SPECIFICATIONS

CURB & GUTTER
ENTRANCE WAYS
TRENCHES & CUTS

Standard Notes

1. Work shall not commence in public right-of-way before approval by an inspector and a permit is obtained
2. Notify Construction Inspectors office at 853-2839 48 hours before work begins
3. Do not pour any concrete before forms have been inspected and approved

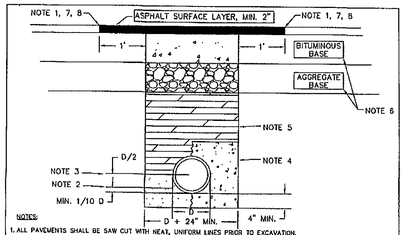
Sidewalk & Entrance Way and Curb & Gutter Notes

1. Use only standard metal forms as approved by the Virginia Department of Transportation (Wood forms will not be permitted)
2. Joints or score marks are to be sharp and clean without showing edges of jointing tool
3. All rebar shown shall be 1/2" unless otherwise noted for prescribed expansion joints
4. All concrete shall be Class A 3000 PSI
5. Curb radius fill in from back of curb and gutter to back of sidewalk

OFFICE OF THE CITY ENGINEER - ROANOKE, VIRGINIA

APPROVED: Philip C. Beurre, CITY ENGINEER
DATE: 12-19-03

NOTES — SHEET 1 OF 9



NOTES:

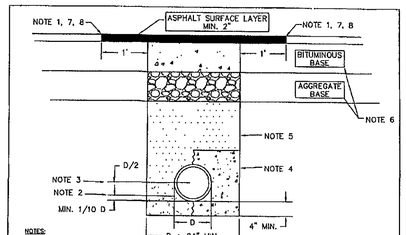
1. ALL PAVEMENTS SHALL BE SAW CUT WITH NEAT, UNIFORM LINES PRIOR TO EXCAVATION.
2. PIPE BEDDING MATERIAL SHALL BE CRUSHER RUN (VDOT NO. 25 OR 26) OR OPEN GRADED AGGREGATE (VDOT NO. 57, 68, 7, OR 8). ALTERNATE MATERIAL MUST BE APPROVED BY THE CITY ENGINEER.
3. MAXIMUM DEPTH OF PIPE BEDDING MATERIAL IF USING OPEN GRADED AGGREGATE FOR BEDDING.
4. OPTIONAL CONCRETE ENCASEMENT FOR POWER OR COMMUNICATION CONDUIT. PROVIDE A MINIMUM OF 4" CONCRETE COVER FROM ALL SIDES OF CONDUIT.
5. BACKFILL MATERIAL SHALL BE VDOT NO. 21A AGGREGATE, PLACED IN LOOSE LIFTS NOT EXCEEDING 8", AND COMPACTED TO AT LEAST 95% MAXIMUM DRY DENSITY WITHIN 2 PERCENTAGE POINTS OF OPTIMUM MOISTURE (VTM-1) WITH THE USE OF MECHANICAL TAMPERS OR VIBRATORY ROLLERS. WATER COMPACTION IS NOT PERMITTED. TYPE I SELECT MATERIAL MAY BE USED AS BACKFILL UPON PRIOR APPROVAL BY THE CITY ENGINEER. MATERIAL CLASSIFICATION SHALL BE PERFORMED ON THE ACTUAL SOIL TO VERIFY THAT SOIL MEETS VDOT SPECIFICATIONS FOR TYPE I SELECT MATERIAL BY A QUALIFIED TESTING LABORATORY AND TEST RESULTS SHALL BE CERTIFIED BY A VIRGINIA REGISTERED PROFESSIONAL ENGINEER. DENSITY REQUIREMENTS ARE THE SAME AS ABOVE, HOWEVER, MOISTURE CONTENT FOR SOILS MAY WITH WITHIN 20% OF OPTIMUM.

   ALL TESTING SHALL BE PERFORMED AND CERTIFIED BY A GEOTECHNICAL ENGINEER OR A VDOT-CERTIFIED TECHNICIAN. RESULTS SHALL BE PROVIDED TO THE INSPECTOR WITHIN 24 HOURS OF TESTING COMPLETION. THE COST OF ALL TESTING IS THE RESPONSIBILITY OF THE PERMITTEE. FIELD DENSITY TESTING METHODS SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO PERFORMING ANY TESTING.
6. ALL PAVEMENTS SHALL BE RESTORED TO MATCH DEPTHS OF EXISTING SURFACE, BASE, AND AGGREGATE LAYERS. THE ASPHALT SURFACE LAYER SHALL BE A MINIMUM OF 2" THICK AND EXTEND OVER UNDISTURBED BASE A MINIMUM OF 12" ON ALL SIDES. ALL PAVEMENT MATERIALS SHALL MEET VDOT REQUIREMENTS FOR SURFACE MIX (SM-9.5A, OR SM-12.5D), BASE MIX (BM-25), AND STONE AGGREGATE (21A OR 21B). PLANT CERTIFICATION FOR EACH MIX INCORPORATED INTO THE WORK SHALL BE PROVIDED TO THE INSPECTOR. WHEN MATCHING NON-STANDARD MATERIALS, THE INSPECTOR SHALL DETERMINE AN ACCEPTABLE MATERIAL.
7. THE REPAIR SHALL BE RECTANGULAR AND SAW CUT IN STRAIGHT, UNIFORM LINES THAT ARE ALIGNED WITH THE STREET CENTERLINE. WHEN EDGES OF PAVEMENT HAVE BEEN UNDERMINED, PAVEMENT SHALL BE REMOVED TO A NEAT LINE 12" BEYOND THE UNDERMINED AREA. THE FINISHED PATCH SURFACE SHALL BE WITHIN 1/4 INCH AT ANY POINT ACROSS THE PATCH AS IT RELATES TO THE SURROUNDING STREET SURFACE.
8. A FULL COVERAGE TACK COAT IS REQUIRED ON ALL SURFACES THAT WILL CONTACT THE NEW SURFACE LAYER

OFFICE OF THE CITY ENGINEER – ROANOKE, VIRGINIA

APPROVED: Philip C. Beurre, CITY ENGINEER
DATE: 12/01/04

UTILITY TRENCH REPAIR IN PAVEMENT USING VDOT NO. 21A AGGREGATE — 3 OF 9



NOTES:

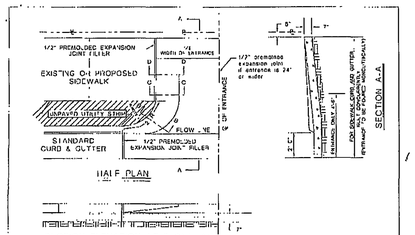
1. ALL PAVEMENTS SHALL BE SAW CUT WITH NEAT, UNIFORM LINES PRIOR TO EXCAVATION.
2. PIPE BEDDING MATERIAL SHALL BE CRUSHER RUN (VDOT NO. 25 OR 26) OR OPEN GRADED AGGREGATE (VDOT NO 57, 68, 7, OR 8). ALTERNATE MATERIAL MUST BE APPROVED BY THE CITY ENGINEER.
3. MAXIMUM DEPTH OF PIPE BEDDING MATERIAL IF USING OPEN GRADED AGGREGATE FOR BEDDING.
4. OPTIONAL CONCRETE ENCASEMENT FOR POWER OR COMMUNICATION CONDUIT. PROVIDE A MINIMUM OF 4" CONCRETE COVER FROM ALL SIDES OF CONDUIT.
5. BACKFILL MATERIAL SHALL BE FLOWABLE FILL MEETING THE REQUIREMENTS OF VDOT SPECIAL PROVISION FOR FLOWABLE BACKFILL. THE MATERIAL MUST BE PLANT-CERTIFIED TO PROVIDE A 28-DAY COMPRESSIVE STRENGTH BETWEEN 30 AND 200 PSI. A CERTIFICATE OF MIX DESIGN MUST BE SUBMITTED TO THE INSPECTOR PRIOR TO PLACING THE MATERIAL IN THE TRENCH.

   A MINIMUM OF FOUR 6x12 TEST CYLINDERS SHALL BE TAKEN EVERY 50 CY OF PLACEMENT. CYLINDERS SHALL BE TESTED BY A QUALIFIED TESTING LABORATORY FOR 28-DAY STRENGTH. RESULTS SHALL BE PROVIDED TO THE INSPECTOR WITHIN 24 HOURS OF TESTING COMPLETION. THE COST OF ALL TESTING IS THE RESPONSIBILITY OF THE PERMITTEE. IF THE REPORT INDICATES THE COMPRESSIVE STRENGTHS ARE NOT BETWEEN 30 AND 200 PSI, THE PERMITTEE WILL BE RESPONSIBLE FOR REMOVING AND REPLACING THE BACKFILL WITH ACCEPTABLE BACKFILL AND COMPLETING THE RESTORATION OF THE STREET AT NO COST TO THE CITY.
6. ALL PAVEMENTS SHALL BE RESTORED TO MATCH DEPTHS OF EXISTING SURFACE, BASE, AND AGGREGATE LAYERS. THE ASPHALT SURFACE LAYER SHALL BE A MINIMUM OF 2" THICK AND EXTEND OVER UNDISTURBED BASE A MINIMUM OF 12" ON ALL SIDES. ALL PAVEMENT MATERIALS SHALL MEET VDOT REQUIREMENTS FOR SURFACE MIX (SM-9.5A, SM-9.5A, OR SM-12.5D), BASE MIX (BM-25), AND STONE AGGREGATE (21A OR 21B). PLANT CERTIFICATION FOR EACH MIX INCORPORATED INTO THE WORK SHALL BE PROVIDED TO THE INSPECTOR. WHEN MATCHING NON-STANDARD MATERIALS, THE INSPECTOR SHALL DETERMINE AN ACCEPTABLE MATERIAL.
7. THE REPAIR SHALL BE RECTANGULAR AND SAW CUT IN STRAIGHT, UNIFORM LINES THAT ARE ALIGNED WITH THE STREET CENTERLINE. WHEN EDGES OF PAVEMENT HAVE BEEN UNDERMINED, PAVEMENT SHALL BE REMOVED TO A NEAT LINE 12" BEYOND THE UNDERMINED AREA. THE FINISHED PATCH SURFACE SHALL BE WITHIN 1/4 INCH AT ANY POINT ACROSS THE PATCH AS IT RELATES TO THE SURROUNDING STREET SURFACE.
8. A FULL COVERAGE TACK COAT IS REQUIRED ON ALL SURFACES THAT WILL CONTACT THE NEW SURFACE LAYER

OFFICE OF THE CITY ENGINEER – ROANOKE, VIRGINIA

APPROVED: Philip C. Beurre, CITY ENGINEER
DATE: 12/01/04

UTILITY TRENCH REPAIR IN PAVEMENT USING CONTROLLED DENSITY FILL — 4 OF 9



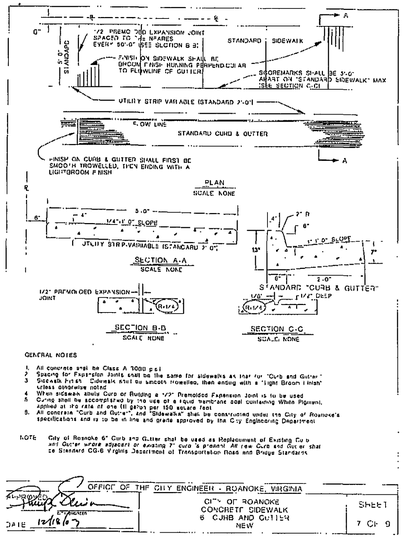
GENERAL NOTES

1. Standard residential "Entrance" shall have a curb radius (R) of 2 feet
2. Maximum entrance width (W) is 12 feet at R of radius return
3. Where curb & gutter already exists, both curb & gutter shall be removed. If proposed entrance falls within five (5) feet of an existing joint, removal & reconstruction shall be to that joint. Any concrete removed at other than an existing joint shall be cut with a mechanical saw specifically manufactured for that purpose, this also shall apply to street pavement
4. Where sidewalk exists or is to be constructed across or alongside the entrance, the thickness thereof must correspond with the thickness of the entrance
5. Whenever "Entrances" exceed twenty-four (24) feet in width a 1/2" premolded expansion joint shall be placed in the sidewalk at the mid point in the flow line
6. Each "Entrance" shall have a "coarse broom finish" running parallel to flow line
7. Curing shall be accomplished by the use of a liquid membrane seal containing white pigment applied at a rate of one (1) gallon per 200 square feet
8. All "Entrance Ways" shall be constructed according to City of Roanoke specifications and to line and grades approved by the City Engineering Department
9. Entrances exceeding 30 feet in width shall be approved by the City Manager

OFFICE OF THE CITY ENGINEER - ROANOKE, VIRGINIA

APPROVED: Philip C. Beurre, CITY ENGINEER
DATE: 12/19/03

STANDARD CITY OF ROANOKE RESIDENTIAL ENTRANCE — SHEET 5 OF 9



GENERAL NOTES

1. All concrete shall be Class A 3000 psi
2. Spacing for Expansion Joints shall be the same for sidewalks as that for "Curb and Gutter"
3. Sidewalk Finish: Sidewalk shall be swept transverse, then edging with a "Light Broom Finish" unless otherwise noted
4. When sidewalk abuts Curb or Building a 1/2" Premolded Expansion Joint is to be used
5. Curing shall be accomplished by the use of a liquid membrane seal containing White Pigment, applied at the rate of one (1) gallon per 150 square feet
6. All concrete "Curb and Gutter", and "Sidewalks" shall be constructed under the City of Roanoke's specifications and to be in line and grade approved by the City Engineering Department

NOTE: City of Roanoke 6" Curb and Gutter shall be used as Replacement of Existing Curb and Gutter where adjacent or existing 7" curb is present. All new Curb and Gutter shall be Standard CG-6 Virginia Department of Transportation Road and Bridge Standards

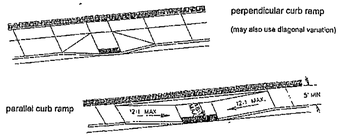
OFFICE OF THE CITY ENGINEER - ROANOKE, VIRGINIA

APPROVED: Philip C. Beurre, CITY ENGINEER
DATE: 10/18/07

CITY OF ROANOKE CONCRETE SIDEWALK & CURB AND GUTTER NEW — SHEET 7 OF 9

Transportation Enhancement Program
Sponsor and Recipient Workshop

Curb Ramps

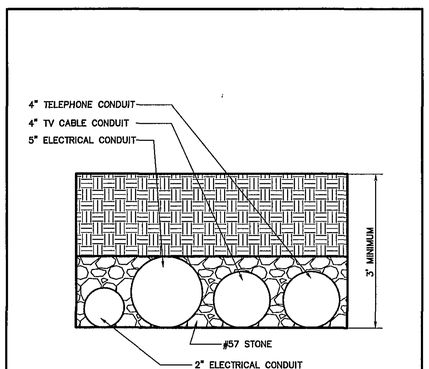


. . . from VDOT's Location and Design IIM 55.6 . . .

Description
- combined ramp and landing to provide access between a change in level between pedestrian pathways and vehicular ways

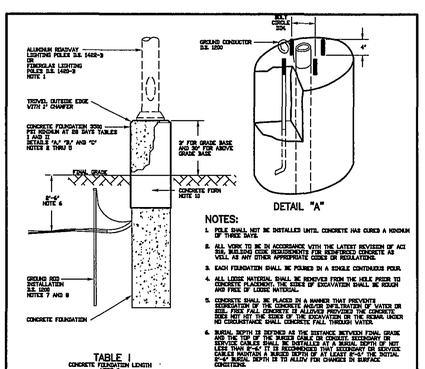
Design notes
- for perpendicular curb ramps, ramp length is 8 feet, ramp width is 3 feet, and the landing is 4 feet (minimum dimensions)
- for parallel curb ramps, ramp length is 4 to 6 feet depending on curb height, the ramp and landing widths are 5 feet, and the landing is 5 feet (minimum dimensions)
- orient ramps perpendicular to the curb so users will not have to negotiate changes in grade and cross slope at the same time
- use truncated domes as the detectable warning surface
  - place on 24 inches closest to roadway
  - color to contrast with adjacent surfaces
- provide one curb ramp for each crossing movement unless sight conditions dictate only one curb ramp for two crossing movements
  - if one curb ramp must be used, provide minimum 48 inch x 48 inch landing in roadway for users to maneuver into the crosswalk without going into the travel way
- include a break the same width as the crosswalk in medians and refuge islands
- surfaces should be firm, stable, and slip resistant
- coordinate locations with crosswalks, stop bars, signals, and signs
- where site development conditions prohibit the incorporation of elements for full compliance, document the site infeasibility
  - finding of site infeasibility must be made relative to each feature of accessible elements

Sheet 8 of 9



NO SCALE

TYPICAL UNDERGROUND UTILITY DETAIL



NOTES:

1. POLE SHALL NOT BE INSTALLED UNTIL CONCRETE HAS CURED A MINIMUM OF THREE DAYS.
2. ALL WORK TO BE IN ACCORDANCE WITH THE LATEST REVISION OF ACI 318, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AS WELL AS ANY OTHER APPROPRIATE CODES OR REGULATIONS.
3. EACH FOUNDATION SHALL BE POURED IN A SINGLE CONTINUOUS POUR.
4. ALL LOOSE MATERIAL SHALL BE REMOVED FROM THE HOLE PRIOR TO CONCRETE PLACEMENT. THE SIDES OF EXCAVATION SHALL BE SOLID AND FREE OF LOOSE MATERIAL.
5. CONCRETE SHALL BE PLACED IN A MANNER THAT PREVENTS SEGREGATION OF THE CONCRETE AND/OR INFILTRATION OF WATER OR SOIL. FREE FALL CONCRETE IS ALLOWED PROVIDED THE CONCRETE DOES NOT HIT THE SIDES OF THE EXCAVATION OR THE REBAR UNDER NO CIRCUMSTANCE SHALL CONCRETE FALL THROUGH WATER.
6. BURIAL DEPTH IS DEFINED AS THE DISTANCE BETWEEN FINAL GRADE AND THE TOP OF THE BURIED PORTION OF CONCRETE. SECONDARY OR DECORATIVE CONCRETE MAY BE ABOVE GRADE BUT MUST BE NO LESS THAN 3"-6" TO BE RECOMMENDED AS A MEANS OF ENSURING CABLES MAINTAIN A BURIED DEPTH OF AT LEAST 24-30" PER INITIAL 24-30" BURIAL DEPTH IS TO ALLOW FOR CHANGES IN SURFACE CONDITIONS.
7. GROUND RODS ARE TO BE DRIVEN TO THE DEPTH SHOWN UNLESS ROCK OR OTHER OBSTRUCTIONS ARE ENCOUNTERED. RESISTANCE OF INDIVIDUAL GROUND LOCATIONS SHALL BE LEVERED TO PRACTICAL MINIMUM. GROUND RODS SHALL BE LOCATED 10' MINIMUM AND MORE THAN THREE AT ANY SINGLE LOCATIONS.
8. GROUNDING CONDUCTOR SHALL BE CONNECTED TO GROUNDING STUD OF LIGHT POLE IN VICINITY OF HANDHOLE AND ITS FIXTURES GROUNDING LUG.
9. FOR SOIL CLASSIFICATION DETAILS, REFER TO S.S. 1209.
10. FORM FOR CONCRETE FOUNDATION SHALL BE MADE FROM SONOTUBE OR SIMILAR MATERIAL. FORM SHALL EXTEND HIGHER OF 12" BELOW GRADE.

TABLE I
CONCRETE FOUNDATION LENGTH
SEE NOTE 6

FOUNDATION DESIGN	DIAMETER CHECKED	FOUNDATION BASE FOUNDATION LENGTH (FEET) SOIL CLASSIFICATION		ABOVE GRADE BASE FOUNDATION LENGTH (FEET) SOIL CLASSIFICATION	
		HARD OR MEDIUM	SOFT	HARD OR MEDIUM	SOFT
8	18	5	6	7	8

NO SCALE — GE-31D

LIGHTPOLE FOUNDATION

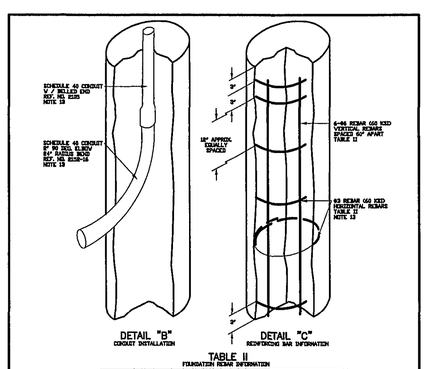
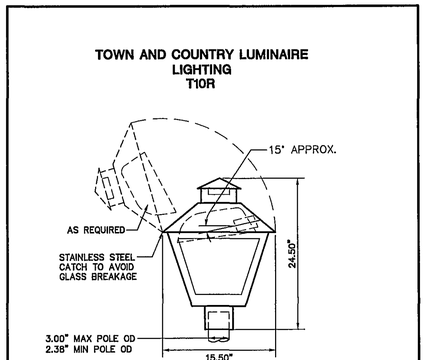


TABLE II
FOUNDATION REBAR INFORMATION

FOUNDATION SIZE		CUBIC YARDS OF CONCRETE	#6 REBAR (60KSI) VERTICAL REINFORCEMENT REBAR		#3 REBAR (60KSI) HORIZONTAL REINFORCEMENT REBAR		
DIAMETER CHECKED	LENGTH (FEET)		LENGTH 0'-0"-00	WEIGHT (LBS)	QUANTITY	LENGTH 0'-0"-00	WEIGHT (LBS)
18	5	0.53	4'-6"	43	6		9
	6	0.79	5'-6"	60	7		11

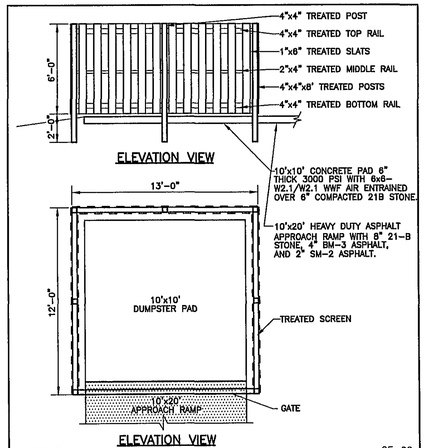
NO SCALE — GE-31E

LIGHTPOLE INSTALLATION



NO SCALE

TOWN AND COUNTRY LIGHTING DETAIL



NO SCALE — GE-66

DUMPSTER PAD SCREENING DETAIL

GAY AND NEEL, INC.
CIVIL ENGINEERING
LAND PLANNING
SURVEYING
328 Mountain Avenue S.W.
Roanoke, Virginia 24016
Phone: (540) 345-1110 Fax: (540) 345-5560
Email: info@gayandneel.com

City of Roanoke Details

R.R.H.A.
Hurt Park Site Plan
City Of Roanoke, Virginia

COMMONWEALTH OF VIRGINIA
MICHAEL C. GAY
Lic. No. 17560
10/31/07
PROFESSIONAL ENGINEER

REVISED:
07/22/07
09/14/07
10/22/07

DESIGNED/CALC. MGG, AMC
CHECKED: RCM
DRAWN: AMC, PLJ
SCALE: N/A
DATE: 04/18/07

JOB NO. 1588.0

SHEET 23 OF 32

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