



### GRADING and DRAINAGE PLAN REVIEW CHECKLIST

LOG NUMBER: \_\_\_\_\_  
PROJECT: \_\_\_\_\_

REVIEWER: 1st \_\_\_\_\_ Date \_\_\_\_\_  
2nd \_\_\_\_\_ Date \_\_\_\_\_  
3rd \_\_\_\_\_ Date \_\_\_\_\_

KEY: / = Acceptable                      X = Not Applicable  
O = Not Acceptable or Missing        ? = Unable to Determine Acceptability Status

**PLEASE RETURN THIS ORIGINAL CHECKLIST WITH THE NEXT SUBMITTAL WITH THE REDLINES.**

Complies	Requirement
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#### PLAN PREPARATION AND SUBMITTAL

- \_\_\_\_\_ 1. The First Submittal of the Grading and Drainage Plans shall include, at a minimum, the following items (unless previously submitted):
  - a. Master Drainage Report covering the entire development site,
  - b. Geotechnical or Soils Report with percolation test results.
- \_\_\_\_\_ 2. The Grading and Drainage Plans shall be submitted on 24" x 36" sheets bound or stapled in sets.
- \_\_\_\_\_ 3. Each sheet of the Grading and Drainage Plans must be sealed and signed by the Engineer preparing the plans.
- \_\_\_\_\_ 4. The minimum height of all text, numbering, and lettering shall be 0.1" (one tenth of one inch).
- \_\_\_\_\_ 5. The Grading and Drainage Plans must encompass the entire parcel or development. All lots, tracts, and retention basins must be shown in their entirety.
- \_\_\_\_\_ 6. All percolation test results will be provided prior to any grading on the site as a part of the Grading and Drainage Plan review process. Under no circumstances will testing be deferred to after completion of site grading.

#### COVER SHEET REQUIREMENTS

- \_\_\_\_\_ 7. The Name of the proposed development must be shown on the Title Block of the cover sheet, with the Legal Description of the property, including the Town, County, and State.

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Complies	Requirement
_____	8. The Developer's name, address and phone number must be shown on the cover sheet.
_____	9. The Engineer's name, address, and phone number must be shown on the cover sheet.
_____	10. The following Town standard notes must be shown, or corrected, on the cover sheet:
	a. General Notes
	b. Grading Notes
_____	11. Detailed typical street sections for all streets shall be shown on the cover sheet or on a separate detail sheet. The street section shall include, at a minimum, the following items with dimensions and applicable standard detail identification:
	a. Right-of-Way,
	b. Roadway with curb and gutter identified by type,
	c. Sidewalks,
	d. Public Utility Easements,
	e. Applicable pavement and grading slopes,
	f. All underground utility locations dimensioned relative to the centerline or monument line of the street or the right of way line.
_____	12. All elevations shown on the plans must be referenced to an approved Town benchmark. The benchmark description must be shown on the cover sheet.
_____	13. The Basis of Bearings must be shown on the cover sheet.
_____	14. An Index Map with the following information is required on the cover sheet:
	a. Street Names,
	b. Lot, Tract, and Parcel Designations
	c. Retention Basin Designations,
	d. Sheet numbers and limits,
	e. Phase limits and numbers, if applicable,
	f. Major drainage structures and pipes.
_____	15. A Vicinity or Site Location Map is required on the cover sheet.
_____	16. A Quantity Tabulation is required on the cover sheet.
_____	17. A "Utility Coordination" block shall be included on the cover sheet showing the names of the utility companies servicing the area of the Development and the date(s) plans were submitted to them.
_____	18. A Legend shall be shown on the cover sheet, or detail sheet, for all symbols used on the grading plans.



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\_\_\_\_\_ 19. The following Grade Certification is required on the cover sheet:

<u>GRADE CERTIFICATION</u>	
THIS IS TO CERTIFY THAT THIS GRADING PLAN IS IN COMPLIANCE WITH THE GRADE REQUIREMENTS OF THE SOILS REPORT PREPARED BY:	
_____ DATED _____	
_____	_____
REGISTERED CIVIL ENGINEER	DATE

\_\_\_\_\_ 20. When temporary retention basins or storm drainage facilities are present or proposed, the following Note must be shown on the cover sheet:

**"The existing or proposed temporary retention and/or drainage facilities located within the area of this development will not be removed from service until the permanent retention and drainage facilities are functional."**

\_\_\_\_\_ 21. All portions of the development within the FEMA 100-year flood zones must be identified. If any such areas exist, the Plans and Drainage Report shall be submitted to the Pinal County Engineer. The Pinal County Engineer approval is required.

When a Review by the Pinal County Engineer is required, the following Approval Block shall be added to the cover sheet, above the Town Engineer's approval Block:

<b>DRAINAGE PLAN APPROVED:</b>	
_____	_____
TOWN ENGINEER TOWN OF FLORENCE, ARIZONA	DATE

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- \_\_\_\_\_ 22. The following Approval Block for the Town Engineer shall be included on the cover sheet, in the lower right corner:

<b>APPROVED:</b>	
_____ TOWN ENGINEER TOWN OF FLORENCE, ARIZONA	_____ DATE

- \_\_\_\_\_ 23. The following "As Built Certification shall be included on the cover sheet:

<u>AS BUILT CERTIFICATION</u>	
I HEREBY CERTIFY THAT THE "AS BUILT" MEASUREMENTS AS SHOWN OR NOTED HEREON WERE MADE BY ME OR UNDER MY SUPERVISION AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.	
_____ REGISTERED LAND SURVEYOR	_____ DATE
(SEAL)	

**GENERAL INFORMATION REQUIRED ON THE PLAN SHEETS**

- \_\_\_\_\_ 24. A North Arrow and scale must be shown on each sheet of the Plans. The Plans shall be at a minimum scale of 1" = 50'.
- \_\_\_\_\_ 25. Phase limits and numbers, if applicable, must be shown on each applicable sheet.
- \_\_\_\_\_ 26. All existing and proposed storm drainage facilities, such as retention basins, catch basins, scuppers, storm drain pipes, and headwalls must be shown on the grading plans and identified by type and size and applicable Standards. The designation of drainage facilities and structures shall match the designations used in the Drainage Report analysis.
- \_\_\_\_\_ 27. All existing buildings and other significant structures must be shown. The removal of these items must be noted, if appropriate.



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_____	28. All existing wells, streams, canals, irrigation laterals and ditches, lakes and other water features must be shown. Any proposed modifications must also be noted.
_____	29. The existing topography must be shown by contours. Spot elevations are required when the subdivision's topography cannot be clearly defined by contours. Sufficient spot elevations are required immediately off-site, adjacent to the subdivision boundary, to permit an adequate analysis of grade differentials and drainage.
_____	30. Cross-sections must be shown across the development's property line boundaries at all critical points.
_____	31. Spot elevations must be shown for all existing curb and gutter adjacent to the development. Spot elevations must be shown adjacent to each property corner, at all grade breaks, and at all scuppers/catch basins.
_____	32. The following information must be shown for each Lot: <ul style="list-style-type: none"> <li>a. Proposed elevations at front lot comers, typically top-of-curb elevations.</li> <li>b. Proposed elevations at rear lot comers.</li> <li>c. Proposed Finished Pad elevations.</li> <li>d. Proposed Finished Floor elevations.</li> <li>e. Top of Wall and Finished Grade elevations (on both sides of the wall) shall be shown for all retaining walls.</li> </ul>
_____	33. All existing and proposed site perimeter walls on or adjacent to subdivision boundaries and retention basin perimeters must be shown on the plans, with Top of Wall elevation and Finished Grade elevations on both sides of the wall, at all critical points. (Note: This requirement does not include block fences or Dooley Walls.)
_____	34. All site perimeter wall structural details and retaining wall structural details are required to be shown on the grading plans.
_____	35. All Finished Floor Elevations must be a minimum of 12" above the high point of the building site or 12 inches above the water surface elevation of the Q <sub>100</sub> flow in the adjacent street(s) or drainage ways. (Pinal County Drainage Ordinance, Section 602.6.)  The water surface elevation of the Q <sub>100</sub> flow in the streets must be shown on all critical lots, i.e. where the Q <sub>100</sub> flow is not contained within the street Right of Way, on the Grading Plans. Drainage Easements must be provided and shown on the Grading Plans and the Final Plat across all Lots where the Q <sub>100</sub> flow is not contained within the street Right of Way.
_____	36. The Lot grading must be adequately sloped to prevent storm water from ponding on the Lot. The minimum allowable slope from back of Lot to front of Lot shall be 0.50%, unless prior approval is obtained from the Town Engineer. Provide a typical Lot Grading Diagram.



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_____ 37.	Cross-sections must be shown for all retention basins. The depth of ponding due to the 100-year, 1-hour design storm for retention facilities, must be shown on the retention basin cross-sections.  Note: The Pinal County Drainage Ordinance, as adopted by the Town of Florence, does not restrict the depth or side slopes on retention basins. However, other cities and counties have adopted a maximum design water depth of 3 feet and a maximum side-slope of 4:1, as a public safety standard. It is strongly recommended that if these standards are exceeded, a protective barrier, such as a fence or a perimeter wall, should be constructed around the basin to mitigate liability and may be required, on a case by case basis, by the Town Engineer
_____ 38.	No portion of a retention basin slope is allowed within the street right of way or the Public Utility Easement adjacent to the right of way.
_____ 39.	The grading plan of all retention basins must show:  a. The Tract Number or Designation. b. The same Retention Basin Designation as shown in the Drainage Report. c. All contours, at an interval of 1' minimum, with elevations. d. The design High Water elevation, Bottom elevation, and Retention Volume. e. The dimensioned location of all Dry Well(s), if applicable. f. The elevation of all Dry Well grate(s), if applicable. g. Drywell Detail (if applicable).
_____ 40.	All proposed Drywells must be registered with the Arizona Department of Environmental Quality (ADEQ) and a copy of the application must be submitted to the Town prior to the approval of the Grading Plans.
_____ 41.	All Drywells, at a minimum, shall be the double chamber type consisting of an interceptor chamber and a settling chamber.
_____ 42.	All Drywells receiving discharge from potential oil, fuel, or chemical contaminated areas must also include a separator chamber in addition to the interceptor and settling chambers.



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_____	43. Construction details must be shown on plans for all of the following proposed drainage facilities:
	<ul style="list-style-type: none"><li>a. Drainage swales with grade and spot elevations,</li><li>b. Storm drains with profile and showing Hydraulic Grade Line,</li><li>c. Catch basins and connector pipes with profile and showing Hydraulic Grade line,</li><li>d. Scuppers and spillways – show a longitudinal section, with elevations and slopes, that includes the full width of the street, scupper, spillway, bottom of the retention basin, and the erosion protection at the end of the spillway. The design high water elevation must be noted at the appropriate location on the spillway.</li><li>e. Show design flows (discharge and velocity for 100 year event) at all concentration points.</li><li>f. Show details for all proposed headwalls.</li><li>g. Open channel structures.</li></ul>
_____	44. When a catch basin per M.A.G. Detail No. 533-1 is specified on plans, it shall include a grate per M.A.G. Detail No. 540-1, Type TW 1.1 and curb and gutter transitions per M.A.G. Detail No. 532.
_____	45. An Access Barrier, with hinges on bottom, is required at all open ends of drainage pipes, 12" or more in diameter.
_____	46. Water lines, fire lines, and water service lines are not allowed under any portion of retention basins.
_____	47. Structural design calculations are required for storm drains and/or equalizing pipes subject to wheel loading.
_____	48. Provide a Stormwater Pollution Prevention Plan.

### DRAINAGE REPORT REQUIREMENTS

A Drainage Report shall be submitted with the First Submittal of all Grading Plans for subdivisions. A separate Drainage Report Review Checklist is used for the review of the Drainage Report.