LOW GRADIENT STREAM TYPE

THALWEG

APPLICATION TYPICAL CROSS SECTION (SEE NOTE 1B & 6)

APPLY RIFFLE TYPICAL CROSS-SECTION

APPLY POOL TYPICAL CROSS-SECTION

BEGIN RIFFLE, TYPICAL

END RIFFLE, TYPICAL

NOT TO SCALE

NOT TO BE USED FOR CONSTRUCTION
RIFFLE - TO - POOL TRANSITION

THIS FIGURE IS ONLY MEANT TO DEFINE THE MINIMUM INFORMATION REQUIRED BY THE CITY OF CHARLOTTE TO BE INCLUDED IN A DETAIL FOR THIS TYPE OF TECHNIQUE. THIS FIGURE IS NOT MEANT TO REPRESENT A STANDARD DESIGN METHOD FOR THIS TYPE OF TECHNIQUE AND SHALL NOT BE USED AS SUCH.
NOTES:

1. THE RIFFLE-TO-POOL TRANSITION DETAIL IS A SCHEMATIC (GENERALIZED) DRAWING OF:
   A. THE RELATIONSHIP BETWEEN THE STREAM CHANNEL HORIZONTAL ALIGNMENT (MEANDER GEOMETRY) AND
      VERTICAL ALIGNMENT (PROFILE).
   B. THE PLACEMENT OF THE POOL AND RIFFLE TYPICAL CROSS SECTIONS WITH RESPECT TO THE STREAM
      CHANNEL HORIZONTAL ALIGNMENTS (MEANDER GEOMETRY) AND VERTICAL ALIGNMENT (PROFILE).

2. THE VERTICAL CONTROL POINTS SHOWN ARE THE ELEVATIONS USED TO ESTABLISH THE VERTICAL ALIGNMENT
   (PROFILE). THEY INCLUDE:
   A. R - RIFFLE CONTROL POINTS
      (1) HEAD OF (BEGIN) RIFFLE
      (2) TAIL OF (END) RIFFLE
   B. P - MAXIMUM POOL DEPTH

3. THE HORIZONTAL CONTROL POINTS SHOWN ARE THE BEGINNING AND ENDING LOCATIONS OF THE STRAIGHT
   SEGMENTS AND CURVES USED TO ESTABLISH THE HORIZONTAL ALIGNMENT (MEANDER GEOMETRY). THEY
   INCLUDE:
   A. LOW-GRADIENT STREAM GEOMETRY (MEANDERING ROSGEN C- AND E-STREAM TYPES):
      (1) PC - POINT OF CURVATURE - BEGINNING OF A CURVE (MEANDER BEND, POOL), END OF A STRAIGHT
          SEGMENT (TANGENT, RIFFLE)
      (2) PT - POINT OF TANGENCY - BEGINNING OF A STRAIGHT SEGMENT (TANGENT, RIFFLE), END OF A CURVE
          (MEANDER BEND, POOL)
   B. HIGH-GRADIENT STREAM GEOMETRY (RELATIVELY STRAIGHT ROSGEN B-STREAM TYPES) INCLUDES PC'S AND
      PT'S AS DESCRIBED ABOVE AND ALSO:
      (1) PI - POINT OF INTERSECTION - TRANSITION BETWEEN STRAIGHT SEGMENTS WITH LITTLE CHANGE IN
          DIRECTION (BEARING)

4. CONSTRUCTION OF THE CHANNEL (ALIGNMENT, PROFILE AND CROSS SECTION) SHALL BE DONE IN A MANNER TO
   CREATE SMOOTH TRANSITIONS BETWEEN THE CONTROL POINTS AND TYPICAL RIFFLE AND POOL CROSS
   SECTIONS.

5. THE DESIGNER SHALL SPECIFY HORIZONTAL AND VERTICAL TOLERANCES FOR ALL CONTROL POINTS.
   REGARDLESS, THE DOWNSTREAM HEAD OF (BEGIN) RIFFLE ELEVATION SHALL NOT EXCEED THE UPSTREAM TAIL
   OF (END) RIFFLE ELEVATION (CREATING AN ADVERSE BANKFULL SLOPE).

6. THE RIFFLE TYPICAL CROSS SECTION SHALL BE APPLIED IN STRAIGHT (TANGENT) SEGMENTS. THE POOL TYPICAL
   CROSS SECTION SHALL BE APPLIED IN CURVES (MEANDER BENDS). THE STREAM CROSS SECTION SHALL
   SMOOTHLY TRANSITION DIMENSIONS FROM THE UPSTREAM RIFFLE TYPICAL CROSS SECTION TO THE NEXT
   (DOWNSTREAM) POOL TYPICAL CROSS SECTION TO THE NEXT (DOWNSTREAM) RIFFLE TYPICAL CROSS SECTION,
   ETC.

7. IF SITE CONDITIONS (E.G. - BEDROCK, LARGE TREES, ETC.) DO NOT ALLOW FOR CONSTRUCTION OF THE FULL
   RIFFLE OR POOL TYPICAL CROSS SECTION AND/OR SMOOTH TRANSITIONS BETWEEN TYPICAL SECTIONS, THE
   TYPICAL SECTION AND/OR TRANSITION SHALL BE ADJUSTED TO INCORPORATE THE NATURAL VARIATION. THE
   DESIGNER SHALL BE NOTIFIED OF SUCH SITE CONDITIONS AND DETERMINE THE APPROPRIATE MEANS OF
   ADJUSTMENT/INCORPORATION.

ABBREVIATIONS (SEE NOTES 2 AND 3)

<table>
<thead>
<tr>
<th>ABBREVIATION</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>R</td>
<td>RIFFLE CONTROL POINT</td>
</tr>
<tr>
<td>P</td>
<td>MAXIMUM POOL DEPTH</td>
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<tr>
<td>N</td>
<td>RUN CONTROL POINT</td>
</tr>
<tr>
<td>PC</td>
<td>POINT OF CURVATURE</td>
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<tr>
<td>PT</td>
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<tr>
<td>PI</td>
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NOT TO SCALE

CHARLOTTE-MECKLENBURG
STORM WATER SERVICES
GENERIC DETAIL REQUIREMENTS

RIFFLE - TO - POOL TRANSITION

DRAFT - NOT TO BE USED FOR CONSTRUCTION

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