

St. Clair County Road Commission Procedures for Plat Street Development

**BOARD OF COUNTY ROAD COMMISSIONERS
OF THE COUNTY OF ST. CLAIR
21 AIRPORT DRIVE, ST. CLAIR, MI 48079**

A M E N D E D


POLICY NO. 26

BOARD OF COUNTY ROAD COMMISSIONERS
OF THE
COUNTY OF ST. CLAIR


SUBJECT: Procedures and Specifications for Plat Development and Street
Construction

AMENDED: November 19, 2013

The Plat Street Development Book has been amended to comply with the requirements of the Michigan Department of Environmental Quality for the storm water permit, pertaining to storm water quality and quantity. It has also been amended as it relates to the maintenance of drainage facilities after a development is completed. An agreement with the Drain Commissioner creates a mechanism for his office to collect fees to perform maintenance as needed if a storm water facility fails has been made.



William L. Blumerich, Chairman



Kirk D. Weston, Managing Director

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SECTION I: ORDER OF PROCEDURE

PROCEDURES FOR PLAT STREET DEVELOPMENT

The following steps, which will be explained in detail in subsequent sections, will be followed by the Board in considering any plat:

1. Approval of a Preliminary Plat
2. Approval of Construction Plans for Road and Utilities
3. Construction of Roads and Utilities
4. Final Inspection, Approval & Acceptance of Constructed Road
5. Approval of Final Plat

Deviations from this order of procedure can cause delays, confusion and unnecessary expenses.

SECTION II: DEFINITIONS

- A. A.A.S.H.T.O.: The American Association of State Highway and Transportation Officials.
- B. A.S.T.M.: The American Society of Testing and Materials.
- C. Board: The Board of County Road Commissioners of the County of St. Clair, State of Michigan.
- D. Condominium Act: Act 59 of the Michigan Public Acts of 1978 and all amendments thereto.
- E. County Engineer: The Chief Engineer or other representative designated by the Board to carry out the duties entailed by the Plat Act and these procedures for Plat Street Development.
- F. Final Plat: A map of all or part of the subdivision prepared and certified by the Proprietor's Engineer or the Proprietor's Land Surveyor in accordance with the requirements of the subdivision Control Act of 1967, Act 288, of the Public Acts of 1967, as amended.
- G. Governing Body: Township Board, City Council or Village Board having jurisdiction of the land in which the plat is to be located.
- H. Laboratory: Any materials testing laboratory approved by the County Engineer.
- I. Land Split Road: A road developed for acceptance into the County road system for access to property split under the provisions of Act 288, P.A. 1967, as amended. A land split road is not part of a platted subdivision nor of a site condominium.
- J. MDOT: Michigan Department of Transportation.
- K. MDOT Standard Specifications: The Michigan Department of Transportation Current Standard Specifications for Construction.
- L. Pre-Preliminary Plat: A Pre-Preliminary Plat is a sketch plan or informal plan drawn to scale and may be in pencil, if desired, showing the existing features of a site and its surroundings and the general layout of the proposed subdivision.
- M. Preliminary Plat: A map showing the preliminary layout of a subdivision in sufficient detail to allow review by the Board and other interested agencies.
- N. Proprietor: A natural person, firm, association, partnership, corporation or combination of any of them which may hold ownership interest in land whether recorded or not.
- O. Proprietor's Engineer or Proprietor's Land Surveyor:
 - 1. With reference to the Preliminary Plan, and/or the Final Plat means a civil engineer who is licensed in the State of Michigan as a licensed professional engineer or a land surveyor who is licensed in the State of Michigan as licensed land surveyor and who is representing the Proprietor.
 - 2. With reference to design and construction plans means a civil engineer who is licensed in the State of Michigan as a licensed professional engineer and who is representing the Proprietor.

- P. Subdivision Control Act of 1967: Act 288 of the Michigan Public Acts of 1967 and all amendments thereto.
- Q. Utilities: All persons, firms, corporations, co-partnerships or municipal or other public authority providing gas, electricity, water, steam, telephone, cable TV, sanitary sewer, storm sewer or other services of a similar nature. Also included is the service that these utilities would provide.

SECTION III: GENERAL REQUIREMENTS

- A. The contents of this publication do not supersede any part of the Subdivision Control Act of 1967.
- B. A Pre-Preliminary Plat may be made by a Proprietor or a Proprietor's Engineer to submit to the County Engineer. This Pre-Preliminary Plat should contain basic information concerning the proposed development for discussion prior to commencing with the Proprietor's land plans and preliminary designs. It is hoped that these discussions will avoid needless delays and wasted effort by acquainting the Proprietor and the Proprietor's Engineer with any long range plans of the Board which may have bearing on the development; any coordination which may be required between the Board and the affected Governing Body; and to discuss any points of these Procedures for Plat Street Development that may not be clear to the Proprietor or the Proprietor's Engineer.
- C. Private roads within plats shall conform to the minimum requirements for public roads as established in the current St. Clair County Road Commission Procedures for Plat Street Development and Governing Body ordinances. Maintenance of private roads shall be the responsibility of the developer, lot owner(s) or combination, thereof.
- D. Streets that are to be public streets in un-platted areas shall conform to the current St. Clair County Road Commission Procedures for Plat Street Development. The standard fees covering engineering review costs and construction inspection costs will be required for these streets.
- E. Proprietors desiring variations from these requirements may submit their requests in writing to the Board. The Board, in cases which it considers meritorious, may waive individual requirements in specific instances.
- F. When a proposed plat incorporates an existing County road which is not constructed to current standards, said road shall be reconstructed to current standards; said road shall be reconstructed by the Proprietor as necessary to improve the road to conform with standards acceptable to the Board. The Board may require service roads to be constructed by the Proprietor where commercial development is proposed. When a proposed lot is bordered by an interior subdivision street, an existing local road or a primary road, access will be allowed only from an interior subdivision street in the proposed plat.
- G. Permits must be obtained from the Board by the Proprietor for any construction within the right-of-way of existing County roads. (See page 40.) The Proprietor is required to include a "Permits Status Table" indicating the status of all permits obtained.
- H. All work, including plans for such work, within any proposed road right-of-way must be reviewed and approved by the County Engineer.
- I. It is desired that all initially proposed public and private underground utilities in the street right-of-way should be installed prior to the construction of the sub base and base of the street. The final determination is to be made by the County Engineer.

- J. It is also desirable that the street base construction and underground utility work be accomplished in one construction season, and the street surfacing be done after construction traffic and one freeze/thaw season has compacted the roadway and trenches to a minimum of 95% density; or proper construction methods and materials used to achieve a minimum of 95% density of the roadway to the satisfaction of the County Engineer.
- K. The Proprietor's Surveyor shall comply with all provisions of Act No. 74, Public Acts of 1970, as amended, regarding the protection and perpetuation of land survey corners, and establishment of monuments and the recording of information concerning public land survey corners.
- L. The Board reserves the right, at its discretion, to add requirements and to delete or modify existing requirements in the exercise of its statutory authority to maintain streets reasonably safe and convenient for public travel.

SECTION IV: PRELIMINARY REQUIREMENTS

The Proprietor is reminded that approvals of the Preliminary Plat by the Governing Body and the St. Clair County Drain Commissioner are also required under the Subdivision Control Act. If a Preliminary Plat approved by the Board is revised because of requirements of such approving agencies or revisions are otherwise made by the Proprietor, such revisions shall be incorporated in a revised Preliminary Plat for approval or disapproval by the Board. The Proprietor is further reminded that under certain conditions, the Michigan Department of Transportation, the Michigan Department of Natural Resources, Michigan Water Resources Commission and the St. Clair County Health Department are also required to give approvals to the Preliminary Plat.

When received, the final approval of the Preliminary Plat by the Board confers upon the Proprietor for a period of two years from date of approval, the conditional right that the general terms and conditions under which Preliminary Plat approval was granted, will not be changed.

The Proprietor must resubmit the Preliminary Plat to the Board for approval or disapproval if the Governing Body has not given its final approval within one year after the date of the Board's approval.

A. PRELIMINARY PLAT

Four copies of the Preliminary Plat layout drawn to scale not smaller than one inch to 200 feet on a 24" x 36" sheet by the Proprietor's Engineer shall be submitted to the Board for approval. (See page 53.)

The Preliminary Plat layout shall show plainly all of the following and meet the requirements listed:

1. Show locations and extent of property. This shall include a location map showing the plat in relation to the County road system.
2. Show plat dimensions on the portion of layout for which approval is requested. Approximate dimensions are sufficient.
3. Give the location of the plat with reference to the part of section and Governing Body in which the parcel is situated.
4. Each initial Preliminary Plat layout shall be accompanied by a topographic map showing relief with not more than two foot contour intervals (refer to USGS elevation datum) and upon which the overall plat is superimposed. Provided the dimension scale allows it without sacrificing other details, the plan layout complete with contours can be submitted as a single unit.
5. Show locations and names of proposed streets and alleys together with arrows showing drainage flow.
6. Show plainly all governing conditions such as:
 - a. Adjoining named subdivisions, lot numbers and adjacent named streets.
 - b. State highways shall be identified.
 - c. Rivers, one hundred year flood plain datum, natural water courses, existing County or private drains, sewers and cross culverts on existing roads.
 - d. Railroads, cemeteries and parks.
 - e. All other features that the location or existence of which might influence the layout of the plat, including streets and driveways, existing or proposed, within 300 feet of the proposed subdivisions.
7. Show typical cross sections of streets to be constructed including right-of-way widths which shall comply with the requirements as established in the Procedures for Plat Street Development.
8. Show the name of the Proprietor and Proprietor's Engineer or Land Surveyor, with mailing address and telephone number of each.
9. In the case where the Proprietor proposes to subdivide a given area but wishes to begin with only a portion of the total area, the original plat shall include the proposed general layout for the entire area (master plan). The part which is proposed to be subdivided first shall be clearly superimposed upon the master plan in order to illustrate the method of development which the Proprietor intends to follow. Each subsequent plat shall follow the same procedure until the entire

area controlled by the Proprietor is subdivided.

If an individual phase is part of a preliminary master plan approved by the Board within the last two years (24 months), and is in accordance with the current standards, the individual phase will not require separate preliminary approval. However, the individual phase shall require a site plan approved by the County Engineer.

The minimum street length to be constructed in each subdivision or phase of a subdivision shall not be less than 500 feet.

10. The layout of roads, streets and alleys in the proposed plat shall provide a continuous circuit for travel except when, in the opinion of the Board, the lands are limited in area or are subject to a natural barrier. In such cases a dedication that provides access to a public highway of one end only will be acceptable, if a dedication, deed or easement is given on additional land at its terminus so as to permit turning in a continuous circuit or by some other means approved by the Board. The street layout shall fit the pattern established by the adjacent roads and streets. All existing public roads, streets or alleys that terminate at the boundaries must be connected with the road and street system of the proposed plat. When the proposed plat abuts un-platted land, provisions shall be made for future street extensions to the title line of the un-platted area.
11. The edge of pavement, both left and right of the centerline, must maintain a parallel alignment. "Elbows" and other non-uniform sections of roadway will not be allowed.
12. All streets and highways which are extensions of, or in line with, existing streets must carry the names of those in existence. Other streets and highways shall be given such names as the owner may choose, subject to the approval of the Board.
13. Half-width streets or alleys will be acceptable only when the boundary of the proposed plat coincides with the boundary of a recorded plat on which a half width street or alley has previously been dedicated.
14. Strip-type subdivisions along existing roads where access to each lot is from the existing roadway shall be discouraged. The concept of fronting lots on an internal road system is encouraged for reasons of safety. If a strip-type development along an existing County road is proposed, the half-width right-of-way shall be dedicated in accordance with the widths shown in Section IV, C.
15. The Preliminary Plat shall be filed with the County Engineer for consideration by the Board. The Board will give approval of the Preliminary Plat in writing within 30 days. If the Preliminary Plat is rejected, the reasons for the rejection will be provided to the Proprietor.
16. The Preliminary Plat must be sealed by the Proprietor's Engineer or Land Surveyor.

Preliminary Plat approval by the Board shall be void after two years from the date of approval unless otherwise extended in writing.

When approval of the Preliminary Plat is granted, the Proprietor's Engineer may proceed with the construction plans.

B. PRELIMINARY CONSTRUCTION PLANS

1. General

After approval of the Preliminary Plat, three copies of a preliminary road and utility construction plan as prepared by the Proprietor's Engineer covering all the roads within the plat must be submitted to the County Engineer for approval. These plans shall consist of plan and profile drawings and cross sections, which shall comply with the current specifications required by the Board. The preliminary plans shall show all pertinent data necessary to develop construction plans and shall be drawn on standard size (24" x 36") sheets to a scale of not less than one inch to 50 feet.

All dead-end streets shall be provided with a turn-around (cul-de-sac). This treatment shall be designed in accordance with the Board's specifications. (See Detail 4A, 4B, and 4C) The length of the road leading to the cul-de-sac shall not exceed one-half (1/2) mile, subject to restrictions by the individual Governing Body to a shorter length, measured from the centerline of the intersecting street to the center point of the cul-de-sac circle. Special consideration may be given by the Board for longer cul-de-sac roads for topographic conditions or other unusual situations. Break-a-way posts, erected by the Proprietor, will normally be required at the stub end of streets which are temporarily dead-ended at the subdivision limits. At such dead-end streets, the Proprietor will be required to place such signs as the County Engineer specifies, informing the public that the street is not a through street. Temporary turnarounds shall not be required if the length of the stub end street is less than 250 feet, measured from the centerline of the intersecting street.

Intersections shall not be permitted less than 250 feet apart. Intersections of platted streets entering primary County roads shall not be permitted less than 660 feet apart.

The maximum length of blocks shall be 1320 feet. The maximum distance between access points (public streets) to abutting property shall be 1320 feet.

All streets and alleys shall be provided with facilities for adequate surface drainage. This may be accomplished by the use of ditches, County drains, natural water courses, or constructed tributaries thereto.

No construction of roads or utilities shall be started until the preliminary road and utility construction plans have been approved.

Construction plans must be sealed by the Proprietor's Engineer.

When the plans are approved or disapproved, such action will be marked on the plans and two copies will be returned to the Proprietor's Engineer. Revised plans will be approved when they show compliance with all requirements. Sidewalks and/or curbs and gutters to be provided in the subdivision must be detailed in the preliminary road and drainage plans.

2. Preliminary Road and Utility Plans

All work within proposed right-of-way must have plans reviewed and approved by the County Engineer. The plans must show plainly all of the following information:

- a. Show concrete sidewalks, when required by the Governing Body.

- b. Plan view with the centerline profile or top of curb profile directly below the plan view.
- c. Typical cross section of the road to be constructed including location of sidewalks and utilities.
- d. The proposed grades shall coincide with datum determined by the USGS or USC&GS. A permanent bench mark shall be established in the plat and shown on the plans.
- e. The location, size and depth of all underground utilities used for road drainage within the plat shall:
 - i. Show clearly sizes, lengths and locations of all cross road culverts.
 - ii. Show location and type of inlets and cleanout points for underground drainage systems.
 - iii. Show standard plan for all catch basins, inlets, manholes, etc. This may be done by reference to MDOT Standard Plans.
- f. Show locations and profile of all drains outside of the roadway area that are to be utilized for roadside drainage.
- g. Soil borings will be required and shown on the plans if unstable soils or water is present.
- h. The preliminary utility plan may be superimposed on the preliminary road plan if this can be done without sacrificing clarity.

Utilities are encouraged to be located within private easements outside of the public road right-of-way. When located within the public road right-of-way, locations for underground utilities shall be as follows:

- i. Storm Sewers:
 - West side of road, 12 feet from right-of-way
 - South side of road, 12 feet from right-of-way
- ii. Water Mains:
 - West side of road, 7 feet from right-of-way
 - South side of road, 7 feet from right-of-way
- iii. Sanitary Sewers:
 - East side of road, 7 feet from right-of-way
 - North side of road, 7 feet from right-of-way
- iv. Gas Mains:
 - East side of road, 9 feet from right-of-way
 - North side of road, 9 feet from right-of-way
 - Depth of cover in roadway, 48" minimum
 - Depth of cover outside of roadway, 36" minimum
- v. Other: By approval of the County Engineer

C. RIGHT-OF-WAY REQUIREMENTS

All road rights-of-way shall comply with the St. Clair County Major Thoroughfare Plan.

1. State or Interstate Trunk lines shall be of the width required by the Michigan Department of Transportation.
2. Each mile or section line road within the County shall be a minimum width of 120 feet.
3. All major thoroughfares as established in the St. Clair County Major Thoroughfare Plan shall be a minimum width of 150 feet.
4. All half-mile or quarter section line roads shall be a minimum width of 86 feet.
5. Residential subdivision streets shall be a minimum width of 66 feet.
 - a. Residential subdivision streets, with public utilities located within the road right-of-way shall be a minimum width of 66 feet.
 - b. Residential subdivision streets, with public utilities located outside the road right-of-way may be a minimum width of 60 feet.
6. All dead-end roads shall be provided with a turnaround with a minimum external diameter of 150 feet unless otherwise provided for in the Procedures for Plat Street Development.
7. Alleys shall not be permitted.
8. The right-of-way on all curvilinear streets shall be the same width as the right-of-way on the tangents.
9. The minimum width of drainage easements shall be the top width of the channel plus 20 feet for open channels. The minimum easement width for a storm sewer shall be 40 feet centered on the sewer centerline unless contained within the existing and/or proposed road right-of-way. (See page 23.)
10. Widths of rights-of-way in excess of the widths required above may be required by the Board when considered necessary due to situations including, but not limited to, commercial areas, multi-lane roadways, non-motorized travel ways, utilities, cut or fill sections of roadway, or for reasons of safety.

SECTION V: FINAL PLANS AND SPECIFICATIONS FOR STREET CONSTRUCTION

A. CONSTRUCTION PLANS

The construction plans shall be of the same dimension and clarity as the preliminary construction plans. The approved preliminary construction plans may be used as final construction plans if approved by the County Engineer. If a change in the road design affects a utility, the Proprietor's Engineer shall inform the appropriate owner of the utility. The drawings shall include drawings of all construction details, paving layout, sanitary sewer layout, water main layout and drainage layout, together with profiles of the above. The plan and profile drawing of each sheet shall be on standard size (24" x 36") plan and profile sheet. Minimum scale horizontal 1" = 50', vertical 1" = 5'. The construction plans shall include the following drawings:

1. Typical cross section
2. Paving and drainage layout
3. Sanitary sewer and water main layout
4. Construction details referred to

The construction plans must bear the seal of a licensed professional engineer.

The construction plans must include a restoration plan with the specified timing and sequence for completion of the temporary and permanent soil erosion and sedimentation control measures that conform to all environmental requirements.

Each phase of a development must be completed and approved prior to starting the construction of a subsequent phase unless written approval is obtained.

Construction operations shall be staged to comply with applicable environmental requirements.

The Plat Street Development Procedures apply to any sized development including small projects incorporated into a larger development that discharge storm water to the Road Commission right-of-way.

B. ALIGNMENT

B. Local Road and Street Design				
Typical Pavement Sections	Residential			Industrial or Heavy Commercial
	Light	Medium	Heavy	
Number of Lots Served (Includes all phases of a master plan)	0-25	26-50	51+	Does Not Apply
Right-of-Way Width, feet				
Public Utilities Within the Right-of-Way	66	66	66	66-90
Public Utilities Outside the Right-of-Way	60	60	66	66-90
Hot-Mix Asphalt Pavement with Granular Base				
Curb Type, MDOT D2 or SCCRC Valley, Back to Back, feet	30	30	36	36-60
Hot-Mix Asphalt Pavement Depth, inches	3	3.5	4	Must meet all-season design standards based on truck traffic.
MDOT, 22A Aggregate Base (limestone), inches	6	6	8	
Class II, Sub base, inches	8	8	10	
Full Depth Asphalt Pavement				
Curb Type, MDOT D2 or SCCRC Valley, Back to Back, feet	30	30	36	36-60
Hot-Mix Asphalt Top Depth, inches	1.5	1.5	1.5	Must meet all-season design standards based on truck traffic.
Hot-Mix Asphalt Base Depth, inches	5.5	6	7.5	
Class II, Sub base, inches	10.5	11	15	
Concrete Pavement				
Curb Type, MDOT D2 or SCCRC Valley, Back to Back, feet	30	30	36	36-60
Portland Cement Concrete, inches	6	6	7	Must meet all-season design standards based on truck traffic.
Class II, Sub base, inches	6	6	6	
Hot-Mix Asphalt Pavement with Aggregate Shoulders & Open Roadside Ditch (Land-split Roads)¹				
Right-of-way, feet	80	80	80	Does Not Apply
Hot-Mix Asphalt Pavement Depth, inches	3	3.5	4	
Hot-Mix Asphalt Pavement Width, feet	22	22	22	
Class A (limestone) Shoulders, Width, feet	4	4	4	
MDOT, 22A Aggregate Base (limestone), inches	6	8	10	
Class II, Sub base, inches	8	8	10	

¹ Minimum lot frontage along the road is 200 feet. Greater, if required by the governing body.

1. Minimum sight distance onto existing County roads from subdivision streets shall be as follows:
 - a. Stopping sight distance shall meet or exceed the desirable stopping sight distance in accordance with Table 1 - Minimum Stopping Sight Distance.
 - b. Corner sight distance at internal subdivision intersections shall meet or exceed Table 2 - Corner Sight Distance at Internal Subdivision Intersections.
 - c. Corner sight distance at an intersection of a subdivision street with a local road or primary road shall meet or exceed the distance in Table 3 – Subdivision Corner Sight Distance at a Local or Primary Road Intersection.
 - d. Special conditions, in the County Engineer's judgment, may warrant adjustments to the above standards.
2. Vertical curves shall be designed with a minimum length of 100 feet and a minimum sight distance as required in 1.a. above. Vertical curves are required where the algebraic difference in the grades exceed one percent (1%).
3. Horizontal curves shall be designed with a minimum centerline radius as shown in Table 4 – Minimum Horizontal Curves (Centerline Radius). A minimum tangent distance of 50 feet is required between reverse curves.
4. The minimum grade on any street shall be 0.3 percent.
5. The maximum grade on any street shall be 5.0 percent.
6. The crown on any street shall be 2.0 percent minimum.
7. A minimum edge of pavement radius of 30 feet shall be provided at 90° intersections within the subdivision streets and 35 feet shall be provided where intersecting streets meet the existing County roads, unless otherwise required by the County Engineer.
8. Intersection streets should meet at approximately a 90° angle. Skewed intersections will be discouraged.
9. Deceleration and taper lanes shall be constructed in accordance with Detail 11B in Section XI. Pavement cross sections in deceleration and taper lanes shall be equivalent to St. Clair County Road Commission current specifications. Deceleration and taper lanes are required regardless of the surface type on the existing road.

Design Speed (mph)	Assumed Speed for Condition	Stopping Sight Distance	K. Value* for Crest Vertical	K. Value * for Sag Vertical Curves (Rounded)
25	24-25	150-150	20-30	30-30
30	28-30	200-200	30-30	40-40
35	32-35	225-250	40-50	50-50
40	36-40	275-325	60-80	60-70
45	40-45	325-400	80-120	70-90
50	44-50	400-475	110-160	90-110
55	48-55	450-550	150-220	100-130

*K Value is a coefficient by which the algebraic difference in grade may be multiplied to determine the length in feet of the vertical curve which will provide minimum sight distance. For stopping distance, the height of eye is 3.5 feet and the height of object is 0.5 feet.

Design Speed (mph)	Corner Intersections Sight Distance (ft)*
25	265
35	365
45	465
55	565

*Corner sight distance measured from a point on the minor road at least 18 feet from the edge of the major road pavement and measured from a height of eye at 3.50 feet on the minor road to a height of object at 4.25 feet on the major road.

Design Speed (mph)	Corner Intersection Sight Distance (ft)*
25	330
35	365-510
45	465-660
55	565-810

*Corner sight distance measured from a point on the subdivision street at least 18 feet from the edge of the crossing roadway pavement and measured from a height of eye at 3.50 feet on the subdivision street to a height of object at 4.25 feet on the crossing roadway.

Type of Street	Design Speed (30 mph)	Design Speed (35 mph)
Light Residential	300 feet	480 feet
Medium Residential	300 feet	480 feet
Heavy Residential	300 feet	480 feet
Industrial or Heavy Commercial	300 feet	480 feet

C. ROAD DRAINAGE

1. General:

- a. Road drainage shall be provided through a system discharging into an approved outlet. An approved outlet shall be an existing stream, creek, river, or other natural watercourse, a County drain, or drainage easement.
- b. The plans shall clearly show all pipe sizes, materials, lengths and locations. The design method and design calculations shall be submitted with the plans.
- c. Materials shall be as specified by the current MDOT Standard Specifications. Plastic storm sewer pipe shall conform to the specification included in the Appendix.
- d. All roads and streets to be accepted into the County road system and developed pursuant to the Subdivision Control Act of 1967 (Act 288, P.A. 1967, as amended) or the Condominium Act (Act 59, P.A. 1978) shall be built with a concrete curb and gutter drainage system as follows:
 - i. All structure design shall be in accordance with the current MDOT Standard Plans for Manholes, Catch Basins, and Inlets.
 - ii. All structure covers shall be in accordance with current MDOT Standard Plans, NPDES Phase II requirements, or approved equivalent.
 - iii. Catch basins and inlets shall be placed such that all intersections, low points, and necessary intermediate points are properly drained or as indicated and approved by the County Engineer.
 - iv. The drainage structures should, if practical, be placed in alignment with side lot lines and/or the intersection to avoid conflict with driveway openings.
 - v. Manholes shall be located at all changes in alignment or grade and be spaced approximately 300 feet apart.
 - vi. Sub grade drain shall be 4" diameter corrugated perforated plastic in a geo textile sock wrap.
- e. New roads to be accepted into the County road system, not built pursuant to the Subdivision Control Act or the Condominium Act, (land-split roads) may be built with an open roadside ditch drainage system. The cross-section of the road ditch shall have the following minimum dimensions or characteristics:
 - i. Ditch bottom width --2 feet.
 - ii. Ditch depth--Bottom of ditch shall be below the bottom elevation of the sand sub base, minimum depth is 2 feet.
 - iii. Ditch front slopes and back slopes shall be constructed with 4 to 1 (horizontal to vertical) slopes, or flatter.
- f. Construction is to be inspected by the Proprietor's Engineer and be true to line and grade and properly bedded and backfilled. See Section V., H., Utilities and Backfill.

D. OUTLET DITCHES AND CROSS-ROAD CULVERTS

1. The minimum outlet ditch grade shall be 0.2%. Grades of outlet ditches less than 2% shall have an established growth of vegetation provided by top soiling, seeding and mulching in accordance with current MDOT Standard Specifications. Grades from 2% to 4% shall be sodded. Grades over 4% shall be rip-rapped or paved.
2. Where drains cross the roadway, construction and installation must meet current MDOT Class B Culvert requirements or as approved by the County Engineer.
3. The minimum size of cross-road culverts shall be 18" diameter or equivalent size where applicable. Culvert material shall be approved by the County Engineer.
4. All outlet ends of culverts shall have flared end sections installed according to the manufacturer's specification.
5. In all cases, discharging private drainage onto the roadway surface is prohibited.
6. The Governing Body shall maintain and have jurisdiction over drainage easements dedicated to the public.

E. CLEARING AND GRUBBING

All trees and brush including the roots thereof shall be removed from the right-of-way of the streets within the limits of the subdivision, unless otherwise permitted by the County Engineer.

F. EXISTING ROAD CLEANUP

Ditches along existing County roads shown on the plat shall be cleaned out to such a depth as to provide positive drainage. All brush, fences, obstructions, etc., shall be removed from the right-of-way. Trees shall be removed as directed by the County Engineer.

G. UTILITIES AND BACKFILL

All utilities should be located in accordance with Section IV, B. of Procedures for Plat Street Development and all lot or house services stubbed to the right-of-way line prior to curb and gutter construction. In this regard, it is strongly recommended that all public and private underground utilities be installed after the rough grading has been completed. (See page 9.) Any lot or house service that is not placed prior to road construction must be installed by tunneling or boring.

1. Trench Backfill in Roadway: This shall apply to all utilities located within an area delineated by a 1 on 1 slope measured from a point on the bottom of the back of curb or a point on the outside edge of shoulder.
 - a. To apply at all times:
 - i. Class II material placed at least one foot (1') above any buried pipe with minimum 95% compaction.
 - ii. Thorough compaction for balance of backfill in trench.
 - b. If the road is to be paved the same season as road base construction is completed then:
 - i. The top two feet (2') of backfill shall be a granular material, in addition to the above requirement of 1. a. i.
 - ii. A minimum of 95% compaction required on all trench backfill, including native material, if used, between one foot (1') above pipe and two feet (2') below sub grade. Density tests are required.

- c. If the road is to be paved the following construction season:
 - i. Sound native material may be used for backfill from one foot (1') above pipe to top of sub grade.
 - ii. Trench backfill must have one year of construction traffic on it before bituminous paving, unless a minimum 95% compaction was obtained.
 - iii. If the curb and gutter is to be constructed the same year that backfill is placed, the above requirements of item 1.b. are required within the area influencing bearing capacity of the curb and gutter.
2. Catch Basins and Manhole Backfill in Roadway: At all times, structures must be backfilled with a granular material and compacted to the same requirements for trench backfill in roadway.

H. FINISHED EARTH GRADE

The finished sub grade shall be free of all topsoil, stones, stumps, organic matter, muck, peat and frost heave material and shall be prepared in accordance with the current MDOT Standard Specifications. The backfill of all trenches (such as trenches for sewer, water, utility or culverts) that are within the grade of the proposed streets shall be thoroughly compacted. The entire width of the right-of-way shall be graded so that any point on the right-of-way shall be not more than 1.0' above or below the finished centerline grade; the County Engineer may vary this requirement if topographic conditions warrant.

I. SUB BASE, BASE MATERIAL AND CONSTRUCTION METHODS

1. The use of geotextile fabric in sub base construction in soft areas is required. The Proprietor's Engineer shall specify the type of fabric and the construction method on the plans. All work shall be done in accordance with current MDOT Standard Specifications and is subject to the approval of the County Engineer.
2. Sub base and base materials and construction methods for this placement shall be in accordance with the current MDOT Standard Specifications. Base material shall be 22A limestone.
 - a. The Proprietor's Engineer shall present to the County Engineer, a certified analysis, made by a laboratory, of the aggregate that is intended to be used on the streets. This analysis must be presented and approved before any surfacing is placed on the streets.
 - b. The use of bituminous base course mixture is permissible. The method of construction must be according to current MDOT Standard Specifications placed to the required depth in compacted uniform courses not to exceed three inches per course. A tolerance of one quarter inch (1/4"), plus or minus, will be allowed in the compacted bituminous aggregate base course. The bituminous mixture shall be in accordance with the current MDOT Standard Specifications.
3. The completed aggregate or bituminous base course shall conform to the required line, grade, and cross section. The use of water or chemical admixtures to aid in the consolidation of the aggregate base course shall be approved by the County Engineer.

4. Road construction specifications for industrial streets and/or collector streets will be as outlined in general requirements and as shown on the typical section for industrial streets.

J. SURFACING MATERIALS AND CONSTRUCTION METHODS

1. Bituminous surface courses shall be constructed in accordance with current MDOT Standard Specifications. The bituminous mixture shall be in accordance with the current MDOT Standard Specifications Section 502 with No. 13A designation.
2. Concrete pavements shall be constructed in accordance with the current MDOT Standard Specifications Section 602. Pavement integral with the curb will be permitted at the option of the Proprietor.
3. All land-split roads that intersect with a paved road, that are to be accepted into the County road system, shall be hard surfaced a minimum length of 100' from the intersection, regardless of any governing body ordinance or resolution. The type and thickness of surfacing shall comply with the requirements shown on the chart on Page 12.

K. SIDEWALKS AND CURB AND GUTTER

1. Sidewalks:

Sidewalks, when required by the Governing Body, shall be shown on the plans and shall meet current MDOT & ADA Standard Specifications. The depth of the walk shall be not less than four inches (4"), except at driveways where it shall be not less than six inches (6"). Sidewalk grades shall be shown on the plans when sidewalks are constructed.

2. Curb and Gutter:

- a. The roadway, curb elevation, St. Clair County Road Commission Valley Curb and Gutter or MDOT Type D curb and gutter cross section shall be shown on the plans. Materials and methods for construction of concrete curb and gutter shall meet the requirements of the current MDOT Standard Specifications.
- b. Fiber joint material shall be placed at all spring points and at 100' intervals. Contraction joints shall be located at 10' spacings.

L. TOPSOIL, SEED, FERTILIZE AND MULCH

All graded areas within the right-of-way shall be seeded, fertilized and mulched. The methods and time of seeding and mulching shall meet the requirements of the current MDOT Standard Specifications. All disturbed areas shall be covered with three inches (3"), minimum, of topsoil. No road will be accepted by the County Engineer where ditch or bank erosion or sedimentation is evident. All disturbed areas within the road right-of-way, excluding the roadbed, must have vegetative ground cover established to such a length and density that washing will not occur.

M. TREES

1. Platted Subdivision, Site Condominiums and Land-Split roads with concrete curb and gutter road construction:

No trees shall be permitted within the County right-of-way. However, if a governing body ordinance requires the placement of trees in the right-of-way, the following will apply:

- a. No Sidewalk present - In no case shall approved trees be closer than ten feet (10') from the back of the curb.
- b. Sidewalk present - Approved trees will be allowed to be planted at a point equidistant between the back of the curb and front of the sidewalk.

The following list of tree species shall be allowed for planting under a. and b. above:

<u>Common Name</u>	<u>Botanical Name</u>
Flowering Crabapple	Malus Species
Flowering Dogwood	Cornus Florida
Ginko	Ginko Biloba
Honey Locust	Gleditsia Triacanthos
European Hornbeam	Carpinus Betulus
Common Hawthorn	Crataegus Species (thornless varieties)
Littleleaf Linden	Tilia Cordata
Star Magnolia	Magnolia Stellata
Sweetbay Magnolia	Magnolia Viginiana
Hedge Maple	Acer Campestre
Amur Maple	Acer Ginnala
Paperback Maple	Acer Griseum
Redbud	Cercis Canadensis
Serviceberry	Amelanchier Canadensis
Sweetgum	Liquidambar Styraciflua

All right-of-way plantings shall be included in the road construction plans and shall be approved prior to planting.

The cost to repair any damage to road infrastructure or sidewalk due to the presence of said trees shall not be the responsibility of the road commission. The Proprietor shall

include a copy of this statement in all subdivision deed restrictions, site condominium covenants, or land-split sales agreements. The road commission will not be liable for tree damage caused by road reconstruction or routine maintenance operations such as road repair, street cleaning, tree trimming, de-icing, plowing, etc.

2. Platted Subdivisions and Site Condominiums with enclosed drainage

No trees shall be permitted within the County road right-of-way. The Proprietor shall include a copy of this statement in all subdivision deed restrictions and/or site condominium covenants.

3. Land-Split Roads with open ditch drainage

No trees shall be permitted within the County road right-of-way. The Proprietor shall include a copy of this statement in all land-split sales agreements.

N. NONSPECIFIED MATERIALS AND CONSTRUCTION

All items that are not designated within these specifications but that are essential to the proper construction of the roads in question shall be of material and construction in accordance with the current MDOT Standard Specifications.

O. STORM WATER MANAGEMENT

Unless otherwise noted, the following design standards and requirements apply to construction plans submitted for review by the St. Clair County Road Commission for all types of developments or road-related construction activities.

1. General:

- a. Construction plans for a phased development shall show the existing and/or proposed drainage systems for all prior and planned phases of the development, unless the drainage system for the current phase is entirely independent of the prior phases. Furthermore, drainage plans for a phase of a development must not be dependent upon work planned to be performed in a future phase.
- b. Plans shall include a grading plan showing existing and proposed topographic contour lines and proposed finish floor and basement floor elevations.
- c. All existing natural or manmade watercourses shall be shown on the plans. The proposed changes to the site must not interfere with Common Law Natural Flow Rights. Existing watercourses must be preserved or relocated, or the flow otherwise accommodated by the proposed plans. Provisions for the maintenance of the watercourse must be included in the deed restriction or an equivalent legally binding agreement. Note, MDEQ and/or the Army Corps of Engineers may also require permits for changes made to such watercourses.
- d. No construction activities shall be allowed without approval of the MDEQ and/or the Army Corps of Engineers in a 100-year floodplain as determined by the existing FEMA flood maps.
- e. The cover sheet of the plans shall include a "Permit Status Table" indicating the status of all permits being obtained.
- f. If a road right-of-way is involved, construction plans shall include a note indicating that "All work performed in the right-of-way of _____ Road shall require a permit from the St. Clair County Road Commission".
- g. The engineer's seal shall be affixed to all sheets of the construction plans.

- h. Upon completion of construction, the proprietor shall ensure all storm water facilities are working properly. If deficiencies are encountered, the Road Commission shall notify the proprietor and give them 90 days to address said deficiencies.
- i. Stream protection shall be provided surface water discharges to natural water courses (directly or through pipes or ditches) by retaining onsite the difference in stormwater runoff volume between pre-development and post-development conditions for the 2-year, 24 hour storm
- j. Developments with the high use of petroleum products shall ensure water quality of any downstream or neighboring property is not comprised and be responsible to install specific BMP's to ensure water quality for developments of this nature.
- k. A Declaration of Drainage Easement and Drainage Maintenance Agreement shall be established for developments with detention or retention facilities. See Appendix II for a sample agreement.

2. Existing Roadways:

- a. Topographic drawings shall include plan view and profiles of all existing and proposed road and ditch dimensions within road right-of-way and drainage easements on site. These drawings shall indicate the road C/L, ditch bottom C/L, existing ground at right-of-way, design flow water elevation, and the location of the outlet from the detention facility, if applicable.
- b. Where drainage is to be discharged to an established County drain, either directly or through secondary routes, the drain shall be improved to standards approved by the Drain Commissioner when necessary for proper drainage of the proposed development. The drain restoration can be performed by and/or at the expense of the developer.

3. Storm Sewers:

- a. Plans shall show boundaries and acreages of catchment areas contributing runoff to each proposed or existing catch basin and/or inlet. Runoff from off-site tributary areas must be accommodated in design or rerouted.
- b. The required discharge capacity for each reach of sewer shall be determined by the Rational Method.
 - i. A 10-year design storm shall be used such that rainfall intensity, $I = 175 / (T + 25)$, where T = time of concentration in minutes.
 - ii. The runoff coefficient, C, shall be in conformance with normal design practice. Where a weighted average coefficient is employed, the computations shall be submitted for review.
- c. A complete set of storm sewer design calculations shall accompany every set of construction plans submitted for review.
 - i. Sewer capacities shall be based on the Manning equation.
 - ii. Energy losses from friction shall be based on calculated design storm peak discharges and velocities, not Manning design (i.e. full-pipe) capacities.

- iii. Energy losses from friction shall be based on typical Manning “n” roughness values.
 - iv. Energy losses through manholes and other appurtenances shall be included in the design calculations.
- d. The storm sewer pipe shall have a minimum diameter of 12 inches when constructed in a public right-of-way or easement.
- e. Storm sewer slopes must not be flatter than the minimum slopes as indicated in the MDOT Drainage Design Manual.
- f. Minimum allowable pipe velocity shall be 3.0 ft/sec. (except where the minimum diameter requirement makes this unachievable.) Desirable pipe velocity range shall be 4 to 8 ft/sec. Maximum allowable pipe velocity shall be 10 ft/sec.
- g. Hydraulic grade lines shall be calculated and shown as a part of all storm sewer profiles. In no case shall the elevation of the hydraulic grade line exceed the elevation of a point lying 1 foot below the rim elevation of a manhole, catch basin or inlet. The hydraulic grade line upstream of a detention or retention storage facility shall be calculated assuming the design high water elevation (e.g. full detention basin).
- h. The storm sewer plan and profile drawing shall show the following data:
 - i. Proper identification and numbering of manholes, catch basins and inlets.
 - ii. Invert and casting elevations for all structures.
 - iii. Pipe length (C/L to C/L of structures).
 - iv. Pipe diameter.
 - v. Pipe slope.
 - vi. Pipe class or designation.
 - vii. Detail of trench construction and type of backfill material.
- i. Generally, manholes and catch basins shall be placed not more than 300 feet apart.
- j. The minimum inside diameter of all manholes, catch basins and inlets shall conform to MDOT Drainage Design Manual.
- k. Inlet structures in the public road right-of-way shall be spaced a maximum of 300 feet apart (or a maximum of 300 feet on either side of a high point). The spacing and/or number of inlet structures required to accommodate the design flows shall be based on a maximum of 1 cfs per 90 square inches of opening in an inlet or catch basin cover.
- l. All storm sewer pipe, manholes, catch basins, and inlets shall meet MDOT Standard Specifications.
- m. Generally, drops of over 2.0 feet at manholes, from invert of higher pipes to lower pipes, shall be avoided.
- n. All sewer joints shall be wrapped with a 3' wide length of MDOT approved filter wrap so that the geotextile totally circles the entire circumference of the pipe joint with a 12" lap at the seam even if the pipe has a neoprene gasket. This work shall be in addition to the joint work that is laid out in the current MDOT Standard Specifications for Construction for sewer work.

Payment for this work shall be included in the pay items for "Sewer Class ___" and will not be paid for separately.

- o. Where drainage is discharged to an established drain or natural watercourse, such outlets shall be so designed as to enter the drain or watercourse at an angle of 90 degrees or less, as determined by the upstream centerline. Preformed end sections, riprap or specially designed outlet structures will be required.
- p. All storm sewers that shall become the property of the Road Commission shall be located within an easement. The minimum easement width for a storm sewer shall be 40 feet centered on the sewer centerline unless contained within the existing and/or proposed road right-of-way.
- q. All existing and proposed on-site drainage easements shall be clearly shown.
- r. If any utilities are to be located within existing or proposed drainage easements within a development, the proprietor's engineer shall present plans of such utilities to the Road Commission for his approval as to location. If possible, such plans should be presented at the same time as drainage plans so that all details of construction and location may be checked and properly oriented with each other. In order to avoid conflict, it is important that a careful investigation be made where underground utilities are in close proximity to proposed storm sewers, or where they cross each other.

4. Open Channels:

- a. The required discharge capacity for each reach of open channel shall be determined by the Rational Method.
 - i. 10-year design storm shall be used such that rainfall intensity, $I = 175 / (T + 25)$, where T = time of concentration in minutes.
 - ii. The runoff coefficient, C, shall be in conformance with normal design practice. Where a weighted coefficient is employed, the computations shall be submitted for review.
- b. The peak 10-year flow in each reach of open channel shall remain within the banks of the channel. Off-site tributary area shall be included in the design, or the off-site tributary runoff shall be rerouted around the channel.
- c. The values of Manning's "n" shall be no less than 0.040 except where the channel is smooth and paved in which case an "n" value of 0.013 to 0.022 shall be used.
- d. The maximum velocity for grass lined channels shall not exceed 5 ft/sec. Where above velocity is exceeded, the channel shall be protected by cobble paving or other means to prevent scour.
- e. The minimum acceptable non-siltation velocity should be 2.0 ft/sec.
- f. All open channels that shall become the property of the Road Commission shall be located within an easement. The minimum easement width for an open channel shall be the top width of the channel plus 20 feet centered on the channel centerline unless contained within the existing and/or proposed road right-of-way.
- g. Side slopes of open channels shall normally be no steeper than 1 vertical to 3 horizontal. Where conditions dictate steeper side slopes, consideration

should be given to slope paving and fencing. The final decision in such matters rests with the Road Commission.

- h. All existing and proposed on-site drainage easements shall be clearly shown on the plans.

5. Culverts:

- a. All culverts should be labeled on the plans as "existing", "proposed", or "to be extended".
- b. Plans shall show boundaries and acreages of tributary areas contributing runoff to each proposed or existing culvert on the proposed site.
- c. Proposed or extended culverts with tributary areas exceeding 2 square miles must be approved by both the Road Commission and the MDEQ. A copy of the permit obtained from the MDEQ must be submitted to the Road Commission prior to Road Commission approval. Culverts with tributary areas of less than 2 square miles must be approved by the Road Commission. Proposed or extended culverts may also require the approval of the St. Clair County Drain Commissioner and/or the Michigan Department of Transportation (MDOT).
- d. The Rational Method shall be used to determine the peak design flow for the culvert, if the tributary area to the culvert is less than 20 acres. For larger tributary areas, the SCS Method shall be used. The runoff coefficients used should be consistent with those recognized by MDEQ, and selected to reflect the future land use of the tributary area.
- e. All culverts shall be designed using standard nomographs for inlet and outlet control conditions. Calculations of the 25-year and 100-year headwater elevations for all culverts thus designed shall accompany the final plans.
 - i. The 25-year headwater elevation of each culvert shall not exceed an elevation one foot below the road or driveway centerline elevation. The backwater shall not extend beyond the limits of the Proprietor's property.
 - ii. The 100-year headwater elevation of each culvert shall not overtop the road or driveway centerline elevation and must remain below proposed finish floor elevations of all nearby existing and proposed structures.
 - iii. The tailwater elevation assumed for each culvert should be estimated as the normal depth of the peak flow in the downstream channel, unless the tailwater is influenced by the headwater of another downstream culvert or the confluence of another watercourse.
- f. Wing walls, headwalls, end sections, and all other culvert end treatments shall be designed to ensure the stability of the surrounding soil, and to meet the requirements of all governing agencies (e.g. St. Clair County Drain Commissioner, MDOT, MDEQ).
- g. Roadways over culverts or bridges may be required to be paved or designed in such a way as to prevent the erosion of road material into the established drain or watercourse.

- h. The following data shall be provided for all proposed or extended culverts:
 - i. Length
 - ii. Diameter
 - iii. Invert elevations
 - iv. Material type
 - v. Protection for culvert ends
 - i. Riprap must be provided for all culverts in established County drains or significant natural watercourses. The rip-rap provided for the protection of culvert ends shall:
 - i. Extend at least one culvert diameter upstream of the culvert inlet and at least four culvert diameters downstream of the culvert outlet;
 - ii. Extend across the bottom of the channel and up the banks of the channel to at least the elevation of the crown of the culvert;
 - iii. Be inlaid such that it does not cause an obstruction in the watercourse; and
 - iv. Have a minimum dimension no smaller than that consistent with HEC-11 Design Guidelines for Rock Riprap and MDOT standards. (A conservative guideline for water depths less than 3 feet would be to use 8-inch diameter riprap for flow velocities up to 6 feet/sec, and 16- inch diameter riprap for flow velocities up to 11 feet/sec.)
 - j. Minimum diameter for a driveway culvert shall be 15 inches or equivalent pipe arch.
 - k. Minimum diameter for a crossroad culvert (must be poly coated) shall be 18 inches or equivalent pipe arch.
 - l. The pipe used in culverts shall meet MDOT Standard Specifications and Road Commission standards.
6. Detention Storage Facilities:

In keeping with Common Law Natural Flow Rights, concentrated discharges of storm water or increased surface water runoff over property owned by others must be pursuant to a valid right-of-way, easement, or other written permission from all property owners affected. The outflow from a detention facility is considered to be such a concentrated discharge of storm water.

All forms of detention storage shall meet the following criteria:

- a. On-site detention of storm water is required of all new developments or redevelopments to maintain the peak outflow to a rate equal to or less than the pre-development runoff rate. The maximum allowable release rate shall be calculated for the 2, 10, 25, 50 and 100 year storms. This will require a comparison table between pre-developed and post-developed flow rates for all storms listed above. In no case shall the outflow from a site exceed the capacity of the receiving watercourse to accept the flow. This shall apply to all sites discharging into existing Road Commission drainage facilities.
- b. Detention requirements may be more stringent in certain watersheds according to local ordinances or policies of the drainage district.

- c. The detention basin volume shall be determined for the highest flood volume from the 2, 10, 25, 50 and 100 year storms from all tributary area, including off-site area.
- i. The tributary area shall include all acreage contributing runoff to the detention storage facility, including any off-site tributary area in its existing state, whether developed or undeveloped.
 - ii. The following equations shall be used to determine the 100-year detention volume:
 Q_a = Allowable release rate, cfs
 $Q_o = Q_a / (A C)$, where A = Tributary area in acres, C = weighted runoff coefficient
Detention time in minutes, $T = -25 + \sqrt{10,312.5 / Q_o}$
Storage volume per impervious acre, $V_s = 16,500 T / (T + 25) - 40 Q_o T$
Required detention volume in cubic feet, $V = V_s \times A \times C$
- d. If the site is located near the downstream end of a watercourse or drainage district, the Road Commission may require that the proprietor (or his engineer) generate and submit hydrographs of the outflow from the existing site and from the proposed site (i.e. detention facility) and a hydrograph of the flow in the receiving watercourse to verify that the detained outflow would not result in an increase in the peak flow in the receiving watercourse. If the detained outflow would result in an increase in the peak flow in the receiving watercourse, then storm water detention is not an acceptable storm water management option. Retention of storm water or other storm water management design options approved by the Road Commission must be provided.
- e. Portions of the developing site may be allowed to drain unrestricted (i.e. not through a detention facility) if either of the following conditions are met:
- i. The areas draining unrestricted are not being disturbed or altered by the construction, such that they will maintain their existing drainage characteristics and patterns.
 - ii. The areas draining unrestricted are being disturbed or altered but will be permanently stabilized to prevent erosion and will not contain any impervious surface post-construction. In this case, the unrestricted flow must be draining to a receiving watercourse with valid rights-of-way, or else written agreement from the affected property owners would have to be obtained per Common Law Natural Flow Rights. In addition, the post-construction peak 2, 10, 25, 50 and 100-year flow from these areas shall be calculated and deducted from the total allowable peak flow from the detention facility (Q_a). The detention outlet(s) should be designed to restrict the basin outflow(s) to this reduced allowable peak flow rate.
- f. Where the detention facility is to be equipped with a pump discharge, the Road Commissioner shall require the proprietor to furnish design data on pump(s) and discharge force main so that the capacity of the system can be verified. These data will include system curve calculations, the pump performance curves, and a profile of the system piping. The pumping station should be able to release the first flush volume over approximately

24 hours, the bankfull flood volume over 24-48 hours, and the peak flood volume at a rate not to exceed the pre-developed rate of tributary area at the 2, 10, 25, 50 and 100-year storms. A back-up generator will be required to ensure the operation of the pumping station in the event of power loss. The Road Commission discourages the use of pumped outlets, and will not accept responsibility for damages due to power failure, pump malfunction, or Acts of God that result in storm conditions that exceed the design conditions of the pump station.

- g. An agreement for acceptance and maintenance of the detention facility, if executed by the Proprietor, shall be submitted to the Road Commission prior to site approval. The agreement both as form and content shall be subject to the approval of the Road Commission's legal counsel.
- h. Under no conditions shall a detention facility be located within the 100-year flood plain of a stream, creek or lake, as determined by the MDEQ.
- i. In-line detention (i.e. detention along a drainage ditch) will be permitted.

7. Detention Basins:

In addition to the general requirements indicated above in Section 6, underground detention facilities shall meet the following requirements:

- a. Detention volume in a gravity-outlet detention basin must be located:
 - i. above the invert of the lowest row of orifices in the outlet standpipe,
 - ii. above the elevation of the dry weather base flow in the receiving watercourse, and
 - iii. above the elevation of the groundwater table. Soil boring data used to determine the groundwater table elevation shall be submitted with the plans.
- b. The detention basin outlet shall consist of a vertical standpipe with multi-level orifices to control the release of storm water from the basin, including the first flush volume, bankfull flood volume and peak flood volumes (maximum of the 2, 10, 25, 50, & 100-year storms).
 - i. The standpipe shall not be less than 36 inches in diameter.
 - ii. The standpipe shall contain multiple rows of orifices (i.e. holes) to control the release of the first flush runoff volume, the bankfull flood volume, and the peak flood volume.
 - First flush orifices shall be located at the elevation of the basin floor (or permanent pool water level, if a wet basin).
 - Additional flow control orifices shall be at the elevation of the first flush volume in the basin, where the first flush volume is calculated as the first inch of runoff over the site, or $V_{ff} (cf) = 4320 \times A(\text{acres}) \times C$, where C is the runoff coefficient.
 - Additional peak flood control orifices shall be located at the elevation of the bankfull flood volume in the basin, where the bankfull flood volume is calculated as the rainfall from a 1.5-year storm, or $V_{bf} (cf) = 8170 \times A (\text{acres}) \times C$.
- c. To promote improved filtering of runoff sediment from smaller, more frequent storm events, the bankfull flood and first flush volumes shall be

based on the developing tributary site area only, and not include off-site tributary area.

- i. Orifices should not be less than 1 inch in diameter nor greater than 3 inches in diameter.
 - ii. The top of the standpipe may consist of a grating at or above the design (high) water level to serve as an overflow mechanism, in addition to the overflow spillway/berm.
 - iii. The standpipe shall be encased in stone extending to the design (high) water level to allow for filtering of the storm water prior to discharge from the basin. The encasement stone size shall be large enough so as not to plug or pass through the orifices in the standpipe.
 - iv. The standpipe shall contain a sediment sump with a depth of at least one foot.
 - v. Nested standpipes (e.g. a 36-inch diameter inner standpipe within a 48-inch diameter outer standpipe) are encouraged. Nested standpipes are believed to be less prone to blockages of the control orifices, and therefore require less maintenance. The inner standpipe should contain the appropriate number and configuration of orifices to provide the controlled release of the first flush volume, the bankfull flood volume, and the 100-year flood volume. The outer standpipe should contain at least several times the orifice area as the inner standpipe over the entire height of the standpipe, such that the head loss across the outer standpipe orifices is negligible.
 - vi. The outlet pipe extending from the standpipe to the receiving watercourse shall be sized to convey the calculated 10-year peak inflow to the detention basin as a minimum.
 - vii. The location of the outlet pipe extending downstream of the standpipe shall be indicated on a profile drawing of the receiving watercourse, whether or not the receiving watercourse is an established County drain. The receiving watercourse profile shall extend at least from the upstream end of the site to the downstream end of the site.
- d. A sediment sump shall be provided within the basin, below the lowest orifice elevation but above the groundwater table, to provide for sediment accumulation.
- i. The volume of the sump shall be equivalent to the first flush volume, or 1.0 inch of runoff over the site area. (Sump Volume, cf = $V_{ff} = 4320 \times A \times C$)
 - ii. Appropriate precautions shall be taken to protect public safety and to ensure that the sump does not constitute a nuisance.
- e. All detention basins must have standpipe overflow grates and/or spillways berms for emergency overflow at the high water level.
- i. If used, the standpipe overflow grate must provide adequate capacity to overflow the peak 10-year basin inflow with no more than one foot of head (i.e. water level must not exceed the one foot of freeboard).

- ii. Downstream of the overflow spillway, the storm water overflow must be directed (either by overland flow or via a swale or ditch) to the receiving watercourse.
 - f. A minimum of one-foot freeboard shall be provided above the design high water elevation.
 - g. The side slopes shall not be steeper than 6 ft. horizontal to 1 ft. vertical. Slope protection shall be provided as necessary. Basin side slope elevation contours shall be shown on the plans.
 - h. Unless the detention basin contains a permanent pool, the bottom of all detention basins shall be graded in such a manner as to provide positive flow to the outlet. A minimum bottom slope of 1% should be provided.
 - i. A 12-ft. wide minimum access easement shall be provided for all detention basins, as measured from the top of bank.
 - j. A 25-ft. wide minimum setback from property lines shall be provided for all detention basins, as measured from the top of bank.
 - k. Multiple detention basins serving a single development should function independently. If the outflow from one basin passes through another basin before being discharged to the receiving watercourse, a full hydraulic analysis (i.e. a computer model simulation) will be required to ensure that the system functions satisfactorily.
 - l. If at any time the detention basin is to function as a sediment basin (for use during the construction phase), an outlet filter shall be provided. Such an outlet filter is to be designed in accordance with criteria established by the St. Clair County Health Department. Such use of a detention pond shall be considered a temporary measure only. The Proprietor shall be responsible for sediment removal upon completion of construction.
 - m. Detention basins shall meet all local ordinances and/or requirements for "ponds".
8. Underground Storage

In addition to the general requirements indicated above in Section 6, underground detention facilities shall meet the following requirements:

- a. Detention volume in an underground detention facility shall be located above the elevation of the dry weather baseflow in the receiving watercourse and above the elevation of the groundwater table. Soil boring data used to determine the groundwater table shall be submitted with the plans.
- b. To minimize sedimentation in the downstream drainage district, sediment shall be removed from the storm water before water enters the underground storage facility (e.g. in first flush forebay or within the catch basins using removable filtration inserts).
- c. The pipe material used for the underground storage facility shall have an expected life of at least 50 years.
- d. Access manholes shall be provided along the underground storage facility to allow for maintenance.
- e. A minimum of one foot of freeboard shall be provided between the design hydraulic grade line in the underground storage facility and the rim elevations of all access manholes.

- f. A 25-ft. wide setback from property lines shall be provided for all underground storage facilities.
- g. A 40-ft. access easement shall be provided to and above the underground storage facility.
- h. No permanent structures shall be constructed above the underground storage facility.

9. Retention Basins

The water in a retention basin is not discharged to a natural watercourse or established County drain, although it may be consumed by plants, evaporate, or infiltrate into the ground. A Retention Basin should not be confused with a "Detention Basin," a facility designed to detain runoff for a short period of time and then release it to a watercourse.

- a. On-site retention (or detention – See section 6 Detention Storage Facilities) is required of all new developments or redevelopments to prevent an increase in peak flows downstream in the drainage district.
 - i. Retention basins are an acceptable storm water management practice on sites where the soil has an infiltration rate of at least 0.52 inches per hour and a clay content of less than 30% (per recommendations in Guidebook of Best Management Practices for Michigan Watersheds). The required storage volume of a retention basin is that of the runoff from a 100-year design storm as determined using the SCS Method. On sites with soils having a lower infiltration rate and/or higher clay content, the Road Commissioner may allow retention basins with storage volume for the runoff from two consecutive 100-year design storms.
 - ii. Retention basins shall accommodate runoff from off-site areas that drain onto/across the developing site. (An exception to this rule would be if off-site runoff were to be routed around the site to a receiving watercourse, if done in a manner such that runoff from the developing site would not contribute to this off-site flow. If the off-site flow were to be concentrated from overland flow to a point discharge into an receiving watercourse without valid rights-of-way, written agreement from the affected property owners would have to be obtained per Common Law Natural Flow Rights).
- b. One foot of freeboard shall be provided above the design high water elevation.
- c. Retention volume must be provided above the elevation of the groundwater table. Soil boring data used to determine the groundwater table elevation shall be submitted with the plans.
- d. All retention basins must have a spillway for emergency overflow at the high water level.
 - i. The spillway must provide adequate capacity to overflow the peak 100-year basin inflow with no more than two feet of head (i.e. water level must not exceed the two feet of freeboard).
 - ii. The plans must identify where the overflow would be directed to flow or stored in the event of an overflow.
- e. The side slopes shall not be steeper than 6 ft. horizontal to 1 ft. vertical unless fenced in accordance with local governing body requirements.

Slope protection shall be provided as necessary. Basin side slope elevation contours shall be shown on the plans.

- f. A 12-ft. wide access easement shall be provided to and around all retention basins.
- g. An agreement for acceptance and maintenance of the retention basin system, if executed by the proprietor, shall be submitted to the Road Commission prior to site approval. The agreement both as form and content shall be subject to the approval of the Road Commission's legal counsel.
- h. If at any time during the construction period the retention basin is to function as a sediment basin, the proprietor shall be responsible for sediment removal prior to completion of construction. (See St. Clair County Health Department for requirements regarding erosion and sedimentation control during construction.)
- i. Under no conditions shall a retention basin be located within the flood plain of a stream, creek or lake.

10. Wetlands and Low Lying Areas

- a. In order to help in analyzing site hydrology and the pre-development runoff rate, soil types, the normal groundwater table, and an accurate delineation of wetlands must be provided as part of Preliminary Plats/plans. The Road Commission may require confirmation of the absence or presence of regulated wetlands from the Michigan Department of Environmental Quality (MDEQ) through its wetland assessment program. Construction activities to be performed within a regulated wetland may require a permit from the MDEQ and/or local Governing Body.
- b. If existing wetlands or low lying areas are to be used for storm water storage, all requirements under either 7. Detention Basins or 8. Retention Basins above would apply, depending on whether the wetlands/area would have an outlet.
- c. If any disturbed or impervious surfaces will drain into an existing wetland or low lying area, calculations may be required to be submitted indicating that the wetland will accommodate runoff from a 100-year design storm without exceeding the finished grade elevation of any adjacent existing or proposed structure.
- d. If a wetland will be used for storm water storage, a sediment forebay shall be provided upstream of the wetlands to reduce the storm water velocity and encourage sedimentation. Additionally, a permit from the MDEQ and/or local Governing Body may be required.

11. First Flush Basins and Sediment Collection Units

Stand-alone, permanent first flush basins and prefabricated sediment collection units are storm water Best Management Practices not generally required for developments by the Road Commission. However, when such BMPs are proposed or required for a specific site, the following design standards shall apply:

- a. A first flush basin or pre-fabricated sediment collection unit shall contain storage volume for the first 1.0-inch of runoff from the on-site impervious tributary area. The storage volume of a first flush basin can be calculated as: $V_{ff} \text{ (cf)} = A \times C \times 4320 \text{ cf/ac-impervious}$
- b. The outlet of a first flush basin or sediment collection unit shall be designed to release the first flush volume over 24-36 hours.
- c. The outlet of a first flush basin or sediment collection unit shall not be submerged by the receiving watercourse at a 10-year design level.
- d. The first flush basin or sediment collection unit shall contain a bypass structure and/or berm to allow the 100-year peak flow to bypass without hydraulic interference.

SECTION VI: CONSTRUCTION OF STREETS

A. COORDINATION

1. It is recommended that a preconstruction meeting be conducted by the Proprietor's Engineer, including the County Engineer, before street construction commences and that a systematic procedure of construction be followed in order to eliminate any possible disagreements between the County Engineer and the Proprietor and its agents.
2. At the start of construction, the St. Clair County Road Commission may, or contract to, furnish and install a sign(s) stating, "STREET NOT OPEN FOR PUBLIC TRAVEL", at each access point to a public road or extension of a public road until the County Engineer determines that the roadway is reasonably safe for the public to travel. The estimated cost shall be included in the street sign installation fee paid by the Proprietor. All signage must conform to the standards of the current "Michigan Manual of Uniform Traffic Control Devices".

B. INSPECTION AND TESTING

1. Inspections may be made by the County Engineer prior to and during the placing of the sub base and the aggregate base. Any road cuts made after the placing of the aggregate base shall be properly backfilled and compacted. (See page 16 & 17, Utilities and Backfill.)
2. Inspection by the County Engineer shall not relieve the Proprietor's Engineer of any of his obligations. The Proprietor's Engineer shall inform the County Engineer of the start of the various stages of any construction within the street right-of-way, and as work progresses. The Proprietor's Engineer shall provide 100% inspection and copies of the material tickets and Inspector's Daily Reports (IDR's) as each activity occurs. All construction documentation is to follow current MDOT Standards and Procedures.
3. The Proprietor's Engineer shall set and check grade and alignment, inspect all materials incorporated in the street and drain construction and supervise and inspect all construction within the street right-of-way and drainage easements.
4. Construction on, or use of, frozen material will not be approved.
5. Minimum testing must comply with current MDOT Standard Specifications.

C. FINAL ACCEPTANCE AND MAINTENANCE

1. After construction of the roads, streets, alleys and drains is completed, the Proprietor shall furnish the Board a letter requesting an inspection by the County Engineer, a certificate (See page 49) from the Proprietor's Engineer, and a set of as-built plans reflecting field changes. As-built plans must be submitted in an electronic format. The survey data points will be an ASCII text file. The drawing file(s) can be provided in DXF, DWG or DGN file format.
2. If the work is not completed and is not acceptable, the Proprietor and the Proprietor's Engineer will be notified by the County Engineer as to the deficiency. The County Engineer will make a re-inspection of the work after being notified by the Proprietor that the deficiencies have been corrected.

3. Approval of any construction phase by the County Engineer does not guarantee acceptance by the Board or relieve the Proprietor of responsibilities or liabilities by the development of the plat.
4. At the completion of construction of the storm sewer and prior to acceptance of the street into the public system; clean the catch basins and provide video inspection of the storm sewer according to the current version of MDOT Standard Specifications for Construction 402.03(K). Repeat cleaning of the catch basins one year after acceptance of the street in to the public system.
5. When all plat procedures have been completed satisfactorily and the original recorded documents returned to the St. Clair County Road Commission, the Final Plat will be recommended by the County Engineer for signature by the Board.
6. The St. Clair County Road Commission shall assume maintenance of the street(s) if the construction has been accepted by the County Engineer and the plat has been recorded at the St. Clair County Register of Deeds.
However, before assuming maintenance, if any material or reconstruction is required, it shall be accomplished at the expense of and by the Proprietor.

SECTION VII: FINANCIAL REQUIREMENTS AND RESPONSIBILITIES

The St. Clair County Road Commission shall require, as a condition of final plat approval and acceptance of the roadways to come under its jurisdiction, completion of all required improvements or a deposit by the proprietor with the Board in an amount sufficient to ensure completion of the proposed improvements within a specified period of time. The Proprietor shall be responsible for the total of all costs incurred to install the proposed improvements and ensure that they meet the requirements of the Board. Should the Proprietor fail to fulfill the obligations and requirements set forth in this publication, the Board will exercise its rights to remedy such situation.

Refer to the "Document" section of this booklet for standard forms and the Application for Plat Approval form which summarizes the financial requirements of the Board.

A. PLAN REVIEW FEE

A fee in the amount of \$150.00 per plat or phase of a subdivision, plus \$2.00 per lot for developments in excess of 25 lots, shall be submitted to the Road Commission before the County Engineer will begin reviewing the subdivision plans. This fee will not be refundable once the County Engineer has begun review of the proposed plans. Reducing the size of the development will not warrant a refund of any part of the review fee. The plan review fee shall be paid in cash or by check.

B. INSPECTION FEE

A fee in the amount of two (2) per cent of the Proprietor's executed contracts, or of the approved Proprietor's Engineer's estimate of the total cost of the street improvements, shall be submitted to the Road Commission prior to construction and plat approval. This fee is to cover administrative costs and inspections made by the Road Commission in relation to the plat.

The inspection fee shall be paid in cash or by check.

C. INSURANCE

1. Damage Liability and Insurance

The Proprietor shall save harmless and indemnify the Board of County Road Commissioners of the County of St. Clair against all claims for damage to public or private property and for injuries to persons arising out of and/or during the work contemplated.

If a permit is required (See Section VII, H.) the Contractor shall, prior to issuance of the permit, file with the Road Commission a certificate that he carries Worker's Compensation Insurance which insurance the contractor will keep in force for the duration of the Permit.

The Contractor, prior to issuance of the permit, shall file with the Road Commission copies of completed certificates of insurance, as evidence that he carries adequate insurance satisfactory to the Road Commission, to afford protection against all claims for damages to public or private property, and injuries to persons arising out of the work, and similar insurance to protect the owner of premises on or near where construction operations are to be performed.

The Contractor shall name the Road Commission as additional insured on any general comprehensive liability insurance or commercial general liability insurance.

The wording shall be as follows:

Additional Insured “The St. Clair County Road Commission, Its Commissioners, and Its Employees are additional Insured with regards to General Liability Insurance”.

The insurance certificate shall include an endorsement providing 30 days prior written notice to the Road Commission of cancellation or reduction of coverage. The Contractor shall cease operation on the occurrence of any such cancellation or reduction, and shall not resume operations until new insurance is in force.

2. General Liability

Unless otherwise specifically required, the minimum limits of property damage and bodily injury liability covering each permit shall be:

Bodily Injury Liability	\$1,000,000.00 Each Occurrence
	\$1,000,000.00 Aggregate

Property Damage	\$1,000,000.00 Each Occurrence
	\$1,000,000.00 Aggregate

Or \$1,000,000 Combined Single Limit for Bodily Injury and Property Damage.

Such insurance shall include, but not be limited to, coverage for: (a) underground damage to facilities due to drilling and excavating with mechanical equipment; and (b) collapse or structural injury to structures due to blasting or explosion, excavation, tunneling, pile driving, cofferdam work or building moving or demolition.

3. Owner's Protective Liability

As an alternative to General Liability Coverage, bodily injury and property damage protection shall be extended to the Road Commission; and, where indicated by the identity of the contracting parties, the protection shall be extended to all participating political subdivisions and political corporations.

4. Automobile Liability

Unless otherwise specifically required, the minimum limits of property damage and bodily injury liability shall be:

Bodily Injury	\$1,000,000 Per Accident
Property Damage	\$1,000,000 Aggregate
Michigan No-Fault	Personal Injury Protection
	Property Protection Indemnity

D. SECURITY DEPOSIT

A security deposit in the amount of 100% of the Proprietor's executed contracts, or of the approved Proprietor's Engineer's estimate of the total cost of street improvements, shall be required when final plat approval is requested prior to completion of all construction improvements required by the Board. The security deposit will serve as surety for completion of the improvements in the subdivision.

The security deposit shall be one of the following:

1. Cash/Check with security deposit agreement
2. Irrevocable Bank Letter of Credit
 - a. Each Irrevocable Letter of Credit shall be reviewed and approved by the Board on an individual basis.
 - b. Under the terms of the letter of credit, the Road Commission shall have the right to secure payment from the issuer (surety) on said line of credit without consent from the principal (applicant/proprietor) or objection by the issuer without recognition of any claims or objections of said principal.
 - c. The following shall be required in Letters of Credit issued by federally chartered banks whether in Michigan or out of Michigan: name of bank hereby consents to the jurisdiction of the St. Clair County Circuit Court, Port Huron, Michigan, for any legal action necessary to resolve any disputes arising out of the Letter of Credit, and further waives its right under Federal Law to sue or to be sued in any Federal District in which venue may be proper.
 - d. The following shall be required in Letters of Credit issued by out-of-state banks: name of bank hereby consents to the jurisdiction of the St. Clair County Circuit Court, Port Huron, Michigan, for any legal action necessary to resolve any disputes arising out of this Letter of Credit.
 - e. Proposed work items covered by the security deposit shall include, but not be limited to, clearing and grubbing, earth excavation, sub grade preparation, sub grade under drain, aggregate base, drainage structures, concrete curb and gutter, bituminous or concrete pavement, turf establishment, traffic and safety devices, and final cleanup.
 - f. Security deposits may be released by the Board in amounts proportional to the completed construction as work progresses, less ten (10) per cent retainage for contingencies. Amounts may be released no more than two (2) times throughout the life of the project in addition to the final release. Subsequent releases will not be made until at least one (1) month after the date on which any prior amounts were released. The Road Commission will not act as agent or project manager for the Proprietor with respect to the Proprietor's obligations to other parties and the timeliness of obligations thereof. Final release of the security deposit will not occur until the County Engineer is satisfied that all requirements of the Board have been met.

E. SIGN FEE

The Proprietor shall pay to the Board the amount necessary to furnish and erect street name signs and traffic control signs and devices as determined necessary at locations specified by the County Engineer. The payment shall be made to the Board prior to final plat approval.

F. DURATION OF AGREEMENTS

The required time of completion of the street improvements under the plat agreement and security deposit agreements shall not be for a time period greater than two (2) years from the date of the agreement. If, after this period, the improvements are not completed, the Board may exercise its rights under these agreements to ensure completion of the proposed improvements.

Irrevocable Letters of Credit shall be in effect until released by the County Engineer.

Irrevocable Letters of Credit with specific expiration dates shall not be accepted unless the Proprietor has demonstrated to the satisfaction of the County Engineer that the improvements will be completed in the time period specified.

G. MAINTENANCE BOND

After all road improvements have been completed to the satisfaction of the County Engineer, the proprietor shall secure a two (2) year maintenance bond in the amount of ten (10) per cent of the construction cost rounded off to the nearest hundred dollars with a minimum bond amount of \$5000.00. Refer to the "Documents" section of this booklet for a standard maintenance bond form.

Subsequent to completion of construction, the County Engineer will conduct a final inspection of the project to determine whether the improvements have been properly constructed and maintained by the Proprietor. The two (2) year term of the bond will begin on the date of the final inspection provided that all improvements meet the required standards.

During and/or at the end of the two (2) year period, the County Engineer will inspect the improvements and, if found to be in good condition in accordance with the provisions of the bond, no corrective work will need to be performed. The bond principal will be notified by certified mail, return receipt requested, if any repairs are needed and will have ten (10) days from receipt of such notification to respond and schedule the needed work. Should the Proprietor fail to repair any damage or make needed adjustments during the duration of the bond, the Board will exercise its rights to ensure that the required work is performed.

H. PERMITS

1. All work scheduled within existing and proposed right-of-way of roads and streets must have plans reviewed and approved by the County Engineer.
2. If the scheduled work is within the proposed right-of-way of streets or within right-of-way of roads dedicated in the plat, and is included in the construction plans approved by the County Engineer and the street has not been accepted by the St. Clair County Road Commission for maintenance, a permit will not be required.
3. If the work is within the right-of-way of an existing road or street, a permit including applicable fee, is required from the Office of Special Services of the St. Clair County Road Commission.
4. If the work is not included in the construction plans approved by the County Engineer or the street has been accepted by the St. Clair County Road Commission for maintenance, a permit, including applicable fee, is required from the Office of Special Services of the St. Clair County Road Commission.
5. Where public utilities are installed under a permit issued by the St. Clair County Road Commission to a governing body, or public utility, no fees will be charged for a permit.
6. All driveways installed by the developer prior to acceptance of the street for maintenance will be inspected during final inspection. If not included on the construction plans, a driveway shall require a completed driveway permit, including applicable fee, processed through the Office of Special Services of the St. Clair County Road Commission.

SECTION VIII: CONDOMINIUM PROJECTS

All Sections of the "Procedures for Plat Street Development" shall apply to the development of roads and streets within condominium projects established in accordance with Act 59, P.A. 1978, as amended. For the purpose of this section, the terms "plat" and "subdivision" shall mean the same as "condominium project" and the term "proprietor" shall mean the same as "developer".

If the roads and/or streets within the condominium project are to be a part of the County road system, prior to acceptance by the Board, the developer shall convey the road right-of-way, by warranty deed, easement or release of right-of-way to the St. Clair County Road Commission.

If the roads and/or streets within the condominium project are to not be a part of the County road system, but intersects with, or connect to, an existing public road or street, a permit, including applicable fee, is required from the Office of Special Services of the St. Clair County Road Commission.

SECTION IX: SEVERABILITY CLAUSE

If any of these procedures or requirements is found to be invalid, each invalidity shall not affect the remaining portion of the procedures or requirements which can be given effect without the invalid portion, and to this end, the procedures or requirements are declared to be severable.

SECTION X: DOCUMENTS

APPLICATION FOR PLAT APPROVAL

ST. CLAIR COUNTY ROAD COMMISSION

Subdivision Name _____

Governing body _____ Section _____ Plat dated/Revised _____

Engineer _____ Telephone No. _____

Address _____

Proprietor _____ Telephone No. _____

Address _____

Signature of ____ Proprietor ____ Engineer/Surveyor

Date _____

DO NOT WRITE BELOW - FOR SCCRC USE ONLY

Date Received.....

Plan Review Fee (\$150.00 + \$2.00 per lot in excess of 25 lots)

Construction Cost: Contract Amount _____

Or Engineer's Estimate _____

Status of Construction _____

Approved amount (100% of const cost) _____

Inspection Fee Deposit (2% of approved amount)

Acct. Rec.# _____

Required Security Deposit (Cash or Irrevocable

Letter of Credit

Street name signs (correct spelling) Quant.

Other signs Quant.

Street Sign Fee

Two (2) Year Maintenance Bond (10% of Construction Cost)

PRELIMINARY PLAN REVIEW CHECKLIST

ST. CLAIR COUNTY ROAD COMMISSION

Development Name _____

Governing body _____ Section _____ Plan Dated/Revised _____

Engineer _____ Telephone No. _____

Address _____

Proprietor _____ Telephone No. _____

Address _____

Type of Development _____

Plan Review Work Order _____

Shown on
Plan

Approved

General

	Plan		Approved	
	Yes	No	Yes	No
Plan Review fee submitted <input type="checkbox"/> Yes <input type="checkbox"/> No				
Letter of transmittal..... <input type="checkbox"/> Yes <input type="checkbox"/> No				
Drawing sheet size (24" x 36").....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General location map.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
North arrow and scale (1" = 100').....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contours.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Topography.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Governing conditions.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineer's or Surveyor's Seal.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Statement describing nature of planned improvements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plan marked preliminary.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Permanent B. M. elevations (USGS) or current standard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adjacent streets and properties shown.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Multi-phase provisions.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions (may be approximate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drainage / storm sewer and/or general pattern (as req'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water main	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sanity Sewer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ROADWAY

Proposed right-of-way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Street names.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sight distance.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road alignment data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Street layout.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Typical cross section.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Traffic concerns.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reviewed by _____ Date _____

Field Inspection by _____ Date _____

Preliminary Plat approval recommended by _____ Date _____

Approval Revision letter sent by _____ Date _____

CONSTRUCTION PLAN REVIEW CHECKLIST

ST. CLAIR COUNTY ROAD COMMISSION

Development Name _____

Governing body _____ Section _____ Plan Dated/Revised _____

Engineer _____ Telephone No. _____

Address _____

Proprietor _____ Telephone No. _____

Address _____

Type of Development _____

Plan Review Work Order _____

Shown on

Plan

Approved

Yes No

Yes No

General

Plan Review fee submitted..... Yes No

Preliminary plan approved..... Yes No

Letter of transmittal..... Yes No

General location map

North arrow and scale (1" = 50' horiz; 1" = 5' vert)

Plan sheet size (24" x 36")

Engineer's Seal

Permanent B. M. elevations (USGS) or current standard

Topography and contours

Dimensions / storm sewer

Water main.....

Sanity sewer

Easements

Sidewalks

DRAINAGE

Depth of cover over pipe.....

Location of structures

Structure covers.....

Under drains

Trench backfill.....

Gradient

Pre-Construction BMP's

Post-Construction BMP's

ROADWAY

Right-of-way

Street names

Sight distance

Alignment data

Vertical and horizontal curves

Grades

Layout, plan and profile

SUBDIVISION ACCEPTANCE REVIEW CHECKLIST

ST. CLAIR COUNTY ROAD COMMISSION

Subdivision Name _____
Governing body _____ Section _____ Plat dated/Revised _____
Engineer _____ Telephone No. _____
Address _____
Proprietor _____ Telephone No. _____
Address _____
Type of Development _____

SUBDIVISION STREET ACCEPTANCE REVIEW

	Approved	Date
Final plat approved (signed by Board)	_____	_____
Firm/agency providing construction inspection	_____	_____
Construction approved by inspector (letter received)	_____	_____
As-built Mylar drawings received (or diskette).....	_____	_____
Final inspection and approval of const. By engineer	_____	_____
Two year maintenance bond	_____	_____
Inspection and testing costs paid	_____	_____
Sign fees paid in full by the Proprietor	_____	_____
Resolution prepared to accept roads for maintenance	_____	_____
Streets added to next revision of certification maps.....	_____	_____

RELEASE OF SURETY

Security deposit (s) should not be released until:

- Completed improvements are approved by the Inspector and Engineer
- As-built mylars (or diskette) are received
- Maintenance bond is secured
- All fees are fully paid by the Proprietor

IRREVOCABLE COMMERCIAL LETTER OF CREDIT

ANY BANK, MICHIGAN

Number

Date

IRREVOCABLE COMMERCIAL LETTER OF CREDIT

Board of County Road Commissioners
Of the County of St. Clair
21 Airport Drive
St. Clair, MI 48079

Dear Commissioners:

We hereby establish our Irrevocable Letter of Credit # _____ and hereby authorize the St. Clair County Road Commission to draw on us at sight for the account of _____ up to a total of _____.

Funds are available hereunder in an amount not exceeding in the aggregate _____ for road improvements in _____.

All drafts must be marked "Drawn under Letter of Credit of _____ number _____ dated _____."

We hereby agree with the drawers, endorsers and bona fide holders of drafts, that such drafts will be duly honored on due presentation to the drawees presented at this office together with this Letter of Credit.

NAME OF BANK

Signature of Authorized Personnel

PLAT AGREEMENT (Individual Form)

PLAT AGREEMENT
(Individual Form)

In consideration of the approval of the _____ by the Board of County Road Commissioners of the County of St. Clair, hereinafter called the "Commission," the undersigned Plator agrees to install, construct and complete by _____, all of the improvements on said Plat as required by the Plat Laws of the State of Michigan, in accordance with the subdivision procedures, requirements and specifications as adopted by the Commission, and road improvement plans for _____, prepared by _____ dated _____ and approved by the Commission on _____ consisting of _____ sheets.

Dated: _____

Witnesses:

By:

STATE OF MICHIGAN)
COUNTY OF ST. CLAIR) ss,

On this _____ day of _____, 20____ before me personally appeared _____ to me known to be the person (s) described in and who executed the foregoing instrument and acknowledged that _____ executed the same as _____ free act and deed.

Notary Public, _____ County, Michigan
Acting in _____ County, Michigan
My Commission expires _____

PLAT AGREEMENT (Corporation Form)

PLAT AGREEMENT
(Corporation Form)

In consideration of the approval of the _____ by the Board of County Road Commissioners of the County of St. Clair, hereinafter called the "Commission," the undersigned Platfor agrees to install, construct and complete by _____, all of the improvements on said Plat as required by the Plat Laws of the State of Michigan, in accordance with the subdivision procedures, requirements and specifications as adopted by the Commission, and road improvement plans for _____, prepared by _____ dated _____ and approved by the Commission on _____ consisting of _____ sheets.

Dated: _____

a Michigan Corporation

Witnesses:

_____ By: _____

_____ By: _____

STATE OF MICHIGAN)
COUNTY OF ST. CLAIR) ss,

On this _____ day of _____, 20____ before me personally appeared _____ being by me duly sworn, did depose and say: that they are respectively _____ and _____ of _____, the corporation described in and which executed the above instrument; that they know the seal of said corporation; that the seal affixed to the said instrument on behalf of the corporation by authority of their office under the Standing Resolution thereof, _____ executed the same as _____ free act and deed.

Notary Public, _____ County, Michigan
Acting in _____ County, Michigan
My Commission expires _____

AGREEMENT FOR UNPLATTED DEVELOPMENT

AGREEMENT FOR UNPLATTED DEVELOPMENT

In consideration of the approval of the _____
_____ by the Board of County Road
Commissioners of the County of St. Clair, hereinafter called the "Commission," the
undersigned developer/property owner agrees to install, construct and complete by
_____, all of the improvements, in accordance with the subdivision
procedures, requirements, and specifications as adopted by the Commission, and road
improvement plans for the property described as follows: Said road improvement plans
have been prepared by _____

_____ dated _____
and approved by the Commission on _____, consisting of _____
sheets.

Dated: _____

Witnesses:

Address

State of Michigan)

County of St. Clair) ss,

On this _____ day of _____, 20____ before me personally appeared
_____, to me known to
be the person (s) described in and who executed the foregoing instrument and
acknowledged that _____ executed the same as _____ free
act and deed.

_____ Notary Public

_____ County, Michigan

Acting in _____ County, Michigan

My Commission expires _____

CERTIFICATE

CERTIFICATE

TO: ENGINEERING DEPARTMENT
ST. CLAIR COUNTY ROAD COMMISSION

Please be advised that the finished grades on the streets in the plat of

_____ Governing body, Michigan are as shown and approved on the street and utility plans approved by the St. Clair County Road Commission on _____, (date) or are as subsequently changed and approved for construction and shown on the attached "as constructed" street and utility plans.

I certify that the construction of all street improvements is complete and that:

Water, storm sewers, and sanity sewers have been installed in accordance with the approved plans;

All streets are built in accordance with the approved plans and standard specifications;

The surfacing materials and other specified materials meet the requirements of the Michigan Department of Transportation Specifications and that reports of laboratory tests of these materials are filed with the St. Clair County Road Commission.

(Consulting Firm)

By: _____
(Licensed Professional Engineer

SEAL

Date: _____

MAINTENANCE BOND

MAINTENANCE

BOND

No. _____

Amount _____

KNOW ALL ME BY THESE PRESENTS, that we, _____ as Principal, and _____ as Surety, are held firmly bound unto the Board of County Road Commissioners of the County of St. Clair, State of Michigan, hereinafter called the Commission, to guarantee for a period of two (2) years from and after the date of its final acceptance of street improvements of those certain streets located in the plat known as _____ in the Governing body of _____

County of St. Clair, State of Michigan, in accord with the minimum standards as set forth and established by said Commission, "Rules for Plat Street Development", and road improvement plans for _____ prepared by _____ and approved by the Commission on _____, incorporated by reference and made as part thereof.

We do specifically warrant and guarantee that in the event any part or portion of the road construction, including but not limited to surface, drainage, utilities, 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, than any portion of such construction found to be defective or not to be of a quality in accordance with the Commission's "Rules for Plat Street Development" shall be repaired or replaced, as the case may be, by the principal at his expense with new material and approved by the 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 to comply with the Commission's "Rules for Plat Street Development". Said notice shall be served by registered or certified mail, return receipt requested, to the principal by addressing the same to _____ and to surety by addressing the same to _____. In the event that the principal shall fail to make such repairs within the time herein before allotted, then the required repairs may be made by the Commission, and the entire cost thereof charged to said principal.

In the event such charges are not paid by said principal within 30 days from and after the date of receipt of notice of the charges, the surety will forthwith pay the same upon demand.

The obligation of this maintenance 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 Commission; provided, that at the time all parts of all road construction done within the plat known as _____ shall meet the minimum standards of said Commission made a part hereof.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this ____ day of _____, 20____.

WITNESSES:

Principal

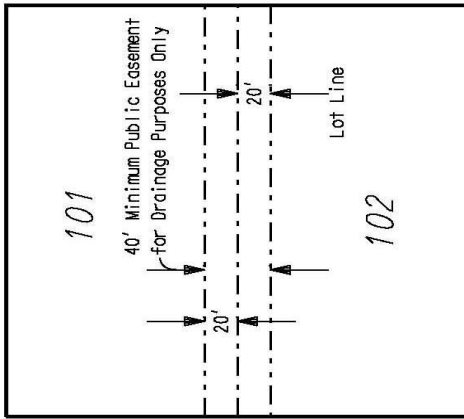
Surety

SECTION XI: ILLUSTRATIONS AND DETAILS

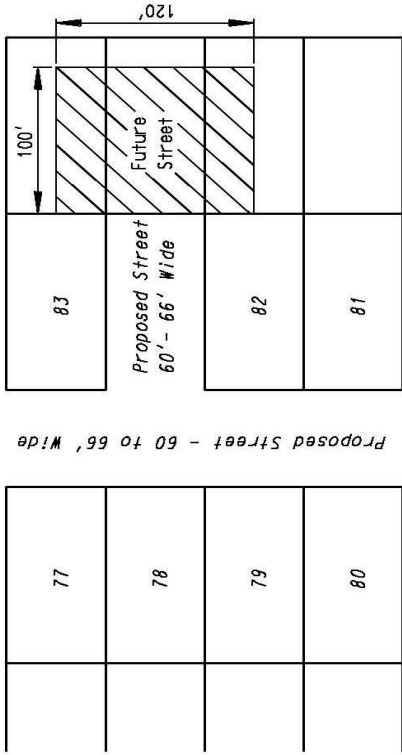
Index

Detail 1	Typical Preliminary Plat
Detail 2	Plat Details
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Detail 3B	Concrete Pavement Cross-Sections
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Detail 6..... ..	Design Controls for Vertical Curves
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Detail 11A....	Cross Sections for Lane Widening
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DETAIL 2.....PLAT DETAILS



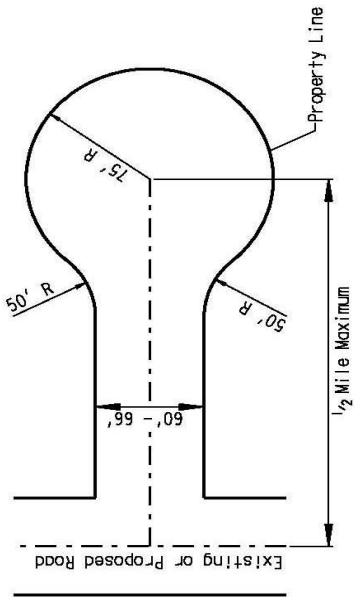
Drain Easement



Existing County Road

Hatched Area - Easement not to be recorded in plat but to be given to St. Clair Co. Road Commission for purposes of a cul-de-sac, constructed by owner, until the future street has been accepted.

Temporary Cul-de-sac Easement

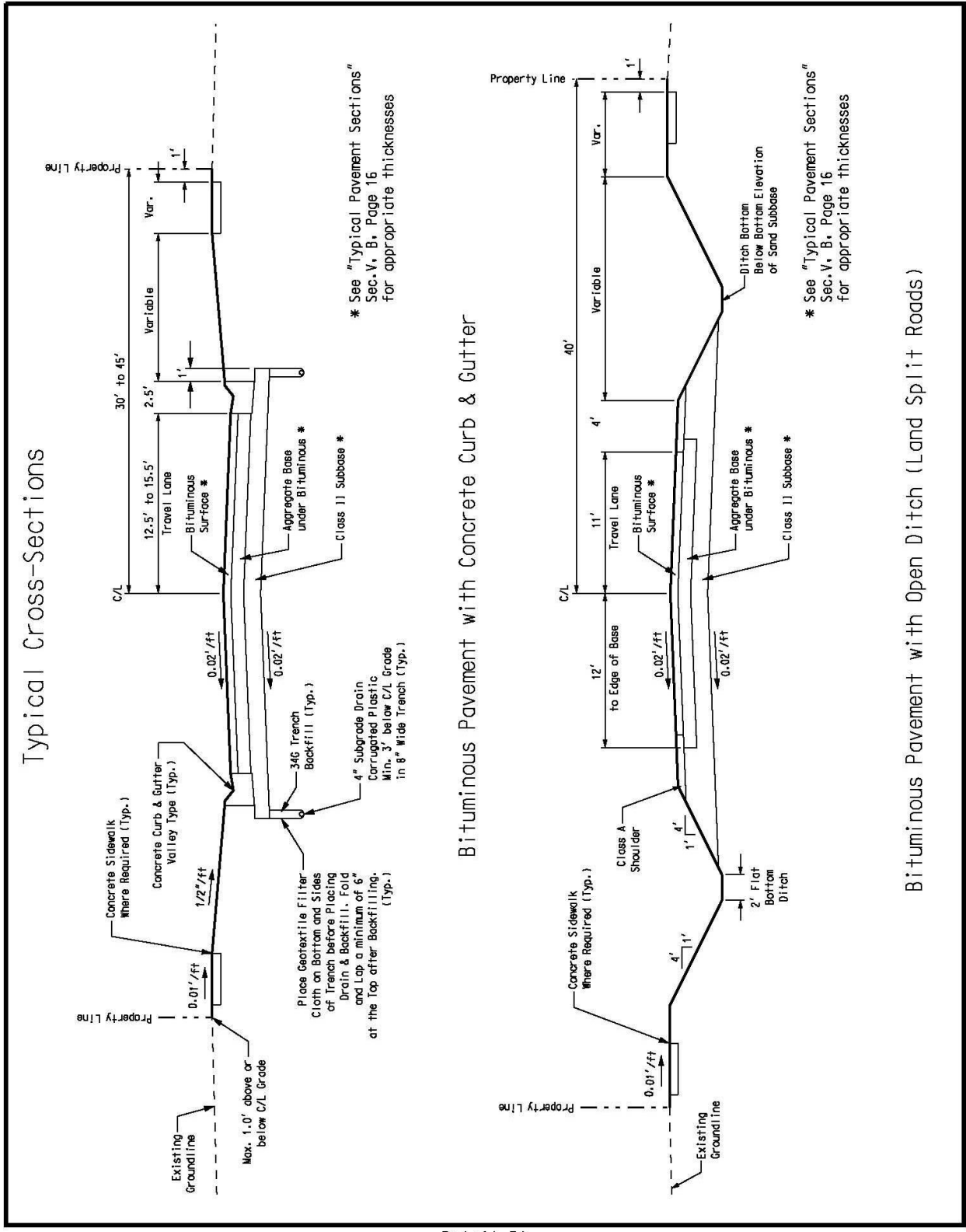


Cul-De-Sac

Plat Details

Detail 2

DETAIL 3A....BITUMINOUS PAVEMENT CROSS-SECTIONS

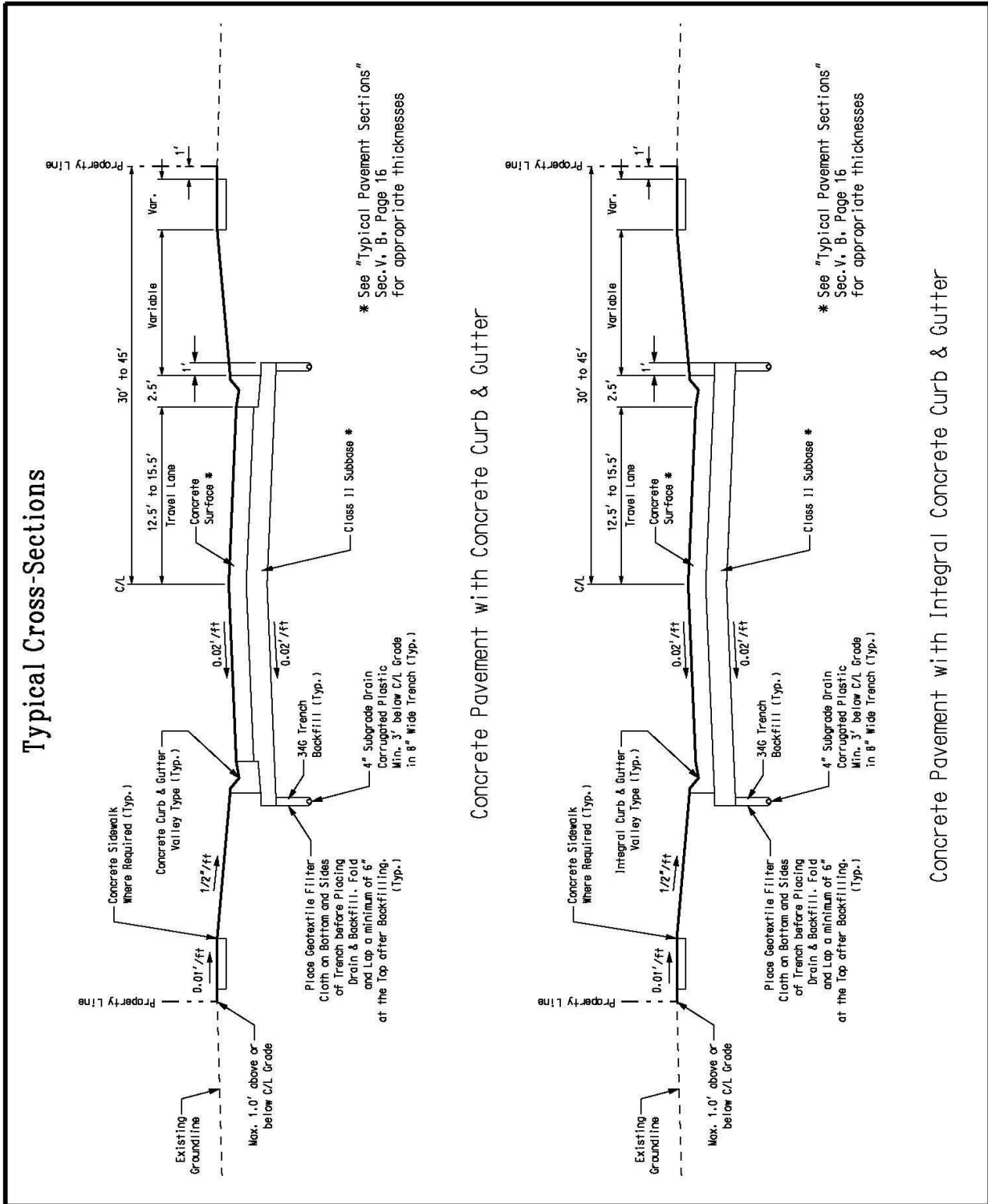


* See "Typical Pavement Sections" Sec. V, B, Page 16 for appropriate thicknesses

* See "Typical Pavement Sections" Sec. V, B, Page 16 for appropriate thicknesses

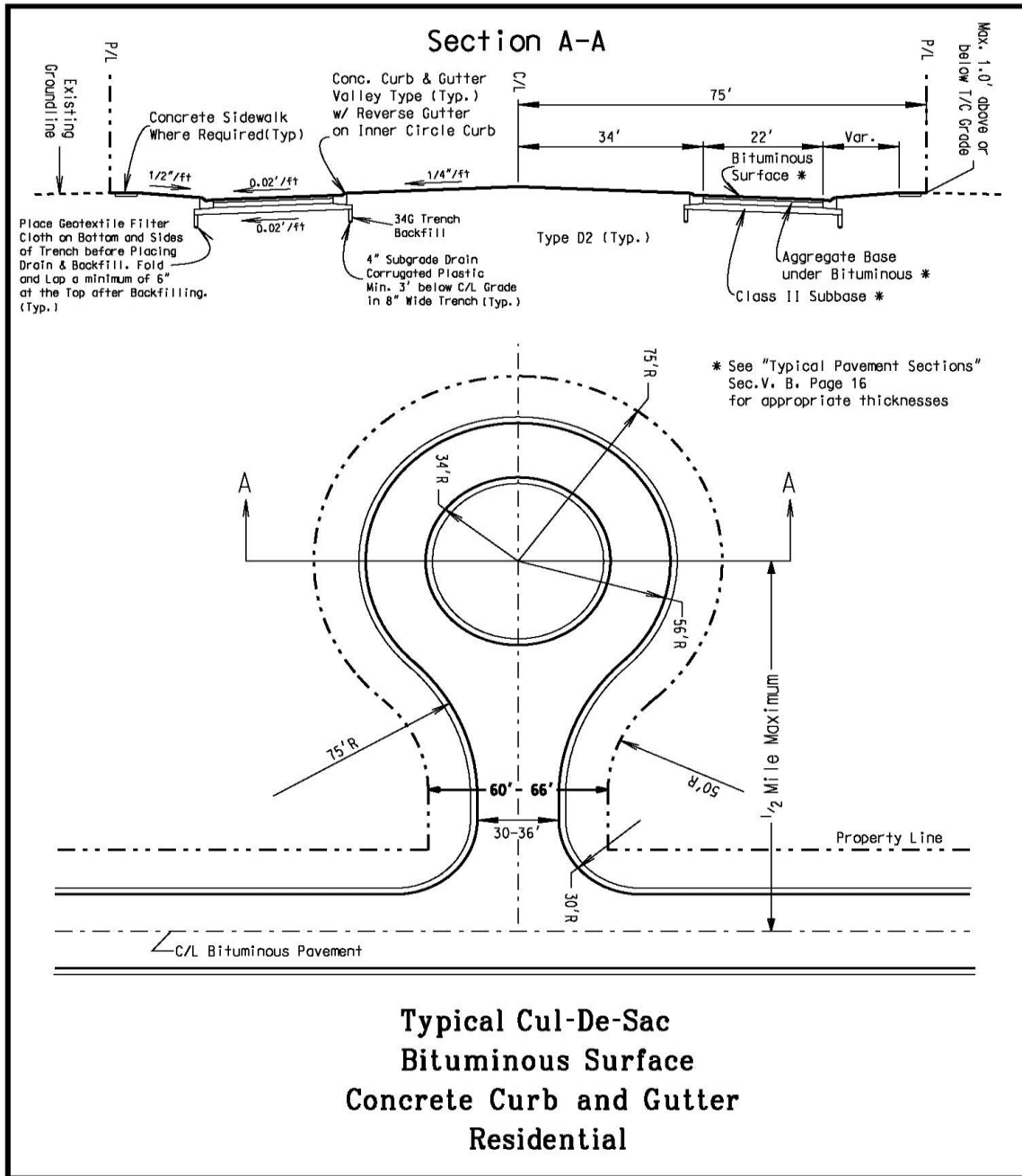
Detail 3A

DETAIL 3B....CONCRETE PAVEMENT CROSS-SECTIONS

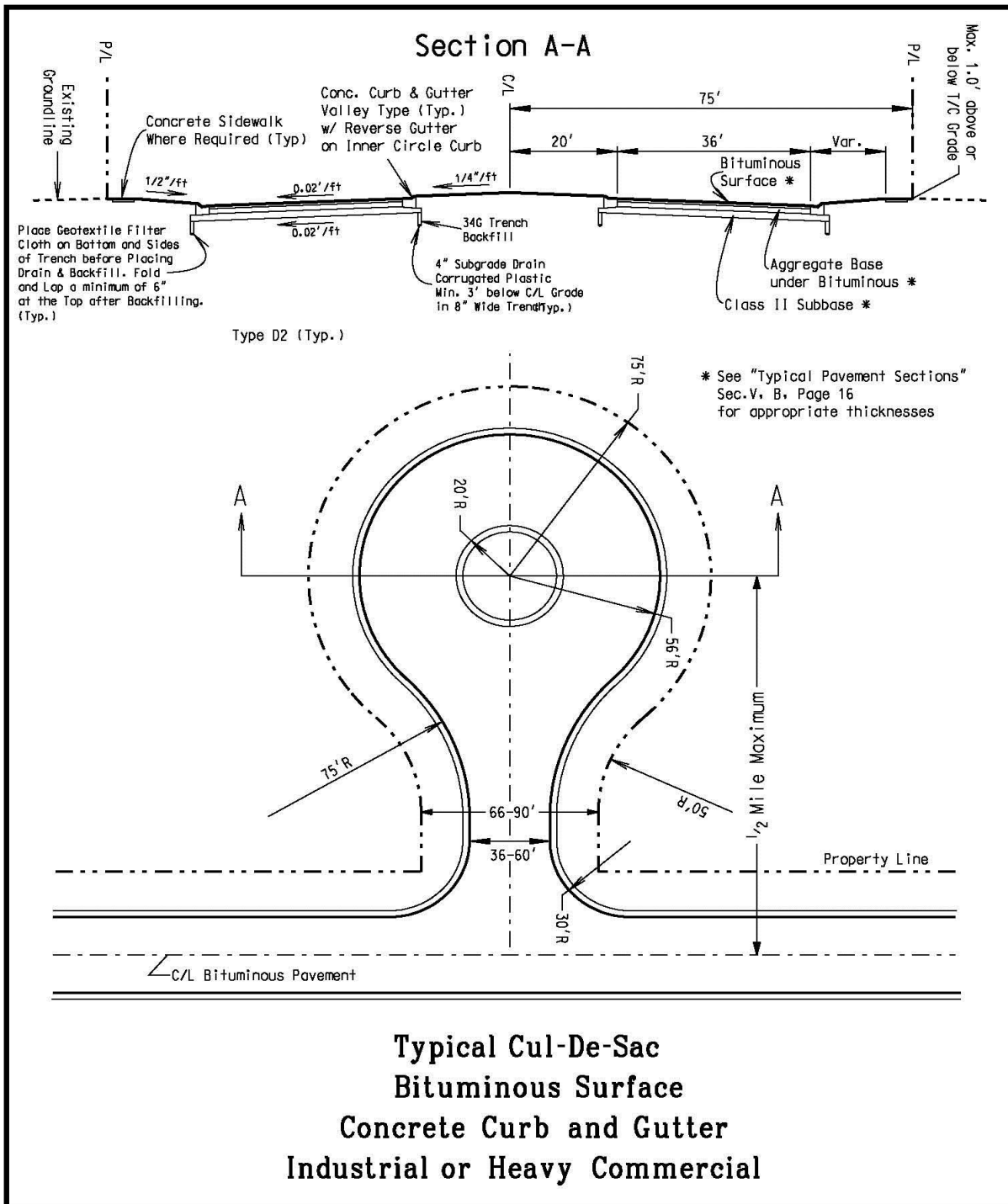


Detail 3B

DETAIL 4A....TYPICAL CUL-DE-SAC, RESIDENTIAL

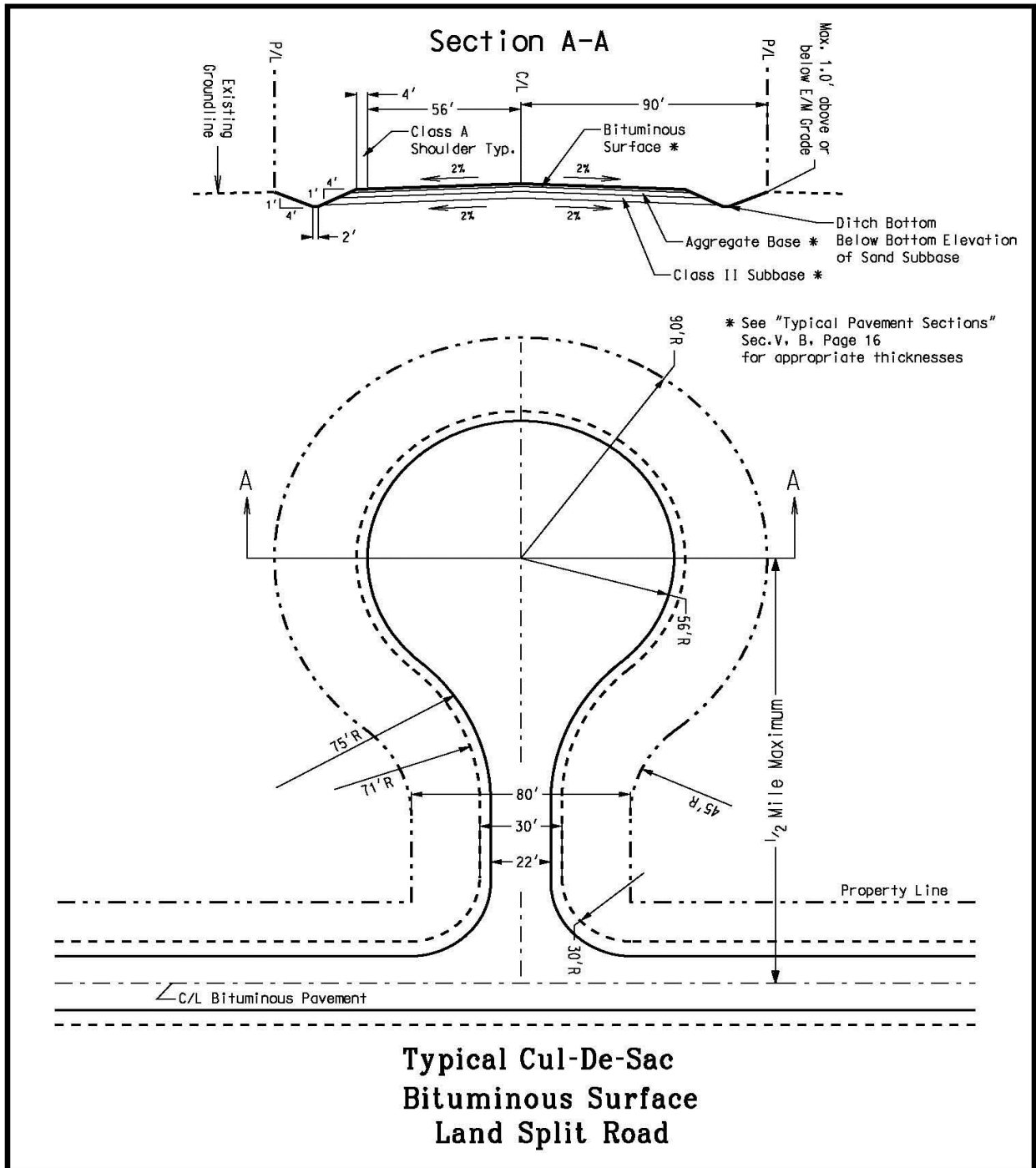


DETAIL 4B....TYPICAL CUL-DE-SAC, INDUST./COMM.

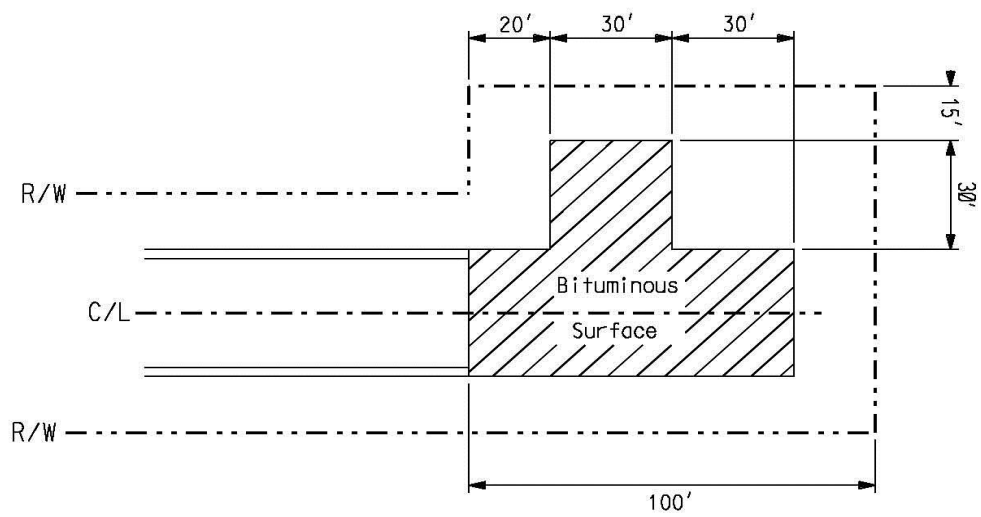


Detail 4B

DETAIL 4C...TYPICAL CUL-DE-SAC, LAND SPLIT ROAD



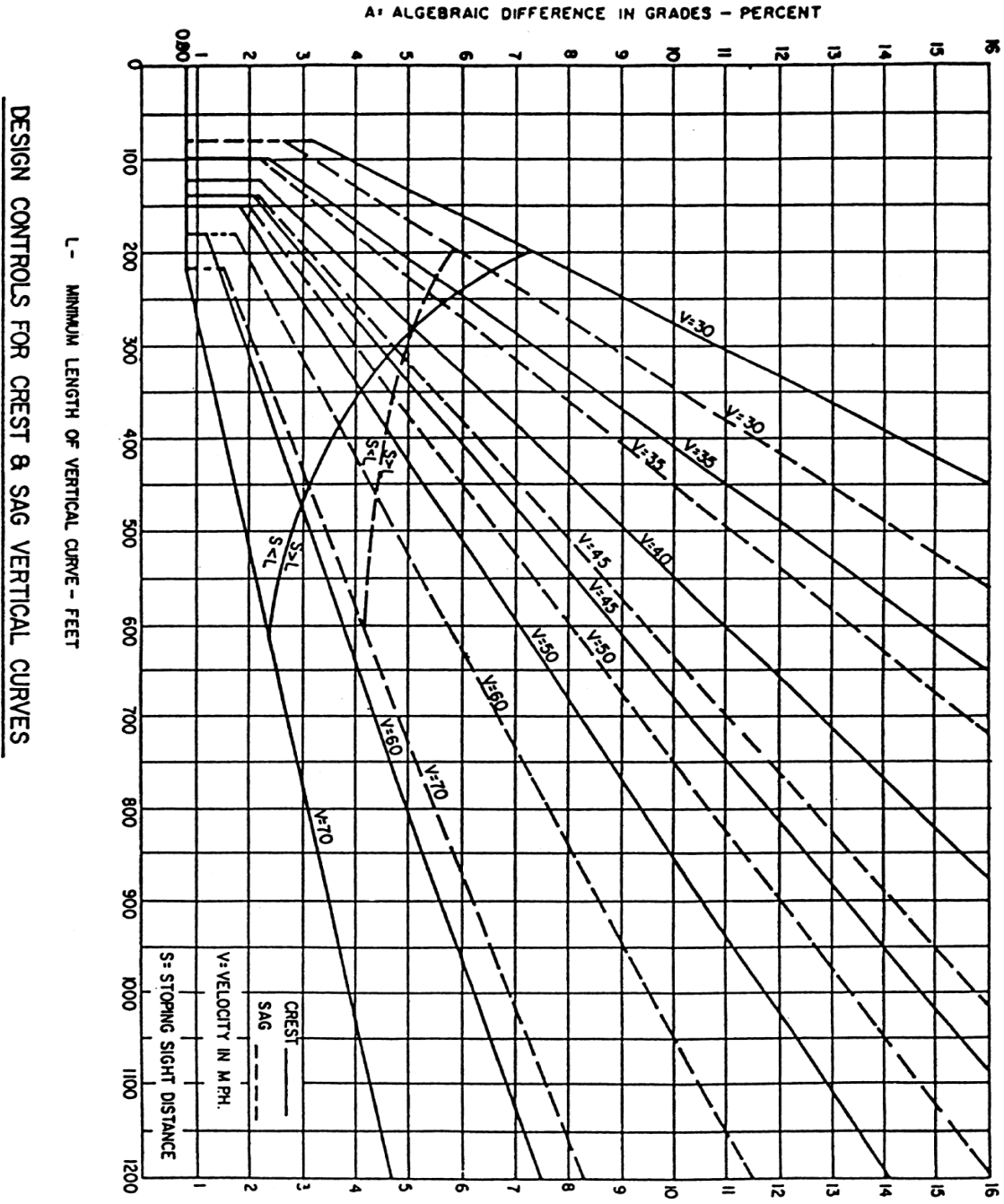
DETAIL 5.....TEMPORARY CUL-DE-SAC



Temporary Cul-de-sac Detail

Detail 5

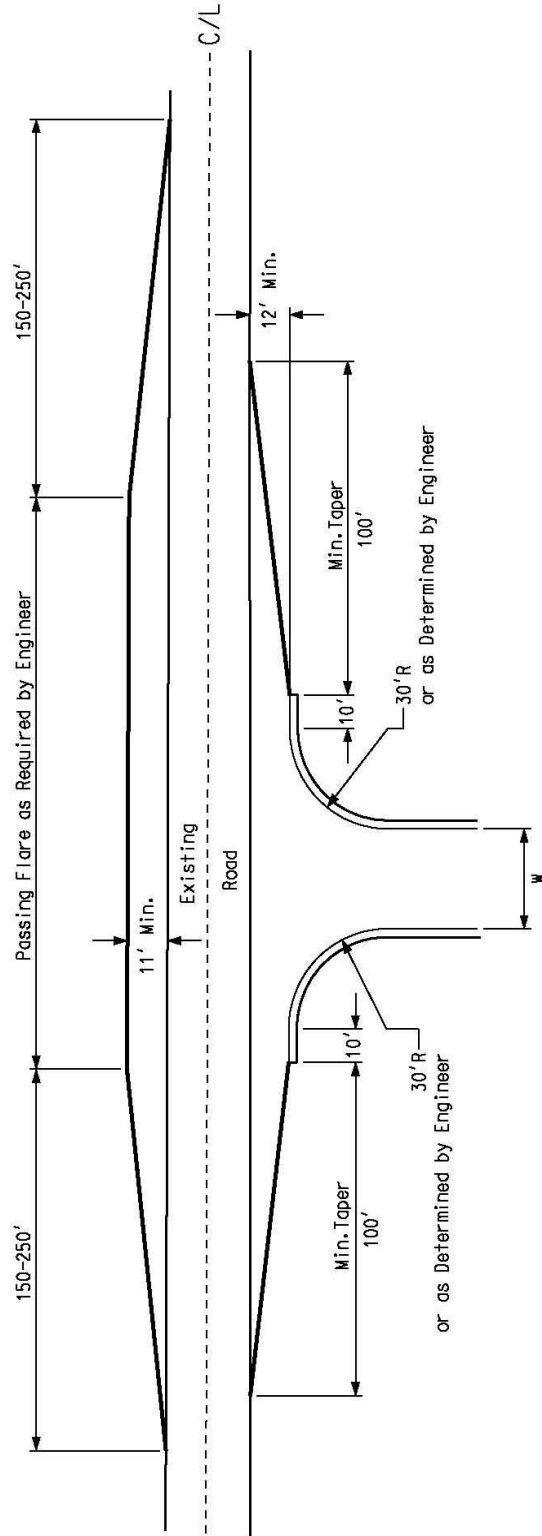
DETAIL 6.....DESIGN CONTROLS FOR VERTICAL CURVES



Detail 6

DETAIL 8.....APPROACH DETAIL

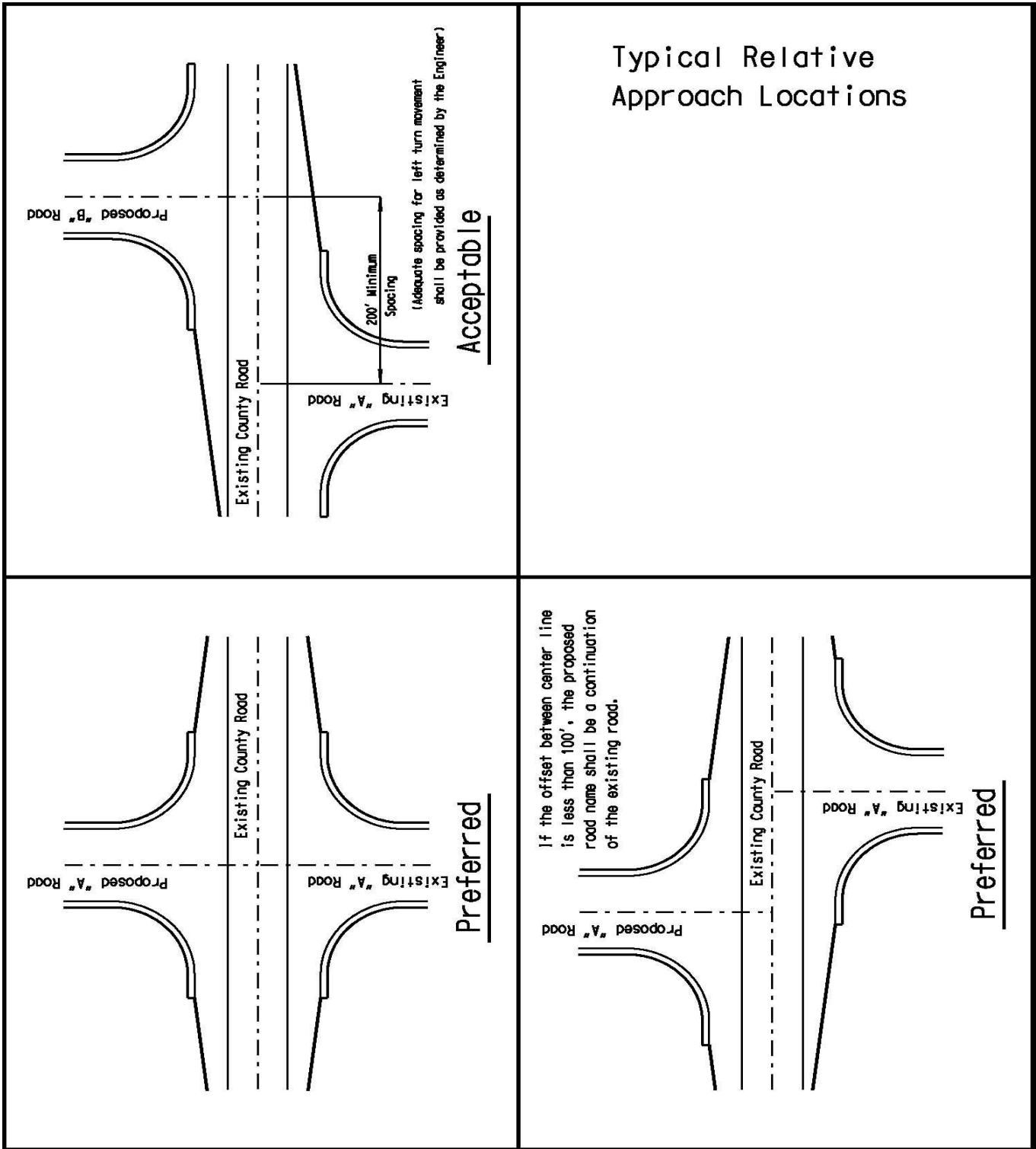
Typical Section - Curb and Gutter Approach to Primary or Major Local Road without Curb and Gutter



- Notes:**
- (1) Bituminous Surface of the passing flare shall be the same thickness as that of the existing roadway.
 - (2) Bituminous Surface of the deceleration taper, turning lane and acceleration taper shall be the same thickness as the existing roadway or the proposed roadway, whichever is greater.

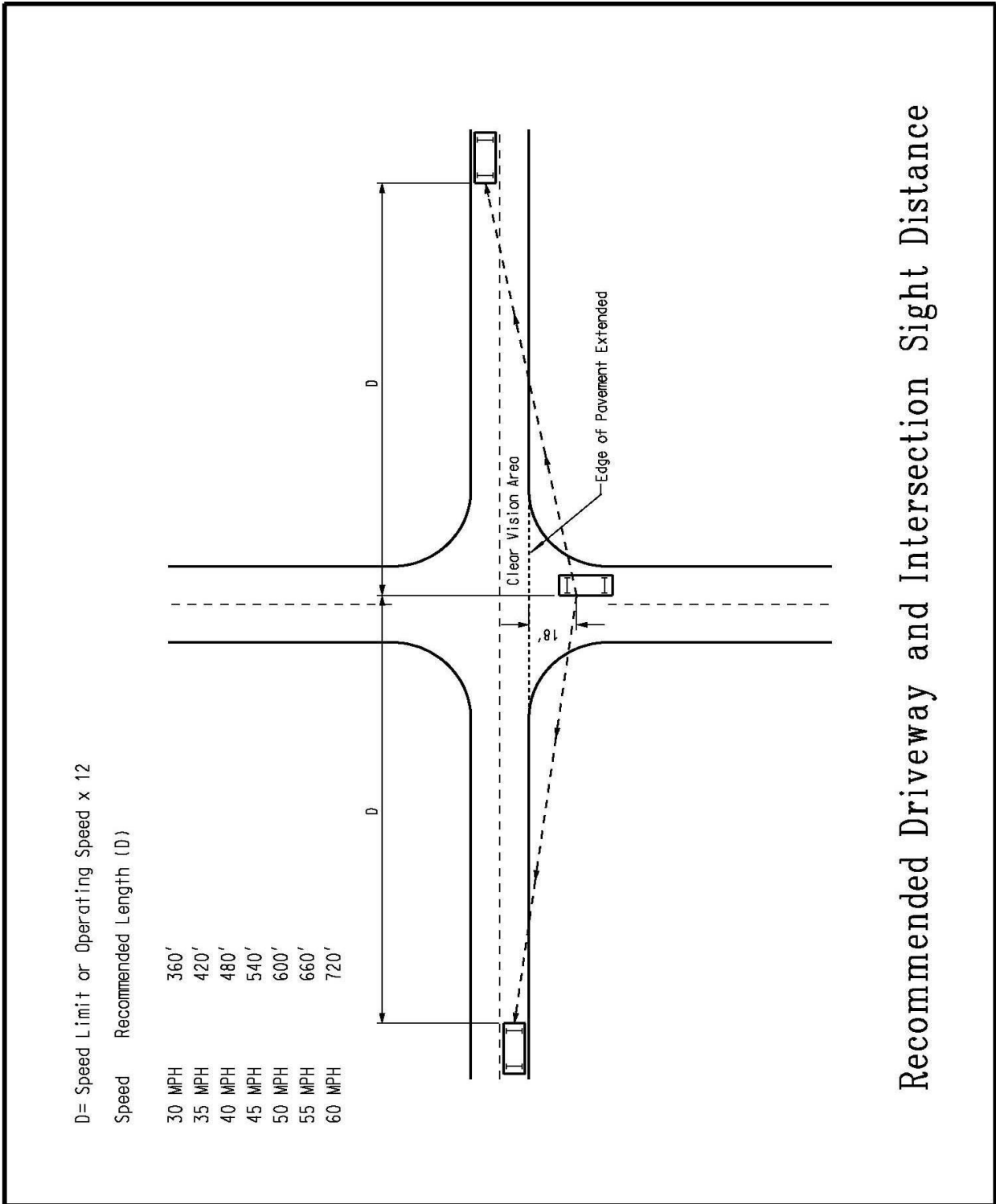
Detail 8

DETAIL 9.....TYPICAL RELATIVE APPROACH LOCATIONS



Detail 9

DETAIL 10....DRIVEWAY & INTERSECTION SIGHT DISTANCE

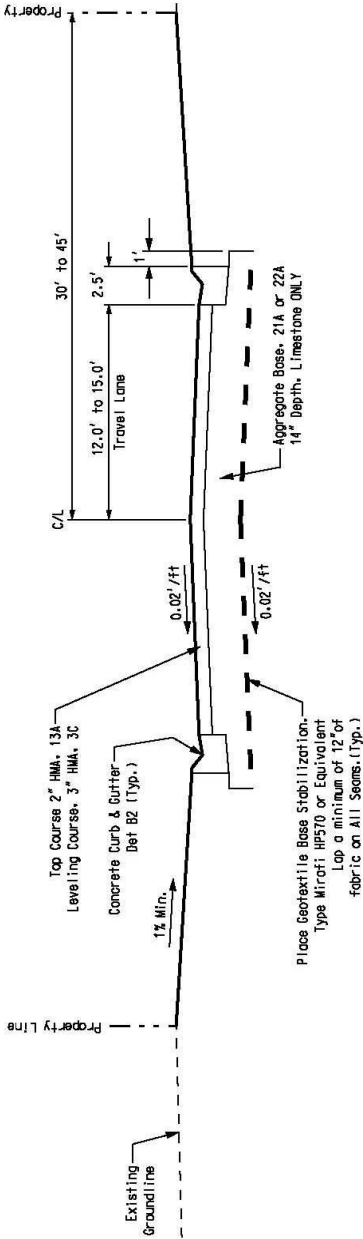


Recommended Driveway and Intersection Sight Distance

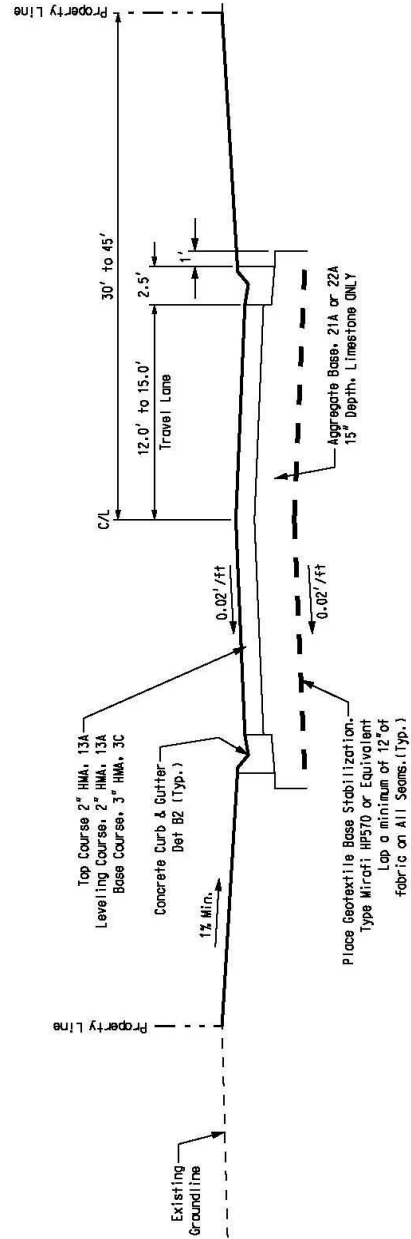
Detail 10

DETAIL 11A....CROSS SECTIONS FOR COMMERCIAL DRIVES

Typical Cross-Sections



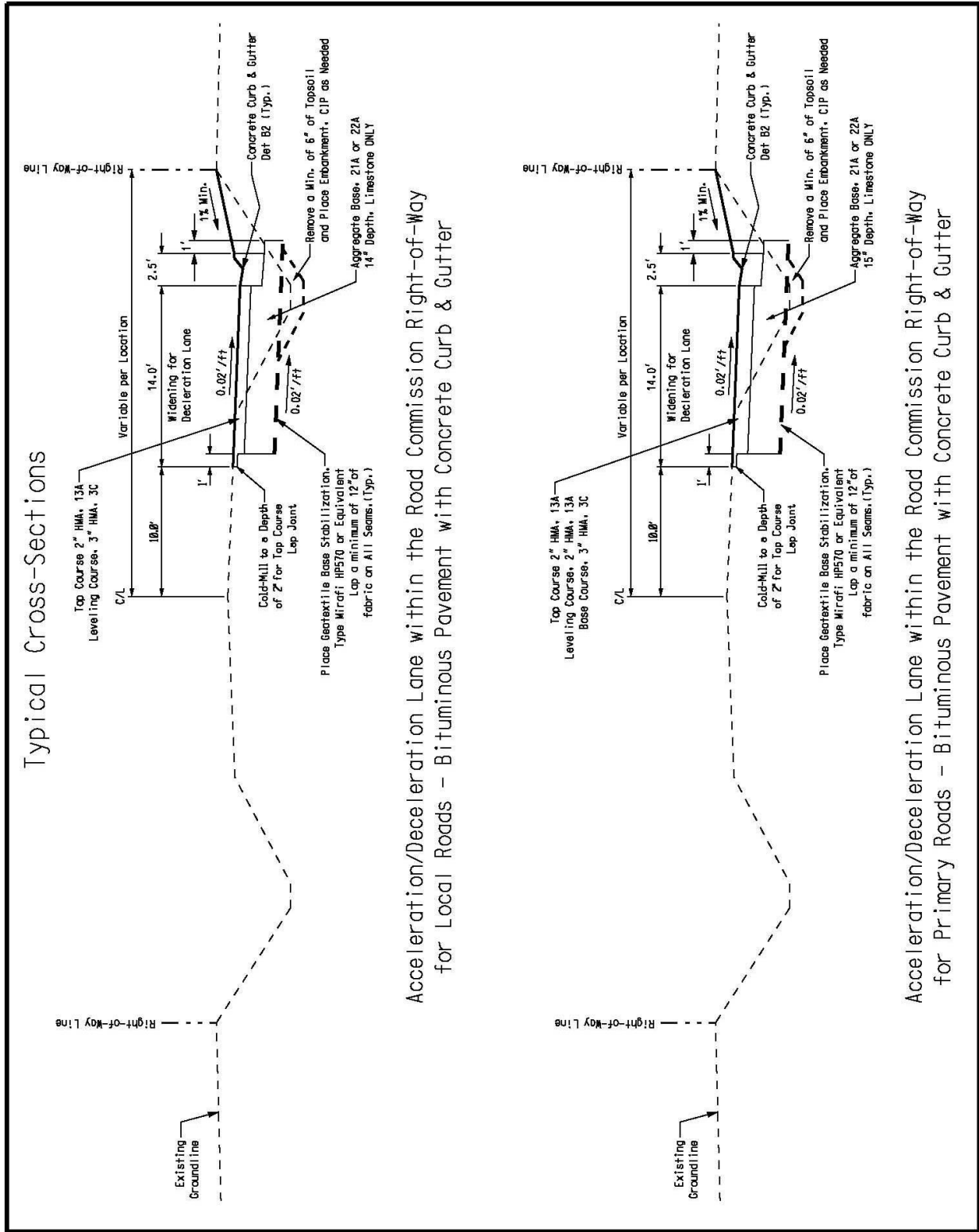
Commercial Drive Approach within the Road Commission Right-of-Way
for Local Roads - Bituminous Pavement with Concrete Curb & Gutter



Commercial Drive Approach within the Road Commission Right-of-Way
for Primary Roads - Bituminous Pavement with Concrete Curb & Gutter

Detail 11A

DETAIL 11B....CROSS SECTIONS FOR LANE WIDENING



Detail 11B

STANDARD DETAILS

MICHIGAN DEPARTMENT OF TRANSPORTATION

Please refer to Michigan Department of Transportation for updated MDOT Standard Specifications by entering or clicking the link below:

<http://mdotwas1.mdot.state.mi.us/public/design/englishstandardplans/index.htm>

Special Provisions are frequently updated; use current MDOT Standard Specifications

All applicable construction shall comply with **current** St. Clair County Road Commission standards and specifications. Approval of the plans by the St. Clair County Road Commission does not relieve the owner/developer of this requirement nor does it give approval to any errors and/or omissions contained in the plans.

APPENDIX I: PLASTIC STORM SEWER PIPE

A. SCOPE:

This specification covers the material, manufacture, jointing and installation of plastic storm sewer/drainage pipe.

B. MATERIAL:

The thermoplastic material shall be either a rigid PVC (polyvinyl chloride) plastic meeting or exceeding the requirements of ASTM specification D1784 for a minimum cell classification of 12454B or 12454C or the thermoplastic material shall be high density polyethylene meeting or exceeding the requirements of ASTM D3350 cell class 315412C or 334433C.

C. MANUFACTURE:

The PVC thermoplastic storm sewer pipe shall be manufactured in strict accordance with ASTM F949 with the minimum pipe stiffness of 46 psi or 735/D (diameter), whichever is greater when tested in accordance with ASTM D2412. The HDPE thermoplastic storm sewer pipe shall be manufactured in strict accordance with AASHTO 294 with a minimum pipe stiffness of 46 psi or 1170/D (diameter) whichever is greater when tested in accordance with ASTM D2412.

D. JOINTS:

All non-perforated thermoplastic storm sewer pipe shall be supplied with gasket joints meeting the water tightness performance requirements of ASTM D3212 and shall be capable of passing a field air test if necessary. Gasket material shall conform to ASTM F477.

E. INSTALLATION:

All thermoplastic storm sewer pipe, with minimum pipe stiffness of 46 psi or greater shall be installed using soil class I, II, or III, per ASTM D2321 requirements within the embedment zone. The owner shall have the option of requiring a 5% mandrel test on up to 50% of the installed lines not sooner than 30 days after installation.

APPENDIX II: DECLARATION OF DRAINAGE EASEMENT

DECLARATION OF DRAINAGE EASEMENT AND DRAINAGE MAINTENANCE AGREEMENT

This declaration made this _____ day of _____, 20__, by _____, whose address is _____ (hereinafter “Developer”), and on behalf of _____, a Homeowner’s Association to be formed (hereinafter “Association”).

WHEREAS, the Developer is the owner of all legal and equitable interest in the following property located in the Township of _____, County of St. Clair, State of Michigan, (hereinafter “Development”) described as:

See legal description attached hereto as Exhibit 1.

WHEREAS, the Developer has divided the Development, known as _____ into Lots for the purpose of residential home sites;

WHEREAS, Developer is constructing Storm Water Facilities that outlet to the St. Clair County Road Commission (hereinafter “SCCRC”) right-of-way on the Development for;

WHEREAS, the purpose of this declaration is to provide for the development and maintenance of easements and other Storm Water Facilities for the Development;

NOW THEREFORE, in consideration of the mutual benefits to be derived by the Developer, its successors and assigns, and all purchasers and future owners of the various Lots comprising the Development, the Developer, for itself, its successors and assigns, does hereby publish, declare and make known to all intending purchasers and future Owners of the Lots comprising the Development, that all Lots in the Development will and shall be used, owned, held and/or sold expressly subject to the following covenants, conditions, restrictions, easements, obligations and special assessments for the development and maintenance of Drainage Easements and Facilities as described in this Agreement.

It is further declared that the Storm Water Facilities described in Exhibit _____ attached hereto, together with the drainage maintenance provisions contained herein shall run with the land and be binding on the Developer and purchasers of all Lots in the Development and their heirs, personal representatives, successors and assigns.

1. **DEFINITION OF TERMS.** The words and phrases following used in this Agreement are defined as follows:

- a. “Agreement” shall mean and refer to this Declaration of Drainage Easement and Drainage Maintenance Agreement as recorded in the Office of the St. Clair County Register of Deeds, State of Michigan;
- b. “Association” shall mean and refer to _____ Homeowners’ Association and its successors and assigns;

- c. "Developer" shall mean and refer to _____ and its successors and assigns;
- d. "SCCRC" shall mean the St. Clair County Road Commission;
- e. "Drainage Easements and Facilities" shall mean those areas of land within the Development (including the improvements thereto) now or hereafter owned by the Association or used by the Association or Owners for the drainage purposes as referenced in this Agreement;
- f. "Lot" shall mean and refer to any Lot or parcel of land within the Development;
- g. "Member" shall mean and refer to those persons entitled to membership in the Association, as provided in this Agreement;
- h. "Owner" shall mean and refer to the record owners, whether one or more persons or entities, of the fee simple title to any Lot which is a part of the Development. When more than one person or entity has an interest in the fee simple title to a Lot, the collective interest of all such persons or entities shall be considered to be that of a single Owner for purposes of this Agreement. If any Lot is sold on a land contract, the land contract purchaser shall be considered the Owner. Those persons having any interest in a Lot merely as security for the performance of an obligation are not considered to be Owners.

2. **DRAINAGE EASEMENTS AND FACILITIES.** The Storm Water Facilities subject to this Agreement are shown and described in Exhibit _____, attached hereto. The Developer shall be responsible for establishing a drainage district with the St. Clair County Drain Office to create a mechanism to fund maintenance operations if the Developer or Association fails to maintain the Storm Water Facilities. This Agreement shall be perpetual and terminable only upon the occurrence of any one of the following events:

- (1) The Storm Water Facilities are no longer necessary to service the Development and are abandoned or replaced with the express written permission of the Association and the Drain Commissioner; or
- (2) A Municipality or a Governmental Agency with taxing powers expressly assumes, in writing, the responsibility for the operation and maintenance of the Storm Water Facilities; or

3. **HOLD HARMLESS PROVISION.** In addition to the provisions contained above, the Owners of all Lots in the Development agree to hold the SCCRC harmless from any loss, damages or injuries relating to the Storm Water Facilities in the Development.

4. **SEVERABILITY.** If any section, paragraph, clause or phrase of this Agreement is for any reason held invalid by a court of competent jurisdiction, it is the intent of the undersigned that such decision should not affect the validity of the remaining provisions of the Agreement, which shall be enforced as if the invalid provision did not exist.

5. **RECORDING.** Upon signing, this Agreement shall be immediately recorded at the St. Clair County Register of Deeds office. A true copy of the Agreement, as recorded, shall be provided to the SCCRC.

6. **AMENDMENT.** This Agreement may not be amended without the express written consent of the SCCRC.

Dated this _____ day of _____, _____.

DEVELOPER:

State of Michigan)
) SS:
County of St. Clair)

On this _____ day of _____, 20__, before me personally appeared _____, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he / she / they had authority to execute the foregoing instrument and executed same as his/ her / their free act and deed.

Notary Public, St. Clair County, MI
Acting in St. Clair County, MI
My Commission Expires: _____

Drafted By:

William Hazelton.
21 Airport Drive
St. Clair, MI 48079

When Recorded Return To:

Developer