PDN Stage 2 – Roadway Design QC Checklist

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| --- | --- |
| **SPOT ID/Project TIP #:** | Click or tap to edit. |
| **County:** | Click or tap to edit. |

2RD1 Alignment Defined

| **Item #** | **Review Item** | **Yes** | **No** | **N/A** |
| --- | --- | --- | --- | --- |
|  | **Initial Lighting Assessment** |  |  |  |
|  | Review the following conditions to determine if a lighting evaluation is needed:  \_\_\_ The corridor and/or interchange(s) is full C/A  \_\_\_ The project is not pavement rehab only  \_\_\_ The summation of the projected traffic along the -L- and -Y- lines at interchanges is 60,000 or greater. |  |  |  |
|  | For projects involving existing facilities review the  following conditions to determine if a lighting evaluation  is needed:  \_\_\_ Existing lighting modified by the project does not  require a lighting evaluation.  \_\_\_ Existing lighting more than halfway through service  life should be considered for replacement. Perform a  lighting evaluation to determine replacement costs. |  |  |  |
|  | **Initial Evaluation Report** |  |  |  |
|  | Verify that all interchanges and continuous sections of the project are included in the evaluation. |  |  |  |
|  | Verify that the begin year listed on the report is the let year and future year is 20 years from let year. |  |  |  |
|  | Confirm the following Tables are included in the evaluation report:  \_\_\_ TDP Evaluation (Table A)  \_\_\_ Interchange Details (Table B)  \_\_\_ Continuous Details (Table C)  \_\_\_ ADT Table (Table D) |  |  |  |
|  | Confirm the following Charts are included in the evaluation report:  \_\_\_ Priority Index Begin Year (Charts A)  \_\_\_ Priority Index End Year (Chart B)  \_\_\_ Begin Year Construction Cost Estimate (Chart C)  \_\_\_ Annual Electrical Energy Cost (Chart D) |  |  |  |
|  | Confirm that a Lighting Evaluation Report detailing the findings is included. |  |  |  |
|  | Confirm that a memo addressed to the State Roadway Design Engineer was developed to briefly detail the results of the evaluation. |  |  |  |
|  | Verify that a signed memo and Lighting Evaluation Report including all Tables and Charts was electronically distributed to all members of the Lighting Committee. |  |  |  |

*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. | Click to edit. |

|  |  |  |  |
| --- | --- | --- | --- |
| ***This checklist may not be comprehensive to every project. It is the responsibility of the reviewer to ensure that an adequate review is performed.*** | | | |
| **QC Reviewer Name:** | | Click to edit. | **Date:** | Click to edit. | |
| **QC Reviewer (Signature):** | |  |  |  | |

PDN Stage 3 – Roadway Design QC Checklist

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| --- | --- |
| **SPOT ID/Project TIP #:** | Click or tap to edit. |
| **County:** | Click or tap to edit. |

3RD1 Complete Roadway Design

| **Item #** | **Review Item** | **Yes** | **No** | **N/A** |
| --- | --- | --- | --- | --- |
|  | **Lighting and Electrical** |  |  |  |
|  | Lighting Photometric Layout |  |  |  |
|  | Verify that calculations on all roadway surfaces were performed using photometric software. |  |  |  |
|  | Verify that the lighting design achieves a minimum of 0.8 foot-candle (fc) at 4:1 (average to minimum) uniformity ratio on the roadway surface. |  |  |  |
|  | Verify that high mast poles are located at a minimum offset of 50’ from EOT. |  |  |  |
|  | Verify that cobrahead poles are located at a minimum offset of 15’ from EOT |  |  |  |
|  | Review design to ensure that the use of high mast poles is maximized to the greatest extent possible to minimize future maintenance and reduce roadside obstacles |  |  |  |
|  | Verify the Engineer of Record has complied with NCGS § 133-3 and NCDOT policy number F.25.0101 regarding the use of proprietary products. |  |  |  |
|  | Verify that underpass lighting is included when the structure width is 200 feet or greater. |  |  |  |
|  | Lighting Plan Preparation |  |  |  |
|  | Verify that the pole locations in plans are the same as what is shown in the photometric calculation. |  |  |  |
|  | Verify that all single arm and twin arm poles labeled and stationed. |  |  |  |
|  | Verify that all high mast poles labeled and stationed and offset provided. |  |  |  |
|  | Verify that the Lighting Control Panel is located near the top of a ramp in a relatively flat area that is easily accessible. |  |  |  |
|  | Verify that no more than 6 circuits are shown for each Lighting Control Panel. |  |  |  |
|  | Verify junction boxes are:  \_\_\_ Placed on each side of the road when circuitry crosses under the road.  \_\_\_ Located 5’ from each ground mounted cobrahead pole.  \_\_\_ Located 10’ from each high mast pole.  \_\_\_ Spaced at 300’ typical, 400’ maximum.  \_\_\_ Sized appropriately. |  |  |  |
|  | Verify that circuitry that crosses under the road is shown in a protective sleeve. |  |  |  |
|  | Verify that a raceway is used where multiple circuits cross under the road in the same electrical duct |  |  |  |
|  | Verify conductors are sized to achieve a maximum of 3% end to end voltage drop. |  |  |  |
|  | Verify that the circuity runs include the correct circuit label and size. |  |  |  |
|  | Verify that the E1 Sheet is complete:  \_\_\_ TIP Number and Sheet Number included.  \_\_\_ Design Criteria clearly shown.  \_\_\_ All items in the plans shown in the Legend.  \_\_\_ All Delta Notes from Sheets E2-Ex included and described.  \_\_\_ Appropriate Standard Drawings for Lighting referenced.  \_\_\_ Circuitry conductor table describing all components of each circuit plan symbol included.  \_\_\_ List of Abbreviations included |  |  |  |
|  | Verify that the E1x Sheet is complete for each lighting control panel on the project.  \_\_\_ TIP Number and Sheet Number included  \_\_\_ Junction box summary table complete with station, offset, and correct size.  \_\_\_ Duct summary table complete with station, offset, and correct length. |  |  |  |
|  | Verify that the E2-Ex Sheets are complete:  \_\_\_ Delta notes included for all special circumstances  \_\_\_ TIP Number and Sheet Number included  \_\_\_ Load Schedule included on sheet(s) with lighting control panels |  |  |  |
|  | Verify that all required special detail sheet(s) are included. |  |  |  |
|  | Verify that all lighting plan sheets are signed and sealed. |  |  |  |
|  | Lighting Special Provisions |  |  |  |
|  | Verify that all special provisions are included for all non-standard lighting pay items. |  |  |  |
|  | For Division let project or Purchase Order Contract, verify that Standard Provisions SP09R005 (Foundations and Anchor Rod Assemblies for Metal Poles) and SP14R004 (Roadway Lighting Foundations) are included. |  |  |  |
|  | Verify that all Special Provisions are signed and sealed. |  |  |  |
|  | Lighting Calculation of Quantities |  |  |  |
|  | Verify that all lighting pay items reference the correct pay item number. |  |  |  |
|  | Confirm that all pay item quantities have been entered in the Pay Items & Quantities (PIQ) tool and that all pay items and quantities are correct. |  |  |  |
|  | Notify Lighting & Electrical Team Lead when quantities are complete. |  |  |  |
|  | Confirm that the Lighting & Electrical Team Lead has provided pay item pricing to Estimating Group. |  |  |  |

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

| **Item #** | **Comments and Action Items** |
| --- | --- |
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| **QC Reviewer (Signature):** | |  |  |  | |