches	☒	☐	☐
7	Guardrail not covered by Standards	☐	☐	☒
	Plan Sheets			
1	Begin and end project stations are shown on the first and last plan sheet and agree with title sheet and typical sections	☒	☐	☐
2	Existing pavement width and type is shown	☒	☐	☐
3	Final horizontal alignment and design shown	☒	☐	☐
4	The following are shown on each plan sheet:			
A	North Arrow	☒	☐	☐
B	Bearings	☒	☐	☐

C	Curve data with superelevation and runoff	☒	☐	☐
D	Construction limits (slope stake lines), berm ditches, and lateral ditches	☒	☐	☐
E	Property owners, property lines and parcel numbers	☒	☐	☐
F	Right of Way, Easement, and Control of Access breaks by station and distance	☒	☐	☐
G	Areas to remain undisturbed within the Right of Way are clearly marked	☒	☐	☐
H	Fence and type	☒	☐	☐
I	Streets, Roads, and Driveways	☒	☐	☐
J	Onsite Detour alignments. Details for the detours can be shown on a separate plan sheet or as a roadway detail sheet (2-series) instead.	☒	☐	☐
K	Notes explaining if the roadbed of an existing road to be relocated is left in place or graded to create a natural condition.	☒	☐	☐
L	Information pertaining to bridge layout including lane width, offset to inside of rails, guardrail attachments, begin and end bridge and approach slab stations	☐	☐	☒
M	Proposed pavement and Right of Way widths at the begin and end of each sheet	☒	☐	☐
N	Lane lines at intersection, tapers, auxiliary lanes, etc	☒	☐	☐
O	-Y- lines with begin and end construction stations and station ties with mainline	☒	☐	☐
P	Traffic data diagrams for intersections from most recent traffic forecast showing the let year and the design year traffic	☒	☐	☐
Q	Limits of paved shoulders at intersections	☒	☐	☐
R	Note where sight distance grading is required	☐	☐	☒
S	Borrow and/or waste areas if furnished by NCDOT	☐	☐	☒
T	Cross reference notes on the plan sheets identify the appropriate sheet number for profile sheets, detail sheets and/or sheets from other units	☒	☐	☐
U	Symbol denoting pavement removal for locations outside of slope stake lines	☒	☐	☐
V	Begin and End stations for bridges and culverts	☐	☐	☒
W	False sump detail if not shown on ditch detail series sheets	☐	☐	☒
X	Benchmark symbols and number	☒	☐	☐
Y	Label rip rap, drainage ditch excavation, and geotextile for drainage quantities at each location unless provided on ditch details	☒	☐	☐
Z	Drainage design shown	☒	☐	☐
	1. Proposed pipe	☒	☐	☐
	2. Proposed Drainage Structures	☒	☐	☐
	3. Removal of existing pipes	☒	☐	☐
	4. Pipes to be plugged	☒	☐	☐
AA	Ensure baseline data is shown with point symbol and point name/number. Remove Baseline and Baseline stations	☒	☐	☐
BB	Label wells to be sealed and abandoned	☐	☐	☒
CC	Approved Design Exception note, as needed	☒	☐	☐
	Interchange Sheets			
1	Interchange sheets properly matched with adjacent plan sheet with no overlapping coverage	☐	☐	☒
2	Show traffic data, bar scale, and additional items as listed under plan sheets	☐	☐	☒
3	Proposed contour grading detail shown, if requested by the Division	☐	☐	☒
4	Cross section layout detail/shear point diagram included if part of project scope	☐	☐	☒
5	Approved Design Exception note, as needed	☐	☐	☒

	Intersection Sheets (2-B series)			
1	The detailed information shown on the intersection detail sheets should be restricted to design data only and should not be duplicated on the plan sheets.	☒	☐	☐
2	The following items should be shown unless they do not apply:			
A	Information for constructing three centered curves	☒	☐	☐
B	Island dimensions and details	☒	☐	☐
C	Legend for islands, sidewalks, and curb ramps as needed	☒	☐	☐
D	Alignments	☒	☐	☐
E	Lane markings	☐	☒	☐
F	Bar scale	☒	☐	☐
G	Proposed edges of pavement	☒	☐	☐
H	North arrow	☒	☐	☐
I	Paved shoulder widths	☒	☐	☐
J	Superelevation rates	☒	☐	☐
K	Sufficient dimensions and tie points for construction layout of all items being detailed	☒	☐	☐
	Profile Sheets			
1	Beginning and ending stations are shown on the first and last plan sheet and agree with title sheet and typical sections	☒	☐	☐
2	The following are shown on each profile sheet:			
A	Vertical grade lines and design. Design speed is shown only for vertical curves which do not meet proposed design speed, if applicable.	☒	☐	☐
B	Undercut excavation	☐	☐	☒
C	Hydraulic Data (drainage area, frequency, etc.) for bridges, culverts, and cross pipes	☒	☐	☐
D	Bar scale	☐	☒	☐
E	Proposed grade and existing ground line labeled	☒	☐	☐
F	Ditch profiles with PI and elevation included, as needed	☒	☐	☐
G	Approved Design Exception note, as needed	☒	☐	☐
	Cross Sections			
1	Show existing ground line, stations, and elevations	☒	☐	☐
2	Templates showing labeled cut and fill slopes, guardrail widening, ditches, channel changes, etc.	☒	☐	☐
3	Geotechnical Recommendations for Design and Construction and Geotechnical Recommendations for Pavement and Subgrade reviewed to assure conformity with the plans	☒	☐	☐
4	Undercut Excavation or Shallow Undercut symbology and legend are shown	☐	☐	☒
5	Note on cross section summary sheet should indicate whether or not the embankment column includes backfill for undercut	☐	☐	☒
6	Lump Sum note on cross section summary sheet contains the items that are included in the lump sum grading	☒	☐	☐
7	Confirm the cross section summary, earthwork logs and earthwork balance sheet match	☒	☐	☐
8	Cross section checked to assure adequate sight distances at bridges and intersections	☒	☐	☐
9	Scale shown on each sheet	☒	☐	☐
10	If an alternative pavement design is included, add a note in the cross section summary sheet indicating which alternative is included in the cross sections	☐	☐	☒
	Guardrail/Guiderail Design			
1	Guardrail shown for bridge piers, culverts, large pipe, sign supports, and other fixed objects	☐	☐	☒
2	Guardrail shown for ponds, rivers, and other water related hazards	☐	☐	☒
3	Guardrail/guiderail for median and guardrail for underpass pier, wall, and side slope protection as warranted	☒	☐	☐
4	Special details provided as needed for non-standard connections	☐	☐	☒

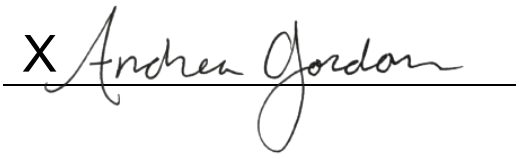
5	Ensure the appropriate guardrail anchor is proposed for the specific bridge rail/barrier proposed at each location	☐	☐	☒
6	Ensure adequate space is provided behind guardrail/guiderail	☒	☐	☐
7	Ensure required slopes are utilized in conjunction with guardrail/guiderail	☒	☐	☐
8	Ensure non-gating attenuators are labeled accordingly	☐	☐	☒
9	Ensure the appropriate end units are proposed for the design speed(s) of the roadway	☒	☐	☐
	Summary of Quantities			
1	Computation/Calculation of Quantity sheet totals for each pay item checked against estimate	☒	☐	☐
2	Summary sheets initialed by the person who created them and the person who checked them	☒	☐	☐
3	Earthwork Summary			
A	Complete and provide the Earthwork Balance Sheet to inform the earthwork summary	☒	☐	☐
B	Reference pavement structure volume, when applicable, below earthwork summary	☐	☐	☒
C	Show note related to Geotech data			
4	Drainage Summary included (starts at Sheet 3D-1), if applicable. Verify the summary matches items included in the plan sheets.	☒	☐	☐
5	Guardrail and temporary guardrail summaries checked against plan sheet and/or detail sheet	☒	☐	☐
6	Concrete Barrier Summary included, if applicable	☐	☐	☒
7	Shoulder Drain Summary included, if applicable	☐	☐	☒
8	Pavement Removal and Pavement Breaking summaries include all pavement removed or broken up inside and outside of the slope stake lines on the project	☒	☐	☐
9	Fence Summary included, if applicable	☒	☐	☐
10	Geotechnical Summaries (starts at Sheet 3G-1) included, if applicable. Verify the summary matches the Geotechnical Recommendations Report(s)	☒	☐	☐
11	Miscellaneous summaries included as necessary	☒	☐	☐
	Estimates			
1	Estimate made for each WBS element, Federal project number and other parts as necessary	☒	☐	☐
2	Final construction estimate for PS&E entered into PIQ or AWP is checked against the calculation of quantity sheets and summary of quantities	☒	☐	☐
3	Item number, section, and item description checked against master pay item list	☒	☐	☐
4	Force account items incorporated into the estimate on Federal Aid projects only	☐	☐	☒
5	PDF copy of roadway final construction estimate quantities placed on SharePoint according to PS&E checklist	☒	☐	☐
6	Estimate for the drainage pay items matches the totals on the drainage summary sheet along with drainage items shown in the plan sheets	☒	☐	☐
7	Project roadway length (mainline only) shown on roadway estimate agrees with title sheet. Do not include structure length	☒	☐	☐
8	Cost based estimate quantity breakdown summary sheet completed	☒	☐	☐
9	Include on roadway estimate any structure removal pay items not included on the structure estimate	☐	☐	☒
	Special Provisions			
1	Special provisions written for all pay items and contract implementation items not covered by the current “Standard Specification for Roads and Structures”, project provisions, or standard special provisions	☒	☐	☐
	Items to be completed after initial plan review comments have been addressed			
1	Ensure plans have been electronically signed through the DocuSign process	☐	☐	☐

*For items marked **No** that require further explanation, provide comments or action items in the table below.*

Item #	Comments and Action Items
Click to edit.	2-B series, Item 2.E: See note on 2B- sheet regarding lane markings. Profile Sheets, item 2.D: bar scale is provided on title sheet for plan/profile sheets.

This checklist may not be comprehensive for every project. It is the responsibility of the designer submitting the plans to ensure all information is included and complete.

Plans Prepared by: Andrea B. Gordon, PE **Date:** 06/09/2025

(Signature): X 

COST BASED ESTIMATE

Date: 6/6/2025

MEMORANDUM TO: FILE

FROM: _____

SUBJECT: Project No. : R-5901

COST BASED ESTIMATE QUANTITY BREAKDOWNS

The breakdown of quantities for the following items have been prepared to assist the Design Services Unit in the preparation of the "Cost Based Estimate".

I Earthwork

The earthwork summary in the plans has been prepared in accordance with the following guidelines:

Yes	No	N/A	
X			a. Summary points do not exceed 3000'.
		X	b. Summary points end / begin at each bridge (stream or grade separation).
X			c. Summary points end / begin near each major at-grade multi-lane intersection or at-grade railroad crossing.
X			d. -Y- Lines are included in their respective summaries.
		X	e. On widening projects separate summaries are provided for right and left sides.
		X	f. On existing divided facilities to be widened separate summaries are provided for right side and median widening.

II. Pavement Quantities

Pavement quantity breakdowns have been prepared in accordance with the following chart:

	Full Lane Width (10' or more width) (any layer of material constructed to a width of 10' or more and along a continuous pull)		Miscellaneous Areas (0 to 10' widening width) (ramps, intersections, tapers, short auxillary lanes median x-over,Rt. & Lt. turn lanes driveways,etc.)		Wedging & Leveling	
ITEM	TONS	Subgrade Contact (sq.yds)	TONS	Subgrade Contact (sq.yds)	TONS	Total (TONS)
S9.5C	1738.98		1161.32		499.70	3400
I19.0C	1144.08		634.36		691.56	2470
B25.0C	1460.80	6530.9	917.41	2811.13	321.79	2700
ABC	1189.67	3579.4	2205.33	5140.69		3395

Please note that on widening projects where I-2 or like is used 2" deep on the widening portion and 1" deep on the existing pavement the first 1" of material on the widening section (less than 10' wide) should be calculated and included in the miscellaneous area and the second 1" should be included with the resurfacing and included in the full lane width (if 10' wide or greater).

Earthwork Balance Sheet

Volumes in Cubic Yards

PROJECT: R-5901 COUNTY: Surry DATE: 6/26/2025 COMPILED BY: ABG SHEET _1_ OF _1_ SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH	EMBANK. +15%		ROCK	SUITABLE	UNSUIT.	TOTAL
PHASE 1															
-EL1- 10+00 (L Temp)	-EL1- 22+06.61	1,681				1,681	1,004		1,004	1,155			526		526
-Y2-DET1- 10+67.19	-Y2-DET1- 19+69.82	987				987	346		346	398			589		589
	SUBTOTAL	2,668				2,668	1,350		1,350	1,553			1,115		1,115
PHASE 2															
-Y2-DET2- 10+21.49	-Y2-DET2- 14+93.42	1,459				1,459	704		704	810			649		649
-L1- 12+00.00 (LT)	-L1- 17+97.96 (LT)	2,948				2,948	707		707	813			2,135		2,135
-L2- 10+80.18 (LT)	-L2- 20+10.00 (LT)	754				754	805		805	926	172				
-RAB- 10+00.00	-RAB- 11+13.08	127				127	465		465	535	408				
-RAB- 13+02.92	-RAB- 13+89.55	259				259	188		188	216			43		43
-Y1- 14+60.00	-Y1- 16+81.56	3,619				3,619							3,619		3,619
-Y2- 11+75.00	-Y2- 18+15.00	4,063				4,063	58		58	67			3,996		3,996
-DRW1- 10+12.00	-DRW1- 11+60.00	131				131	61		61	70			61		61
-DRW2- 10+12.00	-DRW2- 11+31.50	119				119	87		87	100			19		19
-DRW3- 10+17.72	-DRW3- 10+74.85	142				142	1		1	1			141		141
-DRW5- 10+13.28	-DRW5- 10+75.00	206				206	2		2	2			204		204
	SUBTOTAL	13,827				13,827	3,078		3,078	3,540	580		10,867		10,867
PHASE 3															
-L1- 10+38 (RT)	-L1- 17+97.96 (RT)	600				600	1,038		1,038	1,194	594				
-L2- 10+80.18 (RT)	-L2- 20+10.00 (RT)	2,198				2,198	1,099		1,099	1,264			934		934
-RAB- 11+13.08	-RAB- 13+02.92	132				132	1,271		1,271	1,462	1,330				
-Y1- 12+30.00	-Y1- 14+60.00	455				455	61		61	70			385		385
-Y2- 10+80.02	-Y2- 11+75.00	1,250				1,250	122		122	140			1,110		1,110
-DRW4- 10+13.73	-DRW4- 10+95.00	506				506	3		3	3			503		503
-DRW6- 10+00.00	-DRW6- 10+43.34	63				63							63		63
	SUBTOTAL	5,204				5,204	3,594		3,594	4,133	1,924		2,995		2,995
PHASE 4															
-Y2-	Detour Removal	1,254				1,254	33		33	38			1,216		1,216
	SUBTOTAL	1,254				1,254	33		33	38			1,216		1,216
TOTAL		22,953				22,953	8,055		8,055	9,264	2,504		16,193		16,193
WASTE IN LIEU OF BORROW											-2,504		-2,504		-2,504
PROJECT TOTAL		22,953				22,953	8,055		8,055	9,264			13,689		13,689
GRAND TOTAL		22,953				22,953	8,055		8,055	9,264			13,689		13,689
SAY		**23,000**													

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY KCA. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

EST. DDE = 310 CUBIC YARDS
SHOULDER BORROW = 280 CUBIC YARDS
EST. SHALLOW UNDERCUT = 200 CY (PER GEOTECH RECOMMENDATION)
EST. UNDERCUT FOR SUBGRADE STABILITY = 200 CY (PER GEOTECH RECOMMENDATION)
EST. GRADE POINT UNDERCUT = 50 CY (PER GEOTECH RECOMMENDATION)
CLASS IV SUBGRADE STABILIZATION = 400 TONS (PER GEOTECH RECOMMENDATION)
PER GEOTECH RECOMMENDATION, ESTIMATED 200 CUBIC YARDS OF UNDERCUT TO BE USED IN THE DISCRETION OF THE RESIDENT ENGINEER.

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MEMO

Traffic Forecast Cover Letter

TO: **Donald Nance, Project Manager**
Assistant Division Design Engineer
NCDOT-Division 11

FROM: Craig Singer, PE, PTOE, RSP1
Kisinger Campo & Associates

DATE: February 28, 2024

RE: Traffic Forecast for R-5901
Surry County, North Carolina
NC 89 and SR 1397 Intersection

Please find attached the 2023/2050 Traffic Forecast of project R-5901 in Surry County. This project studies improvements to the intersection at NC 89 (West Pine Street) and SR 1397 (Oak Grove Church Road/Round Peak Church Road). The project is not anticipated to add through lanes along NC 89 (West Pine Street) or substantially impact travel demand. As such, the traffic forecasts for the No Build and Build Conditions are the same.

The forecast includes the following scenarios:

- Base Year (2023) Project No-Build/Build Estimate
- Future Year (2050) Project No-Build/Build Forecast

Fiscal Constraint: Travel demand forecasts outside a Metropolitan Planning Organization (MPO) area assume that the projects listed within the State Transportation Improvement Program (STIP) will be constructed. This forecast is consistent with the current STIP. No other projects within the STIP affect travel demand within the area of the project.

Development Activity: There has been recent development within the project area. Bottomley Enterprises/ Mayberry Chrome Shop was constructed in approximately 2021 and the Sheetz gas station development opened to the public in December 2023. Both developments are located along SR 1397, the Sheetz development is in the southeast corner of the intersection. There is no substantial development currently under construction. Feedback received from Surry County Development Services Director indicated there has been some interest by a developer to build a new hotel in the vicinity of the new Sheetz development. The Small Area Plan from the 2040 Land Use Plan for Surry County indicates that this is a growth area for the county.

Forecast Methodology:

The 2023 Estimate is based upon current traffic counts validated by historical AADT trends. Since the traffic counts were collected before the opening of the Sheetz, the selected 2023 AADT was calculated by adding the expected trips from the Traffic Impact Assessment to the calculated 2023 AADT.

The 2050 forecast was developed based upon consideration of output from the North Carolina Statewide Model (NCSTMv4.5), review of population projections for Surry County prepared by the North Carolina Office of State Budget and Management (OSBM), and available historical AADT volumes.

The use of straight-line interpolation to estimate AADT for years between 2023 and 2050 is acceptable. AADT volumes may be extrapolated for up to two years immediately following 2050.

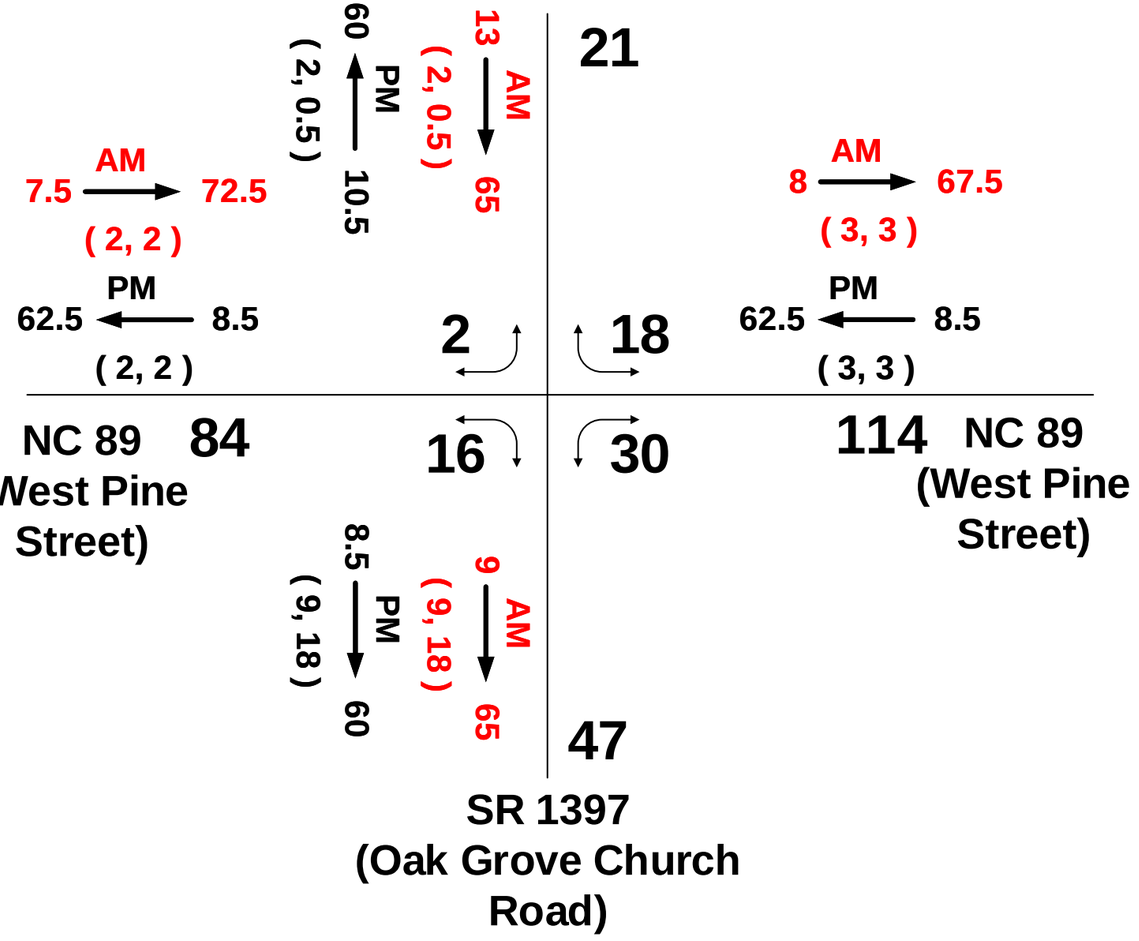
If it is determined that any of these assumptions have become inconsistent with the project and surrounding area activity, please request an updated forecast.

If we can be of further assistance, please do not hesitate to contact me at 919-882-7839, email: csinger@kcaeng.com.

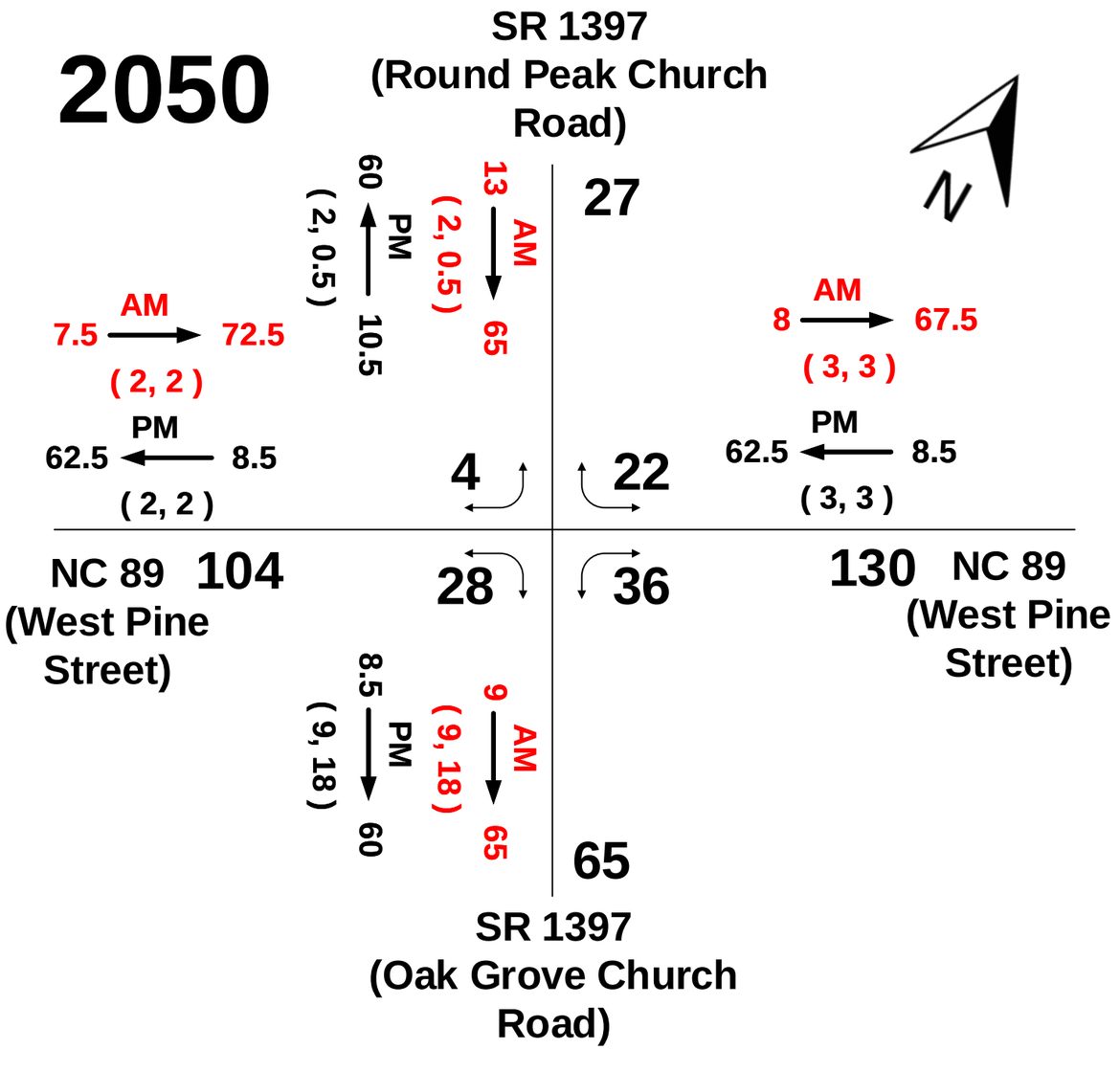
cc: (with Attachments) Keith Dixon, State Traffic Forecast Engineer and Debbie Barbour, Project Manager

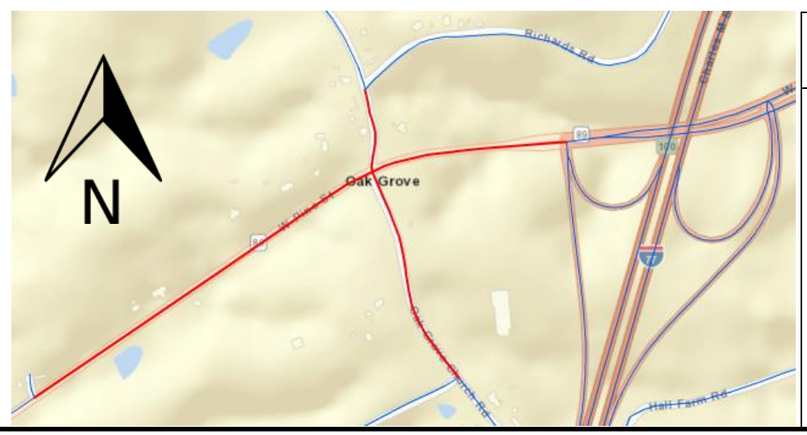
- kgdixon@ncdot.gov
- TrafficForecast@ncdot.gov
- dbarbour@kcaeng.com

2023



2050





2023 - 2050 AVERAGE ANNUAL DAILY TRAFFIC

No-Build-Build

L E G E N D

K —AM/PM (d, t)→ D

###	No. of Vehicles Per Day (VPD) in 100s	K	Design Hour Factor (%)
1-	Less than 50 VPD	AM/PM	Peak Period
x	Movement Prohibited	D	Peak Hour Directional Split (%)
-------	Proposed Roadway	→	Indicates Direction of D
		(d, t)	Duals, TT-STs (%)

TIP: R-5901	**WBS:** 34263.1.1
COUNTY: Surry	**DIVISION:** 11
DATE: 02-08-2024	
PREPARED BY: KCA	
LOCATION: NC 89 at SR 1397	
PROJECT: Intersection Improvements	

Horizontal Alignment Review Report

Report Created: Monday, July 15, 2024
Time: 10:35:03 AM

Project:
Description:
File Name:
Last Revised:

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: L1
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline

		Station	Northing	Easting
Element: Circular				
PC	(PC)	10+00.00	999176.30	1482822.89
HPI	(HPI)	10+32.32	999193.95	1482849.97
CC	(CC)		982419.06	1493740.52
PT	(PT)	10+64.64	999211.50	1482877.11
Radius:		20000.0000		
Delta:		00°11'06.67" Right		
Degree of Curvature (Arc):		00°17'11.32"		
Length:		64.6417		
Tangent:		32.3209		
Chord:		64.6417		
Middle Ordinate:		0.0261		
External:		0.0261		
Back Tangent Direction:		N56°54'54.23"E		
Back Radial Direction:		S33°05'05.77"E		
Chord Direction:		N57°00'27.56"E		
Ahead Radial Direction:		S32°53'59.11"E		
Ahead Tangent Direction:		N57°06'00.89"E		
Element: Linear				
PT	(PT)	10+64.64	999211.50	1482877.11
PC	(PC)	17+18.27	999566.53	1483425.91
Tangential Direction:		N57°06'00.89"E		
Tangential Length:		653.6244		
Element: Circular				
PC	(PC)	17+18.27	999566.53	1483425.91
HPI	(HPI)	17+99.62	999610.72	1483494.21
CC	(CC)		999272.67	1483616.02
PT	(PT)	18+78.14	999620.25	1483575.01

Radius:	350.0000
Delta:	26°10'17.56" Right
Degree of Curvature (Arc):	16°22'12.80"
Length:	159.8729
Tangent:	81.3559
Chord:	158.4866
Middle Ordinate:	9.0887
External:	9.3310
Back Tangent Direction:	N57°06'00.89"E
Back Radial Direction:	S32°53'59.11"E
Chord Direction:	N70°11'09.67"E
Ahead Radial Direction:	S06°43'41.55"E
Ahead Tangent Direction:	N83°16'18.45"E

Alignment Name: L2
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline

		Station	Northing	Easting
Element: Circular				
PC	(PC)	10+00.00	999620.25	1483575.01
HPI	(HPI)	10+74.59	999619.49	1483649.59
CC	(CC)		999970.24	1483578.62
PRC	(PRC)	11+46.98	999649.19	1483718.01
Radius:		350.0000		
Delta:		24°03'38.99" Left		
Degree of Curvature (Arc):		16°22'12.80"		
Length:		146.9792		
Tangent:		74.5890		
Chord:		145.9016		
Middle Ordinate:		7.6870		
External:		7.8596		
Back Tangent Direction:		S89°24'33.15"E		
Back Radial Direction:		S00°35'26.85"W		
Chord Direction:		N78°33'37.36"E		
Ahead Radial Direction:		S23°28'12.14"E		
Ahead Tangent Direction:		N66°31'47.86"E		
Element: Circular				
PRC	(PRC)	11+46.98	999649.19	1483718.01
HPI	(HPI)	12+04.90	999672.26	1483771.14
CC	(CC)		999274.03	1483880.91
PCC	(PCC)	12+62.06	999679.67	1483828.59
Radius:		409.0000		
Delta:		16°07'16.41" Right		
Degree of Curvature (Arc):		14°00'31.49"		
Length:		115.0797		

Tangent:	57.9225
Chord:	114.7005
Middle Ordinate:	4.0408
External:	4.0811
Back Tangent Direction:	N66°31'47.86"E
Back Radial Direction:	S23°28'12.14"E
Chord Direction:	N74°35'26.07"E
Ahead Radial Direction:	S07°20'55.73"E
Ahead Tangent Direction:	N82°39'04.27"E

Element: Circular

PCC	(PCC)	12+62.06	999679.67	1483828.59
HPI	(HPI)	13+32.71	999688.71	1483898.66
CC	(CC)		997036.56	1484169.47
PT	(PT)	14+03.33	999694.02	1483969.12

Radius:	2665.0000
Delta:	03°02'14.16" Right
Degree of Curvature (Arc):	02°08'59.77"
Length:	141.2724
Tangent:	70.6528
Chord:	141.2559
Middle Ordinate:	0.9361
External:	0.9364
Back Tangent Direction:	N82°39'04.27"E
Back Radial Direction:	S07°20'55.73"E
Chord Direction:	N84°10'11.35"E
Ahead Radial Direction:	S04°18'41.57"E
Ahead Tangent Direction:	N85°41'18.43"E

Element: Linear

PT	(PT)	14+03.33	999694.02	1483969.12
POE	(POE)	24+05.00	999769.32	1484967.95

Tangential Direction:	N85°41'18.43"E
Tangential Length:	1001.6686

Alignment Name: Y1
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline Minor Roadway

		Station	Northing	Easting

Element: Circular

PC	(PC)	10+00.00	1000346.76	1483356.54
HPI	(HPI)	11+15.71	1000244.13	1483409.97
CC	(CC)		999917.29	1482531.64
PT	(PT)	12+30.24	1000131.53	1483436.63

Radius:	930.0000
Delta:	14°11'05.54" Right

Degree of Curvature (Arc):		06°09'39.01"		
Length:		230.2426		
Tangent:		115.7129		
Chord:		229.6551		
Middle Ordinate:		7.1161		
External:		7.1710		
Back Tangent Direction:		S27°30'11.84"E		
Back Radial Direction:		S62°29'48.16"W		
Chord Direction:		S20°24'39.07"E		
Ahead Radial Direction:		S76°40'53.70"W		
Ahead Tangent Direction:		S13°19'06.30"E		

Element: Linear

PT	(PT)	12+30.24	1000131.53	1483436.63
PC	(PC)	15+17.20	999852.28	1483502.73
Tangential Direction:		S13°19'06.30"E		
Tangential Length:		286.9587		

Element: Circular

PC	(PC)	15+17.20	999852.28	1483502.73
HPI	(HPI)	15+60.03	999810.60	1483512.60
CC	(CC)		999932.91	1483843.32
PRC	(PRC)	16+02.44	999772.53	1483532.23
Radius:		350.0000		
Delta:		13°57'15.39" Left		
Degree of Curvature (Arc):		16°22'12.80"		
Length:		85.2418		
Tangent:		42.8328		
Chord:		85.0313		
Middle Ordinate:		2.5919		
External:		2.6112		
Back Tangent Direction:		S13°19'06.30"E		
Back Radial Direction:		S76°40'53.70"W		
Chord Direction:		S20°17'44.00"E		
Ahead Radial Direction:		S62°43'38.31"W		
Ahead Tangent Direction:		S27°16'21.69"E		

Element: Circular

PRC	(PRC)	16+02.44	999772.53	1483532.23
HPI	(HPI)	16+83.17	999700.78	1483569.22
CC	(CC)		999591.99	1483182.02
PT	(PT)	17+61.70	999620.25	1483575.01
Radius:		394.0000		
Delta:		23°09'32.80" Right		
Degree of Curvature (Arc):		14°32'31.47"		
Length:		159.2559		
Tangent:		80.7301		

Chord:	158.1740
Middle Ordinate:	8.0191
External:	8.1857
Back Tangent Direction:	S27°16'21.69"E
Back Radial Direction:	S62°43'38.31"W
Chord Direction:	S15°41'35.29"E
Ahead Radial Direction:	S85°53'11.10"W
Ahead Tangent Direction:	S04°06'48.90"E

Alignment Name: Y2
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline Minor Roadway

		Station	Northing	Easting
Element: Linear				
POB	(POB)	10+00.00	999620.25	1483575.01
PC	(PC)	10+62.09	999558.26	1483571.59
Tangential Direction:		S03°09'14.44"W		
Tangential Length:		62.0910		
Element: Circular				
PC	(PC)	10+62.09	999558.26	1483571.59
HPI	(HPI)	11+01.31	999519.10	1483569.44
CC	(CC)		999547.25	1483771.29
PRC	(PRC)	11+39.54	999482.03	1483582.22
Radius:		200.0000		
Delta:		22°11'14.84" Left		
Degree of Curvature (Arc):		28°38'52.40"		
Length:		77.4488		
Tangent:		39.2157		
Chord:		76.9658		
Middle Ordinate:		3.7373		
External:		3.8084		
Back Tangent Direction:		S03°09'14.44"W		
Back Radial Direction:		N86°50'45.56"W		
Chord Direction:		S07°56'22.98"E		
Ahead Radial Direction:		S70°57'59.60"W		
Ahead Tangent Direction:		S19°02'00.40"E		
Element: Circular				
PRC	(PRC)	11+39.54	999482.03	1483582.22
HPI	(HPI)	11+86.81	999437.35	1483597.64
CC	(CC)		999351.58	1483204.09
PRC	(PRC)	12+33.63	999390.30	1483602.21
Radius:		400.0000		
Delta:		13°28'41.08" Right		
Degree of Curvature (Arc):		14°19'26.20"		

Length:	94.0947
Tangent:	47.2655
Chord:	93.8779
Middle Ordinate:	2.7636
External:	2.7829
Back Tangent Direction:	S19°02'00.40"E
Back Radial Direction:	S70°57'59.60"W
Chord Direction:	S12°17'39.86"E
Ahead Radial Direction:	S84°26'40.68"W
Ahead Tangent Direction:	S05°33'19.32"E

Element: Circular

PRC	(PRC)	12+33.63	999390.30	1483602.21
HPI	(HPI)	13+40.23	999284.21	1483612.53
CC	(CC)		999545.20	1485194.70
PRC	(PRC)	14+46.52	999180.42	1483636.84

Radius:	1600.0000
Delta:	07°37'23.87" Left
Degree of Curvature (Arc):	03°34'51.55"
Length:	212.8826
Tangent:	106.5986
Chord:	212.7256
Middle Ordinate:	3.5392
External:	3.5471
Back Tangent Direction:	S05°33'19.32"E
Back Radial Direction:	S84°26'40.68"W
Chord Direction:	S09°22'01.26"E
Ahead Radial Direction:	S76°49'16.81"W
Ahead Tangent Direction:	S13°10'43.19"E

Element: Circular

PRC	(PRC)	14+46.52	999180.42	1483636.84
HPI	(HPI)	15+14.28	999114.43	1483652.29
CC	(CC)		998815.63	1482078.98
PT	(PT)	15+81.97	999047.38	1483662.10

Radius:	1600.0000
Delta:	04°51'01.78" Right
Degree of Curvature (Arc):	03°34'51.55"
Length:	135.4513
Tangent:	67.7661
Chord:	135.4109
Middle Ordinate:	1.4332
External:	1.4344
Back Tangent Direction:	S13°10'43.19"E
Back Radial Direction:	S76°49'16.81"W
Chord Direction:	S10°45'12.30"E
Ahead Radial Direction:	S81°40'18.59"W

Ahead Tangent Direction:		S08°19'41.41"E		
Element: Linear				
PT	(PT)	15+81.97	999047.38	1483662.10
PC	(PC)	16+93.77	998936.76	1483678.30
Tangential Direction:		S08°19'41.41"E		
Tangential Length:		111.7978		
Element: Circular				
PC	(PC)	16+93.77	998936.76	1483678.30
HPI	(HPI)	17+53.70	998877.47	1483686.98
CC	(CC)		999070.74	1484593.54
PCC	(PCC)	18+13.46	998819.78	1483703.24
Radius:		925.0000		
Delta:		07°24'50.27" Left		
Degree of Curvature (Arc):		06°11'38.90"		
Length:		119.6932		
Tangent:		59.9303		
Chord:		119.6097		
Middle Ordinate:		1.9353		
External:		1.9394		
Back Tangent Direction:		S08°19'41.41"E		
Back Radial Direction:		S81°40'18.59"W		
Chord Direction:		S12°02'06.55"E		
Ahead Radial Direction:		S74°15'28.32"W		
Ahead Tangent Direction:		S15°44'31.68"E		
Element: Circular				
PCC	(PCC)	18+13.46	998819.78	1483703.24
HPI	(HPI)	18+54.99	998779.81	1483714.50
CC	(CC)		998948.65	1484160.42
PCC	(PCC)	18+96.31	998742.40	1483732.54
Radius:		475.0000		
Delta:		09°59'38.97" Left		
Degree of Curvature (Arc):		12°03'44.17"		
Length:		82.8547		
Tangent:		41.5327		
Chord:		82.7497		
Middle Ordinate:		1.8054		
External:		1.8123		
Back Tangent Direction:		S15°44'31.68"E		
Back Radial Direction:		S74°15'28.32"W		
Chord Direction:		S20°44'21.17"E		
Ahead Radial Direction:		S64°15'49.35"W		
Ahead Tangent Direction:		S25°44'10.65"E		
Element: Circular				

PCC	(PCC)	18+96.31	998742.40	1483732.54
HPI	(HPI)	19+33.72	998708.70	1483748.78
CC	(CC)		999263.47	1484813.50
PT	(PT)	19+71.09	998676.09	1483767.09

Radius:	1200.0000
Delta:	03°34'13.46" Left
Degree of Curvature (Arc):	04°46'28.73"
Length:	74.7784
Tangent:	37.4013
Chord:	74.7663
Middle Ordinate:	0.5824
External:	0.5827
Back Tangent Direction:	S25°44'10.65"E
Back Radial Direction:	S64°15'49.35"W
Chord Direction:	S27°31'17.38"E
Ahead Radial Direction:	S60°41'35.89"W
Ahead Tangent Direction:	S29°18'24.11"E

Alignment Name: RAB
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline

		Station	Northing	Easting
Element: Circular				
PC	(PC)	10+00.00	999681.55	1483565.70
CC	(CC)		999620.25	1483575.01
PT	(PT)	13+89.56	999681.55	1483565.70

Radius:	62.0000
Delta:	359°59'59.04" Left
Degree of Curvature (Arc):	92°24'45.17"
Length:	389.5572
Tangent:	0.0000
Chord:	0.0003
Middle Ordinate:	0.0000
External:	0.0000
Back Tangent Direction:	S81°21'57.57"W
Back Radial Direction:	N08°38'02.43"W
Chord Direction:	N81°21'58.00"E
Ahead Radial Direction:	N08°38'01.46"W
Ahead Tangent Direction:	S81°21'58.54"W

Alignment Name: DRW1
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

	Station	Northing	Easting
Element: Linear			

POB	(POB)	10+00.00	999456.12	1483255.24
PC	(PC)	10+37.59	999487.69	1483234.82
Tangential Direction:		N32°53'59.11"W		
Tangential Length:		37.5927		

Element: Circular

PC	(PC)	10+37.59	999487.69	1483234.82
HPI	(HPI)	10+53.41	999500.97	1483226.23
CC	(CC)		999503.98	1483260.01
PT	(PT)	10+66.71	999515.57	1483232.33
Radius:		30.0000		
Delta:		55°36'33.68" Right		
Degree of Curvature (Arc):		190°59'09.35"		
Length:		29.1170		
Tangent:		15.8203		
Chord:		27.9875		
Middle Ordinate:		3.4637		
External:		3.9158		
Back Tangent Direction:		N32°53'59.11"W		
Back Radial Direction:		N57°06'00.89"E		
Chord Direction:		N05°05'42.27"W		
Ahead Radial Direction:		S67°17'25.43"E		
Ahead Tangent Direction:		N22°42'34.57"E		

Element: Linear

PT	(PT)	10+66.71	999515.57	1483232.33
PC	(PC)	11+04.65	999550.57	1483246.98
Tangential Direction:		N22°42'34.57"E		
Tangential Length:		37.9436		

Element: Circular

PC	(PC)	11+04.65	999550.57	1483246.98
HPI	(HPI)	11+33.61	999577.28	1483258.16
CC	(CC)		999562.15	1483219.31
PT	(PT)	11+50.72	999589.40	1483231.86
Radius:		30.0000		
Delta:		87°58'50.08" Left		
Degree of Curvature (Arc):		190°59'09.35"		
Length:		46.0665		
Tangent:		28.9608		
Chord:		41.6722		
Middle Ordinate:		8.4163		
External:		11.6981		
Back Tangent Direction:		N22°42'34.57"E		
Back Radial Direction:		S67°17'25.43"E		
Chord Direction:		N21°16'50.47"W		
Ahead Radial Direction:		N24°43'44.49"E		

Ahead Tangent Direction:		N65°16'15.51"W		
Element: Linear				
PT	(PT)	11+50.72	999589.40	1483231.86
POE	(POE)	11+67.32	999596.34	1483216.78
Tangential Direction:		N65°16'15.51"W		
Tangential Length:		16.6025		

Alignment Name: DRW2
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

		Station	Northing	Easting
Element: Linear				
POB	(POB)	10+00.00	999529.45	1483368.59
POE	(POE)	11+31.50	999639.86	1483297.16
Tangential Direction:		N32°53'59.11"W		
Tangential Length:		131.5000		

Alignment Name: DRW3
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

		Station	Northing	Easting
Element: Linear				
POB	(POB)	10+00.00	999881.67	1483495.77
PC	(PC)	10+31.84	999886.28	1483527.28
Tangential Direction:		N81°40'53.70"E		
Tangential Length:		31.8422		
Element: Circular				
PC	(PC)	10+31.84	999886.28	1483527.28
HPI	(HPI)	10+53.82	999889.46	1483549.03
CC	(CC)		999802.17	1483539.58
PT	(PT)	10+74.85	999881.70	1483569.59
Radius:		85.0000		
Delta:		28°59'26.46" Right		
Degree of Curvature (Arc):		67°24'24.48"		
Length:		43.0085		
Tangent:		21.9751		
Chord:		42.5512		
Middle Ordinate:		2.7057		
External:		2.7947		
Back Tangent Direction:		N81°40'53.70"E		
Back Radial Direction:		S08°19'06.30"E		
Chord Direction:		S83°49'23.07"E		
Ahead Radial Direction:		S20°40'20.16"W		
Ahead Tangent Direction:		S69°19'39.84"E		

Alignment Name: DRW4
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

		Station	Northing	Easting
Element: Linear				
POB	(POB)	10+00.00	999191.02	1483634.39
POE	(POE)	11+10.00	999218.40	1483740.93
Tangential Direction:		N75°35'12.93"E		
Tangential Length:		110.0000		

Alignment Name: DRW5
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

		Station	Northing	Easting
Element: Linear				
POB	(POB)	10+00.00	999420.48	1483200.13
POE	(POE)	11+00.00	999473.02	1483115.05
Tangential Direction:		N58°18'20.08"W		
Tangential Length:		100.0000		

Alignment Name: DRW6
Alignment Description:
Alignment Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

		Station	Northing	Easting
Element: Circular				
PC	(PC)	10+00.00	999927.35	1483432.16
HPI	(HPI)	10+14.13	999938.72	1483440.56
CC	(CC)		999897.63	1483472.36
PT	(PT)	10+27.55	999944.00	1483453.67
Radius:		50.0000		
Delta:		31°34'11.17" Right		
Degree of Curvature (Arc):		114°35'29.61"		
Length:		27.5498		
Tangent:		14.1343		
Chord:		27.2026		
Middle Ordinate:		1.8855		
External:		1.9594		
Back Tangent Direction:		N36°28'54.82"E		
Back Radial Direction:		S53°31'05.18"E		
Chord Direction:		N52°16'00.41"E		
Ahead Radial Direction:		S21°56'54.01"E		
Ahead Tangent Direction:		N68°03'05.99"E		

Element: Linear

PT	(PT)	10+27.55	999944.00	1483453.67
POE	(POE)	10+54.47	999954.06	1483478.64
Tangential Direction:		N68°03'05.99"E		
Tangential Length:		26.9157		

Superelevation Data Report

Report Created: Friday, February 2, 2024
Time: 5:09:39 PM

File Name:

Input Grid Factor:

Note: All units in this report are in feet unless specified otherwise.

Section Name: L1-1

Base Horizontal Name: L1

Superelevation: ~ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.010	Undefined	
1150.000	-0.010	Undefined	Linear
1172.000	-0.020	Undefined	Linear
1758.000	-0.020	Undefined	Linear
1780.000	-0.010	Undefined	Linear
1878.140	-0.010	Undefined	Linear

Superelevation: ~LN1

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.010	Undefined	
1150.000	-0.010	Undefined	Linear
1172.000	-0.020	Undefined	Linear
1758.000	-0.020	Undefined	Linear
1780.000	-0.010	Undefined	Linear
1878.140	-0.010	Undefined	Linear

Superelevation: +LN1

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.020	Undefined	
1150.000	-0.020	Undefined	Linear
1172.000	-0.020	Undefined	Linear
1758.000	-0.020	Undefined	Linear
1769.000	-0.015	Undefined	Linear
1878.139	-0.015	Undefined	Linear

Superelevation: +ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.020	Undefined	
1150.000	-0.020	Undefined	Linear

1172.000	-0.020	Undefined	Linear
1758.000	-0.020	Undefined	Linear
1769.000	-0.015	Undefined	Linear
1878.139	-0.015	Undefined	Linear

Section Name: L2-1

Base Horizontal Name: L2

Superelevation: ~LN2

Station	Cross Slope	Point Type	Transition Type
1000.000	0.015	Undefined	
1110.330	0.015	Undefined	Linear
1121.330	0.020	Undefined	Linear
1165.330	0.040	Undefined	Linear
1247.060	0.040	Undefined	Linear
1277.060	0.030	Undefined	Linear
1365.330	0.030	Undefined	Linear
1555.330	-0.020	Undefined	Linear
1943.000	-0.020	Undefined	Linear
2000.000	-0.035	Undefined	Linear
2010.000	-0.035	Undefined	Linear

Superelevation: ~LN1

Station	Cross Slope	Point Type	Transition Type
1000.000	0.015	Undefined	
1110.330	0.015	Undefined	Linear
1121.330	0.020	Undefined	Linear
1165.330	0.040	Undefined	Linear
1247.060	0.040	Undefined	Linear
1277.060	0.030	Undefined	Linear
1365.330	0.030	Undefined	Linear
1555.330	-0.020	Undefined	Linear
1943.000	-0.020	Undefined	Linear
2000.000	-0.035	Undefined	Linear
2010.000	-0.035	Undefined	Linear

Superelevation: ~ETI

Station	Cross Slope	Point Type	Transition Type
1000.000	0.015	Undefined	
1110.330	0.015	Undefined	Linear
1121.330	0.020	Undefined	Linear

1165.330	0.040	Undefined	Linear
1247.060	0.040	Undefined	Linear
1277.060	0.030	Undefined	Linear
1365.330	0.030	Undefined	Linear
1555.330	-0.020	Undefined	Linear
1943.000	-0.020	Undefined	Linear
2000.000	-0.035	Undefined	Linear
2010.000	-0.035	Undefined	Linear

Superelevation: +ETI

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.015	Undefined	
1110.330	-0.015	Undefined	Linear
1121.330	-0.020	Undefined	Linear
1165.330	-0.040	Undefined	Linear
1247.060	-0.040	Undefined	Linear
1277.060	-0.030	Undefined	Linear
1365.330	-0.030	Undefined	Linear
1403.330	-0.020	Undefined	Linear
1962.000	-0.020	Undefined	Linear
2000.000	-0.010	Undefined	Linear
2010.000	-0.010	Undefined	Linear

Superelevation: +LN1

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.015	Undefined	
1110.330	-0.015	Undefined	Linear
1121.330	-0.020	Undefined	Linear
1165.330	-0.040	Undefined	Linear
1247.060	-0.040	Undefined	Linear
1277.060	-0.030	Undefined	Linear
1365.330	-0.030	Undefined	Linear
1403.330	-0.020	Undefined	Linear
1962.000	-0.020	Undefined	Linear
2000.000	-0.010	Undefined	Linear
2010.000	-0.010	Undefined	Linear

Superelevation: +LN2

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.015	Undefined	
1110.330	-0.015	Undefined	Linear
1121.330	-0.020	Undefined	Linear

1165.330	-0.040	Undefined	Linear
1247.060	-0.040	Undefined	Linear
1277.060	-0.030	Undefined	Linear
1365.330	-0.030	Undefined	Linear
1403.330	-0.020	Undefined	Linear
1962.000	-0.020	Undefined	Linear
2000.000	-0.030	Undefined	Linear
2010.000	-0.030	Undefined	Linear

Superelevation: +LN3

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.015	Undefined	
1110.330	-0.015	Undefined	Linear
1121.330	-0.020	Undefined	Linear
1165.330	-0.040	Undefined	Linear
1247.060	-0.040	Undefined	Linear
1277.060	-0.030	Undefined	Linear
1365.330	-0.030	Undefined	Linear
1403.330	-0.020	Undefined	Linear
1962.000	-0.020	Undefined	Linear
2000.000	-0.030	Undefined	Linear
2010.000	-0.030	Undefined	Linear

Section Name: Y1-1

Base Horizontal Name: Y1

Superelevation: ~ETO

Station	Cross Slope	Point Type	Transition Type
1230.000	0.010	Undefined	
1248.000	0.000	Undefined	Linear
1266.000	-0.010	Undefined	Linear
1284.000	-0.020	Undefined	Linear
1300.000	-0.020	Undefined	Linear
1457.200	-0.020	Undefined	Linear
1529.200	-0.020	Undefined	Linear
1650.000	-0.020	Undefined	Linear
1668.000	-0.010	Undefined	Linear
1761.699	-0.010	Undefined	Linear

Superelevation: +ETO

Station	Cross Slope	Point Type	Transition Type

1230.000	-0.020	Undefined	
1248.000	-0.020	Undefined	Linear
1300.000	-0.020	Undefined	Linear
1457.200	-0.020	Undefined	Linear
1529.200	0.020	Undefined	Linear
1650.000	0.020	Undefined	Linear
1668.000	0.010	Undefined	Linear
1761.690	0.010	Undefined	Linear

Section Name: Y2-1

Base Horizontal Name: Y2

Superelevation: ~ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.015	Undefined	
1100.000	-0.015	Undefined	Linear
1122.000	-0.020	Undefined	Linear
1380.500	-0.020	Undefined	Linear
1512.500	0.040	Undefined	Linear
1571.770	0.040	Undefined	Linear
1791.770	-0.060	Undefined	Linear
1828.000	-0.060	Undefined	Linear
1895.000	-0.060	Undefined	Linear

Superelevation: ~LN1

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.015	Undefined	
1100.000	-0.015	Undefined	Linear
1122.000	-0.020	Undefined	Linear
1380.500	-0.020	Undefined	Linear
1512.500	0.040	Undefined	Linear
1571.770	0.040	Undefined	Linear
1747.770	-0.040	Undefined	Linear
1769.770	-0.050	Undefined	Linear
1791.770	-0.060	Undefined	Linear
1828.000	-0.060	Undefined	Linear
1895.000	-0.060	Undefined	Linear

Superelevation: +LN1

Station	Cross Slope	Point Type	Transition Type

1000.000	0.005	Undefined	
1082.000	0.005	Undefined	Linear
1137.000	-0.020	Undefined	Linear
1189.630	-0.020	Undefined	Linear
1277.630	0.020	Undefined	Linear
1380.500	0.020	Undefined	Linear
1512.500	-0.040	Undefined	Linear
1571.770	-0.040	Undefined	Linear
1791.770	0.060	Undefined	Linear
1828.000	0.060	Undefined	Linear
1895.000	0.060	Undefined	Linear

Superelevation: +ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	0.005	Undefined	
1082.000	0.005	Undefined	Linear
1137.000	-0.020	Undefined	Linear
1189.630	-0.020	Undefined	Linear
1277.630	0.020	Undefined	Linear
1380.500	0.020	Undefined	Linear
1512.500	-0.040	Undefined	Linear
1571.770	-0.040	Undefined	Linear
1791.770	0.060	Undefined	Linear
1828.000	0.060	Undefined	Linear
1895.000	0.060	Undefined	Linear

Section Name: RAB-1

Base Horizontal Name: RAB

Superelevation: RT

Station	Cross Slope	Point Type	Transition Type
1000.000	0.020	Reverse Crown	
1015.000	0.020	Reverse Crown	Linear
1030.000	0.010	Undefined	Linear
1045.000	0.000	Undefined	Linear
1060.000	-0.010	Undefined	Linear
1075.000	-0.020	Normal Crown	Linear
1285.000	-0.020	Normal Crown	Linear
1300.000	-0.010	Undefined	Linear
1315.000	0.000	Undefined	Linear

1330.000	0.010	Undefined	Linear
1345.000	0.020	Reverse Crown	Linear
1389.557	0.020	Reverse Crown	Linear

Section Name: DRW1-1

Base Horizontal Name: DRW1

Superelevation: ~ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.050	Undefined	
1020.000	-0.050	Undefined	Linear
1050.000	-0.020	Undefined	Linear
1090.000	0.020	Undefined	Linear
1150.000	0.020	Undefined	Linear
1160.000	0.010	Undefined	Linear

Superelevation: +ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	0.050	Undefined	
1020.000	0.050	Undefined	Linear
1090.000	-0.020	Undefined	Linear
1150.000	-0.020	Undefined	Linear
1160.000	-0.010	Undefined	Linear

Section Name: DRW2-1

Base Horizontal Name: DRW2

Superelevation: ~ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.040	Undefined	
1050.000	-0.040	Undefined	Linear
1070.000	-0.020	Undefined	Linear
1120.000	-0.020	Undefined	Linear
1131.590	-0.020	Undefined	Linear

Superelevation: +ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	0.035	Undefined	
1050.000	0.035	Undefined	Linear
1105.000	-0.020	Undefined	Linear

1120.000	-0.020	Undefined	Linear
1131.590	-0.020	Undefined	Linear

Section Name: DRW3-1

Base Horizontal Name: DRW3

Superelevation: ~ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	0.045	Undefined	
1020.000	0.045	Undefined	Linear
1025.000	0.040	Undefined	Linear
1045.000	0.020	Undefined	Linear
1074.850	-0.010	Undefined	Linear

Superelevation: +ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.045	Undefined	
1020.000	-0.045	Undefined	Linear
1045.000	-0.020	Undefined	Linear
1074.850	0.010	Undefined	Linear

Section Name: DRW4-1

Base Horizontal Name: DRW4

Superelevation: ~ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	-0.040	Undefined	
1110.000	-0.040	Undefined	Linear

Superelevation: +ETO

Station	Cross Slope	Point Type	Transition Type
1000.000	0.040	Undefined	
1110.000	0.040	Undefined	Linear

Vertical Alignment Review Report

Report Created: Monday, July 15, 2024
Time: 10:35:37 AM

Project:
Description:
File Name:
Last Revised:

Note: All units in this report are in feet unless specified otherwise.

Horizontal Alignment: L1
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline

Vertical Alignment: L1
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline

	Station	Elevation
Element: Linear		
POB	12+00.00	1222.34
VPC	12+70.00	1226.92
Tangent Grade:	6.5443%	
Tangent Length:	70.0000	
Element: Symmetrical Parabola		
VPC	12+70.00	1226.92
VPI	13+50.00	1232.15
PVCC	14+30.00	1236.95
Length:	160.0000	
Entrance Grade:	6.5443%	
Exit Grade:	6.0000%	
r = 100 * (g2 - g1) / L:	-0.3402	
K = l / (g2 - g1):	293.9796	
Middle Ordinate:	-0.1089	
Element: Symmetrical Parabola		
PVCC	14+30.00	1236.95
VPI	16+05.00	1247.45
VPT	17+80.00	1251.83
Length:	350.0000	
Entrance Grade:	6.0000%	
Exit Grade:	2.5000%	
r = 100 * (g2 - g1) / L:	-1.0000	
K = l / (g2 - g1):	100.0007	
Middle Ordinate:	-1.5312	

Horizontal Alignment: L1
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline

Element: Linear

VPT	17+80.00	1251.83
POE	17+97.96	1252.28
Tangent Grade:	2.5000%	
Tangent Length:	17.9600	

Horizontal Alignment: L2
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline

Vertical Alignment: L2
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline

	Station	**Elevation**
Element: Linear		
POB	10+80.18	1250.10
VPC	11+20.00	1249.39
Tangent Grade:	-1.7684%	
Tangent Length:	39.8248	
Element: Symmetrical Parabola		
VPC	11+20.00	1249.39
VPI	13+60.00	1245.15
VPT	16+00.00	1231.47
Length:	480.0000	
Entrance Grade:	-1.7684%	
Exit Grade:	-5.7000%	
r = 100 * (g2 - g1) / L:	-0.8191	
K = l / (g2 - g1):	122.0891	
Middle Ordinate:	-2.3589	
Element: Linear		
VPT	16+00.00	1231.47
VPC	17+60.54	1222.32
Tangent Grade:	-5.7000%	
Tangent Length:	160.5356	
Element: Symmetrical Parabola		
VPC	17+60.54	1222.32
VPI	18+60.54	1216.62
VPT	19+60.54	1210.62
Length:	200.0000	

Horizontal Alignment: L2
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline

Entrance Grade:	-5.7000%
Exit Grade:	-6.0000%
r = 100 * (g2 - g1) / L:	-0.1500
K = l / (g2 - g1):	666.5978
Middle Ordinate:	-0.0750

Element: Linear

VPT	19+60.54	1210.62
POE	20+10.00	1207.65
Tangent Grade:	-6.0000%	
Tangent Length:	49.4644	

Horizontal Alignment: Y1
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Minor Roadway

Vertical Alignment: Y1
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline Minor Roadway

	Station	**Elevation**
Element: Linear		
POB	12+30.00	1264.22
VPC	12+90.00	1264.97
Tangent Grade:	1.2500%	
Tangent Length:	60.0000	
Element: Symmetrical Parabola		
VPC	12+90.00	1264.97
VPI	14+30.00	1266.72
PVRC	15+70.00	1257.06
HP	13+32.93	1265.24
Length:	280.0000	
Entrance Grade:	1.2500%	
Exit Grade:	-6.9026%	
r = 100 * (g2 - g1) / L:	-2.9117	
K = l / (g2 - g1):	34.3447	
Middle Ordinate:	-2.8534	
Element: Symmetrical Parabola		
PVRC	15+70.00	1257.06
VPI	16+20.00	1253.61

Horizontal Alignment: Y1
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Minor Roadway

VPT	16+70.00	1252.62
Length:	100.0000	
Entrance Grade:	-6.9026%	
Exit Grade:	-1.9800%	
r = 100 * (g2 - g1) / L:	4.9226	
K = l / (g2 - g1):	20.3143	
Middle Ordinate:	0.6153	

Element: Linear

VPT	16+70.00	1252.62
POE	16+81.56	1252.39
Tangent Grade:	-1.9800%	
Tangent Length:	11.5600	

Horizontal Alignment: Y2
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Minor Roadway

Vertical Alignment: Y2
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline Minor Roadway

	Station	**Elevation**

Element: Linear

POB	10+80.02	1250.99
VPC	10+90.02	1250.84
Tangent Grade:	-1.5000%	
Tangent Length:	9.9998	

Element: Symmetrical Parabola

VPC	10+90.02	1250.84
VPI	11+40.02	1250.09
VPT	11+90.02	1252.71
LP	11+12.24	1250.67
Length:	100.0000	
Entrance Grade:	-1.5000%	
Exit Grade:	5.2500%	
r = 100 * (g2 - g1) / L:	6.7500	
K = l / (g2 - g1):	14.8148	
Middle Ordinate:	0.8438	

Element: Linear

Horizontal Alignment: Y2
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Minor Roadway

VPT	11+90.02	1252.71
VPC	13+61.00	1261.69
Tangent Grade:	5.2500%	
Tangent Length:	170.9806	

Element: Symmetrical Parabola

VPC	13+61.00	1261.69
VPI	15+86.00	1273.50
VPT	18+11.00	1264.52
HP	16+16.68	1268.40
Length:	450.0000	
Entrance Grade:	5.2500%	
Exit Grade:	-3.9900%	
r = 100 * (g2 - g1) / L:	-2.0533	
K = l / (g2 - g1):	48.7013	
Middle Ordinate:	-5.1975	

Element: Linear

VPT	18+11.00	1264.52
POE	18+15.00	1264.36
Tangent Grade:	-3.9900%	
Tangent Length:	3.9996	

Horizontal Alignment: RAB
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline

Vertical Alignment: RAB
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline

	Station	**Elevation**

Element: Linear

POB	9+99.99	1252.00
VPC	10+00.00	1252.00
Tangent Grade:	2.0000%	
Tangent Length:	0.0066	

Element: Symmetrical Parabola

VPC	10+00.00	1252.00
VPI	10+75.00	1253.50
VPT	11+50.00	1252.00
HP	10+75.00	1252.75

Horizontal Alignment: RAB
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline

Length:	150.0000
Entrance Grade:	2.0000%
Exit Grade:	-2.0000%
r = 100 * (g2 - g1) / L:	-2.6667
K = l / (g2 - g1):	37.5000
Middle Ordinate:	-0.7500

Element: Linear

VPT	11+50.00	1252.00
VPC	11+94.78	1251.10
Tangent Grade:	-2.0000%	
Tangent Length:	44.7786	

Element: Symmetrical Parabola

VPC	11+94.78	1251.10
VPI	12+69.78	1249.60
VPT	13+44.78	1251.10
LP	12+69.78	1250.35
Length:	150.0000	
Entrance Grade:	-2.0000%	
Exit Grade:	2.0000%	
r = 100 * (g2 - g1) / L:	2.6667	
K = l / (g2 - g1):	37.5000	
Middle Ordinate:	0.7500	

Element: Linear

VPT	13+44.78	1251.10
POE	13+89.56	1252.00
Tangent Grade:	2.0000%	
Tangent Length:	44.7786	

Horizontal Alignment: DRW1
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

Vertical Alignment: DRW1
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

	Station	**Elevation**

Element: Linear

POB	10+12.00	1241.45

Horizontal Alignment: DRW1
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

VPC	10+22.00	1241.25
Tangent Grade:	-2.0000%	
Tangent Length:	10.0000	

Element: Symmetrical Parabola

VPC	10+22.00	1241.25
VPI	10+32.00	1241.05
VPT	10+42.00	1242.30
LP	10+24.76	1241.23
Length:	20.0000	
Entrance Grade:	-2.0000%	
Exit Grade:	12.5000%	
r = 100 * (g2 - g1) / L:	72.5000	
K = l / (g2 - g1):	1.3793	
Middle Ordinate:	0.3625	

Element: Linear

VPT	10+42.00	1242.30
VPC	11+13.11	1251.19
Tangent Grade:	12.5000%	
Tangent Length:	71.1077	

Element: Symmetrical Parabola

VPC	11+13.11	1251.19
VPI	11+33.11	1253.69
VPT	11+53.11	1255.02
Length:	40.0000	
Entrance Grade:	12.5000%	
Exit Grade:	6.6500%	
r = 100 * (g2 - g1) / L:	-14.6250	
K = l / (g2 - g1):	6.8376	
Middle Ordinate:	-0.2925	

Element: Linear

VPT	11+53.11	1255.02
POE	11+60.00	1255.48
Tangent Grade:	6.6500%	
Tangent Length:	6.8923	

Horizontal Alignment: DRW2
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

Horizontal Alignment: DRW2
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway
Vertical Alignment: DRW2
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

	Station	Elevation
Element: Linear		
POB	10+12.00	1247.49
POE	11+31.50	1249.70
Tangent Grade:	1.8463%	
Tangent Length:	119.5000	

Horizontal Alignment: DRW3
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

Vertical Alignment: DRW3
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

	Station	Elevation
Element: Linear		
POB	10+17.72	1261.36
VPC	10+22.00	1261.49
Tangent Grade:	3.0000%	
Tangent Length:	4.2800	
Element: Symmetrical Parabola		
VPC	10+22.00	1261.49
VPI	10+32.00	1261.79
VPT	10+42.00	1262.80
Length:	20.0000	
Entrance Grade:	3.0000%	
Exit Grade:	10.0467%	
r = 100 * (g2 - g1) / L:	35.2336	
K = l / (g2 - g1):	2.8382	
Middle Ordinate:	0.1762	
Element: Linear		
VPT	10+42.00	1262.80
VPC	10+43.00	1262.90

Horizontal Alignment: DRW3
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway
Tangent Grade: 10.0467%
Tangent Length: 1.0000

Element: Symmetrical Parabola

VPC	10+43.00	1262.90
VPI	10+58.00	1264.40
VPT	10+73.00	1264.48
Length:	30.0000	
Entrance Grade:	10.0467%	
Exit Grade:	0.4999%	
r = 100 * (g2 - g1) / L:	-31.8226	
K = l / (g2 - g1):	3.1424	
Middle Ordinate:	-0.3580	

Element: Linear

VPT	10+73.00	1264.48
POE	10+74.85	1264.49
Tangent Grade:	0.4999%	
Tangent Length:	1.8500	

Horizontal Alignment: DRW4
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

Vertical Alignment: DRW4
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

	Station	**Elevation**

Element: Linear

POB	10+13.73	1265.09
VPC	10+40.00	1264.66
Tangent Grade:	-1.6136%	
Tangent Length:	26.2700	

Element: Symmetrical Parabola

VPC	10+40.00	1264.66
VPI	10+65.00	1264.26
VPT	10+90.00	1263.46
Length:	50.0000	
Entrance Grade:	-1.6136%	
Exit Grade:	-3.2000%	

Horizontal Alignment: DRW4
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

r = 100 * (g2 - g1) / L:	-3.1728
K = l / (g2 - g1):	31.5182
Middle Ordinate:	-0.0991

Element: Linear

VPT	10+90.00	1263.46
POE	10+95.00	1263.30
Tangent Grade:	-3.2000%	
Tangent Length:	5.0000	

Horizontal Alignment: DRW5
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

Vertical Alignment: DRW5
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

	Station	**Elevation**
Element: Linear		
POB	10+13.28	1237.53
VPC	10+22.50	1237.13
Tangent Grade:	-4.3258%	
Tangent Length:	9.2200	
Element: Symmetrical Parabola		
VPC	10+22.50	1237.13
VPI	10+30.00	1236.80
VPT	10+37.50	1237.74
LP	10+26.36	1237.04
Length:	15.0000	
Entrance Grade:	-4.3258%	
Exit Grade:	12.5000%	
r = 100 * (g2 - g1) / L:	112.1721	
K = l / (g2 - g1):	0.8915	
Middle Ordinate:	0.3155	
Element: Linear		
VPT	10+37.50	1237.74
VPC	10+39.29	1237.96
Tangent Grade:	12.5000%	
Tangent Length:	1.7876	

Horizontal Alignment: DRW5
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

Element: Symmetrical Parabola

VPC	10+39.29	1237.96
VPI	10+44.29	1238.59
VPT	10+49.29	1239.43
Length:	10.0000	
Entrance Grade:	12.5000%	
Exit Grade:	16.7500%	
r = 100 * (g2 - g1) / L:	42.5000	
K = l / (g2 - g1):	2.3529	
Middle Ordinate:	0.0531	

Element: Linear

VPT	10+49.29	1239.43
POE	10+75.00	1243.73
Tangent Grade:	16.7500%	
Tangent Length:	25.7124	

Horizontal Alignment: DRW6
Horizontal Description:
Horizontal Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

Vertical Alignment: DRW6
Vertical Description:
Vertical Style: Alignment\NCDOT\Prop\ALG_Centerline Driveway

	Station	**Elevation**
Element: Linear		
POB	10+00.00	1265.88
VPC	10+05.00	1265.83
Tangent Grade:	-1.1500%	
Tangent Length:	5.0000	
Element: Symmetrical Parabola		
VPC	10+05.00	1265.83
VPI	10+10.00	1265.77
VPT	10+15.00	1265.27
Length:	10.0000	
Entrance Grade:	-1.1500%	
Exit Grade:	-10.0000%	
r = 100 * (g2 - g1) / L:	-88.5000	
K = l / (g2 - g1):	1.1299	

Horizontal Alignment:	DRW6	
Horizontal Description:		
Horizontal Style:	Alignment\NCDOT\Prop\ALG_Centerline Driveway	
Middle Ordinate:	-0.1106	
Element: Linear		
VPT	10+15.00	1265.27
VPC	10+18.05	1264.96
Tangent Grade:	-10.0000%	
Tangent Length:	3.0525	
Element: Symmetrical Parabola		
VPC	10+18.05	1264.96
VPI	10+23.05	1264.46
VPT	10+28.05	1264.36
Length:	10.0000	
Entrance Grade:	-10.0000%	
Exit Grade:	-2.0000%	
r = 100 * (g2 - g1) / L:	80.0000	
K = l / (g2 - g1):	1.2500	
Middle Ordinate:	0.1000	
Element: Linear		
VPT	10+28.05	1264.36
POE	10+43.34	1264.06
Tangent Grade:	-2.0000%	
Tangent Length:	15.2875	