

REINFORCEMENT BAR DEVELOPMENT LENGTH (ID) FOR NORMAL WEIGHT CONCRETE																	
LOCATION	CONC F'C(Psi)	STEEL GRADE	BAR SIZE														
			3	4	5	6	7	8	9	10	11	14	18	IDH=DEVELOPMENT LENGTH IN INCHES			
TOP	3000	60	16	22	27	35	45	63	80	102	125	170	250				
OTHER	3000	60	13	17	21	27	37	49	62	78	96	131	192				
TOP	4000	60	14	19	23	31	42	55	69	88	108	147	216				
OTHER	4000	60	12	15	18	24	32	42	53	68	83	113	166				
TOP	5000	60	13	17	21	27	37	49	62	79	97	132	193				
OTHER	5000	60	12	13	16	21	29	38	48	61	74	101	149				
TOP	6000	60	12	15	19	25	34	45	57	72	88	120	177				
OTHER	6000	60	12	12	15	19	26	35	44	55	68	92	136				
TOP	7000	60	12	14	18	23	32	42	53	67	82	111	163				
OTHER	7000	60	12	12	14	18	24	32	40	51	63	86	126				

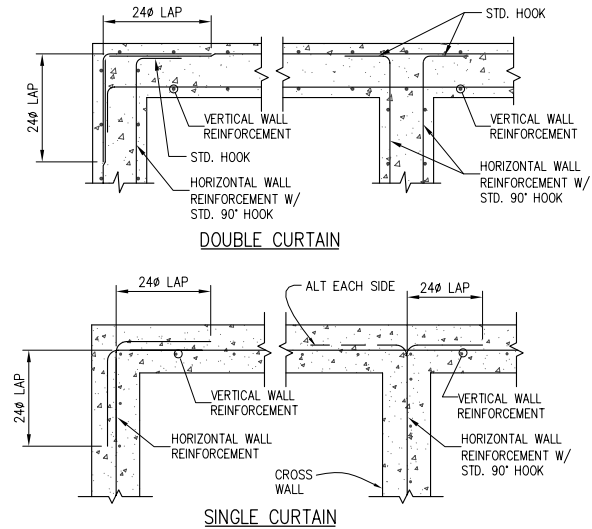
- NOTES:
- DEVELOPMENT LENGTHS SHOWN IN THE SCHEDULE ARE CATEGORY 3 LENGTHS PER THE 1999 CRSI DESIGN HANDBOOK. THE MINIMUM CONCRETE COVER MUST BE GREATER THAN DB AND THE CENTER TO CENTER SPACING MUST BE GREATER THAN 3DB. WHERE DB IS THE NOMINAL BAR DIAMETER.
 - BARS NOT MEETING CATEGORY 3 REQUIREMENTS SHALL BE PER UBC SECTION 1912. CATEGORY 1 AND 2 DEVELOPMENT LENGTHS MAY BE FOUND IN THE 1999 CRSI DESIGN HANDBOOK.
 - TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW THE BAR.
 - DEVELOPMENT LENGTH SHALL BE INCREASED BY 30% FOR LIGHT WEIGHT CONCRETE.

REINFORCEMENT BAR LAP SPLICE (ID) FOR NORMAL WEIGHT CONCRETE (CLASS "B" SPLICE)												
LOCATION	CONC F'C(Psi)	BAR SIZE										
		3	4	5	6	7	8	9	10	11	*IDH*=DEVELOPMENT LENGTH IN INCHES	
TOP	3000	21	28	35	46	63	82	104	132	162		
OTHER	3000	16	22	27	35	48	63	80	102	125		
TOP	4000	18	24	30	40	54	71	90	114	140		
OTHER	4000	16	19	23	31	42	55	59	88	108		
TOP	5000	18	22	27	36	48	64	81	102	126		
OTHER	5000	16	17	21	27	37	49	62	79	97		
TOP	6000	18	20	25	33	44	58	74	93	115		
OTHER	6000	16	16	19	25	34	45	57	72	88		
TOP	7000	16	18	23	30	41	54	68	86	106		
OTHER	7000	16	16	18	23	32	42	53	67	82		

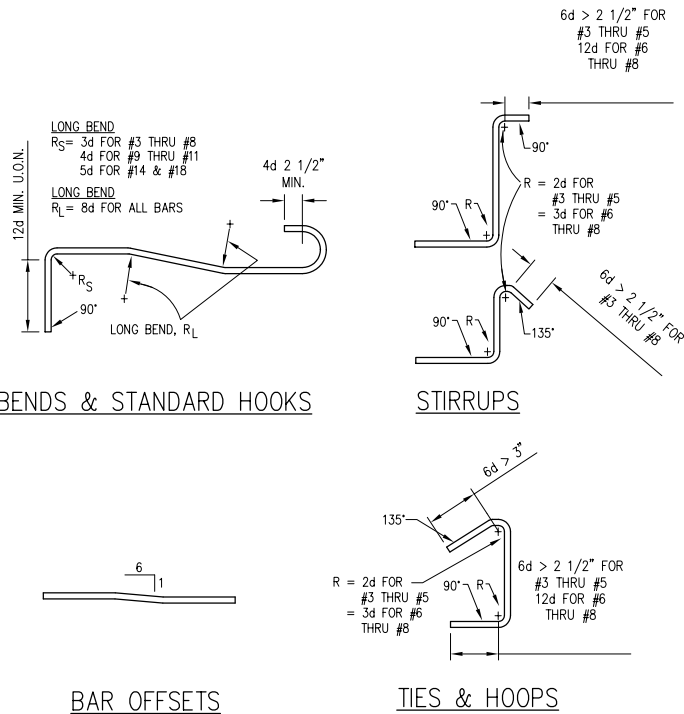
- NOTES:
- LAP LENGTHS SHOWN IN THE SCHEDULE ARE CATEGORY 3 LAP SPLICES PER THE 1999 CRSI DESIGN HANDBOOK. THE MINIMUM CONCRETE COVER MUST BE GREATER THAN DB AND THE CENTER TO CENTER SPACING MUST BE GREATER THAN 3DB. WHERE DB IS THE NOMINAL BAR DIAMETER.
 - BARS NOT MEETING CATEGORY 3 REQUIREMENTS SHALL BE PER UBC SECT. 1912. CATEGORY 1 AND 2 LAP SPLICE LENGTHS MAY BE FOUND IN THE 1999 CRSI DESIGN HANDBOOK.
 - TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE BELOW THE BAR.
 - THE SMALLER LAP SPLICE LENGTH MAY BE USED WHEN TWO BARS OF DIFFERENT SIZES ARE TO BE LAPPED.
 - LAP SPLICE LENGTH SHALL BE INCREASED BY 30% FOR LIGHT WEIGHT CONCRETE.

REINFORCEMENT BAR DEVELOPMENT (IDH) FOR STANDARD HOOKS IN NORMAL WEIGHT CONCRETE GENERAL USE (NOT FOR FRAME JOINTS)																	
CONCRETE F'C (PSI)	STEEL GRADE	BAR SIZE															
		3	4	5	6	7	8	9	10	11	14	18					
		IDH=DEVELOPMENT LENGTH IN INCHES															
3000	60	6	8	10	12	14	16	18	20	22	37	50					
4000	60	6	7	9	10	12	14	15	17	19	32	43					
5000	60	6	7	8	9	11	12	14	15	17	29	39					
6000	60	6	7	7	8	10	11	13	14	16	27	35					
7000	60	6	7	7	8	9	10	12	14	15	25	33					

- NOTES:
- SIDE COVER MUST BE GREATER THAN OR EQUAL TO 2 1/2"
 - END COVER MUST BE GREATER THAN OR EQUAL TO 2"
 - HOK DEVELOPMENT LENGTH SHALL BE INCREASED BY 30% FOR LIGHT WEIGHT CONCRETE.



STANDARD WALL & FOOTING INTERTSECTION REINFORCEMENT

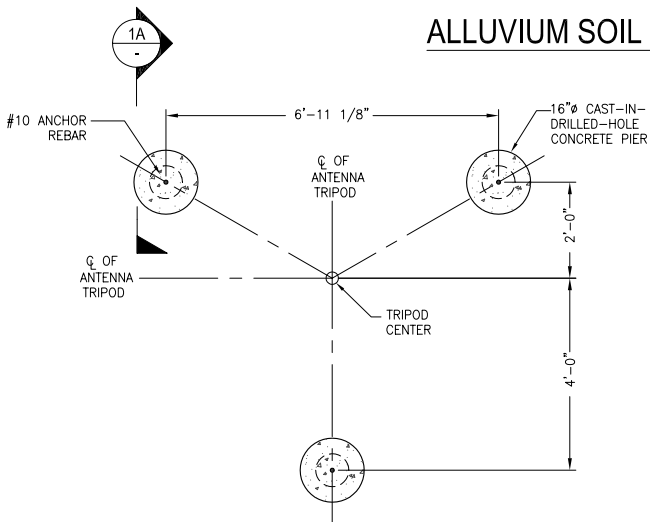


STANDARD REINFORCING HOOKS & BENDING DETAILS

ALLUVIUM SOIL CONDITION

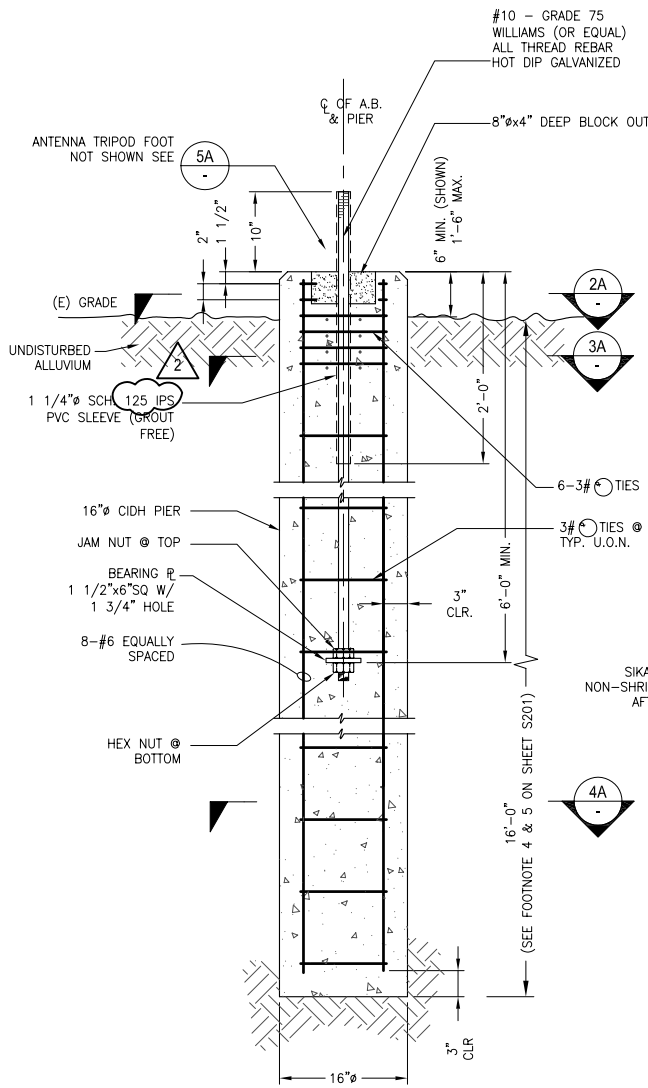
NOTES

- FOR GENERAL NOTES, SEE DWG. S001.
- FOR PIER TEST SCHEDULE, SEE DWG. S201.



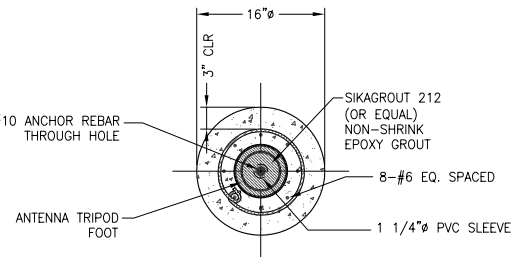
A ANTENNA FOUNDATION PLAN

ref: scale: 1/2" = 1'-0"



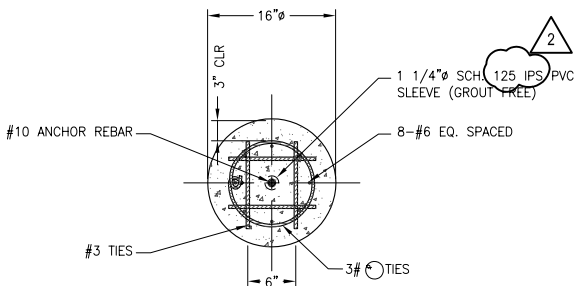
1A SECTION

ref: scale: 1" = 1'-0"



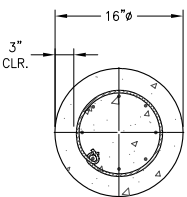
2A PIER SECTION

ref: scale: 1" = 1'-0"



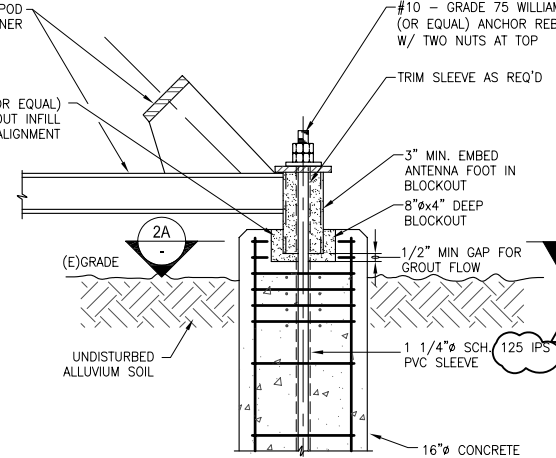
3A PIER SECTION

ref: scale: 1" = 1'-0"



4A PIER SECTION

ref: scale: 1" = 1'-0"



5A DETAIL

ref: scale: 1" = 1'-0"

2	PVC SLEEVE REVISION	2-25-04	CEU	GK
1	ANCHOR ROD REVISION	12-9-03	CEU	GK
0	ISSUED FOR CONSTRUCTION	12-5-03	DK2	RAC
Sym.	Description	Date	Drawn By	Appr. By

PH: (800) 889-WRMS
Fax: (925) 933-5167

Drawn By:
LCM

Designed By:
GK

Date:
9/29/03

Proj. No.:
02-242

WRMS
WALNUT CREEK, CA
SEATTLE, WA
BOSTON, MA

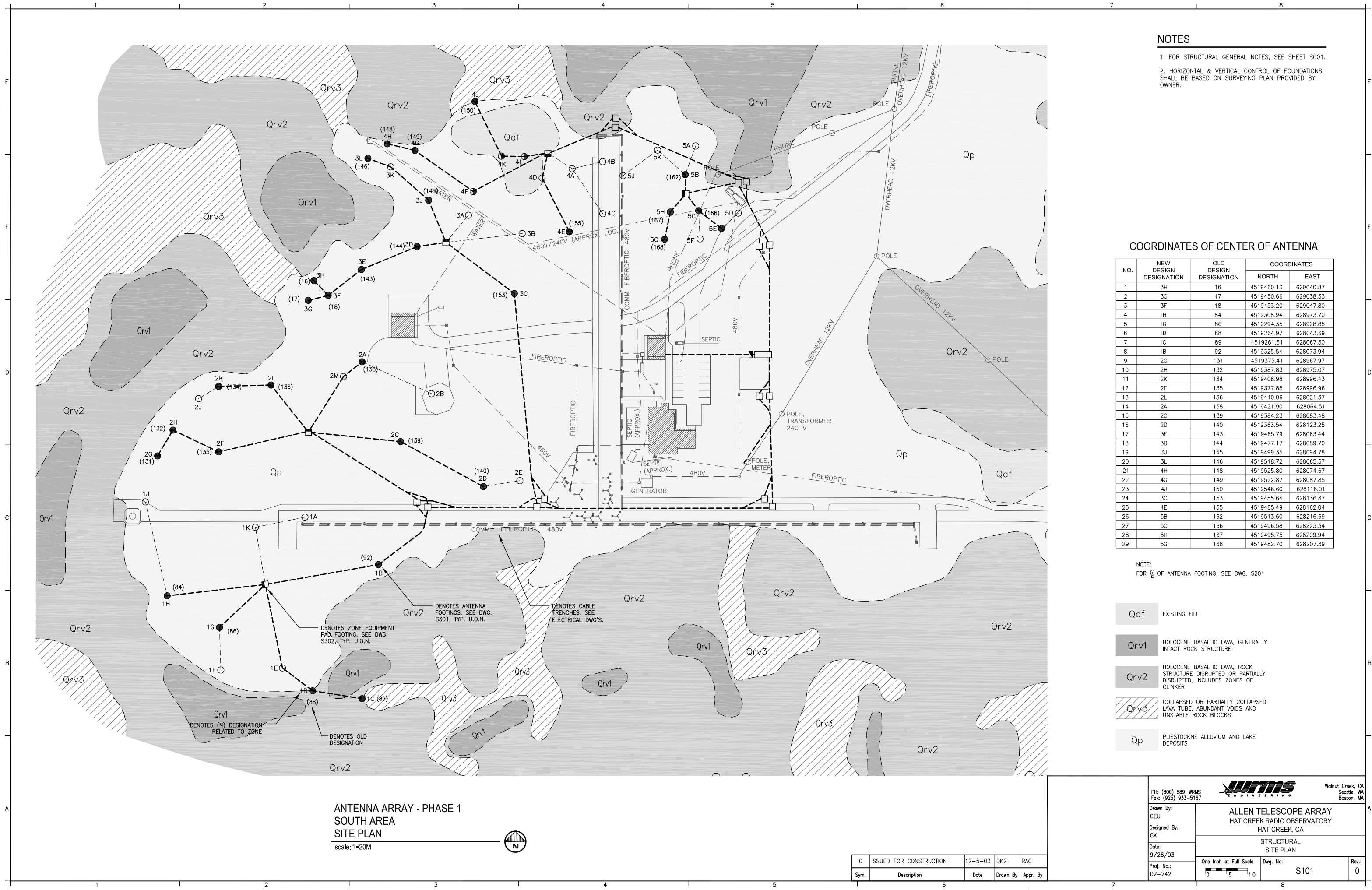
ALLEN TELESCOPE ARRAY
HAT CREEK RADIO OBSERVATORY
HAT CREEK, CA

STRUCTURAL
ANTENNA FOOTING & REINFORCING DETAILS (SOIL CONDITION)

One Inch at Full Scale

Dwg. No.:
S002

Rev.:
2



- NOTES
- FOR STRUCTURAL GENERAL NOTES, SEE SHEET S001.
 - HORIZONTAL & VERTICAL CONTROL OF FOUNDATIONS SHALL BE BASED ON SURVEYING PLAN PROVIDED BY OWNER.

COORDINATES OF CENTER OF ANTENNA					
NO.	NEW DESIGN DESIGNATION	OLD DESIGN DESIGNATION	COORDINATES		
			NORTH	EAST	
1	3H	16	4519460.13	629040.87	
2	3G	17	4519450.66	629038.33	
3	3F	18	4519453.20	629047.80	
4	1H	84	4519308.94	628973.70	
5	1G	86	4519294.35	628998.85	
6	1D	88	4519264.97	628043.69	
7	1C	89	4519261.61	628067.30	
8	1B	92	4519325.54	628073.94	
9	2G	131	4519375.41	628967.97	
10	2H	132	4519387.83	628975.07	
11	2K	134	4519408.98	628996.43	
12	2F	135	4519377.85	628996.96	
13	2L	136	4519410.06	628021.37	
14	2A	138	4519421.90	628064.51	
15	2C	139	4519384.23	628083.48	
16	2D	140	4519363.54	628123.25	
17	3E	143	4519465.79	628063.44	
18	3D	144	4519477.17	628089.70	
19	3J	145	4519499.35	628094.78	
20	3L	146	4519518.72	628065.57	
21	4H	148	4519525.80	628074.67	
22	4G	149	4519522.87	628087.85	
23	4J	150	4519546.60	628116.01	
24	3C	153	4519455.64	628136.37	
25	4E	155	4519485.49	628162.04	
26	5B	162	4519513.60	628216.69	
27	5C	166	4519496.58	628223.34	
28	5H	167	4519495.75	628209.94	
29	5G	168	4519482.70	628207.39	

NOTE:
FOR C OF ANTENNA FOOTING, SEE DWG. S201

- Qaf

EXISTING FILL
- Qrv1

HOLOCENE BASALTIC LAVA, GENERALLY INTACT ROCK STRUCTURE
- Qrv2

HOLOCENE BASALTIC LAVA, ROCK STRUCTURE DISRUPTED OR PARTIALLY DISRUPTED, INCLUDES ZONES OF CLINKER
- Qrv3

COLLAPSED OR PARTIALLY COLLAPSED LAVA TUBE, ABUNDANT VOIDS AND UNSTABLE ROCK BLOCKS
- Qp

PLUETOCKNE ALLUVIUM AND LAKE DEPOSITS

ANTENNA ARRAY - PHASE 1
SOUTH AREA
SITE PLAN
scale: 1"=20M



0	ISSUED FOR CONSTRUCTION	12-5-03	DK2	RAC
Sym.	Description	Date	Drawn By	Appr. By

PH: (800) 889-WRMS
Fax: (925) 933-5167

Drawn By:
CEU

Designed By:
GK

Date:
9/26/03

Proj. No.:
02-242

Walnut Creek, CA
Seattle, WA
Boston, MA

ALLEN TELESCOPE ARRAY
HAT CREEK RADIO OBSERVATORY
HAT CREEK, CA

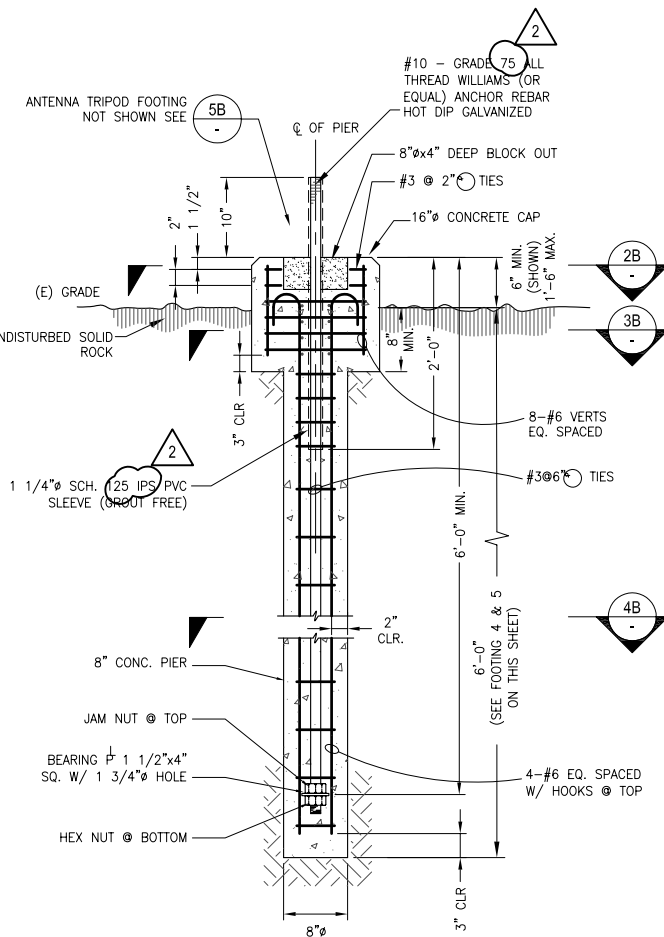
STRUCTURAL
SITE PLAN

One Inch at Full Scale

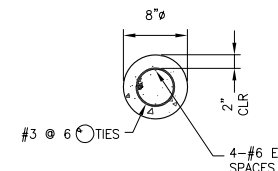
Dwg. No.:
S101

Rev.:
0

ANTENNA FOUNDATION PLAN
(@ TOP OF FTG.)





1B SECTION @ SOLID ROCK
ref: scale: 1" = 1'-0"

[illegible]

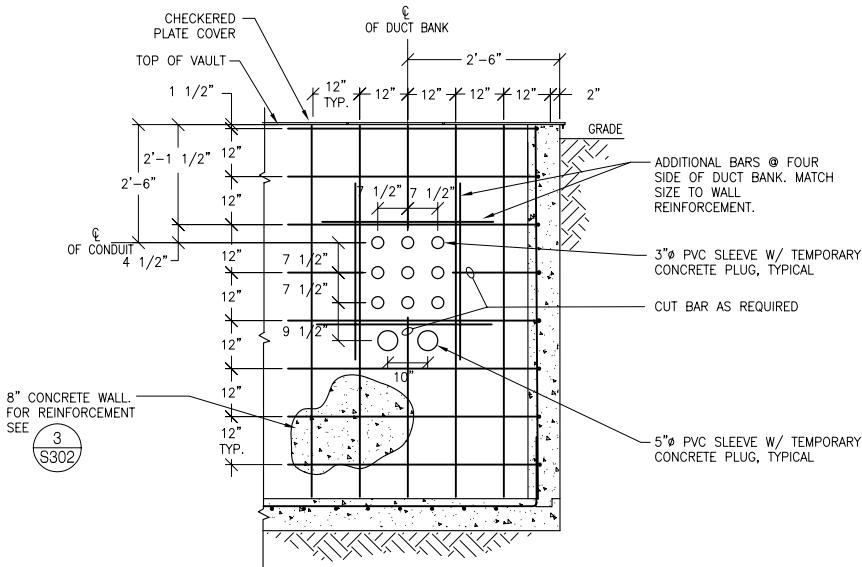
5B PIER SECTION

* FOR PIER TEST PROGRAM SEE GEOTECHNICAL RECOMMENDATIONS.

PH: (800) 889-WRMS Fax: (925) 933-5167				Walnut Creek, CA Seattle, WA Boston, MA	
Drawn By: LCM		ALLEN TELESCOPE ARRAY HAT CREEK RADIO OBSERVATORY HAT CREEK, CA			
Designed By: GK					
Date: 9/29/03					
		STRUCTURAL ANTENNA FOOTINGS - SOIL/ROCK & ROCK CONDITIONS			
Proj. No.: 02-242		One Inch at Full Scale 		Dwg. No.: S201	
				Rev.: 2	

GENERAL NOTES

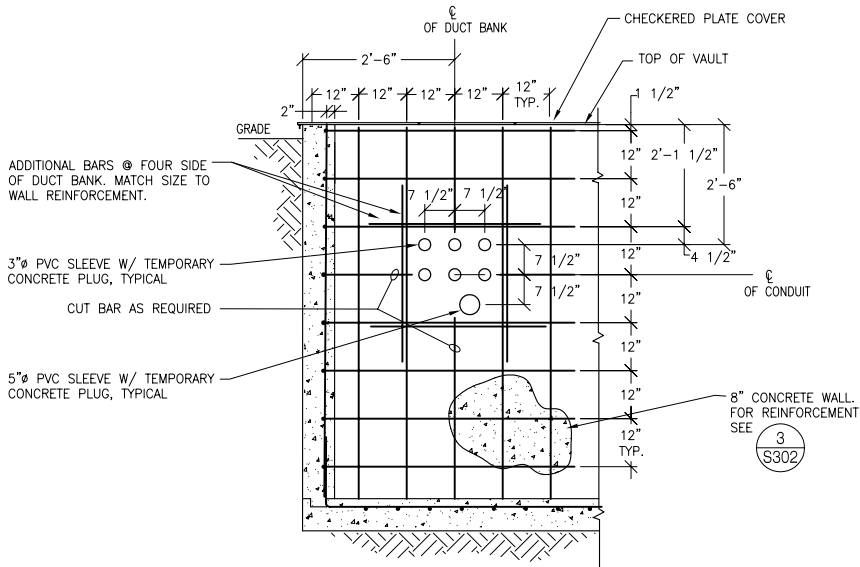
1. FOR STRUCTURAL GENERAL NOTES, SEE SHEET S001.
2. ALL STRUCTURAL STEEL SHALL BE HOT-DIPPED GALVANIZED.
3. CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING AROUND EXISTING PIPES AND VALVES.



1 VAULT WALL ELEVATION @ DUCT BANK

ref: scale: 1/2" = 1' - SF:24

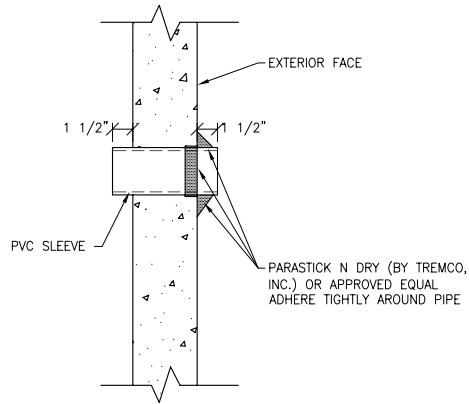
NOTES
1. VERIFY CONDUIT LOCATIONS, ELEVATIONS AND SIZES WITH ELECTRICAL CONTRACTOR PRIOR SLEEVE INSTALLATIONS.



2 VAULT WALL ELEVATION @ DUCT BANK

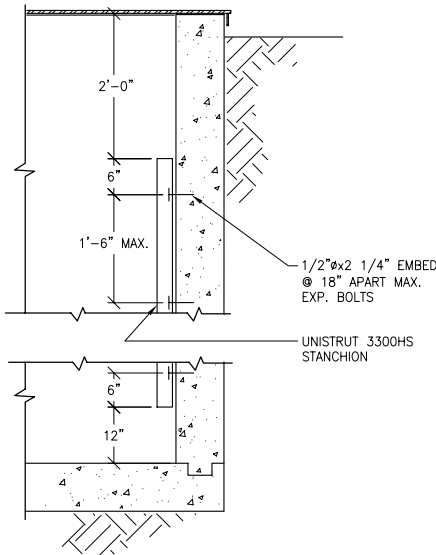
ref: scale: 1/2" = 1' - SF:24

NOTES
1. VERIFY CONDUIT LOCATIONS, ELEVATIONS AND SIZES WITH ELECTRICAL CONTRACTOR PRIOR SLEEVE INSTALLATIONS.



3 TYPICAL SLEEVE PENETRATION DETAIL

ref: scale: NONE



4 TYPICAL SECTION @ CABLE RACK STANCHION

ref: 3:S302 scale: NONE

0	ISSUED FOR CONSTRUCTION	12-5-03	DK2	RAC
Sym.	Description	Date	Drawn By	Appr. By

PH: (800) 889-WRMS
Fax: (925) 933-5167



Walnut Creek, CA
Seattle, WA
Boston, MA

Drawn By:
LCM

Designed By:
GK

Date:
10/8/03

Proj. No.:
02-242


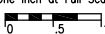
ALLEN TELESCOPE ARRAY
HAT CREEK RADIO OBSERVATORY
HAT CREEK, CA

STRUCTURAL
CABLE VAULT DETAILS & SECTIONS

One Inch at Full Scale
0 1.5 1.0

Dwg. No:
S303

Rev.:
0

PH: (800) 889-WRMS Fax: (925) 933-5167			Walnut Creek, CA Seattle, WA Boston, MA
Drawn By: DK2	ALLEN TELESCOPE ARRAY HAT CREEK RADIO OBSERVATORY HAT CREEK, CA		
Designed By: RAC	ELECTRICAL/FIBER OPTIC TRENCHING PLAN, PHASE I		
Date: 9/2/03			
Proj. No.: 02-242	One Inch at Full Scale 	Dwg. No: E201	Rev.: 1