

SITE AND EROSION CONTROL IMPROVEMENTS SUTRO TOWER SAN FRANCISCO, CALIFORNIA

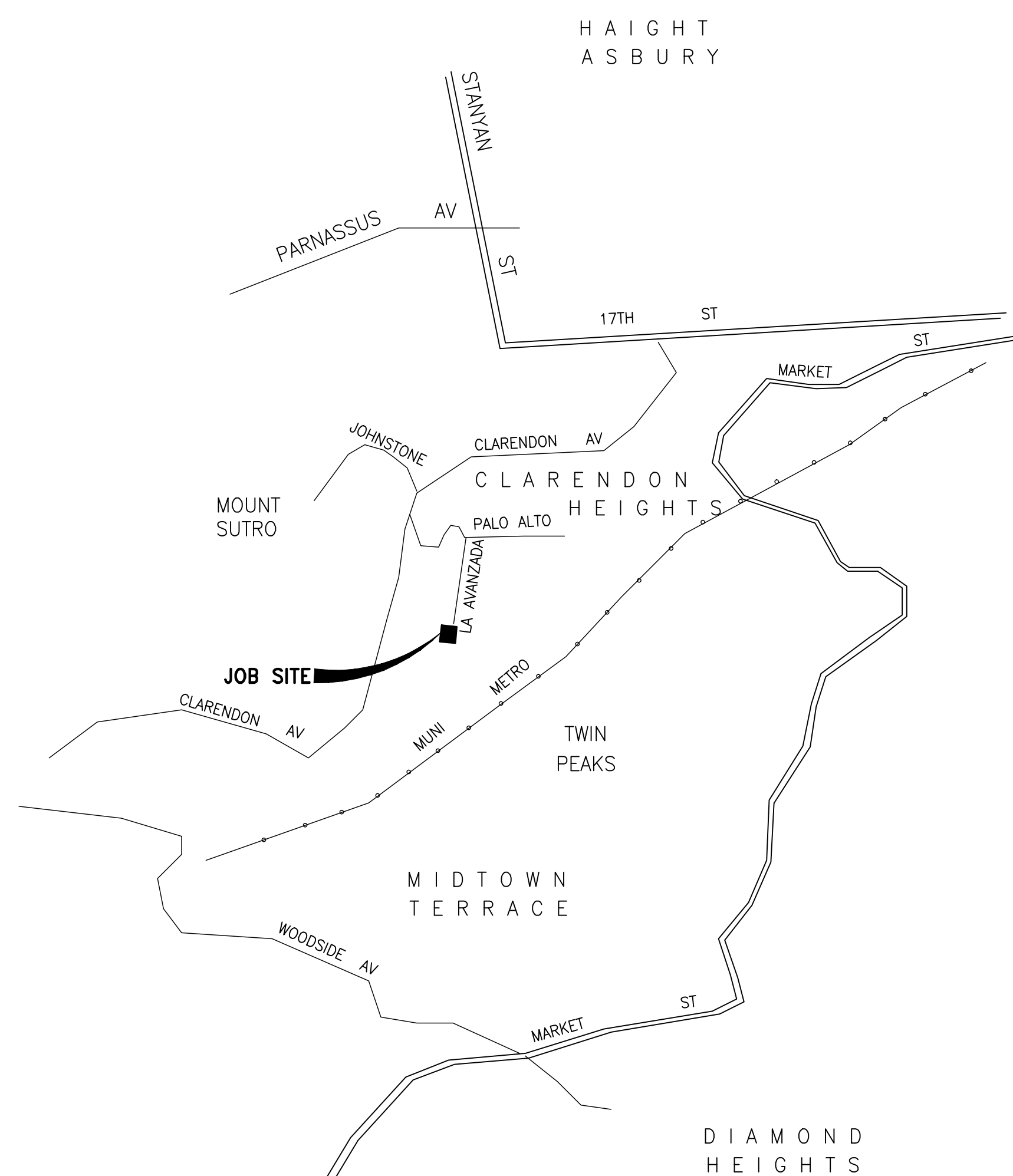
SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures

Simpson Gumpertz & Heger Inc.
The Landmark @ One Market, Suite 600
San Francisco, California 94105
415.495.3700 fax: 415.495.3550
www.sgh.com

San Francisco
New York
Washington, DC

Client
Sutro Tower Inc.
C/O Mr. Eric Dausman
5 La Avanzada Street
San Francisco, CA 94131

VICINITY MAP



PROJECT SCOPE: LIST OF DRAWINGS

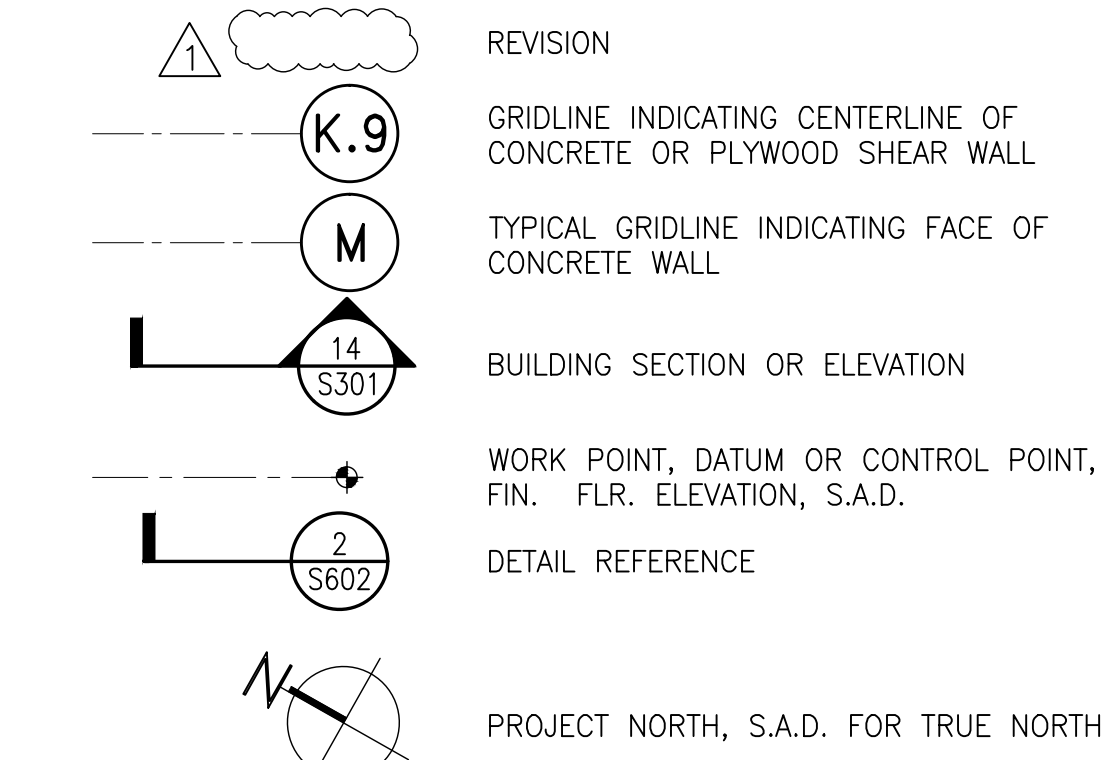
SITE AND EROSION CONTROL IMPROVEMENTS AT THE SUTRO TOWER FACILITY PER THE 2010 SAN FRANCISCO BUILDING CODE. IMPROVEMENTS INCLUDE, SIDEWALKS, STAIRS, PARTIAL DRIVEWAY, RETAINING WALL, AND DRAINAGE MEASURES. THE SCOPE ALSO INCLUDES INSTALLATION OF A NEW ANTENNA ON A SUPPORT PAD AT GRADE IN THE VICINITY OF THE TOWER.

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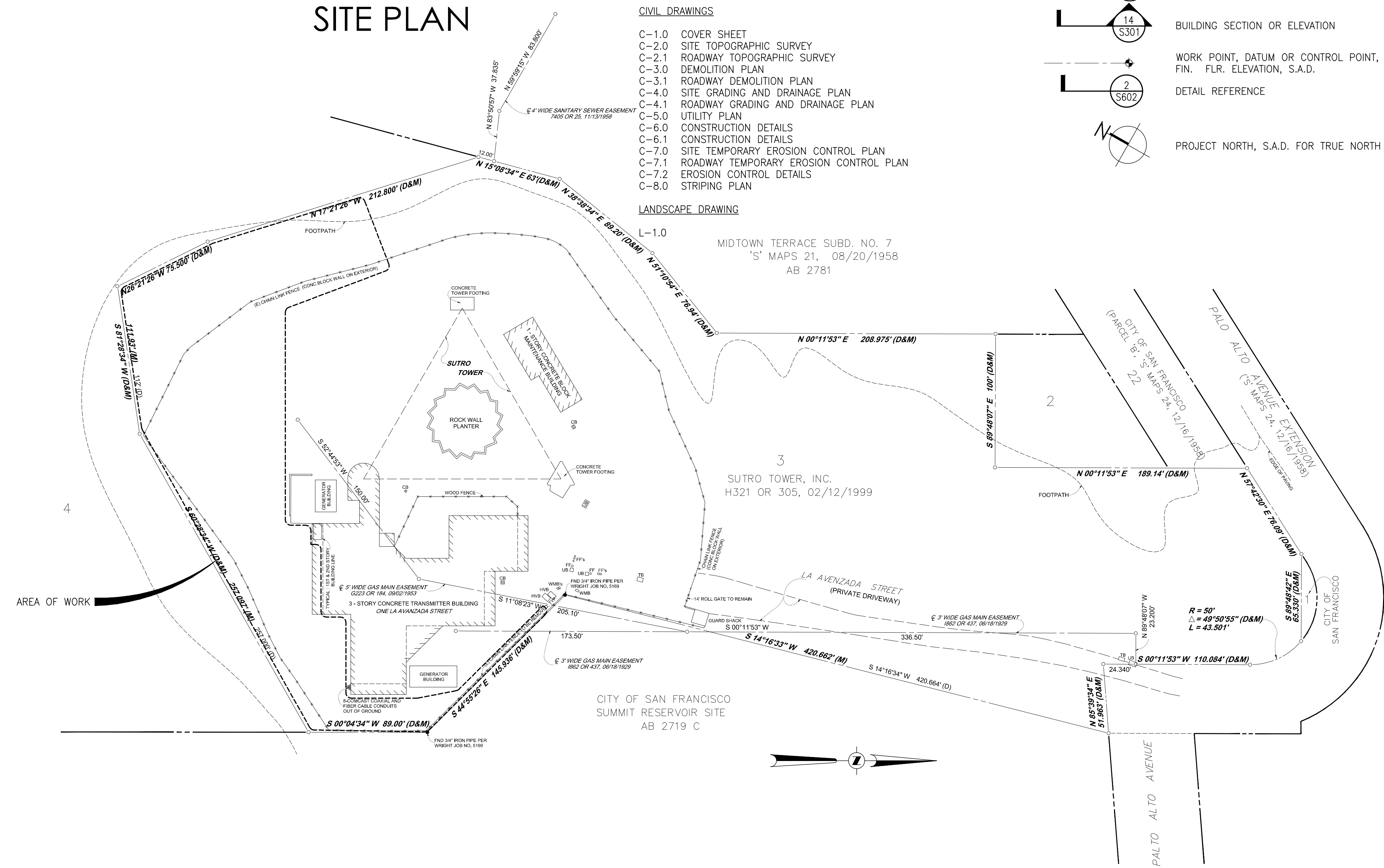
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GENERAL SYMBOLS AND LEGEND



SITE PLAN



No.	Date	Description	By
3	02/15/13	ISSUED FOR PERMIT	JLT
2	01/31/13	ISSUED FOR CLIENT REVIEW	JLT
1	11/28/12	ISSUED FOR CLIENT REVIEW	JLT

SITE & EROSION CONTROL IMPROVEMENTS SUTRO TOWER
1 LA AVANZADA ST
SAN FRANCISCO
CALIFORNIA

Project

TITLE SHEET VICINITY MAP & LIST OF DRAWINGS

Drawing Title

Commission 067199.07	Checked JLT	Date 09/26/12
Drawn JLT	Approved ROH	Scale NONE

Professional Engineer Seal: Registered Professional Engineer, No. 2951, State of California. Drawing No. **S0.0**

G E N E R A L

- General notes and typical details apply to all structural features, unless otherwise indicated.
- If certain features are not fully shown or called out on the drawings or in the specifications, their construction shall be of the same character as for similar conditions.
- The project specifications form a part of the contract documents.
- Specifications, codes and standards noted in the contract documents shall be of the latest edition, unless otherwise noted.
- Dimensions shall not be scaled off of the drawings.
- All work shall conform to minimum standards of the 2010 San Francisco Building Code, of any codes listed in the drawings or specifications and of any regulating agencies which have authority over any portion of the work, including the State of California Division of Industrial Safety.
- Prior to submitting shop drawings and product data, the Contractor shall verify that the submittals meet the requirements of the drawings and specifications. The Contractor shall specifically note any exceptions to these requirements with the submittal.
- The Contractor shall maintain a continuous fire watch, with extinguishing equipment immediately available during welding, cutting or burning near combustible materials.
- Openings, pockets, etc. shall not be placed in structural members unless specifically detailed on the structural drawings. Notify the Structural Engineer when work requires openings, pockets, etc. in structural members not shown on the structural drawings.
- The contractor shall be responsible for coordinating the work of all trades and shall check all dimensions and holes and openings required in structural members. All discrepancies shall be called to the attention of the Structural Engineer and shall be resolved before proceeding with the work.
- The contract documents represent the finished structure. They do not indicate the method of construction. The contractor shall provide all measures necessary to protect life and property during construction. Such measures shall include, but are not limited to, bracing and shoring for loads due to construction equipment and materials. Observation visits to the site by the Structural Engineer shall not include inspection of the above items.
- The contractor shall use extreme caution to protect all conduits, pipes, ducts, architectural finishes and utilities not indicated as being removed from damage during construction and shall restore all damaged or otherwise affected elements to their preconstruction condition, unless otherwise noted.
- The Sutro Tower transmission facilities must remain in operation at all times during the construction period. Contractor shall submit a written work plan indicating the proposed sequence and schedule of work and specific operations to be conducted, to Sutro Tower for review, prior to performing any work on site. The work plan shall be revised and resubmitted on a weekly basis to alert Sutro Tower as to the progress of work accomplished to date and current schedule for performing additional work. The contractor shall ensure safe travel of persons around areas of construction and shall coordinate the all operations with Sutro Tower.
- Sutro Tower is a radio transmission facility and emits high energy radio waves. The contractor shall be responsible for determining and implementing appropriate protective measures for personnel working on site.
- Install antenna using manufacturer's standard connection hardware in accordance with manufacturer's specifications.
- The contractor shall maintain a fire watch and employ the necessary protective measures when welding near flammable materials.
- Work shown is new unless noted as existing: (E).
- Existing construction shown on these drawings was obtained from site investigation and can be used for bidding purposes. The contractor shall verify all existing job conditions, review all drawings and verify dimensions prior to construction. The Contractor shall notify the Structural Engineer of all discrepancies and exceptions before proceeding with the work.
- The removal, cutting, drilling, etc. of existing work shall be performed with care in order not to jeopardize the structural integrity of the building. If structural members or mechanical, electrical or architectural features not indicated for removal interferes with the new work, notify the Engineer immediately and obtain approval before removal of members.
- The Contractor shall safely shore existing construction wherever existing supports are removed for the new work.
- The contractor shall promptly repair any damage caused during operations, using materials and workmanship similar to that which was damaged.
- All removed items, materials and debris, unless otherwise noted, shall be removed promptly from the site and disposed of in a legal manner.
- Non-structural features not fully shown or noted on the structural drawings, but included in the work, may include but are not limited to:
 - Architectural features
 - size and location of all concrete curbs, drains, slopes and depressed areas
 - changes in level, chamfers, grooves, inserts, etc.
 - Mechanical, plumbing and electrical features
 - pipe runs, sleeves, hangers, trenches
 - electrical conduit runs, boxes, outlets in walls and slabs
 - anchorage and bracing for electrical, mechanical or plumbing equipment
 - anchor bolts for motor and equipment mounts
 - size and location of machine and equipment bases

F O U N D A T I O N S

- The foundation design is based on recommendations in the geotechnical reports by Dames and Moore, dated 24 July 1969, 26 September 1969, and 25 November 1987.
- The Contractor shall conform to the recommendations of the geotechnical report regarding site preparation and foundation construction. Copies of the report are available from the Structural Engineer.
- Foundation excavations shall be inspected and approved by the Structural Engineer prior to placement of any reinforcing steel or concrete.
- Foundation type: Conventional spread foundations and drilled piers (friction).

Design Values:

<u>Footings (resting on rock):</u>	
<u>Isolated Footings</u>	<u>Allowable Bearing Pressures</u>
DL + LL	6000 psf
DL + LL + wind or seismic	8000 psf

<u>Lateral Resistance - Piers (in rock)</u>	
Passive Pressure	1,000 pcf
Coefficient of Friction	.60

- All footings shall bear on firm undisturbed soil. Depth of footings and piers shown on the drawings are minimum, and the bottom of footing shall be lowered as required at the direction of the Structural Engineer to remove soft or loose materials.
- The Contractor shall be solely responsible for all excavation procedures, including lagging, shoring and protection of adjacent property, structures, streets and utilities in accordance with the local building department.
- Backfill at walls shall not be placed until a minimum of 7 days after the completion of the walls and shall not be placed until after completed inspection of damp-proofing.

D R I L L E D P I E R S

- Soil condition is unknown. Be prepared to case holes in case of cave-ins or sloughing soil.
- Do not place concrete in water. If water is present, place by tremie method. Clean area if soiled due to tremie operation. Do not flush into sewer systems.
- Place concrete within 8 hours of drilling holes. Do not allow holes to stand unfilled over night.
- Observation by the Structural Engineer is required prior to placing steel and prior to placing concrete. Schedule Engineer's visit 48 hours in advance.
- Do not allow concrete to free fall more than five feet. Use a trunk or pump hose placed in center of hole.
- Allowable tolerances:
 - Drilled piers shall not deviate from the location shown on the plans by more than 2 inches in any direction.
 - Drilled piers shall not deviate from a plumb line, referenced to the center of the drilled pier as described above, by more than two percent of the drilled pier length from the top to the point on interest.

C O N C R E T E & R E I N F O R C I N G S T E E L

- All concrete shall be ready-mix in accordance with ASTM C94.
- Cement: ASTM C150 Type II.
- Aggregate: ASTM C33.
- Non-shrink Grout: ASTM C1107, premixed, non-staining, non-shrink grout.
- Grout or concrete containing more than 0.1 percent of soluble chloride shall not be used.
- Mixes are to be reviewed by owner's testing lab and submitted to the Structural Engineer for approval. Do not cast concrete without approval by the Structural Engineer.

Concrete Slab-on-grade & Footings	Strength	Max. Agg. Size	Max. W/C Ratio	Air Content
Mat Foundation	2500 psi	1"	0.45	1½% ± ½%
for Antenna	5000 psi	1"	0.45	1½% ± ½%
Drilled Piers	4000 psi	1½"	0.45	1½% ± ½%
Shotcrete	4000 psi	¾"	0.45	1½% ± ½%

See specifications for additional requirements. All concrete shall be hard rock aggregate, regular-weight concrete, 145 pcf, unless otherwise noted.

- Inserts: All items to be cast in concrete, such as reinforcing dowels, bolts, anchors, pipes, sleeves, etc., shall be securely positioned in the forms before placing the concrete.
- Pipes and electrical conduits shall not be embedded in structural concrete, except where specifically approved by the structural engineer.
- Provide sleeves for plumbing and electrical openings in concrete before placing. Do not cut any reinforcing which may interfere. Coring in concrete is not permitted except as shown. Notify the structural engineer in advance of conditions that are not shown on the drawings.
- Construction joints: Provide as detailed on drawings. Expose clean coarse aggregate solidly embedded in mortar matrix by sandblasting, bushhammer, or other approved method. Location of construction joints shall be approved by the Structural Engineer.
- Dry pack or place non-shrink grout under base plates, sill plates, etc., as required for full bearing.
- Reinforcing steel: ASTM A615 Grade 60.
- All reinforcement shall be continuous. Stagger splices where possible. Laps shall be per typical details, unless otherwise noted.
- Minimum clear concrete cover for reinforcement, unless otherwise noted:

Cast against earth:	3 inches
Cast in forms and exposed to earth or weather:	2 inches
#6 bar and larger:	2 inches
#5 bar and smaller:	1½ inches
Not exposed to earth or weather:	1 inch
Slabs, walls and joists:	1 inch
Beams, girders and columns (to ties):	1½ inches

Clearances are to closest reinforcement.

S H O T C R E T E

- Shotcrete materials and reinforcing shall comply with General Notes Section "Concrete and Reinforcing Steel," except as noted below.
- All shotcrete operations shall be performed by a contractor with at least five years documented experience in such work.
- Shotcrete work shall comply with SFBC Section 1913.
- Shotcrete work shall follow the recommendations of the American Concrete Institute's publication ACI 506R-90, "Guide to Shotcrete", the American Concrete Institute's publication ACI 506.2-95, "Specification for Shotcrete", and applicable ASTM standards.
- All shotcrete shall be by the wet-mix process.
- Reinforcing Steel Placement: For #5 bars and smaller, minimum clearance between parallel reinforcement shall be 2½ inches. For bars larger than #5, minimum clearance between parallel reinforcement shall be equal to 6 bar diameters of the bar used. When two curtains of steel are provided, the horizontal and vertical reinforcement of the respective curtains shall be staggered.
- Reinforcing Steel Splices: Only non-contact lap splices are permitted, with least 2 inches of clearance between bars. Splice lengths shall be as indicated in the Typical Details, with the length of lap splices increased by an amount equal to the clearance between the spliced bars.
- Curing: In initial curing, shotcrete shall be kept continuously moist for 24 hours after placement is complete. Final curing shall continue for 7 days after shotcreting. Final curing shall consist of a fog spray or an approved moisture-retaining cover or membrane.

S T R U C T U R A L S T E E L & M I S C . M E T A L S

- Fabrication and erection of structural steel shall be in accordance with the "Code of Standard Practice for Steel Buildings and Bridges" AISC 303-05.
- Materials:
 - Structural steel channel, angles, and plates: ASTM A36 (fy = 36 ksi)
 - Structural steel tubes: ASTM A500 grade B (fy = 46 ksi)
 - Structural steel pipes: ASTM A53 grade B (fy = 35 ksi)
- Bolts, unless otherwise noted on drawings:
 - Machine bolts: ASTM A307
 - Anchor rods: ASTM F1554 grade 55
- Bolt holes in steel shall be ⅛ inch larger diameter than nominal size of bolt used, unless otherwise noted.
- For bolted connections, provide 1½ inch edge and end distance, unless otherwise noted.
- All welds shall be prequalified or qualified by test in conformance with the "Structural Welding Code - Steel" (AWS D1.1-06) of the American Welding Society. Submit Welding Procedure Specifications for approval prior to performing work. Submit Procedure Qualification Reports with Welding Procedure Specifications for welds qualified by test.
- Minimum tensile strength of weld metal shall be 70 ksi typical, unless otherwise noted. Welding electrodes shall be as recommended by their manufacturer for the position and other conditions of actual use.
- Weld symbols shown on the drawings do not necessarily differentiate between shop weld and field welds. When field welds are necessary due to construction procedure or sequence, welds shall be provided and be inspected per specifications. All welds shown as field welds shall be done in field as indicated.
- All structural steel and miscellaneous metal surfaces are to be primed, painted, and hot-dipped galvanized after fabrication, unless noted otherwise. All connectors shall be hot-dip galvanized after fabrication. Steel that is not exposed to weather and is to be encased in concrete shall be left uncoated. Areas within 3 inches of field welded joints shall be left uncoated until welding and bolting operations are complete. See specifications for coating requirements.
- No penetrations through structural steel columns, beams or girders are allowed except as indicated on the structural drawings.

- Camber:
 - Beams detailed without specified camber shall be fabricated so that after erection, any minor camber due to rolling or shop assembly shall be upward. Top of all members shall be clearly identified.
- Furnish shop and erection drawings of all structural steel for the Structural Engineer's review before fabrication.
- A welding procedure specification (W.P.S.) per A.W.S. D1.1 shall be developed by the fabricator/erector and approved by the engineer of record or his designee. The W.P.S. shall include the welding parameters recommended by the electrode manufacturer.
- All complete joint penetration groove welds shall be inspected and tested per City of San Francisco requirements.
- Inspectors are to be S.F. City deputy inspectors and A.W.S. Q.C.I. Certified (a C.W. Inspector), reference A.W.S. D1.1-94, Section 6.1.3.1.

P O S T - I N S T A L L E D A N C H O R S

- Post-installed anchors include all adhesive anchors (reinforcing bar dowels and threaded rods) expansion anchors, screw anchors and undercut anchors set in holes drilled in existing concrete or masonry.
- Installation of post-installed anchors shall conform to all requirements of the applicable ICC reports and manufacturers' recommendations.
- Mark the location of all existing reinforcing in the substrate material within 12" of the proposed locations of all post-installed anchors. Notify the Architect/Engineer of any conflicts discovered between the proposed anchor locations and the existing reinforcing prior to fabrication of any steel and prior to any hole drilling, so as to avoid disturbing, cutting, or otherwise harming the existing reinforcing.
- Adhesive Anchors in Concrete (reinforcing bar dowels or threaded rods):
 - HILTI "RE-500-SD," ICC ESR-2322
 - HILTI "HIT-HY 150 MAX-SD," ICC ESR-3013
 - Simpson "SET-XP" Epoxy Adhesive. ICC ESR-2508
- Typical embedment depths and proof loads for tension testing are indicated in the tables below.

ADHESIVE ANCHORS				
ANCHOR SIZE	TYPICAL EMBEDMENT (U.O.N.)	PROOF LOAD NORMAL WEIGHT CONCRETE	PROOF LOAD LIGHT WEIGHT CONCRETE	PROOF LOAD GROUT-FILLED CMU BLOCK
#3 OR ¾"	3½"	2100 lb.	1600 lb.	1600 lb.
#4 OR ½"	4½"	3700 lb.	1900 lb.	1900 lb.
#5 OR ¾"	5½"	5800 lb.	2800 lb.	2800 lb.
#6 OR ¾"	6½"	6900 lb.	-	-
#7 OR ¾"	7½"	11500 lb.	-	-

C A R P E N T R Y

- Framing Lumber: All lumber shall meet the following minimum standards except where otherwise noted. All lumber shall be graded and stamped in accordance with the West Coast Lumber Inspection Bureau (WCLIB).
- | Use | Species | Grade | Remarks |
|--|----------|----------------|---------|
| Horizontal Framing: 4x and 6x Beams | DF | No. 1 | |
| Vertical Framing: 4x Posts 6x & Larger Posts | DF
DF | No. 2
No. 1 | |

Maximum moisture content shall be 19% or less at the time of installation. Saw ends of all lumber subject to deterioration shall be treated with wood preservative.

- All wood members in contact with concrete or masonry shall be pressure-treated.
- Nails: All nails shall be common wire nails, unless otherwise noted.
- Pre-drill nail holes to 70% of nail shank diameter where nails tend to split the wood.
- Wood Screws: Lead holes shall be pre-bored and shall have a diameter of 70% of the rod diameter of the screw. Screws shall be screwed into place, not driven into place.
- Metal Connectors: Metal connectors are referred to on the drawings by particular type as manufactured by Simpson Strong-Tie Company, Inc. of Hayward, California. Products of other manufacturers with equivalent load-carrying capacities may be used, provided that the products have current ICC approval. Contractor shall submit product catalog and a table indicating both the designated product and the substituted product along with their respective capacities for approval by the architect. Install all fasteners called for by the product manufacturer unless otherwise noted on the drawings. Use manufacturer-supplied nails where thickness of timber precludes the use of common nails.
- All metal fasteners, nuts, washers and connectors in contact with pressure-treated wood, fire-retardant treated wood, or exposed to weather shall be ANSI type 316L stainless steel or hot-dip galvanized (G185 per ASTM A653 or ASTM A153).
- Framing for Openings: Provide double trimmer and header joists at all openings. Provide joist hangers where joists frame into header and headers frame into trimmers.

A B B R E V I A T I O N S

&	And	JST.	Joist
@	At		
A.B.	Anchor bolt	K	Kips
ADD'L	Additional	KSI	Kips per Square Inch
AISC	American Institute of Steel Construction	LBS.	Pounds
ALT.	Alternate	LL	Live Load
ARCH.	Architect	L.L.H.	Long Leg Horizontal
ASD	Allowable Strength Design	L.L.V.	Long Leg Vertical
ASTM	American Society for Testing and Materials	L.TWT	Lightweight Lumber
A.W.P.A.	American Wood Preservers Assoc.	L.V.L.	Laminated Veneer Lumber
AWS	American Welding Society	MAX.	Maximum
		M.B.	Machine Bolt
		MECH.	Mechanical
		MFR.	Manufacturer
BLKG.	Blocking	M.I.	Malleable Iron
BM.	Beam	MM.	Millimeter
B.N.	Boundary Nail	MIN.	Minimum
BOCA	Building Officials and Code Administrators International, Inc.	MISC.	Miscellaneous
		(N)	New
BOTT.	Bottom	NO.,#	Number
BRG.	Bearing	N.S.	Near Side
B.S.	Both Sides	N.T.S.	Not to Scale
BTWN.	Between	NWT	Normalweight
CBC	California Building Code	O.C.	On Center
C.C.	Center to Center	O.O.	Outside Diameter
CCR	California Code of Regulations	O.H.	Opposite Hand
C.J.	Control Joint	OPNG.	Opening
C.I.P.	Cast-in-place	OPP.	Opposite
C.L.	Center Line	OSHPD	Office of Statewide Health Planning and Development
CLG	Ceiling		
CLR.	Clear		
CMU	Concrete Masonry Unit	P.A.F.	Powder-Actuated Fasteners
COL.	Column	PART.	Partial
CONC.	Concrete	PCF	Pounds per Cubic Foot
CONN.	Connection	PL,℄	Plate
CONT.	Continuous	PLY.	Plywood
C.P.	Complete Penetration	P.P.	Partial Penetration
CSK	Countersink	PSF	Pounds per Square Foot
CTBR.	Counterbore	PSI	Pounds per Square Inch
CTR.	Center	PWJ	Plywood Web Joists
DBA	Deformed Bar Anchor		
DBL.	Double	RAD.	Radius
DC	Demand Critical (Weld)	R.D.	Roof Drain
DET., DETL.	Detail	REINF.	Reinforcing
DF	Douglas Fir	REQ.	Required
DIA, Ø	Diameter	RF.	Roof
DIAG.	Diagonal	R.O.	Rough Opening
DL	Dead Load	RND.	Round
DN	Down	R.R.	Remove & Replace
DO	Ditto		
DSA	Division of the State Architect	S.A.D.	See Architectural Drawings
DWG(S).	Drawing(s)	S.C.D.	See Civil Drawings
		SCHED.	Schedule
(E)	Existing	SFRS	Seismic Force-Resisting System
EA	Each		
E.F.	Each Face	SHT.	Sheet
E.J.	Expansion Joint	SHTG.	Sheathing
ELEV., EL.	Elevation	SIM.	Similar
EMB., EMBED.	Embedment	S.M.D.	See Mechanical Drawings
E.N.	Edge Nail	S.O.G.	Slab on Grade
EQ.	Equal	S.P.	Southern Pine
EQUIP.	Equipment	SSTL.	Stainless Steel
E.W.	Each Way	STAGG'D.	Staggered
		STD.	Standard
		STIFF.	Stiffener
FDN.	Foundation	STL.	Steel
F.F.	Finish Floor	STRUCT.	Structural
F.G.	Finish Grade	SYMM., SYM	Symmetrical
FIN.	Finish		
F.O.C.	Face of Concrete	T&B	Top and Bottom
F.O.M.	Face of Masonry	T&G	Tongue & Groove
F.O.S.	Face of Stud	T.N.	Toe Nail
FRMG.	Framing	T.O.C.	Top of Concrete
F.S.	Far Side	T.O.S.	Top of Steel
FTG.	Footing	T.O.W.	Top of Wall
		TS	Tube Steel
GA.	Gage	TYP.	Typical
GALV.	Galvanized		
G.L.	Grid Line	UBC	Uniform Building Code
GLB	Glue-Laminated Beam	U.O.N.	Unless Otherwise Noted
GR.	Grade		
HDC.	Hot-dip Galvanized	VERT.	Vertical
HGR.	Hanger	V.I.F., ±	Verify in Field
HK.	Hook		
HORIZ.	Horizontal	W/	With
H.S.B.	High Strength Bolt	W/O	Without
HSS	Hollow Structural Sections	WCLIB	West Coast Lumber Bureau
HT.	Height	W.P.	Working Point
		W.H.S.	Welded Headed Stud
ICBO	International Council of Building Officials	W.T.S.	Welded Threaded Stud
ICC	International Code Council	W.W.F.	Welded Wire Fabric
		WWPA	Western Wood Products Association
INT.	Interior		
INV.	Inverted		

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The Landmark @ One Market, Suite 600
San Francisco, California 94105
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www.sgh.com

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1 LA AVANZADA ST SAN FRANCISCO CALIFORNIA

GENERAL NOTES & ABBREVIATIONS

Drawing Title

Commission 067199.07	Checked JLT	Date 09/26/12
Drawn JLT	Approved ROH	Scale NONE

Drawing No.

S0.1

Professional Engineer
No. 2951
State of California

SUBMITTALS

The following submittals are required. Where submittals include shop drawings, each sheet of shop drawings submitted shall incorporate a pre-applied stamp to be used by the engineer to indicate the status of review and approval. The Structural Engineer will furnish the required text and graphics of the stamp to the Contractor upon request. Submittals shall include those indicated on the following list as well as any other items indicated in the Specifications. This list is provided for convenience only and may not incorporate all requirements indicated in the project specifications.

EARTHWORK

- 1. Laboratory analysis for each soil material proposed for fill and backfill from on-site and borrow sources.
- 2. Optimum moisture-maximum density curve for each soil material used as fill, subgrade, subbase, or base course.

CONCRETE REINFORCEMENT

- 1. Shop drawings complying with the requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
- 2. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.
- 3. Reports: Certified copies of mill test reports for each heat of reinforcing provided to the project, documenting compliance with the applicable ASTM specification, including chemical analysis, tensile tests and bend tests.

CAST-IN-PLACE CONCRETE

- 1. Mix designs and test data for concrete mixes, at least 15 days prior to intended placement. Mix design submittals shall include, as a minimum, the following:
 - A. List of materials proposed weights and volumes of each material per cubic yard.
 - B. Specification of source for each material.
 - C. Gradation listing of aggregates and certification that coarse and fine aggregates meet the requirements listed in the Concrete Materials Article of this Section.
 - D. List of admixtures, with manufacturer's data sheets.
 - E. Certification that all aggregates are compatible with the proposed cement.
 - F. Laboratory test reports from trial batches of field experience, as applicable for the specific mix proposed for use.
- 2. Product data, Material Safety Data Sheets (MSDS) and ICC Evaluation Service Reports, as applicable, for proprietary materials and items, including curing compounds, epoxy resins, surface treatments and proprietary anchoring systems.
- 3. Drawings indicating proposed locations of construction joints and control joints.
- 4. Description of curing methods proposed and products to be employed.

SHOTCRETE

- 1. Mix design and test data for shotcrete, at least 15 days prior to intended first shooting of preconstruction test panels. Include complete list of materials, including admixtures and copies of test reports showing mix has been successfully tested to produce shotcrete with specified properties. Obtain acceptance prior to preconstruction testing.
- 2. Product data for proprietary materials and items, including reinforcement and forming accessories, pre-bagged shotcrete materials, admixtures, patching compounds, and curing compounds.
- 3. Nozzleman certifications in accordance with ACI 506.3R. Submit, for each nozzleman, certification in each type of shotcrete application required. Include the name of the certifying agency and the date of certification.
- 5. Shotcrete Procedure: Description of shotcrete process proposed.

POST-INSTALLED ANCHORS

- 1. Product data and ICC ES reports for anchors proposed as alternatives to those specified.
- 2. Preparation instructions and recommendations.
- 3. Installation methods.
- 4. Storage and handling requirements and recommendations.

STRUCTURAL STEEL

- 1. Shop Drawings and Erection Drawings:
 - A. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
 - B. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths and sizes. Distinguish between shop and field welds. Identify welds by WPS number.
 - C. Include details of cuts, connections, splices, camber, holes, stiffeners, doubler plates, and other pertinent data, such as surface preparation. Include setting drawings, templates, and directions for installation of embedded items to be installed by others.
 - D. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify high-strength bolted slip-critical, direct-tension, or tensioned shear/bearing connections.
- 2. Manufacturer's Mill Certificates: Certify that products meet or exceed specified requirements.
- 3. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.
- 4. Welding Procedure Specifications (WPS) per AWS D1.1 for each type of welded joint.
- 5. Welding Procedure Qualification Record (PQR) for each weld procedure that is not prequalified by AWS D1.1

ROUGH CARPENTRY

- 1. Product Data: Provide technical data on wood preservative materials and application instructions.
- 2. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

STATEMENT OF SPECIAL INSPECTIONS

The following tests and inspections are required for this project. The tests and inspections indicated here are the responsibilities of the Owner's Special Inspector, as required by Section 1704 of the Building Code.

STRUCTURAL INSPECTION OBSERVATION AND TESTING

- 1. Special Inspection and Testing are required in Sections 1704, 1706, 1707 and 1708 of the SFBC. The "Statement of Special Inspections," submitted with the permit application, indicates the specific inspections and tests that are required, as well as the persons or firms responsible for this work.
- 2. All tests and inspections shall be performed by a certified Special Inspector from an independent testing agency who is employed by the Owner (or agent of the Owner) and not the Contractor.
 - A. The Special Inspector shall observe the work assigned for conformance with the approved design drawings and specifications.
 - B. The Special Inspector shall furnish inspection reports to the building official, the Architect, Structural Engineer and other designated persons. All discrepancies shall be brought to the immediate attention of the Contractor for correction, then, if uncorrected, to the proper design authority and to the building official.
 - C. The Special Inspector shall submit a final signed report stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and applicable standards of quality and workmanship of the SFBC.
- 3. Material testing requirements are indicated in the specifications and/or general notes.
- 4. Structural Observation is required by Section 1710 of the SFBC. Types of work listed below and indicated as requiring "structural observation" shall be observed during periodic site visits by the Structural Engineer. Contractor is responsible for notifying Structural Engineer 48 hours before work is ready for observation. These visits do not constitute Special Inspection.

EARTHWORK

- 1. Provide periodic inspection during excavation, grading and fill operations.
 - A. Observe height of lifts, moisture control and compaction.
 - B. Compaction verification tests according to ASTM D 1557. Frequency of tests shall be as deemed appropriate by the Geotechnical Engineer.
- 2. Provide periodic inspection prior to placement of concrete in cast-in-drilled-hole piles (drilled piers).
 - A. Confirm that marked pile locations are correct prior to drilling.
 - B. Observe condition of shaft sides and bottom.
 - C. Determine presence of free ground water.
 - D. Confirm proper use of drilling slurry or placement of casing, if required.
 - E. Observe placement and stabilization of reinforcing.
 - F. Confirm shaft embedment penetration into rock.

CONCRETE (Applies to Retaining Walls & Drilled Piers Only)

CONCRETE REINFORCEMENT

- 1. Reinforcing Steel Placement. Verify the following:
 - A. The reinforcing grade, size, number, location, and bend detailing are as shown on the drawings and are in acceptable condition.
 - B. All required devices have been properly installed to secure the reinforcement in place during the placement of concrete.

CAST-IN-PLACE CONCRETE

- 2. Placement of concrete. Verify the following:
 - A. The concrete delivered to the job has been prepared with the approved mix design appropriate for the application and is transported and placed within the time and under the conditions permitted by ASTM C94 and the project specifications.
 - B. The concrete is placed, consolidated, and finished as indicated on the drawings.
 - C. Test specimens are taken and cured as indicated in the project specifications.
- 2. Sampling of Fresh Concrete: ASTM C 172, except as modified for slump to comply with ASTM C 94.
 - A. Slump: ASTM C 143; one test at point of placement for each set of compression test specimens; additional tests when concrete consistency seems to have changed.
 - B. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each set of compression test specimens.
 - C. Unit Weight: ASTM C 138, one sample for each set of compression test specimens.
 - D. Concrete Temperature: ASTM C 1064; One test hourly when air temperature is 40 degrees Fahrenheit and below or 80 degrees Fahrenheit and above, and one test for each set of compressive-strength specimens.
 - E. Compression Test Specimens: ASTM C 31; One set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
 - F. Compressive-Strength Tests: ASTM C 39; One specimen shall be tested at 7 days, two specimens tested at 28 days, and one specimen retained for later testing if required.
 - G. Frequency of tests: A minimum of one set of cylinders shall be tested for any individual structure or each day's placement of a class of concrete exceeding 25 cu. yd. An additional set of cylinders shall be tested for each 100 cu. yd. of each class of concrete. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.
- 3. Provide continuous inspection during concrete placement.
- 4. The Structural Engineer will perform Structural Observation of the following:
 - A. Reinforcing and embedded items for concrete stairs, walls, footings, equipment pads, slabs-on-grade, and drilled piers.

SHOTCRETE

- 1. Preconstruction Test Panels: Prior to starting production shotcrete work, evaluate the Contractor's mock-up panels to assess material quality and workmanship.
 - A. Preconstruction test panels shall be 3'-0" x 3'-0" with the same thickness and reinforcing as the portion of the wall represented by the panel.
 - B. Take six 3-inch-diameter core specimens from each test panel for testing.
 - C. Three of the six cores in each panel shall be taken through reinforcing steel. Inspect these cores for voids behind reinforcing bars and grade the cores per ACI 506.2.
 - D. The remaining three cores in each panel shall be taken through unreinforced sections in the panels. Test these cores for 28-day compressive strength in accordance with ASTM C 42.
- 2. Sampling of Fresh Concrete: As indicated above for Cast-In-Place Concrete
- 3. Provide continuous inspection during shotcreting operations.
- 4. The Structural Engineer will perform Structural Observation of the following:
 - A. Reinforcing for concrete stairs, footings, slabs-on-grade, and drilled piers.
- 5. Production Test Panels.
 - A. Production Test Panels shall be 2'-0" x 2'-0" with the same thickness as the production wall.
 - B. Production Test Panels shall be prepared at least one panel per 50 cubic yards of production, but no less than one panel per day per nozzleman.
 - C. Evaluate the Contractor's production test panels to assess material quality and workmanship. One-half of each panel shall contain the same reinforcement as the structure; the other half of each panel shall be unreinforced.
 - D. Take six 3-inch-diameter core specimens from each test panel for testing.
 - E. Three of the six cores in each panel shall be taken through reinforcing steel. Inspect these cores for voids behind reinforcing bars and grade the cores per ACI 506.2.
 - F. The remaining three cores in each panel shall be taken through unreinforced sections in the panels. Test these cores for 28-day compressive strength in accordance with ASTM C 42.
- 6. Completed Work.
 - A. Coring of completed work is required only when results from production test panels or the appearance of finished work indicate unacceptable workmanship.
 - B. When required, take three 3-inch-diameter cores from the completed in-place work. The locations of the cores shall be as directed by the Architect/Engineer.
 - C. Grade cores for visual defects to determine acceptability.

POST-INSTALLED ANCHORS

- 1. Verify the following.
 - A. The specific manufacturer and model of anchors have been approved for the application by the Architect/Engineer.
 - B. The holes are drilled at the angle required and of the diameter and depth required.

- C. The holes are clean prior to installation of the anchors.
- D. The adhesive packaging indicates an expiration date and that the expiration date has not passed.
- E. The adhesive is mixed properly and that the initial portion of adhesive coming out of the nozzle is wasted, as required by the manufacturer.
- F. The anchors are installed according to the manufacturer's recommendations.

STRUCTURAL STEEL

- 1. GENERAL: Testing and inspection shall conform to Appendix Q of AISC "Seismic Provisions for Structural Steel Buildings" (AISC 341-05), unless specifically noted otherwise.
- 2. Inspection of welded connections shall include the following items.
 - A. Verify that applicable and approved Welding Procedure Specifications (WPS) are available for all welds to be performed.
 - B. Verify that welders are appropriately qualified for the type, position and class of weld to be performed
 - C. Verify that filler metal selection conforms to the requirements of the approved WPS.
 - D. Inspection of materials handling and storage.
 - E. Inspection of profile soundness of finished welds.
- 3. Continuous inspection of the following items is required, except for single-pass fillet welds (throat less than 5/16") and for all welding performed in approved shops per SFBC Section 1704.2.2.
 - A. Inspection of joint fit-up and preparation.
 - B. Inspection of welding machine settings.
 - C. Verification of application of preheat.
 - D. Verification of interpass temperature control.
 - E. Verification that all applicable requirements of the approved WPS are followed.
- 4. The Structural Engineer will perform Structural Observation of the following:
 - A. Welded and bolted connections.
- 5. Welding inspection may be waived if welding and fabrication is performed in an approved fabrication shop.

SIMPSON GUMPERTZ & HEGER
Engineering of Structures and Building Enclosures
Simpson Gumpertz & Heger Inc. Boston
The Landmark @ One Market, Suite 600 Los Angeles
San Francisco, California 94105 New York
415.495.3700 fax: 415.495.3550 San Francisco
www.sgh.com Washington, DC

Sutro Tower Inc.
C/O Mr. Eric Dausman
5 La Avanzada Street
San Francisco, CA 94131

Client

No.	Date	Description	By
3	02/15/13	ISSUED FOR PERMIT	JLT
2	01/31/13	ISSUED FOR CLIENT REVIEW	JLT
1	11/28/12	ISSUED FOR CLIENT REVIEW	JLT

SITE & EROSION CONTROL IMPROVEMENTS SUTRO TOWER
1 LA AVANZADA ST SAN FRANCISCO CALIFORNIA

GENERAL NOTES (CONTINUED)

Drawing Title

Commission 067199.07	Checked JLT	Date 09/26/12
Drawn JLT	Approved ROH	Scale NONE

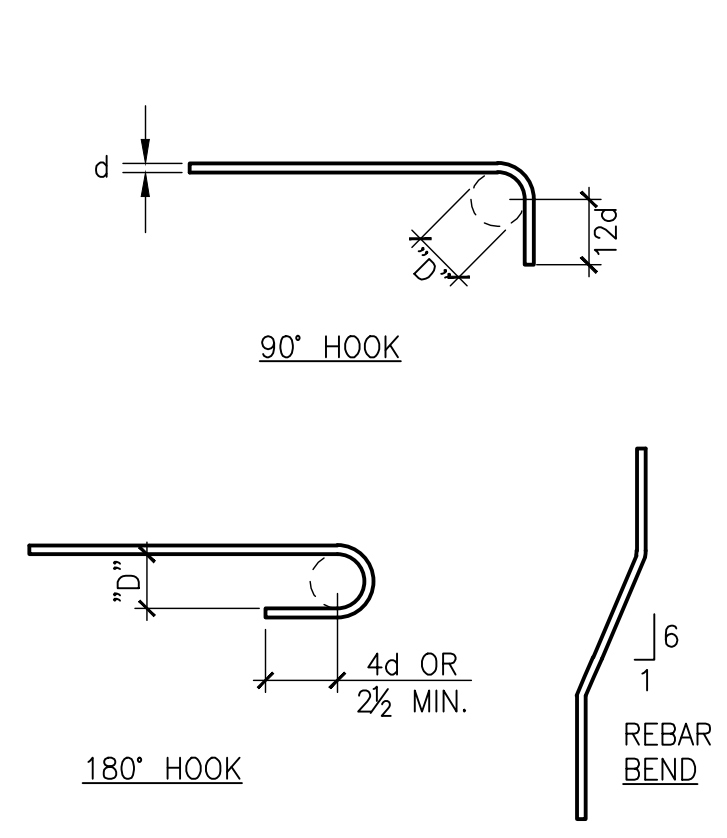
Professional Engineer Seal
No. 2951
STATE OF CALIFORNIA

S0.2

Sutro Tower Inc.
 C/O Mr. Eric Dausman
 5 La Avanzada Street
 San Francisco, CA 94131

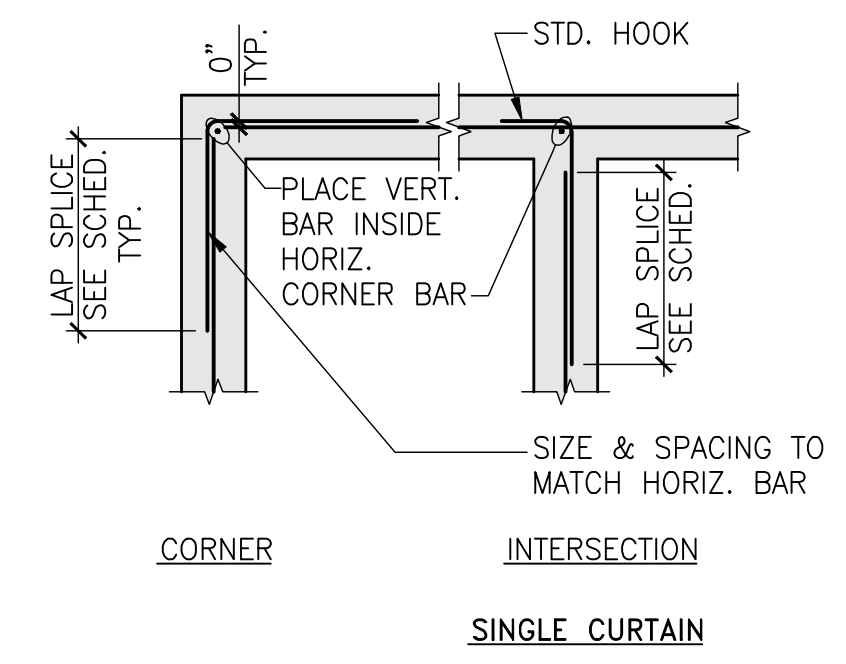
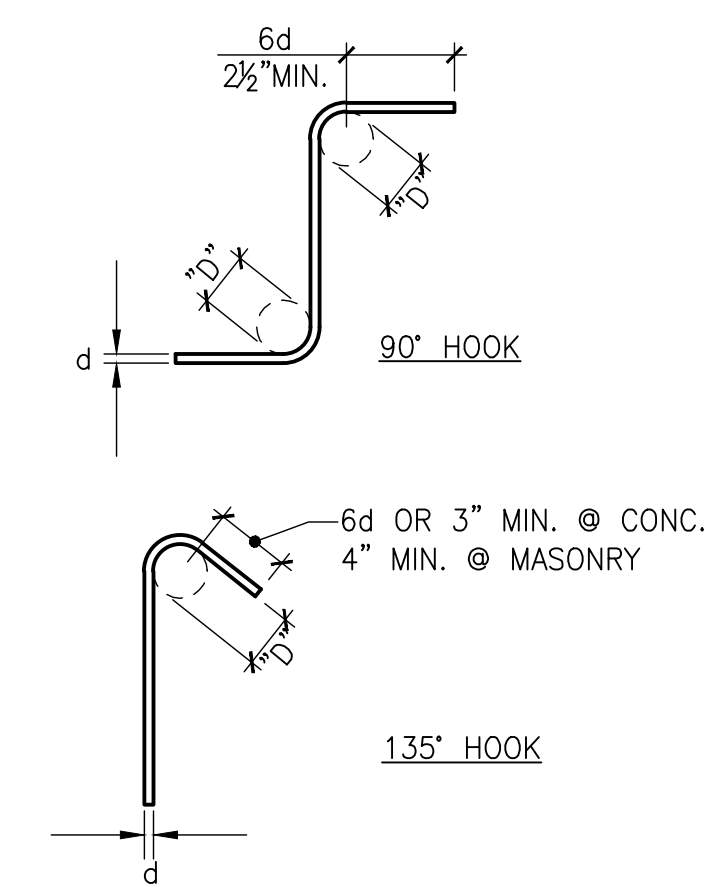
Client

BAR SIZE	"D" (IN.)
#3	2 1/4
#4	3
#5	3 3/4
#6	4 1/2
#7	5 1/4
#8	6
#9	9 1/2
#10	10 3/4
#11	12



BAR SIZE	"D" (IN.)
#3	1 1/2
#4	2
#5	2 1/2

NOTE:
 ALL BENDS SHALL BE MADE COLD.



1 TYPICAL REINFORCEMENT BENDS

N.T.S.

2 TYPICAL TIE AND STIRRUP HOOKS

N.T.S.

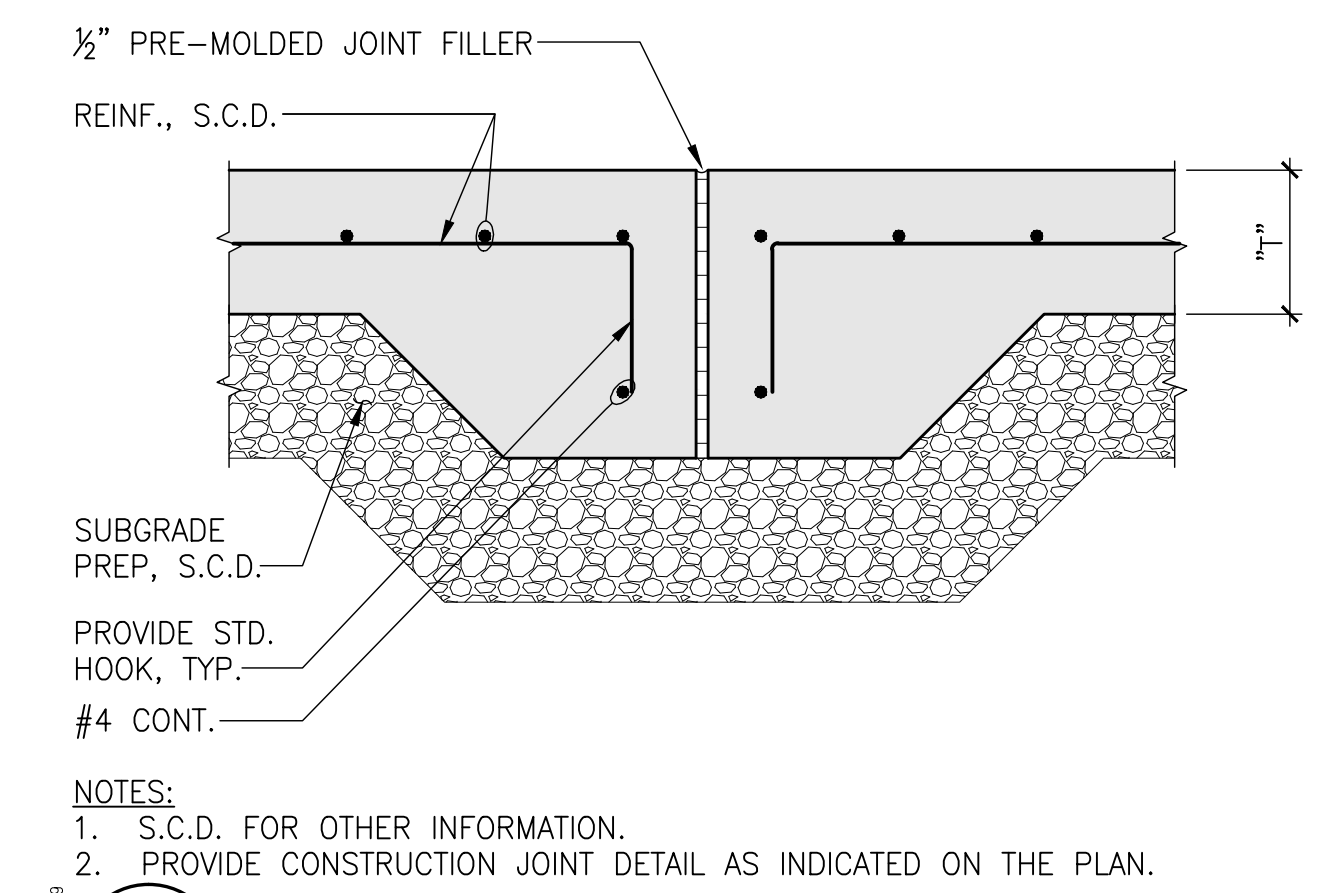
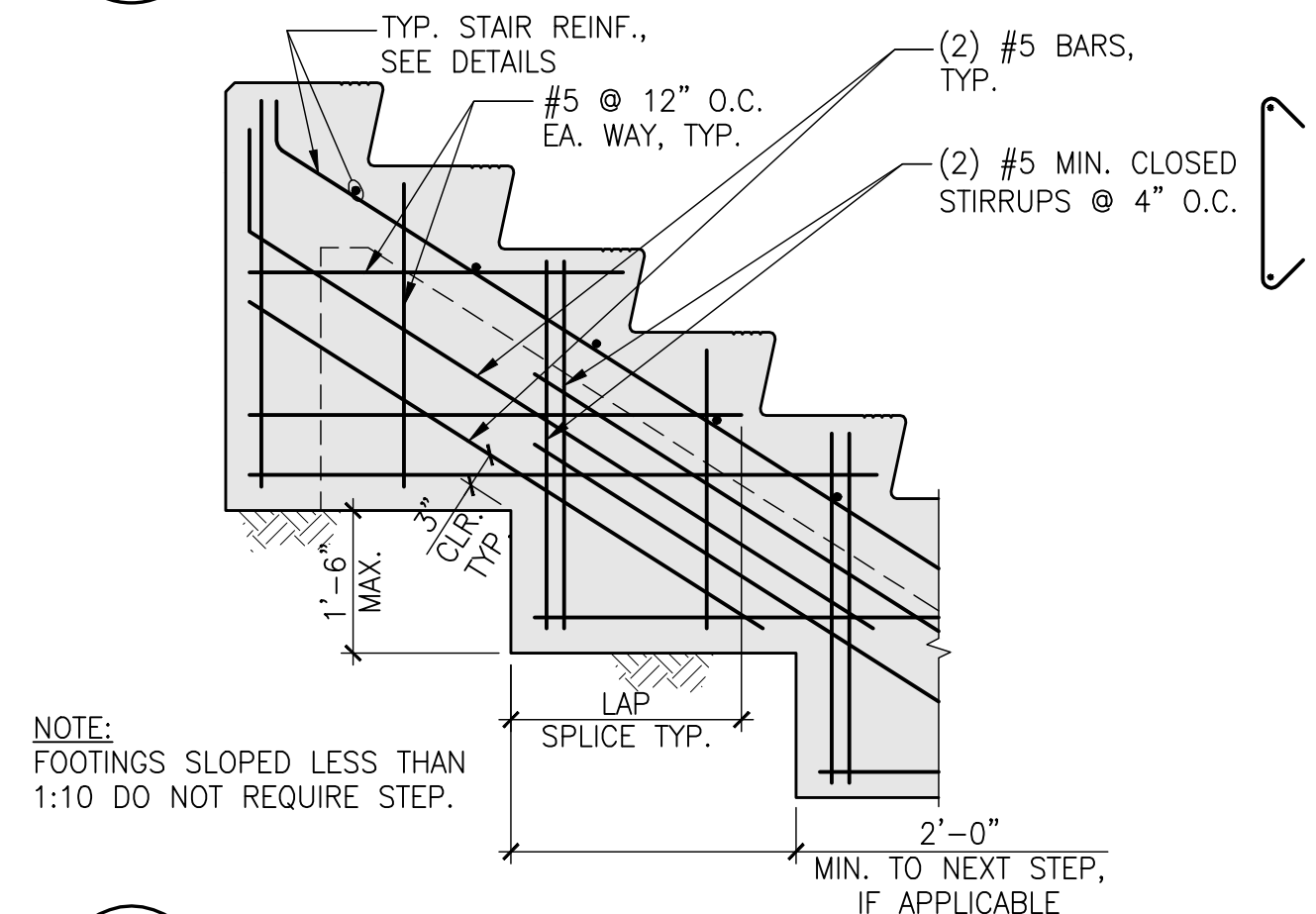
3 TYPICAL HORIZONTAL FOOTING REINFORCING DETAILS

SCALE: 1/2"=1'-0"

BAR SIZE	BASIC DEVELOPMENT LENGTH (ld), INCHES			LAP SPLICE LENGTH, INCHES			DEVELOPMENT OF BAR W/ STD. HOOK (ldh), INCHES		
	f'c=3000	f'c=4000	f'c=5000	f'c=3000	f'c=4000	f'c=5000	f'c=3000	f'c=4000	f'c=5000
#3	17	15	13	22	19	17	9	8	7
#4	22	19	17	29	25	22	11	10	9
#5	28	24	22	36	31	28	14	12	11
#6	33	29	26	43	37	34	17	15	13
#7	48	42	38	63	54	49	20	17	15
#8	55	48	43	72	62	56	22	19	17
#9	62	54	48	81	70	63	25	22	20
#10	70	61	54	91	79	70	28	25	22
#11	78	67	60	101	87	78	31	27	24

MODIFICATION FACTORS:
 THE LENGTHS NOTED ABOVE SHALL BE MULTIPLIED BY THE FOLLOWING FACTORS, AS APPLICABLE:
 1.3 FOR TOP BARS (MORE THAN 12" CONC. CAST BELOW)
 1.3 FOR LIGHTWEIGHT CONCRETE
 1.5 FOR BARS WITH LESS THAN 2 BAR DIAMETERS CLEAR SPACING OR FOR BARS WITH LESS THAN 1 BAR DIAMETER OF CONCRETE COVER
 1.5 FOR EPOXY-COATED BARS, U.O.N.
 THE MODIFICATION FACTORS NOTED ABOVE SHALL BE COMBINED WHEN MULTIPLE CONDITIONS OCCUR. FOR EXAMPLE, FOR TOP BARS IN LIGHTWEIGHT CONCRETE, THE SPLICE LENGTH NOTED ABOVE SHALL BE MULTIPLIED BY 1.3x1.3=1.69

NOTES:
 1. SPLICES OF HORIZONTAL REINFORCEMENT IN WALLS SHALL BE STAGGERED.
 2. SPLICES IN WALLS CONTAINING TWO CURTAINS OF REINFORCEMENT SHALL NOT OCCUR IN THE SAME LOCATION.
 3. LAP SPLICES IN CONCRETE MASONRY SHALL BE AS SPECIFIED IN "TYP. LAP SPLICE SCHEDULE - MASONRY".
 4. USE MECHANICAL COUPLERS FOR #14 AND LARGER BARS.
 5. TOP BAR FACTOR DOES NOT APPLY TO BARS IN WALLS.



6 TYPICAL DEVELOPMENT LENGTH & LAP SPLICE SCHEDULE - CONCRETE

NO SCALE

8 TYPICAL STEPPED FOOTINGS

N.T.S.

9 TYPICAL SLAB ON GRADE CONSTRUCTION JOINT

N.T.S.

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SITE & EROSION CONTROL IMPROVEMENTS SUTRO TOWER
 1 LA AVANZADA ST
 SAN FRANCISCO
 CALIFORNIA

TYPICAL DETAILS

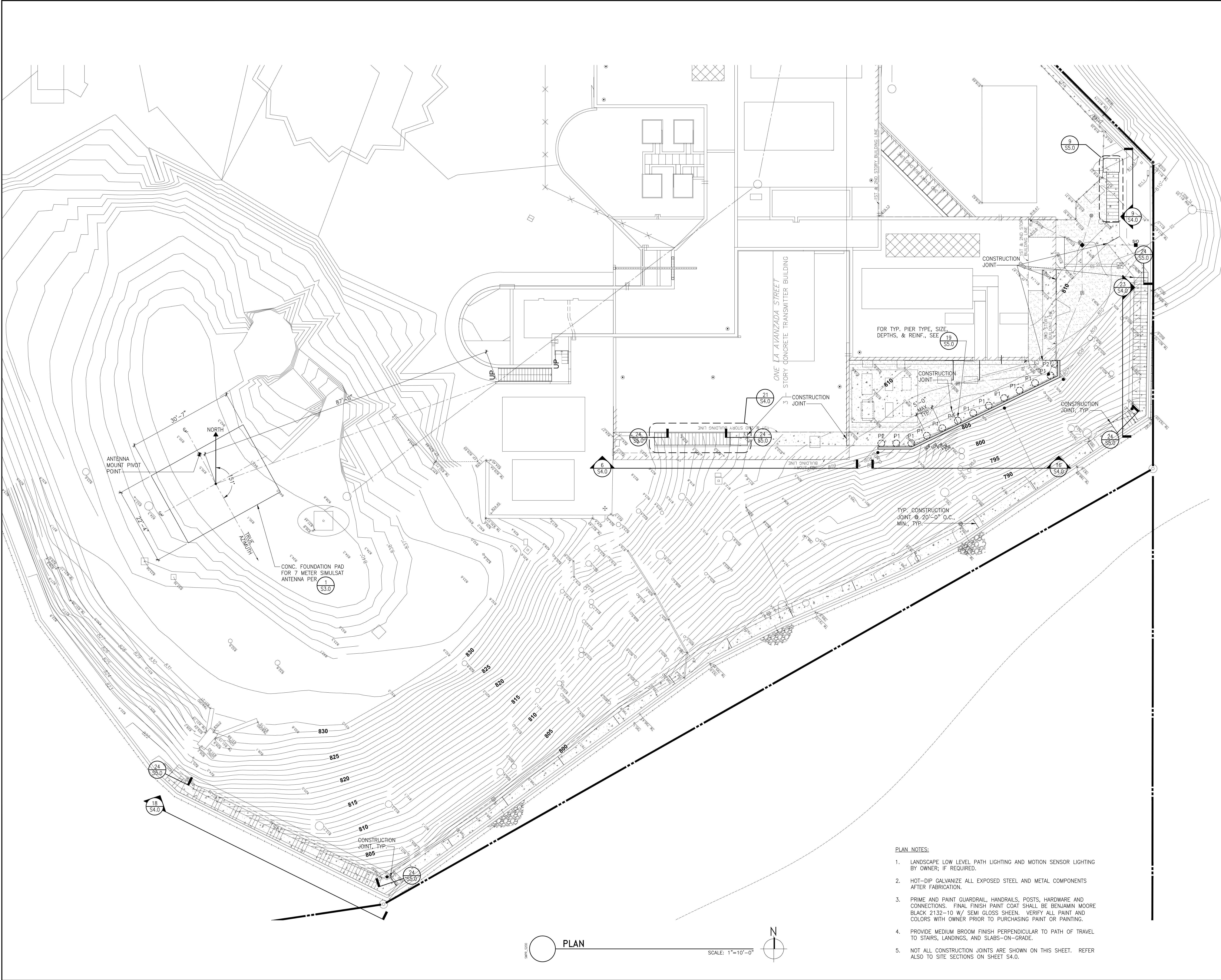
Commission 067199.07	Checked JLT	Date 09/26/12
Drawn JLT	Approved ROH	Scale NONE

Drawing No. **S1.0**

Professional Engineer Seal: RICHARD D. HAMBERGER, No. 2951, STATE OF CALIFORNIA

Sutro Tower Inc.
 C/O Mr. Eric Dausman
 5 La Avanzada Street
 San Francisco, CA 94131

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1 LA AVANZADA ST SAN FRANCISCO CALIFORNIA

Project

PLAN

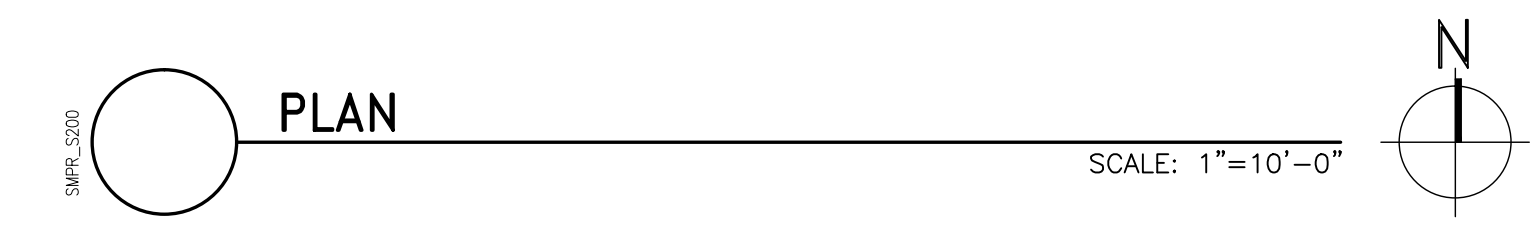
Drawing Title

Commission 067199.07	Checked JLT	Date 09/26/12
Drawn JLT	Approved ROH	Scale NONE

Professional Engineer
 No. 2951
 State of California

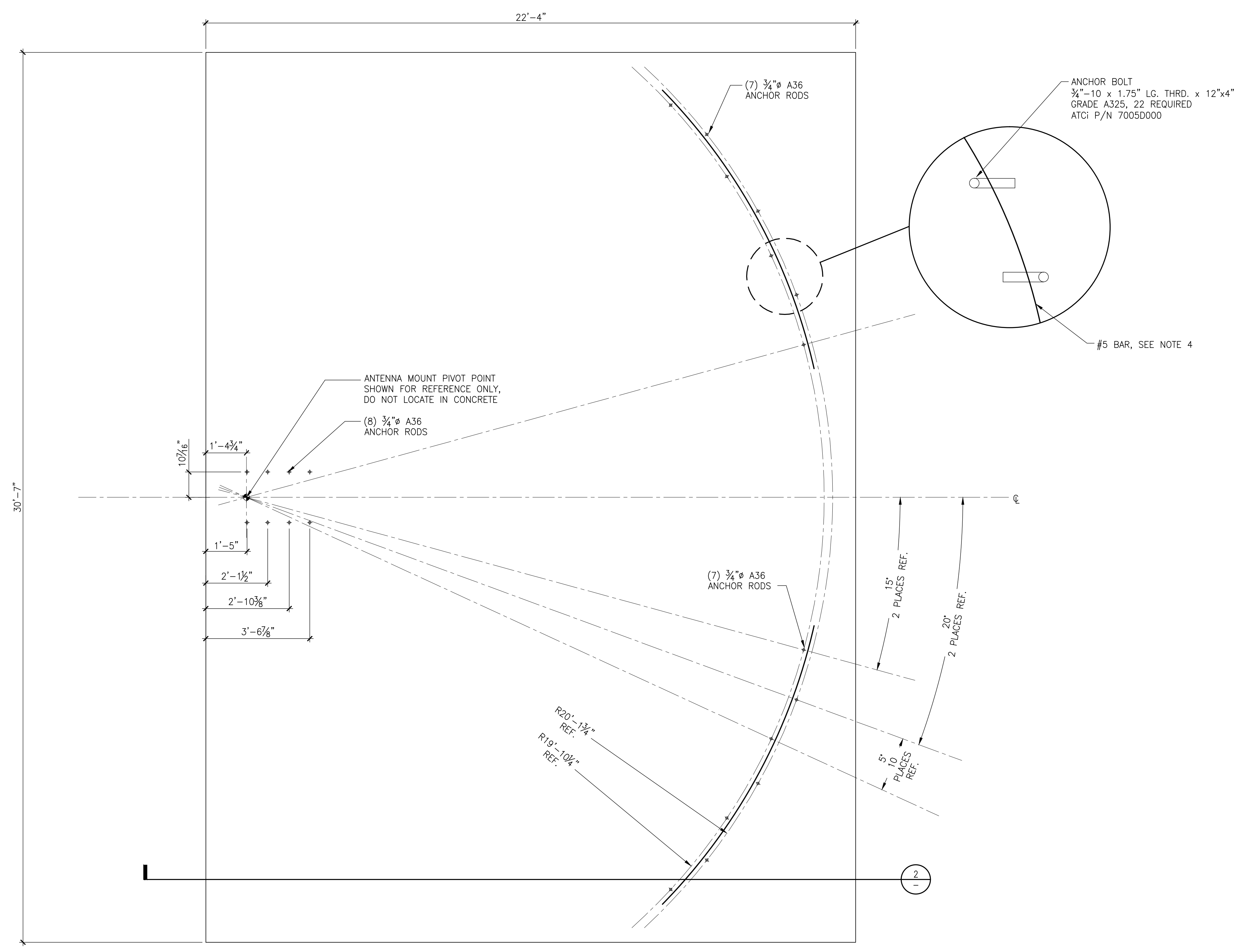
Drawing No. **S2.0**

- PLAN NOTES:
- LANDSCAPE LOW LEVEL PATH LIGHTING AND MOTION SENSOR LIGHTING BY OWNER; IF REQUIRED.
 - HOT-DIP GALVANIZE ALL EXPOSED STEEL AND METAL COMPONENTS AFTER FABRICATION.
 - PRIME AND PAINT GUARDRAIL, HANDRAILS, POSTS, HARDWARE AND CONNECTIONS. FINAL FINISH PAINT COAT SHALL BE BENJAMIN MOORE BLACK 2132-10 W/ SEMI GLOSS SHEEN. VERIFY ALL PAINT AND COLORS WITH OWNER PRIOR TO PURCHASING PAINT OR PAINTING.
 - PROVIDE MEDIUM BROOM FINISH PERPENDICULAR TO PATH OF TRAVEL TO STAIRS, LANDINGS, AND SLABS-ON-GRADE.
 - NOT ALL CONSTRUCTION JOINTS ARE SHOWN ON THIS SHEET. REFER ALSO TO SITE SECTIONS ON SHEET S4.0.

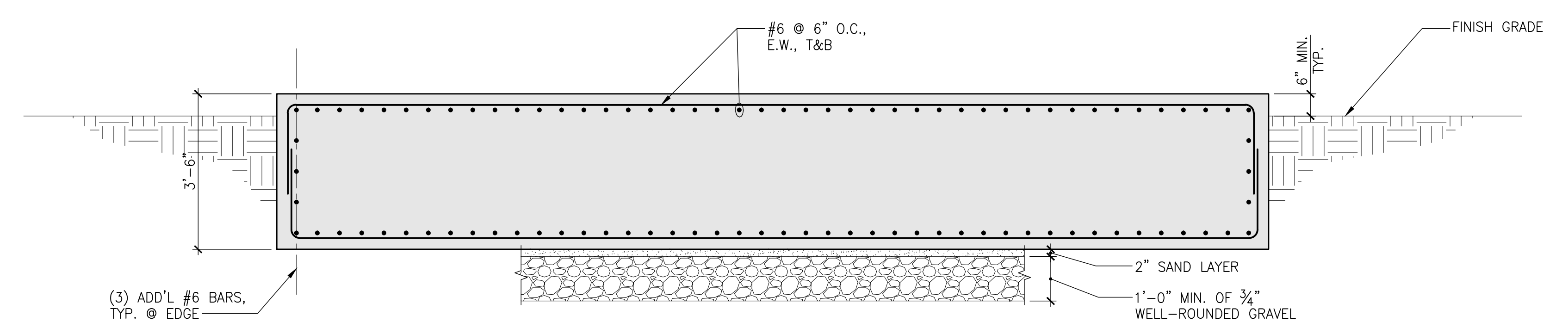


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 5 La Avanzada Street
 San Francisco, CA 94131

Client



1 PAD A PLAN
 SCALE: 1/2"=1'-0"



2 PAD SECTION
 SCALE: 1/2"=1'-0"

- NOTES:**
- PAD LEVELING: PAD SHALL BE FLAT AND LEVEL WITH RESPECT TO THE LONG AND SHORT DIMENSIONS OF THE PAD TO A TOLERANCE OF $\pm 1/8$ " DROP PER FOOT OF LINEAR DIMENSION. NO PART OF THE PAD SHALL BE MORE THAN 2" HIGHER OR LOWER THAN ANY OTHER PART OF THE PAD.
 - LOCATE ANCHOR BOLTS AS SHOWN IN THIS DRAWING USING ATCI BOLT AND TEMPLATE KIT PART NUMBER 7005A004, FOR PAD A.
 - TIE BOTTOMS OF REAR ANCHOR BOLTS TOGETHER WITH #5 REBAR. TIE IN BOTH DIRECTIONS.
 - BEND TWO 11 FT. LENGTHS OF #5 REBAR TO A RADIUS OF APPROXIMATELY 240". USE ONE PIECE IN EACH OF THE FRONT ROWS OF ANCHOR BOLTS AS A TIE POINT FOR THE SHORT LEGS OF THE ANCHOR BOLTS AS SHOWN, FOR PAD A.
 - GROUNDING: DRIVE A 1/2" DIAMETER OR LARGER COPPER ROD A MINIMUM OF 8 FT. INTO THE GROUND ADJACENT TO THE CONCRETE PAD. CONNECT THE ANTENNA STRUCTURE TO THE COPPER ROD USING A #8 OR LARGER CONDUCTOR. CONDUCTOR TO BE PROTECTED BY CONDUIT, FOR PAD A.

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FOUNDATION PLAN

Commission 067199.07	Checked JLT	Date 09/26/12
Drawn JLT	Approved ROH	Scale AS NOTED
		Drawing No. S3.0

