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October 5, 2022

Ms. Tanowa Troupe, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3797

Re: Case No. 22-549-EL-BGN
In the Matter of the Application of Oak Run Solar Project, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar Powered Electric Generation Facility in Madison County, Ohio.

Case No. 22-550-EL-BTX
In the Matter of the Application of Oak Run Solar Project, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Transmission Line in Madison County, Ohio.

Response to First Data Request from Staff of the Ohio Power Siting Board

Dear Ms. Troupe:

Attached please find Oak Run Solar Project, LLC's ("Applicant") Response to the First Data Request from the staff of the Ohio Power Siting Board ("OPSB Staff"). The Applicant provided this response to OPSB Staff on October 5, 2022.

We are available, at your convenience, to answer any questions you may have.

Respectfully submitted,

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CERTIFICATE OF SERVICE

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to these cases. In addition, the undersigned certifies that a copy of the foregoing document is also being served upon the persons below this 5th day of October, 2022.

/s/ Christine M.T. Pirik
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4881-2426-7573 v1 [88534-8]

BEFORE
THE OHIO POWER SITING BOARD

In the Matter of the Application of Oak Run Solar Project, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Madison County, Ohio.	)))))	Case No. 22-549-EL-BGN
In the Matter of the Application of Oak Run Solar Project, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Transmission Line in Madison County, Ohio.	))))	Case No. 22-550-EL-BTX

OAK RUN SOLAR PROJECT, LLC 'S
RESPONSE TO THE FIRST DATA REQUEST
FROM THE STAFF OF THE OHIO POWER SITING BOARD

On September 2, 2022, Oak Run Solar Project, LLC ("Applicant") filed an application ("Application") with the Ohio Power Siting Board ("OPSB") proposing to construct a solar-powered electric generation facility in Madison County, Ohio ("Project").

On September 21, 2022, the Staff of the OPSB ("OPSB Staff") provided the Applicant with OPSB Staff's First Data Request. Now comes the Applicant providing the following response to the First Data Request from the OPSB Staff.

Panels

1. Is the use of fixed tilt panels a possibility?

Response: No.

Grading

2. Approximately how many acres of the following will need to be graded?

a. All land
b. Agricultural land
c. Crop Land

Response: The topography of the proposed solar array area has relatively little slope and minimal grading is expected to construct the site. Some areas of the site will be graded to accommodate Project access roads, inverter pads, substation pads, battery energy storage system ("BESS") areas, and any stormwater management features incorporated into the final design.

a. All land: Approx. 500 acres (8.2% of total project area, or 11.3% of the proposed facility footprint)
b. Agricultural land: Approx. 500 acres (8.2% of total project area, or 11.3% of the proposed facility footprint)
c. Crop Land: Approx. 500 acres (8.2% of total project area, or 11.3% of the proposed facility footprint)

Wind velocity

3. Please provide the maximum value(s) of the three-second wind gust for which the facility would be designed.

Response: Wind design values for the 3-second gust will follow the ASCE 7-16 Risk I Category which is equal to 100 miles per hour ("mph") for the Project area. Sustained wind designs will be equivalent to 80 mph.

4. What different designs of trackers are yet under consideration and what would be the position(s) of their stow mode?

Response: A single-axis active tracker has been the base case design for this Project. Other tracker designs would include terrain following trackers, but still a single-axis active tracker. Stow would depend on the event in which a stow is required. For floods, stow would be 0 degrees. For hail, stow would be at -45 or 45 depending on the direction of hail. And for wind, stow can vary. Traditionally, stow would have been at 30 degrees with a small module, but with modules getting larger, this puts more pressure on the panel and

pile creating a large moment at the base of the pile. It will depend on the module selection, but it would range between 0 and 45 degrees depending on the event.

5. **Would the duties of the licensed structural engineer be limited to the review and approval of the structural drawings pertaining to the racking system?**

Response: No. The structural engineer could participate in several facets of structural design including substations, inverters, battery systems, and gen-tie structure foundations.

Geology

6. **Please provide Staff with an Unanticipated Discovery Plan which includes course(s) of action to be taken in the event previously unidentified subsurface hazards/features are encountered during construction (e.g., oil and gas well infrastructure, karst features, abandoned mines, contaminated soils, etc.)**

Response: A preliminary Unanticipated Discovery Plan ("Plan") for unidentified hazards/features is being prepared by Stantec. We expect to complete the Plan next week and will file the Plan with the OPSB by October 14.

7. **While reviewing the preliminary geotechnical report (Exhibit N) related to pile load testing (261,800 piles estimated for overall project), the Applicant provided a few pictures of the field testing arrangements. Staff noticed the top of the pile is just a few inches from the ground. In review of several other similar projects, the tops of the test piles are typically 3-4 feet from the ground surface which is consistent with the pile heights that would be used to mount the solar racking system. Please explain if there is any specific strategy behind testing piles driven to near ground level and discuss any potential differences in study outcomes that may be expected when comparing near ground pile tops vs 3-4 feet about ground pile tops.**

Response: Lateral load testing was performed with load application and deflection measurement at 6 inches above grade. Assumed failure criteria was 1/2 inch of deflection at 6 inches above grade. The primary purpose of lateral load testing is to establish appropriate LPILE soil parameters for use in design. Establishing the soil parameters is independent of the load application height or pile section properties. Loading test piles at alternate reveal (stick-up) heights does not benefit the process of soil parameter analysis, but rather only shows how the unsupported portion of the pile will bend with the addition

of a moment arm. Extensive analyses of alternate load heights of 6 inches, 48 inches and 72 inches (moment arm length) at varying lateral loads (1,000 to 8,000 pounds) and varying embedment depths (6 to 10 feet) are presented in detail for each designated capacity area on Figure Nos. 141 through 187, and summarized on Figure No. 142 of the Geotechnical Report, included as Exhibit N of the Oak Run Application.

8. **The Application indicates the gen-tie lines will be supported on 26 steel monopoles at 120 feet tall and spaced 800 feet apart. Exhibit N indicates these poles will be supported on drilled cast in place concrete pier foundations. Please provide staff with specifics (i.e. depth, width, etc.) including a cross section diagram of these proposed foundations.**

Response: Design has not been completed for the transmission line structures, however, several typical design sheets and example images of similar 230 kilovolt ("kV") monopole structures and 34.5 kV-230 kV substations are included as **Attachment 1** to this response.

9. **Exhibit N speaks to the potential use of lime or geogrid material for the purpose of stabilizing portions of the subgrade for 44 miles of access proposed. When comparing the two methods, is one favorable to the other when considering overall soil impact? e.g. would the introduction of lime impact the soil pH which could impact future agricultural activity?**

Response: The addition of lime will increase the soil pH to +12 and decrease the soil electrical resistivity. Since the lime treatment should be limited to access road alignments, it is not expected that the lime treated soil will impact adjacent soil areas more than a few feet laterally. Both methods are suitable for purposes of stabilization. The geogrid option may provide greater flexibility by reserving its use for portions of the alignment that develop instability during construction or that are anticipated to be exposed to increased traffic loads or frequency.

10. **What additional geotechnical investigation work is planned at this time? e.g. At this time, it doesn't appear borings have been conducted within the step- up substation footprint, along the proposed gen-tie corridor where the line leaves the sola array's east side and would connect at the step-up substation, and within the footprints of the 2 proposed interior substations and 2 BESS storage footprints.**

Response: Oak Run will be investigating the western area of the step-up and point of interconnection ("POI") substation where the Gen-tie leaves the Step-Up Substation this fall after crop harvest. Additional investigation of the two Project substations, two BESS substations, and Project transmission lines are planned for this fall as well. These investigations will include subsurface borings and soil data.

11. **Page 6 of Exhibit N speaks to corrosion and notes that corrosion potential to buried steel and concrete foundations is mostly negligible. However, the NRCS Web Soil Survey indicates the soils in the project area have a high potential to corrode buried steel. Please explain these discrepancies and discuss any corrosion mitigation efforts the Applicant may employ including consideration of procuring corrosion engineering expertise to help develop the project's final design.**

Response: Both our laboratory and in-situ electrical resistivity (ER) testing indicate corrosive potential (<5,000 ohm-cm) to steel. The other chemical tests indicate negligible to slight corrosion potential. The site, as noted in Exhibit N, should be considered corrosive to steel. This result puts it in the corrosive range and closer to the highly corrosive range. The other test results that were done in the lab, came back as negligible for corrosion, but the ER results still show this soil as corrosive. Based on the National Resources Conservation Service ("NRCS") description for corrosion risk is a sum of all these tests chemical and electrical. The mitigation that the Applicant would use to for corrosion potential on steel would be to galvanize or increase the steel thickness. The mitigation efforts for concrete would be to introduce an admixture into the concrete mix if cast in place or apply a coating to the outside of the concrete if pre-cast.

12. **During review of the soil boring logs provided in Exhibit N, the boring logs from within the proposed array footprint do not specify between topsoil and subsoil, but rather use a "tilled earth" designation. Staff understands this to be a mixture of topsoil and subsoil that mixed via the tilling process? The boring logs taken east of the proposed step-up substation do specify the thickness of the "topsoil" layer. Please explain why there is no "topsoil" thickness on the borings taking from the array field. In order to ensure topsoil can be segregated from subsoils as part of a project area grading plan, knowledge of reasonably precise depths of topsoil would necessary as part of the grading plan which would account for soil restoration both at the end of**

construction and at decommissioning. The test pit logs also do not specify topsoil but do provide a tilled earth thickness and provide an organic content percentage where 11/16 logs show an organic content percentage exceeding 5. It is Staff's understanding that a normal organic content of topsoil is approximately 5 percent.

Response: Any topsoil that was present at one time has been blended with the underlying native soils as part of normal agricultural processes. The designation of tilled earth defines this material as having been both disturbed and incorporated with organic matter. The tilled earth should be treated as if it were topsoil when determining required undercutting and segregation as described in Section 6.1 of the Geotechnical Report, included as Exhibit N of the Application.

13. **Page 7 of Exhibit-N addresses earthwork, subgrade preparation specifically. It includes the following table.**

Proposed Project Element	Tilled Earth (or any Topsoil) Earthwork Recommendation
1) Buildings or auxiliary structures supported on shallow foundations	Remove tilled earth from within structure footprint.
2) Site access, perimeter and interior maintenance roads	Remove tilled earth if organic matter content exceeds 5 percent. Otherwise, tilled earth can remain-in-place for support of roads.
3) General site fill (non-engineered) placed to raise site grades within solar panel array areas	Remove tilled earth if organic matter content exceeds 5 percent, or if proposed general fill placed exceeds 1 foot thick. Otherwise, tilled earth can remain-in-place for support of general fill.

For the soils that will be disturbed, does the Applicant anticipate these soils when restored post-construction and at decommissioning will contain the same organic content? Would this be measured and confirmed? i.e., If test pits were dug in the exact same locations after the earthwork, would the organic content be expected to be the same?

Response: The Applicant anticipates that disturbed soils, that will be restored post-construction and at decommissioning, will contain the same organic content or more as compared to current conditions. During the operational phase of the Project, when the land is left to rest and recover under permanent vegetative cover as opposed to the current row-crop agriculture, organic content will remain consistent or increase. Standard tillage practices for row-crop agriculture, as it's currently being used, aerate the soil, triggering increased biological activity, resulting in rapid decomposition, loss of soil organic matter

and release of CO2 into the atmosphere. Vegetation planted and maintained onsite during operations as highlighted in the Vegetation Management Plan would be comparable to land enrolled in the Natural Resource Conservation Service ("NRCS") Conservation Reserve Program ("CRP") which includes cropland that has been taken out of cultivation and put into long-term grass cover. In a January 2007 study of lands enrolled in the CRP program completed by the Food and Agricultural Policy Research Institute ("FAPRI") at the University of Missouri College of Agriculture, Food and Natural Resources (FAPRI-UMC Report #01-07[1]), researchers found that among many other benefits, soil carbon levels in CRP land in the Corn Belt (which includes Ohio) are predicted to increase 5 to 10 percent over 10 years under CRP conservation cover. As the life of the Project is 30 years or more, soil organic carbon percentages could increase even more than those documented in the study, resulting in more organic content than currently is present.

Respectfully submitted,

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[1] FAPRI-UMC. 2007. Estimating Water Quality, Air Quality, and Soil Carbon Benefits of the Conservation Reserve Program - Report #01-07. Available online at: https://www.fsa.usda.gov/Internet/FSA_File/606586_hr.pdf

Oak Run Solar Project, LLC
Case No. 22-549-EL-BGN
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Attachment 1
Monopole Structure Examples

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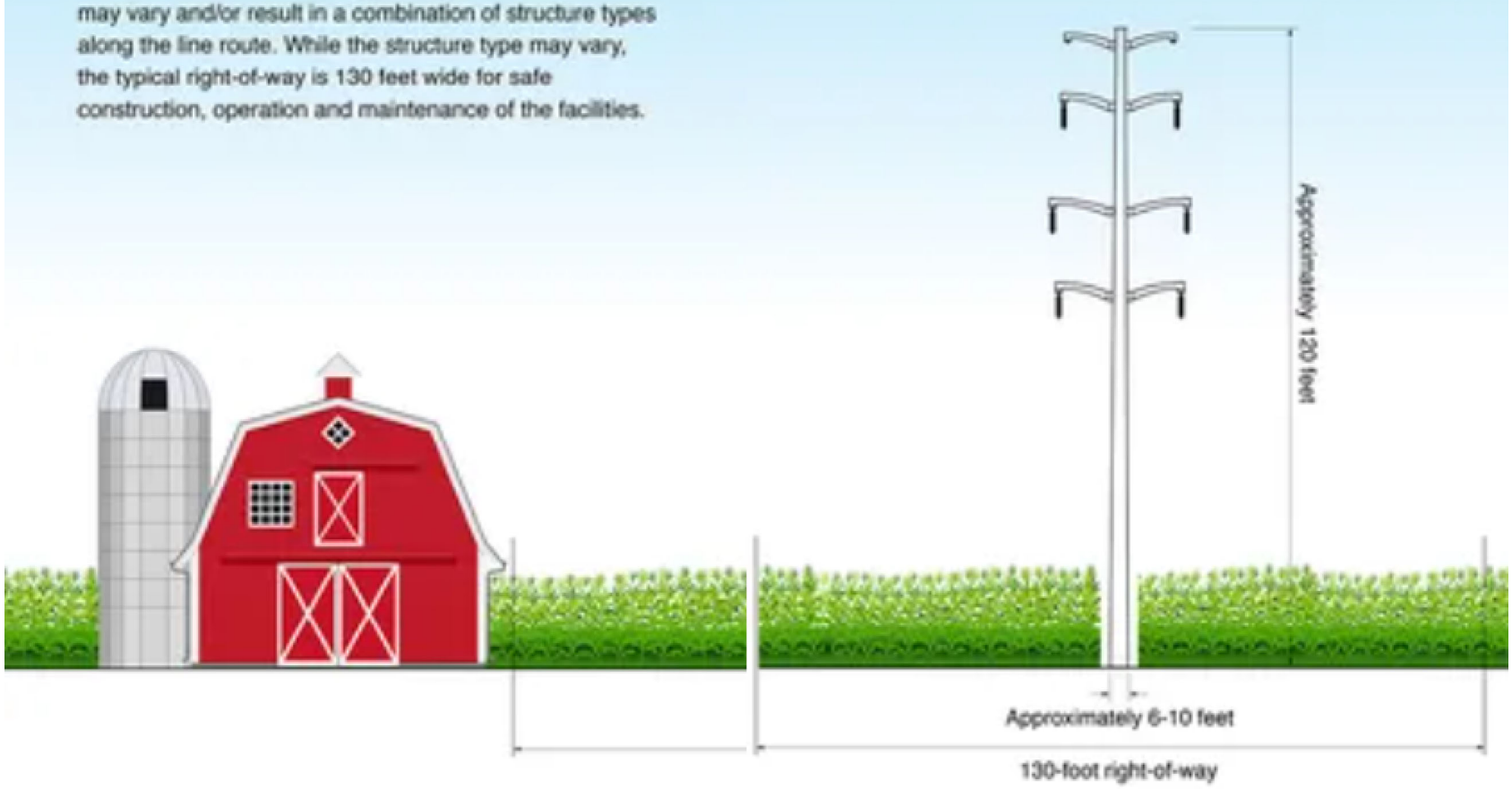
PROPOSED STRUCTURES

Structures under consideration

The rendering depicts a typical 230 kV double-circuit lattice tower and a typical 230 kV double-circuit steel monopole. Actual structure type, height and base width may vary and/or result in a combination of structure types along the line route. While the structure type may vary, the typical right-of-way is 130 feet wide for safe construction, operation and maintenance of the facilities.

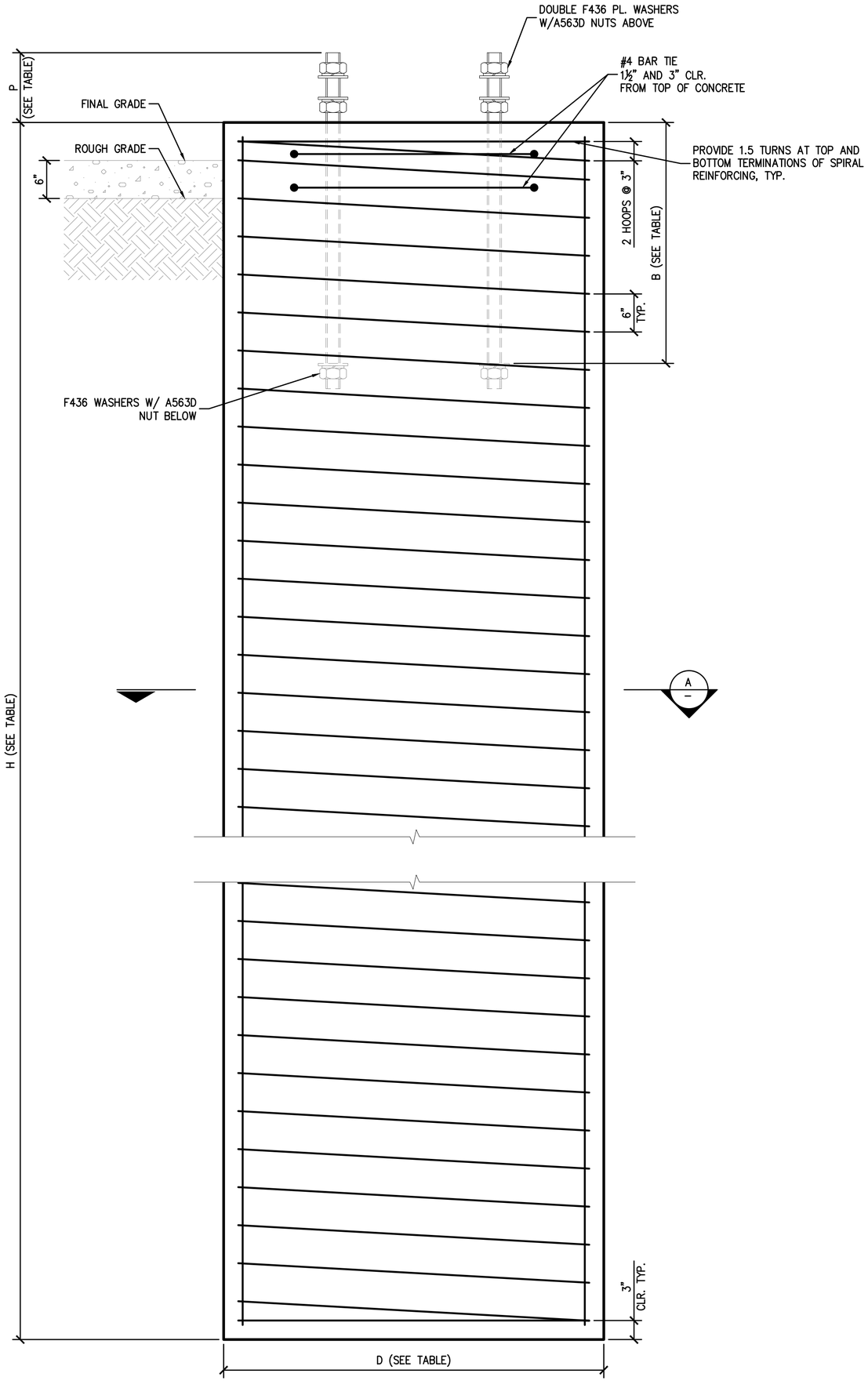


GENERAL NOTES

1. REFER TO FOUNDATION SCHEDULE ON SHEET PF–110 FOR FINISH TOP OF CONCRETE ELEVATIONS FOR FOUNDATION STRUCTURE.

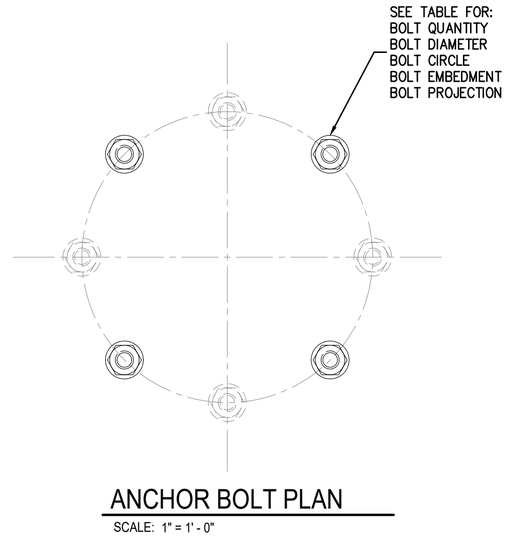
USE THIS ROW.

NAME	FOUNDATION MARK	FOUNDATION DIAMETER "D"	FOUNDATION DEPTH "H"	LONGITUDINAL REBAR	BOLT DIAMETER	BOLT CIRCLE	BOLT EMBEDMENT "B"	ANCHOR BOLT PROJECTION "P"
HV DEADEND	01	6'–0"	27'–0"	28 – #14	(12) 2¼"	50.00"	120"	12"
HV DISCONNECT SWITCH	02	3'–0"	9'–0"	8 – #8	(4) 1"	17.00"	25"	5"
HV LOW BUS SUPPORT	03	3'–0"	9'–0"	8 – #8	(4) 1"	17.00"	25"	5"
HV CORNER BUS SUPPORT	04	3'–0"	9'–0"	8 – #8	(4) 1"	17.00"	25"	5"
HV HIGH BUS SUPPORT	05	3'–0"	9'–0"	8 – #8	(4) 1"	19.80"	25"	5"
LV FEEDER BAY	06	3'–0"	10'–0"	8 – #8	(4) 1"	19.80"	25"	5"
LV CABLE TERMINATION	07	3'–0"	9'–0"	8 – #8	(4) 1"	17.00"	25"	5"
LV BUS SUPPORT	08	3'–0"	9'–0"	8 – #8	(4) 1"	17.00"	25"	5"
LV DISCONNECT SWITCH	09	3'–0"	10'–0"	8 – #8	(4) 1"	19.80"	25"	5"
LV DISCONNECT SWITCH W/ SS XFMR	10	3'–0"	9'–0"	8 – #8	(4) 1"	17.00"	25"	5"
STATIC MAST	11	4'–0"	15'–0"	20 – #9	(4) 1¼"	27.50"	69"	9"
CAPSWITCHER	12	4'–0"	12'–0"	20 – #9	(4) 1"	28.28"	28"	5"



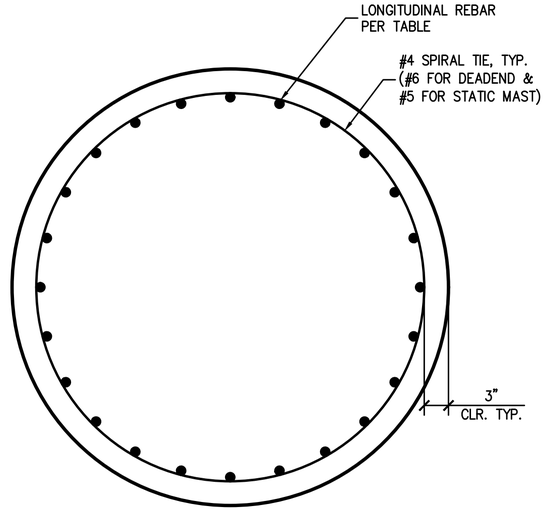
TYPICAL PIER FOUNDATION

SCALE: 1" = 1' - 0"



ANCHOR BOLT PLAN

SCALE: 1" = 1' - 0"



A – SECTION

SCALE: 1" = 1' - 0"