

## I. GENERAL

### A. Project Overview

#### *First Submittal*

- Proposed improvements and project limits are consistent with the scope and type of work
- Other projects in the same area have been noted
- Adjacent plats reviewed for subdivision regulations and commitments

#### *Second Submittal*

- Design exceptions requested and approved

### B. Special Provisions

#### *Second Submittal*

- Possible special provisions noted

### C. Special Plans

#### *First Submittal*

- Cost/Benefit Analysis to determine if guardrail needed

#### *Second Submittal*

- Lincoln Standard Plans reviewed
- Lincoln Specifications reviewed
- Lincoln Design Standards reviewed

### D. Agreements

Periodically throughout design, Project Managers should be looking at agreements that were in place prior to the beginning of the project to verify correct information

#### *First Submittal*

- Begin coordination with the Railroad
- Begin coordination with Floodplain issues

### E. Geotechnical Concerns Identified

### F. Cost Estimates

- Level of Cost Estimating detail appropriate for project submittal.
- Cost Estimates shall be the total cost of the project. Items shall include, but not be limited to: utilities (private and public), right-of-way, construction, preliminary engineering, railroad, and construction engineering

#### *First Submittal*

- Major cost changes have been noted

## II. ROADWAY

### A. Typical Section

*First Submittal*

Items identified are:

- Pavement type
- Pavement depth
- Pavement cross-slope
- Lane width
- Shoulder width / type
- Curb type
- Sidewalk width
- Median surfacing & width

B. Geometrics

*First Submittal*

- Alignment of lanes checked
- Length of Turn Lanes conforms to C.O.L. standards
- Bus turnouts analyzed
- Geometrics designed for U-turns where applicable
- Taper lengths in accordance with City of Lincoln Standards
- Location of turn lanes identified
- Check Geometrics using “Auto Turn” software

C. Horizontal Alignment

*First Submittal*

- Superelevation Method Noted
- Alignment checked by hand to determine if data is correct and not affected by rounding errors created in GEOPAK
- Curve Radii conform to C.O.L. Standards

D. Vertical Alignment

*First Submittal*

- Length of curve rounded to nearest 10’ increment (20’ preferable)
- ”K” Value meets more conservative of C.O.L. design standards or AASHTO Green Book
- High point / low point location adjusted to minimize drainage concerns
- Verify no low points in intersections
- Intersection and driveway sight distance calculations submitted
- Minimum and maximum allowable grades checked for all locations (including 3% platform at all intersections that could potentially be signalized)

E. Intersections / Driveways

*First Submittal*

- Access Control analyzed

*Second Submittal*

- Angle of intersection in conformance to C.O.L. Design Standards
- Appropriate curb return radii & tapers meet C.O.L. Standards
- Proposed entrances and exits align with other proposed or existing entrances and exits

- \_\_\_ Proposed entrances and exits located to provide maximum separation from other drive approaches and intersections
- \_\_\_ Left-turn lanes are offset for sight distance
- \_\_\_ Intersection and driveway sight distance calculations submitted
- \_\_\_ Locations of obstacles / hazards identified, including objects in sight distance triangle
- \_\_\_ Driveway slope in conformance with C.O.L. Standards
- \_\_\_ Driveway profile meets ADA regulations across sidewalk
- \_\_\_ Adjacent sidewalks adjusted to proposed intersection / driveway elevation and meet ADA Guidelines

F. Earthwork

*Second Submittal*

- \_\_\_ Earthwork quantities calculated

G. Cross Sections

*Second Submittal*

- \_\_\_ Tie-in locations meet existing ground
- \_\_\_ Positive Drainage achieved at tie-ins
- \_\_\_ Meet C.O.L. Standard tie-slopes

H. Sidewalk & Trail Issues (maintain pedestrian access)

*First Submittal*

- \_\_\_ Check Current Comp Plan for future bike trail locations
- \_\_\_ Sidewalk width – 5 feet along arterials; Passing opportunities provided elsewhere and meet ADA requirements

III. TRAFFIC

A. Data

*First Submittal*

- \_\_\_ Traffic data, projections, and vehicle turn movements (including u-turns) have been obtained and addressed
- \_\_\_ Design is appropriate for ADT

B. Traffic Analysis

*First Submittal*

- \_\_\_ Intersection Capacity Analysis completed

V. STORMWATER

*Second Submittal*

Pipe Systems:

- \_\_\_ Storm Water drainage system provides required capacity and meets C.O.L. design Standards
- \_\_\_ Drainage Study Data reviewed
- \_\_\_ Drainage area

- Storm Frequencies used
- Discharges determined (including pre and post development if applicable)
- Check that necessary water surface elevations will not be increased
- Hydrologic and Hydraulic Computation requirements:
  - Appropriate rational method coefficients used
  - Overland flow computations completed
  - Pipe size computations completed (trunk line only)
  - Open channel computations completed
  - Outlet computations completed including appropriate permanent erosion control
  - Analysis of downstream impacts below the outlet of the system
- Storm Water trunk line profile requirements:
  - Minimum and maximum slope requirements satisfied
  - Minimum cover requirements satisfied (consider minimum cover at upstream side of laterals)
  - Minimum separation between storm sewer and other utilities (if known) satisfied
  - Hydraulic grade line checked
  - Profiles for trunk lines shown
- Storm water drainage system coordinates with area Subdivision Studies.
- Account for sewer and water service lines(s) conflicts (if known) in design and estimate
- Special ditches designed if necessary
- Special structures or headwalls sizing determined if necessary (check maximum depth of inlets and manholes)

**Bridges and Culverts:**

- Storm Water drainage system provides required capacity and meets C.O.L. design Standards
- Drainage Study Data reviewed
  - Drainage area
  - Storm Frequencies used
  - Discharges determined (including pre and post development if applicable)
  - Check that necessary water surface elevations will not be increased
- Hydrologic and Hydraulic Computation requirements:
  - Appropriate SCS curve numbers used
  - Appropriate Time of Concentration used
  - Flow acquired from a Watershed Master Plan
  - HEC-RAS or HY8 model
  - Appropriate roadway overtopping used
  - Analysis of downstream impacts below the outlet of the system
- Special structures or headwalls sizing determined if necessary

**VI. SANITARY SEWER**

*First Submittal*

- Existing facilities researched, including private systems
- Coordinate with Wastewater

**VII. WATER MAIN**

*First Submittal*

- Alignment and location (with respect to street and ROW line)
  - Design standards (for new areas) or consultation with LWS
  - Consider future development, maintenance, and future one-call locates

- Clear distance to existing and future structures
- North and East sides of street
- Horizontal Location
  - 3.5 feet back of curb for residential
  - 7 feet back of curb for commercial / industrial
  - 50 feet from centerline in 120 ft ROW type arterials
- Preliminary profile (evaluate affects of water being constructed prior to paving)
- Evaluation of major storm water utility crossings with preference of water crossing over rather than under.
- Determination of additional field verification of alignments and depths of water, storm, sewer or other conflicting utilities

## VIII. BRIDGES

### *First Submittal*

- Structures checked for vertical and horizontal clearance
- Check to see if pedestrian or bike trail needs to be incorporated into bridge design
- MSE walls or fill slope comparison completed
- General size and location

## IX. UTILITY ISSUES

### *First Submittal*

- Utility coordination and potential conflicts identified (early coordination is required – send a copy of 1<sup>st</sup> submittal to all utilities, with a copy of cover letter to be placed in the file)

### *Second Submittal*

- Completed Grade Study sent to Utilities with a copy of cover letter to be placed in the file

## X. MISCELLANEOUS

### A. Environmental

- Check to see what Environmental documentation is required

### *First Submittal*

- Endangered Species identified
- Endangered Plants identified
- Borrow pit – exposed groundwater?
- Hazardous Waste materials identified
- Historical Sites / Structures / Section 4f areas identified
- Coordinate with State Historical Preservation Organization and with City Historian
- Verify plans include known environmental commitments
- Miscellaneous removal items included:
  - Houses, Garages, Sheds
  - Septic Tanks
  - Pumps / pump islands
  - Gas tanks
  - Well abandonment
  - Asbestos
  - Wetlands identified
  - Groundwater contamination concerns identified

\_\_\_Contaminated soil concerns identified