

DISCLAIMER

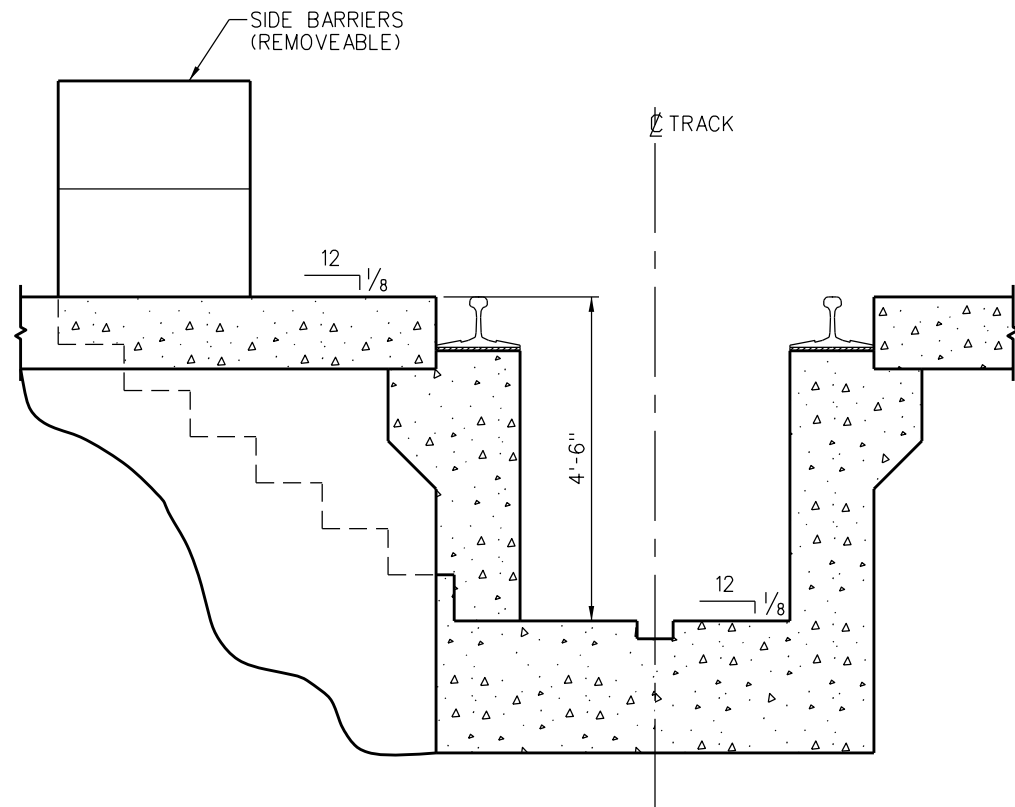
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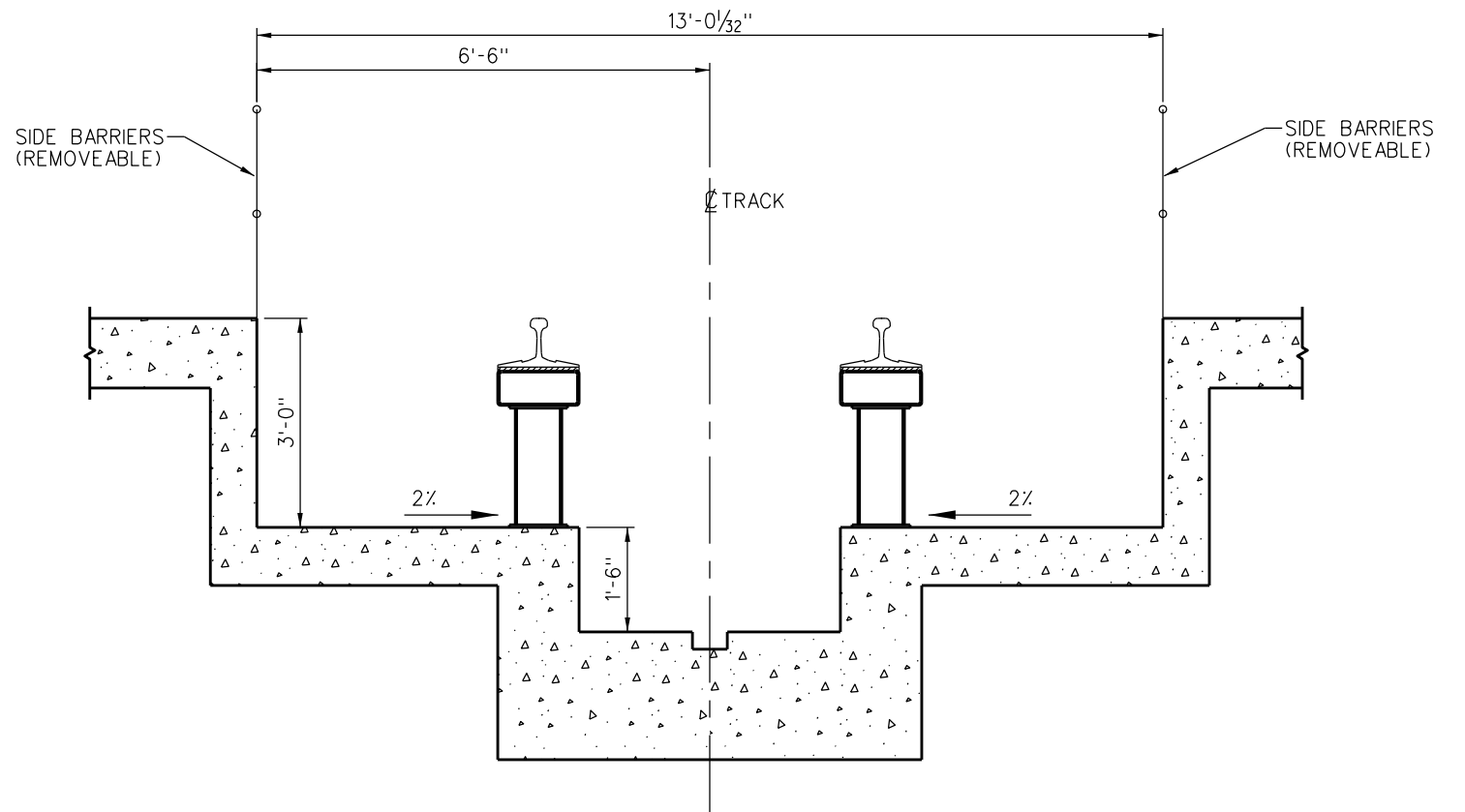
Updating the contents of the manual is a continued process, and revisions/replacements are issued periodically. Questions, comments, and proposed recommendations for changes may be sent to SCRRA at 279 E. Arrow Highway, Suite A, San Dimas, CA 91773.

NOTES:

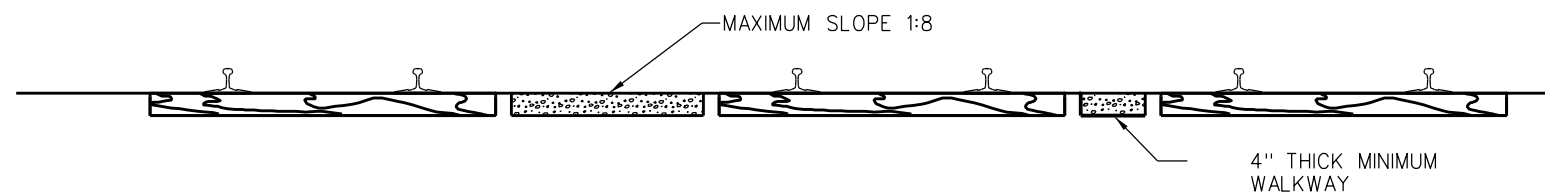
1. SIDE BARRIERS SHALL BE MAINTAINED IN PLACE EXCEPT MAY BE REMOVED WHEN ROLLING STOCK IS ON THE PIT TRACK. BARRIERS ARE TO BE REPLACED BEFORE ROLLING STOCK IS REMOVED FROM THE PIT TRACK.
2. WALKWAYS SHALL BE MAINTAINED AND KEPT FREE FROM VEGETATION.
3. IF PHYSICAL CONDITIONS REQUIRE THE MINIMUM REQUIRED WALKWAY WIDTH FOR NO. 1 TYPE WALKWAYS MAY BE REDUCED TO 2' MINIMUM UPON APPROVAL OF THE SCRRRA DIRECTOR OF ENGINEERING & CONSTRUCTION.
4. FOR DETAILS OF STANDARD ROADBED SECTIONS REFER TO ES2001 & ES2002.
5. BALLAST SHOULDER SHALL BE 9" FOR TIES 9'-0" OR GREATER IN LENGTH AND SHALL BE 12" FOR TIES LESS THAN 9'-0" IN LENGTH.



DROP PITS



INSPECTION PITS



TYPICAL YARD TRACKS AT ENTRANCES TO BUILDINGS

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS		DATE: 03/31/2011	SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	
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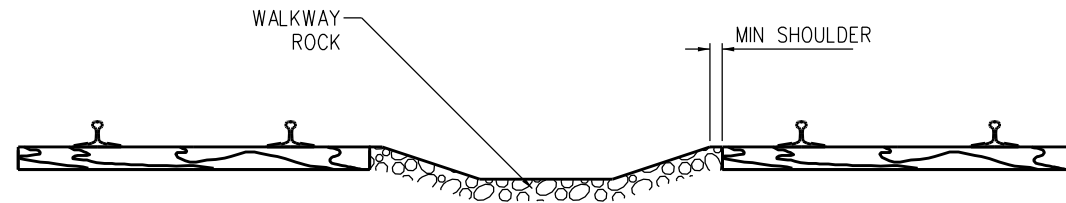
METROLINK
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS
 WALKWAY CLEARANCE FOR FACILITIES WITH UNDER TRACK PITS

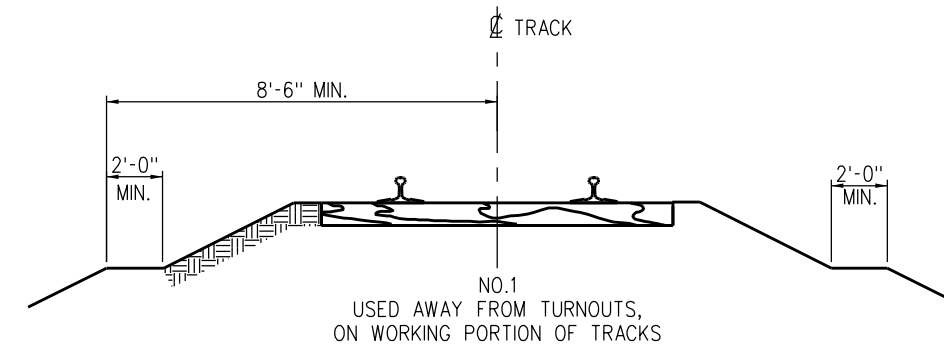
STANDARD	7001
SCALE	NONE
REVISION SHEET	1 OF 2
CADD FILE	ES7001-01

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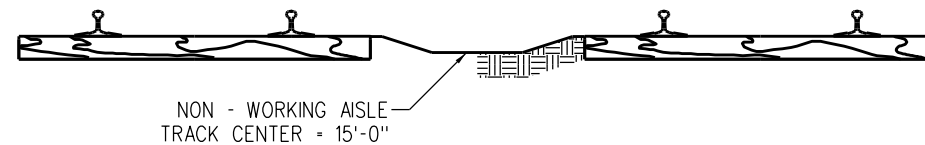
1. IN ALL CASES LATERAL CLEARANCE AND TRACK SPACING WILL MATCH CPUC G.O. 26-D EXCEPT ES7001 AND INSPECTION PITS.
2. WALKWAYS SHALL BE MAINTAINED AND KEPT FREE FROM VEGETATION.
3. IF PHYSICAL CONDITIONS REQUIRE, THE MINIMUM REQUIRED WALKWAY WIDTH FOR NO.1 TYPE WALKWAYS MAY BE REDUCED TO 2' MINIMUM UPON APPROVAL OF THE SCRRA DIRECTOR OF ENGINEERING & CONSTRUCTION.
4. FOR DETAILS OF SCRRA STANDARD ROADBED SECTIONS REFER TO ES2001 & ES2002.
5. BALLAST SHOULDER SHALL BE 9" FOR TIES 9'-0" OR GREATER IN LENGTH AND SHALL BE 12" FOR TIES LESS THAN 9'-0" IN LENGTH.
6. WHERE PAVING IS USED WITH IN THE WALKWAY AREAS IT SHALL CONFORM TO THE DIMENSIONS AND SLOPES SHOWN FOR CRUSHED ROCK WALKWAYS.
7. ROCKWAY ROCK SHALL BE CRUSHED ROCK IN COFORMANCE WITH AREMA STANDARDS.



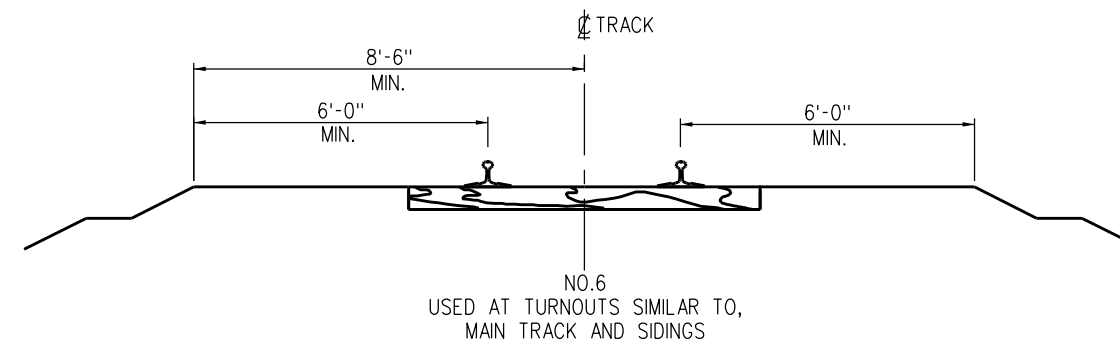
TYPICAL TRACK CONFIGURATION STORAGE TRACKS



GENERAL WALKWAY PER CALIFORNIA P.U.C. STANDARD 1



TYPICAL TRACK CONFIGURATION STORAGE TRACKS



WALKWAY AT TURNOUTS AND CAR SPOTS PER C.P.U.C. STANDARD 6

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS		DATE: 03/31/2011	SCRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRA APPROVED USES ONLY. FOR NON-SCRRA APPROVED USES SCRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRA. ALL RIGHTS RESERVED.	
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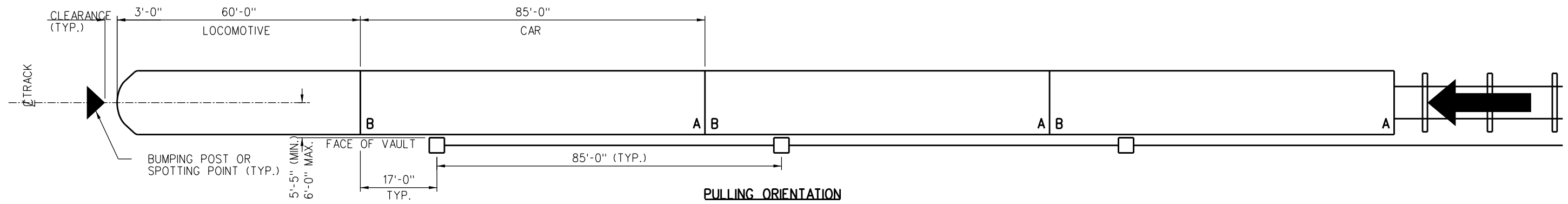


METROLINK
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

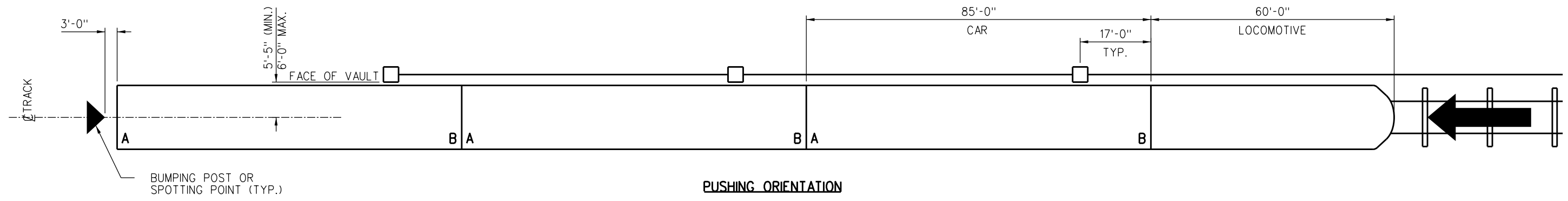
ENGINEERING STANDARDS

WALKWAY CLEARANCE FOR FACILITIES WITHOUT UNDER - TRACK PITS

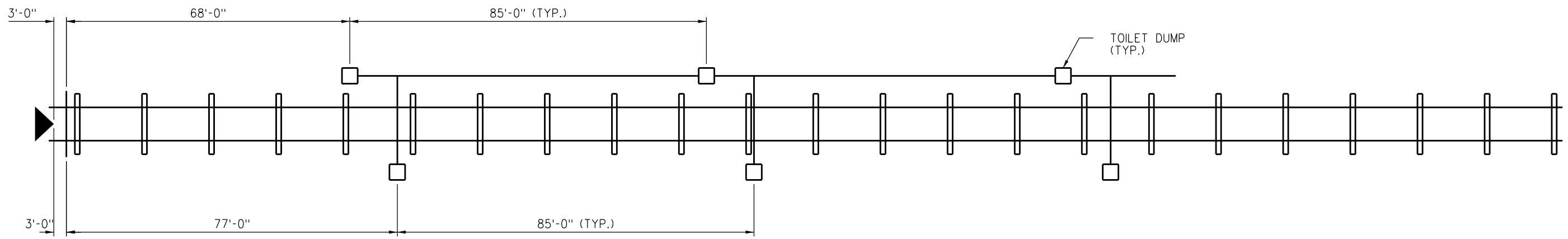
STANDARD	7001
SCALE:	NONE
REVISION SHEET	- 2 OF 2
CADD FILE:	ES7001-02



PULLING ORIENTATION



PUSHING ORIENTATION



COMBINED PUSHING & PULLING

NOTES:

1. THE "B" END OF CARS IS ALWAYS ON THE LOCOMOTIVE SIDE.
2. THIS ASSUMES SPOTTING TRAINS AT THE SAME LOCATION FOR BOTH PUSHING AND PULLING ORIENTATION.
3. LAYOUT FOR MULTIPLE TRACKS CAN BE MODIFIED TO MINIMIZE THE NUMBER OF TOILET DUMPS.

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY: A. CARLOS DATE: 03/31/2011

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ASSISTANT DIRECTOR: STANDARDS & DESIGN

William D. Davis
DIRECTOR OF ENGINEERING AND CONSTRUCTION

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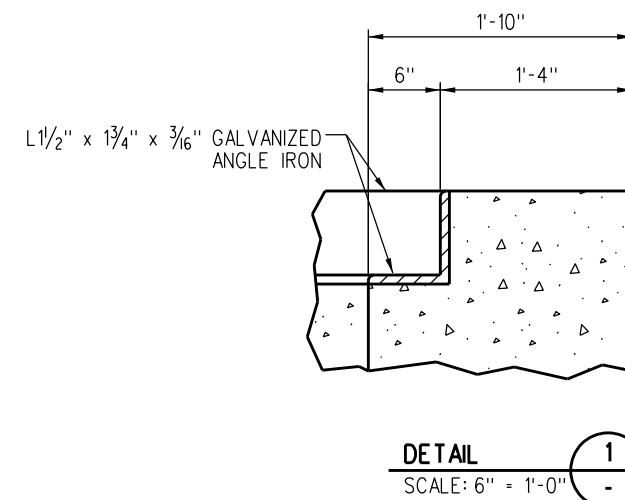
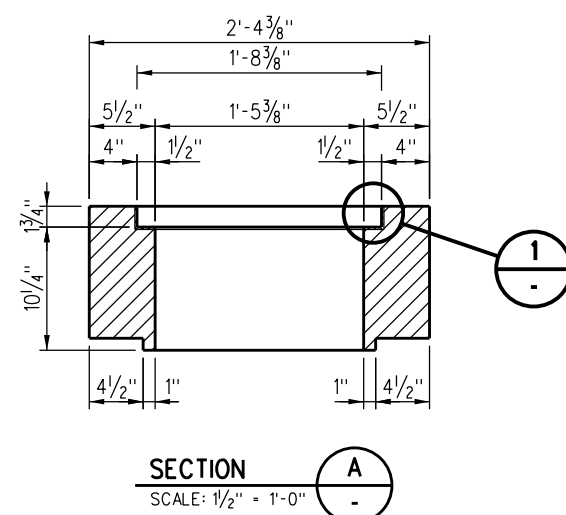
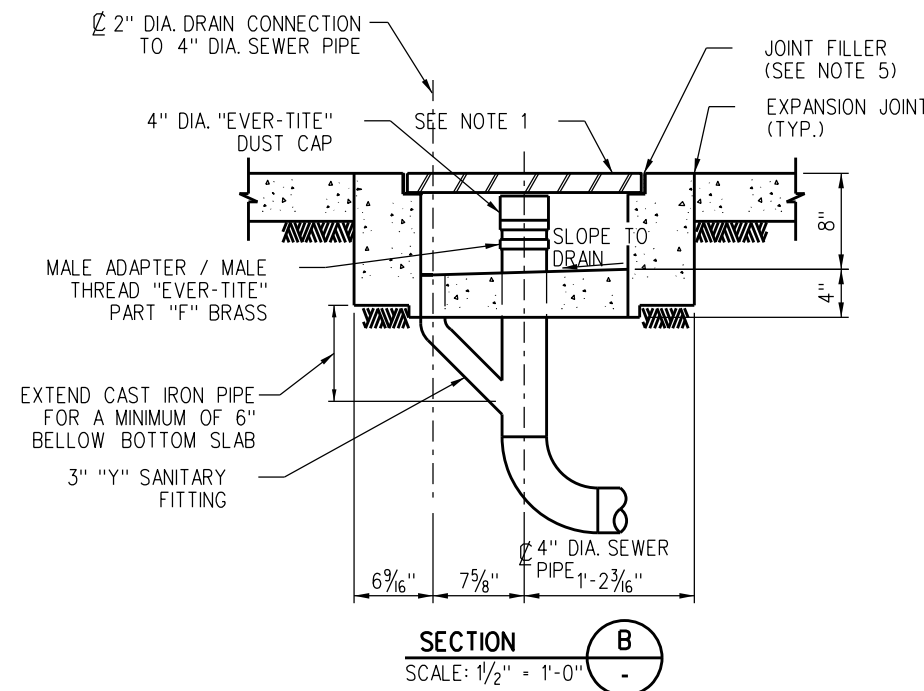
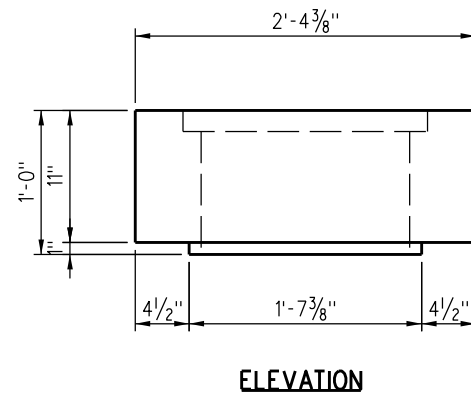
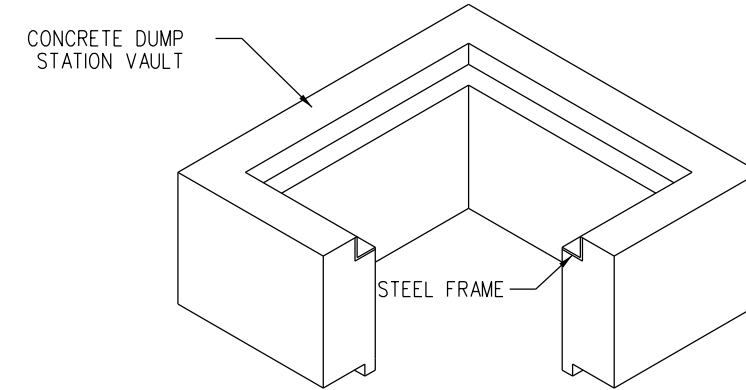
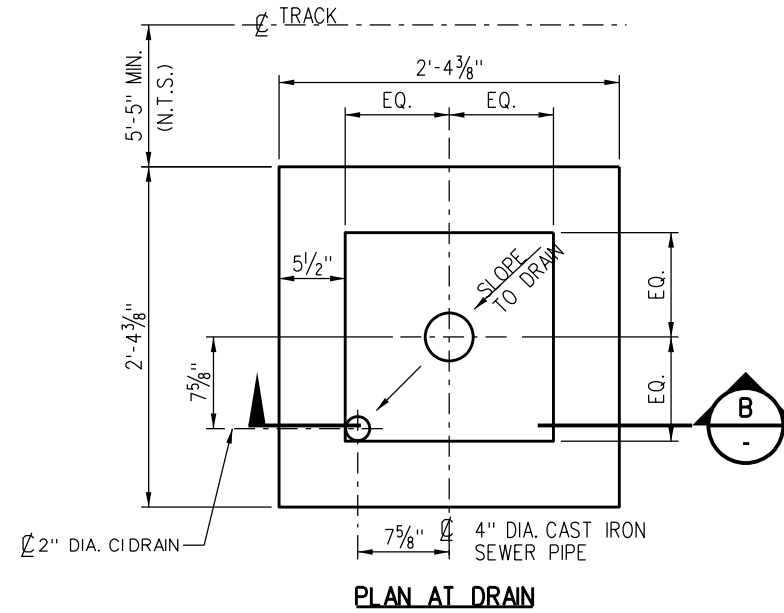
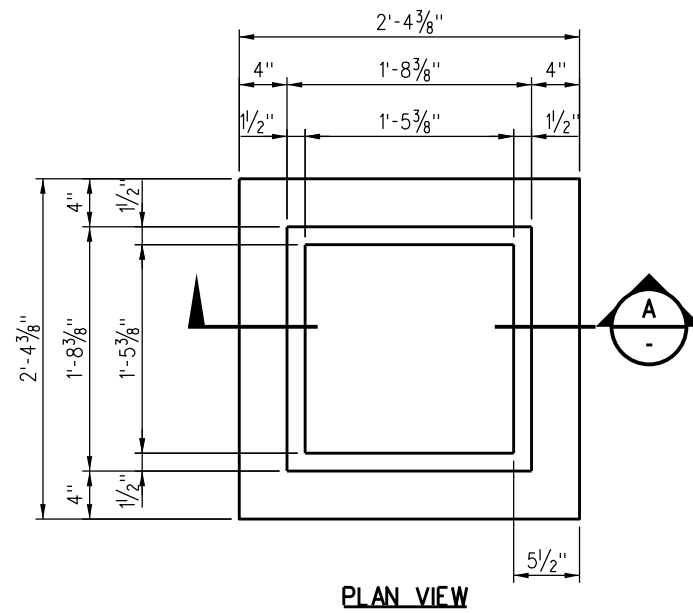
ENGINEERING STANDARDS

DUMP STATION LAYOUT

STANDARD	7101
SCALE	NONE
REVISION SHEET	1 OF 3
CADD FILE	ES7101-01

NOTES:

1. FOR DUMP STATION VAULT LID SEE DRAWING ES7102.
2. THE ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE SHALL BE NOT LESS THAN 5000 PSIN 28 DAYS.
3. STEEL FRAME TO BE HOT DIP GALVANIZED.
4. VAULT BOTTOM TO BE POURED CONCRETE WITH SMOOTH FINISH.
5. FILL JOINT BETWEEN PERIMETER OF DUMP LID AND STEEL FRAME OF DUMP VAULT WITH APPROVED EPOXY CAULK.



REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY: A. CARLOS DATE: 03/31/2011

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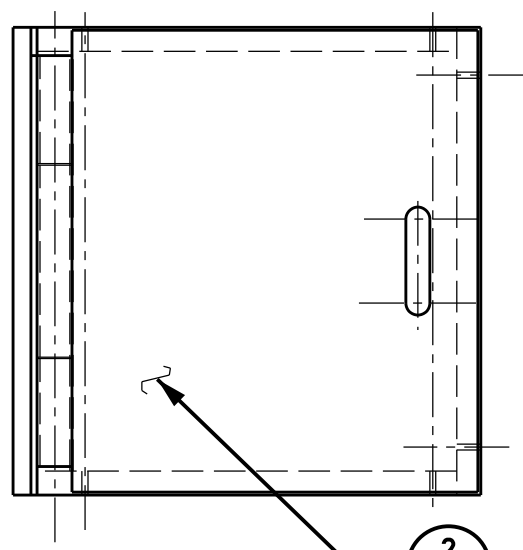
METROLINK
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS

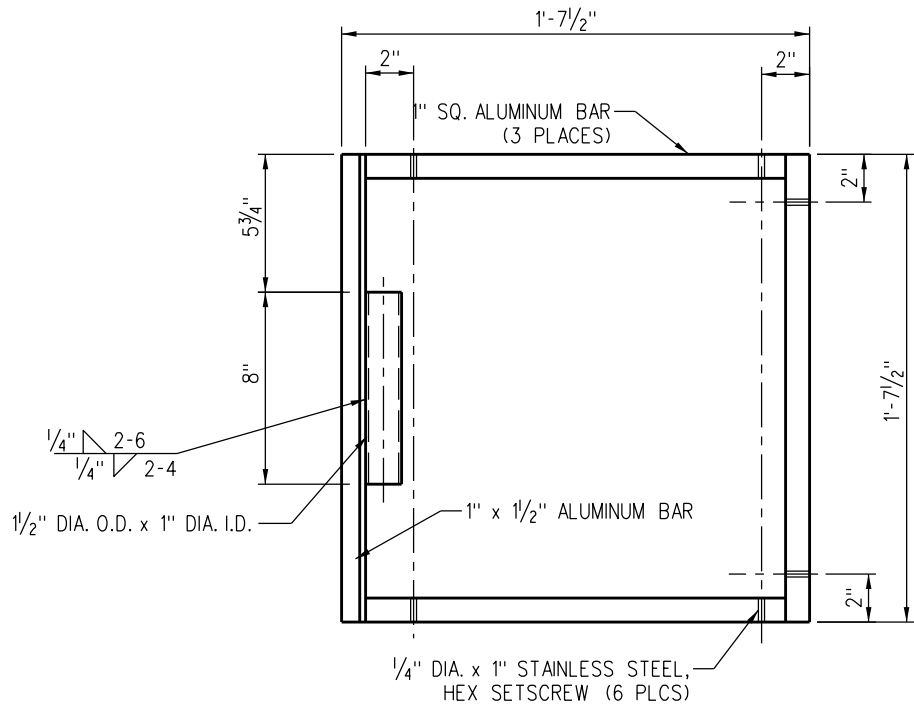
DUMP STATION VAULT
DETAILS

STANDARD	7101
SCALE:	AS NOTED
REVISION SHEET	2 OF 3
CADD FILE:	ES7101-02

NOTE:
ALL ALUMINUM TO BE 6061-T6

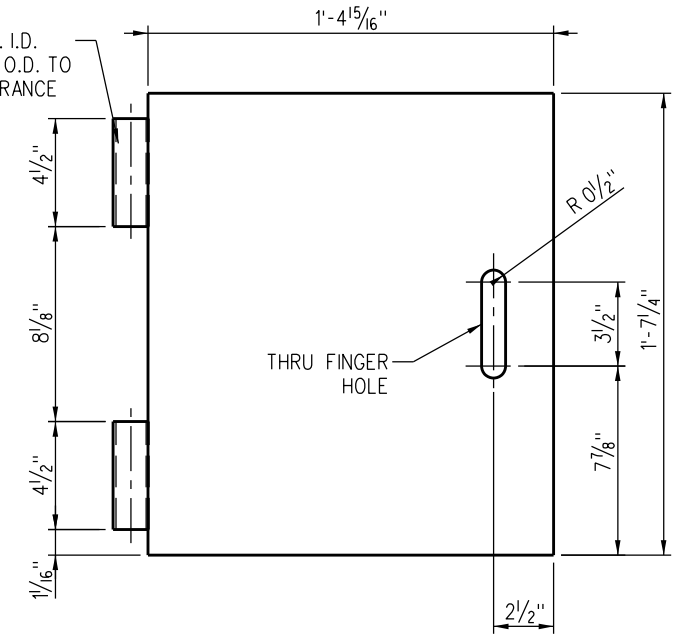


**PLAN VIEW
ASSEMBLY**

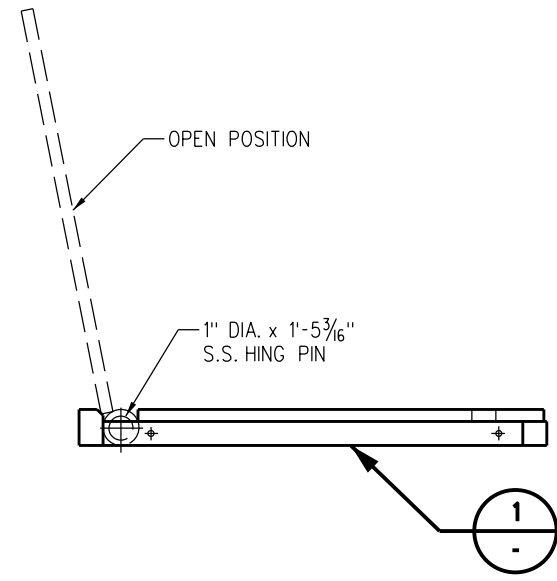


**PLAN VIEW
FRAME**

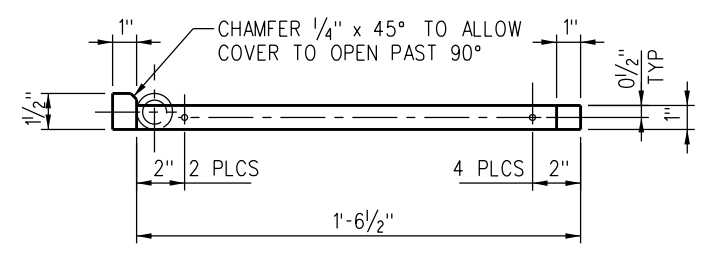
1/2" DIA. O.D. x 1" DIA. I.D.
ALUM. TUBE, MACHINE O.D. TO
1.490" DIA. FOR CLEARANCE
2 PLACES



**PLAN VIEW
LID / COVER**

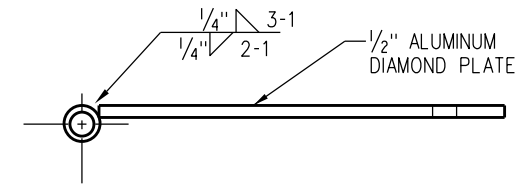


**ELEVATION
SEWER DUMP LID
ASSEMBLY DETAIL**



**SIDE VIEW
ALUMINUM FRAME**

DETAIL 1



**SIDE VIEW
ALUMINUM COVER**

DETAIL 2

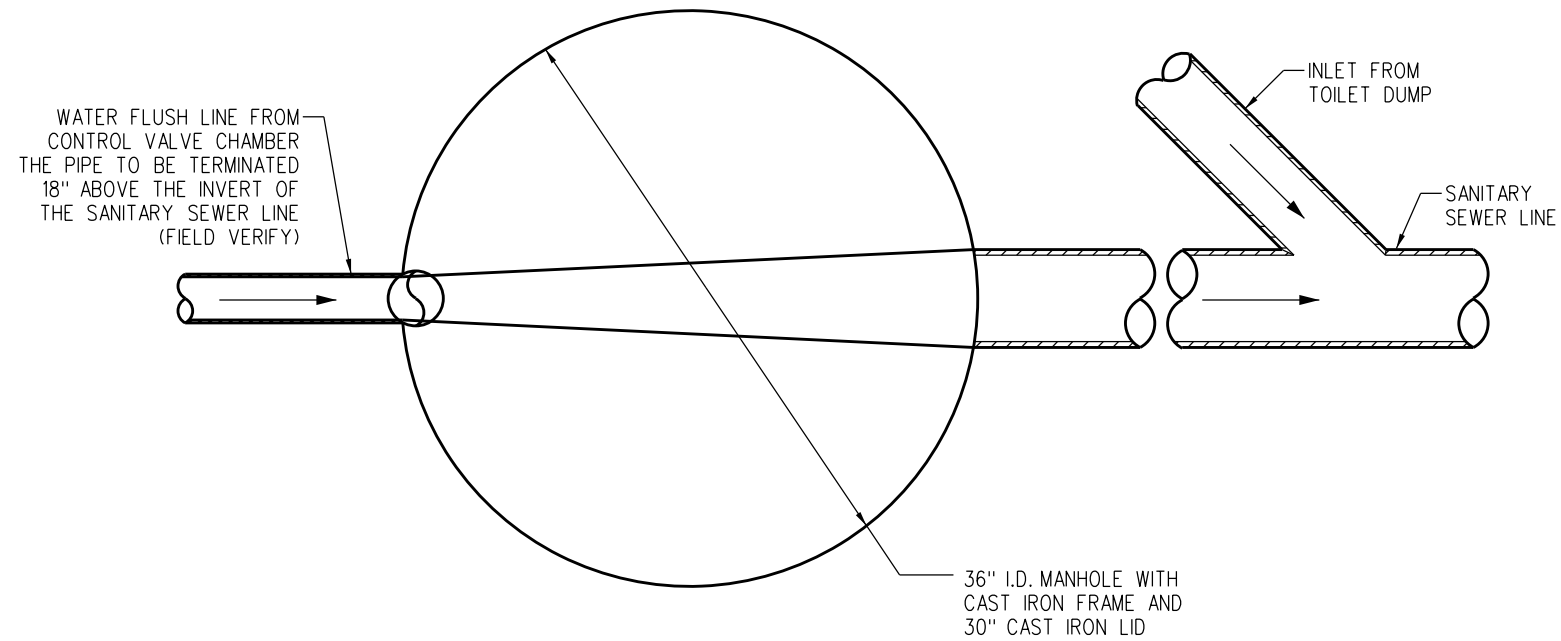
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X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS DATE: 03/31/2011 Assistant Director: Standards & Design Director of Engineering and Construction				

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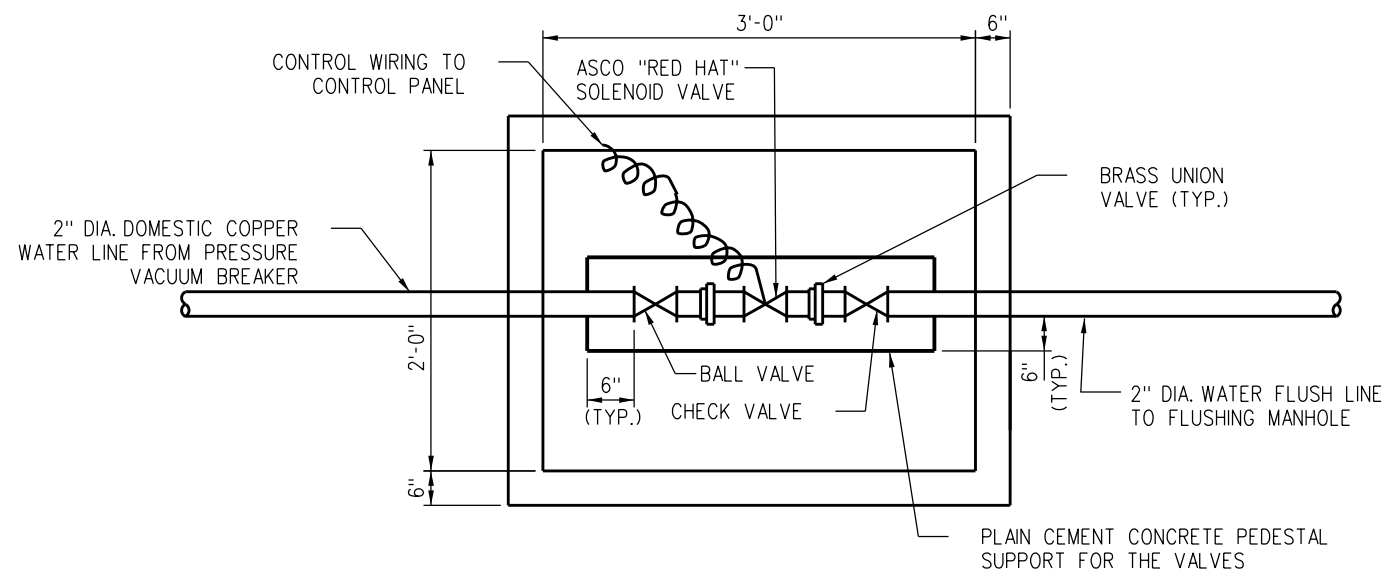
METROLINK
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS
DUMP STATION VAULT
ALUMINUM LID DETAILS

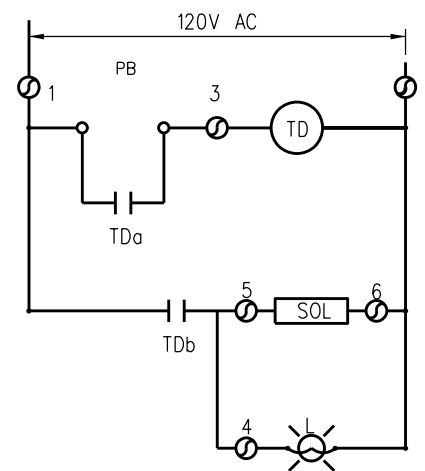
STANDARD	7101
SCALE:	3" = 1'-0"
REVISION SHEET	3 OF 3
CADD FILE:	ES7101-03



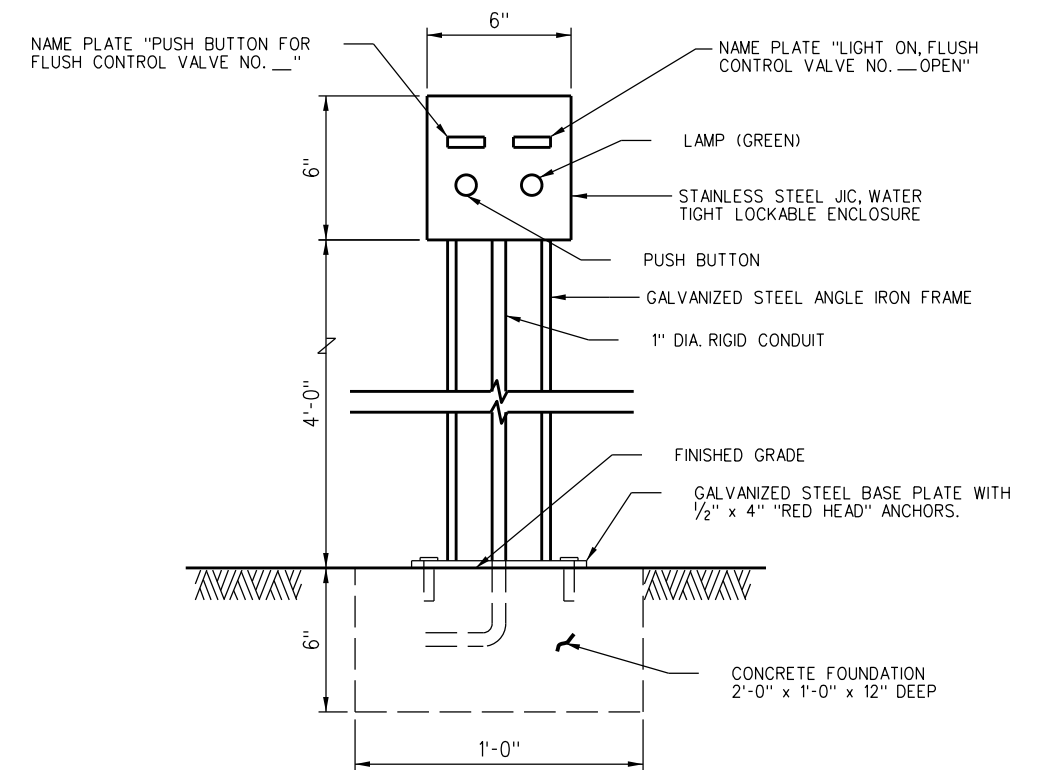
**PLAN
FLUSHING MANHOLE**



**PLAN
FLUSHING CONTROL VALVE
BOX CHAMBER**



**SCHEMATIC DIAGRAM FOR
SOLENOID VALVE CONTROL**



**FLUSHING MANHOLE
CONTROL PANEL LAYOUT**

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY: A. CARLOS DATE: 03/31/2011
Nareh D. Pae
 ASSISTANT DIRECTOR: STANDARDS & DESIGN
William D. Davis
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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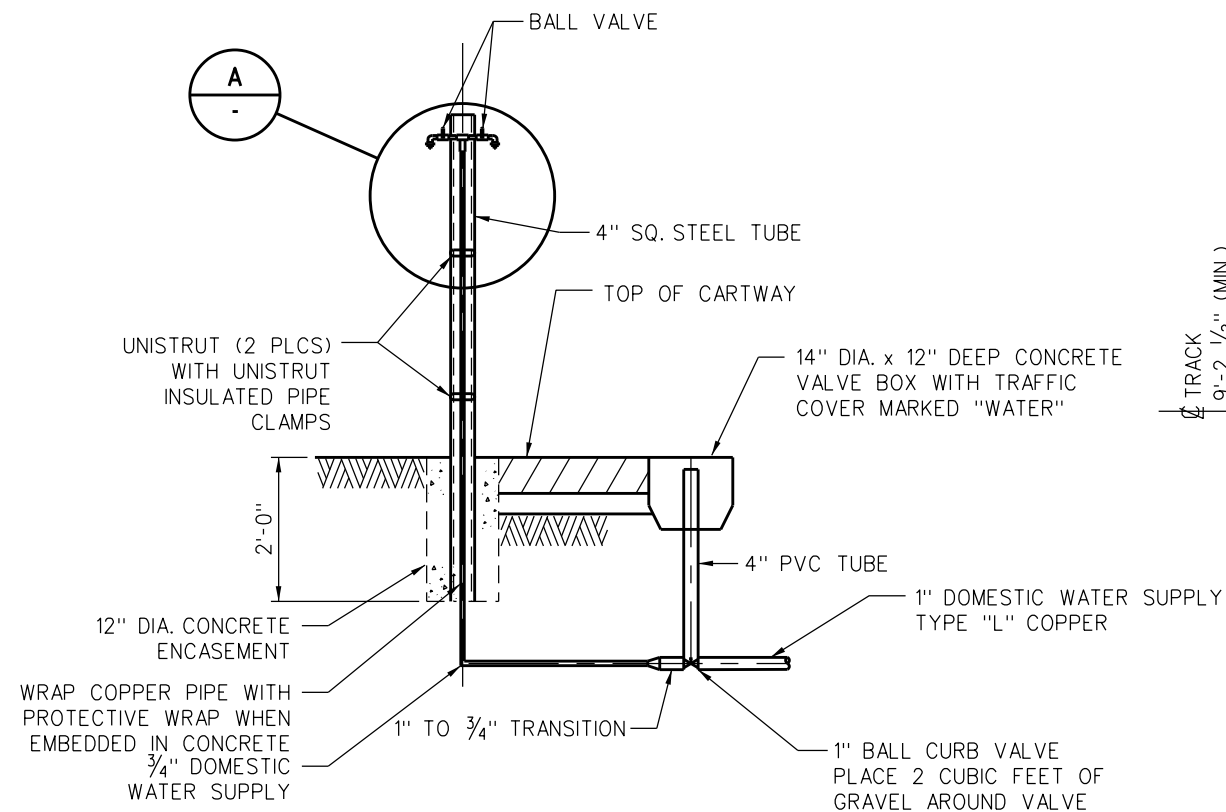
ENGINEERING STANDARDS

FLUSHING MANHOLE DETAILS

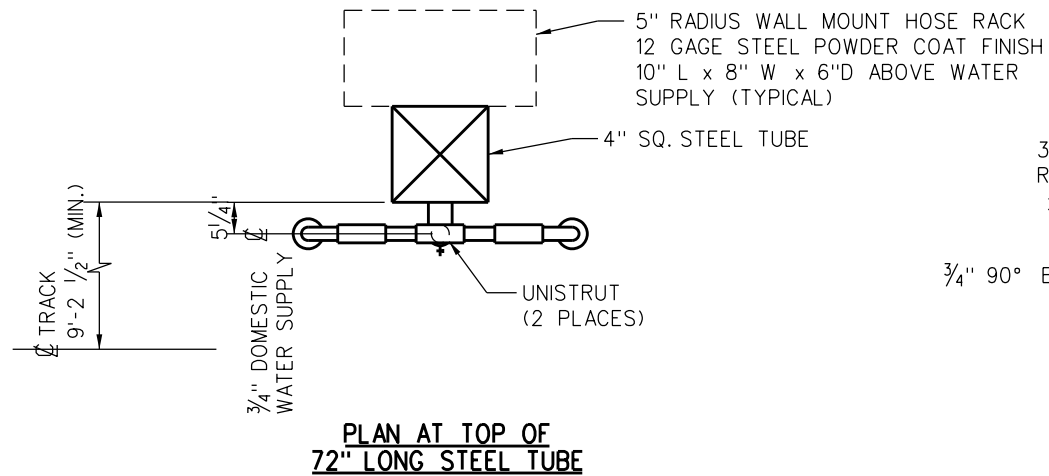
STANDARD	7102
SCALE	NONE
REVISION SHEET	1 OF 1
CADD FILE	ES7102

NOTES:

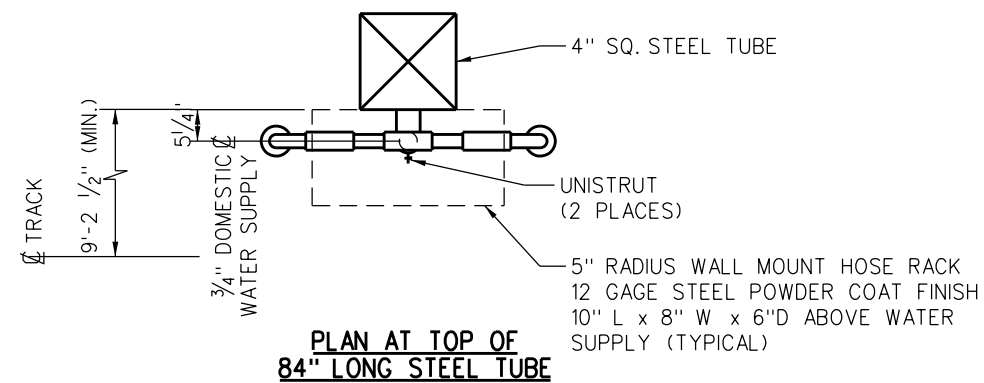
1. 4" SQUARE TUBE WILL BE SCHEDULE 40 STEEL TUBE.
2. 4" SQUARE TUBE TO BE PAINTED SAFETY YELLOW.
3. 4" SQUARE TUBE WILL BE 72" LONG IF WALL MOUNT HOSE RACK IS ON THE OPPOSITE SIDE OF WATER SUPPLY LINE AND 84" LONG IF WALL MOUNT HOSE RACK IS ON THE SAME SIDE OF WATER SUPPLY LINE.



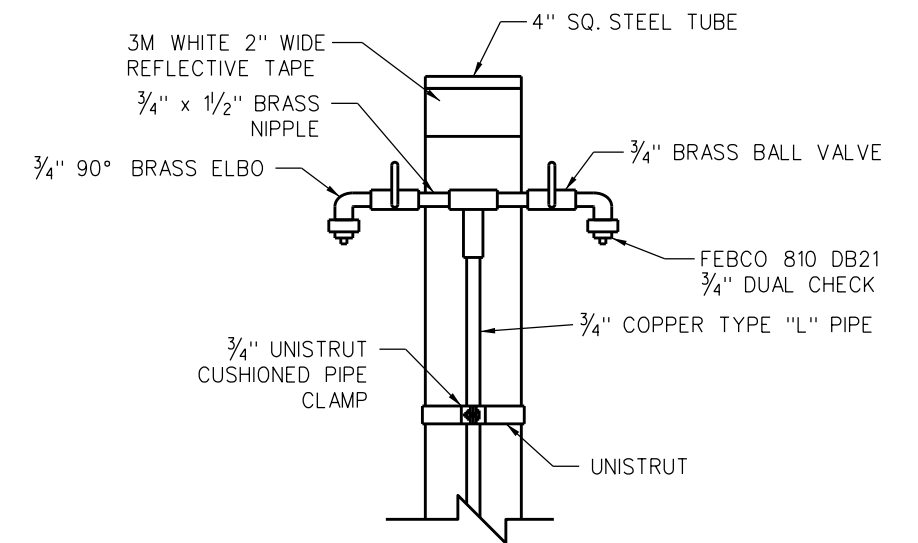
**ELEVATION
POTABLE WATER SUPPLY**



**PLAN AT TOP OF
72" LONG STEEL TUBE**



**PLAN AT TOP OF
84" LONG STEEL TUBE**



DETAIL "A"

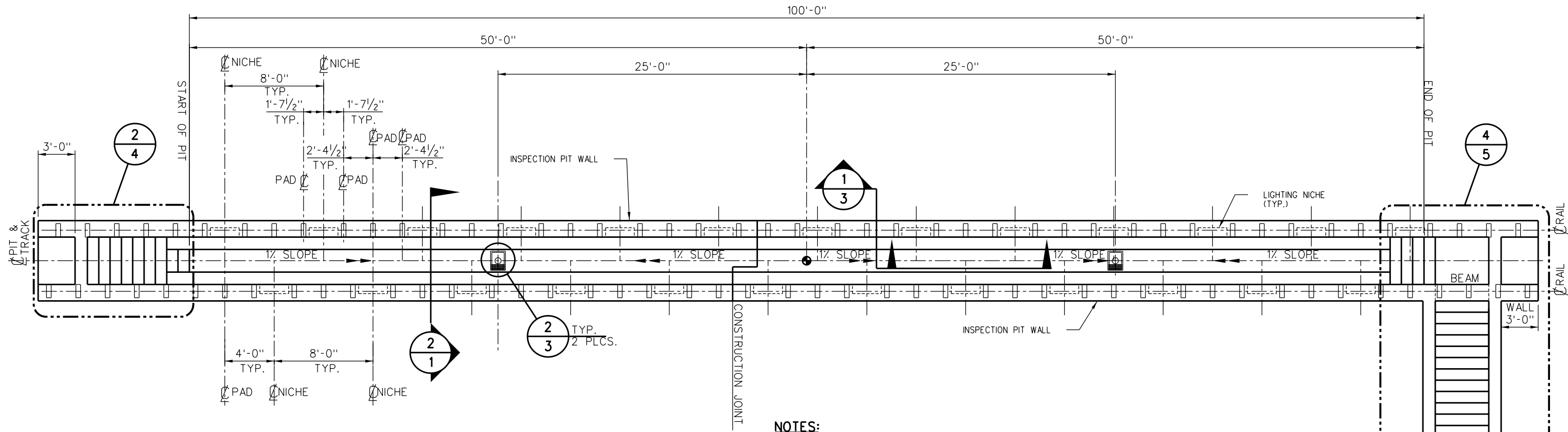
REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS DATE: 03/31/2011 Assistant Director: STANDARDS & DESIGN Director of Engineering and Construction				

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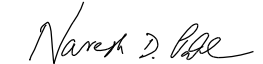
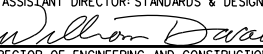
ENGINEERING STANDARDS	
POTABLE WATER STATION	

STANDARD	7103
SCALE	NONE
REVISION SHEET	1 OF 1
CADD FILE	ES7103



NOTES:

1. LOCATION OF RAIL PADS AND LIGHTING NICHES WILL BE DETERMINED BY RAIL TIE CONFIGURATION LEADING INTO INSPECTION PIT.
2. DIMENSIONS SHOWN ARE FOR A STANDARD INSPECTION PIT, ACTUAL DIMENSIONS TO BE DETERMINED BY ENGINEER.
3. INSPECTION PIT DESIGN BASED ON SOIL BEARING PRESSURE OF 2250 PSF TO 3500 PSF, SITE SPECIFIC CONDITIONS SHOULD BE VERIFIED AND DESIGN ADJUSTED ACCORDINGLY.
4. CONCRETE SHALL BE NORMAL WEIGHT - 145 LBS./CU. FT. AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 3000 PSIFOR ALL CONCRETE, UNLESS NOTED OTHERWISE.
5. MIXING AND PLACING OF ALL CONCRETE AND SELECTION OF MATERIALS SHALL BE IN ACCORDANCE WITH THE APPLICABLE CODE AND ACISTANDARDS. CEMENT SHALL BE TYPE II CONFORMING TO ASTM C150. WATER FOR MIXING AND CURING SHALL BE FRESH, CLEAN AND POTABLE. CONTINUOUS INSPECTION IS REQUIRED FOR ALL CONCRETE WORK. WATER CEMENT RATION NOT TO EXCEED 0.50.
6. PROPORTIONS OF AGGREGATE TO CEMENT SHALL BE SUCH AS TO PRODUCE A DENSE WORK-ABLE MIX WHICH CAN BE PLACED WITHOUT SEGREGATION OR EXCESS FREE SURFACE WATER. REFER TO SCRRRA STANDARDS AND SPECIFICATIONS FOR AGGREGATES AND PROPORTIONS.
7. REINFORCING STEEL SHALL BE DEFORMED STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A615, GRADE 60. REINFORCING STEEL TO BE WELDED SHALL CONFORM TO REQUIREMENTS OF ASTM A706, GRADE 60, UNLESS NOTED OTHERWISE.
8. REINFORCING BARS SHALL BE SPLICED AS SHOWN ON DRAWINGS. ANY ADDITIONAL SPLICING SHALL REQUIRE PRIOR APPROVAL FROM THE ENGINEER OF RECORD.
9. REINFORCING STEEL SHALL HAVE A MINIMUM PROTECTIVE COVERING CONCRETE AS FOLLOWS:
 - A) CONCRETE PLACED DIRECTLY AGAINST EARTH _____ 3"
 - B) CONCRETE PLACED AGAINST FORMS BUT EXPOSED TO EARTH OR WEATHER:
 BARS LARGER THAN NO. 5 _____ 2"
 NO. 5 AND SMALLER _____ 1 1/2"
 - C) CONCRETE PLACED AGAINST FORMS BUT NOT EXPOSED DIRECTLY TO EARTH OR WEATHER:
 SLABS AND WALLS _____ 1"
 ALL OTHERS _____ As per ACI 318-89
10. ALL BARS SHALL BE CLEAN OF RUST, GREASE AND OTHER MATERIALS LIKELY TO IMPAIR BOND. ALL BENDS SHALL BE MADE COLD.

DRAWN BY: A. CARLOS		DATE: 03/31/2011	
 ASSISTANT DIRECTOR: STANDARDS & DESIGN		 DIRECTOR OF ENGINEERING AND CONSTRUCTION	
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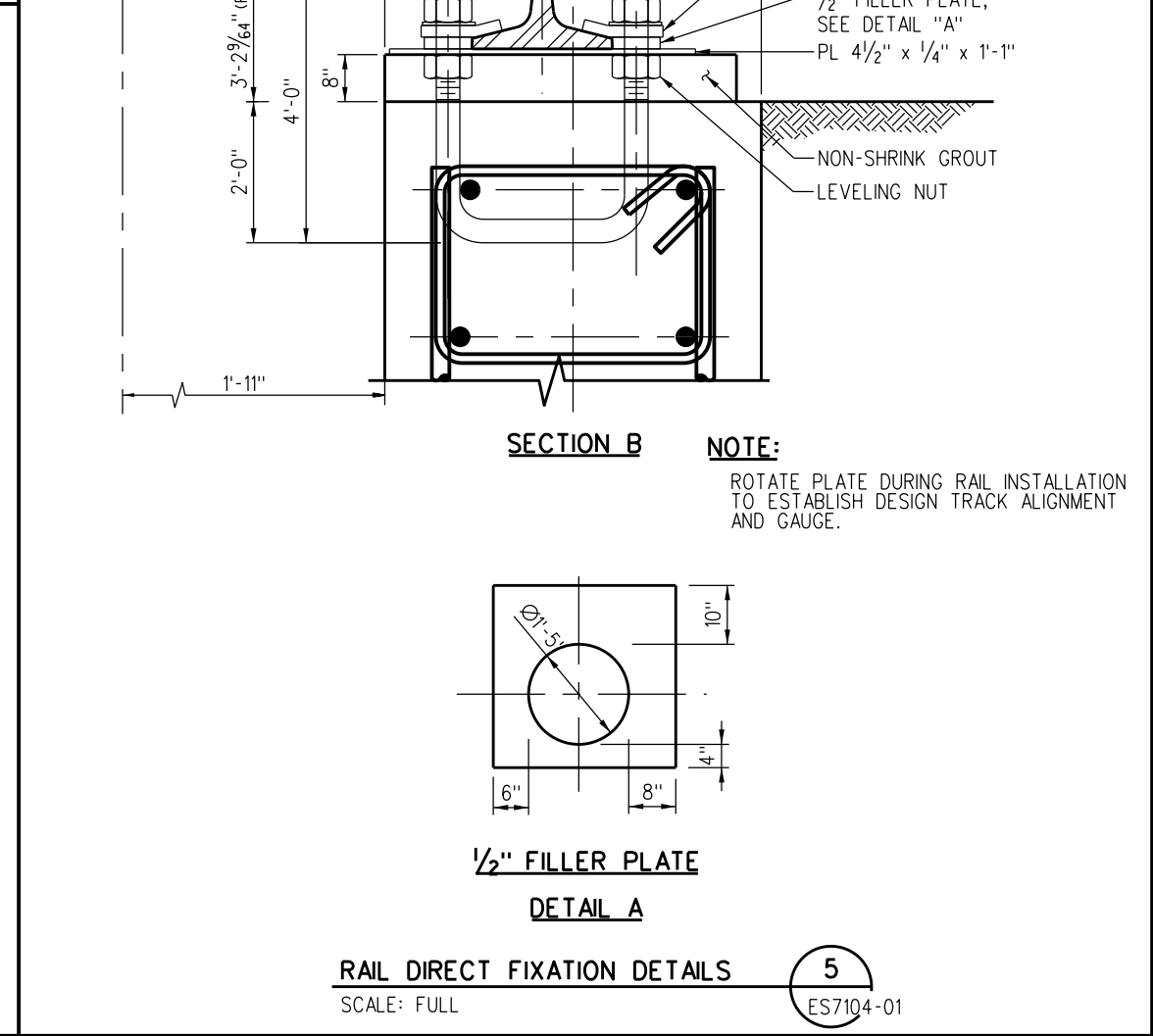
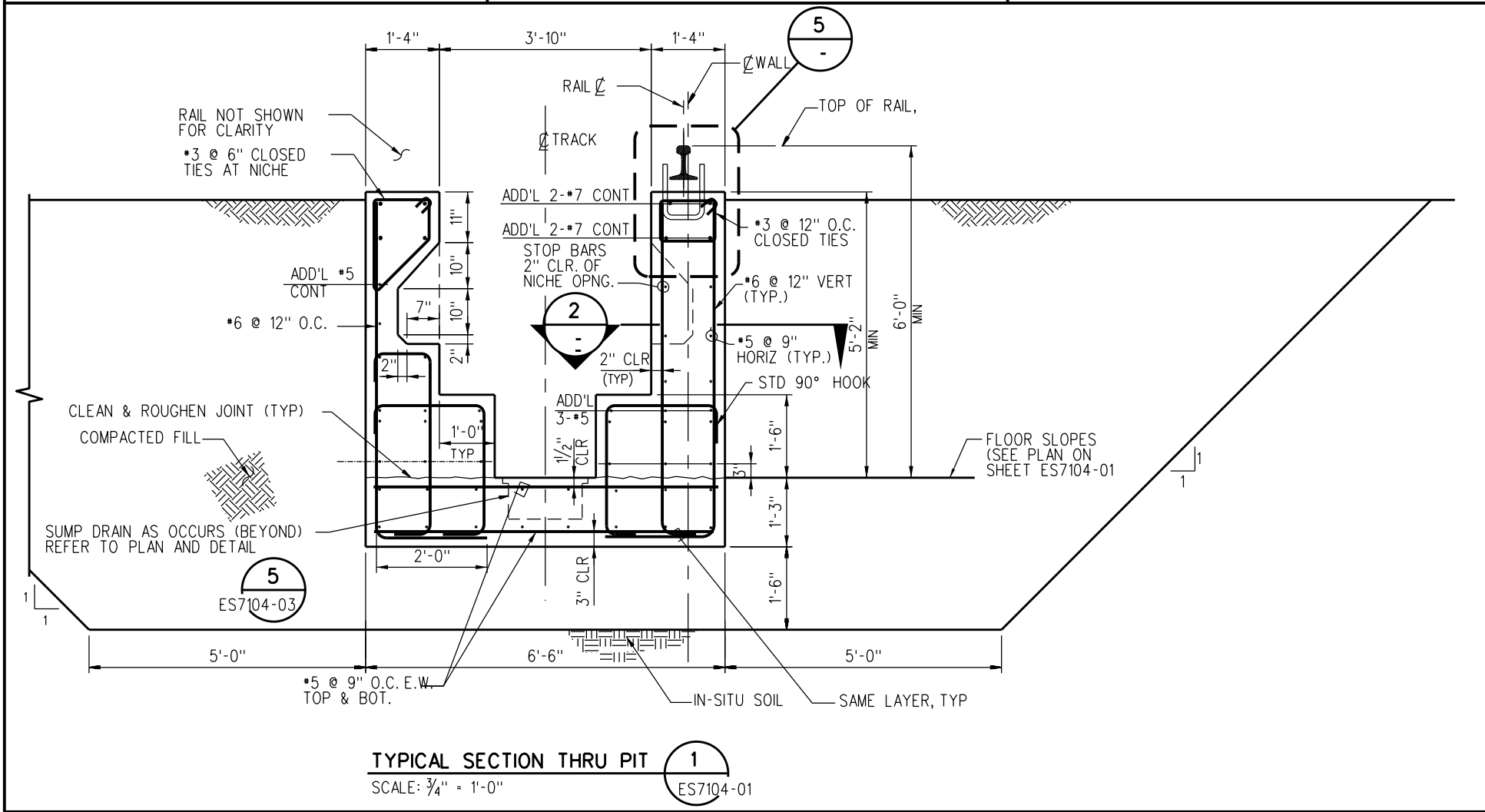
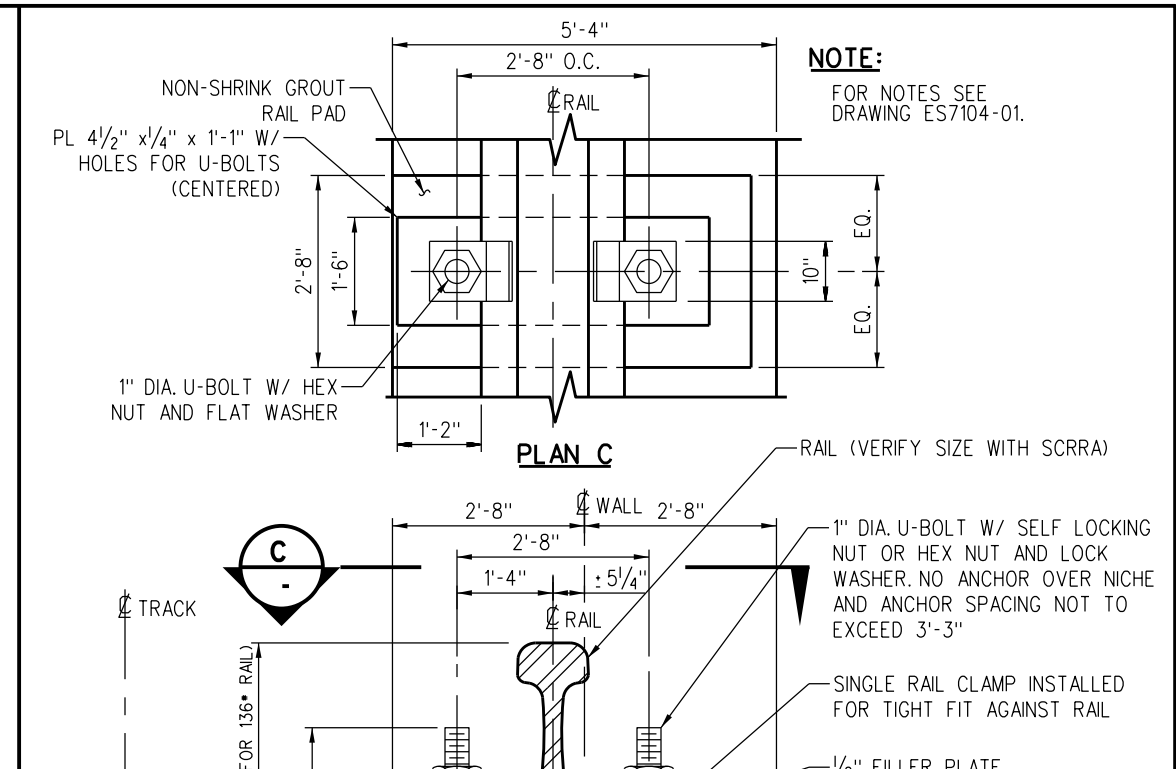
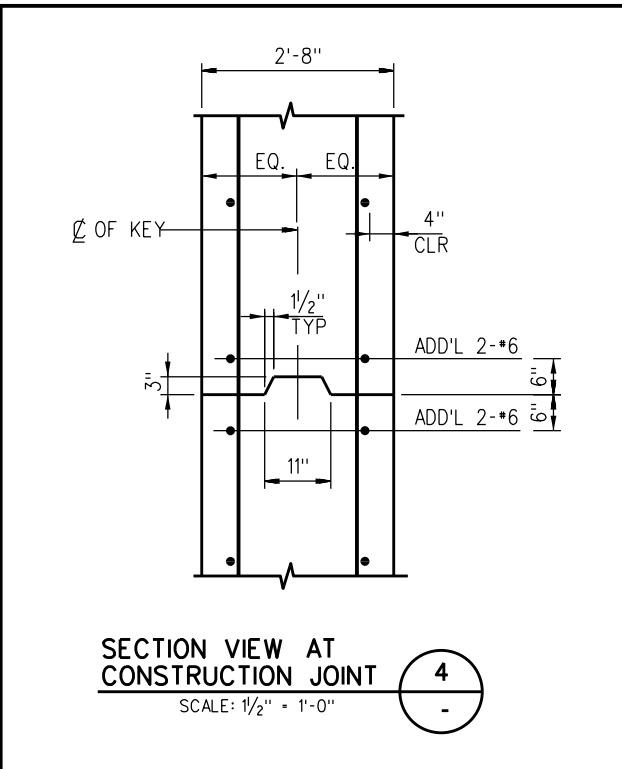
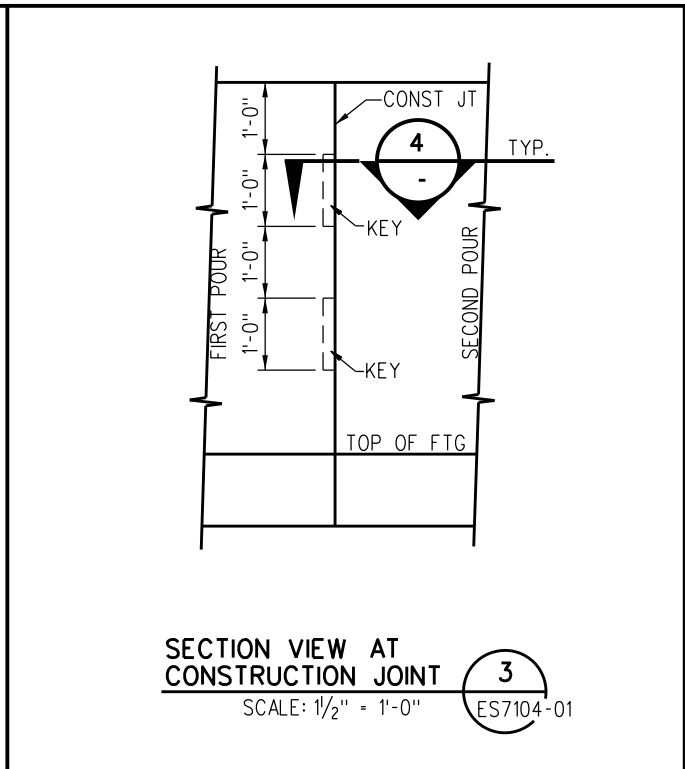
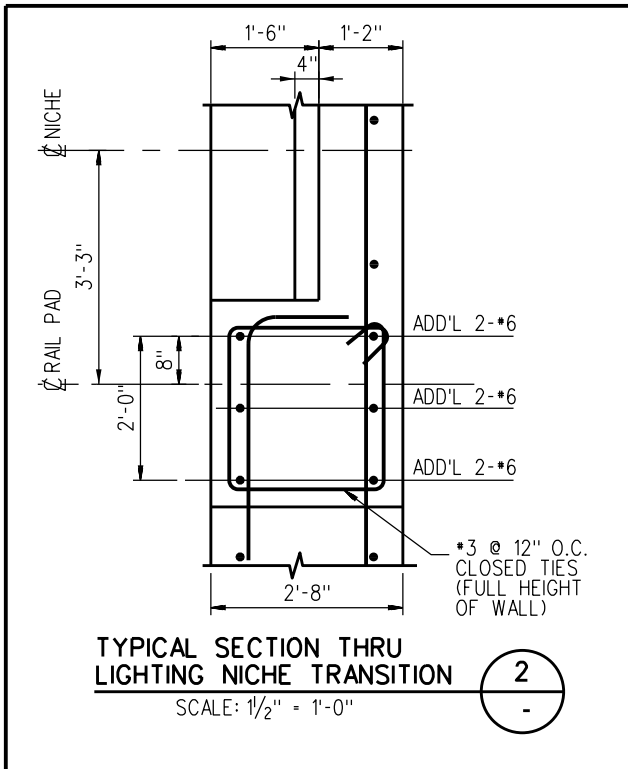


SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
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ENGINEERING STANDARDS

TYPICAL INSPECTION PIT PLAN

STANDARD	7104
SCALE:	1/2" = 1'-0"
REVISION SHEET	1 OF 5
CADD FILE:	ES7104-01



REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY: A. CARLOS DATE: 03/31/2011
 Assistant Director: STANDARDS & DESIGN
 Director of Engineering and Construction

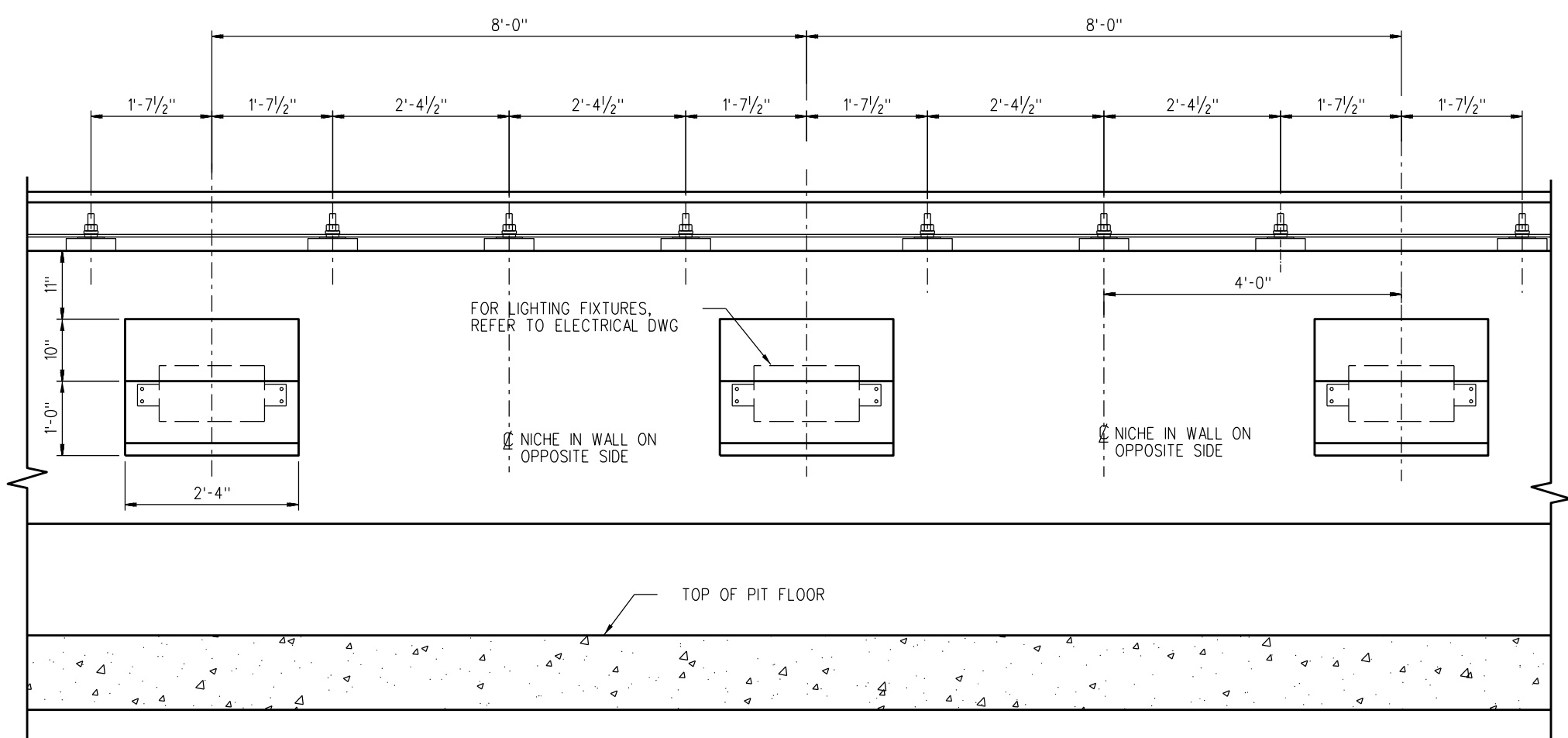
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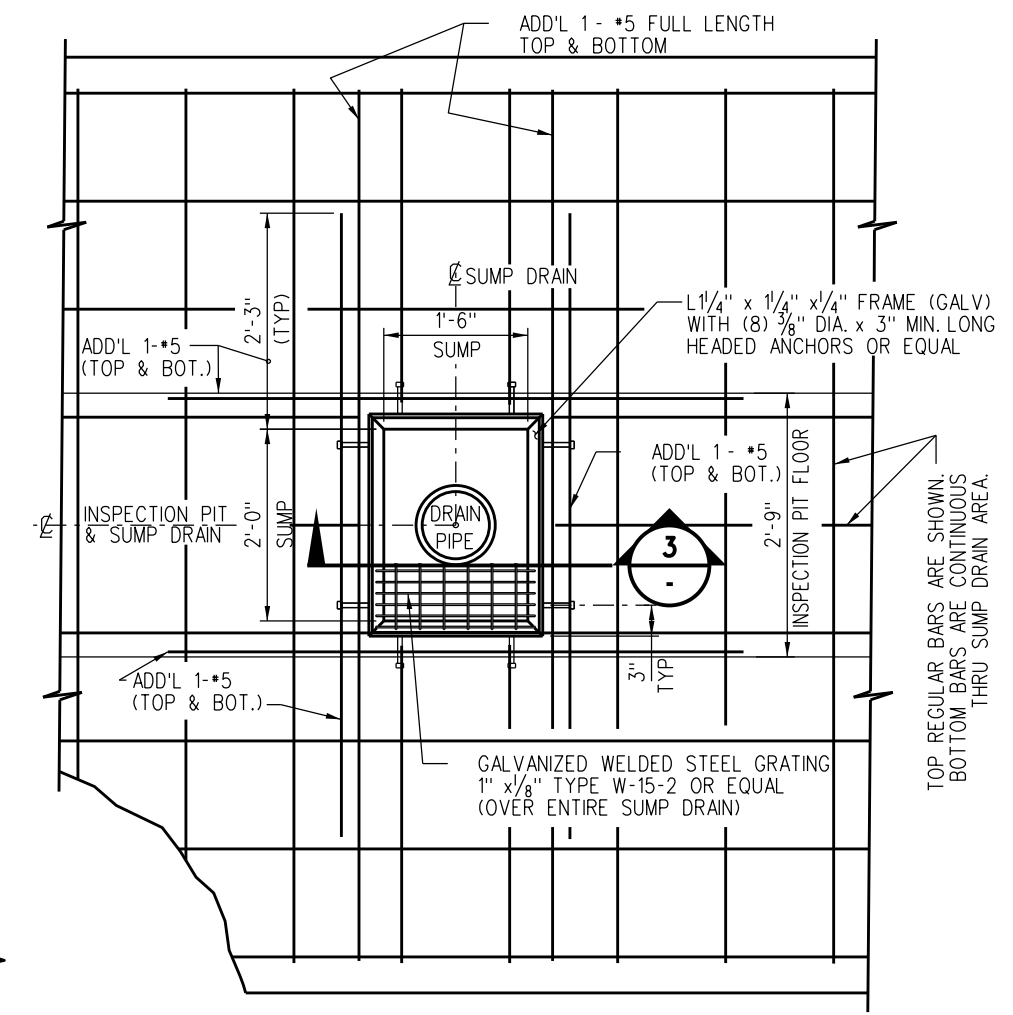
ENGINEERING STANDARDS
 INSPECTION PIT SECTION AND DETAILS

STANDARD	7104
SCALE:	AS NOTED
REVISION SHEET	2 OF 5
CADD FILE:	ES7104-02

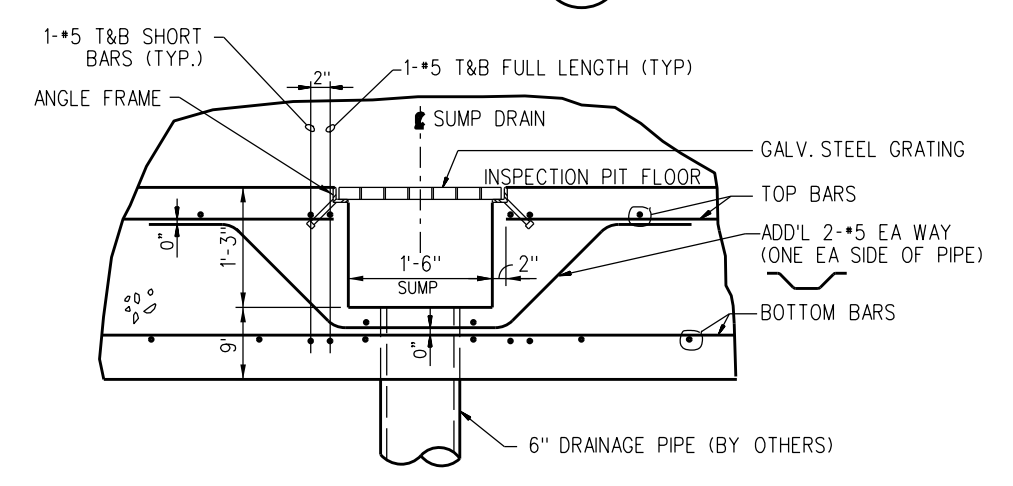
NOTE:
FOR NOTES SEE DRAWING ES7104-01.



INSPECTION PIT PARTIAL ELEVATION 1
SCALE: 1" = 1'-0" ES7104-01



PLAN - SUMP DRAIN 2
SCALE: 1/2" = 1'-0"



SECTION THRU SUMP DRAIN 3
SCALE: 1/2" = 1'-0"

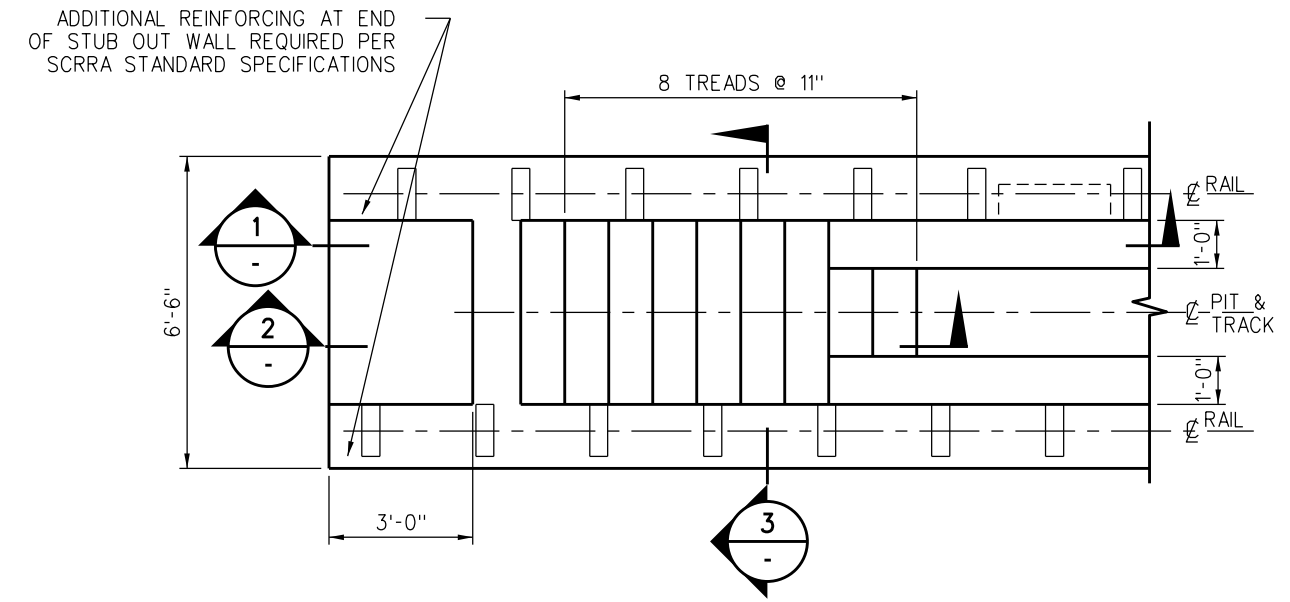
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X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS		DATE: 03/31/2011	SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	
 ASSISTANT DIRECTOR: STANDARDS & DESIGN		 DIRECTOR OF ENGINEERING AND CONSTRUCTION		

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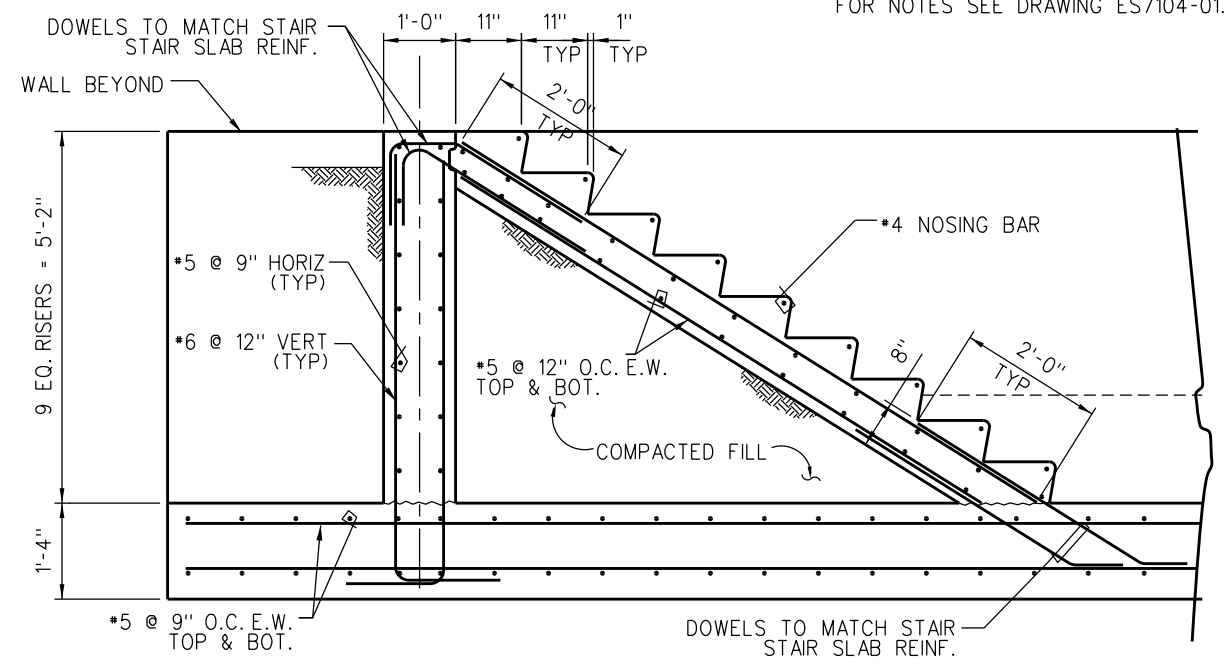
ENGINEERING STANDARDS
INSPECTION PIT PARTIAL ELEVATION

STANDARD	7104
SCALE:	AS NOTED
REVISION SHEET	3 OF 5
CADD FILE:	ES7104-03

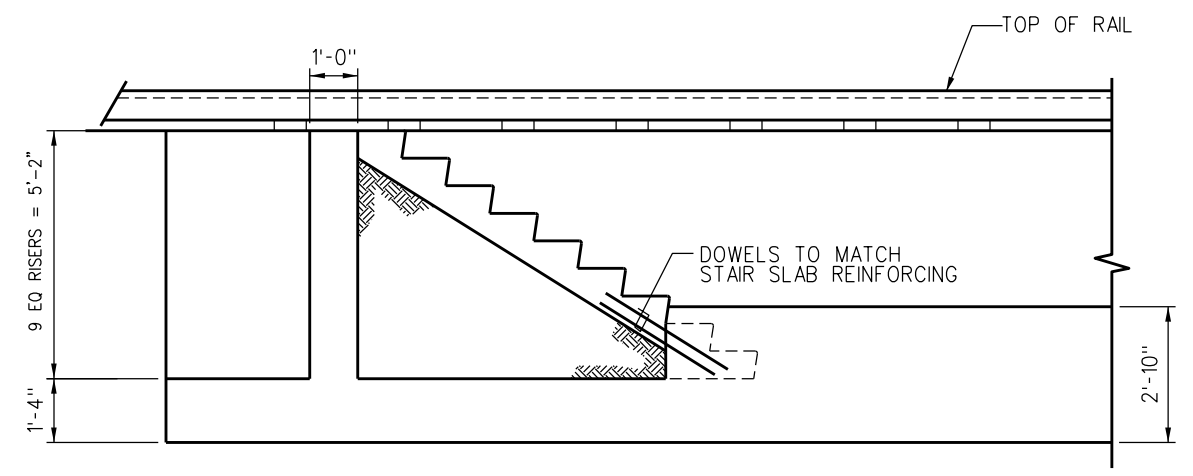
NOTE:
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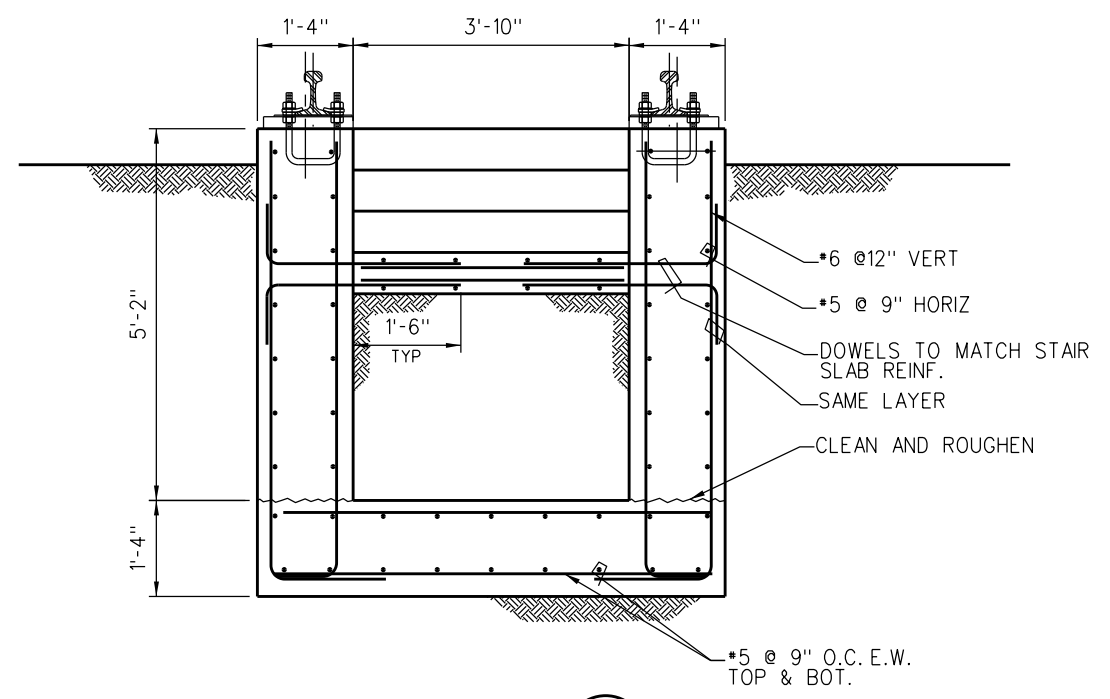
STAIR #1 PLAN
SCALE: 1" = 1'-0"
2
ES7104-01



STAIR & END WALL SECTION
SCALE: 3/4" = 1'-0"
2



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



WALL SECTION
SCALE: 3/4" = 1'-0"
3

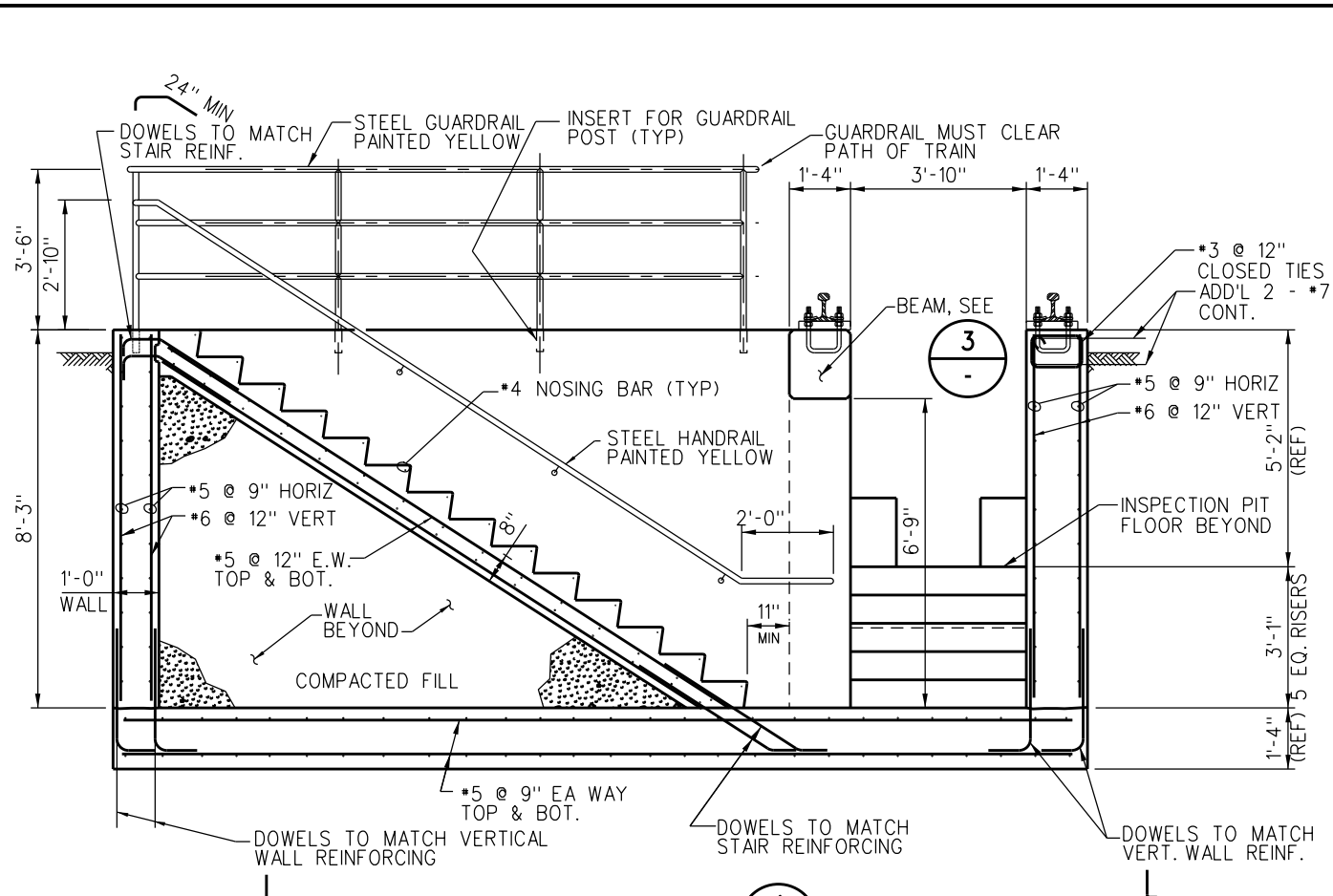
REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS DATE: 03/31/2011 Assistant Director: STANDARDS & DESIGN Director of Engineering and Construction				

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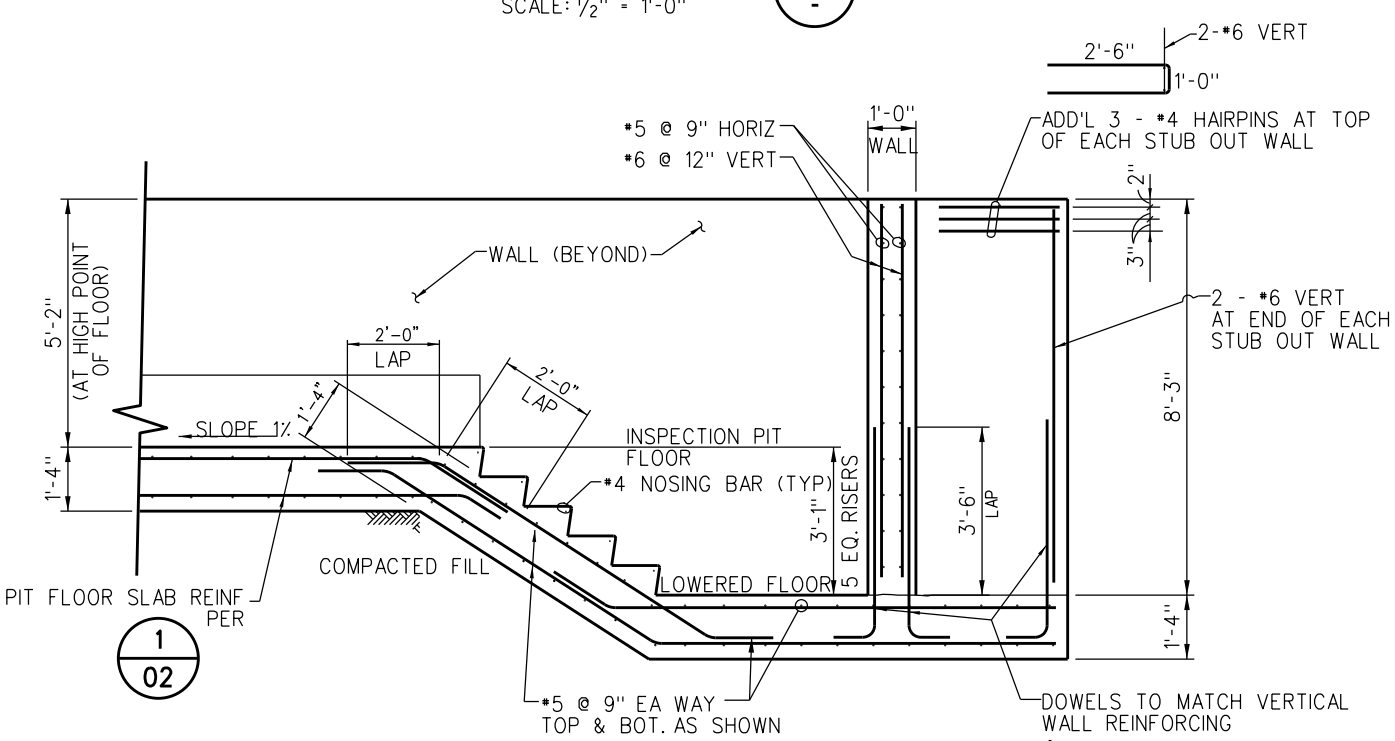


ENGINEERING STANDARDS
INSPECTION PIT
STAIR PLAN AND SECTION

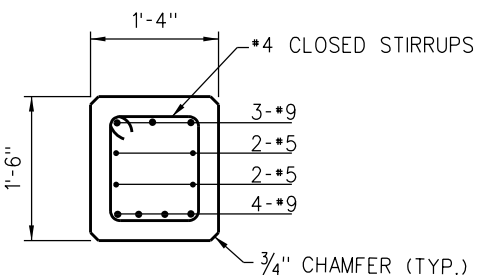
STANDARD	7104
SCALE:	AS NOTED
REVISION SHEET	4 OF 5
CADD FILE:	ES7104-04



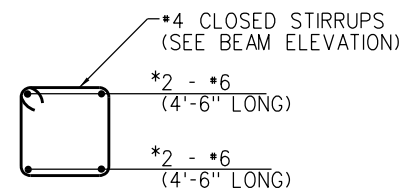
STAIR #2 SECTION 1
SCALE: 1/2" = 1'-0"



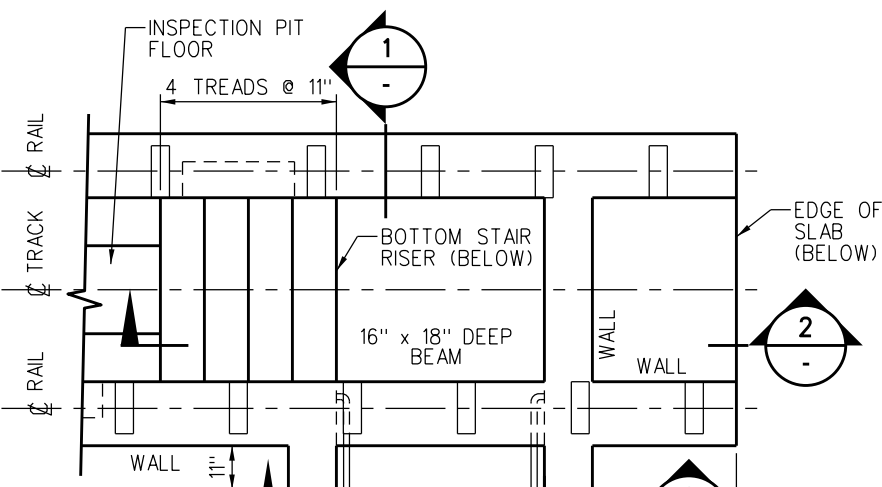
SECTION 2
SCALE: 1/2" = 1'-0"



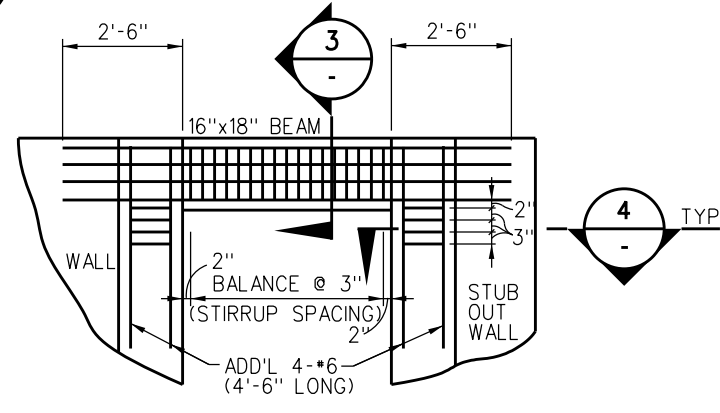
BEAM SECTION 3
SCALE: 1" = 1'-0"



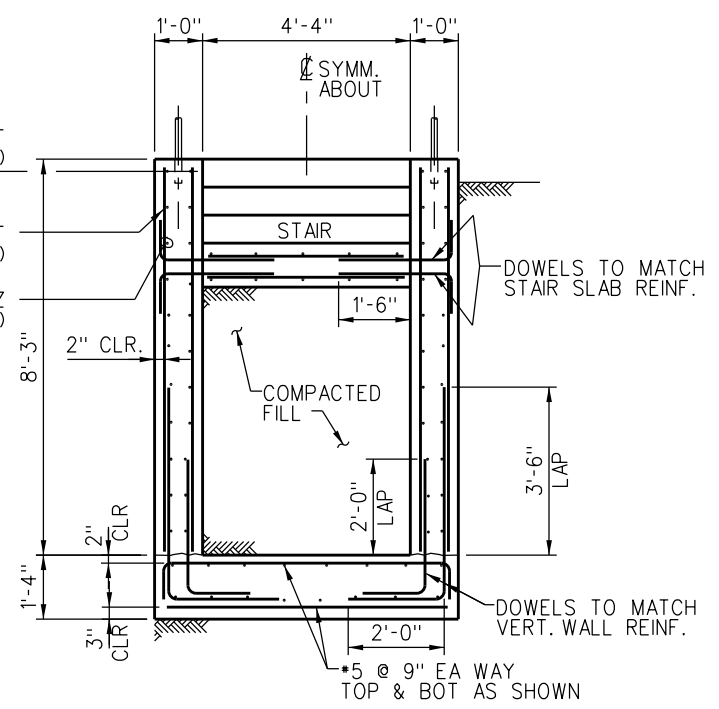
ADD'L VERT. BARS & TIES 4
SCALE: 1" = 1'-0"



PLAN AT STAIR #2 4
SCALE: 1/2" = 1'-0" ES7104-01



BEAM ELEVATION 6
SCALE: 1/2" = 1'-0"



STAIR #2 SECTION 5
SCALE: 1/2" = 1'-0"

NOTE:
FOR NOTES SEE DRAWING ES7104-01.

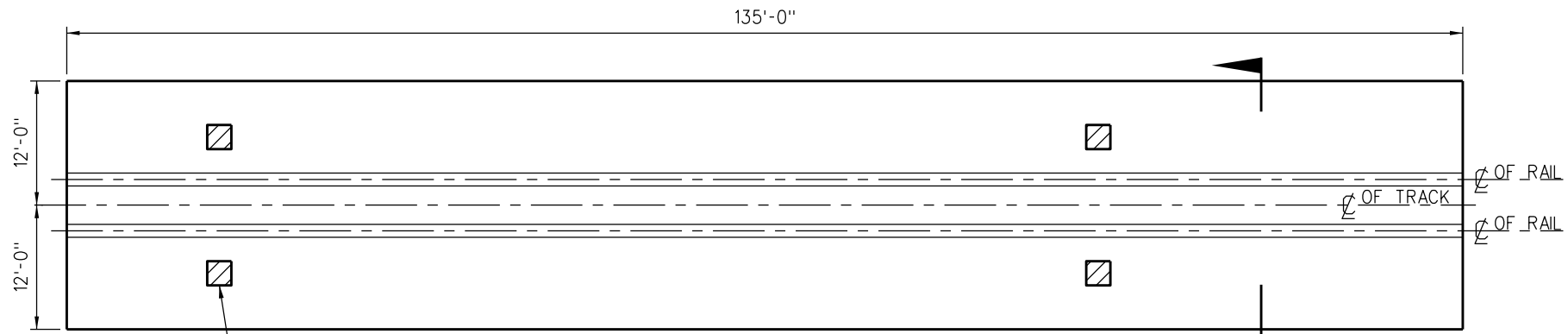
REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS DATE: 03/31/2011 Assistant Director: STANDARDS & DESIGN Director of Engineering and Construction				

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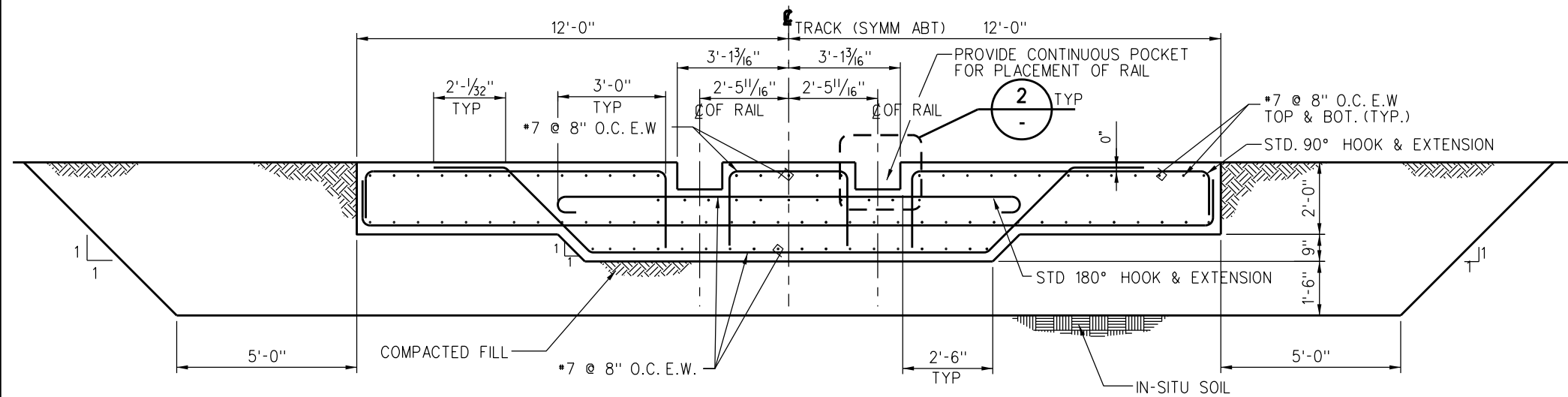
ENGINEERING STANDARDS
INSPECTION PIT
STAIR PLAN, SECTIONS AND DETAILS

STANDARD	7104
SCALE:	AS NOTED
REVISION SHEET	5 OF 5
CADD FILE:	ES7104-05

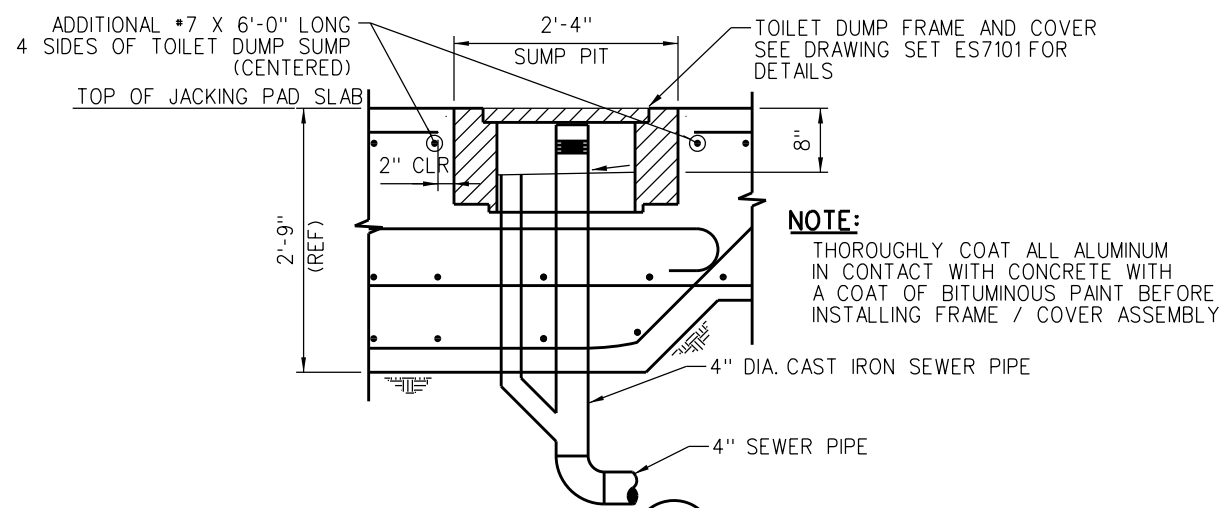


WHEN SPECIFIED, TOILET DUMP (TYP.) PER SCRRRA ENGINEERING STANDARDS ES7101 & ES7102 TO BE LOCATED ON JACKING PAD PER ES7104.

JACKING PAD PLAN
SCALE: 1/8" = 1'-0"

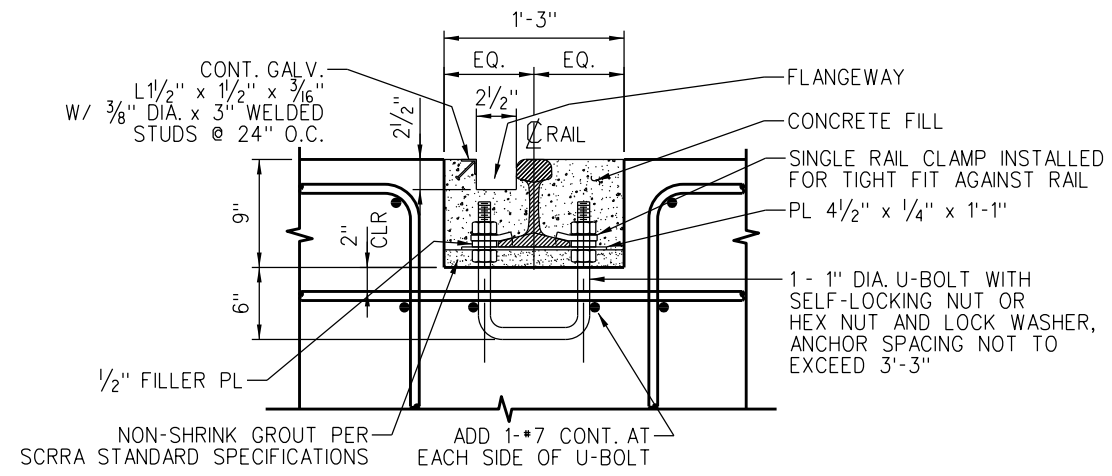


SECTION 1
SCALE: 1/2" = 1'-0"



NOTE:
THOROUGHLY COAT ALL ALUMINUM IN CONTACT WITH CONCRETE WITH A COAT OF BITUMINOUS PAINT BEFORE INSTALLING FRAME / COVER ASSEMBLY

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



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

NOTES:

- TOILET DUMPS SHOWN FOR REFERENCE ONLY. EXACT LOCATIONS TO BE DETERMINED BY SCRRRA ENGINEERING STANDARD ES7104.
- DIMENSIONS SHOWN ARE FOR A STANDARD JACKING PAD, ACTUAL DIMENSIONS TO BE DETERMINED BY ENGINEERING CONTRACTOR.
- JACKING PAD DESIGN BASED ON SOIL BEARING PRESSURE OF 2250 PSF TO 3500 PSF, SITE SPECIFIC CONDITIONS SHOULD BE VERIFIED AND DESIGN ADJUSTED ACCORDINGLY.
- CONCRETE SHALL BE NORMAL WEIGHT-145 LBS./CU. FT. AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 3000 PSIFOR ALL CONCORD.
- MIXING AND PLACING OF ALL CONCRETE AND SELECTION OF MATERIALS SHALL BE IN ACCORDANCE WITH THE APPLICABLE CODE AND ACISTANDARDS. CEMENT SHALL BE TYPE I CONFORMING TO ASTM C150. WATER FOR MIXING AND CURING SHALL BE FRESH, CLEAN AND POTABLE. CONTINUOUS INSPECTION IS REQUIRED FOR ALL CONCRETE WORK. WATER CEMENT RATION NOT MORE THAN 0.50.
- PROPORTIONS OF AGGREGATE TO CEMENT SHALL BE SUCH AS TO PRODUCE A DENSE WORKABLE MIX WHICH CAN BE PLACED WITHOUT SEGREGATION OR EXCESS FREE SURFACE WATER. REFER TO SCRRRA STANDARDS AND SPECIFICATIONS FOR AGGREGATES AND PROPORTIONS. MIX DESIGNS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO USE.
- REINFORCING STEEL SHALL BE DEFORMED STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A615, GRADE 60. REINFORCING STEEL TO BE WELDED SHALL CONFORM TO REQUIREMENTS OF ASTM A706, GRADE 60.
- REINFORCING BARS SHALL BE SPLICED AS SHOWN ON DRAWINGS. ANY ADDITIONAL SPLICING SHALL REQUIRE PRIOR APPROVAL FROM THE ENGINEER OF RECORD.
- REINFORCING STEEL SHALL HAVE A MINIMUM PROTECTIVE COVERING CONCRETE AS FOLLOWS:
 - A) CONCRETE PLACED DIRECTLY AGAINST EARTH _____ 3"
 - B) CONCRETE PLACED AGAINST FORMS BUT EXPOSED TO EARTH AND WEATHER:
 - BARS LARGER THAN No. 5 _____ 2"
 - No. 5 AND SMALLER _____ 1 1/2"
 - C) CONCRETE PLACED AGAINST FORMS BUT NOT EXPOSED DIRECTLY TO EARTH OR WEATHER:
 - SLABS AND WALLS _____ 1"
 - ALL OTHERS _____ As per ACI 318-89
- ALL BARS SHALL BE CLEAN OF RUST, GREASE AND OTHER MATERIALS LIKELY TO IMPAIR BOND. ALL BENDS SHALL BE MADE COLD.
- FOR DETAILS OF RAIL FIXATION, REFER TO DETAIL 5 ON DRAWING ES7106-02.

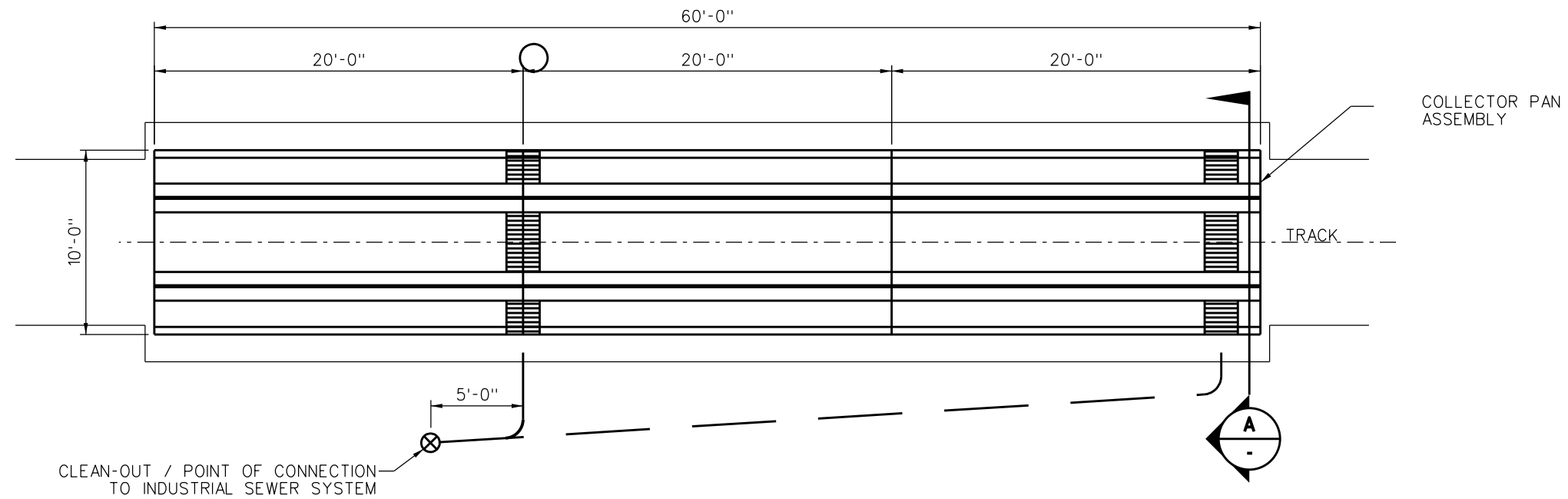
REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS DATE: 03/31/2011 Assistant Director: STANDARDS & DESIGN Director of Engineering and Construction				

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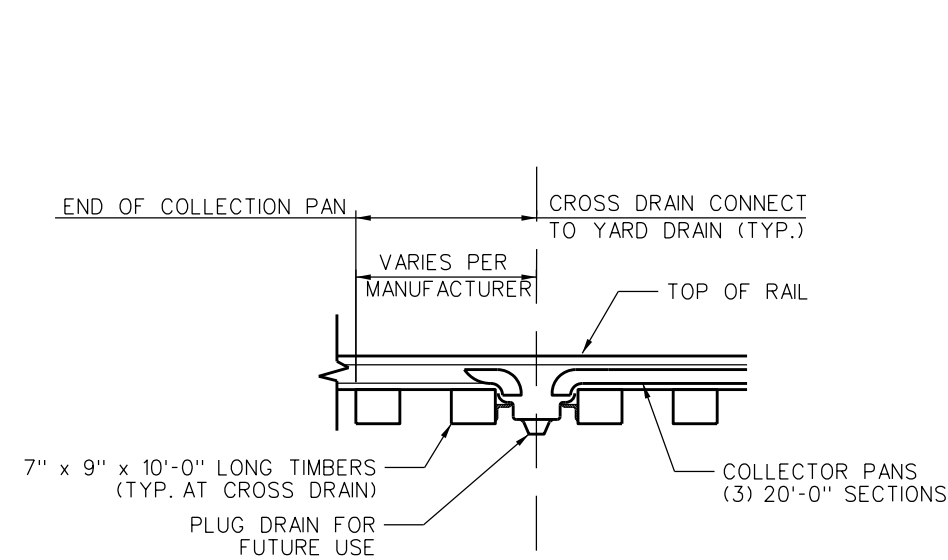
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ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS
JACKING PAD
PLAN, SECTIONS AND DETAILS

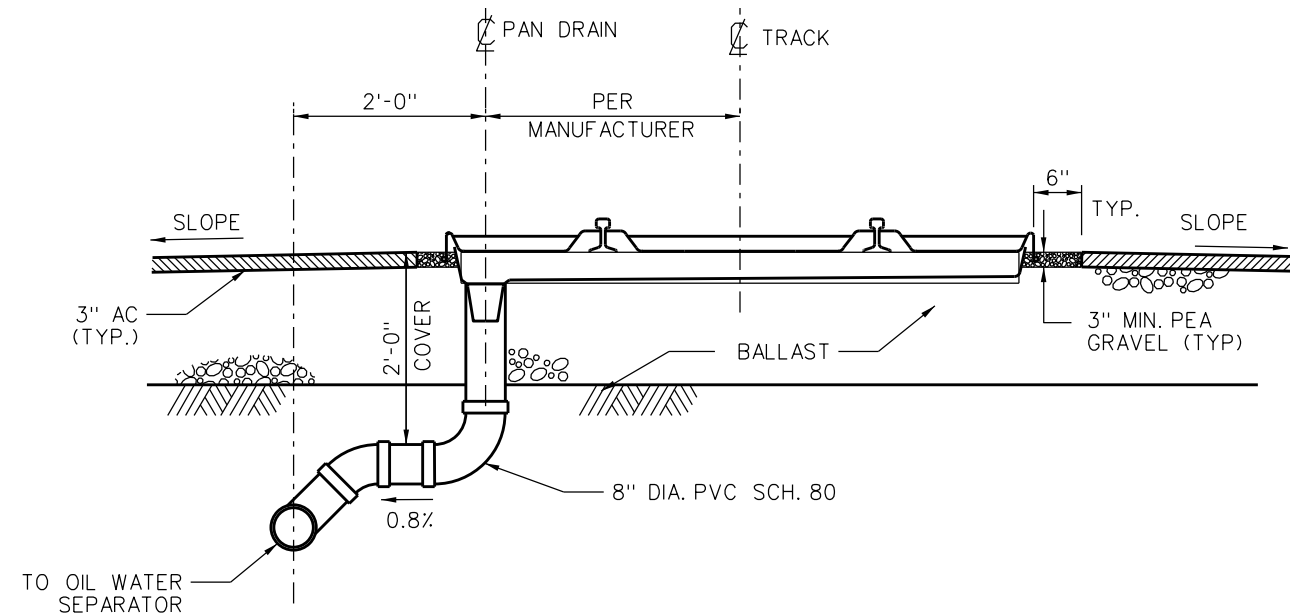
STANDARD	7105
SCALE:	AS NOTED
REVISION SHEET	1 OF 1
CADD FILE:	ES7105



PLAN AT OIL DRIP COLLECTOR PANS
SCALE: 1/4" = 1'-0"



SIDE VIEW AT OIL DRIP COLLECTOR PAN
SCALE: 1" = 1'-0"



SECTION A
SCALE: 1" = 1'-0"

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY: A. CARLOS DATE: 03/31/2011
Nareh D. Papp
 ASSISTANT DIRECTOR: STANDARDS & DESIGN
William D. Dwan
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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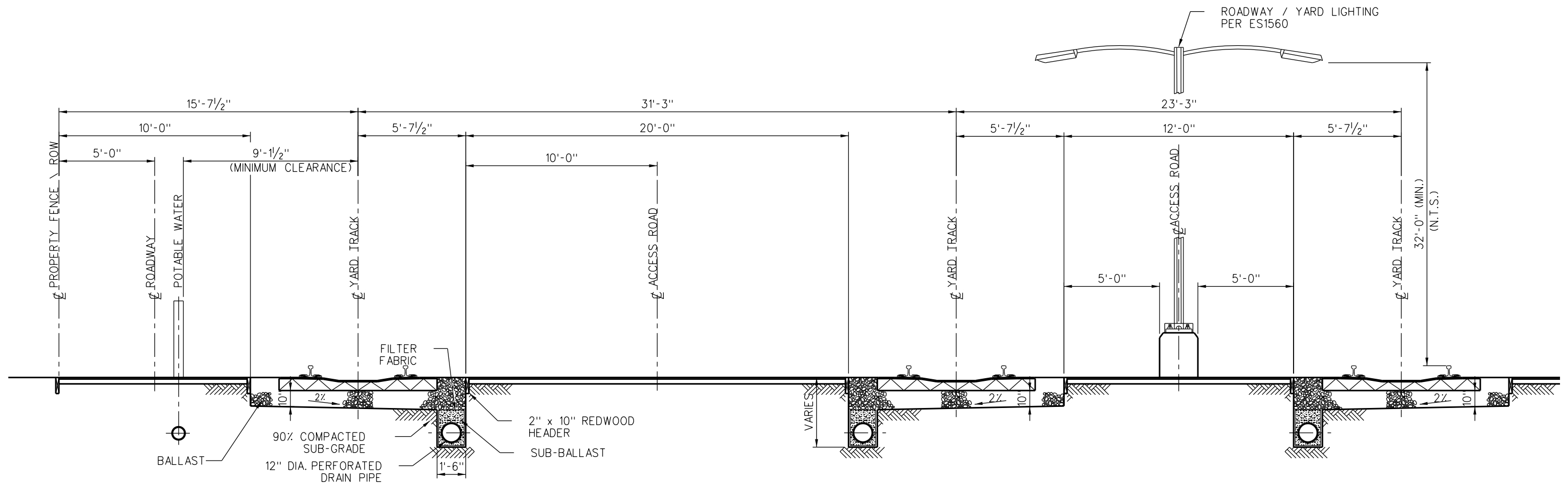
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ENGINEERING STANDARDS
 OIL DRIP COLLECTOR PANS
 PLAN, ELEVATION AND SECTION

STANDARD	7109
SCALE:	AS NOTED
REVISION SHEET	1 OF 1
CADD FILE:	ES7109

NOTES:

1. DEPTH OF ASPHALT CONCRETE TO BE DETERMINED BASED ON SITE SPECIFIC SOIL CONDITIONS.
2. SIZE OF STORM DRAIN AND SANITARY SEWER SYSTEMS ARE TO BE DETERMINED BASED ON SITE SPECIFIC CONDITIONS.
3. LOCATIONS OF STORM DRAINS AND SLOPE FOR ROADWAYS TO BE DETERMINED BASED ON SITE SPECIFIC CONDITIONS.



ROADWAY SECTION

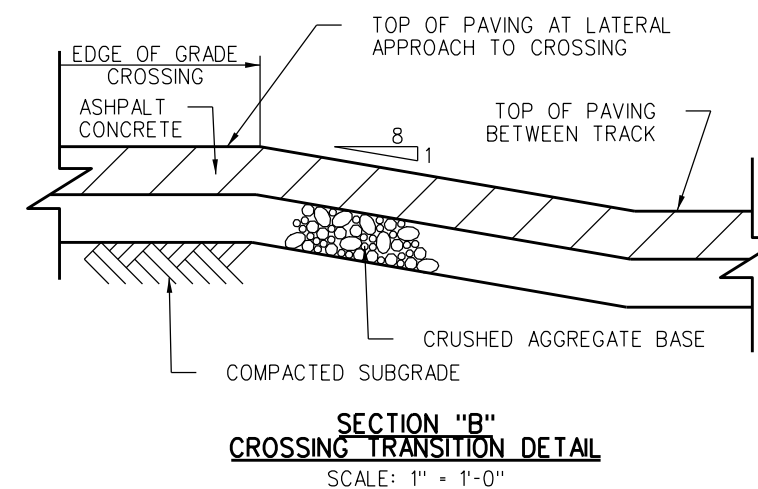
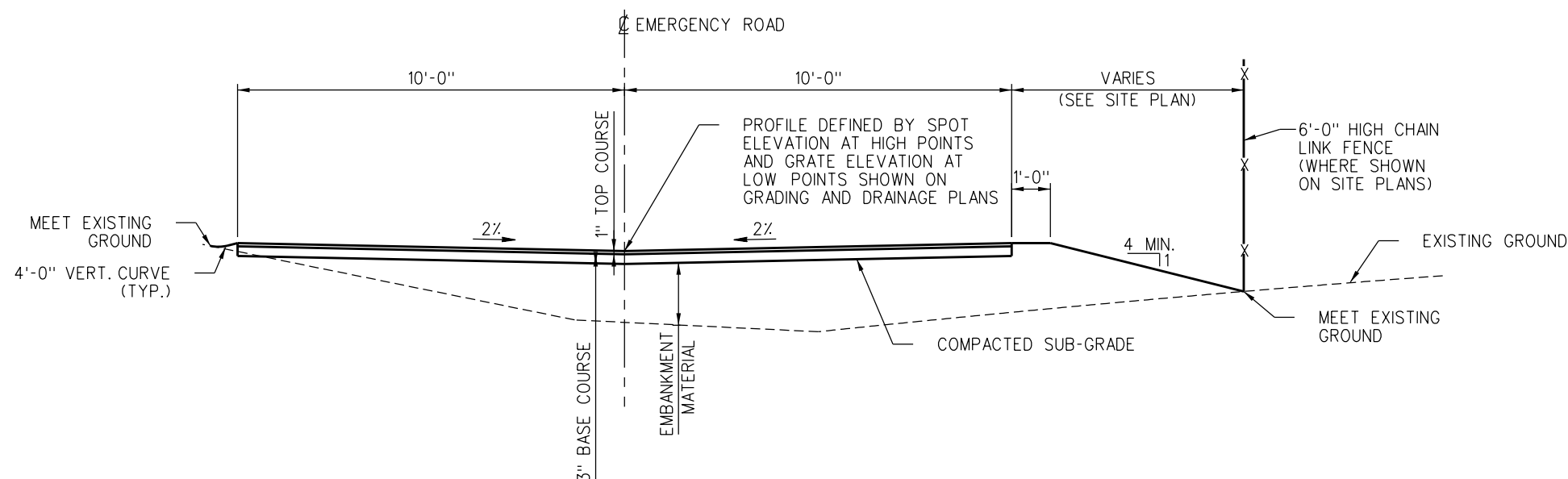
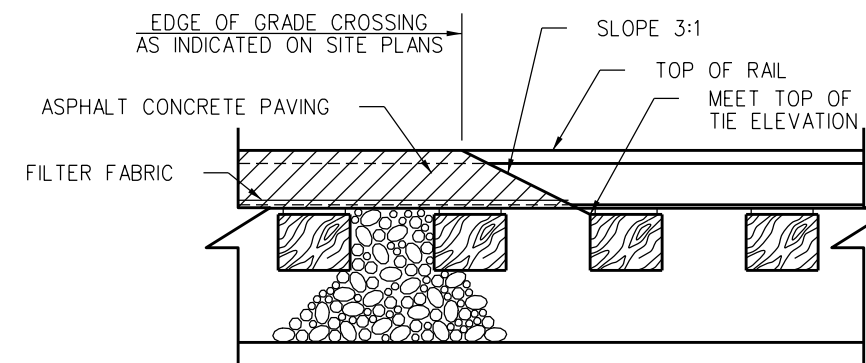
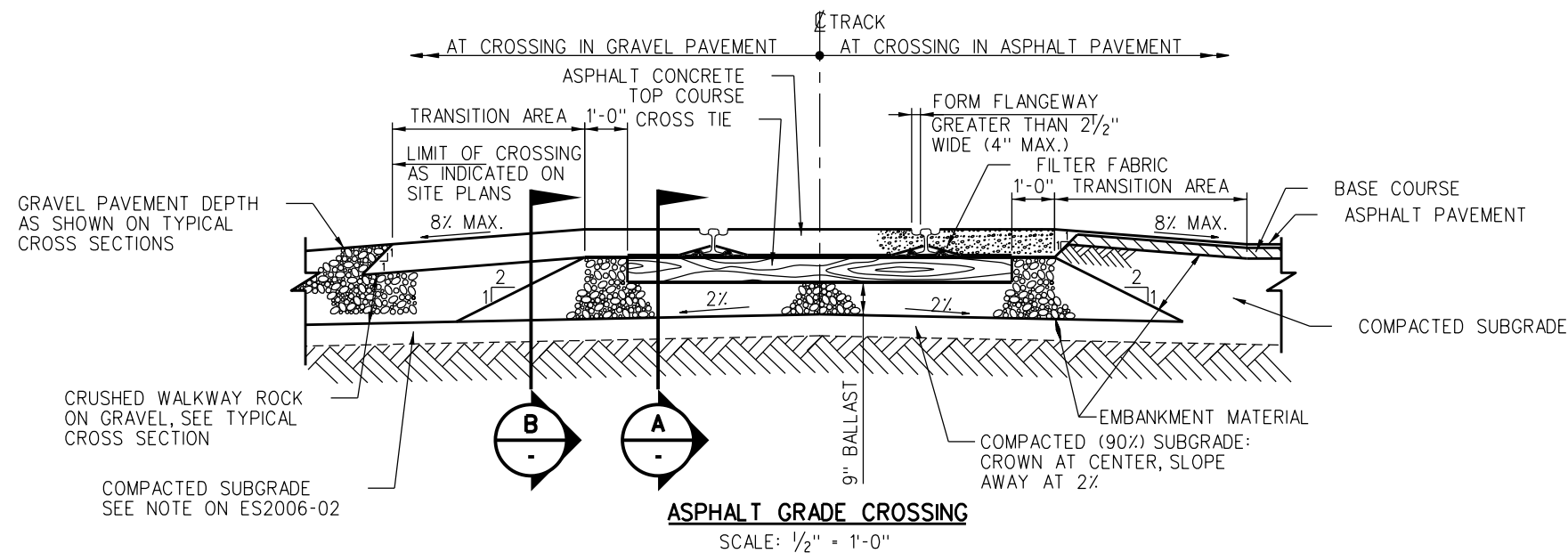
REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS		DATE: 03/31/2011	ASSISTANT DIRECTOR: STANDARDS & DESIGN <i>Nareh D. Papp</i> DIRECTOR OF ENGINEERING AND CONSTRUCTION <i>William D. Davis</i>	

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ENGINEERING STANDARDS
 TRACK SPACING
 AT MAINTENANCE FACILITIES

STANDARD	7110
SCALE:	3/8" = 1'-0"
REVISION	SHEET
-	1 OF 1
CADD FILE:	ES7110



REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY: A. CARLOS DATE: 03/31/2011

Nareh D. Pae
 ASSISTANT DIRECTOR: STANDARDS & DESIGN

William D. Dacan
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

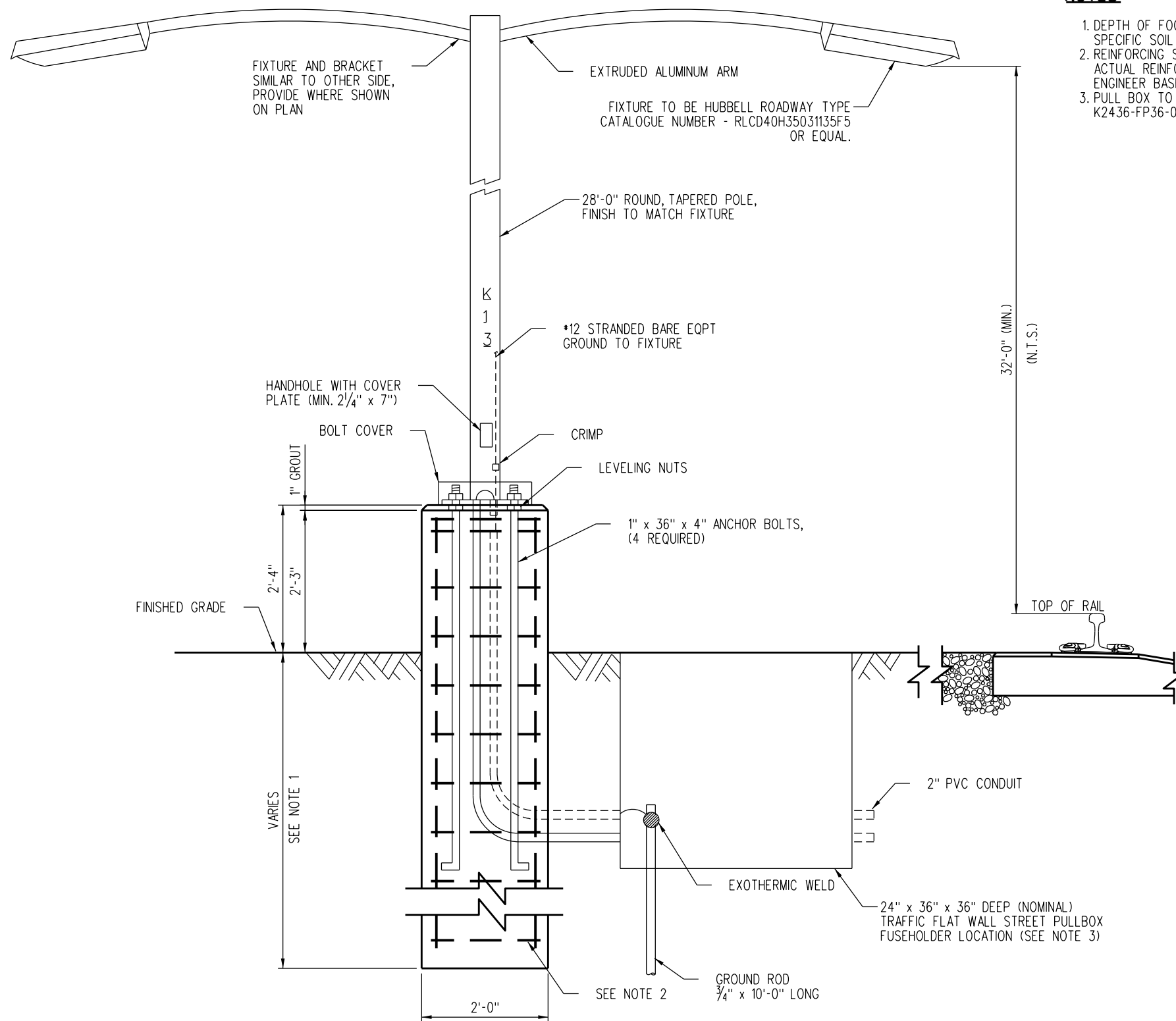
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ENGINEERING STANDARDS

ROADWAY DETAILS
 AT MAINTENANCE FACILITIES

STANDARD	7111
SCALE:	AS NOTED
REVISION SHEET	1 OF 1
CADD FILE:	ES7111



NOTES:

1. DEPTH OF FOOTING TO BE DETERMINED BASE ON SITE SPECIFIC SOIL CONDITIONS.
2. REINFORCING SHOWN FOR AESTHETIC PURPOSES ONLY. ACTUAL REINFORCING TO BE DETERMINED BY STRUCTURAL ENGINEER BASED ON SITE SPECIFIC CONDITIONS.
3. PULL BOX TO BE JENSEN PRECAST MODEL NUMBER K2436-FP36-05T OR EQUAL.

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY: A. CARLOS DATE: 03/31/2011

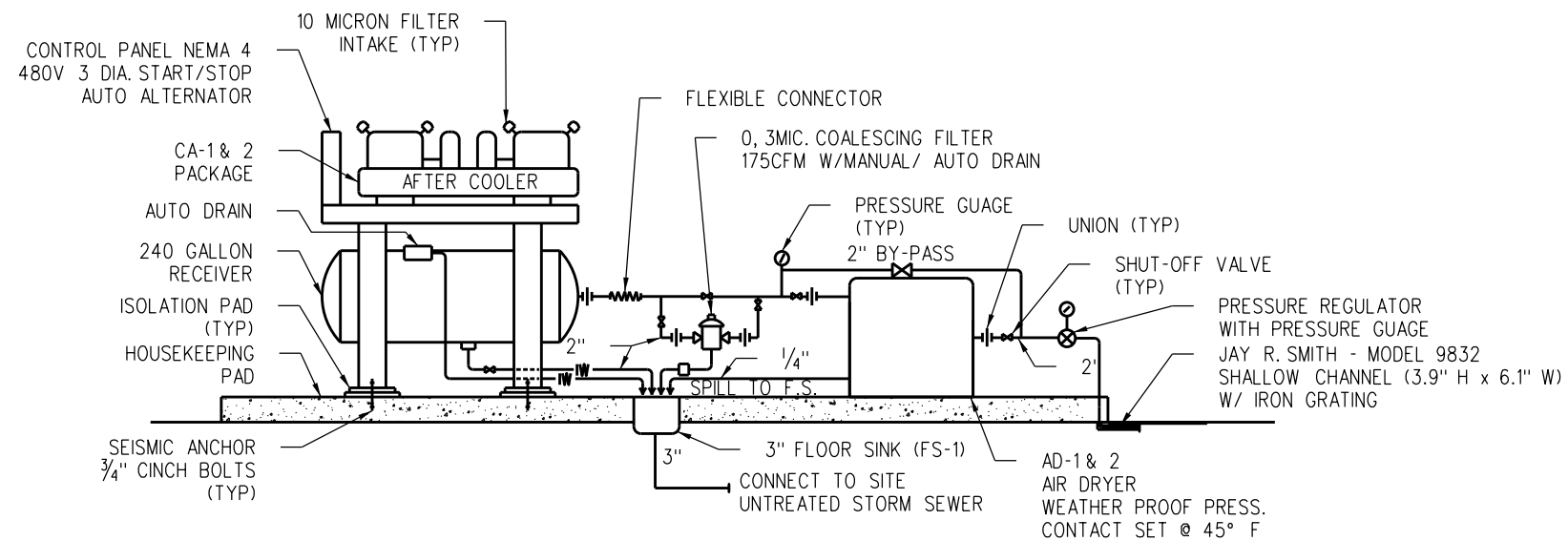
ASSISTANT DIRECTOR: STANDARDS & DESIGN
Nareh D. Pappas
 DIRECTOR OF ENGINEERING AND CONSTRUCTION
William D. Davis

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ENGINEERING STANDARDS
 LIGHTING AT MAINTENANCE FACILITIES
 FOUNDATION AND FIXTURE

STANDARD	7112
SCALE	1" = 1'-0"
REVISION SHEET	1 OF 1
CADD FILE	ES7112



AIR COMPRESSOR/DRYER DETAIL

AIR COMPRESSOR SCHEDULE

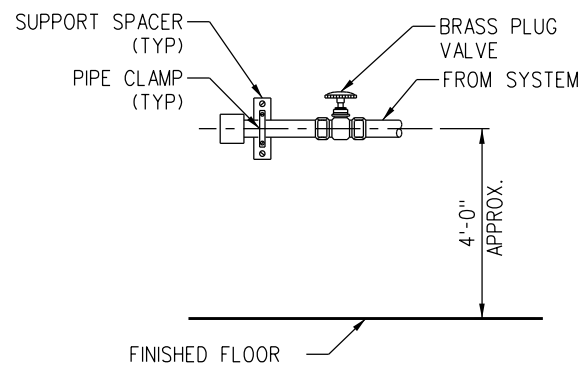
UNIT NO.	LOCATION	MFR.	COMPRESSOR						MOTOR				RECEIVER	REMARKS
			MAKE MODEL	DELIV. CFM	MAX. PSI	CUT IN PSI	CUT OUT PSI	RPM	HP	VOLTS	PHASE	CYCLE	CAPACITY GAL.	
CA-1	OUTSIDE (DUPLEX)	INGERSOL RAND TYPE 30	2000X 20/A20	72 EA.	175	145	150	670	20 EA.	480	3	60	240	NEMA 4 STARTER
CA-2	OUTSIDE (SIMPLEX)	INGERSOL RAND TYPE 30	2545	35 EA.	175	140	145	1050	10 EA.	480	3	60	240	NEMA 4 STARTER

AIR DRYER SCHEDULE

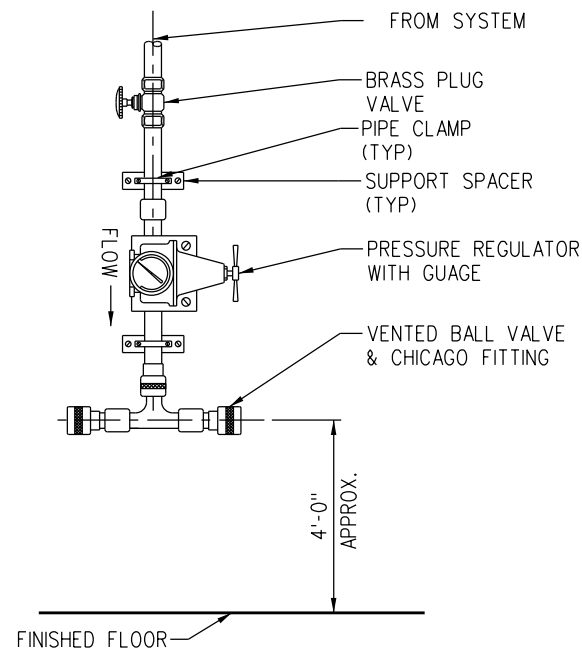
UNIT NO.	LOCATION	MFR.	MAKE MODEL	TYPE	SCFM	MOTOR				REMARKS
						HP	VOLTS	PHASE	CYCLE	
AD-1	OUTSIDE	ZEKS HEATSINK	150HSE	REFRIGERATED DRYING	150	3/4 HP, 1KW	115	1	60	FOR OUTSIDE USE
AD-2	OUTSIDE	ZEKS HEATSINK	75HSB	REFRIGERATED DRYING	75	3/4 HP, 0.8KW	115	1	60	FOR OUTSIDE USE

NOTE:

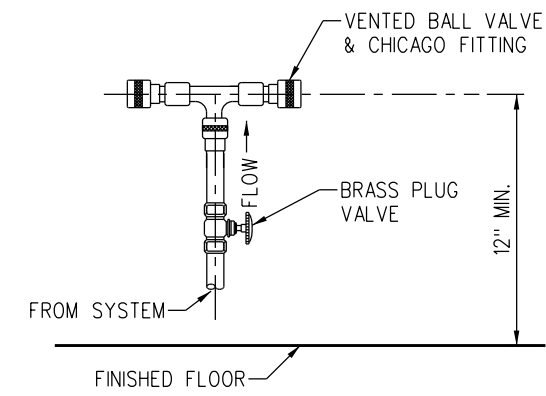
CONTRACTOR TO PROVIDE ADDITIONAL PIPING SUPPORTS AS NEEDED.



AIR COMPRESSOR OUTLET (AO-3)



AIR COMPRESSOR OUTLET (AO-2)



AIR COMPRESSOR OUTLET (AO-1)

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY: A. CARLOS DATE: 03/31/2011

Assistant Director: Standards & Design

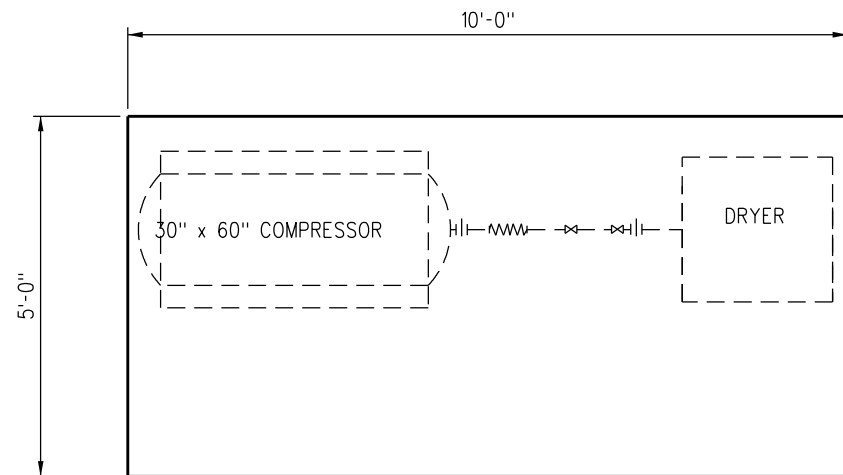
Director of Engineering and Construction

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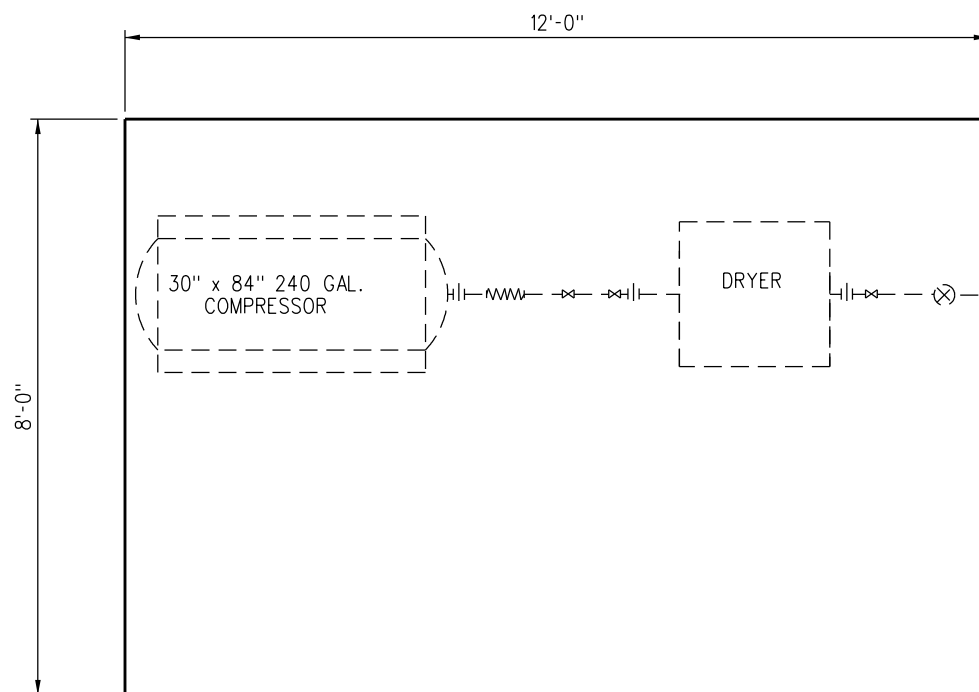
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ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS		STANDARD	7201
COMPRESSED AIR PLUMBING SCHEDULE AND DETAILS		SCALE:	NONE
		REVISION SHEET	1 OF 2
		CADD FILE:	ES7201-01



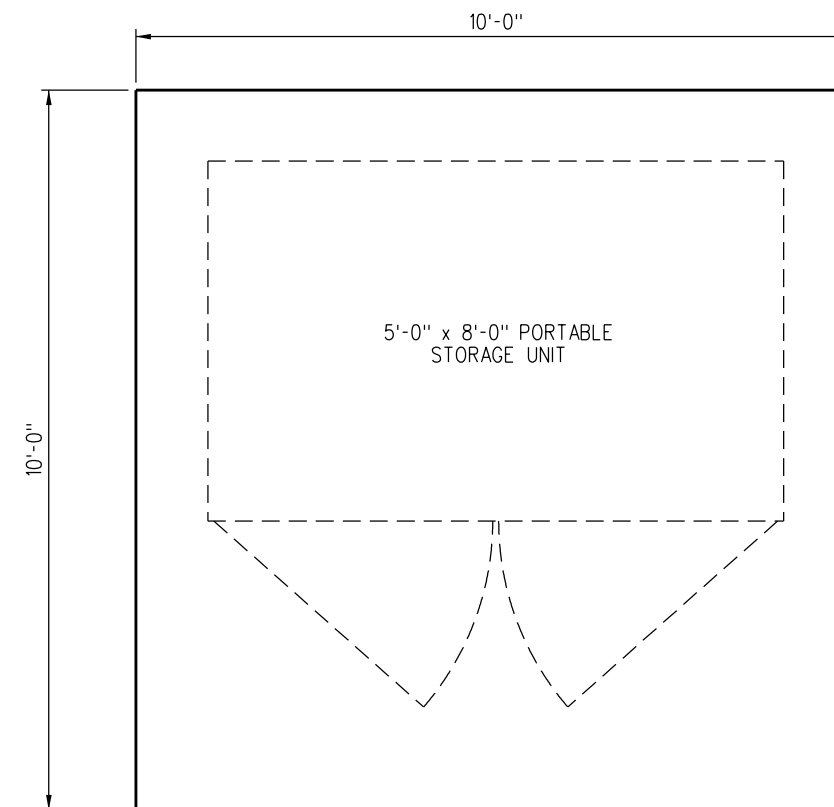
PLAN AT SIMPLEX COMPRESSOR FOUNDATION



PLAN AT COMPRESSOR FOUNDATION

NOTES:

1. CONTRACTOR TO SUBMIT PAD DETAILS PER SCRRRA STANDARD SPECIFICATIONS.
2. FOUNDATION BOLTS SHOULD PROJECT THRU NUTS AT LEAST 1/2" TO ALLOW FOR LEVELING.



FOUNDATION PLAN

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY: A. CARLOS DATE: 03/31/2011

Nareh D. Pae
ASSISTANT DIRECTOR: STANDARDS & DESIGN

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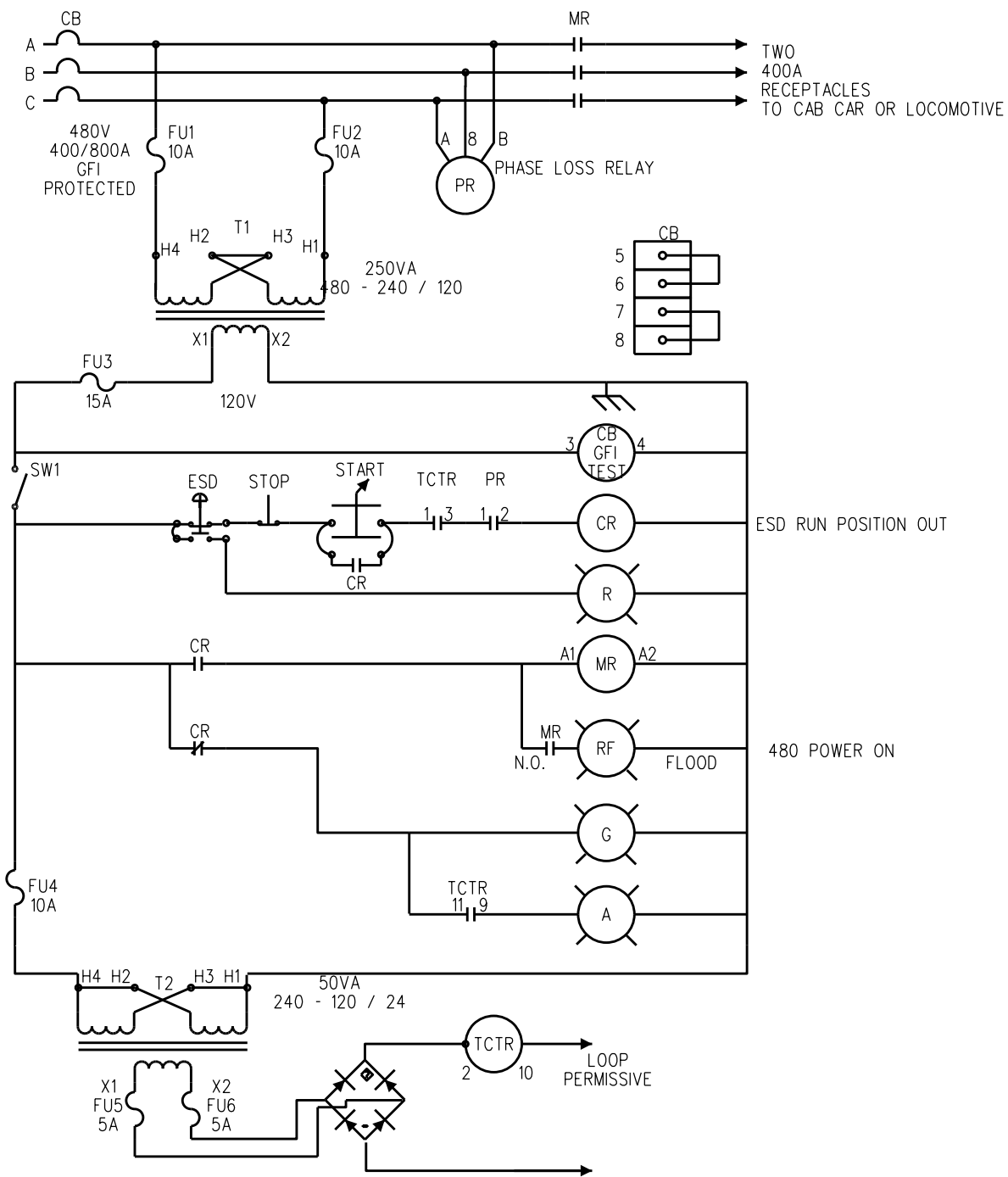


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ENGINEERING STANDARDS

MISCELLANEOUS EQUIPMENT FOUNDATIONS

STANDARD	7201
SCALE:	3/4" = 1'-0"
REVISION SHEET	- 2 OF 2
CADD FILE:	ES7201-02



REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

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ENGINEERING STANDARDS

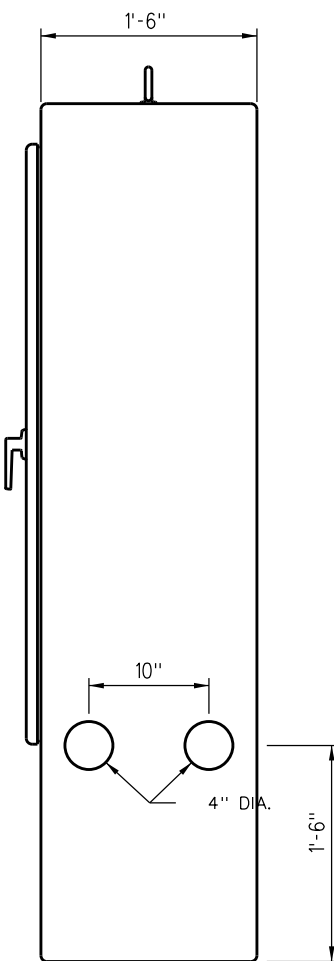
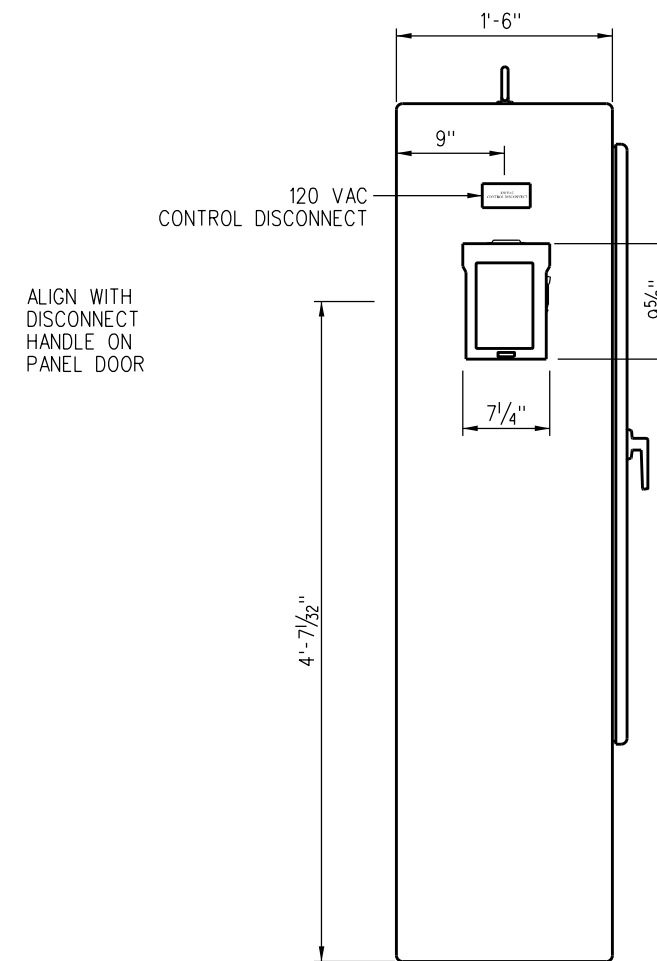
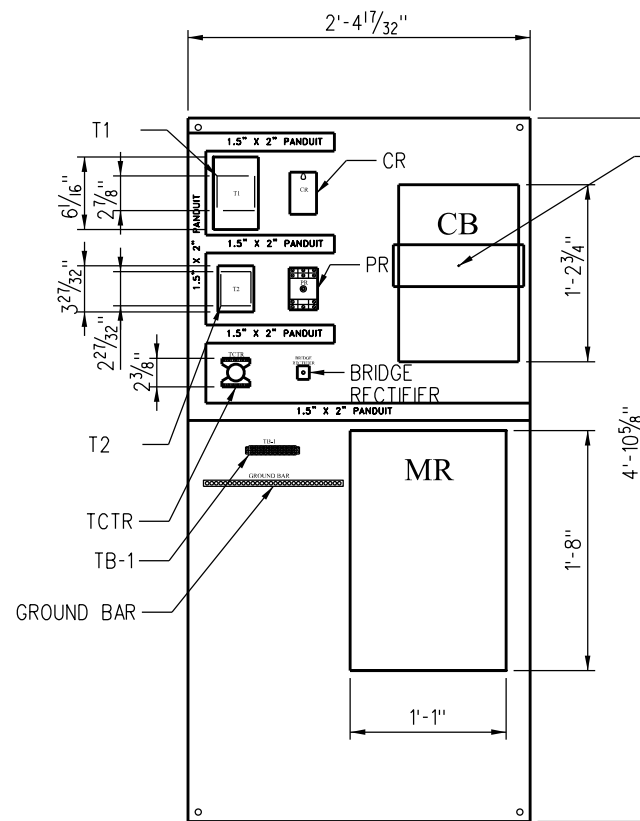
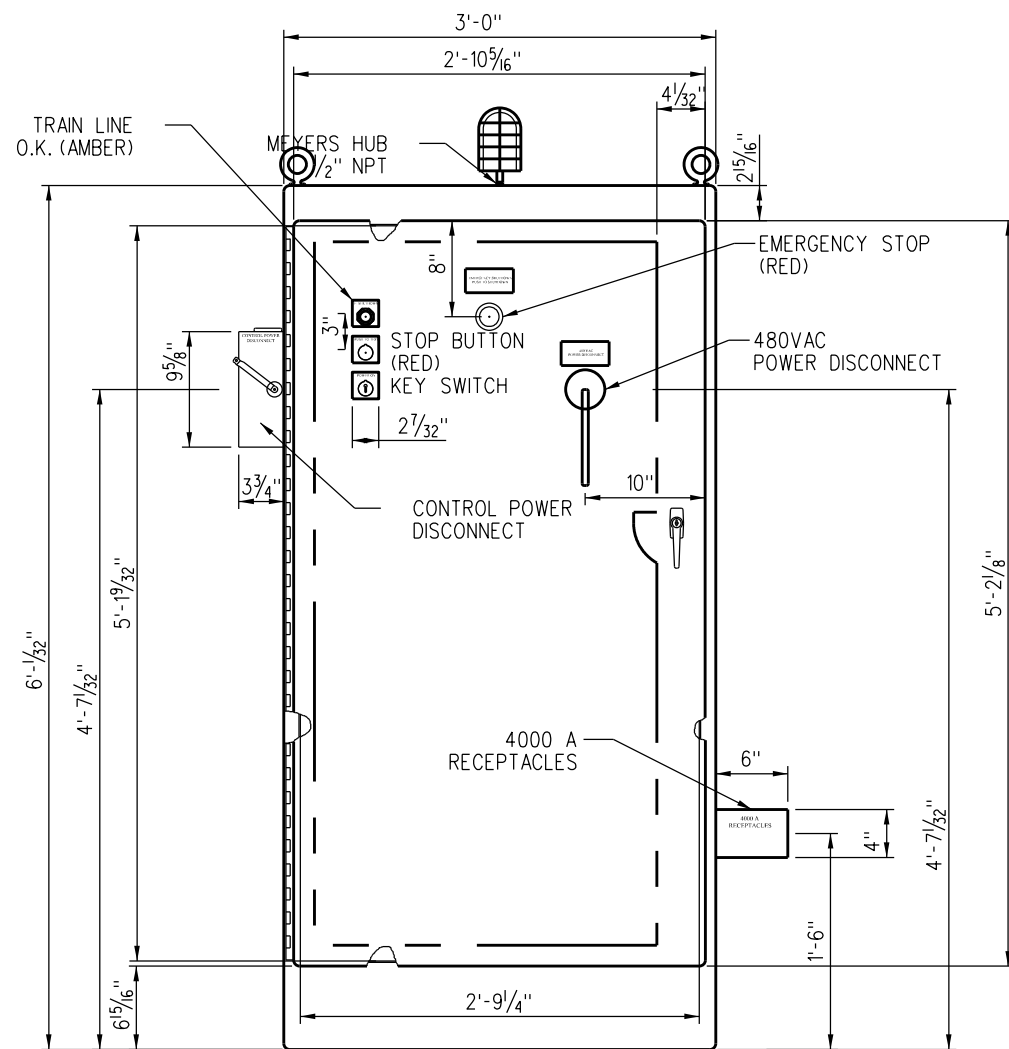
GROUND POWER SYSTEM
TYPICAL 600A PANEL
SCHEMATIC

STANDARD	7301
SCALE:	NONE
REVISION SHEET	1 OF 2
CADD FILE:	ES7301-01

WAYSIDE POWER CABINET OPERATION:
WITH TWO WAYSIDE POWER JUMPER CABLES
CONNECTED TO THE CABCAR OR LOCOMOTIVE:

1. MOVE THE EMERGENCY STOP BUTTON ON THE FRONT OF THE PANEL TO THE RUN POSITION (OUT).
2. MOVE THE CONTROL CIRCUIT KNIFE SWITCH LOCATED ON THE SIDE OF THE WAYSIDE POWER PANEL TO THE CONNECTED POSITION.
3. THE AMBER LIGHT OF THE WAYSIDE POWER CABINET WILL ILLUMINATE WHEN THERE IS CONTINUITY IN THE TRAINLINE CIRCUIT.
4. WHEN TRAINLINE IS ESTABLISHED ENERGIZED THE 480 VOLT POWER TO THE EQUIPMENT BY KEYING ON THE KEY SWITCH LOCATED ON THE FRONT OF THE WAYSIDE POWER CABINET.
5. WHEN THE 480 VOLT POWER IS ENERGIZED, THE RED LIGHT ON TOP OF THE WAYSIDE POWER PANEL WILL ILLUMINATE, THE AMBER TRAINLINE LIGHT WILL GO OUT, THE RED PUSH BUTTON ABOVE THE KEY SWITCH WILL ILLUMINATE.
6. TO SHUT DOWN THE 480 VOLT POWER, PUSH THE RED STOP BUTTON LOCATED ABOVE THE KEY SWITCH.
7. PHASING FOR WAYSIDE POWER SHALL BE SET FOR COUNTER CLOCKWISE.

BILL OF MATERIAL			BILL OF MATERIAL (CONT.)			BILL OF MATERIAL (CONT.)		
QTY	ITEM DESCRIPTION	LEGEND	QTY	ITEM DESCRIPTION	LEGEND	QTY	ITEM DESCRIPTION	LEGEND
1	CIRCUIT BREAKER, 3 POLE, 600A, 480 VAC, ELECTRONIC TRIP	CB	1	CONTACT BLOCK, 1 N.O. & N.C.	POWER ON	1	MOUNTING HOOD	
1	CONTACTOR, IEC, 3 POLE, 630A, 480 VAC, COIL VOLTAGE 120 VAC	M	1	MUSHROOM HEAD, RED, JUMBO	ESD	1	MEYERS HUB, 1/2"	RF
2	LUG KIT, 2 x 2 600 MCM	M	1	RELAY, 3 POLE, 2 N.O. & 1 N.C., 120 VAC COIL	CR	1	CONDUIT NIPPLE, CLOSE x 1/2"	
1	SAFETY SWITCH, 2 POLE, 30A, 240 VAC, NEMA 3R	SW1	1	RELAY SOCKET	PR	2	LOCK NUT, 1/2"	
1	DOOR MOUNTED OPERATING MECHANISMS	CB	1	RELAY SOCKET	TCTR	2	BUSHING INSULATING, 1/2"	
1	CONTROL TRANSFORMER, 120/24 V	T2	1	RELAY, 24 VDC, 3 POLE, 11 PIN	TCTR	2	CONNECTOR	
1	CONTROL TRANSFORMER, 480/120-240 V	T1	1	RELAY, PHASE LOSS/ UNDER VOLTAGE, 480 VAC	PR	2	CONNECTOR	
1	KEY OPERATED SELECTOR SWITCH, 3 POSITION, SPRING RETURN TO CENTER	START	1	GROUND BAR		1	FUSES, TRM-10	F4
1	PUSH BUTTON OPERATOR	ESD	4	NAMEPLATE, LARGE NEMA DEVICE		1	FUSES, TRM-15	F3
1	PILOT LIGHT, AMBER, 120 VAC	A	3	NAMEPLATE, 3" x 4", RED WHITE LETTERS		2	FUSES, ATMR-5	F5 & F6
1	PUSH BUTTON, ILLUMINATED, RED, 120 VAC	G, STOP	1	ENCLOSURE, NEMA 4 1/2", 2 DOOR, LOCKABLE HANDLE		2	FUSES, ATMR-10	F1 & F2
1	CONTACT BLOCK, 1 N.C.	ESD	1	BACK PANEL		1	TERMINAL BLOCK, 10 POLE, 30 A	
1	CONTACT BLOCK 1 N.O.	ESD	1	PENANT FIXTURE		1	CABLE, WELDING, 4/0	
			2	HOUSING & CABLE ASSEMBLY - PYLE NATIONAL PART No. RPC1736SE1794 OR EQUAL				



REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY: A. CARLOS DATE: 03/31/2011

Nareh D. Papp
ASSISTANT DIRECTOR- STANDARDS & DESIGN

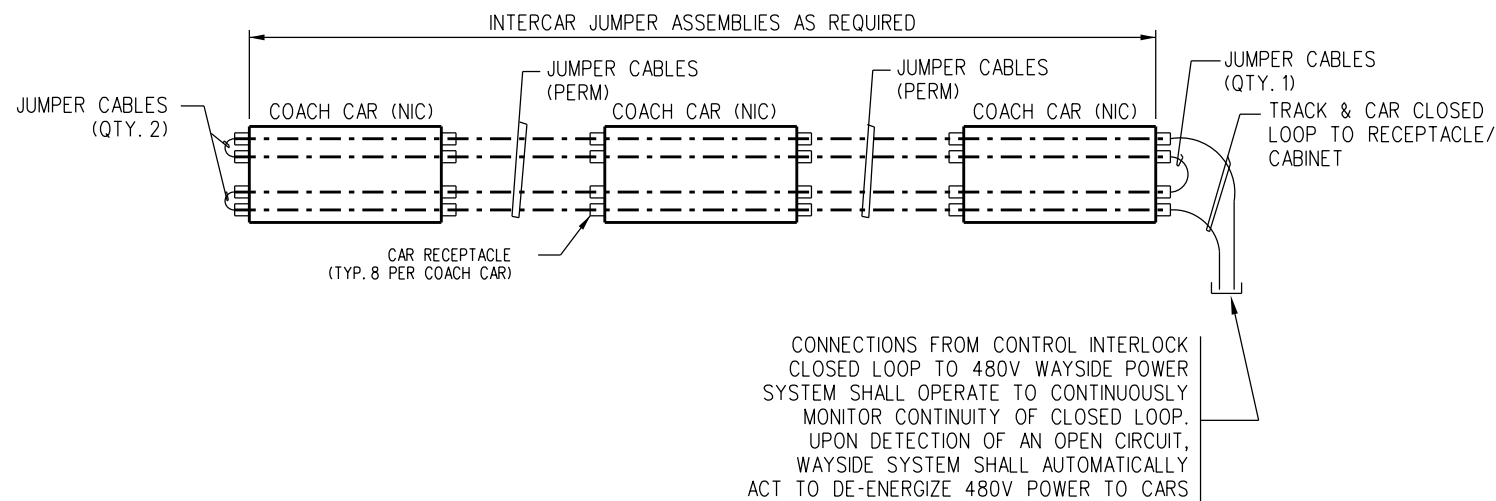
William D. Davis
DIRECTOR OF ENGINEERING AND CONSTRUCTION

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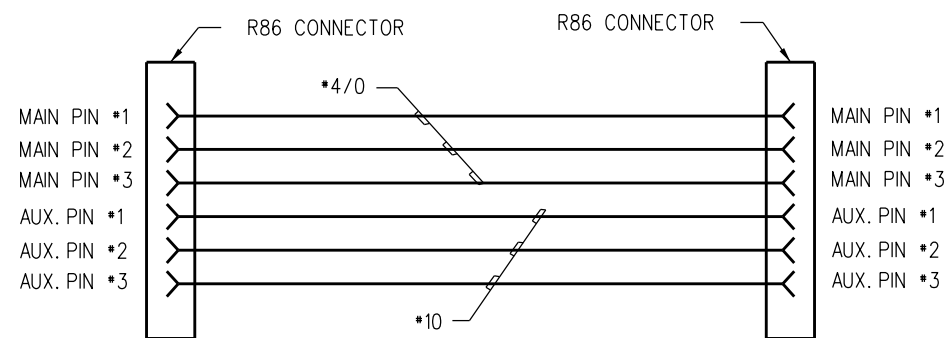
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ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS
GROUND POWER SYSTEM
PANEL LAYOUTS

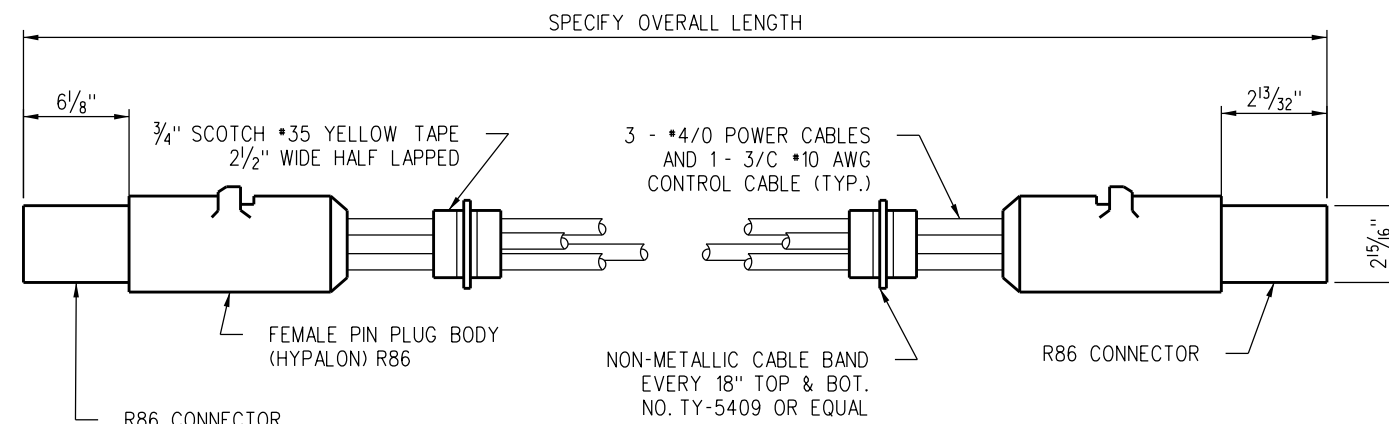
STANDARD	7301
SCALE:	1 1/2" = 1'-0"
REVISION	SHEET
-	2 OF 2
CADD FILE:	ES7301-02



PLAN VIEW - CONTROL INTERLOCK SCHEME FOR 480V STANDBY POWER



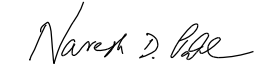
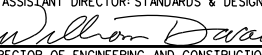
480-VOLT CORDSET SCHEMATIC



480-VOLT CORDSET

QUANTITY REQ'D.-2 FOR EACH 480-VOLT WAYSIDE POWER RECEPTACLE BOX OUTLET

480-VOLT OUTLET PIN UTILIZATIONS			
PIN	CONNECTION AT RECEPTACLE	CAR CONNECTION	FUNCTION
MAIN #1	'A' PHASE OF 480V FEEDER	480-V 'A' BUS	480-V POWER
MAIN #2	'B' PHASE OF 480V FEEDER	480-V 'B' BUS	480-V POWER
MAIN #3	'C' PHASE OF 480V FEEDER	480-V 'C' BUS	480-V POWER
AUX. #1	CONTROL INTERLOCK SYSTEM RELAY (S)	AUX. #1 PIN OF RECEPTACLE AT OPPOSITE END OF CAR	CONTROL CLOSED LOOP INTERLOCK
AUX. #2	GROUND	CHASIS GROUND	GROUNDING
AUX. #3			

REVISION	XX-XX-XX	DES.	ENG.
DATE			
DRAWN BY: A. CARLOS DATE: 03/31/2011			
 ASSISTANT DIRECTOR: STANDARDS & DESIGN			
 DIRECTOR OF ENGINEERING AND CONSTRUCTION			

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ENGINEERING STANDARDS

480V WAYSIDE POWER
CORDSET DETAILS

STANDARD	7302
SCALE	NONE
REVISION SHEET	1 OF 1
CADD FILE	ES7302