US Army Corps of Engineers
Philadelphia District
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390
ATTN: CENAP-OP-R

Public Notice

Public Notice No.	Date
CENAP-OP-R-2016-00542-75	**March 16, 2018**
Application No.	File No.
In Reply Refer to: **REGULATORY BRANCH**	

This District has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344).

The purpose of this notice is to solicit comments and recommendations from the public concerning issuance of a Department of the Army permit for the work described below.

APPLICANT: Mr. Robert Colozza
Silver Run Electric, LLC
16150 Main Circle Drive, Suite 310
Chesterfield, Missouri 63017

AGENT: Mr. Payson R. Whitney
ESS Group, Inc.
100 Fifth Avenue, 5th Floor
Waltham, Massachusetts 02451

WATERWAY: Delaware River and Appoquinimink River

LOCATION: The proposed project is located between the proposed Silver Run Substation at 471 Silver Run Road, Middletown, Delaware 19709 in Appoquinimink Hundred, New Castle County, Delaware, and the Public Service Enterprise Group (PSE&G) Hope Creek Substation expansion on Artificial Island in Lower Alloways Creek Township, Salem County, New Jersey. [Latitude: 39.46399° North; Longitude: 75.58143° West (NAD 83)]

ACTIVITY: The applicant proposes to construct (1) a 230-kilovolt (kV) alternating current (AC) electric transmission line connecting the new Silver Run Substation and PSE&G Hope Creek Substation expansion and (2) the new Silver Run Substation, which would interconnect the proposed Hope Creek-Silver Run transmission line with two Delmarva Power and Light (DP&L) 230-kV overhead lines. The existing and proposed facilities are part of the electrical grid managed by the Pennsylvania New Jersey Maryland Interconnection, LLC (PJM), which ensures reliable electric service more than 65 million people across the eastern U.S.

The proposed Hope Creek-Silver Run transmission line would be comprised of three sections: (1) approximately two miles of 230-kV overhead transmission line supported mainly by monopole transmission structures, connecting the proposed Silver Run Substation to the in-river transition structure near the western shore of the Delaware River; (2) approximately three miles

of 230-kV submarine cable to be direct-embedded beneath the bed of the Delaware River using water jetting technology between the in-river transition structure located near the western shore of the Delaware River and the trenched shore landing along the eastern shore of the Delaware River; and (3) approximately 3,000 feet of 230-kV overhead transmission line supported mainly by monopole transmission structures, connecting the on-land New Jersey transition structure to the PSE&G Hope Creek Substation expansion.

For the Silver Run Substation, the applicant proposes to construct the substation in uplands. The interconnection to the two existing DP&L-owned 230-kV overhead transmission lines would be constructed by others.

For the overhead transmission line in Delaware, the applicant proposes to construct seven monopole structures 100 to 125 feet tall in uplands. Within wetlands, the applicant proposes to use helicopter construction for six 115 to 125-foot tall tubular steel monopole structures and a 135-foot tall tubular steel H-frame structure in approximately 290 square feet of tidal marsh wetlands. Construction personnel would mobilize to each structure location via a low surface pressure vehicle, boat or on foot. A heavy lift helicopter (or air crane helicopter) would then place an approximately 20-foot long by 12-foot wide pad of protective matting (for a total of 1,920 square feet of temporary disturbance among the seven structures) at each structure location in tidal marsh wetlands, which would include a power pack and alignment sleeve to support installation equipment during construction. The air crane helicopter would then deliver a caisson foundation to each structure location, where the ground crew would secure the caisson in the alignment sleeve. The air crane helicopter would then deliver the vibratory hammer, which the ground crew would use to drive each caisson to its specified depth. The air crane helicopter would then remove the vibratory hammer, alignment sleeve, power pack and matting pad. The air crane helicopter would then deliver the structure to each installed caisson foundation, and the ground crew would secure the structure to the foundation. Once all structures are constructed, a light-duty helicopter would string the wire from structure to structure. The aerial transmission line crossing of tidal marsh wetlands, Appoquinimink River and its side channels, Lower Reach's side channels, and Delaware River totals approximately 7,870 linear feet, with minimum clearances of 33 feet above mean high water for the Appoquinimink River, its side channels, and Lower Break's side channels, as well as 66 feet above mean high water for the Delaware River.

For the in-river transition structure near the western shore of the Delaware River, the applicant proposes to construct a 130 to 140-foot tall, H-frame structure and vessel allision protection structure in approximately 13,000 square feet of the Delaware River using barge-mounted equipment. The purpose of the in-river transition structure is to terminate the submarine cables, to support appurtenant equipment, and to transition the transmission path from overhead wires to submarine cables. The in-river transition structure would be placed on top of a driven pile foundation, including eight 30-inch diameter steel piles with pre-cast concrete caps on top. To protect against vessel allisions, the in-river transition structure would be protected by a vessel allision protection structure with twelve 42-inch diameter steel piles and concrete fenders. The total area of riverbed occupied by the in-river transition structure and allision protection system foundation piles, with their internal concrete plugs, would be approximately 155 square feet.

For the submarine cable installation beneath the bed of the Delaware River, the applicant proposes to direct-embed seven power cables using a barge-mounted vertical injector and a jetting sled across approximately 13,800 linear feet of the Delaware River. The seven submarine cables are expected to occupy approximately 250 feet (i.e., running parallel across the river, each separated from the adjacent cables by approximately 30 feet) of an approximately 1,000-foot wide corridor area. Two fiber optic cables would be bundled with two of the seven power cables. The minimum burial depths would be 25 feet below the authorized project depth of the federal navigation channel; 15 feet below the river bottom in areas outside of the federal navigation channel; 10 feet below the river bottom approximately 1,400 feet riverward of the in-river transition structure, gradually decreasing shoreward to the river bottom adjacent to the transition structure; and six feet below the river bottom at the trenched shore landing. In order to meet the required burial depths, the applicant has conducted geophysical surveys, 14 geotechnical corings and would conduct one or more proving runs for each of the seven cable alignments. Previously unidentified obstructions encountered during the proving runs would either be avoided by re-routing the alignment; removed and disposed of in accordance with applicable regulations; or loosened by multiple proving runs. In the unlikely event that an area of sediments unsuitable for jetting is discovered and cannot be avoided or resolved by these methods, the applicant would conduct limited dredging after notification to the Delaware Department of Natural Resources and Environmental Control and/or the New Jersey Department of Environmental Protection, as well as this office.

The applicant would use the barge *NOSTAG 10* or a similar vessel, which is specifically configured for installing submarine cable with the vertical injector. The *NOSTAG 10* is approximately 300 feet long, has a beam of approximately 90 feet and a working draft of approximately 13 feet. The barge would be maneuvered along the route by a multi-point mooring system, and the hull allows the barge to work in very shallow water during high tide. During low tide, the barge would be able to sit on the riverbed, and then would resume work during the next high tide.

The vertical injector would be used between the trenched shore landing and a point about 1,400 feet riverward of the in-river transition structure, which is approximately 90% of the total cable length. The vertical injector would install the submarine cable using a process known as simultaneous lay and burial, in which the cable is spooled off the vessel through a vertical injector and embedded continuously. The vertical injector is equipped with a series of forward and downward facing nozzles to fluidize the sediment in advance of the vertical injector as it moves along the cable route and under the injector foot to allow the cable to settle into the fluidized sediment as the cable exits the back of the injector foot.

The jetting sled would be used in shallow waters near the in-river transition structure, and potentially the shallowest waters near the trenched shore landing. The jetting sled would install the submarine cable using a process known as post-lay burial, in which the cable is spooled off the vessel onto the riverbed and then the jetting sled is towed over the cable to embed the cable in the riverbed. The jetting sled is equipped with one or more jetting blades with nozzles that face forward and outward that fluidize the sediment on each side of the pre-laid cable.

For the trenched shore landing near the eastern shore of the Delaware River, the applicant proposes to excavate trenches for seven cables in a total of approximately 28,000 square feet of the Delaware River using an excavator. Construction activities may temporarily disturb up to 0.67 of an acre of non-federally regulated, mapped coastal wetlands along the shore of the Delaware River adjacent to the Hope Creek Nuclear Generating Station; however, these impacts would be temporary as the area would be restored upon completion of construction. Each trench would be excavated between the New Jersey cable termination point on land, which would be located approximately 300 feet landward of the high tide line and a point approximately 50 feet riverward of the shoreline riprap. Each trench would be approximately 40 feet wide at the top of the trench. During trench excavation, temporary shoring (e.g., sheet piles or trench boxes) may be used if the weak soils anticipated in the area are not conducive to maintaining stable trench side slopes. A cable would then be laid in each trench, and the entire trench would be backfilled to pre-construction contours, with any shoring removed after cable installation. Concrete mats may be placed over the cables in areas where additional protection is needed, e.g., beneath the large riprap currently along the shoreline. Excavated sediments from below the mean high water line would be loaded on a barge or stored in uplands, and either held for reuse as backfill or spread within Silver Run Electric's easement area in uplands. Following cable installation, approximately 4,500 cubic yards of excavated sediments or clean sand/gravel, would be redeposited/deposited in the trenches and used as cover for the submarine cables. Silt curtains will be used as practicable during active excavation and backfill to protect water quality.

For the overhead transmission line in New Jersey, the applicant proposes to construct the overhead transmission line in uplands. The interconnection to the PSE&G Hope Creek Substation expansion would be constructed by others.

PURPOSE: The applicant's stated purpose is to improve stability margins, reduce Artificial Island megavolt-ampere reactive (MVAR) output requirements, and address high voltage reliability issues in the Southern New Jersey electrical grid. The proposed project would create an additional electrical connection to Delmarva Peninsula and reduce transmission congestion.

A preliminary review of this application indicates that species listed under the Endangered Species Act (ESA) or their critical habitat pursuant to Section 7 of the ESA, as amended, may be present in the action area. This District will forward this Public Notice to the United States Fish and Wildlife Service and the National Marine Fisheries Service with a request for technical assistance on whether any ESA listed species or their critical habitat may be present in the area which would be affected by the proposed activity. This District will evaluate the potential effects of the proposed actions on ESA listed species or their critical habitat and will consult with the United States Fish and Wildlife Service and the National Marine Fisheries Service, as appropriate. ESA Section 7 consultation will be concluded prior to the final decision on this permit application.

The decision whether to issue a permit will be based on an evaluation of the activity's probable impact including its cumulative impacts on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the work must be balanced against its

reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs and welfare of the people. A Department of the Army permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Comments on the proposed work should be submitted, in writing, within 30 days to the District Engineer, U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, Pennsylvania 19107-3390.

Review of the National Register of Historic Places indicates that no therein are located within the permit area of the work.

The Magnuson-Stevens Fishery Conservation and Management Act, as amended, requires all federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH). A preliminary review of this application indicates that EFH is present within the project area. This District will evaluate the potential effects of the proposed actions on EFH and will consult with the National Marine Fisheries Service as appropriate. Consultation will be concluded prior to the final decision on this permit application.

Federal regulations contained in 33 CFR 325.1(d)(7) require applicants to include a statement describing how impacts to waters of the United States are to be avoided and minimized. Furthermore, the application must also contain a statement describing how impacts to waters of the United States are to be compensated for or a statement explaining why compensatory mitigation should not be required for the proposed impacts.

To avoid and minimize impacts to wetlands in Delaware, the applicant proposes to use helicopter construction for all overhead transmission structures located in wetlands. Helicopter construction is expected to be faster than traditional construction methods, reducing the timeframe for construction from months to days, and eliminating impacts required to construct temporary access roads to each structure. No discharge of dredged or fill material into waters of

the United States is proposed for the overhead transmission structures construction, and no access roads are proposed for operation.

To avoid and minimize impacts to the Delaware River due to the submarine cable installation, the applicant has chosen the submarine cable route to minimize the temporary riverbed disturbance. Geotechnical survey data has been collected to avoid impacts to navigation, in-stream habitat and recreation. The proposed proving runs reduce the potential for delays due to unexpected riverbed conditions during installation. The proposed vertical injector's and jetting sled's hydrodynamic forces do not work to produce any significant upward movement of sediment into the water column, which minimizes riverbed disturbance to two feet in width and which results in the majority of the fluidized sediment settling back into the cable furrow. No discharge of dredged or fill material into waters of the United States is proposed for the submarine cable installation.

To avoid and minimize impacts to the Delaware River due to the trenched shore landing, excavating would be restricted during seasonal windows to protect sensitive species. Also, silt curtains would be used during excavation to reduce impacts to sediment, water quality and aquatic species.

The discharge of dredged and fill material is proposed for the internal concrete plugs associated with the in-river transition structure and allision protection system foundation piles (155 square feet), which is considered a permanent loss of the Delaware River. All other impacts are either temporary in nature or involve impacts regulated under Section 10 of the Rivers and Harbors Act of 1899. As such, compensatory mitigation is neither proposed nor required, as compensation or mitigation for the 155 square feet of permanent loss of river is neither feasible nor practicable.

In accordance with Section 307(c) of the Coastal Zone Management Act of 1972, applicants for Federal Licenses or Permits to conduct an activity affecting land or water uses in a State's coastal zone must provide certification that the activity complies with the State's Coastal Zone Management Program. The applicant has stated that the proposed activity complies with and will be conducted in a manner that is consistent with the approved State Coastal Zone Management (CZM) Program. No permit will be issued until the State has concurred with the applicant's certification or has waived its right to do so. Comments concerning the impact of the proposed and/or existing activity on the State's coastal zone should be sent to this office, with a copy to the State's Office of Coastal Zone Management.

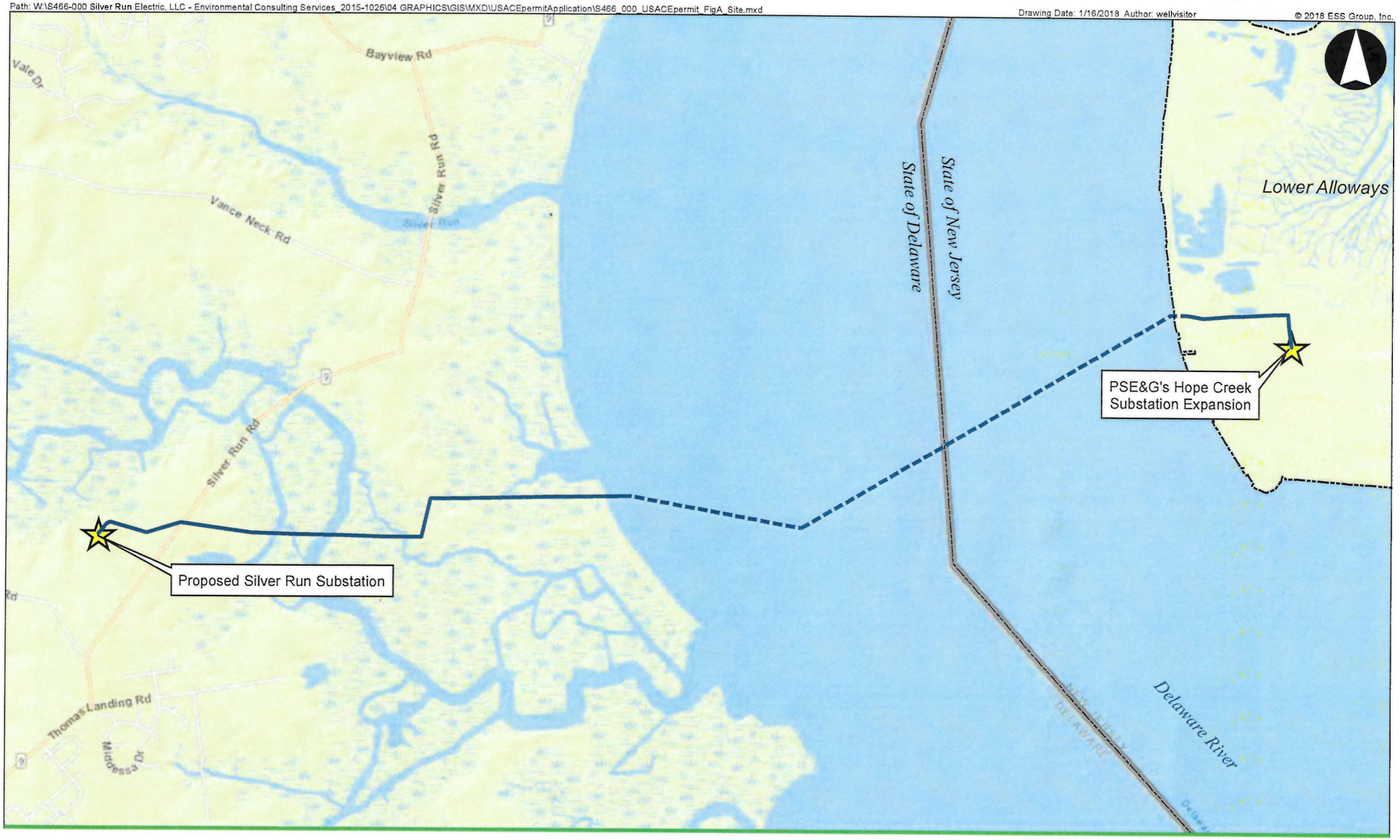
In accordance with Section 401 of the Clean Water Act, a Water Quality Certificate is necessary from the State government in which the work is located. Any comments concerning the work described above which relate to Water Quality considerations should be sent to this office with a copy to the State.

The evaluation of the impact of the work described above on the public interest will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act.

Any person may request, in writing, to the District Engineer, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state in writing, with particularity, the reasons for holding a public hearing.

Additional information concerning this permit application may be obtained by calling Todd Schaible at (215) 656-6591, via email at todd.a.schaible@usace.army.mil, or writing this office at the above address.

Edward E. Bonner
Chief, Regulatory Branch



Silver Run Project
Salem County, New Jersey,
and New Castle County, Delaware

1 inch = 3,000 feet

Source: 1) ESRI, World Street Map, 2017

0 1,500 3,000 Feet

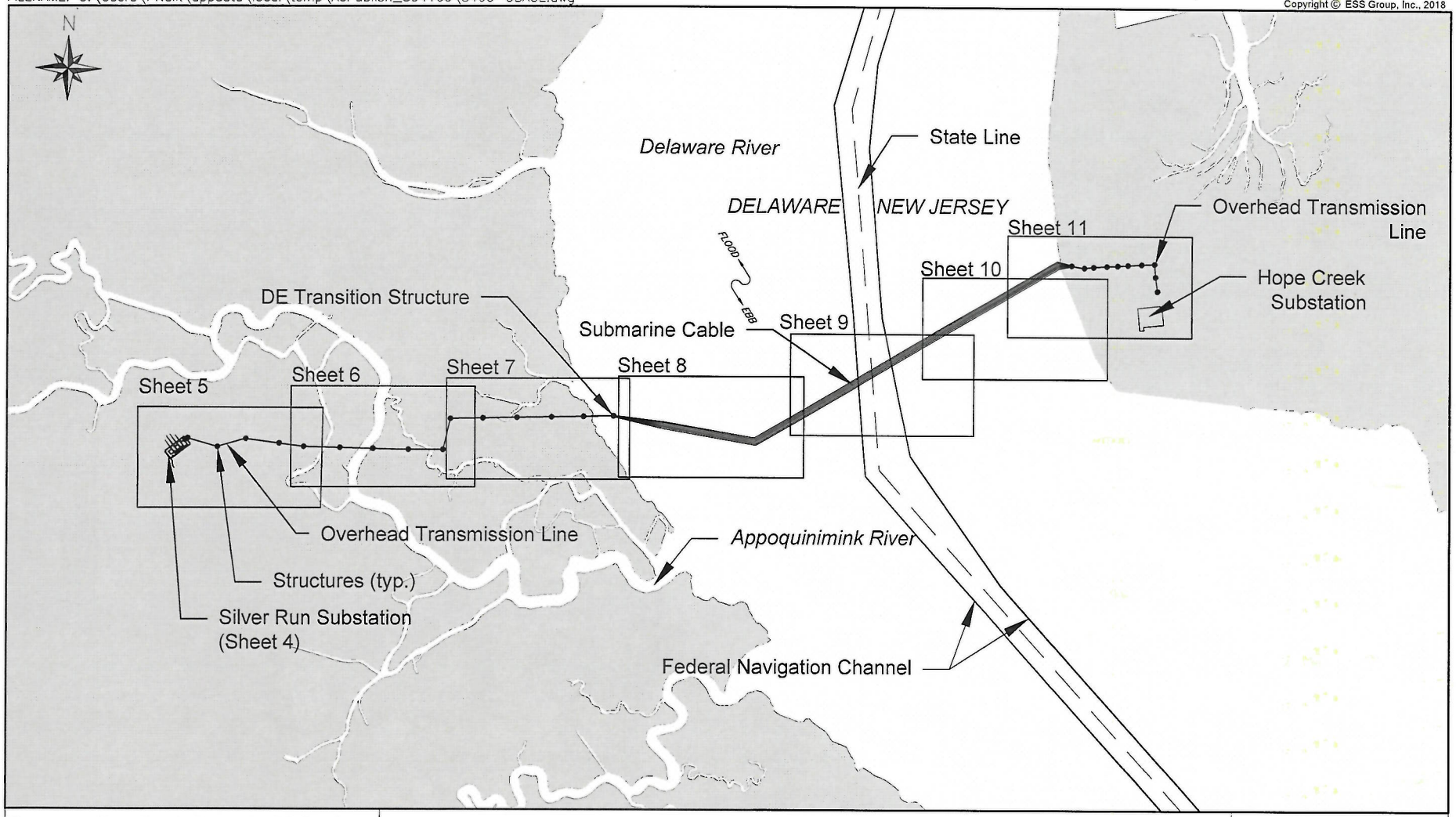
Legend

- Township Boundary
- Submarine Cable Route Centerline
- Overhead Transmission Line
- Substations
- State Boundary

Location of Proposed Silver Run Project

Figure A

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg



Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line

0 2000 4,000 8,000

1"=4000' Feet

Silver Run Project
Key Plan

At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware
In: Delaware River, Over: Appoquinimink River
Applicant: Silver Run Electric, LLC

SHEET NO. 1

DATE: January 2018

PROJECT NO. S466-002

ess group

NOTES:

1. Horizontal Datum: UTM Zone 18N, NAD83, U.S. Survey Feet.
2. Elevations referenced to NAVD88 in Feet, unless otherwise noted.
3. Tidal data from NOAA tidal benchmark at Reedy Point (8551910) [39°33.5'N; 75°34.4'W] and verified using NOAA's VDATUM model (version 3.1).
4. 0 FT MLLW = 3.12 FT NAVD88
5. Land Survey Source - Land and Mapping Services, Clearfield, PA
6. Marine Survey - Ocean Surveys, Inc., Old Saybrook, CT and Alpine Oceanic Seismic Survey, Inc., Norwood, NJ.
7. Soundings shown in project area based on field measurements taken during the period 17 February to 8 March 2016 and 25 May to 31 May 2016 and can only be considered as indicating the conditions existing at that time.
8. Wetlands extend beyond Project boundaries.
9. Wetland boundaries were delineated by Duffield Associates, Inc. during the period February 23 to March 14, 2016. Wetland and associated MHW elevations shown obtained from Duffield Associated Plans entitled "Wetland Identification and Delineation, Silver Run Electric, LLC", dated 06/08/2016.
10. NJ Upper Wetlands Boundary digitized from NJDEP Coastal Wetlands Map No.231-1752.
11. MHW and Spring High Tide Line obtained from plans entitled "Wetlands Plan, Salem & Hope Creek Generating Stations, Block 26, Lots 4, 4.01, 5 & 5.01, Township of Lower Alloways Creek, Salem Co., N.J.;" prepared David C. Coleman, P.L.S., PSEG Services Corporation; July 15, 2009; revised February 19, 2010.

Table of Structures

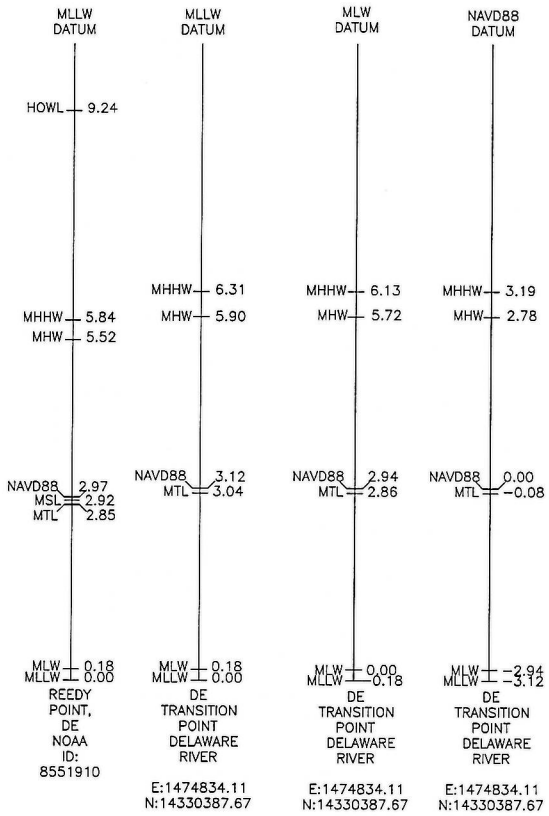
Structure	Type	Max Foundation Diameter (ft)	Area Occupied Waterward of MHW (ft^2)
DE-1	Vertical Deadend	10	-
DE-2	Vertical Running Angle	9	-
DE-3	Vertical Running Angle	9	-
DE-4	Delta Tangent	7	-
DE-5	Vertical Deadend	10	-
DE-6	Delta Tangent	7	-
DE-7	Delta Tangent	7	-
DE-8	Delta Tangent	7	-
DE-9	Vertical Deadend	12	-
DE-10	Vertical Deadend	12	-
DE-11	Delta Tangent	7	-
DE-12	Delta Tangent	7	-
DE-13	Delta Tangent	7	-
DE-14	H-Frame Tangent	Two foundations at 6' each	-
DE-15	Transition Structure	Eight foundations at 2.5' each	39.3 (total)
	Allision Protection	Twelve foundations at 3.5' each	115.4 (total)

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Notes	SHEET NO. 2
	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

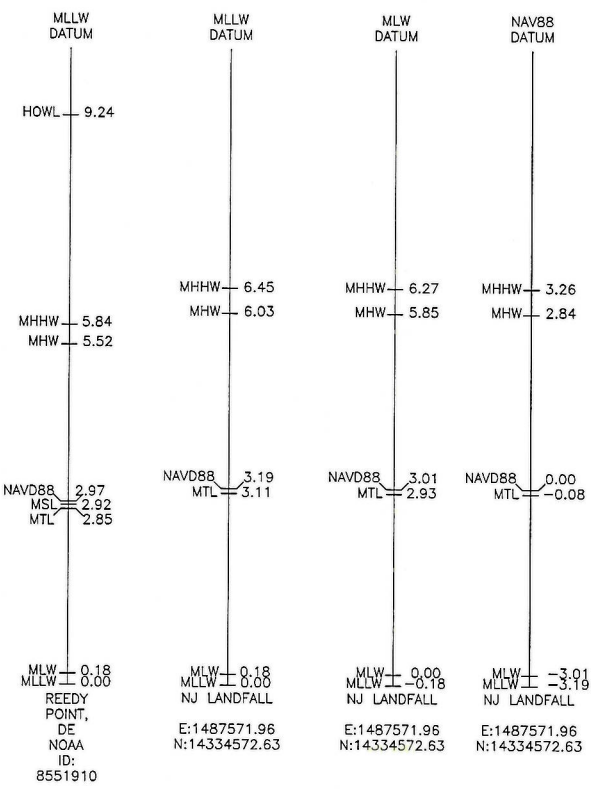
ess group

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg

VERTICAL DATUM RELATIONSHIPS DELAWARE TRANSITION STRUCTURE



VERTICAL DATUM RELATIONSHIPS NEW JERSEY LANDFALL

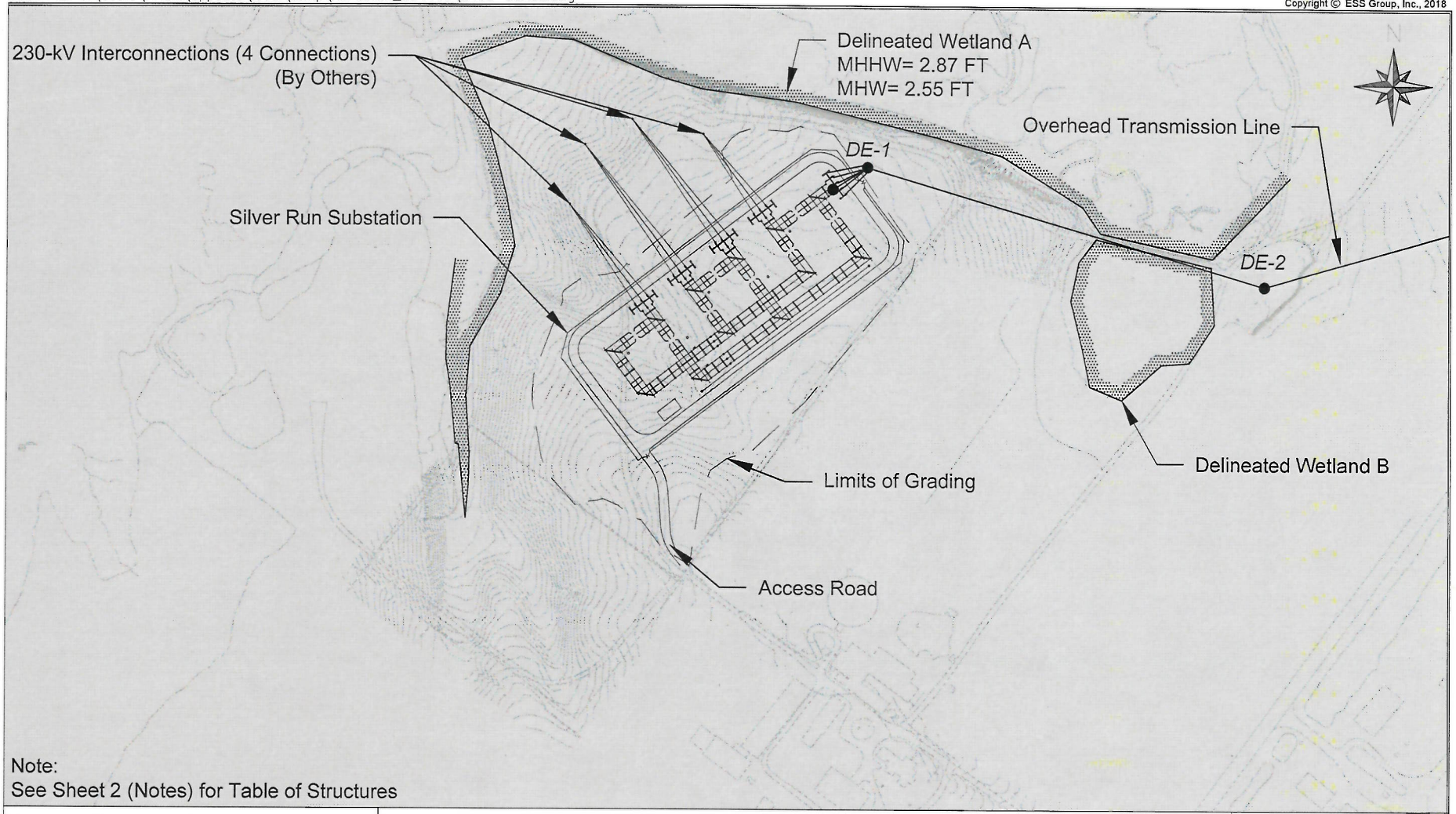


Notes:

1. Tidal data from NOAA tidal benchmark at Reedy Point (8551910) [39°33.5'N; 75°34.4'W] and verified using NOAA's VDATUM model (version 3.1).

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Datum Relationships	SHEET NO. 3
	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg

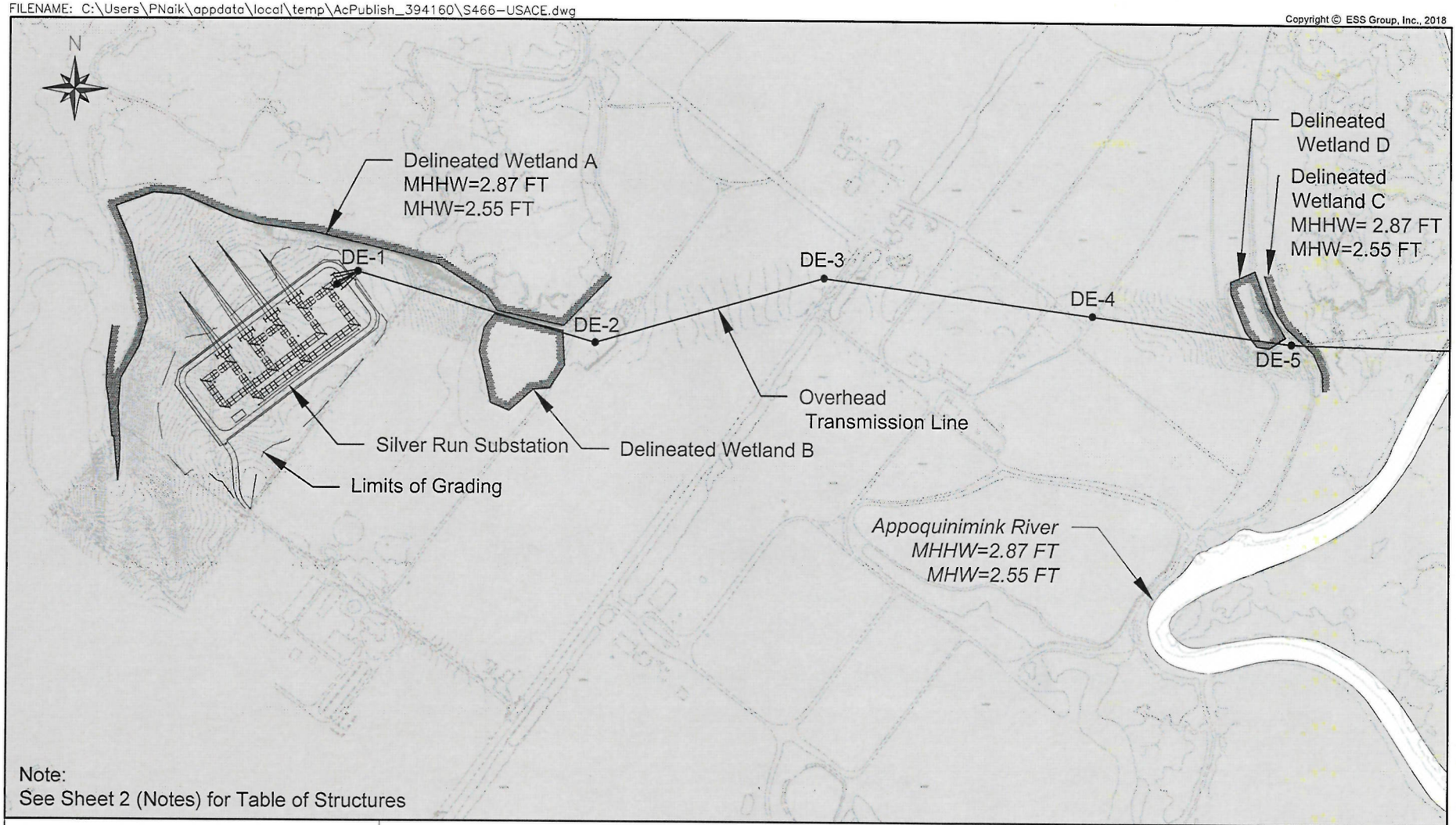


Note:
See Sheet 2 (Notes) for Table of Structures

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Substation	SHEET NO. 4
0 150 300 600 Feet 1"=300'	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

ess group

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg

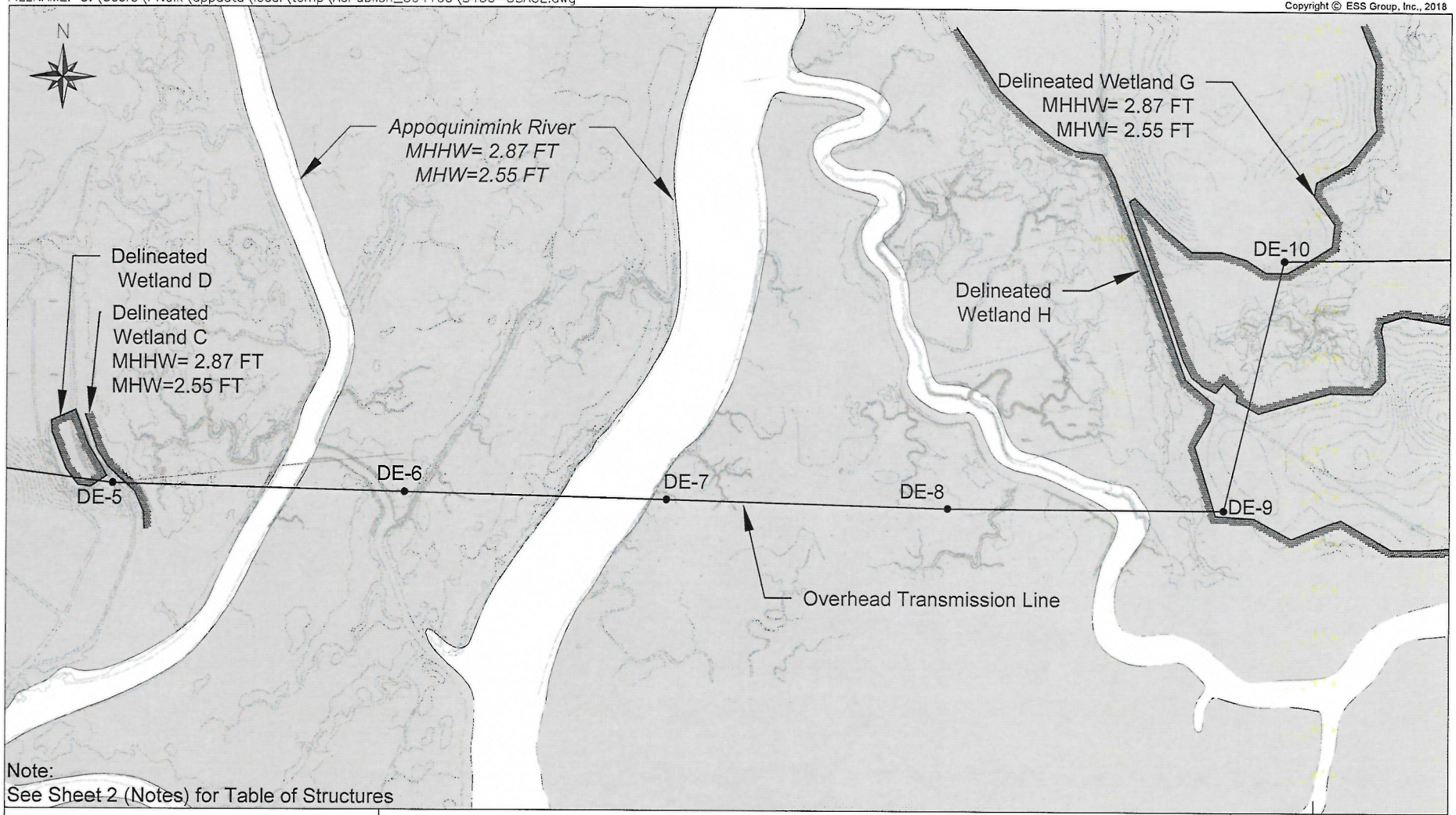


Note:
See Sheet 2 (Notes) for Table of Structures

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Overhead Transmission Line	SHEET NO. 5
0 250 500 1,000 Feet 1"=500'	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

ess group

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg



Note:
See Sheet 2 (Notes) for Table of Structures

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line

0 250 500 1,000 Feet
1"=500'

Silver Run Project
Overhead Transmission Line

At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware
In: Delaware River, Over: Appoquinimink River
Applicant: Silver Run Electric, LLC

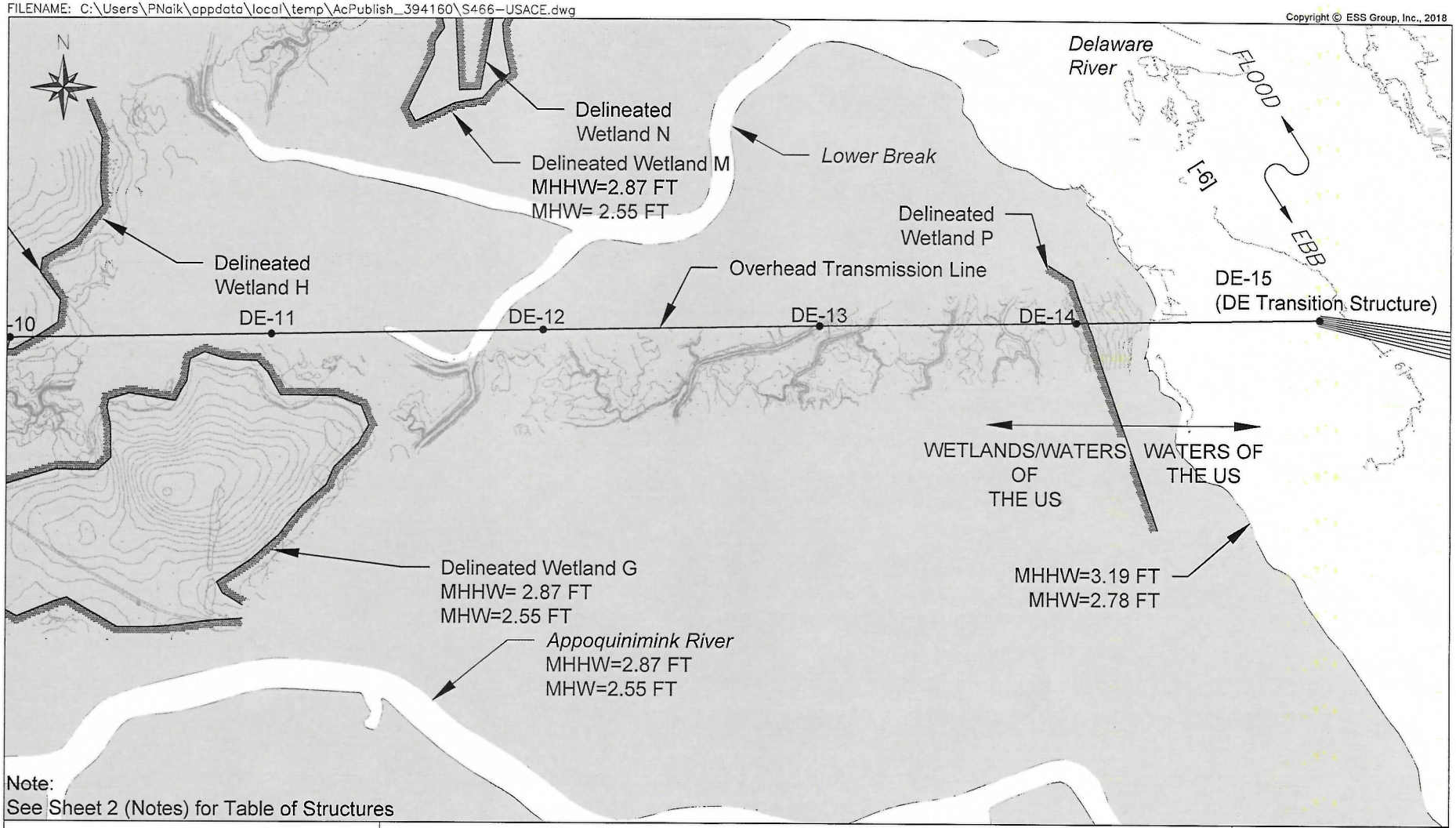
SHEET NO. 6

DATE: January 2018

PROJECT NO. S466-002

ess group

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg



Note:
See Sheet 2 (Notes) for Table of Structures

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line

0 250 500 1,000 Feet
1"=500'

Silver Run Project
Overhead Transmission Line

At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware
In: Delaware River, Over: Appoquinimink River
Applicant: Silver Run Electric, LLC

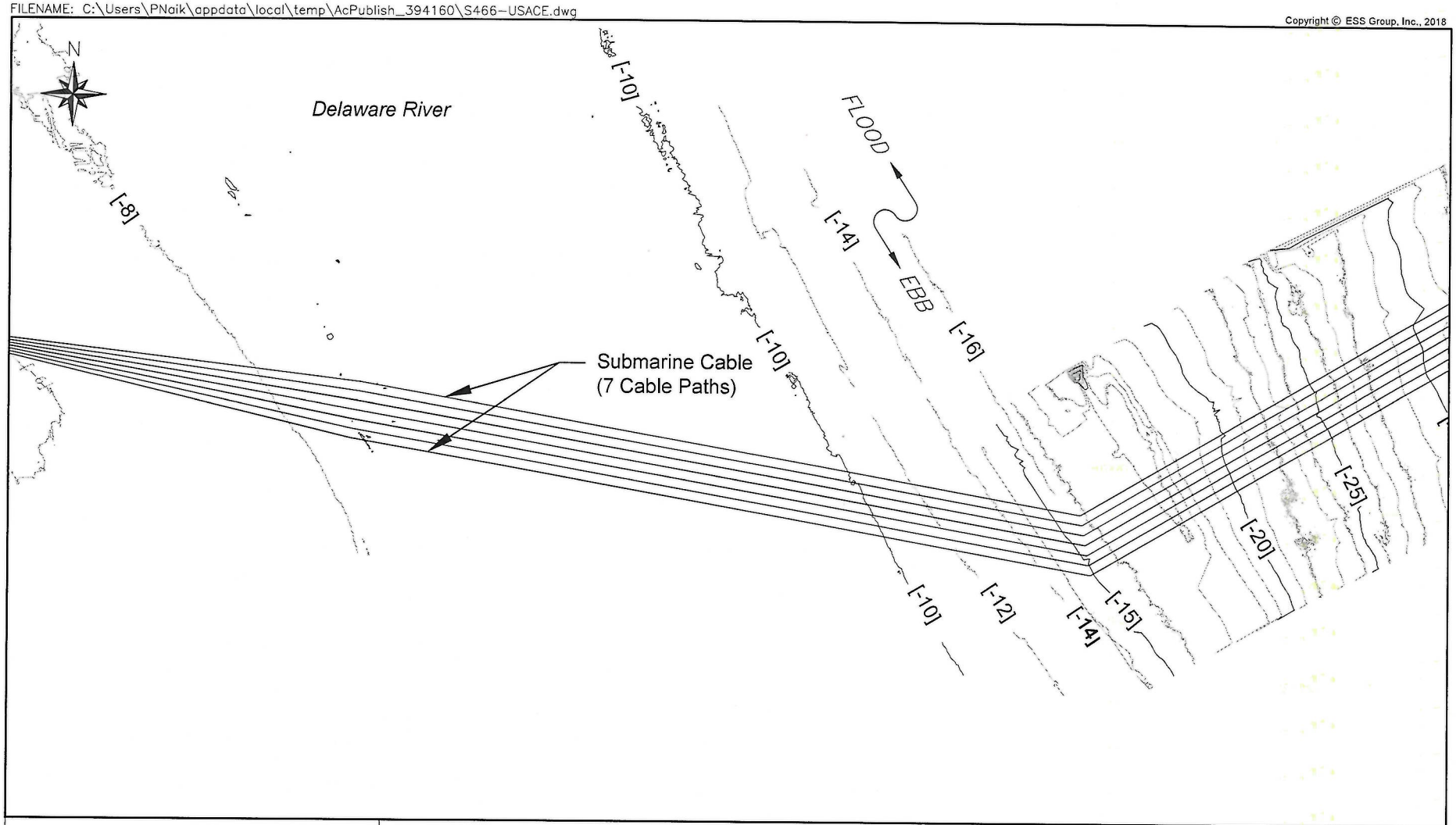
SHEET NO. 7

DATE: January 2018

PROJECT NO. S466-002

ess group

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg



Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line

0 250 500 1,000 Feet

1"=500'

Silver Run Project
Submarine Cable

At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware
In: Delaware River, Over: Appoquinimink River
Applicant: Silver Run Electric, LLC

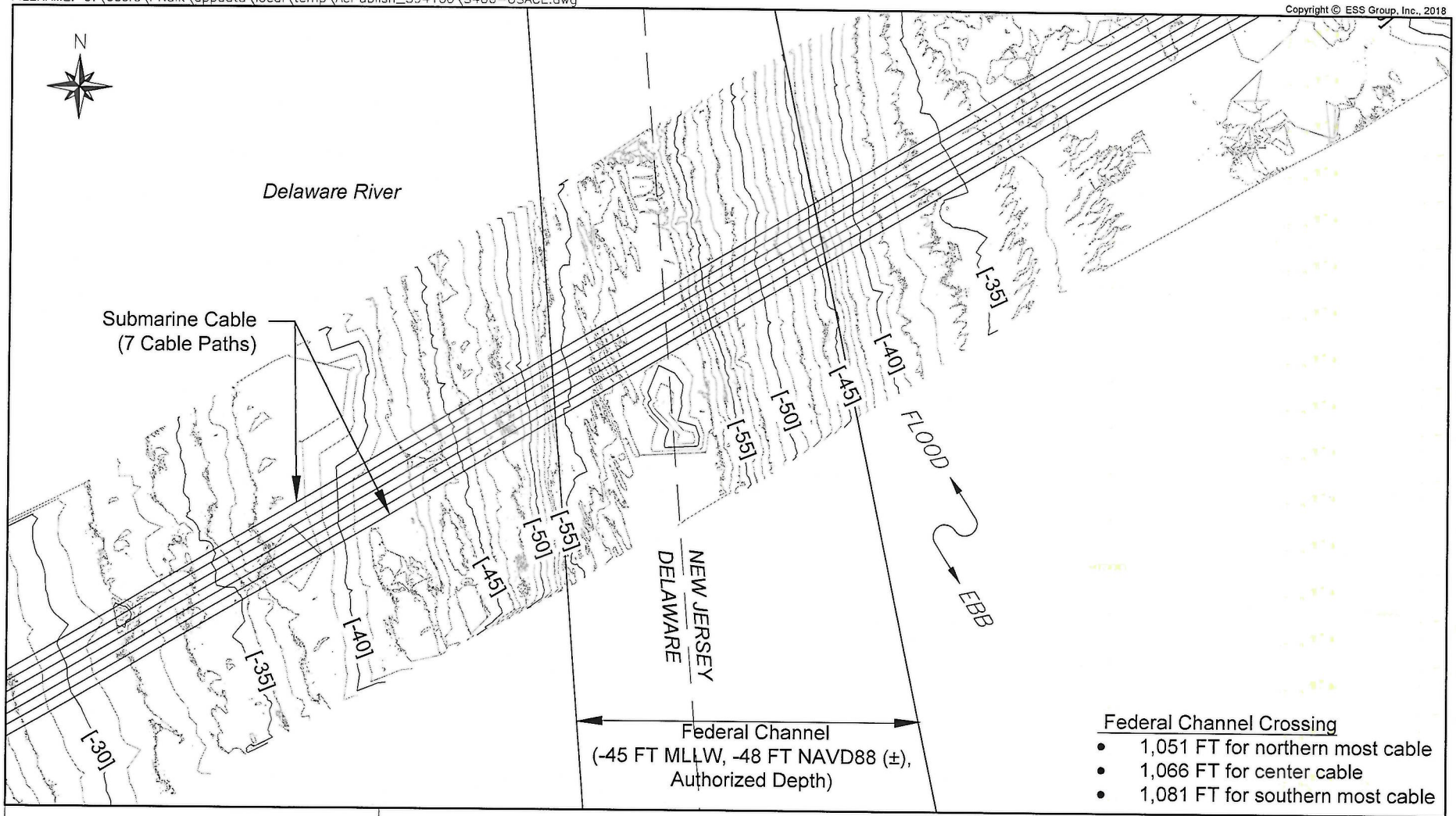
SHEET NO.
8

DATE:
January 2018

PROJECT NO.
S466-002

ess group

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg



Federal Channel Crossing

- 1,051 FT for northern most cable
- 1,066 FT for center cable
- 1,081 FT for southern most cable

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line

0 250 500 1,000 Feet

1"=500'

Silver Run Project
Submarine Cable

At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware
In: Delaware River, Over: Appoquinimink River
Applicant: Silver Run Electric, LLC

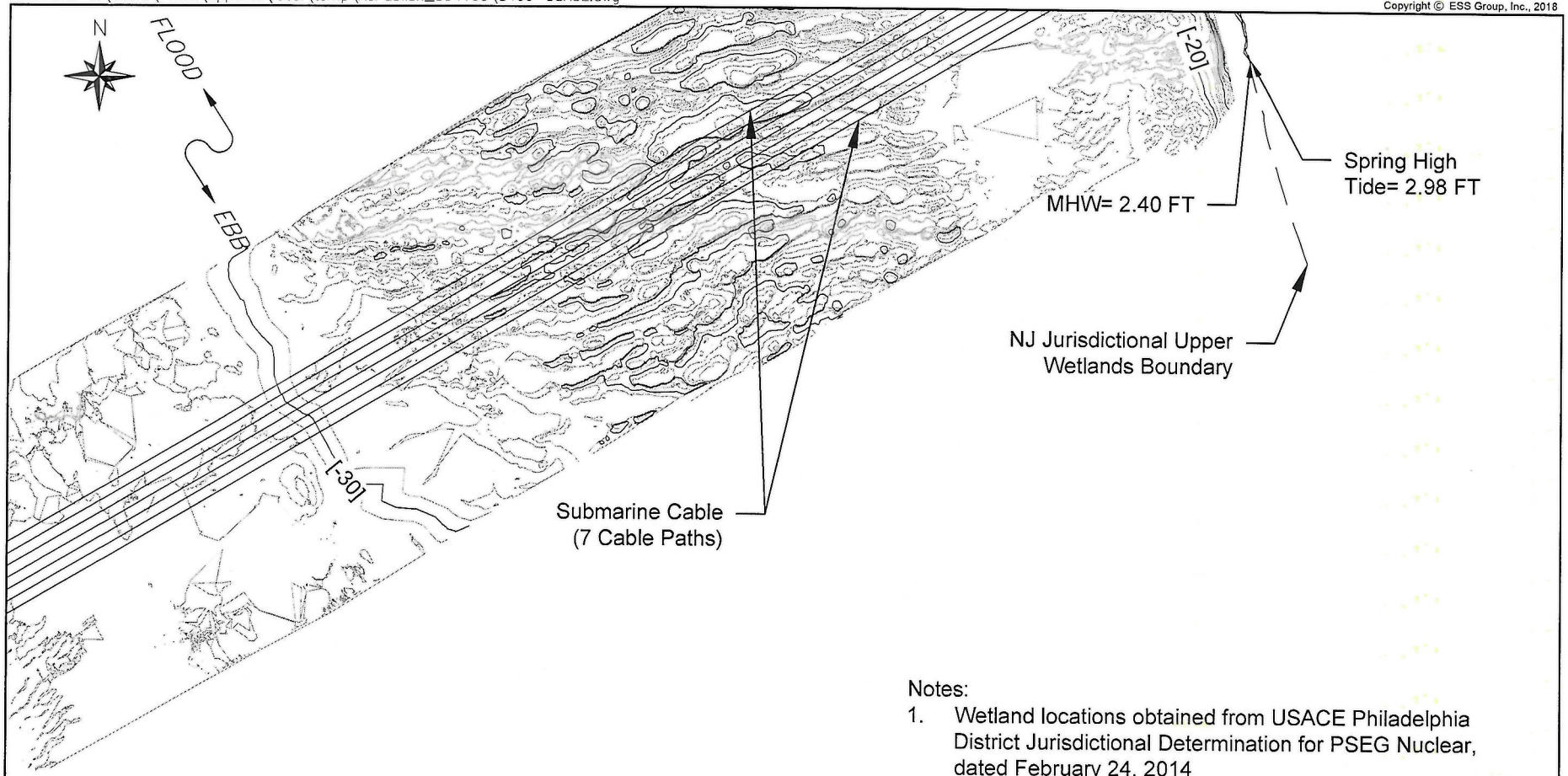
SHEET NO. 9

DATE: January 2018

PROJECT NO. S466-002

ess group

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg



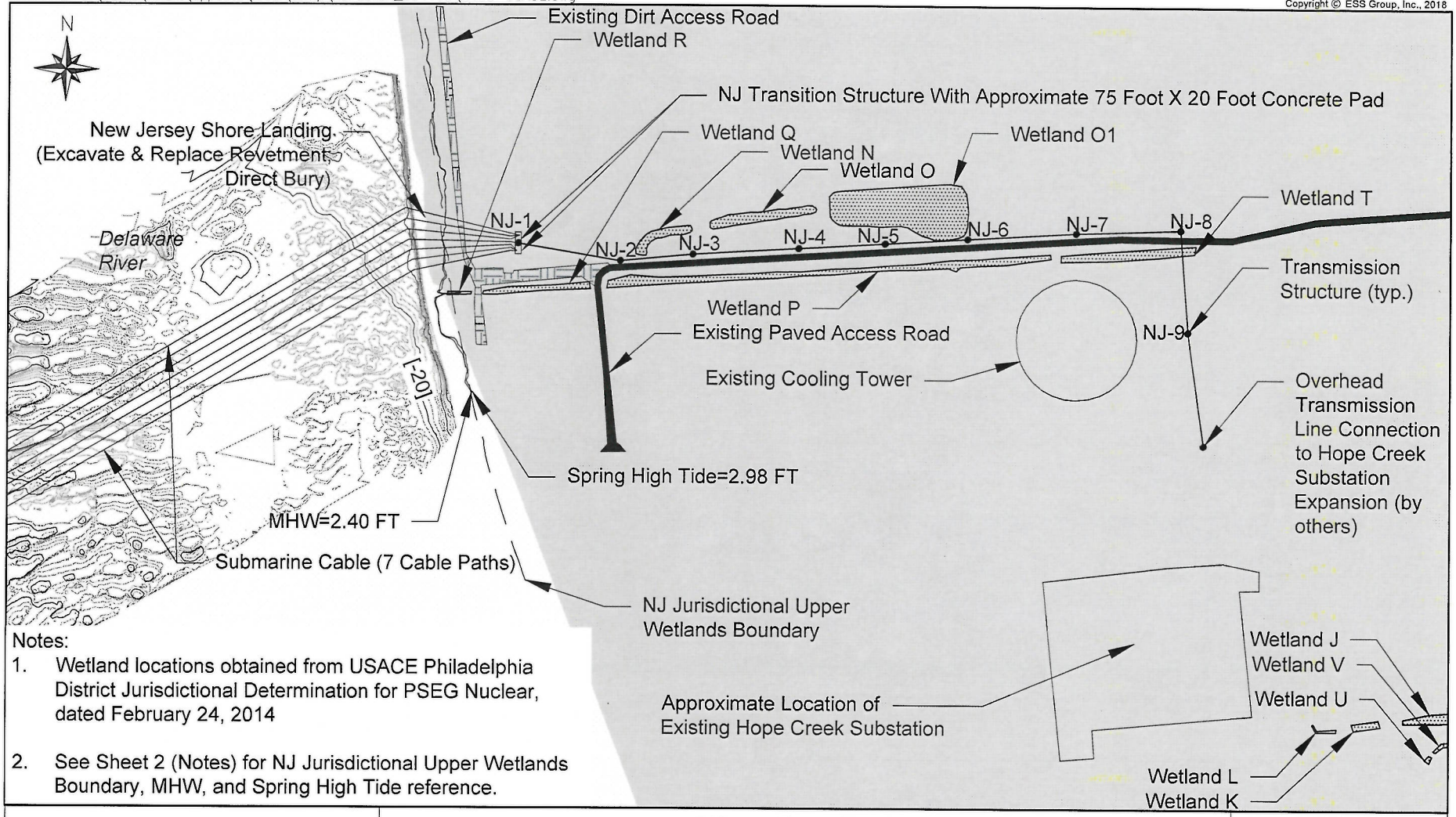
Notes:

1. Wetland locations obtained from USACE Philadelphia District Jurisdictional Determination for PSEG Nuclear, dated February 24, 2014
2. See Sheet 2 (Notes) for NJ Jurisdictional Upper Wetlands Boundary, MHW, and Spring High Tide reference.

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Submarine Cable	SHEET NO. 10
0 250 500 1000 Feet 1"=500'	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

ess group

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg



Notes:

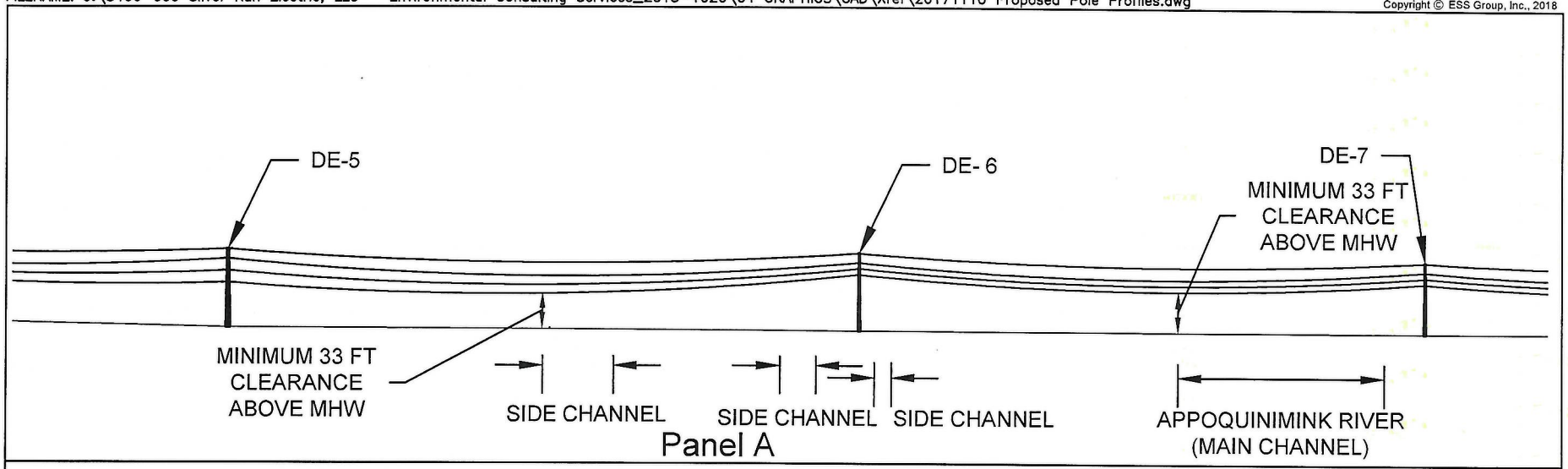
1. Wetland locations obtained from USACE Philadelphia District Jurisdictional Determination for PSEG Nuclear, dated February 24, 2014

2. See Sheet 2 (Notes) for NJ Jurisdictional Upper Wetlands Boundary, MHW, and Spring High Tide reference.

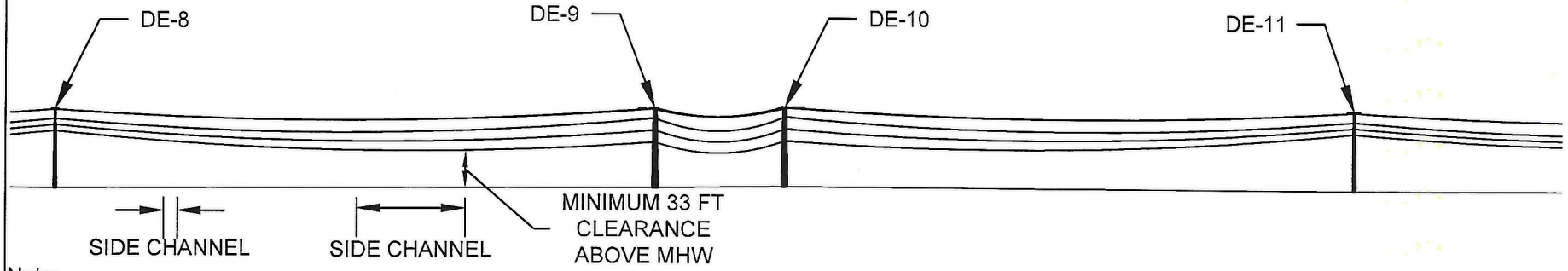
Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	**Silver Run Project** **Shore Landing and Overhead Transmission Line**	SHEET NO. 11
0 250 500 1000 Feet 1"=500'	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

ess group

FILENAME: J:\S466-000 Silver Run Electric, LLC - Environmental Consulting Services_2015-1026\04 GRAPHICS\CAD\Xref\20171110 Proposed Pole Profiles.dwg



Panel A

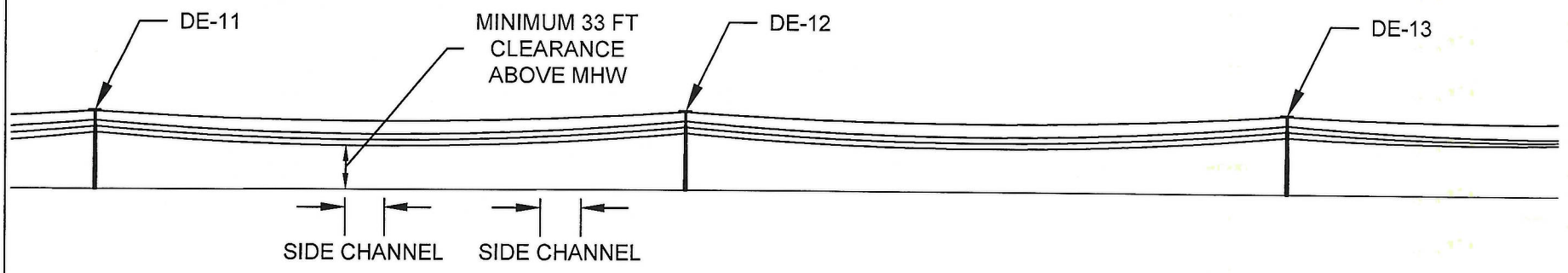


Note:
Structure profile provided by Silver Run Electric, LLC.

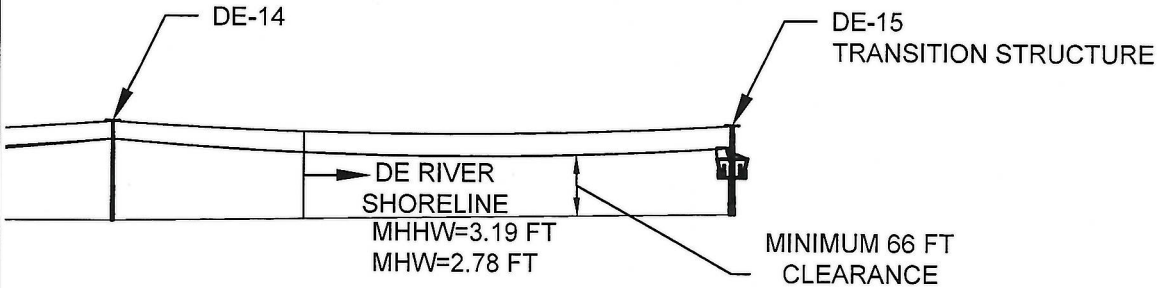
Panel B

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Appoquinimink River Crossing	SHEET NO. 12
0 125 250 500 Feet 1"=250'	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

FILENAME: J:\S466-000 Silver Run Electric, LLC – Environmental Consulting Services_2015-1026\04 GRAPHICS\CAD\Xref\20171110 Proposed Pole Profiles.dwg



Panel A

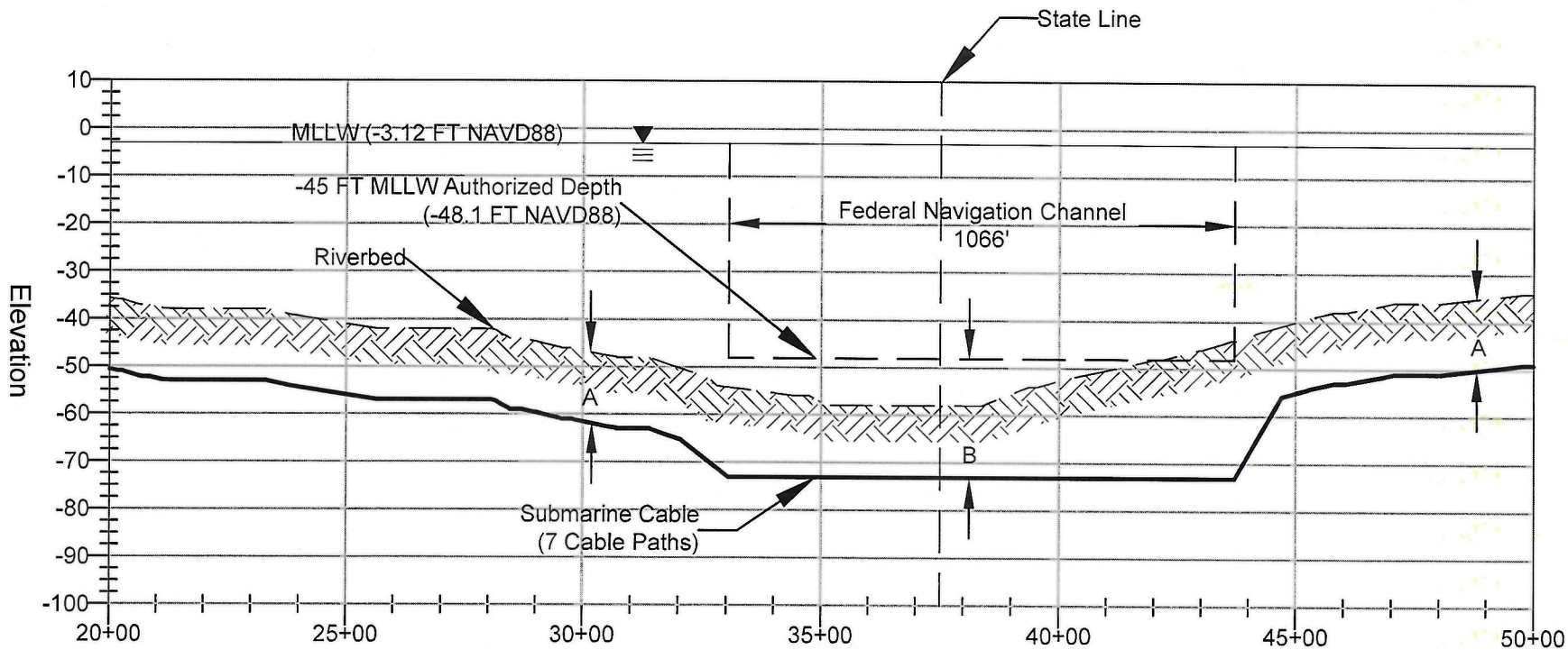


Note:
Structure profile provided by
Silver Run Electric, LLC.

Panel B

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Lower Break Crossing	SHEET NO. 13
0 125 250 500 Feet 1"=250'	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg



0 350 700 HORIZONTAL

0 35 70 VERTICAL

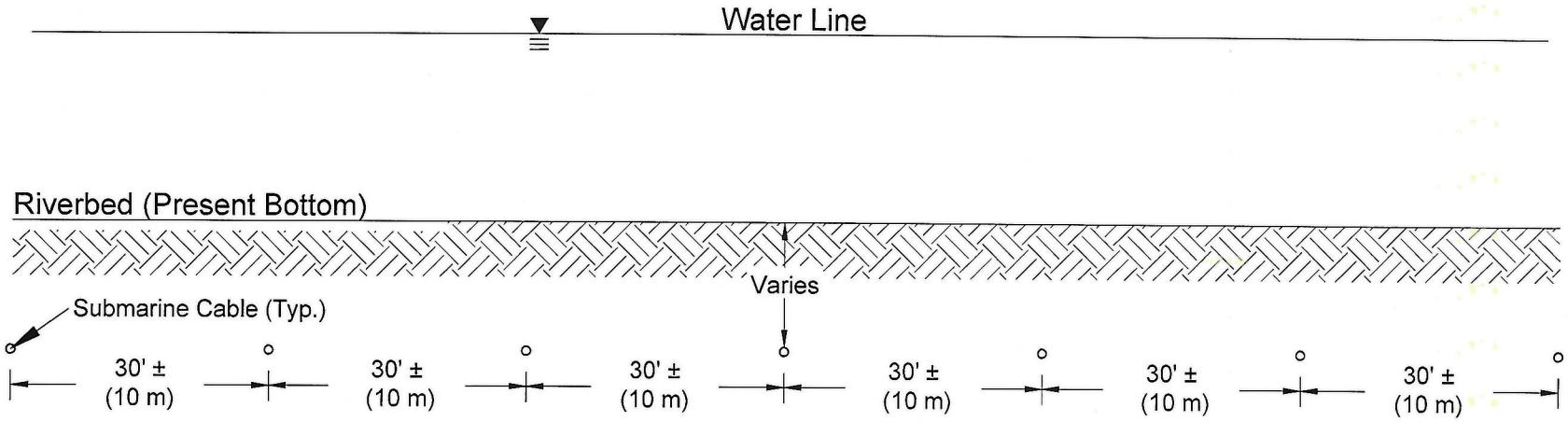
SCALE IN FEET

A= 15' below present bottom
B= 25' below authorized channel depth

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Federal Channel Crossing	SHEET NO. 14
	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

ess group

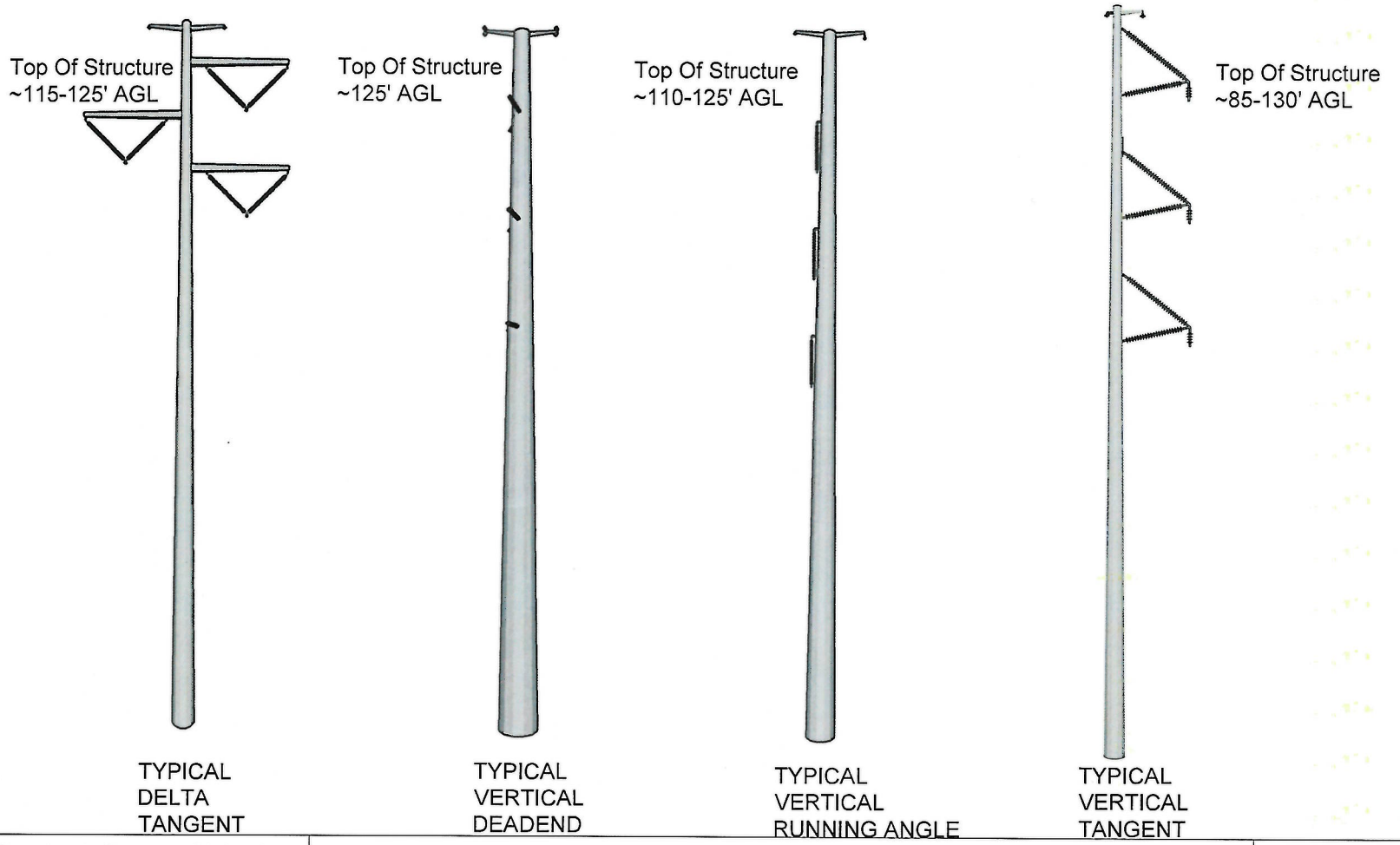
FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg



Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Typical Submarine Cable Cross-Section	SHEET NO. 15
NOT TO SCALE	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg

Note:
Typical details provided by Silver Run Electric, LLC.



TYPICAL DELTA TANGENT

TYPICAL VERTICAL DEADEND

TYPICAL VERTICAL RUNNING ANGLE

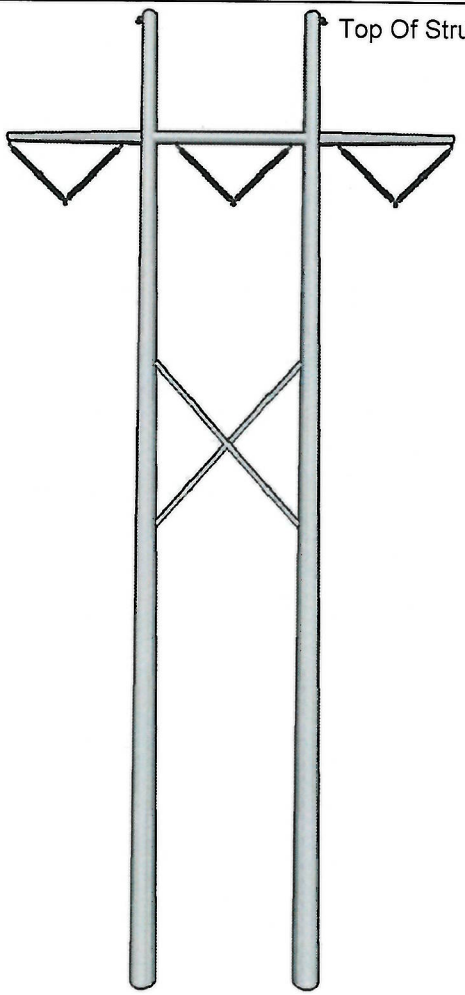
TYPICAL VERTICAL TANGENT

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Typical Monopoles	SHEET NO. 16
NOT TO SCALE	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

ess group

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg

Note:
Typical details provided by Silver Run Electric, LLC.

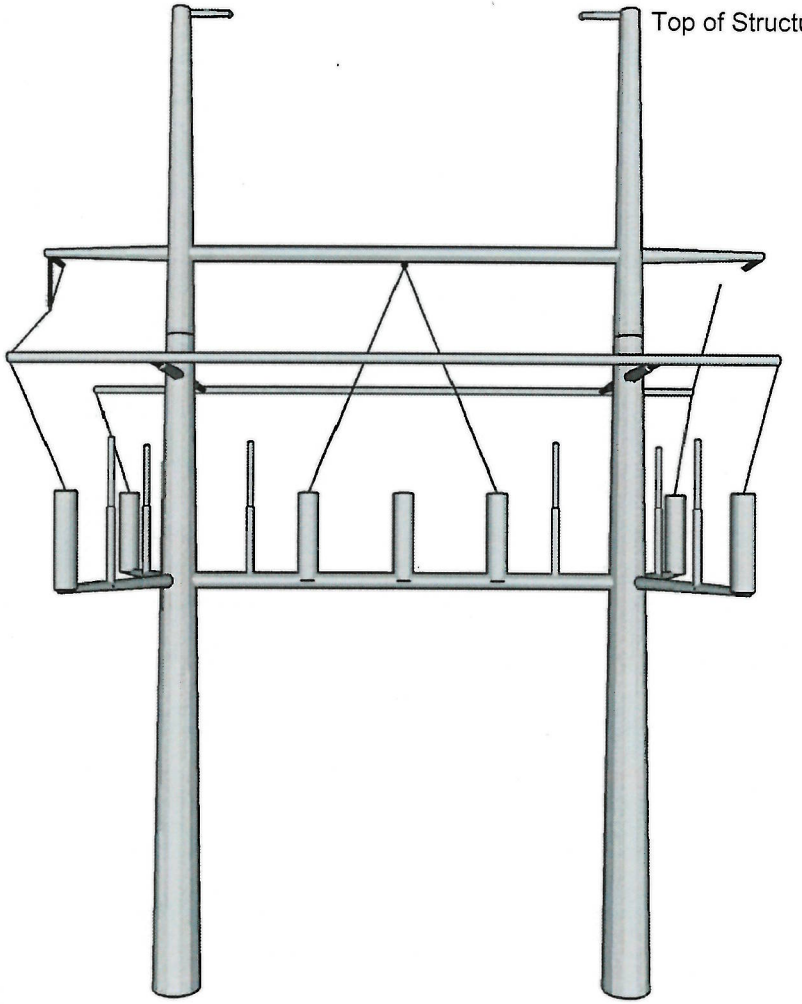


Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Typical H-Frame	SHEET NO. 17
NOT TO SCALE	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg

Note:
Typical details provided by Silver Run Electric, LLC.

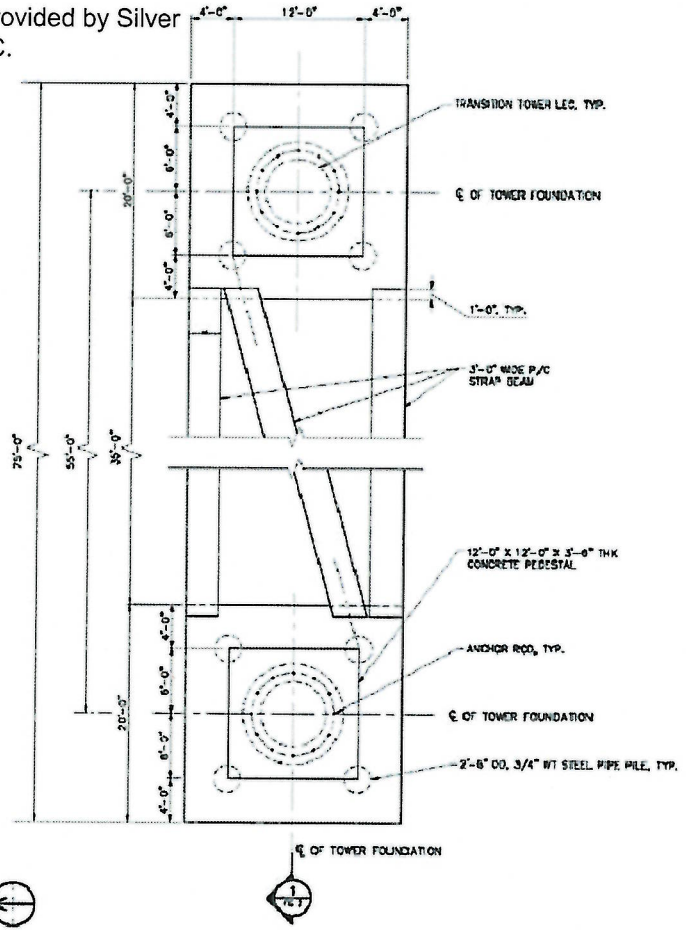
Top of Structure~ 130'-140' (NAVD88) In Water In DE
~ 110'-120' On Land In NJ



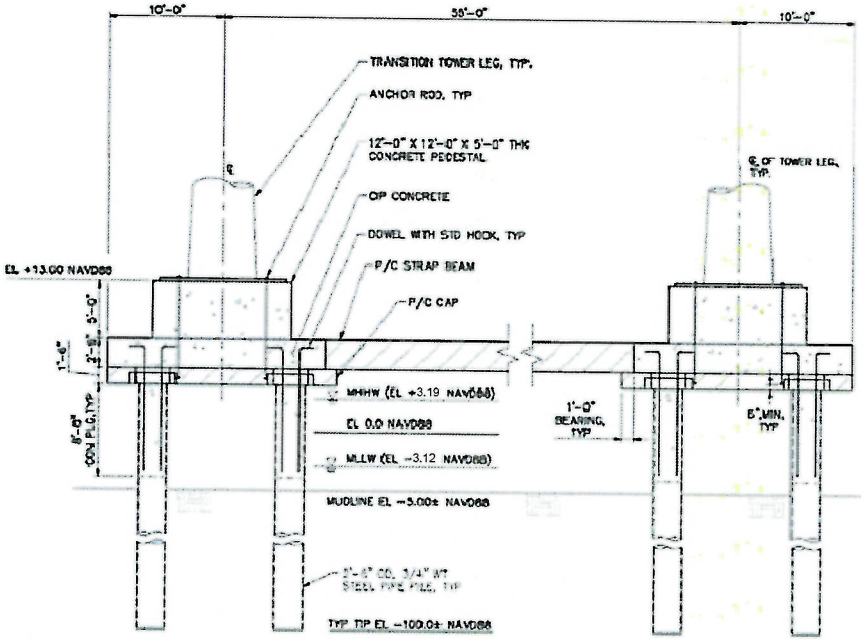
Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Typical Transition Structure	SHEET NO. 18
NOT TO SCALE	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg

Note:
Typical details provided by Silver Run Electric, LLC.



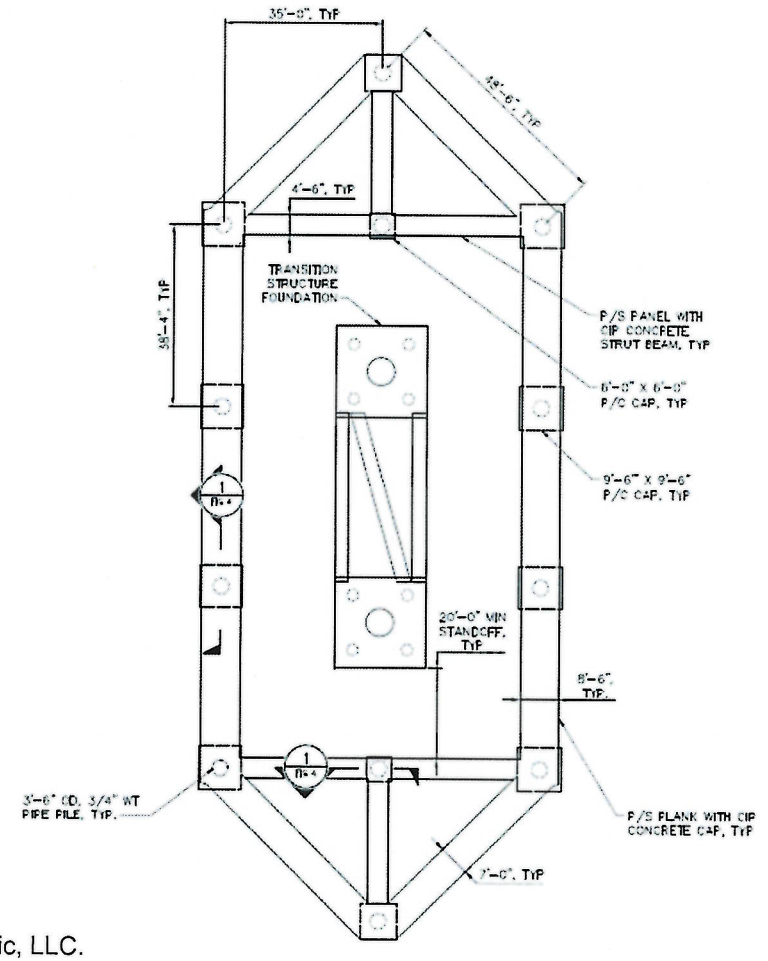
Foundation Plan



Foundation Section

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Typical Delaware Transition Structure Foundation	SHEET NO. 19
NOT TO SCALE	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

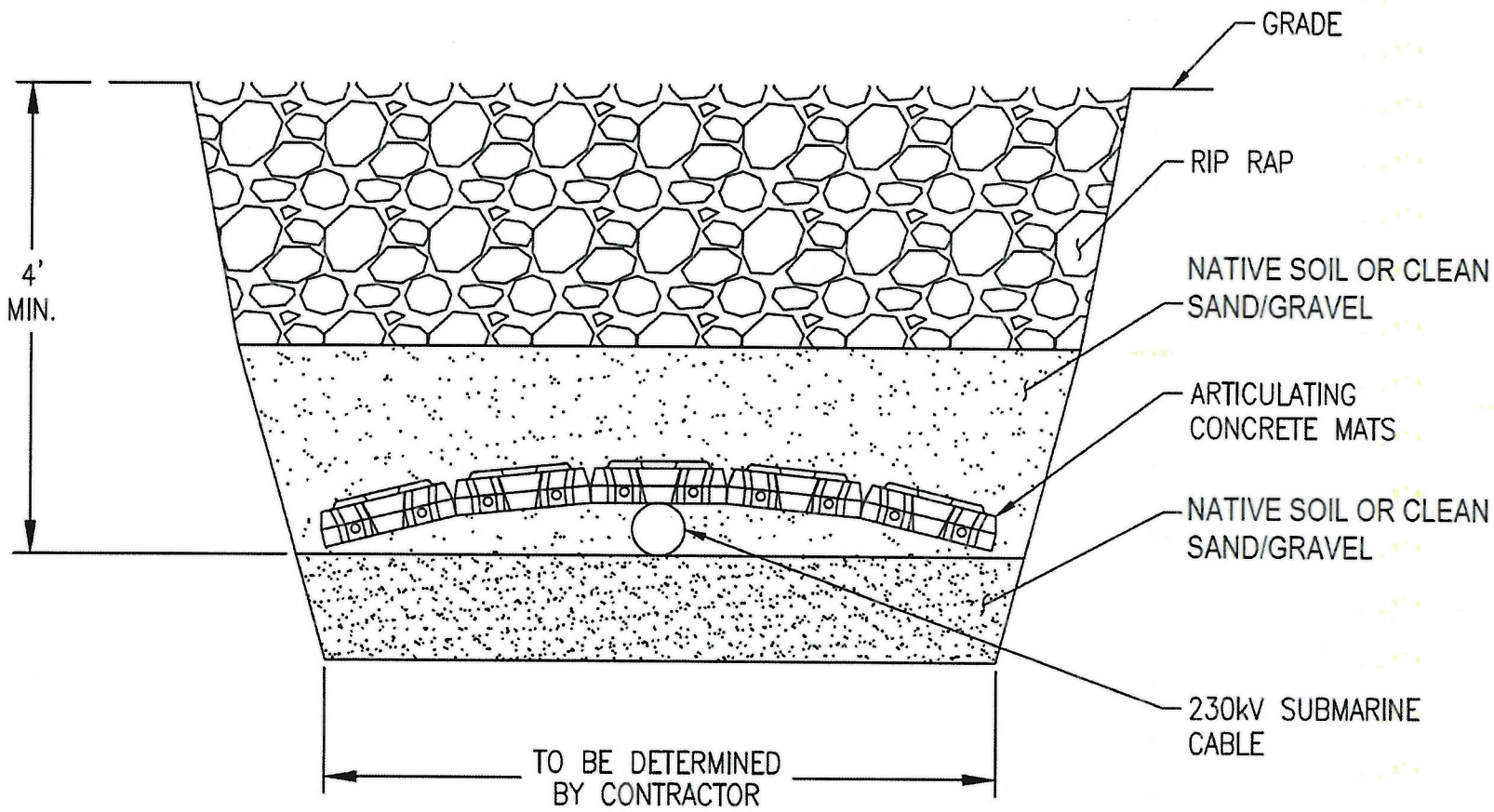
FILENAME: J:\S466-000 Silver Run Electric, LLC – Environmental Consulting Services_2015-1026\04 GRAPHICS\CAD\S466-USACE.dwg



Note:
Typical details provided by Silver Run Electric, LLC.

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Typical Vessel Allision Protection Structure Detail	SHEET NO. 20
NOT TO SCALE	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002

FILENAME: C:\Users\PNaik\appdata\local\temp\AcPublish_394160\S466-USACE.dwg



Note:
Typical details provided by Silver Run Electric, LLC.

Purpose: Construct, Operate, Maintain, and Own an Overhead and Submarine Electric Transmission Line	Silver Run Project Typical NJ Shore Landing Riprap and Mattressing Detail	SHEET NO. 21
NOT TO SCALE	At: Lower Alloways Creek Township, New Jersey and New Castle County, Delaware In: Delaware River, Over: Appoquinimink River Applicant: Silver Run Electric, LLC	DATE: January 2018
		PROJECT NO. S466-002