



Pedestrian Pathway Manual

Specifications and Details



City of
Fayetteville
North Carolina



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Purpose

The City of Fayetteville Pedestrian Pathway Manual is the primary source for administrative policies, procedures and standards pertaining to pedestrian pathway corridor design and construction. Many standards are governed by federal, state or local legislation.

Additional guidance is available in the following documents:

- Best Practices Design Guide; Planning, Design, and Operation of Pedestrian Facilities, AASHTO, July 2004
- Accessible Public Rights-of-Way Design Guide, U.S. Architectural and Transportation Barriers Compliance Board, January 2001
- Designing Sidewalks and Trails for Access: Best Practices Guide Part 2, USDOT/FHWA, January 2001
- The City of Fayetteville Unified Development Ordinance, Sections 30-3,30-4,30-5,30-6 & 30-9
- Fayetteville Area Metropolitan Planning Organization Bicycle and Pedestrian Plan

This Manual will be reviewed regularly to ensure compliance with applicable regulations. All sidewalk construction within the jurisdiction will comply with this Manual.

Intent

The intent of the City of Fayetteville Pedestrian Pathway Manual is to establish an official governing document for sidewalk design specifications and standards for areas under the jurisdiction of the City of Fayetteville.

Goal

The City of Fayetteville's goal is to provide an interconnected network of sidewalks and walkways that allow pedestrians to safely access their destinations including transit stops, places of employment, recreation facilities, schools and residences.

Introduction

When designing a sidewalk, there are several factors that need to take into account. These factors are attractiveness, convenience, and usability. Designs must accommodate the wide range of abilities that occur in the population. This includes, but not limited to, children, the elderly, parents with strollers, and those that are visually or physically impaired. Accessible facilities are generally considered safer and more convenient for all pedestrians. Exceeding minimum standards whenever possible will increase accessibility and usability.

State and Federal Standards

Design guidelines specified in in this manual require that sidewalks and pedestrian (and related) features within the public right-of-way be reasonably constructed in accordance with the *Americans with Disabilities Act (ADA)* and the North Carolina Administrative Code standards and requirements. In cases where a requirement of this manual is in conflict with state or federal standards relating to sidewalks and accessibility, the more restrictive standard will apply.

Pedestrian facility design must comply with the federal accessibility standards in the *Architectural Barriers Act of 1968*, the *Rehabilitation Act of 1973 (Section 504)*, and the *Americans with Disabilities Act of 1990*. Implementing regulation for Title II of the ADA, which covers local and state governments, also addresses “communications and information access” requiring “effective communications” with persons with disabilities. This would include accessible pedestrian signals, markings, and signage at crosswalks. *The Manual on Uniform Traffic Control Devices (MUTCD)* contains the standards that include audible, visual, and vibrotactile features.

The U.S. Access Board has published the *Americans with Disabilities Act Accessibility Guidelines (ADAAG)* and the *Accessible Rights-of-Way: A Design Guide*. They include recommended design guidelines and technical provisions.

Public and private entities that design and construct sidewalks and trails are required under the ADA to make the accessible to and usable by people with disabilities.

New Sidewalk

New sidewalks are added in the City of Fayetteville in several ways. The first is through plan submittal to the Technical Review Committee (TRC). All sites and subdivisions are reviewed to ensure conforming sidewalks and ramps are included in accordance with current ordinances and this manual. This may include reconstruction of existing sidewalk or ramps that do not meet the minimum standards.

Another way is incidental to roadway projects including major reconstructions of existing roads or construction of new roads. This may include reconstruction of existing sidewalk or ramps that do not meet the minimum standards. Wheelchair ramps are included with all types of road construction, including resurfacing.

The City of Fayetteville prioritizes sidewalk construction projects based on pedestrian access and improved safety. These projects are targeted towards high need areas and filling strategic gaps in the sidewalk system.

Existing Sidewalk

The City of Fayetteville maintains the physical sidewalk and curb ramps. Residents are encouraged to report problems such as broken or uneven sidewalk to the City's Engineering Department at (910) 433-1656.

It is the property owner's responsibility for the daily upkeep of the sidewalk. This includes mowing and edging grass, trimming trees and bushes, clearing snow and ice and keeping the sidewalk free of obstructions. Without these housekeeping efforts, the sidewalk could become overgrown with vegetation and no longer provide a safe pedestrian route.

Sidewalk Design

Sidewalk design and construction are among a handful of factors that determine functionality and ultimately the usage of sidewalks. We designed sidewalks provide accessibility for all users and enough space to accommodate pedestrian flows at peak times. The minimum allowable width for new sidewalk construction is 5' unless otherwise stated. The width may exceed the required minimum to provide a better pedestrian pathway. Please see the details for sidewalk and wheelchair ramps provided in this manual.

Sidewalk being constructed with the Downtown Historical District must be made of brick (Holland Guilford Blend) with a 5" concrete base and be banded by concrete. Tree wells, sub-drains, and irrigation may be required. Plans for such project must be approved by the Historical Resources Commission and City Engineering prior to construction.

Bus Stops, Benches and Shelters

Bus stops, benches and shelters provide locations for FAST (Fayetteville Area System of Transit) passengers to wait for the bus. ADA (ADAAG Section 10) compliance shall be required when constructing new Bus stops, benches and shelters or when installing benches and shelters to existing stops. Pads for bus benches and shelters shall be 5" thick and be located behind the sidewalk. When installing a bench or shelter, there shall be an accessible sidewalk, in both directions to the nearest City maintained or NCDOT maintained intersection. Bus benches and shelters shall be installed per manufacturer's recommendations. There shall be a minimum 5' travel-way from the bus shelter to the curbing. Please see detail provided in this manual.

Standard Specifications

SECTION 00460

CONCRETE SIDEWALK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This work shall consist of Portland cement concrete constructed on a prepared sub-grade, in conformity with the lines, grade, and typical cross section shown on the plans and in accordance with these specifications.

1.02 UNIT PRICES

A. Determination of Measurement: The quantity to be paid for in this section shall be the actual number of square yards of concrete sidewalk in place, completed and accepted. The amount of grade work required to obtain the proper sub-grade from the finished grade of the sidewalk will be included as part of the per square yard price for concrete sidewalk.

B. Basis of Payment: The quantity measured as provided above shall be paid for at the contract unit price bid per square yard for concrete sidewalk which prices and payment shall be full compensation for furnishing, hauling, and placing all materials, grading of sub-grade, forms and all equipment, tools, labor, and incidentals necessary to complete the work.

1.03 DESIGN REQUIREMENTS

A. Proportioning of Concrete: The concrete shall be mixed in proportions approved by the Engineer. The concrete shall develop at 28 days a minimum compressive strength of 3,000 pounds per square inch. The consistency range in slump of the concrete shall be two to four inches.

B. Air Entrainment of Concrete: All exposed concrete shall have 6 percent (+ or - 1.5%) entrained air as discussed in ASTM C494-80. Measurement shall be with a rollmeter in accordance with ASTM C173-81 or a pressure meter in accordance with ASTM C281-81. Use of other testing procedures will be considered if requested in writing.

The concrete from a central plant shall be delivered by a mobile agitator type mixer and deposited at the consistency specified without segregation. The time lapsing from mixing to placing the concrete shall not exceed one hour.

Concrete shall be mixed only in such quantities as are required for immediate use and all such material shall be used while fresh and before initial set has taken place. Any

concrete in which set has begun shall not be used in the work. Retempering of concrete will not be allowed.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather and Night Concreting: Concreting shall be done when weather conditions are favorable unless otherwise directed by the Engineer. Concrete operations shall be discontinued when the temperature of 40 degrees Fahrenheit is reached on a falling thermometer. No concreting shall be attempted when local weather bureaus indicate temperatures below freezing within the ensuing 24 hours unless proper precautions are made to protect concrete by covering with straw or other thermal insulation satisfactory to the Engineer. The Contractor shall be responsible for the quality and strength of the concrete laid during cold weather and any concrete damaged by frost action or freezing shall be removed and replaced as directed by the Engineer at the Contractor's expense.

No more concrete shall be laid than can be properly finished and covered during daylight, unless adequate artificial light satisfactory to the Engineer is provided.

PART 2 PRODUCTS

2.01 MATERIALS

A. Cement: The cement used in this item shall be a standard brand of Portland cement conforming to the requirements of A.A.S.H.O. Specifications. Different brands of cement, or the same brand from different mills, shall not be mixed nor shall they be used alternately in any one continuous pouring between transverse joints.

2.02 SOURCE QUALITY CONTROL

A. Testing: The Engineer shall engage and pay an approved independent testing agency to conduct the routine testing of material for compliance in accordance with ACI 301-72, Chapter 16.

B. Test reports shall be furnished to the Engineer in quadruplicate at the earliest possible date following the testing.

C. If cylinder test results indicate that the concrete has not or will not reach the required 28 day compressive strength, the Engineer shall have the right to require any additional testing as necessary to determine the actual in-place strength of the concrete. Such additional testing will be at the Contractor's expense.

D. The Engineer shall have the right to require the removal and subsequent replacement of any concrete not meeting the minimum 28 day compressive strength. Such removal and replacement shall be at the Contractor's expense.

PART 3 EXECUTION

3.01 PREPARATION

A. Cleaning Site: Prior to the acceptance of the work, unsightly objects such as stones, stumps, limbs, roots, concrete, etc., shall be removed from the site and disposed of to the satisfaction of the Engineer. Work shall not be considered complete until all cleaning up has been done and the site is of a neat appearance.

3.02 INSTALLATION

A. Mixing Concrete: The concrete shall be mixed by machine on the job or at a central mixing plant. A batch mixer of any approved type may be used. The method of measuring the materials for the concrete, including water, shall be one, which will ensure separate and uniform proportions of each of the materials at all times. The mixing shall continue at least 1 ½ minutes after all ingredients have been added to the drum. The drum shall be completely emptied before receiving material for the succeeding batch.

B. Sub-grade: The sub-grade shall be excavated to the required depth below the finished surface in accordance with the plans and lines and grades established by the Engineer. All soft and yielding material or other unsuitable material shall be removed and replaced with approved material, and compacted thoroughly at the expense of the Contractor. If the sub-grade is in a filled section, the entire area shall be compacted to an unyielding surface.

C. Forms: Forms shall be set true to the lines and grades established by the Engineer. Forms shall be held rigidly in positions and shall be of sufficient strength to resist springing out of line when the concrete is placed. Forms shall be metal and meet necessary dimensions to construct the sidewalk on the drawings or as specified by the Engineer. Wood forms may be used only where conditions make the use of metal forms impractical, and then only approved by the Engineer. Bent steel forms or steel forms with top or bottom flanges out of square sides or forms without pins lugs shall not be used and shall be removed from the construction site.

D. Placing of Concrete: Expansion joints of approved material shall be provided every 30 feet or as directed by the Engineer. Control joints shall be provided every 5 feet. Joint material shall be not less than ½ inch in thickness, cut true to section, and shall be placed against the template forming the joint. Care shall be taken not to disturb the position of the expansion joint filler materials during the removal of the templates.

Prior to placing of concrete, the sub-grade shall be moistened and the contact side of the forms shall be coated with heavy oil. After the placing of the concrete within the forms, the sides of the forms shall be spaded with a flat spade of approved type (the use of shovels for spading will not be permitted). All voids that may appear, after forms have been removed, shall be wetted thoroughly and plastered. An excess of voids will be cause for rejection. A Slip Form Concrete Machine may be used and must meet the approval of the City Engineer.

E. Finishing: All concrete within forms shall be brought to true section by the use of an approved straight edge and shall be tamped with straight edge to bring mortar to the surface, after which it shall be floated smooth. After true surface of section has been obtained, and after initial set has taken place, the entire surface shall be brushed with a dampened brush. All joints and all exposed edges shall be rounded off with approved jointing and edging tools.

F. Curing: Immediately after finishing operations have been completed, the entire surface of the concrete shall be sprayed. The use of liquid retarding agents shall conform to standards specified by current A.A.S.H.O. or A.S.T.M. Specifications.

G. Removal of Forms: Forms shall not be removed from freshly placed concrete until it has set for at least 24 hours. They shall be carefully removed and in such a manner as to prevent damage to the edges of the concrete. Honeycombed areas shall be promptly filled with mortar composed of one part cement and two parts sand.

3.03 FIELD QUALITY CONTROL

A. The Engineer shall have the authority to require the Contractor to remove and replace any sidewalk which has been placed at grade elevations other than those shown on the plans and/or cut sheets. Such sidewalk shall be removed and replaced at the Contractor's expense.

B. Sidewalk found to be holding "ponding water" will be removed and replaced at the Contractor's expense.

3.04 PROTECTION OF FINISHED WORK

A. Protection of Concrete: Immediately after the forms have been removed and all honeycombed areas repaired, the back of the sidewalk shall be back-filled to prevent underwash. Traffic shall be excluded from crossing the concrete for a period of approximately 14 days of erection and maintenance of suitable barricades. Contractor shall be responsible for any damage resulting from traffic within 14-day period and he shall remove and replace any concrete damaged as directed by the Engineer.

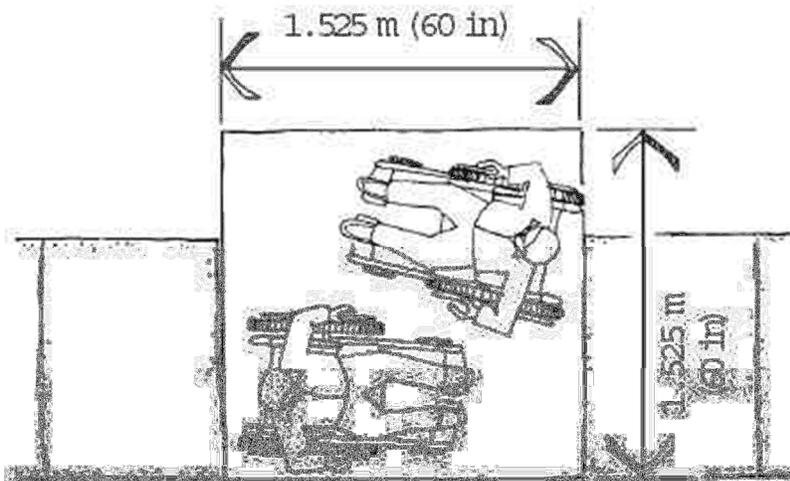
END OF SECTION 00460

Americans with Disabilities Act (ADA)

All pedestrian pathways shall meet ADA guidelines.

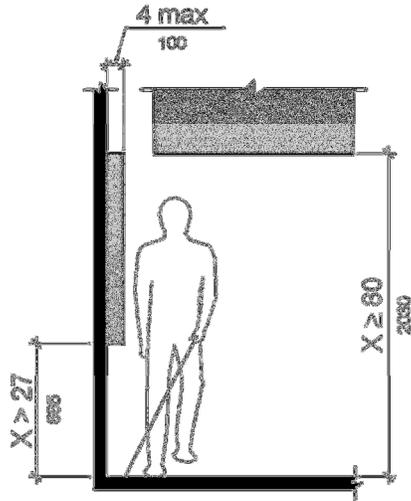
Pedestrian Route

- 2% max cross slope
- Running slope no greater than adjacent roadway
- 5' minimum width - 4' may be used when 5' cannot be achieved with approval from the City Engineer or their designee. If a 4' width must be used, a 5' x 5' passing space shall be provided a minimum of every 200'



- Accessible route must be maintained across driveway aprons.
- Gaps 1/2" max
- Vertical alignment – grade breaks shall be flush
- Vertical discontinuities – 1/2" max (1/4" – 1/2" beveled at 1:2 min)

- Vertical clearance – 4” max protrusion between 27” and 80”



- Bus stops shall be placed on the non-traffic side of the pathway. If the pathway is located off of the back of curb, an access pad no less than 5’ in width shall be provided. Both the bus stop and access pads shall be 2% max cross slope

Curb Ramps (see detail sheet 17)

- 2% max cross slope
- 5% to 8.33% (1:12) running slope
- 48” min width
- Landing shall be 4’ x 4’ min top and bottom of ramp (2% max)
- Grade breaks shall be perpendicular to ramp run
- Transitions shall be flush
- Flares shall be 10% max, measured parallel to curb line (only where route crosses ramp)
- Detectable warnings shall be 2’ x 4’ fiberglass press-in black in color truncated domes.
- Counter slope shall be 5% max
- Pedestrian signal buttons shall have a min 10’ separation; 4’ x 4’ clear ground space; mounted at 42” +/- 4”
- Median/refuge island 6’ min between ramps or flush in direction of pedestrian travel. Truncated domes required

Section 10 ADAAG*

10. TRANSPORTATION FACILITIES.

10.1 General. Every station, bus stop, bus stop pad, terminal, building or other transportation facility, shall comply with the applicable provisions of section 4, the special application sections, and the applicable provisions of this section.

10.2 Bus Stops and Terminals.

10.2.1 New Construction.

(1) Where new bus stop pads are constructed at bus stops, bays or other areas where a lift or ramp is to be deployed, they shall have a firm, stable surface; a minimum clear length of 96 inches (measured from the curb or vehicle roadway edge) and a minimum clear width of 60 inches (measured parallel to the vehicle roadway) to the maximum extent allowed by legal or site constraints; and shall be connected to streets, sidewalks or pedestrian paths by an accessible route complying with [4.3](#) and [4.4](#). The slope of the pad parallel to the roadway shall, to the extent practicable, be the same as the roadway. For water drainage, a maximum slope of 1:50 (2%) perpendicular to the roadway is allowed.

(2) Where provided, new or replaced bus shelters shall be installed or positioned so as to permit a wheelchair or mobility aid user to enter from the public way and to reach a location, having a minimum clear floor area of 30 inches by 48 inches, entirely within the perimeter of the shelter. Such shelters shall be connected by an accessible route to the boarding area provided under paragraph [\(1\)](#) of this section.

(3) Where provided, all new bus route identification signs shall comply with [4.30.5](#). In addition, to the maximum extent practicable, all new bus route identification signs shall comply with [4.30.2](#) and [4.30.3](#). Signs that are sized to the maximum dimensions permitted under legitimate local, state or federal regulations or ordinances shall be considered in compliance with [4.30.2](#) and [4.30.3](#) for purposes of this section.

* ADA Accessibility Guidelines for Buildings and Facilities. 1991, with 2002 amendments.U.S. Access Board

Multi-Use/Greenway Trails

Multi-use/Greenway trails consist of a path, or network of paths, that provide connectivity for non-motorized modes of transportation such as bicyclists and pedestrians. This direct connectivity can be to adjacent neighborhoods, community parks, commercial sites, other trails, or more traditional transportation corridors such as highways or sidewalks. Local examples of multi-use trails include the Cape Fear River Trail or the Blount Creek Greenway.

Multi-use/Greenway trails are typically constructed with a 10' wide smooth, paved surface of asphalt or concrete. Other materials such as decomposed granite, interlocking pavers, or alternative surface may be used, as approved by the City Engineer or their designee. See 10' Multi Use/Greenway Trail detail on page 26.

Additional City Standards

1. If proposed improvements to existing property are valued at 50% or greater than the existing improvements then sidewalk shall be required to be installed.
2. Truncated domes are required to be installed on existing wheelchairs ramps when improvements are being made.

Flyash

REGULATORY:

Flyash concrete meets applicable codes. Products making use of flyash concrete must indicate having met applicable ASTM test requirements. This information will be provided by the supplier.

GUIDELINES

1.0 Specification for Flyash

Flyash for use in portland cement concrete shall conform to the requirements of ASTM C 618, Standard Specification for Flyash and Raw or Calcined Natural Pozzolan Class C Flyash for use as a Mineral Admixture in Portland Cement. Specifically, it shall conform to all requirements of Table 1 and Table 2 as outlined therein.

The concrete supplier shall furnish a notarized certificate from the flyash marketer at the time of submittal of concrete mix designs for approval indicating conformance with these requirements. Also, a copy of the most recent chemical analysis shall be provided.

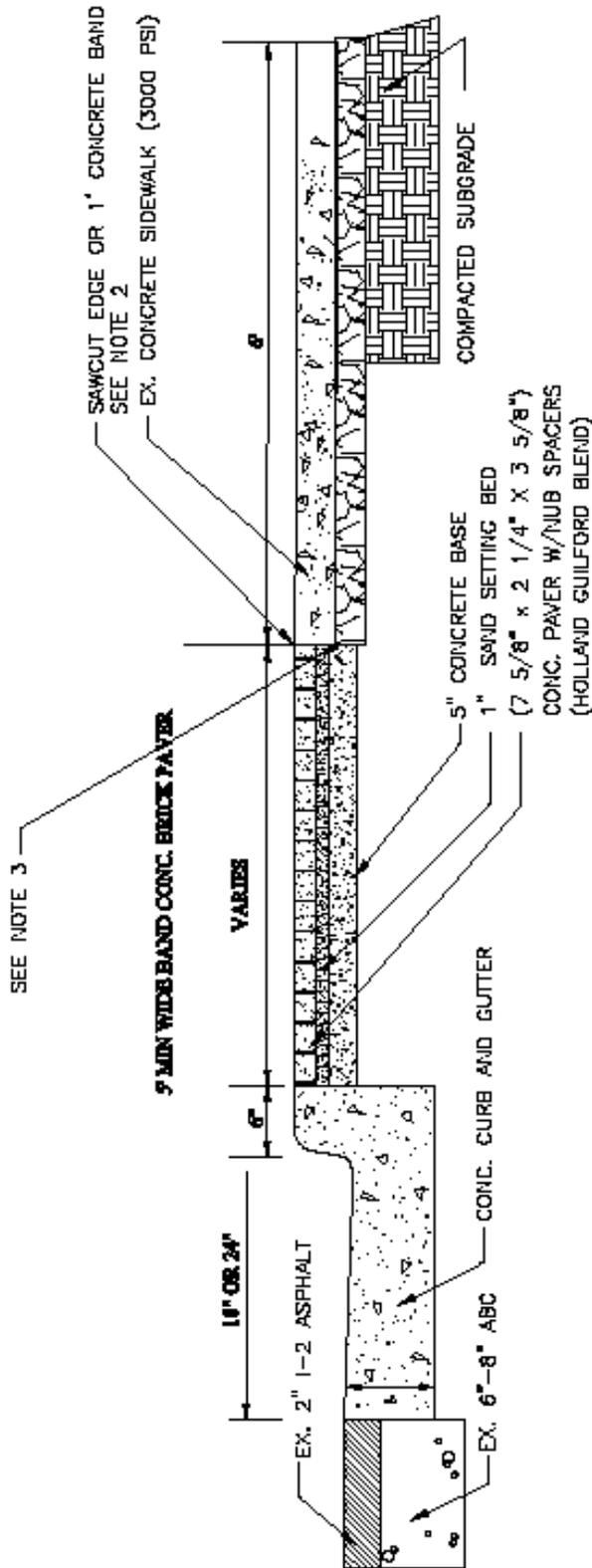
At no time during the course of the project will a change of flyash source (plant) be permitted without the prior written consent of the Engineer or Architect. For sulfate environments, only Class F flyash will be permitted and under no circumstances will Class C flyash be used.

2.0 Flyash use.

Class F flyash will typically require an air entraining agent to be added. Class C flyash will not.

Standard concrete procedures can be employed.

STANDARD DETAILS



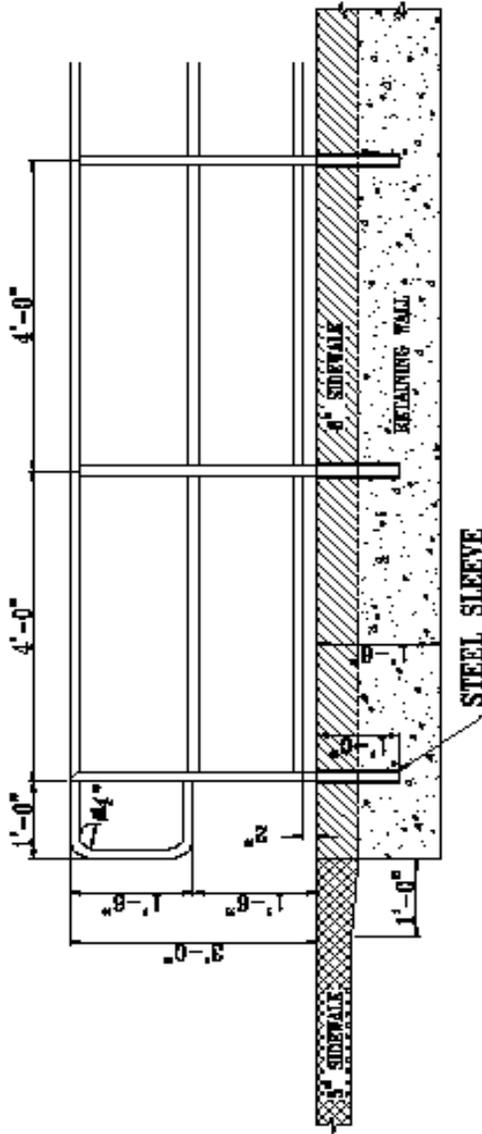
- NOTES: 1.) PROVIDE CONTROL JOINTS AT DISTANCE EQUAL TO WIDTH OF SIDEWALK PROVIDE 1/2" EXP. JOINTS WITH PRE-MOLDED E.J. FILLER AT MAX. 30' OC.
 2.) FOR CONCRETE BANDS: PROVIDE DUMMY JOINTS AT 10' INTERVALS AND 1/2" EXPANSION JOINTS WITH PRE-MOLDED E.J. FILLER AT MAX. 30' OC
 3.) A 1/4" EXPANSION JOINT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE CONCRETE BAND TO ENSURE SEPARATION.

Fayetteville
 ENGINEERING & INFRASTRUCTURE DEPT.
 CIVIL ENGINEERING DIVISION
 433 HAT ST. 28301
 (910) 433-1656

SIDEWALK ON BACK OF CURB W/
 CONCRETE BRICK PAVYER

DATE	10/15/2012	DRAWN BY	CSA
SCALE	N.T.S.	CK'D BY	CSA

CAD FILE :



NOTES:

1. HORIZONTAL RAIL TO BE 1-1/2" I.D. - SKEW 40-TYPE B, GRADE A OR STRONGER (MIN. YIELD STRESS TO BE 90 KSI, WHICH ALLOWS 21.6 KSI DESIGN STRESS.)
2. POSTS TO BE 1-1/2" I.D. - SKEW 60-TYPE B, GRADE A OR STRONGER (MIN. YIELD STRESS TO BE 90 KSI, WHICH ALLOWS 21.6 KSI DESIGN STRESS.)
3. ALL JOINTS TO BE WELDED AND GROUNDED TO A SMOOTH SURFACE. PREFABRICATED CONNECTIONS MAY BE USED IF APPROVED BY PROJECT ENGINEER. WELDS ARE REQUIRED TO MEET AISC SPECIFICATIONS.
4. POSTS TO ENCOMPASS A MIN. OF 12" IN A CORNER DRILLED HOLE OR PRESET PIPE SLEEVE. SLEEVES SHALL BE SKEW 40, TYPE B, GRADE A STEEL OR STRONGER.
5. FINISH WITH 1 COAT OF PRIMER AND 2 COATS OF ALL WEATHER ENAMEL USE PAINT. A NEUTRAL COLOR TO BE APPROVED BY PROJECT ENGINEER.
6. CONTRACTOR SHALL WARRANT PAINT AND HANDRAIL FOR 1 YEAR.
7. ANY CHANGES FROM ABOVE RAIL DESIGN SHALL BE SUBMITTED OVER SEAL OF REGISTERED N.C. ENGINEER WITH DESIGN CRITERIA AND STRESS CALCULATIONS.
8. ALL CONCRETE TO BE 6000 PSI COMPRESSIVE STRENGTH.
9. STEEL SLEEVES TO ACCOMMODATE 1-1/2" I.D. SKEW 60 TYPE B POST.
10. ALLOW A 12" TRANSITION FROM A 5" SIDEWALK TO A 4" SIDEWALK AND VICE VERSA.

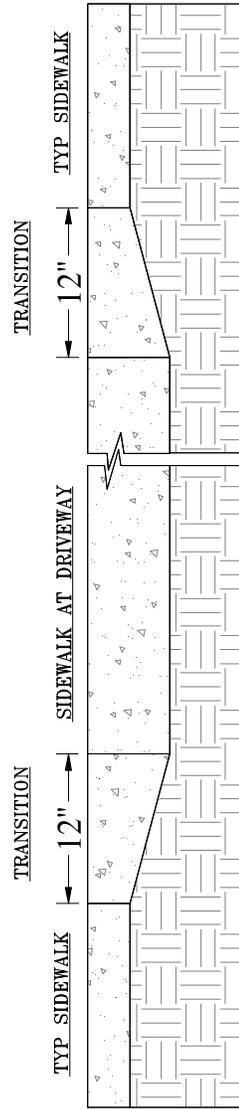
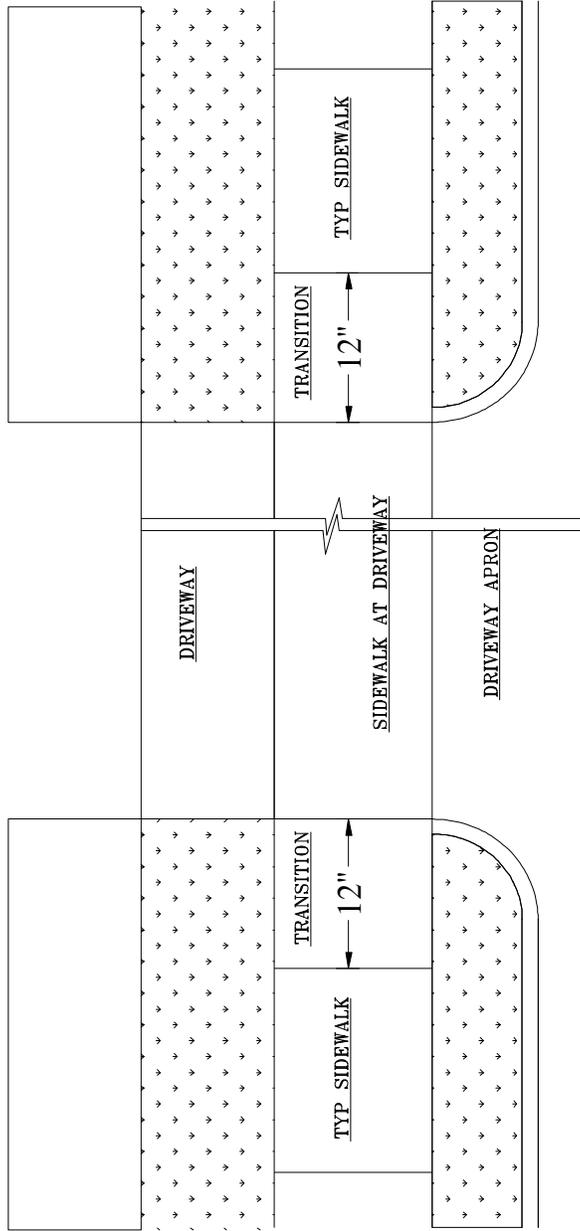
Exponentville ENGINEERING & INFRASTRUCTURE DEPT.
 CIVIL ENGINEERING DIVISION
 433 HAY ST. 28301
 (910) 433-1656

**TYPICAL DETAIL OF
 PIPE HANDRAIL**

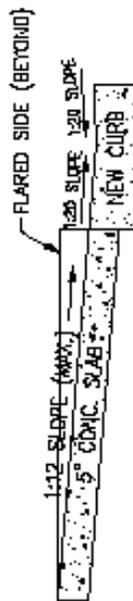
DATE	10/8/2010	DRAWN BY	CSA
SCALE	N.T.S.	CK'D BY	JPB

CAD FILE :

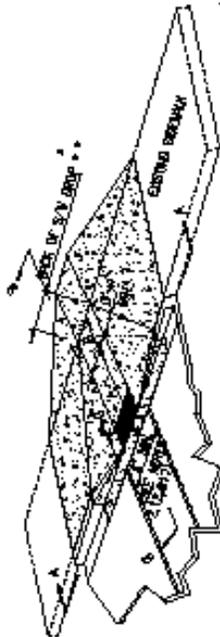
TYP SIDEWALK TO DRIVEWAY TRANSITION



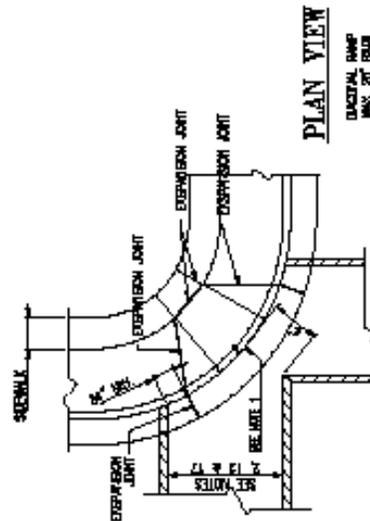
RIGHT OF WAY	SIDEWALK	DRIVEWAY
CITY OF FAYETTEVILLE	5"	7"
NCDOT	4"	6"



TYP. ROLL CURB SECTION
AT HANDICAP RAMP

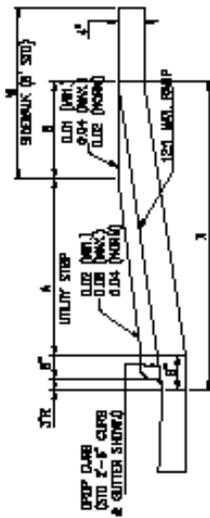


ISOMETRIC VIEW

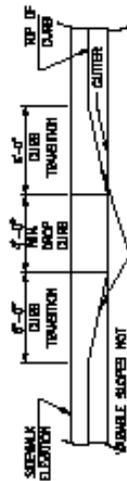


PLAN VIEW

DUAL RAMP
MAX. 20' FOUR
40' MIN. FLOOR WIDTH
(NOT PERMISSIBLE FOR NEW CONSTRUCTION)



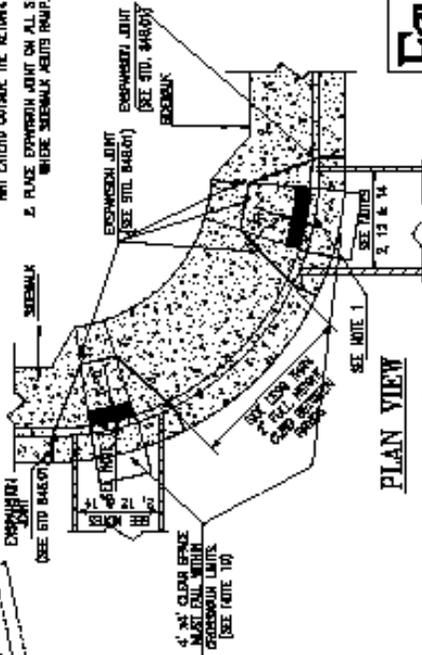
SECTION B-B



SECTION A-A

NOTE: 1. A PORTION OF ONE OR BOTH RAMP
MAY EXTEND OUTSIDE THE RAMP.

NOTE: 2. PLACE EXPANSION JOINT ON ALL SIDES
WHERE SIDEWALK MEETS RAMP.



PLAN VIEW

DUAL RAMP
MAX. 20' FOUR
40' MIN. FLOOR WIDTH

W	A	W + A + 9"	X	B
5'	0.0'	9.0'	5.0'	5.0'
6'	0.0'	9.6'	6.0'	6.0'
7'	0.0'	10.2'	7.0'	7.0'
8'	0.0'	10.8'	8.0'	8.0'
9'	2.0'	12.8'	7.8'	5.0'
9'	2.5'	13.3'	8.1'	4.8'
9'	3.0'	13.8'	8.3'	4.6'
9'	3.5'	14.3'	8.4'	4.4'
9'	4.0'	14.8'	8.6'	4.2'
9'	4.5'	15.3'	8.7'	4.0'
9'	0.0'	10.8'	8.8'	3.1'

B = X - (A + 9")

B = DISTANCE FROM FRONT EDGE OF SIDEWALK
TO BACK POINT OF 12% (0.30%) SLOPE.

* BACK OF SIDEWALK DROP REQUIRED FOR ALL
SIDEWALK SLOPES.

** BACK OF SIDEWALK DROP REQUIRED FOR
SIDEWALK SLOPES ONLY.

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CAL ENGINEERING DIVISION
433 HWY ST. 28300
(910) 433-1656

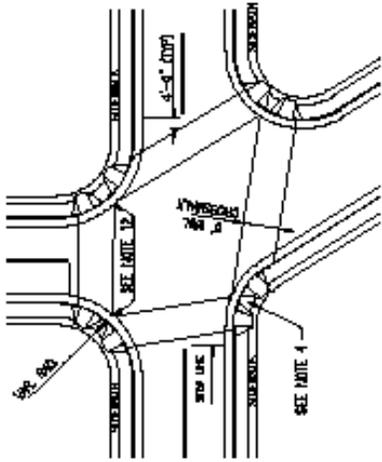
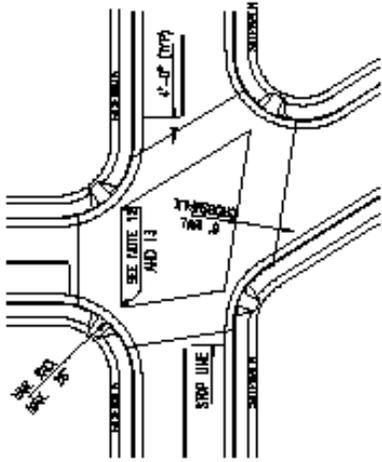
DETAIL OF WHEELCHAIR RAMP W/
SIDEWALK ON BACK OF CURB
SHEET 2 OF 4

SEE SHEET 4 FOR WHEELCHAIR RAMP NOTES.

SD-2.1

DATE 10/15/2012 DRAWN BY CSA
SCALE N.T.S. CK'D BY CSA

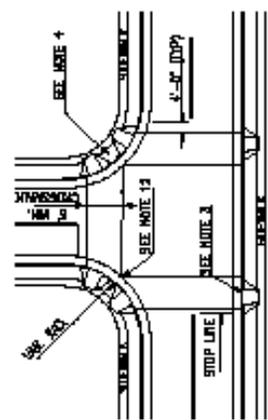
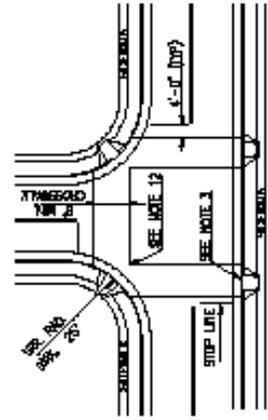
CAD FILE : WC-RAMP2



TYPICAL INTERSECTIONS

ALLOWABLE LOCATIONS

DUAL RAMP RADII.....ANY
 DIAGONAL RAMP RADII...MAX. 25'
 (DIAGONAL RAMP IS NOT
 PERMISSIBLE FOR NEW
 CONSTRUCTION)



TEE INTERSECTIONS

SEE SHEET 4 FOR WHEELCHAIR RAMP NOTES.

Fayetteville
 DESIGN & INFRASTRUCTURE DEPT.
 CIVIL ENGINEERING DIVISION
 433 HWY ST. 28301
 (910) 433-1654

**DETAIL OF WHEELCHAIR RAMP
 PED. CROSSWALKS AND STOP LINES**
 SHEET 3 OF 4

DATE 10/15/2012 DRAWN BY CSA
 SCALE N.T.S. CK'D BY CSA

SD-2.2

CAD FILE : WC-RAMP3

1. CONSTRUCT THE WALKING SURFACE WITH SILP RESISTANTMAIDE AND A 70% CONTRASTING COLOR TO THE SIDEWALK.
2. CROSSWALK WIDTHS AND CONFIGURATION VARY BUT MUST CONFORM TO TRAFFIC DESIGN STANDARDS.
3. NORTH CAROLINA GENERAL STATUTE 13B-44.14 REQUIRES THAT ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY DISABLED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER POINTS OF PEDESTRIAN FLOW.

IN ADDITION, SECTION 22B OF THE 1973 FEDERAL AD HIGHWAY SAFETY ACT REQUIRES PROVISION OF CURB RAMPS ON ANY CURB CONSTRUCTION AFTER JULY 1, 1976 WHETHER A SIDEWALK IS PROPOSED INITIALLY OR IS PLANNED FOR A FUTURE DATE.

THE AMERICANS WITH DISABILITIES ACT (ADA) OF 1990 EXTENDS TO INDIVIDUALS WITH DISABILITIES, COMPREHENSIVE CIVIL RIGHTS PROTECTIONS SIMILAR TO THOSE PROVIDED TO PERSONS ON THE BASIS OF RACE, SEX, NATIONAL ORIGIN AND RELIGION UNDER THE CIVIL RIGHTS ACT OF 1964. THESE CURB RAMPS HAVE BEEN DESIGNED TO COMPLY WITH THE CURRENT ADA STANDARDS.
4. PROVIDE WHEELCHAIR RAMPS AT LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOCATE WHEELCHAIR RAMPS AS DIRECTED BY THE ENGINEER WHERE EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. AFFECT PLACEMENT. WHERE TWO RAMPS ARE INSTALLED NOT LESS THAN 2 FEET OF FULL HEIGHT CURB SHALL BE PLACED BETWEEN THE RAMPS. PLACE DUAL RAMPS AS NEAR PERPENDICULAR TO THE TRAVEL LANE BEING CROSSED AS POSSIBLE.
5. PAY FOR ALL VARIABLE DEPTH CONCRETE USED FOR CONSTRUCTION OF WHEELCHAIR RAMPS AS CONCRETE WHEELCHAIR RAMPS. (SQ. YDS.)
6. PAY FOR ALL DEPRESSED CURBS AT WHEELCHAIR RAMPS AS THE TYPE CURB AND GUTTER USED ADJACENT TO DEPRESSED CURB. (LI. FT.)
7. SUCH PRICES AND PAYMENTS WILL BE CONSIDERED FULL COMPENSATION FOR ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO SATISFACTORILY COMPLETE THE WORK.
8. DO NOT EXCEED 0.08 (1:12) SLOPE ON THE WHEELCHAIR RAMP IN RELATIONSHIP TO THE GRADE OF THE STREET.
9. CONSTRUCT WHEELCHAIR RAMPS 40" (3'-4") OR GREATER FOR DUAL RAMPS.
10. USE CLASS "B" CONCRETE WITH A SIDEWALK FINISH IN ORDER TO OBTAIN A ROUGH NON-SKID TYPE SURFACE.
11. PLACE A 1/2" EXPANSION JOINT WHERE THE CONCRETE WHEELCHAIR RAMP JOINS THE CURB AND AS SHOWN ON STD. DWG. 848.01.
12. PLACE THE INSIDE PEDESTRIAN CROSSWALK LINES 10 CLOSER IN THE INTERSECTION BY BISECTING THE INTERSECTION RAIL, WITH ALLOWANCE OF A 4' CLEAR ZONE IN THE VEHICULAR TRAVELWAY WHEN ONE RAMP IS INSTALLED. (SEE NOTE 17)
13. COORDINATE THE CURB CUT AND THE PEDESTRIAN CROSSWALK LINES SO THE FLOOR OF THE WHEELCHAIR RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES. PLACE DIAGONAL RAMPS WITH FLARED SIDES SO 24" OF FULL HEIGHT CURB FALLS WITHIN THE CROSSWALK MARKINGS ON EACH SIDE OF THE FLARES.
14. CONSTRUCT THE PEDESTRIAN CROSSWALK A MINIMUM OF 6 FEET. A CROSSWALK WIDTH OF 10 FEET OR GREATER IS DESIRABLE.
15. USE STOP LINES, NORMALLY PERPENDICULAR TO THE LANE LINES, WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT. AN UNUSUAL APPROACH SKEN MAY REQUIRE THE PLACEMENT OF THE STOP LINE TO BE PARALLEL TO THE INTERSECTING ROADWAY.
16. TERMINATE MARKING A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
17. PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION AND THE NORTH CAROLINA SUPPLEMENT TO THE MUTCD.



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433 HAY ST. 28301
(910) 433-1656

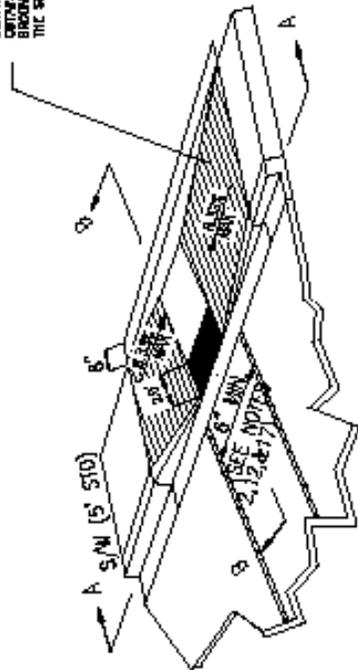
WHEELCHAIR RAMP
NOTES
SHEET 4 OF 4

DATE 10/15/2012 DRAWN BY CSA
SCALE N.T.S. CK'D BY CSA

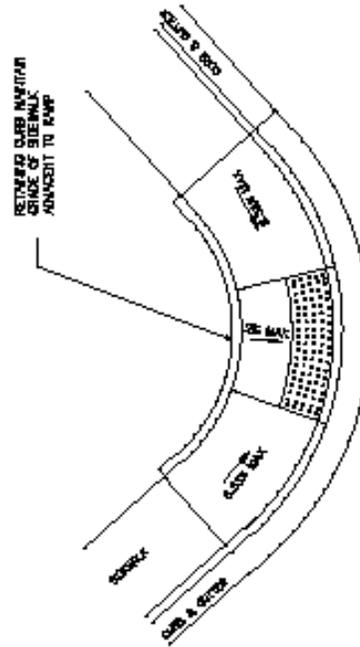
SD-2.3

CAD FILE : WC-RAMP4

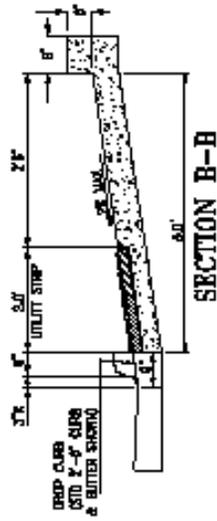
SURFACE TEXTURE TO BE OBTAINED BY A COMBING BRUSHING TRANSFER TO THE SLOPES OF PAVEMENT.



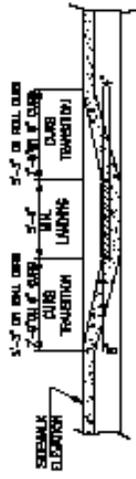
ISOMETRIC VIEW



PLAN VIEW



SECTION B-B



SECTION A-A

NOTE: WHEN DUAL PARALLEL RAMP ARE BEING PLACED, A 4' LANDING SHALL BE INSTALLED BETWEEN THE TWO RAMP.

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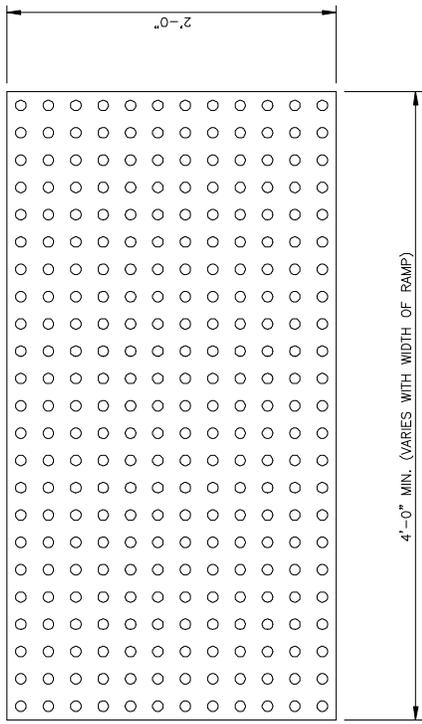
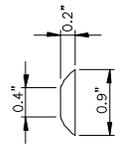
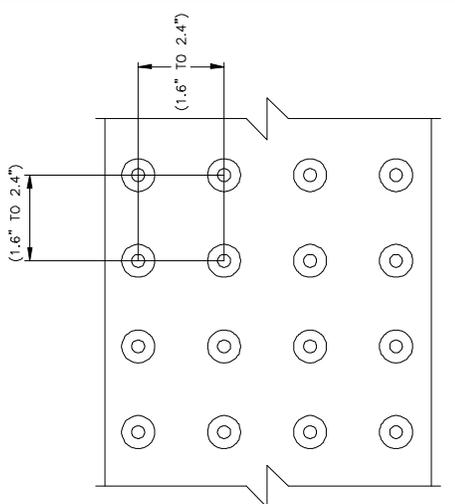
DETAIL OF
 PARALLEL CURB
 WHEELCHAIR RAMP

SEE DETAIL SHEET SD-2.3 FOR WHEELCHAIR RAMP NOTES.

SD-2.4

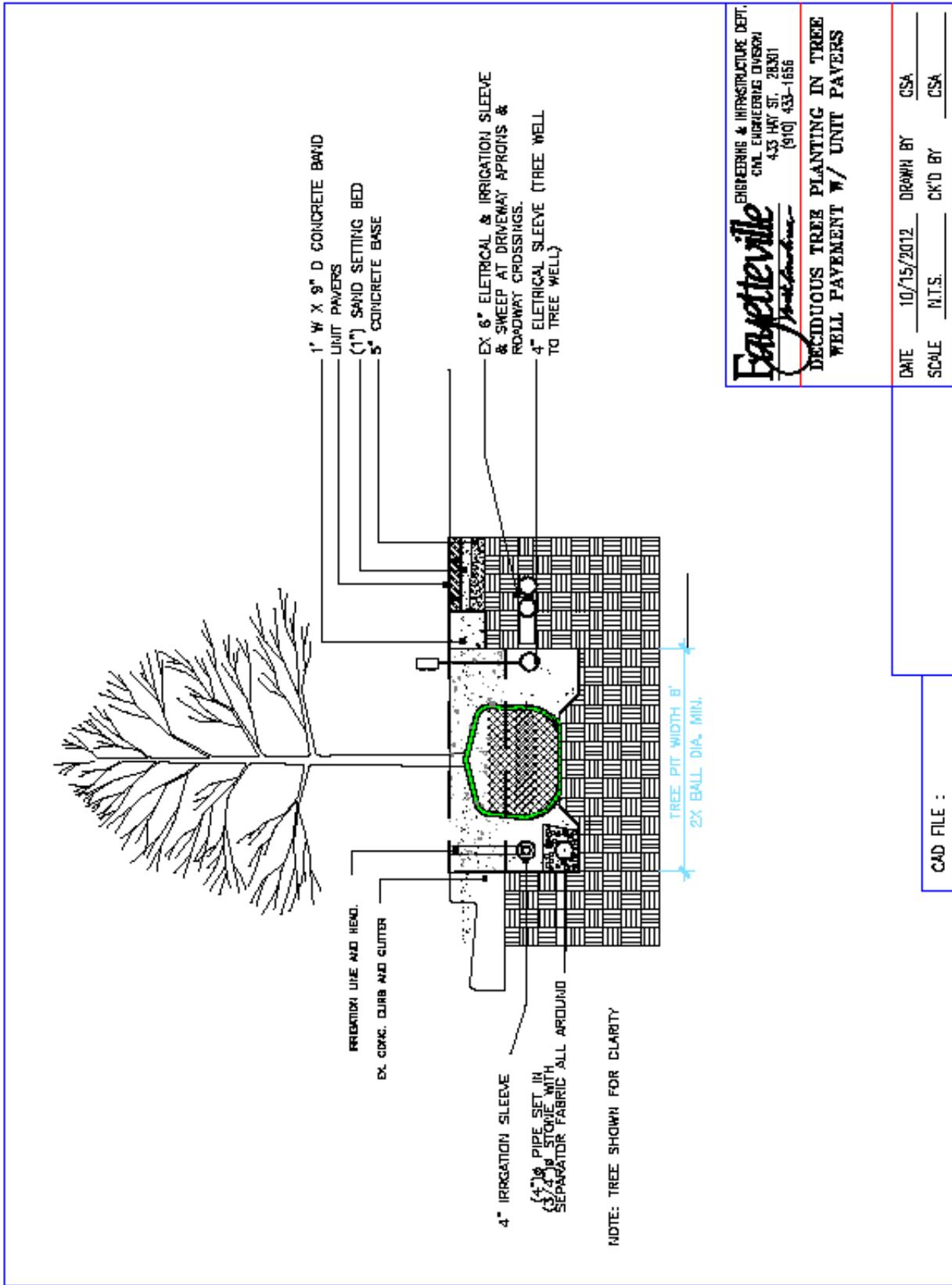
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CAD FILE : WC-PARALLELCURBRAMP



NOTES:

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



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 (910) 433-1656

DECIDUOUS TREE PLANTING IN TREE WELL PAVEMENT W/ UNIT PAVERS

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CAD FILE :

Most details are available at our website

http://www.ci.fayetteville.nc.us/engineering_and_infrastructure/standard_details.aspx