APPLICATION FOR A CONDITIONAL USE

Wilkes-Barre Logistics Center

Wilkes-Barre Township, Luzerne County
Pennsylvania

Applicant:

Bluecup Ventures Hazleton I, LLC
200 Barr Harbor Drive, Suite 400
West Conshohocken, Pennsylvania, 19428-2978

Issued: May 31, 2022

IDP Project # 21-0187

Prepared By:

IDP Consulting, LLC
430 North Front Street
Wormleysburg, PA 17043.
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APPLICATION FOR A CONDITIONAL USE

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2. IPaC resource list U.S. Fish & Wildlife Service Bluecup Wilkes-Barre Twp LOCATION: Luzerne County, Pennsylvania, 2/6/2021.

3. Aquatic Resource Delineation Report Laurel Run and Wilkes Barre Townships, Luzerne County, Pennsylvania, Bluecup Ventures- Wilkes Barre Site, Thompson Environmental, 07/05/21.

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APPLICATION FOR A CONDITIONAL USE
May 31, 2022

IDP Consulting, LLC
430 North Front Street
Wormleysburg, PA 17043.

Mr. Thomas Zedolik,
Zoning and Code Enforcement Officer
Wilkes-Barre Township
Wilkes Barre, Pa 18702

May 31, 2022

RE: Bluecup Ventures Wilkes-Barre, LLC APPLICATION FOR A CONDITIONAL USE

Dear Mr. Zedolik,

In compliance with the Wilkes Barre Township Zoning Ordinance ("The Zoning Ordinance"), ARTICLE 7 CONDITIONAL USE, Bluecup Ventures Wilkes-Barre, LLC ("Applicant"), respectfully submit this application for a WAREHOUSING AND DISTRIBUTION use, as defined in The Zoning Ordinance in §202, in a M-l MINING DISTRICT at 400 Johnson St Wilkes-Barre Township, PA 18702 on land approximately seventy-six (76) acres located south of Johnson Street and Haul Road, bounded by I-81 on the West, an abandoned Conrail on the East, and a property owned by Catlan Reality occupied by Allen Industries on the South as identified on Exhibit-1 Parcel Plan (the "Parcel"). Applicant has the right to make zoning applications, and appeals as evidenced by the attached AGREEMENT OF SALE AND PURCHASE by and between the Property Owner PAGNOTTI ENTERPRISES, INC., and LOREE ASSOCIATES, and Applicant BLUECUP VENTURES WILKES-BARRE, LLC.

Property Owner:

Freya Land Company
144 Brown Rd Pittston, PA, 18640-3723
Contact: David Swisher
Phone: 570-270-9826
E-Mail: dswisher@peirealty.net

Applicant:

Bluecup Ventures Wilkes-Barre LLC.
200 Barr Harbor Drive, Suite 400
West Conshohocken, PA, 19428-2978
Contact: Jeff Randolph, RA,
NY License# 8932514
Phone: 203-252-1515
email: jeff.randolph@bluecup.ventures

SCHEDULE OF FEES, CHARGES AND EXPENSES

A check for $600.00 is included with this application. As part of the Conditional Use Application fee, and as specified in §702, Applicant acknowledges its responsibility to reimburse the Township for all reasonable and necessary consulting fees which are incurred by the Township to review plans, reports, data, studies, and any other information related to an application for a Conditional Use Permit.

APPLICATION MATERIALS:

This letter and the attached materials are organized to address the requirements specified in §704 Application and Site Plan & §708 Environmental Impact Statement. Attached are fifteen (15) copies of the Conditional Use Application, site plan and accompanying materials. The site plan complies with §704 and has been prepared at a scale of not greater than one inch equals fifty feet.

§704 SITE PLAN REQUIREMENTS

REQUIREMENTS	SUMMARY RESPONSE
• The location and size of all buildings and structures, both principal and accessory, open space, parking areas, traffic access and circulation.	Proposed use for the site is a for a 937,440 square foot warehouse distribution building, approximately 46' height above finished floor level, with parking for 503 cars and up to 441 trailers. A landscaped buffer between 37' and 450' surrounds the parcel and proposed roadways. See Exhibit-1 Parcel Plan. Site access: Entrance: Allan Road with Improvements. Exit: Haul Road with Improvements. See Exhibit-3 Proposed Site Plan and Building.
• All public or private streets within five hundred (500') feet of the site.	See Exhibit-4 All streets, both public and private, within two hundred (500') feet of the Site. 1. Johnson Road (Public) 2. I-81/ SR/309 (Public) 3. Haul Road (Private ROW) Allen Road (Private ROW) to be relocated
• Contours of the site for each two (2) feet of change in elevation, based upon a field survey of the site, with the name of the person or firm who conducted survey and the date of survey.	See Exhibit 10 USGS Topo Map Surveyor: Matthew Davis, P.L.S. TerraViz Geospatial 430 N. Front Street Wormleysburg, PA 17043 A survey was conducted Q4 2021.
• Streams, ponds, watercourses, wetlands or any other bodies of water, including natural or man-made drainage swales located	On May 18, 2021, Bridger Thompson of TES&P performed a site visit to identify and delineate wetlands and watercourses within the Study Area. The report is included as part of this application. These resources are potentially regulated under the Pennsylvania Clean Streams Law and Dam Safety

REQUIREMENTS	SUMMARY RESPONSE
both on the site and within five hundred (500) feet of the site.	and Encroachments Act, and the federal Clean Water Act (Commonwealth of PA, 2020a and 2020b; Clean Water Act of 1972). The Study Area for the aquatic resource investigation is depicted on Figures 2 and 3 of the report. TES&P identified and delineated four palustrine emergent (PEM) wetlands, one intermittent (INT) watercourse, and four ephemeral (EPH) watercourses within the 96-acre Study Area (Figure 3). A summary of the delineated resources is provided in Table 2. The field data forms for the delineated wetlands and photographs of the identified features and existing site conditions are in Appendices A and B, respectively. Descriptions of the delineated resources are presented below.
• The location, nature and terms of any existing or proposed easements on the site and any easements both on-site and off-site including but not limited to those which are used or intended to be used for access to the site.	Existing easement: Allen Road, to be relocated as indicated in Exhibit-3 Proposed Building. A detailed plan will be submitted as part of the land development plan.
• The location, type and height of any required screening.	§ 508.4 DIMENSIONAL REGULATIONS for M-1 do not require any buffer areas. § 509.4 H. DIMENSIONAL REGULATIONS for M-2 require a buffer where an M-2 District abuts a residential district. No screening is required Property borders 1. Industrial properties on the North and South Johnson Road 2. I-81/ SR/309 (Public) 3. Haul Road (Private ROW) 4. Allen Road (Private ROW) to be relocated
• The location of all structures within two hundred (200) feet of any property line boundary of the subject site	One residence, 340 Johnson Road, located in an M-2 District, is approximately 450’ from the nearest property boundary. The property appears to be abandoned. See Exhibit-3 Location of any residential structure within 500' of any property boundaries.
• The Map, Block and Lot Number of the subject parcel.	The Parcel Current Consists of several separate tax parcels that will be reverse subdivided:

REQUIREMENTS	SUMMARY RESPONSE
The Luzerne County Property Identification Number for the subject parcel.	69I9 00B03A000 69I10 00A10A000 69I10 00A07F000
• A location map at a scale of not greater than one (1) inch equals two thousand (2,000) feet, indicating the relation of the site to its geographic proximity within the Township.	See: Exhibit-1 Parcel Plan Exhibit-2 Location Map
• A narrative outline which fully describes the proposed use of the site and the pertinent operational aspects and features of the proposed use.	The proposed building will be built on a speculative basis, without a specific tenant, but with the features that are likely to meet the needs of two types of operations: WAREHOUSING AND DISTRIBUTION: A use engaged in storage, wholesale and distribution of manufactured products, supplies and equipment, excluding the bulk storage of material that are inflammable, explosive, hazardous or commonly recognized as offensive. LIGHT INDUSTRY: A use engaged in the manufacturing predominantly from previously prepared materials, of finished products or parts, including processing, fabrication, assembly, treatment packaging, incidental storage, sales, and distribution of such products, but excluding basic industrial processing. Operating Hours will vary by tenant but are most likely to be a single shift from 7:30 AM to 4:30PM, 9-10 months a year, with a 2nd half shift 2-3 months a year, for peak seasonal use. Some operations employ a skeletal third shift to load or unload goods, conduct inventory, reposition, depalletize or repalletize goods. Traffic patterns are provided in detail in the traffic study. Traffic movement will be greatest at shift change. The staffing for this building will likely be between 250- 500 employees. Since the site is served by 3 bus lines, a reasonable estimate is that 80% of the employees will come by single occupancy vehicle car. Bus Service: #3 Grove & Brown Heights, #6 Dallas, #55 Kingston, Pittston.

REQUIREMENTS	SUMMARY RESPONSE
	Truck traffic is estimated, based on PennDot standards, spread out over first shift. Most operations do not regularly move trucks on second shift. See Traffic Study for details.

§ 708 ENVIRONMENTAL IMPACT STATEMENT

Statement shall include a response to the following items and said proposed use/development shall further comply with all other applicable standards and requirements of this Ordinance:

708.01. SOIL TYPES	
a. U.S.D.A. Soil Types (illustrated upon map)	See Figure 2, Aquatic Resource Delineation Report. The soil on site is almost entirely classified as Strip mine and Cut and fill land
b. Permeability of soil on the site.	The Hydric Rating of all soils on site were determined to be 0, see Table 1, p. 2 Aquatic Resource Delineation Report
c. Rate of percolation of water through the soil for every five acres.	The rate of percolation averaged 10.3 minutes per inch (mpi) based on site testing. See attached Stormwater Infiltration Summary Letter and Exhibit 11 Test Pit Locations.
708.02 SURFACE WATERS	
a. Distance of site from the nearest surface water and headwaters of streams.	TES&P identified and delineated four palustrine emergent (PEM) wetlands, one intermittent (INT) watercourse, and four ephemeral (EPH) watercourses within the 96-acre Study Area (Figure 3). A summary of the delineated resources is provided in Table 2. The field data forms for the delineated wetlands and photographs of the identified features and existing site conditions are in Appendices A and B, and descriptions of the delineated resources are in the Aquatic Resource Delineation Report.
b. Sources of runoff water.	Draft drawings have been provided. Land Development Plan and submission of the Chapter 102 General NPDES Permit Chapter 105 Water Obstruction & Encroachment Permit
c. Rate of runoff from the site.	
d. Destination of runoff water and method of controlling downstream effects.	
e. Chemical additives to runoff water on the site.	No chemical treatment is currently planned
f. Submission of a soils erosion and sedimentation control plan meeting the	A soils erosion and sedimentation control plan will pe prepared as part of the Chapter

requirements of the Luzerne County Conservation District.	102 General NPDES Permit Chapter 105 Water Obstruction & Encroachment Permit applications. All land development activities shall comply with §822 of the SALDO and shall provide for both temporary and permanent erosion and sedimentation facilities in conformance with the current PA DEP standards and all erosion and sedimentation control plans will be submitted to the Luzerne County Conservation District for their review and approval.
g. A storm water management plan which shall be developed in coordination with the soils erosion and sedimentation plan.	Civil Engineering drawings will be developed as part of the Land Development Plan in accordance with §823 of the SALDO and applicable State and County regulations. A draft study has been sent to the Township's Engineer.
708.03 GROUND COVER INCLUDING TREES	
a. Extent of existing impervious ground cover on the site.	The surface conditions are primarily Strip-mine fill. An asphalt roadway, Allen Road, currently runs the length of the site and will be relocated as part of the project.
b. Extent of proposed impervious ground cover on the site.	The proposed project will be approximately Parcel Area: 3,148,957 sf Total Impervious: 2,389,630 sf = 75.89% Lot Coverage which is defined by Township as Building Only: 942,840 sf = 29.94% The impervious surface, will have engineered storm water retention, reducing the velocity, volume of water flowing from the site and improving the water quality.
c. Extent of existing vegetative cover on the site.	At the time of the aquatic resource study, the project area commonly had sparce vegetation containing big bluestem (Andropogon gerardii), Canada goldenrod (Solidago cabadensis), Japanese knotweed (Reynoutria japonica), and grey birch seedlings (Betula populifolia). The most common tree species observed were grey birch (Betula populifolia) and red oak (Quercus rubra). The site is currently under an active mining permit and undergoing tree cutting to reclaim on site coal silt.

	See Aquatic Resource Delineation Report.
d. Extent of proposed vegetative cover on the site.	The proposed vegetative cover is indicated on the site plan.
708.04TOPOGRAPHY	
a. Maximum existing elevation of site.	Current elevation is approximately 780 in the extreme eastern portion of the site
b. Minimum existing elevation of site.	Current elevation is approximately 675 feet in the northern and western portions of the site.
c. Maximum proposed elevation of site.	TBD +/- 712' AMSL Building FFE
d. Minimum proposed elevation of site.	TBD +/- 717' AMSL Building FFE
e. Description of the topography of the site and all proposed changes in topography.	The existing site consists of a historic mining site, that has been deeply excavated and then filled. See with steep topography and non-vegetated areas which have been historically graded and used for subsurface mining, and fill/coal material storage. Based on the extent and age of the surficial disturbance from stripping operations at the project site, it is assumed material was moved across the site without engineering control, therefore, not as properly placed structural fill, which increases risk of intolerable post-construction settlement if not mitigated. The fill material used is also likely to be comprised of varying non-cohesive soils. See Kleinfelder Historic Mining Review Desktop Study.
708.05 GROUNDWATER	
a. Average depth to seasonal high water table.	Borings were conducted to a depth of 100' by Kleinfelder Engineering as part of the Geotechnical Engineering evaluation and the water table was not present.
b. Minimum depth to water table on site.	Minimum Depth: >100'
c. Maximum depth to water table on site.	Maximum Depth: >100'
708.06 WATER SUPPLY	
a. The source and adequacy of water to be provided to the site.	The site is located within the certificated franchise area of Pennsylvania American Water Company (PAWC), Scranton/Wilkes-Barre Service District. Domestic water service can be provided from the existing water facilities in Johnson Street in accordance with the provisions of our tariff as approved by the Pennsylvania Public Utility Commission.

b. The projected water requirements (G.P.D.) for the site.	500 employees during 24-hour period Times: 15 gallons per employee per day Equals: 7,500 gallons total per day
c. The uses to which the water will be put.	Water will be used for drinking water, sanitary services and general cleaning
708.07 SEWAGE SYSTEM	
a. Sewage disposal system (description and location on the site of system).	A request has been submitted to Hanover Township to issue either a Sewage Planning Module Exemption or a Will Serve Letter setting forth its willingness to permit our proposed project to connect to an existing sewer main sufficient to support the development of our proposed distribution warehouse project.
b. Expected content of sewage effluents (human waste, pesticides, detergents, oils, heavy metals, other chemicals).	Sewage effluents are anticipated to be human waste, and “grey water” from routine cleaning.
c. Projected daily volumes of sewage.	500 employees during 24-hour period Times: 15 gallons per employee per day Equals: 7,500 gallons total per day Divided by: 400 gallons per EDU Equals: total of 18.8 EDUs, rounded to 20 being requested
d. Affected sewage treatment plants present capacity and design capacity.	James Tomaine, PE, Executive Director of the Wyoming Valley Sanitary Authority (WVSA) has confirmed that the Authority has sufficient treatment and conveyance capacity to service the estimated 7,500 gallons per day of sanitary sewage generated by the proposed warehouse at 400 Johnson Street in Wilkes-Barre Township. No overload exists or is projected within five years at WVSA. In addition, the local municipality must be contacted for collection and conveyance system capacity.
e. Estimated quantity of solid waste to be developed and/or processed on the site during and after construction.	Solid waste processing is not currently a planned use on site.
f. Method of disposal and/or processing of solid waste during and after construction.	Solid waste generated during construction and after the building is completed will be transferred off site by a commercial trash hauler.
g. Plans for recycling of solid waste during and after construction.	The means and method of construction have not yet been determined, but all construction activities will be conducted by a licensed contractor and reasonable best practices will be employed.
708.09 AIR OUALITY	

a. Expected Changes in air quality due to activities at the site during and after construction	The soil on the site is classified as Strip Mine “Sm”. Proposed site improvement will reduce blowing dust from the site. The additional vehicular traffic of 682 vehicles/day, as calculated by TPD the traffic engineer in accordance with PennDot standards, will negligibly add to the existing 59,000 vehicle trips per day on I-81. See Exhibit 8.
b. Plans for control of emissions affecting air quality.	No point sources of pollution are currently are currently contemplated for the site.
708.10 NOISE	
a. Noise levels, above existing levels, anticipated to be generated at the site, (source and magnitude), during and after construction.	See Exhibit 6 for calculations: Existing noise levels from I-81 are between 58 and 73 dBA and are continuous throughout the day and night generated by 59,000 vehicle trips per day. Noise during construction and ongoing operations will be generated by intermittent truck operations, and are calculated between 58 and 65 dBA, less than Existing noise levels, which will not be incremental to Existing noise.
b. Proposed method for control of additional noise on-site during and after construction.	Since noise from operations will not be additive to Existing noise levels noise reduction measures will be ineffective.
708.11 IMPACT OF PROPOSED USE DEVELOPMENT	
A written description and/or statement from the applicant of the impact on the environment and mitigating factors shall be provided for the following:	
a. Existing plant species, (upland and marine), and effects thereon.	The Project area commonly had sparce vegetation containing big bluestem (Andropogon gerardii), Canada goldenrod (Solidago cabadensis), Japanese knotweed (Reynoutria japonica), and grey birch seedlings (Betula populifolia). The most common tree species observed were grey birch (Betula populifolia) and red oak (Quercus rubra). See Aquatic Resource Delineation Report.
b. Existing animal species and effects thereon.	The IpaC resource list indicates that there are “THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.” See attached IpaC report.
c. Existing wild fowl and other birds and effects thereon.	There are no breeding areas and a “Low Probability of Presence” of endangered birds on site.

d. Effects of drainage and runoff.	Since the site is currently mine scarred land and the USDA Natural Resources Soil Survey has identified almost the entirety of the site as Strip Mine (“Sm” Exhibit 7.1), the proposed development is likely to improve the water quality, reduce the volume, \ and velocity of storm water runoff from the site.
e. Effects on ground water quality.	The proposed development are likely to improve the water quality, reduce the volume, and velocity of storm water runoff from the site, and will reduce the flow of surface contaminants to the water table.
f. Effects on surface water quality.	The proposed development are likely to improve the water quality, reduce the volume, and velocity of storm water runoff from the site.
g. Effects on air quality.	The soil on the site is classified as Strip Mine “Sm”. Proposed site improvement will reduce blowing dust from the site. The additional vehicular traffic of 682 vehicles/day, as calculated by TPD the traffic engineer in accordance with PennDot standards, will negligibly add to the existing 59,000 vehicle trips per day on I-81. See Exhibit 8.
h. Alternatives to proposed use/development, consistent with the zoning of the site.	The parcel is currently zoned M-1. The proposed use is permitted in a M-2 zone, which is a more restrictive zoning designation.
i. Effects on sites of historic significance.	According to PA-SHARE “database for: A historic resource” No historic resources are present on the site, see Exhibit 9.
j. Projected amount and type of traffic to be generated and the effects of the same on public roads and highways.	See Traffic Study Prepared by TPD
708.12 IMPACT UPON CRITICAL AREAS	
The applicant shall define, describe, and identify upon a map, critical areas as defined in Article 2 of this Ordinance. A statement of any potential impact upon critical areas shall be provided by the applicant, including but not limited to adverse impacts which cannot be avoided and/or mitigated as a resulting effect of the development.	The IpaC report indicates that there are no • National Wildlife Refuge lands • Fish hatcheries • Wetlands in the National Wetlands Inventory
708.13 OTHER GOVERNMENTAL JURISDICTION	
A list of all licenses, permits and other approvals required by County, State or Federal law and the status of each.	If a Wilkes Barre Township grants a Conditional Use Permit Applicant will prepare applications for

	• Chapter 102 General NPDES Permit • Chapter 105 Water Obstruction & Encroachment Permit, as required. • Sewage Planning Module.

§ 706 GENERAL STANDARDS

The general standards contained herein shall be utilized in the review of applications and plans for any use which is classified as a conditional use.

GENERAL STANDARDS	RESPONSE
A. The proposed use shall not jeopardize the Community Objectives this Ordinance, nor shall it adversely affect the health, safety and welfare of the public and/or the environment.	The area is zoned M-1 MINING DISTRICT. The proposed use for a Warehouse Distribution Facility, is consistent and a less intensive use than uses contemplated in an M-1 district and Light Industry is a permitted use in an M-1 district. INDUSTRY, LIGHT: A use engaged in the manufacture, predominantly from previously prepared materials, of finished products or parts, including processing, fabrication, assembly, treatment, packaging, incidental storage, sales, and distribution of such products, but excluding basic industrial processing.
B. Public services and facilities such as streets, sewage disposal, water, police and fire protection shall be adequate for the proposed use.	The site is currently served by water, sewer, gas and electric utilities, with adequate capacity to provide services for the proposed use. Will Serve Letters have been obtained. Site improvements will include the replacement of the 100 year old water main currently serving Wilkes-Barre Township. The developer will be responsible for all the costs related to the water main replacement.
C. Existing and future streets and access to the site shall be adequate for emergency services, for avoiding undue congestion, and for providing for the safety and convenience of pedestrian and vehicular traffic.	The site is accessible by public roadway, and currently accessible by emergency services. Detailed plans will be submitted as part of the Land Development Plan submission and the project will require a General NPDES permit for approval.

D. The relationship of the proposed use to other activities existing or planned in the vicinity shall be harmonious in terms of location and size relative to the proposed operation and the nature and intensity of the operation involved.	The proposed use, Warehouse Distribution, are bordered by consistent uses, a scrap metal processing operation, south; I-81 west; mine scarred vacant land, east; excavation contractor, north. The area surrounding the proposed use is zoned M-2 and allows distribution warehouse facilities.
E. The relationship of the proposed use to other activities existing or planned in the vicinity shall be harmonious in terms of the character and height of structures, buildings, walls and fences, so that the use, and development of adjacent property is not impaired.	The proposed height of the building is approximately 46', the same height as the NESCO Rentals building at 300 Johnson Street. The building setbacks will comply with all ordinances. The surrounding properties are primarily used for light industry and storage.
F. The proposed use shall not be more objectionable in its operation in terms of noise, fumes, odors, vibration or lighting that would be the operations of any permitted use in the district.	The proposed use for warehouse distribution, is less noxious than surrounding uses such as scrap metal processing, silt fill/ processing, I-81 traffic, and consistent with storage and warehousing operations to the north.
G. Unless waived by the Township Council, the submission of an Environmental Impact Statement for all nonresidential conditional uses in accordance with Section 708 of this Ordinance, and all subsections thereunder.	An Environmental Impact Statement has been prepared.
H. If required by the Township Council, the submission of any reports and/or studies within the context of the definition "Impact Analysis" as contained within Article 2 of this Ordinance, which conclusively demonstrates that the proposed use or development will not have a negative impact upon the particular subject or subjects as set forth by the Township Council including but not limited to the interest of protecting the health, safety and welfare of the public and environmental features and characteristics of the site and/or surrounding areas. In their review of an Impact Analysis, the Township Council shall have the discretion to retain the services of	The proposed use or development will not have a negative impact upon the health, safety, and welfare of the public since the surrounding uses as indicated in this report are: 1. Unrestored mine scarred land with compromised storm water retention. 2. Do not contain any EV wetlands or significant natural habitats. 3. Contain areas of "Recognized Environmental Concern". 4. The site is zoned for more noxious use, M-1, than the proposed use permitted in an M-2 zone. 5. The site is bounded by more intensive uses than proposed a. Metal Salvage b. 59,000 vehicle trips per day on I-81 c. Mining operations

firms or agencies which have expertise within the subject or subjects addressed therein.	d. Rail spur. 6. These more intensive uses buffer the site from residential activities.

IMPACT ANALYSIS:
A study and/or report, which may be required at the discretion of the Governing Body prior to approval of a conditional use or by the Zoning Hearing Board prior to approval a special exception use, to determine the potential impact of the proposed use on activities, utilities, traffic generation and circulation, surrounding land uses, community facilities, environmental features, critical areas, the public health, safety and welfare and other factors directly, indirectly or potentially affected.

Community Factor	**Direct Impact**	**Indirect Impact**
Activities	The proposed use, a warehouse distribution center, is consistent with the SECTION 105 of the zoning ordinance and the Township's governing Comprehensive Plan, proposing a less intensive and noisome use than permitted within an M-1 zone	Positive indirect impact: siting a warehouse distribution facility on the site will prevent the construction of permitted more noxious use in a M-1 zone such as: ● Solid Waste Facilities ● Staging Areas ● Transfer Stations ● Junk Yards and/or Automotive Wrecking Yards ● Any use which utilizes and/or stores any hazardous substances
Utilities	Will Serve Letters have been provided by the local electrical, sewage, water and gas services to the site. There are no know capacity constraints on any public utilities.	Positive indirect impact: Site improvements will include the replacement of the 8” 100 year old water main currently serving Wilkes-Barre Township. The developer will be responsible for all the costs related to the water main replacement.
Traffic	See Traffic Study for complete assessment.	The staffing for this building will likely be between 250 and 400 employees. Since the site is served by 3 bus lines, a reasonable estimate is that 20% of the employees will use public transportation to reach the site, and the central location may

Community Factor	Direct Impact	Indirect Impact
		increase carpooling. Bus Service: #3 Grove & Brown Heights, #6 Dallas, #55 Kingston, Pittston.
Surrounding Land Uses	● Property surrounding the site are of compatible use: Exhibit 10.1 Wilkes-Barre Township Zoning Map ● North: Zoned M-1 & M-2; current use Warehouses, Garages, Parking Lot. ● East: railroad right of way, Laurel Run Twp. min scarred land revegetated. ● South: Zoned M-1; current use scrap metal processing. ● West: I-81, elevated roadway.	Positive indirect impact: siting a warehouse distribution facility on the site will prevent the construction of permitted more noxious use in a M-1 zone such as: ● Solid Waste Facilities ● Staging Areas ● Transfer Stations ● Junk Yards and/or Automotive Wrecking Yards ● Any use which utilizes and/or stores any hazardous substances
Community Facilities	No additional community facilities will be required for the operation of the	Increase to Local Property Tax Base
Environmental Features	The site currently has 5 Dumping Areas, 2 which may be Recognized Environmental Concern (REC).. Development of the site will clean up the REC locations. (See PHASE I ENVIRONMENTAL SITE ASSESSMENT, Fig 3. REC Aerial Location Map.)	Development of the site will clean up the 5 illegal dumping sites and Former RR Tracks beds.
Critical Areas	The existing site consists of a historic mining site that has been significantly disturbed and currently contains small wooded/shrubby lots with steep topography and non-vegetated areas which have been historically graded and used for subsurface mining, and fill/coal material storage. The Project site is sparsely vegetated and drains northwest to an un-named tributary (UNT) to Spring Run. Spring Run is a tributary to Solomon Creek, and these watercourses are located within the Upper Susquehanna River basin. Spring. According to the Draft 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report, both the UNT to Spring Run and Spring Run	Engineered site improvements to mine scarred lands are proven to reduce the volume and velocity of uncontrolled storm water runoff and reduce the contaminants of the discharged water.

Community Factor	Direct Impact	Indirect Impact
	are listed as aquatic life impaired (PADEP, 2020a). No wetlands are identified by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS, 2020) within proximity to the Project.	
Public Health Safety & Welfare	Need for Additional Fire Services should be negligible. According to NFPA, fires in warehouse properties per year (excluding refrigerated or cold storage), were less than 1% of all structure fires. U.S. fire departments responded to an estimated average of 1,210 warehouse fires per year. Approximately one-quarter of fires in warehouses were identified as confined or contained incidents (23%), while 14% were confined to the object of origin. The proposed warehouse building will be constructed with a ESFR fire suppression system, greatly reducing the risk of fire. The proposed height of the building is consistent with the height of the NESCO Rentals building 300 Johnson St, Wilkes-Barre Township, PA 18702, which can be serviced by existing fire equipment.	Tax revenues will increase in excess of municipal services used by the proposed development, providing increased funding for public health and safety needs within the community.

Impact on Community Development Objectives Sec 104 of the Wilkes Barre Township Zoning Ordinance as enumerated in Section 604 of the Pennsylvania Municipalities Planning Code, Act247, as amended. The provisions of this Ordinance are designed to achieve the following:

	Objectives	Project Impact
1	Promote, protect, and facilitate any or all of the following: public health, safety, and general welfare; coordinated and practical community development and proper density of population; emergency management preparedness and operations; airports, and national defense facilities; the provisions of	The project will promote, protect, and facilitate the following: 1. Public health, by reducing storm water velocity and volume, and improving water quality. Safety, by eliminating and restoring a blighted mine scarred property

	Objectives	Project Impact
	adequate light and air; access to incident solar energy; police protection; vehicle parking and loading space; transportation; sewerage; schools; recreational facilities; public grounds; the provision of a safe; reliable and adequate water supply for domestic, commercial, agricultural, or industrial use, and other public requirements; preservation of the natural, scenic, and historic values in the environment; and preservation of forests, wetlands, aquifers, and floodplains.	with a less intensive use than permitted under the current M-1 zoning such as Automotive Wrecking Yards, Junk Yards, Solid Waste Facilities, Transfer Stations 2. Coordinated and practical community development and proper density of population, by building a facility that will directly employ between 300 and 500 employees and support an additional 1300 jobs. and increase the local taxes by $840,000/ yr. with the requested abatement and $2,000,000/ yr. after the expiration of the abatement. See Exhibit 12.1 & 12.2 Economic Impact. 3. Vehicle parking and loading spaces will all be contained on site. A truck queuing area is proposed to avoid back up on local roads. 4. Transportation: the site is served by 3 public transit bus lines and a new traffic signal is being installed at the intersection of SR 309 and Johnson Street. 5. Sewerage: the project has “Will Serve Letters” from the local sewage authority. 6. Preservation of forests, wetlands, aquifers, and floodplains.
2	Prevent one or more of the following: overcrowding of land; blight; danger and congestion in travel and transportation; loss of health, life, or property from fire; flood, panic, or other dangers.	The proposed warehouse use is adjacent to compatible and more intensive uses, a highway, other warehouses, a scrap yard. Locating a warehouse at this brownfield site will avoid development on a greenfield farmland location elsewhere in the State, reclaim a blight; danger and congestion in travel and transportation;
3	Preserve prime agriculture and farmland considering topography, soil type, and classification and present use.	No Impact
4	Provide for the use of land within the municipality for residential housing of various dwelling types encompassing all basic forms of housing, including single-family and two-family dwellings, and a reasonable range of	No Impact

	Objectives	Project Impact
	multi-family dwellings in various arrangements, manufactured homes and manufactured home parks, provided, however, that no zoning ordinance shall be deemed invalid for the failure to provide for any other specific dwelling type.	
5	Accommodate reasonable overall community growth, including population and employment growth and opportunities for development of a variety of residential dwelling types and non-residential uses.	Accommodate reasonable overall community growth, including population and employment growth

May 17, 2021

Mr. Jeff Randolph
Blue Cup Ventures, LLC
2490 Black Rock Turnpike
Fairfield, CT 06824

RE: Historic Mining Review Desktop Study
85-Acre Parcel
Haul Road & Johnson Street
Wilkes-Barre, Luzerne County, Pennsylvania
Kleinfelder Project Number: 20214488.001A

Dear Mr. Randolph:

In accordance with your request, Kleinfelder, Inc. (Kleinfelder) has prepared this correspondence to present our findings of the desktop study and historic mining review on the proposed distribution center development at the above referenced project site.

PROJECT & SITE DESCRIPTION

The project site currently consists of approximately 85 acres of undeveloped and partially wooded land, located along Haul Road in Wilkes-Barre, Luzerne County, Pennsylvania. The property has been disturbed over its history leaving the existing ground surface and topography highly variable as a result. Topography across the project site generally slopes downgradient from Wilkes-Barre Mountain in the east to PA-309 toward the west. The location of the project site in relation to the surrounding area is shown on the *Topographic Map* (Figure 1) presented within the Appendix.

Based on information provided by Blue Cup Ventures, LLC, the project will consist of development of the project site into a distribution center. The size of the proposed structure(s) is unknown at the time of this writing. Based on Figure 1, existing ground surface elevations across the project site range from approximately 800 in the extreme eastern portion to 660 feet in the northern and western portions of the site. The project site is situated within the northern anthracite coal field of Pennsylvania's eastern coal region which has been historically mined for anthracite coal, which carries the potential for underground mines.

SCOPE OF WORK

The scope of work for this project was to identify the historic use of the property, locate available historic maps, including mine diagrams and determine the potential for deep mine features at the site. This objective was accomplished through a scope of work which included a desktop review of existing data and preparation of this summary letter.

SITE GEOLOGY

Based on the Pennsylvania Geologic Survey Atlas of Preliminary Geologic Quadrangles, Fourth Series, 1981, the project site is underlain by the Pennsylvanian Llewellyn Formation (geologic symbol Pl). The project site within its geologic setting is presented on the *Geologic Map* (Figure 2) provided within the Appendix.

According to the Pennsylvania Geologic Survey publication, *The Engineering Characteristics of the rocks of Pennsylvania Second Edition,* 1982, the Llewellyn Formation consists of interbedded layers of sandstone, siltstone and conglomerate; which range from medium- to coarse-grained; with numerous anthracite coal and dark-gray to black shales. The sandstone in this formation is well bedded and thick to massive, while the coal and shale beds are relatively thin. Fractures are moderately developed and moderately distributed. Joints are moderately spaced, open and steeply dipping. The rock is slightly to moderately weathered to a shallow or moderate depth, dependent on the local lithology. The resulting soil mantle is thin to moderately thick.

HISTORIC OVERVIEW

The project site, which was referred to as the Franklin Colliery was started by the Lehigh Valley Coal Company of Wilkes-Barre and was later taken over by Pagnotti Enterprises of West Pittston, Pennsylvania and operated until 1964. A recycling facility has been constructed to the southwest of the project site with an access road traversing the western portion of the site. Current mining permits are held by Jeddo-Highland Coal Company (S.M.P. #40990201) and Latona Mining, LLC (M.S.H.A ID #36-01673). The project site is known to be underlain by several mapped coal seems, containing economically viable deep and shallow coal mines.

ANTHRACITE COAL MINING

The project site is located within the "Northern Anthracite Coal Field" as described by the Pennsylvania Geological Survey in 1884. The 1884 Northern Coal Field Mine Sheet No. VI shows the project site to be underlain by the outcrops of the Red Ash, Ross and Baltimore coal veins. Additional mining maps observed from the Pennsylvania Mine Map Atlas of the Pennsylvania Department of Environmental Protection, show the Sump and Skidmore veins also underlay the site. The coal veins within this area extend to approximately 1500 below the surface.

A cross-section of the coal seams is presented within the Appendix on the *Geologic Stratigraphy* (Figure 3). The Geologic Stratigraphy is shown on the upper right corner of the 1884 Northern Coal Field Mine Sheet No. VI. The cross-section is anticipated to represent the structure of the coal beneath the site in descending order as E. Baltimore or Mammoth Bed, D. Bed, Ross Bed and Red Ash Bed coal veins from the Empire Tunnel which is anticipated to be located to the northeast of the project site. As previously mentioned, the Sump and Skidmore veins were also mined beneath the site, however it is not shown on the geologic stratigraphy section. Thicknesses of the coal veins shown at the Empire Tunnel location are as follows:

- E. Baltimore or Mammoth Bed: 16 feet in thickness
- D. Bed: 6 feet in thickness (unnamed vein below is 6 feet in thickness)
- C. Ross Bed: 8 feet in thickness
- B. Red Ash Bed: Top Red Ash is 6 feet thick and Bottom Red Ash is 10 feet in thickness

Available mining maps were found for the Baltimore, Sump, Skidmore Middle, Skidmore Bottom, Ross, Red Ash Top and Red Ash Bottom Coal Veins. Based on the individual mining maps reviewed, shown within the Appendix on the *Mining Maps* (Figures 4 through 13), deep mining operations took place across and beneath the majority of project site at various elevations. It should be noted that the maps were overlaid using industry accepted standards, however; due to the inherent unknown referencing system of the maps and a lack of a known surveyed benchmark, a certain margin of error may exist.

Surficial mining maps were also observed for the Baltimore, Sump, Skidmore, Ross and Red Ash veins. The Baltimore and Sump veins appear to have outcropped (contacted the surface) within the project site. The Skidmore, Ross and Red Ash veins appear to have outcropped to the southeast of the project site at the base of Wilkes-Barre Mountain, and plunged to elevations beneath the project site.

Historical aerial photographs provided by USDA were observed and are provided within the Appendix on this Letter on the *Historical Aerial Photographs* (Figures 14 through 17). The 1939 aerial shows surficial disturbances across the project site have already taken place. Various buildings have been constructed, rail lines have been aligned in the central and eastern portions of the site, and piles of material have been removed from the north, eastern and southwestern portions of the site. Surficial disturbance severity increases from the 1939 aerial to the 1959 aerial incorporating seemingly large piles to the south central and western portions of the site. The advent of more powerful earth movers during the 1940's and 1950's allowed strip mining to become a more commercially viable method of coal removal than it was previously, in areas with shallow or thin coal seams. By the 1969 aerial, it appears some of the previously existing piles and disturbances become centralized to the central portion of the site, with some various buildings and piles remaining in other portions of the site. Deep mining activities in the area generally ceased prior to 1970. By the current aerial (ca. 2016), mining operations are no longer active, and the site looks generally overgrown with vegetation without much topography change from the 1969 aerial.

SUMMARY OF DATA OBTAINED

Based on our review of available, published data, it appears that the site was primarily used as a coal mine, both at the surface and at depth. Historic maps indicate that mining has occurred within each of the coal bearing formations at the site. Surface, or strip, mining was conducted within the Baltimore and Sump Veins at obtainable depths across the project site. The Skidmore, Ross and Red Ash veins were strip mined to the southeast of the project site where their outcrops surfaced in the base of Wilkes-Barre Mountain. Deep mining was conducted utilizing the "room and pillar" mining method. The coal seams were contacted and mined into. The "pillars" would support the mined "rooms". Some of the mine maps show that some pillars have been removed from the mine works in a process which is called "robbing". Robbing consists of the removal of the "pillars" in an effort to remove as much coal as possible. Based on the historical aerials, significant piles of material appear to remain on-site along with the potential for mining activity infrastructure, like rail lines, roads, equipment, building materials.

The mined coal veins beneath the project site appear to exist in the following order and brief descriptions of the veins are provided below.

Baltimore

The Baltimore vein was generally strip mined across the site. It was deep mined as it plunged to the southwest of the project site. The Baltimore was probably deep mined at first as it outcropped across the site, then as excavation equipment capabilities were improved, the overburden material was removed so the vein could be strip mined to some extent. The Baltimore vein may be (have been) approximately 16 feet thick in this geographic area, and as strip mining became more prevalent as excavation technology improved, this vein may have been chased via strip mining even with 100 feet of overburden material.

Sump

The available mining maps indicate Sump vein was strip mined in the southern portion of the site at the outcrop. It was deep mined as it plunged to the southwest of the project site and the pillars were robbed. The Sump vein was mined beneath approximately 15% of the southwestern portion of the site.

Skidmore Middle

The Skidmore Middle vein was strip mined to the southeast of the project site as it outcropped in the base of the mountain. The vein was deep mined utilizing room and pillar mining methods beneath the entirety of the project site. Approximately 80% of the Skidmore Middle vein was robbed, leaving 20% with presumably intact pillars.

Skidmore Bottom

The Skidmore Bottom vein was strip mined to the southeast of the project site as it outcropped in the base of the mountain. The vein was deep mined utilizing room and pillar mining methods beneath approximately 65% of the project site in various areas. Certain areas in the central portion of the project site were omitted in the mining maps observed. Approximately 80% of the Skidmore Bottom vein was robbed, leaving 20% with presumably intact pillars.

Ross

The Ross vein was strip mined to the southeast of the project site as it outcropped in the base of the mountain. The vein was deep mined utilizing room and pillar mining methods beneath only approximately 1% of the project site. The mining maps do not indicate robbing was conducted within the Ross vein.

Red Ash Top

The Red Ash Top vein was strip mined to the southeast of the project site as it outcropped in the base of the mountain. The vein was deep mined utilizing room and pillar mining methods beneath the entirety of the project site. Approximately 1% of the Red Ash Top vein was robbed, leaving 99% with presumably intact pillars.

Red Ash Bottom

The Red Ash Bottom vein is the deepest of available mined veins beneath the site, and was strip mined to the southeast of the project site as it outcropped in the base of the mountain. The vein was deep mined utilizing room and pillar mining methods beneath the entirety of the project site. The mining maps do not indicate robbing was conducted within the Red Ash Bottom vein.

CONCLUSIONS

Based on the extent and age of the surficial disturbance from stripping operations at the project site, it is assumed material was moved across the site without engineering control, therefore, not as properly placed structural fill, which increases risk of intolerable post-construction settlement if not mitigated. The fill material used is also likely to be comprised of varying non-cohesive soils. Based on the unknown depth of the fill material from mining activities, any development of the project site would likely require a ground improvement program including Deep Dynamic Compaction. Deep mining activities have occurred beneath the project site at depths which may influence the surface development. Some likelihood of mine subsidence exists within the southwestern 15% of the project site from remnants of the Baltimore and Sump vein deep mine workings, therefore, a possibility exists for the inclusion of a subsidence mitigation program for development of the project site. Kleinfelder recommends that a detailed subsurface mine exploration be conducted to explore the conditions of the subsurface mine features. Test pits and test borings are recommended to explore the near surface conditions prior to site development. Uncertainty exists to the true extent of the deep mine workings, subsidence potential and environmental concerns associated with historic deep mines at the site. Deep mine borings are also recommended with an air rotary rig, in order to explore the deep mine veins beneath the site. Additionally, the lack of engineering control during the placement of fill at the site creates additional settlement issues. **It must be understood the project site is underlain by deep and shallow mining which is can create areas susceptible to subsidence. The Owner should recognize the risks associated with the development of a project site which has been mined.**

GEOTECHNICAL ENGINEERING SERVICES

The scope of work completed for this report was intended to provide a preliminary desktop review of the conditions across and beneath the project site as they relate to potential mining activities, in order to gain a further understanding of the risks involved with development of the project site. It is recommended a detailed subsurface exploration be completed across the site improvements prior to the issuance of final design criteria for the project. The specific scope of work will be determined once preliminary/final site plans have been developed.

LIMITATIONS

The information provided above is based on a review of historical maps that may contain inaccuracies. Kleinfelder conducted a thorough review of these historic documents and relied on them to arrive at our conclusions. This study is based on generally accepted policies and procedures, and interpretation of various publicly available maps and geologic studies which are believed to be accurate and reliable. Discrepancies or inaccuracies regarding any data provided are not the responsibility of Kleinfelder. It is emphasized that this study was made for the 85-Acre parcel at Haul Road and Johnson Street in Wilkes-Barre, Luzerne County, Pennsylvania. The intent of our study was to provide conclusions concerning the history of coal mining at the property. The information presented herein should not be used for any other purpose.

CLOSING

We trust that this is the information you require. Should you have any questions or if we may be of further assistance, please don't hesitate to contact our office.

Sincerely,
KLEINFELDER, INC.

Jason E. Trimble
Project Manager

Mark A. Giunta, P.E.
Principal Professional

APPENDIX

FIGURE 1 – TOPOGRAPHIC MAP

FIGURE 2 – GEOLOGIC MAP

FIGURE 3 – GEOLOGIC STRATIGRAPHY

FIGURE 4 – GENERAL MINING MAP

FIGURE 5 – BALTIMORE MINING MAP

FIGURE 6 – BALTIMORE STRIP MINING MAP

FIGURE 7 – BALTIMORE VEIN ELEVATION MAP

FIGURE 8 – SUMP VEIN MINING MAP

FIGURE 9 – SKIDMORE MIDDLE MINING MAP

FIGURE 10 – SKIDMORE BOTTOM MINING MAP

FIGURE 11 – ROSS VEIN MINING MAP

FIGURE 12 – RED ASH TOP MINING MAP

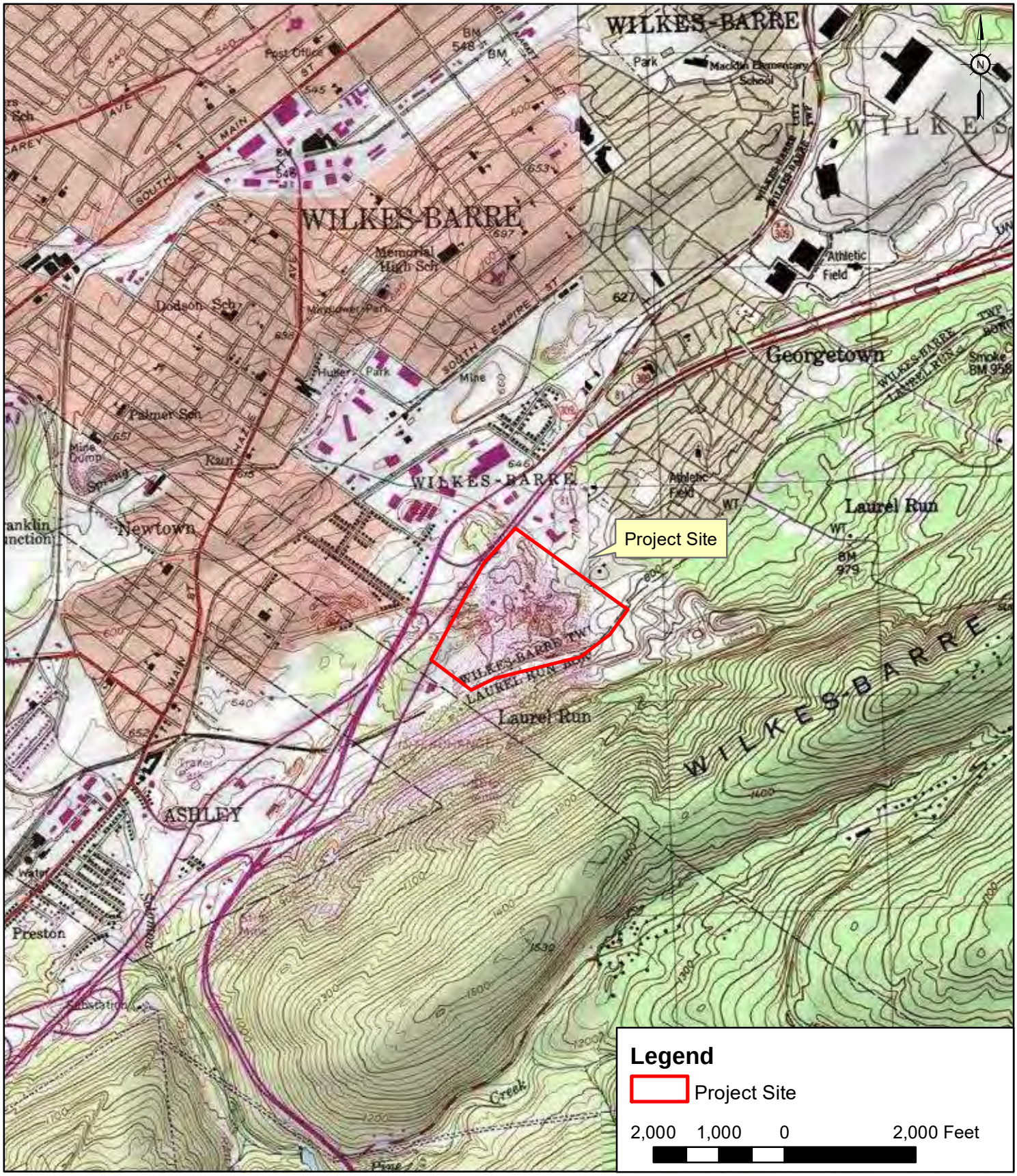
FIGURE 13 – RED ASH BOTTOM MINING MAP

FIGURE 14 – 1939 AERIAL PHOTOGRAPH

FIGURE 15 – 1959 AERIAL PHOTOGRAPH

FIGURE 16 – 1969 AERIAL PHOTOGRAPH

FIGURE 17 – CURRENT AERIAL PHOTOGRAPH



*Source - USGS 15 - Minute Topographic Quadrangle, Provided by ESRI

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 1
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

TOPOGRAPHIC MAP

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HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

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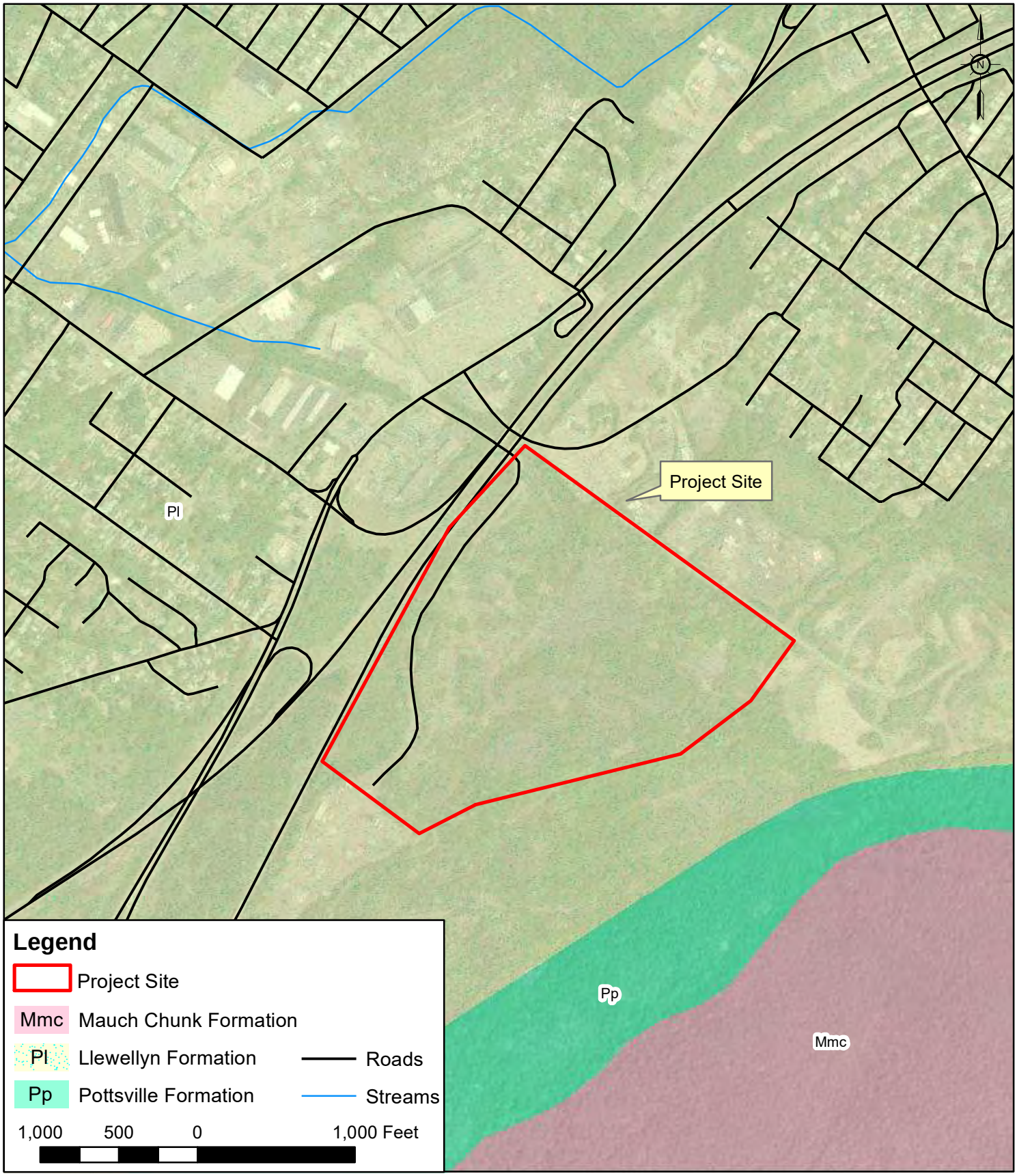

*Source - Map 61 - Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, 1981, Pa Geological Survey

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 2
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

GEOLOGIC MAP

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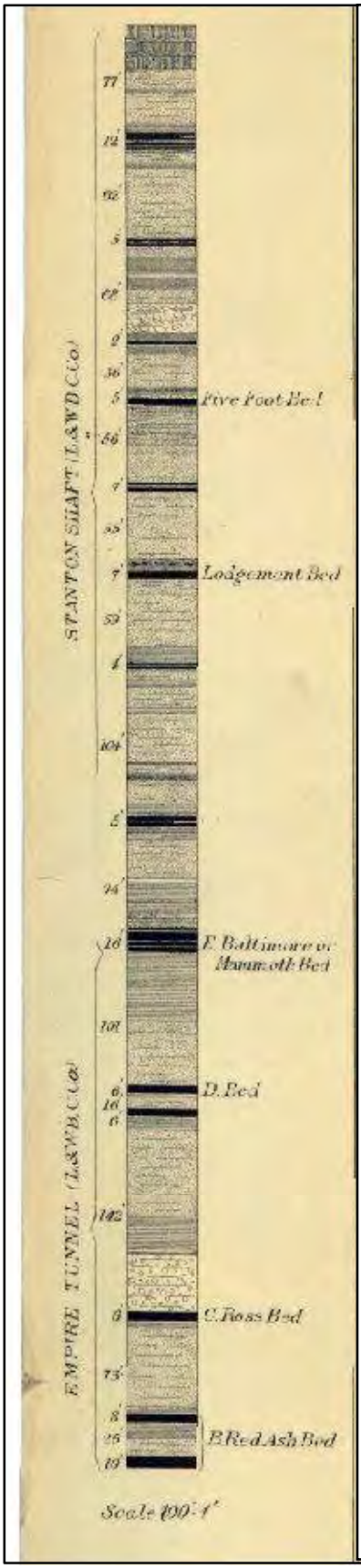

*Source - https://digital.libraries.psu.edu/digital/collection/pageol/id/52523, Northern Coal Field Mine Sheet, No VI, dated January 1884

SCALE:	DRAWING NUMBER:
AS SHOWN	FIGURE 3
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

GEOLOGIC STRATIGRAPHY

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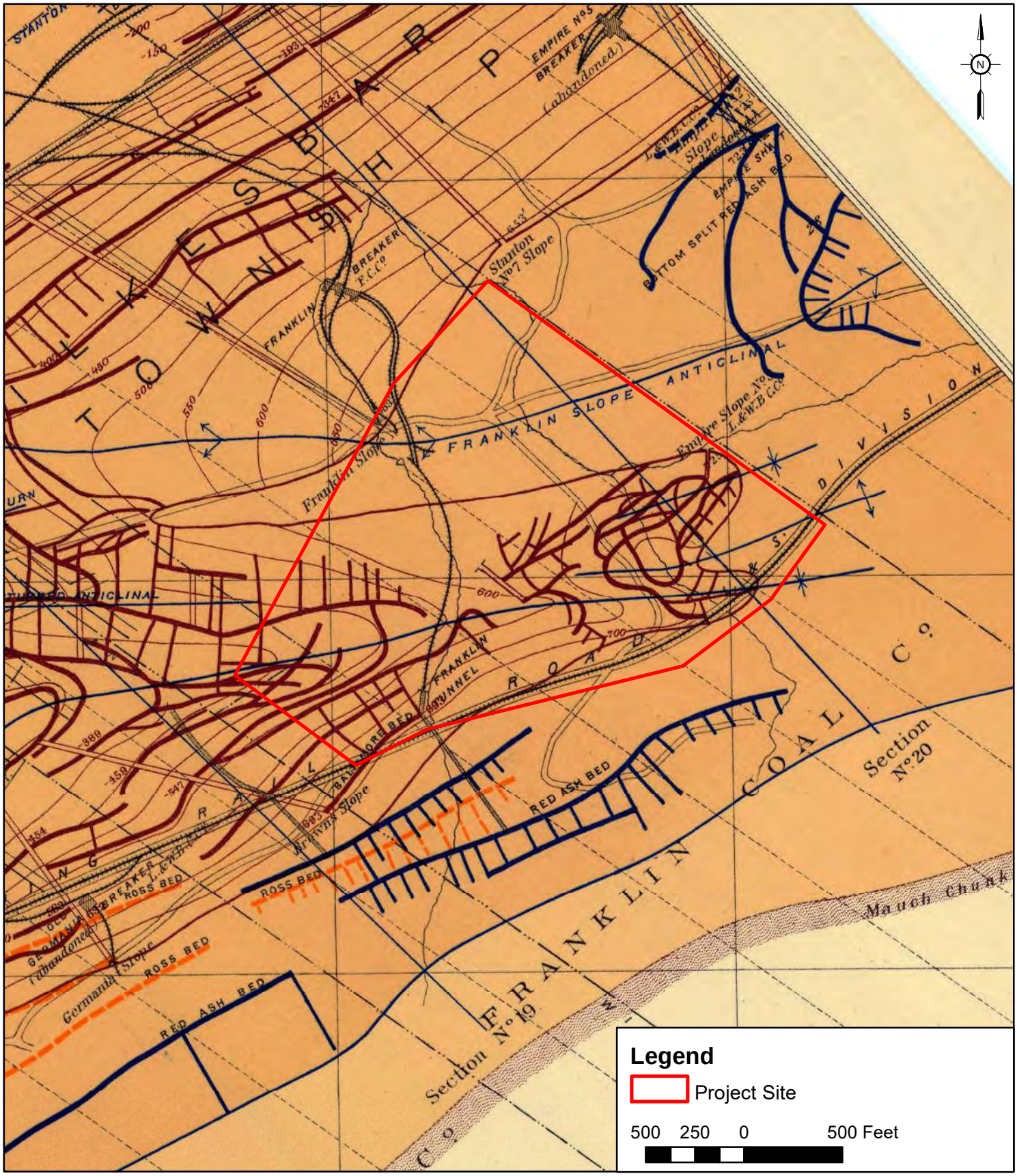

*Source - USGS 15 - Minute Topographic Quadrangle, Provided by ESRI; Second Geological Survey of Pennsylvania. J.P. Lesley State Geologist dated Januar 1984

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 4
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

GENERAL MINING MAP

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Mining Notes
No elevations on progress map; progress map may not indicate final result of mining within this vein.

*Source - Franklin Colliery Bottom Baltimore Vein

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 5
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

BALTIMORE MINING MAP

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*Source - Franklin Colliery Baltimore Vein

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 6
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

BALTIMORE STRIP MINING MAP

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*Source - Fanklin Colliery N-299 Baltimore Vein

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 7
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 5-11-2021

BALTIMORE VEIN ELEVATION MAP

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*Source - Franklin Colliery Sump Vein

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 8
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

SUMP VEIN MINING MAP

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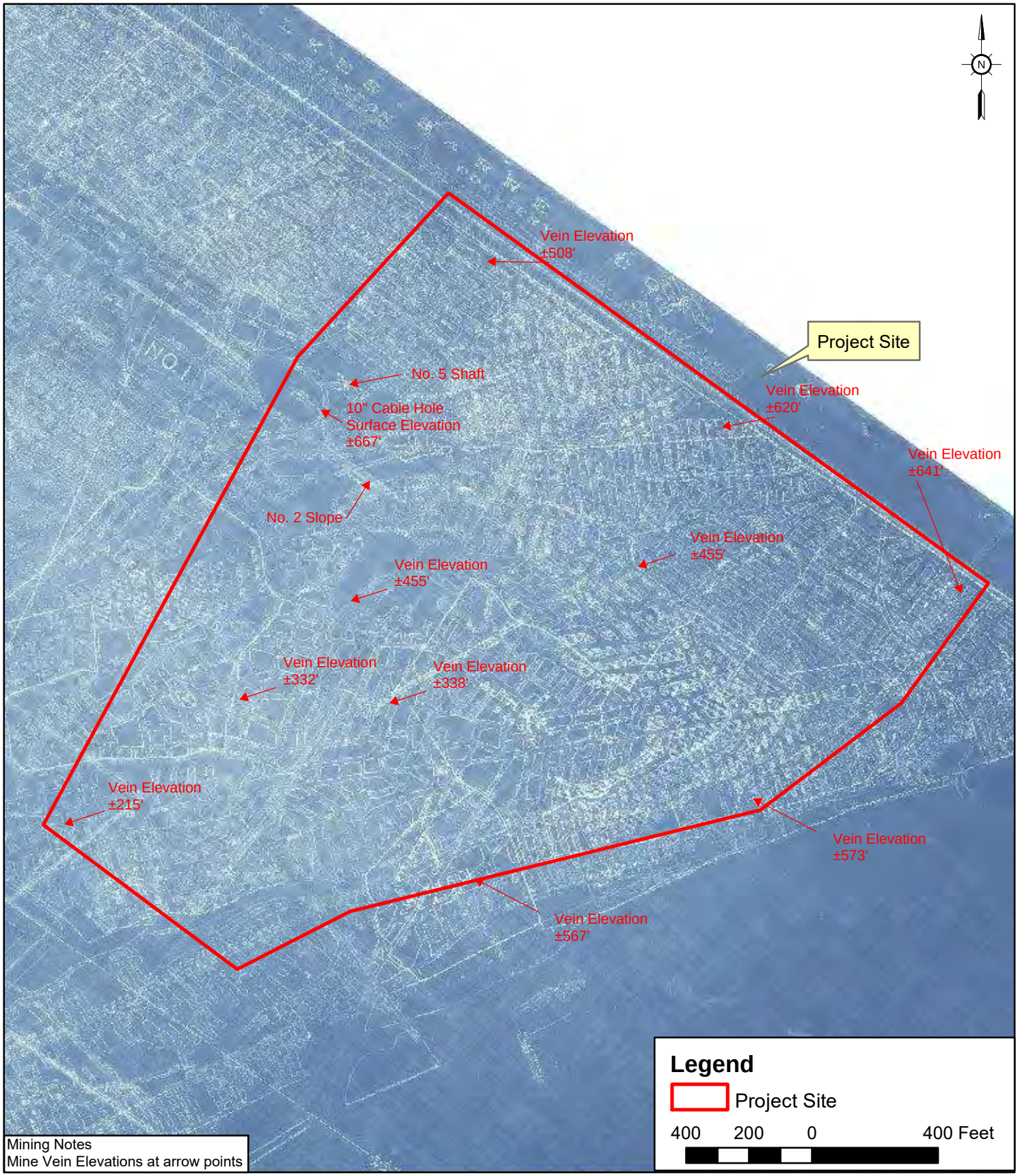

*Source - Franklin Colliery Skidmore Middle Vein

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 9
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

SKIDMORE MIDDLE MINING MAP

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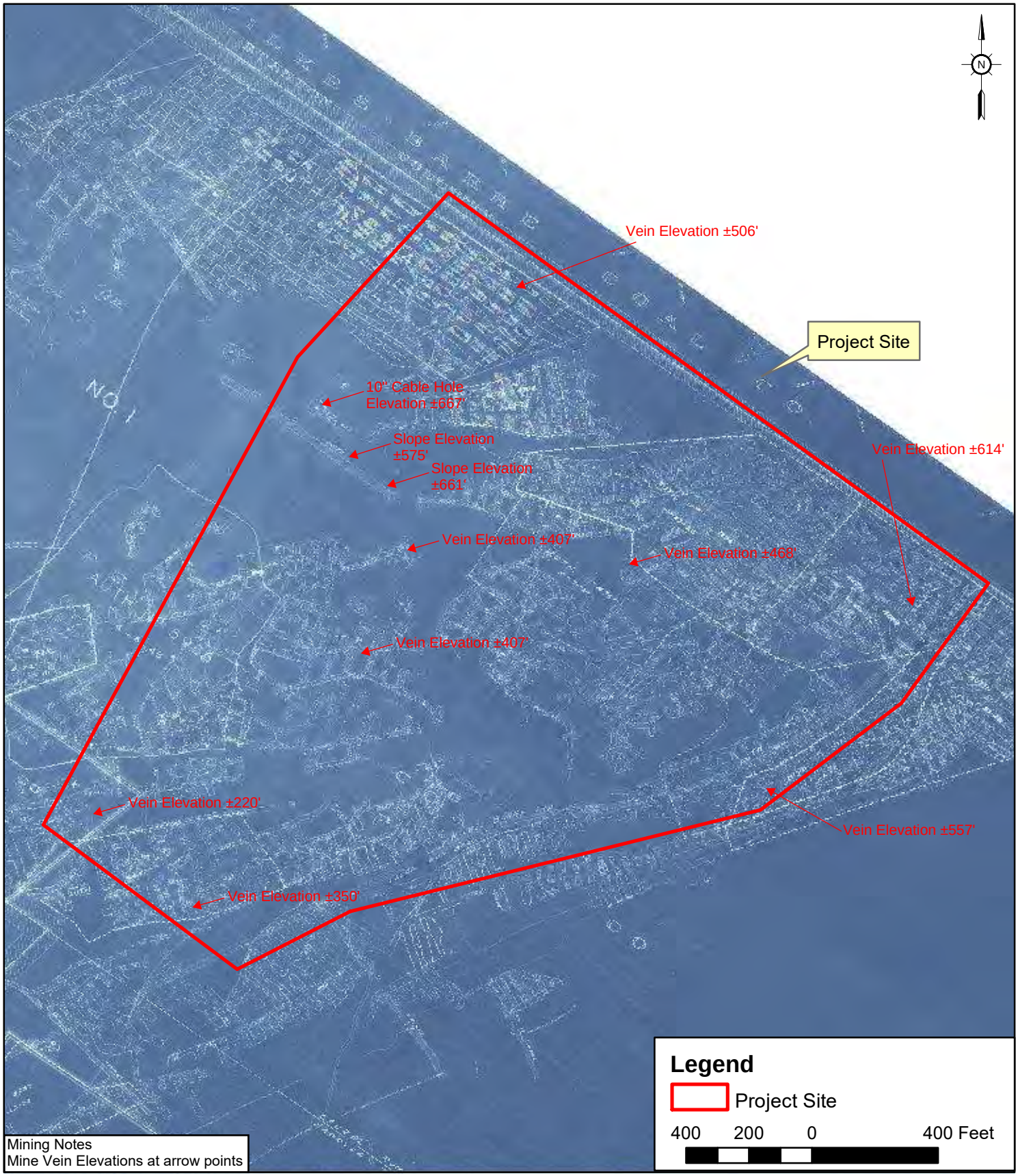

*Source - Franklin Colliery Skidmore Bottom Vein

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 10
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

SKIDMORE BOTTOM MINING MAP

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*Source - Franklin Colliery Ross Vein

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 11
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

ROSS VEIN MINING MAP

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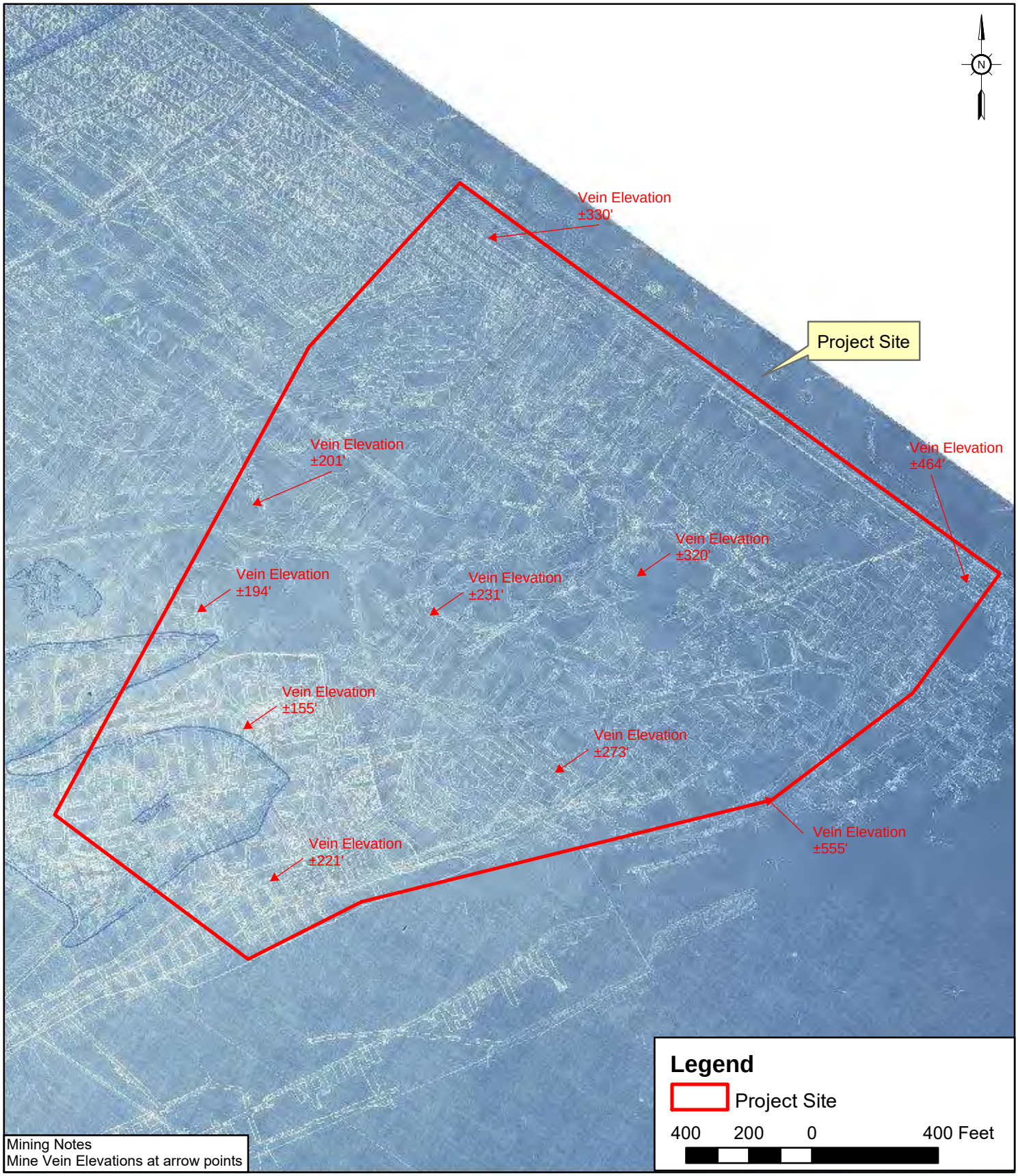

*Source - Franklin Colliery Red Ash Top Vein

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 12
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

RED ASH TOP MINING MAP

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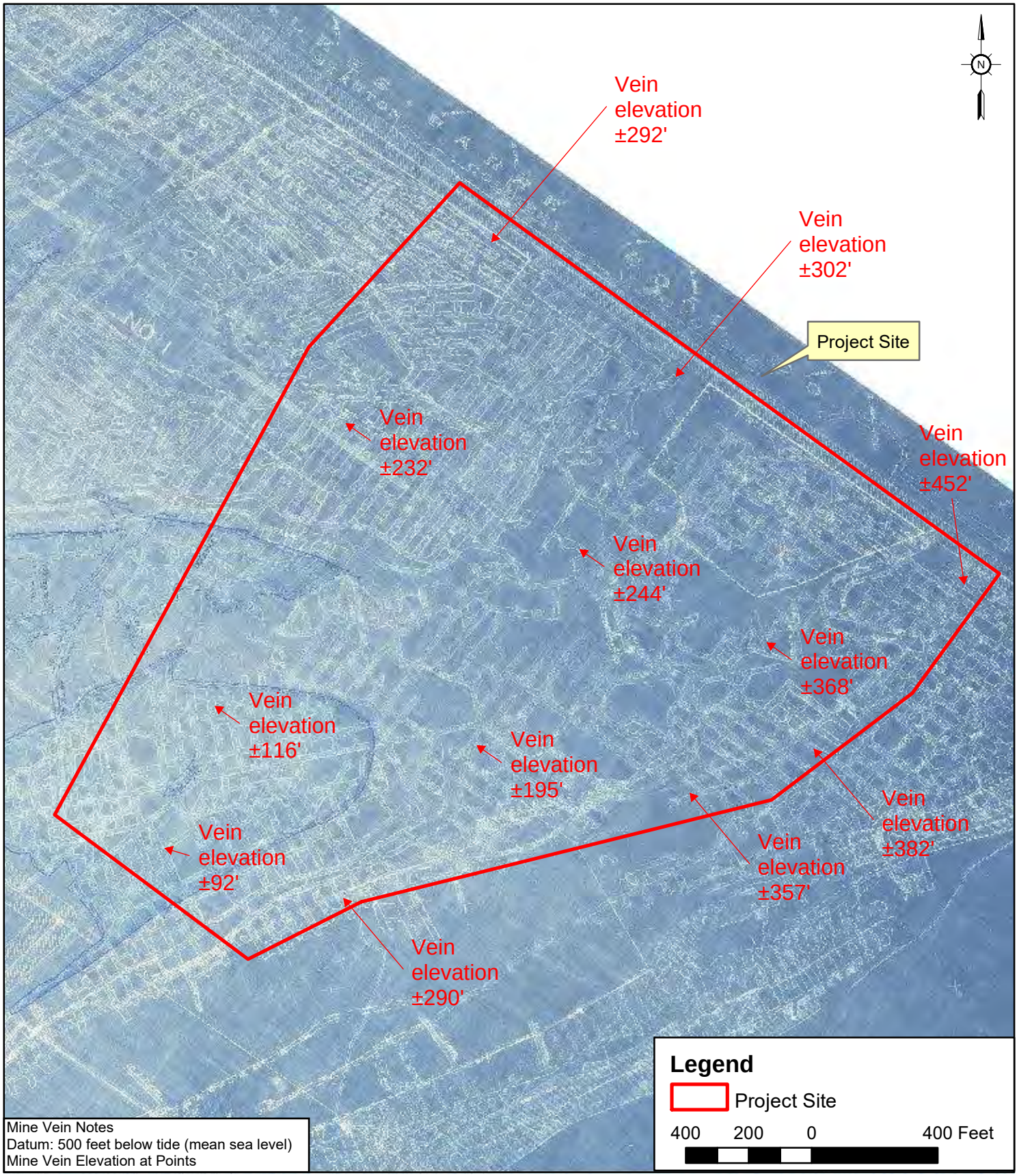

Mine Vein Notes
Datum: 500 feet below tide (mean sea level)
Mine Vein Elevation at Points

*Source - Franklin Colliery Red Ash Bottom Vein

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 13
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

RED ASH BOTTOM MINING MAP

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*Source https://datacommons.maps.arcgis.com/apps/View/index.html?appid=10af5f75f9f94f01866359ba398cb6a9

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 14
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

1939 AERIAL PHOTOGRAPH

PREPARED FOR

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*Source https://datacommons.maps.arcgis.com/apps/View/index.html?appid=10af5f75f9f94f01866359ba398cb6a9

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 15
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

1959 AERIAL PHOTOGRAPH

PREPARED FOR

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA

KLEINFELDER
Bright People. Right Solutions.
435 INDEPENDENCE AVE., SUITE C
MECHANICSBURG, PA 17055
PH (717) 458-0800
FAX (717)458-0801

*Source https://datacommons.maps.arcgis.com/apps/View/index.html?appid=10af5f75f9f94f01866359ba398cb6a9

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 16
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

1969 AERIAL PHOTOGRAPH

PREPARED FOR

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA

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MECHANICSBURG, PA 17055
PH (717) 458-0800
FAX (717)458-0801

*Source - Bingmaps.com

SCALE:	DRAWING NUMBER:
AS SHOWN	FIGURE 17
DRAWN BY: C. WEEMS	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 4-06-2021

CURRENT AERIAL PHOTOGRAPH

PREPARED FOR

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA

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IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME

Bluecup Wilkes-Barre Twp

LOCATION

Luzerne County, Pennsylvania

DESCRIPTION

Some(88 acres Franklin Property)

Local office

Pennsylvania Ecological Services Field Office

(814) 234-4090
(814) 234-0748

MAILING ADDRESS

110 Radnor Road Suite 101
State College, PA 16801-7987

PHYSICAL ADDRESS

110 Radnor Road
Suite 101}
State College, PA 16801-7987

http://www.fws.gov/northeast/pafo/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Indiana Bat Myotis sodalis — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/5949

Northern Long-eared Bat Myotis septentrionalis — Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9045

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general

public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Black-capped Chickadee *Poecile atricapillus practicus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 10 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10

Cerulean Warbler Dendroica cerulea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 27 to Jul 20
Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31
Yellow-bellied Sapsucker sphyrapicus varius This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8792	Breeds May 10 to Jul 15

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any

week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

THOMPSON ENVIRONMENTAL
Surveys & Permitting, LLC.

July 05, 2021

Jeff Randolph
Managing Partner
Bluecup Ventures, LLC.
20 Cedar Woods Lane
Fairfield, CT 06825

Sent Via Email 07/05/21

RE: Bluecup Ventures- Wilkes Barre Site
Aquatic Resource Delineation Report
Laurel Run and Wilkes Barre Townships, Luzerne County, Pennsylvania

Thompson Environmental Surveys & Permitting, LLC. (TES&P) has completed an aquatic resource delineation for Bluecup Ventures, LLC. (Bluecup) at the proposed Wilkes Barre Development Site (hereto referred to as the Project). The following report summarizes the results of this investigation.

BACKGROUND

The proposed Project will entail the proposed development of a significantly disturbed reclaimed mine site for commercial use. The existing site consists of a historic mining site containing small wooded/shrubby lots with steep topography and non-vegetated areas which have been historically graded and used for subsurface mining, and fill/coal material storage. The Project area commonly had sparce vegetation containing big bluestem (*Andropogon gerardii*), Canada goldenrod (*Solidago cabadensis*), Japanese knotweed (*Reynoutria japonica*), and grey birch seedlings (*Betula populifolia*). The most common tree species observed were grey birch (Betula populifolia) and red oak (Quercus rubra). An approximately 96-acre aquatic resource study area (Study Area) for the investigation was determined based on a preliminary Site Plan (Plans) provided by Bluecup May 11, 2021.

The Project is located in Laurel Run and Wilkes Barre Townships, Luzerne County, Pennsylvania, it can be found on the United States Geological Survey (USGS) Wilkes Barre-East and Wilkes Barre-West, Pennsylvania 7.5-minute series topographical quadrangles (USGS, 2020) **(Figure 1)**. The coordinates for the approximate Project center are 41.21868° and -75.87850°. Land cover within the Project area consists of forest and open land. Land use in the vicinity of the Project consists of surface mining, industrial, and primary and secondary roadways.

The Project area drains northwest to an un-named tributary (UNT) to Spring Run. Spring Run is a tributary to Solomon Creek, and these watercourses are located within the Upper Susquehanna River basin. Spring

Run and Solomon Creek have PA Code, Title 25, Chapter 93 designated protected aquatic life uses of Cold Water Fishes, Migratory Fishes (CWF, MF) (Commonwealth of PA, 2020a). The Pennsylvania Department of Environmental Protection (PADEP) does not list any of these watercourses as having an Existing Use Classification (PADEP, 2020b).

The Pennsylvania Fish and Boat Commission (PFBC) does not list Spring Run or Solomon Creek as Stocked Trout Waters. Solomon Creek is listed by PFBC as Wild Trout Waters (PFBC, 2020a, 2020b, and 2020c). Under Chapter 105 [105.17(iii)], wetlands located in or along the floodplain of Wild Trout Waters are considered Exceptional Value (Commonwealth of PA, 2020b). Additionally, wetlands which serve as habitat for fauna or flora listed as ‘‘threatened’’ or ‘‘endangered’’ under the Endangered Species Act of 1973, or wetlands that are hydrologically connected to or located within 1/2-mile of wetlands identified as habitat for flora or fauna listed as ‘‘threatened’’ or ‘‘endangered’’ are considered Exceptional Value.

According to the *Draft 2020 Pennsylvania Integrated Water Quality Monitoring and Assessment Report*, both the UNT to Spring Run and Spring Run are listed as aquatic life impaired (PADEP, 2020a).

No wetlands are identified by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS, 2020) within proximity to the Project. **(Figure 2)**.

Five soil map units are located within the Project Study Area. Each soil map unit has a hydric soil rating given by the Natural Resources Conservation Service (NRCS) **(Table 1)**.

Table 1. Study Area Soil Map Units

Soil Map Unit	Description	Hydric Rating
CF	Cut and fill land	0
DdB	Dekalb channery sandy loam, 0 to 8 percent slopes, rubbly	0
DdD	Dekalb channery sandy loam, 8 to 25 percent slopes, rubbly	0
Mg	Mine dump	0
Sm	Strip mine	0

METHODOLOGY

On May 18, 2021, Bridger Thompson of TES&P performed a site visit to identify and delineate wetlands and watercourses within the Study Area. These resources are potentially regulated under the Pennsylvania Clean Streams Law and Dam Safety and Encroachments Act, and the federal Clean Water Act (Commonwealth of PA, 2020a and 2020b; Clean Water Act of 1972). The Study Area for the aquatic resource investigation is depicted on **Figures 2 and 3.**

To identify and delineate wetlands, TES&P performed an on-site routine wetland determination as described in the U.S. Army Corps of Engineers (USACE) *Wetland Delineation Manual*, *Technical Report Y-87-1* (Environmental Laboratory, 1987) using wetland criteria detailed in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: North Central and Northeast Region (Version 2.0)* (USACE, 2012). If a wetland was delineated, a USACE Regional Supplement *Wetland Determination Data Form* was completed at a representative wetland data point. Data on the composition of the vegetation community, soil profile characteristics, and hydrology were recorded on the data form. Delineated wetlands were classified following *Classification of Wetlands and Deepwater Habitats of the United States (*Cowardin et al., 1979). The boundaries of delineated wetlands were recorded with a high-precision, mapping-grade Global Positioning System (GPS) unit. TES&P also recorded upland data points to document existing site conditions or the transition between the delineated wetland and upland boundary. Copies of the wetland determination data forms are located in **Appendix A**. Photographs were taken of the existing site conditions and each resource and are presented in **Appendix B.**

To identify and delineate watercourses, TES&P performed an on-site evaluation based on typical watercourse characteristics such as defined streambed and streambanks, exclusion of terrestrial vegetation, hydrologically-sorted substrate material, and the presence of an ordinary high-water mark (OHWM). If a watercourse was delineated, information was collected for each resource including but not limited to approximate top of bank width, width at the OHWM, approximate channel depth, flow depth, channel substrate, and channel morphology. The extent of each watercourse was recorded with a GPS unit. For watercourses exhibiting an average width at the OHWM of ten feet or greater, both left and right banks were recorded. For watercourses with average width at the OHWM of less than ten feet, the centerline of the channel was recorded. Photographs were taken of each resource and are presented in **Appendix B.**

RESULTS

TES&P identified and delineated four palustrine emergent (PEM) wetlands, one intermittent (INT) watercourse, and four ephemeral (EPH) watercourses within the 96-acre Study Area **(Figure 3).** A summary of the delineated resources is provided in **Table 2**. The field data forms for the delineated

wetlands and photographs of the identified features and existing site conditions are located in **Appendices A** and **B,** respectively. Descriptions of the delineated resources are presented below.

Wetland WIL-W-001 (PEM)

WIL-W-001 is an approximately 0.06-acre PEM wetland located in the northeast corner of the Study Area. The wetland is situated along the discharge of a small intermittent drainage where the drainage enters a historically graded haul road storm ditch. The wetland boundary follows the saturated soil conditions and vegetation dominated by wool grass (*Scirpus cypernius*). The primary source of wetland hydrology is provided by the seasonal hillslope groundwater discharge associated with the intermittent drainage and surface water runoff that is perched by a shallow bedrock layer. The primary indicators of hydrology observed were Surface Water (A1) and Saturation (A3). The wetland vegetation is dominated by wool grass, Japanese stilt grass (*Microstegium vimineum*) and meadowsweet (*Spiraea alba*). The soil texture at the wetland data point is silt loam and meets the criteria for a Depleted Matrix (F3).

Wetland WIL-W-002 (PEM):

WIL-W-002 is an approximately 0.04-acre PEM wetland located on the north edge of the Study Area. The wetland is situated at the discharge of a storm culvert along an ephemeral channel where silt and other debris has collected in a topographic depression. The wetland boundary follows the topography of the depression, the silt deposits, and the non-vegetated concave surface. The primary source of wetland hydrology is provided by surface water runoff that collects in the depressional topography. The primary indicators of hydrology observed were Sediment Deposits (B2) and Sparsely Vegetated Concave Surface (B8). The wetland lacked a vegetative layer however the fringes were vegetated by Japanese knotweed and red maple (Acer rubrum). The soil texture at the wetland data point is silt loam and contains silt deposits and coal fines underlain by a Depleted Matrix (F3).

Wetland WIL-W-003 (PEM)

WIL-W-003 is an approximately 0.07-acre PEM wetland located in the north central extent of the Study Area. The wetland is situated in a recently disturbed waterline right-of-way at the discharge of a seasonal groundwater seep. The wetland boundary follows the saturated soil conditions and vegetation dominated by common reed (*Phragmites australis*) and sensitive fern (*Onoclea sensibilis*). The primary source of wetland hydrology is provided by the seasonal groundwater discharge. The primary indicators of hydrology observed were Surface Water (A1) and Saturation (A3). The soil texture at the wetland data point is silt loam with coal fines however it meets the criteria for a Depleted Matrix (F3).

Wetland WIL-W-004 (PEM)

WIL-W-004 is an approximately 0.09-acre PEM wetland located in the central portion of the Study Area. The wetland is situated in a constructed linear ditch that extends along a historic haul road in the center of

the mine site. The wetland boundary follows the saturated soil conditions and vegetation dominated by common reed and soft rush (*Juncus effusus*). The primary source of wetland hydrology is provided by a seasonal high groundwater that is conveyed in the ditch and surface water runoff collection perched by a shallow bedrock layer. The primary indicators of hydrology observed were Surface Water (A1) and Saturation (A3). The soil texture at the wetland data point is silt loam with coal fines however it meets the criteria for a Depleted Matrix (F3).

Watercourse WIL-S-001 (INT)

Watercourse WIL-S-001 is a small intermittent channel that originates at a roadside culvert and drains southwest extending parallel to a historic haul road. Portions of the channel are within a constructed stormwater channel along the haul road. Approximately one inch of water depth was observed throughout the reach investigated. No finfish or aquatic organisms were observed. The channel is approximately four feet wide at the top-of-bank and is approximately one foot wide at the OHWM. The approximate bank height at the top-of-bank is one foot on both the left and right bank with heavy erosion. The channel has a hydrologically sorted substrate consisting of gravel and cobble with a bedrock bottom.

Watercourse WIL-S-002 (INT)

Watercourse WIL-S-002 is a small heavily eroded ephemeral channel that extends along a historic haul road. No flow was observed at the time of the investigation. The channel is approximately four feet wide at the top-of-bank and is approximately two feet wide at the OHWM. The bank height ranges from one to four feet at the top-of-bank. The channel has a hydrologically sorted substrate consisting of gravel and cobble with a bedrock bottom.

Watercourse WIL-S-003 (EPH)

Watercourse WIL-S-003 is a small ephemeral channel that originates in a heavily disturbed location in northeastern corner of the Study Area. The channel drains west extending within a constructed stormwater ditchl and becomes diffuse surface flow where it enters a gravel filled depression in the central portion of the Study Area. No flow was observed at the time of the investigation. The channel ranges from six feet to two feet wide at the top-of-bank and is approximately two feet wide at the OHWM. The approximate bank height at the top-of-bank is two feet on both the left and right bank with heavy erosion. The channel has a hydrologically sorted substrate consisting of gravel and cobble with a bedrock bottom.

Watercourse WIL-S-004 (EPH)

Watercourse WIL-S-004 is an ephemeral channel that extends from an upslope wooded draw and drains within a constructed stormwater channel in a historically graded area of the mine site. No flow was observed at the time of the investigation. The channel ranges from six feet to two feet wide at the top-of-bank and is approximately two feet wide at the OHWM. The approximate bank height at the top-of-bank ranges from

two to three feet on both the left and right bank with heavy erosion. The channel has a hydrologically sorted substrate consisting of gravel and cobble with a bedrock bottom.

Watercourse WIL-S-005 (EPH)

Watercourse WIL-S-005 is an ephemeral stormwater channel that originates in a roadside drainage and has input from multiple roadside culverts. The channel drains northwest in a constructed ditch extending parallel to an existing heavily used haul road and extends under Interstate 81 where it exits the Study Area. No flow was observed at the time of the investigation. The channel ranges from ten to six feet wide at the top-of-bank and is approximately four foot wide at the OHWM. The approximate bank height at the top-of-bank is three feet on both the left and right bank with heavy erosion. The channel has a hydrologically sorted substrate consisting of leaf litter, gravel, and cobble with a bedrock bottom with portions being heavily vegetated by Japanese knotweed.

Table 2. Wetland and Watercourse Identification and Classification

Resource Name	Classification	Delineated Size	Photo Number(s)
WIL-W-001	PEM	0.06 acre	5
WIL-W-002	PEM	0.04 acre	7
WIL-W-003	PEM	0.07 acre	8
WIL-W-004	PEM	0.09 acre	10
WIL-S-001*	INT	685 feet	12,13
WIL-S-002	EPH	148 feet	14
WIL-S-003	EPH	567 feet	15
WIL-S-004	EPH	137 feet	16
WIL-S-005*	EPH	842 feet	17,18

*Wetland boundary continues beyond the Study Area boundary

SUMMARY

On May 18, 2021 TES&P conducted an aquatic resource delineation for Bluecup for the proposed Wilkes-Barre Development Site in Laurel Run and Wilkes Barre Townships, Luzerne County, Pennsylvania. Four wetlands and five watercourse were identified within the Study Area.

Sincerely,

Thompson Environmental Surveys & Permitting, LLC.

Bridger Thompson
Senior Biologist / Owner
USFWS/PFBC Qualified Bog Turtle Surveyor
bthompson@thompsonesp.com
(717) 609-3301

Enclosures (3)
Figures: Location Map, NWI Wetlands and Soils Map, Delineated Aquatic Resources Map
Appendix A: USACE Regional Supplement Wetland Determination Data Forms
Appendix B: Photographic Log

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Figures

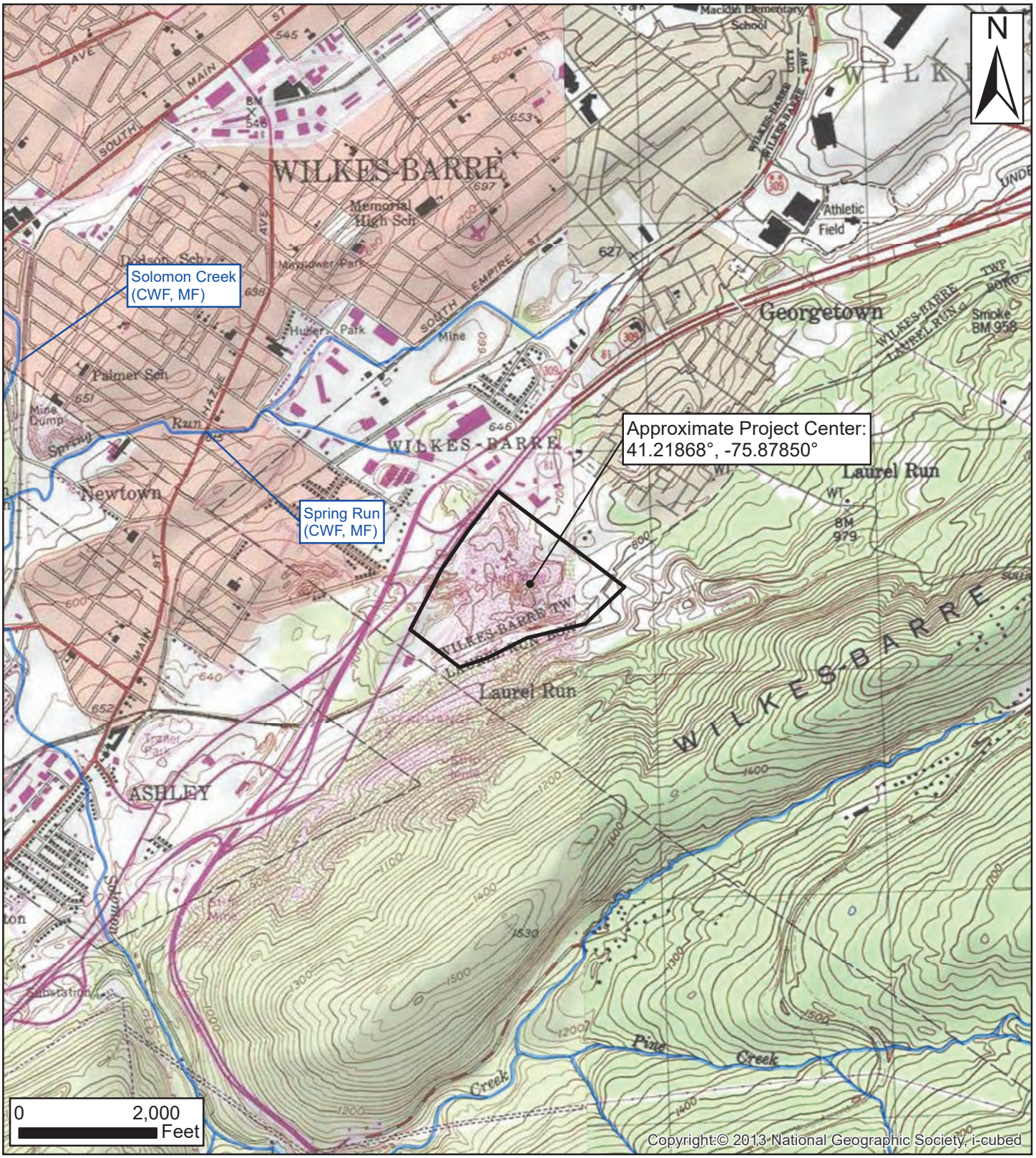
Figure 1:
Location Map

Figure 2:
NWI Wetlands and Soil Map Units

Figure 3:
Delineated Aquatic Resources

WILKES-BARRE SITE

Figure 1: Location Map



THOMPSON ENVIRONMENTAL Surveys & Permitting, LLC.

Date: 5/26/2021 | Created By: CMG

USGS 7.5' Quadrangles:
Wilkes Barre-East and Wilkes-Barre West
Luarel Run and Wilkes-Barre Townships
Luzerne County, Pennsylvania

BLUECUP VENTURES

WILKES-BARRE SITE

Figure 2: National Wetlands Inventory (NWI) Wetlands and Soil Map Units

Legend

- NWI Wetland
- Soil Map Unit
- Study Area

Data Source:
Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Soil Survey Geographic (SSURGO) Database for TEMPLATE County, Pennsylvania. Available online. Accessed September 15, 2018.

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BLUECUP VENTURES

TES&P
THOMPSON ENVIRONMENTAL
Surveys & Permitting, LLC.

0 200 400 Feet

Created By: CMG

Date: 5/26/2021

WILKES-BARRE SITE

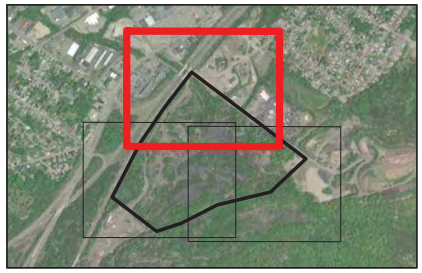
Figure 3: Delineated Aquatic Resources

Legend

- Upland Sample Point
- Wetland Sample Point
- Delineated Watercourse

Delineated Wetland Cowardin Classification

- Palustrine Emergent (PEM)
- Study Area



BLUECUP VENTURES

TES&P THOMPSON ENVIRONMENTAL Surveys & Permitting, LLC.

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Created By: CMG

Date: 7/5/2021

WILKES-BARRE SITE

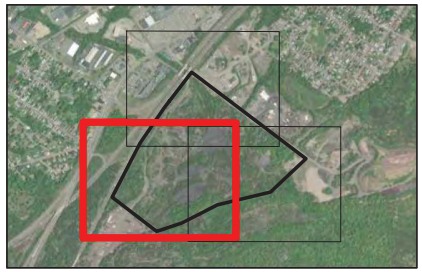
Figure 3: Delineated Aquatic Resources

Legend

- Upland Sample Point
- Wetland Sample Point
- Delineated Watercourse

Delineated Wetland Cowardin Classification

- Palustrine Emergent (PEM)
- Palustrine Forested (PFO)
- Study Area



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TES&P THOMPSON ENVIRONMENTAL Surveys & Permitting, LLC.

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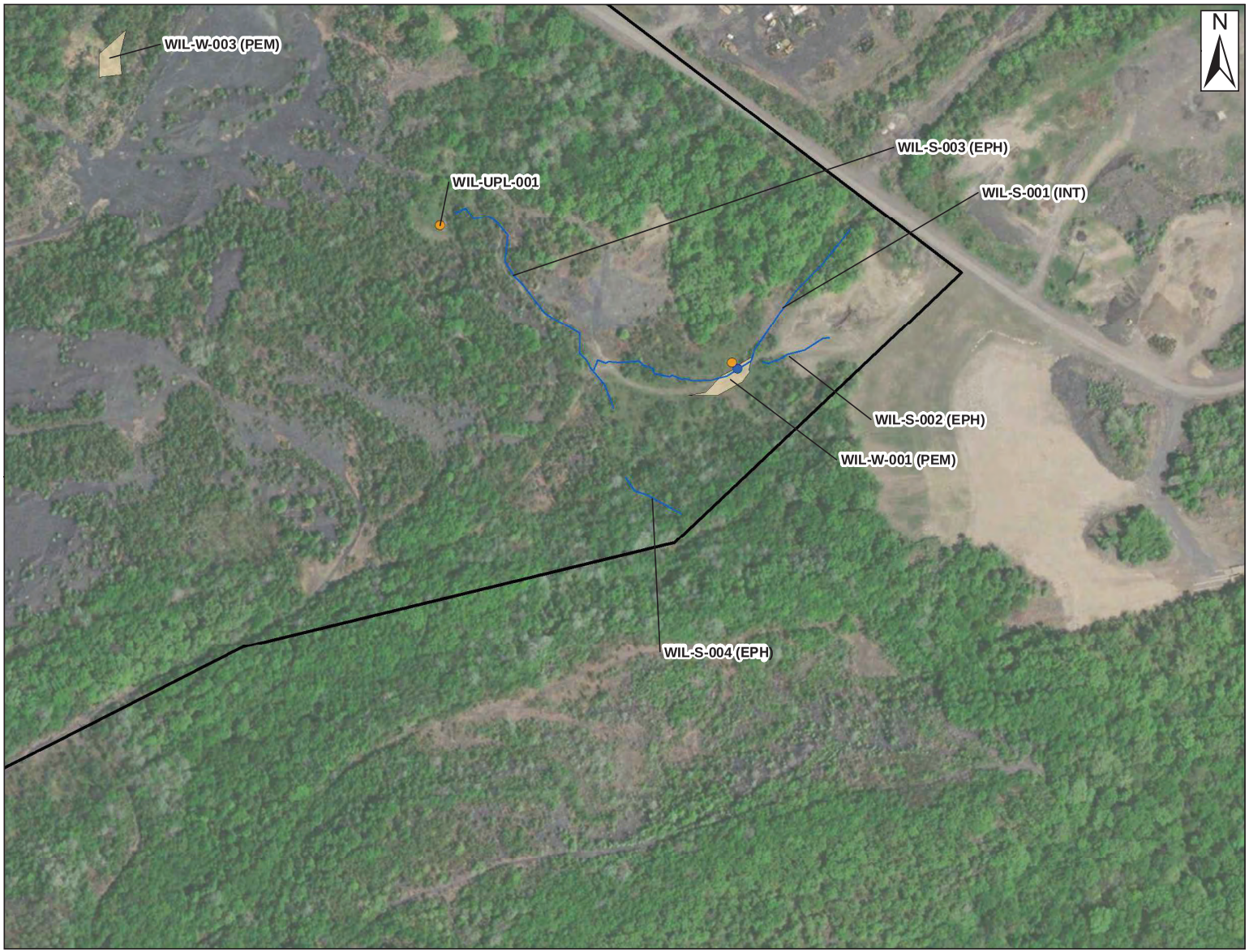
Date: 7/5/2021

WILKES-BARRE SITE

Figure 3: Delineated Aquatic Resources



Legend

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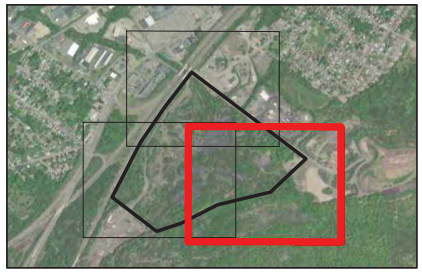


BLUECUP VENTURES

TES&P
THOMPSON ENVIRONMENTAL
Surveys & Permitting, LLC.

0 100 200 Feet

Created By: CMG

Date: 7/5/2021

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Of:

Haul Road & Johnson Street

Haul Road & Johnson Street
Wilkes Barre Township, Luzerne County, Pennsylvania

For:

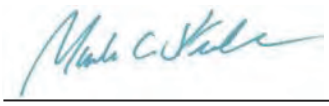
Mr. Jeff Randolph
Bluecup Ventures, LLC
2490 Black Rock Turnpike
Fairfield, CT 06824

Prepared By:

Kleinfelder
435 Independence Avenue, Suite C
Mechanicsburg, Pennsylvania
17055

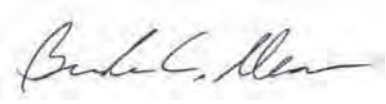
August 10, 2021

Prepared By:



Mark C. Steele, CHMM
Senior Program Manager

Reviewed By:



Brendan Moran, PE (PA)
Principal Professional

Project No. 20214488.001A

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1.0 Executive Summary

KLEINFELDER, INC. (**KLEINFELDER**) has performed a Phase I Environmental Site Assessment (ESA) of the property referenced as "Haul Road & Johnson Street" herein referred to as the "Site" or "Property." **KLEINFELDER** performed this Phase I ESA in general conformance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E 1527-13*[(1)].

1.1 Site Description

The Site is located south of the intersection of Haul Road and Johnson Street in Wilkes Barre Township, Luzerne County, Pennsylvania. The Site consists of three (3) parcels totaling 85-acres. The Site is comprised of vacant land consisting of wooded areas, vegetated land, a previously reclaimed anthracite coal mine, and railroad tracks. The Site is located within a primarily rural area. The tax parcel identification numbers associated to the properties are 69I10-00A07F000, 69I10-00A10A000, and 6919-00B03A000. Pagnotti Enterprises Incorporated is listed as the current owner of the properties.

1.2 Report Findings

The following is a summary of the findings and opinions of this report:

Current and Past Usage of the Site:

- Historically, the Site was used as an anthracite coal mine named Lehigh Valley Coal Company Franklin Colliery, dating back to as early as 1910. Mining operations continued at the Site until approximately 1981. Since that time, Kleinfelder did not note that development has occurred at the Site. The Site is classified as abandoned mine land (AML) with a status of reclamation completed. Many areas are now wooded or vegetated, and one strip pit has filled with water. Coal mining has been known to be associated with acid mine drainage (AMD). Typically, discharge through anthracite coal formations is generally neutral pH n and often does not lead to AMD conditions. During Site reconnaissance, **KLEINFELDER** observed the conditions of a water feature on the Site; no evidence of AMD (i.e., yellowish to orange staining, cloudy water) was noted. Therefore, it is the opinion of **KLEINFELDER** that the historic mining of the Site **does not** represent a Recognized Environmental Condition (REC).

- During the Site reconnaissance, evidence of former railroad activity was observed within the northeastern and traversing the central portion of the Site. Remnants of the railroad tracks are evident through the Site based on the lack of vegetation, discarded railroad ties, metal rail lines protruding from the ground, and flat grade. According to historical Sanborn Fire Insurance Maps, eleven (11) railroad lines were located on the

property in 1910. Between 1910 and 1950, the tracks that exited the Site to the west were no longer depicted, and five (5) sets of tracks remained. Rail lines no longer appear to be visible in the 1981 historical aerial image. Railroad tracks and associated equipment and staging areas are often associated with potential contamination from leaking of lubricants, PCBs, metals, and various petroleum products. Given that portions of the Site have at one time contained eleven (11) sets of railroad tracks since 1910, with portions of the rail lines still currently at the Site, it is the opinion of **KLEINFELDER** that this finding **does** represent a REC.

- According to the 1910 Sanborn map, the Lehigh Valley Coal Company Franklin Colliery contains a fireman's office, engine house, a two-story oil house, a sawmill, a supply storage house, a pump house, a district support office, a courthouse, a pump house, several outbuildings, a breaker structure, rail lines, and a tool shop. The Site was listed as utilizing steam and electricity with fuel coal during operations. The 1969 Sanborn map identifies a grease house located southwest of the main office. Based on known tool shop and historic operations at the Site that may have handled petroleum products, it is the opinion of **KLEINFELDER** that these findings **do** represent a REC.

- While onsite, five (5) dumping areas were observed and designated by Kleinfelder as Dump-1 through Dump-5.

    - Dump-1 is located near the eastern property border of the Site and consists of construction debris primarily comprised of asphalt, concrete, and stone. Additionally, household trash consisting of plastic items and general garbage was in the area.
    - Dump-2 is located on the north-central portion of the Site and consists of empty 55-gallon storage drums, household waste, and construction debris. A burn barrel was located just south of Dump-2 and appeared to contain mainly wood.
    - Dump-3 is located just south of Dump-2 and contains tires, crushed empty 5-gallon bucks, construction signs, aluminum cans, tires, wooden boards, and rubber sheeting.
    - Dump-4 is located south of Dump-3 and within a heavily wooded area and consists of empty 5-gallon buckets, corrugated piping, household trash, tires, and metal scrap.
    - Dump-5 keeps consistent with the other dump areas and is located along Allan Road. No evidence of petroleum products, hazardous substances, or other indications of contamination (i.e., odors, signs of staining, stressed vegetation, etc.) were observed in association with any of these features. Given that the possibility exists that hazardous substances or petroleum products may be present beneath the surface of the dumping

areas, it is the opinion of **KLEINFELDER** that these findings **do** represent a REC.

- A paper target and bullet casings were observed on the ground on the eastern portion of the Site. Based on the likely presence of lead in underlying soils due to the use of this portion of the Site as a shooting range, it is the opinion of **KLEINFELDER** that this finding **does** represent a REC.

- Throughout the Site are small areas of tires, demolition and landscaping debris, household waste items, appliances, metal scraps, empty metal 55-gallon storage drums, rubber sheeting, and glass. Some of these areas appear to be consistent with the Site's prior use for staging materials. In addition, no staining or stressed vegetation was observed in these areas; therefore, **KLEINFELDER** believes that these findings **do not** represent a REC.

- The Site was listed on the eFACTS database under South Wilkes-Barre 656803 – Abandoned Mine Land (AML) Inventory List. According to the eMapPA database, the property is listed as an AML Inquiry under Pagnotti Enterprises Inc. for deep underground coal mining. The reclamation status is listed as complete. No other information is provided. Therefore, it is the opinion of **KLEINFELDER** that this finding **does not** represent a REC.

1.3 Conclusions

This assessment has revealed no evidence of recognized environmental conditions in connection with the property except for the following:

- Railroad tracks that are historically and currently located on the Site.

- The likely presence of petroleum products or hazardous substances in Site soils associated with historic Site operations identified on the Sanborn Fire Insurance Maps.

- The five (5) areas of dumping on the Site.

- The likely presence of lead in Site soils associated with the shooting range.

1.4 Data Gap

KLEINFELDER performed this Phase I ESA in general conformance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E 1527-13*. During the course of this assessment, one data gap was encountered while conducting this Phase I Environmental Site Assessment. ASTM E 1527-13 states the historical use of a property should be identified at five-year intervals dating back to original development or 1940, whichever is earlier. Data gaps exceeding five-year intervals were encountered during our

historical research of the Site. However, it is the opinion of **KLEINFELDER** that these data gaps are not significant with regard to identifying RECs.

1.5 Reliance and Declaration

KLEINFELDER performed this Phase I ESA in general conformance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E 1527-13*. **KLEINFELDER** prepared this Phase I ESA for the exclusive benefit and use of Bluecup Ventures, LLC.

2.0 Introduction

KLEINFELDER INC. (**KLEINFELDER**) has performed a Phase I Environmental Site Assessment (ESA) of the property referenced as "Haul Road & Johnson Street" located south of the intersection of Haul Road and Johnson Street in Wilkes Barre Township, Luzerne County, Pennsylvania (herein referred to as the "Site" or "property"). **KLEINFELDER** prepared this Phase I ESA for the exclusive benefit and use of Bluecup Ventures, LLC. Sections 8.0 and 9.0 contain the findings and opinions, and conclusions, respectively, of this Phase I ESA.

KLEINFELDER performed this Phase I ESA in general conformance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E 1527-13.*

KLEINFELDER derived the findings presented within this Phase I ESA report from the following sources: records review of reasonably ascertainable and practically reviewable sources, site reconnaissance (a visit to the property), and interviews with knowledgeable parties. Any exceptions to (or deletions from) this practice are described in Sections 2.4, 2.5, 10.0 and 14.0 of this report.

2.1 Purpose

KLEINFELDER conducted this Phase I ESA at the request of Mr. Jeff Randolph of Bluecup Ventures, LLC in consideration for the development of the property. The purpose of this Phase I ESA is to identify, to the extent feasible pursuant to this process, RECs in connection with the Site. ASTM International (ASTM) defines a REC and related terms as follows:

Recognized Environmental Condition (REC) is "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to the release; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions.

Historical REC (HREC) is "a past release of any hazardous substance or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls."

Controlled REC (CREC) is "a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the

issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls."

De minimis condition is "a condition that generally does not represent a threat to human health or the environment and that generally would not be the subject of an enforcement action brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis conditions are not recognized environmental conditions."

Business Environmental Risk (BER) is "a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice. Consideration of business environmental risk issues may involve addressing one or more non-cope considerations."

2.2 Detailed Scope of Services

KLEINFELDER performed this Phase I ESA to assess the potential for RECs at the Site and in general conformance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E 1527-13*. The Phase I ESA included the following activities:

- Research and review of available background information (provided to us and from in-house database systems) regarding the Site in order to identify areas and/or items of potential concern relative to contamination or storage of hazardous waste. We coordinated a computer search of various pertinent databases (including Sanborn maps).
- Contacting state and local agencies regarding the availability of files for the subject site and adjoining properties.
- A site visit to perform a visual reconnaissance to identify evidence of RECs. The reconnaissance included readily visible and accessible areas of the site only. The site reconnaissance also included observing the current uses of adjoining properties to the extent practicable without entering the adjoining properties.
- Review of selected historical aerial photographs and other historical sources.

The findings and conclusions discussed in this report are based on the historic data readily available to our project team and the specific conditions observed (and documented) during our site inspection. No attempt has been made to comment on conditions beyond those documented in our Phase I ESA report and certification of the property is not made or implied in this regard.

KLEINFELDER relied upon the documents and information provided; we assume no responsibility or liability for their accuracy or completeness. Further, it is possible that due to site-specific limitations certain RECs might not have been visible. **KLEINFELDER** provides no guarantee that this Phase I ESA identified all RECs associated with the Site.

Special Note Regarding Procedural Changes for "All Appropriate Inquiry"

The Small Business Liability Relief and Brownfields Revitalization Act of 2002 mandated that the United States Environmental Protection Agency (USEPA) develop a rule to establish procedures that a person claiming liability relief as an "innocent purchaser," a "bona fide prospective purchaser" or a "contiguous landowner" must follow. The 2002 legislation identified the assessment mechanism as the ASTM International E 1527-00 "Standard for Environmental Site Assessments: Phase I Environmental Site Assessment Process." USEPA developed the All Appropriate Inquiry Rule (the Rule), which was published in the November 1, 2005, Federal Register with an effective date of November 1, 2006. The Rule also identifies the ASTM Standard as the assessment mechanism to demonstrate "All Appropriate Inquiry." ASTM worked closely with the USEPA so that a revised Standard (E 1527-13) was prepared to mirror and implement the new rule. **KLEINFELDER** performed this Phase I ESA in accordance with E 1527-13.

2.3 Significant Assumptions

KLEINFELDER assumes that all information provided to us either by the Client, the Client's representatives, persons identified as being knowledgeable about the Site history and/or operations, the environmental database search subcontractor, regulatory agencies or other involved parties was truthful, complete, accurate and provided in good faith. **KLEINFELDER** relied upon the documents and information provided; we assume no responsibility or liability for their accuracy or completeness.

2.4 Limitations and Exceptions

KLEINFELDER performed this Phase I ESA in general conformance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E 1527-13*. The RECs identified in this Phase I ESA report are limited to those **KLEINFELDER** identified in the records reviews, site reconnaissance, and interviews that are documented within. This Phase I ESA did not include an inspection of subsurface conditions, or any subsurface testing or sampling (e.g., air, water, soil, and building materials).

2.5 Special Terms and Conditions

No special terms or conditions were part of this assessment.

2.6 User Reliance

All reports, plans, specifications, electronic data, field data, notes and other documents ("Work Product") prepared by **KLEINFELDER** pursuant to this Agreement are intended for the exclusive use and reliance by the Client. Any other use or reliance by others without the written approval of **KLEINFELDER** will be at the Client's sole risk and without liability or legal exposure to **KLEINFELDER**. The Client shall indemnify, defend, and hold harmless **KLEINFELDER** from and against any claims, damages or losses including reasonable attorney's fees and costs, arising out of, or resulting from such unauthorized use or reliance.

KLEINFELDER assumes that the Client intends to use this Phase I ESA for the purposes of qualifying for one of the Landowner Liability Protections (LLP) offered by the Small Business Liability Relief and Brownfields Revitalization Act (SBLRBRA) and the regulations set forth at 40 CFR 312, and the Client can rely upon this Phase I ESA for this purpose.

3.0 Site Description

3.1 Location and Legal Description

The Site is located south of the intersection of Haul Road and Johnson Street in Wilkes Barre Township, Luzerne County, Pennsylvania. The Site consists of three (3) parcels totaling 85-acres. The tax parcel identification numbers associated to the properties are 69110-00A07F000, 69110-00A10A000, and 6919-00B03A000. Figure 1 displays the approximate location of the Site on a portion of the USGS 7.5-minute Wilkes Barre, PA Quadrangle Map[2]. Figure 2 displays the tax parcel boundary of the Site according to the Luzerne County tax assessment websites[3]. Figure 3 depicts the Site on an aerial image and shows the locations of key findings and RECs. The properties are currently owned by Pagnotti Enterprises Inc.

3.2 Site and Vicinity Characteristics

The Site is comprised of vacant land consisting of wooded areas, vegetated land, a previously reclaimed anthracite coal mine, a portion of Allan Road, and railroad tracks. Haul Road and Johnson Street intersection, commercial properties, wooded areas, and residential properties are located north of the property. Allan Industries (scrap metal yard), wooded areas, and abandoned coal mines are located to the south of the Site. Wooded areas and abandoned coal mines are located to the east of the Site. Vegetated areas and Interstate 81 are located to the west of the Site. The Site is located within a primarily rural area, with sprawling commercial and residential development further beyond the Site's north and west limits.

3.3 Current Use of the Site

The Site is currently vacant.

3.4 Descriptions of Site Features

3.4.1 Structures

No aboveground structures are currently located on the property.

3.4.2 Roads

The property is accessed off Allan Road to the west and Haul Road to the north. Gravel access roads traverse most of the Site.

3.4.3 Heating/Cooling Systems

The Site does not contain any active heating or cooling systems.

3.4.4 Sewage Disposal

No sewer systems were noted on the Site.

3.4.5 Potable Water

The Site does not contain a known source of potable water.

3.4.6 Other Site Improvements

Abandoned railroad tracks were observed to traverse the Site.

3.4.7 Surface Water

No stormwater systems were observed at the Site.

3.5 Current Uses of Adjoining Properties

North – The intersection of Haul Road and Johnson Street, commercial and light industrial properties, wooded areas, and residential properties.

South – Allan Industries, wooded areas, and abandoned coal mines.

East – Wooded areas and abandoned coal mines.

West – Vegetated areas and Interstate 81.

4.0 User Provided Information

KLEINFELDER submitted an "All Appropriate Inquiry" User Questionnaire to the User of this Phase I ESA to describe their relative to the information discussed in the following subsections. However, at the time of writing this report, **KLEINFELDER** was not provided the User Questionnaire.

5.0 Records Review

5.1 Standard Environmental Record Sources

The ASTM Phase I ESA process includes the review of select Federal and State environmental record sources in order to evaluate the potential existence of RECs either on the Site or within specified distances from the property. ASTM has established search radii for each of these standard environmental record sources. **KLEINFELDER** performed this records review utilizing a computer database search report (Appendix A) prepared by Environmental Data Resources, Inc. (EDR)[4]. The outlined area on the Topographic Map, Overview Map and Detail Map of the database report marks the approximate location of the Site. This report keys the surrounding sites on the ASTM-specified databases to the inclusive Overview Map and Detail Map. **KLEINFELDER** notes that some of the sites may be listed in more than one (1) database. Furthermore, EDR may have been unable to plot certain sites due to incomplete information, resulting in a list of "unplottable" or "orphan" sites.

Table 1 presented below summarizes the database listings from the EDR Report. Only those databases which have facilities within the specified search distances are provided within this table. For a full list of the databases searched, please refer to the EDR Report within Appendix A.

Table 1

Database	Target property	Search Distance (miles)	<1/8 mile	1/8 – 1/4 mile	1/4 – 1/2 mile	1/2 - 1 mile	Total Plotted
SEMS-ARCHIVE	-	0.50	1	0	0	-	**1**
RCRA-SQG	-	0.25	0	1	-	-	**1**
RCRA-VSQG	-	0.25	0	3	-	-	**3**
LUST	-	0.50	3	3	1	-	**7**
PA UST	-	0.25	0	2	-	-	**2**
PA AST	-	0.25	1	0	-	-	**1**
PA AUL	-	0.50	0	0	1	-	**1**
PA HIST LF	-	0.50	0	1	0	-	**1**
ARCHIVE UST	-	0.25	3	4	-	-	**7**
RCRA NonGen/NLR	-	0.25	1	1	-	-	**2**
US MINES	-	0.25	2	0	-	-	**2**
ABANDONED MINES	-	0.25	1	0	-	-	**1**
PA MANIFEST	-	0.25	0	2	-	-	**2**
RI MANIFEST	-	0.25	0	1	-	-	**1**
NY MANIFEST	-	0.25	0	3	-	-	**3**
PA MINES	-	0.25	0	1	-	-	**1**
TOTAL	**0**	-	12	22	2	0	**36**

"-" Indicates no database search for this search distance
"TP" Target Property

The Site address was not identified within the EDR database search report. Additionally, the EDR report identified a total of thirty-six (36) database listings associated with twenty-two (22) facilities within the ASTM defined search radius of the Site. The identified facilities that were located within 1/8 mile are detailed below. Refer to the EDR report within the Appendices for additional information.

- **Uni-Mart 4302** – Route 309 & Interstate 81. This facility is listed approximately 135 feet north northwest of the Site at a lower elevation; however, Kleinfelder determined that this facility is located approximately 300 feet from the Site. This facility was listed on the PA leaking underground storage tank (LUST) and ARCHIVE Underground Storage Tank (UST) database with a site ID of 600526. The LUST database lists a release of unleaded gasoline during a tank closure event on September 22, 2005. The database states that soil contamination was noted at the fuel islands. As of May 28, 2008, the unleaded gasoline release is listed as Cleanup Completed. A release of diesel fuel occurred at the site on/or before August 5, 1989. The soil contamination was documented during a tank closure event. As of July 24, 2007, this release is listed as Cleanup Completed. The ARCHIVE UST database lists ten (10) USTs were listed onsite; seven (7) USTs (six 10,000 and one 5,000- gallons) containing GAS (gasoline) and three USTs(3) (12,000, 5000, and 4000-gallons) containing diesel fuel. All USTs are listed as removed. Based on the distance from the Site, apparent downgradient location from the Site, and case closure status, this facility is not considered a REC likely to have affected soil, soil vapor, or groundwater beneath the Site.

- **Latona Mining, LLC –** No address provided. The facility is located approximately 140 feet west-northwest of the Site at a lower elevation and is listed on the US MINES database. This facility is identified under Mine ID: 3601673. The status is listed as temporarily closed. No other information was listed within the EDR report. This listing information alone does not suggest evidence of a REC to the Site.

- **Northeast Energy Company –** No address provided. The facility is located approximately 440 feet northwest of the Site at a lower elevation and is listed on the US MINES database. This facility is identified under Mine ID: 3608325. The status is listed as permanently closed. No other information was listed within the EDR report. This listing information alone does not suggest evidence of a REC to the Site.

- **Georgetown Stripping –** No address provided. The facility is located approximately 500 feet northwest of the Site at a lower elevation and is listed on the ABANDONED MINES database. This facility was listed under Mine ID 3608325

(identical to Northeast Energy Company). The status of the mine is listed as abandoned. No other information was listed within the EDR report. This listing information alone does not suggest evidence of a REC to the Site.

- **Ashley Borough Dump –** Franklin Jct on West Liberty Street. The facility is listed approximately 517 feet northeast of the Site; however, Kleinfelder determined this facility is located approximately 4,000 feet west of the Site. The property was identified on the Superfund Enterprise Management System (SEMS) ARCHIVE databases. This facility is identified under ID 0302329. The National Priorities List (NPL) status states that the facility does not qualify for the NPL based on existing information. No further information is listed. Based on the status and distance from the Site, this facility is not considered a REC likely to have affected soil, soil vapor, or groundwater beneath the Site.

- **Cleveland Bros Equipment** – 970 Wilkes Barre Township Blvd. This facility is located approximately 580 feet north of the Site at a lower elevation. This facility was listed on the ARCHIVE UST database with a site ID of 237247. The facility is listed as having one (1) 2,000-gallon gasoline UST and one (1) 2,000-gallon diesel UST both closed without a permit. Additionally, the facility is listed on the LUST, PA ARCHIVE AST, and RCRA NonGen/NLR databases. The LUST database lists a release of confirmed on August 20, 1991. As of April 16, 1992, the site is listed as Cleanup Completed. The ARCHIVE AST database lists two (2) ASTs (2,000 and 1,000 gallons) containing diesel fuel. All ASTs are listed as removed. Based on the distance from the Site, apparent downgradient location from the Site, and case closure status, this facility is not considered a REC likely to have affected soil, soil vapor, or groundwater beneath the Site.

- **First Eastern Bank** – 1000 Wilkes Barre Township Blvd. This facility is located approximately 604 feet north northwest of the Site at a lower elevation and is listed on the LUST database. The LUST database lists a release of confirmed on May 17, 1994. Soil contamination was documented during a tank closure event of unleaded gasoline. As of March 1, 2013, the facility is listed as Cleanup Completed. Additionally, the facility is listed on the PA ARCHIVE UST database for a 10,000-gallon gasoline UST that was closed without a permit. No violations were listed for this database. Based on the distance from the Site, apparent downgradient location from the Site, and case closure status, this facility is not considered a REC likely to have affected soil, soil vapor, or groundwater beneath the Site.

In addition, EDR identified three (3) “unplottable” or “orphan” facility listed in the database report. These unmapped sites have incomplete information regarding their locations and could not be accurately plotted in relation to the target property. The orphan summary/unmapped site report was reviewed to assess the potential for the listed facility to pose a REC to the Site. Based on the review, the facilities listed are not considered RECs likely to have affected soil, soil vapor or groundwater beneath the Site.

5.2 Additional Environmental Record Sources

5.2.1 Records Request

Pursuant to the Freedom of Information Act (FOIA), **KLEINFELDER** submitted information requests (copies can be found in Appendix B) for the Site to the following agencies:

- The United States Environmental Protection Agency (USEPA)[5]
- Pennsylvania Department of Environmental Protection (PADEP) Office of the Records Custodian
- Luzerne County Open Records Officer
- Wilkes Barre Township Open Records

KLEINFELDER submitted an electronic request to the USEPA on April 15, 2021. **KLEINFELDER** performed a multisystem query of EnviroFacts, USEPA’s electronic database system. The Site was not identified on the EPA website.

The Pennsylvania Department of Environmental Protection (PADEP) was contacted on April 6, 2021, for a review of files about the Site. PADEP responded on April 14, 2021, indicating they do not have any files associated with the property. A second request to PADEP Reclaimed Mines Bureau (Kim Snyder, P.E. – 570-826-2371) was completed via telephone on May 7, 2021. No responses have been received from the PADEP Bureau of Abandoned Mines.

KLEINFELDER submitted a records request to the Luzerne County Open Records Officer on April 6, 2021. On April 10, 2021, Shannon Crake Lapsansky, Esq., Open Records Officer with the Luzerne County, informed **Kleinfelder** via email that Luzerne County does not have environmental records pertaining to the Site.

KLEINFELDER submitted a records request to Wilkes Barre Township on April 6, 2021. On April 8, 2021, Thomas Zedolik with Wilkes Barre Township responded, stating that there are no files pertaining to the Site.

5.2.2 Database Search

In order to obtain further information regarding the Site and adjacent properties, information was reviewed on the following databases maintained by the PADEP:

- Environment Facility Compliance Tracking System (eFACTS)[6]
- eMapPA[7]
- Storage Tanks Application Database[8]
- NPMS Public Viewer[9]

The Site was listed on the eFACTS database under South Wilkes-Barre 656803 – Abandoned Mine Land (AML) Inventory List. According to the eMapPA database, the property is listed as an AML Inquiry under Pagnotti Enterprises Inc. for deep underground mining of coal. The reclamation status is listed as complete. The Site was not identified on the Storage Tanks Applications database or NPMS Public Viewer website.

5.2.3 Additional Sources

At the time of writing this Phase I ESA, no additional sources were reviewed.

5.3 Physical Setting Source(s)

5.3.1 Topography

The USGS provides topographic map coverage for this property in the Conyngham and Wilkes Barre, Pennsylvania, 7.5-Minute Quadrangle. According to the topographic map, the Site is located at an elevation range between approximately 700 to 800 feet above mean sea level. The surface topography on the slopes toward the south-southwest. The property has been disturbed over its history leaving the existing ground surface and topography highly variable. The topographic map showed Laurel Run to the south of the Site. Groundwater flow direction is anticipated to flow in a south-southwestern direction, generally following topographic slope; however, the direction of groundwater flow beneath the Site can only be accurately determined through a groundwater investigation.

5.3.2 Geology

According to the Pennsylvania Geologic Survey's Atlas of Preliminary Geologic Quadrangles, Fourth Series, 1981[10], the Site is situated in the Pennsylvanian Llewellyn Formation (geologic symbol Pl).

The Pennsylvania Geologic Survey publication, *The Engineering Characteristics of the Rocks of Pennsylvania*, Second Edition, 1982[11], describes the rock in this formation as consisting of interbedded layers of sandstone, siltstone and

conglomerate; which range from medium- to coarse-grained; light gray to brown, with numerous anthracite coal and dark-gray to black shales. The sandstone in this formation is well bedded and thick to massive, while the coal and shale beds are relatively thin. Fractures are moderately developed and moderately distributed. Joints are moderately spaced, open, and steeply dipping. The rock is slightly to moderately weathered to a shallow or moderate depth, dependent on the local lithology. The resulting soil mantle is thin to moderately thick. This formation is difficult to excavate with a fast or slow drilling rate, again dependent on the specific rock type encountered.

5.3.3 Soils

According to soil data obtained from the NRCS Web Soil Survey[12], the soils within the Site consist primarily of Strip mine (Sm). According to the USDA Soil Conservation Service, the parent material of the parent material of strip mine soils is also coal extraction mine spoil. The profile is listed as very channery sandy loam to 6 inches and very channery silt loam to at least 60 inches. This soil has very low available water storage. This soil type is not listed as hydric.

5.4 Historical Use Information on the Property

ASTM E 1527-13 provides eight (8) standard sources from which the history of the Site/area may be established. These sources include the following:

1. Aerial Photographs
2. Fire Insurance Maps
3. Property Tax Files
4. Recorded Land Title Records
5. USGS Topographic Maps
6. Local Street Directories
7. Building/Engineering Department Records
8. Zoning/Land Use Records

The following subsections document **KLEINFELDER**'s research of these Standard Historical Sources.

5.4.1 Aerial Photographs

Aerial photographs of the Site were obtained from EDR[13]. Copies of historical aerial photographs are provided in Appendix C. Brief land-use observations are summarized below.

1939 - The Site appears to have surficial disturbances associated to mining operation and wooded land. Roadways/railroad tracks have been aligned in the central and eastern portion of the Site. A railroad appears to bound the property to the southeast. The Site appears to contain three (3) large structures (office, breaker, and conveyor buildings) and several outbuildings concentrated on the northwestern portion of the Site. The eastern half of the property appears to be primarily mined. Surrounding areas consist of structures, railroad tracks, wooded land, and roadways.

1959 - The mining operation expanded in the southwest region of the Site and continuing beyond the Site to the west.

1966 - No significant changes have occurred to the Site.

1969 - It appears that mining activities continue at the Site, and strip pits appear to be more prominent. The western portion of the Site appears to be utilized for the storage of materials. A highway appears to have been constructed to the west of the Site.

1976 - No significant changes have occurred on or around the Site.

1981 - The mining operation no longer appears to be active with tree and vegetation observed throughout the property and the topography appears to be unchanged after this date. The rail lines no longer observed on the property. The northern portion of the Site appears to be utilized for the storage of materials.

1987 - No significant changes have occurred on or around the Site.

1992 - The western portion of the Site appears to be heavily utilized for storage. The remaining areas appear to be mainly clear and free of vegetation.

1999 - The Site appears to have been mainly cleared of all buildings and stored materials. The Site appears to be coming vegetated and contains five (5) trailers. No other significant changes have occurred on or around the Site.

2005 - Vegetation appears to be growing throughout the property, and the Site appears vacant.

2010 - Vegetation appears to be growing throughout the property.

2013 - No significant changes have occurred on or around the Site.

2017 - No significant changes have occurred on or around the Site. The Site appears to be similar to that observed during Site reconnaissance.

5.4.2 Fire Insurance Maps

Sanborn Fire Insurance Maps of the Site were obtained from EDR[14]. Copies of the Sanborn Maps have been included in Appendix D. Brief observations are summarized below.

1910 – The Site is labeled as Lehigh Valley Coal Company Franklin Colliery. The Site contains a fireman's office, engine house, a two-story oil house, a sawmill, a supply storage house, a pump house, a district support office, a courthouse, a pump house, several outbuildings, and a large breaking structure with associated rail lines. The Site appears to contain a mixture of eleven railroad lines and spurs. A conveyor structure appears to be powered by a boiler system that contains eleven (11) iron chimneys that are 56-feet tall.

1950 – The Site appears to have changed slightly from the 1910 Sanborn map. The Site is listed as utilizing steam and electricity with fuel coal. It appears that structures from the west on the 1910 Sanborn may have been plotted incorrectly. The property shows an office/tool shop, a time office, a switch house, a storage structure, two (2) engine houses, several outbuildings, and a breaker structure with associated structures with rail lines. A cave-in is identified southwest of the breaker structure. A city water line appears parallel to the rail line system through the Site. Approximately five (5) sets of railroad lines are located on the central portion of the Site.

1969 - The Site coverage on the 1969 Sanborn map appears to cover additional structures associated with the conveyor and rail lines. The breaker structure no longer appears on the Site. A boiler house appears with a compressor house. The structures located in the area of the rail lines and the boiler house are a screening structure, three (3) engine houses, a pump

house, and a vacant structure. A grease house is located southwest of the main office structure.

1975 - No significant changes are identified from the 1969 Sanborn Map.

5.4.3 Property Tax Files

KLEINFELDER reviewed the available tax information for the Site via Luzerne County tax assessment website. The Site consists of three (3) parcels totaling 85-acres. The tax parcel identification numbers for the property are 69110-00A07F000, 69110-00A10A000, and 6919-00B03A000.

5.4.4 Recorded Land Title Records

According to the Luzerne County tax assessment website, the parcels included in this ESA are currently owned by Pagnotti Enterprises Inc.

5.4.5 USGS 7.5 Minute Topographic Map(s)

KLEINFELDER did not obtain Historic Topographic Maps for the Site since it is unlikely that such a report would provide additional information for the Site.

5.4.6 Local Street Directories/MacRae's Industrial Directories

KLEINFELDER did not obtain a Local Street Directory or Industrial Directory Report.

5.4.7 Building/Engineering Department Records

No building and engineering department records were available to be reviewed for the Site. Further details are described in Section 5.2.1 – Records Request.

5.4.8 Zoning/Land Use Records

Land use for the Site parcel is designated as Commercial Acreage.

5.5 Historical Use Information on the Adjoining Properties

Based on information gathered from the historical resources, the land use surrounding the Site consisted primarily of mined areas with wooded/vegetated areas. Commercial and residential development has occurred over time.

5.6 Vapor Migration

The environmental records review was also completed to identify potential off-site sources for vapor migration of hazardous substances or petroleum products into the subsurface strata of the Site. Upon reviewing the applicable records, topography, hydrogeological information, and potential hydraulic barriers, no properties were identified in connection with potential vapor migration onto the Site.

6.0 Site Reconnaissance

KLEINFELDER conducted the Site reconnaissance for this ESA on April 5, 2021, for the Site review. The following subsections provide a summary of the on-site conditions that are pertinent to this ESA. Site reconnaissance photographs are included in the Appendix E of this report.

6.1 Methodology and Limiting Conditions

The Site investigation consisted of a visual inspection of the property to determine if any RECs exist on the Site. These independent conclusions represent **KLEINFELDER**'s best professional judgment based on information and data available during the course of the project. No limiting factors were encountered during the Site investigation or visual inspection of the Site. **KLEINFELDER** was not accompanied during the Site reconnaissance.

6.2 General Site Setting

The Site is comprised of vacant land consisting of wooded areas, vegetated land, a previously reclaimed anthracite coal mine, a portion of Allan Road, and railroad tracks. Haul Road and Johnson Street intersection, commercial properties, wooded areas, and residential properties are located north of the property. Allan Industries (scrap metal yard), wooded areas, and abandoned coal mines are located to the south of the Site. Wooded areas and abandoned coal mines are located to the east of the Site. Vegetated areas and Interstate 81 are located to the west of the Site. The Site is located within a primarily rural area.

6.3 Site Observations

The Site is located south of the intersection of Haul Road and Johnson Street in Wilkes Barre Township, Luzerne County, Pennsylvania. The Site consists of three (3) parcels totaling 85-acres. The Site investigation was conducted on April 5, 2021. The following summarizes the onsite observations.

Item	Identified on-site	Comments
Hazardous Substances / Petroleum Products	**No**	
Aboveground Storage Tanks (ASTs)	**Yes**	One (1) empty 500-gallon AST is located on the northeast corner of the property.
Underground Storage Tanks (USTs)	**No**	
Storage Drums	**Yes**	Several empty metal 55-gallon storage drums are scattered across the Site. One 55-gallon drum appeared to be utilized as a burn barrel.

Unidentified Containers	**Yes**	Several empty unidentified 55-gallon drums and 5-gallon buckets are scattered across the Site.
Suspect Equipment Containing PCBs	**No**	
Interior Staining or Corrosion	**No**	
Drains or Sumps	**No**	
Wastewater	**No**	
Pits, Ponds, or Lagoons	**Yes**	Potential wetland areas were located on the central portion of the Site.
Pools of Liquid	**No**	
Solid Waste Dumping, Landfills, Fill Material	**Yes**	Piles of coal and rock found throughout the property; Five (5) areas of illegal dumping containing primarily tires, wood, demolition and landscaping debris, metal cables, large pieces of metal equipment, household waste items, plastic, and glass; Excessive amounts of junk (i.e., trash, metal scraps, tires, empty drums). Discarded concrete piping found on the central portion of the Site.
Stained Soil or Pavement	**No**	
Stressed Vegetation	**No**	
Septic Systems	**No**	
Wells	**No**	
Odors	**No**	
Other Conditions of Concern	**Yes**	Evidence of unearthed and buried railroad lines traverse the central portion of the subject property. In addition, a paper target associated with target shooting was located on the northern portion of the Site.

6.3.1 Exterior Observations

The Site encompasses a total of 85-acres and consists primarily of historically mined areas. The property is bound to the northwest by Interstate 81 and by Haul Road to the North. From the intersection of Haul Road and Johnson Road is a heavily vegetated area that consists of a swale and what appears to be a railroad bed. Continuing through the vegetated areas are the remnants of a wooden shed, a yellow metal cap, and an unidentified 2-inch PVC pipe protruding from the ground. An open, lightly vegetated area is located immediately south of Haul Road and contains construction equipment and automobiles. A stormwater line appears to discharge onto the Site from the north. Additionally, blue waterline markers were located throughout

the Site and traversed the central portion of the Site. No staining or stressed vegetated was noted in these areas.

Remnants of the railroad tracks are evident through the northern and central portions of the Site based on the lack of vegetation, discarded railroad ties, metal rail lines protruding from the ground, and flat grade.

An area of dumping (Dump-1) was identified on the northeastern portion of the Site. The dumping appeared to be down an embankment and consisted of construction debris primarily comprised of asphalt, concrete, and stone. Additionally, household trash consisting of plastic items and general garbage was in the area.

Continuing east along Haul Road, down an embankment, is an empty 500-gallon AST, metal cables with reels, and large pieces of solid metal equipment. No petroleum odors or evidence of a release was noted in this area. Just south of this area, a paper target was noted on a hillside attached to a tree. It appears this area was used for target practice.

Most of the central portion of the Site is cleared and consists of previously mined areas. A utility pole located within a fenced area was identified on the north-central portion of the Site. It is assumed that this area previously contained pole-mounted transformers. At the time of assessment, no pole-mounted transformers or evidence of stress vegetation was noted within the fenced area. However, continuing west from the cleared central portion of the Site is an area of dumping (Dump-2) within a wooded area. The dumping appears to consist of empty 55-gallon storage drums, household waste, and construction debris.

Dump-3 is located just south of Dump-2 in an open clearing. The area consists of tires, crushed empty 5-gallon bucks, construction signs, aluminum cans, tires, wooden boards, and rubber sheeting (identical to the reels of rubber sheeting located sporadically on the Site). South of Dump-3 is Dump-4, located within a heavily vegetated area. Dump-4 is an approximate 25’x25’ area comprised of empty 5-gallon buckets, corrugated piping, household trash, tires, and metal scrap. The final area of dumping, Dump-5, keeps consistent with the other dump areas and is located along Allan Road. No evidence of petroleum products, hazardous substances, or other indications of contamination (i.e., odors, signs of staining, stressed vegetation, etc.) were observed in association with any of these features.

At the time of the Site inspection, a water feature was noted on the central portion of the Site. However, the water did not appear to be hydraulically connected to any streams or other water sources.

It should be noted that located throughout the Site are small areas of tires, demolition and landscaping debris, household waste items, appliances, metal scraps, empty metal 55-gallon drums, rubber sheeting, and glass. Some of these areas appear to be consistent with the Site's prior use for staging materials. However, the identified Dump Areas 1-5 appear to be localized dumping areas of a variety of the previously discussed items.

6.3.2 Interior Observations

At the time of the assessment, no structures were located on the property.

7.0 Interviews

7.1 Interview with Owner

Mr. Kent Fuller of Pargnotti Enterprises, Inc., landowner of Site, submitted the Interview Questionnaire and User Questionnaire on June 23, 2021. Copies of the completed forms are included in Appendix F. The Client did not return a completed User Questionnaire. Mr. Fuller informed **Kleinfelder** of the following:

- Mr. Fuller indicated that Allen Industries Scrapyard adjoins the property to the west and has a right-of-wat easement since July 1974 to present day. A construction company has been using the property since 1990's. Railroads crossed the property and were used for mining operations. Mr. Fuller stated that Lehigh Valley Coal company use the Site for mining and No1 Contracting Corporation used for highway construction.

  Mr. Fuller indicated that the Site had coal mining structures that included breaker and related buildings. Specifically, a boiler house, office, and shop from 1958 to 1990's. The Site formerly had slopes and shafts associated to mining operations. Mr. Fuller stated that the construction company has garages, trucking equipment, repair facilities, fuel, oil and etc.

- Mr. Fuller was aware that there are surface mine permits and possible mining related studies completed at the Site.

- Mr. Fuller indicate that ASTs, automotive batteries, industrial batteries, paints, chemicals/hazardous substances, industrial drums, and transformers probably were on the Site but not certain. Mr. Fuller was not aware if chemicals/hazardous substances, USTs, or unknown materials you suspect may be hazardous substances existed on the Site.

- Mr. Fuller indicated that there is a National Pollution Discharge Elimination System (NPDES) permit (GP-104) under the surface mining permit.

- Mr. Fuller stated that he is not aware of a private well or non-public water system, oil/gas wells, or onsite septic system on the Site.

- Mr. Fuller stated that he is not aware of any specific chemical storage, spills or chemical releases, or any environmental cleanups or concerns at the Site.

- Mr. Fuller stated that he is unaware of any environmental clean-ups that are ongoing or pending, environmental liens, past or present violations of environmental laws, or past, threated, pending lawsuits relevant to a release of hazardous substance or petroleum product in, on, or from the Site.

8.0 Findings and Opinions

KLEINFELDER has performed the Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13. The assessment was performed for the Site referred to as "Haul Road & Johnson Street" located northwest of the intersection of Haul Road & Johnson Street in Wilkes Barre Township, Luzerne County, Pennsylvania. Any exceptions to or deletions from this practice are described in Sections 2.4, 2.5, 10.0, and 14.0 of this report.

Current and Past Usage of the Site:

- Historically, the Site was used as an anthracite coal mine named Lehigh Valley Coal Company Franklin Colliery, dating back to as early as 1910. Mining operations continued at the Site until approximately 1981. Since that time, no development has occurred at the Site. The Site is classified as abandoned mine land (AML) with a status of reclamation completed. Many areas are now wooded or vegetated, and one strip pit has filled with water. Coal mining has been known to be associated with AMD. Typically, discharge through anthracite coal formations are more pH neutral and often does not lead to AMD conditions. During Site reconnaissance, **KLEINFELDER** observed the conditions of a water feature on the Site; no evidence of AMD (i.e., yellowish to orange staining, cloudy water) was noted. Therefore, it is the opinion of **KLEINFELDER** that the historical use of the property does not represent a REC.

- During the Site reconnaissance, evidence of former railroad activity was observed within the northeastern and traversing the central portion of the Site. Remnants of the railroad tracks are evident through the Site based on the lack of vegetation, discarded railroad ties, metal rail lines protruding from the ground, and flat grade. According to historical Sanborn maps, eleven railroad lines were located on the property in 1910. Between 1910 and 1950, the tracks that exited the Site to the west no longer were noted, and five (5) sets of tracks remained. Rail lines no longer appear to be visible in the 1981 historical aerial images. Railroad tracks and associated equipment and staging areas are often associated with contamination from leaking of lubricants, PCBs, metals, and various petroleum products. Given that portions of the Site have at one time contained eleven sets of railroad tracks since 1910, with portions of the rail lines still currently at the Site, it is the opinion of **KLEINFELDER** that this finding **does** represent a REC.

- According to the 1910 Sanborn maps, the Lehigh Valley Coal Company Franklin Colliery contains a fireman's office, engine house, a two-story oil house, a sawmill, a supply storage house, a pump house, a district support office, a courthouse, a pump house, several outbuildings, a breaker structure, rail lines, and a tool shop. The Site was listed as utilizing steam and electricity with fuel coal during operations. The 1969 Sanborn map identifies a grease house located southwest of the main office. Based on known tool shop and historic

operations at the Site that may have handled petroleum products, it is the opinion of **KLEINFELDER** that these findings **do** represent a REC.

- While onsite, five (5) dumping areas were observed and designated as Dump-1 through Dump-5. Dump-1 is located near the easter property border of the Site and consists of construction debris primarily comprised of asphalt, concrete, and stone. Additionally, household trash consisting of plastic items and general garbage was in the area. Dump-2 is located on the north-central portion of the Site and consists of empty 55-gallon storage drums, household waste, and construction debris. A burn barrel was located just south of Dump-2 and appeared to contain mainly wood. Dump-3 is located just south of Dump-2 and contains tires, crushed empty 5-gallon bucks, construction signs, aluminum cans, tires, wooden boards, and rubber sheeting. Continuing further south on the property, Dump-4 is located within a heavily wooded area and consists of empty 5-gallon buckets, corrugated piping, household trash, tires, and metal scrap. The final area of dumping, Dump-5, keeps consistent with the other dump areas and is located along Allan Road. No evidence of petroleum products, hazardous substances, or other indications of contamination (i.e., odors, signs of staining, stressed vegetation, etc.) were observed in association with any of these features. Given that the possibility exists that hazardous substances or petroleum products may be present beneath the surface of the dumping areas, it is the opinion of **KLEINFELDER** that these findings **do** represent a REC.

- A paper target and bullet casings were observed on the ground on the eastern portion of the Site. Based on the likely presence of lead in underlying soils due to the use of the Site as a shooting range, it is the opinion of **KLEINFELDER** that this finding **does** represent a REC.

- Throughout the Site are small areas of tires, demolition and landscaping debris, household waste items, appliances, metal scraps, empty metal 55-gallon storage drums, rubber sheeting, and glass. Some of these areas appear to be consistent with the Site's prior use for staging materials. In addition, no staining or stressed vegetation was observed in these areas; therefore, **KLEINFELDER** believes that these findings do not represent a REC.

- The Site was listed on the eFACTS database under South Wilkes-Barre 656803 – AML Inventory List. According to the eMapPA database, the property is listed as an AML Inquiry under Pagnotti Enterprises Inc. for deep underground coal mining. The reclamation status is listed as complete. No other information is provided. Therefore, it is the opinion of **KLEINFELDER** that this finding does not represent a REC.

9.0 Conclusions

KLEINFELDER has performed the Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 of the Site located northwest of the intersection Haul Road & Johnson Street in Wilkes Barre Township, Luzerne County, Pennsylvania. The findings and conclusions of this report are for the exclusive benefit and use of Bluecup Ventures, LLC, their respective affiliates and subsidiaries, and all successors and assigns thereof. Any exceptions to or deletions from this practice are described in Sections 2.4, 2.5, 10.0, and 14.0 of this report.

This assessment has revealed no evidence of RECs in connection with the property, except for the following:

- Railroad tracks that are historically and currently located on the Site.
- The likely presence of petroleum products or hazardous substances in Site soils associated with the Sanborn Fire Insurance Maps identified grease house.
- The five (5) areas of dumping on the Site.
- The likely presence of lead in Site soils associated with the shooting range.

10.0 Data Gaps, Deviations, and Limitations

A data gap is defined as a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information. Data gaps may result from incompleteness in any of the activities required by this practice including but not limited to Site reconnaissance and interviews.

During the course of this assessment, one data gap was identified for this Phase I ESA:

- ASTM E 1527-13 states the historical use of a property should be identified at five-year intervals dating back to original development or 1940, whichever is earlier. Data gaps exceeding five-year intervals were encountered during our historical research on the Site. However, it is the opinion of **KLEINFELDER** that these data gaps are not significant with regard to identifying RECs.

No other significant data gaps were noted during the course of this Phase I Environmental Site Assessment.

KLEINFELDER performed this Phase I ESA in general conformance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E 1527-13*.

No deviations, limitations, or deletions from ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E 1527-13* occurred or were imposed by the Client during the preparation of this Phase I ESA.

11.0 Additional Services/Non-Scope Considerations

This assessment did not include any additional services/non-scope considerations from ASTM International *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E 1527-13*.

12.0 References

1. American Society for Testing and Materials Practice E 1527-13, “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process,” Updated November 2013.

2. United States Geological Survey, Wilkes Barre, Pennsylvania Quadrangle, 7.5 Minute Topographic Map.

3. Luzerne County Tax Assessment Websites [cited March 30, 2021] < https://gis.luzernecounty.org/portal>.

4. Environmental Data Resources Inc. EDR Radius Map™ Report, March 30, 2021.

5. Environmental Protection Agency (EPA). [cited April 15, 2021]. EnviroFacts Available from <http://www.epa.gov/enviro/> and FOIA request form available from <http://www.epa.gov/foia/requestform.html>.

6. Environment Facility Application Compliance Tracking System. Pennsylvania Department of Environmental Protection [cited April 15, 2021]. Available from: <http://www.dep.state.pa.us/efacts/>.

7. eMapPA. Pennsylvania Department of Environmental Protection [cited April 15, 2021]. Available from <http://www.emappa.dep.state.pa.us/emappa/viewer.htm>.

8. Storage Tanks Application Database. Pennsylvania Department of Environmental Protection [cited April 15, 2021]. Available from <http://www.portal.state.pa.us/portal/server.pt/community/hide_registration/20606/regulated_tank_list/1054359>.

9. National Pipeline Viewer [cited April 15, 2021] <https://pvnpms.phmsa.dot.gov/PublicViewer/>

10. Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Pennsylvania Geological Survey, 1981.

11. Engineering Characteristics of the Rocks of Pennsylvania, Pennsylvania State Geological Survey, Second Edition, 1982.

12. Web Soil Survey, Natural Resources Conservation Service, United States Department of Agriculture [cited April 16, 2021]. Available from <http://www. websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>.

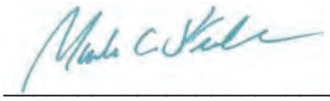
13. Environmental Data Resources Inc. Aerial Photo Decade Package, March 31, 2021.

14. Environmental Data Resources Inc. Historical Sanborn Map Report, March 30, 2021.

13.0 Environmental Professional(s) Statements and Signature(s)

I have the specific qualifications based on education, training, and experience necessary to assess a property of the nature, history, and setting of the Site. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

I declare that to the best of my professional knowledge and belief that I meet the definition of Environmental Professional as defined in 312.10 of 40 CFR 312.



Mark C. Steele, CHMM
Senior Program Manager

14.0 General Limitations

The Environmental Assessment activities and the preparation of this Report were conducted in accordance with practices and procedures generally accepted in the consulting engineering field. The information contained in this Report is further qualified as follows:

1. **KLEINFELDER** assumes no responsibility for matters of a legal nature affecting the Site inspected or the title thereto.

2. Any sketch appearing in or attached to the inspection Report, or any statement of dimensions, capacities, quantities, or distances, are approximate and are included to assist the reader in visualizing the Site. **KLEINFELDER** made no survey of the Site.

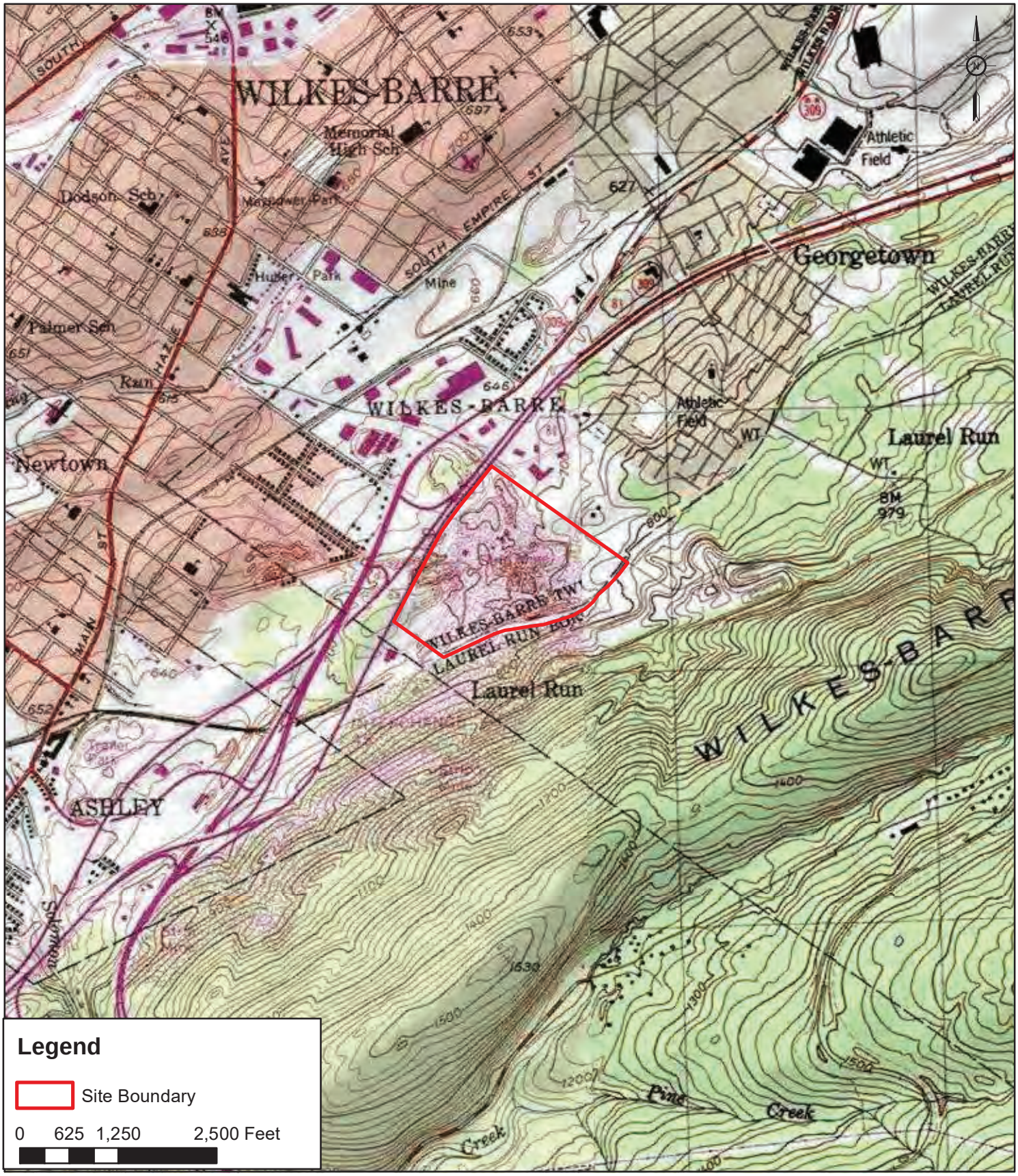
3. Employees of **KLEINFELDER** are not required to give testimony or appear in court because of having made the inspection with reference to the Site in question, unless arrangements have been previously made, therefore.

4. This Report is not intended to have any direct effect on the value of the Site inspected but simply to provide a visual Environmental Assessment solely for the benefit of the Principal Parties.

5. Information, estimates, and opinions furnished to **KLEINFELDER** and contained in the report, were obtained from sources considered reliable and believed to be true and correct. However, **KLEINFELDER** has made no independent investigation as to such matters and undertakes no responsibility for the accuracy of such items. No other warranty is given or implied by this Report.

6. The Report is solely for the benefit and personal use of the Principal Parties and is subject to and issued in connection with the Proposal and the Terms and Conditions attached thereto. The data reported and findings, observations, and conclusions expressed in the Report are limited by the Scope of Work.

FIGURES



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AS SHOWN	20214488.001A
DRAWN BY:	CHECKED BY:
A. WICKS	C. WOLF
APPROVED BY:	DATE:
M. STEELE	04/06/2021

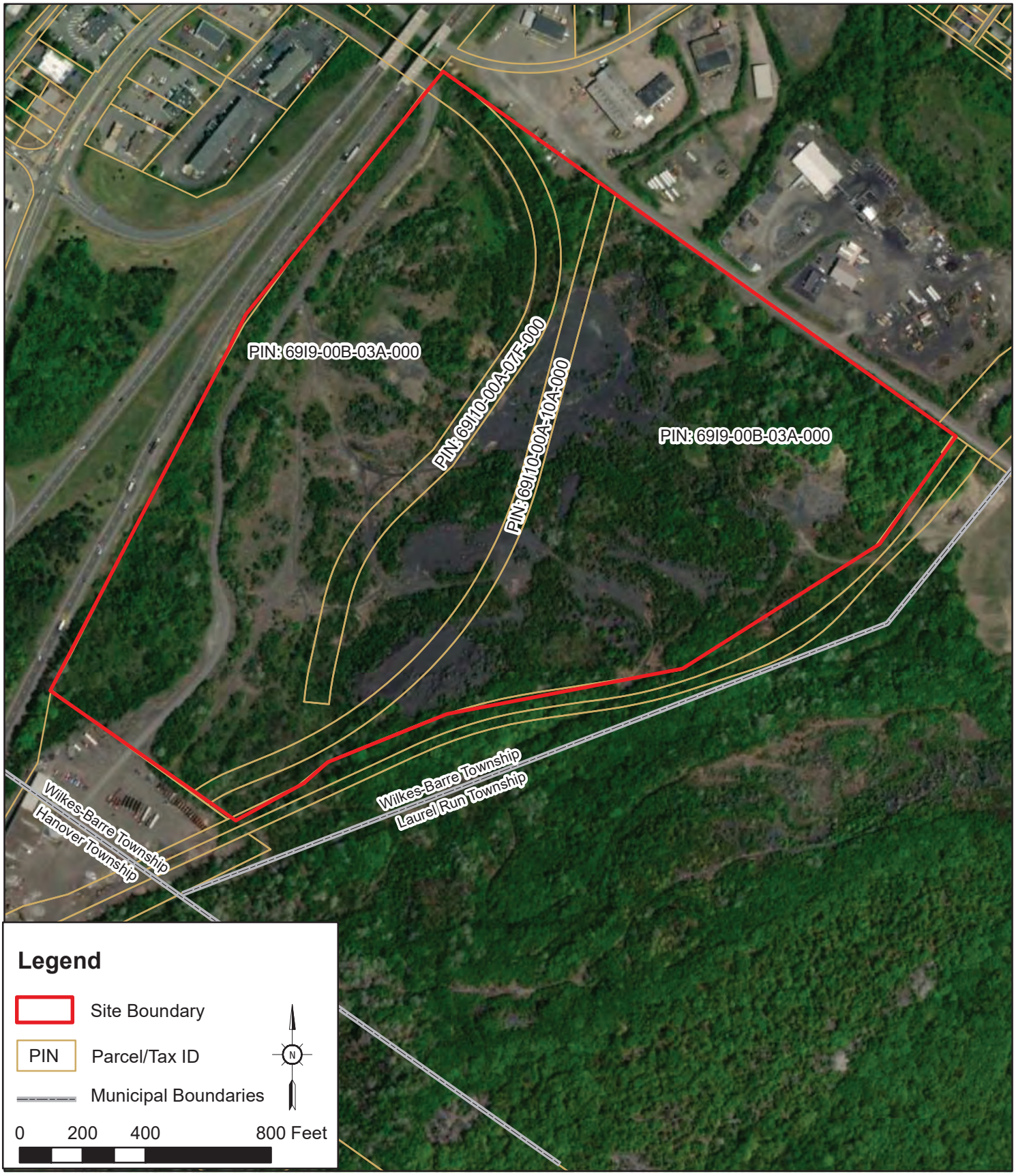
FIGURE 1 - TOPOGRAPHIC MAP

PREPARED FOR

HAUL ROAD AND JOHNSON STREET

WILKES-BARRE TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

KLEINFELDER
Bright People. Right Solutions.
435 INDEPENDENCE AVE., SUITE C
MECHANICSBURG, PA 17055
PH (717) 458-0800



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SCALE:	DRAWING NUMBER:
AS SHOWN	20214488.001A
DRAWN BY:	CHECKED BY:
A. WICKS	C. WOLF
APPROVED BY:	DATE:
M. STEELE	04/06/2021

FIGURE 2 - TAX PARCEL MAP

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Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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DRAWN BY: S. DAWLEY	CHECKED BY: E. MCMULLEN
APPROVED BY: M. STEELE	DATE: 7/1/2021

FIGURE 3 - REC-Aerial Location Map

PREPARED FOR

HAUL ROAD AND JOHNSON STREET

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\\azrinffsp15.kleinfelder.com\GeoEnvironmental\Project\2021\20214488 - 85 Acre - Parcel - Bluecup\Phase I ESA\GIS\Figure 3 - REC - Aerial Location Plan - Copy.mxd

Date: May 20, 2022
TPD# BCVS.00002
PennDOT EPS# 261894

Est. 1989

TRAFFIC PLANNING AND DESIGN, INC.

Traffic Impact Study

Bluecup Warehouse

Wilkes-Barre Township, Luzerne County

For Submission To:

Wilkes-Barre Township & PennDOT District 4-0

Bluecup Warehouse Development
TRANSPORTATION IMPACT STUDY

FOR SUBMISSION TO:

Wilkes-Barre Township, Luzerne County, PA,
& PennDOT District 4-0

Prepared For:
Bluecup Ventures Wilkes-Barre, LLC
20 Cedar Woods Lane
Fairfield, CT 06825

Phone: (203) 252-1515

May 20, 2022
TPD # BCVS.00002
PennDOT EPS # 261894

DRAFT

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EXECUTIVE SUMMARY

The purpose of this report is to examine the potential traffic impact associated with the proposed warehouse on the surrounding roadway network in Wilkes-Barre Township, Luzerne County, PA. Based on this study, the following conclusions were reached:

1. Since the Wilkes-Barre Township Subdivision and Land Development Ordinance (SALDO) does not contain specific criteria related to preparation of a Transportation Impact Study (TIS), this This report has been prepared in accordance with Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017.

2. The project scope and the extent of the study area were based on; (1) feedback received during the meeting with representatives of PennDOT and the Township on April 8, 2022; and (2) the contents of the approved TIS Scoping Application dated April 11, 2022. The study area intersections included in this TIS are as follows:

   - Wilkes-Barre Township Blvd (SR 6309) & Blackman Street (SR 2005)/I-81 Southbound Off-Ramp;
   - Wilkes-Barre Township Blvd (SR 6309) & Allan Road;
   - Wilkes-Barre Township Blvd (SR 6309) & Johnson Street/Blackman Plaza Driveway;
   - Wilkes-Barre Township Blvd (SR 6309) & Casey Avenue (SR 2016)/Park & Ride Lot;
   - Wilkes-Barre Township Blvd (SR 6309) & Sheetz Driveway/Shopping Center Driveway;
   - Wilkes-Barre Township Blvd (SR 6309) & Coal Street/Highland Park Boulevard (SR 2063);
   - Johnson Street & Haul Road/Private Driveway;
   - Johnson Street & Relocated Allan Road.

   As outlined in the approved TIS Scoping Application, the intersection of Wilkes-Barre Township Boulevard and Allan Road has been included in the TIS for purposes of volume development only in order to accurately depict the trips that will be redistributed to the relocated Allan Road intersection with Johnson Street. Additionally, since Haul Road and Allan Road are both private roadways each of the proposed site driveways were not specifically included as study area intersections. Instead, the Haul Road and Relocated Allan Road intersections with Johnson Street were considered the site access locations.

3. The proposed development is located on the southern side of Johnson Street/Haul Road, immediately east of I-81. The proposed development is anticipated to consist of a 937,440 square foot (s.f.) warehouse.

4. Access to the site is proposed via two (2) driveways to Allan Road (private roadway) and five (5) driveways to Haul Road (private roadway). Additionally, in anticipation of PennDOT's P3 I-81 widening project, the segment of Allan Road between Wilkes-Barre Township Boulevard (SR 6309) and the I-81 overpass will be eliminated, and Allan Road will be relocated to create a new intersection with Johnson Street.

5. Based on trip generation data obtained from the 11th edition of the manual *Trip Generation* for Land Use Code #154 (High-Cube Transload and Short-Term Storage Warehouse), build-out of the proposed development is anticipated to generate 75 new vehicle-trips during the weekday A.M. peak hour of Adjacent Street, 122 new vehicle-trips during the weekday A.M. peak hour of Generator, and 159 new vehicle-trips during the weekday P.M. peak hour of Generator.

6. PennDOT's Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits typically requires analyses of the following future years:

   - Opening Year which is assumed to be the last phase of construction;
   - Design Horizon Year which is be assumed to be 5 years after the Opening Year.

   Since PennDOT's background growth factor is 0.00%, the traffic volumes for the 2024 Opening Year (Full Build-Out) and 2029 Design Year (5 years after Full Build-Out) will be the same.

7. Capacity analyses were conducted to determine the quality of operation (LOS) at the study area intersections for the existing, 2024/2029 base (no-build), and 2024/2029 projected (build) conditions. The capacity analyses were conducted in accordance with the standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017.

8. Levels of Service (LOS) for the study area intersections have been summarized in matrix form. **Table I** details the overall intersection LOS for each study area intersection for the analyzed conditions and time periods. **Tables 13-15** of the report detail the LOS for all approaches and movements at the study area intersections for the analyzed conditions and time periods.

TABLE I
OVERALL INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Time Period	Existing	Full Build-Out/Design Year (2024/2029)			Meets LOS Requirements?
			Base	Projected	Projected[1]	
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	AM ADJ	B (16.2)	C (25.0)	C (25.4)	--	YES
	AM GEN	B (17.2)	C (25.7)	C (26.8)	--	YES
	PM GEN	C (29.4)	D (35.5)	D (38.1)	D (38.1)	YES
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	AM ADJ	A (1.9)	A (9.7)	A (9.8)	--	YES
	AM GEN	A (1.9)	A (9.8)	A (9.9)	--	YES
	PM GEN	B (12.0)	A (9.8)	B (13.9)	B (13.8)	YES
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	AM ADJ	A (8.4)	A (6.7)	A (6.7)	--	YES
	AM GEN	A (7.7)	A (7.0)	A (7.0)	--	YES
	PM GEN	B (10.4)	B (11.3)	B (11.4)	B (11.3)	YES
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	AM ADJ	A (8.0)	A (8.0)	A (7.9)	--	YES
	AM GEN	A (7.6)	A (7.6)	A (7.6)	--	YES
	PM GEN	B (10.6)	B (10.4)	B (10.5)	B (10.5)	YES
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	AM ADJ	C (28.4)	C (29.0)	C (29.1)	--	YES
	AM GEN	C (28.9)	C (28.9)	C (29.0)	--	YES
	PM GEN	F (92.8)	C (31.9)	C (32.3)	C (32.3)	YES
Johnson Street & Haul Road	AM ADJ	A (1.9)	A (1.7)	A (2.0)	--	YES
	AM GEN	A (1.0)	A (0.9)	A (1.6)	--	YES
	PM GEN	A (0.7)	A (0.7)	A (2.9)	A (2.9)	YES
Johnson Street & Allan Road	AM ADJ	--	--	A (1.1)	--	YES
	AM GEN	--	--	A (1.0)	--	YES
	PM GEN	--	--	A (2.0)	A (2.0)	YES

Base = No-Build scenario Projected = Build scenario
1=Projected conditions with implementation of recommended improvements

9. Under the 2024/2029 projected (build) conditions, with implementation of the recommended improvements, the study area intersections will operate in accordance with the standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017.

10. Based on the results of this study, Traffic Planning and Design Inc. (TPD) recommends the following roadway improvements as outlined at the study area intersections:

Wilkes-Barre Township Blvd & Blackman Street/I-81 Southbound Off-Ramp

- No improvements are recommended for this intersection.

Wilkes-Barre Township Blvd & Johnson Street/Blackman Plaza Driveway

- Provide optimized traffic signal splits and offsets during the weekday P.M. peak period.
- Coordinate to confirm the improvements to be constructed in conjunction with PennDOT's programmed project will accommodate turning movements to/from Johnson Street by tractor trailers.

Wilkes-Barre Township Blvd & Casey Avenue/Park & Ride Lot

- Provide optimized traffic signal splits and offsets during the weekday P.M. peak period.

Wilkes-Barre Township Blvd & Sheetz Driveway/Shopping Center Driveway

- No improvements are recommended for this intersection.

Wilkes-Barre Township Blvd & Coal Street/Highland Park Boulevard

- No improvements are recommended for this intersection.

Johnson Street & Haul Road

- Design Haul Road as a full-movement private roadway.
- Provide one entering and one exiting lane.
- Provide a "Stop" sign, (PennDOT designation R1-1) to control exiting traffic.
- Design Haul Road to accommodate turning movements by tractor trailers.
- Provide and perpetually maintain required sight distances in accordance with Section 810 of the Wilkes-Barre Township SALDO.

Johnson Street & Relocated Allan Road

- Design Relocated Allan Road as a full-movement private roadway.
- Provide one entering and one exiting lane.
- Provide a "Stop" sign, (PennDOT designation R1-1) to control exiting traffic.
- Design Relocated Allan Road to accommodate turning movements by tractor trailers.
- Provide and perpetually maintain required sight distances in accordance with Section 810 of the Wilkes-Barre Township SALDO.

General Recommendations

- The applicant should work with the Township to develop language that will require a post-development study to evaluate the actual traffic volumes generated by the subject warehouse.
- The applicant should work with the Township to determine if improvements are required to Haul Road and/or Johnson Street to accommodate traffic to/from the site, particularly for tractor trailers. The improvements should consider pavement condition, pavement markings, signage, etc.

The applicant will coordinate and fund the implementation of the recommended roadway improvements.

11. If any of the roadway improvements outlined in the Scheduled Roadway Improvements section of this report that are proposed to be provided by PennDOT or the nearby proposed developments are not constructed by the opening of the subject development, the applicant would be required to either construct the improvements or provide a revised TIS that evaluates the need for additional roadway improvements to mitigate any impacts resulting from the site generated traffic from build-out of the subject development. If the revised TIS does identify the need for additional improvements, it would be the applicant's responsibility to construct the improvements.

INTRODUCTION

Traffic Planning and Design, Inc. (TPD) has completed a Transportation Impact Study (TIS) to examine the potential traffic impacts associated with the proposed warehouse development proposed by Bluecup Ventures Wilkes-Barre, LLC on the surrounding roadway network in Wilkes-Barre Township, Luzerne County, Pennsylvania. As shown in **Figure 1**, the proposed development is located on the southern side of Johnson Street/Haul Road, immediately east of I-81. The proposed development is anticipated to consist of a 937,440 square foot (s.f.) warehouse. A site plan for the proposed development is shown in **Figure 2**.

Based on a review of Section 406 (Additional Materials Submitted with Preliminary Plan) of the Wilkes-Barre Township Subdivision and Land Development Ordinance (SALDO) the Planning Commission can request an Impact Analysis be submitted in conjunction with a Subdivision and/or Land Development Application. Section 200 of the SALDO defines an Impact Analysis as follows, "*A study, which may be required by the Planning Commission prior to preliminary or conditional approval of a subdivision or land development, to determine the potential impact of the proposed development on activities, utilities, traffic generation and circulation, surrounding land uses, community facilities, environmental features, critical areas, the health, safety and welfare of residents and other factors directly, indirectly or potentially affected. The landowner and/or applicant shall be responsible for all costs related to the any and all reports and/or studies required by the Planning Commission under or within the context of the term "IMPACT ANALYSIS". The landowner and/or applicant shall also be responsible to fully reimburse the Township for any engineering and/or other consulting fees which are incurred for the review of any required studies or reports*".

Since the Wilkes-Barre Township SALDO does not contain specific criteria related to preparation of a TIS, this report has been prepared in accordance with Appendix A – Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017. The project scope and the extent of the study area were based on; (1) feedback received during the meeting with representatives of PennDOT and the Township on April 8, 2022; and (2) the contents of the approved TIS Scoping Application dated April 11, 2022. All relevant correspondence pertaining to this project has been included in **Appendix A**.

EXISTING ROADWAY NETWORK

A field review of the existing roadway system in the study area was conducted. The existing roadway characteristics within the study area are summarized in **Table 1**.

TABLE 1
ROADWAY CHARACTERISTICS

Roadway	Ownership	Functional Classification/ Roadway Type	Predominant Directional Orientation	Posted Speed Limit
Wilkes-Barre Township Boulevard	State (SR 6309)	Principal Arterial	North-South	35 mph-40 mph[1]
Blackman Street	State (SR 2005)	Principal Arterial	East-West	35 mph
Casey Avenue	State (SR 2016)	Local	East-West	30 mph
Coal Street	Township	Principal Arterial	East-West	25 mph
Highland Park Boulevard	State (SR 2063)	Minor Arterial	East-West	35 mph
Johnson Street	Township	Local	East-West	25 mph
Haul Road	Private	Local	East-West	25 mph
Allan Road	Private	Local	North-South	25 mph

1 = Posted speed limit of 35 mph to south of Casey Avenue and 40 mph to the north of Casey Avenue

The existing intersection controls, lane configurations, lane widths, shoulder widths, and approach grades for the study area intersections are summarized in **Table 2**. Photographs of the study area intersections are included in **Appendix B**.

TABLE 2
EXISTING INTERSECTION CONTROLS, LANE WIDTHS, SHOULDER WIDTHS, AND APPROACH GRADES

Intersection	Control	Lane Configuration	Lane Width	Shoulder Width	Approach Grade
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	Traffic Signal	EB L	10′	--	-1%
		EB R	14′	1′ (Curbed)	
		WB L	13′	10′	-4%
		WB T	11′	--	
		WB R	14′	10′	
		NB L	12′	--	-3%
		NB T-T	12′	5′	
		SB T-T	12′-13′	--	-3%
		SB R	14′	0′ (Curbed)	
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	Stop Controlled	EB L/T/R	34′	--	0%
		WB L/T/R	14′	--	0%
	Free	NB L/T/R	12′	6′	0%
		SB L/T/R	12′	6′	0%
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	Traffic Signal	EB L	10′	--	-2%
		EB T/R	10′	0′ (Curbed)	
		WB L/T/R	13′	4′ (Curbed)	0%
		NB L	10′	--	0%
		NB T/R	13′	6′	
		SB L	10′	--	-1%
		SB T	13′	--	
		SB R	10′	0′ (Curbed)	
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	Traffic Signal	EB L/T/R	15′	0′ (Curbed)	0%
		WB L/T	12′	--	-5%
		WB R	12′	0′ (Curbed)	
		NB L	10′	--	1%
		NB T-T	12′	--	
		NB R	13′	0′ (Curbed)	
		SB L	10′	--	-3%
		SB T-T/R	12′-14′	0′ (Curbed)	
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	Traffic Signal	EB L	11′	--	1%
		EB T-T/R	11′-13′	0′ (Curbed)	
		WB L	12′	--	0%
		WB T-T	12′	--	
		WB R	12′	4′ (Curbed)	
		NB L	10′	--	2%
		NB T-T	12′	--	
		NB R	13′	0′ (Curbed)	
		SB L	10′	--	0%
		SB T-TR	12′-13′	0′ (Curbed)	
Johnson Street & Haul Road	Stop Controlled	EB L/T/R	Undefined[1]	--	0%
		WB L/T/R	15′	--	-1%
	Free	NB L/T/R	13′	--	+1%
		SB L/T/R	13′	--	-2%

1 = Large uncontrolled curb cut

Land Use Context

In Section 1.2 of the Design Manual, Part 2, there is guidance pertaining to defining the land use context(s) for a given area. Based upon review of this information, the land uses surrounding the proposed site best fits the Suburban Corridor designation, as described below:

Suburban Corridor, *"…characterized by big box stores, commercial strip centers, restaurants, auto dealerships, office parks, and gas stations. These uses are sometimes interspersed with natural areas and occasional clusters of homes. Buildings are usually set back from the roadway behind surface parking."*

Roadway Type

In Section 1.2 of the Design Manual, Part 2, there is guidance pertaining to defining the transportation context(s) for a given area. Comparing the existing condition roadway characteristics to the various options presented in Table 1.2, the study area roadways best fit the following categories, as described below:

Regional Arterial, traffic volumes of 10,000 to 40,000 vehicles per day, intersection spacing of 660 to 1,320 feet, a desired operating speed of 30-55 mph, and a description as follows: *"Roadways in this category would be considered "Principal Arterial" in traditional functional classification."*

- Wilkes-Barre Township Boulevard (SR 6309).

Community Arterial, traffic volumes of 5,000 to 25,000 vehicles per day, intersection spacing of 300 to 1,320 feet, a desired operating speed of 25-55 mph, and a description as follows: *"often classified as Minor Arterial in traditional classification but may include road segments classified as Principal Arterial."*

- Blackman Street (SR 2005).
- Coal Street.
- Highland Park Boulevard (SR 2063).

Local Road, traffic volumes of <3,000 vehicles per day, intersection spacing of 000 to 660 feet, a desired operating speed of 20-30 mph.

- Casey Avenue (SR 2016).
- Johnson Street.
- Allan Road.
- Haul Road.

Bicycle and Pedestrian Facilities

Based on observations at the proposed study area intersections, sidewalks, paved shoulders, and/or the travel lanes currently accommodate bicycle and pedestrian traffic in the vicinity of the proposed development.

Mass Transit Facilities

Luzerne County is provided with public transportation by the Luzerne County Transportation Authority (LCTA). There are multiple fixed bus routes which provide service in the vicinity of the proposed site. There are no rail centers within ½ mile of the site.

Crash Data Investigation

Crash data were obtained from PennDOT for the study area intersections. PennDOT defines a reportable crash as follows, "A reportable (crash) is one in which an injury or fatality occurs or if at least one of the vehicles involved requires towing from the scene." Reportable crashes were tabulated for the five-year time period beginning 1/1/2016 and ending 12/31/2020. For a given intersection, PennDOT considers a crash

occurrence of 5 reportable, correctable crashes over a continuous twelve-month period during the past five years to be a threshold value, above which the intersection design should be reviewed to examine if corrective measures can be taken to enhance safety. In accordance with typical PennDOT policy the crash data investigation was provided for their review under separate cover.

EXISTING TRAFFIC CONDITIONS

Manual Turning Movement Counts

Manual traffic counts were conducted on 15-minute intervals during the weekday morning (6:00 to 10:00 A.M.) and weekday evening (3:00 to 6:00 P.M.) peak periods when the area schools were in session. Data pertaining to heavy vehicles, pedestrians and transit vehicles were observed during the manual counts. Peak hours and count dates for the study area intersections are identified in **Table 3**.

TABLE 3
MANUAL TRAFFIC COUNT INFORMATION

Intersection	Date of Traffic Counts	Time Period	Intersection Peak Hour[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	Tuesday, March 15, 2022	A.M. Adjacent Street	7:30 to 8:30 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	4:00 to 5:00 P.M.
Wilkes-Barre Township Boulevard & Allan Road/ Private Driveway	Tuesday, March 15, 2022	A.M. Adjacent Street	8:00 to 9:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	3:15 to 4:15 P.M.
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	Thursday, December 9, 2021	A.M. Adjacent Street	8:00 to 9:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	4:30 to 5:30 P.M.
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	Tuesday, March 15, 2022	A.M. Adjacent Street	8:00 to 9:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	3:15 to 4:15 P.M.
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	Tuesday, March 15, 2022	A.M. Adjacent Street	8:00 to 9:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	4:30 to 5:30 P.M.
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	Tuesday, March 15, 2022	A.M. Adjacent Street	8:00 to 9:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	3:15 to 4:15 P.M.
Johnson Street & Haul Road	Thursday, December 9, 2021	A.M. Adjacent Street	7:00 to 8:00 A.M.
		A.M. Generator	9:00 to 10:00 A.M.
		P.M. Generator	5:00 to 6:00 P.M.

1 = Peak Hour consists of the four consecutive 15-minute intervals where the highest traffic volumes occur.

In accordance with SOL 424-21-07 regarding COVID-19 traffic data guidance, since the traffic counts were completed after September 7, 20201 no adjustment is necessary. Existing condition traffic volumes for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 3-5**. The manual traffic count data sheets are provided in **Appendix C**.

Average Daily Traffic

The traffic volume map contained on the PennDOT Traffic Information Repository (TIRe) website was reviewed to determine the Average Daily Traffic (ADT) for a typical weekday along the State-maintained roadways in the vicinity of the proposed site. The available ADT information from the TIRe website is summarized below in **Table 4**.

TABLE 4
AVERAGE DAILY TRAFFIC (ADT) IN VICINTY OF PROPOSED SITE

Roadway	ADT
Wilkes-Barre Township Boulevard (SR 6309), near Johnson Street	19,981 vehicles per day
Blackman Street (SR 2005)	13,192 vehicles per day
I-81 SB Off-Ramp, opposite Blackman Street (SR 2005)	5,617 vehicles per day
Casey Avenue (SR 2016)	3,992 vehicles per day
Coal Street	15,821 vehicles per day
Highland Park Boulevard (SR 2063)	19,854 vehicles per day

BASE (NO-BUILD) CONDITIONS

Annual Background Growth

A background growth factor for the roadways in the study area was developed based on growth factors obtained from the PennDOT Bureau of Planning and Research (BPR) for August 2021 to July 2022. The PennDOT BPR suggests using a background growth trend factor of 0.00% per year in Luzerne County for urban, non-interstate roadways.

PennDOT's Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits typically requires analyses of the following future years:

- Opening Year which is assumed to be the last phase of construction;
- Design Horizon Year which is be assumed to be 5 years after the Opening Year.

Since PennDOT's background growth factor is 0.00%, the traffic volumes for the 2024 Opening Year (Full Build-Out) and 2029 Design Year (5 years after Full Build-Out) will be the same.

Nearby Proposed Developments

Base (no-build) traffic conditions are typically calculated to include traffic volumes from proposed developments, which, though not operating under existing conditions, may be operating by the build-out of the proposed development.

Based on the approved TIS Scoping Application, the following nearby developments were specifically considered as part of this study.

- **Turkey Hill Convenience Store and Gas Station** located on the southwest corner of the intersection of Wilkes-Barre Township Boulevard (SR 6309) and Blackman Street/I-81 South Ramp G in Wilkes-Barre Township. The trip generation/distribution information for the development will be obtained from the TIS prepared for the development by L&V Engineering, LLC.

- **Blackman Plaza Redevelopment** located on the western side of Wilkes-Barre Township Boulevard (SR 6309) generally between Johnson Street and Casey Avenue in Wilkes-Barre Township. The trip generation/distribution information for the development will be obtained from the TIS prepared for the development by L&V Engineering, LLC.

Trip generation/distribution information for the nearby proposed developments is included in **Appendix D**. Note, the TIS's for the above nearby developments do not provide trip distribution information for the weekday A.M. peak hour of Generator. Therefore, to provide a conservative analysis, the weekday A.M. pea hour of Adjacent Street volumes were utilized for the weekday A.M. peak hour of Generator.

Schematic figures summarizing the traffic volumes resulting from the nearby proposed developments at the study area intersections for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 6-11**.

The additional traffic volumes due to nearby proposed developments were added to the 2021 existing condition traffic volumes to produce the 2024/2029 base (no-build) condition traffic volumes. Base condition volumes for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 12-14**.

SCHEDULED ROADWAY IMPROVEMENTS

Programmed Improvements

Based on a review of the Transportation Improvement Program (TIP) for PennDOT, there are programmed roadway improvement projects within the study area, as follows:

- **SR 309 Safety Improvement** is Project ID #109543 and includes safety improvements at the Wilkes-Barre Township Boulevard intersections with Johnson Street/Blackman Plaza Driveway and Casey Avenue, including creation of a 4-way signalized intersection and additional turning lanes at Johnson Street/Blackman Plaza Driveway. The project was let in July 2021 and is anticipated to be complete by August 2022. Based on the anticipated completion date, the above referenced programmed roadway improvement project were included in all the future condition capacity analyses, as applicable.

- **I-81 SB Ramp G at Blackman Street** proposes improvements at the intersection of Wilkes-Barre Township Boulevard and I-81 SB Off-Ramp/Blackman Street, including dual left-turn lanes for the I-81 SB Off-Ramp. Given the current uncertainty regarding the completion date for this project, the future condition capacity analyses were completed with and without the referenced programmed roadway improvement project.

Information regarding the above projects were obtained from PennDOT and is included in **Appendix E**.

Improvements By Others

Based on a review of the TIS's for the nearby proposed developments referenced in the Nearby Proposed Developments section of this report, there are proposed roadway improvements at the following study area intersections:

- Wilkes-Barre Township (SR 6309) and I-81 SB Off-Ramp/Blackman Street, including northbound dual left-turn lanes from Wilkes-Barre Township Boulevard to Blackman Street. The proposed roadway improvements by others were included in all future condition capacity analyses, as applicable.

PROPOSED SITE ACCESS

Access to the site is proposed via two (2) driveways to Allan Road (private roadway) and five (5) driveways to Haul Road (private roadway). Additionally, in anticipation of PennDOT's P3 I-81 widening project, the segment of Allan Road between Wilkes-Barre Township Boulevard (SR 6309) and the I-81 overpass will be eliminated, and Allan Road will be relocated to create a new intersection with Johnson Street.

Sight Distance Analysis

A sight distance analysis was prepared for the Haul Road and Relocated Allan Road intersections with Johnson Street in accordance with Section 810 of the Wilkes-Barre Township SALDO which states, *"Streets shall be so laid out that there will be unobstructed sight distances along centerlines thereof measured from a point five (5) feet above the proposed grade line, to permit horizontal visibility as follows:*

- *Arterial Streets – Six hundred (600) feet.*
- *Collector Streets – Three hundred (300) feet.*
- *Local Streets – One hundred fifty (150) feet.*

Table 5 shows the ordinance required and existing (measured) sight distances for the Haul Road and Relocated Allan Road intersections with Johnson Street. Note, all three roadways were identified as local streets for purposes of the sight distance analysis.

TABLE 5
SIGHT DISTANCE ANALYSIS

	Direction	Posted Speed	Sight Distances (feet)	
			ORDINANCE	EXIST
Haul Road intersection with Johnson Street				
Exiting Movements	To the Left	25 mph	150′	**315′**
	To the Right	25 mph	150′	**420′**
Relocated Allan Road intersection with Johnson Street				
Exiting Movements	To the Left	25 mph	150′	**320′**
	To the Right	25 mph	150′	**500′+**

ORDINANCE = Ordinance Required Sight Distance
EXIST = Existing (measured) Sight Distance

As shown in **Table 5** above, the existing (measured) sight distances for the Haul Road and Relocated Allan Road intersections with Johnson Street will exceed the ordinance required sight distance requirements.

TRIP GENERATION

The trip generation data were obtained from the manual *Trip Generation*, Eleventh Edition, 2021, an Institute of Transportation Engineers (ITE) Informational Report. For the proposed development, Land Use Code #154 (High-Cube Transload and Short-Term Storage Warehouse) was used to calculate the number of vehicular trips the development will generate during the following time periods: (1) average weekday; (2) weekday A.M. Peak Hour of Adjacent Street Traffic; (3) weekday A.M. Peak Hour of Generator; and (4) weekday P.M. Peak Hour of Generator.

Table 6 shows the ITE trip generation data for the analyzed time periods.

TABLE 6
ITE TRIP GENERATION DATA

Land Use	ITE #	X	Time Period	Trip Type	Equation/Rate	Splits	
						Enter %	Exit %
High-Cube Transload and Short-Term Storage Warehouse	154	937.44	Average Weekday	All Vehicular	T = 1.40*(X)	50%	50%
				Trucks	T = 0.22*(X)	50%	50%
			Weekday A.M. Peak Hour of Adjacent Street Traffic	All Vehicular	T = 0.08*(X)	77%	23%
				Trucks	T = 0.02*(X)	49%	51%
			Weekday A.M. Peak Hour of Generator	All Vehicular	T = 0.13*(X)	78%	22%
				Trucks	T = 0.01*(X)	56%	44%
			Weekday P.M. Peak Hour of Generator	All Vehicular	T = 0.17*(X)	34%	66%
				Trucks	T = 0.03*(X) – 5.07	55%	45%

T = number of site-generated vehicular trips
X = independent variable (ksf = 1,000 s.f. gross floor area)

Table 7 summarizes the trip generation of the proposed development the analyzed time periods.

TABLE 7
TRIP GENERATION SUMMARY

Land Use	Total Vehicular Trips			Truck Trips			Passenger Car Trips		
	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit
Average Weekday	1,312	656	656	206	103	103	1,106	553	553
Weekday A.M. Peak Hour of Adjacent Street Traffic	75	58	17	19	9	10	56	49	7
Weekday A.M. Peak Hour of Generator	122	95	27	9	5	4	113	90	23
Weekday P.M. Peak Hour of Generator	159	54	105	23	13	10	136	41	95

TRIP DISTRIBUTION

Redistributed Trips

As previously noted, in anticipation of PennDOT's P3 I-81 widening project, the segment of Allan Road between Wilkes-Barre Township Boulevard (SR 6309) and the I-81 overpass will be eliminated, and Allan Road will be relocated to create a new intersection with Johnson Street. The redistribution of trips for

Relocated Allan Road during the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 15-17**.

Passenger Car Trips

The distribution of passenger car trips (i.e. mainly employees) generated by the proposed development was based on the following: (1) the average one-way commute time to work in the United States; (2) the proximity of local population centers in the vicinity of the subject tract; and (3) the available routes for travel. Based on TPD's research the average one-way commute to work in the United States is approximately 30 minutes. Taking this into consideration the population centers in the vicinity of the subject tract that are anticipated to be the origin of the majority of employee trips to/from the proposed warehouse are Wilkes-Barre, Pittston, Scranton, and Hazelton. Based on the available travel routes for travel to/from these population centers, the passenger car trips generated by the proposed warehouse were distributed to the local roadway network based on the below percentages and as summarized in **Table 8**. These percentages were reviewed and approved in conjunction with the TIS Scoping Application.

The overall origin/destinations for the passenger vehicle trip distributions are as follows:

- To/from north of the site = 60%;
- To/from south of the site = 40%.

TABLE 8
TRIP DISTRIBUTION PERCENTAGES: NEW PASSENGER VEHICLE TRIPS

Assignment – To/From	Distribution Percentages: Passenger Car Trips	
	Entering Trips	Exiting Trips
North via Wilkes-Barre Township Boulevard (SR 6309)	14%	14%
North via Johnson Street	5%	5%
South via Wilkes-Barre Township Boulevard (SR 6309)/I-81	10%	20%[1]
East via Highland Park Boulevard (SR 2063)	5%	25%
West via Coal Street	5%	5%
West via Casey Avenue (SR 2016)	1%	1%
West via Blackman Street (SR 2005)	30%	30%
North via I-81 SB Off-Ramp at Blackman Street	30%	--

1 = Includes 10% oriented to the north which are assumed to utilize the I-81 NB On-Ramp to the south of the site

Truck Trips

The distribution of truck trips generated by the proposed development was based on the following: (1) the proximity of regional population centers in the vicinity of the subject tract; and (2) the location of major interstates/arterials in the vicinity of the subject tract. Based on TPD's review, major regional population centers such as Philadelphia, New York, Boston and Hartford are anticipated to utilize I-80, I-81, I-84 and I-476 to travel to/from the proposed warehouse to/from the north via Wilkes-Barre Township Boulevard. Additionally, major regional population centers such as Harrisburg, Pittsburgh, Baltimore and Washington D.C. are anticipated to utilize I-80, I-81, and I-83 to travel to/from the proposed warehouse to/from the south via Wilkes-Barre Township Boulevard. Based on the available travel routes for travel to/from these population centers, the truck trips generated by the proposed warehouse were distributed to the local

roadway network based on the below percentages and as summarized in **Table 9**. These percentages were reviewed and approved in conjunction with the TIS Scoping Application.

The overall origin/destinations for the truck trip distributions are as follows:

- To/from north of the site = 25%;
- To/from south of the site = 75%.

TABLE 9
TRIP DISTRIBUTION PERCENTAGES: TRUCK TRIPS

Assignment – To/From	Distribution Percentages: Truck Trips	
	Entering Trips	Exiting Trips
North via Wilkes-Barre Township Boulevard (SR 6309)	--	--
North via Johnson Street	--	--
South via Wilkes-Barre Township Boulevard (SR 6309)/I-81	75%	90%[1]
East via Highland Park Boulevard (SR 2063)	10%	10%
West via Coal Street	--	--
West via Casey Avenue (SR 2016)	--	--
West via Blackman Street (SR 2005)	--	--
North via I-81 SB Off-Ramp at Blackman Street	15%	--

1 = Includes 15% oriented to the north which are assumed to utilize the I-81 NB On-Ramp to the south of the site

Schematic figures summarizing the trip assignment percentages at the study area intersections for the proposed development are illustrated in **Figures 18-19**.

Schematic figures summarizing the assignment of site-generated trips at the study area intersections for the proposed development during the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 20-22**.

PROJECTED (BUILD) CONDITION TRAFFIC VOLUMES

The site-generated trips for the proposed development were added to the 2024/2029 base (no-build) condition traffic volumes to develop 2024/2029 projected (build) condition traffic volumes.

Projected (build) condition traffic volumes for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are illustrated in **Figures 23-25.** Traffic volume development worksheets are contained in **Appendix F**.

LEVELS OF SERVICE FOR AN INTERSECTION

For analysis of intersections, level of service is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. LOS criteria is stated in terms of control delay per vehicle for a one-hour analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The criteria are shown in **Table 10**. Delay, as it relates to level of service, is a complex measure and is dependent upon a number of variables. For signalized intersections, these variables include the quality of vehicle progression, the cycle length, the green time ratio, and the volume/capacity ratio for the lane group in question. For unsignalized intersections, delay is related to the availability of gaps in the flow of traffic on the major street and the driver's discretion in selecting an appropriate gap for a particular movement from the minor street (straight across, left, or right turn).

TABLE 10
LEVEL OF SERVICE CRITERIA
UNSIGNALIZED AND SIGNALIZED INTERSECTIONS[1]

Level of Service	Control Delay Per Vehicle (Seconds)	
	Signalized	Unsignalized
A	< 10	< 10
B	> 10 and < 20	> 10 and < 15
C	> 20 and < 35	> 15 and < 25
D	> 35 and < 55	> 25 and < 35
E	> 55 and < 80	> 35 and < 50
F	> 80 or v/c > 1.0	> 50 or v/c > 1.0

1 = Obtained from Exhibits 19-8 and 20-2 of the Transportation Research Board's Highway Capacity Manual 6th Edition

CAPACITY ANALYSIS METHODOLOGY

Capacity analyses were conducted for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours at the study area intersections. These analyses were conducted according to the methodologies contained in the *Highway Capacity Manual* (HCM) 6th Edition using *Synchro* version 11.1, build 1, revision 6 software, a Trafficware product.

The following conditions were analyzed, as applicable:

- Existing conditions.
- 2024/2029 Base conditions (Full Build-Out Year and 5 years after Full Build-Out without development).
- 2024/2029 Projected conditions (Full Build-Out Year and 5 years after Full Build-Out with development).

The capacity analysis worksheets are included in **Appendix G.**

The following items should be noted with respect to the capacity analyses:

- The Pennsylvania default values for signalized intersections in a suburban land use context contained in Chapter 10 of PennDOT's *Publication 46* were utilized for the base saturation flow rate (1800 pcphpl), start-up lost time (2.5 seconds), extension of effective green time (3.5 seconds) and number of left turn sneakers (2 vehicles).

- The Pennsylvania default values for two-way stop controlled intersections in a suburban land use context contained in Chapter 10 of PennDOT's *Publication 46* were utilized for the base critical headway and base follow-up headways. Worksheets related to the calculated critical and follow-up headways are included at the beginning of **Appendix G**.
- Per PennDOT standards, the signal timings at the study area intersections were optimized under the base (no-build) and projected (build) conditions.
- The heavy vehicle percentages at the study area intersections were calculated, as applicable, to account for the additional truck traffic generated by the proposed development. The calculated heavy vehicles percentages are included at the beginning of **Appendix G**.
- The capacity analyses for the existing conditions utilized the traffic signal permit plans included in **Appendix H**. Based on correspondence with PennDOT, the following should be noted with respect to the existing traffic signal permit plans:
    - Wilkes-Barre Township (SR 6309) and Blackman Street (SR 2005)/I-81 SB Off-Ramp: Utilized the signal plan indicating Revision 3 dated 4/20 based on the recently completed Burger King project and associated improvements which included lengthening the northbound and eastbound left-turn lanes to 275' and 380', respectively.
    - Wilkes-Barre Township (SR 6309) and Coal Street/Highland Park Boulevard (SR 2063): Utilized a cycle length of 128 seconds in the AM peak period and 86 seconds in the PM peak period based on field verification of timings. These cycle lengths reflect coordination with other signals in the system which includes the signalized intersection of Wilkes-Barre Township (SR 6309) and Sheetz Driveway/Shopping Center Driveway.
- The capacity analyses for the base (no-build) and projected (build) conditions utilized the traffic signal permit plans included in **Appendix E** for the SR 309 Safety Improvement Project.

Per the approved TIS Scoping Application, separate capacity analyses are included in **Appendix M** for the intersection of Wilkes-Barre Township (SR 6309) and Blackman Street (SR 2005)/I-81 SB Off-Ramp that include the programmed PennDOT project that includes dual left-turn lanes from the I-81 SB Off-Ramp Wilkes-Barre Township (SR 6309).

PennDOT Standards

The capacity analyses were conducted in accordance with the below noted standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017:

- Page 32 of the Guidelines state that if evaluation of the With Development Horizon Year Scenario to the Without Development Horizon Year Scenario indicates that the overall intersection level of service has dropped, the applicant will be required to mitigate the level of service if the increase in overall intersection delay is greater than 10-seconds. If the overall intersection delay increase is less than or equal to 10-seconds, mitigation of the intersection will not be required. If the intersection level of service meets the level of service requirements, applicants may still be required to provide mitigation to address critical lanes or approaches. For locations where the level of service of the design horizon year without the development is LOS F and with development, the delay increases more than 10 seconds, the remedies shall provide an estimated delay which will be no worse than the delay for the design year without the development.
- Page 33 of the Guidelines state that for mitigation scenarios, applicants are expected to mitigate the overall intersection LOS to the original Without Development LOS; the 10-second delay variance is not applied to mitigation scenarios. Applicants may be required to address available storage and queue lengths at critical movements or approaches even if the overall LOS requirements are met.

- Page 34 of the Guidelines state that if signalization is the preferred alternative for mitigation, overall intersection LOS C in rural areas and LOS D in urban areas is acceptable.
- Page 35 of the Guidelines states new signalized or unsignalized intersections established to serve as access to the development shall be designed to operate at minimum LOS C for rural areas, and minimum LOS D for urban areas.

LEVELS OF SERVICE IN THE STUDY AREA

Levels of service (LOS) at the study area intersections for the weekday A.M. Adjacent Street, weekday A.M. Generator, and weekday P.M. Generator peak hours are summarized in matrix form in **Tables 11-13** for the existing conditions, 2024/2029 base (no-build) conditions, and 2024/2029 projected (build) conditions.

TABLE 11
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY A.M. ADJACENT STREET

Intersection	Approach/ Movement	Weekday A.M. Peak Hour of Adjacent Street			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	C	D	D	--
	EB R	A	A	A	--
	WB L	C	C	B	--
	WB T	C	D	D	--
	WB R	A	A	A	--
	NB L / LL	B	D	D	--
	NB TT	A	B	B	--
	SB TT	C	C	C	--
	SB R	A	A	A	--
	ILOS	**B (16.2)**	**C (25.0)**	**C (25.4)**	--
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	C	C	C	--
	EB R		A	A	--
	WB LTR	D	C	C	--
	NB L	A	A	A	--
	NB T		A	A	--
	NB R		A	A	--
	SB L	B	A	A	--
	SB T		A	A	--
	SB R		A	A	--
	ILOS	**A (1.9)**	**A (9.7)**	**A (9.8)**	--
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	C	C	C	--
	EB TR	C	C	C	--
	WB LTR	C	C	C	--
	NB L	A	A	A	--
	NB TR	A	A	A	--
	SB L	A	A	A	--
	SB T	A	A	A	--
	SB R	A	A	A	--
	ILOS	**A (8.4)**	**A (6.7)**	**A (6.7)**	--
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB LTR	C	C	C	--
	WB LT	C	C	C	--
	WB R	A	A	A	--
	NB L	A	A	A	--
	NB TT	A	A	A	--
	NB R	A	A	A	--
	SB L	A	A	A	--
	SB TTR	A	A	A	--
	ILOS	**A (8.0)**	**A (8.0)**	**A (7.9)**	--

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

TABLE 11 (CONTINUED)
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY A.M. ADJACENT STREET

Intersection	Approach/ Movement	Weekday A.M. Peak Hour of Adjacent Street			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	D	D	D	--
	EB TTR	E (59.0)	E (58.6)	E (58.5)	--
	WB L	D	D	D	--
	WB TT	D	D	D	--
	WB R	A	A	A	--
	NB L	B	B	B	--
	NB TT	A	A	A	--
	NB R	A	A	A	--
	SB L	C	B	B	--
	SB TTR	C	C	C	--
	ILOS	**C (28.4)**	**C (29.0)**	**C (29.1)**	--
Johnson Street & Haul Road	EB LTR	A	A	A	--
	WB LTR	A	A	A	--
	NB L	A	A	A	--
	SB L	A	A	A	--
	ILOS	**A (1.9)**	**A (1.7)**	**A (2.0)**	--
Johnson Street & Relocated Allan Road	WB L	--	--	A	--
	NB LR	--	--	A	--
	ILOS	--	--	**A (1.1)**	--

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

TABLE 12
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Weekday A.M. Peak Hour of Generator			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	C	D	D	--
	EB R	A	A	A	--
	WB L	C	B	B	--
	WB T	C	D	D	--
	WB R	A	A	A	--
	NB L / LL	B	C	C	--
	NB TT	B	B	B	--
	SB TT	C	C	C	--
	SB R	A	A	A	--
	ILOS	**B (17.2)**	**C (25.7)**	**C (26.8)**	--
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	C	C	C	--
	EB R		A	A	--
	WB LTR	D	C	C	--
	NB L	A	A	A	--
	NB T		A	A	--
	NB R		A	A	--
	SB L	B	A	A	--
	SB T		A	A	--
	SB R		A	A	--
	ILOS	**A (1.9)**	**A (9.8)**	**A (9.9)**	--
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	C	C	C	--
	EB TR	C	C	C	--
	WB LTR	C	C	C	--
	NB L	A	A	A	--
	NB TR	A	A	A	--
	SB L	A	A	A	--
	SB T	A	A	A	--
	SB R	A	A	A	--
	ILOS	**A (7.7)**	**A (7.0)**	**A (7.0)**	--
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB LTR	C	C	C	--
	WB LT	C	C	C	--
	WB R	A	A	A	--
	NB L	A	A	A	--
	NB TT	A	A	A	--
	NB R	A	A	A	--
	SB L	A	A	A	--
	SB TTR	A	A	A	--
	ILOS	**A (7.6)**	**A (7.6)**	**A (7.6)**	--

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

TABLE 12 (CONTINUED)
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Weekday A.M. Peak Hour of Generator			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	D	D	D	--
	EB TTR	E (58.0)	E (58.2)	E (58.3)	--
	WB L	D	D	D	--
	WB TT	D	D	D	--
	WB R	A	A	A	--
	NB L	B	B	B	--
	NB TT	A	A	A	--
	NB R	A	A	A	--
	SB L	B	B	B	--
	SB TTR	B	C	C	--
	ILOS	**C (28.9)**	**C (28.9)**	**C (29.0)**	--
Johnson Street & Haul Road	EB LTR	A	A	A	--
	WB LTR	A	A	A	--
	NB L	A	A	A	--
	SB L	A	A	A	--
	ILOS	**A (1.0)**	**A (0.9)**	**A (1.6)**	--
Johnson Street & Relocated Allan Road	WB L	--	--	A	--
	NB LR	--	--	A	--
	ILOS	--	--	**A (1.0)**	--

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

TABLE 13
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY P.M. GENERATOR

Intersection	Approach/ Movement	Weekday P.M. Peak Hour of Generator			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	D	D	D	D
	EB R	A	A	A	A
	WB L	C	C	C	C
	WB T	D	D	D	D
	WB R	A	A	A	A
	NB L / LL	C	D	D	D
	NB TT	B	B	B	B
	SB TT	C	D	D	D
	SB R	A	A	A	A
	ILOS	**C (29.4)**	**D (35.5)**	**D (38.1)**	**D (38.1)**
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	F (65.9)	D	D	D
	EB R		A	A	A
	WB LTR	F (280.0)	D	D	D
	NB L	B	A	B	B
	NB T		A	A	A
	NB R		A	A	A
	SB L	B	A	A	A
	SB T		A	B	B
	SB R		A	A	A
	ILOS	**B (12.0)**	**A (9.8)**	**B (13.9)**	**B (13.8)**
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	C	D	D	D
	EB TR	C	C	C	C
	WB LTR	C	C	C	C
	NB L	B	A	A	A
	NB TR	A	A	A	A
	SB L	A	A	A	A
	SB T	A	B	B	B
	SB R	A	A	A	A
	ILOS	**B (10.4)**	**B (11.3)**	**B (11.4)**	**B (11.3)**
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB LTR	C	C	C	C
	WB LT	D	C	C	C
	WB R	A	A	A	A
	NB L	A	A	A	A
	NB TT	B	B	B	B
	NB R	A	A	A	A
	SB L	A	A	A	A
	SB TTR	A	A	A	A
	ILOS	**B (10.6)**	**B (10.4)**	**B (10.5)**	**B (10.5)**

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

TABLE 13 (CONTINUED)
LEVEL OF SERVICE SUMMARY (DELAY): WEEKDAY P.M. GENERATOR

Intersection	Approach/ Movement	Weekday P.M. Peak Hour of Generator			
		Existing Conditions	Full Build-Out/Design Year (2024/2029)		
			Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	C	C	C	C
	EB TTR	F (321.7)	D	D	D
	WB L	C	D	D	D
	WB TT	C	C	C	C
	WB R	A	A	A	A
	NB L	B	C	C	C
	NB TT	B	B	B	B
	NB R	A	A	A	A
	SB L	B	C	C	C
	SB TTR	C	C	C	C
	ILOS	**F (92.8)**	**C (31.9)**	**C (32.3)**	**C (32.3)**
Johnson Street & Haul Road	EB LTR	A	A	A	A
	WB LTR	A	A	A	A
	NB L	A	A	A	A
	SB L	A	A	A	A
	ILOS	**A (0.7)**	**A (0.7)**	**A (2.9)**	**A (2.9)**
Johnson Street & Relocated Allan Road	WB L	--	--	A	A
	NB LR	--	--	A	A
	ILOS	--	--	**A (2.0)**	**A (2.0)**

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1 = Projected conditions with implementation of recommended improvements

As summarized in **Tables 11-13**, under the 2024/2029 projected (build) conditions, the study area intersections will operate in accordance with the standards contained in Appendix A - Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits of PennDOT *Publication 282,* dated July 2017.

95TH PERCENTILE QUEUE ANALYSIS

95th percentile queue analyses were conducted at the study area intersections using SimTraffic based on the following methodology:

- Calibration settings: 3 intervals, as follows:
  - 10-minute seeding.
  - 15-minute recording with PHF Adjust set to "Yes" and the AntiPHF Adjust set to "No".
  - 45-minute recording with PHF Adjust set to "No" and the AntiPHF Adjust set to "Yes".
- Results based on average of 5 simulations runs.

The SimTraffic queue analysis worksheets are included in **Appendix I**, and the results are summarized in **Tables 14-16** for the analyzed conditions and time periods.

TABLE 14
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY A.M. ADJACENT STREET

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday A.M. Peak Hour of Adjacent Street			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	380'	Same	Same	250'	87'	182'	206'	--
	EB R	1,000'+[2]	Same	Same	350'	0'	25'	14'	--
	WB L	180'	Same	Same	525'	192'	217'	220'	--
	WB T	750'+[2]	Same	Same	--	123'	149'	143'	--
	WB R	180'	Same	Same	--	0'	0'	0'	--
	NB L	275'	275'	Same	375'	138'	236'	226'	--
	NB L	--	275'	Same		--	258'	254'	--
	NB T	800'[2]	Same	Same	--	164'	179'	176'	--
	NB T					127'	136'	152'	--
	SB T	1200'[2]	Same	Same	--	114'	142'	139'	--
	SB T					112'	141'	134'	--
	SB R	225'	Same	Same	200'	0'	0'	0'	--
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	0'	150' [2]	Same	--	67'	153'	125'	--
	EB R		150' [2]	Same	--		19'	13'	--
	WB LTR	700' [2]	Same	Same	--	50'	49'	88'	--
	NB L	TWTL	150'+[3]	Same	200'	27'	106'	103'	--
	NB T	1200'[2]	Same	Same	--	4'	182'	178'	--
	NB R		100'	Same	150'		38'	60'	--
	SB L	TWTL	110'+[3]	Same	75'	23'	39'	59'	--
	SB T	735' [2]	Same	Same	--	20'	214'	200'	--
	SB R		150'	Same	200'		57'	46'	--
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	125'	250'	Same	--	133'	190'	170'	--
	EB TR	150'[2]	Same	Same	--	35'	39'	38'	--
	WB LTR	--	Same	Same	--	6'	11'	4'	--
	NB L	125'+[3]	Same	Same	75'	33'	49'	21'	--
	NB TR	735' [2]	Same	Same	--	202'	221'	199'	--
	SB L	125'+[3]	Same	Same	--	0'	0'	0'	--
	SB T	1,000'+[2]	Same	Same	--	112'	143'	159'	--
	SB R	125'	Same	Same	75'	30'	33'	43'	--
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB LTR	--	Same	Same	--	91'	79'	80'	--
	WB LT	--	Same	Same	--	80'	76'	85'	--
	WB R	--	Same	Same	--	0'	0'	0'	--
	NB L	100'	Same	Same	150'	41'	53'	47'	--
	NB T	750'[2]	Same	Same	--	125'	138'	142'	--
	NB T					117'	119'	114'	--
	NB R	185'	Same	Same	275'	0'	0'	0'	--
	SB L	235'	Same	Same	225'	48'	51'	54'	--
	SB T	600'[2]	Same	Same	--	145'	161'	176'	--
	SB TR				175'	58'	55'	66'	--

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

TABLE 14 (CONTINUED)
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday A.M. Peak Hour of Adjacent Street			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	235'+[3]	Same	Same	150'	81'	76'	76'	--
	EB T	400'[2]	Same	Same	--	170'	195'	186'	--
	EB TR				200'	195'	212'	195'	--
	WB L	650'	Same	Same	275'	164'	162'	171'	--
	WB T	1,000'+[2]	Same	Same	--	135'	137'	145'	--
	WB T					114'	107'	109'	--
	WB R	200'	Same	Same	--	0'	0'	0'	--
	NB L	300'	Same	Same	600'	251'	327'	289'	--
	NB T	600'[2]	Same	Same	--	102'	215'	134'	--
	NB T					119'	141'	121'	--
	NB R	600'[2]	Same	Same	550'	0'	0'	0'	--
	SB L	125'	Same	Same	175'	22'	32'	28'	--
	SB T	1,000'+[2]	Same	Same	--	118'	134'	155'	--
	SB TR				--	92'	86'	108'	--
Johnson Street & Haul Road	EB LTR	--	--	--	--	0'	0'	0'	--
	WB LTR	--	--	--	--	54'	55'	69'	--
	NB L	700' [2]	Same	Same	--	0'	0'	8'	--
	SB L	1,000'+[2]	Same	Same	--	0'	0'	0'	--
Johnson Street & Relocated Allan Road	WB L	--	--	1,000'+[2]	--	--	--	6'	--
	NB LR	--	--	--	--	--	--	56'	--

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

TABLE 15
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday A.M. Peak Hour of Generator			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	380'	Same	Same	250'	118'	246'	239'	--
	EB R	1,000'+[2]	Same	Same	350'	0'	0'	22'	--
	WB L	180'	Same	Same	525'	150'	178'	188'	--
	WB T	750'+[2]	Same	Same	--	124'	120'	153'	--
	WB R	180'	Same	Same	--	0'	0'	0'	--
	NB L	275'	275'	Same	375'	100'	170'	178'	--
	NB L	--	275'	Same		--	200'	202'	--
	NB T	800'[2]	Same	Same	--	143'	152'	149'	--
	NB T					102'	101'	105'	--
	SB T	1200'[2]	Same	Same	--	125'	160'	155'	--
	SB T					126'	160'	154'	--
	SB R	225'	Same	Same	200'	0'	0'	0'	--
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	0'	150' [2]	Same	--	59'	140'	139'	--
	EB R		150' [2]	Same	--		47'	13'	--
	WB LTR	700' [2]	Same	Same	--	65'	68'	106'	--
	NB L	TWTL	150'+[3]	Same	200'	29'	88'	75'	--
	NB T	1200'[2]	Same	Same	--	18'	123'	129'	--
	NB R		100'	Same	150'		37'	36'	--
	SB L	TWTL	110'+[3]	Same	75'	7'	21'	78'	--
	SB T	735' [2]	Same	Same	--	20'	215'	230'	--
	SB R		150'	Same	200'		45'	57'	--
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	125'	250'	Same	--	150'	203'	209'	--
	EB TR	150'[2]	Same	Same	--	27'	23'	26'	--
	WB LTR	--	Same	Same	--	0'	0'	0'	--
	NB L	125'+[3]	Same	Same	75'	16'	24'	15'	--
	NB TR	735' [2]	Same	Same	--	154'	195'	200'	--
	SB L	125'+[3]	Same	Same	--	0'	0'	0'	--
	SB T	1,000'+[2]	Same	Same	--	126'	181'	169'	--
	SB R	125'	Same	Same	75'	26'	39'	54'	--
Wilkes-Barre Township Boulevard & Sheetz Driveway /Shopping Center Driveway	EB LTR	--	Same	Same	--	92'	89'	84'	--
	WB LT	--	Same	Same	--	75'	79'	87'	--
	WB R	--	Same	Same	--	0'	0'	0'	--
	NB L	100'	Same	Same	150'	45'	45'	43'	--
	NB T	750'[2]	Same	Same	--	101'	104'	103'	--
	NB T					113'	136'	136'	--
	NB R	185'	Same	Same	275'	0'	0'	0'	--
	SB L	235'	Same	Same	225'	55'	57'	54'	--
	SB T	600'[2]	Same	Same	--	166'	186'	197'	--
	SB TR				175'	52'	56'	66'	--

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

TABLE 15 (CONTINUED)
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY A.M. GENERATOR

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday A.M. Peak Hour of Generator			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	235'+[3]	Same	Same	150'	99'	92'	100'	--
	EB T	400'[2]	Same	Same	--	193'	221'	203'	--
	EB TR				200'	206'	233'	205'	--
	WB L	650'	Same	Same	275'	123'	147'	156'	--
	WB T	1,000'+[2]	Same	Same	--	129'	123'	135'	--
	WB T					99'	88'	99'	--
	WB R	200'	Same	Same	--	0'	0'	0'	--
	NB L	300'	Same	Same	600'	167'	189'	191'	--
	NB T	600'[2]	Same	Same	--	100'	116'	113'	--
	NB T					108'	119'	121'	--
	NB R	600'[2]	Same	Same	550'	0'	91'	0'	--
	SB L	125'	Same	Same	175'	45'	49'	41'	--
	SB T	1,000'+[2]	Same	Same	--	159'	179'	181'	--
	SB TR				--	108'	139'	142'	--
Johnson Street & Haul Road	EB LTR	--	--	--	--	0'	0'	0'	--
	WB LTR	--	--	--	--	43'	42'	59'	--
	NB LR[3]	700' [2]	Same	Same	--	0'	0'	0'	--
	SB LR[3]	1,000'+[2]	Same	Same	--	0'	0'	0'	--
Johnson Street & Relocated Allan Road	WB LT[3]	--	--	1,000'+[2]	--	--	--	4'	--
	NB LR	--	--	--	--	--	--	47'	--

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

TABLE 16
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY P.M. GENERATOR

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday P.M. Peak Hour of Generator			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB L	380'	Same	Same	250'	235'	213'	238'	242'
	EB R	1,000'+[2]	Same	Same	350'	429'	323'	379'	350'
	WB L	180'	Same	Same	525'	315'	317'	317'	319'
	WB T	750'+[2]	Same	Same	--	435'	652'	664'	526'
	WB R	180'	Same	Same	--	58'	83'	143'	58'
	NB L	275'	275'	Same	375'	143'	139'	163'	157'
	NB L	--	275'	Same		--	176'	198'	193'
	NB T	800'[2]	Same	Same	--	180'	188'	198'	195'
	NB T					136'	157'	161'	166'
	SB T	1200'[2]	Same	Same	--	282'	441'	429'	437'
	SB T					288'	441'	437'	443'
	SB R	225'	Same	Same	200'	111'	434'	435'	430'
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB LT	0'	150' [2]	Same	--	141'	124'	200'	113'
	EB R		150' [2]	Same	--		276'	318'	241'
	WB LTR	700' [2]	Same	Same	--	96'	90'	571'	175'
	NB L	TWTL	150'+[3]	Same	200'	50'	137'	146'	143'
	NB T	1200'[2]	Same	Same	--	0'	217'	239'	223'
	NB R		100'	Same	150'		82'	114'	91'
	SB L	TWTL	110'+[3]	Same	75'	34'	40'	75'	76'
	SB T	735' [2]	Same	Same	--	8'	407'	396'	348'
	SB R		150'	Same	200'		120'	145'	115'
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB L	125'	250'	Same	--	201'	275'	280'	248'
	EB TR	150'[2]	Same	Same	--	224'	75'	90'	79'
	WB LTR	--	Same	Same	--	25'	34'	35'	32'
	NB L	125'+[3]	Same	Same	75'	39'	61'	45'	44'
	NB TR	735' [2]	Same	Same	--	181'	211'	249'	201'
	SB L	125'+[3]	Same	Same	--	10'	14'	15'	15'
	SB T	1,000'+[2]	Same	Same	--	219'	426'	319'	432'
	SB R	125'	Same	Same	75'	113'	190'	187'	220'
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB LTR	--	Same	Same	--	90'	93'	84'	100'
	WB LT	--	Same	Same	--	232'	219'	235'	205'
	WB R	--	Same	Same	--	122'	95'	112'	65'
	NB L	100'	Same	Same	150'	63'	64'	78'	76'
	NB T	750'[2]	Same	Same	--	153'	169'	180'	165'
	NB T					197'	208'	216'	211'
	NB R	185'	Same	Same	275'	0'	53'	53'	77'
	SB L	235'	Same	Same	225'	153'	198'	178'	185'
	SB T	600'[2]	Same	Same	--	303'	381'	362'	367'
	SB TR				175'	187'	245'	234'	244'

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

TABLE 16 (CONTINUED)
95TH PERCENTILE QUEUE ANALYSIS: WEEKDAY P.M. GENERATOR

Intersection	Approach/ Movement	Existing Storage	Base Storage	Projected Storage[1]	PennDOT Pub. 46 Storage	Weekday P.M. Peak Hour of Generator			
						Existing Conditions	Full Build-Out/Design Year (2024/2029)		
							Base Conditions	Projected Conditions	Projected Conditions[1]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB L	235'+[3]	Same	Same	150'	433'	169'	181'	150'
	EB T	400'[2]	Same	Same	--	1056'	291'	325'	290'
	EB TR				200'	1062'	329'	346'	302'
	WB L	650'	Same	Same	275'	214'	310'	297'	341'
	WB T	1,000'+[2]	Same	Same	--	183'	167'	162'	246'
	WB T					165'	161'	147'	200'
	WB R	200'	Same	Same	--	0'	0'	0'	0'
	NB L	300'	Same	Same	600'	213'	300'	275'	276'
	NB T	600'[2]	Same	Same	--	121'	209'	187'	148'
	NB T					266'	164'	165'	139'
	NB R	600'[2]	Same	Same	550'	132'	0'	0'	0'
	SB L	125'	Same	Same	175'	81'	181'	183'	181'
	SB T	1,000'+[2]	Same	Same	--	222'	392'	304'	328'
	SB TR				--	184'	335'	269'	277'
Johnson Street & Haul Road	EB LTR	--	--	--	--	0'	0'	0'	0'
	WB LTR	--	--	--	--	30'	31'	79'	67'
	NB LR[3]	700' [2]	Same	Same	--	0'	0'	0'	0'
	SB LR[3]	1,000'+[2]	Same	Same	--	0'	0'	8'	0'
Johnson Street & Relocated Allan Road	WB LT[3]	--	--	1,000'+[2]	--	--	--	46'	0'
	NB LR	--	--	--	--	--	--	150'	52'

Base = No-Build scenario Projected = Build scenario
1 = Projected conditions with implementation of recommended improvements as applicable
2 = Distance to nearest public street intersection or mainline interstate
3 = Notes dedicated storage length, however additional storage available via two-way turn lane

= *95th percentile queue exceeds available storage*

As summarized in **Tables 14-16**, under the 2024/2029 projected (build) conditions, with implementation of the recommended improvements, all of the 95th percentile queues will be accommodated within the available storage length, with the following exception of the following:

Wilkes-Barre Township Blvd & Blackman Street/I-81 Southbound Off-Ramp

- The westbound left-turn from the I-81 SB Off-Ramp; Available Storage = 180'; Maximum 95th percentile queue length = 319'. PennDOT's programmed I-81 SB Ramp G project includes the addition of a second left-turn lane on the I-81 SB Off-Ramp, resulting in dual left-turn lanes each with 300 feet of storage per lane. As summarized in Appendix M, the 95th percentile queue length for the subject movement will be accommodated by the dual-left-turn lanes. It should be noted the proposed development does not add any site-generated trips to this movement.
- The southbound Wilkes-Barre Township Boulevard right-turn; Available Storage = 225'; Maximum 95th percentile queue length = 430'. Based on a review of the SimTraffic simulation, the noted 95th percentile queue length is the result of the queue for the southbound Wilkes-Barre Township Boulevard through lanes extending beyond the subject right-turn lane, thus preventing vehicles from entering the right-turn lane. TPD evaluated potential traffic signal timing adjustments, however it was determined it is

not feasible to reduce the queue length for the through lanes such that they do not block the right-turn lane. It also is not feasible to lengthen the subject right-turn lane without impacting the driveways and parking for multiple commercial business along Wilkes-Barre Township Boulevard.

Wilkes-Barre Township Blvd & Casey Avenue/Park & Ride Lot

- The southbound Wilkes-Barre Township Boulevard right-turn; Available Storage = 125'; Maximum 95th percentile queue length = 220'. Based on a review of the SimTraffic simulation, the noted 95th percentile queue length is the result of the queue for the southbound Wilkes-Barre Township Boulevard through lane extending beyond the subject right-turn lane, thus preventing vehicles from entering the right-turn lane. TPD evaluated potential traffic signal timing adjustments, however it was determined it is not feasible to reduce the queue length for the through lanes such that they do not block the right-turn lane. It also is not feasible to lengthen the subject right-turn lane as a result of the steep slope off of the edge of roadway that is currently protected by guiderail. It should be noted the proposed development does not add any site-generated trips to this movement.

Wilkes-Barre Township Blvd & Coal Street/Highland Park Boulevard

- The southbound Wilkes-Barre Township Boulevard left-turn; Available Storage = 125'; Maximum 95th percentile queue length = 181'. TPD evaluated potential traffic signal timing adjustments, however it was determined it is not feasible to reduce the queue length to be accommodated by the available storage. It also is not feasible to lengthen the subject left-turn lane since it is constrained by the back-to-back left-turn lane at Raco Drive. It should be noted the proposed development does not add any site-generated trips to this movement.

AUXILIARY TURN LANE ANALYSIS

Methodology

TPD evaluated auxiliary turn lane warrants at the study intersections, as applicable. The warrant analysis was conducted according to the methodologies contained in Chapter 11 of PennDOT's *Publication 46* utilizing the posted speed limits. The auxiliary turn lane warrant analysis worksheets are contained in **Appendix J**.

Findings

Table 17 summarizes the results of the auxiliary turn lane analysis.

TABLE 17
AUXILIARY TURN LANE ANALYSIS SUMMARY

Intersection	Auxiliary Lane	Full Build-Out/Design Year (2024/2029)				
		Additional Site Traffic[1]	Warrant Satisfied?	Warranted Length	Provided Length[2]	Maximum Queue Length[3]
Wilkes-Barre Township Boulevard & Blackman Street/ I-81 SB Off-Ramp	EB Left	13-27	Yes	250′	380′	242′
	EB Right	0	Yes	350′	1,000′+[4]	350′
	WB Left	0	Yes	525′	180′/ **300′-300′ (dual)**	319′
	WB Right	14-28	No	--	180′/**165′**	58′
	NB Left	0	Yes	375′	275′-275′ (dual)	226′-254′
	SB Right	2-28	Yes	200′	225′	430′
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB Left	0	No	--	150′	139′
	EB Right	0	No	--	--	241′
	WB Left	13-56	No	--	--	175′
	WB Right	4-44	No	--	--	175′
	NB Left	0	Yes	200′	150′+[5]	143′
	NB Right	41-67	Yes	150′	100′	91′
	SB Left	11-24	Yes	75′	110′+[5]	78′
	SB Right	0	Yes	200′	150′	115′
Wilkes-Barre Township Boulevard & Casey Avenue/ Park & Ride Lot	EB Left	0	No	--	250′	248′
	EB Right	0	No	--	--	79′
	WB Left	0	No	--	--	32′
	WB Right	0	No	--	--	32′
	NB Left	0	Yes	75′	125′+[5]	44′
	NB Right	0	No	--	--	201′
	SB Left	0	No	--	125′+[5]	15′
	SB Right	0	Yes	75′	125′	220′
Wilkes-Barre Township Boulevard & Sheetz Driveway/ Shopping Center Driveway	EB Left	0	No	--	--	100′
	EB Right	0	No	--	--	100′
	WB Left	0	No	--	--	205′
	WB Right	0	No	--	150′	65′
	NB Left	0	Yes	150′	100′	76′
	NB Right	0	Yes	275′	185′	77′
	SB Left	0	Yes	225′	235′	185′
	SB Right	0	Yes	175′	0′	244′

1 = During Analyzed Peak Hours
*2 = Base (No-Build) Length / **Projected (Build) Length with PennDOT Ramp G Project***
3 = Based on 95th Percentile Queue Lengths Summarized in Tables 15-17 for the 2024/2029 Projected (Build) Conditions
4 = Blackman Street Through Lane Becomes Right-Turn Lane at Signal
5 = Notes dedicated storage length, however additional storage available via two-way turn lane

TABLE 17 (CONTINUED)
AUXILIARY TURN LANE ANALYSIS SUMMARY

Intersection	Auxiliary Lane	Full Build-Out/Design Year (2024/2029)				
		Additional Site Traffic[1]	Warrant Satisfied?	Warranted Length	Provided Length[2]	Maximum Queue Length[3]
Wilkes-Barre Township Boulevard & Coal Street/ Highland Park Boulevard	EB Left	0	Yes	150′	235′+[5]	150′
	EB Right	2-4	Yes	200′	0′	302′
	WB Left	3-6	Yes	275′	650′	341′
	WB Right	0	No	--	200′	0′
	NB Left	1-5	Yes	600′	300′	289′
	NB Right	3-25	Yes	550′	650′	99′
	SB Left	0	Yes	175′	125′	181′
	SB Right	0	No	--	--	277′
Johnson Street & Haul Road	WB Left	9-52	No	--	--	69′
	WB Right	1-3	No	--	--	69′
	NB Right	21-45	No	--	--	8′
	SB Left	1-2	No	--	--	0′
Johnson Street & Relocated Allan Road	EB Right	31-46	No	--	--	0′
	WB Left	1-2	No	--	--	6′
	NB Left	8-48	No	--	--	56′
	NB Right	2	No	--	--	56′

1 = During Analyzed Peak Hours
*2 = Base (No-Build) Length / **Projected (Build) Length with PennDOT Ramp G Project***
3 = Based on 95th Percentile Queue Lengths Summarized in Tables 15-17 for the 2024/2029 Projected (Build) Conditions
4 = Blackman Street Through Lane Becomes Right-Turn Lane at Signal
5 = Notes dedicated storage length, however additional storage available via two-way turn lane

As summarized in **Table 17**, the warranted auxiliary turn lanes and associated lane lengths are provided at the study area intersections, with the exception of the following:

Wilkes-Barre Township Blvd & Johnson Street/ Blackman Plaza Driveway

- The northbound Wilkes-Barre Township Boulevard right-turn lane; Warranted lane length = 150′; Provided lane length = 100′. PennDOT's SR 309 Safety Improvement project includes construction of the subject right-turn lane with 100′ of available storage. Based on TPD's review it appears lengthening the subject right-turn lane to provide the 50′ of additional storage is not feasible since the area of widening is within a steep slope off of the edge of roadway that is currently protected by guiderail, as well as the nearby branch of Spring Run Creek. It should be noted the 100′ of available storage will accommodate the maximum 95th percentile queue length.
- The southbound Wilkes-Barre Township Boulevard right-turn lane; Warranted lane length = 200′; Provided lane length = 150′. PennDOT's SR 309 Safety Improvement project includes construction of the subject right-turn lane with 150′ of available storage. It should be noted the proposed development does not add any site-generated trips to this movement, and the 150′ of available storage will accommodate the maximum 95th percentile queue length.

Wilkes-Barre Township Blvd & Sheetz Driveway/ Shopping Center Driveway

- The northbound Wilkes-Barre Township Boulevard left-turn lane; Warranted lane length = 150'; Provided lane length = 100'. Based on TPD's review it appears lengthening the subject left-turn lane to provide the 50' of additional storage is not feasible since the area of widening is within a steep slope off of the edge of roadway that is currently protected by guiderail, as well as a structure. It should be noted the proposed development does not add any site-generated trips to this movement, and the 100' of available storage will accommodate the maximum 95th percentile queue length.
- The northbound Wilkes-Barre Township Boulevard right-turn lane; Warranted lane length = 275'; Provided lane length = 185'. Based on TPD's review it appears lengthening the subject right-turn lane to provide the 90' of additional storage is not feasible since the area of widening is within a steep slope off of the edge of roadway that is currently protected by guiderail, as well as a structure. It should be noted the proposed development does not add any site-generated trips to this movement, and the 185' of available storage will accommodate the maximum 95th percentile queue length.
- The southbound Wilkes-Barre Township Boulevard right-turn lane; Warranted lane length = 175'; Provided lane length = Separate lane not provided. Based on TPD's review it appears construction of the subject right-turn lane is not feasible since the widening would impact several parking spaces within the Sheetz lot. It should be noted the proposed development does not add any site-generated trips to this movement.

Wilkes-Barre Township Blvd & Coal Street/Highland Park Boulevard

- The eastbound Coal Street right-turn lane; Warranted lane length = 200'; Provided lane length = Separate lane not provided. Based on TPD's review it appears construction of the subject right-turn lane is not feasible since the widening would impact several parking spaces within the Advanced Auto lot, as well as a significant utility pole for high tension lines.
- The northbound Wilkes-Barre Township Boulevard left-turn lane; Warranted lane length = 600'; Provided lane length = 300'. Based on the warranted lane length dual left-turn lanes would need to be considered. Based on TPD's review it appears construction of the dual left-turn lanes is not feasible since the widening would impact several parking spaces within the Advanced Auto and/or Sam's Club lots. It should be noted the 300' of available storage will accommodate the maximum 95th percentile queue length.
- The southbound Wilkes-Barre Township Boulevard left-turn lane; Warranted lane length = 175'; Provided lane length = 125'. Based on TPD's review it appears construction of the dual left-turn lanes is not feasible since the Based on TPD's review it appears lengthening the subject right-turn lane to provide the 50' of additional storage is not feasible since it is constrained by the back-to-back left-turn lane at Raco Drive. It should be noted the proposed development does not add any site-generated trips to this movement.

LEFT TURN SIGNAL PHASING

Methodology

TPD evaluated left-turn signal phasing at the intersection of Wilkes-Barre Township Boulevard and Johnson Street/Blackman Plaza Driveway. The evaluation of left-turn phasing was conducted according to the methodologies contained in Chapter 3 of PennDOT's *Publication 149*.

PennDOT's *Publication 149* states: "*Traffic volumes are the most reliable and useful method of analyzing the need for special phasing for left-turning vehicles; however, consideration must be given to the delay experienced by left-turning vehicles, safety, characteristics of the traffic stream, roadway and intersection geometry, and the type of signal operation in the area or along the street. Therefore, the following criteria have been established with the realization that a complete study for the entire intersection will be a necessary part of any evaluation of the need for consideration of a protected left turn movement. This study shall discuss each of the following criteria and include a capacity analysis for both the existing and proposed signal consideration. The engineering study shall include calculations and evaluations as indicated below. The results of the engineering study and engineering judgment shall be used to determine the most appropriate intersection operation*".

The left-turn phasing analysis worksheets are included in **Appendix K**.

Findings

Table 18 summarizes the results of the left-turn signal phasing analysis.

TABLE 18
LEFT-TURN SIGNAL PHASING ANALYSIS SUMMARY

Intersection	Direction	Existing Left-Turn Phasing	Pub 149 Warrant Satisfied?	Recommended Left-Turn Phasing
Wilkes-Barre Township Boulevard & Johnson Street/ Blackman Plaza Driveway	EB	None	No	None
	WB	None	No	None
	NB	Protected/Permitted	Yes	Protected/Permitted
	SB	None	No	None

SIGNAL WARRANT ANALYSIS

Methodology

A preliminary traffic signal warrant analysis was conducted for the Haul Road and Relocated Allan Road intersections with Johnson Street in accordance with PennDOT Publication 212, *Official Traffic Control Devices*, Subchapter D, "Highway Traffic Signals".

TPD evaluated traffic volumes at the subject intersection to determine if the following warrants are anticipated to be satisfied based on the traffic volume projections for the full build-out of the proposed development (i.e. 2024/2029 projected conditions).

» Warrant 3, Peak Hour Volume Warrant.

All relevant signal warrant analysis worksheets and supporting documentation, including the signal warrant volume development calculations, are included in **Appendix L**.

Findings

Table 19 summarizes the results of the preliminary traffic signal warrant analysis.

TABLE 19
PRELIMINARY TRAFFIC SIGNAL WARRANT ANALYSIS SUMMARY

Intersection	Warrant	Warrant Satisfied?
Johnson Street & Haul Road	Warrant 3, Peak Hour Volume	No
Johnson Street & Relocated Allan Road	Warrant 3, Peak Hour Volume	No

RECOMMENDATIONS AND CONCLUSIONS

The recommendations and conclusions for this Transportation Impact Study are identified in the Executive Summary.

KEY: ● = STUDY INTERSECTION
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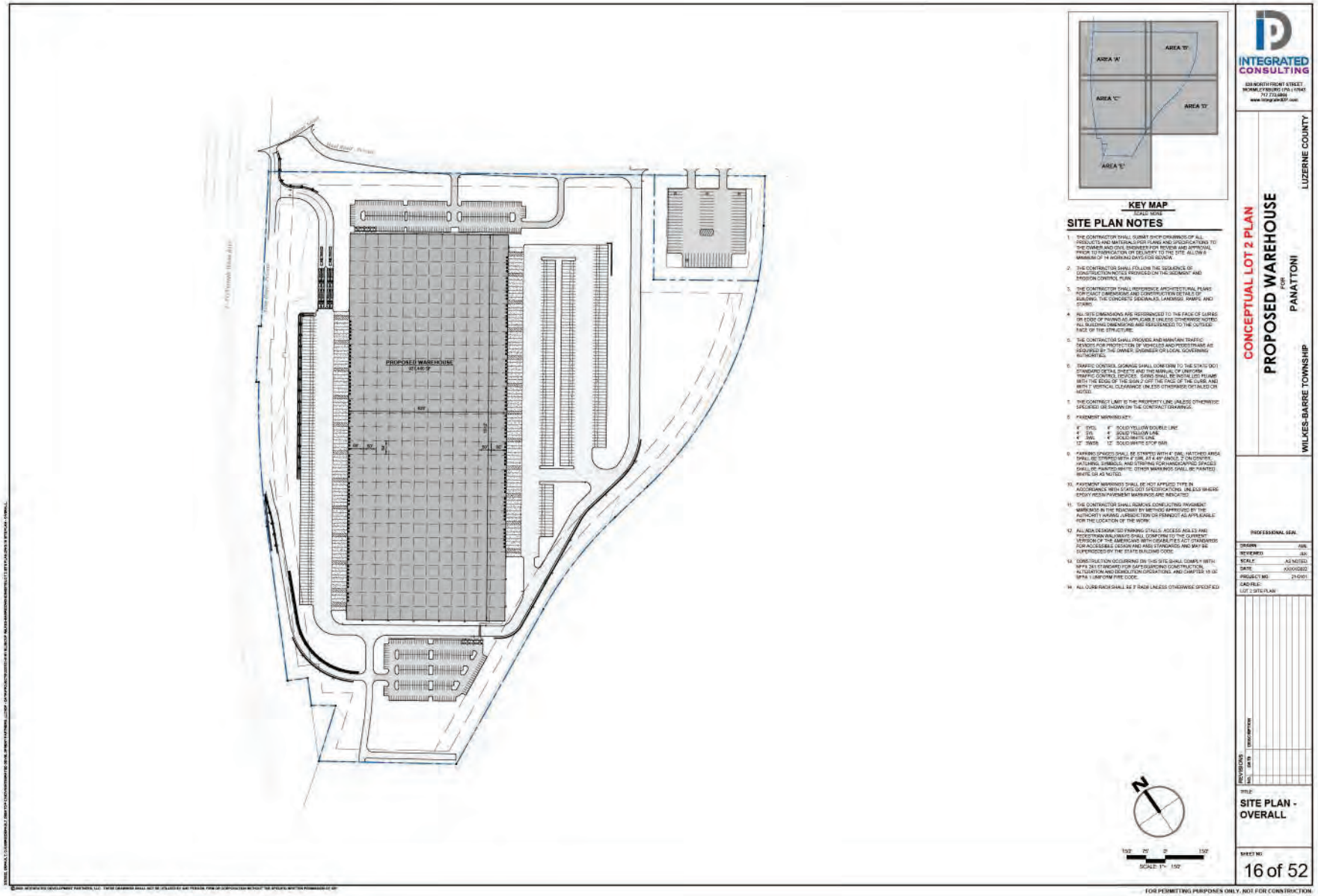
FIGURE 1

PROJECT LOCATION



KEY:
SCHEMATIC DRAWING:NOT TO SCALE

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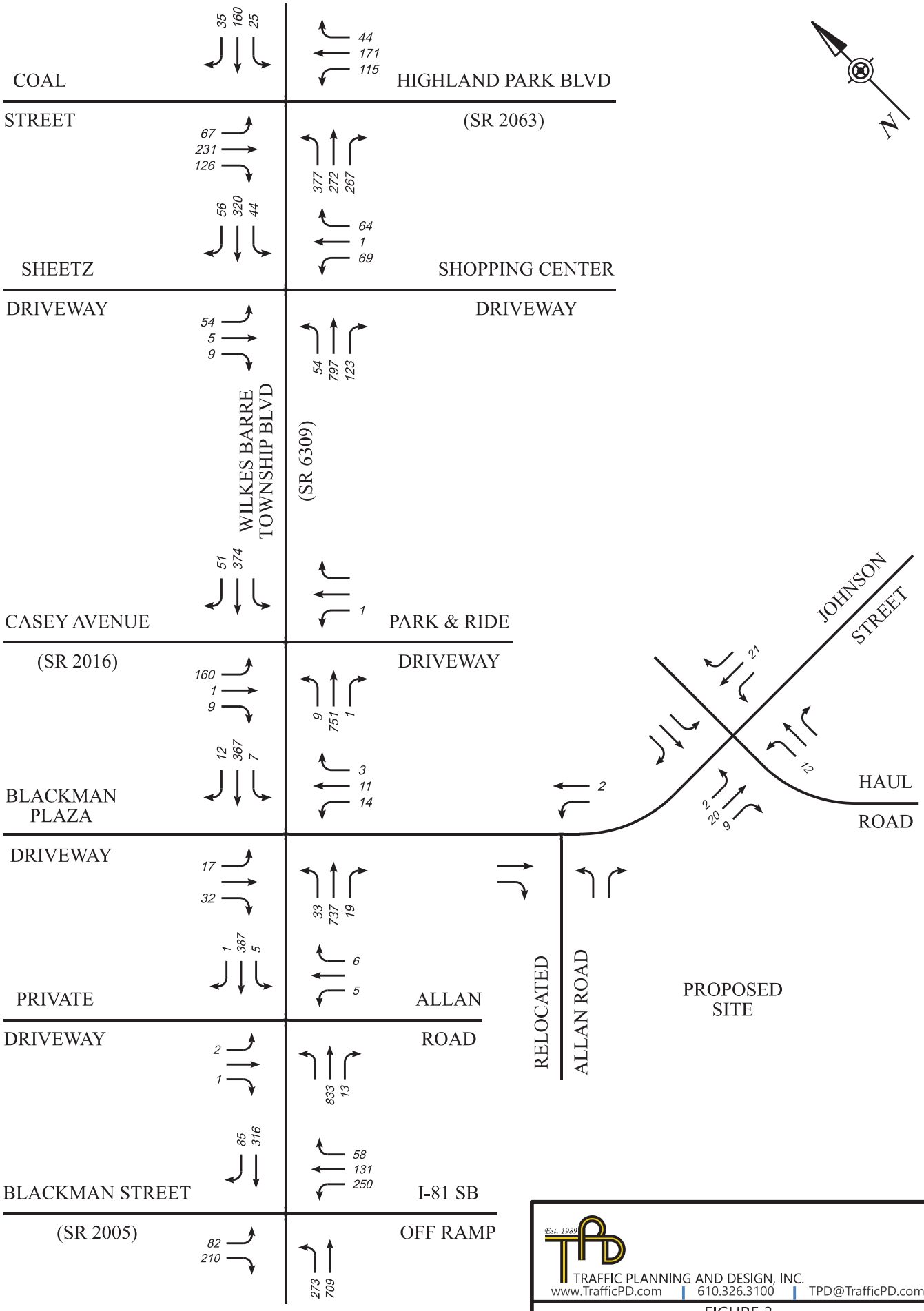
FIGURE 2

SITE PLAN



KEY:

- - - - - PROPOSED DRIVEWAY

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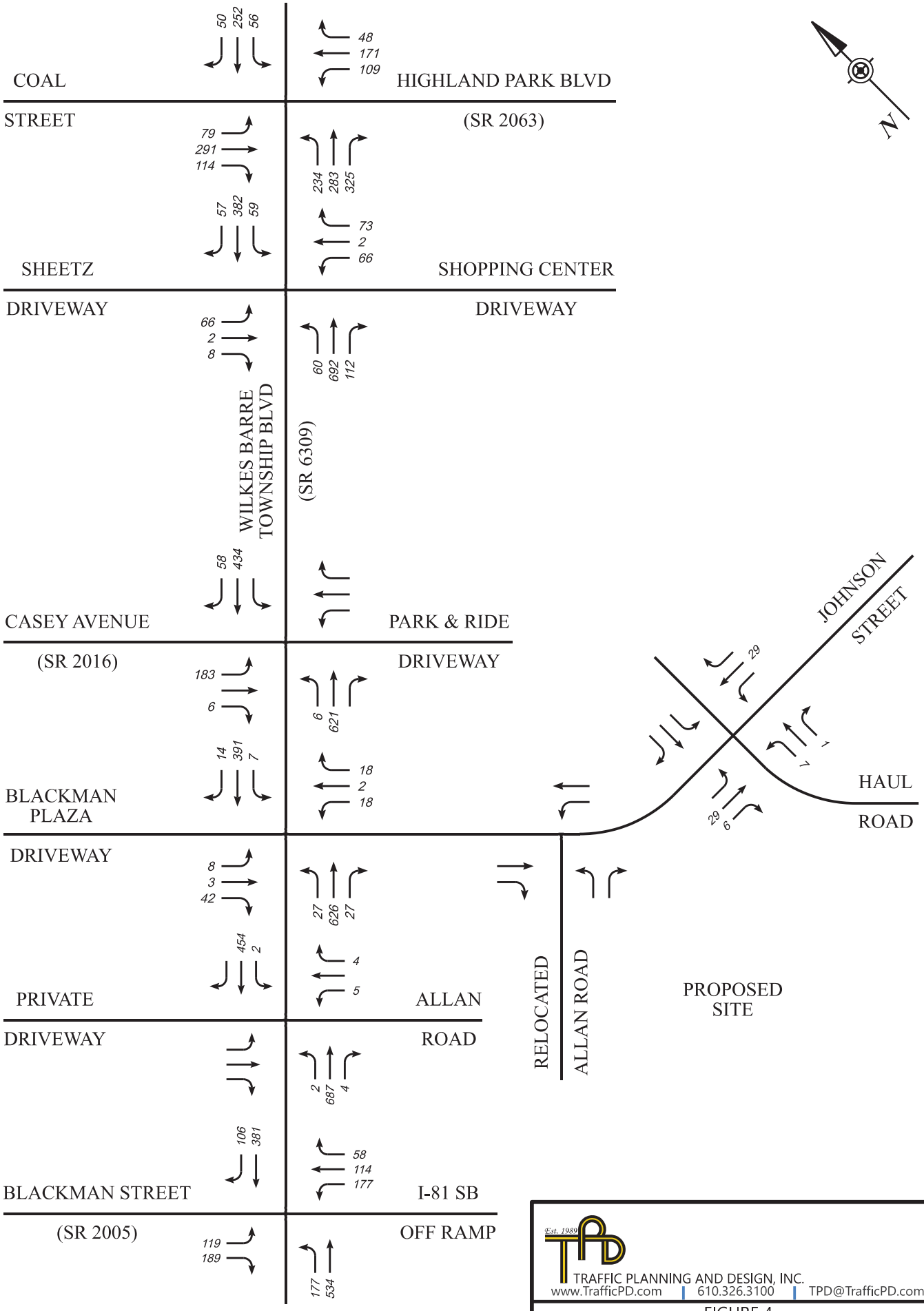
FIGURE 3

EXISTING CONDITIONS
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

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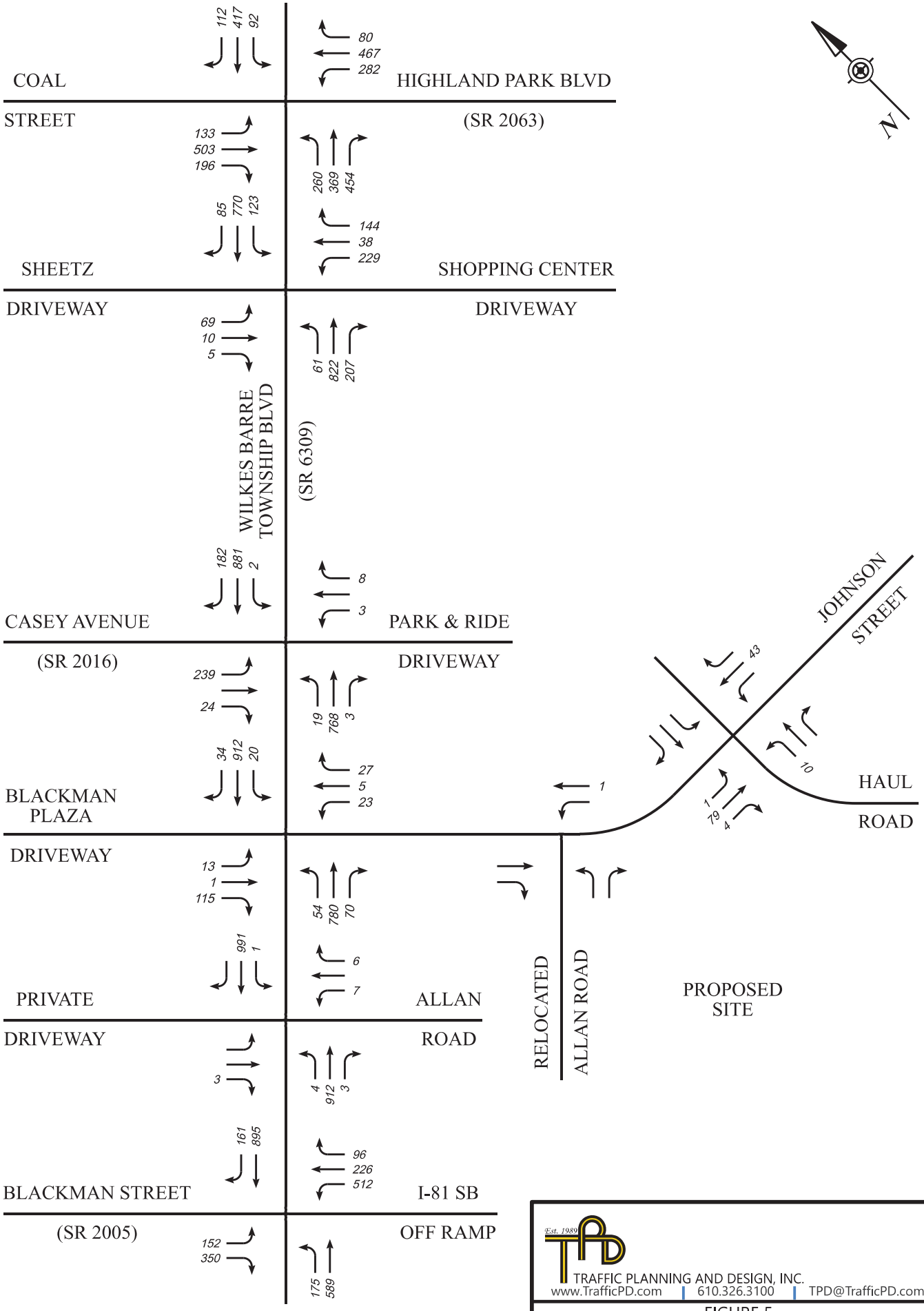
FIGURE 4

EXISTING CONDITIONS
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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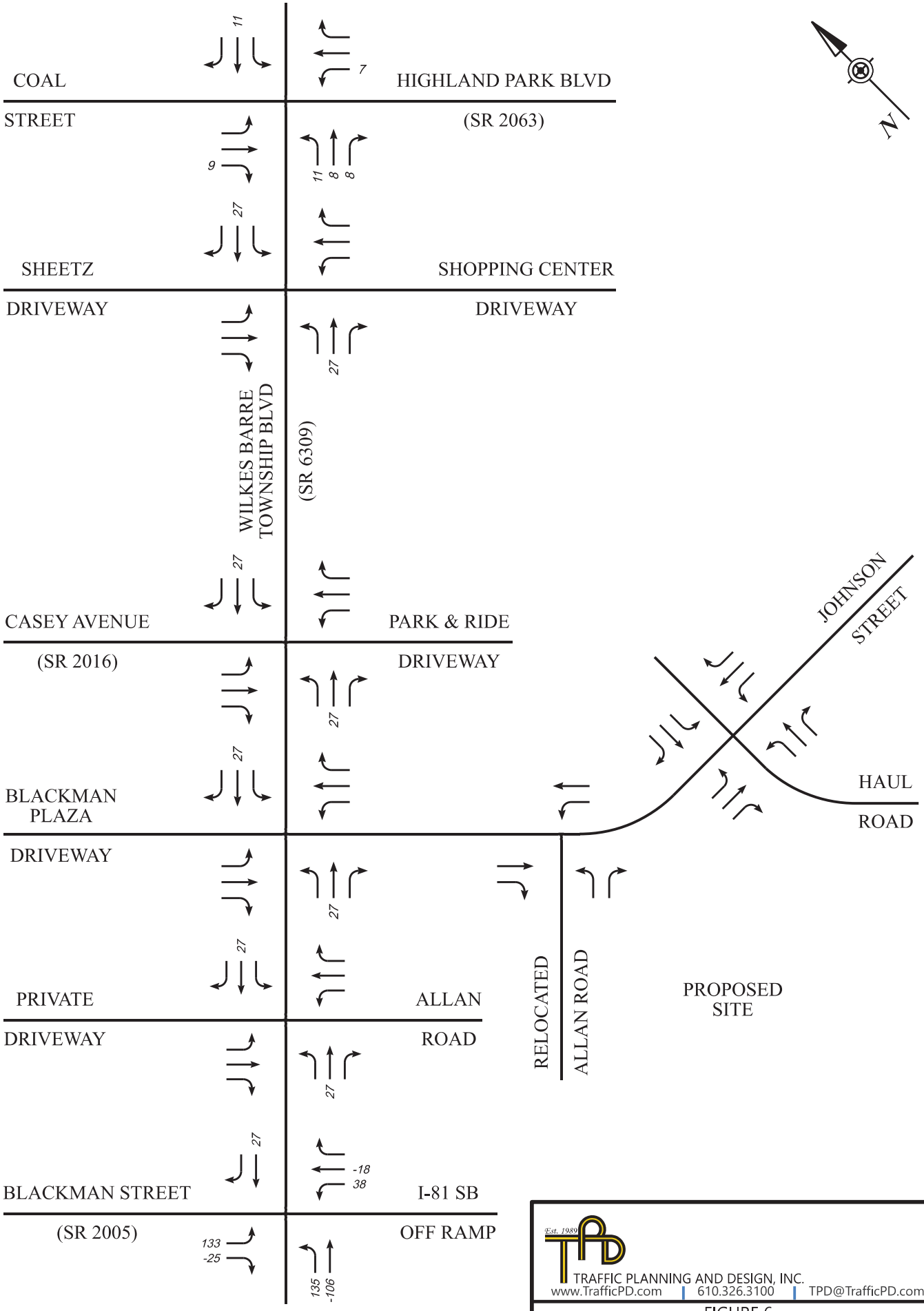
FIGURE 5

EXISTING CONDITIONS
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

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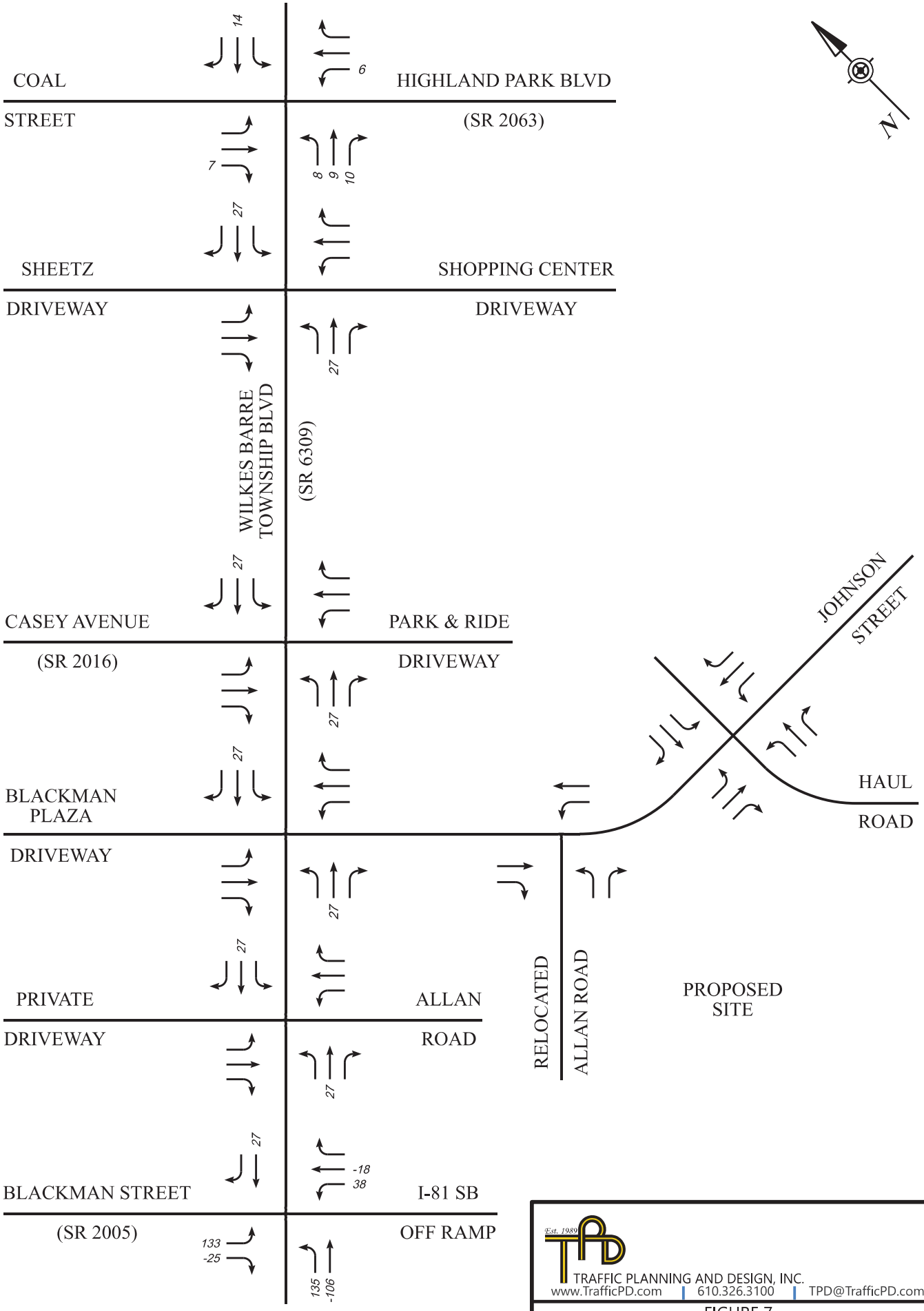
FIGURE 6

TURKEY HILL CONVENIENCE STORE & GAS STATION
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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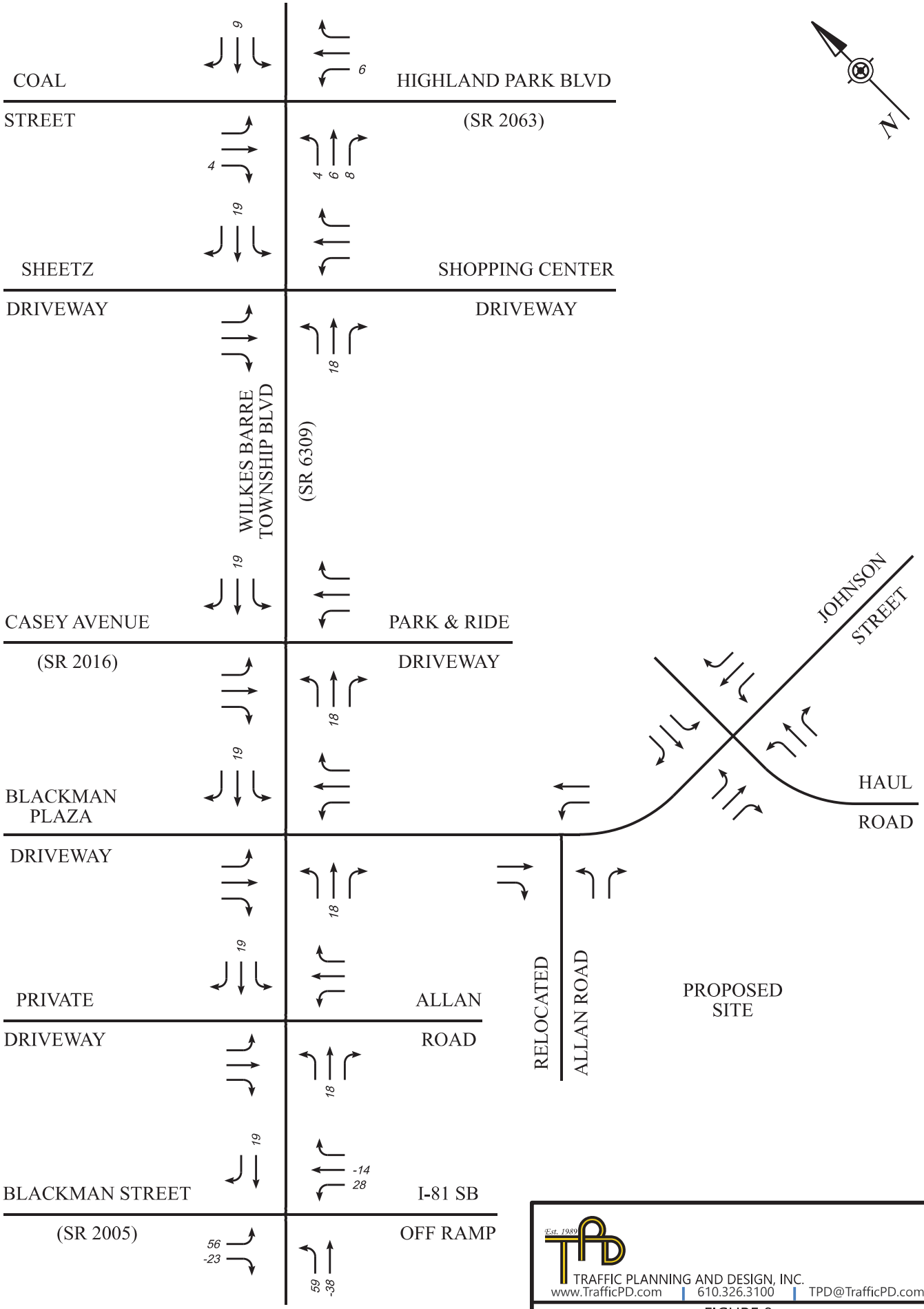
FIGURE 7

TURKEY HILL CONVENIENCE STORE & GAS STATION
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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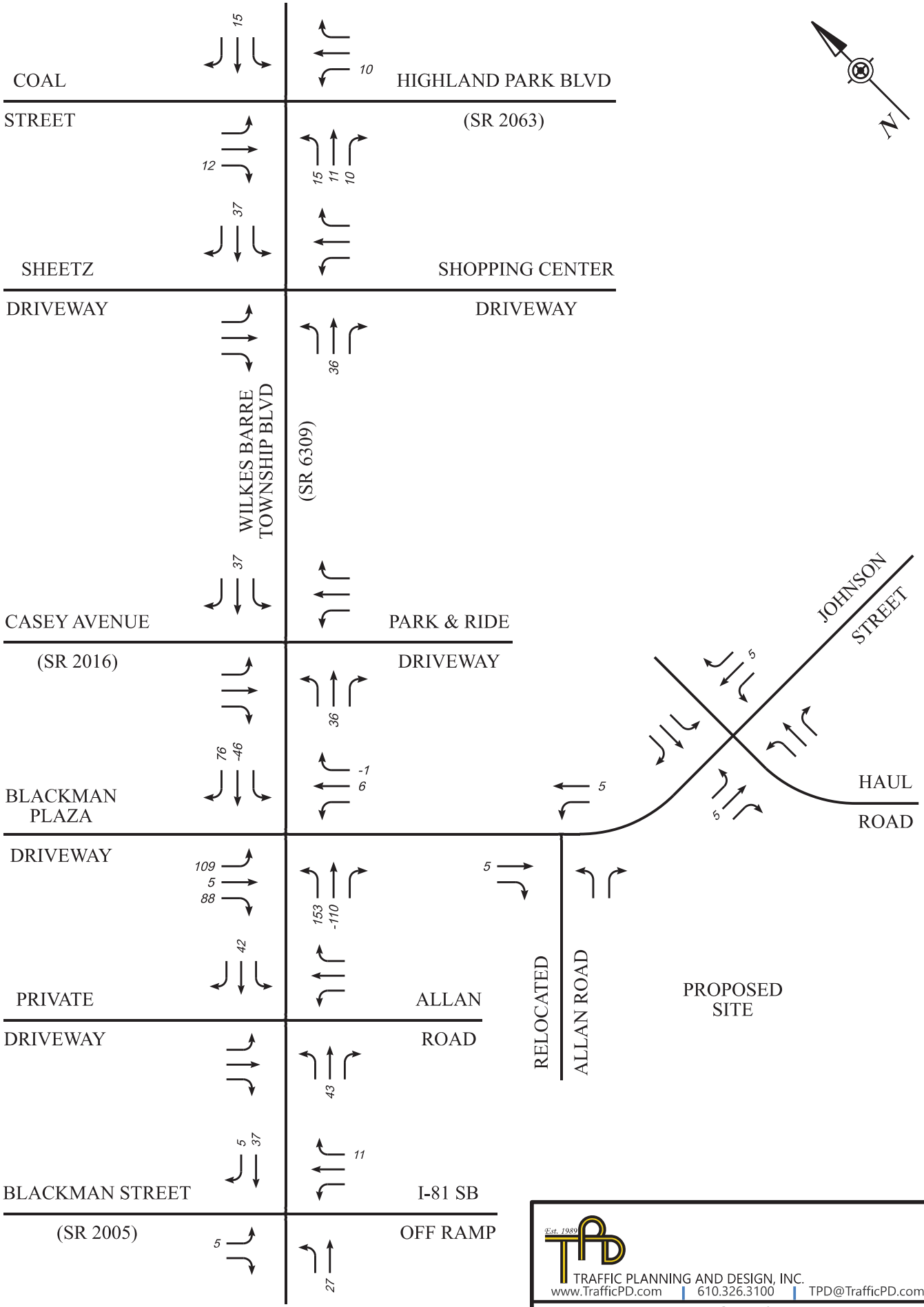
FIGURE 8

TURKEY HILL CONVENIENCE STORE & GAS STATION
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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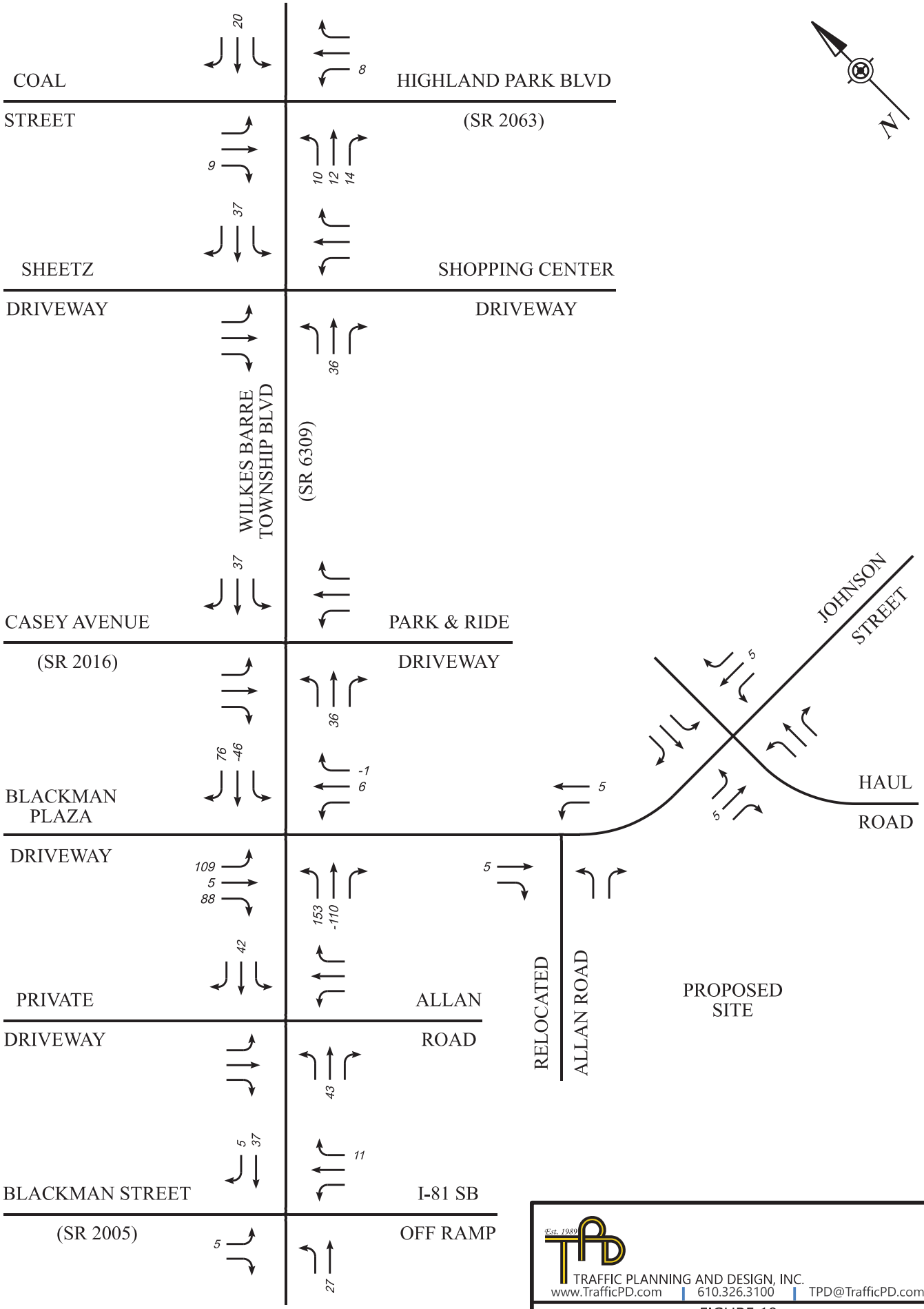
FIGURE 9

BLACKMAN PLAZA REDEVELOPMENT
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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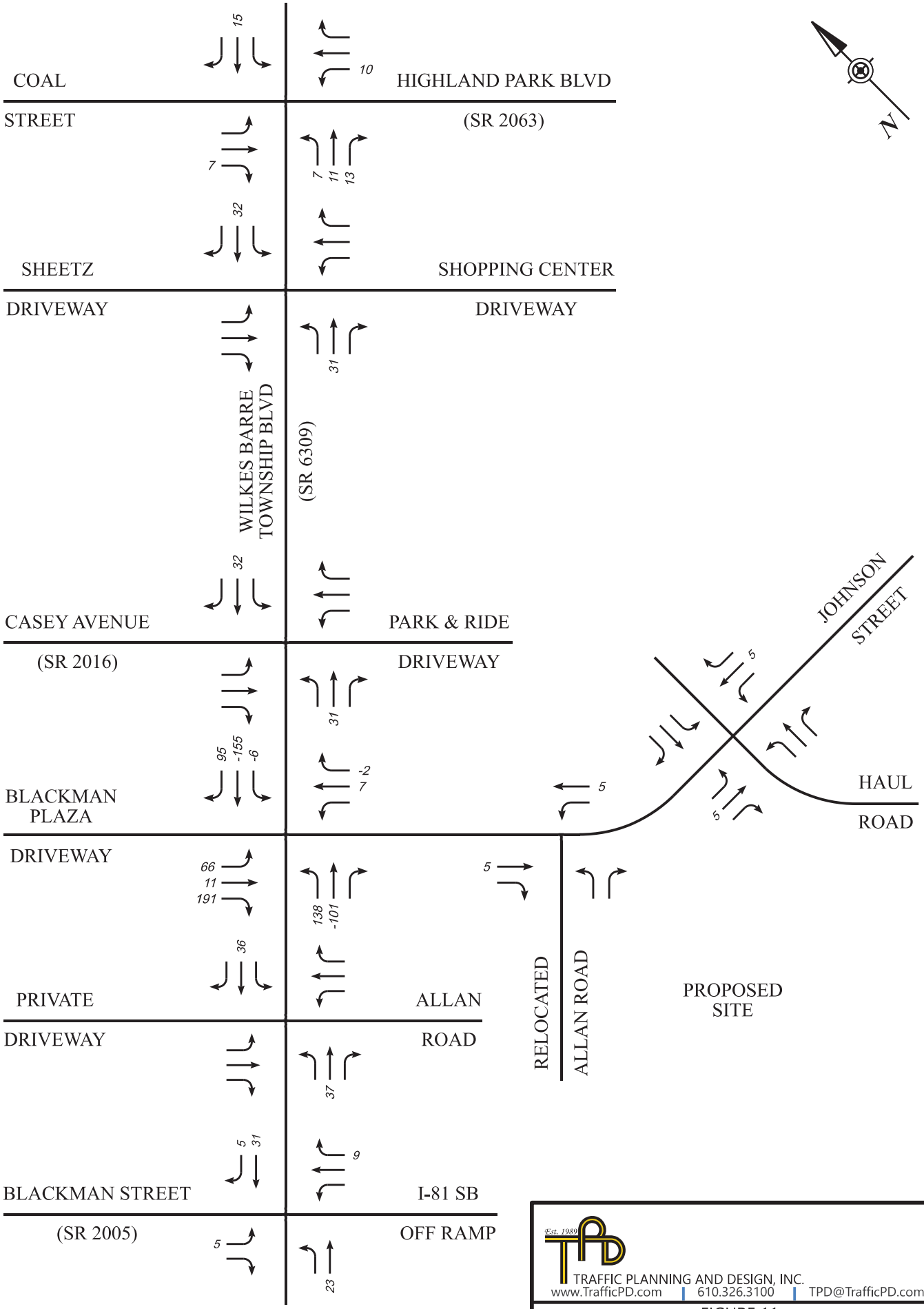
FIGURE 10

BLACKMAN PLAZA REDEVELOPMENT
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

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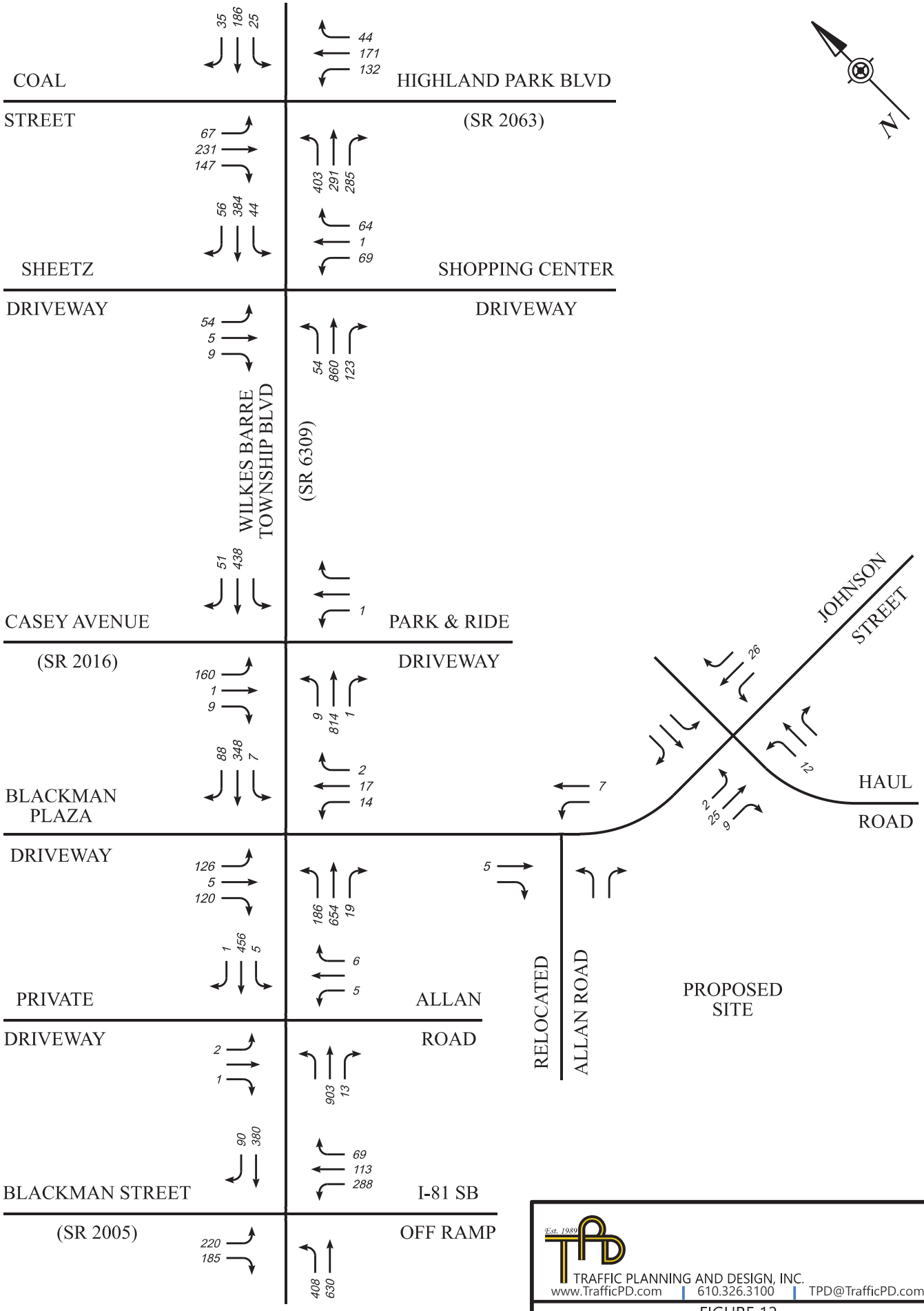
FIGURE 11

BLACKMAN PLAZA REDEVELOPMENT
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION: NEARBY DEVELOPMENT



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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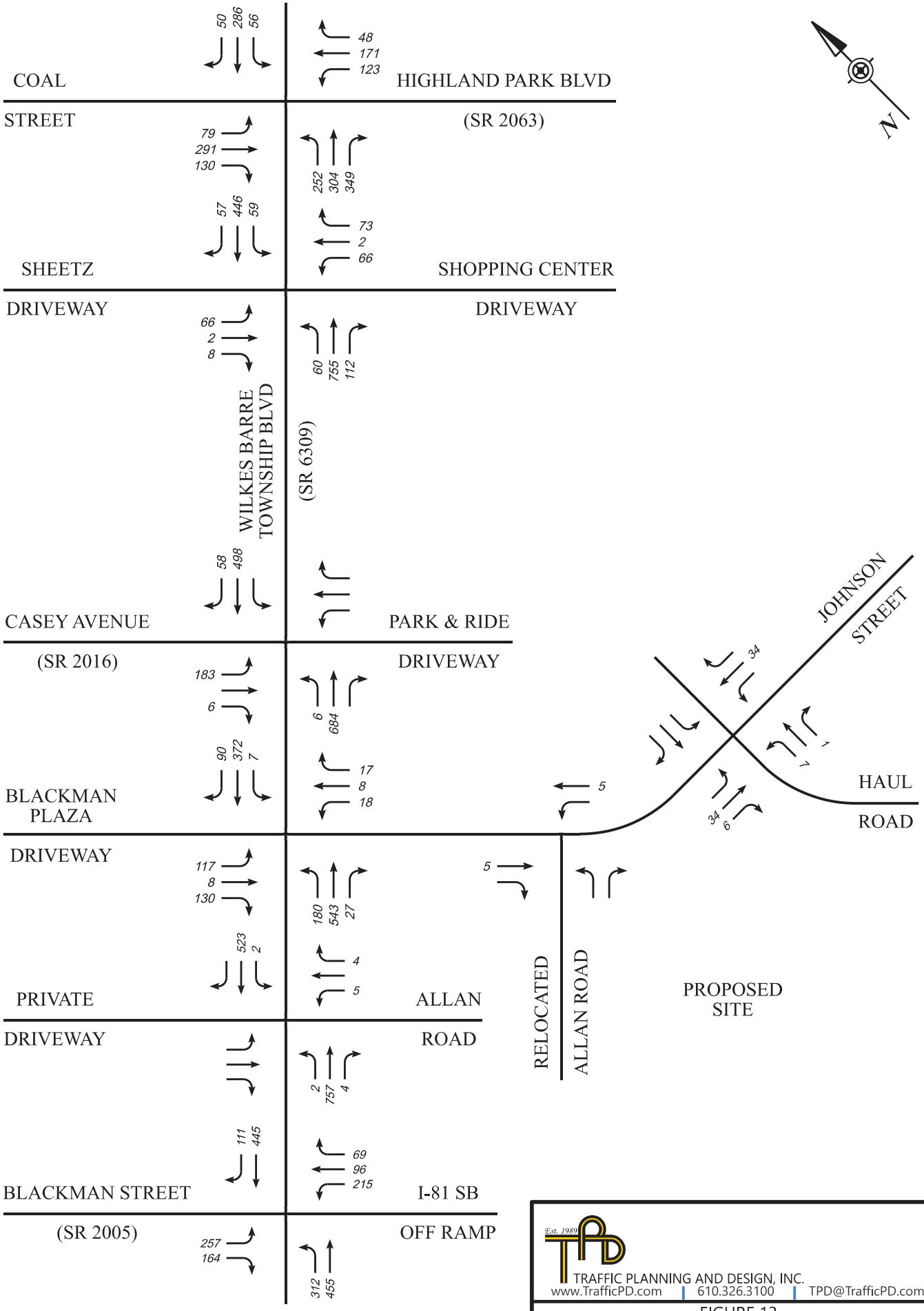
FIGURE 12

2024/2029 BASE (NO-BUILD) CONDITIONS
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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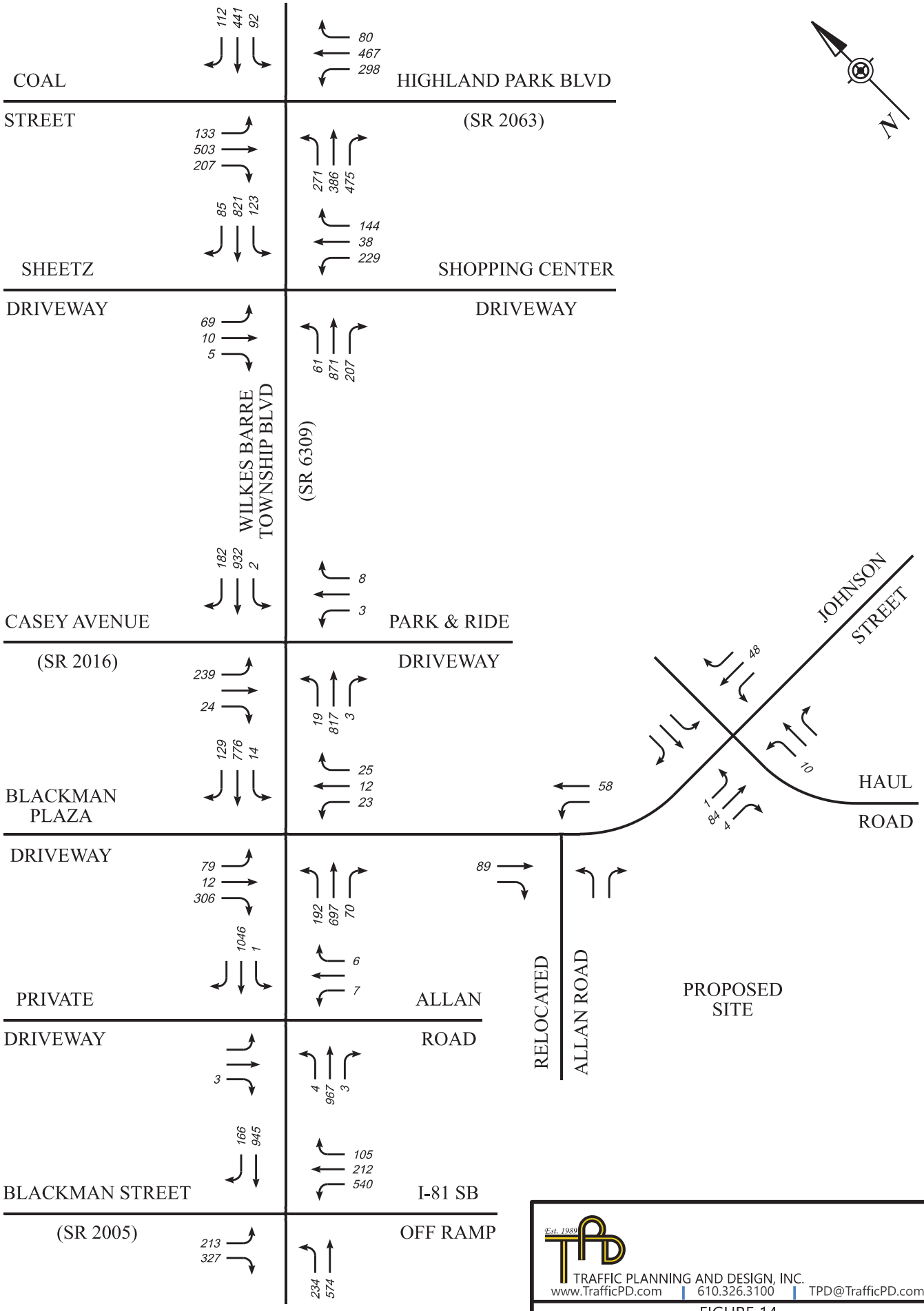
FIGURE 13

2024/2029 BASE (NO-BUILD) CONDITIONS
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

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FIGURE 14

2024/2029 BASE (NO-BUILD) CONDITIONS
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES

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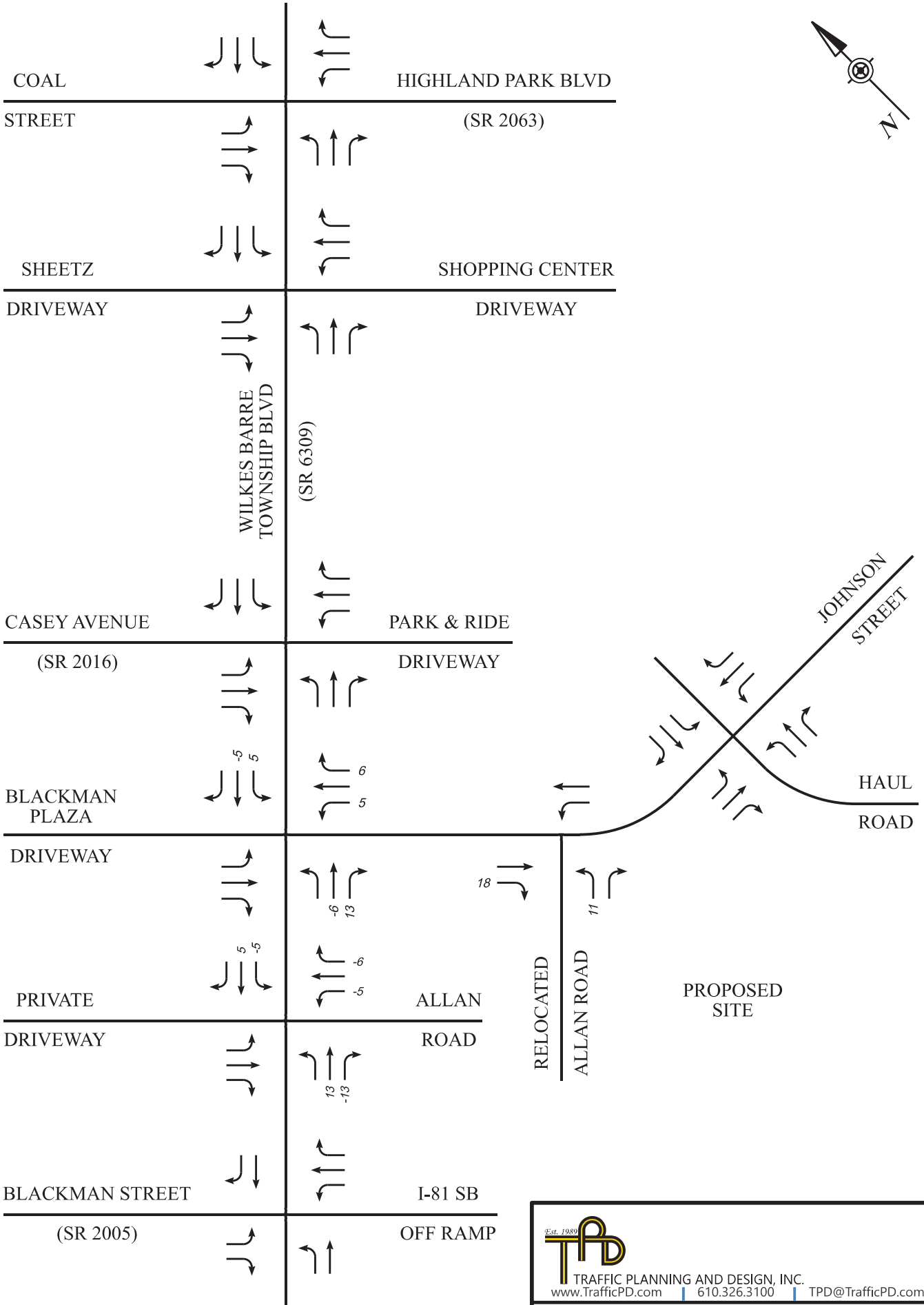

KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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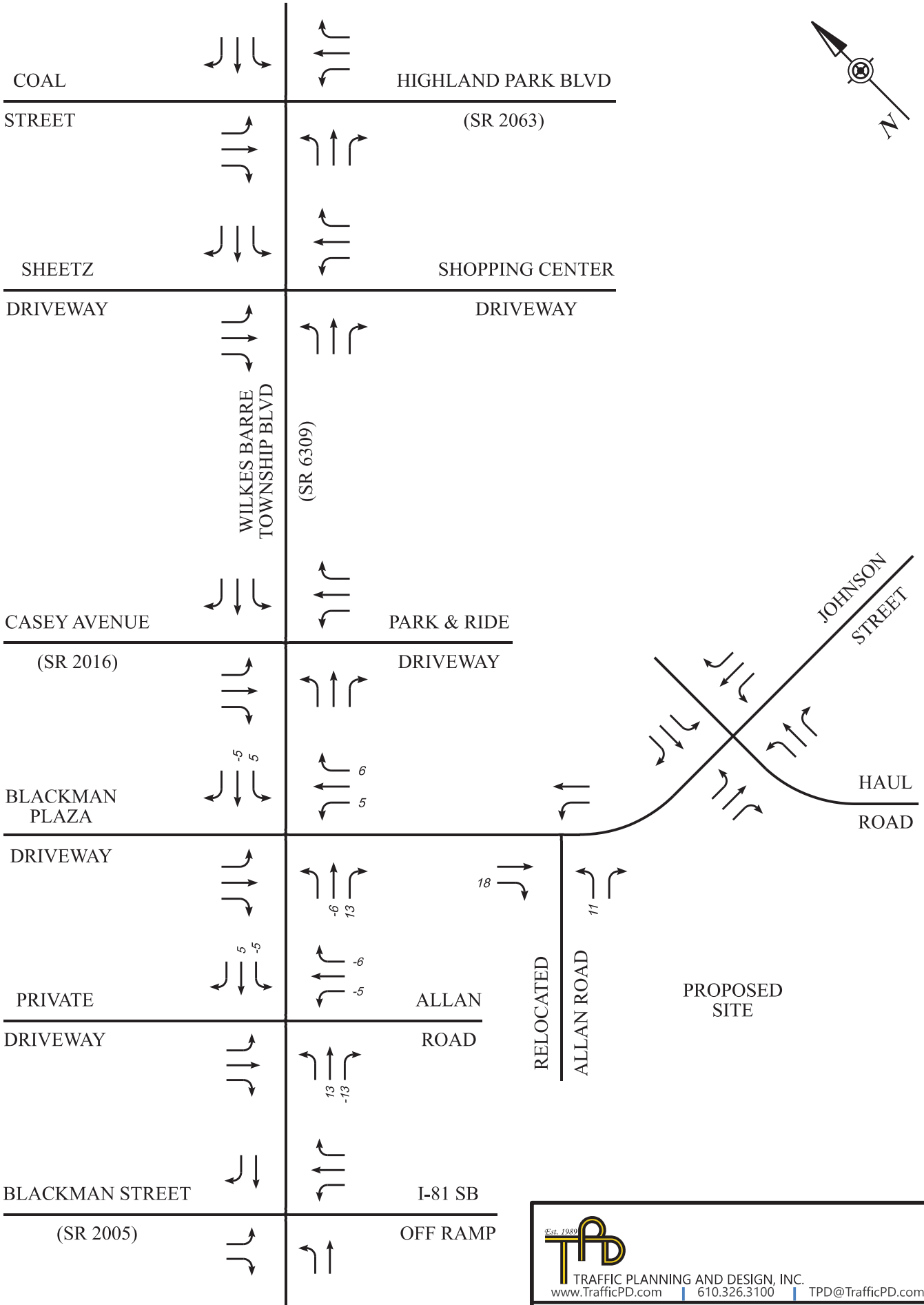
FIGURE 15

RELOCATED ALLAN ROAD
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET
TRIP REDISTRIBUTION



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

TRAFFIC PLANNING AND DESIGN, INC.
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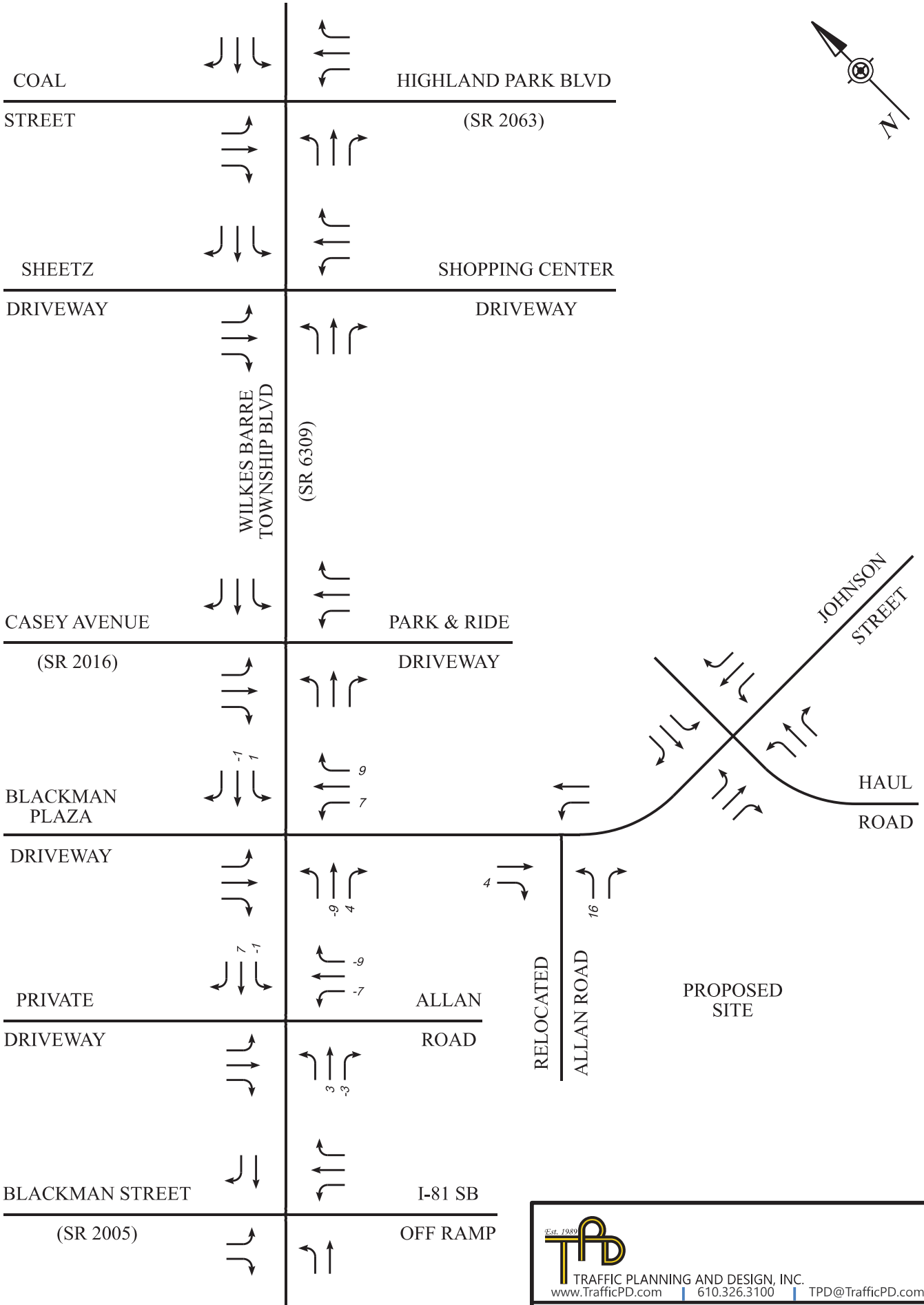
FIGURE 15

RELOCATED ALLAN ROAD
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET
TRIP REDISTRIBUTION



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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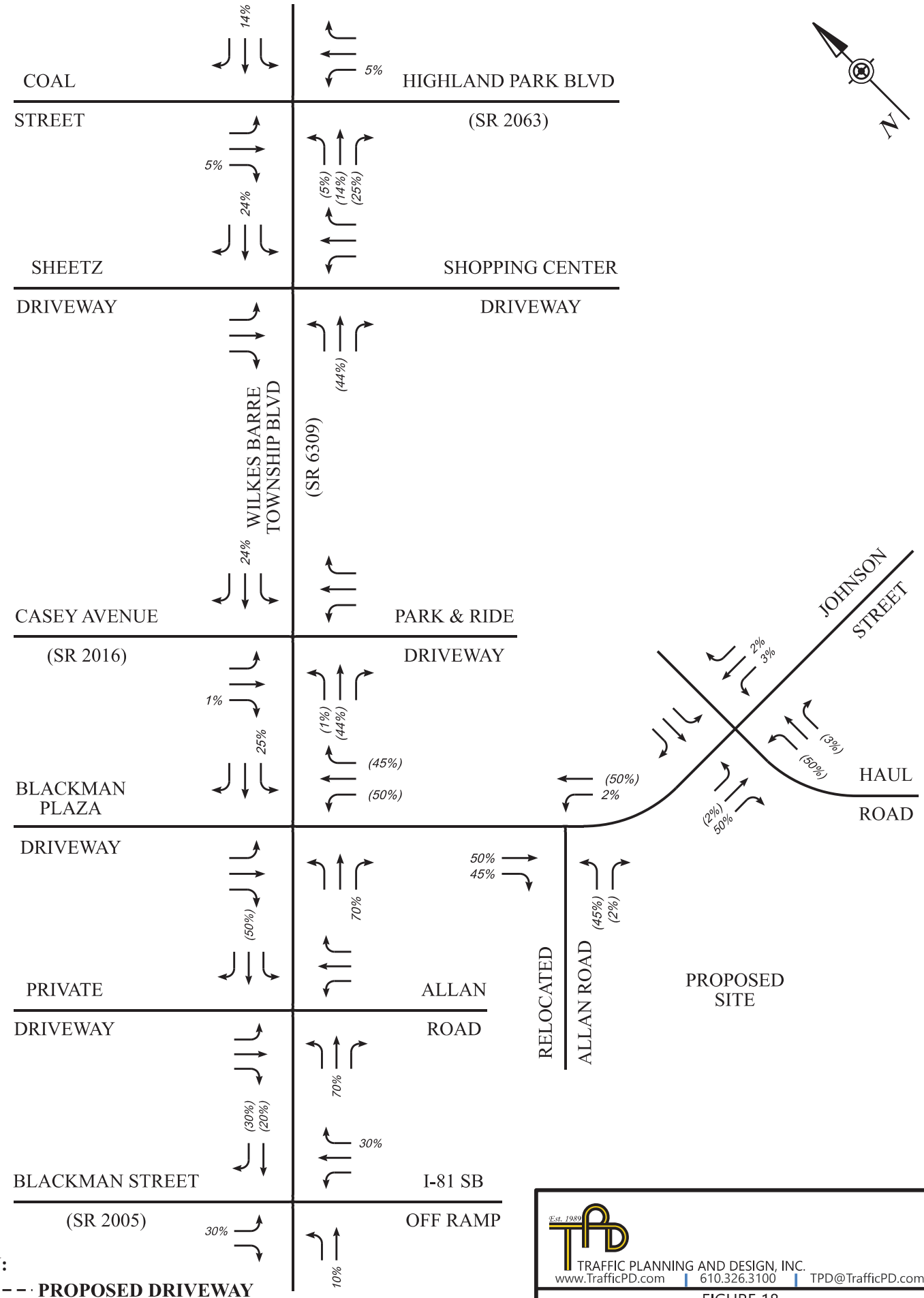
FIGURE 17

RELOCATED ALLAN ROAD
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRIP REDISTRIBUTION



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

ENTERING % (EXITING %)

Est. 1989

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FIGURE 18

BLUECUP WAREHOUSE DEVELOPMENT
TRIP ASSIGNMENT PERCENTAGES
PASSENGER CARS

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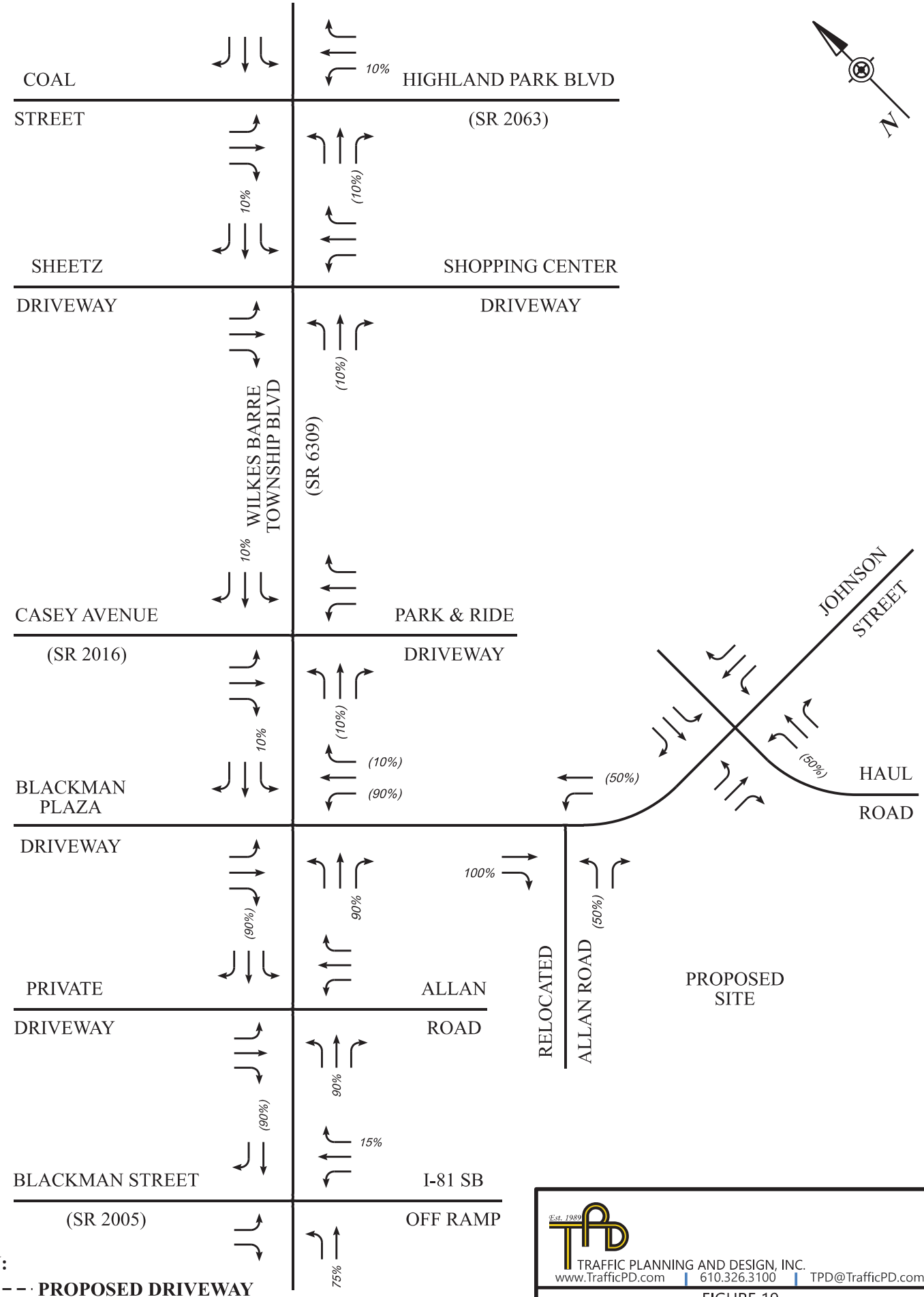
5/20/2022 7:51:13 AM emountz 18



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

ENTERING % (EXITING %)

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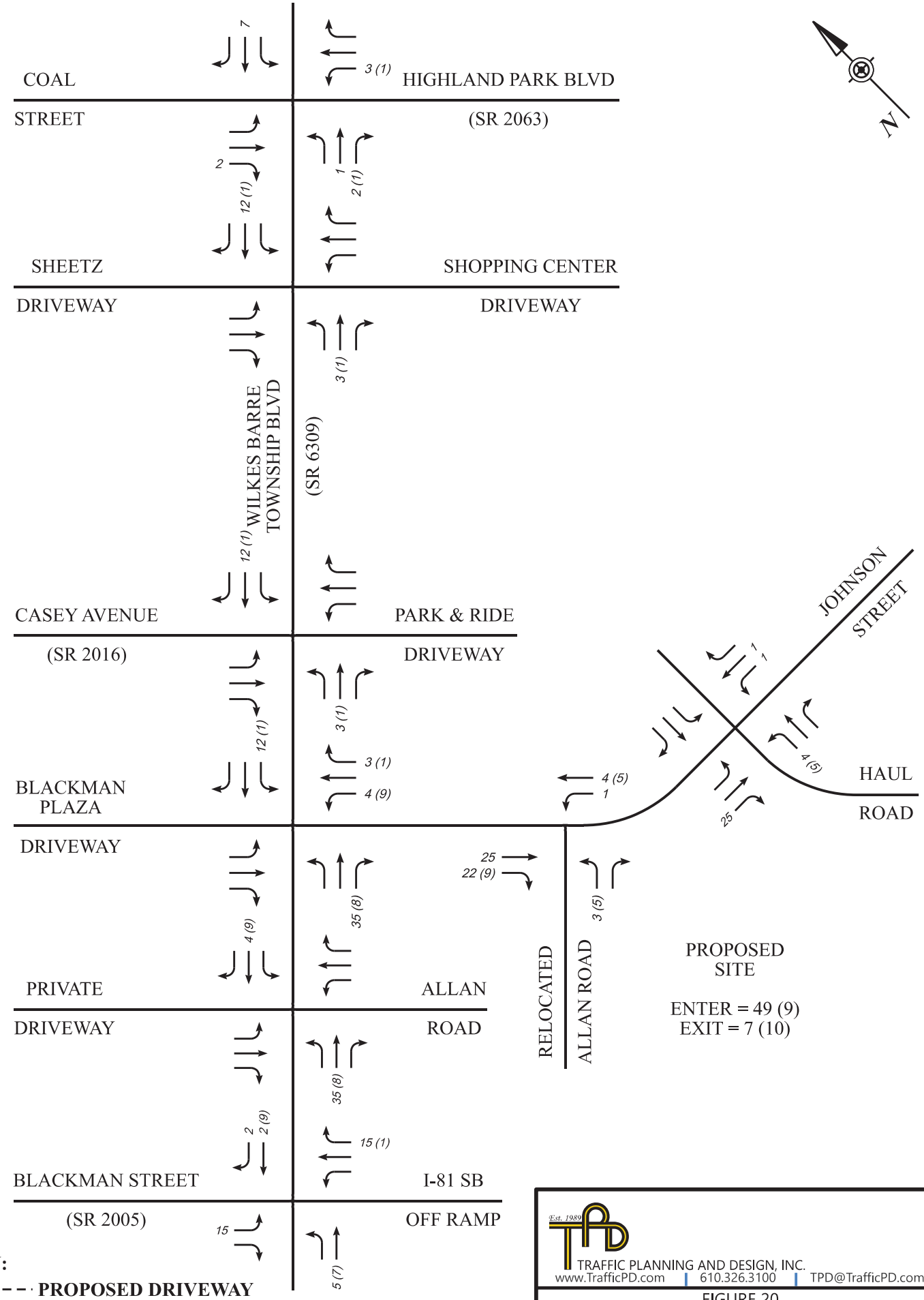
FIGURE 19

BLUECUP WAREHOUSE DEVELOPMENT
TRIP ASSIGNMENT PERCENTAGES
TRUCKS



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

PASSENGER CAR (TRUCK) TRIPS

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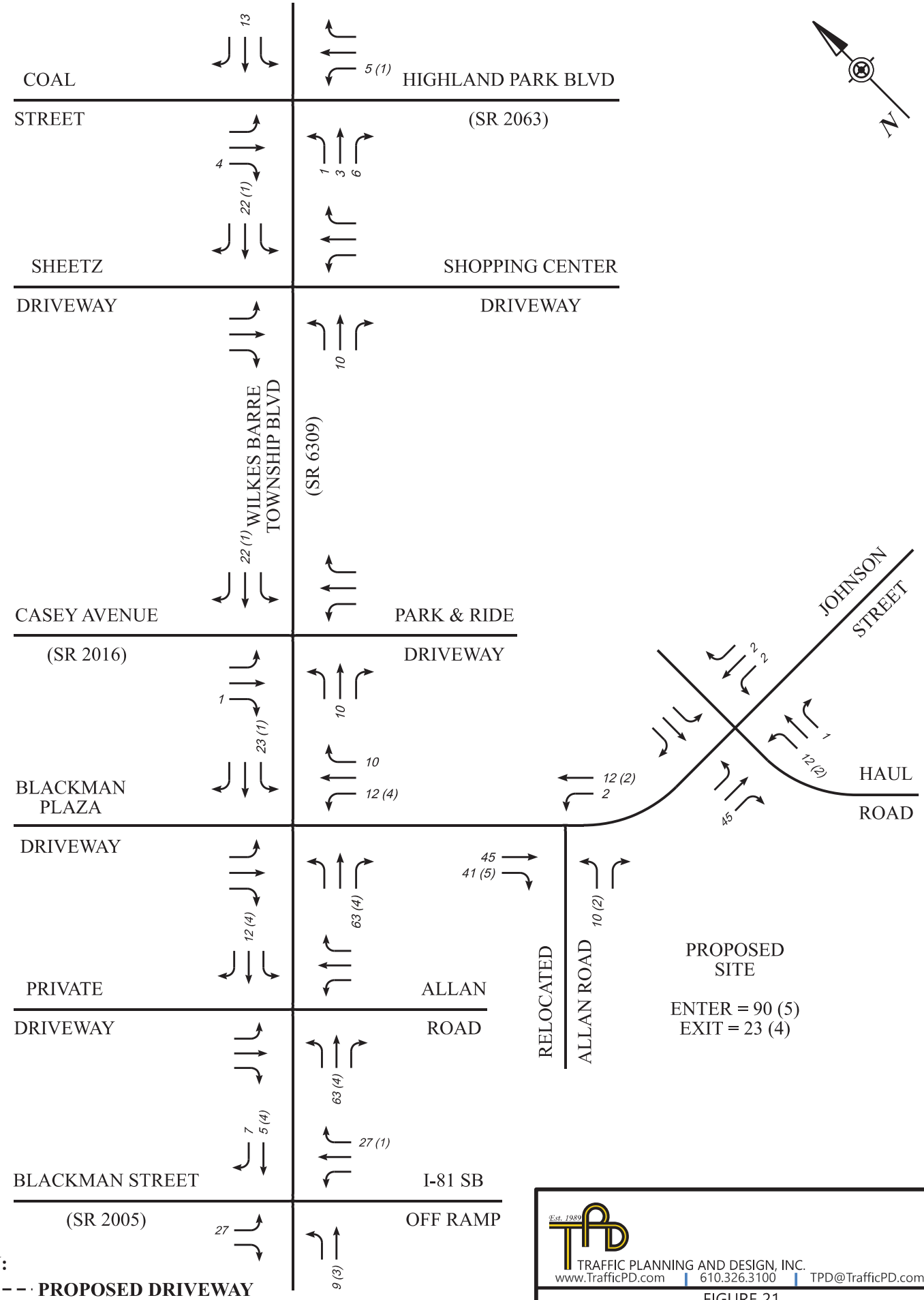
FIGURE 20

BLUECUP WAREHOUSE DEVELOPMENT
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET TRIP DISTRIBUTION



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

PASSENGER CAR (TRUCK) TRIPS

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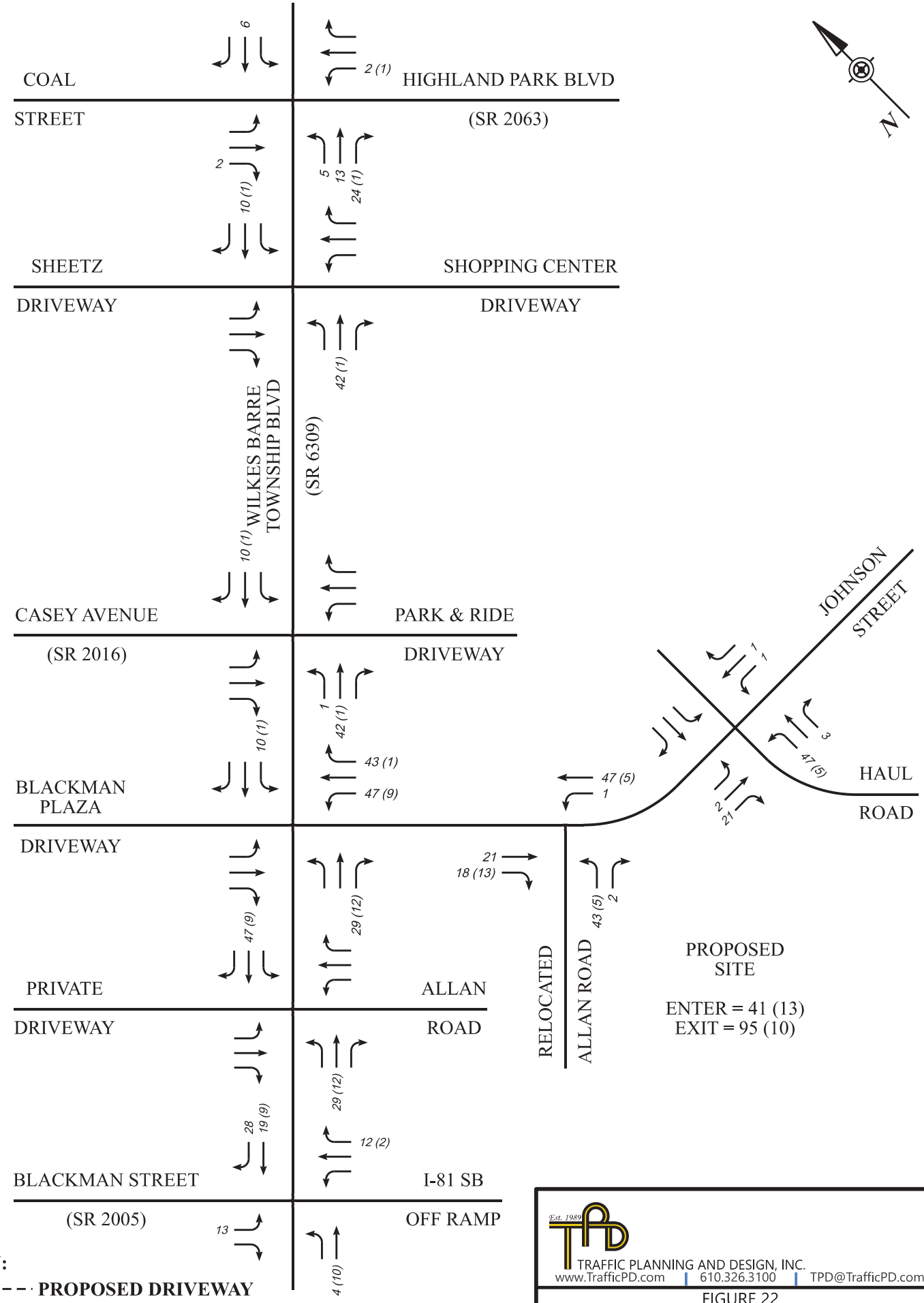
FIGURE 21

BLUECUP WAREHOUSE DEVELOPMENT
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

PASSENGER CAR (TRUCK) TRIPS

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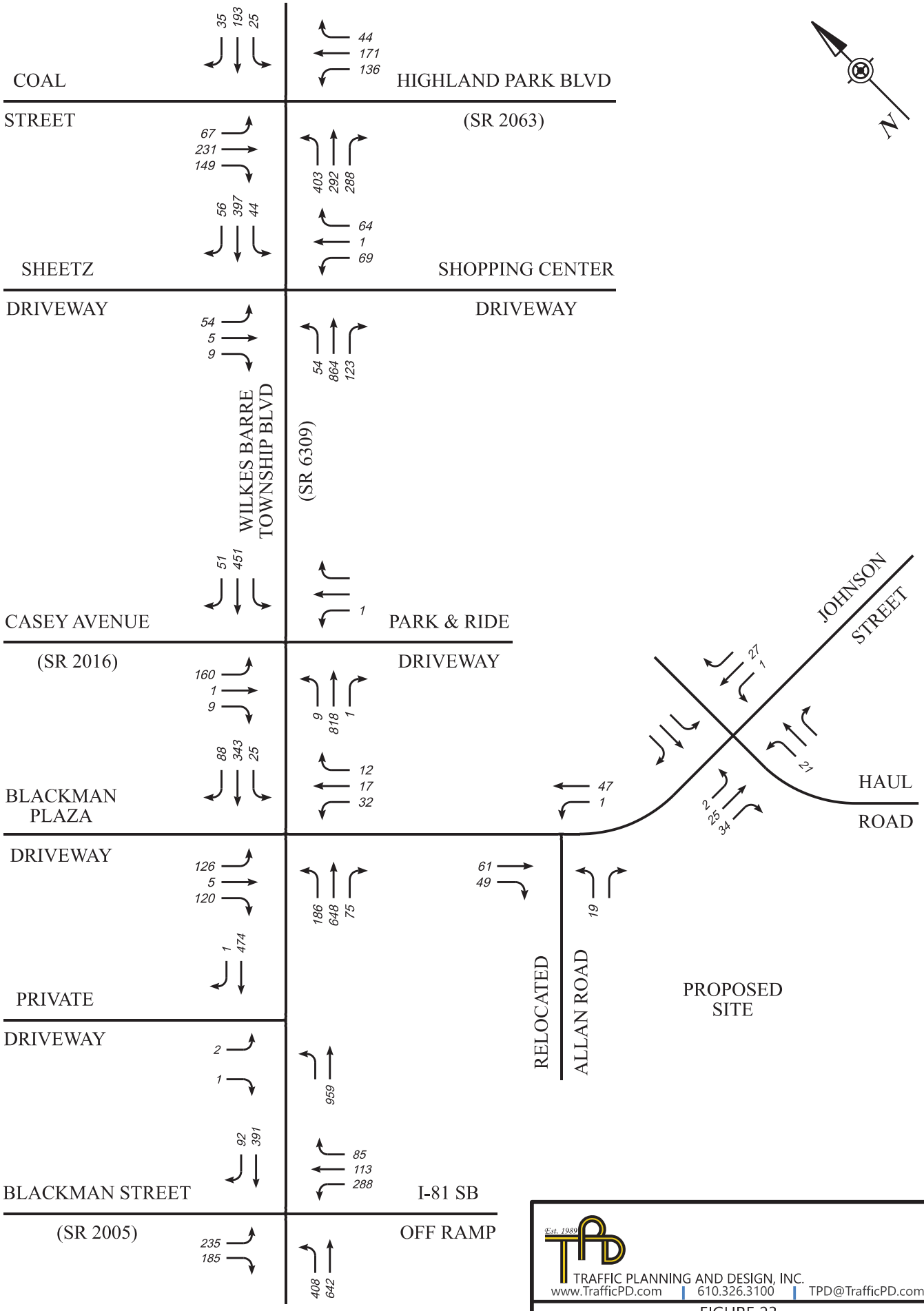
FIGURE 22

BLUECUP WAREHOUSE DEVELOPMENT
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRIP DISTRIBUTION



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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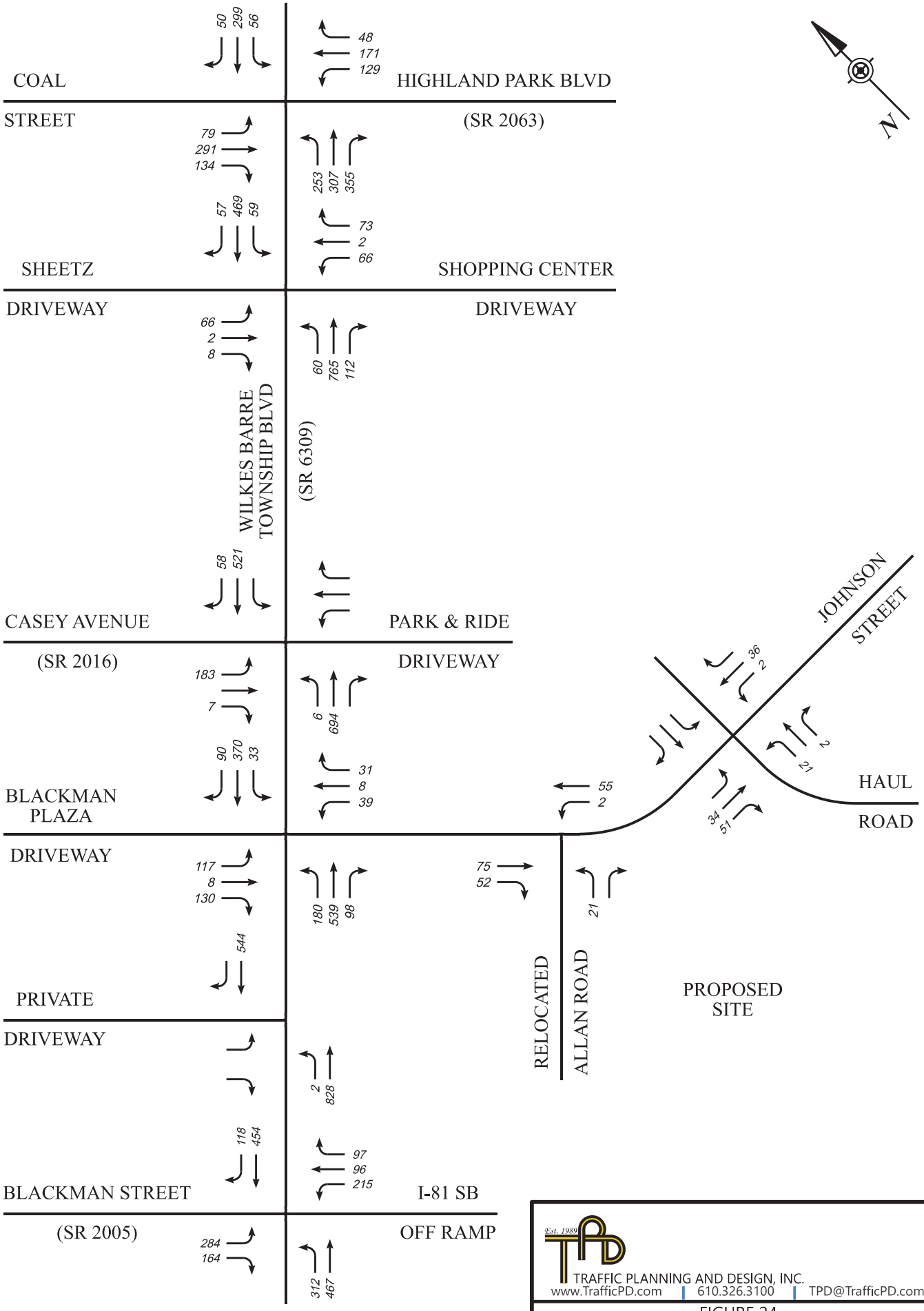
FIGURE 23

2024/2029 PROJECTED (BUILD) CONDITIONS
WEEKDAY A.M. PEAK HOUR OF ADJACENT STREET TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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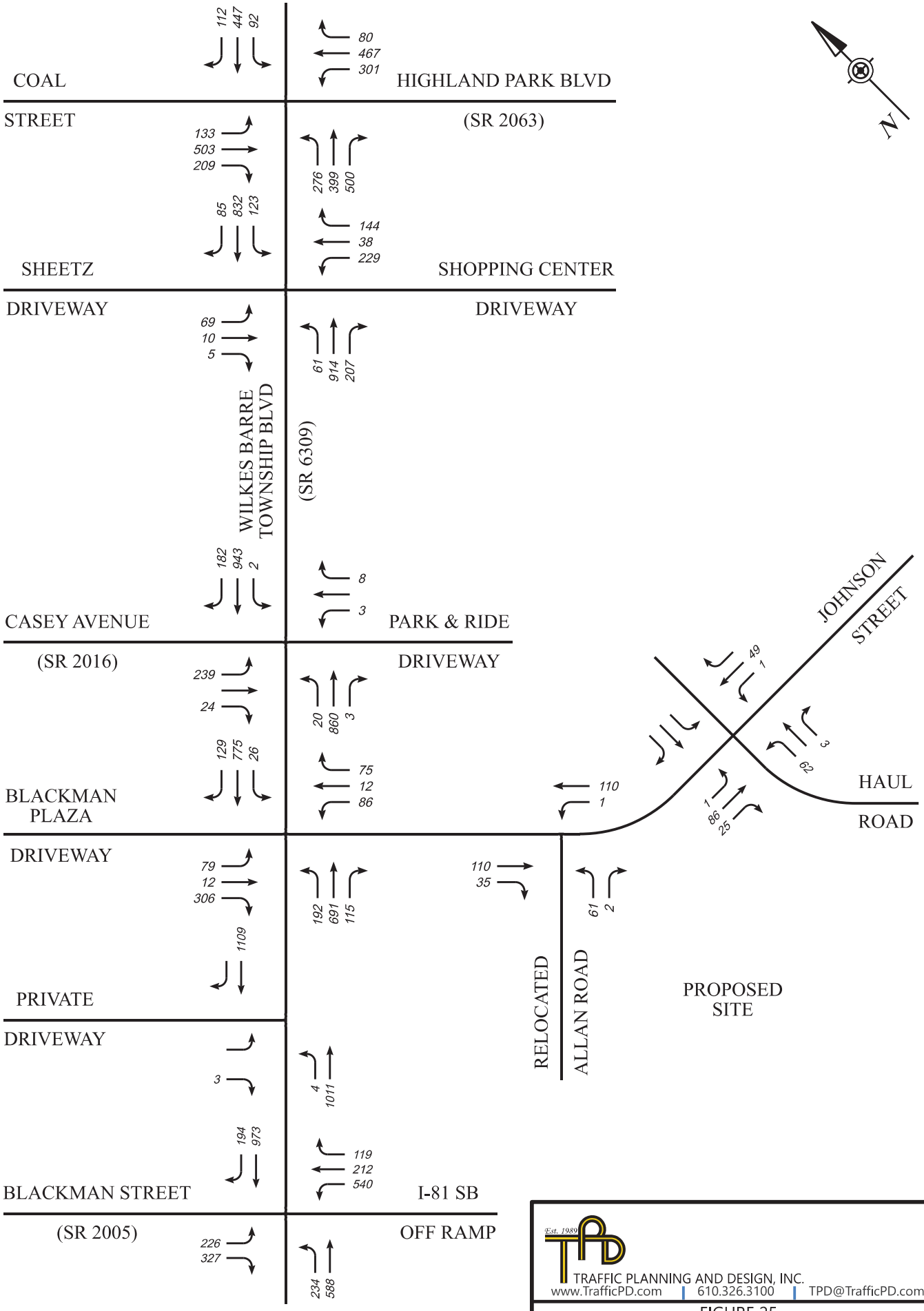
FIGURE 24

2024/2029 PROJECTED (BUILD) CONDITIONS
WEEKDAY A.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES



KEY:

- - - - - PROPOSED DRIVEWAY

SCHEMATIC DRAWING:NOT TO SCALE

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FIGURE 25

2024/2029 PROJECTED (BUILD) CONDITIONS
WEEKDAY P.M. PEAK HOUR OF GENERATOR
TRAFFIC VOLUMES

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5/20/2022 7:51:15 AM emountz 025

APPENDIX A:

Project Correspondence

Zheng, Jason

From: Daryl Pawlush <DarylPawlush@PennEastern.com>
Sent: Tuesday, May 3, 2022 10:43 AM
To: Mountz, Eric; tomz150@live.com; mrevitt@verizon.net; Tom Barna
Cc: Jeff Randolph; Zheng, Jason; Daryl Pawlush
Subject: RE: TIS Scoping Application Approval - Bluecup Ventures, LLC - Wilkes Barre Township

We concur with PennDOT's comments.

From: Mountz, Eric <emountz@trafficpd.com>
Sent: Monday, May 2, 2022 7:07 AM
To: tomz150@live.com; mrevitt@verizon.net; Daryl Pawlush <DarylPawlush@PennEastern.com>
Cc: Jeff Randolph <jeff.randolph@bluecup.ventures>; Zheng, Jason <jzheng@trafficpd.com>
Subject: TIS Scoping Application Approval - Bluecup Ventures, LLC - Wilkes Barre Township

Tom/Mike/Daryl,

Per the attached response letter, PennDOT has approved the attached revised TIS scoping meeting application dated 4/11/22 regarding the proposed warehouse development proposed by Bluecup Ventures, LLC along Johnson Street in Wilkes-Barre Township. I'd appreciate if you'd please confirm the Township is also in agreement with the contents of the application.

Thanks,
Eric

Eric Mountz, P.E., PTOE, *Regional Leader - Transportation Planning*

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From: ePermitting Help <penndotepermittinghelp@pa.gov>
Sent: Friday, April 22, 2022 2:31 PM
To: tomz150@live.com; mrevitt@verizon.net; darylpawlush@penneastern.com
Cc: RA-PDEPSPROD@pa.gov; Mountz, Eric <emountz@trafficpd.com>; jgonzalo@pa.gov; jgonzalo@pa.gov; jopfeiffer@state.pa.us; pazipprich@pa.gov; rokretschm@pa.gov; tpichiarel@state.pa.us
Subject: [EXTERNAL]:ePermitting - Highway Occupancy Permit, Bridge Occupancy License, or Supplement Application Returned For Revision - Application : 261,894

Application: 261894		Cycle: 3			Returned For Revisions
Applicant Name:	Wilkes-Barre Township	District:	04	Permit Group:	HOP
Business Partner ID:		County:	Luzerne	Permit Type:	Driveway
Paper Application No:		Municipality:	WILKES BARRE T	Permit Sub type:	Local Road

We have completed our review and are returning your application for a permit, license, or supplement. Details of our response are available online. If you wish to pursue a permit, license, or supplement, you can revise and resubmit your application.

Click here to access the Application Response Letter

Or, after logging on, enter the application number listed above. You will be routed to the Application Information window. On that window, please click on the Response Letter link to view the details of our response.

pennsylvania
DEPARTMENT OF TRANSPORTATION

Date: 04/22/2022

Subject: Highway Occupancy Permit Application No. 261894, Cycle No.3 - Returned For Revisions

To: Wilkes-Barre Township
152 Watson Street
Wilkes Barre Township, PA 18702

From: PennDOT Engineering District 4-0
55 Keystone Industrial Park
Dunmore, PA 18512

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Jeremiah Gonzalo EIT, District Permit Manager, at (570) 963-4067.

pennsylvania
DEPARTMENT OF TRANSPORTATION

Response Comments
Date: 04/22/2022
Application Number: 261894, Cycle No.3

Application

(1) The scoping application has been accepted. Please provide all items in the traffic study that were requested in the scoping meeting by Wilkes Barre Township including crash analysis, turn lane analysis, and level of service at the off site intersections.

April 27, 2022

Mr. Bobby Klucker
Panattoni Development Company, Inc.
968 Postal Road
Allentown, PA 18109

RE: Stormwater Infiltration Summary Letter
Haul Road Warehouse
Wilkes-Barre Township, Luzerne County, Pennsylvania
Kleinfelder Project No.: 20214488.002A

Dear Mr. Klucker,

In accordance with your request, Kleinfelder, LLC (Kleinfelder), has completed a Stormwater Infiltration Summary Letter for the above referenced project site to evaluate the suitability of the subsurface soils for the infiltration of stormwater. This correspondence serves to transmit the results of our evaluation.

SITE AND PROJECT DESCRIPTION

The project site consists of approximately 76-acres of property along Allen Road and Haul Road in Wilkes-Barre Township, Luzerne County, Pennsylvania. The property is bounded to the north by Haul Road and Johnson Street, to the south by the Allen Industries recycling facility, to the east by wooded areas and to the west by Allen Road. The approximate location of the site in relation to the surrounding area is presented on the *Topographic Map* (Figure 1) found within the Appendix.

According to the "*Grading and Drainage Plan - Overall*" (Plan) provided by Integrated Development Partners, LLC, dated March 18, 2022, the project will consist of constructing a new warehouse distribution facility anticipated to measure approximately 937,440 square feet in plan area. Development of the project site will also include constructing parking areas, drive lanes, dolly pads, dock aprons, retaining wall alignments, steepened slopes, and stormwater management facilities. We assume a maximum cut of approximately 67 feet is required to reach invert elevations of the stormwater management facilities.

SCOPE OF WORK

The objective of our work was to determine the permeability of the invert soils, identify any limiting zones (i.e. bedrock, groundwater, or seasonal high-water table) and address PADEP requirements as they relate to stormwater management. This objective was accomplished through a scope of work which included a subsurface exploration, laboratory testing program and preparation of this report. This report presents a summary of the work completed, conditions encountered and results of our analysis of subsurface conditions.

GEOLOGY

According to the Pennsylvania Geologic Survey Atlas of Preliminary Geologic Quadrangles, Fourth Series, 1981, the project site is underlain by the Pennsylvanian Llewellyn Formation (geologic symbol Pl). The property within its geologic setting is presented on the *Geologic Map* (Figure 2) within the Appendix.

The Pennsylvania Geologic Survey publication, *The Engineering Characteristics of the Rocks of Pennsylvania*, Second Edition, 1982, describes the rock in this formation as consisting of interbedded layers of sandstone, siltstone and conglomerate; which range from medium- to coarse-grained; light gray to brown, with numerous anthracite coal and dark-gray to black shales. The sandstone in this formation is well bedded and thick to massive, while the coal and shale beds are relatively thin. Fractures are moderately developed and moderately distributed. Joints are moderately spaced, open, and steeply dipping. The rock is slightly to moderately weathered to a shallow or moderate depth, dependent on the local lithology. The resulting soil mantle is thin to moderately thick.

SUBSURFACE EXPLORATION PROGRAM

To characterize the subsurface conditions across the footprints of the proposed stormwater management facilities, 17 test pits were excavated, and 18 test borings and 51 auger probes were conducted, between February 8 and April 5, 2022. Supervision and monitoring of the subsurface exploration were provided by a representative of Kleinfelder who field located the test locations utilizing a hand-held GPS unit based on the previously referenced Plan. The approximate test pit locations, which were selected by Integrated Development Partners are shown on the *Exploration Plan* (Figure 3) presented within the Appendix.

The test pits were excavated utilizing a John Deere 130G tracked excavator. A detailed account of the material encountered during the excavation of each test pit are presented on the *Test Pit Logs* within the Appendix.

The test borings were advanced using track-mounted Acker XLS and Acker Rebel drill rigs equipped with automatic hammers, hollow-stem augers, and casing. Data pertaining to the test borings were documented in the field and are presented in detail on the *Test Boring Logs* and presented in the Appendix. The *Test Boring Logs* contain general information about the subsurface program and specific data regarding each test boring including sample depths, blow counts per 6 inches of penetration and visual classifications of the subsurface materials encountered.

LABORATORY TESTING RESULTS

Soil samples retrieved from the site were visually reviewed and classified by Kleinfelder. Representative samples were subjected to laboratory analyses to verify visual classifications in accordance with the following schedule:

- Natural Moisture Content (ASTM D2216)
- Sieve Analysis (ASTM D422)
- Atterberg Limits Determination (ASTM D4318)

Unified Soil Classification System (USCS) Group Symbols and ASTM Group Names have been assigned to the soils analyzed. The results of the testing conducted are presented in the table below. Additionally, graphical depictions of the gradation analyses are presented within the Appendix.

LABORATORY RESULTS											
Location	**Depth (feet)**	**Soil Type**	**% Gravel**	**% Sand**	**% Fines**	**LL**	**PL**	**PI**	**Natural Moisture Content**	**USCS Group Symbol**	**ASTM Group Name**
IT-15	0 – 4	Fill I	40.2	46.5	13.3	NP	NP	NP	9.2%	SM	Silty SAND with Gravel
IT-21	0 – 4	Fill I	40.1	45.2	14.7	NP	NP	NP	12.2%	SM	Silty SAND with Gravel
IT-22	8 – 14	Fill I	4.2	39.3	56.5	32	16	18	7.4%	CL	Sandy Lean CLAY
IT-26	4 – 7.5	Fill I	55.6	38.9	5.5	NP	NP	NP	6.7%	GP-GM	Poorly-graded GRAVEL with Silt and Sand
IT-33	6 – 8	Fill I	52.3	42.2	5.5	NP	NP	NP	3.4%	GW-GM	Well-graded GRAVEL with Silt and Sand
LL-Liquid Limit; PL-Plastic Limit; PI-Plasticity Index; NP-Non-Plastic											

SUBSURFACE CONDITIONS

Surficial Materials

The surfaces of the test locations consisted of bare existing Fill material and up to 3 feet of topsoil in select locations. Beneath surficial materials, two layers of existing Fill (Fill I and Fill II), a single naturally-occurring soil stratum (Stratum I) and the underlying bedrock were observed. Descriptions of these materials are provided below.

Fill I – Black to gray, and brown GRAVEL and SAND with varying amounts of Silt and Clay, cobbles, boulders, coal, glass, metal and plastic

Existing Fill I was encountered within each test location, with exception to IT-2, IT-17, IT-18, IT-28A, and IT-32, extending to depths ranging from approximately 0 to 70 feet below existing site grades. Laboratory testing conducted on representative samples of existing Fill show this soil to be generally poorly graded and non-plastic, with natural moisture contents ranging from 3.4% and 12.2%. The existing Fill consists of Poorly to Well-graded Gravel with Silt and Sand (GP-GM, GW-GM), Silty SAND with Gravel (SM), and Sandy Lean CLAY (CL).

Fill II – Black to gray GRAVEL with varying amounts of Sand and Silt, cobbles, boulders, coal, wood debris, glass, metal, plastic, fabric and rope (contains deleterious materials)

Existing Fill II was encountered within test pits TP-2, TP-28A, and TP-32, and was observed to extend to depths ranging from approximately 0 to 14 feet below existing site grades. Upon review, Fill II is observed to be generally poorly graded and generally non-plastic. The existing Fill II was observed to predominantly consist of GRAVEL with secondary amounts of Sand and Silt, with cobbles, boulders, coal, wood debris, glass, metal, plastic, fabric and rope. Fill II was observed to contain wood debris, which is deleterious material and subject to volumetric change over time.

Stratum I – Gray to black to orange-brown SAND and GRAVEL with varying amounts of Silt and Clay

Stratum I was encountered within test locations IT-8, IT-17, IT-18, and IT-24 extending to their termination depths ranging from approximately 4 to 10 feet below existing site grades. Upon review the soils of Stratum I was observed to consist of orange brown to gray to black SAND and GRAVEL with varying amounts of Silt and Clay.

Bedrock

The bedrock surface is anticipated to have been encountered within test locations IT-7, T-8, IT-17, IT-24, IT-26, IT-27, and IT-32 at depths ranging from approximately 4 to 17 feet below existing site grades, corresponding to bedrock surface elevations ranging from approximately 701 to 674 feet. The bedrock surface was defined as the depth at which advancement refusal of the utilized equipment was encountered.

BEDROCK SUMMARY TABLE

Test Location	Existing Surface Elevation (feet)	Proposed Elevation (feet)	Depth to Anticipated Bedrock (feet)	Anticipated Bedrock Surface Elevation (feet)
IT-7	691	677	17	674
IT-8	694	677	7	687
IT-17	692	677	4	688
IT-24	706	698	10	696
IT-26	708.5	698	7.5	701
IT-32	713	697	14	699

To determine the composition and integrity of the bedrock present beneath the site, bedrock coring was conducted in general accordance with ASTM D 2113 at test location IT-8. Percent Recovery (REC) was calculated by dividing the length of the rock core retrieved from the core barrel by the total length of the core run and multiplying by 100. Rock Quality Designation (RQD) was calculated by summing the length of the rock fragments in the core run which are greater than or equal to 4 inches in length and dividing by the total length of the core run and multiplying by 100. RQD results are generally correlated to rock quality as follows:

RQD (%)	Description of Rock Quality
0 – 25%	Very Poor
25 – 50%	Poor
50 – 75 %	Fair
75 – 90 %	Good
90 – 100%	Excellent

Visual descriptions of the bedrock encountered are provided on the *Test Boring Logs*. Results of the bedrock coring conducted at IT-8 are provided in the table below.

BEDROCK CORING SUMMARY TABLE					
Location	**Existing Surface Elevation (feet)**	**Anticipated Bedrock Surface Elevation (feet)**	**Coring Depth (feet)**	**Recovery (%)**	**RQD (%)**
IT-8	694	687	5	72	7.5

Groundwater & Soil Mottling

Groundwater was only encountered within test pit IT-16 at a depth of approximately 2.5 feet below the existing site grade, corresponding to an elevation of 688.5. This instance of groundwater is believed to be “perched water” or trapped surface water, and not indicative of the actual groundwater table. Soil mottling (indicating a seasonal high-water table and/or poorly draining soils) was not encountered within any of the infiltration test locations. These observations were made at the time of the field operation and the groundwater table elevation will vary with daily, seasonal, and climatological variations as well as anthropogenic activities.

INFILTRATION TESTING

To evaluate the infiltration of stormwater, 78 infiltration tests were completed within at varying test elevations within each test pit excavated and within each auger probe completed. Infiltration testing was completed utilizing the double-ring infiltrometer and cased-pipe method, in general accordance with the Pennsylvania Stormwater Best Management Practices Manual, latest Edition. The excavation or test boring at each test location extended a minimum of 2 feet below the lowest test elevation to review for the presence of limiting zones (i.e. bedrock, groundwater and/or soil mottling). The results of the infiltration testing are presented in the table below. Details for each infiltration test including the infiltration test elevations, interval readings and infiltration rates are shown on the *Infiltration Testing Results Table* within the Appendix.

INFILTRATION TEST RESULTS					
Test Location	**Existing Elevation (feet)**	**Proposed Test Elevation (feet)**	**Approximate Test Elevations (feet)**	**Limiting Zone Elevation (feet)**	**Infiltration Rate (inches/hour)***
IT-1	679	677	678	Not Encountered to 673.5	15.4
			677		10.8
			676		10.2
IT-2	681.5	677	678.5	Not Encountered to 674	20.4
			677.5		18.6
			676.5		5.4
IT-3	681	677	678	Not Encountered to 672	12.0
			677		6.6
			676		10.8
IT-4	683	677	678	Not Encountered to 674	6.0
			677		10.8
			676		5.4
IT-5	685	677	678	Not Encountered to 674	10.2
			677		34.2
			676		26.4
IT-6	693	677	678	Not Encountered to 674	15.0
			677		2.2
			676		2.8
IT-7	691	677	678	Bedrock at 674	24.6
			677		8.4
			676		19.2
IT-8	694	677	No Test	Bedrock at 687	No Test
IT-9	692	677	678	Not Encountered to 674	0.4
			677		0.6
			676		0.2
IT-10	694	677	678	Not Encountered to 674	0.6
			677		2.4
			676		1.2
IT-13	694	677	678	Not Encountered to 674	6.6
			677		4.8
			676		2.4
IT-14	696	695	696	Not Encountered to 692	9.0
			695		12.6
			694		12.0
IT-15	697	695	696	Not Encountered to 692	10.2
			695		15.6

INFILTRATION TEST RESULTS					
Test Location	**Existing Elevation (feet)**	**Proposed Test Elevation (feet)**	**Approximate Test Elevations (feet)**	**Limiting Zone Elevation (feet)**	**Infiltration Rate (inches/hour)***
			694		15.0
IT-16	691	695	690	Not Encountered to 688	0.0
IT-17	692	695	691.5	Bedrock at 689.5	0.4
IT-18	694	695	693	Not Encountered to 692	2.4
IT-19	695	695	694.5	Not Encountered to 692.5	7.8
IT-21	697	695	696	Not Encountered to 690	2.2
			695		6.6
			694		15.6
IT-22	716	700	702	Not Encountered to 606	19.2
			700		0.8
			698		5.1
IT-24	706	698	699	Bedrock at 696	10.2
			698		0.8
			697		No Test
IT-26	708.5	698	No Test	Bedrock at 701	No Test
IT-27	704	698	698	Not Encountered to 694	29.4
			697		3.0
			696		3.0
IT-28	707	697	698	Not Encountered to 694	30.6
			697		7.8
			696		3.6
IT-29	704	697	698	Not Encountered to 694	39.0
			697		20.4
			696		21.6
IT-32	713	697	No Test	Bedrock at 699	No Test
IT-33	708	697	698	Not Encountered to 694	8.4
			697		7.2
			696		5.4
IT-34	706	697	698	Not Encountered to 694	8.4
			697		19.2
			696		10.8

IT-35	764	697	698	Not Encountered to 694	14.4
			697		10.2
			696		12.6
IT-36	749	697	698	Not Encountered to 694	7.2
			697		1.2
			696		12.0
IT-37	746	697	698	Not Encountered to 694	16.2
			697		18.0
			696		19.8
IT-38	744	697	698	Not Encountered to 694	4.8
			697		3.0
			696		20.4
IT-40	731	700	701	Not Encountered to 697	3.6
			700		1.4
			699		2.2
*denotes infiltration rates are not factored					

SUMMARY OF DATA & CONCLUSIONS

Based on the results of our field exploration and data obtained, we offer the following comments regarding the infiltration of stormwater at the project site.

- Infiltration testing was conducted within the existing Fill and the naturally occurring soils of Stratum I.
- The bedrock surface was encountered within test locations IT-7, IT-8, IT-17, IT-24, IT-26, IT-27, and IT-32 at depths ranging from approximately 4 to 17 feet below existing site grades, corresponding to bedrock surface elevations ranging from approximately 701 to 674 feet.
- Groundwater was only encountered within test pit IT-16 at a depth of 2.5 feet, corresponding to an elevation of approximately 688.5 feet. This water is believed to be “perched water” or trapped surface water, and not indicative of the actual groundwater table. Soil mottling (indicating a seasonal high-water table and/or poorly draining soils) was not encountered within any of the infiltration test locations. These observations were made at the time of the field operation and the groundwater table elevation will vary with daily, seasonal, and climatological variations as well as anthropogenic activities.
- The unfactored field infiltration rates achieved ranged from 0.0 to 39.0 inches per hour with an average of approximately 10.3 inches per hour. The PADEP recommended rate for infiltration of stormwater is 0.1 to 10 inches per hour.

LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Further, Kleinfelder assumes no liability for interpolation of data between the specific testing locations discussed herein. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than 2 years from the date of the report.

Our scope of services for this exploration and report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

CLOSING

We thank you for the opportunity to work on this project with you. Should you have any questions or require any additional information, please do not hesitate to contact us.

Respectfully Submitted,
KLEINFELDER, INC.

Jason E. Trimble
Project Manager

Trevor L. Dombach
Program Manager

APPENDIX

FIGURE 1 – TOPOGRAPHIC MAP

FIGURE 2 – GEOLOGIC MAP

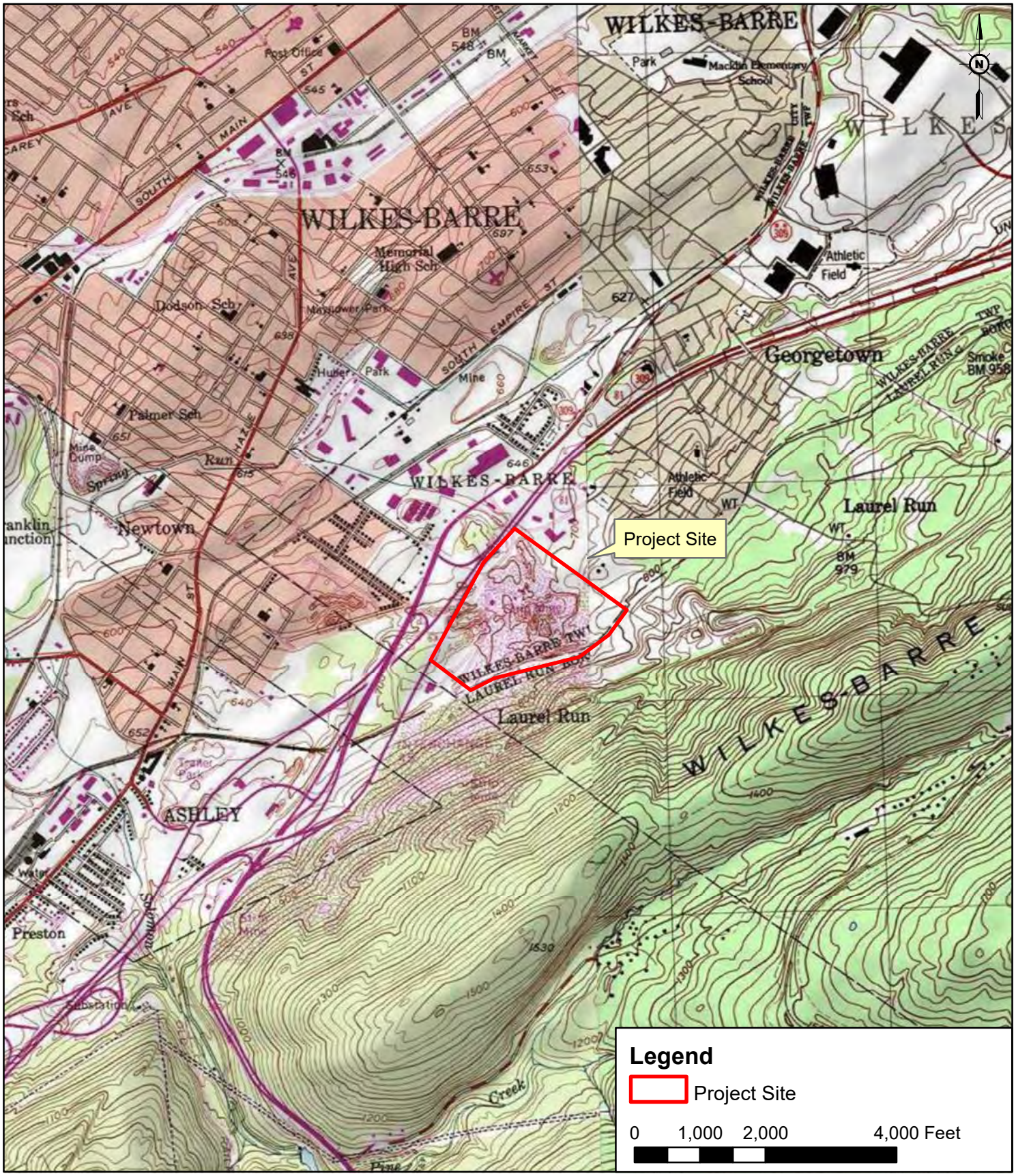
FIGURE 3 – EXPLORATION PLAN

LABORATORY TEST RESULTS

TEST PIT/BORING LOGS

GRAPHICS KEY

INFILTRATION TESTING RESULTS TABLE



*Source - USGS 15 - Minute Topographic Quadrangle, Provided by ESRI

SCALE: 1" = 2000'	DRAWING NUMBER: FIGURE 1
DRAWN BY: E. MCFADDEN	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 01-24-2022

TOPOGRAPHIC MAP

PREPARED FOR

HAUL ROAD WAREHOUSE

WILKES-BARRE TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

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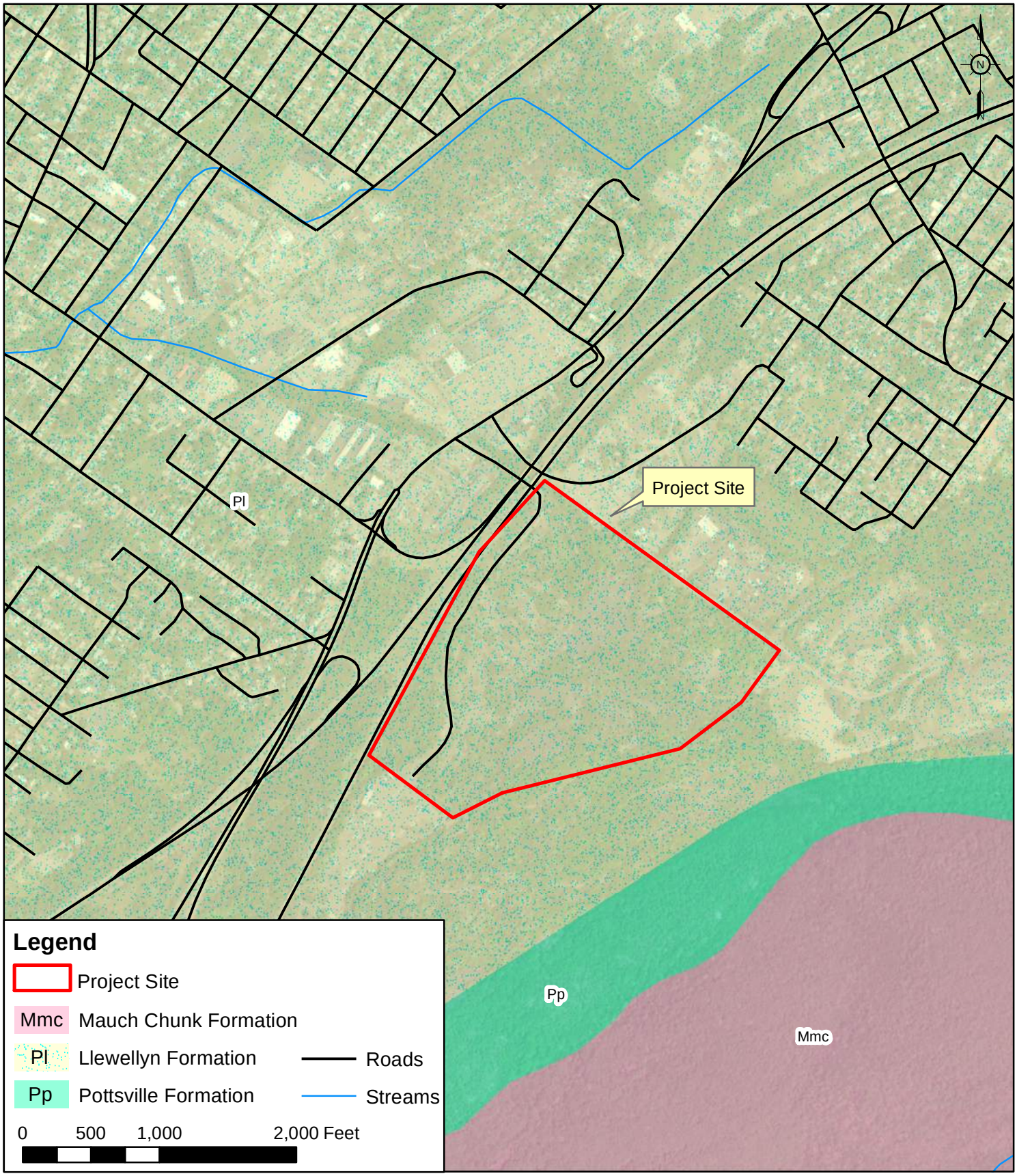

*Source - Map 61 - Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, 1981, Pa Geological Survey

SCALE: 1" = 1,000'	DRAWING NUMBER: FIGURE 2
DRAWN BY: E. MCFADDEN	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 01-24-2022

GEOLOGIC MAP

PREPARED FOR

HAUL ROAD WAREHOUSE

WILKES-BARRE TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

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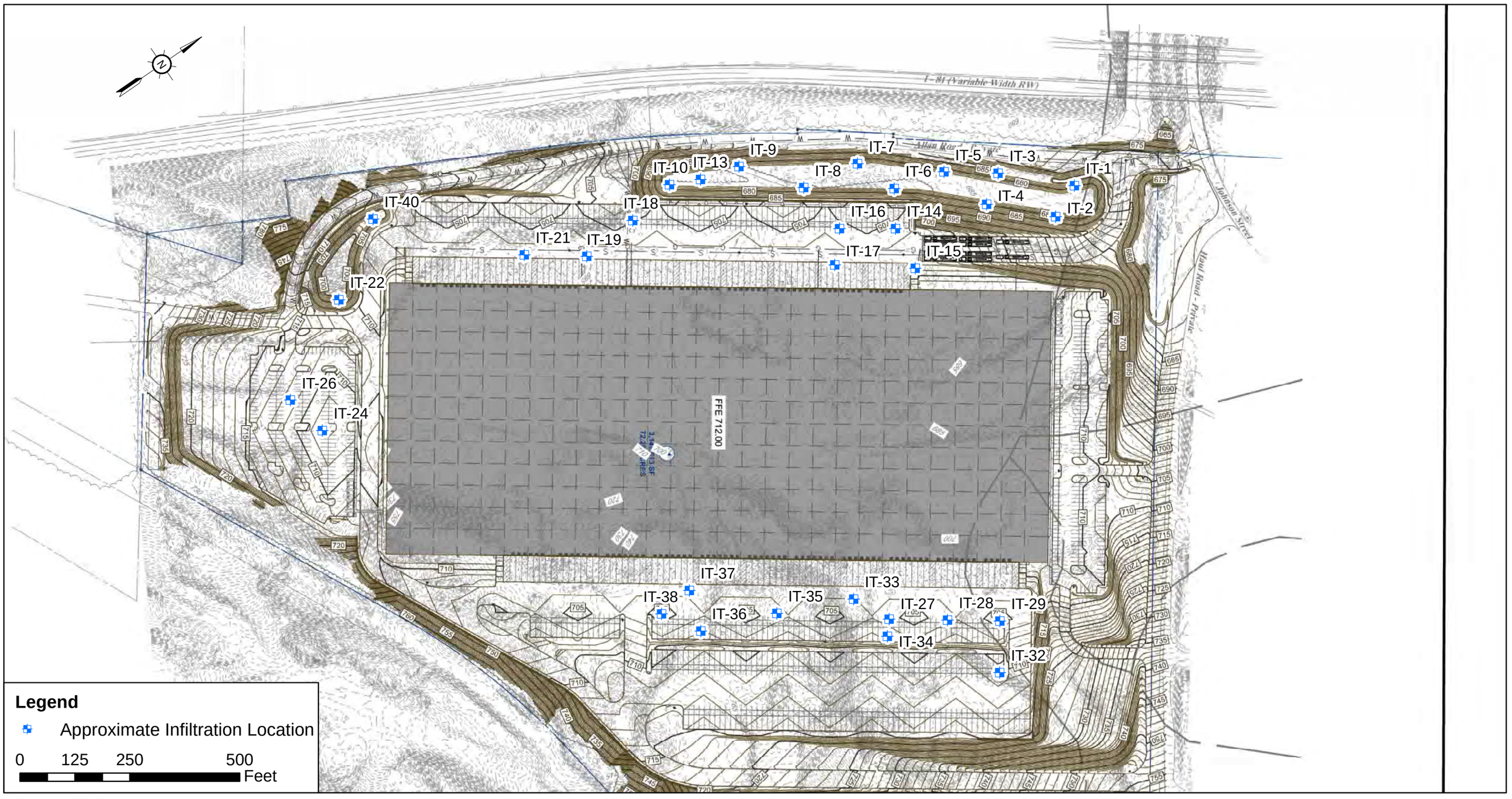

Service Layer Credits:

SCALE: AS SHOWN	DRAWING NUMBER: FIGURE 3
DRAWN BY: J. THOMPSON	CHECKED BY: J. TRIMBLE
APPROVED BY: M. GIUNTA	DATE: 04-06-2022

BASE PLAN:
Final Land Development Plan
Proposed Warehouse for Panattoni
PROVIDED BY:
Integrated Development Partners

DATE:
3-18-2022

EXPLORATION PLAN

PREPARED FOR

HAUL ROAD WAREHOUSE

WILKES-BARRE TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

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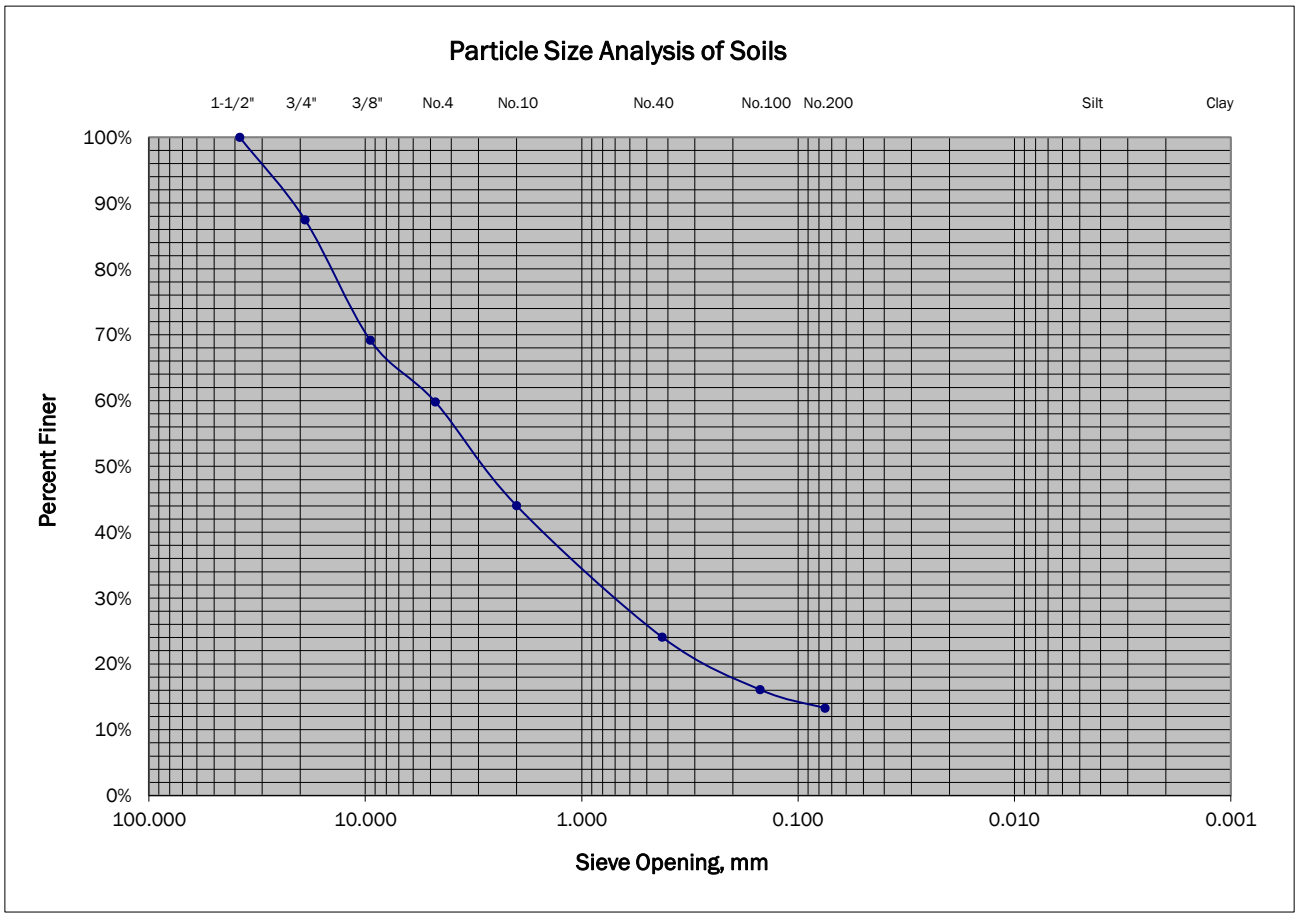
Soil Classification Report

Per ASTM Designations D 2487 and D 2488



As-Received Moisture 9.2%							
USCS Classification: Silty SAND with Gravel (SM)							
Gravel: 40.2%	**Coarse:** 12.5%			**Fine:** 27.7%			
Sand: 46.5%	**Coarse:** 15.8%	**Medium:** 19.9%		**Fine:** 10.8%			
Fines: 13.3%	**Silt:**		**Clay:**				
Gravel Description: Angular to Subangular							
Sand Description: Angular to Subangular							
Consistency: N/A		**Dry Strength:** N/A					
Dilatancy: N/A		**Toughness:** N/A					
Structure: N/A		**Cementation:** N/A					
Test Pit: IT-15							
Sample: S-1	**Depth:** 0' - 4'						
Project: Haul Road Warehouse							
Client: Panattoni Development Company, Inc.							
Kleinfelder Project Number: 20214488.001A							

Particle Size Distribution

US Standard Sieve Size		Opening (mm)	%Finer
Coarse	1-1/2"	38.0	100.0%
GRAVEL	3/4"	19.0	87.5%
Fine	3/8"	9.50	69.2%
	No. 4	4.75	59.8%
Coarse	No. 10	2.00	44.0%
Medium	No. 40	0.425	24.1%
SAND	No. 100	0.150	16.1%
Fine	No. 200	0.075	13.3%
Hydrometer Analysis	Silt Size	0.005	
	Clay Size	0.001	

D_{60}:	D_{30}:	D_{10}:	Cu:	Cc:

Atterberg Limits **LL:** NP **PL:** NP **PI:** NP

Description: Black Silty SAND with Gravel

Remarks: Fill I

Report Date: April 12, 2022

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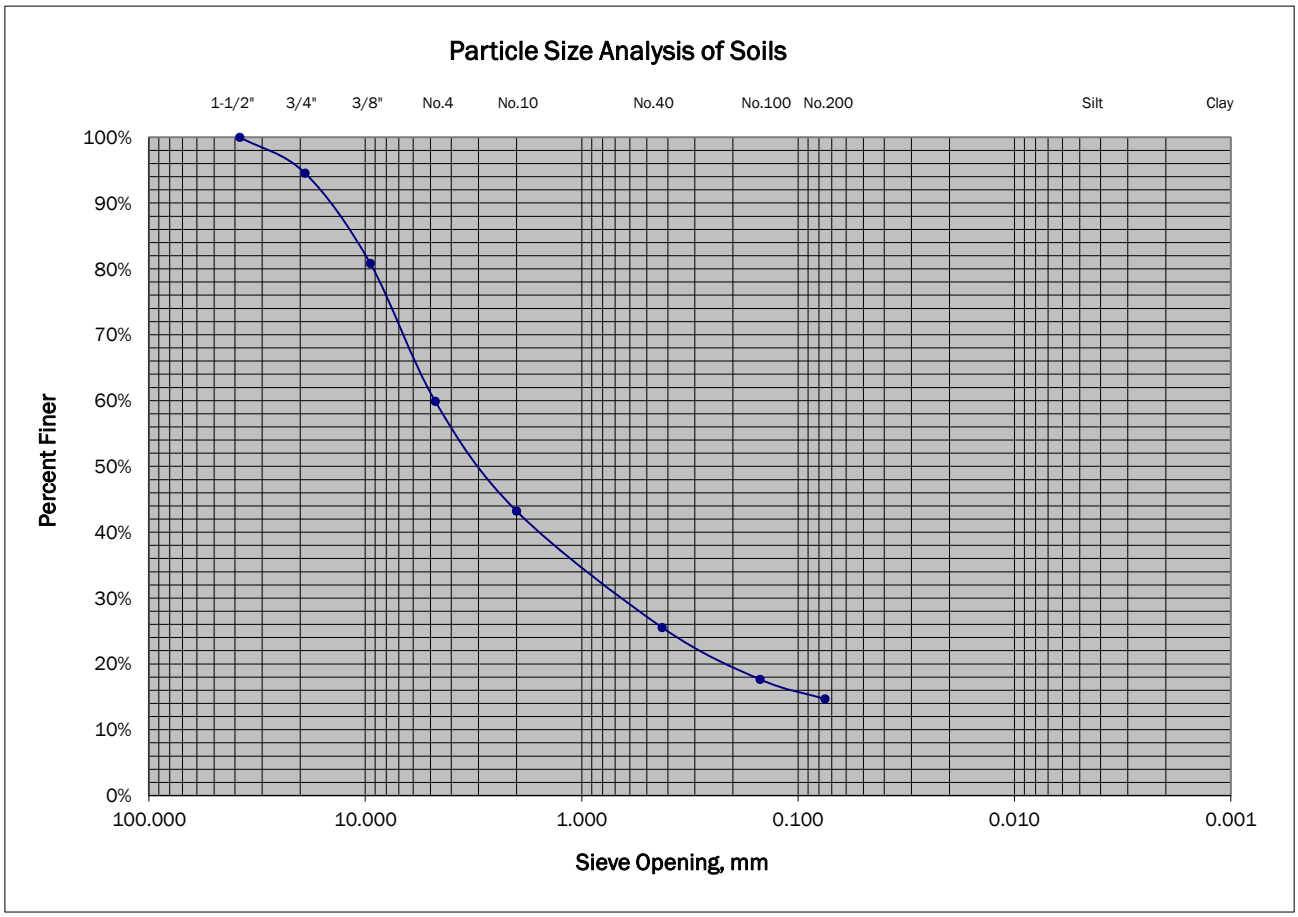
Soil Classification Report

Per ASTM Designations D 2487 and D 2488



As-Received Moisture 12.2%							
USCS Classification: Silty SAND with Gravel (SM)							
Gravel: 40.1%	**Coarse:** 5.5%			**Fine:** 34.6%			
Sand: 45.2%	**Coarse:** 16.7%	**Medium:** 17.7%		**Fine:** 10.8%			
Fines: 14.7%	**Silt:**		**Clay:**				
Gravel Description: Angular to Subangular							
Sand Description: Angular to Subangular							
Consistency: N/A		**Dry Strength:** N/A					
Dilatancy: N/A		**Toughness:** N/A					
Structure: N/A		**Cementation:** N/A					

Particle Size Distribution

US Standard Sieve Size		Opening (mm)	%Finer
Coarse GRAVEL Fine	1-1/2"	38.0	100.0%
	3/4"	19.0	94.5%
	3/8"	9.50	80.8%
	No. 4	4.75	59.9%
Coarse SAND	No. 10	2.00	43.2%
Medium SAND	No. 40	0.425	25.5%
	No. 100	0.150	17.7%
Fine SAND	No. 200	0.075	14.7%
Hydrometer Analysis	Silt Size	0.005	
	Clay Size	0.001	

D_{60}:	D_{30}:	D_{10}:	Cu:	Cc:

Test Pit: IT-21	**Atterberg Limits**	**LL:** NP	**PL:** NP	**PI:** NP	
Sample: S-1 **Depth:** 0' - 4'	**Description:** Black Silty SAND with Gravel				
Project: Haul Road Warehouse	**Remarks:** Fill I				
Client: Panattoni Development Company, Inc.					
Kleinfelder Project Number: 20214488.001A	**Report Date:** April 12, 2022				

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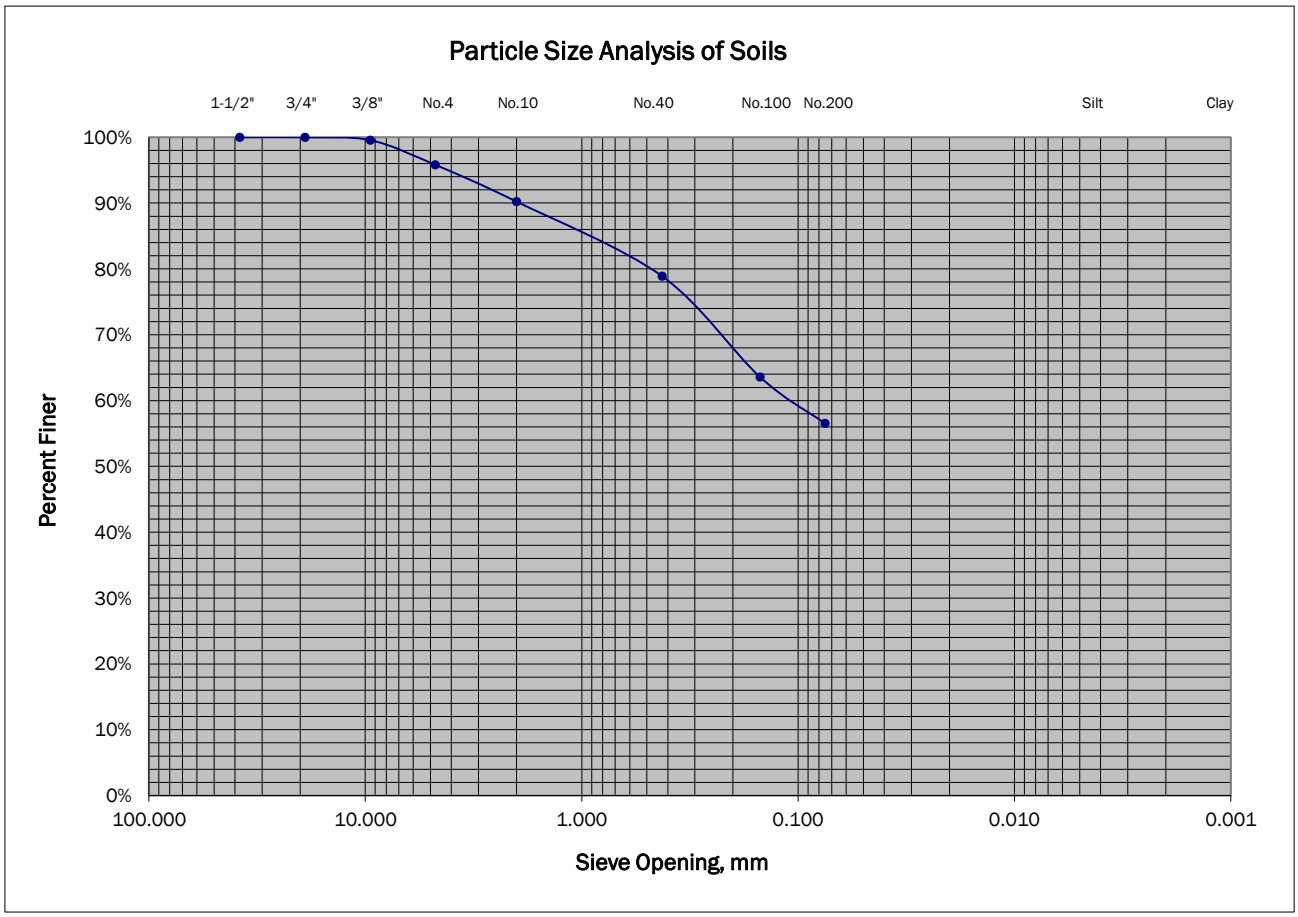
Soil Classification Report

Per ASTM Designations D 2487 and D 2488



As-Received Moisture 7.4%								
USCS Classification: Sandy Lean CLAY (CL)								
Gravel: 4.2%	**Coarse:** 0.0%			**Fine:** 4.2%				
Sand: 39.3%	**Coarse:** 5.6%	**Medium:** 11.4%		**Fine:** 22.3%				
Fines: 56.5%	**Silt:**		**Clay:**					
Gravel Description: Angular to Subangular								
Sand Description: Angular to Subangular								
Consistency: N/A		**Dry Strength:** Medium						
Dilatancy: Slow		**Toughness:** Medium						
Structure: Homogeneous		**Cementation:** N/A						
Test Pit: IT-22								
Sample: S-1	**Depth:** 8' - 14'							
Project: Haul Road Warehouse								
Client: Panattoni Development Company, Inc								
Kleinfelder Project Number: 20214488.001A								

Particle Size Distribution				
US Standard Sieve Size		Opening (mm)	%Finer	
Coarse	1-1/2"	38.0	100.0%	
GRAVEL	3/4"	19.0	100.0%	
Fine	3/8"	9.50	99.6%	
	No. 4	4.75	95.8%	
Coarse	No. 10	2.00	90.2%	
Medium	No. 40	0.425	78.9%	
SAND	No. 100	0.150	63.6%	
Fine	No. 200	0.075	56.5%	
Hydrometer Analysis	Silt Size	0.005		
	Clay Size	0.001		
D_{60}:	D_{30}:	D_{10}:	Cu:	Cc:

Atterberg Limits	**LL:** 32	**PL:** 16	**PI:** 16
Description: Dark gray Sandy CLAY			
Remarks: Fill I			
Report Date: April 12, 2022			

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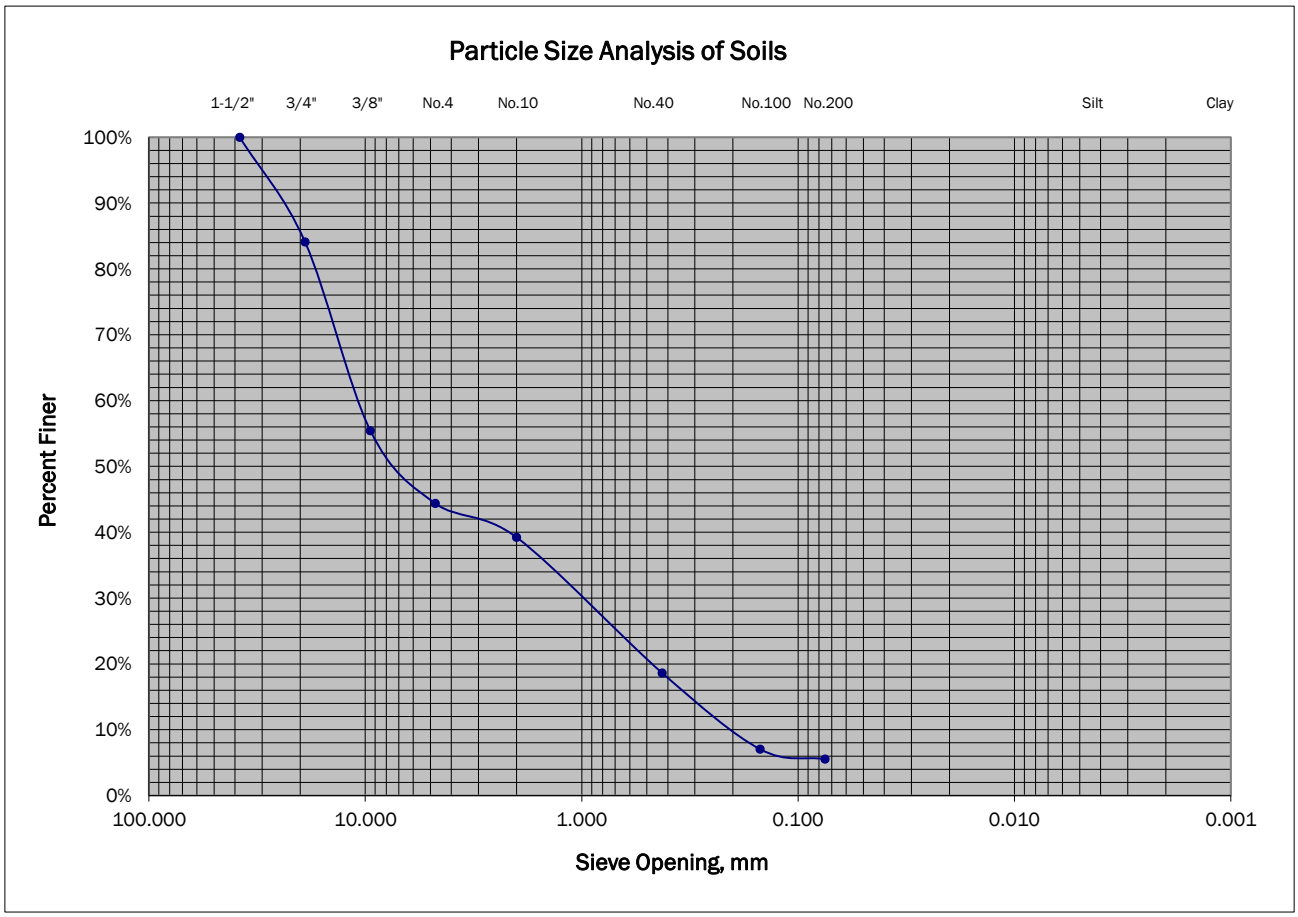
Soil Classification Report

Per ASTM Designations D 2487 and D 2488



As-Received Moisture 6.7%							
USCS Classification: Poorly Graded GRAVEL with Silt and Sand (GP-GM)							
Gravel: 55.6%	**Coarse:** 15.9%			**Fine:** 39.7%			
Sand: 38.9%	**Coarse:** 5.2%	**Medium:** 20.6%		**Fine:** 13.1%			
Fines: 5.5%	**Silt:**		**Clay:**				
Gravel Description: Angualr to Subangular to Subrounded							
Sand Description: Angular to Subangular to Subrounded							
Consistency: N/A		**Dry Strength:** N/A					
Dilatancy: None		**Toughness:** N/A					
Structure: N/A		**Cementation:** N/A					

Particle Size Distribution

US Standard Sieve Size		Opening (mm)	%Finer	
GRAVEL Coarse	1-1/2"	38.0	100.0%	
	3/4"	19.0	84.1%	
Fine	3/8"	9.50	55.4%	
	No. 4	4.75	44.4%	
SAND Coarse	No. 10	2.00	39.2%	
Medium	No. 40	0.425	18.6%	
	No. 100	0.150	7.0%	
Fine	No. 200	0.075	5.5%	
Hydrometer Analysis	Silt Size	0.005		
	Clay Size	0.001		
D_{60}: 12	D_{30}: 0.95	D_{10}: 0.23	Cu: 53	Cc: 0.33

Test Pit: IT-26	**Atterberg Limits**	**LL:** NP	**PL:** NP	**PI:** NP	
Sample: Bulk S-1 **Depth:** 4' - 8'	**Description:** Brown to gray GRAVEL with Silt and Sand				
Project: Haul Road Warehouse	**Remarks:** Fill I				
Client: Panattoni Development Company, Inc					
Kleinfelder Project Number: 20214488.002A	**Report Date:** March 21, 2022				

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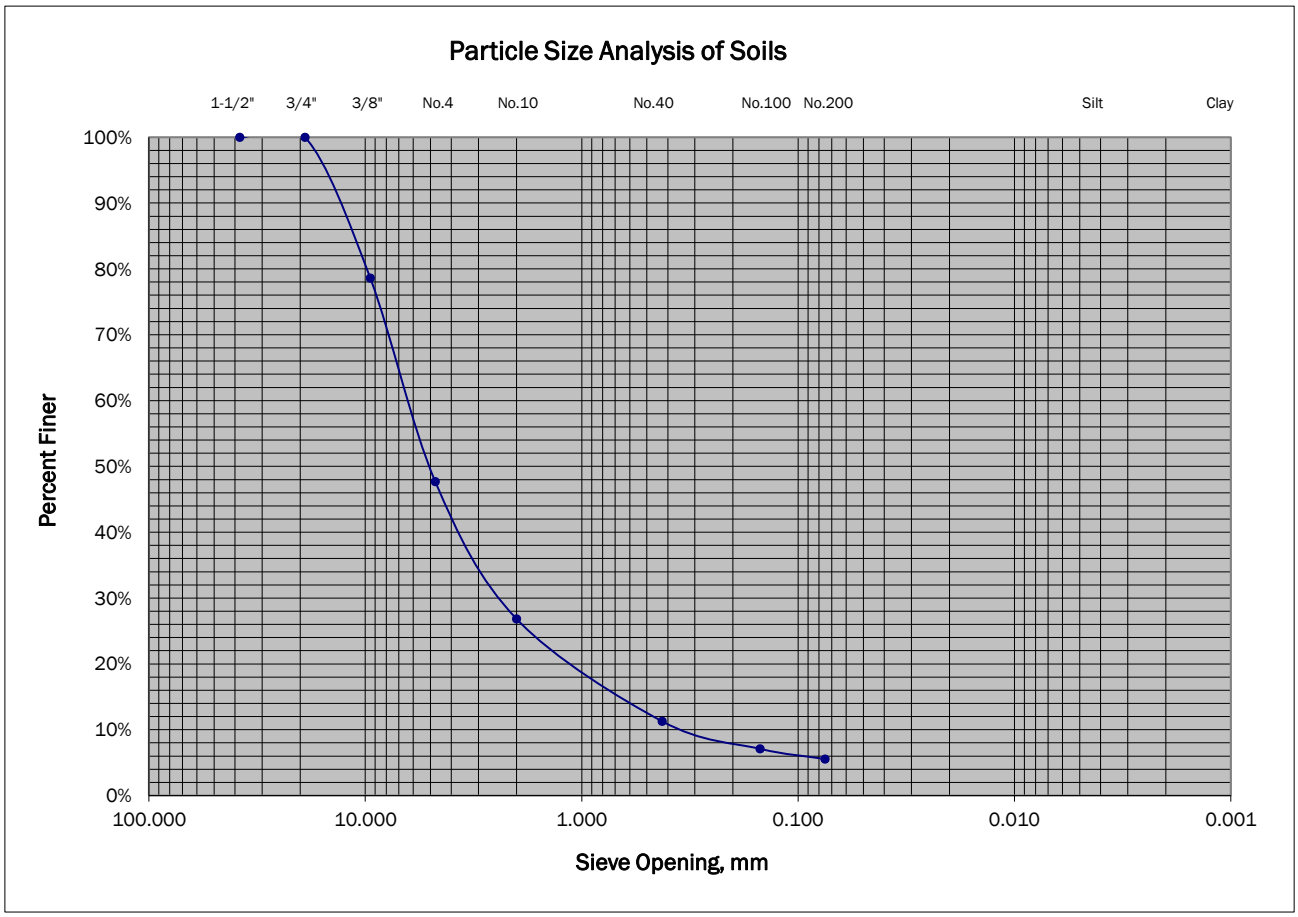
Soil Classification Report

Per ASTM Designations D 2487 and D 2488



As-Received Moisture 3.4%

USCS Classification: Well-graded GRAVEL with Silt and Sand (GW-GM)

Gravel:	52.3%	**Coarse:**	0.0%			**Fine:**	52.3%
Sand:	42.2%	**Coarse:**	20.9%	**Medium:**	15.6%	**Fine:**	5.7%
Fines:	5.5%	**Silt:**		**Clay:**			

Gravel Description: Angular to Subangular

Sand Description: Angular to Subangular

Consistency: N/A **Dry Strength:** N/A

Dilatancy: N/A **Toughness:** N/A

Structure: N/A **Cementation:** N/A

Test Pit: IT-33

Sample: S-1 **Depth:** 6' - 8'

Project: Haul Road Warehouse

Client: Panattoni Development Company, Inc

Kleinfelder Project Number: 20214488.001A

Particle Size Distribution

US Standard Sieve Size		Opening (mm)	%Finer
GRAVEL Coarse	1-1/2"	38.0	100.0%
	3/4"	19.0	100.0%
Fine	3/8"	9.50	78.6%
	No. 4	4.75	47.7%
SAND Coarse	No. 10	2.00	26.8%
Medium	No. 40	0.425	11.3%
	No. 100	0.150	7.1%
Fine	No. 200	0.075	5.5%
Hydrometer Analysis	Silt Size	0.005	
	Clay Size	0.001	

D_{60}: 6.5 D_{30}: 2.5 D_{10}: 0.35 Cu: 19 Cc: 2.75

Atterberg Limits **LL:** NP **PL:** NP **PI:** NP

Description: Black GRAVEL with Silt and Sand

Remarks: Fill I

Report Date: April 12, 2022

SAMPLE/SAMPLER TYPE GRAPHICS

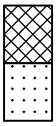
CORE SAMPLER

NQ CORE SAMPLE
(1.874 in. (47.6 mm.) core diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

ROCK LITHOLOGY GRAPHICS



FILL

SANDSTONE

GROUND WATER GRAPHICS

WATER LEVEL (level where first observed)

WATER LEVEL (level after exploration completion)

WATER LEVEL (additional levels after exploration)

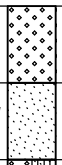
OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS
WOH - Weight of Hammer
WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3		**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3		**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3		**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3		**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES			**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (Half or more of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3		**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3		**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3		**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3		**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES			**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES
FINE GRAINED SOILS (Half or more of material is smaller than the #200 sieve)		SILTS AND CLAYS (Liquid Limit less than 50)			**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
					CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
					OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
		SILTS AND CLAYS (Liquid Limit 50 or greater)			**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
					CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
					OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

NOTE: USE MATERIAL DESCRIPTION ON THE LOG TO DEFINE A GRAPHIC THAT MAY NOT BE PROVIDED ON THIS LEGEND.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:
20214488.002A

DRAWN BY:J. THOMPSON

CHECKED BY: J. TRIMBLE

DATE: 4/13/2022

GRAPHICS KEY

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-1

Date Begin - End:	2/10/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	38°, Sunny		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 679.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type
			Topsoil: 4" dark brown organic soil	
			Fill I 678.6 **Sandy GRAVEL with cobble to boulder sized sandstone and shale**: gray to black, dry	
675	5		673.5	
670	10			
665				

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The test pit was terminated at approximately 5.5 ft. below ground surface. The test pit was backfilled with excavated material on February 10, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-1

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-2

Date Begin - End:	2/10/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	38°, Sunny		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 681.50
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type
680	0		**Topsoil**: 2" dark brown organic soil	
			681.3	
			Fill II	
			Silty GRAVEL (GM): bluish gray, moist, glass bottles, wood debris, rope, metal present	
675	5			
			674.0	
670	10			

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The test pit was terminated at approximately 7.5 ft. below ground surface. The test pit was backfilled with excavated material on February 10, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20214488.002A
DRAWN BY:	E.H.
CHECKED BY:	J.T.
DATE:	4/15/2022

TEST PIT LOG IT-2

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-3

Date Begin - End:	2/10/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	38°, Cloudy		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 681.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
680			**Topsoil**: 36" dark brown organic soil									
			Fill I 678.0 **Sandy GRAVEL with cobble to boulder sized sandstone and shale**: light brown, dry									
675	5											
			672.0 The test pit was terminated at approximately 9 ft. below ground surface. The test pit was backfilled with excavated material on February 10, 2022.									
670	10											

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-3

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-4

Date Begin - End:	2/10/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	38°, Cloudy		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 683.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
680	0		**Fill I** **Sandy GRAVEL (GP)**: gray, moist									
	5											Sidewall collapse from 7' - 9'
675												
			674.0									
	10		The test pit was terminated at approximately 9 ft. below ground surface. The test pit was backfilled with excavated material on February 10, 2022.									
670												

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-4

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-5A

Date Begin - End:	2/10/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	38°, Cloudy		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 685.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Fill I									
680	5		**Sandy GRAVEL with cobble to boulder sized sandstone and shale (GP)**: black, moist									
			676.0									
675	10		The test pit was terminated at approximately 9 ft. below ground surface. The test pit was backfilled with excavated material on February 10, 2022.									

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-5A

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-5B

Date Begin - End:	3/23/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	40°, Partly Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 685.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
685	0		**Fill I**			
			GRAVEL with Sand (GP): black to gray, dry to moist			
680	5				BC=5 9 12 9	20"
675	10				BC=8 6 6 9	22"
674.0	11					
670	15					
665	20					
660	25					
655	30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The boring was terminated at approximately 11 ft. below ground surface. The boring was backfilled with auger cuttings on March 23, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-5B

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-6

Date Begin - End:	3/23/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	40°, Partly Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 693.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
693	0		**Fill I**			
			GRAVEL with Sand (GP): black to gray, dry to moist			
690	5				BC=6 5 4 10	16"
685	10				BC=5 9 7 9	16"
680	15				BC=7 5 5 5	20"
675	20				BC=8 6 4 8	20"
674.0	19		The boring was terminated at approximately 19 ft. below ground surface. The boring was backfilled with auger cuttings on March 23, 2022.			
670	25					
665	30					
660						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-6

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-7

Date Begin - End:	3/23/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	40°, Partly Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 691.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
690	0		**Fill I**			
			GRAVEL with Sand (GP): black to gray, dry to moist			
					BC=8 6 7 5	20"
	5					
685						
					BC=5 4 6 6	12"
	10					
680						
					BC=7 6 5 4	18"
	15					
675					BC=6 8 4 4	18"
			674.0			
	20		The boring was terminated because of practical auger refusal ( ) at approximately 17 ft. below ground surface on boulders. The boring was backfilled with auger cuttings on March 23, 2022.			
670						
	25					
665						
	30					
660						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-7

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-8

Date Begin - End:	3/23/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	40°, Partly Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION | LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 694.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
694.0	0		**Fill I** **GRAVEL with Sand (GP)**: black to gray, dry to moist											
690	5		**Stratum I** 690.0 **Silty SAND with Gravel (SM)**: orange brown, dry to moist		BC=8 6 10 10	20"								
					BC=11 22 25 50/4"	16"								
687.0			**BEDROCK** 687.0 **SANDSTONE**: white to black, highly weathered, highly fractured		RQD=7.5	43"								
685	10													
682.0														
680	15													
675	20													
670	25													
665	30													
660														

The boring was terminated because of practical auger refusal (↑) at approximately 12 ft. below ground surface on bedrock. The boring was backfilled with auger cuttings on March 23, 2022. Rock was encountered at a depth of 12 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-8

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-9

Date Begin - End:	3/23/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	40°, Partly Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 692.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
690			**Fill I** **GRAVEL with Sand (GP)**: black to gray, dry to moist			
					BC=7 7 11 14	24"
685	5					
					BC=8 9 8 12	24"
	10		**Stratum I** 682.0 **Silty SAND with Gravel (SM)**: orange brown, dry to moist			
680					BC=6 10 14 16	10"
	15					
675			674.0		BC=8 9 6 10	12"
	20		The boring was terminated at approximately 18 ft. below ground surface. The boring was backfilled with auger cuttings on March 23, 2022.			
670						
	25					
665						
	30					
660						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-9

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-10

Date Begin - End:	3/23/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	40°, Partly Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 694.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
694	0		**Fill I**			
			Silty GRAVEL with Sand (GM): black to gray, dry to moist			
690	5				BC=11 15 16 10	16"
685	10				BC=9 12 10 8	18"
680	15				BC=6 15 14 11	18"
675	20				BC=8 10 9 8	18"
			674.0			
670	25					
665	30					
660						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The boring was terminated at approximately 20 ft. below ground surface. The boring was backfilled with auger cuttings on March 23, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-10

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-13

Date Begin - End:	3/23/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	40°, Partly Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 694.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
694	0		**Fill I** **Silty GRAVEL with Sand (GM)**: black to gray, dry to moist			
690	5				BC=7 7 11 14	24"
685	10				BC=8 9 8 12	24"
680	15				BC=6 10 14 16	10"
675	20				BC=8 9 6 10	12"
674.0						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The boring was terminated at approximately 20 ft. below ground surface. The boring was backfilled with auger cuttings on March 23, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-13

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-14

Date Begin - End:	2/14/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	14°, Partly Cloudy		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 696.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
695			**Fill I** **Silty GRAVEL with Sand and Cobbles (GM)**: dark brown, moist, metal fragments present									
			692.0									
	5		The test pit was terminated at approximately 4 ft. below ground surface. The test pit was backfilled with excavated material on February 14, 2022.									
690												
	10											
685												

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-14

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-15

Date Begin - End:	2/14/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	14°, Partly Cloudy		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 697.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
695	0		**Fill I** **Silty SAND with Gravel (SM)**: dark brown, moist		SM	9.2			13	NP	NP	
	5		692.0									
690	10											
685												

The test pit was terminated at approximately 5 ft. below ground surface.
The test pit was backfilled with excavated material on February 14, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-15

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-16

Date Begin - End:	2/08/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	26°, Cloudy		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 691.00
Surface Condition: Grass

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
690	0		**Topsoil**: 2" dark brown organic soil (690.8) **Fill I** **Silty GRAVEL with Cobbles (GM)**: bluish gray, moist to wet									
			(687.0)									
685	5											
680	10											

The test pit was terminated at approximately 4 ft. below ground surface.
The test pit was backfilled with excavated material on February 08, 2022.

GROUNDWATER LEVEL INFORMATION:
▽ Perched groundwater was observed at approximately 2.5 ft. below ground surface during excavation.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.:	20214488.002A
DRAWN BY:	E.H.
CHECKED BY:	J.T.
DATE:	4/15/2022

TEST PIT LOG IT-16

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-17

Date Begin - End:	2/08/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	26°, Cloudy		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 692.00
Surface Condition: Grass

Approximate Elevation (feet) / Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
691.8 / 0		2" dark brown organic soil									
		Stratum I **Silty GRAVEL with Sand and Cobbles (GM)**: bluish gray, moist									
690											
688.0 / 4											
685											
680											

LABORATORY RESULTS

The test pit was terminated because of bucket refusal (▲) at approximately 4 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on February 08, 2022. Rock was encountered at a depth of 4 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-17

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-18

Date Begin - End:	2/11/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	48°, Sunny		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 694.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type
			Topsoil: 24" dark brown organic soil	
			Fill I 692.0 **Silty GRAVEL with Cobbles (GM)**: gray, moist	
			691.0	
690	5			
685	10			
680				

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The test pit was terminated at approximately 3 ft. below ground surface.
The test pit was backfilled with excavated material on February 11, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-18

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-19

Date Begin - End:	2/11/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	50°, Sunny		

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION: Approximate Ground Surface Elevation (ft.): 695.00 Surface Condition: Grass Lithologic Description	Sample Type	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Fill I **Silty GRAVEL with Cobbles (GM)**: dark gray, moist									
692.0												
			The test pit was terminated at approximately 3 ft. below ground surface. The test pit was backfilled with excavated material on February 11, 2022.									
690	5											
685	10											

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-19

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-21

Date Begin - End:	2/11/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	50°, Sunny		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 697.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
695	0		**Fill I** **Silty SAND with Gravel (SM)**: dark gray, moist, rubber pipe present		SM	12.2			15	NP	NP	
	5		692.0									
690	10											
685												

The test pit was terminated at approximately 5 ft. below ground surface.
The test pit was backfilled with excavated material on February 11, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-21

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-22

Date Begin - End:	3/24/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	35°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

Approximate Ground Surface Elevation (ft.): 716.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
715	0		**Fill I** **Sandy Lean CLAY (GM)**: black to gray, moist to wet											
					BC=8 5 6 4	18"								
710	5													
					BC=6 3 5 5	24"	CL	7.4			57	32	16	
705	10													
					BC=6 2 5 6	14"								
700	15		**Clayey GRAVEL with Sand (GM)**: black to gray, dry to moist											
					BC=10 4 4 2	16"								
695	20		698.0 The boring was terminated at approximately 18 ft. below ground surface. The boring was backfilled with auger cuttings on March 24, 2022.											
690	25													
685	30													

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-22

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-24

Date Begin - End:	2/15/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	25°, Sunny		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 706.00
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type
			Topsoil: 12" dark gray organic soil	
705			**Fill I** 705.0 **Silty GRAVEL (GM)**: dark gray to black	
	5			
700				
			Stratum I 697.0 **Silty GRAVEL with Sand (GM)**: orange brown	
	10		696.0	
695				

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The test pit was terminated because of bucket refusal ( ) at approximately 10 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on February 15, 2022. Rock was encountered at a depth of 10 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-24

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-26

Date Begin - End:	2/15/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	25°, Sunny		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 708.50
Surface Condition: Sparse Vegetation

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
			Topsoil/Fill: dark gray to black									
			Fill I 707.2 **Poorly Graded GRAVEL with Silt and Sand (GP-GM)**: tan to brown, moist, metal fragments present		GP-GM	6.7	115.1	44	5.5	NP	NP	
705	5											
			701.0									
700	10											
695												

The test pit was terminated because of bucket refusal (▲) at approximately 7.5 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on February 15, 2022. Rock was encountered at a depth of 7.5 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: E.H.
CHECKED BY: J.T.
DATE: 4/15/2022

TEST PIT LOG IT-26

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-27A

Date Begin - End:	2/16/2022	**Excavation Company:**	Gleim Excavating
Logged By:	J. Thompson	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	Not Available		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 704.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type
700	5		**Fill I** **Sandy GRAVEL with Cobble to boulder sized sandstone and shale**: black to gray	
695	10		695.0 The test pit was terminated because of bucket refusal (▲) at approximately 9 ft. below ground surface on boulders. The test pit was backfilled with excavated material on February 16, 2022. Rock was encountered at a depth of 9 ft. during this exploration.	
690				

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

TEST PIT LOG IT-27A

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-27B

Date Begin - End:	3/24/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	35°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 704.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
704	0		**Fill I**			
			Silty GRAVEL with Sand (GM): black to gray, dry to moist			
					BC=4 8 9 11	20"
700	5					
					BC=15 13 10 11	18"
695	10					
			694.0			
690	15					
685	20					
680	25					
675	30					
670						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on March 24, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-27B

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-28A

Date Begin - End:	2/16/2022	**Excavation Company:**	Gleim Excavating
Logged By:	J. Thompson	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	Not Available		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 707.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
705	0		**Fill II** **Sandy GRAVEL with Cobble to boulder sized sandstone and shale**: black to gray, wood and metal debris present									
700	5											
695	10		697.5									

The test pit was terminated because of bucket refusal ( ) at approximately 9.5 ft. below ground surface on boulders. The test pit was backfilled with excavated material on February 16, 2022. Rock was encountered at a depth of 9.5 ft. during this exploration.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

TEST PIT LOG IT-28A

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-28B

Date Begin - End:	3/24/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	35°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 707.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
705	0		**Fill I** **Silty GRAVEL with Sand (GM)**: black to gray, dry to moist			
					BC=8 5 4 10	15"
	5					
700					BC=8 7 6 6	12"
	10					
695					BC=8 12 9 7	16"
			694.0			
	15		The boring was terminated at approximately 13 ft. below ground surface. The boring was backfilled with auger cuttings on March 24, 2022.			
690						
	20					
685						
	25					
680						
	30					
675						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-28B

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

Date Begin - End:	3/24/2022	**Drilling Company:**	Negley's	**BORING LOG IT-29**	
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	35°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

Approximate Ground Surface Elevation (ft.): 704.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
704	0		**Fill I** **Silty GRAVEL with Sand (GM)**: black to gray, dry to moist											
700	5				BC=2 3 6 5	10"								
695	10				BC=14 12 19 10	18"								
			694.0											

The boring was terminated at approximately 10 ft. below ground surface. The boring was backfilled with auger cuttings on March 24, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-29

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

TEST PIT LOG IT-32

Date Begin - End:	2/14/2022	**Excavation Company:**	Gleim Excavating
Logged By:	E. Hinkle	**Excavation Crew:**	K. Morrill
Hor.-Vert. Datum:	Not Available	**Excavation Equip.:**	CAT Backhoe
Plunge:	N/A degrees	**Excav. Dimensions:**	ft
Weather:	28°, Partly Cloudy		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 713.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
710	0		**Fill II** **Silty GRAVEL with Cobbles (GM)**: dark gray, moist, plastic tarp, metal fragments, cloth present									
705	5											
700	10											
695	15		699.0 The test pit was terminated because of bucket refusal (▲) at approximately 14 ft. below ground surface on bedrock. The test pit was backfilled with excavated material on February 14, 2022. Rock was encountered at a depth of 14 ft. during this exploration.									

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.: 20214488.002A

DRAWN BY: E.H.

CHECKED BY: J.T.

DATE: 4/15/2022

TEST PIT LOG IT-32

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-33

Date Begin - End:	3/24/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	35°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

Approximate Ground Surface Elevation (ft.): 708.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
705	0		**Fill I** **Well-Graded GRAVEL with Silt and Sand (GW-GM)**: black to gray, dry to moist											
					BC=16 10 7 8	24"								
	5						GW-GM	3.4			5.5	NP	NP	
700					BC=4 5 3 5	18"								
	10													
695					BC=5 5 4 4	10"								
			694.0											
	15		The boring was terminated at approximately 14 ft. below ground surface. The boring was backfilled with auger cuttings on March 24, 2022.											
690														
	20													
685														
	25													
680														
	30													
675														

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-33

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-34

Date Begin - End:	3/23/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	40°, Partly Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 706.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
705	0		**Fill I** **Silty GRAVEL with Sand (GM)**: black to gray, dry to moist			
					BC=5 3 2 4	18"
700	5					
					BC=7 5 3 3	20"
695	10				BC=11 15 9 13	12"
			694.0			
690	15		The boring was terminated at approximately 12 ft. below ground surface. The boring was backfilled with auger cuttings on March 23, 2022.			
685	20					
680	25					
675	30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-34

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

Date Begin - End: 4/04/2022 **Drilling Company:** Negley's **BORING LOG IT-35**

Logged By: J. Thompson **Drill Crew:** G. Kerr

Hor.-Vert. Datum: Not Available **Drilling Equipment:** Acker Rebel **Hammer Type - Drop:** 140 lb. Auto - 30 in.

Plunge: -90 degrees **Drilling Method:** Hollow Stem Auger

Weather: 45°, Partly Cloudy **Exploration Diameter:** 3.25 in. I.D.

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION: Approximate Ground Surface Elevation (ft.): 764.00; Surface Condition: Bare Earth; Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
760	5		**Fill I** **Silty GRAVEL with Sand (GM)**: black to gray											
755	10				BC=6 8 14 14	22"								
750	15													
745	20				BC=5 6 6 10	20"								
740	25													
735	30				BC=8 20 18 12	18"								
730														

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PROJECT NO.: 20214488.002A

DRAWN BY: JMT

CHECKED BY: JT

DATE: 4/15/2022

BORING LOG IT-35

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-35

Date Begin - End:	4/04/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	45°, Partly Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 764.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
			Fill I			
			Silty GRAVEL with Sand (GM): black to gray			
					BC=16 8 18 9	16"
725	40					
720	45					
					BC=5 6 6 10	15"
715	50					
710	55					
					BC=8 20 18 12	16"
705	60					
700	65					
					BC=15 7 11 16	16"
695						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-35

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

Date Begin - End:	4/04/2022	**Drilling Company:**	Negley's	**BORING LOG IT-35**	
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	45°, Partly Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION: Approximate Ground Surface Elevation (ft.): 764.00 Surface Condition: Bare Earth Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
694.0			The boring was terminated at approximately 70 ft. below ground surface. The boring was backfilled with auger cuttings on April 04, 2022.											
690	75													
685	80													
680	85													
675	90													
670	95													
665	100													
660														

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

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PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-35

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-36

Date Begin - End:	3/29/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	30°, Sunny	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 749.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
749	0		**Fill I**			
			Silty GRAVEL with Sand (GM): black to gray			
745	5					
					BC=5 17 11 14	12"
740	10					
735	15					
					BC=6 17 7 7	18"
730	20					
725	25					
					BC=4 5 6 8	20"
720	30					
715						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-36

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-36

Date Begin - End:	3/29/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	30°, Sunny	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION | LABORATORY RESULTS

Approximate Ground Surface Elevation (ft.): 749.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
710	40		**Fill I** **Silty GRAVEL with Sand (GM)**: black to gray		BC=12 9 11 10	18"								
705	45													
700	50				BC=8 17 15 15	15"								
695	55				BC=14 26 21 17	20"								
			694.0											
690	60													
685	65													
680														

The boring was terminated at approximately 55 ft. below ground surface. The boring was backfilled with auger cuttings on March 29, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-36

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-37

Date Begin - End:	3/25/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	38°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 746.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
745	0		**Fill I** **Silty GRAVEL with Sand (GM)**: black to gray			
740	5				BC=5 10 13 9	22"
735	10					
730	15				BC=3 4 3 4	10"
725	20					
720	25				BC=7 8 7 5	14"
715	30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-37

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-37

Date Begin - End:	3/25/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	G. Kerr		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker Rebel	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	38°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 746.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
710			**Fill I** **Silty GRAVEL with Sand (GM)**: black to gray			
					BC=9 14 15 17	18"
	40					
705						
	45					
700						
	50				BC=18 14 11 21	18"
695						
			694.0			
	55		The boring was terminated at approximately 52 ft. below ground surface. The boring was backfilled with auger cuttings on March 25, 2022.			
690						
	60					
685						
	65					
680						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-37

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-38

Date Begin - End:	3/28/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	25°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 744.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
744	0		**Fill I**			
			Silty GRAVEL with Sand (GM): black to gray			
740	5					
					BC=2 5 4 7	18"
735	10					
730	15					
					BC=9 8 6 6	24"
725	20					
720	25					
					BC=3 3 4 4	20"
715	30					
710						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

KLEINFELDER
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PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-38

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-38

Date Begin - End:	3/28/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	25°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

FIELD EXPLORATION

Approximate Ground Surface Elevation (ft.): 744.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)
705	40		**Fill I** **Silty GRAVEL with Sand (GM)**: black to gray			
					BC=7 6 8 8	18"
700	45					
					BC=12 19 17 20	12"
695	50					
			694.0			
690	55					
685	60					
680	65					
675						

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks

The boring was terminated at approximately 50 ft. below ground surface. The boring was backfilled with auger cuttings on March 28, 2022.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
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PROJECT NO.:	20214488.002A
DRAWN BY:	JMT
CHECKED BY:	JT
DATE:	4/15/2022

BORING LOG IT-38

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-40

Date Begin - End:	3/28/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	25°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

Approximate Ground Surface Elevation (ft.): 731.00
Surface Condition: Bare Earth

Approximate Elevation (feet)	Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
730	0		**Fill I** **Silty GRAVEL with Sand (GM)**: black to gray, dry to moist											
725	5				BC=5 4 1 2	18"								
720	10													
715	15				BC=2 4 5 4	18"								
710	20													
705	25				BC=3 7 6 11	16"								
700	30				BC=6 6 8 7	18"								
			697.0											

FIELD EXPLORATION | LABORATORY RESULTS

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-40

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

BORING LOG IT-40

Date Begin - End:	3/28/2022	**Drilling Company:**	Negley's		
Logged By:	J. Thompson	**Drill Crew:**	M. Ballew		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	Acker XLS	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	25°, Cloudy	**Exploration Diameter:**	3.25 in. I.D.		

Approximate Elevation (feet)	Depth (feet)	Graphical Log	FIELD EXPLORATION: Approximate Ground Surface Elevation (ft.): 731.00 Surface Condition: Bare Earth Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in. RQD=%	Recovery (NR=No Recovery)	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
695			The boring was terminated at approximately 34 ft. below ground surface. The boring was backfilled with auger cuttings on March 28, 2022.											
	40													
690														
	45													
685														
	50													
680														
	55													
675														
	60													
670														
	65													
665														

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
The exploration location and elevation are approximate and were estimated by Kleinfelder.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20214488.002A
DRAWN BY: JMT
CHECKED BY: JT
DATE: 4/15/2022

BORING LOG IT-40

Haul Road Warehouse
Wilkes-Barre Township
Luzerne County, PA

HAUL ROAD WAREHOUSE
INFILTRATION TESTING RESULTS TABLE

Test Location	Existing Surface Elevation (ft amsl)	Proposed Test Elevation (ft amsl)	Actual Test Elevation (ft amsl)	Drop in Inches										Infiltration Rate (in/hr)*
				1st Presoak (30 min)	2nd Presoak (30 min)	Reading Time (10 or 30 minutes)	Readings							
							1	2	3	4	5	6	7	8	
IT-1	679.0	677.0	678.0	6.0	6.0	10	3.5	3.4	3.0	2.7	2.7	2.7	2.6		15.6
			677.0	6.0	6.0	10	3.0	2.5	2.0	1.9	1.8	1.8			10.8
			676.0	6.0	6.0	10	1.9	1.8	1.7	1.7					10.2
IT-2	681.5	677.0	678.5	6.0	6.0	10	4.7	4.4	4.2	4.1	4.1	3.8	3.6	3.4	20.4
			677.5	6.0	6.0	10	5.5	5.2	4.8	4.4	3.8	3.5	3.3	3.1	18.6
			676.5	5.9	5.5	10	1.5	1.2	1.1	1.0	0.9				5.4
IT-3	681.0	677.0	678.0	6.0	6.0	10	2.9	2.6	2.4	2.1	2.0	2.0			12.0
			677.0	6.0	6.0	10	1.2	1.2	1.1	1.1					6.6
			676.0	6.0	6.0	10	2.3	2.0	1.9	1.9	1.8				10.8
IT-4	683.0	677.0	678.0	6.0	6.0	10	1.2	1.1	1.0	1.0					6.0
			677.0	6.0	6.0	10	2.9	2.5	2.3	2.0	1.9	1.8	1.8		10.8
			676.0	6.0	5.8	10	1.8	1.6	1.4	1.1	1.0	0.9			5.4
IT-5	685.0	677.0	678.0	12.0	10.0	10	3.0	2.6	2.3	1.9	1.8	1.8	1.7		10.2
			677.0	24.0	20.0	10	7.5	7.9	6.8	6.6	6.3	5.9	5.7	5.7	34.2
			676.0	22.0	20.0	10	6.1	5.6	5.0	5.5	5.2	5.0	4.6	4.4	26.4
IT-6	693.0	677.0	678.0	6.0	6.0	10	4.2	3.8	3.5	3.3	2.9	2.8	2.6	2.5	15.0
			677.0	1.5	1.2	30	1.1	1.2	1.1	1.1					2.2
			676.0	2.1	1.8	30	1.6	1.6	1.4	1.4					2.8
IT-7	691.0	677.0	678.0	15.0	12.0	10	5.2	4.8	5.1	4.2	4.0	4.4	5.0	4.1	24.6
			677.0	12.0	12.0	10	2.3	1.9	1.6	1.5	1.5	1.4			8.4
			676.0	24.0	24.0	10	5.0	4.7	4.4	4.1	3.8	3.5	3.2	3.2	19.2
IT-9	692.0	677.0	678.0	0.3	0.2	30	0.2	0.2	0.1	0.2					0.4
			677.0	0.5	0.4	30	0.3	0.3	0.3	0.3					0.6
			676.0	0.2	0.2	30	0.1	0.1	0.1	0.1					0.2
IT-10	694.0	677.0	678.0	0.4	0.3	30	0.2	0.2	0.2	0.3					0.6
			677.0	1.9	1.6	30	1.6	1.4	1.4	1.3	1.2				2.4
			676.0	1.0	1.0	10	0.8	0.6	0.6	0.6					1.2

HAUL ROAD WAREHOUSE
INFILTRATION TESTING RESULTS TABLE

Test Location	Existing Surface Elevation (ft amsl)	Proposed Test Elevation (ft amsl)	Actual Test Elevation (ft amsl)	Drop in Inches										Infiltration Rate (in/hr)*
				1st Presoak (30 min)	2nd Presoak (30 min)	Reading Time (10 or 30 minutes)	Readings							
							1	2	3	4	5	6	7	8	
IT-13	694.0	677.0	678.0	7.5	6.9	10	1.2	1.1	1.1	1.1					6.6
			677.0	7.0	6.5	10	1.0	1.0	0.8	0.8					4.8
			676.0	3.0	2.5	30	1.3	1.2	1.3	1.2					2.4
IT-14	696.0	695.0	696.0	6.0	6.0	10	2.9	2.6	2.2	1.7	1.7	1.7	1.5		9.0
			695.0	6.0	6.0	10	3.0	2.5	2.3	2.2	2.1	2.1			12.6
			694.0	6.0	6.0	10	2.5	2.5	2.2	2.1	2.1	2.0			12.0
IT-15	697.0	695.0	696.0	6.0	6.0	10	2.9	2.9	2.5	1.9	1.9	1.7	1.7		10.2
			695.0	6.0	6.0	10	4.0	4.0	3.5	3.3	3.0	2.7	2.7	2.6	15.6
			694.0	6.0	6.0	10	2.5	2.5	2.5	2.5					15.0
IT-16	691.0	695.0	690.0	0.1	0.0	30	0.0	0.0	0.0	0.0					0.0
IT-17	692.0	695.0	691.5	0.2	0.2	30	0.2	0.2	0.2	0.2					0.4
IT-18	694.0	695.0	693.0	1.5	1.5	30	1.3	1.3	1.2	1.2					2.4
IT-19	695.0	695.0	694.5	6.0	6.0	10	1.5	1.3	1.3	1.3					7.8
IT-21	697.0	695.0	696.0	1.5	1.5	30	1.3	1.1	1.1	1.1					2.2
			695.0	6.0	6.0	10	2.0	1.8	1.5	1.2	1.2	1.1	1.1		6.6
			694.0	6.0	6.0	10	2.7	2.6	2.5	2.6					15.6
IT-22	716.0	700.0	702.0	24.0	24.0	10	5.0	4.9	4.5	4.0	4.0	3.5	3.3	3.2	19.2
			700.0	0.6	0.5	30	0.5	0.4	0.3	0.4					0.8
			698.0	2.5	1.9	30	1.8	1.7	1.6	1.7					5.1
IT-24	706.0	698.0	699.0	6.0	6.0	10	1.8	1.6	1.7	1.7					10.2
			698.0	0.5	0.5	30	0.4	0.4	0.4	0.4					0.8
IT-27	704.0	698.0	698.0	36.0	30.0	10	7.0	6.5	6.5	6.1	5.7	5.5	5.0	4.9	29.4
			697.0	2.1	2.0	30	1.5	1.5	1.4	1.5					3.0
			696.0	1.9	1.7	30	1.5	1.5	1.4	1.5					3.0
IT-28	707.0	697.0	698.0	36.0	36.0	10	7.0	6.6	6.3	5.9	5.5	5.3	5.0	5.1	30.6
			697.0	15.0	14.0	10	1.9	1.5	1.4	1.3	1.3				7.8
			696.0	2.0	2.0	30	1.9	1.8	1.7	1.8					3.6

HAUL ROAD WAREHOUSE
INFILTRATION TESTING RESULTS TABLE

Test Location	Existing Surface Elevation (ft amsl)	Proposed Test Elevation (ft amsl)	Actual Test Elevation (ft amsl)	Drop in Inches										Infiltration Rate (in/hr)*
				1st Presoak (30 min)	2nd Presoak (30 min)	Reading Time (10 or 30 minutes)	Readings							
							1	2	3	4	5	6	7	8	
IT-29	704.0	697.0	698.0	36.0	36.0	10	9.5	9.0	7.8	7.5	7.9	7.4	6.7	6.5	39.0
			697.0	24.0	20.0	10	3.9	3.6	3.5	3.5	3.4				20.4
			696.0	24.0	24.0	10	4.1	3.9	3.7	3.7	3.6	3.6			21.6
IT-33	708.0	697.0	698.0	15.0	15.0	10	2.0	1.9	1.6	1.5	1.4	1.4			8.4
			697.0	9.5	9.0	10	1.4	1.3	1.3	1.2					7.2
			696.0	7.5	7.5	10	1.0	1.0	1.0	0.9					5.4
IT-34	706.0	697.0	698.0	15.0	15.0	10	2.0	1.9	1.6	1.5	1.4	1.4			8.4
			697.0	30.0	24.0	10	4.8	4.1	3.3	3.2	3.2	3.2			19.2
			696.0	15.0	10.0	10	2.1	1.9	1.9	1.8					10.8
IT-35	764.0	697.0	698.0	18.0	16.0	10	3.0	2.6	2.5	2.4	2.4				14.4
			697.0	6.0	6.0	10	1.8	1.6	1.7	1.7					10.2
			696.0	12.0	12.0	10	2.2	2.2	2.1	2.1					12.6
IT-36	749.0	697.0	698.0	9.0	8.0	10	1.4	1.2	1.2	1.2					7.2
			697.0	1.0	0.8	30	0.8	0.6	0.6	0.6					1.2
			696.0	14.0	12.5	10	2.1	2.1	2.1	2.0					12.0
IT-37	746.0	697.0	698.0	24.0	20.0	10	4.5	4.9	4.5	4.0	3.8	3.5	3.0	2.7	16.2
			697.0	20.0	20.0	10	3.2	3.0	3.0	3.0					18.0
			696.0	24.0	20.0	10	3.9	3.8	3.5	3.5	3.4	3.3			19.8
IT-38	744.0	697.0	698.0	7.0	6.0	10	0.9	0.8	0.8	0.8					4.8
			697.0	9.0	7.5	10	1.1	0.9	0.7	0.6	0.5	0.5			3.0
			696.0	18.0	18.0	10	4.9	4.8	4.4	4.2	4.0	3.6	3.5	3.4	20.4
IT-40	731.0	700.0	701.0	9.0	9.0	10	1.4	1.2	0.8	0.8	0.6	0.6			3.6
			700.0	1.0	1.0	30	0.8	0.8	0.7	0.7					1.4
			699.0	1.5	1.5	30	1.0	1.1	1.0	1.1					2.2

*denotes no factor has been applied to the infiltration rates

Shaded cells indicate the final reading which has been used to create the infiltration rate.