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|------------------|----------------------------|------|-------------------|-------|
| ORIGINAL PLAN | NOTE BOOK Shaded/Design | DATE | SURVEY PLOTTED BY | _____ |
| | | | DESIGNED BY | _____ |
| | | | QUANTITIES BY | _____ |
| | | | CHECKED BY | _____ |

CURB RAMP AND SIDEWALK NOTES:

1. These typical details are intended as curb ramp guidelines for design and construction.
2. A 2% maximum cross slope shall be maintained in the direction of pedestrian traffic.
3. Subject to field conditions, the Engineer shall determine the final location of curb ramps.
4. All pullboxes shall be installed away from the curb ramp and within the sidewalk/unpaved area to the maximum extent feasible.
5. Where necessary, existing pullboxes, handholes, manholes, etc. shall be adjusted to match curb ramp grade. Adjustments shall not be paid for separately but shall be considered incidental to the various curb ramp items unless indicated otherwise.
6. Transitions from ramps to gutters and roadways shall be flush.
7. Curb ramps and sidewalks shall be constructed to eliminate ponding to the maximum extent feasible.
8. The pedestrian push button shall meet operational and reach requirements of the American with Disabilities Act Accessibility Guidelines (ADAAG):
 - a) Forward Reach. The maximum height for forward reach shall be 48".
 - b) Side Reach. The maximum height for side reach shall be 54".
 - c) Operation. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.
9. The maximum slopes of adjoining gutters or road surface immediately fronting the curb ramp shall not exceed 5% for Type A, D and Combination ramps and 8.33% for Type B, C, and E ramps.
10. There shall be a 30"x48" level ground surface (2% max. cross slope, both directions) for a forward or side approach, as appropriate, to a pedestrian push button.
11. Construction joints are required to join curb ramps with sidewalks.
12. Unless otherwise noted, new gutters are required as shown.
13. All curb ramps shall be reinforced with 6x6 W1.4/W1.4 welded wire fabric.
14. Surface of sidewalks and curb ramps shall be firm, stable, and slip-resistant. This includes the surfaces of pullboxes, valve covers, manhole covers, etc.
15. Bed course material is required for curb ramps, sidewalks, and gutters.
16. All sidewalks shall provide a minimum clear width of 3'-0" (excluding curb) for pedestrian circulation. If this cannot be met, a minimum 32-inch clear width is allowed for a distance of 24-inches.
17. Passing spaces along new sidewalks with 5' clear width or less shall be provided at maximum 200' intervals as required by ADA guidelines. The passing area shall be a minimum 5' wide by 5' long as feasible.
18. If possible, install utility poles, fire hydrants, light poles, sign posts, pullboxes, etc. off of sidewalk but within the right-of-way.
19. Objects protruding from utility poles and walls adjacent to the sidewalks (i.e. wall mounted fire hydrants, telephones, meters on poles, etc.) shall be mounted to meet the current American with Disabilities Act Accessibility Guidelines (ADAAG) and will be subject to Engineer's approval.
20. If a curb ramp is not constructed according to the plans, the Contractor shall reconstruct the curb ramp at no cost to the State. Construction tolerance for Portland Cement Concrete shall be based on 1/4 inch per 10 ft. (±0.2%). Remedial measures will not be accepted.
21. Additional information is available from:
 - a) American with Disabilities Act Accessibility Guidelines (ADAAG), Jan. 1998, The Access Board.
 - b) Accessible Rights-of-Way: A Design Guide, Nov. 1999, The Access Board.
 - c) Designing Sidewalks and Trails for Access, Part 1, July 1999, FHWA.
 - d) Designing Sidewalks and Trails for Access, Part 2, Sept. 2001, FHWA.

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | H201A-01-06M | 2008 | 16 | 64 |

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| STATE OF HAWAII |
| DEPARTMENT OF TRANSPORTATION |
| HIGHWAYS DIVISION |
| CURB RAMP AND SIDEWALK NOTES |
| MOANALUA FREEWAY |
| NORTH FRONTAGE ROAD RESURFACING |
| Vicinity of Ala Aolani to Vicinity of Ala Kapuna |
| Project No. H201A-01-06M |
| Date: April 22, 2008 |

The diagrams illustrate various curb ramp configurations and their associated infrastructure:

- Top Left:** Shows a curb ramp at a street corner. Labels include: "Utility/Light Pole", "Ideal Sidewalk (12'-0" Wide or Greater) for New Construction", "Pullbox", "Type 'A' Curb Ramp", "Type 'C' Modified Curb Ramp", and another "Pullbox".
- Top Right:** Shows a curb ramp at a street corner with a fire hydrant. Labels include: "Fire Hydrant", "Sign Post", "Separated Sidewalk (5'-0" Min. Width)", "Traffic Signal Std.", "Type 'A' Curb Ramp", "Ideal Sidewalk (12'-0" Wide or Greater)", "Type 'D' Curb Ramp", "Type 'A' Curb Ramp", "Driveway", "3' Min. Level Bypass", and "Stop Line (typ.)".
- Bottom Left:** Shows a curb ramp at a street corner with a drainage catch basin. Labels include: "Less than 4'-0\"", "Drainage Catch Basin", "New Sidewalk (6'-0" Min. width Excluding Curb)", "Pedestrian Push Button Pedestal", "Traffic Signal Std.", and "Drainage Catch Basin".
- Bottom Right:** Shows a curb ramp at a street corner with a narrow sidewalk. Labels include: "Type 'C' Curb Ramp", "Crosswalk Striping (typ.)", "Type 'C' Curb Ramp", "4'-0" Min.", "Curb", "Type 'C' Curb Ramp", "Type 'E' Curb Ramp", "Type 'B' Modified Curb Ramp", "Type 'B' Curb Ramp (For existing sidewalk only)", "Narrow Sidewalk (3'-0" Min. Width Excluding Curb)", "R/W", "Combination Curb Ramp (For exist. sidewalk only)", "Traffic Signal Std.", and "8'-0" Wide Sidewalk".

Level Landing
5'-0" Preferred
(4'-0" Min.)

2% Max. Slope

2% Max.*

Broom Finish

10% Max. Slope

8.33% Max. Slope

10% Max. Slope

5% Max. Slope

2% Max.*

New Drop Curb

8'-0" Minimum Gutter

12'-0" Minimum

8'-0" Max. Flare (Transition Gutter Slope)

3'-0" Min.

5'-0" Min.

8'-0" Max. Flare (Transition Gutter Slope)

Traffic Signal Standard, Pedestrian Push Button Pedestal or Hwy. Light Pole (See Detail "A")

Traffic Signal Base

2'-6"

2'-6"

Curb Face

PLAN

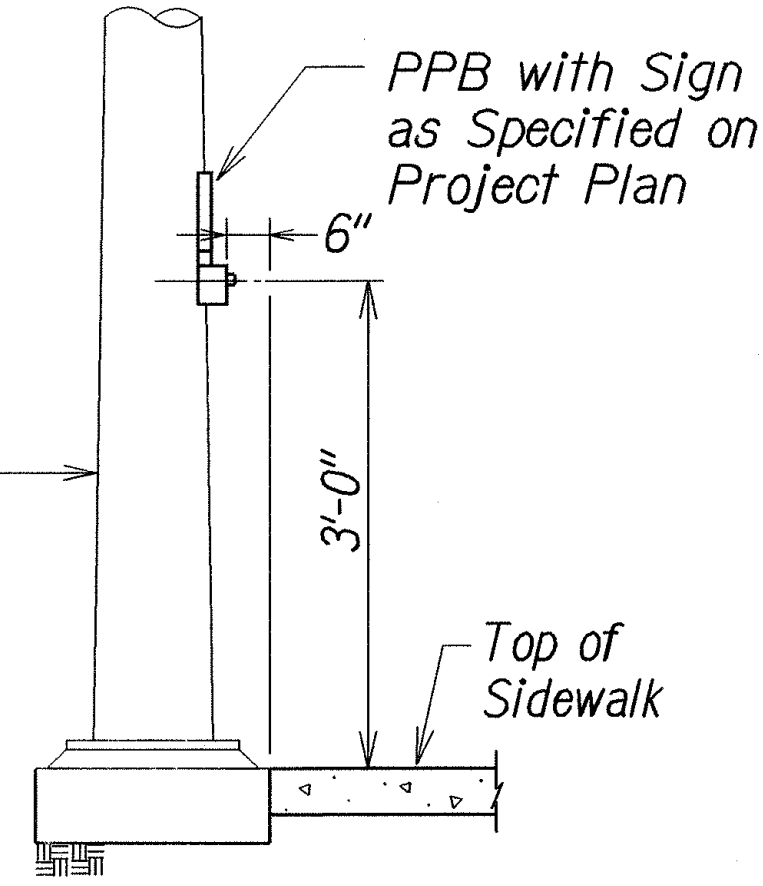
The diagram is an elevation view of a gutter system. It shows a horizontal gutter with a sloped bottom. A dashed line represents the 'top of exist. curb line'. A solid line represents the 'gutter line or e.p.'. The gutter is labeled '10% Max. Slope'. The word 'ELEVATION' is written below the diagram.

The diagram illustrates a cross-section of a gutter installation. On the left, a 'New Gutter' is shown with a '5% Max. Slope'. To its right is an 'existing curb'. Further right is a '4" Concrete w/6x6 W14/W14 WWF' curb, which has an '8.33% Max. Slope'. To the right of the concrete curb is a 'Level Landing' area with a '2% Max. Slope'. Dimensions include an '8'-0" Minimum' distance between the gutter and the concrete curb, and a '5'-0" Preferred' distance for the level landing. A '7"' dimension is shown for the gutter's depth. The diagram is labeled 'SECTION "A-A"' and includes a date and revision: '6/16/08 | Added Type 2DG Curbs'.

CURB RAMP - TYPE "A"
SIDEWALK WIDTH 12'-0" OR GREATER

[illegible]

Type I, II, III TSS,
Pedestrian Push Button
Pedestal or Hwy. Light Pole



6/16/08 Added Type 2DG Curb & Gutter Detail.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAILS

MOANALUA FREEWAY

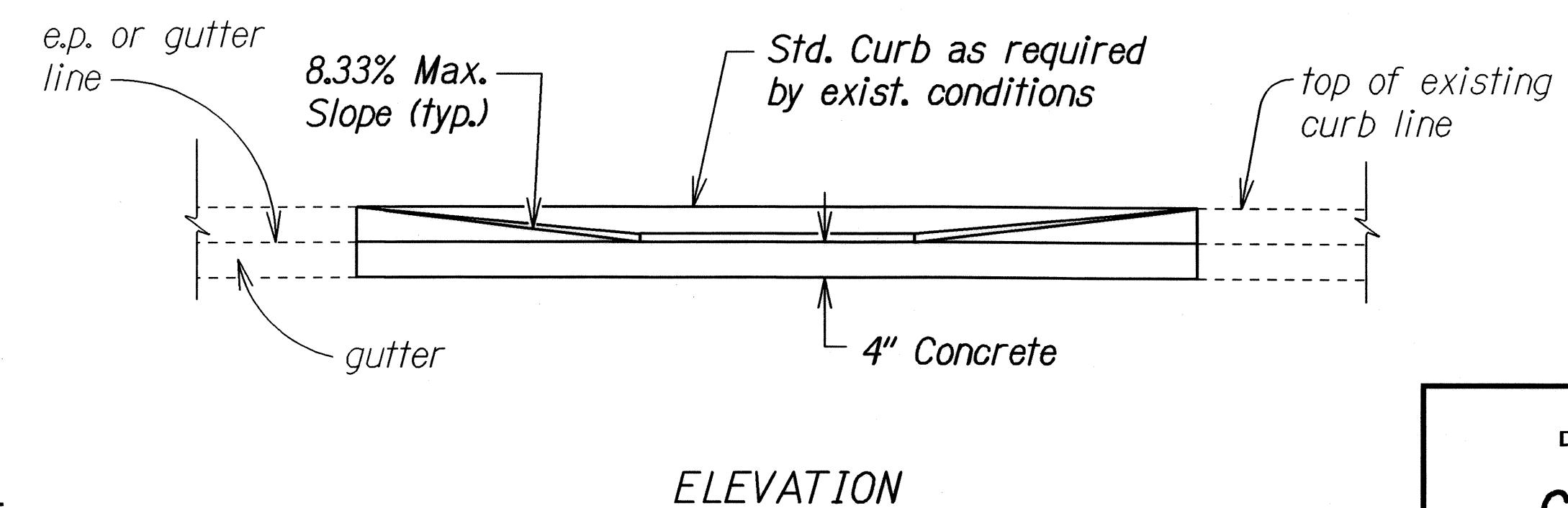
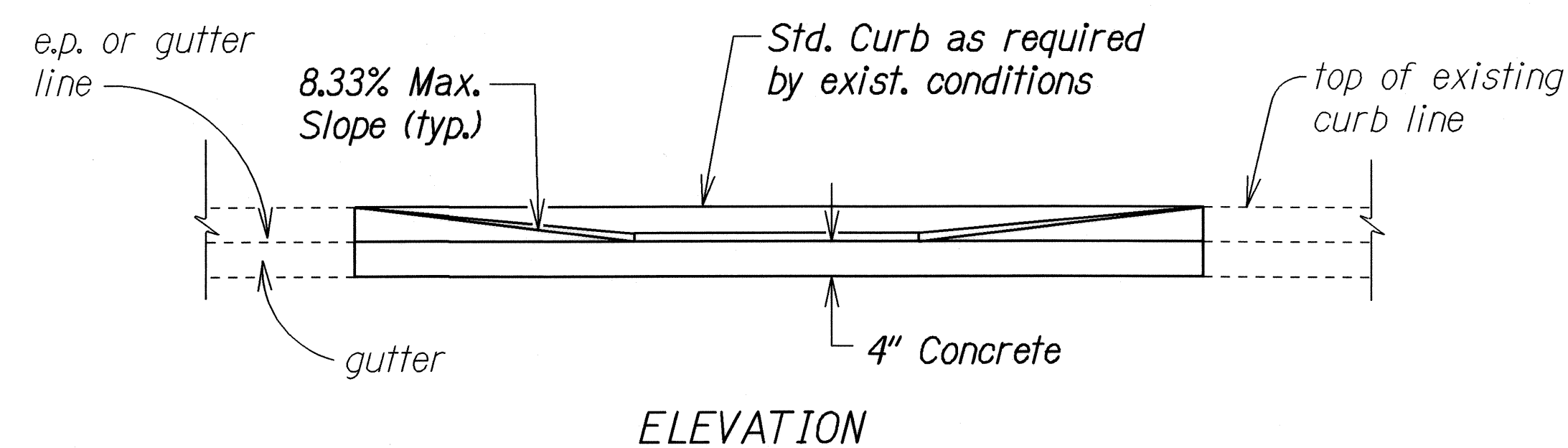
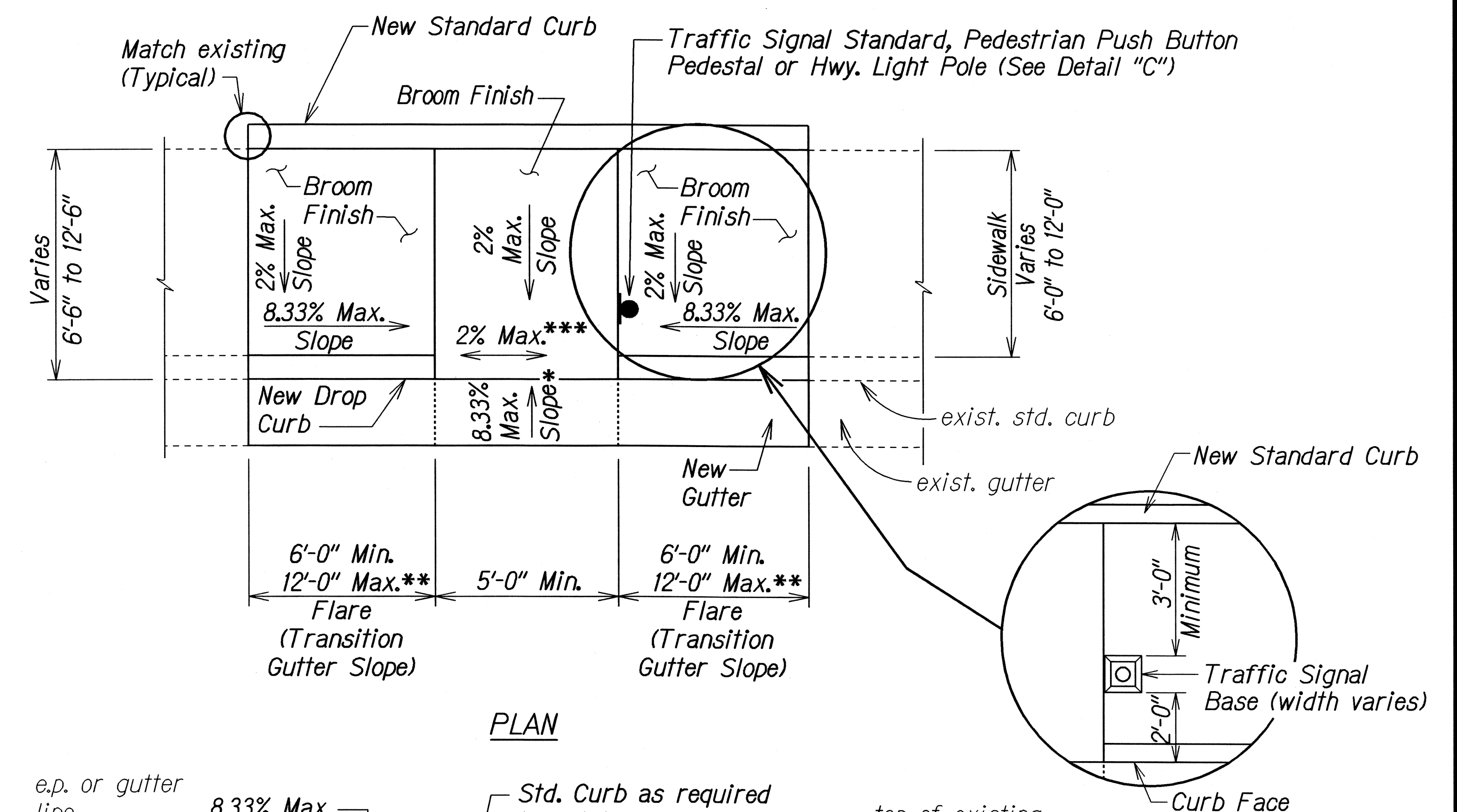
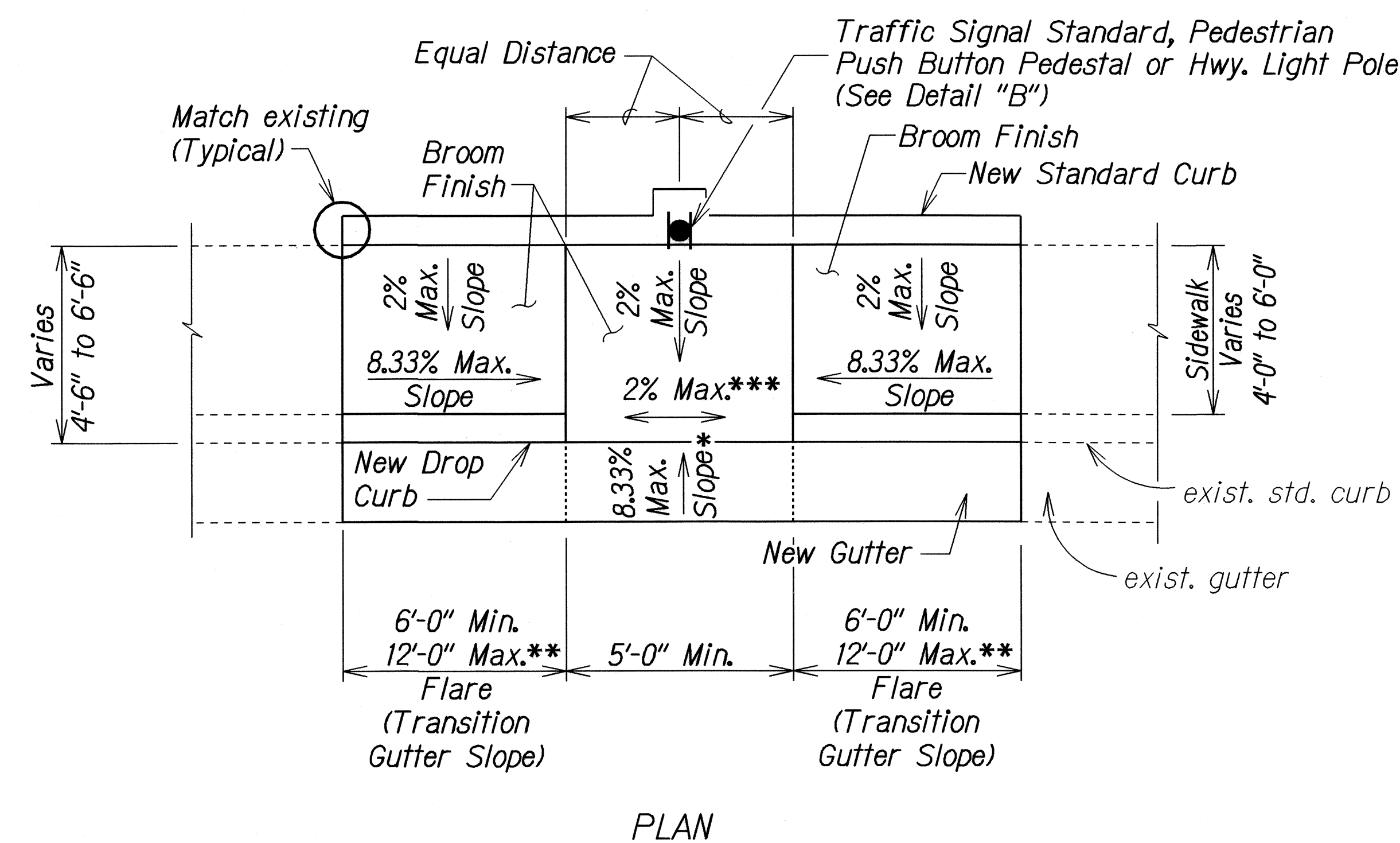
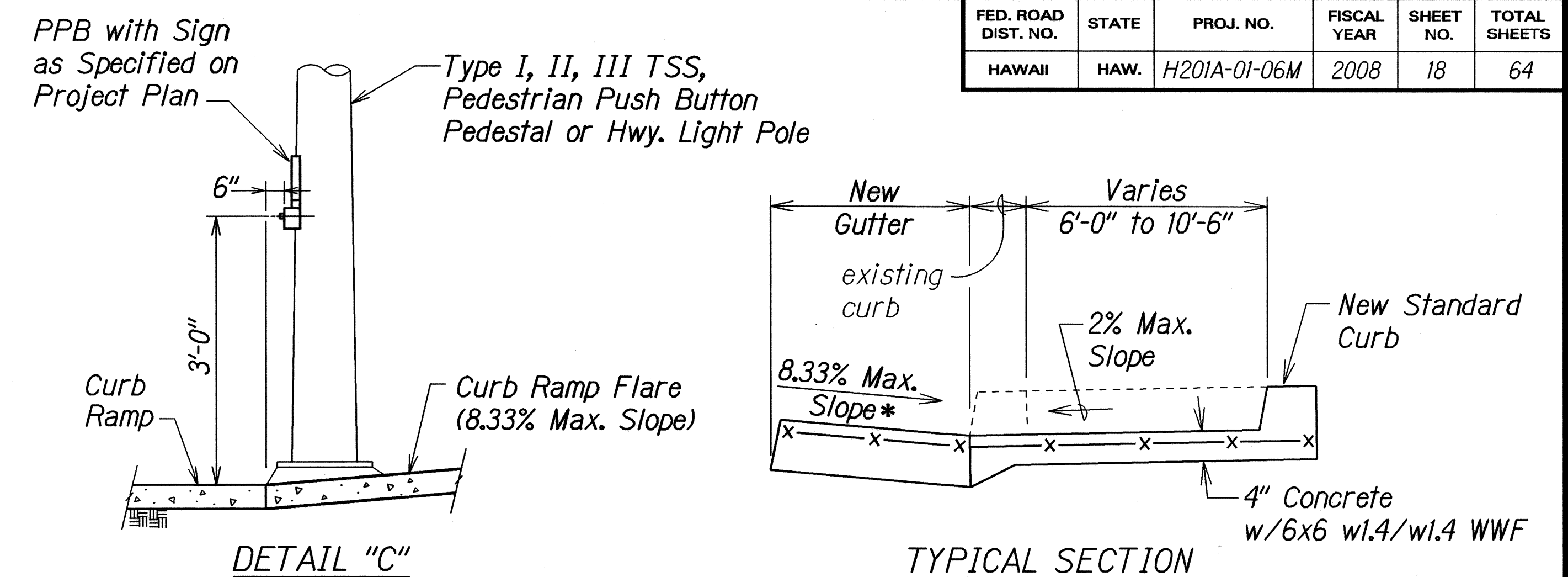
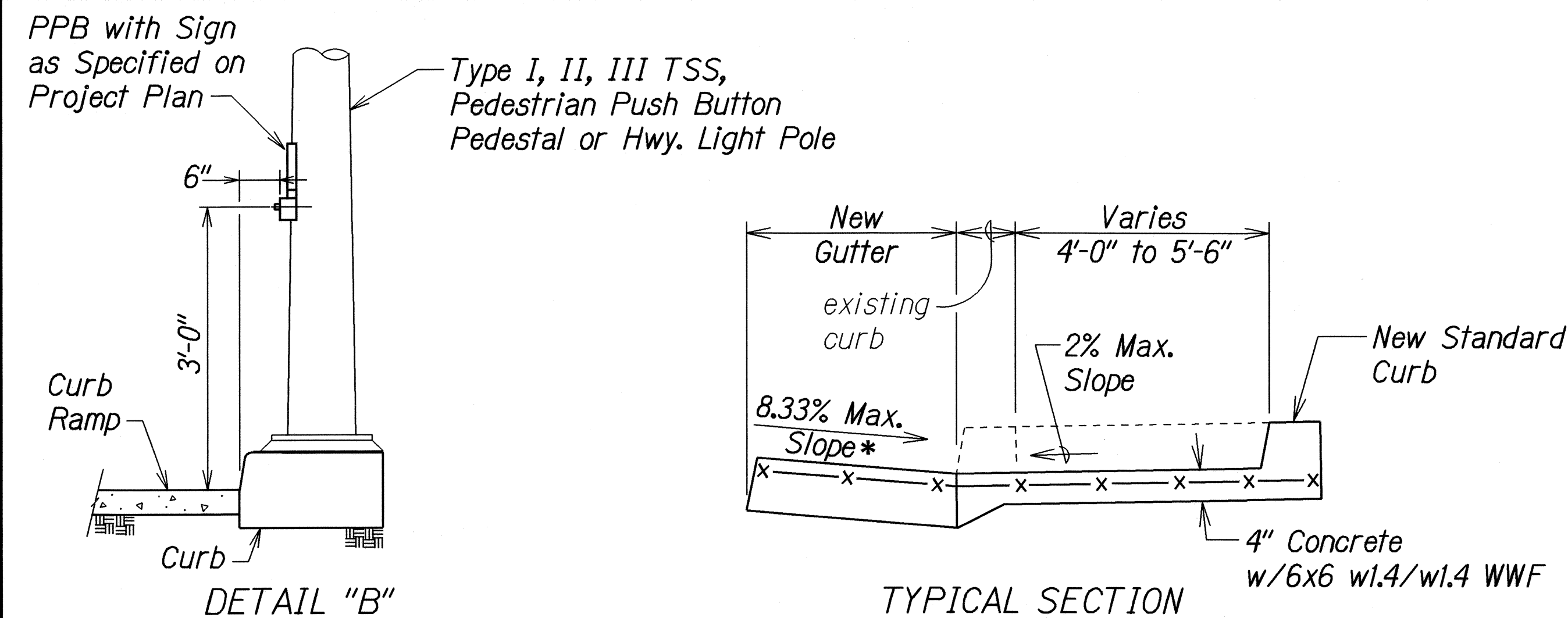
NORTH FRONTAGE ROAD RESURFACING

Vicinity of Ala Aolani to Vicinity of Ala Kapuna

Project No. H201A-01-06M

Not to Scale Date: May, 2008

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|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | H201A-01-06M | 2008 | 18 | 64 |



CURB RAMP - TYPE "B"
SIDEWALK WIDTH 4'-0" OR GREATER
BUT LESS THAN 6'-0" WIDTH

CURB RAMP - TYPE "B" MODIFIED
SIDEWALK WIDTH 6'-0" OR GREATER
BUT LESS THAN 12'-0" WIDTH

* See Curb Ramp and Sidewalk Note No. 9

** The slope of the ramp shall take precedence over the length of the ramp. If the maximum slope of a ramp cannot be met within a length of 12 feet, then the slope of the ramp shall be set when the length of the ramp is set at the maximum of 12 feet.

*** If Roadway Slope >2% Conform to Roadway Slope and File Technical Infeasibility (T1) Statement

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAILS

MOANALUA FREEWAY
NORTH FRONTAGE ROAD RESURFACING
Vicinity of Ala Aolani to Vicinity of Ala Kapuna
Project No. H201A-01-06M
Not to Scale Date: May, 2008
SHEET No. 3 OF 10 SHEETS

6"

Width
Varies
6'-0" Min.

6"

exist. std.
curb (typ.)

4'-0" Min.

5'-0" Desired

2% Max.
Slope

Broom
Finish

2% Max.
Slope***

2% Max.
Slope***

R=6" (typ.)

"A"

"A"

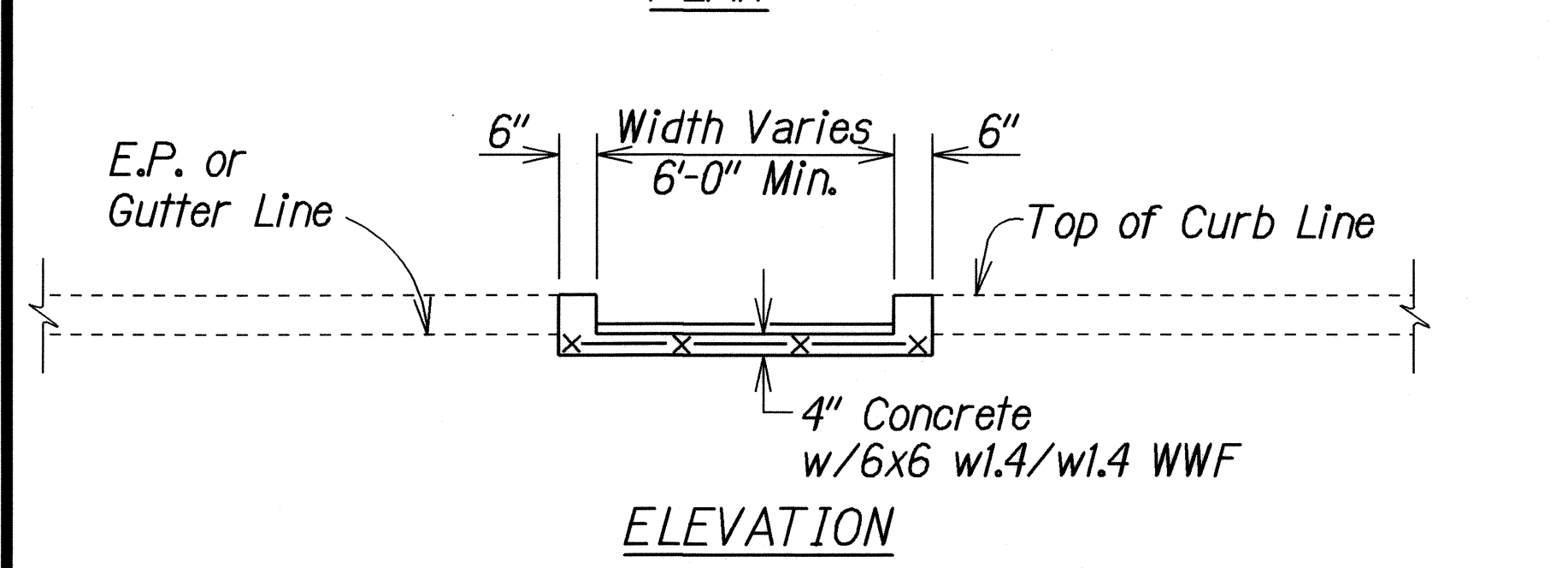
Equal
Distance

Equal
Distance

Traffic Signal
Standard, Pedestrian
Push Button Pedestal
or Hwy. Light Pole
(See Detail "B")

New Std. Curb
(typ.)

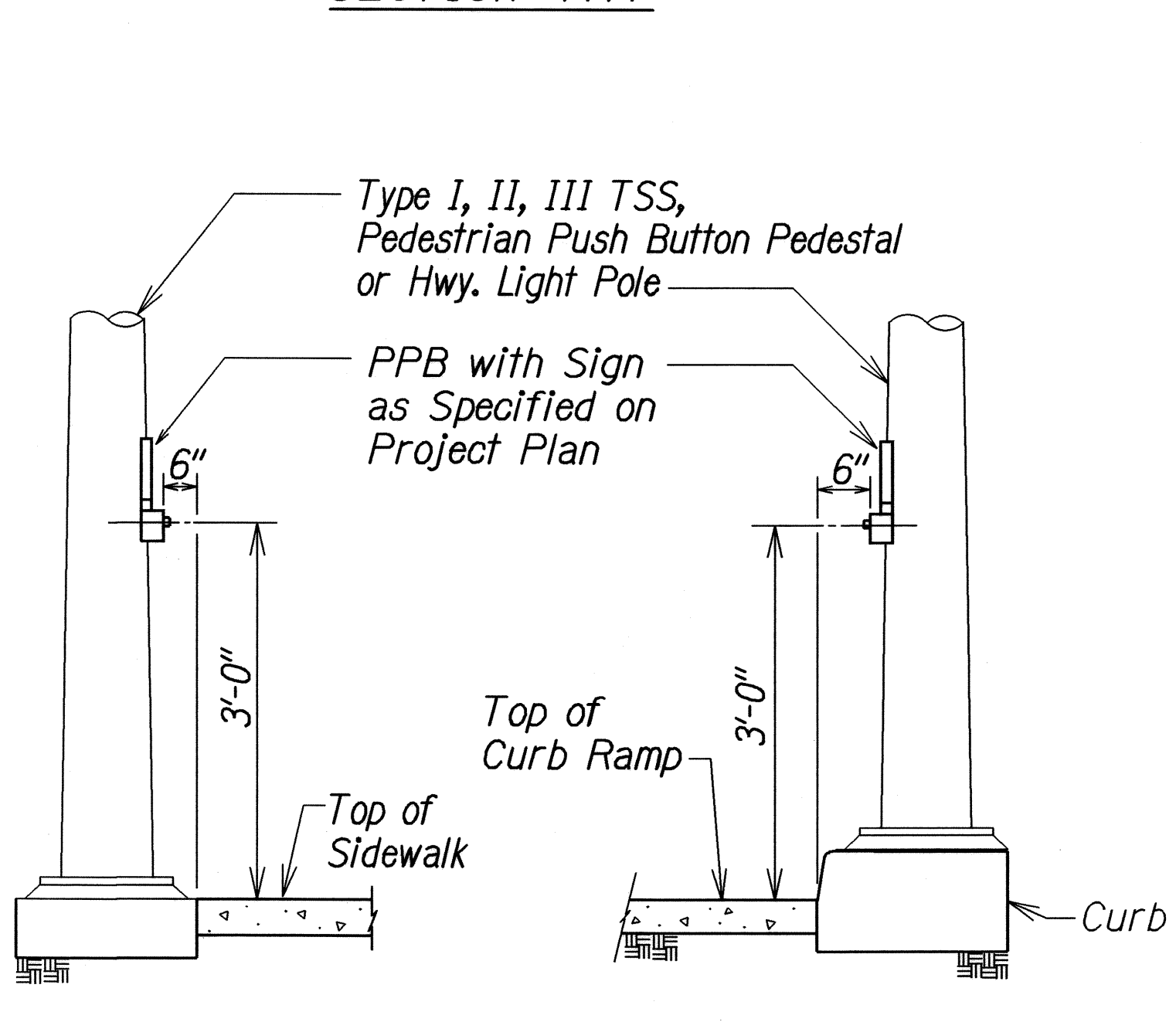
PLAN



The diagram shows a cross-section of a concrete curb and sidewalk. The curb is 4'-0" wide minimum, with a 5'-0" desired width. It is 4" high. The sidewalk is 4" thick concrete. A 2% maximum drain slope is indicated towards the road. The curb is labeled "Std. Curb". The sidewalk is labeled "4" concrete sidewalk". The diagram also shows the "e.p. or gutter line" and the "2% Max. Drain Towards Road".

4'-0" Min.
5'-0" Desired
Std. Curb
2% Max. Drain Towards Road
e.p. or gutter line
4" concrete sidewalk

SECTION "A-A"



| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | H201A-01-06M | 2008 | 19 | 64 |

Traffic Signal Standard, Pedestrian Push Button Pedestal or Hwy. Light Pole (See Detail "B")

Dimensions and Slopes:

- Crosswalk Marking: 6'-0" Min. (typ.)
- 2% Max. Slope***
- Std. Curb (typ.)
- 2% Max. Slope
- 6'-0" Min.
- 2% Max. Slope***
- R=6" (typ.)
- 10'-0" Min. Crosswalk Marking (typ.)
- Varies 5'-0" to 10'-0" (typ.)
- Stop Bar
- 6'-0" Min.
- 2% Max. Slope***
- Broom Finish
- 2% Max. Slope***
- 3'-0" Min. (typ.)
- *8.33% Max. Slope (typ.)
- 2'-0" (typ.)
- Varies New Gutter (typ.)
- 2'-0" (typ.)
- Transition Gutter Slope Varies (typ.)
- Stop Bar

[illegible][illegible]

- * See Curb Ramp and Sidewalk Note No. 9.*
- ** The slope of the ramp shall take precedence over the length of the ramp. If the maximum slope of a ramp cannot be met within a length of 12 feet, then the slope of the ramp shall be set when the length of the ramp is set at the maximum of 12 feet.*
- *** If Roadway Slope >2% Conform to Roadway Slope and File a Technical Infeasibility (TI) Statement*

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURB RAMP DETAILS

MOANALUA FREEWAY

NORTH FRONTAGE ROAD RESURFACING

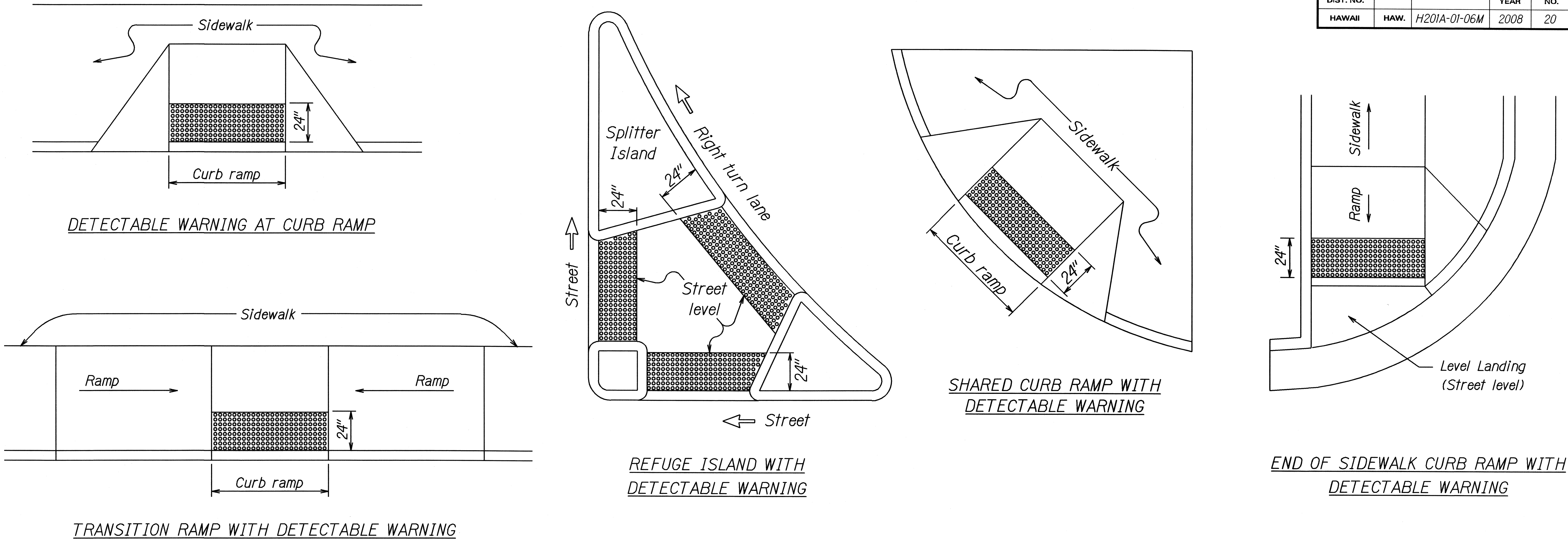
Vicinity of Ala Aolani to Vicinity of Ala Kapuna

Project No. H201A-01-06M

Not to Scale *Date: May, 2008*

SHEET No. 4 OF 10 SHEETS

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | H201A-01-06M | 2008 | 20 | 64 |

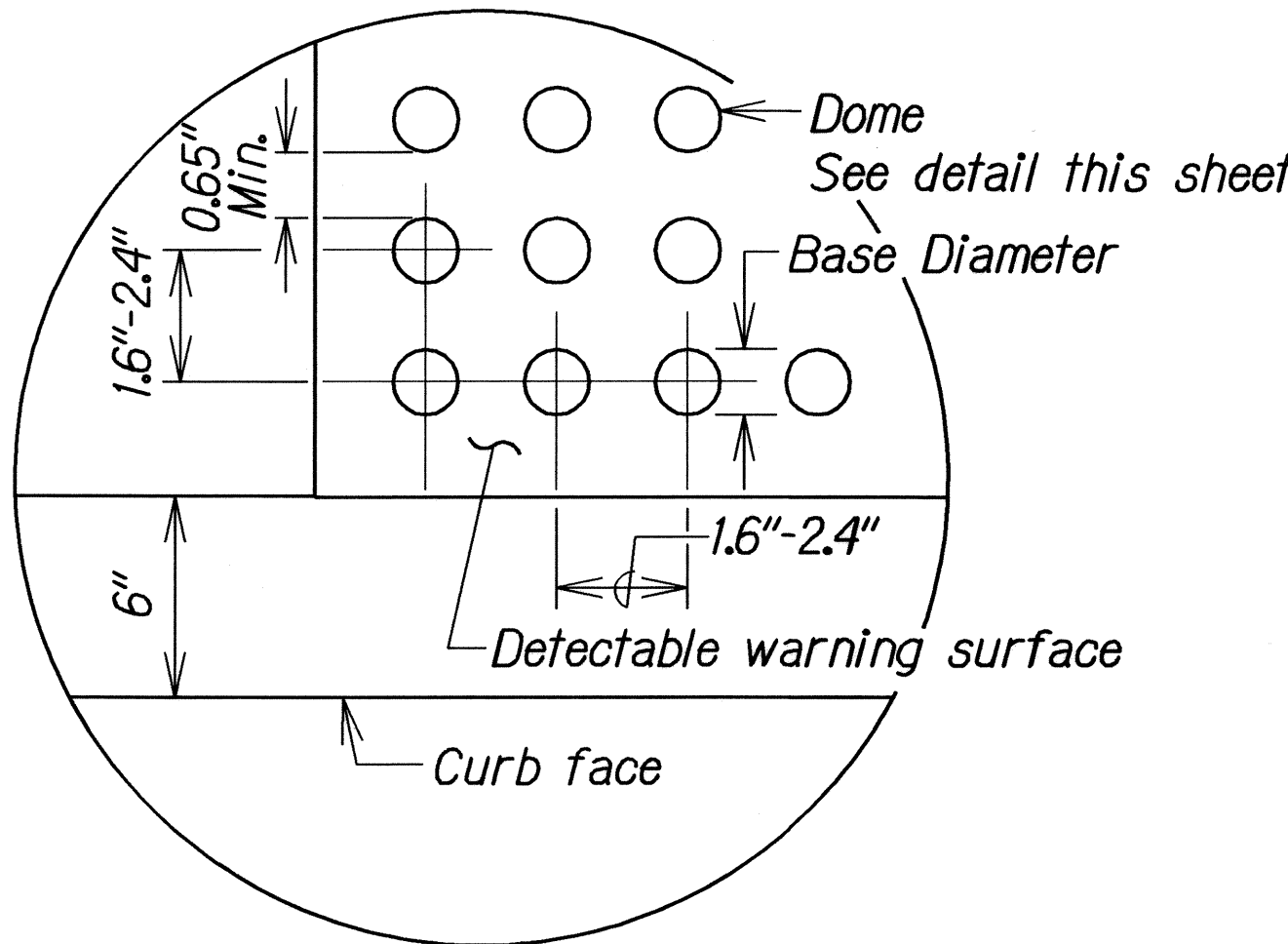


TYPICAL INSTALLATION OF DETECTABLE WARNINGS

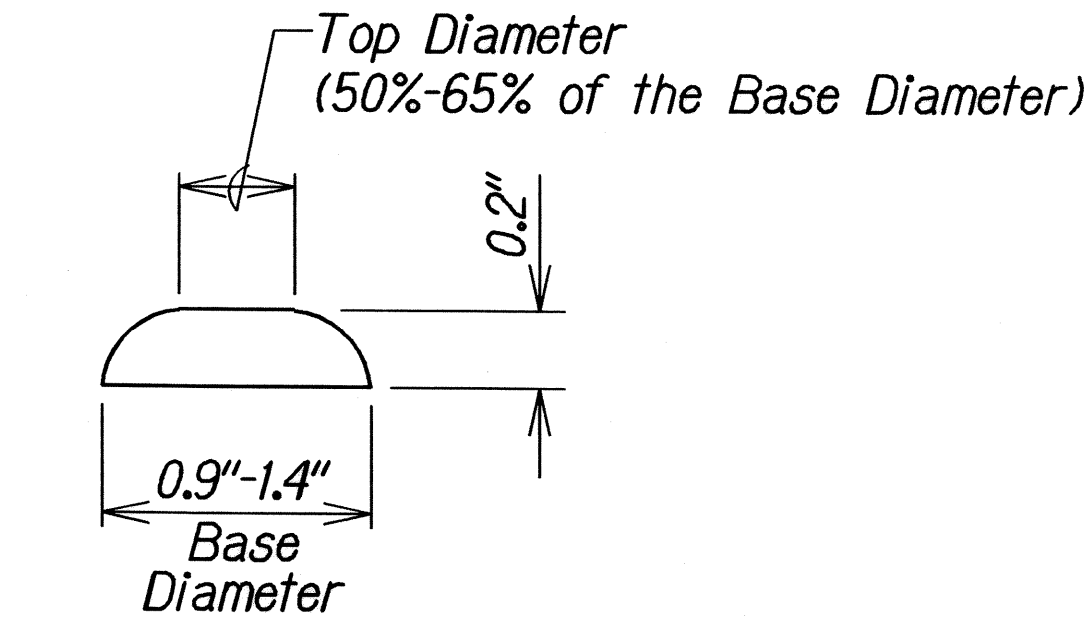
Not to Scale

NOTES:

1. Detectable warnings shall be 24 inches in the direction of travel and extend the full width of the curb ramp or flush surface (does not include flares).
2. Truncated domes shall have a diameter of 0.9 to 1.4 inch at the bottom, a diameter of 50%-65% of the base diameter at the top, a height of 0.2 inch and a center-to-center spacing of 1.6 to 2.4 inches measured along one side of a square arrangement.
3. Domes shall be aligned on a square grid in the predominant direction of travel to permit wheels to roll between the domes.
4. There shall be a minimum of 70 percent contrast in light reflectance between the detectable warning and an adjoining surface, or the detectable warning shall be "safety yellow".
5. The material used to provide visual contrast shall be an integral part of the detectable warning surface.
6. The detectable warning shall be located so that the edge nearest the curb line or other potential hazard is 6 to 8 inches from the curb line.



ENLARGEMENT



DOMES SECTION

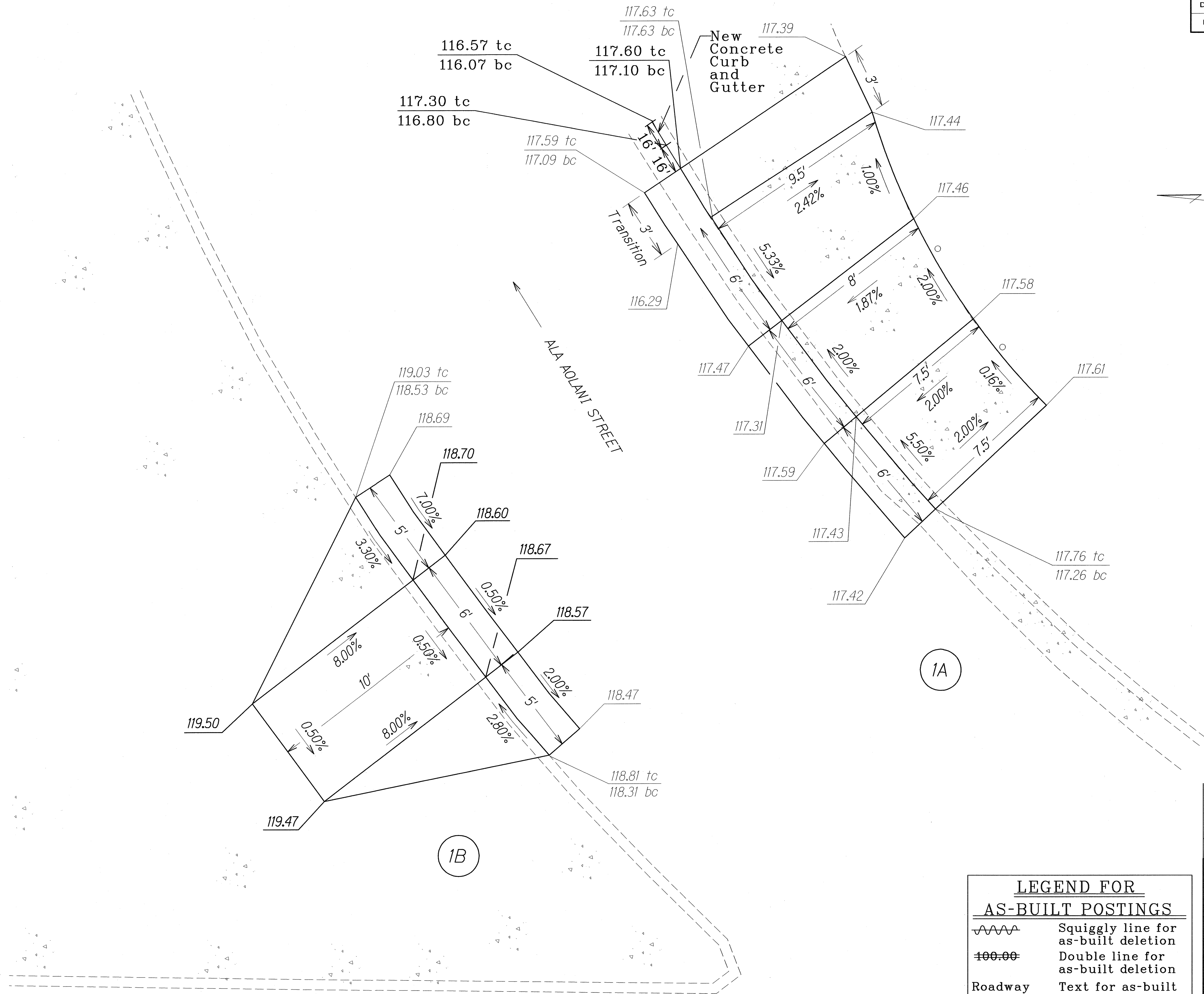
DETECTABLE WARNING DETAIL

Not to Scale

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| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION | |
| DETECTABLE WARNING DETAILS | |
| MOANALUA FREEWAY | |
| NORTH FRONTAGE ROAD RESURFACING | |
| Vicinity of Ala Aolani to Vicinity of Ala Kapuna | |
| Project No. H201A-01-06M | |
| Not to Scale | Date: May, 2008 |
| SHEET No. 5 OF 10 SHEETS | |

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| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
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| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | H201A-01-06M | 2008 | ADD. 21 | 64 |



TRUE NORTH
SCALE : NTS

1A

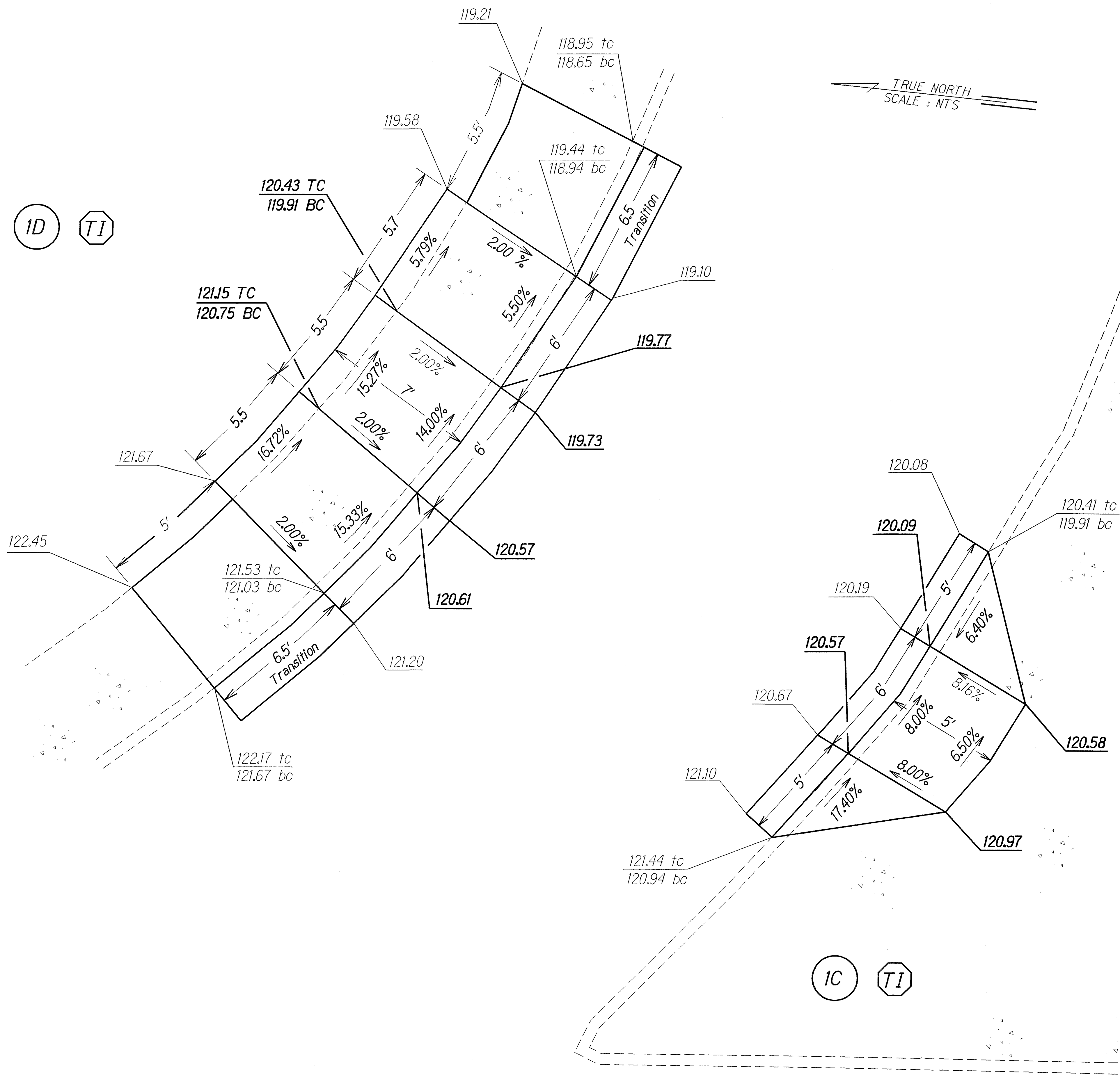
1B

| LEGEND FOR AS-BUILT POSTINGS | |
|---------------------------------|-------------------------------------|
| | Squiggly line for as-built deletion |
| | Double line for as-built deletion |
| Roadway | Text for as-built posting |

| | |
|--|---|
| 6/16/08 | Added Transition Area to Ramp 1A. Added and modified elevations. |
| DATE | REVISION |
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION CURBRAMPS MOANALUA FREEWAY NORTH FRONTAGE ROAD RESURFACING Vicinity of Ala Aolani to Vicinity of Ala Kapuna Project No. H201A-01-06M Scale: Not to Scale Date: March, 2008 | |

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| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
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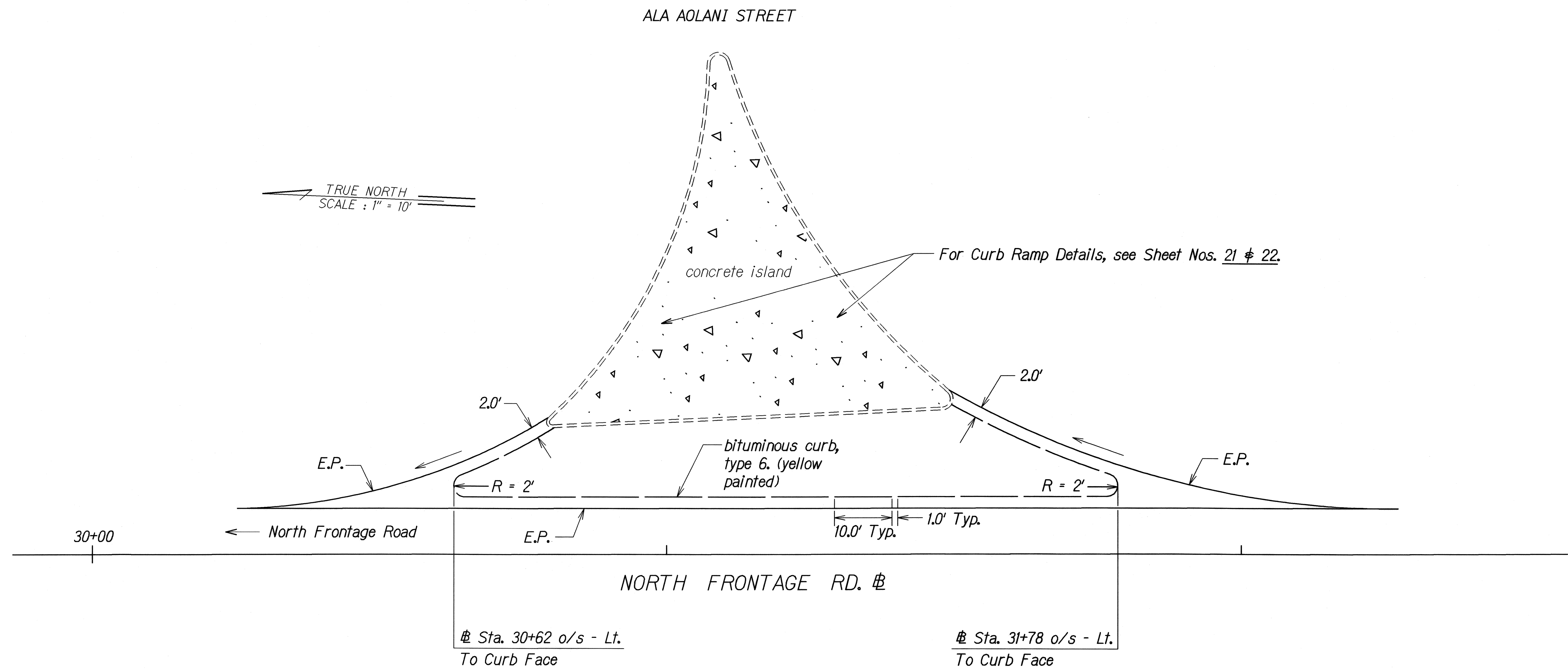
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| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
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| 9/20/08/07/08 | TRACED BY | |
| | QUANTITIES BY | |
| | CHECKED BY | |

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|---------|--|
| 6/16/08 | Added Transition Area for Curb Ramp. Adjusted elevations. |
|---------|--|

| DATE | REVISION |
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
CURBRAMPS
MOANALUA FREEWAY
NORTH FRONTAGE ROAD RESURFACING
Vicinity of Ala Aolani to Vicinity of Ala Kapuna
Project No. H201A-01-06M
Scale: Not to Scale Date: March, 2008
SHEET No. 7 OF 10 SHEETS

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | H201A-01-06M | 2008 | 23 | 64 |



CURB ISLAND DETAIL
Scale: 1"=10'

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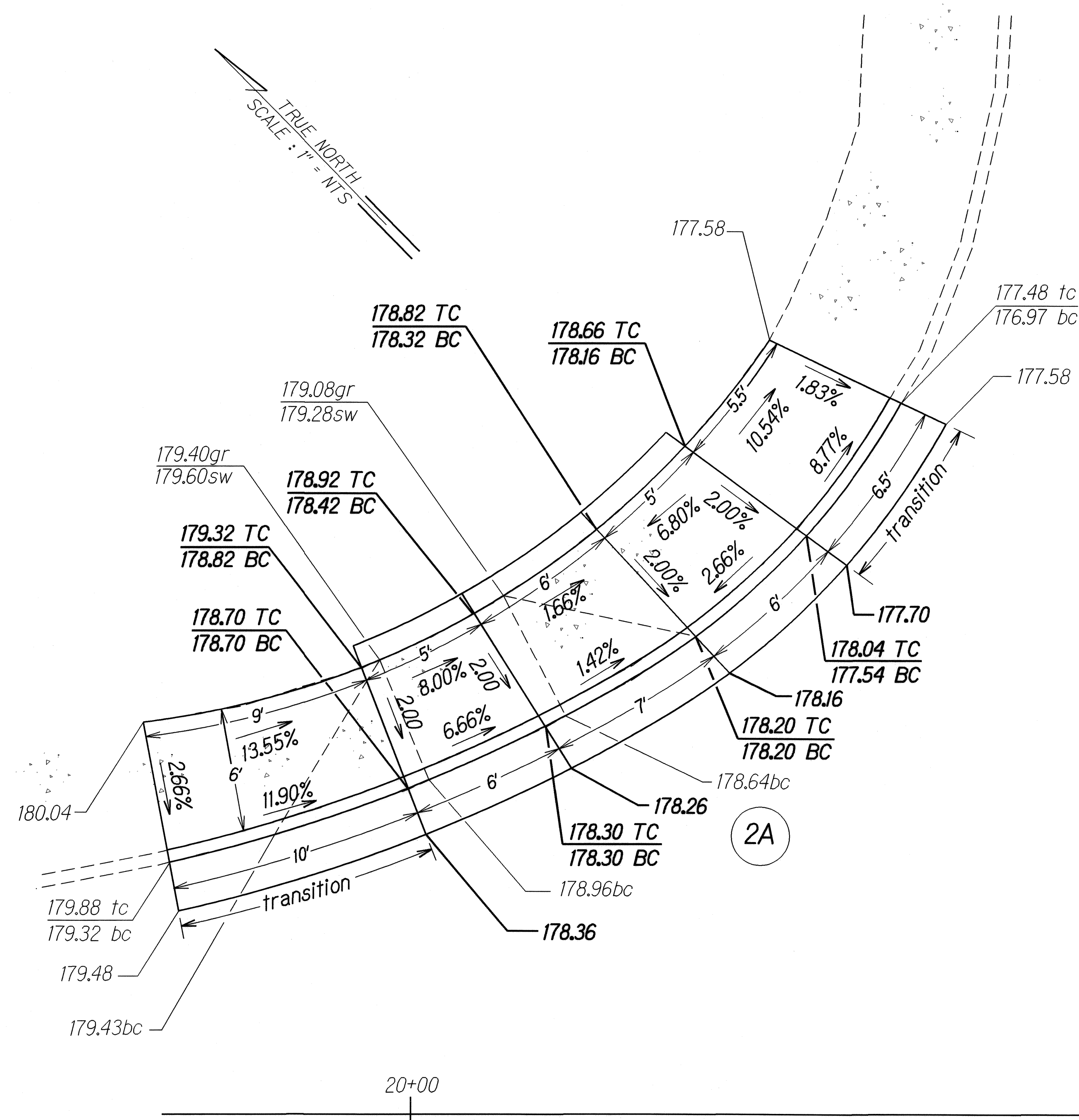
STATE OF HAWAII
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CURB ISLAND DETAIL
MOANALUA FREEWAY
NORTH FRONTAGE ROAD RESURFACING
Vicinity of Ala Aolani to Vicinity of Ala Kapuna
Project No. H201A-01-06M

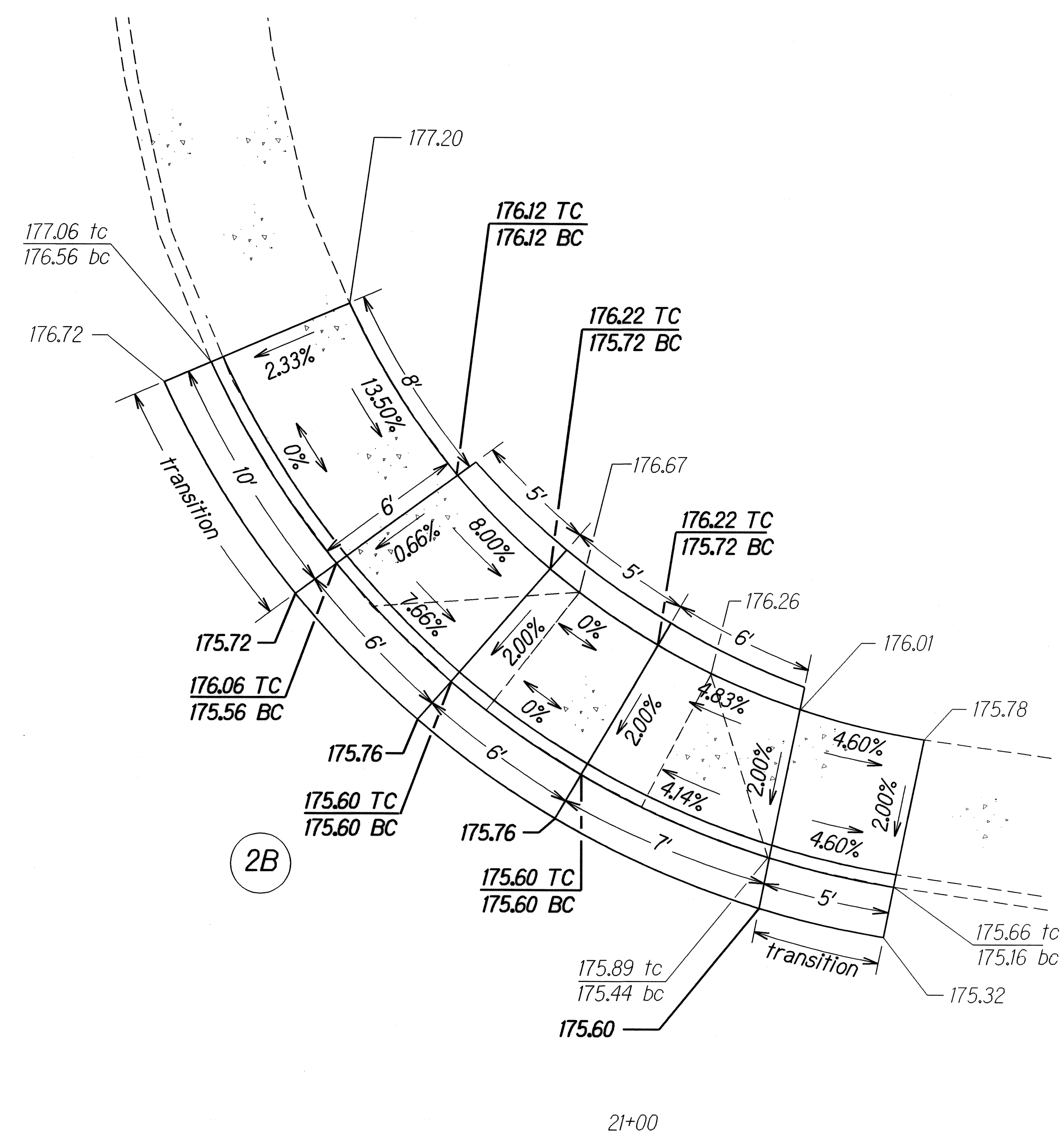
Scale: 1" = 10' Date: May, 2008

SHEET No. 8 OF 10 SHEETS

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | H201A-01-06M | 2008 | 24 | 64 |



To Kaiser Medical Center



NORTH FRONTAGE ROAD

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| QUANTITIES BY | CHECKED BY |
| DATE | |

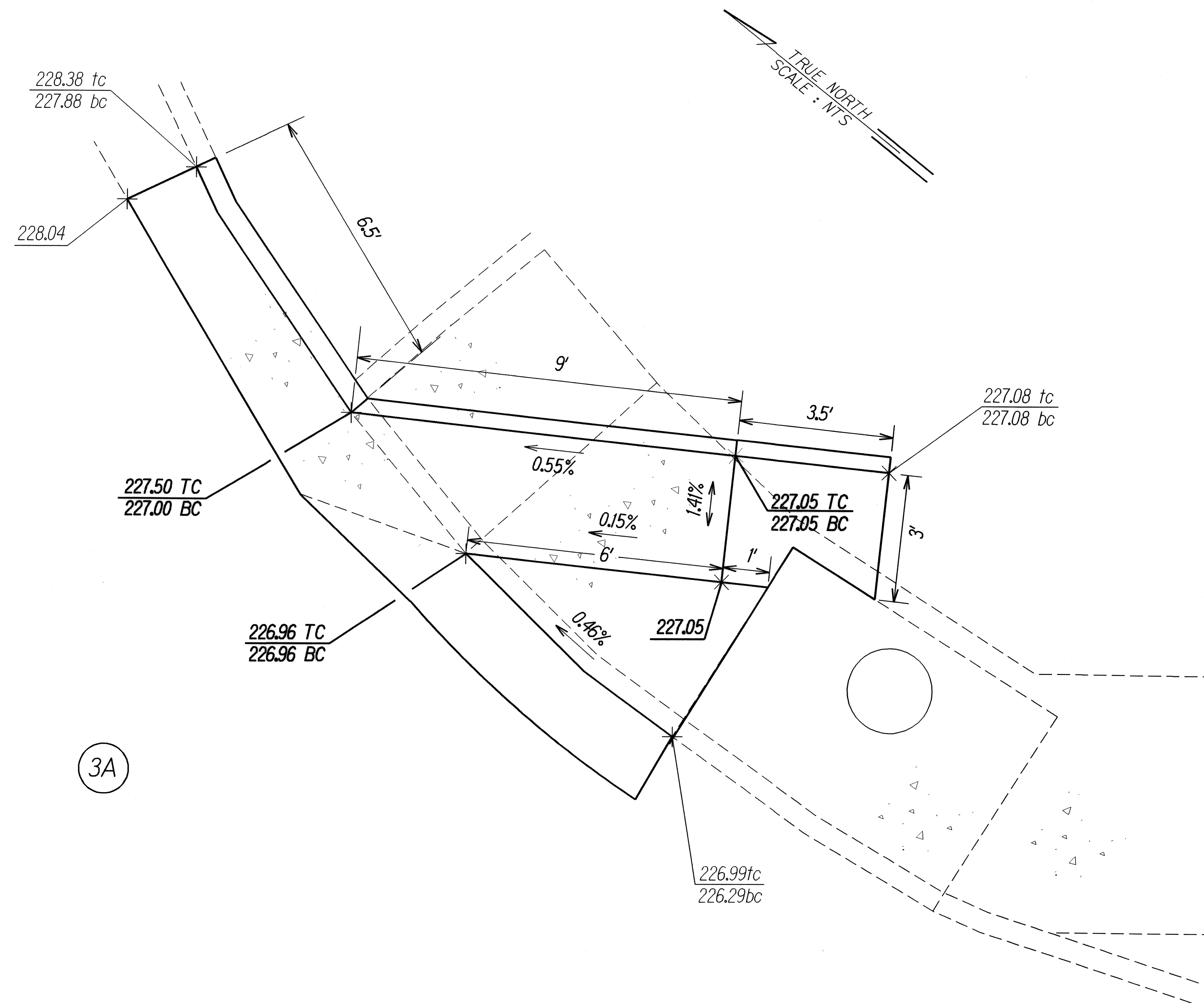
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HIGHWAYS DIVISION

CURBRAMPS
MOANALUA FREEWAY
NORTH FRONTAGE ROAD RESURFACING
Vicinity of Ala Aolani to Vicinity of Ala Kapuna
Project No. H201A-01-06M

Scale: Not to Scale Date: March, 2008

SHEET No. 9 OF 11 SHEETS

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | H201A-01-06M | 2008 | 25 | 64 |



3A

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| ORIGINAL PLAN | DATE |
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| NOTED BY | |
| DATE | |

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CURBRAMPS

MOANALUA FREEWAY

NORTH FRONTAGE ROAD RESURFACING
Vicinity of Ala Aolani to Vicinity of Ala Kapuna
Project No. H201A-01-06M

Scale: Not to Scale Date: May, 2008

SHEET No. 10 OF 10 SHEETS