

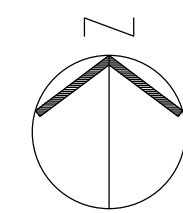
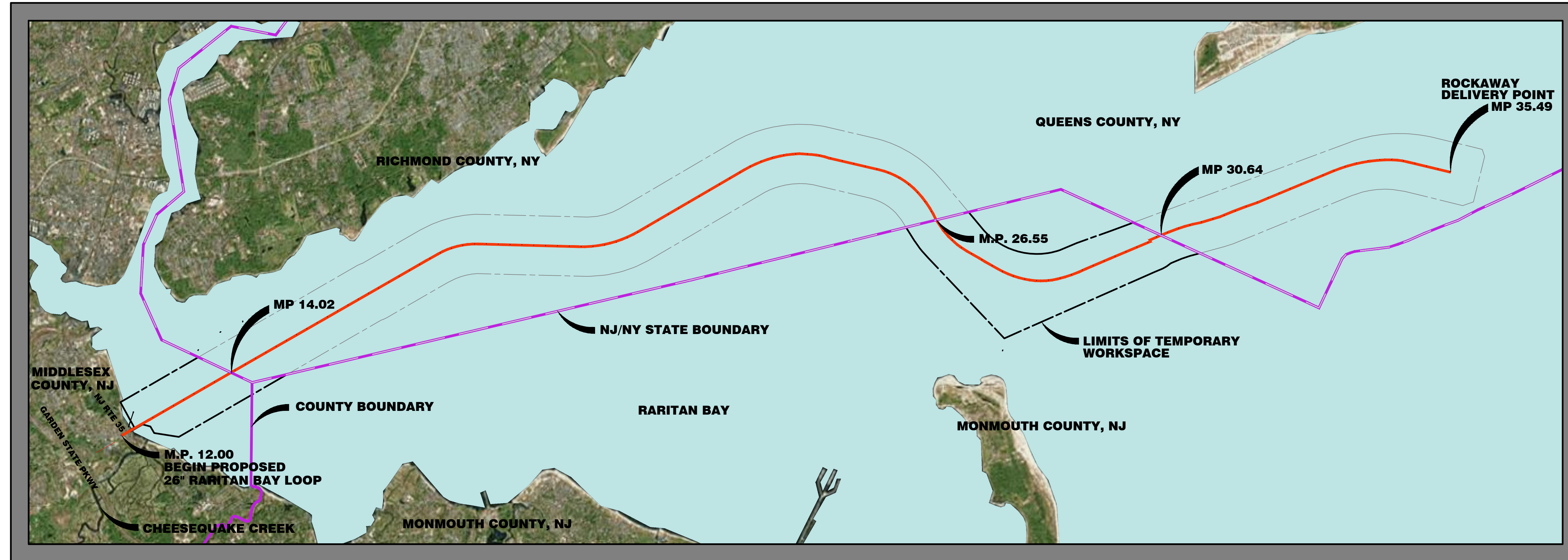
NJDEP LAND USE PERMIT PLANS

FOR THE

NORTHEAST SUPPLY ENHANCEMENT PROJECT

PROPOSED 26" RARITAN BAY LOOP (OFFSHORE)

TRANSCONTINENTAL GAS PIPE LINE COMPANY LLC



AERIAL KEY MAP

SOURCE: ARCGIS WORLD IMAGERY MAP SERVICE
 WWW.MAPS.US.NEARMAP.COM, AERIAL MAPS,
 MARCH 30, 2017
 SCALE: 1" = 5000'

DRAWING LIST				
DWG. NO.	DWG. TITLE	ISSUED	LAST REVISED	
1	COVER SHEET	06/08/18	10/11/19	
2	GENERAL NOTES	06/08/18	10/11/19	
3	WATERFRONT DEVELOPMENT PERMIT PLAN (MILE 12.00 TO 14.02)	06/08/18	10/11/19	
4	WATERFRONT DEVELOPMENT PERMIT PLAN (MILE 26.55 TO 28.90)	06/08/18	10/11/19	
5	WATERFRONT DEVELOPMENT PERMIT PLAN (MILE 28.90 TO 30.64)	06/08/18	10/11/19	
6	CONSTRUCTION DETAILS	06/08/18	10/11/19	
7	CONSTRUCTION DETAILS	06/08/18	10/11/19	
8	CONSTRUCTION DETAILS	06/08/18	10/11/19	

SUPPLEMENTAL DRAWING LIST				
DWG. NO.	DWG. TITLE	ISSUED	LAST REVISED	
1	PERMIT PLAN -- RARITAN BAY LOOP OFFSHORE STAGING AREA	06/08/18	--	

REV. / ISSUE	DATE	DESCRIPTION
1	10/11/19	REV NOTES ON PLANS

I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY AND I HEREBY CERTIFY THAT THE PROPOSED ENVIRONMENTAL DISTURBANCES SHOWN ARE ACCURATE AND CORRESPOND WITH THE DETAILED ENGINEERING DRAWINGS.

WILLIAM SALMON, P.E.
 PS&S, LLC
 1433 HIGHWAY 34, SUITE A-4, WALL, NJ 07727
 PROFESSIONAL ENGINEER
 N.J. LIC. NO. 41319 COA NO. 24GA28032700

William Salmon 10/11/19
 SIGNATURE DATE

PS&S
 1433 ROUTE 34
 SUITE A4
 WALL, NJ 07727
 PHONE: (848) 206-2626
 CERTIFICATE OF AUTHORIZATION NO. 24GA28032700

ALL DIMENSIONS MUST BE VERIFIED BY THE CONTRACTOR. NOTIFY PAULUS, SOKOLOWSKI AND SARTOR, LLC OF ANY CONFLICTS, ERRORS, AMBIGUITIES OR DISCREPANCIES IN THE CONTRACT DRAWINGS OR SPECIFICATIONS BEFORE PROCEEDING WITH CONSTRUCTION. ALL DIMENSIONS SHALL BE AS NOTED IN WORDS OR NUMBERS ON THE CONTRACT DRAWINGS. DO NOT SCALE THE DRAWINGS TO DETERMINE DIMENSIONS. THESE CONTRACT DRAWINGS CONTAIN DATA INTENDED SPECIFICALLY FOR THE NOTED PROJECT AND CLIENT. THEY ARE NOT INTENDED FOR USE ON EXTENSIONS OF THIS PROJECT OR FOR REUSE ON ANY OTHER PROJECT. THE COPYING AND/OR MODIFICATION OF THIS DOCUMENT OR ANY PORTION THEREOF WITHOUT THE WRITTEN PERMISSION OF PAULUS, SOKOLOWSKI AND SARTOR, LLC IS PROHIBITED. UNLESS THESE DRAWINGS ARE SPECIFICALLY DESIGNATED AS "CONSTRUCTION ISSUE", THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION OR IMPROVEMENTS SETFORTH HEREIN. CONTRACTORS SHALL NOTIFY THE DESIGN ENGINEER TO OBTAIN CONSTRUCTION DOCUMENTS. COPYRIGHT 2017 PAULUS, SOKOLOWSKI AND SARTOR, LLC -- ALL RIGHTS RESERVED.

PROJECT
 NORTHEAST SUPPLY
 ENHANCEMENT PROJECT
 PROPOSED
 26" RARITAN BAY LOOP
 MIDDLESEX & MONMOUTH COUNTY, NEW JERSEY

SHEET TITLE
 COVER SHEET

PROJECT NO.: 05731.0009 DRAWN BY: JPS
 SCALE: AS NOTED CHECKED BY: WS
 DATE: 06/08/18 SHEET 1 OF 8
 SHEET NO.

STATE PLANE COORDINATES		
PROPOSED GAS PIPELINE CENTERLINE STATIONING	EASTING	NORTHING
279+62	557499	594178
280+00	557532	594197
290+00	558398	594697
300+00	559265	595197
310+00	560131	595697
320+00	560997	596197
330+00	561863	596697
340+00	562729	597197
350+00	563595	597696
360+00	564461	598196
370+00	565327	598696
380+00	566193	599196
386+05	566717	599499
1048+08	626219	612376
1050+00	626320	612213
1060+00	626889	611391
1070+00	627567	910657
1080+00	628343	610028
1090+00	629196	609506
1100+00	630063	609009
1110+00	630931	608511
1120+00	631802	608020
1130+00	632721	607628
1140+00	633686	607371
1150+00	634678	607254
1160+00	635677	607279
1170+00	636662	607447
1180+00	637613	607752
1190+00	638536	608139
1200+00	639458	608525
1210+00	639901	608711
1220+00	640380	608912
1230+00	641302	609299
1240+00	642225	609686
1250+00	643147	610072
1260+00	644069	610459
1263+97	645169	611083

NOTES ON USE OF PLANS:

- UNLESS THESE PERMIT DRAWINGS ARE SPECIFICALLY DESIGNATED AS "CONSTRUCTION ISSUE," THESE DRAWINGS SHALL NOT BE USED FOR PERMITTING ASSOCIATED WITH CONSTRUCTION OR THE IMPROVEMENTS DEPICTED HEREIN. CONTRACTORS SHALL NOTIFY THE DESIGN ENGINEER TO OBTAIN PERMITTING DOCUMENTS. THESE PLANS ARE FOR NJDEP PERMITTING ONLY, NO CONSTRUCTION IS TO BE BASED UPON THESE PLANS.
- ALL DIMENSIONS MUST BE VERIFIED IN THE FIELD DURING CONSTRUCTION BY THE CONTRACTOR. NOTIFY PAULUS, SOKOLOWSKI AND SARTOR, LLC OF ANY CONFLICTS, ERRORS, AMBIGUITIES OR DISCREPANCIES IN THE CONTRACT DRAWINGS OR SPECIFICATIONS BEFORE PROCEEDING WITH CONSTRUCTION.
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- THESE CONTRACT DRAWINGS CONTAIN DATA INTENDED SPECIFICALLY FOR THE NOTED PROJECT AND CLIENT. THEY ARE NOT INTENDED FOR USE ON EXTENSIONS OF THIS PROJECT OR FOR REUSE ON ANY OTHER PROJECT.
- THE COPYING AND/OR MODIFICATION OF THIS DOCUMENT OR ANY OTHER PORTION THEREOF WITHOUT THE WRITTEN PERMISSION OF PAULUS, SOKOLOWSKI, AND SARTOR, LLC IS EXPRESSLY PROHIBITED.
- INFORMATION FOR DESIGN LAYOUT IS CONTAINED SOLELY IN THE WRITTEN DIMENSIONS, BEARINGS, AND ANGLES CONTAINED ON THE DRAWINGS.
- THIS DIMENSIONAL INFORMATION IS NOT WARRANTED NOR SHOULD IT BE CONSIDERED AS COMPLETE FOR EVERY ASPECT OF THE LAYOUT. STANDARD PRACTICE REQUIRES THAT THE LAYOUT PERSON CHECK THE DIMENSIONAL DATA CONSISTENCY AND TO PERFORM SURVEY CALCULATIONS WHICH ARE CUSTOMARY FOR CONSTRUCTION LAYOUT. IN THE EVENT THAT A QUESTION OR INCONSISTENCY IS DISCOVERED, THE INSTALLER SHALL IMMEDIATELY NOTIFY THE DESIGN ENGINEER, PAULUS, SOKOLOWSKI, AND SARTOR, LLC.
- THE GRAPHICAL INFORMATION CONTAINED IN ELECTRONIC FILES IS INTENDED AS DRAWING DATA ONLY. IT IS NOT INTENDED TO SERVE AS SURVEY LAYOUT DATA.
- ALL PROPOSED FITTING ANGLES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CUTTING.

GENERAL NOTES:

- LOCATION OF EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE / TEMPORARY WORKSPACE OF PROJECT MUST BE FIELD VERIFIED BEFORE WORK MAY COMMENCE. ANY CONFLICTING INFORMATION FROM THAT SHOWN SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE DESIGN ENGINEER, PAULUS, SOKOLOWSKI, AND SARTOR, LLC.
- UNLESS SPECIFICALLY SHOWN HEREIN, THE DESIGN ENGINEER, PAULUS, SOKOLOWSKI, AND SARTOR, LLC HAS NOT CONDUCTED AN INVESTIGATION OR PROVIDED DATA ON THE NATURE OF, OR STRUCTURAL SUITABILITY OF ANY SUBSURFACE MATERIALS. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER, PAULUS, SOKOLOWSKI, AND SARTOR, LLC IN WRITING OF ANY UNUSUAL SOIL OR ROCK CONDITIONS ENCOUNTERED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING WARNING SIGNS, BARRICADES, AND ANY AND ALL SAFETY MEASURES AS MAY BE REQUIRED BY LOCAL CODE, OSHA, STANDARD PRACTICE, AND/OR COMMON SENSE AND MAINTENANCE THEREOF. LETTERING SHALL BE A MINIMUM OF 2" HIGH AND SHALL BE OF A COLOR THAT CONTRASTS WITH THE SIGN.
- ALL ONSHORE SOIL EROSION AND SEDIMENT CONTROL STRUCTURES AND MEASURES SHALL BE IN PLACE PRIOR TO ANY SITE DISTURBANCE.
- CONTRACTOR TO RESTORE GROUND SURFACE OF GAS PIPELINE TRENCH, CONSTRUCTION STAGING AREAS, AND ALL OTHER DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER, OR AS SPECIFIED IN THESE PLANS.
- THE CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS FOR ALL UNDERGROUND IMPROVEMENTS INSTALLED DURING CONSTRUCTION, ETC. AS-BUILT DRAWINGS MUST BE SIGNED AND SEALED BY A NJ PROFESSIONAL ENGINEER OR LAND SURVEYOR. THE AS-BUILT SURVEY DRAWINGS MUST COMPLY WITH UTILITY OWNER STANDARDS / REQUIREMENTS. COPIES SHALL BE SUBMITTED TO UTILITY COMPANY AND/OR OWNER.
- TRENCHING AND DREDGING WILL BE COMPLETED BY CLAMSHELL DREDGE, JET TRENCHER OR HAND JETS ACCORDING TO BURIAL DEPTH REQUIREMENTS, THE NATURE OF AREAS TO BE EXCAVATED AND WATER DEPTHS. BACKFILLING WILL BE COMPLETED USING CLAMSHELL AND PIPELAYING WILL BE COMPLETED USING PIPELAY BARGE. REFER TO SITE PLANS PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
- TRANSCO PLANS TO INSTALL A TEMPORARY FIXED PLATFORM AT MP 12.50 TO SUPPORT OPERATIONS ASSOCIATED WITH THE MORGAN SHORE HDD AND SHALLOW WATER PIPELAY OPERATIONS. DUE TO THE SHALLOW WATERS FROM MP 12.50 TO MP 16.50 AND DRAFT RESTRICTIONS OF THE PIPELAY BARGE TO BE USED FOR CONSTRUCTION, THE PIPELAY BARGE WILL BE MOORED AT MP 14.50 WHERE THE BARGE WILL FABRICATE TWO PIPE STRINGS THAT WILL BE PULLED ON BOTTOM IN A PRE-DREDGED TRENCH TOWARDS MP 12.50 VIA A WINCH LOCATED ON THE FIXED PLATFORM. THE PIPELAY BARGE WILL THEN RELOCATE AND MOOR AT MP 16.50, WHERE ANOTHER PIPE STRING WILL BE FLOATED FROM MP 16.50 TO MP 14.50 UNDER CONTROL OF THE FIXED PLATFORM WINCH. ONCE IN POSITION, THIS PIPE STRING WILL BE SUNK INTO THE PRE-DREDGED TRENCH. TRANSCO WILL INSTALL GUIDE PILES FROM MP 14.50 TO MP 16.50 TO ASSIST THE PIPE PULL OPERATIONS AND WILL ATTACH BUOYANCY MODULES TO THE STRINGS DURING THE PULL-IN PROCESS. ONCE THE INDIVIDUAL PIPE STRINGS ARE IN PLACE, THE BUOYANCY MODULES WILL BE REMOVED, AND THE STRINGS WILL BE FLOODED.

COASTAL ZONE MANAGEMENT NOTES:

- THE PURPOSE OF THESE PLANS IS TO SECURE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION COASTAL ZONE MANAGEMENT PERMITS FOR THE PROPOSED CONSTRUCTION OF A 26-INCH GAS TRANSMISSION MAIN OFFSHORE WITHIN RARITAN BAY. SEE NORTHEAST SUPPLY ENHANCEMENT PROJECT - PROPOSED 26" MADISON LOOP WATERFRONT DEVELOPMENT PERMIT PLANS FOR CONTINUATION OF ONSHORE IMPROVEMENTS.
 - A. COASTAL ZONE MANAGEMENT PERMIT, WATERFRONT DEVELOPMENT INDIVIDUAL PERMIT - WATERFRONT DEVELOPMENT INDIVIDUAL PERMIT - WATER, COASTAL / TIDAL PERMIT; N.J.A.C. 7:7
- THE APPLICANT/OWNER SHALL SECURE ALL PROPOSED PERMANENT AND TEMPORARY EASEMENTS AND RIGHTS OF ACCESS SHOWN ON THE PLANS PRIOR TO CONSTRUCTION. THE OWNER/CONTRACTOR SHALL ALSO SECURE NECESSARY EASEMENTS OR RIGHTS OF ACCESS BEYOND THE LIMITS SHOWN, AS DEEMED NECESSARY.
- REFER TO PLANS ENTITLED "TRENCH CROSS-SECTION FOR PRE AND POST PIPELAY TRENCHING", REVISED NOVEMBER 20, 2017, PREPARED BY INTECSEA WORLEY PARSONS GROUP, PROVIDED BY TRANSCONTINENTAL PIPE LINE COMPANY, LLC. FOR MINIMUM COVER OF THE TRANSMISSION GAS MAIN ACCORDING TO EXCAVATION METHOD, NATURE OF THE AREAS TO BE EXCAVATED AND WATER DEPTHS.
- TRENCHING AND DREDGING WILL BE COMPLETED BY CLAMSHELL DREDGE, JET TRENCHER OR HAND JETS ACCORDING TO BURIAL DEPTH REQUIREMENTS, THE NATURE OF AREAS TO BE EXCAVATED AND WATER DEPTHS. BACKFILLING WILL BE COMPLETED USING CLAMSHELL AND PIPELAYING WILL BE COMPLETED USING PIPELAY BARGE. REFER TO SITE PLANS ENTITLED "TRENCH CROSS-SECTION FOR PRE AND POST PIPELAY TRENCHING", LAST REVISED NOVEMBER 20, 2017, PREPARED BY INTECSEA, PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
- TEMPORARY WORKSPACE WITHIN THE WATERFRONT DEVELOPMENT ZONE BELOW MEAN HIGH WATER ELEVATION IS 3,703 ACRES.
- OPERATIONAL EASEMENT IS 30 FEET CENTERED ON PIPELINE ROUTE AND EQUIVALENT TO 22.40 ACRES (975,744 SF) IN NEW JERSEY. THIS ACREAGE REFLECTS THE OPERATIONAL EASEMENT THAT WILL BE ACQUIRED FOR THE RARITAN BAY LOOP; HOWEVER, FOLLOWING INSTALLATION NO ROUTINE BOTTOM DISTURBING IMPACTS ASSOCIATED WITH OPERATIONS ARE ANTICIPATED. FURTHER MAINTENANCE IS EXPECTED TO BE MINIMAL BASED ON THE OPERATIONAL LIFE OF THE PIPELINE.

REFERENCE NOTES

- ONSHORE EXISTING CONDITIONS SHOWN HEREON ARE BASED UPON SURVEY INFORMATION PREPARED BY D.W. SMITH ASSOCIATES, LLC AND WILLIAMS TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
- THE HORIZONTAL DATUM REFERS TO NAD83 NEW JERSEY STATE PLANE COORDINATE SYSTEM.
- BATHYMETRY BASED UPON PLANS ENTITLED "GEOPHYSICAL SURVEY AND DATA ASSESSMENT FOR THE NORTHEAST SUPPLY ENHANCEMENT PROJECT, OFFSHORE RARITAN BAY LOOP", DATED 2016, PREPARED BY ROGERS SURVEYING, PLLC, PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC. IN MEAN LOWER LOW WATER DATUM (CONVERSION TO NGVD 1929: -1.87 FT.) THE VERTICAL DATUM FOR ONSHORE REFERS TO NAVD 88 TOPOGRAPHICAL DATA. (CONVERSION TO NGVD 1929: +1.04 FT.)
- PORTION OF RARITAN BAY LOOP ABOVE MEAN HIGH WATER LINE IS SHOWN ON NORTHEAST SUPPLY ENHANCEMENT PROJECT 26" MADISON BAY LOOP WATERFRONT DEVELOPMENT PERMIT PLANS, DATED JUNE 8, 2018, PREPARED BY PAULUS, SOKOLOWSKI AND SARTOR, LLC.
- THESE PERMIT PLANS ARE BASED UPON GAS ALIGNMENT PLANS ENTITLED "TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC - FERC ALIGNMENT SHEET NORTHEAST SUPPLY ENHANCEMENT PROJECT - PROPOSED 26" RARITAN BAY LOOP M.P. 12.00 TO M.P. 35.49 OFFSHORE", LAST REVISED MAY 9, 2018, PREPARED BY INTECSEA WORLEY PARSONS GROUP, AS PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC IN GIS FORMAT (SHAPEFILES).
- THE FOLLOWING ADDITIONAL INFORMATION WAS PROVIDED BY WILLIAMS TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC AND/OR ECOLOGY AND ENVIRONMENT, INC. IN GIS FORMAT (SHAPEFILES) FROM VARIOUS SOURCES:
 - A. NOAA SHIPPING LANES
 - B. COMMERCIAL WHALE WATCHING GENERAL USE AREA
 - C. NATIONAL PARKS SERVICE AREAS
 - D. OFFSHORE HARBOR CAUTION AREAS
 - E. NEW JERSEY SHELLFISH GROWING WATERS LIMITS
 - F. NEW JERSEY HARD CLAM HABITAT
 - G. LIMITS OF SURFCLAM PRELIMINARY DISTRIBUTION AREA
 - H. NJDEP SPORT FISHING AREAS
 - I. CHEESEQUAKE STATE PARK LIMITS
- NEW YORK STATE BOUNDARY LINES TAKEN FROM "NYS GIS PROGRAM OFFICE COUNTY BOUNDARIES", 2013. NEW JERSEY COUNTY LINES TAKEN FROM "COUNTIES OF NEW JERSEY, NJ OFFICE OF INFORMATION TECHNOLOGY, OFFICE OF GEOGRAPHIC INFORMATION SYSTEMS", 2015.
- MEAN HIGH WATER LEVEL VALUES PROVIDED BY WILLIAMS TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC GENERATED FROM NOAA VERTICAL DATUM WEBSITE AND VERIFIED AGAINST THE NEW JERSEY TIDAL BENCHMARK DATA. NEGLIGIBLE DIFFERENCE BETWEEN SOURCES IS ASSUMED TO BE RELATED TO SEA LEVEL RISE AND FROM NEW JERSEY DATA BEING FROM 1970'S TIDAL EPOCH DATASET.
- THE MEAN LOW WATER LINE WAS DERIVED FROM SANDY HOOK, NJ TIDAL STATION DATA, CONVERTED UTILIZING NOAA V-DATUM TRANSFORMATION TOOL AND PLOTTED AGAINST BATHYMETRY DATA INDICATED ON NOAA NAUTICAL CHARTS (CHART #12327, DATED APRIL 2017). THE FOUR FEET BELOW MEAN LOW WATER LINE WAS PLOTTED AGAINST PARTIAL BATHYMETRY SURVEY BY ROGERS SURVEYING AND THE NOAA NAUTICAL CHARTS. THE MEAN LOW WATER LINE AND ELEVATION AND THE FOUR FEET BELOW MEAN LOW WATER LINE AND ELEVATION WERE PROVIDED BY ECOLOGY AND ENVIRONMENT, INC. THE FOUR FEET BELOW MEAN LOW WATER LINE DENOTES THE LINE SEPARATING INTERTIDAL ZONE (ABOVE ELEVATION -3.45, MLLW DATUM) AND SUBTIDAL SHALLOW ZONE (BELOW ELEVATION -3.45, MLLW DATUM).
- DREDGING VOLUME CALCULATIONS BASED UPON CROSS-SECTIONS AND DREDGE VOLUMES PROVIDED ON PLANS ENTITLED "TRENCH CROSS-SECTION FOR PRE AND POST PIPELAY TRENCHING", LAST REVISED NOVEMBER 20, 2017, "MORGAN SHORE APPROACH HDD EXIT PIT GRADING - MP 12.50", LAST REVISED JANUARY 11, 2018, "NEPTUNE CABLE CROSSING AT MP 13.88", LAST REVISED APRIL 23, 2018, "AMBROSE CHANNEL HDD EXIT PIT GRADING" AND "AMBROSE CHANNEL HDD ENTRY PIT GRADING", LAST REVISED DECEMBER 19, 2017, ALL PREPARED BY INTECSEA WORLEY PARSONS GROUP, PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
- APPROXIMATE ANCHOR LOCATIONS AND METHOD PROVIDED ON PLANS ENTITLED "TYPICAL ANCHOR SPREAD DRAWING", DATED MARCH 15, 2017, PREPARE BY INTECSEA WORLEY PARSONS GROUP, PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
- FOR DESIGN, PROFILES AND DETAILS OF THE CATHODIC PROTECTION POWER CABLE AND ANODE SLED, REFER TO PLANS ENTITLED "ANODE SLED INSTALLATION AND CP HDD PLAN AND PROFILE", LAST REVISED MAY 8, 2018, PREPARED BY INTECSEA WORLEY PARSONS GROUP, PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
- ADDITIONAL TEMPORARY OFF-SITE STAGING, STORAGE, LAND SIDE ACCESS AND GENERAL CONSTRUCTION SUPPORT IS PROVIDED AT CITY OF ELIZABETH, BLOCK 4, LOTS 1462 AND 1463 AND CITY OF JERSEY CITY, BLOCK 30501, LOT 1 AS INDICATED ON PLAN ENTITLED "NORTHEAST SUPPLY ENHANCEMENT PROJECT PROPOSED 26" MADISON LOOP - PERMIT PLAN RARITAN BAY LOOP OFFSHORE STAGING AREA," DATED JUNE 8, 2018, PREPARED BY PAULUS, SOKOLOWSKI AND SARTOR, LLC.


ELEVATION TABLE			
	MEAN LOWER LOW WATER	NGVD 1929	NAVD 1988
MEAN HIGH WATER	5.27	3.40	2.36
MEAN LOW WATER	0.57	-1.30	-2.34
4 FT. BELOW MEAN LOW WATER	-3.45	-5.32	-6.36


OWNER / APPLICANT
 TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC
 2800 POST OAK BLVD.
 HOUSTON, TEXAS 77056

REV. / ISSUE	DATE	DESCRIPTION
1	10/11/19	REV NOTES ON PLANS

I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY AND I HEREBY CERTIFY THAT THE PROPOSED ENVIRONMENTAL DISTURBANCES SHOWN ARE ACCURATE AND CORRESPOND WITH THE DETAILED ENGINEERING DRAWINGS.

WILLIAM SALMON, P.E.
 PS&S, LLC
 1433 HIGHWAY 34, SUITE A-4, WALL, NJ 07727
 PROFESSIONAL ENGINEER
 N.J. LIC. NO. 41319 COA NO. 24GA28032700

 10/11/19
 SIGNATURE DATE

PAULUS, SOKOLOWSKI AND SARTOR, LLC.

 1433 ROUTE 34
 SUITE A4
 WALL, NJ 07727
 PHONE: (848) 206-2626
 CERTIFICATE OF AUTHORIZATION NO. 24GA28032700

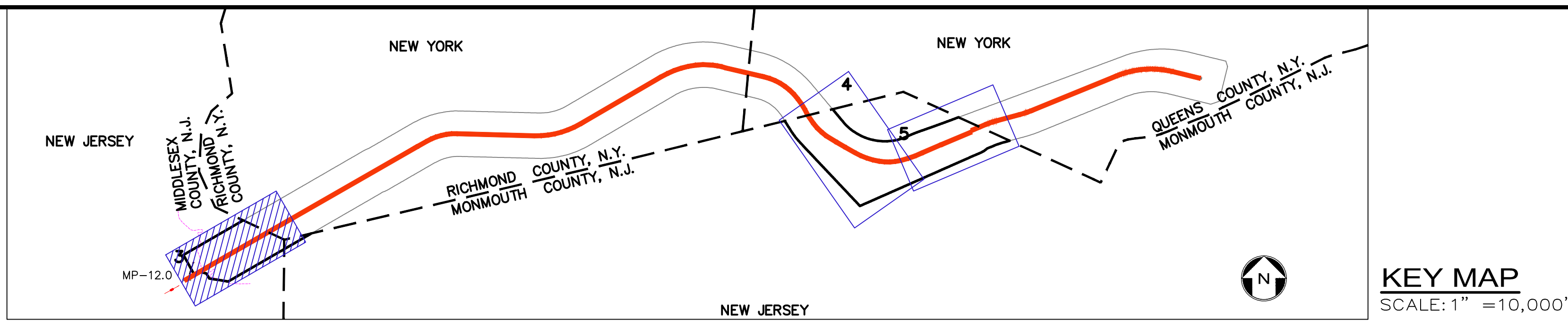
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 PROPOSED
 26" RARITAN BAY LOOP
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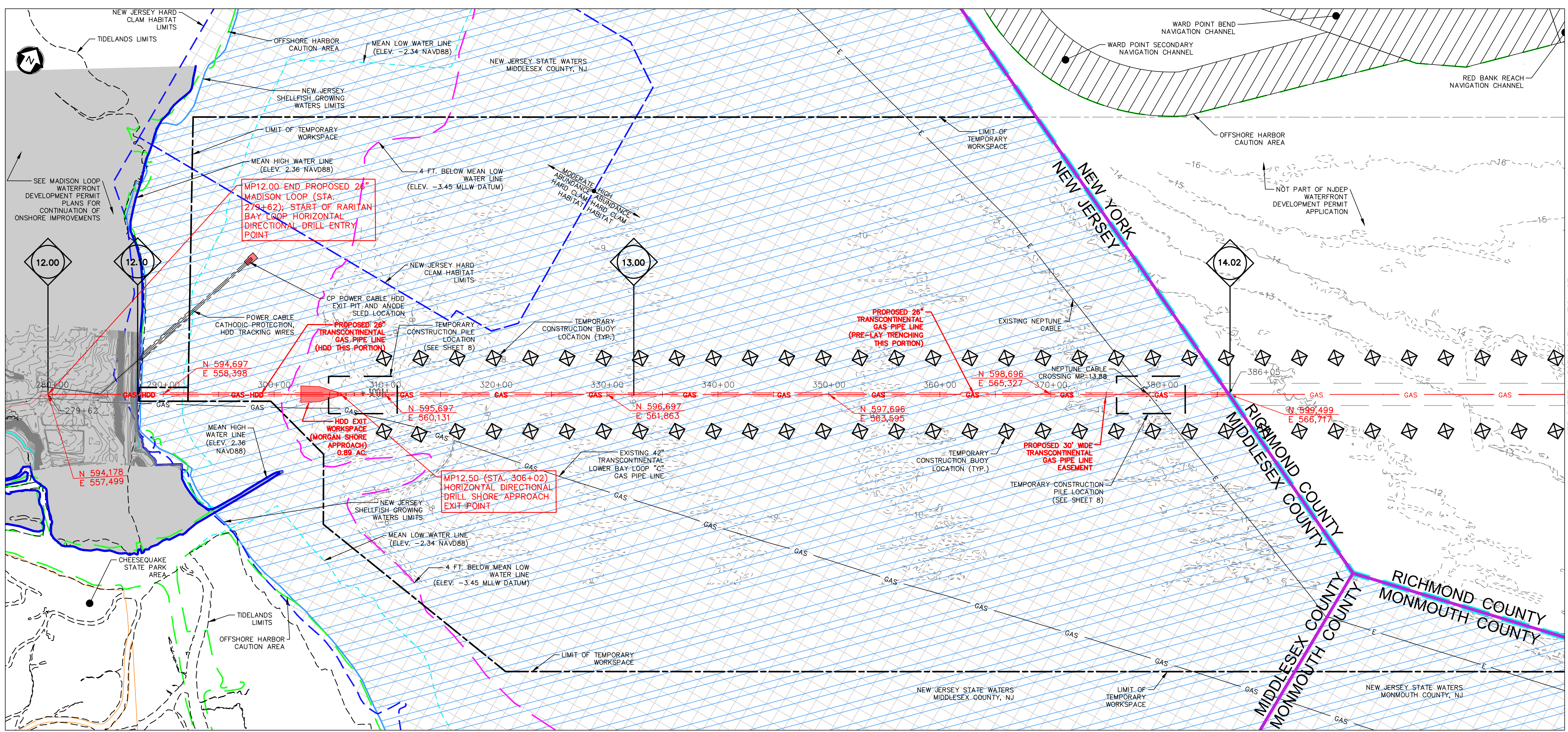
SHEET TITLE
 GENERAL NOTES

PROJECT NO.: 05731.0009 DRAWN BY: JPS
 SCALE: AS NOTED CHECKED BY: WS
 DATE: 06/08/18 SHEET 2 OF 8
 SHEET NO.

FILE NAME: C:\Users\jpsalmon\OneDrive - PS&S\Documents\Projects\24GA28032700\24GA28032700.dwg
 USER: jpsalmon
 DATE: 10/11/2019 10:11:19 AM
 LAYER: SHEET_TITLE



KEY MAP
SCALE: 1" = 10,000'



SEE SHEET 4 FOR CONTINUATION OF NEW JERSEY WORK

REV. / ISSUE	DATE	DESCRIPTION
1	10/11/19	REV NOTES ON PLANS

LEGEND

	PROPERTY LINE
	EXISTING CONTOURS
	EXISTING SPOT ELEVATION
	COUNTY BOUNDARY LINE
	STATE BOUNDARY LINE
	EXISTING GAS MAIN
	PROPOSED GAS MAIN
	NOAA SHIPPING LANE
	WHALE WATCHING AREA
	NATIONAL PARKS SERVICE
	OFFSHORE HARBOR CAUTION
	MADISON LOOP WATERFRONT DEVELOPMENT PERMIT PLANS
	NJ SHELLFISH GROWING WATERS
	NJ HARD CLAM HABITAT
	SURF CLAM
	PROPOSED PERMANENT EASEMENT
	PROPOSED LIMIT OF DISTURBANCE
	NAVIGATION CHANNEL
	NJDEP SPORT FISHING
	CHEESEQUAKE STATE PARK
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	SPRING HIGH WATER LINE
	TIDELANDS
	4 FEET BELOW MEAN LOW WATER
	HDD DIRECT IMPACT
	TEMPORARY CONSTRUCTION BUOY LOCATION
	TEMPORARY CONSTRUCTION PILE LOCATION

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PS&S, LLC
1433 HIGHWAY 34, SUITE A-4, WALL, NJ 07727
PROFESSIONAL ENGINEER
N.J. LIC. NO. 41319 COA NO. 246A28032700
SIGNATURE: *William Salmon* DATE: 10/11/19

PAULUS, SOKOLOWSKI AND SARTOR, L.L.C.
PS&S
1433 ROUTE 34 SUITE A4 WALL, NJ 07727 PHONE: (848) 206-2626
CERTIFICATE OF AUTHORIZATION NO. 246A28032700

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PROPOSED 26" RARITAN BAY LOOP
MIDDLESEX & MONMOUTH COUNTY, NEW JERSEY

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WATERFRONT DEVELOPMENT PERMIT PLAN
MP 12.00 - 14.02

PROJECT NO.: 05731.0009 DRAWN BY: JPS
SCALE: AS NOTED CHECKED BY: WS
DATE: 06/08/18 SHEET 3 OF 8
SHEET NO. **3**

SUMMARY OF DIRECT IMPACTS FOR OFFSHORE PIPELINE FACILITIES⁶

FACILITY	LAND AFFECTED DURING CONSTRUCTION NEW JERSEY (AC.)
OFFSHORE PIPELINE PRE-LAY TRENCHING ^{6a}	9.30
OFFSHORE PIPELINE POST-LAY TRENCHING ^{6b}	3.51
OFFSHORE CP ^{6c}	0.15
LAY-DOWN AREA FOR PULL-BACK STRING (AMBROSE CROSSING)	0.34
NEPTUNE CABLE CROSSING	0.35
SUPPORT VESSEL, PIPELAY BARGE, AND DREDGE BARGE/CRANE BARGE ANCHOR FOOTPRINT ^{6d}	0.93
ANCHOR CABLE SWEEP ^{6e}	0.24
HDD EXIT WORKSPACE (MORGAN SHORE APPROACH HDD CROSSING) ^{6f}	0.89
HDD ENTRANCE WORKSPACE EAST (AMBROSE CHANNEL CROSSING) ^{6g}	1.78
HDD EXIT WORKSPACE WEST (AMBROSE CHANNEL CROSSING) ^{6h}	1.13
MARINE SUPPORT BARGE, LIFT BARGE, AND DREDGE BARGE SPUD DISTURBANCE ⁶ⁱ	0.90
PILE DISTURBANCE FOR TEMPORARY SHALLOW PLATFORM, HDD SUPPORT, AND SHALLOW PIPELAYING OPERATIONS ^{6j}	0.02
TOTAL	19.54

DREDGE VOLUME CALCULATION

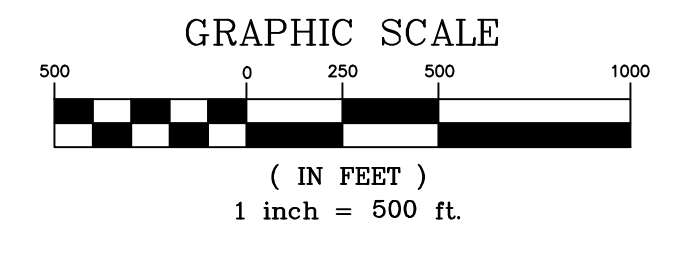
M.P.	DESCRIPTION	VOLUME (CY)
CP POWER	ANODE SLED EXCAVATION PIT - CLAMSHELL DREDGING	461
12.50	HDD PIT EXCAVATION - CLAMSHELL DREDGING	9,931
12.50-13.88	CLAMSHELL EXCAVATION - PRE LAY SHALLOW AREA TRENCHING - TYPE 1 (52 FT. WIDE)	57,894
13.88	HAND JETTING ABOVE NEPTUNE CABLE (62 FT. WIDE)	1,676
13.88-14.02	CLAMSHELL EXCAVATION - PRE LAY SHALLOW AREA DREDGE - TYPE 1 (52 FT. WIDE)	5,974
26.55-29.52	JET TRENCHER POST LAY METHOD (9 FT. WIDE)	51,548
29.52	HDD EXIT PIT EXCAVATION - CLAMSHELL DREDGING	14,050
30.40	HDD ENTRY PIT EXCAVATION - CLAMSHELL DREDGING	32,450
30.40-30.64	JET TRENCHER POST LAY METHOD (9 FT. WIDE)	4,187
TOTAL		178,171

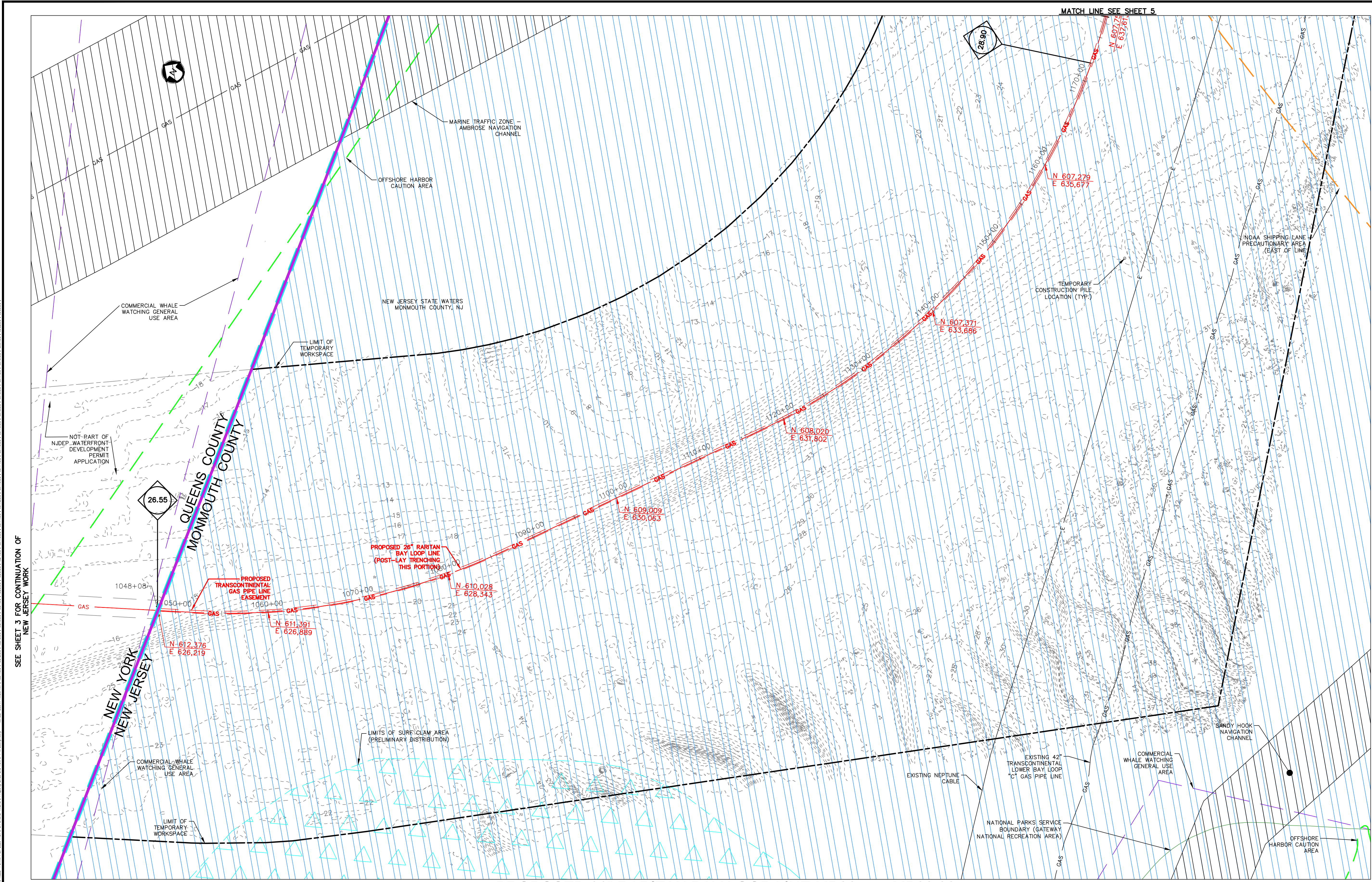
DIRECT IMPACT NOTES:

- INCLUDES PIT EXCAVATION AND PLACEMENT AREA AT HDD ENTRY/EXIT POINTS.
- INCLUDES LAY-DOWN AREA FOR PULL-BACK STRING (MORGAN SHORE APPROACH HDD CROSSING).
- ANCHOR FOOTPRINTS ASSUMED TO HAVE IMPACT AREAS OF 10' X 20' PER ANCHOR.
- MID-LINE BUOYS ASSUMED TO BE USED TO MINIMIZE ANCHOR CABLE SWEEP IMPACT AND FOR OBSTACLE AVOIDANCE WHERE NECESSARY.
- SPUD IMPACT AREA ASSUMED TO BE 10' X 10'.
- FOLLOWING INSTALLATION NO ROUTINE BOTTOM IMPACTS ASSOCIATED WITH OPERATIONS ARE ANTICIPATED. FUTURE MAINTENANCE IS EXPECTED TO BE MINIMAL BASED ON THE OPERATIONAL LIFE OF THE PIPELINE.
- ONLY THE IMPACTS ASSOCIATED WITH THE OFFSHORE CATHODIC PROTECTION ANODE SLED EXCAVATION AND FOUR-POINT SPUNDED BARGE USED FOR INSTALLATION LIES WITHIN EXISTING INTERTIDAL AREAS.
- PILE DISTURBANCE AREA INCLUDES IMPACT ASSOCIATED WITH PILE DRIVING OUTSIDE OF AREAS TO BE IMPACTED DURING EXCAVATION.
- PILE DISTURBANCE AREA INCLUDES THE FOLLOWING PILES: EIGHTEEN 36-INCH DIAMETER PILES, TWENTY-FOUR 48-INCH DIAMETER PILES, TWENTY-TWO 24-INCH DIAMETER PILES, TWELVE 34-INCH DIAMETER PILES, EIGHT 60-INCH DIAMETER PILES.

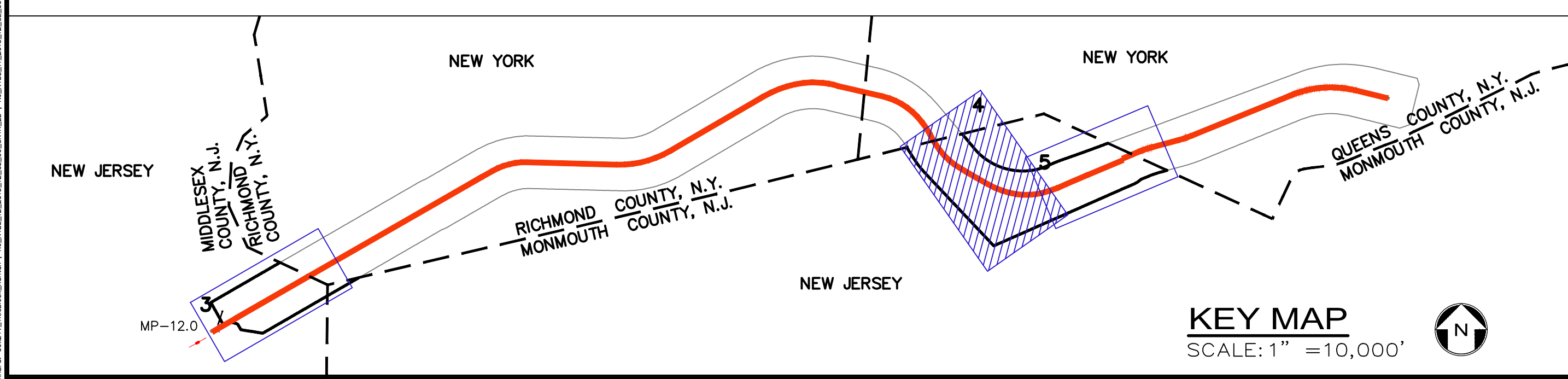
NOTES:

- THE FOLLOWING COASTAL ZONE MANAGEMENT SPECIAL AREAS ARE NOT LOCATED WITHIN THE REGION SHOWN ON THIS SHEET: SURF CLAM, PRIME FISHING, FINFISH MIGRATORY PATHWAYS, SUBMERGED VEGETATION HABITATS, NAVIGATION CHANNELS, CANALS, INLETS, MARINA MOORINGS, PORTS, WET BORROW PITS, DUNES, OVERWASH AREAS, COASTAL HIGH HAZARD, EROSION HAZARD, BARRIER ISLAND CORRIDOR, BAY ISLANDS, BEACHES, FILLED WATER'S EDGES, EXISTING LAGOON EDGES, FLOOD HAZARD AREAS, RIPARIAN ZONES, WETLANDS, WETLAND BUFFERS, COASTAL BLUFFS, INTERMITTENT STREAM CORRIDORS, FARMLAND CONSERVATION AREAS, STEEP SLOPES, DRY BORROW PITS, HISTORIC AND ARCHAEOLOGICAL RESOURCES, SPECIMEN TREES, PUBLIC OPEN SPACES, SPECIAL HAZARD AREAS, EXCLUDED FEDERAL LANDS, SPECIAL URBAN AREAS, PINELANDS NATIONAL RESERVE AND PINELANDS PROTECTION AREAS, HAWKENSACK MEADOWLANDS DISTRICT, WLD AND SCENIC RIVER CORRIDORS, GEODETIC CONTROL REFERENCE MARKS, HUDSON RIVER WATERFRONT AREAS, ATLANTIC CITY, LANDS AND WATERS SUBJECT TO PUBLIC TRUST RIGHTS, OR DREDGED MATERIAL MANAGEMENT AREAS.
- DREDGING VOLUME CALCULATIONS BASED UPON CROSS-SECTIONS AND DREDGE VOLUMES PROVIDED ON PLANS ENTITLED "TRENCH CROSS-SECTION FOR PRE AND POST PIPELAY TRENCHING", LAST REVISED NOVEMBER 20, 2017, "NEPTUNE CABLE CROSSING AT MP 13.88", LAST REVISED APRIL 23, 2018, "AMBROSE CHANNEL HDD EXIT PIT GRADING" AND "AMBROSE CHANNEL HDD ENTRY PIT GRADING", LAST REVISED DECEMBER 19, 2017, "ANODE SLED INSTALLATION AND CP HDD PLAN AND PROFILE", LAST REVISED MAY 8, 2018, AND "MORGAN SHORE APPROACH HDD PLAN AND PROFILE", LAST REVISED JANUARY 11, 2018, PREPARED BY INTECSEA WORLEY PARSONS GROUP AND PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, L.L.C. VOLUMES ARE INTERPOLATED FROM "MP RANGE AND DREDGE VOLUME" TABLES ON ABOVE-REFERENCED PLANS.
- LOCATIONS OF PROPOSED TEMPORARY CONSTRUCTION PILE AND BUOY LOCATIONS ARE BASED ON PLANS ENTITLED "TEMPORARY CONSTRUCTION PILES MARKING PLAN FOR APPROACH HDD WEST AND EAST APPROACH" AND "TEMPORARY CONSTRUCTION PILES AND BUOYS MARKING PLAN FOR MORGAN SHORE APPROACH", DATED MAY 9, 2018, PREPARED BY INTECSEA WORLEY PARSONS GROUP AND PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, L.L.C.





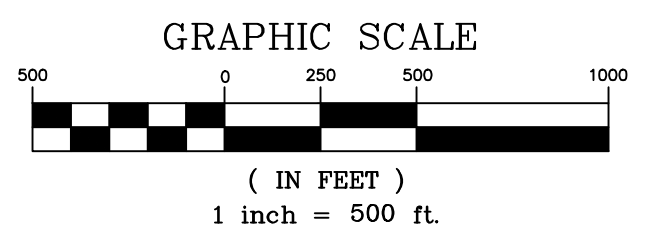
PROPOSED 26" RARITAN BAY LOOP LINE MP26.55 - MP28.90



KEY MAP
SCALE: 1" = 10,000'

- NOTES:**
- ENTIRE SHEET LIES WITHIN SCUBA AND SNORKELING USE AREA.
 - THE FOLLOWING COASTAL ZONE MANAGEMENT SPECIAL AREAS ARE NOT LOCATED WITHIN THE REGION SHOWN ON THIS SHEET: FINFISH MIGRATORY PATHWAYS, SUBMERGED VEGETATION HABITATS, CANALS, INLETS, MARINA MOORINGS, PORTS, WET BORROW PITS, DUNES, OVERWASH AREAS, COASTAL HIGH HAZARD, EROSION HAZARD, BARRIER ISLAND CORRIDOR, BAY ISLANDS, BEACHES, FILLED WATERS' EDGES, EXISTING LAGOON EDGES, FLOOD HAZARD AREAS, RIPARIAN ZONES, WETLANDS, WETLAND BUFFERS, COASTAL BLUFFS, INTERMITTENT STREAM CORRIDORS, FARMLAND CONSERVATION AREAS, STEEP SLOPES, DRY BORROW PITS, HISTORIC AND ARCHAEOLOGICAL RESOURCES, SPECIMEN TREES, PUBLIC OPEN SPACES, SPECIAL HAZARD AREAS, EXCLUDED FEDERAL LANDS, SPECIAL URBAN AREAS, PINELANDS NATIONAL RESERVE AND PINELANDS PROTECTION AREAS, HACKENSACK MEADOWLANDS DISTRICT, WILD AND SCENIC RIVER CORRIDORS, GEODETIC CONTROL REFERENCE MARKS, HUDSON RIVER WATERFRONT AREAS, ATLANTIC CITY, LANDS AND WATERS SUBJECT TO PUBLIC TRUST RIGHTS, OR DREDGED MATERIAL MANAGEMENT AREAS.
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DREDGE VOLUME CALCULATION		
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TOTAL		178,171



REV. / ISSUE	DATE	DESCRIPTION
1	10/11/19	REV NOTES ON PLANS

LEGEND

	PROPERTY LINE
	EXISTING CONTOURS
	EXISTING SPOT ELEVATION
	COUNTY BOUNDARY LINE
	STATE BOUNDARY LINE
	EXISTING GAS MAIN
	PROPOSED GAS MAIN
	NOAA SHIPPING LANE
	WHALE WATCHING AREA
	NATIONAL PARKS SERVICE
	OFFSHORE HARBOR CAUTION
	MADISON LOOP WATERFRONT DEVELOPMENT PERMIT PLANS
	NJ SHELLFISH GROWING WATERS
	NJ HARD CLAM HABITAT
	SURF CLAM
	PROPOSED PERMANENT EASEMENT
	PROPOSED LIMIT OF DISTURBANCE
	NAVIGATION CHANNEL
	NJDEP SPORT FISHING
	CHEESEQUAKE STATE PARK
	MEAN LOW WATER LINE
	MEAN HIGH WATER LINE
	SPRING HIGH WATER LINE
	4 FEET BELOW MEAN LOW WATER
	HDD DIRECT IMPACT
	TEMPORARY CONSTRUCTION BUOY LOCATION
	TEMPORARY CONSTRUCTION PILE LOCATION

I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NEW JERSEY AND I HEREBY CERTIFY THAT THE PROPOSED ENVIRONMENTAL DISTURBANCES SHOWN ARE ACCURATE AND CORRESPOND WITH THE DETAILED ENGINEERING DRAWINGS.

WILLIAM SALMON, P.E.
PS&S, LLC
1433 HIGHWAY 34, SUITE A-4, WALL, NJ 07727
PROFESSIONAL ENGINEER
N.J. LIC. NO. 41319 COA NO. 24GA28032700

William Salmon 10/11/19
SIGNATURE DATE

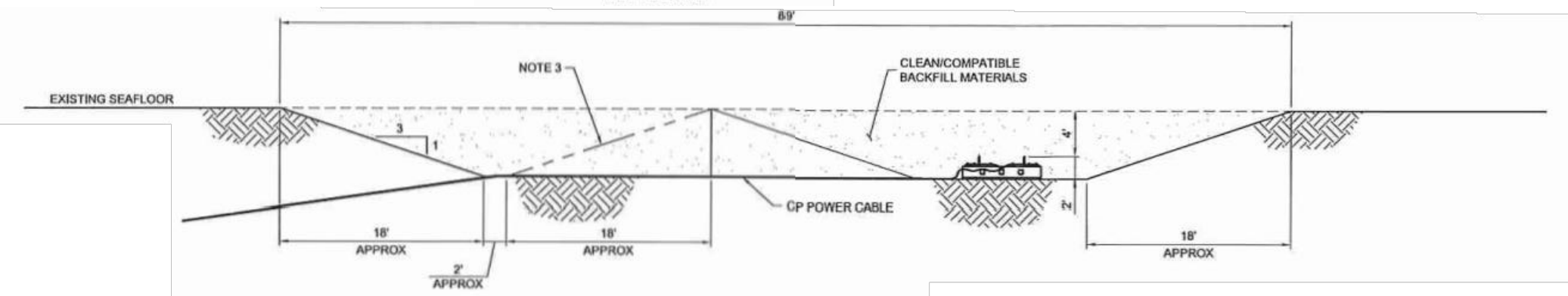
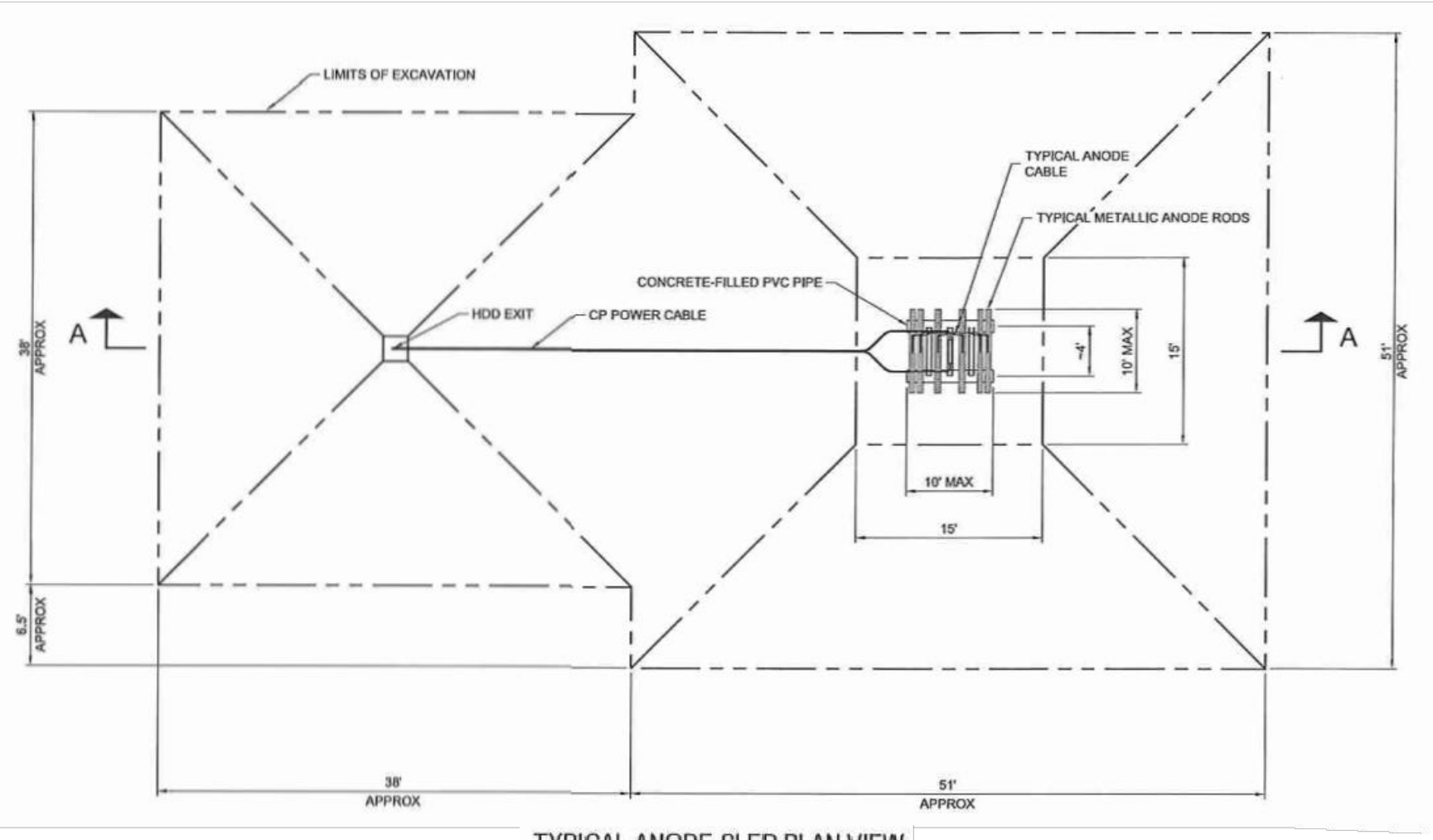
PS&S 1433 ROUTE 34 SUITE A4 WALL, NJ 07727 PHONE: (848) 206-2626
CERTIFICATE OF AUTHORIZATION NO. 24GA28032700

ALL DIMENSIONS MUST BE VERIFIED BY THE CONTRACTOR. NOTIFY PAULUS, SOKOLOWSKI AND SARTOR, LLC OF ANY CONFLICTS, ERRORS, AMBIGUITIES OR DISCREPANCIES IN THE CONTRACT DRAWINGS OR SPECIFICATIONS BEFORE PROCEEDING WITH CONSTRUCTION. DRAWINGS DO NOT SCALE. THE DRAWINGS TO DETERMINE DIMENSIONS. ALL DIMENSIONS SHALL BE AS NOTED IN WORDS OR NUMBERS ON THE CONTRACT. THESE CONTRACT DRAWINGS CONTAIN DATA INTENDED SPECIFICALLY FOR THE NOTED PROJECT AND CLIENT. THEY ARE NOT INTENDED FOR USE ON EXTENSIONS OF THIS PROJECT OR FOR REUSE ON ANY OTHER PROJECT. THE COPYING AND/OR MODIFICATION OF THIS DOCUMENT OR ANY PORTION THEREOF WITHOUT THE WRITTEN PERMISSION OF PAULUS, SOKOLOWSKI AND SARTOR, LLC IS PROHIBITED. UNLESS THESE DRAWINGS ARE SPECIFICALLY DESIGNATED AS "CONSTRUCTION ONLY", THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION OR IMPROVEMENTS DERIVED HEREIN. CONTRACTORS SHALL NOTIFY THE DESIGN ENGINEER TO OBTAIN CONSTRUCTION DOCUMENTS. COPYRIGHT 2017 PAULUS, SOKOLOWSKI AND SARTOR, LLC. - ALL RIGHTS RESERVED.

PROJECT
NORTHEAST SUPPLY ENHANCEMENT PROJECT
PROPOSED 26" RARITAN BAY LOOP
MIDDLESEX & MONMOUTH COUNTY, NEW JERSEY

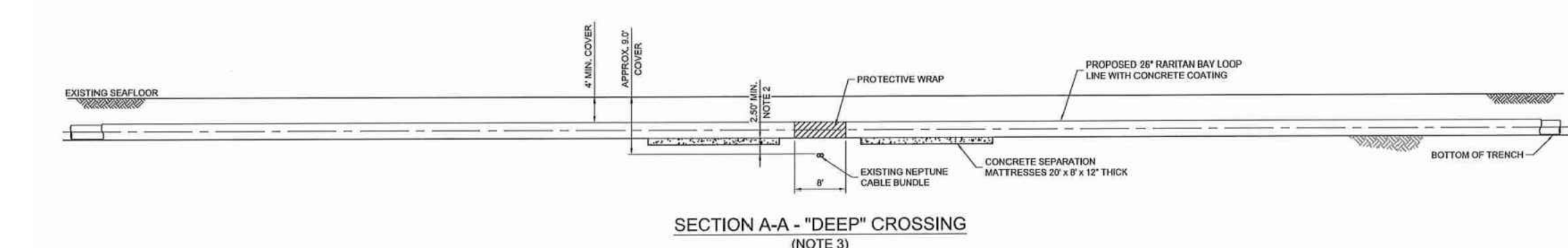
SHEET TITLE
WATERFRONT DEVELOPMENT PERMIT PLAN
MP 26.55 - 28.90

PROJECT NO.: 05731.0009 DRAWN BY: JPS
SCALE: AS NOTED CHECKED BY: LWS
DATE: 06/08/18 SHEET 4 OF 8
SHEET NO. **4**

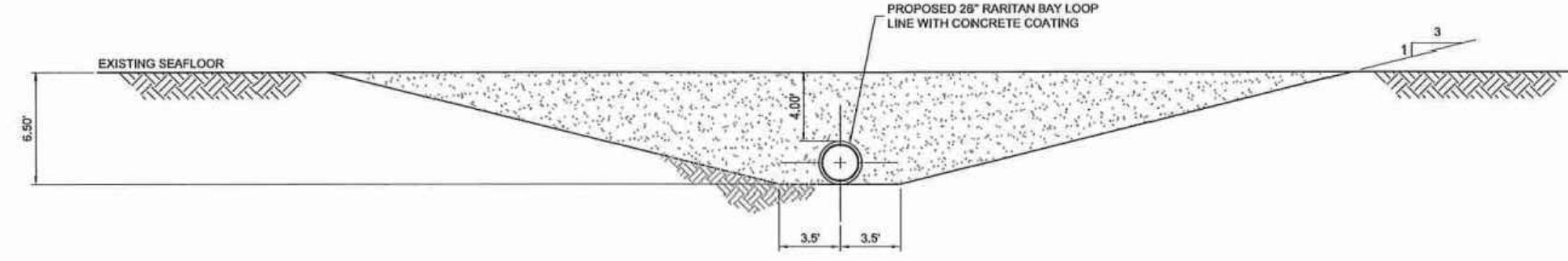


1. ALL DIMENSIONS AND COORDINATES ARE IN FEET AND ALL ANGLES ARE IN DEGREES UNLESS NOTED OTHERWISE. ALL HEADINGS ARE RELATIVE TO GRID NORTH UNLESS NOTED OTHERWISE.
2. IMPRESS CURRENT CATHODIC PROTECTION (CP) SYSTEM IS USED TO PROTECT THE PIPELINE FROM EXTERNAL CORROSION.
3. HDD EXIT PIT LIMITS DURING HDD. AFTER COMPLETION OF HDD CP POWER CABLE INSTALLATION, ADDITIONAL EXCAVATION TO BE PERFORMED TO INSTALL CABLE BETWEEN HDD EXIT PIT AND ANODE SLED EXCAVATION.

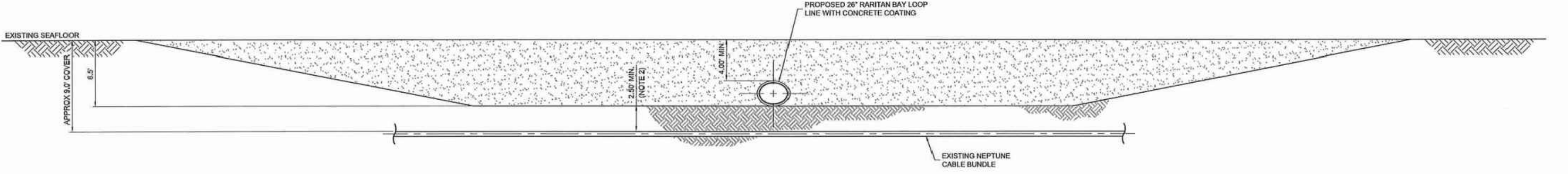
ANODE SLED INSTALLATION AND CATHODIC PROTECTION HDD DETAIL
KLS



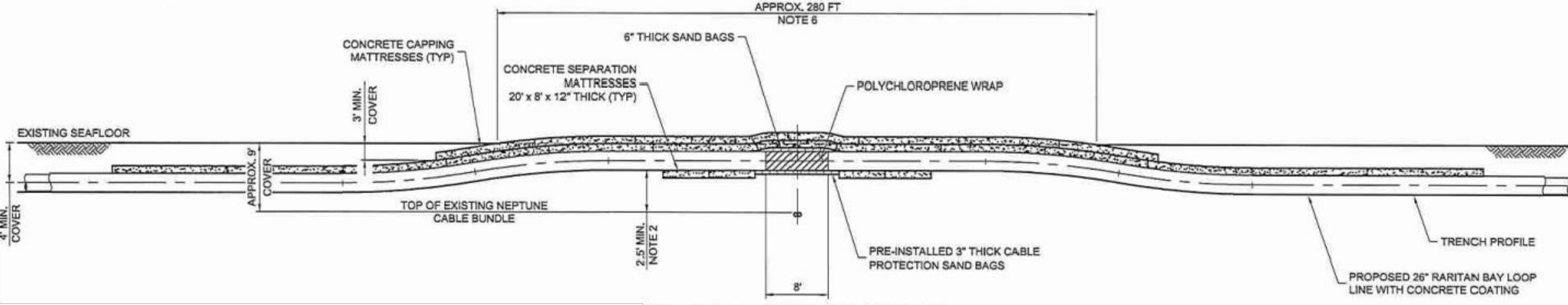
SECTION A-A - "DEEP" CROSSING
(NOTE 3)



SECTION B-B - "DEEP" CROSSING
TRENCH PROFILE AT LOCATION WITHIN 100' OF CROSSING
(NOTES 1 & 3)



SECTION C-C - "DEEP" CROSSING
(NOTE 3)

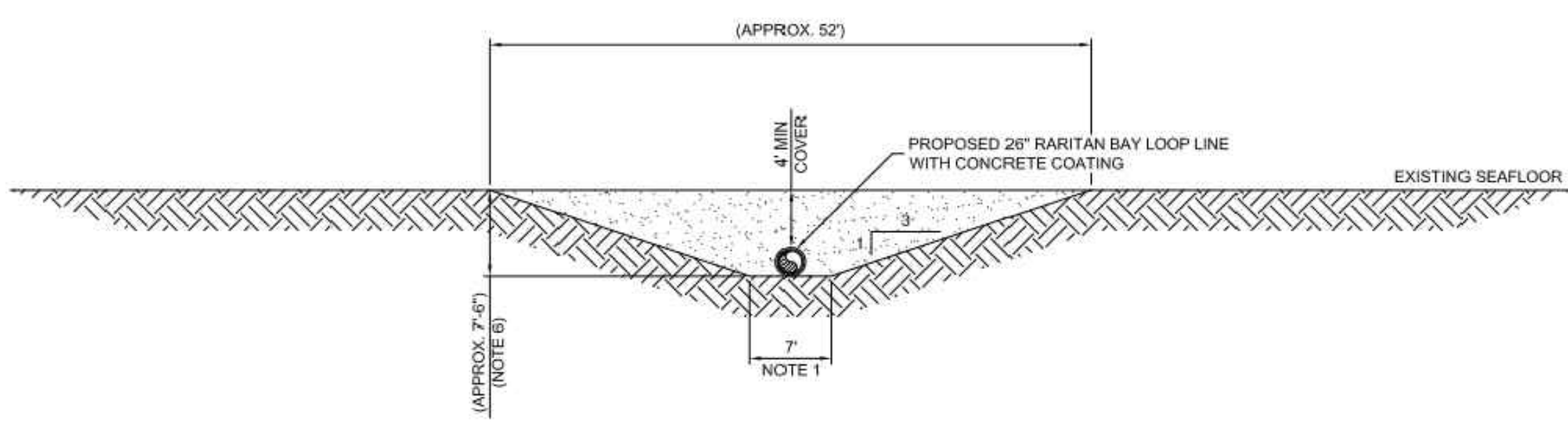


SECTION D-D - "SHALLOW" CROSSING
(NOTE 3)

NEPTUNE CABLE CROSSING AT MP 13.88 DETAIL
KLS

NOTES:

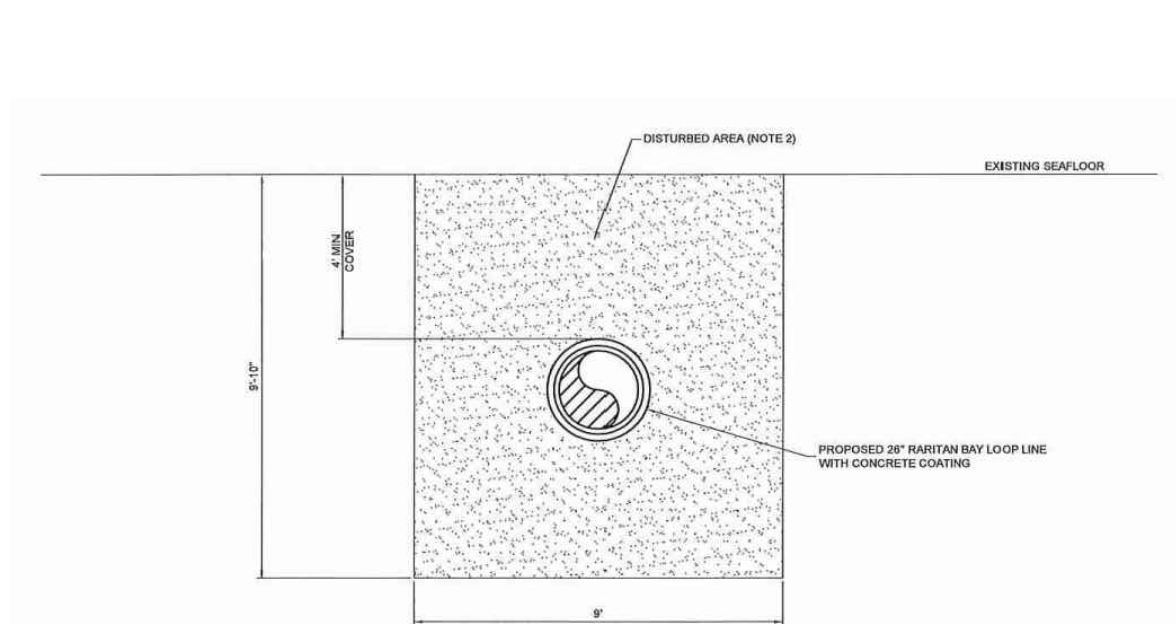
1. DURING PIPELINE INSTALLATION, TRENCHING WITHIN 100' OF EXISTING NEPTUNE CABLE SHALL BE PERFORMED BY HAND JETTING OR HYDRAULIC SUCTION DRESSING.
2. MINIMUM SEPARATION BETWEEN BOTTOM OF PIPE AND TOP OF CABLE TO BE 2.5 R (96 INCHES), 1.5 R MINIMUM CLEARANCE + 1 R LONG TERM SETTLEMENT ALLOWANCE (BASED ON LOCAL SOIL CONDITIONS).
3. TYPICAL "DEEP" CROSSING WHERE DEPTH OF CABLE IS EQUAL TO, OR GREATER THAN, 9 R.
4. TYPICAL "SHALLOW" CROSSING WHERE DEPTH OF CABLE IS LESS THAN 9 R.
5. PROPOSED 26" PIPELINE SHALL HAVE A 8" MINIMUM SEDIMENT COVER OUTSIDE OF THE PROPOSED CROSSING AREA. WITHIN CROSSING AREA, CAPPING MATTRESSES SHALL BE INSTALLED AS SHOWN.
6. EDGE OF MATTRESS SHALL BE 3 R BELOW SEAFLOOR, EXCEPT ABOVE THE CABLE WHERE 2.5 R SEPARATION IS REQUIRED.
7. ESTIMATED MAXIMUM TOTAL SURFACE AREA OF CONCRETE MATTRESSES THAT MAY BE EXPOSED (UNBURIED) IS 7.60 SQ (APPROX).
8. NUMBER OF CAPPING MATTRESSES SHALL BE REDUCED FROM 2 TO 1 WHEN THE TOP OF PVC COVER DEPTH IS GREATER THAN 3.25 R.



TYPE 1 - PRE-PIPELAY TRENCHING: SHALLOW AREA
4FT MINIMUM COVER

NOTES:

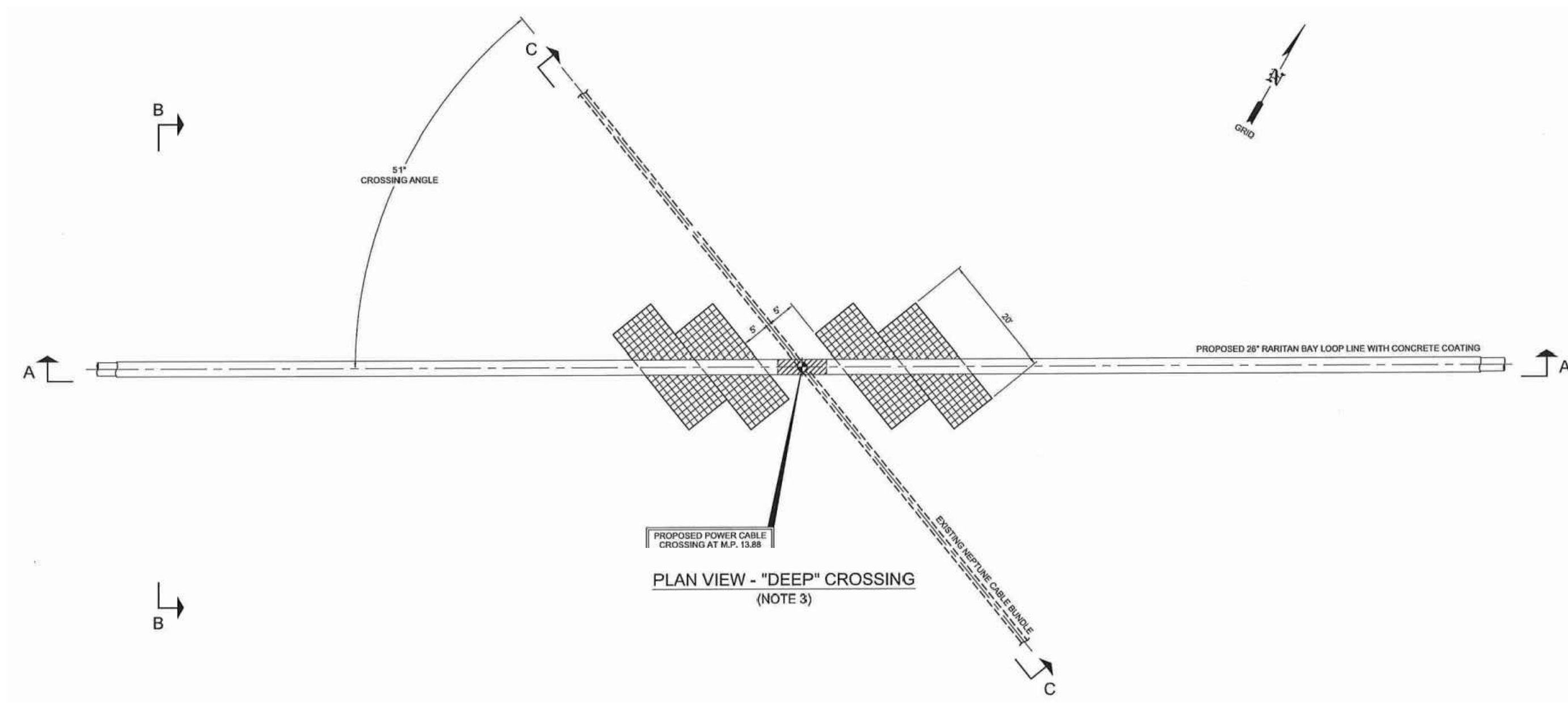
1. TRENCH BOTTOM WIDTH WITHIN THE ROUTE CURVES TO BE INCREASED FROM 7 FT TO 10 FT.
2. MILE POST RANGES ARE APPROXIMATE.
3. ACTUAL SHIPPING CHANNEL SEABED ELEVATION MAY NOT COINCIDE WITH THE NOMINAL CHANNEL DEPTH SET BY THE US ARMY CORPS OF ENGINEERS. THE CHANNEL MAY BE DEEPER.
4. ALL UNITS ARE IN FEET UNLESS NOTED OTHERWISE.
5. "AUTHORIZED PROJECT" CHANNEL DEPTHS SET PER U.S. ARMY CORPS OF ENGINEERS CONTROLLING DEPTH REPORTS DATED 28 MAY 2013 (RARITAN) AND 30 JAN 2015 (CHAPEL HILL).
6. TRENCH DEPTH ASSUMES 1 FT OVERDEPTH TO ENSURE MINIMUM COVERAGE REQUIREMENTS.



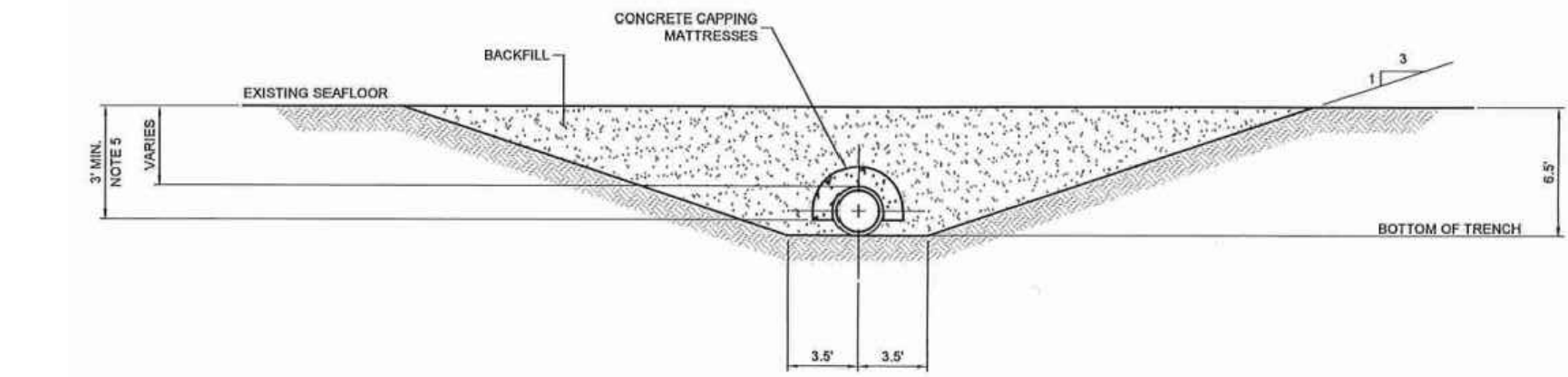
TYPE 4 - POST-PIPELAY TRENCHING BY JET TRENCHER: SHALLOW AREA
4 FT MINIMUM COVER

NOTES:

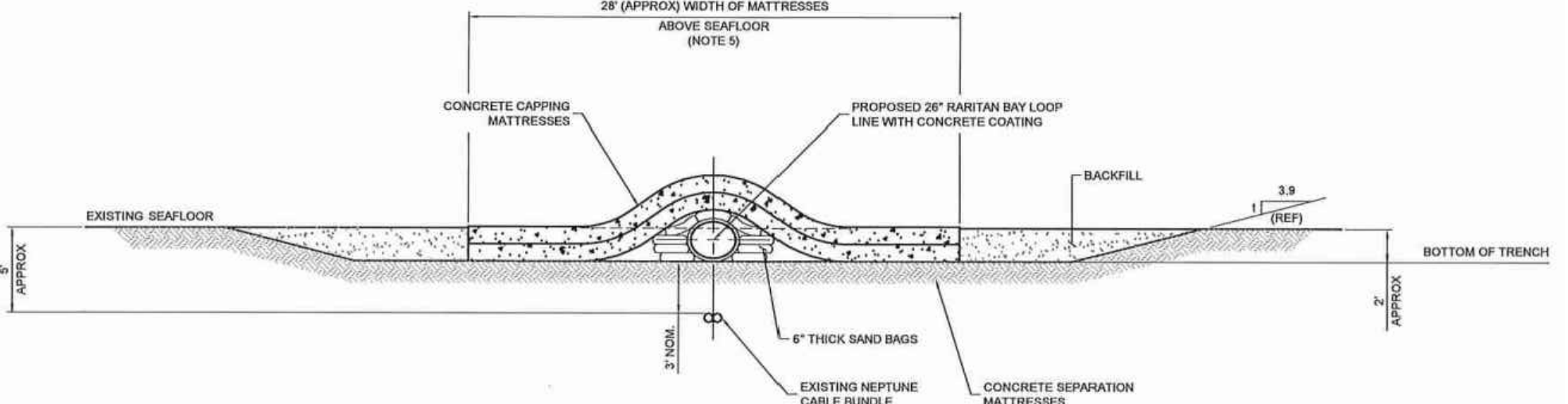
1. ALL UNITS ARE IN FEET UNLESS NOTED OTHERWISE.
2. SHADING INDICATES IMMEDIATE BACKFILL OF TRENCH FROM SLOUGHING AND JET TRENCHER DISCHARGE FOLLOWING FINAL PASS.
3. AS NECESSARY, PIPELINE TRENCH TO BE BACKFILLED TO GRADE WITH CLEAN/COMPATIBLE MATERIAL USING CLAMHELL IMMEDIATELY FOLLOWING POST-INSTALLATION SURVEY.
4. MILE POST RANGES ARE APPROXIMATE.
5. TYPE 2 AND TYPE 3 TRENCHING METHODS ARE NOT APPLICABLE IN NEW JERSEY PORTIONS OF THE RARITAN BAY LOOP PROJECT.



PLAN VIEW - "DEEP" CROSSING
(NOTE 3)



SECTION E-E - "SHALLOW" CROSSING
TRENCH PROFILE AT LOCATION WITHIN 100' OF CROSSING
(NOTES 1 & 3)



SECTION F-F - "SHALLOW" CROSSING
(NOTE 3)

NOTES:

1. ALL DETAILS SHOWN ARE TAKEN FROM PLANS ENTITLED "TRENCH-CROSS-SECTION FOR PRE AND POST PIPELAY TRENCHING", LAST REVISED NOVEMBER 20, 2017, "ANODE SLED INSTALLATION AND CP HDD PLAN AND PROFILE", LAST REVISED MAY 8, 2018, "MORGAN SHORE APPROACH HDD EXIT PIT GRADING - MP 12.50", LAST REVISED JANUARY 11, 2018, "NEPTUNE CABLE CROSSING AT MP 13.88", LAST REVISED APRIL 23, 2018, "AMROSE CHANNEL HDD EXIT PIT GRADING" AND "AMROSE CHANNEL HDD ENTRY PIT GRADING", LAST REVISED DECEMBER 19, 2017, ALL PREPARED BY INTECSEA WORLSEY PARSONS GROUP, PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC AND ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.
2. DETAILS ARE SHOWN FOR PERMITTING PURPOSES ONLY, NO CONSTRUCTION IS TO BE BASED UPON THESE DETAILS.

REV. / ISSUE	DATE	DESCRIPTION
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WILLIAM SALMON, P.E.
PS&S, LLC
1433 HIGHWAY 34, SUITE A-4, WALL, NJ 07727
PROFESSIONAL ENGINEER
N.J. LIC. NO. 41319 COA NO. 24GA28032700

William Salmon
SIGNATURE DATE 10/11/19

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PHONE: (848) 206-2626

CERTIFICATE OF AUTHORIZATION NO. 24GA28032700

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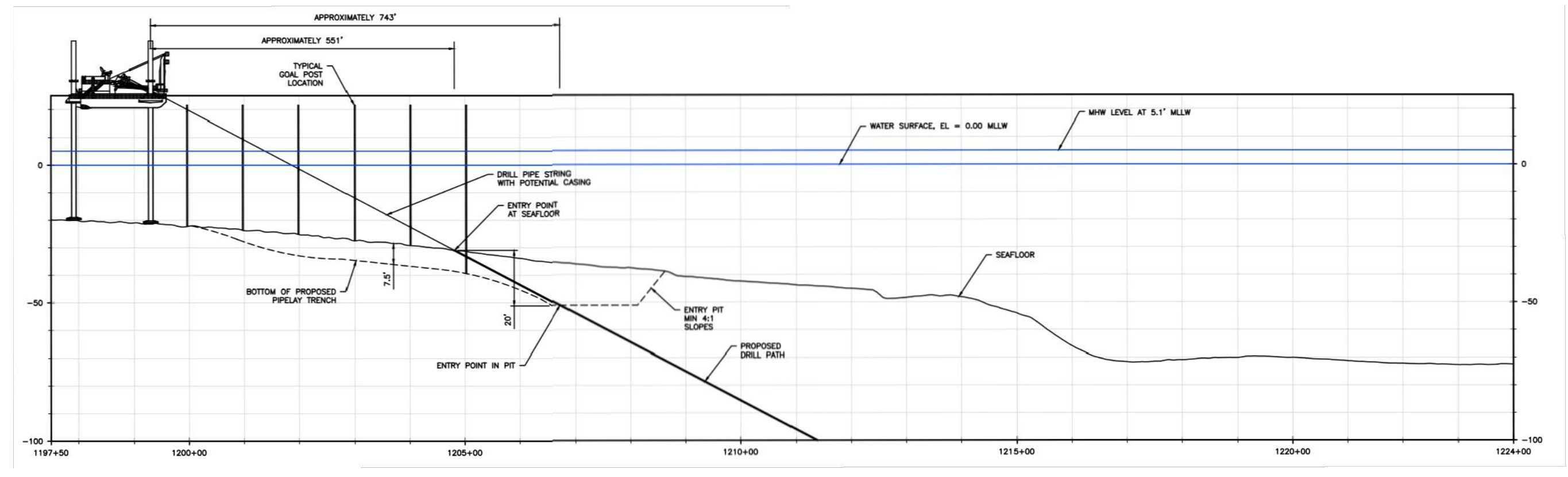
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PROJECT
NORTHEAST SUPPLY
ENHANCEMENT PROJECT
PROPOSED
26" RARITAN BAY LOOP
MIDDLESEX & MONMOUTH COUNTY, NEW JERSEY

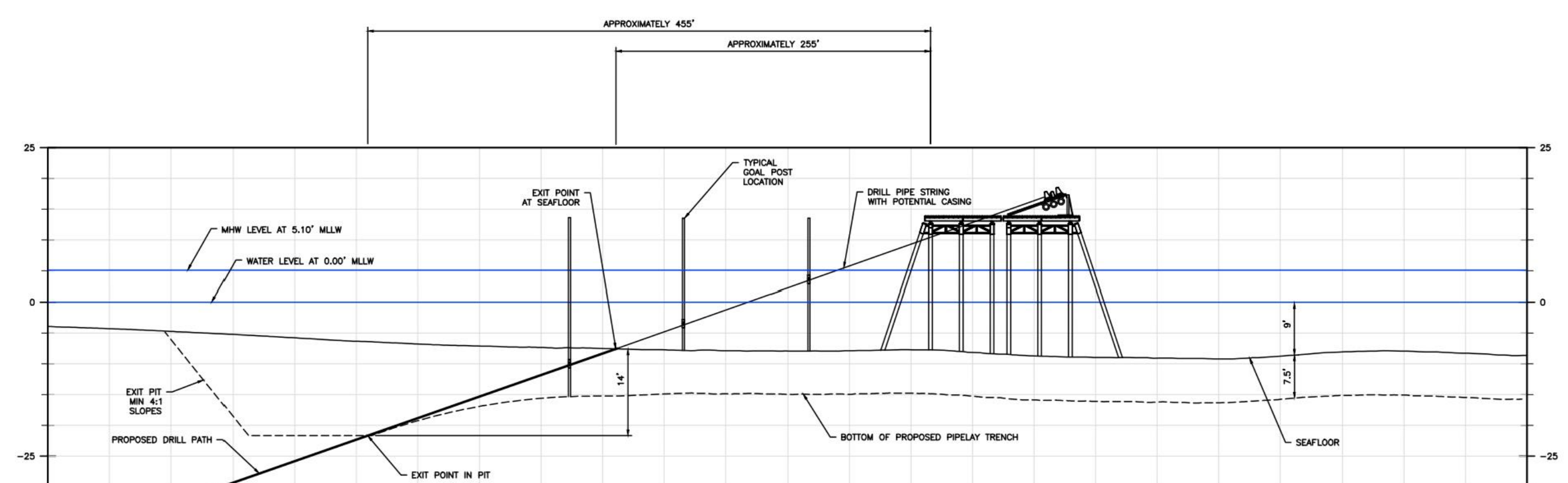
SHEET TITLE
CONSTRUCTION
DETAILS

PROJECT NO.: 05731.0009 DRAWN BY: JPS
SCALE: AS NOTED CHECKED BY: WS
DATE: 06/08/18 SHEET 6 OF 8
SHEET NO.

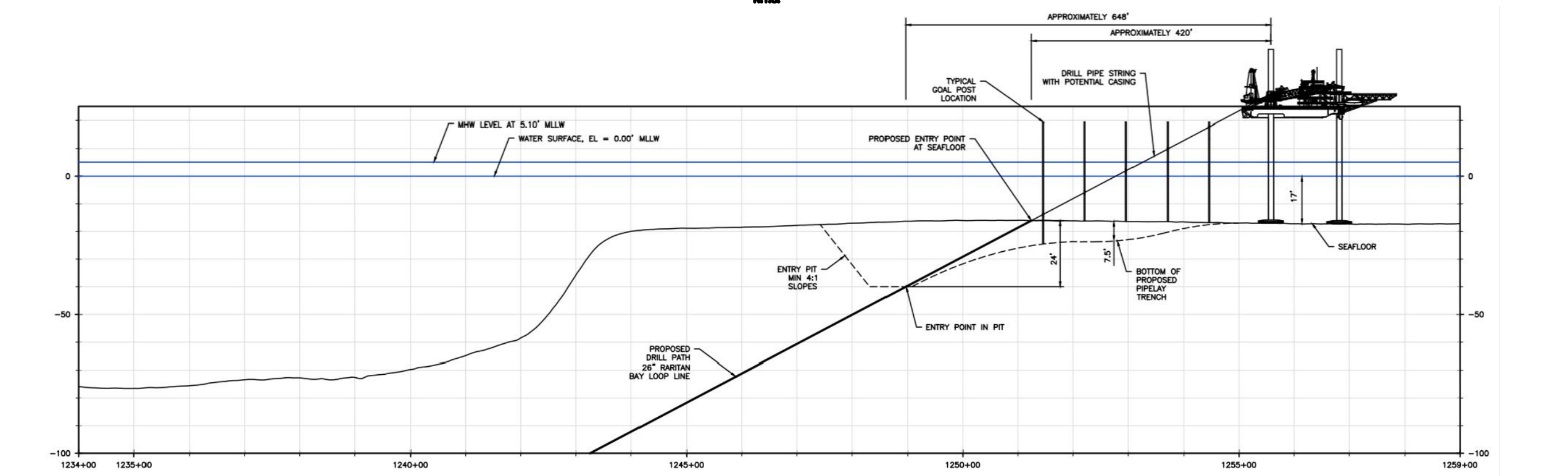
REV. / ISSUE	DATE	DESCRIPTION
1	10/11/19	REV NOTES ON PLANS



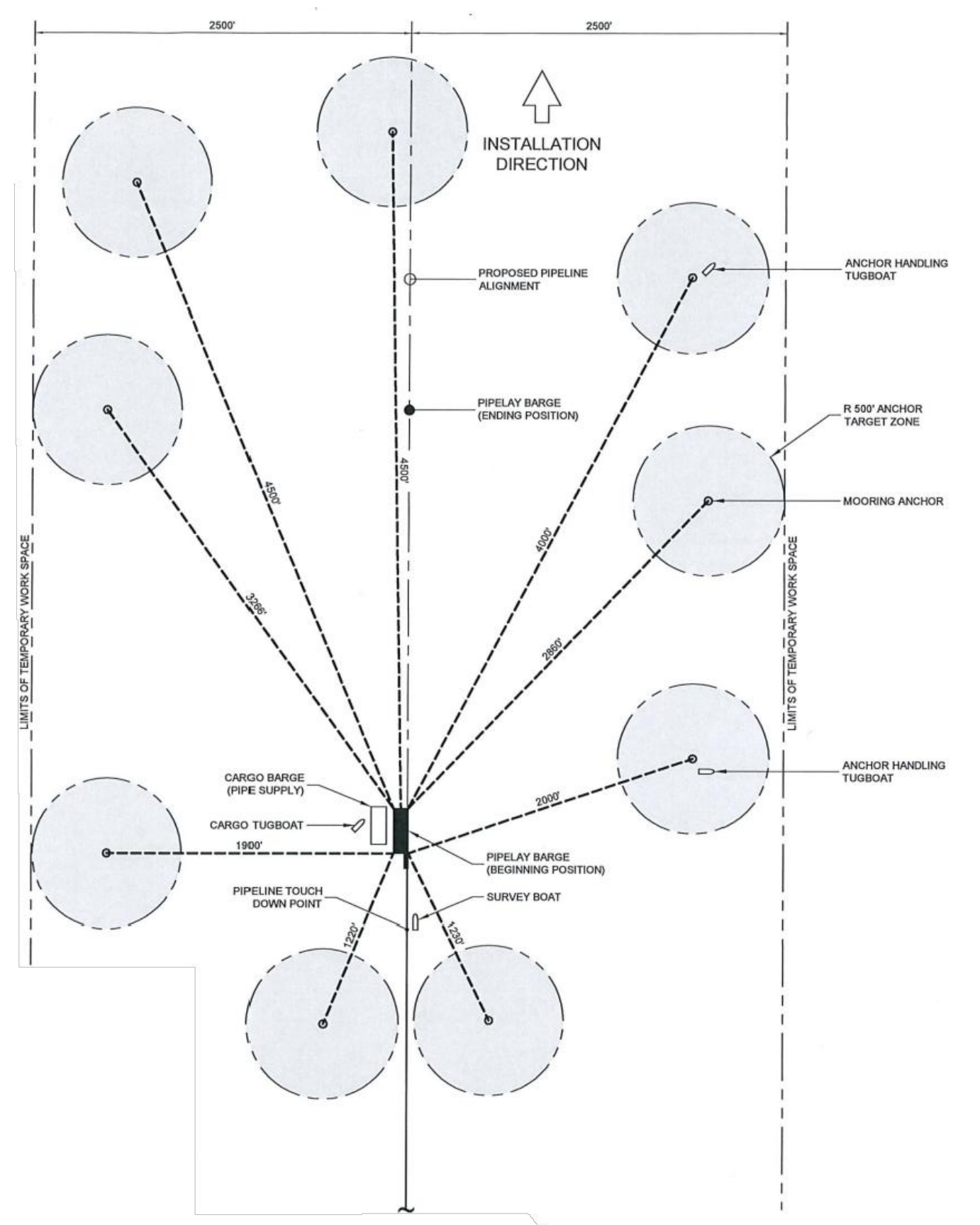
AMBROSE CHANNEL HDD EXIT PIT DETAIL
N.T.S.



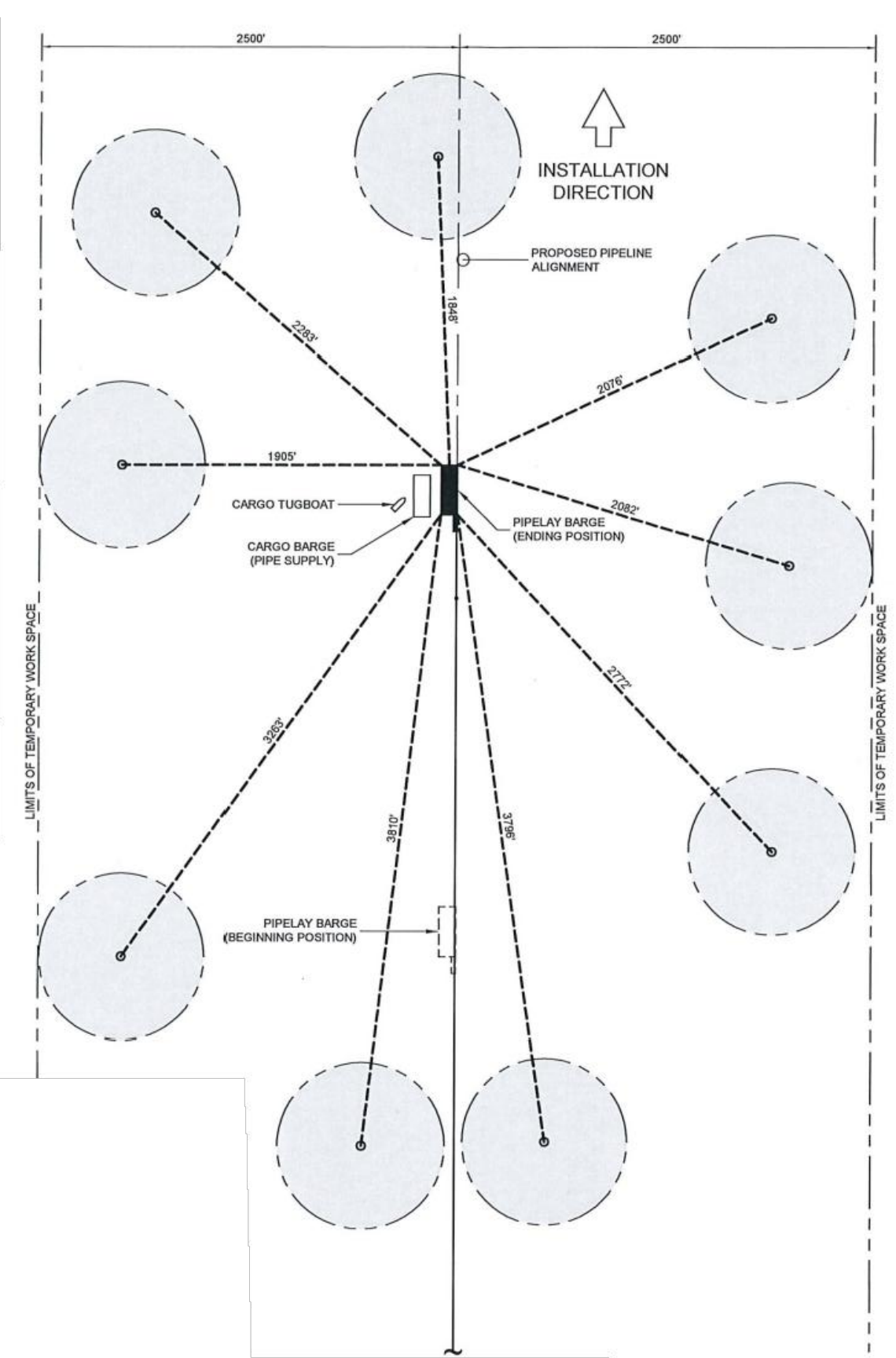
MORGAN APPROACH HDD EXIT PIT DETAIL
N.T.S.



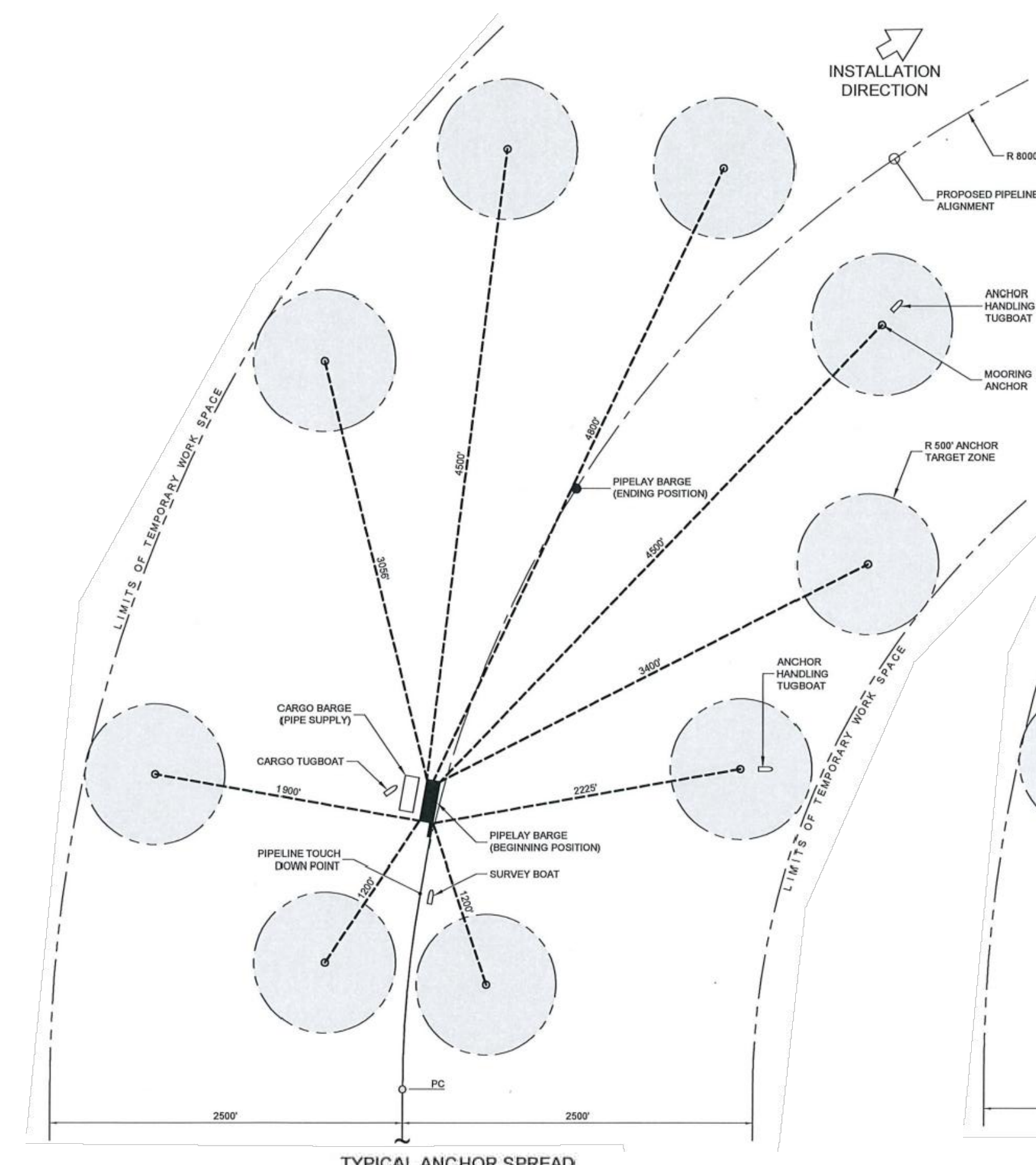
AMBROSE CHANNEL HDD ENTRY PIT DETAIL
N.T.S.



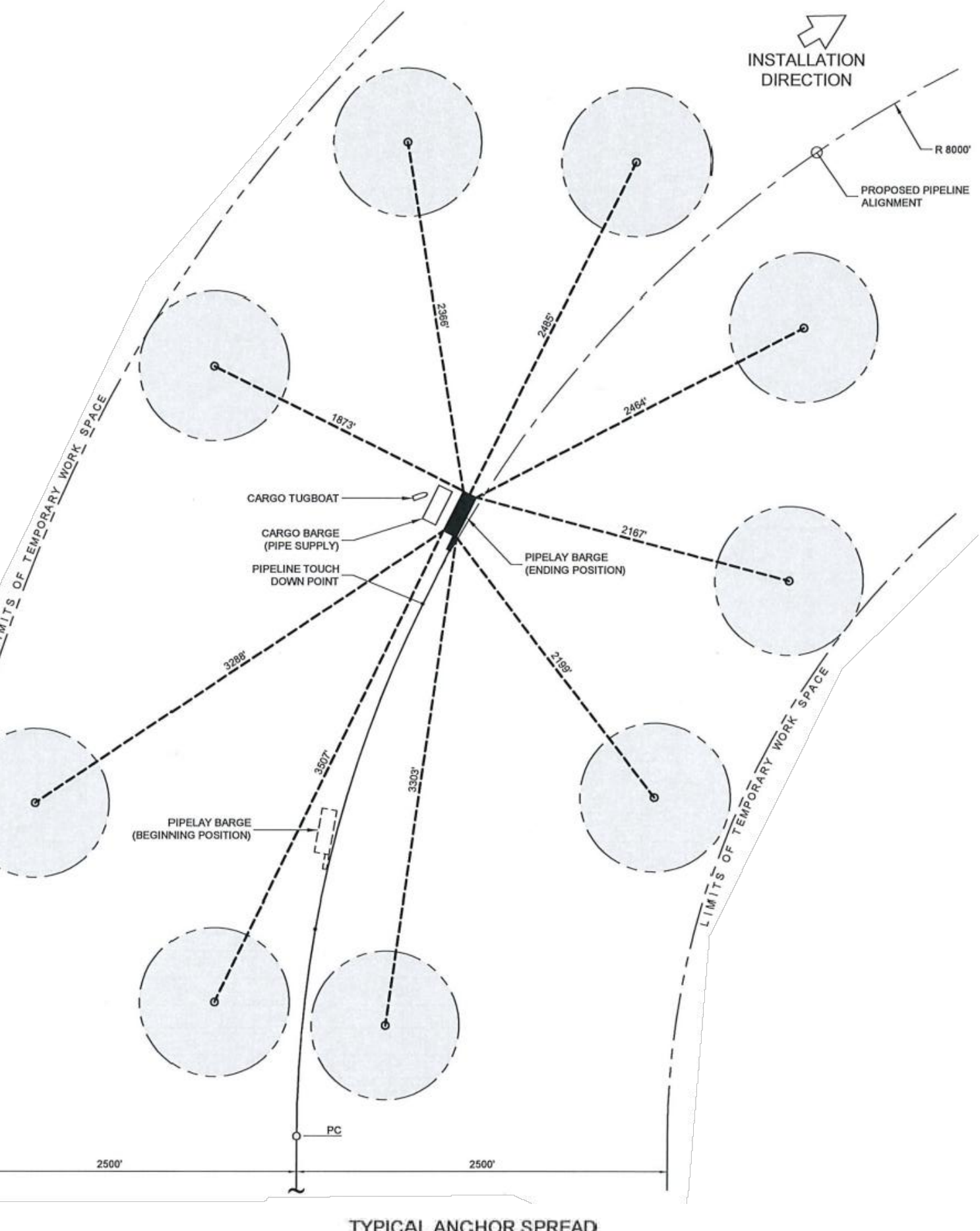
TYPICAL ANCHOR SPREAD ON STRAIGHT ROUTE SEGMENTS BEGINNING CONFIGURATION



TYPICAL ANCHOR SPREAD ON STRAIGHT ROUTE SEGMENTS ENDING CONFIGURATION



TYPICAL ANCHOR SPREAD ON CURVED ROUTE SEGMENTS BEGINNING CONFIGURATION



TYPICAL ANCHOR SPREAD ON CURVED ROUTE SEGMENTS ENDING CONFIGURATION

- NOTES:**
- DETAILS SHOWN ARE TAKEN FROM PLANS ENTITLED "TYPICAL ANCHOR SPREAD DRAWINGS", LAST REVISED MARCH 15, 2017, "MORGAN SHORE APPROACH HDD EXIT PIT GRADING - MP 12+50", LAST REVISED JANUARY 11, 2018, "AMBROSE CHANNEL HDD EXIT PIT GRADING" AND "AMBROSE CHANNEL HDD ENTRY PIT GRADING", LAST REVISED DECEMBER 19, 2017, ALL PREPARED BY INTOCSA WORLSEY PARSONS GROUP, PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC AND ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.
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PROFESSIONAL ENGINEER
N.J. LIC. NO. 41319 COA NO. 246A28032700
SIGNATURE: *William Salmon* DATE: 10/11/19

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CERTIFICATE OF AUTHORIZATION NO. 246A28032700

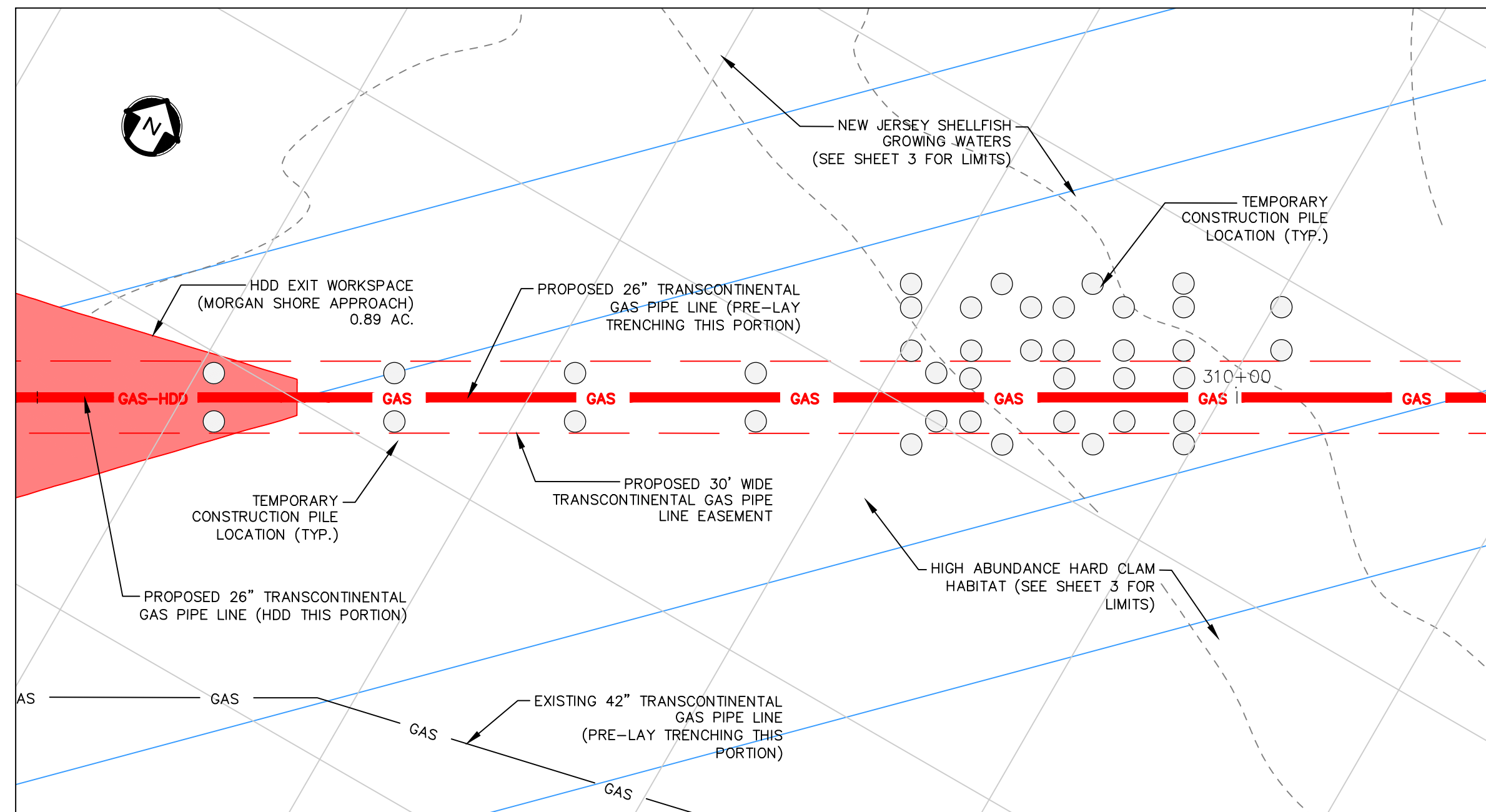
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PROJECT
NORTHEAST SUPPLY
ENHANCEMENT PROJECT
PROPOSED
26" RARITAN BAY LOOP
MIDDLESEX & MONMOUTH COUNTY, NEW JERSEY

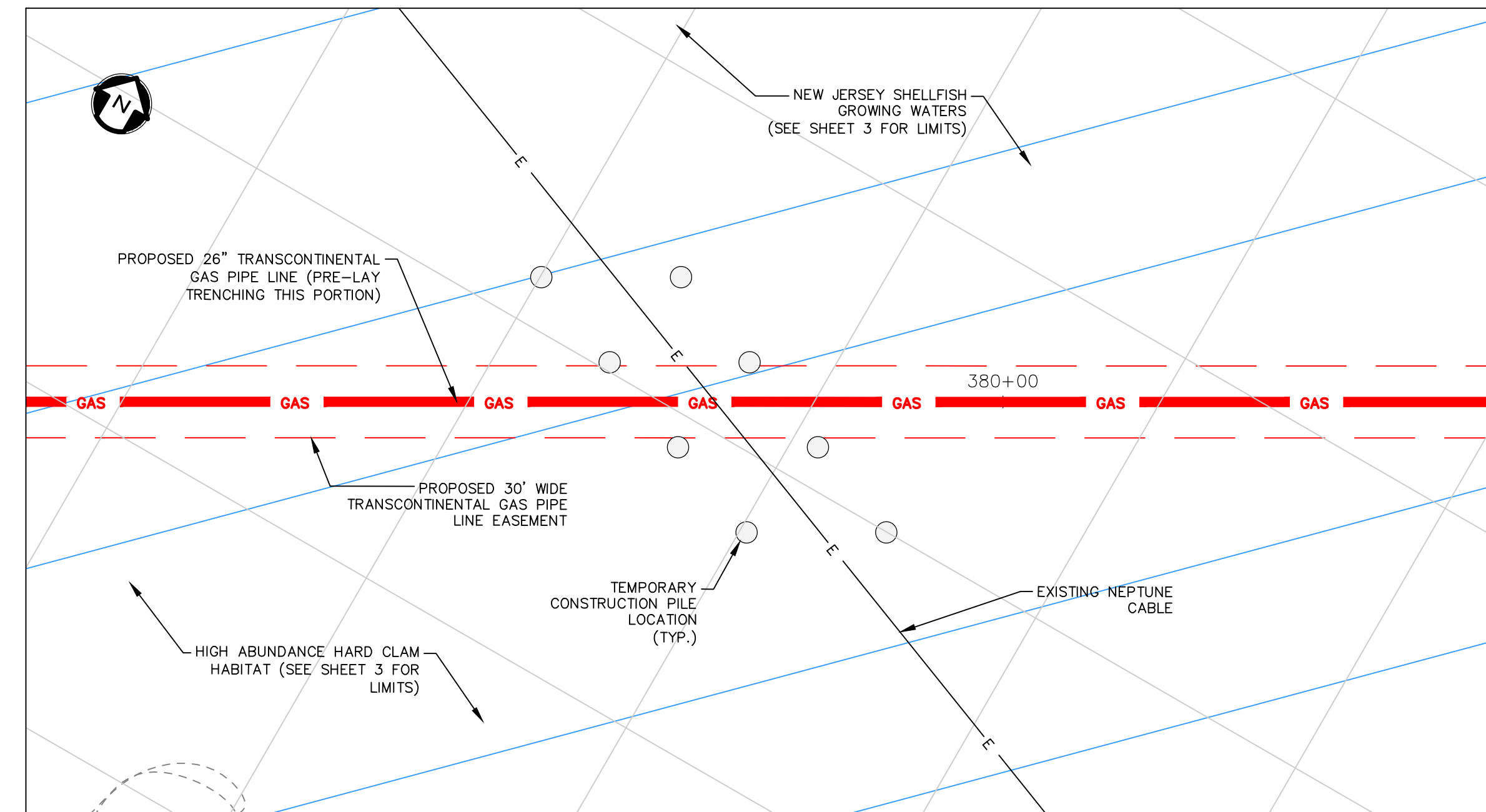
SHEET TITLE
CONSTRUCTION
DETAILS

PROJECT NO.: 05731.0009 DRAWN BY: JPS
SCALE: AS NOTED CHECKED BY: IWS
DATE: 06/08/18 SHEET 7 OF 8
SHEET NO.

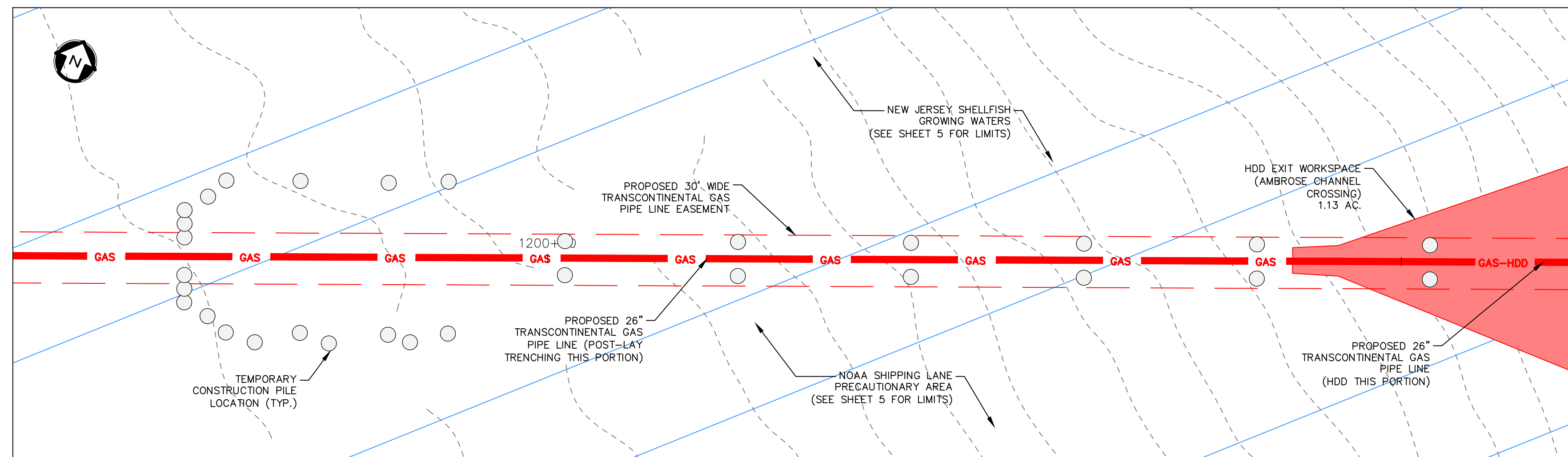
REV. / ISSUE	DATE	DESCRIPTION
1	10/11/19	REV NOTES ON PLANS



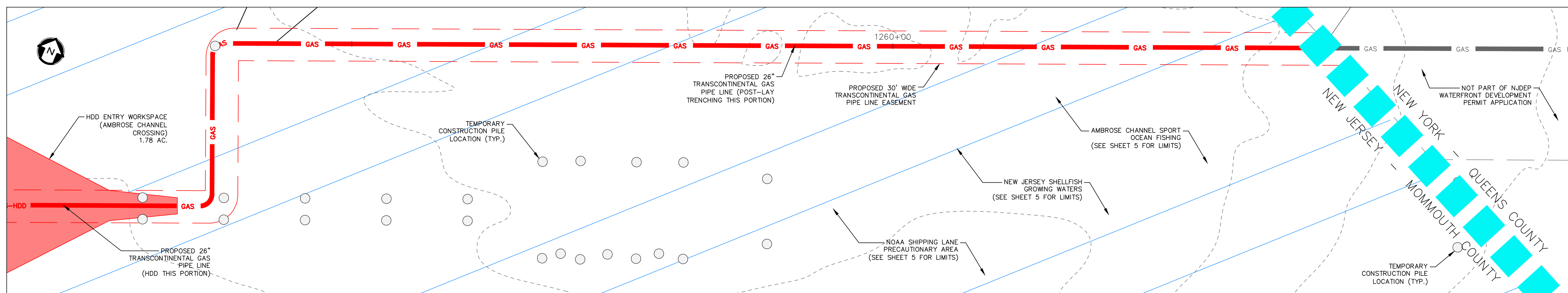
MORGAN APPROACH HDD EXIT PIT PILE LOCATIONS
1"=50'



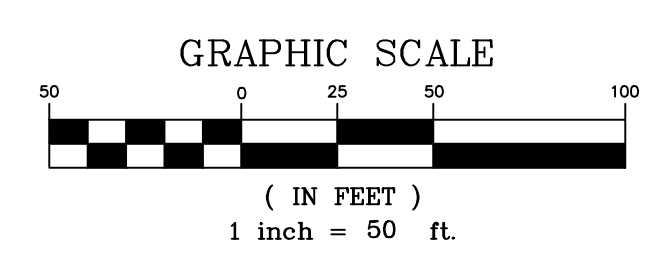
NEPTUNE CABLE CROSSING PILE LOCATIONS
1"=50'



AMBROSE CHANNEL APPROACH HDD EXIT PIT PILE LOCATIONS
1"=50'



AMBROSE CHANNEL APPROACH HDD ENTRY PIT PILE LOCATIONS
1"=50'



- NOTES:**
- LOCATIONS OF PROPOSED TEMPORARY CONSTRUCTION PILE AND BUOY LOCATIONS ARE BASED ON PLANS ENTITLED "TEMPORARY CONSTRUCTION PILES MARKING PLAN FOR AMBROSE HDD WEST AND EAST APPROACH" AND "TEMPORARY CONSTRUCTION PILES AND BUOYS MARKING PLAN FOR MORGAN SHORE APPROACH", DATED MAY 9, 2018, PREPARED BY INTECSEA WORLEY PARSONS GROUP AND PROVIDED BY TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC.
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William Salmon
SIGNATURE DATE 10/11/19

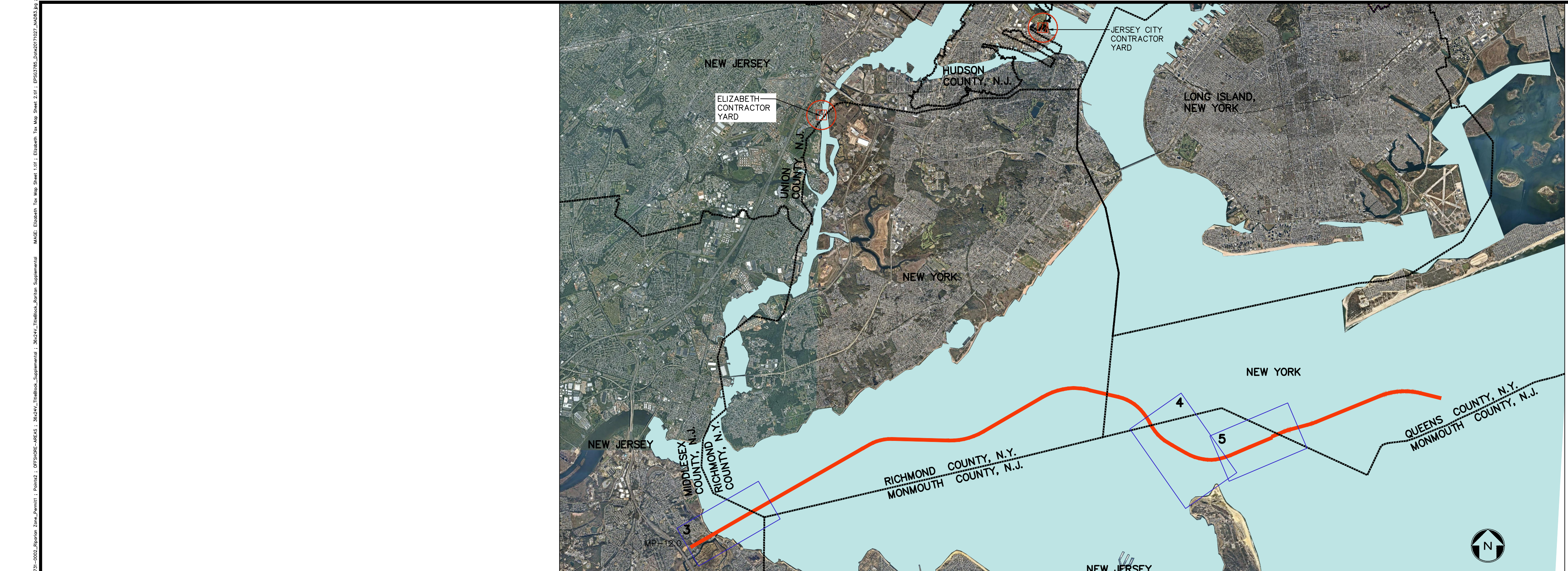
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CERTIFICATE OF AUTHORIZATION NO. 246A28032700

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PROJECT
NORTHEAST SUPPLY
ENHANCEMENT PROJECT
PROPOSED
26" RARITAN BAY LOOP
MIDDLESEX & MONMOUTH COUNTY, NEW JERSEY

SHEET TITLE
CONSTRUCTION
DETAILS

PROJECT NO.: 05731.0009 DRAWN BY: JPS
SCALE: AS NOTED CHECKED BY: WS
DATE: 06/08/18 SHEET 8 OF 8
SHEET NO.



NOTES:

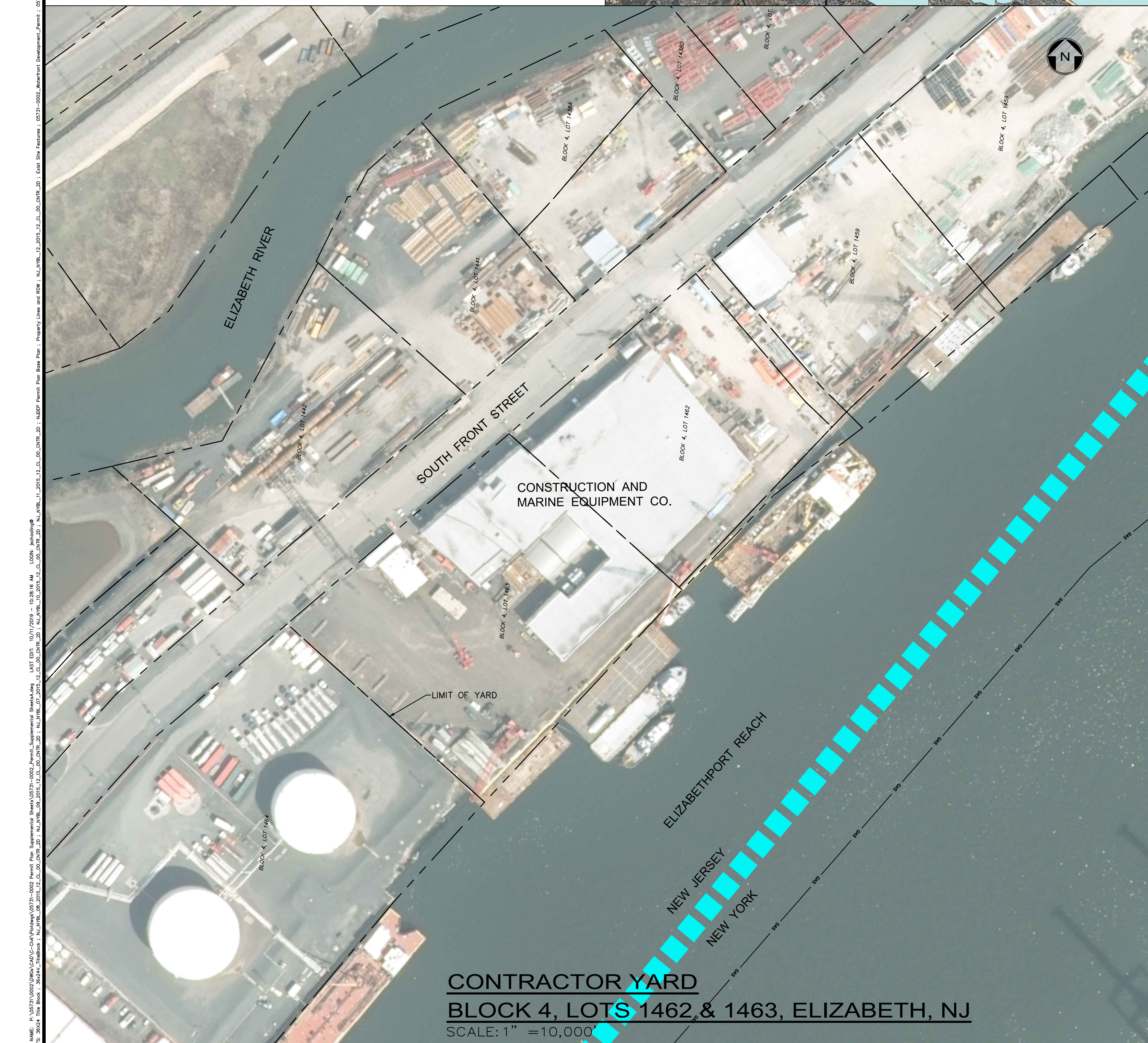
1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE LIMITS OF OFF-SITE CONTRACTOR YARDS ASSOCIATED WITH THE NORTHEAST SUPPLY ENHANCEMENT PROJECT – 26" RARITAN BAY LOOP. REFER TO SITE PLANS ENTITLED "NJDEP LAND USE PERMIT PLANS FOR THE NORTHEAST SUPPLY ENHANCEMENT PROJECT – PROPOSED 26" RARITAN BAY LOOP (OFFSHORE)," DATED JUNE 8, 2018, PREPARED BY PAULUS, SOKOLOWSKI AND SARTOR.
2. ON BLOCK 4, LOTS 1462 AND 1463 (ATWS-RBL-001 – UNION COUNTY, ELIZABETH) TRANSOCO IS PROPOSING TO LEASE EXISTING CONSTRUCTION AND MARINE EQUIPMENT CO., INC. FACILITY SPACE, AN EXISTING EQUIPMENT STORAGE FACILITY. SOUTH FRONT STREET WILL PROVIDE LAND-SIDE ACCESS TO THE YARD AND ALSO FUNCTION AS A PRIMARY DOCK FACILITY FOR OFFSHORE CONSTRUCTION. THE C&M SITE ALSO HAS DIRECT BARGE ACCESS INTO RARITAN BAY ALONG THE ARTHUR KILL WATERWAY.
3. ON BLOCK 30501, LOT 1 (ATWS-RBL-009 – HUDSON COUNTY, JERSEY CITY), CONTRACTOR YARD TO BE USED TO STAGE VESSELS, FACILITATE CREW CHANGES AND FOR GENERAL CONSTRUCTION SUPPORT.
4. AERIAL INFORMATION TAKEN FROM NEW JERSEY GEOGRAPHIC INFORMATION NETWORK – NJ 2015 ORTHOPHOTOGRAPHY MG4, PREPARED BY NJ OFFICE OF INFORMATION TECHNOLOGY, OFFICE OF GIS.
5. TAX MAP INFORMATION TAKEN FROM "TAX MAP – CITY OF JERSEY CITY (SHEETS 304 AND 305)", DATED AUGUST 2006, PREPARED BY T&M ASSOCIATES AND TAX MAP FOR CITY OF ELIZABETH BOOK 11, SHEETS 1 AND 2.
6. THERE ARE NO IMPACTS TO REGULATED FEATURES WITHIN THE LIMITS OF CONTRACTOR YARDS.

KEY MAP
SCALE: 1" = 10,000'

REV. / ISSUE	DATE	DESCRIPTION

LEGEND

	PROPERTY LINE
	LIMIT OF YARD
	COUNTY BOUNDARY LINE
	STATE BOUNDARY LINE
	GAS
	EXISTING GAS MAIN
	PROPOSED GAS MAIN



CONTRACTOR YARD
BLOCK 4, LOTS 1462 & 1463, ELIZABETH, NJ
SCALE: 1" = 10,000'



CONTRACTOR YARD
BLOCK 30501, LOT 1, JERSEY CITY, NJ
SCALE: 1" = 10,000'

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W. Salmon 10/11/19
SIGNATURE DATE

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PROJECT
NORTHEAST SUPPLY ENHANCEMENT PROJECT
PROPOSED
26" RARITAN BAY LOOP
MIDDLESEX & MONMOUTH COUNTY, NEW JERSEY

SHEET TITLE
PERMIT PLAN
RARITAN BAY LOOP
OFFSHORE STAGING AREA

PROJECT NO.: 05731.0009 DRAWN BY: JPS
SCALE: 1" = 100' CHECKED BY: WS
DATE: 06/08/18 SHEET 1 OF 1
SHEET NO. **1**