INFORMATION HANDOUT

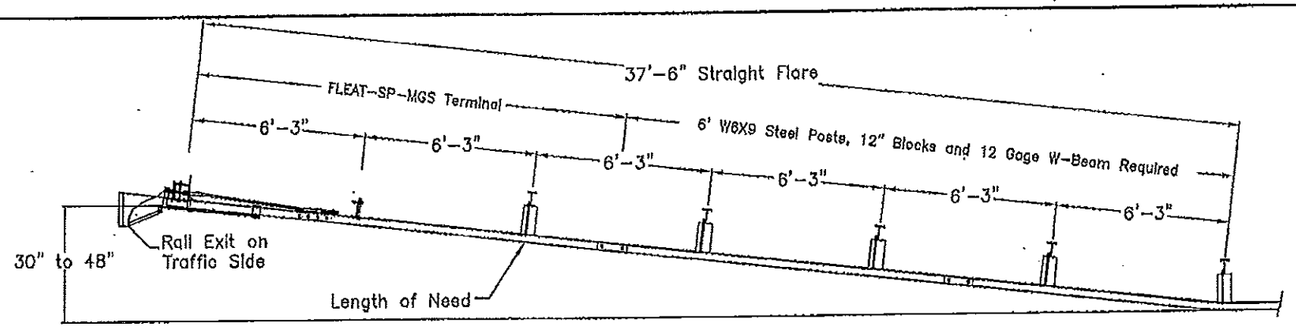
For Contract No. 10-0Y5714
At 10-Sta-99-R17.3/M18.9
Identified by
Project ID 1014000162

MATERIALS INFORMATION

Manufacturer’s Drawings for Alternative Flared Terminal System

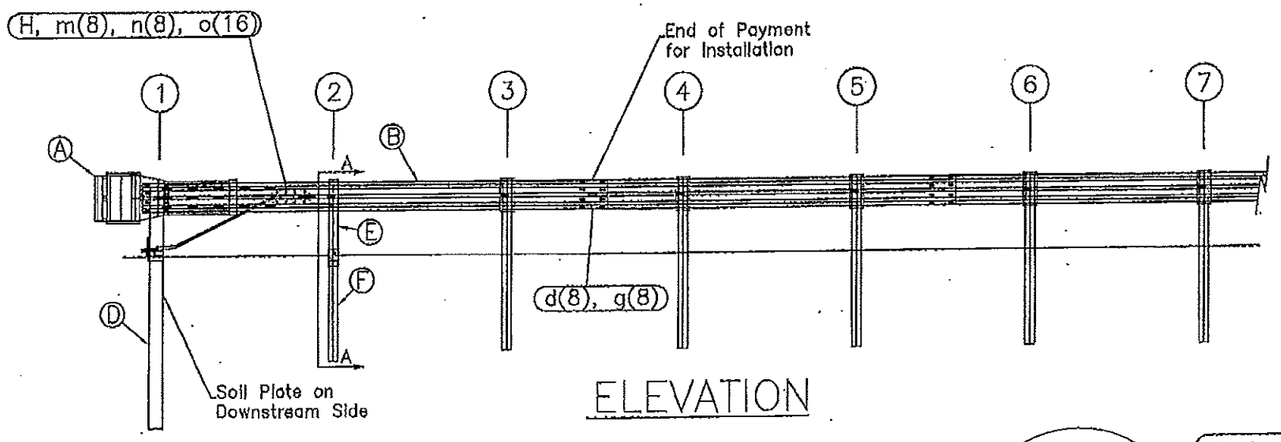
Geotechnical Recommendations Report

Water Source Information

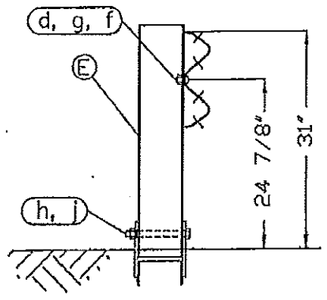


PLAN

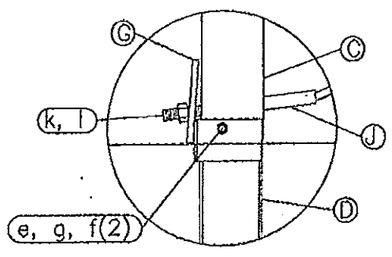
TRAFFIC



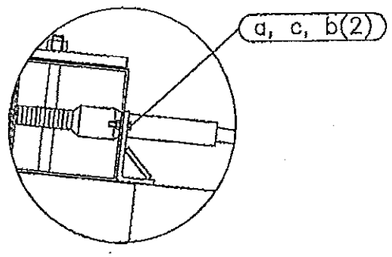
ELEVATION



SECTION A-A
Post #2



Post #1 Connection Detail



Impact Head Connection Detail

ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	F3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	MGS-SF1303
C	1	FIRST POST TOP (6X6X¼" Tube)	TPHP1A
D	1	FIRST POST BOTTOM (6' W6X15)	TPHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP3B
G	1	BEARING PLATE	E760
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
		HARDWARE (ALL DIMENSIONS IN INCHES)	
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	9	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	1	5/8 Dia. x 9 HEX BOLT GRD 5	B580904A
f	3	5/8 WASHER	W050
g	10	5/8 Dia. H.G.R NUT	N050
h	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A
j	1	3/4 Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	CABLE ANCHOR BOX SHOULDER BOLT	SB58A
n	8	1/2 A325 STRUCTURAL NUT	N050A
o	16	1 1/16 OD x 9/16 ID A325 STR. WASHER	W050A

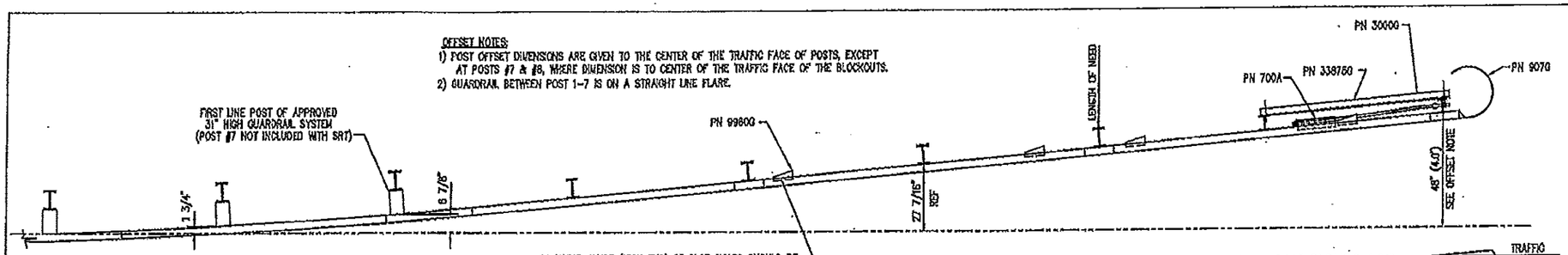
GENERAL NOTES:
1. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
2. The lower sections of the Posts 1&2 shall not protrude more than 4 in above the ground (measured along a 6' cord). Site grading may be necessary to meet this requirement.
3. The lower sections of the hinged posts should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
4. When competent rock is encountered, a 12" Ø post hole, 20 in. deep cored into the rock surface may be used if approved by the engineer for post 1. Granular material will be placed in the bottom of the hole, approximately 2.5" deep to provide drainage. The first post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
5. The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.

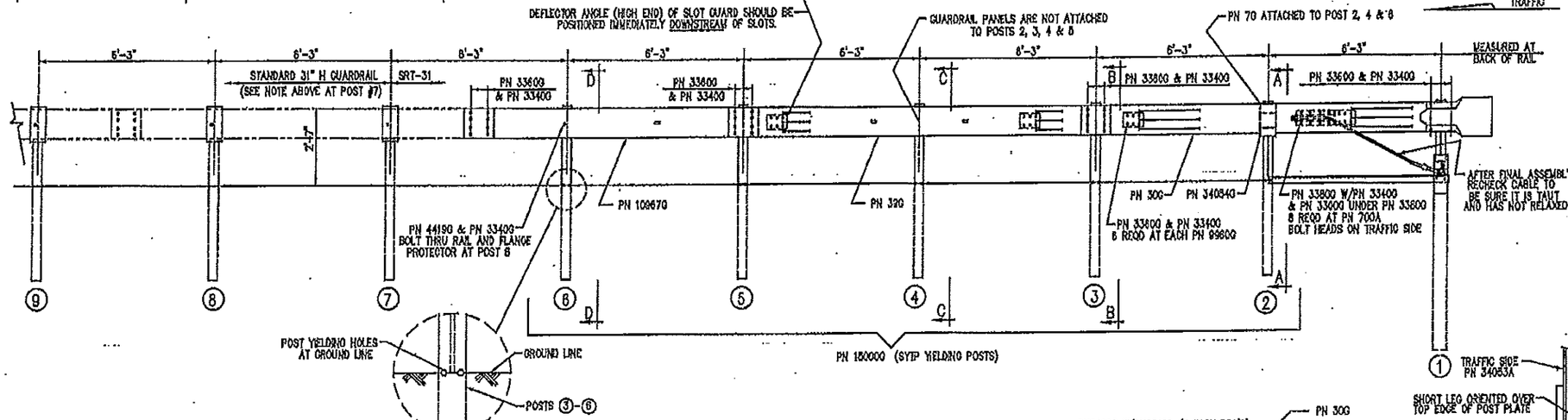
RSI
Road Systems, Inc.
Big Spring, TX
Phone: 432-263-2435
or Phone: 330-346-0721

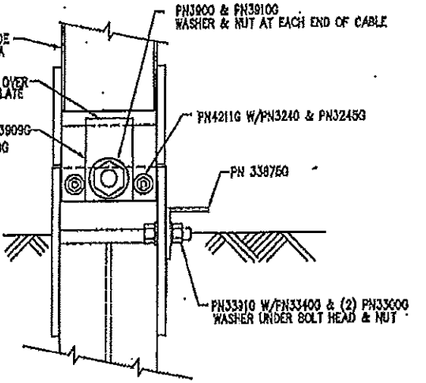
FLEAT-SP-MGS Terminal Midwest Guardrail System 31" Top of Rail

Sheet:	Date:	By:	Drawing Name:	Scale:	Rev:
1	02/24/10	JRR	FLT-SP-S-MGS	None	0

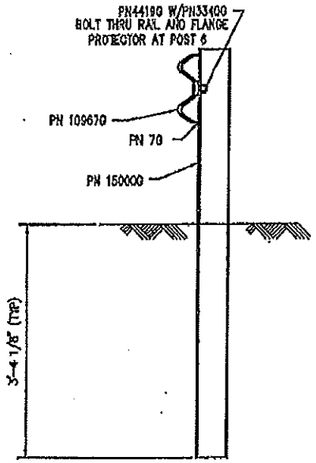
OFFSET NOTES:
1) POST OFFSET DIMENSIONS ARE GIVEN TO THE CENTER OF THE TRAFFIC FACE OF POSTS, EXCEPT AT POSTS #7 & #8, WHERE DIMENSION IS TO CENTER OF THE TRAFFIC FACE OF THE BLOCKOUTS.
2) GUARDRAIL BETWEEN POST 1-7 IS ON A STRAIGHT LINE FLARE.



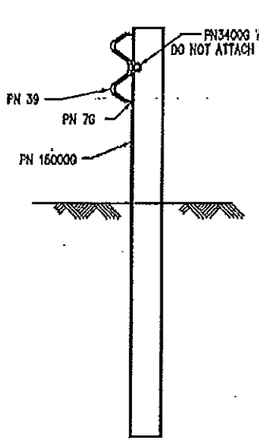




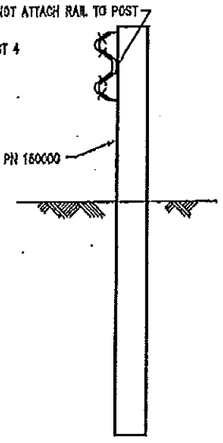
VIEW "G-G"
(@ POST #1)



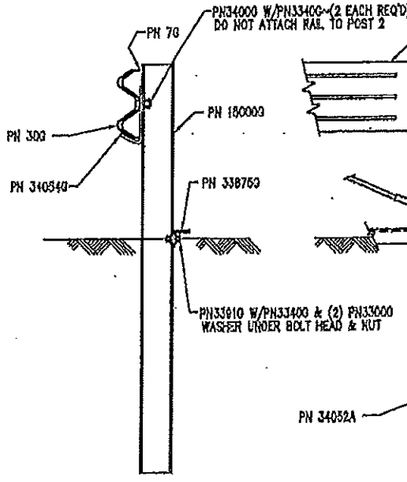
SECTION "D-D"
(@ POST #6)



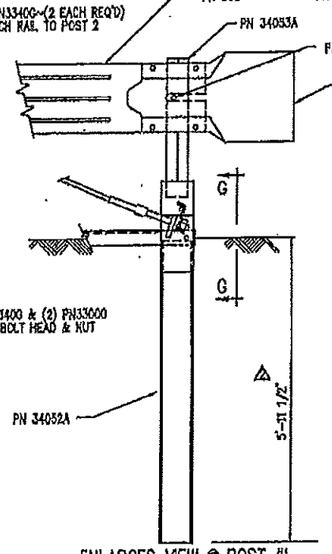
SECTION "C-C"
(@ POST #4)



SECTION "B-B"
(@ POST #3 & #5)



SECTION "A-A"
(@ POST #2)



ENLARGED VIEW @ POST #1

BILL OF MATERIAL

PN	QTY	DESCRIPTION
70	3	12/6"/FLG PROTECTOR (AT POST 2, 4 & 6)
300	1	12/12'6/S SRT-1 (GUARDRAIL)
350	1	12/12'6/S SRT-2 (GUARDRAIL)
700A	1	CABLE ANCHOR BRACKET
9070	1	12/BUFFER/ROLLED (TERMINAL)
30000	1	3/4 x 6'-6" CABLE
HARDWARE 32400	2	5/16" WASHER (AT POST 1)
32450	2	5/16" HEX NUT (AT POST 1)
⚠ 33000	12	5/8" WASHER
⚠ 33400	67	5/8" HEX HGR NUT
33600	52	5/8"ø x 1 1/4" HGR SPLICE BOLT
33800	8	5/8"ø x 1 1/2" HEX HD BOLT
⚠ 34000	4	5/8"ø x 2" HGR POST BOLT (AT POSTS 1, 2 & 4)
33910	2	5/8"ø x 1 3/4" HEX BOLT (A325) (AT STRUT)
39000	2	1" WASHER (AT CABLE)
39100	2	1" HEX NUT (AT CABLE)
42110	2	5/16"ø x 1 3/4" HEX BOLT (AT POST 1)
44190	1	9/8"ø x 1 3/4" COUNTERSUNK HD BOLT (AT POST 6)
99800	4	SLOT GUARD BRACKET
109670	1	12/9'4.5/3'1.5/S SRT-3 (GUARDRAIL)
150000	5	6'-0" SYT POST (W6 X 8.5)
339090	1	CABLE ANCHOR BRACKET (AT POST 1)
338760	1	ANGLE STRUT 3 x 3 x 1/4
34052A	1	CR POST 1 BOT (W6 x 15)
34053A	1	CR POST 1 TOP (W6 x 8.5)
340540	1	POST SHELF ANGLE (AT POST 2)

REV.	DRWN	BY	DATE	REMARKS
4	BT	LH	10/8/10	OFFSET POSTS #7 & #8
3	BT	LH	2/26/09	REVISED HARDWARE
2	SG	LH	7/28/08	REVISED POST #1 LENGTH IN GROUND
1	SG	LH	1/16/08	REVISED HARDWARE QUANTITY IN BILL OF MATERIAL

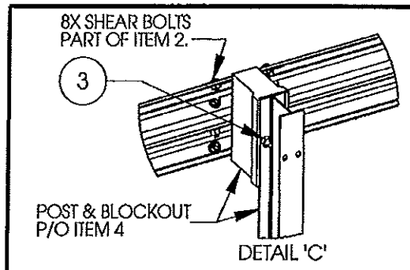
SRT-31

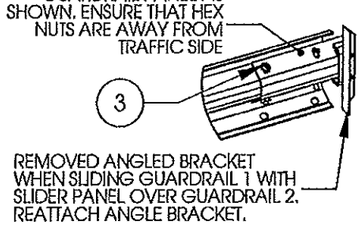
SLOTTED RAIL TERMINAL SRT-31 (31" H)
ERECTION DETAILS
(3 PANELS, CR AND SYT POSTS)

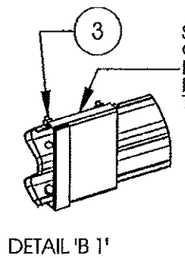
DRAWN	BT
CHECKED	SG
SCALE	NTS
DATE	10/30/07
ENG. FILE #	SS436-01E
STATUS	E1 OF 1
DRAWING NO.	SS 436
REV.	4

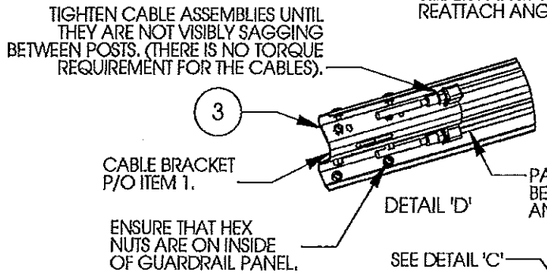
TRINITY HIGHWAY PRODUCTS, LLC.
2525 STEMMONS FREEWAY
DALLAS, TX 75207

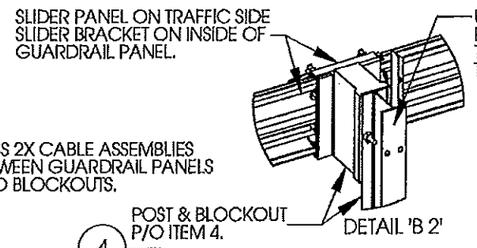
ITEM NO.	PART NUMBER	DESCRIPTION	QTY	UOM
1	BSI-1301252-KT	X-Tension Terminal Comp, 31 In	1	EACH
2	K070202	X-Tension Hardware Kit, GT,	1	EACH
3	K070206	X-Tension System Hardware Kit,	1	EACH
4	K070210	X-Tension GT Guardrail	1	EACH
5	B061100	BSI, I-Beam Post, Middle, X350	1	EACH
6	MANXTT	X-TENSION Installation Manual	1	EACH

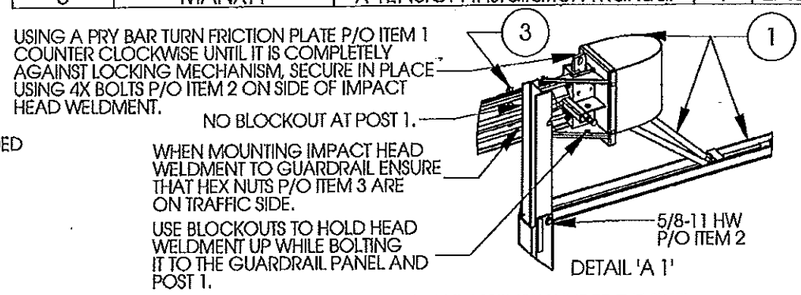


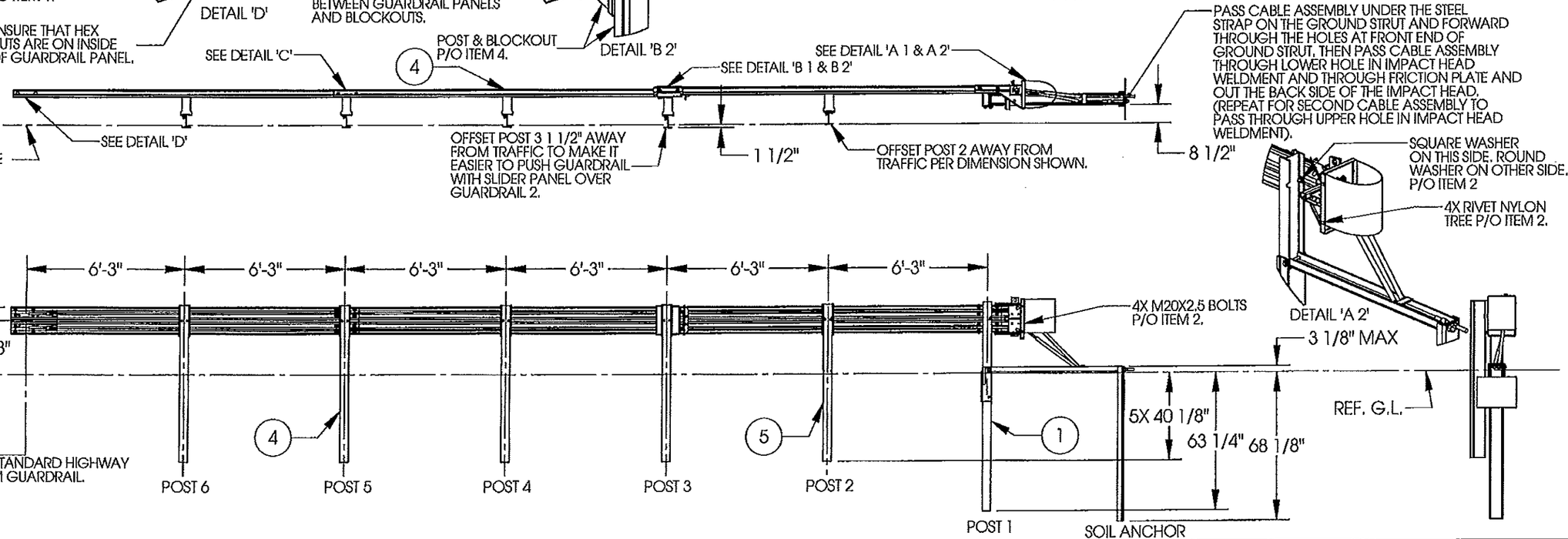












NOTES: UNLESS OTHERWISE SPECIFIED.

1. SYSTEM TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
2. ONLY TIGHTEN THE CABLE ASSEMBLIES USING THE NUTS AT THE CABLE BRACKET (SEE DETAIL 'D'). DO NOT TIGHTEN THE CABLES AT THE FRONT OF THE GROUND ANCHOR.
3. WHEN DRIVING STEEL POST, ENSURE THAT A DRIVING CAP WITH TIMBER OR PLASTIC INSERT IS USED TO PREVENT DAMAGE TO THE GALVANIZING TO THE TOP OF THE POST.

APPROVALS	
DRAWN BY:	NMV
DRAWN DATE:	2/08/13
APPR'D BY:	JMT
APPR'D DATE:	2/08/13

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE:
FRACTIONS ±1/16 DECIMAL .XX = ±.03 .XXX = ±.010 ANGLES ±1/2°
INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5-1994
THIRD ANGLE PROJECTION
DO NOT SCALE DRAWING

REV	ECN#	DATE
B	2067	05/02/13
A	2022	2/08/13

LINDSAY TRANSPORTATION SOLUTIONS™

BARRIER SYSTEMS INC.
3333 Vaca Valley Parkway Ste 800
Vacaville, CA 95688
Tel: 888-800-3691
www.barriersystemsinc.com

TITLE
X-TENSION GUARDRAIL TERMINAL SYSTEM STEEL POST WITH COMPOSITE BLOCKOUT 31" RAIL HEIGHT

SIZE	DWG NO.	REV.
B	XTGTSS5	B

SCALE 1:50 SHEET 1 OF 1

Doc. B100108

Last Saved by: jeff.thompson: Friday, May 03, 2013 1:23:29 PM

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Serious Drought.
Help Save Water!

Memorandum

To: MR. KAL DAHER
DESIGN MANAGER
PORJECT DEVELOPMENT / DESIGN
DISTRICT 6 – MANCHESTER CENTER – DESIGN IV

Date: March 18, 2015
File: 10-Sta-99- PM 17.28
ID: 1014000162
EA: 10-0Y5710
Changeable Message Sign

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
OFFICE OF GEOTECHNICAL DESIGN NORTH (OGDN)

Subject: **GEOTECHNICAL DESIGN REPORT (GDR) - CMS MODEL 500 SIGN**

INTRODUCTION

This Geotechnical Design Report (GDR) is presented in response to the request dated December 28, 2014 to provide foundation recommendations regarding the installation of a Changeable Message Sign (CMS Model 500). The proposed location of the CMS is on State Route 99, Post Mile R17.28. This proposed CMS will provide real-time traffic conditions to motorists ahead of critical decision locations. According to the request, the CMS is to be supported on a CIDH pile per the 2010 Caltrans Standard Plans (S116). Design data for the proposed sign is presented in Table 2 below.

Table 2 - Design Data for Proposed Changeable Message Signs

Post Mile	Direction	Pile Type	Pile Diameter (in)	Pile Length (ft)	Ground Condition
17.28	FNBT	CIDH	60	22.0	Level

FSBT: Facing north bound traffic.

Pertinent Reports and Investigations

The following publications were reviewed to assist in the assessment of site conditions:

- Project Plans and Details, District Design.
- As-Built Log-of-Test-Borings, Woodland Ave Overcrossing (38-0087).
- Google Earth Satellite Maps.

- Geologic Map of San Francisco-San Jose Quadrangle, 1991.
- Late Cenozoic Stratigraphic Units, Northeastern San Joaquin Valley, California, Geological Survey Bulletin 1470, 1981.

SITE GEOLOGY

The CMS site is underlain by the Pleistocene age Modesto Formation. This formation is composed of coalescing alluvial fans and flood plain deposits of a Sand, silt and gravel, some fine sediments maybe of lacustrine (lake) origin.

There is no boring data at the site. However, borings logs associated with foundation investigations at bridges (38-0085 and 38-0087) located in the vicinity were reviewed. Boring logs from the closest of the referenced bridges, bridge 38-0087 (distance from site 680 ft) are included in this report. A brief summary of the rotary boring log (B-5) is described below.

Based on that boring log the upper 41feet (maximum boring depth) consisted of interbedded or lenses of medium sand, silty fine sand and coarse sand. Based on the in-situ Standard Penetration test (SPT) results the roughly top 10 ft of soils are dense (N=40 b/f). From a depth of 10 to 35 ft the soils are classified as medium dense (avg. N=20 b/f). Below, to 41 ft the soils become dense (avg. N=33 b/f). Note: Soils classification is based on the Soil and Rock Logging, Classification Manual, 2010 Ed. Hammer correction for N-values are not known. A correction factor of 1 was assumed.

GROUNDWATER CONDITION

Groundwater data from the 38-0087 Bridge borings (1958) show groundwater at depths of 22.1 ft and 26.3ft (elevations of 56.4 ft and 52.5 ft respectively). State Department of Water Resources (DWR) water well data (2014) show the groundwater depth at the site at approximately 54 ft (elevation 30 ft).

SEISMIC CONDITION

Based on seismic evaluation and considering the depth of groundwater and soil conditions the liquefaction potential at the site is impact deemed insignificant.

SOIL CORROSION

The soil corrosion potential at the site is not known. A soil sample will be collected at the site for testing. A corrosion report will be subsequently provided.

FOUNDATION RECOMMANDATIONS

The proposed 500 CMS Sign may be supported by a CIDH pile foundation as described in the

2010 Standard Plan for a Pile diameter of 5 ft. In the case of pile length we recommend a length of 22 ft.

CONSTRUCTION CONSIDERATIONS

The most recent groundwater data show groundwater below the recommended CIDH pile tip elevation. However, historic data show the groundwater level above the proposed pile tip elevation. In the case that the groundwater elevation is above the pile tip elevation at the time of construction, the pile construction shall be by Wet Specification method.

Temporary casing may be needed due to sandy materials presented at the site. Touching the walls of the shaft during placement of the steel reinforcement should be avoided to not exacerbate soil unraveling.

If you have any questions regarding this report please contact William Bertucci (916) 203-7992 or John Huang (916) 227-1037.

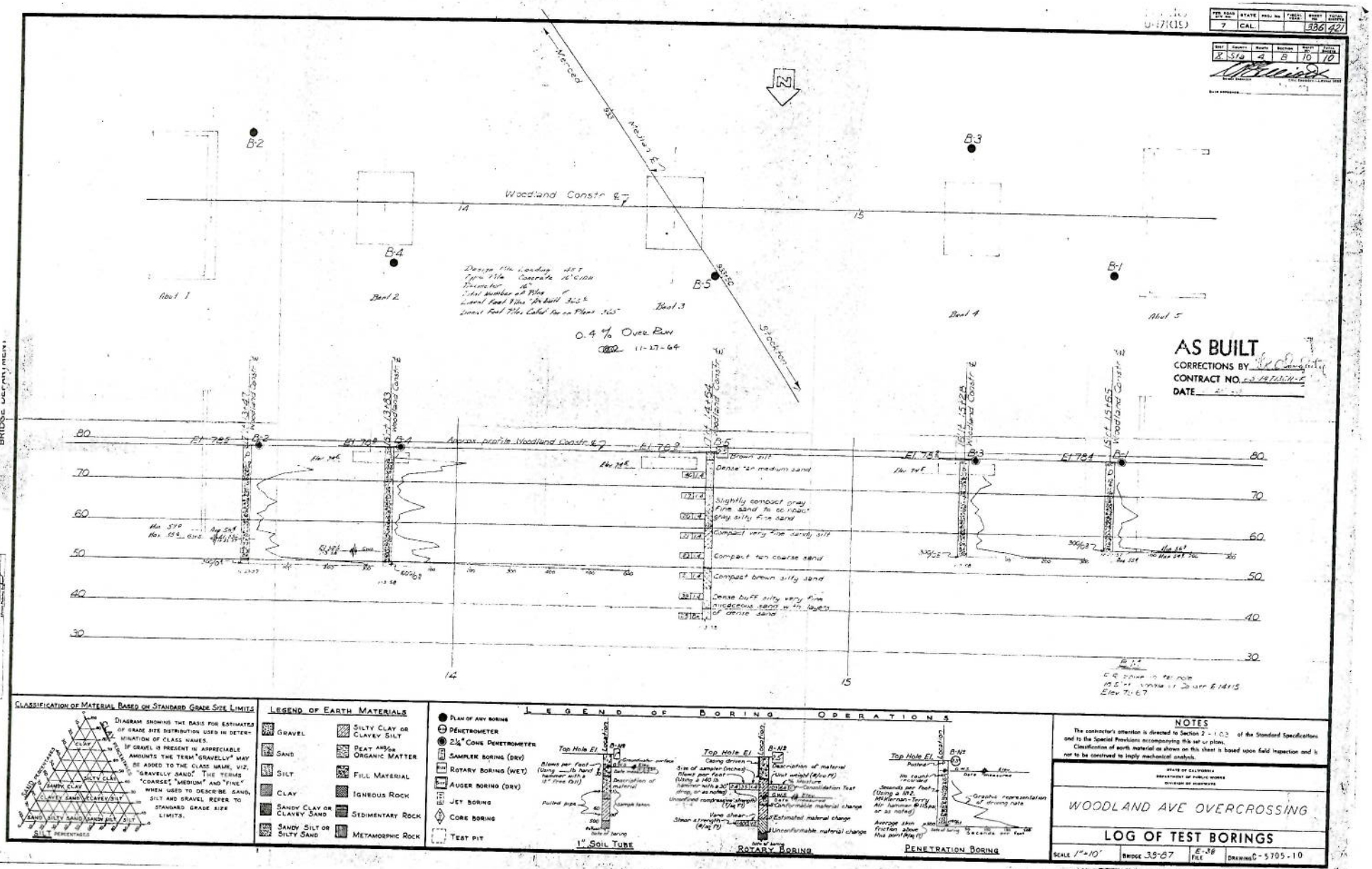
Report by:

WILLIAM BERTUCCI
Associate Engineering Geologist
Office of Geotechnical Design – North
Geotechnical Services
Division of Engineering Services

JOHN HUANG
Senior Materials and Research Engineer
Office of Geotechnical Design – North
Geotechnical Services
Division of Engineering Services

Attachment: Log of Test Borings, Woodland Avenue Overcrossing Bridge (38-0087)

cc: District Project Manager – Sam Sherman
District Design Manager – Kal Daher
Project Coordination Engineer – Peggy Lim
District Environmental Planning – Jaycee Azevedo
District Materials Engineer – Doug Lambert
GS Corporate



Classification of Material Based on Standard Grade Size Limits

Diagram showing the basis for estimates of grade size distribution used in determination of class names.

If gravel is present in appreciable amounts the term "gravelly" may be added to the class name, viz. "gravelly sand". The terms "coarse", "medium" and "fine" when used to describe sand, silt and gravel refer to standard grade size limits.

Legend of Earth Materials

- Gravel
- Sand
- Silt
- Clay
- Sandy Clay or Clayey Sand
- Sandy Silt or Silty Sand
- Silty Clay or Clayey Silt
- Peat and/or Organic Matter
- Fill Material
- Igneous Rock
- Sedimentary Rock
- Metamorphic Rock

Legend of Boring Operations

- Plan of any boring
- Penetrometer
- 2½" Cone Penetrometer
- Sampler Boring (DRV)
- Rotary Boring (WET)
- Auger Boring (DRY)
- Jet Boring
- Core Boring
- Test Pit

NOTES

The contractor's attention is directed to Section 2 - 1.03 of the Standard Specifications and to the Special Provisions accompanying this set of plans.

Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

WOODLAND AVE OVERCROSSING

LOG OF TEST BORINGS

SCALE 1"=10' | BRIDGE 39-87 | E-38 FILE | DRAWING C-5705-10

PR-5705-3

336

Water Source Information:

City of Modesto
Customer Service
P.O. Box 3441
Modesto, Ca 95353

Contact: Leona Castro - lcastro@modestogov.com (209) 571-5173

or Maria Verduzco - mverduzco@modestogov.com (209)571-5851

Permit Fee: $1,250 (construction permit/fire hydrant permit fee)