City of Raleigh

Standard Details

Greenway
ASPHALT TYPICAL TRAIL SECTION
VARIABLE WIDTH (8' MIN, 14' MAX)

PAVEMENT SCHEDULE

<table>
<thead>
<tr>
<th>Layer</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>2&quot; ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 220 LBS. PER SQ. YD. OR 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS</td>
</tr>
<tr>
<td>J1</td>
<td>6&quot; AGGREGATE BASE COURSE</td>
</tr>
<tr>
<td>J2</td>
<td>VARIABLE DEPTH AGGREGATE BASE COURSE</td>
</tr>
<tr>
<td>T</td>
<td>EARTH MATERIAL</td>
</tr>
<tr>
<td>V1</td>
<td>GEOTEXTILE FOR PAVEMENT STABILIZATION</td>
</tr>
</tbody>
</table>

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS
DATE: 12/2022

ASPHALT TYPICAL TRAIL SECTION
VARIABLE WIDTH (8' MIN, 14' MAX)

GW-10.01.1
ASPHALT TYPICAL TRAIL SECTION VARIABLE WIDTH (8' MIN, 14' MAX) - NOTES:

1. TRAIL WIDTH TO BE DETERMINED BY CITY OF RALEIGH.

2. WHEN CONDITIONS PERMIT, USE 6' SHOULDER IN FILL SECTIONS AND 4' SHOULDER IN CUT SECTIONS. USE MINIMUM 2' SHOULDER IN CUT AND FILL SECTIONS. FOR CUT SECTION CONDITION SHOWN IN "INSET 1," APPLY ENGINEERING JUDGMENT TO DETERMINE IF UPHILL SIDE REQUIRE A SWALE.

3. TRAILS OR TRAIL SEGMENTS OF ANY LENGTH MAY BE CONSTRUCTED WITH RUNNING SLOPES/VERTICAL GRADES UP TO 1:20 (5%). TO ACCOMMODATE STEEP TERRAIN, TRAILS MAY BE DESIGNED WITH STEEPER SECTIONS OF CONSTRAINED LENGTH AS SHOWN IN TABLE 1. RESTING INTERVALS WITH FLATTER GRADES ARE REQUIRED BETWEEN TRAIL SEGMENTS ANY TIME THE RUNNING SLOPE EXCEEDS 1:20 (5%). RESTING INTERVALS SHALL BE LOCATED ON UPHILL SIDE OF TRAIL IF ONLY PROVIDED ON ONE SIDE.

4. TO ENSURE THAT A TRAIL IS NOT DESIGNED AS A SERIES OF STEEP SEGMENTS, NO MORE THAN 30% OF THE TOTAL LENGTH OF TRAIL MAY HAVE A RUNNING SLOPE/VERTICAL GRADE of 7.5% (8.33% OR 1:12 MAX). RESTING INTERVALS MUST BE PROVIDED MORE FREQUENTLY AS THE RUNNING SLOPE INCREASES.

5. RUNNING SLOPE/VERTICAL GRADE RECOMMENDATIONS MAY NOT BE ABLE TO BE ACHIEVED FOR TRAIL REPLACEMENT PROJECTS. FOR THESE TYPES OF PROJECTS, REPLACEMENT OF THE EXISTING CONDITION IN KIND IS SUFFICIENT.

6. 1.5% (2.08% OR 1:48 MAX) CROSS SLOPE. CROSS SLOPE DIRECTION VARIES. SLOPE SHOULDERS FOR POSITIVE DRAINAGE. OFTEN REQUIRES CONTINUING PAVEMENT OR SHOULDER SLOPE UNTIL TIE-IN WITH NATURAL GROUND. SEE PLAN SHEETS AND CROSS SECTIONS.

7. WHEN CONDITIONS PERMIT, SHOULDERS TO MATCH CROSS SLOPE OF TRAIL AND SIDE SLOPES TO BE 3:1 OR FLATTER.

8. PROVIDE A SAFETY RAIL FOR THE FOLLOWING CIRCUMSTANCES WITHIN 6' OF THE EDGE OF PAVEMENT: 1) SLOPE > 3:1 AND DROP OF 6'; 2) SLOPE > 2:1 AND DROP OF 4'; 3) SLOPE > 1:1 AND DROP OF 1'. REFER TO GW-20.01 AND GW-20.02 FOR SAFETY RAIL DETAILS.

9. CONTRACTOR GRADE SEED SHALL BE SEWN INTO AGGREGATE BASE COURSE ON SHOULDERS AT THE SURFACE.

10. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED DURING CONSTRUCTION.

11. PROOF ROLLING SHALL OCCUR IN PRESENCE OF THE OWNER OR THE OWNER'S TESTING AGENCY AT THE FOLLOWING STAGES: 1) PRIOR TO PLACING FILL IN LOW AREAS; 2) AFTER THE PREPARATION OF SUBGRADE PRIOR TO PLACING ABC; 3) AFTER THE PLACEMENT OF ABC PRIOR TO PAVING.

12. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.

13. NO ABOVE-GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN THE TRAIL AND SHALL BE A MINIMUM OF 2' FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE A MINIMUM OF 4' FROM THE EDGE OF TRAIL.

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**TABLE 1 - MAXIMUM RUNNING SLOPE AND TRAIL SEGMENT LENGTH**

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<thead>
<tr>
<th>RUNNING SLOPE</th>
<th>MAX LENGTH OF SEGMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:20 (5%)</td>
<td>200 FT</td>
</tr>
<tr>
<td>1:12 (8.33%)</td>
<td>30 FT</td>
</tr>
</tbody>
</table>

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CITY OF RALEIGH

STANDARD DETAIL

DATE: 12/2022

REVISIONS

ASPHALT TYPICAL TRAIL SECTION VARIABLE WIDTH (8' MIN, 14' MAX)

GW-10.01.2
CONCRETE TYPICAL TRAIL SECTION
VARIABLE WIDTH (8' MIN, 14' MAX)

<table>
<thead>
<tr>
<th>PAVEMENT SCHEDULE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>4.5&quot; CONCRETE TRAIL, 3,000 PSI, FINISHED WITH CURING COMPOUND, BRUSHED CONCRETE TEXTURE</td>
</tr>
<tr>
<td>J1</td>
<td>6&quot; AGGREGATE BASE COURSE</td>
</tr>
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<td>J2</td>
<td>VARIABLE DEPTH AGGREGATE BASE COURSE</td>
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<td>V1</td>
<td>GEOTEXTILE FOR PAVEMENT STABILIZATION</td>
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CITY OF RALEIGH
STANDARD DETAIL

REVISIONS: DATE: 12/2022

CONCRETE TYPICAL TRAIL SECTION
VARIABLE WIDTH (8' MIN, 14' MAX)

GW-10.02.1

DATE: 12/2022
CONCRETE TYPICAL TRAIL SECTION VARIABLE WIDTH (8’ MIN, 14’ MAX) - NOTES:

1. TRAIL WIDTH TO BE DETERMINED BY CITY OF RALEIGH.

2. WHEN CONDITIONS PERMIT, USE 6’ SHOULDER IN FILL SECTIONS AND 4’ SHOULDER IN CUT SECTIONS. USE MINIMUM 2’ SHOULDER IN CUT AND FILL SECTIONS. FOR CUT SECTION CONDITION SHOWN IN "INSET 1," APPLY ENGINEERING JUDGMENT TO DETERMINE IF UPHILL SIDE REQUIRES A SWALE.

3. TRAILS OR TRAIL SEGMENTS OF ANY LENGTH MAY BE CONSTRUCTED WITH RUNNING SLOPES/VERTICAL GRADES UP TO 1:20 (5%). TO ACCOMMODATE STEEP TERRAIN, TRAILS MAY BE DESIGNED WITH STEEPER SECTIONS OF CONSTRAINED LENGTH AS SHOWN IN TABLE 1. RESTING INTERVALS WITH FLATTER RUNNING SLOPES ARE REQUIRED BETWEEN TRAIL SEGMENTS ANYTIME THE RUNNING SLOPE EXCEEDS 1:20 (5%). RESTING INTERVALS SHALL BE LOCATED ON UPHILL SIDE OF TRAIL IF ONLY PROVIDED ON ONE SIDE.

4. TO ENSURE THAT A TRAIL IS NOT DESIGNED AS A SERIES OF STEEP SEGMENTS, NO MORE THAN 30% OF THE TOTAL LENGTH OF TRAIL MAY HAVE A RUNNING SLOPE/VERTICAL GRADE OF 7.5% (8.33% OR 1:12 MAX). RESTING INTERVALS MUST BE PROVIDED MORE FREQUENTLY AS THE RUNNING SLOPE INCREASES.

5. RUNNING SLOPE/VERTICAL GRADE RECOMMENDATIONS MAY NOT BE ABLE TO BE ACHIEVED FOR TRAIL REPLACEMENT PROJECTS. FOR THESE TYPES OF PROJECTS, REPLACEMENT OF THE EXISTING CONDITION IN KIND IS SUFFICIENT.

6. 1.5% (2.08% OR 1:48 MAX) CROSS SLOPE. CROSS SLOPE DIRECTION VARIES. SLOPE SHOULDERS FOR POSITIVE DRAINAGE. OFTEN REQUIRES CONTINUING PAVEMENT OR SHOULDER SLOPE UNTIL TIE-IN WITH NATURAL GROUND. SEE PLAN SHEETS AND CROSS SECTIONS.

7. WHEN CONDITIONS PERMIT, SHOULDERS TO MATCH CROSS SLOPE OF TRAIL AND SIDE SLOPES TO BE 3:1 OR FLATTER.

8. PROVIDE A SAFETY RAIL FOR THE FOLLOWING CIRCUMSTANCES WITHIN 6’ OF THE EDGE OF PAVEMENT: 1) SLOPE > 3:1 AND DROP OF 6’; 2) SLOPE > 2:1 AND DROP OF 4’; 3) SLOPE > 1:1 AND DROP OF 1’. REFER TO GW-20.01 AND GW-20.02 FOR SAFETY RAIL DETAILS.

9. CONTRACTOR GRADE SEED SHALL BE SEWN INTO AGGREGATE BASE COURSE ON SHOULDERS AT THE SURFACE.

10. TRANSVERSE EXPANSION JOINTS TO BE MAXIMUM 50’ APART. SAWCUT TRANSVERSE CONTROL JOINTS AT MAXIMUM 10’ ON-CENTER OR AS OTHERWISE SHOWN ON PLANS.

11. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED DURING CONSTRUCTION.

12. PROOF ROLLING SHALL OCCUR IN PRESENCE OF THE OWNER OR THE OWNER’S TESTING AGENCY AT THE FOLLOWING STAGES: 1) PRIOR TO PLACING FILL IN LOW AREAS; 2) AFTER THE PREPARATION OF SUBGRADE PRIOR TO PLACING ABC; 3) AFTER THE PLACEMENT OF ABC PRIOR TO POURING CONCRETE.

13. NO ABOVE-GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN THE TRAIL AND SHALL BE A MINIMUM OF 2’ FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE A MINIMUM OF 4’ FROM THE EDGE OF TRAIL.

### TABLE 1 - MAXIMUM RUNNING SLOPE AND TRAIL SEGMENT LENGTH

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CITY OF RALEIGH
STANDARD DETAIL

REVISIONS DATE: 12/2022

CONCRETE TYPICAL TRAIL SECTION VARIABLE WIDTH (8’ MIN, 14’ MAX)

GW-10.02.2
UNPAVED TRAIL

<table>
<thead>
<tr>
<th>PAVEMENT SCHEDULE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T1</strong></td>
</tr>
<tr>
<td>3&quot; COMPACTED MATERIAL</td>
</tr>
<tr>
<td>(SEE NOTE 2 ON GW-10.03.2)</td>
</tr>
<tr>
<td><strong>T2</strong></td>
</tr>
<tr>
<td>EARTH MATERIAL</td>
</tr>
</tbody>
</table>

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS  DATE: 12/2022
NOT TO SCALE

UNPAVED TRAIL

GW-10.03.1
UNPAVED TRAIL - NOTES:

1. TRAIL WIDTH TO BE DETERMINED BY CITY OF RALEIGH.

2. TRAIL TO BE FIRM AND STABLE. MATERIALS SUCH AS PACKED CRUSHED STONE, GRAVEL FINES COMPACTED WITH ROLLER, PACKED SOIL, AND OTHER NATURAL MATERIALS BONDED WITH SYNTHETIC MATERIALS CAN BE USED TO PROVIDE THE REQUIRED DEGREE OF STABILITY AND FIRMNESS. MATERIAL SELECTION TO BE APPROVED BY THE CITY.

3. TRAILS OR TRAIL SEGMENTS OF ANY LENGTH MAY BE CONSTRUCTED WITH RUNNING SLOPES/VERTICAL GRADES UP TO 1:20 (5%). TO ACCOMMODATE STEEP TERRAIN, TRAILS MAY BE DESIGNED WITH STEEPER SECTIONS OF CONSTRAINED LENGTH AS SHOWN IN TABLE 1. RESTING INTERVALS WITH FLATTER RUNNING SLOPES ARE REQUIRED BETWEEN TRAIL SEGMENTS ANYTIME THE RUNNING SLOPE EXCEEDS 1:20 (5%).

4. TO ENSURE THAT A TRAIL IS NOT DESIGNED AS A SERIES OF STEEP SEGMENTS, NO MORE THAN 30% OF THE TOTAL LENGTH OF TRAIL MAY HAVE A RUNNING SLOPE/VERTICAL GRADE EXCEEDING 1:12 (8.33%). THE RUNNING SLOPE MUST NEVER EXCEED 1:8 (12.5%). RESTING INTERVALS MUST BE PROVIDED MORE FREQUENTLY AS THE RUNNING SLOPE INCREASES.

5. RESTING INTERVALS MAY BE PROVIDED WITHIN THE TRAIL TREAD OR ADJACENT TO THE TRAIL TREAD. WHEN THE RESTING INTERVAL IS WITHIN THE TRAIL TREAD, IT MUST BE AT LEAST 60 INCHES LONG AND AT LEAST AS WIDE AS THE TRAIL. WHEN THE RESTING INTERVAL IS ADJACENT TO THE TRAIL, IT MUST BE AT LEAST 60 INCHES LONG AND 36 INCHES WIDE. RESTING INTERVALS SHALL BE LOCATED ON UPHILL SIDE OF TRAIL IF ONLY PROVIDED ON ONE SIDE.

6. IF COMPLIANCE CANNOT BE ACHIEVED FOR NOTES 2 THROUGH 5 ABOVE DUE TO CONDITIONS SUCH AS THE EXISTING TERRAIN, PREVAILING CONSTRUCTION PRACTICES, THE FUNCTION OR PURPOSE OF THE FACILITY, OR IF THE SETTING WOULD BECOME FUNDAMENTALLY ALTERED, THEN IT MUST BE DEMONSTRATED THAT THE STANDARDS CANNOT BE ACHIEVED.

7. FIVE PERCENT MAX CROSS SLOPE. CROSS SLOPE DIRECTION VARIES TO FACILITATE POSITIVE DRAINAGE.

8. PROVIDE A SAFETY RAIL FOR THE FOLLOWING CIRCUMSTANCES WITHIN 6' OF THE EDGE OF TRAIL: 1) SLOPE > 3:1 AND DROP OF 6'; 2) SLOPE > 2:1 AND DROP OF 4'; 3) SLOPE > 1:1 AND DROP OF 1'. REFER TO GW-20.01 AND GW-20.02 FOR SAFETY RAIL DETAILS.

9. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED DURING CONSTRUCTION.

10. NO ABOVE-GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN THE TRAIL AND SHALL BE A MINIMUM OF 2' FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE A MINIMUM OF 4' FROM THE EDGE OF TRAIL.

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<tbody>
<tr>
<td>RUNNING SLOPE</td>
</tr>
<tr>
<td>STEEPER THAN</td>
</tr>
<tr>
<td>1:20 (5%)</td>
</tr>
<tr>
<td>1:12 (8.33%)</td>
</tr>
<tr>
<td>1:10 (10%)</td>
</tr>
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</table>

CITY OF RALEIGH
STANDARD DETAIL

UNPAVED TRAIL

GW-10.03.2
DRIVEWAY, SIDEWALK, AND TRAIL TIE-IN

PERMANENT BOLLARD/BOULDER (TYP BOTH SHOULDERS)
(SEE DETAILS GW-10.06 & GW-10.08)
HINGED BOLLARD (TYP)
(SEE DETAILS GW-10.07 & GW-10.08)

6" CONC. APRON
(3000 PSI)

5' R (TYP)

SIDEWALK

TRAIL WIDTH

EXPANSION JOINTS

DETECTABLE WARNINGS
(SEE DETAIL GW-10.10)
DEPRESSED CURB AND GUTTER
CROSSWALK

STOP SIGN (MUTCD R1-1) FACING TRAIL.
NO MOTOR VEHICLES SIGN (MUTCD R5-3)
FACING ROADWAY. SIGNS MOUNTED ON
SINGLE U-CHANNEL POST.

STANDARD 2'-6"
CURB AND GUTTER

TRAiL TIE-IN WITH SIDEWALK

TRAiL TIE-IN WITHOUT SIDEWALK

SHEET 1 OF 2

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS
DATE: 12/2022

NOT TO SCALE

GW-10.04.1
DRIVEWAY, SIDEWALK, AND TRAIL TIE-IN - NOTES:

1. THE DRIVEWAY, SIDEWALK, TRAIL TIE-IN SHALL BE BUILT IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA) AND PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).

2. THE DRIVEWAY, SIDEWALK, TRAIL TIE-IN SHALL BE PLACED PARALLEL TO THE TRAIL DIRECTION OF TRAVEL.

3. DETECTABLE WARNINGS SHALL BE INSTALLED ALONG THE BACK OF CURB COVERING THE FULL WIDTH OF THE RAMP.

4. FOR THE TRAIL APRON, USE CLASS A (3000 PSI) CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH, NONSKID SURFACE.

5. A 1/2' EXPANSION JOINT INSTALLED FULL DEPTH WILL BE REQUIRED WHERE THE CONCRETE RAMP JOINS THE CURB AND ALSO WHERE NEW CONCRETE ABUTS EXISTING CONCRETE.

6. REMOVE AND REPLACE CURB AND GUTTER TO NEAREST JOINT.

7. BOLLARDS/BOULDERS SHOULD BE SET BACK FROM THE ROADWAY EDGE A MINIMUM OF 7 FEET AND A MAXIMUM OF 30 FEET AND WILL VARY DEPENDING ON LOCATION. OWNER SHALL INDICATE WHICH OPTION IS BEST FOR THE SITE LOCATION. BOLLARD SHALL NOT BE PLACED WITHIN THE ROADWAY RIGHT-OF-WAY UNLESS AN APPROVED RIGHT-OF-WAY OBSTRUCTION PERMIT IS SECURED WITH THE CITY OF RALEIGH RIGHT OF WAY SERVICES. SEE DETAILS GW-10.06, GW-10.07, AND GW-10.08 FOR BOLLARD/BOULDER DETAILS.

8. STOP SIGN (MUTCD R1-1) AND NO MOTOR VEHICLES SIGN (MUTCD R5-3) SHALL BE 0.063 GAUGE, 3105 ALLOY ALUMINUM AND SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL GUIDELINES.

1. 8.33% (12:1) MAX RAMP SLOPE (DRAIN TO ROADWAY)
2. CROSS SLOPE: MAXIMUM 2.00%
3. RAMP REQUIRES A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN CURB.
NOTES:

1. TRAIL STRIPING MATERIAL SHALL BE STANDARD ROAD PAINT UNLESS OTHERWISE NOTED. UTILIZE NON-SLIP/NON-SKID STRIPING MATERIALS TO AVOID HAZARDS WHEN TRAILS ARE WET.

2. WHEN TRAIL STRIPING IS REQUIRED PER THE CITY OF RALEIGH, 4" WIDTH DASHED YELLOW CENTERLINE STRIPE IS TYPICALLY USED. 4" WIDTH SOLID YELLOW CENTERLINES ARE RECOMMENDED ON TIGHT OR BLIND CORNERS, ON TRAIL SWITCHBACKS, AND ON THE APPROACHES TO ROADWAY CROSSINGS. 4" WIDTH SOLID WHITE EDGE LINES OFFSET 4" FROM EDGE OF TRAIL SHALL ONLY BE USED WHEN HAZARDOUS CONDITIONS ARE PRESENT. THESE HAZARDOUS CONDITIONS INCLUDE BUT ARE NOT LIMITED TO WHEN A TRAIL IS ADJACENT TO A WALL OR STEEP SLOPE. ADDITIONAL TRAIL WIDTH IS TYPICALLY REQUIRED WHEN THESE HAZARDOUS CONDITIONS ARE PRESENT.

3. STRIPING AN ENVELOPE AROUND THE BOLLARD POST WITH 4" SOLID YELLOW IS RECOMMENDED. SEE GW-10.06, GW-10.07, AND GW-10.08 FOR BOLLARD DETAILS.

CITY OF RALEIGH
STANDARD DETAIL

TRAIL PAVEMENT MARKINGS

NOT TO SCALE

REVISIONS

DATE: 12/2022

TRAIL PAVEMENT MARKINGS

GW-10.05
NOTES:

1. A PERMANENT BOLLARD IS TYPICALLY USED ON THE OUTSIDE OF TRAILS TO PREVENT UNAUTHORIZED MOTOR VEHICLE ENTRY. PERMANENT BOLLARDS MAY BE USED IN COMBINATION WITH HINGED BOLLARDS. IN SOME CASES, A PERMANENT BOLLARD CAN BE USED IN THE CENTER OF THE TRAIL IN LIEU OF A HINGED BOLLARD WHEN REQUESTED BY THE OWNER. SEE DETAIL GW-10.08 FOR THE VARIOUS BOLLARD COMBINATIONS. PERMANENT BOLLARDS SHOULD BE UTILIZED AT ALL MAJOR ACCESS POINTS AND TRAIL HEADS. "NO MOTOR VEHICLES" SIGNAGE (MUTCD R5-3) MAY BE USED TO REINFORCE ACCESS RULES.

2. BOLLARDS SHOULD BE SET BACK FROM THE ROADWAY EDGE A MINIMUM OF 7 FEET AND A MAXIMUM OF 30 FEET AND WILL VARY DEPENDING ON LOCATION. OWNER SHALL INDICATE WHICH OPTION IS BEST FOR THE SITE LOCATION. BOLLARD SHALL NOT BE PLACED WITHIN THE ROADWAY RIGHT-OF-WAY UNLESS AN APPROVED RIGHT-OF-WAY OBSTRUCTION PERMIT IS SECURED WITH THE CITY OF RALEIGH RIGHT OF WAY SERVICES.

3. STRIPPING AN ENVELOPE AROUND THE POST IS RECOMMENDED IF THE BOLLARD IS LOCATED WITHIN THE PAVED LIMITS OF THE TRAIL (SEE DETAIL GW-10.05).

4. SEE MIDDLE BOLLARD WITH TRAIL SIDE BOLLARDS DETAIL, GW-10.08, FOR TYPICAL BOLLARD PLACEMENT.
**NOTES:**

1. **A HINGED BOLLARD IS TYPICALLY USED IN THE CENTER OF TRAILS TO PREVENT UNAUTHORIZED MOTOR VEHICLE ENTRY.** HINGED BOLLARDS MAY BE USED IN COMBINATION WITH PERMANENT BOLLARDS AND BOULDERS. SEE DETAIL GW-10.08 FOR THE VARIOUS BOLLARD AND BOULDER COMBINATIONS. HINGED BOLLARDS SHOULD BE UTILIZED AT ALL MAJOR ACCESS POINTS AND TRAIL HEADS. "NO MOTOR VEHICLES" SIGNAGE (MUTCD R5-3) MAY BE USED TO REINFORCE ACCESS RULES.

2. **BOLLARDS SHOULD BE SET BACK FROM THE ROADWAY EDGE A MINIMUM OF 7 FEET AND A MAXIMUM OF 30 FEET AND WILL VARY DEPENDING ON LOCATION. OWNER SHALL INDICATE WHICH OPTION IS BEST FOR THE SITE LOCATION. BOLLARD SHALL NOT BE PLACED WITHIN THE ROADWAY RIGHT-OF-WAY UNLESS AN APPROVED RIGHT-OF-WAY OBSTRUCTION PERMIT IS SECURED WITH THE CITY OF RALEIGH RIGHT OF WAY SERVICES.

3. **STRIPING AN ENVELOPE AROUND THE POST IS RECOMMENDED IF THE BOLLARD IS LOCATED WITHIN THE PAVED LIMITS OF THE TRAIL (SEE DETAIL GW-10.05).**

4. **LOCKABLE, REMOVABLE BOLLARDS ALLOW ENTRANCE BY AUTHORIZED VEHICLES. WHERE USED, THE TOP OF THE MOUNT POINT SHOULD BE FLUSH WITH THE PATH SURFACE.**

5. **SEE MIDDLE BOLLARD WITH TRAIL SIDE BOLLARDS DETAIL, GW-10.08, FOR TYPICAL BOLLARD PLACEMENT.**
NOTES:

1. OWNER SHALL INDICATE WHICH OF THE THREE BOLLARD/BOULDER PLACEMENT OPTIONS IS BEST FOR THE SITE LOCATION.

2. BOLLARDS/BOULDERS ARE EFFECTIVE IN PREVENTING UNAUTHORIZED MOTOR VEHICLE ENTRY AND SHOULD BE UTILIZED AT ALL MAJOR ACCESS POINTS AND TRAIL HEADS. "NO MOTOR VEHICLES" SIGNAGE (MUTCD R5-3) MAY BE USED TO REINFORCE ACCESS RULES.

3. BOLLARDS SHOULD BE SET BACK FROM THE ROADWAY EDGE A MINIMUM OF 7 FEET AND A MAXIMUM OF 30 FEET AND WILL VARY DEPENDING ON LOCATION. OWNER SHALL INDICATE WHICH OPTION IS BEST FOR THE SITE LOCATION. BOLLARD SHALL NOT BE PLACED WITHIN THE ROADWAY RIGHT-OF-WAY UNLESS AN APPROVED RIGHT-OF-WAY OBSTRUCTION PERMIT IS SECURED WITH THE CITY OF RALEIGH RIGHT OF WAY SERVICES.

4. STRIPPING AN ENVELOPE AROUND THE POST IS RECOMMENDED IF THE BOLLARD IS LOCATED WITHIN THE PAVED LIMITS OF THE TRAIL (SEE DETAIL GW-10.05).

CITY OF RALEIGH  
STANDARD DETAIL  
MIDDLE BOLLARD WITH TRAIL SIDE BOLLARDS  
GW-10.08
TRAIL TUNNEL/UNDERPASS

HEADWALLS WITH WINGWALLS ARE REQUIRED ON BOTH ENDS OF TUNNEL/UNDERPASS

CONDUIT

LIGHT

REINFORCED, POURED-IN-PLACE OR PRECAST TUNNEL/UNDERPASS AS PER NCDOT SPECIFICATIONS

2.0% MINIMUM SLOPE (ARBITRARY DIRECTION SHOWN)

12'-0" MIN

14'-0" MIN

DESIRED

CROSS-SECTION VIEW

FRONT VIEW (ENTRANCE/EGRESS OF TUNNEL/UNDERPASS)

PARTIAL LONGITUDINAL SECTION

WPX LINEAR IP68/IP69K LED LUMINAIRE LIGHTS WITH WPX-PSU-600 (600 WATT) DRIVERS, WPX8-HO (8' LENGTH, HIGH OUTPUT) TUBES, AND WPX-JMP-12 (12' LENGTH) JUMPER CABLES OR APPROVED EQUAL

REINFORCED, POURED-IN-PLACE CONCRETE OR PRECAST TUNNEL/UNDERPASS AS PER NCDOT SPECIFICATIONS
TRAIL TUNNEL/UNDERPASS - NOTES:

1. 14-FOOT MINIMUM WIDTH DESIRED; GREATER WIDTHS PREFERRED FOR LENGTHS OVER 60 FEET.

2. THE UNDERPASS AS WELL AS THE TRAIL APPROACH SHOULD HAVE A CENTERLINE STRIPE EVEN IF THE REST OF THE TRAIL DOES NOT HAVE ONE.

3. UNDERPASSES SHOULD HAVE A DAYTIME ILLUMINANCE MINIMUM OF 10 FOOT-CANDLES AND A NIGHT-TIME LEVEL OF 4 FOOT-CANDLES.

4. SEALING OF FIXTURES TO BE DESIGNED IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY (IES) STANDARDS.

5. LIGHTING FIXTURE SPACING TO BE 12 FEET MINIMUM AND 15 FEET MAXIMUM.

6. CONDUIT CONNECTION TO POWER SOURCE SHALL BE DETERMINED BY THE ENGINEER AND SPECIFIED ON THE PLANS ACCORDINGLY.

7. PROPER DRAINAGE MUST BE ESTABLISHED TO AVOID POOLING OF STORMWATER; HOWEVER, SOME UNDERPASSES MAY FLOOD PERIODICALLY. WHERE APPROPRIATE, INCORPORATE TRENCH DRAINS AT THE TUNNEL ENTRANCE TO INTERCEPT WATER.

8. POST ADVANCED WARNING SIGNAGE ON OPPOSITE ENDS OF THE UNDERPASS APPROACH WITH INFORMATION ON VISIBILITY AND OTHER SAFETY REGULATIONS.

9. APPROPRIATE SIGNAGE MAY BE REQUIRED AT ENTRANCE TO INDICATE NARROWING TRAIL WIDTH AND/OR LIMITED VERTICAL CLEARANCE.

10. CONVEX MIRRORS SHOULD BE PROVIDED AT BLIND CORNERS AND AT THE APPROACHES TO UNDERPASSES WITH POOR SIGHT LINES.
NOTES:

1. TRAIL WIDTH TO BE DETERMINED BY CITY OF RALEIGH. 10 FEET MINIMUM TRAIL WIDTH IS NECESSARY FOR BICYCLISTS TO PASS OTHER USERS SAFELY ON SIDE TRAILS.

2. TRAILS CAN MEANDER BUT SHALL BE LOCATED MINIMUM 6 FEET FROM THE BACK OF CURB. NCDOT WILL ALLOW A 3-FOOT VEGETATED BUFFER INSTEAD OF 6-FOOT UNDER CERTAIN CONDITIONS WHERE ROW IS CONSTRANIED. SPECIAL PERMISSION MUST BE GRANTED.

3. IDEALLY, NO ABOVE-GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN THE TRAIL AND SHALL BE A MINIMUM OF 2 FEET FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE A MINIMUM OF 4 FEET FROM THE EDGE OF TRAIL.

4. TRAIL RUNNING SLOPES/VERTICAL GRADE SHALL NOT EXCEED THE VERTICAL GRADE OF THE ROADWAY.

5. 1.5% (2.08% OR 1:48 MAX) CROSS SLOPE. CROSS SLOPE DIRECTION TYPICALLY SLOPES TOWARD ROADWAY BUT CAN VARY. SLOPE SHOULDERS FOR POSITIVE DRAINAGE. OFTEN REQUIRES CONTINUING PAVEMENT OR SHOULDER SLOPE UNTIL TIE-IN WITH NATURAL GROUND. SEE PLAN SHEETS AND CROSS SECTIONS.

6. WHEN CONDITIONS PERMIT, SHOULDERS TO MATCH CROSS SLOPE OF TRAIL AND SIDE SLOPES TO BE 3:1 OR FLATTER.

7. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED DURING CONSTRUCTION.

8. PROOF ROLLING SHALL OCCUR IN PRESENCE OF OWNER OR OWNER'S TESTING AGENCY AT THE FOLLOWING STAGES: 1) PRIOR TO PLACING FILL IN LOW AREAS; 2) AFTER PREPARING SUBGRADE PRIOR TO PLACING ABC; 3) AFTER PLACEMENT OF ABC PRIOR TO PAVING.

9. PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.

10. UNDER SOME CIRCUMSTANCES, SIDE TRAILS MAY TRANSITION TO SIDEWALKS AND DESIGNATED BICYCLE LANES. IN THE EVENT THAT SIDE TRAILS MERGE ONTO STREETS, PROVIDE APPROPRIATE SIGNAGE AND PAVEMENT MARKINGS TO HELP SAFE MERGING.

11. ALL TRAILS WITHIN NCDOT ROADWAY ROW MUST CONSIDER THE FOLLOWING: -NCDOT MAY REQUIRE A CLEAR RECOVERY ZONE OF 11.5 FEET TO 24 FEET (IN THE PRESENCE OF A DITCH SECTION) FROM THE EDGE OF TRAVEL LANE TO EDGE OF GREENWAY TRAIL DEPENDING ON AVERAGE DAILY TRAFFIC (ADT) AND DESIGN SPEEES. -STORMWATER TREATMENT AND VEG. MUST BE INSTALLED PER NCDOT’S SPECS.

-CURB AND GUTTER

-EARTH MATERIAL

-GEOTEXTILE FOR PAVEMENT STABILIZATION

-PAVEMENT SCHEDULE

<table>
<thead>
<tr>
<th>Material</th>
<th>LBS. PER SQ. YD. IN EACH OF TWO LAYERS</th>
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</thead>
<tbody>
<tr>
<td>C1</td>
<td>2&quot; ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 220 LBS. PER SQ. YD. OR 110 LBS. PER SQ. YD. IN EACH OF TWO LAYERS</td>
</tr>
<tr>
<td>J1</td>
<td>6&quot; AGGREGATE BASE COURSE</td>
</tr>
<tr>
<td>R1</td>
<td>CURB AND GUTTER</td>
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<tr>
<td>T</td>
<td>EARTH MATERIAL</td>
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<tr>
<td>V1</td>
<td>GEOTEXTILE FOR PAVEMENT STABILIZATION</td>
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</tbody>
</table>

CITY OF RALEIGH
STANDARD DETAIL

ASPHALT MULTI-USE STREET SIDE TRAIL, VARIABLE WIDTH

CROSS-SECTION VIEW

* 0.02 MAX

PLAN VIEW

GW-10.10
NOTES:
1. TRAIL WIDTH TO BE DETERMINED BY CITY OF RALEIGH. 10 FEET MINIMUM TRAIL WIDTH IS NECESSARY FOR BICYCLISTS TO PASS OTHER USERS SAFELY ON SIDE TRAILS.
2. TRAILS CAN MEANDER BUT SHALL BE LOCATED MINIMUM 6 FEET FROM THE BACK OF CURB. NCDOT WILL ALLOW A 3-FOOT VEGETATED BUFFER INSTEAD OF 6-FOOT UNDER CERTAIN CONDITIONS WHERE ROW IS CONSTRAINED. SPECIAL PERMISSION MUST BE GRANTED.
3. IDEALLY, NO ABOVE-GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN THE TRAIL AND SHALL BE A MINIMUM OF 2 FEET FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE A MINIMUM OF 4 FEET FROM THE EDGE OF TRAIL.
4. TRAIL RUNNING SLOPES/VERTICAL GRADE SHALL NOT EXCEED THE VERTICAL GRADE OF THE ROADWAY.
5. 1.5% (2.08% OR 1:48 MAX) CROSS SLOPE. CROSS SLOPE DIRECTION TYPICALLY SLOPES TOWARD ROADWAY BUT CAN VARY. SLOPE SHOULDERS FOR POSITIVE DRAINAGE. OFTEN REQUIRES CONTINUING PAVEMENT OR SHOULDER SLOPE UNTIL TIE-IN WITH NATURAL GROUND. SEE PLAN SHEETS AND CROSS SECTIONS.
6. WHEN CONDITIONS PERMIT, SHOULDERS TO MATCH CROSS SLOPE OF TRAIL AND SIDE SLOPES TO BE 3:1 OR FLATTER.
7. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED DURING CONSTRUCTION.
8. PROOF ROLLING SHALL OCCUR IN PRESENCE OF OWNER OR OWNER'S TESTING AGENCY AT THE FOLLOWING STAGES: 1) PRIOR TO PLACING FILL IN LOW AREAS; 2) AFTER PREPARING SUBGRADE PRIOR TO PLACING ABC; 3) AFTER PLACEMENT OF ABC PRIOR TO PAVING.
9. TRANSVERSE EXPANSION JOINTS TO BE MAXIMUM 50 FEET APART.
10. UNDER SOME CIRCUMSTANCES, SIDE TRAILS MAY TRANSITION TO SIDEWALKS AND DESIGNATED BICYCLE LANES. IN THE EVENT THAT SIDE TRAILS MERGE ONTO STREETS, PROVIDE APPROPRIATE SIGNAGE AND PAVEMENT MARKINGS TO HELP SAFE MERGING.
11. ALL TRAILS WITHIN NCDOT ROADWAY ROW MUST CONSIDER THE FOLLOWING:
   - NCDOT REQUIRES AN ENCROachment PERMIT FROM NCDOT.
   - STRUCTURES, SUCH AS RETAINING WALLS AND BRIDGES, ARE TYPICALLY NOT PERMITTED IN NCDOT ROW AND MAY ONLY BE USED IN SPECIAL CONDITIONS.
   - NCDOT MAY REQUIRE A CLEAR RECOVERY ZONE OF 11.5 FEET TO 24 FEET (IN THE PRESENCE OF A DITCH SECTION) FROM THE EDGE OF TRAVEL LANE TO EDGE OF GREENWAY TRAIL DEPENDING ON AVERAGE DAILY TRAFFIC (ADT) AND DESIGN SPEEDS.
   - STORMWATER TREATMENT AND VEG. MUST BE INSTALLED PER NCDOT'S SPECS.
12. IF THE MULTI-USE PATH IS ALONG A NON-NCDOT ROAD, THEN THE CITY OF RALEIGH DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS WILL APPLY.
GALVANIZED SAFETY RAILING - VARIABLE HEIGHT

NOTES:
1. PROVIDE A SAFETY RAIL FOR THE FOLLOWING CIRCUMSTANCES WITHIN 6' OF THE EDGE OF PAVEMENT, WHICH ARE CONSIDERED HAZARDOUS DROP-OFFS:
   1) SLOPE > 3:1 AND DROP OF 6'
   2) SLOPE > 2:1 AND DROP OF 4'
   3) SLOPE > 1:1 AND DROP OF 1'
2. ALL CONCRETE TO BE CLASS ‘A’ AT 3000 PSI COMPRESSIVE STRENGTH.
3. TYPE OF PIPE TO BE USED IS 1' - 5/8" MAX O.D. BLACK IRON, LOW CARBON PIPE, OR GALVANIZED.
4. ALL JOINTS TO HAVE A 3/8" FILLET WELD.
5. ALL METAL SHALL BE GALVANIZED.
6. SAFETY RAIL SHALL BE UNIFORM IN HEIGHT ALONG EACH PROPOSED SEGMENT. 42" RAIL HEIGHT SHALL BE THE MINIMUM. 48" RAIL HEIGHT SHALL BE UTILIZED ALONG BRIDGES, BRIDGE APPROACHES, AND AT OTHER LOCATIONS WHERE HIGH-SPEED, STEEP-ANGLE (25 DEGREES OR GREATER) IMPACTS BETWEEN A BICYCLIST AND THE RAILING MAY OCCUR, SUCH AS AT A CURVE AT THE FOOT OF A LONG, DESCENDING GRADE WHERE THE CURVE RADIUS IS LESS THAN THAT APPROPRIATE FOR THE DESIGN SPEED OR ANTICIPATED SPEED. 54" RAIL HEIGHT SHALL BE UTILIZED IN EXTREME CONDITIONS AND WHERE CITY REGULATIONS DICTATE.
7. SAFETY RAIL LATERAL OFFSET FROM EDGE OF PAVEMENT WILL VARY BUT SHOULD BE 1' MINIMUM. THE ENDS OF THE SAFETY RAIL SHOULD BE FLARED AWAY FROM THE PATH EDGE.
Vinyl Safety Railing - Variable Height

Notes:
1. Provide a safety rail for the following circumstances within 6' of the edge of pavement, which are considered hazardous drop-offs:
   1) Slope > 3:1 and drop of 6'
   2) Slope > 2:1 and drop of 4'
   3) Slope > 1:1 and drop of 1'
2. Safety rail to be three-rail white vinyl with nominal 8' section length.
3. Footing width to be 2x post width or 1', whichever is greater. Min footing depth of 30". All concrete to be class 'A' at 3000 PSI compressive strength.
4. Safety rail shall be uniform in height along each proposed segment. 42" rail height shall be the minimum. 48" rail height shall be utilized along bridges, bridge approaches, and at other locations where high-speed, steep-angle (25 degrees or greater) impacts between a bicyclist and the railing may occur, such as at a curve at the foot of a long, descending grade where the curve radius is less than that appropriate for the design speed or anticipated speed. 54" rail height shall be utilized in extreme conditions and where city regulations dictate.
5. Safety rail lateral offset from edge of pavement will vary but should be 1' minimum. The ends of the safety rail should be flared away from the path edge.

City of Raleigh
Standard Detail

Revisions
Date: 12/2022

Vinyl Safety Railing - Variable Height

GW-20.02
BOARDWALK OR BRIDGE
TIMBER APPROACH RAILING

NOTES:
1. THE LENGTH OF THE APPROACH RAILING SHALL VARY DEPENDING ON SITE CONDITIONS.
2. THE LATERAL OFFSET OF THE RAILING SHOULD BE AT LEAST 1 FOOT FROM THE EDGE OF PATH. THE ENDS OF THE RAILING SHOULD BE FLARED AWAY FROM THE PATH EDGE.
3. THE APPROACH RAILING HEIGHT SHALL MATCH THE HEIGHT OF THE BRIDGE OR BOARDWALK RAILING, UNLESS OTHERWISE NOTED. THE RAILING HEIGHT WILL BE 42" (MIN), 48", OR 54" (MAX).
4. ALL CONCRETE FOOTERS AND END BLOCKS SHALL BE 3000 PSI MIN.
NOTES:
1. THE LENGTH OF THE APPROACH RAILING SHALL VARY DEPENDING ON SITE CONDITIONS.
2. THE LATERAL OFFSET OF THE RAILING SHOULD BE AT LEAST 1 FOOT FROM THE EDGE OF PATH. THE ENDS OF THE RAILING SHOULD BE FLARED AWAY FROM THE PATH EDGE.
3. THE APPROACH RAILING HEIGHT SHALL MATCH THE HEIGHT OF THE BRIDGE OR BOARDWALK RAILING, UNLESS OTHERWISE NOTED. THE RAILING HEIGHT WILL BE 42" (MIN), 48", OR 54" (MAX).
TYPICAL BOARDWALK SECTION

NOTES:

1. BOARDWALK DECK IS TO BE CAST-IN-PLACE REINFORCED CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
2. THE REINFORCING STEEL IN THE CAST-IN-PLACE CONCRETE BOARDWALK DECK SHALL BE EPOXY COATED GRADE 60.
3. CONCRETE DECKING CROSS SLOPE SHALL MATCH CROSS SLOPE OF TRAIL ON BOTH APPROACHES TO FACILITATE POSITIVE DRAINAGE AND PREVENT PONDING.
4. STAY-IN-PLACE METAL FORMS SHALL BE PROVIDED TO FACILITATE REINFORCED CONCRETE DECK CONSTRUCTION.
5. STAY-IN-PLACE METAL FORMS SHALL BE ATTACHED TO LONGITUDINAL TIMBER JOISTS USING AN APPROVED METHOD. ALL SCREWS AND OTHER HARDWARE USED SHALL BE GALVANIZED.
6. ALL OTHER HARDWARE (NUTS, WASHERS, BOLTS, ETC.) SHALL BE HOT DIPPED GALVANIZED PER ASTM A153.
7. TOP RAIL AND OTHER CONNECTIONS SHALL BE MADE WITH WOOD SCREW; NAILED CONNECTIONS WILL NOT BE ACCEPTABLE.
8. THE MINIMUM HEIGHT OF BRIDGE/BOARDWALK RAILING SHALL BE 42", UNLESS OTHERWISE NOTED. THE HEIGHT CAN RANGE BETWEEN 42", 48", OR 54".
9. A GRIP-ABLE, ROUND RAIL THAT WILL ACT AS BOTH A RUB RAIL AND HANDRAIL SHALL ONLY BE REQUIRED WHEN GRADES ARE GREATER THAN 5%. REFER TO DETAIL GW-30.04 FOR BRIDGE OR BOARDWALK RUB RAIL/HANDRAIL ATTACHMENT.
10. BLACK VINYL COATED CHAIN LINK FENCE AND TENSION TIES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
11. ALL TIMBER BOARDWALK COMPONENTS AND REINFORCED CONCRETE DECK SHALL DESIGNED IN ACCORDANCE WITH THE CURRENT EDITION OF THE AASHTO LRFD GUIDE SPECIFICATIONS FOR PEDESTRIAN BRIDGES.
12. SPAN LENGTHS, JOIST SPACING, SIZING OF MEMBERS, REINFORCED CONCRETE DECK, AND OTHER DESIGN SPECIFICS SHALL BE DETERMINED BY THE ENGINEER ON A PROJECT SPECIFIC BASIS.
13. FOUNDATION SHALL CONSIST OF DRIVEN PILES, AUGURED PILES, HELICAL PIERS, OR OTHER APPLIED FOUNDATION SYSTEM. SPECIFICS SUCH AS NUMBER OF PILES, SPACING, AND HEIGHT SHALL BE DETERMINED BY ENGINEER ON A PROJECT SPECIFIC BASIS BASED ON REQUIRED LOADING.
NOTES:
1. PREMANUFACTURED PEDESTRIAN BRIDGE SECTION AND DETAILS MAY VARY BY PROJECT. STRUCTURAL STEEL TRUSS BRIDGE SECTION SHOWN.
2. PREMANUFACTURED PEDESTRIAN BRIDGE SHALL BE DESIGNED AND DETAILED ON A PROJECT-SPECIFIC BASIS DEPENDING ON OVERALL GEOMETRY, LOADING, AND AESTHETIC REQUIREMENTS BY MANUFACTURER WITH INPUT FROM THE ENGINEER.
3. CONCRETE DECKING CROSS SLOPE SHALL MATCH CROSS SLOPE OF TRAIL ON BOTH APPROACHES TO FACILITATE POSITIVE DRAINAGE AND PREVENT PONDING.
4. THE MINIMUM HEIGHT OF BRIDGE/BOARDWALK RAILING SHALL BE 42", UNLESS OTHERWISE NOTED. THE HEIGHT CAN RANGE BETWEEN 42", 48", OR 54".
5. A GRIP-ABLE, ROUND RAIL THAT WILL ACT AS BOTH A RUB RAIL AND HANDRAIL SHALL ONLY BE REQUIRED WHEN GRADES ARE GREATER THAN 5%. REFER TO DETAIL GW-30.04 FOR BRIDGE OR BOARDWALK RUB RAIL/HANDRAIL ATTACHMENT.
6. FOUNDATION SYSTEM SHALL BE DETERMINED BY ENGINEER ON A PROJECT SPECIFIC BASIS BASED ON REQUIRED LOADING.
NOTES:

1. BRIDGE/BOARDWALK FOUNDATION, BACKWALL, AND STRINGERS NOT SHOWN FOR CLARITY.
2. BRIDGE/BOARDWALK APPROACH SLABS TO MATCH APPROACH TRAIL WIDTH AND CROSS SLOPE AS REQUIRED BY DESIGN.
3. APPROACH SLAB REQUIRED ON BOTH ENDS OF BRIDGE/BOARDWALK IF TRANSITIONING TO ASPHALT TRAIL PAVEMENT. BEGIN APPROACH SLAB SHOWN IN DETAIL ABOVE. END APPROACH SLAB WILL BE SIMILAR.
4. APPROACH TRAIL PAVEMENT DESIGN TO BE DETERMINED ON A PROJECT SPECIFIC BASIS BY THE ENGINEER. ASPHALT PAVEMENT DESIGN IS SHOWN IN THIS DETAIL TO ILLUSTRATE TRANSITION FROM ASPHALT TO CONCRETE.
1. A GRIP-ABLE, ROUND RAIL THAT WILL ACT AS BOTH A RUB RAIL AND HANDRAIL SHALL ONLY BE REQUIRED WHEN GRADES ARE GREATER THAN 5%.
NOTES:
1. THE MINIMUM HEIGHT OF BRIDGE/BOARDWALK RAILING SHALL BE 42" UNLESS OTHERWISE NOTED. THE HEIGHT CAN RANGE BETWEEN 42", 48", OR 54".
2. A GRIPABLE, ROUND RAIL THAT WILL ACT AS BOTH A RUB RAIL AND HANDRAIL SHALL ONLY BE REQUIRED WHEN GRADES ARE GREATER THAN 5%. REFER TO DETAIL GW-30.04 FOR BRIDGE OR BOARDWALK RUB RAIL/HANDRAIL ATTACHMENT.
3. UTILIZE DETAIL GW-30.04 "BRIDGE OR BOARDWALK RUB RAIL/HANDRAIL ATTACHMENT" AS A TYPICAL RAIL ATTACHMENT DETAIL FOR HORIZONTAL RAILS TO RAIL POST CONNECTIONS.
4. BLACK VINYL COATED CHAIN LINK FENCE AND TENSION TIES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
5. SPAN LENGTHS, JOIST SPACING, SIZING OF MEMBERS, REINFORCED CONCRETE DECK, AND OTHER DESIGN SPECIFICS SHALL BE DETERMINED BY THE ENGINEER ON A PROJECT SPECIFIC BASIS.
6. FOUNDATION SHALL CONSIST OF DRIVEN PILES, AUGURED PILES, HELICAL PIERS, OR OTHER APPLIED FOUNDATION SYSTEM. SPECIFICS SUCH AS NUMBER OF PILES, SPACING, AND HEIGHT SHALL BE DETERMINED BY ENGINEER ON A PROJECT SPECIFIC BASIS BASED ON REQUIRED LOADING. TIMBER PILES ARE SHOWN IN THIS DETAIL AS AN EXAMPLE.
EDGE OF PAVEMENT

TRAIL

CONCRETE FOOTING TYP.
3,000 PSI @ 28 DAYS

COMPACTED SUBGRADE

ALL HARDWARE TO BE GALVANIZED AND FILED TO PREVENT THEFT/REMOVAL

EDGE OF TRAIL

2' MIN - 5' MAX FROM EDGE OF TRAIL

4" U-CHANNEL POST OR 2 1/2"
SCH 40 ALUMINUM POST, PMS 451 TAUPE.

4' MIN
5' MAX

TYPICAL TRAIL SIGN INSTALLATION

NOTE:
1. SMALLER SCALE SIGNS OR PLAQUES MAY BE USED FOR GREENWAY TRAIL APPLICATIONS.
CONSTRUCTION BARRICADE AND SIGN

<INSERT TRAIL NAME> IS CLOSED AHEAD
FOR IMPROVEMENTS TO <INSERT BRIEF DESCRIPTION>

START DATE: <INSERT DATE>
FINISH DATE: <INSERT DATE>
FOR QUESTIONS PLEASE CONTACT:
CITY OF RALEIGH
PARKS DEPARTMENT
M-F 8:00 AM - 5:00 PM
(919) 996-3265
PARKPLAN@RALEIGHNC.GOV

U-CHANNEL POST (TYP)

24" X 12" WHITE SIGN WITH BLACK BORDER AND BLACK LETTERING (RESEMBLING MUTCD R9-9) FIRMLY ATTACHED TO BARRICADE

ALTERNATIVE SIGN ATTACHMENT OPTIONS SHOWN BELOW

24" X 18" WHITE SIGN WITH BLACK BORDER AND BLACK LETTERING (RESEMBLING MUTCD R9-11) FIRMLY ATTACHED TO BARRICADE

30" X 24" MUTCD M4-9A (ORANGE SIGN WITH BLACK BORDER AND BLACK LETTERING) FIRMLY ATTACHED TO BARRICADE

STANDARD 18" X 24" YARD SIGN WITH BLACK LETTERING FIRMLY ATTACHED TO BARRICADE DISPLAYING THE INFORMATION DESCRIBED ABOVE

GREENWAY CLOSURE/DETOUR SIGN

TYPE III BARRICADE WITH RED & WHITE REFLECTORIZED PANELS

1' MIN.

5' MIN.

1' (TYP)

2' (TYP)

45°

6"
CONSTRUCTION BARRICADE AND SIGN - NOTES:

1. CONTRACTOR TO UTILIZE PROVIDED PEDESTRIAN DETOUR PLANS TO INSTALL AND MAINTAIN PEDESTRIAN DETOUR ROUTES FOR EACH PHASE OF THE PROJECT. IF PEDESTRIAN DETOUR PLANS ARE NOT PROVIDED, CONTRACTOR IS TO DEVELOP SAID PLANS AND OBTAIN CITY APPROVAL PRIOR TO IMPLEMENTATION.

2. INSTALL DETOUR SIGNS BEFORE BARRICADES WHEN CLOSING TRAIL TO PEDESTRIAN TRAFFIC. REMOVE BARRICADES BEFORE DETOUR SIGNS WHEN OPENING TRAIL TO PEDESTRIAN TRAFFIC. INSTALL/REMOVE DETOUR SIGNS AND BARRICADES WITHIN SAME CALENDAR DAY.

3. EACH DETOUR SHALL BE ADEQUATELY MARKED. THE NUMBER OF BARRICADES AND SIGNS NEEDED WILL BE DETERMINED BY THE CONTRACTOR BASED ON THE PROPOSED PEDESTRIAN DETOUR PLANS.

4. INSTALL PEDESTRIAN BARRICADES TO BLOCK FULL WIDTH OF TRAIL DURING TRAIL CLOSURES. MORE THAN ONE BARRICADE MAY BE NEEDED TO COVER THE FULL WIDTH OF TRAIL. CHAIN BARRICADES TOGETHER AS NEEDED IF MULTIPLE BARRICADES ARE USED.

5. "TRAIL CLOSED AHEAD" SIGNS AND BARRICADES SHOULD BE USED WHERE PEDESTRIAN FLOW IS RESTRICTED SUCH AS AT THE BEGINNING AND END OF THE CLOSED TRAIL AND AT THE INTERSECTIONS PRECEDING THE CLOSED TRAIL, IF APPLICABLE.

6. MOUNT "TRAIL CLOSED AHEAD" SIGN TO BARRICADE RAILS TO ENSURE SIGN WILL NOT BECOME DETACHED DURING NORMAL WIND CONDITIONS.

7. PLACE SANDBAGS OR OTHER APPROVED BALLASTING METHODS ON THE FEET OF THE FRAME. DO NOT PLACE SANDBAGS ON TOP OF A STRIPED RAIL OR STABILIZER BAR. DO NOT BALLAST BARRICADES WITH HEAVY OBJECTS SUCH AS ROCKS, CHunks OF CONCRETE, OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK.
NOTES:
1. CONSTRUCTION PROJECT IDENTIFICATION SIGNS ARE TO BE PLACED AT EITHER END OF THE TRAIL SECTION UNDER CONSTRUCTION UNLESS OTHERWISE INSTRUCTED BY THE CITY. IF THE PROJECT IS CONSTRUCTED IN SECTIONS, THE CONSTRUCTION PROJECT IDENTIFICATION SIGNS CAN BE MOVED TO EACH SEGMENT UNDER CONSTRUCTION AS NEEDED.
2. ERECT SUPPORTS AND FRAMING ON SECURE FOUNDATION, RIGIDLY BRACED AND FRAMED TO RESIST WIND LOADINGS AND SIGN THEFT. INSTALL SIGN SURFACE PLUMB AND LEVEL.
3. REMOVE SIGN(S), FRAMING, SUPPORTS, AND FOUNDATIONS AT COMPLETION OF PROJECT AND RESTORE THE AREA.
NOTES:

1. CONTRACTOR TO UTILIZE PROVIDED PEDESTRIAN DETOUR PLANS TO INSTALL AND MAINTAIN PEDESTRIAN DETOUR ROUTES FOR EACH PHASE OF THE PROJECT. IF PEDESTRIAN DETOUR PLANS ARE NOT PROVIDED, CONTRACTOR IS TO DEVELOP SAID PLANS AND OBTAIN CITY APPROVAL PRIOR TO IMPLEMENTATION.

2. INSTALL DETOUR SIGNS BEFORE BARRICADES WHEN CLOSING TRAIL TO PEDESTRIAN TRAFFIC. REMOVE BARRICADES BEFORE DETOUR SIGNS WHEN OPENING TRAIL TO PEDESTRIAN TRAFFIC. INSTALL/REMOVE DETOUR SIGNS AND BARRICADES WITHIN SAME CALENDAR DAY.

3. EACH DETOUR SHALL BE ADEQUATELY MARKED. THE NUMBER OF SIGNS NEEDED WILL BE DETERMINED BY THE CONTRACTOR BASED ON THE PROPOSED PEDESTRIAN DETOUR PLANS.

4. THE PEDESTRIAN/BICYCLE DETOUR (M4-9A) SIGN SHOULD BE USED WHERE A PEDESTRIAN/BICYCLE DETOUR ROUTE HAS BEEN ESTABLISHED TO REROUTE PEDESTRIAN TRAFFIC DUE TO A TRAIL CLOSURE. THE M4-9A DETOUR SIGN SHALL HAVE AN ARROW POINTING IN THE APPROPRIATE DIRECTION.

5. STATIONARY TRAIL DETOUR SIGNAGE IS PREFERABLE FOR PEDESTRIAN DETOUR ROUTES THAT SHALL BE IN PLACE FOR EXTENDED DURATIONS OR IF THERE IS DEEMED TO BE A HIGH PROBABILITY OF SIGN THEFT. CONSULT WITH CITY OF RALEIGH PROJECT MANAGER TO DETERMINE IF STATIONARY OR PORTABLE SIGNS SHALL BE USED. REFER TO DETAIL GW-40.05 FOR PORTABLE TRAIL DETOUR SIGNAGE IF APPLICABLE.

6. ALL HARDWARE TO BE GALVANIZED AND FILED TO PREVENT THEFT/REMOVAL.
NOTES:
1. CONTRACTOR TO UTILIZE PROVIDED PEDESTRIAN DETOUR PLANS TO INSTALL AND MAINTAIN PEDESTRIAN DETOUR ROUTES FOR EACH PHASE OF THE PROJECT. IF PEDESTRIAN DETOUR PLANS ARE NOT PROVIDED, CONTRACTOR IS TO DEVELOP SAID PLANS AND OBTAIN CITY APPROVAL PRIOR TO IMPLEMENTATION.

2. INSTALL DETOUR SIGNS BEFORE BARRICADES WHEN CLOSING TRAIL TO PEDESTRIAN TRAFFIC. REMOVE BARRICADES BEFORE DETOUR SIGNS WHEN OPENING TRAIL TO PEDESTRIAN TRAFFIC. INSTALL/REMOVE DETOUR SIGNS AND BARRICADES WITHIN SAME CALENDAR DAY.

3. EACH DETOUR SHALL BE ADEQUATELY MARKED. THE NUMBER OF SIGNS NEEDED WILL BE DETERMINED BY THE CONTRACTOR BASED ON THE PROPOSED PEDESTRIAN DETOUR PLANS.

4. THE PEDESTRIAN/BICYCLE DETOUR (M4-9A) SIGN SHOULD BE USED WHERE A PEDESTRIAN/BICYCLE DETOUR ROUTE HAS BEEN ESTABLISHED TO REROUTE PEDESTRIAN TRAFFIC DUE TO A TRAIL CLOSURE. THE M4-9A DETOUR SIGN SHALL HAVE AN ARROW POINTING IN THE APPROPRIATE DIRECTION.

5. PORTABLE TRAIL DETOUR SIGNAGE IS PREFERABLE FOR PEDESTRIAN DETOUR ROUTES THAT SHALL BE IN PLACE FOR SHORT DURATIONS AND IF THERE IS DEEMED TO BE A LOW PROBABILITY OF SIGN THEFT. CONSULT WITH CITY OF RALEIGH PROJECT MANAGER TO DETERMINE IF STATIONARY OR PORTABLE SIGNS SHALL BE USED. REFER TO DETAIL GW-40.04 FOR STATIONARY TRAIL DETOUR SIGNAGE IF APPLICABLE.

6. USE COMPOSITE OR ROLL-UP SIGN SUBSTRATES ON PORTABLE SIGN STANDS. FOR BOTH COMPOSITE AND ROLL-UP SIGN SUBSTRATES, USE GRADE B FLUORESCENT ORANGE RETROREFLECTIVE SHEETING. USE ROLL-UP SIGNS THAT HAVE A MINIMUM 3/16 INCH X 1 1/4 INCHES HORIZONTAL RIB AND 3/8 INCH X 1 1/4 INCHES VERTICAL RIB.
NOTES:

1. LOCATE BENCHES ALONG THE GREENWAY TRAIL WHERE APPROPRIATE, WHERE THERE IS A DEMAND BY USERS, OR AS DIRECTED BY THE CITY. PROVIDING SEATING AT ONE MILE GAPS IS THE GOAL. SEATING WITHIN 1/2 MILE OF TRAIL HEADS IS RECOMMENDED.

2. PROVIDE BENCHES IN AREAS THAT PROVIDE INTERESTING VIEWS, ARE CLOSE TO AN INTERPRETIVE ELEMENT, AND OFFER SHADE OR SHELTER FROM SEASONAL WINDS.

3. LOCATE BENCHES A MINIMUM OF 4 FEET FROM RESTROOMS, DRINKING FOUNTAINS, AND TRASH AND RECYCLING RECEPTACLES. LOCATE BENCHES A MINIMUM OF 2 FEET FROM LIGHTING POLES AND SIGN POSTS.

4. DRAINAGE SHOULD SLOPE AWAY FROM THE BENCH AND THE GREENWAY TRAIL.

5. FRAME: 3 HOT-DIPPED GALVANIZED FRAMES ALL WELDED STEEL FROM CONSTRUCTION, SEAT SUPPORT CHANNEL DIE-FORMED FROM 1/8" THICK STEEL, FRAME POSTS 2'-3/8" OD STEEL PIPE.

6. FINISH: HOT DIP GALVANIZED FINISH AFTER FABRICATION.

7. BENCH TO BE INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH MANUFACTURER’S SPECIFICATIONS AND DETAILS. SEAT SHOULD BE SECURELY ANCHORED TO THE GROUND. TO BE STATIONARY/EMBEDDED, MOUNT WITH FRAME POSTS IN CONCRETE FOOTING.

8. LENGTH: RECYCLED PLASTIC 6 FEET LONG.

9. SEAT BACK MATERIAL: 2" x 4" 100% RECYCLED PLASTIC PLANK.

10. ACCEPTABLE BENCH MANUFACTURER IS PILOT ROCK SCXB3/G-6PC24 EMBEDDED MOUNT BENCH, CEDAR COLOR OR APPROVED EQUAL BY CITY OF RALEIGH.
Bench Installation Surface Mount

**NOTES:**

1. Locate benches along the Greenway Trail where appropriate, where there is a demand by users, or as directed by the City. Providing seating at one mile gaps is the goal. Seating within 1/2 mile of Trail Heads is recommended.
2. Provide benches in areas that provide interesting views, are close to an interpretive element, and offer shade or shelter from seasonal winds.
3. Locate benches a minimum of 4 feet from restrooms, drinking fountains, and trash and recycling receptacles. Locate benches a minimum of 2 feet from lighting poles and sign posts. Benches and receptacles can be located on the same concrete pad if sized appropriately.
4. Wheelchair access should be possible alongside benches. Provide access with a hardened surface such as concrete or asphalt.
5. Drainage should slope away from the bench and the Greenway Trail.
6. Frame: 3 hot-dipped galvanized frames all welded steel from construction, seat support channel die-formed from 1/8" thick steel, frame posts 2'-3/8" OD steel pipe.
7. Finish: Hot dip galvanized finish after fabrication.
8. Bench to be installed by the contractor in accordance with manufacturer's specifications and details. Seat should be securely anchored to the ground. To be stationary, mount with frame foot and concrete anchors to concrete slab.
9. Length: Recycled plastic 6 feet long.
10. Seat back material: 2" x 4" 100% recycled plastic plank.
11. When concrete slab is adjacent to concrete trail, a 1/2" expansion joint installed full depth will be required where the concrete slab joins the concrete trail.
12. Acceptable bench manufacturer is Pilot Rock PCXB/G-6PC24 Surface Mount Bench, Cedar color or approved Equal by City of Raleigh.

**CITY OF RALEIGH**

**STANDARD DETAIL**

**GW-50.02**
REVISIONS
NOT TO SCALE
CITY OF RALEIGH
STANDARD DETAIL
GW-50.03

FINISH GRADE
FINISH GRADE
CONCRETE FOOTING, 3000 PSI

IN-GROUND MOUNT
TRASH RECEPTACLE INSTALLATION

TRASH RECEPTACLE SIDE VIEW

NOTES:
1. LOCATE RECEPTACLE AT EACH TRAIL HEAD OR AS DIRECTED BY THE CITY. RECEPTACLES AND BENCHES CAN BE LOCATED ON THE SAME CONCRETE PAD IF SIZED APPROPRIATELY. RECEPTACLES MUST BE A MINIMUM OF 4 FEET FROM BENCHES.
2. RECEPTACLES NEED TO BE ACCESSIBLE TO MAINTENANCE PERSONNEL AND GREENWAY TRAIL USERS.
3. DRAINAGE SHOULD SLOPE AWAY FROM THE RECEPTACLES AND TRAIL.
4. STEEL MEMBERS FINISH: HOT DIP GALVANIZED FINISH AFTER FABRICATION.
5. TRASH RECEPTACLE CRADLE SHALL BE CONSTRUCTED OF 1" X ½" STEEL BARS.
6. FOLLOWING FABRICATION, STEEL CRADLE AND POST SHALL BE SEALED IN VINYL TO INHIBIT RUST AND ELIMINATE PERIODIC PAINTING.
7. A 40-GALLON LINER SHALL FIT INSIDE STEEL CRADLE. LINER AND LINER LID SHALL BE CONSTRUCTED OF TOUGH, ROTARY MOLED POLYETHYLENE WITH A ROCKER BOTTOM. WEIGHT OF LINER SHALL NOT EXCEED 12-POUNDS. LINER LID SHALL BE ATTACHED TO STEEL CRADLE WITH A VINYL CABLE. PROVIDE WEEP HOLE IN LINER TO PERMIT DRAINAGE FOR OUTDOOR APPLICATION. PROVIDE AN OPENING IN THE LID ON BOTH SIDES FOR DEPOSITING TRASH.
8. PROVIDE MOUNTING BRACKET FOR ATTACHING STEEL CRADLE TO IN-GROUND POST. IN-GROUND POST SHALL BE MANUFACTURER’S STANDARD. ANCHOR POST IN CONCRETE FOUNDATION.
9. TRASH RECEPTACLES ARE SINGLE RECEPTACLES (SEPARATE PIECES WITH IN-GROUND POSTS).
10. ACCEPTABLE TRASH RECEPTACLE MANUFACTURER IS BEST LITTER RECEPTACLE, INC RTC-1000, GREEN COLOR OR APPROVED EQUAL BY CITY OF RALEIGH.
11. LID TO BE GREEN COLOR TO MATCH CRADLE. LID TO HAVE TWO OPENINGS.

CITY OF RALEIGH
STANDARD DETAIL
REVISIONS DATE: 12/2022 NOT TO SCALE
TRASH RECEPTACLE INSTALLATION IN-GROUND MOUNT
GW-50.03
NOTES:

1. LOCATE RECEPTACLE AT EACH TRAIL HEAD OR AS DIRECTED BY THE CITY. RECEPTACLES AND BENCHES CAN BE LOCATED ON THE SAME CONCRETE PAD IF SIZED APPROPRIATELY. RECEPTACLES MUST BE A MINIMUM OF 4 FEET FROM BENCHES.
2. RECEPTACLES NEED TO BE ACCESSIBLE TO MAINTENANCE PERSONNEL AND GREENWAY TRAIL USERS.
3. DRAINAGE SHOULD SLOPE AWAY FROM RECEPTACLES AND TRAIL.
4. STEEL MEMBERS FINISH: HOT DIP GALVANIZED FINISH AFTER FABRICATION.
5. TRASH RECEPTACLE CRADLE SHALL BE CONSTRUCTED OF 1" X ⅜" STEEL BARS.
6. FOLLOWING FABRICATION, STEEL CRADLE AND POST SHALL BE SEALED IN VINYL TO INHIBIT RUST AND ELIMINATE PERIODIC PAINTING.
7. A 40-GALLON LINER SHALL FIT INSIDE STEEL CRADLE. LINER AND LINER LID SHALL BE CONSTRUCTED OF TOUGH, ROTARY MOLDED POLYETHYLENE WITH A ROCKER BOTTOM. WEIGHT OF LINER SHALL NOT EXCEED 12-POUNDS. LINER LID SHALL BE ATTACHED TO STEEL CRADLE WITH A VINYL CABLE. PROVIDE WEEP HOLE IN LINER TO PERMIT DRAINAGE FOR OUTDOOR APPLICATION. PROVIDE AN OPENING IN THE LID ON BOTH SIDES FOR DEPOSITING LITTER.
8. MOUNTING SHALL BE MANUFACTURER’S STANDARD.
9. TRASH RECEPTACLES ARE SINGLE RECEPTACLES (SEPARATE PIECES WITH SURFACE MOUNT).
10. ACCEPTABLE TRASH RECEPTACLE MANUFACTURER IS BEST LITTER RECEPTACLE, INC RTC-1000, GREEN COLOR OR APPROVED EQUAL BY CITY OF RALEIGH.
11. LID TO BE GREEN COLOR TO MATCH CRADLE. LID TO HAVE TWO OPENINGS.
12. WHEN CONCRETE SLAB IS ADJACENT TO CONCRETE TRAIL, A 1/2" EXPANSION JOINT INSTALLED FULL DEPTH WILL BE REQUIRED WHERE THE CONCRETE SLAB JOINS THE CONCRETE TRAIL.
TRASH AND RECYCLING RECEPTACLE SIDE VIEW

TRASH AND RECYCLING RECEPTACLE INSTALLATION IN-GROUND MOUNT

NOTES:

1. LOCATE RECEPTACLES AT EACH TRAIL HEAD OR AS DIRECTED BY THE CITY. RECEPTACLES MUST BE A MINIMUM OF 4 FEET FROM BENCHES.
2. RECEPTACLES SHOULD BE SET BACK A MINIMUM OF 3 FEET FROM THE EDGE OF THE GREENWAY TRAIL.
3. DRAINAGE SHOULD SLOPE AWAY FROM THE RECEPTACLES AND GREENWAY TRAIL. PROVIDE 2% MAX CROSS SLOPE FROM EDGE OF TRAIL TO RECEPTACLES WHERE FEASIBLE.
4. RECEPTACLE CRADLES SHALL BE CONSTRUCTED OF 1" X ¾” STEEL BARS.
5. FOLLOWING FABRICATION, STEEL CRADLES AND POSTS SHALL BE SEALED IN VINYL TO INHIBIT RUST AND ELIMINATE PERIODIC PAINTING.
6. A 40-GALLON LINER SHALL FIT INSIDE EACH STEEL CRadle. LINERS AND LINER LIDS SHALL BE CONSTRUCTED OF TOUGH, ROTARY MOLDED POLYETHYLENE WITH A ROCKER BOTTOM. WEIGHT OF LINERS SHALL NOT EXCEED 12-POUNDS. LINER LIDS SHALL BE ATTACHED TO STEEL CRADLES WITH A VINYL CABLE. PROVIDE WEEP HOLE IN LINERS TO PERMIT DRAINAGE FOR OUTDOOR APPLICATION. PROVIDE TWO OPENINGS (ONE ON EACH SIDE) IN THE TRASH RECEPTACLE LID AND ONE OPENING IN THE RECYCLING RECEPTACLE LID FOR DEPOSITING LITTER AND RECYCLABLES, RESPECTIVELY.
7. RECEPTACLES ARE A COMBINATION UNIT (COMBINED UNIT WITH IN-GROUND POST).
8. ACCEPTABLE RECEPTACLE MANUFACTURER IS BEST LITTER RECEPTACLE, INC RTC-1000. GREEN COLOR FOR TRASH AND BLUE COLOR FOR RECYCLING OR APPROVED EQUAL BY CITY OF RALEIGH. RECYCLING RECEPTACLES SHOULD BE SIGNED AS RECYCLING AND PROVIDE INFORMATION ON WHAT RECYCLABLES ARE ACCEPTED. CONSIDER INCLUDING EDUCATIONAL SIGNAGE ABOUT THE IMPORTANCE OF RECYCLING AND THE ENVIRONMENTAL BENEFITS.
9. TRASH RECEPTACLE LID TO BE GREEN COLOR TO MATCH CRADLE. RECYCLING RECEPTACLE LID TO BE BLUE COLOR TO MATCH CRADLE.
TRASH AND RECYCLING RECEPTACLE INSTALLATION
SURFACE MOUNT

CONCRETE SLAB PLAN VIEW

CONCRETE SLAB

TRASH RECEPTACLE INSTALLED ON CONCRETE SURFACE

RECYCLING RECEPTACLE INSTALLED ON CONCRETE SURFACE

4" THICK CONCRETE SLAB, 3,000 PSI, ROUNDED EDGE, FINE BROOM FINISH PERPENDICULAR TO DIRECTION OF TRAVEL

WOODEN POST

SINGLE OPENING IN LID FOR DEPOSITING RECYCLABLES

RECYCLING RECEPTACLE LID

40 GALLON POLYETHYLENE LINER

1" x 2" STEEL BAR CRADLE

CONCRETE SLAB (SEE PLAN VIEW)

FINISH GRADE

SURFACE MATERIAL AS SPECIFIED (TYPICAL)

TRASH RECEPTACLE LID

40 GALLON POLYETHYLENE LINER

1" x 1/2" STEEL BAR CRADLE

1/8" x 3" STEEL SURFACE PLATE

WATER BAR CRADLE

TRASH AND RECYCLING RECEPTACLE SIDE VIEW

TRASH AND RECYCLING RECEPTACLE INSTALLATION

GRADE

FINISH

AS SPECIFIED

1' - 0"

2' - 0"

1' - 0"

2' - 0"

1' - 6"

MIN.

MIN.

RECEPTACLE

RECEPTACLE

RECEPTACLE

RECEPTACLE

45°

DATE: 12/2022

CITY OF RALEIGH

STANDARD DETAIL

REVISIONS

DATE: 12/2022

NOT TO SCALE

TRASH AND RECYCLING RECEPTACLE INSTALLATION
SURFACE MOUNT

GW-50.06.1
1. Locate receptacles at each trail head or as directed by the city. Receptacles must be a minimum of 4 feet from benches.

2. Receptacles should be set back a minimum of 3 feet from the edge of the greenway trail.

3. Drainage should slope away from the receptacles and greenway trail. Provide 2% max cross slope from edge of trail to receptacles where feasible.

4. Receptacle cradles shall be constructed of 1" x ½" steel bars.

5. Following fabrication, steel cradles and posts shall be sealed in vinyl to inhibit rust and eliminate periodic painting.

6. A 40-gallon liner shall fit inside each steel cradle. Liners and liner lids shall be constructed of tough, rotary molded polyethylene with a rocker bottom. Weight of liners shall not exceed 12-pounds. Liner lids shall be attached to steel cradles with a vinyl cable. Provide weep hole in liners to permit drainage for outdoor application. Provide two openings (one on each side) in the trash receptacle lid and one opening in the recycling receptacle lid for depositing litter and recyclables, respectively.

7. Receptacles are a combination unit (combined unit surface mount).

8. Acceptable receptacle manufacturer is Best Litter Receptacle, Inc RTC-1000, green color for trash and blue color for recycling or approved equal by City of Raleigh. Recycling receptacles should be signed as recycling and provide information on what recyclables are accepted. Consider including educational signage about the importance of recycling and the environmental benefits.

9. Trash receptacle lid to be green color to match cradle. Recycling receptacle lid to be blue color to match cradle.