

**FRANKLIN COUNTY
DEVELOPMENT & CONSTRUCTION
STANDARDS MANUAL**

**CHAPTER 4
STREET STANDARDS**

This document supersedes the County Subdivision Ordinance.

Subdivision Roadway Information								
Roadway Type*	Right of Way		Paved Surface Dimensions		Asphalt Materials***		Concrete Materials***	
	Width	Cul-De-Sac Radius	Width**	Cul-De-Sac Radius	Stone Base	Asphalt	Stone Base	Concrete
Local and Cul-de-Sac	50	50	24	40	9	4	4	6
Collector (Minor, Major)	70,100	50+	28	40+	8	7	4	7
Arterial	130	N/A	varies	N/A	8	9	4	8
* Classification of roadway shall be based upon anticipated use including ADT and other factors								
** Add 2' per side with Curb and Gutter; Curb and Gutter required if; a) more than 2 lots per acre; or b) lot frontage less than 120 feet								
*** Minimum Requirements, to be based on certified Design with 20-year service life; Require Lime Stabilization								
All roadways shall require Lime Stabilization and shall have 6" edge drains on each side of the roadway.								

A. GENERAL STREET STANDARDS AND REQUIREMENTS

1. Current INDOT Design Manual shall be followed as a design standard unless otherwise specified in this Ordinance or approved by the County Engineer. Construction of roadway and drainage elements shall conform to standards and procedures in the current INDOT Standard Specifications for each class of material installed, and meet any road design standard specifications as may be adopted by the Franklin Board of Commissioners.

- 2. All roadways shall be designed for a 20-year minimum service life. The design parameters shall be based upon anticipated traffic flow, on-site soil analysis and other parameters as determined by the County Engineer. The specifications shall allow for innovative construction techniques to be utilized upon acceptance by the County Engineer. Developer shall pay all costs associated with design including soil analysis.

- a. For a subdivision with 20 or fewer proposed lots, and a proposed lot density no greater than that allowed by either the R-1 or R-2 zoning district standards of the Franklin County Zoning Ordinance, the roadways need not be designed by a licensed engineer, provided that the developer will sign an agreement with the county certifying that the roads have been prepared to last for 20 years. The developer shall also post a 5-year bond with the county.

- 3. A traffic impact study may be required for all commercial and industrial subdivisions, as well as, developments which contain more than 150 single family residential units or other developments which are expected to significantly impact the surrounding roadways.

B. GEOMETRIC STREET STANDARDS

- 1. All dedicated rights-of-way shall conform to the following minimum dimensions and shall include additional rights of way to accommodate cross drainage structures and fill areas:

- Arterial Streets 130'

- Major Collector Streets 100'

- Minor Collector Streets 70'

- Local Streets 50'

- Cul-de-sac Streets 50'

- Cul-de-sac Turnarounds 50' radius

- Crosswalks 10'

Utility Easements (refer to Section 4. F. herein)

- 2. Pavements shall have a cross slope from centerline of 1/4" per foot unless in a horizontal curve. Horizontal curves shall not exceed 6% super elevation.

- 3. Street jogs with centerline offsets of less than 200' shall not be permitted.

4. All streets shall intersect at 90 degrees whenever possible for a minimum distance of 100 feet, however, in no instance shall they intersect at less than 80 degrees onto arterial or collector streets or less than 50 degrees onto local streets.
5. To ensure adequate site distances, when the street centerlines deflect more than 10 degrees, connections shall be made by horizontal curves. The minimum centerline radius for local and cul-de-sac residential streets shall be 150' and for all other residential streets the minimum centerline radius shall be 200'.
6. A tangent of at least 100' shall be introduced between reversed curves on local and collector streets, 200' minimum for all other roadways.
7. Clear visibility for stopping sight distance on new streets, measured along the centerline of the street, shall be provided for at least 600' on all arterial streets, 400' on collector streets, and at least 200' on all local streets.
8. New subdivision's entrances shall have clear visibility for line of sight on existing roadways as follows:

<u>Posted speed limit</u>	<u>Min. line of sight</u>
30 mph	400 ft.
35 mph	470 ft.
40 mph	580 ft.
45 mph	710ft.
50 mph	840 ft.
55 mph	990 ft.

9. The maximum longitudinal grade for arterial streets shall not exceed 7.5%; for collector streets, 10%; and for local streets, 10%; provided however, that within 200' street or railway intersection, the maximum grade permitted shall be 3%. Maximum grade of a cul-de-sac or other turn around shall be 3%. The minimum longitudinal grade for all types of streets shall be 0.5%.
10. Vertical curves conforming to AASHTO Standards shall be provided at all changes in grade. The minimum size for any vertical curve shall be 100 feet.
11. The maximum length cul-de-sac street shall be 800', measured along the centerline from the intersection at origin to the center of the circle, except under physical or topographical conditions meeting Plan Commission approval. Each cul-de-sac shall have a terminus of nearly circular shape with a minimum right-of-way diameter of 100' for residential use and 120' for industrial use, unless the Commission approves an equally safe and convenient form of space instead of the required turning circle.

C. BLOCK STANDARDS

1. Block length and width or acreage within bounding streets shall be such as to accommodate the

size of lot required in the area by this Ordinance and to provide for convenient access, circulation control, and safety of street traffic. Blocks that are unreasonably large or small will not be approved.

2. The maximum block length shall be 1,200 feet. In the design of blocks longer than 800', the Commission may specify the provision of pedestrian crosswalks near the center, or wherever most useful to facilitate pedestrian circulation to a school, park, recreation area, shopping center or other significant site.
3. Residential blocks shall be of sufficient depth to accommodate two tiers of lots of minimum depth, except where reverse frontage lots bordering on a freeway, arterial street or floodplain are used.

D. Driveways

1. Driveways shall meet the Driveway Permitting Ordinance ORD 2020-17. All driveways shall have a low point over the ditchline which allows water to drain away from the edge of the roadway and into the ditch. The slope from the road shall be -4.0%.

E. SIGNS

1. Street Identification Signs

It shall be the responsibility of the subdivider to provide and install street identification signs at all street intersections within the subdivision prior to the construction of any permanent improvements other than those specifically set forth by this Ordinance. Said signs and posts shall conform to the following standards or be of a design approved by the County Commissioners.

- a. Each signpost shall consist of a 2" galvanized Type A Post 12'-0" long with a minimum 3' below grade, weighing 2 pounds per foot.
- b. Meet size and color standards of the Franklin County Highway Department.
- c. Street signs shall be located within the street right-of-way, but no closer than 6' -0" from the edge of the traveled portion of the street, as shown on construction drawings.

2. Stop and Speed Limit Signs

It shall be the responsibility of the subdivider to provide and install Stop Signs and Speed Limit Signs prior to the release of the Performance Guarantees as well as other signs as required per the MUTCD. Signs shall conform to the retroreflectivity standards for the type of sign as listed in the MUTCD. The location of the Stop and Speed Limit Signs shall be approved by the Board of Commissioners prior to installation. The maximum posted speed limit shall be by the Board of County Commissioners. Said signs and posts shall conform to the following standards or be of a design as approved by the Board of County Commissioners:

- a. Each sign post shall consist of a 2" galvanized 12'-0" Type A post, weighing 2 pounds per foot, with a minimum of 3' -0" below grade.
- b. Each stop sign shall be a minimum of 24" in sign face area, and be of at least an engineering grade finish. No baked-on enamel finish is allowed.
- c. Each speed limit sign shall be vertical rectangle with dimensions of 24" by 30" and be of at least an engineering grade finish. No baked-on enamel finish is allowed.
- d. Stop signs shall be installed so that the edge of the sign is a minimum of 2' -0" from the edge of the traveled portion of the street. The sign height shall be a minimum of 6' -0" from the top of the curb to the bottom of the sign.
- e. Speed limit signs shall be located within the street right-of-way, but no closer than 6' -0" from the edge of the traveled portion of the street, as shown on construction drawings.

F. DRAINAGE

- 1. A drainage system shall be designed and constructed by the subdivider to provide for the proper drainage of surface water from the entire subdivision and the drainage area of which it is a part. The system shall be constructed and installed in accord with plans and specifications approved by the County Commissioners, County Surveyor, and Drainage Board. The drainage system shall be designed by a licensed Land Surveyor or Engineer.
- 2. In designing a drainage system, the subdivider shall be guided by the Franklin County Drainage Board and the following minimum standards:
 - a. Storm street inlets placed in a low point shall be sized to accept a 10-year storm volume with 50% of the inlet clogged and no more than 0.5 feet of water pooling above the inlet.
 - b. Storm swale inlets shall be sized to accept a 10-year storm volume with 50% of the inlet clogged and no more than 0.8 feet of water pooling above the inlet.
 - c. Culverts crossing the proposed or private roads shall be sized to carry, flowing full, a minimum of a 25-year rainfall event. All culverts shall extend at least 5' -0" beyond either edge of paved roadway or to the centerline of ditch and have approved erosion control measures in place. Slope of embankments over culverts shall not be increased in an effort to shorten the culvert length. Structures larger than 60 inches in diameter shall be designed to carry a 100-year rainfall event in residential subdivisions. Roadway design to allow for road overtopping of at least 12". Low point of structures to be 24" above the low point of a vertical curve at culvert crossings.
 - d. The storm detention design shall outlet storm water at a two-year pre-developed rainfall event rate for a 10-year post developed.
- 3. **Roadside Swales**

Streets not having curbs and gutters shall provide the following:

- a. Side ditch swales measuring a minimum of 18 inches deep at their centerline at a point 4' -0" inside the right-of-way line or at least 8 feet off the edge of shoulder.
- b. A swale or culvert at all driveways sized according to amount of storm water flow, as required to keep a ten-year rainfall event. All driveway culverts shall extend at least 2'-0" beyond either edge of the paved driveway.
- c. Relief of side ditches and swales along the roadway shall be through the use of off-street stormwater basins or existing drainage channels with appropriate erosion control measures. County Surveyor specifications shall apply to all off R/W drainage swales and outlets. Dedicated drainage swales shall be required across all lots.

4. Edge Drains/ Under Drains

6" Perforated edge drains shall be required along both edges of roadways. Edge drain outlets to be into storm sewer manholes for roads with curb and gutter. Roadways without storm sewers shall have outlets at cross drains with a 4' X 4' 4" thick concrete pad matching the ditch slope. Ends of the pipe to be tapered to slope of the wall with animal outlet protection. Minimum depth shall be 18" below top of subgrade sloped to match roadway subbase.

G ROAD CONSTRUCTION

Improvements for streets shall be performed to meet the following minimum standards and requirements. Inspections by Franklin County reps shall be required prior to subgrade stabilization, installation of underdrains, installation of aggregate base, placement of any concrete or asphalt, and prior to asphalt surface placement. Material certifications shall be provided prior to installation.

1. Pavement Construction.

a. Subgrade

i. Subgrade, as shown on the approved plans, shall be graded to a smooth, true surface and to the required depth, and all soft and spongy places not affording a firm foundation will be dug out and reconstructed. Subgrade shall be lime stabilized graded and compacted. Compaction to meet a Proctor dry density of 95% or better. Stone backfill gradation shall have the approval of the County Engineer. The subgrade shall be rolled with a roller weighing no less than ten (10) tons.

ii. The subgrade condition must be approved by the County Engineer or his representative before any stone base and/or pavement is placed. The final subgrade and stone base shall pass a proof roll test as directed by the County.

b. Concrete Street Pavement Standards

- i. This construction shall consist of reinforced or plain cement concrete laid as a pavement, in one course, on a 4" stone base, and conforming with lines, grades, thicknesses, and cross-sections shown on plans or otherwise specified. The concrete shall reach a minimum 4,000 P.S.I. compressive strength at 28 days.
- ii. Unless otherwise specified, concrete for pavement shall entrain 5% to 7% air, and shall conform to Indiana Department of Highways specifications, Section 501.
- iii. The test for slump of concrete for reinforced concrete pavement shall be in accord with ASTM C143-52, and for paving, the maximum slump shall be 2". In no case shall the water used, including any free water in the aggregate, exceed 5.8 gallons per bag (94 pounds) of cement used.
- iii. The two aggregates shall be proportioned to use the maximum amount of coarse aggregate to produce a workable mix. Fine aggregates shall not be less than 30% nor more than 50% of the total weight of the aggregate used in each cubic yard.
- iv. Ready-mixed concrete shall be used in street construction except in extreme emergencies. Ready-mix suppliers shall provide certified mix analyses for all concrete provided by him.
- v. Concrete trucks shall not be allowed on a poured lane until a minimum of 5 days curing time has elapsed.
- vi. Construction shall proceed in an orderly fashion with the contractor assuring that adequate equipment and sufficient labor to expedite the work is on the job site at all times.
- vii. Concrete panels which are not square in shape shall be reinforced with a minimum of one layer of 6 x 6 6/6 W.W.F.
- viii. At the close of each day's work, a construction joint shall be made not less than 10'0" from the preceding transverse contraction joint. Sections less than 10'9" shall not be permitted.
- ix. The upper edges of all preformed expansion material in joints shall be parallel to the surface of the pavement and level therewith.
- x. Transverse expansion joints shall be constructed only as specified on plans.
- xi. In the construction of an expansion joint with load transfer, the joint shall comply with plan details.
- xii. A joint holder will be required to hold the dowel bars accurately in place perpendicular to the cross section of the pavement and to the line of the joint.

- xiii. A dummy joint shall be constructed at 4'-0" off back of curb and parallel with the curb line for collector streets.
- xiv. Contraction joints shall be installed at 12'-0" intervals, at least one quarter of slab thickness, early enough to control cracking, but late enough to prevent damage to blade action if sawed, to slab surface and to the concrete immediately adjacent to the joint.
- xv. At junctions with an unpaved street, new pavement shall be thickened for at least 12'-0", gradually increasing thickness to not less than one and one-third times as thick as the designed slab.
- xvi. Wire mesh, if shown on plans or requested by the County Engineer, shall be placed as directed and comply with provisions of AASHTO M55" welded steel wire fabric for concrete reinforcement.
- xvii. Unless otherwise specified, mesh shall be placed in the middle third of concrete and parallel to finished subgrade. The ends shall not be more than 2" back from joints, and the edges not more than 3" from forms. Sheets shall be lapped at least the width of one mesh.
- xviii. Asphalt filler shall meet the detailed requirements of the Indiana State Highway Department AE150.
- xix. Immediately upon completion of finishing process, the concrete shall be properly cured by use of curing blankets, plastic sheets, or liquid membrane-forming compounds conforming to ASTM C30953T. Failure to comply with requirements herein will result in rejection of the work.

c. Asphaltic Concrete Street Pavement Standards.

- i. This construction shall consist of hot asphaltic concrete on a compacted stone base, with pavement thickness coordinated with the County Engineer.
- ii. All materials, mixtures and workmanship shall conform with current Indiana Department of Highway specifications that do not conflict with this Ordinance.
- iii. Stub ends of streets shall have each layer of asphalt material extend at least 2 feet beyond the end of the subsequent layer.
- iv. Coarse aggregate for asphaltic concrete pavement shall be Class A crushed limestone only.

2. Minimum Paved Surface Dimensions

i. Local and cul-de-sac streets:

Width with curb and gutter 28'
Width without curb and gutter..... 24'

- Terminus diameter on cul-de-sac
(Residential use only) 80'
- Radius at intersections 25'
- ii. Collector streets:
 - Width with curb and gutter 32' *
 - Width without curb and gutter 28'
 - Radius at intersections 25'
- *Back-to-back of curb
- iii. Landscape islands are discouraged for cul-de-sacs. Geometrics of cul-de-sacs with landscaping will be reviewed individually and may require a larger overall diameter than listed. Drainage will be provided in all islands.
- iv. At an intersection of a subdivision street with an existing street or road, the subdivider may be required install deceleration, acceleration and passing lanes along an existing street.
- v. See Typical Local Road Section for graphical representation of road installations for local roads.

3. Pavement Sections

The minimum thickness of a sub-base, base course and pavement shall be as follows:

- i. Local and Cul-de-sac Streets

A 6" plain concrete pavement on 4" of compacted crushed stone on compacted subgrade, or a 4" hot asphaltic concrete pavement on 9" of compacted crushed stone base on a compacted subgrade.
- b. Collector Streets

A 7" plain concrete pavement on 4" of compacted crushed stone on compacted sub-grade, or a 7" hot asphaltic concrete pavement on 8" of compacted crushed stone base on compacted subgrade.
- c. Arterial Streets

An 8" plain concrete pavement on 4" of compacted crushed stone on compacted subgrade or a 9" hot asphaltic concrete pavement on 8" of compacted crushed stone base on a compacted subgrade.

Higher standards than indicated in this section may be required by the Commission or the Board of Commissioners to provide for extraordinary traffic volumes or other abnormal characteristics.

All materials, mixtures and workmanship shall conform to current Indiana Department of Highway specifications except as modified by County specifications.

4. **Curbs and Gutters**

Wherever a proposed subdivision has more than two lots per acre of land platted into lots, Storm drains with curb and gutters shall be required. Curbs and gutters in residential areas may be approved roll type with 4" curb and 24" minimum width made of 6-bag concrete, and shall be 6" vertical face in other areas and on arterial streets. Curbs shall have 1½" minimum gutter depth control joints every 10'-0", and ½" expansion material at all sides of structures.

5. **Sidewalks**

When any proposed subdivision contains more than two lots per acre of land platted into lots, sidewalks shall be provided on both sides of the street. They shall be at least 4'-0" wide and 4" thick, underlaid with adequate granular material, sloped ¼" per foot toward the street and be located no closer than 1'-0" from property lines, and no closer than 1'-0" from the back of the curb. Transverse joints to be installed at 4' intervals. Approved handicap access ramps shall be provided where sidewalks join streets and at street intersections.

H. **ROADWAY ACCEPTANCE**

The Board of Commissioners makes the final determination to accept the completed roadways into the County highway system. The acceptance will be based upon the following:

1. Approval of the installation being up to County standards by the County Engineer and other representatives as specified by the Board.
2. At Least 75% of the lots are developed and receive an occupancy permit.
3. All bonding requirements have been met.
4. Final Plat is signed by all parties with right of ways dedicated to public use.

I. **ASSURANCE FOR COMPLETION OF IMPROVEMENTS**

COMPLETION OF IMPROVEMENTS

Before the plat is executed by the designated official, the applicant, at the discretion of the Board may:

1. Complete all streets, sanitary, and other public improvements including lot improvements on the individual lots of the subdivision as required in this Ordinance, specified in the approved construction plans and on the final subdivision plat approved by the Commission.
2. Dedicate public improvements to the Board of Commissioners, free and clear of all liens and encumbrances on the property and public improvements thus dedicated.

J **SECURITY**

The plat may be executed by the Designated Official for a subdivision in which the improvements and installments have not been completed provided that:

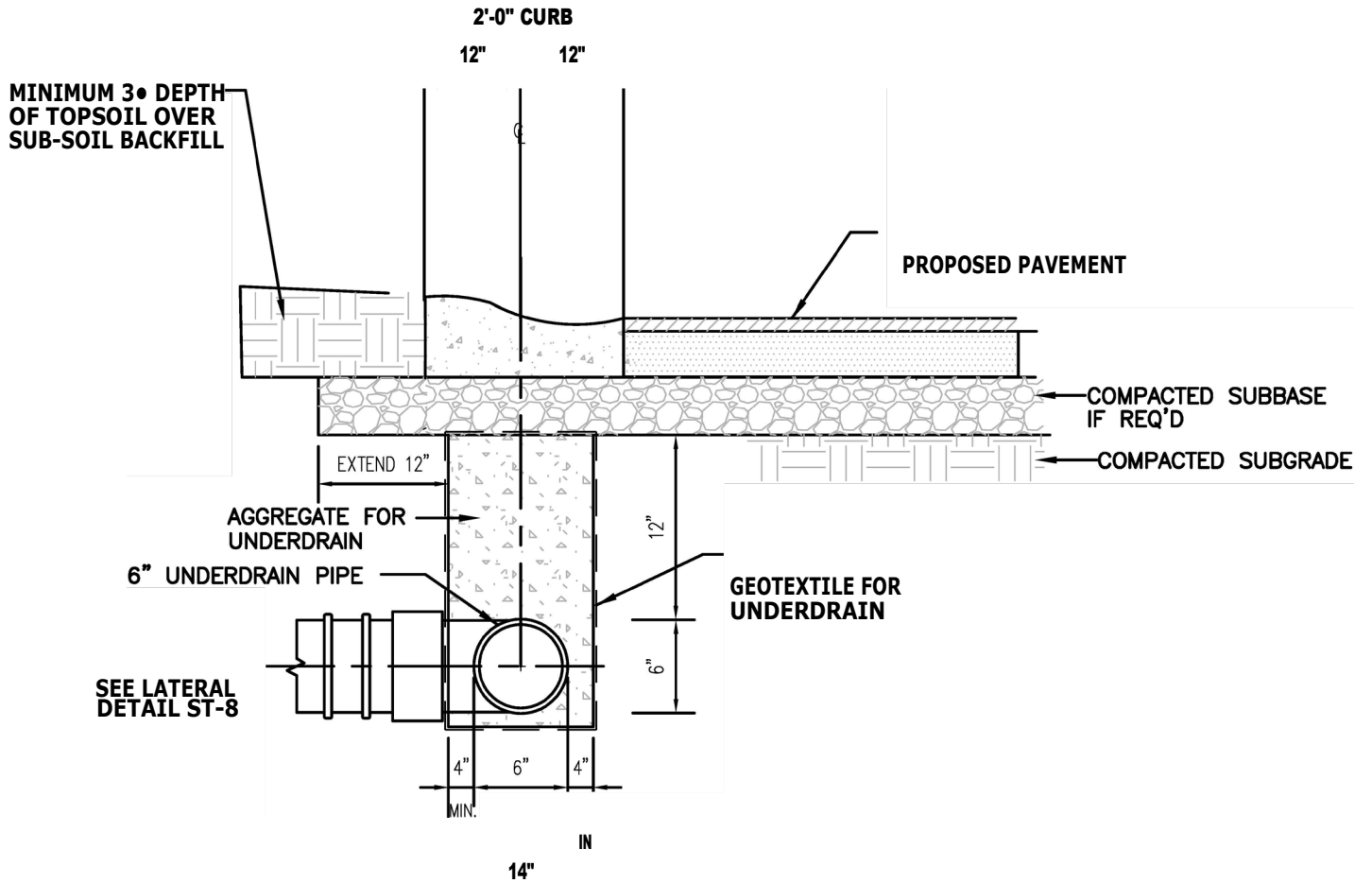
6. The applicant has provided proof of security for installation of sanitary sewer systems and any other needed improvements not directly controlled by the County;
7. The applicant has provided proof of financial responsibility with the Board of Commissioners of the County of Morgan as the name insured, hereinafter referred to as "Security." Such Security shall comply with statutory requirements and shall be satisfactory to the Board Attorney as to form, sufficiency, and manner of execution as set forth in this Ordinance.
3. Provide a properly executed Subdivider's Agreement for all roadway improvements.
4. The Security shall be in an amount not less than one hundred and twenty percent (120%) of the estimated cost of completion of required public improvements.
5. The period within which required public improvements must be completed shall not exceed two years from date of secondary approval.
6. Two months prior to the expiration of the Security, the Board shall determine if the public improvements have been installed consistent with county standards and special conditions or requirements, if any, established by the Commission in approving the plat. If the improvements have not been installed to the satisfaction of the Board, the Board shall notify the subdivider of their intent to secure the funds pledged by such Security, or at their discretion, to grant an extension for a period not to exceed one year, and the subdivider shall file with the Board a new Security within the period so fixed. The Board may upon proof of difficulty, grant an extension of the completion date set forth in such Security for a maximum period of one additional year, provided that the Security submitted for this extension period meets all other requirements herein.
- 7. Failure to Complete Public Improvements**

In cases where Security has been posted and the required public improvements have not been installed within the terms of such Security, or if the Board finds upon inspection that any of the improvements have not been constructed in accordance with the approved construction plans, then the Board may thereupon declare the Security to be in default and cause all public improvements to be installed according to secondary approval regardless of the extent of the building development at the time the Security is declared to be in default.

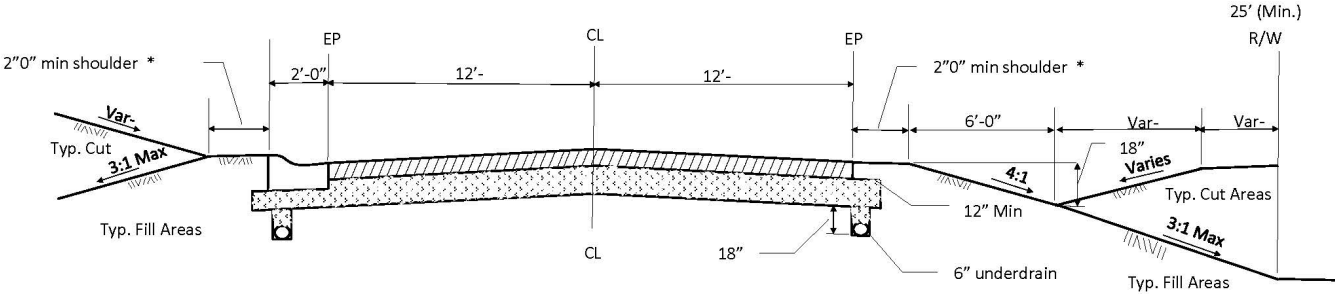
8. Release or Reduction of Security

A Security shall be reduced upon actual acceptance of public improvements and any conditions imposed by the plat and then only by the amount originally estimated for the completion of said public improvements.

The Board of Commissioners shall not accept required public improvements, nor reduce a Security, until the subdivider has submitted a certificate attesting to satisfactory completion of improvements and the subdivider's engineer or surveyor has provided the Board with certified "as built" construction plans of the public improvements including the utilities, indicating location, dimensions, materials, and other information required by the Board of participating jurisdiction. Upon such certification, the Board shall thereafter accept the applicable public improvements for maintenance in accordance with established procedures.



UNDERDRAIN SECTION



Typical Local Road Section

Notes: * If sidewalks are included a 6'-0" grass strip shall be added with additional 4'-0" sidewalk between the Edge of Pavement and the 2'-0" shoulder.