

Attachment N. Alternative Layout Impact Calculations

The Alternative Layout, as discussed in Section 3 of the Supplement to the Application, adds an additional parcel adjacent to the Project Area that will be developed for this Project. Wildlife habitat on the new Project parcel was assessed using cover type mapping and aerial imagery and an assessment of habitat types on site will be more thoroughly evaluated as part of future wetland delineations and field studies to be performed when seasonally appropriate.

General Project Information and Updates

	Alternative Layout	Initial Application
Project Area	1,425 acres	1,221 acres
Study Area	19,162 acres	19,141 acres
Limits of Disturbance	693.55 acres	595.06 acres
Area inside Project fence line	582 acres	479 acres
Access Roads	7.21 miles	6.56 miles
Total Collection Line	8.68 miles	7.86 miles
Underground Collection Line	45,818 feet	40,885 feet
Collection Substation	0.85 acres	0.85 acres
Interconnection	Approximately 500-foot line	Approximately 500-foot line

Additional Project specific impact calculations are included in text and table format below with reference to the original Proposed Layout that was included in the Application.

Land Use (Exhibit 4)

Of the overall 1,425-acre Project Area assessed, only approximately 460.1 acres (41 percent) will be physically occupied by Project Components within a fenced area of approximately 582 acres to generate 90 MW of renewable energy (Exhibit 4(i)).

Additionally, although the Project is sited within mapped Agricultural Districts, the Facility will only occupy 0.33% of all lands designated as Agricultural Districts within Montgomery County and 2.3% of all lands designated as Agricultural Districts within the Town of Florida (Exhibit 4(a)(1)). Finally, within the Project Area, only 6.8 percent of land to be disturbed by construction and/or operation of the Project is classified as Prime Farmland (Exhibit 4 Introduction).

Table 4-1 below includes the temporary and permanent impacts to soil.

Updated Table 4-1. Alternative Layout Impacts to Agricultural Districts and Prime Farmland (Exhibit 4(a)(1))

County	Agricultural District	Temporary Soil Impact	Soil Impact for Project Service Life	Percentage of Impact on Prime Farmland Within County
Montgomery	District 3	110.14 acres	424.29 acres	0.08%

Updated Table 4-2. Land Use Classification Codes within the Study Area (Exhibit 4(a)(1))

Land Use Classification Code	Acreage within Study Area	Percentage of Study Area (%)
Agricultural (100)	7,679.1	40.07
Residential (200)	5,413.0	28.25
Vacant Land (300)	2,544.4	13.28
Commercial (400)	300.7	1.57
Recreation and Entertainment (500)	54.3	0.28
Community Services (600)	331.5	1.73
Industrial (700)	657.0	3.43
Public Services (800)	417.3	2.18
Wild, Forested, Conservation Lands and Public Parks (900)	447.1	2.33
Roads/Non-Parcel Areas	1,318.0	6.88

Note: Land use calculations were derived from parcel boundary data obtained from the Applicant's land agent (CanACRE) in combination with land use classification data from the NYSORPS parcel boundary data. Any discrepancies among the two sources was resolved using data from the Montgomery County Assessment Information website.

Updated Table 4-4. Impacts to Land Use Types (Exhibit 4(i))

Land Use Type	Components Facility Area (acres)	Access Roads (acres)	Collection Lines (miles)	Substation (acres)
Agricultural	459.18	14.57	7.34	1.23
Roads	0.92	0.29	1.34	N/A
Total	460.1	14.86	8.68	1.23

Other Project Components on Agricultural Land include 98.05 percent of the access roads, and 84.6 percent of collection lines. Collection lines sited within Agricultural Land will be located underground (Exhibit 4(i)).

The total fenced-in area of Project Components to be located on agricultural land (582-acres) represents only 7.6 percent of all land identified as agriculture land by the NYSORPS within the two-mile Study Area (7,679 acres). This includes 0.5-percent of all land identified as agriculture land by NYSORPS within Montgomery County (118,064 acres). A total of 14.57 acres of access roads are proposed on land designated as Agricultural Land by NYSORPS (Exhibit 4(i)).

Approximately 7.34 miles of collection lines are sited within land designated as Agricultural Land and 1.34 miles overlapping roadways (Exhibit 4(k)).

Within the Project Area, the Limits of Disturbance include approximately 6.8 percent of land classified as Prime Farmland, 63.0 percent as Prime Farmland if Drained, 22.5 percent as Farmland of Statewide Importance, and 7.7 percent as Not Prime Farmland. Although the solar panels will cover 406.4 acres of agricultural land, only 0.34 acres of ground disturbance will occur on these lands. Ground disturbance associated with the solar panels is limited to installation of posts for racking systems (Exhibit 4(x)).

Of the 695 acres of disturbance, 47.03 acres will occur on land classified as Prime Farmland which is only 1.2-percent of all Prime Farmland within the Town of Florida (Exhibit 4(v)).

The Project Area for the High River Energy Center is 1,425 acres. Approximately 406.4 acres of the proposed buildable acres will be covered by solar panels and the fenced-in area of the Project will be 582 acres (Exhibit 4(z)).

Impacts to land uses due to the Updated Proposed Layout are similar to those presented in the proposed layout in the Application, with a small increase to affected agricultural land as the additional parcel is primarily agricultural. However, there is a very marginal increase to the ground disturbance that will occur on agricultural land.

Slopes, soil types, and percentages (Exhibit 21)

Updated Table 21-5. Summary of Soil Types (Exhibit 21(q))

Map Unit Symbol	Map Unit Name	Slope (%)	Acres within Project Area
ApB	Appleton silt loam	3-8	22.2%
BuB	Burdett channery silt	3-8	0.6%
CFL	Cut and fill land	N/A	0.1%
ChA	Churchville silty clay loam	0-3	0.2%
DaA	Darien silt loam	0-3	2.7%
DaB	Darien silt loam	3-8	27.8%
DaC	Darien silt loam	8-15	0.1%
FBD	Farmington Rock outcrop association	N/A	<0.01%
FL	Fluvaquents, loamy	0-2	3.3%
IIA	Ilion silt loam	0-3	4.3%
IIB	Ilion silt loam	3-8	0.8%
LaB	Lansing silt loam	3-8	4.7%
LaC	Lansing silt loam	8-15	14.4%
LaD	Lansing silt loam	15-25	1.3%
LMF	Lansing and Mohawk soils	25-60	8.4%
Ma	Madalin silty clay loam	0-3	1.4%
NuB	Nunda channery silt	3-8	0.1%
NuC	Nunda channery silt	8-15	0.1%
PaB	Palatine silt loam	3-8	1.5%
PaC	Palatine silt loam	8-15	1.2%
PaD	Palatine silt loam	15-25	4.5%

Updated Table 21-5. Summary of Soil Types (Exhibit 21(q))

Map Unit Symbol	Map Unit Name	Slope (%)	Acres within Project Area
W	Water	N/A	0.2%
WaB	Wassaic silt loam	3-8	0.2%

The limit of disturbance (LOD) for the Project is approximately 694 acres. Based on the assumptions outlined in Table 22-2 (included below), approximately 16.43 acres will be permanent impacts where soils are converted to access roads, array foundations (posts), and structures, while the remaining will be restored and stabilized following the completion of construction.

Ecology (Exhibit 22)

As discussed in Exhibit 22 and updated with the Alternative Layout, 14.76 of the 16.06 acres (92 percent) of wildlife habitat permanently lost as a result of the Project reside in active agricultural areas which already provide limited perpetual wildlife habitat due to the regular disturbances and anthropogenic pressures of active farming practices (Exhibit 22(f)(4)).

**Updated Table 22-1. Land Cover Types within the Project Area
(Exhibit 22(a))**

Cover Type	Acreage	Percent of Project Area
Active Agriculture	1085.5	76.2
Disturbed Developed	34.9	2.5
Forestland	252.3	17.7
Open Water	2.1	0.2
Successional Old Field	8.4	0.6
Successional Shrubland	42.1	3.0
Total	1,425.3	100.0

Wetlands represent 50.8 acres, or 3.6 percent, of the Project Area, according to TRC's wetland delineation.

The Limit of Disturbance for the Project is approximately 690 acres, within the Project Area, which represents approximately 48.4 percent of the Project Area.

Updated Table 22-1. Impact Assumptions¹ (Exhibit 22(b)(1))

Project Components	Vegetative Clearing Area (acres)	Soil Disturbance Area (acres)	Area of Permanent Impact (acres)
Solar Panel Installations	406.41	16.79	0
Access Roads	26.15	26.15	14.69
Collection Lines	5.26	5.26	0
Collection Substation/Switchyard/ Inverters	1.74	1.74	1.4
Laydown Areas	35.38	35.38	0
Fence	1.82	1.82	0
¹ The Alternative Layout is a preliminary layout that does not include impacts due to grading as grading has not yet been finalized for this layout.			

Construction of the Project will result in a temporary disturbance of approximately 35 acres of vegetation associated with hayfields and pastures. A total of approximately 457.5 acres of agricultural land will be employed for Project Components for the useful life of the Project (Exhibit 22(b)).

The construction of the Project will also result in the temporary disturbance of approximately 0.01 acre of successional shrubland communities, 0.02 acre of successional old-field communities, and 0.6 acres of developed land communities. Permanent loss will occur to approximately 0.17 acre of successional shrubland communities and 0.03 acre of developed land communities. Permanent loss of these cover types will occur from the siting of Project components (see Table 22-3, below) (Exhibit 22(b)(1)).

Updated Table 22-3. Vegetation Impact Calculations (Exhibit 22(b)(1))

Cover Type/Habitat	Temporary Impact (Acres)	Permanent Loss (Acres)	Conversion (Acres)
Forestland	0.00	1.06	47.84
Successional Shrubland	0.02	0.24	4.06
Successional Old Field	0.0003	0.00	0.02
Open Water	0	0	0
Agricultural Land	35.22	14.76 (Useful Life of Project Only)	535.5 (Useful Life of Project Only)
Developed Land	0.56	0.03	0.38
Total	35.8	16.09	568.52

Updated Table 22-4. Summary Impact Table (Exhibit 22(c)(3))

Project Components	Agricultural Land			Successional Old Field			Successional Scrubland			Forestland		
	Temporary Impacts (acres)	Permanent Loss (acres)	Conversion (acres)	Temporary Impacts (acres)	Permanent Loss (acres)	Conversion (acres)	Temporary Impacts (acres)	Permanent Loss (acres)	Conversion (acres)	Temporary Impacts (acres)	Permanent Loss (acres)	Conversion (acres)
Solar Panel Installations	0	0	392.09	0.0	0	0	-	0	2.11	0	0	12.12 (0 acres of interior forest) ¹
Access Roads	0	13.36	-	0	0	0	0	0.24	-	0	1.06	- (0 acres of interior forest)
Collection Lines	4.26	0	0	0.0003	0	0	0.05	0	0	0	0	0.38 (0 acres of interior forest)
Collection Substation/ Switchyard/ Inverters	0	1.39	-	0	0	0	0	0.0	0	0	0.006 (0 acres of interior forest)	0
Staging/ Laydown Area	35.38	0	-	0	0	0	0	0	0	0	0	0
Fence	0	0	1.51	0	0.003	0	0	0.04	0	0	0.26 (0 acres of interior forest)	0

Note: Project Components may overlap, therefore the values in this table overestimate the impacts to each community type. The Alternative Layout is a preliminary layout that does not include impacts due to grading as grading has not yet been finalized for this layout.

1. Additional forestland conversion will occur outside of Project Components, to prevent shading.

Approximately 35 acres of wildlife habitat will be temporarily impacted during construction of the Project. However, only approximately 16.06 acres of potential wildlife habitat will be permanently lost due to the placement of Project components. Moreover, 14.76 of the 16.06 acres of potential wildlife habitat permanently impacted, along with all 35.22 acres temporarily impacted, are currently active agricultural areas that are regularly disturbed and which provide limited perpetual habitat for wildlife due to these regular disturbances and anthropogenic pressures of active farming practices (Exhibit 22(f)(4)).

Specifically, it is anticipated that approximately 0.02 acres of successional scrubland, 0.0003 acre of successional old fields, and 35.22 acres of active agricultural lands will be temporarily disturbed during construction. No temporary disturbance will occur within forestland. Concurrently, approximately 1.06 acres of forestland, 0.24 acres of successional scrubland, and 14.76 acres of active agricultural lands will be permanently impacted due to the Project (Exhibit 22(f)(4)).

Updated Table 22-10. Impacts to Wildlife Habitat (Exhibit 22(f)(8))

Wildlife Habitat	Conversion (acres)	Temporary Impacts (acres)	Permanent Impacts (acres)	Total Impact (acres)
Agricultural Land	535.5	35.22	14.76	585.48
Successional Old Field	0.02	0.0003	0	0.02
Successional Shrubland	4.06	0.02	0.24	4.32
Forestland	47.84	0	1.06	49.9
Total	568.14	35.2403	16.06	619.44

A direct and permanent loss of approximately 16.06 acres of wildlife habitat will occur as a result of the Project. Total habitat loss represents 1.13 percent of the total 1,425 acres included in the Project Area. Of this percentage, approximately 6.6 percent of the loss is to forestland, 1.5 percent is to successional shrublands, while the vast majority, 91.9 percent, is to active agriculture. Approximately 28.56 acres of forest land will also be converted into successional communities (Exhibit 22(f)(9)).

Forested area comprises approximately 17.7 percent of land cover within the Project Area. Forestland within the Project Area has been previously cleared for agriculture, resulting in small, non-contiguous fragments (Exhibit 22(f)(9)).

Components (access roads, collection lines, and laydown areas) associated with the Project may remove up to 29.62 forested acres, reducing the amount of forest land from 252.3 to 222.68 acres within the Project Area. This would be a relatively minor reduction, amounting to a loss of 12 percent of forestland within the Project Area (Exhibit 22(f)(9)).

Impacts to wildlife habitat and vegetative communities are similar to those presented in the Application. Total acreage of impacts to wildlife habitat has increased for forest conversion but has decreased for agricultural land impacts.

Wetlands and Streams

Updated Table 22-11. Temporary and Permanent Wetland Impacts (Exhibit 22(m))

Wetland ID	Cover Class	NYSDEC Wetland ID	Preliminary Design Drawing Page	Temporary Impact (square feet)	Permanent Loss (square feet)	Permanent Conversion	Temporary 100-ft Adjacent Area Impact	Permanent 100-ft Adjacent Area Impact	Impact Type
W-WSB-03	PSS	-	N/A	4103	0	-	-	-	Laydown Area, Fence, Array
AW-JJB-02 ¹	N/A	-	N/A	164	-	-	-	-	Fence
AW-JJB-03 ¹	N/A	-	N/A	-	716	-	-	-	Access Road, Array
¹ Wetlands have been approximated using desktop analysis and wetland delineations will be completed when seasonally appropriate. Additional information regarding cover class will be determined at that time.									

The wetland impacts shown represent a decrease in overall impacts. These impact calculations will be further refined once delineations have been completed as seasonally appropriate.

Updated Table 23-3. Impacts to Streams (Exhibit 23(b)(4))

Field ID	Flow Regime ¹	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component	Method of Crossing
S-AJF-01	RIN	189.61	USACE	-	0.00	0.00	-	-
S-AJF-02	REPH	243.84	USACE	-	0.00	0.00	-	-
S-AJF-03	RIN	180.50	USACE	C	0.00	0.00	-	-
S-AJF-04	RIN	1,053.57	USACE	C	0.00	0.00	-	-
S-AJF-05	RUP	2696.03	USACE	C	0.00	0.00	-	-
S-AJF-06	RIN	653.66	USACE	-	0.00	0.00	-	-
S-AJF-07	RUP	7261.31	USACE	C	0.20	16.94	Access road, and fence; Collector line	Culvert; trenching (collector line); span (array)
S-ARS-01	REPH	454.51	USACE	-	0.00	0.00	-	-
S-ARS-02	RUP	1383.30	USACE	C	0.00	0.00	-	-
S-ARS-03	REPH	448.04	USACE	-	0.00	0.00	-	-
S-ARS-04	RUP	308.11	USACE	C	0.00	0.00	-	-
S-ARS-05	REPH	582.65	USACE	C	0.00	0.00	-	-
S-ARS-06	REPH	320.39	None	-	0.00	0.00	-	-
S-ARS-07	REPH	1,120.43	-	-	2.5	0.00	Fence	Culvert; span (fence and array)
S-ARS-08	REPH	358.90	None	-	0.00	0.00	-	-

Updated Table 23-3. Impacts to Streams (Exhibit 23(b)(4))

Field ID	Flow Regime ¹	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component	Method of Crossing
S-ARS-09	REPH	3,048.04	USACE	C	5.10	17.53	Access road, Collector line	Culvert; trenching (collector line)
S-ARS-10	REPH	854.96	USACE	C	5.76	0.00	Collector line	HDD ²
S-ARS-11	REPH	197.77	USACE	-	0.00	0.00	-	-
S-ARS-12	RIN/RUP	5242.13	USACE	-	0.00	0.00	-	-
S-ARS-13	REPH	338.70	USACE	-	0.00	0.00	Array	Span
S-ARS-14	REPH	588.70	USACE	-	0.00	0.00	-	-
S-ARS-15	RIN	5789.21	USACE	C	0	0		
S-ARS-16	RIN	185.97	USACE	-	0.00	0.00	-	-
S-BS-09-P	UNK ³	65.27	USACE	C	5.04	0.00	Collector line	Existing road crossing
S-DJL-01	RUP	2,291.10	USACE	-	0.00	0.00	-	-
S-DJL-02	RIN	305.92	USACE	-	0.00	0.00	-	-
S-JJB-01	RIN	2,072.26	USACE	-	2.18	16.58	Access road, array, and fence	Stone fill (access road); Span (array and fence)

Updated Table 23-3. Impacts to Streams (Exhibit 23(b)(4))

Field ID	Flow Regime ¹	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component	Method of Crossing
S-JJB-03	RIN	828.55	USACE	-	-	24.77	Access road,	Stone fill (access road); Trenching (collector line)
S-JJB-04	REPH	234.69	USACE	-	0.00	0.00	-	-
S-JJB-05	RIN	1,000.23	USACE	-	1.02	16.03	Access road, fence	Culvert
AS-JJB-16	UNK ³	0 ³	USACE	C	0.00	0.00	Collector line	Existing road crossing
S-WSB-01	RIN/RUP	3551.85	USACE	C	0.00	0.00	-	-
S-WSB-02	REPH	287.10	USACE	-	1.46	0.00	Fence	Span
S-WSB-03	RUP	1254.37	USACE	C	0.00	0.00	-	-
S-WSB-04	RIN	97.24	USACE	-	0.00	0.00	-	-
S-WSB-05	REPH	107.18	USACE	-	0.00	0.00	-	-
S-WSB-06	RIN	710.39	USACE	-	281.3	0.00	Laydown area, fence	Matting (laydown area); span (fence and array)
S-WSB-07	RUP	3,483.91	USACE	-	0.00	0.00	-	-
S-WSB-09	REPH	391.73	USACE	-	0.00	0.00	-	-
S-WSB-10	RIN	206.87	USACE	-	0.00	0.00	-	-

Updated Table 23-3. Impacts to Streams (Exhibit 23(b)(4))

Field ID	Flow Regime ¹	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component	Method of Crossing
S-WSB-11	REPH	72.03	USACE	-	0.00	0.00	-	-
S-WSB-12	REPH	148.57	USACE	-	0.00	0.00	-	-
S-WSB-13	REPH	395.56	USACE	-	0.00	0.00	-	-
S-WSB-14	RIN	2,447.15	USACE	-	1.01	22.98	Access road, fence	Culvert; span (fence and array)
S-WSB-15	RIN	80.50	USACE	-	0.00	0.00	-	-
S-WSB-16	RIN	27.49	USACE	-	0.00	0.00	-	-
S-WSB-17	RIN	387.89	USACE	-	0.00	0.00	-	-
S-WSB-18	RIN	190.95	USACE	-	0.00	0.00	-	-
S-WSB-19	REPH	287.15	USACE	-	0.00	0.00	-	-
S-WSB-20	REPH	205.29	USACE	-	0.00	0.00	-	-
S-WSB-21	REPH	352.15	USACE	-	0.00	0.00	-	-
AS-JJB-01	UNK	376.74	USACE	-	0.00	0.00	-	-
AS-JJB-02	UNK	739.36	USACE	-	0.00	16.59	Access road	Undetermined at this time
AS-JJB-03	UNK	488.56	USACE	-	0.00	32.62	Access road	Undetermined at this time
AS-JJB-04	UNK	611.77	USACE	-	0.00	0.00	-	-
AS-JJB-05	UNK	757.43	USACE	-	0.00	0.00	-	-

Updated Table 23-3. Impacts to Streams (Exhibit 23(b)(4))

Field ID	Flow Regime¹	Linear Feet within Project Area	Potential Jurisdiction	NYSDEC Classification	Temporary Impact (Linear Feet)	Permanent Impact (Linear Feet)	Project Component	Method of Crossing
S-BS-04-Predicted	UNK	62.15	USACE	-	0.00	0.00	-	-
S-BS-06-Predicted	UNK	639.18	USACE	-	0.00	0.00	-	-
1. Flow Regime: REPH – Ephemeral, RIN – Intermittent, RUP – Perennial, UNK - Unknown 2. HDD – Horizontal Directional Drilling 3. Stream located outside of Project Area, but within route of collection line								

The stream impacts shown represent a decrease in overall impacts (approximately 143 linear feet). These impact calculations will be further refined once delineations have been completed as seasonally appropriate.