

STANDARDS & GUIDELINES

December 8, 2023

City of Memphis
Engineering Division Land
Development



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I. Introduction & General Background

The City of Memphis, Engineering Division (City Engineering) welcomes the opportunity to serve the citizens of our community. This document serves as a means to communicate our process related to land development, and the role that City Engineering plays in that process.

The Land Development Office (LDO) is a department under City Engineering that specifically works with the Memphis and Shelby County Division of Planning & Development (DPD) to ensure that all developments adhere to City standards and meet the requirements set forth for public improvements.

Contact information for the LDO is as follows:

Title: Land Development Coordinator

Address: 125 North Main Street, Suite 644

Memphis, TN 38103

Phone: 901.636.6340

Disclaimer: This document is provided as a general guideline for the plan submittal process. Information contained herein is for the designer's aid. The intent of this document is to provide information and guidance only. The engineer is ultimately responsible for the accuracy and completeness of the design submittal. Standard City of Memphis Construction Specifications, the Unified Development Code (UDC), and the City of Memphis Storm Water Management Manual all provide exhaustive information pertaining to design requirements.



II. Development Applications - FAQs

A. When is it necessary to submit plans to Land Development?

Plans must be submitted to the Division of Engineering, Land Development Office (LDO) for review of:

- Any work within or upon City of Memphis property or street right-of-way (ROW), or within a City easement (drainage, sewer, etc.)
- Any work that directly affects traffic within the City's ROW
- Any work that may cause an increase of stormwater runoff to City stormwater facilities or downstream properties (refer to Memphis and Shelby County Storm Water Management Manual (SWMM)).

Stormwater runoff from projects larger than one acre, or within a drainage basin deemed a "Sensitive Drainage Basin" by the City, or in the Fletcher Creek Overlay District must be addressed with stormwater detention facilities, unless a request for a stormwater detention waiver has been filed and approved by City Engineering (SWMM Volume 1, Section 6.6). This issue is discussed in further detail in this document.

B. What types of Projects go through Land Development?

Projects that must go through the Land Development Plans Review process should fall into one of the following categories:

- Memorandum of Conformance (MOC)
- Administrative Site Plan Review (ASPR)
- Right of Way Permit (ROW)
- Standard Improvement Contract (SIC)
- Plat Re-Recording
- Easement Plat
- Encroachment Agreement
- ROW Dedication
- Street & Alley Closure
- Underground Fiber/Cable Plans
- Monitoring Well
- C. How do I submit an application?

All submittals must be uploaded through the Accela Citizen Portal (See Page 5).

D. What are the types of Permits issued by Engineering?

An ROW Permit is filed for work within City ROW/easements, not exceeding construction cost of \$25,000. For projects exceeding \$25,000, a Standard Improvements Contract must be executed between the owner/developer and the City and approved by City Council.

Curb Cut Permit applications (for work involving only a new commercial drive connection) should be submitted directly to City of Memphis Traffic Engineering (901.636.6710).

Sidewalk Permits (for work involving only minor sidewalk repair/pour) must be applied online through Accela. Residential Driveway Permits can be obtained from the City of Memphis, Construction Inspections Office (901.636.2462).



E. How do I get an MOC?

MOC's are issued by DPD upon submittal of the Final Plat. Please call 901.636.7152 with questions.

F. How do I get an ASPR?

Plans for developments considered by the applicant as a "use by right" (i.e., already properly zoned, platted, etc.) should be submitted to the Memphis/Shelby County Office of Construction Code Enforcement (OCCE). OCCE will coordinate with LDO as needed to determine whether plans will be reviewed by City Engineering. Please call 901.636.7152 with questions.

- G. What fees are required for plans review?
 - The City has established a process for review that ensures all applicants are treated equitably. The base fee for Civil
 - The review fee for Street and Alley Closure plats, Easement Plats, Encroachment Plats, and Plat Re-records is \$250.
 - Right of Way fees for work within the public ROW are calculated by Land Development near completion of the plans review process.
 - Curb Cut Permit fees will be calculated by Traffic Engineering on a case by case basis.
 - Sidewalk Permit and Residential Driveway Permit fees are set by City Inspections.
 - For review of Fiber Optic Permits, typically a \$750 base review is required for projects less than 1 mile in length. Additionally, a fee of \$1 per foot is assessed by City Inspections prior to construction to cover the permit fee for such projects. For Fiber Optic projects over 1 mile in length, fees for review, permit, and construction inspection are assessed on a case-bycase basis. Please call (901)-636-6794 with any questions.

For more detailed information regarding fees for review, refer to City of Memphis Ordinances, available at:

Code of Ordinances | Memphis, TN | Municode Library

H. What will be required at the end of construction to close out the project and get bonds released?

Prior to release of Developer's bonds:

- (1) the City must conduct final inspection and provide report, AND
- (2) the owner/developer must have public infrastructure and/or detention facilities surveyed for as-built conditions. The consultant will submit revised/corrected mylars via Accela. Bonds can be released when the final inspection is approved and revised mylars are signed by the City Engineer. Additional information regarding Record Drawings is provided in Section III.C.13.



III. Submittal Requirements

A. Items to be submitted

All plans going to Land Development must be submitted through the Accela Citizen Portal. Unless asked otherwise.

- Accela Citizen Portal link: https://aca-prod.accela.com/SHELBYCO/Default.aspx
- Instructions can be found in <u>Appendix 27</u>
- For any question with Accela, please call 901-636-6962.
- When needed:
 - Plans: 24"x36" sheets with City Title Block (see Section 5); additional sets may be requested based on complexity of the project.
 - Final Plat/Plan or Site Plan Plats to be recorded are to be submitted on 20"x24" sheets, and Site Plans on 24"x36".
- Plans Review Fees (see Section II.G)

B. Plans to be submitted

As applicable, please include the following sheets with your submittal:

Table 1 - Plans Requiring City Engineer Signature

	Table 1 - Plans Requiring City Engineer Signature									
Sh	eets must be on City Title Block and	Sheets not signed by City Engineer								
inc	clude signature line for City Engineer(s)									
a.	Site Plan or Final Plat (Site Plan will not be signed	a. Title Sheet with Index - required for all projects								
	by City Engineer if accompanied by Final Plat)	b. Existing Conditions								
b.	Grading & Drainage (including detention and off-	c. General Notes sheet								
	street drainage)	d. Site Layout Plan								
c.	Erosion Prevention & Sediment Control Plan (EPSC)	e. Details – not per City standard and for private infrastructure								
d.	Post Construction Runoff Control Plan (PCRC)	f. Demolition Plans								
e.	Sewer Plan - both public and private									
f.	Plan & Profile (individual sheets for Roadway,									
	Sewer, Drainage) - required if any public									
	improvements are affected unless it's a rural or									
	industrial section of roadway									
g.	Traffic Control for work zones									
h.	Signage & Striping (permanent)*	*City Traffic Engineer signs these sheets.								
i.	Signalization*									
j.	Details -City of Memphis Standards (see Section									
	4) or custom details for public infrastructure									

All plan sets submitted under MOC's must include a Final Plat. Requirements for submittal of a plat to DPD for approval are found in the Memphis and Shelby County Unified Development Code. This document can be found at:

http://www.shelbycountytn.gov/DocumentCenter/View/22306

Please see Table 2 below to determine which plans you are required to submit. All sheetsmust be 24"x36", signed and sealed by a TN Licensed Professional Engineer, with City of Memphis Title Block and signature lines for City Engineers as applicable (Can be seen on Appendix 1) Watermarks or stamps for "PRELIMINARY" or "NOT FOR CONSTRUCTION" are acceptable during review.



Table 2 - Plan Sheet Submittal Matrix

			Table 2 - Flatt Stieet Subtilit	ai matrix						
Pla	an Sł	neet Name	Sheet required if one of the con proposed for your project:	ditions in the 3 columns b	elow are					
a.	Site	Plan	Required for all submittals							
b.	Pla	n & Profile (P&P)	If only sidewalk improvements, no P&P required.							
	i.	Roadway (P&P) – show both storm and sewer	Min of 100' of contiguous curb & gutter and drive openings (new or replacement)	Lane widening, new median or median improvements	Milling / overlay					
	ii.	Drainage (P&P)	Improvements within the public ROW; drainage profiles may be placed on roadway P&P	Private drainage - P&P not required, but G&D Plan must be submitted.						
	iii.	Off-Street Drainage (P&P)	Improvements outside ROW that are in public drainage easements or are public infrastructure							
	iv.	Sewer (P&P)	Improvements within the public ROW or public sewer easement: sewer profiles may be placed on roadway P&P	Private sewer - P&P not required, but Sewer Plan must be submitted.						
	V.	Off-street Sewer (P&P)	Improvements outside ROW that are public or that affect public sewer easements or infrastructure							
C.		ading & Drainage (D) Plan	Improvements include stormwater detention due to size of graded/disturbed area	Project is in a Sensitive Drainage Basin* OR in Fletcher Creek Overlay District	If drainage connects to, or flows directly to public drainage					
	,	teria for Stormwater tention)	Generally, detention is required for projects greater than or equal to 1 acre. Provide stormwater detention or request waiver for detention via letter as applicable per SWWM 6.6.6	Provide stormwater detention or request waiver for detention via letter as applicable per SWWM 6.6.6	system or ROW, or as required by LDO**					
d.	Ero (EC	osion Control Plan CP)	See information below regarding this subject*							
e.		st Construction noff Control Plan CRCP)	See information below regarding this subject*							
f.		ver Plan	Improvements include New public sewer	Improvements tying to City sewer	Improvements tying to existing private sewer					
g.	Tra (TC		Improvements within or affecting traffic within the public ROW							
h.		nage & Striping	As requested/required by City Traffic Engineer							
i.	Sig	nalization	As requested/required by City Traffic Engineer							
j.	Me	tails – City of mphis Standards e Section 4)	Project has public infrastructure requiring construction details	Project has private infrastructure requiring construction details						
			For City of Memphis Standards, see Section III.C.8. All City standard details and/or public structure details are reviewed and signed/approved by the City.	All private infrastructure details must be on a separate sheet and are NOT reviewed/signed by the City.						

^{*} See below respective sections for details.

** For further guidance, refer to SWMM Vol. 1, Section 3.2 and 3.3.3, UDC, and City Ordinances.



Sensitive Drainage Basins

The fourteen (14) Sensitive Drainage Basins are identified by City Engineering and listed below. Please contact 901.636.6939 to determine the Basin in which your project is located.

- Arlington Bayou (2-KA)
- Black Bayou (5-C)
- Black Bayou (5-D)
- Cherry Bayou (6-A)
- Fletcher (12-A)
- Harrison (3-H)
- Lenox Bayou (2-L)

- Lick Creek (2-K)
- Overton Bayou (2-M)
- Ridgeway (9-C)
- Royster Bayou (2-M)
- Sophia (1-J)
- South Cypress Creek (11-I)
- Young (12-C)

* Erosion Control Plan (ECP)

Erosion Control Plan submittal requirements:

- The City of Memphis/Shelby County Storm Water Management Manual (SWMM) states that an Erosion Control Plan (ECP) shall be submitted for approval. The plan must meet all the requirements of the State of Tennessee Construction General Permit (CGP) and be in conformance with the SWMM. Since a minimum limit of earth disturbance is not established as a submittal requirement, the Office of Land Development (LDO) typically decides if an ECP submittal is necessary.
- All development plans submitted to LDO that propose earth disturbance of 1 acre or more will need to include an ECP.
- Commercial developments that have curb cuts, sidewalks or infrastructure proposed to connect to public drainage or sewer are frequently less than 1 acre. If these developments lie within a Sensitive Drainage Basin, stormwater detention review is required by LDO. The requirement for stormwater detention may be waived subsequent to request thereof.
- Neither an ECP, or a Post Construction Erosion Control Plan (PCRCP) are required if the project meets the following: (1) less than 1 acre in area and (2) not in Fletcher Creek Overlay District and (3) not in a Sensitive DrainageBasin, and (4) the requirement for detention is waived.
- If the project requires stormwater detention, both an ECP and PCRCP are required.
- When an ECP is not required, a general note must be added to an appropriate sheet in the plan set or other documentation (e.g. G&D plan, site plan, fiber optic letter, etc.) as determined by LDO. The general note is to inform the contractor of their responsibility to implement Best Management Practices (BMPs) to prevent improper disposal/illegal discharges of construction debris into the City's MS4. Per City ordinance #4538 sec. 33-207, it is illegal to discharge construction material, silt, sediment, gravel, etc. into the Municipal Separate Storm Sewer System (MS4).



* Post Construction Runoff Control Plans (PCRCP)

PCRCP submittal requirements:

- A PCRCP is required for all new and significant redevelopments within the City limits except
 for (1) residential projects without detention and (2) for linear projects. If your project does
 not meet one of these exceptions, then a PCRCP is required even if there are no stormwater
 facilities on-site. (Every property within the City limits is required to pay a stormwater fee
 for maintenance of the City's public storm drain system. In addition to requiring measures
 for protecting City streams and waterways, the PCRCP gives record of the development for
 the purpose of assessing fees.)
- For a project with less than 1 acre of disturbance: (1) Land Development requires an ECP submittal, (2) the ECP will be signed by the CityEngineer, then a PCRCP will be required.

Erosion Control for Roadway Projects:

- If there will be 1 acre or more of earth disturbance from a roadway project, then a CGP is required and an ECP is also required. If Tennessee Department of Environment and Conservation (TDEC) does not require a project to have a CGP (projects with earth disturbance <1acre), then TDEC does not require an ECP.
- All projects, including linear projects, require a CGP and an ECP should be phased as required by the latest CGP requirements.
- The City of Memphis Stormwater Program will not require review for roadway linear projects that collectively total less than 1 acre of earth disturbance, but instead will have a general note that must be added to an appropriate sheet in the plan set or other documentation (e.g. G&D plan, site plan, fiber optic letter, etc.) as determined by LDO. The general note is to inform the contractor of their responsibility to implement Best Management Practices (BMPs) to prevent improper disposal/illegal discharges of construction debris into the City's MS4. Per City ordinance #4538 sec. 33-207, it is illegal to discharge construction material, silt, sediment, gravel, etc. into the MS4.

C. Guidelines and Checklists for Plans

The City reviews hundreds of projects annually which are completed by consultants from all over the country. Therefore, it is essential to have conformity between various plan sets and compliance with City Standards and Policies. For further information, reference City of Memphis Design and Policy Review Manual. Plans review can be conducted more expeditiously if basic project information is presented in a clear, concise, and standard format.

- The designer must explicitly define existing and proposed property lines, Right-of-Ways, facilities, infrastructure, etc., within the project by using standard notes and easily distinguishable graphical representations of such.
- All sheets must be 24"x36" with City of Memphis Title Block and signature lines for City Engineers as applicable (See Appendix 1).



A legend depicting line types & symbology for each design discipline is necessary. For
example, for Grading and Drainage plans, a legend shall be provided for existing
topography, existing drainage pipes, existing drainage structures, proposed topography,
proposed drainage pipes, proposed drainage structures, drainage sub-basin ridgelines,
property lines, areas reserved for storm water detention, etc.

Table 2 in III.B can be a resource to determine which sheets are required for each development project. Basic information needed on each sheet within the plan set follows, including checklists for each:

1. Final Plat

A Final Plat is reviewed by LDO at the direction of the Office of Planning Development. Aside from all other DPD requirements, the Final Plat should include the following:

City Benchmark note (example)

CITY OF MEMPHIS BENCHMARK #642 - POPLAR AND MANASSAS: CITY MONUMENT IS LOCATED ON SE CORNER, ON THE BACK OF SIDEWALK, AT THE END OF RADIUS ON POPLAR. ELEV. 268.70

A file containing the current City benchmarks can be found online at:

<u>Land Development | Engineering (memphistn.gov)</u>

Note concerning work within right-of-way

PLEASE BE ADVISED THAT A BUILDING PERMIT ISSUED BY THE MEMPHIS/SHELBY COUNTY OFFICE OF CONSTRUCTION CODE ENFORCEMENT DOES NOT ALLOW FOR ALTERATIONS AND/OR IMPROVEMENTS TO ANY RIGHT-OF-WAY (ROW) MAINTAINED BY THE CITY OF MEMPHIS. ALTERATIONS AND/OR IMPROVEMENTS TO THE CITY OF MEMPHIS ROW INCLUDE BUT ARE NOT LIMITED TO WORK PERFORMED ON SIDEWALKS, CURB AND GUTTER, DRIVE APRONS AND UTILITY TIE-INS. ROW PERMITS MUST BE OBTAINED FROM THE MEMPHIS CITY ENGINEER'S OFFICE AT (901) 636-6700.

FEMA Note (example only)

THE SUBJECT PROPERTY (IS/IS NOT) LOCATED IN A SPECIAL FLOOD HAZARD AREA ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS PER FLOOD LINES ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY AS SHOWN ON FLOOD INSURANCE RATE MAP NUMBER 47157C____ F, DATED SEPTEMBER 26, 2007. THE NEAREST BFE IS__ LOCATED

Sanitary Sewer Notes

NO TREES, SHRUBS, PERMANENT STRUCTURES, OR OTHER UTILITIES (EXCEPT FOR CROSSINGS)
WILL BE ALLOWED WITHIN SANITARY SEWER EASEMENT. NO OTHER UTILITIES OR SERVICES MAY OCCUPY
SANITARY SEWER EASEMENTS IN PRIVATE DRIVES AND YARDS EXCEPT FOR CROSSINGS.

THE CITY OF MEMPHIS SHALL HAVE INGRESS/EGRESS RIGHTS TO USE PRIVATE DRIVES AND YARDS FOR THE PURPOSE OF MAINTAINING ALL PUBLIC SEWER LINES AND SHALL BEAR NO RESPONSIBILITY FOR THE MAINTENANCE OF SAID PRIVATE DRIVES AND YARDS.



Stormwater Detention Note

This "Detention Note" is to be shown on Final Plat and Grading and Drainage Plan on any project requiring stormwater detention:

THE AREAS DENOTED BY "RESERVED FOR STORM WATER DETENTION" SHALL NOT BE USED AS A BUILDING SITE OR FILLED WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE CITY ENGINEER. THE STORM WATER DETENTION SYSTEMS LOCATED IN THESE AREAS, EXCEPT FOR THOSE PARTS LOCATED IN A PUBLIC DRAINAGE EASEMENT, SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER AND/OR PROPERTY OWNERS' ASSOCIATION. SUCH MAINTENANCE SHALL BE PERFORMED SO AS TO ENSURE THAT THE SYSTEM OPERATES IN ACCORDANCE WITH THE APPROVED PLAN ON FILE IN THE CITY ENGINEER'S OFFICE. SUCH MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO REMOVAL OF SEDIMENTATION, FALLEN OBJECTS, DEBRIS AND TRASH, MOWING, OUTLET CLEANING, AND REPAIR OF DRAINAGE STRUCTURES.

- Other DPD Requirements (Including Conditions of Approval)
- Engineers Certificate on the Plat signed at each submittal

ENGINEER'S CERTIFICATE		
THE ZONING ORDINANCE, THE SUBDIVISION REC	GULATIONS	RECT, IS IN CONFORMANCE WITH THE DESIGN REQUIREMENTS OF AND THE SPECIFIC CONDITIONS IMPOSED ON THIS DEVELOPMENT, ITE AND LOCAL BUILDING LAWS AND REGULATION.
BYTENNESSEE CERTIFICATE NO	_(SEAL)	DATE

All dates (seal and title block) updated on each submittal

2. Site Plan

In the absence of a Final Plat, a Site Plan is required to be reviewed and signed by the City Engineer. The Site Plan shows basic information regarding the proposed development and the layout thereof. (Site Plan Checklist: Appendix 2)

3. Plan & Profile

This sheet will have the roadway plan and profile, typical section, notes, etc., associated with a typical roadway plan as used in standard engineering practice, as well as any and all public infrastructure (i.e., drainage and sewer, and any other utilities to be shown). Provide drainage tables for structures and pipes, shown in the plan view as well as City of Memphis General Notes. Sanitary Sewer information, if applicable, is required as well. (Street Plan and Profile Sheet Checklist: Appendix 3-4)

When public drainage and/or sewer lines are proposed in areas outside the limits of a street's right-of-way, an Off-Street Plan and Profile is required. (Off-Street Drainage Checklist: Appendix 5)

(Off-Street Sanitary Sewer Checklist located on Appendix 6)

When public sanitary sewer main trunks or laterals are proposed to be constructed or extended, a Sanitary Sewer Outfall or Extension Plan and Profile is required. (Outfall or Sewer Extension Plan & Profile Sheet Checklist: Appendix 7)



4. Grading & Drainage Plan

The Grading and Drainage (G&D) Plan must show all existing and proposed stormwater pipes, structures, facilities (above ground and below), and pertinent topographical features. The designer's plan should completely analyze the impact of the proposed development on existing adjacent and/or downstream properties and public or private drainage infrastructure. The proper performance on the on-site stormwater runoff management facilities is critical for the protection of the new development and those existing, both nearby and downstream.

The designer should utilize the City of Memphis/Shelby County Stormwater Management Manual (SWMM) for design guidance. The SWMM is available online at:

Land Development | Engineering (memphistn.gov)

The designer should either provide detention or submit a detention waiver request based upon SWMM Vol 1, Section 6.6.6.

(Grading & Drainage Plan Checklist: Appendix 8-9).

(Grading & Drainage General Notes: <u>Appendix 10</u>) that must be shown, verbatim on every G&D sheet and any P&P sheets, if applicable

The following items contain further information regarding review of drainage:

■ The minimum required detention data to be shown on the G&D sheet follows:

Pre-development data:
Site Drainage Area (D.A.) =
C or CN =
Tc =
Q10* pre (10-year Design flow) = Allowable Discharge =
Post-development data (one listing each for Q to pond, and for Q bypass as applicable):
D.A. =
C or CN =
Tc =
Q10* post =
Detention Discharge:
Q10* Routed (pond) + Q10 (bypass, if applicable) = < or = Q10 predevelopment
Table for pond performance showing Stage – Storage – Discharge

The format above may be modified to fit specific development needs or applicability and is given as only a guide for minimum required project detention data. An example provided below.

* Q-25 is required in the Fletcher Creek District.



-	2	DETENT	ON POND			11 11 1	111111111111111111111111111111111111111
· ~ ~	Elevation	Total St	orage To	otal Discharge		1101	TELLIII.
	277		0.50	0.00	0.5	11/2	1 11 Fet
~	278		278	0.96			1111
-	279		1,926	1.55		-	1 11 11 11 11 11
	280		4,976	1.98	DETENTION —		1 11 11
S_0	281		8,914	3.28	POND		11/1/1
1	282		13,795	6.58	1 0110		11/1
	283		19,677	33.07			11.1
-	284		26,617	36.79			11.
1	Outlet Str. 12.5 Outlet Str. Wei	5" Orifice (1 ir (100-yr) @	1 200 000	=280.55 5			
1	Outlet Str. 12.5	5" Orifice (1 ir (100-yr) @	0-yr) @ Elev:	=280.55 5	ST DEVELOPMEN	Т	
`	Outlet Str. 12.5 Outlet Str. Wei	5" Orifice (1 ir (100-yr) @	0-yr) @ Elev:	=280.55 5	ST DEVELOPMEN BYPASS AREA =	T 2.43	
1	Outlet Str. 12.9 Outlet Str. Wei	OPMENT	0-yr) @ Elev= @ Elev=282.0 AREA TO	=280.55 5 PO	BYPASS		
\	Outlet Str. 12.5 Outlet Str. Wei PRE-DEVEL Site Area (acres) =	5" Orifice (1 ir (100-yr) @ OPMENT 5.72	O-yr) @ Elev: D Elev=282.0 AREA TO POND =	=280.55 5 PO	BYPASS AREA =	2.43	
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ENT yr) 2 5	Outlet Str. 12.5 Outlet Str. Wei PRE-DEVEL Site Area (acres) = CN = T _C = DISCHA (cfs 4.20 8.66	5" Orifice (1 ir (100-yr) @ OPMENT 5.72 84 30.8 RGE	O-yr) @ Elev= DELEV=282.0 AREA TO POND = CN = T _C = POND DISCHAR (cfs)	98 7.4 BYPASS GE DISCHARG (cfs)	BYPASS AREA = CN = T _C = TOTAL DISCHARGE (ft)	2.43 82 26.5 WSE	FREEBOARI 3.51 2.62
ORM (ENT (yr) 2 5 10	Outlet Str. 12.9 Outlet Str. Wei PRE-DEVEL Site Area (acres) = CN = T _C = DISCHA (cfs	5" Orifice (1) ir (100-yr) (6) OPMENT 5.72 84 30.8 RGE)	0-yr) @ Elev= 0 Elev=282.0 AREA TO POND = CN = T _C = POND DISCHAR (cfs) 2.16	98 3.29 98 7.4 BYPASS DISCHARG (cfs) 1.77	BYPASS AREA = CN = T _C = TOTAL DISCHARGE (ft) 3.94	2.43 82 26.5 WSE	3.51

Outlet Structure Details must be provided, including trash rack detail for outlet.

Concerning underground detention, the SWMM discourages underground detention and placement of detention within parking areas. In practice, both are allowed, with the designer submitting plans depicting such in the plan review process. The underground detention must be accessible by a person for inspection/cleaning, so designer must provide adequate number and location of access points. Any area reserved for detention will be depicted on the plan and plat which will include the note, verbatim, in III.c.1. Since the area is reserved for detention, a parking lot may be most practical for placement of underground detention avoiding any landscape islands with trees. During review, LDO will review how the 100-year storm is handled.

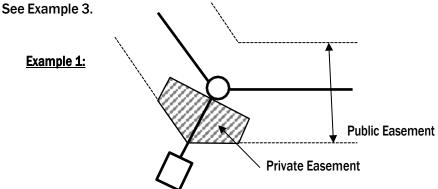
- Drainage structure and pipe tables providing basic minimum data should be used for public drainage. (Drain Pipe Data table: <u>Appendix 11</u>). (Drain Structure Data table: <u>Appendix 12</u>)
- For the purpose of assessing impact to the downstream system, the designer should include the structures and pipes 2 segments down from where the project's drainage system connects to the public system.
- Any new drainage pipe or structure must be wholly public or private. There are three options to achieve this.

Option 1: Provide a private easement (width based on the private pipe diameter & SWMM Volume 1, Table 6-2); the private easement would be superimposed over the public easement, beginning at the point where the private pipe enters the outside wall of the public structure, and end where the pipe exits the public easement. This easement would be recorded via the project's Final Plat or by separate Easement Plat, whichever is feasible. See Example 1.

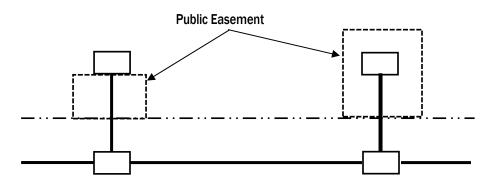
Option 2: In rare situations, it may be feasible to provide a public drainage easement to include pipe and/or structure. This option is only with the approval of the City Engineer. See Example 2.



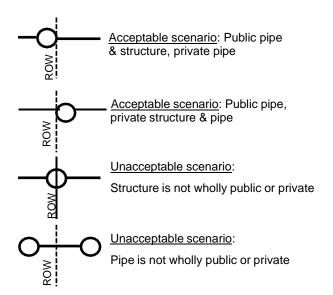
Option 3: Provide a structure placed immediately adjacent to the public ROW line (or public drainage easement line), and wholly inside or outside of the ROW (or easement).



Example 2:



Example 3:





5. <u>Erosion Control Plan (ECP)</u>

ECP's are necessary to protect adjacent downstream properties, and the City's rivers and streams, from pollution and sediment transport during the construction phase of the project. The designer should utilize the more stringent standards of the SWMM and the most recent edition of the TDEC EPSC Handbook. The TDEC EPSC Handbook is available online at:

http://tnepsc.org/handbook.asp

(Erosion Control Plan Checklist Appendix 13-14)

6. Post Construction Runoff Control Plan (PCRCP)

Similar to ECP's, PCRCP's are necessary to protect adjacent downstream properties, and the City's rivers and streams, from pollution and sediment transport throughout the life of the new development and to provide the property owner with specifics on maintenance of detention systems to ensure the design function throughout the life of the development. The designer should utilize the City of Memphis/Shelby County Stormwater Management Manual (SWMM) and the PCRC Technical Standards Guidance Document for design guidance. The PCRC Technical Standards Document is available online at:

PCRC Technical Standards Document Chapter 7

(Post Construction Runoff Control Plan Checklist Appendix 15)

7. Sewer Plan

Sewer Plans are required for both public and private sanitary sewer systems.

(Sewer Plan Checklist: <u>Appendix 16</u>)

(Sewer Plan Notes: Appendix 17)

8. Public Infrastructure Details

City of Memphis Standards (see Section 4) or details of public infrastructure, designed by the consultant, requiring structural review. Typical details can be found at:

Civil Standards

9. Private Infrastructure Details

Include necessary details of private infrastructure.



10. Traffic Control

Temporary Work Zone Traffic Control is necessary for the safety of pedestrians, motorists, and construction workers. A Temporary Traffic Control Plan (TCP) is needed for all work that will be performed in the City ROW. This includes work performed in the actual roadway and the sidewalk. The MUTCD) should be referenced during design.

(Traffic Control Plan Checklist: Appendix 18)

(Traffic Control Plan Notes: Appendix 19-22)

11. Signing & Striping and/or School Zone Flashing Plan

Roadway signage and striping plans are required with any modification to the existing roadway, with new roadway construction, and when existing traffic patterns are affected.

(Signing and Striping Plan Checklist: Appendix 23)

(School Zone Flashing Signal Plan Checklist: Appendix 24)

12. Traffic Signal Plan

(Traffic Signal Plan Checklist: Appendix 25)

13. Record Drawings

Following construction, and prior to releasing the construction bond on a project falling under the ROW or SIC categories, the City requires as-built (record) drawings on all public infrastructure. Typically, the consultant or surveyor will obtain the particular project's original signed mylars from the City, and make appropriate revisions based a post-construction survey.

All as-built public structures, connections at public structures and pipes (drainage & sewer) shall be surveyed. The infrastructure shall be shown with a cloud and notated in the Title revision block as "revised to reflect as-built info". Also, provide as-built elevations for the street improvements at 50-foot stations (median improvements, PGL changes, retaining walls in the right of way, curb and gutter construction, etc., where / if appropriate).

All stormwater detention facilities require as-built certification, as well. The elevations of both the as-built grading of the pond (including centerline of levee, top of bank, toe of slope, internal swales and/or concrete flumes, etc.) and the outlet structure shall be certified. The as-built elevations of the pond grading shall be taken at 50-foot intervals along the perimeter of the pond. As-built elevations of underground detention facilities shall be taken at all access points (manholes, inlets, etc.) and at the outlet structure. The size and shape of detention outlets (orifice, weir, v-notch, etc.) shall also be verified with as-built measurements.

The as-built certification below is to be placed on each as-built drawing and sealed/signed and dated.



,	tify that all as-built conditions, the distances between si cated with a cloud) were taken on the ground on	
Ву:	Sign	Print

Please submit only bond copies of the original mylars for each discipline with the as-built revisions for initial review. **Be aware that all as-builts will be reviewed on Accela. **

LDO will review the as- builts, and if there are no comments, will notify that you can transfer the information to the mylars and submit.

14. Easement Plats

From time to time, it is necessary to record easements (or enter into agreements with the City requiring an easement) that are not shown upon or associated with a Final Plat. Examples of these could be Pedestrian Easements, Street and Alley Closures, Drainage or Sewer Easements or Easement Abandonments, Traffic Signal Easements, and "easement" plats for Encroachment Agreements. LDO requires hard copies of these plats for review.

(Easement Plats Checklist: Appendix 26)

Each easement, encroachment, or Street and Alley Closures (SAC) will be treated as a separate "case." LDO will need a "packet" submitted for each.

There is a \$250 review fee required. The plat is routed through an official review by LDO. If you submit more than one "packet", the \$250 will cover all.

The packet should include three 8.5" x 11" or 8.5" x 14" paper copies of the sealed/signedplat, along with 3 copies of the deed for the property and a separate page with only the contact information for the owner, developer, and the engineer/surveyor. Mylar prints will be required for final submittal, but should not be sent until requested, which is typically after the initial review. Please make sure the bond copies are signed/sealed for review. Encroachments require an Encroachment Agreement will have to be coordinated with Real Estate Department.

Traffic Signal Easements (easements for traffic signal locations) will require three separate documents. LDO will need a "packet" for each – one for the pedestrian easement, one for the traffic signal easement, and one for the ROW dedication.

For Street and Alley Closures (SAC), if there are utilities or utility easements within the street or alley in question, then letters of release from City Engineering, MLGW, AT&T, and Comcast are necessary for Street and Alley Closures. This applies to Utility Easement Abandonments as well.

For Roadway and/or Wayfinding Sign Encroachments (not standard business signs, etc.) inpublic right-of-way. Examples of plats and legal descriptions are available upon request.



Further guidance is below. These apply to Street and Alley Closures (SAC), easements and encroachments:

- Provide copies of the deed(s) for the property or properties along and adjacent to the easement (prints from the Register's site are fine)*
- A written description of the easement must be on the plat or on an 8.5" x 11" sheet
- For Encroachments, if applicable, provide graphics of the items of encroachment such as photos, architectural design or elevations
- For Street and Alley Closures, and/or Easement Abandonments, letters of release fromCity Engineering, MLGW, AT&T, and Comcast will need to be provided
- Adjust line types for property lines and distinguish from the easement
- Instruments listed in the title block should be graphically noted/represented
- Text should be large enough to be easily read (0.12" height if possible, 0.10" minimum)
- Provide an outline of existing buildings and drives, if available
- Black and white only no colored lines
- Examples for title block**, layout, etc. can be provided upon request by designer
- The final submittal of the plat (subsequent to review) should be printed on mylar, 8.5"x 11" or 8.5" x 14", with original seal/signature
- Seal should be original and standard size
- * If the subject is an encroachment contained wholly within City ROW, the limits of the ROW must be noted. Include the deed of the adjacent property (if available) from the Register's website.
- ** The title block has to be nearly exactly like the example and the area of the encroachment/easement/ROW/abandonment should be noted.

Helpful information on SAC's

- For SAC's not associated with projects that include full CD's, and where the closure is a bit complex (e.g., involving installing new infrastructure such as sidewalk, and curb and gutter) a note should be added to the 8.5" x 11" SAC plat stating that "The City of Memphis Office of Construction Inspections must be contacted prior to construction for required permitting and inspection." Their contact information should be included. The satisfactory completion of the SAC conditions (post-construction) would be found in City Inspections' reports. Otherwise, if there are other conditions that must be met outside of the inspector's purview then LDO would be responsible for verification of proper closure according to approved conditions.
- For SAC's associated with projects that include full CD's, no additional annotation is required
 assuming that the construction of infrastructure/appurtenances associated with the closure
 would be shown in the CD's and permitted under the Street Cut Permitor contract for the
 project. Also, no additional annotation is required for SAC'sdeemed as "paper roads"
 where no paving or roadway surface treatment exists. The satisfactory completion of the SAC
 conditions would be determined by the LDO.

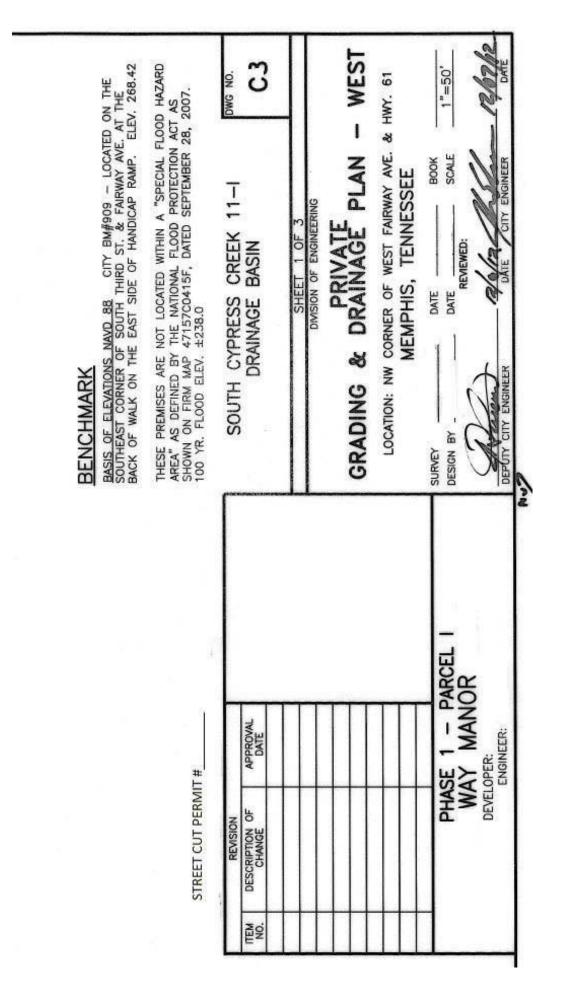


For additional information, please contact:

Land Development Coordinator 125 North Main Street, Suite 644 Memphis, TN 38103 901.636.6340



APPENDIX



Develop	ment:		Engineer:				Date://
			Site Plan	Check	<u>list</u>		
	TIT	LE BI	LOCK & GENERAL REQUIREMENTS				SITE PLAN - GENERAL
Complete	Incomplete	N/A	<u>Description</u>	Complete	Incomplete	N/A	<u>Description</u>
			Standard Title Block				Zoning and Land Use
			Standard Sheet Size				Building Footprints
			Project Name w/ Phase or Section Designator				Property Lines, Interior Lot Lines and Setbacks
			Scale				Area of Property
			State of TN Professional Engineer Stamp and Signature				Number of Units Proposed
			Proper Signature Lines (No County Engineer)				Scale
			Sheet Number (Usually 1 of 1)				North Arrow
			Development Location (i.e., Reference to Nearest Street, Intersection, etc.)				Street Names
							Adjoining Development/Property Owner Names
							Plat Book and Page Number of Recorded Plats of Adjacent Properties
							Dimension to Property Line from Side Street
			FOR PROPOSED SCHOOLS				List of Approved Conditions
Complete	Incomplete	N/A	<u>Description</u>				Standard Notes
			Circulation for AM Drop Off and PM Pick up				New Easements (All On 1 Lot) with Size, Ties, etc.
			Number of Expected Students				Size and Location of All Existing Curb Cuts, Sidewalks and Curb Ramps
			Grades Served				Provide ADA Compliant Cross Slopes for Pedestrian Path Across Curb Cuts
			Number of Walkers Expected				Existing Curb Cuts to Remain
			Signing Plan				Existing Curb Cuts to Be Replaced
			School Associated Traffic Control Changes				Proposed Curb Cuts, Sidewalks, and Gutter
	'						Curb Cut Detail
							Above Ground Utilities and Storm Drainage Inlets
							Existing and Proposed Ingress-Egress Easements
							Existing and Proposed Pedestrian Easements
							Existing and Proposed Traffic Signal Easements
							Label Existing ROW and Dedication
							Existing and Proposed Street Improvements
							Existing and Proposed Sidewalks
							Existing and Proposed Curb and Gutter
							Existing and Proposed Medians and Median Openings
							Dimensioned Parking Layout & No. of Queueing Spaces
							Existing Underground Traffic Signal Conduits & Pullboxes

Traffic Impact Policy

The Developer's Engineer shall submit a Trip Generation Report that documents the proposed land use, project, scope, and anticipated traffic demand associated with the proposed development. A detailed Traffic Impact Study will be required when the accepted Trip Generation Report indicates that the number of projected trips meets or exceeds the criteria listed in Section 210 – Traffic Impact Policy for Land Development of the City of Memphis Division of Engineering Design and Policy Review Manual.

Note: The Traffic Impact Policy for Land Development is found on the City's website in the Engineering section under City of Memphis Division of Engineering Design and Policy Review Manual.

Gate Setback from ROW & Required Turn-Around for

Forward Exit

Develop	ment:			Engineer:				Date://				
				Street Plan a	nd Pro	file Ch	ec	klist				
		TITI	E RI	OCK & GENERAL REQUIREMENTS								
<u>Complete</u>	Incomple		N/A	Description Description	Complete Incomplete N/A Description							
				Standard Title Block								
				Standard Sheet Size				FL of Throats, No. Openings, etc. for 3x3				
				Project Name w/ Phase or Section Designator				Structure Station and Offset				
				Scale				Flowline Elevations				
				State Reference Number (e.g. 94-SSC-103)				Structure Top Elevation				
				Sewer Basin Identification				Drainage Area to Inlet				
				State of TN Professional Engineering Stamp and Signature				Flow to Inlet - Including any Previous Bypass				
			<u>Ц</u>	Proper Signature Lines (No County Engineer)			Щ	Intercepted Flow				
			<u>Ц</u>	Sheet Number (Usually 1 of 1)			Щ	By-Pass Flow				
				Development Location (i.e., Reference to Nearest Street, Intersection, Address)				Width of Spread of Flow in Street, Losses at Bad Junctions and HGL Inside Pipe at Upstream End (Upon Request)				
							Ш	Public Structures Clearly Noted				
1				TVDICAL CECTIC:								
6 1.		.		TYPICAL SECTION	C 1.			DRAINAGE PIPE DATA				
Complete	Incomple	ete	N/A	<u>Description</u>	Complete	Incomplete	N/A	·				
				Dimensions Base Material & Thickness			Н	Pipe Size				
				Pavement Material & Thickness			Н	Pipe Length Pipe Slope				
			\dashv	Sidewalk			\vdash	Pipe Capacity				
				Curb & Gutter			H	Flowline Elevations				
				Proposed Grade Line			Ħ	Design Flow				
			П	Pavement X-Slopes			Ħ	Pipe Velocity				
				Sidewalk & Grass X-Slopes			Ħ	Drainage Area in Pipe				
							П	Radial Pipe Radius				
				PLAN VIEW			Ī	Public Pipes Clearly Noted				
Complete	Incomple	ete	N/A	<u>Description</u>	L			, ,				
				Intersection Equation				<u>GENERAL</u>				
				Intersection Angle	Complete	Incomplete	N/A	<u>Description</u>				
				Centerline Stationing				Water Table Design Flow				
				Centerline Curve Data				DMH at End of Radial Pipes				
				P.C. Sta. & P.T. Sta.				Structure Sta. & Offset if not on Centerline				
				Concrete Water Table								
				Concrete Water Table Curb Radius				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter				
				Concrete Water Table Curb Radius E.R. Sta. & Elev.				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R.				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow Scale				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow Scale Objects in 'Clear Zone'				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
				Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow Scale Objects in 'Clear Zone' Pedestrian Easements				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
		ate		Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow Scale Objects in 'Clear Zone' Pedestrian Easements				Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
Complete		ete	N/A	Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow Scale Objects in 'Clear Zone' Pedestrian Easements PROFILE	ehind FR)			Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
Complete		ete		Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow Scale Objects in 'Clear Zone' Pedestrian Easements	ehind ER)			Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
Complete		ete		Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow Scale Objects in 'Clear Zone' Pedestrian Easements PROFILE Description Grades (Max 2% from E.R. to Intersecting Road EOP; End V.C. B	ehind ER)			Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
		ette		Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow Scale Objects in 'Clear Zone' Pedestrian Easements PROFILE Description Grades (Max 2% from E.R. to Intersecting Road EOP; End V.C. B. P.V.I. Sta. & Elev.	ehind ER)			Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				
		ete		Concrete Water Table Curb Radius E.R. Sta. & Elev. Slope & Direction Around E.R. T.C. Elev. & Sta. When Tying to Ex. Curbs R.O.W Widths on All Streets Curb to Curb Widths on All Streets Handicap Ramps at All Intersections City Benchmark North Arrow Scale Objects in 'Clear Zone' Pedestrian Easements PROFILE Description Grades (Max 2% from E.R. to Intersecting Road EOP; End V.C. B. P.V.I. Sta. & Elev. P.V.C. & P.V.T. Sta. & Elev.	ehind ER)			Structure Sta. & Offset if not on Centerline DMH Flowlines DMH Diameter Rip - Rap Grade Rip - Rap Dimensions and Thickness Headwall Exit Velocity				

3 Point Profile

Scale

	<u>SANITARY SEWER</u>					Modifications/Improvements to Existing Streets				
Complete	Incomplete	N/A	<u>Description</u>	Typical Section						
			Manhole size (if not 4 ft.)	Complete	Incomplete	N/A	<u>Description</u>			
							Dim. Existing and Proposed; Match Existing Section; (Saw cut			
			SMH Sta. & Offset (both plan and profile)				and Remove Existing Pavement and Base and Dimensions to			
			SMH Flowlines with size and direction (profile only)				be Removed and Added if Required)			
			Pipe Size (both plan and profile)				Show and Label Existing E.O.P.			
			Pipe Length (profile only)				Existing E.O.P., Centerline, and P.G.L. Elev. At 25' Stations			
			Pipe Slope (profile only)				Maintain 1.5% \leq (Cross Slope, S_x) \leq 3.0%			
			Clearance with Drainage (1.5' outside pipe)							
			Clearance with Water (10' separation)							
			Minimum Cover							
			Off-street Sewer Profiles: stationed from downstream							
			Extend to Upstream Property or Phase line with manhole							
			and stubout							
			State Reference Number (e.g. 94-SSC-103)							

Engineer:_____

Development:_____

State Delegation Stamp ("Health Stamp")

Ductile Iron as req'd (profile only)

All Data on Sheet Matches Sewer Plan

All Private Sewers Clearly Marked

5' Minimum From Face of Curb

Date:___/___/

			Off-Street Drainage Plan a	nd Prof	ile Che	eck	list
	TI	TIFR	LOCK & GENERAL REQUIREMENTS				PIPE DATA TABLE
omplete	Incomplete	N/A	Description	Complete	Incomplete	N/A	Description
			Standard Title Block				Pipe Material
			Standard Sheet Size				Pipe Sizes
			Project Name w/ Phase or Section Designator				Pipe Length
			Scale				Slope
			State Reference Number (e.g. 94-SSC-103)				Design Flow Q-10, Q-25, or Q-100
Щ		Ц_	Drainage Basin Identification			Ц	Pipe Capacity
Щ			State of TN Professional Engineer Stamp and Signature			Ц.	Gross Drainage Area Tributary to Pipe
			Proper Signature Lines (No County Engineer)				Full Pipe Velocity
			Sheet Number (Usually 1 of 1) Development Location (i.e., Reference to Nearest Street,			<u> </u>	Public Clearly Marked
		Ш	Intersection, Address)				Flowline Elevations
						<u>s</u> -	TRUCTURE DATA TABLE
				Complete	Incomplete	N/A	<u>Description</u>
							Type of Structure
			PLAN VIEW				Location - Station and Offset
			Description			П	Drainage Area Assigned to Structure
mplete	Incomplete	N/A	•				
			Standard City of Memphis Plan Sheet Layout				Sub-basin Design Flow
			North Arrow			ᆜ	Intercepted Flow
		Ц	Graphic and Detail Scales			ᆜ	By-pass Flow
			Interior Lot Lines			Ш	Structure Top Elevations
			FEMA 100 year flood elevation				Inlet Throat Elevations
			Property Map and Parcel Number				Public Clearly Marked
			Minimum Lot Elevation		'		
			City of Memphis Benchmark				PROFILE
			Existing Contours (2' Maximum) On-Site and Off-Site As				
			Needed to Determine Effects on Subject Property	Complete	Incomplete	N/A	<u>Description</u>
			Proposed Contours (2' Maximum)				Manhole Size (In Structure Table)
		Ш	Ridge Lines Delineating Basins				DMH Stations (Both Plan & Profile)
			Sub-Basin Drainage Areas			Ш	DMH Flowlines w/ Size & Direction (Profile Only)
			Area of Off-Site Basins Draining to Development				DMH Rim Elevation (Profile Only)
			Adjoining Development Property Owner Names				Pipe Size (Both Plan & Profile)
			Adjacent Improvements				Pipe Length (Profile Only)
			Rip-Rap Grade			$\overline{\Box}$	Pipe Slope (Profile Only)
			· ·				
			Rip-Rap Dimensions and Thickness				Station Line from Existing Tie-In to Upstream
			Standard Notes				All Data on Sheet Matches G&D Plan
				,			Standard Ingress/Egress Note
			DITCH DATA				Special Pipe Notes Where Needed
_	Incomplete	N/A	Description				Details & Sections As Needed
mplete			Typical Cross Section				
mplete			7.				
			Location				
			Location				
			Location Slope				
			Location				

Velocity

D 1 .	F :	.	,	,
Development:	Engineer:	Date:	//	/

Off-Street Sanitary Sewer Checklist

	TITLE BLOCK & GENERAL REQUIREMENTS										
Complete	Incomplete	N/A	<u>Description</u>								
			Standard Title Block								
			Standard Sheet Size								
			Project Name w/ Phase or Section Designator								
			Scale								
			State Reference Number (e.g. 94-SSC-103)								
			Sewer Basin Identification								
			Proper Signature Lines (No County Engineer)								
			Sheet Number (Usually 1 of 1)								
			Development Location (i.e., Reference to Nearest								
]	Street/Intersection, etc.)								

			<u>GENERAL</u>
Complete	Incomplete	N/A	<u>Description</u>
			BM or TBM Description & Elevation
			Vicinity Map
			FEMA 100-yr Flood Elevation
			State Delegation Stamp ("Health Stamp")
			North Arrow
			Property Lines & Interior Lot Lines
			Street Names
			Adjoining Development/Property Owner Names
			Permanent Easements Width (Usually 15' But Varies w/
			Conditions)
			Temporary Construction Easements Width (Usually 20' But
			Varies w/ Conditions)
			Existing Sewer Data for Tie-In Points
			Private Sewers Clearly Marked
			Upstream Service Provided (Show Q _c /Q _d /A)
			Flow Direction Arrows
			Clearance CL Sewer to Face of Curb (5' MIN)
			Offstreet Sewer Angles
			New Manhole Ties to Existing Manholes
			Utilities affecting installation (gas lines, etc.)

		-	PLAN AND PROFILE
Complete	Incomplete	N/A	<u>Description</u>
			Manhole Size (if not 4' diameter)
			SMH Stations (Both Plan & Profile)
			SMH Flowlines w/ Size & Direction (Profile Only)
			SMH Rim Elevation (Profile Only)
			0.1' Drop Across Manholes
			Manhole Rim Elevations:
			1.0' above 100 Year Flood Elevation
			1.5' Above Grade in Open Areas
			0.5' Above Grade in Back Yards
			Sealed Lids & Vent Stacks Required if Rim Cannot Be
			Constructed 1.0' Above 100-yr Flood Elevation
			Spacing (8"-21" = 400' MAX)
			Pipe Size (Both Plan & Profile)
			Pipe Length (Profile Only)
			Pipe Slope (Profile Only)
			Station Line from Existing Tie-In to Upstream
			Drop Construction Required if Drop > 2.0'
			Ductile Iron As Required (Profile Only)
			Drop Construction As Required (Profile Only)
			All Data on Sheet Matches Sewer Plan
			All Private Sewer Clearly Marked
			Ridgelines Not To Be Crossed
			Offset from Ditches & Streams
			Rip-Rap Protection for Ditch Crossings
			Standard Ingress/Egress Note
			Standard Sewer Notes
			Erosion Control Details & Notes
			Special Pipe Notes Where Needed
			Q _c /Q _d /A Shown at All Downstream Tie-Ins
			Details & Sections As Needed
			Railroad Milepost Tie
			TVA or MLGW Tower Tie
			Easement Plat Number References
			Service Connection Stations

D 1 .	F :	.	,	,
Development:	Engineer:	Date:	//	/

Outfall or Sewer Extension Plan & Profile Sheet Checklist

	<u>TI</u>	TLE BLO	OCK & GENERAL REQUIREMENTS
Complete	Incomplete	N/A	<u>Description</u>
			Standard Title Block
			Standard Sheet Size
			Project Name w/ Phase or Section Designator
			Scale
			State Reference Number (e.g. 94-SSC-103)
			Sewer Basin Identification
			Proper Signature Lines (No County Engineer)
			Sheet Number (Usually 1 of 1)
			Development Location (i.e., Reference to Nearest
			Street/Intersection, etc.)

			<u>GENERAL</u>
Complete	Incomplete	N/A	<u>Description</u>
			BM or TBM Description & Elevation
			Vicinity Map
			FEMA 100-yr Flood Elevation
			State Delegation Stamp ("Health Stamp")
			North Arrow
			Property Lines & Interior Lot Lines
			Street Names
			Adjoining Development/Property Owner Names
			Permanent Easements Width (Usually 15' But Varies w/
			Conditions)
			Temporary Construction Easements Width (Usually 20' But
			Varies w/ Conditions)
			Existing Sewer Data for Tie-In Points
			Private Sewers Clearly Marked
			Upstream Service Provided (Show Q _c /Q _d /A)
			Flow Direction Arrows
			Clearance CL Sewer to Face of Curb (5' MIN)
			Offstreet Sewer Angles
			New Manhole Ties to Existing Manholes
			Utilities affecting installation (gas lines, etc.)

			PLAN AND PROFILE
Complete	Incomplete	N/A	<u>Description</u>
			Manhole Size (if not 4' diameter)
			SMH Sta. & Offset (Both Plan & Profile)
			SMH Flowlines w/ Size & Direction (Profile Only)
			SMH Rim Elevation (Profile Only)
			0.1' Drop Across Manholes
			Manhole Rim Elevations:
			1.0' above 100 Year Flood Elevation
			1.5' Above Grade in Open Areas
			0.5' Above Grade in Back Yards
			Sealed Lids & Vent Stacks Required if Rim Cannot Be
			Constructed 1.0' Above 100-yr Flood Elevation
			Spacing (8"-21" = 400' MAX)
			Pipe Size (Both Plan & Profile)
			Pipe Length (Profile Only)
			Pipe Slope (Profile Only)
			Station Line from Existing Tie-In to Upstream
			Drop Construction Required if Drop > 2.0'
			State Delegation Stamp ("health stamp")
			Ductile Iron As Required (Profile Only)
			Drop Construction As Required (Profile Only)
			All Data on Sheet Matches Sewer Plan
			All Private Sewer Clearly Marked
			Ridgelines Not To Be Crossed
			Offset from Ditches & Streams
			Rip-Rap Protection for Ditch Crossings
			Standard Ingress/Egress Note
			Standard Sewer Notes
			Erosion Control Details & Notes
			Special Pipe Notes Where Needed
			Q _c /Q _d /A Shown at All Downstream Tie-Ins
			Details & Sections As Needed
			Railroad Milepost Tie
			TVA or MLGW Tower Tie
			Easement Plat Number References
			Service Connection Stations

elopme/	nt:		Engineer:				Date:/				
			Grading & Draina	ge Plan	Chec	<u>klis</u>	<u>t</u>				
	Ti	TLE BI	OCK & GENERAL REQUIREMENTS	PIPE DATA TABLE							
Complete I	ncomplete	N/A	Description	Complete	Incomplete	N/A					
			Standard Title Block				List Pipe Material				
			Standard Sheet Size				Pipe Sizes				
			Project Name w/ Phase or Section Designator				Pipe Length				
			Scale				Slope				
			State Reference Number (e.g. 94-SSC-103)				Design Flow (Q-10, Q-25, or Q-100)				
			Drainage Basin Identification				Pipe Capacity				
			State of TN Professional Engineer Stamp and Signature				Gross Drainage Area Tributary to Pipe				
			Proper Signature Lines (No County Engineer)				Full Pipe Velocity				
			Sheet Number (Usually 1 of 1)				Public Clearly Marked				
			Development Location (i.e., Reference to Nearest Street,		·						
			Intersection, Address)								
					1		DETENTION DATA				
			<u>GENERAL</u>	Complete	Incomplete	N/A	Description				
omplete li	ncomplete	N/A	<u>Description</u>				State Design Method Utilized (Rational or NRCS)				
		Щ	Standard City of Memphis Plan Sheet Layout				Stage-Storage-Discharge Relationship				
Ш			North Arrow				Site Drainage Area In Acres				
			Graphic and Detail Scales				Design Flow (Q-10) or Fletcher Creek Basin (Q-25)				
			Property Lines				C (Runoff Coefficient) or Pre and Post CN				
			Interior Lot Lines				Tc (Time of Concentration) - Pre and Post				
			FEMA Note and Nearest BFE				Allowable Discharge				
			Footprints of Existing and Proposed Buildings on Property				Controlling Downstream Structure				
			Existing and Proposed Paving on Property				Outlet Structure Details				
			Existing and Proposed Impervious Area on Property				Proposed Pond Grading				
		П	Minimum Lot Elevation				Bypass Area and Flow				
			Delineate Stream Buffers per Section 5.16, Volume 1 of SWMM and UDC 6.4				Pond Area and Flow				
			Legend				Total Post-Flow				
			City of Memphis Benchmark				Hydraulic and Hydrologic Calculations (Provided Under Separate Report)				
			Street Names and R.O.W Width				onder separate reports				
			Existing Contours (Prefered, No Greater Than 2 Feet)			<u>S</u>	TRUCTURE DATA TABLE				
			Proposed Contours (Intervals no greater than 2 feet)	<u>Complete</u>	Incomplete	N/A	Description				
			Ridge Lines Delineating Basins				Type of Structure				
			Sub-Basin Drainage Areas				Drainage Area				
			Pipes and Structures Wholy Public or Private				Sub-basin Design Flow				
			Stream Buffers				Intercepted Flow				
			Easements				By-pass Flow				
			Area of off-site Basins Draining to Development				Flowline Elevations				
			Adjoining Development/Property Owner Names				Structure Top Elevations				

Inlet Throat Elevations

Identification of Public Structures

Asbuilt Columns

Rip-Rap Grade

Vicinity Map

Standard Notes

COM General Notes

Existing Contours (100 feet off-site)

Determine Effects on Subject Property

Rip-Rap Dimensions and Thickness

Adjacent Improvements and Topography As Needed to

Existing and Proposed Storm Water Management Structures & Pipes. Must include the location, size, and capacity of the next two (2) structures immediately downstream in every direction that will receive runoff. Must include size, type, slope, and invert elevation of the structures/pipes in tables.

		<u>M</u>	AJOR DRAINAGEWAY DATA					DITCH DATA	
Complete	Incomplete	N/A	<u>Description</u>		Complete	Incomplete	N/A	<u>Description</u>	
			HEC-2 Analysis/HEC-RAS					Typical Cross Section	
			Drainage Easements (see Table 6-1 in SWMM)					Location	
			Access to Drainageway					Slope	
			"Trash and Deadwood" Note					Flow Depth	
			Improvement Cross-Section and Details					Capacity	
			Location and Geometry of Improvements					Velocity	
			Q-100 for Major Systems						
						MIN	IMUN	1 FINISHED FLOOR	
				_	Complete	Incomplete	N/A	<u>Description</u>	
	N	OTE 1	: SENSITIVE DRAINAGE BASINS					In Low Areas	
Arling	ton Bayou (2	-KA)	Black Bayou (5-C)					Along Overflow Route	
Blac	ck Bayou (5-I	D)	Cherry Bayou (6-A)				П	1 Foot Above Grade o	

Harrison (3-H)

Lick Creek (2-K)

Ridgeway (9-C)

Sophia (1-J)

Young (12-C)*

Engineer:_____

Development:_____

Fletcher (12-A)*

Lenox Bayou (2-L)

Overton Bayou (2-M)

Royster Bayou (2-M)

South Cypress Creek (11-I)

* - Basins which make up the Fletcher Creek District (FCD)

	MINIMUM FINISHED FLOOR ELEVATIONS										
Complete	Incomplete	N/A	<u>Description</u>								
			In Low Areas								
			Along Overflow Routes								
			1 Foot Above Grade or as Required**								
			On Plat								
			On Grading and Drainage								

Date:___/___/

^{**}See UDC 8.8 & 8.9.

	<u>PERMIT DATA</u>											
Complete	Incomplete	N/A	Description									
			NPDES Permit									
			ARAP Permit									
			Copy of State Approved Permit									
			Tennessee General Storm Water Permit Certification Form Certifying that a Notice of Intent (NOI) has been submitted to Tennessee Department of Environment and Conservation (TDEC) for a permit for construction site runoff. Include the permit number or intent to submit the number at a later date or that a permit is not required.									
			Floodplain Alteration Permit									

GENERAL GRADING NOTES

- 1. A MINIMUM OF 24-HOURS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE CITY OF MEMPHIS CONSTRUCTION INSPECTION OFFICE AT (901) 636-2462.
- 2. ALL NEWLY CUT OR FILLED AREAS, LACKING ADEQUATE VEGETATION, SHALL BE SEEDED, MULCHED, FERTILIZED AND/OR SODDED AS REQUIRED TO EFFECTIVELY CONTROL SOIL EROSION.
- 3. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND NOT NECESSARILY ALL OF SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE UTILITY COMPANIES WHICH MAINTAIN A UTILITY LINE WITHIN THE BOUNDARIES OF THE PROJECT PRIOR TO THE INITIATION OF ANY CONSTRUCTION ON THE PROJECT OR IN THE STREETS BORDERING THE PROJECT. THE CONTRACTOR SHALL ALSO ASSUME FULL RESPONSIBILITY FOR DAMAGE TO ANY UTILITIES ENCOUNTERED WITHIN CONSTRUCTION PERIMETERS, WHETHER SHOWN ON THE CONSTRUCTION PLANS OR NOT, DURING THE WORK ON THE PROJECT. FOR SITE LOCATION OF EXISTING UTILITIES INVOLVING MLG&W, SOUTH CENTRAL BELL, AND/OR TEXAS GAS COMPANY, CALL 1-800-351-1111. FOR SEWER LOCATIONS CALL 529-8025.
- 4. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES.
- 5. ALL FILL SOILS SHALL BE COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY (ASTM D-698) WITHIN 3% OF OPTIMUM MOISTURE CONTENT IN LIFTS NOT TO EXCEED SIX (6) INCHES OF COMPACTED THICKNESS.
- 6. ALL CONSTRUCTION MATERIALS AND PROCEDURES SHALL MEET OR EXCEED THE REQUIREMENTS OF THE CITY OF MEMPHIS STANDARD CONSTRUCTION SPECIFICATIONS.
- 7. PROPERTY LINES SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. GRADING, CLEARING AND THE ERECTION OR REMOVAL OF FENCES ALONG PROPERTY LINES SHALL BE FULLY COORDINATED WITH ADJACENT PROPERTY OWNERS.
- 8. VERIFY SITE CONDITIONS PRIOR TO CONSTRUCTION. NOTIFY THE CITY OF MEMPHIS CONSTRUCTION INSPECTION OFFICE ENGINEER OF ANY VARIATIONS PRIOR TO COMMENCEMENT OF WORK.
- 9. ALL GRADING WORK SHALL BE PERFORMED IN SUCH A MANNER THAT ADJACENT PROPERTIES ARE NOT DAMAGED OR ADVERSELY AFFECTED.
- 10. LOT DRAINAGE: FINISH GRADE SHALL BE SLOPED AWAY FROM THE FOUNDATION FOR DRAINAGE. THE FINISH GRADE MUST BEGIN AT LEAST 12-INCHES BELOW THE TOP OF THE FOUNDATION WALL OR GRADE OF THE CONCRETE SLAB AT THE INTERIOR IN THE CASE OF AN INTEGRAL SLAB AND FOUNDATION. THE MINIMUM GRADE AWAY FROM THE FOUNDATION SHALL BE TWO PERCENT (2%) IN ALL DIRECTIONS. THE DRIVEWAY SHALL BE SLOPED DOWN AT TWO PERCENT (2%) FOR AT LEAST EIGHT FEET FROM THE STRUCTURE.

Drain Pipe Data Table

	DRAIN PIPE DATA																
	DESIGN INFO.													AS-BUILT			
PIPE NO.	FROM STR.	INVERT	TO STR.	INVERT	PIPE LENGTH (ft.)	PIPE DIA. (in.)	MAT'L	SLOPE (%)	AREA (Ac.)	Q _D (cfs)	Q _C (cfs)	VEL. (fps)	FROM STR.	TO STR.	PIPE LENGTH (ft.)	SLOPE (%)	Q _C (cfs)

^{*} P = PUBLIC PIPE OR STRUCTURE

Drain Structure Data Table

	DRAIN STRUCTURE DATA										
				D	ESIGN INF	О.					AS-BUILT
STR. NO.	TYPE	C.L. STA.	OFFSET	AREA (Ac.)	Q _D (cfs)	ADD BYPASS	INLET Q _D (cfs)	INLET Q _C (cfs)	BYPASS (cfs)	RIM ELEV.	RIM ELEV.

Develop	ment:		Engineer:			_	Date://
			Erosion Control Pla	n Revie	ew Che	eckl	list
		TITLE	BLOCK & GENERAL REQUIREMENTS				GENERAL
Complete	Incomplete	N/A	<u>Description</u> Standard Title Block	Complete	Incomplete	N/A	<u>Description</u> Standard City of Memphis Plan Sheet Layout
			Standard Nite Block Standard Sheet Size	+			Sheet Numbers
			Project Name w/ Phase or Section Designator	$H \vdash \vdash$			North Arrow
			Scale	+			Streets Identified By Names
			State Reference Number (e.g. 94-SSC-103)	$+$ \vdash \vdash			Engineering Firm and Developer Information
			Drainage Basin Identification	+			Property Lines
			State of TN Professional Engineer Stamp and Signature	┨			A Scale No Less Than 1" = 100'.
			Proper Signature Lines (No County Engineer)	┨┞			Vicinity Map and Parcel Number.
			Sheet Number (Usually 1 of 1)	┨┝┼			Top of bank labeled
			· · · · · · · · · · · · · · · · · · ·				Indicate drainage basin, per City of Memphis drainage basin
			Development Location (i.e., Reference to Nearest Street, Intersection, etc.)				map (that includes Shelby County). If the basin is known for frequent flooding (i.e., Fletcher Creek), or is in a Sensitive Basin, additional requirements may apply.
							At least one benchmark located, with the proper elevation indicated (NGVD to be used exclusively).
							Existing and proposed buildings and pavement on property.
			GENERAL REQUIREMENTS				Existing and proposed impervious area on property.
Complete	Incomplete	<u>N/A</u>	Description				Existing and proposed storm water management structures or and in the immediate vicinity of the property.
			If project is more than 50 acres, is phasing planned?				Existing and proposed site contours at an interval no greater than two (2) feet.
			Proposed construction schedule if greater than 12 months.				Floodplain and floodway boundaries, stream buffer zones, and the floodplain elevations. (Stream buffers should begin from top of bank.)
			Legend or individually labeled EPSC measures				Ridge lines delineating basins. Sub-basin drainage areas.
				-			Delineation of wetlands or other environmentally sensitive
							Provide adequate access from public right of way to storm
							water areas. Indicate the acreage of each off-site contributing drainage
							area. Indicate limits of disturbance
							Total Disturbed Acreage
							Appropriate number of erosion control plan sheets per amount of disturbed acreage as required by the NPDES permi for storm water discharges associated with construction activity.
							Temporary erosion and sediment control measures to be implemented during construction to protect storm water inlets and adjacent properties that will receive runoff from disturbed areas.
							If a stream is within or adjacent to the site, have the appropriate EPSC designs and buffers been applied per the NPDES permit for storm water discharges associated with construction activity?
							Detail drawings of swales, ditches, inlets, head walls, detention pond outlet structures and overflows, erosion control measures, etc. Erosion control measures should meet the minimum standards of the more stringent resource; i.e. TDEC EPSC Handbook (most recent edition), City of Memphis/ Shelby County SWMM Vol. 3. Final stabilization measures proposed for all disturbed areas on
				. —	. —		A Company of the Comp

the property. Areas with slopes greater than 3:1 must be stabilized by methods approved by the city or county

engineer.

			Erosion Control Plan	Reviev	w Che	ckl	<u>ist</u>		
		SEDIN	MENT BASIN DATA TABLE & DETAILS	PERMIT DATA					
Complete	Incomplete	N/A	Description	Complete	Incomplete	N/A	Description		
			Design storm of principal spillway (Minimum 2 yr/ 24 hr storm event. If discharging to an impaired or exceptional TN stream, design storm should be a minimum of 5yr/24hr storm event.)				Tennessee General Storm Water Permit Certification Form Certifying that a Notice of Intent (NOI) has been submitted to Tennessee Department of Environment and Conservation (TDEC) for a permit for construction site runoff. Include the permit number or intent to submit the number at a later date or that a permit is not required.		
			Design storm of emergency spillway (25yr/ 24hr storm event)				NPDES Permit		
			Sediment basin stage-storage-discharge relationship data				ARAP Permit		
			Surface area in acres				Copy of State Approved Permit		
			Elevation of emergency spillway. (If >or = to 20 ft., dam must comply with Safe Dams Act)						
			Embankment should have 1ft. minimum freeboard above max design flood elevation			ļ	PCRC PLAN DETERMINATION		
			Height and slope of embankment	<u>Yes</u>	<u>No</u>	N/A	New Developments and Significant Redevelopments		
			Stage and storage of forebay, if a forebay is included in basin design. (Should be 25% of dry storage volume and floor elevation should be > or = to the permanent pool elevation.)				Is this a linear project? (If yes, then a PCRC plan is not required.)		
			Baffles in forebay to increase residence time (if done, not required)				Is this a residential project that will not have post-construction storm water detention? (If yes, then a PCRC plan is not required.)		
			Forebay berm top and bottom elevation (top elevation should crest with the top of the dry storage and floor elevation should be > or = to the permanent pool elevation.)				Is a PCRC plan required? If neither of the latter two expections are meet, then a PCRC is required.		
			Sediment basin detail drawing				Is a PCRC plan submitted with this plan set?		
			Outlet structure detail. (Should never have an open bottom outlet.) Detail of skimmer, if used.						
		1 1	Outlet protection						

Engineer:_____

Development:

Anchoring detail for riser pipe, if used.

Principal spillway with trash rack

Resting pier, if skimmer is used.

If at maximum water storage elevation, the capacity is 30 ac-ft (48,400cy) or more, then dam must comply with Safe Dams Act.

Equivalent controls approved by TDEC. Give description., if

Date:____/___/

Development:	Engineer:	Date:/	//	/
•				

Post Construction Runoff Control Plan Review Checklist

		TITLE	BLOCK & GENERAL INFORMATION				<u>GENERAL</u>
Complete	Incomplete	N/A	Description	Complete	Incomplete	N/A	Description
			Standard Title Block				Standard City of Memphis Plan Sheet Layout
			Standard Sheet Size				Sheet Numbers
			Project Name w/ Phase or Section Designator				North Arrow
			Scale				Streets Identified By Names
			State Reference Number (e.g. 94-SSC-103)				Engineering Firm and Developer Information
			Drainage Basin Identification				Property Lines
			State of TN Professional Engineer Stamp and Signature				A Scale No Less Than 1" = 100'.
			Proper Signature Lines (No County Engineer)				Vicinity Map and Parcel Number.
			Sheet Number (Usually 1 of 1)				Top of bank labeled
			Development Location (i.e., Reference to Nearest Street, Intersection, etc.)				Indicate drainage basin, per City of Memphis drainage basin map (that includes Shelby County). If the basin is known for frequent flooding (i.e., Fletcher Creek), or is in a Sensitive Basin, additional requirements may apply.
							At least one benchmark located, with the proper elevation indicated (NGVD to be used exclusively).
		1	Storm Water Information Table			Ш	Vicinity map based on USGS quad map with site location clearly shown and flow path to named water of the state
Complete	Incomplete	N/A	Description				Grading and Drainage Plan with arrows showing storm water flow direction across the site and BMP locations
			Intended Use (e.g. single family residential, office park, etc.)				Buildings and pavement on property.
			Parcel ID(s)				Storm water management structures on and in the immediate vicinity of the property
			Total Site Area (in acres)				Schematics of BMPs located on the site, including outlet structure details indicating design storm event
			Impervious Area (in square feet)				Existing and proposed site contours at an interval no greater than two (2) feet.
			Expected Hot Spots (e.g. power washing, trash/food waste dumpster operation, commercial fuel dispensing, and food grease storage/disposal, etc.)				Floodplain and floodway boundaries, stream buffer zones, and the floodplain elevations. (Stream buffers should begin from top of bank.)
			Structural BMPs (e.g. detention/retention ponds, swales, water quality units, etc.)				Ridge lines delineating basins. Sub-basin drainage areas.
			O&M requirements for structural BMPs (Inspection and maintainance of the system to ensure proper functioning as designed)				Delineation of wetlands or other environmentally sensitive areas
			Non-structural BMPs (street sweeping, employee-training, and material/chemical/waste handling practices)				Certify compliance with all required state or federal storm water permits, if applicable.
			Entity responsible for BMP implementation (contact name, address, and phone number) If the organization that will be responsible is yet to be organized, list the name, address and phone number of the person or entity with interim responsibility.				Total drainage area entering storm water detention (acres) [this number includes any off-site drainage area that is received]
			Where and how the trash, sediment, oil and other vehicle fluids and other pollutants removed from the storm water system will be disposed. This should include any parameters listed in the TDEC 303(d) list for the water bodies into which the development discharges and for which the development could be a reasonable source.				Total onsite drainage area entering a water quality BMP
			Basin Name (Wolf, Loosahatchie, Nonconnah, and Mississippi)				State if the discharge from the site goes into another detention structure further downstream, if located within a larger development
			Sub-basin (as is currently used on Grading & Drainage Plans)				Submit an Inspection and Maintenance Agreement if a structural BMP will be on-site (Available in the SWMM Vol. 1 section 7.0 page 172)

Development:	Engineer:	Date:/	//	
	g			

Sanitary Sewer Plan Checklist

	TITLE BLOCK & GENERAL REQUIREMENTS						
Complete	Incomplete	N/A	<u>Description</u>				
			Standard Title Block				
			Standard Sheet Size				
			Project Name w/ Phase or Section Designator				
			Scale				
			State Reference Number (e.g. 94-SSC-103)				
			Sewer Basin Identification				
			State of TN Prof. Eng. Stamp and Signature				
			Proper Signature Lines (No County Engineer)				
			Sheet Number (Usually 1 of 1)				
			Development Location (i.e., Reference to Nearest Street, Intersection, etc.)				

			<u>GENERAL</u>
Complete	Incomplete	N/A	<u>Description</u>
			BM or TBM Description & Elevation
			Vicinity Map
			FEMA 100-yr Flood Elevation
			State Delegation Stamp ("Health Stamp")
			North Arrow
			Property Lines & Interior Lot Lines
			Street Names
			Adjoining Development/Property Owner Names
			Perm. Easements (All On 1 Lot) with Size, Ties, etc. (15' Typ.)
			Temp. Construction Easements - Typical Width 20'
			Existing Sewer Data for All Tie-In Points
			Private Sewers Clearly Marked
			Private Sewer Certificate
	Ē		Upstream Service Provided (Show Q _c / Q _d / A)
	П	П	Flow Direction Arrows
			Clearance CL Sewer to Face of Curb (5' MIN)
		П	Off-street Sewer Profile Reference
\Box	П		Off-street Sewer Angles
			New Manhole Ties to Existing Manholes
			Typical Line Location 7' north or west of CL Street
			Utilities Affecting Installation (Gas/Water Lines, etc.)
			Ridgelines Not To Be Crossed
	П		Offset from Ditches & Streams
	Ī	П	Rip-Rap Protection for Ditch Crossings
			Min. Floor Elevations for Lots in "Holes"
		П	Standard Ingress/Egress Note
		Ħ	Standard Notes
		П	Erosion Control Details & Notes
		Ħ	Special Pipe Notes Where Needed
		П	Q _c /Q _d / A Shown At All Downstream Tie-Ins
		Ħ	Sewer Extended Upstream with Manhole & Stub
		Ħ	No CADD Partial Wording

	<u>MANHOLES</u>					
Complete	Incomplete	N/A	<u>Description</u>			
			Manhole Size (If Not 4' Diameter Manhole)			
			Flowline Elevations w/ Pipe Size & Direction			
			Manhole Top Elevation			
			Drop Construction Required if Drop > 2'			
			Maximum 3 House Connections Into Manhole			
			0.1' Drop Across Manholes			
			Manhole Rim Elevations			
			1.0' above 100 Year Flood Elevation			
			1.5' Above Grade in Open Areas			
			0.5' Above Grade in Back Yards			
			Manhole Spacing (8"-21" Pipe=400' Maximum Spacing)			
			Sealed Lids & Vent Stacks Required if Rim Cannot Be			
			Constructed 1.0' Above 100-yr Flood Elevation			

	<u>PIPE DATA</u>						
Complete	Incomplete	N/A	<u>Description</u>				
			Pipe Size				
			Pipe Length				
			Slope in Percent				
			Ductile Iron Requirements (Class 50 Minimum)				
			Less Than 1.5' Clearance with Drainage				
			Less Than 4.0' of Cover				
			Fill Ground				
			Drop Construction				
			Ditch Crossings				
			No House Connections in Lines Over 10"				
			Match Pipe Tops in Manholes EXCEPT 8" into 12"+				
			Off-street House Connections Dimensioned				
			No 8" Pipe Flatter than 0.5% Slope				
			SST-16 Cleanout				
			Cleanout Location Per Standards				
			Detail Included				

SIPHON DATA						
<u>Complete</u>	Incomplete	N/A	<u>Description</u>			
			Typical Cross Section			
			<u>Calculations Showing</u>			
			Loading			
			Barrel Sizes			
			Capacity			
			Velocity			

Sewer Plan Notes

The following two text blocks and typical construction notes must appear, exactly as written, on any sanitary sewer plans submitted to the city. Any additional notes added must be added after the typical construction notes. Typical construction notes No. 10 & 11 must also be shown on the plat for a project.

APPROVED FOR CONSTRUCTION

THE DOCUMENT BEARING THIS STAMP HAS BEEN RECEIVED AND REVIEWED BY THE CITY OF MEMPHIS DIVISION OF ENGINEERING UNDER AUTHORITY DELEGATED BY THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION DIVISION OF WATER RESOURCES. IT IS HEREBY APPROVED FOR CONSTRUCTION BY THE CITY ENGINEER AS EVIDENCED BY HISSIGNATURE IN THE TITLE BLOCK BELOW.

APPROVAL EXPIRES 1 YEAR FROM APPROVAL DATE BELOW. THIS APPROVAL SHALL NOT BE CONSTRUED AS CREATING A PRESUMPTION OF CORRECT OPERATION OR AS WARRANTING BY THE CITY ENGINEER THAT THE APPROVED FACILITIES WILL REACH THE DESIRED GOALS.

PRIVATE SEWER CERTIFICATE

THE ENGINEER WHOSE SEAL AND SIGNATURE APPEAR BELOW HEREBY ACCEPTS THE RESPONSIBILITY FOR THE DESIGN OF THE PRIVATE SANITARY SEWER SYSTEM SHOWN HEREON. THE PRIVATE SANITARY SYSTEM DESIGN FOR SEWERS LESS THAN 8" MUST BE SUBMITTED, APPROVED AND INSPECTED BY THE PLUMBING INSPECTOR'S OFFICE AT THE MEMPHIS AND SHELBY COUNTY OFFICE OF CODE ENFORCEMENT. FOR SEWERS 8" AND LARGER, THE ENGINEER OF RECORD WILL PROVIDE THE MEMPHIS AND SHELBY COUNTY OFFICE OF CODE ENFORCEMENT A LETTER CERTIFYING THAT ALL PRIVATE SEWERS 8" AND LARGER HAVE BEEN INSTALLED AND TESTED IN ACCORDANCE WITH APPLICABLE LOCAL STANDARDS, OR WHERE NO LOCAL STANDARDS EXIST, THE STANDARDS OF THE STATE OF TENNESSEE. NO PRIVATE SANITARY SEWER IS TO BE USED EXCEPT FOR TESTING UNTIL THIS SYSTEM HAS BEEN APPROVED AND/OR THIS CERTIFICATION HAS BEEN ACCEPTED BY CODE ENFORCEMENT.

TYPICAL CONSTRUCTION NOTES

- 1. LOCATION OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND ARE NOT NECESSARILY ALL OF SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE UTILITY COMPANY TO DETERMINE THE EXACT LOCATION OF ALL UTILITIES AND/OR UNDERGROUND STRUCTURES PRIOR TO THE INITIATION OF ANY CONSTRUCTION. CONTRACTOR SHALL ALSO ASSUME FULL RESPONSIBILITY FOR DAMAGE TO ANY UTILITIES ENCOUNTERED WITHIN CONSTRUCTION PERIMETERS. FOR SITE LOCATIONS OF EXISTING UTILITIES INVOLVING M.L.G.&W., SOUTH CENTRAL BELL, AND/OR TEXAS GAS COMPANY, PLEASE CALL 1-800-351-1111. FOR SEWER SERVICE LOCATIONS, CALL 901-636-8025.
- 2. CONTRACTOR SHALL ENSURE UNINTERRUPTED SEWER SERVICE ON EXISTING SEWER AND SERVICE CONNECTIONS BY PROVIDING AMPLE TEMPORARY WASTEWATER PUMPING AND/OR BYPASSING.
- 3. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES.
- CONTRACTOR SHALL NOTIFY THE CITY OF MEMPHIS CONSTRUCTION INSPECTION OFFICE AT <u>636-2462</u> A MINIMUM OF 24 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION.
- ALL AREAS IN CUT OR FILL WHERE VEGETATION HAS BEEN REMOVED SHALL BE SEEDED, MULCHED, FERTILIZED, AND/OR SODDED AS REQUIRED TO PREVENT EROSION.
- THE CONTRACTOR SHALL VERIFY EXISTING DATA AND REPORT ANY SIGNIFICANT DISCREPANCIES TO THE ENGINEER.
- 7. ALL SANITARY SEWER TO BE CONSTRUCTED AS PER CITY OF MEMPHIS STANDARD CONSTRUCTION SPECIFICATIONS. SANITARY SEWER SERVICE CONNECTIONS TO BE INSTALLED AS PER CITY OF MEMPHIS STANDARD SST-16.
- 8. ALL SEWER MANHOLE LIDS IN OPEN AREAS ARE TO BE CONSTRUCTED 1.5' ABOVE PROPOSED GRADE. IN BACKYARDS, MANHOLE LIDS ARE TO BE 1.5' ABOVE INITIAL GRADE, 0.5' ABOVE FINAL GRADE.
- 9. ALL SANITARY SEWER, INCLUDING SERVICE CONNECTIONS, WHICH HAS LESS THAN 1.5' CLEARANCE (OUTSIDE OF PIPES) WITH DRAINAGE OR IN FILLED AREAS SHALL BE CLASS 50 D.I.P. OR CONCRETE ENCASED, 10' MINIMUM BOTH SIDES OF CROSSING. ALL DUCTILE IRON PIPE (D.I.P.) SHALL BE POLYETHYLENE LINED OR SHALL BE TREATED WITH PROTECTO 401 OR APPROVED EQUIVALENT.
- 10. THE CITY OF MEMPHIS SHALL HAVE INGRESS/EGRESS RIGHTS TO USE PRIVATE DRIVES AND YARDS FOR THE PURPOSE OF MAINTAINING ALL PUBLIC SEWER LINES AND SHALL BEAR NO RESPONSIBILITY FOR THE MAINTENANCE OF SAID PRIVATE DRIVES AND YARDS.
- 11. NO TREES, SHRUBS, PERMANENT STRUCTURES, OR OTHER UTILITIES (EXCEPT FOR CROSSINGS) WILL BE ALLOWED WITHIN SANITARY SEWER EASEMENT. NO OTHER UTILITIES OR SERVICES MAY OCCUPY SANITARY SEWER EASEMENTS IN PRIVATE DRIVES AND YARDS EXCEPT FOR CROSSINGS.
- 12. ALL SANITARY SEWER MANHOLES IN REVERSE CROWN STREETS, ALLEYS, OR DRIVES (PUBLIC OR PRIVATE) SHALL BE PROVIDED WITH GASKETS AND PLUGS FOR PICK HOLES TO PREVENT DRAINAGE INFLOW INTO SEWER SYSTEM.
- 13. THE CONTRACTOR SHALL PROVIDE ADEQUATE AND EFFECTIVE EROSION CONTROL AS NECESSARY TO PREVENT ANY SILTATION INTO EXISTING DRAINAGE SYSTEM AND/OR ADJACENT PROPERTIES.

Development:	Engineer:	Date:	/ /	,
Development.	Liigineer	Date	′	

Traffic Control Plan Checklist

	TITLE BLOCK & GENERAL REQUIREMENTS					
Complete	<u>Incomplete</u>	N/A	<u>Description</u>			
			Standard Title Block			
			Standard Sheet Size			
			Project Name w/ Phase or Section Designator			
			Scale			
			State of TN Professional Engineer Stamp and Signature			
			Proper Signature Lines (No County Engineer)			
			Sheet Number (Usually 1 of 1)			
			Development Location (i.e., Reference to Nearest Street,			

			TRAFFIC CONTROL PLAN
Complete	Incomplete	N/A	<u>Description</u>
			Scale
			North Arrow
			Street Names of All Affected Roadways
			Duration of Traffic Control (Days, Weeks, Etc.)
			Design Speed Limit
			Existing Striping and Lane Dimensions
			Existing Roadway Edge of Pavement
			Images, Codes and Sizes of Traffic Control Signs
			Proposed Location of All Traffic Control Signs
			Channelization Devices (Drums, Cones, Etc.)
			Other Traffic Control (Barricades, Arrow Boards, Temp. Striping, Etc.)
			Clearly Identified Work Area (Hatched)
			Non-TCP Linework Not on Plans (Contours, Underground Utilities, Owner Info, etc.)
			Pedestrian Access & Signage, Etc No Mid-Block Crosswall
			Traffic Control Notes (See Attached)

Traffic Control Plan Notes and Guidance

Notes regarding Traffic Control should be placed on each page of the Traffic Control Plans. The numbering for the notes to be shown on the plan should remain as depicted below, even if some notes (per the following guidance) are eliminated. For instance, if notes #31 through #33 are not needed on the TCP, the numbering of the remaining notes would skip from #30 to #34.

Attached are the standard City of Memphis Traffic Control Plan Notes. Follow the following guidance on which notes should be used. A Temporary Traffic Control Plan (TCP) is needed for all work that will be performed in the City ROW. This includes work performed in the actual roadway and the sidewalk.

- 1. Typical notes that should be on TCPs are notes # 1 thru 9, 10 (with curb & gutter) OR 11 (without curb & gutter), 12, 21, 25 (with curb & gutter) OR 24 (without curb & gutter), 28, 35, 36 and 41. Other notes may be required based on the scope of the project.
- 2. On note # 10, if the drums will stay on the street overnight, please change to Type "A" warning lights.
- 3. If NO lane/road closure or construction activities will occur at nighttime, please include note # 34. The developer/contractor cannot change to nighttime closures or activities without prior approval of a revised Traffic Control Plan by City Engineering.
- 4. Notes #31 thru 33 are for flagger design.
 - 5. The minimum lane width allowed for temporary traffic control is 10'. The City <u>may</u> consider a lane width less than 10' if the existing lanes are less than 10'.
- 6. Any time work is going to be performed that would involve the closure of a sidewalk, a pedestrian traffic control plan is required. Provide the traffic control design for pedestrians on the same plan, and include note # 40. Note that the City does not allow temporary mid-block crosswalks.
- 7. If no sidewalk will be closed, please include note # 39.
- 8. If any MATA route is within the traffic control area, please include note # 43.
 - 9. The City does not allow half-road closures, i.e., the road is reduced to one-way traffic.

TRAFFIC CONTROL PLAN NOTES:

FOR LAND DEVELOPMENT PROJECTS (REV. 08-17-16)

- 1. SEE SECTION 6F.03, <u>SIGN PLACEMENT</u>, OF THE STATE OF TENNESSEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR INFORMATION ON PLACEMENT AND MOUNTING OF SIGNS.
- 2. SIGNS SHOWN ON THIS PLAN ARE TO WARN TRAFFIC ABOUT THE CONSTRUCTION. OTHER TRAFFIC CONTROL DEVICES MAY BE REQUIRED DURING VARIOUS PHASES OF CONSTRUCTION.
- 3. NOTHING IN THIS PLAN IS INTENDED TO SUPERSEDE OR RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF INSTALLING THE APPROPRIATE TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE CURRENT STATE OF TENNESSEE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
- 4. CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE CITY OF MEMPHIS CONSTRUCTION INSPECTION DEPARTMENT (636-2462) AND TRAFFIC ENGINEERING DEPARTMENT (576-6710) A MINIMUM OF 24 HOURS PRIOR TO COMMENCING CONSTRUCTION OR IMPLEMENTING A TRAFFIC CONTROL PLAN. ALL TRAFFIC CONTROL DEVICES MUST BE IN PLACE BEFORE CONSTRUCTION ACTIVITY BEGINS.
- 5. SIZES OF ALL SIGNS SHALL COMPLY WITH STATE OF TENNESSEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- 6. ALL TRAFFIC CONTROL DEVICES AND THEIR INSTALLATION SHALL MEET THE STANDARD PRESCRIBED IN THE STATE OF TENNESSEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND SHALL COMPLY WITH THE STATE OF TENNESSEE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 712 TEMPORARY TRAFFIC CONTROL.
- 7. ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
- 8. SIDE STREET, DRIVEWAY ACCESS, AND SAFE PEDESTRIAN WAYS SHALL BE MAINTAINED AT ALL TIMES.
- 9. THE CONTRACTOR SHALL NOT BE PERMITTED TO PARK ANY VEHICLES OR CONSTRUCTION EQUIPMENT DURING PERIODS OF INACTIVITY, WITHIN THE RIGHT-OF-WAY OR WITHIN THIRTY (30) FEET OF THE EDGE OF PAVEMENT WHICHEVER IS LESS, WHEN THE LANE IS OPEN TO TRAFFIC, UNLESS PROTECTED BY GUARDRAIL, BRIDGE RAIL, AND/OR BARRIERS INSTALLED FOR OTHER PURPOSES. PRIVATELY OWNED VEHICLES SHALL NOT BE ALLOWED TO BE PARKED WITHIN THE RIGHT-OF-WAY OR WITHIN THIRTY (30) FEET OF AN OPEN TRAFFIC LANE WHICHEVER IS LESS, AT ANY TIME UNLESS PROTECTED AS DESCRIBED ABOVE.
- 10. CONTRACTOR SHALL USE PLASTIC DRUMS WITH TYPE "C" WARNING LIGHTS TO SEPARATE TRAFFIC FROM THE CONSTRUCTION AREA.
- 11. DRUMS WITH TYPE "C" WARNING LIGHTS SHALL DELINEATE THE EDGE OF PAVEMENT THROUGH THE ENTIRE CONSTRUCTION AREA.
- 12. CONTRACTOR SHALL COVER ALL EXISTING SIGNS THAT CONFLICT WITH THE TRAFFIC CONTROL PLAN SIGNS OR DEVICES DURING CONSTRUCTION AND THEY SHALL REMAIN COVERED DURING CONSTRUCTION AND UNTIL SUCH TIME THAT NO CONFLICT EXISTS.
- 13. CONTRACTOR SHALL INSTALL TEMPORARY NO PARKING SIGNS AS REQUIRED WITHIN THE TRAFFIC CONTROL AREA.
- 14. TWO-WAY TRAFFIC SHALL BE MAINTAINED ON______AT ALL TIMES.

- 15. DURING CONSTRUCTION, A MINIMUM OF ONE_______FOOT LANE OF TRAFFIC SHALL REMAIN OPEN TO BOTH DIRECTIONS OF TRAFFIC AT ALL TIMES.

 16. CONTRACTOR SHALL BE REQUIRED TO MAINTAIN AT LEAST ONE______FOOT LANE OF TRAFFIC FOR EACH DIRECTION ON_____AT ALL TIMES AND SHALL MAINTAIN A TEMPORARY CENTER LINE OR CONES THROUGH THE CONSTRUCTION AREA.

 17. ONE/TWO_____FOOT LANES OF TRAFFIC SHALL REMAIN OPEN TO TRAFFIC AT ALL TIMES.

 18. WORK WITHIN THE ROADWAY DURING DIFFERENT PHASES OF CONSTRUCTION SHALL NOT BE ACTIVE AT THE SAME TIME.

 19. ONLY ONE PHASE OF THE TRAFFIC CONTROL PLAN SHALL BE ACTIVE AT ANY ONE TIME.

 20. ONLY ONE CONSTRUCTION SITE ON______SHALL BE ACTIVE AT ANY ONE TIME.
- 22. MARKINGS SHALL BE MAINTAINED IN LONG-TERM STATIONARY WORK AREAS AND SHALL MATCH AND MEET THE MARKINGS IN PLACE AT BOTH ENDS OF THE WORK AREA.
- 23. CENTERLINE/LANE LINES SHOULD BE PLACED, REPLACED, OR DELINEATED WHERE APPROPRIATE BEFORE THE ROADWAY IS OPENED TO TRAFFIC.

CONTRACTOR (INCLUDING WEEKENDS) AND NECESSARY PATCHING OR RE-FINISHING

PERFORMED.

- 24. CHANNELIZING DEVICES SHALL BE REMOVED TO THE EDGE OF PAVEMENT AT THE END OF EACH WORK DAY. NO CLOSURE SHALL BE IN EFFECT FROM 4:00 P.M. UNTIL 9:00 A.M. TWO 12 FOOT LANES SHALL BE OPEN DURING THIS PERIOD WITH AT LEAST A 4 INCH THICK COMPACTED GRAVEL SURFACE.
- 25. WORK WITHIN THE ROADWAY SHALL BE CONDUCTED BETWEEN 9:00 A.M. AND 4:00 P.M. AND THE ROADWAY SHALL BE COMPLETELY OPEN TO TRAFFIC AT ALL OTHER TIMES AND ALL INAPPROPRIATE SIGNS SHALL BE COVERED OR REMOVED.
- 26. CONTRACTOR SHALL CONTACT ALL APPROPRIATE AGENCIES BEFORE CLOSING ANY ROADWAYS.
- 27. CONTRACTOR SHALL CONTACT THE DIVISION OF ENGINEERING AT 576-6710 TO ARRANGE FOR THE BAGGING/REMOVAL OF PARKING METERS.
- 28. CONTRACTOR SHALL CONTACT THE CITY OF MEMPHIS SIGNAL SHOP AT 528-2844 FOR LOCATION OF SIGNAL CONDUIT AND WIRES.
- 29. THE APPROPRIATE TRAFFIC CONTROL SHALL BE INSTALLED AT THE INCEPTION OF EACH STAGE OF CONSTRUCTION AND SHALL BE PROPERLY MAINTAINED AND/OR OPERATED DURING THE TIME SUCH SPECIAL CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS THEY ARE NEEDED AND SHALL BE IMMEDIATELY REMOVED THEREAFTER.
- 30. OBLITERATED MARKINGS SHALL BE UNIDENTIFIABLE AS PAVEMENT MARKINGS UNDER DAY OR NIGHT, WET OR DRY CONDITIONS. OVERLAYING EXISTING STRIPES WITH BLACK PAINT OR ASPHALT DOES NOT MEET THE REQUIREMENTS OF COVERING, REMOVAL, OR OBLITERATION; HOWEVER, THE USE OF REMOVABLE, NONREFLECTIVE, PREFORMED TAPE IS PERMITTED WHERE MARKINGS NEED TO BE COVERED TEMPORARILY.
- 31. AT NO TIME SHALL ONE LANE SECTION BE LEFT OPEN UNATTENDED. WHERE TWO FLAGGERS ARE REQUIRED AND IN CIRCUMSTANCES WHERE ONLY ONE LANE OF TRAFFIC IS OPEN AND

THERE IS NO CLEAR LINE OF SIGHT FROM ONE END OF THE CONSTRUCTION AREA TO THE OTHER, THE CONTRACTOR SHALL PROVIDE RADIO COMMUNICATION OR OTHER APPROPRIATE MEANS OF ESTABLISHING CONTROL OF TRAFFIC.

- 32. ANYTIME FLAGGER IS NOT PRESENT TO CONTROL TRAFFIC, TWO TRAFFIC LANES MUST BE OPEN TO MAINTAIN TWO-WAY TRAFFIC AND ALL INAPPROPRIATE SIGNS SHALL BE COVERED OR REMOVED.
- 33. ALL FLAGGERS SHALL BE EQUIPPED WITH A STOP/SLOW PADDLE.
- 34. IF CONSTRUCTION ACTIVITIES REQUIRE OVER-NIGHT CLOSURE OF ANY PORTION OF THE ROADWAY, A REVISED TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER'S OFFICE.
- 35. EXISTING STRIPING THAT CONFLICTS WITH THE TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE COVERED OR REMOVED DURING CONSTRUCTION. WHEN CONSRUCTION IS COMPLETE THE EXISTING STRIPING SHALL BE RETURNED TO ITS ORIGINAL STATE.
- 36. ALL TRAFFIC CONTROL SIGNS SHALL MEET THE MINIMUM RETROREFLECTIVITY LEVELS SPECIFIED IN THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- 37. ALL TEMPORARY STRIPING SHALL BE PREFORMED TAPE.
- 38. THE CONTRACTOR MUST REIMBURSE THE CITY OF MEMPHIS FOR LOST REVENUE ASSOCIATED WITH PARKING METER SPACES BLOCKED/REMOVED FOR CONSTRUCTION.
- 39. THE CONTRACTOR IS PROHIBITED FROM CLOSING THE EXISTING SIDEWALK AT ANYTIME DURING THIS PROJECT. IF A SIDEWALK CLOSURE IS NEEDED, A REVISED TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER'S OFFICE.
- 40. THE DEVELOPER SHALL PROVIDE A TRAFFIC CONTROL PLAN TO THE CITY ENGINEER THAT SHOWS THE PHASING FOR EACH STREET FRONTAGE DURING DEMOLITION OR CONSTRUCTION OF CURB GUTTER AND SIDEWALK. UPON COMPLETION OF SIDEWALK, CURB AND GUTTER IMPROVEMENTS, A MINIMUM 5 FEET WIDE PEDESTRIAN PATHWAY SHALL BE PROVIDED THROUGHOUT THE REMAINDER OF THE PROJECT.
- 41. ANY CLOSURE OF THE RIGHT OF WAY SHALL BE TIME LIMITED TO THE ACTIVE DEMOLITION OR CONSTRUCTION. CONTINUOUS UNWARRANTED CLOSURE OF THE RIGHT OF WAY SHALL NOT BE ALLOWED FOR THE DURATION OF THE PROJECT. THE DEVELOPER SHALL PROVIDE ON THE TRAFFIC CONTROL PLAN, THE TIME NEEDED PER PHASE TO COMPLETE THAT PORTION OF THE WORK. TIME LIMITS WILL BEGIN ON THE DAY OF CLOSURE AND WILL BE MONITORED BY THE ENGINEERING CONSTRUCTION INSPECTORS (636-2462) ON THE JOB.
- 42. THE CONTRACTOR WILL MAINTAIN ACCESS FOR CITY OF MEMPHIS SIGNAL CREWS TO PERFORM MAINTENANCE ON THE SIGNAL POLES IN AFFECTED AREA.
- 43. THE CONTRACTOR SHALL NOTIFY MEMPHIS AREA TRANSIT AUTHORITY (MATA) AT 722-7100 A MINIMUM OF 48 HOURS PRIOR TO IMPLEMENTING A TRAFFIC CONTROL PLAN.

Development:	Engineer:	Date:	/ /	/
zevelopmenti		<u> </u>	,	

Signing and Striping Checklist

	TITLE BLOCK & GENERAL REQUIREMENTS				
Complete	Incomplete	N/A	<u>Description</u>		
			Standard Title Block		
			Standard Sheet Size		
			Project Name w/ Phase or Section Designator		
			Scale		
			State of TN Professional Engineer Stamp and Signature		
			Proper Signature Lines (No County Engineer)		
			Sheet Number (Usually 1 of 1)		
			Development Location (i.e., Reference to Nearest Street, Intersection, etc.)		

	SIGNING AND STRIPING PLAN				
Complete	Incomplete	N/A	<u>Description</u>		
			Existing and Proposed Striping (Include Lane Widths and Line Types)		
			Existing and Proposed Signs		
			Parking Signs on Adjacent Sections of Street		
			Size Legend (Include Sign Designations and Size of Signs)		
			Regulatory Speed Limit		
			City Traffic Engineer in Signature Block		
			Include Note - "All Striping Shall be Thermoplastic. Follow City of Memphis Standard Pavement Marking."		
			North Arrow		
			Scale		

Development:	Engineer:	Date:	//	/
•	-	·		

School Zone Flasher Signal Checklist

	TITLE BLOCK & GENERAL REQUIREMENTS				
Complete	Incomplete	N/A	<u>Description</u>		
			Standard Title Block		
			Standard Sheet Size		
			Project Name w/ Phase or Section Designator		
			Scale		
			State of TN Professional Engineer Stamp and Signature		
			Proper Signature Lines (No County Engineer)		
			Sheet Number (Usually 1 of 1)		
			Development Location (i.e., Reference to Nearest Street, Intersection, etc.)		

	<u>FLASHERS</u>			
Complete	Incomplete	N/A	<u>Description</u>	
			Scale (1" = 40')	
			North Arrow	
			Street Names	
			Sign Legend	
			Existing & Proposed Signs	
			Solar Flasher Details	
			Flasher Notes	

Develop	oment:		Engineer:		Date:/		
			<u>Traffic Signal F</u>	Plan Cl	necklis	<u>st</u>	
	<u>TI</u>	TLE B	LOCK & GENERAL REQUIREMENTS				SIGNAL PLAN - GENERAL
Complete	Incomplete	N/A	Description	Complete	Incomplete	N/A	<u>Description</u>
			Standard Title Block				Scale
			Standard Sheet Size				North Arrow
			Project Name w/ Phase or Section Designator				ROW and Property Lines
			Scale				Street Names
			State of TN Professional Engineer Stamp and Signature				Adjoining Development/Property Owner Names
			Proper Signature Lines (No County Engineer)				Dimension to Property Line from Side Street
			Sheet Number (Usually 1 of 1)				Standard Notes
			Development Location (i.e., Reference to Nearest Street, Intersection, etc.)				Above Ground Utilities and Storm Drainage Inlets
,							Existing and Proposed Ingress-Egress Easements
							Existing and Proposed Pedestrian Easements
							Existing and Proposed Traffic Signal Easements
			SIGNAL LAYOUT				Label Existing ROW and Dedication
Complete	Incomplete	N/A	Description				Existing and Proposed Street Improvements
			Advance Detection Needed?				Existing and Proposed Sidewalks
			Detection Zones Labeled from Inside to Outside (i.e., 2-1 for inside EB thru lane; 2-3 for outside EB thru lane)				Existing and Proposed Curb and Gutter
			Striping Shown and Dimensioned				Existing and Proposed Medians and Median Openings
			Crosswalk Type (Traditional or High Vis.) and Width				Existing Underground Traffic Signal Conduits & Pull Boxes
			Signal Cabinet Location (ROW or Easement)				Type of Detection (Video Req'd for New Signals)
			Signal Cabinet Base Mounted				Left Turn Operation (PT, PM, PTPM?)
			Pole Locations (ROW or Easement)				Protected Left Turn Phase Justified thru Traffic Analysis?
			Signal Heads (No. of Heads, Locations & Dimensions) (2 min. for through movement)				Phasing
			Pull Box Locations (1 per corner; req'd for mast arm)				Signal Head and Detection ID Figure
			ADA Ramps and Accessibility throughout Intersection				Signal Head Display Types
			Push Button Locations (ADA Accessible)				Pedestrian Signal Display Type (12", Countdown)
			Signage (Lane Control; Street Name; Ped. Signs, etc.)				Phasing Diagram (Match Sequence Chart?)
							Sequence Chart (Match Phasing Diagram?)
							Push Button Orientation (Match Phasing & Sequence?)
							Emergency Vehicle Pre-emption
							Transit Pre-emption
							Wiring Diagram
							Removal Diagram
							Plan Details
							Attachment Height (For Span Mount Signal)
							Conduit Runs to Cabinet (Size, No. of Pipes, etc.)
							Pole Diameter & Height (City Standard)

Will this signal need to be interconnected to the City of Memphis, Traffic Signal System? If so, all Traffic Signal interconnect details must be shown on the plan. A separate traffic signal interconnect plan may be required if this signal is to be connected to an existing signal that is not currently a part of the City of Memphis, Traffic Signal System.

Conduit Stubs in Poles (2 - 3" PVC, Typical)

Mast Arm Length

Development:	Engineer:	Date:/	
Development			

Easement Plat Checklist

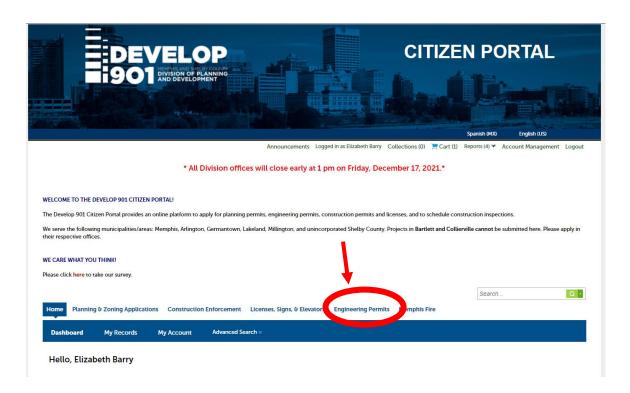
	<u>TI</u>	TLE BL	OCK & GENERAL REQUIREMENTS
<u>Complete</u>	<u>Incomplete</u>	N/A	<u>Description</u>
			Standard Plat Title Block with City project number
			Standard Plat Sheet Size (either Letter or Legal size)
			Project Name with Phase or Section Designator
			Scale
			North Arrow
			State Reference Number (e.g. 94-SSC-103)
			Sheet Number Corresponding to the Plan & Profile of the
			Proposed Development Plan
			Owner's Name, Verified with County Assessor's website.
			(Assessor Info. and Most Current Deed Included?)
			Drainage and/or Sewer District, where applicable
			Proper Signature Lines (No County Engineer)
			Plat Number (1 of X)
			Sheet Number (1 of X Unless Only 1)
			Space in Upper Right Corner for File Stamp Block

<u>necklist</u>			
<u>GENERAL</u>			
<u>Complete</u>	Incomplete	N/A	<u>Description</u>
			Key Map (Unless 1 or 2 Plats)
			Adjacent Plat Numbers
			CIP Number if City Participation
			North Arrow
			Street Names
			Property Lines & Cross Street Ties
			Adjoining Development/Property Owner Names with Instrument Numbers (Supply Copies)
			Bearings/Angles & Distances on Easement Centerline/ Perimeter (Be Consistent on all Plats If Possible)
			Widths of All Existing/Proposed/Temporary Easements & Rights of Way
		Ш	Street Center Line
			Bearing & Distance or Curve Info. for All Property Boundaries
			Existing and Proposed Right-of-Way widths for all streets shown on the plat
			Line and Curve Tables
			Detail Drawings as Needed
			Building Faces
			House Numbers
			Existing Features (Fences, Trees, etc.), esp. within ROW
			Acquisition and Easement Areas
		Ш	Instrument Number
			Ward, Block and Parcel ID
			Plat Book and Page No., if applicable
			<u>Designate the Following with Unique Hatch</u> :
			Right-of-Way Acquisition
			Right-of-Way in Use
			Public or Private Drainage Easement
			Temporary Construction Easement
			Sewer Easement
			Any Other Type of Easement or Acquisition
			Point of Commencement (At Street Intersection) Shown & Labeled
		Щ	Point of Beginning Shown & Labeled
			Legal Descriptions for all Areas (except Temporary Construction Easements)
			Closure Reports for All Areas, including Temporary Construction Easements. Closure Report should match Legal Description and Begin at P.O.B.
			Area of Permanent & Temporary Showing Encumbered Area (If Any) to Nearest Whole Foot
		П	Property Tied to Centerline of Street
		\overline{H}	One Plat for Each Property; Each Plat may have Multiple
			Sheets (R.O.W., Drainage Esmt, etc.) as required to provide clarity
			All of Parcel on One Sheet
			Text Legible; 0.12" Text Height; Not Overlapping
		$\overline{\Box}$	Drainage Easements Match the Grading & Drainage Plan
1 1 1		1 1	Detention Area Denoted, with Detention Note

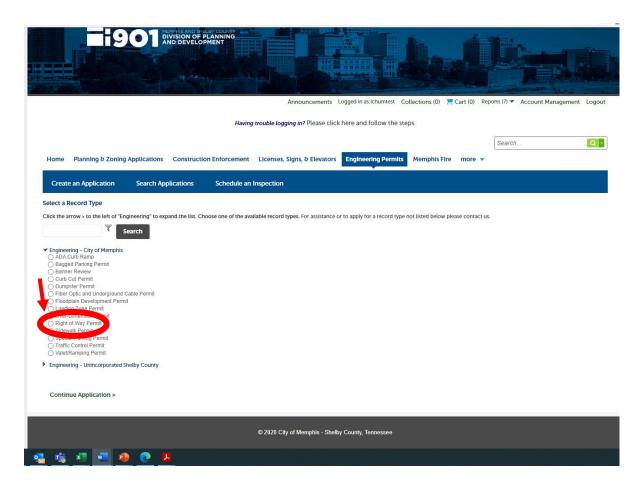
How To: Request a Permit Thru Accela

Website: http://aca-prod.accela.com/shelbyco

- Visit the above website address and create an account for Accela. Once you have created an account log in
- Select "Engineering Permits"



- Read the general disclaimer and accept the terms in order to move forward. After doing this, click "Continue application"
- Click the drop-down arrow next to "Engineering City of Memphis" in order to see a list of different types of permits you can apply for.

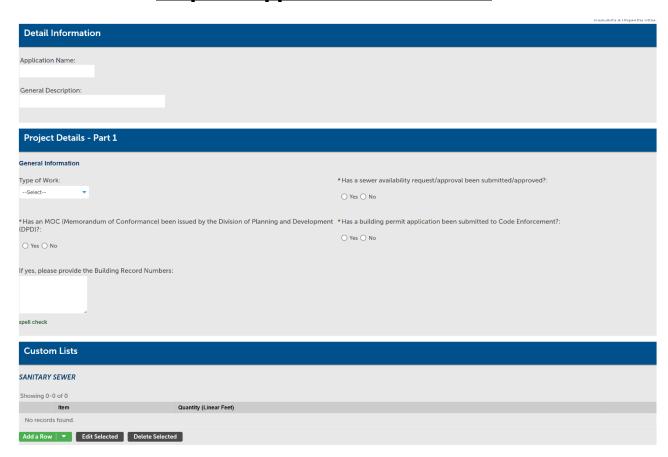


• Select "Right of Way Permit" and the "Continue Application"

Step 1 - Instructions

- First, you will need to read the <u>City of Memphis Procedures for Right of Way Permit</u> document. Please make sure to read these through and to familiarize yourself with them if you are not already familiar with this document.
- After familiarizing yourself with the General Procedures, click "Continue Application"
- **Note- at any point you can save your progress, close out of it, and resume the application later.**

Step 2 - Application Information

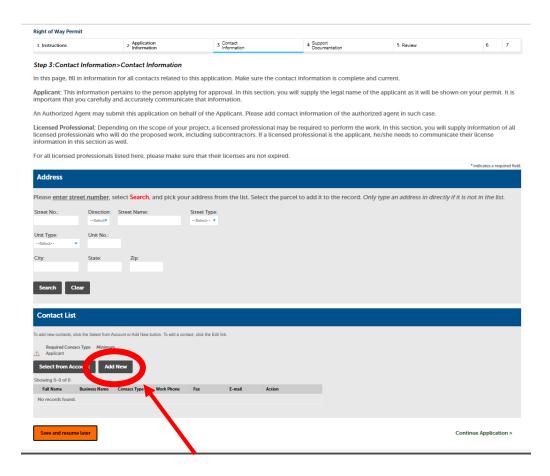


Fill these out to the best of your ability. If you have any questions with Sewer availability, MOC's, or Code Enforcement, here are some useful contacts below.

USEFUL CONTACTS

- Sewer availability
 - Contact Qaladize, Faraedoon <u>Faraedoon.Qaladize@memphistn.gov</u>
- Memorandum of Conformance (MOC)
 - Contact Norman Saliba <u>Norman.Saliba@memphistn.gov</u>
- Code Enforcement
 - Contact Bobby Decker <u>Bobby.Decker@shelbycountytn.gov</u>

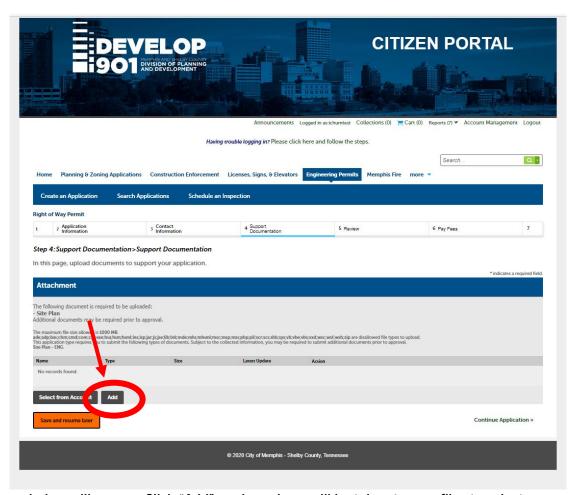
Step 3- Contact list



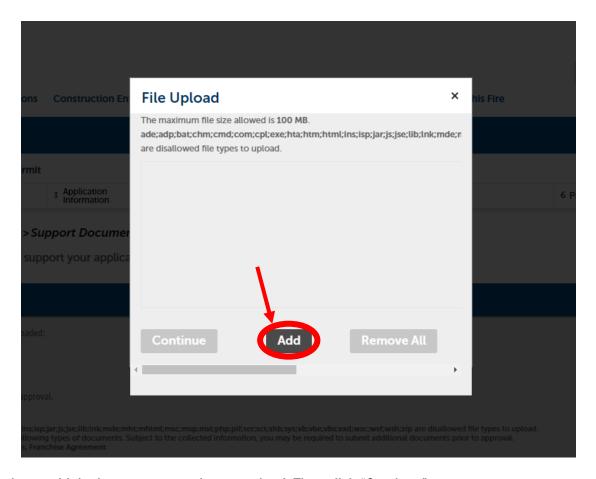
- Insert contact information. This will be the applicants that appear in the permit record. If there are more people
 you need on the emailing chains click ADD NEW.
- **BE ADVISED They must have an Accela Account.**

Step 4 - Support Documentation

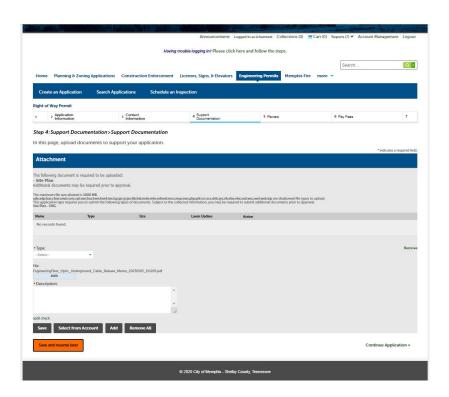
- Please attach your engineering drawings here:
- Click "Add"



• The following window will pop up. Click "Add" again and you will be taken to your files to select one.

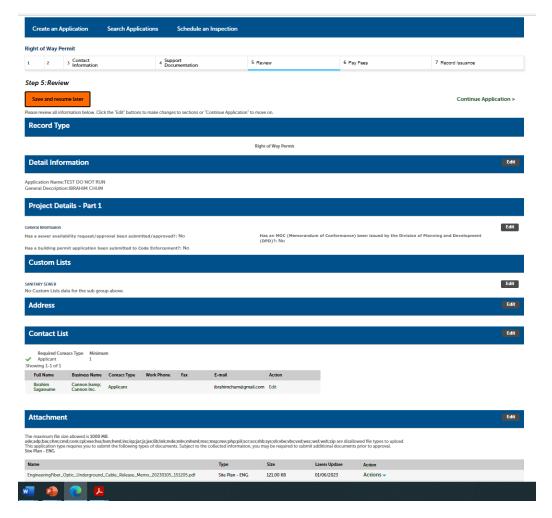


- You can select multiple documents at a time to upload. Then click "Continue"
- Now, you will need to go in and label what each of these documents are



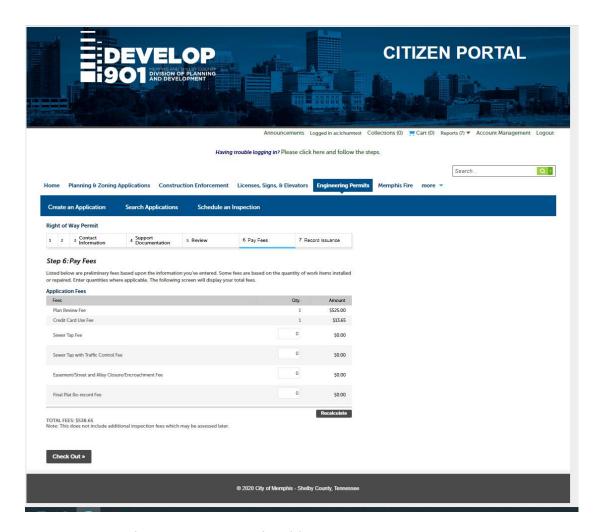
Step 5 - Review

- Review all of the information to ensure that everything is correct. You have the opportunity at this time to go back and fix any mistakes.
- If everything looks good, click "Continue Application"



At this time, your application will be submitted to Accela/City of Memphis for review and the assessment of fees.

Step 6- Pay Fees



^{**}The fees in the system are for the initial review fee. **

