NOTE: EDIT THIS CHECKLIST TO MEET DISTRICT NEEDS. AN EDITABLE VERSION IS AVAILABLE FROM THE ROW DIVISION SURVEY SECTION ON REQUEST FROM DISTRICT SURVEY COORDINATORS.

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| --- | --- | --- |
| **TxDOTCONNECT ROW Project No.:** | | |
| **RCSJ:** |  | **Highway:** |
| **CCSJ:** |  | **County:** |
| **Limits:** | | |
| **Date Reviewed:** |  | **By:** |

# TXDOT DESIGN SOFTWARE GRAPHICS

1. **2-D / Planimetrics**
2. Verify work authorization scope requirements are met (items, frequency, and distance).
3. Verify use of current design software being used by TxDOT
4. Verify use of current workspace being used by TxDOT
5. All reference files are attached and provided.
6. Level structure is according to TxDOT Standards
7. Graphics extend to project limits.
8. Cell library is attached, cells are shown properly, and cells conform to TxDOT styles.
9. Line styles are consistent with standards.
10. Linear features connected where appropriate:
    1. Fence lines
    2. Powerlines along power poles & crossing roadway.
    3. Ditch tops enclosed around culverts and driveways.
    4. Buildings completely drawn and labeled with number of floors and structural material.
    5. Utilities connected (if SUE Level D, B, or A support in scope). Check telephone pedestals, electrical vaults, etc.
    6. Paint striping connected and specified (color & type)
    7. All road edges drawn. Edge of gravel, Edge of pavement, curb, driveway, etc.
    8. Outline parking areas with number of spaces.
    9. Storm sewers connected with double lines (8” and above) and single lines (under 8”). Label includes size and type along sewer pipe.
    10. Sanitary sewers with double lines (8” and above) and single lines (under 8”). Label includes size and type along sewer pipe.
    11. Culvert structures shown (headwalls, wingwalls, etc).
    12. Bridge structures shown (beams, bents, abutments, etc).
    13. Retaining walls
    14. Flumes
    15. Guardrails drawn.
    16. Any other permanent manmade feature shown and labeled.
    17. Right-of-Way line (existing and proposed)
    18. Railroad tracks and Railroad Company labeled
11. All point features shown and labeled appropriately:
    1. Signs with text labels of type (stop sign, billboard, etc).
    2. Mailboxes.
    3. Culvert ends with flowline and mudline elevations.
    4. Manholes with labeling below (only exception is electrical or communications without SUE D, B, & A scoped):

Manhole type

Rim Elevation

Infall pipe size, type and direction

Infall pipe bottom of pipe elevation

<Repeat infall measurements as appropriate>

Outfall pipe size, type, and direction

Outfall pipe bottom of pipe elevation

<Repeat outfall measurements as appropriate>

e.  Infall and outfall elevations indicate flow from higher elevation infalls to lower elevation outfalls with no pooling, unless there are sump pumps. Field revisit to verify any spots with pooling.

f.  All utility features labeled with type.

g.  Gates labeled with type.

h.  Bridge elements shown (columns, lightpoles, etc.)

i.  Any other permanent manmade feature that TxDOT may need to move or remove.

1. Control points are shown:
   1. Coordinates match control sheets.
   2. Elevations match control sheets.
      1. Monument elevation.
      2. Natural ground elevation.
   3. Name of monument shown by monument symbol.
2. Highway and side street names labeled.
3. North Arrow
4. Notes include:
   1. Survey company with firm number, address, and phone number.
   2. Date of survey.
   3. Status of survey (preliminary, final). Final must be quality checked.
   4. Coordinate system, datum, unit of measurement, and surface adjustment factor.
   5. Vertical datum with any adjustment.
   6. Geoid
   7. Data collection method (RTK, RTN, Remote Sensing, Static, etc.)
   8. TxDOT RRP station used

# 3-D / Digital Terrain Models

1. All reference files are attached and provided. Includes:
   1. 3D DGN with breaklines, spot elevations, boundary, voids, and other elements used in creation of DTM.
2. Line styles are consistent with TxDOT standards.
3. Level structure has named levels (not numbered) that comply with TxDOT standards.
4. Surface extends to project limits.
   1. Voids only around building elevations or non-scoped areas.
   2. Triangles do not go through voids.
   3. Surface does not extend beyond natural elevations (no positive or negative spikes).
   4. Scoped river, stream, and other water bottom cross-sections included

i.  Any cross-sections outside of project area (500’, 1000’) connected to main surface by a 5’-wide extension.

1. Check breaklines:
   1. All road surface edges are connected (edge of pavement, edge of gravel, driveway, etc).
   2. Crowns of roads and driveways connected. Crown lines stop at appropriate edge intersections.
   3. All breaklines intersect at consistent point coordinates and do not pass through each other.
   4. Ditches and waterways are enclosed or open out of the right-of-way.
   5. Grade changes are connected where appropriate.
   6. Preference is that all natural ground shots are connected to provide a smooth and consistent surface.
   7. All transition areas have a clear break between surface planes. Ex. Sharp drop between edge of road to natural ground. Wall top drops to wall bottoms. Wall bottoms to natural ground.
   8. Contours do not leak through breaklines to form gashes or protuberances that do not exist in the real world.
   9. Voids around all areas of unnatural flow, such as buildings.
   10. Voids around all non-scoped areas without accurate measurements.
2. Check spot elevations. Preference is that these are not typically used unless absolutely necessary for a circular low spot or high spot.
   1. Does not include non-grade-break shots, such as signs, top of culvert, mailboxes, etc.
   2. Spot elevations are consistent with surrounding grade breaks.
3. Visualize DTM triangles with a smooth-with-shadows display and rotate view to check for spikes and divots.
4. Ensure bridges, crossovers, and other crossing surfaces are included in a separate DTM.
5. Any adjoining surfaces should be consistent without large jumps between surfaces.
   1. Breaklines are connected to consistent elevations between surfaces.
   2. Boundaries have consistent locations and elevations.
   3. Contours closely match between surfaces.
6. **TxDOT Design Software**
   * 1. Follow naming conventions from survey contract.

#### DELIVERABLE FILES

1. **Planimetric Requirements**
2. Topography.
3. Separate files for alignment, topography, ROW, control monuments, and additional references, if available.
4. TxDOT design software files (project, points database, chains, input & output files).
5. RAW files (conventional), GPS observation files, photos, LIDAR files, or other measurement files.
6. Field Notes.
7. Photos.
8. ASCII or Text file of all Topographic features collected Surface and Grid
9. ASCII or Text file of all Control Points found and set (Primary, Secondary and Panel)
10. ASCII or Text file of all Right-of-Way monuments set (Type II, Property Corners and location of Access Denial)
11. **DTM Requirements**

1.  3D dgn of all surfaces.

#### QUALITY CHECK

#### A. Office Check

1.  2D Planimetric check

2.  Deliverables check

#### B. Field Verification

1.  Aerial Photo check

2.  Google Earth Pro Streetview check

3.  Site drivethrough or walkthrough.

**Design Checklist completed by:**

|  |  |
| --- | --- |
| Name: | Date: |

**Additional notes:**