PLOTTED BY BY CHIS BY ORIGINAL PLAN NOTE BOOK

STRUCTURAL GENERAL NOTES:

- A. Workmanship and materials shall conform to the following design specifications:
 - 1. AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020 including all interim revisions.
 - State of Hawaii, Department of Transportation, Highways Division, Design Criteria for Bridges and Structures, August 8, 2014 as amended by HWY-DB 2,5098, Changes to Design Criteria for Bridges and Štructures, January 8, 2018.
 - 3. AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 1st Edition, 2015 including all interim revisions.
- 4. Hawaii Standard Specifications for Road and Bridge Construction (2005) Edition) and Special Provisions.
- B. The contractor shall compare all the contract documents with each other and report in writing to the engineer all inconsistencies and omissions.
- C. The contractor shall take field measurements and verify field conditions and shall compare such field measurements and conditions with the drawings before commencing work. Report in writing to the engineer all inconsistencies and omissions,
- D. The contractor shall be responsible for coordinating the work of all trades. E. The contractor shall be responsible for means and methods of construction. workmanship and job safety.
- F. The contractor shall provide temporary shoring and bracing as required for stability of structural members and systems.
- G. Construction loading shall not exceed design live load unless special shoring is provided. Permitted construction loads shall be properly reduced in areas where the structure has not attained full design strenath.
- H. The contractor shall be responsible for protection of the adjacent properties, structures, streets and utilities during the construction period. Any damaged or deteriorated property shall be restored to the condition prior to the beginning of work or better at no cost to the State.
- I. Details noted as typical on the structural drawings shall apply in all conditions unless specifically shown or noted otherwise.
- J. Elevations and details of the existing bridges and other miscellaneous structures as shown on these plans are based on as-built drawings. The contractor shall be responsible for verifying all existing elevations and existing structure details and shall notify the engineer in writing of any discrepancies for further action.
- K. Except as noted otherwise, all vertical dimensions are measured plumb.

Design Criteria:

A. Dead load

- Weight of all components of the structures, appurtenances attached thereto, and earth owers
- --- 145 MPH B. Basic wind speed -C. Soil Bearing capacity --- 3,000 psf

- A. Foundation design is based upon Geotechnical Investigation by Kokua Geotech Inc., dated November 27, 2023.
- B. Contractor shall provide for de-watering of excavation from either surface water, ground water or seepage. NPDES permit required for discharging into state
- C. Contractor shall provide for design and installation of all cribbing, sheeting, and shoring necessary for personnel safety and to preserve excavations and earth banks, and adjacent structures and property for damage. Shoring shall comply with HIOSH and OSHA regulations. Excavation boundaries and grade elevations for footing shall be accepted by a geotechnical engineer licensed in the State of Hawaii prior to placing the concrete and reinforcing.

A. Concrete shall be regular weight hard rock concrete and shall have a maximum water to cement ratio of 0.45 and a minimum 28-day compressive strengths of 4,500 psi.

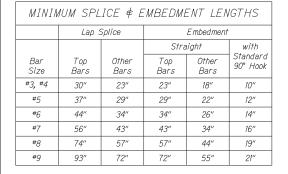
- B. The use of any calcium chloride in any concrete is prohibited.
- C. Concrete delivery tickets shall record all free water in the mix at batching plant, added for consistency by driver, and any additional request by contractor up to the maximum amount allowed by the mix design.
- D. Conduits, pipes, and sleeves passing through a wall not conforming to typical details shall be located and submitted to the structural engineer for approval.
- E. Construction joints may be requested to be relocated by the contractor and submit request to it's structural engineer for approval. Submit stamped and signed drawings and calculations to the Engineer for acceptance. Construction joints shall be made and relocated as not to impair the durability, strength of the structure and to minimize shrinkage stresses. All construction joints shall be cleaned, laitance removed and wetted. See typical details for specific requirements.
- F. Unless otherwise noted, chamfer all exposed concrete edges 3/4".
- G. Reinforcing bars, anchor bolts, inserts and other items to be cast in the concrete shall be secured in position prior to placement of concrete.
- H. All inserts, anchor bolts, plates, and other structural items to be cast in the concrete shall be hot-dip galvanized according to ASTM A153 unless otherwise noted.
- I. Non-shrink grout shall conform to section 712.04 of the standard specification.
- J. A shrinkage reducing admixture (SRA), Tetraguard AS20 by BASF, Eclipse by W.R. Grace \$ Co, or an approved equal shall be added to the concrete. The minimum dosage requirement shall be 128 oz per cubic yard of concrete. The concrete shall have a maximum shrinkage strain of 0.00006 at 28 days and 0.000145 at 56 days according to ASTM C512.
- K. A corrosion inhibiting admixture shall be included in the concrete mix for all concrete. The corrosion inhibiting admixture shall contain a minimum of 30% calcium nitrate by mass and shall be added at a dosage rate of 4.0 gallons per cubic yard of concrete or as recommended by the manufacturer. The admixture shall be Masterline CI 30 Calcium Nitrate-Based corrosion inhibitor, DCI S corrosion inhibitor or an approved equal. Addition of corrosion inhibiting admixture shall be as recommended by the manufacturer.
- L. Stay-in-place forms shall not be allowed.
- M. Epoxy-bonding compound shall be two part epoxy resin adhesive conforming to AASHTO M235, Type V, Class C.

Reinforcing Steel:

- A. Deformed and Plain Carbon Steel Bars for Concrete Reinforcement shall meet the requirements of AASHTO M31M/M31-19, Grade 60 (ASTM A615/ A615M-16, Grade 60).
- B. Deformed and Plain Carbon Steel Bars for Concrete Reinforcement to be spliced by welding or otherwise welded, such as welded hoops, or for seismic reinforcing shall meet the requirements of AASHTO M31M/M31-19, Grade 60 (ASTM A615/ A615M-16, Grade 60) and meet the requirements of ASTM A706/A706M-16.
- C. The welding of reinforcing steel shall be in accordance with the Structural Welding Code-Reinforcing Steel AWS D1.4.
- D. Epoxy-coated dowels and deformed bars shall conform to ASTM A775, Grade 60 unless otherwise noted.
- E. Clear concrete cover for reinforcing bars shall be as follows, unless otherwise noted:
 - 1. Concrete cast against earth
 - Formed and exposed to earth
 - Drilled shaft spiral reinforcing
 - Measured to the closest part of the bars.
- G. At the time concrete is placed, reinforcing shall be free from mud, oil, laitance or other coatings which may adversely affect bond strength.
- H. Minimum clear spacing between parallel bars shall be one and one-half (1½") times the diameter of the larger bar (for non-bundled bars), but in no case shall the clear distance between the bars be less than one and one-half (11/2") times the maximum coarse aggregate size.
- I. All dimensions relating to reinforcing bars (e.g. spacing of bars etc.) are to centers of bars unless noted otherwise.
- J. Reinforcing steel shall be spliced only where indicated on plans. Provide lap splice length per typical details and schedule, unless otherwise noted.

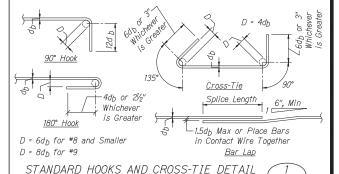
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- K. Mechanical splice connectors shall develop, in tension, 125 percent of the specified minimum yield strength of reinforcing bars.
- L. Stagger all splices where possible.
- M. Bar bends and hook shall be "standard hooks" in accordance with typical details. Minimum reinforcement bend diameters shall comply with AASHTO 5.10.2.3.



Not to Scale

"Top Bars" are horizontal bars with 12" or more of concrete cast below.





coiration date: 4/30/24

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION

STRUCTURAL GENERAL NOTES AND TYPICAL DETAILS

KAILUA ROAD INTERSECTION IMPROVEMENTS Vicinity of Uluoa Street and Ulumanu Drive Project No. 61D-01-23

Scale: As Shown

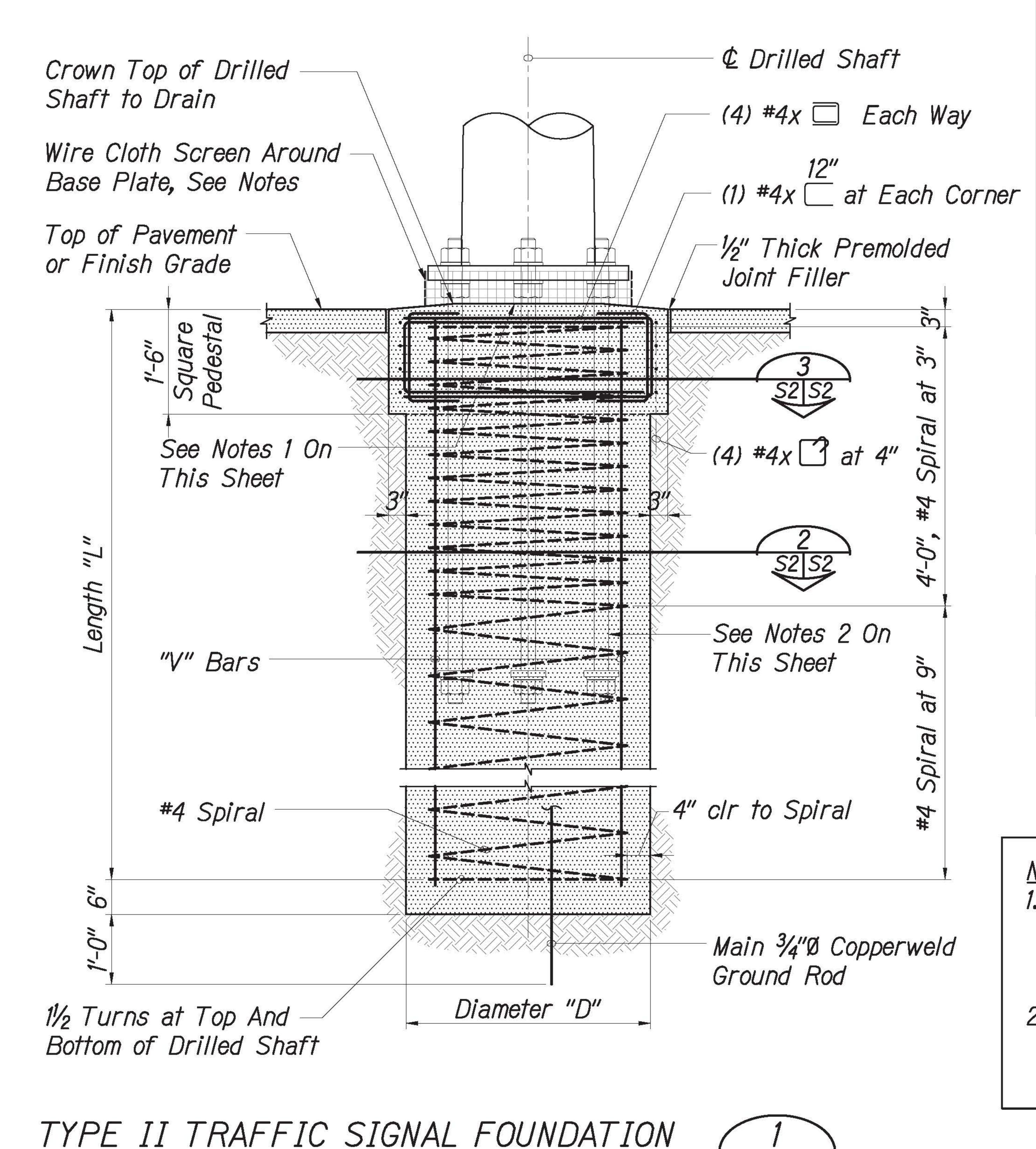
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SHEETS 65

S1 S1

Scale: 3/4" = 1'-0"



Construction Tolerance Note:

Anchor Bolts Shall be Installed With Misalignments of Less Than 1:40 From Vertical. After Installation, Firm Contact Shall Exist Between The Anchor Bolt Nuts, Washers, And Base Place On Any Anchor Bolt Installed In a Misaligned Position.

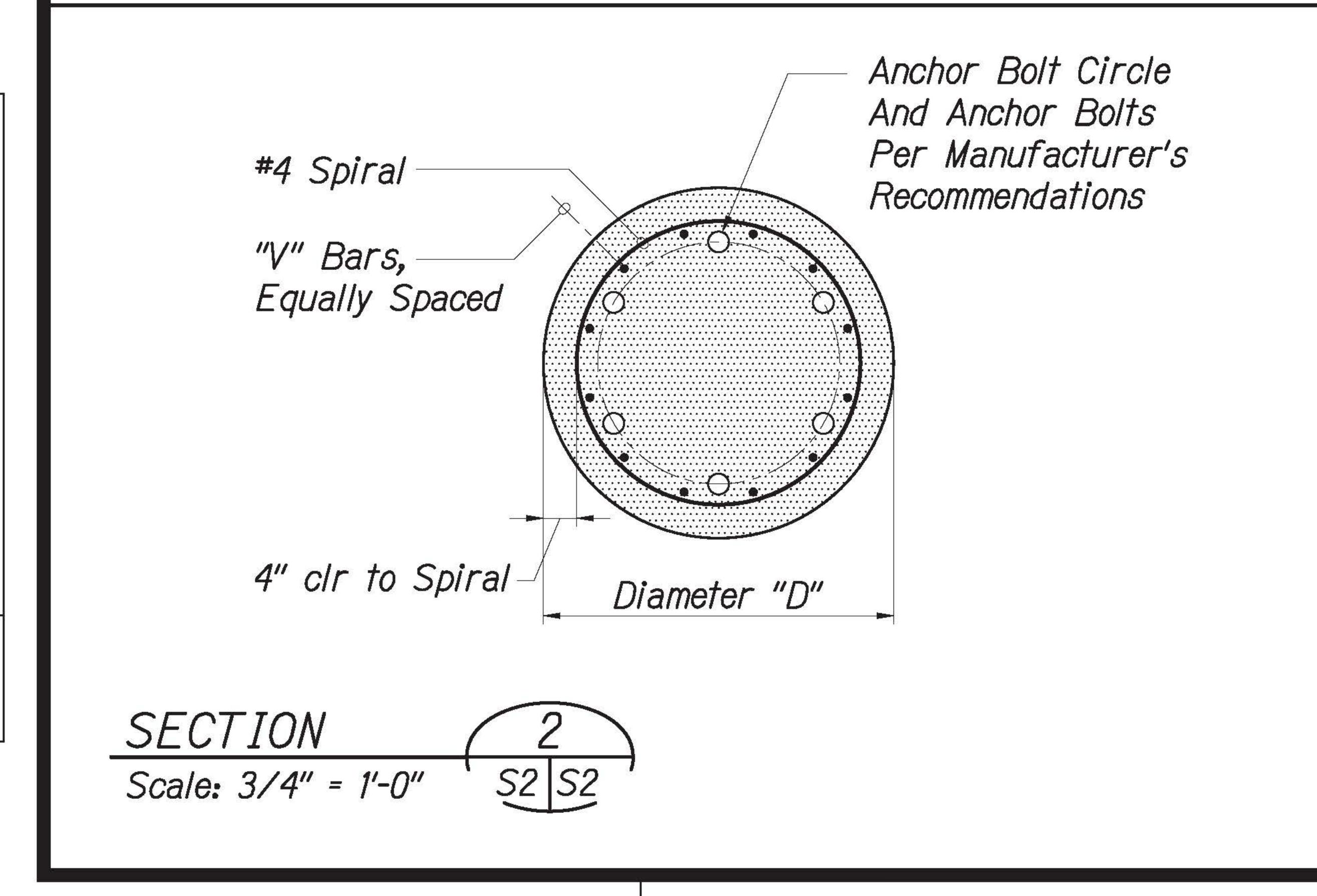
Wire Cloth Screen Notes:

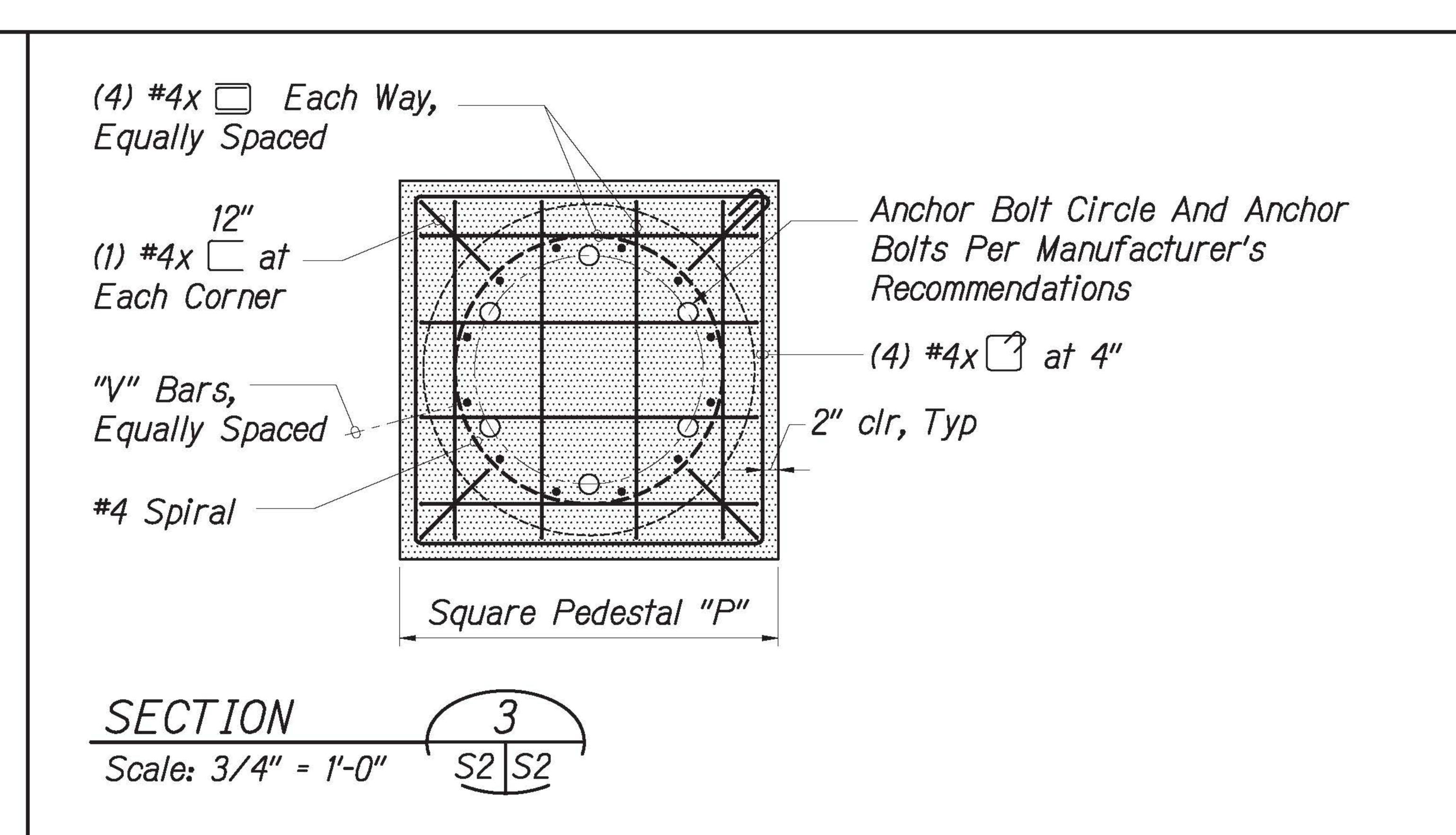
- a. A Wire Cloth Screen Shall be Placed Vertically Between The Base Plate And Top of Foundation.
- b. Wire Cloth Shall be Wrapped Horizontally Around The Base Plate With a 3" Minimum Lap.
- c. Wire Cloth Shall be Galvanized Steel, Standard Grade, Plain Weave, 2x2 Mesh, With 0.063" Diameter Wires.
- d. Screen Shall be Attached to The Base Plate With Stainless Steel Self-tapping 1/4" Diameter Screws With Stainless Steel Washers Spaced at 9".

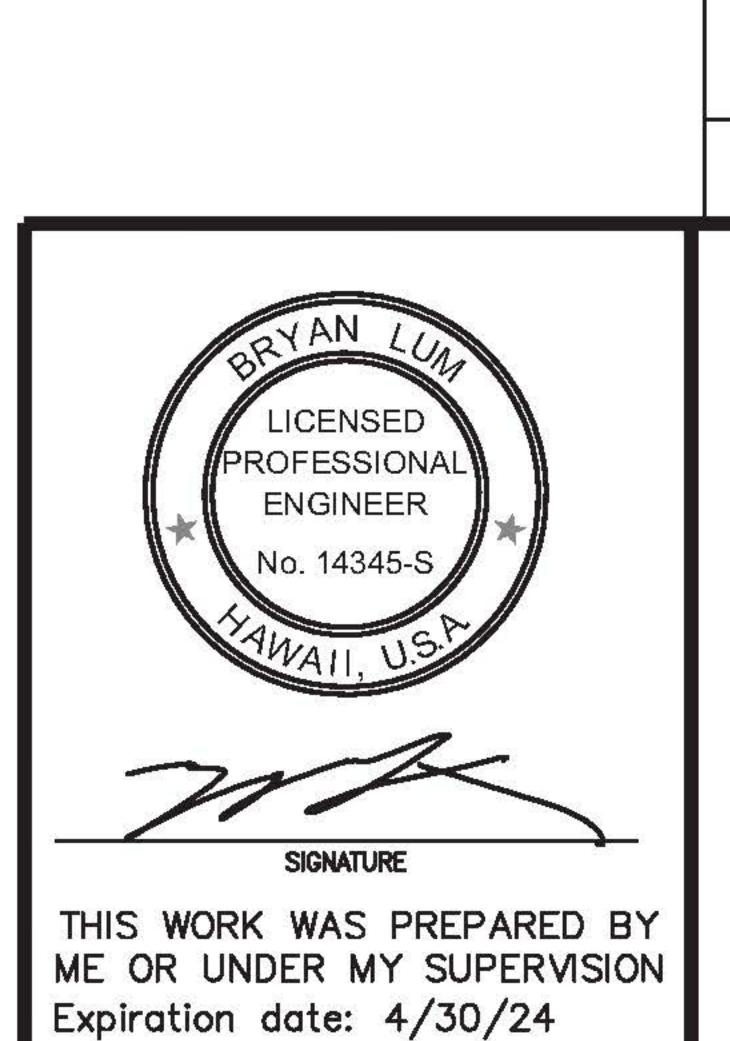
Drilled Shaft Foundation Schedule								
Pole Description	Mast Arm Length	Length "L"	Diameter "D"	Pedestal "P"	"V" Bars			
Type II	<u><</u> 30'-0"	12'-0"	3'-6"	4'-0"	(12) #8			

Notes.

- 1. The Exposed Length of The Anchor Bolt Between The Bottom of The Leveling Nut And The Top of The Drilled Shaft Shall Not Exceed The Anchor Bolt Diameter, Typ
- 2. For Base Plate, Bolt Circle Diameter, And Size, Location, Bolt Projection Length, And Length of Anchor Bolts, Follow Manufacturer's Recommendations







A Revised Foundation Schedule

OATE REVISION

STATE OF HAWAII

DEBARTMENT OF TRANSPORTATION

DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRILLED SHAFT FOUNDATION DETAILS

KAILUA ROAD INTERSECTION IMPROVEMENTS

Vicinity of Uluoa Street and Ulumanu Drive

Project No. 61D-01-23

Scale: As Shown

FED. ROAD STATE DIST. NO.

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PROJ. NO.

61D-01-23


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Date: DEC, 2023

2 SHEETS

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