



Proactive by Design

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION
MANAGEMENT

530 Broadway
Providence, RI 02909
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F: 401.751.8613
www.gza.com



April 4, 2017
File No. 03.0033554.60

Mr. Neal Personeus
Office of Water Resources
Rhode Island Department of Environmental Management
235 Promenade Street
Providence, RI 02908

Re: Water Quality Certification and RIPDES Construction General Permit Application
Liquefaction Plant
Providence, Rhode Island

Dear Mr. Personeus:


On behalf of our Client, The Narragansett Electric Company, dba National Grid, this letter provides you with an update to an existing application that was submitted to you last year for a proposed liquefaction facility to be constructed on Allens Avenue, in Providence, Rhode Island.

Specifically, a Water Quality Certification application and RIPDES Construction General Permit application were submitted on 12 September 2016, pursuant to the *Water Quality Regulations* (amended December 2010), and the Rhode Island Pollutant Discharge Elimination System (RIPDES) Program. Since that time, minor changes to the proposed project have been made. Specifically, the proposed material management area is no longer being considered and has been removed from the liquefaction facility project. The plan set that accompanied the 2016 submittal has been revised to reflect this modification and is attached for your review. We have also modified the Soil Erosion and Sediment Control Plan and the Stormwater Management Plan to reflect the elimination of the material management area, but have not included these with this letter – please advise if you would like copies for your files.


If you have any questions or require any additional information regarding this application, please contact Igor Runge at igor.runge@gza.com or (401) 427-2710.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.


Sara Haupt, EIT
Project Engineer


Margaret Kilpatrick, P.E.
Associate Principal


Igor Runge, Ph.D., P.H.
Consultant/Reviewer

Attachments: Revised Plan Set

J:\ENV\33554.60.MSK\WORK\CRMC PERMITTING\STORMWATER\SWMP REV MARCH 2017\33554.60 WQC RIPDES CV MARCH 2017_MSK-IR.DOCX

NATIONAL GRID LIQUEFACTION PLANT

642 ALLENS AVENUE PROVIDENCE, RHODE ISLAND

OCTOBER 2016 REVISED MARCH 27, 2017

PREPARED FOR:

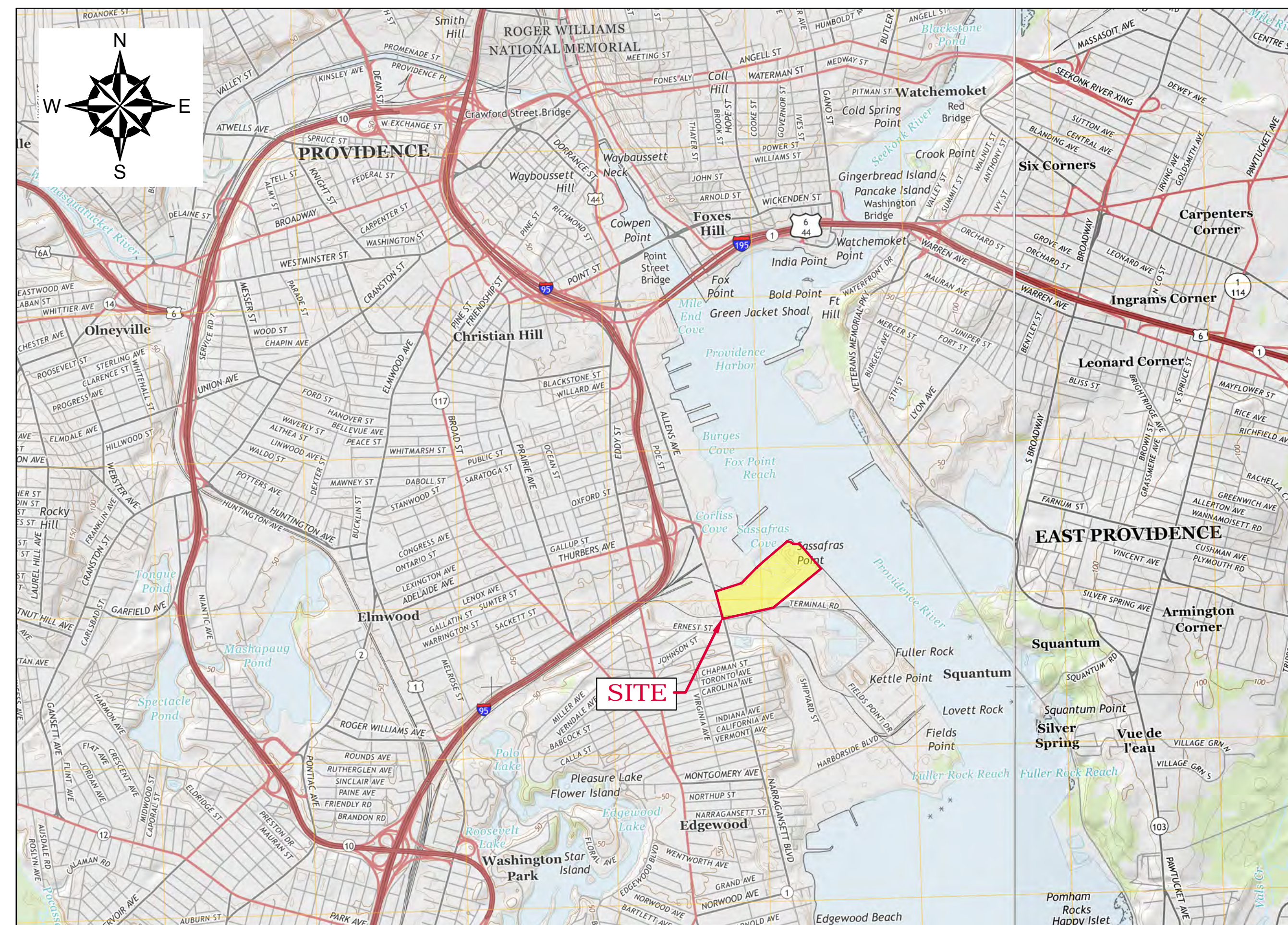


PREPARED BY:

GZA GEOENVIRONMENTAL, INC.
530 BROADWAY
PROVIDENCE, RHODE ISLAND 02909

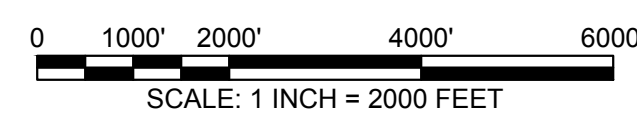
DESIGNED BY:

KIEWIT ENGINEERING AND DESIGN CO.
9401 RENNER BOULEVARD
LENEXA, KANSAS 66219



PROJECT LOCUS MAP

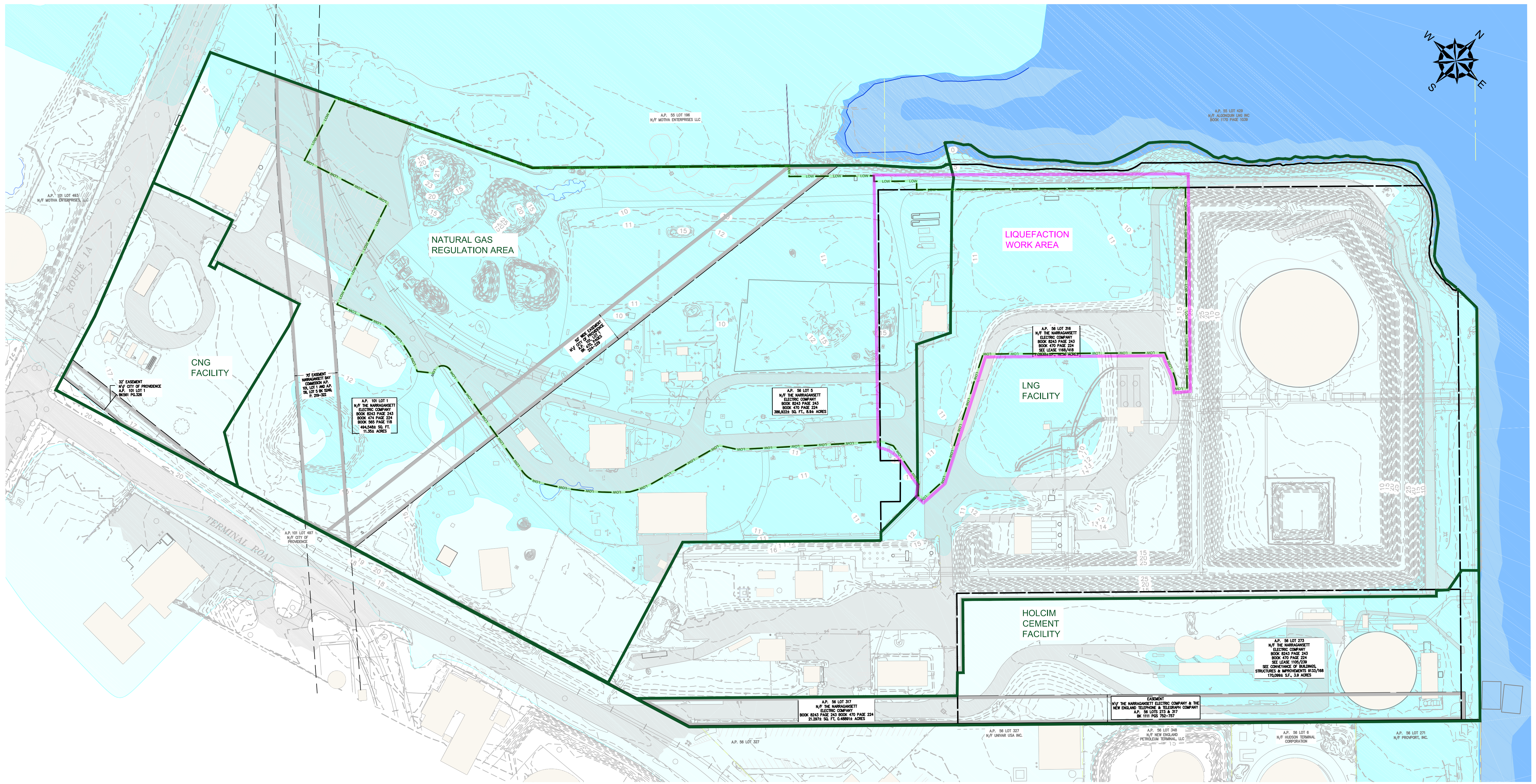
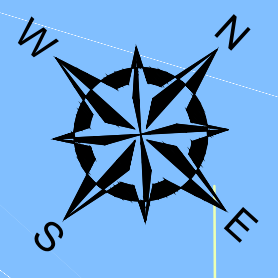
SOURCE: USGSSTORE.GOV



INDEX OF DRAWINGS	
SHEET #	SHEET TITLE
1	COVER
2	EXISTING CONDITIONS PLAN
3	EXISTING IMPERVIOUS CONDITIONS PLAN
4	TEMPORARY LAYDOWN AREA EROSION AND SEDIMENTATION CONTROLS
5	TEMPORARY SEDIMENTATION AND EROSION CONTROL DETAILS
6	LIQUEFACTION WORK AREA - EROSION AND SEDIMENTATION CONTROLS
7	LIQUEFACTION WORK AREA - EXISTING REVETMENT AND CROSS SECTIONS
8	LIQUEFACTION WORK AREA - PROPOSED SLOPE ARMORING, EXISTING REVETMENT AND CROSS SECTIONS
9	STORMWATER MANAGEMENT PLAN
10	STORMWATER MANAGEMENT DETAILS SAND FILTER
11	STORMWATER MANAGEMENT DETAILS CONCRETE FOREBAY
12	PROPOSED MONITORING WELL RE-INSTALLATION PLAN
13	PROPOSED FINAL CONDITIONS PLAN
14	PROPOSED IMPERVIOUS CONDITIONS PLAN

FOR PERMITTING
ONLY

THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY NATIONAL GRID OR THE NATIONAL GRID'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA AND NATIONAL GRID. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA AND NATIONAL GRID, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA AND NATIONAL GRID.



GENERAL NOTES:

- 1) BASE MAP DEVELOPED FROM THE FOLLOWING:
 - ELECTRONIC CAD FILE "ACAD-7257PL.DWG" PROVIDED BY YANASSE HANGEN BRUSTLIN (VHB) ENTITLED "EXISTING CONDITIONS PLAN," PROJECT TITLE "NATIONAL GRID LNG TERMINAL ROAD LNG FACILITY" DATED MARCH 10, 2014, ORIGINAL SCALE 1" = 50', DRAWING NO. SV-1 THROUGH SV-3 AND AERIAL MAPPING BY WSP TRANSPORTATION AND INFRASTRUCTURE DATED JANUARY 15, 2014 PREPARED FOR NATIONAL GRID LAND SURVEYING DEPARTMENT, WALTHAM, MASSACHUSETTS AND CAD FILE NO. 09303023.052-1.DWG. PLANS PROVIDED BY NATIONAL GRID.
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 - ELECTRONIC CAD FILE 5153_COO.DWG, TITLED "EXISTING CONDITIONS PLAN" PREPARED BY PROCESS PIPELINE SERVICES, DATED DECEMBER 16, 2014 AND PROVIDED BY NATIONAL GRID.
- 2) HORIZONTAL DATUM IS BASED ON NAD 1983 FROM BASE MAPPING PROVIDED BY VHB.
- 3) VERTICAL DATUM IS BASED ON NAVD 1988 FROM BASE MAPPING PROVIDED BY VHB.
- 4) ON-SITE INVESTIGATIONS AND SURVEYS BY GZA PERSONNEL DURING VARIOUS SITE VISITS BETWEEN 2011 AND 2016.
- 5) PARCEL DATA PROVIDED BY THE CITY OF PROVIDENCE PLANNING AND DEVELOPMENT DEPARTMENT. PARCELS OF REAL ESTATE ASSESSED AS OF DECEMBER 31, 2012. GIS DATA ARE FOR PLANNING PURPOSES ONLY. THESE DATA DO NOT REPRESENT A LEGALLY RECORDED PLAN, DEED, SURVEY OR ENGINEERING SCHEMATIC AND ARE NOT INTENDED TO BE USED AS SUCH.
- 6) SITE BOUNDARIES ARE APPROXIMATE.
- 7) FLOOD ZONE HAZARD AREA DATA WERE PROVIDED BY RHODE ISLAND GEOGRAPHIC INFORMATION SYSTEM (RIGIS) AND DERIVED FROM STATEWIDE DIGITAL FLOOD INSURANCE RATE MAP (DFIRM) DATABASE, ORIGINALLY PUBLISHED BY FEMA IN OCTOBER 2015.

LEGEND:

- EXISTING BUILDING
- EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
- EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
- PAVEMENT
- EASEMENT AREA
- PROPERTY LINE
- INTERIOR PROPERTY LINE
- LIMIT OF WORK
- ABUTTING PROPERTY LINE
- EDGE OF WATER
- EXISTING RAILROAD TRACKS
- EXISTING FENCE
- OPERATIONS BOUNDARY
- LIQUEFACTION WORK AREA
- EXISTING CONCRETE PAD
- UTILITY POLE
- LIGHT POLE
- HYDRANT

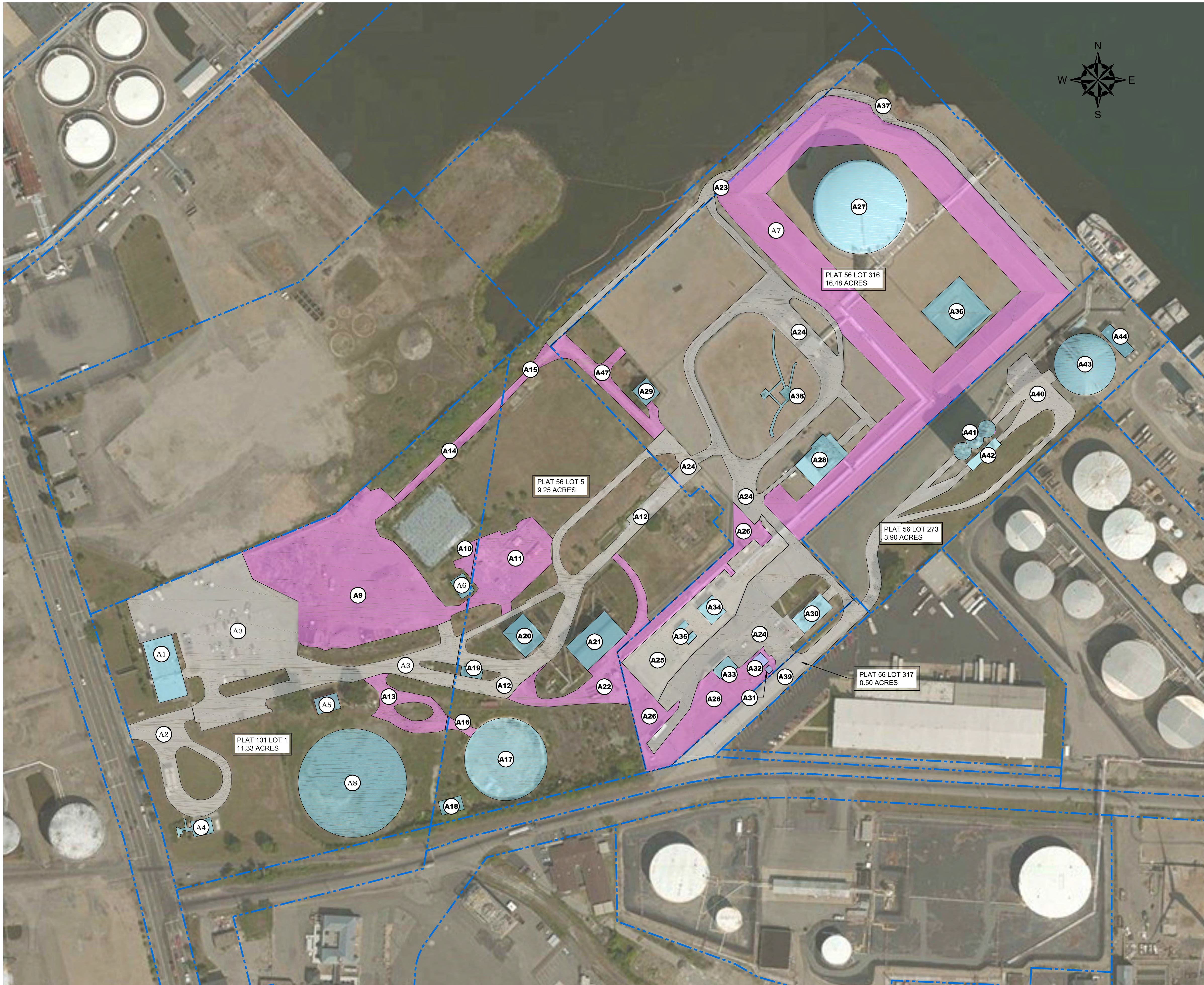
FLOOD HAZARD AREAS:

- FLOOD ZONE VE (EL. 14)
- FLOOD ZONE AE (EL. 12)
- FLOOD ZONE X (EL. 14)




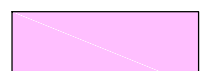
FOR PERMITTING ONLY

1	REMOVE SOIL STORAGE AREA	GZA	3/27/17
NO.	ISSUE/DESCRIPTION	BY	DATE
THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY NATIONAL GRID OR THE NATIONAL GRID'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA AND NATIONAL GRID. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA AND NATIONAL GRID, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA AND NATIONAL GRID.			
NATIONAL GRID LIQUEFACTION PLANT 642 ALLENS AVENUE PROVIDENCE, RHODE ISLAND			
EXISTING CONDITIONS PLAN			
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: nationalgrid	
PROJ MGR: MSK DESIGNED BY: SJH DATE: OCTOBER, 2016	REVIEWED BY: SJH DRAWN BY: LDT PROJECT NO.: 33554.60	CHECKED BY: IR SCALE: AS NOTED REVISION NO.: 1	FIGURE 2 SHEET NO. 2 OF 14

2017 - GZA GeoEnvironmental, Inc. GZA-DMA-33554.60-MSK-FIGURES-CAD-DWG-33554.60-CRMC-FPL-EX-FEM_3-1-2016.DWG EX COND MARCH 27, 2017 2:08 PM USA THERMALT



LEGEND

-  PROPERTY LINES
-  STRUCTURE
-  ASPHALT
-  OTHER

REFERENCE NOTES:

1. THIS MAP CONTAINS THE ESRI ARCGIS ONLINE BING MAPS AERIAL LAYER PACKAGE. IMAGE COURTESY OF USGS EARTHSTAR GEOGRAPHICS SIO © MICROSOFT CORPORATION 2015.
2. PARCEL DATA PROVIDED BY THE CITY OF PROVIDENCE PLANNING AND DEVELOPMENT DEPARTMENT. PARCELS OF REAL ESTATE ASSESSED AS OF DECEMBER 31, 2012. GIS DATA ARE FOR PLANNING PURPOSES ONLY. THESE DATA DO NOT REPRESENT A LEGALLY RECORDED PLAN, DEED, SURVEY OR ENGINEERING SCHEMATIC AND ARE NOT INTENDED TO BE USED AS SUCH.
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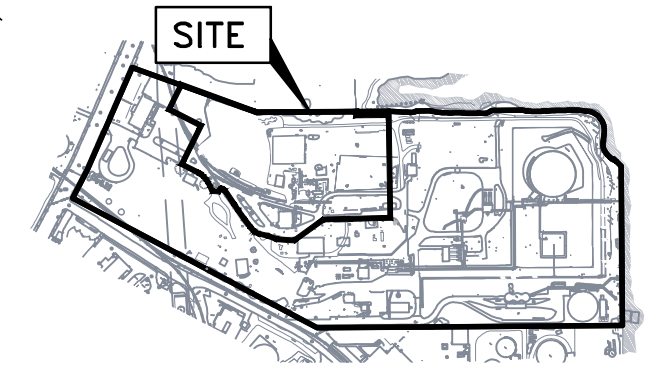
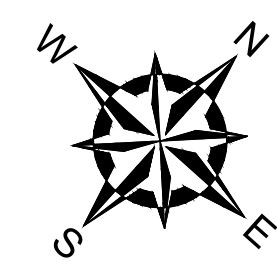
IMPERVIOUS AREAS				
PLAT	LOT	NO.	AREA (SQ. FT.)	SURFACE TYPE
101	1	A1	8,037.44	ROOF
101	1	A2	17,913.35	ASPHALT
101	1	A3	90,158.79	ASPHALT
101	1	A4	1,786.65	STRUCTURE
101	1	A5	1,640.44	ROOF
101	1	A6	1,445.11	STRUCTURE
56	1	A7	156,852.04	CONTAINMENT DIKE
101	1	A8	39,796.73	TANK FOUNDATION
101	1	A9	79,909.64	COMPACTED GRAVEL
101	1	A10	1,933.34	COMPACTED GRAVEL
56	5	A11	21,898.19	COMPACTED GRAVEL
56	5	A12	33,764.16	ASPHALT
101	1	A13	8,857.25	COMPACTED GRAVEL
101	1	A14	5,114.04	COMPACTED GRAVEL
56	5	A15	2,860.86	COMPACTED GRAVEL
56	5	A16	1,196.51	COMPACTED GRAVEL
56	5	A17	23,127.00	TANK FOUNDATION
56	5	A18	1,425.31	STRUCTURE
56	5	A19	898.87	ROOF
56	5	A20	4,099.05	ROOF
56	5	A21	7,273.42	ROOF
56	5	A22	16,442.64	COMPACTED GRAVEL
56	5	A23	11,249.94	ASPHALT
56	316	A24	93,429.89	ASPHALT
56	316	A25	29,735.26	CONCRETE
56	316	A26	40,494.92	COMPACTED GRAVEL
56	316	A27	29,930.34	LNG TANK
56	316	A28	6,084.97	STRUCTURE
56	316	A29	1,686.87	ROOF
56	316	A30	3,197.19	ROOF
56	316	A31	164.24	ROOF
56	316	A32	638.42	ROOF
56	316	A33	1,346.21	ROOF
56	316	A34	1,845.52	ROOF
56	316	A35	712.24	ROOF
56	316	A36	10,912.10	SUMP PIT
56	316	A37	10,655.36	ASPHALT
56	316	A38	2,392.36	STRUCTURE
56	317	A39	18,586.35	ASPHALT
56	273	A40	28,623.42	ASPHALT
56	273	A41	3,112.29	STRUCTURE
56	273	A42	1,576.65	ROOF
56	273	A43	12,924.79	TANK
56	273	A44	1,893.69	STRUCTURE
56	316	A47	10,294.60	COMPACTED GRAVEL
TOTAL IMPERVIOUS			847,918.45	

847918.45 SQ. FT. IMPERVIOUS AREA = 46.91% IMPERVIOUS
 1807724.79 SQ. FT. TOTAL AREA

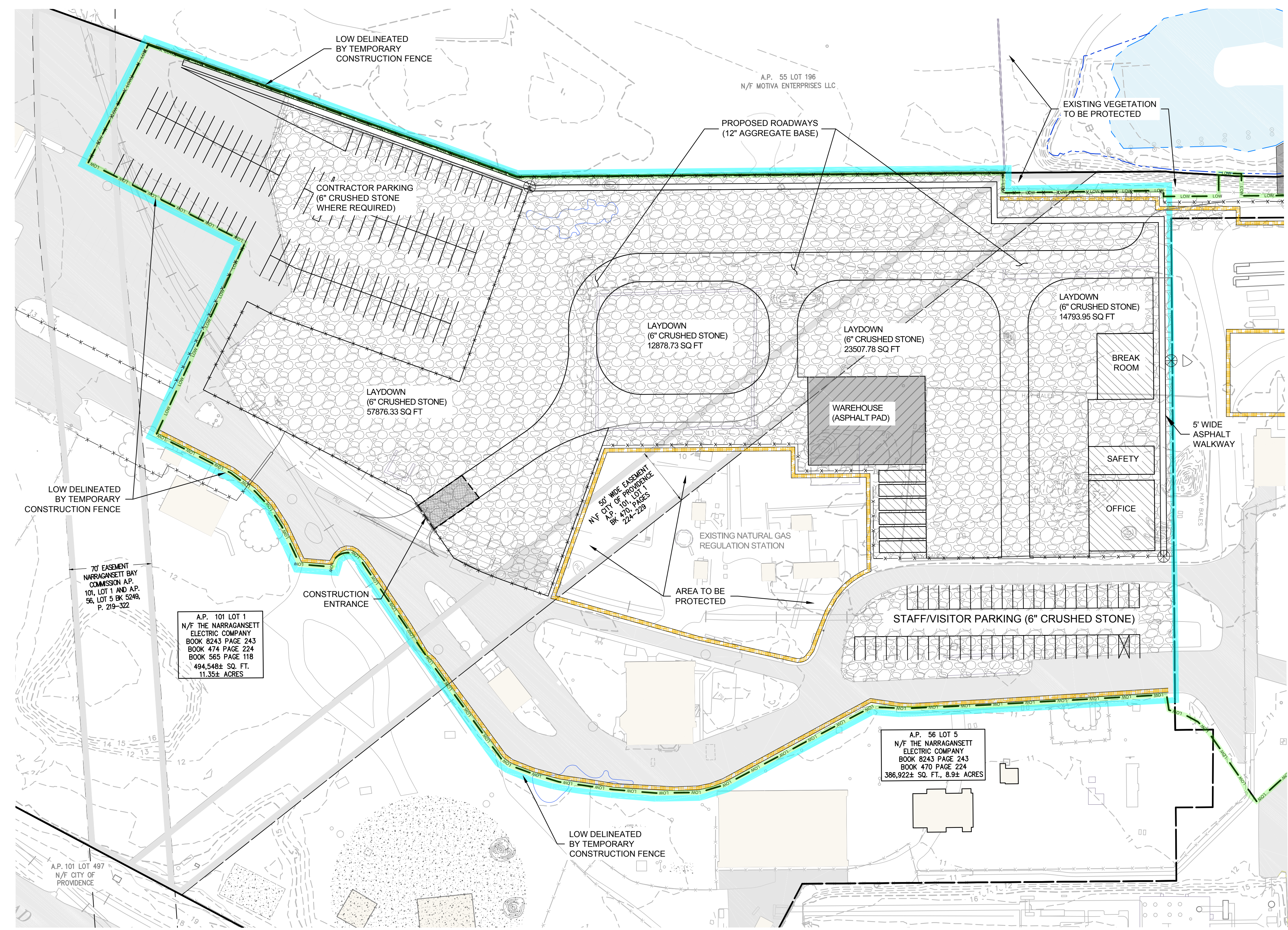


1	REMOVE SOIL STORAGE AREA	GZA	3/27/17
NO.	ISSUE/DESCRIPTION	BY	DATE
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NATIONAL GRID LIQUEFACTION PLANT 642 ALLENS AVENUE PROVIDENCE, RHODE ISLAND			
EXISTING IMPERVIOUS CONDITIONS PLAN			
PREPARED BY:	GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR:	nationalgrid
PROJ MGR:	MSK	REVIEWED BY:	SJM
DESIGNED BY:	SJM	DRAWN BY:	LDT
DATE:	OCTOBER, 2016	PROJECT NO:	33554.60
		CHECKED BY:	IR
		SCALE:	AS NOTED
		REVISION NO.:	0
		FIGURE	3
		SHEET NO.	3 OF 14

FOR PERMITTING ONLY



KEY PLAN:
SCALE: 1"=800'



- LEGEND:**
- EXISTING BUILDING
 - EXISTING CONTOUR (MAJOR 10 FOOT INTERVAL)
 - EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
 - EXISTING PAVEMENT
 - EASEMENT AREA
 - UTILITY POLE
 - LIGHT POLE
 - HYDRANT
 - PROPERTY LINES
 - INTERIOR PROPERTY LINE
 - TEMPORARY LAYDOWN AREA
 - PROPOSED TEMPORARY PAVEMENT
 - PROPOSED TEMPORARY BUILDING
 - PROPOSED CRUSHED STONE
 - STAKED FILTEREXX SOXX (SEE DETAIL ON SHEET 5)
 - LIMIT OF WORK
 - CONSTRUCTION ENTRANCE



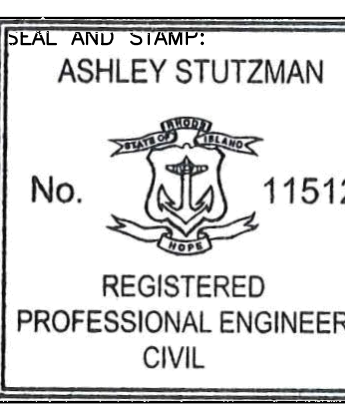
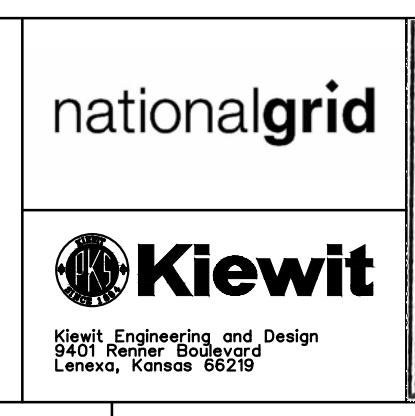
GENERAL NOTES:

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 - ELECTRONIC CAD FILE "ACAD-7257PL.DWG" PROVIDED BY VANASSE HANGEN BRUSTLIN (VHB) ENTITLED "EXISTING CONDITIONS PLAN," PROJECT TITLE "NATIONAL GRID LNG TERMINAL ROAD LNG FACILITY" DATED MARCH 10, 2014, ORIGINAL SCALE 1" = 50', DRAWING NO. SV-1 THROUGH SV-3 AND AERIAL MAPPING BY WSP TRANSPORTATION AND INFRASTRUCTURE DATED JANUARY 15, 2014 PREPARED FOR NATIONAL GRID LAND SURVEYING DEPARTMENT, WALTHAM, MASSACHUSETTS AND CAD FILE NO. 09303023.052-1.DWG. PLANS PROVIDED BY NATIONAL GRID.
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 - ELECTRONIC CAD FILES PROVIDED BY KIEWIT
 1. "ACAD-102761-CIV_SITE.DWG"
 2. "A2007EXP_102761-CIV_LAYDOWN.DWG"
 3. "102761_MEC_STR_BASE.DWG"
 4. "102761-SURVEY_SITE.DWG"
 5. "A2007EXP_102761-CIV_STORM.DWG"
 6. "ACAD-102761-CIV_SURFACING.DWG"
 7. "ACAD-102761-PROP-CONT.DWG"
 8. "POST DEVELOPMENT DRAINAGE MAP.DWG"
 - PDFS OF THE FOLLOWING DRAWINGS PROVIDED BY NATIONAL GRID
 1. "CATCH BASINS AND SANITARY SEWER SYSTEM" PREPARED BY PROVIDENCE GAS COMPANY, DATED SEPTEMBER 25, 1981.
 2. "PLAN SHOWING UNDERGROUND UTILITIES LNG FACILITY" DATED OCTOBER 6, 1983, "SUBSURFACE UTILITY ENGINEERING" PREPARED BY BAYSTATE SUBSURFACE INVESTIGATION, INC., DATED MAY 17, 2005.
 3. HORIZONTAL DATUM IS BASED ON NAD 1983 FROM BASE MAPPING PROVIDED BY VHB.
 4. VERTICAL DATUM IS BASED ON NAVD 1988 FROM BASE MAPPING PROVIDED BY VHB.
 5. SELECT PRESENTED SITE UTILITIES WERE TAKEN FROM HISTORIC FIGURES PROVIDED BY NATIONAL GRID. ALL UTILITY LOCATIONS ARE APPROXIMATE AND HAVE BEEN ALIGNED AND ADJUSTED FOR THE "BEST FIT" AND THESE DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED. UTILITIES ARE SHOWN FOR REFERENCE ONLY. **OTHER LOCATIONS MAY EXIST.**
 6. PARCEL DATA PROVIDED BY THE CITY OF PROVIDENCE PLANNING AND DEVELOPMENT DEPARTMENT, PARCELS OF REAL ESTATE ASSESSED AS OF DECEMBER 31, 2012. GIS DATA ARE FOR PLANNING PURPOSES ONLY. THESE DATA DO NOT REPRESENT A LEGALLY RECORDED PLAN, DEED, SURVEY OR ENGINEERING SCHEMATIC AND ARE NOT INTENDED TO BE USED AS SUCH.
 - 7) SITE BOUNDARIES ARE APPROXIMATE.

CONFIDENTIAL
 THESE DRAWINGS ARE CONFIDENTIAL IN NATURE. ANY MISUSE OR UNAUTHORIZED DISTRIBUTION OF THE DRAWINGS CONTAINED HEREIN WILL BE A VIOLATION OF THIS CONFIDENTIALITY AGREEMENT AND SUBJECT TO THE VIOLATOR TO LIABILITY. REVIEW OF THESE MATERIALS BY RECIPIENT SHALL CONSTITUTE AN ACCEPTANCE OF THESE TERMS AND THE TERMS OF ANY UNDERLYING CONFIDENTIALITY AGREEMENT WE MAY HAVE EXECUTED IN OBTAINING THIS INFORMATION FROM A THIRD PARTY. IF THE RECIPIENT IS NOT IN AGREEMENT WITH THE OBLIGATION OF CONFIDENTIALITY THEN THE DRAWINGS SHALL BE RETURNED TO THE ORIGINATOR.

REV	DATE	ISSUED FOR PERMIT	REVISION INFORMATION	BY	CHK	APP.
1	03-28-17	ISSUED FOR PERMIT		FJS	AV	AMS

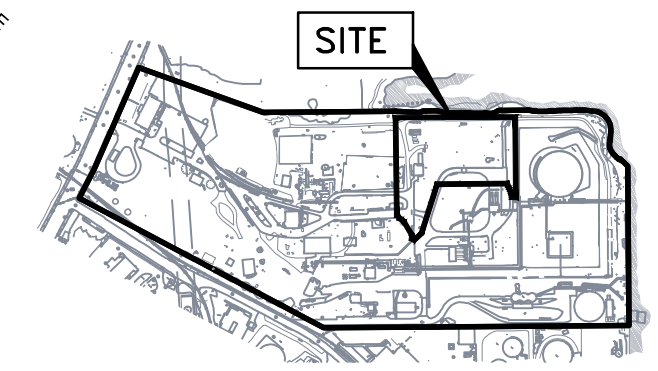
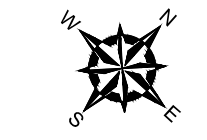
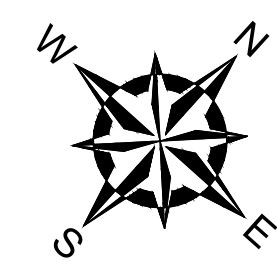
GENERAL NOTES AND COMMENTS:						



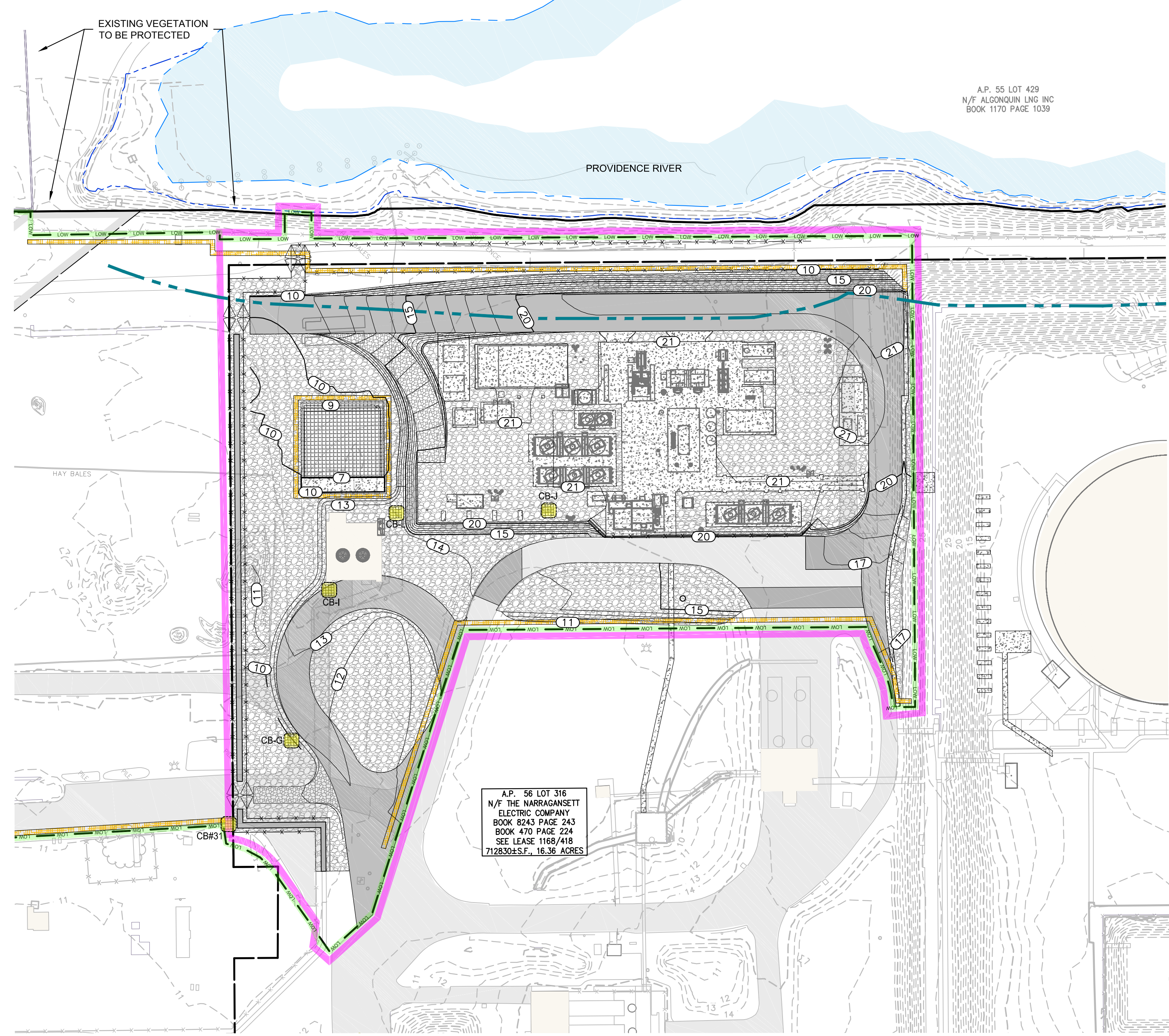
ENG/DESIGN ORIG: F. SMOCKS
 LEAD ENG: A. STUTZMAN
 ENG. MGR: J. BOCKELMAN
 PROJ. MGR: T. PARRACK

NATIONAL GRID LNG LLC			
FIELDS POINT LIQUEFACTION PROJECT			
TEMPORARY LAYDOWN AREA EROSION			
AND SEDIMENTATION CONTROLS			
DRAWING NO:	PROJECT NO:	SHT:	REV:
FIGURE 4	33554.60	4 OF 14	1

DRAWING NAME: I:\102761-National_Grid_Liquefaction\CAD_Exchange\in\2017-03-27_GZA_Permit_Package_Revision\33554.60_REVISION_1_FOR_STAMPING.dwg
 MAR 28, 2017 - 11:56am



KEY PLAN:
SCALE: 1"=800'



- LEGEND:**
- EXISTING BUILDING
 - EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
 - EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
 - CRMC 50-FOOT SETBACK
 - EXISTING PAVEMENT
 - EASEMENT AREA
 - UTILITY POLE
 - LIGHT POLE
 - HYDRANT
 - PROPERTY LINES
 - INTERIOR PROPERTY LINE
 - LIQUEFACTION WORK AREA
 - PROPOSED PERMANENT PAVEMENT
 - PROPOSED CONTOUR (MAJOR 5 FOOT INTERVAL)
 - PROPOSED CONTOUR (MINOR 1 FOOT INTERVAL)
 - PROPOSED GRAVEL
 - STAKED FILTREXX SOXX (SEE DETAIL ON SHEET 5)
 - LIMIT OF WORK
 - PROPOSED CONCRETE
 - PROPOSED SAND FILTER
 - CATCH BASIN FRAME AND GRATE
 - CATCH BASIN TO BE PROTECTED WITH SILT SACK DURING CONSTRUCTION (SEE DETAIL ON SHEET 5)
 - MHW MEAN HIGH WATER
 - MLW MEAN LOW WATER



GENERAL NOTES:

- 1) BASE MAP DEVELOPED FROM THE FOLLOWING:
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 5. "2007EXP_102761-CIV_STORM.DWG"
 6. "2007EXP_102761-CIV_SURFACING.DWG"
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- 9) SITE BOUNDARIES ARE APPROXIMATE.

CONFIDENTIAL

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REV	DATE	ISSUED FOR PERMIT	FJS	AV	AMS
BY	CHK	APP.			
1	03-28-17	ISSUED FOR PERMIT			

GENERAL NOTES AND COMMENTS:	

nationalgrid

Kiewit

Kiewit Engineering and Design
2401 River Boulevard
Lenexa, Kansas 66249

ASHLEY STUTZMAN

No. 11512

REGISTERED PROFESSIONAL ENGINEER CIVIL

ENG/DESIGN ORIG: F. SMOCKS

LEAD ENG: A. STUTZMAN

ENG. MGR: J. BOCKELMAN

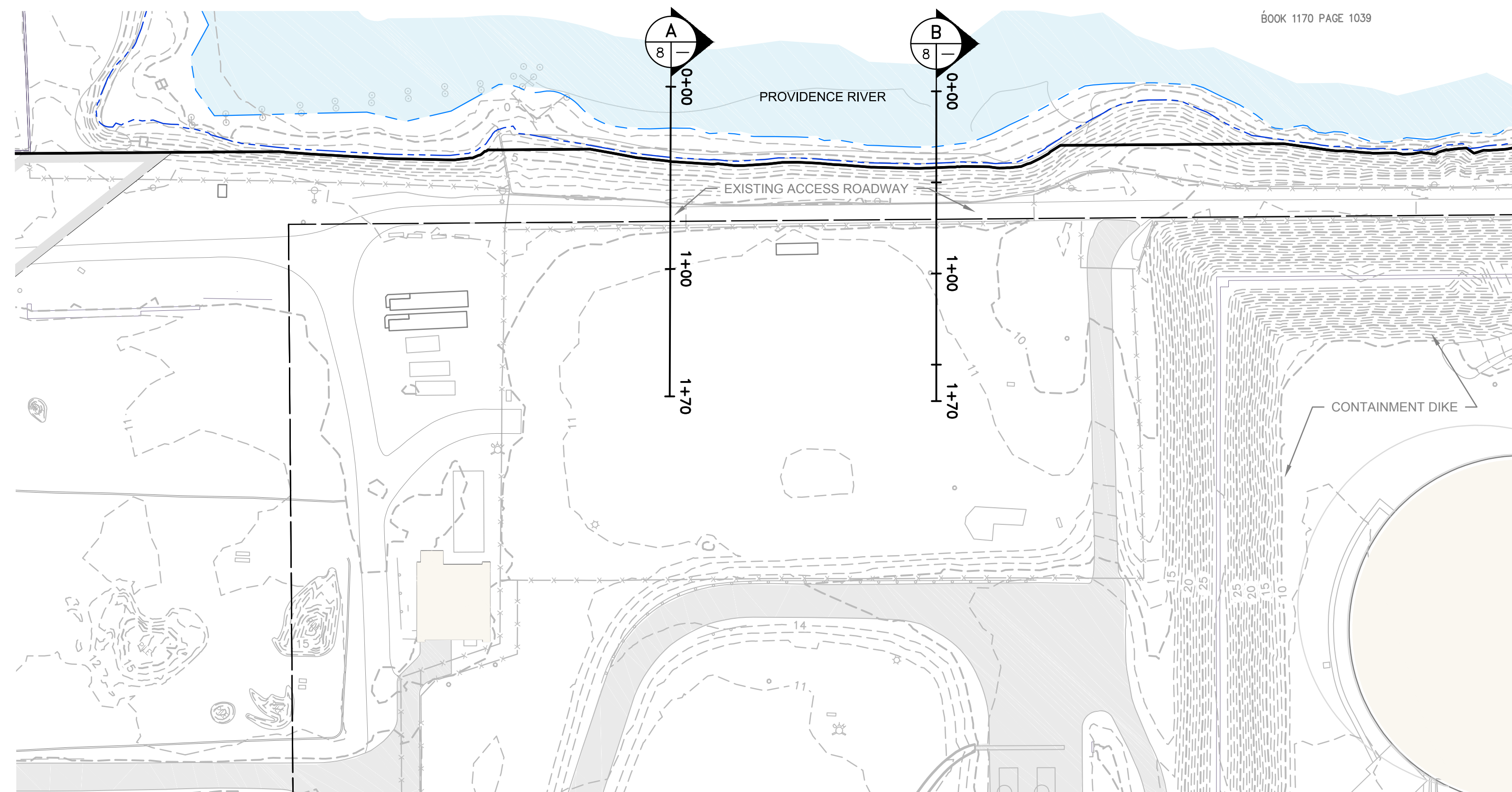
PROJ. MGR: T. PARRACK

NATIONAL GRID LNG LLC

FIELDS POINT LIQUEFACTION PROJECT

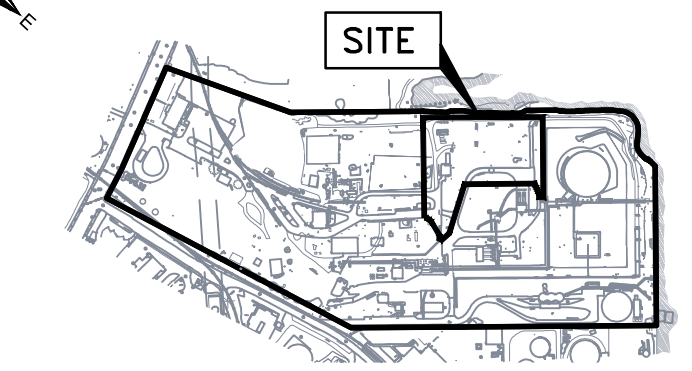
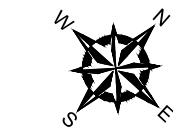
LIQUEFACTION WORK AREA - EROSION AND SEDIMENTATION CONTROLS

DRAWING NO: FIGURE 6 PROJECT NO: 33554.60 SHT: 6 OF 14 REV: 1



PLAN VIEW OF EXISTING REVETMENT
SCALE: 1"=50'

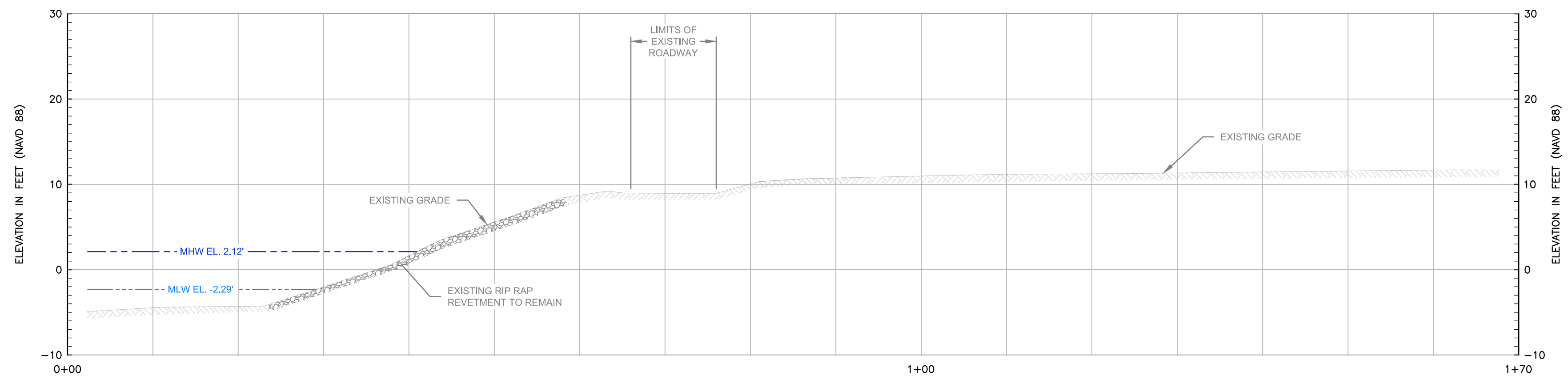
- LEGEND:**
- EXISTING BUILDING
 - EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
 - EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
 - EXISTING PAVEMENT
 - UTILITY POLE
 - LIGHT POLE
 - HYDRANT
 - PROPERTY LINES
 - INTERIOR PROPERTY LINE
 - MHW
 - MLW
 - EASEMENT AREA



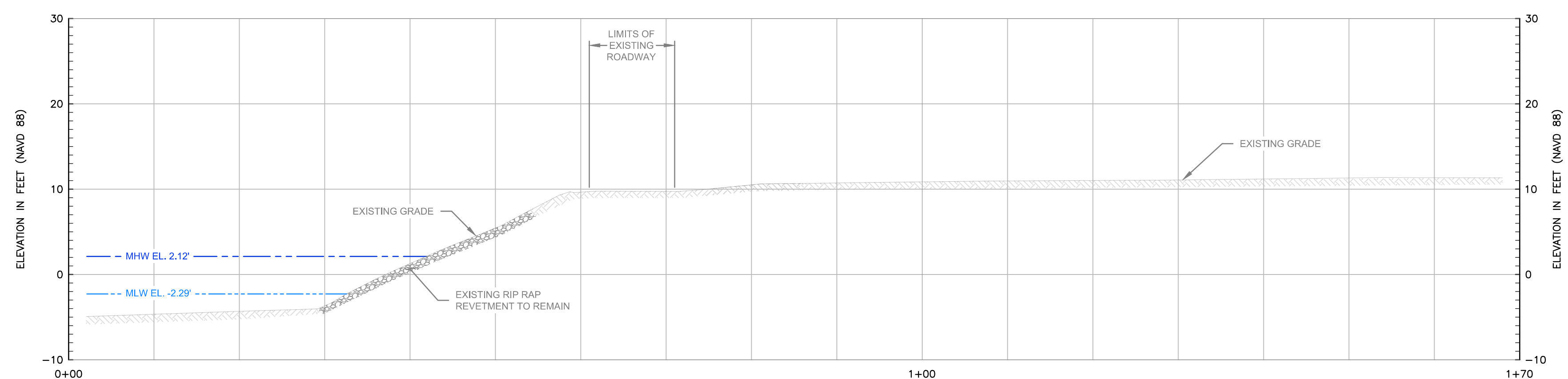
KEY PLAN:
SCALE: 1"=800'

GENERAL NOTES:

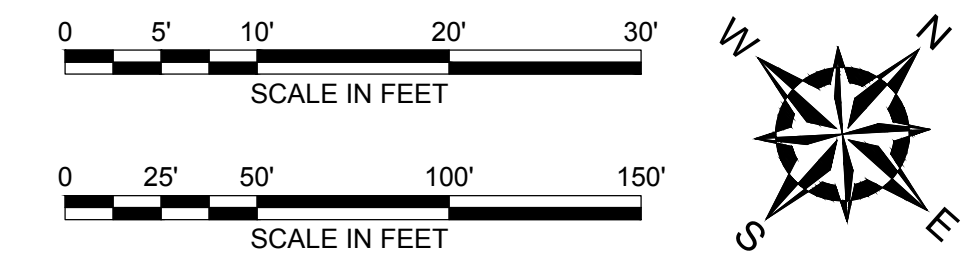
- 1) BASE MAP DEVELOPED FROM THE FOLLOWING:
 - ELECTRONIC CAD FILE "ACAD-7257PL.DWG" PROVIDED BY VANASSE HANGEN BRUSTLIN (VHB) ENTITLED "EXISTING CONDITIONS PLAN," PROJECT TITLE "NATIONAL GRID LNG TERMINAL ROAD LNG FACILITY" DATED MARCH 10, 2014. ORIGINAL SCALE 1" = 50', DRAWING NO. SV-1 THROUGH SV-3 AND AERIAL MAPPING BY WSP TRANSPORTATION AND INFRASTRUCTURE DATED JANUARY 15, 2014 PREPARED FOR NATIONAL GRID LAND SURVEYING DEPARTMENT, WALTHAM, MASSACHUSETTS AND CAD FILE NO. 09303023.052-1.DWG. PLANS PROVIDED BY NATIONAL GRID.
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 - ELECTRONIC CAD FILES PROVIDED BY KIEWIT
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A TYPICAL REVETMENT SECTION
SCALE: 1"=10'



B TYPICAL REVETMENT SECTION
SCALE: 1"=10'



NO.	ISSUE/DESCRIPTION	BY	DATE
1	REMOVE SOIL STORAGE AREA	GZA	3/27/17

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NATIONAL GRID
LIQUEFACTION PLANT
642 ALLENS AVENUE PROVIDENCE, RHODE ISLAND

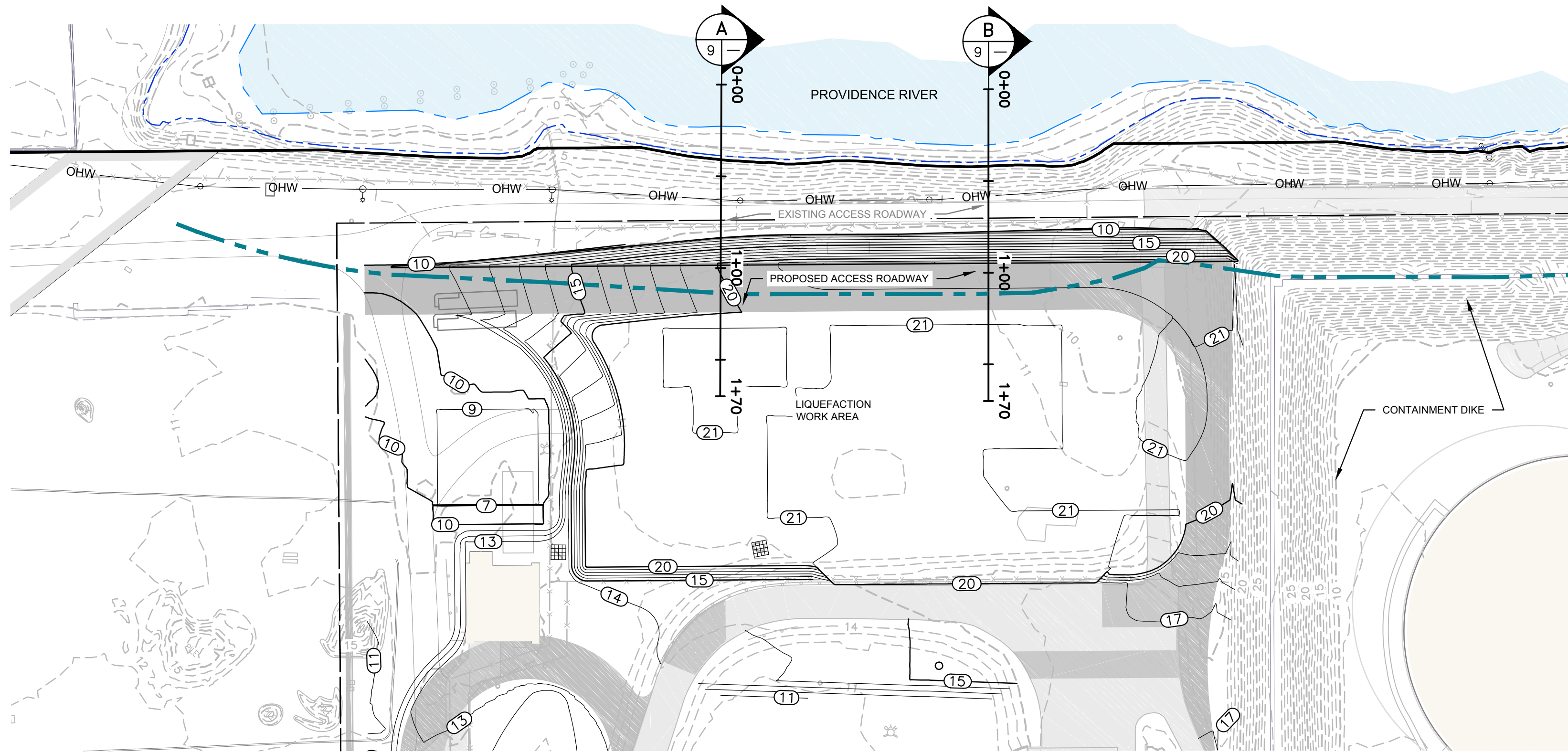
LIQUEFACTION WORK AREA - EXISTING
REVETMENT AND CROSS SECTIONS

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com
PREPARED FOR: nationalgrid

PROJ MGR: MSK REVIEWED BY: SJH CHECKED BY: IR
DESIGNED BY: SJH DRAWN BY: LDT SCALE: AS NOTED
DATE: OCTOBER, 2016 PROJECT NO. 33554.60 REVISION NO. 0

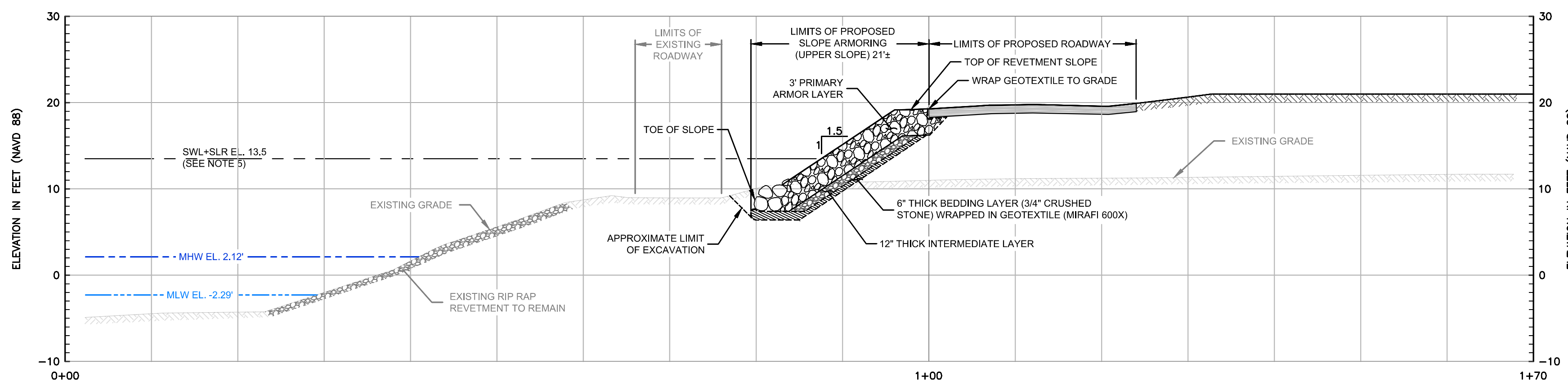
FOR PERMITTING
ONLY

2017 - GZA GeoEnvironmental, Inc. GZA-A-DMA-33554.60-MSK-FIGURES-CAD-DWG-33554.60-CRMC PERMITTING-2-2-2016.DWG LIQUEFACTION WORK AREA - EXISTING REVETMENT AND CROSS SECTIONS MARCH 27, 2017 2:13 PM LISA THERIAULT



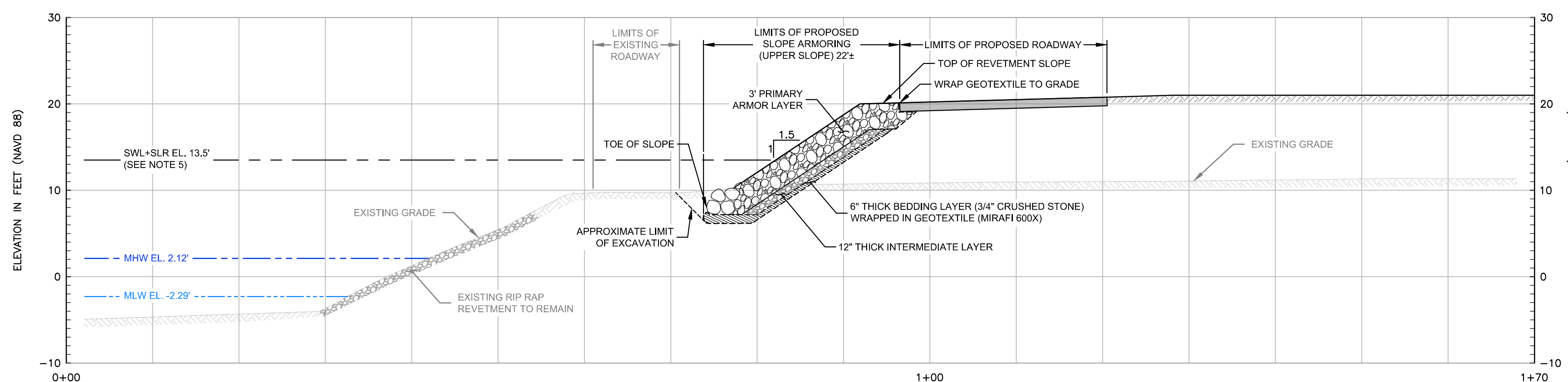
PLAN VIEW OF PROPOSED SLOPE ARMORING AND RETEMENT IMPROVEMENTS

SCALE: 1"=50'



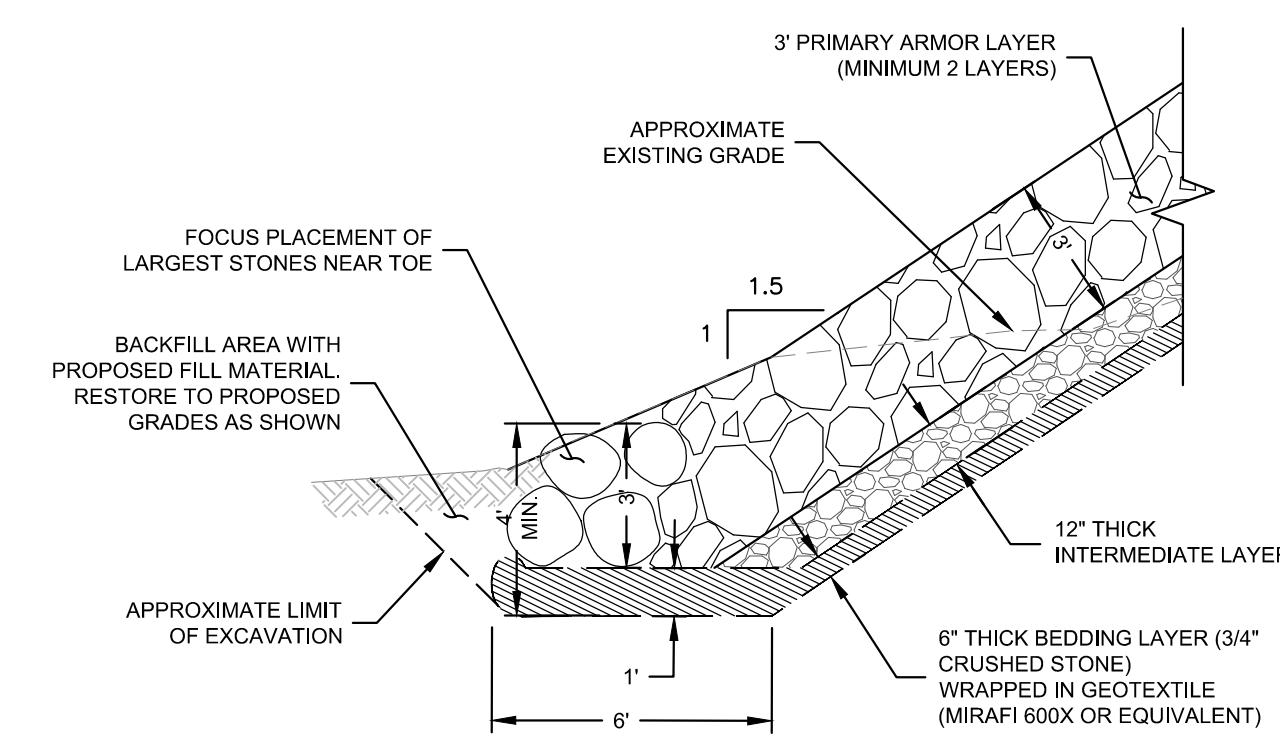
A TYPICAL RETEMENT SECTION

SCALE: 1"=10'



B TYPICAL RETEMENT SECTION

SCALE: 1"=10'



PROPOSED RETEMENT (UPPER SLOPE) (TYP.)

SCALE: 1"=4'

RIP RAP GRADATION REQUIREMENTS			
PRIMARY ARMOR LAYER		INTERMEDIATE LAYER	
RIDOT R-6		RIDOT R-2	
% LESS THAN	STONE SIZE (IN.)	% LESS THAN	STONE SIZE (IN.)
0-15%	8	0-15%	1
0-50%	13	0-50%	2
100%	26	100%	4

3/4" CRUSHED STONE GRADATION REQUIREMENTS	
% LESS THAN	SIEVE SIZE
100	3/4 INCH
90-100	1/2 INCH
30-60	3/8 INCH
0-15	No. 4
0-5	No. 8

LEGEND:

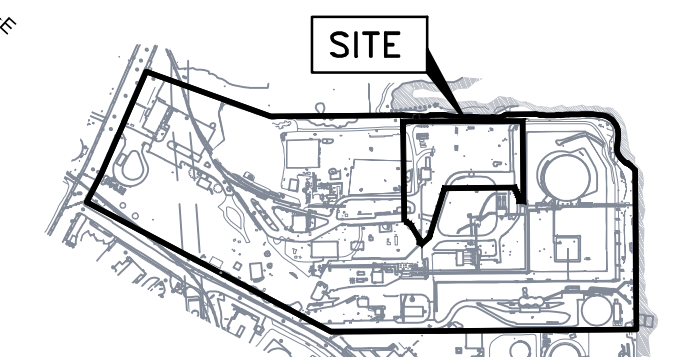
- EXISTING BUILDING
- EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
- EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
- CRMC 50-FOOT SETBACK
- EXISTING PAVEMENT
- UTILITY POLE
- LIGHT POLE
- HYDRANT
- PROPERTY LINES
- INTERIOR PROPERTY LINE
- MHW MEAN HIGH WATER
- MLW MEAN LOW WATER
- EASEMENT AREA
- PROPOSED CONTOUR (MAJOR 5 FOOT INTERVAL)
- PROPOSED CONTOUR (MINOR 1 FOOT INTERVAL)
- STILL WATER LEVEL AND PREDICTED SEA LEVEL RISE (SEE NOTE #5)
- OHW EXISTING OVERHEAD WIRE
- LIMIT OF PROPOSED RETEMENT (UPPER SLOPE)
- PROPOSED PERMANENT PAVEMENT

NOTE:

- TO CONVERT FROM NAVD88 TO MLW ADD 2.29 FT.
- TIDAL DATUM BASED UPON NOAA STATION 8454000.

NAVD 88	MLW
+2.37' (MHHW)	+4.66' (MHHW)
+2.12' (MHW)	+4.41' (MHW)
0.0' (NAVD 88)	+2.29'
-2.29' (MLW)	0.0' (MLW)
-2.47' (MLLW)	-0.18' (MLLW)

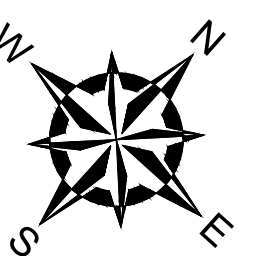
TIDAL DATUM



KEY PLAN:
SCALE: 1"=800'

GENERAL NOTES:

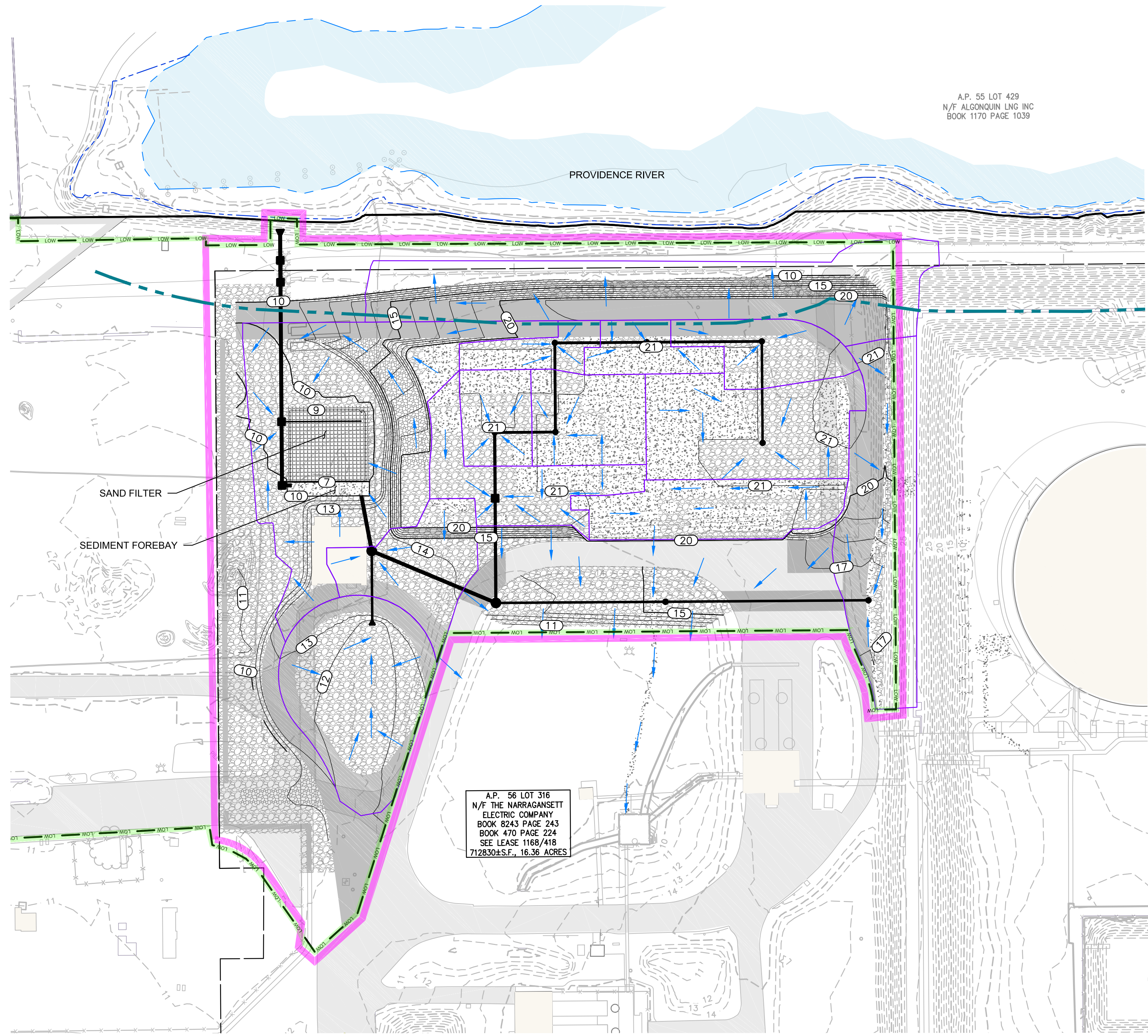
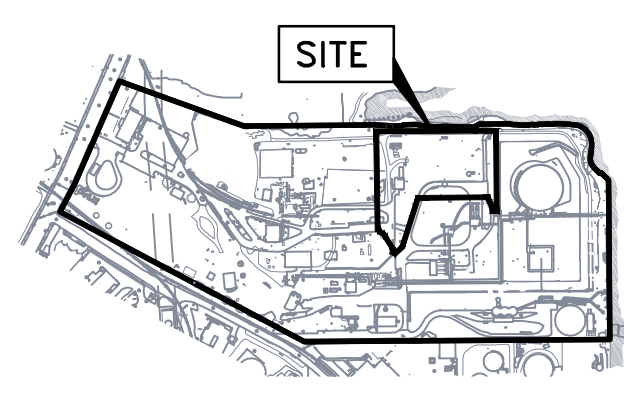
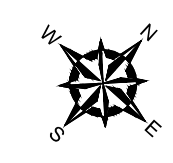
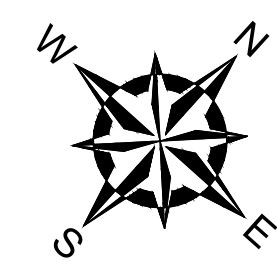
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1	REMOVE SOIL STORAGE AREA	GZA	3/27/17
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NATIONAL GRID LIQUEFACTION PLANT 642 ALLENS AVENUE PROVIDENCE, RHODE ISLAND			
LIQUEFACTION WORK AREA - PROPOSED SLOPE ARMORING, EXISTING RETEMENT AND CROSS SECTIONS			
PREPARED BY:	GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR:	nationalgrid
PROJ MGR:	MSK	REVIEWED BY:	SJH
DESIGNED BY:	SJH	DRAWN BY:	LDT
DATE:	OCTOBER 2016	PROJECT NO.:	33554.60
		CHECKED BY:	IR
		SCALE:	AS NOTED
		REVISION NO.:	0
		FIGURE	8
		SHEET NO.	8 OF 14

2017 - GZA GeoEnvironmental, Inc. GZA-D:\A\33554.60\MSK\FIGURES\CAD\DWG\33554.dwg PERMITTING_2-2-2016.DWG LIQUEFACTION WORK AREA - PROPOSED SLOPE ARMORING EXISTING RETEMENT MARCH 27, 2017 2:17 PM LISA THERIAULT



KEY PLAN:
SCALE: 1"=800'

LEGEND:

- EXISTING BUILDING
- EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
- EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
- CRMC 50-FOOT SETBACK
- EXISTING PAVEMENT
- EASEMENT AREA
- UTILITY POLE
- LIGHT POLE
- HYDRANT
- PROPERTY LINES
- INTERIOR PROPERTY LINE
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- PROPOSED CONTOUR (MINOR 1 FOOT INTERVAL)
- PROPOSED PERMANENT PAVEMENT
- PROPOSED GRAVEL
- PROPOSED CONCRETE
- PROPOSED SAND FILTER
- LIQUEFACTION WORK AREA
- LIMIT OF WORK
- FLOW DIRECTION
- MEAN HIGH WATER
- MEAN LOW WATER
- PROPOSED RECTANGULAR CATCH BASIN
- PROPOSED ROUND CATCH BASIN

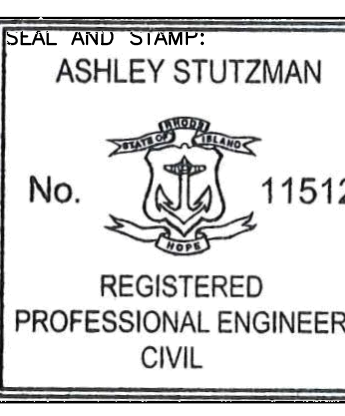
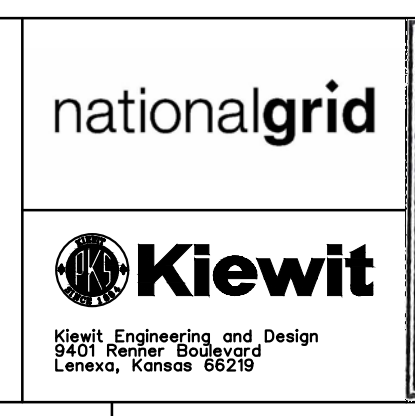
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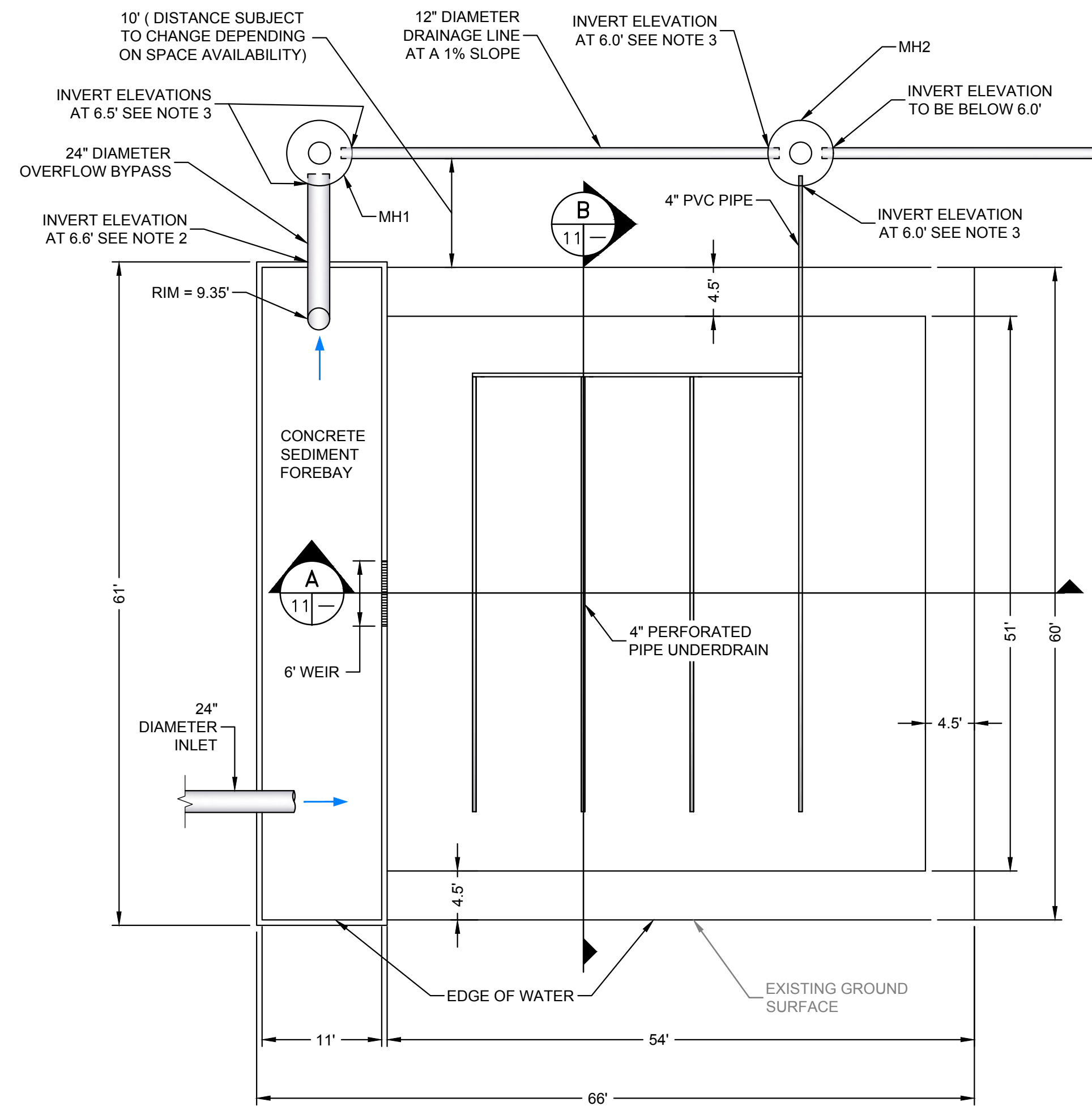
REV	DATE	ISSUED FOR PERMIT	FJS	AV	AMS
BY	CHK	APP.			
1	03-28-17	ISSUED FOR PERMIT			

GENERAL NOTES AND COMMENTS:

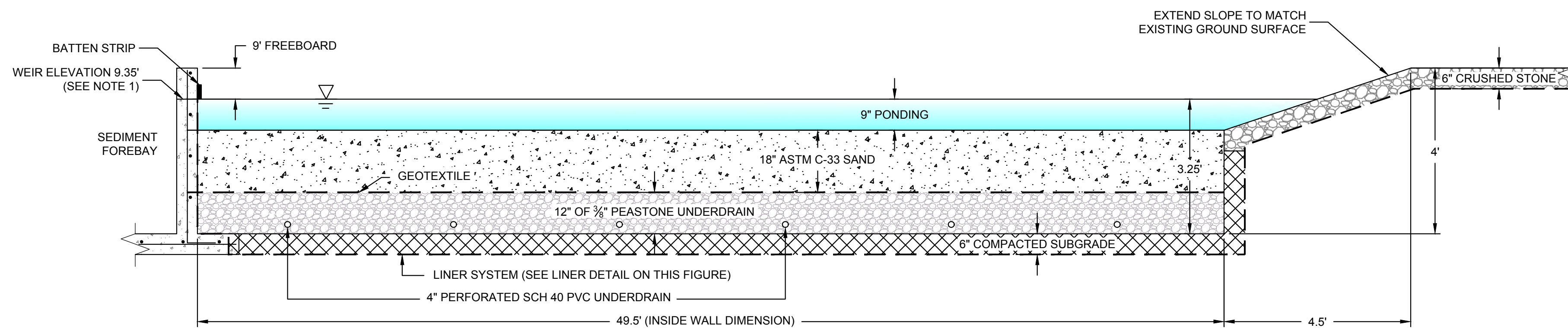


PROFESSIONAL ENGINEER
 REGISTERED PROFESSIONAL ENGINEER
 CIVIL

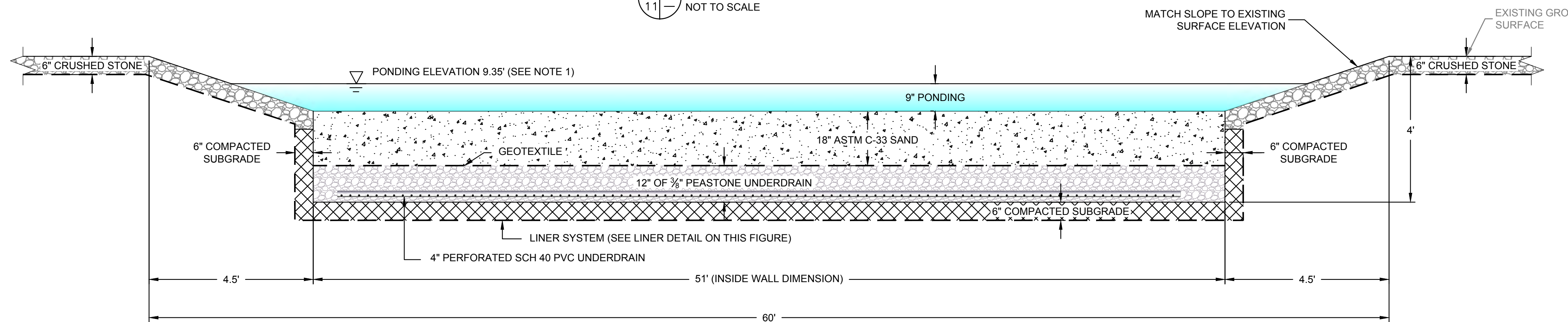
NATIONAL GRID LNG LLC			
FIELDS POINT LIQUEFACTION PROJECT			
STORMWATER MANAGEMENT PLAN			
DRAWING NO:	PROJECT NO:	SHT:	REV:
FIGURE 9	33554.60	9 OF 14	1



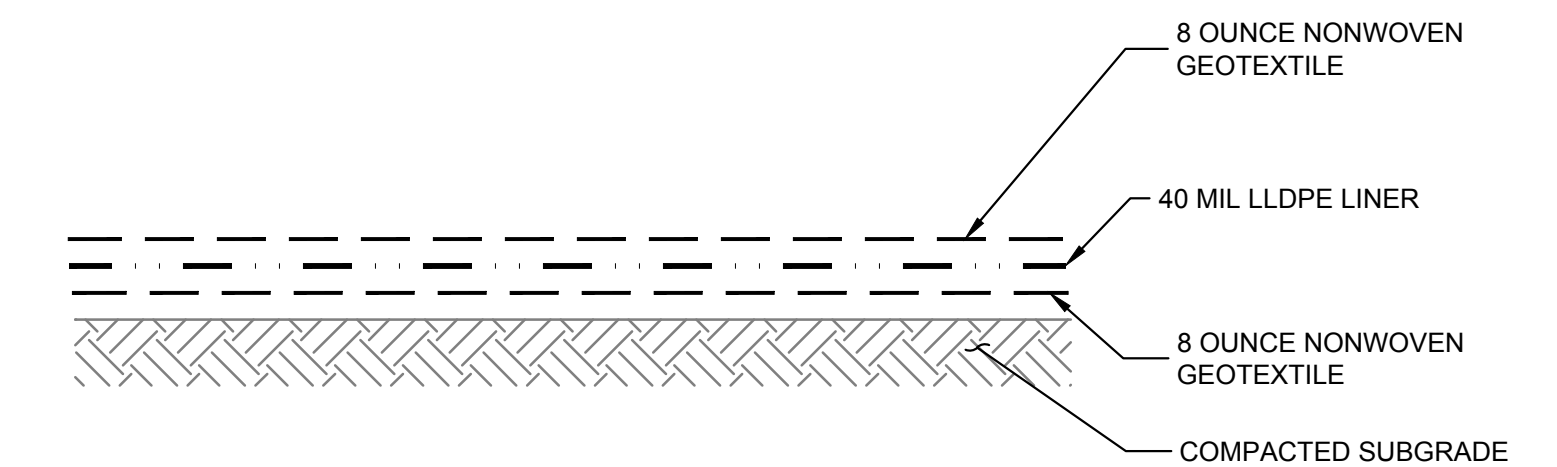
PLAN VIEW - SEDIMENT FOREBAY AND SAND FILTER
SCALE: 1"=10'



A SECTION - SAND FILTER (EARTHEN W/ CONCRETE FOREBAY)
NOT TO SCALE



B SECTION - SAND FILTER (EARTHEN)
NOT TO SCALE



SECTION - LINER DETAIL
NOT TO SCALE

NOTES:

1. PONDING ELEVATION TO BE SET AT INLET INVERT ELEVATION (CURRENTLY SET AT 9.35' BASED ON AUGUST 31, 2016 DRAINAGE CALCULATIONS).
2. OUTLET INVERT ELEVATION FOR 24" OVERFLOW BYPASS TO BE 2.75' BELOW PONDING ELEVATION.
3. INVERT ELEVATIONS TO BE SET BASED ON AUGUST 31, 2016 DRAINAGE CALCULATIONS.



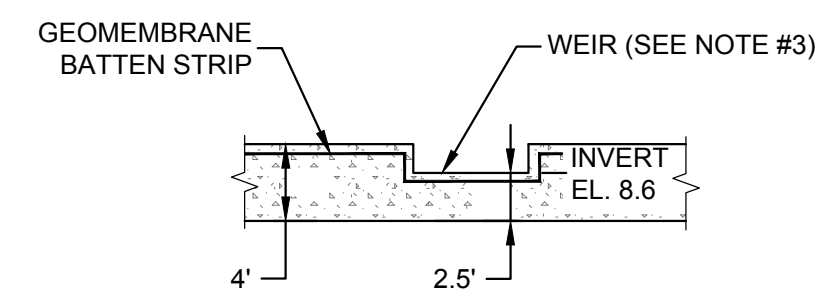
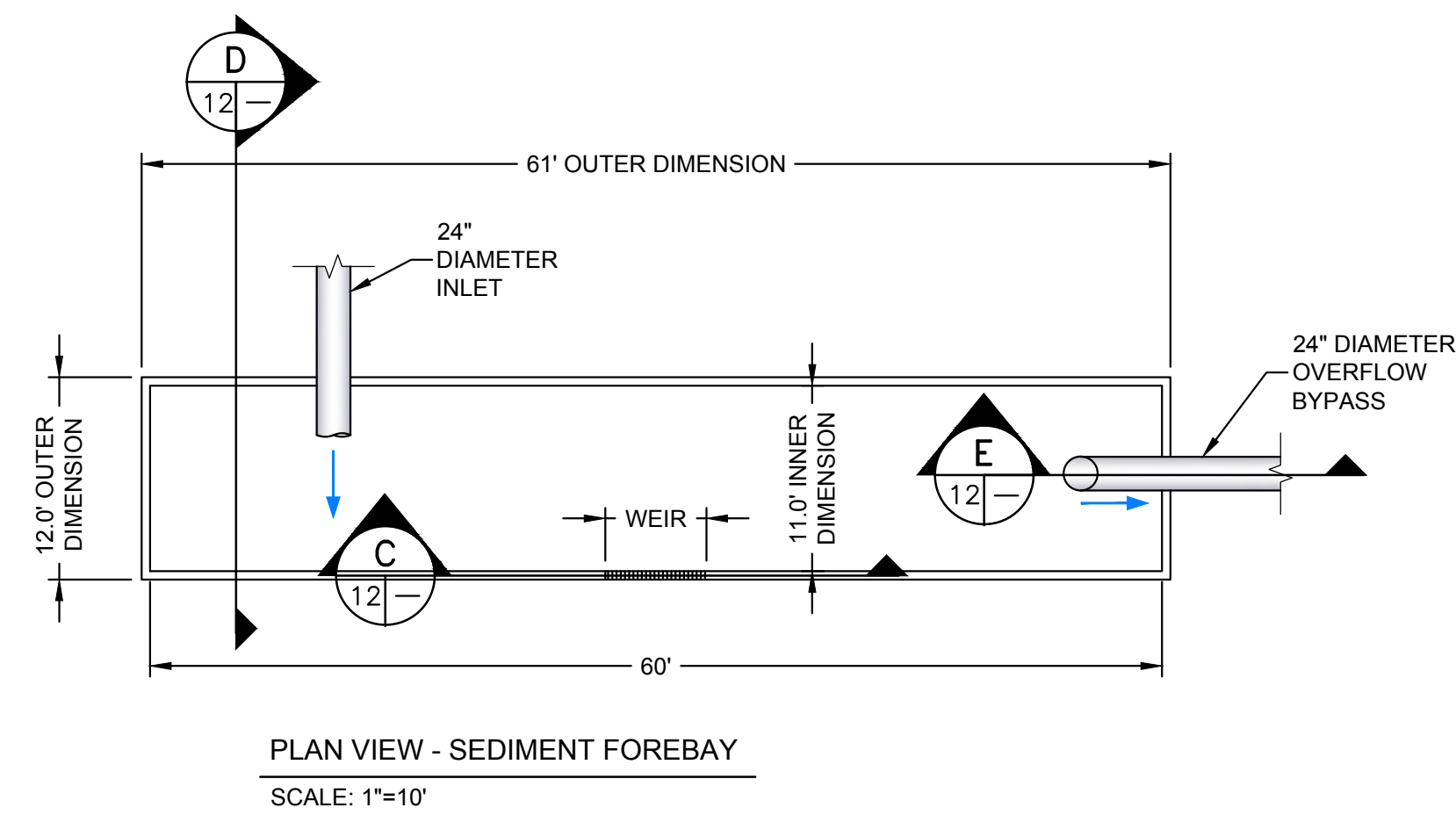
NO.	REMOVE SOIL STORAGE AREA	ISSUE/DESCRIPTION	BY	DATE
1			GZA	3/27/17

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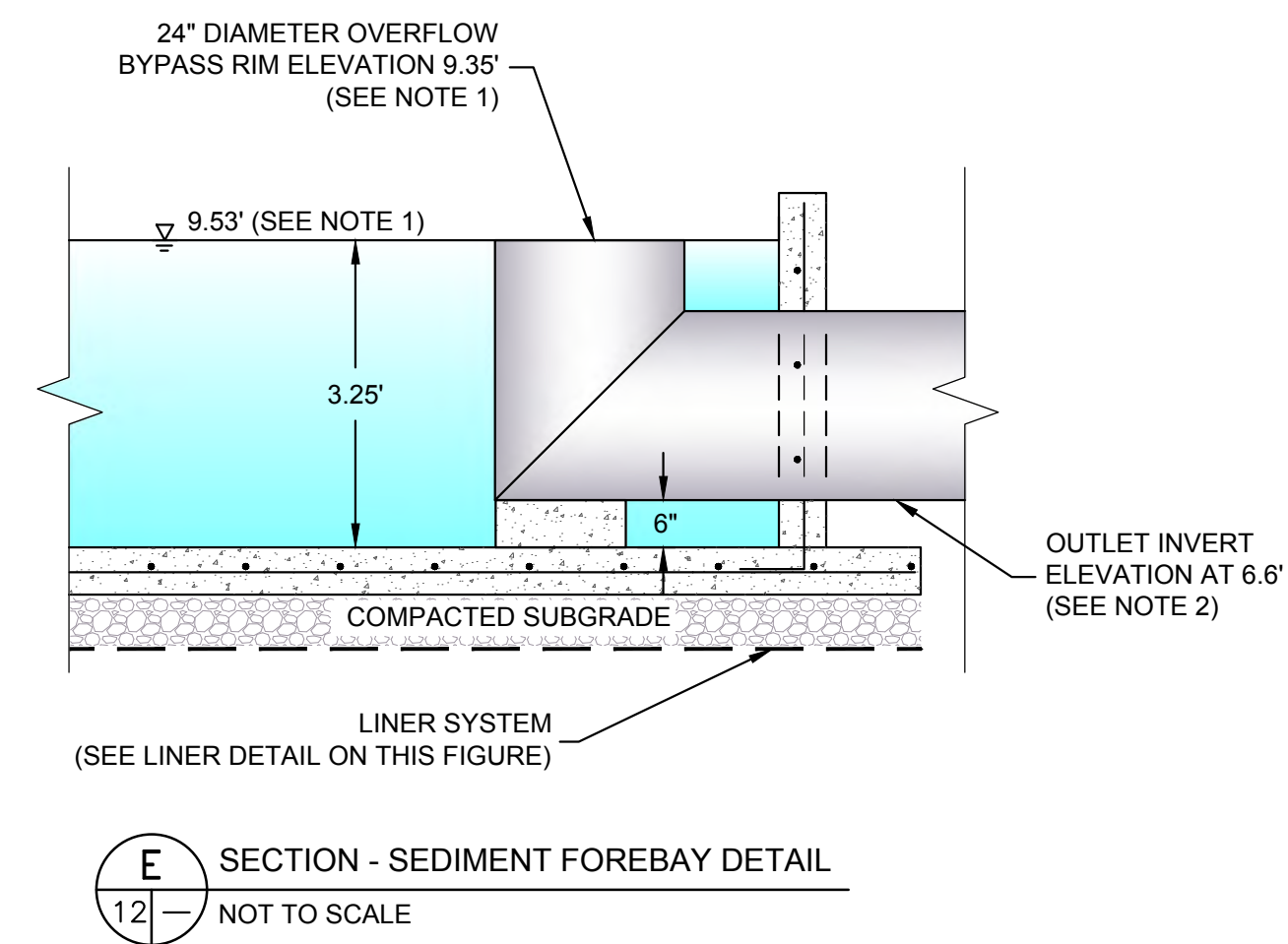
NATIONAL GRID
LIQUEFACTION PLANT
642 ALLENS AVENUE PROVIDENCE, RHODE ISLAND
STORMWATER MANAGEMENT DETAILS
SAND FILTER

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: nationalgrid			
PROJ MGR: MSK	DESIGNED BY: SJH	REVIEWED BY: SJH	CHECKED BY: IR	FIGURE
DATE: OCTOBER, 2016	DRAWN BY: LDT	PROJECT NO.: 33554.60	SCALE: AS NOTED	10
		REVISION NO.: 0		SHEET NO. 10 OF 14

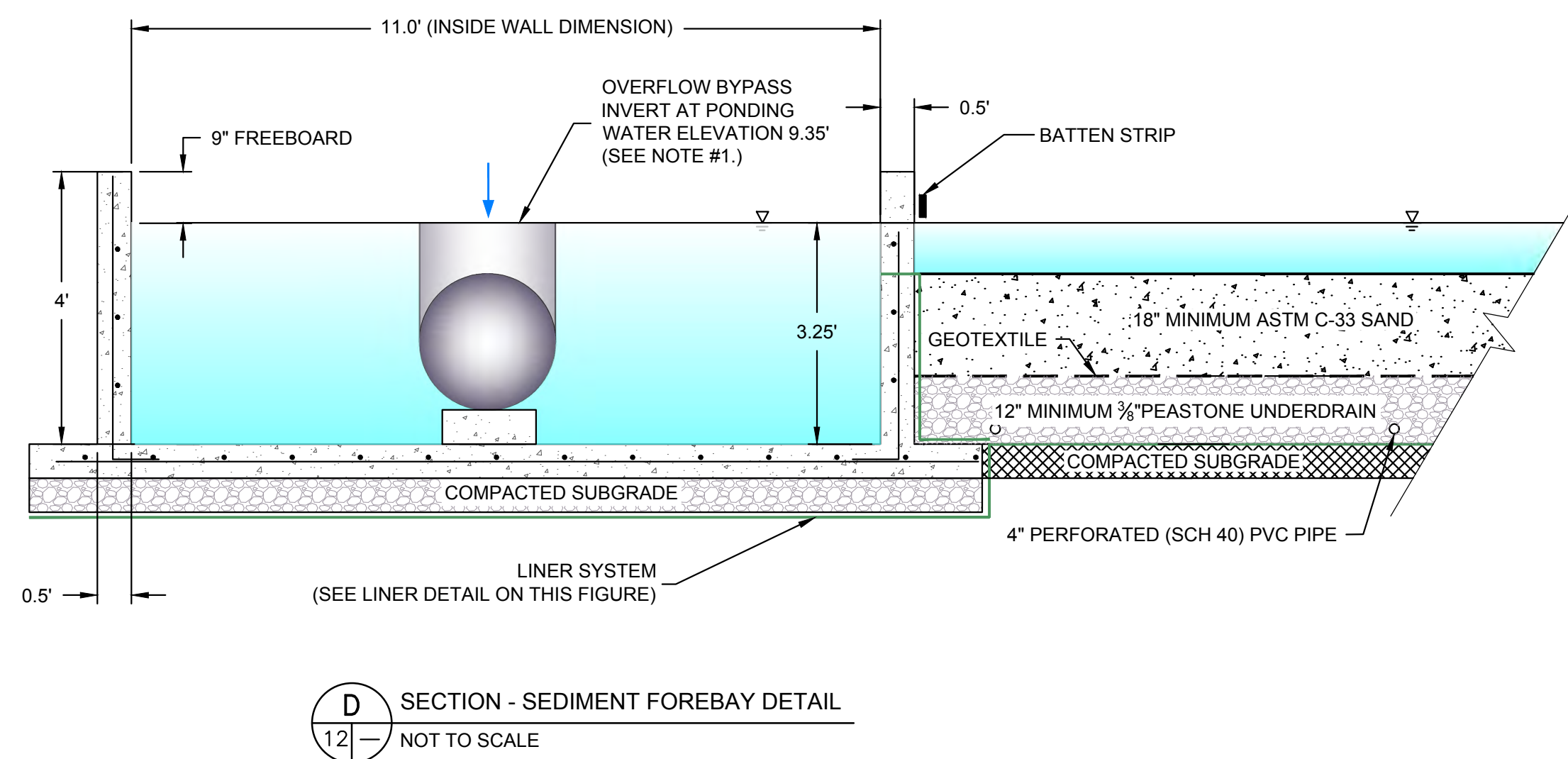
FOR PERMITTING ONLY



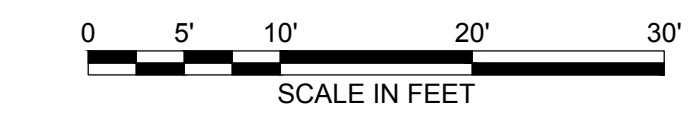
C SECTION - SEDIMENT FOREBAY
SCALE: 1"=10'



NOTE:
OVERFLOW BYPASS PIPE DIAMETER TO BE SIZED FOR 100-YEAR PEAK FLOW RATE



- NOTES:
- PONDING ELEVATION TO BE SET AT INLET INVERT ELEVATION (CURRENTLY SET AT 9.35' BASED ON AUGUST 31, 2016 DRAINAGE CALCULATIONS).
 - OUTLET INVERT ELEVATION FOR 24" OVERFLOW BYPASS TO BE 2.75' BELOW PONDING ELEVATION.
 - SIZE WIDTH OF WEIR BASED ON WATER QUALITY PEAK FLOW RATE.



NO.	ISSUE/DESCRIPTION	BY	DATE
1	REMOVE SOIL STORAGE AREA	GZA	3/27/17

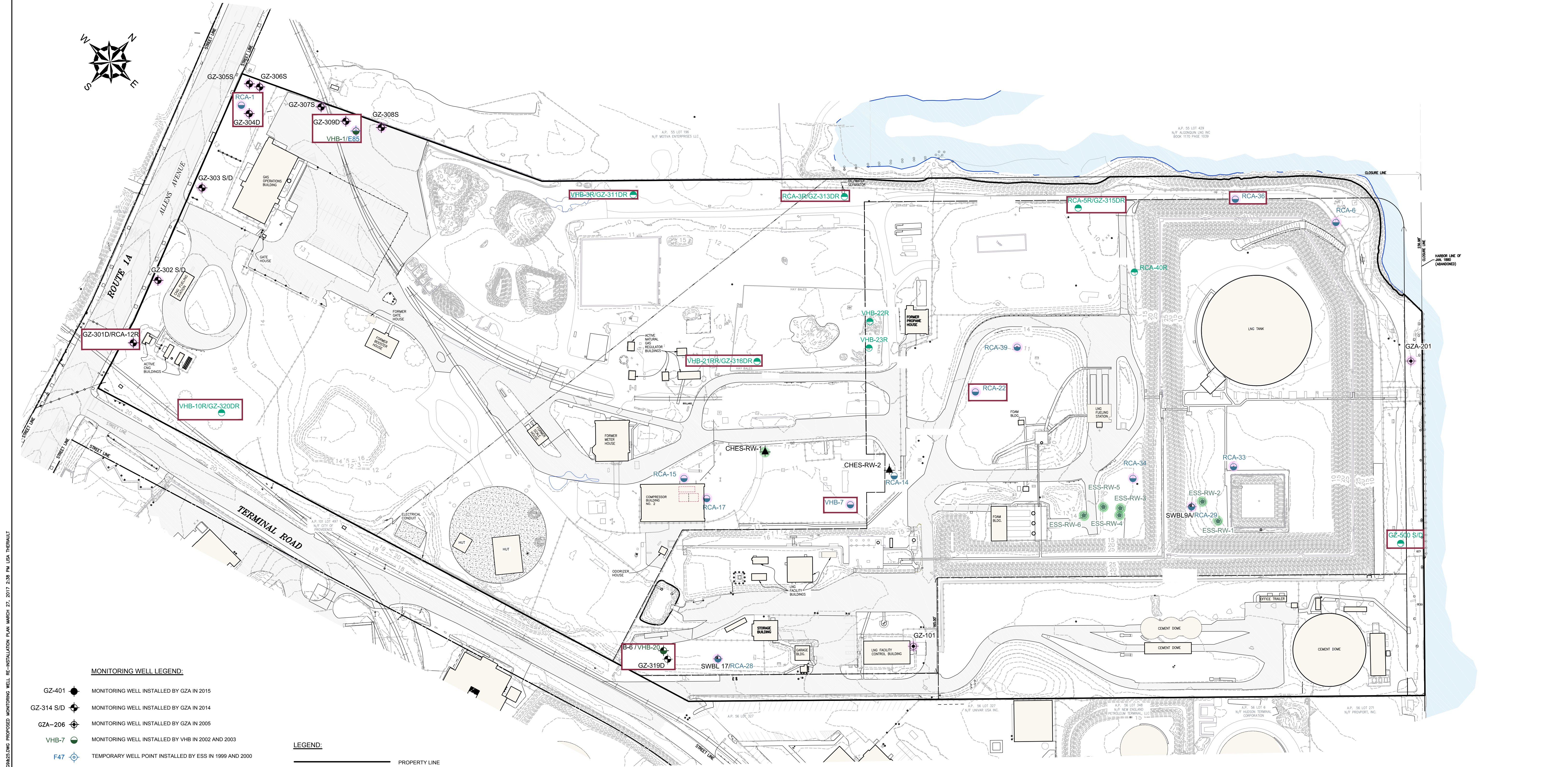
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NATIONAL GRID
LIQUEFACTION PLANT
642 ALLENS AVENUE PROVIDENCE, RHODE ISLAND

STORMWATER MANAGEMENT DETAILS
CONCRETE FOREBAY

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: nationalgrid
PROJ MGR: MSK DESIGNED BY: SJH DATE: OCTOBER 2016	REVIEWED BY: SJH DRAWN BY: LDT PROJECT NO.: 33554.60
CHECKED BY: IR SCALE: AS NOTED REVISION NO.: 0	FIGURE 11 SHEET NO. 11 OF 14

FOR PERMITTING ONLY



MONITORING WELL LEGEND:

- GZ-401 ● MONITORING WELL INSTALLED BY GZA IN 2015
- GZ-314 S/D ● MONITORING WELL INSTALLED BY GZA IN 2014
- GZA-206 ● MONITORING WELL INSTALLED BY GZA IN 2005
- VHB-7 ● MONITORING WELL INSTALLED BY VHB IN 2002 AND 2003
- F47 ● TEMPORARY WELL POINT INSTALLED BY ESS IN 1999 AND 2000
- 1 ● TEMPORARY WELL POINT INSTALLED BY ESS IN 1999
- RCA-40 ● MONITORING WELL INSTALLED BY ESS IN 1996
- RW-1 ▲ RECOVERY WELL INSTALLED BY CHES OBSERVED BY GZA IN 2014
- CHES-RW-1 ▲ RECOVERY WELL INSTALLED BY CHES OBSERVED BY VHB IN 2002
- ESS-RW-1 ● RECOVERY WELL INSTALLED BY ESS IN 1999 AND 2000
- GZ-311DR ● MONITORING WELLS TO BE INSTALLED AFTER CONTRACTOR DEMOBILIZATION

MONITORING WELL LEGEND CONTINUED:

- ACTIVE MONITORING WELLS
- RECOVERY WELLS
- MONITORING WELL TO BE INSTALLED AFTER CONTRACTOR DEMOBILIZATION
- WELL IS PLANNED TO BE INCLUDED IN ANNUAL GROUNDWATER MONITORING PROGRAM AFTER CONTRACTOR DEMOBILIZATION

LEGEND:

- PROPERTY LINE
- - - INTERIOR PROPERTY LINE
- EXISTING BUILDING
- STEEL POST
- PILING
- EDGE OF WATER
- FENCE
- RAILROAD TRACKS
- - - EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
- - - EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
- PAVEMENT
- CONCRETE PAD

GENERAL NOTES:

- 1) EXISTING CONDITIONS BASE MAP DEVELOPED FROM THE FOLLOWING:
 - ELECTRONIC CAD FILE "ACAD-7257PL.DWG" PROVIDED BY VANASSE HANGEN BRUSTLIN (VHB) ENTITLED "EXISTING CONDITIONS PLAN," PROJECT TITLE "NATIONAL GRID LNG TERMINAL ROAD LNG FACILITY" DATED MARCH 10, 2014, ORIGINAL SCALE 1" = 50', DRAWING NO. SV-1 THROUGH SV-3 AND AERIAL MAPPING BY WSP TRANSPORTATION AND INFRASTRUCTURE DATED JANUARY 15, 2014 PREPARED FOR NATIONAL GRID LAND SURVEYING DEPARTMENT, WALTHAM, MASSACHUSETTS AND CAD FILE NO. 09303023.052-1.DWG
 - ON-SITE INVESTIGATIONS AND SURVEYS BY GZA PERSONNEL DURING VARIOUS SITE VISITS BETWEEN 2011 AND 2015.
- 2) PROPERTY LINES AND LOT INFORMATION ESTABLISHED FROM INFORMATION PROVIDED ON A DRAWING ENTITLED "EXISTING CONDITIONS PLAN," PROJECT TITLE "NATIONAL GRID LNG TERMINAL ROAD LNG FACILITY" DATED MARCH 10, 2014, ORIGINAL SCALE 1" = 50', DRAWING NO. SV-1 THROUGH SV-3.
- 3) EXPLORATION LOCATION PLANS WERE DEVELOPED FROM THE FOLLOWING:
 - SITE PLANS PROVIDED BY RESOURCE CONTROLS ASSOCIATES (RCA) IN THE RIDEM-SUBMITTED JULY 5, 1994 "SITE CHARACTERIZATION PLAN" PREPARED ON BEHALF OF THE PROVIDENCE GAS COMPANY. PLANS PROVIDED BY NATIONAL GRID.
 - SITE PLANS PROVIDED BY RCA IN THE RIDEM-SUBMITTED JUNE 28, 1998 "PHASE IB FIELD CHARACTERIZATION INVESTIGATION" PREPARED ON BEHALF OF THE PROVIDENCE GAS COMPANY. PLANS PROVIDED BY NATIONAL GRID.
 - SITE PLANS PROVIDED BY VHB IN THE RIDEM-SUBMITTED NOVEMBER 2002 "REMEDIAL ACTION CLOSURE REPORT" PREPARED ON BEHALF OF THE NEW ENGLAND GAS COMPANY. PLANS PROVIDED BY NATIONAL GRID.
 - FIGURE 3 "EXPLORATION LOCATION PLAN" PREPARED BY GZA GEOENVIRONMENTAL, INC. (GZA) ON BEHALF OF CHICAGO BRIDGE AND IRON (C&I) IN JULY 2005. PLANS PROVIDED BY NATIONAL GRID.
 - FIGURE 35 "TEST BORINGS UNDER SASSAFRAS POINT PLAT" DATED JUNE 5, 1912 PREPARED BY THE PROVIDENCE GAS COMPANY. PLANS PROVIDED BY NATIONAL GRID.
 - DRAWING 3 "WHARF FACILITIES - BULKHEAD REBUILDING - CROSS SECTIONS" DATED JANUARY 11, 1973 PREPARED BY PARSONS, BRINCKERHOFF, QUADE AND DOUGLAS ON BEHALF OF THE PROVIDENCE GAS COMPANY. PLANS PROVIDED BY NATIONAL GRID.
 - ELECTRONIC CAD FILE "ACAD-7257PL.DWG" PROVIDED BY VANASSE HANGEN BRUSTLIN (VHB) ENTITLED "EXISTING CONDITIONS PLAN," PROJECT TITLE "NATIONAL GRID LNG TERMINAL ROAD LNG FACILITY" DATED MARCH 10, 2014, ORIGINAL SCALE 1" = 50', DRAWING NO. SV-1 THROUGH SV-3 AND AERIAL MAPPING BY WSP TRANSPORTATION AND INFRASTRUCTURE DATED JANUARY 15, 2014 PREPARED FOR NATIONAL GRID LAND SURVEYING DEPARTMENT, WALTHAM, MASSACHUSETTS AND CAD FILE NO. 09303023.052-1.DWG. PLANS PROVIDED BY NATIONAL GRID.

- ELECTRONIC CAD FILE "ACAD-7257PL.DWG" PROVIDED BY VANASSE HANGEN BRUSTLIN (VHB) ENTITLED "EXISTING CONDITIONS PLAN," PROJECT TITLE "NATIONAL GRID LNG TERMINAL ROAD LNG FACILITY" DATED MARCH 10, 2014, ORIGINAL SCALE 1" = 50', DRAWING NO. SV-1 THROUGH SV-3 AND AERIAL MAPPING BY WSP TRANSPORTATION AND INFRASTRUCTURE DATED JANUARY 15, 2014 PREPARED FOR NATIONAL GRID LAND SURVEYING DEPARTMENT, WALTHAM, MASSACHUSETTS AND CAD FILE NO. 09303023.052-1.DWG. PLANS PROVIDED BY NATIONAL GRID.
- ON-SITE INVESTIGATIONS AND SURVEYS BY GZA PERSONNEL DURING VARIOUS SITE VISITS BETWEEN 2011 AND 2015.
- 4) THE LOCATION OF THE EXPLORATIONS AND MONITORING WELLS AT THE SITE WERE APPROXIMATELY DETERMINED AND HAVE BEEN ALIGNED AND ADJUSTED FOR THE "BEST FIT" AND THESE DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
- 5) HORIZONTAL DATUM IS BASED ON NAD 1983 FROM BASE MAPPING PROVIDED BY VHB.
- 6) VERTICAL DATUM IS BASED ON NAVD 1988 FROM BASE MAPPING PROVIDED BY VHB.
- 7) SELECT PRESENTED SITE UTILITIES WERE TAKEN FROM HISTORIC FIGURES PROVIDED BY NATIONAL GRID. ALL UTILITY LOCATIONS ARE APPROXIMATE AND HAVE BEEN ALIGNED AND ADJUSTED FOR THE "BEST FIT" AND THESE DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED. UTILITIES ARE SHOWN FOR REFERENCE ONLY. OTHER LOCATIONS MAY EXIST.



NO.	ISSUE/DESCRIPTION	BY	DATE
1	REMOVE SOIL STORAGE AREA	GZA	3/27/17

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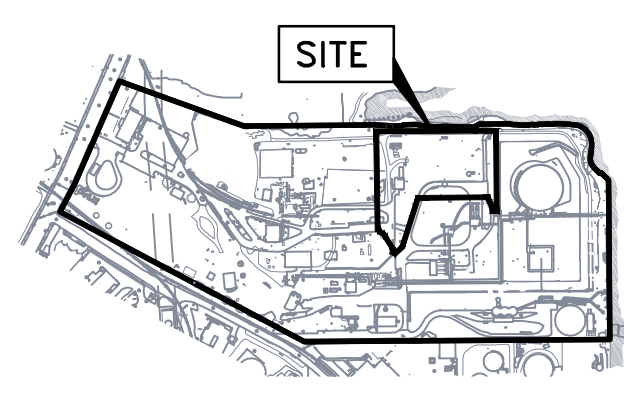
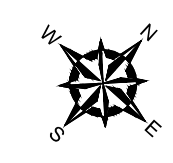
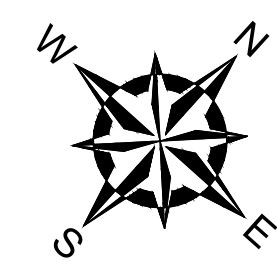
NATIONAL GRID
LIQUEFACTION PLAN
642 ALLENS AVENUE PROVIDENCE, RHODE ISLAND

PROPOSED MONITORING WELL RE-INSTALLATION PLAN

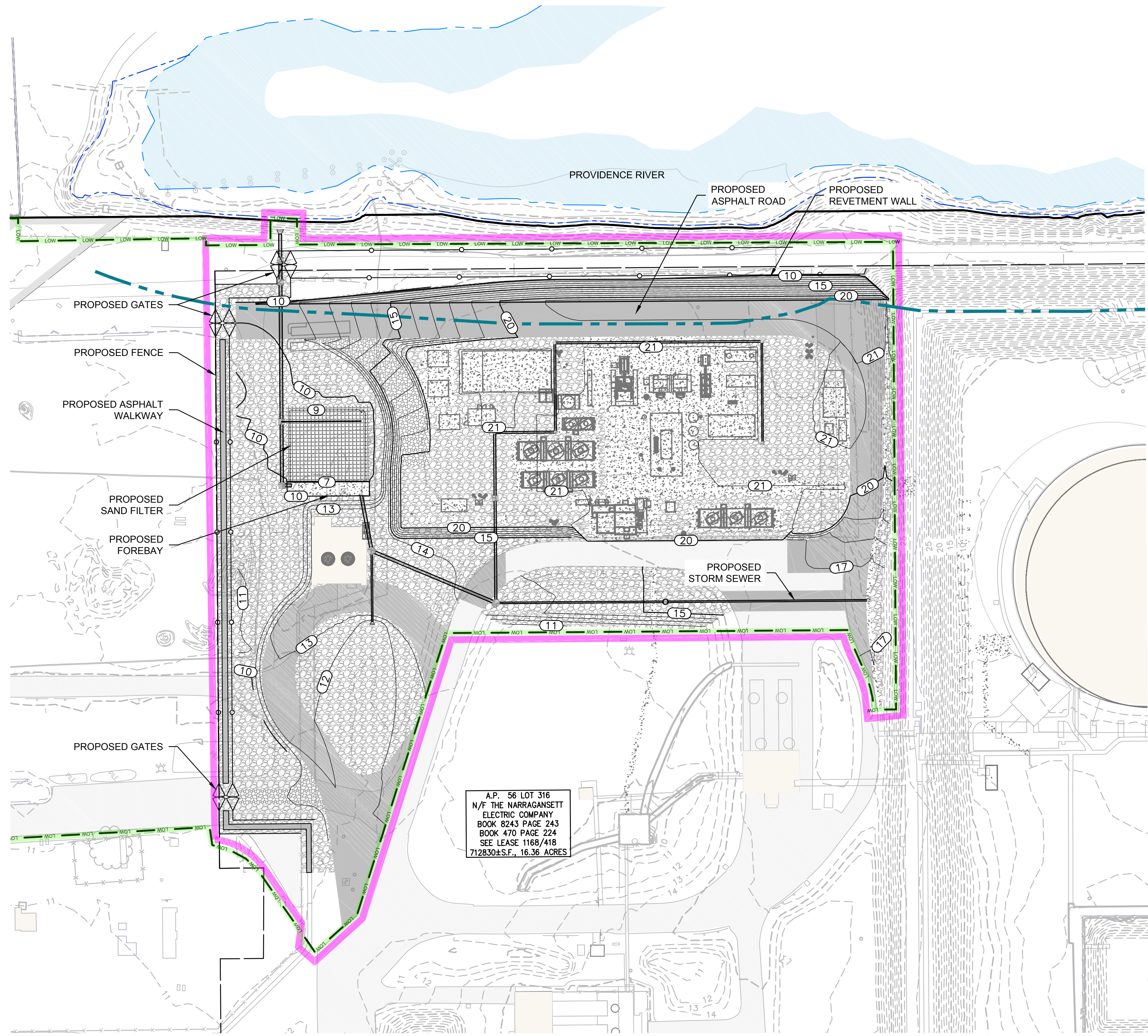
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: nationalgrid
PROJ MGR: MSK DESIGNED BY: SJH DATE: OCTOBER, 2016	REVIEWED BY: SJH DRAWN BY: LDT PROJECT NO.: 33554.60
CHECKED BY: IR SCALE: AS NOTED REVISION NO.: 0	FIGURE 12 SHEET NO. 12 OF 14

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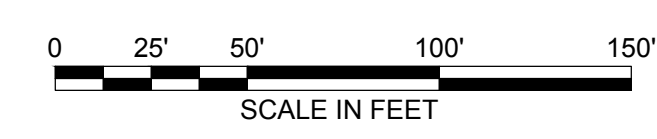
2017 - GZA GeoEnvironmental, Inc. GZA-J:\DATA\33554.60\NATGRID\DWG\CAD\7257PL.DWG - CRMC - PERM - DWG - PROPOSED MONITORING WELL RE-INSTALLATION PLAN - MARCH 27, 2017 2:38 PM USA - THERMAL



KEY PLAN:
SCALE: 1"=800'



- LEGEND:**
- EXISTING STRUCTURE
 - EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
 - EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
 - CRMC 50-FOOT SETBACK
 - EXISTING PAVEMENT
 - EASEMENT AREA
 - UTILITY POLE
 - LIGHT POLE
 - HYDRANT
 - PROPERTY LINES
 - INTERIOR PROPERTY LINE
 - PROPOSED CONTOUR (MAJOR 5 FOOT INTERVAL)
 - PROPOSED CONTOUR (MINOR 1 FOOT INTERVAL)
 - PROPOSED PERMANENT PAVEMENT
 - PROPOSED GRAVEL
 - PROPOSED CONCRETE
 - PROPOSED SAND FILTER
 - LIQUEFACTION WORK AREA
 - LIMIT OF WORK
 - LIMIT OF PROPOSED REVETMENT (UPPER SLOPE)
 - PROPOSED ROUND CATCH BASIN
 - PROPOSED SQUARE CATCH BASIN
 - MHW - MEAN HIGH WATER
 - MLW - MEAN LOW WATER



GENERAL NOTES:

- 1) BASE MAP DEVELOPED FROM THE FOLLOWING:
 - ELECTRONIC CAD FILE "ACAD-7257PL.DWG" PROVIDED BY VANASSE HANGEN BRUSTLIN (VHB) ENTITLED "EXISTING CONDITIONS PLAN," PROJECT TITLE "NATIONAL GRID LNG TERMINAL ROAD LNG FACILITY" DATED MARCH 10, 2014, ORIGINAL SCALE 1" = 50', DRAWING NO. SV-1 THROUGH SV-3 AND AERIAL MAPPING BY WSP TRANSPORTATION AND INFRASTRUCTURE DATED JANUARY 15, 2014 PREPARED FOR NATIONAL GRID LAND SURVEYING DEPARTMENT, WALTHAM, MASSACHUSETTS AND CAD FILE NO. 09303023.052-1.DWG. PLANS PROVIDED BY NATIONAL GRID.
 - DESCRIPTIONS PROVIDED IN THE CITY OF PROVIDENCE DEED BOOK (BK) 470 PAGES 224 - 229, BK 561 PAGES 326 - 328, BK 1111 PAGES 752 - 756 AND BK 5249 PAGES 219 - 322.
 - ELECTRONIC CAD FILE 14-152_SU1_REV2.DWG, TITLED "TOPOGRAPHIC SURVEY PLAN, PORTION OF A.P. 56 LOT 5" DATED OCTOBER 27, 2014 AND PROVIDED BY NATIONAL GRID.
 - ELECTRONIC CAD FILE 5153_COO.DWG, TITLED "EXISTING CONDITIONS PLAN" PREPARED BY PROCESS PIPELINE SERVICES, DATED DECEMBER 18, 2014 AND PROVIDED BY NATIONAL GRID.

- 2) HORIZONTAL DATUM IS BASED ON NAD 1983 FROM BASE MAPPING PROVIDED BY VHB.
- 3) ELECTRONIC CAD FILES PROVIDED BY KIEWIT
 1. "ACAD-102761-CIV_SITE.DWG"
 2. "2007EXP_102761-CIV_SURFACING.DWG"
 3. "102761_MEC_STR_BASE.DWG"
 4. "102761-SURVEY_SITE.DWG"
 5. "A2007EXP_102761-CIV_STORM.DWG"
 6. "ACAD-102761-CIV_SURFACING.DWG"
 7. "ACAD-102761-PROP-CONT.DWG"
 8. "POST DEVELOPMENT DRAINAGE MAP.DWG"
- 4) PDFS OF THE FOLLOWING DRAWINGS PROVIDED BY NATIONAL GRID
 1. "CATCH BASINS AND SANITARY SEWER SYSTEM" PREPARED BY PROVIDENCE GAS COMPANY, DATED SEPTEMBER 25, 1981.
 2. "PLAN SHOWING UNDERGROUND UTILITIES LNG FACILITY" DATED OCTOBER 6, 1983. "SUBSURFACE UTILITY ENGINEERING" PREPARED BY BAYSTATE SUBSURFACE INVESTIGATION, INC., DATED MAY 17, 2005.

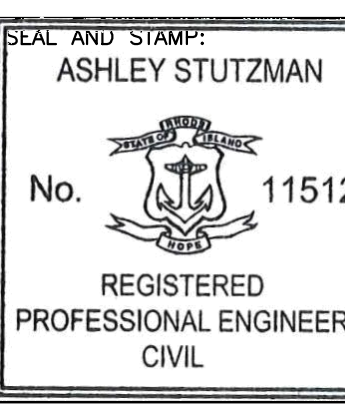
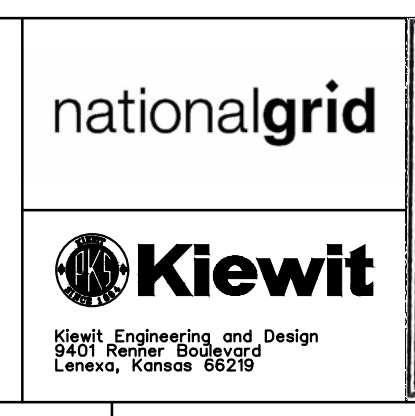
- 5) VERTICAL DATUM IS BASED ON NAVD 1988 FROM BASE MAPPING PROVIDED BY VHB.
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- 7) ON-SITE INVESTIGATIONS AND SURVEYS BY GZA PERSONNEL DURING VARIOUS SITE VISITS BETWEEN 2011 AND 2016.
- 8) PARCEL DATA PROVIDED BY THE CITY OF PROVIDENCE PLANNING AND DEVELOPMENT DEPARTMENT. PARCELS OF REAL ESTATE ASSESSED AS OF DECEMBER 31, 2012. GIS DATA ARE FOR PLANNING PURPOSES ONLY. THESE DATA DO NOT REPRESENT A LEGALLY RECORDED PLAN, DEED, SURVEY OR ENGINEERING SCHEMATIC AND ARE NOT INTENDED TO BE USED AS SUCH.
- 9) SITE BOUNDARIES ARE APPROXIMATE.

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REV	DATE	ISSUED FOR PERMIT	FJS	AV	AMS
BY	CHK	APP.			
1	03-28-17	ISSUED FOR PERMIT			

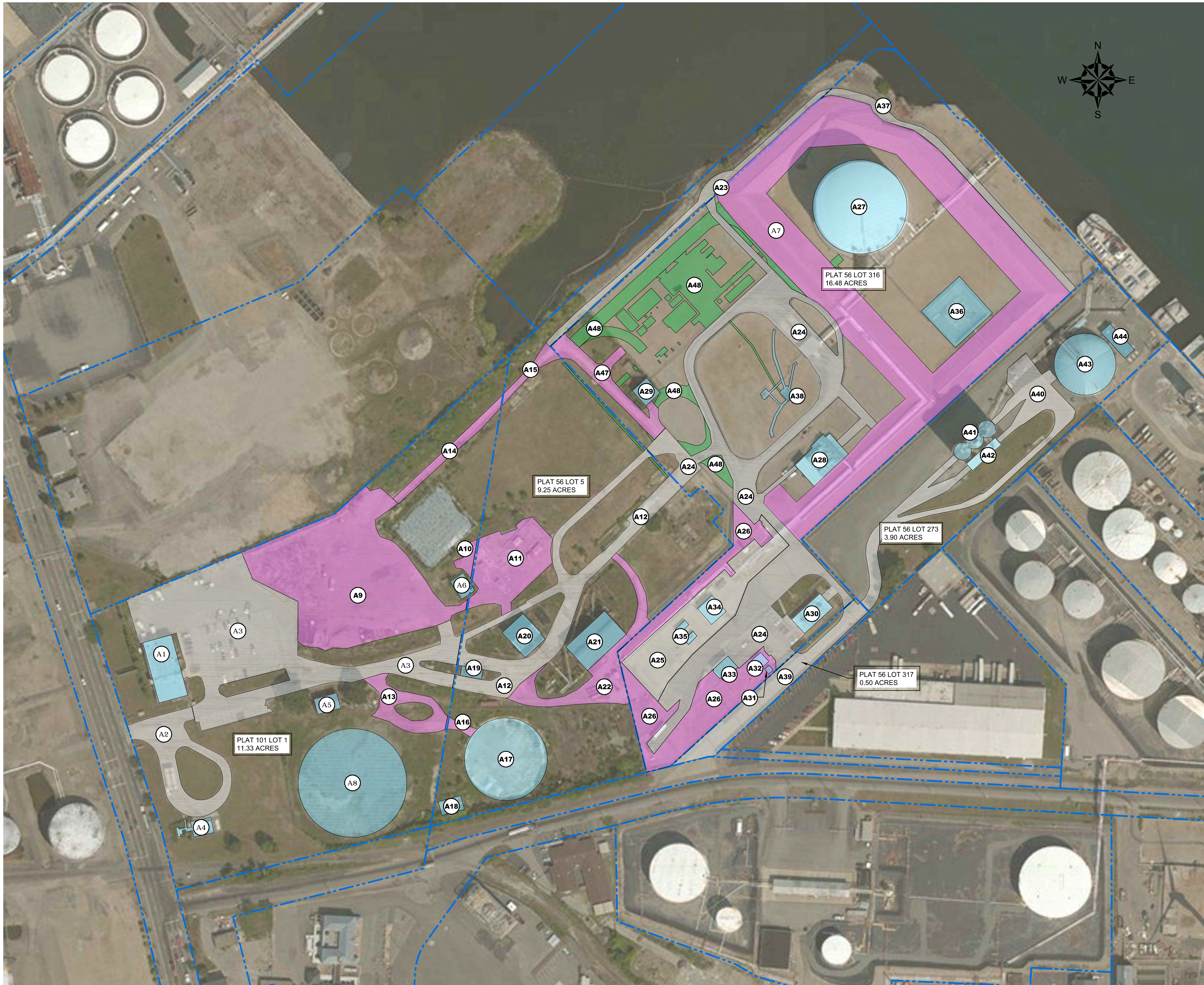
GENERAL NOTES AND COMMENTS:



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 LICENSE NO. 11512
 EXPIRATION DATE 06/30/2019

NATIONAL GRID LNG LLC			
FIELDS POINT LIQUEFACTION PROJECT			
PROPOSED FINAL CONDITIONS			
DRAWING NO:	PROJECT NO:	SHT:	REV.
FIGURE 13	33554.60	130F14	1

MAR 28, 2017 - 12:18pm DRAWING NAME: I:\102761-National_Grid_Liquefaction\CAD_Exchange\1\2017-03-27_GZA_Permit_Package_Revision\33554.60_REVISION_1_FOR_STAMPING.dwg



LEGEND

	PROPERTY LINES
	PERVIOUS PROPOSED TO BE IMPERVIOUS
	STRUCTURE
	ASPHALT
	OTHER

- REFERENCE NOTES:**
- THIS MAP CONTAINS THE ESRI ARCGIS ONLINE BING MAPS AERIAL LAYER PACKAGE. IMAGE COURTESY OF USGS EARTHSTAR GEOGRAPHICS SIO © MICROSOFT CORPORATION 2015.
 - PARCEL DATA PROVIDED BY THE CITY OF PROVIDENCE PLANNING AND DEVELOPMENT DEPARTMENT. PARCELS OF REAL ESTATE ASSESSED AS OF DECEMBER 31, 2012. GIS DATA ARE FOR PLANNING PURPOSES ONLY. THESE DATA DO NOT REPRESENT A LEGALLY RECORDED PLAN, DEED, SURVEY OR ENGINEERING SCHEMATIC AND ARE NOT INTENDED TO BE USED AS SUCH.
 - SITE BOUNDARIES ARE APPROXIMATE.

IMPERVIOUS AREAS				
PLAT	LOT	NO.	AREA (SQ. FT.)	SURFACE TYPE
101	1	A1	8,037.44	ROOF
101	1	A2	17,913.35	ASPHALT
101	1	A3	90,158.79	ASPHALT
101	1	A4	1,786.65	STRUCTURE
101	1	A5	1,640.44	ROOF
101	1	A6	1,445.11	STRUCTURE
56	316	A7	156,852.04	CONTAINMENT DIKE
101	1	A8	39,796.73	TANK FOUNDATION
101	1	A9	78,909.64	COMPACTED GRAVEL
101	1	A10	1,933.34	COMPACTED GRAVEL
56	5	A11	21,898.19	COMPACTED GRAVEL
56	5	A12	37,777.70	ASPHALT
101	1	A13	8,857.25	COMPACTED GRAVEL
101	1	A14	5,114.04	COMPACTED GRAVEL
56	5	A15	2,860.86	COMPACTED GRAVEL
56	5	A16	1,196.51	COMPACTED GRAVEL
56	5	A17	23,127.00	TANK FOUNDATION
56	5	A18	1,923.75	STRUCTURE
56	5	A19	898.87	ROOF
56	5	A20	4,099.05	ROOF
56	5	A21	7,273.42	ROOF
56	5	A22	12,124.48	COMPACTED GRAVEL
56	5	A23	11,249.94	ASPHALT
56	316	A24	92,586.35	ASPHALT
56	316	A25	29,735.26	CONCRETE
56	316	A26	40,494.92	COMPACTED GRAVEL
56	316	A27	29,930.34	LNG TANK
56	316	A28	6,084.97	STRUCTURE
56	316	A29	1,686.87	ROOF
56	316	A30	3,197.19	ROOF
56	316	A31	164.24	ROOF
56	316	A32	638.42	ROOF
56	316	A33	1,346.21	ROOF
56	316	A34	1,845.52	ROOF
56	316	A35	712.24	ROOF
56	316	A36	10,912.10	SUMP PIT
56	316	A37	12,642.27	ASPHALT
56	316	A38	2,392.36	STRUCTURE
56	317	A39	17,080.05	ASPHALT
56	273	A40	28,623.42	ASPHALT
56	273	A41	3,112.29	STRUCTURE
56	273	A42	1,576.65	ROOF
56	273	A43	12,924.79	TANK
56	273	A44	1,893.69	STRUCTURE
56	273	A45	10,294.60	COMPACTED GRAVEL
56	316	A46	54,454.00	NEW IMPERVIOUS AREAS
TOTAL IMPERVIOUS			902,203.34	

894480.34 SQ. FT. IMPERVIOUS AREA = 49.48% IMPERVIOUS
 1807724.79 SQ. FT. TOTAL AREA



1	REMOVE SOIL STORAGE AREA	GZA	3/27/17
NO.	ISSUE/DESCRIPTION	BY	DATE
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<p>NATIONAL GRID LIQUEFACTION PLANT 642 ALLENS AVENUE PROVIDENCE, RHODE ISLAND</p>			
<p>PROPOSED IMPERVIOUS CONDITIONS PLAN</p>			
<p>PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com</p>		<p>PREPARED FOR: nationalgrid</p>	
<p>PROJ MGR: MSK DESIGNED BY: SJM DATE: OCTOBER 2016</p>	<p>REVIEWED BY: SJM DRAWN BY: LDT PROJECT NO: 33554.60</p>	<p>CHECKED BY: JR SCALE: AS NOTED REVISION NO: 0</p>	<p>FIGURE 14 SHEET NO. 14 OF 14</p>

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