



Subdivision Inspection Guidelines

Maricopa County
Department of Transportation
2901 West Durango Street
Phoenix, AZ 85009

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I. Introduction

This guideline is provided to compliment the Maricopa County Ordinance Addressing Requirements For Permits to Work in Right-of-Way Within Unincorporated Maricopa County (the Ordinance). This guideline addresses the inspection requirements for subdivision assets to be open and declared (O&D) by the Maricopa County Board of Supervisors. Additionally, guidelines for private subdivisions are provided.

II. General Inspection Information

For all subdivision work the Engineer of Record (EOR) shall provide continuous inspections as outlined in the Ordinance Article VI.1. MCDOT will provide general engineering inspections necessary to determine if the work is in accordance with the permit. Any deficiencies noted during a general inspection will be reported to the EOR. If a recommendation for corrective action is required from the EOR, corrective action for that item shall not begin until MCDOT has approved the recommended corrective measures.

The permittee shall hold a preconstruction meeting prior to commencement of any construction activity. This meeting must include the permit holder, the contractor(s) performing construction activities, EOR, material testing firm, and MCDOT inspector.

This meeting will include an overview of the following:

- a) EOR responsibilities
- b) pavement verification
- c) Mix Design submittal requirements
- d) Sampling and testing
- e) Activities for which MCDOT must be present – proof rolling, stringline
- f) Proof rolling with loaded tandem axle water truck or dump truck
- g) Stringline

MCDOT will participate in the inspection and acceptance of the roadway prior to paving. The subgrade and aggregate base compaction tests shall be submitted prior to proof rolling and string lining the grade. Specifically, MCDOT will participate in the string line and proof rolling of the subgrade prior to the placement of aggregate base course and aggregate base course prior to paving. The inspections shall be scheduled with the assigned MCDOT inspector. For asphalt paving operations the permittee shall hold a paving pre-activity meeting a minimum of 7 business days prior to paving. All pavement verification reports and mix designs must be submitted and approved prior to the paving pre-activity meeting. The aggregate base compaction tests shall be submitted prior to proof rolling and string lining the grade.

At this meeting the following items shall be addressed and discussed:

- a) Phase Certification of subgrade with test reports
- b) Phase Certification of curb and gutter – EOR shall inspect & certify the curb and gutter prior to ABC placement.
- c) Phase Certification of aggregate base with test reports
- d) Paving schedule

All subgrade and aggregate base phase certifications and material test reports are required to be approved a minimum of 24 hours prior to paving asphalt or placing concrete material.

All material sampling and testing, and sampling and testing frequencies, shall be in accordance with the Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction as modified by the Maricopa County Department of Transportation Supplement (MCDOT Supplement to MAG), MCDOT Sampling and Testing Guide, and the MCDOT Roadway Design Manual.

III. Inspections for Public Subdivisions

In addition to the regular routine inspections MCDOT requires the following inspections:

- a) Substantial Completion
- b) Final Inspection
- c) Warranty

As the subdivision construction advances and each phase of construction is complete the EOR shall complete the phase certification outlined in Appendix A and submit a signed copy to MCDOT.

A substantial completion inspection will be conducted per Section V of this manual after the following items are completed/obtained:

- a) All phase certifications:
 - 1. Mass Grading
 - 2. Underground Utilities
 - 3. Forms/Reinforcement
 - 4. Sidewalk, Curb & Gutter, ADA Ramps
 - 5. Drainage Structures
 - 6. Backfill for Sewer Manholes
 - 7. Subgrade under pavement, Curb & Gutter, Sidewalk
 - 8. Base Course Material
 - 9. Base Course for Asphalt Concrete
 - 10. Wearing Course for Asphalt Concrete
- b) Signing
- c) Pavement marking
- d) Materials test reports
- e) As-built plans

The permittee shall notify the MCDOT inspector with a minimum of 2 weeks advance notice to schedule a substantial completion inspection.

At the substantial completion inspection, deficiencies noted by the County will result in a punch list of items needing correction. If there are no health & safety / structural deficiencies that need to be corrected and all punch list items are superficial corrections, then MCDOT will make a recommendation to Maricopa County Planning & Development that the roads are substantially complete and ready to open for traffic. All structural deficiencies and punch list items requiring a recommendation by the EOR shall be corrected before a recommendation of substantial completion can be issued. Superficial punch list items can be carried over to the final inspection punch list at the discretion of MCDOT.

Upon buildout of all homes and completion of the building permit for the subdivision or parcel under permit, the permittee will request a final completion inspection. The final completion inspection will be conducted per Section VI of this manual. Deficiencies noted by the County will be added to the punch list. Final completion will not be issued until all punch list items are corrected to the satisfaction of MCDOT. Upon issuing the final completion letter and posting a warranty bond the construction bond will be released and the project will begin the one-year warranty period.

The Engineer of Record (EOR) shall attend the substantial and final completion inspections. If the EOR is unable to attend, they will designate in writing a representative for the inspections. If the EOR or representative is not present for the inspections, the inspections shall be rescheduled. In addition to the EOR and County, the permittee, developer, owner, and contractors should attend the substantial and final completion inspections as well.

The 1-year warranty period will begin with the issuance of Final Completion and the posting of the warranty bond.

IV. Inspections for Private Subdivisions

Private subdivisions constructed in the County will be designed and constructed to the County Standards, the approved plans, and in accordance with the County Subdivision Regulations. An Engineer of Record (EOR) shall provide continuous inspection for all work performed. MCDOT will provide engineering inspections necessary to determine if the work is in accordance with the approved plans. As the subdivision construction advances and each phase of construction is complete the EOR shall complete the phase certification outlined in Appendix A and submit a signed copy to MCDOT.

A substantial completion inspection will be conducted per the guidelines outlined in this manual after the following items are completed/obtained:

- a) All phase certifications:
 1. Mass Grading
 2. Underground Utilities
 3. Forms/Reinforcement
 4. Sidewalk, Curb & Gutter, ADA Ramps
 5. Drainage Structures
 6. Backfill for Sewer Manholes
 7. Subgrade under pavement, Curb & Gutter, Sidewalk
 8. Base Course Material
 9. Base Course for Asphalt Concrete
 10. Wearing Course for Asphalt Concrete
- b) Signing
- c) Pavement marking
- d) Materials test reports
- e) As-built plans

The permittee shall notify the MCDOT inspector with a minimum of 2 weeks advance notice to schedule a substantial completion inspection.

At the substantial completion inspection (See Section V), deficiencies noted by the County will result in a punch list of items needing correction. If there are no health and safety / structural deficiencies that need to be corrected and all punch list items are superficial corrections, then MCDOT will make a recommendation to Maricopa County Planning & Development that the roads are ready to open for traffic. All health and safety and structural punch list items shall be corrected before a recommendation for MCDOT substantial completion is made. After issuance of MCDOT substantial completion, subsequent repair of all deficiencies and damage will be the responsibility of the permittee and homeowner's association.

A final completion inspection and warranty inspection are not required. The closeout of the MCDOT inspection portion of the building permit will begin upon issuance of substantial completion.

V. Substantial Completion Inspection

When work under the permit has been completed and is ready for inspection the permittee can request a substantial completion inspection. Work will not be considered ready for inspection until all drainage items, grading, and backfill are complete. The area behind curbs shall be backfilled to one (1) inch below top of curb, compacted and neatly dressed to a maximum 4:1 slope within the Right-of-Way. All dumpsters, equipment, building related materials, etc. shall be removed from the roadway and sidewalks. The pavement, curbs, and sidewalks shall be swept clean of all dirt and debris. The following items shall be submitted prior to scheduling the substantial completion inspection.

- a. EOR phase certifications
- b. EOR certified materials test reports for all phases of construction
- c. Final letter of certification from Engineer of Record
- d. Letter of final acceptance from owning utility company for underground utilities (wet only).
- e. EOR shall certify as-built plans in accordance with Appendix B
- f. 3 hard copies of the certified as-built plans
- g. 1 electronic copy of as-built plans in latest version of Micro-station
- h. 1 electronic copy of as-built plans in PDF format
- i. 8 ½"x11" Final Plat/MOD (3 copies)

The substantial completion inspection will include the inspection of all permitted work and a drainage flow test. The day of the inspection a water truck shall apply sufficient water at the discretion of the MCDOT inspector for verification of drainage to the streets one hour before start time of the inspection. Additional water may need to be applied during the inspection period. Any corrected drainage items will require a retest where a water truck floods the area for visual inspection.

VI. Final Completion Inspection

Upon buildout of the subdivision and completion of all construction related work a final inspection will be conducted. The permittee shall schedule the final inspection with the MCDOT inspector assigned to the project.

Final inspection will include a drainage flow test. The day of the inspection a water truck shall apply sufficient water at the discretion of the MCDOT inspector for verification of drainage to the streets one hour before start time of the inspection. Additional water may need to be applied during the inspection period. If no deficiencies are noted, then MCDOT will issue a final acceptance letter. If deficiencies are found during the inspection a final punch list will be created. Any corrected drainage items will require a retest where a water truck floods the area for visual inspection. Before MCDOT can issue final acceptance all items from both the substantial completion and final punch lists shall be completed and signed off by the EOR.

Once all punch list items have been completed and the EOR has signed off on the completion of the punch lists, MCDOT will do a final walk through to inspect the completion of the punch list items. If no remaining items require correction and the punch lists are complete, then MCDOT will issue a final acceptance letter. Upon issuing the final completion letter and posting a warranty bond the construction bond will be released and the project will begin the one-year warranty period.

VII. Warranty Inspection

The Permittee shall schedule a warranty inspection 90 days prior to the end of the warranty period. At this time the project will be inspected. The day of the inspection a water truck shall apply sufficient water at the discretion of the MCDOT inspector for verification of drainage to the streets one hour before start time of the inspection. Additional water may need to be applied during the inspection period. Any corrected drainage items will require a retest where a water truck floods the area for visual inspection. At the warranty inspection, deficiencies noted by the County will result in a punch list of items needing correction. If no deficiencies are encountered, the warranty bond will be returned. If deficiencies are encountered, these deficiencies shall be corrected within the warranty period before the bond is returned.

VIII. Partnering

The County values and believes in its Partnering Program. The Partnering Program is designed to build the foundation of a cohesive partnership with MCDOT, developers, contractors, subcontractors and suppliers through identifying outcomes, setting goals and resolving disputes. This is accomplished through all project team members being committed to: building relationships upon mutual trust and teamwork; establishing and keeping open lines of communication; performing their best on the job; being open minded to new best practices; empowering employees to solve issues at the lowest level; and maintaining cooperative working relationships to meet project goals.

Appendix A – Construction Phase Certification

**MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION**

Engineer of Record Construction Phase Certification

Permit No.
Description:

As Engineer of Record, I certify that the **Mass Grading** in the County Right-Of-Way, and storm water detention areas, have been completed in substantial conformance with the approved plans and specifications, as verified by actual field measurements performed in accordance with standard industry practices, and MAG and/or County Specifications. After underground utilities have been installed, the geo-technical engineering consultant, in accordance with standard industry practices, shall test all areas in the County Right-Of-Way for P.I. and percent passing #200 sieve. The test results shall be prepared by the geo-technical engineering consultant and forwarded to MCDOT for review and approval. The designed pavement structure has been modified based on the soil test results in accordance with standard industry practices, and MAG and/or County Specifications.

Signature

AZ Registration No.

Date

As Engineer of Record, I certify that the following listed **Underground Utilities** have been installed in substantial conformance with the approved plans and specifications, as verified by actual field measurements performed in accordance with standard industry practices, and MAG and/or County Specifications. Invert elevations and slope of line have been verified based upon the field measurements, and will be reflected on the as-built plans. Materials and installation procedures for sewer and water have been inspected by private utility company inspectors (at the Developer's expense) to verify compliance with the plans and specifications, in accordance with the terms and conditions of formal Main Extension Agreements approved by, and on file with, the Arizona Corporation Commission. Backfill material and compaction in County Right-Of-Way have been tested and verified by the geo-technical engineering consultant in accordance with standard industry practices, and MAG and/or County Specifications. Underground utilities installed were _____

Signature

AZ Registration No.

Date

As Engineer of Record, I certify that all **Forms and Reinforcement** were installed in substantial conformance with the approved plans and specifications, as determined by actual field measurements performed in accordance with standard industry practices, and MAG and/or County Specifications. Field measurements will be reflected on the as-built plans. Material testing and structural inspections were performed by the geo-technical engineering consultant, in accordance with standard industry practices, Section 505 of the latest MAG Uniform Standard Specifications for Public Works Construction, and MCDOT Supplement. Box Culverts were constructed in accordance with ADOT Standard Details. Concrete structures installed were _____

Signature

AZ Registration No.

Date

As Engineer of Record, I certify that all **Sidewalks, Curb and Gutter, and ADA Ramps** were installed in substantial conformance with the approved plans and project specifications, as determined by actual field measurements performed in accordance with standard industry practices, and MAG and/or County Specifications. Field measurements will be reflected on the as-built plans. Material testing was performed by the geo-technical engineering consultant, in accordance with standard industry practices, Section 340 of the latest MAG Uniform Standard Specifications for Public Works Construction, and MCDOT Supplement.

Signature

AZ Registration No.

Date

As Engineer of Record, I certify that the **Drainage Structures** (catch basins, spillways, box culverts, etc.) were installed in substantial conformance with the approved plans and specifications, as determined by actual field measurements performed in accordance with standard industry practices, and MAG and/or County Specifications. Field measurements will be reflected on the as-built plans. Material testing and structural inspections were performed by the geo-technical engineering consultant, in accordance with standard industry practices and Section 505 of the latest MAG Uniform Standard Specifications for Public Works Construction and MCDOT Supplement. The geo-technical engineering consultant will submit special inspection certificates to the County, if required.

Signature

AZ Registration No.

Date



As Engineer of Record, I certify that the **backfill for sewer manholes** was installed per MAG specification sections 206.4.4 and 206.4.5.

Signature

AZ Registration No.

Date

As Engineer of Record, I certify that the **Sub-grade under Pavement, Curb and Gutter, and Sidewalk Sections** has been tested for compaction by the geo-technical engineering consultant in accordance with standard industry practices, and as required in MAG Section 211 and MAG Section 301 and the Public Right-Of-way Resolutions for Unincorporated Areas of Maricopa County.

Signature

AZ Registration No.

Date

As Engineer of Record, I certify that the **Base Course Material** has been inspected and tested for compaction and thickness, as determined by the plans and specifications, by the geo-technical engineering consultant in accordance with standard industry practices, and as required in MAG Section 702 and Public Right-Of-way Resolutions for Unincorporated Areas of Maricopa County.

Signature

AZ Registration No.

Date

As Engineer of Record, I certify that the **Base Course of Asphalt Concrete** has been inspected and tested by the geo-technical engineering consultant in accordance with standard industry practices for minimum course thickness, density, cross-section and grade as determined by the plans and specifications, and as required in MAG Section 710.

Signature

AZ Registration No.

Date

As Engineer of Record, I certify that the **Wear Course of Asphalt Concrete** has been inspected and tested by the geo-technical engineering consultant in accordance with standard industry practices for minimum course thickness, density, cross-section and grade as determined by the plans and specifications, and as required in MAG Section 710.

Signature

AZ Registration No.

Date

Appendix B – As-Built Plan Certification

FINAL
AS-BUILT PLAN CERTIFICATION FORMAT

As the Engineer of Record, I certify that these improvements were constructed in accordance with the approved plans and specifications. Test reports and as-built plans are submitted with this certification to your office.

I recommend approval and acceptance of these improvements as constructed under permit _____ . For the project titled: _____, located at _____, S # _____ (Subdivisions Only)

Engineer's Signature

(Seal)

Date

Instruction to Engineer for completion of As-built Certification:

1. Fill in number from permit issued to Developer/Owner by Maricopa County Department of Transportation.
2. Fill in project title from plans cover sheet. If the project is a subdivision include the subdivision name and "S" number.
3. Fill in nearest major intersection or start of construction point. Example: Cotton Lane north of Bell Road.
4. Include all required test reports and as-built plans.
5. Sign, seal and date the as-built certification.
6. Submit packet to:
Development Services Division
Maricopa County Department of Transportation
2901 West Durango Street
Phoenix, AZ 85009