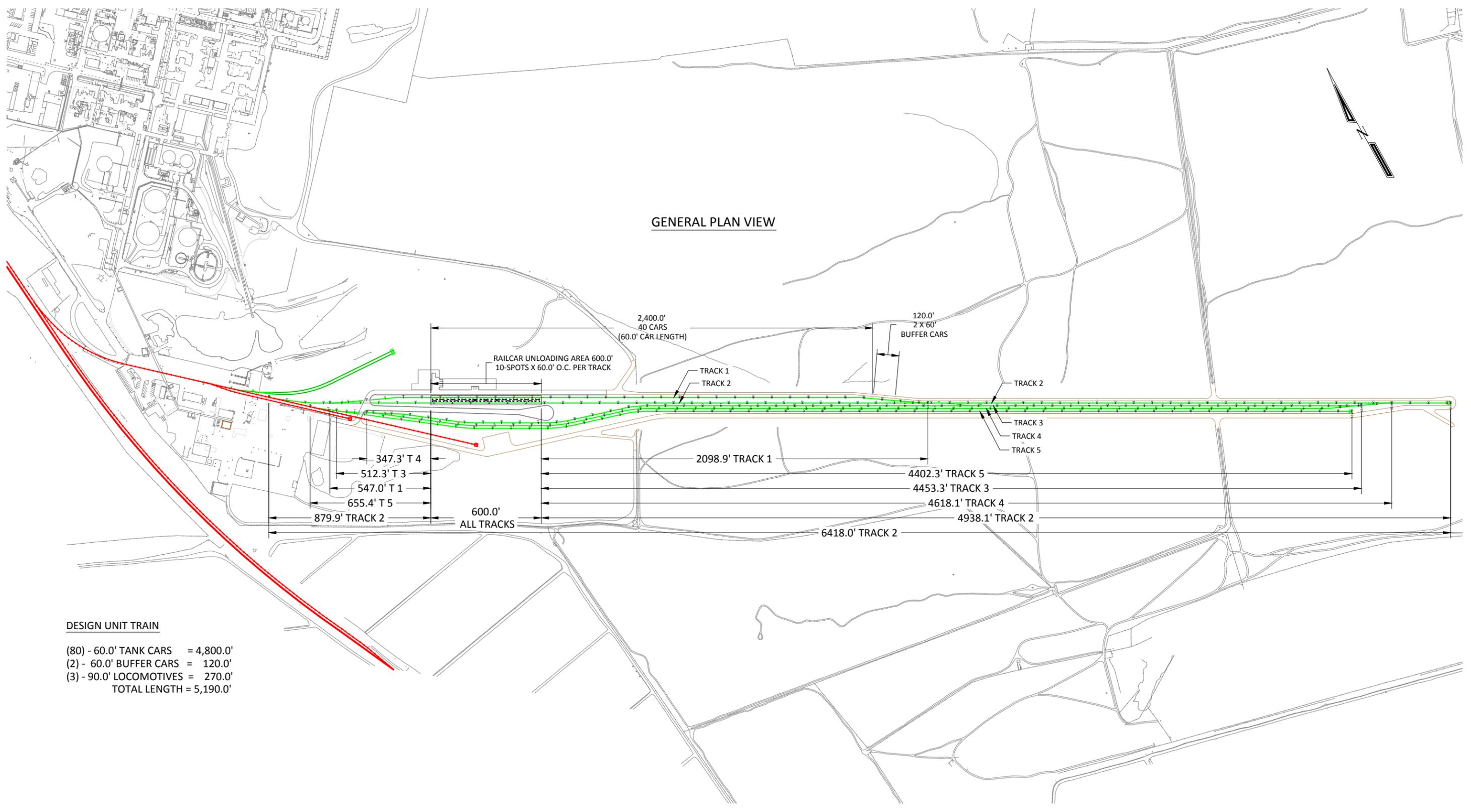


Appendix A  
Project Description Information

<b><u>Section</u></b>	<b><u>Page</u></b>
Detailed Track Layout .....	A.1-1
Facility Layout and Elevation Plans .....	A.1-6
Facility Disturbed Area Plan.....	A.1-9
Facility Grading Plans.....	A.1-14
Facility Drainage Plans .....	A.1-20
Lighting Diagram.....	A.1-24
Construction Traffic Numbers .....	A.1-29
Applicant Proposed Tank Car Specifications .....	A.1-31
Detailed Train Unloading Sequencing at the SMR.....	A.1-33



**DESIGN UNIT TRAIN**

(80) - 60.0' TANK CARS = 4,800.0'  
 (2) - 60.0' BUFFER CARS = 120.0'  
 (3) - 90.0' LOCOMOTIVES = 270.0'  
 TOTAL LENGTH = 5,190.0'

**BASIC DISTANCES**  
 For discussion purposes only



**J.A. PLACEK CONSTRUCTION CO.**  
 GENERAL RAILROAD CONTRACTORS  
 LICENSE #A312312  
 12771 E. Imperial Hwy • Santa Fe Springs, CA 90670  
 562.944.7985 tel • 562.941.4231 fax • www.japlacek.com

NOT for construction.  
 NOTE: DIMENSIONS CONSIDERED AS SHOWN



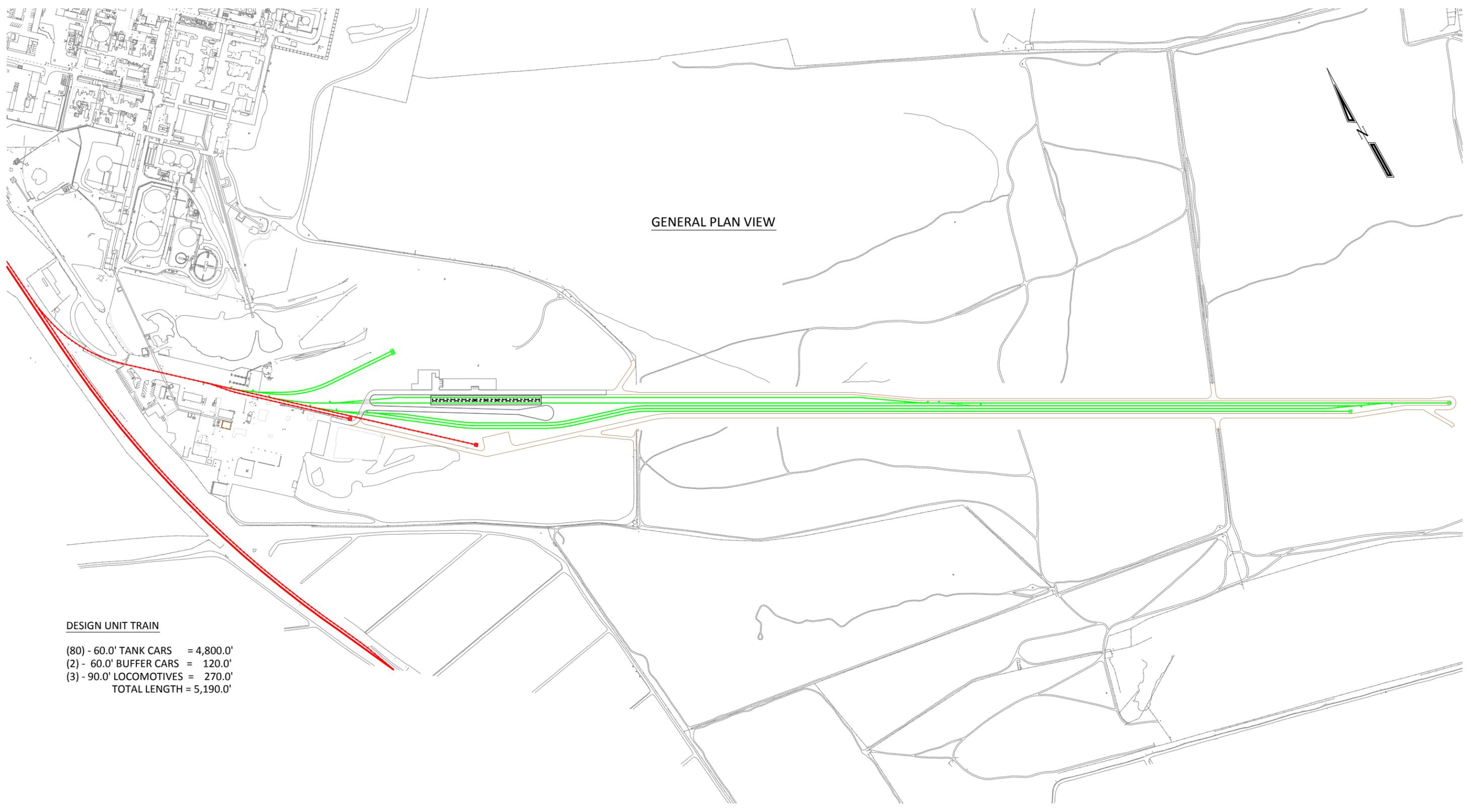
**LEGEND**

Existing Mainline Track  
 Existing Siding Track  
 Proposed Track



DRAWN BY:	J. C.
CHECKED BY:	S. V.
DATE:	MAY 1, 2014
DRAWING NO.:	2014-05
SHEET NO.:	1 of 1

LOCATION & DESCRIPTION:  
**M.P. 367.3 SANTA BARBARA SUB**  
 CALLENDAR, CALIFORNIA  
 TRACKAGE TO SERVE :  
 PHILLIPS 66 SANTA MARIA  
 2555 WILLOW RD , ARROYO GRANDE, CA.  
 F.E.S. #: 27241



GENERAL PLAN VIEW

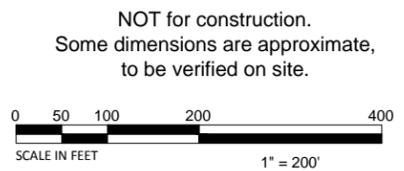
DESIGN UNIT TRAIN

(80) - 60.0' TANK CARS = 4,800.0'  
 (2) - 60.0' BUFFER CARS = 120.0'  
 (3) - 90.0' LOCOMOTIVES = 270.0'  
 TOTAL LENGTH = 5,190.0'

10 % Drawings (Modified)  
 For discussion purposes only



**J.A. PLACEK  
CONSTRUCTION CO.**  
 GENERAL RAILROAD CONTRACTORS  
 LICENSE #A312312  
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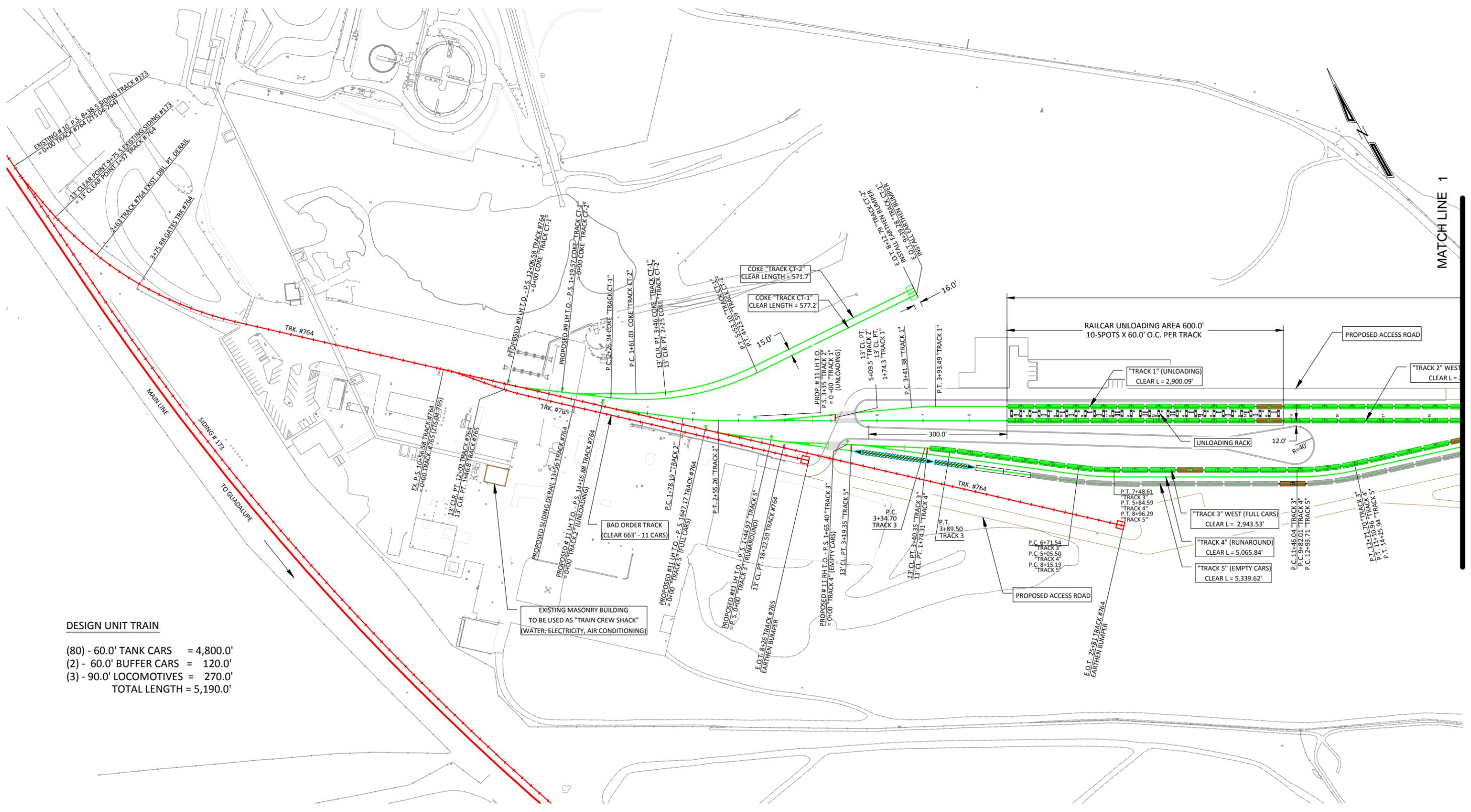
LEGEND

Existing Mainline Track  
 Existing Siding Track  
 Proposed Track



DRAWN BY:	J. C.
CHECKED BY:	S. V.
DATE:	APRIL 29, 2014
DRAWING NO.:	2014-04
SHEET NO.:	1 of 4

LOCATION & DESCRIPTION:  
**M.P. 367.3 SANTA BARBARA SUB**  
 CALLENDAR, CALIFORNIA  
 TRACKAGE TO SERVE :  
 PHILLIPS 66 SANTA MARIA  
 2555 WILLOW RD , ARROYO GRANDE, CA.  
 F.E.S. #: 27241



MATCH LINE 1

SEE PAGE 3

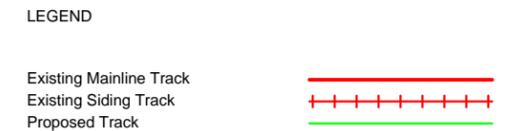
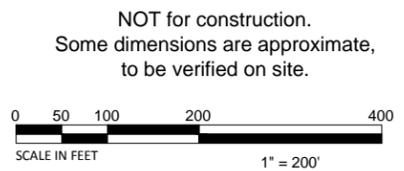
**DESIGN UNIT TRAIN**

- (80) - 60.0' TANK CARS = 4,800.0'
- (2) - 60.0' BUFFER CARS = 120.0'
- (3) - 90.0' LOCOMOTIVES = 270.0'
- TOTAL LENGTH = 5,190.0'

10 % Drawings (Modified)  
For discussion purposes only

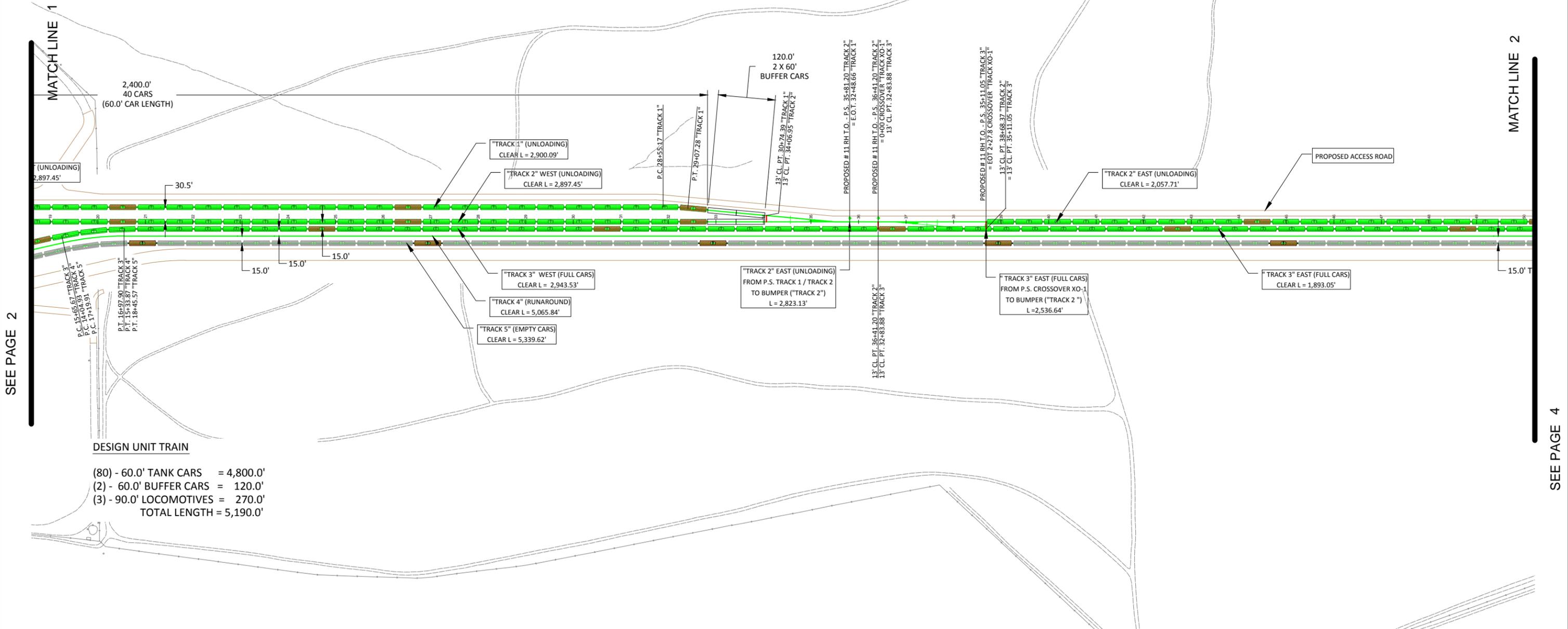
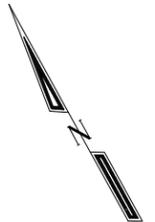


**J.A. PLACEK CONSTRUCTION CO.**  
GENERAL RAILROAD CONTRACTORS  
LICENSE #A312312  
12771 E. Imperial Hwy • Santa Fe Springs, CA 90670  
562.944.7985 tel • 562.941.4231 fax • www.japlacek.com



DRAWN BY:	J. C.
CHECKED BY:	S. V.
DATE:	APRIL 29, 2014
DRAWING NO.:	2014-04
SHEET NO.:	2 of 4

LOCATION & DESCRIPTION:  
**M.P. 367.3 SANTA BARBARA SUB**  
CALLENDAR, CALIFORNIA  
TRACKAGE TO SERVE :  
PHILLIPS 66 SANTA MARIA  
2555 WILLOW RD , ARROYO GRANDE, CA.  
F.E.S. #: 27241



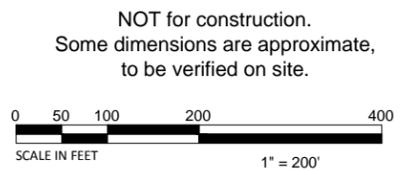
SEE PAGE 2

SEE PAGE 4

10 % Drawings (Modified)  
For discussion purposes only



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LEGEND



DRAWN BY:	J. C.
CHECKED BY:	S. V.
DATE:	APRIL 29, 2014
DRAWING NO.:	2014-04
SHEET NO.:	3 of 4

LOCATION & DESCRIPTION:  
**M.P. 367.3 SANTA BARBARA SUB**  
 CALLENDAR, CALIFORNIA  
 TRACKAGE TO SERVE :  
 PHILLIPS 66 SANTA MARIA  
 2555 WILLOW RD , ARROYO GRANDE, CA.  
 F.E.S. #: 27241

SEE PAGE 3

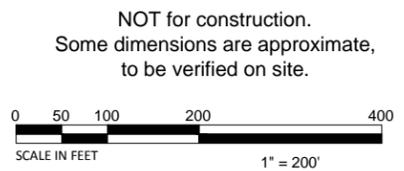
MATCH LINE 2



**DESIGN UNIT TRAIN**

- (80) - 60.0' TANK CARS = 4,800.0'
- (2) - 60.0' BUFFER CARS = 120.0'
- (3) - 90.0' LOCOMOTIVES = 270.0'
- TOTAL LENGTH = 5,190.0'**

10 % Drawings (Modified)  
For discussion purposes only



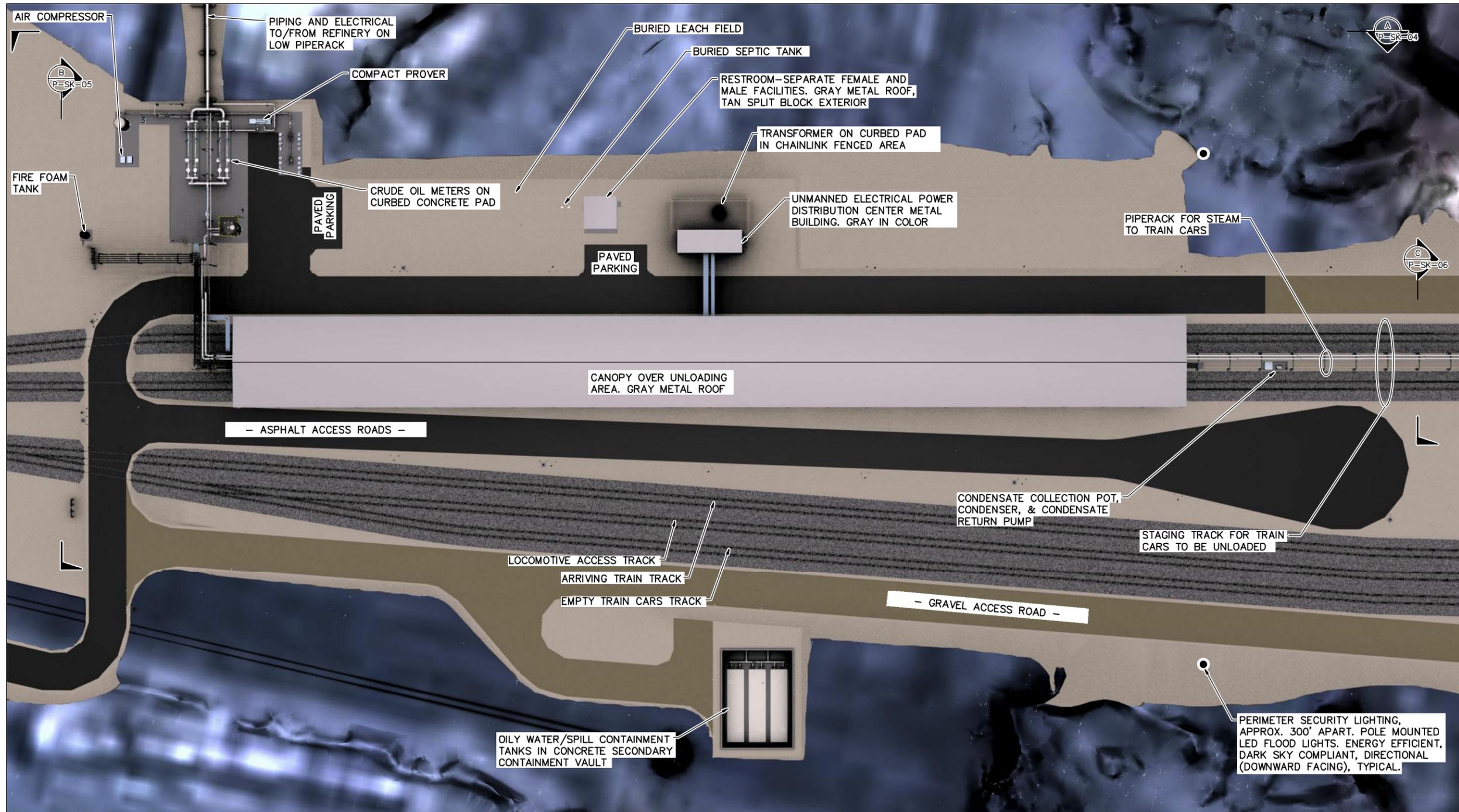
**LEGEND**

Existing Mainline Track	
Existing Siding Track	
Proposed Track	

DRAWN BY:	J. C.
CHECKED BY:	S. V.
DATE:	APRIL 28, 2014
DRAWING NO.:	2014-04
SHEET NO.:	4 of 4

LOCATION & DESCRIPTION:

**M.P. 367.3 SANTA BARBARA SUB**  
 CALLENDAR, CALIFORNIA  
 TRACKAGE TO SERVE :  
 PHILLIPS 66 SANTA MARIA  
 2555 WILLOW RD , ARROYO GRANDE, CA.  
 F.E.S. #: 27241



**ISSUED FOR EIR**  
MAY 6, 2014

**SPEC SERVICES**  
SPEC Services, Inc.  
17101 Bushard Street  
Fountain Valley, CA 92708  
(714) 963-8077  
S:\5633\5633-P-SK-03.dwg;360

NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D	APPROVED FOR CONSTRUCTION
A	02/20/13	ISSUED FOR REVIEW		MAS			A. F. E. DATE SIGNED
B	06/07/13	ISSUED FOR REVIEW		SAS			
C	09/13/13	CHANGED DRAWING NUMBER AND ISSUED FOR T.I.C. ESTIMATE		SAS			
D	09/30/13	FEL-3 ISSUED FOR DESIGN		SAS			
E	01/27/14	ISSUED FOR EIR		SAS			
F	05/06/14	ISSUED FOR EIR		SAS			

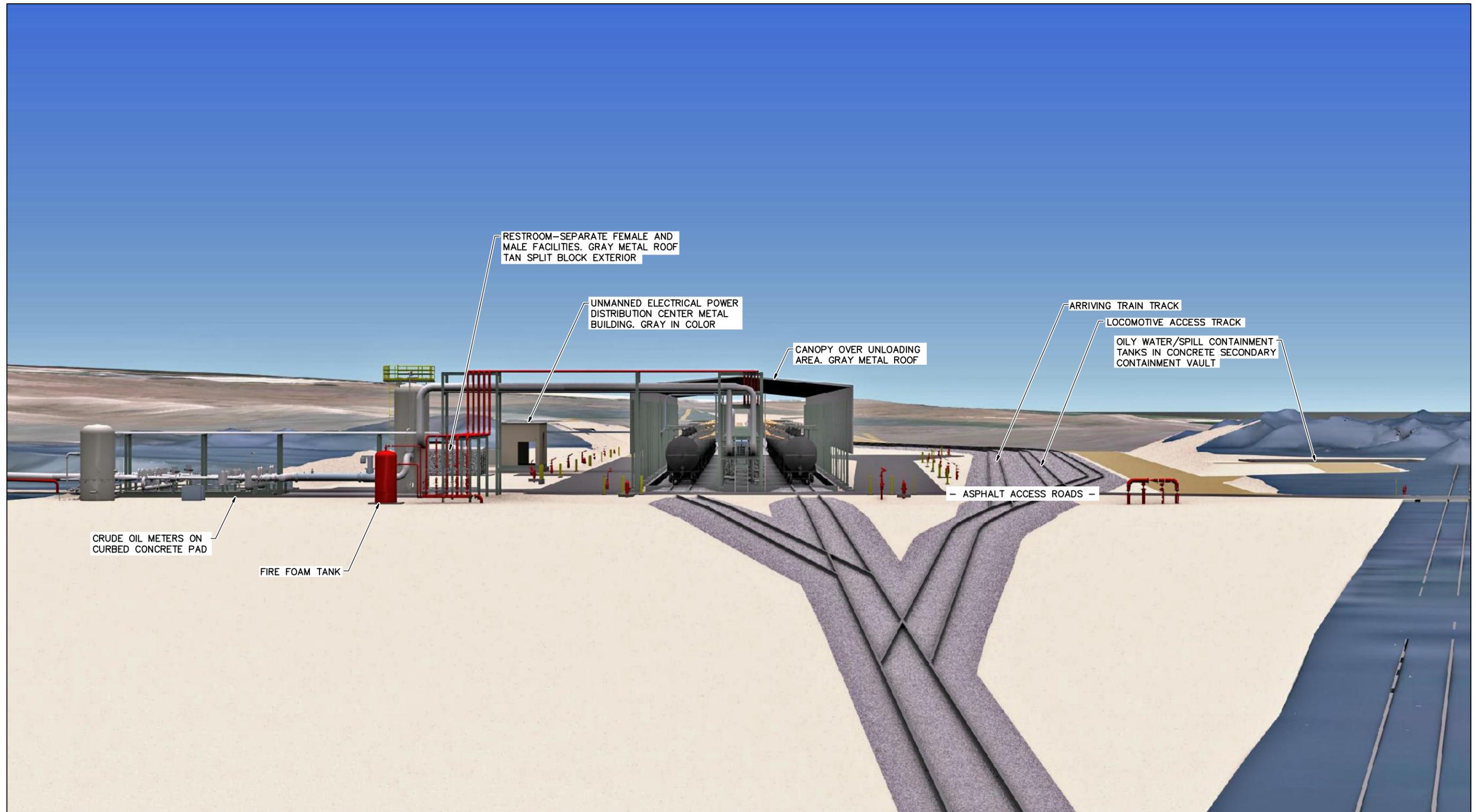
DRAWN BY: MAS
CHECKED BY: _____
TRACED BY: _____
TRAC'G. CHKD. _____
APP'D. _____
APP'D. _____
SCALE: NONE
DATE: 02/19/13

SANTA MARIA REFINERY  
RAIL PROJECT  
UNLOADING AREA ARCHITECTURAL PLAN

DRAWING NO.  
5633-P-SK-03

**PHILLIPS 66**  
Santa Maria Facility

SHEETS SHEETNO



CRUDE OIL METERS ON CURBED CONCRETE PAD

FIRE FOAM TANK

RESTROOM—SEPARATE FEMALE AND MALE FACILITIES. GRAY METAL ROOF TAN SPLIT BLOCK EXTERIOR

UNMANNED ELECTRICAL POWER DISTRIBUTION CENTER METAL BUILDING. GRAY IN COLOR

CANOPY OVER UNLOADING AREA. GRAY METAL ROOF

ARRIVING TRAIN TRACK

LOCOMOTIVE ACCESS TRACK

OILY WATER/SPILL CONTAINMENT TANKS IN CONCRETE SECONDARY CONTAINMENT VAULT

— ASPHALT ACCESS ROADS —

**VIEW-B**

LOOKING EAST

FOR ENLARGED PIPING PLAN SEE DWG. 5633-P-SK-03

**ISSUED FOR EIR**  
JANUARY 27, 2014

**SPEC SERVICES**  
SPEC Services, Inc.  
17101 Bushard Street  
Fountain Valley, CA 92708  
(714) 963-8077  
S:\6633\6633-P-SK-05.dwg:1

NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D
A	02/20/13	ISSUED FOR REVIEW		MAS		
B	06/07/13	ISSUED FOR REVIEW		SAS		
C	09/13/13	CHANGED DRAWING NUMBER AND ISSUED FOR T.I.C. ESTIMATE		SAS		
D	09/30/13	FEL-3 ISSUED FOR DESIGN		SAS		
E	01/27/14	ISSUED FOR EIR		SAS		

APPROVED FOR CONSTRUCTION		
A. F. E.	DATE	SIGNED

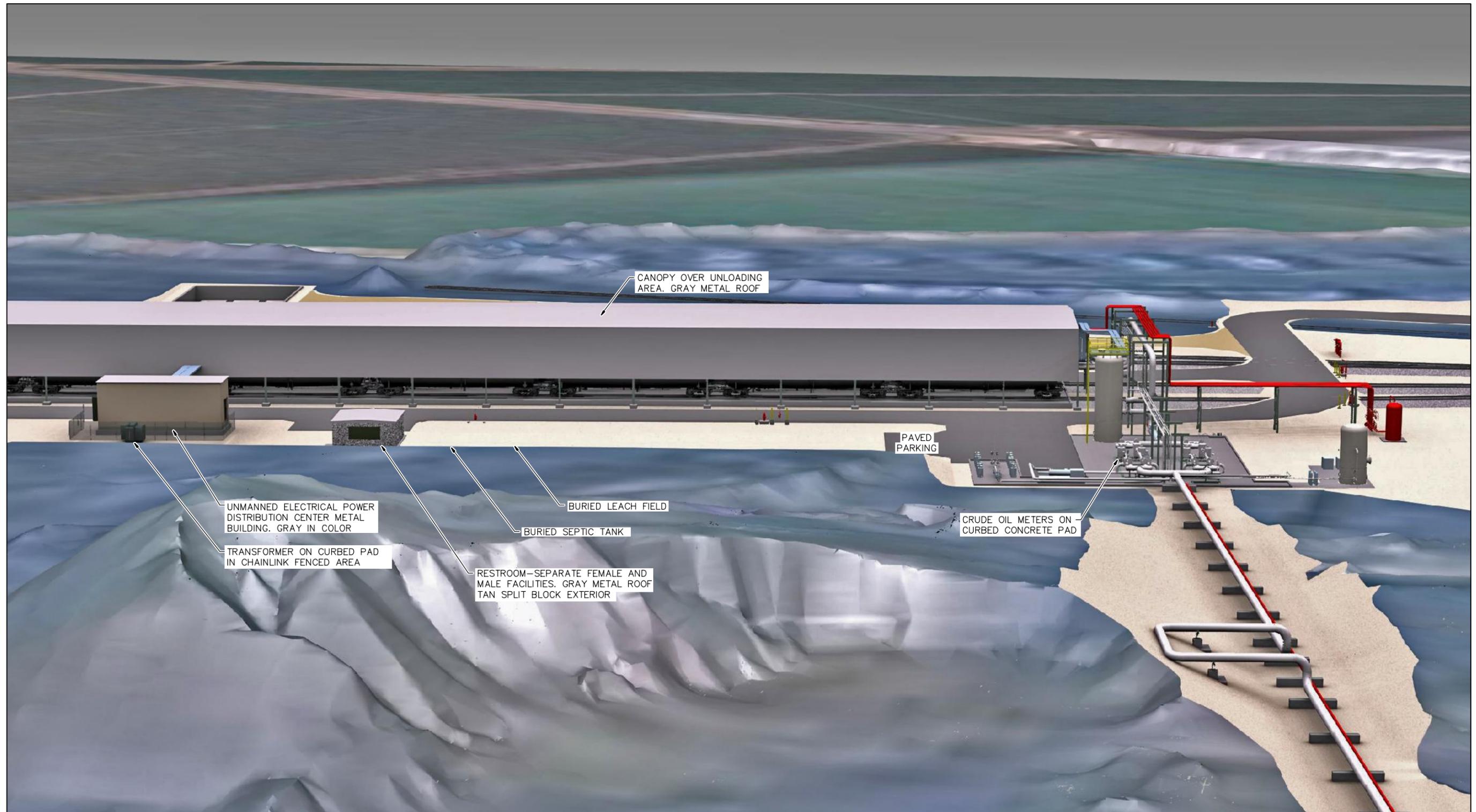
DRAWN BY: MAS
CHECKED BY: _____
TRACED BY: _____
TRAC'G. CHKD.: _____
APP'D.: _____
SCALE: NONE
DATE: 02/20/13

SANTA MARIA REFINERY  
RAIL PROJECT  
UNLOADING AREA ELEVATION

DRAWING NO.  
5633-P-SK-05

SHEETS SHEETNO

**PHILLIPS 66 CO.**  
Santa Maria Facility



**VIEW-A**  
 LOOKING SOUTH  
 FOR ENLARGED PIPING PLAN SEE DWG. 5633-P-SK-03

**ISSUED FOR EIR**  
 JANUARY 27, 2014

**SPEC SERVICES**  
 SPEC Services, Inc.  
 17101 Bushard Street  
 Fountain Valley, CA 92708  
 (714) 963-8077  
 S:\6633\6633-P-SK-04.dwg:1

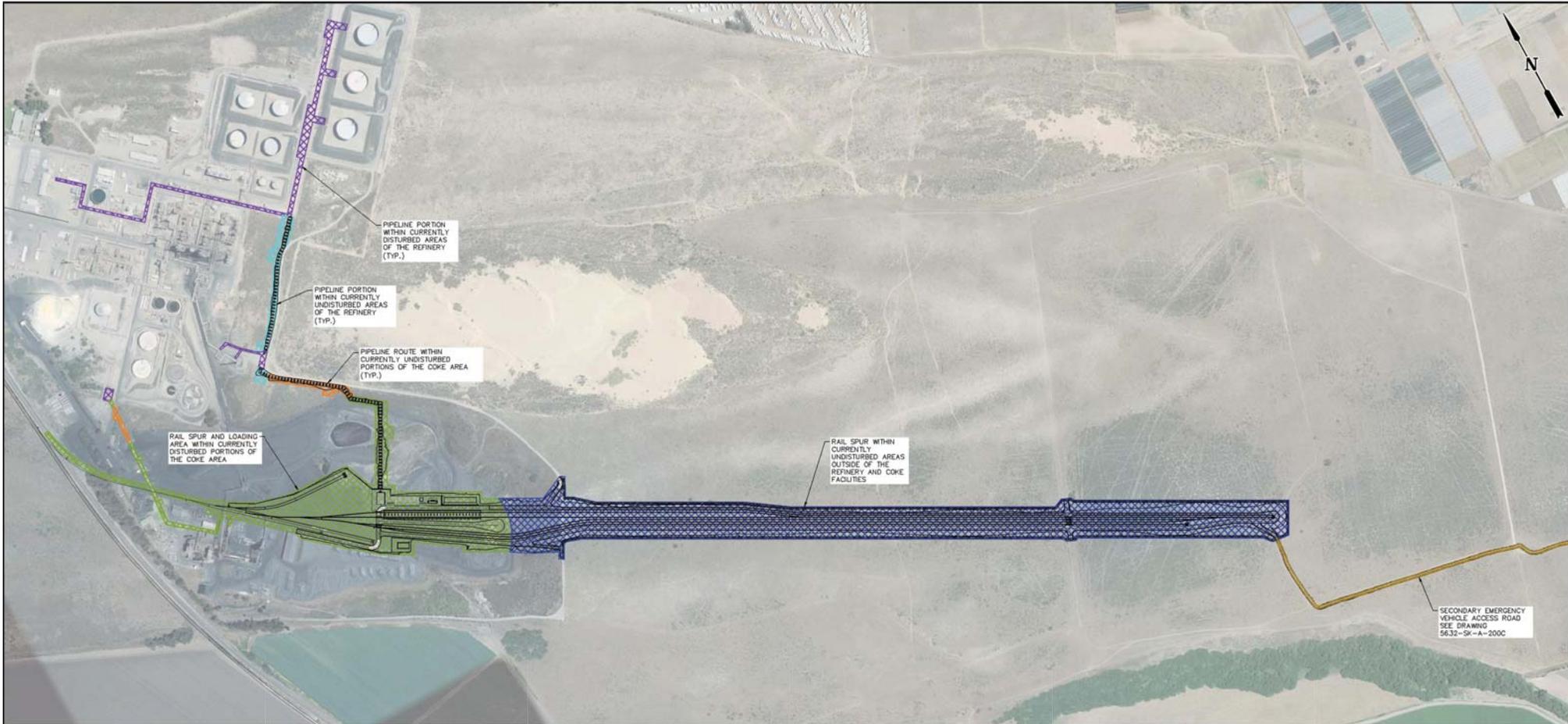
NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D
A	02/20/13	ISSUED FOR REVIEW		MAS		
B	06/07/13	ISSUED FOR REVIEW		SAS		
C	09/13/13	CHANGED DRAWING NUMBER AND ISSUED FOR T.I.C. ESTIMATE		SAS		
D	09/30/13	FEL-3 ISSUED FOR DESIGN		SAS		
E	01/27/14	ISSUED FOR EIR		SAS		

APPROVED FOR CONSTRUCTION		
A. F. E.	DATE	SIGNED

DRAWN BY:	MAS
CHECKED BY:	
TRACED BY:	
TRAC'G. CHKD.:	
APP'D:	
SCALE:	NONE
DATE:	02/20/13

<b>SANTA MARIA REFINERY          RAIL PROJECT          UNLOADING AREA ELEVATION</b>		DRAWING NO. 5633-P-SK-04
<b>PHILLIPS 66 CO.</b> Santa Maria Facility		SHEETS    SHEET NO _____    _____



**TOTAL DISTURBED AREAS (SEE NOTE 1)**

ITEM	LEGEND	TOTAL AREA (SQ. FT.)	TOTAL AREA (ACRES)
RAIL SPUR WITHIN CURRENTLY UNDISTURBED AREAS OUTSIDE OF THE REFINERY AND COKE FACILITIES		1,127,095 SQ. FT.	25.9 ACRES
PIPELINE ROUTE WITHIN CURRENTLY UNDISTURBED PORTIONS OF THE COKE AREA		27,428 SQ. FT.	0.6 ACRES
RAIL SPUR AND LOADING AREA WITHIN CURRENTLY DISTURBED PORTIONS OF THE COKE AREA		685,689 SQ. FT.	15.7 ACRES
PIPELINE PORTION WITHIN CURRENTLY UNDISTURBED AREAS OF THE REFINERY		49,689 SQ. FT.	1.1 ACRES
PIPELINE PORTION WITHIN CURRENTLY DISTURBED AREAS OF THE REFINERY		89,505 SQ. FT.	2.1 ACRES
SECONDARY EMERGENCY VEHICLE ACCESS ROAD		SEE DRAWING 5632-SK-A-200C	

NOTE 1: TOTAL DISTURBED AREA COMBINES THE TEMPORARY DISTURBED AREA AND THE PERMANENT DISTURBED AREA.

**TOTAL DISTURBED AREA PLAN**

SCALE: 1"=300'

**PRELIMINARY  
ISSUED FOR  
INFORMATION  
AUGUST 08, 2013**

1"=300'

NO.	DATE	REFERENCE DRAWINGS
5632-SK-A-200B		PERMANENT DISTURBED AREA PLAN
5632-SK-A-200C		EMERGENCY ACCESS ROAD AREA PLAN

**SPC** SPC Services, Inc.  
17101 Bushong Street  
Fountain Valley, CA 92708  
(714) 963-8077  
FAX: (714) 963-8078

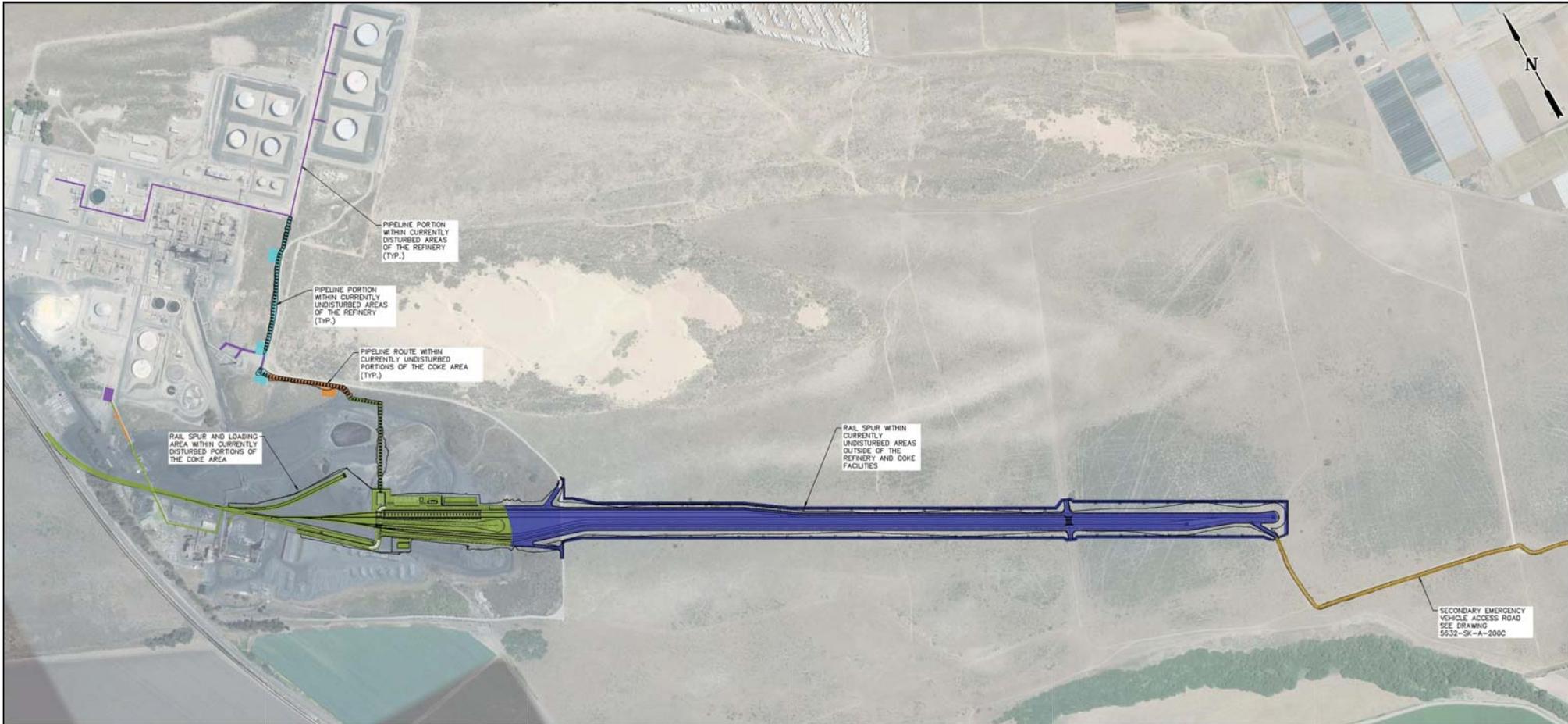
REV. NO.	DATE	REVISED	DESIGNER	DRAWN	CHECKED	APPROVED	DATE	DATE
A	8/8/13	ISSUED FOR INFORMATION	KAR	AD	JAD	A. F. E.		

PHILLIPS 66 SANTA MARIA REFINERY  
RAIL PROJECT  
TOTAL DISTURBED AREA PLAN

PHILLIPS 66 CO. Santa Maria Facility

5632-SK-A-200A

DATE 8/8/2013



**PERMANENT DISTURBED AREA PLAN**

SCALE: 1"=300'

PERMANENT DISTURBED AREAS			
ITEM	LEGEND	TOTAL AREA (SQ. FT.)	TOTAL AREA (ACRES)
RAIL SPUR WITHIN CURRENTLY UNDISTURBED AREAS OUTSIDE OF THE REFINERY AND COKE FACILITIES		726,835 SQ. FT.	16.7 ACRES
PIPELINE ROUTE WITHIN CURRENTLY UNDISTURBED PORTIONS OF THE COKE AREA		17,032 SQ. FT.	0.4 ACRES
RAIL SPUR AND LOADING AREA WITHIN CURRENTLY DISTURBED PORTIONS OF THE COKE AREA		373,402 SQ. FT.	8.6 ACRES
PIPELINE PORTION WITHIN CURRENTLY UNDISTURBED AREAS OF THE REFINERY		33,174 SQ. FT.	0.8 ACRES
PIPELINE PORTION WITHIN CURRENTLY DISTURBED AREAS OF THE REFINERY		27,683 SQ. FT.	0.6 ACRES
SECONDARY EMERGENCY VEHICLE ACCESS ROAD		SEE DRAWING 5632-SK-A-200C	

**PRELIMINARY  
ISSUED FOR  
INFORMATION  
AUGUST 08, 2013**

1"=300'

NO.	DATE	REVISED	DESIGN ALL RIGHTS RESERVED. CANNOT BE REPRODUCED WITHOUT WRITTEN PERMISSION.	REV. BY	APP'D BY	DATE	SIGNED
5632-SK-A-200A	8/8/13	ISSUED FOR INFORMATION		KAR	AD	JAD	A. F. E.

NO.	DATE	REVISED	DESIGN ALL RIGHTS RESERVED. CANNOT BE REPRODUCED WITHOUT WRITTEN PERMISSION.	REV. BY	APP'D BY	DATE	SIGNED
5632-SK-A-200A	8/8/13	ISSUED FOR INFORMATION		KAR	AD	JAD	A. F. E.

NO.	DATE	REVISED	DESIGN ALL RIGHTS RESERVED. CANNOT BE REPRODUCED WITHOUT WRITTEN PERMISSION.	REV. BY	APP'D BY	DATE	SIGNED
5632-SK-A-200A	8/8/13	ISSUED FOR INFORMATION		KAR	AD	JAD	A. F. E.

PHILLIPS 66 SANTA MARIA REFINERY  
RAIL PROJECT  
PERMANENT DISTURBED AREA PLAN

PHILLIPS 66 CO. Santa Maria Facility

5632-SK-A-200B

DATE 8/8/2013

**SPC** SPC Services, Inc.  
17101 Bushong Street  
Fountain Valley, CA 92708  
(714) 963-8077  
WWW.SPC-SERVICES.COM



DISTURBED AREAS OF EMERGENCY ACCESS ROAD		
ITEM	TOTAL AREA (SQ. FT.)	TOTAL AREA (ACRES)
EXISTING ROAD WITH 1' SHOULDER	39,006 SQ. FT.	0.9 ACRES
<b>18' EMERGENCY ACCESS ROAD WITH 1' SHOULDER</b>	<b>70,581 SQ. FT.</b>	<b>1.6 ACRES</b>
DIFFERENCE OF EXISTING TO IMPROVED	31,575 SQ. FT.	0.7 ACRES

**EMERGENCY ACCESS ROAD AREA PLAN**

SCALE: 1"=100'

**PRELIMINARY  
ISSUED FOR  
INFORMATION  
AUGUST 08, 2013**

**LEGEND:**  
 = 18' IMPROVED ROAD (DG)



NO.	DATE	DESCRIPTION
5632-SK-A-200A		TOTAL DISTURBED AREA PLAN
5632-SK-A-200B		PERMANENT DISTURBED AREA PLAN

REV. NO.	DATE	REVISED	DESIGNED BY	DRAWN BY	CHECKED BY	DATE	APPROVED FOR CONSTRUCTION
A	8/8/13	ISSUED FOR INFORMATION	KAR	AD	JAD		A. F. E.

PHILLIPS 66 SANTA MARIA REFINERY  
RAIL PROJECT  
EMERGENCY ACCESS ROAD AREA PLAN

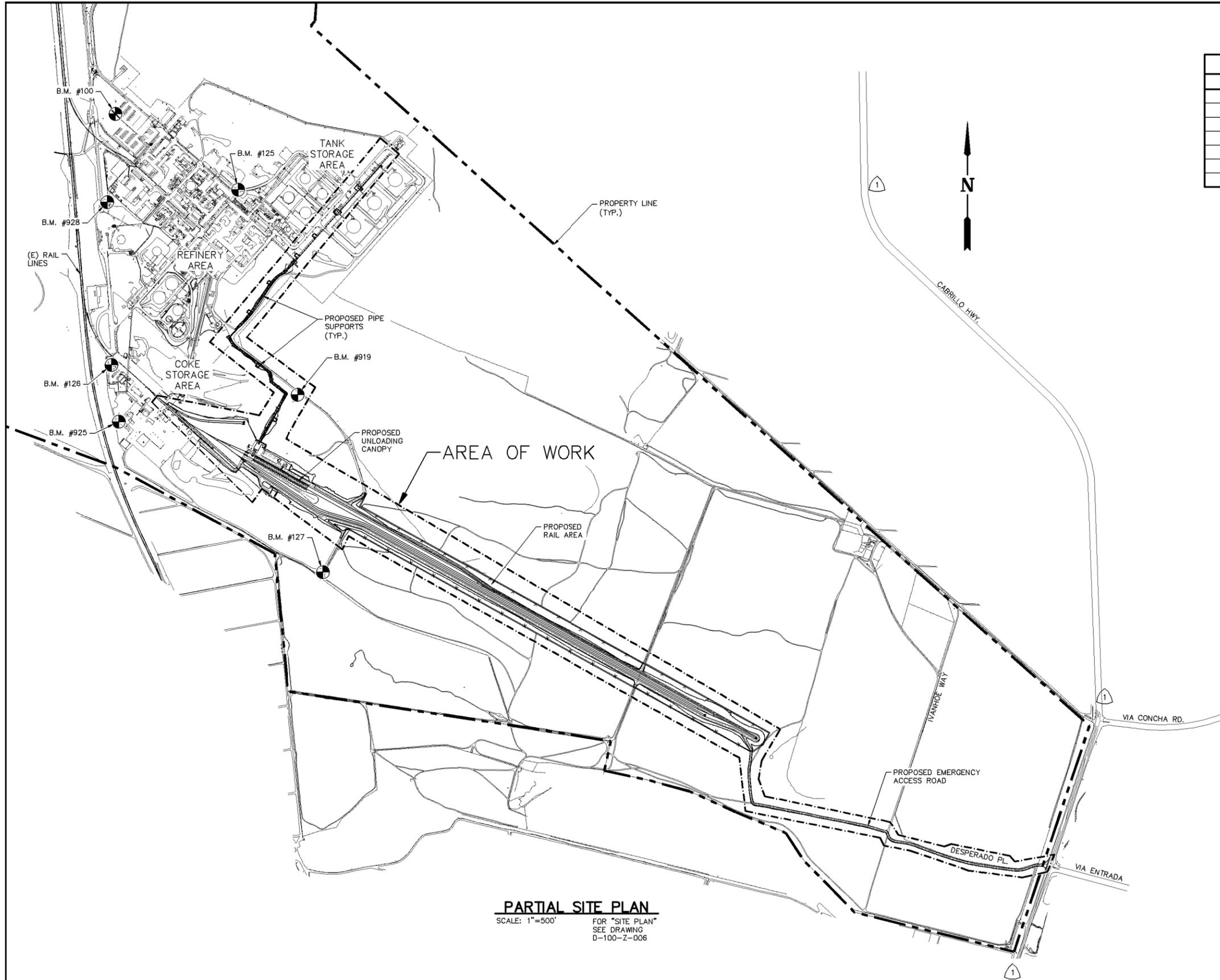
PHILLIPS 66 CO. Santa Maria Facility

5632-SK-A-200C

DATE 7/2/2013

**SPC** SPC Services, Inc.  
17101 Bushong Street  
Fountain Valley, CA 92708  
(714) 963-8077

SURVEY CONTROL SCHEDULE				
ITEM	NORTHING	EASTING	ELEVATION	DESCRIPTION
B.M. #100	2211650.49'	5785543.95'	100.92'	SET MAG SPIKE/W
B.M. #125	2210924.09'	5786721.53'	104.55'	SET GEAR SPK/W/TIN
B.M. #126	2209244.44'	5785505.73'	80.67'	SET LG MAG/W/TIN
B.M. #127	2207258.96'	5787539.86'	62.06'	SET REBAR/CAP
B.M. #919	2208958.82'	5787297.59'	n/a	FD AL CAP WS CP 919
B.M. #925	2208700.60'	5785576.23'	n/a	FD GEAR SPK
B.M. #928	2210804.78'	5785465.13'	n/a	FD AL CAP WG CP 928

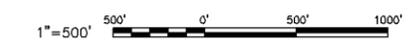


- LEGEND:**
- = SURVEY CONTROL BENCHMARK (B.M.) (VERT. & HORIZ. CONTROL)
  - = PROPERTY LINE
  - = AREA OF WORK

- NOTES:**
1. FOR "CIVIL GENERAL NOTES" SEE DRAWINGS D-100-Z-004 THRU D-100-Z-008.
  2. HORIZONTAL CONTROL : CALIFORNIA STATE PLANES NORTH AMERICAN DATUM 1983 (NAD 1983) ZONE V, EPOCH 2002.00.
  3. VERTICAL CONTROL : NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 1988).
  4. CONSTRUCTION MAY IMPACT EXISTING CONTROL POINTS. CONTRACTOR SHALL ARRANGE FOR SURVEYOR TO ESTABLISH NEW CONTROL POINTS AS REQUIRED AT HIS COST.

**PARTIAL SITE PLAN**  
 SCALE: 1"=500' FOR "SITE PLAN"  
 SEE DRAWING D-100-Z-006

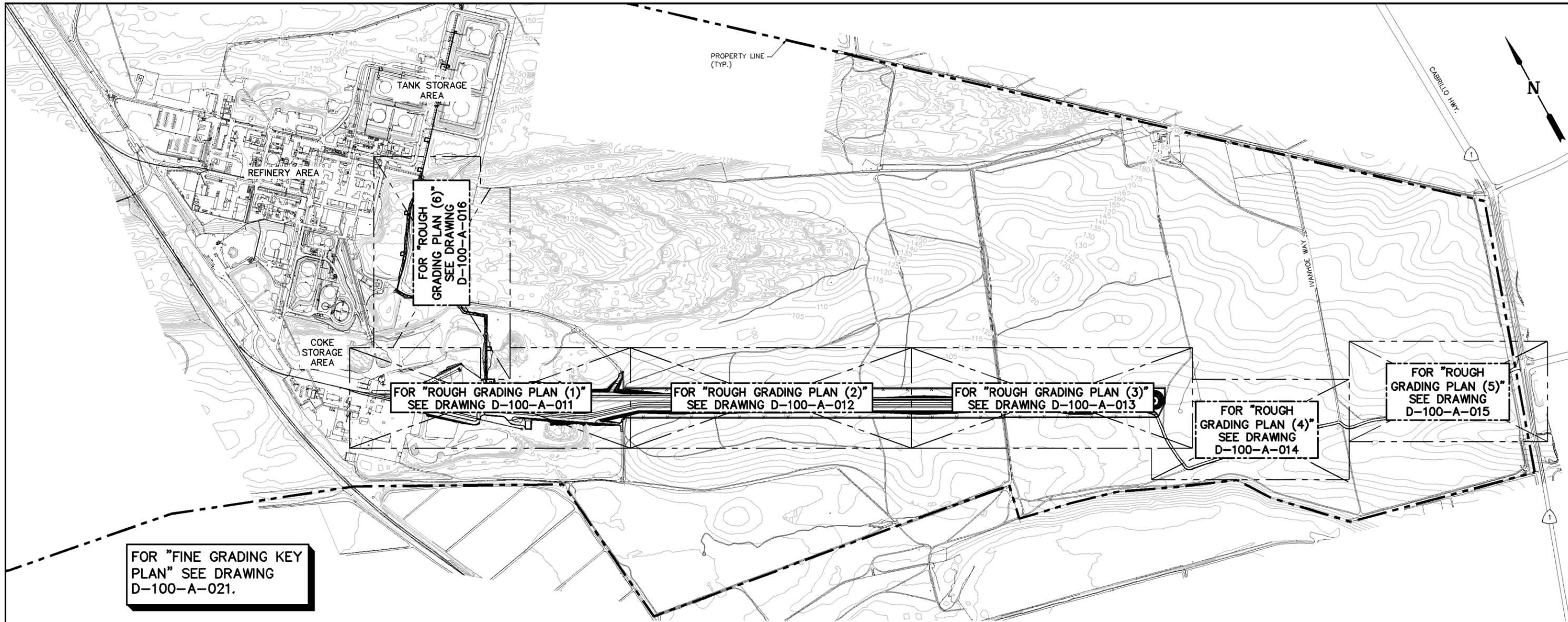
**PROGRESS PRINT**  
**SEPTEMBER 11, 2013**



NUMBER	SH.	REFERENCE DRAWINGS	REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION	DRAWN BY	CHECKED BY	TRACED BY	TRAC'G. GND.	APP'D.	APP'D.	SCALE AS NOTED	DATE	PHILLIPS 66 SANTA MARIA REFINERY RAIL PROJECT PARTIAL SITE PLAN & SURVEY CONTROL	DRAWING NO.
			A	9/11/13	(OPEN REVISION)					A. F. E.								9/11/2013		D-100-A-009

**SPEC SERVICES**  
 SPEC Services, Inc.  
 17101 Bushard Street  
 Fountain Valley, CA 92708  
 (714) 963-8077  
 9639 D-100-A-009, 9639 D-100-A-009 PARTIAL SITE PLAN & SURVEY CONTROL

**PHILLIPS 66**  
 Santa Maria Facility  
 D-100-A-009  
 SHEETS



FOR "FINE GRADING KEY PLAN" SEE DRAWING D-100-A-021.

FOR "ROUGH GRADING PLAN (6)" SEE DRAWING D-100-A-016

FOR "ROUGH GRADING PLAN (1)" SEE DRAWING D-100-A-011

FOR "ROUGH GRADING PLAN (2)" SEE DRAWING D-100-A-012

FOR "ROUGH GRADING PLAN (3)" SEE DRAWING D-100-A-013

FOR "ROUGH GRADING PLAN (4)" SEE DRAWING D-100-A-014

FOR "ROUGH GRADING PLAN (5)" SEE DRAWING D-100-A-015

**ROUGH GRADING KEY PLAN**  
SCALE: 1"=400' FOR "SITE PLAN" SEE DRAWING D-100-Z-006

**ROUGH GRADING NOTES:**

- FOR "CIVIL GENERAL NOTES" SEE DRAWINGS D-100-Z-004 THRU D-100-Z-008.
- FOR SURVEY CONTROL SEE "PARTIAL SITE PLAN & SURVEY CONTROL" ON DRAWING D-100-A-009.
- CONTRACTOR SHALL STAKE OUT AND VERIFY ALL COORDINATES, ELEVATIONS AND SITE CONDITIONS PRIOR TO GRADING. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING HIS OWN SURVEYING SERVICES UNLESS ARRANGEMENTS WITH THE OWNER ARE MADE IN ADVANCE.
- SEE SOILS REPORT FOR GRADING AND FILL SPECIFICATIONS.
- SCARIFY AND RECOMPACT TOP 6" OF EXISTING GRADE OR BOTTOM OF OVEREXCAVATION PRIOR TO PLACEMENT OF ANY FILL.
- THE GEOTECHNICAL ENGINEER SHALL EVALUATE ANY CUT OR OVEREXCAVATED SOIL AND, IF APPROPRIATE, APPROVE ITS REUSE AS BACKFILL.
- FOR GRADING ELEVATIONS AND COORDINATES SEE "FINE GRADING PLANS" ON DRAWINGS D-100-A-022 THRU D-100-A-033.
- CONTRACTOR TO COORDINATE WITH OWNER FOR DEMOLITION AND/OR PROTECTION OF EXISTING PIPING AND UTILITIES AS REQUIRED. CONTRACTOR SHALL COORDINATE ALL GRADING AND EXCAVATION ACTIVITIES WITH OWNER AND TAKE APPROPRIATE PRECAUTIONS TO PROTECT EXISTING PIPING AND UTILITIES.
- CONSTRUCTION MAY IMPACT EXISTING CONTROL POINTS. CONTRACTOR SHALL ARRANGE FOR SURVEYOR TO ESTABLISH NEW CONTROL POINTS AS REQUIRED AT HIS COST.
- ALL GRADING AND EARTHWORK ACTIVITIES SHALL BE PERFORMED UNDER THE CONTINUOUS SUPERVISION AND CONTROL OF THE GEOTECHNICAL ENGINEER. THE GEOTECHNICAL ENGINEER SHALL APPROVE ALL EXCAVATIONS, SUBGRADE PREPARATION AND FILL ACTIVITIES PRIOR TO CONSTRUCTION OF FOUNDATIONS AND STRUCTURES.
- PROPOSED PAD ELEVATIONS ARE NOMINAL ELEVATIONS AT TOP OF ROUGH GRADE PAD. ADDITIONAL IMPROVEMENTS FOR RAIL TRACKS AND ROADS SHALL BE BUILT ON TOP OF ROUGH GRADE PAD.

- ALL UNDOCUMENTED FILL UNDERNEATH THE FOOTPRINT OF THE PROPOSED FOUNDATIONS SHALL BE REMOVED AND REPLACED UNLESS DEEP DRILLED CAISSONS ARE USED. THE GEOTECHNICAL ENGINEER SHALL CERTIFY THAT ALL UNDOCUMENTED FILL HAS BEEN REMOVED AND THAT THE BOTTOM OF EXCAVATION IS ACCEPTABLE AND READY TO RECEIVE COMPACTED FILL OR FOUNDATION.
- THE EXTENT OF THE OVER-EXCAVATION SHOWN IN THE SECTIONS ARE NOMINAL DEPTHS OBTAINED FROM THE RESULTS OF A FINITE SET OF SOIL BORINGS AND CONE PENETRATION TESTS. THE GEOTECHNICAL ENGINEER SHALL BE ON SITE DURING CONSTRUCTION TO CONTINUOUSLY MONITOR ALL EARTHWORK ACTIVITIES. DURING CONSTRUCTION, THE GEOTECHNICAL ENGINEER WILL PERFORM TESTS TO VALIDATE THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT AND ADJUST THE OVER-EXCAVATION DEPTHS AS NECESSARY. THE SOILS REPORT AND GEOTECHNICAL ENGINEER'S CERTIFICATION SHALL BE APPROVED BY THE APPROPRIATE AGENCIES OF THE COUNTY OF SAN LUIS OBISPO.
- WHERE THE EXTENT OF OVEREXCAVATION OVERLAPS EXISTING STRUCTURES OR FOUNDATIONS, CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL ENGINEER TO REDUCE THE LIMIT OF EXCAVATION PER THE GEOTECHNICAL ENGINEER'S DIRECTIONS. TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING STRUCTURES AND TO PREVENT UNDERMINING EXISTING FOUNDATIONS.
- OVEREXCAVATION QUANTITIES ARE APPROXIMATE ONLY. EXACT VOLUMES WILL BE DETERMINED IN THE FIELD WHERE LIMITS OF COMPETENT MATERIAL MAY BE VERIFIED. OVEREXCAVATION AT OTHER AREAS WILL BE FIELD DETERMINED BY THE GEOTECHNICAL ENGINEER.
- IN THE EVENT THAT HYDROCARBONS OR GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION. PROCEED ONLY UNDER THE DIRECTION AND SUPERVISION OF THE ENGINEER.

FOR ROUGH GRADING NOTES CONTINUATION SEE DRAWING D-100-A-011.

**EARTHWORK QUANTITIES AT RAIL AREA:**

THE FOLLOWING QUANTITIES ARE FOR ENGINEERING PURPOSES ONLY. CONTRACTOR SHALL VERIFY QUANTITIES FOR HIS COST ESTIMATING PURPOSES. EARTHWORK QUANTITIES INCLUDE A 15% INCREASE FOR SHRINKAGE AND COMPACTION BUT DO NOT ACCOUNT FOR OVERBUILT SLOPES OR HANDLING LOSSES. EARTHWORK QUANTITIES PROVIDED ARE TO THE TOP OF ROUGH GRADE PAD. ADDITIONAL IMPROVEMENTS FOR RAIL TRACKS AND ROADS SHALL BE BUILT ON TOP OF ROUGH GRADE PAD. CONTRACTOR SHALL ADJUST SURFACE ELEVATIONS TO ACCOUNT FOR FINAL SURFACING MATERIALS WHERE APPROPRIATE.

EARTHWORK QUANTITIES AND GRADING DESIGN SHOWN ON THESE PLANS ARE BASED ON AN AERIAL SURVEY FROM MULTIPLE DATES IN 2012. DUE TO CONTINUOUS SITE IMPROVEMENTS, THE SITE MAY HAVE CHANGED SINCE THEN AND THE CONTRACTOR SHALL VERIFY THE CURRENT SITE CONDITIONS AND MAKE ADJUSTMENTS TO HIS BID AS APPROPRIATE. CONTRACTOR SHALL ALSO PROVIDE A UNIT COST (PER TON) FOR FILL MATERIAL IN CASE FIELD ADJUSTMENTS ARE NECESSARY.

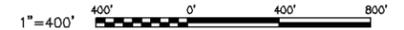
TOTAL DISTURBED AREA:	29.5
CUT:	139,775 CU. YDS.
FILL:	113,673 CU. YDS.
OVER-EXCAVATION/ RE-COMPACT:	0 CU. YDS.
NET:	26,102 CU. YDS. (HAUL)(NOTE 6)

HOLD (UNADJUSTED)

**LEGEND:**

- - - - - = PROPERTY LINE
- 5 — = EXISTING CONTOUR

**PROGRESS PRINT**  
SEPTEMBER 11, 2013



NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION
A	9/11/13	(OPEN REVISION)					A. F. E. DATE SIGNED

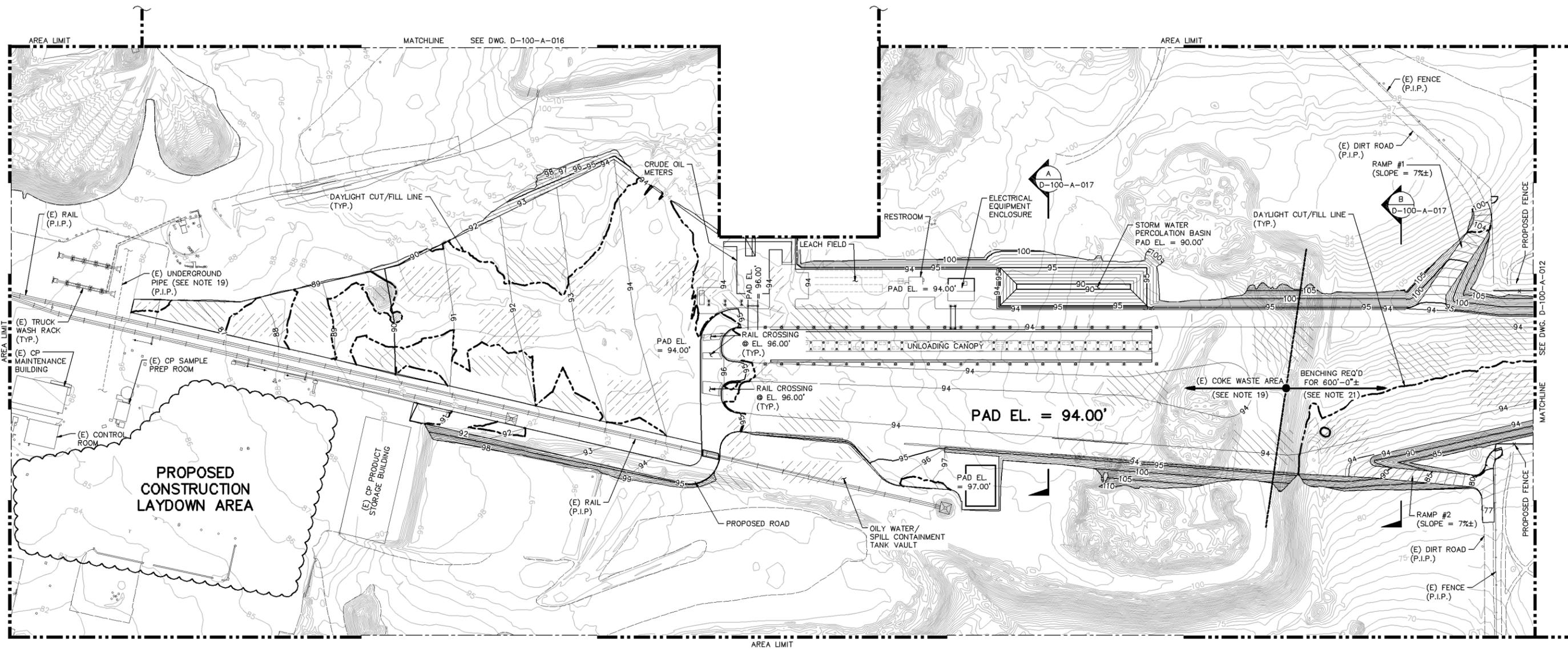
**SPEC SERVICES**  
SPEC Services, Inc.  
17101 Bushard Street  
Fountain Valley, CA 92708  
(714) 963-8077  
5637 D-100-A-010.dwg (D-100-A-010 ROUGH GRADING KEY PLAN)

DRAWN BY: —  
CHECKED BY: —  
TRACED BY: —  
TRAC'G. GND.: —  
APP'D.: —  
APP'D.: —  
SCALE: AS NOTED  
DATE: 9/11/2013

**PHILLIPS 66 SANTA MARIA REFINERY RAIL PROJECT**  
ROUGH GRADING KEY PLAN

**PHILLIPS 66 CO.**  
Santa Maria Facility

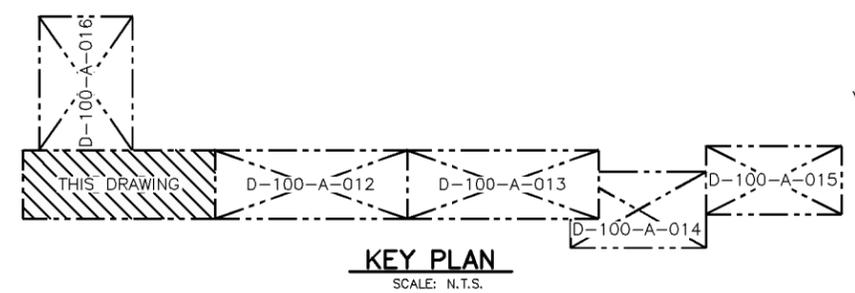
DRAWING NO. **D-100-A-010**  
SHEETS: —



**FOR EARTHWORK QUANTITIES AT RAIL AREA SEE DRAWING D-100-A-010.**

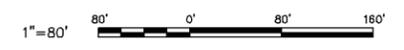
**ROUGH GRADING PLAN (1)**  
SCALE: 1"=80' FOR LOCATION SEE DRAWING D-100-A-010

- LEGEND:**
- = FILL
  - = CUT
  - = PROPOSED MAJOR CONTOUR
  - = PROPOSED MINOR CONTOUR
  - = EXISTING CONTOUR
  - = DAYLIGHT CUT/FILL LINE
  - = LIMIT OF OVER-EXCAVATION
  - = PROPOSED FENCE (SEE NOTE 18)
  - (E) = EXISTING
  - (P.I.P.) = PROTECT IN PLACE



- SHEET NOTES:**
- FOR ADDITIONAL ROUGH GRADING NOTES SEE DRAWING D-100-A-010 & THIS DRAWING.
- ROUGH GRADING NOTES (CONTINUED FROM D-100-A-010):**
- FOR "FENCING PLAN" SEE DRAWING D-100-A-042. FOR FENCING P.I. COORDINATES SEE DRAWING D-100-A-024 THRU D-100-A-028
  - CONTRACTOR TO PROTECT EXISTING UNDERGROUND PIPE IN PLACE. THE DEPTH OF EXISTING PIPE IS UNKNOWN AND LOCATION HAS BEEN APPROXIMATED ON THIS PLAN.
  - CONTRACTOR SHALL ORGANIZE GRADING OPERATIONS TO PREVENT EXISTING WASTE COKE MATERIALS FROM BEING TRANSPORTED EASTWARD DOWN THE NEW RAIL DEVELOPMENT.
  - EXISTING WASTE COKE MATERIALS ARE SUITABLE FOR USE AS FILL MATERIALS PROVIDED IT IS THOROUGHLY MIXED WITH DUNE SAND MATERIALS.
  - BENCHING IS REQUIRED AT ALL FILL CASES WHERE SLOPE OF EXISTING GRADE IS GREATER THAN 10%. FOR BENCHING REQUIREMENTS SEE DETAIL (1) ON DRAWING D-100-A-020.

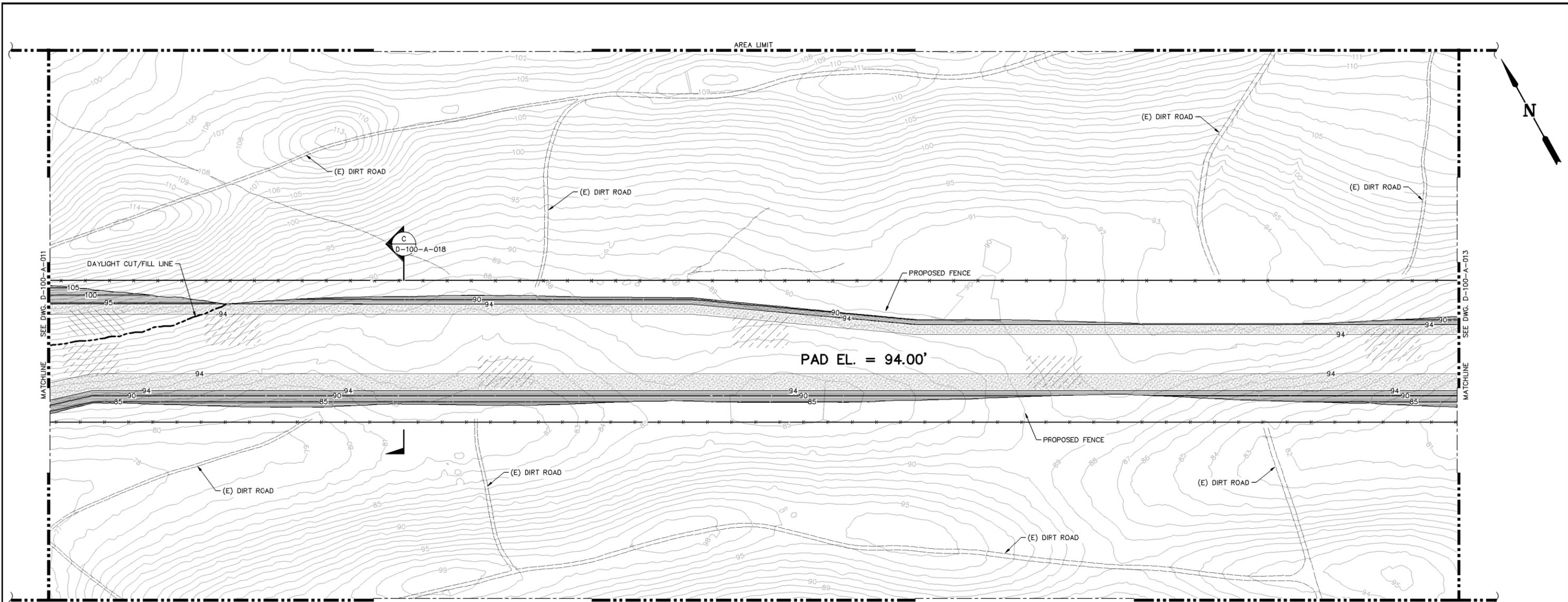
**PROGRESS PRINT**  
**SEPTEMBER 11, 2013**



NUMBER	SH.	REFERENCE DRAWINGS	REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION	DRAWN BY	CHECKED BY	TRAC'G. CHD.	APP'D.	APP'D.	SCALE AS NOTED	DATE	PHILLIPS 66 SANTA MARIA REFINERY RAIL PROJECT ROUGH GRADING PLAN (1)	DRAWING NO.
			A	9/11/13	(OPEN REVISION)					A. F. E.						AS NOTED	9/11/2013	PHILLIPS 66 Santa Maria Facility	D-100-A-011

**SPEC SERVICES**  
SPEC Services, Inc.  
17101 Bushard Street  
Fountain Valley, CA 92708  
(714) 963-8077  
9/11/13 013.dwg D-100-A-011 ROUGH GRADING PLAN (1)

**PHILLIPS 66**  
Santa Maria Facility  
D-100-A-011  
SHEETS

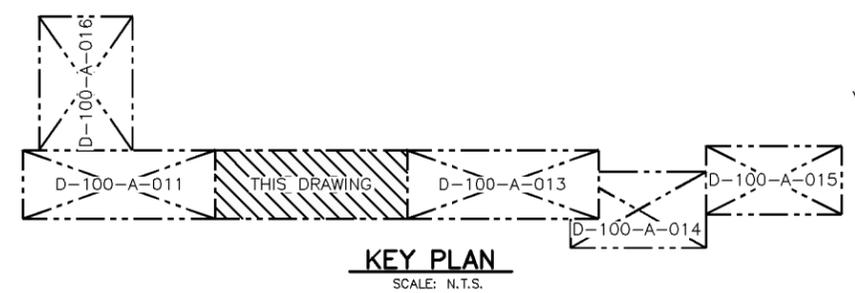


**FOR EARTHWORK QUANTITIES AT RAIL AREA SEE DRAWING D-100-A-010.**

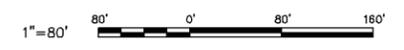
**ROUGH GRADING PLAN (2)**  
 SCALE: 1"=80'  
 FOR LOCATION SEE DRAWING D-100-A-010

- LEGEND:**
- = FILL
  - = CUT
  - = PROPOSED MAJOR CONTOUR
  - = PROPOSED MINOR CONTOUR
  - = EXISTING CONTOUR
  - = DAYLIGHT CUT/FILL LINE
  - = LIMIT OF OVER-EXCAVATION
  - = PROPOSED FENCE (SEE NOTE 18)
  - (E) = EXISTING

**SHEET NOTES:**  
 1. FOR ADDITIONAL ROUGH GRADING NOTES SEE DRAWING D-100-A-010 & D-100-A-011.



**PROGRESS PRINT**  
**SEPTEMBER 11, 2013**

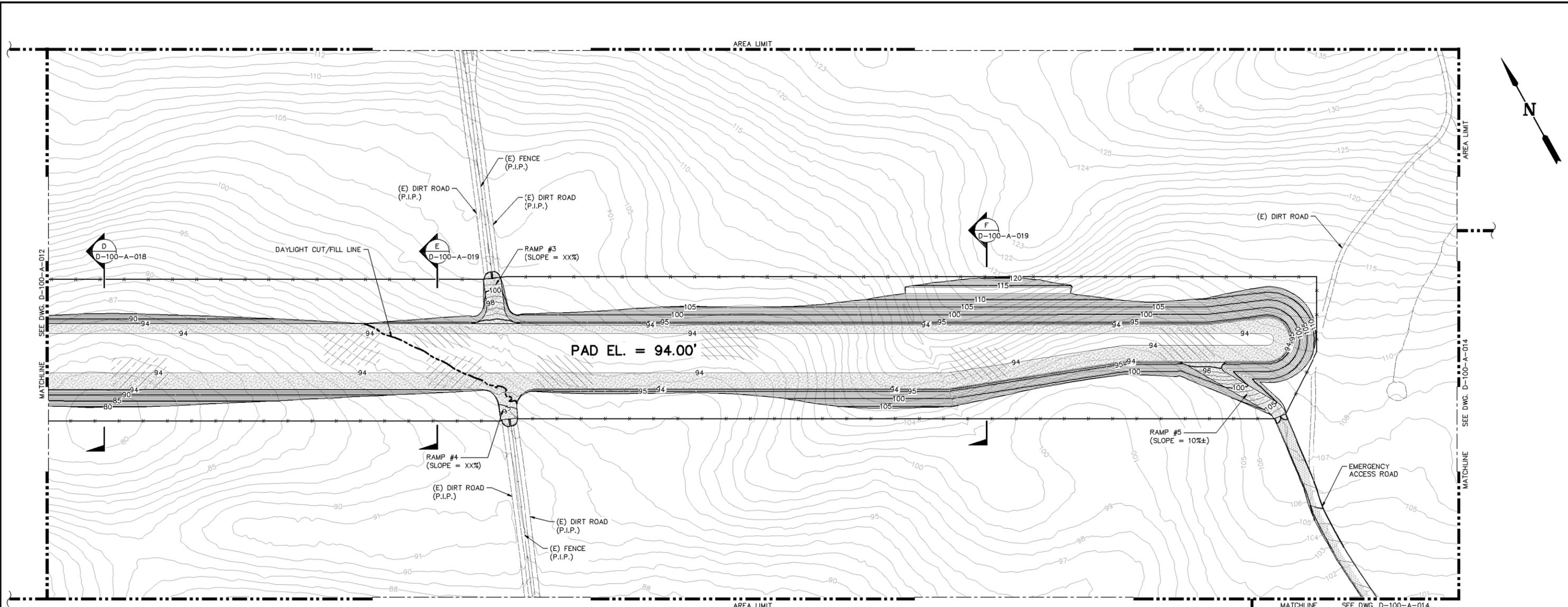


NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION
A	9/11/13	(OPEN REVISION)					A. F. E. DATE SIGNED

DRAWN BY: —	<b>PHILLIPS 66 SANTA MARIA REFINERY RAIL PROJECT</b> <b>ROUGH GRADING PLAN (2)</b> DRAWING NO. <b>D-100-A-012</b> SHEETS —
CHECKED BY: —	
TRAC'G. CKD. —	
APP'D. —	
APP'D. —	
SCALE AS NOTED	
DATE: 9/11/2013	<b>PHILLIPS 66 CO.</b> Santa Maria Facility

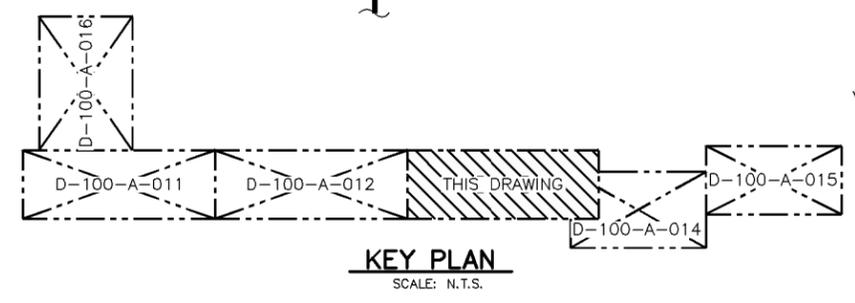
**SPEC SERVICES**  
 SPEC Services, Inc.  
 17101 Bushard Street  
 Fountain Valley, CA 92708  
 (714) 963-8077  
 5637 D-100-A-01 Rev. 01/14/13 D-100-A-012 ROUGH GRADING PLAN (2)



**FOR EARTHWORK QUANTITIES AT RAIL AREA SEE DRAWING D-100-A-010.**

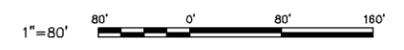
**ROUGH GRADING PLAN (3)**  
 SCALE: 1"=80'  
 FOR LOCATION SEE DRAWING D-100-A-010

- LEGEND:**
- = FILL
  - = CUT
  - = PROPOSED MAJOR CONTOUR
  - = PROPOSED MINOR CONTOUR
  - = EXISTING CONTOUR
  - = DAYLIGHT CUT/FILL LINE
  - = LIMIT OF OVER-EXCAVATION
  - = PROPOSED FENCE (SEE NOTE 18)
  - (E) = EXISTING
  - (P.I.P.) = PROTECT IN PLACE



**SHEET NOTES:**  
 1. FOR ADDITIONAL ROUGH GRADING NOTES SEE DRAWING D-100-A-010 & D-100-A-011.

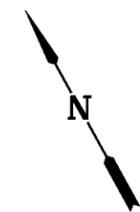
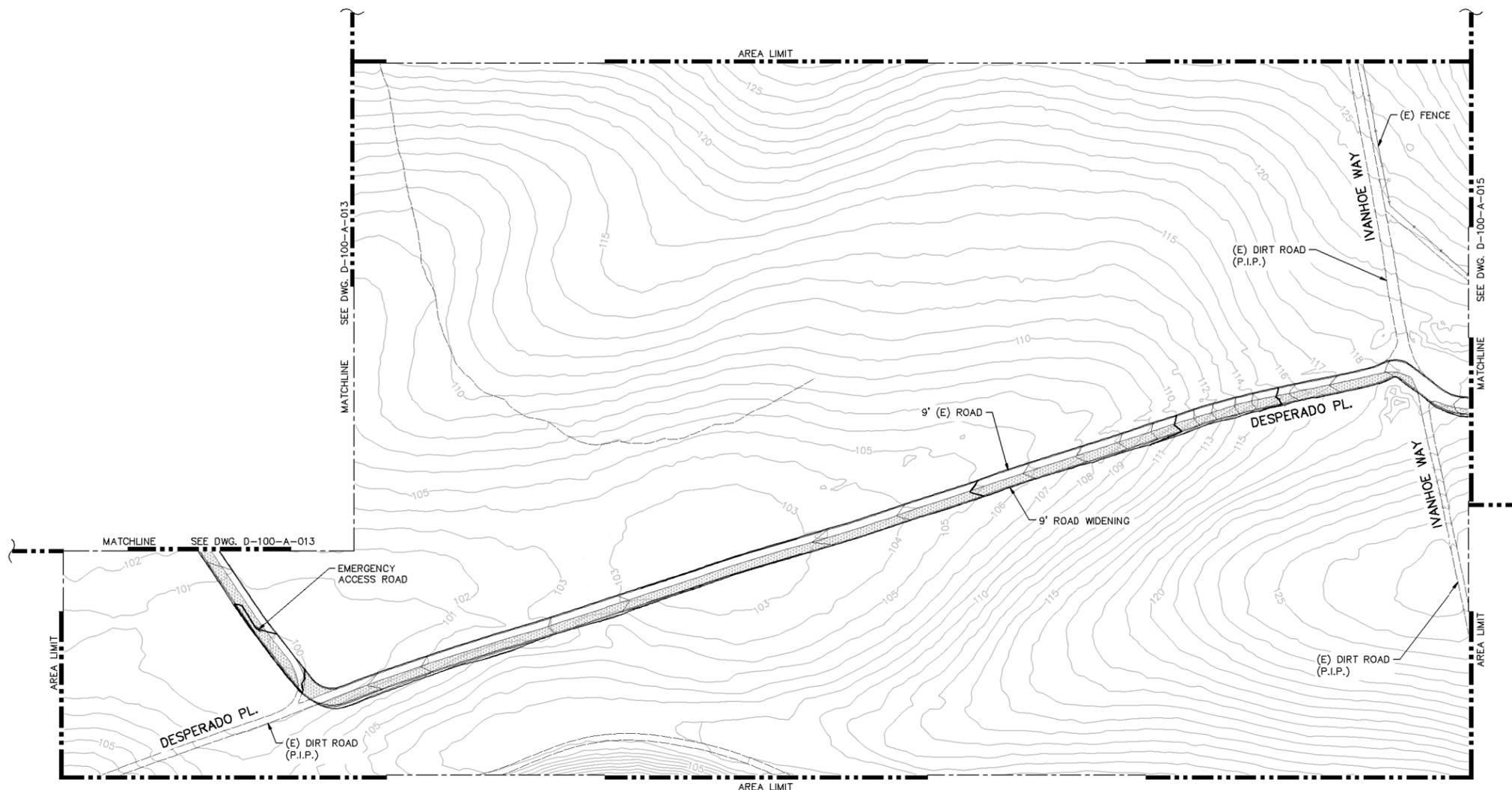
**PROGRESS PRINT**  
**SEPTEMBER 11, 2013**



NUMBER	SH.	REFERENCE DRAWINGS	REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION	DRAWN BY	CHECKED BY	TRAC'G. CHD.	APP'D.	APP'D.	SCALE AS NOTED	DATE	PHILLIPS 66 SANTA MARIA REFINERY RAIL PROJECT	ROUGH GRADING PLAN (3)	DRAWING NO.
			A	9/11/13	(OPEN REVISION)					A. F. E.						AS NOTED	9/11/2013	PHILLIPS 66	Santa Maria Facility	D-100-A-013

**SPEC SERVICES**  
 SPEC Services, Inc.  
 17101 Bushard Street  
 Fountain Valley, CA 92708  
 (714) 963-8077  
 5637 D-100-A-01 Rev. 01/14/13 D-100-A-013 ROUGH GRADING PLAN (3)

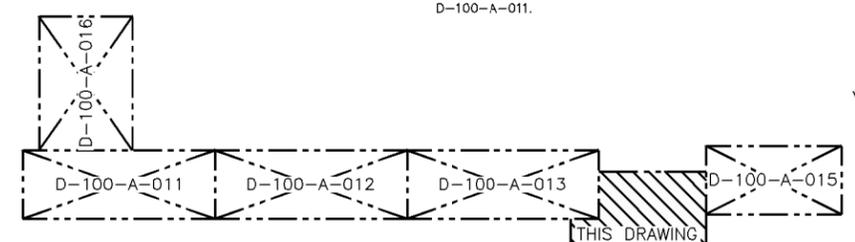
**PHILLIPS 66 CO.**  
 Santa Maria Facility  
 SHEETS



**ROUGH GRADING PLAN (4)**  
 SCALE: 1"=80'  
 FOR LOCATION  
 SEE DRAWING  
 D-100-A-101

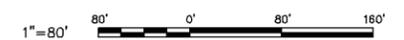
- LEGEND:**
- 5 — = PROPOSED MAJOR CONTOUR
  - 1 — = PROPOSED MINOR CONTOUR
  - 1 — = EXISTING CONTOUR
  - (E) = EXISTING
  - {P.I.P.} = PROTECT IN PLACE

**SHEET NOTES:**  
 1. FOR ADDITIONAL ROUGH GRADING NOTES SEE DRAWING D-100-A-010 & D-100-A-011.



**KEY PLAN**  
 SCALE: N.T.S.

**PROGRESS  
 PRINT  
 SEPTEMBER 11, 2013**



NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION
A	9/11/13	(OPEN REVISION)					A. F. E.      DATE      SIGNED

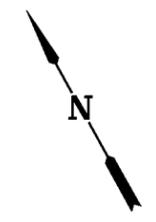
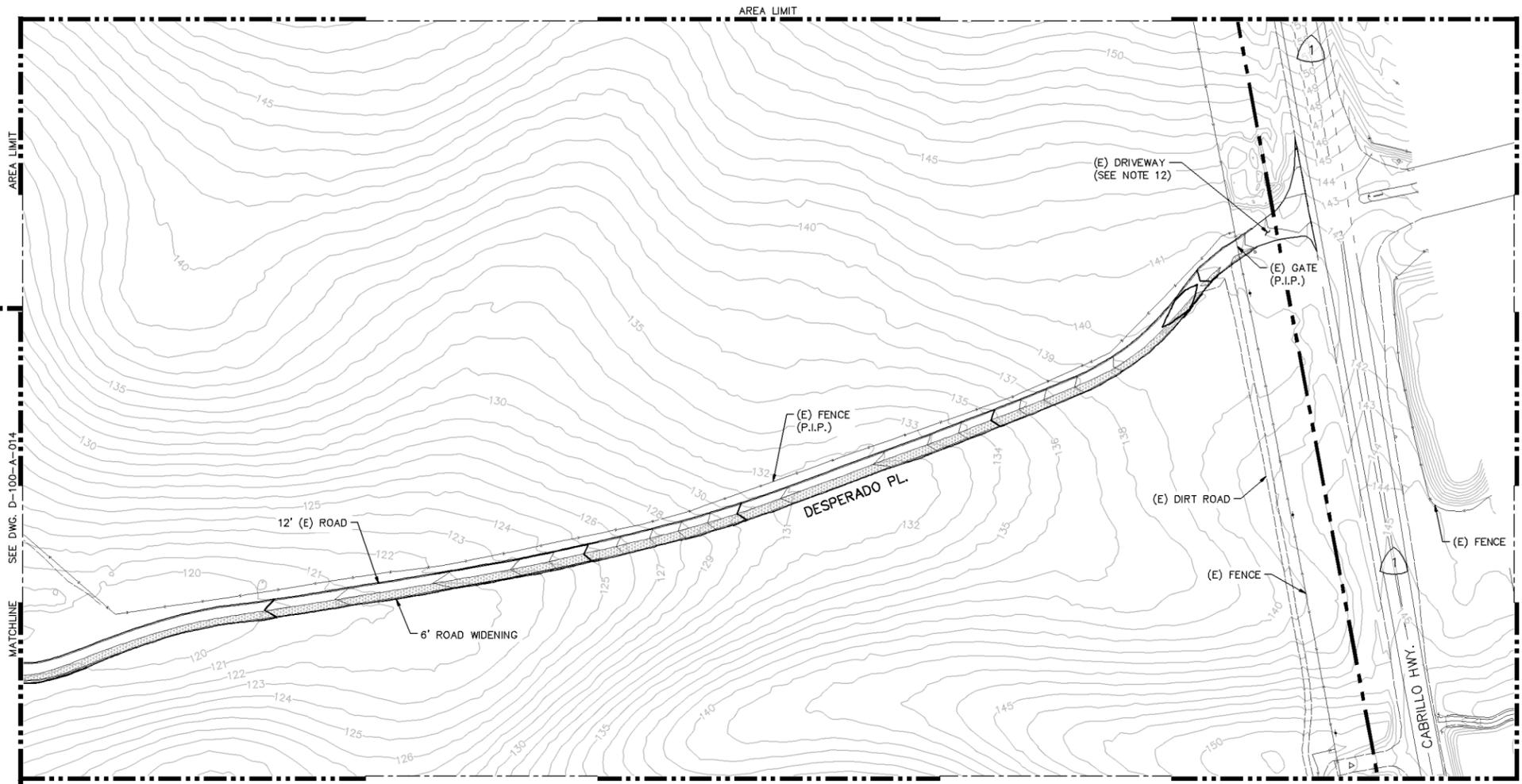
**SPEC SERVICES**  
 SPEC Services, Inc.  
 17101 Bushard Street  
 Fountain Valley, CA 92708  
 (714) 963-8077  
 5637 D-100-A-014.dwg 015.dwg 10-100-A-014 ROUGH GRADING PLAN (4)

DRAWN BY: —  
 CHECKED BY: —  
 TRACED BY: —  
 TRAC'G. GND.: —  
 APP'D.: —  
 APP'D.: —  
 SCALE AS NOTED  
 DATE: 9/11/2013

PHILLIPS 66 SANTA MARIA REFINERY  
 RAIL PROJECT  
 ROUGH GRADING PLAN (4)

**PHILLIPS 66 CO.**  
 Santa Maria Facility

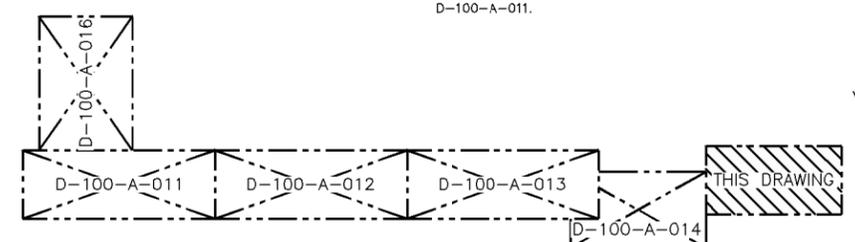
DRAWING NO. **D-100-A-014**  
 SHEETS: —



- LEGEND:**
- = PROPERTY LINE
  - 5— = PROPOSED MAJOR CONTOUR
  - 1— = PROPOSED MINOR CONTOUR
  - 1— = EXISTING CONTOUR
  - (E) = EXISTING
  - {P.I.P.} = PROTECT IN PLACE

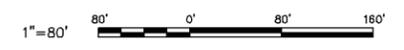
**SHEET NOTES:**  
 1. FOR ADDITIONAL ROUGH GRADING NOTES SEE DRAWING D-100-A-010 & D-100-A-011.

**ROUGH GRADING PLAN (5)**  
 SCALE: 1"=80'  
 FOR LOCATION SEE DRAWING D-100-A-010



**KEY PLAN**  
 SCALE: N.T.S.

**PROGRESS PRINT**  
**SEPTEMBER 11, 2013**



NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION
A	9/11/13	(OPEN REVISION)					A. F. E.      DATE      SIGNED

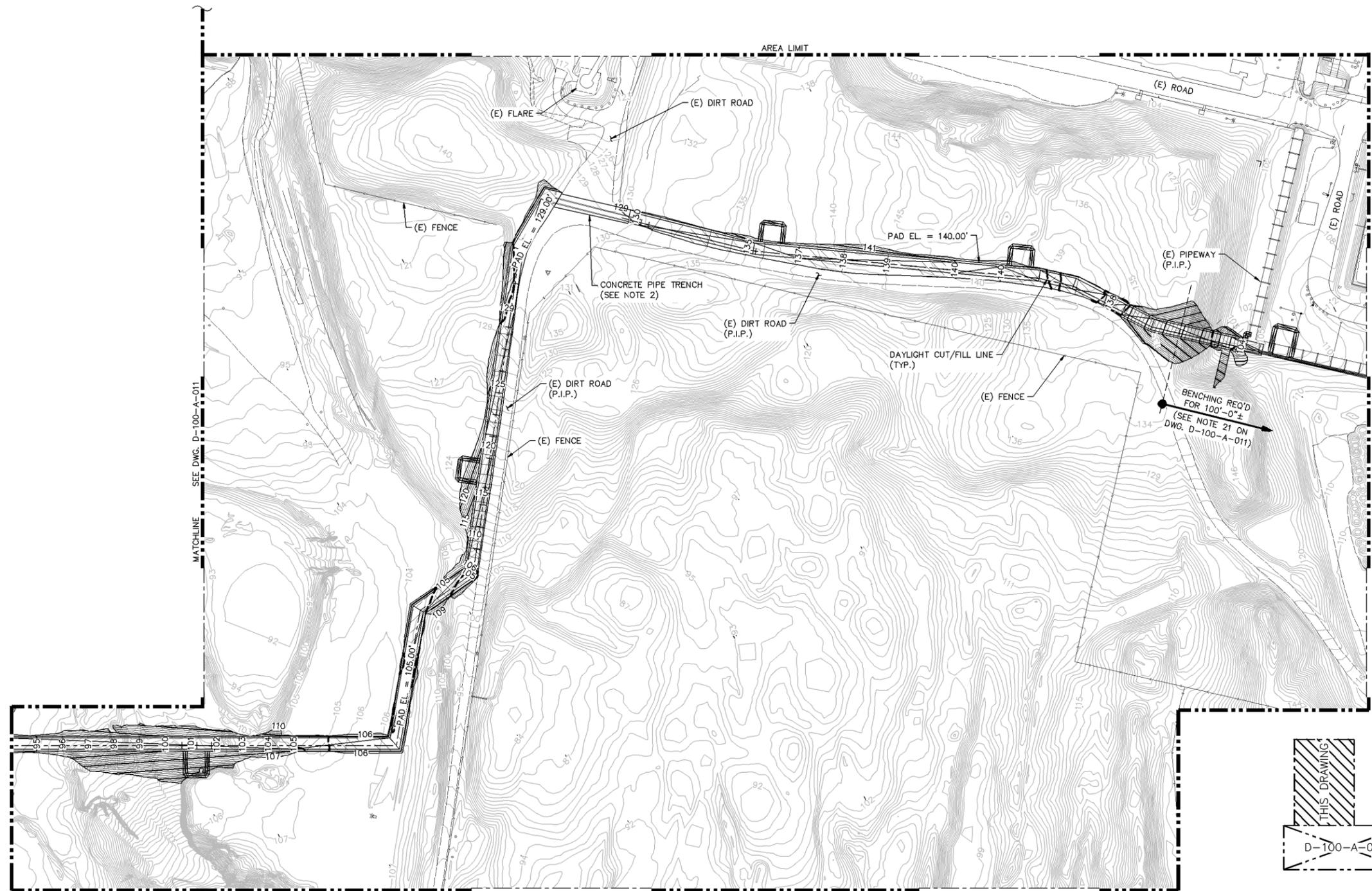
**SPEC SERVICES**  
 SPEC Services, Inc.  
 17101 Bushard Street  
 Fountain Valley, CA 92708  
 (714) 963-8077  
5637 D-100-A-014.dwg 015.dwg D-100-A-015 ROUGH GRADING PLAN (5)

DRAWN BY: —  
 CHECKED BY: —  
 TRACED BY: —  
 TRAC'G. GND.: —  
 APP'D.: —  
 APP'D.: —  
 SCALE: AS NOTED  
 DATE: 9/11/2013

PHILLIPS 66 SANTA MARIA REFINERY  
 RAIL PROJECT  
 ROUGH GRADING PLAN (5)

**PHILLIPS 66 CO.**  
 Santa Maria Facility

DRAWING NO. **D-100-A-015**  
 SHEETS: —



**EARTHWORK QUANTITIES AT PIPE SUPPORT AREA:**

THE FOLLOWING QUANTITIES ARE FOR ENGINEERING PURPOSES ONLY. CONTRACTOR SHALL VERIFY QUANTITIES FOR HIS COST ESTIMATING PURPOSES. EARTHWORK QUANTITIES INCLUDE A 15% INCREASE FOR SHRINKAGE AND COMPACTION BUT DO NOT ACCOUNT FOR OVERBUILT SLOPES OR HANDLING LOSSES. EARTHWORK QUANTITIES PROVIDED ARE TO THE TOP OF ROUGH GRADE PAD. ADDITIONAL IMPROVEMENTS FOR RAIL TRACKS AND ROADS SHALL BE BUILT ON TOP OF ROUGH GRADE PAD. CONTRACTOR SHALL ADJUST SURFACE ELEVATIONS TO ACCOUNT FOR FINAL SURFACING MATERIALS WHERE APPROPRIATE.

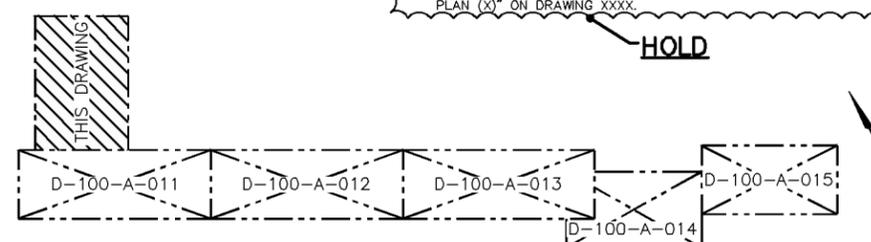
EARTHWORK QUANTITIES AND GRADING DESIGN SHOWN ON THESE PLANS ARE BASED ON AN AERIAL SURVEY DATED 08/31/12. DUE TO CONTINUOUS SITE IMPROVEMENTS, THE SITE MAY HAVE CHANGED SINCE THEN AND THE CONTRACTOR SHALL VERIFY THE CURRENT SITE CONDITIONS AND MAKE ADJUSTMENTS TO HIS BID AS APPROPRIATE. CONTRACTOR SHALL ALSO PROVIDE A UNIT COST (PER TON) FOR FILL MATERIAL IN CASE FIELD ADJUSTMENTS ARE NECESSARY.

TOTAL DISTURBED AREA:	1.62 ACRES
CUT:	5,707 CU. YDS.
FILL:	253 CU. YDS.
OVER-EXCAVATION/ RE-COMPACT:	0 CU. YDS.
NET:	5,453 CU. YDS. (HAUL)(NOTE 6)

**HOLD (UNADJUSTED)**

- LEGEND:**
- = FILL
  - = CUT
  - = PROPOSED MAJOR CONTOUR
  - = PROPOSED MINOR CONTOUR
  - = EXISTING CONTOUR
  - = DAYLIGHT CUT/FILL LINE
  - = LIMIT OF OVER-EXCAVATION
  - (E) = EXISTING
  - (P.I.P.) = PROTECT IN PLACE

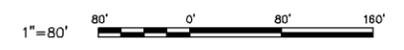
- SHEET NOTES:**
- FOR ADDITIONAL ROUGH GRADING NOTES SEE DRAWING D-100-A-010 & D-100-A-011.
  - FOR CONCRETE PIPE TRENCH LOCATION SEE "ENLARGED FOUNDATION LOCATION PLAN (X)" ON DRAWING XXXX.



**ROUGH GRADING PLAN (6)**  
 SCALE: 1"=80'  
 FOR LOCATION SEE DRAWING D-100-A-010

**KEY PLAN**  
 SCALE: N.T.S.

**PROGRESS PRINT**  
**SEPTEMBER 11, 2013**



NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION
A	9/11/13	(OPEN REVISION)					A. F. E. DATE SIGNED

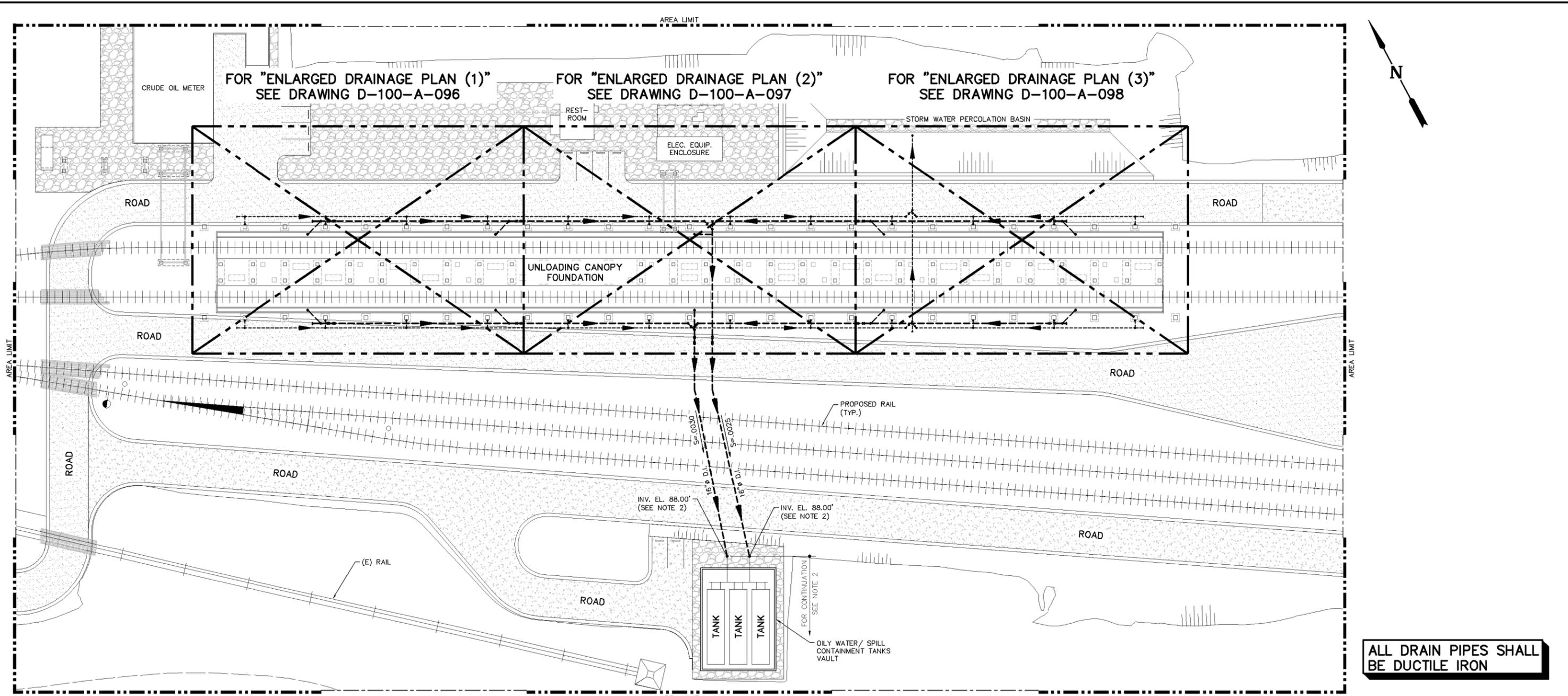
DRAWN BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 TRACED BY: \_\_\_\_\_  
 TRAC'G. GND.: \_\_\_\_\_  
 APP'D.: \_\_\_\_\_  
 APP'D.: \_\_\_\_\_  
 SCALE: AS NOTED  
 DATE: 9/11/2013

PHILLIPS 66 SANTA MARIA REFINERY RAIL PROJECT  
 ROUGH GRADING PLAN (6)

**PHILLIPS 66 CO.**  
 Santa Maria Facility

DRAWING NO. **D-100-A-016**  
 SHEETS: \_\_\_\_\_

**SPEC SERVICES**  
 SPEC Services, Inc.  
 17101 Bushard Street  
 Fountain Valley, CA 92708  
 (714) 963-8077  
 5632 D-100-A-016.dwg (D-100-A-016 ROUGH GRADING PLAN (6))



**ALL DRAIN PIPES SHALL BE DUCTILE IRON**

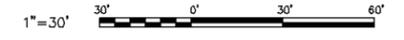
**DRAINAGE PLAN @ UNLOADING CANOPY**  
 SCALE: 1"=30'  
 FOR LOCATION SEE DWG. D-100-A-065

- LEGEND:**
- >--- = DRAIN PIPE (FROM CONCRETE TRENCH TO DRAIN TANKS)
  - >--- = DRAIN PIPE (FROM CANOPY DOWN SPOUT TO BASIN)
  - INV. EL. = INVERT ELEVATION
  - D.I. = DUCTILE IRON

- NOTES:**
1. FOR "CIVIL GENERAL NOTES" SEE DRAWINGS D-100-Z-004 THRU D-100-Z-008.
  2. FOR PIPING CONTINUATION SEE DRAWING XXXXXXXX.

**HOLD**

**PROGRESS PRINT**  
**SEPTEMBER 11, 2013**



NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION
A	9/11/13	(OPEN REVISION)					A. F. E. DATE SIGNED

DRWN BY	CHECKED BY	TRAC'G. GND.	APP'D.	SCALE AS NOTED	DATE
					9/11/2013

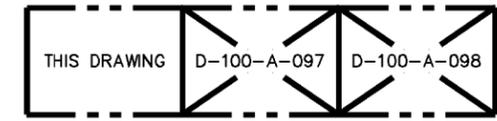
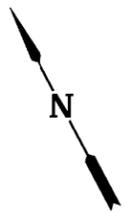
**SPEC SERVICES**  
 SPEC Services, Inc.  
 17101 Bushard Street  
 Fountain Valley, CA 92708  
 (714) 963-8077  
 5837 D-100-A-095.dwg D-100-A-095 DRAINAGE PLAN @ UNLOADING CANOPY

PHILLIPS 66 SANTA MARIA REFINERY RAIL PROJECT  
 DRAINAGE PLAN @ UNLOADING CANOPY

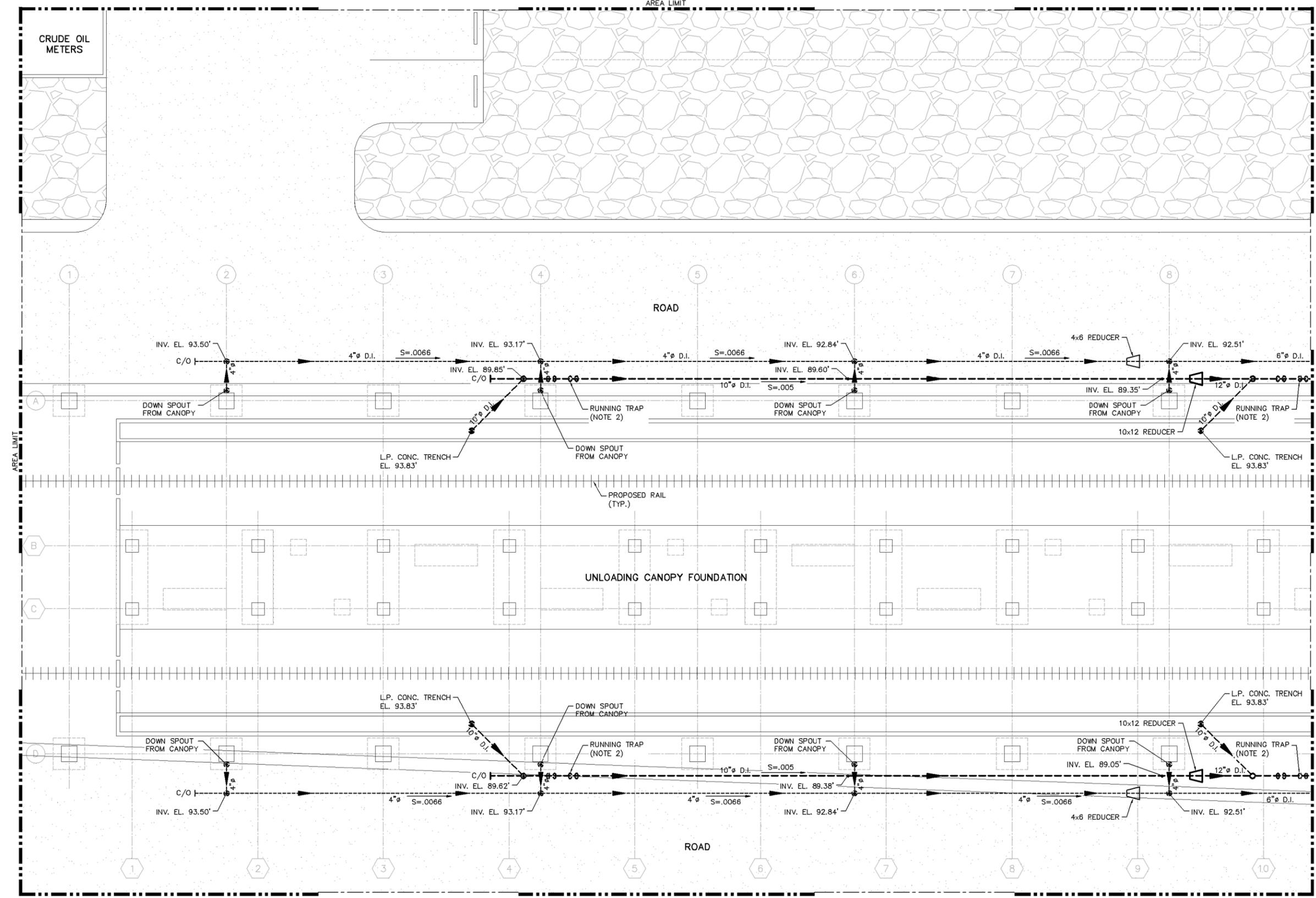
**PHILLIPS 66 CO.**  
 Santa Maria Facility

DRAWING NO. **D-100-A-095**  
 SHEETS

CRUDE OIL METERS



**KEY PLAN**  
SCALE: N.T.S.



**ALL DRAIN PIPES SHALL BE DUCTILE IRON**

- LEGEND:**
- > = DRAIN PIPE (FROM CONCRETE TRENCH TO DRAIN TANKS)
  - > = DRAIN PIPE (FROM CANOPY DOWN SPOUT TO BASIN)
  - INV. EL. = INVERT ELEVATION
  - L.P. = LOW POINT
  - C/O = CLEAN OUT
  - D.I. = DUCTILE IRON

- NOTES:**
1. FOR "CIVIL GENERAL NOTES" SEE DRAWINGS D-100-Z-004 THRU D-100-Z-008.
  2. FOR RUNNING TRAP DETAILS SEE DRAWING D-100-A-070.

**PROGRESS PRINT**  
**SEPTEMBER 11, 2013**



**ENLARGED DRAINAGE PLAN (1)**  
SCALE: 1/8"=1'-0"  
FOR LOCATION SEE DWG. D-100-A-095

NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION
A	9/11/13	(OPEN REVISION)					A. F. E. DATE SIGNED



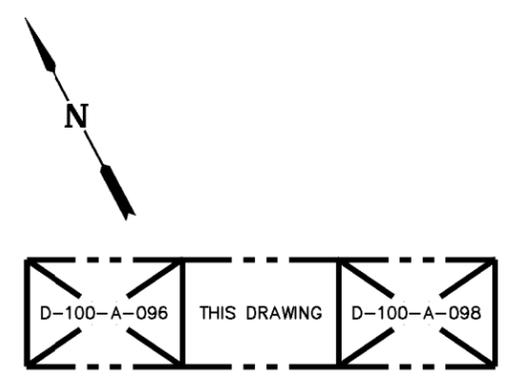
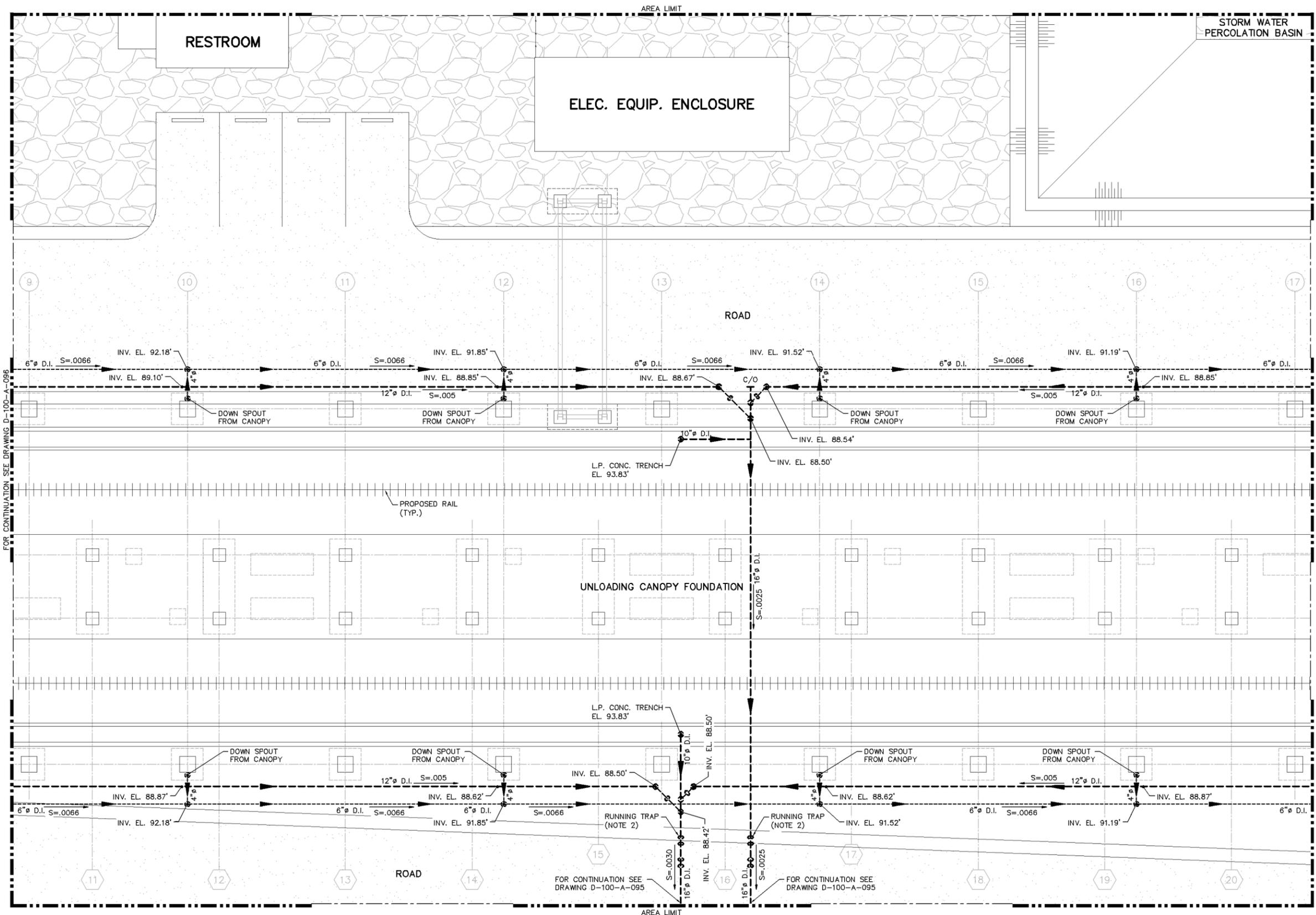
DRAWN BY: ---
CHECKED BY: ---
TRAC'G. BY: ---
TRAC'G. CWD: ---
APP'D.: ---
APP'D.: ---
SCALE: AS NOTED
DATE: 9/11/2013

PHILLIPS 66 SANTA MARIA REFINERY  
RAIL PROJECT  
ENLARGED DRAINAGE PLAN (1)

**PHILLIPS 66 CO.**  
Santa Maria Facility

DRAWING NO. **D-100-A-096**

SHEETS: ---



**KEY PLAN**  
SCALE: N.T.S.

**ALL DRAIN PIPES SHALL BE DUCTILE IRON**

- LEGEND:**
- = DRAIN PIPE (FROM CONCRETE TRENCH TO DRAIN TANKS)
  - = DRAIN PIPE (FROM CANOPY DOWN SPOUT TO BASIN)
  - INV. EL. = INVERT ELEVATION
  - L.P. = LOW POINT
  - C/O = CLEAN OUT
  - D.I. = DUCTILE IRON

- NOTES:**
1. FOR "CIVIL GENERAL NOTES" SEE DRAWINGS D-100-Z-004 THRU D-100-Z-008.
  2. FOR RUNNING TRAP DETAILS SEE DRAWING D-100-A-070.

**PROGRESS PRINT**  
**SEPTEMBER 11, 2013**



**ENLARGED DRAINAGE PLAN (2)**  
SCALE: 1/8"=1'-0"  
FOR LOCATION SEE DWG. D-100-A-095

NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION	DRAWN BY	CHECKED BY	TRACED BY	TRAC'G. GND.	APP'D.	APP'D.	SCALE AS NOTED	DATE
A	9/11/13	(OPEN REVISION)					A. F. E.							AS NOTED	9/11/2013

NUMBER	SH.	REFERENCE DRAWINGS

PHILLIPS 66 SANTA MARIA REFINERY  
RAIL PROJECT  
ENLARGED DRAINAGE PLAN (2)

**PHILLIPS 66 CO.**  
Santa Maria Facility

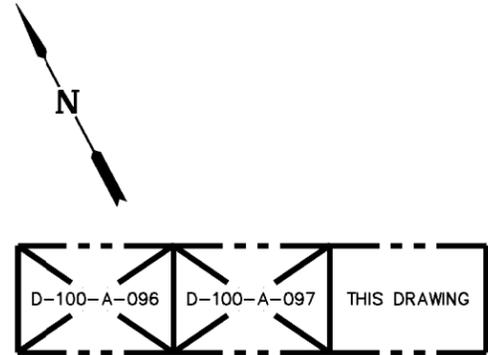
D-100-A-097

DRAWING NO.  
SHEETS

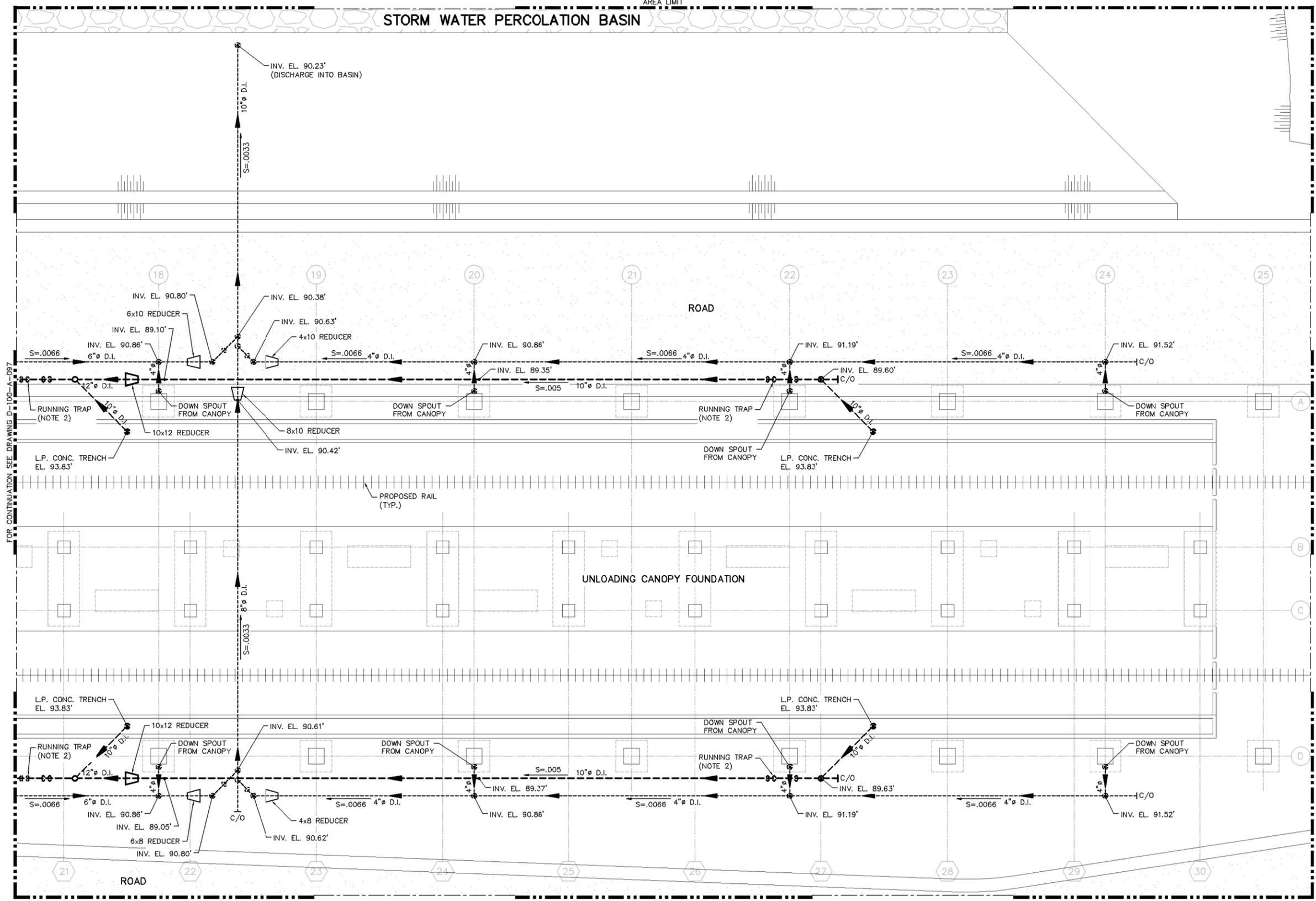
**SPEC SERVICES**  
SPEC Services, Inc.  
17101 Bushard Street  
Fountain Valley, CA 92708  
(714) 963-8077  
5637 D-100-A-095 Rev. 088.dwg D-100-A-095 ENLARGED DRAINAGE PLAN (2)

STORM WATER PERCOLATION BASIN

AREA LIMIT



KEY PLAN  
SCALE: N.T.S.



**ALL DRAIN PIPES SHALL BE DUCTILE IRON**

- LEGEND:**
- > = DRAIN PIPE (FROM CONCRETE TRENCH TO DRAIN TANKS)
  - -> = DRAIN PIPE (FROM CANOPY DOWN SPOUT TO BASIN)
  - INV. EL. = INVERT ELEVATION
  - L.P. = LOW POINT
  - C/O = CLEAN OUT
  - D.I. = DUCTILE IRON

- NOTES:**
1. FOR "CIVIL GENERAL NOTES" SEE DRAWINGS D-100-Z-004 THRU D-100-Z-008.
  2. FOR RUNNING TRAP DETAILS SEE DRAWING D-100-A-070.

**PROGRESS PRINT**  
SEPTEMBER 11, 2013



**ENLARGED DRAINAGE PLAN (3)**

SCALE: 1/8"=1'-0" FOR LOCATION SEE DWG. D-100-A-095

NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION
A	9/11/13	(OPEN REVISION)					A. F. E. DATE SIGNED

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17101 Bushard Street  
Fountain Valley, CA 92708  
(714) 963-8077  
5637 D-100-A-095 Inv. 088.dwg (D-100-A-095 ENLARGED DRAINAGE PLAN (3))

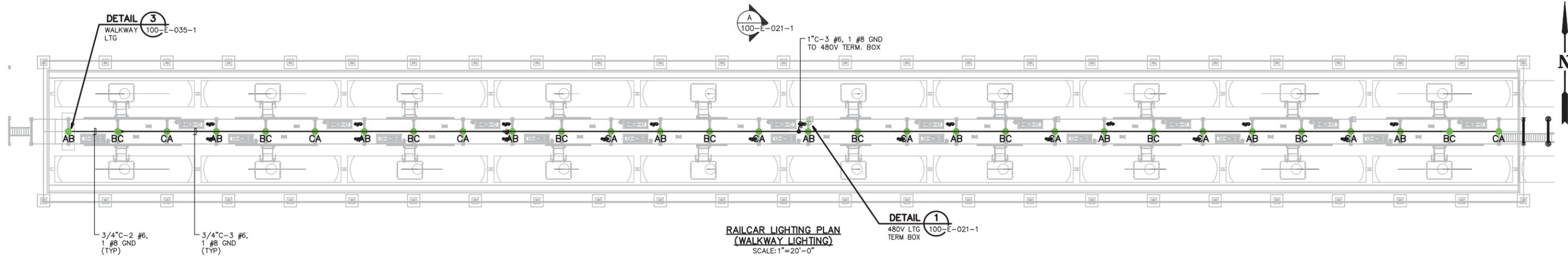
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CHECKED BY: —
TRACED BY: —
TRAC'G. GND.: —
APP'D.: —
APP'D.: —
SCALE: AS NOTED
DATE: 9/11/2013

PHILLIPS 66 SANTA MARIA REFINERY RAIL PROJECT  
ENLARGED DRAINAGE PLAN (3)

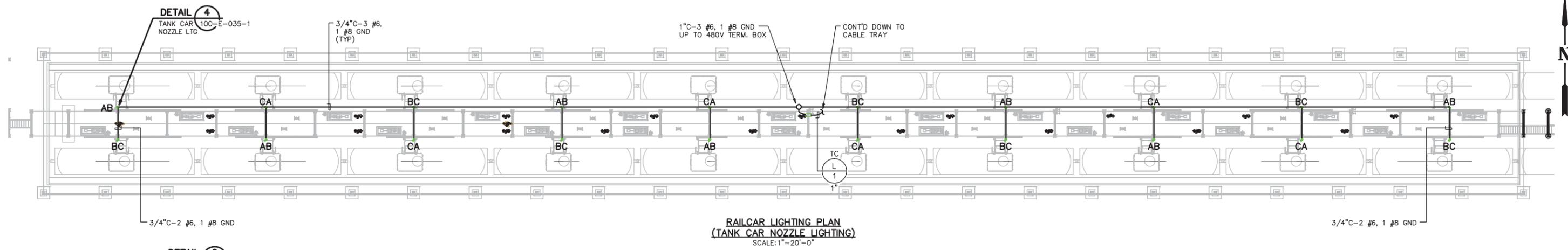
**PHILLIPS 66 CO.**  
Santa Maria Facility

DRAWING NO. **D-100-A-098**

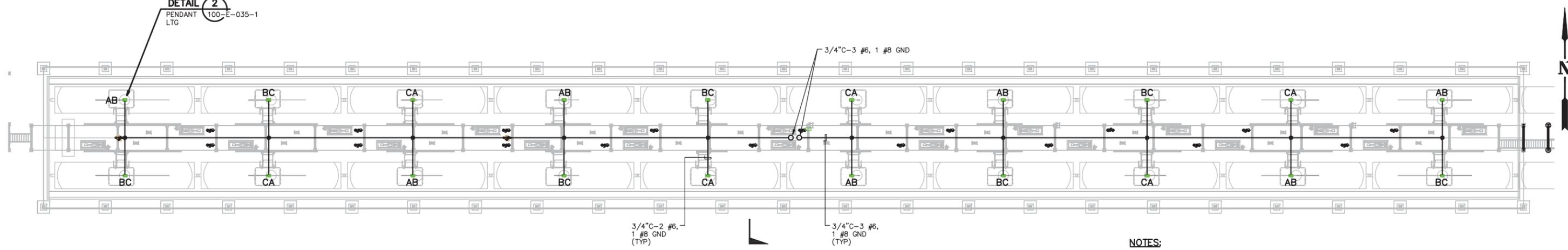
SHEETS —



**RAILCAR LIGHTING PLAN  
(WALKWAY LIGHTING)**  
SCALE: 1"=20'-0"



**RAILCAR LIGHTING PLAN  
(TANK CAR NOZZLE LIGHTING)**  
SCALE: 1"=20'-0"



**RAILCAR LIGHTING PLAN  
(PENDANT LIGHTING)**  
SCALE: 1"=20'-0"

- NOTES:**
1. FOR GENERAL NOTES, SEE DWG. 100-E-002-1.
  2. FOR AREA CLASSIFICATION PLAN, SEE DWG. 100-E-019-1.
  3. FOR CABLE TRAY PLAN, SEE DWG. XXXX
  4. CONTRACTOR SHALL COORDINATE LIGHT FIXTURE & CONDUIT INSTALLATION WITH PIPING, SAFERACK & CANOPY STEEL INSTALLATION.
  5. FOR LIGHTING TERMINAL BOX WIRING DIAGRAM, SEE DWG. 100-E-050-1.

**ISSUED FOR  
XXX  
XXX**



NUMBER	SH.	REFERENCE DRAWINGS

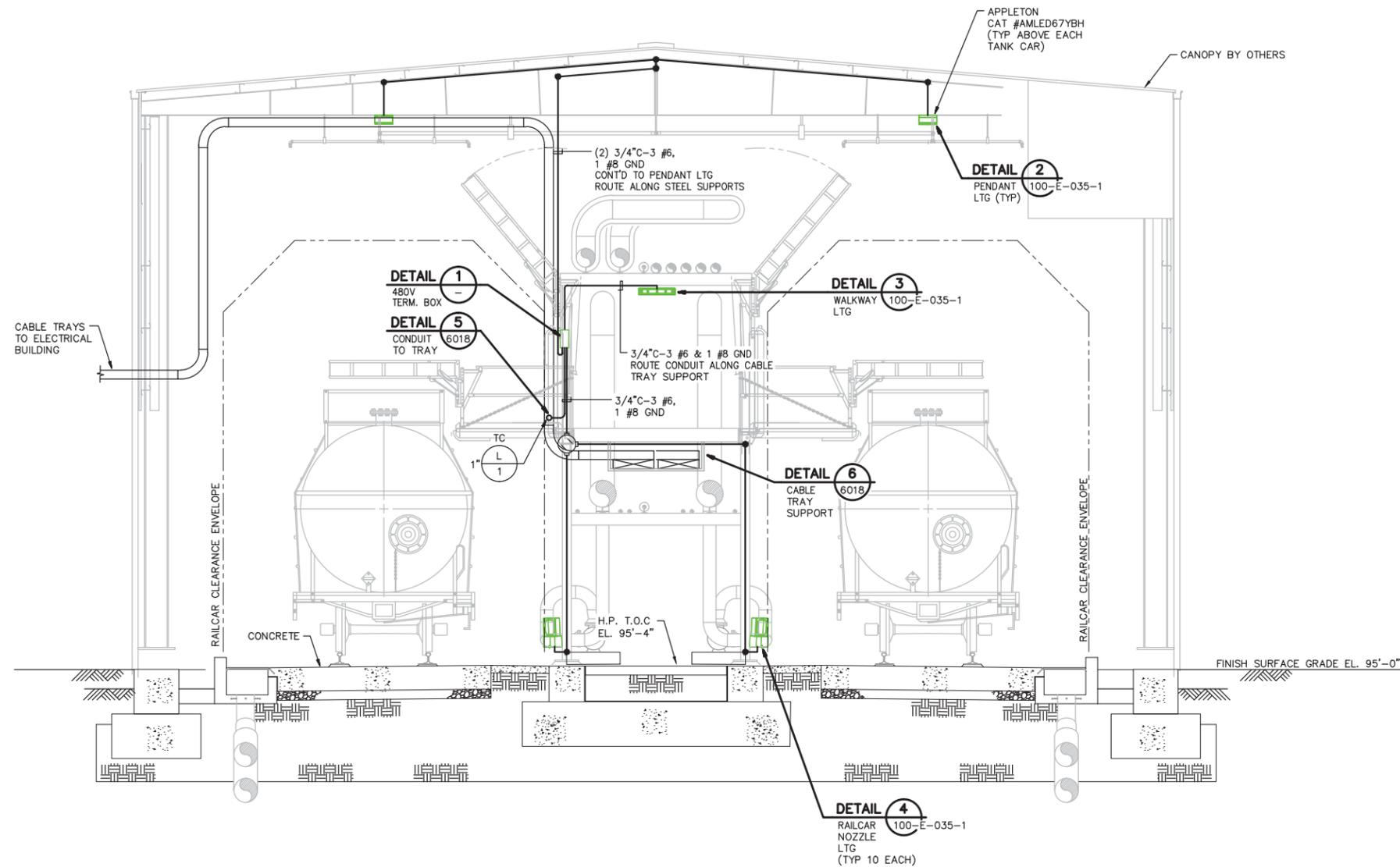
REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D.	APPROVED FOR CONSTRUCTION
A	09/30/13	FEL-3 ISSUED FOR DESIGN		SAB	DAS		A. F. E. DATE SIGNED

NUMBER	SH.	REFERENCE DRAWINGS

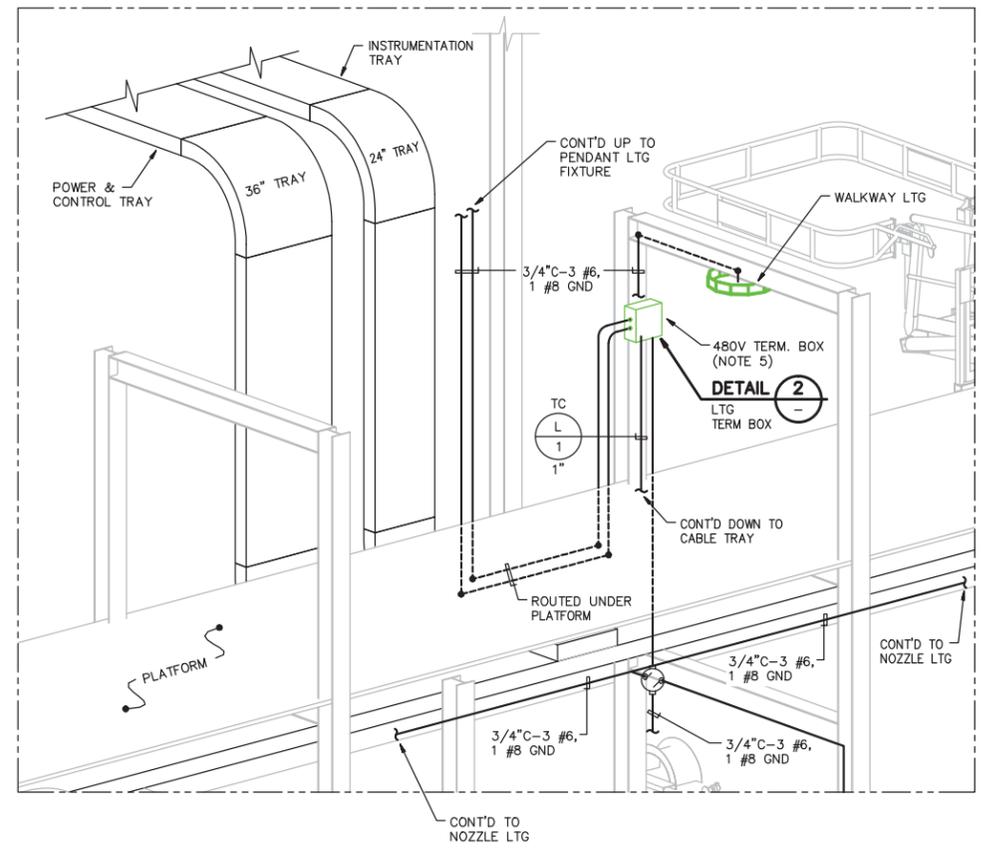
**SPEC SERVICES**  
SPEC Services, Inc.  
17101 Bushard Street  
Fountain Valley, CA 92708  
(714) 963-8077  
5633-D-100-E-020-1 v2\_0.dwg

**PHILLIPS 66 CO.**  
Santa Maria Facility

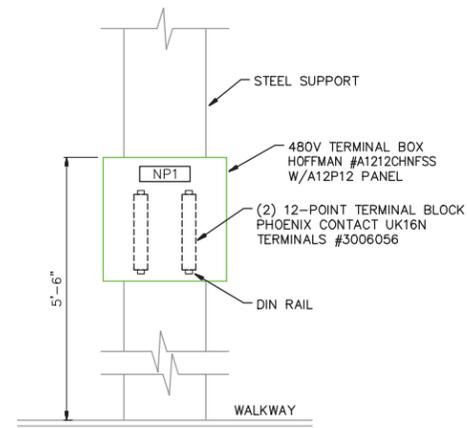
DRAWING NO.  
**100-E-020-1**  
SHEETS -



TRANSVERSE SECTION @ CANOPY CENTERLINE  
(LOOKING EAST)  
SECTION A  
1/4"=1'-0" 100-E-020-1



VIEW OF 480V TERMINAL BOX  
DETAIL 1  
N.T.S.



480V LTG TERMINAL BOX  
DETAIL 2  
N.T.S.

- NOTES:**
- FOR GENERAL NOTES, SEE DWG. 100-E-002-1.
  - FOR AREA CLASSIFICATION PLAN, SEE DWG. 100-E-019-1.
  - FOR CABLE TRAY PLAN, SEE DWG. XXXX
  - CONTRACTOR SHALL COORDINATE LIGHT FIXTURE & CONDUIT INSTALLATION WITH PIPING, SAFERACK & CANOPY STEEL INSTALLATION.
  - FOR LIGHTING TERMINAL BOX WIRING DIAGRAM, SEE DWG. 100-E-050-1.
  - FOR CANOPY LIGHTING PLAN, SEE DWG. 100-E-020-1

**ISSUED FOR  
XXX  
XXX**

1/4"=1'-0" 1' 0" 2' 4' 6' 8' 10"

NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D	APPROVED FOR CONSTRUCTION	DRAWN BY
A	XX/XX/14	ISSUED FOR		SAB	DAS		A. F. E.	SAB

NUMBER	SH.	REFERENCE DRAWINGS

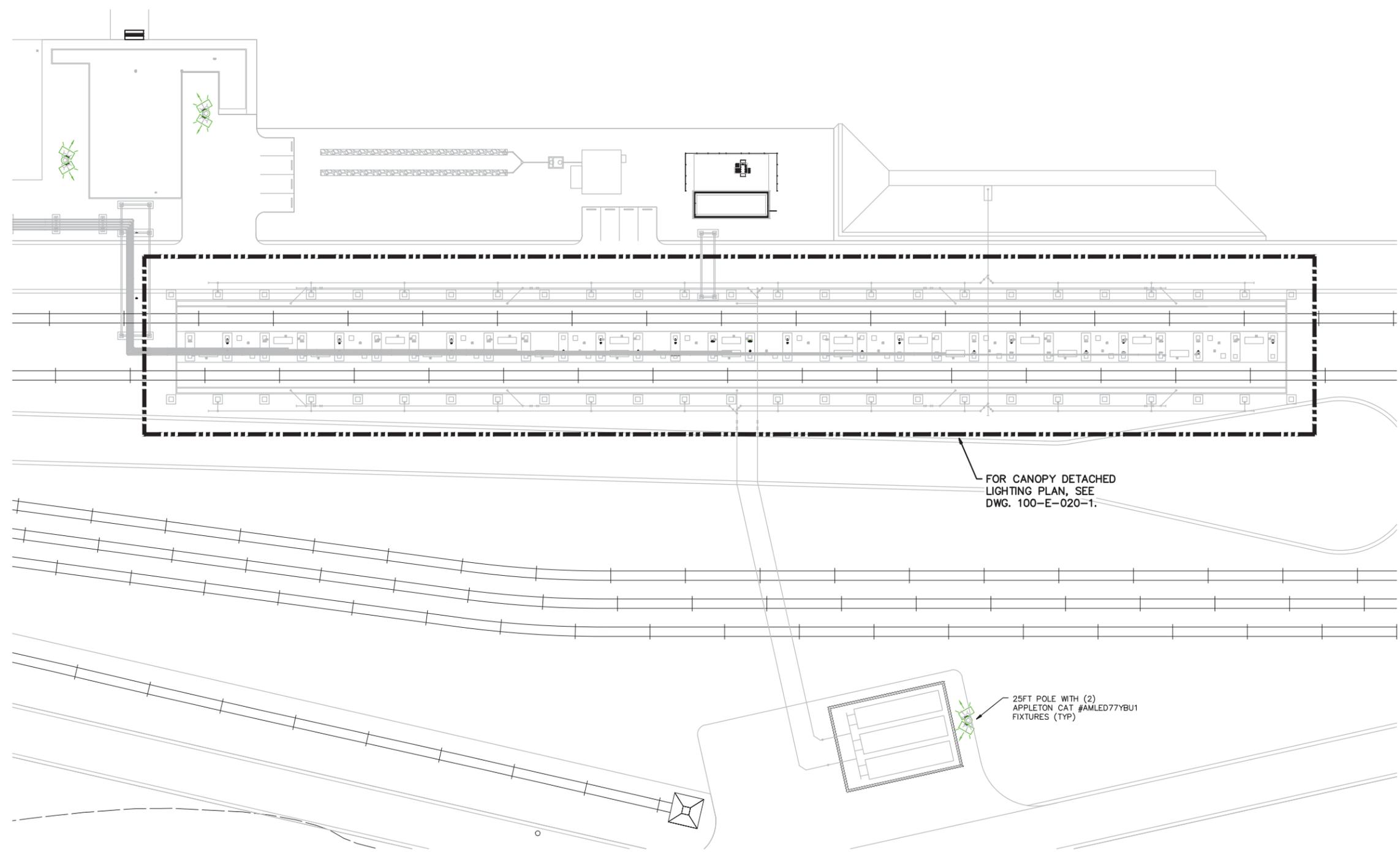
**SPEC SERVICES**  
SPEC Services, Inc.  
17101 Bushard Street  
Fountain Valley, CA 92708  
(714) 963-8077  
5633-D-100-E-021-1 v2\_0.dwg

SANTA MARIA REFINERY  
RAIL PROJECT  
CANOPY LIGHTING SECTION & DETAILS

**PHILLIPS 66 CO.**  
Santa Maria Facility

DRAWING NO. 100-E-021-1  
SHEETS -

DATE 1/15/2015



FOR CANOPY DETACHED LIGHTING PLAN, SEE DWG. 100-E-020-1.

25FT POLE WITH (2) APPLETON CAT #AMLED77YBU1 FIXTURES (TYP)

**NOTES:**  
1. FOR CANOPY LIGHTING PLAN, SEE DWG. 100-E-020-1.

**FEL-3 ISSUED FOR DESIGN**  
**SEPTEMBER 30, 2013**

1" = 30'

NUMBER	SH.	REFERENCE DRAWINGS

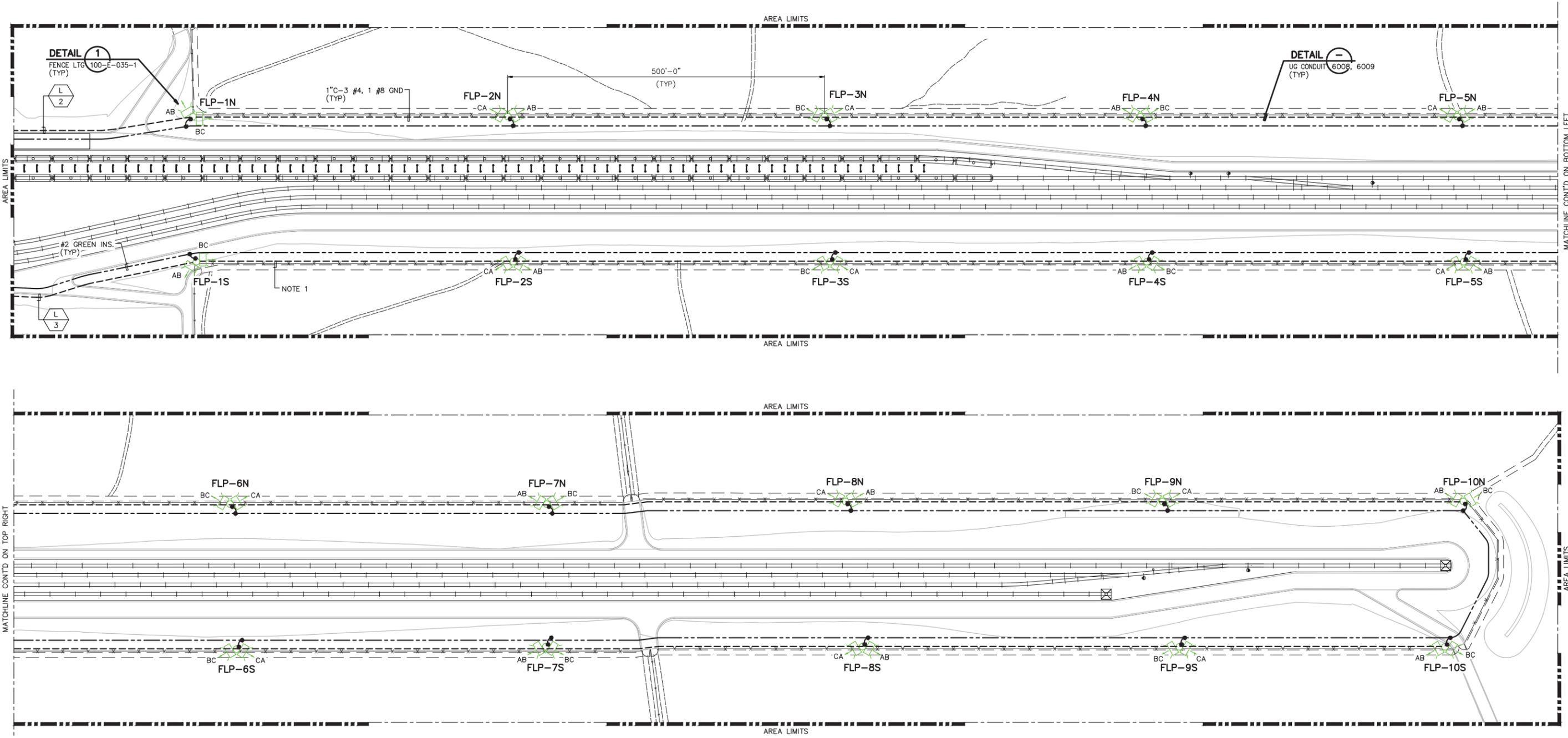
REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D	APPROVED FOR CONSTRUCTION	DRAWN BY
A	09/30/13	FEL-3 ISSUED FOR DESIGN		SAB	DAS		A. F. E.	SAB

A. F. E.	DATE	SIGNED	DRAWN BY
			SAB

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17101 Bushard Street  
Fountain Valley, CA 92708  
(714) 963-8077  
5633-D-100-E-022-1 v2.dwg

**PHILLIPS 66 CO.**  
Santa Maria Facility

DRAWING NO.  
**100-E-022-1**  
SHEETS -



FENCE LIGHTING PLAN  
SCALE: 1"=80'-0"

- NOTES:
- TOTAL LENGTH OF FENCE IS APPROX. 9,240FT.
  - TOTAL POLES 14FT HIGH = 20  
TOTAL FIXTURES = 40
  - CONDUIT SHALL BE MINIMUM 24" BELOW GRADE.

**FEL-3 ISSUED FOR DESIGN**  
**SEPTEMBER 30, 2013**



NUMBER	SH.	REFERENCE DRAWINGS

REV. NO.	DATE	REVISED	DESTROY ALL PRINTS BEARING EARLIER DATE	REV. BY	CHK. BY	APP'D	APPROVED FOR CONSTRUCTION	DRAWN BY
A	09/30/13	FEL-3 ISSUED FOR DESIGN		SAB	DAS		A. F. E. DATE SIGNED	SAB

**SPEC SERVICES**  
SPEC Services, Inc.  
17101 Bushard Street  
Fountain Valley, CA 92708  
(714) 963-8077  
5633-D-100-E-023-1 v2\_0.dwg

SANTA MARIA REFINERY  
RAIL PROJECT  
ELECTRICAL LIGHTING PLAN - FENCE AREA

**PHILLIPS 66 CO.**  
Santa Maria Facility

DRAWING NO. 100-E-023-1  
SHEETS -

DATE 1/15/2015



Phillips 66 Rail Spur Project  
Construction Truck Traffic

Stage	Activity	Units	Total Trips	Number of Days	Average Trips per Day	Peak Day Trips, RT	Peak Day Trips, OW
<b>Demolition</b>	Debris Removal	1000 yds <sup>3</sup>	100	11	9.1	10	20
	Construction Equipment Delivery	6 equipment pieces	12	4	3.0	6	12
	Misc		50	88	0.6	2	4
	<b>Total</b>				<b>12.7</b>	<b>18</b>	<b>36</b>
<b>Turnout Track</b>	Construction Equipment Delivery	7 equipment pieces	14	4	3.5	7	14
	Misc		50	88	0.6	2	4
	<b>Total</b>				<b>4.1</b>	<b>9</b>	<b>18</b>
<b>Grading</b>	Access Rd granite	Length 3,000 feet at 3" deep, 12' wide	33	44	0.8	5	10
	Construction Equipment Delivery	16 equipment pieces	32	4	8.0	16	32
	Utility/Foremans trucks		240	44	5.5	10	20
	Misc	misc	27	88	0.3	2	4
	<b>Total</b>				<b>14.5</b>	<b>33</b>	<b>66</b>
<b>Unloading Facility and Pipeline Construction</b>	Asphalt	1.7 acres at 3"	93	44	2.1	4	8
	CMB	4.6 acres at 3"	186	44	4.2	5	10
	Insulation		14	44	0.3	2	4
	Paint/Steel/Concrete		345	44	7.8	16	32
	Process equipment		64	44	1.5	3	6
	Restroom and septic system	estimated	10	44	0.2	2	4
	Electrical Equipment		21	44	0.5	2	4
	Fence		7	44	0.2	2	4
	Pipeline pipe		32	44	0.7	7	14
	Construction Equipment Delivery	17 equipment pieces	34	4	8.5	10	20
	Misc	Misc	66	88	0.8	2	4
<b>Total</b>				<b>26.8</b>	<b>55</b>	<b>110</b>	
<b>Rail Construction</b>	Tracks	assume 139 pound rail, total rail length of 31,260x2	72	88	0.8	2	4
	RR Ties		60	11	5.5	10	20
	Ballast and sub-ballast		1400	22	63.6	75	150
	Turnouts		7	11	0.6	2	4
	Construction Equipment Delivery	10 equipment pieces	20	4	5.0	10	20
	Misc	Misc	147	22	6.7	10	20
	<b>Total</b>				<b>82.2</b>	<b>109</b>	<b>218</b>
<b>Commissioning</b>	Misc	Misc	88	44	2.0	4	8

Source: Adapted by MRS from Phillips 66 Application to County and Comments by Phillips 66 on Project Description.

**Phillips 66 Rail Spur Project  
Construction Worker Trips (Autos and Pickup Trucks)**

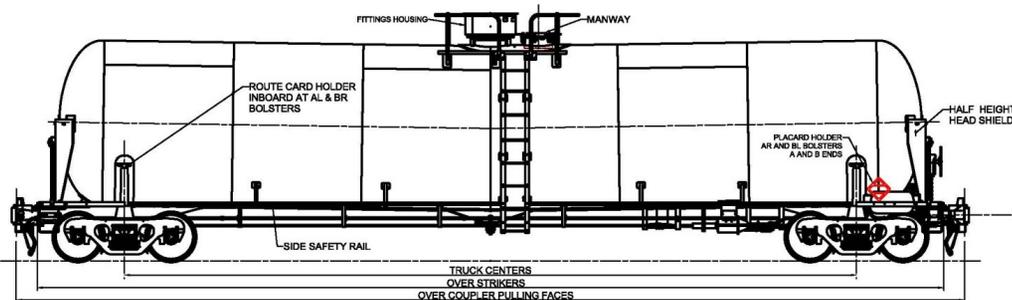
Phase Name	Number of Equipment <sup>1</sup>	Equipment Operators/ Foremen/ Spotters <sup>2</sup>	Additional Workers <sup>3,4</sup>	Total Workers	Total Worker One-Way Trips <sup>5</sup>
Demolition/Removal of Existing Track	6	8	0	8	16
Turnout Track Replacement	7	9	0	9	18
Grading	16	20	0	20	40
Unloading Area and Pipeline Construction	17	21	139	160	320
Construction of Rail	10	12	0	12	24
Commissioning	0	0	20	20	40

Notes:

1. Number of equipment is based on the construction list provided in Table 2.5 of the Project Description.
2. It is assumed that each piece of construction equipment will require one operator. In addition, one spotter/foreman will be used for every four pieces of equipment.
3. 160 workers daily would be used to assist in the construction of the pipeline and unloading area for a period of 4 months.
4. Construction of the rail would require 12 workers while for commissioning/ turnover, an additional 20 workers would be used to finish construction of the site.
5. Worker trips reflect one-way trips. During construction, each worker is assumed to drive separately.

Source: Applicant Data on Project Description.

**REPORTING MARKS & QTY:** 500-1000 cars

**REVISION :** 1 / 1-14-2014 / SEW/AB Rev spec update

**COATINGS**

<b>Surface Prep., Exterior</b>	SSPC-SP6	<b>Paint, Exterior</b>	Black DTM Epoxy (Strathmore)
<b>Surface Prep., Interior</b>	Sweep Clean, Vacuum	<b>Lining, Interior</b>	None
<b>Standard Stencils</b>	AAR / DOT Vinyl Decals & Yellow Reflectors	<b>Customer Stencils</b>	International Chemtrec Decals

**WALKWAYS AND PLATFORMS**

<b>Top Platform</b>	Divided CS Plank, 9 1/2" x 8' w/ Side Ladders, Grounding studs & Anti-Skid between Boards	<b>End Platforms</b>	Full Width x 11 1/2" Plank, CS
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**TOP FITTINGS**

<b>Manway Nozzle</b>	20" Inside Diameter CS Insert Nozzle  w / reinforcing pad	<b>Fittings Nozzle</b>	20" Inside Diameter CS Insert Nozzle w/ CS Bolted Cover Plate  w / reinforcing pad
<b>Manway Cover</b>	6 Bolt Hinged Steel Casting (TRN-1)	<b>Protective Housing</b>	3/4" Wall Housing w/ Flat Lid, reinforcing bars & SRV "Flapper" w/ lift assist spring (opens on long. CL)
<b>Vacuum Relief</b>	Valve, 3 7/8" B.C., 3/4#, flanged, Midland A220-W-NS	<b>Discharge Conn.</b>	Ball Valve, 6" B.C., 3" Flanged Full Port, CS Body, SS Trim, (J'Bury 9150) OPW 3" X 4" quick connect adapter & dust cap
<b>Safety Relief</b>	Valve, 10 1/4" B.C., 75# Kelso JS75XH 516-07-C Hi-Flo w/ welded baffle Mounted On the Fittings Cover Plate	<b>Discharge Pipe</b>	3" Sch 40 CS Pipe welded to the underside of the Coverplate w/ CS guide & pads
<b>Outage Scale</b>	SS Visual Bar	<b>Air Vapor Conn.</b>	Ball Valve, 4 3/4" B.C., 2" Flanged Full Port, CS Body, SS Trim, (J'Bury 9150) Civacon 2" quick connect adapter & dust cap
<b>Gage Device</b>	CS Blind for future provision		
<b>Sample Line</b>	3/4" SS MGM sample line ass'y w/ needle valve		
<b>Thermowell</b>	3/4" SS MGM thermometer well ass'y		

**GENERAL**

<b>Year Built</b>	TBA	<b>Wheels</b>	Class "C" 1W 36", w/ AAR 1B Tread Profile, Griffin
<b>Car Serial Number - Low</b>	TBA	<b>Axles</b>	AAR M-101 Grade "F", 6-1/2" x 9", Std Forge
<b>Car Serial Number - High</b>	TBA	<b>Roller Bearings</b>	AAR NFL, Class "K", 6-1/2" x 9", Brenco
<b>Ref Drawing Number</b>	Z-042-2587	<b>Adapters</b>	6-1/2" x 9", Adapter Plus, Green, 10606 ASF
<b>Tank Specification</b>	DOT111A100W1	<b>Truck Side Frame:</b>	Gr "B+" Steel to AAR M-203 & M-210, ASF
<b>Stenciled Specification</b>	DOT111A100W1	<b>Truck Bolster:</b>	Gr "B+" Steel to AAR M-202, M-210 & S-305, ASF
<b>Sized For</b>		<b>Center Plate Liners, Vert/ Horiz</b>	Astralloy F-4638 manganese bowl liner

**DIMENSIONS AND WEIGHTS**

<b>Draft Sill Design</b>	Type 24 Stub Sill	<b>Truck Springs</b>	D5, 3-11/16" travel, 286K GRL, SCT
<b>Tank, Tangent to Tangent</b>	48'-9 1/4"	<b>Pedestal Roof Liners</b>	None
<b>Tank, ID</b>	122 1/2"	<b>Truck Side Bearing</b>	Const Contact Long Travel TCC-III-45-LT, Miner
<b>Length over Coupler Pulling Faces</b>	59'-4 1/2"	<b>Brake Beam</b>	AAR No. 24, Miner
<b>Truck Centers</b>	45'-10"	<b>Brake Beam Wr Plt</b>	Resilient wear plates
<b>Tank Slope</b>	0.1762 in/ft	<b>Brake Shoes</b>	AAR 2" Comp. RRFPP
<b>Head Mat'l and Thickness</b>	1/2" TC128 Gr B Normalized	<b>Brake Shoe Keys</b>	Forged
<b>Shell Mat'l and Thickness</b>	1/2" TC128 Gr B Normalized	<b>Roller Bearing Retainer Keys</b>	None

**AIR BRAKES**

<b>Type of Brakes</b>	Body Mounted, Conventional Valve
<b>Brake Cylinder Size</b>	10" x 12"
<b>Braking Ratio-Loaded</b>	Min 11%, Max 14%
<b>Braking Ratio-Empty</b>	Min 15%, Max 32%
<b>Braking Ratio-Handbrake</b>	Min 10%
<b>Empty/Load Device</b>	Side Frame Actuated
<b>Slack Adjuster</b>	AAR automatic, double acting, EL
<b>Handbrake</b>	Grp "N", Long Release Handle, Bell Crank, EL
<b>Hose Support</b>	Cable Strap, 20406 IRECO

**DRAFT SYSTEM**

<b>Couplers</b>	AAR SE60EE, M&T
<b>Yokes</b>	AAR SY40AE, M&T
<b>Coupler Carrier Wear Plate</b>	AAR Resilient
<b>Draft Gear</b>	AAR M901E, Miner TF-880

**NOTES**

- Petroleum Crude Oil / Flammable Liquid / 173.242 / PG II / Cars to meet C III, Chapter 2, 2.5 & 2.7 requirements.
1. Tank head and shell test coupons must simulate the in service condition of the material.
  2. See Page 2 for customer requested alternates.
  3. Gauge tables are available online and can be printed in the requested format before the car ships.
  4. Fill thermowell with 50/50 water ant-freeze mixture
  5. Use Bostick Never Siese, no teflon tape at plugs.
  6. Thermowell, sample line & future gauge device to be supported inside w/ pipe sleeves & not welded.
  7. Double draft gear carriers.
  8. Add Rector Seal #7 to sample valve nipple.
  9. Handholds to have 2 3/4" clearance except at side ladders to be 2".
  10. Exterior blast profile to be 1.7 - 2.2.

**BOTTOM FITTINGS**

<b>Outlet Valve</b>	10 5/8" B.C. Mount, 4" External Ball, CS Body, SS Trim w/Intermediate handle, Jamesbury 9RET3-22HBXTFO	<b>Outlet Fittings</b>	9" B.C. w/4" CS Noz, CS Cap & 2" CS Plug
<b>AUX Valve</b>	None	<b>Outlet Saddle</b>	10 5/8" B.C., Trinity CS Combination Saddle-Sump
		<b>Sump</b>	Integral With Saddle

**GASKETS/O-RINGS**

<b>Manway Cover</b>	Viton A	<b>Safety Relief/O'Ring</b>	Durlon 9000 / Viton A
<b>Fittings Nozzle</b>	Durlon 9000	<b>Outlet Valve</b>	Durlon 9000
<b>Air / Discharge</b>	Durlon 9000 / Durlon 9000	<b>Outlet Nozzle / Cap</b>	Durlon 9000 / Viton A
<b>Vacuum Relief</b>	Durlon 9000 / Viton A	<b>T.well/Sample/Gage</b>	Buna-N / Viton A / Durlon 9000

**COILS**

<b>Size, Type, Qty</b>	None	<b>Inlets / Outlets</b>	None
		<b>Approx Heating Area</b>	None

**INSULATION / JACKET**

<b>Insulation Type</b>	None	<b>Jacket Head / Shell</b>	Cars have half height bolt on trapezoidal head shields
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Gasket selection is for estimating only. It is the shipper's responsibility to properly package their product. TrinityRail's railcar designs meet the requirements of Para. 2.1.2.2 of Sect. C Part II, MSRP, Weight and Axle Spacing Criteria, however individual railroads may have additional gross rail load limitations for specific routes. The car owner or lessee should resolve these issues with the handling railroad(s) prior to finalizing the specification.



31,808 Gallons  
Capacity Tank Car

Phillips 66 Company  
RFQ 19729

current T12084 r7 dated 1-22-2013

REPORTING MARKS & QTY: 500-1000 cars

REVISION : 1 / 1-14-2014 / SEW/AB Rev spec update

NOTES

Alternates requested:

1. Prepare for interior lining and line w/ International 2900LV or Sherwin Williams Nova Plate UHS or Carboline 4550.
2. Change the CS insert nozzle at the manway cover to a 316L SS equivalent.
3. Change the vacuum relief valve to a stainless steel valve with a 5# setting, either Midland or Fort Vale.
4. Change the safety relief valve to stainless steel.
5. Change the 3" top valve from CS/SS to all SS, change the eduction pipe, guide & pads to SS.
6. Change the 2" top valve from CS/SS to all SS.
7. Change the bottom outlet valve to SS. Leave outlet fittings as CS. Change the bottom outlet saddle to SS.
8. Lining alternates
  - Enviroline 2900 LV
  - Sherwin Williams Nova Plate UHS
  - Carboline 4550
  - Freight add for cars lined outside Saginaw, Tx.
9. Apply defect card holder.
10. Apply C-W MK 50 draft gear.
11. Apply Stucki CCB-4500-XT side bearing.
12. Apply SS vertical and drop-in manganese truck bowl liner.
13. Apply metallic brake beam wear liner.

**Phillips 66 Rail Spur Project**  
**Times for Train Movements at the Refinery**

Train Data	#	feet	Total (feet)
Rail Cars	80	60	4,800
Buffer Cars	2	60	120
Locomotives	3	90	270
Total Length (80 cars, 2 buffer cars, 3 locomotives)			5,190
Total Length (70 cars, 2 buffer cars, 3 locomotives)			4,590
Total Length (70 cars, 2 buffer cars, 2 locomotives)			4,500

Source: Track Layout Drawings #4132-1 through 4132-4, 8/19/13

Track Segment Distances	Track #764	Track 1	Track 2	Track 3	Track 4	Track 5
Fence	375	-	-	-	-	-
Track 2/764 West Combination	1,042	-	0	-	-	-
Track 1/2 West Combination	-	0	335	-	-	-
West End of Unloading Rack	-	550	882	512	347	655
East End of Unloading Rack	-	1,150	1,482	1,125	962	1,273
Track 1/2 East Combination	-	3,249	3,581	-	-	-
Track 2/4 East Combination	-	-	6,100	-	5,580	-
Track 3/5 West Combination	-	-	-	0	-	145
Track 4/3 West Combination	-	-	-	165	0	-
Track 5/764 West Combination	1,272	-	-	-	-	0
End of Track 5	-	-	-	-	-	5,675
End of Track 2	-	-	6,420	-	-	-
End of Track 764	2,206	-	-	-	-	-
Track 5 Clear Point	-	-	-	-	-	319

Source: Track Layout Drawings #4132-1 through 4132-4, 8/19/13

Train Speed 3 mph  
 Uncoupling/Coupling Tank Cars 10 min  
 Uncoupling/Coupling Locomotives 5 min

**Train Positioning at Track 1 and 2 Unloading Racks**

	Track #	Position of East Most Locomotive at End of Movement			East of Loading Rack		Up to East End of Loading Rack		Total		Engine Hours East of Loading Rack	
		Track #	Position of East End of Locomotive	Distance from East End of Rack	Distance (feet)	Time (min)	Distance (feet)	Time (min)	Distance (feet)	Time (min)	Switching	Idling
<b>A. Two Locomotives Head In one in Rear with Two Locomotive Position Cars from the East</b>												
Train pulls east till 80 car is aligned with western most loading arm (3 engines running)	2	2	5,982	4,500	4,500	17.0	2,524	9.6	7,024	26.6	0.57	
Uncouple train at car 40/41 and uncouple rear engine (3 engines idling)	2	2	5,982	4,500	0	10.0	0	0.0	0	10.0		0.33
Pull 40 car train east just past Track 2/1 east combination (2 engines running)	2	2	6,281	4,799	299	1.1	0	0.0	299	1.1	0.04	
Push train west till 40th car is aligned with the western most unloading arm (2 engines running)	1	1	3,250	2,100	2,699	10.2	0	0.0	2,699	10.2	0.34	
Uncouple locomotives at buffer cars (2 engines idling)	1	1	3,250	2,100	0	10.0	0	0.0	0	10.0		0.33
Locomotives go east to Track 1/2 east combination (1 engine running/1 idling)	1	1	3,249	2,099	-1	0.0	0	0.0	-1	0.0	0.00	
Locomotives go east till past Track 2/4 combination (1 engine running/1 idling)	2	2	6,280	4,978	2,699	10.2	0	0.0	2,699	10.2	0.17	
Locomotives go west to Track 4/3 combination (1 engine running/1 idling)	4	3	165	NA	4,798	18.2	962	3.6	5,760	21.8	0.30	
Locomotives go west to Track 3/5 combination (1 engine running/1 idling)	3	5	145	NA	0	0.0	165	0.6	165	0.6		
Locomotives go west to Track 5/764 combination (1 engine running/1 idling)	5	764	1,272	NA	0	0.0	145	0.5	145	0.5		
Locomotives go west past Track 2/764 combination (1 engine running/1 idling)	764	764	1,042	NA	0	0.0	230	0.9	230	0.9		
Uncouple Locomotives (2 engines idling)	764	764	1,042	NA	0	0.0	0	5.0	0	5.0		
Locomotive 1 goes east to west end of loading rack (1 engine running)	2	2	882	NA	0	0.0	882	3.3	882	3.3		
Locomotive 2 goes east to Track 1/2 west combination (1 engine running)	2	2	335	NA	0	0.0	335	1.3	335	1.3		
Locomotive 2 goes east to west end of loading rack (1 engine running)	1	1	550	NA	0	0.0	550	2.1	550	2.1		
Locomotive 3 goes west past 2/764 combination (1 engine running)	2	764	1,042	NA	0	0.0	160	0.6	160	0.6		
Locomotive 3 goes east to end of Track 764 (1 engine running)	764	764	2,206	NA	0	0.0	1,164	4.4	1,164	4.4		

## Locomotive Timing Calculations

### Two Locomotive in the Head and One Locomotive in the Tail

Total Engine-hours	Activity/location	Sequence Step	Switching	Idling	Off	Total
0.28	Arrival-mainline:switching (1 engine)	<b>Train Arrival</b>				
0.57	Arrival-east of rack;switching (2 engine)	<b>Mainline Track</b>				
0.48	Arrival-west of rack:switching (3 engines)	Locomotive 1	0.00	0.00	0.00	0.00
0.85	Positioning -east of rack: switching (2 engines)	Locomotive 2	0.00	0.00	0.00	0.00
1.14	Positioning-east of rack: idle (2 engines)	Locomotive 3	0.28	0.00	0.00	0.28
0.21	Positioning-west of rack:switching (2 engines)	<b>East of Rack</b>				
0.26	Positioning-west of rack: idle (2 engines)	Locomotive 1	0.28	0.00	0.00	0.28
1.17	Unloading-rack 1: switch (all west of rack)	Locomotive 2	0.28	0.00	0.00	0.28
6.83	Unloading-rack 1: idle (all west of rack)	Locomotive 3	0.00	0.00	0.00	0.00
0.00	Unloading-rack 1:off (all west of rack)	<b>West of Rack</b>				
1.17	Unloading-rack 2: switch (all west of rack)	Locomotive 1	0.16	0.00	0.00	0.16
6.83	Unloading-rack 2: idle (all west of rack)	Locomotive 2	0.16	0.00	0.00	0.16
0.00	Unloading-rack 2:off (all west of rack)	Locomotive 3	0.16	0.00	0.00	0.16
0.00	3rd engine-switching east of rack					
0.08	3rd engine-switching west of rack	<b>Position Train on Track 1 and 2</b>				
1.08	3rd engine-idle west of rack	<b>East of Rack</b>				
9.73	3rd engine-off west of rack	Locomotive 1	0.66	0.33	0.00	1.00
2.77	Pre-Departure-idling (all west of rack)(2 engines)	Locomotive 2	0.19	0.81	0.00	1.00
0.00	Pre-Departure-off (all west of rack)(2 engines)	<b>West of Rack</b>				
0.57	Departure-mainline:switching (2 engines)	Locomotive 1	0.15	0.08	0.00	0.23
0.00	Departure-switching east of rack (1 engine)	Locomotive 2	0.06	0.18	0.00	0.23
0.48	Departure-switching west of rack (3 engines)					
		<b>Unloading</b>				
		<b>East of Rack</b>				
0.15	% Switching offsite	Locomotive 1	0.00	0.00	0.00	0.00
		Locomotive 2	0.00	0.00	0.00	0.00
		<b>West of Rack</b>				
		Locomotive 1	1.17	6.83	0.00	8.00
		Locomotive 2	1.17	6.83	0.00	8.00
0.85	Total Offsite Switching					
5.00	Total Onsite Switching					
18.92	Total idling	<b>Third Locomotive</b>				
9.73	Total off	<b>East of Rack</b>				
34.50	Total	Locomotive 3	0.00	0.00	0.00	0.00
		<b>West of Rack</b>				
0.28	Fraction of onsite switching east of rack	Locomotive 3	0.08	1.08	9.73	10.90
0.06	Fraction of idling east of rack					
		<b>Idle Time Prior to Departure</b>				
		<b>East of Rack</b>				
0.243	Fraction of all switching east of rack	Locomotive 1	0.00	0.00	0.00	0.00
0.06	Fraction of idling east of rack	Locomotive 2	0.00	0.00	0.00	0.00
		<b>West of Rack</b>				
2.58	Engine 1 & 2 switching, per engine	Locomotive 1	0.00	1.38	0.00	1.38
8.92	Engine 1 & 2 idling, per engine	Locomotive 1	0.00	1.38	0.00	1.38
0.69	Engine 3 switching	Locomotive 2	0.00	1.38	0.00	1.38
1.08	Engine 3 idling					
		<b>Train Departure</b>				
		<b>Mainline Track</b>				
		Locomotive 1	0.28	0.00	0.00	0.28
		Locomotive 2	0.28	0.00	0.00	0.28
		Locomotive 3	0.00	0.00	0.00	0.00
		<b>East of Rack</b>				
		Locomotive 1	0.00	0.00	0.00	0.00
		Locomotive 2	0.00	0.00	0.00	0.00
		Locomotive 3	0.00	0.00	0.00	0.00
		<b>West of Rack</b>				
		Locomotive 1	0.16	0.00	0.00	0.16
		Locomotive 2	0.16	0.00	0.00	0.16
		Locomotive 3	0.16	0.00	0.00	0.16
			<b>LM #1</b>	<b>LM #2</b>	<b>LM#3</b>	
		Train Arrival	0.44	0.44	0.44	
		Position Train on Track 1 and 2	1.23	1.23	0.08	
		Third Locomotive	0.00	0.00	10.81	
		Unloading	8.00	8.00	0.00	
		Idle Time Prior to Departure	1.38	1.38	0.00	
		Train Departure	0.44	0.44	0.16	
		Total	11.50	11.50	11.50	

Assumes third locomotive when at end of track 5 idles for 10% of time and is off 90% of time.