

Engineering Services

2011 Spring Meeting

ADA COMPLIANT

SIDEWALKS AND RAMPS

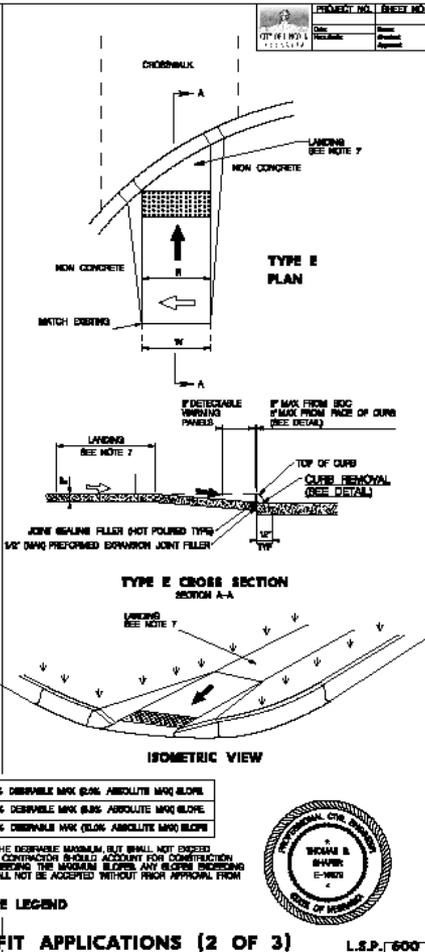
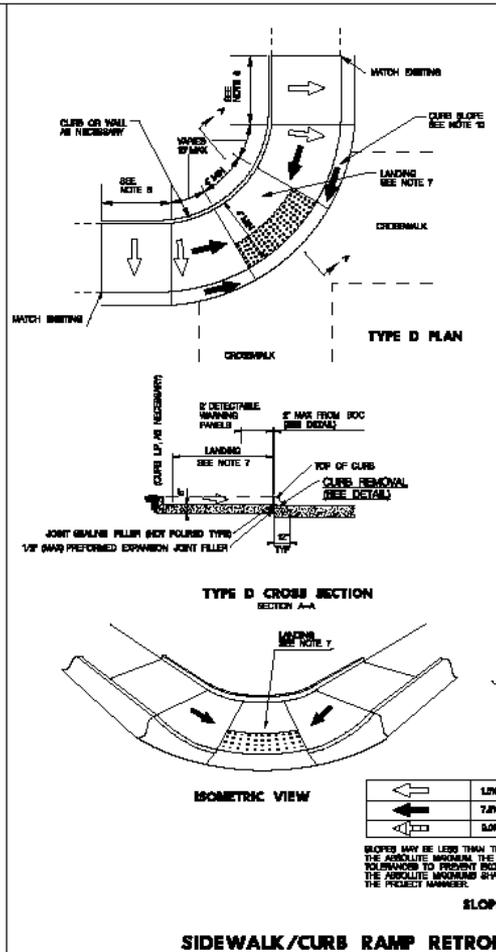
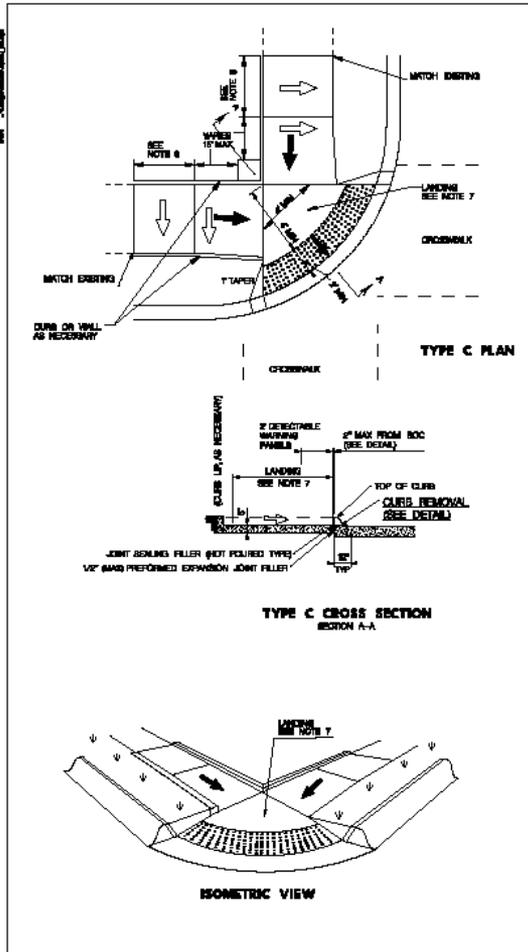
ADA COMPLIANT SIDEWALKS AND RAMPS

○ LSP 600

- **Retrofit vs. New Construction**
- **Plan view, Cross Section view and Isometric view**
- **Position of Detectable Warning Panel**
 - Must cover the entire width of the ramp opening
 - Near Corner – Maximum of 2” from the Back of Curb
 - Far Corner – Maximum of 5’ from the Face of Curb
- **Curb Lip**
 - Maximum slope of the curb lip is 8.3% or the slope of the adjacent ramp or landing area, whichever is **less**
- **Level Landings**
 - Absolute minimum of 4’ x 4’, absolute maximum slope of 2% in all directions
- **Smart Levels**

ADA COMPLIANT SIDEWALKS AND RAMPS

1. SEE NOTE 1 FOR
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 100. SEE NOTE 100 FOR



	1.0% DETECTABLE MARK (LONG ABSOLUTE MARK SLOPE)
	2.0% DETECTABLE MARK (SHORT ABSOLUTE MARK SLOPE)
	0.5% DETECTABLE MARK (LONG ABSOLUTE MARK SLOPE)

SLOPES MAY BE LESS THAN THE DETECTABLE MINIMUM, BUT SHALL NOT EXCEED THE ABSOLUTE MINIMUM. THE CONTRACTOR SHOULD ACCOUNT FOR CONSTRUCTION TOLERANCES TO PREVENT EXCEEDING THE MAXIMUM SLOPES. ANY SLOPE EXCEEDING THE ABSOLUTE MINIMUMS SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE PROJECT MANAGER.

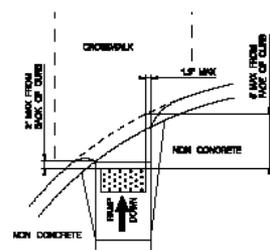
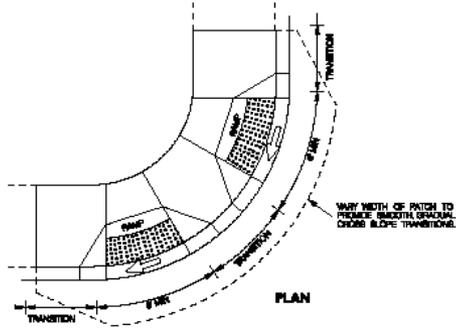
SLOPE LEGEND



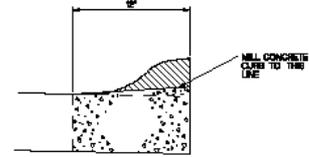
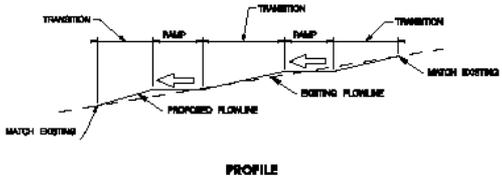
ADA COMPLIANT SIDEWALKS AND RAMPS

DATE: 01/11/01
 DRAWN BY: J. B. BROWN
 CHECKED BY: J. B. BROWN
 PROJECT NO.: 01-001

PROJECT NO.	HEET NO.
01-001	3 OF 3
DATE	01/11/01
DRAWN BY	J. B. BROWN
CHECKED BY	J. B. BROWN



- NOTES:**
1. THE RAMP WIDTH FOR SIDE PATHWAYS SHALL BE THE SAME AS THE NOMINAL WIDTH OF THE SIDE PATHWAY.
 2. CURB SHALL BE SAVED TO ACHIEVE A UNIFORM SPACE ON THE CURB RAMP. PILES OF BRUSH AND DEBRIS SHALL BE REMOVED.
 3. RAMP SHALL BE CONSTRUCTED SUCH THAT THE MINIMUM VERTICAL DISCONTINUITY IS 1/8\"/>
 - 4. RAMP FLAYER SHALL BE CONSTRUCTED WITH A MIN. 1/4\"/>
 - 5. ALL CURB RAMPS SHALL BE CONSTRUCTED WITH A LONGITUDINAL DETECTABLE TRUNCATED DOME SURFACE ACROSS THE ENTIRE WIDTH OF RAMP THE LAST TWO FEET (8') TOWARDS THE CURB, WITH COLOR CONTRAST TO ADJACENT SURFACE.
 - 6. DETECTABLE WARNING PANELS MUST BE APPROVED BY THE CITY AND MEET COMPLY WITH ADA DIMENSIONS AND SHALL BE INSTALLED AS PER MANUFACTURERS INSTRUCTIONS.
 - 7. LANDING SHALL HAVE ABSOLUTE MINIMUM DIMENSIONS OF 4' X 4' AND ABSOLUTE MINIMUM SLOPE OF 1% IN ALL DIRECTIONS.
 - 8. RECONSTRUCT MINIMUM LENGTH OF SIDEWALK AND CURB/GUTTER BEYOND RAMP. LANDING/JACKER PLATFORM TO TRANSITION SHALL BE MINIMUM WIDTH OF SIDEWALK. THE MAXIMUM LENGTH SHALL BE 4' OR AS DIRECTED. MATCH EXISTING SIDEWALK WIDTHS OF 4' OR GREATER UNLESS OTHERWISE NOTED. TRANSITION TO A MINIMUM OF 4' WIDTH WHERE EXISTING SIDEWALK WIDTHS ARE LESS THAN 4'.
 - 9. ALL RAMP AREAS SHALL BE AT LEAST THE THICK OF CONSTRUCTING THESE RAMPS SHALL BE MEASURED AND PAID FOR AS A PART OF THE WORK FOR CONCRETE SIDEWALK IF THICK OR CONCRETE SIDEWALK IF THICK.
 - 10. CURB SLOPE SHALL MATCH THE SLOPE OF THE ADJACENT WALK OR RAMP.



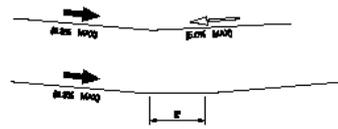
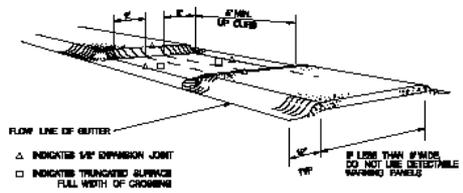
NOTE:
 CONCRETE CURB AND GUTTER MAY BE REMOVED AND REPLACED IN FIELD OF MILLING. MINIMUM SLOPE OF THE CURB UP SHALL NOT EXCEED 5% OR THE SLOPE OF THE ADJACENT RAMP OR LANDING AREA, WHICHEVER IS LESS.

CURB OR CURB/GUTTER DETAIL

	1.5% DETECTABLE MAX (2.0% ABSOLUTE MAX) SLOPE
	7.5% DETECTABLE MAX (5.0% ABSOLUTE MAX) SLOPE
	5.0% DETECTABLE MAX (5.0% ABSOLUTE MAX) SLOPE

SLOPES MAY BE LESS THAN THE DETECTABLE MAXIMUM BUT SHALL NOT EXCEED THE ANGLE MAXIMUM. THE CONTRACTOR SHALL ACCORD NOT CONSTRUCTION TO SPACES TO PREVENT EXCEEDING THE MAXIMUM SLOPE. ANY SLOPES EXCEEDING THE ABSOLUTE MAXIMUM SHALL NOT BE ACCEPTED WITHOUT PRIOR APPROVAL FROM THE PROJECT MANAGER.

SLOPE LEGEND

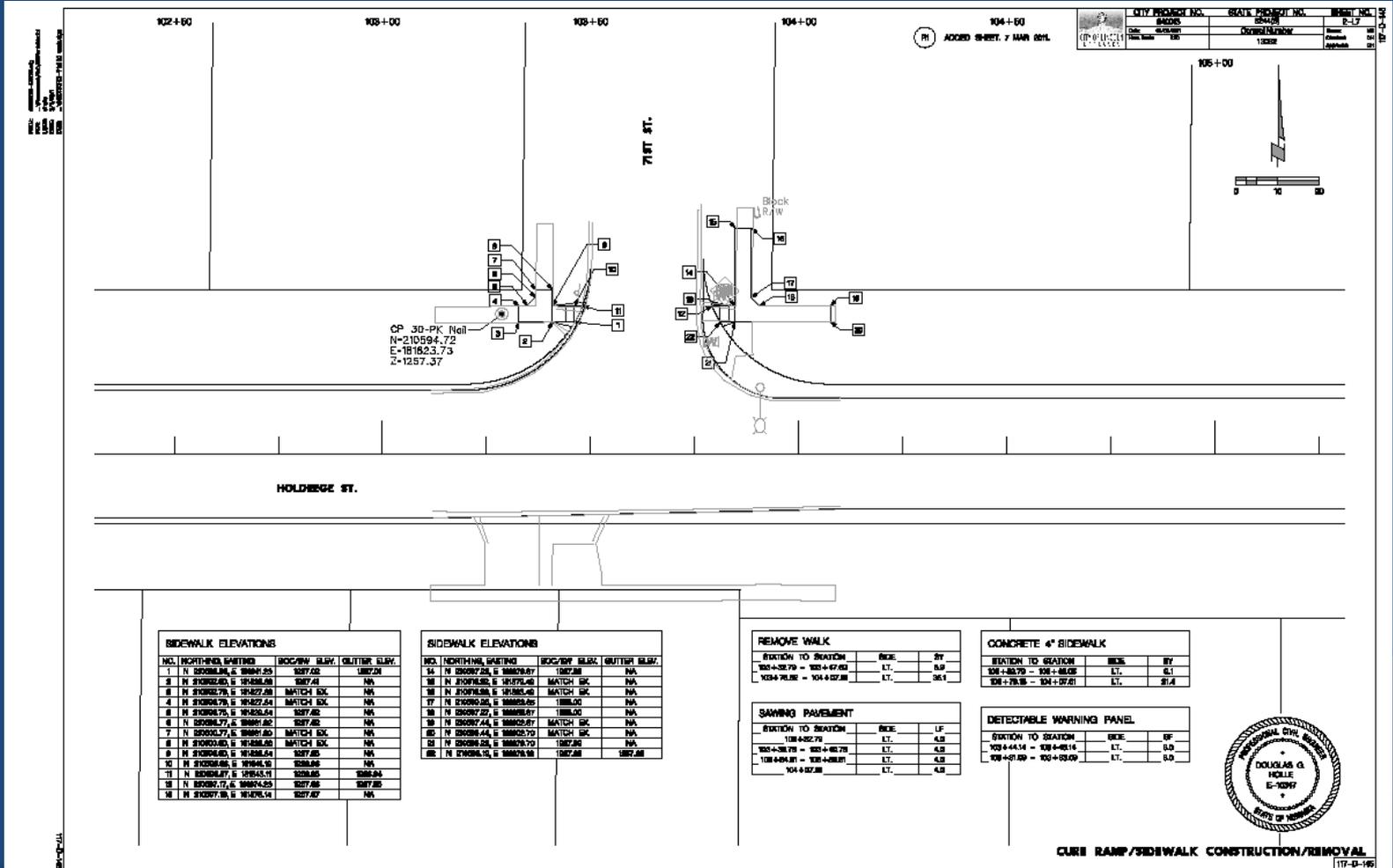


IF THE ALTERNATE DIFFERENCE BETWEEN ANY SLOPE IS GREATER THAN 1/8\"/>

NO GRADE BREAKS ON SURFACE OF RAMP



ADA COMPLIANT SIDEWALKS AND RAMPS



SIDEWALK ELEVATIONS

NO.	NORTHING	EASTING	SOG/RY SLEV.	OUTER SLEV.
1	N 20000.00	E 18000.00	2007.00	1807.00
2	N 20000.00	E 18000.00	2007.00	NA
3	N 20000.00	E 18000.00	2007.00	2007.00
4	N 20000.00	E 18000.00	2007.00	2007.00
5	N 20000.00	E 18000.00	2007.00	2007.00
6	N 20000.00	E 18000.00	2007.00	2007.00
7	N 20000.00	E 18000.00	2007.00	2007.00
8	N 20000.00	E 18000.00	2007.00	2007.00
9	N 20000.00	E 18000.00	2007.00	2007.00
10	N 20000.00	E 18000.00	2007.00	2007.00
11	N 20000.00	E 18000.00	2007.00	2007.00
12	N 20000.00	E 18000.00	2007.00	2007.00
13	N 20000.00	E 18000.00	2007.00	2007.00
14	N 20000.00	E 18000.00	2007.00	2007.00
15	N 20000.00	E 18000.00	2007.00	2007.00
16	N 20000.00	E 18000.00	2007.00	2007.00
17	N 20000.00	E 18000.00	2007.00	2007.00
18	N 20000.00	E 18000.00	2007.00	2007.00
19	N 20000.00	E 18000.00	2007.00	2007.00
20	N 20000.00	E 18000.00	2007.00	2007.00

SIDEWALK ELEVATIONS

NO.	NORTHING	EASTING	SOG/RY SLEV.	OUTER SLEV.
21	N 20000.00	E 18000.00	2007.00	2007.00
22	N 20000.00	E 18000.00	2007.00	2007.00
23	N 20000.00	E 18000.00	2007.00	2007.00
24	N 20000.00	E 18000.00	2007.00	2007.00
25	N 20000.00	E 18000.00	2007.00	2007.00
26	N 20000.00	E 18000.00	2007.00	2007.00
27	N 20000.00	E 18000.00	2007.00	2007.00
28	N 20000.00	E 18000.00	2007.00	2007.00
29	N 20000.00	E 18000.00	2007.00	2007.00
30	N 20000.00	E 18000.00	2007.00	2007.00
31	N 20000.00	E 18000.00	2007.00	2007.00
32	N 20000.00	E 18000.00	2007.00	2007.00
33	N 20000.00	E 18000.00	2007.00	2007.00
34	N 20000.00	E 18000.00	2007.00	2007.00
35	N 20000.00	E 18000.00	2007.00	2007.00
36	N 20000.00	E 18000.00	2007.00	2007.00
37	N 20000.00	E 18000.00	2007.00	2007.00
38	N 20000.00	E 18000.00	2007.00	2007.00
39	N 20000.00	E 18000.00	2007.00	2007.00
40	N 20000.00	E 18000.00	2007.00	2007.00

REMOVE WALK

STATION TO STATION	SIDE	BY
103+00.00 - 103+47.00	LT.	3.0
103+48.00 - 104+02.00	LT.	3.0

SAWING PAVEMENT

STATION TO STATION	SIDE	LF
103+00.00	LT.	4.0
103+00.00 - 103+02.00	LT.	4.0
103+02.00 - 103+04.00	LT.	4.0
104+02.00	LT.	4.0

CONCRETE 4" SIDEWALK

STATION TO STATION	SIDE	BY
103+00.00 - 103+02.00	LT.	6.1
103+02.00 - 103+04.00	LT.	6.1

DETECTABLE WARNING PANEL

STATION TO STATION	SIDE	SF
103+00.00 - 103+02.00	LT.	0.0
103+02.00 - 103+04.00	LT.	0.0





ADA Challenges

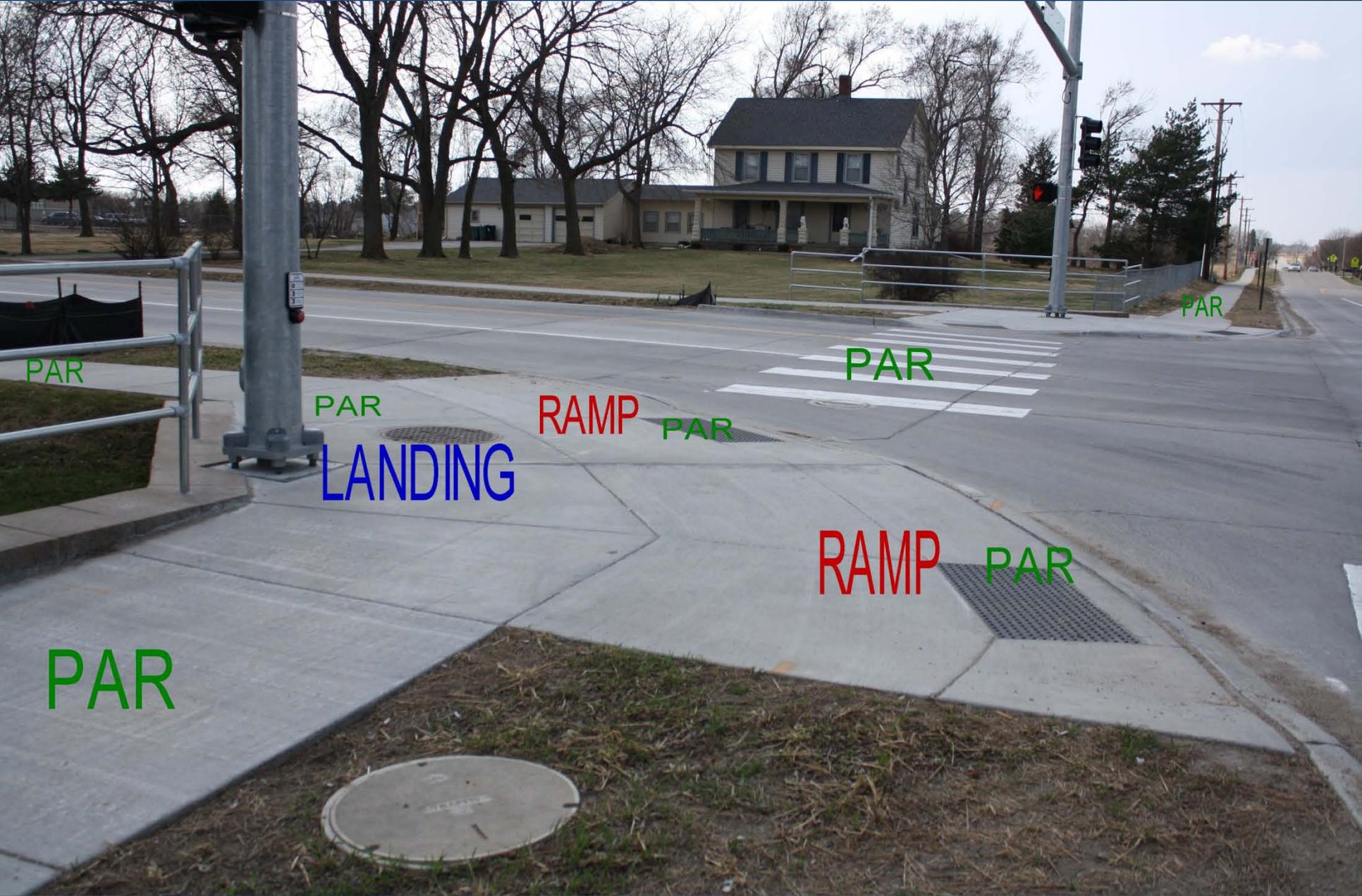
As construction professionals, it is our duty, as detailed by ADA Law, to meet the mobility needs of all users of the public sidewalk system. ADA was implemented in response to the need for accessible pedestrian systems for all users.

ADA Practices

- ③ 30 percent of the adult population does not have automobiles for transportation
- ③ In 2004 there were an estimated 2 million users of wheelchairs
- ③ In 2010 there are an estimated 4 million users of wheelchairs
- ③ It is estimated that 17% use powered wheelchairs
- ③ 2004 Report on “Space Requirements for Wheeled Mobility”

PAR, Pedestrian Access Route

- ① The pedestrian access route includes all elements for pedestrian access
- ① This includes sidewalks, curb ramps and cross walks through the street cross section
- ① Cross walks are an extension of the sidewalk and curb ramps across the street



PAR

PAR

LANDING

RAMP

PAR

PAR

PAR

RAMP

PAR

PAR



**PEDESTRIAN TRAVEL
DIRECTIONS**



**PEDESTRIAN TRAVEL
DIRECTIONS**

Critical construction criteria for a PAR

- ① 2% Cross slope throughout the PAR, this includes paving, curbs, ramps and sidewalk
- ① 8.3% for all ramps
- ① 5% running slope or adjoining street slope
- ① Minimum sidewalk and ramp width is 4 feet
- ① Detectible warnings required with ramps

CURB RAMP AND PAR EXAMPLES

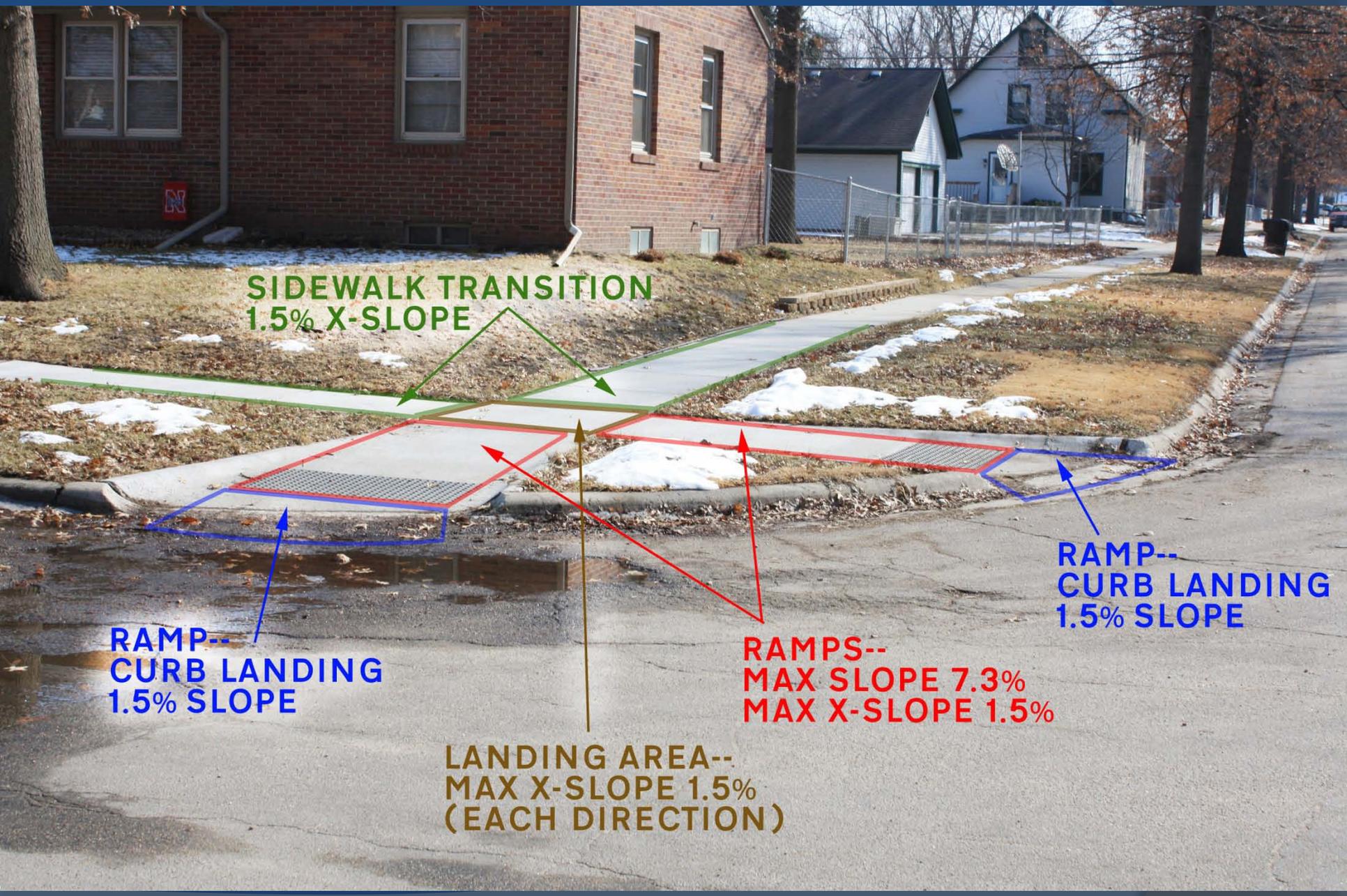
**SIDEWALK TRANSITION
1.5% X-SLOPE**

**RAMP--
CURB LANDING
1.5% SLOPE**

**RAMPS--
MAX SLOPE 7.3%
MAX X-SLOPE 1.5%**

**RAMP--
CURB LANDING
1.5% SLOPE**

**LANDING AREA--
MAX X-SLOPE 1.5%
(EACH DIRECTION)**





RAMP AREAS
7.3%

LANDING--
1.5% SLOPES



**LANDING AREA
1.5% SLOPE**

RAMP 7.3%

LANDING
1.5%



RAMP
7.3% SLOPE



1.5% X-SLOPE

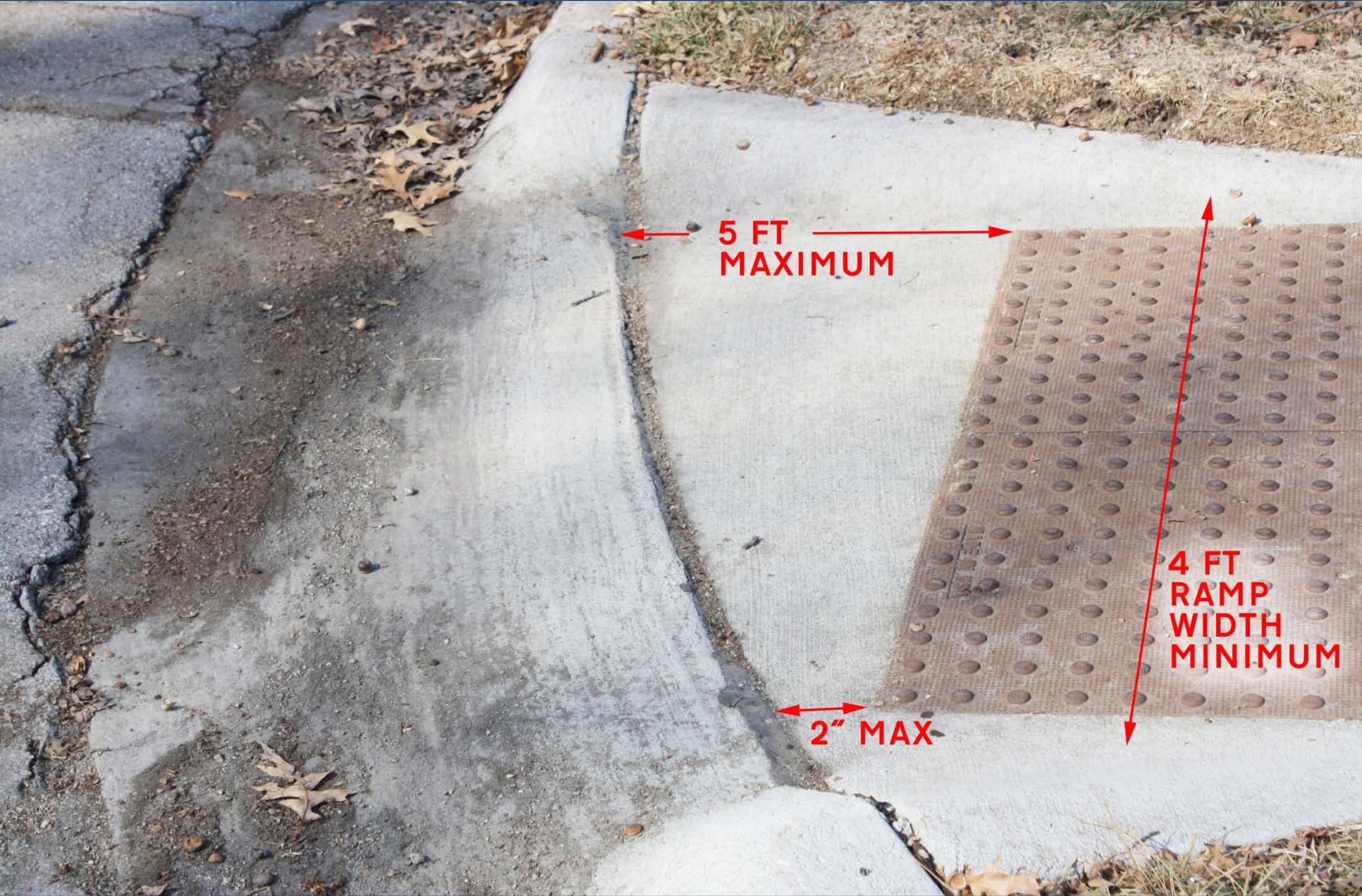


**RAMP - CURB
TRANSITION - LANDING**
SLOPE 1.5%



DETECTABLE WARNING PANELS

- ⦿ Two inches from back of curb (8 inches from face of curb nearest edge)
- ⦿ Five feet from curb for farthest edge
- ⦿ Detectable warning panel must be installed with max 2% cross slope
- ⦿ Detectable warning panel must match width of curb ramp
- ⦿ Width of curb ramp must be 4 ft minimum



5 FT
MAXIMUM

4 FT
RAMP
WIDTH
MINIMUM

2" MAX

A photograph showing a concrete landing area next to a metal grate. A red outline highlights the landing area. The text "LANDING AREA" is written in red. The text "1.5 % SLOPE" is written in red. The text "ALL DIRECTIONS" is written in red. The landing area is a concrete slab with a metal grate on the right side. The grate has a circular pattern. The concrete has a crack on the left side. There are some leaves and grass around the landing area.

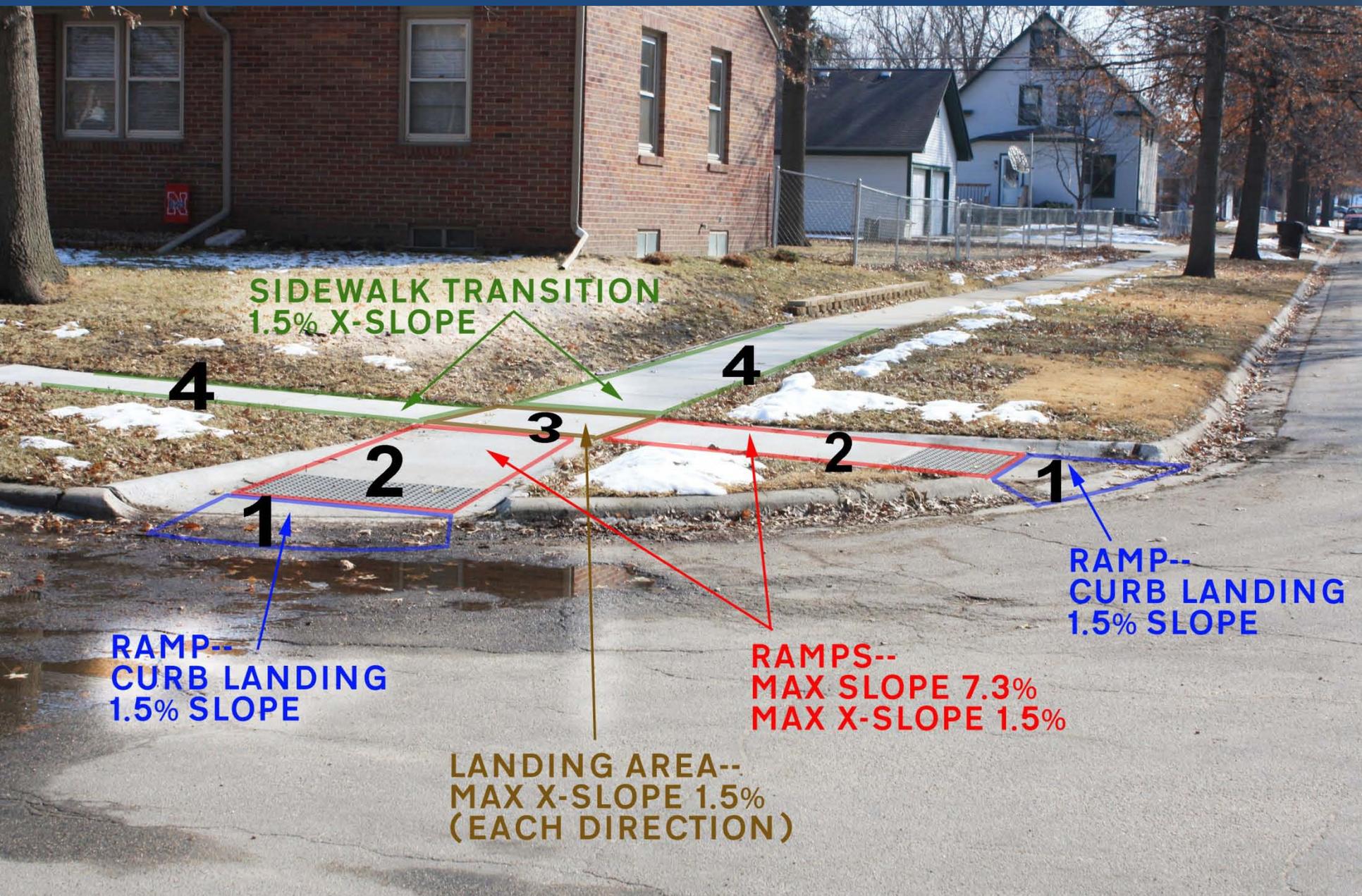
**LANDING
AREA**

1.5 % SLOPE

**ALL
DIRECTIONS**

Construction Quality

- ① Contractor is responsible to insure all elements of curb ramp and sidewalk construction meet ramp tolerances
- ① Use of grades and digital smart levels is critical to insure quality compliant construction
- ① Smart level must be used during and after the placement of the concrete



SIDEWALK TRANSITION
1.5% X-SLOPE

4

4

3

2

2

1

1

RAMP--
CURB LANDING
1.5% SLOPE

RAMP--
CURB LANDING
1.5% SLOPE

RAMPS--
MAX SLOPE 7.3%
MAX X-SLOPE 1.5%

LANDING AREA--
MAX X-SLOPE 1.5%
(EACH DIRECTION)







9.4 %

ELECTRONIC

QUESTIONS?