



## **Engineering Plan Submittal Requirements**

**Revised:  
October 2, 2013**

## **Introduction:**

- These ***Engineering Plan Submittal Requirements*** are intended to standardize City requirements for civil engineering plans and communicate them in a straightforward manner. Comments on this document can be submitted directly to the City Engineer at: [mholzapf@cityofmesquite.com](mailto:mholzapf@cityofmesquite.com)
- The most current version of the ***Engineering Plan Submittal Requirements*** and other related documents and resources are available at the City Engineering Division webpage at: <http://www.cityofmesquite.com/engineering/developers.php>.
- Engineering Division contact information is available at: [http://www.cityofmesquite.com/engineering/documents/Contact\\_Information.pdf](http://www.cityofmesquite.com/engineering/documents/Contact_Information.pdf)
- The Engineering Division has developed numerous documents, checklists and aids to assist and guide the development team through engineering plan preparation, review and construction process. These documents are available on the City website.

## **The Successful Development Team:**

The Development Team normally consists of the developer/property owner, a civil engineer, and/or an architect. Successful private development teams:

- Have a designated project manager from the lead engineering or architectural firm who is responsible for ensuring that timelines are met, submittals are complete, submittals meet published requirements and design guidelines, and City review comments are adequately addressed.
- Communicate among themselves and with City Staff frequently via email (preferred) or telephone. Face to face meetings with City Staff must be scheduled in advance and include an agenda so City Staff can prepare for a productive and efficient meeting.
- Coordinate utility relocations and service with franchise utility companies. The Engineering Division does not coordinate franchise utility issues for private development projects.
- Follow City Staff advice on Code interpretation and issues not Code related. City Council has charged Staff to enable development to occur safely and efficiently.

## **Prior to Engineering Plan Submission:**

**Schedule and attend a Pre-Application Meeting – First.** Contact Planning Division to schedule your pre-application meeting and have a City Case Manager assigned to your project.

**Obtain and review the Engineering Plan Submittal Application.** Ensure that every item included in the Engineering Plan Submittal Application is addressed on the Engineering Plans prior to submittal.

**Obtain Record Drawings.** The development team is responsible for obtaining and reviewing record drawings of all underground City utilities and paving from the Engineering Division prior to submitting plans. The development team shall provide location map and email contact information with the request to [Engineering.Records@cityofmesquite.com](mailto:Engineering.Records@cityofmesquite.com). Record drawings are transmitted electronically. In addition record drawings may need to be obtained from other governmental agencies such as the Texas Department of Transportation (TXDOT), the North Texas Municipal Water District (NTMWD), Dallas Water Utilities (DWU), etc. or from franchised utility companies.

**Request a Pre-Design Meeting.** Although not required, a pre-design meeting between the development team and Engineering Division staff allows the development team to ask specific engineering-related questions and allows Engineering Division staff to share its institutional knowledge before significant design effort is expended.

**City Utilities.** The City's ordinance on utility extensions and pro-rata agreements is available on this webpage. <http://www.cityofmesquite.com/engineering/developers.php>

### **Engineering Plan Review and Release Process.**

**Initial Engineering Plan Submittal.** After your Site Plan is approval by the Planning Division, you may submit an application for Engineering Plan Review to the Engineering Division. Two sets of your Engineering Plan submittal along with the **Engineering Plan Submittal Application** and appropriate engineering plan review fee must be submitted to the Engineering Division, second floor, 1515 N. Galloway Avenue. The engineering plan set shall include a copy of the site plan approved by Planning Division and with the Planning Division stamp and signature of approval.

The submittal will be reviewed for completeness by the Engineering Plan Review Specialist in accordance with the two-page checklist at the end of this document. If the submittal is incomplete, it will be immediately rejected and returned without review. If the submittal is complete, it will be routed for City Staff review. **The first review normally takes 21 calendar days.** Notification that the review has been completed will be electronic via email with instructions on picking up the marked up submittal.

### **Engineering Administrative Fees**

Reference: Mesquite Subdivision Ordinance, Article III, Section E(7) and City Ordinance No. 4155)

Engineering Plan Submittal Application Review:

Normal Review:

First Review:	\$750.00 for Properties Less Than One Acre \$750.00 Plus \$50.00 per Acre for Properties One Acre and Over (Rounded Up)
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Subsequent Reviews:	\$500.00 for Properties Less Than One Acre \$500.00 Plus \$25.00 per Acre for Properties One Acre and Over (Rounded Up)
Fast Track:	\$2500.00 per Full Staff Review Session for Properties Less Than One Acre \$2500.00 Plus \$100.00 per Acre per Full Staff Review Session for Properties One Acre and Over (Rounded Up)

**Engineering Plan Review Status.** The status of an engineering plan review should be checked on-line at the City's development website at [http://www.cityofmesquite.com/DRP/online\\_project.php](http://www.cityofmesquite.com/DRP/online_project.php) using the development specific user ID.

**Subsequent Engineering Plan Submittals.** Each resubmittal must include two complete Engineering Plan set. Review of subsequent submittals normally takes **10 calendar days** per subsequent submittal. The City of Mesquite mark-up engineering plan set, **Engineering Plan Submittal Application** and appropriate engineering administrative processing fee shall be included each time engineering plans are resubmitted.

**Aid to a Quick Review for Subsequent Submittals**

- Address each of City comments by including the information on the plan sheet or by writing an explanation on the sheet. Place the information or explanation on the same plan sheet as the review comment. If the information or explanation is on another sheet, write a note on the markup sheet next to the review comment telling the City where to find the information or explanation.

**Out of Town Engineering Firms**

Engineering firms located outside the metroplex will receive mark-up plans by US Postal Service Parcel Post (6-day) mail. However, if the development engineer wishes to expedite delivery they must make arrangements to have the mark-up plans shipped to them. The development engineer shall provide a completed shipping voucher that includes a payment/account number. Once the mark-up plans are ready, the Engineering Division will contact the development engineer. The development engineer is responsible for having the shipping company pickup their mark-up plans for expedited delivery.

**Other Plan Approvals, Documents, and Permits Required.** The following plans and permits must be approved separately prior to full release of Engineering Plans for construction:

- **Tree Survey and Preservation Plan.** A Tree Survey and Preservation Plan is required on most projects. This plan shall be submitted separately to and approved by the Municipal Arborist, Park Services Division prior to any work on site.

- **Irrigation Plan.** Irrigation plans should be submitted separately to and approved by Building Inspection. Only the irrigation meter should be shown on the Engineering Plan Utility Plan sheet.
- **Grading Permit.** A grading permit is normally submitted for each project requiring Engineering Plans. The Engineering Division web site <http://www.cityofmesquite.com/engineering> (Engineering Resources→Engineering Permits and Fees→Grading Permit Package) contains information on calculation of fees and preparation of the grading permit.
- **TCEQ Notice or Notice of Intent (NOI).** Provide copies of the appropriate TCEQ Notice of Intent from the Operator(s) as defined in the TCEQ General Permit, as well as a Stormwater Pollution Prevention Plan (SWPPP) in digital format for sites 1 acre and larger.

### **Engineering Inspection Fees**

Reference: Mesquite Subdivision Ordinance, Article III, Section E(8) and City Ordinance No. 4155)

- An engineering inspection fee will be 4% of the actual cost of site improvements and 1% of the actual cost of clearing, grubbing, debris removal, mass grading, earthwork and lime stabilization of subgrade. The engineering inspection fee check, made payable to the “City of Mesquite”, should be transmitted by letter and include the total fee amount. In addition, a summary of the work to be done by civil component (i.e., water, sanitary sewer, paving, etc.), should accompany the letter.
- The above inspection fees cover inspection during normal City working hours but do not cover inspection fees outside normal City working hours including City holidays or any weekend. To arrange for inspection outside normal working hours a verbal request for overtime inspection must be communicated to the City Public Works Construction Inspector two working days in advance. Overtime inspection shall be charged portal to portal. There is a two-hour minimum charge for inspection on weekends. The Contractor will be charged a 2-hour minimum overtime charge if the Contractor schedules inspection but then cancels work without notice to the Public Works Construction Inspector before the inspector shows up to the project. The City will not give final payment or give final acceptance of a project until inspector overtime charges are paid. Inspection overtime will be reimbursed to the City by the Contractor at the rate of time-and-one-half plus workman’s compensation, F.I.C.A. and other normal City benefits and pertaining rates.
- **Project Specific Permits.** During Engineering Plan review, Engineering Division will advise the development team if other letter(s) of permission or permits from adjacent property owners and/or other public agencies (i.e., TxDOT, NTMWD, COE, Dallas County, FEMA, etc.), are required. Such documents include cross-access easements, FEMA CLOMR and LOMR, and TxDOT access and crossing permits.

- **Preparation of Engineering Plans for Release.** Once all Engineering Plans have been finalized, fees paid, and permits obtained, development team shall furnish **at least** eight (8) sets of complete Engineering Plans to the Engineering Division. The development team shall stamp every sheet of all Engineering Plan sets with a City of Mesquite release and date stamp. The City keeps all “released” sets with the date stamp until the pre-construction meeting when it provides four released (4) sets to the owner and contractor. The development team may make as many copies of the plans as required as long as every contractor has at least one with the color stamp at the job site readily available at all times.

### **Miscellaneous Engineering Plan Guidance.**

- **Retaining Walls.** Projects with retaining walls over three (3) feet in height or any wall supporting structures such as parking areas, drive isles, screening walls, fences or handrails shall include construction details in the plans. Retaining wall structural calculations shall be submitted separately if the retaining wall is greater than four (4) feet in height. An engineer licensed in the State of Texas shall design and seal the calculations. Soils report used in the calculations shall also be submitted. If a retaining wall has a drop off height greater than 30-inches within 3 feet horizontal of a walking surface, a guard or handrail detail shall be included in the plans and shall comply with Building Inspection requirements (typically vertical pickets at 4-inch spacing) (International Building Code 1003.2.11.1 and International Residential Code 312.2). If a screening wall or handrail is either attached to or in the proximity of the retaining wall, the structural calculations shall reflect the appropriate loads and the construction details shall show the connection between the two.
- **Fire Lane, Flow, and Hydrant Requirements.**
  - Fire lanes, fire flows, and fire hydrant requirements shall be per the current International Fire Code (IFC) adopted by Ordinance. Requirements may be directly coordinated with the Fire Marshall.
  - Fire lanes: shall not cover the same area as a loading zone or parking spaces; shall have an unobstructed vertical clearance of not less than 14-feet; shall have an unobstructed width of not less than 24-feet; shall be within 50-feet of the building’s fire department connection (FDC); and shall not dead end in after 150-feet without an approved turn around. Additional requirements are detailed in the IFC
  - Fire Lane Paving: shall be 6 inches thick, 4,000 psi 6 sacks concrete per cubic yard minimum, reinforced with #4 steel bars on 18 inches centers both ways atop a six inch lime subgrade (34 lbs./sq. yd application rate) placed in 8” lifts and compacted to 95% of Standard Proctor at a moisture range of 0% to plus 6% of optimum moisture. Two inches greater concrete depth can be substituted for the required lime subgrade (minimum 8-inch thickness).
- **Water Mains – I would just refer them to our GDS for water especially sheets 4 & 5 Make sure all these water notes (Mains, backflow, meters) match the notes on the GDS**

- For large sites, a looped water main shall be provided and connected to two different existing water mains. As approved by the Senior Civil Engineer, fire hydrants may be on a dead end main not more than 75-feet long with a 6-inch pipe or 150-feet for with an 8-inch pipe.
  - Domestic water taps must be off a live/looped main and not a dead end or fire hydrant lead.
  - Water mains shall be not less than 8-inches in diameter and looped. See City of Mesquite General Design Standards Water Sheet 4 for other size and design requirements.
  - All water lines must be in a 15 ft easement. Ensure the fire sprinkler line is outside the easement.
  - All valves and fittings shall be mechanically restrained. Place valves at adjacent to Tee intersections and on fire hydrant leads. Do not place valves on end of a plugged line.
  - Typically the top of the water main shall be 42-inch deep (see standard details). If the water main is less than 18-inch deep, provide a 4-inch concrete cap.
  - Water mains shall typically be designed to be installed above storm water pipes and sanitary sewer pipes.
- **Water Meter Backflow Protection.**
    - Reduced pressure backflow prevention assembly (RPZs) shall be installed on all domestic service water lines (does not include single family residences). The City prefers the RPZ on the domestic line be installed inside the building. RPZs shall be installed on all irrigation water lines. The City requires the RPZ be installed on the private side of the meter in an above ground insulated box.
- **Water Meters.**
    - Meters must not be placed in paved areas including sidewalks and driveways (i.e., installed in a grass area protected by a concrete curb). Meters must be placed in a utility easement or City ROW.
    - Bullheads are not allowed. Projects may not bull-head two each 2-inch meters and have a 3 inch domestic service line to the building. If the site needs a 3-inch meter or greater, provide water service/meter sizing calculations (i.e., GPM).
    - Domestic water service shall be tapped into a looped water main.
    - All hospitals shall have two water service pipes and meters installed in such a manner so as to minimize the potential for an interruption of the supply of water in the event of a water main or water service pipe failure. (International Building Code, paragraph 609.2)
    - Irrigation water service may be tapped into a dead-end main or fire hydrant lead. If tapped off a fire hydrant lead, the meter and RPZ shall have a minimum 3-foot clearance to the “4 ½” steamer” portion of the fire hydrant.
- **Typical Sanitary Sewer Lines (non-residential)**
    - Comply with the City General Design Standards <http://www.cityofmesquite.com/engineering/standard.php>
    - Bring sewer service into an existing manhole or construct a manhole at the tie-in to the existing sewer system.

- Provide top rim, flow line in, flow line out and slope of lines.
- Most sewer mains will be SDR-26, 8-inch at a minimum 0.4% slope.
- Show all water and storm water lines in profile of sewer main. Not necessary for simple commercial service. Provide benchmarks.
- All sewers shall have precast manholes. If deeper than 15-feet, then construct a 5-foot diameter manhole. All drop manholes are 5-foot diameter.
- All commercial developments shall install a minimum 6-inch domestic sewer service. All non residential sewer services shall be connected to the City sanitary sewer main at a manhole.
- See TCEQ requirements for required water and sanitary sewer separation distances.

**Bores - See information on bores** at the Engineering Division web site <http://www.cityofmesquite.com/engineering> (General Design Standards and Standard Details → Bores)

### **After Engineering Plan Release.**

- **Building Plans.** Building Plans and application for a Building Permit shall be submitted to Building Inspection Division for review any time after Engineering Plans are “released”.
- **Pre-Construction Meeting.** Once Engineering Plans are “released” for construction, the contractor must contact the assigned Engineering Division Project Engineer to schedule a pre-construction meeting. You will be given contact information for this Project Engineer once plans have been released.
- **Early Release of Grading, Mass Grading, and Grading Permit.** In large development projects (i.e., residential subdivisions or industrial parks), the City may release separate grading plans prior to releasing of full Engineering Plans. See guidance document titled **Building Pad Prep During Mass Grading at the Engineering Division web site at:**  
<http://www.cityofmesquite.com/engineering/developers.php>

**Expiration of Engineering Plans – Reference:** Mesquite Subdivision Ordinance, Article III, Section E(9)

- The acceptance of an administratively complete engineering plan submittal application is considered a permit under the Local Government Code, Chapter 245. Said permit shall expire two years after acceptance of administratively complete application unless progress is being made toward completion of the project. If the permit expires, a new engineering plan submittal application will be required under current design standards and ordinances, which shall include submission of additional fees.
- **Engineering Acceptance of Civil Construction – Record Drawings.** If changes to the “released” set of Engineering Plans are needed during construction, they must be submitted to the City Engineering Division for review and release. Both hard copy and electronic copy of record drawings are required prior to final acceptance. Requirements



for records drawings can be obtained on the Engineering Division web page at <http://www.cityofmesquite.com/engineering> (Engineering Resources→Engineering Permits and Fees→Record Drawing Procedures Private Projects).

- **Use of Separate Instruments.** When dedication of an offsite easement is required, the conveyance of an easement or right-of-way by separate instrument is permitted. The separate instrument must include proposed filing information with metes and bounds description and exhibit prepared by an RPLS. Submit the draft instrument to Engineering Division for review and approval prior to execution and filing.

**Engineering Plans On-Site.** The contractor and each sub-contractor shall have a least one set of Engineering Plans with the red City's "release" stamp. Lack of engineering plans on the project site with the City released for construction stamp is grounds for shutting down the project.

## Engineering Plan Submittal Application

Date Submitted: \_\_\_\_\_ Review (circle one): First      Subsequent

Number of Acres: \_\_\_\_\_ Plan Review Administrative Fee \$ \_\_\_\_\_

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**Project Name** \_\_\_\_\_ **Official Address from Planning Division** \_\_\_\_\_

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**Official Subdivision Name from Planning Division** \_\_\_\_\_

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Engineer's Name \_\_\_\_\_ Firm/Company \_\_\_\_\_

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Address \_\_\_\_\_

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Email \_\_\_\_\_ **Primary Contact Yes/No** \_\_\_\_\_ Phone \_\_\_\_\_

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Owner's Name \_\_\_\_\_ Firm/Company \_\_\_\_\_

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Address \_\_\_\_\_

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Email \_\_\_\_\_ **Primary Contact Yes/No** \_\_\_\_\_ Phone \_\_\_\_\_

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Developer's Name (If Applicable) \_\_\_\_\_ Firm/Company \_\_\_\_\_

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Address \_\_\_\_\_

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Email \_\_\_\_\_ **Primary Contact Yes/No** \_\_\_\_\_ Phone \_\_\_\_\_

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Architect's Name (If Available) \_\_\_\_\_ Firm/Company \_\_\_\_\_

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Address \_\_\_\_\_

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Email \_\_\_\_\_ **Primary Contact Yes/No** \_\_\_\_\_ Phone \_\_\_\_\_

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Contractor's Name (If Available) \_\_\_\_\_ Firm/Company \_\_\_\_\_

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Address \_\_\_\_\_

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Email \_\_\_\_\_ **Primary Contact Yes/No** \_\_\_\_\_ Phone \_\_\_\_\_

## ABBREVIATED ENGINEERING PLAN SUBMITTAL APPLICATION CHECKLIST

1. The following administrative items are included with the Engineering Plan Submittal:
  - Check for Engineering Plan Review fee.
  - Two complete sets of full-size Engineering Plans.
  - Markups of previous submittals, if applicable.
  - Annotated review comments, if applicable.
  - Permits from other public entities, if applicable.
  - One copy of any study or report completed in support of the project.
  - Complete Impervious Area Summary Form.
2. All drawing sheets will include a title block, north arrow, scale, legend, and seal of the Engineer of Record.
3. The Cover Sheet include a location map, engineer and owner contact information, sheet index, and plan type (civil engineering, mass grading, etc.).
4. A copy of the approved Site Plan stamped by Planning Division will follow the Cover Sheet
5. Dimensional Control & Paving Plan sheet(s) will include:
  - Dimensions (thickness, width, length, radius) for all paved areas (parking areas, driveways, fire lanes, turn lanes, drive aisles, sidewalks, etc.)
  - Dumpster location accessible by SU-30 vehicle.
  - Screening and/or retaining wall location, foundation, and height.
  - Setbacks, easements, 100-year flood elevation.
  - Median openings, streetlights, and trees.
  - Pavement markings, streetlight and street signage.
  - Two GPS grid coordinates.
  - Metes and bounds.
  - All existing and proposed public and private easements and rights-of-way.
  - Verification of public rights-of-way width (“variable width” is not acceptable).
  - Building setback lines.
6. Grading Plan sheet(s) will include:
  - Lot area and disturbed land area.
  - Minimum finished floor elevation, 100-year flood plain line, and 100-year storm water surface elevation.
  - Existing and proposed lot lines, easements, improvements within 25’ of the site, off and on-site drainage features, and positive overflow routes.
  - Existing and proposed contours and spot elevations on-site and 50’ beyond property line.
  - Proposed retaining wall locations with top and bottom of wall elevations.
  - Cut and fill areas and cross-sections and building pads.
7. Drainage Area Map sheet(s) will include:
  - Storm drainage analysis and design shall comply with the Drainage Ordinance.
  - Labeled basins and sub-basins with flow arrows that drain to/through the site.

- Drainage Area Map Calculation Table that includes drainage areas, I, C, T<sub>c</sub>, Q, etc., for the fully developed, 100-year storm event.
  - Existing and proposed drainage structures and location of all sags and crests.
8. Storm Drainage Plan sheet(s) will include:
- Storm drain pipe size, material, vertical and horizontal alignment, slope, hydraulic grade line, and velocity for all mains and laterals.
  - Storm drain inlet size, type, location, and capacity.
  - Storm sewer manhole location, size, type, and material.
  - Outfall, headwall, and other structure location, type, velocity, and erosion/scouring protection.
  - Ditch, swale and open channel width, depth, running and side slopes, and capacity.
  - Detention/retention pond location, size, depth, capacity, and material.
  - Proposed Drainage Easements for Storm Drains 18-inch diameter and above.
9. Utility (Water & Sanitary Sewer) Plan sheet(s) will include:
- Existing and proposed water main and lateral location, size, material, valving, metering, flow rate, fire flow rate, fire hydrant location, FDC location, back-flow prevention, depth, and crossings and clearance from other utilities and structures.
  - Existing and proposed sanitary sewer main and lateral location, size, material, manholes with flow line in and flow line out, cleanouts, depth/profile, slope, and crossings and clearance from other utilities and structures.
  - All existing and proposed public and private easements and rights-of-way.
  - Proposed line separating public from private maintenance for both utilities.
10. Erosion Control/SWP3 Plan (required on all projects with disturbed area greater than 1 Acre) sheet(s) will include:
- Owner, engineer, and developer's contact information, total site and disturbed acreage, limits of construction, and borrow and spoil areas.
  - Existing and proposed contours, drainage structures, pavement and other structures.
  - BMP locations, details, phasing, calculations, and maintenance schedule.
11. Applicable project specific and City General Design Standards and Standard Detail sheet(s) will be attached to the end of the Engineering Plan set.
12. A detailed list of requirements for each plan sheet is available on the Engineering Division web page at <http://www.cityofmesquite.com/engineering> (Engineering Resources→Engineering Plan Preparation→Engineering Plan Checklist). Detailed plan requirements for drainage improvements are contained in the City Drainage Ordinance which is available on the City web site at: <http://www.cityofmesquite.com/engineering/documents/DrainageOrdinance.pdf>