VILLAGE OF MARVIN

Engineering Standards and Procedures Manual

Adopted: January 26th, 2017

Revised: August 20, 2025

Table of Contents

I. Administrative Procedures:

II. Design Criteria:

III. Specifications and Special Provisions:

IV. Standard Drawings:

100 Series - Miscellaneous Concrete Infrastructure

Standard	Description
106.1	Concrete Sidewalks Details and Notes
107.1	Monolithic Concrete Curb and Sidewalk
108.1	Commercial Type II and Residential Type I Drop Curb Driveway with Sidewalk Abutting Curb (2'-6" Curb and Gutter)
109.1	Commercial Type II and Residential Type I Drop Curb Driveway with Sidewalk Abutting Curb (6"x18" Vertical Curb)
110.1	Commercial Type II and Residential Type I Drop Curb Driveway with Sidewalk Abutting Curb
111.1	Residential Drop Curb Type I Driveway with Planting Strip (2'-6" Curb and Gutter)
112.1	Commercial Drop Curb Type II Driveway with Planting Strip (2'-6" Curb and Gutter)
113.1	Residential Drop Curb Type I Driveway with Planting Strip (6"x18" Vertical Curb)
114.1	Commercial Drop Curb Type II Driveway with Planting Strip (6"x18" Vertical Curb)
115.1	Type II Modified Driveway Detail with wide Planting Strip and Standard Curb
116.1	Commercial Type IV Driveway Standard
117.1	Drop Curb Driveway – Monolithic Concrete Curb and Sidewalk
118.1	Residential Driveway (Type I) for Valley Gutter
119.1	Commercial Type II Driveway for 2'-0" Valley Gutter
120.1	Type III Driveway Entrance
121.1	Catch Basin Frame in Valley Gutter
122.1	Catch Basin Placement at Intersections
123.1	Accessible Ramp Standard with Planting Strip 2'-6" Curb and Gutter
124.1	Accessible Ramp Sections with Planting Strip 2'-6" Curb and Gutter
125.1	Accessible Ramp Standard without Planting Strip 2'-6" Curb and Gutter
126.1	Accessible Ramp Sections without Planting Strip 2'-6" Curb and Gutter
127.1	Accessible Ramp Standard 2'-0" Valley Gutter
128.1	Accessible Ramp Sections 2'-0" Valley Gutter
129.1	Accessible Ramp Standard Monolithic Curb and Sidewalk
130.1	Accessible Ramp Sections Monolithic Curb and Sidewalk
131.1	Standard Placement of Accessible Ramps and General Notes
132.1	Truncated Domes Plan and Cross-Section
133.1	Culvert Crossings on Residential and Commercial Streets
134.1	Culvert Crossings on Residential and Commercial Streets
135.1	Typical Local Residential to Local Limited Residential Street Taper
136.1	Directional Accessible Ramp

200 Series - Street Section Details

Standard	Description
200.1	Residential Local Street Parking on Both Sides of Street Typical Section
200.2	Residential Local Street Parking on One Side of Street Typical Section
200.3	Street Section 60' (Min.) Right-Of-Way
200.3A	Street Section with Utilities 60' (Min.) Right-Of-Way
200.4	Residential Street Ditch Type Street Typical Section

200.4A	Residential Street with Utilities Ditch Type Street Typical Section
200.5	Residential Local Street Parking on One Side/Open Space on Other Typical Section
210.1	Residential Collector Street with Bike Lanes Typical Section
210.2	Residential Divided Collector Street Typical Sections
210.3	Residential Divided Collector Street with Left-Turn Lane Typical Section
210.4	Residential Collector Street Ditch Type Typical Section
210.5	Residential Divided Collector Street Ditch Type with Median Ditch Typical Section
220.1	Retail/Mixed Use Local Street Parking on Both Sides of Street Typical Section
220.2	Retail/Mixed Use Local Street No Parking Typical Section
220.3	Retail/Mixed Use Local Street with Median and Parking Typical Section
220.4	Retail/Mixed Use Local Street Parking and Planting Strip on Both Sides Typical Section
230.1	Retail/Mixed Use Collector Street with Bike Lanes Typical Section
230.2	Retail/Mixed Use Collector Street with Median and Bike Lanes Typical Section I
240.1	Commercial Street Section 60’ (Min.) Right-Of-Way
240.2	Lane/Alley
240.3	RESERVED
250.1	Urban/Neighborhood Street Section with Storm BMB
250.2	Rural Street Section with Storm BMB
280.1	Residential Local Street Cul-de-sac Detail
280.2	Retail/Mixed Use Local Street Hammerhead Detail
280.3	Residential Alley One-way Operation Typical Section
280.4	Residential Alley Two-way Operation Typical Section
280.5	Residential Local Street Temporary Turnaround
285.1	Local Street Parallel Parking Layout
285.2	Parallel Parking Standards
285.3	Parking, Sidewalk, and Curb and Gutter Transitions at Residential Driveways
285.4	Parking, Sidewalk, and Curb and Gutter Transitions at Retail/Mixed Use Driveways

300 Series - Storm Drain Standards

Standard	Description
300.1	NCDOT Standards Approved for Use
301.1	NCDOT Standards Approved for Use
302.1	NCDOT Standards Approved for Use
303.1	Brick Double Catch Basin 15”-36” Pipe
304.1	Concrete Wingwall with Splash Pad
305.1	Concrete Wingwall with Splash Pad
306.1	Rip Rap Aprons at Pipe Outfalls other than SWIM
307.1	Flared End Section 12” Thru 72” Pipe
308.1	Rip Rap Plunge Pool
309.1	Trench Detail for Storm Drain
310.1	Concrete Paved Ditches
311.1	Rip Rap Ditches
312.1	Subdrain Detail

313.1	Overlapping Storm Drain / Sanitary Sewer Easements
314.1	Minimum Drainage Easement Requirements for Storm Drain Pipes and Open Channels
315.1	Offset Catch Basin
316.1	Grading at Drop Inlet

400 Series – Greenway Standards

Standard	Description
401.1	Standard Asphalt Greenway Trail
402.1	Standard Crowned Asphalt Greenway Trail
403.1	Geo-Grid Notes
404.1	Greenway Fill Material and Grading Notes (1 of 2)
404.2	Greenway Fill Material and Grading Notes (2 of 2)
405.1	Standard Concrete Greenway Trail
406.1	Standard Crowned Concrete Greenway Trail
407.1	Standard Concrete Greenway Trail with Turn Down Edge (Used in Floodway and Floodplain Areas) 402.1
408.1	Concrete Greenway Joint Details
409.1	Concrete Greenway Paving Notes
410.1	Standard Recycled Concrete Greenway Trail
411.1	Standard Crowned Recycled Concrete Greenway Trail
412.1	Standard Natural Surface Greenway Trail
413.1	Standard Crowned Natural Surface Greenway Trail

500 Series – RESERVED

600 Series – RESERVED

700 Series - Miscellaneous Standards

Standard	Description
700.1	Typical Handrail
701.1	Handrail Warrants
702.1	Non-Thoroughfare Street Name Sign
703.1	Thoroughfare Street Name Sign
704.1	Street Name Sign Installation Locations
705.1	End of Roadway Marker
706.1	End of Roadway Street Barricade
707.1	End of Roadway Marker Guard Rail Clamp Installation
708.1	Street Connectivity Sign for End of Roadway Barricade
709.1	End of Roadway Street Barricade General Notes

710.1	Parking Standards
711.1	Parking Standards (Other)
712.1	Accessible Parking and Signage
713.1	Supplemental Van Accessible Sign
714.1	Supplemental Maximum Penalty Sign
716.1	Emergency Vehicle Median Crossover
717.1	Inverted “U” Rack for Bicycle Parking
718.1	Wave Rack for Bicycle Parking
719.1	Bicycle Lockers
720.1	Pavement Patching Detail
721.1	Misc. Detail
722.1	Tree Protection Barrier

V. Appendix:

- Plan Review Checklist – (Forthcoming)
- Driveway Permit Application
- Encroachment Permit Application
- NCDOT Driveway Permit Application
- PE Certification for Subdivision Streets
- Subdivision Prefinal Checklist
- Common Punch List Items
- Final Inspection Request Form
- Street Acceptance Application

Engineering Standards and Procedures Manual

The Village of Marvin's Engineering Standards and Procedures Manual (ESAPM) is provided as a resource that will assist in ensuring compliance with all Village requirements related to proposed land development activities.

It is the Village's goal that the ESAPM present clear and concise technical requirements, policies, and procedures while providing the guidance and details necessary for an effective and efficient process.

The ESAPM is intended as a supplement to the Village Zoning Ordinance and Subdivision Ordinance. County, State, and Federal agencies may also have additional requirements not provided for or referenced within this manual. This manual does not relieve the design professional of the responsibility to correctly incorporate the provided information. It is the Village Engineer's responsibility to provide technical adequacy of the design using engineering judgment, experience, and sufficient knowledge in providing all related design elements.

The Village Engineer shall be responsible for incorporating revisions as deemed appropriate based on a continual review of the ESAPM. The ESAPM is available for on-line viewing on the Village of Marvin website www.marvinnc.org.

Where discrepancies exist between this manual and any adopted Village Ordinance, the Ordinance shall govern. The latest revision of the "NCDOT Standard Specifications for Roads and Structures" and the "NCDOT Design Manual" shall apply to all roadway and storm drainage construction unless otherwise specified herein this manual.

This manual was created to capture most, but not all, scenarios related to development within the Village of Marvin. The Village Engineer reserves the right to enforce standards not included within this manual, which uphold the Village's initiative to maintain a safe environment for its citizens.

I. Administrative Procedures

A. Introduction

Processes and procedures for various plan review and development standards are discussed in this section. Each section provides information on the process, standard, or the plan review agency to contact regarding that process.

B. Application

An application for plan review is required. For plan review applications, contact the Village of Marvin at 704-843-1680 or www.marvinnc.org

C. Engineering Plan Review Checklist

The engineering plan review checklist is a detailed list of the items to be reviewed by the Village Engineering or designee. The plans must include, at a minimum, the information described in the Village's Subdivision Ordinance and/or other applicable ordinances. A copy of the engineering plan review checklist is included in the Appendix.

Note: The Zoning Administrator maintains a plan review checklist in addition to the Appendix. Additionally, the duration of the plan review varies by review agency.

D. Fees - per the adopted Fee Schedule

E. Driveway Permits

Village Driveway Permit

A Village Driveway Permit is required for all new or proposed modifications to connections to Village streets except an individual single-family residence. A copy of the Village Driveway Permit Application is in the Appendix. The Village fee for a driveway permit is $200. If a property owner is proposing to do work within Village maintained right-of-way, an Encroachment Permit may be required. Contact the Village Engineering to confirm if a permit is needed.

Note: Two signed original copies of the driveway permit application along with two sets of plans are required for submission to the Village. A separate encroachment permit is not needed if a driveway permit has been obtained.

NCDOT Driveway Permit

When accesses and/or driveways to North Carolina Department of Transportation (NCDOT) maintained facilities are proposed or are proposed to be modified, contact the NCDOT. Forms are available on the web at http://www.ncdot.gov/. The Village will review the NCDOT driveway permit applications for accesses proposed within the Village of Marvin.

F. Encroachment Permits

The Village requires that an encroachment permit be obtained when construction activity, including installation of temporary or permanent structures, is proposed under, on, or over property in which the Village has property rights. Property rights include but are not limited to street rights of way, utility easements, or other owned property. An Encroachment Permit is required regardless of any other approvals (excluding a driveway permit), such as building permits.

Encroachment Permit applications are processed through the Village. A copy of the Village Encroachment Agreement is included in the Appendix.

G. PE Certification Process for Subdivisions and Streets

The Village requires that all streets proposed to be taken over by the Village for maintenance be reviewed, inspected, and certified by a licensed professional engineer registered in the state of North Carolina for adequate construction. A pre-construction meeting with the Village Engineer is required.

Review of street construction by the certifying Engineer is required throughout the construction process. PE Certification is required for all developments in which the first submittal of the Village sketch plan or construction plans (if no sketch plan was submitted) occurred after the adoption of this manual on January 26, 2017. A copy of the PE Certification requirements is included in the Appendix.

During construction until such time as the streets are accepted by the Village, the Village Engineer shall conduct weekly Quality Assurance inspections. The owner of the development shall reimburse the Village for QA inspection costs.

All sketch plans and construction plans submitted to the Village for subdivision approval must have the following statement on the cover sheet of the plan set:

The Village of Marvin requires that all streets proposed to be taken over by the Village for maintenance be reviewed, inspected, and certified by a licensed professional engineer registered in the state of North Carolina for adequate construction. Review of street construction by the certifying Engineer is required throughout the construction process. Refer to the Village of Marvin Engineering Standards and Procedures Manual for additional information including the required certification form.

H. Bonding

The following list contains information regarding the bonding process including minimum amounts, duration, and security type.

1. Release of the final subdivision plat will not occur until the improvements required for the area of the final plat are constructed and a final inspection has been performed and found to be in conformance with the plans approved by the Village, or a security has been posted and all required documents are received in their entirety.

2. Securities shall be posted for a minimum of one year with a two-year maximum. The security shall be posted and remain in force until the construction is complete and found to be in conformance with the plans approved by the Village. The security will be reevaluated when an extension to the security is being considered.

3. Upon receipt of a notice from the bond holder, a final inspection will be made by the Village Engineer to check completeness of the project.

4. One type of security may be replaced by another type of security in certain situations. The amount of the replacement security will be based on the Village's Engineer Estimate of the work remaining. If the estimate of work results in a lower amount, the replacement security will be treated as a reduction. Certain situations will require an increase in a security and in such cases the replacement security shall be required to equal the higher amount.
5. A one-time reduction in security will be allowed if requested in writing by the principal party of the security. Additional reductions may be approved at the discretion of the Village Engineer. However, the security shall never be less than 15 percent of the total bond or $20,000 for the Village unless approved by the Village Engineer.

6. The final one- and one-half inch lift of asphalt surface course shall not be placed until all other construction is completed and all identified deficiencies have been repaired or replaced and approved by the Village Engineer.

I. Final Inspection

A final inspection of all streets to be turned over to the Village for Maintenance must be inspected by the Village or Village designated inspector. Contact the Village Engineer for scheduling of final inspections.

J. Street Maintenance Acceptance

When a phase/map of a subdivision reaches 90 percent occupancy, the phase/map will be considered eligible for acceptance by the Village. The procedures for requesting a final inspection are as follows:

1. Submit an executed “Request for Final Inspection Form”, along with a “PE Certification for Subdivisions and Streets” form. (refer to Appendix).

2. A representative from the Village will proceed with the Final Inspection.

3. Necessary repairs will be marked in the field, and indicated on a punch list, which shall be valid for a period of 60 days.

4. When the necessary repairs have been completed, the Village should be contacted to verify the repairs have been completed. When all repairs have been approved by the Village Engineer, the final one- and one-half inch lift of asphalt surface course shall be placed.

5. When all conditions have been met, the developer may proceed following the Village of Marvin Road Acceptance Policy.

The road acceptance policy includes streets, curbs, gutters, sidewalks, and all items located within the right-of-way. A copy of the Road Acceptance Policy and application form are found in the Appendix.

II. Design Criteria

A. Introduction

The following sections present minimum design criteria for the design of public streets, storm drainage, street lighting, street and roadway signage for traffic regulation and street identification, and landscaping.

B. Road Design

For use in designing Residential and Retail/Mixed-Use Public Streets

Posted Speed Limit	**25**	**30**	**35**	**40**	**45**
Stopping Sight Distance* (feet)	155	225	285	350	415
Intersection Sight Distance - Left-Turn Movement From Stop*and ** (feet)	280	365	425	485	545
Intersection Sight Distance - Right-Turn From Stop*and ** (feet)	240	315	370	420	475
Minimum Horizontal Radius (Normal Crown) (feet)	200	430	675	980	1470
Minimum K value for Crest Vertical Curves	11	24	37	56	81
Minimum K value for Sag Vertical Curves	25	43	58	75	94
Maximum Longitudinal Grade	10 percent				
Maximum Longitudinal Grade within 125 feet of intersection (measured from intersecting street nearest edge of pavement of travel way)	5 percent				
Intersection Angle Range	75 to 105 degrees				

* Values will need to be adjusted for grades of more than +/- 3 percent

** Values to be adjusted for streets with more than two total lanes; measurements to be taken 14.5’ from travel lane

Lower posted speed limits may be permitted by the Village Engineer on a case by case basis.

Provisions of adequate stopping sight distance may require use of larger K values than the minimums listed above. The Village of Marvin reserves the right to prescribe more stringent sight distance standards and/or means to achieve adequate sight distance than those listed above. Recordation of sight distance easements may be required on plats prior to approval.

The minimum distance between two horizontal curves is 50 feet. Longer distances may be needed based on the specifics of the roadway design.
Minimum curb and right-of-way radius measured from face of curb (when intersecting streets have different classification, use the more restrictive):

- Residential Local Street – 20 feet
- Residential Local Street to Residential Alley – 10 feet
- Residential Collector – 25 feet
- Retail/Mixed-Use Local – 25 feet
- Retail/Mixed-Use Collector – 25 feet
- Industrial Local and Collector – 35 feet

For minimum intersection separation, refer to block length minimums in the Subdivision Ordinance. NCDOT shall determine minimum lengths/separation along thoroughfares, at signalized intersections, or at intersections that may become signalized in the future on a case-by- case basis.

Design criteria for arterial streets shall be established jointly by the Village Engineer and the NCDOT on a case-by-case basis using the latest edition of the American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highway and Streets and/or NCDOT Roadway Design Manual.

Intersection corner easements – A minimum 35 x 35-foot triangular maintenance easement (measured along right-of-way lines) shall be provided at each intersection corner where any street type intersects a collector or thoroughfare. A minimum 15 x 15-foot triangular maintenance easement (measured along right-of-way lines) shall be provided at each intersection corner where two local streets intersect. An additional 10 x 70-foot triangular maintenance easement shall be provided at intersections connecting to NCDOT maintained roadways (measured along right-of-way lines). Driveways (no formal right-of-way) to serve a single project may be required to provide triangular maintenance easements as determined on a case by case basis. Other triangular maintenance easements or sight distance requirements may be required by the NCDOT or the Village at all intersections.

Sidewalks and Driveways

1. Planting strip adjacent to sidewalk shall be graded to one quarter inch per foot (min.) up to one and one quarter inch per foot (max.), except where excessive natural grades make this requirement impractical. In such cases, the Village Engineer may authorize a suitable grade.

2. Sidewalk widths shall be a minimum of five feet unless otherwise specified.

3. Accessible ramps are required where sidewalks intersect curbing at any street intersection and curbed driveway connections.

Roundabouts

Refer to the Manual on Uniform Traffic Control Devices (MUTCD) for roundabout signage and pavement markings.

C. Storm Drainage

1. In addition to this manual, all storm drainage design shall conform to the standards and specifications as provided in the Charlotte-Mecklenburg Storm Water Design Manual, and NCDOT Standards Specifications for Roads and Structures. If conflicts occur, the more restrictive standard shall govern.
2. Reinforced concrete pipe may be used in all storm drain applications. High Density Polyethylene Pipe (HDPE) may be substituted for pipe diameters of 48 inches or less as approved by the Village Engineer. Culverts 60 inches in diameter or greater may be Corrugated Aluminized Metal Pipe (CAMP) or aluminum with a minimum 14-gauge metal subject to approval of the Village Engineer.
3. The minimum cover for all pipes is two feet measured from the final surface. Special applications for less than two feet of cover will be reviewed and approved by the Village Engineer individually. The maximum cover for storm drainage pipes shall at a minimum comply with the requirements of the NCDOT Roadway Design Manual, Part I, Section 5, and "Drainage Design". Storm pipe design that exceeds these criteria may be approved at the discretion of the Village Engineer.
4. All storm drain structures over three feet six inches in height must have steps in accordance with standard details set forth in this manual.
5. All graded creek banks and slopes shall be at a maximum of two feet horizontal to one foot vertical (2:1) and not to exceed ten feet without terracing or the slopes shall be designed by a Professional Geotechnical Engineer and approved by the Village Engineer on a case by case basis.
6. Adequate storm drainage shall be provided throughout the development by means of storm drainage pipes or properly graded channels. All pipes shall be of adequate size and capacity, as approved by the Village Engineer, to carry all storm water in its drainage area.
7. In accordance with the Village Subdivision Ordinance, the Village Engineer or duly authorized designee shall review the drainage plan for compliance with the standards contained in the current edition of the Village of Marvin Engineering Standards and Procedures Manual and the Charlotte-Mecklenburg Storm Water Design Manual and all other relevant and appropriate standards established by the Village Engineer.
8. Sub-surface drainage shall be provided where the ground water level is likely to be near the surface. In capillary soils, the water level should be four to six feet below the surface to prevent the rise of moisture into the subgrade. Subdrains shall be used to lower ground water in low areas in the street.
9. All Storm Drainage Easements must extend down stream of flared end sections to an appropriate property line or buffer. Overlapping of storm drainage easements shall be approved by the Village Engineer on a case by case basis.
10. Storm Drainage Easements shall be provided for all storm drainage pipes and shown on site plans, construction plans and plats with widths specified in detail 314.1. The following note shall be placed on all grading plans and plats; "The purpose of the storm drainage easement (SDE) is to

provide storm water conveyance. Buildings are not permitted in the easement area. Any other objects which impede storm water flow or system maintenance are also prohibited."

11. In areas where the Floodway Regulations are applicable, the Future Conditions Flood Fringe Line, FEMA Flood Fringe Line, Community Encroachment Line, and FEMA Encroachment Line shall be shown on the preliminary plan and the final plat.

D. Utilities

1. Avoid placement of sewer manholes in gutter pans, the crown of the road, wheel paths, wheelchair ramps, and over stormwater lines.

2. Avoid placement of water lines under roadway pavement.

3. Water valves shall not be placed in curbing.

E. Signage

All regulatory, warning, and guide roadway signage shall be consistent with the Manual on Uniform Traffic Control Devices (MUTCD), the North Carolina Supplement to the MUTCD or as specified in this manual. All street name markers are also to be designed in accordance with 700 series standard drawings. All street name markers shall be nine-inch-tall extruded aluminum blades and utilize high intensity white prismatic reflective sheeting.

Street name markers within the Village limits shall include the Village logo.

F. Cluster Box Units (CBU's)

Mail cluster box units shall be placed outside of the line of sight (determined by intersection sight distance measurements), sight distance triangles and intersection corner easements. They shall not be placed between the subdivision entrance and its first street intersection. It is best to avoid placing CBU's on the main entrance road to a subdivision, however, special cases may apply.

When locating CBU's near on-street parking, do not place units directly adjacent to the on-street parking. CBU's shall be behind the sidewalk in such cases.

When placing CBU's within the green zone, units shall be oriented perpendicular to the street.

Access easements shall be required for all CBU's located outside of the right-of-way and/or common open space.

The ultimate goal in determining locations for mail cluster box units is to avoid placing the CBU in any way which encourages driving on the wrong side of the street and/or hinders handicap accessibility.

III. Specifications and Special Provisions

A. General Notes

The following specifications and special provisions are intended to be used in conjunction with Village of Marvin Standard Drawings, NCDOT Roadway Standard Drawings, and NCDOT Standard Specifications for Roads and Structures for all development within the Village of Marvin unless otherwise directed by the Village Engineer.

1. Unless otherwise specified in this manual, **all work and materials shall conform to the latest edition of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.**

2. All backfill material shall be non-plastic in nature, free from roots, vegetative matter, waste, construction material or other objectionable material. Said material shall be capable of being compacted by mechanical means and the material shall have no tendency to flow or behave in a plastic manner under the tamping blows or proof rolling.

3. Materials deemed by the inspector as unsuitable for backfill purposes shall be removed and replaced with select backfill material.

4. Compaction requirements shall be attained by the use of mechanical compaction methods. Each six-inch layer of backfill shall be placed loose and thoroughly compacted into place.

5. ALL concrete used in the public right-of-way for streets, curb and gutter, sidewalks and drainage structures, etc. shall have a minimum compressive strength of 3600 PSI at 28 days. This requirement shall be provided regardless of any lesser compressive strength specified in the North Carolina Department of Transportation Standard Specifications for Roads and Structures. The contractor shall prepare concrete test cylinders in accordance with Section 1000 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures at the direction of the project inspector. All equipment and cylinder molds shall be furnished by the contractor. It shall be the responsibility of the contractor to protect the cylinders until such time as they are transported for testing. Testing for projects shall be performed by an independent testing lab, at no cost to the Village. The contractor shall provide equipment and perform tests on concrete for a maximum slump and air content as defined in Section 1000 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures. These tests shall be performed at a frequency established by the inspector. Materials failing to meet specifications shall be removed by the contractor.

6. Concrete or asphalt shall not be placed until the air temperature measured at the location of the paving operation is at 35 degrees Fahrenheit and rising by 10:00 a.m. Concrete or paving operations should be suspended when the air temperature is 40 degrees Fahrenheit and descending. The contractor shall protect freshly placed concrete or asphalt in accordance with Sections 420 (Concrete Structures), 600 (Asphalt Bases And Pavements), and 700 (Concrete Pavements And Shoulders) of the North Carolina Department of Transportation Standard Specifications for Roads and Structures when the air temperature is at or below 35 degrees Fahrenheit and the concrete has not obtained an age of 72 hours.

7. Plant all street trees in the middle of the planting strip unless otherwise noted on the standard detail.

Grading

1. Proposed street rights-of-way shall be graded to their full width for ditch type streets and a minimum of eight feet behind the curb for curb and gutter sections.

2. Fill embankments shall be constructed in accordance with section 235 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures and placed in successive lifts not to exceed more than six inches in depth for the full width of the cross-section, including the width of the slope area. No stumps, trees, brush, rubbish or other unsuitable materials or substances shall be placed in the right-of-way. Each successive six-inch layer shall be thoroughly compacted by the sheepsfoot tamping roller, 10-ton power roller, pneumatic-tired roller, or other methods approved by the Village Engineer. Embankments over and around all pipe culverts shall be of select material, placed and thoroughly tamped and compacted as directed by the Village Engineer or his representative.

Roadway Base

1. All roadways shall be constructed with a base course as detailed on the applicable Village of Marvin Standard Detail Drawing.

2. The material for the aggregate base course (ABC) shall be in conformance with Section 520 – Aggregate Base Course of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

3. An asphalt concrete base course, as detailed on the Standard Detail Drawing may be substituted in lieu of an aggregate base course and shall be in accordance with all applicable articles of the North Carolina Department of Transportation Standard Specifications for Roads and Structures.

4. Asphalt concrete base course (ACBC) shall be used for widening strips less than five feet in width.

Roadway Intermediate and Surface Course

1. Plant mixed asphalt shall conform in all respects to Section 610 of the NCDOT Standard Specifications for Roads and Structures.

2. The final one- and one-half inch lift of asphalt surface course for residential subdivision streets shall be withheld until a minimum 90 percent of the development is occupied (occupied means a certificate of occupancy has been issued) (All documentation to be provided by the developer and approved by the Village Engineer or designee). All deficiencies shall be repaired prior to application of the final one- and one-half inch lift of asphalt surface course.

3. The Village Engineer shall be given at least a 48-hour notification to inspect and approve repairs prior to application of the final layer of asphalt. All deficiency repairs are to be monitored and accepted by the Village Engineer or designee.

4. The Village Engineer shall be notified prior to using recycled plant mixes.

5. Failure to meet any of the requirements of this manual may result in the delay or prevention of street acceptance by the Village of Marvin or NCDOT.

Sidewalks and Driveways

1. Sidewalks shall be constructed with concrete having a minimum compressive strength of not less than 3600 P.S.I. concrete. The sidewalk shall be at least six inches thick where sidewalk crosses a driveway and at least four inches thick in all other locations. The subgrade shall be compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test. The surface of the sidewalk shall be steel trowel and light broom finished and cured with an acceptable curing compound. Tooled joints shall be provided at intervals of not less than five feet and expansion joints at intervals of not more than 45 feet. The sidewalk shall have a lateral or cross slope of one-quarter inch per foot.

2. Planting strip adjacent to sidewalk shall be graded to ¼ inch per foot (min.) up to 1 ¼ inch per foot maximum, except where excessive natural grades make this requirement impractical. In such cases, the Village Engineer may authorize a suitable grade.

3. Sidewalk widths shall be a minimum of five feet unless otherwise specified.

4. Approval of sidewalk construction plans must be obtained as part of the plan review process. A recorded permanent public sidewalk easement is required for all sidewalk located outside public right-of-way; the width of the easement shall be specified by the Village. The sidewalk easement must be recorded with the Union County Register of Deeds prior to issuance of a certificate of occupancy for the corresponding building(s).

5. Accessible ramps are required where sidewalks intersect curbing at all street intersections and curbed driveway connections.

B. 100 Series Drawings – Miscellaneous Concrete Infrastructure

Drawings in this series include details for curb and gutter, sidewalks, driveways, accessible ramps, culvert crossings, and street tapers. The following list provides information in addition to that included in the standard drawings in this series.

1. All curb and gutter shall be backfilled with soil approved by the Inspector within 48 hours after construction to prevent erosion.

2. All concrete shall be cured with 100 percent Resin Base, white pigmented curing compound which meets ASTM Specifications C-309, Type 1, applied at a uniform rate at one gallon to 400 square feet within 24 hours of placement of the concrete.

3. Straight forms shall not be used for forming curb and gutter in curves.

4. All excess concrete on the front edge (lip) of gutter shall be removed when curb and gutter is poured with a machine.

C. 200 Series Drawings – Street Sections

Drawings in this series include details for street typical sections including pavement design, cul-de-sacs, parallel parking space location/layout, alleys, and hammerheads.

1. All asphalt cuts shall be made with a saw when preparing street surfaces for patching or widening strips.

2. All subgrade shall be compacted to 100% of the maximum density obtainable with the Standard Proctor Test to a depth of twelve (12) inches, and a density of 95% Standard Proctor for depths greater than twelve (12) inches. All tests shall be performed by developer at no cost to the Village.

3. Paper joints shall be used to seal the ends of an asphalt pour so that future extensions can be made without causing rough joints.

4. When placing asphalt against existing surfaces, a straight edge shall be used to prevent "humping" at that location.

5. Stone shall be primed if paving is not complete within seven days following stone base approval.

6. Surfaces shall be tacked when asphalt is being placed over existing asphalt streets or adjoining concrete, storm drain and sanitary sewer structures.

7. Sweeping of the stone base and/or application of a tack coat may be required near intersections. These requirements will be established by the Village/NCDOT Inspector based on field conditions.

8. A canvas cover or other suitable cover shall be required for transporting plant mix asphalt during cool weather when the following conditions are present:

    a. Air temperature is below 60 degrees Fahrenheit.
    b. Length of haul from plant to job is greater than five (5) miles.
    c. Other occasions at the Inspector's discretion when a combination of factors indicates that material should be covered in order to assure proper placement temperature.

9. Roadside ditches shall conform to NCDOT standards unless otherwise specified by Village along Village maintained roads.

D. 300 Series Drawings – Storm Drainage

Drawings in this series include NCDOT standards approved for use, catch basins, wingwalls, riprap aprons, flared end section pipe, riprap plunge pools, trench drains, paved ditches, subdrains, overlapping of easements, minimum drainage easements, and grading at drop inlets. The following list provides information in addition to that included in the standard drawings in this series.

1. All concrete shall be at least 3600 PSI. Prior approval from the Village Engineer shall be obtained in order to use pre-cast storm drainage structures in any street right-of-way.

2. Concrete pipe used within the street right-of-way shall be a minimum of Class III Reinforced Concrete Pipe, with a minimum diameter of fifteen inches (eighteen inches minimum on cross drain culverts). Installation of Class IV or higher concrete pipe shall be identified on the As-Built Plan and the Village Inspector shall be given documentation and notification of this information prior to construction.

3. Concrete mortar joints shall be used for joining all concrete pipes. The pipe shall be clean and moist when mortar is applied. The lower portions of the bell or groove shall be filled with mortar sufficient to bring the inner surface flush and even when the next joint is fitted into place. The remainder of the joint shall then be filled with mortar and a bead or ring of mortar formed around the outside of the joint. The application of mortar may be delayed until fill is completed when the pipe is larger than thirty inches.

4. Performed joint sealer, which conforms to AASHTO specification M-198 for Type B flexible plastic gaskets, may be used in lieu of the mortar joining method.

5. Under no circumstances shall water be permitted to rise in un-backfilled trenches after the pipe has been placed.

<u>High Density Polyethylene Pipe (HDPE)</u>

1. All trenches in the street right-of-way shall be backfilled with suitable material immediately after the pipe is laid. The fill around all pipes shall be placed in layers not to exceed six inches and each layer shall be compacted thoroughly.

2. Any installation within the maintenance limits of the Village is subject to the approval of the Village Engineer.

3. The product used shall be corrugated exterior/smooth interior pipe (Type S), conforming to the requirements of AASHTO Specification M294 (latest edition) for Corrugated Polyethylene Pipe.

4. Bell and spigot joints shall be required on all pipes inside the right-of-way. Bells shall cover at least two full corrugations on each section of pipe. The bell and spigot joint shall have an “O” ring rubber gasket meeting ASTM F477 with the gasket factory installed, placed on the spigot end of the pipe. Pipe joints shall meet all requirements of AASHTO M294.

5. All HDPE pipe installed must be inspected and approved by the Village's Inspector prior to any backfill being placed. The Village Engineer or his designee must be present during the backfilling operation.

6. Backfill material used to install HDPE pipe within the street right-of-way shall be Select Material, Class II-IV, as defined by Section 1016-3 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures. Upon submittal of written certification of material suitability by a licensed geotechnical engineer, NCDOT Class I Select Material may be used. All backfill material shall be approved by the Village inspector prior to placement of the material within the Village street right-of-way.

7. The minimum length of HDPE pipe permitted for use shall be four feet. HDPE flared end sections are not allowed.

8. All HDPE pipe installed shall be third party certified and shall bear the Plastic Pipe Institute's (PPI) certificate sticker.

Installation of Reinforced Concrete and Corrugated Metal Pipe

1. All backfill shall be non-plastic in nature, free from roots, vegetative matter, waste, construction material or other objectionable material. Said material shall be capable of being compacted by mechanical means and shall have no tendency to flow or behave in a plastic manner under the tamping blows or proof rolling.

2. Materials deemed by the Engineer as unsuitable for backfill purposes shall be removed and replaced with select backfill material.

3. Backfilling of trenches shall be accomplished immediately after the pipe is laid. The fill around the pipe shall be placed in layers not to exceed eight inches; each layer shall be thoroughly compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test (a density of 100 percent Standard Proctor is required for the top eight inches).

4. Compaction requirements shall be attained by the use of mechanical compaction methods. Each layer of backfill shall be placed loose and thoroughly compacted in place.

E. 400 Series Drawings – Greenway Standards

SPECIAL PROVISIONS

The following Special Provisions supplement the NCDOT Standard Specifications for Roads and Structures (latest edition) and the Village of Marvin Standard Details (Sheets 401.1 – 413.1). Where a conflict occurs, these provisions shall govern.

Scope of Work

The work covered by these Special Provisions consists of the construction of greenways, multi-use paths, and associated features in accordance with the Standard Details and these provisions. Work includes grading, drainage, paving, structures, amenities, signage, and site restoration.

References

- NCDOT Standard Specifications for Roads and Structures
- NCDOT Roadway Standard Drawings
- MUTCD (Manual on Uniform Traffic Control Devices)
- PROWAG (Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way)
- AASHTO Guide for the Development of Bicycle Facilities

Materials

1. Pavement

Asphalt surface course shall meet NCDOT Type S 9.5B unless otherwise noted. Where porous asphalt is specified, provide a mix design meeting ASTM D7064.
Concrete shall meet NCDOT Section 848, minimum 4,000 psi at 28 days, broom finish unless otherwise shown.

2. Base Course & Subgrade

Aggregate base shall meet NCDOT Section 1010, Class 5 or 6.
Geogrid products, where specified, shall comply with Sheet 403.1 “Geo-Grid Notes.”

3. Structures and Amenities

Boardwalks, pedestrian bridges, benches, bike racks, trash receptacles, and lighting shall be of the type and manufacturer shown in the plans or approved by the Engineer.
Treated lumber for structures shall meet AWPA UC4B standards.

Construction Methods

1. General

Follow all general notes on applicable standard sheets (e.g., Sheet 404.1–404.2 “Grading and Fill Notes,” Sheet 409.1 “Concrete Notes”). Protect existing utilities and coordinate relocations with utility owners.

2. Environmental Protections

Install tree protection fencing prior to land disturbance.
Stream and wetland crossings shall use methods described in the approved erosion control plan.

3. ADA Compliance

Maximum cross slope: 2%.

Maximum running slope: 5% unless otherwise shown, with resting intervals as required by PROWAG.

Detectable warning surfaces at all roadway and driveway crossings.

Signage, Striping & Markings

MUTCD-compliant regulatory and warning signs unless otherwise noted.

Trail-specific wayfinding and interpretive signs per project plans.

Pavement markings per NCDOT Section 1205. Colored surface treatments shall meet FHWA skid resistance requirements.

Quality Control & Testing

Compaction testing for subgrade and base course per NCDOT Section 500.

Finished pavement surface: no deviation > ¼ inch in 10 feet, positive drainage with no ponding.

Structures inspected for alignment, structural integrity, and compliance with tolerances before acceptance.

Measurement & Payment

Payment will be made at the contract unit or lump sum price for each pay item listed in the Bid Form.

Items not specifically listed will be considered incidental to the work.

Lump sum items shall include all labor, materials, equipment, and incidentals necessary for a complete installation.

F. 500 Series Drawings – RESERVED

G. 600 Series Drawings – RESERVED

H. 700 Series Drawings – Miscellaneous

Drawings in this series include concrete control monuments, handrails, street name signs, end of road devices and markers, parking standards, accessible parking signage, roundabout signage, emergency vehicle median crossovers, bicycle racks and bicycle lockers.

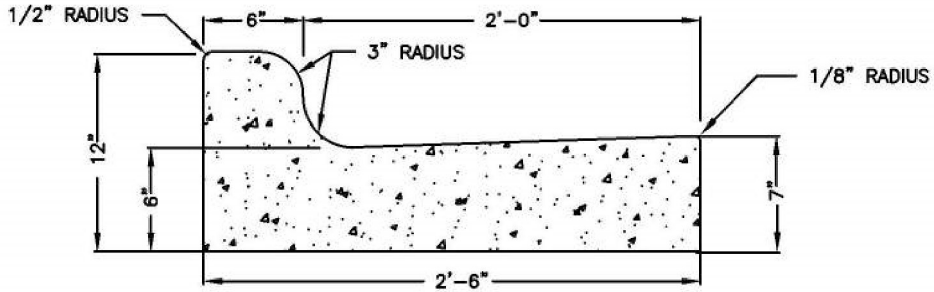
I. Traffic Control

The contractor shall maintain two-way traffic at all times when working within existing streets. The contractor shall place and maintain signs, danger lights, and barricades and furnish watchmen or flagmen to direct traffic in accordance with the latest edition Work Area Traffic Control Handbook (WATCH), Work in the right-of-way of State System Streets may require additional traffic control provisions.

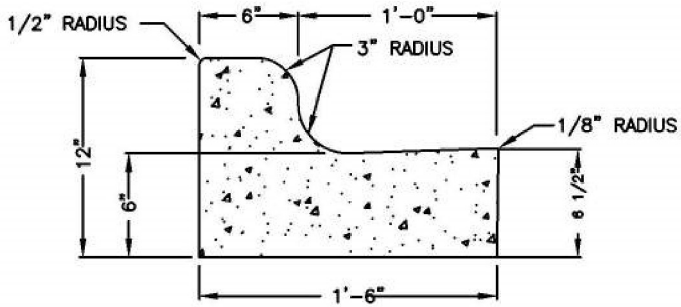
Refer to the Work Area Traffic Control Handbook (WATCH) for traffic control needs for work within the road right-of-way.

References

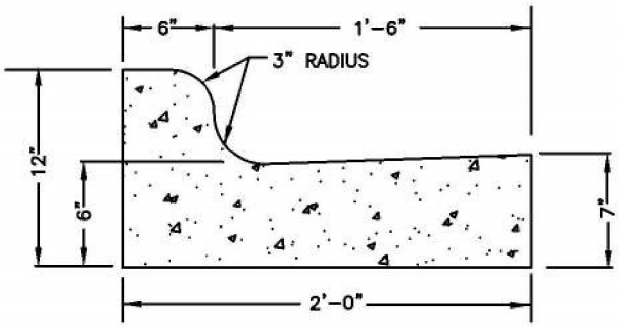
1. North Carolina Department of Transportation, most recent edition, Standard Specifications for Roads and Structures.
2. North Carolina Department of Transportation, most recent edition, Roadway Standards Drawings.
3. City of Charlotte Department of Transportation, most recent edition, Work Area Traffic Control Handbook (WATCH).
4. City of Charlotte Storm Water Services-Mecklenburg County Storm Water Services most recent edition, Charlotte-Mecklenburg Storm Water Design Manual.
5. American Association of State Highway and Transportation Officials most recent edition, A Policy on Geometric Design of Highways and Streets.
6. North Carolina Department of Transportation, Roadway Design Manual, latest edition.
7. North Carolina Department of Environment and Natural Resources most recent edition, Erosion and Sediment Control Planning and Design Manual.
8. Charlotte-Mecklenburg BMP Design Manual, latest edition.
9. Mecklenburg County Storm Water Services, most recent edition, Administrative Manual for Implementation of the Post-Construction Storm Water Ordinance.
10. Mecklenburg County Board of County Commissioners, most recent edition, Mecklenburg County Soil and Sedimentation Control Ordinance.
11. Manual of Uniform Traffic Control Devices for Streets and Highways, Federal Highway Administration, latest edition.



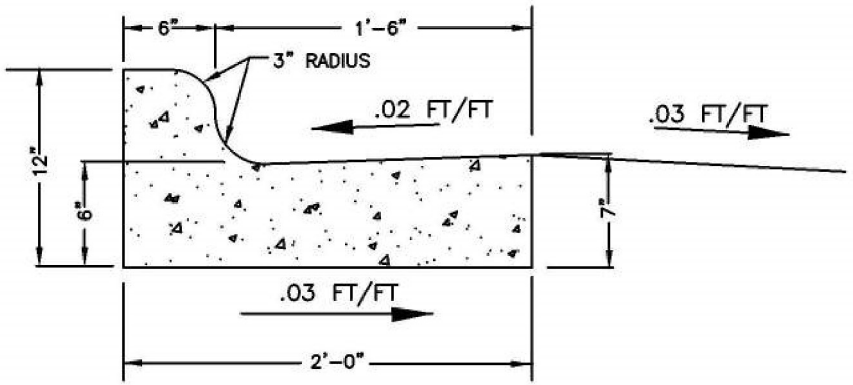
STANDARD 2'-6" CURB AND GUTTER



1'-6" STANDARD CURB AND GUTTER



2'-0" STANDARD CURB & GUTTER

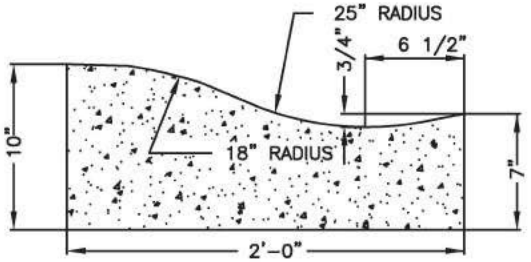


SLOPE FOR VARIABLE
SUPERELEVATION RATES

NOT TO SCALE

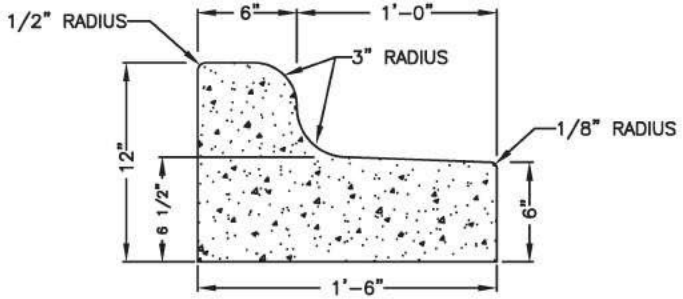
VILLAGE OF MARVIN STANDARD DRAWING	STANDARD CURB AND GUTTER	REV. DATE
		STD. NO. 100.1

2'–0" VALLEY GUTTER



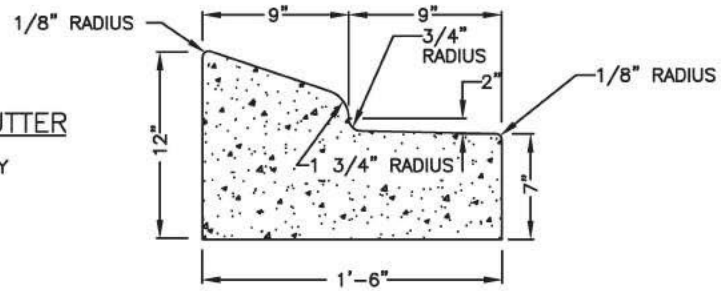
1'–6" MEDIAN CURB AND GUTTER

TO BE USED IN MEDIANS WHEN LANES ARE SLOPED FROM ISLAND OR AS SPECIFIED BY THE ENGINEER.



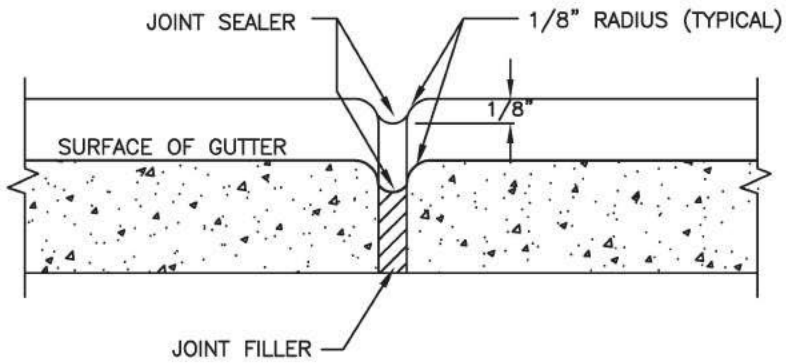
1'–6" MOUNTABLE CURB AND GUTTER

TO BE USED IN MEDIANS ONLY: WHEN SPECIFIED BY THE ENGINEER.



NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	OTHER CURB AND GUTTER	REV. DATE STD. NO. 101.1



TRANSVERSE EXPANSION JOINT

NOTES:

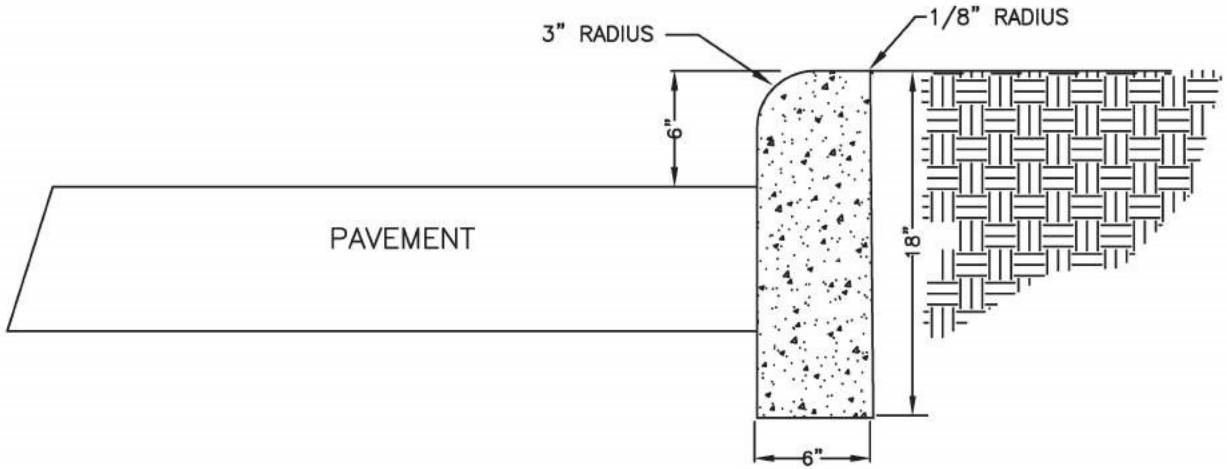
1. CONTRACTION JOINTS SHALL BE SPACED AT 10–FOOT INTERVALS. FOR VALLEY GUTTER, A 10–FOOT SPACING MAY BE USED WHEN A MACHINE IS USED. JOINT SPACING MAY BE ALTERED BY THE VILLAGE ENGINEER TO PREVENT UNCONTROLLED CRACKING.
2. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1 1/2" SHALL BE OBTAINED.
3. ALL EXPANSION JOINTS SHALL BE SPACED AT 90–FOOT INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS. JOINTS SHALL MATCH LOCATIONS WITH JOINTS IN ABUTTING SIDEWALK.
4. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 P.S.I. IN 28 DAYS.
5. CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
6. TOP 6" OF SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	CONCRETE CONTRACTION JOINT	REV. DATE
		STD. NO. 102.1

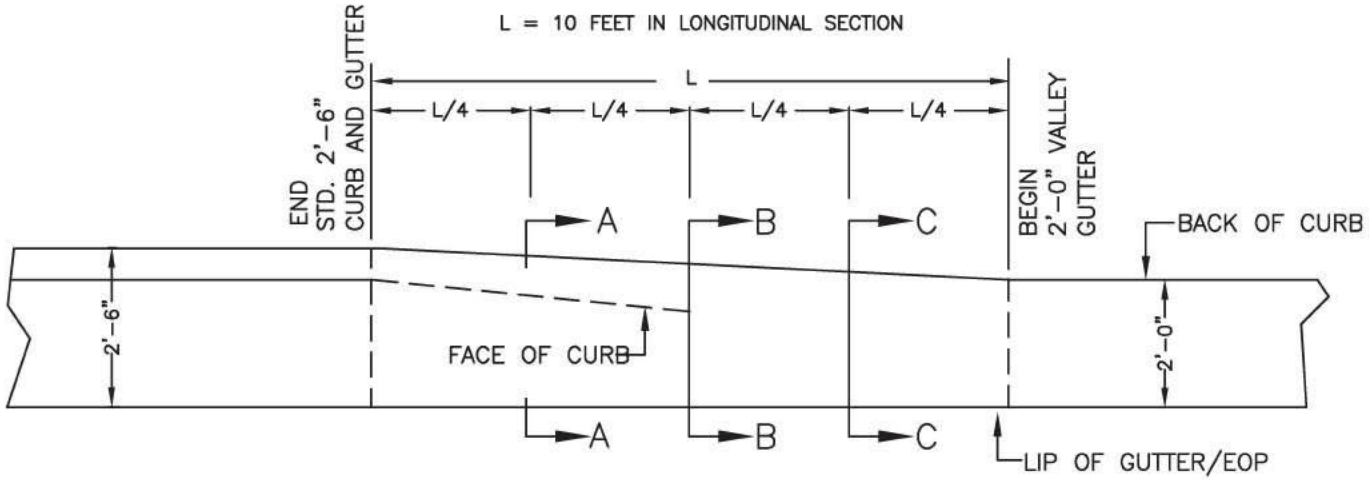
NOTES:

1. CONTRACTION JOINTS SHALL BE SPACED AT 10–FOOT INTERVALS. JOINT SPACING MAY BE ALTERED BY THE ENGINEER TO PREVENT UNCONTROLLED CRACKING.
2. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1 1/2" SHALL BE OBTAINED.
3. ALL EXPANSION JOINTS SHALL BE SPACED AT 90–FOOT INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS. JOINTS SHALL MATCH LOCATIONS WITH JOINTS IN ABUTTING SIDEWALK.
4. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 P.S.I. IN 28 DAYS.
5. CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
6. TOP 6" OF SUBGRADE BENEATH THE CURB SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.
7. DETAIL MAY BE USED FOR PRIVATE DRIVES, PARKING LOTS, AND INTERIOR CIRCULATION DRIVE.

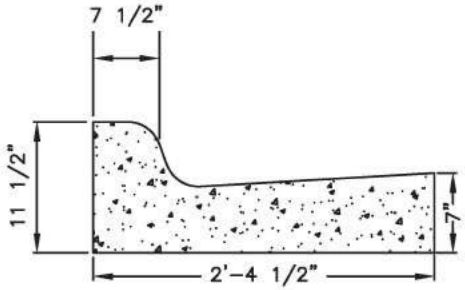


NOT TO SCALE

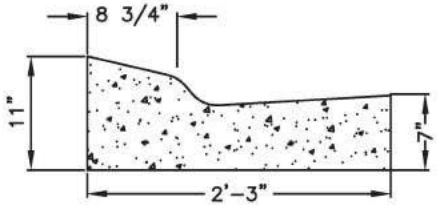
VILLAGE OF MARVIN STANDARD DRAWING	18" VERTICAL CURB	REV. DATE
		STD. NO. 103.1



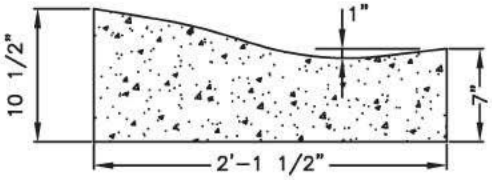
PLAN VIEW



SECTION A–A



SECTION B–B



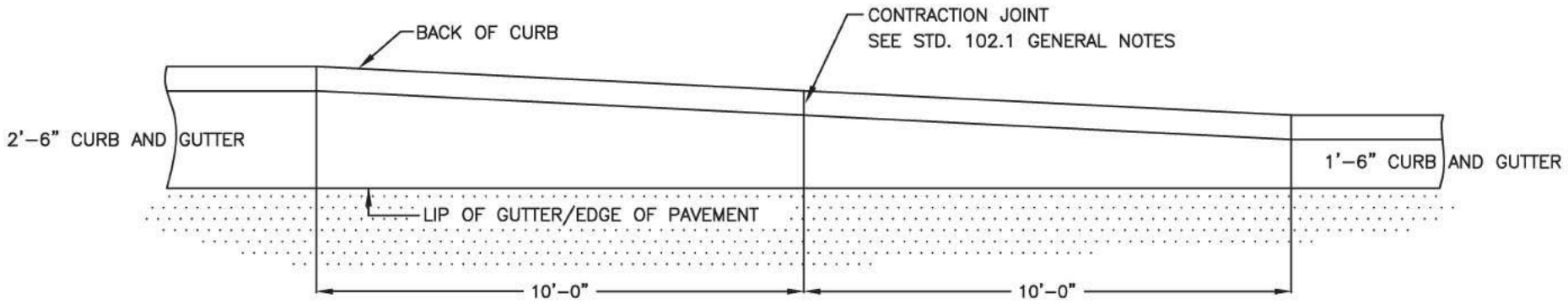
SECTION C–C

NOTES:

1. TRANSITION IS NOT TO BE LOCATED WITHIN THE CURB RADIUS.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	CURB TRANSITION 2'–6" CURB AND GUTTER TO 2'–0" VALLEY GUTTER	REV. DATE STD. NO. 104.1



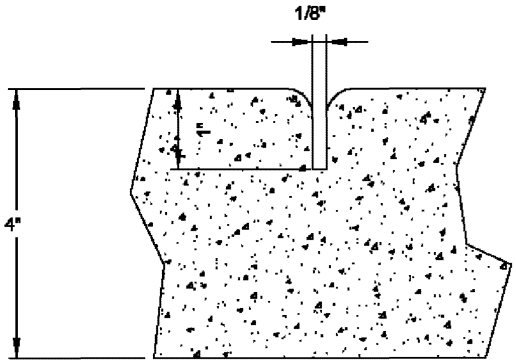
PLAN VIEW

NOTES:

1. TRANSITION TO BE ALONG BACK OF CURB.

NOT TO SCALE

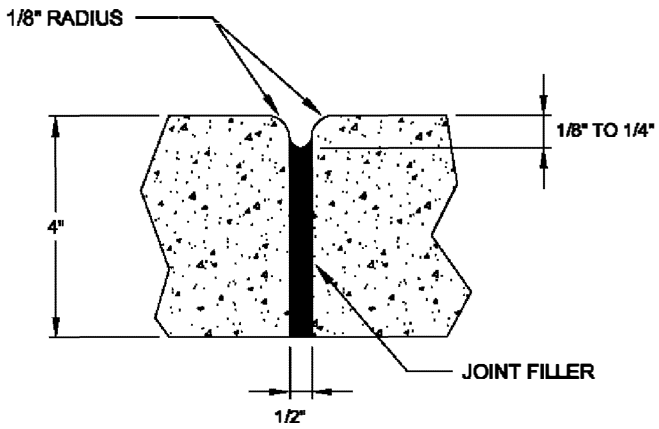
VILLAGE OF MARVIN STANDARD DRAWING	CURB TRANSITION 2'–6" CURB AND GUTTER TO 1'–6" CURB AND GUTTER	REV. DATE STD. NO. 105.1



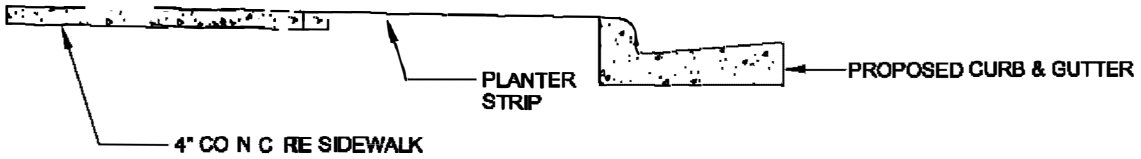
GROOVE JOINT IN SIDEWALK

GENERAL NOTES:

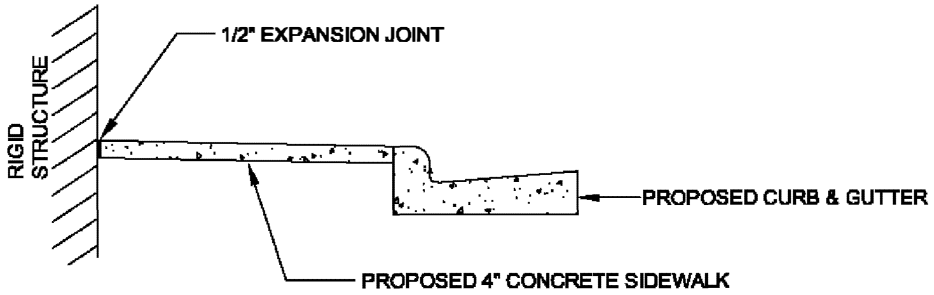
1. A GROOVE JOINT 1" DEEP WITH 1/8" RADII SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS NOT TO EXCEED 50' AND MATCHING EXPANSION/CONSTRUCTION JOINT IN ADJACENT CURB. A SEALED 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
2. SIDEWALK AT DRIVEWAY ENTRANCES TO BE 6" THICK.
3. WIDTH OF SIDEWALK ON ALL STREETS SHALL BE A MINIMUM OF 5'.
4. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 PSI. IN 28 DAYS.
5. ZONING CONDITIONS MAY REQUIRE ADDITIONAL WIDTH SIDEWALKS WHICH SHALL SUPERSEDE THESE STANDARD DIMENSIONS SHOWN.



TRANSVERSE EXPANSION JOINT IN SIDEWALK

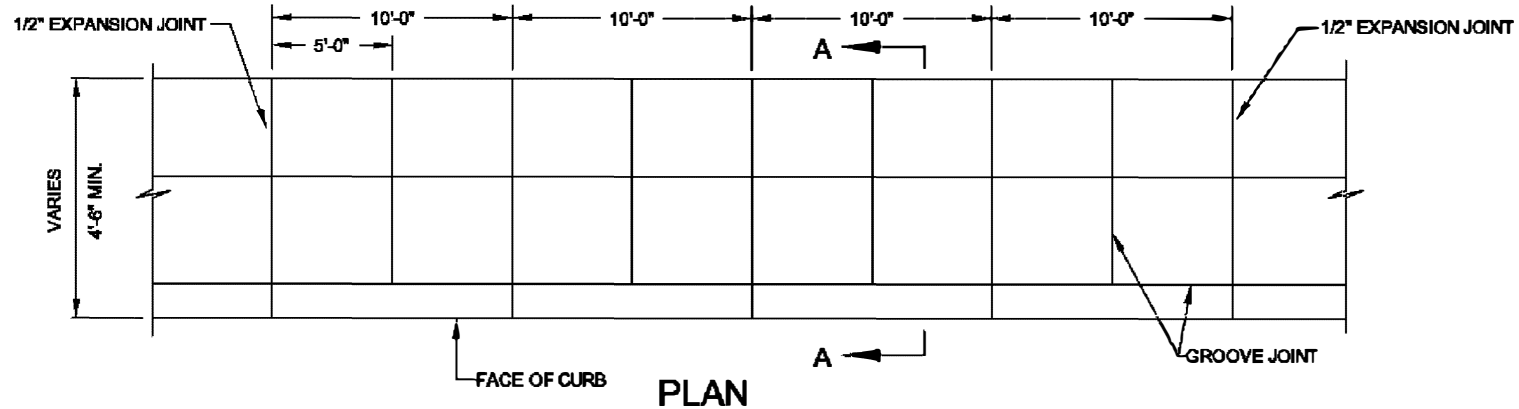


CONCRETE SIDEWALK WITH PLANTER STRIP

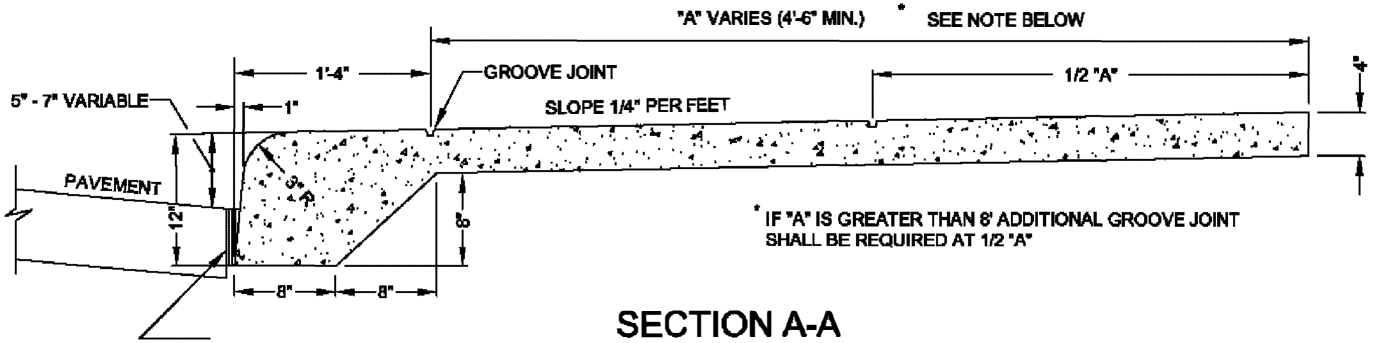


DETAILS SHOWING EXPANSION JOINTS FOR CONCRETE SIDEWALK

VILLAGE OF MARVIN, NC	CONCRETE SIDEWALK	STD. 106.1	REVISIONS: NO / DATE / BY / COMMENT



PLAN



SECTION A-A

TWO 1/2" THICK PIECES IF SUBBASE IS CONCRETE. APPROVED JOINT SEALER.

BITUMINOUS FIBER REQUIRED MUST BE SEALED WITH

GENERAL NOTES:

1. A GROOVE JOINT 1" DEEP WITH 1/3" RADII SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 40' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
2. ALL CONCRETE TO BE 3600 P.S.I. COMPRESSIVE STRENGTH.
3. SEE STANDARD FOR DETAIL OF EXPANSION JOINT AND GROOVE JOINT.
4. SEE STANDARD FOR DETAIL OF DRIVEWAY.
5. MONOLITHIC CURB AND SIDEWALK TO BE CONSTRUCTED ONLY WHEN APPROVED BY THE APPROPRIATE PUBLIC WORKS ENGINEER.

VILLAGE OF MARVIN, NC	MONOLITHIC CURB AND SIDEWALK	STD. 107.1

REVISIONS			
NO	DATE	BY	COMMENT

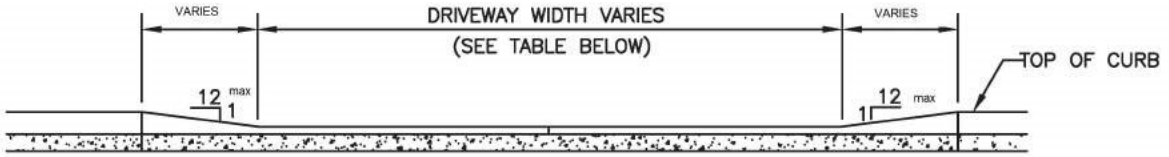
NOTE:

1. 1/2" EXPANSION JOINTS REQUIRE INSTALLATION OF ONE 1/2" THICK PIECE OF BITUMINOUS FIBER THROUGH THE ENTIRE SLAB.
2. TO LIMIT STORM WATER FLOW DOWN DRIVEWAYS, USE STANDARD 110.1 FOR DRIVEWAYS NEAR LOW POINTS.
3. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
4. "A" BREAKOVER SHALL BE 8% OR LESS (A = ALGEBRAIC DIFFERENCE).
5. PRIOR APPROVAL IS REQUIRED ON GRADES EXCEEDING WHAT ARE SHOWN.
6. * PER NC IFC SECTION D103.2 FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 10 PERCENT IN GRADE.

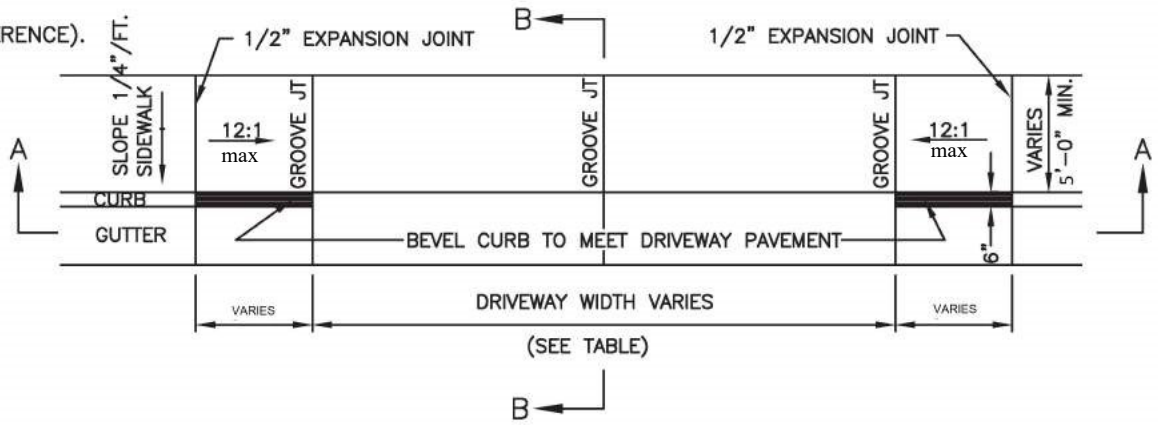
GENERAL NOTES:

ALL CONCRETE TO BE 3600 P.S.I. COMPRESSIVE STRENGTH.

ALL CURB, CURB AND GUTTER AND SIDEWALKS ARE TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT. SEE STD. NO 102.1 FOR DETAIL OF EXPANSION JOINT AND GROOVE JOINT.



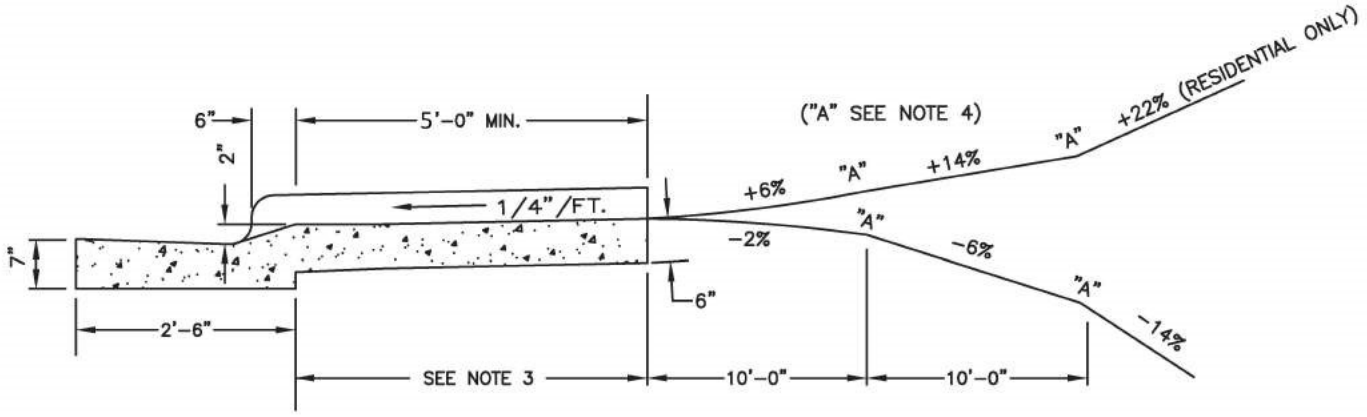
SECTION A – A



PLAN

DRIVEWAY CLASSIFICATION		
TYPE DRIVEWAY	MINIMUM	MAXIMUM
TYPE I–RESIDENTIAL LOCAL/COLLECTOR	10'	30'
TYPE I–RESIDENTIAL THOROUGHFARE*	15'	30'
ONE–WAY TYPE II COMMERCIAL	20'	30'
TWO–WAY TYPE II COMMERCIAL	26'	50'

*MUST PROVIDE ON-SITE TURNAROUND



SECTION B – B

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

COMMERCIAL TYPE II AND RESIDENTIAL TYPE I DROP CURB DRIVEWAY WITH SIDEWALK ABUTTING CURB (2'–6" CURB AND GUTTER)

REV. DATE	
STD. NO.	108.1

NOTE:

1. 1/2" EXPANSION JOINTS REQUIRE INSTALLATION OF ONE 1/2" THICK PIECE OF BITUMINOUS FIBER MATERIAL THROUGH THE ENTIRE SLAB.
2. TO LIMIT STORM WATER FLOW DOWN DRIVEWAYS, USE STANDARD 110.1 FOR DRIVEWAY LOWPOINT.
3. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
4. "A" BREAKOVER SHALL BE 8% OR LESS (A = ALGEBRAIC DIFFERENCE).
5. PRIOR APPROVAL IS REQUIRED ON GRADES EXCEEDING WHAT ARE SHOWN.
6. *PER NC IFC SECTION D103.2, FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 10 PERCENT IN GRADE.

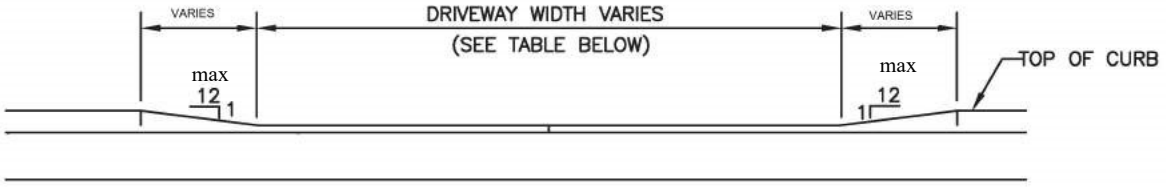
GENERAL NOTES:

ALL CONCRETE TO BE 3600 P.S.I. COMPRESSIVE STRENGTH.

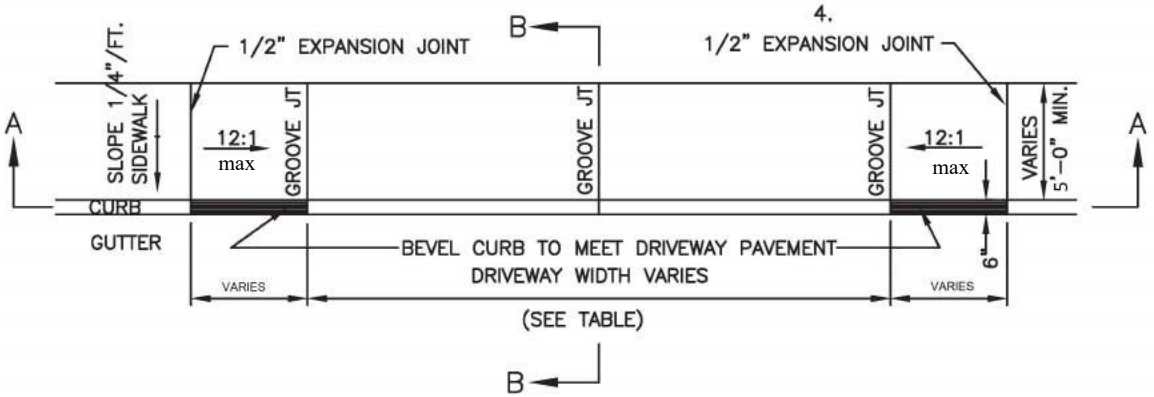
ALL CURB OR CURB AND GUTTER AND SIDEWALKS ARE TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT. SEE STD. NO 102.1 FOR DETAIL OF EXPANSION JOINT AND GROOVE JOINT.

DRIVEWAY CLASSIFICATION		
TYPE DRIVEWAY	MINIMUM	MAXIMUM
TYPE I–RESIDENTIAL LOCAL/COLLECTOR	10'	30'
TYPE I–RESIDENTIAL * THOROUGHFARE	15'	30'
ONE–WAY TYPE II COMMERCIAL	20'	30'
TWO–WAY TYPE II COMMERCIAL	26'	50'

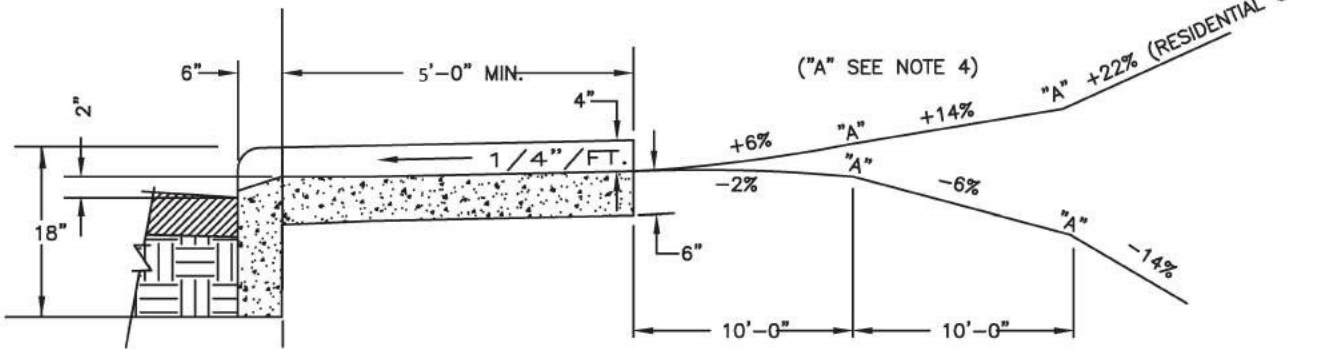
*MUST PROVIDE ON-SITE TURNAROUND



SECTION A – A



PLAN



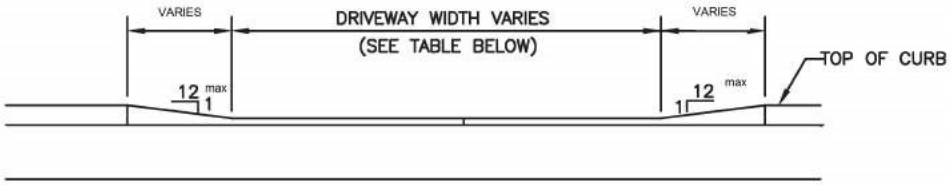
SECTION B – B

NOT TO SCALE

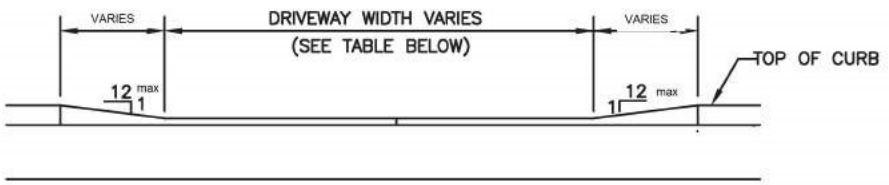
VILLAGE OF MARVIN STANDARD DRAWING

COMMERCIAL TYPE II AND RESIDENTIAL TYPE I DROP CURB DRIVEWAY WITH SIDEWALK ABUTTING CURB (6" X 18" VERTICAL CURB)

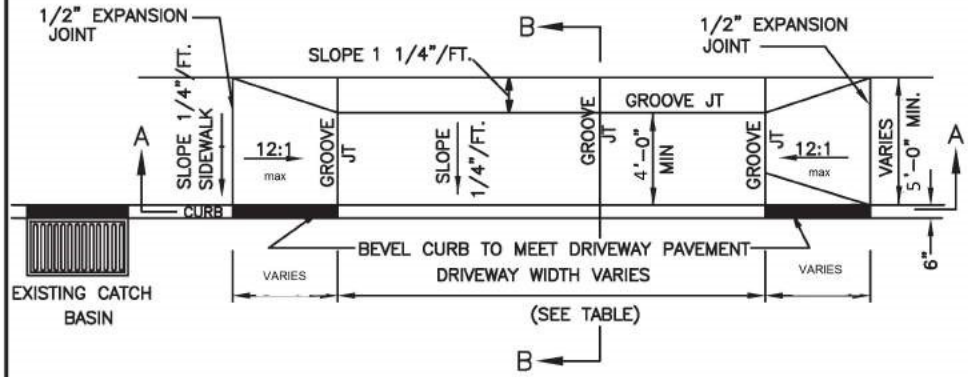
REV. DATE	
STD. NO.	109.1



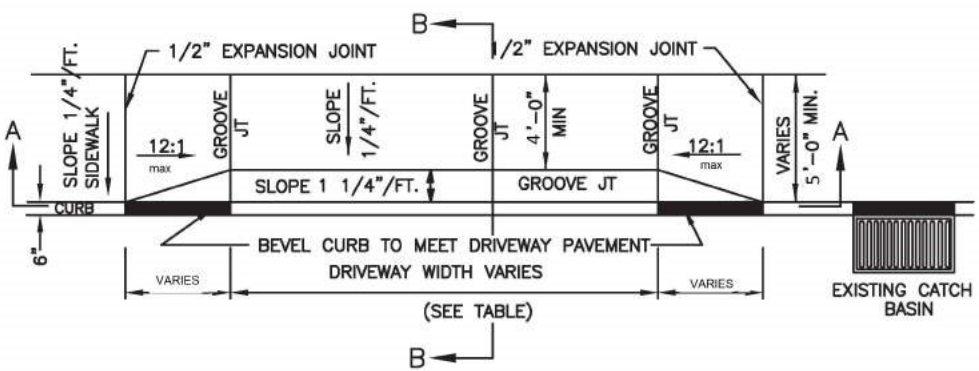
SECTION A – A



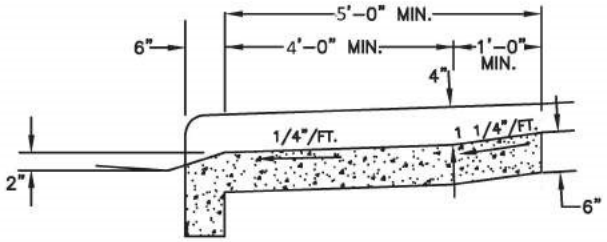
SECTION A – A



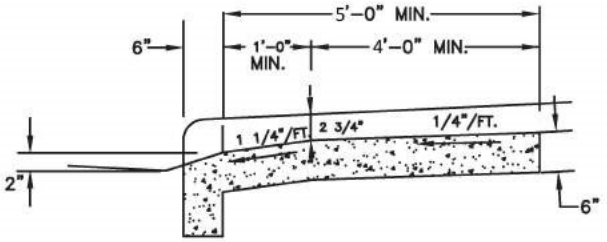
PLAN



PLAN



SECTION B – B



SECTION B – B

NOTES

1. USED AT LOW POINTS IN ROADWAYS WITH 2'–6" CURB AND GUTTER OR 6" X 18" CURB AS DIRECTED BY ENGINEER.
2. SEE STANDARDS 108.1 & 109.1 FOR ADDITIONAL DETAILS.
3. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.

DRIVEWAY CLASSIFICATION		
TYPE DRIVEWAY	MINIMUM	MAXIMUM
TYPE I–RESIDENTIAL LOCAL/COLLECTOR	10'	30'
TYPE I–RESIDENTIAL * THOROUGHFARE	15'	30'
ONE–WAY TYPE II COMMERCIAL	20'	30'
TWO–WAY TYPE II COMMERCIAL	26'	50'

*MUST PROVIDE ON-SITE TURNAROUND

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

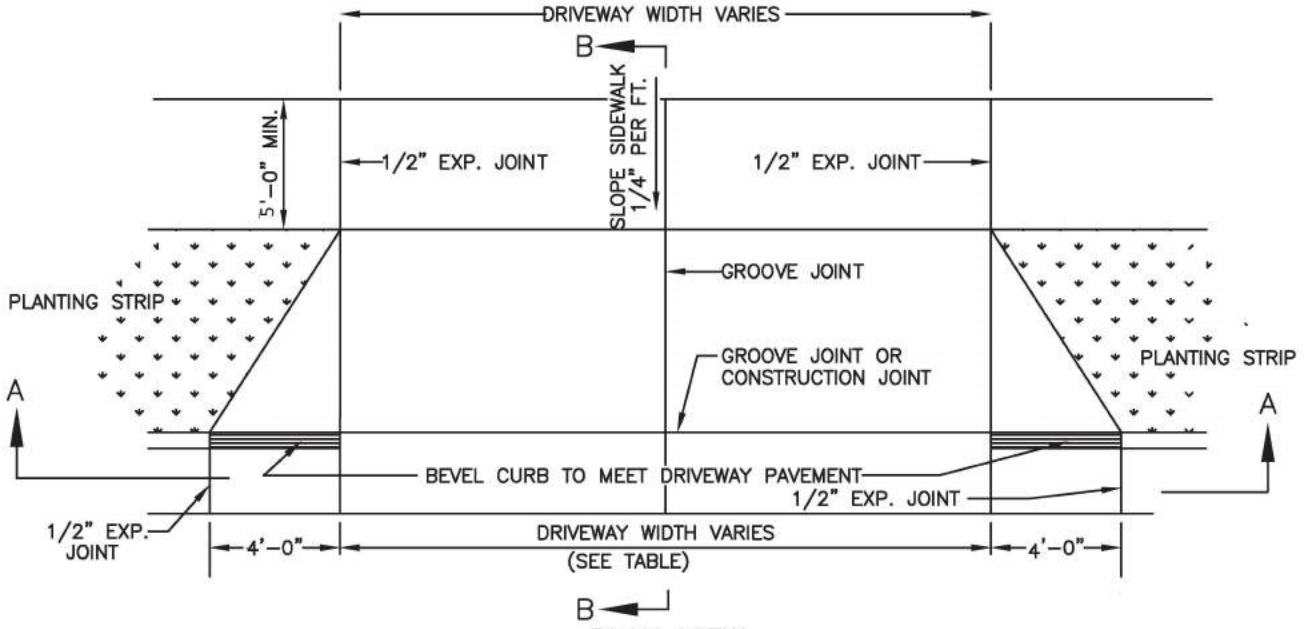
COMMERCIAL TYPE II AND RESIDENTIAL TYPE I DROP CURB DRIVEWAY WITH SIDEWALK ABUTTING CURB

REV. DATE
STD. NO.
110.1

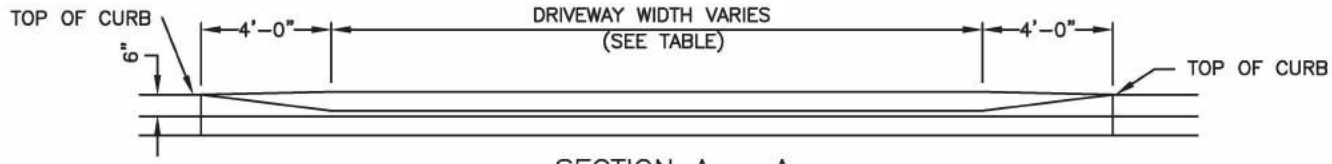
NOTES:

1. ALL CONCRETE TO BE 3600 P.S.I.
2. ALL CURB OR CURB AND GUTTER AND SIDEWALK ARE TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT. SEE STD. NO. 102.1 FOR JOINT DETAIL.
3. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
4. "A" BREAKOVER SHALL BE 8% OR LESS (A = ALGEBRAIC DIFFERENCE).
5. PRIOR APPROVAL IS REQUIRED ON GRADES EXCEEDING WHAT ARE SHOWN.

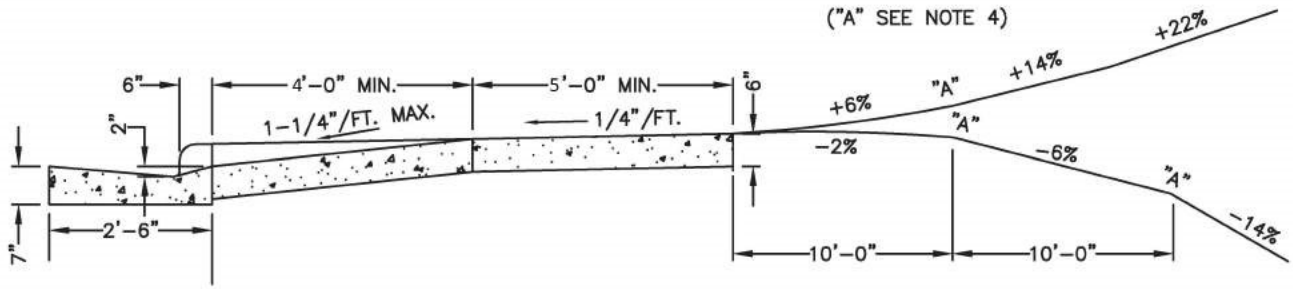
DRIVEWAY CLASSIFICATION		
TYPE DRIVEWAY	MINIMUM	MAXIMUM
TYPE I – RESIDENTIAL LOCAL/COLLECTOR	10'	30'
TYPE I – RESIDENTIAL THOROUGHFARE*	15'	30'



PLAN VIEW



SECTION A – A



SECTION B – B

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

RESIDENTIAL DROP CURB TYPE I DRIVEWAY WITH PLANTING STRIP (2'-6" CURB AND GUTTER)

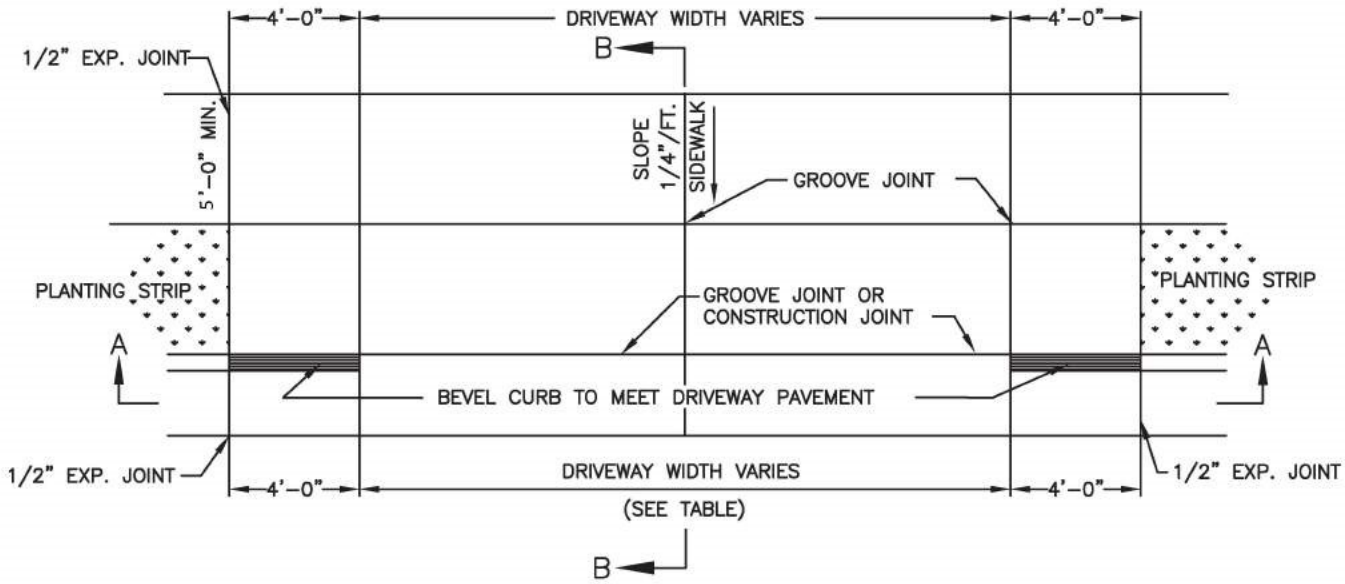
REV. DATE
STD. NO.
111.1

NOTES:

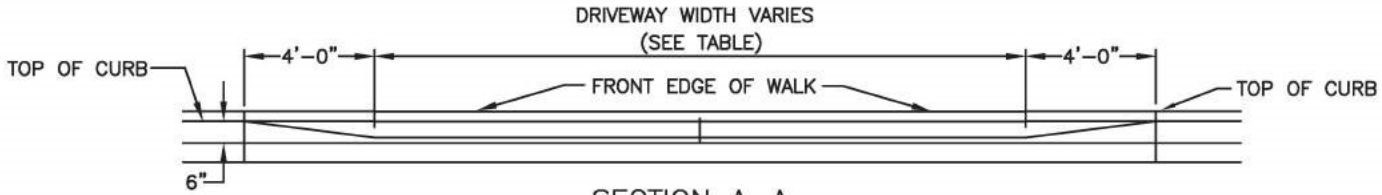
1. ALL CONCRETE TO BE 3600 P.S.I.
2. ALL CURB OR CURB AND GUTTER AND SIDEWALK ARE TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT. SEE STD. NO. 102.1 FOR JOINT DETAIL.
3. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
4. "A" BREAKOVER SHALL BE 8% OR LESS (A = ALGEBRAIC DIFFERENCE).
5. PRIOR APPROVAL IS REQUIRED ON GRADES EXCEEDING WHAT ARE SHOWN.

DRIVEWAYS CLASSIFICATION		
TYPE DRIVEWAYS	MINIMUM	MAXIMUM
ONE–WAY TYPE II – COMMERCIAL	20'	30'
TWO–WAY TYPE II – COMMERCIAL	26'	50'*

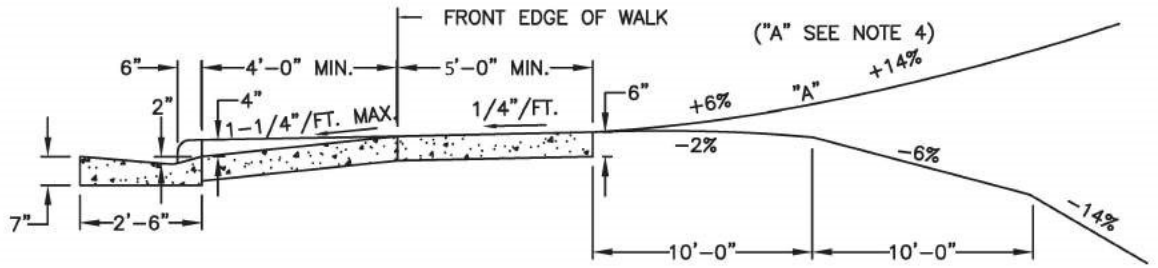
* NEED MORE THAN ONE CONTRACTION JOINT IN CENTER.



PLAN VIEW



SECTION A–A



SECTION B–B

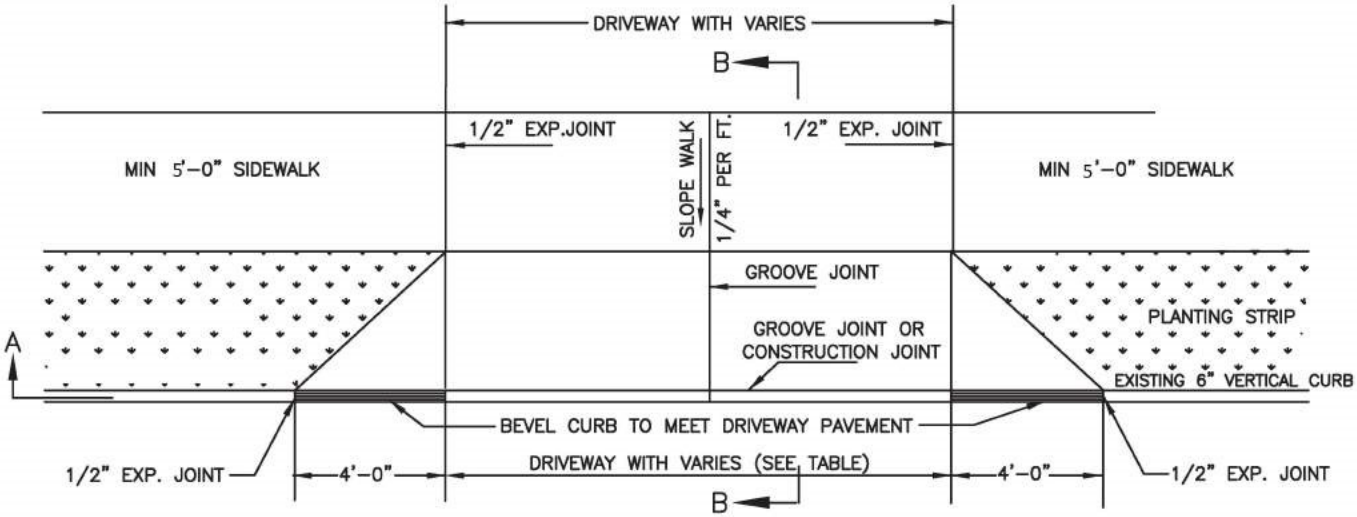
NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	COMMERCIAL DROP CURB TYPE II DRIVEWAY WITH PLANTING STRIP (2'–6" CURB AND GUTTER)	REV. DATE
		STD. NO. 112.1

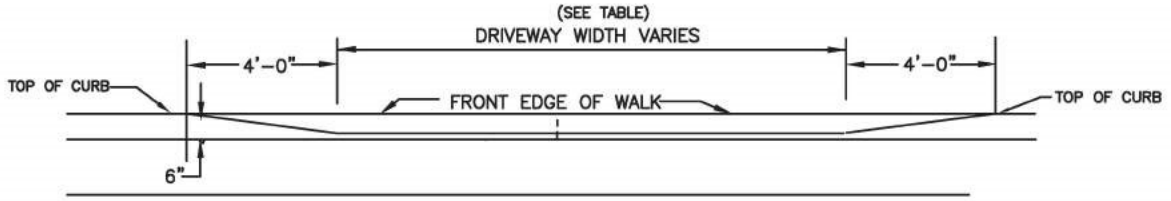
NOTES:

1. ALL CONCRETE TO BE 3600 P.S.I.
2. ALL CURB OR CURB AND GUTTER AND SIDEWALK ARE TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT. SEE STD. NO. 102.1 FOR JOINT DETAIL.
3. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
4. "A" BREAKOVER SHALL BE 8% OR LESS.
5. PRIOR APPROVAL IS REQUIRED ON GRADES EXCEEDING WHAT ARE SHOWN.

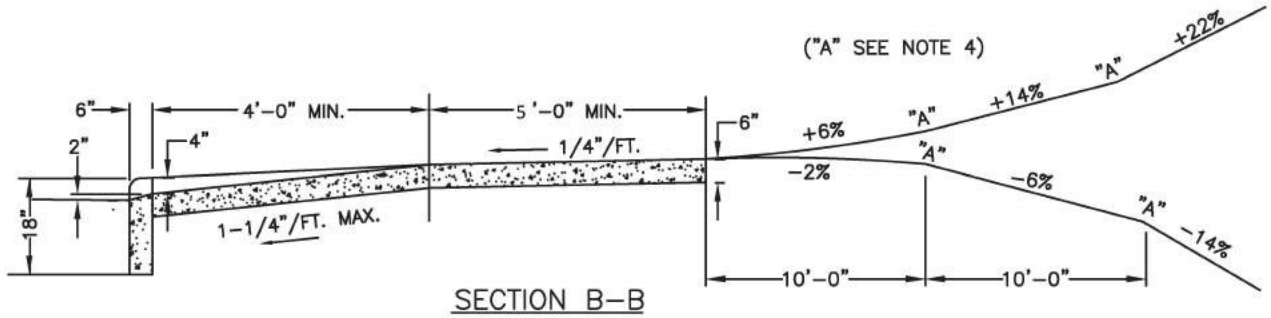
DRIVEWAY CLASSIFICATION		
TYPE DRIVEWAY	MINIMUM	MAXIMUM
TYPE I – RESIDENTIAL LOCAL/COLLECTOR	10'	30'
TYPE I – RESIDENTIAL THOROUGHFARE*	15'	30'



PLAN VIEW



SECTION A–A (ALONG FLOW LINE)



SECTION B–B

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

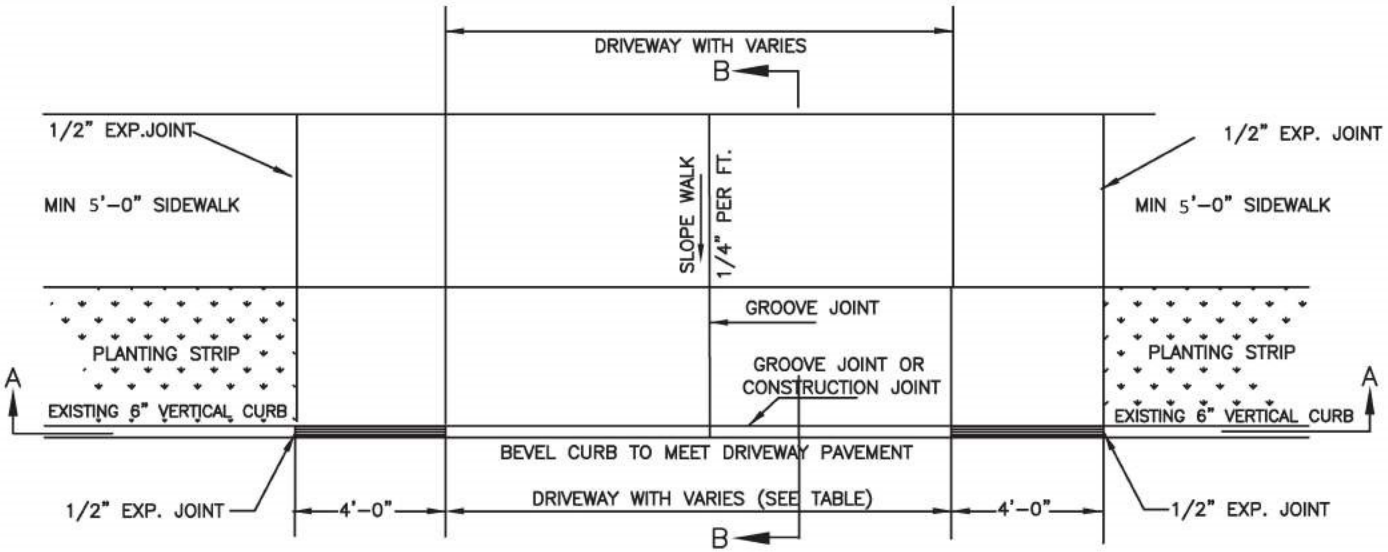
RESIDENTIAL DROP CURB TYPE I DRIVEWAY WITH PLANTING STRIP (6" x 18" VERTICAL CURB)

REV. DATE
STD. NO.
113.1

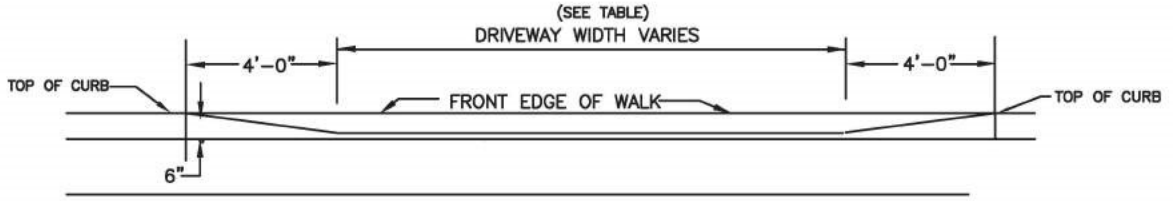
NOTES:

1. ALL CONCRETE TO BE 3600 P.S.I.
2. ALL CURB OR CURB AND GUTTER AND SIDEWALK ARE TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT. SEE STD. NO. 102.1 FOR JOINT DETAIL.
3. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
4. "A" BREAKOVER SHALL BE 8% OR LESS (A = ALGEBRAIC DIFFERENCE).
5. PRIOR APPROVAL IS REQUIRED ON GRADES EXCEEDING WHAT ARE SHOWN.

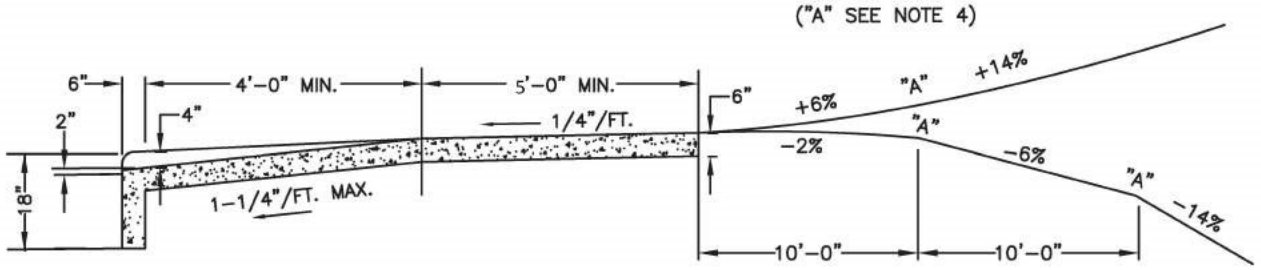
DRIVEWAYS CLASSIFICATION		
TYPE DRIVEWAYS	MINIMUM	MAXIMUM
ONE–WAY TYPE II–COMMERCIAL	20'	30'
TWO–WAY TYPE II–COMMERCIAL	26'	50'*



PLAN VIEW



SECTION A–A (ALONG FLOW LINE)



SECTION B–B

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

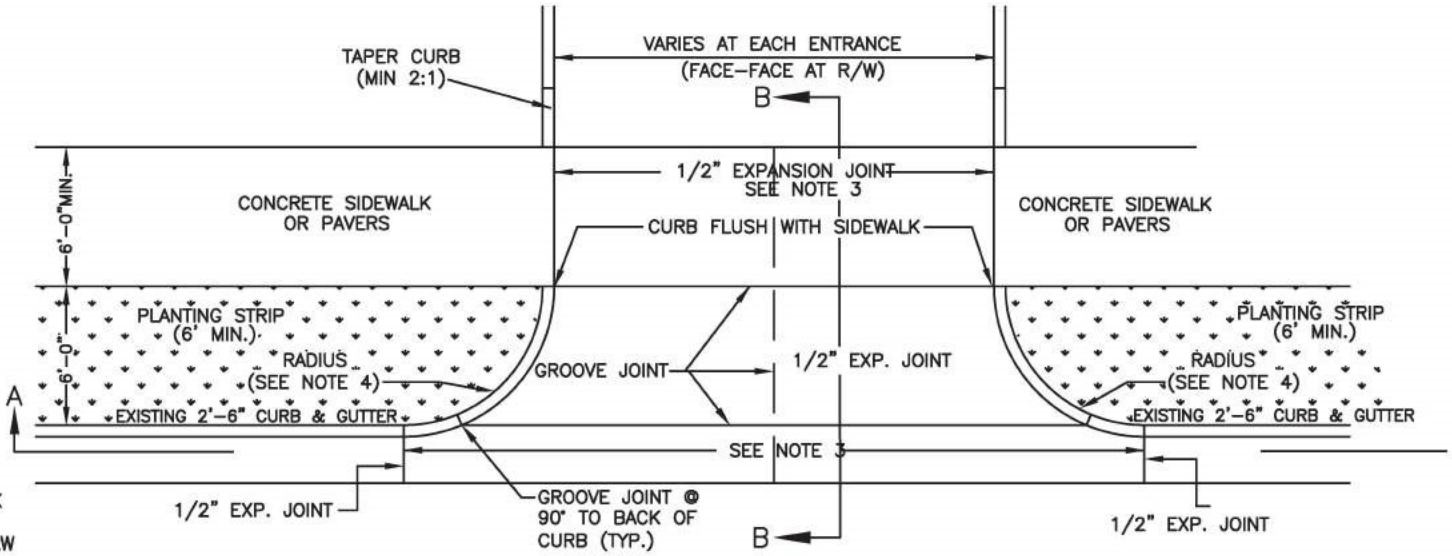
COMMERCIAL DROP CURB TYPE II DRIVEWAY WITH PLANTING STRIP (6" X 18" VERTICAL CURB)

REV. DATE	
STD. NO.	114.1

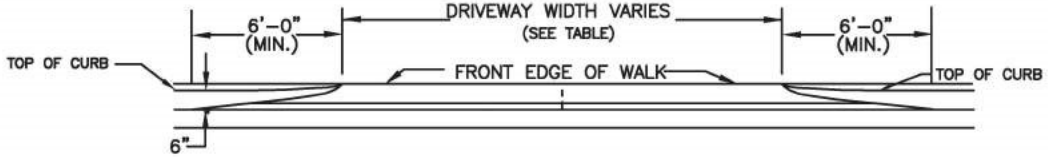
DRIVEWAY DIMENSIONS		
OPERATION/RADIUS	MINIMUM	MAXIMUM
ONE–WAY WITH 6–12 FT. RADII	20'	30'
ONE–WAY WITH 13+ FT. RADII	15'	25'
TWO–WAY WITH 6–12 FT. RADII	26'	50'
TWO–WAY WITH 13+ FT. RADII	22'	40'

NOTES:

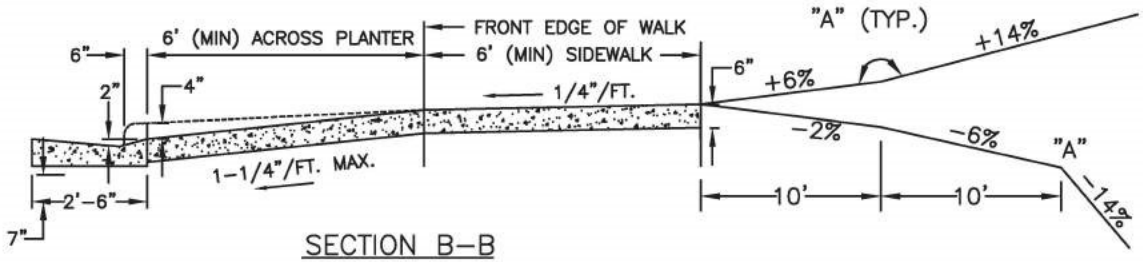
1. ALL CONCRETE TO BE 3600 P.S.I.
2. ALL CURB OR CURB AND GUTTER AND SIDEWALK ARE TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT. SEE STD. NO. 102.1 FOR JOINT DETAIL.
3. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
4. RADII MUST BE MINIMUM 6 FEET OR THE WIDTH OF THE PLANTING STRIP, WHICHEVER IS GREATER. RADII GREATER THAN THESE MINIMUMS MAY BE REQUIRED ON A CASE–BY–CASE BASIS. FOR RADII GREATER THAN 6 FEET, THE RADII ARE TO CONTINUE AS A BAND AT–GRADE THROUGH THE SIDEWALK.
5. PAVERS USED IN DRIVEWAY MUST HAVE A THICKNESS OF 3 INCHES.
6. "A" BREAKOVER SHALL BE 8% OR LESS (A = ALGEBRAIC DIFFERENCE).
7. PRIOR APPROVAL IS REQUIRED ON GRADES EXCEEDING WHAT ARE SHOWN.



PLAN VIEW



SECTION A–A (ALONG FLOW LINE)



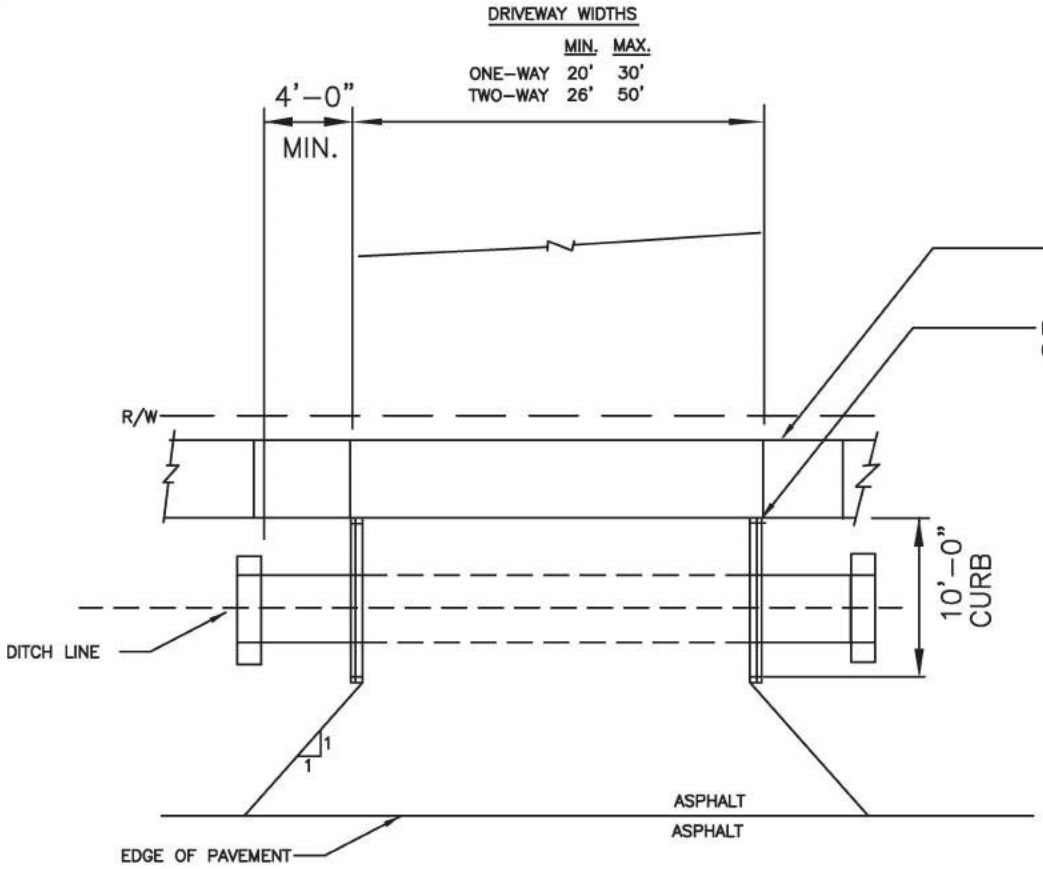
SECTION B–B

NOT TO SCALE

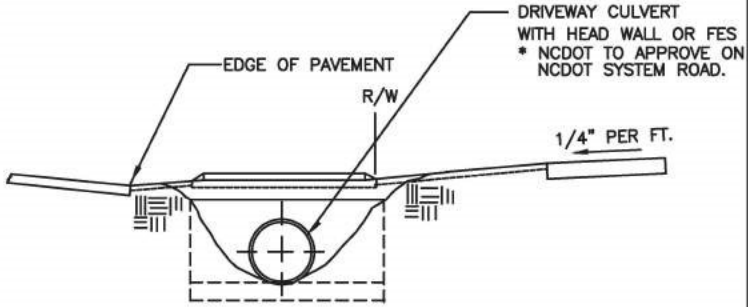
VILLAGE OF MARVIN STANDARD DRAWING

TYPE II–MODIFIED DRIVEWAY DETAIL WITH WIDE PLANTING STRIP AND STANDARD CURB

REV. DATE
STD. NO.
115.1



PLAN



SECTION

NOTE:

1. TO BE USED ON ROADS WITHOUT CURB AND GUTTER AND WHERE CURB AND GUTTER IS NOT BEING INSTALLED (MUST MEET BOTH CRITERIA).
2. ALL CONCRETE TO BE 3600 P.S.I. COMPRESSIVE STRENGTH.
3. USE OF THIS STANDARD FOR RESIDENTIAL DRIVEWAY CONSTRUCTION AT THE DISCRETION OF THE VILLAGE ENGINEER ONLY.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	COMMERCIAL TYPE IV DRIVEWAY STANDARD	REV. DATE STD. NO. 116.1

GENERAL NOTES:

ALL CONCRETE TO BE 3600 P.S.I. COMPRESSIVE STRENGTH.

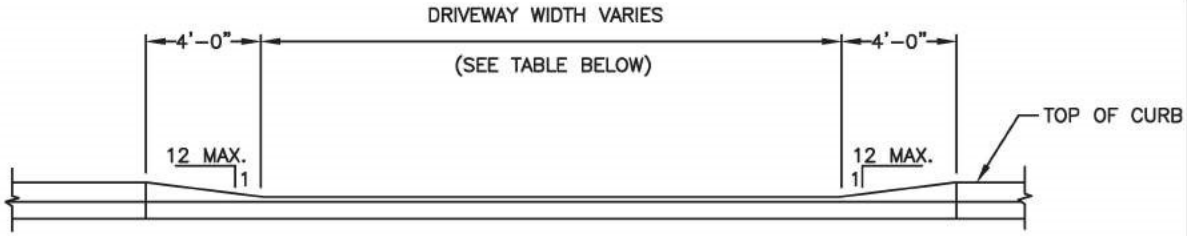
A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE. SEE STANDARD 106.1.

THIS DETAIL TO BE USED ONLY IN CONJUNCTION WITH MONOLITHIC SIDEWALK AS ON STANDARD NO. 107.1

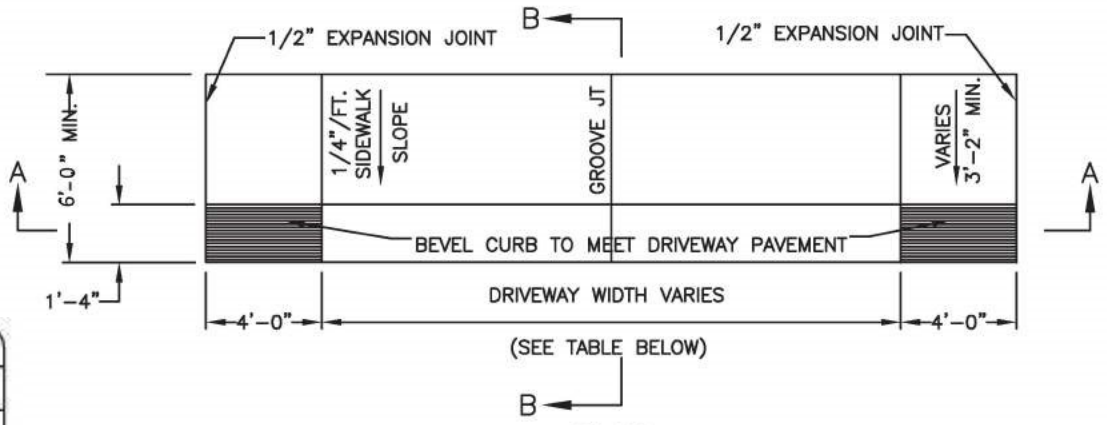
NOTES:

1. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCES, AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.

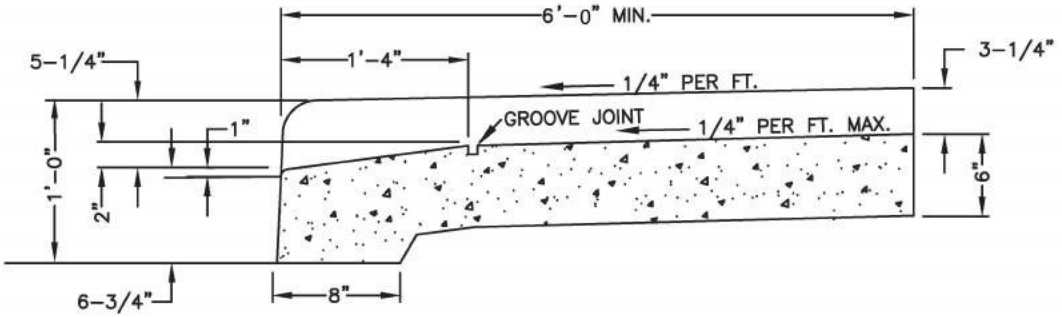
DRIVEWAY CLASSIFICATION		
TYPE DRIVEWAY	MINIMUM	MAXIMUM
TYPE I–RESIDENTIAL LOCAL/COLLECTOR	10'	30'
TYPE I–RESIDENTIAL THOROUGHFARE	15'	30'
ONE–WAY TYPE II COMMERCIAL	20'	30'
TWO–WAY TYPE II COMMERCIAL	26'	50'



SECTION A–A



PLAN



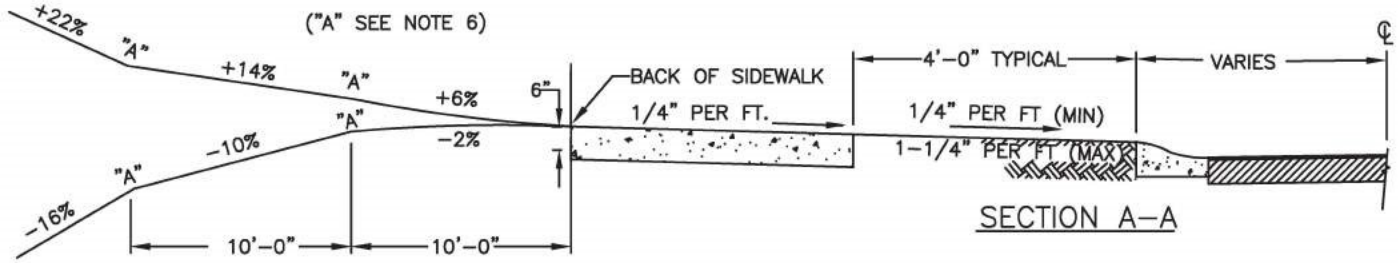
SECTION B–B

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

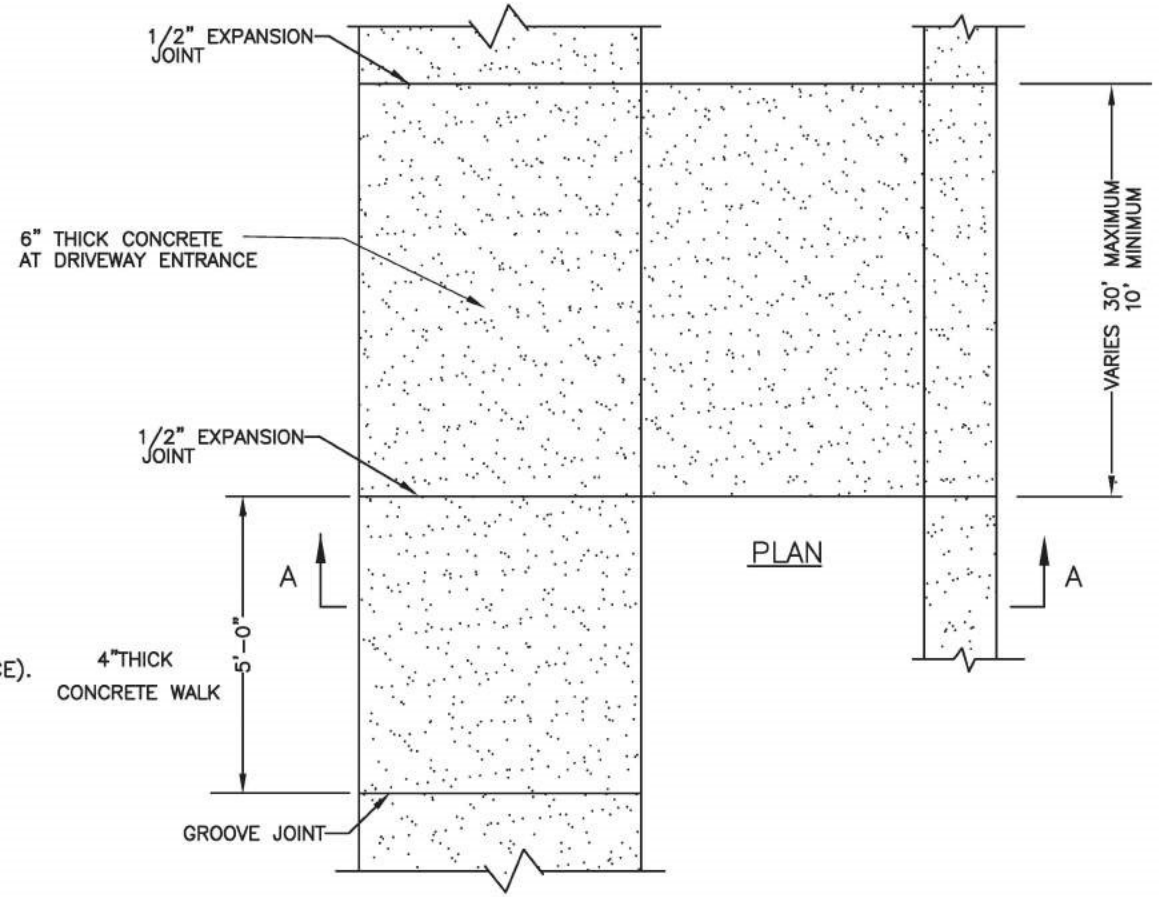
DROP CURB DRIVEWAY MONOLITHIC CONCRETE CURB AND SIDEWALK

REV. DATE	
STD. NO.	117.1



NOTES:

1. THE ELEVATION OF THE SIDEWALK SHALL BE NOT LESS THAN SIX INCHES OR MORE THAN EIGHTEEN INCHES ABOVE THE ROADWAY CROWN. THIS ELEVATION DIFFERENTIAL SHALL BE CONSISTENT WITHIN EACH BLOCK.
2. ALL CONCRETE TO BE 3600 PSI STRENGTH.
3. ALL CONSTRUCTION PRACTICES, INCLUDING COMPACTION, CURING, FINISHING, ETC. SHALL BE IN ACCORDANCE WITH THIS MANUAL.
4. PLANTING STRIP SHALL BE GRADED WITH A CROSS SLOPE BETWEEN 1/2 IN. PER FOOT AND 1 1/4 IN. PER FOOT EXCEPT WHERE EXCESSIVE NATURAL GRADES MAKE THIS REQUIREMENT IMPRACTICAL. IN SUCH CASES, THE ENGINEER MAY AUTHORIZE A SUITABLE GRADE.
5. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS, INCLUDING BUT NOT LIMITED TO SPACING, SIGHT DISTANCE, AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
6. "A" BREAKOVER SHALL BE 8% OR LESS (A = ALGEBRAIC DIFFERENCE).
7. PRIOR APPROVAL IS REQUIRED ON GRADES EXCEEDING WHAT ARE SHOWN.

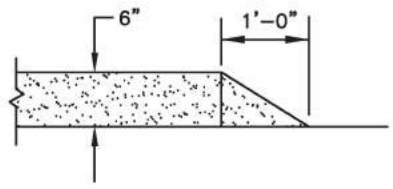


NOT TO SCALE

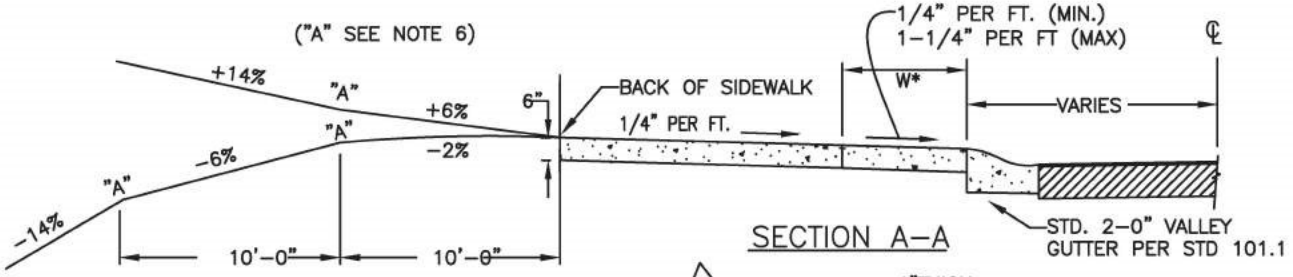
VILLAGE OF MARVIN STANDARD DRAWING

RESIDENTIAL DRIVEWAY (TYPE I) FOR VALLEY GUTTER

REV. DATE
STD. NO.
118.1



SECTION B–B



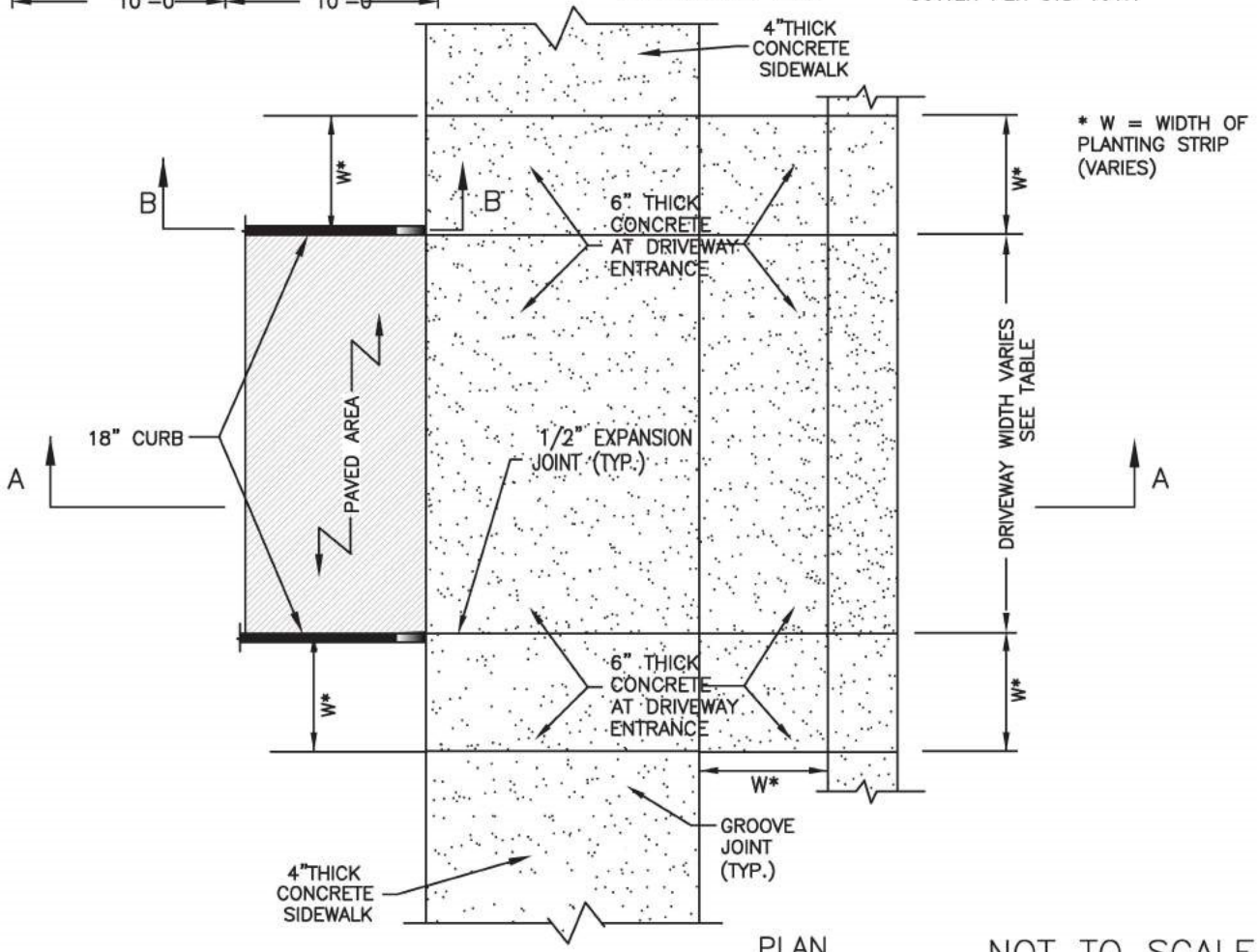
SECTION A–A

NOTES:

1. THE ELEVATION OF THE SIDEWALK SHALL NOT BE LESS THAN SIX INCHES OR MORE THAN EIGHTEEN INCHES ABOVE THE ROADWAY CROWN. THIS ELEVATION DIFFERENTIAL SHALL BE CONSISTENT WITHIN EACH BLOCK.
2. ALL CONCRETE TO BE 3600 PSI STRENGTH.
3. ALL CONSTRUCTION PRACTICES, INCLUDING COMPACTION, CURING, FINISHING, ETC. SHALL BE IN ACCORDANCE WITH THE VILLAGE OF MARVIN ENGINEERING STANDARDS AND PROCEDURES MANUAL.
4. PLANTING STRIP SHALL BE GRADED WITH A CROSS SLOPE BETWEEN 1/2 IN. PER FOOT AND 1 1/4 IN. PER FOOT EXCEPT WHERE EXCESSIVE NATURAL GRADES MAKE THIS REQUIREMENT IMPRACTICAL. IN SUCH CASES, THE VILLAGE ENGINEER MAY AUTHORIZE A SUITABLE GRADE
5. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS, INCLUDING BUT NOT LIMITED TO SPACING, SIGHT DISTANCE, AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
6. "A" BREAKOVER SHALL BE 8% OR LESS (A=ALGEBRAIC DIFFERENCE).
7. PRIOR APPROVAL IS REQUIRED ON GRADES EXCEEDING WHAT ARE SHOWN.
8. PER NC IFC SECTION D103.2, FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 10 PERCENT IN GRADE

DRIVEWAY WIDTH		
TYPE DRIVEWAY	MINIMUM	MAXIMUM
ONE–WAY TYPE II COMMERCIAL	20'	30'
TWO–WAY TYPE II COMMERCIAL	26'	50'

* MUST PROVIDE ON–SITE TURNAROUND



PLAN

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

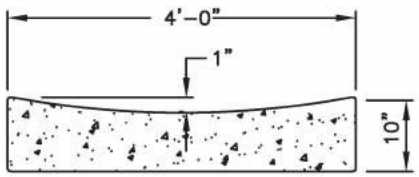
COMMERCIAL TYPE II DRIVEWAY FOR 2'–0" VALLEY GUTTER

REV. DATE
STD. NO.
119.1

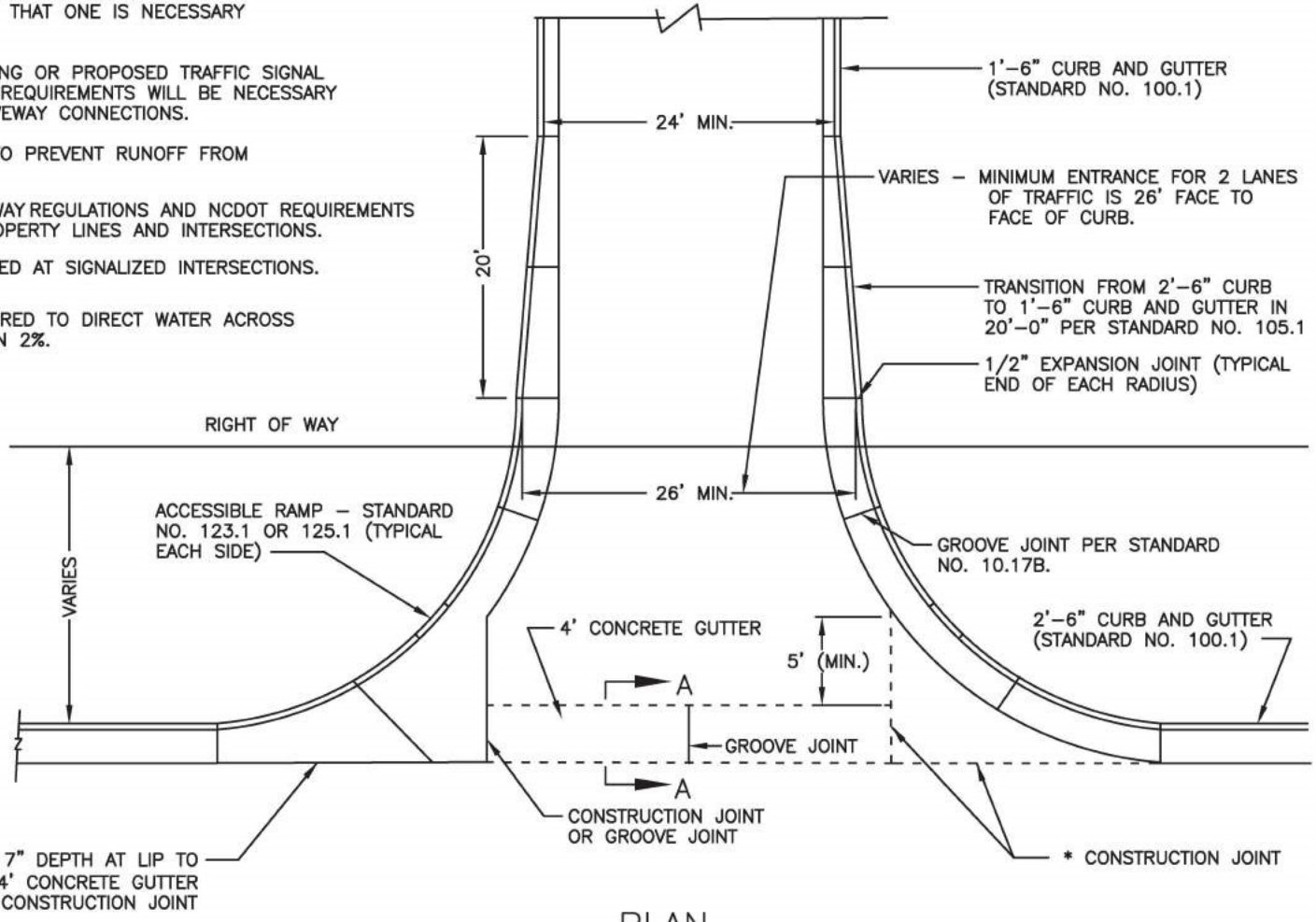
NOTES:

1. WHERE A TYPE III DRIVEWAY IS APPROVED BY THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) THAT CONNECTS TO AN EXISTING SIGNALIZED INTERSECTION, OR AT A LOCATION WHERE A TRAFFIC SIGNAL INSTALLATION IS PROPOSED BY NCDOT BASED ON A TRAFFIC IMPACT/SIGNAL WARRANT STUDY, A FULL DEPTH ASPHALT PAVEMENT (2–1/2" S–9.5 B/C AND 6" B–25.0 B/C) IS REQUIRED. THIS PAVEMENT DESIGN IS REQUIRED IN THE DRIVEWAY EASEMENT (100–FOOT MINIMUM) TO MAINTAIN DETECTOR LOOPS AND PAVEMENT MARKINGS. A TRAFFIC SIGNAL WILL BE INSTALLED ONLY IF NCDOT DETERMINES THAT ONE IS NECESSARY BASED ON A TRAFFIC STUDY OF CURRENT CONDITIONS.
2. A CONCRETE GUTTER IS TO BE USED EXCEPT AT EXISTING OR PROPOSED TRAFFIC SIGNAL LOCATIONS. AT THESE LOCATIONS ADDITIONAL DRAINAGE REQUIREMENTS WILL BE NECESSARY TO ELIMINATE THE NEED FOR GUTTER ACROSS THE DRIVEWAY CONNECTIONS.
3. THE DRIVEWAY MUST RISE 6" FROM THE GUTTER LINE TO PREVENT RUNOFF FROM ENTERING DRIVEWAY.
4. ALL DRIVEWAYS MUST MEET THE CURRENT VILLAGE DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE, AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
5. TWO (2) ACCESSIBLE RAMPS PER CURB RETURN REQUIRED AT SIGNALIZED INTERSECTIONS.

* FOUR (4) FOOT GUTTER AND WINGS WILL NOT BE REQUIRED TO DIRECT WATER ACROSS DRIVE IF THE DRIVEWAY GUTTER SLOPE IS GREATER THAN 2%.



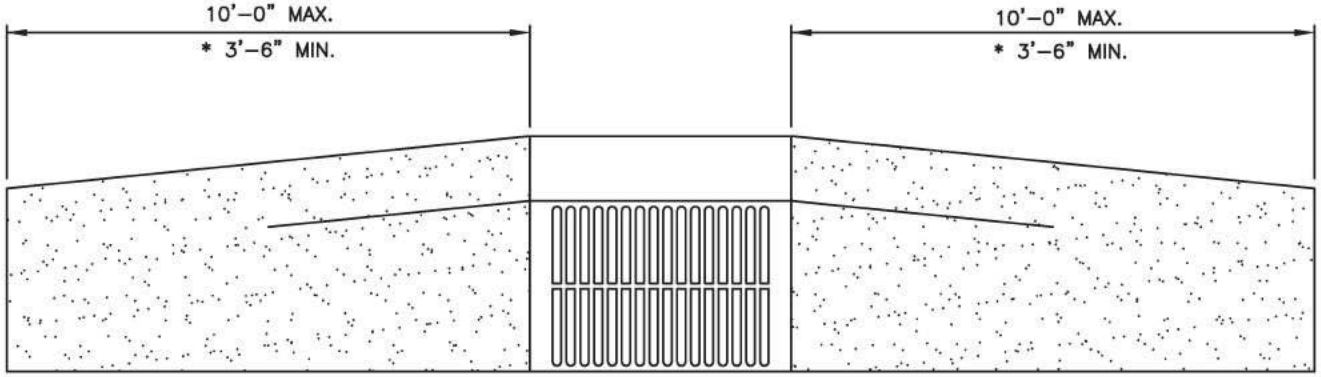
SECTION A–A



PLAN

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	TYPE III DRIVEWAY ENTRANCE	REV. DATE
		STD. NO. 120.1



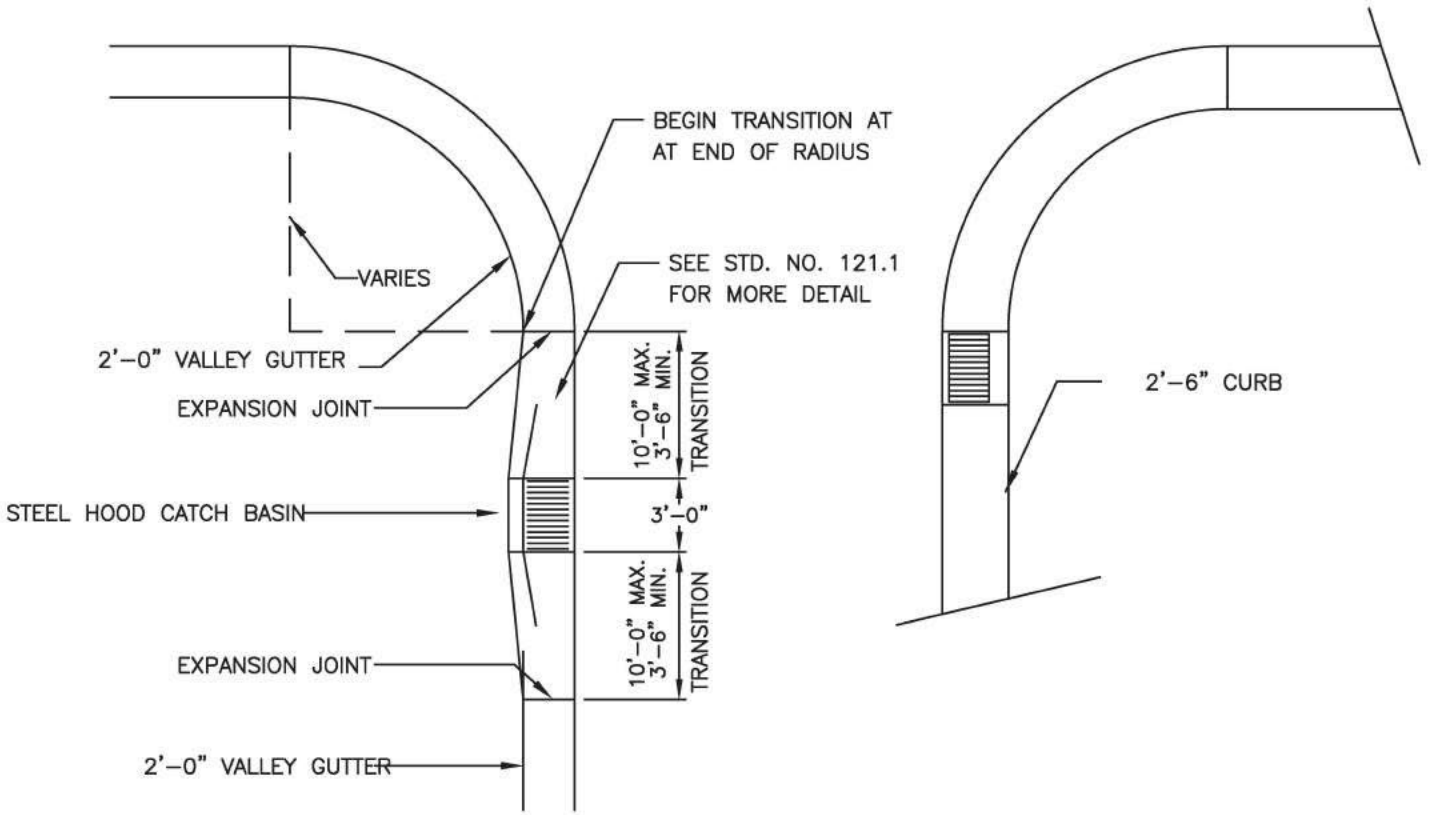
PLAN

NOTE:

* TRANSITION FROM 2'–6" STANDARD CURB TO VALLEY CURB AT A DRAINAGE INLET ONLY.
SEE STANDARD 104.1 FOR CROSS SECTION GEOMETRY.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	CATCH BASIN FRAME IN VALLEY GUTTER	REV. DATE STD. NO. 121.1

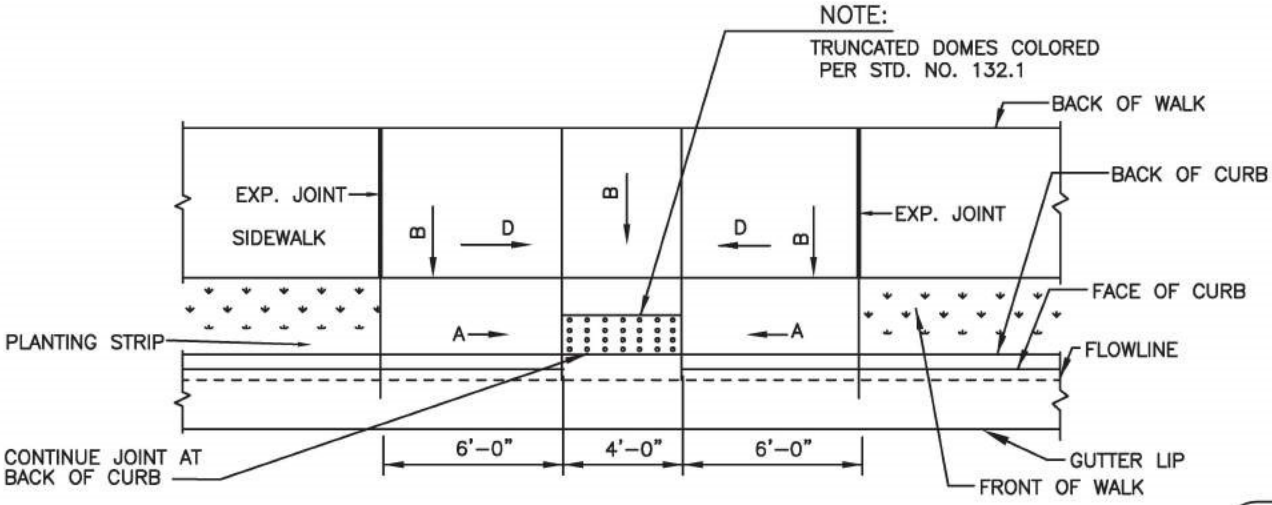


NOTE:

1. WHERE 2'–6" CURB AND GUTTER IS USED, CATCH BASINS MAY BE LOCATED AT END OF RADIUS.
2. RADIUS AT INTERSECTION MAY VARY.

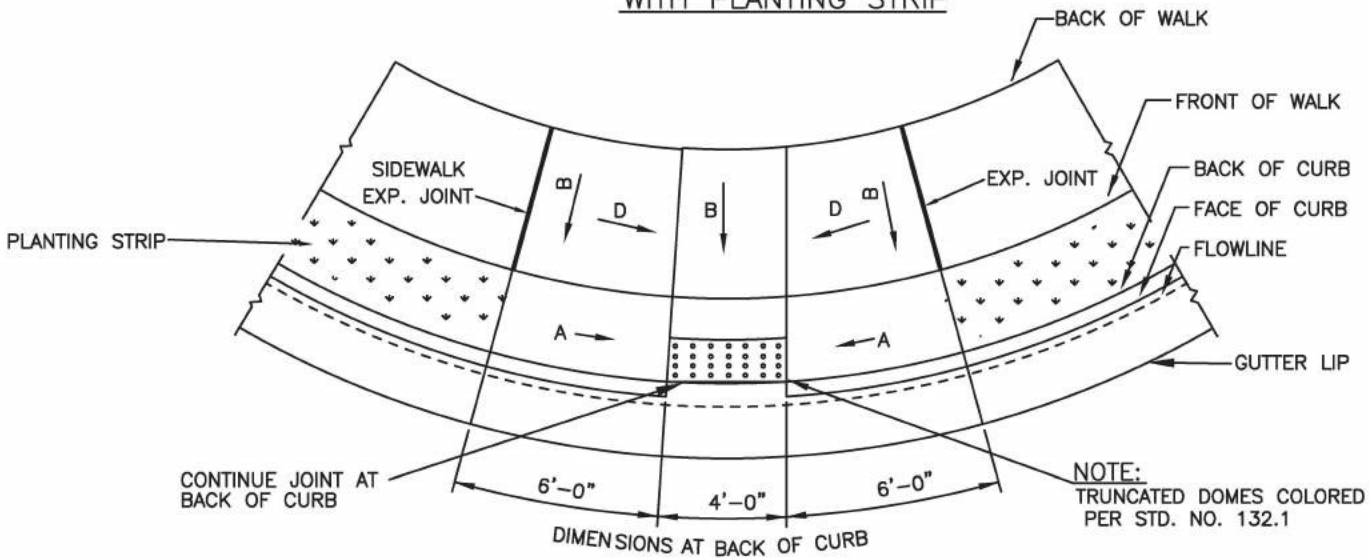
NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	CATCH BASIN PLACEMENT AT INTERSECTIONS	REV. DATE
		STD. NO. 122.1



PLAN VIEW–PARALLEL RAMP
WITH PLANTING STRIP

SLOPE "A"	12:1
SLOPE "B"	1/4"/FT
SLOPE "D"	3/8"/FT



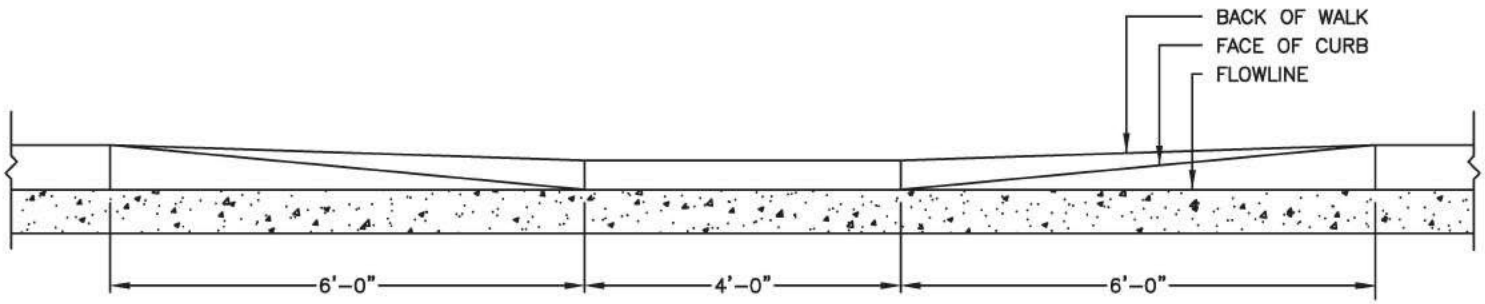
PLAN VIEW–DIAGONAL RAMP WITH PLANTING STRIP

NOT TO SCALE

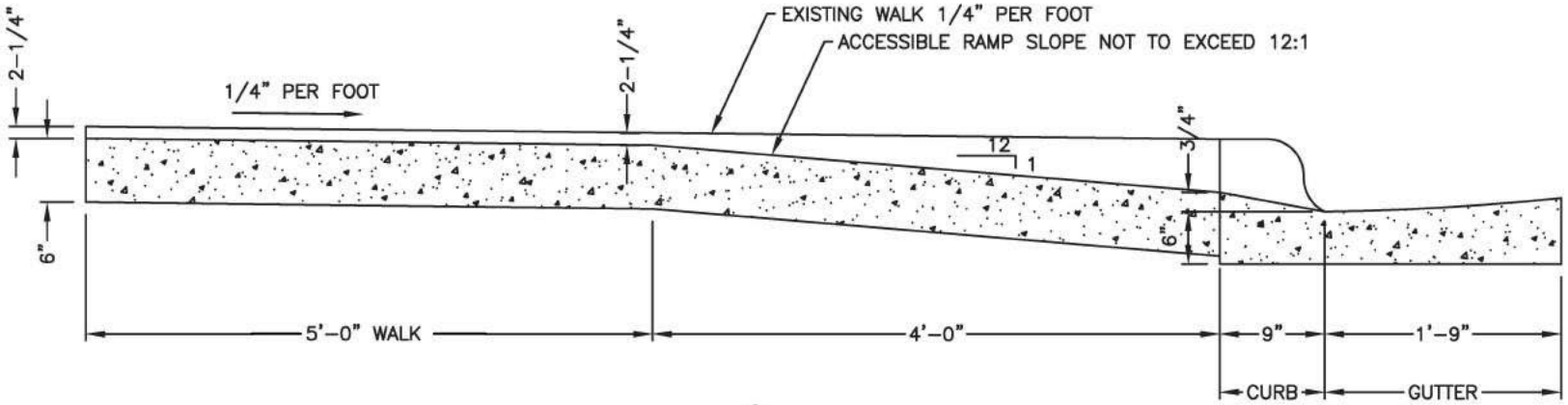
VILLAGE OF MARVIN STANDARD DRAWING

ACCESSIBLE RAMP STANDARD WITH PLANTING STRIP AND 2'–6" CURB AND GUTTER

REV. DATE
STD. NO.
123.1



ELEVATION



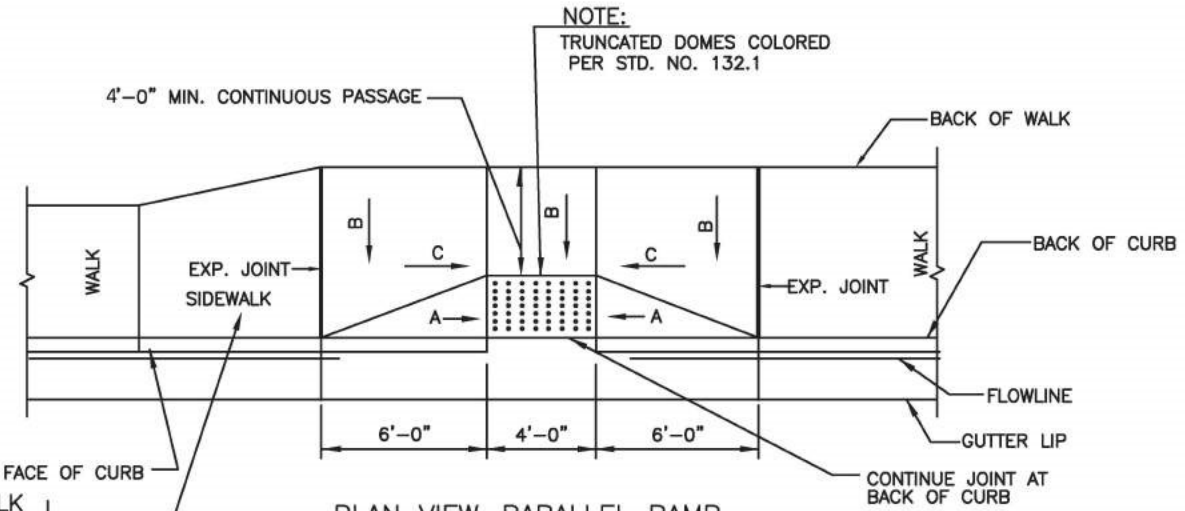
TYPICAL RAMP ℄ SECTION

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	ACCESSIBLE RAMP SECTIONS WITH PLANTING STRIP AND 2'-6" CURB AND GUTTER	REV. DATE STD. NO. 124.1

NOTES:

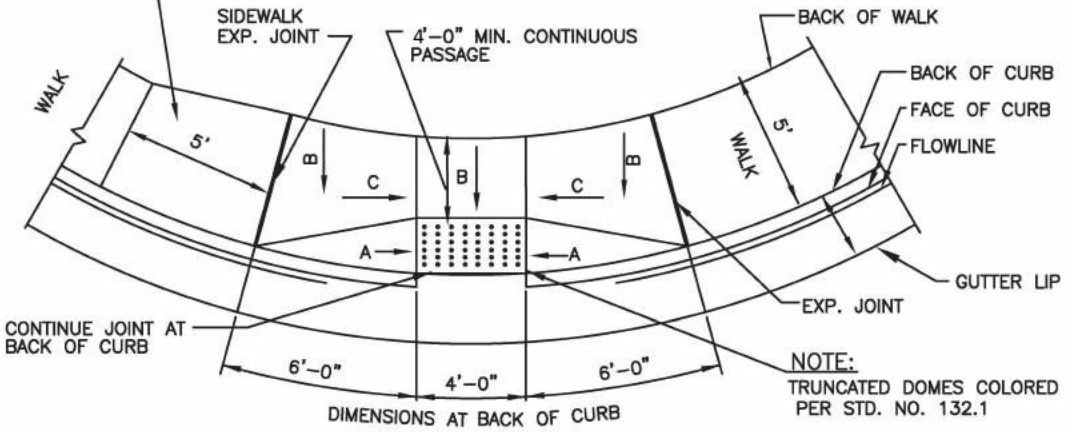
1. IF TURNING SPACE IS CONFINED BY CURB OR VERTICAL SURFACE AT BACK OF THE TURNING SPACE, THE MINIMUM WIDTH MUST INCREASE TO 5'-0" MIN.
2. ENSURE FLUSH CONDITIONS AT CURB RAMP TO GUTTER TRANSITION.



PLAN VIEW–PARALLEL RAMP WITHOUT PLANTING STRIP

5' TRANSITION FROM 6' WALK ALL WALKS MUST BE A MIN. 5' WIDTH AT RAMP.

SLOPE "A"	12:1
SLOPE "B"	1/4"/FT
SLOPE "C"	5/8"/FT



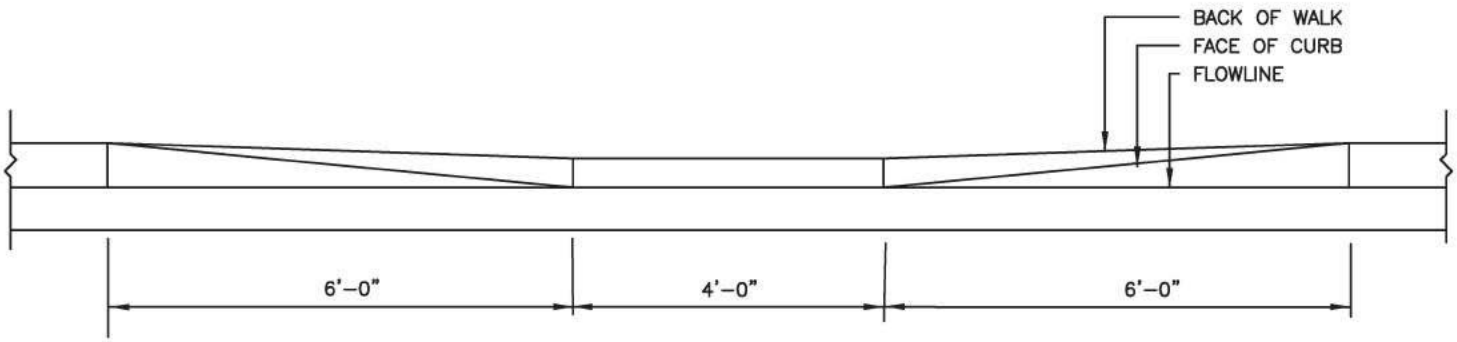
PLAN VIEW–DIAGONAL RAMP WITHOUT PLANTING STRIP

NOT TO SCALE

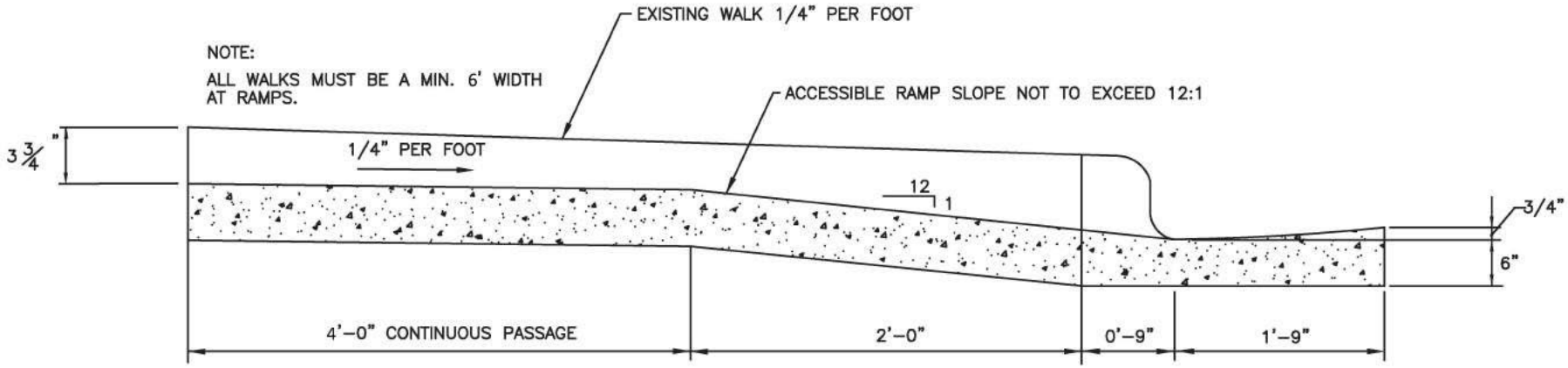
VILLAGE OF MARVIN STANDARD DRAWING

ACCESSIBLE RAMP STANDARD WITHOUT PLANTING STRIP AND 2'–6" CURB AND GUTTER

REV. DATE
STD. NO.
125.1



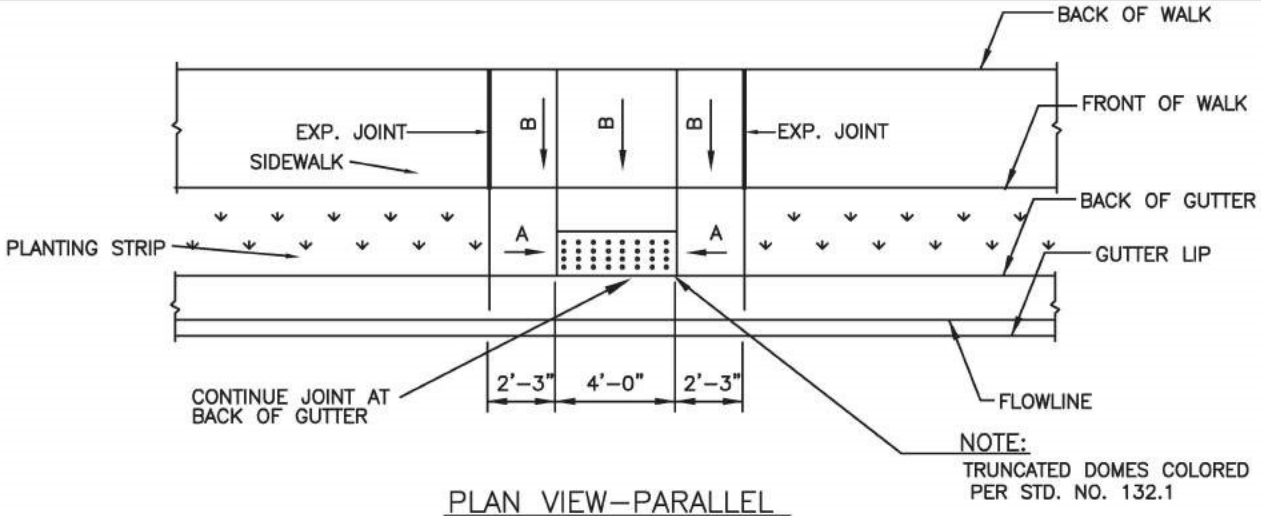
SECTION THROUGH FLOWLINE



TYPICAL RAMP L SECTION

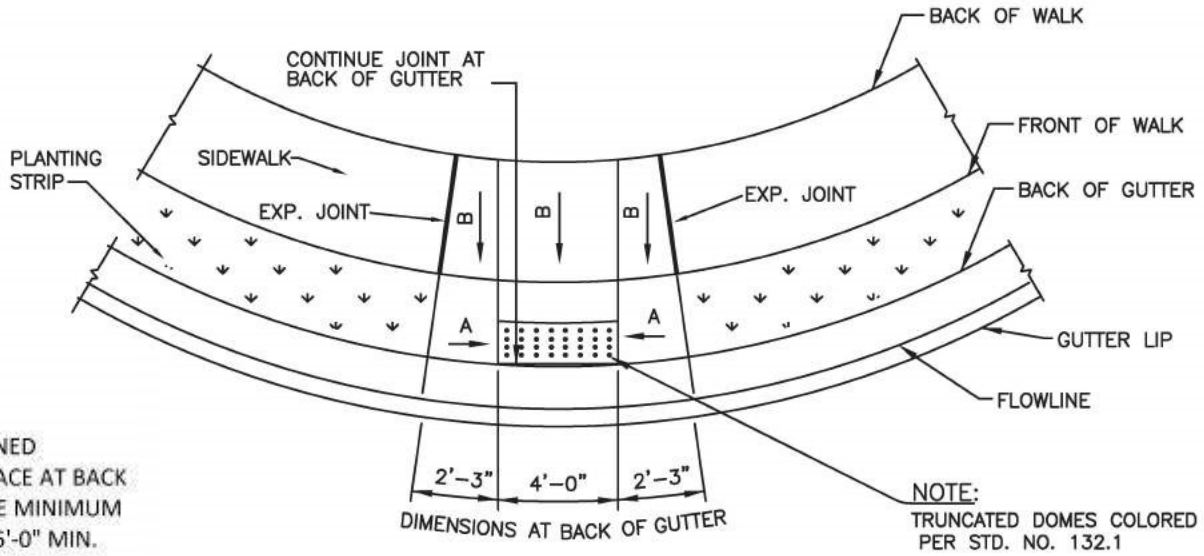
NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	ACCESSIBLE RAMP SECTIONS WITHOUT PLANTING STRIP AND 2'–6" CURB AND GUTTER	REV. DATE STD. NO. 126.1



PLAN VIEW–PARALLEL
RAMP WITH PLANTING STRIP

SLOPE "A"	12:1
SLOPE "B"	1/4"/FT



PLAN VIEW–DIAGONAL RAMP
WITH PLANTING STRIP

NOTES:

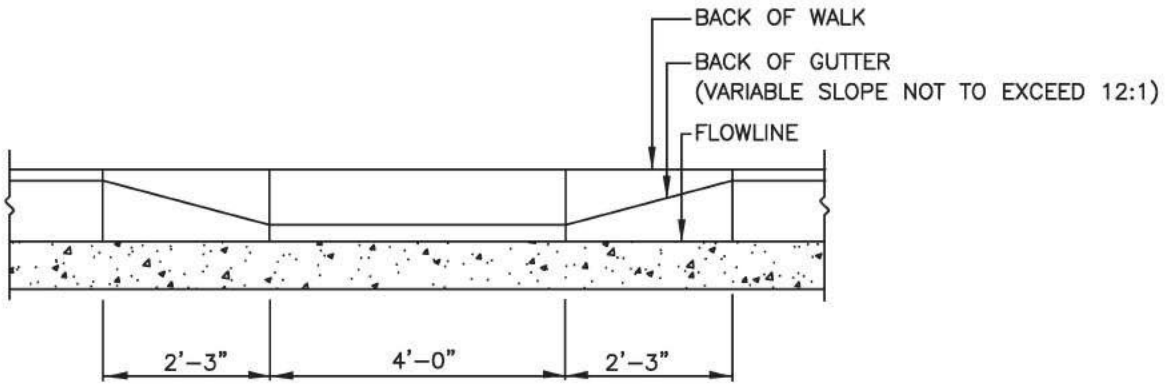
1. IF TURNING SPACE IS CONFINED BY CURB OR VERTICAL SURFACE AT BACK OF THE TURNING SPACE, THE MINIMUM WIDTH MUST INCREASE TO 5'-0" MIN.
2. ENSURE FLUSH CONDITIONS AT CURB RAMP TO GUTTER TRANSITION.

NOT TO SCALE

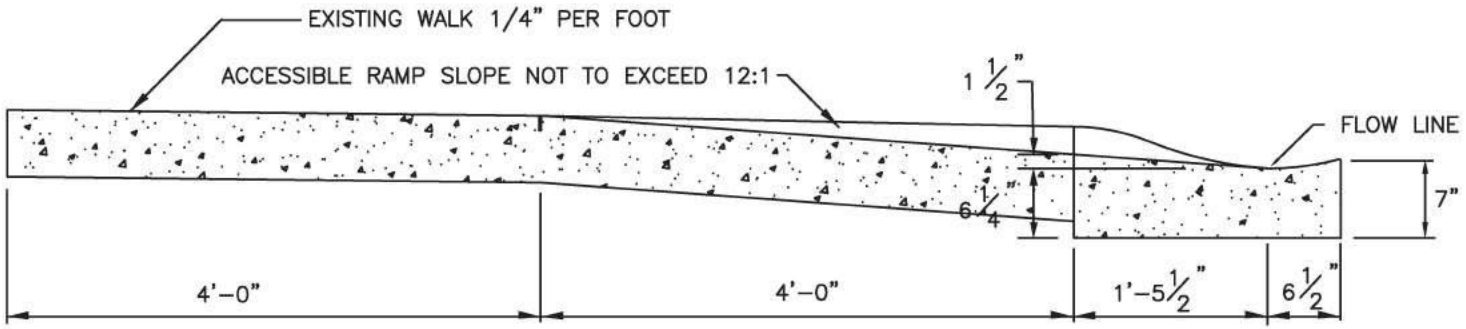
VILLAGE OF MARVIN STANDARD DRAWING

ACCESSIBLE RAMP STANDARD
2'–0" VALLEY GUTTER

REV. DATE
STD. NO.
127.1



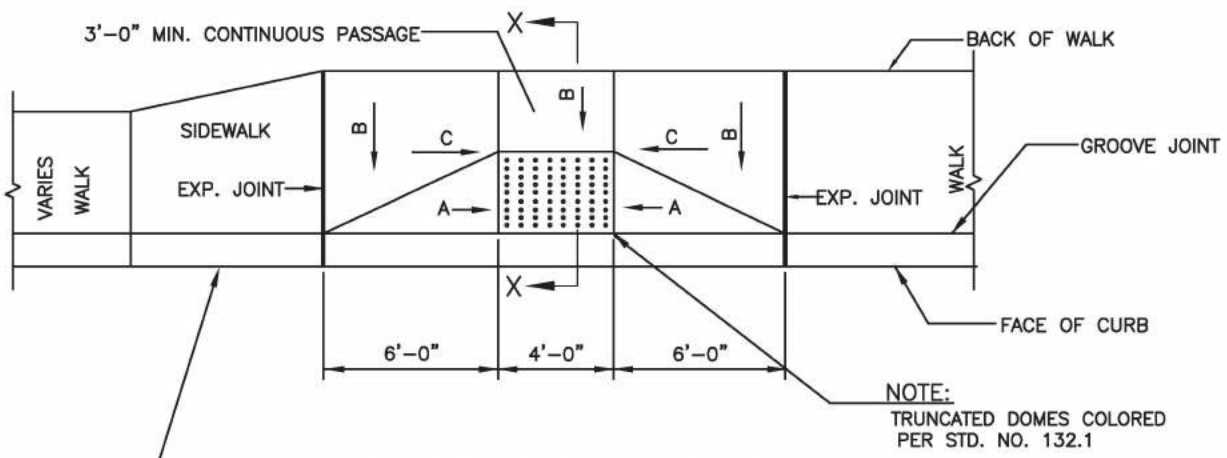
SECTION THROUGH FLOWLINE



TYPICAL RAMP ℄ SECTION

NOT TO SCALE

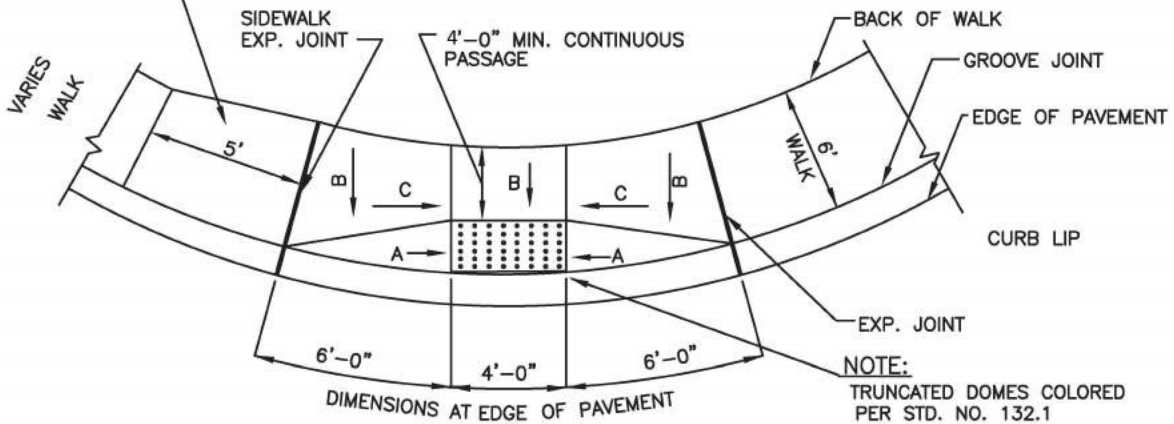
VILLAGE OF MARVIN STANDARD DRAWING	ACCESSIBLE RAMP SECTIONS 2'–0" VALLEY GUTTER	REV. DATE STD. NO. 128.1



PLAN VIEW–PARALLEL RAMP

5' TRANSITION FROM 6' WALK. ALL WALKS MUST BE A MIN. 6' WIDTH AT RAMP.

SLOPE "A"	12:1
SLOPE "B"	1/4"/FT
SLOPE "C"	1/2"/FT



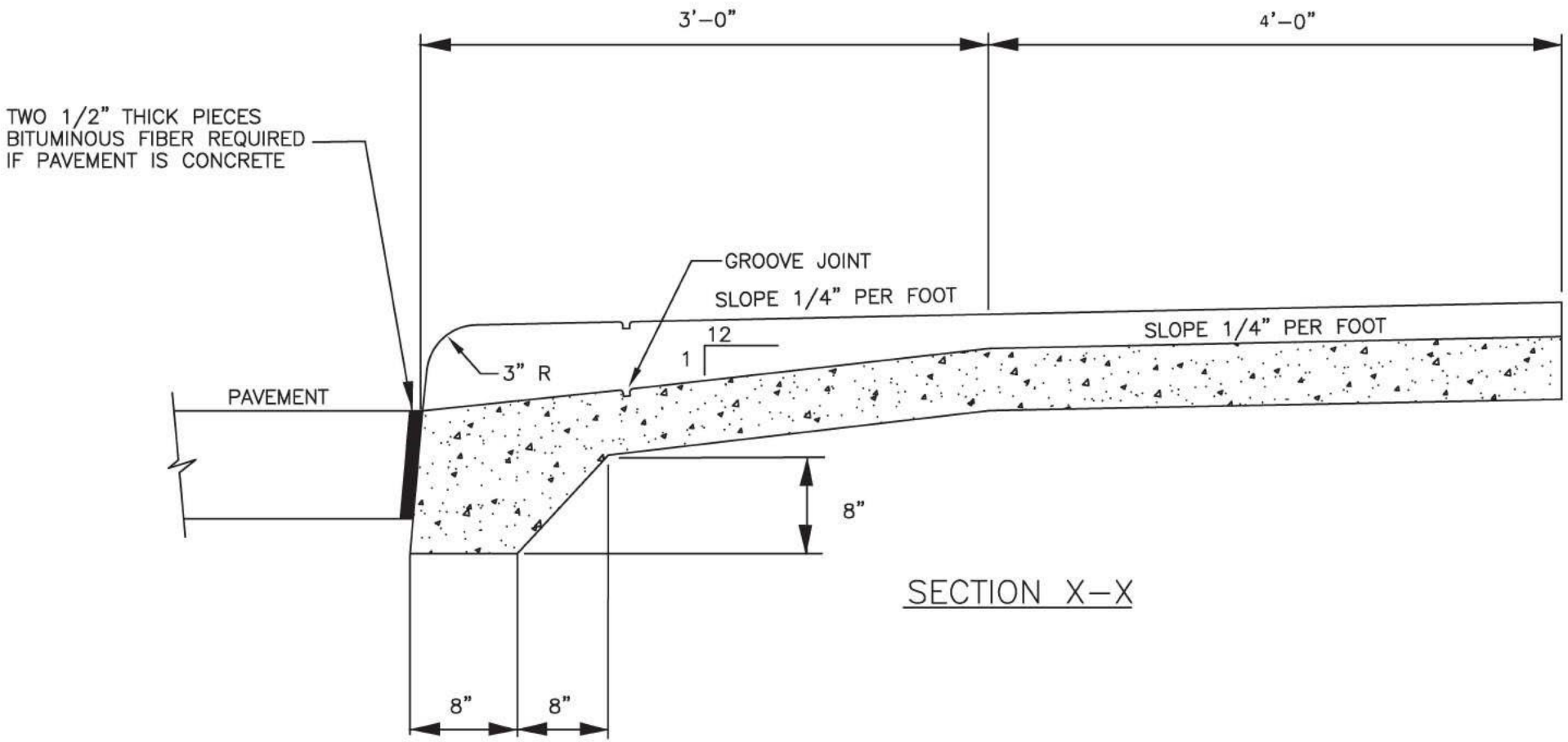
PLAN VIEW–DIAGONAL RAMP

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

ACCESSIBLE RAMP STANDARD MONOLITHIC CURB AND SIDEWALK

REV. DATE
STD. NO.
129.1



SECTION X–X

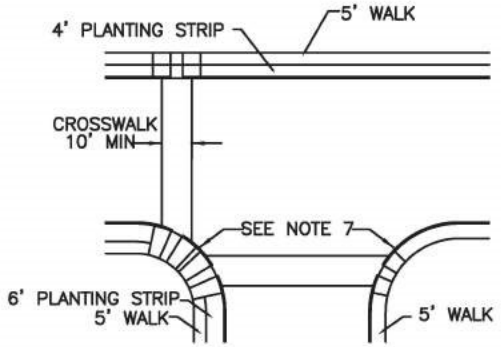
NOT TO SCALE

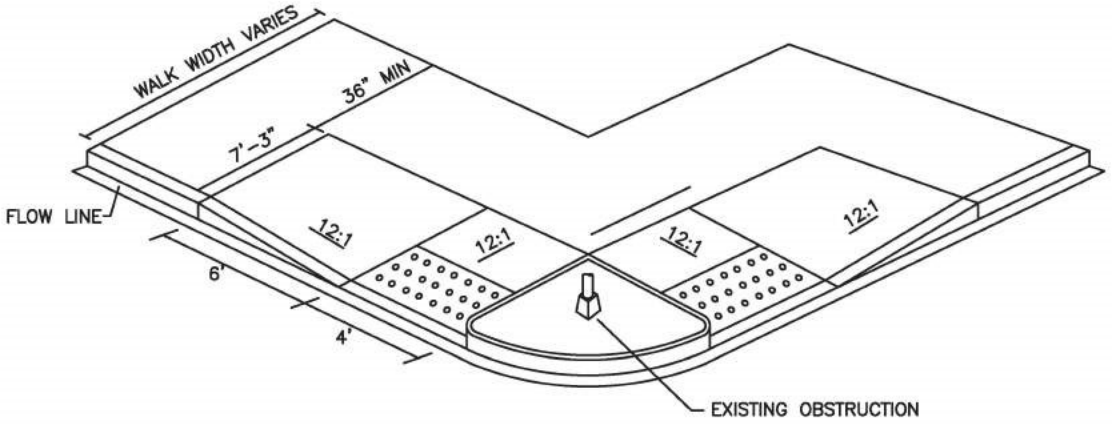
VILLAGE OF MARVIN STANDARD DRAWING	ACCESSIBLE RAMP SECTIONS MONOLITHIC CURB AND SIDEWALK	REV. DATE STD. NO. 130.1

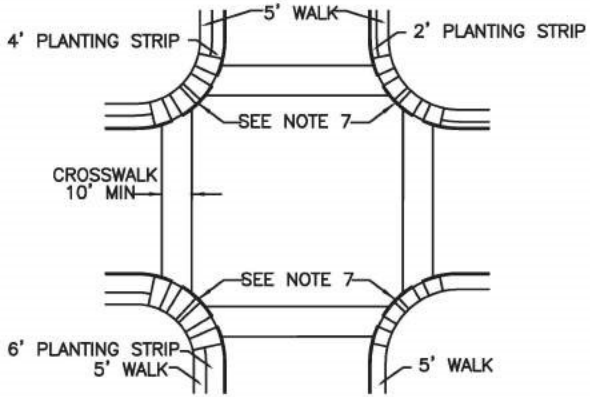
NOTES:

1. RAMP AND WING SLOPES SHALL NOT BE STEEPER THAN 12:1.
2. GUTTER FLOW LINE AND PLAN PROFILE SHALL BE MAINTAINED THROUGH THE RAMP AREA.
3. THE SURFACE OF THE RAMP SHALL BE FLUSH WITH THE FLOWLINE OF THE CURB AND GUTTER.
4. THE RAMP OPENING (AT THE FULLY DEPRESSED CURB) SHALL BE LOCATED WITHIN THE PARALLEL BOUNDARIES OF THE CROSSWALK MARKINGS. THE RAMP CENTERLINE SHALL BE LOCATED AT THE CORNER RADIUS CENTERLINE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. DIAGONAL CURB RAMPS SHALL HAVE A SEGMENT OF STRAIGHT CURB AT LEAST 24 INCHES LONG LOCATED ON EACH SIDE OF THE WING SLOPE AND WITHIN THE CROSSWALK MARKINGS.
5. THE WING AND RAMP SURFACES SHALL BE 3600 PSI CONCRETE WITH A SIDEWALK FINISH IN ACCORDANCE WITH CURRENT EDITION NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
6. DRAINAGE STRUCTURES, MAST ARMS, LIGHT POLES AND OTHER OBSTRUCTIONS SHALL NOT BE PLACED IN LINE WITH RAMPS. LOCATION OF THE RAMP SHALL TAKE PRECEDENCE OVER LOCATION OF OBSTRUCTIONS EXCEPT WHERE EXISTING OBSTRUCTIONS ARE BEING UTILIZED IN THE NEW CONSTRUCTION.
7. AT ALL LOCATIONS, NOT LESS THAN 2 FEET OF FULL HEIGHT CURB SHALL BE PLACED BETWEEN THE RAMPS.
8. SEE STANDARD DRAWING 132.1 FOR DETECTABLE WARNING INSTALLATION.

ROADWAY PLAN SYMBOL
(ACC)
FOR PROPOSED ACCESSIBLE RAMP



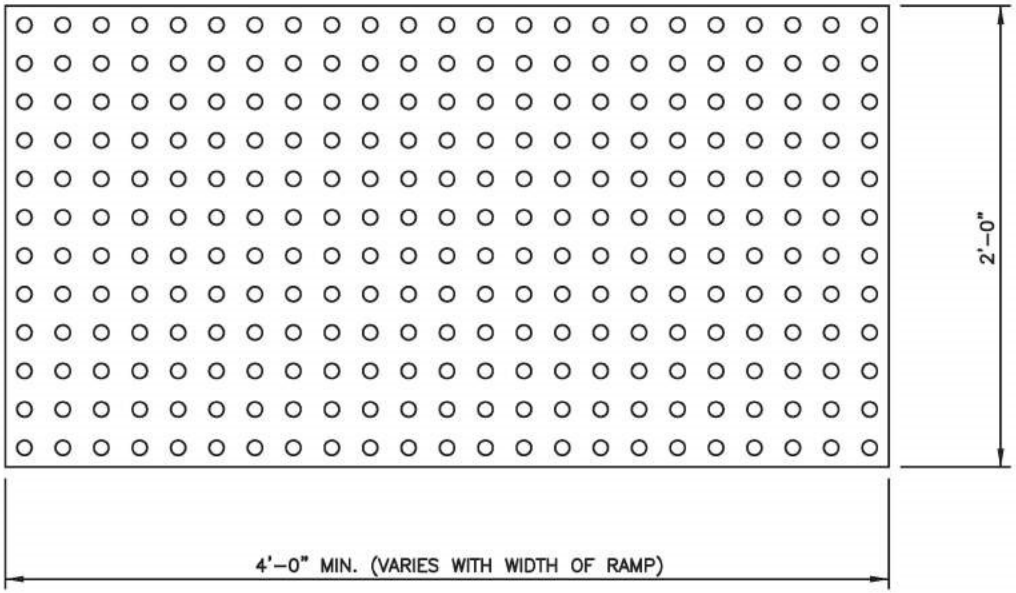




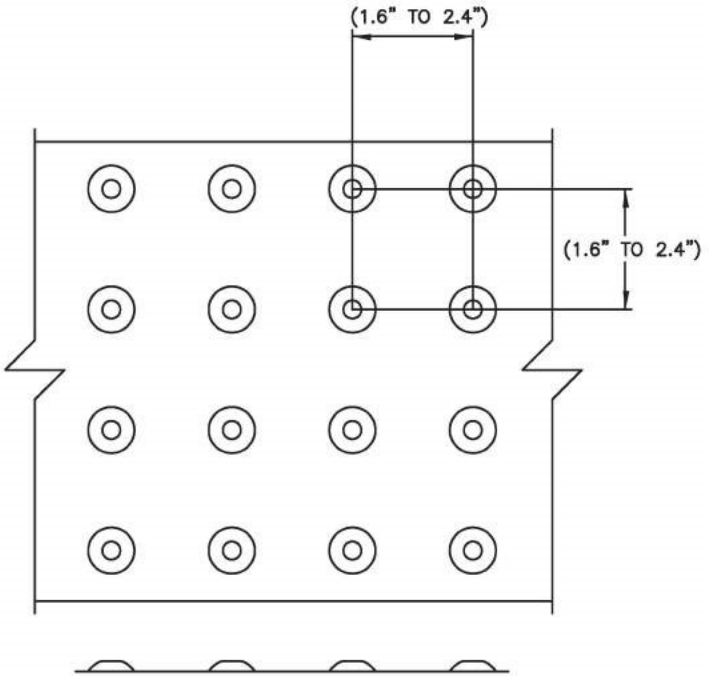
TYPICAL LOCATION OF ACCESSIBLE RAMPS AND PEDESTRIAN CROSSWALKS ON

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	STANDARD PLACEMENT OF ACCESSIBLE RAMP AND GENERAL NOTES	REV. DATE
		STD. NO. 131.1



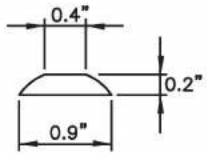
TRUNCATED DOME PLAN VIEW



TRUNCATED DOME SPACING

NOTES:

1. ALL DETECTABLE WARNING DEVICES USED IN NEW CONSTRUCTION SHALL BE OF A RIDGID PRECAST OR EMBEDDED PRODUCT APPROVED BY THE ENGINEER. RETRO FIT MATS WILL ONLY BE ALLOWED ON EXISTING RAMPS WITH PRIOR APPROVAL OF THE ENGINEER FOR MATERIAL TYPE AND INSTALLATION (IE. RESURFACING).
2. WIDTH OF DETECTABLE WARNING AREA SHALL BE A MINIMUM OF 4 FEET AND VARY WITH WIDTH OF RAMP.
3. LENGTH OF DETECTABLE WARNING AREA SHALL BE 2 FEET REGARDLESS OF SECTION WIDTH.
4. DETECTABLE WARNING AREA CAN BE SQUARE WHERE USED IN A CURB RADIUS.
5. DETECTABLE WARNING DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
6. DECTECTABLE WARNING AREA SHALL BE COLORED BLACK IN ALL LOCATIONS.
7. IF PAVERS ARE TO BE USED, PAVERS SHALL BE 6" THICK AND CAST FROM 5000 psi CONCRETE.
8. MATS ARE TO BE RIGID WITH TURN DOWN EDGES EMBEDDED IN CONCRETE TO ELIMINATE TRIP HAZARD.



TRUNCATED DOME SECTION

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

TRUNCATED DOMES PLAN AND CROSS SECTION

REV. DATE
STD. NO.
132.1

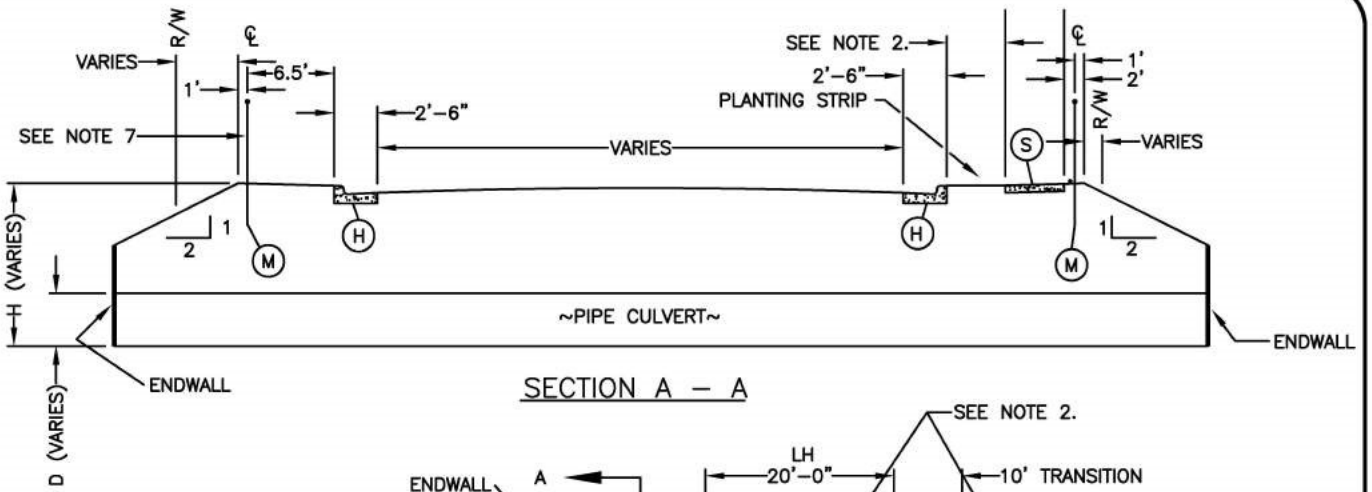
(H) 2'–6" CURB AND GUTTER, STD. 100.1

(M) HANDRAIL, STD. 700.1 & 701.1

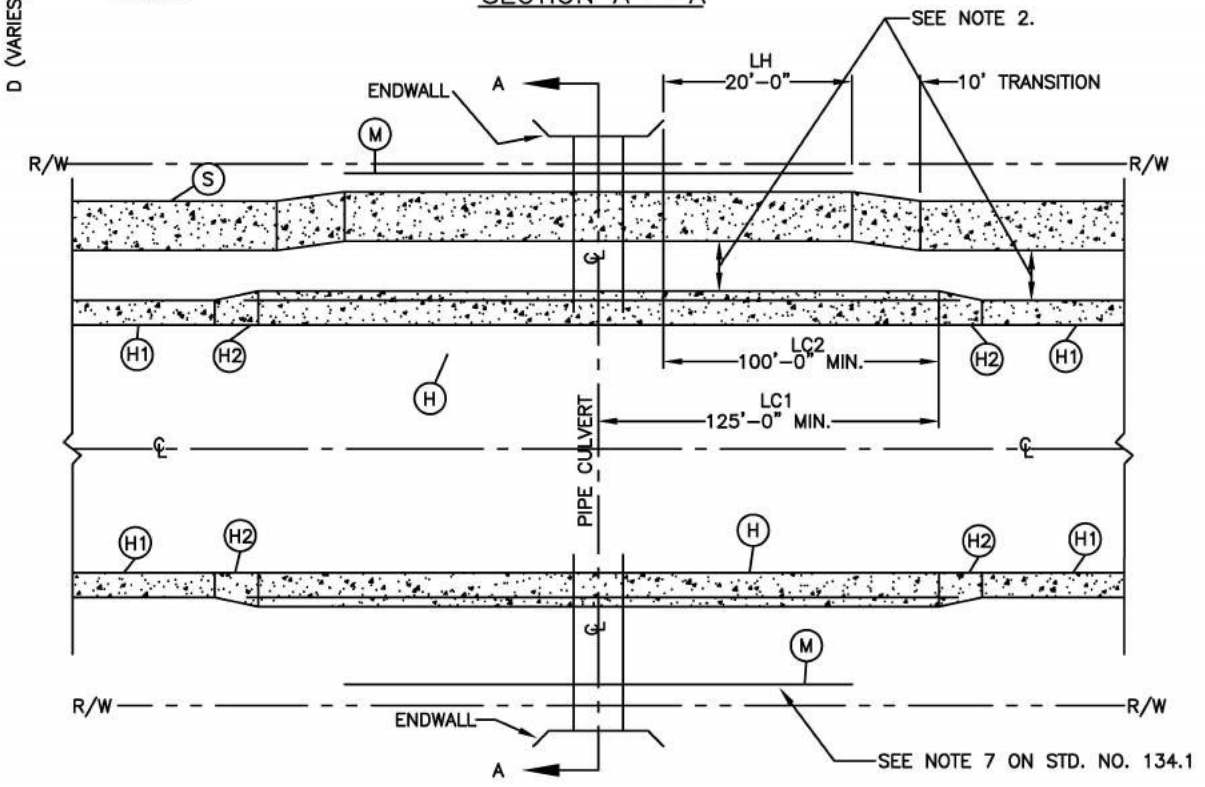
(S) 5'–0" SIDEWALK

(H1) 2'–0" VALLEY GUTTER. STD. 101.1

(H2) CURB TRANSITION 2'–6" CURB AND GUTTER TO 2'–0" VALLEY GUTTER, STD. 104.1



SECTION A – A



LH = DISTANCE FROM END OF WINGWALL TO END OF HANDRAIL.

LC1 = DISTANCE FROM ℄ OF CULVERT TO END OF 2'–6" CURB AND GUTTER GUTTER.

LC2 = DISTANCE FROM END OF WINGWALL TO END OF 2'–6" CURB AND GUTTER.

NOTES:

1. SEE STD. NO. 134.1 FOR GENERAL NOTES AND CLEAR ZONE DISTANCES
2. PLANTING STRIP WIDTH TO BE IN ACCORDANCE WITH CROSS SECTION PER VILLAGE REQUIREMENTS.

NOT TO SCALE

STANDARD DRAWING

CULVERT CROSSINGS ON RESIDENTIAL AND COMMERCIAL STREETS

REV. DATE
STD. NO.
133.1

GENERAL NOTES:

1. UNLESS OTHERWISE DETERMINED BY THE VILLAGE ENGINEER, THE MEASURES ILLUSTRATED SHALL BE USED WHEN CULVERT DIAMETER, D, IS GREATER THAN OR EQUAL TO 24 INCHES AND WHEN THE DIFFERENCE IN ELEVATION BETWEEN THE CULVERT INVERT AND THE TOP OF SLOPE, H, IS GREATER THAN OR EQUAL TO 5 FEET.
2. INSTALLATION OF 2'–6" CURB AND GUTTER MAY NOT BE REQUIRED WHEN AN ADEQUATE CLEAR ZONE IS PROVIDED FOR VEHICLES WITH A MAXIMUM OF 6:1 SLOPE (SEE TABLE 1).
3. INSTALLATION OF HANDRAIL MAY NOT BE REQUIRED WHEN A 10–FOOT PEDESTRIAN CLEAR ZONE IS PROVIDED BEHIND THE SIDEWALK WITH A MAXIMUM OF 6:1 SLOPE. WHERE NO SIDEWALK IS REQUIRED, INSTALLATION OF HANDRAIL MAY NOT BE REQUIRED WHEN A 15–FOOT PEDESTRIAN CLEAR ZONE IS PROVIDED BEHIND THE CURB WITH A MAXIMUM OF 6:1 SLOPE.
4. FOR CULVERT CROSSINGS WITHOUT ENDWALLS, LH AND LC2 SHALL BE MEASURED FROM THE OUTSIDE OF THE NEAREST WALL OF THE CULVERT BARREL.
5. FOR MULITIPLE BARREL CULVERT CROSSINGS, LC1 SHALL BE MEASURED FROM THE CENTERLINES OF THE OUTBOARD CULVERT BARRELS.
6. WHEN NECESSARY, AS DETERMINED BY THE VILLAGE ENGINEER, ADDITIONAL MEASURES MAY BE REQUIRED.
7. INSTALLATION OF HANDRAIL IS REQUIRED ON BOTH SIDES OF STREET IF SIDEWALK IS REQUIRED ON BOTH SIDES.
8. INSTALLATION OF HANDRAIL IS REQUIRED ON BOTH SIDES OF STREET IF NO SIDEWALK IS REQUIRED EXCEPT WHEN A 15–FOOT PEDESTRIAN CLEAR ZONE IS PROVIDED BEHIND THE CURB WITH A MAXIMUM OF 6:1 SLOPE.
9. INSTALLATION OF HANDRAIL IS REQUIRED ON THE SIDEWALK SIDE OF STREET IF SIDEWALK IS ONLY REQUIRED ON ONE SIDE OF STREET. PROVIDE HANDRAIL OR 15 FOOT CLEAR ZONE ON SIDE WITHOUT SIDEWALK.
10. DESIGN ADT IS CALCULATED ASSUMING A TRIP GENERATION OF 10 DAILY TRIPS PER SINGLE FAMILY DWELLING UNIT.

TABLE 1.
CLEAR ZONE DISTANCES
LOCAL, COLLECTOR, AND COMMERCIAL STREETS

DESIGN ADT	CLEAR ZONE FROM EDGE OF PAVEMENT	
	TANGENT SECTION	CURVE (WITHIN 125' OF CULVERT)
UNDER 750	10'	15'
750 – 1500	12'	18'
1501 – 6000	14'	21'
OVER 6000	16'	24'

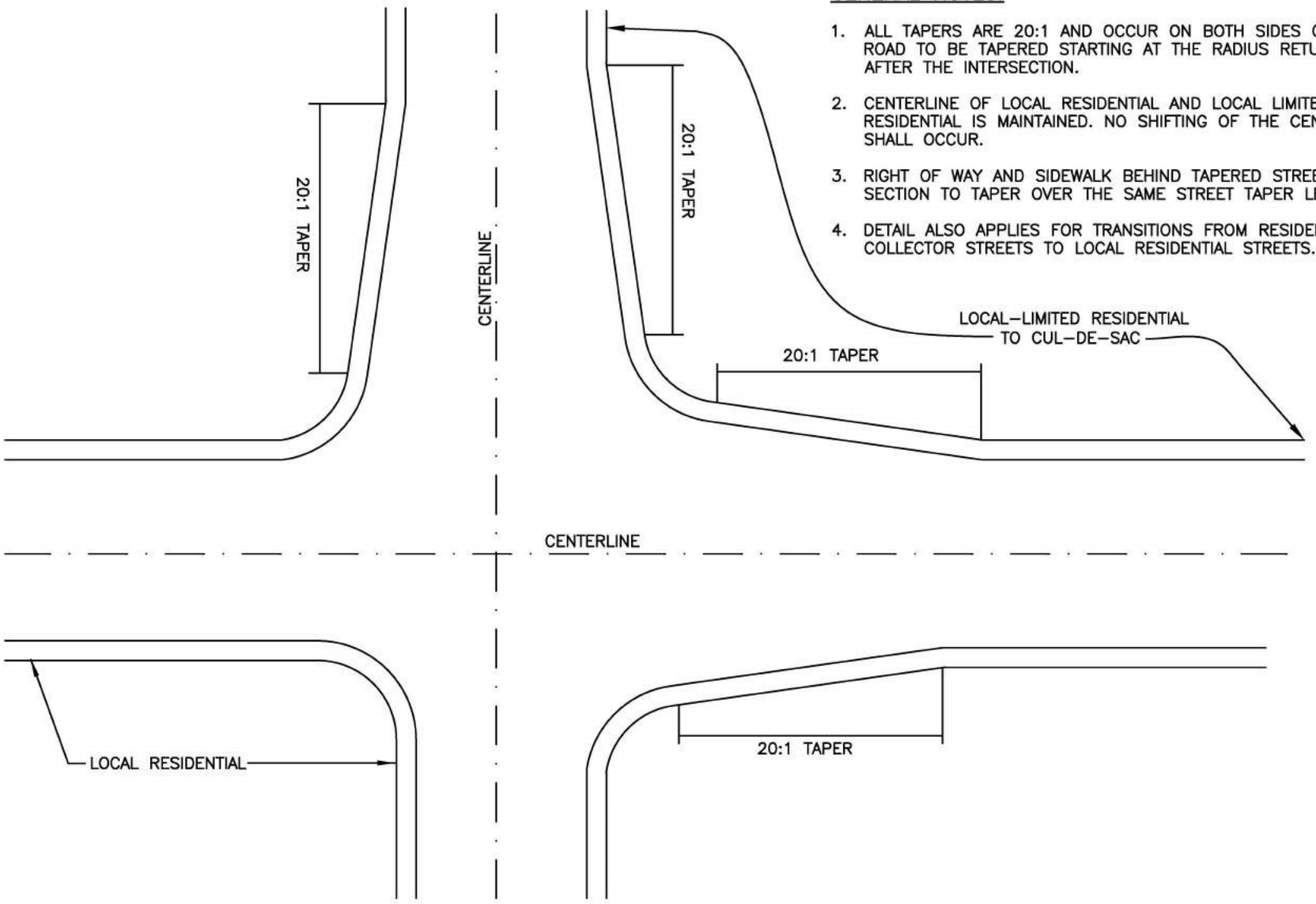
SEE STD. NO. 133.1 FOR PLAN AND CROSS SECTIONAL SCHEMATICS.

NOT TO SCALE

STANDARD DRAWING

CULVERT CROSSINGS ON RESIDENTIAL AND COMMERCIAL STREETS

REV. DATE
STD. NO.
134.1



GENERAL NOTES:

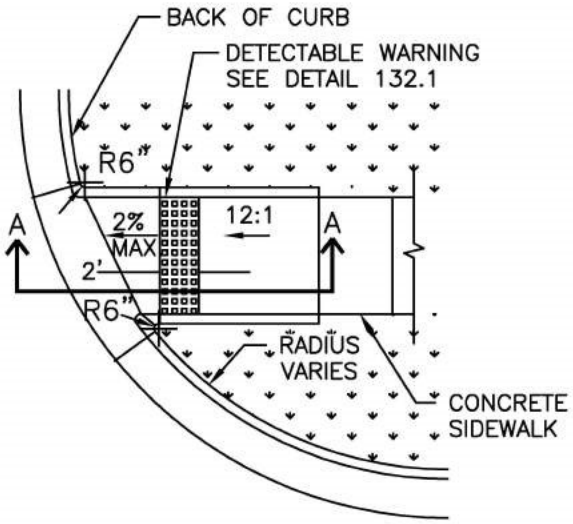
1. ALL TAPERS ARE 20:1 AND OCCUR ON BOTH SIDES OF THE ROAD TO BE TAPERED STARTING AT THE RADIUS RETURN AFTER THE INTERSECTION.
2. CENTERLINE OF LOCAL RESIDENTIAL AND LOCAL LIMITED RESIDENTIAL IS MAINTAINED. NO SHIFTING OF THE CENTERLINE SHALL OCCUR.
3. RIGHT OF WAY AND SIDEWALK BEHIND TAPERED STREET SECTION TO TAPER OVER THE SAME STREET TAPER LENGTH.
4. DETAIL ALSO APPLIES FOR TRANSITIONS FROM RESIDENTIAL COLLECTOR STREETS TO LOCAL RESIDENTIAL STREETS.

NOT TO SCALE

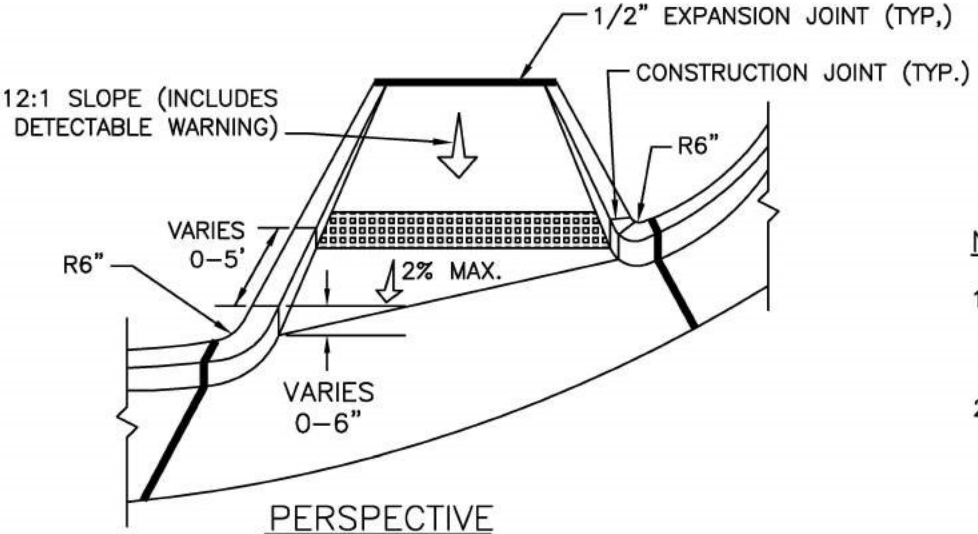
STANDARD DRAWING

TYPICAL LOCAL RESIDENTIAL TO LOCAL LIMITED RESIDENTIAL STREET TAPER

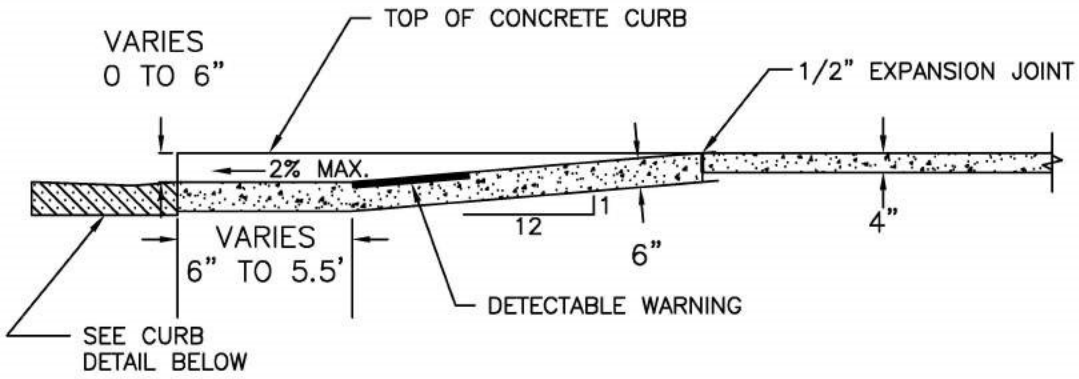
REV. DATE
STD. NO.
135.1



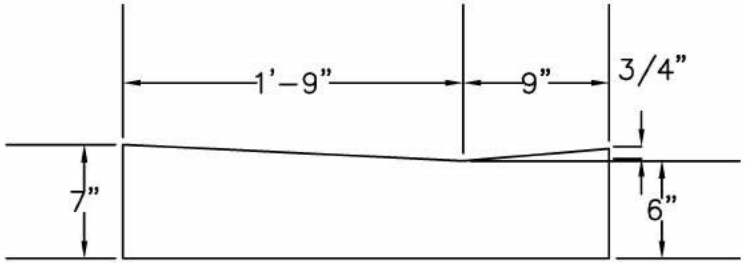
PLAN



PERSPECTIVE



SECTION A–A



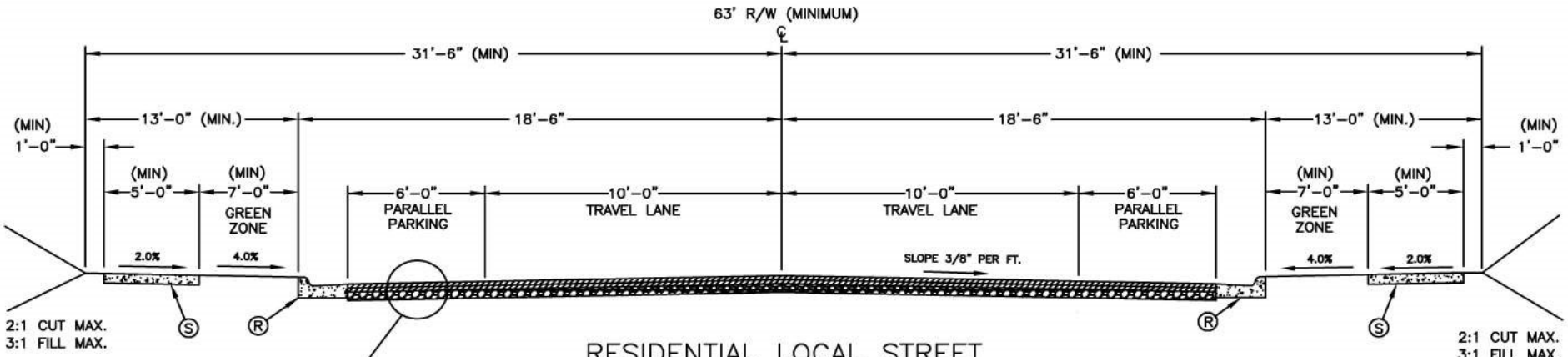
CURB DETAIL

NOTES:

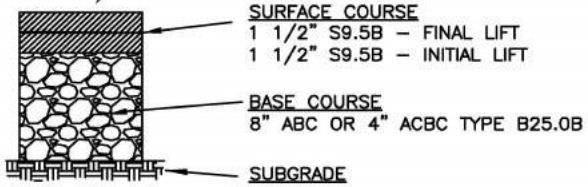
1. DIRECTIONAL RAMPS MAY BE USED WHEN A PLANTING STRIP IS PROVIDED. DO NOT USE THIS DETAIL IF THERE IS HARDSCAPE INSTEAD OF A PLANTING STRIP.
2. ALL CONCRETE SHALL BE AT LEAST 3600 PSI.

NOT TO SCALE

STANDARD DRAWING	DIRECTIONAL ACCESSIBLE RAMP	REV. DATE
		STD. NO. 136.1



RESIDENTIAL LOCAL STREET



TYPICAL PAVEMENT SECTION

NOTES:

1. SIDEWALK SHALL BE PROVIDED ON BOTH SIDES OF THE STREET.

2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.

3. REFER TO STANDARD DRAWING 285.1 FOR PARALLEL PARKING LAYOUT.

KEY

Ⓡ 2'–6" STD. CURB AND GUTTER

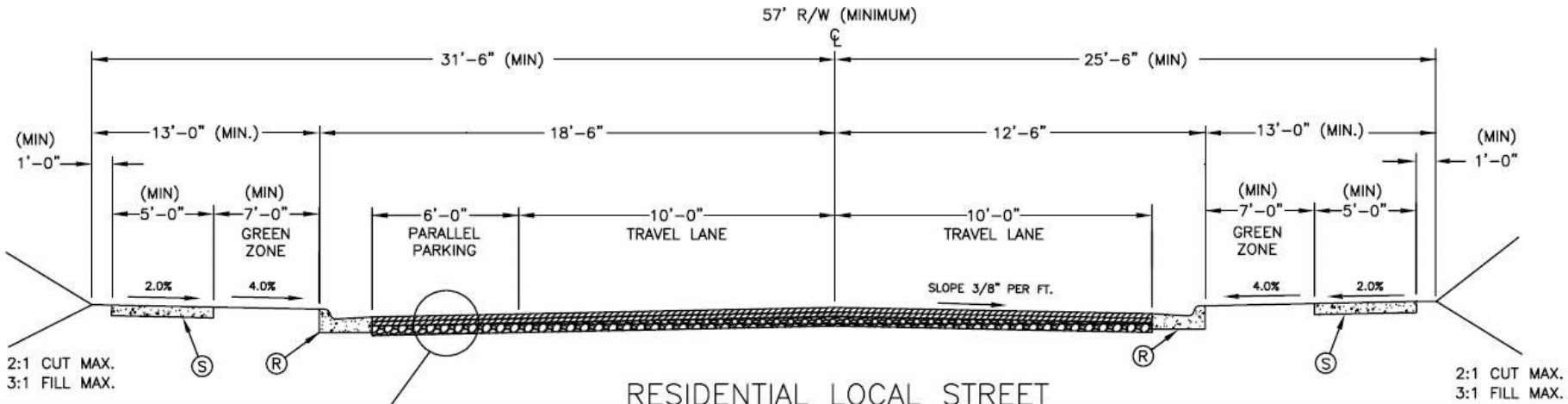
Ⓢ 4" CONCRETE SIDEWALK

NOT TO SCALE

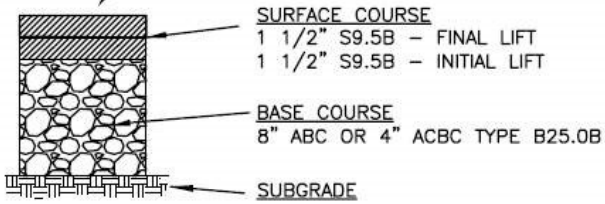
STANDARD DRAWING

RESIDENTIAL LOCAL STREET PARKING ON BOTH SIDES OF STREET TYPICAL SECTION

REV. DATE
STD. NO.
200.1



RESIDENTIAL LOCAL STREET



TYPICAL PAVEMENT SECTION

KEY

Ⓡ 2'-6" STD. CURB AND GUTTER

Ⓢ 4" CONCRETE SIDEWALK

NOTES:

1. SIDEWALK SHALL BE PROVIDED ON BOTH SIDES OF THE STREET.

2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.

3. 2'-0" VALLEY GUTTER MAY BE SUBSTITUTED FOR 2'-6" CURB AND GUTTER ON THE SIDE OF THE STREET WITHOUT PARALLEL PARKING. THIS REDUCES THE MINIMUM RIGHT-OF-WAY BY SIX INCHES. 2'-0" VALLEY GUTTER MAY NOT BE SUBSTITUTED FOR 2'-6" CURB AND GUTTER ON THE SIDE OF THE STREET WITH PARALLEL PARKING.

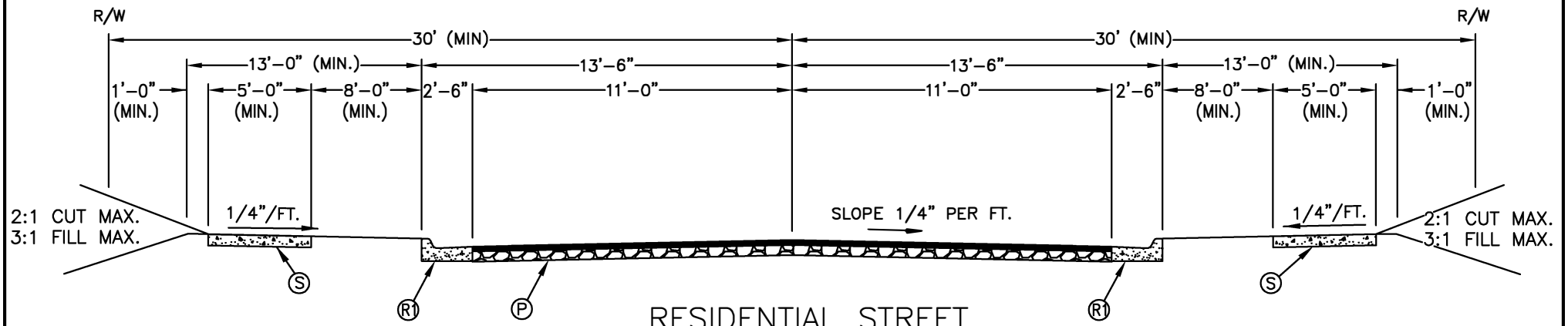
4. REFER TO STANDARD DRAWING 285.1 FOR PARALLEL PARKING LAYOUT.

NOT TO SCALE

STANDARD DRAWING

RESIDENTIAL LOCAL STREET PARKING ON ONE SIDE OF STREET TYPICAL SECTION

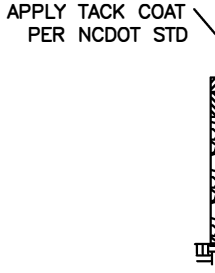
REV. DATE
STD. NO.
200.2



RESIDENTIAL STREET

NOTES:

1. AN ALTERNATIVE PAVEMENT DESIGN MAY BE REQUIRED BASED ON SPECIFIC TRAFFIC PARAMETERS.
2. ALL DIMENSIONS NOTED AS MINIMUMS ARE SUBJECT TO STANDARDS REQUIRED BY VILLAGE OF MARVIN DEVELOPMENT ORDINANCE.



SURFACE COURSE
1 1/2" BITUMINOUS CONCRETE, TYPE S9.5B
FINAL LIFT TO BE APPLIED AFTER 75% DEVELOPMENT OCCUPANCY OR 1 YEAR FROM INTERMEDIATE COURSE PLACEMENT (WHICHEVER OCCURS FIRST).

INTERMEDIATE COURSE
1 1/2" BITUMINOUS CONCRETE, TYPE I19.0C

BASE COURSE
8" COMPACTED AGGREGATE BASE COURSE, OR 4" BCBC TYPE B25.0B SHOULD ENTIRE DEVELOPMENT HAVE A CBR OF 6 OR GREATER, THEN AN ALTERNATIVE BASE COURSE PAVEMENT DESIGN MAY BE SUBMITTED TO THE TOWN ENGINEER FOR APPROVAL.

SUBGRADE
COMPACT SUBGRADE TO AASHTO STANDARDS AND SPECIFICATIONS

TYPICAL MINIMUM PAVEMENT SECTION (MINIMUM)

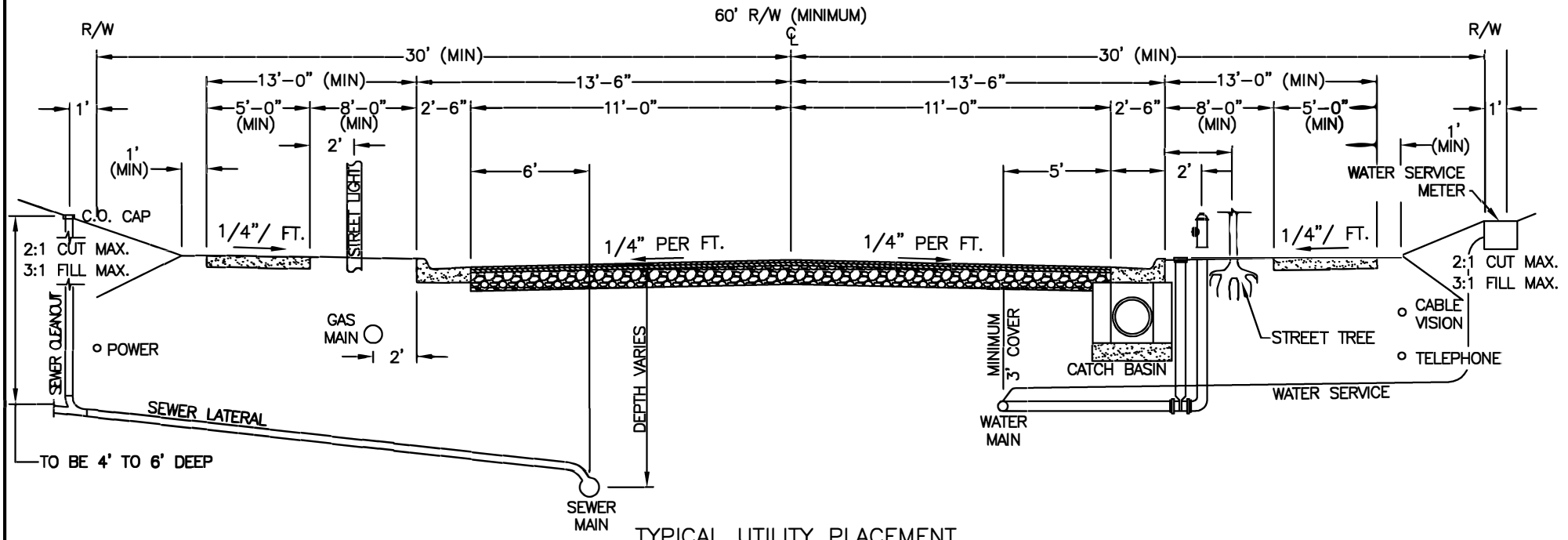
KEY

- (R1) 2'-6" CURB AND GUTTER
- (S) 4" CONCRETE SIDEWALK
- (P) TYPICAL PAVEMENT SECTION

NOT TO SCALE

VILLAGE OF MARVIN, NC	STREET SECTION 60' (MIN.) RIGHT-OF-WAY	STD. 200.3	REVISIONS

NO	DATE	BY	COMMENT
--	--	--	--



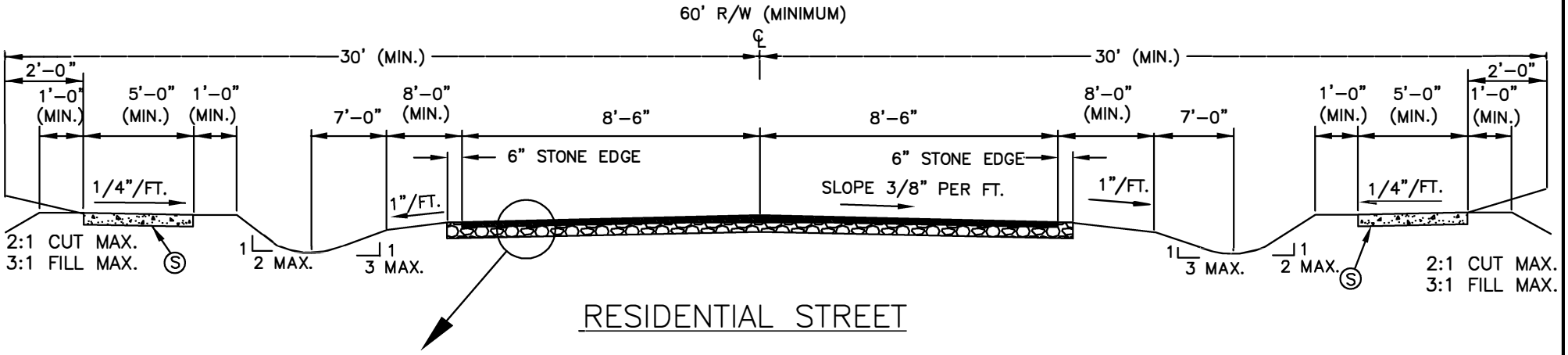
TYPICAL UTILITY PLACEMENT

NOTES:

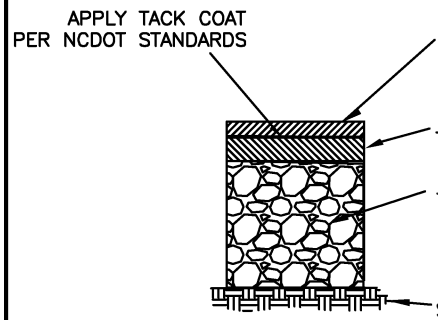
1. ALL DIMENSIONS NOTED AS MINIMUM ARE SUBJECT TO APPLICABLE STANDARDS.
2. WATER AND SEWER MAY BE REVERSED FROM LOCATION SHOWN ABOVE.
3. WATER AND SEWER SEPARATION SHALL BE IN ACCORDANCE WITH SECTION .0900 OF THE RULES GOVERNING PUBLIC WATER SYSTEMS.
4. WATER AND SEWER SHALL BE INSTALLED UNDER PAVEMENT TO MINIMIZE DISRUPTION TO PRIVATE PROPERTY DURING MAINTENANCE ACTIVITIES.
5. TELEPHONE, CABLE TV, AND POWER SHALL BE LOCATED JUST INSIDE THE STREET RIGHT-OF-WAY (COLOCATION IS REQUIRED).

VILLAGE OF MARVIN, NC	STREET SECTION WITH UTILITIES 60' (MIN.) RIGHT-OF-WAY	STD. 200.3A

REVISIONS			
NO	DATE	BY	COMMENT



RESIDENTIAL STREET



SURFACE COURSE
1 1/2" BITUMINOUS CONCRETE, TYPE S9.5B
FINAL LIFT TO BE APPLIED AFTER 75% DEVELOPMENT OCCUPANCY OR 1 YEAR FROM INTERMEDIATE COURSE PLACEMENT (WHICHEVER OCCURS FIRST).

INTERMEDIATE COURSE
1 1/2" BITUMINOUS CONCRETE, TYPE I19.0C

BASE COURSE
8" COMPACTED AGGREGATE BASE COURSE, OR 4" BCBC TYPE B25.0B SHOULD ENTIRE DEVELOPMENT HAVE A CBR OF 6 OR GREATER, THEN AN ALTERNATIVE BASE COURSE PAVEMENT DESIGN MAY BE SUBMITTED TO THE TOWN ENGINEER FOR APPROVAL.

SUBGRADE
COMPACT SUBGRADE TO AASHTO STANDARDS AND SPECIFICATIONS

TYPICAL MINIMUM PAVEMENT SECTION
(SEE NOTE 4.)

NOTES:

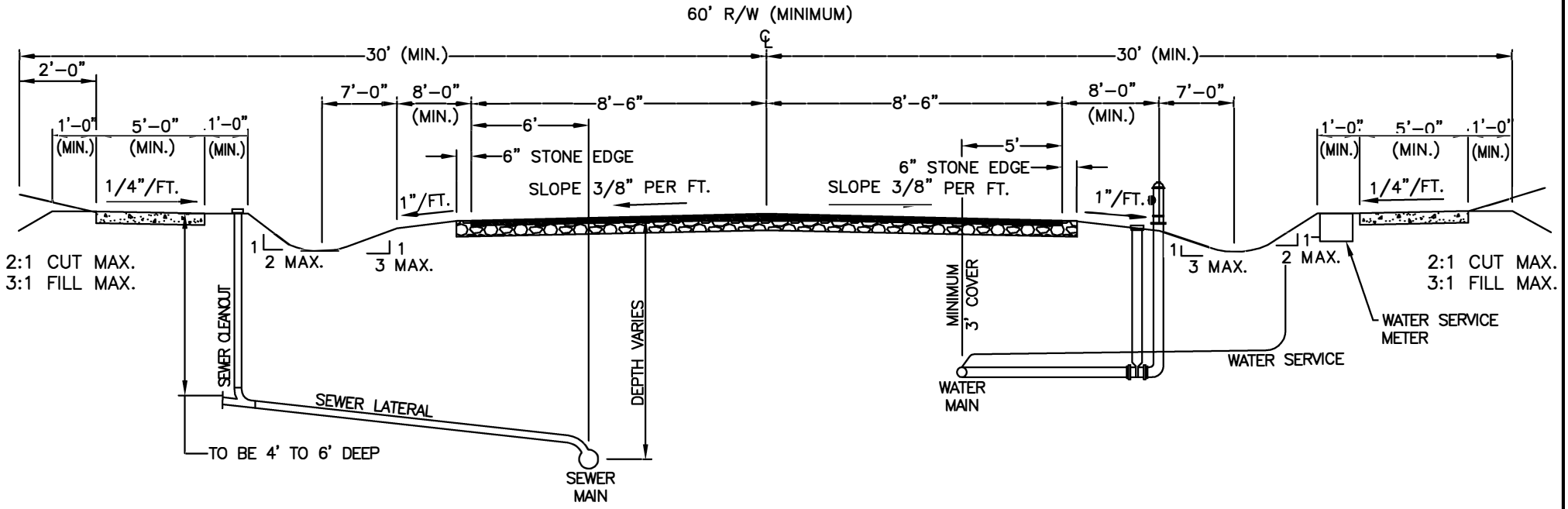
1. SIDEWALK SHALL BE ON BOTH SIDES OF STREET AND LOCATED ON LOT SIDE OF DITCH.
2. SIDEWALK LOCATED OUTSIDE OF STREET RIGHT-OF-WAY SHALL HAVE A FIVE-FOOT (5') PERMANENT SIDEWALK EASEMENT.
3. APPROVAL BY THE TOWN ENGINEER IS REQUIRED PRIOR TO USING DITCH TYPE SECTION.
4. AN ALTERNATIVE PAVEMENT DESIGN MAY BE REQUIRED BY TOWN/NCDOT BASED ON SPECIFIC TRAFFIC PARAMETERS.
5. ONE-WAY STREETS MAY REDUCE RIGHT-OF-WAY TO 45' (MIN.) AND PAVEMENT WIDTH TO 12'-0", WITH ALL OTHER DIMENSIONS IN EFFECT, UPON APPROVAL BY TOWN PLANNING, ZONING & SUBDIVISION ADMINISTRATOR.

KEY

Ⓢ 4" CONCRETE SIDEWALK

NOT TO SCALE

VILLAGE OF MARVIN, NC	RESIDENTIAL STREET DITCH TYPE STREET TYPICAL SECTION	STD. 200.4	REVISIONS: NO / DATE / BY / COMMENT



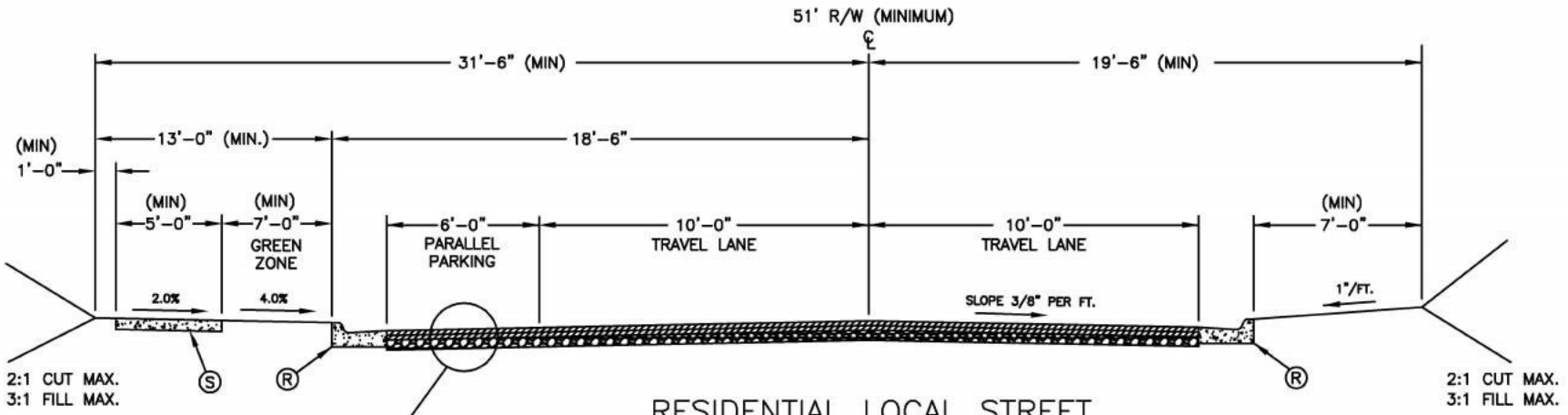
RESIDENTIAL STREET

NOTES:

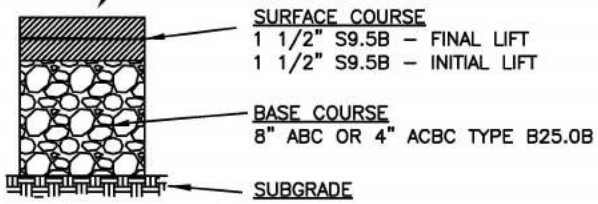
1. ALL DIMENSIONS NOTED AS MINIMUM ARE SUBJECT TO APPLICABLE STANDARDS.
2. WATER AND SEWER MAY BE REVERSED FROM LOCATION SHOWN ABOVE.
3. WATER AND SEWER SEPARATION SHALL BE IN ACCORDANCE WITH SECTION .0900 OF THE RULES GOVERNING PUBLIC WATER SYSTEMS.
4. WATER AND SEWER SHALL BE INSTALLED UNDER PAVEMENT TO MINIMIZE DISRUPTION TO PRIVATE PROPERTY DURING MAINTENANCE ACTIVITIES.
5. TELEPHONE, CABLE TV, AND POWER SHALL BE LOCATED JUST INSIDE THE STREET RIGHT-OF-WAY (COLOCATION IS REQUIRED).

VILLAGE OF MARVIN, NC	RESIDENTIAL STREET WITH UTILITIES DITCH TYPE STREET TYPICAL SECTION	STD. 200.4A

REVISIONS			
NO	DATE	BY	COMMENT



RESIDENTIAL LOCAL STREET



TYPICAL PAVEMENT SECTION

KEY

Ⓡ 2'–6" STD. CURB AND GUTTER

Ⓢ 4" CONCRETE SIDEWALK

NOTES:

1. SIDEWALK SHALL BE PROVIDED ON THE BUILDING SIDE OF STREET.

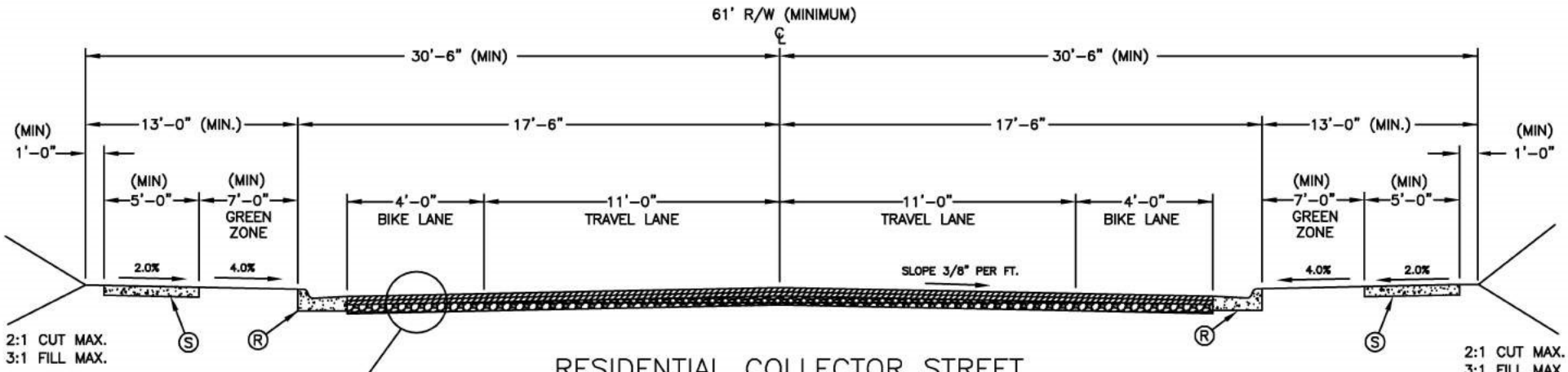
2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.

3. 2'–0" VALLEY GUTTER MAY BE SUBSTITUTED FOR 2'–6" CURB AND GUTTER ON THE SIDE OF THE STREET WITHOUT PARALLEL PARKING. THIS REDUCES THE MINIMUM RIGHT–OF–WAY BY SIX INCHES. 2'–0" VALLEY GUTTER MAY NOT BE SUBSTITUTED FOR 2'–6" CURB AND GUTTER ON THE SIDE OF THE STREET WITH PARALLEL PARKING.

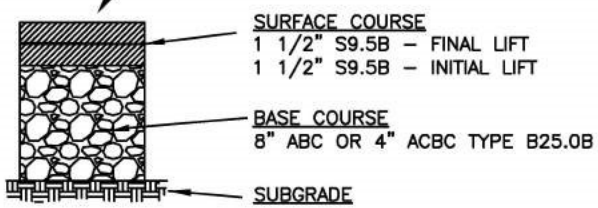
4. REFER TO STANDARD DRAWING 285.1 FOR PARALLEL PARKING LAYOUT.

NOT TO SCALE

STANDARD DRAWING	RESIDENTIAL LOCAL STREET PARKING ON ONE SIDE/OPEN SPACE ON OTHER TYPICAL SECTION	REV. DATE STD. NO. 200.5



RESIDENTIAL COLLECTOR STREET



TYPICAL PAVEMENT SECTION

NOTES:

1. SIDEWALK SHALL BE PROVIDED ON BOTH SIDES OF THE STREET.
2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.
3. BIKE LANE TO BE STRIPED.

KEY

Ⓡ 2'-6" STD. CURB AND GUTTER

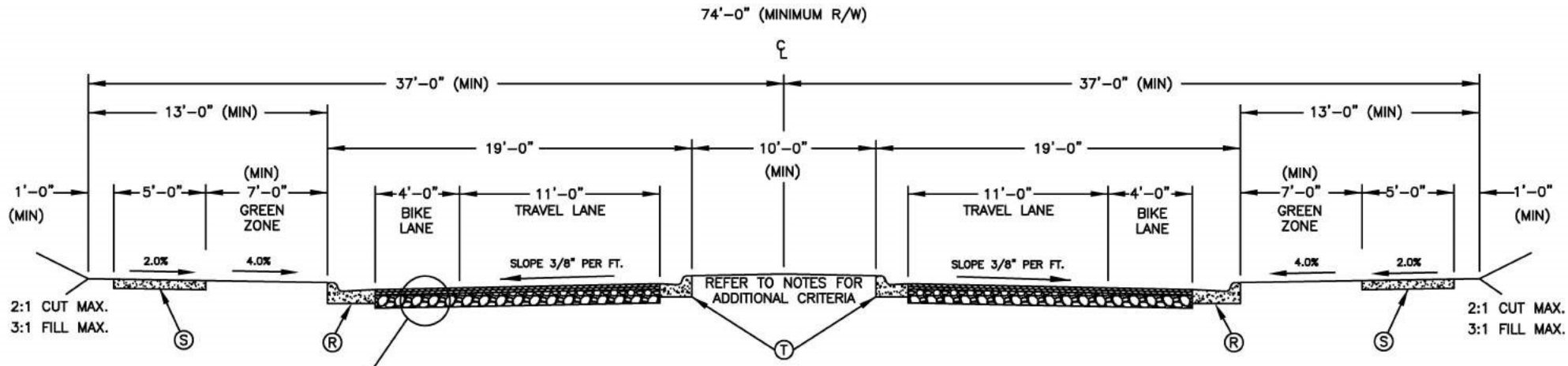
Ⓢ 4" CONCRETE SIDEWALK

NOT TO SCALE

STANDARD DRAWING

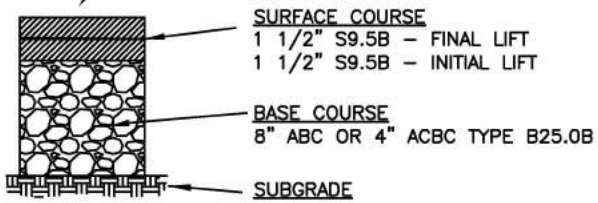
RESIDENTIAL COLLECTOR STREET WITH BIKE LANES TYPICAL SECTION

REV. DATE
STD. NO.
210.1



RESIDENTIAL DIVIDED COLLECTOR STREET

(TWO LANE SECTION)



TYPICAL PAVEMENT SECTION

KEY

- Ⓡ 2'–6" STD. CURB AND GUTTER
- Ⓢ 4" CONCRETE SIDEWALK
- Ⓣ 1'–6" MEDIAN CURB AND GUTTER

NOTES:

1. CURB RETURN RADIUS DIMENSIONS AT INTERSECTIONS MAY VARY DEPENDING ON MEDIAN WIDTH AND WILL BE APPROVED ON A CASE BY CASE BASIS.

2. SUBDRAINS ARE REQUIRED ON ALL MEDIANS. (TO BE TIED INTO STORM DRAINAGE SYSTEM.) REFER TO SUBDRAIN STANDARD DETAIL 312.1.

3. MEDIAN PLANTINGS SHALL NOT OBSTRUCT INTERSECTION SIGHT DISTANCE REQUIREMENTS.

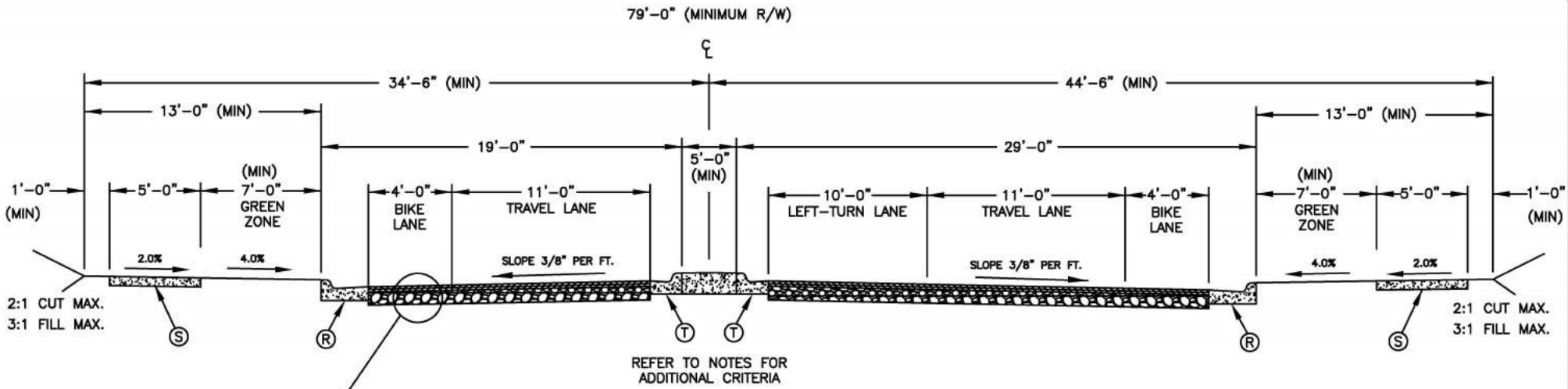
4. A TEN (10) FOOT WIDE MEDIAN IS REQUIRED FOR SMALL MATURING TREES. A TWENTY (20) FOOT WIDE MEDIAN IS REQUIRED FOR LARGE MATURING TREES.

5. BIKE LANE TO BE STRIPED.

6. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.

NOT TO SCALE

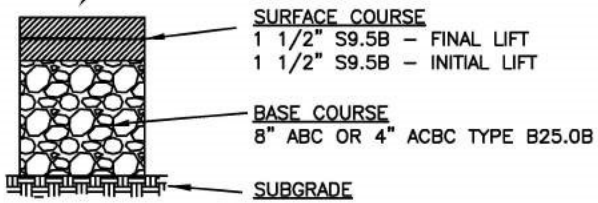
STANDARD DRAWING	RESIDENTIAL DIVIDED COLLECTOR STREET TYPICAL SECTION	REV. DATE
		STD. NO. 210.2



REFER TO NOTES FOR ADDITIONAL CRITERIA

RESIDENTIAL DIVIDED COLLECTOR STREET

(TWO LANE SECTION)



TYPICAL PAVEMENT SECTION

KEY

Ⓡ 2'–6" STANDARD CURB AND GUTTER
Ⓢ 4" CONCRETE SIDEWALK
Ⓣ 1'–6" MEDIAN CURB AND GUTTER

NOTES:

1. CURB RETURN RADIUS DIMENSIONS AT INTERSECTIONS MAY VARY DEPENDING ON MEDIAN WIDTH AND WILL BE APPROVED ON A CASE BY CASE BASIS.

2. SUBDRAINS ARE REQUIRED ON ALL MEDIANS. (TO BE TIED INTO STORM DRAINAGE SYSTEM.) REFER TO SUBDRAIN STANDARD DETAIL 312.1.

3. MEDIAN PLANTINGS SHALL NOT OBSTRUCT INTERSECTION SIGHT DISTANCE REQUIREMENTS.

4. TEN (10) FOOT WIDE MEDIANS CAN ACCOMMODATE SMALL MATURING TREES. TWENTY (20) FOOT WIDE MEDIAN IS REQUIRED FOR LARGE MATURING TREES.

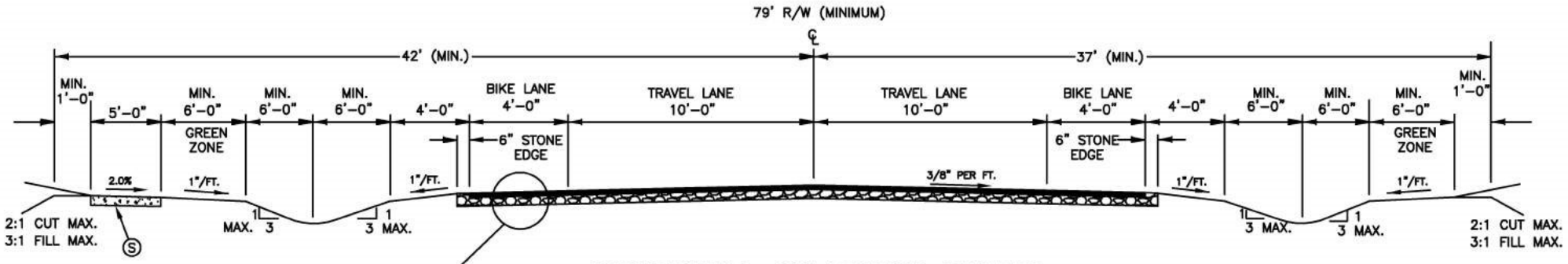
5. MONOLITHIC CONCRETE MEDIANS WITH BEVELED EDGES AND A MINIMUM WIDTH OF 6 FEET CAN BE USED IN LIEU OF LANDSCAPED MEDIANS.

6. BIKE LANE TO BE STRIPED.

7. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.

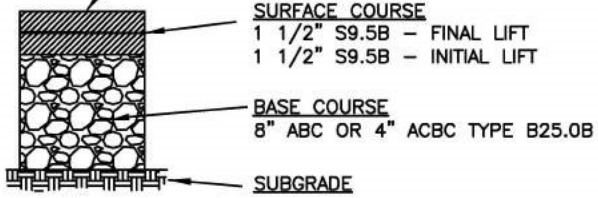
NOT TO SCALE

STANDARD DRAWING	RESIDENTIAL DIVIDED COLLECTOR STREET WITH LEFT–TURN LANE TYPICAL SECTION	REV. DATE
		STD. NO. 210.3



RESIDENTIAL COLLECTOR STREET

(DITCH TYPE)



TYPICAL PAVEMENT SECTION

NOTES:

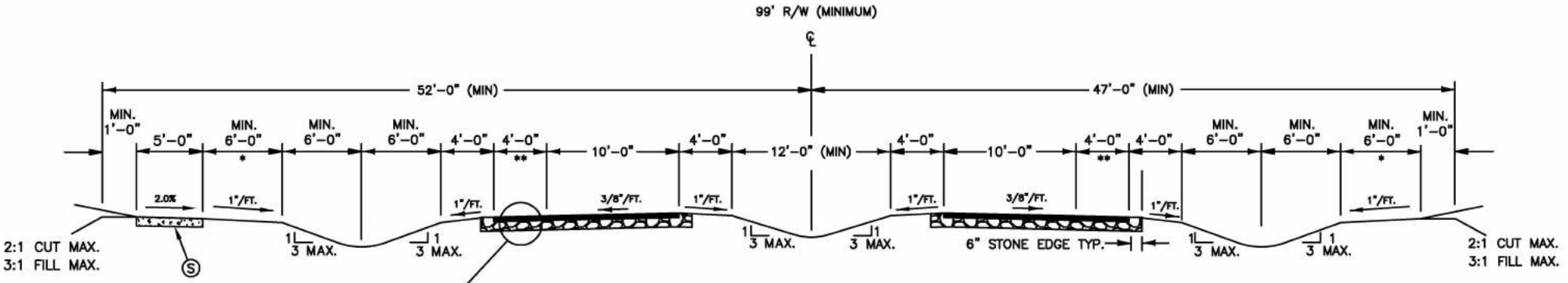
1. SIDEWALK LOCATED OUTSIDE OF STREET RIGHT–OF–WAY SHALL BE LOCATED IN A PERMANENT SIDEWALK EASEMENT EXTENDING 1 FOOT BEYOND BACK OF SIDEWALK.
2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.
3. TREES TO BE PLACED IN GREEN ZONE 3.5 FEET FROM FACE OF SIDEWALK.
4. BIKE LANE TO BE STRIPED.

KEY

Ⓢ 4" CONCRETE SIDEWALK

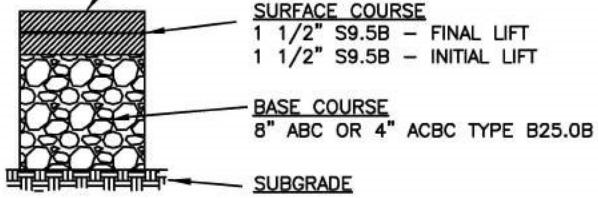
NOT TO SCALE

STANDARD DRAWING	RESIDENTIAL COLLECTOR STREET DITCH TYPE TYPICAL SECTION	REV. DATE
		STD. NO. 210.4



DIVIDED RESIDENTIAL COLLECTOR STREET

(DITCH TYPE)



TYPICAL PAVEMENT SECTION

NOTES:

1. SIDEWALK LOCATED OUTSIDE OF STREET RIGHT–OF–WAY SHALL BE LOCATED IN A PERMANENT SIDEWALK EASEMENT EXTENDING 1 FOOT BEYOND BACK OF SIDEWALK.
2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.
3. TREES TO BE PLACED IN GREEN ZONE 3.5 FEET FROM FACE OF SIDEWALK.
4. BIKE LANE TO BE STRIPED.

KEY

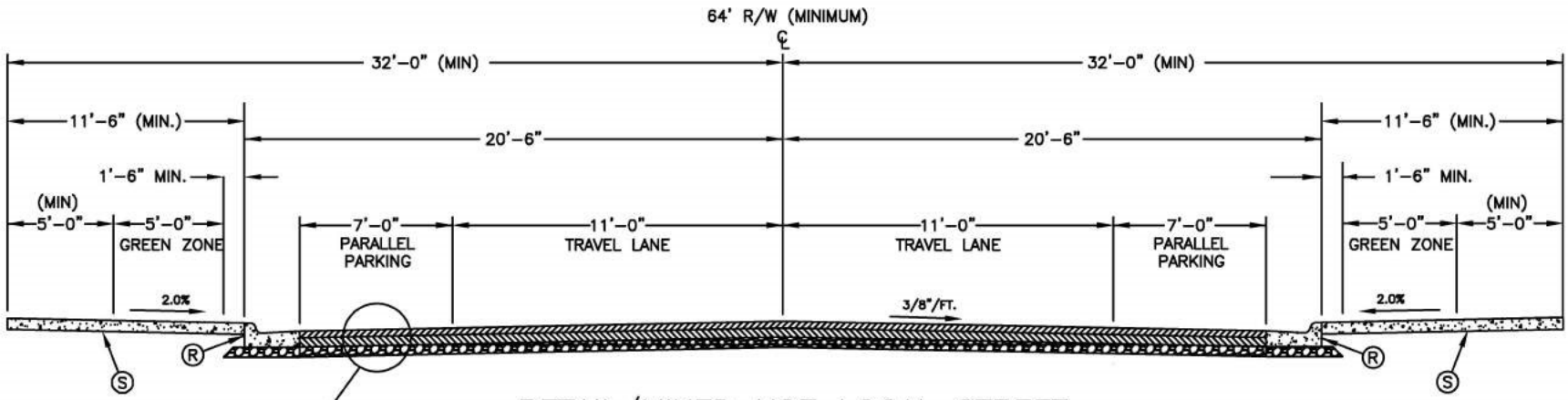
Ⓢ 4" CONCRETE SIDEWALK
* GREEN ZONE
** BIKE LANE

NOT TO SCALE

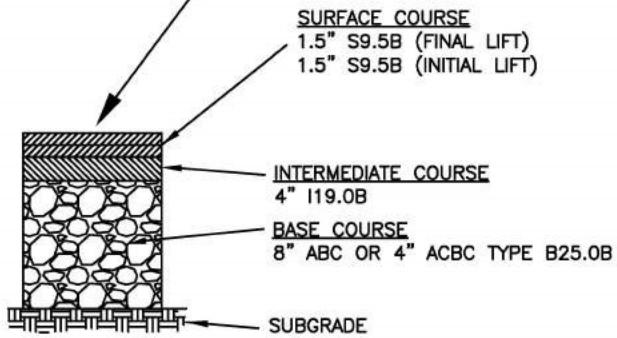
STANDARD DRAWING

RESIDENTIAL DIVIDED COLLECTOR STREET DITCH TYPE WITH MEDIAN DITCH TYPICAL SECTION

REV. DATE
STD. NO.
210.5



RETAIL/MIXED USE LOCAL STREET



TYPICAL PAVEMENT SECTION

KEY

Ⓡ 2'–6" STD. CURB AND GUTTER

Ⓢ 4" CONCRETE SIDEWALK

NOTES:

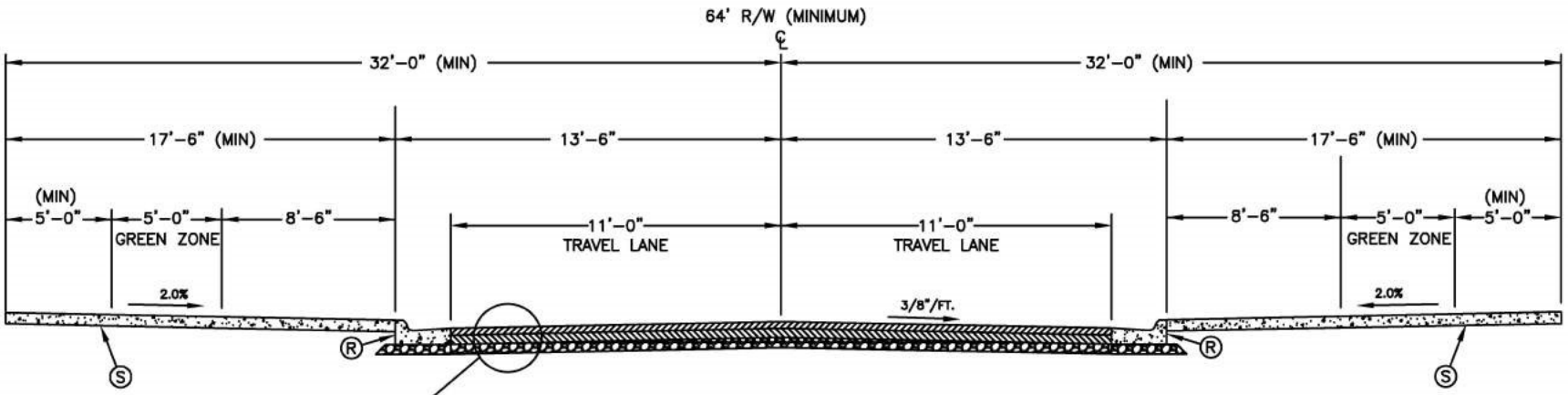
1. SIDEWALK SHALL BE PROVIDED ON BOTH SIDES OF THE STREET.
2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.
3. TREE GRATES SHALL BE PROVIDED WHEN TREES ARE LOCATED IN THE GREEN ZONE.
4. BASE COURSE TO EXTEND SIX INCHES BEYOND BACK OF CURB THEN TAPER OUT AT A FORTY–FIVE DEGREE ANGLE.
5. REFER TO STANDARD DRAWING 285.1 FOR PARALLEL PARKING LAYOUT.

NOT TO SCALE

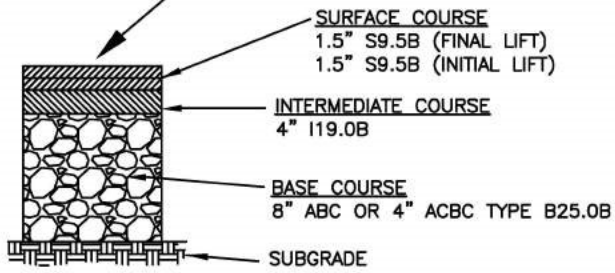
STANDARD DRAWING

RETAIL/MIXED USE LOCAL STREET PARKING ON BOTH SIDES OF STREET TYPICAL SECTION

REV. DATE
STD. NO.
220.1



RETAIL/MIXED USE LOCAL STREET



TYPICAL PAVEMENT SECTION

KEY

Ⓡ 2'-6" STD. CURB AND GUTTER

Ⓢ 4" CONCRETE SIDEWALK

NOTES:

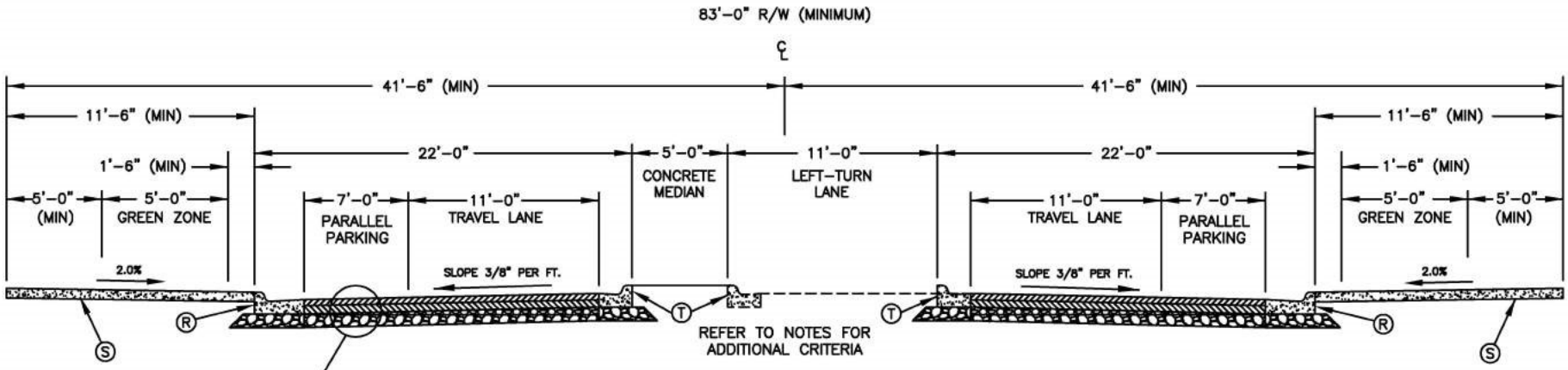
1. SIDEWALK SHALL BE PROVIDED ON BOTH SIDES OF THE STREET.
2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.
3. TREE GRATES SHALL BE PROVIDED WHEN TREES ARE LOCATED IN THE GREEN ZONE.
4. BASE COURSE TO EXTEND SIX INCHES BEYOND BACK OF CURB THEN TAPER OUT AT A FORTY-FIVE DEGREE ANGLE.
5. DRAWING TO BE USED IN CONJUNCTION WITH STANDARD 220.1 AND 285.1.

NOT TO SCALE

STANDARD DRAWING

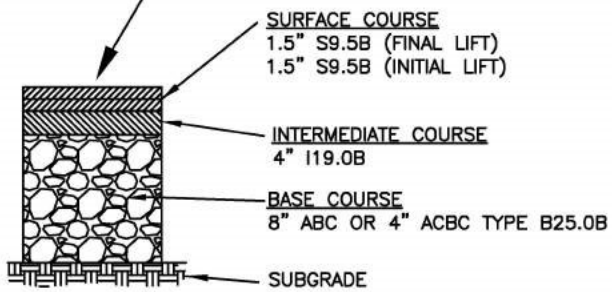
RETAIL/MIXED USE LOCAL STREET NO PARKING TYPICAL SECTION

REV. DATE
STD. NO.
220.2



RETAIL/MIXED USE LOCAL STREET

(TWO LANE SECTION)



TYPICAL PAVEMENT SECTION

NOTES:

1. SIDEWALK SHALL BE PROVIDED ON BOTH SIDES OF THE STREET.
2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.
3. TREE GRATES SHALL BE PROVIDED WHEN TREES ARE LOCATED IN THE GREEN ZONE.
4. FOR MEDIAN DIVIDED FACILITIES, A MINIMUM SIXTEEN (16) FOOT WIDE MEDIAN WITH ONE FOOT SIX INCH CURB AND GUTTER IS NEEDED. WHERE A LEFT-TURN LANE IS NOT INSTALLED, THE MEDIAN SHALL BE LANDSCAPED.
5. BASE COURSE TO EXTEND SIX INCHES BEYOND BACK OF CURB THEN TAPER OUT AT A FORTY-FIVE DEGREE ANGLE.
6. REFER TO STANDARD DRAWING 285.1 FOR PARALLEL PARKING LAYOUT.

KEY

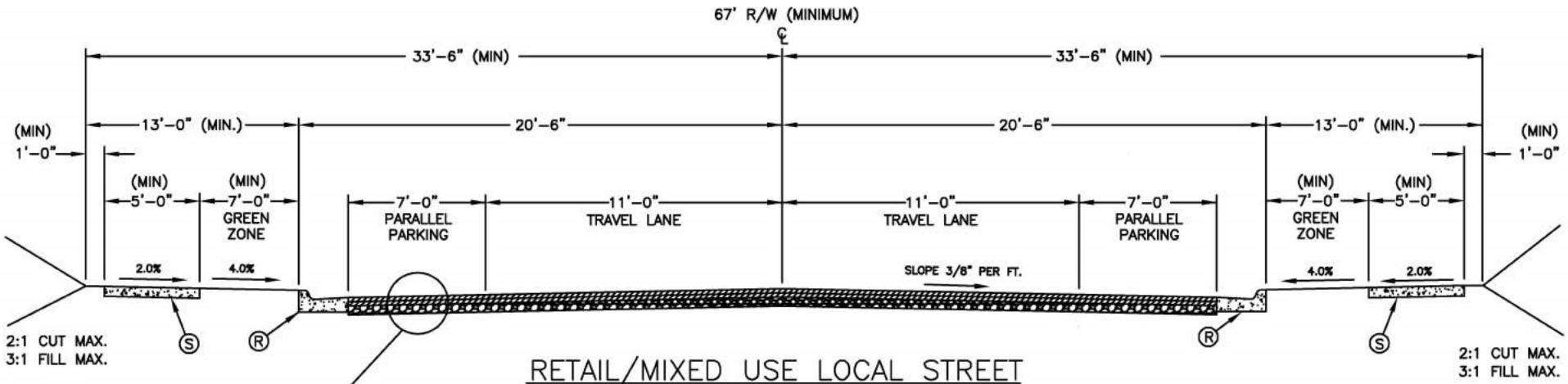
Ⓡ 2'-6" STANDARD CURB AND GUTTER
Ⓢ 4" CONCRETE SIDEWALK
Ⓣ 1'-6" MEDIAN CURB AND GUTTER

NOT TO SCALE

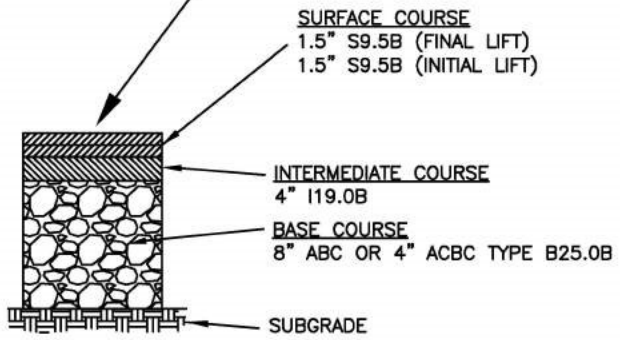
STANDARD DRAWING

RETAIL/MIXED USE LOCAL STREET WITH MEDIAN AND PARKING TYPICAL SECTION

REV. DATE
STD. NO.
220.3



RETAIL/MIXED USE LOCAL STREET



TYPICAL PAVEMENT SECTION

NOTES:

1. SIDEWALK SHALL BE PROVIDED ON BOTH SIDES OF THE STREET.

2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.

3. BASE COURSE TO EXTEND SIX INCHES BEYOND BACK OF CURB THEN TAPER OUT AT A FOURTY-FIVE DEGREE ANGLE.

4. REFER TO STANDARD DRAWING 285.1 FOR PARALLEL PARKING LAYOUT.

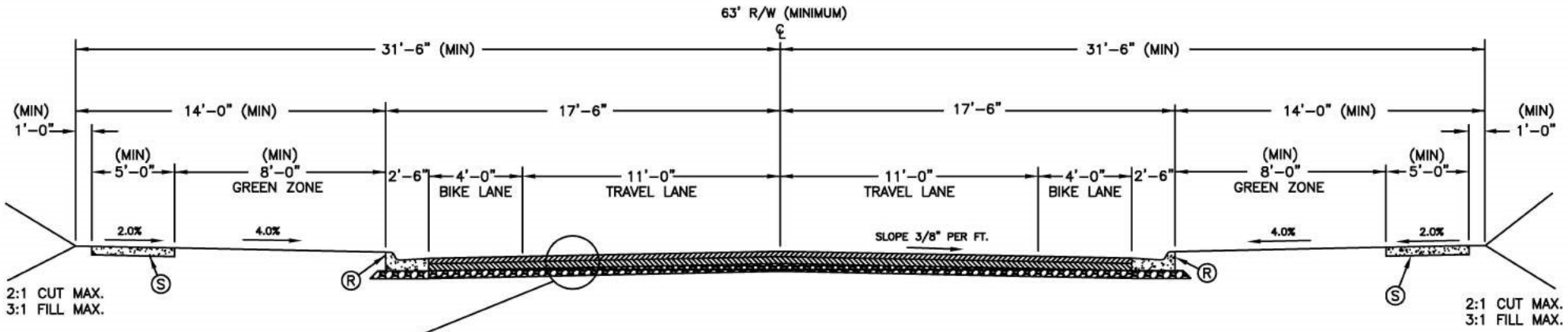
KEY

Ⓡ 2'-6" STD. CURB AND GUTTER

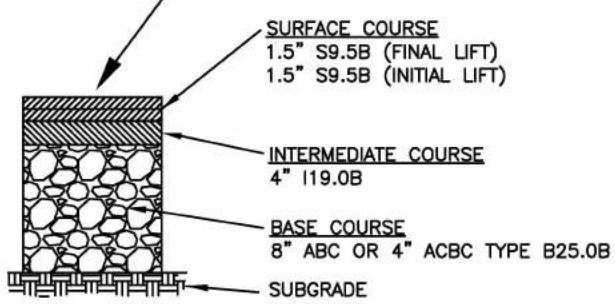
Ⓢ 4" CONCRETE SIDEWALK

NOT TO SCALE

STANDARD DRAWING	RETAIL/MIXED USE LOCAL STREET PARKING AND GREEN ZONE ON BOTH SIDES TYPICAL SECTION	REV. DATE STD. NO. 220.4



RETAIL/MIXED USE COLLECTOR STREET



TYPICAL PAVEMENT SECTION

NOTES:

1. SIDEWALK SHALL BE PROVIDED ON BOTH SIDES OF THE STREET.

2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.

3. BASE COURSE TO EXTEND SIX INCHES BEYOND BACK OF CURB THEN TAPER OUT AT A FORTY–FIVE DEGREE ANGLE.

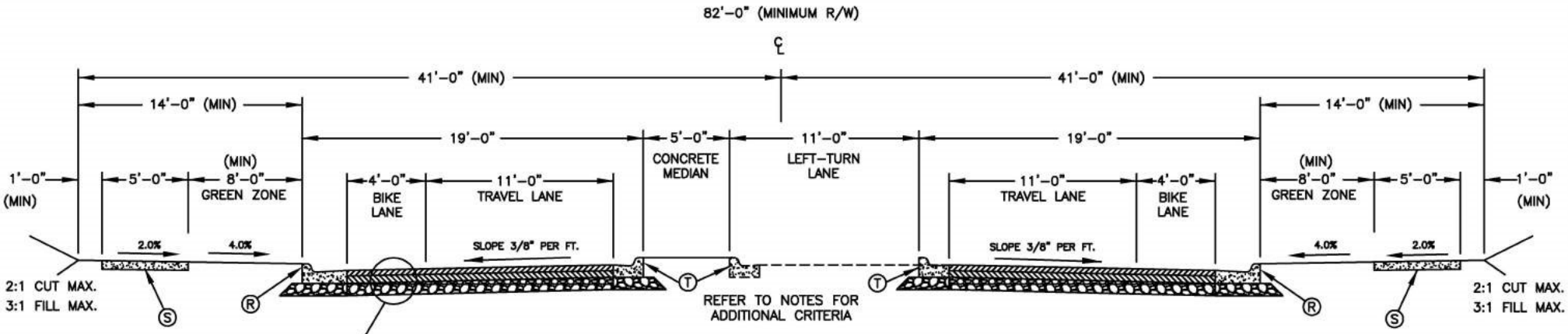
KEY

Ⓡ 2'–6" STANDARD CURB AND GUTTER

Ⓢ 4" CONCRETE SIDEWALK

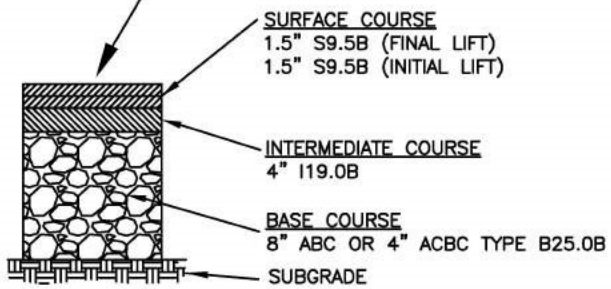
NOT TO SCALE

STANDARD DRAWING	RETAIL/MIXED USE COLLECTOR STREET WITH BIKE LANES TYPICAL SECTION	REV. DATE
		STD. NO. 230.1



RETAIL/MIXED USE COLLECTOR STREET

(TWO LANE SECTION)



TYPICAL PAVEMENT SECTION

KEY

- Ⓡ 2'-6" STANDARD CURB AND GUTTER
- Ⓢ 4" CONCRETE SIDEWALK
- Ⓣ 1'-6" MEDIAN CURB AND GUTTER

NOTES:

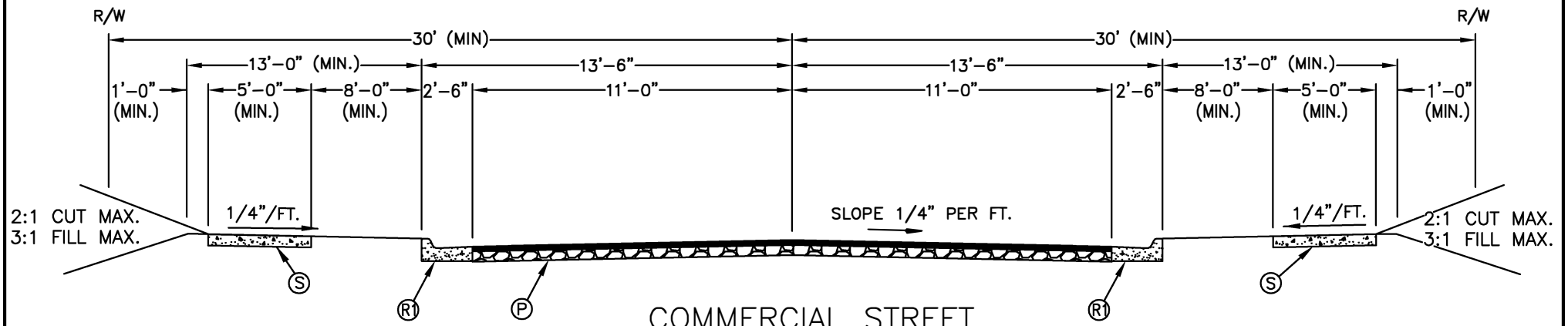
1. SIDEWALK SHALL BE PROVIDED ON BOTH SIDES OF THE STREET.
2. SEE SECTION II. B. FOR ADDITIONAL DESIGN CRITERIA.
3. FOR MEDIAN DIVIDED FACILITIES, A MINIMUM SIXTEEN (16) FOOT WIDE MEDIAN WITH ONE FOOT SIX INCH CURB AND GUTTER IS NEEDED. IF A LEFT-TURN LANE IS NOT NEEDED, THE MEDIAN SHALL BE LANDSCAPED.
4. BASE COURSE TO EXTEND SIX INCHES BEYOND BACK OF CURB THEN TAPER OUT AT A FORTY-FIVE DEGREE ANGLE.

NOT TO SCALE

STANDARD DRAWING

RETAIL/MIXED USE COLLECTOR STREET WITH MEDIAN AND BIKE LANES TYPICAL SECTION

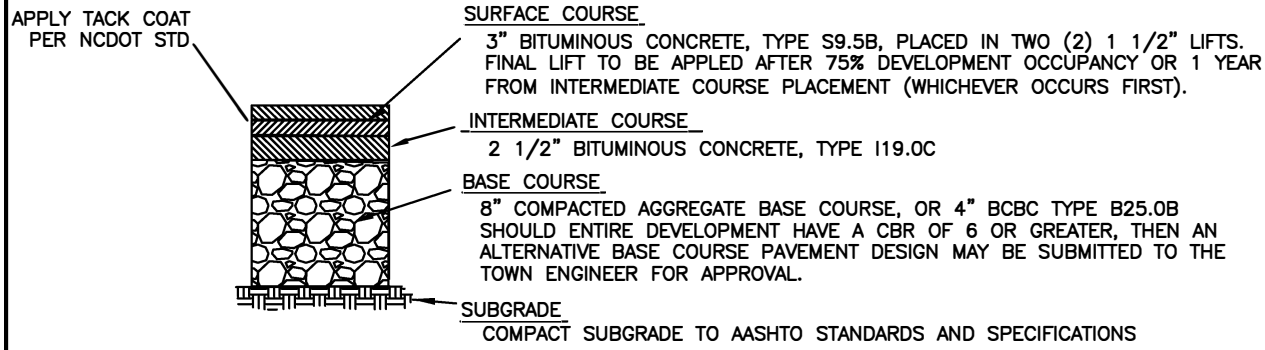
REV. DATE
STD. NO.
230.2



COMMERCIAL STREET

NOTES:

1. AN ALTERNATIVE PAVEMENT DESIGN MAY BE REQUIRED BASED ON SPECIFIC TRAFFIC PARAMETERS.
2. ALL DIMENSIONS NOTED AS MINIMUMS ARE SUBJECT TO STANDARDS REQUIRED BY VILLAGE OF MARVIN DEVELOPMENT ORDINANCE.



TYPICAL MINIMUM PAVEMENT SECTION (MINIMUM)

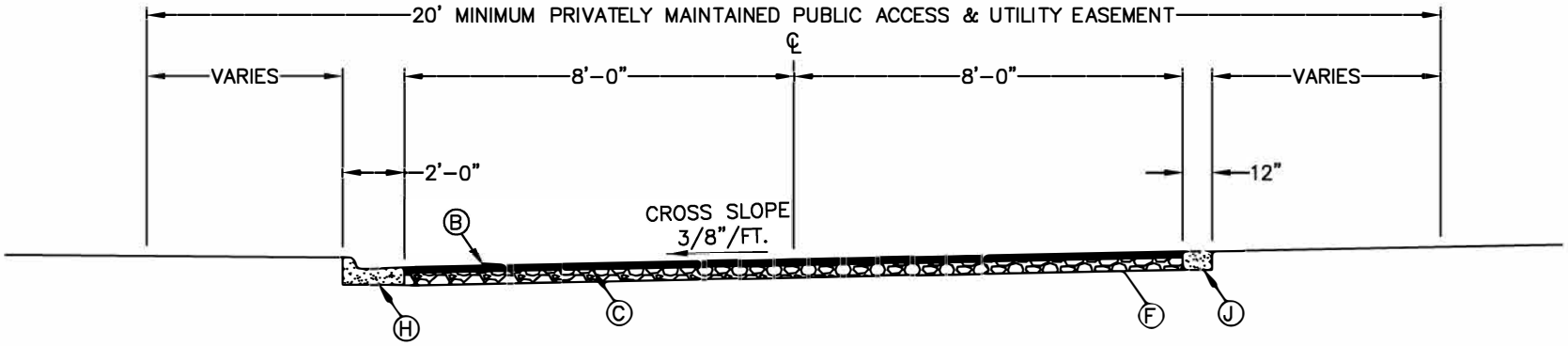
KEY

- (R1) 2'-6" CURB AND GUTTER
- (S) 4" CONCRETE SIDEWALK
- (P) TYPICAL PAVEMENT SECTION

NOT TO SCALE

VILLAGE OF MARVIN, NC	COMMERCIAL STREET SECTION 60' (MIN.) RIGHT-OF-WAY	STD. 240.1	REVISIONS

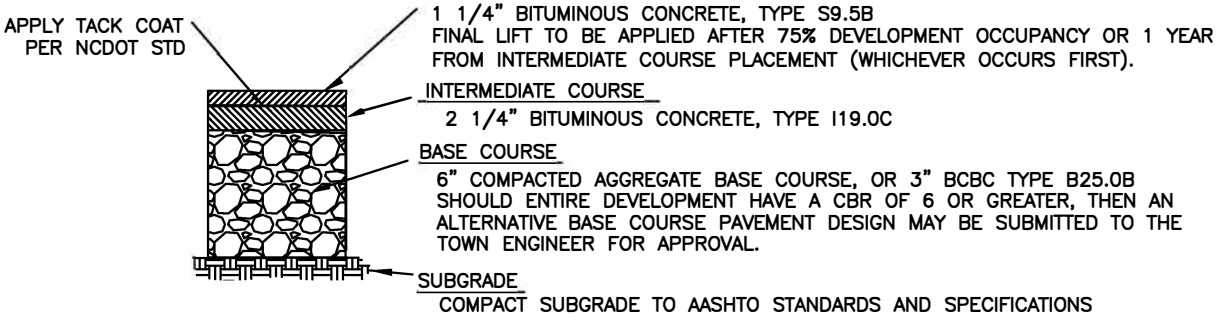
NO	DATE	BY	COMMENT
--	--	--	--



DIMENSIONS FOR LANE/ALLEY

KEY

- Ⓑ 1 1/4" BITUMINOUS CONCRETE SURFACE COURSE, TYPE S9.5B
- Ⓒ 2 1/4" BITUMINOUS CONCRETE BINDER COURSE, TYPE I19.0B
- Ⓕ 6" COMPACTED AGGREGATE BASE COURSE
- Ⓗ 2'–0" STANDARD VALLEY GUTTER
- Ⓙ 12" CONCRETE RIBBON

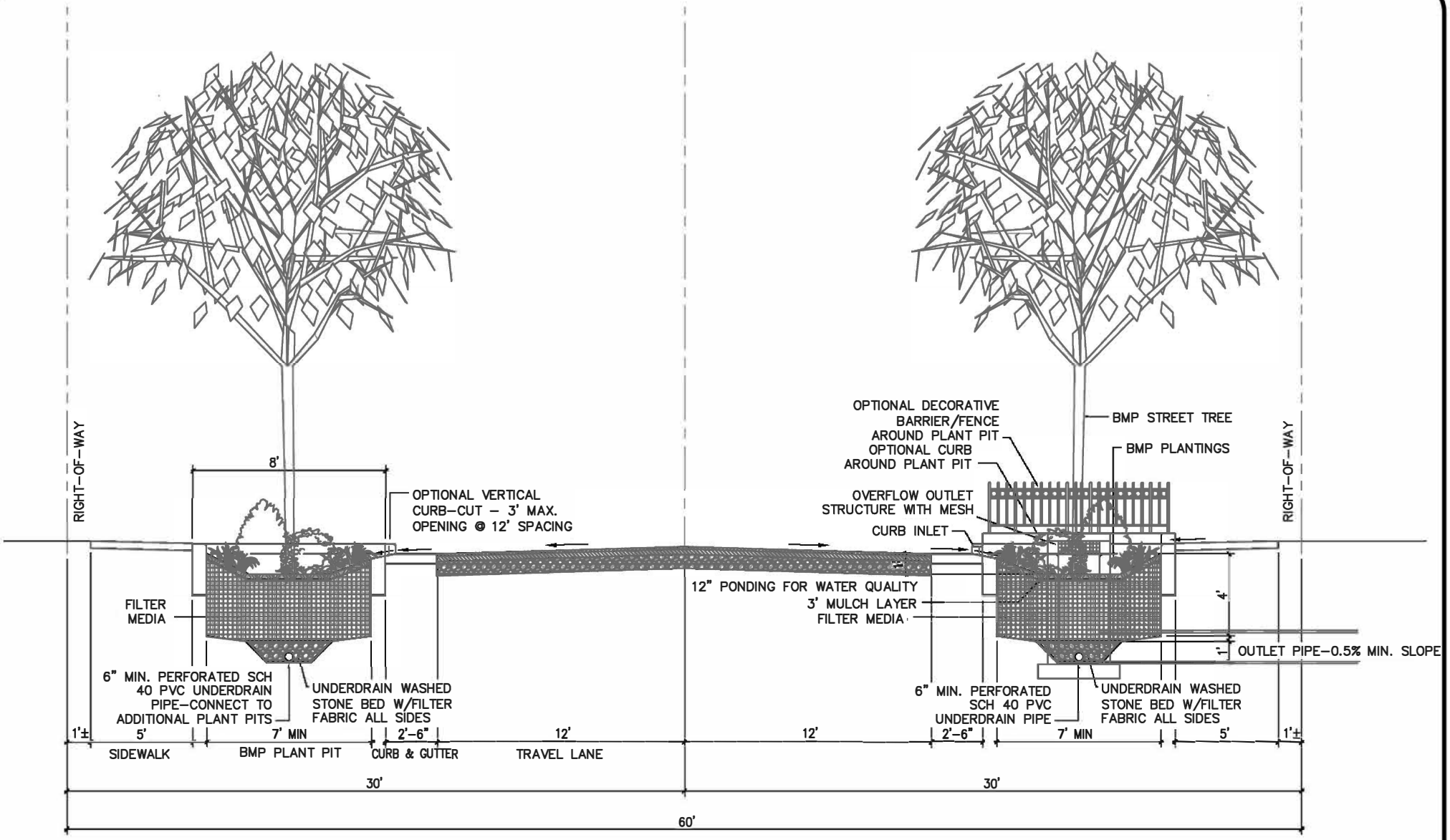


TYPICAL MINIMUM PAVEMENT SECTION (MINIMUM)

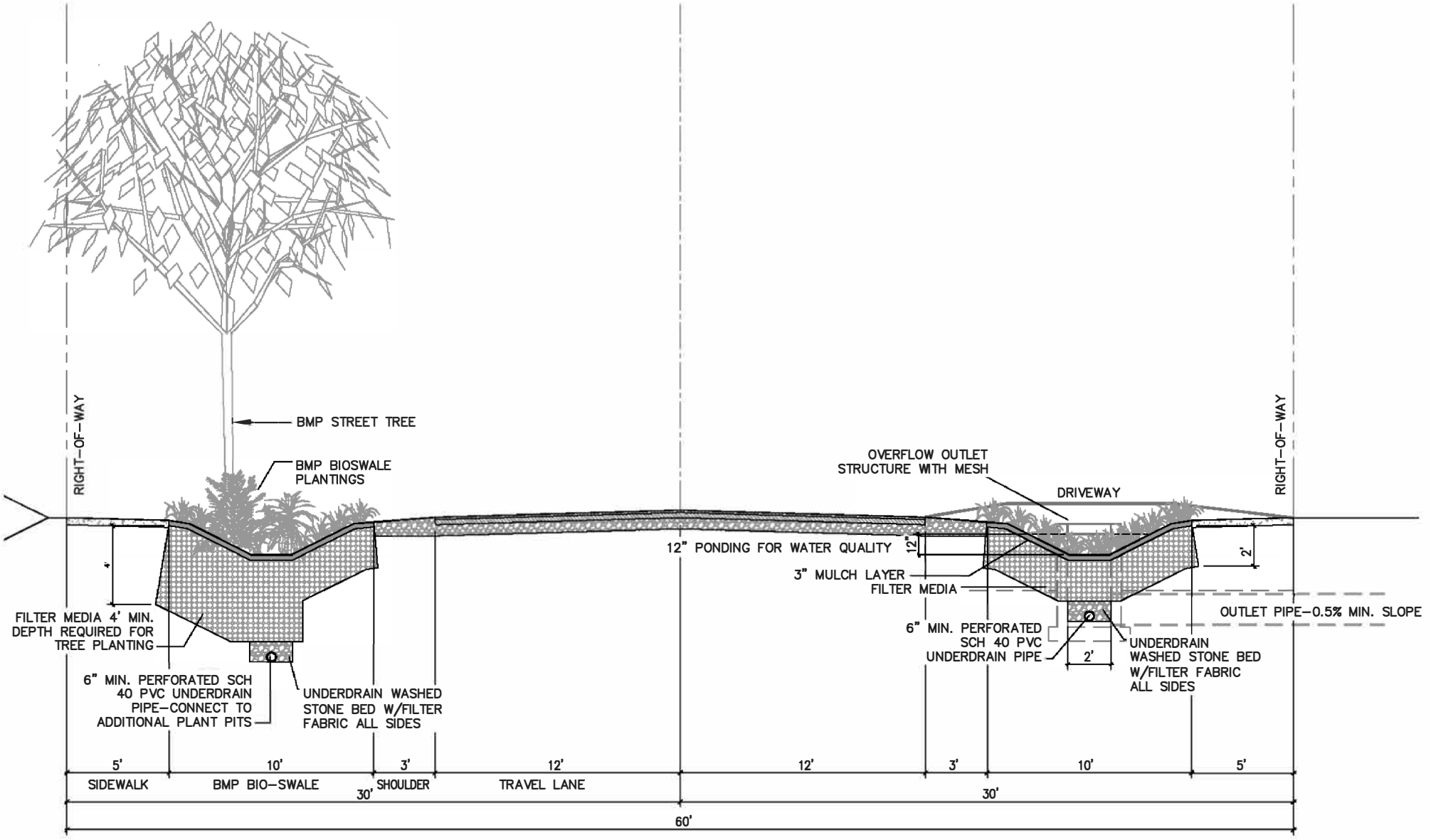
NOT TO SCALE

VILLAGE OF MARVIN, NC	LANE/ALLEY	STD. 240.2

REVISIONS			
NO	DATE	BY	COMMENT
--	--	--	--

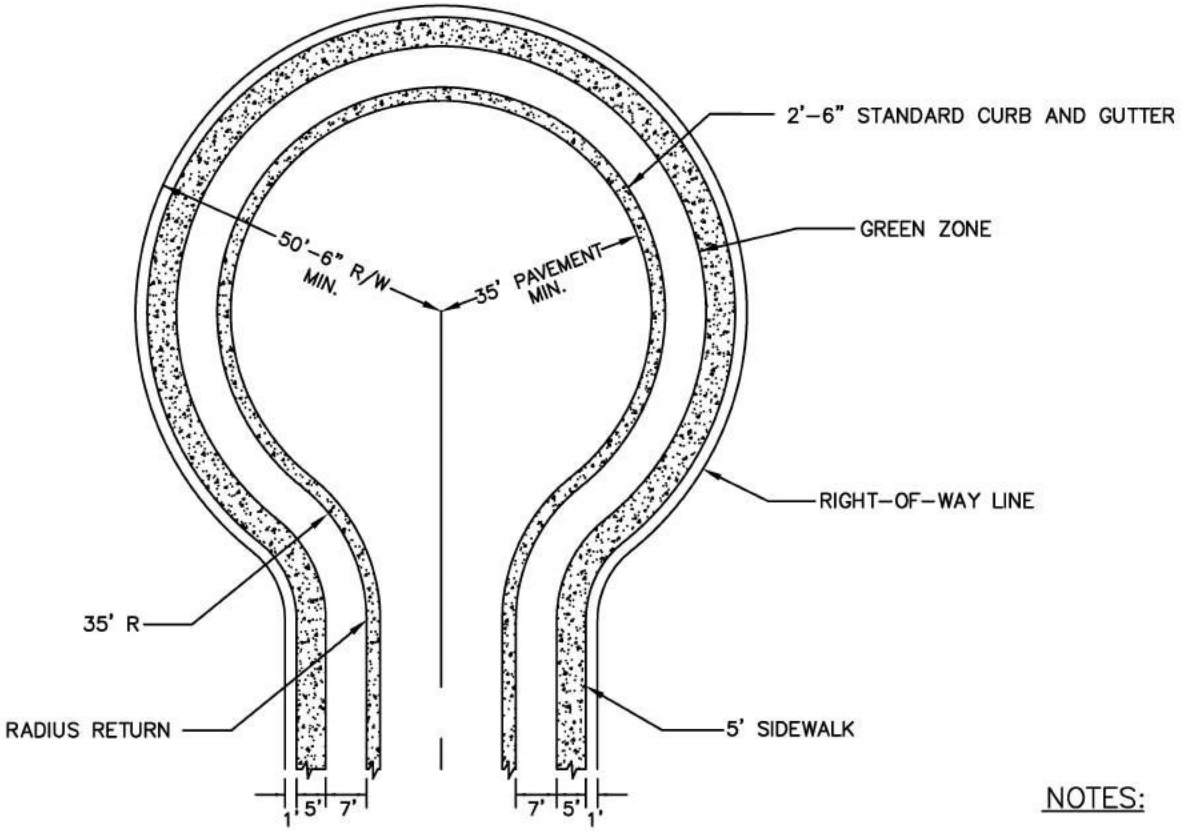


VILLAGE OF MARVIN, NC	URBAN/NEIGHBORHOOD STREET SECTION WITH STORM BMP	STD. 250.1	REVISIONS: NO | DATE | BY | COMMENT

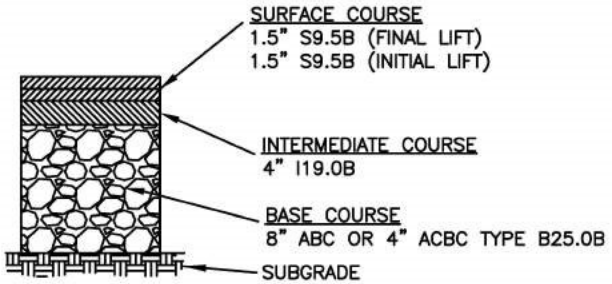


VILLAGE OF MARVIN, NC	RURAL STREET SECTION WITH STORM BMP	STD. 250.2	REVISIONS

NO	DATE	BY	COMMENT



RESIDENTIAL LOCAL STREET



TYPICAL PAVEMENT SECTION

NOTES:

1. VALLEY GUTTER MAY BE USED INSTEAD OF STANDARD CURB AND GUTTER.

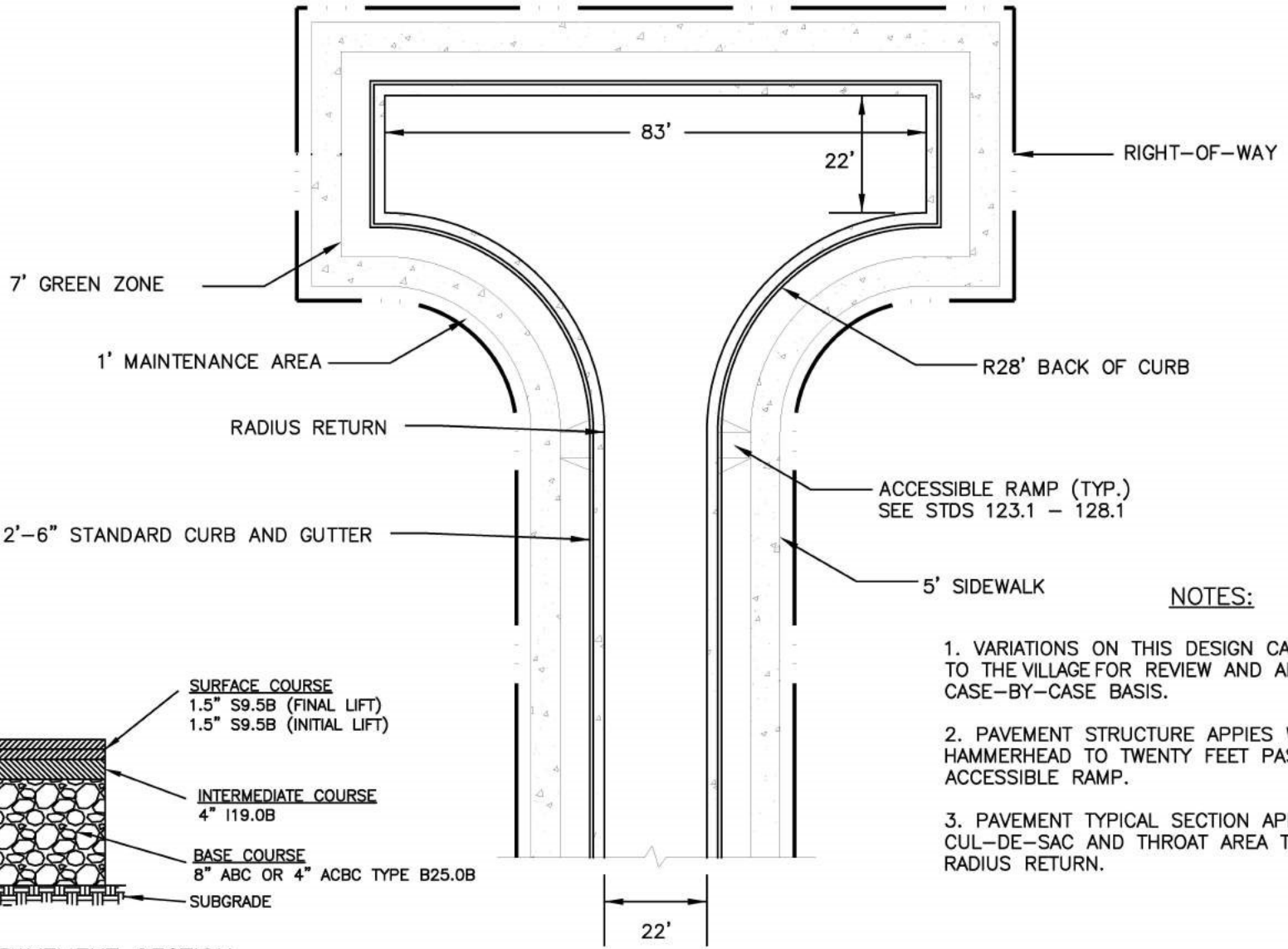
2. CENTRAL ISLANDS ARE PERMITTED AS LONG AS A B-40 (DESIGN VEHICLE) STAYS ON THE PAVEMENT WHILE TRAVERSING THE CUL-DE-SAC.

3. THE CROWN FOR THE PAVEMENT SHALL BE 1/4" PER FOOT FROM THE CENTER OF THE CUL-DE-SAC.

4. PAVEMENT TYPICAL SECTION APPLIES TO CUL-DE-SAC AND THROAT AREA TO 25 FEET PAST RADIUS RETURN.

NOT TO SCALE

STANDARD DRAWING	RESIDENTIAL LOCAL STREET CUL-DE-SAC DETAIL	REV. DATE
		STD. NO. 280.1



NOTES:

1. VARIATIONS ON THIS DESIGN CAN BE SUBMITTED TO THE VILLAGE FOR REVIEW AND APPROVAL ON A CASE-BY-CASE BASIS.

2. PAVEMENT STRUCTURE APPIES WITHIN THE HAMMERHEAD TO TWENTY FEET PAST THE ACCESSIBLE RAMP.

3. PAVEMENT TYPICAL SECTION APPLIES TO CUL-DE-SAC AND THROAT AREA TO 25 FEET PAST RADIUS RETURN.

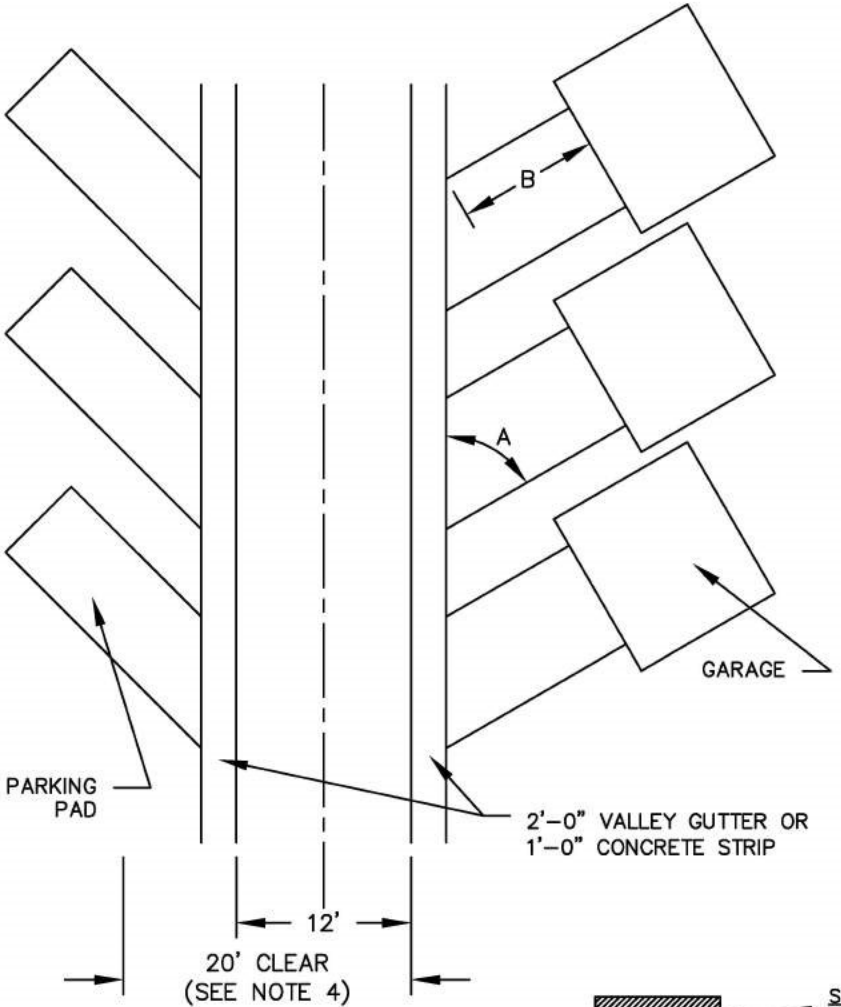
TYPICAL PAVEMENT SECTION

NOT TO SCALE

STANDARD DRAWING

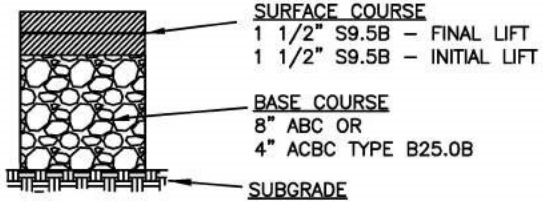
RETAIL/MIXED USE LOCAL STREET HAMMERHEAD DETAIL

REV. DATE
STD. NO.
280.2

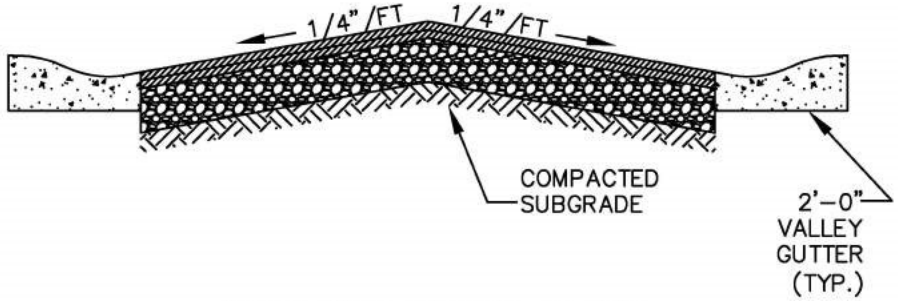


PLAN

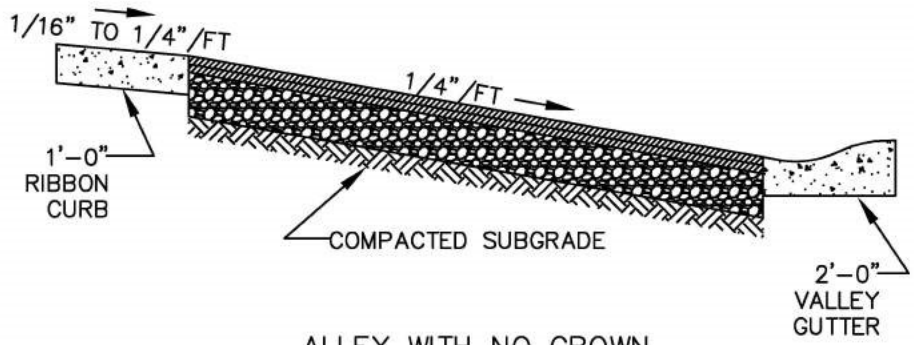
A – LESS THAN 60 DEGREES
B – LESS THAN 3 FEET OR GREATER THAN 20 FEET



TYPICAL PAVEMENT SECTION



ALLEY WITH NORMAL CROWN



ALLEY WITH NO CROWN

NOTES:

1. ALLEYS SHALL BE CONSIDERED PRIVATE EASEMENTS AND WILL NOT BE ACCEPTED FOR MAINTENANCE.

2. SUBGRADE SHALL BE COMPACTED TO PUBLIC STREET STANDARDS.

3. STORM DRAINAGE (NOT SHOWN) SHALL BE PROVIDED AS NECESSARY.

4. DETAIL APPLIES TO SINGLE- OR DOUBLE-LOADED ALLEYS. FOR SINGLE-LOADED ALLEYS, THERE SHALL BE A 20-FOOT CLEAR ZONE FREE OF CUT SLOPES, OBSTRUCTIONS, HEDGES, ETC. FROM THE LOADED SIDE EDGE OF PAVEMENT.

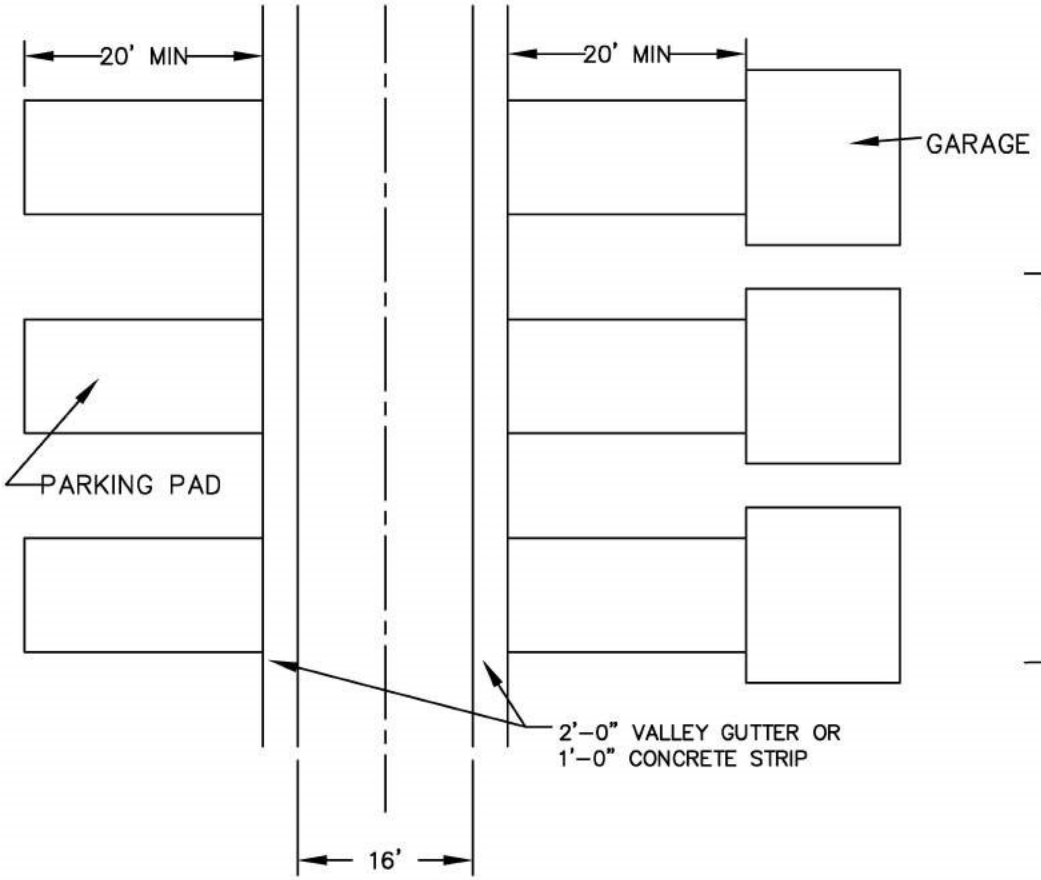
5. RIBBON CURB TO BE TEN INCHES THICK.

NOT TO SCALE

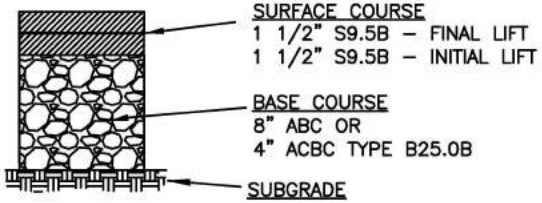
STANDARD DRAWING

RESIDENTIAL ALLEY ONE–WAY OPERATION TYPICAL SECTION

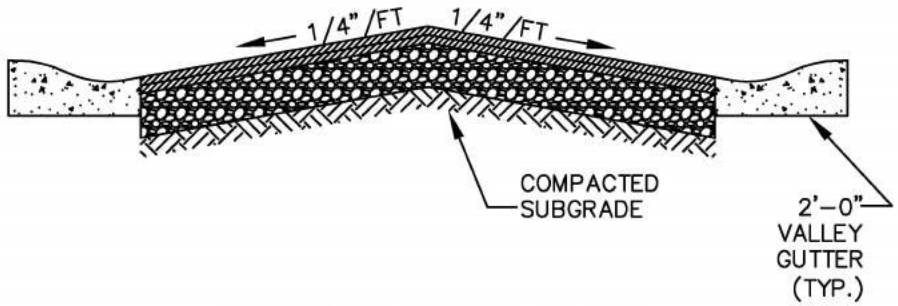
REV. DATE
STD. NO.
280.3



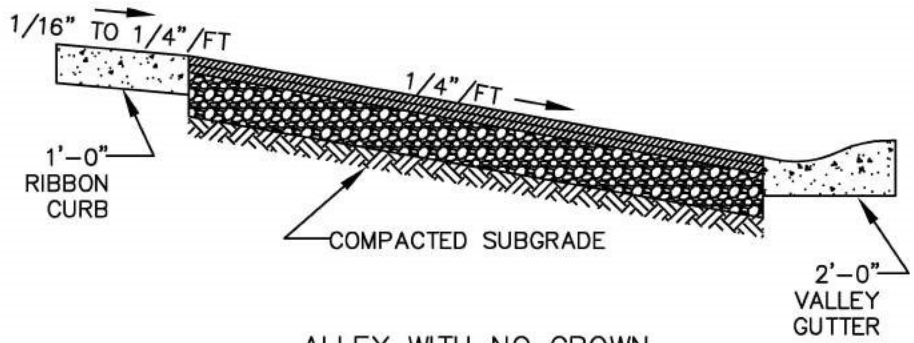
PLAN



TYPICAL PAVEMENT SECTION



ALLEY WITH NORMAL CROWN



ALLEY WITH NO CROWN

NOTES:

1. ALLEYS SHALL BE CONSIDERED PRIVATE EASEMENTS AND WILL NOT BE ACCEPTED FOR MAINTENANCE.

2. SUBGRADE SHALL BE COMPACTED TO PUBLIC STREET STANDARDS.

3. STORM DRAINAGE (NOT SHOWN) SHALL BE PROVIDED AS NECESSARY.

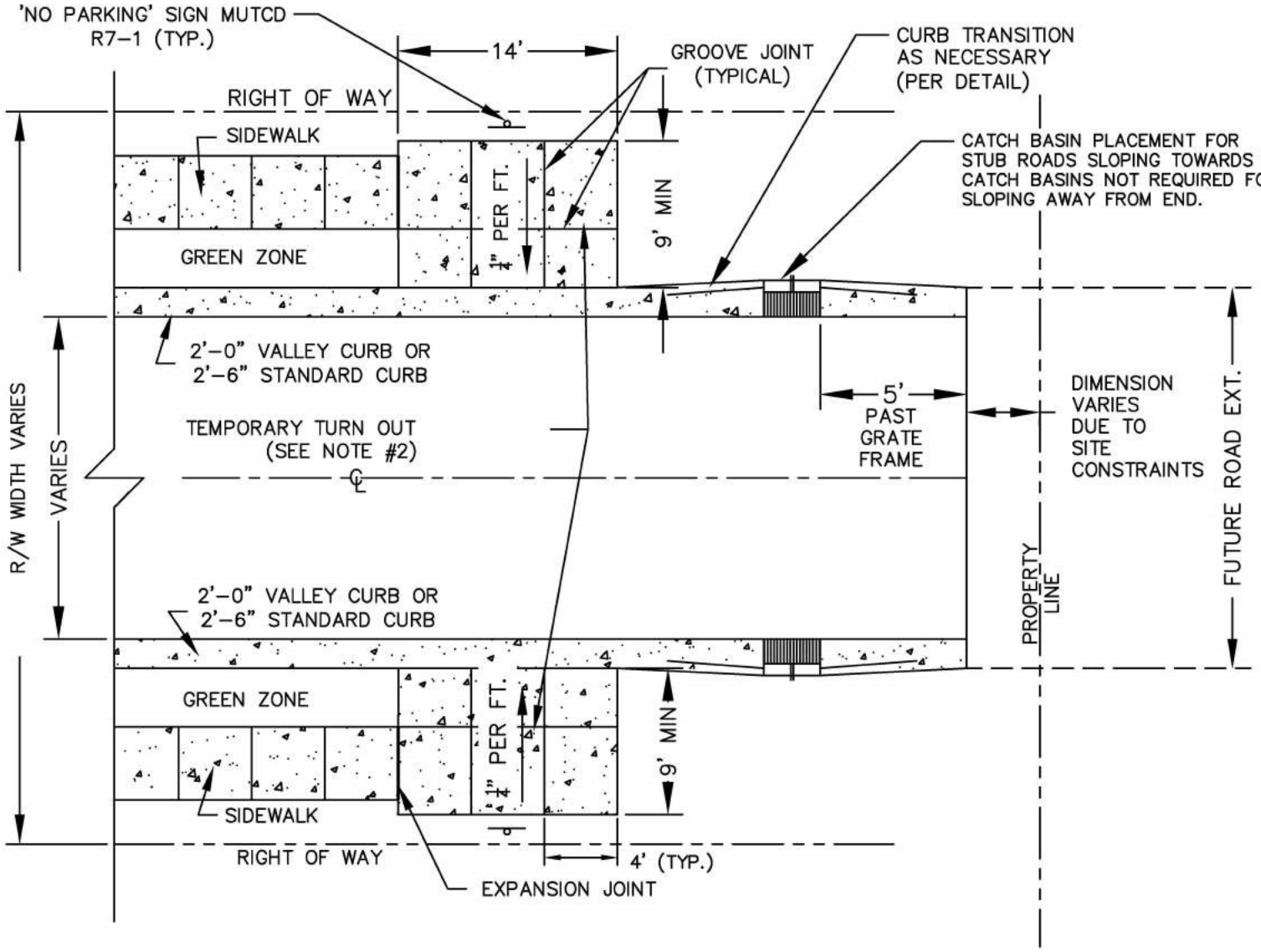
4. RIBBON CURB TO BE TEN INCHES THICK.

NOT TO SCALE

STANDARD DRAWING

RESIDENTIAL ALLEY TWO-WAY OPERATION TYPICAL SECTION

REV. DATE
STD. NO.
280.4



NOTES

1. TEMPORARY TURNAROUND MATERIAL SHALL BE MIN. 3600 PSI CONCRETE, 6" THICK.

2. TEMPORARY INSTALLATION ONLY – TO BE REMOVED WHEN FUTURE DEVELOPMENT CONNECTS TO STREET. "SIDEWALK" PORTION OF TURNAROUND MAY BE LEFT IN PLACE IF NOT DAMAGED.

3. NOT TO BE USED AS A PRIVATE DRIVEWAY.

4. END OF ROADWAY BARRICADE AND END OF ROADWAY MARKER PER STANDARDS 706.1 THROUGH 709.1 ARE REQUIRED.

NOT TO SCALE

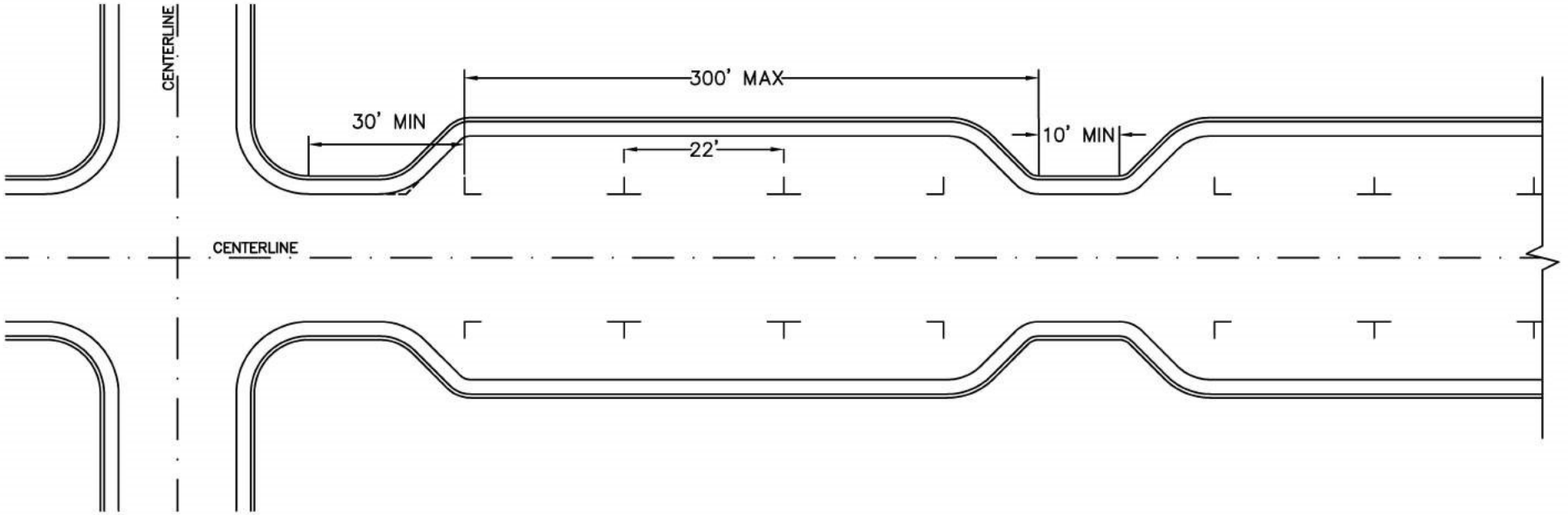
STANDARD DRAWING

RESIDENTIAL LOCAL STREET TEMPORARY TURNAROUND

REV. DATE
STD. NO.
280.5

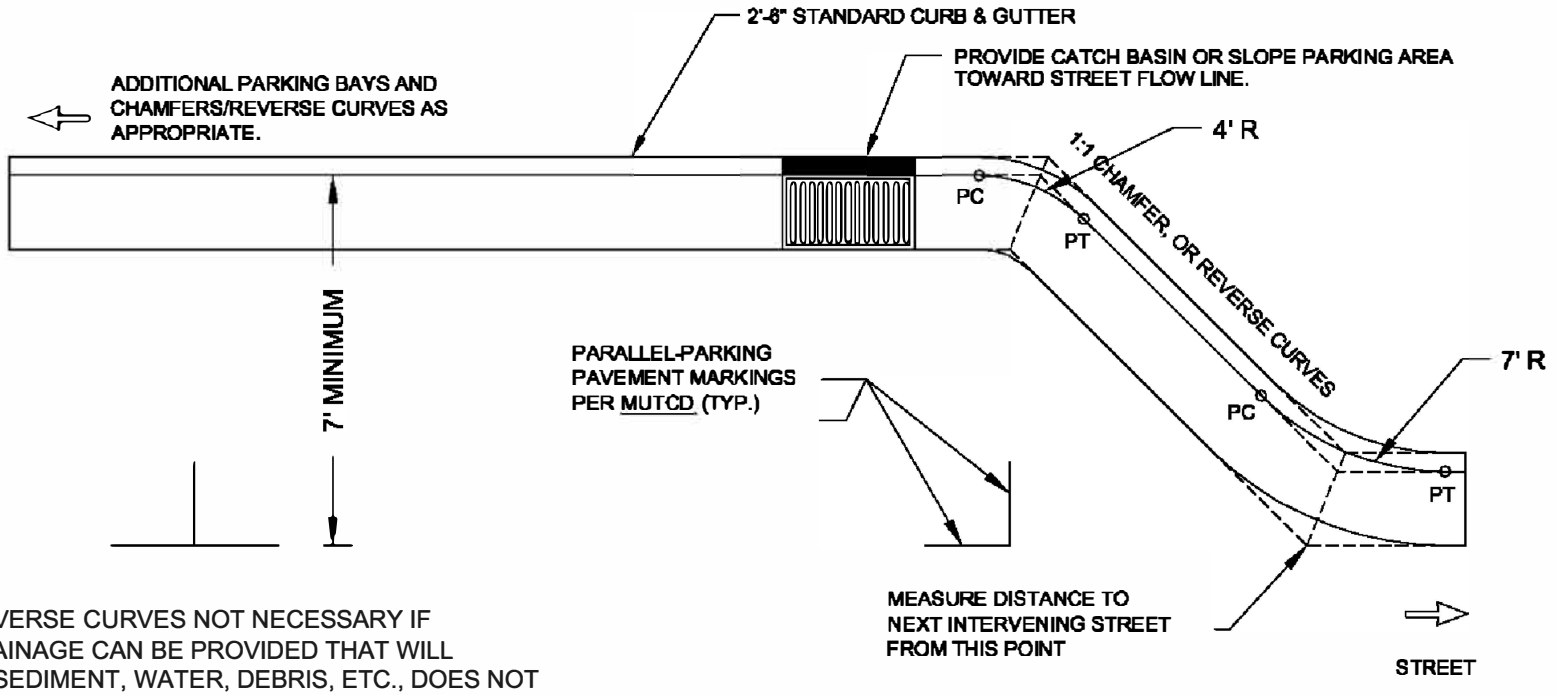
NOTES:

1. REFER TO STANDARD DRAWINGS 285.2, 285.3, AND 285.4 FOR ADDITIONAL INFORMATION.
2. PARKING STALLS MAY BE ON ONE OR BOTH SIDES OF THE STREET.
3. PAVEMENT MARKINGS TO BE THERMOPLASTIC ON RETAIL/OFFICE/MIXED–USE STREETS.
4. 30' MINIMUM DISTANCE TO FIRST PARKING STALL TO BE MEASURED FROM END OF INTERSECTION RADIUS POINT.



NOT TO SCALE

STANDARD DRAWING	LOCAL STREET PARALLEL PARKING LAYOUT	REV. DATE
		STD. NO. 285.1



NOTES:

1. CHAMFERS/REVERSE CURVES NOT NECESSARY IF ADEQUATE DRAINAGE CAN BE PROVIDED THAT WILL ENSURE THAT SEDIMENT, WATER, DEBRIS, ETC., DOES NOT COLLECT IN 90-DEGREE CORNERS.

2. PARALLEL ACCESSIBLE SPACES AND LOADING ZONES TO BE REVIEWED ON A CASE-BY-CASE BASIS.

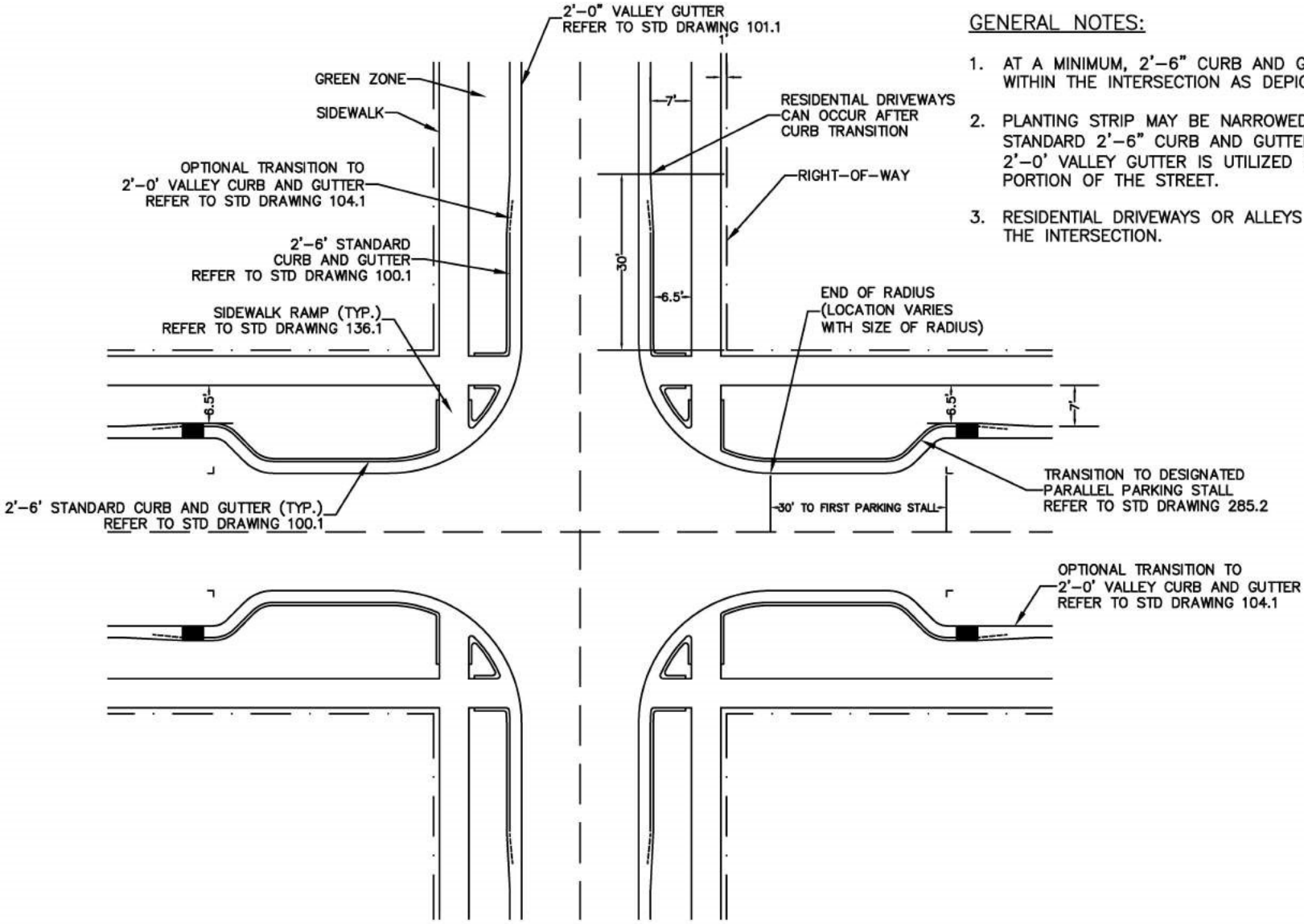
3. FOR PARKING BAYS THAT ARE EIGHT FEET (8') IN WIDTH OR GREATER, THE PAVEMENT MARKINGS SHALL BE SET AT ONE FOOT (1') LESS THAN THE STALL WIDTH.

4. SEPARATION FROM INTERVENING STREET DISTANCES SHALL BE REVIEWED AND APPROVED BY THE TOWN.

5. POSITIVE DRAINAGE SHALL BE PROVIDED EITHER BY INSTALLATION OF APPROPRIATE DRAINAGE STRUCTURES OR SLOPE PARKING AREA TO STREET FLOW LINE.

VILLAGE OF MARVIN, NC	PARALLEL PARKING STANDARDS	STD. 285.2	REVISIONS

NO	DATE	BY	COMMENT



GENERAL NOTES:

1. AT A MINIMUM, 2'-6" CURB AND GUTTER IS REQUIRED WITHIN THE INTERSECTION AS DEPICTED.
2. PLANTING STRIP MAY BE NARROWED TO 6.5' WITHIN THE STANDARD 2'-6" CURB AND GUTTER SECTION AS SHOWN IF 2'-0' VALLEY GUTTER IS UTILIZED FOR THE REMAINING PORTION OF THE STREET.
3. RESIDENTIAL DRIVEWAYS OR ALLEYS ARE NOT ALLOWED WITHIN THE INTERSECTION.

NOT TO SCALE

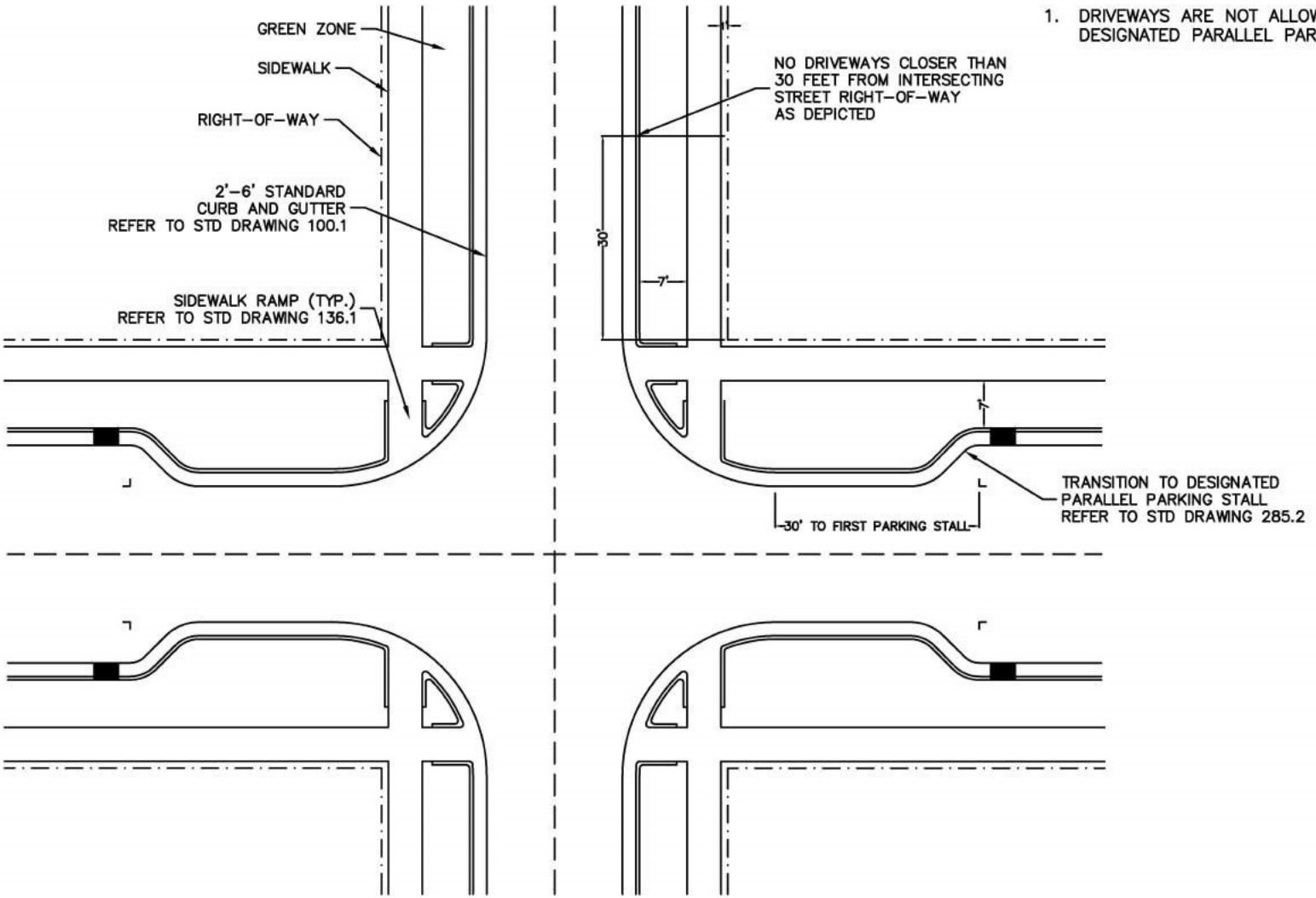
STANDARD DRAWING

PARKING, SIDEWALK, AND CURB AND GUTTER TRANSITIONS AT RESIDENTIAL INTERSECTIONS

REV. DATE
STD. NO.
285.3

GENERAL NOTES:

1. DRIVEWAYS ARE NOT ALLOWED WITHIN THE INTERSECTION OR DESIGNATED PARALLEL PARKING AREAS.



NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	PARKING, SIDEWALK, AND CURB AND GUTTER TRANSITIONS AT RETAIL/MIXED USE INTERSECTIONS	REV. DATE STD. NO. 285.4

DWG	SHEET TITLE	SPECIAL REQUIREMENTS AND NOTES
300.01	METHOD OF PIPE INSTALLATION – METHOD A	
310.02	PARALLEL PIPE END SECTION–PRECAST CONCRETE FOR 15" TO 24" PIPE	
310.03	CROSS PIPE END SECTION–PRECAST CONCRETE FOR 18" TO 30" PIPE	
310.10	DRIVEWAY PIPE CONSTRUCTION USING NO SPECIAL END SECTIONS	ONLY AT LOCATIONS APPROVED BY THE VILLAGE ENGINEER
815.03	PIPE UNDERDRAIN AND BLIND DRAIN	
816.03	GEOCOMPOSITE SHOULDER DRAIN	
838.01	CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS	NOTE 1
	15" THRU 48" PIPE 90° SKEW	
838.02	CONCRETE ENDWALL AND SLUICE GATE 15" THRU 36" PIPE–90° SKEW	NOTE 1
838.04	CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS	NOTE 1
	17"X13" THRU 71"X47" PIPE ARCH 90° SKEW	
838.05	CONCRETE "L" ENDWALL FOR SINGLE PIPE CULVERTS 15" THRU 48" PIPE	NOTE 1
838.06	CONCRETE "L" ENDWALL FOR SINGLE PIPE CULVERTS 17"X13" THRU 71"X47"	NOTE 1
	PIPE ARCH	
838.07	CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS	NOTE 1
	40"X31" THRU 66"X51" PIPE ARCH 90° SKEW	
838.08	CONCRETE "L" ENDWALL FOR SINGLE PIPE CULVERTS 40"X31"	NOTE 1
	THRU 66"X51" PIPE ARCH	
838.10	CONCRETE ENDWALL FOR OUTFALL 4", 6" OR 8" PIPE	NOTE 1
838.11	BRICK ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS	
	15" THRU 48" 90° SKEW	
838.14	BRICK ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS 17"X13"	
	THRU 71"X47" PIPE ARCH 90° SKEW	
838.15	BRICK "L" ENDWALL FOR SINGLE PIPE CULVERTS 15" THRU 48" PIPE	
838.16	BRICK "L" ENDWALL FOR SINGLE PIPE CULVERTS 17"X13" THRU	
	71"X47" PIPE ARCH	
838.17	BRICK ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS 40"X31"	
	THRU 66"X51" PIPE ARCH 90° SKEW	
838.18	BRICK ENDWALL FOR SINGLE PIPE CULVERTS 40"X31" THRU	
	66"X51" PIPE ARCH	
838.20	BRICK ENDWALL FOR OUTFALL 4", 6" OR 8" PIPE	
838.21	REINFORCED CONCRETE ENDWALL FOR SINGLE 54" PIPE 90° SKEW	NOTE 1 SEE STANDARD 304.1 & 305.1 FOR SPLASH PAD
838.22	REINFORCED CONCRETE ENDWALL FOR DOUBLE & TRIPLE 54" PIPES 90° SKEW	NOTE 1 SEE STANDARD 304.1 & 305.1 FOR SPLASH PAD
838.27	REINFORCED CONCRETE ENDWALL FOR SINGLE 60" PIPE 90° SKEW	NOTE 1 SEE STANDARD 304.1 & 305.1 FOR SPLASH PAD
838.28	REINFORCED CONCRETE ENDWALL FOR DOUBLE & TRIPLE 60" PIPES 90° SKEW	NOTE 1 SEE STANDARD 304.1 & 305.1 FOR SPLASH PAD
838.33	REINFORCED CONCRETE ENDWALL FOR SINGLE 66" PIPE 90° SKEW	NOTE 1 SEE STANDARD 304.1 & 305.1 FOR SPLASH PAD
838.34	REINFORCED CONCRETE ENDWALL FOR DOUBLE & TRIPLE 66" PIPES 90° SKEW	NOTE 1 SEE STANDARD 304.1 & 305.1 FOR SPLASH PAD
838.39	REINFORCED CONCRETE ENDWALL FOR SINGLE 72" PIPE 90° SKEW	NOTE 1 SEE STANDARD 304.1 & 305.1 FOR SPLASH PAD
838.40	REINFORCED CONCRETE ENDWALL FOR DOUBLE & TRIPLE 72" PIPES 90° SKEW	NOTE 1 SEE STANDARD 304.1 & 305.1 FOR SPLASH PAD

NOTE 1: FOR ALL STRUCTURES – NCDOT REQUIRES CLASS B CONCRETE (2500PSI). THE VILLAGE REQUIRES 3600 PSI CONCRETE STRENGTH @ 28 DAYS. 3600 PSI CONCRETE SHALL BE USED IN ALL PROJECTS.

NOT TO SCALE

STANDARD DRAWING

NCDOT STANDARDS APPROVED FOR USE

REV. DATE

STD. NO.

300.1

DWG	SHEET TITLE	SPECIAL REQUIREMENTS AND NOTES
838.45	NOTES FOR REINFORCED CONCRETE ENDWALL STANDARD DRAWINGS	NOTE 1 SEE STANDARDS 304.1 AND 305.1 FOR SPLASH PAD
	838.21 THRU 838.40	
838.51	REINFORCED BRICK ENDWALL FOR SINGLE 54" PIPE 90° SKEW	SEE STANDARDS 304.1 AND 305.1 FOR SPLASH PAD
838.52	REINFORCED BRICK ENDWALL FOR DOUBLE & TRIPLE 54" PIPES 90° SKEW	SEE STANDARDS 304.1 AND 305.1 FOR SPLASH PAD
838.57	REINFORCED BRICK ENDWALL FOR SINGLE 60" PIPE 90° SKEW	SEE STANDARDS 304.1 AND 305.1 FOR SPLASH PAD
838.58	REINFORCED BRICK ENDWALL FOR DOUBLE & TRIPLE 60" PIPES 90° SKEW	SEE STANDARDS 304.1 AND 305.1 FOR SPLASH PAD
838.63	REINFORCED BRICK ENDWALL FOR SINGLE 66" PIPE 90° SKEW	SEE STANDARDS 304.1 AND 305.1 FOR SPLASH PAD
838.64	REINFORCED BRICK ENDWALL FOR DOUBLE & TRIPLE 66" PIPES 90° SKEW	SEE STANDARDS 304.1 AND 305.1 FOR SPLASH PAD
838.69	REINFORCED BRICK ENDWALL FOR SINGLE 72" PIPE 90° SKEW	SEE STANDARDS 304.1 AND 305.1 FOR SPLASH PAD
838.70	REINFORCED BRICK ENDWALL FOR DOUBLE & TRIPLE 72" PIPES 90° SKEW	SEE STANDARDS 304.1 AND 305.1 FOR SPLASH PAD
838.75	NOTES FOR REINFORCED BRICK ENDWALL STANDARD DRAWINGS 838.51 THRU 838.70	SEE STANDARDS 304.1 AND 305.1 FOR SPLASH PAD
838.80	PRECAST CONCRETE ENDWALLS FOR SINGLE 12" THRU 72" PIPE 90° SKEW	
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES	
840.01	BRICK CATCH BASIN 12" THRU 54" PIPE	
840.02	CONCRETE CATCH BASIN 12" THRU 54" PIPE	
840.03	FRAME, GRATES AND HOOD FOR USE ON STANDARD BASIN 12" THRU 54" PIPE	TYPE F AND G GRATES ARE OPTIONAL
840.04	CONCRETE OPEN THROAT CATCH BASIN 12" THRU 48" PIPE	NOTE 1 – OPENINGS PERMITTED IN 4 SIDES OUTSIDE OF STREET R/W
		MANHOLE RING AND COVER REQUIRED IN TOP SLAB SEE STD. 840.54
840.05	BRICK OPEN THROAT CATCH BASIN 12" THRU 48" PIPE	OPENINGS PERMITTED IN 4 SIDES OUTSIDE OF STREET R/W
		MANHOLE RING AND COVER REQUIRED IN TOP SLAB SEE STD. 840.54
840.14	CONCRETE DROP INLET 12" THRU 30" PIPE	NOTE 1
840.15	BRICK DROP INLET 12" THRU 30" PIPE	
840.16	DROP INLET FRAME AND GRATES FOR USE WITH STANDARD DWGS. 840.14 & 840.15	
840.17	CONCRETE GRATED DROP INLET TYPE "A" 12" THRU 72" PIPE	NOTE 1
840.18	CONCRETE GRATED DROP INLET TYPE "B" 12" THRU 36" PIPE	NOTE 1
840.19	CONCRETE GRATED DROP INLET TYPE "D" 12" THRU 36" PIPE	NOTE 1
840.20	FRAMES AND WIDE SLOT FLAT GRATES	NOT FOR USE IN PEDESTRIAN AREAS
840.22	FRAMES AND WIDE SLOT SAG GRATES	NOT FOR USE IN PEDESTRIAN AREAS
840.24	FRAMES AND NARROW SLOT SAG GRATES	
840.25	ANCHORAGE FOR FRAMES BRICK OR CONCRETE	
840.26	BRICK GRATED DROP INLET TYPE "A" 12" THRU 72" PIPE	
840.27	BRICK GRATED DROP INLET TYPE "B" 12" THRU 36" PIPE	
840.28	BRICK GRATED DROP INLET TYPE "D" 12" THRU 36" PIPE	
840.29	FRAMES AND NARROW SLOT FLAT GRATES	
840.30	DRIVEWAY DROP INLET	

NOTE 1: FOR ALL STRUCTURES – NCDOT REQUIRES CLASS B CONCRETE (2500PSI). THE VILLAGE REQUIRES 3600 PSI CONCRETE STRENGTH @ 28 DAYS. 3600 PSI CONCRETE SHALL BE USED IN ALL PROJECTS.

NOT TO SCALE

STANDARD DRAWING

NCDOT STANDARDS APPROVED FOR USE

REV. DATE
STD. NO.
301.1

DWG	SHEET TITLE	SPECIAL REQUIREMENTS AND NOTES
840.31	CONCRETE JUNCTION BOX (WITH OPTIONAL MANHOLE) 12" THRU 66" PIPE	NOTE 1 OPTIONAL MANHOLE IS REQUIRED
840.32	BRICK JUNCTION BOX 12" THRU 66" PIPE	OPTIONAL MANHOLE IS REQUIRED
840.34	TRAFFIC BEARING JUNCTION BOX FOR USE WITH PIPES 42" AND UNDER	NOTE 1 OPTIONAL MANHOLE IS REQUIRED
840.35	TRAFFIC BEARING DROP INLET FOR CAST IRON DOUBLE FRAME AND GRATES	NOTE 1 OPTIONAL MANHOLE IS REQUIRED
840.36	TRAFFIC BEARING DROP INLET FOR STEEL (840.37) DOUBLE FRAME AND GRATES	NOT FOR USE IN PEDESTRIAN AREAS
840.37	STEEL GRATE AND FRAME	NOT FOR USE IN PEDESTRIAN AREAS
840.41	SPRING BOX CONCRETE OR BRICK	NOTE 1
840.45	PRECAST DRAINAGE STRUCTURE (SOLID AND WAFFLE WALL)	WAFFLE WALL IS NOT PERMITTED. OPENINGS SHALL BE PRECAST
840.46	TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE	
840.51	BRICK MANHOLE 12" THRU 36" PIPE	
840.52	PRECAST MANHOLE 4', 5' AND 6' DIAMETER 12" THRU 42" PIPE	
840.53	PRECAST MANHOLE WITH MASONRY BASE 12" THRU 42" PIPE	
840.54	MANHOLE FRAME AND COVER	
840.66	DRAINAGE STRUCTURE STEPS	
840.71	CONCRETE AND BRICK PIPE PLUG	
840.72	PIPE COLLAR	
850.01	CONCRETE PAVED DITCHES	
852.04	METHODS FOR PLACEMENT OF DROP INLETS IN GRASSED MEDIAN (USING 1'-6" CURB AND GUTTER)	
852.05	MEDIAN CURB FOR CATCH BASIN (FOR USE WITH 1'-6" CURB AND GUTTER)	
852.06	METHOD OF PLACEMENT OF DROP INLETS IN CONCRETE ISLANDS	
876.01	RIP RAP IN CHANNELS	
876.03	DRAINAGE DITCHES WITH CLASS "A" RIP RAP	
876.04	DRAINAGE DITCHES WITH CLASS "B" RIP RAP	

NOTE 1: FOR ALL STRUCTURES – NCDOT REQUIRES CLASS B CONCRETE (2500PSI). THE VILLAGE REQUIRES 3600 PSI CONCRETE STRENGTH @ 28 DAYS. 3600 PSI CONCRETE SHALL BE USED IN ALL PROJECTS.

NOT TO SCALE

STANDARD DRAWING

NCDOT STANDARDS APPROVED FOR USE

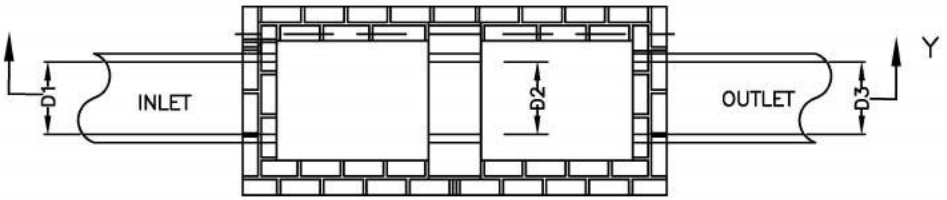
REV. DATE

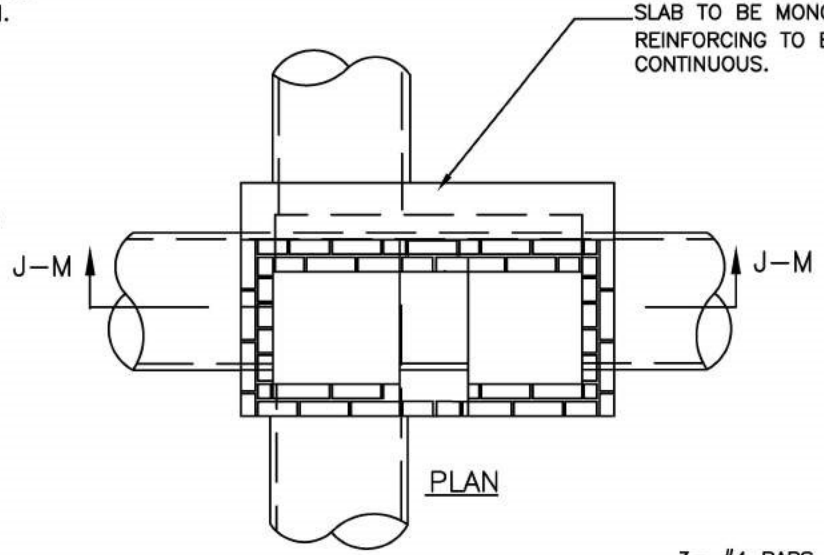
STD. NO.

302.1

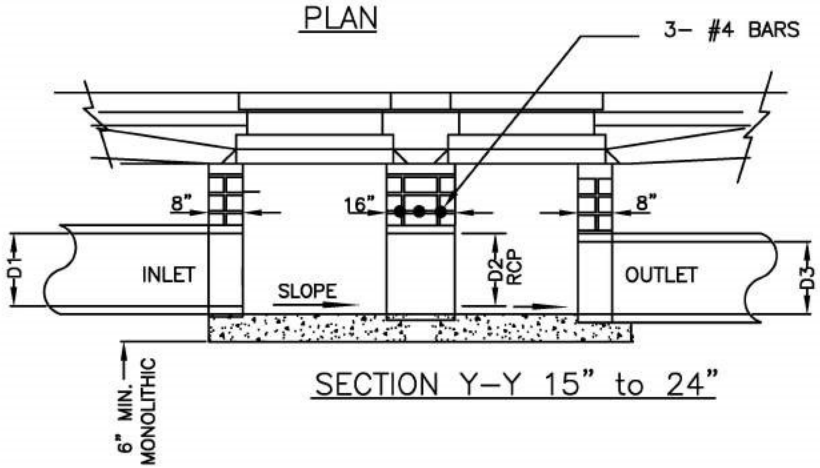
GENERAL NOTES:

1. DOUBLE CATCH BASIN ONLY FOR USE WITHIN VILLAGE MAINTAINED STREETS. INSTALLATION ON STREETS WITHIN EXISTING/FUTURE NCDOT MAINTAINED RIGHT OF WAY REQUIRES A MINIMUM OF ONE 4 FOOT LONG SECTION OF REINFORCED CONCRETE PIPE BETWEEN CATCH BASINS.
2. SEE NCDOT STANDARD 840.01 FOR DETAILS BASED ON PIPE SIZE PER CROSS–SECTION.
3. CONSTRUCT TWO SINGLE BASINS PER NCDOT STANDARD WITH DOUBLE INTERIOR WALL.
4. ALL CONCRETE TO BE 3600 P.S.I COMPRESSIVE STRENGTH.
5. BASE SLAB SHALL BE MONOLITHIC.
6. SEE STANDARD NUMBERS 120.1 AND 121.1 FOR PLACEMENT OF CATCH BASIN.
7. RCP PIPE SECTION D2 CONNECTING CATCH BASINS SHALL HAVE A MINIMUM DIAMETER SAME AS OF OUTLET PIPE D3.
8. ALL REINFORCING STEEL SHOWN ON NCDOT STANDARDS IS TO BE PROVIDED AS CONTINUOUS MEMBERS. (NO LAPS, USED AS A SINGLE CONTINUOUS BAR IN THE SLAB)

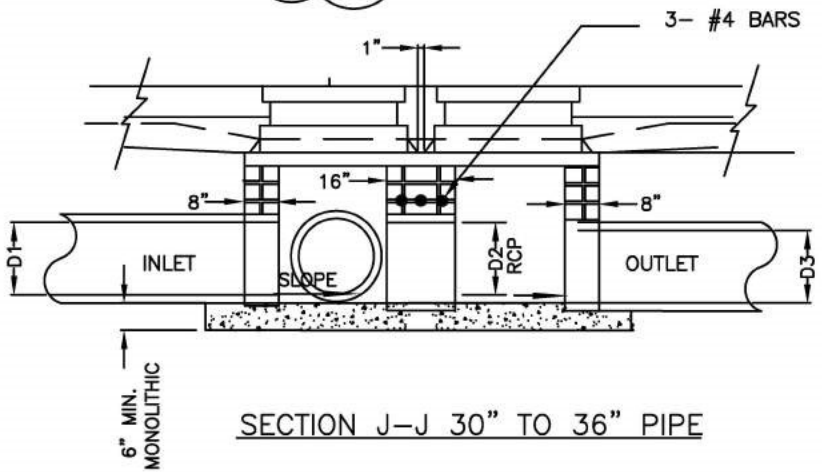




PLAN



SECTION Y–Y 15" to 24"

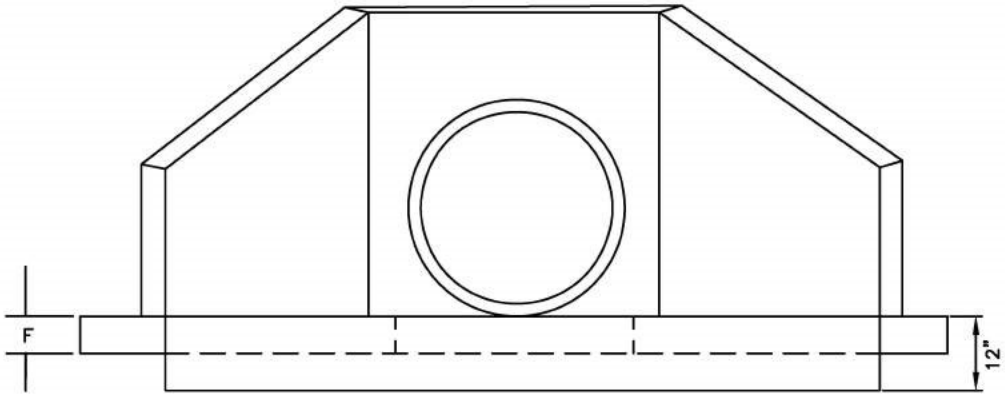


SECTION J–J 30" TO 36" PIPE

NOT TO SCALE

STANDARD DRAWING	BRICK DOUBLE CATCH BASIN 15" THRU 36" PIPE	REV. DATE
		STD. NO. 303.1

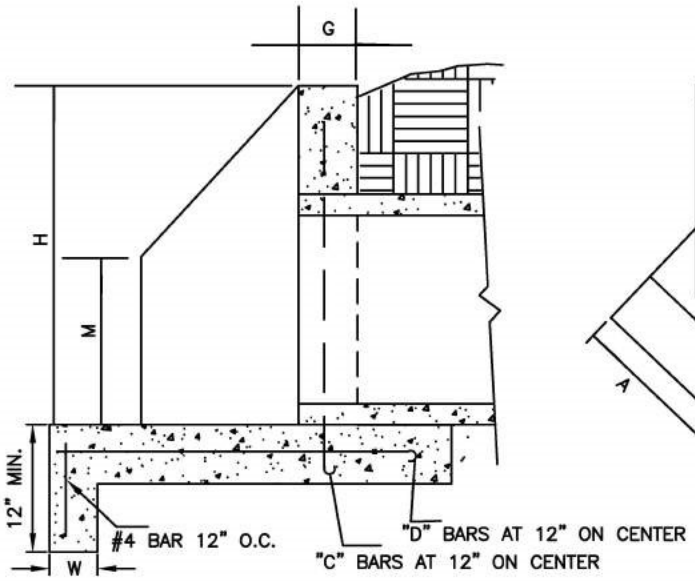
CONCRETE PIPE			DIMENSIONS									
WALL THK.	OUT DIA.	IN DIA.	MIN. H	A	B	C	E	F	G	W	K	M
2 1/4"	19 1/2"	15"	27 1/2"	20"	24"	8"	7 1/2"	4"	4"	8"	17"	10"
2 1/2"	23"	18"	31"	20"	24"	8"	9"	4"	4"	8"	17"	12"
3"	30"	24"	38"	20"	30"	8"	12"	4"	4"	8"	21"	15"
3 1/2"	37"	30"	45"	20"	44"	12"	15"	6"	8"	8"	31"	18"
4"	44"	36"	52"	32"	44"	12"	18"	6"	8"	8"	31"	22"
4 1/2"	51"	42"	59"	32"	48"	12"	21"	6"	8"	8"	34"	26"
5"	58"	48"	66"	32"	48"	12"	24"	6"	8"	8"	34"	29"
5 1/2"	65"	54"	73"	32"	54"	12"	27"	6"	8"	8"	38"	33"
6"	72"	60"	80"	36"	66"	12"	30"	8"	12"	12"	46"	36"
6 1/2"	79"	66"	87"	36"	72"	12"	33"	8"	12"	12"	51"	40"
7"	86"	72"	94"	36"	78"	12"	36"	8"	12"	12"	56"	43"



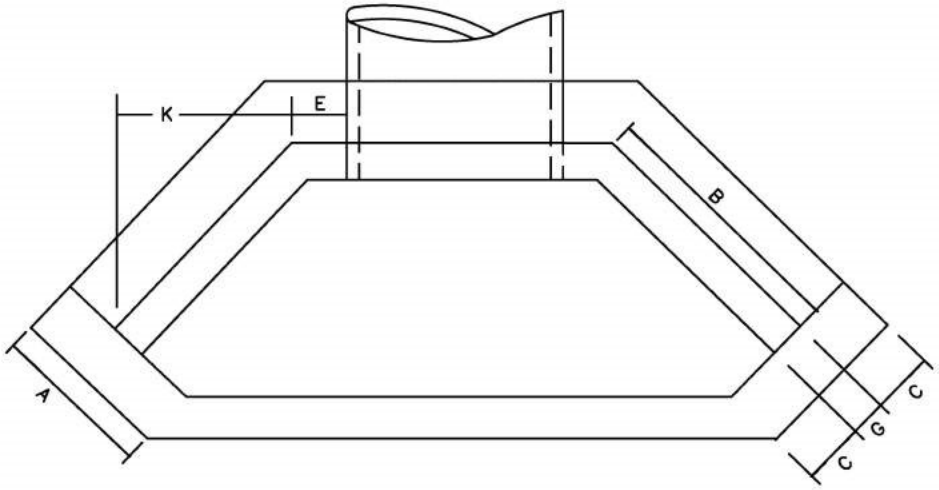
FRONT VIEW

REINFORCING

DIA.	"C" BAR		"D" BAR	
	NO.	LGT.	NO.	LGT.
15"	4	2'-0"	4	1'-11"
18"	4	2'-3"	4	2'-2"
24"	4	2'-9"	4	2'-8"
30"	4	3'-3"	4	3'-2"
36"	4	3'-9"	4	3'-8"
42"	4	4'-3"	4	4'-2"
48"	4	4'-9"	4	4'-8"
54"	4	5'-3"	4	5'-2"
60"	4	5'-9"	4	5'-8"
66"	4	6'-3"	4	6'-2"
72"	4	6'-9"	4	6'-8"



SIDE VIEW



TOP VIEW

NOT TO SCALE

STANDARD DRAWING

CONCRETE WINGWALL WITH SPLASH PAD

REV. DATE
STD. NO.
304.1

GENERAL NOTES:

1. ALL CORNERS TO BE CHAMFERED 1" IF CONCRETE.
2. THE CONTRACTOR WILL BE REQUIRED TO PLACE 2–#6 BARS "Y" IN THE TOP OF ALL ENDWALL FOR PIPE CULVERTS 42" AND OVER WITH A MINIMUM 3" COVER AND A LENGTH OF 6" LESS THAN ENDWALL.
3. FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
4. WALL THICKNESS (T) SHOWN IS NOT TO BE INTERPRETED TO MEAN THE THICKNESS ACCEPTABLE, BUT IS USED ONLY IN COMPUTING ENDWALL QUANTITIES.
5. IF CONTRACTOR ELECTS TO USE CONSTRUCTION JOINT AT BOTTOM OF PIPE, AND POURS BASE SEPARATELY, THE TOP OF BASE SHALL BE LEFT ROUGH.
6. ALL CONCRETE TO BE 3600 P.S.I COMPRESSIVE STRENGTH.

NOT TO SCALE

STANDARD DRAWING	CONCRETE WINGWALL WITH SPLASH PAD	REV. DATE
		STD. NO. 305.1

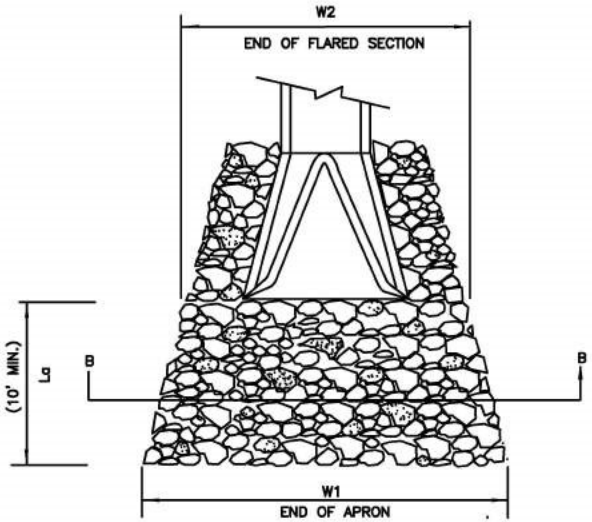
NOTES:

1. CLASS OR MEDIAN SIZE OF RIPRAP AND LENGTH, WIDTH AND DEPTH OF APRON TO BE DESIGNED BY THE ENGINEER.
2. REFER TO THE CHARLOTTE MECKLENBURG STORM WATER DESIGN MANUAL FOR RIPRAP APRON DESIGN STANDARDS.
3. RIPRAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
4. THERE SHALL BE NO OVERFLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIPRAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM END.
5. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1.
6. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
7. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
8. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON WILL BE PERMITTED.
9. FILTER FABRIC SHALL BE INSTALLED ON COMPACTED SUBGRADE PRIOR TO PLACEMENT OF RIP RAP.
10. ANY DISTURBED AREA FROM END OF APRON TO RECIEVING CHANNEL MUST BE STABILIZED.

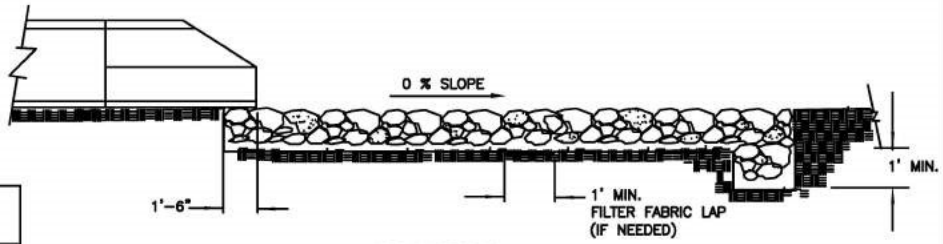
USE USDA NOMOGRAPH FROM NC SEDIMENT AND EROSION CONTROL MANUAL OR CHARLOTTE MECKLENBURG STORM WATER DESIGN MANUAL FOR DESIGN DATA.

RIPRAP SUMMARY CHART					
OUTLET	La	W1	W2	*T	H

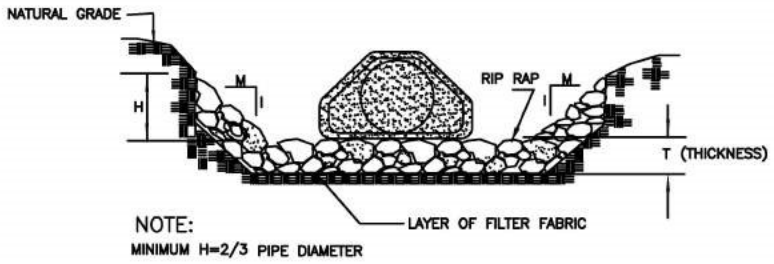
* d50 (see fig 8.06 a&b "NC SEDIMENT AND EROSION CONTROL MANUAL"
dmax = 1.5 x d50
T = 1.5 X dmax.



PLAN



ELEVATION



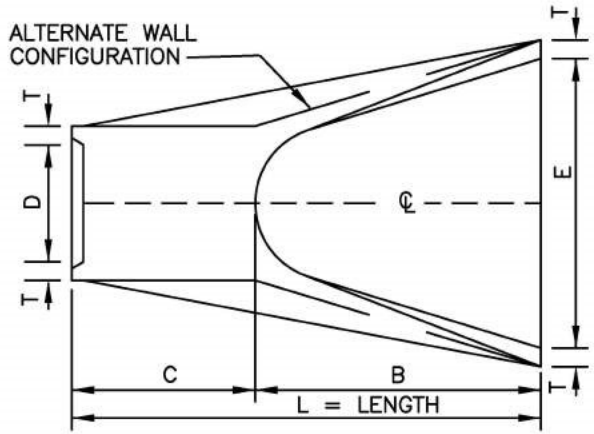
SECTION B–B

NOT TO SCALE

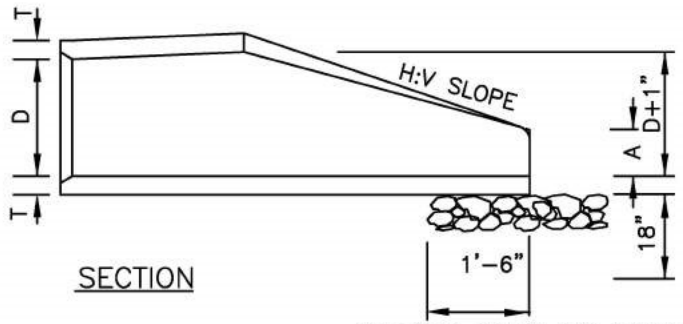
STANDARD DRAWING

RIPRAP APRON AT PIPE OUTFALLS OTHER THAN SWIM

REV. DATE
STD. NO.
306.1

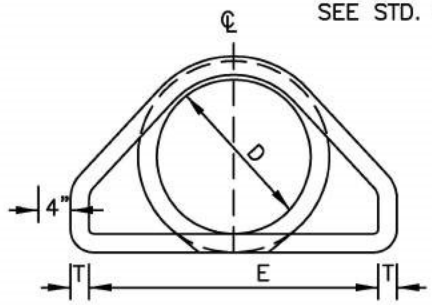


PLAN



SECTION

SEE STD. 20.23 AND 20.24



END VIEW

TABLE OF DIMENSIONS								
D	T	A	B	C	E	L	H:V	WT.
12"	2-1/4"	4"	2'-0"	4'-1"	2'-0"	6'-1"	3:1	730
15"	2-1/4"	6"	2'-3"	3'-10"	2'-0"	6'-1"	3:1	730
18"	2-1/2"	9"	2'-3"	3'-10"	3'-0"	6'-1"	3:1	1190
24"	3"	10"	3'-8"	2'-6"	4'-0"	6'-2"	3:1	1770
30"	3-1/2"	1'-0"	4'-6"	1'-8"	5'-0"	6'-2"	3:1	2380
36"	4"	1'-3"	5'-3"	2'-11"	6'-0"	8'-2"	3:1	5320
42"	4-1/2"	1'-9"	5'-3"	2'-11"	6'-6"	8'-2"	3:1	5920
48"	5"	2'-0"	6'-0"	2'-2"	7'-0"	8'-2"	3:1	7470
54"	5-1/2"	2'-3"	5'-6"	2'-10"	7'-6"	8'-4"	3:1	8810
60"	6"	2'-6"	5'-0"	3'-3"	8'-0"	8'-3"	3:1	11180
66"	6-1/2"	3'-0"	6'-0"	2'-3"	8'-6"	8'-3"	3:1	12530
72"	7"	3'-0"	6'-6"	1'-9"	9'-0"	8'-3"	3:1	13980

GENERAL NOTES:

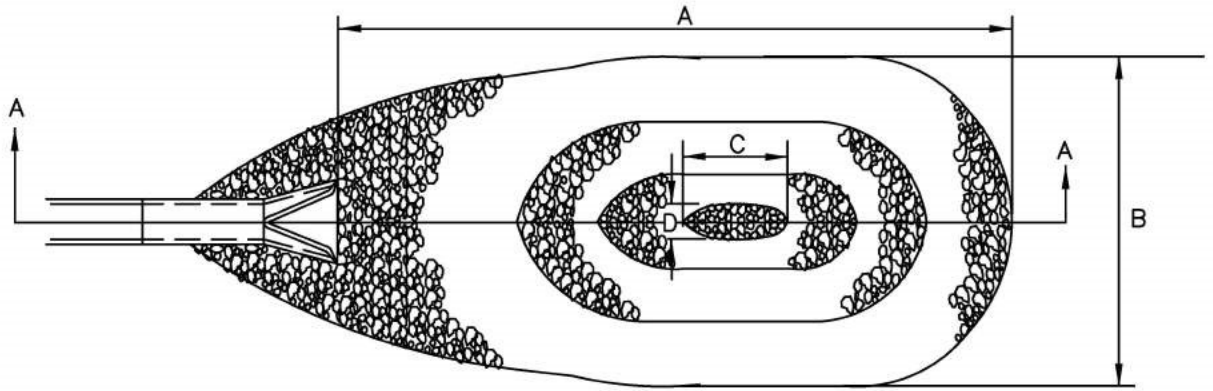
1. SEE FORMER NCDOT STANDARD 310.01 FOR DETAILS.
2. REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF REINFORCED CONCRETE PIPE OF LIKE DIAMENTER PER AASHTO M170, TABLE 2, WALL B.
3. ALL CONCRETE TO BE 4000 P.S.I COMPRESSIVE STRENGTH.
4. PROVIDE TONGUE OR SPIGOT JOINT AT INLET END SECTION.
5. PROVIDE GROOVE OR BELL JOINT AT OUTLET END SECTION.
6. THE DIMENSIONS FOR END SECTIONS SHALL SUBSTANTIALLY AGREE WITH THE TABLE. MINOR VARIATIONS WILL BE PERMITTED BASED ON THE MANUFACTURER'S STANDARD FORMS AND TEMPLATES.
7. NOT TO BE USED IN NCDOT MAINTAINED RIGHT OF WAY.

NOT TO SCALE

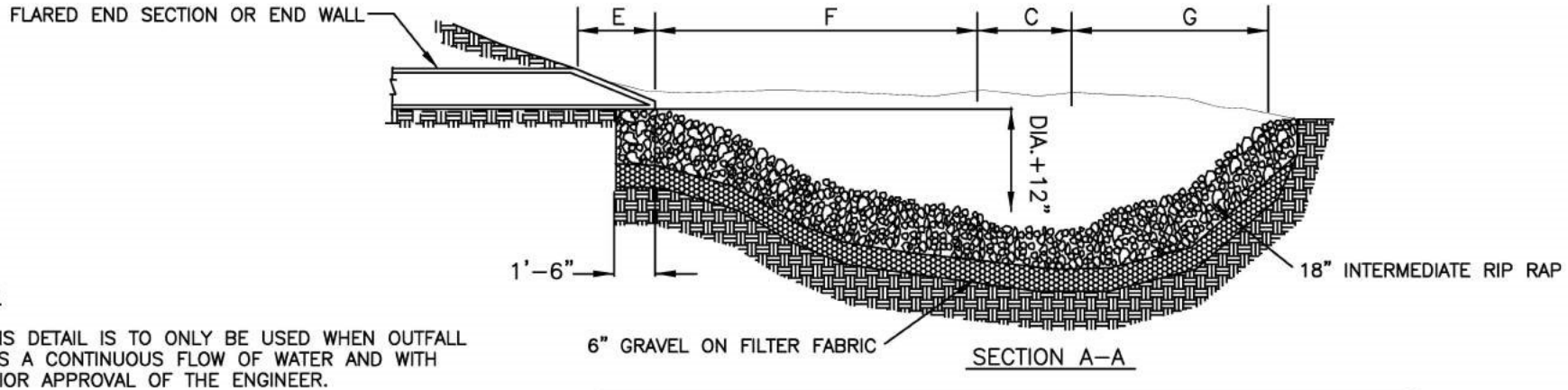
STANDARD DRAWING

FLARED END SECTION 12" THRU 72" PIPE

REV. DATE
STD. NO.
307.1



PLAN



SECTION A–A

NOTE:

1. THIS DETAIL IS TO ONLY BE USED WHEN OUTFALL HAS A CONTINUOUS FLOW OF WATER AND WITH PRIOR APPROVAL OF THE ENGINEER.

PIPE SIZE	A	B	C	D	E	F	G	WT. RIP RAP IN TONS
15"	10'	7'	1 1/2'	1'	1'	4 1/2'	3'	6
18"	12'	8'	2'	1'	1'	5'	4'	8
21"	15'	9'	2 1/2'	1 1/2'	1'	7'	4 1/2'	12
24"	17'	10'	2 1/2'	1 1/2'	1'	8'	5 1/2'	15
30"	20'	13'	3'	2'	2'	9'	6'	22
36"	24'	16'	3 1/2'	2'	2'	9 1/2'	7'	33

NOT TO SCALE

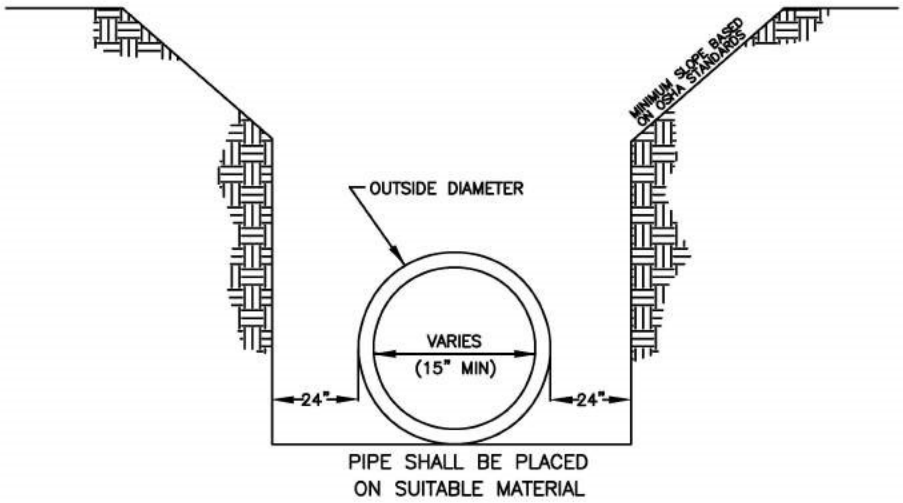
STANDARD DRAWING

RIPRAP PLUNGE POOL

REV. DATE
STD. NO.
308.1

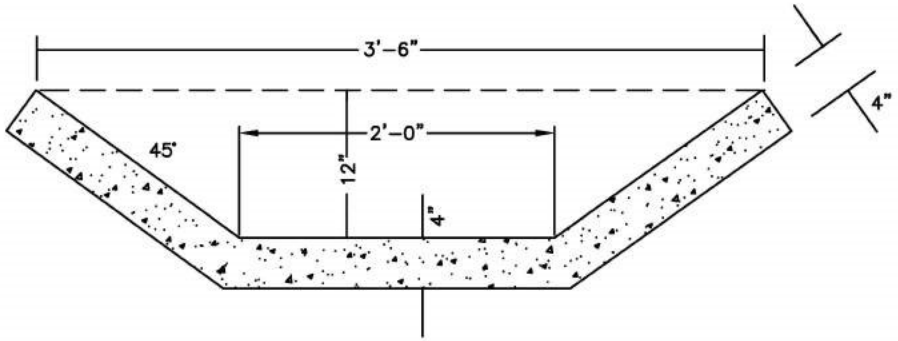
NOTES:

1. A MINIMUM OF 24" FROM OUTSIDE DIAMETER OF PIPE TO SIDE OF TRENCH MUST BE ALLOWED FOR COMPACTION OF FILL MATERIAL. BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE PLACED IN LAYERS NOT TO EXCEED 6". UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED. COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL TAMPS ONLY. EACH AND EVERY LAYER OF BACKFILL SHALL BE PLACED LOOSE AND THOROUGHLY COMPACTED INTO PLACE.
2. ALL BACKFILL MATERIAL SHALL HAVE AN IN PLACE COMPACTED DENSITY OF 95%.
3. STANDARD PROCTOR. THE FINAL 2' BELOW FINISHED GRADE SHALL BE 100%.
4. ALL TRENCHING OPERATIONS SHALL MEET OSHA STANDARDS.
5. BACKFILL MATERIAL BENEATH ROADWAY SHALL BE SELECT BACKFILL MATERIAL.



NOT TO SCALE

STANDARD DRAWING	TRENCH DETAIL FOR STORM DRAIN	REV. DATE
		STD. NO. 309.1



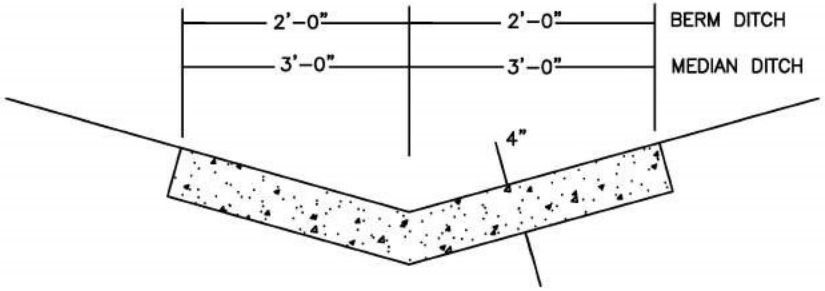
SLOPE DRAIN, BASE DITCH OR BERM DRAINAGE OUTLET DITCH

GENERAL NOTES:

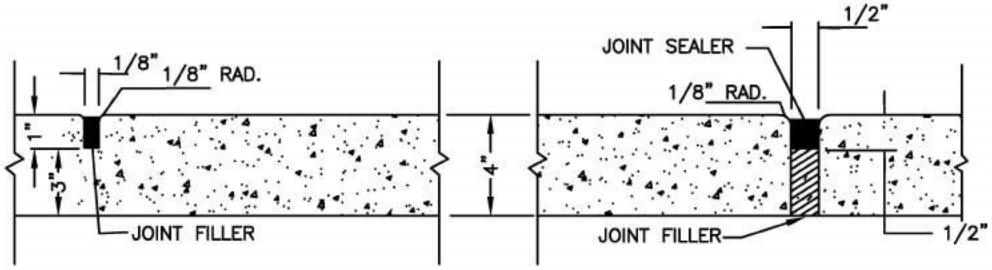
IN THE 4" CONCRETE PAVED DITCHES PLACE 1/2" EXPANSION JOINT AT 30 FT INTERVALS AND AT ALL OTHER POINTS WHERE PROPOSED DITCHES ABUT RIGID OBJECTS. PLACE GROOVED JOINTS 1" DEEP AT 10' INTERVALS BETWEEN EXPANSION JOINTS.

WIDTH AND SHAPE OF PROPOSED 4" CONCRETE PAVED DITCHES SHALL BE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

ALL CONCRETE TO BE 3600 P.S.I. COMPRESSIVE STRENGTH.

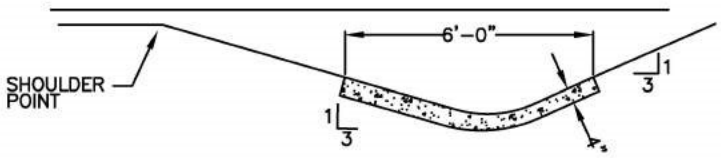


MEDIAN OR BERM DITCH

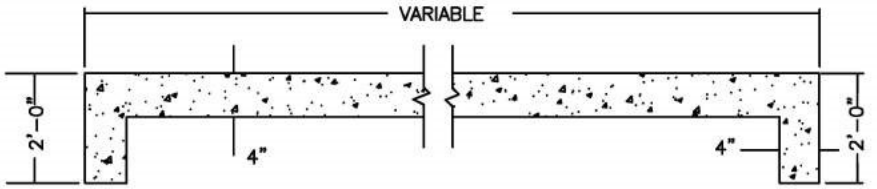


SHOWING GROOVED JOINT

SHOWING EXPANSION JOINT



SIDE DITCH

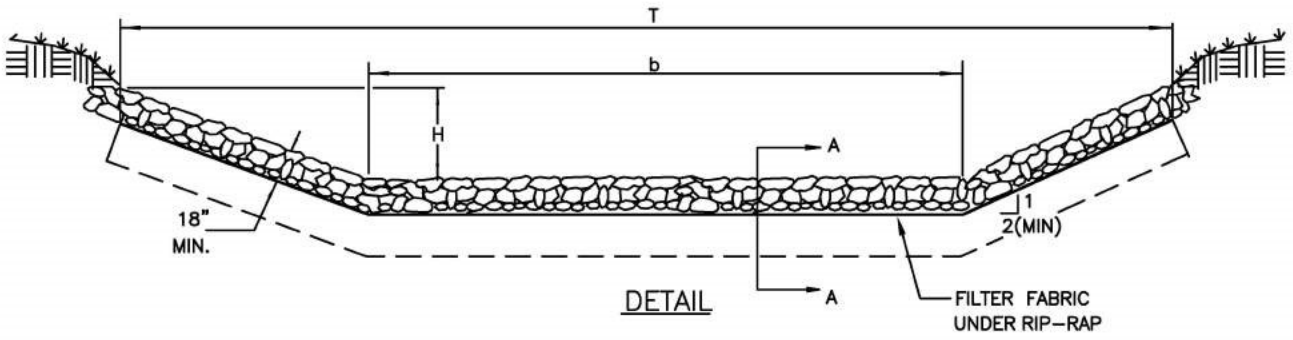


LONGITUDINAL SECTION OF PAVED DITCH

SHOWING 2'-0" CURTAIN WALL REQUIRED AT EACH END

NOT TO SCALE

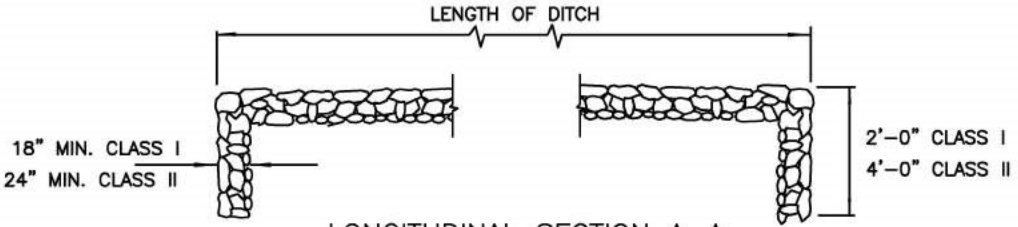
STANDARD DRAWING	CONCRETE PAVED DITCHES	REV. DATE
		STD. NO. 310.1



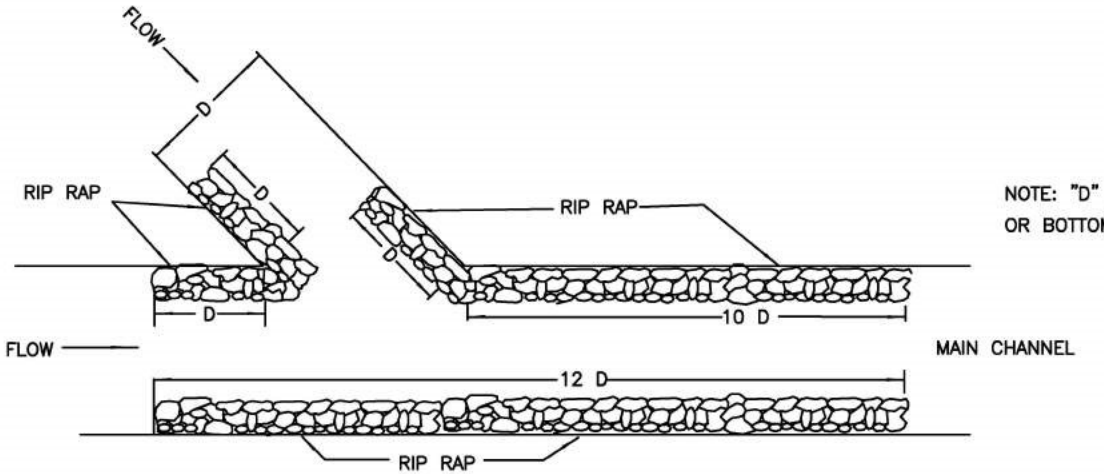
DETAIL

GENERAL NOTES:

1. IF BEDROCK IS ENCOUNTERED WITHIN THE LIMITS OF THE TOEWALL, BEGIN TOEWALL ON THE BEDROCK OR AS DIRECTED BY THE ENGINEER.
2. WHERE ONLY ONE SIDE REQUIRES RIP RAP CLASS I OR II, LIST STATION AND SIDE OF SAME.
3. CHANNEL AND RIP RAP SIZE TO BE DESIGNED BY THE ENGINEER.
4. DEPENDING ON SOIL CONDITIONS, WASHED STONE AND FILTER FABRIC MAY BE NECESSARY UNDER RIP RAP.
5. CHANNEL DEPTH "H" SHALL INCLUDE A MINIMUM 6" OF FREEBOARD.



LONGITUDINAL SECTION A–A



NOTE: "D" EQUALS DIAMETER OF PIPE OR BOTTOM WIDTH OF CHANNEL.

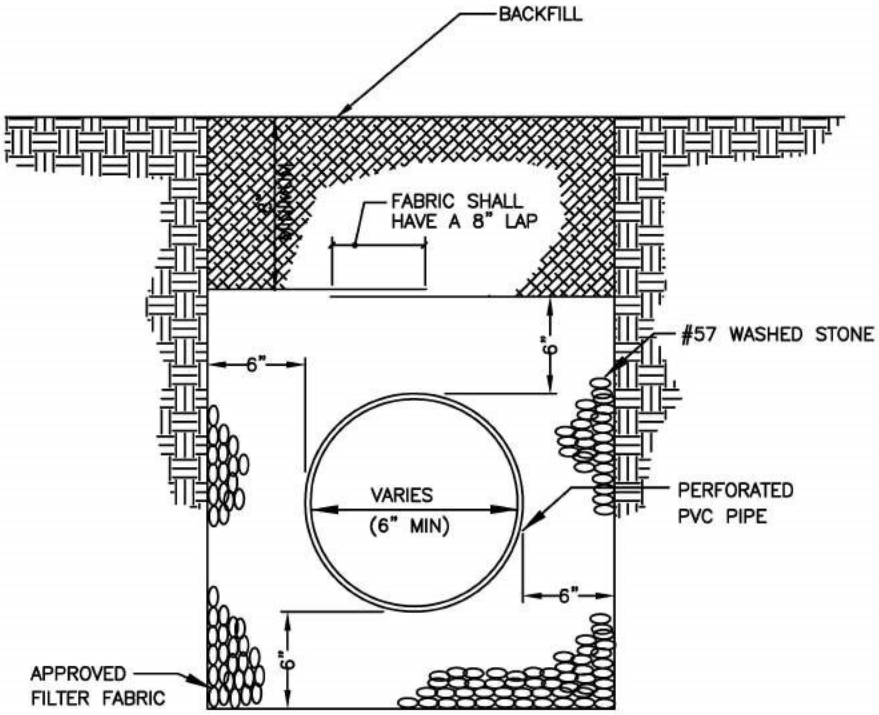
CHANNEL INTERSECTIONS

NOT TO SCALE

STANDARD DRAWING	RIPRAP DITCHES	REV. DATE
		STD. NO. 311.1

NOTES:

1. A MINIMUM OF 6" FROM OUTSIDE DIAMETER OF PIPE TO SIDE OF TRENCH MUST BE ALLOWED FOR WASHED STONE. THE METHOD OF COMPACTING BACKFILL MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER.
   AN APPROVED FILTER FABRIC SHALL BE PLACED AROUND STONE AND OVERLAPPED 8" AT TOP WITHIN STREET RIGHT OF WAY. PIPE SIZE TO BE SHOWN ON PLAN (MINIMUM 6" PIPE). PIPE TO BE SCHEDULE 20 OR 40 PERFORATED PVC.
2. OUTLET PIPE FROM SUBDRAIN SHALL BE NON-PERFORATED UNDER PAVEMENT (INCLUDING SIDEWALKS AND DRIVEWAYS)
3. THE OUTLET PIPES SHALL BE SCHEDULE 80 UNDER ROADWAYS.
4. SEE SITE PLAN FOR SLOPE OF SUBDRAIN AND TIE IN TO STORM DRAINAGE.
5. FILTER FABRIC SHALL BE AN APPROVED, TYPE 2 WATER PERMEABLE, SYNTHETIC FABRIC.

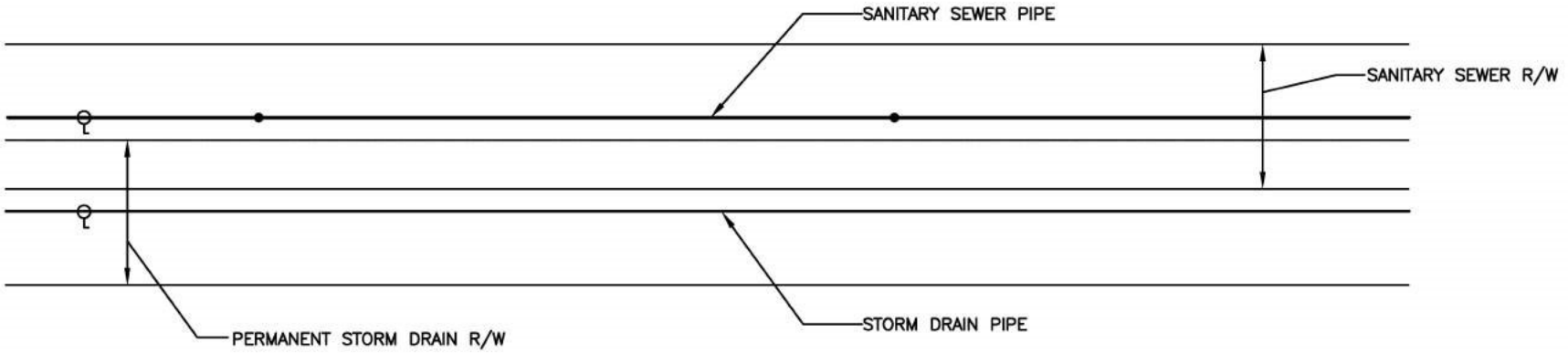


SPECIAL NOTE:

PREFABRICATED DRAINAGE MAY BE USED WITH APPROVAL OF VILLAGE ENGINEER.

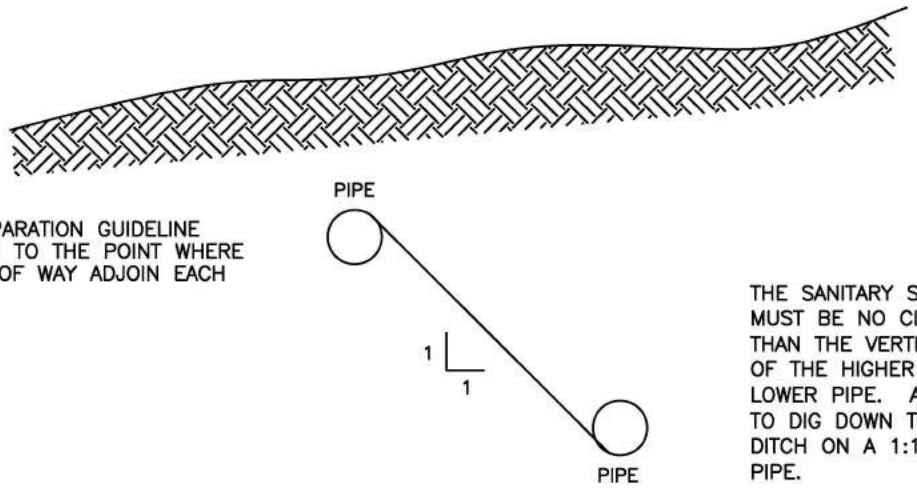
NOT TO SCALE

STANDARD DRAWING	SUBDRAIN DETAIL	REV. DATE
		STD. NO. 312.1



THE SANITARY SEWER AND STORM DRAINAGE RIGHTS OF WAY MAY OVERLAP; HOWEVER THE PIPE AND ASSOCIATED STRUCTURES MUST NOT BE IN THE OTHER UTILITY'S RIGHT OF WAY. THE SANITARY SEWER RIGHT OF WAY WIDTHS SHALL BE AS OUTLINED IN C.M.U.D.'S DESIGN MANUAL. THIS DETAIL DOES NOT APPLY TO STORM DRAINAGE UTILIZING OPEN CHANNEL FLOW.

PLAN VIEW



THE VERTICAL SEPARATION GUIDELINE WILL BE USED UP TO THE POINT WHERE THE TWO RIGHTS OF WAY ADJOIN EACH OTHER.

THE SANITARY SEWER AND STORM DRAINAGE PIPES MUST BE NO CLOSER TOGETHER HORIZONTALLY THAN THE VERTICAL DISTANCE BETWEEN THE TOP OF THE HIGHER PIPE AND THE BOTTOM OF THE LOWER PIPE. A MAINTENANCE CREW MUST BE ABLE TO DIG DOWN TO THE LOWER PIPE SLOPING THE DITCH ON A 1:1 SLOPE AND NOT EXPOSE THE HIGHER PIPE.

PROFILE VIEW

NOT TO SCALE

STANDARD DRAWING	OVERLAPPING STORM DRAINAGE/ SANITARY SEWER EASEMENTS	REV. DATE
		STD. NO. 313.1

GENERAL NOTES:

1. FOR STREAMS CARRYING 500 ACRES OR MORE OF SURFACE RUNOFF, THE EASEMENT REQUIREMENT IS TO BE THE WIDTH OF THE STREAM FROM TOP OF BANK TO TOP OF BANK, PLUS (+) 10' ON EACH SIDE OF STREAM. (40' MINIMUM WIDTH)

2. FOR OPEN CHANNELS THE MINIMUM EASEMENT MUST CONTAIN THE WIDTH OF THE STREAM FROM TOP OF BANK TO TOP BANK.

3. WIDER EASEMENT WIDTHS MAY BE REQUIRED FOR PIPE DEPTHS GREATER THAN TEN FEET.

4. PIPE SYSTEMS AND OPEN CHANNELS ON PRIVATE PROPERTY SHALL BE PLACED IN A STORM DRAINAGE EASEMENT.

Easement Requirements for
Open Storm Drainage Channels

Area in Acreage	Easement Requirement
0–45 ac.	20'
45–120 ac.	30'
120–500 ac.	40'
500 ac.+	see note

Easement Requirements for Storm Drain Pipe

Pipe Size	Easement Requirement
15"	15'
18"	15'
24"	15'
30"	20'
36"	20'
42"	25'
48"	25'
54"+	30'MIN (VARIES)

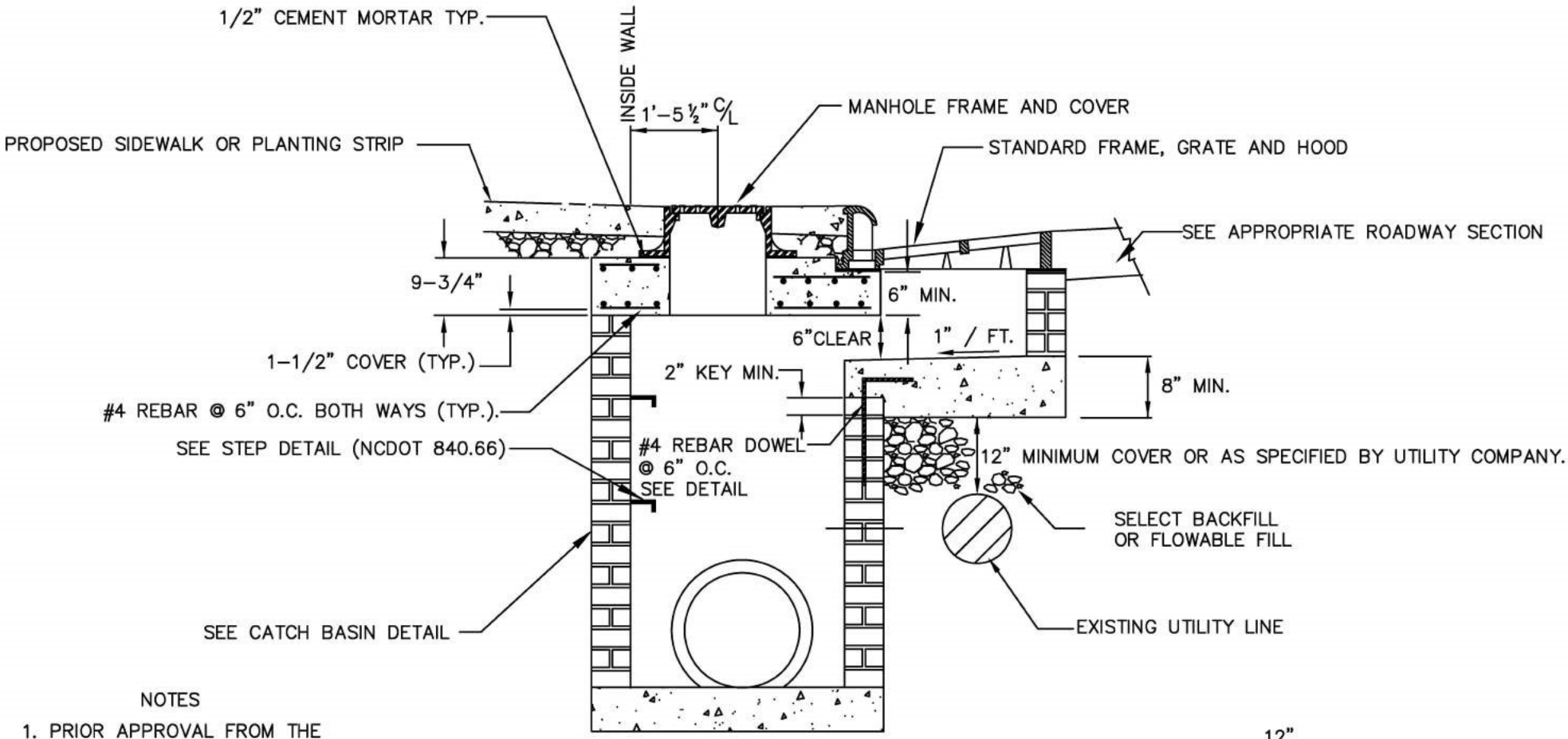
NOT TO SCALE

STANDARD DRAWING

MINIMUM DRAINAGE EASEMENT REQUIREMENTS FOR STORM DRAIN PIPES AND OPEN CHANNELS

REV. DATE

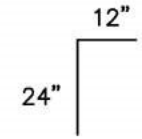
STD. NO.
314.1



NOTES

1. PRIOR APPROVAL FROM THE ENGINEER IS REQUIRED.
2. THIS STRUCTURE IS TO ONLY BE USED ON VILLAGE MAINTAINED STREETS AND NOT ON NCDOT STREETS WITHOUT THEIR PERMISSION.

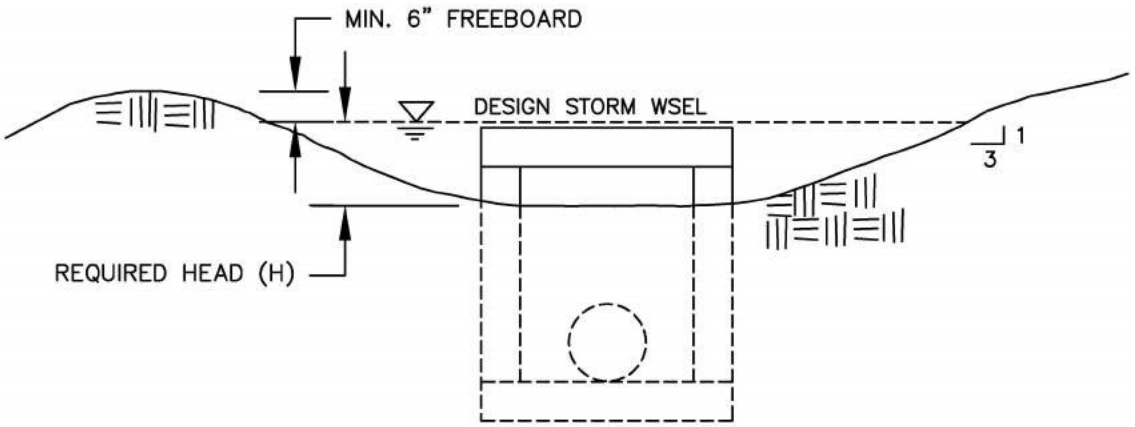
OFFSET CATCH BASIN EXISTING UTILITY CONFLICT

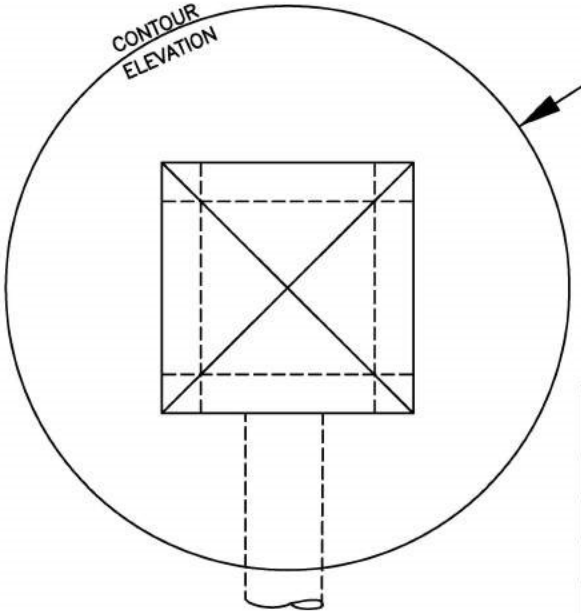


DOWEL DETAIL

NOT TO SCALE

STANDARD DRAWING	OFFSET CATCH BASIN	REV. DATE
		STD. NO. 315.1





YARD INLET SUMMARY CHART				
YARD INLET	AREA (AC.)	CFS	HEAD H (FT.)	COMMENT

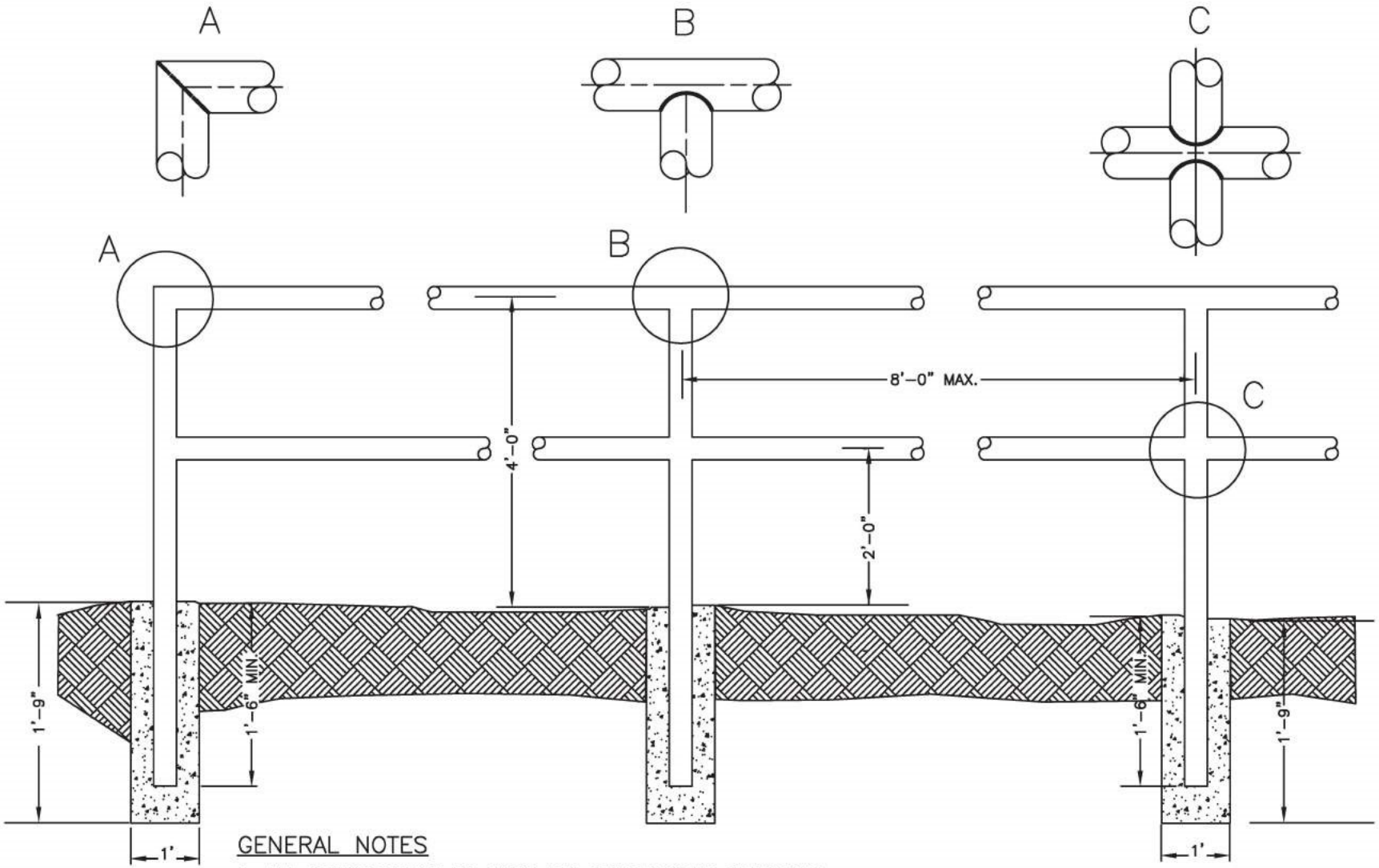
NOT TO SCALE

STANDARD DRAWING

GRADING AT DROP INLET

REV. DATE

STD. NO.
316.1



GENERAL NOTES

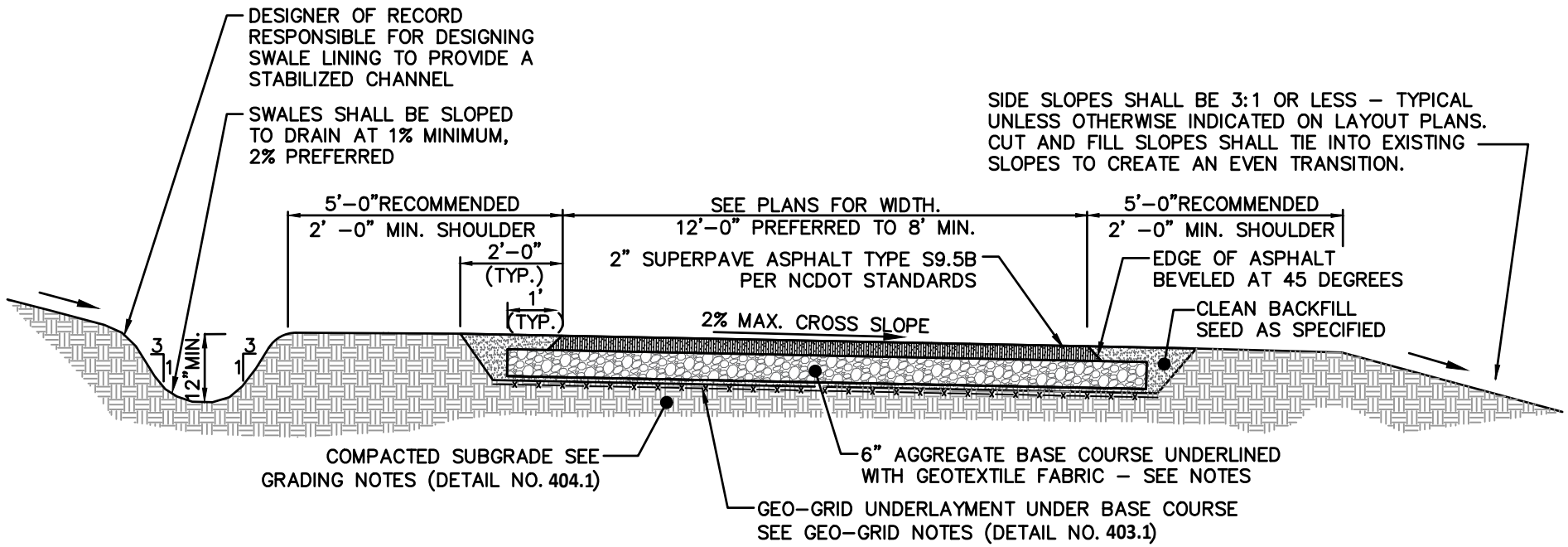
1. ALL CONCRETE TO BE 3600 PSI COMPRESSIVE STRENGTH.
2. TYPE OF PIPE TO BE USED IS $1\frac{5}{8}$ INCH MAXIMUM OUTER DIAMETER BLACK IRON, LOW CARBON PIPE OR GALVANIZED.
3. ALL JOINTS TO HAVE A $\frac{1}{2}$ INCH FILLED WELD AT ALL JOINTS.
4. AFTER INSTALLATION, PAINT ASSEMBLY WITH BLACK ALL WEATHER ENAMEL.
5. ALTERNATIVE HANDRAIL DESIGNS TO BE SUBMITTED TO THE VILLAGE ENGINEER FOR REVIEW.
6. REFER TO DETAIL 701.1 FOR WARRANTS.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

TYPICAL HANDRAIL

REV. DATE
STD. NO.
700.1



NOTES:

1. CROSS SLOPE DIRECTION VARIES. SEE LAYOUT PLANS FOR DIRECTION OF SLOPE.
2. SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
3. CONTRACTOR IS RESPONSIBLE FOR RE–ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
4. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL.
5. ANY VERTICAL IMPROVEMENTS – I.E. SIGNAGE, BENCHES, TRASH RECEPTACLES, ETC. SHALL BE A MINIMUM OF 2' FROM THE EDGE OF THE GREENWAY.
6. SEE DETAIL NO. 403.1 FOR GEOTEXTILE NOTES.

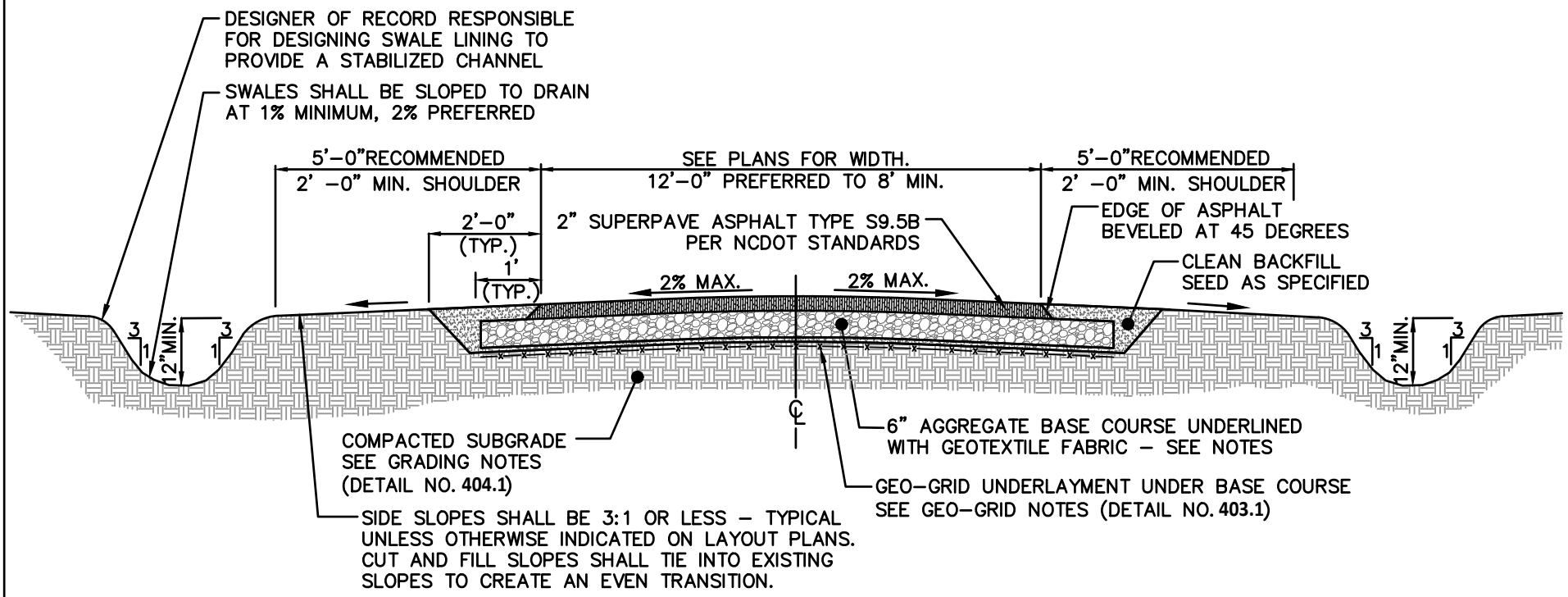
NOT TO SCALE

Village of Marvin
Enriched by Nature

STANDARD ASPHALT GREENWAY TRAIL

DETAIL No.

401.1



NOTES:

1. CROSS SLOPE DIRECTION VARIES. SEE LAYOUT PLANS FOR DIRECTION OF SLOPE.
2. SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
3. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
4. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL.
5. ANY VERTICAL IMPROVEMENTS - I.E. SIGNAGE, BENCHES, TRASH RECEPTACLES, ETC. SHALL BE A MINIMUM OF 2' FROM THE EDGE OF THE GREENWAY.
6. SEE DETAIL NO. 403.1 FOR GEOTEXTILE NOTES.

NOT TO SCALE

Village of Marvin
Enriched by Nature

STANDARD CROWNED ASPHALT GREENWAY TRAIL

DETAIL No.
402.1

NOTES:

1. GEOTEXTILE FABRIC SHALL BE COMPOSED OF HIGH-TENACITY POLYPROPYLENE YARNS, WOVEN INTO A STABLE NETWORK SUCH THAT THE YARNS RETAIN THEIR RELATIVE POSITION.

PRODUCT PROPERTIES	TEST METHOD	UNIT	MINIMUM AVERAGE ROLL VALUE	
			MD	CD
ULTIMATE TENSILE STRENGTH	ASTM D6637	KN/M (LB/FT)	12.4 (850)	19.0 (1,300)
TENSILE STRENGTH @ 2% STRAIN	ASTM D6637	KN/M (LB/FT)	4.1 (280)	6.6 (450)
TENSILE STRENGTH @ 5% STRAIN	ASTM D6637	KN/M (LB/FT)	8.5 (580)	13.4 (920)
APERTURE DIMENSIONS	--	MM (IN)	25 (1.0)	33 (1.3)
MINIMUM RIB THICKNESS	--	MM (IN)	0.76 (0.03)	0.76 (0.03)
JUNCTION EFFICIENCY	GRI-GG2-05	%	93	
APPARENT STABILITY	USCOE METHOD	M-N/DEG	0.32	
OVERALL FLEXURAL RIGIDITY	ASTM D7748/D7748M-14	MG-CM	250,000	
RESISTANCE ID	ASTM D5818/6637	%SC/%SW/%GP	95/93/90	
OVERALL FLEXURAL RIGIDITY	ASTM D7748/D7748M-14	MG-CM	250,000	
RESISTANCE LT DEG	EPA 9090	%	100	
RESISTANCE UV DEG @ 500 HOURS	ASTM D4355	%	100	

[1] ASTM D4751, AOS IS A MAXIMUM OPENING DIAMETER VALUE

Village of Marvin
Enriched by Nature

GEO-GRID NOTES

DETAIL No.
403.1

1. FILL MATERIAL SHALL BE FREE FROM ROOTS, WOOD, OR OTHER ORGANIC MATERIAL. FILL FOR USE UNDER TRAIL SHALL BE APPROVED BY THE OWNER'S GEOTECHNICAL ENGINEER. STONES LARGER THAN 4" SHALL NOT BE USED IN THE UPPER 6" OF THE FILL EMBANKMENT. ADDITIONALLY, FILL MATERIAL SHALL HAVE A PLASTIC INDEX OF LESS THAN 20. FILL MATERIAL SHALL HAVE A MAXIMUM DRY DENSITY OF NOT LESS THAN 90LBS PER CUBIC FOOT AS DETERMINED BY ASTM D-698.
2. COMPACT EACH LAYER FOR ITS FULL WIDTH TO A DENSITY EQUAL TO AT LEAST 90%, 95% PREFERRED PER NCDOT STANDARD SPECIFICATIONS FOR GREENWAYS AND MULTI-USE PATHS. FIELD DENSITY TESTS SHALL BE PROVIDED IN ACCORDANCE WITH ASTM D-698 AND ONE TEST SHALL BE PERFORMED FOR EACH 2,500-SF OF EACH COMPACTED FILL LAYERS.
3. FILL SHALL BE PLACED AND COMPACTED IN LIFTS OF 8" MAX. A TOLERANCE OF PLUS OR MINUS 1" FROM ESTABLISHED GREENWAY GRADE WILL BE PERMITTED AFTER THE SUBGRADES HAS BEEN GRADED TO A UNIFORM SURFACE
4. ABC STONE SHALL BE COMPACTED TO 92% OR THE HIGHEST DENSITY THAT CAN BE REASONABLY OBTAINED PER AASHTO T180. ABC SHALL CONFORM TO NCDOT STANDARD SPECIFICATIONS FOR GREENWAYS AND MULTI-USE PATHS.
5. ASPHALT SHALL BE COMPACTED TO AT LEAST 85% OF THE MAXIMUM SPECIFIC GRAVITY.
6. SITE/MASS ROCK (DEFINITION): SOLID MINERAL MATERIAL WITH A VOLUME IN EXCESS OF ONE (1) CUBIC YARD THAT CANNOT BE REMOVED WITH A ¾ CUBIC YARD CAPACITY POWER SHOVEL OR RIPPERS MOUNTED ON D 8 TRACK DOZER WITHOUT DRILLING OR BLASTING. MATERIAL BROKEN UP BY RIPPERS, POWER SHOVEL, OR NORMAL JOB EQUIPMENT TO BE INCLUDED IN GENERAL EXCAVATION. DISPOSAL SHALL BE ON SITE OR OFF SITE AS INDICATED IN APPLICABLE UNIT PRICE.
7. TRENCH ROCK (DEFINITION): SOLID MINERAL MATERIAL WITH A VOLUME IN EXCESS OF ONE (1) CUBIC YARD OR SOLID MATERIAL THAT CANNOT BE REMOVED WITH A ¾ CUBIC YARD CAPACITY POWER SHOVEL OR RIPPERS MOUNTED ON D 8 TRACK DOZER WITHOUT DRILLING OR BLASTING. MATERIAL BROKEN UP BY POWER SHOVEL, RIPPERS OR NORMAL JOB EQUIPMENT TO BE INCLUDED IN GENERAL EXCAVATION. DISPOSAL SHALL BE ON SITE OR OFF SITE AS INDICATED IN APPLICABLE UNIT PRICE.
8. GREENWAYS CROSS SLOPES AND RUNNING SLOPES SHALL COMPLY WITH 2010 ADA STANDARDS AND ANSI A117.1. RUNNING SLOPES SHALL NOT EXCEED 5% UNLESS LANDINGS ARE PROVIDED COMPLYING WITH TABLE BELOW. CROSS SLOPES FOR GREENWAYS SHALL NOT EXCEED 2%, WITH 1.5% BEING PREFERRED. FOR LANDINGS AND TURNING SPACES, SLOPES SHALL NOT EXCEED 2% IN ANY DIRECTION.

Village of Marvin
Enriched by Nature

GREENWAY FILL MATERIAL AND GRADING NOTES (1 OF 2)

DETAIL No.
404.1

9. GREENWAYS CROSS SLOPES AND RUNNING SLOPES SHALL COMPLY WITH 2010 ADA STANDARDS AND ANSI A117.1. RUNNING SLOPES SHALL NOT EXCEED 5% UNLESS LANDINGS ARE PROVIDED COMPLYING WITH TABLE BELOW. CROSS SLOPES FOR GREENWAYS SHALL NOT EXCEED 2%, WITH 1.5% BEING PREFERRED. FOR LANDINGS AND TURNING SPACES, SLOPES SHALL NOT EXCEED 2% IN ANY DIRECTION.

RUNNING SLOPE OF TRAIL SEGMENT		MAXIMUM LENGTH OF SEGMENT BETWEEN RESTING INTERVALS		
STEEPER THAN	BUT NOT STEEPER THAN			
THICKNESS	ASTM D5199	MILS (MM)	20 (0.5)	
ROLL DIMENSIONS (WIDTH X LENGTH)	--	FT (M)	12.5 X 360 (3.8 X 110)	17.5 X 258 5.3 X 78.7
ROLL AREA	--	YD^2 (M^2)	500 (418)	
ESTIMATED ROLL WEIGHT	--	LB (KG)	225 (102)	

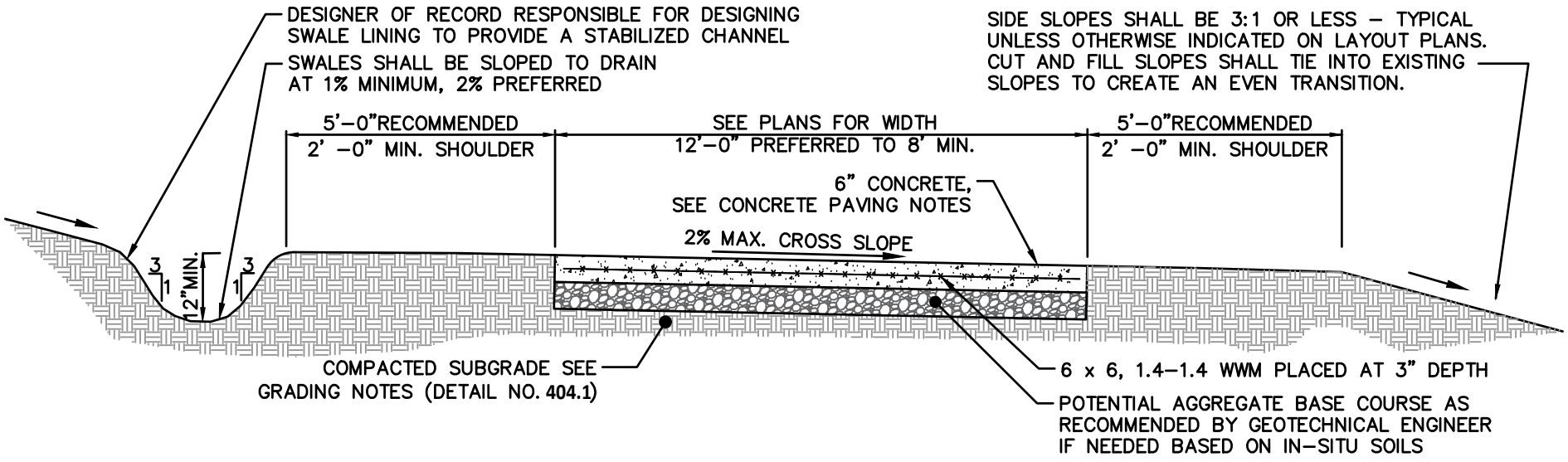
EXCEPTIONS

1. FOR EMBANKMENTS, IF FILL IS NOT ABLE TO MEET THE COMPACTION REQUIREMENTS SHOWN ON THE DETAIL, CONTRACTOR MAY TEST LIFTS IN ACCORDANCE WITH AASHTO T99 AND FILL MUST HAVE A COMPACTED DENSITY OF AT LEAST 90%
2. FOR FINE GRADING OF SUB-GRADE, IF FILL IS NOT ABLE TO MEET THE COMPACTION REQUIREMENTS SHOWN ON THE DETAIL, CONTRACTOR MAY TEST LIFTS TO A DEPTH OF 8" FINISHED SUBGRADE SURFACE, AND COMPACTION SHALL BE 92% MIN PER AASHTO T99.

Village of Marvin
Enriched by Nature

GREENWAY FILL MATERIAL AND GRADING NOTES (2 OF 2)

DETAIL No.
404.2



NOTES:

1. CROSS SLOPE DIRECTION VARIES. SEE LAYOUT PLANS FOR DIRECTION OF SLOPE.
2. SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
3. CONTRACTOR IS RESPONSIBLE FOR RE–ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
4. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL.
5. ANY VERTICAL IMPROVEMENTS – I.E. SIGNAGE, BENCHES, TRASH RECEPTACLES, ETC. SHALL BE A MINIMUM OF 2' FROM THE EDGE OF THE GREENWAY.
6. SEE DETAIL NO. 010 FOR CONCRETE MATERIAL PROPERTIES.
7. GEOTEXTILE FABRIC SHALL BE NONWOVEN POLYPROPYLENE WITH 120 (534) LBS (N) GRAB TENSILE STRENGTH, 50% GRAB TENSILE ELONGATION, 50 (223) LBS (N) TRAPEZOID TEAR STRENGTH, 310 (1380) LBS (N) CBR PUNCTURE STRENGTH, AND 1.7 PERMITTIVITY. GEOTEXTILE FABRIC IS ONLY NEEDED IF AGGREGATE BASE COURSE IS PART OF DESIGN PER GEOTECHNICAL ENGINEER RECOMMENDATIONS.

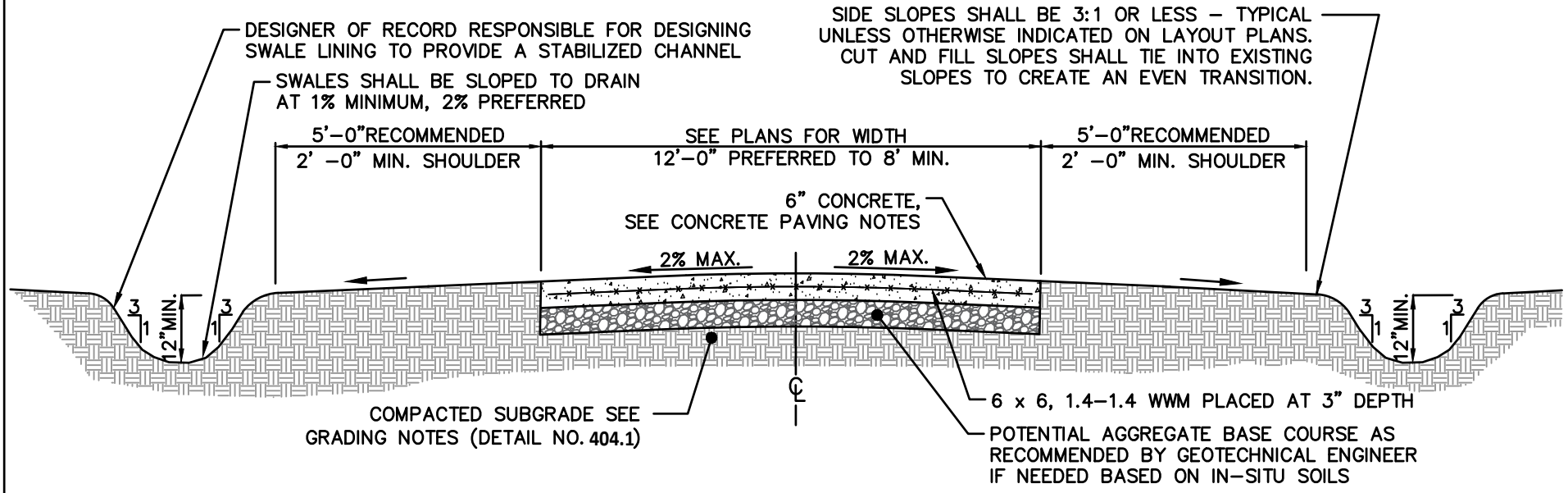
NOT TO SCALE

Village of Marvin
Enriched by Nature

STANDARD CONCRETE GREENWAY TRAIL

DETAIL No.

405.1



NOTES:

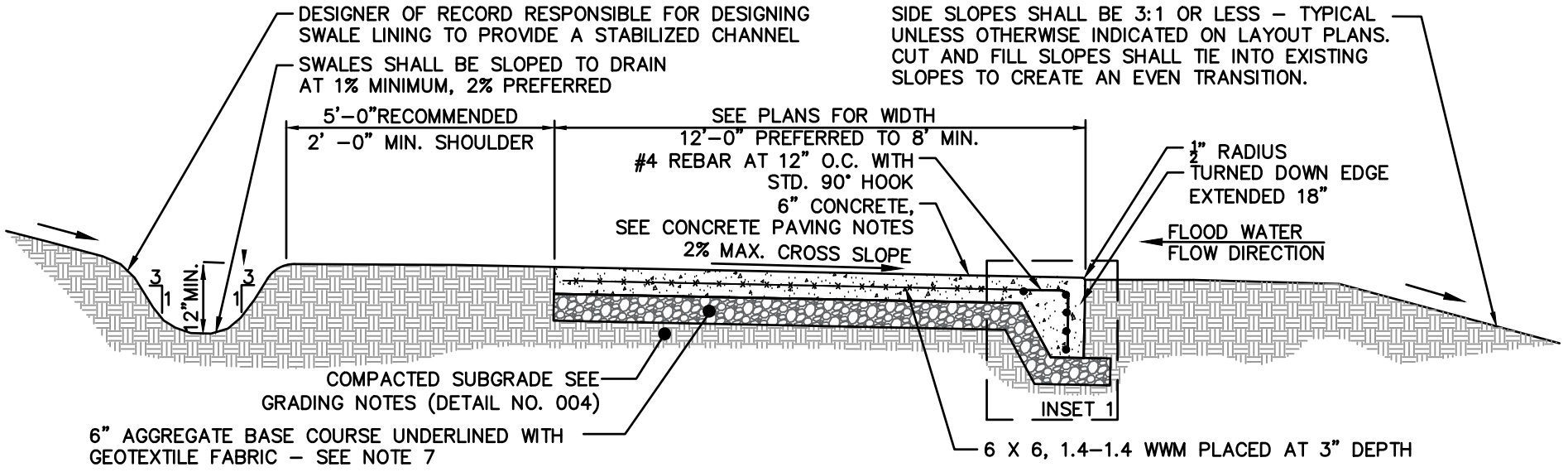
1. CROSS SLOPE DIRECTION VARIES. SEE LAYOUT PLANS FOR DIRECTION OF SLOPE.
2. SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
3. CONTRACTOR IS RESPONSIBLE FOR RE–ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
4. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL.
5. ANY VERTICAL IMPROVEMENTS – I.E. SIGNAGE, BENCHES, TRASH RECEPTACLES, ETC. SHALL BE A MINIMUM OF 2' FROM THE EDGE OF THE GREENWAY.
6. SEE DETAIL NO. 010 FOR CONCRETE MATERIAL PROPERTIES.
7. GEOTEXTILE FABRIC SHALL BE NONWOVEN POLYPROPYLENE WITH 120 (534) LBS (N) GRAB TENSILE STRENGTH, 50% GRAB TENSILE ELONGATION, 50 (223) LBS (N) TRAPEZOID TEAR STRENGTH, 310 (1380) LBS (N) CBR PUNCTURE STRENGTH, AND 1.7 PERMITTIVITY. GEOTEXTILE FABRIC IS ONLY NEEDED IF AGGREGATE BASE COURSE IS PART OF DESIGN PER GEOTECHNICAL ENGINEER RECOMMENDATIONS.

NOT TO SCALE

Village of Marvin
Enriched by Nature

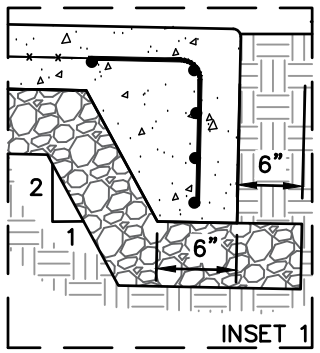
STANDARD CROWNED CONCRETE GREENWAY TRAIL

DETAIL No.
406.1



NOTES:

1. CROSS SLOPE DIRECTION VARIES. SEE LAYOUT PLANS FOR DIRECTION OF SLOPE.
2. SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
3. CONTRACTOR IS RESPONSIBLE FOR RE–ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
4. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL.
5. ANY VERTICAL IMPROVEMENTS – I.E. SIGNAGE, BENCHES, TRASH RECEPTACLES, ETC. SHALL BE A MINIMUM OF 2' FROM THE EDGE OF THE GREENWAY.
6. SEE DETAIL NO. 010 FOR CONCRETE MATERIAL PROPERTIES.
7. TURNDOWN SHALL BE LOCATED ON UPSTREAM SIDE OF GREENWAY WHERE GREENWAY IS 45–DEGREES TO 90 DEGREES TO THE FLOW DIRECTION OF THE STREAM/RIVER AND LOCATED WITHIN A FEMA FLOODPLAIN AND/OR FLOODWAY.
8. GEOTEXTILE FABRIC SHALL BE NONWOVEN POLYPROPYLENE WITH 120 (534) LBS (N) GRAB TENSILE STRENGTH, 50% GRAB TENSILE ELONGATION, 50 (223) LBS (N) TRAPEZOID TEAR STRENGTH, 310 (1380) LBS (N) CBR PUNCTURE STRENGTH, AND 1.7 PERMITTIVITY.



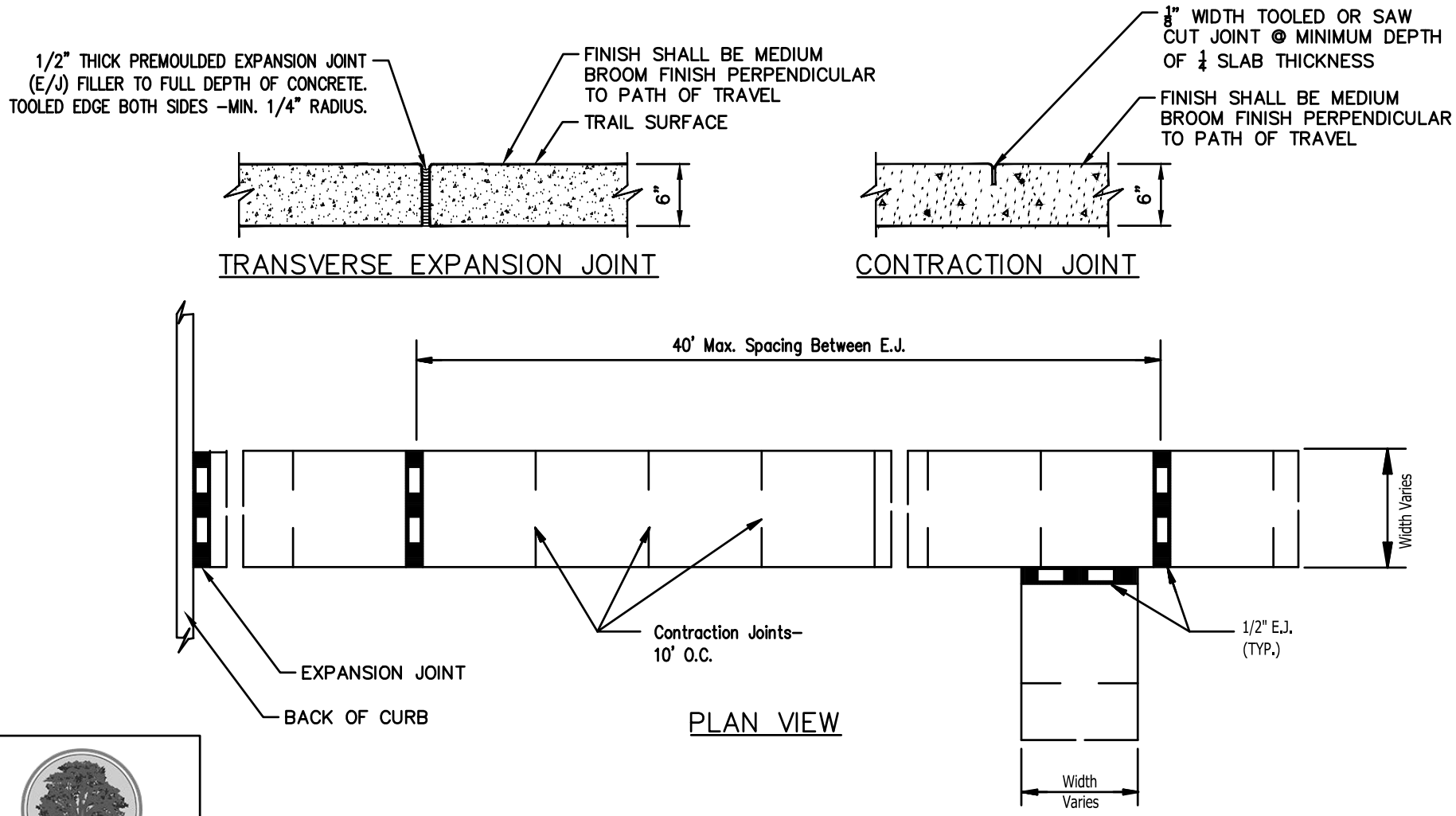
NOT TO SCALE

Village of Marvin
Enriched by Nature

STANDARD CONCRETE GREENWAY TRAIL WITH TURN DOWN EDGE (USED IN FLOODWAY AND FLOODPLAIN AREAS)

DETAIL No.

407.1



Village of Marvin
Enriched by Nature

CONCRETE GREENWAY JOINT DETAILS

DETAIL No.

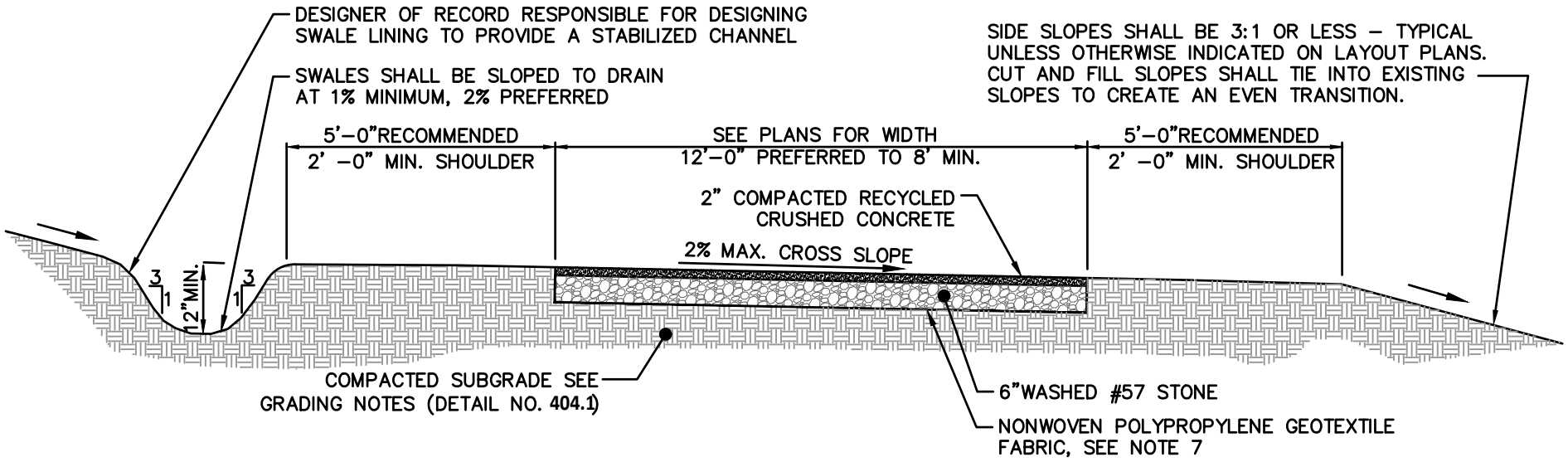
408.1

1. CEMENT SHALL BE ASTM C-150, NORMAL TYPE 1.
2. AIR ENTRAINING ADMIXTURE SHALL MEET ASTM C-260.
3. CHEMICAL ADMIXTURE AS REQUIRED SHALL MEET ASTM C-494.
4. COARSE AGGREGATE NOT LESS THAN 50% CLEAN, HARD, CRUSHED STONE CONFORMING TO THE REQUIREMENTS OF TABLE 2, SIZE NUMBER 467 ASTM C-33.
5. SLUMP SHALL BE 5" MAX WITH A MINIMUM TOLERANCE OF MINUS 1"
6. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS
7. AIR CONTENT SHALL BE 5% +/- 1.5%
8. FIBER REINFORCEMENT SHALL BE MACRO-SYNTHETIC FIBER AT 1.5 LBS/CY FIBRILLATED CONCRETE FIBERS OF 100% VIRGIN POLYPROPYLENE AND DESIGNED FOR USE IN CONCRETE PAVING COMPLYING WITH ASTM C1116/C1116M, TYPE III, 1/2 TO 1 1/2 INCHES LONG.
9. FINISH FOR CONCRETE SHALL BE MEDIUM BROOM FINISH PERPENDICULAR TO THE PATH OF TRAVEL.
10. EXPANSION JOINTS SHALL BE CONSTRUCTED FROM MINIMUM 1/2" THICK ASPHALITIC IMPREGNATED FIBERBOARD PER ASTM D-1751.
11. CONTRACTOR SHALL SUBMIT JOINT SEALANTS FOR USE IN PAVING FOR APPROVAL.
12. BITUMINOUS EXPANSION MATERIAL SHALL BE PLACED AGAINST ALL EXISTING FIRM SURFACES.
13. CONTRACTION JOINTS SHALL BE SPACED AT 10-FOOT INTERVALS, EXCEPT THAT A 15-FOOT SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10 FOOT INTERVALS. JOINT SPACING MAY BE ALTERED AT THE DISCRETION OF THE CONSULTANT TO PREVENT UNCONTROLLED CRACKING. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1 1/2" SHALL BE OBTAINED. ALL CONTRACTION JOINTS SHALL BE FILLED WITH JOINT SEALER. EXPANSION JOINTS SHALL BE SPACED AT 40-FOOT INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS. BITUMINOUS EXPANSION MATERIAL SHALL BE PLACED AGAINST ALL EXISTING FIRM SURFACES.
14. ALL TRANSVERSE AND LONGITUDINAL SAWED (CONTRACTION) JOINTS SHALL BE CONSTRUCTED TO A MINIMUM DEPTH OF 1/4 THE SLAB THICKNESS X 1/8" WIDTH.
15. WATER SHALL BE CLEAN, POTABLE WATER.

Village of Marvin
Enriched by Nature

CONCRETE GREENWAY PAVING NOTES

DETAIL No.
409.1



NOTES:

1. CROSS SLOPE DIRECTION VARIES. SEE LAYOUT PLANS FOR DIRECTION OF SLOPE.
2. SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
3. CONTRACTOR IS RESPONSIBLE FOR RE–ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
4. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL.
5. PAVEMENT SHALL BE POROUS WITH A HYDRAULIC CONDUCTIVITY GREATER THAN 0.001 CENTIMETERS PER SECOND (1.41 INCHES PER HOUR).
6. ANY VERTICAL IMPROVEMENTS – I.E. SIGNAGE, BENCHES, TRASH RECEPTACLES, ETC. SHALL BE A MINIMUM OF 2' FROM THE EDGE OF THE GREENWAY.
7. GEOTEXTILE FABRIC SHALL BE NONWOVEN POLYPROPYLENE WITH 120 (534) LBS (N) GRAB TENSILE STRENGTH, 50% GRAB TENSILE ELONGATION, 50 (223) LBS (N) TRAPEZOID TEAR STRENGTH, 310 (1380) LBS (N) CBR PUNCTURE STRENGTH, AND 1.7 PERMITTIVITY.

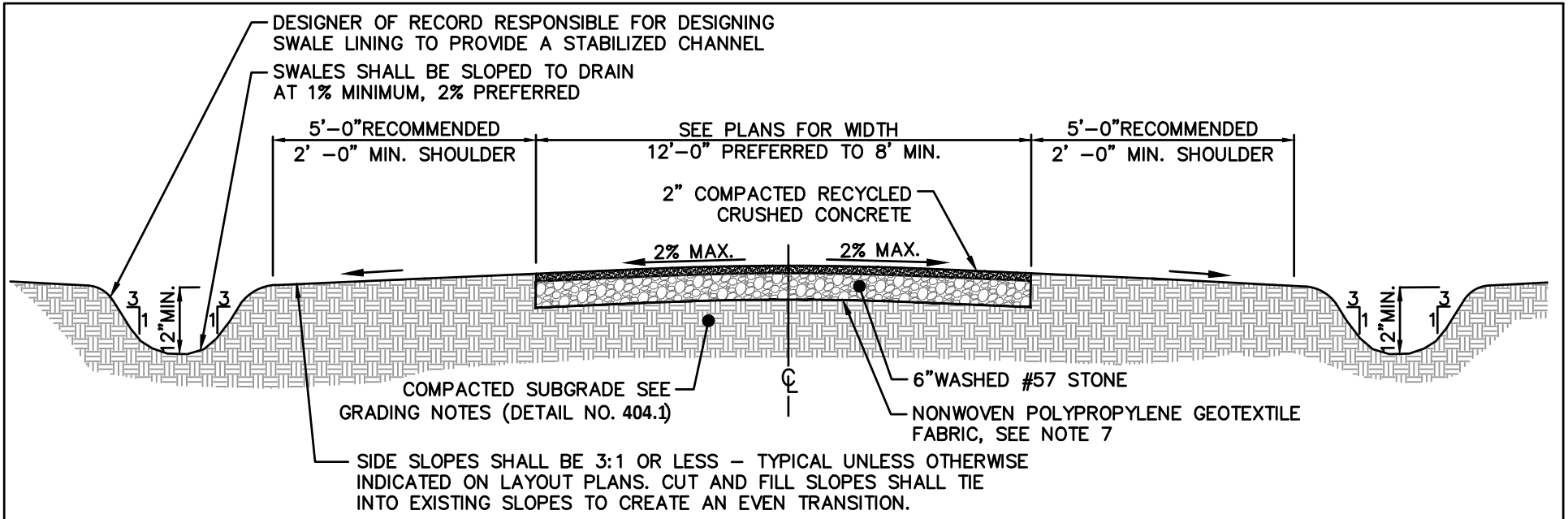
NOT TO SCALE

Village of Marvin
Enriched by Nature

STANDARD RECYCLED CONCRETE GREENWAY TRAIL

DETAIL No.

410.1



NOTES:

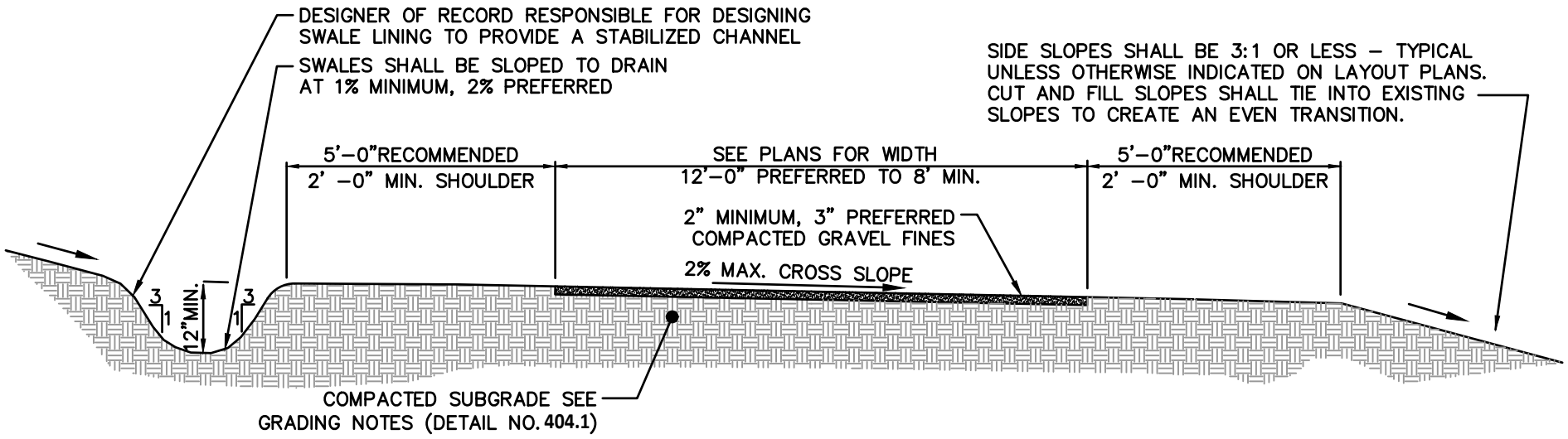
1. CROSS SLOPE DIRECTION VARIES. SEE LAYOUT PLANS FOR DIRECTION OF SLOPE.
2. SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
3. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
4. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL.
5. PAVEMENT SHALL BE POROUS WITH A HYDRAULIC CONDUCTIVITY GREATER THAN 0.001 CENTIMETERS PER SECOND (1.41 INCHES PER HOUR).
6. ANY VERTICAL IMPROVEMENTS – I.E. SIGNAGE, BENCHES, TRASH RECEPTACLES, ETC. SHALL BE A MINIMUM OF 2' FROM THE EDGE OF THE GREENWAY.
7. GEOTEXTILE FABRIC SHALL BE NONWOVEN POLYPROPYLENE WITH 120 (534) LBS (N) GRAB TENSILE STRENGTH, 50% GRAB TENSILE ELONGATION, 50 (223) LBS (N) TRAPEZOID TEAR STRENGTH, 310 (1380) LBS (N) CBR PUNCTURE STRENGTH, AND 1.7 PERMITTIVITY.

NOT TO SCALE

Village of Marvin
Enriched by Nature

STANDARD CROWNED RECYCLED CONCRETE GREENWAY TRAIL

DETAIL No.
411.1



NOTES:

1. GRAVEL FINES SHALL INCLUDE DISINTEGRATED IGNEOUS OR METAMORPHIC ROCK SUCH AS GRANITE WHICH ARE NOT LARGER THAN 1/4", BUT WITH 50% BEING 1/8" OR SMALLER.
2. CROSS SLOPE DIRECTION VARIES. SEE LAYOUT PLANS FOR DIRECTION OF SLOPE.
2. SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
3. CONTRACTOR IS RESPONSIBLE FOR RE–ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
4. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL.
5. CONTRACTOR SHALL UTILIZE SHARP HAND TOOLS TO CLEANLY CUT TREE ROOTS LARGER THAN 0.5" AND LARGER CREATING A TRIP HAZARD IN TRAIL. NO MECHANIZED EQUIPMENT WILL BE PERMITTED OR RIPPING/TEARING OF TREE ROOTS.
6. CONTRACTOR SHALL REMOVE ROCKS 3" AND LARGER FROM TRAIL SURFACE AND DISPOSE OF OUTSIDE OF THE WALKING PATH.
6. CONTRACTOR SHALL APPLY A PRE–EMERGENT HERBICIDE TO COMPACTED SUBGRADE PRIOR TO CONSTRUCTION. RECOMMEND RE–APPLYING HERBICIDE MONTHLY OR AS NEEDED DURING CONSTRUCTION TO PREVENT GROWTH OF WEEDS UNTIL SUBSTANTIAL COMPLETION AND MAINTENANCE TRANSFERS TO OWNER.

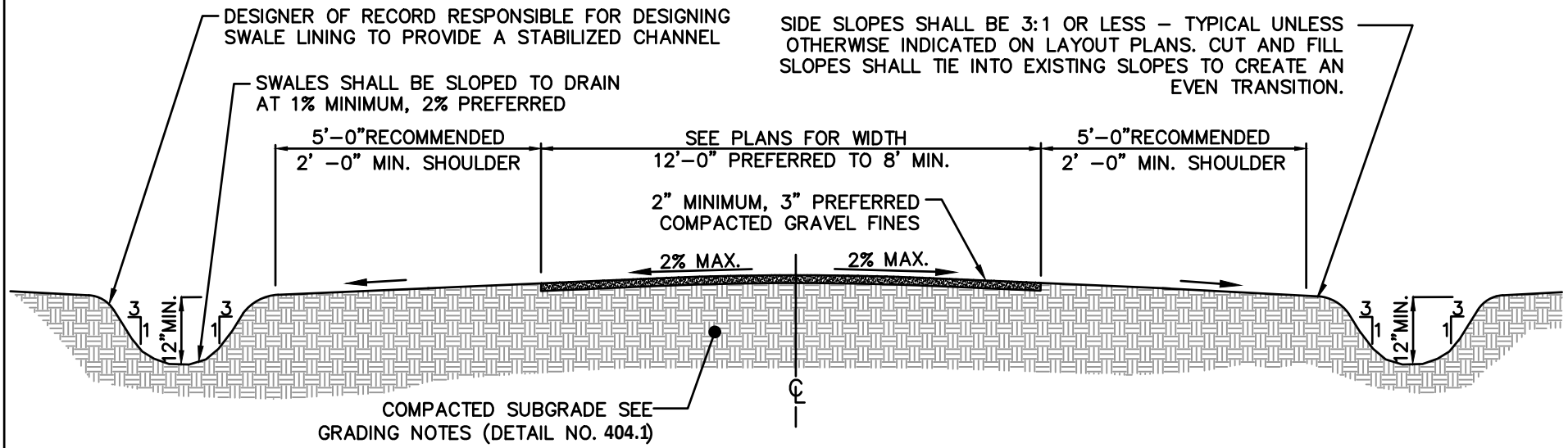
NOT TO SCALE

Village of Marvin
Enriched by Nature

STANDARD NATURAL SURFACE GREENWAY TRAIL

DETAIL No.

412.1



NOTES:

1. GRAVEL FINES SHALL INCLUDE DISINTEGRATED IGNEOUS OR METAMORPHIC ROCK SUCH AS GRANITE WHICH ARE NOT LARGER THAN 1/4", BUT WITH 50% BEING 1/8" OR SMALLER.
2. CROSS SLOPE DIRECTION VARIES. SEE LAYOUT PLANS FOR DIRECTION OF SLOPE.
2. SHOULDERS TO MATCH CROSS SLOPE OF GREENWAY TRAIL.
3. CONTRACTOR IS RESPONSIBLE FOR RE–ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
4. NO UTILITY SURFACE COVERS/PLATES/MANHOLES (i.e. WATERLINE VALVE COVERS, ETC.) SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL.
5. CONTRACTOR SHALL UTILIZE SHARP HAND TOOLS TO CLEANLY CUT TREE ROOTS LARGER THAN 0.5" AND LARGER CREATING A TRIP HAZARD IN TRAIL. NO MECHANIZED EQUIPMENT WILL BE PERMITTED OR RIPPING/TEARING OF TREE ROOTS.
6. CONTRACTOR SHALL REMOVE ROCKS 3" AND LARGER FROM TRAIL SURFACE AND DISPOSE OF OUTSIDE OF THE WALKING PATH.
6. CONTRACTOR SHALL APPLY A PRE–EMERGENT HERBICIDE TO COMPACTED SUBGRADE PRIOR TO CONSTRUCTION. RECOMMEND RE–APPLYING HERBICIDE MONTHLY OR AS NEEDED DURING CONSTRUCTION TO PREVENT GROWTH OF WEEDS UNTIL SUBSTANTIAL COMPLETION AND MAINTENANCE TRANSFERS TO OWNER.

NOT TO SCALE

Village of Marvin
Enriched by Nature

STANDARD CROWNED NATURAL SURFACE GREENWAY TRAIL

DETAIL No.
413.1

WARRANTS

HANDRAIL SHALL BE INSTALLED UNDER ANY OF THE FOLLOWING CIRCUMSTANCES IN BOTH NEW CONSTRUCTION AND IN RETROFITTING OR RECONSTRUCTION OF EXISTING ROADWAYS OR SITES:

1. WHEN THE CULVERT–CROSSING DETAIL (STD. 133.1 & 134.1) APPLIES.

2. IN ANY OF THE FOLLOWING COMBINATIONS OF DROPOFF AND OFFSET FROM SIDEWALK:
   a. 18" OR LARGER DROPOFF WITHIN 2 FEET OF THE EDGE OF THE SIDEWALK
   b. 36" OR LARGER DROPOFF WITHIN 4 FEET OF THE EDGE OF THE SIDEWALK
   c. 60" OR LARGER DROPOFF WITHIN 6 FEET OF THE EDGE OF THE SIDEWALK

   THESE CLEARANCES ASSUME THAT THE CROSS–SLOPE OF THE BERM BETWEEN THE SIDEWALK AND THE DROPOFF IS 6:1 OR FLATTER.

3. AT THE TOP OF ANY DROPOFF WHERE PEDESTRIANS CAN REASONABLY BE EXPECTED IN THE VICINITY.

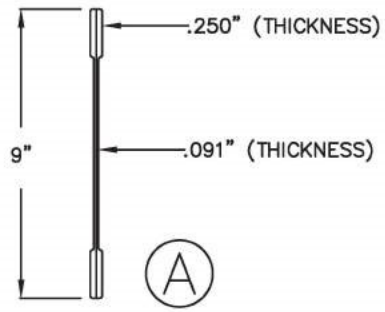
4. AT THE DIRECTION OF VILLAGE ENGINEER BASED ON FIELD CONDITIONS.

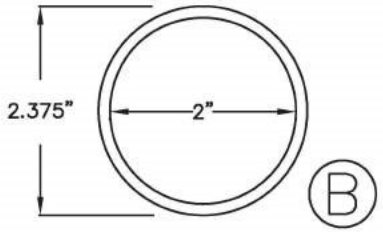
FOR PURPOSES OF THIS STANDARD, THE TERM "SIDEWALK" IS USED GENERICALLY AND SHALL MEAN ANY SEPARATE PATH OR SURFACE TO BE USED FOR BICYCLE AND/OR PEDESTRIAN TRANSPORTATION. EXAMPLES INCLUDE, BUT ARE NOT LIMITED TO, SIDEWALKS, BIKE PATHS, SHARED–USE PATHS, PEDESTRIAN PATHS, AND GREENWAYS.

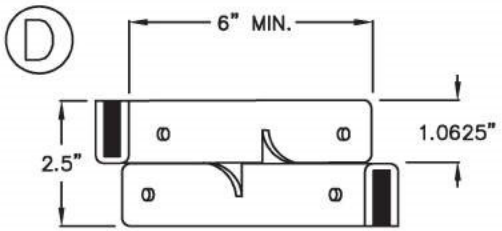
DEFINITIONS

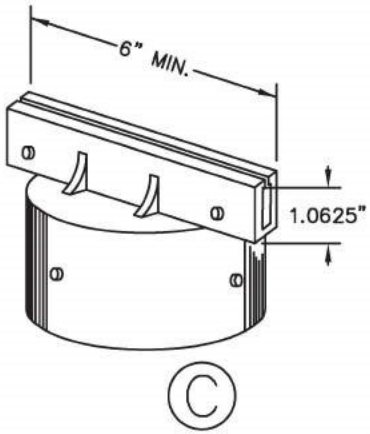
– DROPOFF –– A SLOPE OF 2:1 OR STEEPER. EXAMPLES INCLUDE HEADWALLS, RETAINING WALLS, AND CULVERTS, ETC.

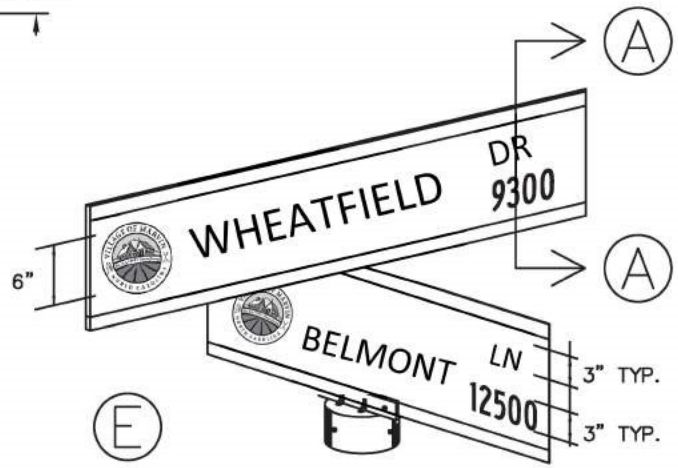
VILLAGE OF MARVIN STANDARD DRAWING	HANDRAIL WARRANTS	REV. DATE STD. NO. 701.1











NOTES:

1. BLADES SHALL BE EXTRUDED ALUMINUM 6063T5 OR 6063T6 ALLOY .080" THICK. (SEE DETAIL A) POST SHALL BE 10'–0" IN LENGTH, TUBULAR 2.375 O.D. GLOSS GALVANIZED STEEL CONTINUOUS MILL DIPPED, WITH NO RAW ENDS; OR 40, 1540 WALL ALUMINUM (SEE DETAIL B).
2. CAP TO BE ALUMINUM #380 ALLOY OR EQUAL SLOTTED FOR .25" EXTRUDED BLADE; 2.375" I.D. BASE, DIE CAST AND POLISHED. CAP SHALL BE TAPPED TO RECEIVE AND INCLUDE 3 STAINLESS STEEL SET SCREWS FOR POST MOUNTING AND 2 STAINLESS STEEL SET SCREWS FOR BLADE MOUNTING. SET SCREWS TO HAVE ALLEN HEADS (SEE DETAIL C).
3. BLADE SPACER BRACKET SHALL MEET SAME SPECIFICATIONS AS THE CAP WITH 2 SCREWS TO EACH BLADE MOUNTING (SEE DETAIL D).
4. THE FACE OF ALL BLADES SHALL HAVE WHITE LETTERS WITH GREEN BACKGROUND WITH RETROREFLECTIVE CHARACTERISTICS MEETING MINIMUM ASTM D–4956 TYPE III STANDARDS. THE PRIMARY LETTERS SHALL BE MIXED CASE WITH 6" FHWA SERIES B FONT AND PREFIX/SUFFIX LETTERS AND BLOCK NUMBERS SHALL BE 3" MIXED CASE FHWA SERIES B FONT. (SEE DETAIL E)
5. PREFERRED MATERIALS:
   –WHITE: 3M HIGH INTENSITY GRADE PRISMATIC SERIES 3930 (3930 WHITE)
   –GREEN: 3M ELECTROCUT FILM SERIES 1170 (1177C GREEN)
6. ALL LETTERS SHALL BE SERIES B–2000 FROM THE 2004 STANDARD HIGHWAY SIGNS MANUAL (AND ANY REVISION THERETO) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
7. ALL STREET NAME SIGNS ARE SUBJECT TO APPROVAL BY THE VILLAGE ENGINEER. BLOCK NUMBERS SHALL BE PROVIDED ON SIGNS AND CORRESPOND TO OFFICIALLY APPROVED ADDRESSES.
8. REFER TO DRAWING 703.1 FOR MARVIN LOGO REQUIREMENTS.
9. FOR SIGNS LONGER THAN 48 INCHES IN LENGTH, THE 6 INCH MINIMUM IN C AND D IS TO BE 12 INCHES.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

NON THOROUGHFARE STREET NAME SIGN

REV. DATE
STD. NO.
702.1

NOTES:

1. THE VILLAGE OF MARVIN LOGO SHALL BE USED ON STREETNAME MARKERS LOCATED ON VILLAGE MAINTAINED STREETS.

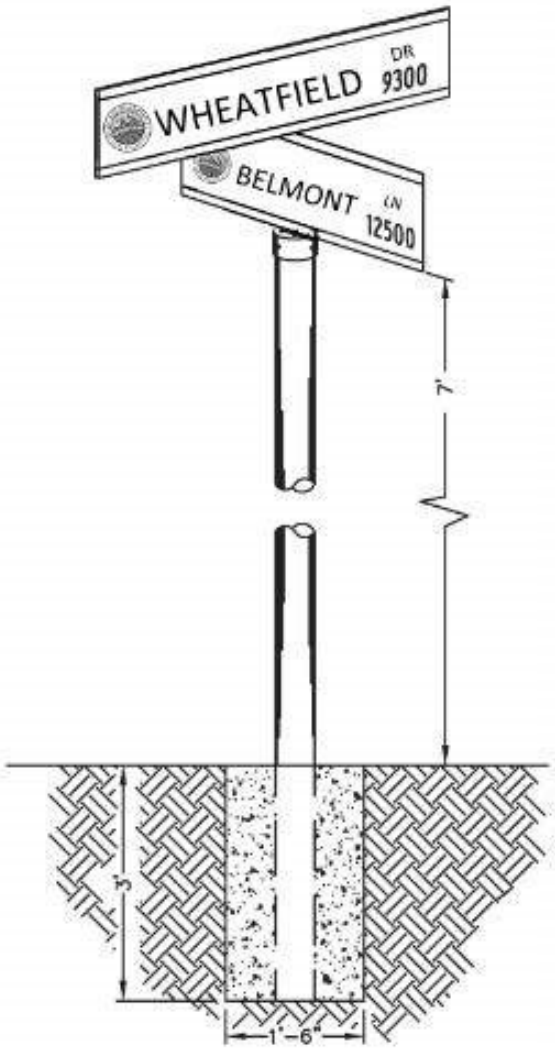
2. THE LOGO SHALL BE WHITE WITH A GREEN BACKGROUND WITH RETROREFLECTIVE CHARACTERISTICS MEETING MINIMUM ASTM D-4956 TYPE III STANDARDS.

3. PREFERRED MATERIALS:
   -WHITE: 3M HIGH INTENSITY GRADE PRISMATIC SERIES 3930 (3930 WHITE)
   -GREEN: 3M ELECTROCUT FILM SERIES 1170 (1177C GREEN)

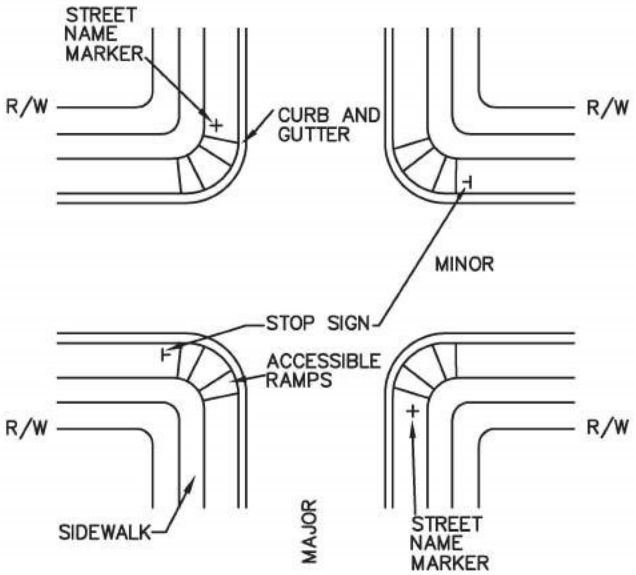
4. THE DECORATIVE LOGO SHALL BE ACQUIRED FROM THE VILLAGE OF MARVIN.

VILLAGE OF MARVIN STANDARD DRAWING	STREET NAME SIGN	REV. DATE
		STD. NO. 703.1

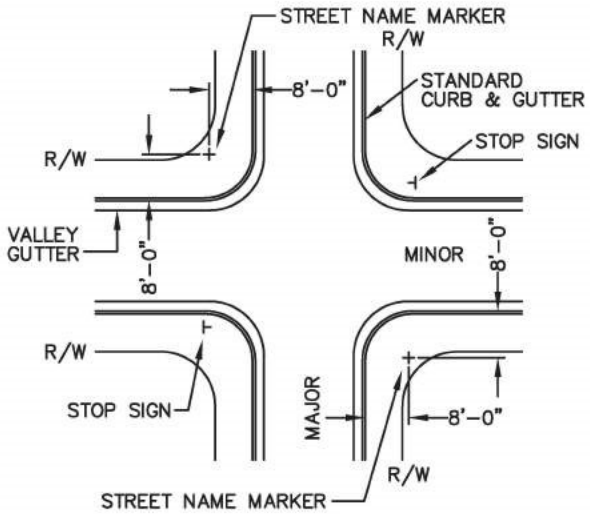
INSTALLATION OF STREET NAME SIGN



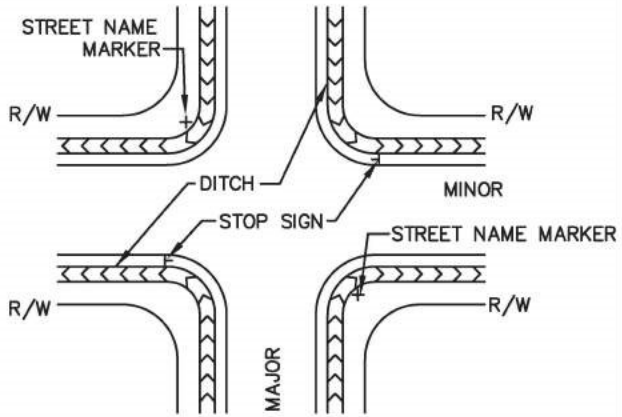
INTERSECTION with SIDEWALK, CURB, and GUTTER



INTERSECTION with CURB and GUTTER



INTERSECTION with DITCHES, and NO CURB and GUTTER



NOTES

1. TWO STREET NAME MARKERS ARE REQUIRED IF THE MAJOR STREET HAS 3 OR MORE LANES.

2. ANY VARIANCE FROM THIS STANDARD MUST BE APPROVED BY THE VILLAGE ENGINEER.

NOT TO SCALE

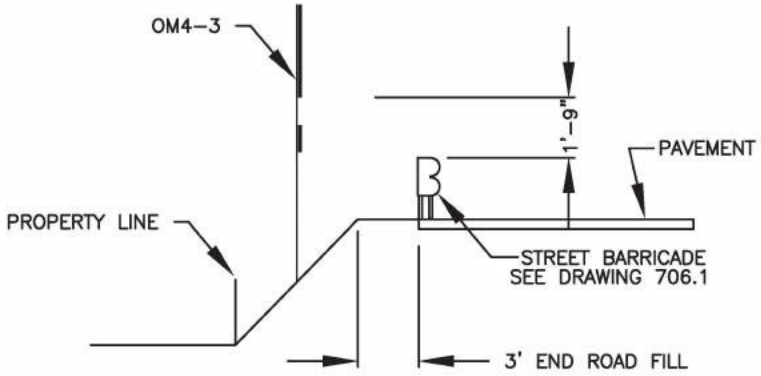
VILLAGE OF MARVIN STANDARD DRAWING

STREET NAME SIGN INSTALLATION LOCATIONS

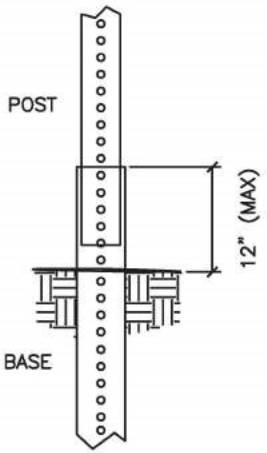
REV. DATE
STD. NO.
704.1

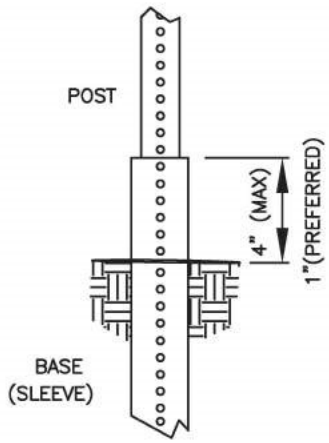
NOTES:

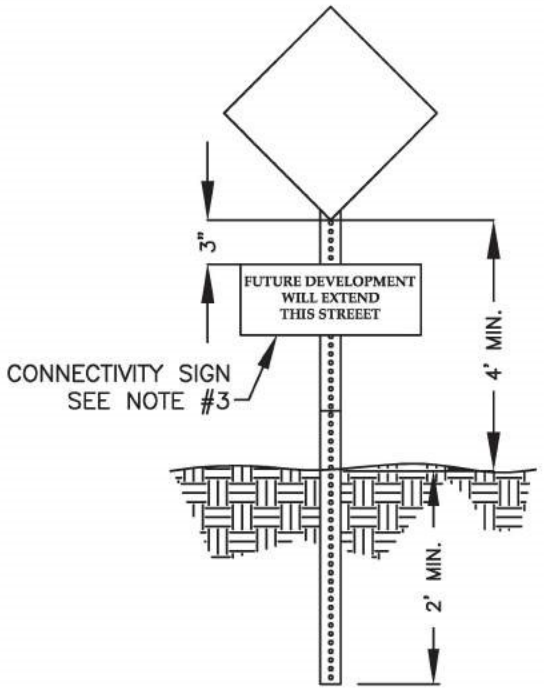
1. WHEN AN END OF ROADWAY OR STUBBED STREET REQUIRES A GUARDRAIL SECTION, END OF ROADWAY MARKER SIGNS (MUTCD OM4-3, 24"x24", SOLID RED) SHALL BE PROVIDED.
2. SIGNS ARE TO BE PLACED BEHIND THE BARRICADE (SEE DRAWINGS 707.1 & 708.1), EVENLY SPACED WITH ONE SIGN PLACED AT THE CENTERLINE LOCATION AND ADDITIONAL SIGNS AT 6' O.C. (MINIMUM OF 3 SIGNS, MAXIMUM OF 5 SIGNS).
3. WHEN BARRICADE IS USED ON A STREET STUB, THE SIGN AT THE CENTERLINE SHALL BE SUPPLEMENTED WITH A STREET CONNECTIVITY SIGN. SEE DRAWING 708.1.
4. ALL SIGNS/MARKERS SHALL MEET OR EXCEED MUTCD STANDARDS FOR RETROREFLECTIVITY.



SIGN LOCATION DETAIL

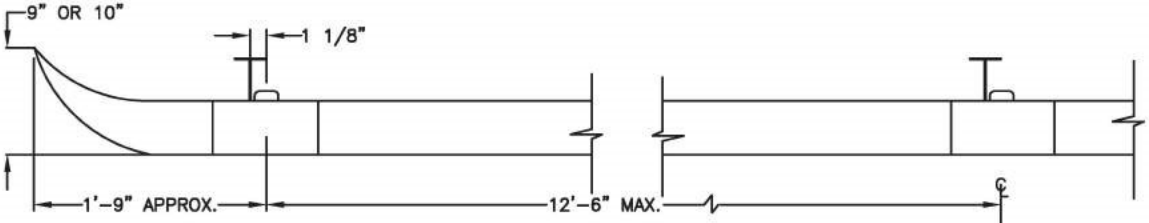




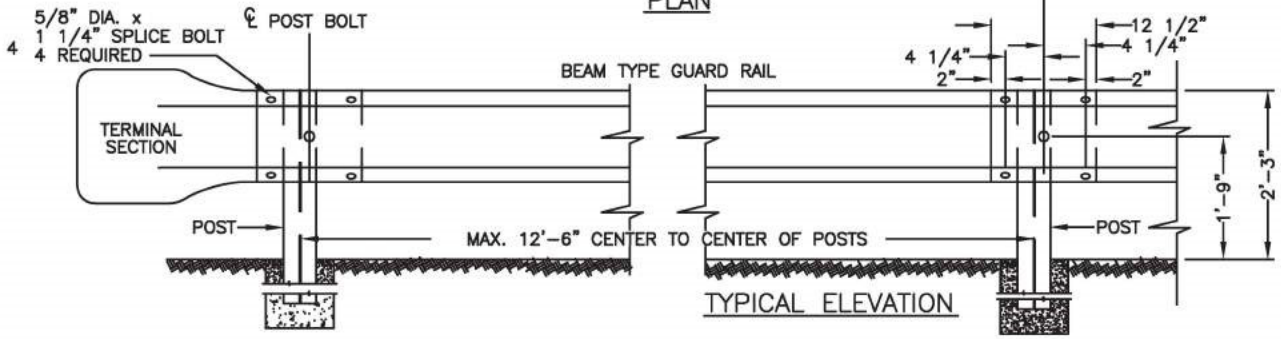


NOT TO SCALE

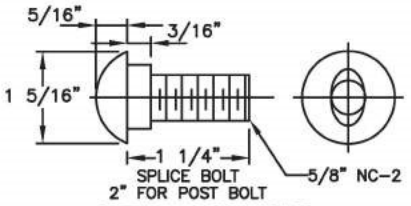
VILLAGE OF MARVIN STANDARD DRAWING	END OF ROADWAY MARKER	REV. DATE STD. NO. 705.1



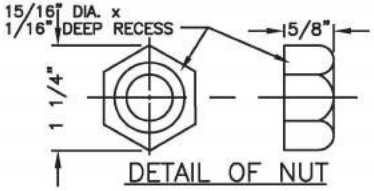
PLAN



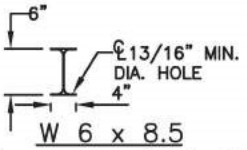
TYPICAL ELEVATION



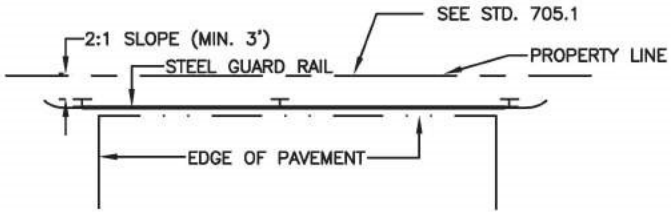
DETAIL OF BOLT



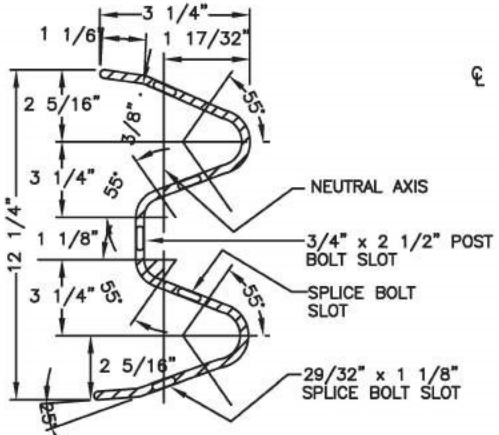
DETAIL OF NUT



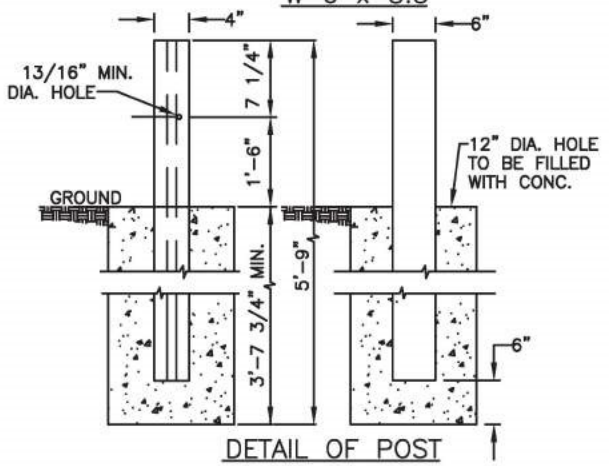
W 6 x 8.5



END OF ROADWAY STREET BARRICADE



SECTION THRU RAIL ELEMENT



DETAIL OF POST

NOTES:

– THIS DETAIL IS NOT A GUARDRAIL DETAIL. FOR ROADSIDE GUARDRAIL, REFER TO NCDOT STANDARD DRAWINGS 862.01–862.03

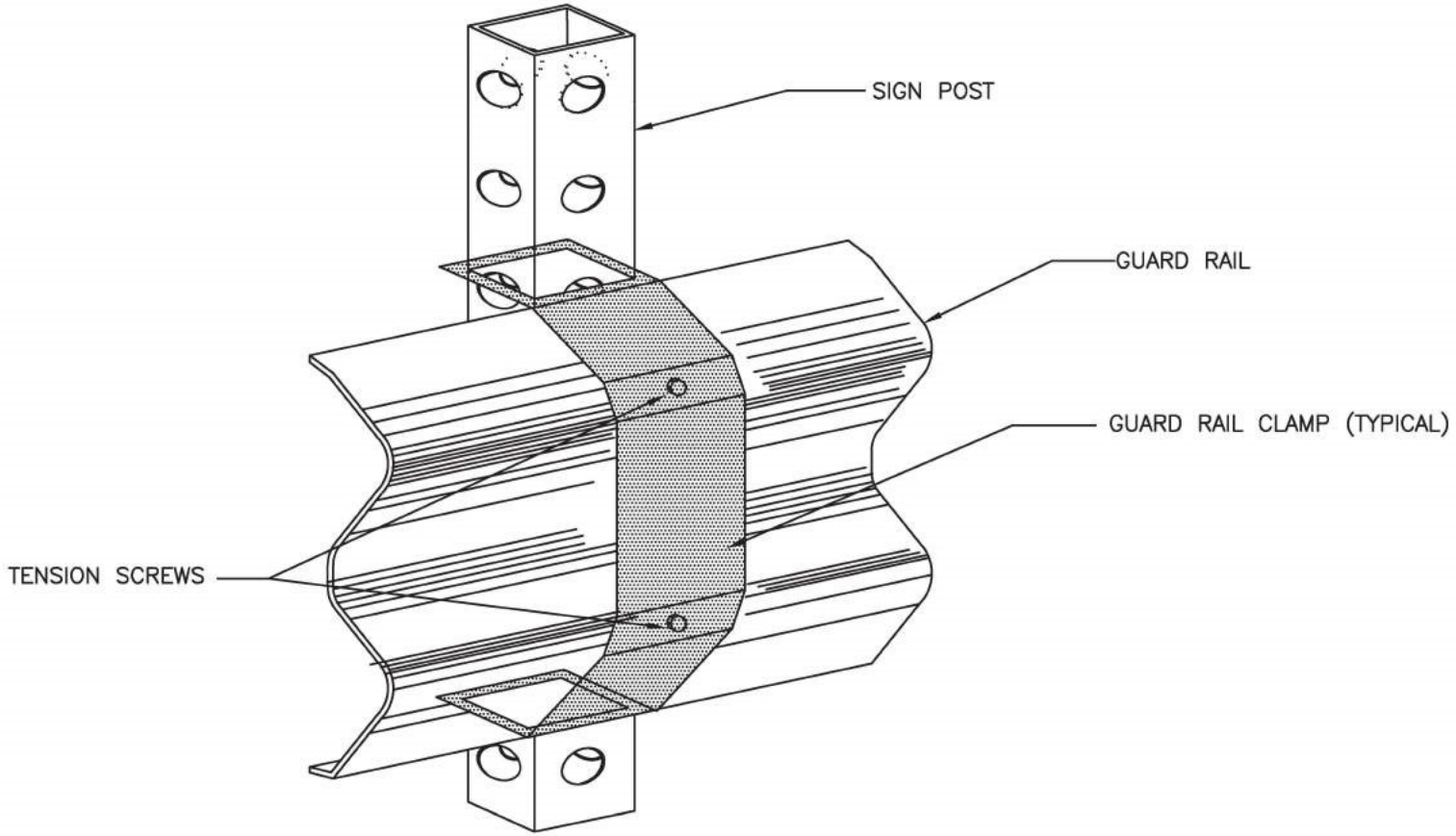
– REFER TO STANDARD DRAWINGS 705.1 AND 707.1 FOR ADDITIONAL INFORMATION.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

END OF ROADWAY STREET BARRICADE

REV. DATE
STD. NO.
706.1

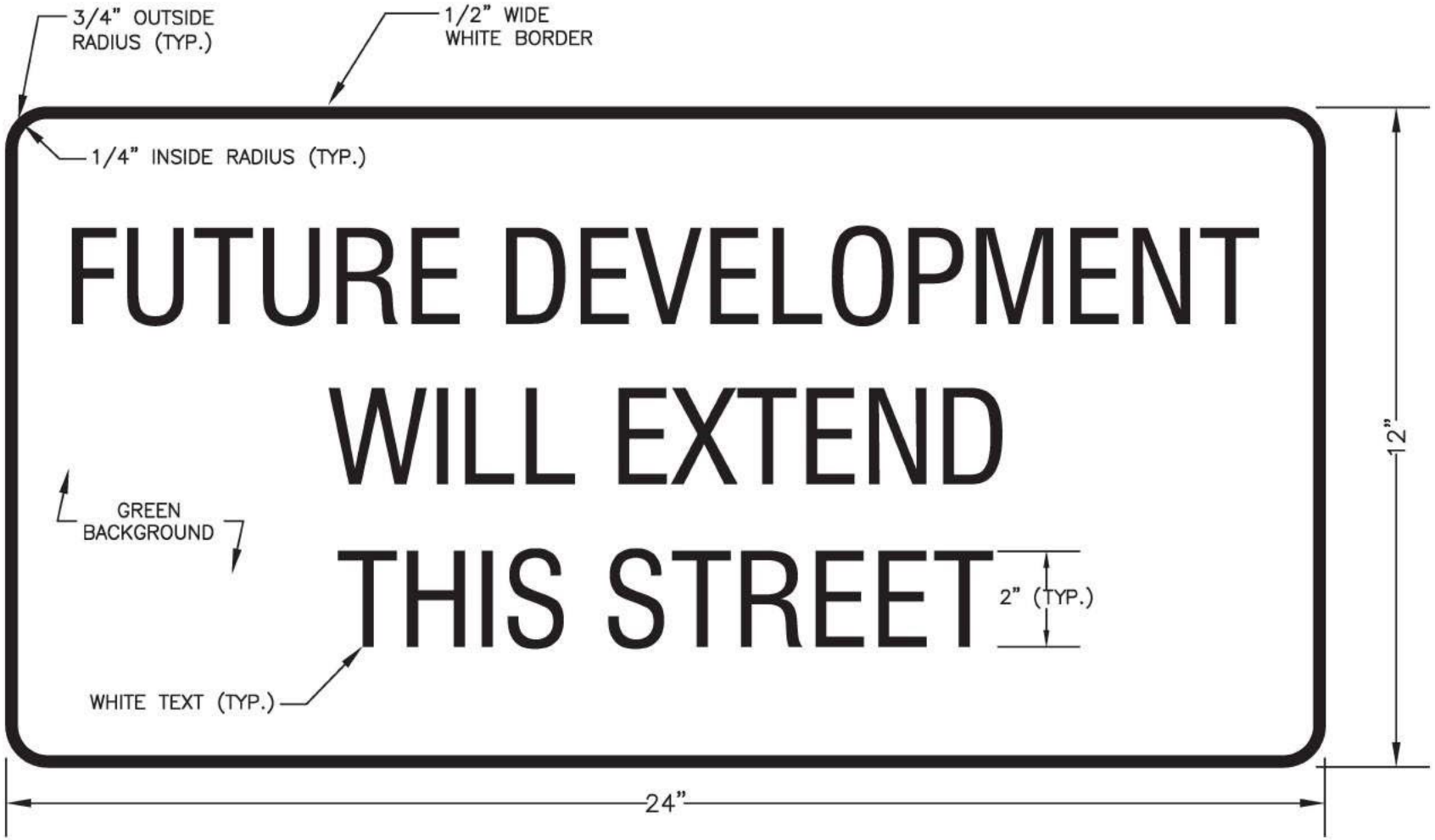


NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

END OF ROADWAY MARKER
GUARD RAIL CLAMP INSTALLATION

REV. DATE
STD. NO.
707.1



NOTES:

1. SIGN SHALL MEET OR EXCEED MUTCD STANDARDS FOR RETROREFLECTIVITY
2. SIGN MATERIAL SHALL BE 0.080" THICK ALUMINUM
3. ALL LETTERS SHALL BE SERIES B–2000 FROM THE 2004 STANDARD HIGHWAY SIGNS MANUAL (AND ANY REVISION THERETO) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	STREET CONNECTIVITY SIGN FOR END OF ROADWAY BARRICADE	REV. DATE
		STD. NO. 708.1

GENERAL NOTES:

1.STEEL BEAM TYPE GUARD RAILS SHALL BE INSTALLED AT THE END OF ALL DEAD–END STREETS, EXCEPT CUL–DE–SAC STREETS WHICH HAVE BEEN APPROVED WITH A PERMANENT TURNAROUND.

2. FOR STREETS 28' IN WIDTH, THE GUARD RAIL SHALL CONSIST OF TWO (2) 12'–8" SECTIONS OR ONE (1) 25' SECTION, THREE (3) STEEL POSTS, AND TWO (2) TERMINAL SECTIONS. FOR STREETS GREATER THAN 25' IN WIDTH, THE GUARD RAIL SHALL SPAN THE ENTIRE WIDTH OF THE STREET.

3. GUARD RAIL SHALL CONSIST OF RAIL ELEMENTS FABRICATED TO DEVELOP CONTINUOUS BEAM STRENGTH AND INSTALLED AS SHOWN.

4. MINIMUM THICKNESS OF GUARD RAIL SHALL BE 12 GAGE U.S. STANDARD. THE RAIL ELEMENT INCLUDING SPLICES SHALL HAVE A MINIMUM ULTIMATE TENSILE STRENGTH OF 80,000 LBS. GUARD RAIL PARTS FURNISHED SHALL BE INTERCHANGEABLE WITH SIMILAR PARTS REGARDLESS OF THE SOURCE OF MANUFACTURER. THE HOLES FOR CONNECTING BOLTS SHALL BE PUNCHED OR DRILLED. BURNING OF THE HOLES FOR CONNECTING BOLTS SHALL NOT BE PERMITTED.

5. THE GUARD RAIL, BOLTS, NUTS, STEEL POSTS, AND ALL OTHER METAL PARTS SHALL BE GALVANIZED TO CONFORM TO THE REQUIREMENTS FOR THE COATING CLASS, (2.5 OUNCES PER SQUARE FOOT) OF THE CURRENT SPECIFICATIONS FOR ZINC–COATED (GALVANIZED) IRON, AND STEEL SHEETS, COILS, AND CUT LENGTHS, IN ACCORDANCE WITH ASTM 123A.

6. IF THE AVERAGE SPELTER COATING AS DETERMINED FROM THE REQUIRED SAMPLES IS LESS THAN TWO (2) OUNCES OF SPELTER PER SQUARE FOOT, OR IF ANY ON SPECIMEN HAS LESS THAN 1.8 OUNCES OF SPELTER PER SQUARE FOOT OF DOUBLE EXPOSED SURFACE, THE LOT SAMPLED SHALL BE REJECTED. THE FINISHED SHEETS SHALL BE OF FIRST CLASS COMMERCIAL QUALITY, FREE FROM INJURIOUS DEFECTS SUCH AS BLISTERS, FLUX, AND UNCOATED SPOTS.

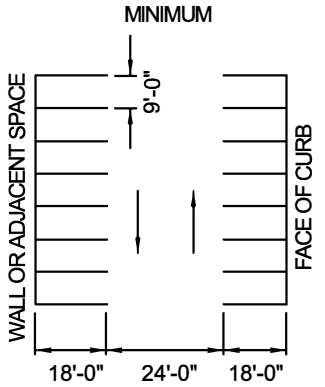
7. THE GUARD RAIL SHALL BE INSPECTED TO DETERMINE THAT THE MATERIAL, DIMENSIONS, AND WORKMANSHIP ARE IN ACCORDANCE WITH THIS PLAN.

8. WHERE AN END OF ROADWAY REQUIRES GUARD RAIL, END OF ROADWAY MARKER SIGNS SHALL ALSO BE REQUIRED. (REFER TO DRAWINGS 705.1 – 708.1)

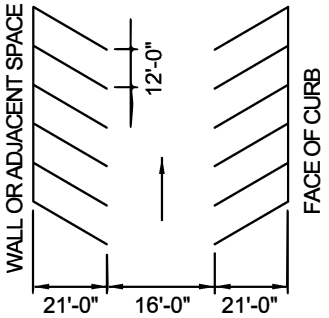
NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	END OF ROADWAY STREET BARRICADE GENERAL NOTES	REV. DATE STD. NO. 709.1

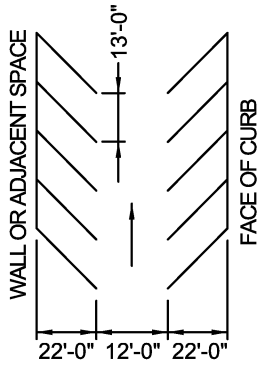
PARKING ANGLE 90°
(TWO WAY OPERATION ONLY)



PARKING ANGLE 60°
(ONE WAY OPERATION ONLY)



PARKING ANGLE 45°
(ONE WAY OPERATION ONLY)



NOTES:

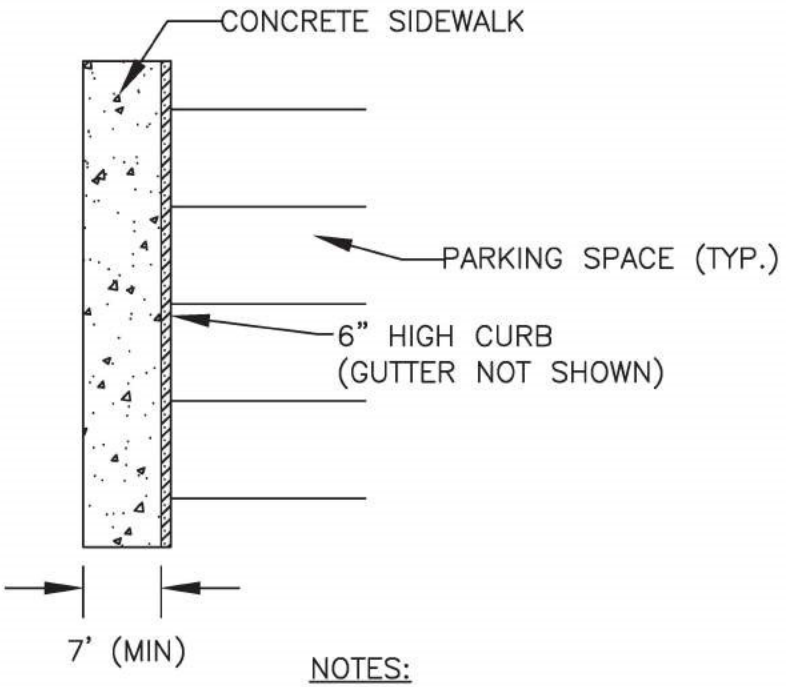
1. FOR ACCESSIBLE PARKING STANDARDS/SIGNAGE SEE ADDITIONAL STANDARDS.
2. PAVEMENT MARKINGS SHALL BE 4" WHITE PAINT.
3. ALTERNATIVE PARKING ANGLES, AISLE WIDTHS, AND OPERATION (TWO-WAY ANGLED PARKING OR REVERSE-ANGLE PARKING) WILL BE CONSIDERED ON A CASE-BY-CASE BASIS.

VILLAGE OF MARVIN, NC	PARKING STANDARDS	STD. 710.1

REVISIONS			
NO	DATE	BY	COMMENT

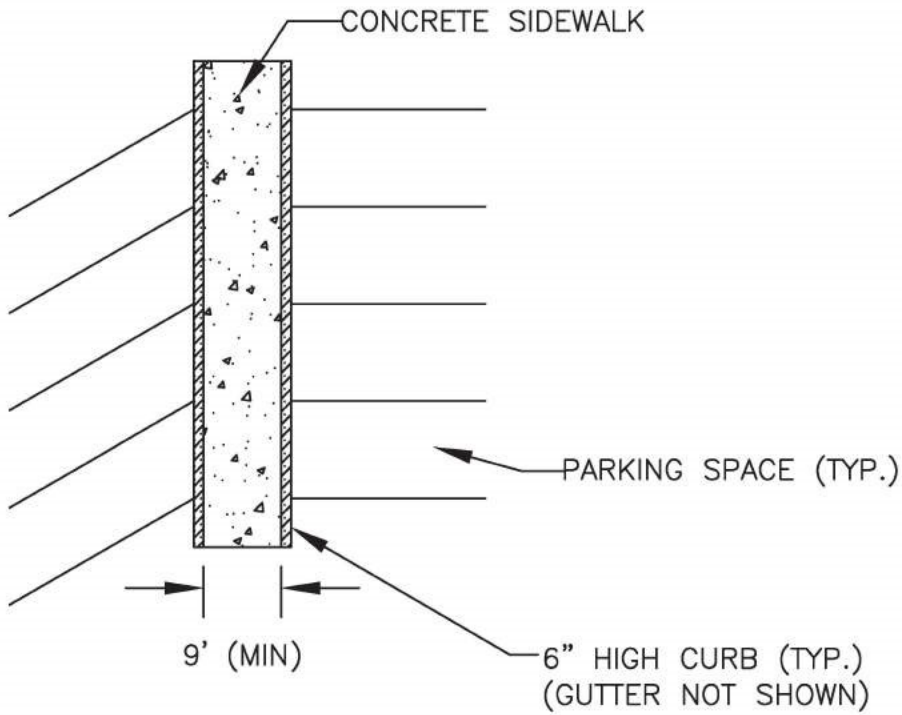
SIDEWALK ADJACENT TO HEAD–IN OR BACK–IN PARKING SHALL BE AT LEAST 7 FEET WIDE.

PARKING ON ONE SIDE OF A SIDEWALK



SIDEWALK BETWEEN TWO ROWS OF HEAD–IN OR BACK–IN PARKING SHALL BE AT LEAST 9 FEET WIDE.

PARKING ON BOTH SIDES OF A SIDEWALK



NOTES:

1. A 2–FOOT–WIDE GRASS PLANTED AREA LOCATED AT THE BACK OF CURB CAN BE USED IN LIEU OF 2 FEET OF SIDEWALK WIDTH.
2. PARKING AT ANY ANGLE OTHER THAN PARALLEL SHALL BE SUBJECT TO THIS STANDARD.
3. IF MONOLITHIC CURB & SIDEWALK IS USED, ADD 6" TO ALL DIMENSIONS (1' IF PARKING ON BOTH SIDES).
4. WHEELSTOPS IN LIEU OF ADDITIONAL SIDEWALK WIDTH SHALL BE CONSIDERED ON A CASE–BY–CASE BASIS.

NOT TO SCALE

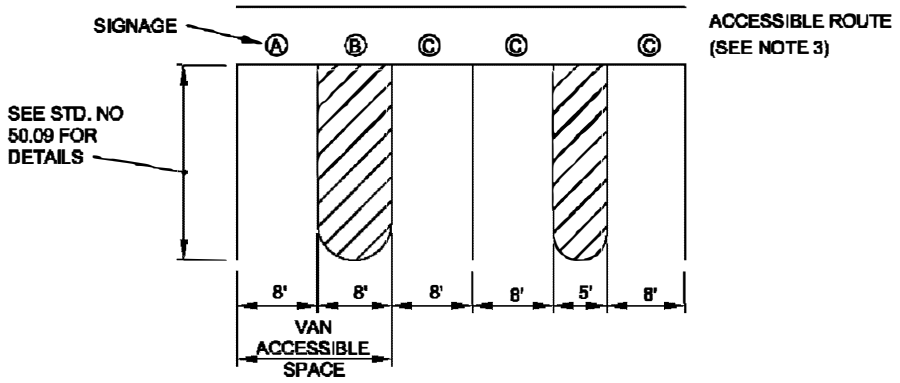
VILLAGE OF MARVIN STANDARD DRAWING	PARKING STANDARDS (CONTINUED)	REV. DATE
		STD. NO. 711.1

ACCESSIBLE PARKING REQUIREMENTS

TOTAL PARKING SPACES PROVIDED	MINIMUM NUMBER OF ACCESSIBLE SPACES SPACES REQUIRED	MINIMUM NUMBER OF ACCESSIBLE SPACES REQUIRED TO BE VAN ACCESSIBLE
1 TO 25	1	1
26 TO 50	2	1
51 TO 75	3	1
76 TO 100	4	1
101 TO 150	5	1
151 TO 200	6	1
201 TO 300	7	1
301 TO 400	8	1
401 TO 500	9	2
501 TO 1000	2% OF TOTAL	1 IN EVERY 8 ACCESSIBLE SPACES
1001 AND OVER	20 PLUS 1 FOR EACH 100 OVER 1000	1 IN EVERY 8 ACCESSIBLE SPACES
SECTION 4.1.2 (5) OF THE AMERICANS WITH DISABILITIES ACT (ADA). SEE 4.1,2,(5) (d) FOR MEDICAL CARE FACILITIES		

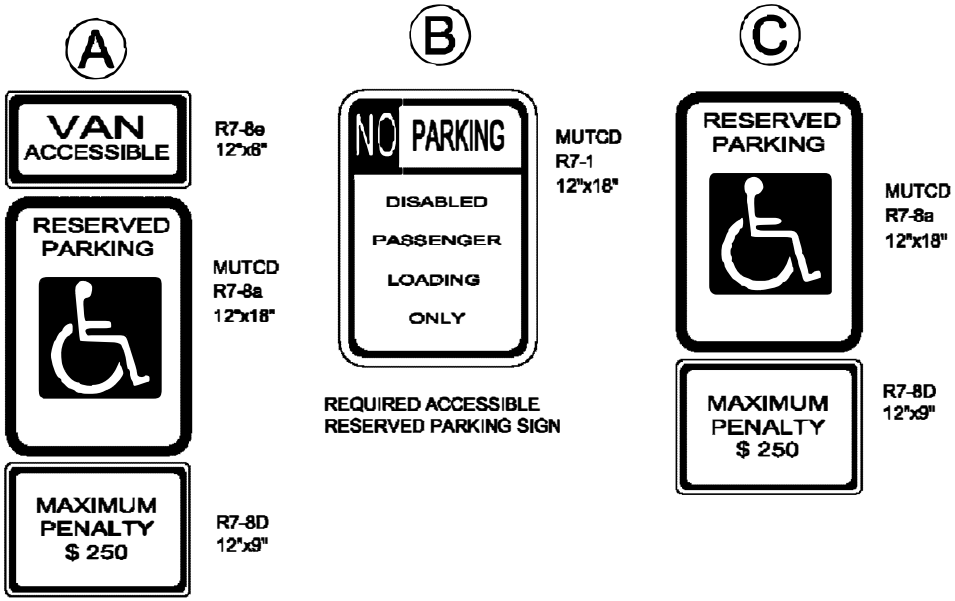
NOTES:

1. ALL 12"x18" ACCESSIBLE SIGNS (R7-8a & R7-1) SHALL BE MOUNTED AT 7 FEET FROM GRADE TO BOTTOM EDGE OF SIGN FACE (MUTCD). MOUNTING HEIGHT CAN BE REDUCED TO 5 FEET IF PLACED IN AN AREA BETWEEN SIDEWALK AND BUILDING FACE IN WHICH PEDESTRIANS ARE NOT EXPECTED TO USE.
2. REFER TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD) U.S. DEPARTMENT OF TRANSPORTATION AND NORTH CAROLINA DEPARTMENT OF TRANSPORTATION SUPPLEMENT.
3. IF ACCESSIBLE ROUTE IS A RAISED SIDEWALK AREA, THEN RAMPS ARE REQUIRED AT LOADING ZONE AREA.

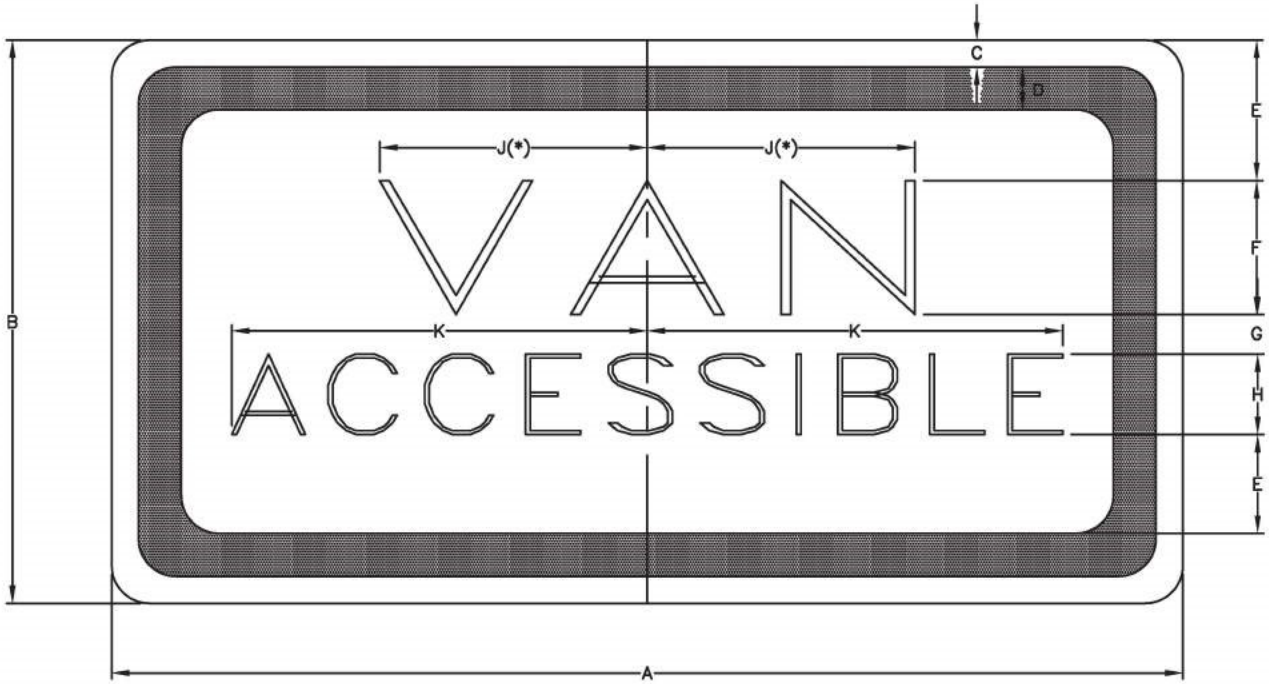


ONE OUT OF EVERY EIGHT (8)ACCESSIBLE SPACES, BUT NOT LESS THAN ONE, IS REQUIRED TO BE VAN ACCESSIBLE.

PARKING SPACE PAVEMENT MARKINGS



VILLAGE OF MARVIN, NC	ACCESSIBLE PARKING AND SIGNAGE	STD. **712.1**	REVISIONS: NO / DATE / BY / COMMENT

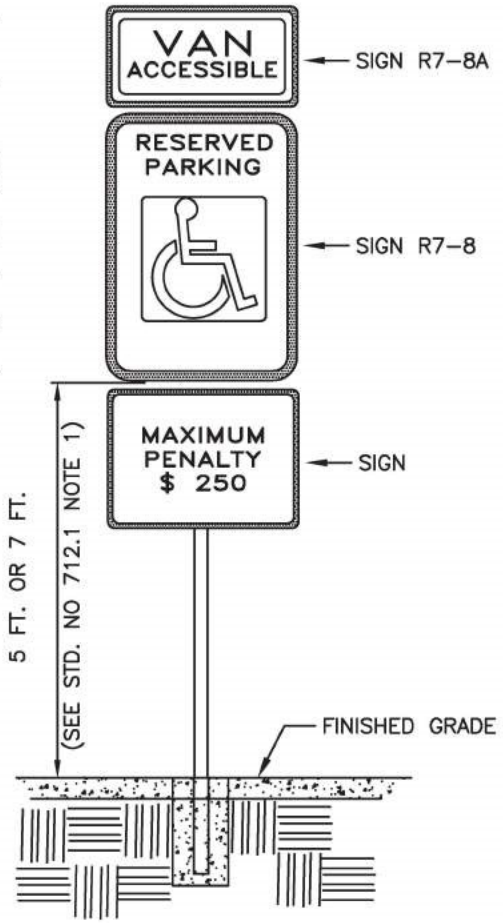


R7–8A

DIMENSIONS (INCHES)										
A	B	C	D	E	F	G	H	J	K	L
12	6	3/8	3/8	1–1/2	1–1/2D	1/2	1D	2–1/2	4	1–1/2

* INCREASE SPACING 50%
D–FHWA (FEDERAL HIGHWAY ADMINISTRATION/USDOT)
SERIES D LETTERS

LEGEND AND BORDER – GREEN
BACKGROUND – WHITE
PRISMATIC SHEETING PREFERRED



NOT TO SCALE

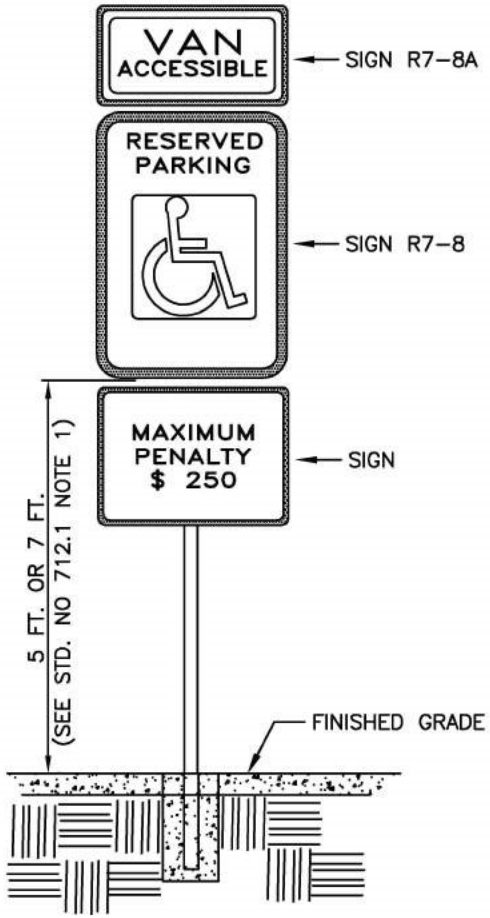
VILLAGE OF MARVIN STANDARD DRAWING

SUPPLEMENTAL VAN ACCESSIBLE SIGN

REV. DATE
STD. NO.
713.1

NOTE:

SUPPLEMENTAL ACCESSIBLE SIGN USED IF THERE IS ONLY ONE REQUIRED ACCESSIBLE PARKING SPACE (MUST BE VAN ACCESSIBLE) AND AT EACH ADDITIONAL REQUIRED VAN ACCESSIBLE SPACE. (SEE STD. NO. 712.1)



LEGEND AND BORDER – GREEN
BACKGROUND – WHITE

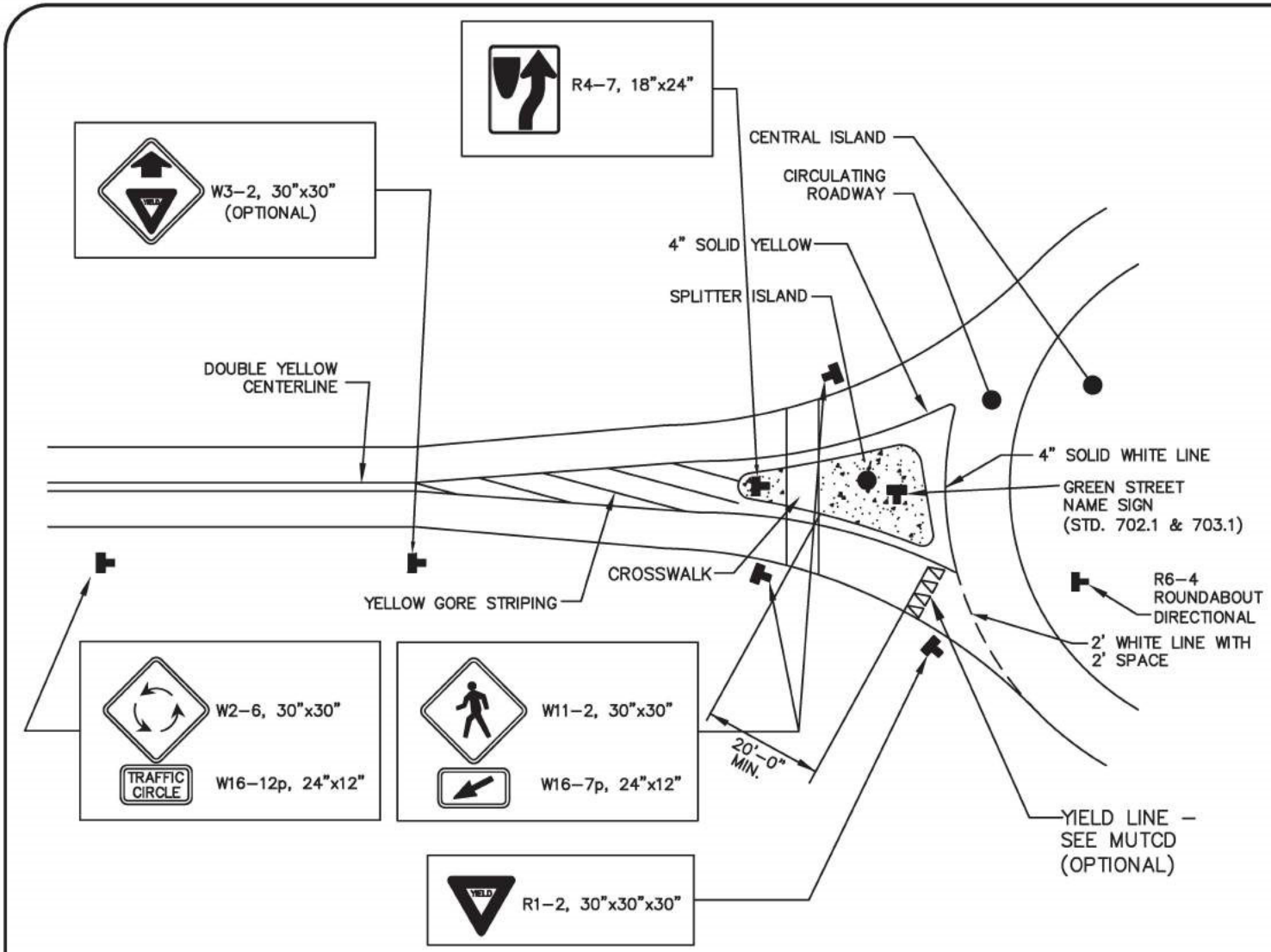
SIGN APPROVED FOR USE
UNDER GENERAL STATUTE 20-37.6

MAXIMUM PENALTY SIGNS ARE REQUIRED TO ACCOMPANY ALL R7-8 PARKING SIGNS

SIGN LETTERING TO BE FHWA D SERIES LETTERS 1.5 INCHES TALL

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	SUPPLEMENTAL MAXIMUM PENALTY SIGN	REV. DATE STD. NO. 714.1



NOTES:

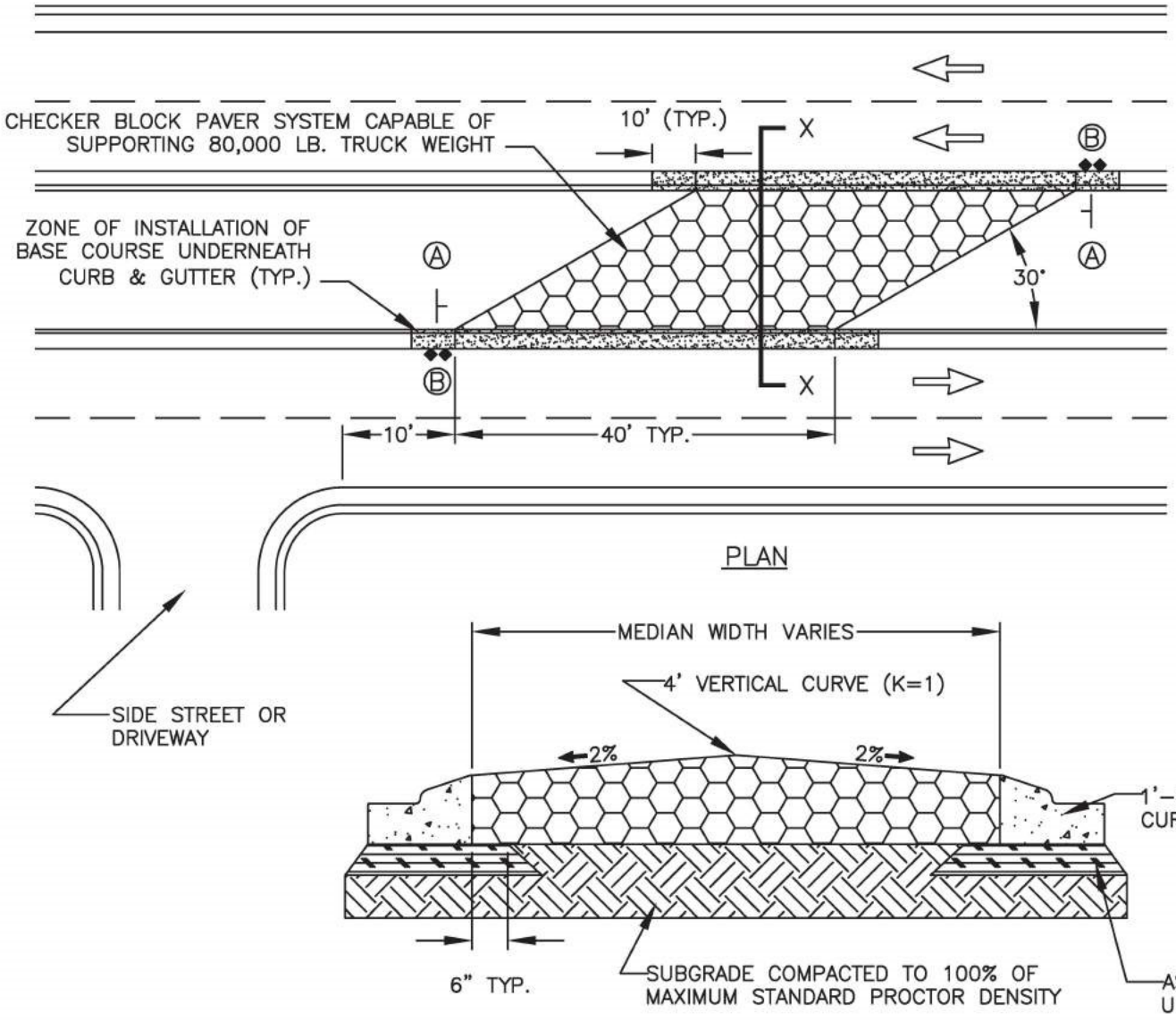
1. PAVEMENT MARKINGS TO BE PER LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. SIGNS TO BE LOCATED/SPACED PER MUTCD REQUIREMENTS.
3. "CIRCULAR INTERSECTION" AND "TRAFFIC CIRCLE" SUBPLATE SIGNS, AND KEEP RIGHT SIGN ARE REQUIRED ON THOROUGHFARES. NCDOT AND/OR VILLAGE WILL DETERMINE IF ONE OR MORE OF THESE ARE NECESSARY ON LOCAL OR COLLECTOR STREETS.
4. "PEDESTRIAN CROSSING" AND ARROW SUBPLATE SIGNS ARE REQUIRED WHEREVER THERE IS A MARKED CROSSWALK OR ON A THOROUGHFARE.
5. "YIELD" SIGNS ARE ALWAYS REQUIRED.
6. PAVEMENT MARKINGS, SPLITTER ISLAND DESIGNS, CROSSWALK, ETC., ARE SHOWN FOR CONTEXT ONLY. REFER TO THE MUTCD AND/OR THE FEDERAL HIGHWAY ADMINSITRATION'S MANUAL ROUNDABOUTS: AN INFORMATIONAL GUIDE FOR MORE DETAIL OR DESIGN INFORMATION.
7. ADDITIONAL SIGNS MAY BE NEEDED ON A CASE-BY-CASE BASIS.
8. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING

SIGNAGE AND PAVEMENT MARKINGS AT ROUNDABOUTS

REV. DATE
STD. NO.
715.1



Ⓐ "NO LEFT TURN" (R3-2, 24"x24")

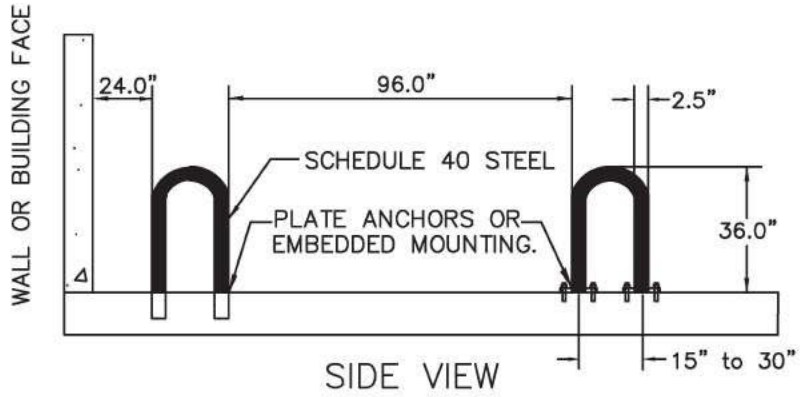
Ⓑ YELLOW/YELLOW RAISED PVMT. MARKER 1' O.C. SEE NCDOT STD. #1250.01.

NOTES:

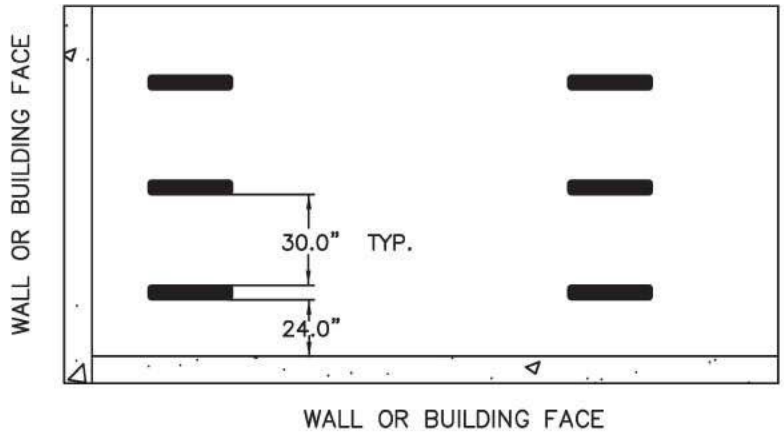
1. CROSSOVER TO BE OFFSET 10' FROM ANY INTERSECTING STREET OR DRIVEWAY OTHER THAN A FIRE DEPARTMENT DRIVEWAY.
2. ASPHALT BASE COURSE UNDERNEATH MOUNTABLE CURB AND GUTTER SHALL EXTEND AT LEAST 10 FEET BEYOND CROSSOVER.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	EMERGENCY VEHICLE MEDIAN CROSSOVER	REV. DATE
		STD. NO. 716.1



SIDE VIEW



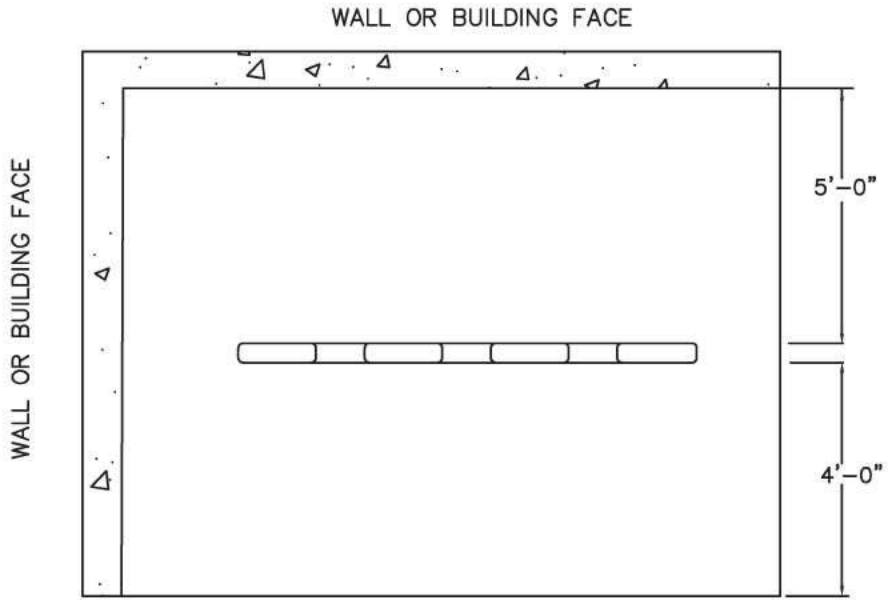
PLAN VIEW

NOTES:

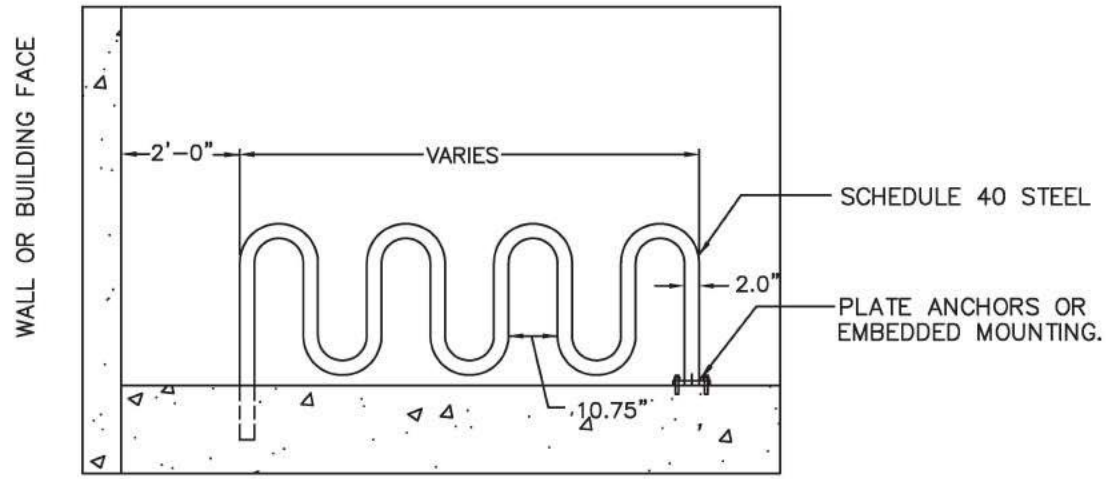
1. BIKE RACKS SHOULD BE INSTALLED AS PER MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
2. ALTERNATIVE BIKE RACKS OR LOCKERS MAY BE USED BUT ARE SUBJECT TO APPROVAL BY THE ENGINEER.
3. ALL DIMENSIONS SHOWN ARE MINIMUM.

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	INVERTED "U" RACK FOR BICYCLE PARKING	REV. DATE STD. NO. 717.1



PLAN VIEW



SIDE VIEW

NOTES:

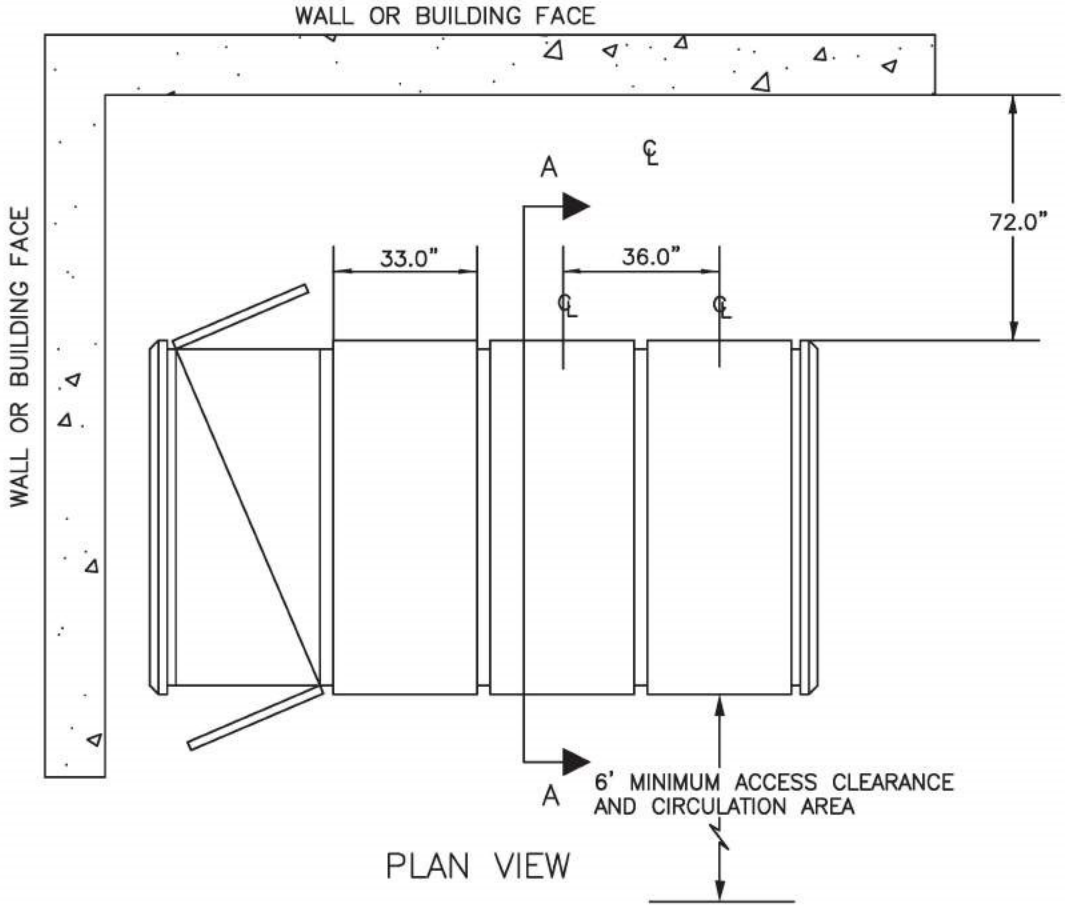
1. BIKE RACKS SHOULD BE INSTALLED AS PER MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
2. ALTERNATIVE BIKE RACKS OR LOCKERS MAY BE USED BUT ARE SUBJECT TO APPROVAL BY THE ENGINEER.
3. ALL DIMENSIONS SHOWN ARE MINIMUM.

NOT TO SCALE

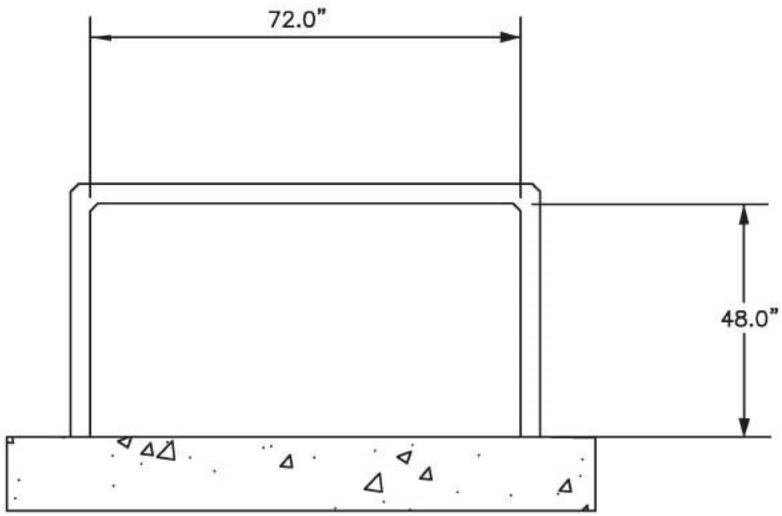
VILLAGE OF MARVIN STANDARD DRAWING	# WAVE RACK FOR BICYCLE PARKING	REV. DATE STD. NO. 718.1

NOTES:

1. BIKE RACKS SHOULD BE INSTALLED AS PER MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
2. ALTERNATIVE BIKE RACKS OR LOCKERS MAY BE USED BUT ARE SUBJECT TO APPROVAL BY THE ENGINEER.
3. ALL DIMENSIONS SHOWN ARE MINIMUM.
4. ALLOW FOR POSITIVE DRAINAGE AWAY FROM LOCKERS.



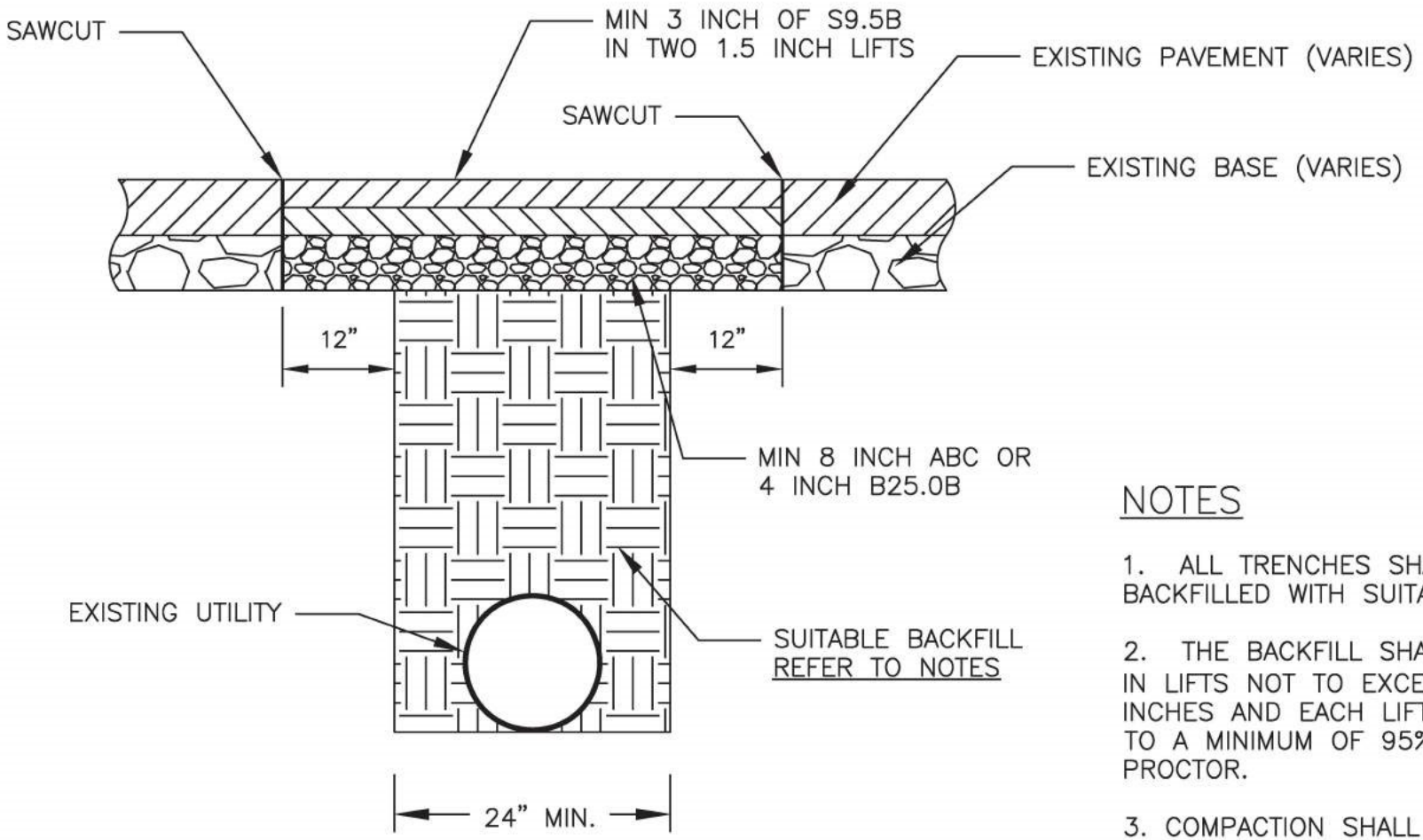
PLAN VIEW



SECTION A–A

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	BICYCLE LOCKERS	REV. DATE
		STD. NO. 719.1



NOTES

1. ALL TRENCHES SHALL BE BACKFILLED WITH SUITABLE MATERIAL.

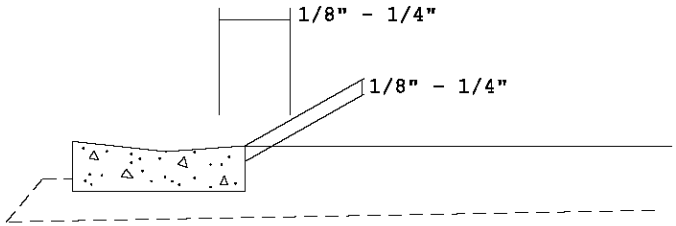
2. THE BACKFILL SHALL BE PLACED IN LIFTS NOT TO EXCEED SIX (6) INCHES AND EACH LIFT COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR.

3. COMPACTION SHALL BE BY MECHANICAL METHODS.

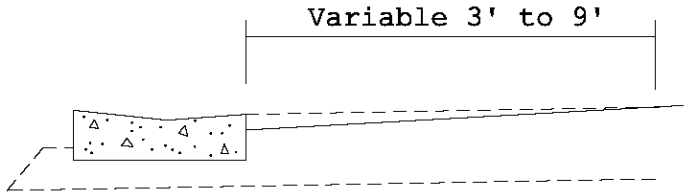
4. WHEN THE EXISTING PAVEMENT DEPTH IS GREATER THAN THREE (3) INCHES, CONTACT THE ENGINEER FOR THE MINIMUM REQUIRED PAVEMENT DESIGN.

NOT TO SCALE

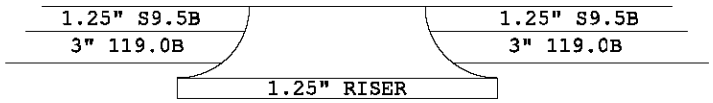
VILLAGE OF MARVIN STANDARD DRAWING	PAVEMENT PATCHING DETAIL	REV. DATE STD. NO. 720.1



DETAIL SECTION FOR CURB LONGITUDINAL JOINT



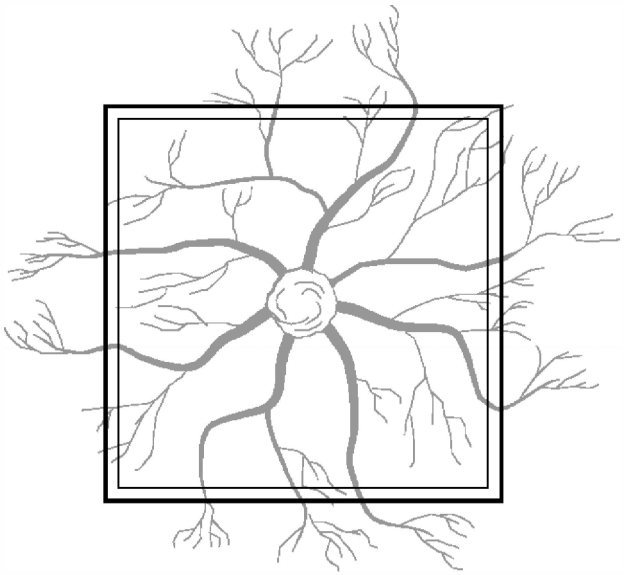
DETAIL SECTION FOR PROFILE MILLING



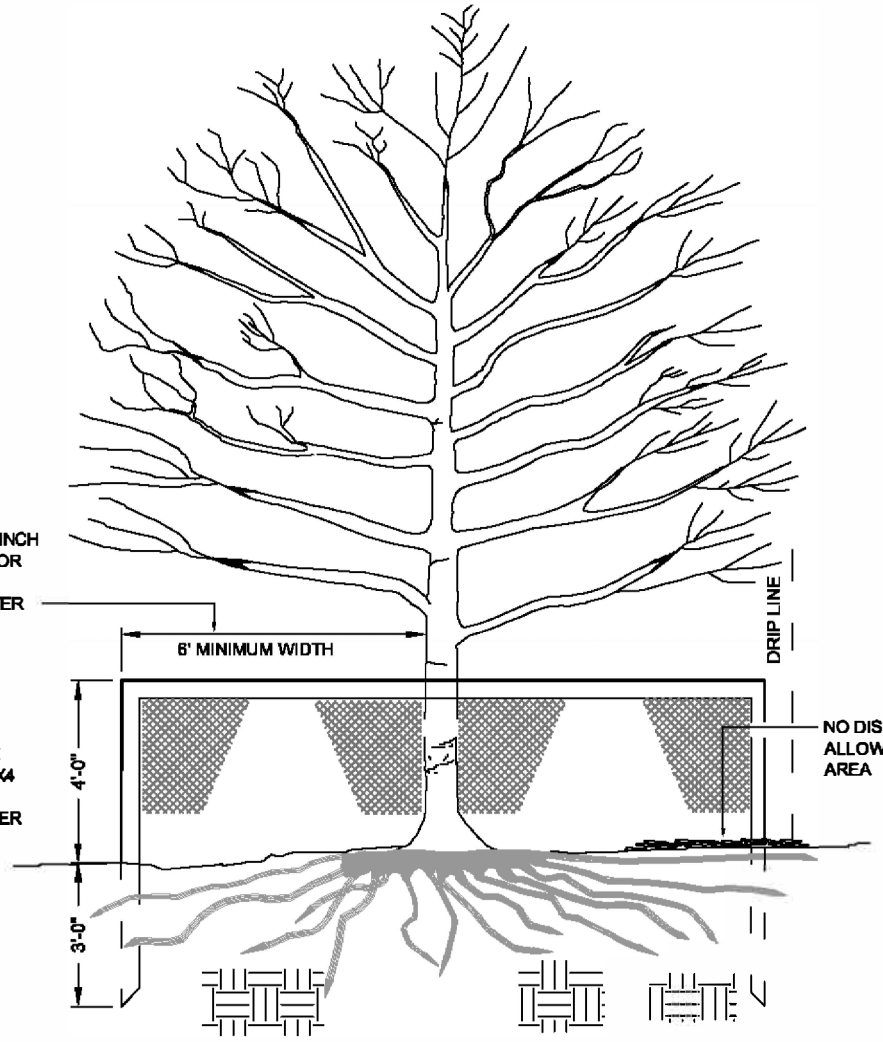
DETAIL SECTION FOR ADJUSTMENT OF MANHOLE

NOT TO SCALE

VILLAGE OF MARVIN STANDARD DRAWING	MISC. DETAILS	REV. DATE
		STD. NO. 721.1



PLAN VIEW OF TREE PROTECTION



NOT TO SCALE

NOTES:

1. REMOVE ALL TREE PROTECTION BARRIERS UPON COMPLETION OF PROJECT.
2. PLANTING PLANS OR GRADING PLANS SHALL INDICATE LOCATIONS OF ALL TREE PROTECTION FOR INDIVIDUAL AND/OR CLUSTERS OF TREES TO BE PROTECTED.

VILLAGE OF MARVIN, NC	TREE PROTECTION BARRIER	STD. 722.1	REVISIONS

NO	DATE	BY	COMMENT

Appendix

10006 Marvin School Road | Marvin, NC 28173

Fee:_____

T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

Application Date: _____ Application Number:_____

APPLICATION FOR DRIVEWAY PERMIT

This application is required for all new or modified connections to Village maintained streets except an individual single-family residence.

Location of Property Requesting New or Modification of Access:

_____

Nearest Public Intersection:

_____

Development Name:

_____

Proposed Location and Type of Driveway(s):

Driveway #1 **(circle all that apply)** **New** **Existing** **Residential** **Commercial/Other**

Exact Distance to Nearest Public Street Intersection: _____

Driveway #1 **(circle all that apply)** **New** **Existing** **Residential** **Commercial/Other**

Exact Distance to Nearest Public Street Intersection: _____

Show proposed driveway(s) on attached sketch or site plan. This plan must show details of proposed driveways including proposed width and radius, pipe length and size, adjacent property lines, driveways on adjacent property, existing and proposed buildings, and parking areas and roadway features.

I have understood the following: (please initial):

____ I, the undersigned property owner, request access and permission to construct driveway(s) or street(s) on public right-of- way at the above location.

____ I agree that no signs or objects will be placed on or over the public right-of-way other than those approved by the Village.

____ I agree that the driveway(s) or street(s) will be constructed as shown on the attached plans.

Village of Marvin

____ I agree that the driveway(s) or street(s) as used in this agreement includes any approach tapers, storage lanes or speed change lanes as deemed necessary by the Village Engineer.

____ I agree that if any future improvements to the roadway become necessary, the portion of driveway(s) or street(s) located on public right-of-way will be considered the property of the Village of Marvin, and I will not be entitled to reimbursement or have any claim for present expenditures for driveway or street construction.

____ I agree that this permit becomes void if construction of driveway(s) or street(s) is not completed within 6 months.

____ I agree to construct and maintain the driveway(s) or street(s) in a safe manner so as not to interfere with or endanger the public travel.

____ I agree to provide during construction proper signs, signal lights, flaggers and other warning devices for the protection of traffic in conformance with the current "Manual on Uniform Traffic Control Devices for Streets and Highways" and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the Village Engineer.

____ I agree to indemnify and save harmless the Village of Marvin from all damages and claims for damage that may arise by reason of this construction.

____ I agree that the Village of Marvin will assume no responsibility for any damages that may be caused to such facilities, within the highway right-of-way limits, in carrying out its construction.

____ I agree to provide a Performance and Indemnity Bond in the amount specified by the Village Engineer for any construction proposed on the Village of Marvin maintained system.

____ **I AGREE TO NOTIFY THE VILLAGE ENGINEER IN WRITING WHEN THE PROPOSED WORK BEGINS AND WHEN IT IS COMPLETED.**

10006 Marvin School Road | Marvin, NC 28173 T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

CERTIFICATION:

I hereby certify that the driveway(s) described in this permit application will be constructed according

to the approved driveway permit.

Any violation of an approved zoning permit may be grounds for its revocation along with any associated building permit.

Property Owner Name: _____ **Phone Number:** _____

Property Owner Mailing Address: _____

Applicant's Signature: _____ **Date:** _____

Application Approved by Village Engineer: _____ **Date:** _____

Instructions: Village of Marvin Driveway Permit Applications Must Include:

1. **Two original signed Driveway Application Forms.**
2. **Two sets of site plans (or detailed sketch on separate page).**
3. **Mail or hand deliver application forms and site plans to Village Engineer's:10006 Marvin School Road Marvin, NC 28173**

RETURN INFORMATION ***Please check****:*

_____ *Email permit to me* _____*Fax permit to me* _____ *Call when ready & I will pick up*

10006 Marvin School Road | Marvin, NC 28173 T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

No application shall be considered complete unless accompanied by all the information required above.

THIS SECTION FOR OFFICE USE ONLY

To the best of my knowledge, this application is complete. Based on such information, I hereby _____ _____ this zoning permit.

Approve Disapprove

Is Bond Required: _____

Bond Amount: _____ Bond Received by: _____

Inspector: _____ Date Inspected: _____

Notes/Conditions/Requirements placed on this permit: _____

_____

_____

_____

_____

_____ _____

Zoning Administrator Date

Village of Marvin
Enriched by Nature

VILLAGE OF MARVIN

-AND-

_____

_____

RIGHT OF WAY ENCROACHMENT AGREEMENT
PRIMARY AND SECONDARY HIGHWAYS

THIS AGREEMENT, made and entered into this the _____ day of _____ 20 _____ by and between the Village of Marvin, party of the first part; and _____ party of the second part,

W I T N E S S E T H

THAT WHEREAS, the party of the second part desires to encroach on the right of way of the public road designated as Route(s) _____ , located _____

with the construction and/or erection of: _____

WHEREAS, it is to the material advantage of the party of the second part to effect this encroachment, and the party of the first part in the exercise of authority conferred upon it by statute, is willing to permit the encroachment within the limits of the right of way as indicated, subject to the conditions of this agreement;

NOW, THEREFORE, IT IS AGREED that the party of the first part hereby grants to the party of the second part the right and privilege to make this encroachment as shown on attached plan sheet(s), specifications and special provisions which are made a part hereof upon the following conditions, to wit:

That the installation, operation, and maintenance of the above described facility will be accomplished in accordance with the party of the first part's ordinances, rules and regulations including its Engineering Standards and Procedures Manual, and the Manual on Uniform Traffic Control Devices for Streets and Highways and such Amendments and Supplements thereto adopted by the North Carolina Department of Transportation.

That the said party of the second part binds and obligates himself to install and maintain the encroaching facility in such safe and proper condition that it will not interfere with or endanger travel upon said highway, nor obstruct nor interfere with the proper maintenance thereof, to reimburse the party of the first part for the cost incurred for any repairs or maintenance to its roadways and structures necessary due to the installation and existence of the facilities of the party of the second part, and if at any time the party of the first part shall, in its sole discretion, require the removal of or changes in the location of the said facilities, that the said party of the second part binds himself, his successors and assigns, to promptly remove or alter the said facilities, in order to conform to the said requirement, without any cost to the party of the first part.

That the party of the second part agrees to provide during construction and any subsequent maintenance proper signs, signal lights, flagmen and other warning devices for the protection of traffic in conformance with the latest Manual on Uniform Traffic Control Devices for Streets and Highways and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the Village Engineer of the party of the first part.

That the party of the second part hereby agrees to indemnify and save harmless the party of the first part from all damages and claims for damage that may arise by reason of the installation and maintenance of this encroachment.

That the party of the second part agrees to restore all areas disturbed during installation and maintenance to the satisfaction of the Village Engineer of the party of the first part. The party of the second part agrees to exercise every reasonable precaution during construction and maintenance to prevent eroding of soil; silting or pollution of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces or other property; or pollution of the air. There shall be compliance with applicable rules and regulations of the North Carolina Division of Environmental Management, North Carolina Sedimentation Control Commission, and with ordinances and regulations of various counties, municipalities and other official agencies relating to pollution prevention and control. When any installation or maintenance operation disturbs the ground surface and existing ground cover, the party of the second part agrees to remove and replace the sod or otherwise reestablish the grass cover to meet the satisfaction of the Village Engineer of the party of the first part.

That the party of the second part agrees to assume the actual cost of any inspection of the work considered to be necessary by the Village Engineer of the party of the first part.

That the party of the second part agrees to have available at the construction site, at all times during construction, a copy of this agreement showing evidence of approval by the party of the first part. The party of the first part reserves the right to stop all work unless evidence of approval can be shown.

Provided the work contained in this agreement is being performed on a completed highway open to traffic; the party of the second part agrees to give written notice to the Village Engineer of the party of the first part when all work contained herein has been completed. Unless specifically requested by the party of the first part, written notice of completion of work on highway projects under construction will not be required.

That in the case of noncompliance with the terms of this agreement by the party of the second part, the party of the first part reserves the right to stop all work until the facility has been brought into compliance or removed from the right of way at no cost to the party of the first part.

That it is agreed by both parties that this agreement shall become void if actual construction of the work contemplated herein is not begun within one (1) year from the date of authorization by the party of the first part unless written waiver is secured by the party of the second part from the party of the first part.

Party of the Second Part certifies that this agreement is true and accurate copy of this form incorporating all revisions to date.

IN WITNESS WHEREOF, each of the parties to this agreement has caused the same to be executed the day and year first above written.

VILLAGE OF MARVIN

BY: _____
VILLAGE ENGINEER

ATTEST OR WITNESS:

_____ [Name of Second Party]

_____ By: _____

_____ Its: _____

INSTRUCTIONS

When the applicant is a corporation or a municipality, this agreement must have the corporate seal and be attested by the corporation secretary or by the empowered city official, unless a waiver of corporate seal and attestation by the secretary or by the empowered City official is on file in the Village of Marvin Office. In the space provided in this agreement for execution, the name of the corporation or municipality shall be typed above the name, and title of all persons signing the agreement should be typed directly below their signature.

When the applicant is not a corporation, then his signature must be witnessed by one person. The address should be included in this agreement and the names of all persons signing the agreement should be typed directly below their signature.

This agreement must be accompanied, in the form of an attachment, by plans or drawings showing the following applicable information:

1. All roadways and ramps.
2. Right of way lines and where applicable, the control of access lines.
3. Location of the existing and/or proposed encroachment.
4. Length, size and type of encroachment.
5. Method of installation.
6. Dimensions showing the distance from the encroachment to edge of pavement, shoulders, etc.
7. Location should be shown by distance from some identifiable point, such as a bridge, road, intersection, etc. Drainage structures or bridges if affected by encroachment (show vertical and horizontal dimensions from encroachment to nearest part of structure).
8. Method of attachment to drainage structures or bridges.
9. Manhole design.
10. On underground utilities, the depth of bury under all traveled lanes, shoulders, ditches, sidewalks, etc.
11. Length, size and type of encasement where required.
12. On underground crossings, notation as to method of crossing - boring and jacking, open cut, etc.
13. Location of vents.

GENERAL REQUIREMENTS

1. Any attachment to a bridge or other drainage structure must be approved by the Head of Structure Design in Raleigh prior to submission of encroachment agreement to the Village Engineer.
2. All crossings should be as near as possible normal to the centerline of the highway.
3. Minimum vertical clearances of overhead wires and cables above all roadways must conform to clearances set out in the National Electric Safety Code.
4. Encasements shall extend from ditch line to ditch line in cut sections and 5’ beyond toe of slopes in fill sections.
5. All vents should be extended to the right of way line or as otherwise required by the Village.
6. All pipe encasements as to material and strength shall meet the standards and specifications of the Department.
7. Any special provisions or specifications as to the performance of the work or the method of construction that may be required by the Village must be shown on a separate sheet attached to encroachment agreement provided that such information cannot be shown on plans or drawings.
8. The Village Engineer should be given notice by the applicant prior to actual starting of installation included in this agreement.

SPECIAL PROVISIONS OR SPECIFICATIONS

Any special provisions or specifications as to the performance of the work or the method of construction that may be required by the Village must be shown on a separate sheet attached to encroachment, provided that such information cannot be shown on the plan and profile sheet.

APPLICATION IDENTIFICATION		N.C. DEPARTMENT OF TRANSPORTATION
Driveway Permit No.	Date of Application	STREET AND DRIVEWAY ACCESS PERMIT APPLICATION
County:		
Development Name:		

LOCATION OF PROPERTY:

Route/Road:

Exact Distance ☐ Miles ☐ Feet N ☐ S ☐ E ☐ W ☐

From the Intersection of Route No. _____ and Route No. _____ Toward _____

Property Will Be Used For: ☐ Residential /Subdivision ☐ Commercial ☐ Educational Facilities ☐ TND ☐ Emergency Services ☐ Other

Property: ☐ is ☐ is not within _____ City Zoning Area.

AGREEMENT

- I, the undersigned property owner, request access and permission to construct driveway(s) or street(s) on public right-of-way at the above location.
- I agree to construct and maintain driveway(s) or street entrance(s) in absolute conformance with the current "Policy on Street and Driveway Access to North Carolina Highways" as adopted by the North Carolina Department of Transportation.
- I agree that no signs or objects will be placed on or over the public right-of-way other than those approved by NCDOT.
- I agree that the driveway(s) or street(s) will be constructed as shown on the attached plans.
- I agree that that driveway(s) or street(s) as used in this agreement include any approach tapers, storage lanes or speed change lanes as deemed necessary.
- I agree that if any future improvements to the roadway become necessary, the portion of driveway(s) or street(s) located on public right-of-way will be considered the property of the North Carolina Department of Transportation, and I will not be entitled to reimbursement or have any claim for present expenditures for driveway or street construction.
- I agree that this permit becomes void if construction of driveway(s) or street(s) is not completed within the time specified by the "Policy on Street and Driveway Access to North Carolina Highways".
- I agree to pay a $50 construction inspection fee. Make checks payable to NCDOT. This fee will be reimbursed if application is denied.
- I agree to construct and maintain the driveway(s) or street(s) in a safe manner so as not to interfere with or endanger the public travel.
- I agree to provide during construction proper signs, signal lights, flaggers and other warning devices for the protection of traffic in conformance with the current "Manual on Uniform Traffic Control Devices for Streets and Highways" and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the District Engineer.
- I agree to indemnify and save harmless the North Carolina Department of Transportation from all damages and claims for damage that may arise by reason of this construction.
- I agree that the North Carolina Department of Transportation will assume no responsibility for any damages that may be caused to such facilities, within the highway right-of-way limits, in carrying out its construction.
- I agree to provide a Performance and Indemnity Bond in the amount specified by the Division of Highways for any construction proposed on the State Highway system.
- The granting of this permit is subject to the regulatory powers of the NC Department of Transportation as provided by law and as set forth in the N.C. Policy on Driveways and shall not be construed as a contract access point.
- **I AGREE TO NOTIFY THE DISTRICT ENGINEER WHEN THE PROPOSED WORK BEGINS AND WHEN IT IS COMPLETED.**

SIGNATURES OF APPLICANT

PROPERTY OWNER (APPLICANT)		WITNESS	
COMPANY		NAME	
SIGNATURE		SIGNATURE	
ADDRESS		ADDRESS	
	Phone No.		

AUTHORIZED AGENT		WITNESS	
COMPANY		NAME	
SIGNATURE		SIGNATURE	
ADDRESS		ADDRESS	
	Phone No.		

APPROVALS

APPLICATION RECEIVED BY DISTRICT ENGINEER

SIGNATURE **DATE**

APPLICATION APPROVED BY LOCAL GOVERNMENTAL AUTHORITY (when required)

SIGNATURE **TITLE** **DATE**

APPLICATION APPROVED BY DISTRICT ENGINEER

SIGNATURE **DATE**

INSPECTION BY NCDOT

SIGNATURE **TITLE** **DATE**

COMMENTS:

10006 Marvin School Road | Marvin, NC 28173

T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

PE CERTIFICATION FOR SUBDIVISION STREETS

Subdivision: _____ **Phase/Map:** _____

Street(s): _____ **Length:** _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

A final inspection of the streets, and complete storm drainage system for the above referenced subdivision has been performed by _____ . I have reviewed the inspection data and have determined that all public infrastructure has been constructed in accordance with the design drawings approved by Union County and the Village of Marvin on _____ and all subsequent revisions. My observations and testing indicate the subgrade, base, and pavement have been constructed in accordance with the guidelines established by the Village of Marvin, as verified by the attached test results.

Name: _____

Signature: _____

Date: _____

NC PE#: _____

seal

Received by the Village of Marvin: _____

(initials)

Date: _____

10006 Marvin School Road | Marvin, NC 28173

T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

PE Certification for Subdivisions and Streets – Checklist

TYPICAL SECTION

_____ Roadway has been constructed in the center of the right of way.
_____ Normal crown and/or superelevation have been properly established.
_____ Curb & gutter and/or ditches have been constructed properly with no standing water.
_____ Backfill of all curb & gutter I sidewalk properly placed and compacted.
_____ All slopes have been properly graded.
_____ Street Trees have been installed in accordance with the approved plan.

ROADWAY CONSTRUCTION

_____ Sub grade density tested at a minimum of 1 location every 1000' for any section up to 28' wide. 1 test every 300 SY if section is over 28' wide (data included). Nuclear gauge not acceptable for subgrade 100 % of Standard Proctor required for subgrade (top 12"). Embankments only.
_____ Sub grade has been proof rolled over the entire section. (pass/fail data & remarks included)
_____ Stone depth verified at 1 location per station (data included). Minimum design depth must be achieved over the entire roadway section.
_____ Stone density verified by volumetric meter at a minimum of 100% or nuclear gauge at a minimum of 98% compaction with I location every 1000' for any section up to 28' wide. 1 test every 300 SY if section is over 28' wide. (data included)
_____ Stone base has been proof rolled over the entire section. (Pass/fail data & remarks included)
_____ Initial asphalt course(s) was inspected for failures and appropriate repairs made prior to placement of final surface course.

PAVEMENT PLACEMENT

_____ Asphalt placement temperatures & mix designs verified.
_____ Asphalt depths verified. (minimum depth achieved over entire roadway section)
_____ Core samples or nuclear gauge take, minimum of 1 every 2000' or fraction thereof per day. (data /reports included)

10006 Marvin School Road | Marvin, NC 28173
T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

DRAINAGE FACILITIES

_____ All materials are approved for use. (NCDOT stamp, etc.)
_____ All grates/frames/hoods are free of damage and of domestic origin.
_____ Masonry drainage structures have been properly constructed - steps installed, inverts poured, pipes cut and grouted, backfill compacted, and free of debris.
_____ All pipe inlets, outlets, and channels are properly stabilized and free of erosion.
_____ Pipes have been installed with proper cover and slope.
_____ Pipe sizes are correct. (per plans)

Name: _____

Signature: _____

Date: _____

NC PE#: _____

seal

10006 Marvin School Road | Marvin, NC 28173 T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

VILLAGE OF MARVIN

SUBDIVISION PREFINAL CHECKLIST

Project Name: _____

****NOTE: Storm drain as built plans are required to be submitted before the original prefinal walk through****

ITEMS CHECKED	COMPLETED YES	NO
1. CURB AND GUTTER	____	____
2. SIDEWALK		
HANDRAILS WHERE REQUIRED	____	____
HANDICAPPED RAMPS	____	____
3. CATCH BASINS		
POINTED UP	____	____
INVERTED	____	____
STEPS	____	____
CLEANED	____	____
PROPER GATE	____	____
4. STORM DRAIN LINES		
INSTALLED ACCORDING TO APPROVED PLANS	____	____
FLASHED	____	____
CLEANED	____	____
EASEMENT LOCATION	____	____
AS BUILT APPROVED	____	____
5. JUNCTION BOXES/MANHOLES		
CORRECT LIDS PLUS RING AND COVER	____	____
INVERTED	____	____
STEPS	____	____
PROPER GRATE (MEDIAN OR YARD)	____	____
7. STREET MARKERS		
CORRECT SPELLING	____	____
CORRECT BLOCK NUMBERS	____	____
CORRECT HEIGHT	____	____
CORRECT BLADE SIZE	____	____
CORRECT LOCATION	____	____

10006 Marvin School Road | Marvin, NC 28173

T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

	YES	NO
8. STREETS		
PAVEMENT	____	____
CORRECT SHOULDER WIDTH	____	____
WIDENING STRIP ACCORDING TO DRIVEWAY PERMIT	____	____
9. BARRICADES PER STANDARD	____	____
10. GUARDWAILS ON STREETS WITH FILL OVER 5FT HIGH ...	____	____
11. CUT AND FILL SLOPES	____	____
STABILIZED ACCORDING TO PLAN	____	____
12. RETAINING WALLS		
CONSTRUCTED AND CERTIFIED ACCORDING TO PLAN	____	____
13. CHANNELS/GRADED		
PROPER SIDE SLOPES	____	____
PROPER TOP AND BOTTOM WIDTH	____	____
STABALIZED ACCORDING TO PLAN	____	____
15. HEADWALLS AND FLARED END SECTIONS		
INSTALLED ACCORDING TO PLAN	____	____
RIP RAPPED APRON INSTALLED ACCORDING TO PLAN	____	____
16. SILT FENCE AND POLES REMOVED AT INSPECTORS DISCRETION	____	____
17. STREET TREES		
CORRECT SPECIES	____	____
CALIPER	____	____
18. STOP SIGNS AND PARKING SIGNS	____	____
19. STREET LIGHTS (where applicable)	____	____
20. SITE STABALIZED (grass seeded, no erosion)	____	____
21. BMP and LID – Water Quality Structures	____	____

STORM DRAINAGE AS-BUILTS MUST BE SUBMITTED

BEFORE PRE-FINAL INSPECTION.

LIST APPLICABLE FOR 30 DAYS FROM DATE OF INSPECTION

IN ADDITION TO PUNCHLIST REPAIRS, STORM DRAINAGE AS-BUILTS MUST BE APPROVED AND ROAD MAINTENANCE BOND IN PLACE, WHEN APPLICABLE, BEFORE SUBDIVISION RECEIVES FINAL APPROVAL.

INSPECTOR SIGNATURE: _____ **DATE:** _____

10006 Marvin School Road | Marvin, NC 28173

T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

Common Punch List Items for Subdivisions and Streets

The following is a list of common items encountered during final inspection of subdivisions and streets prior to Town acceptance. This list is not all inclusive and should serve only as a tool to assist the developer in preparation for a final inspection. Other deficiencies may be noted; however, these items should be addressed PRIOR to the final inspection.

Asphalt Pavement

- ☐ Good ride quality
- ☐ Longitudinal joints in correct location (not under wheel path)
- ☐ Transverse and longitudinal joints are smooth
- ☐ Correct cross slope
- ☐ No standing water or stains
- ☐ Valves and manholes are adjusted to proper height
- ☐ No areas of failure (alligator cracking, gouges, etc.)
- ☐ Stress cracks must be properly sealed

Pavement Markings

- ☐ All pavement marking (stop bars, crosswalks, arrows, symbols, lines etc.) have been installed according to the approved plans
- ☐ Retro-reflectivity of thermoplastic and paint is adequate

Signs

- ☐ Installed per plans
- ☐ Signs compliant with appropriate standard drawings (materials, lettering etc.)
- ☐ Correct orientation
- ☐ Not damaged

Grading

- ☐ No standing water in ditches
- ☐ Slopes graded to correct cross slope
- ☐ No greater than one inch drop-off at edge of pavement (ditch section roadways)
- ☐ Erosion control measures properly removed unless directed otherwise

10006 Marvin School Road | Marvin, NC 28173

T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

Drainage

- ☐ Drainage structures (catch basins, drop inlets etc.) cleaned out
- ☐ Pipes are flush with inside wall of boxes
- ☐ Inverts are poured and no standing water
- ☐ Pipes sealed properly
- ☐ Frames and boxes are sealed where weep was left open
- ☐ Grates/frames/hoods are of domestic origin, and are free from damage
- ☐ Steps installed
- ☐ Pipes are clean
- ☐ All pipe inlets and outlets are properly stabilized and free from erosion
- ☐ Channels and swales are properly stabilized and free from erosion and there is no standing water

Concrete

- ☐ Sidewalk is installed per plans (no missing sections etc.)
- ☐ Sidewalk has good finish, joint spacing, no cracks, no footprints, or tripping hazards (raised panels, sewer cleanouts etc.)
- ☐ Curb and gutter has good finish, joint spacing and free of standing water
- ☐ Curb cracks have been properly sawed and sealed
- ☐ Joints with three or more cracks, and joints with excessive damage have been replaced
- ☐ Handicapped ramps are in correct locations, have been installed correctly, and have truncated domes
- ☐ All forms have been removed and the concrete has been properly backfilled and stabilized

General

- ☐ Street trees have been installed per plan and are alive.
- ☐ Streetlights have been installed per plan
- ☐ Guardrail and signage has been installed per standard drawings at the end of stub streets

10006 Marvin School Road | Marvin, NC 28173

T: (704) 843-1680 | F: (704) 843-1660 | marvinnc.gov

Village of Marvin

FINAL INSPECTION REQUEST FORM

Please note, the form must be fully completed. Incomplete forms will not be accepted.

Authorized Agent

Agent(s) Name: _____ **Phone:** _____

Address of Agent: _____ **FAX:** _____

_____ **Zip Code:** _____

Email Address: _____

Final Inspection Request

As the authorized agent, I submit this form as my formal request for the Village of Marvin to begin the Final Inspection process for:

Subdivision Name: _____

Original Project Accela Record Number: _____

Phase:_____ **Map:**_____

Type of Guarantee currently posted: *(check one)*

_____ Performance Guarantee Expires: (date) _____

_____ Roadway Warranty Guarantee Expires: (date) _____

As a prerequisite to Final Inspection, Storm Drainage as-built drawings for this subdivision **MUST** be approved by the Village of Marvin.

Storm Drain As-Built Drawings approved on (date) _____

Storm Drain As-Built Accela Record Number: _____

Certification:

I hereby certify that to the best of my knowledge, with the exception of specific items resulting from the requested final inspection, which will be satisfactorily completed prior to any bond release, all public improvements for the subdivision map indicated above have been constructed in accordance with the approved preliminary plan and corresponding to a record map filed in the office of Union County Register of Deeds. I further certify that all work conforms to the construction standards of the Village of Marvin. I have completed repairs within the subdivision map in accordance with the Village of Marvin Common Punch List Items For Subdivisions and Streets, and understand that, in the opinion of the inspector, should excessive deficiencies remain, the Final Inspection will be terminated.

Signature:_____ **Date:**_____

Village of Marvin
Application for Street Maintenance Acceptance

I hereby certify, as the owner, that to the best of my knowledge the improvements in the _____ subdivision have been constructed in accordance with the preliminary plan and are shown on a record map filed in the Union County Register of Deeds Office. All work conforms to the Village of Marvin Engineering Standards, Zoning Ordinance, Subdivision Ordinance and Street Acceptance Policy.

I, therefore, request that the village of Marvin consider the following streets in the _____ subdivision for maintenance acceptance. I understand that the acceptance of said streets shall be made only by the Marvin Village Council in accordance with the Village's Street acceptance policy.

Street Name	To	From	Approximate Length (Ft.)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

(Attach additional pages if necessary)

_____ _____

Signature of Owner Date