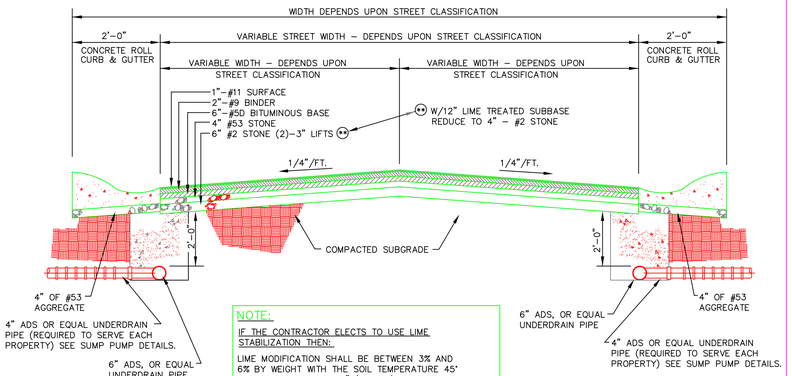


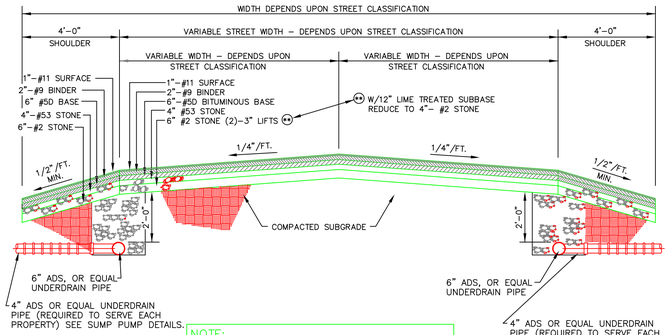
NOTE:

IF THE CONTRACTOR ELECTS TO USE LIME STABILIZATION THEN:

LIME MODIFICATION SHALL BE BETWEEN 3% AND 6% BY WEIGHT WITH THE SOIL TEMPERATURE 45° OR ABOVE MEASURED 4" (100mm) BELOW THE SUB–GRADE SURFACE WITH THE AIR TEMPERATURE RISING, ALL IN ACCORDANCE WITH THE LATEST AMENDED VERSION OF THE INDIANA DEPARTMENT OF TRANS–PORTATIONS SPECIAL PROVISION FOR LIME MODIFICATION.

COMMERCIAL/INDUSTRIAL PAVEMENT CROSS SECTION DETAIL (Curb Section)

NO SCALE



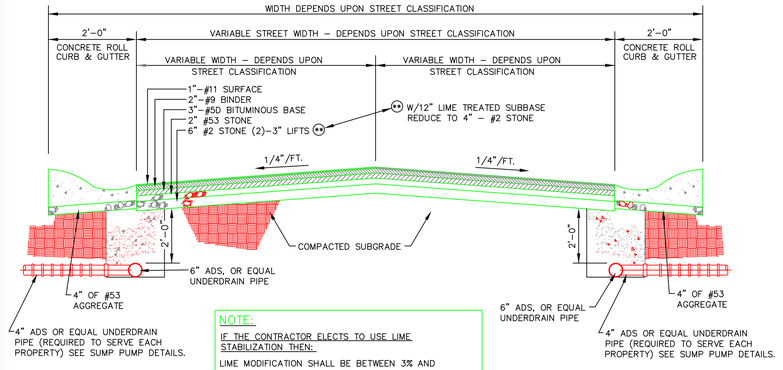
NOTE:

IF THE CONTRACTOR ELECTS TO USE LIME STABILIZATION THEN:

LIME MODIFICATION SHALL BE BETWEEN 3% AND 6% BY WEIGHT WITH THE SOIL TEMPERATURE 45° OR ABOVE MEASURED 4" (100mm) BELOW THE SUB–GRADE SURFACE WITH THE AIR TEMPERATURE RISING, ALL IN ACCORDANCE WITH THE LATEST AMENDED VERSION OF THE INDIANA DEPARTMENT OF TRANS–PORTATIONS SPECIAL PROVISION FOR LIME MODIFICATION.

COMMERCIAL/INDUSTRIAL PAVEMENT CROSS SECTION DETAIL (Shoulder Section)

NO SCALE



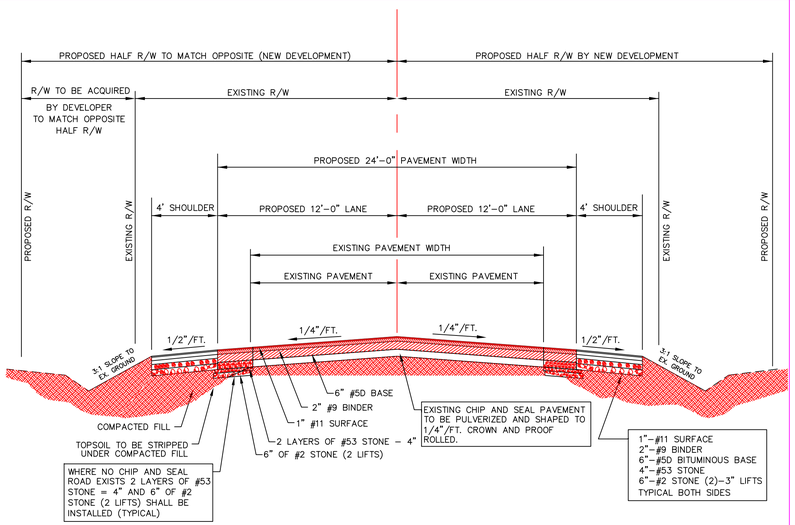
NOTE:

IF THE CONTRACTOR ELECTS TO USE LIME STABILIZATION THEN:

LIME MODIFICATION SHALL BE BETWEEN 3% AND 6% BY WEIGHT WITH THE SOIL TEMPERATURE 45° OR ABOVE MEASURED 4" (100mm) BELOW THE SUB–GRADE SURFACE WITH THE AIR TEMPERATURE RISING, ALL IN ACCORDANCE WITH THE LATEST AMENDED VERSION OF THE INDIANA DEPARTMENT OF TRANS–PORTATIONS SPECIAL PROVISION FOR LIME MODIFICATION.

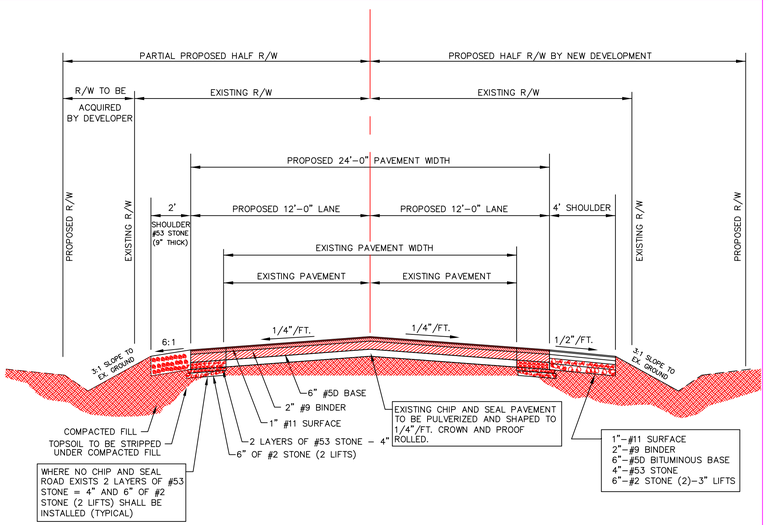
RESIDENTIAL PAVEMENT CROSS SECTION DETAIL

NO SCALE



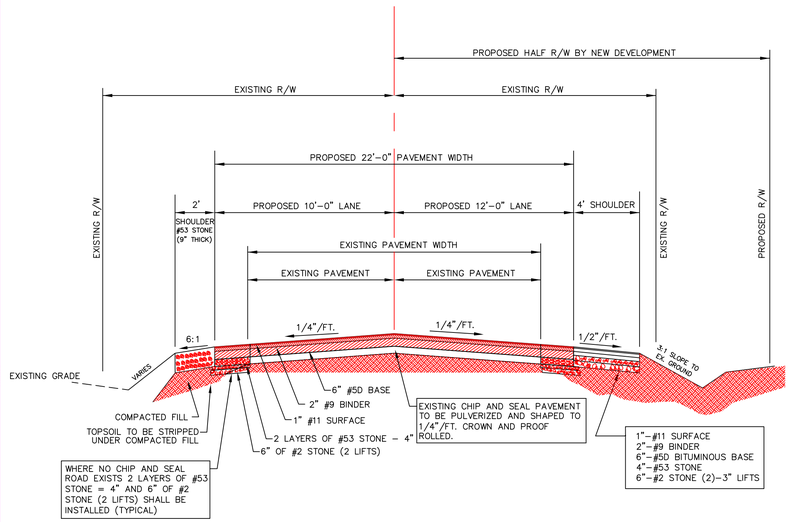
TYPICAL COUNTY ROAD DETAIL – OPTION #1

NO SCALE



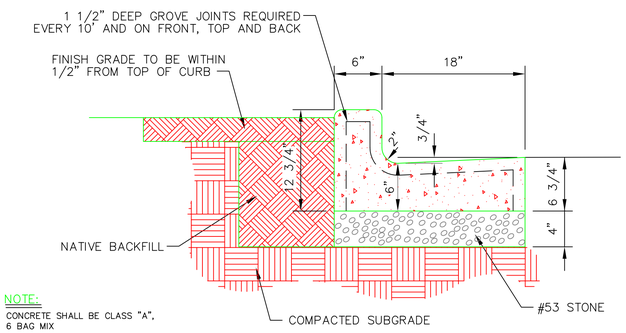
TYPICAL COUNTY ROAD DETAIL – OPTION #2

NO SCALE



TYPICAL COUNTY ROAD DETAIL – OPTION #3

NO SCALE

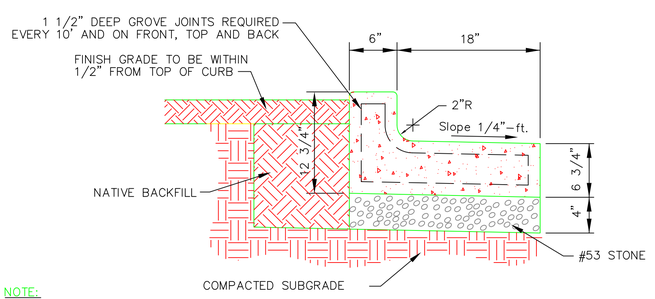


NOTE:

CONCRETE SHALL BE CLASS "A", 6 BAG MIX

COMBINED CONCRETE CURB AND GUTTER DETAIL

NO SCALE



NOTE:

CONCRETE SHALL BE CLASS "A", 6 BAG MIX

COMBINED CONCRETE CURB AND GUTTER DETAIL (TYPE 3)

NO SCALE

REVISION	DATE	BY
Per City Engineering Department	5/10/02	GLA
City Engineering Division	02/2013	pdp

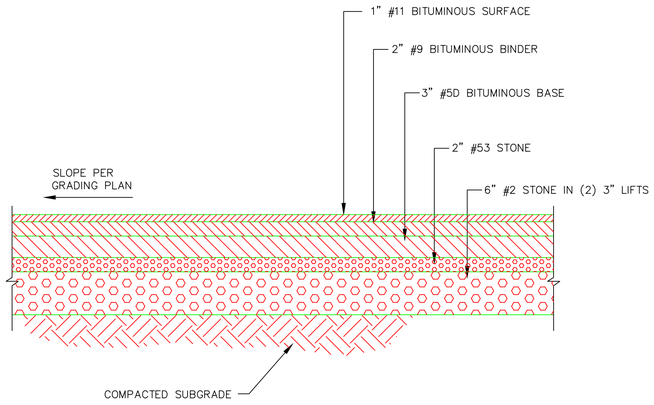
PROJECT

TITLE

ROADWAY DETAILS– SHEET 1

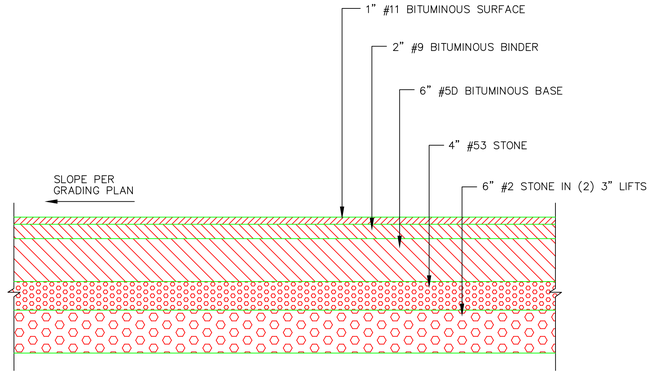
CITY OF GREENWOOD, INDIANA
ENGINEERING DIVISION
225 South Emerson Avenue
Greenwood, Indiana 46143
Telephone: (317) 887–5230

Z:/ENGINEERING COMMON FILES/STANDARD DETAIL SHEETS/ROAD DETAILS SHEET1.DWG



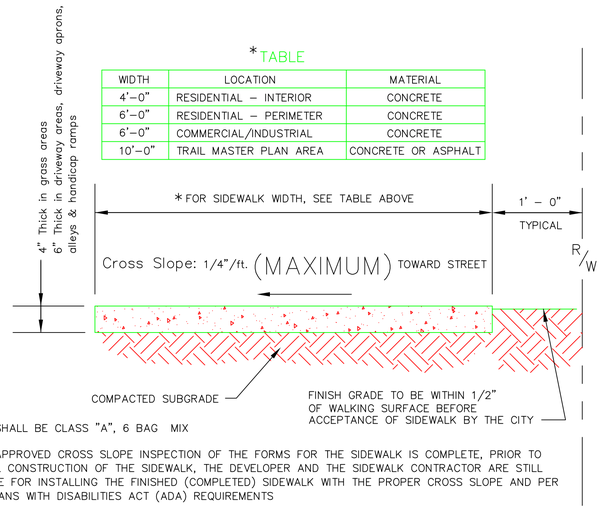
TYPICAL PAVEMENT SECTION DETAIL – RESIDENTIAL

NO SCALE



TYPICAL PAVEMENT SECTION DETAIL – COMMERCIAL/INDUSTRIAL

NO SCALE



*TABLE

WIDTH	LOCATION	MATERIAL
4'–0"	RESIDENTIAL – INTERIOR	CONCRETE
6'–0"	RESIDENTIAL – PERIMETER	CONCRETE
6'–0"	COMMERCIAL/INDUSTRIAL	CONCRETE
10'–0"	TRAIL MASTER PLAN AREA	CONCRETE OR ASPHALT

NOTES:

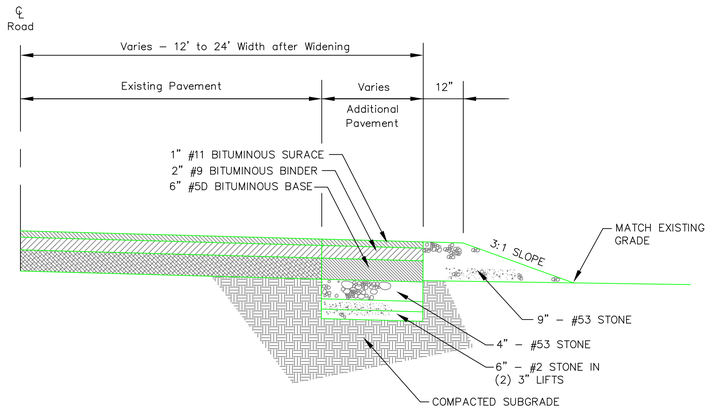
CONCRETE SHALL BE CLASS "A", 6 BAG MIX

ONCE THE APPROVED CROSS SLOPE INSPECTION OF THE FORMS FOR THE SIDEWALK IS COMPLETE, PRIOR TO THE ACTUAL CONSTRUCTION OF THE SIDEWALK, THE DEVELOPER AND THE SIDEWALK CONTRACTOR ARE STILL RESPONSIBLE FOR INSTALLING THE FINISHED (COMPLETED) SIDEWALK WITH THE PROPER CROSS SLOPE AND PER ALL AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS

APPROVAL FROM THE CITY SHALL BE OBTAINED PRIOR TO CONCRETE THAT WILL BE INSTALLED USING COLD WEATHER PRACTICES. NO EXCEPTIONS WILL BE ALLOWED

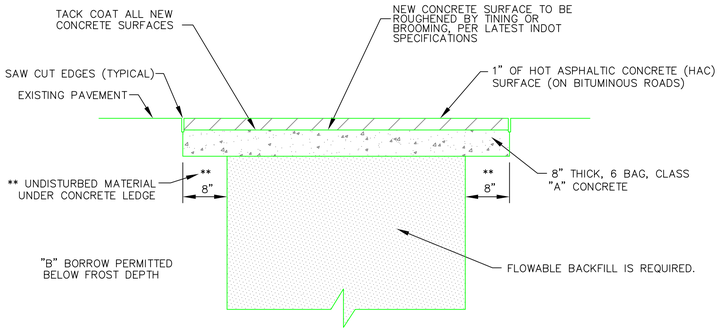
SIDEWALK DETAIL

NO SCALE



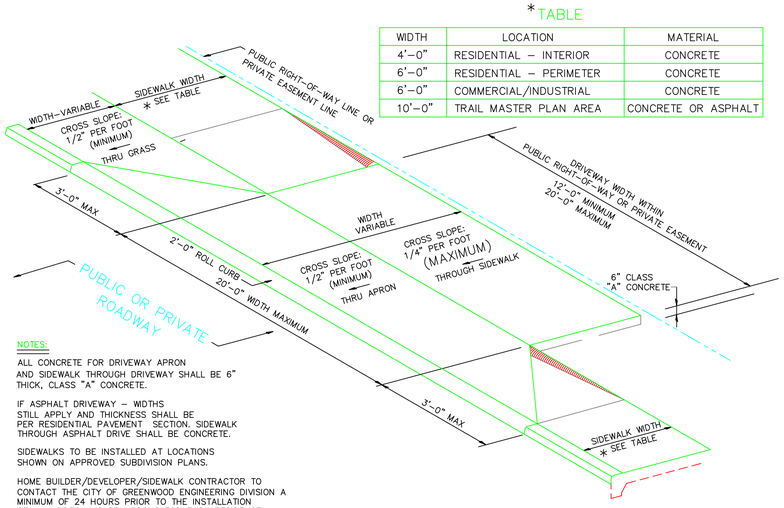
PAVEMENT WIDENING DETAIL

NO SCALE



STANDARD UTILITY STREET CUT REPAIR AND BACKFILL DETAIL

NO SCALE



*TABLE

WIDTH	LOCATION	MATERIAL
4'–0"	RESIDENTIAL – INTERIOR	CONCRETE
6'–0"	RESIDENTIAL – PERIMETER	CONCRETE
6'–0"	COMMERCIAL/INDUSTRIAL	CONCRETE
10'–0"	TRAIL MASTER PLAN AREA	CONCRETE OR ASPHALT

NOTES:

ALL CONCRETE FOR DRIVEWAY APRON AND SIDEWALK THROUGH DRIVEWAY SHALL BE 6" THICK, CLASS "A" CONCRETE.

IF ASPHALT DRIVEWAY – WIDTHS STILL APPLY AND THICKNESS SHALL BE PER RESIDENTIAL PAVEMENT SECTION. SIDEWALK THROUGH ASPHALT DRIVE SHALL BE CONCRETE.

SIDEWALKS TO BE INSTALLED AT LOCATIONS SHOWN ON APPROVED SUBDIVISION PLANS.

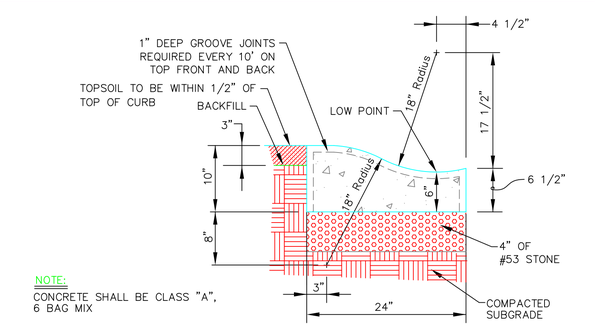
HOME BUILDER/DEVELOPER/SIDEWALK CONTRACTOR TO CONTACT THE CITY OF GREENWOOD ENGINEERING DIVISION A MINIMUM OF 24 HOURS PRIOR TO THE INSTALLATION OF ANY SIDEWALKS OR APRONS FOR EACH RESIDENCE OR COMMON AREA. TELEPHONE 317–887–5230 TO SCHEDULE INSPECTION OF SIDEWALK FORMS.

ONCE THE APPROVED CROSS SLOPE INSPECTION OF THE FORMS FOR THE SIDEWALK IS COMPLETE, PRIOR TO THE ACTUAL CONSTRUCTION OF THE SIDEWALK, THE DEVELOPER AND THE SIDEWALK CONTRACTOR ARE STILL RESPONSIBLE FOR INSTALLING THE FINISHED (COMPLETED) SIDEWALK WITH THE PROPER CROSS SLOPE AND PER ALL AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS

APPROVAL FROM THE CITY SHALL BE OBTAINED PRIOR TO CONCRETE THAT WILL BE INSTALLED USING COLD WEATHER PRACTICES. NO EXCEPTIONS WILL BE ALLOWED

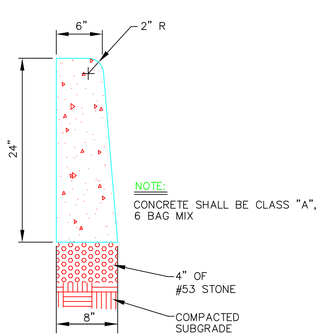
TYPICAL CONCRETE DRIVE APPROACH DETAIL – RESIDENTIAL

NO SCALE



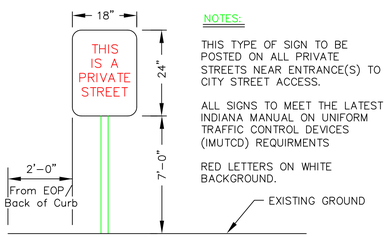
2'–0" CONCRETE ROLL CURB & GUTTER DETAIL

NO SCALE



6" CONCRETE CURB DETAIL

NO SCALE



NOTES:

THIS TYPE OF SIGN TO BE POSTED ON ALL PRIVATE STREETS NEAR ENTRANCE(S) TO CITY STREET ACCESS.

ALL SIGNS TO MEET THE LATEST INDIANA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (IMUTCD) REQUIRMENTS

RED LETTERS ON WHITE BACKGROUND.

PRIVATE STREET SIGNAGE DETAIL

NO SCALE

REVISION	DATE	BY
Per City Engineering Department	5/10/02	GLA
City Engineering Division	02/2013	pdp

PROJECT

TITLE

ROADWAY DETAILS– SHEET 2

CITY OF GREENWOOD, INDIANA
ENGINEERING DIVISION
225 South Emerson Avenue
Greenwood, Indiana 46143
Telephone: (317) 887–5230

Z:/ENGINEERING COMMON FILES/STANDARD DETAIL SHEETS/ROAD DETAILS SHEET2.DWG

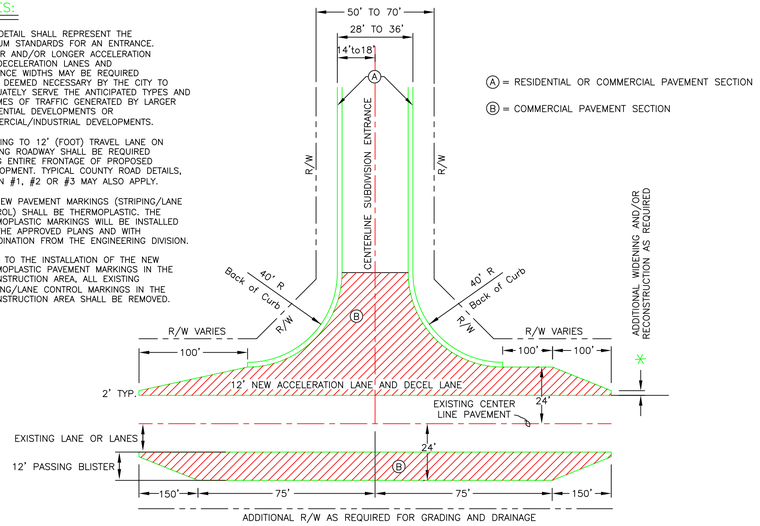
NOTES:

THIS DETAIL SHALL REPRESENT THE MINIMUM STANDARDS FOR AN ENTRANCE. LARGER AND/OR LONGER ACCELERATION AND DECELERATION LANES AND ENTRANCE WIDTHS MAY BE REQUIRED WHEN DEEMED NECESSARY BY THE CITY TO ADEQUATELY SERVE THE ANTICIPATED TYPES AND VOLUMES OF TRAFFIC GENERATED BY LARGER RESIDENTIAL DEVELOPMENTS OR COMMERCIAL/INDUSTRIAL DEVELOPMENTS.

✳ WIDENING TO 12' (FOOT) TRAVEL LANE ON EXISTING ROADWAY SHALL BE REQUIRED ALONG ENTIRE FRONTAGE OF PROPOSED DEVELOPMENT. TYPICAL COUNTY ROAD DETAILS, OPTION #1, #2 OR #3 MAY ALSO APPLY.

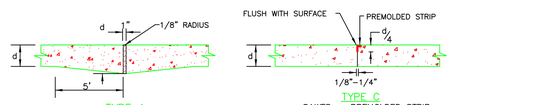
ALL NEW PAVEMENT MARKINGS (STRIPING/LANE CONTROL) SHALL BE THERMOPLASTIC. THE THERMOPLASTIC MARKINGS WILL BE INSTALLED PER THE APPROVED PLANS AND WITH COORDINATION FROM THE ENGINEERING DIVISION.

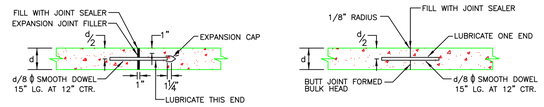
PRIOR TO THE INSTALLATION OF THE NEW THERMOPLASTIC PAVEMENT MARKINGS IN THE RECONSTRUCTION AREA, ALL EXISTING STRIPING/LANE CONTROL MARKINGS IN THE RECONSTRUCTION AREA SHALL BE REMOVED.

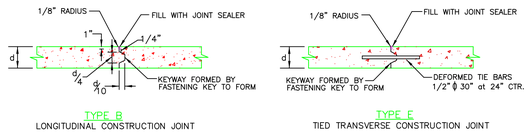


MINIMUM ENTRANCE DETAIL REQUIREMENTS FOR RESIDENTIAL AND COMMERCIAL/ INDUSTRIAL DEVELOPMENTS

NO SCALE

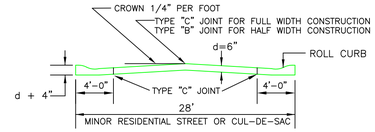


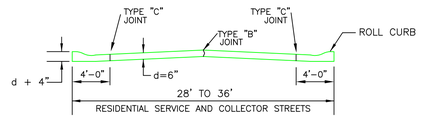


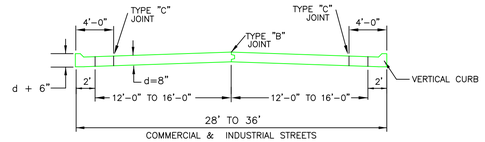


JOINT DETAILS

NO SCALE







CONCRETE PAVEMENT CROSS SECTION DETAIL

NO SCALE

CONCRETE AND ASPHALTIC CONCRETE CONSTRUCTION STANDARDS

STREET DESIGN AND CONCRETE STREET CONSTRUCTION STANDARDS

Reinforced Concrete Street Pavement Standards

General. This construction shall consist of reinforced or plain cement concrete laid as a pavement in one course on a prepared subgrade in conformity with the following specifications and conforming with lines, grades, thickness and typical cross section shown on the plans, or otherwise specified. Where there is uncertainty in these standards or typical details, the latest addition of the Indiana Department of Transportation (INDOT) specifications shall apply.

Concrete.

A. Cement Content. The cement content shall be 6 bags or 564 pounds of Portland Class A cement in each cubic yard.

B. Air Entraining. Unless otherwise specified, concrete for pavement shall entrain 4 percent to 7 percent air and shall conform to the latest Indiana Department of Transportation specifications.

C. Concrete Consistency. The test for slump of concrete for reinforced concrete pavement shall be in accordance with the latest ASTM specifications. For paving the maximum slump permissible shall be 2 inches. In no case shall the water used, including any free water in the aggregate, exceed 5.8 gals. Per bag (94pounds) of cement used.

D. Aggregates. The amounts of the two sizes of the coarse aggregates in each cubic yard shall be approximately 40 percent #53 or #63 and 60 percent "L", however, a variation within the limits of 35 percent and 40 percent of #53 or #63 crushed stone will be permitted to obtain the most satisfactory gradation of the combined coarse aggregates. In any case, the two aggregates shall be proportioned to use the maximum amount of coarse aggregate that will produce a workable mix.

E. Mixing. "Ready-mixed" concrete shall be used in street construction except in extreme emergencies. "Ready-mix" supplier shall provide certified mix analysis for each load of concrete.

F. Construction. The construction shall proceed in an orderly and well planned way and the contractor shall have at all times on the job sufficient, proper and adequate equipment in good operating condition and enough labor of all kinds to expedite the progress of the work.

G. Pavement Thickness. Expressways, arterial highways, primary thoroughfares and secondary thoroughfares shall be constructed a minimum of 8 inches thick and shall be reinforced with a minimum of one layer of 6 x 6 6/6 W.W.F. Collector streets and minor residential streets shall be constructed a minimum of 6 inches thick.
H. Pavement section thicknesses outlined above are minimum requirements. Each area shall have a section design accompanying the street improvement plans, which is based on soil types or soil tests and the predominant traffic loadings for the type street. The designer shall indicate the criteria used, Asphalt Institute, Portland Cement Assoc., etc. Usually there are nomographs by these trade associations, which are sufficient for this design consideration.

Forms

A. Forms shall be of approved section and be made of metal without a horizontal joint; have depth equal to or greater than the prescribed edge thickness of the pavement; and shall be as approved by the Greenwood City Engineering Division.

Grades and Subgrades

A. Minimum Grades. Minimum longitudinal grades shall not be less than 0.5 percent, even if extra drainage is required.

B. Preparation of Subgrades. The sub-grade, as shown on the approved plans, shall be graded to a smooth and true surface to the required depth below the surface of the pavement when completed as indicated by the profile and stakes set by a professionl engineer or registered land surveyor. All soft and spongy areas not affording a firm foundation will be dug out and refilled with stone or other suitable material and reworked until the surface is solid, uniform and parallel with grade and cross-section of the finished pavement. The entire area shall be so compacted as to meet a proctor dry density of 95 percent or better. **Gravel or stone backfill shall have the approval of the Greenwood City Engineering Division.** No silica sand or fine granular material will be allowed. The sub-grade shall be proof-rolled with a tri-axle dump truck loaded with a minimum of 20 tons of material. A load ticket for the material shall be supplied to a City representative at the time of proof-roll.

C. In areas inaccessible to the above compacting equipment, a single shoe vibrator or other approved compacting equipment shall be used.

D. If dry, the subgrade shall be sprinkled or otherwise wetted prior to the time of laying the pavement. Road oil or calcium chloride may be used in lieu of water only when approved by the Greenwood City Engineering Division. However, no pavement shall be laid on a muddy subgrade. The subgrade shall be maintained in a well-drained condition at all times during the construction. Temporary drainage ditches shall be constructed only when and as directed by the Greenwood City Engineering Division.

E. The condition of the subgrade must be approved by the Greenwood City Engineering Division prior to placement of concrete.

Construction Joints.

A. At the close of each day's work, a construction joint shall be made not less than 10 feet from the preceding transverse contraction joint. Sections of less than 10 feet will not be permitted.

B. The upper edges of all preformed expansion materials in joints shall be parallel to the surface of the pavement.

Joints

A. Transverse Expansion Joints.

1.) Expansion joints shall be constructed only when and where specified on the plans, per the standard details.
2.) In the construction of an expansion joint with load transfer, the joint shall comply with the details shown on the plans.
3.) A joint holder will be required to hold the dowel bars accurately in place perpendicular to the cross section of the pavement and to the line of the joint.

B. Longitudinal Keyed Center Joints. Longitudinal keyed center joints shall be of steel or bituminous material equipped with opening to receive ¼ inch bars 4 ft. in length 5.0 inch o.c. keyed center joints strips shall be securely held in place by metal pins as designated. The length and spacing of these pins shall be sufficient to hold the strips true to line and grade.

C. Contraction Joints. Contraction joints shall be at 20 ft. intervals at least one eighth of slab thickness early enough to control cracking but late enough to prevent and damage by blade action to slab surface and to the concrete immediately adjacent to the joint. Immediately prior to application of the joint sealer, the joint shall be blown with a jet of compressed air.

There shall be a dummy joint four (4) feet off back of curb, parallel with curb line.

D. Pavement Ends. Whenever a piece of new pavement begins or ends against an unpaved street, the new pavement shall be thickened for the last 2 feet, gradually increasing thickness to not less than one and one-third times as thick as the designed slab. ¾ inch x 15-inch dowel bars at 18-inch centers shall be properly placed in this end section and carefully bent down after the concrete has become thoroughly set. The adjoining last 50 feet of the unpaved street shall be carefully graded and compacted to properly meet the new pavement.

Wire Mesh

A. Wire mesh, if shown on plans, or at the request of the Greenwood City Engineering Division shall be placed as directed. The mesh shall comply with the latest provisions of "AASHTO" for welded steel wire fabric for concrete reinforcement.

B. Unless otherwise specified or ordered, mesh shall be placed 2 inched above the bottom of the pavement cross-section and parallel to the finished surface of the pavement. The ends shall be more than 2 inches back from joints, and the edges not more than 3 inches from the forms. Sheets shall be lapped the width of one mesh.

Curing

A. Immediately upon completion of the finished process, the concrete shall be cured in one of the following ways:

1) Curing blankets shall be gently placed on the concrete. The edges of the blanket shall be securely fastened down outside the paved area with dirt or other weights.
2) Plastic sheets such as visqueen or other polyethylene material placed over the paved area securely fastened down around the paved area.
3) By use of a liquid membrane forming compound conforming to the latest specifications of the ASTM, designation C-309-53T or revisions. This liquid shall be sprayed in an even coat over the entire paved area immediately after brooming, at not less than one gallon per 200 square feet of surface.

B. Failure to comply with the requirements of curing will result in the rejection of the work.

STREET DESIGN AND ASPHALTIC CONCRETE STREET CONSTRUCTION STANDARDS

Grades and Sub-grades.

A. Minimum Grades. Minimum longitudinal grades shall not be less than 0.5 percent even if extra drainage is required.

B. Preparation of Sub-grade. The sub-grade, as shown on the approved plans, shall be graded to a smooth and true surface to the required depth below the surface of the pavement when completed as indicated by the profile and stakes set by a professional engineer or registered land surveyor. All soft and spongy places not affording a firm foundation will be dug out and refilled with stone or other suitable material and reworked until surface is solid, uniform and parallel with grade and cross-section of the finished pavement. The entire area shall be so compacted as to meet a proctor dry density of 95 percent or better. **Gravel or stone backfill shall have the approval of the Greenwood City Engineering Division.** No silica sand or fine granular material will be allowed. A proof-roll will be required on the sub-grade prior to the installation of stone and a second proof-roll will be required on the stone prior to the installation of the asphalt. Both proof-rolls shall be performed as follows: with a tri-axle dump truck loaded with a minimum of 20 tons of material. A load ticket for the material shall be supplied to a City representative at the time of proof-roll.

C. In areas inaccessible to the above compacting equipment, a single-shoe vibrator or other approved compacting equipment shall be used.

D. No pavement shall be laid on a muddy sub-grade. The sub-grade shall be maintained in a well-drained condition at all times during the construction. Temporary drainage ditches shall be constructed only when and as directed by the Greenwood City Engineering Division.

E. The condition of the sub-grade must be approved by the Greenwood City Engineering Division before any asphaltic concrete is placed upon it.

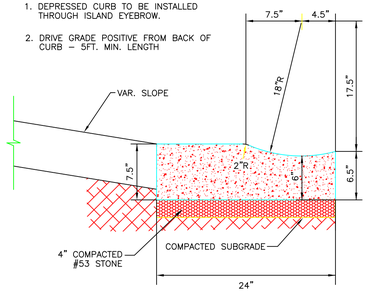
ALL CHANNELIZING DEVICES, BARRICADES, WARNING LIGHTS, ETC. SHALL CONFORM TO THE LATEST EDITION OF THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) SPECIFICATIONS AND DETAILS.

ALL TYPE III BARRICADES TO BE INSTALLED, AT A MINIMUM, FROM BACK OF CURB TO BACK OF CURB.

ALL TYPE III BARRICADES SHALL BE INSTALLED WITH WOODEN POST, BURIED A MINIMUM OF THREE (3) FEET IN THE GROUND.

ALL STREET NAME, SPEED LIMIT AND TRAFFIC CONTROL SIGNAGE SHALL CONFORM TO THE LATEST EDITION OF THE INDIANA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (IMUTCD)

1. DEPRESSED CURB TO BE INSTALLED THROUGH ISLAND EYEBROW.
2. DRIVE GRADE POSITIVE FROM BACK OF CURB – 5FT. MIN. LENGTH



DEPRESSED CURB DETAIL

NO SCALE

REVISION	DATE	BY
Per City Engineering Department	5/10/02	GLA
City Engineering Division	02/2013	pdp

PROJECT

TITLE
ROADWAY DETAILS– SHEET 3

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