Preliminary Plan Narrative and Supporting Material

GDIM 1-9 : Iron Mine Hill Road Solar

Assessor's Plat 12 Lots 136B and 137; Plat 13 Lots 12 and 51; Plat 16 Lots 6 and 97; and Plat 17 Lot 175

Located in North Smithfield, Rhode Island

Applicant: GDIM 1-9, LLC (9 entities)

3760 Quaker Lane, North Kingstown, RI 02852

November 5, 2019
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1. Executive Summary

Green Development, LLC (Green) has coordinated with the project team to prepare this Preliminary Plan Narrative and Supporting Material for review and comments. We have made every effort to address all applicable regulations of the Town of North Smithfield, the Preliminary Plan Checklist, and the ordinance and overlay district guiding solar development.

GDIM 1-9 Iron Mine Hill Road solar is a solar development comprised of nine solar arrays with separate interconnections to National Grid on contiguous lots under various ownership(Sites). The project is located within the designated solar overlay district established by the North Smithfield Town Council in May 2018. The project received Master Plan approval on December 6, 2018. The projects are located north of Iron Mine Hill Road and bounded by existing utility transmission corridors to the north, west, and east. Sayles Hill Road is located beyond the utility corridor on the eastern portion of the Site. The proposed development has been designed using the following criteria:

1. Maximize the proposed solar facility within the overlay district to maximize the financial benefit to the Town and at the same time provide grassland and pollinator habitat areas and shrub habitat to promote wildlife benefits.
2. Utilize the site and overlay district proximity to the National Grid infrastructure and existing substations in this area to minimize offsite improvements.
3. Maximize natural buffering from adjacent properties and the development area.
4. Preserve the wetland areas located on site.
5. Provide a natural buffer to abutting homes.

The proposal for GDIM 1-9 has been designed to be consistent with the guidelines established in the zoning ordinance section 5.7 Solar Photovoltaic System Installation as applicable and the Solar Photovoltaic Overlay District. GDIM 1-9 is proposed in upland areas outside of RIDEM wetlands, perimeter wetlands, and riverbank wetlands. The solar projects 1-9 are located over 800’ from the nearest existing residence on an abutting property. Development of this plan has included a design team of professionals in the fields of engineering, surveying, land planning, environmental science, and wetlands biology, electrical engineers, attorney, etc.
This narrative is intended to accompany the submitted plan set and to explain the evolution of the design, technical parameters of the Site, and provide additional data not included on the plans. It also illustrates what the designers and the applicant believes are key features and amenities of the plan.

2. Location

GDIM 1-9 is located within parcels totaling approximately 407 acres and is located on the Town of North Smithfield Assessor’s Plat Assessor’s Plat 12 Lots 136B and 137; Plat 13 Lots 12 and 51; Plat 16 Lots 6 and 97; and Plat 17 Lot 175. With the exception of Lots 6, 12, and 97 the site is comprised primarily of wooded upland and wetland areas. Structures exist on Lot 6 and include garages, sheds, and a small office for the driving range. Residential dwellings are located on Lot 97 that provides for site access from Iron Mine Hill Road and Lot 12 that contains an existing single family home. Lot 97 contains an existing 3-bedroom home with a garage and several outbuildings. The properties are all zoned Residential RA-65 zone on the Town’s zoning map.

The subject parcel (Lot 6) has frontage on and will be accessed from Iron Mine Hill Road which is a two-lane roadway of good condition that was recently resurfaced. The existing driveway access crosses Lot 97 and is proposed to remain. Lot 125 also has frontage on Sayles Hill Road although no access is proposed from this location.

The Site is located within the eastern-central portion of North Smithfield approximately 1.5 miles from the Lincoln and Smithfield Town lines. Iron Mine Hill Road abuts Lots 6 and 97 to the south and Sayles Hill Road abuts lot 125 to the east. Greenville Road is located west of the site and Route 146 is located north of the site and east of the site beyond Sayles Hill Road.

The area surrounding the Site is comprised of single-family homes to the south and utility and transmission corridors to the north, east, and west. Residential uses dominate the frontage along Sayles Hill Road and Greenville Road. The zoning classification of the parcels surrounding the site is Residential RA-65 (Rural Agriculture) to the north, west, and south and RS (Residential - Suburban) to the east along Sayles Hill.
3. Site Analysis

Site Context:

The GDIM 1-9 solar projects are located in the Primrose section of the Town of North Smithfield. The proposed Site will have access from Iron Mine Hill Road by utilizing the existing driveway access to Iron Woods Golf Practice Center. The Site is within the Solar Photovoltaic Overlay District established by the Town Council in May 2018. The proposed use is consistent with the goals of the overlay district.

Soils:
The soils on the Site have been mapped by the USDA Soil Conservation Service. They are:

**CaD** – Canon-Charlton-Rock outcrop complex, 15 to 35 percent slopes – The complex is on side slopes of upland hills and ridges. The permeability of this soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. This soil is poorly suited for community development.

**CC** - Canton urban land complex, very rocky – The complex is on side slopes and crests of glacial upland hills in the more densely populated areas of the State. The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. Areas of this complex are used mainly for homesites and streets with rock outcrop and slope limitations.

**CeC** – Canton and Charlton fine sandy loams, 3 to 15 percent slopes, very rocky – These gently sloping to sloping, well drainage soils are on side slopes and crests of glacial upland hills and ridges. The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability of the Charlton soils is moderate to moderately rapid. These soils are suitable for community development.

**ChB** – Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony – These sloping, well drained soils are on side slopes of glacial upland hills and ridges. The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability of the Charlton soils is moderate to moderately rapid. These soils are suitable for community development.
ChC – Canton and Charlton very stony fine sandy loams, 8 to 15 percent slopes – These sloping, well drained soils are on side slopes of glacial upland hills and ridges. The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability of the Charlton soils is moderate to moderately rapid. These soils are suitable for community development.

ChD – Canton and Charlton very stony fine sandy loams, 15 to 25 percent slopes – These sloping, well drained soils are on side slopes of glacial upland hills and ridges. The permeability of the Canton soils is moderately rapid in the surface layer and subsoil and rapid in the substratum. The permeability of the Charlton soils is moderate to moderately rapid. These soils are suitable for community development.

FeA – Freetown muck, 0 to 1 percent slopes – This nearly level, very poorly drained soil is in depressions of outwash plains and glacial upland till plains. The permeability of this soil is moderately slow through moderately rapid. This soil is poorly suited for community development.

Rf – Ridgebury, Whitman, and Leicester extremely stony fine sandy loams – These nearly level, poorly drained and very poorly drained soils are along drainageways and in depressions in glacial till uplands. The permeability of the Ridgebury and Whitman soils are moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. The permeability of the Leicester soils is moderate or moderately rapid in the surface layer and subsoil and moderate to rapid in the substratum. This soil is not suitable for community development.

Sb – Scarboro mucky fine sandy loam, 0 to 3 percent slopes – This nearly level, very poorly drained soil is in depressions and drainageways of terraces and outwash plains. The permeability of this soil is moderately rapid in the surface layer and rapid or very rapid in the substratum. This soil is not suitable for community development.

Ss – Sudbury sandy loam – This nearly level, moderately well drainage soil is in depressions in terraces and outwash plains. The permeability of this soil is moderately rapid in the surface layer and subsoil and rapid in the substratum. This soil is suitable for community development.

SuB – Sutton very stony fine sandy loam, 0 to 8 percent slopes – This nearly level to gently sloping, moderately well drained soil is in small depressions and on lower side slopes of the uplands. The permeability of this soil is moderate or moderately rapid. This soil is suitable for community development.

SvB – Sutton extremely stony fine sandy loam, 0 to 8 percent slopes – This nearly level to gently sloping, moderately well drained soil is on the lower side slopes of glacial upland hills and in low areas that border uplands. The permeability of this soil is moderate or moderately rapid. This soil is suitable for community development.

UD – Udorthents — urban land complex — This complex consists of moderately well drained to excessively drained soils that have been disturbed by cutting or filling, and areas that are covered by buildings and pavement. The permeability of this unit varies.

W – Water

Wob – Woodbridge very stone fine sandy loam, 0 to 8 percent slopes – This nearly level to gently sloping, moderately well drained soil is on side slopes and crests of upland hills and drumlins. The permeability of
this soil is moderate or moderately rapid in the surface layer and subsoil and slow or very slow in the substratum. The soil is suitable for community development.

**Agricultural Lands:**
The Site does not appear to have been used for agriculture in its recent history.

**Topography:** Steep to moderately rolling terrain sloping generally north, east, and south towards wetland areas within the site characterizes the site's topography. The highest elevations within the site are located on AP 16 Lot 6 (elevation 430+/-). The lower elevations are located at the northeastern corner of the site on AP 13 Lot 12 (elevation 280+/-). The range of slope on the site varies between 2% and greater than 25%. The majority of the area proposed to be developed ranges from approximately 2% to 25%.

**Ecology:** As with any tract of land, evidence of a variety of ecology currently existing on site can be located. Natural Resource Services, Inc. has provided a detailed inventory at the Master Plan stage of review. NRS also supported the RIDEM wetland application with an Impact Minimization and Avoidance Narrative (see Appendix A). No new development is proposed within wetland areas. The existing driveway providing access to the site and existing gravel path accessing the northwestern portion of the site are within wetland perimeter areas and will continue to be utilized for construction and long term operation and maintenance access.

**Existing Vegetation:** The majority of the upland ground cover on the site consists of diverse scattered mature trees, saplings, and shrubs. A detailed assessment of habitat areas is contained in the reports by Natural Resource Services referenced above.
Structures: Existing dwellings are currently located on the Site on Lot 6, 12, and Lot 97. The structures are accessed from Iron Mine Hill Road via an existing driveway. The structure on Lot 12 is accessed from Prince Road at Sayles Hill Road.

Visual Features: The Site is mainly surrounded by wooded uplands, wooded wetlands, and utility transmission lines to the north, east, and west. The overlay district was established 500' from Iron Mine Hill Road which also creates a buffer to residential areas along Iron Mine Hill.

Wetlands: The wetlands and all wetland edges have been verified by RIDEM’s Office of Water Resources in Application No.18-0237 based on wetland delineations completed by Mason & Associates in 2018. The wetlands consist of forested wetland, wooded swamps with 50' perimeter wetlands, and streams with 100' or 200' riverbank wetlands as applicable.

Past and Present Use of the Site: The area of the solar projects proposed for development are presently wooded, used for a golf driving range, or recently forested areas. The area has historically been periodically forested except in the vicinity of the driving range. That area was previously part of the salvage yard. The driving range was developed between 1995 and 2002 based on google map historical aerials.

Road Networks: The subject parcel has direct access from Iron Mine Hill Road via an existing driveway that services the driving range Lot 97. Iron Mine Hill connects to Greenville Road on the west and Sayles Hill Road/Route 146 to the east. The site has frontage on Sayles Hill Road but no access from Sayles Hill across Lot 175 is proposed.
Natural Heritage Area: A portion of the site is located within the Natural Heritage Area as delineated on the RIDEM GIS website. According to Paul Jordan at the RIDEM Division of Planning and Development, the natural heritage area is associated with "Grass-leaved or Grassy Arrowhead, Drum-head, Cross-leaved Milkwort, Marsh-milkwort found in wetlands along the powerline a few hundred feet south of the crossing with Iron Mine Hill Rd."

Reference: Email from Paul Jordan 2/14/18

The Natural Resource Services, Inc. Impact Minimization and Avoidance Narrative further address the natural heritage area as follows:

The DEM’s Environmental Resource Map has been referenced to approximate the areas of potential rate species habitat within the project area. Based on a November 30, 2018 correspondence from Paul Jordan, DEM Supervising GIS Specialist, several plant species designated as “of concern” have been identified within the identified areas. The plans include 1) large whorled pogonia (Isotria verticillata), 2) wild basil (Clinopodium vulgare), 3) drum heads/milkwort (Polygala cruciate), and 4) grass-leaved arrowhead (Sagittaria graminea). All of these plants are anticipated to occur either within the existing electric utility easement or biological wetland. The project as proposed avoids the anticipated range of each species by avoiding alteration to the utility easement or on-site swamp/marshes.

RIDEM issued an insignificant alteration permit under Application No. 19-0030 dated November 8, 2019.

Historic Area: The Site is not located within a historic district or otherwise designated area. There is one historic cemetery (NS012/Stephen Mowry Lot) located on the site (Lot 6) but outside areas of proposed
work for the solar project. The following description is provided on the Rhode Island Historical Cemetery Commission website:

“Surveyed by Irene Nebiker in the early 1970’s. It was re-surveyed by Roger Beaudry on November 26, 1994. It is located in a auto salvage yard and is surrounded by junk autos. Cemetery is quite unique whereas it has a six foot high stone wall running down the center of the lot. The lower level contains all the fieldstones while the upper level contains 5 engraved stones. At the time of the most recent survey, the cemetery was in poor condition. The south and east sides had a badly dilapidated wood fence attached to the granite posts, and the stone wall running through the center had collapsed in the center. The entire cemetery was overgrown with thick briars which are associated with rose bushes. There was also about a half dozen upright bed springs which were at one time used for trellises for the roses. The field stones were buried under a blanket of weeds and leaves.”

The proposed project limits are not within the area of the cemetery nor within the 25’ protective setback from the cemetery.
4. Proposed Development

The following is a brief description of the goals, objectives and planning criteria utilized as a guide in developing plans for GDIM 1-9. The applicants (GDIM 1-9, LLC) propose to construct nine solar projects totaling 38.4 MW (AC) on the various properties comprising the overall site. National Grid has confirmed that this project and the nine interconnections that are proposed (one each for GDIM 1-9) will require a new substation. The preliminary plan layout incorporates the preliminary location designated for the substation. Because National Grid requires ownership of the property underlying the substation an administrative subdivision is proposed to combine a portion of Lot 6 with National Grid’s adjoining property to the north. The administrative subdivision will be included with the final submission for the project.

The proposed solar installation consists of ground-mounted solar panel modules. Additionally, it will include transformers, inverters, switch-gear, an underground electrical cable connecting the solar panels to the electrical equipment, and newly installed utilities to interconnect with the National Grid circuit. The dimensions of each solar panel are approximately 77.2” tall by 39” wide. The panels will be mounted on pile driven supports at a height typically between 9’ and 12’ typically and no more than allowed by the solar ordinance (15’). Final design and terrain will dictate the final installed height.

The proposed layout anticipates 9 projects or phases as shown in the plans. The preliminary plan depicts the interconnection location, access roads, and grading and drainage. Access gates and 6’ chain link security fence will be used to control access. No buildings are required for the scope of this project. In addition, water service and on-site wastewater treatment systems are not required.

DiPrete Engineering led the civil site engineering design including stormwater management and soil erosion and sediment control during construction and post-construction. Natural Resource Services, Inc. provided an assessment of existing habitat and proposed habitat and wildlife mitigation and management as well as support for the project’s RIDEM application (see Appendix A). At the Master Plan stage of review EA Engineering, Science, and Technology, Inc (EA) provided an inventory and assessment of wells in proximity to the site and assessment of impacts from the proposed site improvements. BETA Group, Inc. provided an evaluation of views from the National Grid ROW northwest of the substation site as well as the nearest abutting residential neighbor to the north.
5.0 Preliminary Drainage Analysis
The site has been designed in accordance with the Rhode Island Stormwater Design and Installation Standards Manual (RISDISM) and all applicable Town of North Smithfield requirements. A detailed soil erosion and sediment control and stormwater management report has been developed and is included with this submission. RIDEM issued an insignificant alteration permit under Application No. 19-0030. This is included with the preliminary submission for the project.

6.0 Sewage Disposal
The proposed solar development does not require sewage waste disposal. Temporary facilities will be utilized and regularly maintained during the construction phase while work is ongoing.

7.0 Public Water
The proposed solar development does not require public water or private wells for the construction or operation of the facility. A dry fire hydrant design to provide a water source for the fire department was reviewed and approved by RIDEM under application No. 19-0125. The dry hydrant design and location was coordinated with the North Smithfield fire department for the benefit of fire fighting for this site as well as the neighboring area.

8.0 Population Analysis and School Age Children
Unlike a residential development project, the proposed GDIM 1-9 solar projects will not result in an increase in population or school age children.
9.0 Impacts

Lighting - The solar facility does not require artificial lighting as part of the project, so no lighting impacts are proposed. National Grid will require courtesy building mounted lighting at a small control building within the substation fence. In the event of night-time emergency operations/maintenance there will be pole mounted lighting within the substation. This will be utilized on an as-needed basis.

Landscaping - A landscape plan has been prepared by DiPrete Engineering and included in the preliminary plan set. In additional BETA has also prepared visual images from north/northwest of the substation area looking south/southeast toward the substation area as required in the Master Plan conditions of approval.

Visual/Scenic Views - The existing vegetation along the perimeter of the Site will be utilized as buffers to restrict views into the solar project on the property and preserve the scenic and rural character along all roadways near and around the site. The solar project is set back a minimum of 600 feet from Iron Mine Hill Road to the south. To the north, residential homes are naturally buffered by woods and transmission lines. See also response above for LANDSCAPING.

Air and Noise Pollution - This project will not create any significant emissions of smoke, dust, fumes, or other noxious gasses. The only possible source of emissions will be from heavy equipment during the construction of the site. Dust produced during construction will be controlled by utilizing a water wagon and/or other means as deemed acceptable by the Town and per the Soil Erosion and Sediment Control Plan. Since this is a temporary condition, no adverse effects to air quality are expected.

The proposed solar array will conform to the requirements outlined in the overlay district. Some noise will be generated from the equipment during daytime operation and we will follow the protocol outlined in the overlay district regulations to assess noise and baseline conditions once site preparation activities have been completed.

Water Quality - The impacts of the proposed development on water quality can be divided into two phases; construction and post construction/occupancy. During the construction phase, soil erosion will be controlled with silt fence, straw waddles, temporary sediment basins, and vigorous re-vegetation.

In the post construction/occupancy phases, BMP's such as grass wales and stone areas will provide water quality for the proposed gravel roadways. The proposed solar panels produce no sediments or pollutants.

See also Master Plan conditions as it relates to the suggestion of water quality monitoring.

Wells/Blasting – At the Master Plan stage of review a report prepared by EA Engineering, Science, and Technology specific to wells and the proposed solar project was submitted and expert testimony provided.

Police and Fire – The project will not require an office or manned building and will be monitored remotely with periodic visits by technicians to troubleshoot and/or perform routine equipment checks. The National Grid substation has a control building but this is an unmanned facility. Police and fire
responses will be low for this installation given it is a secure facility with locked gates and fencing. A lock box will be provided on this project in the event emergency access is needed.

An onsite water source was recommended by the fire department. After several meetings as well as a meeting onsite a dry fire hydrant was design and approved by RIDEM that utilizes the existing pond south of the solar project along the entrance road as a water source. This was approved by RIDEM under application No. 19-0125. This will provide a local water source not only for the project site but also for the surrounding neighborhood in the event water is needed for fire fighting purposes.

Recreation –The site is currently private property and does not abut public recreational areas. No impact on recreational areas is proposed with the exception that the golf practice facility will be replaced by the solar facility during the phasing of the project.

Road Maintenance – The existing driveway access and internal access driveways as well as associated BMP’s will be privately maintained as outlined in leases with the owners.

Traffic – There will be construction traffic for the various construction activities including tree removal and processing, construction vehicles, construction materials brought onto the site (concrete, sand, etc.), and solar/electrical components when installation takes place, trash removal, etc. The final facility once construction is complete will generate very low traffic volume with only periodic site visits by technicians to check or troubleshoot equipment and/or grounds maintenance crews to maintain vegetation, etc.

Glare – “A common misconception about solar photovoltaic (PV) panels is that they inherently cause or create “too much” glare, posing a nuisance to neighbors and a safety risk for pilots. While solar PV systems can produce glare, light absorption - rather than reflection - is central to the function of solar PV panels. This fact sheet describes the basic issues surrounding glare from solar PV panels, the new Federal Aviation Administration guidance, and the implications for local governments.”


Also:

“While in certain situations the glass surfaces of solar PV systems can produce glint (a momentary flash of bright light) and glare (a reflection of bright light for a longer duration), light absorption, rather than reflection, is central to the function of a solar PV panel - to absorb solar radiation and convert it to electricity. Solar PV panels are constructed of dark-colored (usually blue or black) materials and are covered with anti-reflective coatings. Modern PV panels reflect as little as two percent of incoming sunlight, about the same as water and less than soil or even wood shingles (SEIA/Sandia 2013). Some of the concern and misconception is likely due to the confusion between solar PV systems and concentrated solar power (CSP) systems. CSP systems typically use an array of mirrors to reflect sunlight to heat water or other fluids to create steam that turns an electric generator. These typically involve large ground-mounted reflectors, usually in remote desert locations, and are not installed in residential or commercial areas or near airports.”


Given the site location and extensive natural wooded buffers between the site and homes in the surrounding area glare impacts are not anticipated.
**Thermal**—Thermal impacts resulting from the construction and operation of the solar array are not proposed. A study in the UK concluded that large solar parks cause up to 5.2 degrees C cooling under the panels during the summer and up to 1.7 degrees C warming during the winter.


Likewise, the state of Massachusetts concluded that “there is no solar ‘heat island’ effect cause by the functioning of solar arrays”.


**Fiscal**—At the November 4, 2019 Town Council meeting there were two agreements that were approved:

1) Development Agreement
2) Tax Stabilization Agreement

The result is a significant positive impact to the Town because school, trash, plowing, etc. are not required and services for police and/or fire will be rare with a solar project such as this.
10.0 Zoning Ordinance

The following items in Sections 5.7.5-5.7.7 are specifically addressed:

5.7.5 Requirements for Ground-Mounted Solar Photovoltaic Systems

(a) Special use permit /historic- The overlay district supersedes the requirement in this section requiring a special use permit. Also, the proposed solar system is not located within a 500-foot radius of a historic structure based on the RI Historical Preservation and Heritage Commission website and National Register of Historic Places.

(b) Requirements – The requirements outlined in the solar ordinance and overlay district are incorporated in this submission as outlined in this section.

(c) Area/coverage limitations- The overlay district does not limit lot coverage or area of soil panels.

(d) Setbacks - The overlay district establishes a minimum 100’ setback from property lines except in the case of internal lot lines within the project which are exempt. The solar project is proposed in compliance with wetland requirements and this will be confirmed with a RIDEM application prior to final review.

(e) Reflection/Noise/Impacts

   (1) Solar Reflection (Glare – addressed in impact section 9.0).

   (2) Noise is addressed in the overlay district requirements (see below)

   (3) See Impacts in section 9.0

(f) Wildlife, fauna and migratory - See Appendix A for a report from Natural Resource Services, Inc. addressing wildlife, fauna access, and migratory patterns.

(g) Visual Buffer and Setback – All components are setback a minimum of 100’ from exterior property lines and the overlay district boundary that was established. Additional detail on buffering will be provided at the preliminary design stage by the project landscape architect.

(h) Fencing- A 6’ chain link security fence is proposed to surround the solar project and equipment. Locked gates are proposed to restrict access with a lock box provided to the fire department in the event emergency access is needed. The National Grid substation will also be fenced and locked as is typical.

(i) Signs – A clearly visible warning signs concerning voltage shall be placed along the security fence including identification of the owner and 24-hour contact for emergencies.

(j) Maximum Height– The proposed panels, equipment and components for the solar array will not exceed fifteen feet. The substation that is required by National Grid may exceed 15 feet dependent on final design.

(k) Utility Connections and Electrical Components – Except as required by National Grid the utility connections for the solar photovoltaic system shall be installed underground. Transformers and inverters will be proposed on concrete pads within the solar array.

(l) Appurtenant structures – Appurtenant structures including equipment shelters, transformers, and substation will be located within security fencing.
(m) Environmental Sensitivity – The site design strives to maximize the solar production within the overlay district while at the same time balance protection of wetlands areas, protection and creation of habitat areas for wildlife, best management practices during construction and post-construction, and minimizing site preparation work to the extent minimally necessary. Excavation of materials including loam, gravel, sand, and rock will be re-used onsite. Top and subsoil will not be removed from the site as it will be necessary for the establishment of habitat areas within and outside the solar array. Additionally, material is not planned to be imported from other sites. Onsite rock will be processed for re-use in roads, drainage areas, etc. This will also minimize the spread of non-native species from offsite.

The other requirements outlined in 5.7.5-5.7.7 will be addressed further at the preliminary design stage as more design is completed and detail available.

The project went through an extensive review by RIDEM’s wetland biologist and engineering staff before a permit was ultimately issued for the project. The Town’s consultant also conducted a peer review of the project.

(n) Other considerations – This section addresses special use permit requests and/or variances which are not required or requested at this time.

(o) Maintenance – A detailed operation and maintenance plan will be provided as part of the preliminary plan submission. The plan will comply with the requirements of this section.

(p) On-site Inspections and Construction Control – This section relates to the construction phase. The required certifications will be provided as part of the construction and building permit process.

(q) Liability Insurance – The applicant shall provide documentation of the necessary general liability insurance during the construction phase at the building permit application stage.

5.7.6 Ground-Mounted Solar Photovoltaic System Procedure and Requirements

(a) Pre-application conference - A preapplication meeting was held with the Town planner on June 4, 2018 and with the Planning Board on September 6, 2018. The project received Planning Board Master Plan approval on December 6, 2018.

(b) Site Plan Review - The solar overlay district requires a major land development review process that the applicant is following. The requirement for an advisory opinion from the Zoning Board is also not applicable because it is not a requirement of the zoning overlay district.

(c) Application procedure – The requirements outlined in this section are incorporated including:

* identification of land owners and entities operating, owning, and constructing the systems
* Plat and lot numbers and owners of existing parcels that are proposed to remain
* Current use of the parcel and abutting parcels and aerial views of the surrounding area
* Stamped plan showing the location of the solar project

(d) Additional information provided to the Zoning Board of Review – This section is not required because a special use permit is not required within the overlay district. Nonetheless, the information
required will be substantially addressed as part of the major land development and building permit process.

Section 5.7.7 Improvement Guarantees for Ground-Mounted Solar Photovoltaic Systems

(a) Definition and Purpose – This section defines improvement guarantees for public improvements.

(b) General Procedures – In accordance with the ordinance the applicant will obtain and provide the planning board with an improvement guarantee for public improvements deemed applicable on this project.
11.0 Master Plan Conditions

The following Master Plan conditions of approval are addressed as follows:

Condition #1 - All DEM permits must be obtained and submitted with the Preliminary Application.

Copies of the RIDEM approval are included with the preliminary submission as follows:

- RIDEM Insignificant Alteration Permit No. 19-0030 (Solar)
- RIDEM Insignificant Alteration Permit No. 19-0125 (Dry Hydrant)
- RIDEM Wetland Edge Verification No. 18-0237

Condition #2 – Evidence of an approved tax treat with the Town Council must be in place and submitted with the Preliminary Application.

Attached are the meeting minutes of the October 21, 2019 Town Council meeting. At the Nov. 4 meeting the decisions were ratified with adjustments for 70% cash /30% bond for decommissioning.

Condition #3- The application must either design the facility such that is generates less than 40 MW AC, or petition the Rhode Island Energy Facility Siting Board for Declaratory Judgement.

The application is for 38.4 MW AC. This is what National Grid is expecting from the project and is designing for as well. The development and tax stabilization agreements provided to the Town Council total 38.4 MW ac from the 9 projects.

Condition #4- The applicant shall acknowledge and prepare the Preliminary Application such that it adheres to all recommendations of the Town’s peer review engineer consultant review, PARE Corporation, dated November 27, 2018.

The preliminary plans address the comments received from Pare dated November 27, 2018 as well as the preliminary plan comments dated March 19, 2019. A response to comments letter for each of Pare’s reviews is included with the preliminary submission.

Condition #5 – The application shall acknowledge and prepare the Preliminary Application such that is adheres to all salient recommendations of the Conservation Commission’s correspondence dated October 21, 2018.

The conservation commission comments are addressed in Section 12.0 of this narrative.

Condition #6 – The applicant shall work with the Town Council by way of, at minimum, providing notice to the Town prior to the expiration of the land leases for the benefit of revisiting whether continued use as a solar array is in the best interest of the Town.

The Town Council voted on a development agreement, tax stabilization agreement, and a bond amount. These documents establish a connection between the project and the Town of North Smithfield.

Condition #7-Request the Rhode Island Department of Environmental Management, through its permitting process, to require pre-construction and post construction water quality testing for those streams onsite that are perennial. The idea being to achieve an understanding if solar arrays effect surface water quality.
DiPrete Engineering raised this question/condition to RIDEM and attached is the email response received in response. The Insignificant Alteration permit issued for the project did not require water quality testing.

**Condition #8**- In the vicinity of Jefferson Road which is closest to where the project’s substation will be located; landscape architect must provide existing photograph from the north side of the cleared National Grid powerline, and a proposed rendering to see if the substation will be visible.

Our landscape architect, BETA, provided the required photographs and rendering as outlined above. The BETA plans are included with this submission.

**Condition #9**- With respect to the Town Council discussions regarding the tax treaty, in addition to the tax treaty, explore if electricity can be applied to all public, (Town) buildings.

The Town would need to enter into a net metering credit agreement in order for electric power from the GDIM 1-9 projects to be applied to public (Town) buildings. Typically, this requires a public RFP bid process.
12.0 Conservation Commission Conditions

The following Conservation Commissions advisory recommendations are addressed as follows:

**Condition #1** - The site contains numerous wetlands and streams, and proper adherence to setbacks is expected.

The wetlands were verified by RIDEM under Application No. 18-0237. RIDEM has issued an insignificant alteration permit under Application No. 19-0030.

**Condition #2** – Of significant concern is that a large portion of the area is within a drinking water supply watershed as identified by RIDEM. Clearing, blasting, and grading may be detrimental to the area’s groundwater supply.

Subsequent to the Conservation Commission’s review additional testimony was provided at the master plan meeting with testimony from DiPrete Engineering and EA Engineering. The RIDEM Preliminary Determination application and permit demonstrate that watersheds will be adequately protected to not increase or decrease water to the various watersheds from this site as a result of the development and that water quality will be protected. Reference is specially made to the Stormwater Report, Soil Erosion and Sediment Control Plan, and Operation and Maintenance Plan.

**Condition #3** – The RIDEM also identified the western portion of the proposed site as within a RI Natural Heritage Area

The Natural Heritage area was shown on the RIDEM submission plans and identified in the application. There were several plant species in the vicinity that occur within biological wetlands and utility easement area. By avoiding alterations to these areas no impacts are anticipated. RIDEM issued an Insignificant Alteration Permit under Application No. 19-0030.

**Condition #4** – In terms of allowing land used for large solar to continue as a wildlife corridor, we do not recommend installing a continuous perimeter fence, but instead enclose the various array fields with fencing, allowing space between fields to permit wildlife movement through the area.

This comment was discussed further at the master plan meeting and there are several breaks in the perimeter fence incorporated in the preliminary plans to allow for wildlife movement. This was also highlighted in Natural Resource Services, Inc. impact narrative.

**Condition #5** – The gap at the bottom of the fence should be adequate to easily permit rabbits and other small animals to pass.

This comment was discussed further at the master plan meeting and the preliminary plans detail a 6” gap at the base of the fence to allow for small wildlife movement and use of the solar array areas. The fence surrounding the substation is embedded below grade for security purposes and that fence will not provide the 6” gap. The substation area is limited and a small percentage of the overall fencing that is needed for the project.

**Condition #6** – Is it possible for construction to be completed in phases, so that performance standards can be evaluated, prior to advancing to the next stage?
The GDIM 1-9 projects are being reviewed by RIDEM and the Town concurrently. Work will be sequence beginning with the primary access route to the substation and substation area as a priority due to the schedule for National Grid to complete the substation. The intent is to mobilize on the site once and proceed in stages with the construction over an approximate 1 year timeframe. While the National Grid work on the substation is proceeding the 9 solar array areas will be prepared in sequence with the work beginning in the substation area and moving south/southeast and east as work progresses. Operations cannot commence until National Grid’s work is completed.

**Condition #7 – Due to the size of the array included in this proposal, we would recommend a 200 foot buffer surrounding the site to reduce runoff, construction dust, heat, and noise to adjacent properties.**

The nearest proximity of the project to the property line the northern west portion of the project surrounding the substation. A 100’ setback to the substation and solar is proposed in this area bordering the existing utility corridor. Significant buffers are provided from Iron Mine Hill Road and Sayles Hill Road. No zoning relief is being sought.
13.0 Construction Phasing

Site Phasing—The GDIM 1-9 projects are being reviewed by RIDEM and the Town concurrently. Work will be sequence beginning with the primary access route to the substation and substation area as a priority due to the schedule for National Grid to complete the substation. The intent is to mobilize on the site once and proceed in stages with the construction over an approximate 1 year timeframe. While the National Grid work on the substation is proceeding the 9 solar array areas will be prepared in sequence with the work beginning in the substation area and moving south/southeast and east as work progresses. Operations cannot commence until National Grid’s work is completed.