

ITEMS TO INCLUDE ON REDLINE DRAINAGE PLANS

Field Reconnaissance Items

1. Existing drainage patterns should be clearly shown. This is important not only for review, but also as a record of pre-project conditions.
2. Existing contours should be shown with readable elevations at a contour interval appropriate for the terrain.
3. Existing ditches should be marked (and labeled if not clear), with a continuous series of arrows for the extent of the ditch.
4. General overland flow patterns (non-ditch) should be marked with arrows as needed in addition to contours. Particular attention should be paid to areas where contours are indistinct or difficult to discern, or where contours alone are not adequate (such as areas adjacent to the slope stakes that are not well reflected in the contours). Do not use the same arrow symbology for overland flow as for existing ditches to avoid confusing the two.
5. Existing pipe condition (especially if retaining or plugging), any erosion/problem notes, etc. should be noted.
6. Ditch descriptions should be provided for all existing ditches (other than roadside ditches that appear in the cross sections) to show existing channel geometry dimensions. Ditch descriptions should include water depth (if applicable) and type of cover/condition for outfall ditches.
7. Note the condition of existing ponds/spillways within the project area. Note spillway/outlet locations and any draw down pipe sizes.
8. Show TB for major drainage structures.

Hydraulic Design Items

1. Mark proposed grade sag/crest locations on plan sheets. Indicate direction of grade (with an arrow pointing in the downgrade direction) for any alignment that does not have a sag/crest marked on that sheet.
2. Tops/inverts should be marked on red-line set, incl. cross pipes (and equalizer pipes).
3. Show all required TDE/PDE on plans so that it can be reviewed.
4. Proposed ditches should be labeled (plan view) and alignment/stationing filled in for ditch details. Plan view ditch labels should include base width dimension for base ditches.
5. Min. depth on ditch details should be set to contain the design flow plus freeboard, and should generally be specified to the whole or half-foot (1.0' or greater).
6. Show D.A. boundaries for all ditches/inlets/pipes. If D.A.s extend off sheet, provide readable contour map at an appropriate scale that shows full delineation of D.A.s.
7. Show Q10/V10 for all ditches entering (or discharging adjacent to) wetlands, and include all variables used in analysis on red-line set.
8. Draft buffer zones (BZ1 & BZ2). Be careful about drafting around acute angles – do not just Copy Parallel.
9. Document design notes on red-lines as needed (to explain design decisions and document other issues not readily apparent).
10. Do not turn off any levels/reference files that are required for R/W plans (such as property owners).
11. Cross pipes and design data block from Pipe Data Sheet should be shown on the profiles.
12. Include all variables on ditch comps (incl. Manning's 'n'/side slopes).
13. All features requiring grading, including but not limited to special ditches, stormwater BMPs etc., shall have a grading plan including, at minimum, slope stake lines. Inclusion of proposed contours is preferred. For stormwater BMPs with a basin component proposed contours are required.
14. Details shall have clear dimensioning including, but not limited to, side slopes, base widths, berm widths, depths, etc.

Items preferred to be on red-line set plan sheets, but not required as long as provided separately:

1. Ditch computations
2. Outlet (pre/post) analysis summary
3. Overpass spread computations