

TRAFFIC SIGNAL SYSTEM NOTES

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | NH-083-1(41) | 2000 | 72 | 90 |

- All Traffic Signal Work Shall Conform To The Requirements Of The "Manual On Uniform Traffic Control Devices For Streets And Highways," Federal Highway Administration (1988) And Amendments.
- All Work Shall be Done in Accordance with the "Hawaii Standard Specifications for Road, Bridge, and Public Works Construction", 1994, of the Department of Transportation, State of Hawaii, Except as Modified Herein or in the Special Provisions.
- The Location Of The Traffic Signal Standards, Traffic Signal Standards With Mast-Arm, Pedestrian Pushbuttons, Traffic Controller, Pullboxes, Conduits, Barriers And Loop Detectors Shall Be Staked Out In The Field By The Contractor And Approval Of The Locations Shall Be Obtained From The Engineer Prior to Construction And Installation. Locations and Standards Shown On The Plans Shall Be Adjusted As Necessary To Prevent Conflicts With Existing Or New Facilities.
- All New Conduits Under Roadway Shall Be PVC Schedule 80.
- A Solid #8 Bare Copper Wire Shall Be Pulled With The Traffic Signal Cable For Equipment Ground. Cost Shall Be Incidental To The Installation Of The Signal Cable.
- Lead-In Wires In Pullbox Near Loops Shall Be Tagged With Loop Number(s).
- Department Of Transportation Services, City & County Of Honolulu Will Assist The Engineer In Construction Inspection For The Traffic Signal System. Work By The Department Of Transportation Services, C&C Of Honolulu:
 - Make All Electrical Equipment Connections In The Field For Signal System After The System Has Been Installed In Place By The Contractor.
 - Final Adjustment Of Traffic Signal Control Equipment.
- Locations Of Existing Underground Structures And Utilities Such As Pipelines, Conduits, Cables, Etc. Shown On Plans Are Approximate Only. Its Is Not The Intent Of These Plans To Show The Exact Location Of All Underground Utilities and Structures. It is the Responsibility of the Contractor to Verify the Locations of all Existing Utilities with the Respective Owners. Existing Utilites Damaged by the Contractor shall be Repaired by the Contractor at his Own Cost.
- Locations Of Traffic Markings And Markers (Lane Lines, Stop Lines, Cross-Walks, Etc.) Shown On The Plans Shall Be Verified With The Engineer Prior To The Installation Of The Traffic Signal System.
- All Traffic Signal Controller Equipment Shall Be Completely Wired In The Cabinet And Shall Control The Traffic Signals As Called For In The Plans.
- The Locations Of All New Traffic Signal Standards And Controllers On The Drawings Are Approximate. Exact Location Will Be Determined In The Field By the Contractor and Approved by the Engineer. Conflicts Between Standards And Crosswalk Locations Shall be Avoided Wherever Possible. The Locations Of Signal Standards, Controllers, Pullboxes, And Conduits Shall Be Staked Out By The Contractor and Approved By The Engineer Prior To Any Excavation.
- All Cables Except Type 4 Sensor Loop Cables Shall Be Installed In Conduits In Groups of One Or More Cables Between Pullboxes As Specified On The Project Plans. Type 4 Cables Shall Be Installed In Sawcuts And Conduits In The Groups Shown On The Details For Sensor Loops.
- The Contractor Shall Notify the Traffic Control Branch, Dept. of Transportation Services, Three (3) Working Days Prior To Commencing Work on the Traffic Signal System (Phone 523-4589).

- The Traffic Signal System Shall be Kept Operational During Construction. Any Relocation Required Shall be Approved by the Traffic Control Branch, Department of Transportation Services, and Paid for by the Contractor.
- The Contractor Shall be Responsible for Any Damages to the Existing Traffic Signal Facilities, Including the Traffic Signal Interconnect System. Any and All Damages to these Facilities Shall be Repaired by the Contractor at his Cost in Accordance with the Requirements of the City and County of Honolulu.
- The Contractor Shall be Responsible for Any Damages to Existing Traffic Signal Fiber Optic Cable System. Any and All Damages to these Facilities Shall be Repaired by the Contractor at his Cost in Accordance with the Requirements of the City and County of Honolulu.
- The Contractor Shall Notify All Affected Utility Companies and Government Agencies of Their Intent to Begin Construction on Any Intersection or Street At Least Two (2) Weeks Prior to the Start of Such Construction.
- The Contractor Shall Notify the Joint Pole Committee Two (2) Weeks in Advance of Any Relocation of Utility Pole(s), Guy(s) and Anchor(s) That May be Necessary.
- All Splicing Shall be Done in the Pullboxes.
- Furnishing and Installing the Conduit Stubouts (Pullboxes to Edge of Pavement) Will Not be Paid for Separately But Shall be Considered Incidental to the Various Contract Items.
- Should Any Defect be Encountered During the Warranty Period, the Manufacturer Will be Notified and He Shall Promptly Correct Such Defect. Service Call (by Factory Qualified Representative) During the Warranty Period For Repairs or Other Maintenance Shall be Done As Soon As Possible.
- All Signal-Drop Cables (Type 5 Cables) From the Various Types of Traffic Signal Heads on the Traffic Signal Standards and Mast Arms to the Pullboxes Shall Not be Paid for Separately But Considered Incidental to the Traffic Signal Standard Installation or Relocation.
- After Installing All the Traffic Signal Cables, the Contractor Shall Duct Seal All Conduits in the Pullboxes, Traffic Signal Standards and Traffic Signal Controller Cabinet Concrete Base. The Duct Seal Material Shall be Approved by the Traffic Signal Inspector/Engineer and Shall Not be Paid for Separately But Considered Incidental to the Direct Buried and/or Concrete Encased Conduits.
- After Installing the Traffic Signal System, the Contractor Shall Apply Grease to All Parts of the Traffic Signal System (i.e. Fittings, Brackets, Nipples, Elbows, Screws, Signal Head Assemblies, Bolts, Hinges, Etc.) As Directed by the Traffic Signal Inspector, to Prevent Rust and Corrosion. The Grease Material Shall be Approved by the Signal Inspector.
- Connecting into Existing Traffic Signal System and Making All Necessary Adjustments Shall Not be Paid for Separately, But Considered Incidental to the Various Traffic Signal Contract Items.
- All Existing Pullboxes, Traffic Signal Poles and Controller Bases Not Incorporated into the New Traffic Signal System Shall be Removed to 6-Inches Below Grade.

TRAFFIC SIGNAL LEGEND*

| New | Relocated | Existing | |
|-------------|-----------|-------------|--|
| ● | ● | ○ | Traffic Signal Standard (TSS) or Pedestrian Pushbutton Pedestal |
| ⦿ | ⦿ | | Temporary Microwave Detector, See Sheet 82 for Detail |
| --MD-- | | | Temporary Microwave Detector Cable |
| — | | --- | Traffic Signal Conduit |
| □ | | □ | Loop Detectors |
| ← | | ← | 12" RYG Traffic Signal Head |
| ←↑ | | ←↑ | 12" RY↑ Traffic Signal Head |
| ←↑ | | ←↑ | 12" RY← Traffic Signal Head |
| ←↑ | | ←↑ | 12" RY← Traffic Signal Head (Programmed Visibility) |
| ⦿ | | ⦿ | Opticom Detector |
| ⦿ | | ⦿ | Type I Traffic Signal Standard and Attached Signals |
| ⦿ | | ⦿ | Type II Traffic Signal Standard with Mast Arm and Attached Signals |
| □ | | □ | Pedestrian Signal Head |
| ⊗ | | ⊗ | Type A Pullbox |
| ⊗ | | ⊗ | Type B Pullbox |
| ⊗ | | ⊗ | Type C Pullbox |
| --- | | --- | Existing Telephone Ductline |
| --- | | --- | Existing Electric Ductline |
| —w1.2— | | —w1.2— | Existing Water Line |
| —s8— | | —s8— | Existing Sewer Line |
| ---sd2.4--- | | ---sd2.4--- | Existing Drain Line |
| ---g2--- | | ---g2--- | Existing Gas Line |

* See Sheet 7 for Other Legend

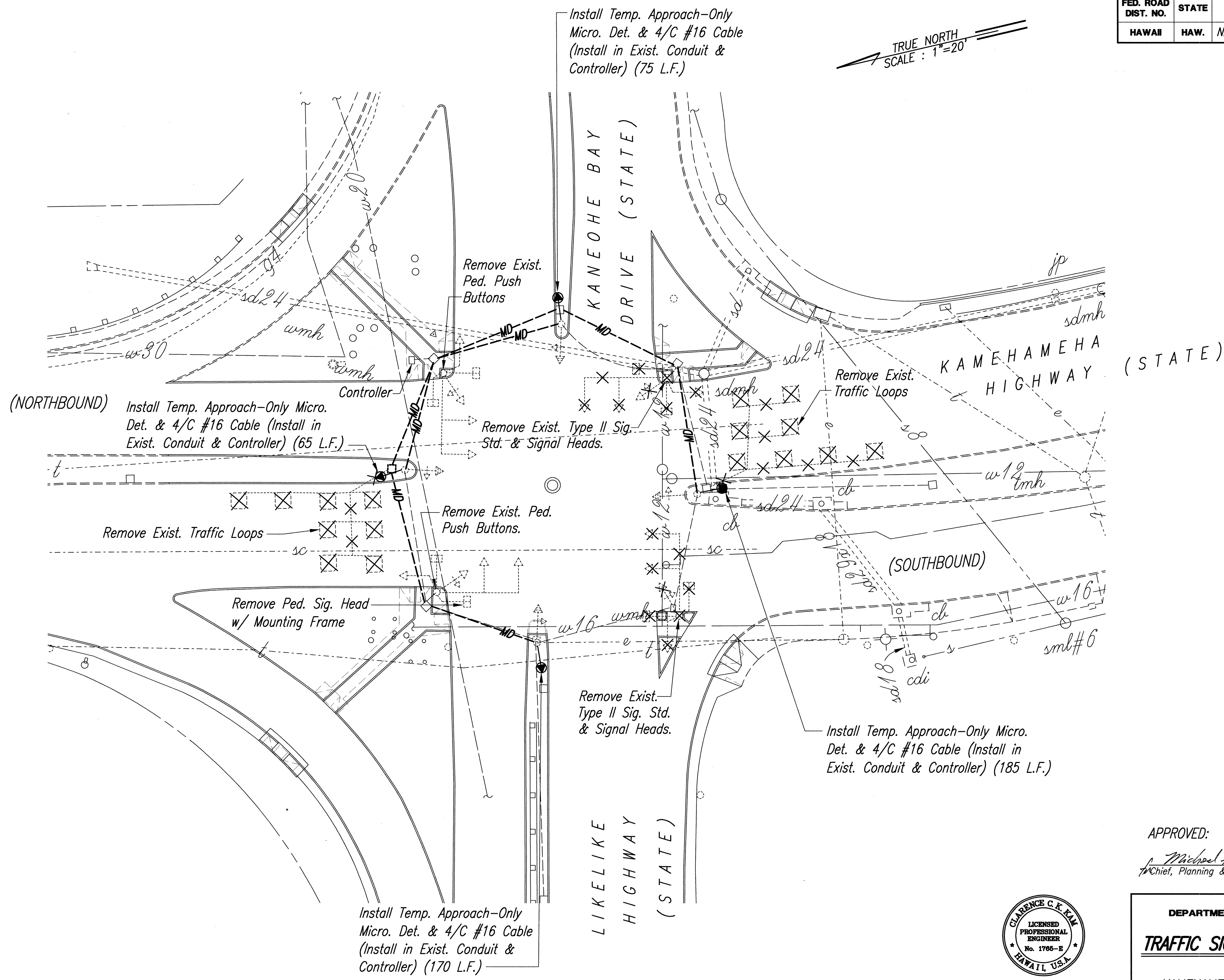


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

C. K. F.M.

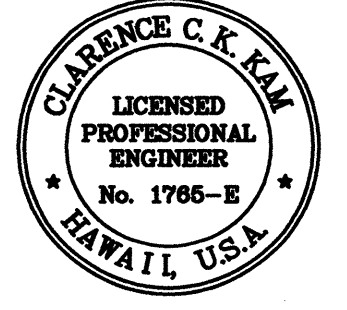
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL NOTES
KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)
Scale: None Date: June, 1999
SHEET No. 1 OF 12 SHEETS

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | NH-083-1(41) | 2000 | 73 | 90 |



TRUE NORTH
SCALE: 1"=20'

TRAFFIC SIGNAL DEMOLITION PLAN
KAM HWY AND LIKELIKE HWY
Scale: 1" = 20'-0"



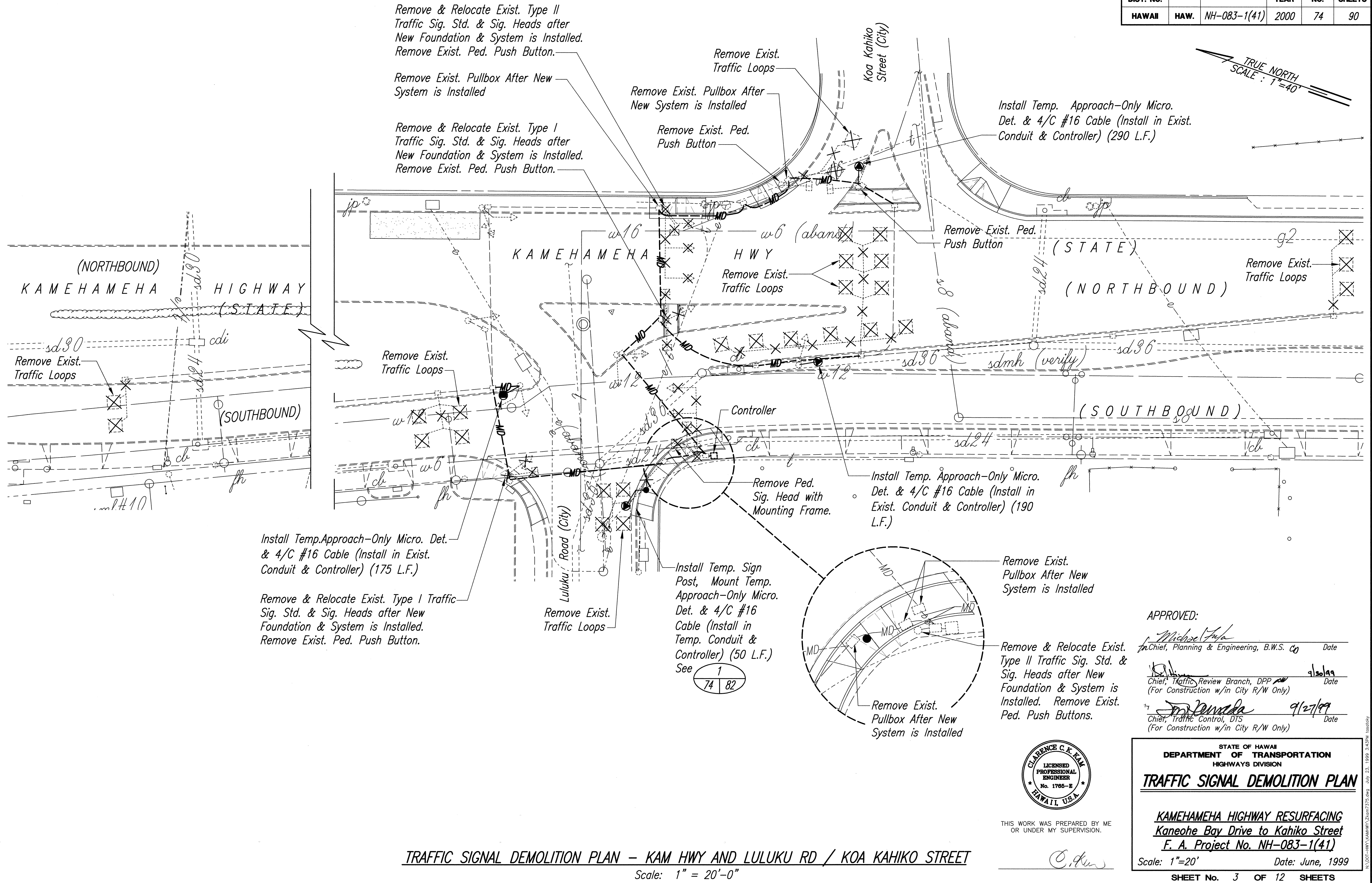
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APPROVED:
Michael Tule 7/2/99
Chief, Planning & Engineering, B.W.S. Co. Date

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL DEMOLITION PLAN
KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)
Scale: 1"=20' Date: June, 1999
SHEET No. 2 OF 12 SHEETS

| | | |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| | DRAWN BY | |
| | TRACED BY | |
| | NOTE BOOK | |
| NO. | QUANTITIES BY | |
| | CHECKED BY | |
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| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | NH-083-1(41) | 2000 | 74 | 90 |



| | | |
|------------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| | DRAWN BY | |
| | TRACED BY | |
| | NOTED BY | |
| NOTE BOOK | QUANTITIES BY | |
| | CHECKED BY | |
| No. | | |

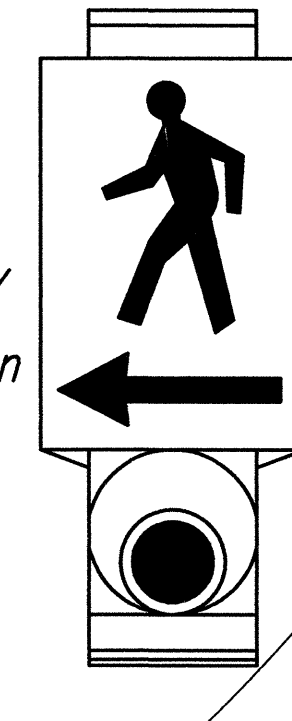
TRAFFIC SIGNAL KEY (This Sheet Only)

Pole I.D.

Work Item

- (A) Install New Type I-8 Traffic Sig. Std. Per Curb Ramp Type "C" Modified Det. Install New Ped. Sig. Head w/ Type TP-1W Mounting.
- (B) Install New Type II-35 Traffic Sig. Std. & New Sig. Heads Per Curb Ramp Type "C" Modified Detail.
- (C) Install New Type II-30 Traffic Sig. Std. & New Sig. Heads Per Curb Ramp Type "C" Modified Detail.

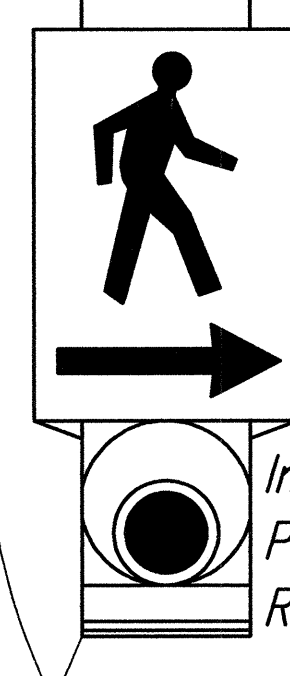
Install New Ped. Push Button w/ R10-4b (L) Sign



Raise Pole 3"± as Required by New Curb Ramp Work. Provide Adapter Plate. See Note 5.

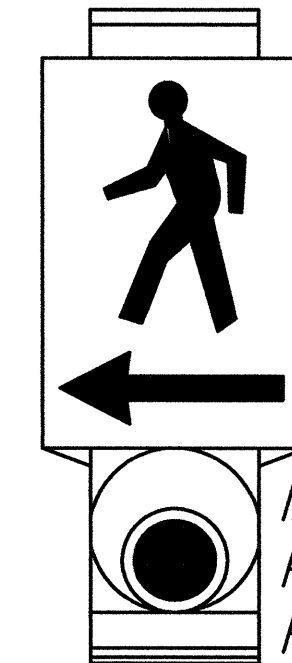
Install 4 Ea. Loop Detectors, 1-6'x6', Centered in Lanes

Install 1 Ea. Loop Detectors, 6-6'x6', Centered in Lanes



Install New Ped. Push Button w/ R10-4b (R) Sign

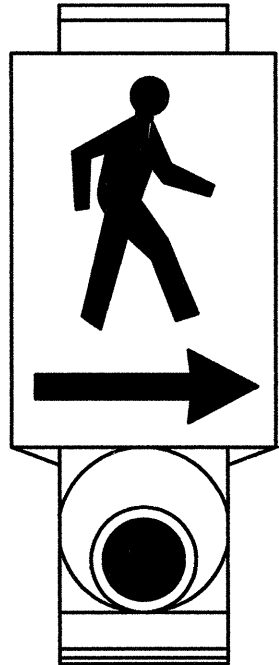
TRUE NORTH
SCALE: 1"=20'



Install New Ped. Push Button w/ R10-4b (L) Sign

Adjust Pullbox to Match New Grade, See 2 76 82

Install New Ped. Push Button w/ R10-4b (R) Sign



Adjust Pullbox to Match New Grade, See 2 76 78

(NORTHBOUND)

Controller

Pull in 4- 2/C #14 Cable

Pull in 2-2/C #14 Cable

Install 1 Ea. Loop Detectors, 6-6'x6', Centered in Lanes

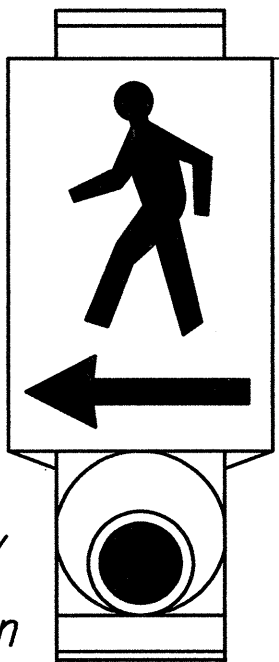
Install 4 Ea. Loop Detectors, 1-6'x6', Centered in Lanes

Adjust Pullbox to Match New Grade, See 2 76 82

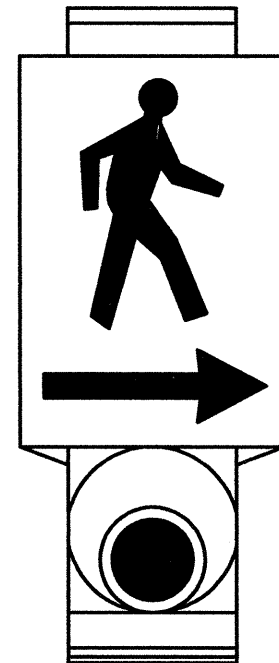
Adjust Ped. Signal Head Mounting to One-way Bracket Mount (B-1W)

Pull in 2-2/C #14 Cable

Install New Ped. Push Button w/ R10-4b (L) Sign



Install New Ped. Push Button w/ R10-4 (R) Sign



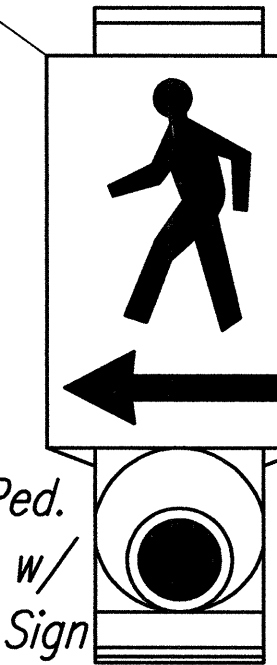
Adjust Pullbox to Match New Grade, See 2 76 82

Raise Pole 3"± as Required by New Curb Ramp Work. Provide Adapter Plate. See Note 5.

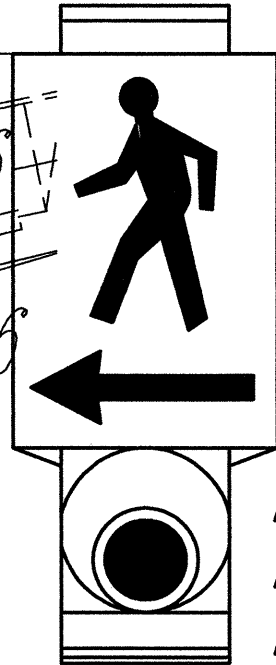
Install 1 Ea. Loop Detectors, 6-6'x6', Centered in Lanes

Install 4 Ea. Loop Detectors, 1-6'x6', Centered in Lanes

Install New Ped. Push Button w/ R10-4b (L) Sign



Install 1 Ea. Loop Detectors, 6-6'x6', Centered in Lanes



Install New Ped. Push Button w/ R10-4b (L) Sign

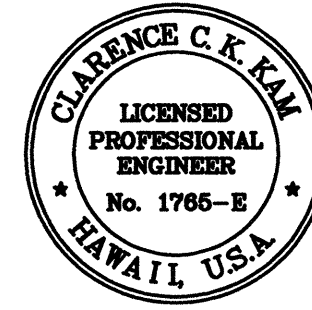
| CONDUIT & CABLE SCHEDULE* | | | |
|---------------------------|---------|-----------|------|
| Delta No. | Conduit | Cable | Duct |
| 1 | 1-2" | 1-2/C #14 | F |
| 2 | 1-2" | 2-2/C #14 | F |

* See Traffic Signal System Note #22.

NOTES

- For New Curb Ramp Work, See Detailed Intersection Plans, Sheets 14 to 23.
- See Also Typical Curb Ramp Details, Sheets 24 to 27 For Planned Locations of Traffic Signal Standards w/ Ped. Push Buttons.
- Seal All Holes in Signal Standards w/ Stainless Steel Capping Echelon.
- Trenching Work Shall be Performed Prior to Pavement Resurfacing.
- Adapter Plate Shall Meet All Requirements of Pole Assembly.

TRAFFIC SIGNAL PLAN KAM HWY AND LIKELIKE HWY Scale: 1" = 20'-0"



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)

Scale: 1"=20' Date: June, 1999

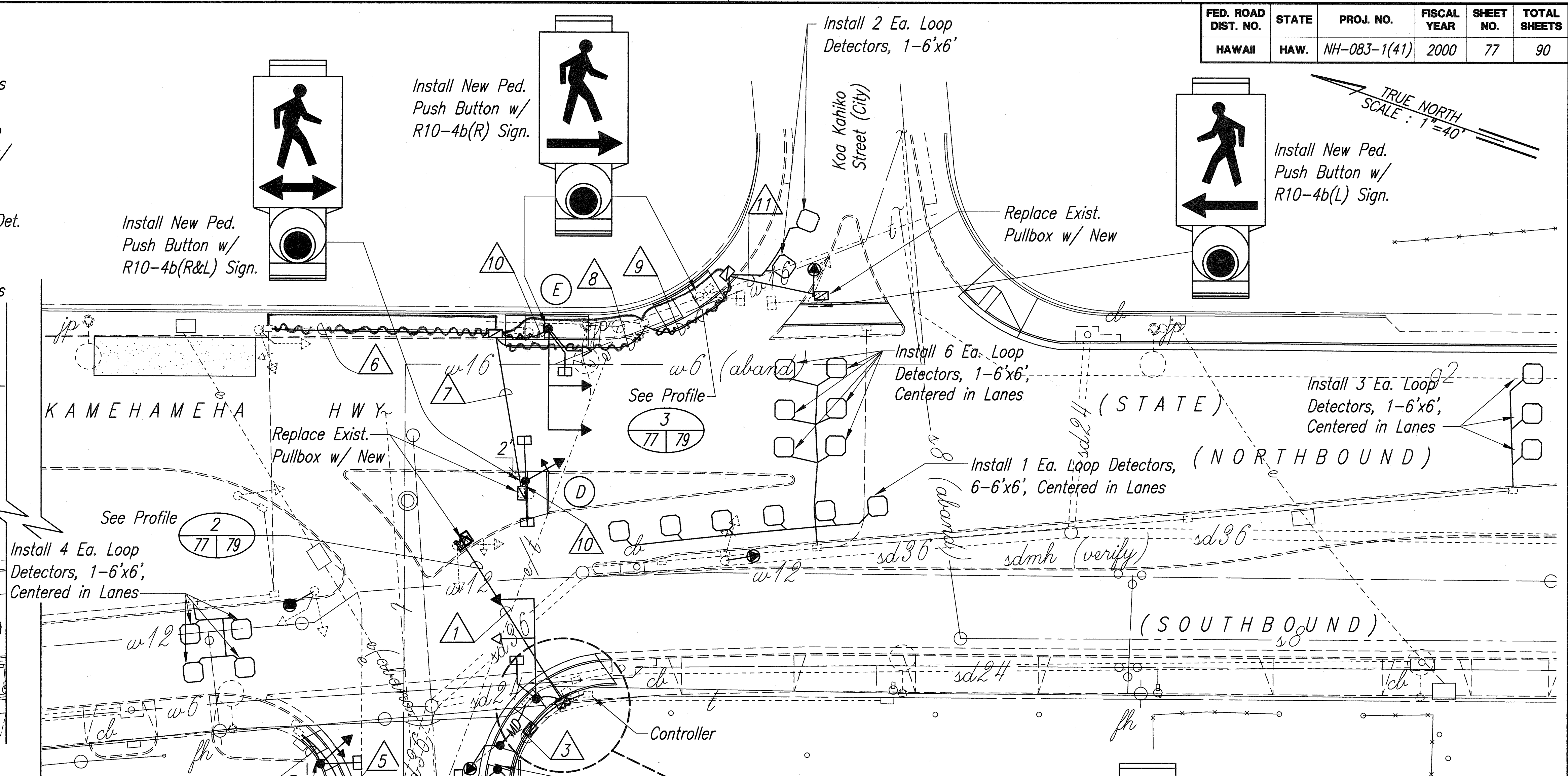
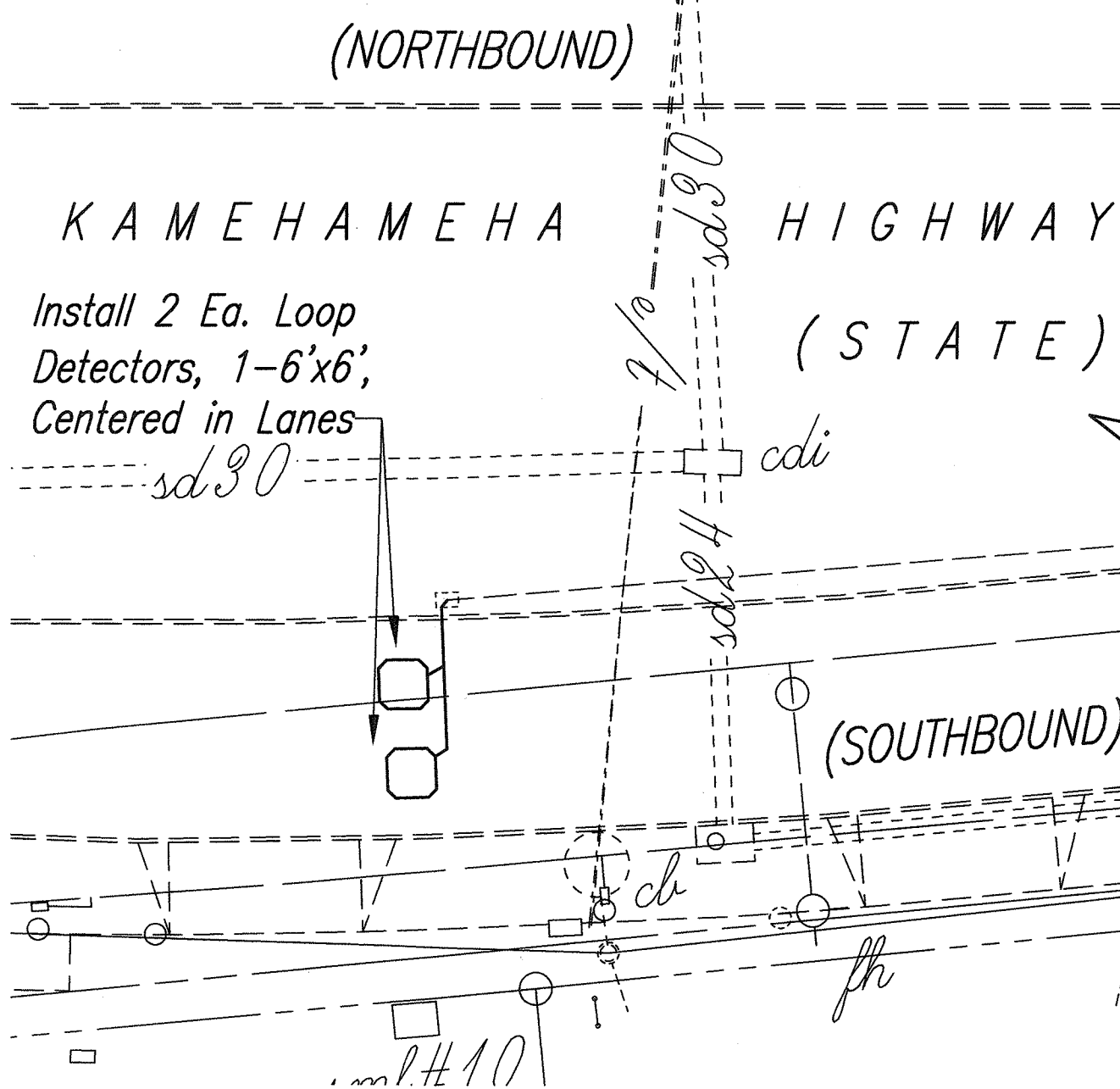
SHEET No. 5 OF 12 SHEETS

TRAFFIC SIGNAL KEY (This Sheet Only)

Pole I.D. Work Item

- (A) Install Relocated Type I Traffic Sig. Std. & Sig. Heads Per Curb Ramp Type "B" Det.
- (B) Install New Type I-8 Traffic Sig. Std. Per Curb Ramp Type "B" Modified Det. Install New Ped. Sig. Head w/ Type TP-1W Mounting.
- (C) Relocated Type II Traffic Sig. Std. & Sig. Heads. Installation Similar to Curb Ramp Type "B" Modified Det.
- (D) Relocated Type I Traffic Sig. Std. & Sig. Heads. Installation Sim. to Curb Ramp Type "C" Det.
- (E) Install Relocated Type II Traffic Sig. Std. & Sig. Heads Per Curb Ramp Type "B" Modified Det.

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
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| HAWAII | HAW. | NH-083-1(41) | 2000 | 77 | 90 |



CONDUIT, CABLE & DUCT SECTION SCHEDULE*

| Delta No. | Conduit | Cable | Duct | Delta No. | Conduit | Cable | Duct |
|-----------|---------|------------|------|-----------|---------|------------|------|
| 1 | 1-2" | 1-26/C #14 | D | 7 | 1-2" | 1-26/C #14 | D |
| | 2-2" | 10-2/C #14 | | | 1-2" | 1-3/C #4 | |
| | 1-2" | 1-3/C #4 | | | 1-2" | 3-2/C #14 | |
| | | | | | 1-2" | Spare | |
| 2 | 2-2" | 2-26/C #14 | A | 8 | 1-2" | 1-26/C #14 | D |
| | 1-2" | 1-3/C #4 | | | 1-2" | 2-2/C #14 | |
| | 3-2" | 16-2/C #14 | | | 1-2" | 1-3/C #4 | |
| | 1-2" | Spare | | | 1-2" | Spare | |
| 3 | 1-2" | 1-26/C #14 | D | 9 | 1-2" | 1-26/C #14 | D |
| | 1-2" | 6-2/C #14 | | | 1-2" | 2-2/C #14 | |
| | 2-2" | Spare | | | 2-2" | Spare | |
| 4 | 1-2" | 1-26/C #14 | D | 10 | 1-2" | 1-2/C #14 | F |
| | 1-2" | 5-2/C #14 | | | | | |
| | 2-2" | Spare | | | | | |
| 5 | 1-2" | 1-26/C #14 | D | 11 | 1-2" | 1-26/C #14 | D |
| | 2-2" | Spare | | | 1-2" | 2-2/C #14 | |
| | 1-2" | 4-2/C #14 | | | 2-2" | Spare | |
| 6 | 1-2" | 1-26/C #14 | D | | | | |
| | 3-2" | Spare | | | | | |

* See Traffic Signal System Note #22.

NOTES

- For New Curb Ramp Work, See Detailed Intersection Plans, Sheets 14 to 23.
- See Also Typical Curb Ramp Details, Sheets 24 to 27 For Planned Locations of Traffic Signal Standards w/ Ped. Push Buttons.
- Seal All Holes in Signal Standards w/ Stainless Steel Capping Echelon.
- Trenching Work Shall be Performed Prior to Pavement Resurfacing.

TRAFFIC SIGNAL PLAN - KAM HWY AND LULUKU RD / KOA KAHIKO STREET

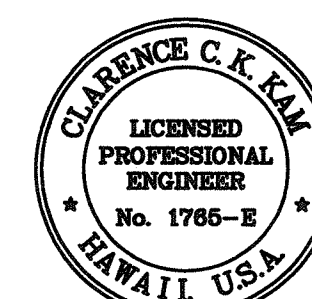
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APPROVED:

Michael J. ...
Chief, Planning & Engineering, B.W.S. Date 9/1/99

Chief, Traffic Review Branch, DPP Date 9/1/99
(For Construction w/in City R/W Only)

Chief, Traffic Control, DTS Date 9/1/99
(For Construction w/in City R/W Only)



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TRAFFIC SIGNAL PLAN

KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)

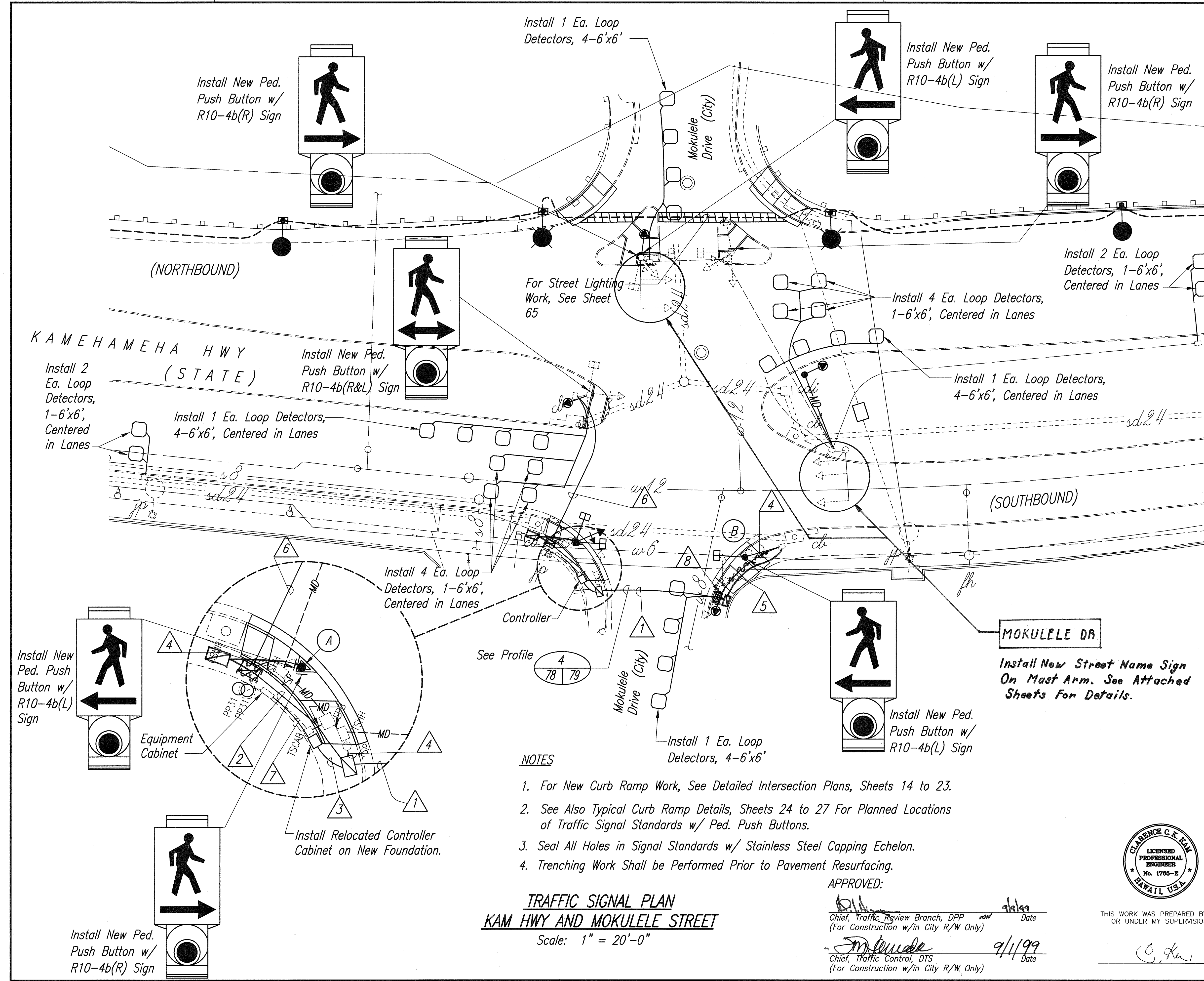
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SHEET No. 6 OF 12 SHEETS

"AS-BUILT"

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| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | NH-083-1(41) | 2000 | 78 | 90 |



- TRUE NORTH
SCALE: 1"=20'
- TRAFFIC SIGNAL KEY (This Sheet Only)
- | Pole I.D. | Work Item |
|-----------|--|
| A | Install Relocated Type I Traffic Sig. Std. & Sig. Heads Per Curb Ramp Type "E" Detail. |
| B | Install Relocated Type I Traffic Sig. Std. & Sig. Heads Per Curb Ramp Type "B" Modified Det. |

| CONDUIT, CABLE & DUCT SECTION SCHEDULE* | | | |
|---|------------------------------|---|------|
| Delta No. | Conduit | Cable | Duct |
| 1 | 1-2" 1-2" 2-2" | 1-26/C #14 4-2/C #14 Spare | D |
| 2 | 1-2" 1-2" 2-2" | 1-26/C #14 5-2/C #14 Spare | D |
| 3 | 1-2" 1-2" 2-2" 2-2" | 1-26/C #14 1-26/C #14 11-2/C #14 Spare | E |
| 4 | 1-2" | 2-2/C #14 | F |
| 5 | 1-2" 1-2" 2-2" | 1-26/C #14 2-2/C #14 Spare | D |
| 6 | 1-2" 1-2" 2-2" | 1-26/C #14 4-2/C #14 Spare | D |
| 7 | 1-2" | 2-#6 | F |
| 8 | 1-2" | 1-2/C #14 | F |

* See Traffic Signal System Note #22.

| | |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY | |
| DESIGNED BY | |
| QUANTITIES BY | |
| CHECKED BY | |
| ORIGINAL PLAN | |
| NOTE BOOK | |
| No. | |

- NOTES
- For New Curb Ramp Work, See Detailed Intersection Plans, Sheets 14 to 23.
 - See Also Typical Curb Ramp Details, Sheets 24 to 27 For Planned Locations of Traffic Signal Standards w/ Ped. Push Buttons.
 - Seal All Holes in Signal Standards w/ Stainless Steel Capping Echelon.
 - Trenching Work Shall be Performed Prior to Pavement Resurfacing.

TRAFFIC SIGNAL PLAN
KAM HWY AND MOKULELE STREET
Scale: 1"=20'-0"

APPROVED:

Chief, Traffic Review Branch, DPP
(For Construction w/in City R/W Only)

9/1/99

Chief, Traffic Control, DTS
(For Construction w/in City R/W Only)

9/1/99



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)

Scale: 1"=20' Date: June, 1999

SHEET No. 7 OF 12 SHEETS

"AS-BUILT"

[illegible]

Profile view of the proposed road cross-section. The vertical axis shows elevation from 135 to 145 feet. The horizontal axis shows stationing from 0 to 150. Key features include:

- Vertical Alignment:** A dashed line representing the proposed vertical curve, with a vertical curve length of $1''=2'$.
- Existing Ground:** A solid line representing the existing ground profile.
- Proposed Structures:**
 - New TSPB (Traffic Signal Pullbox):** Located at Sta. 0+00, Sta. 0+50, Sta. 1+02±, and Sta. 1+39.
 - New Traffic Signal Duct:** Located at Sta. 0+00.
 - 1-Type C Pullbox:** Located at Sta. 0+50 and Sta. 1+39.
- Dimensions and Clearances:**
 - $w16$: Width of the 16-foot wide duct.
 - t : Thickness of the duct.
 - e : Edge clearance.
 - ts : Total section clearance.
 - $1' Min$: Minimum clearance of 1 foot.
 - $1' Min$: Minimum clearance of 1 foot.
 - $1' Min$: Minimum clearance of 1 foot.
 - $1' Min$: Minimum clearance of 1 foot.

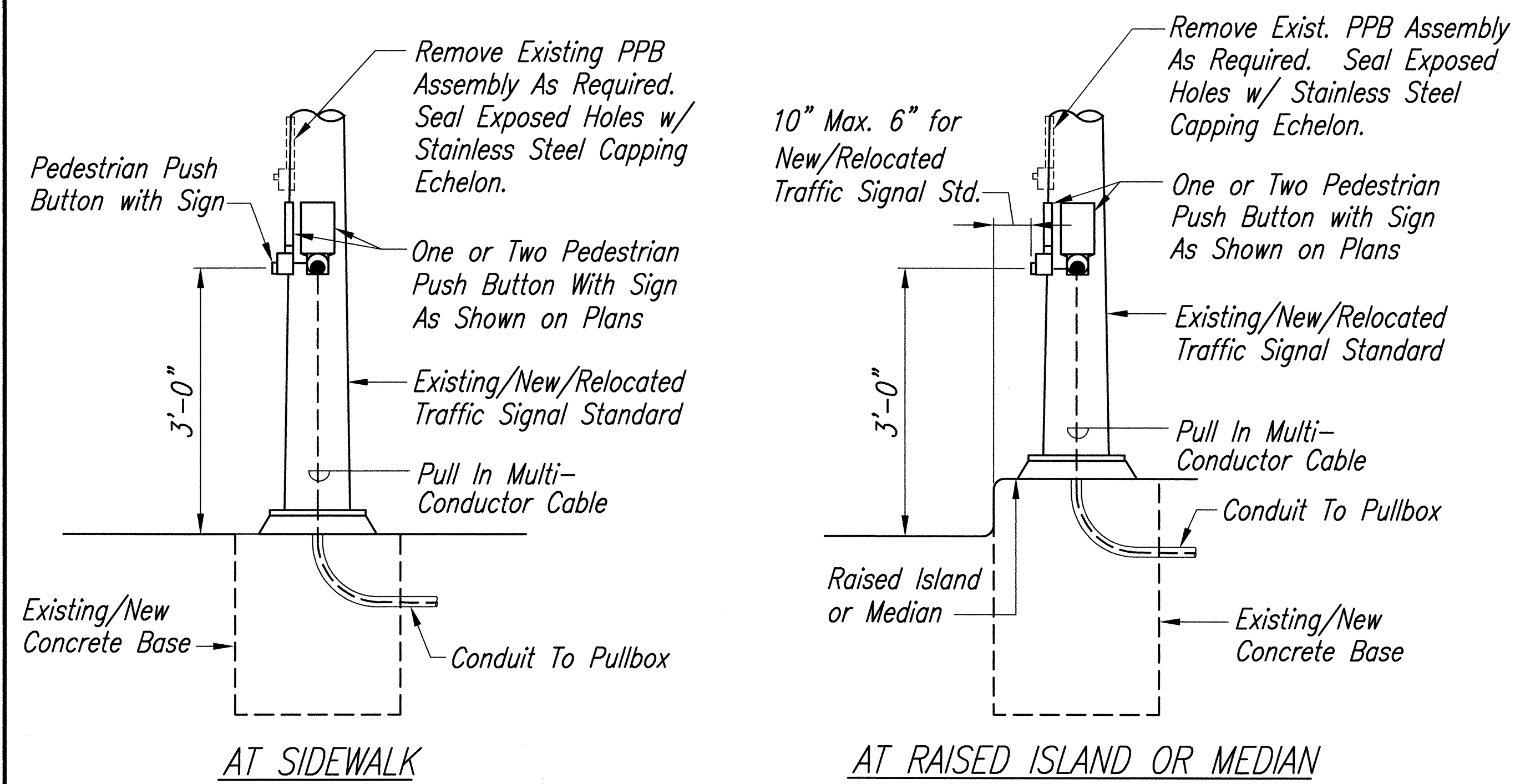
Profile view of the proposed roadway. The vertical axis shows elevations of 260 and 265 feet. The horizontal axis shows stationing from 0 to 150. The profile includes the existing ground line (dashed), existing top of base (solid), and proposed roadway profile (solid). Key features include:

- Station 0+00: Existing top of base (exist tpb) and existing ground (exist ground @ 4" duct) are shown. A 1' minimum clearance is indicated.
- Station 0+69: New TSPB (Type C Pullbox) with a 1' minimum clearance. A 6" wide duct (w6) is shown.
- Station 0+97: New TSPB (Type C Pullbox) with a 1' minimum clearance. A 12" wide duct (w12) is shown.
- Station 1+48: New TSPB (Type C Pullbox) with a 1' minimum clearance. An 8" wide duct (w8) is shown.
- Station 1+48: New Traffic Signal Duct is shown.
- Clearance dimensions: 1' Min. is indicated at several points along the profile.
- Duct sizes: d24, w12, w6, w8 are indicated.

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| | |
|------------------|------------------------------------|
| ORIGINAL PLAN | SURVEY PLOTTED BY _____ DATE _____ |
| NOTE BOOK | DRAWN BY _____ |
| | TRACED BY _____ |
| | DESIGNED BY _____ |
| | QUANTITIES BY _____ |
| No. _____ | CHECKED BY _____ |

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | NH-083-1(41) | 2000 | 80 | 90 |

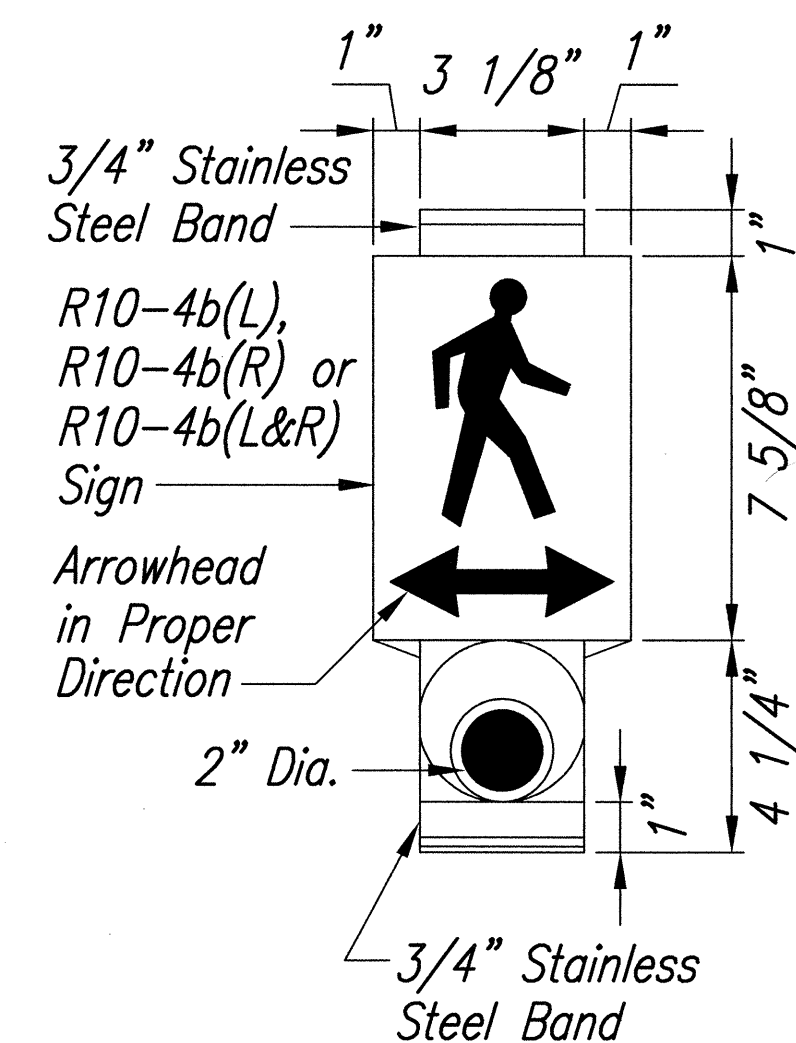


PEDESTRIAN PUSHBUTTON INSTALLATION DETAILS

Not to Scale

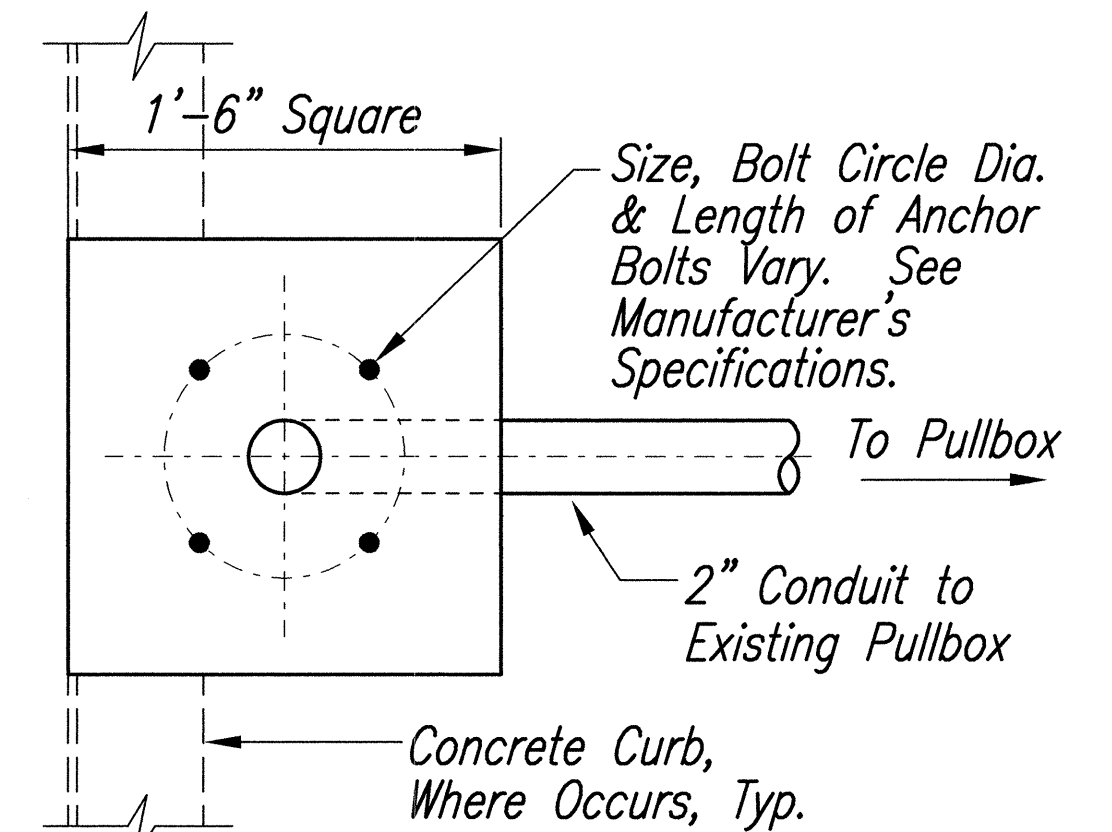
NOTES:

1. The Pedestrian Push Button Unit Shall Consist of a One Piece Assembly with a Raise Walking Man, Arrow Indication and Push Button.
2. The Push Button Activator Shall be of the Mushroom Plunger Type, ADA Acceptable, 2-inches in Diameter that Requires Less Than 5 lbs. of Pressure to Activate.
3. The Raised Man and Arrows Shall be Directional and Match the Directional Indication as Shown on the Plans.
4. The Push Button Shall be Tamper Proof, Weatherproof and Constructed so that Electrical Shocks are Impossible.
5. The Color Scheme Shall Be:
White - Man, Arrow and Push Button
Black - Background

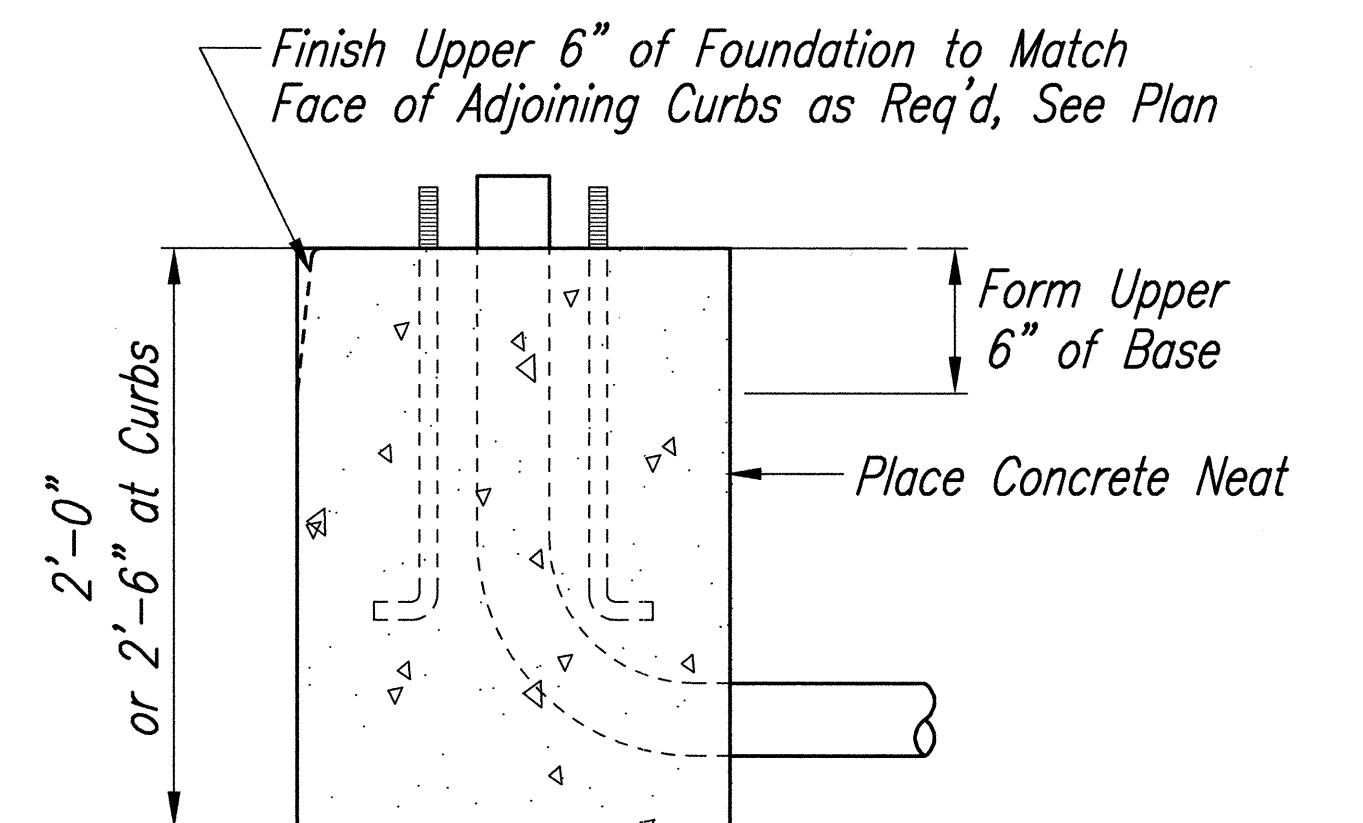


PEDESTRIAN PUSHBUTTON DETAILS

Not to Scale



PLAN-SECTION



VERTICAL SECTION

NOTES:

1. Concrete Shall be Class "B"
2. Type "A" Concrete Base Shall be Used for Types 1-10 & 1-8 Traffic Signal Standards.
3. Conduit Bend is Incidental to Concrete Base.

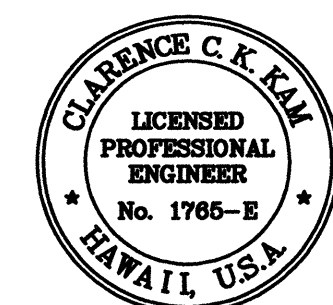
TYPE "A" CONCRETE BASE

Not to Scale

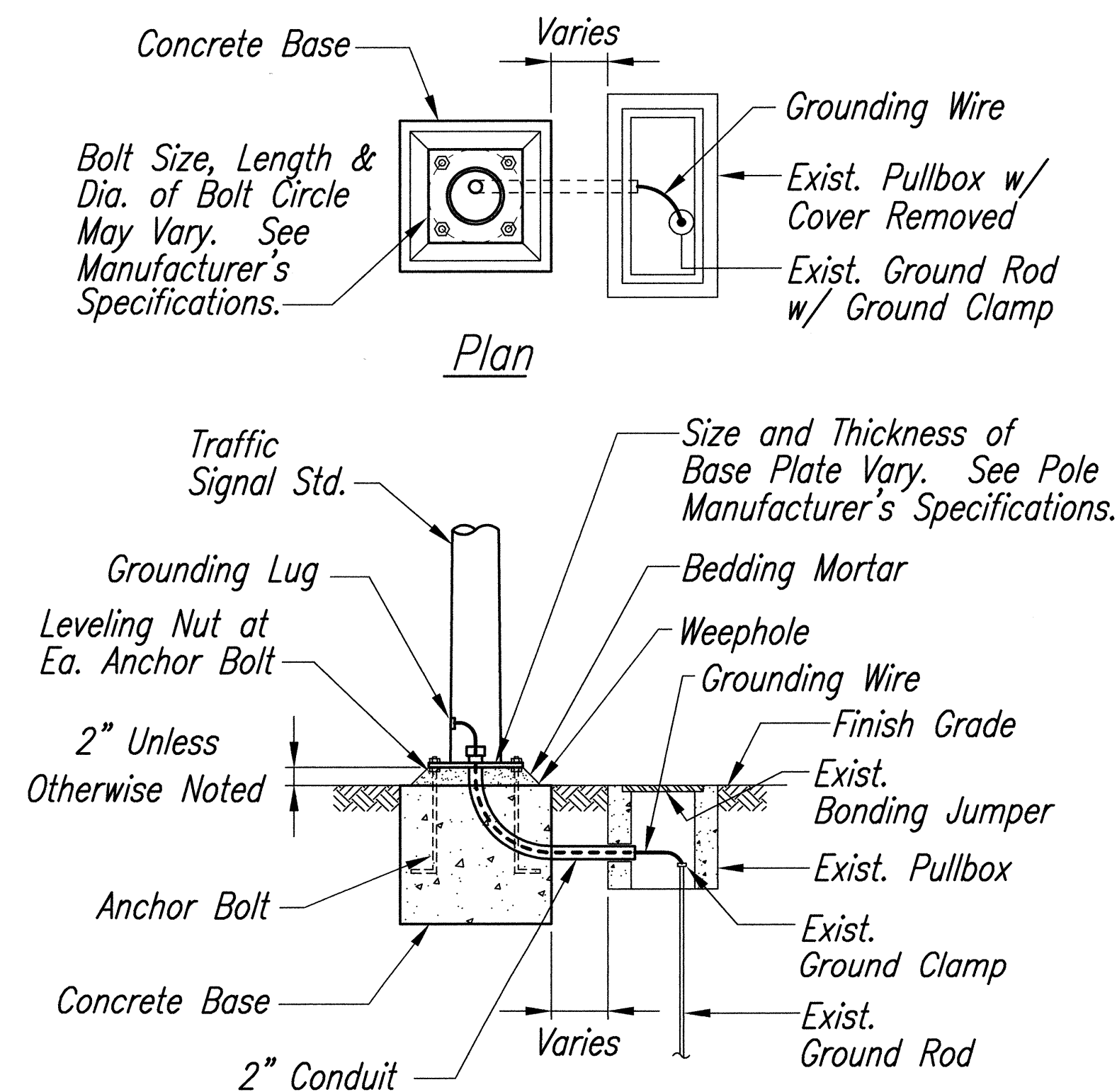
APPROVED:

Chief, Traffic Review Branch, DPP
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Date: 9/1/99

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(For Construction w/in City R/W Only)
Date: 9/1/99



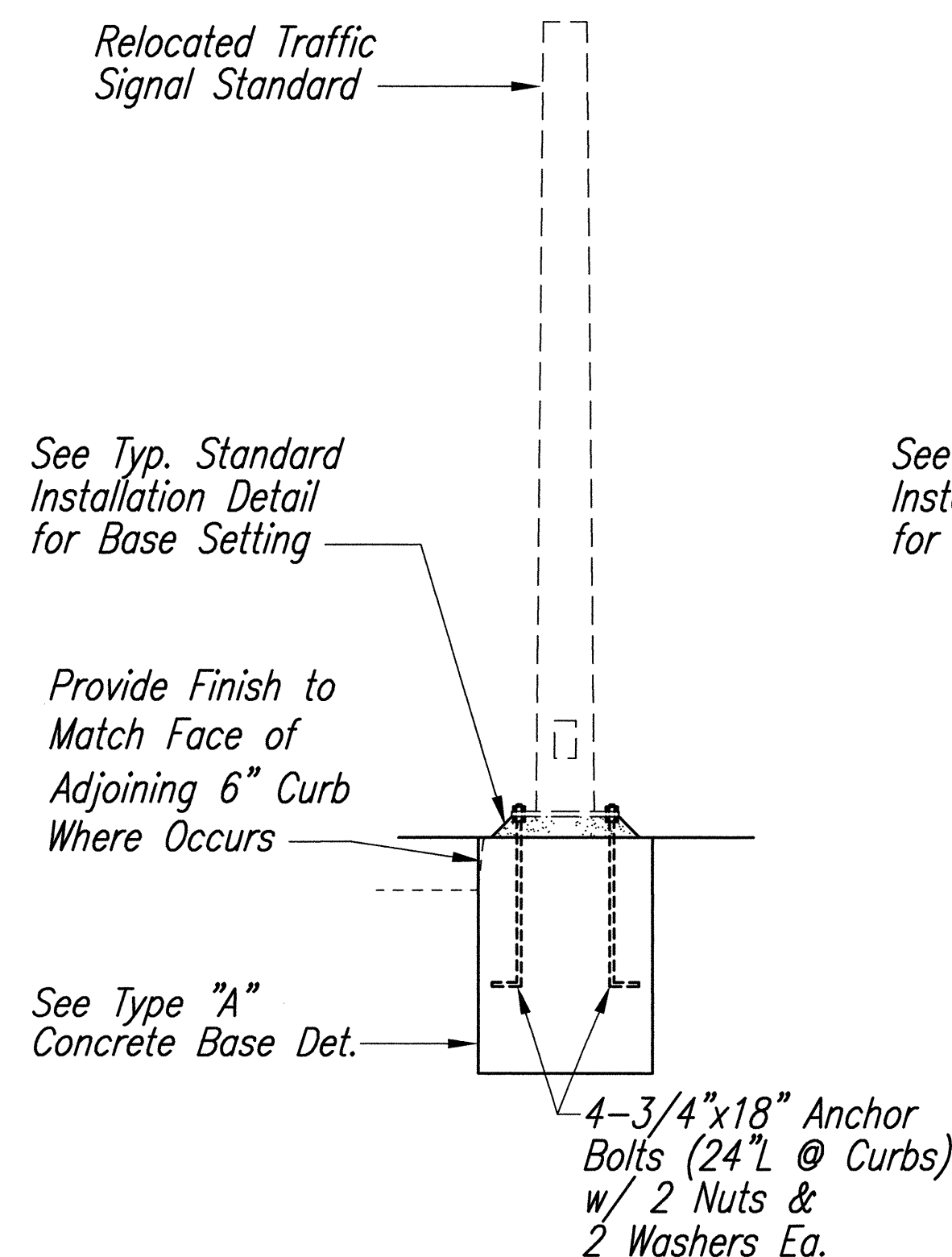
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Section

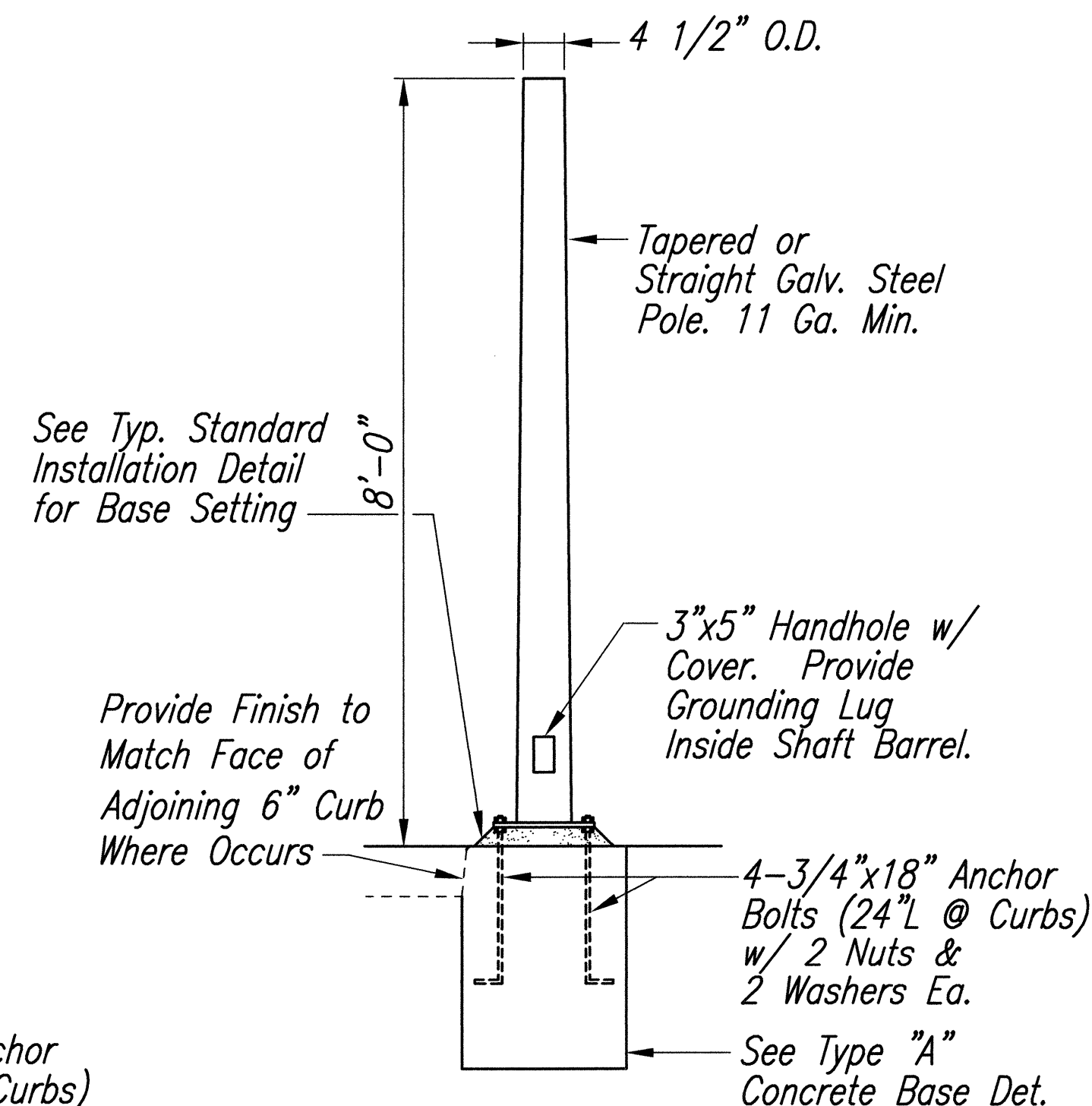
TYPICAL STANDARD INSTALLATION

Not to Scale



RELOCATED TYPE 1 TRAFFIC SIGNAL STANDARD

Not to Scale



TYPE 1-8 TRAFFIC SIGNAL STANDARD

Not to Scale

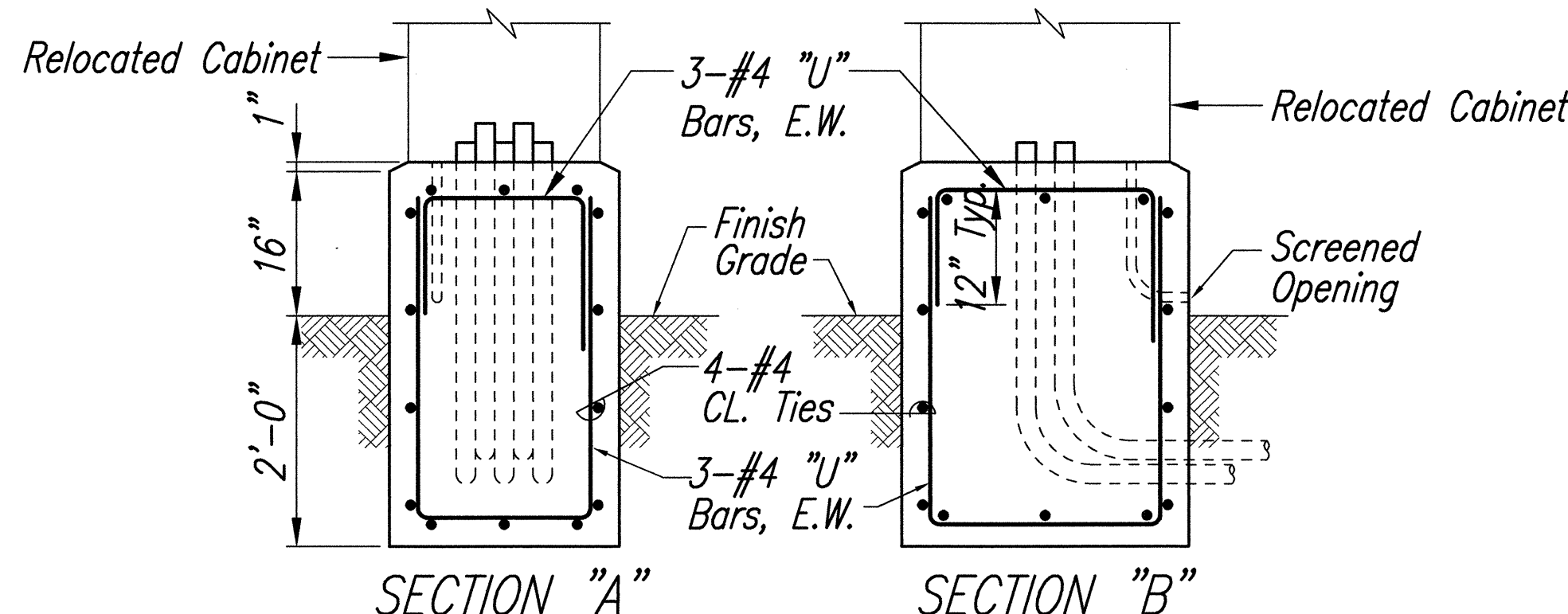
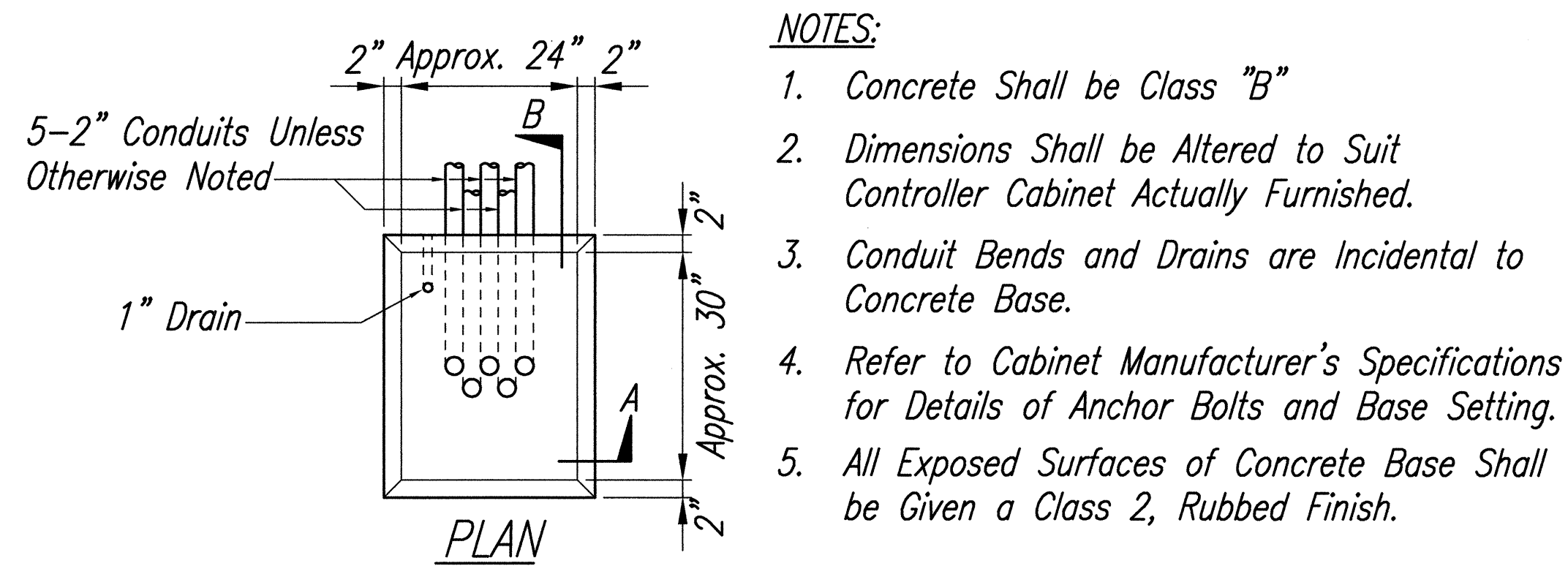
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL DETAILS

KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)

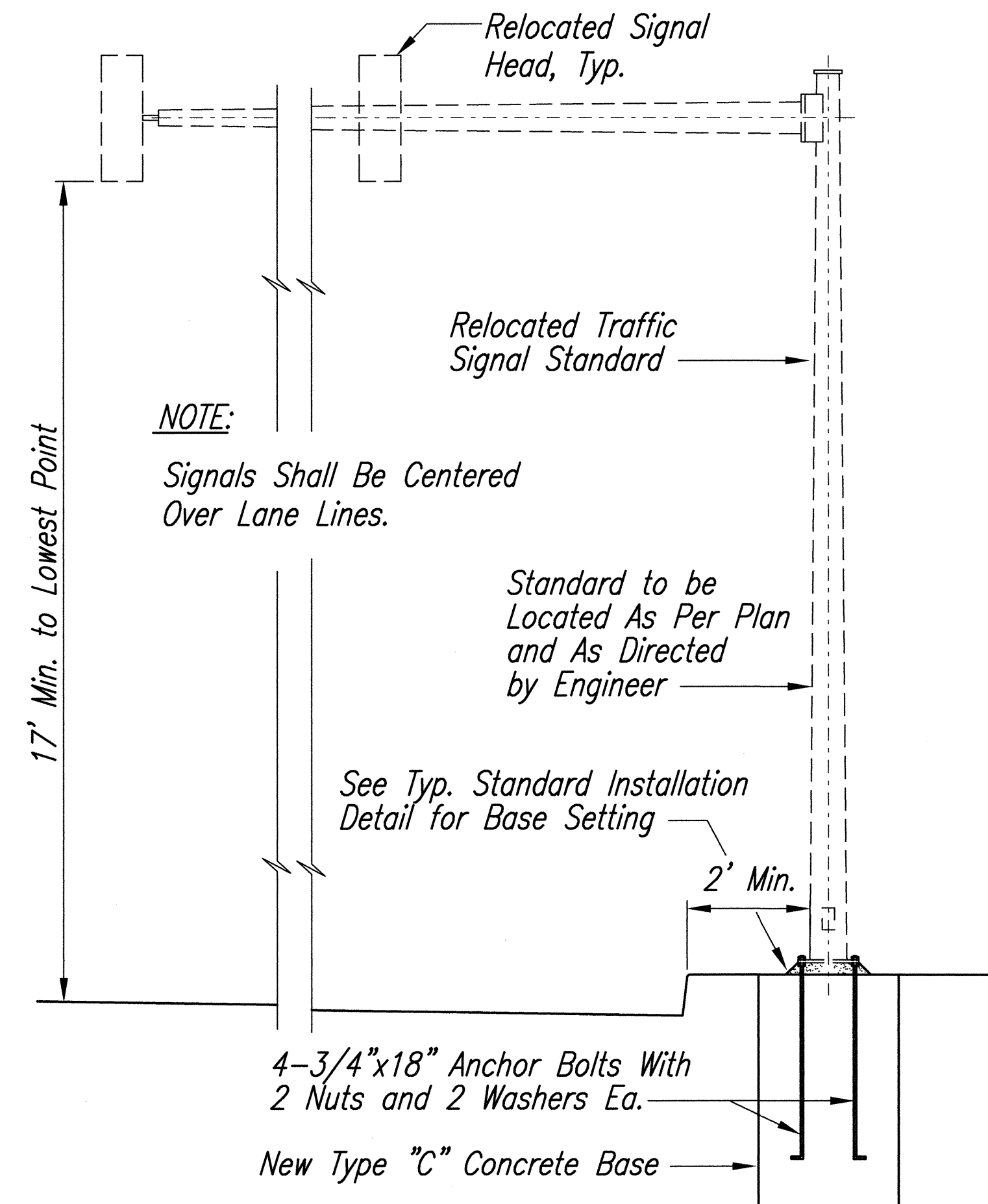
Scale: As Shown Date: June, 1999

SHEET No. 9 OF 12 SHEETS



TYPE "D" CONCRETE BASE FOR CONTROLLER CABINETS

Not to Scale



RELOCATED TYPE II TRAFFIC SIGNAL STANDARD

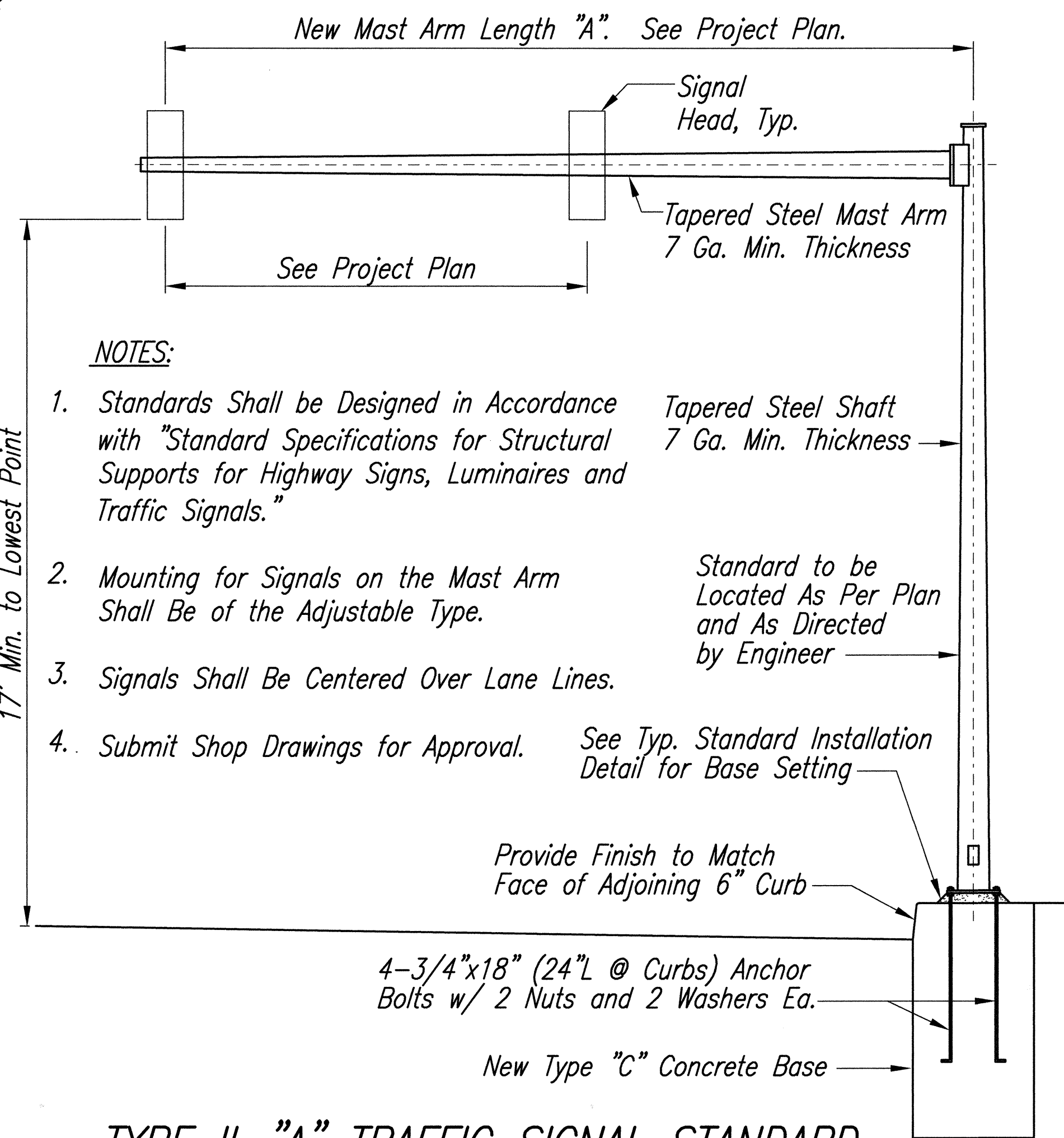
Not to Scale

| TYPE "C" CONCRETE BASE | | |
|------------------------|-------|----------|
| TYPE OF STANDARD | "a" | "b" BARS |
| II - 18 | 5'-0" | 12 - #6 |
| II - 20 | 5'-6" | 12 - #6 |
| II - 25 | 6'-0" | 12 - #6 |
| II - 30 | 6'-6" | 12 - #8 |
| II - 35 | 6'-6" | 12 - #8 |
| II - 40 | 7'-0" | 12 - #8 |
| III - 18 | 5'-0" | 12 - #6 |
| III - 20 | 5'-6" | 12 - #6 |
| III - 25 | 6'-0" | 12 - #6 |
| III - 30 | 6'-6" | 12 - #8 |
| III - 35 | 6'-6" | 12 - #8 |
| III - 40 | 7'-0" | 12 - #8 |

TYPE II - 25

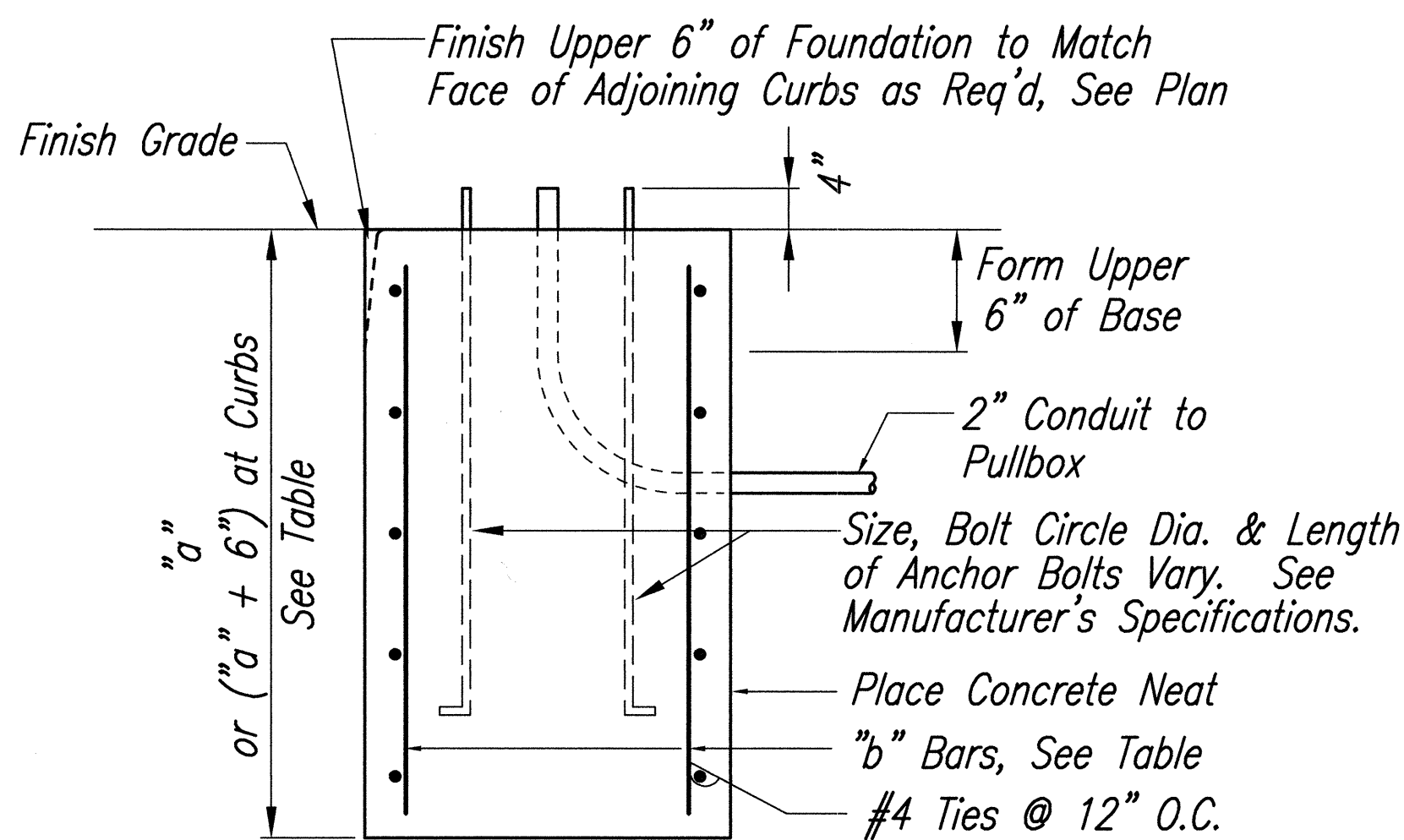
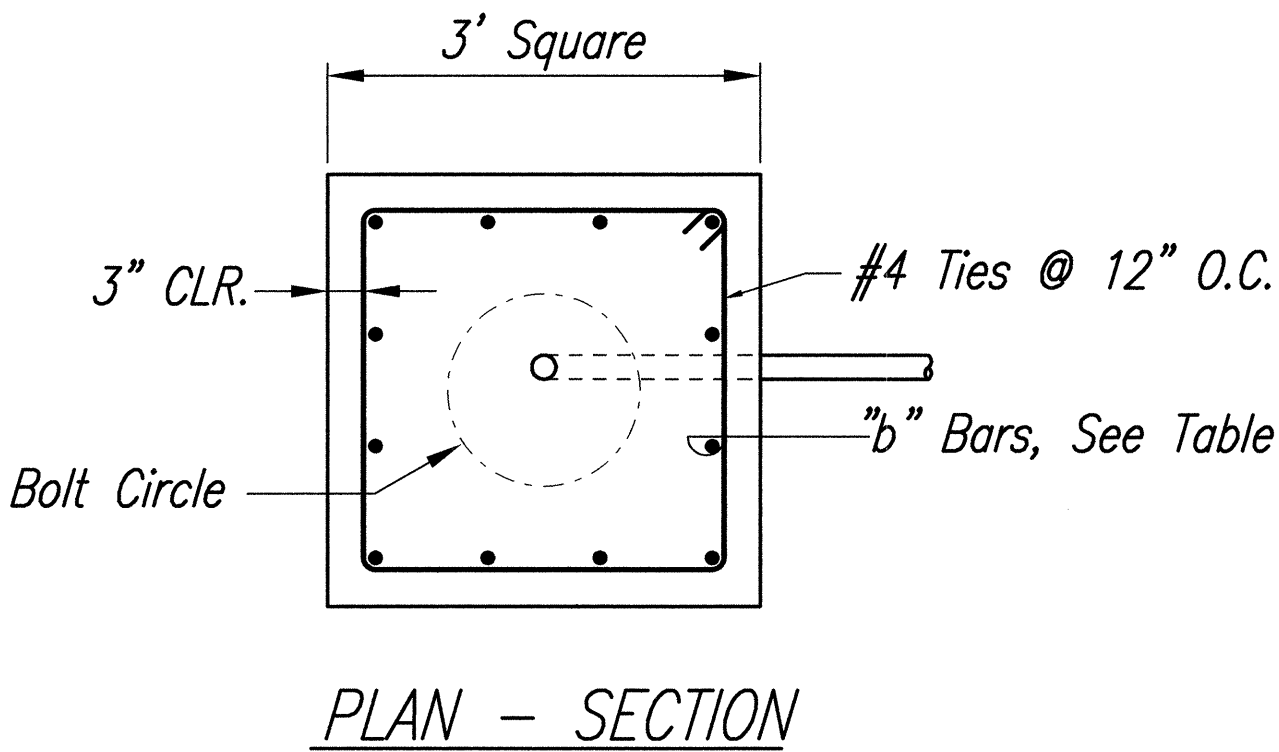
MAST ARM LENGTH

TYPICAL STANDARD DESIGNATION: II - 25



TYPE II-"A" TRAFFIC SIGNAL STANDARD

Not to Scale



- NOTES:
- Concrete Shall be Class "B"
 - Type "C" Concrete Base Shall be Used for Types II & III Traffic Signal Standards.
 - Design Lateral Pressure: 1,500 psf.
 - Conduit Bend is Incidental to Concrete Base.

TYPE "C" CONCRETE BASE

Not to Scale

APPROVED:

Chief, Traffic Review Branch, DPP
(For Construction w/in City R/W Only)

9/1/99 Date

Chief, Traffic Control, DTS
(For Construction w/in City R/W Only)

9/1/99 Date



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

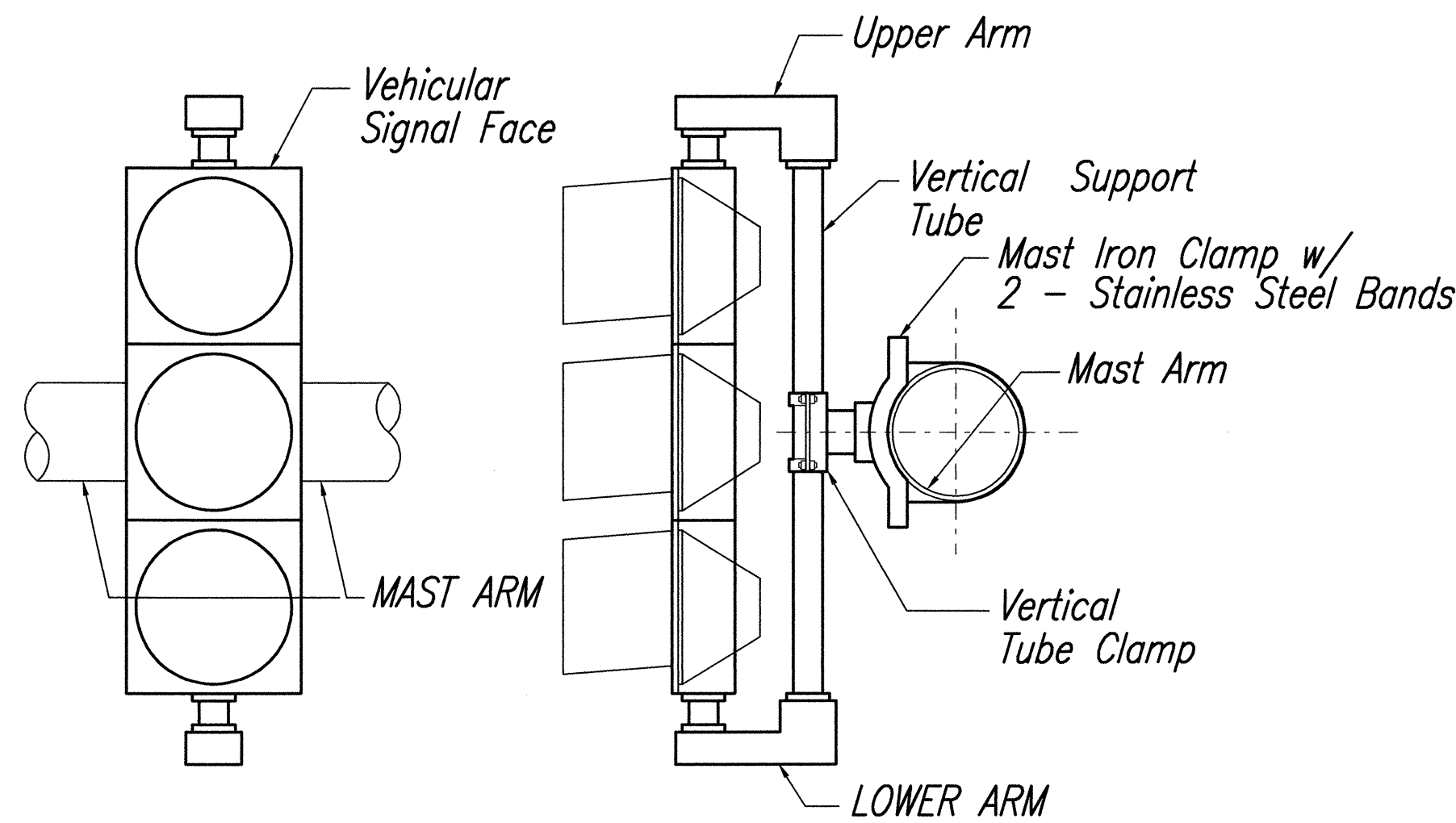
TRAFFIC SIGNAL DETAILS

KAMEHAMEHA HIGHWAY RESURFACING
Kaneohe Bay Drive to Kahiko Street
F. A. Project No. NH-083-1(41)

Scale: As Shown Date: June, 1999

SHEET No. 10 OF 12 SHEETS

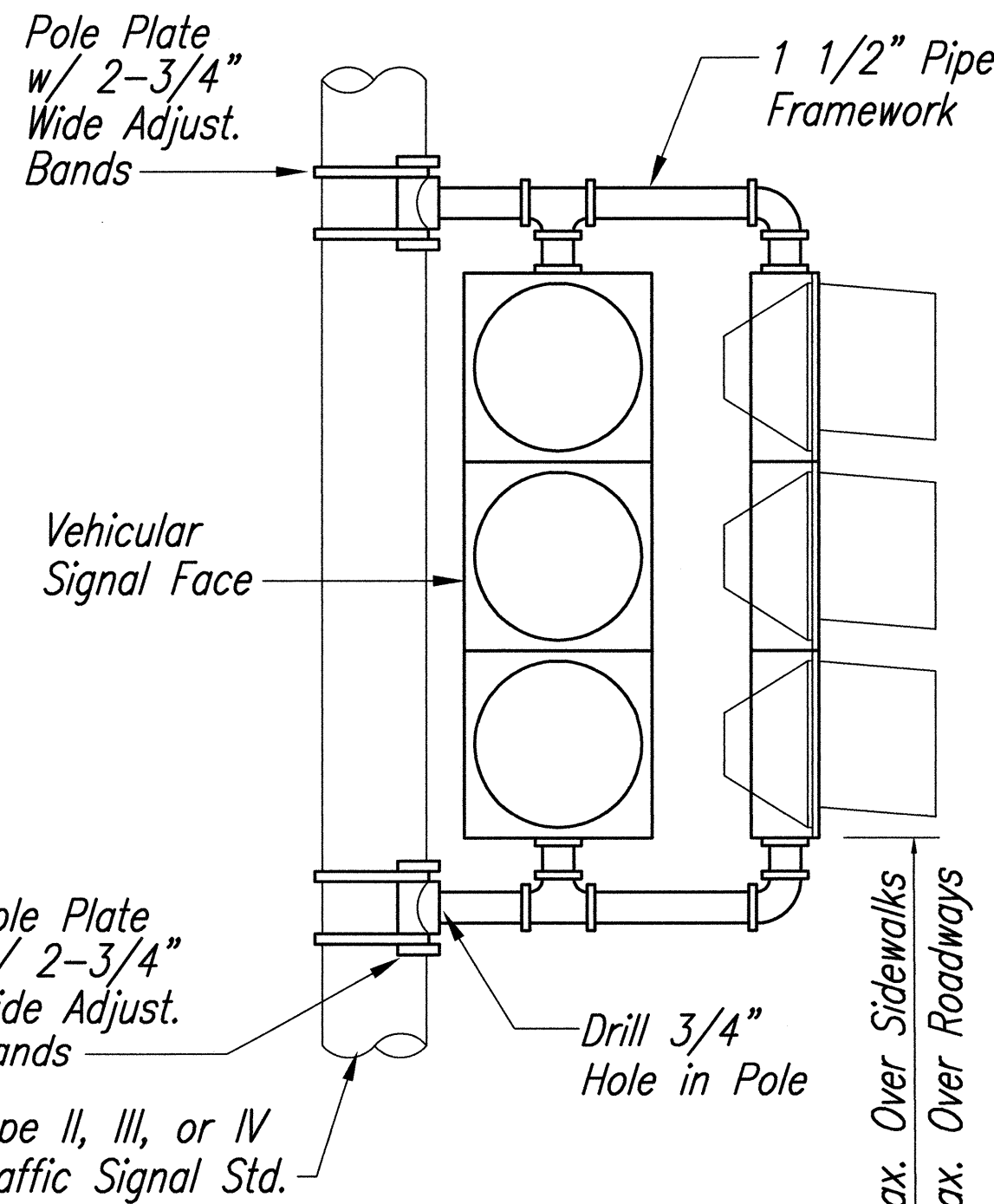
| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | NH-083-1(41) | 2000 | 82 | 90 |



ADJUSTABLE MAST ARM
ONE WAY MOUNTING AT INTERMEDIATE POINT
MA-1W(1)

NOTE:

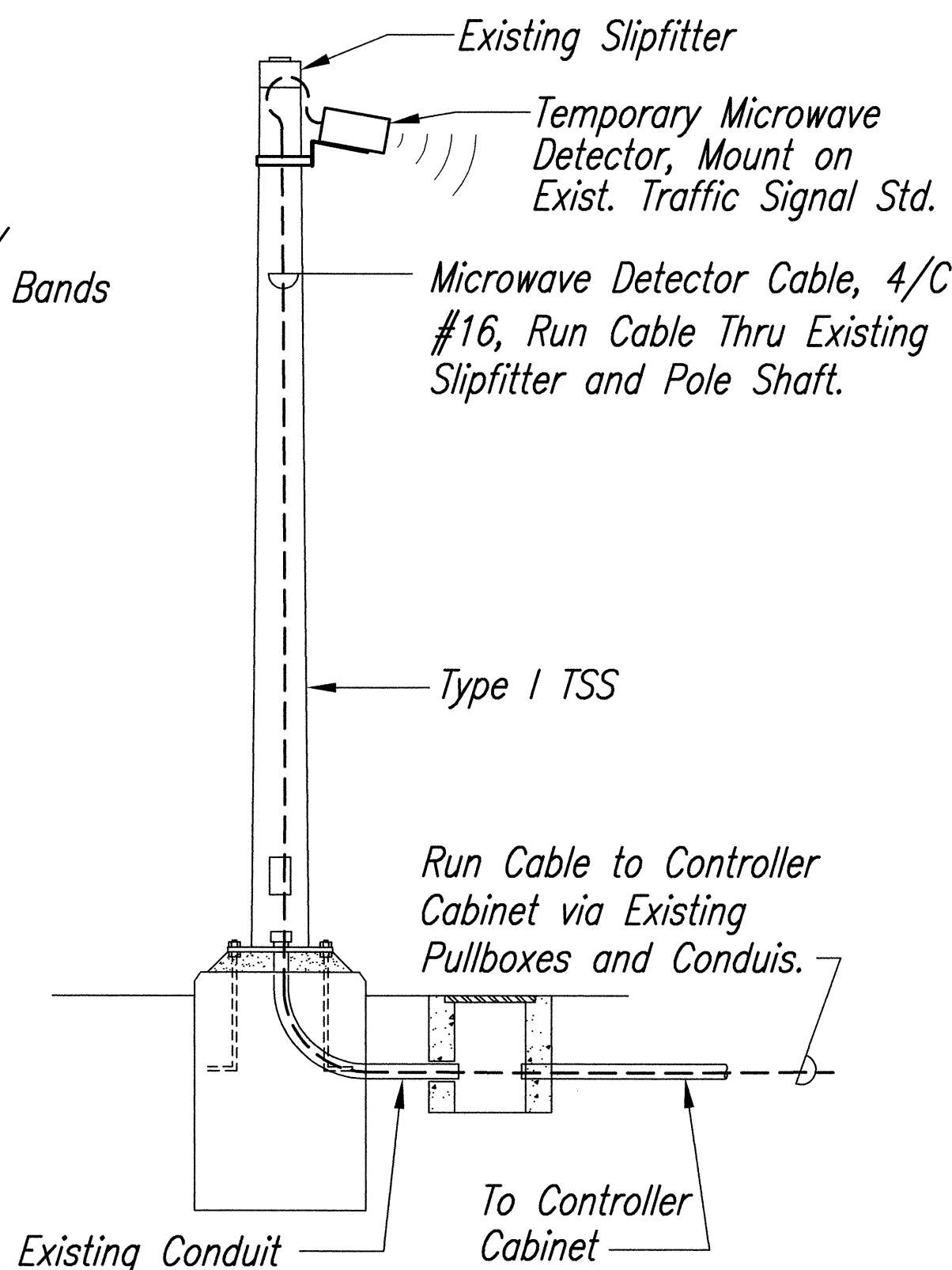
1. Stainless Steel Bands Shall be 1/2" Wide x 0.050" Thick, Min. Tensile Strength Shall be 100,000 psi Min.
2. Upper Arm, Lower Arm and Vertical Support Tube Shall be of 356 Cast Aluminum
3. All Wiring Shall be Concealed.
4. Vertical Tube Clamp Shall be Malleable Iron, Grade 32510.
5. All Aluminum Parts Shall Have an Alodine 1200 Finish.



BRACKET MOUNT - TWO WAY
(B-2W)

VEHICULAR SIGNAL MOUNTINGS

Not to Scale

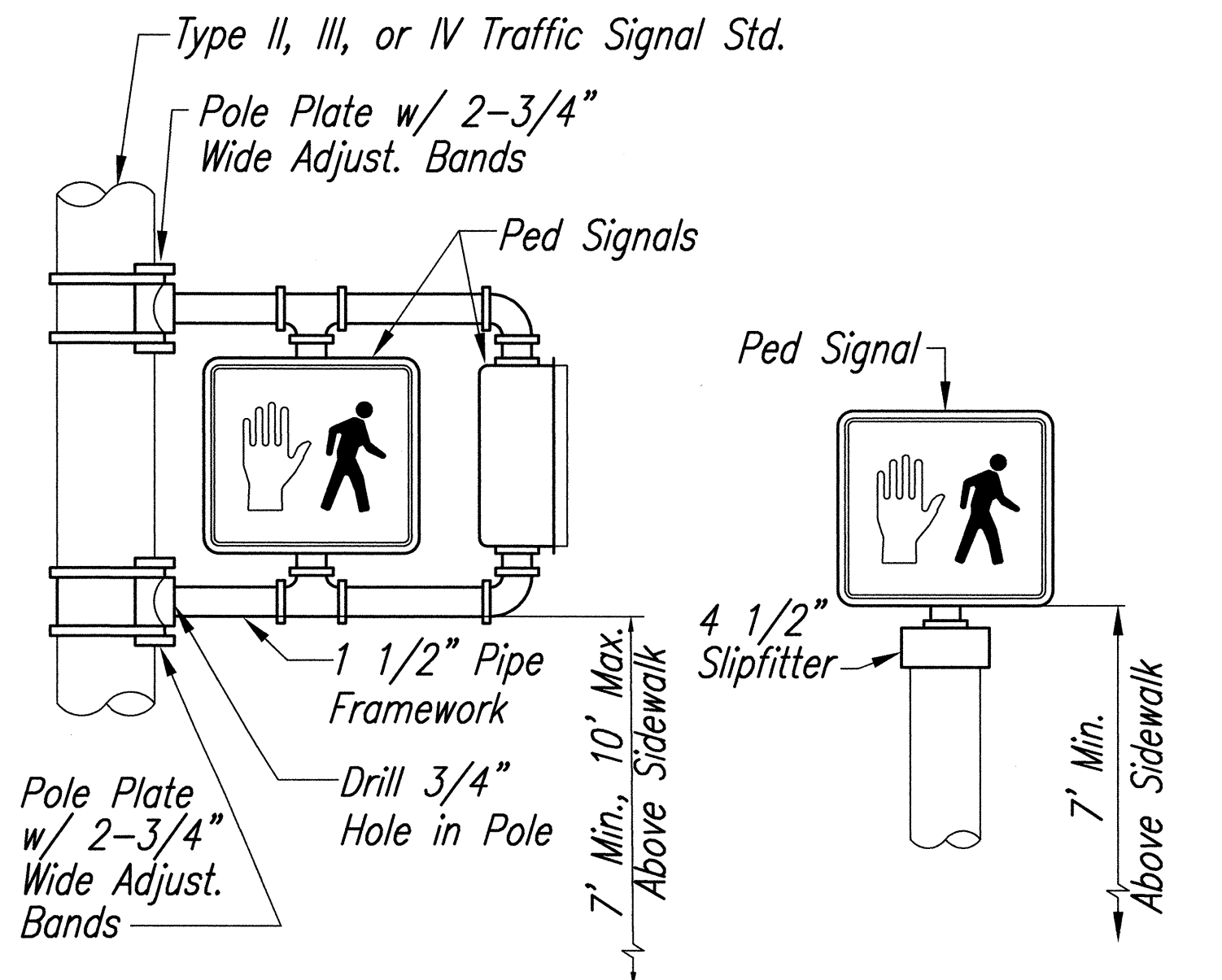


AT EXISTING TRAFFIC SIGNAL STANDARD

NOTES:

1. Microwave Detector Shall be Operational Before Existing Loop Detectors are Deactivated.
2. Remove Microwave Detector & All Associated Cables After New Loop Detectors are Installed & Operational.

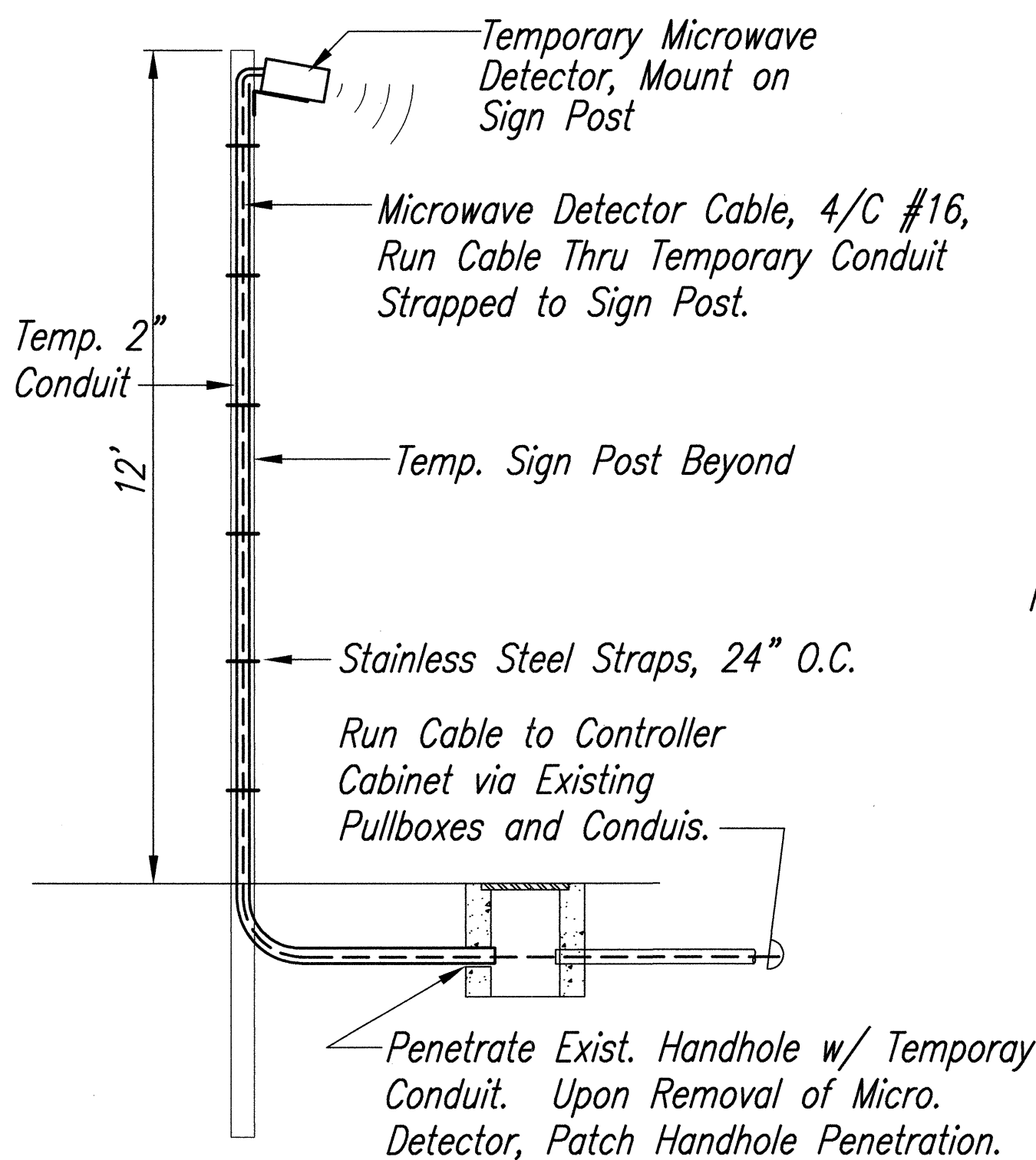
2 TEMPORARY MICROWAVE DETECTOR DETAIL
Not to Scale



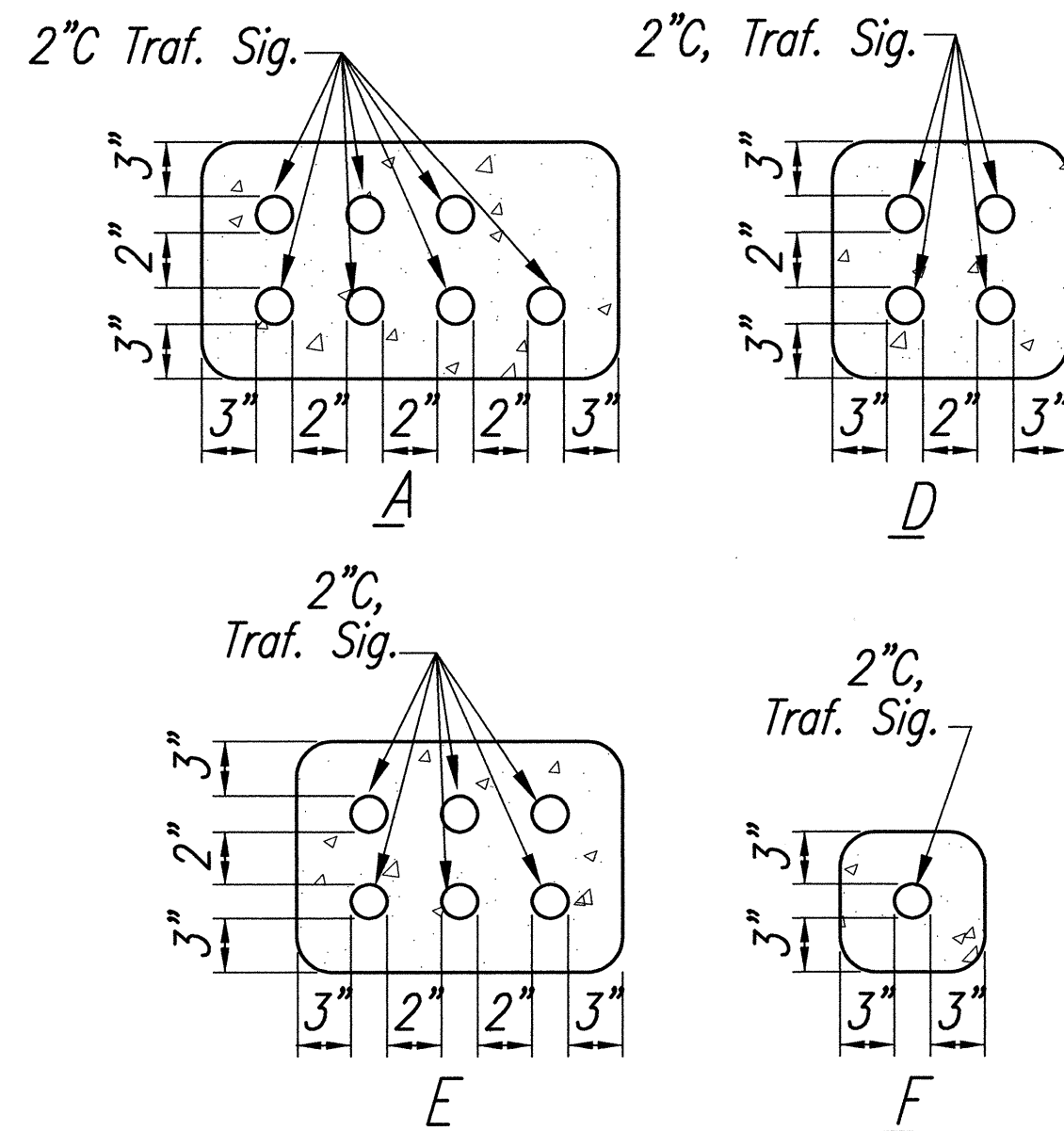
BRACKET MOUNT - TWO WAY
(B-2W)

PEDESTRIAN SIGNAL MOUNTINGS

Not to Scale



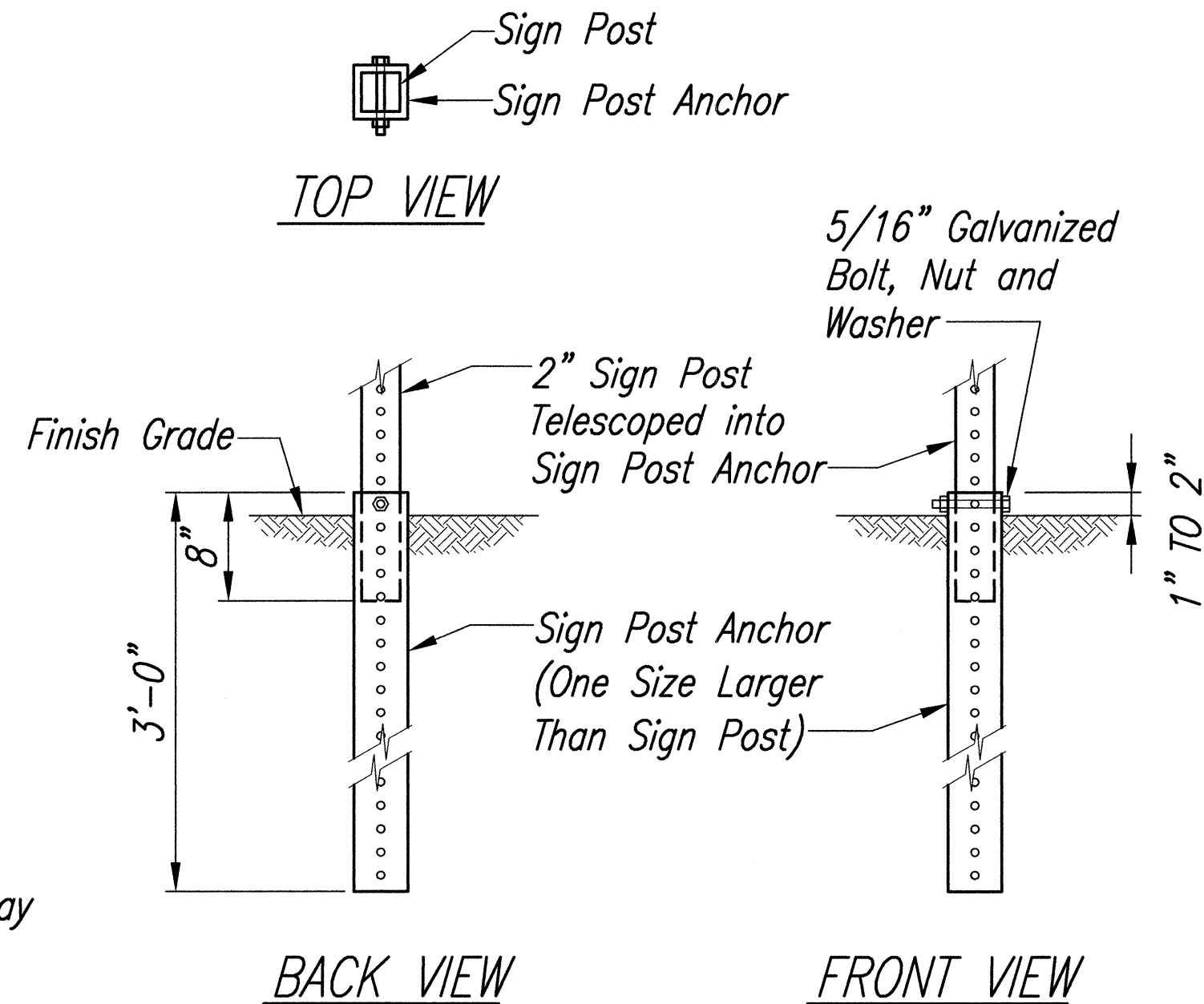
AT TEMP SIGN POST



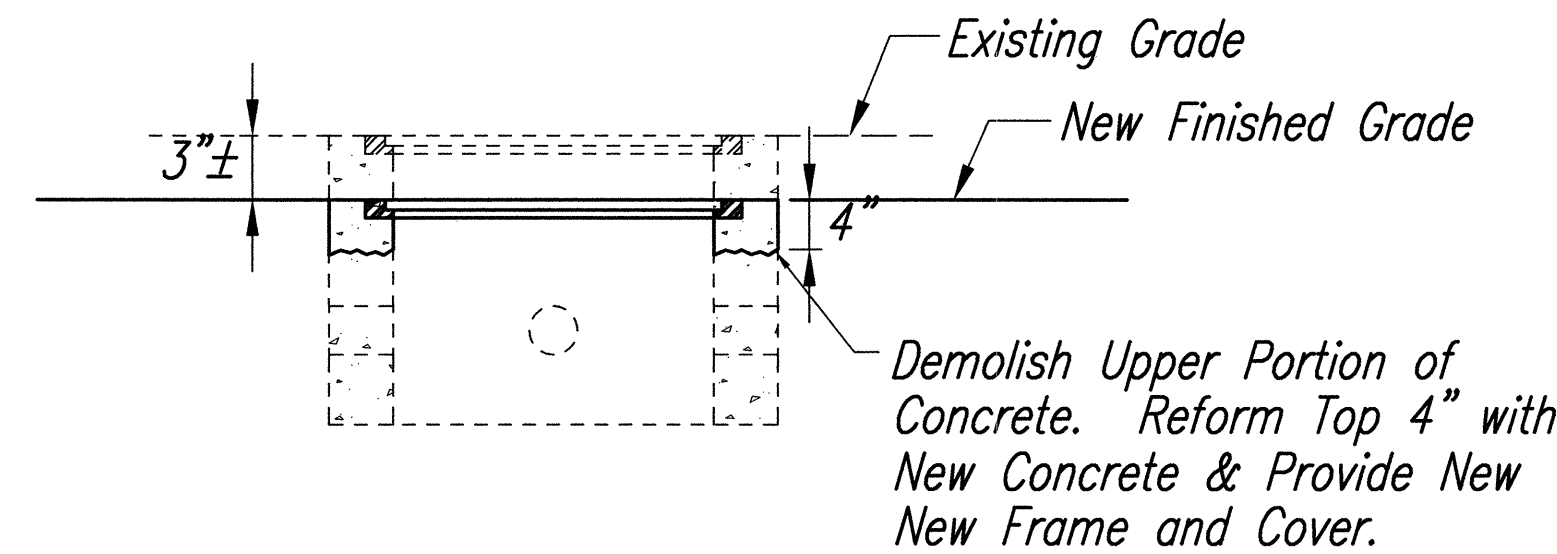
NOTE: See Highway Lighting Details, Sheet 67 for Trench Details.

DUCT SECTIONS

Not to Scale



1 TEMPORARY SIGN POST DETAIL
Not to Scale



2 PULLBOX ADJUSTMENT DETAIL
Not to Scale

APPROVED:

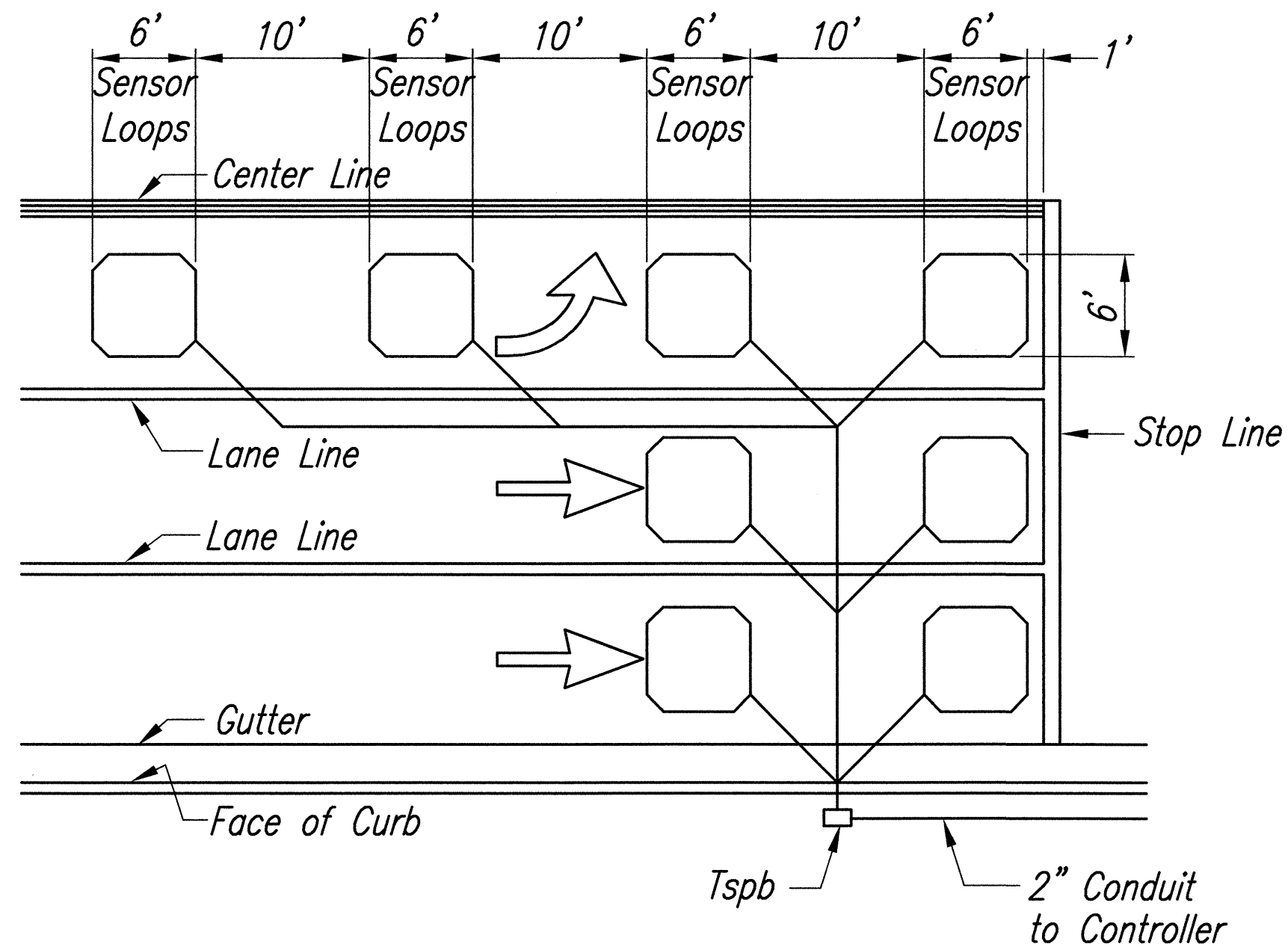
Chief, Traffic Review Branch, DPP
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Date 9/1/99
Chief, Traffic Control, DTS
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Date 9/1/99



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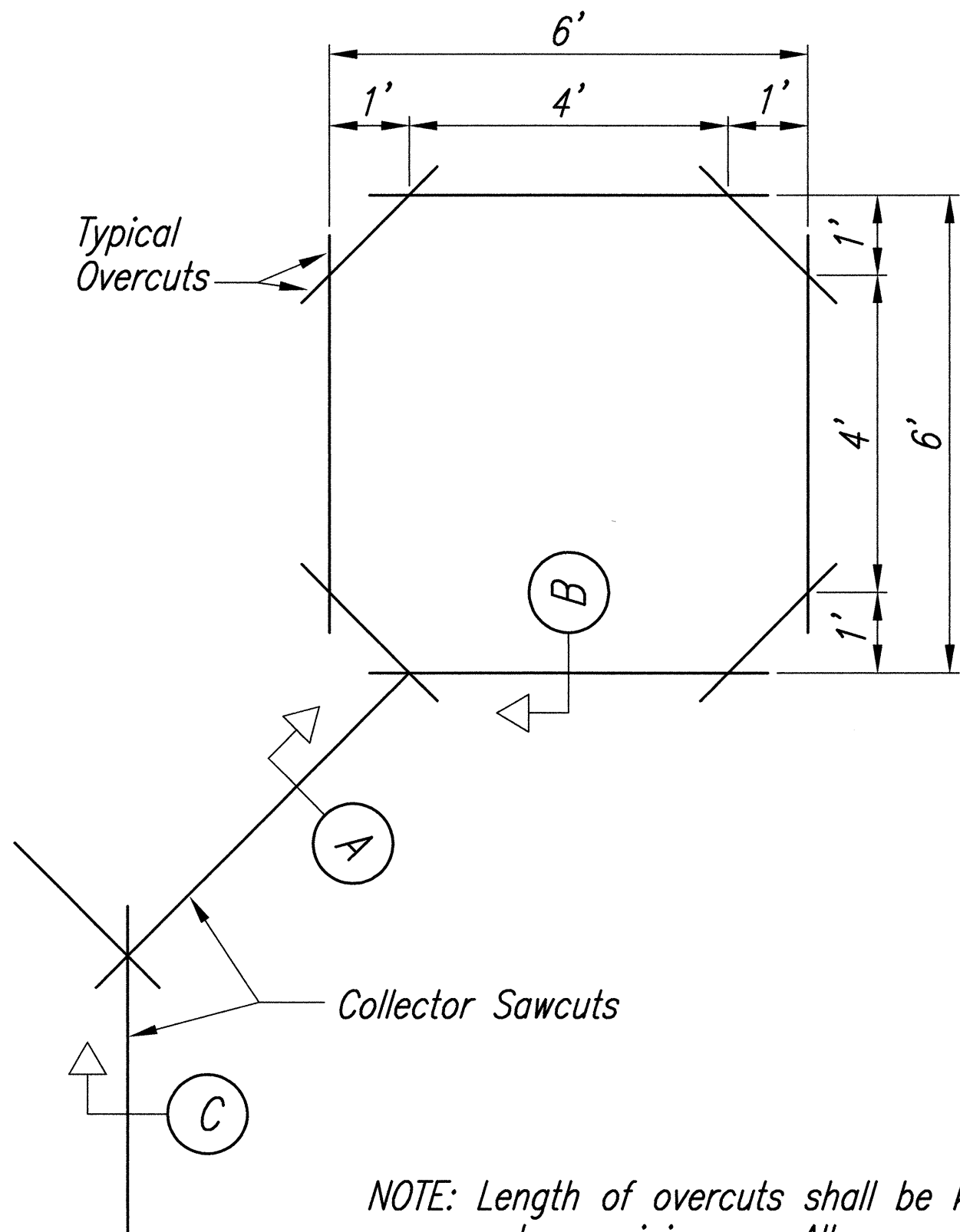
| | |
|--|------------------|
| STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION | |
| TRAFFIC SIGNAL DETAILS | |
| KAMEHAMEHA HIGHWAY RESURFACING Kaneohe Bay Drive to Kahiko Street F. A. Project No. NH-083-1(41) | |
| Scale: | Date: June, 1999 |
| SHEET No. 11 OF 12 SHEETS | |

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------|-------------|-----------|--------------|
| HAWAII | HAW. | NH-083-1(41) | 2000 | 83 | 90 |



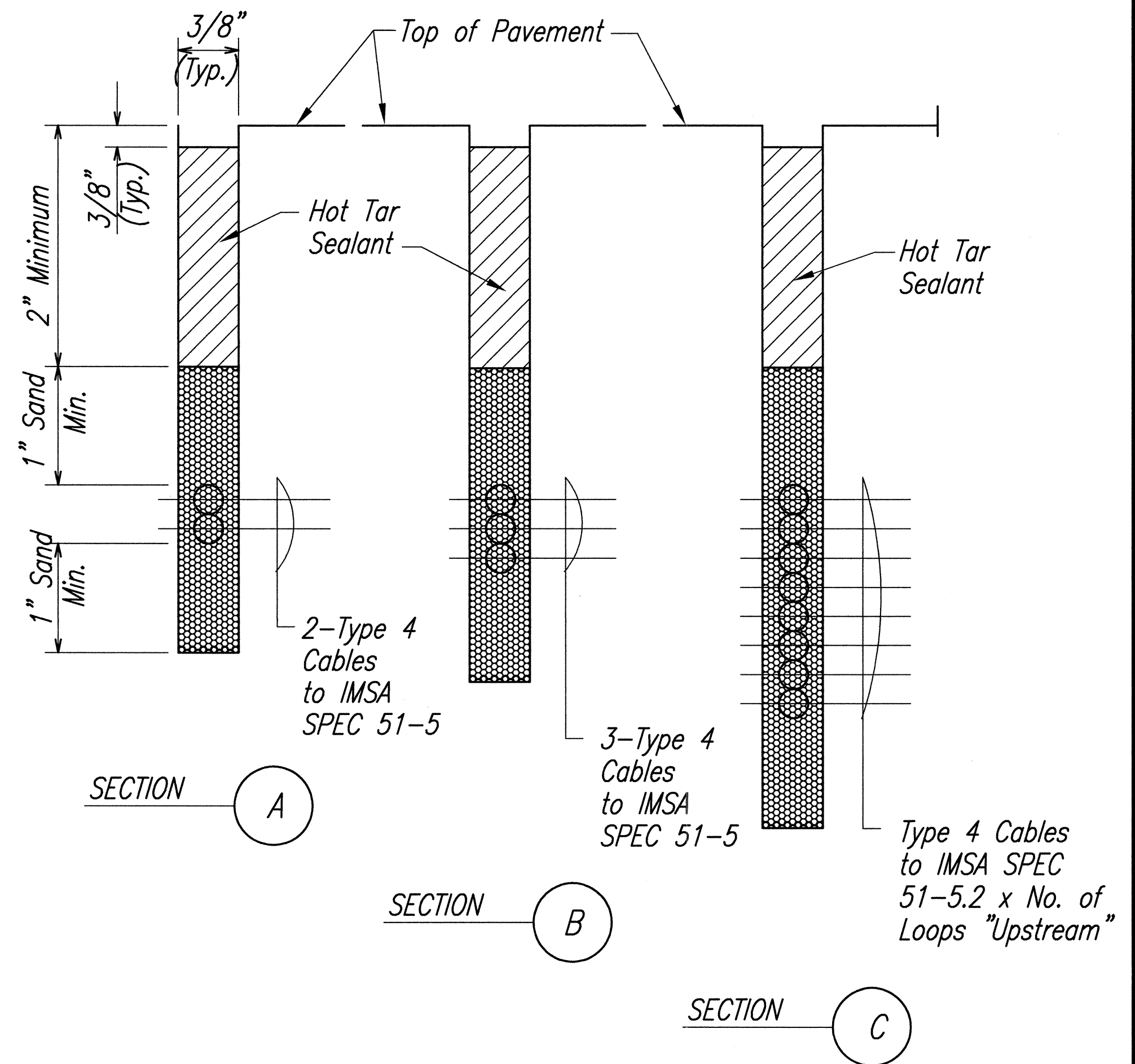
- NOTES:
- Center sensor loops in lanes.
 - Collector cables shall be twisted 2 turns per foot.
 - Number of loops and locations vary. See project plans.
 - Number and locations of collector sawcuts may be varied in the field to suit.

TYPICAL SENSOR LOOP LAYOUT
Not to Scale

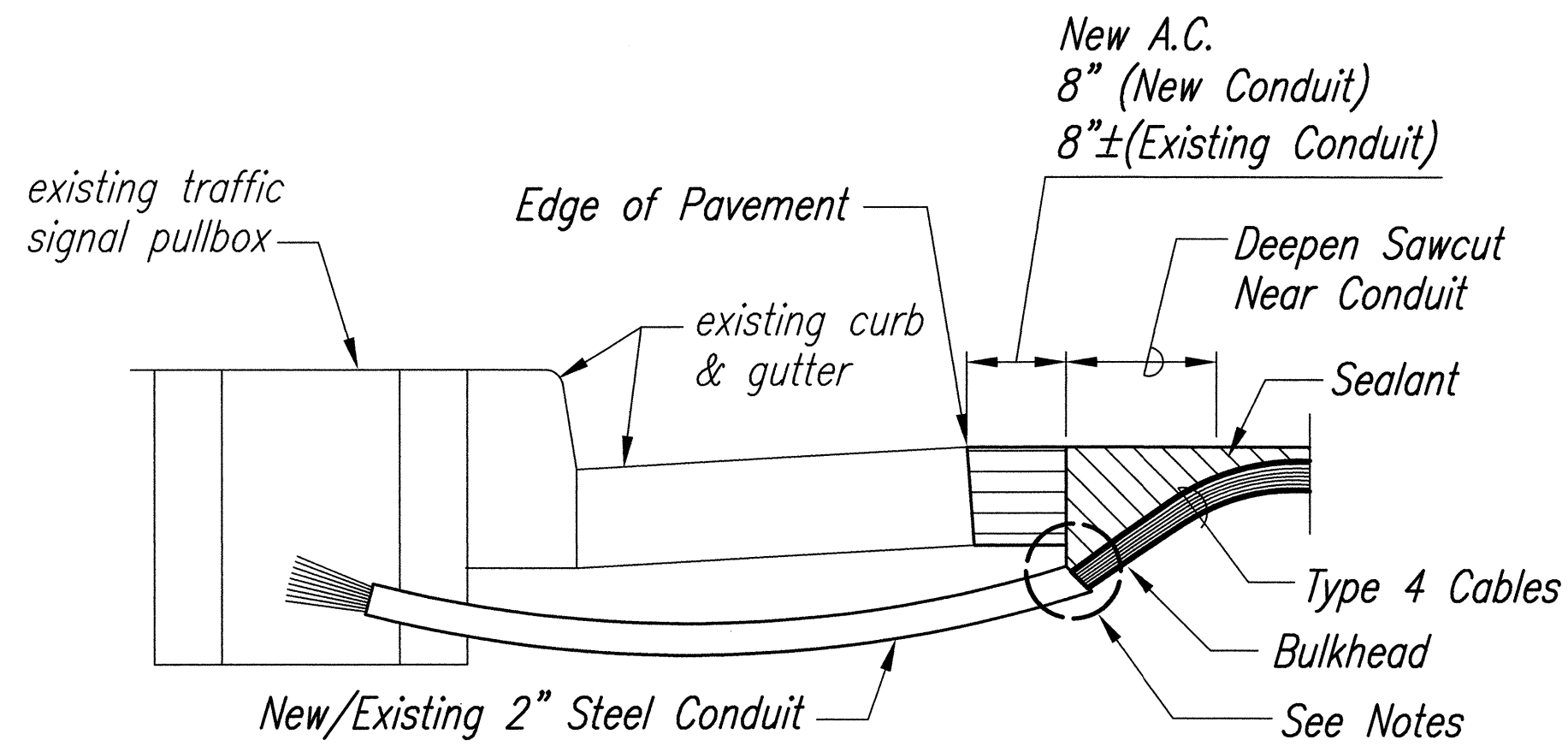


NOTE: Length of overcuts shall be kept to a minimum. All overcuts shall be back filled with hot tar.

TYPICAL SENSOR LOOP SAWCUT DETAIL
Not to Scale

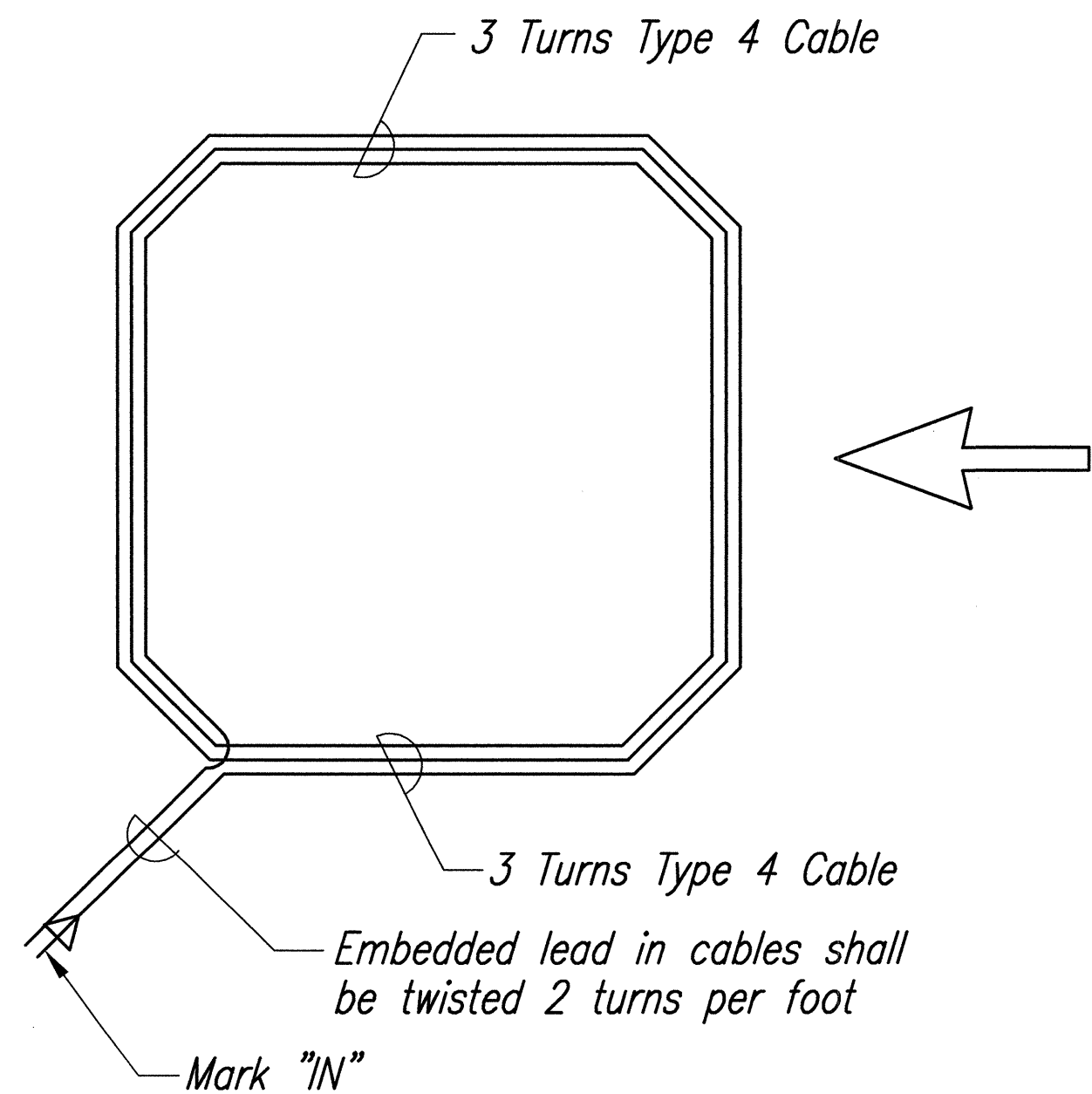


TYPICAL SECTION THROUGH SENSOR LOOP
Not to Scale

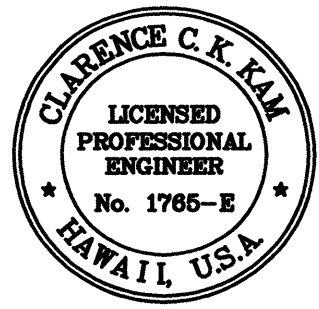


- NOTES:
- Seal Roadway End Of Conduit After Installation Of Conductors.
 - Install Bulkhead Across Conduit Trench.
 - Place Approved Sealant In Sawcut.
 - Backfill Over Conduit With New A.C.
 - Reconstruct Curb & Gutter As Required.

**SENSOR LOOP INSTALLATION AT
EDGE OF ROADWAY**
Not to Scale



TYPICAL SENSOR LOOP WIRING DIAGRAM
Not to Scale



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STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

TRAFFIC SIGNAL DETAILS

KAMEHAMEHA HIGHWAY RESURFACING

Kaneohe Bay Drive to Kahiko Street

F. A. Project No. NH-083-1(41)

Scale:

Date: June, 1999

SHEET No. 12 OF 12 SHEETS