Engineering Plan Submittal Requirements

Revised:
May 2, 2017

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

- 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/DocumentCenter/Home/View/406.

- Engineering Division contact information is available at: http://www.cityofmesquite.com/DocumentCenter/Home/View/401

- The Engineering Division has developed other 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 Engineering Division website at: http://www.cityofmesquite.com/378/Engineering

The Development Team normally consists of the developer/property owner, a civil engineering firm, an architect and a general contractor and sub-contractors.

A Successful private development team:

- Has **a designated project manager** who is often the lead project engineer or architect who is responsible for ensuring that project stakeholders are receiving timely communication regarding project status, timelines are met, submittals are complete, submittals meet published requirements and design guidelines, and City review comments are adequately addressed.

- **Communicates** among the design team and other project stakeholders 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.

- **Coordinates** utility relocations and required service with franchise utility companies. The Engineering Division does not coordinate franchise utility issues for private development projects.

Prior to Engineering Plan Submission:

Schedule and attend a Pre-Application Meeting – At this meeting staff will explain the City's Development review processes, and you may ask project specific questions. Staff can point you in the right direction and provide some candid advice on any special problems your project may encounter. The team will assign a case manager to guide you through each step of the process and coordinate team review.

To set up your pre-application meeting please fill out the online Self-Survey form and pay the $50 Pre-Application fee with the Planning & Zoning Division. Meetings are held each Wednesday morning beginning at 9AM and last a half-hour per applicant.

Obtain Record Drawings. The development team is responsible for obtaining and reviewing record drawings for City infrastructure during the plan preparation phase, prior to submitting plans. Information and a request form for requesting City record drawings can be obtained at the following website: http://www.cityofmesquite.com/384/Plats-Engineering-Records.
Please understand that the City does not guarantee the information on record drawings but they provide a good starting point for investigation.
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. and from franchised utility companies.

Request a Pre-Design Meeting - 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.

Engineering Plan Review and Release Process:

Initial Engineering Plan Submittal: After Site Plan approval by the Planning & Zoning Division, you may submit for Engineering Plan Review to the Engineering Division through energov.

City of Mesquite - Engineering Division

Updated: May 2, 2017

The City of Mesquite is pleased to announce the rollout of an on-line permit and plan management system named energov. Starting **May 15, 2017** the City will **only** accept payment of fees and plan and permit submittals through the **Citizen Access Portal (CAP)**. Please click on the link for more information: **https://energov.cityofmesquite.com.** All plan and supporting documents must be submitted digitally per the below requirements.

Each Engineering Plan Submission Shall Consist of:

☐ **Digital copy in pdf format per eReview Standards:**
- **Engineering plans (including details)**
- **Supporting design calculations, reports, hydraulic studies, geotechnical reports, SWPPP, etc.**
- **Required Administrative Items (such as supporting permit documentation, etc. – See detailed checklist at http://www.cityofmesquite.com/DocumentCenter/Home/View/409.**

☐ **Correct engineering plan review fee**

All submittals of the above information will be through the Citizen Access Portal at:

https://energov.cityofmesquite.com

Once at the Citizen's Access Portal, you will need to do the following:
☐ Create an account with a username and password (along with name, address, contact information, etc.)
☐ Enter information about the project (location, size of the site, engineering firm, etc.)
☐ Upload the engineering submission

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. **Please retain the originals of your approved & signed site plan to make copies for subsequent submittals.**

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. **Our Goal is to return the first submittal with review comments within 21 calendar days of submission. Depending on workload and the size and quality of the engineering plan submission staff often returns plans faster than this goal.** Notification that the review has been completed will be posted on eReview. Paper copies will not be mailed out or be available for pick up from the engineering department. All markups will be on eReview.

Engineering Plan Review Fees and Timeframes:
(Mesquite Subdivision Ordinance, Article III, Section E(7) and City Ordinance No. 4155)

Engineering Plan Submittal Review:

First Review: **(Goal of 21 calendar day turnaround)**	$750.00 for Properties Less Than One Acre $750.00 Plus $50.00 per Acre for Properties Over One Acre (Round Up to Largest Acre)
Subsequent Reviews: **(Goal of 10 calendar day turnaround)**	$500.00 for Properties Less Than One Acre $500.00 Plus $25.00 per Acre for Properties Over One Acre (Round Up to Largest Acre)
Fast Track Staff Review (each review): **(Goal of 3 working day turnaround)**	$2500.00 Plus $100.00 per Acre for Properties Over One Acre (Round Up to Largest Acre)

Engineering Plan Review Status: The status of an engineering plan review should be checked on-line on energov at **https://energov.cityofmesquite.com,** using the personal login.

Explanation of How City Comments Were Resolved:
Address each of City comments by annotating the digital City marked up set with an explanation of how the comment was addressed and/or writing a letter of explanation that itemizes all the comments by sheet with explanation of how the comments were addressed. 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.

Marked up Plans with City Comments:
Engineering plan comments will be able to be viewed after the review process is complete on energov.

Other Plan Approvals, Documents, and Permits Required. The following plans and permits must be submitted & approved 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.

☐ **Grading Permit.** A grading permit is normally submitted for each project requiring Engineering Plans. The Engineering Division web site http://www.cityofmesquite.com/DocumentCenter/Home/View/412 contains information on calculation of fees and preparation of the grading permit.

☐ **TCEQ Notice or Notice of Intent (NOI) and Construction Site Notice (CSN).** Provide copies of the appropriate TCEQ Notice of Intent from the Operator(s) and Large Site or Small Site Construction Site Notice (CSN) 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.

☐ **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.

☐ **Calculation and Payment of Engineering Inspection Fees:**
Please reference document on Engineering Division website at:
http://www.cityofmesquite.com/DocumentCenter/Home/View/408

☐ Other Administrative Items or Studies as appropriate: See pages 2 & 2 of the detailed **Engineering Plan Checklist** at:
https://www.cityofmesquite.com/DocumentCenter/Home/View/409

Preparation of Engineering Plans for Release: Once all Engineering Plans have been finalized, fees paid, and permits obtained, the development team shall furnish the following to the City Engineering Division:

- ☐ **A Minimum of** eight (8) full-size (24” x 36” or 22” x 34”) sets of complete Engineering Plans. You may send additional sets for “release” stamping depending on the size of the development.
- ☐ **A Minimum of one** (1) half-size (11” x 17”) set of complete Engineering Plans.
- ☐ A CD/DVD or flash drive with the complete set of stamped engineering plans in all of the **following three formats** - **pdf**, **tiff** and AutoCAD **dwg** formats.

The development team shall provide an individual to 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: At the preconstruction meeting the City will keep the one half-sized set and three full size sets of plans and give the remaining five released (5) 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:

- **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 inch 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). See https://www.cityofmesquite.com/DocumentCenter/View/496

- **Water Mains – Refer to City 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 assigned City Project 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-feet 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/386/General-Design-Standards-Standard-Detail
  - ☐ 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-feet diameter manhole. All drop manholes are 5-feet 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 City General Design Standards for bores at:
http://www.cityofmesquite.com/DocumentCenter/Home/View/439

- **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.

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 developer or general contractor must contact the assigned Engineering Division **Public Works Construction Inspector** to schedule a pre-construction meeting. You will be given contact information for the Public Works Construction Inspector once plans have been released.

- **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 the City to issue a “Stop Work Notice” halting work on the project.

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 application under the Local Government Code, Chapter 245. Said permit application 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.

City Engineering Acceptance of Civil Construction:

In addition to proper completion of the construction shown on the engineering plans, there are several important administrative items that must be submitted and approved prior to City acceptance of the improvements and issuance of a Certificate of Occupancy for a project. These administrative items include:

☐ **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/DocumentCenter/Home/View/417

☐ **Maintenance Bond** – a one-year maintenance bond for 10% of the cost of the public improvements (or a minimum of $500.00) must be submitted to your assigned Engineering Division Public Works Construction Inspector.

☐ **Acceptance Letter Request Form –** fill out this form and turn into your assigned Engineering Division Public Works Construction Inspector. This form is available at: http://www.cityofmesquite.com/DocumentCenter/Home/View/5128

☐ All required **construction and material tests reports** have been successfully completed and witnessed by your inspector and related documentation of these tests submitted to your assigned Engineering Division Public Works Construction Inspector.

☐ All other project documentation complete, City invoices paid, etc.

ABBREVIATED ENGINEERING PLAN SUBMITTAL CHECKLIST

The full engineering plan checklist can be downloaded at the following location:
http://www.cityofmesquite.com/DocumentCenter/Home/View/409

1. The following administrative items are included with the Engineering Plan Submittal:
   ☐ Digital copy in pdf format per eReview Standards:
   - Engineering plans (including details)
   - Supporting design calculations, reports, hydraulic studies, geotechnical reports, SWPPP, etc.
   - Required Administrative Items (such as supporting permit documentation, etc. – See detailed checklist at http://www.cityofmesquite.com/DocumentCenter/Home/View/409
   - Markups of previous submittals, if applicable.
   - Annotated review comments, if applicable.
   - Permits from other public entities, if applicable.

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:

(See drainage ordinance for detailed drainage plan requirement checklist):

- ☐ 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_c, 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:

(See drainage ordinance for detailed drainage plan requirement checklist):

- ☐ 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 – Submitted Digitally (pdf)** (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.
    - ☐ Fully executed NOI and either small or large CSN as applicable.
    - ☐ **SWP3 must meet all EPA and TCEQ regulatory requirements.**

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/DocumentCenter/Home/View/409
    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/DocumentCenter/Home/View/404