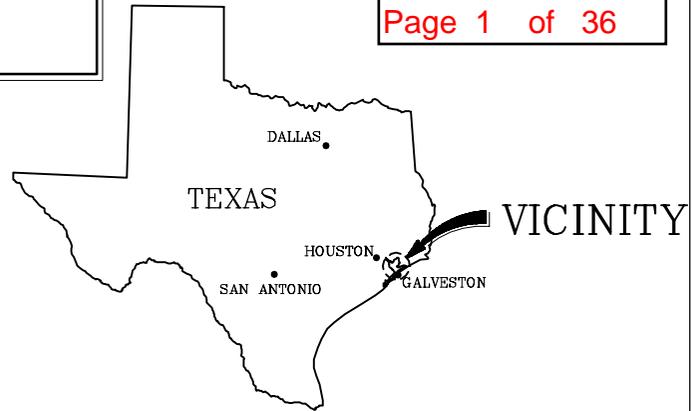


PLEASURE ISLAND DOCK PI DOCK FACILITY PORT ARTHUR, TX

SWG-2011-01123
TGS Development
April 24, 2012

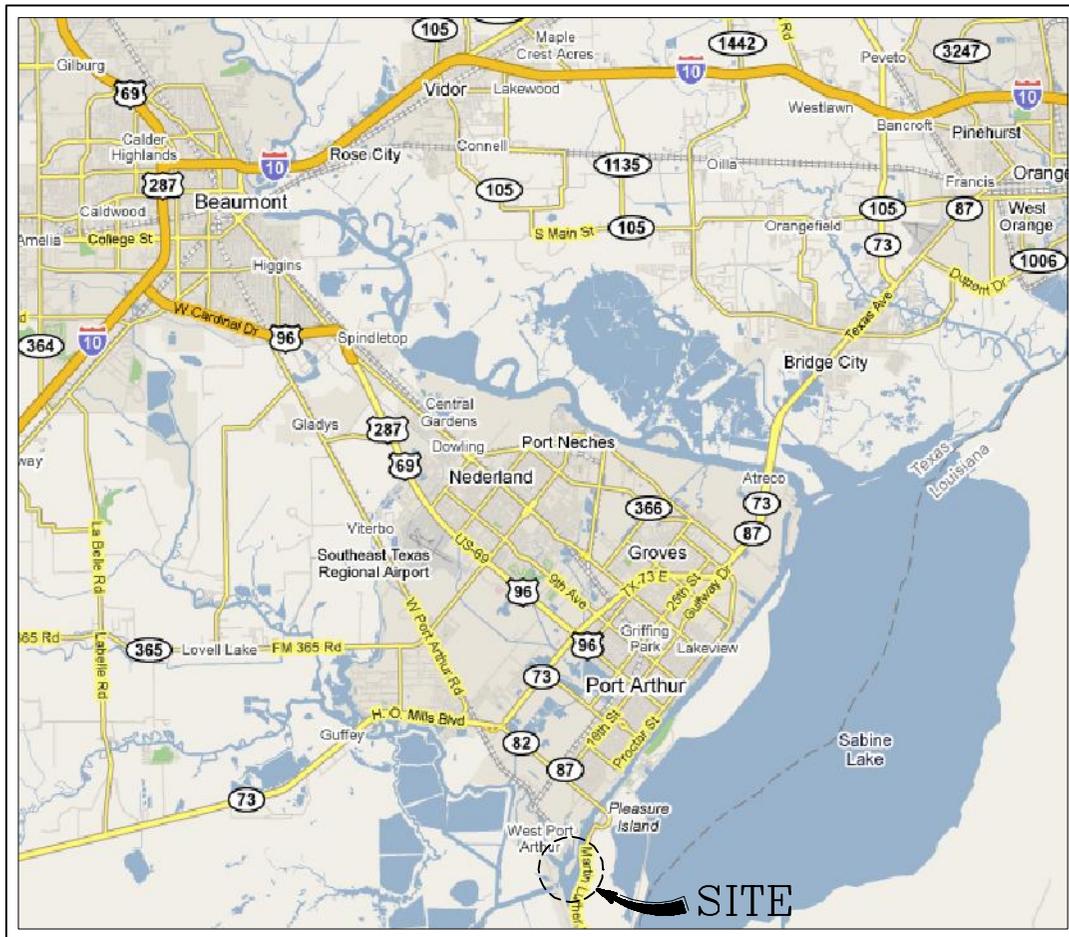
Page 1 of 36



SITE PLAN LOCATION:

N29°49'21.0"
W93°57'20.0"

AREA MAP



VICINITY MAP
GRAPHIC SCALE IN MILES



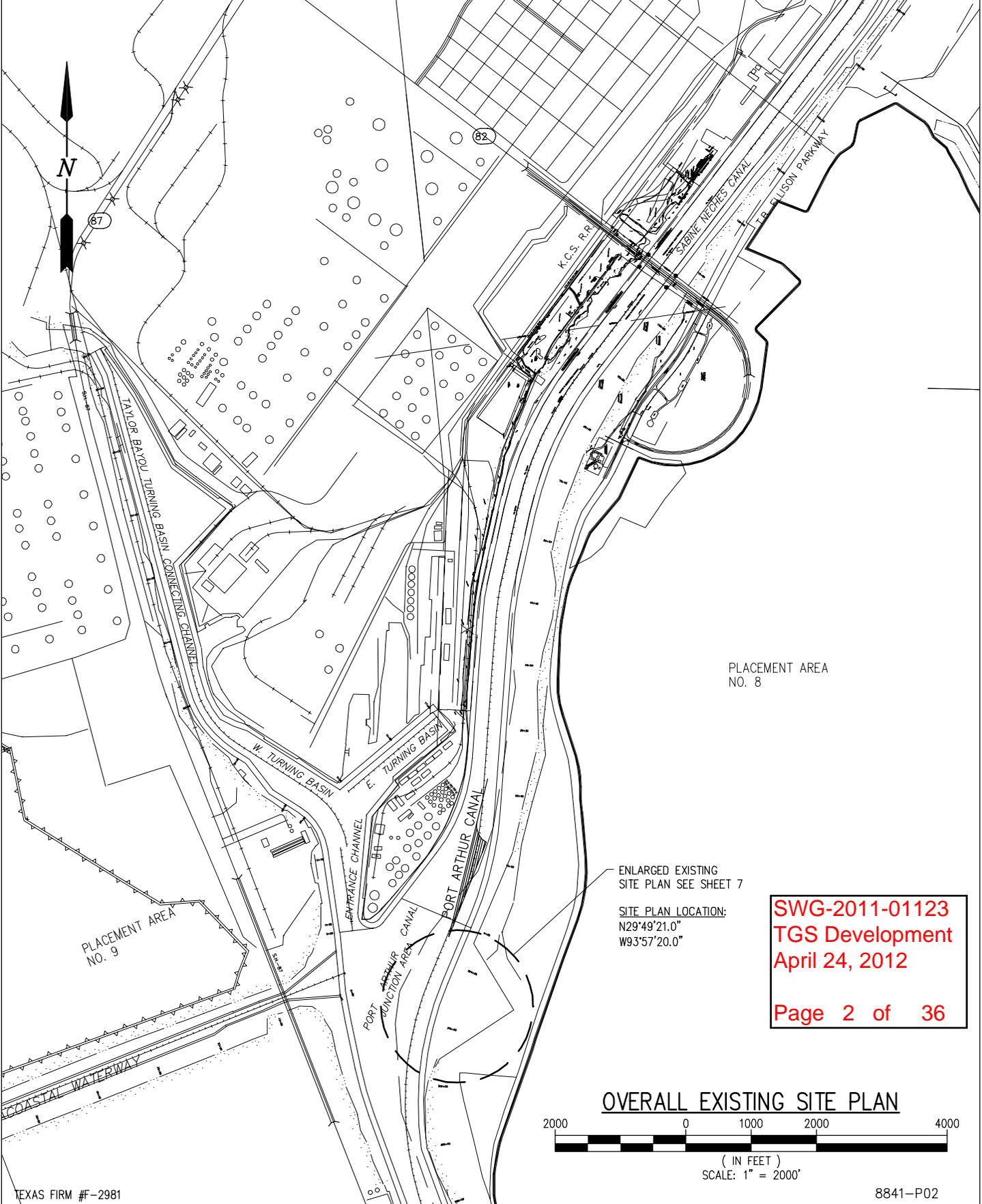
TEXAS FIRM #F-2981

8841-P01

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NEW ORLEANS, LA · BEAUMONT, TX

TGS DEVELOPMENT, LP.
PORT ARTHUR TEXAS
**NEW PLEASURE ISLAND DOCK
PI DOCK FACILITY
AREA & VICINITY MAP**

DATE	NOV. '11
DESIGN	RRM
DRAWN	NAH
CHECK	DLC
CONTRACT	8841
SHEET No.	
1	OF 37



PLACEMENT AREA NO. 8

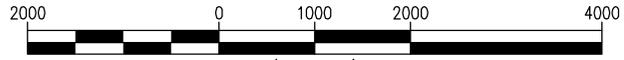
PLACEMENT AREA NO. 9

ENLARGED EXISTING SITE PLAN SEE SHEET 7

SITE PLAN LOCATION:
 N29°49'21.0"
 W93°57'20.0"

SWG-2011-01123
TGS Development
April 24, 2012
Page 2 of 36

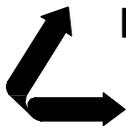
OVERALL EXISTING SITE PLAN



(IN FEET)
 SCALE: 1" = 2000'

TEXAS FIRM #F-2981

8841-P02



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CONSULTING ENGINEERS
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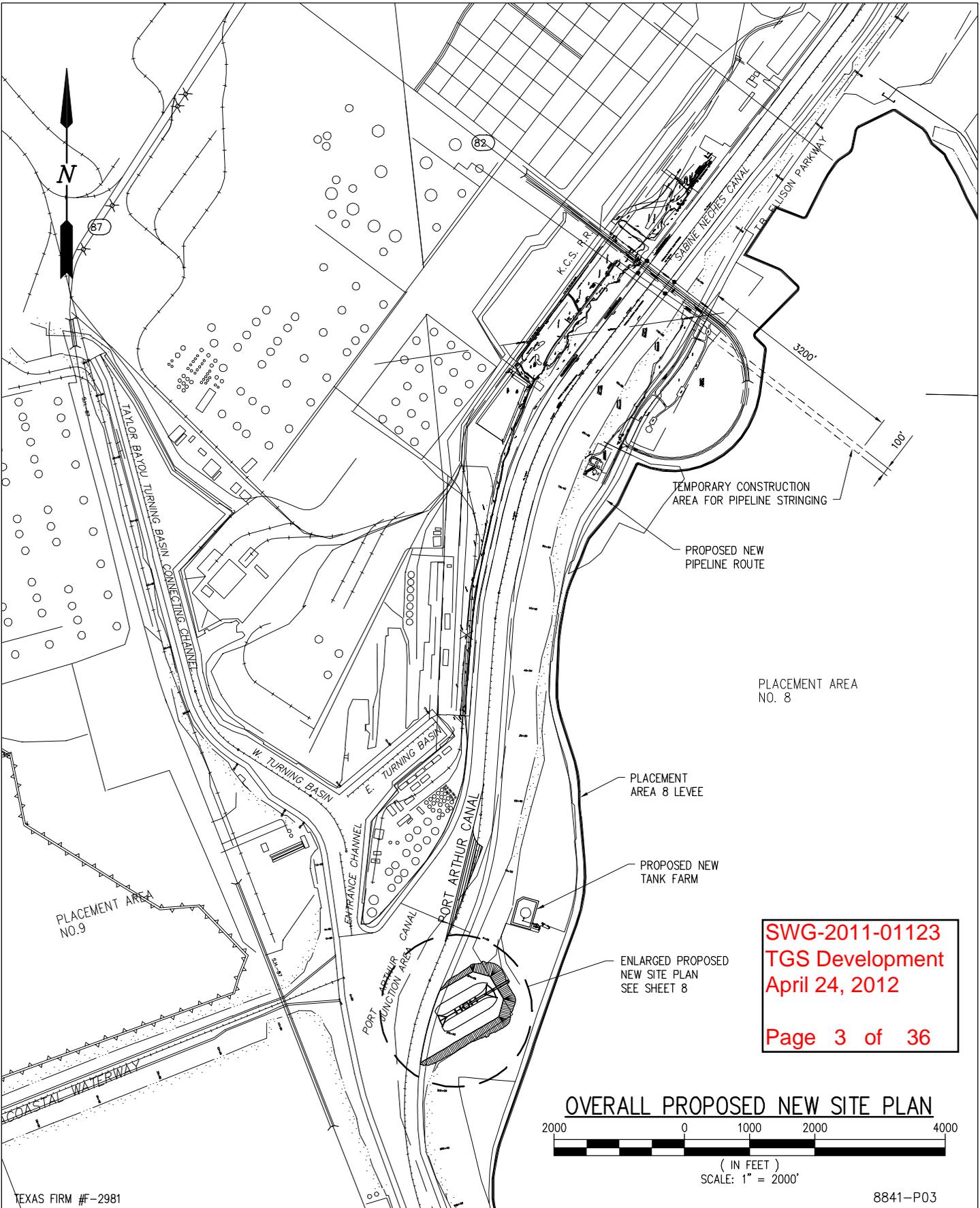
NEW ORLEANS, LA · BEAUMONT, TX

TGS DEVELOPMENT, LP.
 PORT ARTHUR TEXAS

NEW PLEASURE ISLAND DOCK
PI DOCK FACILITY
OVERALL EXISTING SITE PLAN

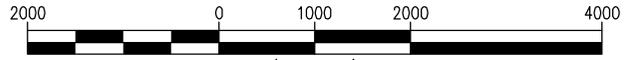
DATE NOV. '11
 DESIGN RRM
 DRAWN NAH
 CHECK DLC
 CONTRACT 8841
 SHEET No.

2 OF **37**



SWG-2011-01123
 TGS Development
 April 24, 2012
 Page 3 of 36

OVERALL PROPOSED NEW SITE PLAN



(IN FEET)
 SCALE: 1" = 2000'

TEXAS FIRM #F-2981

8841-P03

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TGS DEVELOPMENT, LP.
 PORT ARTHUR TEXAS

**NEW PLEASURE ISLAND DOCK
 PI DOCK FACILITY
 OVERALL PROPOSED NEW SITE PLAN**

DATE NOV. '11
DESIGN RRM
DRAWN NAH
CHECK DLC
CONTRACT 8841
SHEET No.

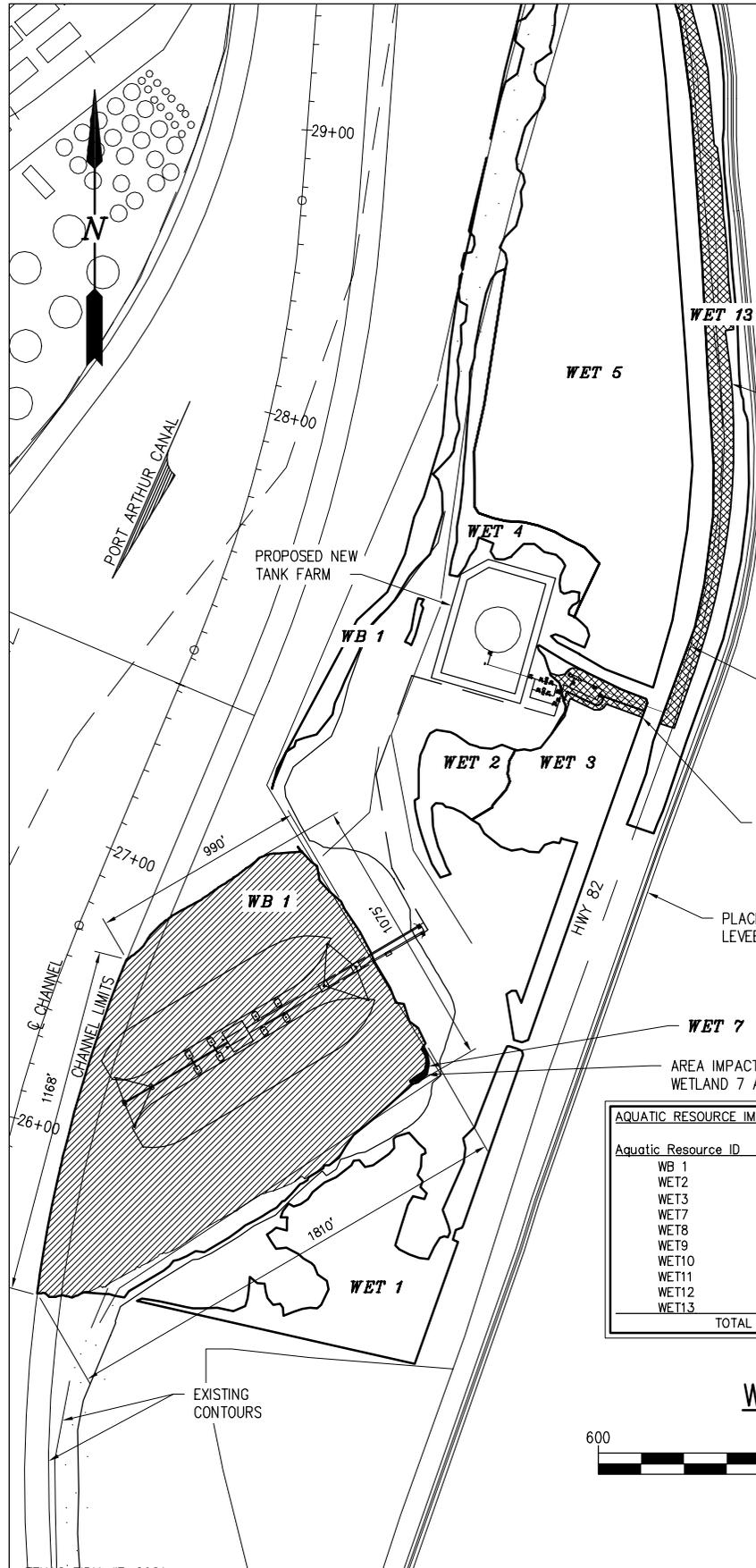
3 OF 37

NOTE:

PLEASE REFERENCE THE AQUATIC RESOURCE DELINEATION REPORT AND COMPENSATORY MITIGATION PLAN ACCOMPANYING THIS PERMIT DOCUMENTATION PACKAGE FOR DESCRIPTIONS, LOCATIONS AND PHOTOGRAPHS OF AQUATIC RESOURCES AND IMPACTS TO SUCH.

LEGEND:

-  DREDGE AREA
-  IMPACTED WETLANDS



AREA IMPACTED IN WETLAND 13 AREA

PROPOSED NEW PIPELINE ROUTE

AREA IMPACTED IN WETLAND 3 AREA

PLACEMENT AREA 8 LEVEE

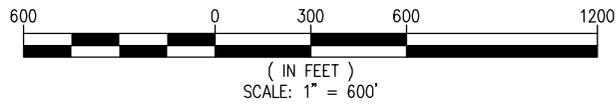
AREA IMPACTED IN WETLAND 7 AREA

SWG-2011-01123
TGS Development
April 24, 2012

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AQUATIC RESOURCE IMPACT SUMMARY TABLE						
Aquatic Resource ID	Type	Dredge	IMPACT TYPE (in acres)			
			Conversion	Temporary	Permanent	
WB 1	EUS/EUB	27.60	-	-	-	
WET2	PEM	-	-	-	-	
WET3	PFO/PSS/PEM	-	0.48	0.16	0.01	
WET7	EEM	-	0.04	-	-	
WET8	PFO	-	0.29	0.49	-	
WET9	PFO	-	0.30	0.53	-	
WET10	PEM	-	-	0.07	-	
WET11	PFO	-	1.83	2.16	-	
WET12	PFO	-	1.04	0.75	-	
WET13	PEM	-	-	4.41	-	
TOTAL		27.60	3.98	8.57	0.01	

WETLAND IMPACT



TEXAS FIRM #F-2981

8841-P04,5,6

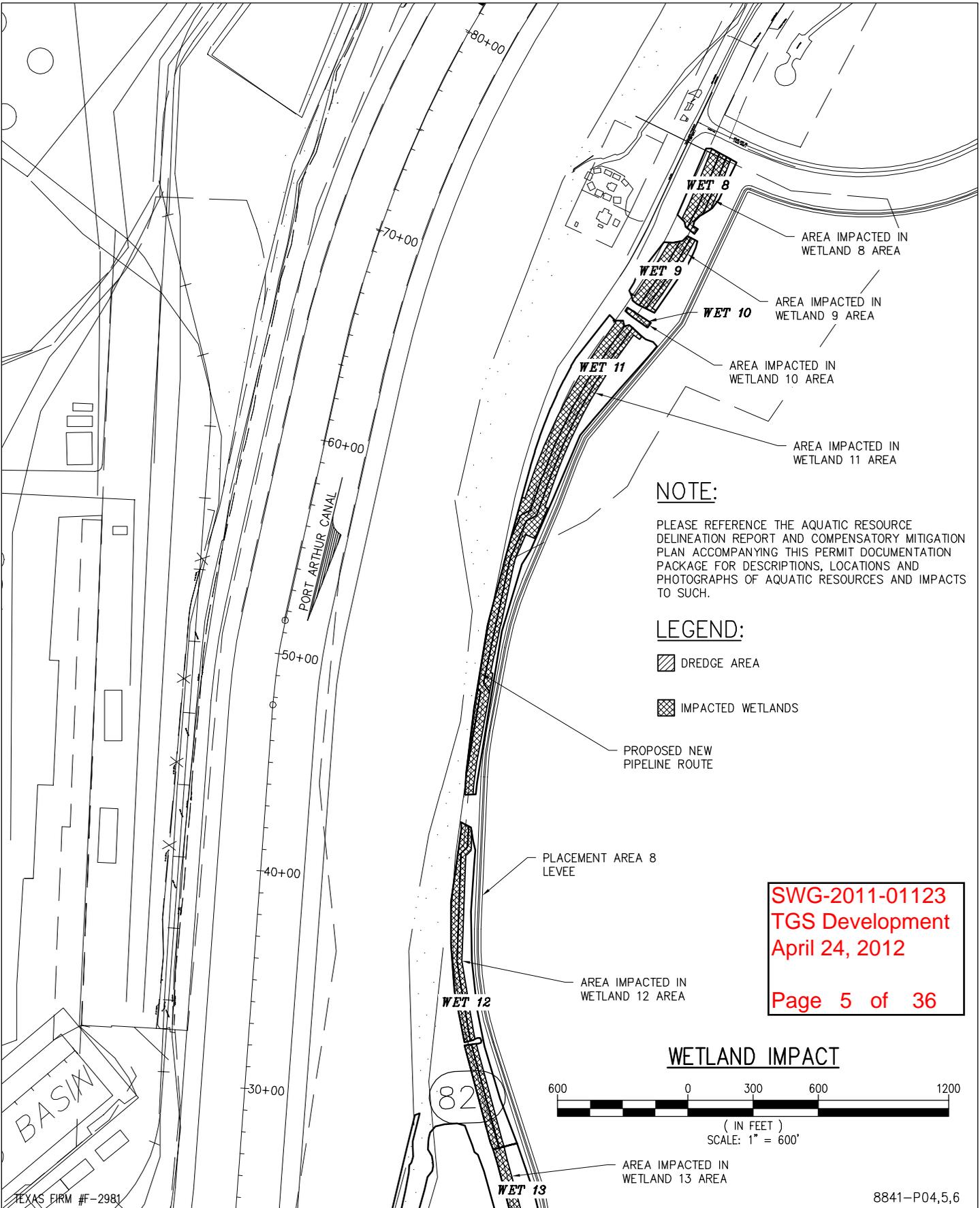
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TGS DEVELOPMENT, LP.

PORT ARTHUR TEXAS

**NEW PLEASURE ISLAND DOCK
 PI DOCK FACILITY
 WETLAND IMPACT - 1 OF 3**

DATE NOV. '11
 DESIGN RRM
 DRAWN NAH
 CHECK DLC
 CONTRACT 8841
 SHEET No. **4** OF **37**



NOTE:

PLEASE REFERENCE THE AQUATIC RESOURCE DELINEATION REPORT AND COMPENSATORY MITIGATION PLAN ACCOMPANYING THIS PERMIT DOCUMENTATION PACKAGE FOR DESCRIPTIONS, LOCATIONS AND PHOTOGRAPHS OF AQUATIC RESOURCES AND IMPACTS TO SUCH.

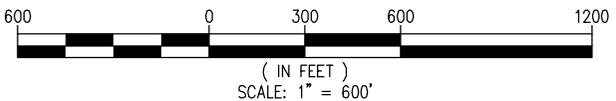
LEGEND:

-  DREDGE AREA
-  IMPACTED WETLANDS
-  PROPOSED NEW PIPELINE ROUTE

SWG-2011-01123
TGS Development
April 24, 2012

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WETLAND IMPACT



TEXAS FIRM #F-2981

8841-P04,5,6



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TGS DEVELOPMENT, LP.
PORT ARTHUR TEXAS

**NEW PLEASURE ISLAND DOCK
PI DOCK FACILITY
WETLAND IMPACT - 2 OF 3**

DATE NOV. '11
DESIGN RRM
DRAWN NAH
CHECK DLC
CONTRACT 8841
SHEET No.

5 OF 37

NOTE:

PLEASE REFERENCE THE AQUATIC RESOURCE DELINEATION REPORT AND COMPENSATORY MITIGATION PLAN ACCOMPANYING THIS PERMIT DOCUMENTATION PACKAGE FOR DESCRIPTIONS, LOCATIONS AND PHOTOGRAPHS OF AQUATIC RESOURCES AND IMPACTS TO SUCH.

LEGEND:

 DREDGE AREA

 IMPACTED WETLANDS

PROPOSED NEW PIPELINE ROUTE

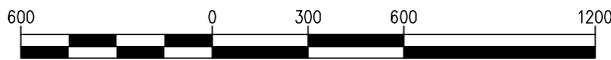
82

K.C.S. R.R.

SABINE NICHES CANAL

TEMPORARY CONSTRUCTION AREA FOR PIPELINE STRINGING SEE SHEET 3

WETLAND IMPACT



(IN FEET)
SCALE: 1" = 600'

WG-2011-01123
GS Development
April 24, 2012

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TEXAS FIRM #F-2981

8841-P04,5,6



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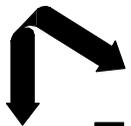
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TGS DEVELOPMENT, LP.
PORT ARTHUR TEXAS

**NEW PLEASURE ISLAND DOCK
PI DOCK FACILITY
WETLAND IMPACT - 3 OF 3**

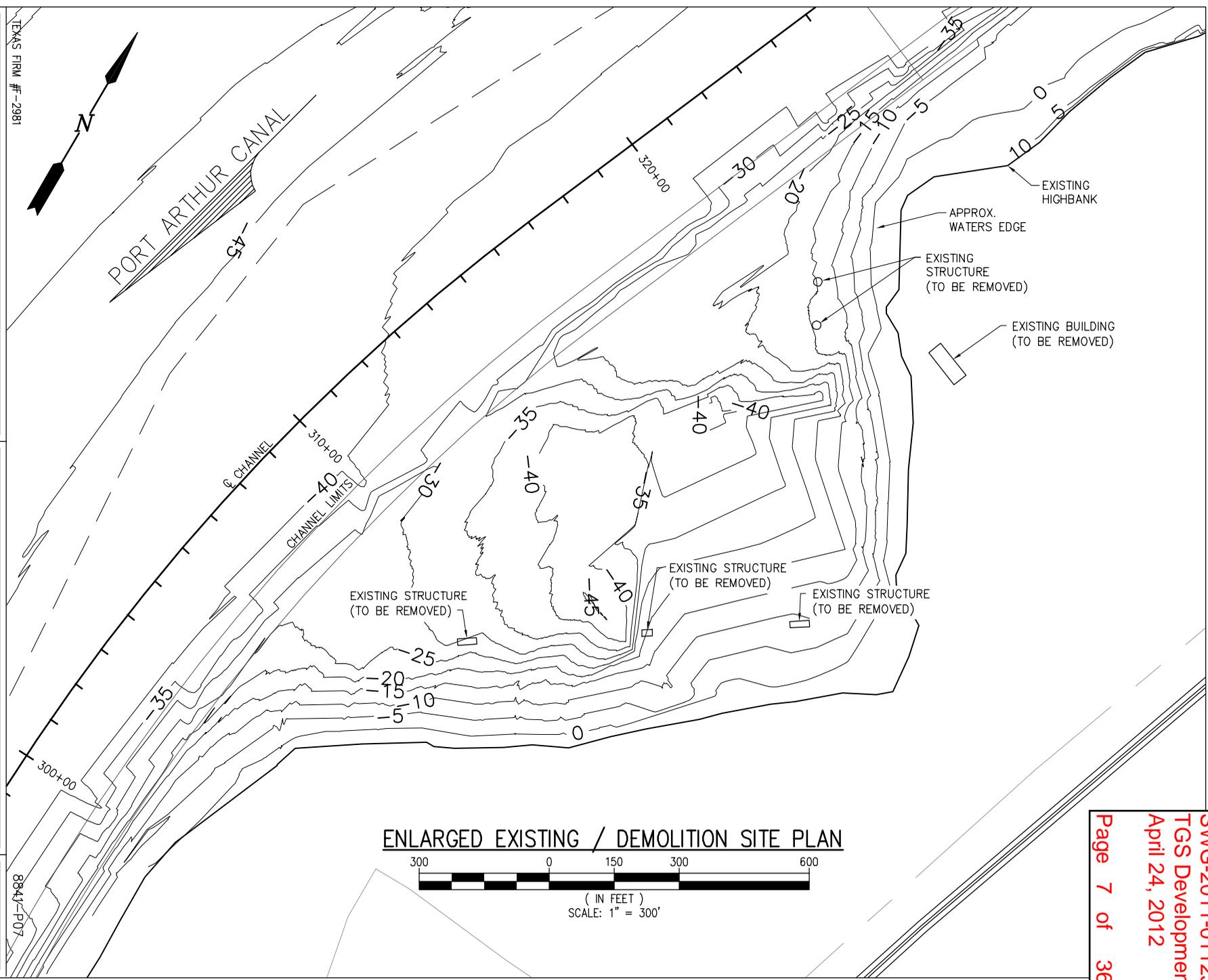
DATE NOV. '11
DESIGN RRM
DRAWN NAH
CHECK DLC
CONTRACT 8841
SHEET No.

6 OF 37


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TGS DEVELOPMENT, LP.
 PORT ARTHUR
 TEXAS
**NEW PLEASURE ISLAND DOCK
 P1 DOCK FACILITY**
ENLARGED EXISTING/DEMOLITION SITE PLAN

DATE	NOV. '11
DESIGN	RRM
DRAWN	NAH
CHECK	DLC
CONTRACT	8841
SHEET No.	7
	OF 37



SWG-2011-01123
 TGS Development
 April 24, 2012
 Page 7 of 36

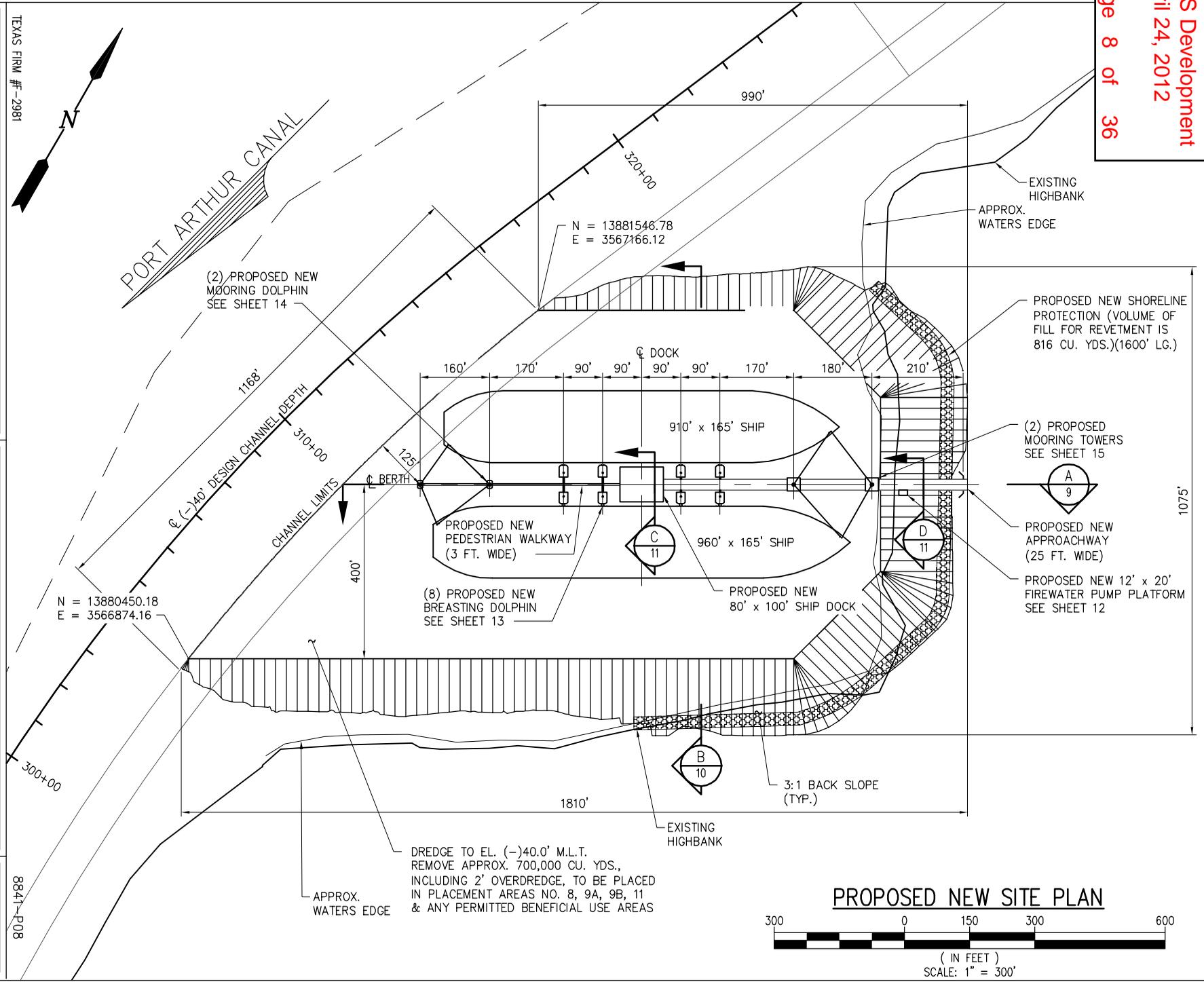
LANIER & ASSOCIATES
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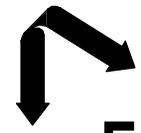
NEW ORLEANS, LA · BEAUMONT, TX

TGS DEVELOPMENT, LP.
 PORT ARTHUR
 TEXAS

**NEW PLEASURE ISLAND DOCK
 PI DOCK FACILITY
 ENLARGED PROPOSED NEW SITE PLAN**

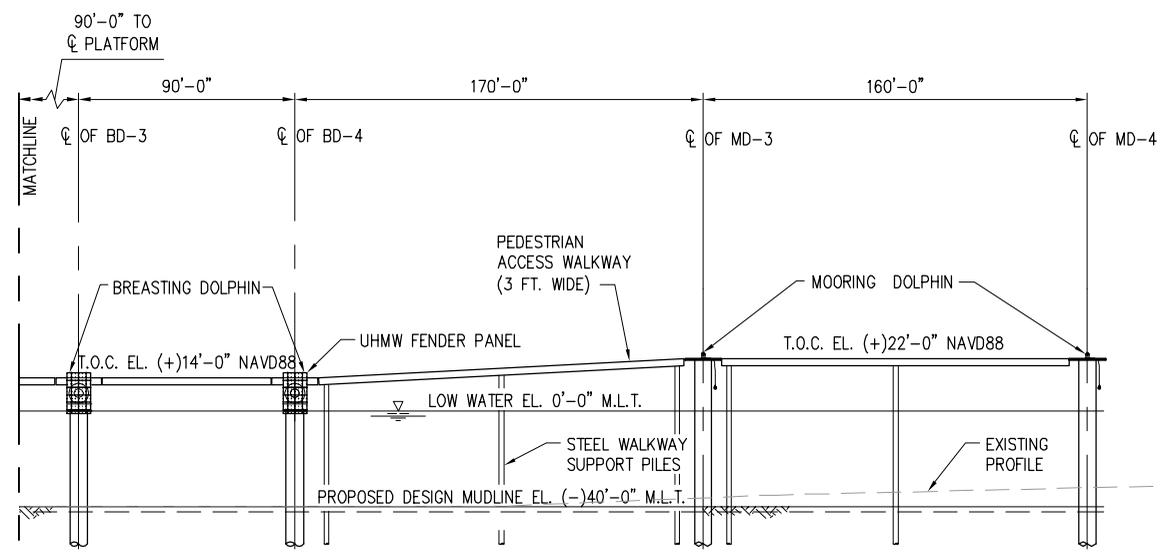
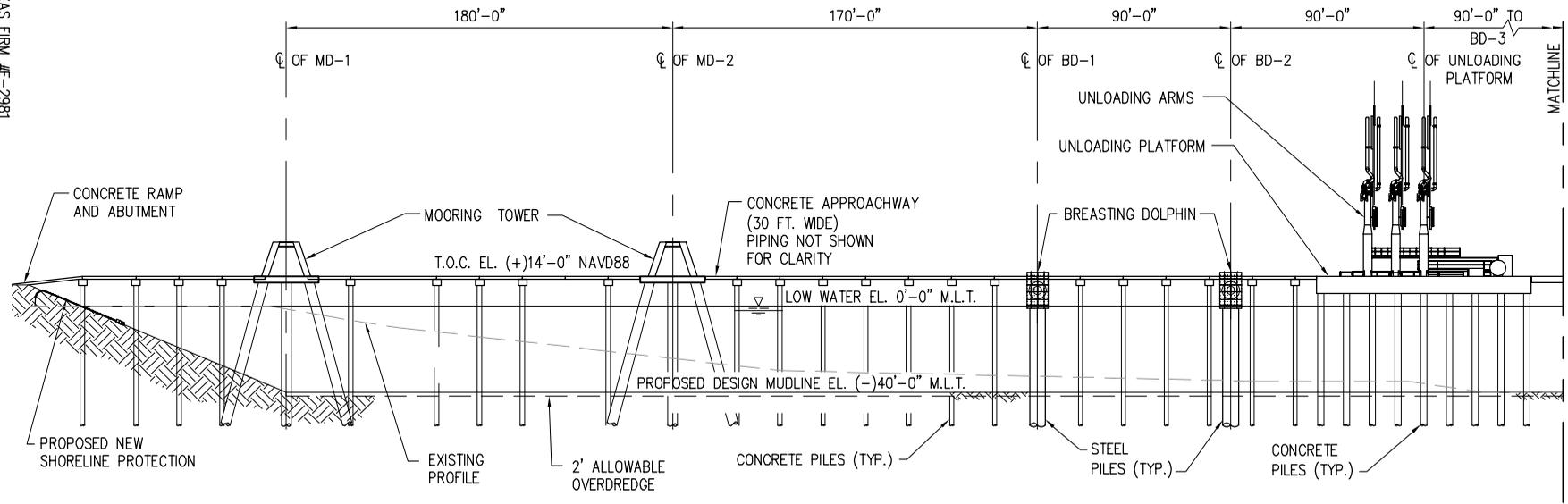
DATE NOV. '11	DESIGN RRM
DRAWN NAH	CHECK NAH
CONTRACT 8841	DLC
SHEET NO. 8	OF 37





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TEXAS FIRM # - 2981



ELEVATIONS SHOWN ARE M.L.T.
DATUM UNLESS NOTED OTHERWISE
0' NAVD88 = 0.78 M.L.T.

FENDERLINE ELEVATION

(LOOKING SOUTH)



(IN INCHES)
SCALE: 1" = 80'-0"



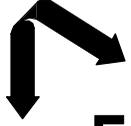
TGS DEVELOPMENT, LP.
PORT ARTHUR
NEW PLEASURE ISLAND DOCK
PI DOCK FACILITY
FENDERLINE ELEVATION - LOOKING SOUTH

TEXAS
DATE NOV. '11
DESIGN RRM
DRAWN NAH
CHECK DLG
CONTRACT 8841
SHEET NO. 9 OF 37

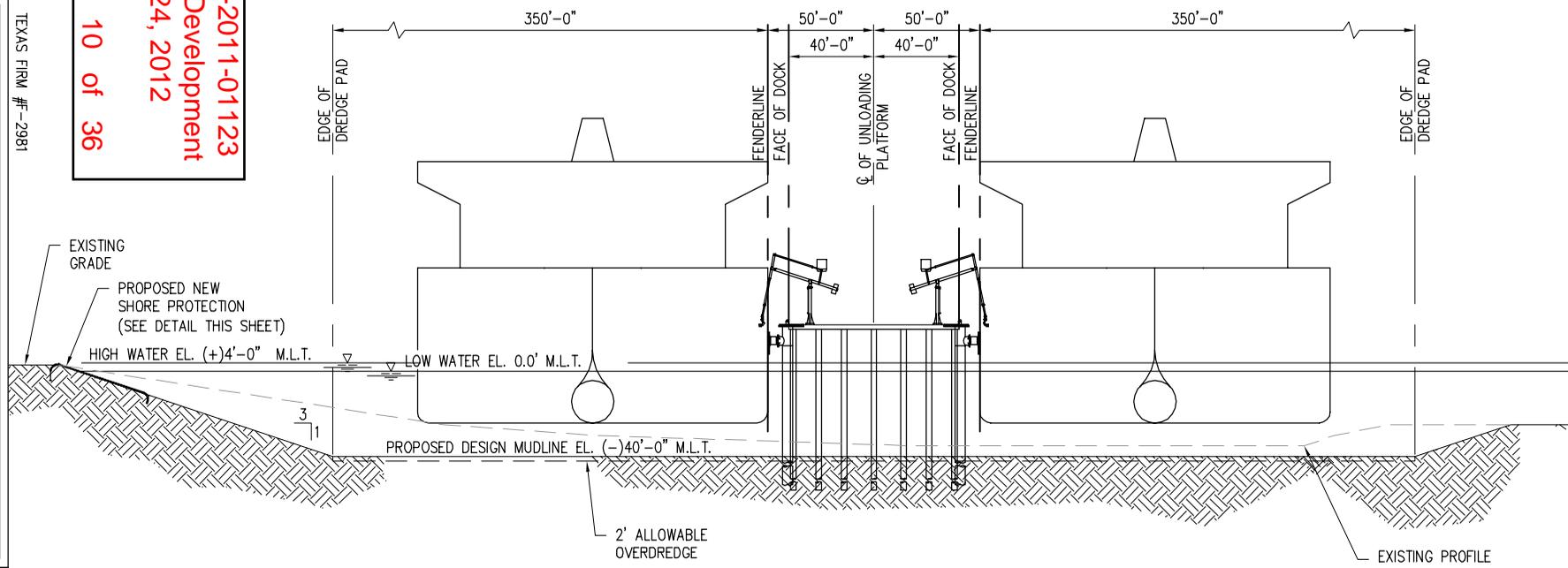
8841-P09

SWG-2011-01123
TGS Development
April 24, 2012
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TEXAS FIRM # -2981



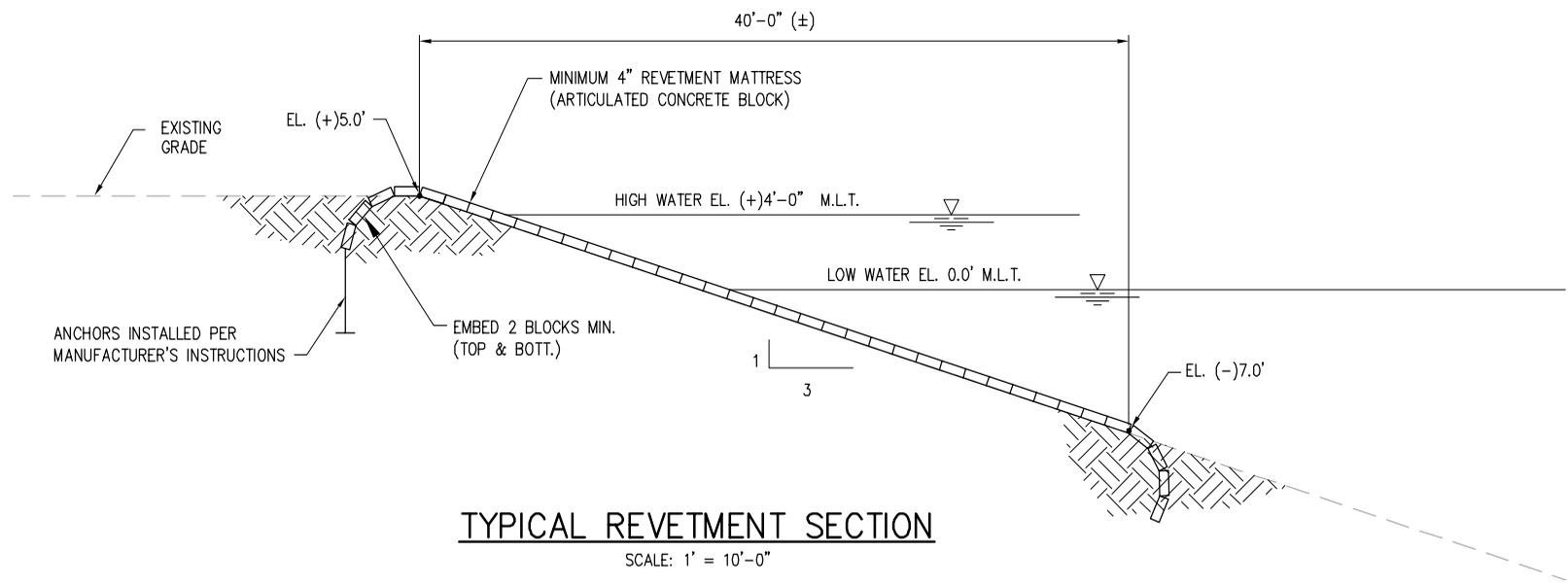
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SECTION THRU LOADING PLATFORM

SCALE: 1' = 80'-0"

B
8



TYPICAL REVETMENT SECTION

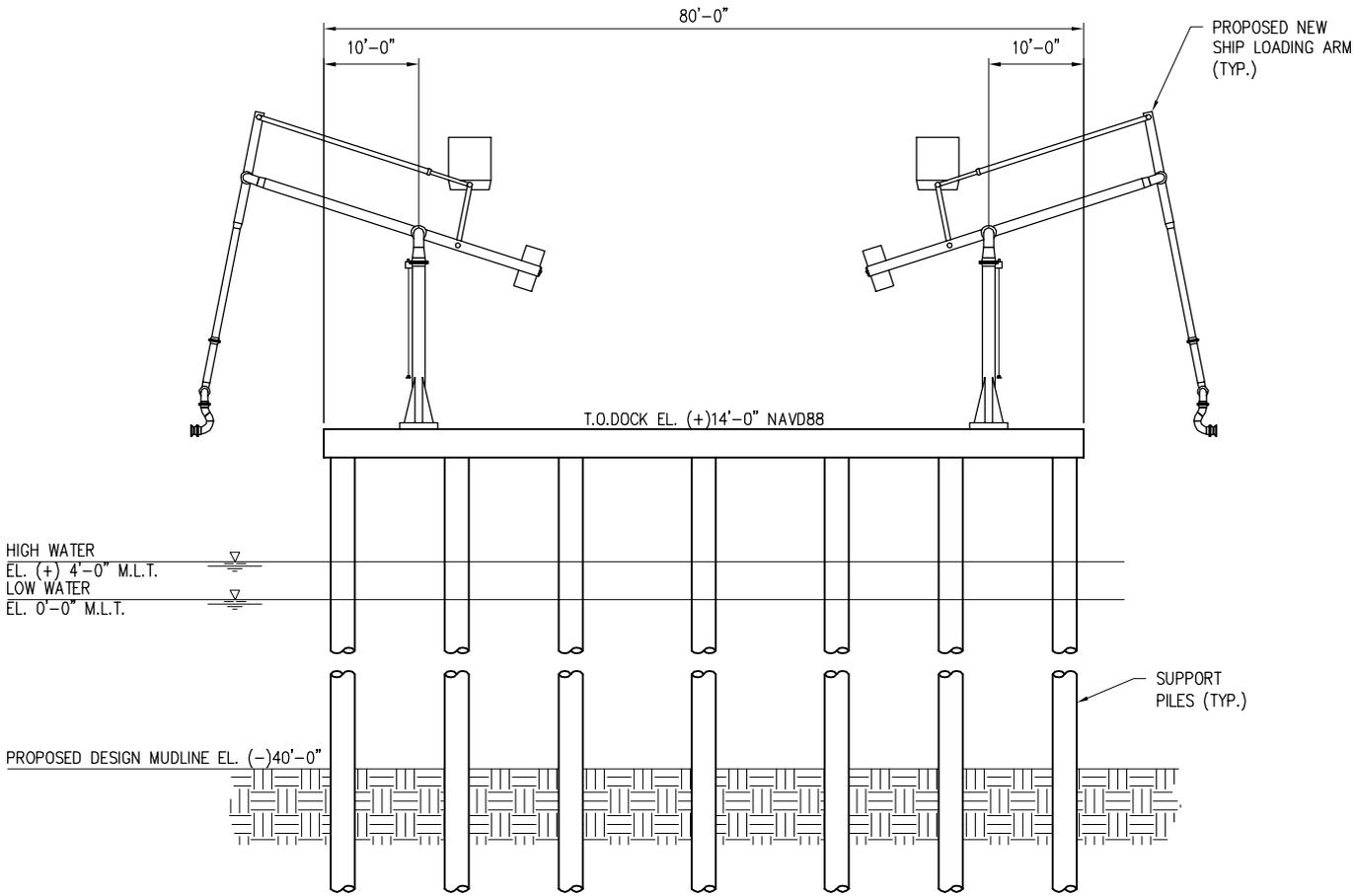
SCALE: 1' = 10'-0"

PORT ARTHUR
TGS DEVELOPMENT, LP.
 TEXAS
 NEW PLEASURE ISLAND DOCK
 PI DOCK FACILITY
 SECTION THRU LOADING PLATFORM

8841-P10

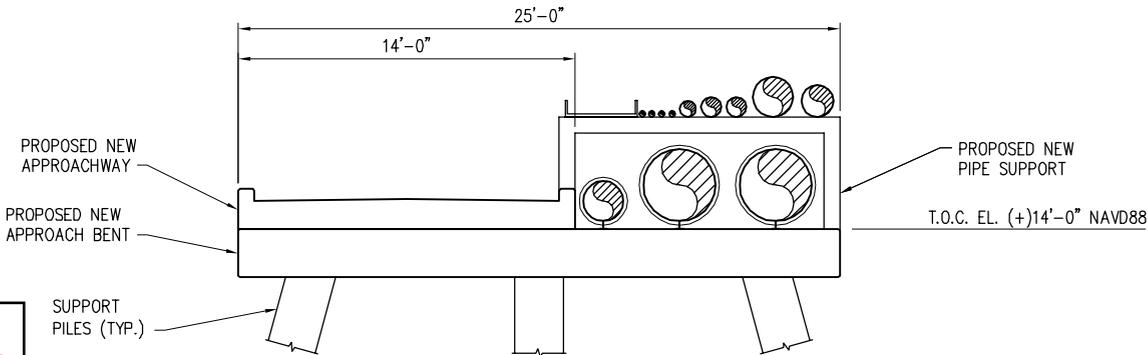
DATE	NOV. '11
DESIGN	RRM
DRAWN	NAH
CHECK	DLC
CONTRACT	8841
SHEET NO.	

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SECTION THRU DOCK

SCALE: 1" = 20'-0"



SECTION THRU APPROACHWAY

SCALE: 1/8" = 1'-0"



ELEVATIONS SHOWN ARE M.L.T.
DATUM UNLESS NOTED OTHERWISE
0' NAVD88 = 0.78'M.L.T.

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TGS Development
April 24, 2012

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TEXAS FIRM #F-2981

8841-P11



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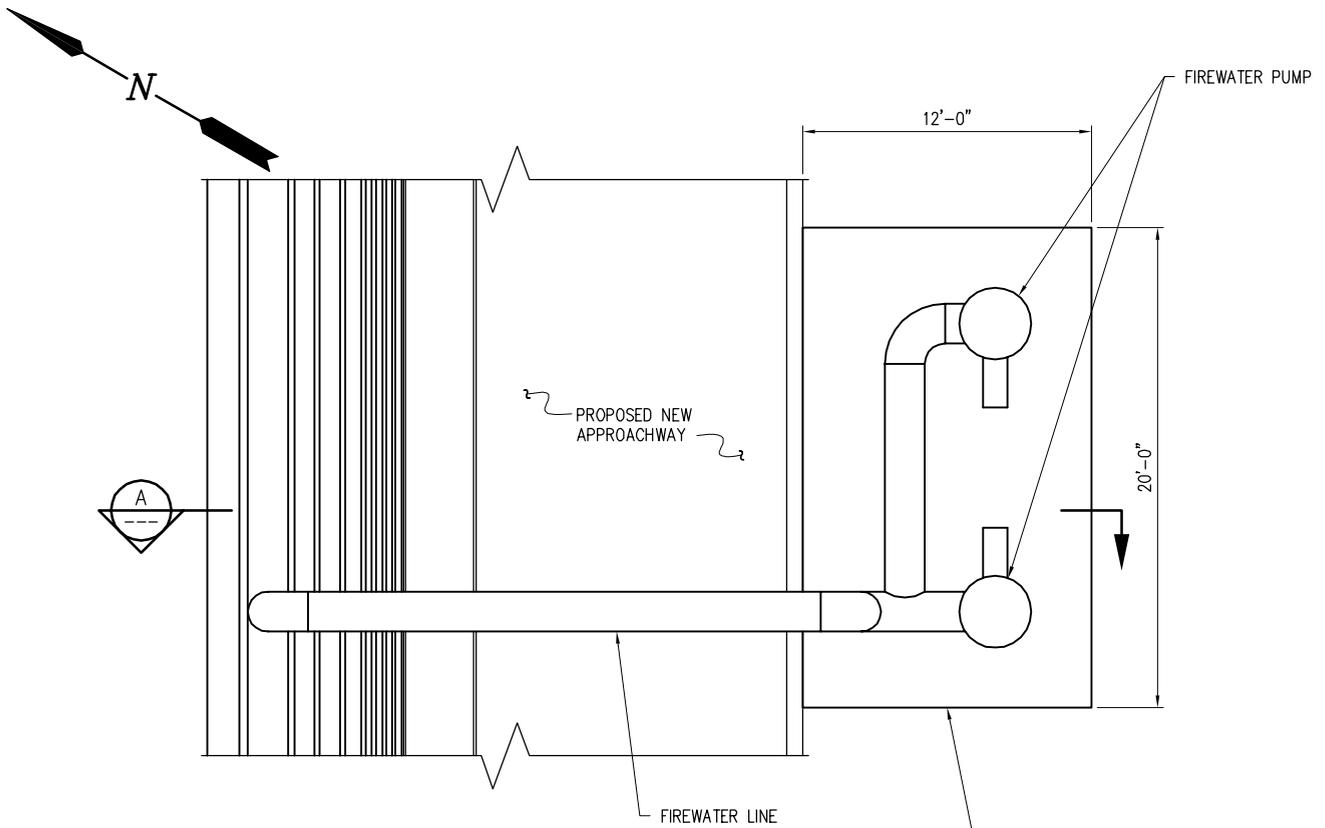
NEW ORLEANS, LA · BEAUMONT, TX

TGS DEVELOPMENT, LP.
PORT ARTHUR TEXAS

**NEW PLEASURE ISLAND DOCK
PI DOCK FACILITY
SECTION THRU DOCK & APPROACHWAY**

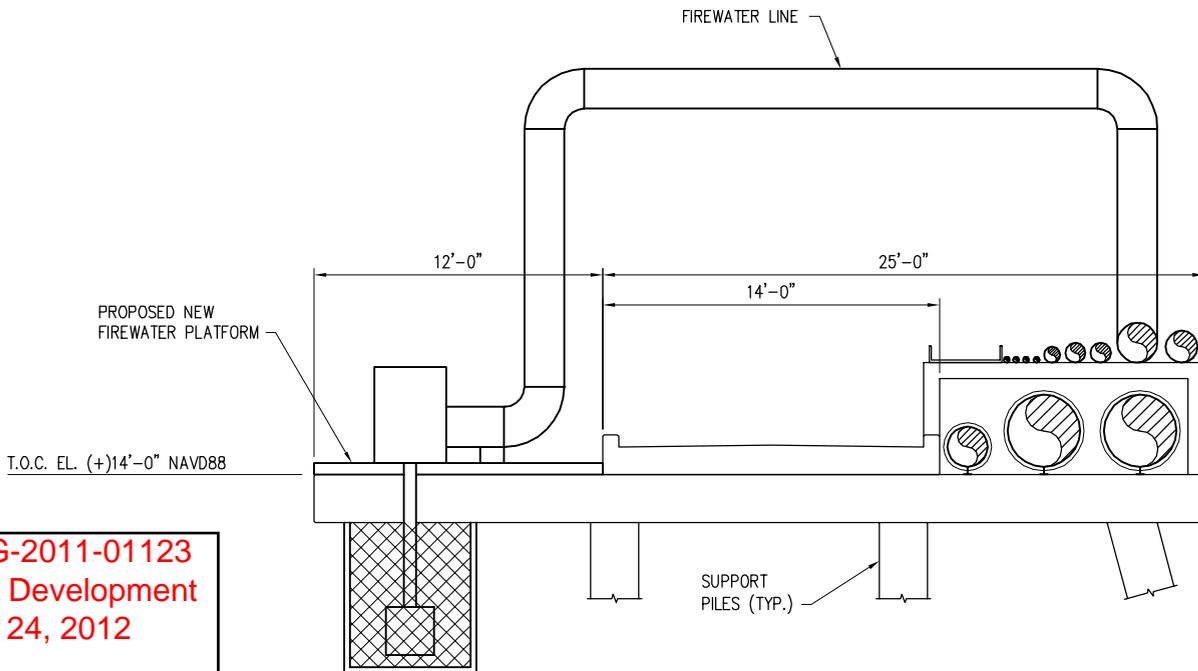
DATE NOV. '11
DESIGN RRM
DRAWN NAH
CHECK DLC
CONTRACT 8841
SHEET No.

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PLAN @ FIREWATER PLATFORM

SCALE: 1/8" = 1'-0"



SECTION

SCALE: 1/8" = 1'-0"



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TGS Development
April 24, 2012

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TEXAS FIRM #F-2981

8841-P12

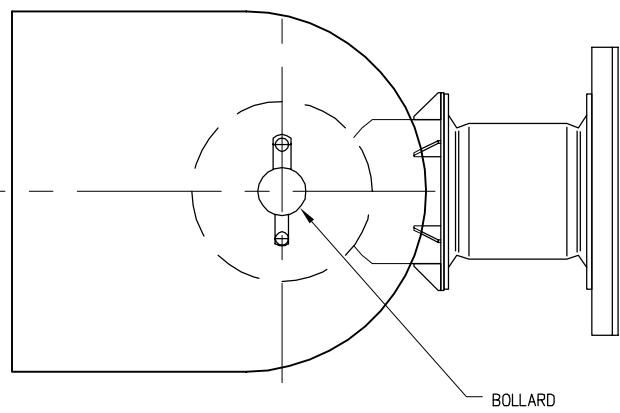
LANIER & ASSOCIATES
CONSULTING ENGINEERS
INCORPORATED
NEW ORLEANS, LA · BEAUMONT, TX

TGS DEVELOPMENT, LP.		TEXAS
NEW PLEASURE ISLAND DOCK PI DOCK FACILITY FIREWATER PLATFORM		DATE NOV. '11 DESIGN RRM DRAWN NAH CHECK DLC CONTRACT 8841 SHEET No.
12 OF 37		

CONCRETE CAP
 T.O.C. EL. (+)14.0' NAVD88
 BOLLARD
 FENDERLINE

MONOPILE & BOLLARD

MONOPILE & BOLLARD



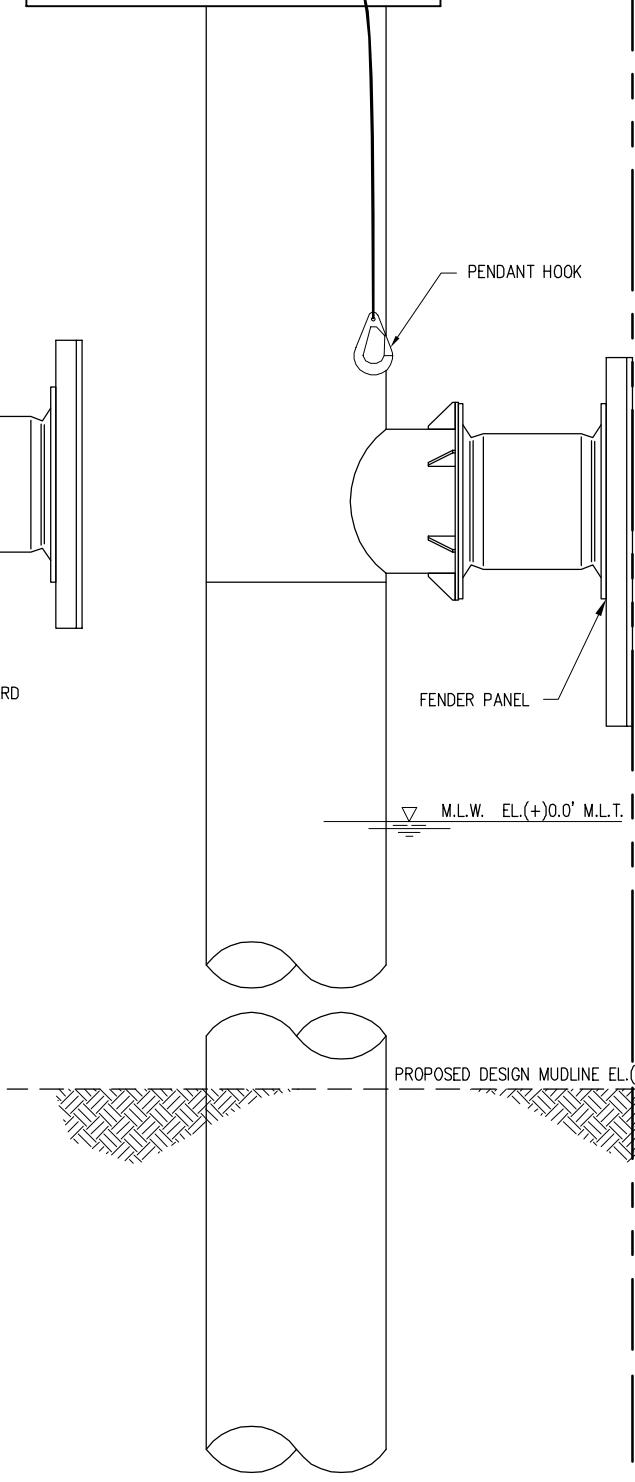
BREASTING DOLPHIN PLAN
 N.T.S.

PENDANT HOOK

FENDER PANEL

M.L.W. EL.(+)0.0' M.L.T.

PROPOSED DESIGN MUDLINE EL.(-)40.0' M.L.T.



BREASTING DOLPHIN ELEVATION
 N.T.S.

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 TGS Development
 April 24, 2012
 Page 13 of 36

ELEVATIONS SHOWN ARE M.L.T.
 DATUM UNLESS NOTED OTHERWISE
 0' NAVD88 = 0.78'M.L.T.

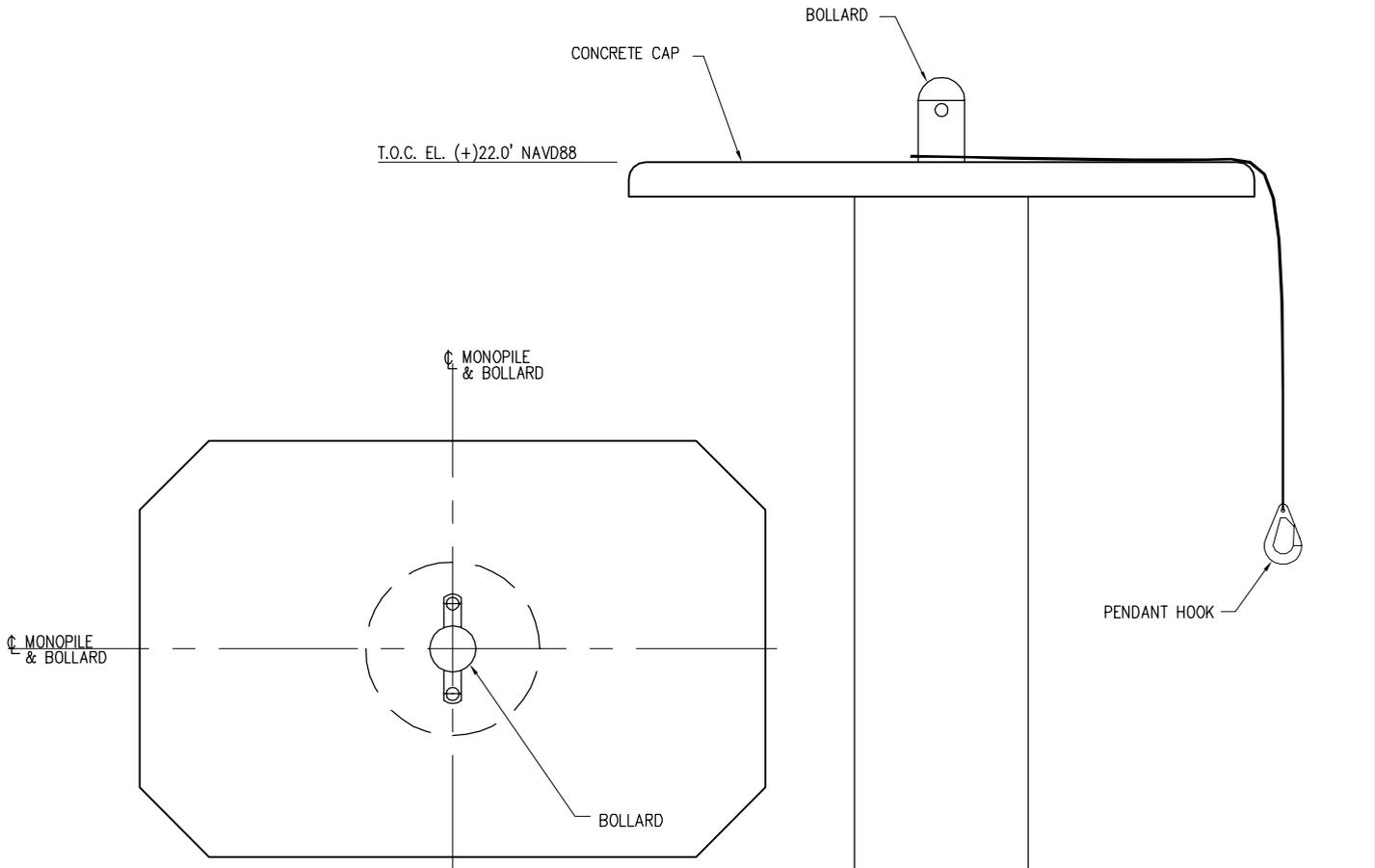
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8841-P13

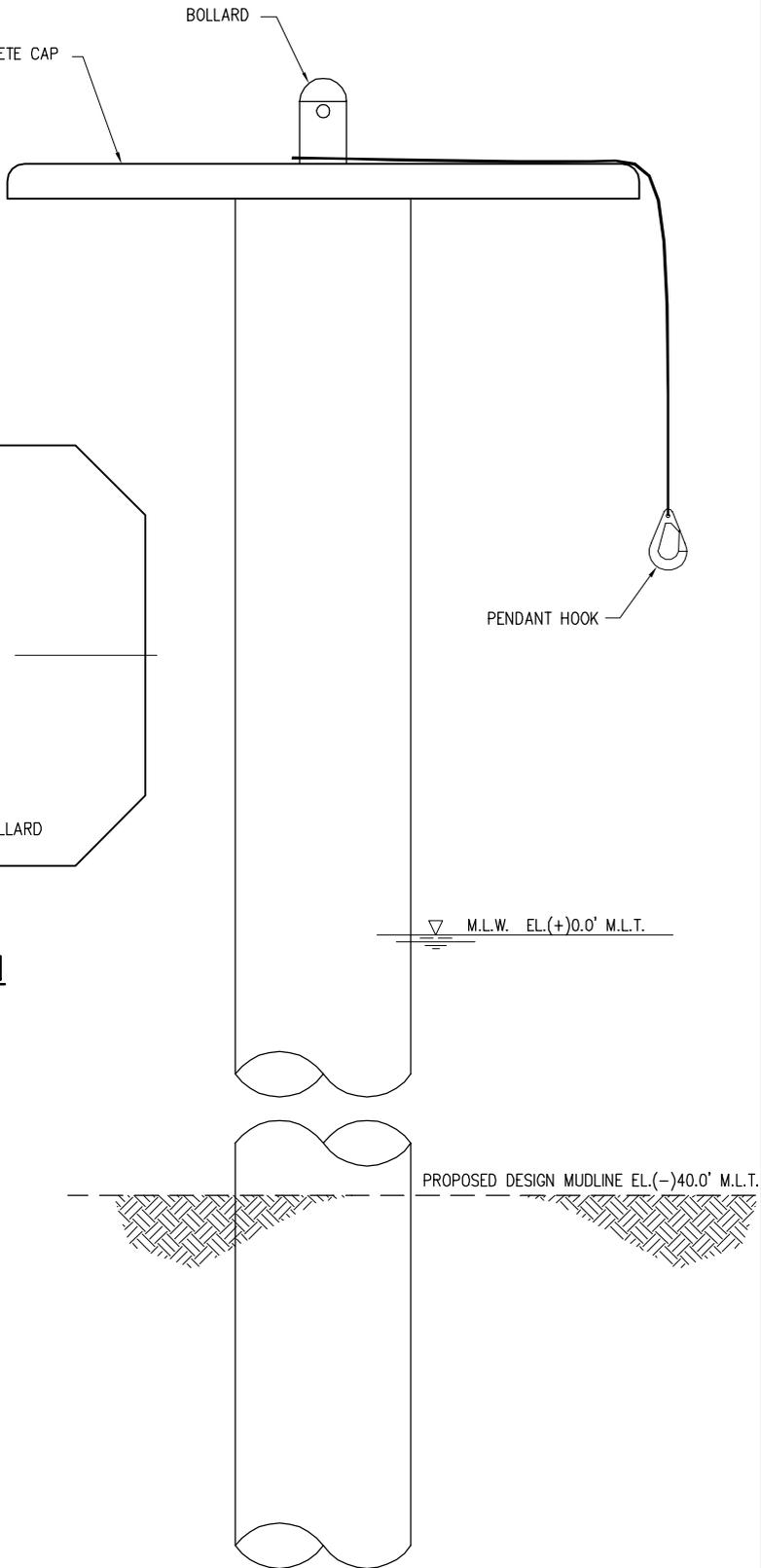
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TGS DEVELOPMENT, LP.
 PORT ARTHUR TEXAS
**NEW PLEASURE ISLAND DOCK
 PI DOCK FACILITY
 BREASTING DOLPHIN**

DATE	NOV. '11
DESIGN	RRM
DRAWN	NAH
CHECK	DLC
CONTRACT	8841
SHEET No.	
13	OF 37



MOORING DOLPHIN PLAN
N.T.S.



MOORING DOLPHIN ELEVATION
N.T.S.

SWG-2011-01123
TGS Development
April 24, 2012

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ELEVATIONS SHOWN ARE M.L.T.
DATUM UNLESS NOTED OTHERWISE
0' NAVD88 = 0.78'M.L.T.

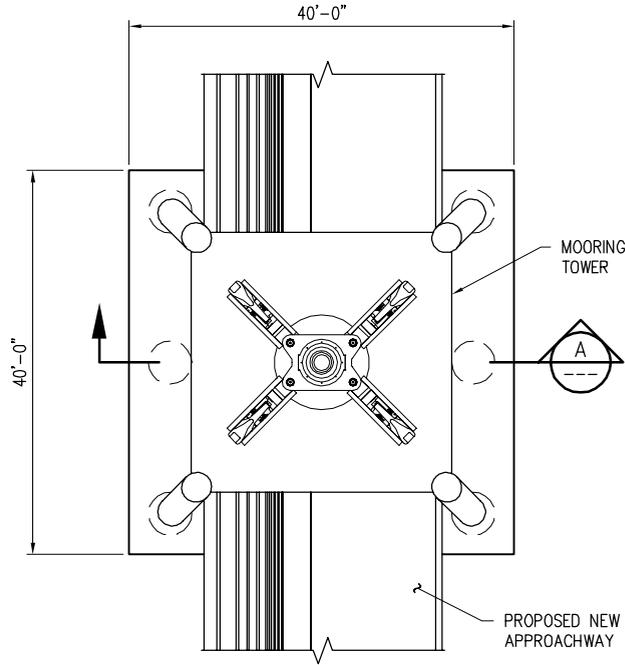
TEXAS FIRM #F-2981

8841-P14

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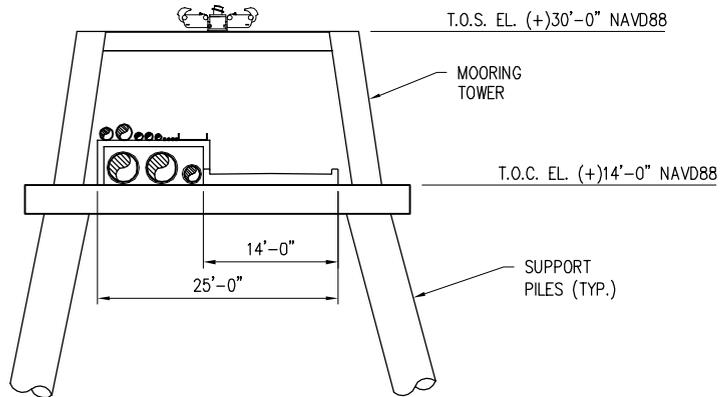
TGS DEVELOPMENT, LP.
PORT ARTHUR TEXAS
**NEW PLEASURE ISLAND DOCK
PI DOCK FACILITY
MOORING DOLPHIN**

DATE NOV. '11
DESIGN RRM
DRAWN NAH
CHECK DLC
CONTRACT 8841
SHEET No.
14 OF **37**



MOORING TOWER PLAN

SCALE: 1" = 20'-0"



SECTION A

SCALE: 1" = 20'-0"

SWG-2011-01123
TGS Development
April 24, 2012
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TEXAS FIRM #F-2981

8841-P15

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TGS DEVELOPMENT, LP.
PORT ARTHUR TEXAS
**NEW PLEASURE ISLAND DOCK
PI DOCK FACILITY
MOORING TOWER**

DATE NOV. '11
DESIGN RRM
DRAWN NAH
CHECK DLC
CONTRACT 8841
SHEET No.
15 OF **37**



SWG-2011-01123
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 April 24, 2012

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PLACEMENT AREAS 8, 9 & 11

TEXAS FIRM #F-2981

8841-P16

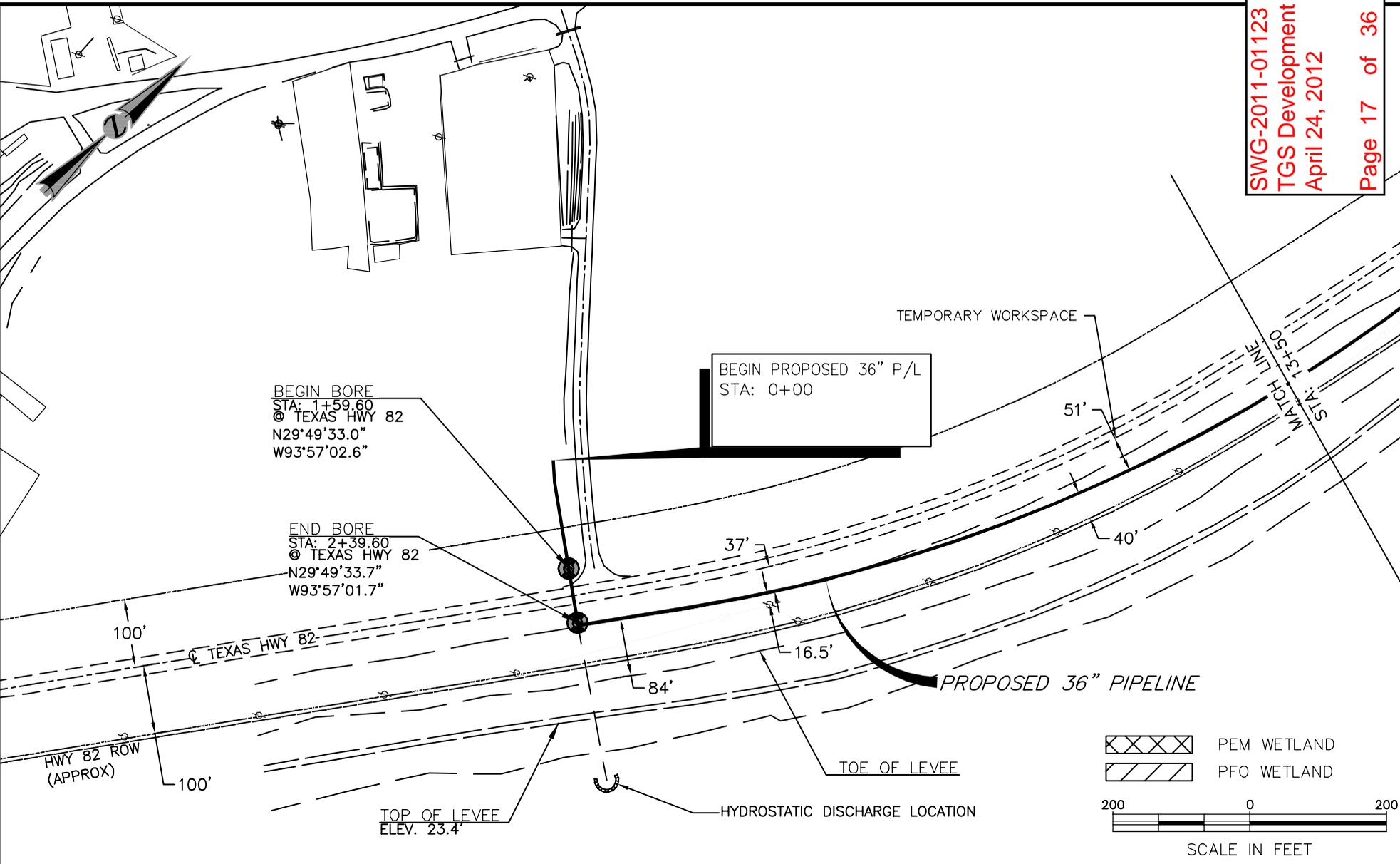
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NEW ORLEANS, LA · BEAUMONT, TX

TGS DEVELOPMENT, LP.
 PORT ARTHUR TEXAS

**NEW PLEASURE ISLAND DOCK
 PI DOCK FACILITY
 PLACEMENT AREAS 8, 9 & 11**

DATE	NOV. '11
DESIGN	RRM
DRAWN	NAH
CHECK	DLC
CONTRACT	8841
SHEET	No.
16	OF 37



REFERENCE DRAWINGS	NO.	REVISION	DATE
TYPICAL STRAW BALE INSTALLATION SHT 33			
TYPICAL RIGHT-OF-WAY CONSTRUCTION LIMITS SHT 31	B	REVISED PLANT PIPELINE ROUTING	2/13/12
TYPICAL BORED ROAD CROSSING SHT 28	A	ISSUED FOR REVIEW	1/28/12

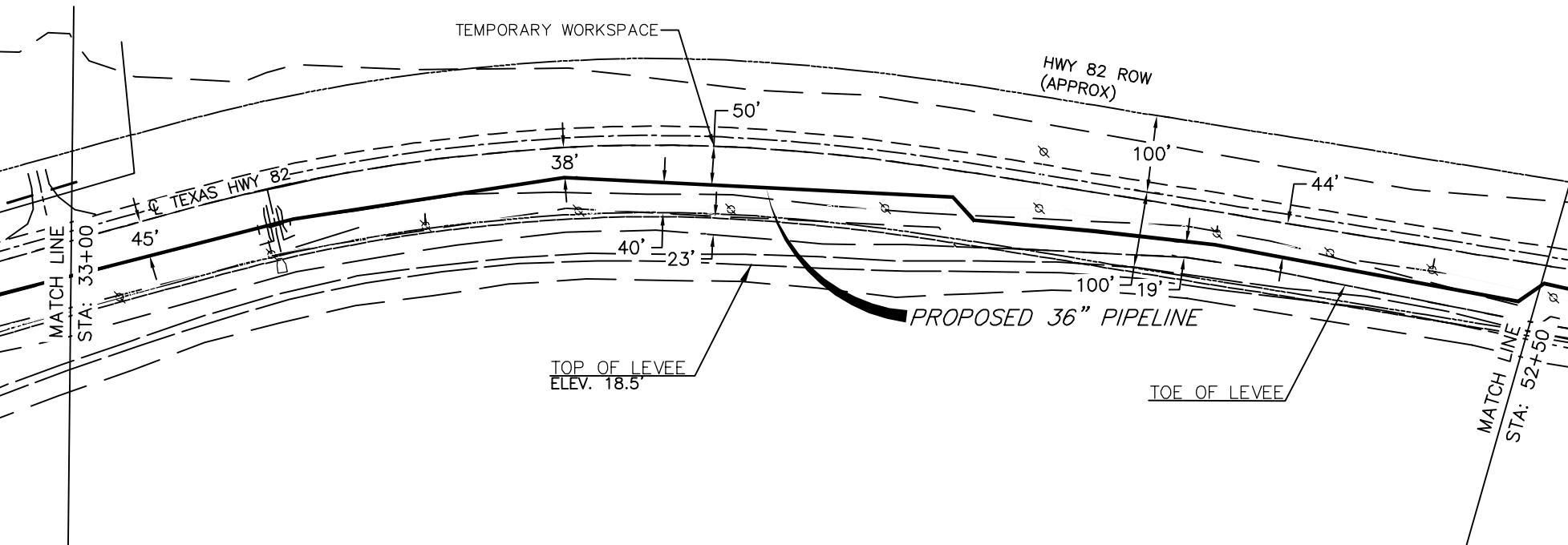
DRAWN BY	DATE
ITE	1/26/12
CHECKED BY	DATE
SKB	1/28/12
ENGR. APPD.	DATE
PROJ. MGR. APPD.	DATE
ALIGN. DWG.	



TRANS GLOBAL SOLUTIONS DEVELOPMENT			
PROPOSED PIPELINE ROUTE MAP			
PORT ARTHUR, TEXAS		PROJ. NO.	DWG. NO.
SCALE	TGS-001	SHEET 18 OF 37	REV. B
1"=200'			



SABINE-NECHES WATERWAY



SCALE IN FEET

SWG-2011-01123
 TGS Development
 April 24, 2012
 Page 19 of 36

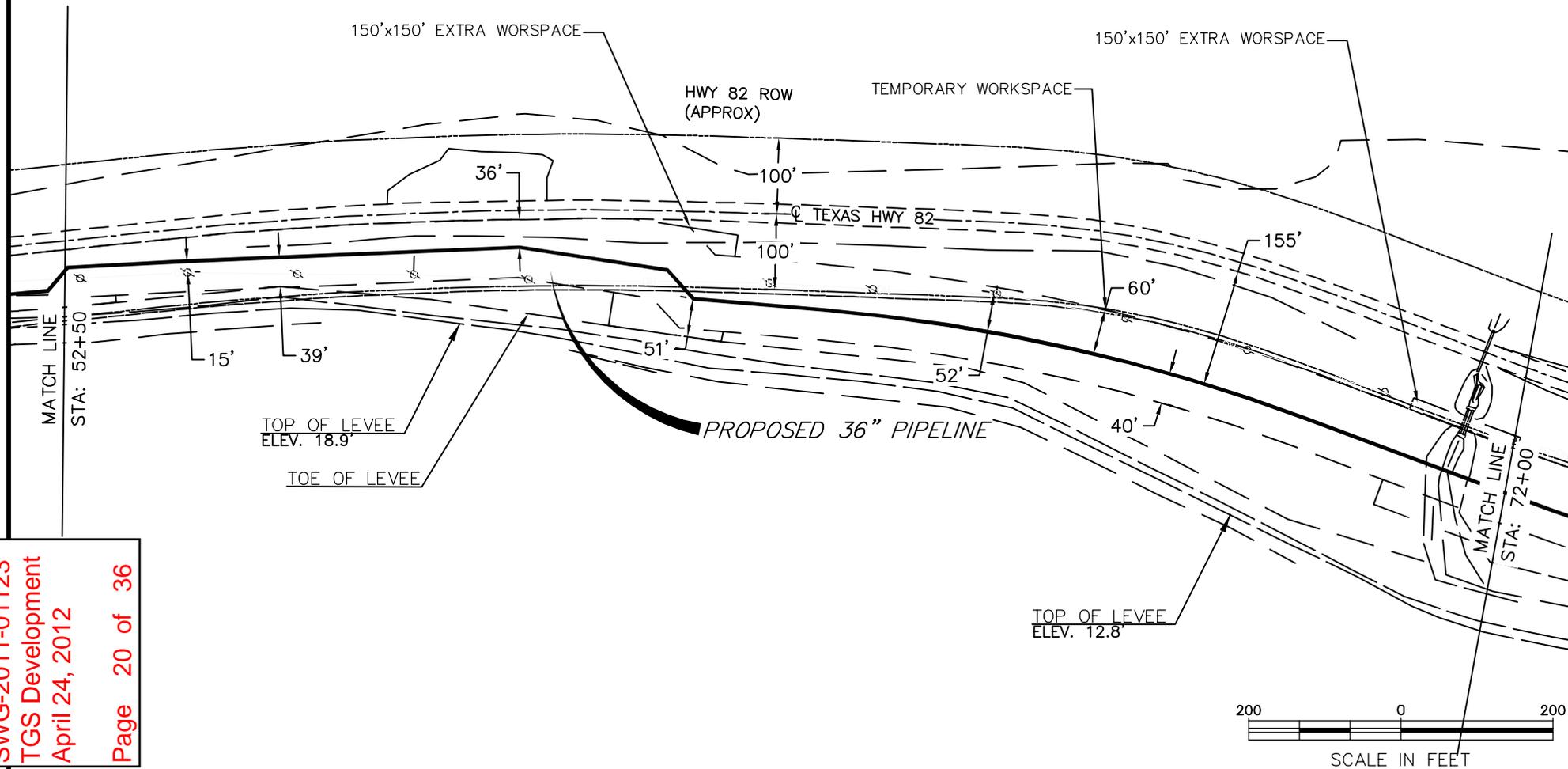
REFERENCE DRAWINGS	NO.	REVISION	DATE
TYPICAL RIGHT-OF-WAY CONSTRUCTION LIMITS SHT 31	A	ISSUED FOR REVIEW	1/28/12

DRAWN BY	DATE
ITE	1/26/12
CHECKED BY	DATE
SKB	1/28/12
ENGR. APPD.	DATE
PROJ. MGR. APPD.	DATE
ALIGN. DWG.	



TRANS GLOBAL SOLUTIONS DEVELOPMENT			
PROPOSED PIPELINE ROUTE MAP			
PORT ARTHUR,		TEXAS	
SCALE	PROJ. NO.	DWG. NO.	REV.
1"=200'	TGS-001	SHEET 20 OF 37	A

SABINE-NECHES WATERWAY



SWG-2011-01123
 TGS Development
 April 24, 2012
 Page 20 of 36

REFERENCE DRAWINGS	NO.	REVISION	DATE	DRAWN BY	DATE
				ITE	1/26/12
				CHECKED BY	DATE
				SKB	1/28/12
				ENGR. APPD.	DATE
				PROJ. MGR. APPD.	DATE
				ALIGN. DWG.	
TYPICAL RIGHT-OF-WAY CONSTRUCTION LIMITS SHT 31	A	ISSUED FOR REVIEW	1/28/12		



TRANS GLOBAL SOLUTIONS DEVELOPMENT

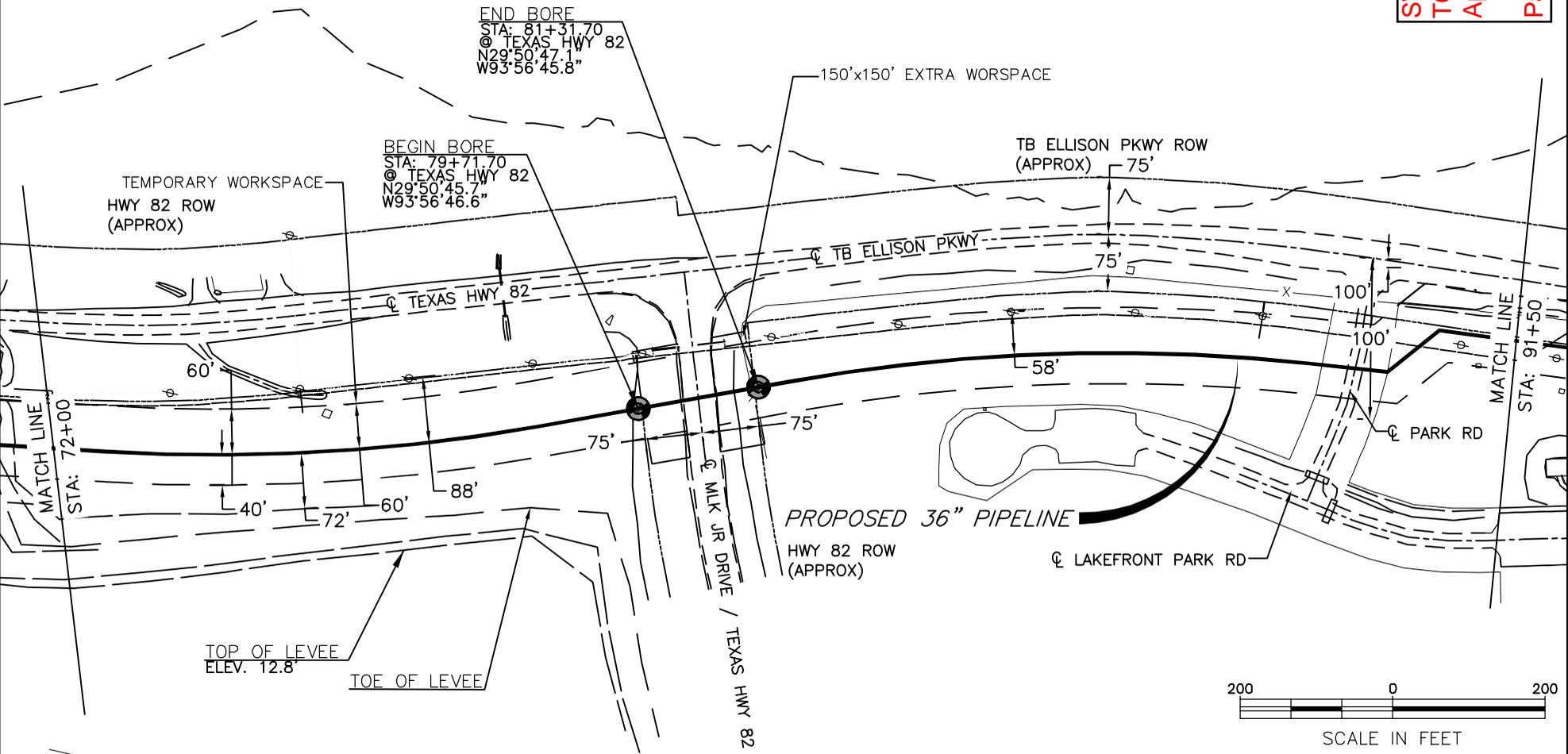
PROPOSED PIPELINE ROUTE MAP

PORT ARTHUR, TEXAS

SCALE 1"=200'	PROJ. NO. TGS-001	DWG. NO. SHEET 21 OF 37	REV. A
------------------	----------------------	----------------------------	-----------



SABINE-NECHES WATERWAY



REFERENCE DRAWINGS	NO.	REVISION	DATE
TYPICAL RIGHT-OF-WAY CONSTRUCTION LIMITS SHT 31			
TYPICAL BORED ROAD CROSSING SHT 28	A	ISSUED FOR REVIEW	1/28/12

DRAWN BY	DATE
ITE	1/26/12
CHECKED BY	DATE
SKB	1/28/12
ENGR. APPD.	DATE
PROJ. MGR. APPD.	DATE
ALIGN. DWG.	



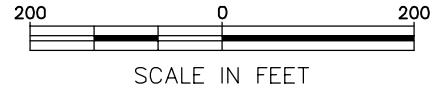
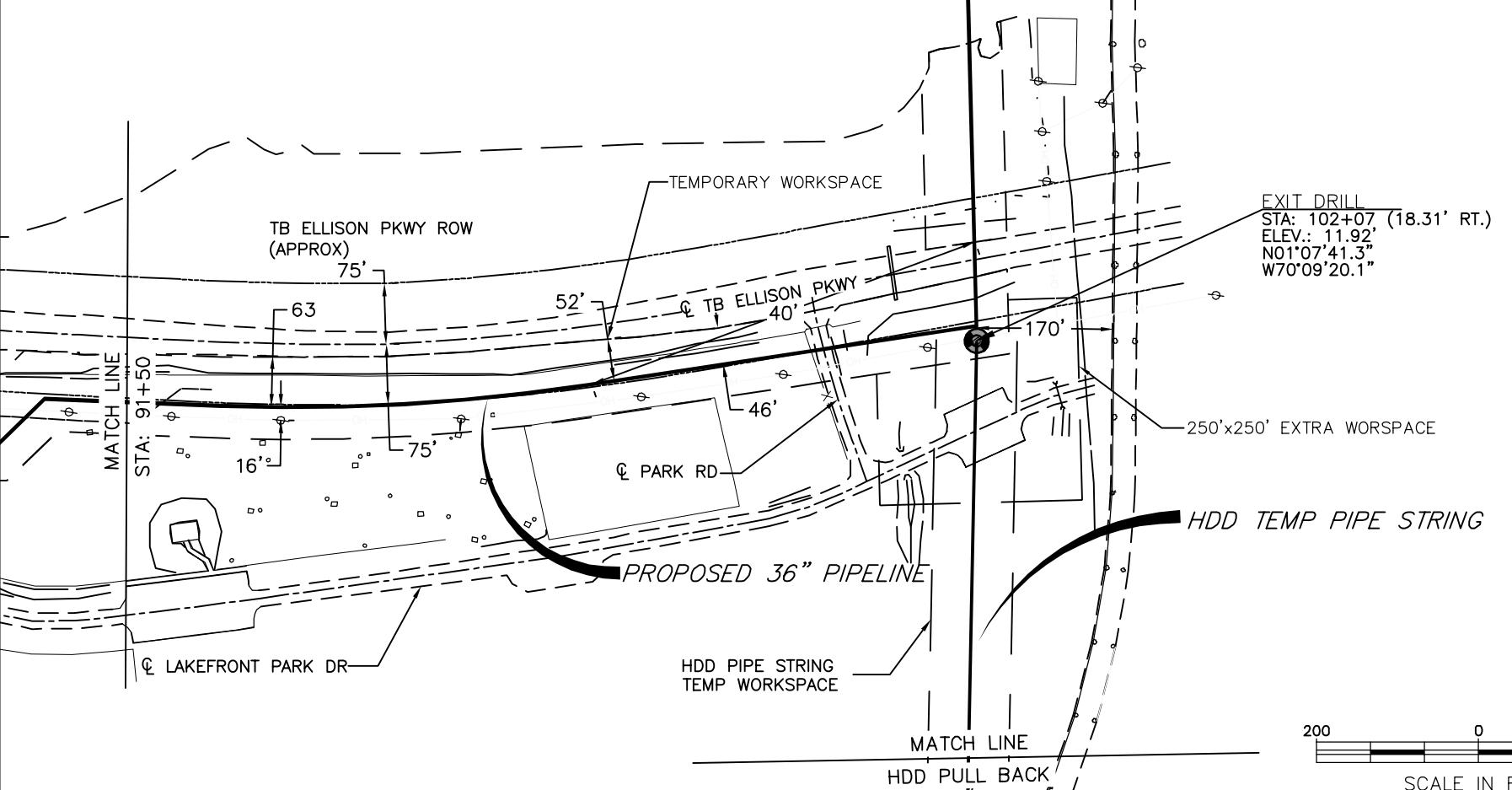
TRANS GLOBAL SOLUTIONS DEVELOPMENT			
PROPOSED PIPELINE ROUTE MAP			
PORT ARTHUR,		TEXAS	
SCALE 1"=200'	PROJ. NO. TGS-001	DWG. NO. SHEET 22 OF 37	REV. A



SABINE-NECHES WATERWAY

STA: 108+75
MATCH LINE

EXIT DRILL
STA: 102+07 (18.31' RT.)
ELEV.: 11.92'
N01°07'41.3"
W70°09'20.1"



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REFERENCE DRAWINGS	NO.	REVISION	DATE
TGS0019001-SHT6B SHT 25			
TGS0019001-SHT6A SHT 24			
HDD PIPE STRING LAYOUT ACROSS WETLAND AREAS SHT 37			
PROPOSED HORIZONTAL DIRECTIONAL DRILL (HDD) SITE PLAN & PROFILE SHT 30			
TYPICAL RIGHT-OF-WAY CONSTRUCTION LIMITS SHT 31			
TYPICAL BORED ROAD CROSSING SHT 28	A	ISSUED FOR REVIEW	1/28/12

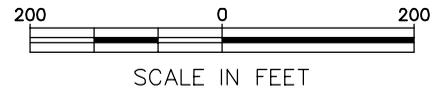
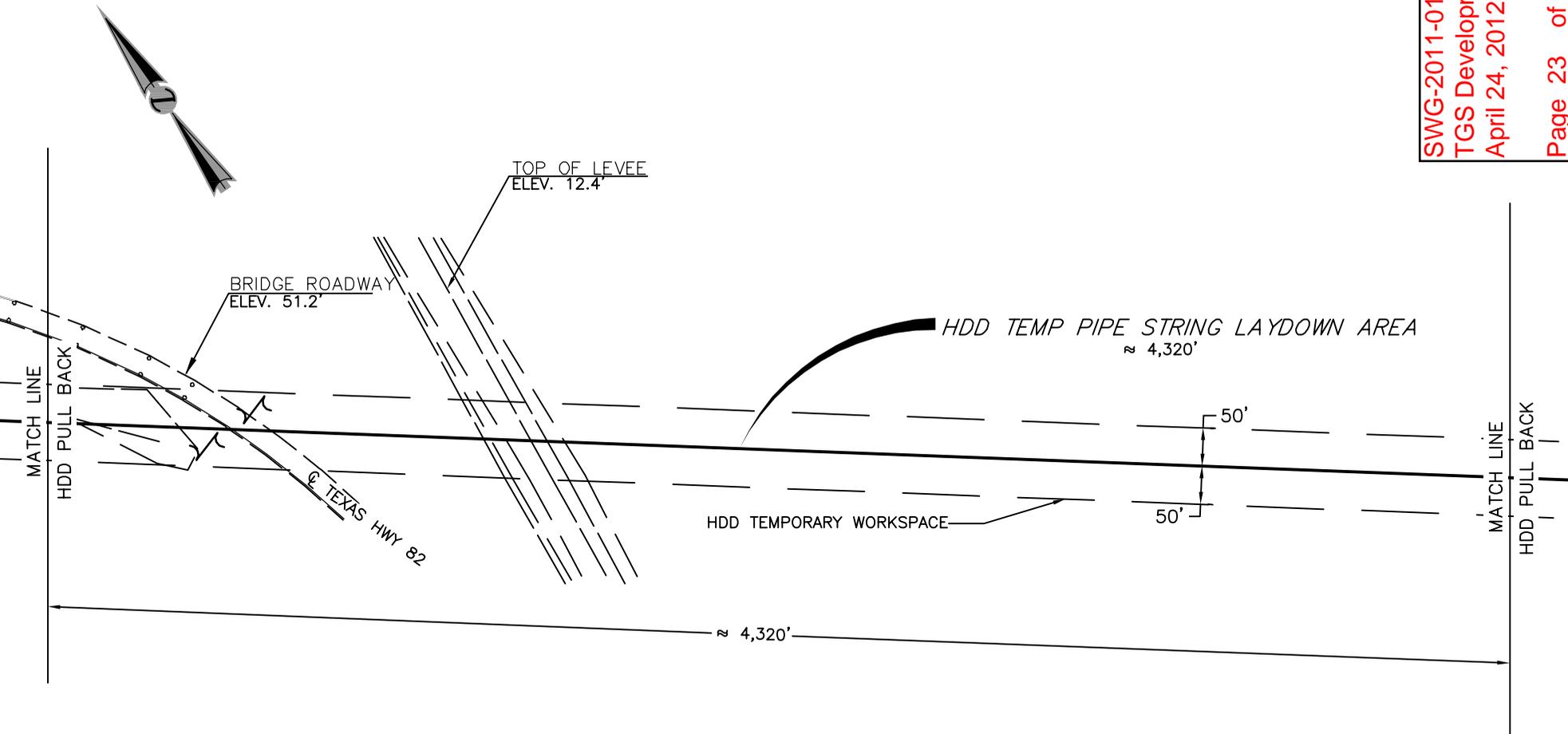
DRAWN BY	DATE
ITE	1/26/12
CHECKED BY	DATE
SKB	1/28/12
ENGR. APPD.	DATE
PROJ. MGR. APPD.	DATE
ALIGN. DWG.	



TRANS GLOBAL SOLUTIONS DEVELOPMENT

PROPOSED PIPELINE
ROUTE MAP

PORT ARTHUR, TEXAS			
SCALE	PROJ. NO.	DWG. NO.	REV.
1"=200'	TGS-001	SHEET 23 OF 37	A



REFERENCE DRAWINGS	NO.	REVISION	DATE	DRAWN BY	DATE
				ITE	1/26/12
				CHECKED BY	DATE
				SKB	1/28/12
				ENGR. APPD.	DATE
				PROJ. MGR. APPD.	DATE
TGS0019001-SHT6B SHT 25				ALIGN. DWG.	
HDD TEMP PIPE STRING LAYOUT ACROSS WETLAND AREAS SHT 37	A	ISSUED FOR REVIEW	1/28/12		

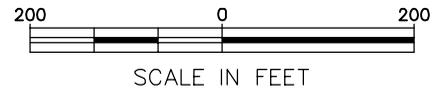
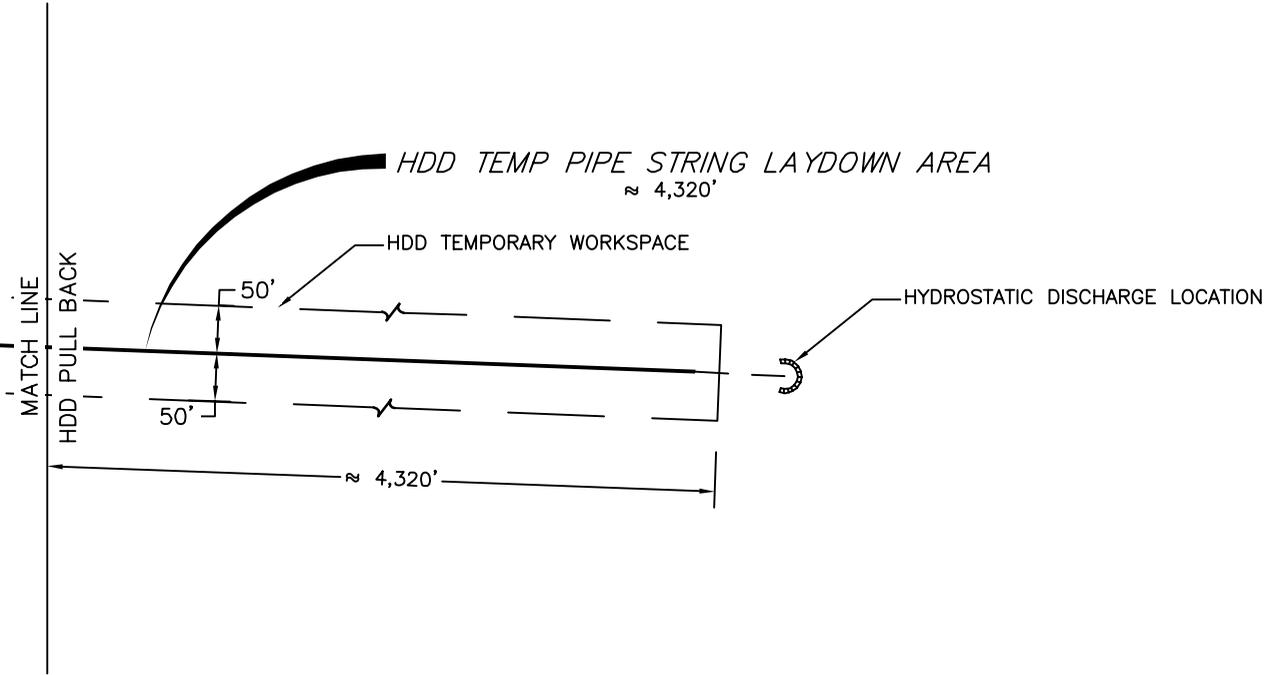


TRANS GLOBAL SOLUTIONS DEVELOPMENT

PROPOSED PIPELINE
ROUTE MAP

PORT ARTHUR, TEXAS

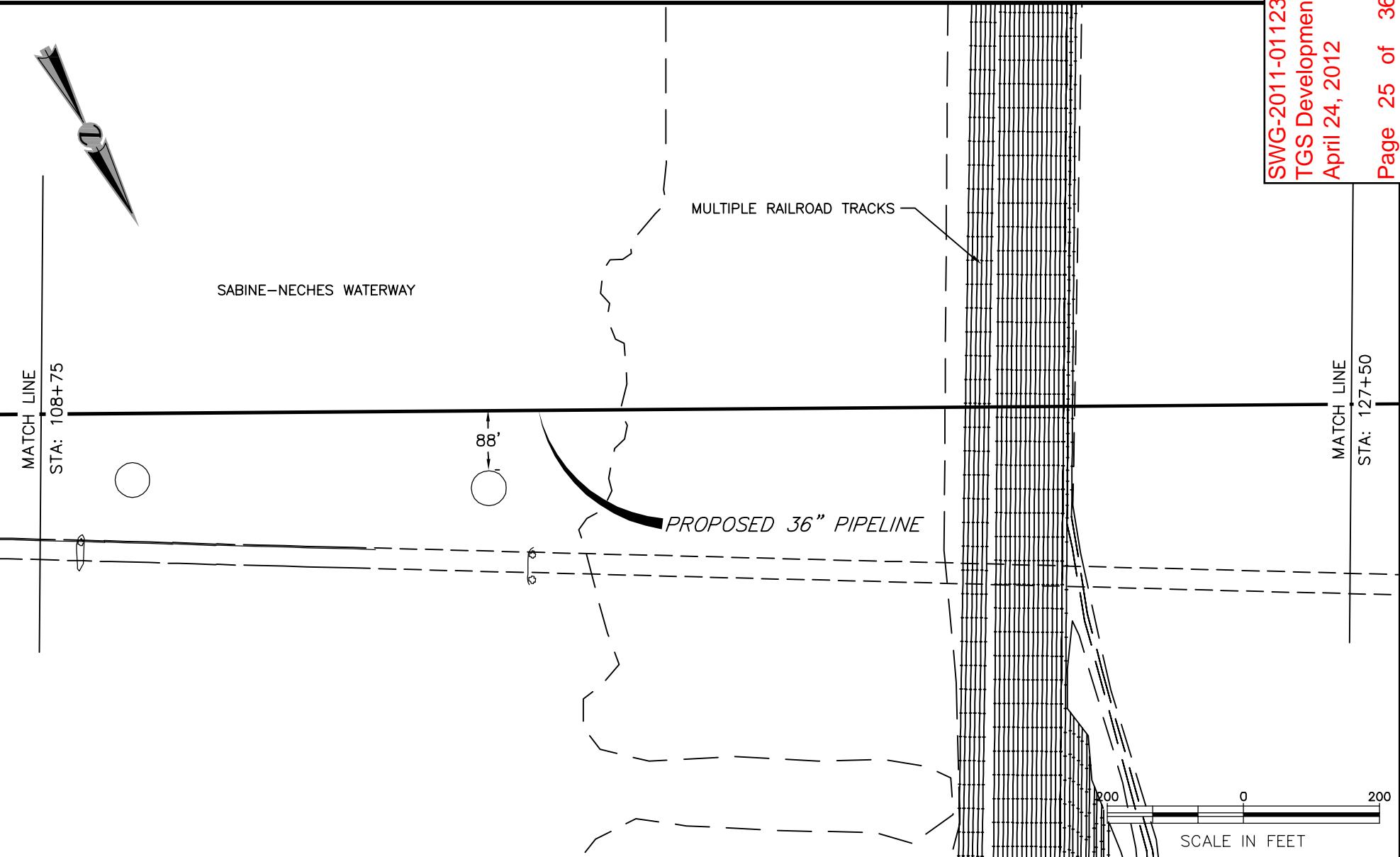
SCALE 1"=200'	PROJ. NO. TGS-001	DWG. NO. SHEET 24 OF 37	REV. A
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REFERENCE DRAWINGS	NO.	REVISION	DATE	DRAWN BY	DATE
				ITE	1/26/12
				CHECKED BY	DATE
				SKB	1/28/12
				ENGR. APPD.	DATE
				PROJ. MGR. APPD.	DATE
TYPICAL STRAW BALE INSTALLATION SHT 33				ALIGN. DWG.	
TGS0019001-SHT6A SHT 24					
HDD TEMP PIPE STRING LAYOUT ACROSS WETLAND AREAS SHT 37	A	ISSUED FOR REVIEW	1/28/12		



TRANS GLOBAL SOLUTIONS DEVELOPMENT			
PROPOSED PIPELINE ROUTE MAP			
PORT ARTHUR,		TEXAS	
SCALE 1"=200'	PROJ. NO. TGS-001	DWG. NO. SHEET 25 OF 37	REV. A



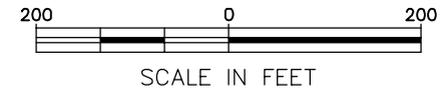
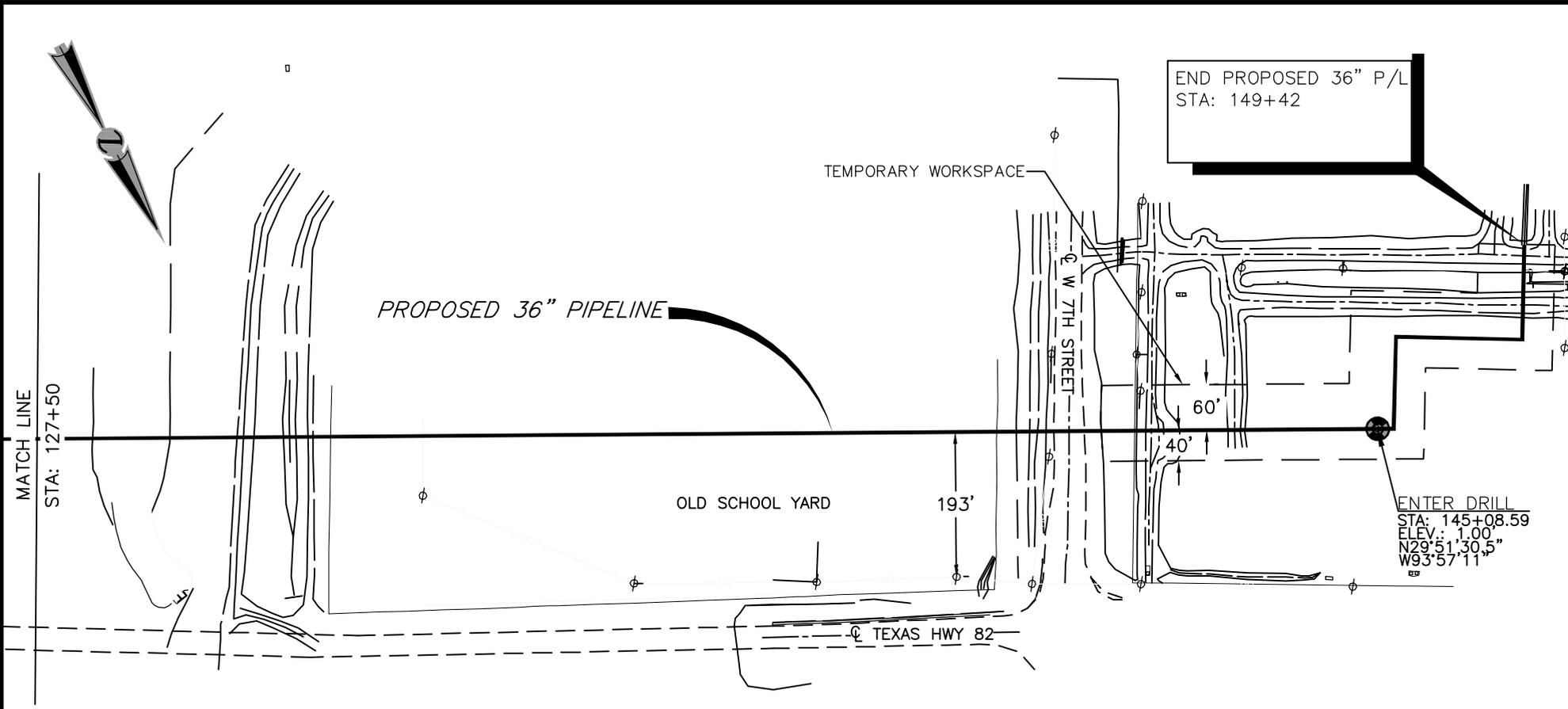
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PROPOSED HORIZONTAL DIRECTIONAL DRILL (HDD) SITE PLAN & PROFILE SHT 30			
TYPICAL RAILROAD CROSSING SHT 30			
TYPICAL RIGHT-OF-WAY CONSTRUCTION LIMITS SHT 31	A	ISSUED FOR REVIEW	1/28/12

DRAWN BY	DATE
ITE	1/26/12
CHECKED BY	DATE
SKB	1/28/12
ENGR. APPD.	DATE
PROJ. MGR. APPD.	DATE
ALIGN. DWG.	



TRANS GLOBAL SOLUTIONS DEVELOPMENT			
PROPOSED PIPELINE ROUTE MAP			
PORT ARTHUR, TEXAS			
SCALE	PROJ. NO.	DWG. NO.	REV.
1"=200'	TGS-001	SHEET 26 OF 37	A

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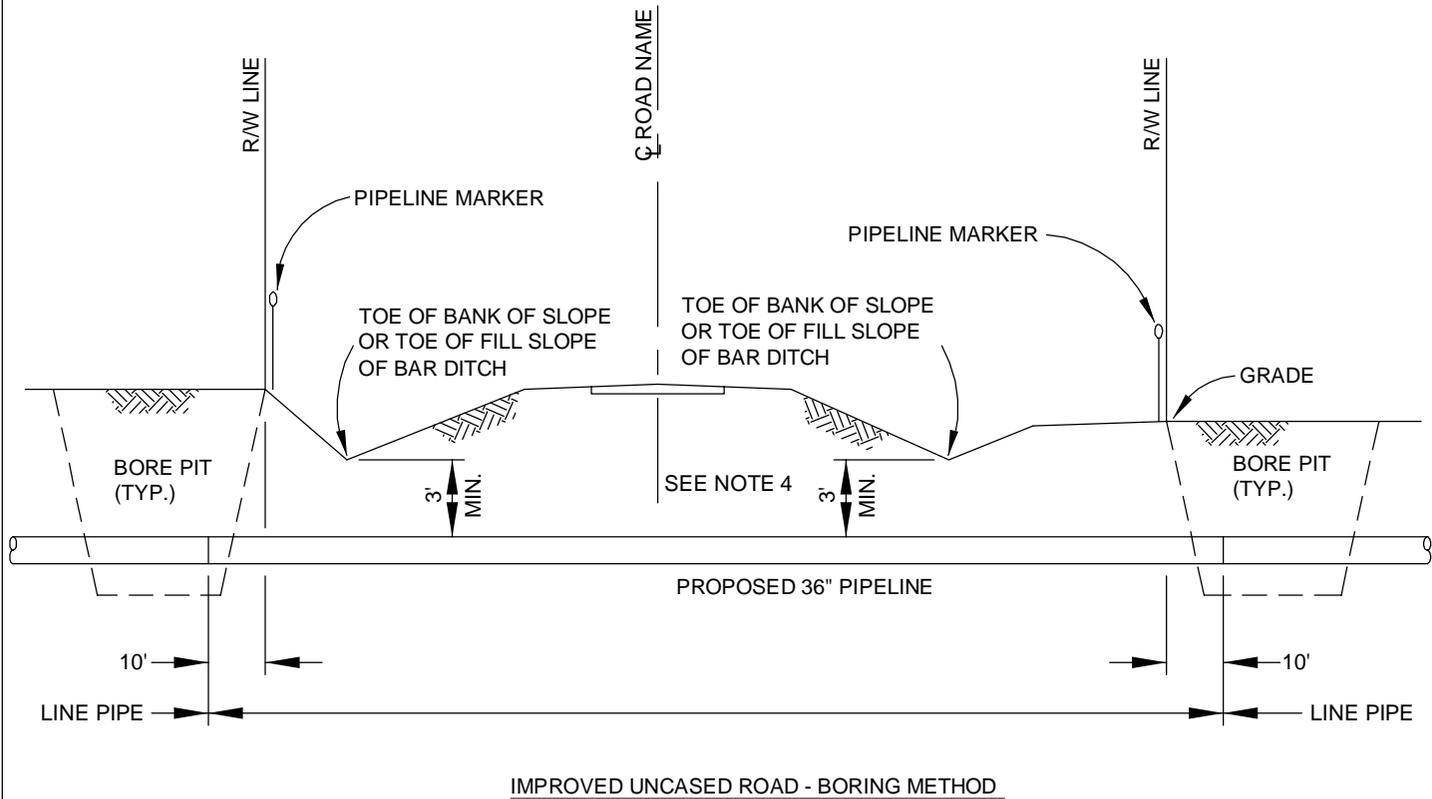


REFERENCE DRAWINGS	NO.	REVISION	DATE	DRAWN BY	DATE
				ITE	1/26/12
				CHECKED BY	DATE
				SKB	1/28/12
				ENGR. APPD.	DATE
				PROJ. MGR. APPD.	DATE
PROPOSED HORIZONTAL DIRECTIONAL DRILL (HDD) SITE PLAN & PROFILE SHT 30				ALIGN. DWG.	
TYPICAL RIGHT-OF-WAY CONSTRUCTION LIMITS SHT 31	A	ISSUED FOR REVIEW	1/28/12		



TRANS GLOBAL SOLUTIONS DEVELOPMENT
 PROPOSED PIPELINE
 ROUTE MAP
 PORT ARTHUR, TEXAS

SCALE 1"=200'	PROJ. NO. TGS-001	DWG. NO. SHEET 27 OF 37	REV. A
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NOTES:

1. DESIGN FACTOR: IN ACCORDANCE WITH ALIGNMENT SHEETS
2. 100% X-RAY INSPECT ALL WELDS ON CARRIER PIPE IN ACCORDANCE WITH API STANDARD 1104 AND CONTRACT DOCUMENTS.
3. CONTRACTOR TO CONVENTIONALLY BORE CARRIER PIPE WITH A PROCEDURE SUBMITTED BY CONTRACTOR AND APPROVED BY THE COMPANY.
4. MINIMUM DEPTH OF COVER UNDER ROAD TO TOP OF PIPE SHALL BE 4'-6" OR SHALL CONFORM TO THE ROAD CROSSING PERMIT, WHICHEVER IS GREATER. ROAD CROSSING PIPE TO EXTEND 10' BEYOND ON EITHER SIDE OF DESIGNATED ROAD RIGHT-OF-WAY.
5. CONTRACTOR TO COMPLY TO THE SPECIFICATION REQUIREMENTS.



TGS DEVELOPMENT, LP
 PORT AUTHUR TEXAS

TYPICAL BORED ROAD CROSSING

DATE NOV.4,2011
 DESIGN GKS
 DRAWN FKM
 CHECK SKB
 CONTRACT/VIT-025
 SHEET No.

CONSTRUCTION PROCEDURES:

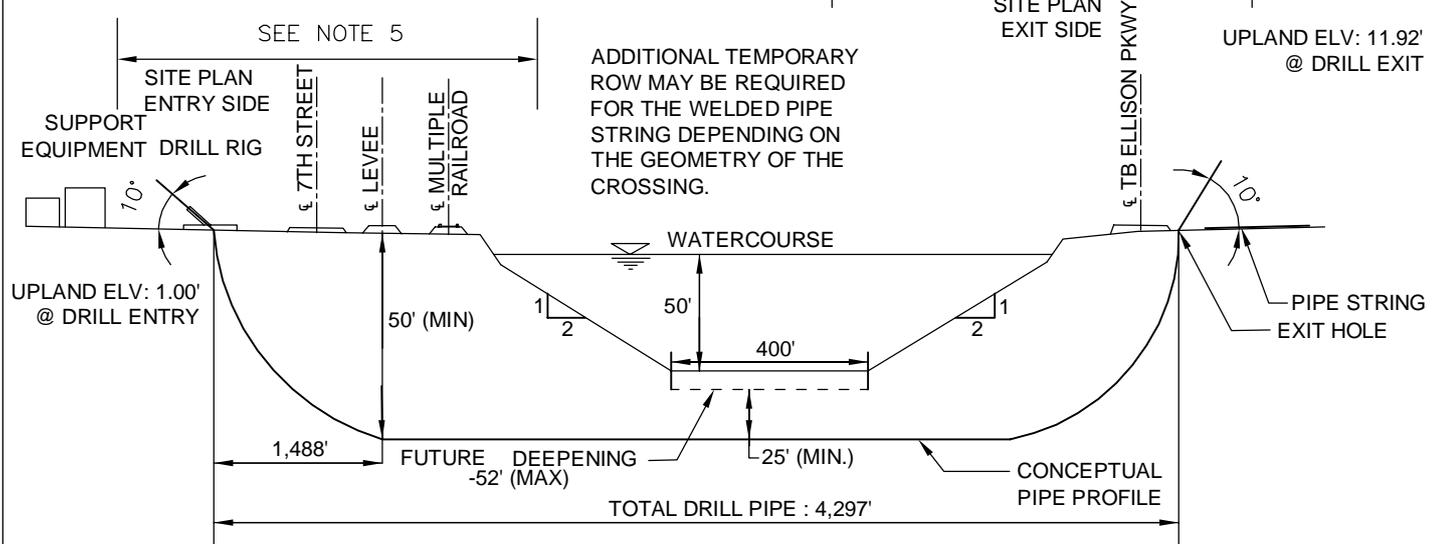
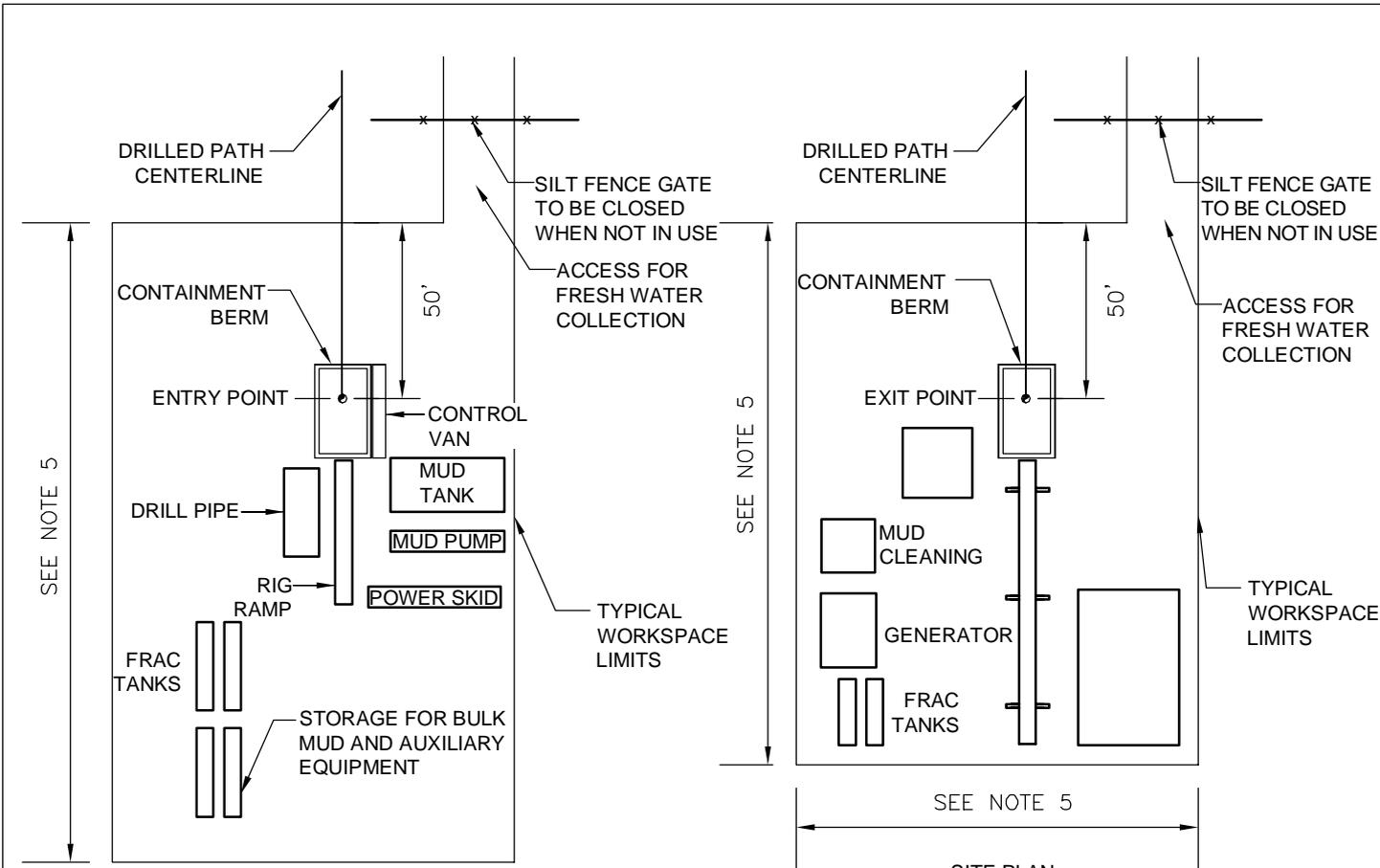
1. RIGHT-OF-WAY BOUNDARIES AND WORK SPACE LIMITS SHALL BE CLEARLY DELINEATED. STAGING FROM MAKEUP SHALL BE LOCATED A MINIMUM OF 10 FEET FROM WATERBODY.
2. CLEARING LIMITS WILL BE CLEARLY DELINEATED AND A VEGETATIVE BUFFER STRIP BETWEEN DISTURBED AREA AND THE WATERBODY SHALL BE MAINTAINED TO THE EXTENT POSSIBLE. ALL CLEARING SHALL BE MINIMIZED TO THE EXTENT POSSIBLE AND ONLY THAT NECESSARY FOR CONSTRUCTION. WOODY VEGETATION SHALL BE CUT AT GROUND LEVEL AND THE STUMP/ROOT LEFT IN PLACE TO THE EXTENT POSSIBLE.
3. TOPSOIL SHALL BE STRIPPED FROM THE DITCH LINE IN ALL UNSATURATED WETLAND RIPARIAN AREAS.
4. CONSTRUCTION SHALL INSTALL SIGNS APPROXIMATELY 100 FEET MINIMUM FROM EACH WATERBODY AND WETLAND TO IDENTIFY THE HAZARDOUS MATERIALS EXCLUSION AREA.
5. EROSION AND SEDIMENT CONTROL
 - A. CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES, AS DEPICTED OR ALONG DOWN GRADIENT SIDES OF WORK AREAS AND STAGING AREAS SUCH THAT NO HEAVILY SILT LADEN WATER ENTERS WATERBODY OR WETLAND.
 - B. NO HEAVILY SILT LADEN WATER SHALL BE DISCHARGED DIRECTLY OR INDIRECTLY INTO THE WATERBODY . ALL EROSION AND SEDIMENT CONTROL STRUCTURE LOCATIONS AS DEPICTED ARE APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED BY THE COMPANY INSPECTOR TO SUIT ACTUAL SITE CONDITIONS. SILT FENCE OR STRAW BALE INSTALLATIONS SHALL INCLUDE REMOVABLE SECTIONS TO FACILITATE ACCESS DURING CONSTRUCTION.
 - C. SEDIMENT LADEN WATER FROM TRENCH DEWATERING SHALL BE DISCHARGED TO A WELL VEGETATED UPLAND AREA, INTO A STRAW BALE DEWATERING STRUCTURE OR GEOTEXTILE FILTER BAG. SEDIMENT CONTROL STRUCTURES MUST BE IN PLACE AT ALL TIMES ACROSS THE DISTURBED CONSTRUCTION RIGHT OF WAY EXCEPT DURING EXCAVATION/INSTALLATION OF THE CROSSING PIPE.
 - D. SOFT DITCH PLUGS MUST REMAIN IN PLACE AT CONVENIENT LOCATIONS TO SEPARATE MAINLINE DITCH FROM THE WATERBODY CROSSING UNTIL THE WATER CROSSING IS INSTALLED AND BACKFILLED.
 - E. TRENCH BREAKERS ARE TO BE INSTALLED AT THE SAME SPACING AND IMMEDIATELY UPSLOPE OF PERMANENT SLOPE BREAKERS, OR AS DIRECTED BY THE COMPANY.
6. CONTRACTOR SHALL MAINTAIN HARD PLUGS IN THE DITCH AT THE WATERBODY UNTIL JUST PRIOR TO PIPE INSTALLATION. CONTRACTOR SHALL EXCAVATE TRENCH AND INSTALL PIPE AS EXPEDIENTLY AS PRACTICAL TO REDUCE THE DURATION OF THE WORK ACTIVITIES IN THE WATERBODY BED.
7. CONTRACTOR SHALL PLACE TRENCH SPOIL ONLY IN CERTIFICATED WORK SPACE AND A MINIMUM OF 10 FEET FROM THE WATERBODY BANKS TO PREVENT ENTRY OF SPOIL INTO THE WATERBODY. SPOIL SHALL BE CONTAINED AS NECESSARY USING EITHER A STRAW BALE BARRIER OR AN EARTH/ROCK BERM.
8. CONTRACTOR SHALL RESTORE THE WATERBODY AND BANKS TO APPROXIMATE PRECONSTRUCTION CONTOURS, UNLESS OTHERWISE APPROVED BY THE COMPANY. CONTRACTOR SHALL INSTALL PERMANENT EROSION AND SEDIMENT CONTROL STRUCTURES AS INDICATED. ANY MATERIALS PLACED IN THE WATERBODY TO FACILITATE CONSTRUCTION SHALL BE REMOVED DURING RESTORATION. BANKS SHALL BE STABILIZED AND TEMPORARY SEDIMENT BARRIERS INSTALLED AS SOON AS POSSIBLE AFTER CROSSING, BUT WITHIN 24 HOURS OF COMPLETING THE CROSSING. MAINTAIN A STILT FENCE OR STRAW BALE BARRIER ALONG THE WATERBODY AND WETLAND BOUNDARIES UNTIL VEGETATION IS ESTABLISHED IN ADJACENT DISTURBED AREAS.
9. VEHICLE CROSSINGS CAN BE CONSTRUCTED USING EITHER A FLUME CROSSING OR A TEMPORARY BRIDGE.



PORT AUTHUR **TGS DEVELOPMENT, LP** TEXAS

**TYPICAL FLOWING
 WATERBODY CROSSING
 METHOD**

DATE NOV.4,2011
 DESIGN GKS
 DRAWN FKM
 CHECK SKB
 CONTRACT#IT-025
 SHEET No.



ADDITIONAL TEMPORARY ROW MAY BE REQUIRED FOR THE WELDED PIPE STRING DEPENDING ON THE GEOMETRY OF THE CROSSING.

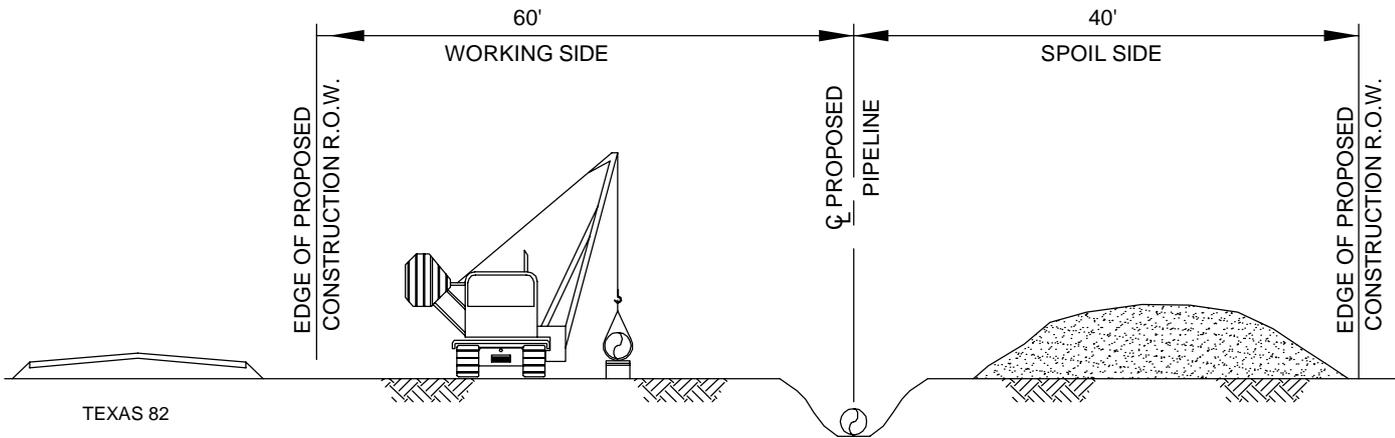
NOTES:

1. EQUIPMENT TO BE SUPPORTED ON THE GROUND SURFACE OR TIMBER MATS AS CONDITIONS DICTATE.
2. SILT FENCE AND/OR STRAW BALE BARRIER TO BE USED AS REQUIRED.
3. FOLLOW SITE SPECIFIC PLAN PROVIDED IN THE CONSTRUCTION DRAWINGS.
4. CONFIGURATIONS SHOWN ARE TYPICAL AND SHALL BE MODIFIED BY COMPANY AS NECESSARY TO SUIT ACTUAL SITE CONDITIONS.
5. DIMENSIONS OF SITE WILL VARY BASED UPON SIZE AND AMOUNT OF EQUIPMENT REQUIRED TO ACCOMPLISH A SUCCESSFUL INSTALLATION. TYPICALLY THE WIDTH AND LENGTH WILL BE 150' X 150' OR 200' X 200'.
6. CHANNEL DIMENSIONS PER "FINAL FEASIBILITY REPORT FOR SABINE-NECHES WATERWAY CHANNEL IMPROVEMENT PROJECT" VOLUME 1, APPENDIX 1, PLATE C-16. (JUNE 2010)

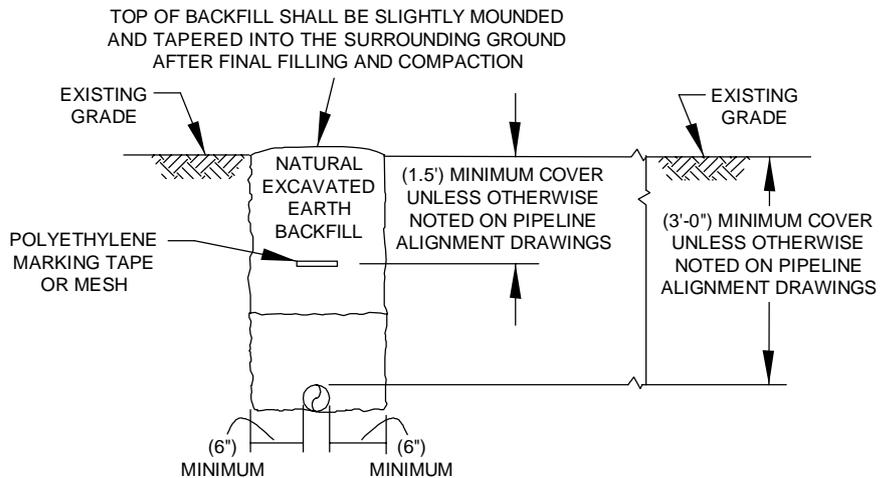
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TGS DEVELOPMENT, LP	PORT AUTHUR	TEXAS	DATE NOV. 4, 2011 DESIGN GKS DRAWN FKM CHECK SKB CONTRACT WT-025 SHEET No.
PROPOSED HORIZONTAL DIRECTIONAL DRILL (HDD) SITE PLAN & PROFILE			30 OF 37



PROFILE
(NOT TO SCALE)

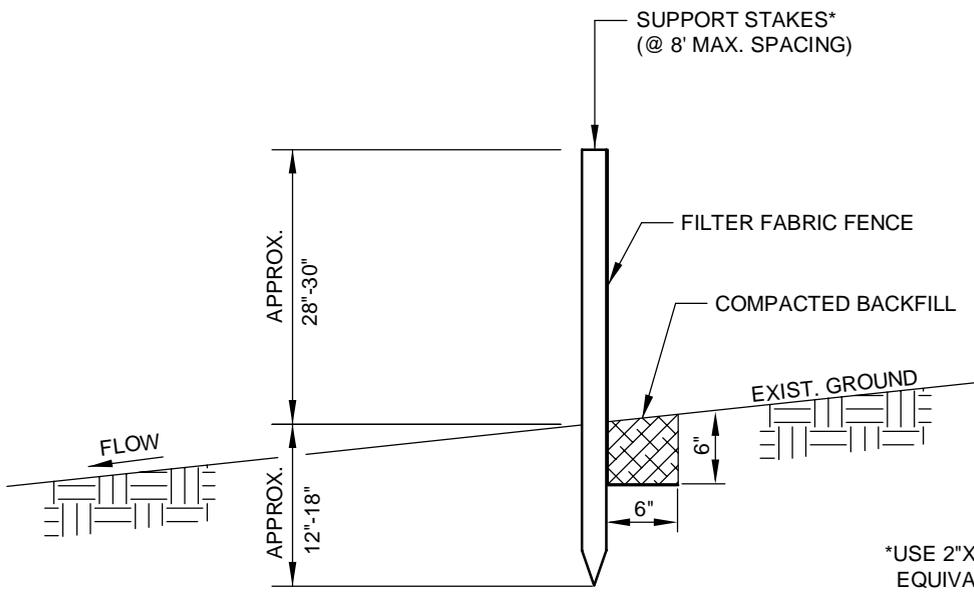


TYPICAL TRENCH DETAILS
(NOT TO SCALE)

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 100 FEET WIDE CONSISTING OF 60 FEET ON THE WORKING SIDE AND 40 FEET OF THE WORKSPACE ON THE SPOIL SIDE. EXTRA TEMPORARY WORKSPACE WILL BE NECESSARY AT MAJOR ROAD, RAIL, WATER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES.
2. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CREEKS OR WETLANDS. AVOID SCALPING VEGETATED GROUND SURFACE WHEN BACKFILLING SPOIL PILES.
3. BOTTOM OF TRENCH WIDTH WILL BE AN AVERAGE OF 4'-6" (TYPICAL) HOWEVER, UNDER CERTAIN CIRCUMSTANCES, THE TRENCH MAY BE A MAXIMUM OF 8' WIDE.





NOTES:

1. SILT FENCE MUST BE LEFT IN PLACE UNTIL VEGETATION HAS BEEN ESTABLISHED.
2. FILTER FABRIC FENCE MUST BE INSTALLED AT EXISTING LEVEL GRADE.
3. SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

*USE 2"X2" WOOD OR EQUIVALENT STEEL STAKES

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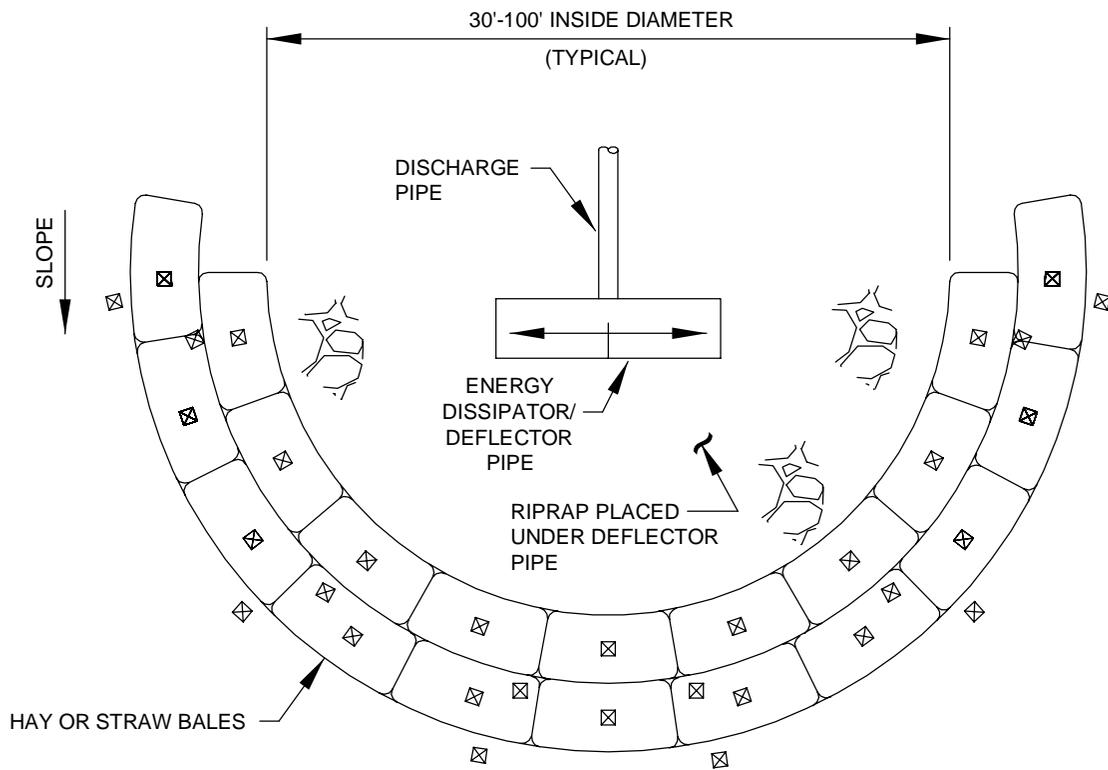
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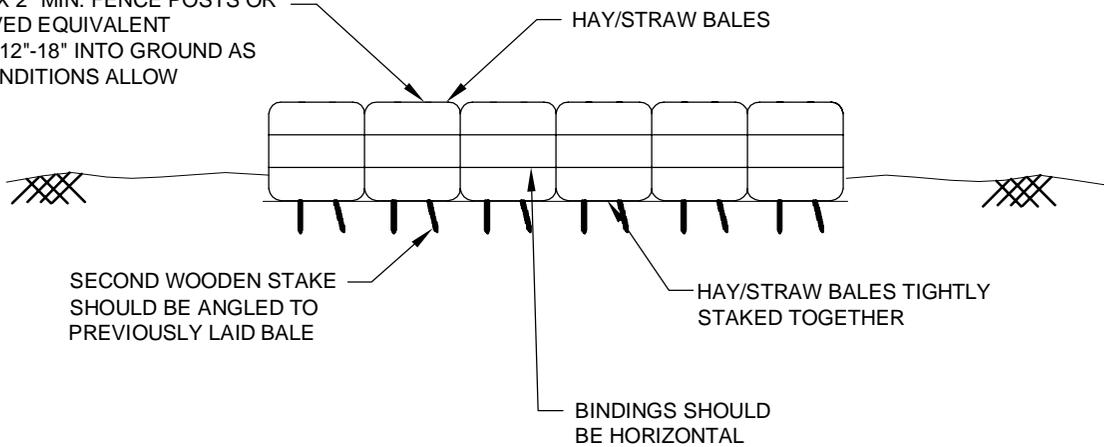
**TYPICAL
SILT FENCE INSTALLATION**

DATE NOV.4,2011
DESIGN GKS
DRAWN FKM
CHECK SKB
CONTRACTVIT-025
SHEET No.



PLAN

34" X 2" X 2" MIN. FENCE POSTS OR APPROVED EQUIVALENT DRIVEN 12"-18" INTO GROUND AS SITE CONDITIONS ALLOW



FRONT VIEW

NOTES:

1. HAY BALES TO BE EMBEDDED 2-4" MIN. INTO GROUND AS SITE CONDITIONS ALLOW.
2. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUNDS HEIGHT OF THE BARRIER.
3. HAY/STRAW BALES REMOVED FOR ACCESS PURPOSES DURING THE DAY MUST BE REINSTALLED AFTER THE CONSTRUCTION ACTIVITY HAS PASSED THROUGH OR BY THE END OF THE DAY.

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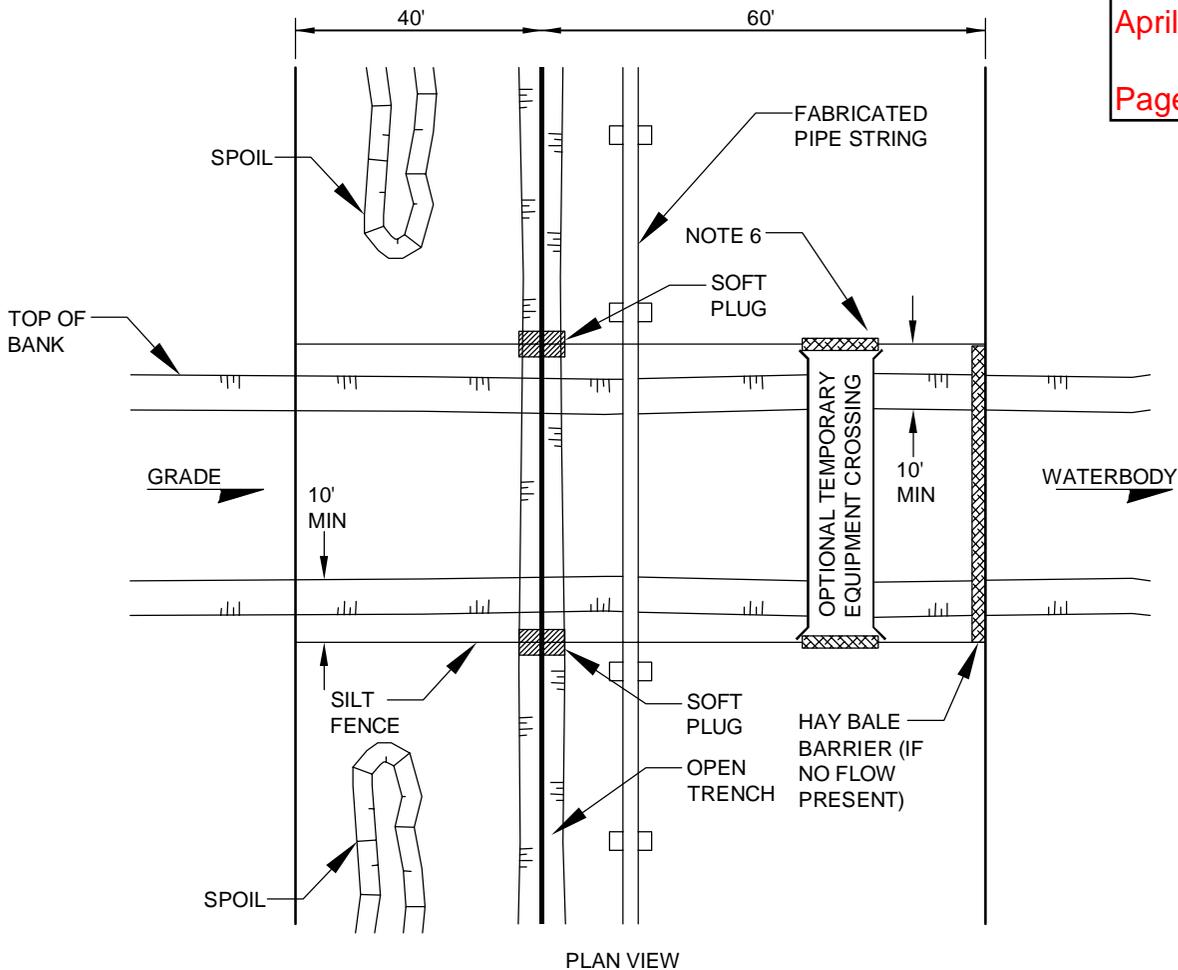
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TGS DEVELOPMENT, LP
 PORT AUTHUR TEXAS

TYPICAL STRAW BALE INSTALATION

DATE NOV.4,2011
 DESIGN GKS
 DRAWN FKM
 CHECK SKB
 CONTRACT/VIT-025
 SHEET No.



PLAN VIEW

CONSTRUCTION PROCEDURES:

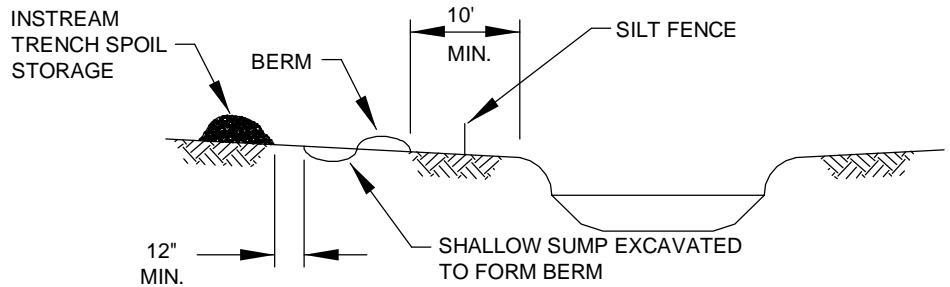
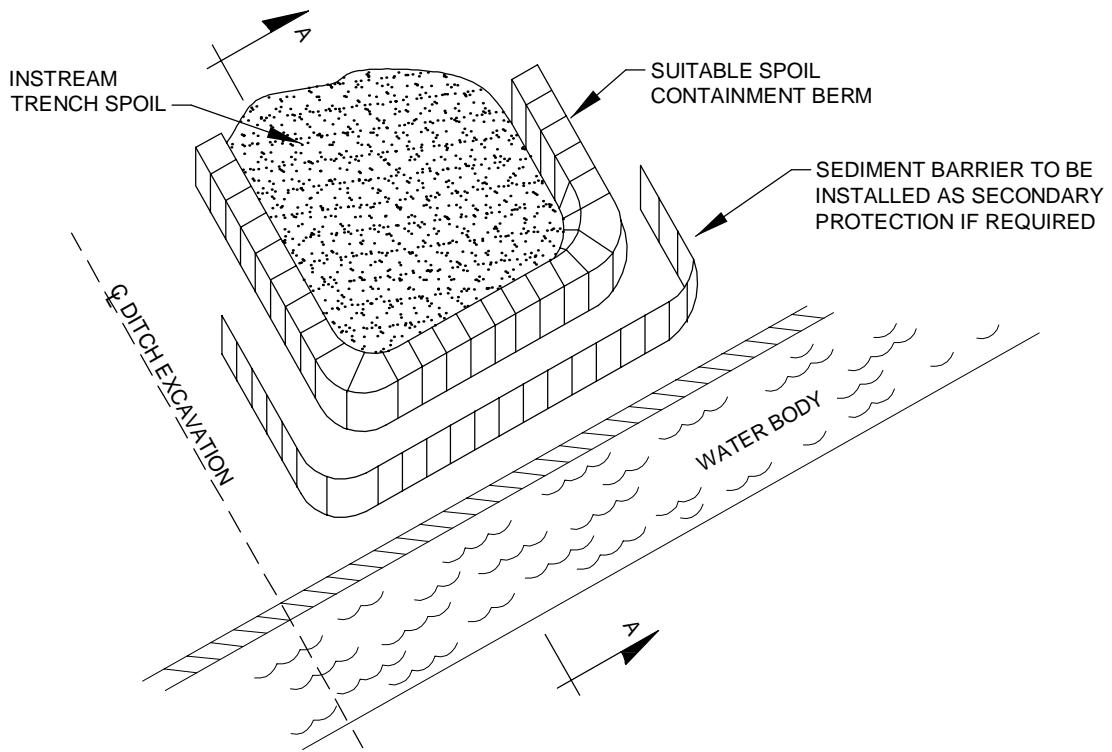
1. METHOD APPLIES TO CROSSING WHERE NO FLOWING WATER IS PRESENT AT THE TIME OF CROSSING OR AS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
2. CONTRACTOR MAY "MAINLINE THROUGH" THE CROSSING OR UP TO BOTH SIDES OF THE CROSSING; STRING, WELD, COAT AND WEIGHT (IF NECESSARY), USING THE MAINLINE CREW WITH THE PIPE SKIDDED OVER THE CROSSING.
3. NO REFUELING OF MOBILE EQUIPMENT WITHIN 100 FEET OF DRY CHANNEL. REFUEL STATIONARY EQUIPMENT AS PER COMPANY'S SPILL PREVENTION PROCEDURES.
4. INSTALLATION OF TEMPORARY EQUIPMENT CROSSING IS OPTIONAL AT THE DISCRETION OF THE COMPANY.
5. IN AGRICULTURAL LAND, STRIP TOPSOIL FROM SPOIL STORAGE AREA. STOCKPILE TOPSOIL AND SPOIL SEPARATELY. TOPSOIL AND SPOIL WILL NOT BE STOCKPILED IN THE CROSSING CHANNEL AND WILL BE PLACED A MINIMUM OF 10 FEET FROM CROSSING BANKS WITHIN THE CONSTRUCTION RIGHT-OF-WAY.
6. CONSTRUCT SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION RIGHT-OF-WAY FOLLOWING CLEARING AND GRADING AND MAINTAIN UNTIL CONSTRUCTION OF THE CROSSING. EROSION CONTROL MEASURES SHALL BE REINSTALLED IMMEDIATELY FOLLOWING BACKFILLING OF TRENCH AND STABILIZATION OF BANKS. BARRIERS MAY BE TEMPORARILY REMOVED TO ALLOW CONSTRUCTION ACTIVITIES BUT MUST BE REPLACED BY THE END OF EACH WORK DAY.
7. IN-STREAM SPOIL TO BE STORED OUT OF THE STREAM CHANNEL A MINIMUM OF 10 FEET FROM HIGH BANK AND WITHIN THE CONSTRUCTION RIGHT-OF-WAY.
8. BACKFILL WITH NATIVE MATERIAL.
9. RESTORE CROSSING CHANNEL TO APPROXIMATE PRE-CONSTRUCTION PROFILE AND SUBSTRATE.
10. RESTORE CROSSING BANKS TO APPROXIMATE ORIGINAL CONDITION AND STABILIZE WITH EROSION CONTROL.



TGS DEVELOPMENT, LP
 PORT AUTHUR TEXAS

**TYPICAL NON-FLOWING
 WATERBODY CROSSING METHOD**

DATE NOV.4.2011
 DESIGN GKS
 DRAWN FKM
 CHECK SKB
 CONTRACT/VIT-025
 SHEET No.



SECTION A-A
NOT TO SCALE

NOTES:

1. SOIL CONTAINMENT BERMS ARE TO BE USED WHERE INSTREAM TRENCH SPOIL COULD ENTER THE WATERCOURSE DIRECTLY OR INDIRECTLY.
2. MATERIAL USED FOR THE CONTAINMENT BERM SHOULD BE A MINIMUM OF 10' FROM THE WATERS EDGE. IT SHOULD BE KEPT TO A HEIGHT WHICH REMAINS STABLE DURING THE CONSTRUCTION PERIOD.
3. CARE SHOULD BE TAKEN THAT THE SPOIL PILE DOES NOT OVERTOP THE CONTAINMENT BERM.
4. THE CONTAINMENT BERM SHOULD BE DISMANTLED AND THE SITE RESTORED TO THE ORIGINAL CONDITION UPON COMPLETION OF THE WATER CROSSING.
5. WHERE POSSIBLE, RIPARIAN VEGETATION SHALL BE LEFT IN PLACE.
6. STAGED MOVEMENT OF INSTREAM SPOIL MAY BE REQUIRED IF QUANTITIES ARE EXCESSIVE.
7. CARE AND ATTENTION MUST BE TAKEN TO ENSURE SPOIL CONTAINMENT BERMS ARE MAINTAINED.
8. FULL CONSIDERATION FOR OVERALL SLOPE STABILITY IS REQUIRED WHEN SELECTING A SPOIL CONTAINMENT LOCATION.

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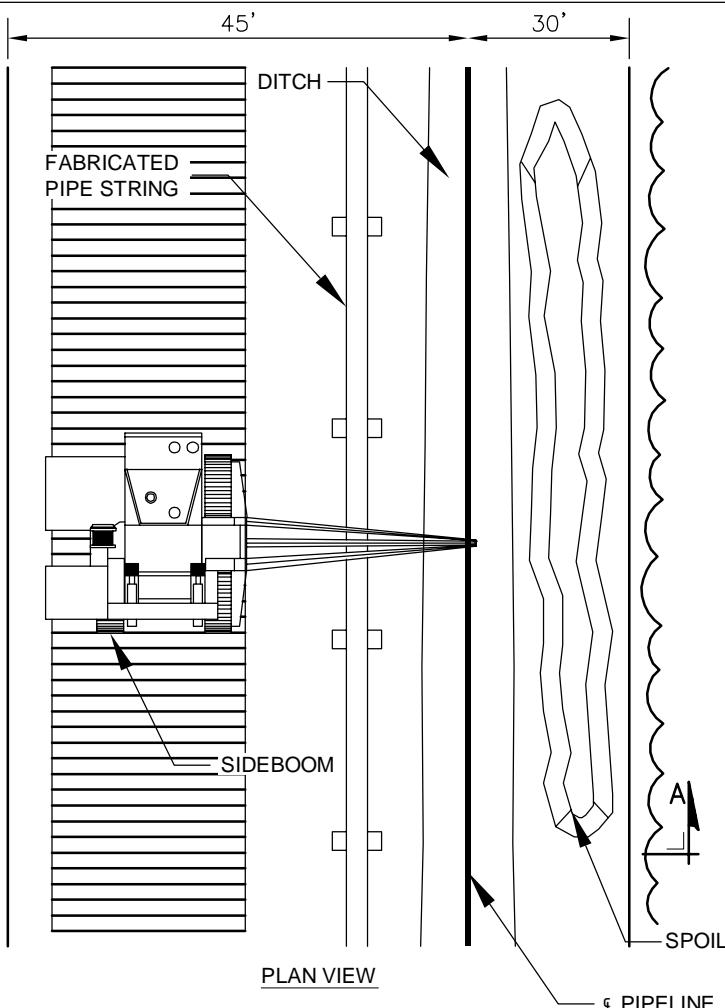
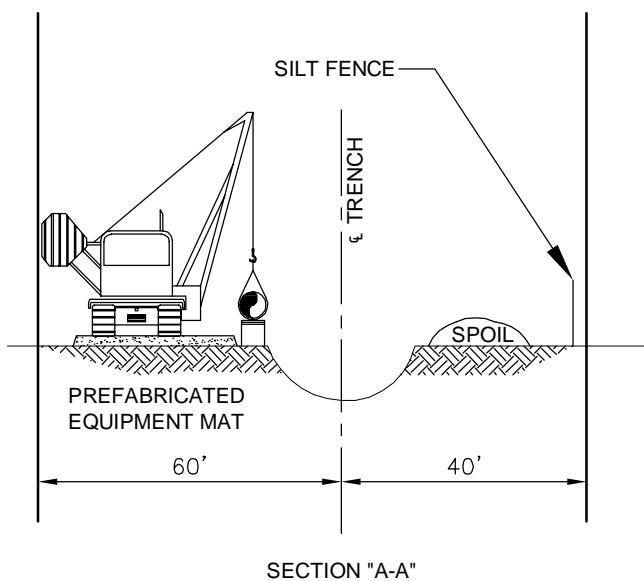


PORT AUTHUR **TGS DEVELOPMENT, LP** TEXAS

**TYPICAL TEMPORARY
SOIL CONTAINMENT
BERM FOR WATERBODY TRENCH SPOIL**

DATE NOV.4,2011
DESIGN GKS
DRAWN FKM
CHECK SKB
CONTRACT#IT-025
SHEET No.

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CONSTRUCTION PROCEDURES:

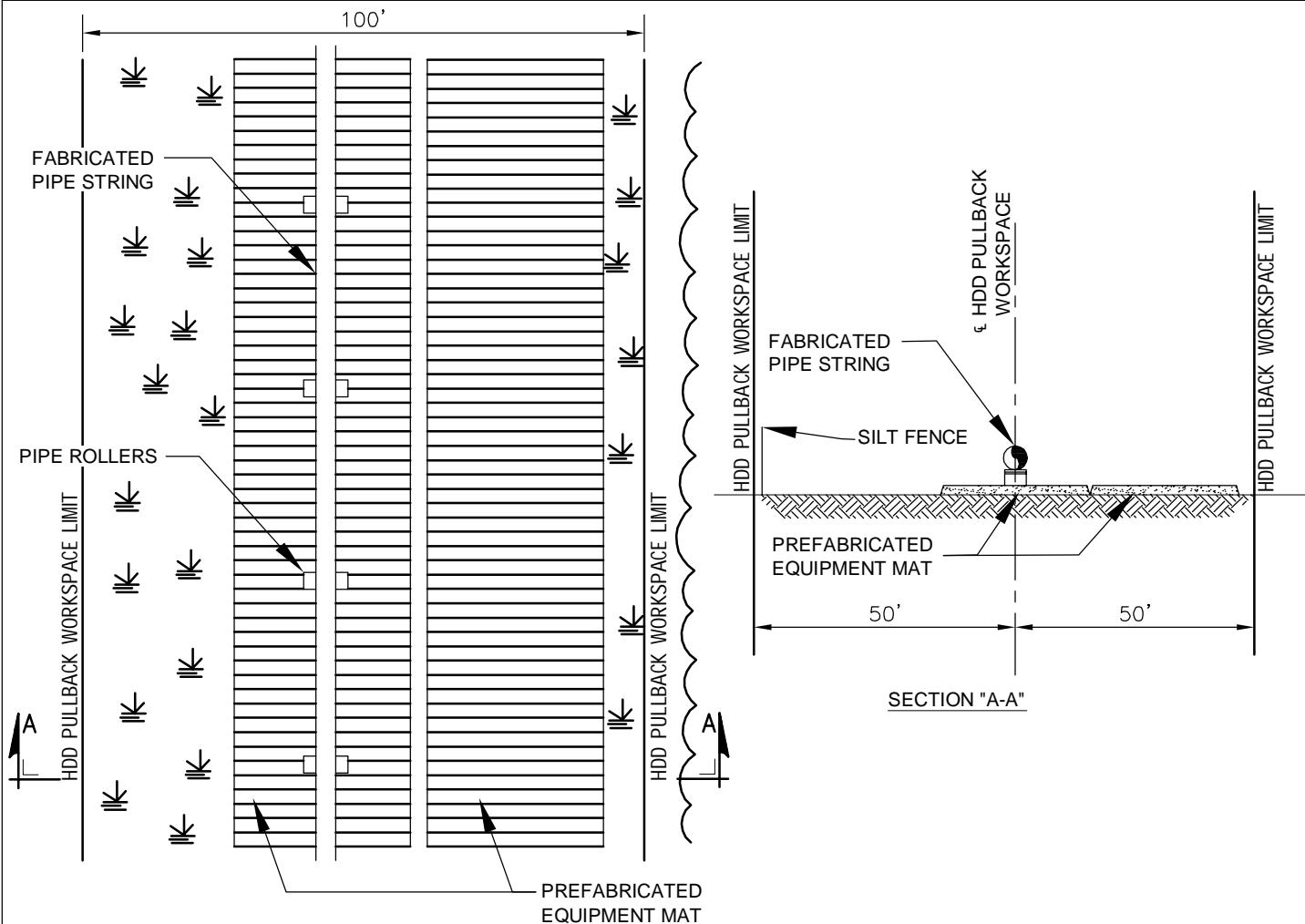
1. FLAG WETLAND BOUNDARIES PRIOR TO CLEARING.
2. NO REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND BOUNDARY. PLACE "NO FUELING" SIGN POSTS APPROXIMATELY 100 FEET BACK FROM WETLAND BOUNDARY. REFUEL STATIONARY EQUIPMENT AS PER COMPANY'S SPILL PREVENTION PROCEDURES.
3. INSTALL TIMBER MATS AS DIRECTED THROUGH DESIGNATED WETLAND AREAS AS SHOWN ON PLAN VIEW. EQUIPMENT NECESSARY FOR RIGHT-OF-WAY CLEARING MAY MAKE ONE (1) PASS THROUGH THE WETLAND BEFORE MATS ARE INSTALLED. THIS CONSTRUCTION TECHNIQUE APPLIES TO WET AREAS, BUT ONLY THOSE AREAS IDENTIFIED AS DESIGNATED WETLANDS REQUIRE MATTING.
4. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS (STRAW BALES AND/OR SILT FENCE) AT EDGE OF RIGHT-OF-WAY AND ALONG WETLAND EDGE AS REQUIRED.
5. RESTRICT ROOT GRUBBING TO ONLY THAT AREA OVER THE DITCHLINE AND DITCH SPOIL AREAS AND REMOVE FROM WETLAND FOR DISPOSAL.
6. LEAVE HARD PLUGS AT THE EDGE OF THE WETLAND UNTIL JUST PRIOR TO TRENCHING.
7. PIPE SECTION MAY BE FABRICATED WITHIN THE WETLAND AND ADJACENT TO ALIGNMENT, OR IN STAGING AREA OUTSIDE THE WETLAND AND WALKED IN.
8. TRENCH THROUGH WETLANDS.
9. LOWER IN PIPE, INSTALL TRENCH PLUGS AT WETLAND EDGES AS REQUIRED AND BACKFILL IMMEDIATELY.
10. REMOVE TIMBER RIP-RAP OR PREFABRICATED MATS FROM WETLANDS UPON COMPLETION.
11. RESTORE GRADE TO PRE-CONSTRUCTION TOPOGRAPHY, AND INSTALL PERMANENT EROSION CONTROL.



TGS DEVELOPMENT, LP
 PORT AUTHUR TEXAS

**STANDARD WET
 CROSSING METHOD**

DATE NOV.4,2011
 DESIGN GKS
 DRAWN FKM
 CHECK SKB
 CONTRACT WIT-025
 SHEET No.



CONSTRUCTION PROCEDURES:

1. FLAG WETLAND BOUNDARIES PRIOR TO CLEARING.
2. NO REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND BOUNDARY. PLACE "NO FUELING" SIGN POSTS APPROXIMATELY 100 FEET BACK FROM WETLAND BOUNDARY. REFUEL STATIONARY EQUIPMENT AS PER COMPANY'S SPILL PREVENTION PROCEDURES.
3. INSTALL TIMBER MATS THROUGH ENTIRE DESIGNATED WETLAND AREAS AS SHOWN ON PLAN VIEW. EQUIPMENT NECESSARY FOR RIGHT-OF-WAY CLEARING MAY MAKE ONE (1) PASS THROUGH THE WETLAND BEFORE MATS ARE INSTALLED. THIS CONSTRUCTION TECHNIQUE APPLIES TO WET AREAS, BUT ONLY THOSE AREAS IDENTIFIED AS DESIGNATED WETLANDS REQUIRE MATTING.
4. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS (STRAW BALES AND/OR SILT FENCE) AT EDGE OF RIGHT-OF-WAY AND ALONG WETLAND EDGE AS REQUIRED.
5. PIPE SECTION MAY BE FABRICATED WITHIN THE WETLAND AND ADJACENT TO ALIGNMENT, OR IN STAGING AREA OUTSIDE THE WETLAND AND WALKED IN.
6. REMOVE TIMBER RIP-RAP OR PREFABRICATED MATS FROM WETLANDS UPON COMPLETION.

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PORT AUTHUR **TGS DEVELOPMENT, LP** TEXAS

**HDD PIPE STRING LAYOUT
 ACROSS WETLAND AREAS**

DATE NOV.4.2011
 DESIGN GKS
 DRAWN FKM
 CHECK SKB
 CONTRACT WT-025
 SHEET No.