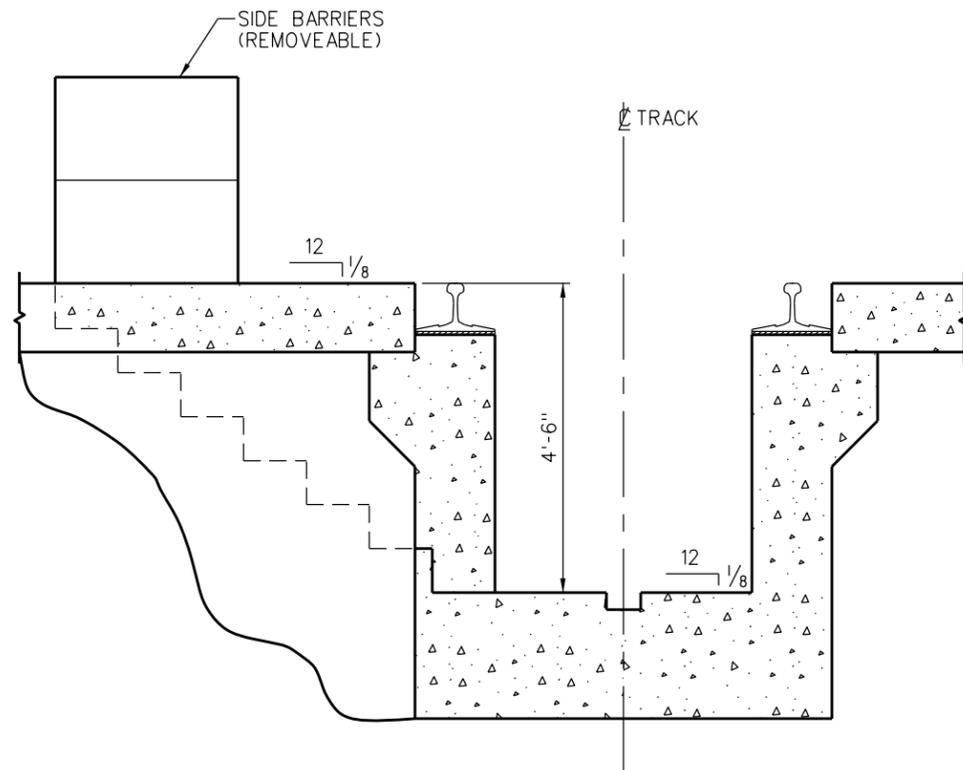
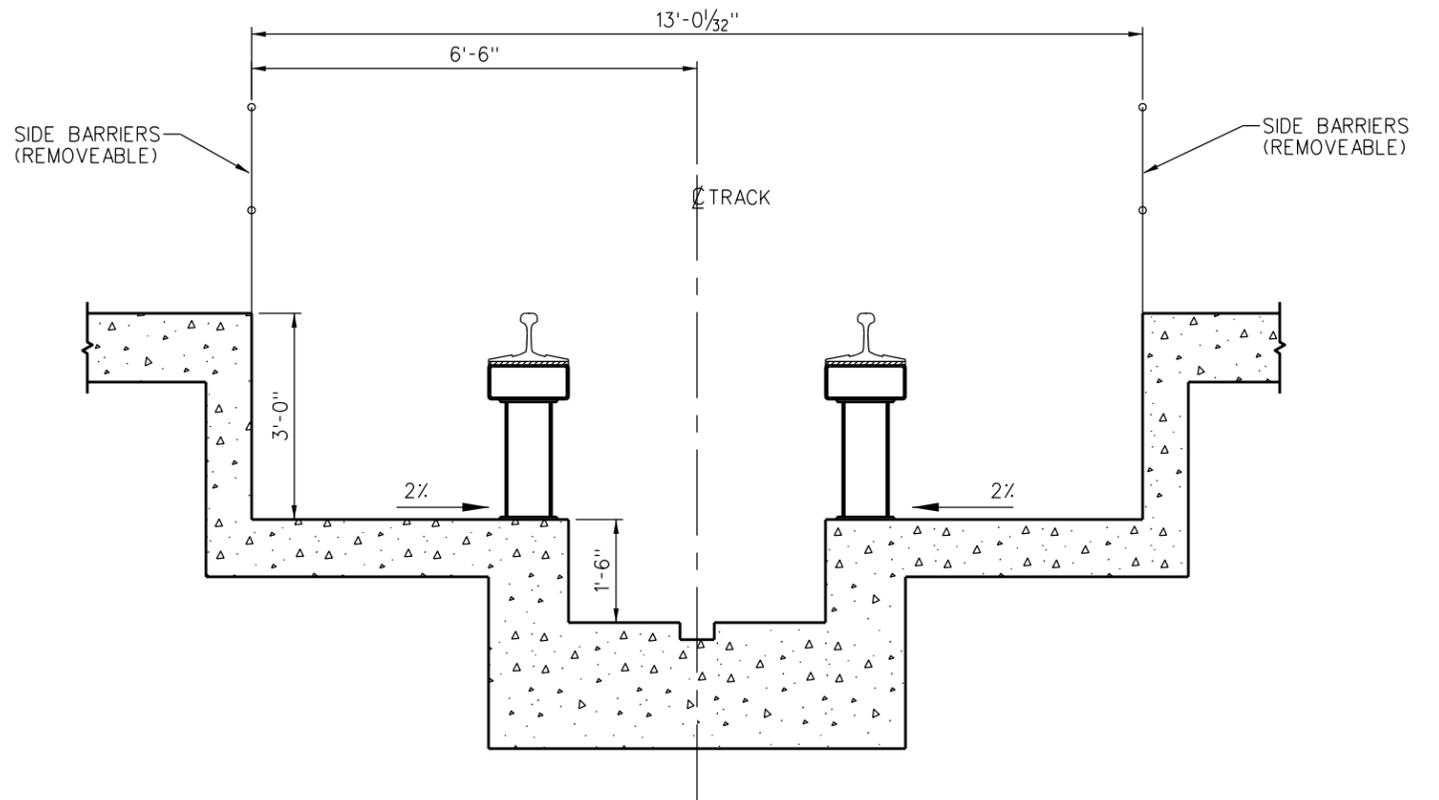


**NOTES:**

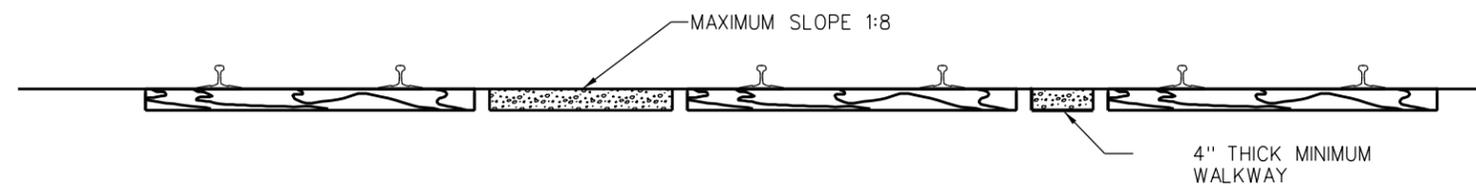
1. SIDE BARRIERS SHALL BE MAINTAINED IN PLACE EXCEPT MAY BE REMOVED WHEN ROLLING STOCK IS ON THE PIT TRACK. BARRIERS ARE TO BE REPLACED BEFORE ROLLING STOCK IS REMOVED FROM THE PIT TRACK.
2. WALKWAYS SHALL BE MAINTAINED AND KEPT FREE FROM VEGETATION.
3. IF PHYSICAL CONDITIONS REQUIRE THE MINIMUM REQUIRED 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.	
ASSISTANT DIRECTOR: STANDARDS & DESIGN <i>Nareh D. Pape</i>		DIRECTOR OF ENGINEERING AND CONSTRUCTION <i>William D. Dacan</i>		

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

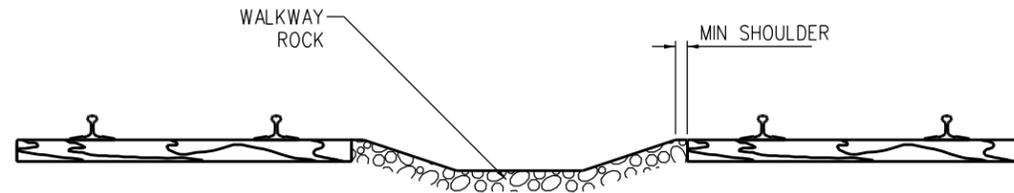
**ENGINEERING STANDARDS**

WALKWAY CLEARANCE FOR FACILITIES WITH UNDER TRACK PITS

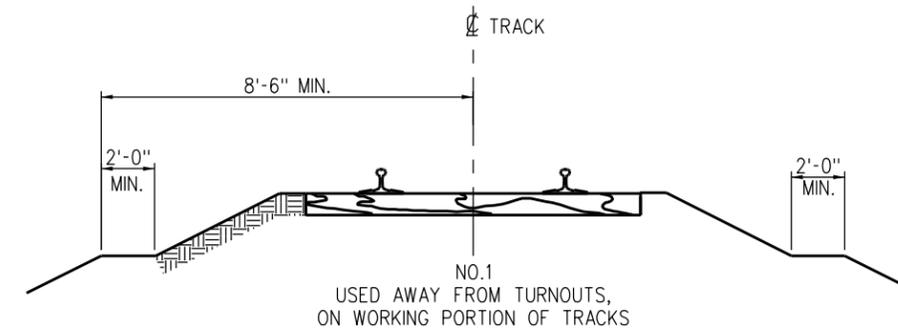
STANDARD	7001
SCALE:	NONE
REVISION SHEET	1 OF 2
CADD FILE:	ES7001-01

**NOTES:**

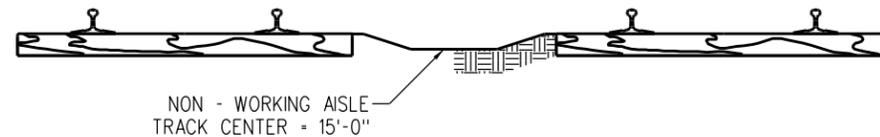
1. IN ALL CASES LATERAL CLEARANCE AND TRACK SPACING WILL MATCH CPUC G.O. 26-D EXCEPT ES7001 AND INSPECTION PITS.
2. WALKWAYS SHALL BE MAINTAINED AND KEPT FREE FROM VEGETATION.
3. IF PHYSICAL CONDITIONS REQUIRE, THE MINIMUM REQUIRED WALKWAY WIDTH FOR NO.1 TYPE WALKWAYS MAY BE REDUCED TO 2' MINIMUM UPON 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.



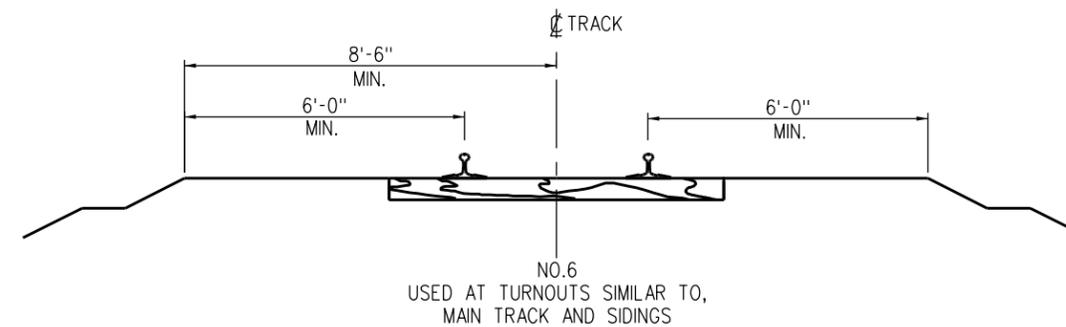
**TYPICAL TRACK CONFIGURATION STORAGE TRACKS**



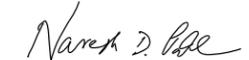
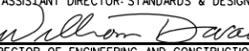
**GENERAL WALKWAY PER CALIFORNIA P.U.C. STANDARD 1**



**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  ASSISTANT DIRECTOR: STANDARDS & DESIGN  DIRECTOR OF ENGINEERING AND CONSTRUCTION				

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

**ENGINEERING STANDARDS**

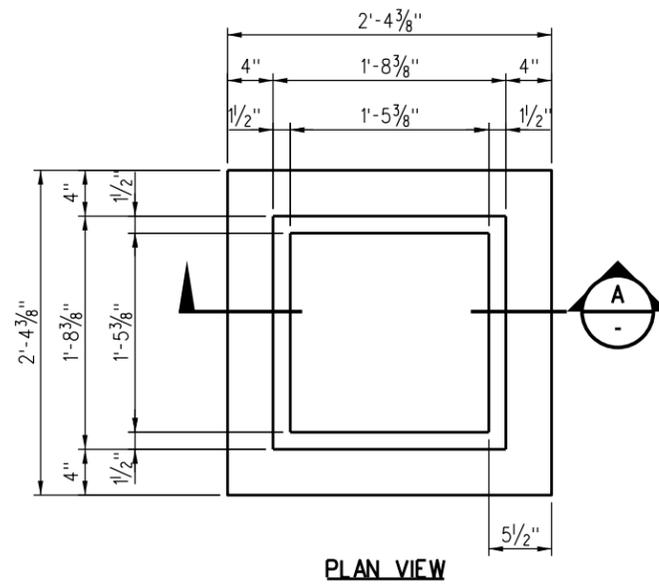
WALKWAY CLEARANCE FOR FACILITIES WITHOUT UNDER - TRACK PITS

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

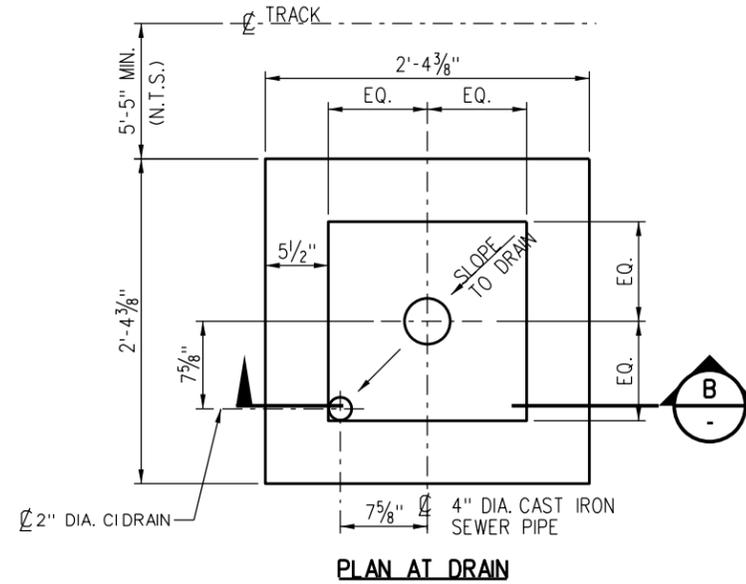


**NOTES:**

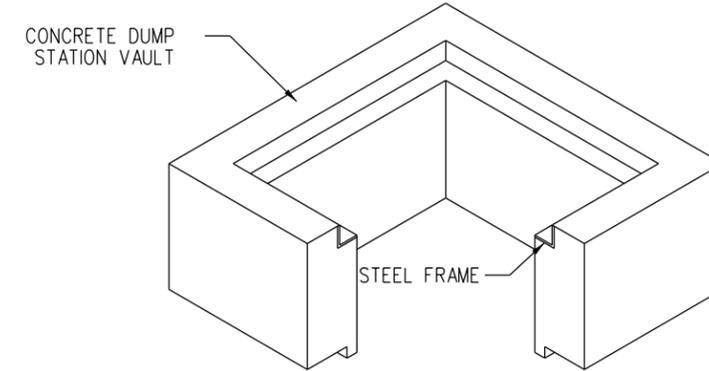
1. FOR DUMP STATION VAULT LID SEE DRAWING ES7102.
2. THE ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE SHALL BE NOT LESS THAN 5000 PSIN 28 DAYS.
3. STEEL FRAME TO BE HOT DIP GALVANIZED.
4. VAULT BOTTOM TO BE POURED CONCRETE WITH SMOOTH FINISH.
5. FILL JOINT BETWEEN PERIMETER OF DUMP LID AND STEEL FRAME OF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



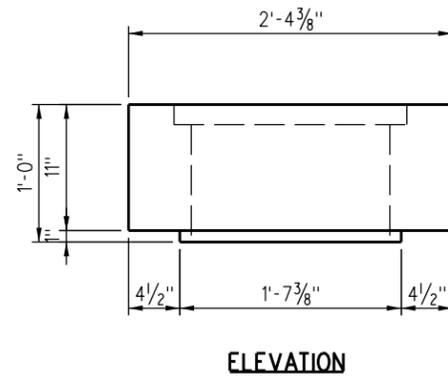
**PLAN VIEW**



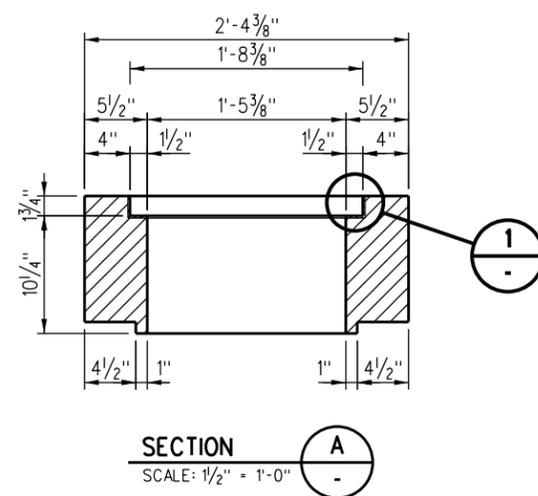
**PLAN AT DRAIN**



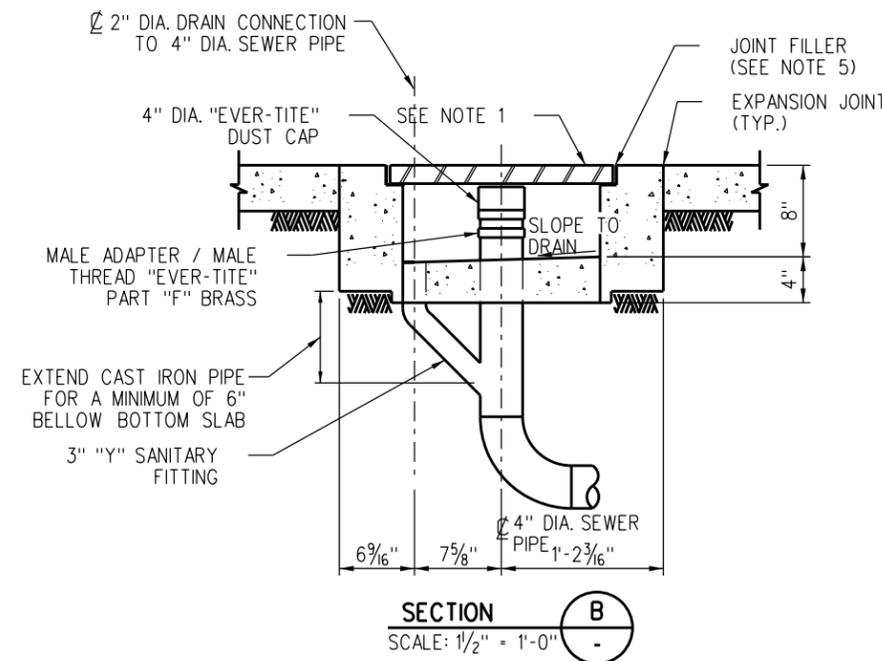
**ISOMETRIC VIEW**



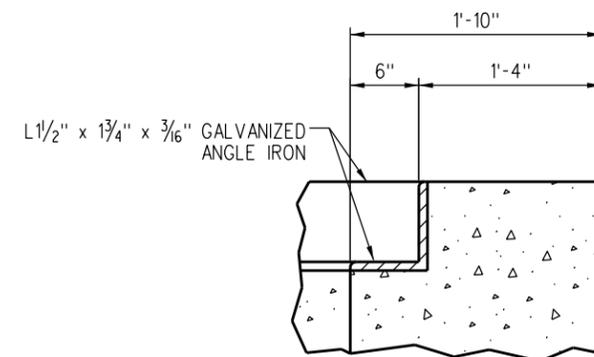
**ELEVATION**



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



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



**DETAIL 1**  
SCALE: 6" = 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. Davis*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

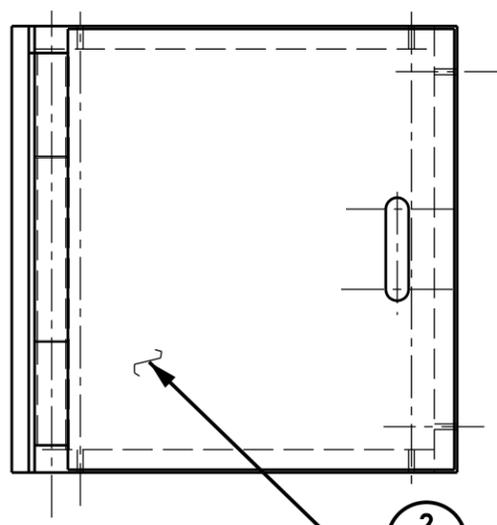
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**METROLINK**  
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

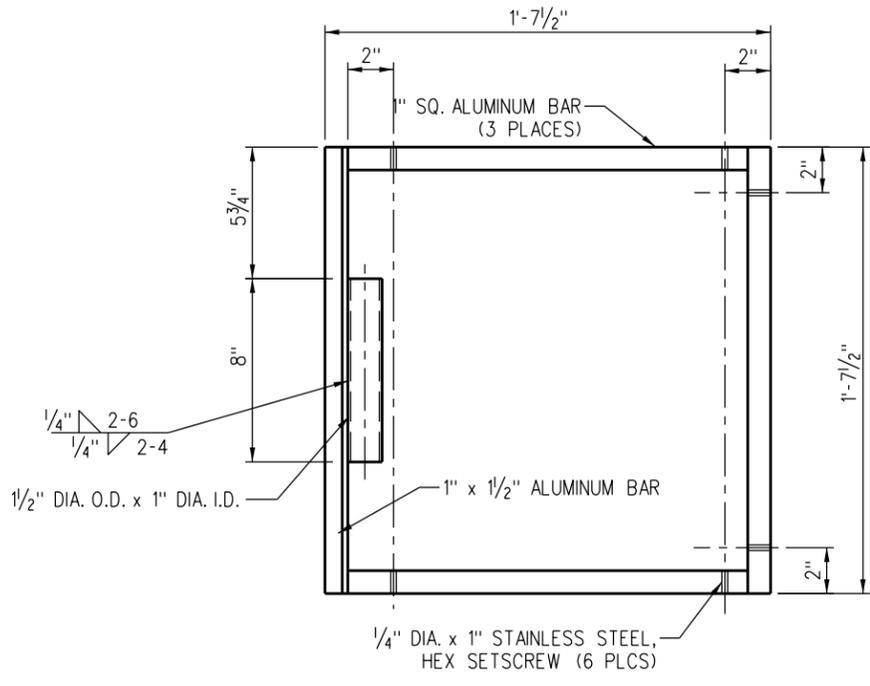
ENGINEERING STANDARDS  
 DUMP STATION VAULT  
 DETAILS

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

**NOTE:**  
ALL ALUMINUM TO BE 6061-T6

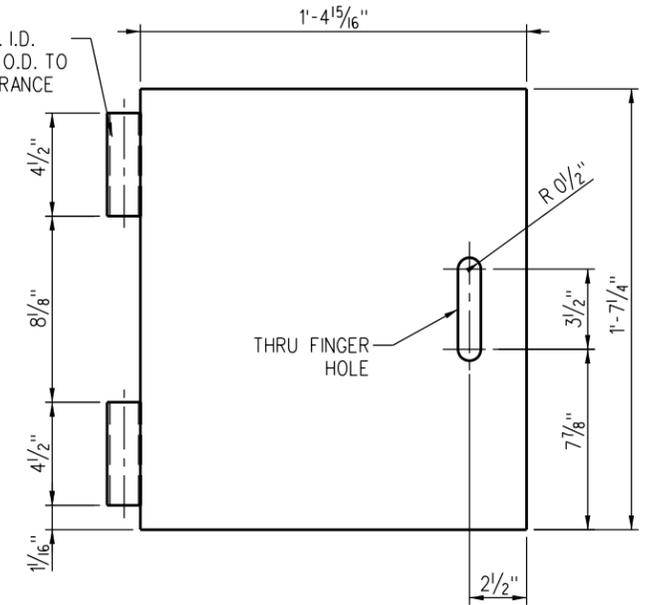


**PLAN VIEW  
ASSEMBLY**

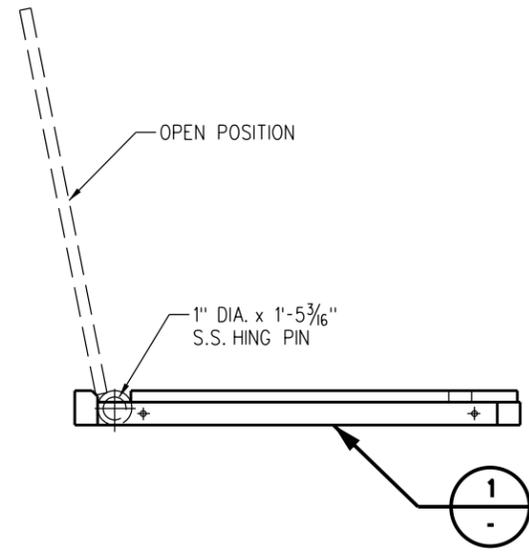


**PLAN VIEW  
FRAME**

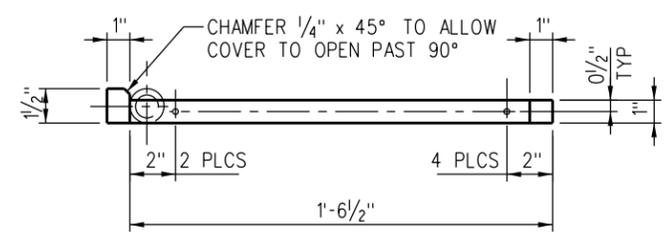
1/2" DIA. O.D. x 1" DIA. I.D.  
ALUM. TUBE, MACHINE O.D. TO  
1.490" DIA. FOR CLEARANCE  
2 PLACES



**PLAN VIEW  
LID / COVER**

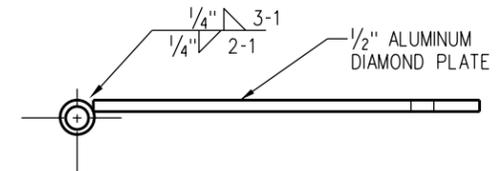


**ELEVATION  
SEWER DUMP LID  
ASSEMBLY DETAIL**



**SIDE VIEW  
ALUMINUM FRAME**

**DETAIL 1**



**SIDE VIEW  
ALUMINUM COVER**

**DETAIL 2**

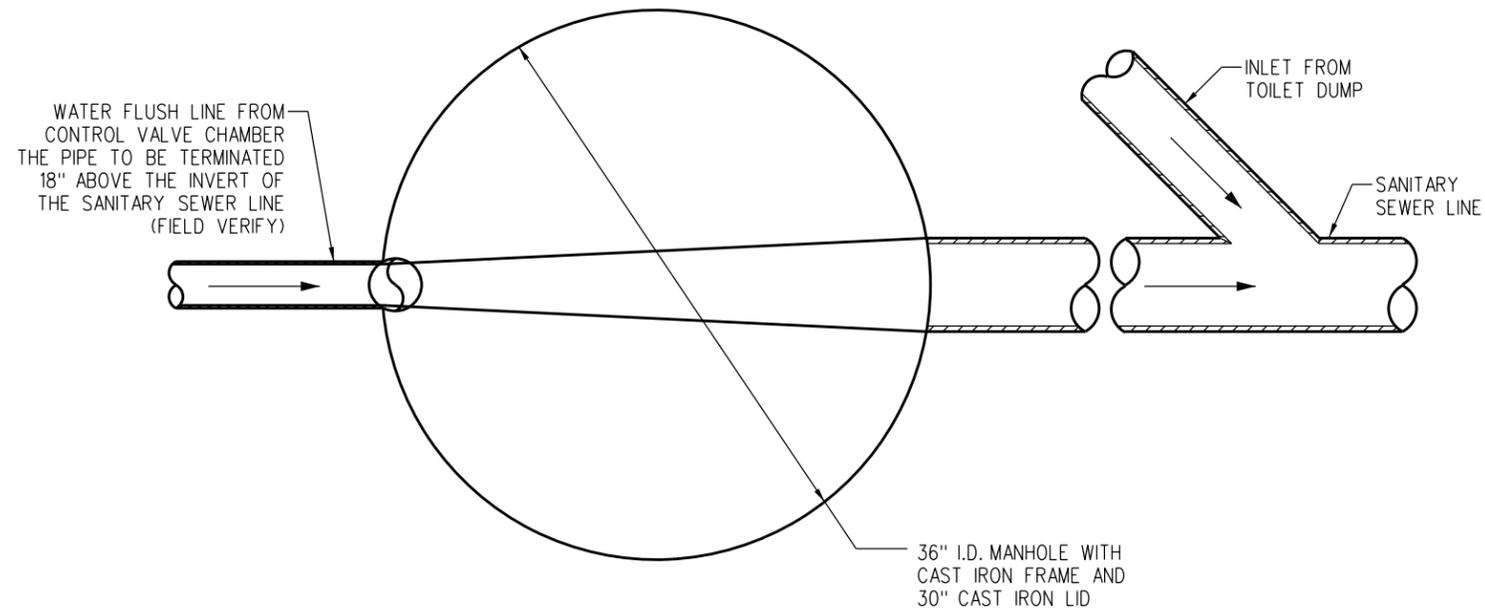
REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS DATE: 03/31/2011 Assistant Director: Standards & Design Director of Engineering and Construction				

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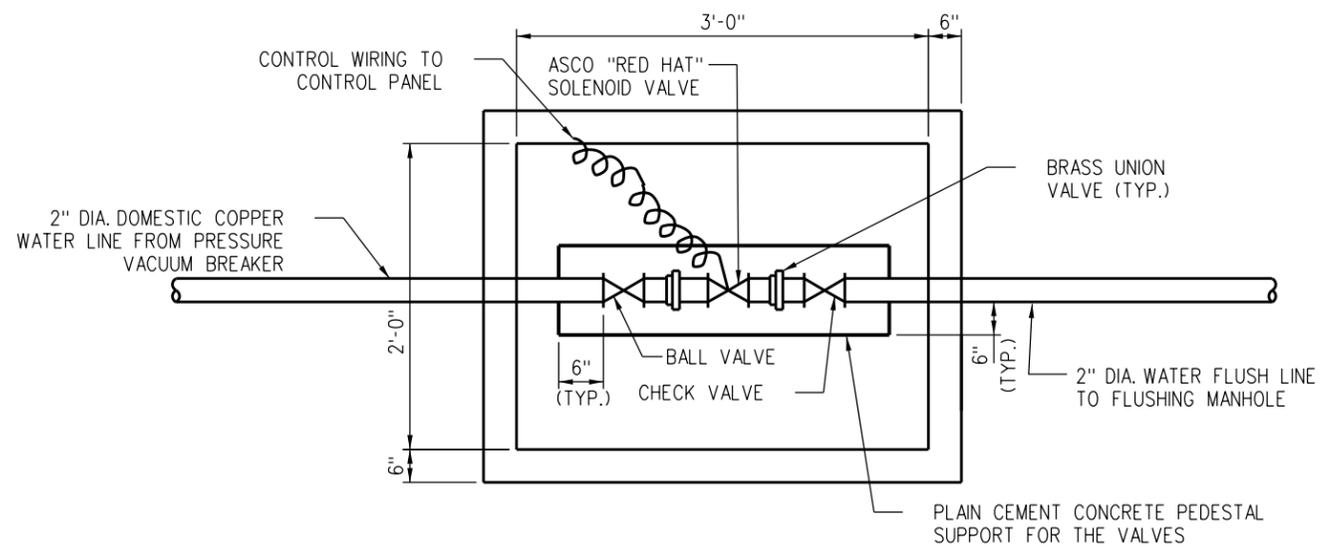
**METROLINK**  
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
DUMP STATION VAULT  
ALUMINUM LID DETAILS

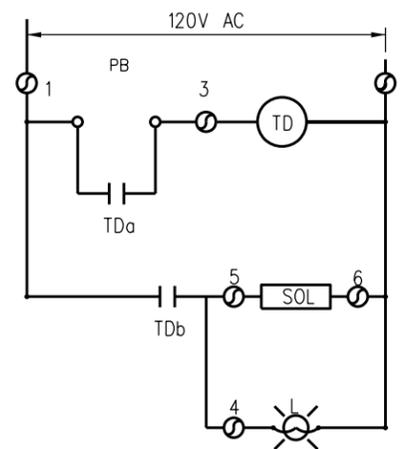
STANDARD	7101
SCALE:	3" = 1'-0"
REVISION SHEET	3 OF 3
CADD FILE:	ES7101-03



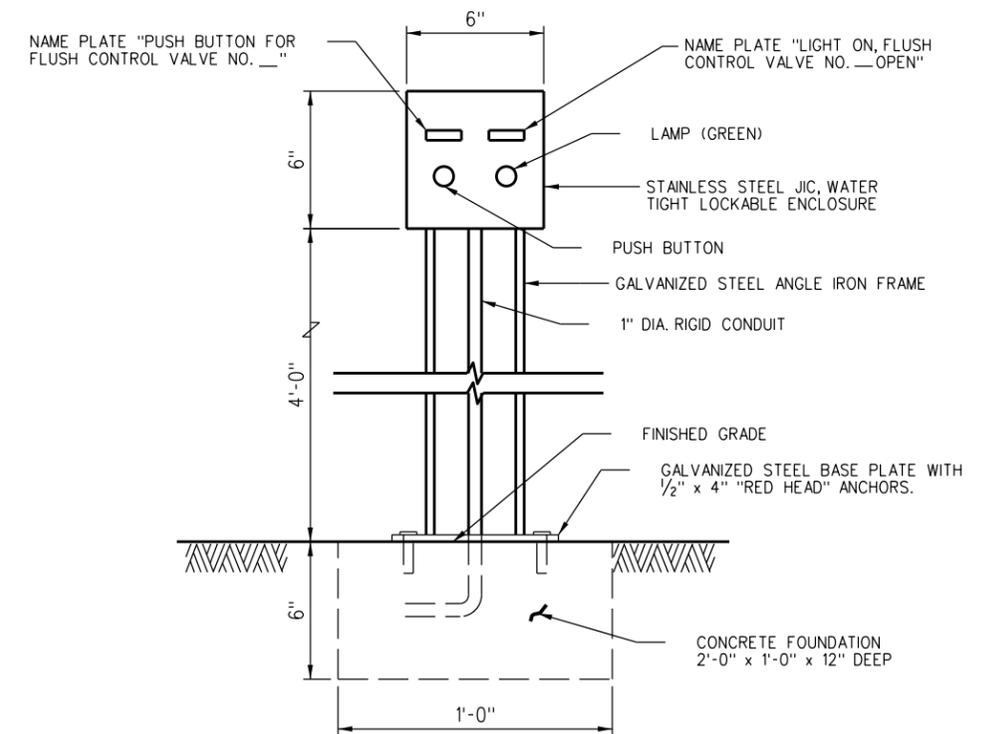
PLAN  
FLUSHING MANHOLE



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

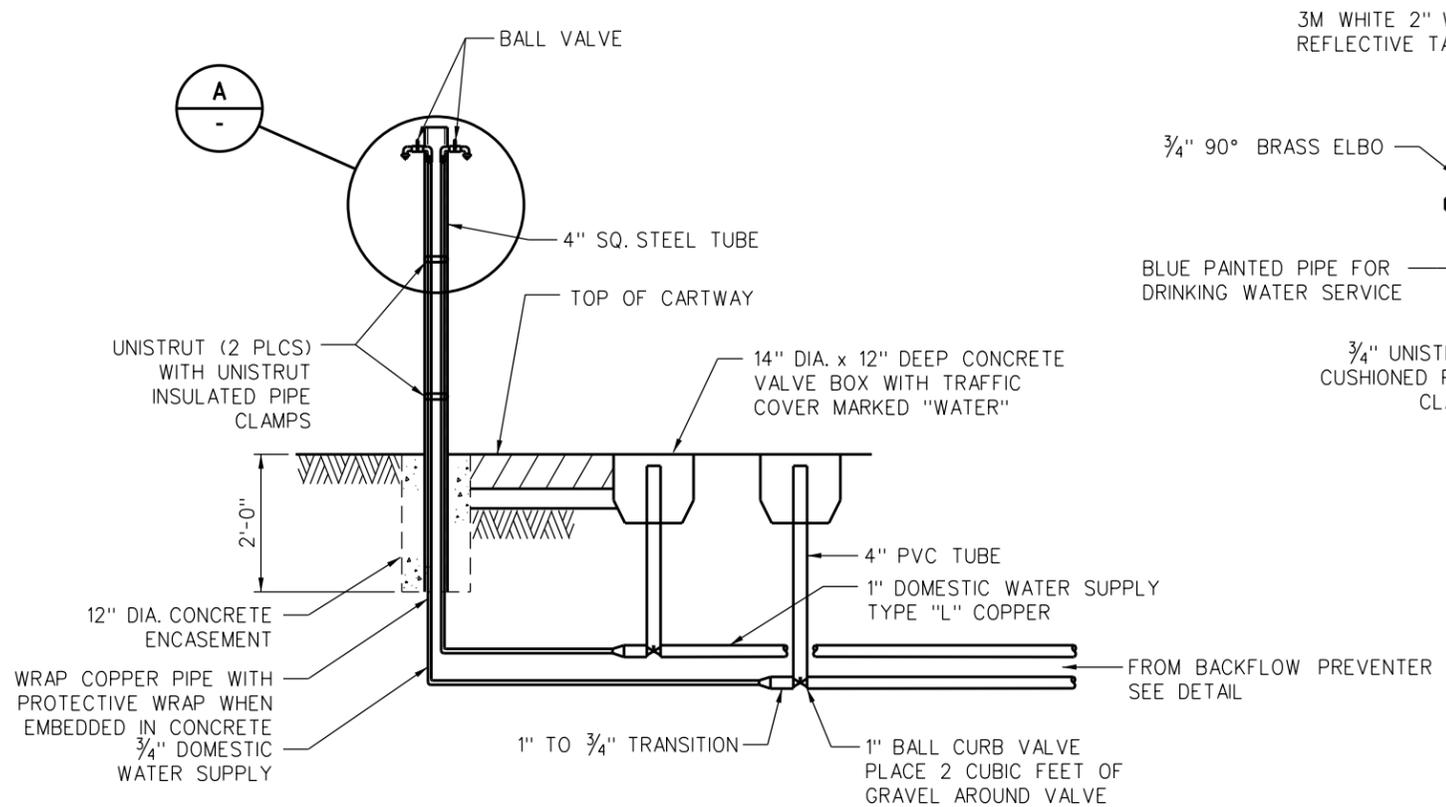
DRAWN BY: A. CARLOS DATE: 03/31/2011  
*Nareh D. Pae*  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*William D. Davis*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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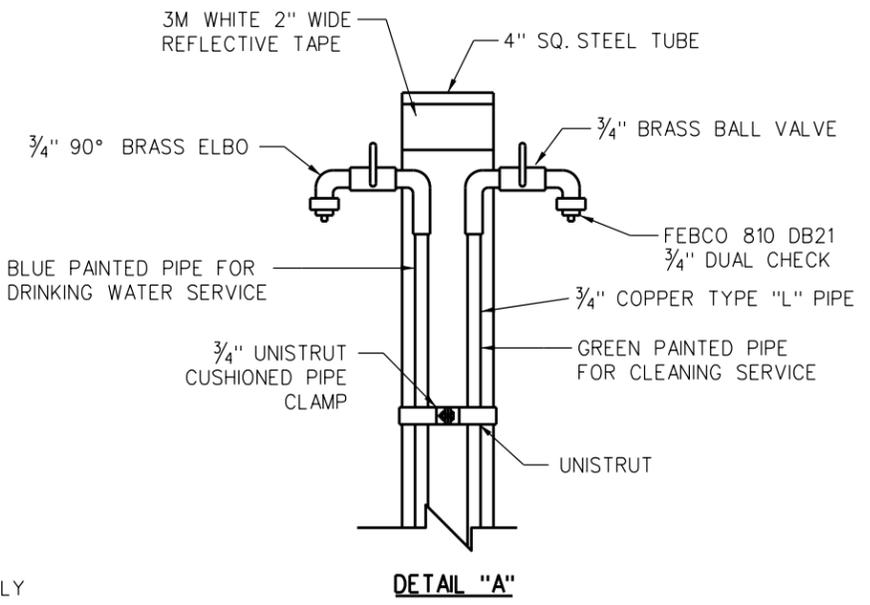
**METROLINK**  
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
 FLUSHING MANHOLE DETAILS

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



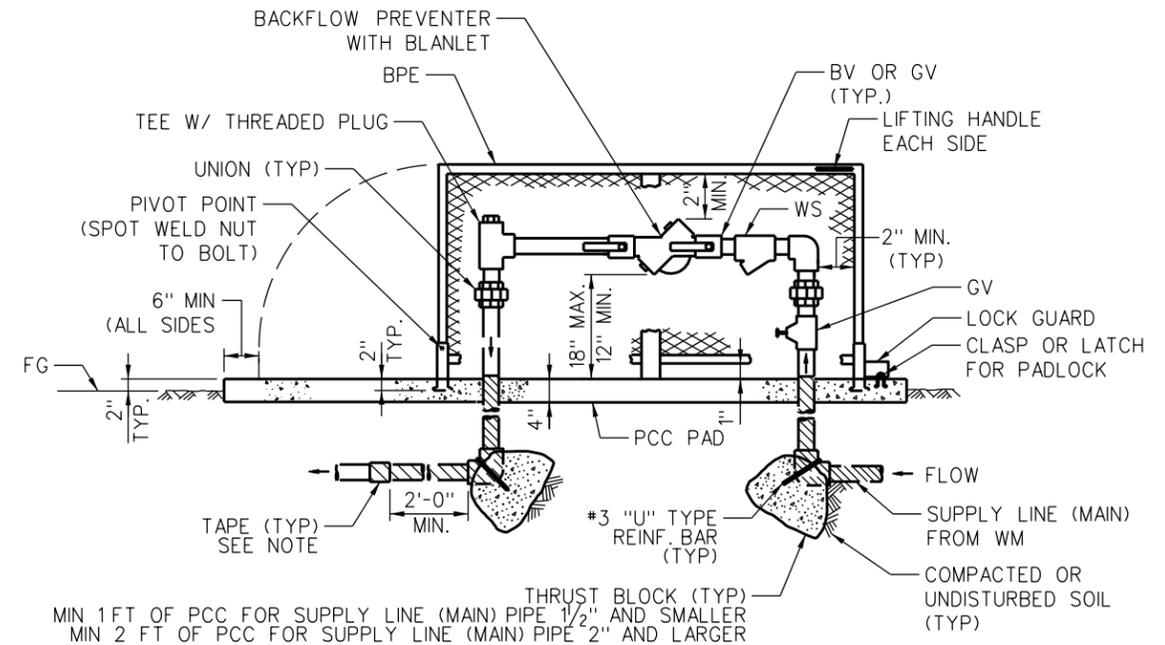
**ELEVATION  
POTABLE WATER SUPPLY**



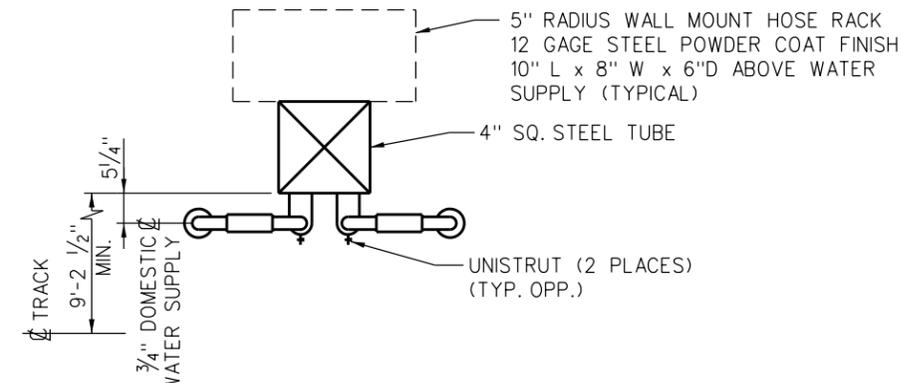
**DETAIL "A"**

**NOTES:**

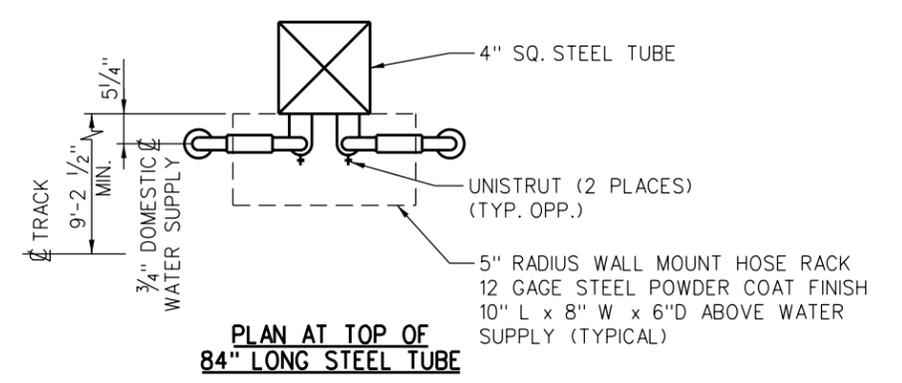
1. 4" SQUARE TUBE WILL BE SCHEDULE 40 STEEL TUBE.
2. 4" SQUARE TUBE TO BE PAINTED SAFETY YELLOW.
3. 4" SQUARE TUBE WILL BE 72" LONG IF WALL MOUNT HOSE RACK IS ON THE OPPOSITE SIDE OF WATER SUPPLY LINE AND 84" LONG IF WALL MOUNT HOSE RACK IS ON THE SAME SIDE OF WATER SUPPLY LINE.
4. BACKFLOW PREVENTER DESIGN, CONSTRUCTION AND LOCATION WILL BE COORDINATED WITH LOCAL AGENCY\OWNER.



**BACKFLOW PREVENTER  
ASSEMBLY  
(ONE PIECE ENCLOSURE)**



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



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

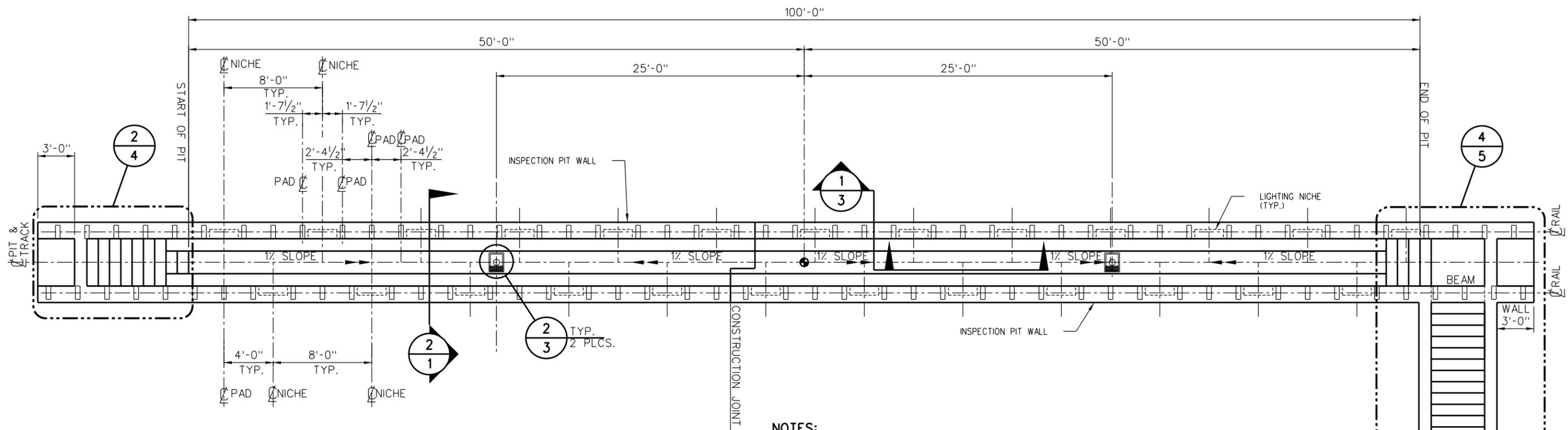
REV.	DATE	DESCRIPTION	DES.	ENG.
A	12-10-14	ADDED WATER LINE AND BACKFLOW PREVENTER	AC	NDP

DRAWN BY: A. CARLOS DATE: 04/01/03  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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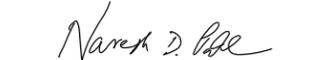
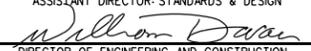
**METROLINK**  
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

<b>ENGINEERING STANDARDS</b>		STANDARD 7103
POTABLE WATER STATION		SCALE: NONE
REVISION SHEET A	1 OF 1	CADD FILE: EST103



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

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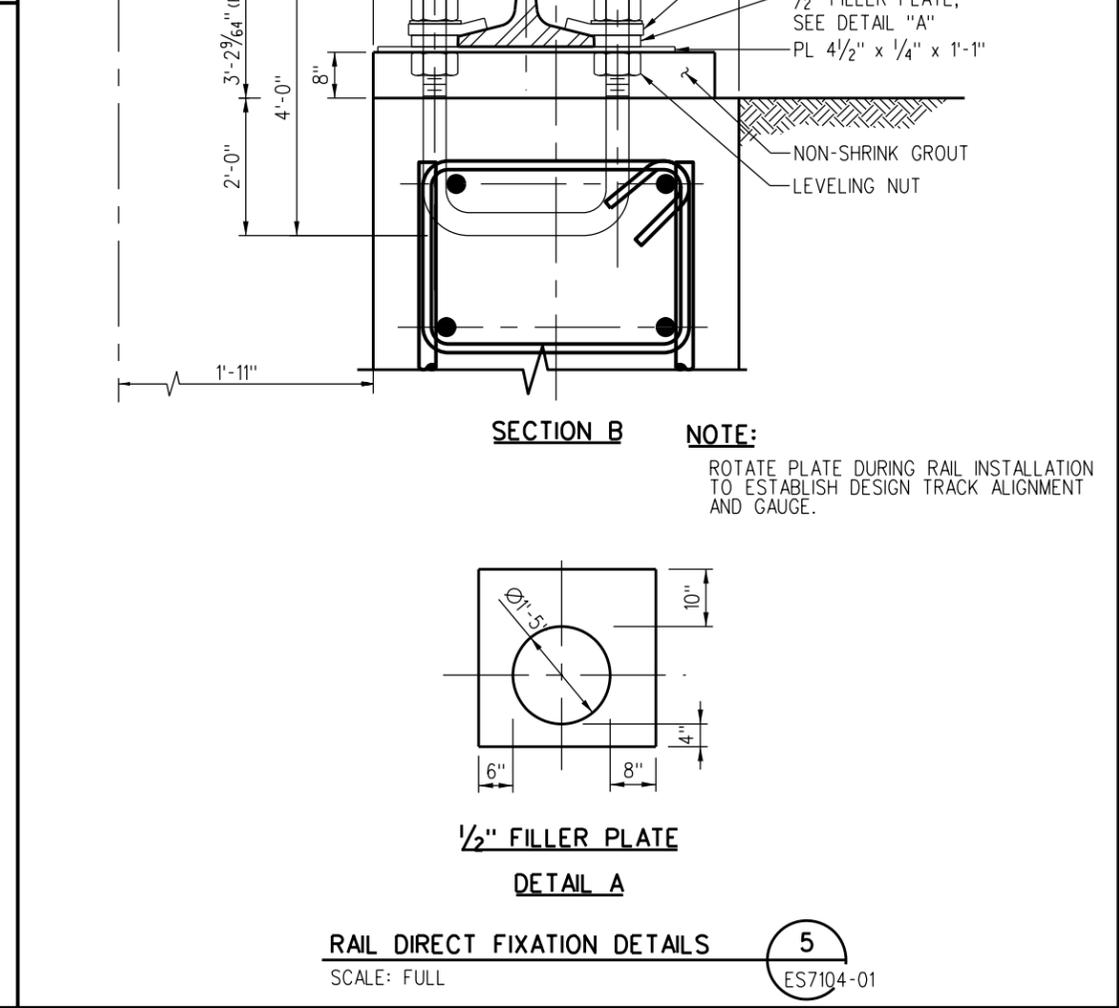
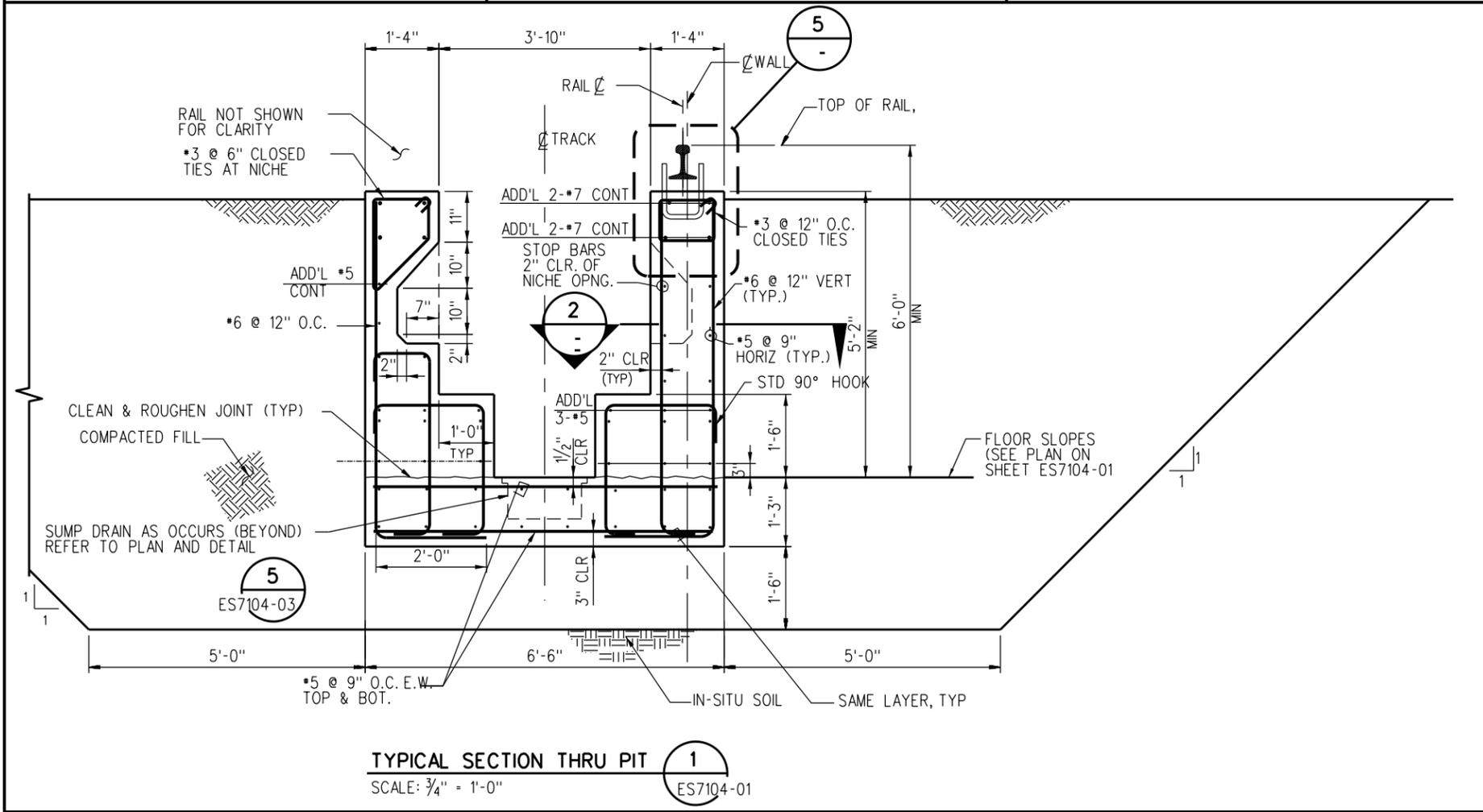
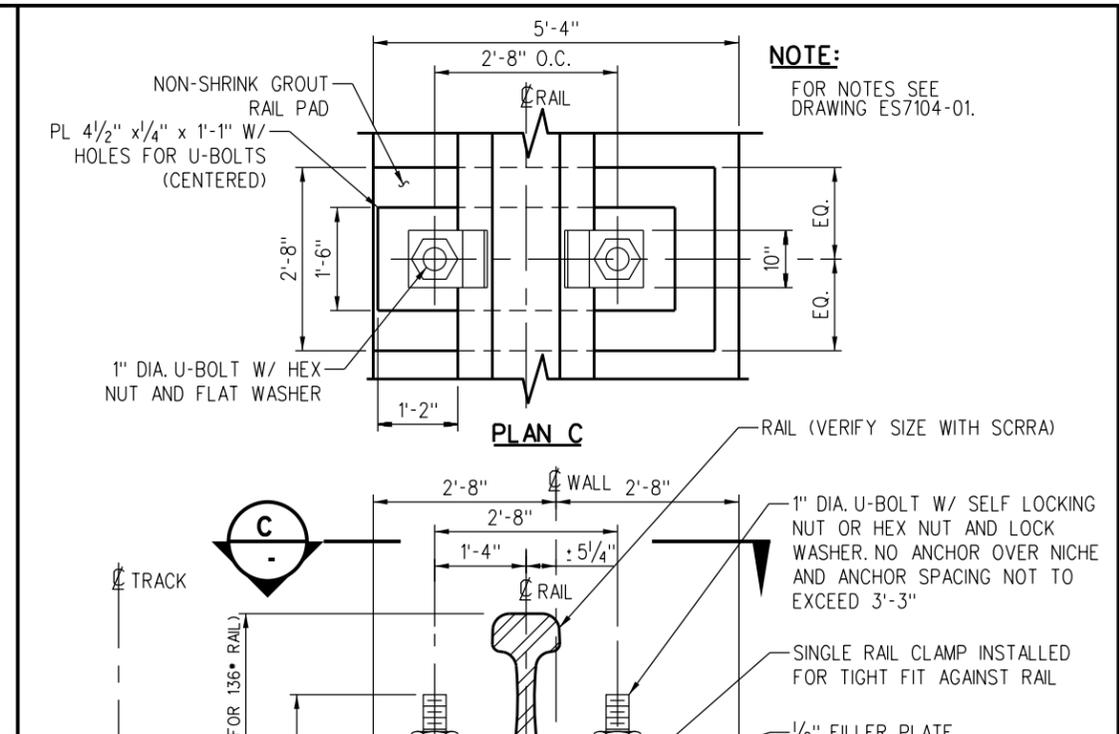
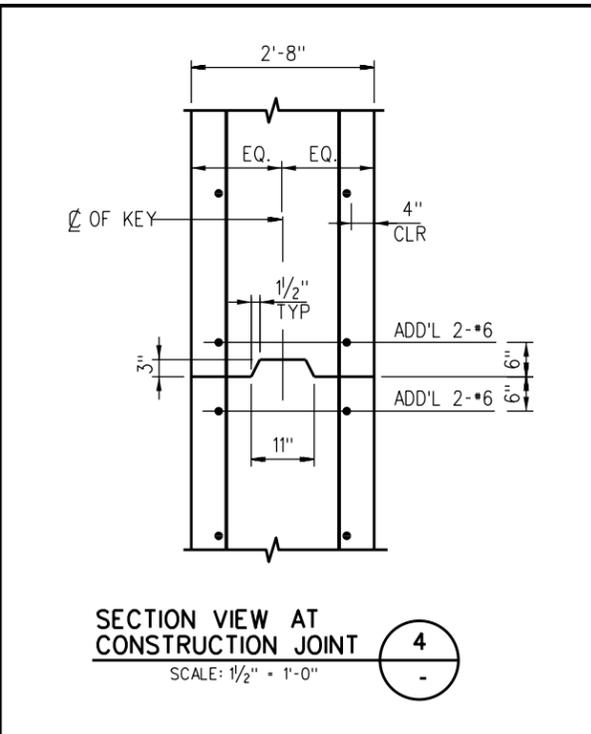
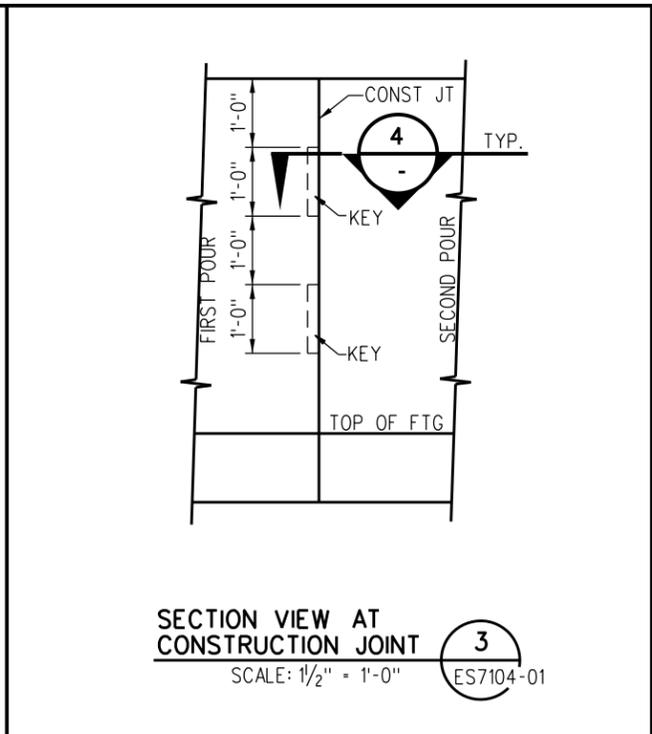
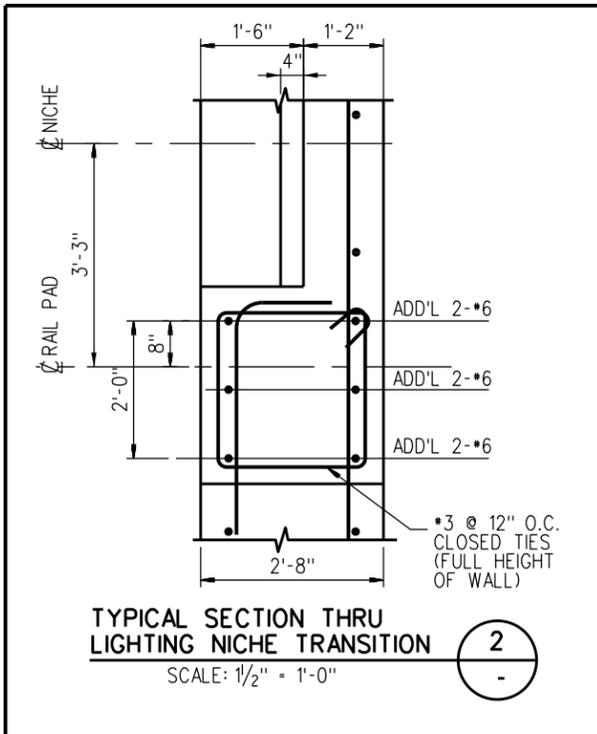


SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

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

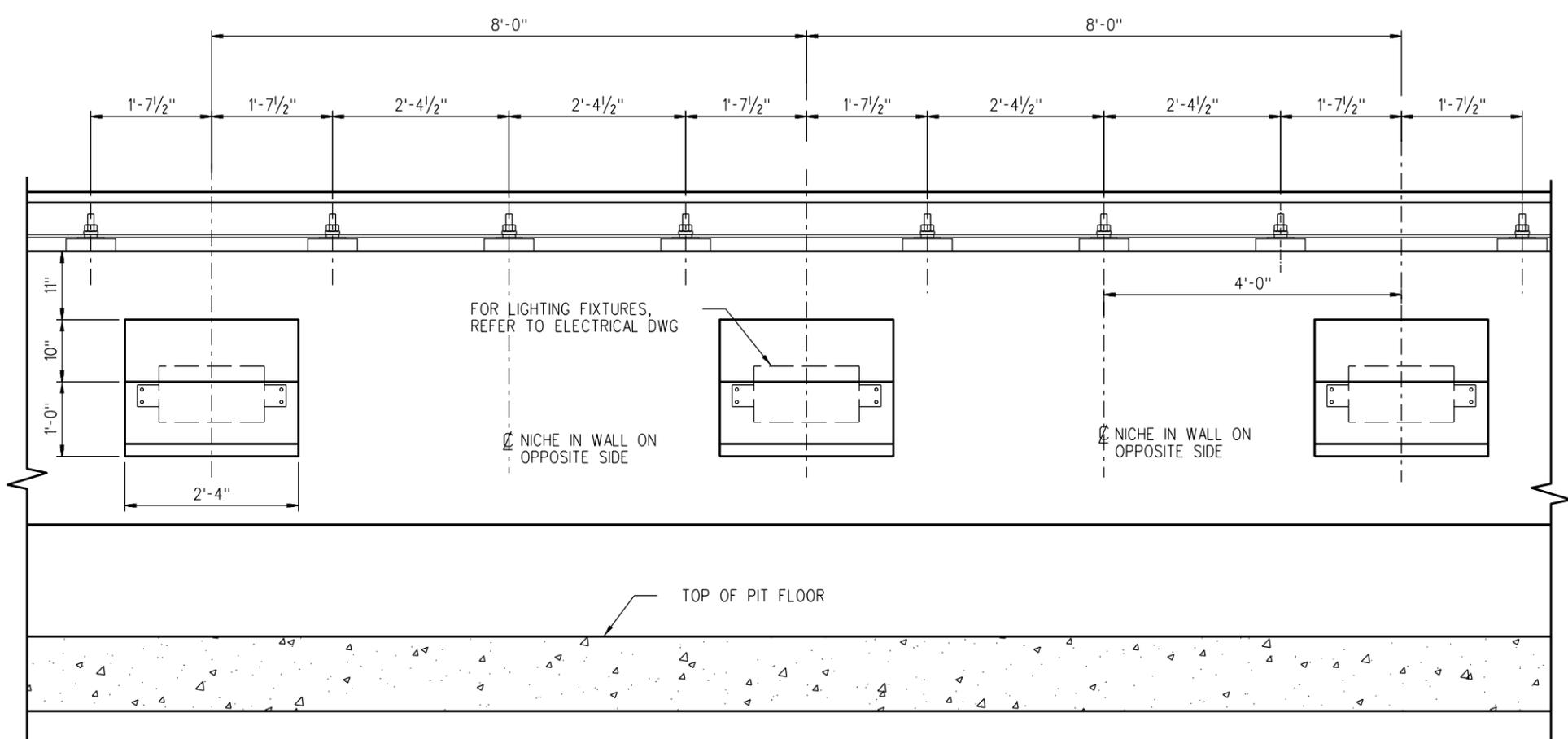
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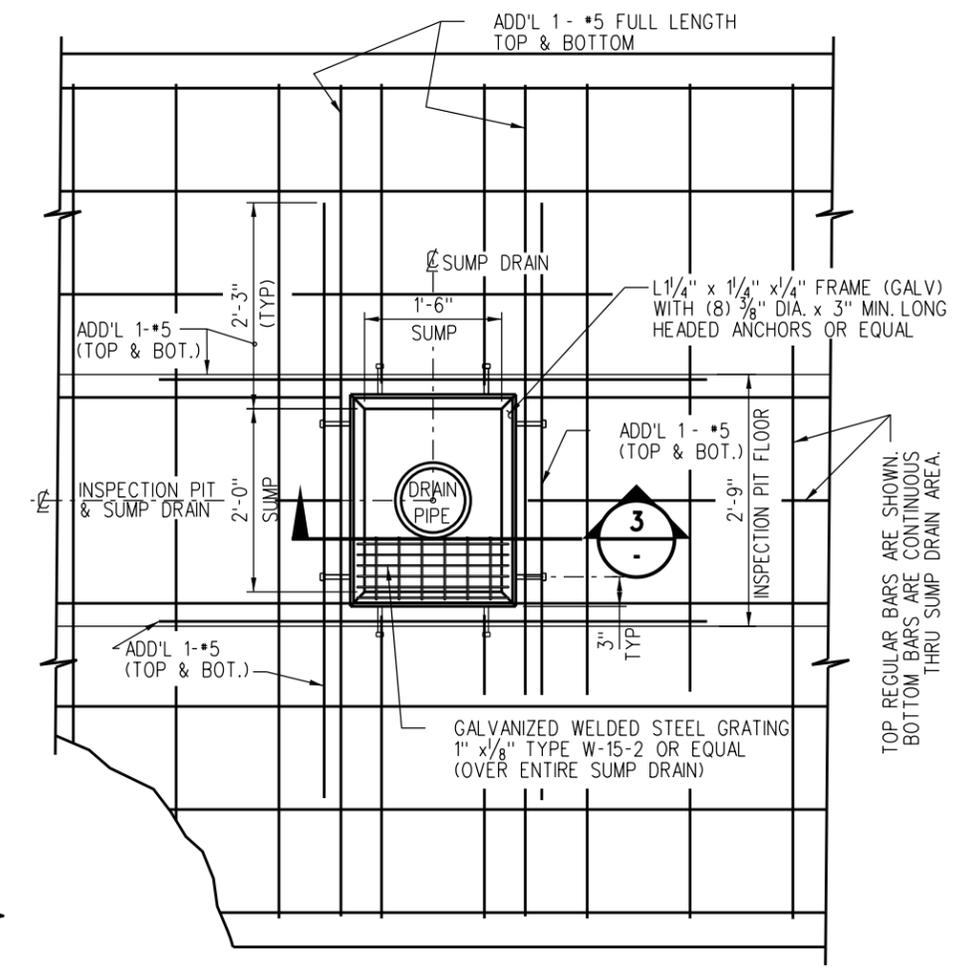
ENGINEERING STANDARDS  
 INSPECTION PIT SECTION AND DETAILS

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

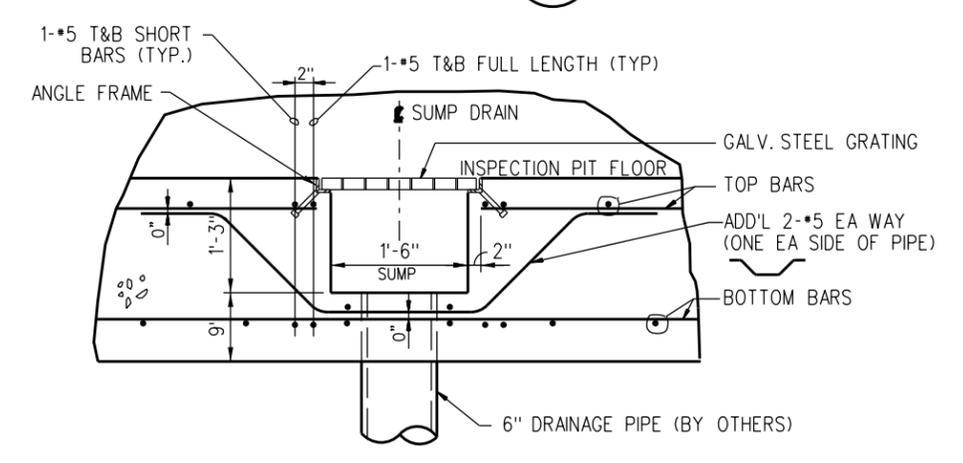
**NOTE:**  
FOR NOTES SEE DRAWING ES7104-01.



**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"

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

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

Assistant Director: Standards & Design  
*William D. Davis*  
 Director of Engineering and Construction

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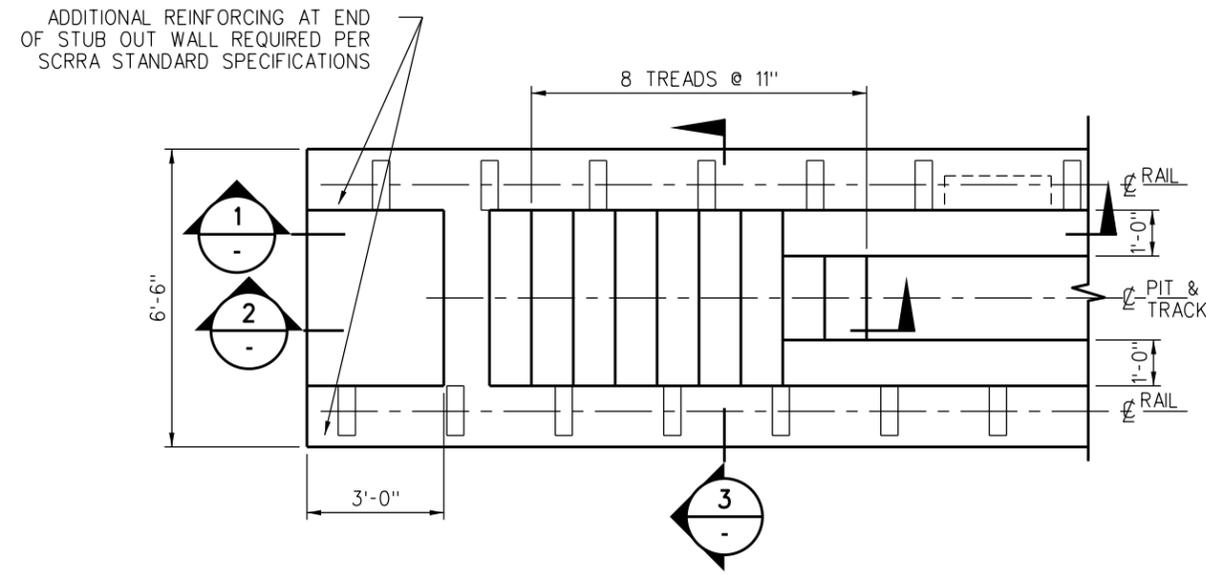
**METROLINK**  
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY  
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

**ENGINEERING STANDARDS**

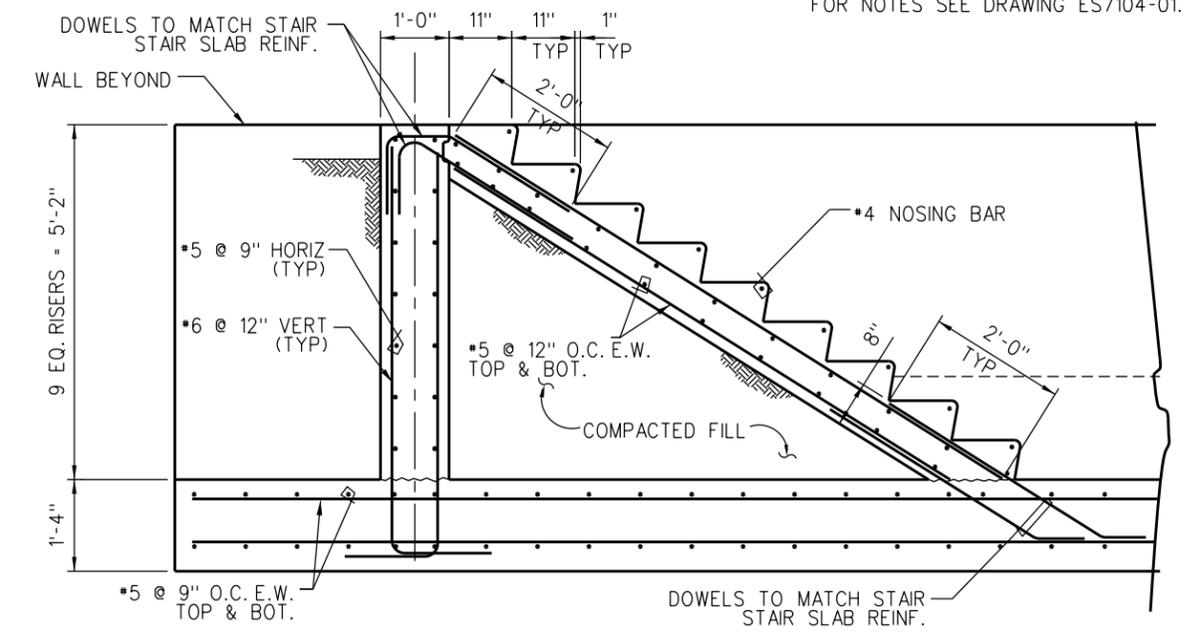
INSPECTION PIT PARTIAL ELEVATION

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

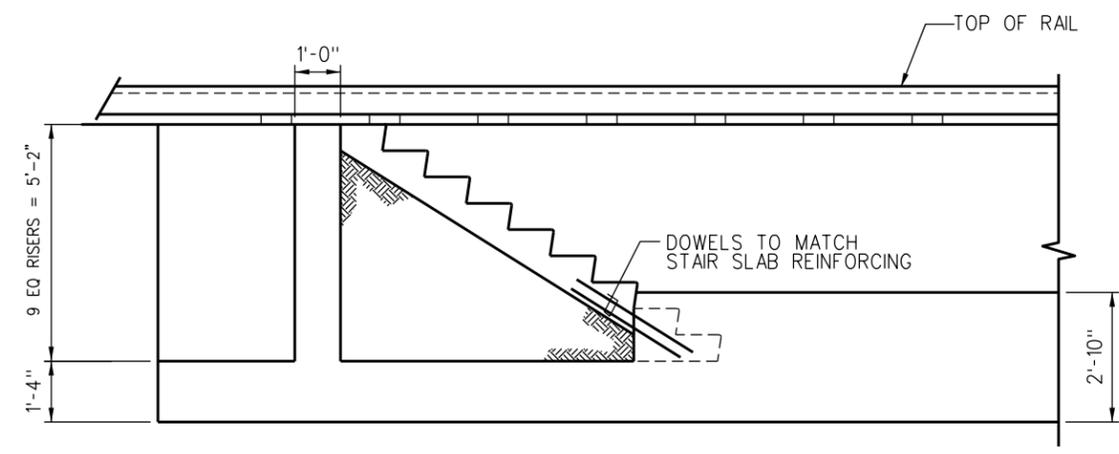
**NOTE:**  
FOR NOTES SEE DRAWING ES7104-01.



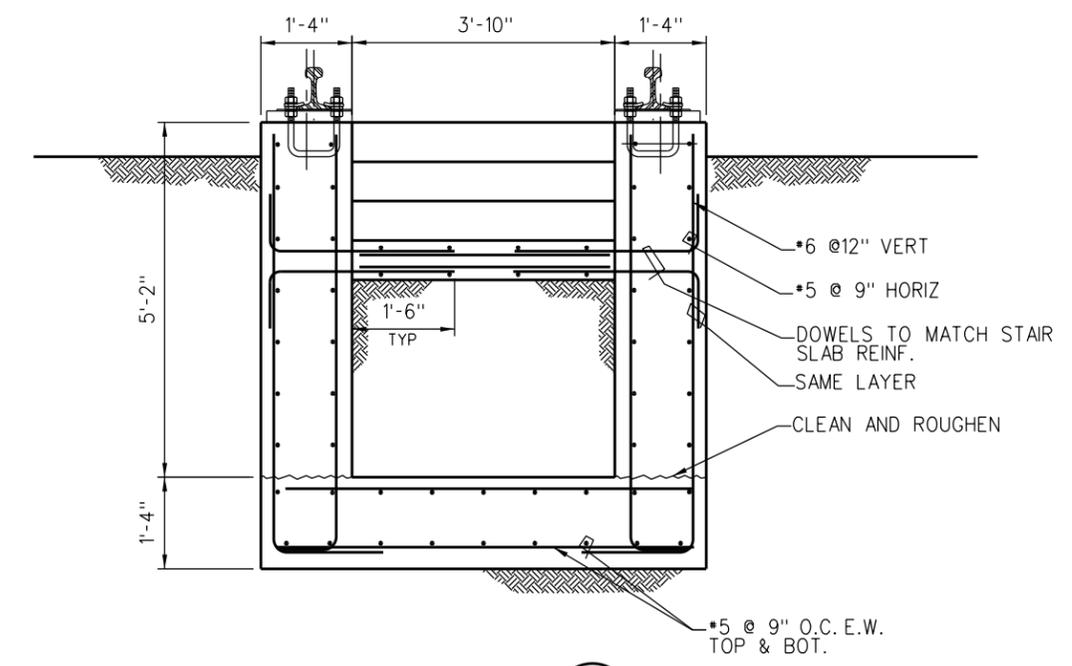
**STAIR #1 PLAN**  
SCALE: 1" = 1'-0"  
2  
ES7104-01



**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

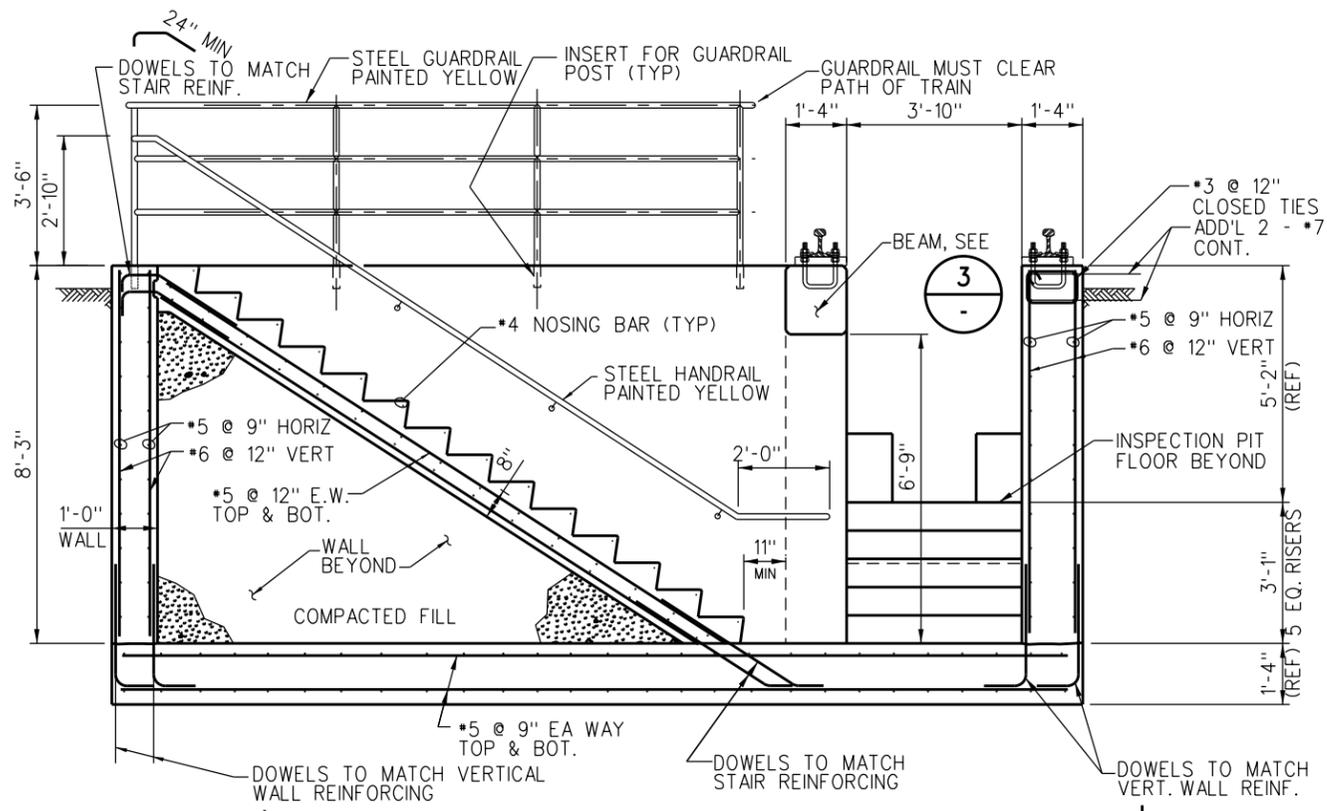
REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS		DATE: 03/31/2011	SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE 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.	
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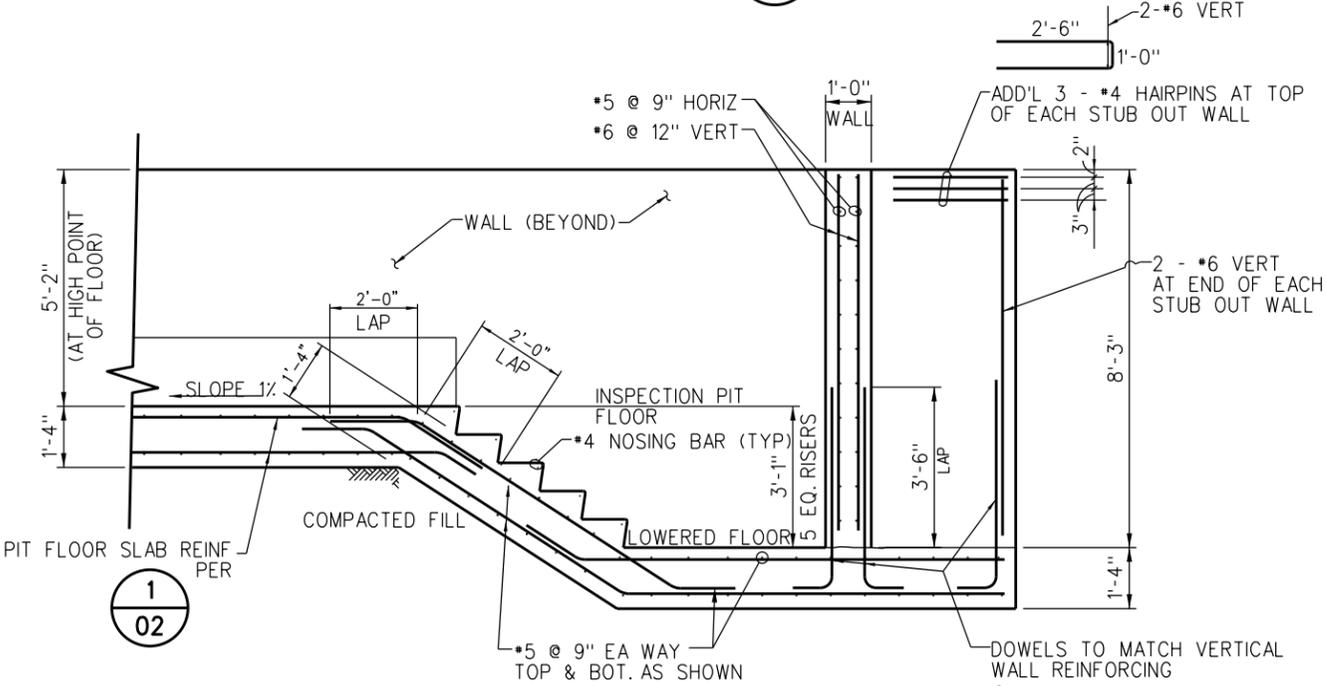
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ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
INSPECTION PIT  
STAIR PLAN AND SECTION

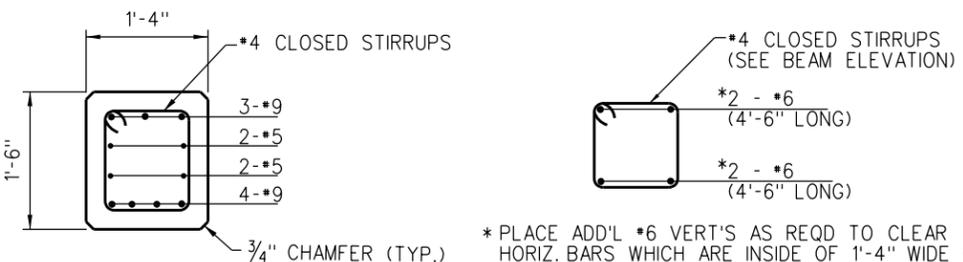
STANDARD	7104
SCALE:	AS NOTED
REVISION SHEET	4 OF 5
CADD FILE:	ES7104-04



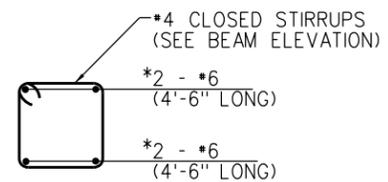
**STAIR #2 SECTION 1**  
SCALE: 1/2" = 1'-0"



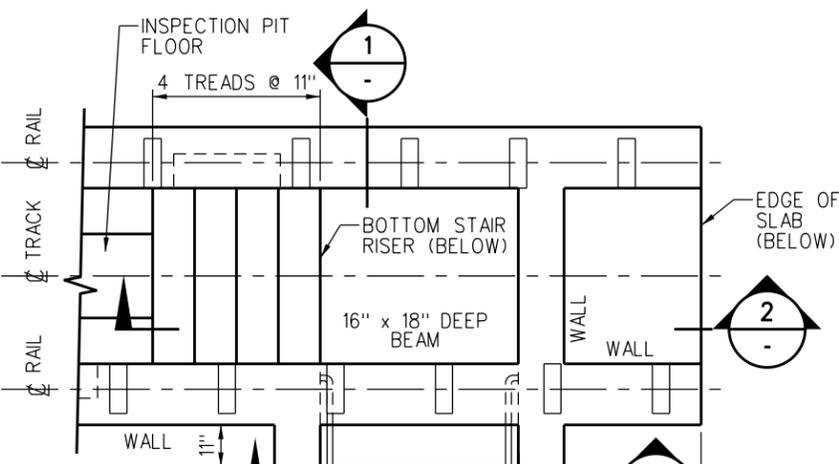
**SECTION 2**  
SCALE: 1/2" = 1'-0"



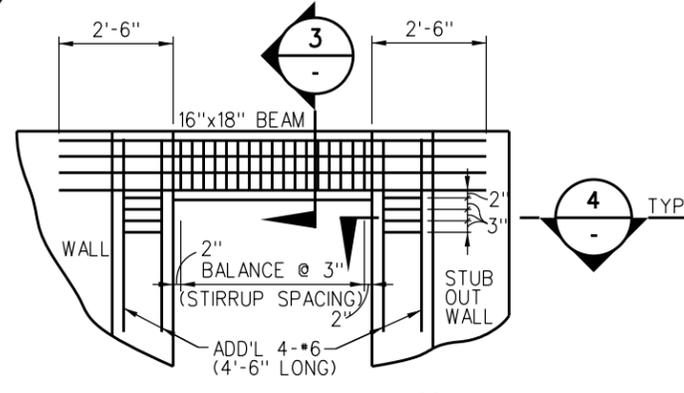
**BEAM SECTION 3**  
SCALE: 1" = 1'-0"



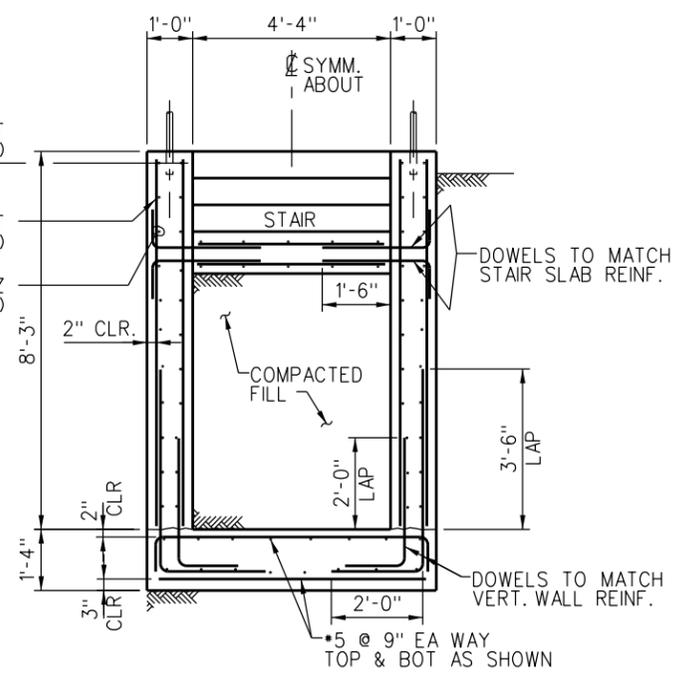
**ADD'L VERT. BARS & TIES 4**  
SCALE: 1" = 1'-0"



**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.

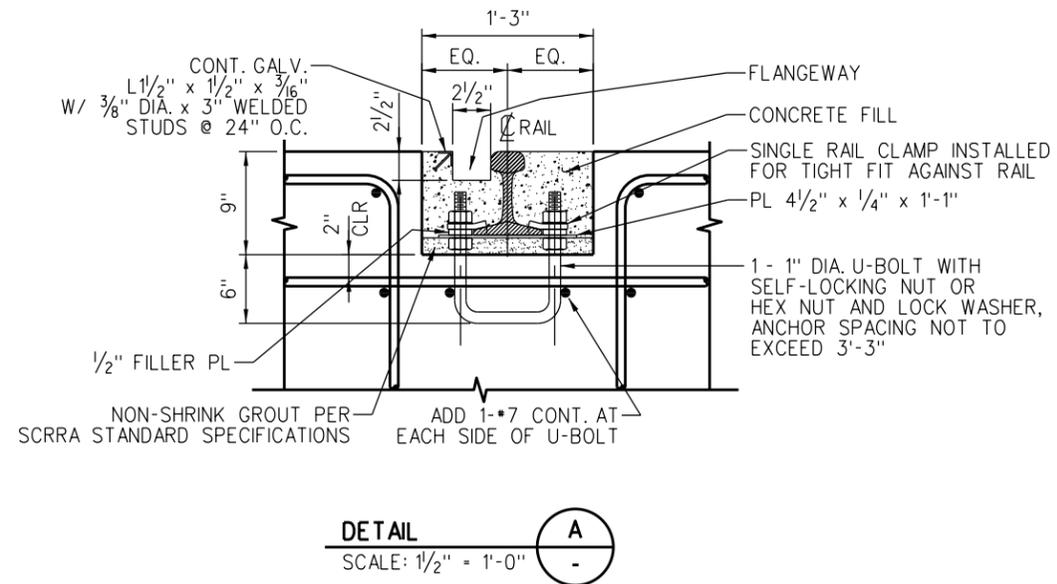
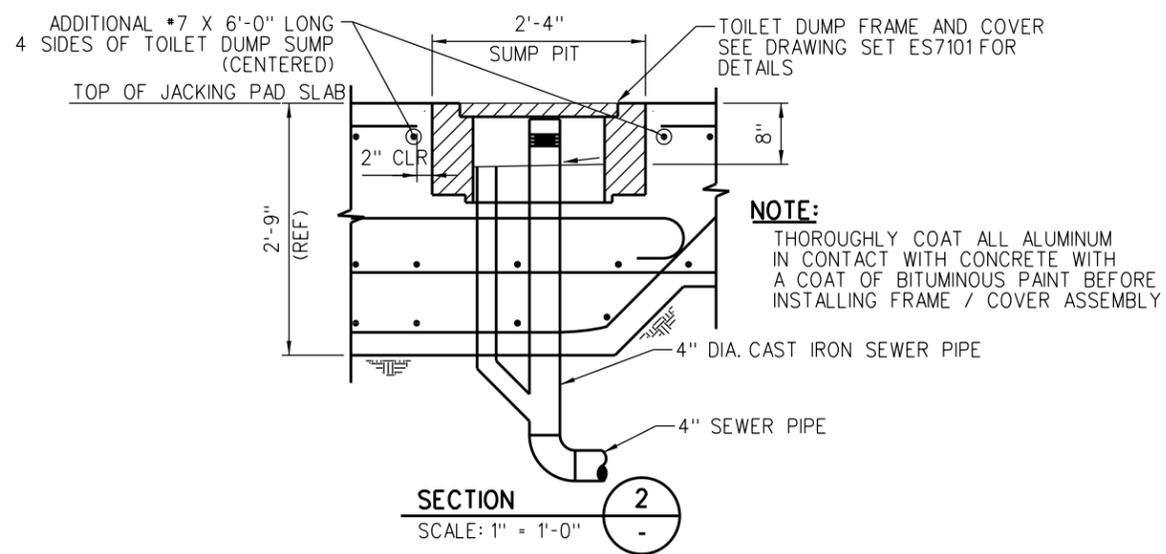
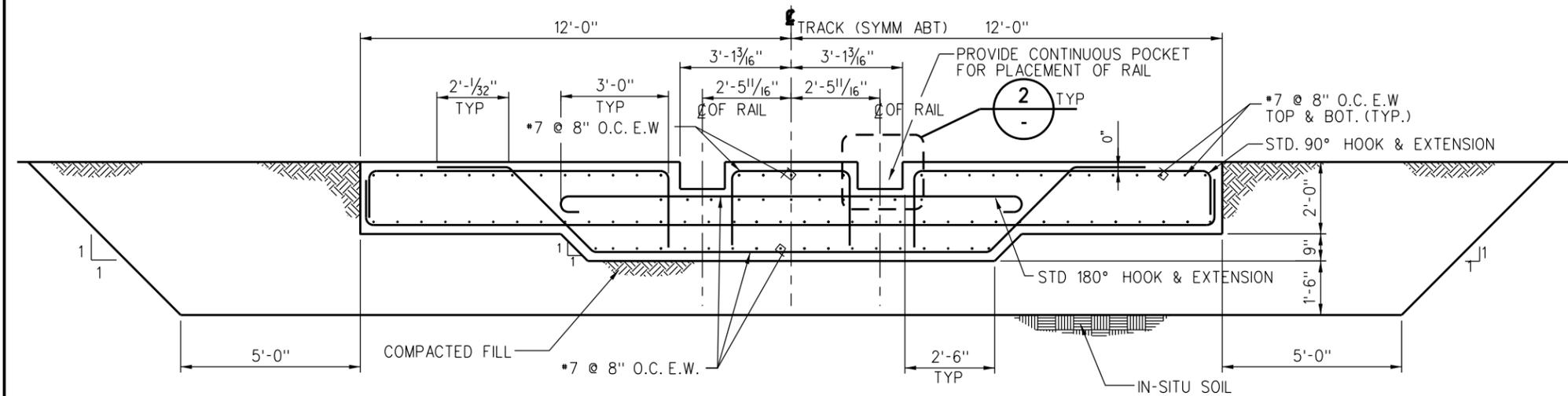
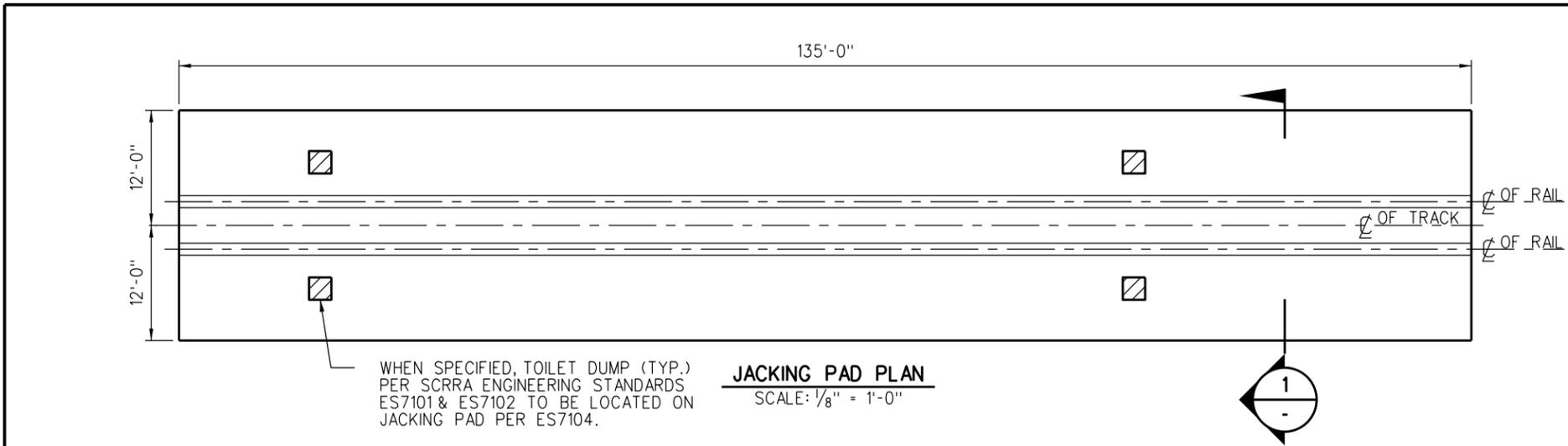
REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX
DRAWN BY: A. CARLOS DATE: 03/31/2011 Assistant Director: STANDARDS & DESIGN Director of Engineering and Construction				

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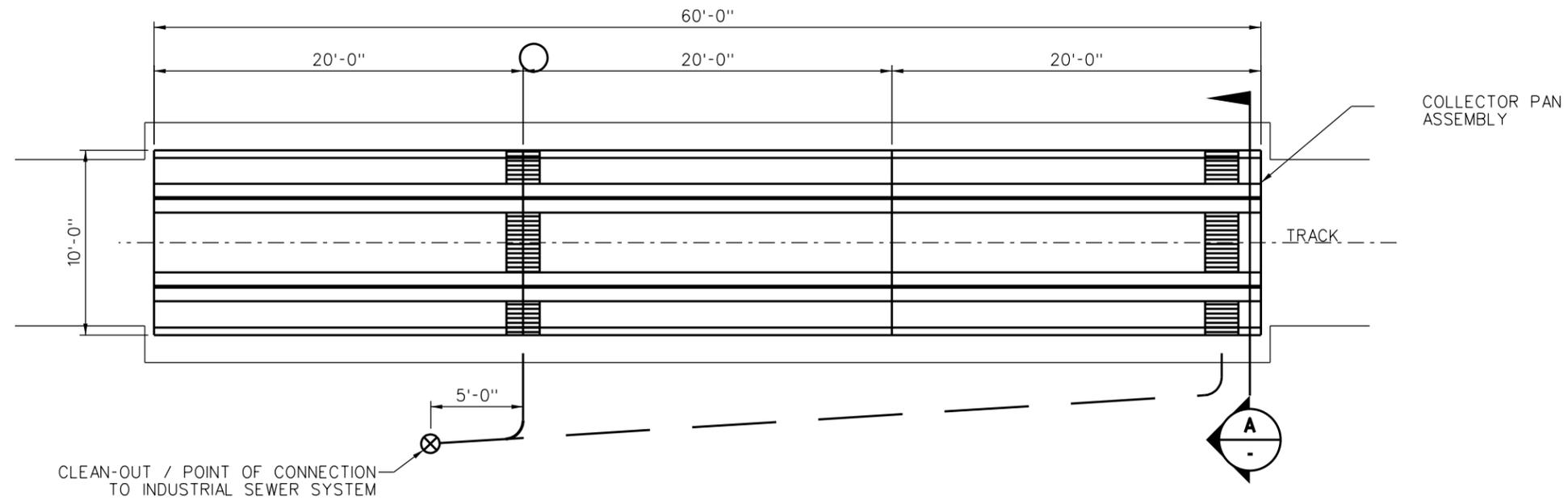
**ENGINEERING STANDARDS**  
INSPECTION PIT  
STAIR PLAN, SECTIONS AND DETAILS

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

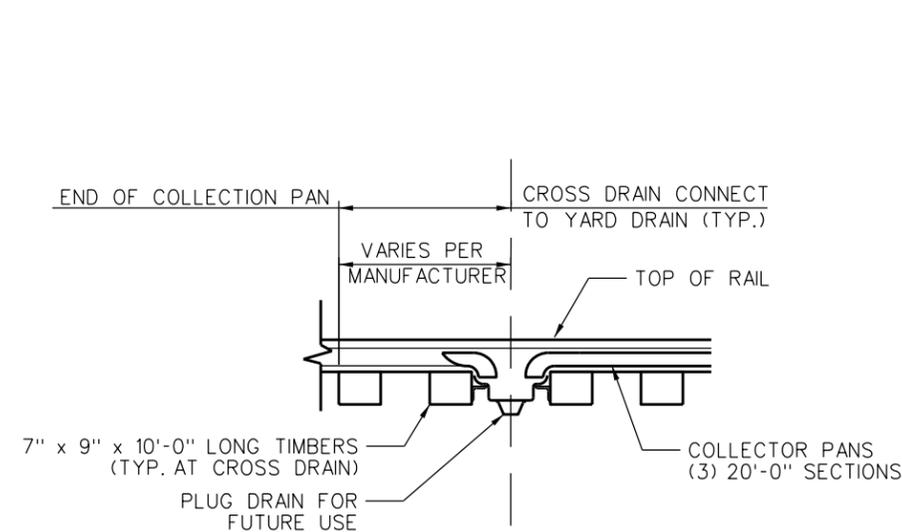


- NOTES:**
- TOILET DUMPS SHOWN FOR REFERENCE ONLY. EXACT LOCATIONS TO BE DETERMINED BY SCRRRA ENGINEERING STANDARD ES7104.
  - DIMENSIONS SHOWN ARE FOR A STANDARD JACKING PAD, ACTUAL DIMENSIONS TO BE DETERMINED BY ENGINEERING CONTRACTOR.
  - JACKING PAD DESIGN BASED ON SOIL BEARING PRESSURE OF 2250 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.

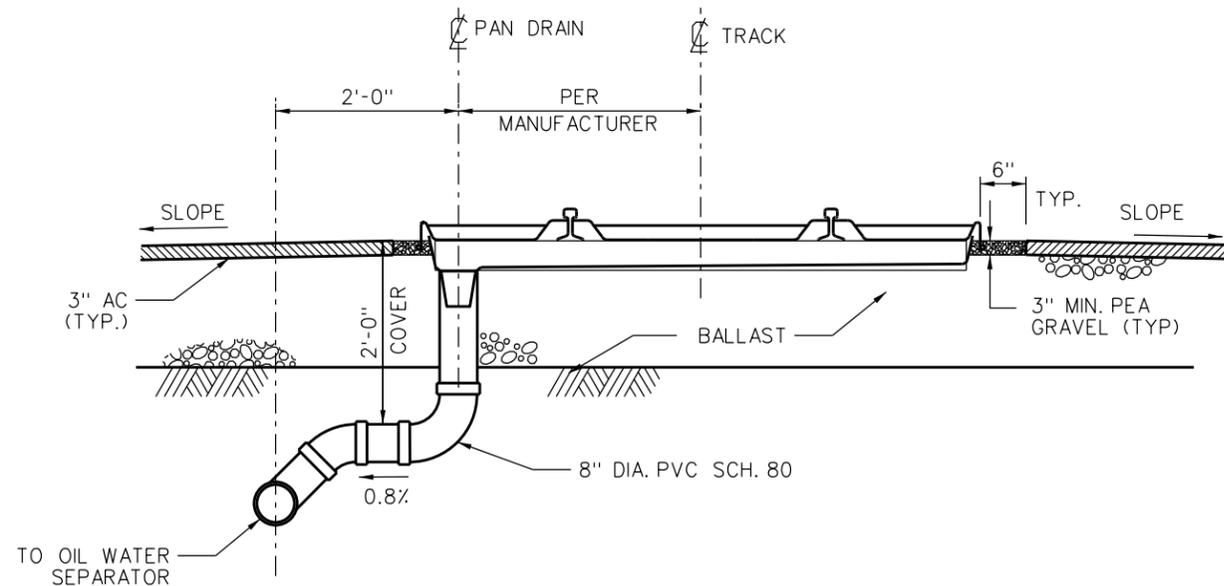
DRAWN BY: A. CARLOS		DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE 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.		 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012		ENGINEERING STANDARDS		STANDARD 7105
 ASSISTANT DIRECTOR: STANDARDS & DESIGN		 DIRECTOR OF ENGINEERING AND CONSTRUCTION		JACKING PAD PLAN, SECTIONS AND DETAILS				SCALE: AS NOTED	REVISION SHEET 1 OF 1	CADD FILE: ES7105
REV.	DATE	DESCRIPTION	DES.	ENG.						



**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. Dacan*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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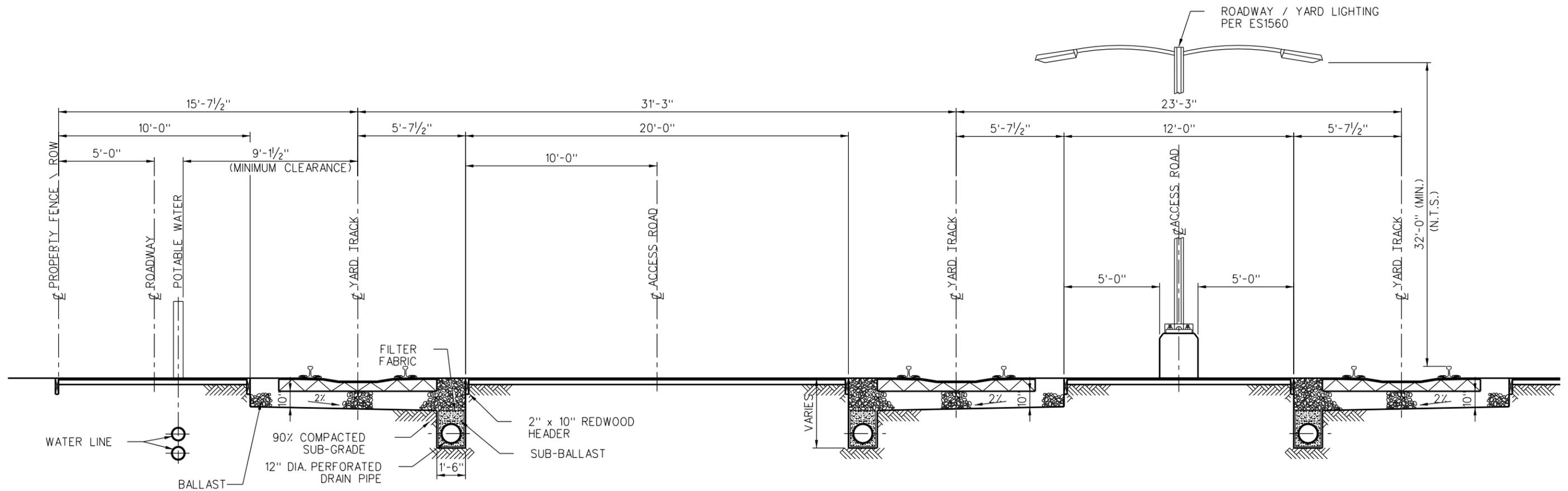
ENGINEERING STANDARDS

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.
A	12-10-14	ADDED WATER LINE	AC	NDP

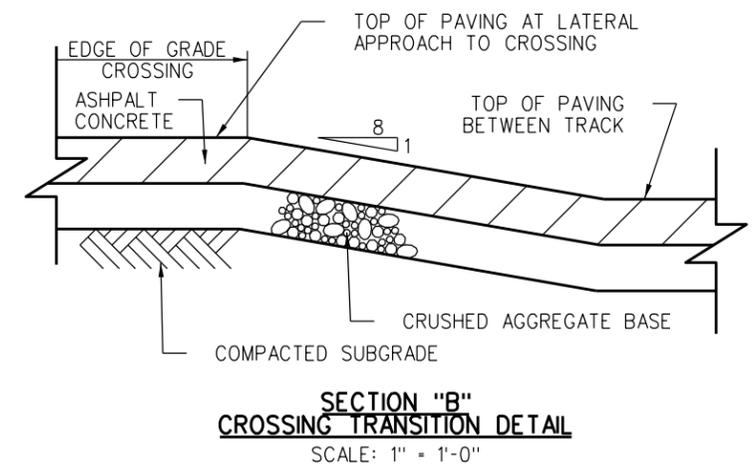
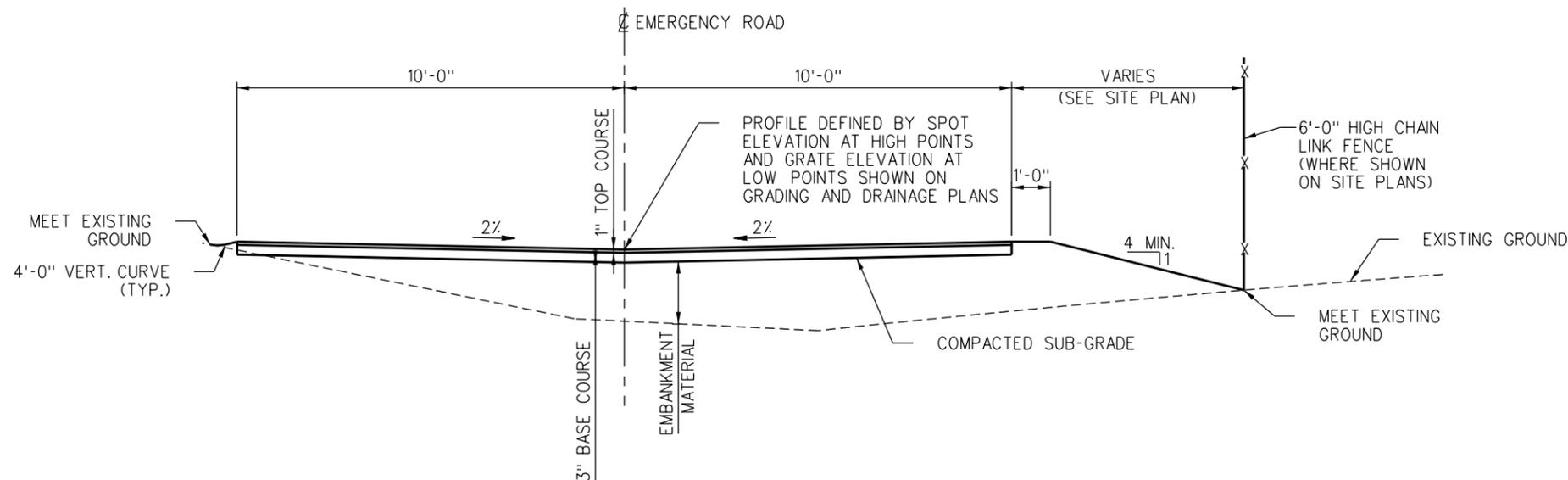
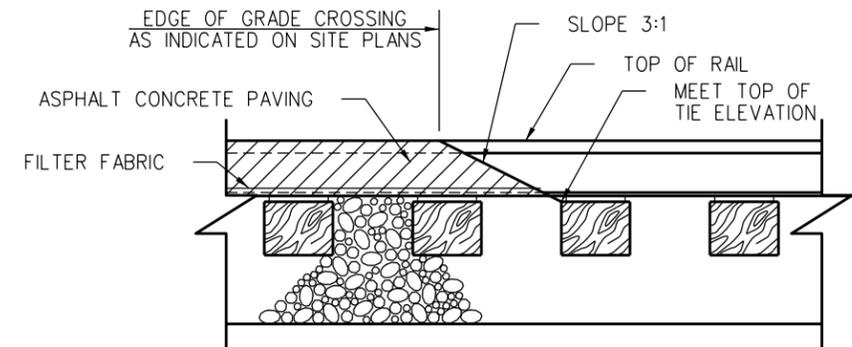
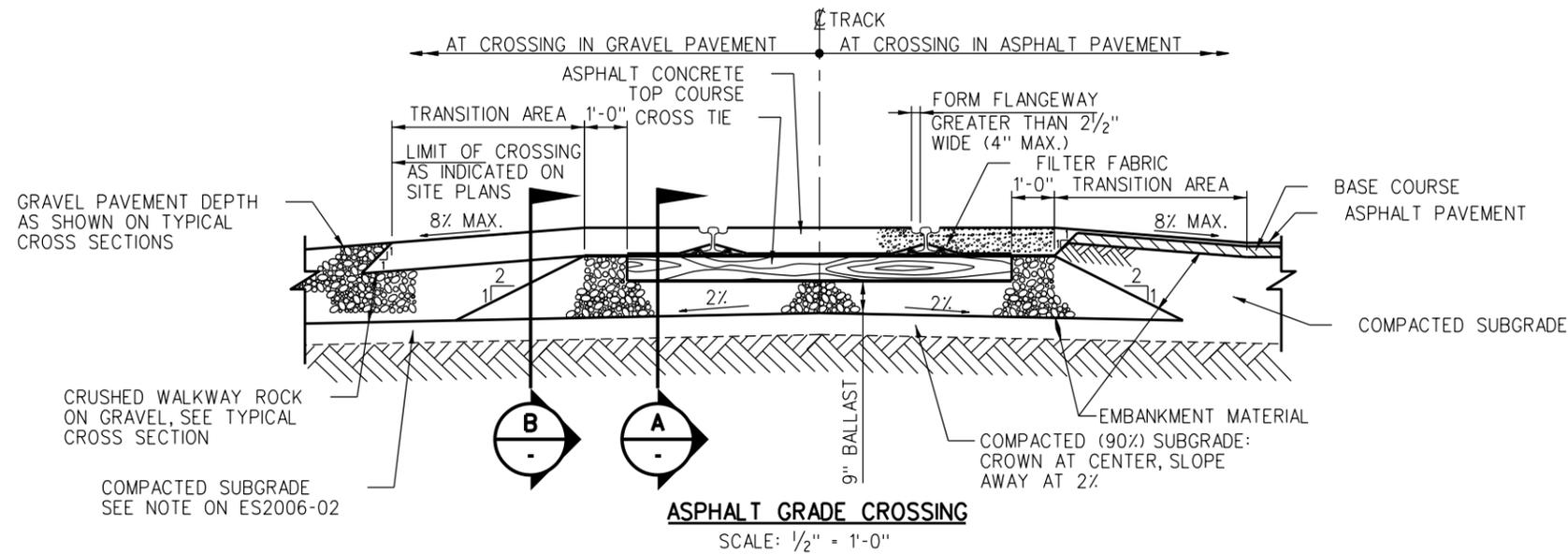
DRAWN BY: A. CARLOS    DATE: 04/01/04  
*Nancy D. Goff*  
 ASSISTANT DIRECTOR: STANDARDS & DESIGN  
*Robert J. Williams*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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**ENGINEERING STANDARDS**  
 TRACK SPACING  
 AT MAINTENANCE FACILITIES

STANDARD	7110
SCALE:	3/8" = 1'-0"
REVISION	SHEET
A	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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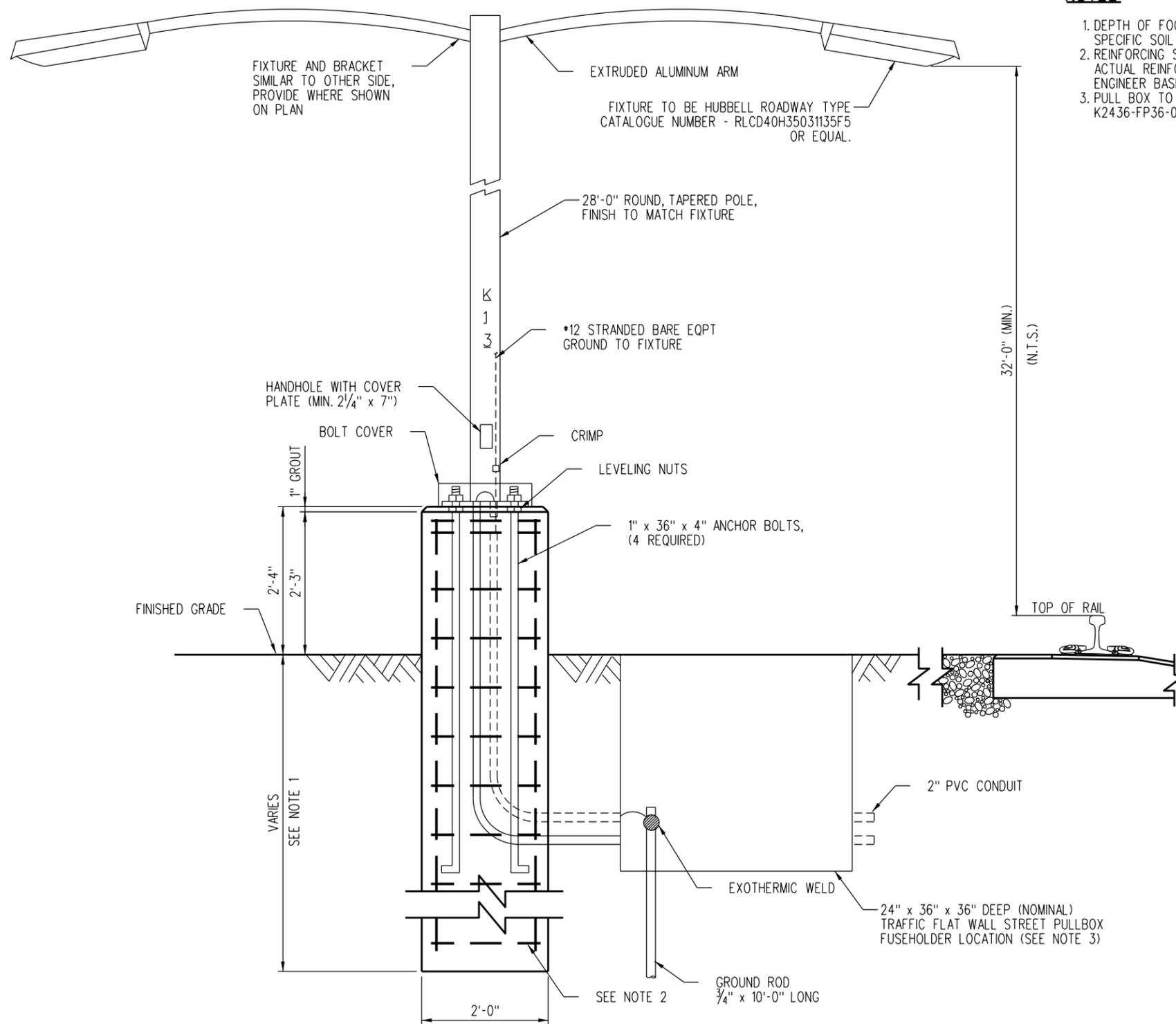


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ENGINEERING STANDARDS

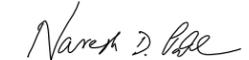
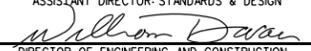
ROADWAY DETAILS  
AT MAINTENANCE FACILITIES

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.

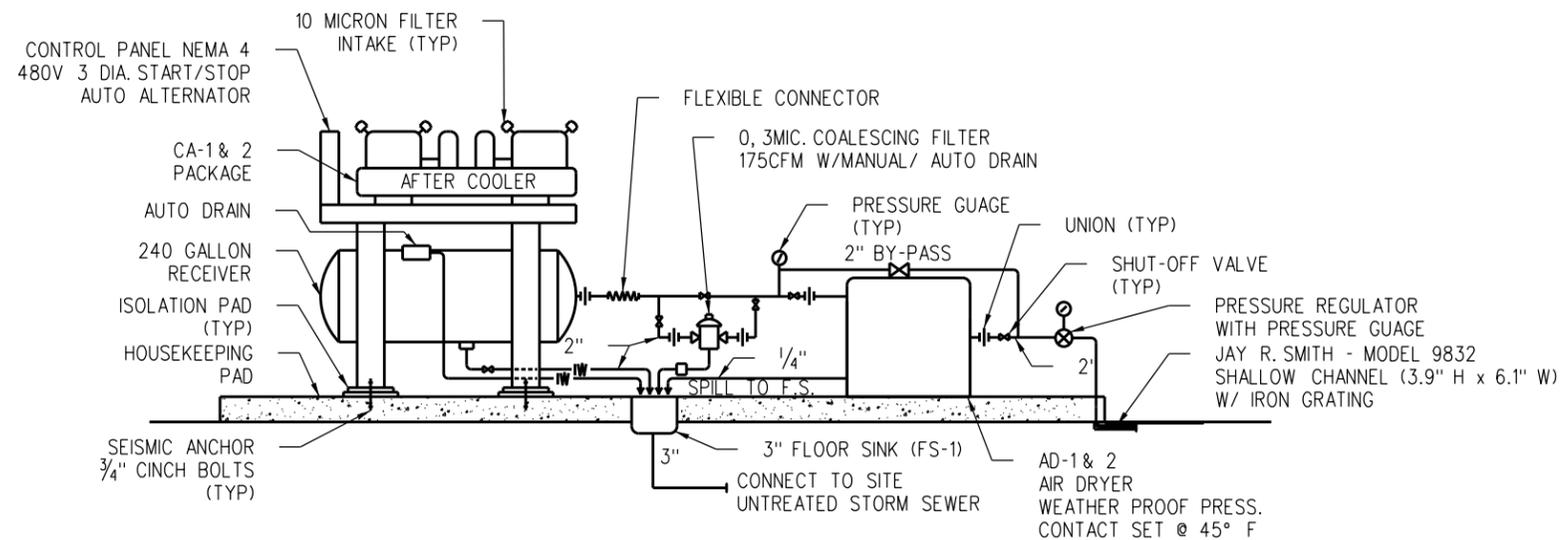
DRAWN BY: A. CARLOS		DATE: 03/31/2011	
 ASSISTANT DIRECTOR: STANDARDS & DESIGN			
 DIRECTOR OF ENGINEERING AND CONSTRUCTION			
REV.	DATE	DESCRIPTION	DES. ENG.
X	XX-XX-XX	REVISION	XX XX

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

**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**

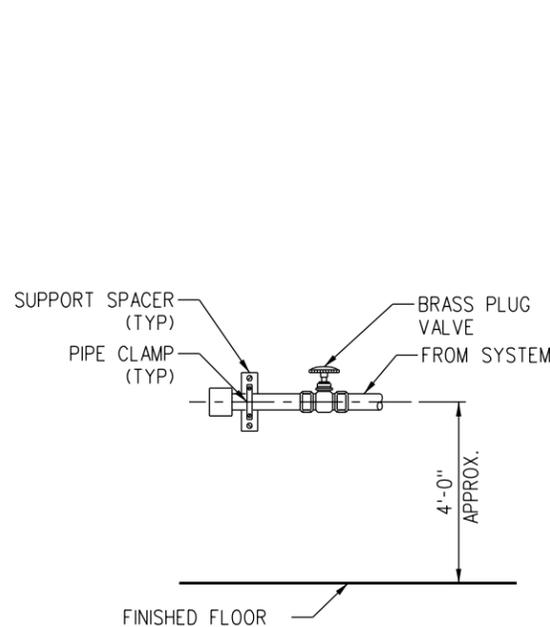
UNIT NO.	LOCATION	MFR.	COMPRESSOR						MOTOR				RECEIVER	REMARKS
			MAKE MODEL	DELIV. CFM	MAX. PSI	CUT IN PSI	CUT OUT PSI	RPM	HP	VOLTS	PHASE	CYCLE	CAPACITY GAL.	
CA-1	OUTSIDE (DUPLEX)	INGERSOL RAND TYPE 30	2000X 20/A20	72 EA.	175	145	150	670	20 EA.	480	3	60	240	NEMA 4 STARTER
CA-2	OUTSIDE (SIMPLEX)	INGERSOL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

**AIR DRYER SCHEDULE**

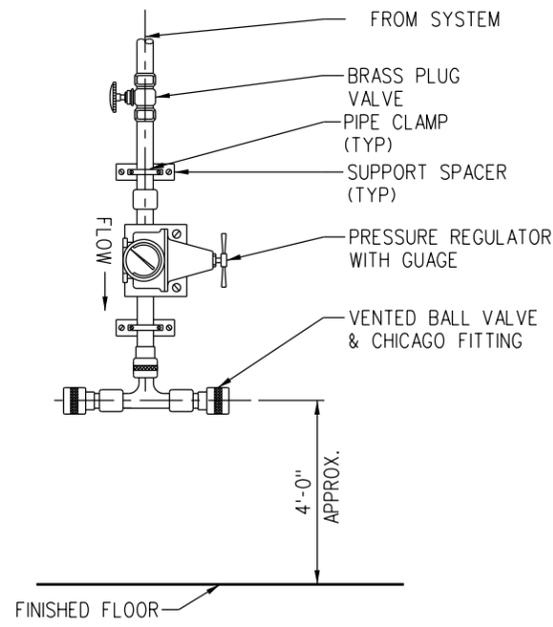
UNIT NO.	LOCATION	MFR.	MAKE MODEL	TYPE	SCFM	MOTOR				REMARKS
						HP	VOLTS	PHASE	CYCLE	
AD-1	OUTSIDE	ZEKS HEATSINK	150HSE	REFRIGERATED DRYING	150	3/4 HP, 1KW	115	1	60	FOR OUTSIDE USE
AD-2	OUTSIDE	ZEKS HEATSINK	75HSB	REFRIGERATED DRYING	75	3/4 HP, 0.8KW	115	1	60	FOR OUTSIDE USE

**NOTE:**

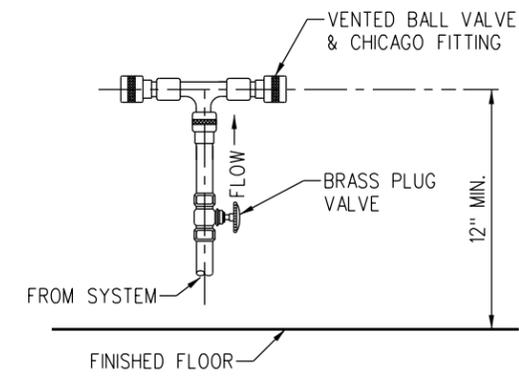
CONTRACTOR TO PROVIDE ADDITIONAL PIPING SUPPORTS AS NEEDED.



**AIR COMPRESSOR OUTLET (AO-3)**



**AIR COMPRESSOR OUTLET (AO-2)**



**AIR COMPRESSOR OUTLET (AO-1)**

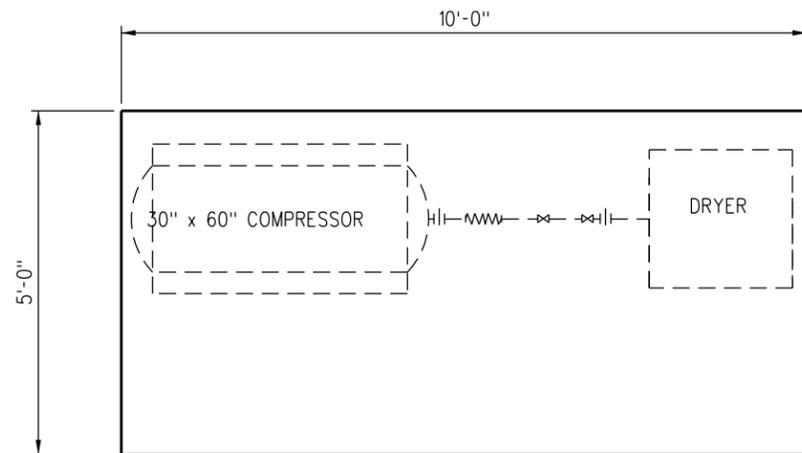
REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

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

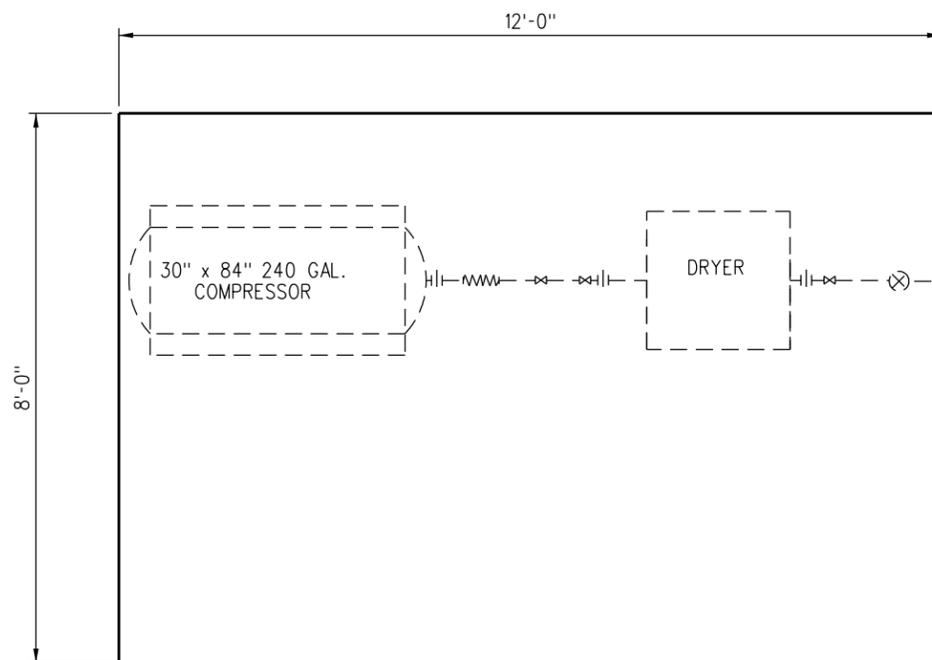
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ENGINEERING STANDARDS		STANDARD	7201
COMPRESSED AIR PLUMBING SCHEDULE AND DETAILS		SCALE:	NONE
		REVISION SHEET	1 OF 2
		CADD FILE:	ES7201-01



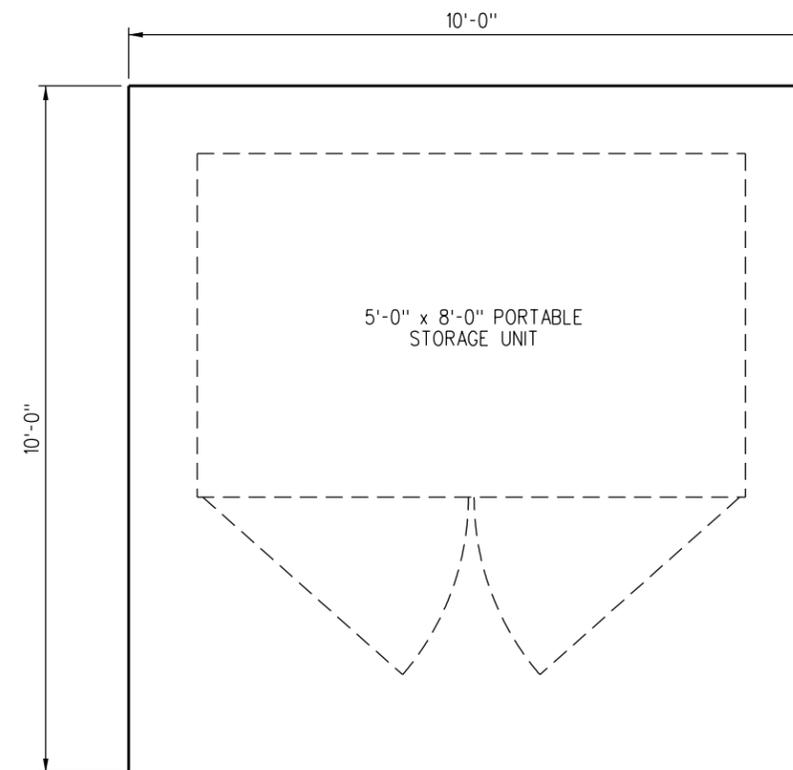
**PLAN AT SIMPLEX COMPRESSOR FOUNDATION**



**PLAN AT COMPRESSOR FOUNDATION**

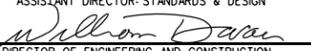
**NOTES:**

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
 ASSISTANT DIRECTOR: STANDARDS & DESIGN		 DIRECTOR OF ENGINEERING AND CONSTRUCTION	

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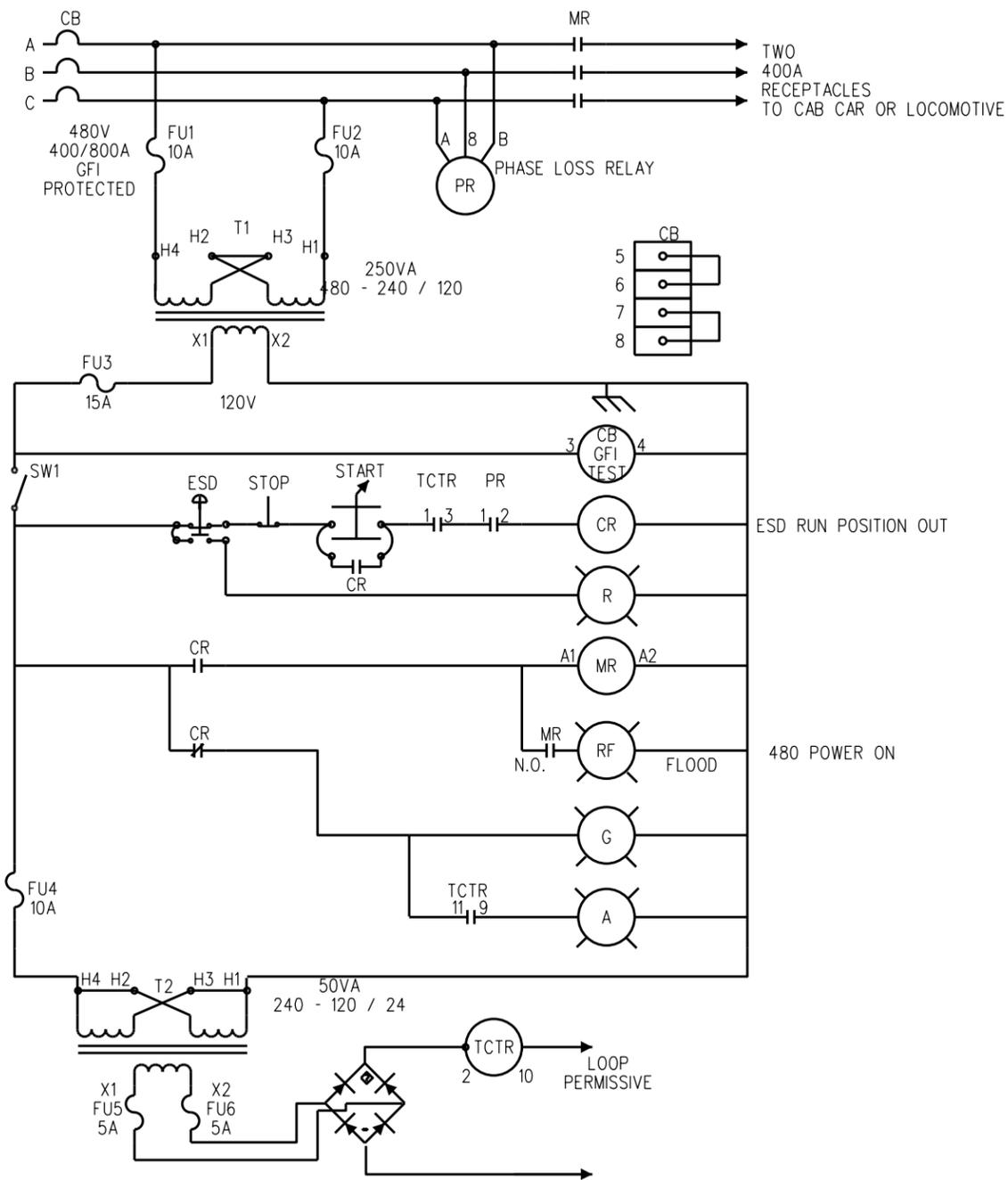


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**ENGINEERING STANDARDS**

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

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

Assistant Director: STANDARDS & DESIGN  
*William D. Davis*  
 DIRECTOR OF ENGINEERING AND CONSTRUCTION

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ENGINEERING STANDARDS

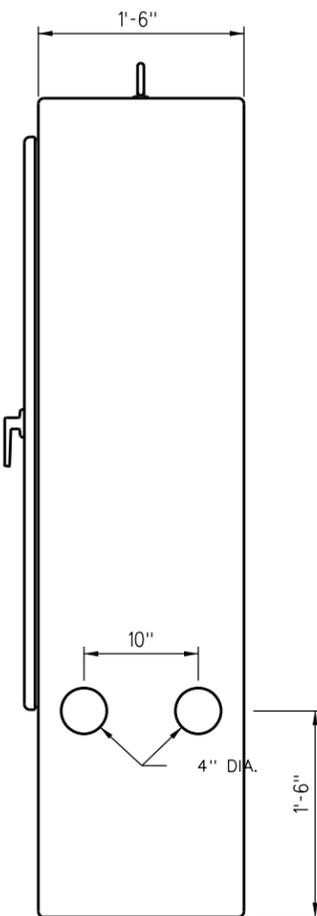
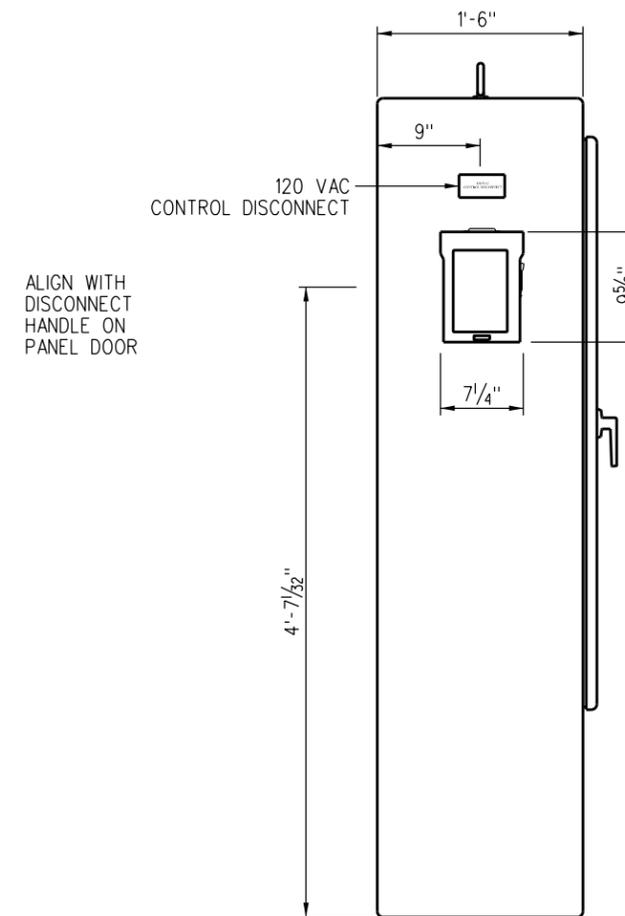
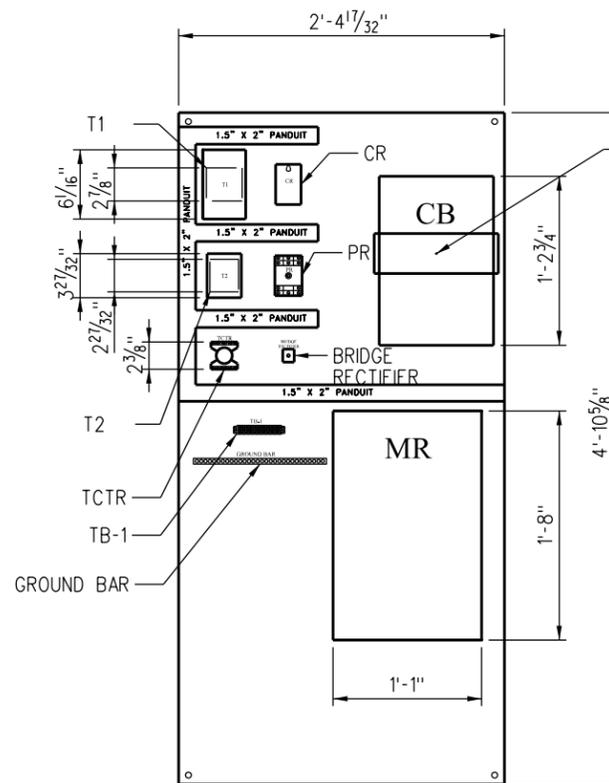
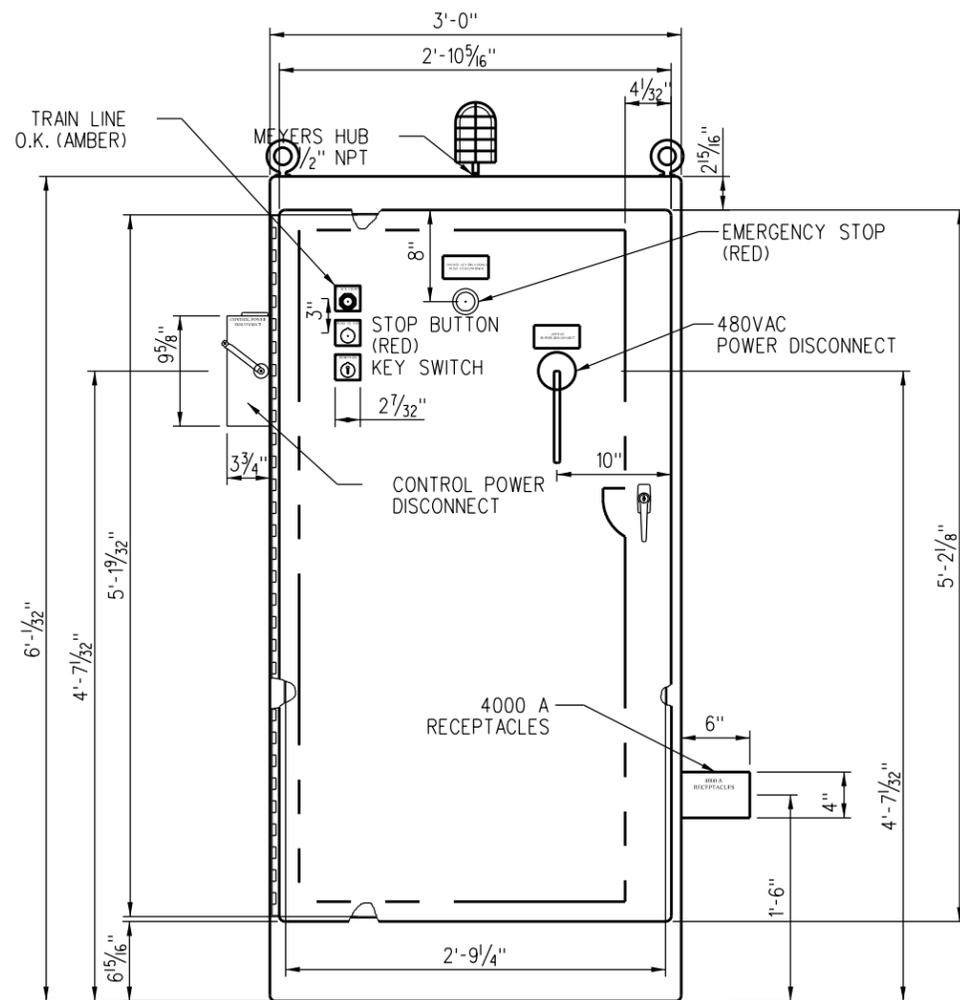
GROUND POWER SYSTEM  
 TYPICAL 600A PANEL  
 SCHEMATIC

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

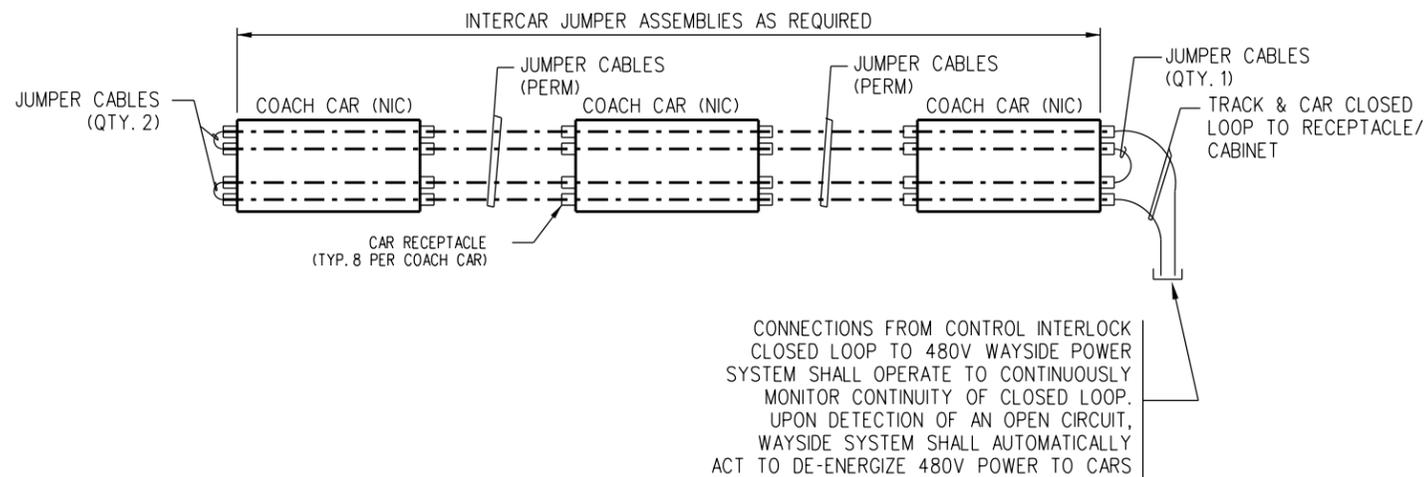
DRAWN BY: A. CARLOS DATE: 03/31/2011  
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 Director of Engineering and Construction

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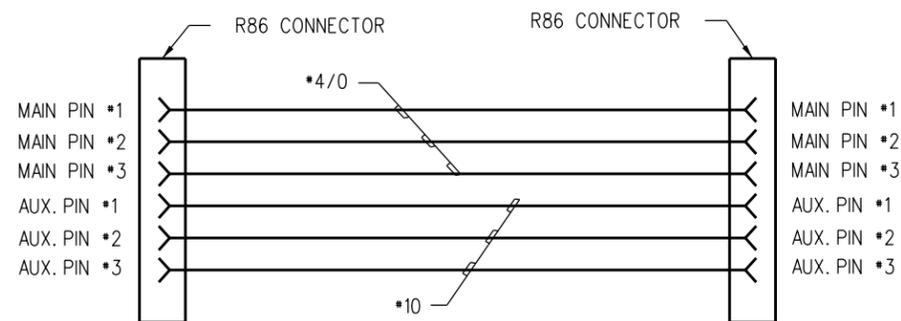
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ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS  
GROUND POWER SYSTEM  
PANEL LAYOUTS

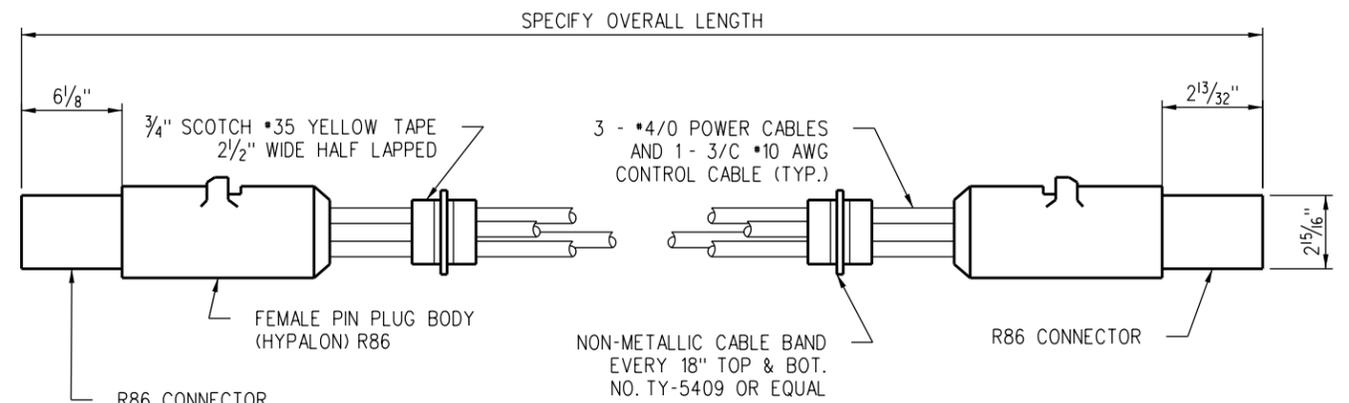
STANDARD	7301
SCALE:	1 1/2" = 1'-0"
REVISION	SHEET 2 OF 2
CADD FILE:	ES7301-02



**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			

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

480V WAYSIDE POWER  
CORDSET DETAILS

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