



Monroe County  
Road Commission

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# Site Plan Guidelines

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## Monroe County Road Commission Site Plan Guidelines

**Adopted: May 23, 2016**

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MONROE COUNTY ROAD COMMISSION

SECTION 1: PURPOSE AND JURISDICTION

- 1.1. The statutory authority for the Monroe County Road Commission (MCRC) to regulate driveways onto the public highway system is through Act 200 of the Public Acts of 1969 and as amended.
- 1.2. The statutory authority for the MCRC to regulate work within the public road right of way is through Public Act 283 of 1909, MCLA §224.19b.
- 1.3. Rules have been adopted in accordance with the requirements of Act 200 of the Public Acts of 1969 to insure the maximum protection for the public through the reasonable control of driveway access onto public roads and Public Act 283 of 1909, MCLA §224.19b to regulate work within the public road right of way under the jurisdiction of the MCRC.
- 1.4. The MCRC recognizes that the right of access to public highways is one of the incidents of ownership of abutting land. A goal of the MCRC is to grant land owners access for their needs consistent with the MCRC's right and responsibility to insist on the location and design of driveways that will provide freedom of traffic movement and safety of the highway users.
- 1.5. Platted street approaches are not covered by these rules but shall be governed by appropriate state statutes and requirements of the MCRC.
- 1.6. The MCRC has available typical layouts of various types of driveways, which conform to the above-cited rules. Copies of these typical layouts and assistance in matters relating to the rules are located within the appendices of the document or may be obtained by contacting the MCRC offices.
- 1.7. The rules and requirements of the MCRC are similar to those applied by the Michigan Department of Transportation (MDOT); however, they are not specifically addressed within this publication.
- 1.8. For information regarding access onto the state trunk-line systems, correspondence should be directed to the MDOT, Brighton Transportation Service Center, 10321 E. Grand River Ave., Suite 500, Brighton MI 48116, by phoning (810) 227-4681 or via their website, [www.michigan.gov/mdot](http://www.michigan.gov/mdot).
- 1.9. The forms shown in this document are for informational purposes only and the original forms shall be downloaded from the MCRC website at [www.mcrc-mi.org](http://www.mcrc-mi.org).

## SECTION 2: REVIEW SUBMITTAL REQUIREMENTS

- 2.1 Owners and Applicants proposing to develop a commercial project, a private road, a multi-family residential development, or an industrial project with access onto and/or drainage into the county public road system shall submit site plans to the MCRC. The site plan shall clearly show existing conditions and proposed improvements. All site plans are to be signed and stamped by a registered engineer or architect. The checklist provided can be used as a guide to help you in making sure you have included all the information required (see Appendix, page 17). This list is not meant to cover every possible situation. Specific projects and site conditions may require more detailed information. Approaches onto the public road system will be reviewed each on its own merit along with the impact to the existing road system, consistent with published rules and statutes.
- 2.2 Periodically, developments may be required to grant a perpetual easement for public highway and public utility purposes. The MCRC may also request dedication of easement to the MCRC for consideration of future roadway improvements and utility expansion. The document used to accomplish this is the Dedicated Highway & Utility Easement form found in the Appendix, pages 32-33.
- 2.3 When submitting plans for review, the Applicant shall provide the required minimum review deposit. If there are reviews that exceed the initial deposit, then the MCRC will invoice the Applicant any additional costs. A transmittal letter shall accompany two (2) sets of paper drawings and include email addresses for all interested parties, as the review/approval letters will be emailed, whenever possible. The request for intended actions with the plan shall be clearly stated. All plans are reviewed in chronological order with a typical review time of three (3) to six (6) weeks, but reviews may be done sooner. Prior to any permits issued, the following list must be completed:
- 2.4 Plans approved by the MCRC engineering staff. Applicant shall also provide one (1) full set of the final approval dated, CAD generated drawings to the MCRC in pdf format prior to permitting.
- 2.5 Review and permit fees per the current MCRC Fee Schedule paid, with the amounts established by the MCRC engineering staff. A fee schedule is provided for informational purposes (see the Appendix, page 18).
- 2.6 Permit form completed and signed by the Applicant and/or Contractor. The MCRC engineering staff will provide this document.
- 2.7 Required insurance coverage documented per current MCRC requirements. Permit holder shall furnish proof of liability and property damage insurance in the amounts that can be found on the MCRC website at [www.mcrc-mi.org](http://www.mcrc-mi.org) and shall state "Additional Insured: The Board of County Road Commissioners for Monroe County, the MCRC and its officers, agents and employees."

## MCRC SITE PLAN GUIDELINES

- 2.8 A performance guarantee is required for all site plans prior to permitting. The Permit Holder or Applicant is required to supply the guarantee in the form of a Performance Bond (see the Appendix, page 22), Irrevocable Letter of Credit (see the Appendix, pages 23-24) or Cash Deposit. Upon construction completion, the performance guarantee will not be released until a two (2) year maintenance guarantee assuring the workmanship for the permit in the form of a Maintenance Bond (see the Appendix, pages 20-21), Irrevocable Letter of Credit or Cash Deposit is received.
- 2.9 Inspection deposit. To be established by the MCRC engineering staff (typically \$500.00.)
- 2.10 Drainage Covenant completed, if required (see the Appendix, pages 34-35), for MCRC to record with the Monroe County Register of Deeds.
- 2.11 Additional Dedicated Highway & Utility Easements, if required (see the Appendix, pages 32-33.)
- 2.12 The MCRC has standard details of commercial approaches and curb and gutters for the Applicant's use (see the Appendix, pages 14-16). An example for the Storm Water Detention Design form (see the Appendix, pages 25-28) is also available at the MCRC Engineering office.
- 2.13 For a flow chart showing the site plan submittal and construction process, see Site Plan Submittal Flowchart (see the Appendix, page 31.)

## SECTION 3: TECHNICAL REQUIREMENTS

For an example of a Standard Commercial Approach, see the Appendix, pages 14-16. The dimensions illustrated are for example only, and may not be appropriate for every application.

### 3.1 GENERAL

- 3.1.1 Site plans submittals are required to include forecasted traffic generation and trip distribution for the proposed development per the procedures found in the latest Institute of Transportation Engineers "Trip Generation" manual.
- 3.1.2 When reviewing developments of major significance, (i.e. shopping malls, industrial complexes), the MCRC may require a Traffic Impact Study paid for by the Applicant. The type, scope, range and complexity will be determined based on the size, type and location of the project. The "*Evaluating Traffic Impact Studies*" prepared for MDOT, Southeastern Michigan Council of Government (SEMCOG), and the Tri-County Regional Planning Commission will be used, as a guide for determining when a study is needed and what type of study should be provided.

### 3.2 GEOMETRICS

- 3.2.1 Geometrics will be based upon recommendations provided by the latest reprint of the MDOT "*Administrative Rules Regulating Driveways, Banners and Parades on and over Highways.*"
  - 3.2.1.1 Setbacks for curb and gutter shall typically be 26 feet from centerline of roadway to back of curb.
  - 3.2.1.2 The standard throat width of a commercial approach is 30 feet from edge of metal to edge of metal, however, under special conditions where traffic is predominantly cars and of lower volume, the width may be reduced to 24 feet. Where major developments require multiple egress lanes, the throat width shall be increased to 39 feet; two (2)-12 foot outbound lanes and one (1)-15 foot inbound lane.
  - 3.2.1.3 Clearly show radii of approaches with dimensions to the back of the curb. The minimum radii will change with expected vehicle types and their respective turning radii.
  - 3.2.1.4 Detail typical 10-foot tangent curb and gutter sections at the end of the radii paralleling the roadway. A special detail for tapering curb endings is provided in this publication and shall be shown in the plans (see the Appendix, page 15.)
  - 3.2.1.5 Tapers from the end of the curb and gutter to the existing road shall be a minimum of 50 feet. The taper shall originate at the back of the curb, continue over 50 feet and meet a 2-foot butt end at the existing pavement. Note: For designated right turn lanes and elongated

## MCRC SITE PLAN GUIDELINES

ingress tapers, a pavement marking edge line will be required along the setback to the edge of metal.

- 3.2.1.6 It is typically required to saw cut along the edge of the existing pavement where the existing pavement is irregular or broken. This is to ensure a clean edge for butting pavement.
- 3.2.1.7 For urban/suburban areas (speeds  $\leq$  45 mph), the standard curb and gutter section is the MDOT Type "F-4", for rural areas (speeds  $>$  45 mph) a Type "B-2" curb shall be used. The MDOT Type "M" commercial opening is also mandatory when a gutter pan is required in the approach (see the Appendix, page 16). Details shall always be included in the plans. A gutter pan is required when the proposed approach drains towards the roadway. A gutter pan is typically not required when all drainage from the roadway is directed into the approach and/or into the site.
- 3.2.1.8 Boulevard type approaches, ones containing an internal landscape island may be permitted. However, the island will not be allowed within the MCRC right of way or proposed additional highway and utility easement (where applicable.)
- 3.2.1.9 Acceleration, deceleration, bypass lanes and tapers may be required, as determined by the MCRC engineer through review of the traffic generation and/or Traffic Impact Study (see Table 1 below). Details on these special laneage requirements will generally be provided early in the site plan review phase.

| <b>Right Turn Lanes and Tapers</b>        |                                       |
|---|---------------------------------------|
| Less Than 300 Right Turn Vehicles Per Day | <b>Use Standard 50 Foot Taper</b>     |
| 300-600 Right Turn Vehicles Per Day       | <b>See Taper Table</b>                |
| Over 600 Right Turn Vehicles Per Day      | <b>Use Full Width Right Turn Lane</b> |

| <b>Taper Table</b> |                        |
|--------------------|------------------------|
| Speed<br>(mph)     | Taper Length<br>(feet) |
| $\leq 35$          | 75                     |
| 40                 | 100                    |
| 45                 | 130                    |
| 50                 | 180                    |
| 55                 | 225                    |

**Table 1: Criteria For Right Turn Lanes and Taper Lengths**

- 3.2.1.10 Recommended requirements per the AASHTO "A Policy on Geometric Design of Highway and Streets" publication for stopping sight distance, intersection sight distance and passing sight distance shall be considered.

3.2.1.11 The new approach should be located so as to not create a left turn lock-up for motorists turning left into an existing higher volume driveway or road which intersects the main road on the opposite side of the proposed approach, as shown in Figure 1 below.

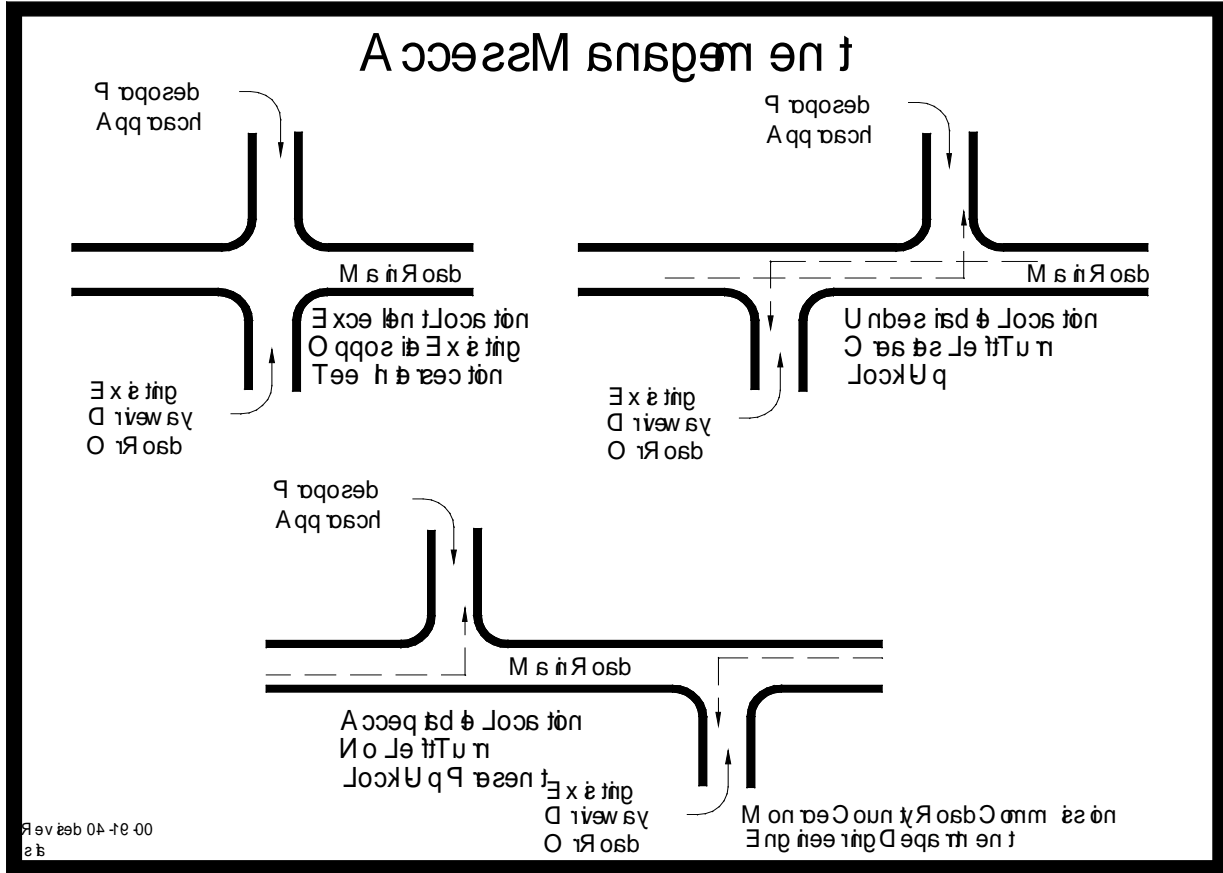


Figure 1: Access Management

3.2.1.12 The site plan shall show all existing driveways on both sides of the road within two (2) hundred feet of the proposed development's property lines.

### 3.3 ELEVATIONS

3.3.1 For the curb and gutter, elevations shall be provided at each end of the radii, at high points, low points, every 25 feet along the gutter pan and at the end of each 10 foot curb ending.

3.3.2 Existing and proposed elevations along the centerline and edge of existing pavement shall be provided at 25 foot intervals and provided at a minimum of 50 feet beyond the ends of the proposed approach.



## MCRC SITE PLAN GUIDELINES

- 3.3.3 The pavement slope from edge of pavement to the curb and gutter shall be typically 2%. Where longitudinal slope is required to be built into the gutter pan, the range of cross slope can generally range between 1% and 4%.
- 3.3.4 The general minimum longitudinal slope in the gutter pan shall be 0.4% with an absolute minimum of 0.32%.
- 3.3.5 Pavement grades from the gutter pan into the site shall generally be from 1% with a maximum of 1.5% for a minimum distance of 25 ft. Beyond this distance, the grade shall not exceed 8%.

### **3.4 PAVEMENT**

- 3.4.1 Typical bituminous paving season per MDOT Specifications is May 5 thru November 15. No bituminous construction outside this time frame will be allowed without approval from the MCRC. Generally, bituminous construction without a minimum ground temperature of 40°F will not be permitted.
- 3.4.2 All commercial driveways shall be paved unless the adjacent roadway is stone surfaced. Pavement may be asphalt with stone base, full-depth asphalt, or concrete. The MCRC will specify the type of materials to be used.
- 3.4.3 Minimum Hot Mixed Asphalt pavement thickness is four (4) inches of asphalt over eight (8) inches compacted aggregate base. Where heavy trucks or high-traffic volumes are anticipated, the pavement section shall be increased. Often, different pavement sections will be required adjacent to the existing pavement (in front of the gutter pan) and behind the gutter pan (in the approach). Proposed connecting roadway improvements, such as a by-pass lane, will generally have a greater pavement section required.
- 3.4.4 Minimum concrete pavement design will be 8" of non-reinforced MDOT P1 mix concrete. The section will need to be 8" non-reinforced concrete on sound (proof-rolled) earth. If the area of earth is not sound, it will need to be replaced with 21AA stone and compacted until sound. The sound earth will need to be proof-rolled (using a loaded dump truck or similar).
- 3.4.5 Delivered concrete will need to be sampled and tested by an inspector certified through the Michigan Concrete Association for air entrainment (6.5% +/- 1.5%) and will also require cylinder samples along with breaks at the following schedule: 3 day, 7 day, 14 day, 28 day.
- 3.4.6 A spray cure will need to be applied over the entire surface, along with cold weather blankets covering the entire surface until sufficiently cured if the ambient temperature is scheduled to drop below 40 degrees Fahrenheit.

## MCRC SITE PLAN GUIDELINES

- 3.4.7 The edge of existing road shall be saw cut and then removed to provide a smooth edge to pour concrete against. The edge of concrete will need to be left ¼” to ½” below the existing edge of road.
- 3.4.8 Shoulders shall be placed behind tapers and connect to existing shoulders at a minimum two (2) foot in width, at a minimum three (3) inch depth with MDOT 23A stone.
- 3.4.9 All materials shall be in accordance with MDOT or Ohio Department of Transportation (ODOT) specifications (for material from Ohio material plants) as follows:
  - 3.4.9.1 Aggregate Base - MDOT 21AA, 22A, or ODOT 304.
  - 3.4.9.2 Bituminous Paving - MDOT 5E3 for wearing course and 4E3 for leveling course, or ODOT 402 and 404, respectively. MDOT 13A may be substituted for 5E3 and 4E3 with MCRC approval. The MCRC HMA Special Provision for ODOT 448 T1 and ODOT 448 T2 may also be used as substitutes for 5E3 and 4E3, respectively. A pavement mix design may be required to be submitted with the plans.
  - 3.4.9.3 Concrete Curb and Gutter - MDOT F-4, F-6 or ODOT Class C.
  - 3.4.9.4 Shoulder – MDOT 23A.
- 3.4.10 Method of construction, materials, and workmanship shall be in accordance with the current M.D.O.T. “Standard Specifications for Construction.” A copy of this publication and associated M.D.O.T. publications are available from MDOT.

### 3.5 DRAINAGE

- 3.5.1 The MCRC enforces a "zero increase in run-off" posture per guidelines set in the *MCRC Discharge of Drainage into Road Right-of-Way Policy 2012-08*. This means that the proposed run-off from the project site must not exceed the current discharge rate drainage into the county road right-of-way system, and shall meet the requirements of the Road Commission Drainage Covenant found in the Appendix, pages 34-35.
- 3.5.2 The minimum diameter of culverts shall be 12 inches. A minimum of two (2) foot of cover is required under any pavement. Larger culverts shall be required when the existing roadway drainage system dictates.
- 3.5.3 Reinforced concrete pipe is required for all commercial approaches. MDOT standard end sections may be required.
- 3.5.4 Culverts shall be required under approaches where existing or proposed longitudinal roadway drainage is present or anticipated.

## MCRC SITE PLAN GUIDELINES

- 3.5.5 Culverts shall extend beyond the end of the curb and gutter and/or taper so as to provide a 1 (vertical) to 3 (horizontal) slope from top of slope to the invert of the pipe.
- 3.5.6 Sufficient details and elevations shall be provided for, but not limited to, adjacent ditches, culverts and cross-tiles within the entire right of way. This information shall cover an area from existing high points to reliable outlets (Drain Commissioner county drains or MCRC easements) so the MCRC engineer can adequately review the drainage pattern along the existing roadway and verify capacity provided through use of the Storm Water Detention Design For Commercial Developments form found in the Appendix, pages 25-28.
- 3.5.7 If drainage from the site is proposed to drain into the public road system, then both the Monroe County Drain Commission and the MCRC will review the site drainage system. The Applicant's engineer shall submit drainage detention basin design calculations for review and analysis of capacity of the existing system. Storm runoff from developments outside of the right-of-way can be directed to the roadside drainage system under the following conditions:
- 3.5.8 The maximum allowable rate of storm water discharge is 0.2 cfs/acre. The allowable discharge shall take into account all area tributary to the site.
- 3.5.9 The rate of and amount of discharge does not adversely affect the existing roadside system. The maximum allowable discharge may be further reduced due to lack of existing capacity in the roadside drainage.
- 3.5.10 For developments of two (2) acres or less, the detention basin design calculations shall be done on the form provided by the MCRC (see the Appendix, pages 25-28). For larger developments, the Monroe County Drain Commission will provide the design criteria and methodology. If drainage detention is required, it may be designed into the paved parking lot area or grassy areas on the site. A Drainage Detention Covenant will be required where site drainage discharges into the MCRC right of way system. The covenant shall be fully completed as shown in the Appendix, pages 34-35. A minimum of two (2) witnesses is required with all names printed beneath the signatures. A notary public must notarize all witness signatures and the notary may also be a witness. An exhibit must be attached consisting of a surveyed drawing and description of the parcel. This exhibit should be signed and stamped by a Michigan Registered Surveyor. Two (2) completed originals shall be submitted to the MCRC for the Board signatures and recording purposes with the Register of Deeds. The MCRC will issue no permits until all appropriate covenants are received.

### **3.6 RESTORATION**

- 3.6.1 All disturbed areas in the public road right-of-way shall be top soiled, seeded, fertilized, and mulched (including tack) in accordance with current MDOT specifications.
- 3.6.2 A Monroe County Drain Commissioner soil erosion and sedimentation permit shall be obtained where appropriate for all sites.

### **3.7 SIGNING AND PAVEMENT MARKINGS**

- 3.7.1 Traffic control signing and markings for the site may be required by the MCRC engineer in conformance with the “*Michigan Manual of Uniform Traffic Control Devices.*”
- 3.7.2 Pavement markings (including removal of existing markings) may be required along the existing public road to enhance traffic flow operations in accordance with the “*Michigan Manual of Uniform Traffic Control Devices.*” A pavement marking plan will be required when applicable.
- 3.7.3 A traffic control plan for maintenance of traffic during construction shall be provided in the site plan per the “*Michigan Manual of Uniform Traffic Control Devices*”

### **3.8 MODIFIED COMMERCIAL APPROACH**

- 3.8.1 A Modified Commercial Approach is a discretionary accommodation which MCRC may, in its sole discretion, allow for (1) a commercial approach which services a commercial use designed for low-traffic volumes at full build, or (2) a site for short-term use only. In any case the permit will clearly state ongoing traffic volume limitations for the continued validity of the Modified Commercial Approach.
- 3.8.2 The Modified Commercial Approach may include, by way of example but not limitation, service access to utility structures (i.e. sanitary pump station, communication tower, cable node access); seasonal uses; and short-duration mining/hauling operations where no building structure for business operation is proposed.
- 3.8.3 Except as otherwise provided in this subsection, the Modified Commercial Approach shall be subject to all of the procedures for permitting, staking and inspection which pertain to a standard residential approach as set forth in the published MCRC Driveway Procedures.

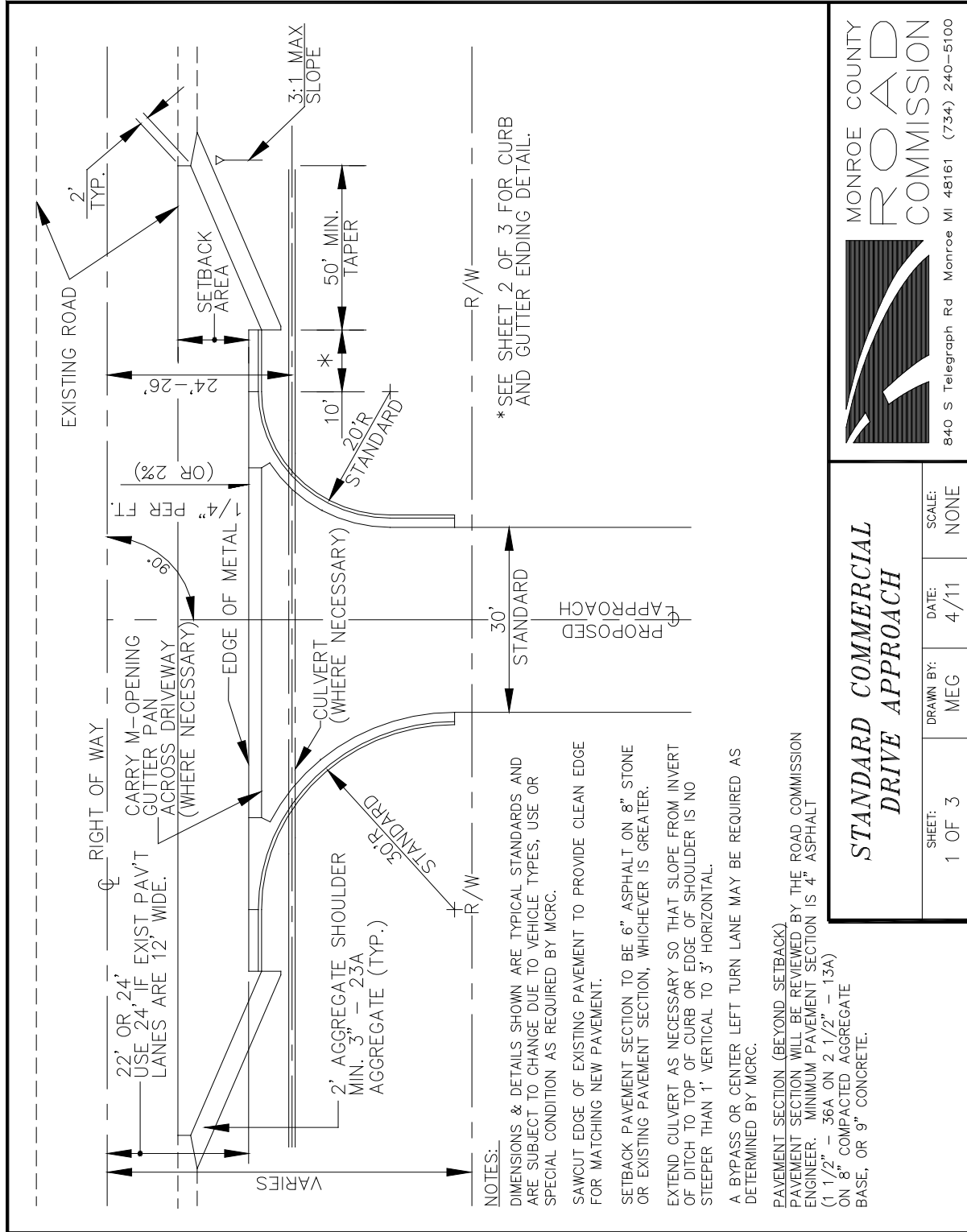
## MCRC SITE PLAN GUIDELINES

- 3.8.4 The Modified Commercial Approach is not subject to the procedures set forth in *Section 2: Review Submittal Requirements*. A letter of transmittal shall be submitted along with an attached visual depiction (e.g. sketch, engineered plans, etc.) and language describing the planned use. Additional information regarding traffic volumes expected, material to enter/exit the site, vehicle types expected, etc. may be required at time of application as part of the application process. Special inspections due to the requirements of this sub-section will be necessary.
- 3.8.4.1 Where a Modified Commercial Approach meets an existing gravel road, a 10" minimum depth gravel approach is acceptable. However, should the connecting roadway become hard-surfaced in the future, the applicant will be required to pave the approach at that time. This requirement shall be assignable, run with the property and be applicable to future property owners.
- 3.8.4.2 A minimum two (2) foot 23A stone shoulder shall be installed behind the approach radii in lieu of curb and gutter.
- 3.8.4.3 No setback lane will be required.
- 3.8.5 Geometrics will be based upon recommendations provided by the latest edition of the Michigan Department of Transportation "*Administrative Rules Regulating Driveways, Banners and Parades on and over Highways.*"
- 3.8.5.1 The standard throat width of a Modified Commercial Approach shall be 24 feet from edge to edge of pavement. However, under special conditions where traffic is predominantly composed of passenger cars, the width may be reduced to a minimum of 18 feet, in the sole discretion of MCRC.
- 3.8.6 Should the land use change or traffic volume increase, the traffic volume limitations per the approved Modified Commercial Approach permit shall be reviewed and the approach shall be improved as may be required under a new permit to the requirements of a standard commercial approach.

**APPENDICES**

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Standard Commercial Drive Approach Details



**MONROE COUNTY ROAD COMMISSION**

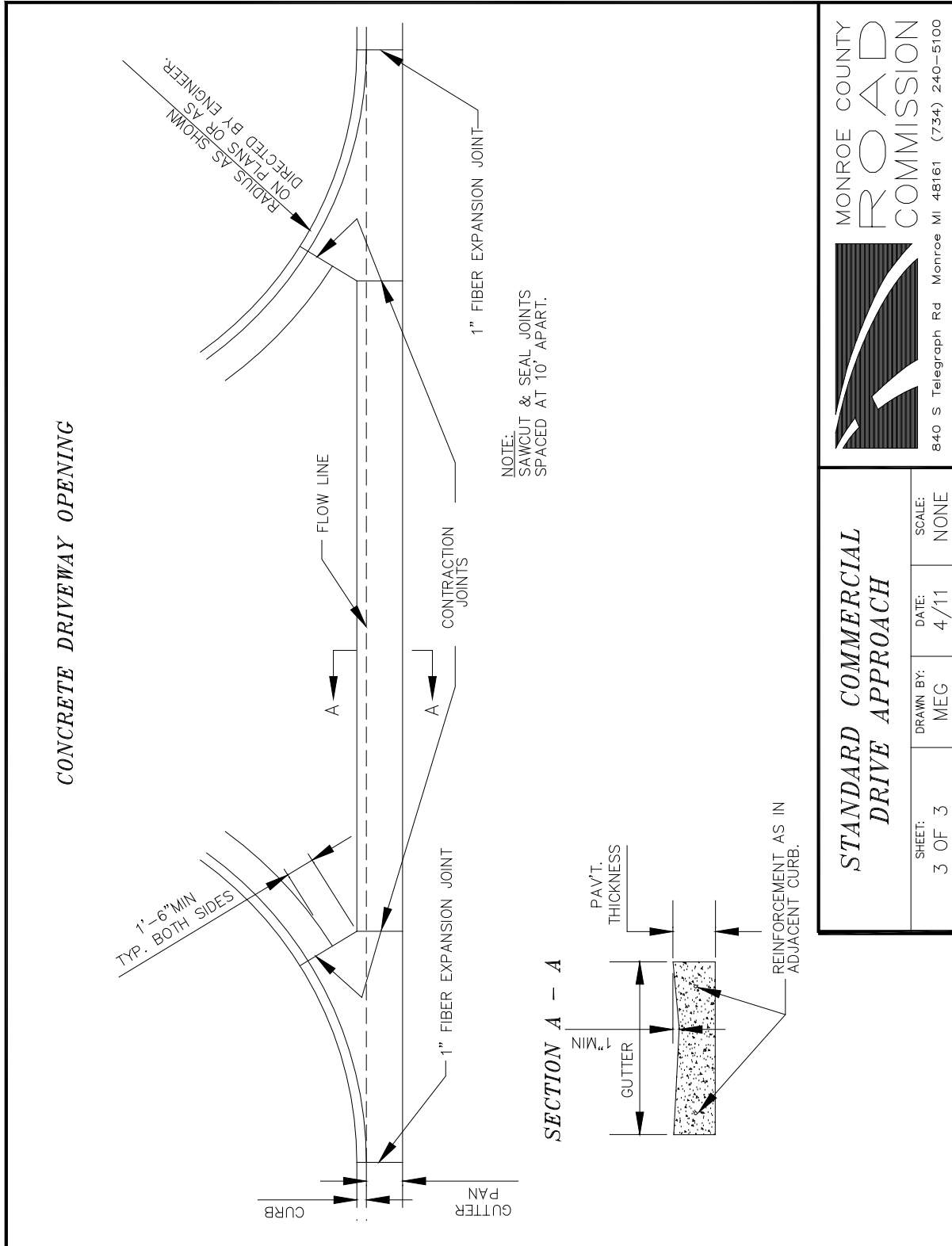
840 S Telegraph Rd Monroe MI 48161 (734) 240-5100

|   |             |
|---|-------------|
| <b>STANDARD COMMERCIAL DRIVE APPROACH</b> |             |
| SHEET: 1 OF 3                             | SCALE: NONE |
| DRAWN BY: MEG                             | DATE: 4/11  |

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## Site Plan Checklist

A transmittal letter shall accompany all submitted plans. The request for intended actions with the plan shall be clearly stated. Include a date in which the MCRC's comments are required or desired. *These dates will be considered, however all plans are reviewed in chronological order.* The required review deposit must accompany all submittals prior to review.

Submit two (2) sets of plans for projects accessing county roads and an additional two (2) sets of plans shall be sent to MDOT Brighton Transportation Service Center when accessing state routes. This allows copies to be marked up during reviews and returned showing required revisions (if necessary.)

Listed below are items that are required on the site plan or attached to it, if they apply to the project:

- General Location Map
- Right of Way Property Line
- North Arrow and Scale
- Street Names
- Topography
- Existing Utilities
- Existing Elevations and Bench Marks Used
- Proposed Elevations
- Existing Contour Lines for Proposed Site and Including Portions of Surrounding Sites
- Proposed Contour Lines
- Ditch Profile
- Approach Details and Geometrics
- Pavement Sections
- Curb Type & Curb Ending Details
- Culvert Dimensions
- Drainage Scheme
- Proposed Pipe (type, size) and Drainage Structures
- Detention Basin in Parking Lot
- Storm Water Detention Calculations
- Proposed Utilities
- Proposed Set-Backs
- Boring and Jacking Details
- Proposed Cover Over Utilities
- Multi-phase Provisions
- Traffic Control Detail
- Drainage Calculations

The MCRC has standard details of commercial approaches and curb and gutters for the Applicant's use. Storm water detention calculation/design forms, with an example, are also available at the MCRC Engineering office.

Escrow and Permit Fee Schedule

As a matter of practice, the MCRC does not sell, rent or load construction/maintenance signing or barricades. However, it may become necessary at some instances for the MCRC to provide this service, on an emergency basis, for the protection of the public, in which case, the applicant will be billed for actual labor, material and equipment costs.

|  |          |
|--|----------|
| Review Deposit<br><i>Minimum Deposit required at time of submittal</i>                   | \$800.00 |
| Inspection Deposit* <sup>1</sup><br><i>Minimum Deposit required for permit</i>           | \$500.00 |
| Permit Fee - Each Approach Connection  | \$150.00 |
| Boring under the Roadway   | \$150.00 |
| Tapping Water, Storm or Sanitary<br>Sewer (main lines) not required crossing<br>Pavement | \$125.00 |
| Open Cut Roadway* <sup>2</sup><br>Asphalt or Concrete Roadway                            | \$450.00 |
| <i>Gravel Roadway</i>  | \$300.00 |

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\*<sup>1</sup> Field inspection will be charged at actual costs for regular time or overtime towards time, materials, and equipment used by the MCRC or other testing companies contracted by the MCRC. The required Inspection Deposit may be increased at the MCRC County Engineer’s discretion. Contractor must provide three (3) working days notice to the MCRC prior to any work within the right of way.

\*<sup>2</sup> See Maintenance Bond Requirements and Fees (Appendix A.3.)

Maintenance and Performance Bond Requirements and Fees

**PERFORMANCE BOND**

(see Appendix, page 22)

|                                     |             |
|-------------------------------------|-------------|
| Commercial Drive                    | \$15,000.00 |
| Boulevard Approach                  | \$20,000.00 |
| Commercial Drive with Bypass Lane   | \$35,000.00 |
| Boulevard Approach with Bypass Lane | \$40,000.00 |

**MAINTENANCE BOND**

(see Appendix, pages 20-21)

|              |            |
|--------------|------------|
| Two (2) Year | \$5,000.00 |
|--------------|------------|

Performance Bonds will be released when a final inspection has been completed, the MCRCs engineering department gives final approval and the two (2) Year Maintenance Bond has been received. Final inspection will be performed upon the request of the Contractor/Applicant when project is complete. *Note: The amounts noted above are minimums and may increase due to additional factors.*

Maintenance Bond Form

**MAINTENANCE BOND**

For

\_\_\_\_\_

Permit No. \_\_\_\_\_

Road Name \_\_\_\_\_

No. \_\_\_\_\_

Amount \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that we, \_\_\_\_\_ as Principal, and \_\_\_\_\_ as Surety, are held and firmly bound unto the Board of Monroe County Road Commissioners of Monroe County, State of Michigan, to guarantee for a period of two (2) years from and after the date of its final acceptance of street improvements located in the right of way of in the Township of \_\_\_\_\_, County of Monroe, State of Michigan, in accord with the minimum standards as set forth and established by said Monroe County Road Commission, "Site Plan Procedures" and improvement plans for \_\_\_\_\_ prepared by and approved by the Road Commission on \_\_\_\_\_, incorporated by reference and made a part hereof.

We do specifically warrant and guarantee that in the event any part or portion of the improvements, including but not restricted to surface, drainage, and curbs, shall become defective or worn by reasonable use, or otherwise, constructed by said principal before or at the time of expiration of two (2) years from the date of final acceptance of the improvement, then in that event any portion of such construction found to be defective or not to be of a quality in accordance with the Monroe County Road Commission "Site Plan Procedures" of said Monroe County Road Commission or in the event any portion of the existing public road infrastructure, including but not limited to roadway, sanitary sewer, storm sewer, or water, fails as a result of the work covered in the referenced permit for the said project of \_\_\_\_\_, shall be repaired or replaced as the case may be by the principal at his expense with new material and approved by the Monroe County Road Commission. We further undertake the continuing maintenance of said streets upon the basis that the principal will upon written notice, and within ten (10) days after receipt thereof, make whatever repairs that are necessary in order to comply with the Monroe County Road Commission "Site Plan Procedures." Said notice shall be served by registered or certified mail, return receipt requested, to the principal by addressing the same to \_\_\_\_\_, and to said surety by addressing the same to \_\_\_\_\_.

MCRC SITE PLAN GUIDELINES

In event that the principal shall fail to make such repairs within the time herein before allotted, then in that event, the required repairs may be made by the Monroe County Board of Road Commissioners, and the entire cost thereof charged to said principal. \_\_\_\_\_. In the event such charges are not paid by said principal within thirty (30) days from and after completion of the repairs, the surety will forthwith pay the same upon demand.

The obligation of this guarantee bond shall be deemed to be fulfilled at the end of two (2) years from the date of final acceptance of the improvements by the Board of Monroe County Road Commission; provided, that at the time all parts of all right of way construction done for the said development of \_\_\_\_\_ shall meet the minimum standards of said Board of Monroe County Road Commissioners made a part hereof.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this \_\_\_\_\_ day of \_\_\_\_\_ - \_\_\_\_\_, 20\_\_.

WITNESSES

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
Principal  
\_\_\_\_\_  
\_\_\_\_\_  
Surety

Performance Bond Form

**BOND**

KNOW ALL MEN BY THESE PRESENTS, that \_\_\_\_\_,  
as principal, and \_\_\_\_\_  
as surety, are held and firmly bound unto the Board of County Road Commissioners of the County of Monroe,  
hereinafter referred to as the Board, in the penal sum of: \_\_\_\_\_  
Dollars, for the payment of which, well and truly to be made, we bind ourselves, and our heirs, executors and  
administrators, jointly and severally, firmly by these presents.

Sealed with our seals and dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

WHEREAS, the above bounden \_\_\_\_\_ has made application to said  
Board for a permit as stated in the application attached hereto.

NOW, THEREFORE, the condition of this obligation is such that if the above bounden shall perform the  
undertakings of said application in the manner prescribed and within the time allotted in the permit therefore  
issued by said Board and shall well and truly pay for all damages to the highway surface or any highway  
structure on account of such activities as set forth on the application and permit and all other damages, fines  
and penalties which he shall become liable to pay and shall save said Board harmless and indemnify them  
from all suits, claims, damages and proceedings of every kind including actual legal expense arising out of the  
aforesaid damages and injuries to the highway surface and structures and shall observe all the terms and  
conditions of the permit to be issued, then this obligation to be void, otherwise of full force and effect.

Principal \_\_\_\_\_

\_\_\_\_\_  
Principal's mailing address

Surety \_\_\_\_\_

\_\_\_\_\_  
Surety's mailing address

DO NOT WRITE BELOW THIS LINE - FOR USE OF PERMIT ISSUING OFFICE ONLY

NOTICE TO SURETY OF ISSUANCE OF PERMIT

NOTICE OF TERMINATION OF LIABILITY

This is to inform you that a permit covered  
by above bond has been issued, as follows:

This is to inform you that:

APPLICANT: \_\_\_\_\_

\_\_\_\_\_ The permit operations covered by the  
above bond have been completed  
satisfactorily.

CONTRACTOR: \_\_\_\_\_

\_\_\_\_\_ The permit covered by above bond  
has been canceled.

PERMIT NO. \_\_\_\_\_

PERMIT DATE: \_\_\_\_\_

Liability under the bond is therefore terminated,  
effective:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Irrevocable Letter of Credit

MONROE COUNTY ROAD COMMISSION

**BOARD OF COUNTY ROAD COMMISSIONERS IRREVOCABLE LETTER OF CREDIT**

ISSUER:

APPLICANT:

BENEFICIARY:

Board of County Road Commissioners  
840 South Telegraph Road  
Monroe, MI 48161

IRREVOCABLE LETTER OF CREDIT NO:  
\_\_\_\_\_

EXPIRES:  
\_\_\_\_\_

Dear Sirs:

The Board of County Road Commissioners of Monroe County, Michigan, hereinafter called the "BENEFICIARY", and \_\_\_\_\_, hereinafter called the "APPLICANT", have entered into an Agreement dated \_\_\_\_\_, hereinafter called "AGREEMENT", pursuant to which APPLICANT has agreed to construct and install the streets and related drainage facilities shown on or abutting the final plat of proposed, \_\_\_\_\_ Township, Monroe County, Michigan which AGREEMENT is incorporated by reference in this IRREVOCABLE LETTER OF CREDIT.

BY THIS INSTRUMENT, We \_\_\_\_\_, hereinafter called the "ISSUER", hereby establish our Irrevocable Letter of Credit in favor of the BENEFICIARY and for the aggregate amount of \_\_\_\_\_ Dollars, which is available by sight payment to the BENEFICIARY upon written demand for payment made upon the ISSUER by the BENEFICIARY.

This Irrevocable Letter of Credit is being used to secure performance by the APPLICANT of work in accordance with the requirements and provisions of the AGREEMENT TO (i) ensure that sufficient funds are available in order to completely and totally perform such work and completely and totally restore the streets and right of way and appurtenances of the BENEFICIARY in the event such streets and right of way and appurtenances of the BENEFICIARY have been compromised as a result of the APPLICANT'S performance or failure to perform, and (ii) to insure that sufficient funds are available to perform the work, obtain the materials and otherwise perform the obligations of APPLICANT pursuant to the AGREEMENT.

The written demand for payment shall be fully honored by the ISSUER without inquiring whether the BENEFICIARY has a right as between the BENEFICIARY and the APPLICANT to make such demand and without recognizing any claims of said APPLICANT OR OBJECTION BY IT TO PAYMENT BY THE ISSUER UNTIL RELEASED BY Monroe County Road Commission.



## MCRC SITE PLAN GUIDELINES

This letter of credit shall not expire until the bank receives written notice from the Monroe County Road Commission signed by the Monroe County Highway Engineer stating that the work has been performed and accepted by the Monroe County Road Commission and that the bank is released from all liability under the terms of this letter of credit, provided, however, that the term of this letter shall not exceed one year from the date hereof.

If the Board of County Road Commissioners of the County has not released all of its rights in writing under this Letter of Credit five (5) days before its expiration date of \_\_\_\_\_, then the Board of County Road Commissioners of the County of Monroe makes demand for payment in full in the amount of the Letter of Credit and the Bank agrees and shall issue its check to the Board of County Road Commissioners of the County of Monroe before the expiration of this Letter of Credit without notice or any request.

Except so far as otherwise expressly stated, this Irrevocable Letter of Credit is subject to the "Uniform Customers and Practice of Documentary Credits (1993 Revision), International Chamber of Commerce Publication No. 500."

\_\_\_\_\_ hereby consents to the jurisdiction of the Monroe Circuit Court, Monroe County, Michigan, for any legal action necessary to resolve any disputes arising out of this Letter of Credit, and further waives its right under Federal Law to sue or be sued in any Federal District Court in which venue may be proper.

No change, extensions of time, alteration or addition to the terms of the PERMIT including any applicable specification for the work to be performed thereunder, shall affect the ISSUER'S obligation under this Irrevocable Letter of Credit and the Issuer hereby waives notice of any such change, extension, alteration or addition.

All drafts under this credit must be marked "DRAWN UNDER IRREVOCABLE LETTER OF CREDIT NO. \_\_\_\_\_".

Very truly yours,

Storm Water Detention Design

MONROE COUNTY ROAD COMMISSION

**STORM WATER DETENTION DESIGN  
FOR COMMERCIAL DEVELOPMENTS**

**FOR SITES OF TWO (2) ACRES OR LESS**

**(SITES GREATER THAN TWO (2) ACRES, USE MCDC STORAGE EQUATION MODEL)**

ROAD \_\_\_\_\_

TOWNSHIP \_\_\_\_\_

PROJECT NAME \_\_\_\_\_

DESIGN ENGINEER \_\_\_\_\_

DATE \_\_\_\_\_

1. Determination of maximum allowable discharge:

Existing site tributary area currently draining to the road right of way =  
\_\_\_\_\_ acres

$Q_{ALLOW} = \text{tributary area} \times 0.2 \text{ cfs/acre} = \text{_____ cfs}^*$

\* $Q_{ALLOW}$  may be reduced due to existing roadside system limited drainage capacity.

2. Type of existing roadside Drainage System:

Check one:

Open ditch

Enclosed storm sewer

County drain\*

\*If discharging into county drain, contact Monroe County Drain Commission for requirements.

3. Capacity of existing roadside Drainage System = \_\_\_\_\_ cfs  
(attach calculations).

4. Current ten (10) year flow utilizing existing roadside Drainage System  
= \_\_\_\_\_ cfs (attach calculations)

5. If Step #4 + Step #1 is greater than 75% of Step #3, contact the Monroe County Road Commission for detailed analysis requirements.

## MCRC SITE PLAN GUIDELINES

6. Determination of proposed runoff area into right of way:

|  |         |
|--|---------|
| Total proposed area draining to the road right of way _____ S.F. |         |
| Pavement _____ S.F. x 0.90                                       | = _____ |
| Building _____ S.F. x 0.90                                       | = _____ |
| Grass _____ S.F. x 0.20  | = _____ |
| Other _____ S.F. x _____   | = _____ |
| <b>TOTAL</b> _____ S.F. $\Sigma$ CA                              | = _____ |

$$C_w = \frac{\Sigma C}{\text{Total A}} = \underline{\hspace{2cm}}$$

$$C_w A (\text{in acres}) = \frac{C_w \times \text{Total S.F.}}{43,560} = \frac{\hspace{2cm}}{43,560} = \underline{\hspace{2cm}}$$

7. Determination of metering line:

Overflow elevation in parking lot = \_\_\_\_\_.

Open Ditch:

Discharge pipe crown elevation at outlet of open ditch or open ditch tailwater if greater = \_\_\_\_\_.

Closed System:

Storm sewer main crown elevation at outlet of closed system = \_\_\_\_\_.

Length of metering line \_\_\_\_\_ ft.

$$\text{HYDRAULIC GRADIENT} = S = \frac{\text{Overflow elev. - top/pipe elev.}}{\text{Length of meter line}} = \underline{\hspace{2cm}}$$

$$\text{Conveyance Factors C.F.} = \frac{1.486}{n} \text{ AR}^{\frac{2}{3}} = \underline{\hspace{2cm}}$$

## MCRC SITE PLAN GUIDELINES

| DIAMETER<br>(inches) | PIPE MATERIAL AND ROUGHNESS COEFF. (MANNING "n") |                   |                                   |
|----------------------|--|-------------------|-----------------------------------|
|                      | Smooth Wall<br>PVC<br>0.008                      | Concrete<br>0.013 | Corrugated<br>PE<br>0.015 - 0.018 |
| 4                    | 3.09   |                   | 1.51                              |
| 5                    |  |                   | 2.99                              |
| 6                    | 9.12   |                   | 4.46                              |
| 8                    | 19.64  | 12.08             | 9.60                              |
| 10                   | 35.60  | 21.91             | 17.41                             |
| 12                   | 57.90  | 35.63             | 28.30                             |
| 15                   | 104.97   | 64.60             | 51.32                             |

Meter Pipe Size and Type: \_\_\_\_\_ C.F. = \_\_\_\_\_.

8.  $Q_{DISCHARGE} = (C.F.) \times S^{1/2} = \underline{\hspace{2cm}} \text{ cfs} \leq (Q_{ALLOW} \text{ from Step \#1})$   
 $= \underline{\hspace{2cm}} \text{ cfs}$

9. Determination of Detention Volume:

| T <sub>c</sub><br>(Min) | i <sub>10</sub><br>(In/Hr) | C <sub>w</sub> A(from<br>Step #6)<br>(A in Acres) | Q <sub>IN</sub> =<br>i <sub>10</sub> *C <sub>w</sub> A | Q <sub>OUT</sub> =<br>Q <sub>DISCHARGE</sub> | Q <sub>IN</sub> -Q <sub>OUT</sub><br>(cfs) | (Q <sub>IN</sub> -Q <sub>OUT</sub> )x T <sub>c</sub> x<br>60<br>(cf) |
|-------------------------|----------------------------|---|--|--|--|--|
| 20                      | 3.82                       |   |  |  |  |  |
| 30                      | 3.09                       |   |  |  |  |  |
| 40                      | 2.62                       |   |  |  |  |  |
| 50                      | 2.28                       |   |  |  |  |  |
| 60                      | 2.03                       |   |  |  |  |  |
| 70                      | 1.82                       |   |  |  |  |  |
| 80                      | 1.65                       |   |  |  |  |  |
| 90                      | 1.51                       |   |  |  |  |  |
| 100                     | 1.40                       |   |  |  |  |  |
| 110                     | 1.29                       |   |  |  |  |  |
| 120                     | 1.20                       |   |  |  |  |  |

Design Detention Volume \_\_\_\_\_ cf

Volume of Detention Basin \_\_\_\_\_ cf

(Attach all topographic surveys, calculations and floodplain maps)

Dated this \_\_\_\_\_ Day of \_\_\_\_\_, 20 \_\_\_\_\_.

\_\_\_\_\_  
Signature Design Engineer

\_\_\_\_\_  
Print Name

\_\_\_\_\_ State of Michigan Professional Engineer License No.

After reviewing this worksheet along with any required attachments, the Monroe County Road Commission may require revisions which must be complied with, and/or additional information provided in order to assess the validity of the assumptions. Note that the attached Road Commission Drainage Covenant form must be completed and provided to the Monroe County Road Commission.

## MDOT's Traffic Volume Guidelines for Driveway Passing Flares

TRAFFIC AND SAFETY NOTE 603A

**SUBJECT:**

Traffic Volume Guidelines for Driveway Passing Flares

**PURPOSE:**

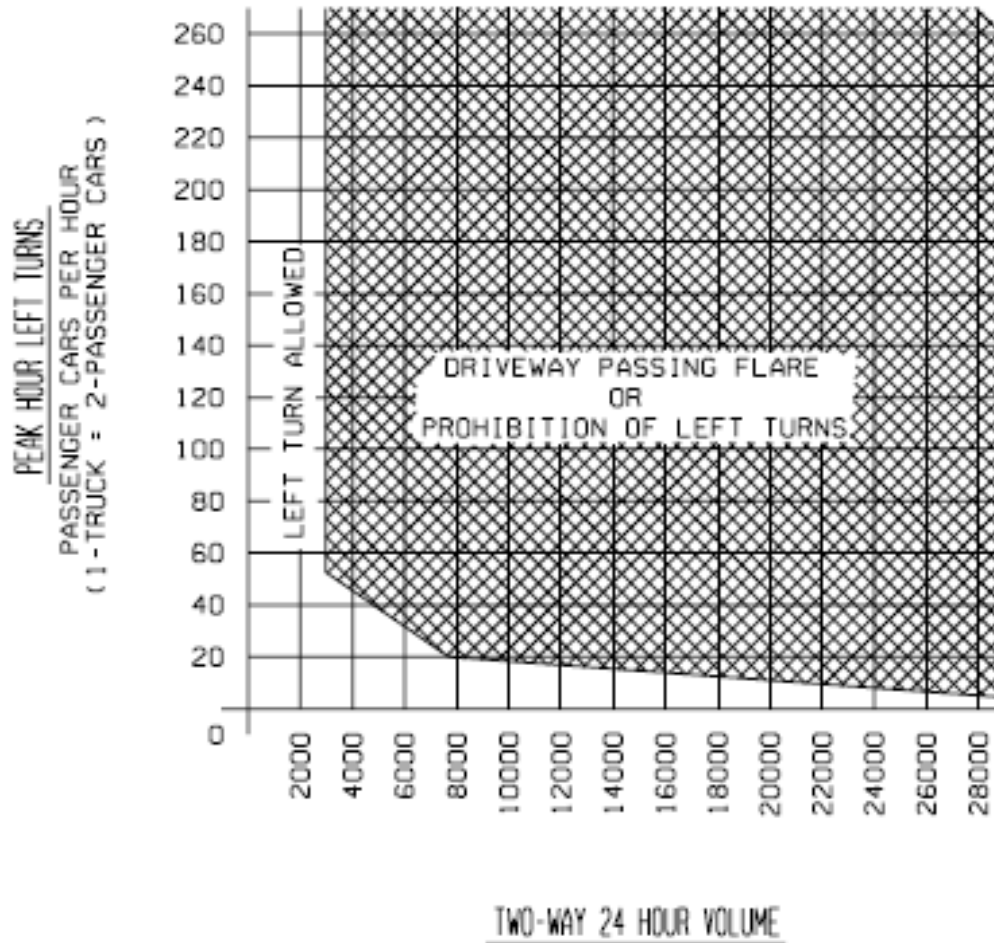
To Promote a Uniform System of Determining When Driveway Passing Flares Should be Constructed

**COORDINATING UNIT:**


Geometric Design Unit

**INFORMATION:**

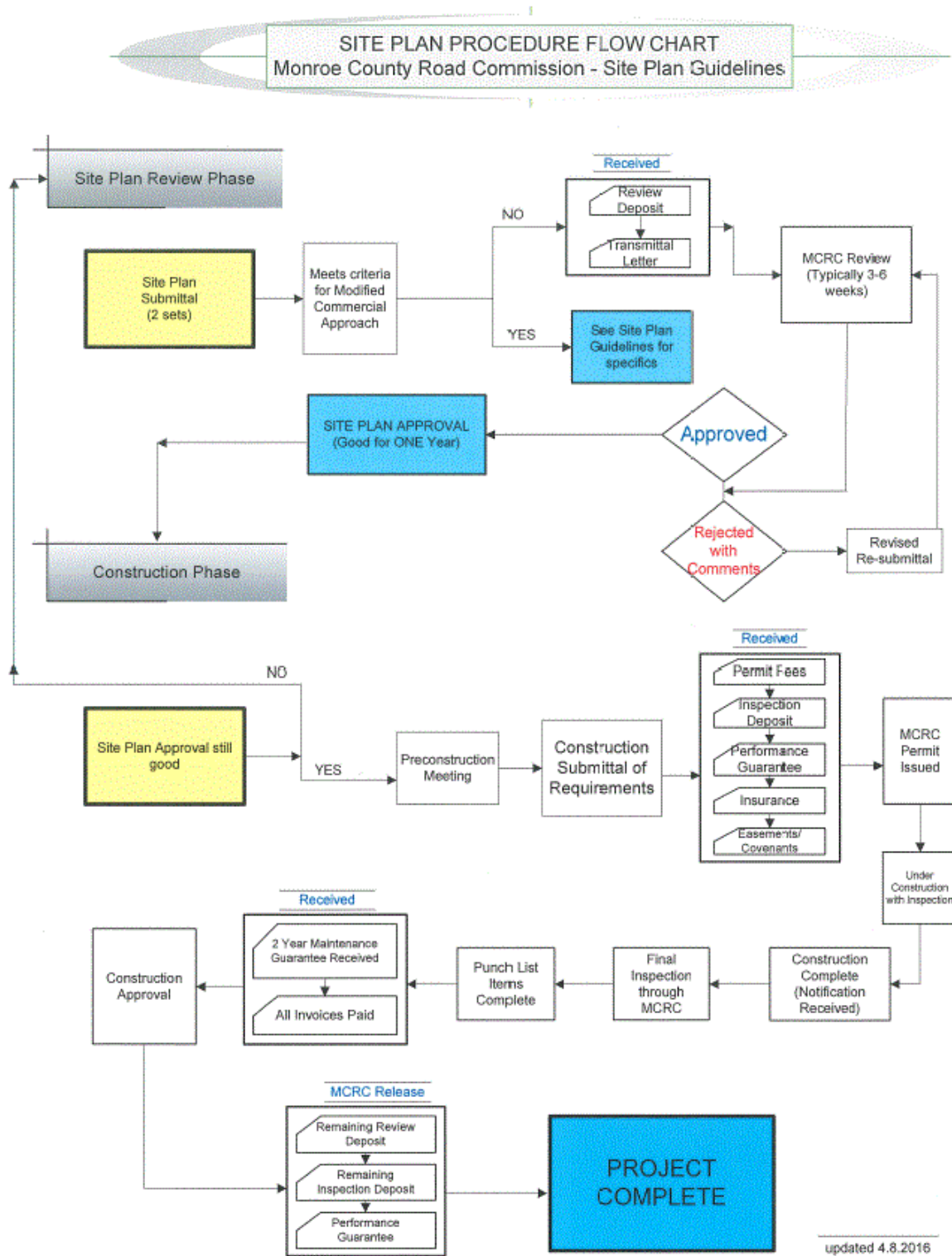
Driveways serving large developments along state trunkline highways frequently generate large numbers of left-turns. On two-lane, two-way roadways, this situation can aggravate the efficiency of traffic operations and often make shoulder maintenance difficult. Prohibition of left-turns at driveways to large developments or construction of driveway passing flares should be considered. In an attempt to alleviate the types of problems outlined above, a chart showing the relationship between peak hour left-turns and 24-hour volumes is included on page two. When peak hour left-turns and 24-hour volumes fall within the area above and to the right of the trend line, left-turns should be prohibited or a driveway passing flare be installed. If a driveway passing flare is constructed, the entire cost should be borne by the developer. For details on flares see the Geometric Design Guide VIII-650 series.



Note: This Chart is Based on Total Development and is for Two Way Roadways.

|   |  |                         |                 |
|---|--|-------------------------|-----------------|
| <br>TRAFFIC AND SAFETY<br>NOTE | TRAFFIC VOLUME GUIDELINES<br>FOR DRIVEWAY PASSING FLARES |                         |                 |
|   | DRAWN BY: MTS<br>CHECKED BY: JAT                         | 08/05/2004<br>PLAN DATE | 603A            |
| FILE: K:\DDM\ts notes\Note603A tem.dgn  |  |                         | REV. 08/05/2004 |

# Site Plan Submittal Flowchart





**DEDICATED HIGHWAY & UTILITY EASEMENT**

For NO MONETARY CONSIDERATION, \_\_\_\_\_  
Of \_\_\_\_\_, Grantor(s) hereby do(es) grant, convey and dedicate to the BOARD OF COUNTY ROAD COMMISSIONERS OF THE COUNTY OF MONROE, a Municipal Corporation, organized under the laws of the State of Michigan, with offices at 840 South Telegraph Road, Monroe, MI (Grantee), its successors, assigns and permittees, an exclusive permanent easement for public highway and public utilities purposes, including but not limited to water, sewer, electric, gas and telecommunications, together with all necessary appurtenances as determined reasonable by the Grantee incident thereto in, over, under and upon the parcel of land, including but not limited to the right to enter upon the land for construction, maintenance and repair of such highway or public utilities and to remove all necessary material or objects incident thereto, which land is situated in the Township of \_\_\_\_\_, Monroe County, Michigan, and described as follows, to-wit:

See Exhibit "A", consisting of \_\_\_\_\_  
IN WITNESS WHEREOF, I have hereunto set my hand and seal this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

Grantor(s):

|                      |                      |
|----------------------|----------------------|
| Signature            | Signature            |
| Print name           | Print name           |
| Organization & Title | Organization & Title |

STATE OF MICHIGAN )  
                                  )ss  
COUNTY OF MONROE)

On this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_,

\_\_\_\_\_,  
personally appeared before me and are known to be the person(s) who executed the foregoing release and severally acknowledged the same to be their (her/his) free act and deed.

|                             |               |
|-----------------------------|---------------|
| Sign name                   | Notary Public |
| Print name                  |               |
| Monroe County, Michigan     |               |
| My commission expires _____ |               |





BOARD OF COUNTY ROAD COMMISSIONERS  
MONROE, MICHIGAN

\_\_\_\_\_  
Paul Iacoangeli, Chairman

\_\_\_\_\_  
Dan Minton, Vice Chairman

\_\_\_\_\_  
Charles A. Londo, Member

\_\_\_\_\_  
Stephen J. Pace, Member

\_\_\_\_\_  
Greg W. Stewart, Member

STATE OF MICHIGAN )  
  )ss  
COUNTY OF MONROE)

On this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_, personally appeared before me and are known to be the person(s) who executed the foregoing release and severally acknowledged the same to be their (her/his) free act and deed, all are board members of the Monroe County Road Commission.

\_\_\_\_\_  
Sign name

\_\_\_\_\_  
Notary Public

\_\_\_\_\_  
Print name

Monroe County, Michigan

My commission expires \_\_\_\_\_

Author:

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

When recorded please return to:  
Monroe County Road Commission  
840 S. Telegraph Rd.  
Monroe, MI 48161  
Telephone: (734) 240-5102