

**Exhibit J**  
**Decommissioning Plan**

**Stantec**

**January 26, 2021**

**Decommissioning Plan  
Yellow Wood Solar Energy  
Project  
Clinton County, Ohio**



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DECOMMISSIONING PLAN  
YELLOW WOOD SOLAR ENERGY PROJECT, CLINTON COUNTY, OHIO

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## 1.0 INTRODUCTION

Yellow Wood Solar Energy LLC (Yellow Wood), a subsidiary of Invenergy Solar Development North America LLC (Invenergy), is proposing to construct the Yellow Wood Solar Energy Center in Clinton County, Ohio. The proposed Yellow Wood Solar Energy Center (the "Project") is to be located within the townships of Clark and Jefferson, near the Village of Lynchburg, Ohio. Major components of the Project include solar modules, tracking system, inverters, transformers and a Project substation. Yellow Wood is considering mono-cell bi-facial solar modules for the Project. The Project will occupy approximately 2,470 acres of land (within perimeter fencing) and will have a maximum nameplate generating capacity of up to 300 MW<sub>[AC]</sub>.

This Decommissioning Plan (Plan) provides a description of the decommissioning and restoration phase of the Project. Start-of-construction is planned for 2022, with a projected Commercial Operation Date in the fourth quarter of 2023. The Project consists of the installation of the perimeter fencing; solar arrays and associated racking, trackers, foundations, and steel piles; transformers; inverters; access and internal roads; and electrical collection system (Figure 1).

This Plan includes an overview of the primary decommissioning Project activities: dismantling and removal of facilities, and restoration of land. A summary of estimated costs and revenues associated with decommissioning the Project are included in Section 4.0. The summary statistics and estimates provided are based on a 300-MW Project array design.

### 1.1 SOLAR FARM COMPONENTS

The main components of the Project include:

- Solar modules
- Tracking system with steel piles
- Transformers and inverters on skids
- Electrical cabling and conduits
- Perimeter fencing
- Site access and internal roads
- Project substation

### 1.2 TRIGGERING EVENTS AND EXPECTED LIFETIME OF PROJECT

Project decommissioning may be triggered by events such as the end of a power purchase agreement or when the Project reaches the end of its operational life. The Project will be considered to be abandoned if the Project is non-operational for a period of twelve (12) consecutive months. If properly maintained, the expected lifetime of a utility-scale solar panel is approximately 25 to 30 years with an opportunity for a project

lifetime of 50 years or more with equipment replacement and repowering. Depending on market conditions and project viability, solar arrays may be retrofitted with updated components (e.g., panels, frame, tracking system, etc.) to extend the life of a project. In the event that the modules are not retrofitted, or at the end of the Project's useful life, the panels and associated components will be decommissioned and removed from the Project site.

The value of the individual components of the solar facility will vary with time. In general, the highest component value would be expected at the time of construction with declining value over the life of the Project. Over most of the life of the Project, components such as the solar panels could be sold in the wholesale market for reuse or refurbishment. As efficiency and power production of the panels decrease due to aging and/or weathering, the resale value will decline accordingly. Secondary markets for used solar components include other utility scale solar facilities with similar designs that may require replacement equipment due to damage or normal wear over time; or other buyers (e.g., developers, consumers) that are willing to accept a slightly lower power output in return for a significantly lower price point when compared to new equipment.

Components of the solar facility that have resale value may be sold in the wholesale market. Components with no wholesale value will be salvaged and sold as scrap for recycling or disposed of at an approved offsite licensed solid waste disposal facility (landfill). Decommissioning activities will include removal of the arrays and associated components as listed in Section 1.1 and described in Section 2.

### 1.3 DECOMMISSIONING SEQUENCE

Decommissioning activities will begin within twelve months of the Project ceasing operation and are anticipated to be completed within 12 to 18 months. Monitoring and site restoration may extend beyond this period to ensure successful revegetation and rehabilitation. The anticipated sequence of decommissioning and removal is described below; however, overlap of activities is expected.

- Reinforce access roads, if needed, and prepare site for component removal
- Install temporary fencing and best management practices (BMPs) to protect sensitive resources
- De-energize solar arrays
- Dismantle panels and above ground wiring
- Remove tracking and pile
- Remove inverters and transformers, along with support piers and piles
- Remove electrical cables and conduits less than three feet (36 inches) below the surface
- Remove access and internal roads and grade site
- De-compact subsoils (if required), restore and revegetate disturbed land to pre-construction conditions to the extent practicable

## 2.0 PROJECT COMPONENTS AND DECOMMISSIONING ACTIVITIES

The solar facility components and decommissioning activities necessary to restore the Project area, as near as practicable, to pre-construction conditions are described within this section.

### 2.1 OVERVIEW OF SOLAR FACILITY SYSTEM

Yellow Wood anticipates utilizing approximately 746,550 solar modules, with a total nameplate generating capacity of up to 399 MW<sub>[DC]</sub> (approximately 300 MW<sub>[AC]</sub>) on the 2,470-acre site. Statistics and cost estimates provided in this Plan are based on a LONGi LR5-72HBD 535-watt bifacial module, although the final panel manufacturer has not been selected at the time of this report.

Foundations, steel piles, and electrical cabling and conduit less than three feet (36 inches) below the soil surface will be removed. Components and cabling deeper than 36 inches below the surface will be abandoned in place unless removal is required within an easement or lease agreement. Access roads may be left in place if requested and/or agreed to by the landowner. Yellow Wood will coordinate with the appropriate local agency to coordinate the repair of public roads damaged or modified during the decommissioning and reclamation process.

Estimated quantities of materials to be removed and salvaged or disposed of are included in this section. Most of the materials described have salvage value; although, there are some components that will likely have none at the time of decommissioning. All recyclable materials, salvaged and non-salvage, will be recycled to the extent possible. All other non-recyclable waste materials will be disposed of in accordance with state and federal law in an approved licensed solid waste facility.

Table 1 presents a summary of the primary components of the Project included in this decommissioning plan.

**Table 1 Primary Components of Solar Farm to be Decommissioned**

Component	Quantity	Unit of Measure
Solar Modules (approximate)	746,550	Each
Tracking System (full equivalent trackers)	6,913	Tracker
Steel Piles	49,351	Each
Inverters and Transformers	80	Each
Electrical Cables and Conduits (approximate, left in place below 36-inch depth)	202,650	Lineal Foot (estimated)
Perimeter Fencing	273,400	Lineal Foot (estimated)

Component	Quantity	Unit of Measure
Internal Access Roads (approximate)	171,500	Lineal Foot (estimated)
Project Substation	1	Each
Above Ground Transmission Line and Poles	0.04	Lineal Mile (estimated)
Operations and Maintenance (O&M) Trailer	1	Each

## 2.2 SOLAR MODULES

Yellow Wood is considering the LONGi LR5 (535-watt) bi-facial module or similar model for the Project. Each module assembly (with frame) has a total weight of approximately 71.2 pounds. The modules are approximately 89 inches long and 45 inches in width and are mainly comprised of non-metallic materials such as silicon, mono- or poly-crystalline glass, composite film, plastic, and epoxies, with an anodized aluminum frame.

At the time of decommissioning, module components in working condition may be refurbished and sold in a secondary market yielding greater revenue than selling as salvage material.

## 2.3 TRACKING SYSTEM AND SUPPORT

The solar modules will be mounted on a single axis tracking system, such as those manufactured by FTC Voyager or a similar system manufacturer. Each tracker is approximately 60 meters (197 feet) in length and will support approximately 108 solar modules. Smaller trackers may be employed at the edges of the layout, to efficiently utilize available space. The tracking systems are mainly comprised of galvanized and stainless steel; steel piles that support the system are comprised of structural steel.

The solar arrays will be deactivated from the surrounding electrical system and made safe for disassembly. Tracker lubricants will be removed and properly disposed of or recycled according to regulations current at the time of decommissioning. Electronic components, and internal electrical wiring will be removed and salvaged. The steel piles will be either cut and removed to a depth of three feet (36 inches) below the ground surface or completely removed. This will be determined at the time of decommissioning.

The supports, tracking system, and posts contain salvageable materials which can be sold to provide revenue to offset the decommissioning costs.

## 2.4 INVERTERS AND TRANSFORMERS

Inverters and transformers are located within the array and will sit on piers with piles within the array. The inverters and transformers will be deactivated, disassembled and removed. Depending on condition, the equipment may be sold for refurbishment and re-use. If not re-used, they will be salvaged or disposed of at an approved solid waste



management facility. All oils and lubricants will be collected and disposed of at a licensed facility.

## **2.5 ELECTRICAL CABLING AND CONDUITS**

The Project's underground electrical collection system will be placed at a depth of approximately three feet (36 inches) unless a greater depth is required by a landowner. Cabling that is above a depth of three feet will be removed and salvaged, while cable greater than three feet in depth will be abandoned in place. The system will not interfere with future farming activities because of the depth. If, at the time of decommissioning, the salvage value of the underground cable exceeds the cost of extraction and restoration, the cables may be removed and salvaged.

## **2.6 PROJECT AND GRID TIE-IN SUBSTATIONS**

Yellow Wood will include a Project substation as shown on the attached figure. The substation footprint will be approximately 300 feet by 300 feet and will contain within its perimeter, a gravel pad, power transformer, electrical control house and concrete foundations, as needed. The substation transformer may be sold for re-use or salvage. Components of the substation that cannot be salvaged will be transported off-site for disposal at an approved waste management facility.

An additional substation will be constructed at the Point of Interconnection (POI). Per Ohio Power Siting Board (OPSB) guidance, Yellow Wood will leave intact any improvements made to the electrical infrastructure, pending approval by PJM and the Dayton Power and Light Company. Therefore, this report has assumed no cost of removal or revenue from salvage for the line break substation at the POI.

## **2.7 OPERATIONS AND MAINTENANCE BUILDING**

One Project-specific O&M structure will be utilized for Yellow Wood Solar. The structure will be a self-contained modular office of steel container-type construction. It will be installed on a gravel pad with connections to electrical and other necessary services. The structure will be completely removed from site during the decommissioning process.

## **2.8 PERIMETER FENCING, SITE ACCESS AND INTERNAL ROADS**

The Yellow Wood site will include a chain-link security fence around the perimeter of each array site. A network of access roads will allow access to the substation and the solar facility equipment. The internal access roads will be composed of gravel approximately 20 feet wide and total approximately 171,500 linear feet (32.48 miles). The internal access road lengths may change with final Project design. The substation access road will remain after decommissioning to service the substation, which will not be removed at that time. To be conservative, the decommissioning estimate assumes that all internal array access roads will be completely removed.

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During installation of the Project site access roads, subgrade conditions may be stabilized by either the placement of Geogrid reinforced granular fills over soft ground, chemical stabilization, or cement stabilization. This Plan assumes the installation of fill of up to twelve inches of aggregate base materials over prepared subgrade. The estimated quantity of these materials is provided in Table 2. A typical access road cross-section is shown in Figure 2.

**Table 2 Typical Access Road Construction Materials**

Item	Quantity	Unit
Gravel or granular fill; 12-inch thick	127,037	Cubic Yards

Decommissioning activities include the removal and stockpiling of aggregate materials onsite for salvage preparation. It is conservatively assumed that all aggregate materials will be removed from the Project site and hauled up to five miles from the Project area. Following removal of aggregate, the access road areas will be graded, de-compacted with deep ripper or chisel plow (ripped to 18 inches), back-filled with native subsoil and topsoil, as needed, and land contours restored as near as practicable to preconstruction conditions.

### **3.0 LAND USE AND ENVIRONMENT**

#### **3.1 SOILS AND PRIME FARMLAND**

The proposed solar facility is predominantly located on land currently utilized for agricultural purposes. The site is located within previously glaciated areas. The soils within this area were formed within glacial till deposits. Natural and man-made drainage waterways are located in low-lying areas of the Project site.

Soils within the proposed Project area are primarily classified as prime farmland, if drained, and include: Clearmont silt loam (CLE1A); Hickory silt loam (HkD2); Jonesboro-Rossmoyne silt loams (JoR1A1, JoR1B1); Nicely silt loam (NhC2); Sloan silt loam (SnA); and Westboro-Schaffer silt loams (WsS1A1, WsS1b1). In general, the Project area and the land surrounding it are drained by a system of natural and man-made drainage features; therefore, the land to be utilized for the solar facility can be considered prime farmland.

Areas of the Project that were previously utilized for agricultural purposes will be restored to their preconstruction condition and land use. Restored areas will be revegetated in consultation with the current landowner and in compliance with regulations in place at the time of decommissioning.

#### **3.2 RESTORATION AND REVEGETATION**

Project sites that have been excavated and backfilled will be graded as previously described to restore land contours as near as practicable to preconstruction conditions. Topsoil will be placed on disturbed areas and seeded with appropriate vegetation to reintegrate it with the surrounding environment. Soils compacted during de-construction activities will be de-compacted, as necessary, to restore the land to pre-construction land use. Drain tiles that have been damaged will be repaired or replaced to at least pre-construction condition. Work will be completed to comply with the conditions agreed upon by Yellow Wood and the OPSB or as directed by regulations in effect at the time of decommissioning.

#### **3.3 SURFACE WATER DRAINAGE AND CONTROL**

As previously described, the proposed Project area is predominantly located in actively drained agricultural land. The terrain is relatively flat with several ditches protected by grassy buffers and berms along the edges. The Project facilities are being sited to avoid wetlands, waterways, and drainage ditches to the extent practicable. The existing Project site conditions and proposed BMPs to protect surface water features will be described in a Stormwater Pollution Prevention Plan (SWP3) currently being prepared for the Project construction activities.

Surface water conditions at the Project site will be reassessed prior to the decommissioning phase. Yellow Wood Solar will obtain the required water quality permits from the Ohio Environmental Protection Agency (OEPA) and the U.S. Army Corp of Engineers (USACE), if needed, before decommissioning of the Project. Construction storm water permits will also be obtained and a SWP3 prepared describing the protection needed to reflect conditions present at the time of decommissioning. BMPs may include: construction entrances, temporary seeding, permanent seeding, mulching (in non-agricultural areas), erosion control matting, silt fence, filter berms, and filter socks.

### **3.4 MAJOR EQUIPMENT REQUIRED FOR DECOMMISSIONING**

The activities involved in decommissioning the Project include removal of the above ground components of the Project: solar modules, racking, tracking system, foundations and piles, inverters, transformers, access roads, and electrical cabling and conduits (to a depth of three feet below the surface). Restoration activities include back-filling of pile and foundation sites; de-compaction of subsoils; grading of surfaces to pre-construction land contours and revegetation of the disturbed areas.

Equipment required for the decommissioning activities is similar to what is needed to construct the solar facility and may include, but is not limited to: small cranes, low ground pressure (LGP) track mounted excavators, backhoes, LGP track bulldozers, LGP off-road end-dump trucks, front-end loaders, deep rippers, water trucks, disc plows and tractors to restore subgrade conditions, and ancillary equipment. Over-the-road dump trucks will be required to transport material removed from the site to disposal facilities.

## 4.0 DECOMMISSIONING COST ESTIMATE SUMMARY

Expenses associated with decommissioning the Project will be dependent on labor costs at the time of decommissioning. For the purposes of this report, approximate 2020 average market values were used to estimate labor expenses. Fluctuation and inflation of the labor costs were not factored into the estimates.

### 4.1 DECOMMISSIONING EXPENSES

Project decommissioning will incur costs associated with disposal of components not sold for salvage, including materials which will be disposed of at a licensed facility, as required. Decommissioning costs also include backfilling, grading and restoration of the proposed Project site as described in Section 2. Table 3 summarizes the estimates for activities associated with the major components of the Project.

**Table 3 Estimated Decommissioning Expenses – 300 MW Solar Array**

Activity	Unit	Number	Cost per Unit	Total
Overhead and management (includes estimated permitting required)	Lump Sum	1	\$1,280,000	\$1,280,000
Solar modules; disassembly and removal	Each	746,550	\$4.00	\$2,986,200
Tracking system disassembly and removal	Each	6,913	\$620	\$4,286,060
Steel pile/post removal	Each	49,351	\$12.50	\$616,888
Transformer/inverter stations	Each	80	\$1,100	\$88,000
Access road excavation and removal	Lump Sum	1	\$1,016,296	\$1,016,296
Perimeter fence removal	Linear Feet	273,400	\$2.80	\$765,520
Public road repair	Lump Sum	1	\$364,000	\$364,000
Topsoil replacement and rehabilitation of site	Lump Sum	1	\$2,397,400	\$2,397,400
O&M Trailer	Each	1	\$5,000	\$5,000
Project Substation	Each	1	\$300,000	\$300,000
Above ground transmission line and poles (net)	Lineal Mile	0.04	\$250,000	\$10,000
<b>Total estimated decommissioning cost</b>				<b>\$14,115,364</b>

## 4.2 DECOMMISSIONING REVENUES

Revenue from decommissioning the Project will be realized through the sale of the solar facility components and construction materials. As previously described, the value of the decommissioned components will be higher in the early stages of the Project and decline over time. Resale of components such as solar panels is expected to be greater than salvage (i.e., scrap) value for most of the life of the Project, as described below. For purposes of this report, only estimated salvage values were considered in net revenue calculations, as this is the more conservative estimate strategy.

Modules and other solar plant components can be sold within a secondary market for re-use. A current sampling of reused solar panels indicates a wide range of pricing depending on age and condition (\$0.10 to \$0.50 per watt). Future pricing of solar panels is difficult to predict at this time, due to the relatively young age of the market, changes to solar panel technology, and the ever-increasing product demand. A conservative estimation of the value of solar panels at \$0.10 per watt would yield \$39,943,000. Increased costs of removal, for resale versus salvage, would be expected in order to preserve the integrity of the panels; however, the net revenue would be substantially higher than the estimated salvage value.

The resale value of components such as trackers, may decline more quickly; however, the salvage value of the steel that makes up a large portion of the tracker is expected to stay at or above the value used in this report.

The market value of steel and other materials fluctuates daily and has varied widely over the past five years. Salvage value estimates were based on an approximate five-year-average price of steel and copper derived from sources including on-line recycling companies and United States Geological Survey (USGS) commodity summaries. The price used to value the steel used in this report is \$253 per metric ton; aluminum at \$0.40 per pound; silicon at \$0.40 per pound and glass at \$0.05 per pound.

The main material of the tracking system and piles is assumed to be salvageable steel. The main components of the solar modules are glass and silicon with aluminum framing. A 50 percent recovery rate was assumed for all panel components, due to the processing required to separate the panel components. Alternative and more efficient methods of recycling solar panels are anticipated before this Project is decommissioned, given the large number of solar facilities that are currently being developed. Table 4 summarizes the potential salvage value for the solar array components and construction materials.

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**Table 4 Estimated Decommissioning Revenues**

Item	Unit of Measurement	Quantity per Unit	Salvage Price per Unit	Total Salvage Price per Item	Number of Items	Total
Panels - Silicon	Pounds per Panel	1.8	\$0.40	\$0.72	746,550	\$537,516
Panels - Aluminum	Pounds per Panel	2.8	\$0.40	\$1.20	746,550	\$836,136
Panels - Glass	Pounds per Panel	26.7	\$0.05	\$1.335	746,550	\$996,644
Tracking System and Posts	Metric tons per MW <sub>[AC]</sub>	40	\$253	\$10,120	300	\$3,036,000
Substation	Each	1	\$50,000	\$50,000	1	\$50,000
Total Potential Revenue						\$5,456,296

\* Revenue based on salvage value only. Revenue from used panels at \$0.10 per watt could raise \$39,943,000 as resale versus the estimated salvage revenue.

### 4.3 DECOMMISSIONING COST SUMMARY

The following is a summary of the net estimated cost to decommission the Project, using the information detailed in Sections 4.1 and 4.2. Estimates are based on 2020 prices, with no market fluctuations or inflation considered.

The following table represents the total estimated net decommissioning cost.

**Table 5 Net Decommissioning Summary**

Item	Cost/Revenue
Decommissioning Expenses	<b>\$14,115,364</b>
Potential Revenue – salvage value of panel components and recoverable materials	<b>\$5,456,296</b>
<b>Net Decommissioning Cost</b>	<b>\$8,659,068</b>

## FIGURES



DECOMMISSIONING PLAN  
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Figure 1 Project Layout

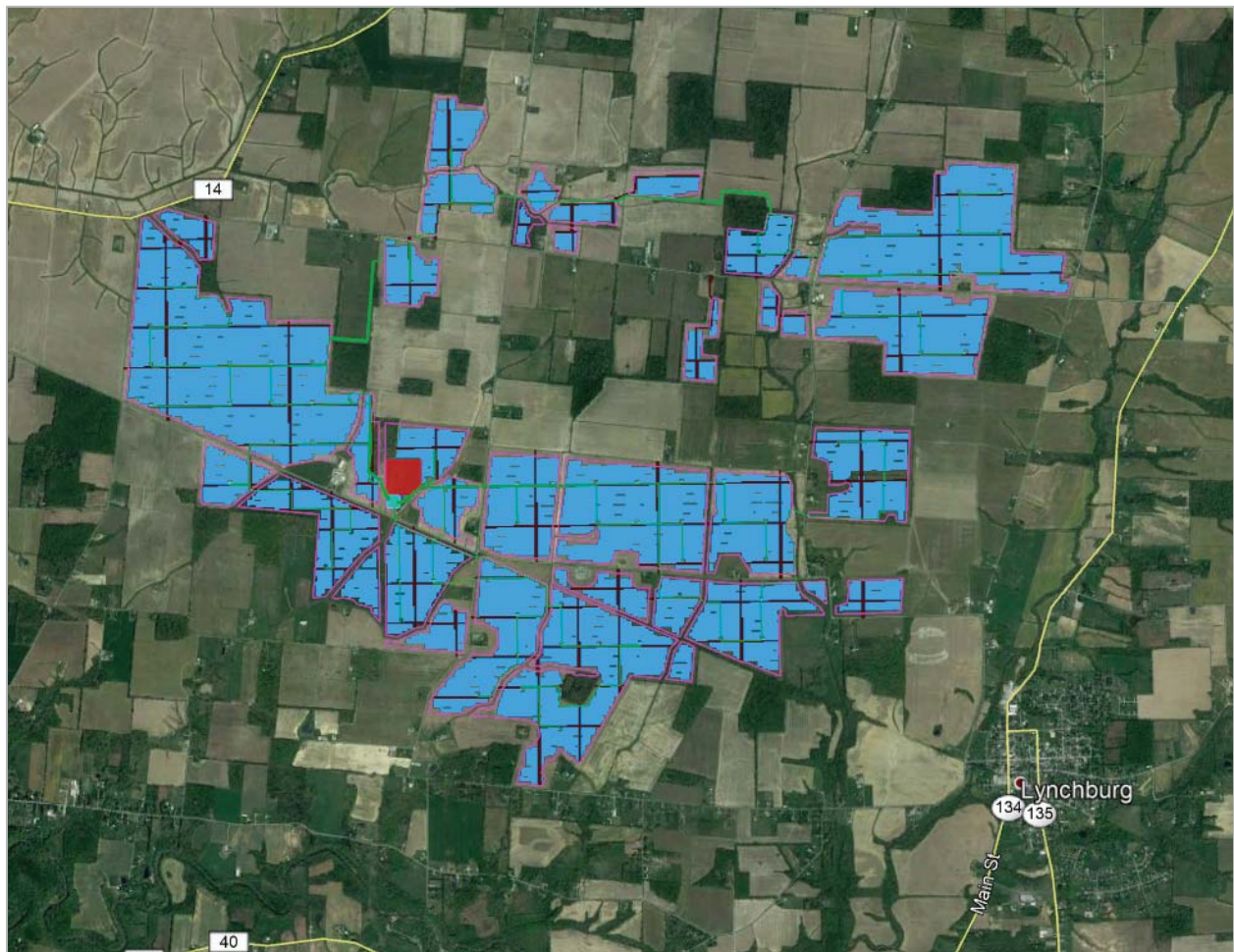
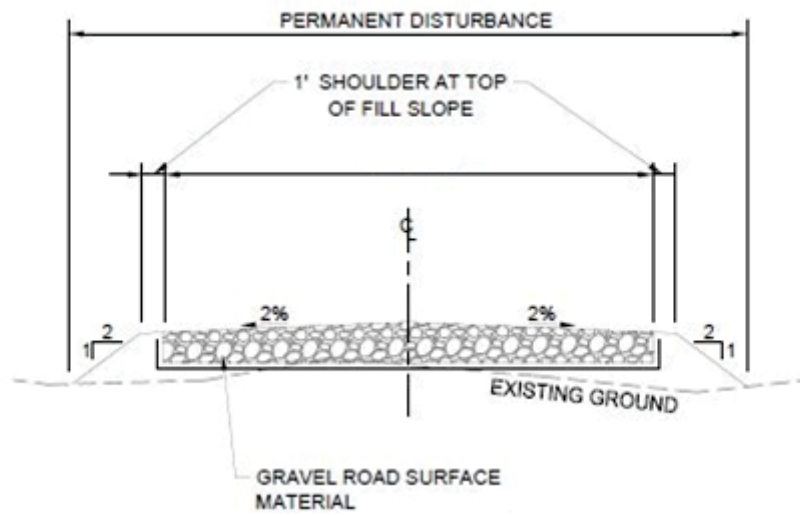


Figure 2 Access Road Detail



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