APPLICATION FOR SECTION 404/401 INDIVIDUAL PERMIT

TRIAD BUSINESS PARK
OLD GREENSBORO ROAD EXTENSION
KERNERSVILLE, GUILFORD COUNTY, NORTH CAROLINA

PREPARED FOR:
TDO LAND HOLDINGS, LLC
309 GALLIMORE DAIRY ROAD – SUITE 201
GREENSBORO, NORTH CAROLINA 27409

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PEI PROJECT NO. 1010

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EXECUTIVE SUMMARY

This environmental report was prepared by Pilot Environmental Inc. (PEI) for use by TDO Land Holdings, LLC, the "applicant" in obtaining an individual permit that will allow the construction of a proposed road crossing. Stream and wetland impacts are required for completion of the proposed project. The purpose of the Environmental Report is to provide sufficient information that will enable the United States Army Corps of Engineers (USACE) and the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Water Resources (DWR) to evaluate the proposed project.

The project purpose is to provide safe and adequate industrial access to Phase II of Triad Business Park (TBP) located south of East Mountain Street/West Market Street in Kernersville, Guilford County, North Carolina. Phase II of TBP is an approximate 180 acre portion of the larger 312 acre TBP industrial park. Phase II of TBP does not currently have safe and adequate industrial access and/or interconnectivity to Phase I of TBP. Therefore, the applicant is proposing the construction of a road crossing that would provide safe and adequate industrial travel to and from Phase II of TBP. A Transportation Analysis, prepared by Davenport, and evaluation of effects on emergency response personnel assisted the applicant in determining the preferred access location for Phase II of TBP.

TBP was previously delineated in 2008 to facilitate the construction/infrastructure of an approximate 127 acre portion of TBP with FedEx Ground (Lot 4), to provide infrastructure to the remaining approximate 5 acres of Phase I of TBP and to provide sanitary sewer/water services to Phase II of TBP. Section 404/401 permit approvals associated with the construction of FedEx Ground and development of Phase I of TBP included the permanent impact to: 0.22 acres of open waters; 225 linear feet of stream channel; 0.19 acres of wetlands; 46,634 square feet of Zone 1 buffer; and, 23,954 square feet of Zone 2 buffer. Section 404/401 permit approvals associated with the installation of utility line infrastructure to Phase I/II of TBP included the temporary impact to 324 linear feet of stream channel and 0.50 acres of wetlands.

As a special condition of the previously issued Section 404/401 authorizations, the permittee was required to preserve and maintain all the jurisdictional waters/wetlands and a 30 foot buffer around all of the streams and pond features (conservation area), excluding the waters/wetlands at the FedEx Ground (Lot 4) site. According to an Amendment to Declaration of Protective Covenants, Conditions, Restrictions and Reservations dated December 31, 2008, the remaining jurisdictional waters/wetlands located within TBP (with the exception of Lot 4), have been placed into conservation areas which activities including but not limited to; fill, excavation, land disturbance, vegetation removal, construction of temporary/permanent structures, disruption or alteration of hydrology, etc. are prohibited. If the proposed action receives Section 404/401 approval, then the applicant will amend the Declaration of Protective Covenants, Conditions, Restrictions and Reservations dated December 31, 2008 such that the proposed road crossing can be constructed. The designated conservation areas on the remainder of jurisdictional

waters/wetlands located in Phase II of TBP will remain in place in efforts to preserve/avoid additional impacts to jurisdictional waters/wetlands.

The proposed project is paramount to the growth and success of Phase II of TBP and thus, contributes to the overall community due to increased employment opportunities, increased tax revenue and various other socio-economic factors. However, to facilitate the proposed project, there will be unavoidable impacts to 190 linear feet of stream channel, 0.59 acres of wetlands and 28,751 square feet of cumulative Zone 1/2 riparian buffer. A letter of No Practical Alternatives is being submitted to the City of Kernersville simultaneously with this application to request the proposed impact to the Randleman Lake Water Supply Watershed Riparian Buffers in accordance with 15A NCAC 02B .0250. The project, as being proposed, will meet the current and future needs of Phase II of TBP. The site design, as being proposed, allows for future development of Phase II of TBP to occur in upland areas without additional impacts to streams or wetlands.

An extensive alternative's analysis has been conducted to determine the preferred access alternative. The alternative's evaluated include an off-site no build, an on-site no build and three interior crossing locations. A Transportation Analysis, evaluation of construction costs, economic evaluation and evaluation of impact to the environment were utilized in the alternative's analysis. The preferred alternative was selected due to limited impacts to the environment, the costs of development, operation, travel times, road capacity, public safety and anticipated positive benefits to TBP and the overall community in the vicinity of TBP.

During design of the proposed project, the applicant has incorporated several design techniques to avoid and minimize impacts to streams and wetlands. Design specifications that avoid and minimize impacts to streams and wetlands include the use of approximate 12 feet tall retaining walls that are approximately 65 and 85 feet long. The retaining walls will act as head/end walls and significantly reduce impacts to streams, associated stream buffers and wetlands.

The sequence of construction phases has been designed to have minimal areas of exposed/bare soil. During construction of each of the phases of the project, erosion control measures will be implemented to avoid sediment runoff into nearby streams. Silt fencing and additional erosion control measures/devices will be used to prevent erosion and capture sediment. Disturbed areas will be immediately reseeded to prevent erosion and sedimentation runoff into streams. Stockpiling excavated soil will be avoided where possible. If temporary stock-piling is necessary, it will be bermed with bales of hay and or covered to prevent excessive run-off.

The applicant has avoided and minimized impacts to jurisdictional areas and will compensate to the extent practicable, for remaining unavoidable losses with mitigation. The applicant proposes a mitigation ratio of 2:1 for the stream and wetland impacts. The applicant proposes to compensate for impacts for the construction of the proposed project by offering payment into the NCDENR Division of Mitigation Services (DMS). Private mitigation banks, in the watershed of the proposed project, did not have credits available at the time of the applicant's request. At the

ratios proposed, the applicant will receive 380 linear feet of stream credits and 1.25 acres of wetlands credits, which will meet and/or exceed mitigation payment requirements. Additionally, mitigation for unavoidable impacts to riparian buffers will be satisfied by the applicant in accordance with 15A NCAC 02B .0250.

1.0 PURPOSE AND NEED

The project purpose is to provide safe and adequate industrial access to Phase II of TBP. Phase II of TBP is an approximate 180 acre portion of the larger 312 acre TBP industrial park. Phase II of TBP does not currently have safe and adequate industrial access and/or interconnectivity to Phase I of TBP. Therefore, the applicant is proposing the construction of a road crossing that would provide safe and adequate industrial travel to and from Phase II of TBP.

Access to Phase II of TBP was evaluated by Davenport and summarized in a Transportation Analysis dated September 5, 2014 (Appendix IV). According to the Transportation Analysis report, the proposed road crossing and extension of Old Greensboro Road has significant benefit to TBP and the general vicinity by increased road capacity, more efficient travel time, operation and safety.

Additionally, emergency response and occupancy safety was also considered during evaluation of alternatives to access Phase II of TBP. According to a June 25, 2015 letter from Mr. Scott Cunningham, Kernersville Chief of Police and a July 1, 2015 letter from Mr. Bruce Hennequin, Fire Marshall of the Kernersville Fire Department, the proposed interconnectivity of Phase II of TBP by the proposed road crossing would result in significant and immediate benefits to occupants of TBP, as well as, the overall community within the vicinity of TBP. According to the letters, more efficient response times to and within the general vicinity of Phase II of TBP will allow for more efficient patrols, reduce response times and overall enhance general service to the area. Copies of the letters are included in Appendix IV.

2.0 BACKGROUND

The project area is located within the larger TBP. TBP is an approximate 312 acre tract, located south of East Mountain Street/West Market Street in Kernersville, Guilford County, North Carolina. TBP was previously delineated in 2008 to facilitate the construction/infrastructure of an approximate 127 acre portion of TBP with FedEx Ground, to provide infrastructure to the remaining approximate 5 acres of Phase I of TBP and to provide sanitary sewer/water services to Phase II of TBP. Drawing 1 shows the approximate locations of TBP (Phase I/II) and the proposed project area. USACE JDs were issued in conjunction with USACE approvals for the project areas as described below. Section 404/401 permit approvals associated with the construction of FedEx Ground and Phase I of TBP are described below and included as attachments in Appendix V:

- **SAW-2008-01894/DWQ # 08-0499 – Project Hermes (FedEx Ground)**

    - **Nationwide Permit 39 dated July 31, 2008**. The NWP 39 for Project Hermes (FedEx Ground) authorized the permanent impact to 0.22 acres of open waters, 0.19 acre of wetlands and 225 linear feet of stream channel. Mitigation was required for 0.19 acres of wetland impacts at a 1:1 ratio and 225 linear feet of stream channel at a 2:1 ratio.

    - **401 WQC and Major Variance Approval dated August 11, 2008.** The 401 WQC and Major Variance Approval for Project Hermes (FedEx Ground) authorized the permanent impact to 0.22 acres of open waters, 0.19 acres of wetlands, 255 linear feet of stream, 46,634 square feet of Zone 1 buffer impact and 23,954 square feet of Zone 2 buffer impact. Mitigation was required for 255 linear feet of stream and 70,588 square feet of riparian buffer.

      As a special condition of the 401 WQC and Major Variance approval, deed restrictions prohibiting the future impact of riparian buffers was required. According to a Declaration of Covenants and Restrictions, dated January 20, 2009, a legal description by metes and bounds of remaining riparian buffers and surface waters for Lot 4 of Triad Business Park, Phase I have been placed into restricted areas in which activities including but not limited to; fill, excavation, land disturbance, vegetation removal, construction of temporary/permanent structures, disruption or alteration of hydrology, etc. are prohibited. A copy of the Declaration of Covenant and Restrictions is included in Appendix V.

- **SAW-2008-02092 – Triad Business Park (Sewer Line)**

    - **Nationwide Permit 12 dated September 12, 2008.** The NWP for Triad Business Park (sewer line) authorized the temporary impact to 0.31 acres of wetlands and

125 linear feet of stream. Mitigation was required for 0.31 acres of wetland impact at a 2:1 ratio.

As a special condition of the NWP 12, the permittee was required to preserve and maintain all the jurisdictional waters/wetlands and a 30 foot buffer around all of the stream and pond features (conservation area), excluding the waters/wetlands at the Project Hermes (SAW-2008-01894) site. According to an Amendment to Declaration of Protective Covenants, Conditions, Restrictions and Reservations dated December 31, 2008, the remaining jurisdictional waters/wetlands located within TBP (with the exception of Lot 4), have been placed into conservations areas which activities including but not limited to; fill, excavation, land disturbance activities, vegetation removal, construction of temporary/permanent structures, disruption or alteration of hydrology, etc. are prohibited. A copy of the Amendment to Declaration of Covenants, Conditions, Restrictions and Reservations is included in Appendix V.

- **SAW-2008-01599 – NE Sewer Line Improvements, Phase I**

    - **Nationwide Permit 12 dated October 24, 2008.** The NWP for the NE Sewer Line Improvements, Phase I authorized the temporary impact to 0.19 acres of wetlands and 199 linear feet of streams. Mitigation was required for impacts to 0.13 acres of wetlands at a 2:1 ratio.

The above-referenced NWPs all contained remarks indicating that impacts to waters of the U.S. associated with the three above projects and all other proposed impacts to waters of the U.S. within or associated with TBP are considered a single and complete project as defined in the federal Code of Regulations (CFR) at 33 CFR 330.2(i).

Cumulative impacts to jurisdictional features are summarized in the below table:

Table 1. Previous Impacts to Waters of US and Riparian Buffers					
Project	**Open Waters (ac)**	**Wetlands (ac)**	**Stream (lf)**	**Zone 1 Buffer (sf)**	**Zone 2 Buffer (sf)**
Hermes FedEx Ground	**0.22**	**0.19**	**225-USACE 255-DWR**	**46,634**	**23,954**
TBP Sewer Line	**0**	**0.31***	**125***	**n/a**	**n/a**
NE Sewer Line	**0**	**0.19***	**199***	**n/a**	**n/a**

*denotes temporary impact n/a denotes information not available

3.0 EXISTING SITE CONDITIONS

3.1 Literature Review

PEI reviewed the USGS Topographic Map, USDA Web Soil Survey of Guilford County, last published USDA Soil Survey of Guilford County, USFWS NWI maps, FEMA FIRMs and the Geologic Map of North Carolina to determine information about TBP and the project area.

- The USGS Topographic Map (Drawing 2) shows an unnamed tributary to the West Fork Deep River within the proposed impact area. An unnamed pond is shown north of the project area. Drainage swales that could contain surface waters or wetlands are depicted southeast, southwest and west of the project area.

- The USDA Web Soil Survey of Guilford County (Drawing 3) shows a stream consistent with the unnamed tributary depicted on the USGS Topographic map located within the proposed project area. Soils within the proposed road crossing are mapped as:

  - Chewacla loam (ChA) – The Chewacla series consists of somewhat poorly drained, moderately permeable soils that occur on floodplains of the Piedmont and Coastal Plain river valleys.

  - Nathalie sandy loam (NaB) – The Nathalie series consists of well drained, moderately permeable soils that occur on hills and ridges of Piedmont uplands.

  - Poplar Forest sandy loam (PaC) and clay loam (PpD2 – The Poplar Forest series consists of well drained, moderately permeable soils that occur on gently sloping to steep Piedmont uplands.

  The Chewacla soil mapping unit (ChA) is identified on the 2014 National Hydric Soils List for Guilford County, North Carolina has having hydric inclusions of the un-drained Wehadkee component. The remainder of the soils located within the project area are not identified on the National Hydric Soils List for Guilford County, North Carolina.

- The last published USDA Soil Survey of Guilford County (Drawing 3A), shows an unnamed tributary to the West Fork Deep River within the project area. Other surface waters or wetlands are not shown within the project area. Additionally, intermittent streams are located southeast and southwest of the project area.

- The National Wetland Inventory Map (Drawing 4) does not identify surface waters or wetlands within the project area. A freshwater pond is located northeast of the project area. A freshwater pond and forested/shrub wetlands are shown southwest of the proposed road crossing.

- The FEMA FIRMs (Drawing 5) identify the project area and remainder of TBP as Zone X, an area outside the 500 year floodplain.

- The Geologic Map of North Carolina indicates that the site is located in the Carolina Slate Belt of the Piedmont Physiographic Province. In general, the soils encountered in this area are the residual product of in-place chemical weathering of rock underlying the site. Typically, shallow unconfined groundwater movement within soils is controlled largely by topographic gradients. Recharge occurs primarily by infiltration along higher elevations and typically discharges into streams or other surface water bodies. The elevation of the shallow water table is transient and can vary greatly with seasonal fluctuations in precipitation. Movement in this water table is generally from higher to lower elevations.

3.2 Site Reconnaissance

PEI has confirmed the locations of waters of the U.S., including wetlands, within the TBP as depicted on the Wetlands PLAT from previous site delineation/verifications previously conducted in 2008. PEI performed a delineation of jurisdictional waters within the project area during several site visits from April 2014 to May 2014. The project area consist of grass-covered fields and wooded land. Portions of the grass-covered fields include fill from the adjacent pond dam, located immediately north of the project area. Wooded areas consist of mixed hardwood species.

Based on the findings of the delineation, one perennial stream is located within the proposed area of impact. The stream contained a defined bed and banks, meanders, iron oxidizing bacteria and flowing water at the time of our site visits. Wetlands are located adjacent to the perennial stream within the project area. PEI flagged the centerline of the stream and boundary of the wetland during our site visits. The stream and wetland flags were verified in the field by Mr. David Bailey (USACE) and Ms. Sue Homewood (NCDENR-DWR) on May 15, 2014. Drawing 6 shows the approximate locations of the stream, wetlands, data point locations and our flag numbers within the proposed area of impact.

Phase I of TBP is located west of the project area. FedEx Ground, other industrial buildings and graded lots are located within the remainder of Phase I of TBP. Old Greensboro Road, a stormwater pond and graded Lots 2 and 3 are located within Phase II of TBP, immediately northwest and west of the project area. The remainder of Phase II of TBP consists of undeveloped overgrown/fallow agricultural fields and wooded land. With the exception of dilapidated structures, structures are not located within areas east of the project area in Phase II of TBP.

Several additional streams, wetlands and jurisdictional ponds are located within the remainder of Phase II of TBP. Impacts to these features are not anticipated. The remaining streams, wetlands and pond locations were confirmed by PEI and verified in the field by Mr. Bailey and

Ms. Homewood on May 15, 2014. A USACE Jurisdictional Determination, dated September 8, 2014 is included in Appendix V.

3.3 Streams

Phase II of TBP contains 9 streams. The streams have been classified as perennial and intermittent. Stream descriptions are included in Table 1 below.

Table 2: TBP Phase II Streams

Stream Identifier	Stream Classification	Approximate Length of Intermittent Stream (linear feet)	Approximate Length of Perennial Stream (linear feet)
SA	Perennial	0	1,423
SB	Intermittent	274	0
SC	Perennial	0	3,701
SCA	Intermittent	329	0
ISC	Intermittent	429	0
ISCA	Intermittent	66	0
ISD	Perennial	522	0
	Total:	**1,620**	**5,124**

Stream SA is located on the central portion of Phase II-TBP and is perennial throughout its entirety. It will not be impacted by the project. Stream SA originates at an approximate 20 foot head-cut. Stream SA contained flowing water and moderate substrate sorting and riffle/pool complexes. Stream SA discharges into Stream SC. Fringe wetland pockets (WA) are located adjacent to Stream SA.

Stream SB is located on the northeastern portion of TBP-Phase II and originates from an approximate four foot head cut. Stream SB leaves the site to the north and is presumed to be Steam SC as it re-enters the northern-central portion of the site. Stream SB did not contain flowing water or evidence of aquatic life. Stream SB contain a moderate bed and banks, meanders and substrate sorting. Stream SB will not be impacted by the proposed project.

Stream SC is a perennial stream that crosses the central portion of Phase II of TBP. The majority of Stream SC will not be impacted by the proposed project. Stream numbers SA, SB, ISC, ISCA, ISD, SF and SG are tributaries to Stream SC. Stream SC is presumed to originate as Stream SB on the northeastern portion of the site, leaves the site to the north, and re-enters the site boundary on the northern-central portion of the site. Stream 3 has a defined bed and banks, flowing water with a strong riffle pool sequence, strong substrate sorting ranging from

Stream SCA is an intermittent stream located on the northern portion of the site and will not be impacted by the proposed project. Stream SCA originates at an approximate one foot head cut. Stream SCA has a defined bed and banks, meanders and moderate substrate sorting.

Stream ISCA is located on the western portion of Phase II of TBP. Stream ISCA is an intermittent stream that will not be impacted by the project. The stream is relatively straight and portions contained a defined bed and banks and hydric soils. Flowing water was not observed in this stream.

Stream ISD is located on the western portion of Phase II of TBP and will not be impacted by the proposed project. Stream ISD contains a weakly defined bed and banks, meanders and hydric soils. Water was not observed in Stream ISD.

3.4 Wetlands

Descriptions of jurisdictional wetlands located on the site are included in Table 2.

Table 3: TBP Phase II Wetlands

Wetland ID	Approximate Acreage
WA	0.065
WPA	0.027
WC	8.850
WCA	0.040
Total:	**8.892**

A limited portion of Wetland WC is located within the proposed project area. The remainder of the wetlands located on the site are not proposed to be impacted. The wetlands located on the site are classified as broad-leaved deciduous forested palustrine using the Cowardian wetland classification system. The wetlands are separated from uplands by distinct breaks in topography, vegetation and/or soil. Upland areas surrounding wetland areas have bright soils that are well drained to depths of twelve inches and more below the ground surface.

The portion of Wetland WC that is proposed to be impacted contains drainage patterns, water stained leaves, hydric soils and limited areas of saturation. Vegetation, including sweet gum, black willow, green ash, beech, elm, silky dogwood, maple, sweet gum, cedar, American hornbeam, honeysuckle, common green-briar, iron weed, sedges and rush species is present in Wetland WC. Wetland Determination data forms are included in Appendix IV.

3.5 Open Waters

Descriptions of the jurisdictional ponds are shown in table below.

Table 3: TBP Phase II Open Waters	
Wetland ID	**Approximate Acreage**
PA	1.516
PB	2.020
Total:	**3.536**

Jurisdictional ponds are located north and west of the project area, within Phase II of TBP. The ponds have distinct ordinary high water marks. Stream SCA/Wetlands WCA discharge into Pond PA. Pond PA discharges to Wetland WPA and eventually the Stream SC/Wetland WC complex. The up-gradient portion of Pond PB is located on Lot 4 of Phase I of TBP. Two streams and a headwater wetland (located on Lot 4, Phase I of TBP) discharge into Pond PB. Pond PB discharges to Stream SF and eventually the Stream SC/Wetland WC complex on the southwestern portion of Phase II of TBP. The ponds exhibit physical hydrologic connections to up and down-gradient Waters of the US and are deemed jurisdictional by the USACE and NCDENR-DWR.

3.6 Watershed Classification

An unnamed tributary to the West Fork Deep River is located within the proposed project area. Additionally, unnamed ponds and other tributaries to the West Fork Deep River are located within Phase II of TBP. Phase II of TBP is located within the Randleman Lake Watershed of the Cape Fear River Basin and the West Fork Deep River has been classified as WS-IV* waters in the vicinity of the site. Surface waters, shown on the most recent version of the USGS Topographic Map and/or last published USDA Soil Survey, are subject to the Randleman Lake Water Supply Watershed: Protection and Maintenance of Existing Riparian Buffers (15A NCAC 02B .0250). Additionally, a minimum 100 foot vegetative buffer is required for all new development activities that exceed the low density option requirements as specified in Sub-Item (3)(b)(i)(A) or Sub-Item (3)(b)(ii)(A) of 15A NCAC 02B .0100, .0200 & .0300, otherwise a minimum 30 foot vegetative buffer for development shall be required along all perennial waters indicated on the most recent versions of U.S.G.S. 1:24,000 (7.5 minute) scale topographic maps or as determined by local government studies.

3.7 Vegetation

The project area that will be altered by the proposed project contains undeveloped, wooded land and grass-covered fields. The grass-covered fields have been altered due to clearing/grading associated with the construction of a pond, stormwater pond and other previous infrastructure in TBP. The cleared/graded land, within the proposed project limits, consists of mixed grass and weed species that is regularly maintained by extensive mowing and herbicide applications. The area of impact within the previously cleared/graded area includes the following species: Fescue-Kentucky 31 (*Schedonorus arundinaceus*), Meadow Fescue (*Schedonorus pratensis*), Bermudagrass (*cynodon dactylon*), Bahiagrass (*Papsalum notatum*), Crabgrass (*Digitaria sp.*), Common Dandelion (T*araxacum officinale*), Broomsedge (*Andropogon virginicus*), White Clover (*Trifolium repens*), Horsenettle (*Solanum carolinense*), Horseweed (*Conyza canadensis*), Common Ragweed (*Ambrosia artemisiifolia*), Wild Garlic (A*llium canadense*), common lespedeza (*Lespedeza cuneata*) and wild pear (*Pyrus communis*).

The wooded land, located within the upland areas of impact, contains mixed hardwood species including various oak, hickory, beech, elm, cedar and gum and maple species within the tree/sapling stratum. Understory vegetation includes Christmas fern, Japanese honeysuckle (*Lonicera japonica*), green briar (*smilax rotundifolia*), muscadine grape (*Vitus rotundifolia*), Virginia creeper (*Parthenocissus quinquefolia*) and ebony spleenwort (*Asplenium platyneuron*).

The wooded land, located within the jurisdictional areas of impact contain include the following species:

Table 4: Vegetation		
Species	Stratum	Wetland Indicator
Liriodendron tulipifera Tulip poplar	Canopy/Understory Tree/Sap	FAC
Fraxinus pennsylvanica Green ash	Canopy/Understory Tree/Sap	FACW
Carpinus caroliniana American Hornbeam	Canopy/Understory Tree/Sap	FAC
Cornus amomum Silky Dogwood	Midstroy/Understory Tree/Sap	FACW
Salix nigra Black Willow	Midstory/Understory Tree/Sap	OBL
Lonicera japonica Japanese Honeysuckle	Midstory/Understory Vine/Herb	FAC
Vitus rotundifolia Muscadine grape	Midstory/Understory Vine/Herb	FAC
Toxicodendron radicans Poison Ivy	Understory Vine/Herb	FAC
Vernonia gigantea Ironweed	Understory Sap/Herb	FAC
Juncus effusus Common Rush	Understory Herb	FACW
Carex intumescens Bladder Sedge	Understory Herb	FACW
Smilax rotundifolia Green Briar	Understory Vine/Herb	FAC
Woodwardia aerolata Netted Chain Fern	Understory Herb	OBL
Boehmeria cylindrica False Nettle	Understory Herb	FACW

3.8 Cultural Resources

PEI reviewed the N.C. State Historic Preservation Office (SHPO) Web GIS Service map of registered and eligible historic properties (Drawing 7) and the North Carolina Listings in the National Register of Historic Places, dated July 20, 2010. The North Carolina list and/or the map does not identify registered or eligible historic properties within the proposed project area, Phase II of TBP or vicinity of Phase II of TBP.

The portion of the site that will be altered by the proposed project contains undeveloped, wooded land and previously disturbed cleared/graded land. Therefore, it is our opinion that the proposed project will not cause impact to historic properties.

3.9 Biological Resources/Endangered Species

PEI reviewed the U.S. Fish and Wildlife Service List of Federally Protected Threatened and Endangered Species for Guilford County, dated March 25, 2015 to obtain information regarding federally listed protected, threatened, and endangered species that could be located within the proposed project area.

The following species were identified on the U.S. Fish and Wildlife List:

Bald Eagle (*Haliaeetus leucocephalus*) – The Bald Eagle is a regulated species under the Bald and Golden Eagle Protection Act (BGPA). Bald Eagles were removed from the federal list of threatened and endangered species on August 9, 2007, and are no longer protected under the Endangered Species Act. However, Bald Eagles remain protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The Bald and Golden Eagle Act prohibits anyone from taking, possessing, or transporting a Bald Eagle (*Haliaeetus leucocephalus*) or Golden Eagle (*Aquila chrysaetos*), or the parts, nests, or eggs of such birds without prior authorization. This includes inactive nests as well as active nests. Take means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb. Activities that directly or indirectly lead to take are prohibited without a permit.

Bald eagles generally nest near coastlines, rivers, large lakes or streams that support an adequate food supply. They often nest in mature or old-growth trees; snags (dead trees); cliffs; rock promontories; rarely on the ground; and with increasing frequency on human-made structures such as power poles and communication towers. In forested areas, bald eagles often select the tallest trees with limbs strong enough to support a nest that can weigh more than 1,000 pounds. Nest sites typically include at least one perch with a clear view of the water where the eagles usually forage. Shoreline trees or snags located near reservoirs provide the visibility and accessibility needed to locate aquatic prey. Eagle nests are constructed with large sticks, and may be lined with moss, grass, plant stalks, lichens, seaweed, or sod. Nests are usually about 4-6 feet in diameter and 3 feet deep, although larger nests exist.

Water bodies of significant size that could provide foraging habitat for the Bald Eagle are not located with the proposed project area. Therefore, it is our opinion that the proposed project will not disturb the Bald Eagle.

Small Whorled Pogonia (*Isotria medeoloides*) – The small-whorled pogonia is identified as a federally listed threatened species in Guilford County. It has a greenish-white stem that grows between 3 – 13 inches tall. It gets its common name from the five or six grayish-green leaves that

are displayed in a single whorl around the stem. When the leaves are well developed, a single flower or sometimes a flower pair rises from the center of the circle of leaves. The flowers are yellowish-green with a greenish-white lip. Each flower has three sepals of equal length that spread outward. The flowers are scentless, lack nectar, and are primarily self-pollinating. It produces fruit which ripens in the fall. The seeds contain very little food reserves and therefore need to fall on soil containing mycorrhizal fungi in order for the seed to germinate and seedlings to become established. An over-wintering vegetative bud may form in late August or September. Occasionally small whorled pogonia will reproduce vegetatively, without the use of seeds.

Small whorled pogonia can be limited by shade. The species seems to require small light gaps, or canopy breaks, and generally grows in areas with sparse to moderate ground cover. Too many other plants in an area can be harmful to this plant. This orchid typically grows under canopies that are relatively open or near features that create long-persisting breaks in the forest canopy such as a road or a stream. It grows in mixed-deciduous or mixed-deciduous/coniferous forests that are generally in second- or third-growth successional stages. The soils in which it lives are usually acidic, moist, and have very few nutrients.

The project area consists of grass covered fields and wooded land. The wooded land consists of mixed hardwood species with a moderate to dense tree/sapling canopy. Canopy breaks are not located within the wooded land. Therefore, based on our field observations, suitable habitat for small-whorled pogonia is not present within the proposed impact area and the proposed project will not adversely affect the small-whorled pogonia.

4.0 PROJECT CONSTRUCTION

The proposed installation of the proposed road, within the impact area, will be completed in the following sequence:

- Survey disturbance limits and mark with high visibility fencing
- Install temporary/permanent sediment control devices
    - Construct permanent wet detention pond that will serve as temporary device
    - Install temporary measure including silt fencing
- Clear and grub
- Install coffer dams/pump around system
    - Construct coffer dams
    - Install pump around
- Begin placement of fill
- Install culvert
- Remove coffer dams/pump around system
    - Restore stream bank to similar pre-construction conditions
    - Place stabilization matting/live stakes and seed
- Construct retaining walls
- Continue to fill to final grade
- Install roadway storm drainage and utilities
- Seed per NCDENR requirements
- Fine grade road
- Place stone on road bed
- Install curb and gutter
- Pave road bed
- Construct shoulders
- Seed per NCDENR requirements
- Following all disturbed areas are stabilized
    - Remove temporary erosion and sediment control devices
    - Seed temporary device areas
    - Convert temporary wet detention pond into permanent wet detention pond
    - Remove sediment and skimmer

The sequence of construction phases has been designed to minimize areas of exposed/bare soil. During construction, erosion control measures will be routinely inspected and maintained as needed to prevent erosion and capture sediments. Disturbed areas will be immediately re-seeded to prevent erosion and sedimentation runoff into streams. Stockpiling excavated soil will be avoided where possible. If temporary stock piling is necessary, it will be bermed with bales of hay and or covered to prevent excessive run-off. Erosion control inspections will be scheduled with the Land Quality Section as necessary. A stormwater management plan will be submitted separate from this application to the NCDENR or an NCDENR approved local municipality.

5.0 ALTERNATIVES TO THE PROPOSED ACTION

The applicant has completed an extensive alternatives analysis in the attempt to determine the most plausible preferred alternative with a minimal impact to the environment. The applicant began its alternatives analysis prior to development of Phase I of TBP in 2008. The below off and on-site alternatives identifies the applicant's need, how alternatives to the proposed action affect those needs, any major direct environmental consequences and discussion of practicality, from an economically viable stand-point for each alternative.

Off-Site No Build Alternative – Bunker Hill Road Access

Under the no build/no crossing scenario for Old Greensboro Road, not providing the creek crossing demands that all industrial park traffic required to access Phase 2 of Triad Business Park be directed to existing W. Market Street and Bunker Hill Road to provide industrial grade access for all truck and employee activity and traffic to the property. Under a no creek crossing/no build scenario, the design would effectively require the industrial development's traffic to move off site, off of the industrial park's property, onto existing W. Market Street and existing Bunker Hill Road, potentially crossing the railroad mainline twice, resulting in a dramatic negative impact to the surrounding road infrastructure, compromising the safety of the vehicle occupants in the area and increasing the overall environmental impact of the industrial park development.

Moving traffic from Old Greensboro Road, out to West Market Street and then to Bunker Hill Road to provide access to Phase 2 of Triad Business Park dramatically impacts the level of service of the surrounding intersections at Triad Business Park. The capacity analysis around the site, completed by Davenport Transportation Consultants, found that the lack of the crossing installed for Old Greensboro Road Extension resulted in the following service level declines for the three main intersections surrounding Triad Business Park:

- W. Market St at Bunker Hill Road goes from a Level C intersection down to a Level E (unstable flow, operating at capacity)
- W. Market St at Business Park Drive goes from a Level D intersection down to a Level E (unstable flow, operating at capacity)
- W. Market St and Macy Grove Ramps goes from a Level B intersection down to a Level C

In the No Build scenario, the majority of site traffic from the eastern portion of the industrial park will be required to travel through the intersection of Market Street and Bunker Hill Road. This intersection is anticipated to operate at an unacceptable level of service. Less traffic on the offsite roadways (W. Market St, Bunker Hill Road, Macy Grove) results in improved level of service for the affected intersections. Overall truck traffic on all of the off-site roadways will be dramatically increased with the no build scenario of Old Greensboro Road.

The frequency of accidents generally increases with the amount of miles traveled and time spent per trip. In addition, vehicle/rail accident frequency is directly correlated with at-grade railroad crossings. As the number of crossings are increased, the number of rail related vehicle accidents are increased. By reducing the travel time and the distance site traffic is required to go, effectively the frequency and probability of accidents will also be reduced. By reducing interactions between vehicles and at-grade railroad crossings, potential vehicle/rail related accidents will go down. Under the no build scenario, vehicle crossings over two at-grade rail crossings surrounding Triad Business Park will increase. The at-grade crossing on Triad Business Park Drive will increase as well as the at-grade crossing on Bunker Hill Road will increase.

Under the no-build scenario, truck and vehicular traffic coming from the I-40/Macy Grove Interchange into the business park will be forced to cross the Norfolk Southern Mainline railroad track at least once, if not twice, before arriving at their destination in Phase 2 of Triad Business Park. With the Old Greensboro Road creek crossing in place, all traffic could reach the entirety of the business park without crossing the railroad at all. Under the no build scenario park traffic would potentially have to cross the railroad over the at-grade crossing on Triad Business Park Drive as well as over the at-grade crossing on South Bunker Hill Road. As the number of at-grade railroad crossings increase, the frequency and potential of vehicular/railroad accidents increase. Under the no-build scenario we would be increasing that frequency and increasing the interaction between all vehicles and the railroad tracks. Under any of the crossing scenarios we can eliminate the need for any railroad at-grade crossing trips to access Interstate 40 from all of Triad Business Park, Phase 1 and Phase 2.

Under the no build scenario, site traffic will travel an additional distance of approximately 1.25 miles as compared to any of the crossing scenarios. Also, based upon Davenport Transportation's Analysis, site traffic will have approximately six minutes of additional travel time incorporated into each trip under the no build scenario as opposed to any of the crossing scenarios. Approximately 480 PM peak hour trips would be subject to this additional travel time and distance. Also, the safety of the surrounding intersection can be improved with better level of service and operation installing the Old Greensboro Road extension across the creek, as opposed to the no-build scenario. The extension of Old Greensboro Road is anticipated to improve the operation of several offsite intersections. The improved operation will enhance the safety of these intersections. This increased travel time and travel distance increases the potential and likelihood of traffic accidents and operator safety.

Finally, with increased travel distances, increased travel time, longer waits interfacing with at-grade railroad crossings and poorer level of service operations at surrounding intersections, under the no-build scenario, emissions from all traffic to and from the industrial park would dramatically increase. These increased emissions from longer travel distances, travel times and delays negatively impact the environment in a much greater way than any of the proposed creek crossings. The emission impact is perpetual and difficult to quantify as traffic is expected to increase both in the park and along the railroad. Any effort to reduce travel times, travel

distances and overall traffic delays will only work to reduce emissions and their long term associated environmental impact.

On-Site No Build Alternative – Bridge Crossing Design

A cost analysis was performed to construct a bridge crossing to eliminate impact to streams and wetlands (attached). According to the cost analysis, the cost of constructing the bridge crossing is over one million dollars more than the preferred on-site alternative. Therefore, this alternative was not further evaluated as a viable and economical option for access to Phase II of TBP.

On-Site Alternative Crossing Location 1 (Alternative Exhibits 1A)

Exhibit 1 shows a costly approach to installing the infrastructure, only for the simple cost of the road and associated utility lines, but also from an industrial development stand point of each individual lot inside the industrial park. The design creates 11 potential developable industrial lots in Phase 2 of Triad Business Park, but access to lots 5, 6 and 7 being provided by a secondary road crossing the creek at the optimal location pinches Lot 5 and Lot 11. This narrowing effect on Lot 5 and Lot 11 exacerbates the topography on site, making the site very difficult to develop for industrial purposes as the topography dictates that much grading, retain wall and site work would need to occur to allow a large enough building pad area for typical industrial development. Exhibit 1 does preserve the integrity of the development of phase 1 of Triad Business Park and has no detrimental impact to the first phase of the industrial park. The impacts to the creek, by having to cross the creek with an industrial road twice significantly increases the amount of impact to the stream and therefore also increases the cost to develop the industrial park, creating inferior lots, especially for Lot 5 and Lot 11.

On-Site Alternative Crossing Location 2 (Alternative Exhibits 2A) – Preferred Alternative

Exhibit 2 shows a less costly approach to installing the infrastructure, only crossing the creek one time, yet still providing adequate access to a total of 11 developable industrial lots. The access to lots 5, 6 and 7 can be designed to accommodate allocating more space to Lot 5 and to Lot 11 to provide opportunity to soften the impact of the topographical challenges on site, providing higher ground on site to help offset some of the mass grading operations that will need to occur to make Lot 5 and Lot 11 efficiently developable. Also, this plan allows the buffer protection around Area SA to be protected by running the infrastructure parallel with this feature and not attempting to cross it. Lots 8, 9, 10, and 11 all have adequate access off of the main road, without additional creek impacts and all are adequately spaced and allocated for typical industrial development. Exhibit 2 does preserve the integrity of the development of phase 1 of Triad Business Park and has no detrimental impact to the first phase of the industrial park. Exhibit 2, of the constructed alternatives, with a head wall on each end of the creek crossing structure provides the least impact to the creek and wetlands.

On-Site Alternative Crossing Location 3 (Alternative Exhibits 3A)

Exhibit 3 shows a less costly approach to installing the infrastructure, only crossing the creek one time, yet exhibit 3, as shown, severely impacts the development and access of 11 developable industrial lots. Essentially, Lot 3 is divided in half to allow the new road to pass through it for the creek crossing. Lot 3 is a graded, shovel ready pad site, where more than $1,500,000 has been invested installing storm water collection and retention on site, earthwork to accommodate a 350,000 SF building, utility work installed to the future building pad and all other accommodates to create a pad ready site. This $1,500,000 investment into Lot 3 would have to be abandoned to accommodate the infrastructure extension as shown in Exhibit 3. In addition, dividing Lot 3 into two smaller lots, not only requires the abandonment of the $1,500,000 invested in the site to date, but also creates two smaller, less developable lots, new Lot 3 and new Lot 11 as shown on the exhibit. Both new Lot 3 and Lot 11 are damaged from a development capability standpoint as the road pinches the available acreage for development. Also, this infrastructure design, as shown in Exhibit 3 creates an odd shape for Lot 5. This triangular shape diminishes land utilization rates as most industrial buildings are rectangular in shape. Placing a rectangular building on a triangular shaped lot requires more acreage to serve the same building size, as compared to rectangular shaped lots accommodating rectangular shaped buildings.

Based on the infrastructure design as shown in Exhibit 3, Lot 3, Lot 5 and Lot 11 are severely negatively impacted by the proposed road route and design. All three of these damaged lots are either extremely inefficient from a land utilization standpoint or they are oddly shaped, not conducive to industrial development. The average price for an industrial lot in Triad Business Park to date has been approximately $800,000. The reduction or loss of one developable lot for the plan as shown on Exhibit 3 is a potential $800,000 loss to the development potential of phase 2 of Triad Business Park. With Lot 3, Lot 5 and Lot 11 all in question due to this plan, plus the addition of the abandonment of the existing investment in Lot 3, the infrastructure design as shown in Exhibit 3 would create the potential loss of more than $2,000,000 in addition to the cost of the infrastructure that would be needed to be installed in accordance with the plan as shown. Exhibit 3 is an extremely costly approach to providing infrastructure to Phase 2 of Triad Business Park.

6.0 PROPOSED IMPACTS

Construction of the proposed project will require impacts to a perennial stream, wetlands and vegetative buffers. The unavoidable impacts to jurisdictional features are included in Tables 4, 5 and 6.

Table 5: Proposed Stream Impacts			
Stream	**Classification**	**Permanent Impact (LF)**	**Temporary Impact (LF)**
WC	**Perennial**	**190**	**45**
Total Mitigable Impacts:		**190**	**0**

Table 6: Proposed Wetland Impacts			
Stream	**Classification**	**Permanent Impact (Ac)**	**Temporary Impact (Ac)**
WC	**Bottomland Hardwood Forest**	**0.59**	**0.06**
Total Mitigable Impacts:		**0.59**	**0**

Table 7: Proposed Buffer Impacts			
Stream	**Classification**	**Zone 1 (SF)**	**Zone 2(SF)**
SC	**Randleman**	**18,296**	**10,455**
Total Mitigable Impacts:		**18,296**	**10,455**

Unavoidable impacts to surface water riparian buffers are being requested to be impacted in a letter of No Practical Alternatives submitted to the City of Kernersville simultaneously with this application.

7.0 AVOIDANCE AND MINIMIZATION

During design of the proposed project, the applicant evaluated three proposed interior crossing locations. Impacts to streams, wetlands and buffers from the evaluated crossing alternatives are shown below:

Table 8: Interior Crossing Impact Analysis

Alternative Crossing Designation	Permanent Impacts				Estimated Cost of Construction ($)
	Stream (LF)	Wetlands (Ac)	Riparian Buffer (SF)		
			Zone 1	Zone 2	
EXH-1A	**555**	**0.69**	**44,432**	**22,652**	**3,181,894.44**
***EXH-2A**	**190**	**0.59**	**18,296**	**10,455**	**2,718,074.85**
EXH-2A	**278**	**0.68**	**19,856**	**9,960**	**2,669,400.21**
EXH-3A	**174**	**0.85**	**19,602**	**11,762**	**2,770,746.71**

*Preferred Alternative Using Retaining Walls

The preferred alternative was determined to be the least practical damaging alternative to the environment while still meeting the applicant's purpose and need. The preferred alternative has far less negative impact to wetlands and riparian buffers than other considered alternatives. Likewise, the preferred alternative has significantly less impact to streams than alternatives EXH-1A and EXH-2A (w/o retaining walls). Alternative EXH-3A impacts 16 linear feet less than the preferred alternative; however, impacts 0.26 more acres of wetlands and impacts 2,613 square feet of cumulative Zone 1 and 2 buffer impacts.

Additionally, the applicant has incorporated the use of retaining walls at significantly increased construction costs in efforts to further minimize the impact to the environment and jurisdictional features. Approximate 12 feet tall retaining walls that will act as head/end walls are proposed to be constructed up and down-gradient of the proposed crossing location. The retaining wall on the up-gradient end of the crossing is approximately 65 feet long and the retaining wall on the down-gradient end of the crossing is approximately 85 feet long. The use of the retaining walls has further reduced the amount of impact of the preferred alternative by 88 linear feet of stream channel and 0.09 acres of wetlands.

The applicant has conceptualized locations of proposed lots and shown designs for infrastructure, including roads and utilities to the lots without additional impact to jurisdictional features. Proposed lot boundaries have been designed based on locations of jurisdictional features; whereas, jurisdictional features serve as lot boundaries and/or are located in proximity to lot boundaries to the maximum extent possible in efforts to reduce the potential for future impacts to jurisdictional features associated with individual lot construction and full build out of Phase II of TBP.

The sequence of construction phases has been designed to minimize areas of exposed/bare soil. During construction, erosion control measures will be routinely inspected and maintained as needed to prevent erosion and capture sediments. Disturbed areas will be immediately re-seeded to prevent erosion and sedimentation runoff into streams. Stockpiling excavated soil will be avoided where possible. If temporary stock-piling is necessary, it will be bermed with bales of hay and or covered to prevent excessive run-off. Erosion control inspections will be scheduled with the Land Quality Section as necessary. A stormwater management plan will be submitted separate from this application to the NCDENR or an NCDENR approved local municipality.

There are approximately 5,124 linear feet of perennial stream channel, 1,620 linear feet of intermittent steam channel, 8.892 acres of wetlands and 3.356 acres of jurisdictional open waters (ponds) located with Phase II of TBP. Impacts to 4,934 linear feet of perennial stream channel, 1,620 linear feet of intermittent stream channel, 8.33 acres of wetlands and 3.356 acres of jurisdictional open waters (ponds) has been avoided. The project as proposed allows for the future development of Phase II of TBP to occur in upland areas with no impact to jurisdictional features and/or the environment. Additional impacts to jurisdictional features beyond those that are proposed in this project are not anticipated.

8.0 PROPOSED MITIGATION

The applicant has shown an attempt to avoid and minimize where possible and will compensate to the extent practicable, for remaining unavoidable losses with mitigation. The proposed project will impact 190 linear feet of mitigable stream channel, 0.59 acres of mitigable wetland impacts, 18,296 square feet of Zone 1 buffer and 10,455 square feet of Zone 2 buffer. The application proposed the following mitigation for the unavoidable impact to mitigable features below:

Table 9: Proposed Mitigation and Required Credits

Impact Feature	Impact Amount	Proposed Mitigation Ratio	Required Credits
Streams	**190 LF**	**2:1**	**380 LF**
Wetlands	**0.59 Ac**	**2:1**	**1.18 Ac**
Zone 1 Buffer	**18,296 SF**	**3:1**	**54,888 SF**
Zone 2 Buffer	**10,455 SF**	**1.5:1**	**15,683 SF**

The applicant proposes to compensate for impacts for the construction of the proposed project by offering payment into the NCDENR-Division of Mitigation Services (NCDNER-DMS) and/or private mitigation banks. Private mitigation banks, in the watershed of the proposed project, do not have credits available at this time. According to an April 23, 2015 letter issued by the NCDENR-DMS, the required mitigation credits are available. A copy of the letter is included in Appendix XII. At the ratios proposed, the applicant will receive credits, which will meet and/or exceed mitigation payment requirements.

9.0 CORRESPONDENCE/REFERENCES

USGS Topographic Map, Kernersville North Carolina Quadrangle dated 1969 revised 1994.

North Carolina Geological Survey Geologic Map of North Carolina dated 1985.

Guilford County Hydric Soils List, provided by the USDA Natural Resources Conservation Service http://soils.usda.gov/use/hydric/

U.S. Department of Agriculture, Natural Resources Conservation Service Web Soil Survey of Guilford County, http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

U.S. Department of Agriculture, Natural Resources Conservation Service Soil Survey, Published 1977, Sheet No. 19

Federal Emergency Management Act Flood Insurance Rate Map Numbers 3710689600K, 3710689500K, 3710780600 and 3710780500J

U.S. Fish and Wildlife Service National Wetland Inventory Maps
http://www.fws.gov/wetlands/Data/Mapper.html

North Carolina State Historic Preservation Office, Listings in the National Register of Historic Places http://www.hpo.ncdcr.gov/NR-PDFs.html

North Carolina State Historic Preservation Office, Web GIS Service
http://gis.ncdcr.gov/hpoweb/

U.S. Fish and Wildlife, List of Threatened and Endangered Species in Guilford County, Dated March 25, 2015
http://www.fws.gov/raleigh/species/cntylist/guilford.html

10.0 APPENDICES

Appendix 1

Drawing 1 – Site Vicinity Map

Drawing 2 – USGS Topographic Map

Drawing 3 – Soil Survey Map

Drawing 3A – Last Published Soil Survey Map

Drawing 4 – National Wetlands Inventory Map

Drawing 5 – FEMA FIRM Map

Drawing 6 – Project Area Delineation Map

Drawing 7 – SHPO Web GIS Service Map

Appendix II – Stream/Wetland Impact Exhibits

Appendix III – Stream Evaluation Forms

Appendix IV – Wetland Determination Data Forms

Appendix V – USACE JD Dated September 9, 2014

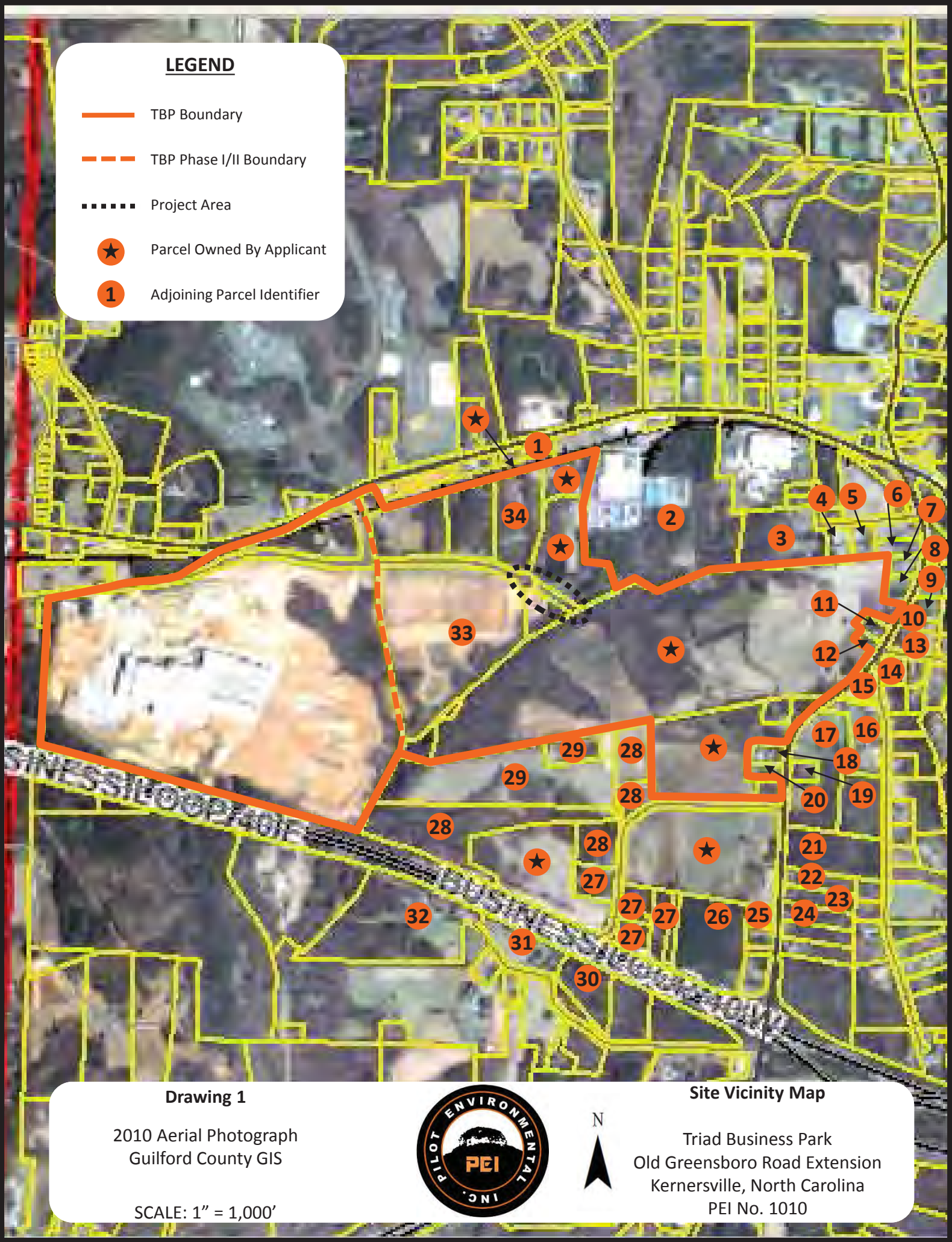
Appendix VI - Previous Permit Approvals

Appendix VII – Alternative Analysis Supplemental Information

Appendix VIII – NCDENR-DMS Letter dated April 23, 2015

APPENDIX I

DRAWINGS



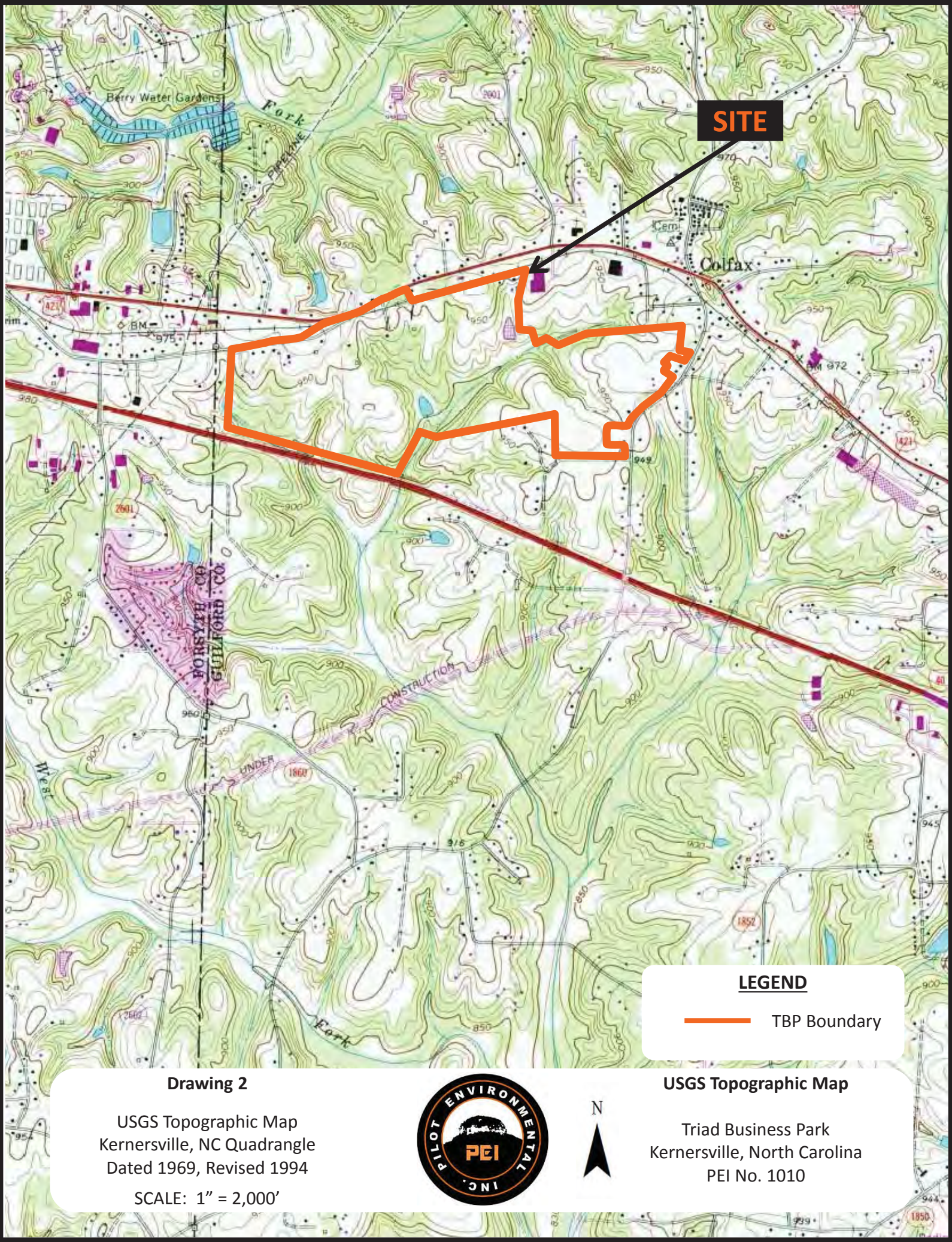
Drawing 1

2010 Aerial Photograph
Guilford County GIS

SCALE: 1" = 1,000'

Site Vicinity Map

Triad Business Park
Old Greensboro Road Extension
Kernersville, North Carolina
PEI No. 1010



Drawing 2

USGS Topographic Map
Kernersville, NC Quadrangle
Dated 1969, Revised 1994

SCALE: 1" = 2,000'

PILOT ENVIRONMENTAL INC. PEI

N

USGS Topographic Map

Triad Business Park
Kernersville, North Carolina
PEI No. 1010

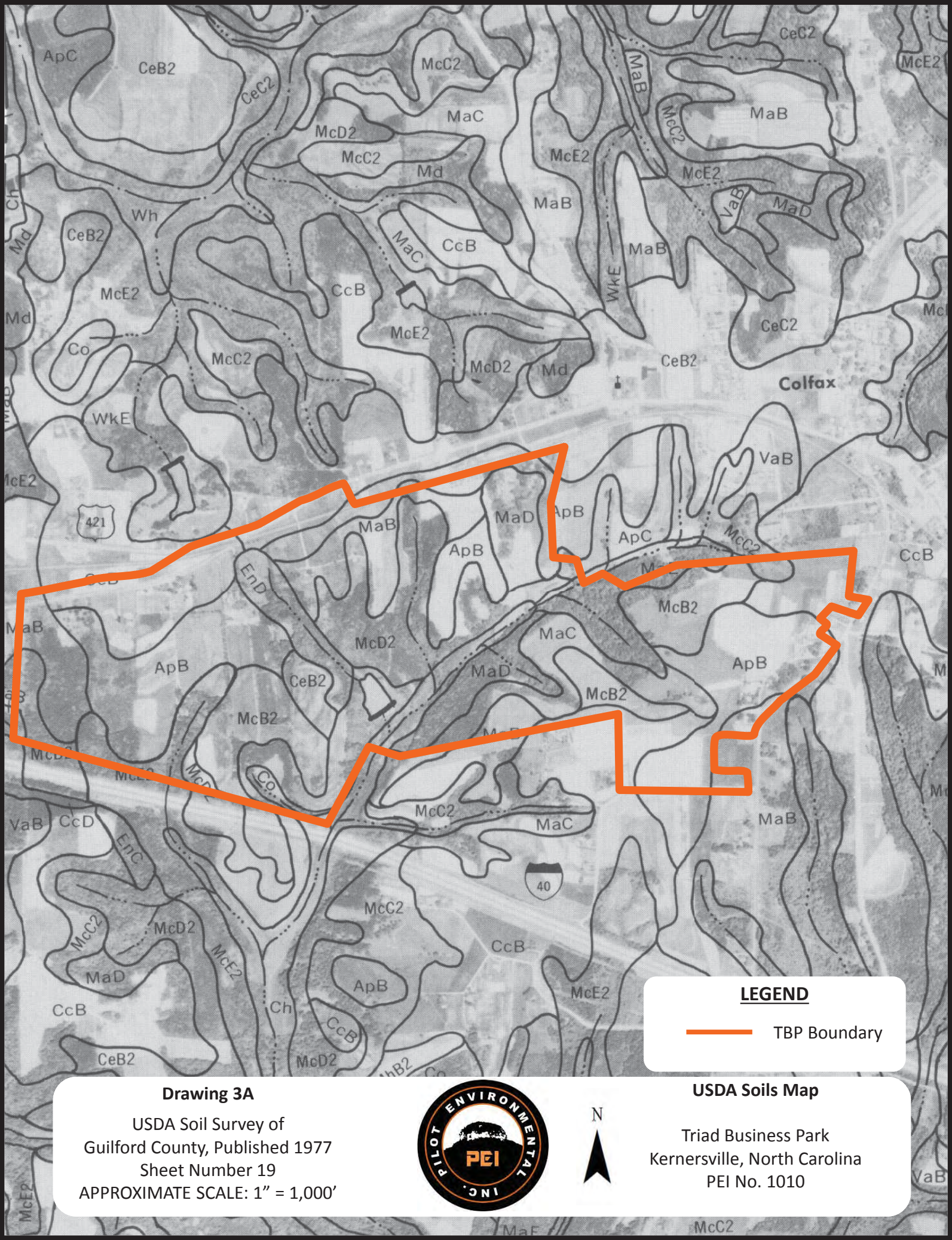
Drawing 3

USDA Web Soil Survey
Of Guilford County

APPROXIMATE SCALE: 1" = 1,000'

USDA Soils Map

Triad Business Park
Kernersville, North Carolina
PEI No. 1010



LEGEND

TBP Boundary

Drawing 3A

USDA Soil Survey of
Guilford County, Published 1977
Sheet Number 19
APPROXIMATE SCALE: 1" = 1,000'

PILOT ENVIRONMENTAL INC. PEI

N

USDA Soils Map

Triad Business Park
Kernersville, North Carolina
PEI No. 1010

Drawing 4

USFWS NWI
Wetlands Mapper

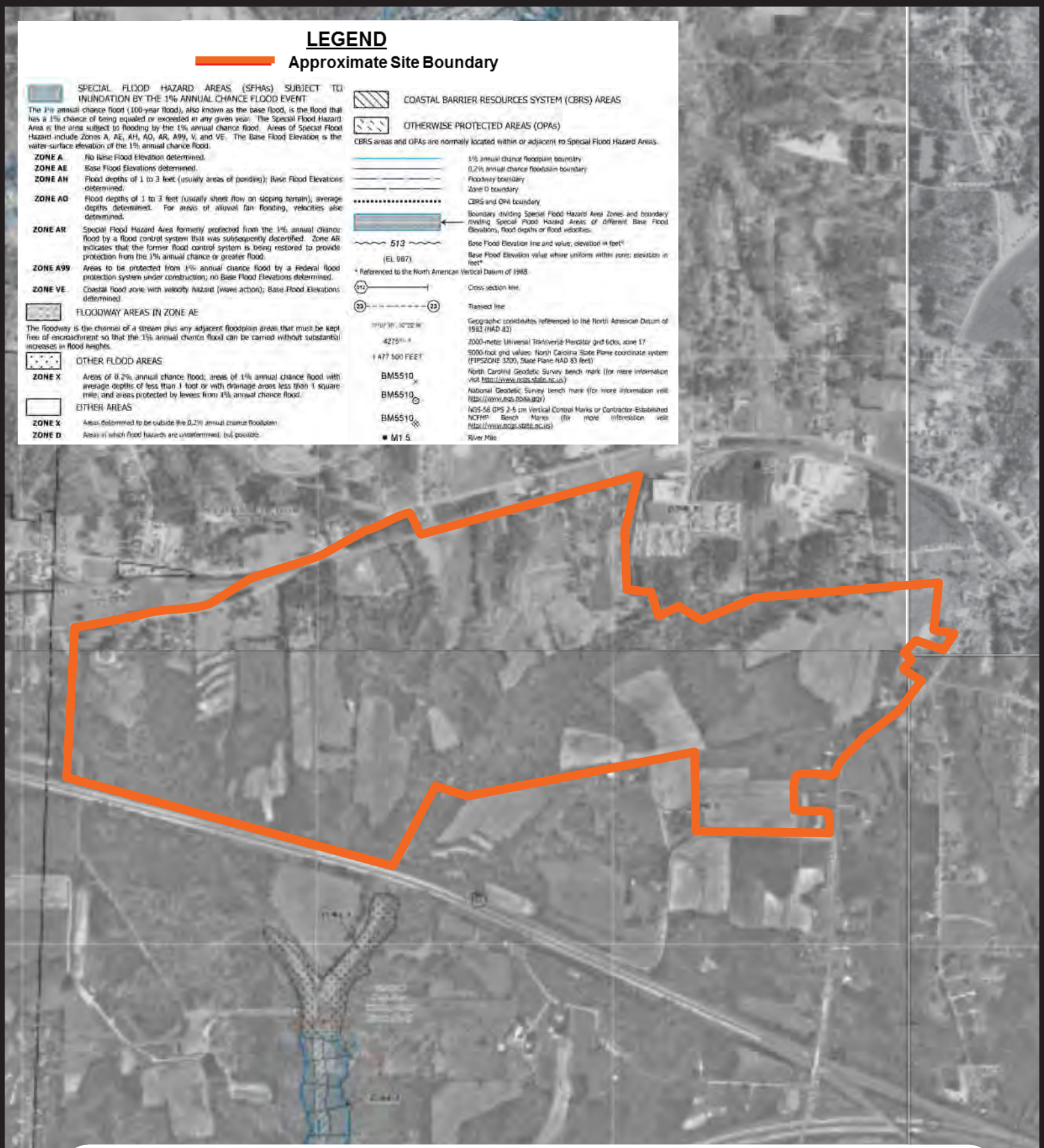
NOT TO SCALE

PILOT ENVIRONMENTAL INC. PEI

N

NWI Map

Triad Business Park
Kernersville, North Carolina
PEI No. 1010



Drawing 5

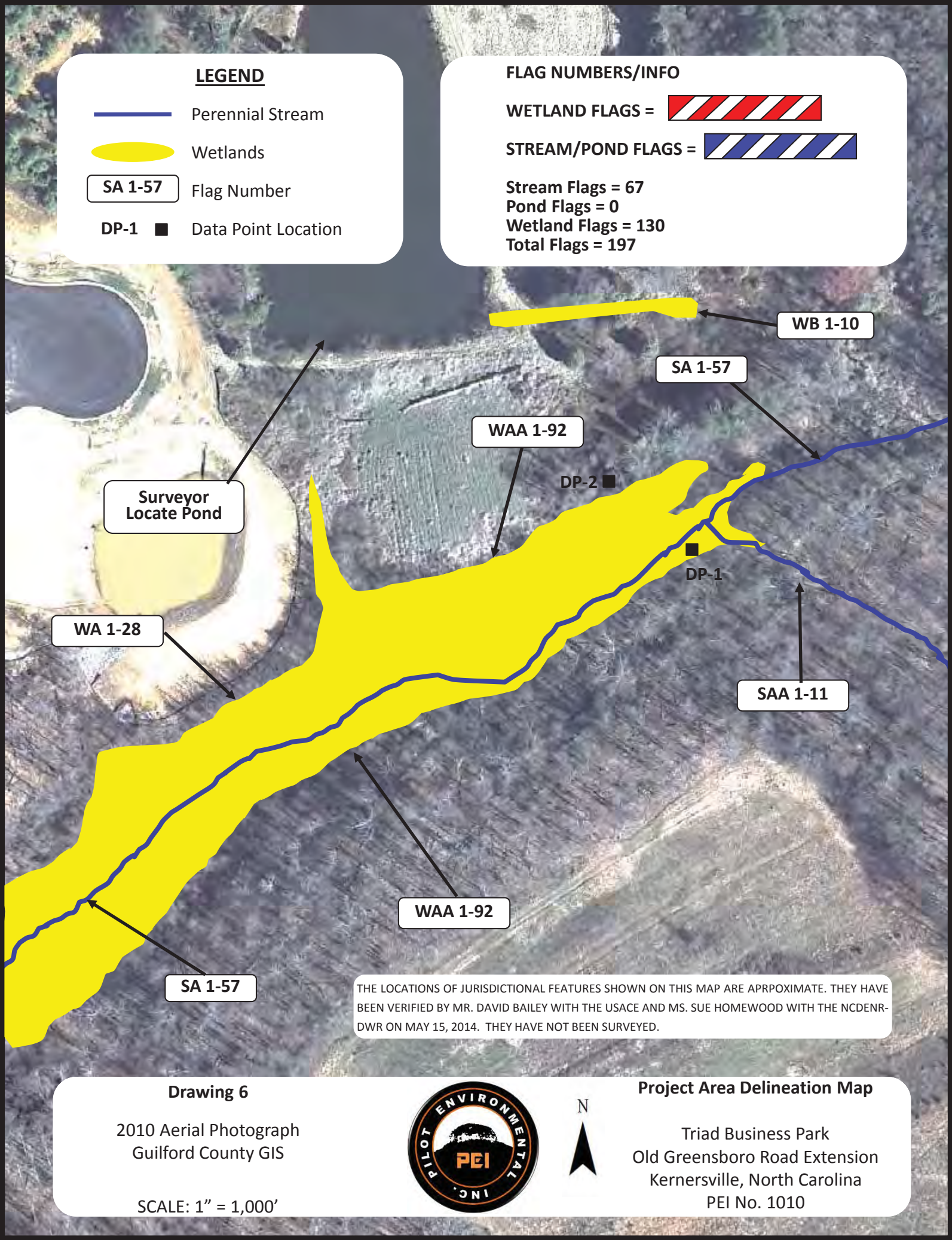
FEMA FIRM Panel Numbers 3710689600K, 3710689500K, 3710780600 & 3710780500J
NOT TO SCALE

PILOT ENVIRONMENTAL INC. PEI

N

FEMA FIRM

Triad Business Park
Kernersville, North Carolina
PEI No. 1010


LEGEND
Perennial Stream
Wetlands
SA 1-57
Flag Number
DP-1
Data Point Location
FLAG NUMBERS/INFO
WETLAND FLAGS =
STREAM/POND FLAGS =
Stream Flags = 67
Pond Flags = 0
Wetland Flags = 130
Total Flags = 197
WB 1-10
SA 1-57
WAA 1-92
DP-2
Surveyor Locate Pond
DP-1
WA 1-28
SAA 1-11
WAA 1-92
SA 1-57
THE LOCATIONS OF JURISDICTIONAL FEATURES SHOWN ON THIS MAP ARE APRPOXIMATE. THEY HAVE BEEN VERIFIED BY MR. DAVID BAILEY WITH THE USACE AND MS. SUE HOMEWOOD WITH THE NCDENR-DWR ON MAY 15, 2014. THEY HAVE NOT BEEN SURVEYED.
Drawing 6
2010 Aerial Photograph
Guilford County GIS
SCALE: 1" = 1,000'
PEI
PILOT ENVIRONMENTAL INC.
N
Project Area Delineation Map
Triad Business Park
Old Greensboro Road Extension
Kernersville, North Carolina
PEI No. 1010

Drawing 7

N.C. SHPO HPO GIS Website

Not to Scale

PILOT ENVIRONMENTAL INC. PEI

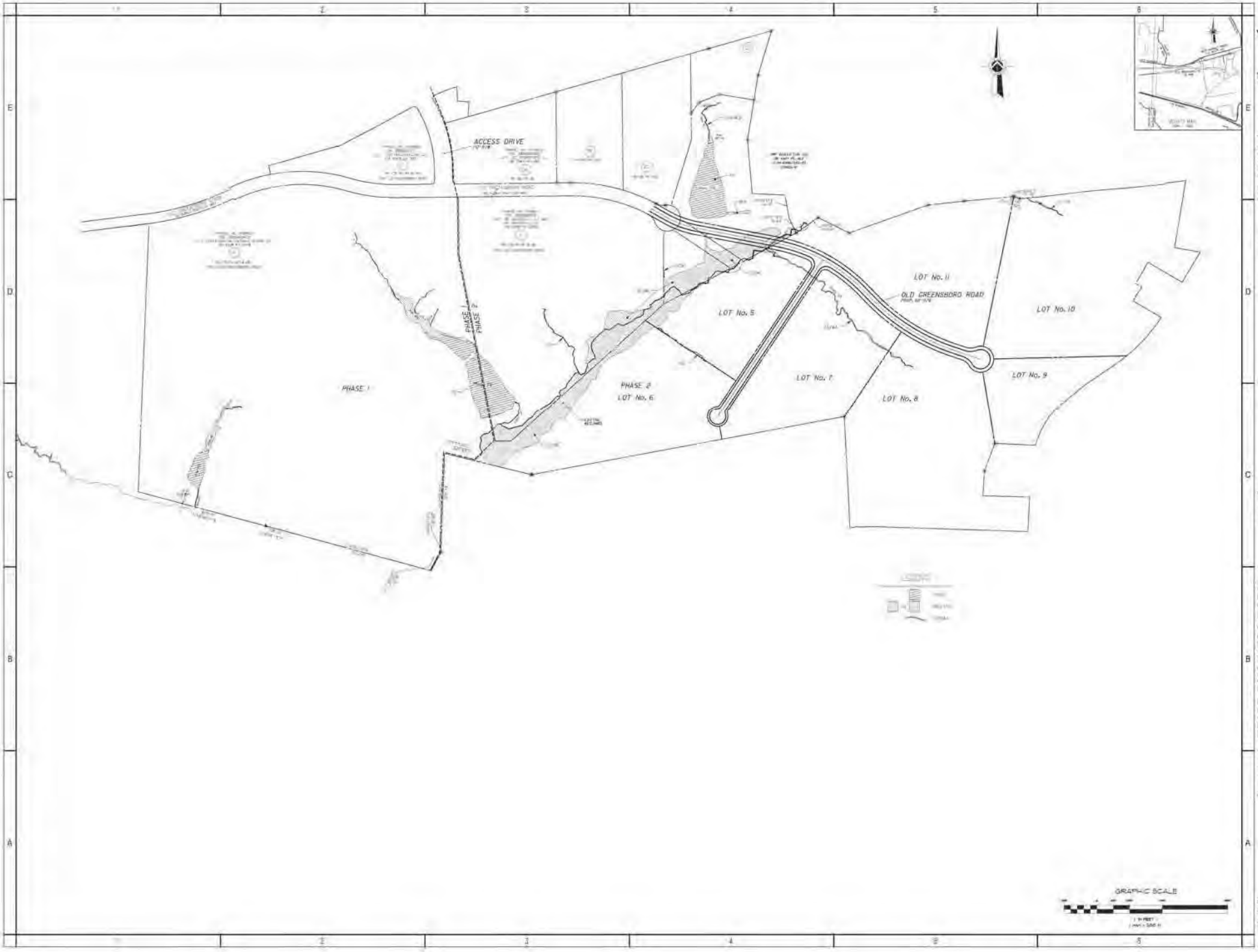
N

N.C. SHPO HPO GIS Map

Triad Business Park
Old Greensboro Road Extension
Kernersville, North Carolina
PEI No. 1010

APPENDIX II

STREAM/WETLAND IMPACT EXHIBITS



triaddesigngroup

Triad Design Group, P.C.
4801 G Koger Boulevard
Greensboro, NC 27407
Telephone 336-218-8282
Facsimile 336-218-8010
www.triaddesigngroup.com

NC Architecture Reg 5070
NC Engineering Lic C-1108

SAMET
CORPORATION
P.O. Box 8050
Greensboro, NC
27419
(336) 544-2600
FAX:
(336) 544-2638

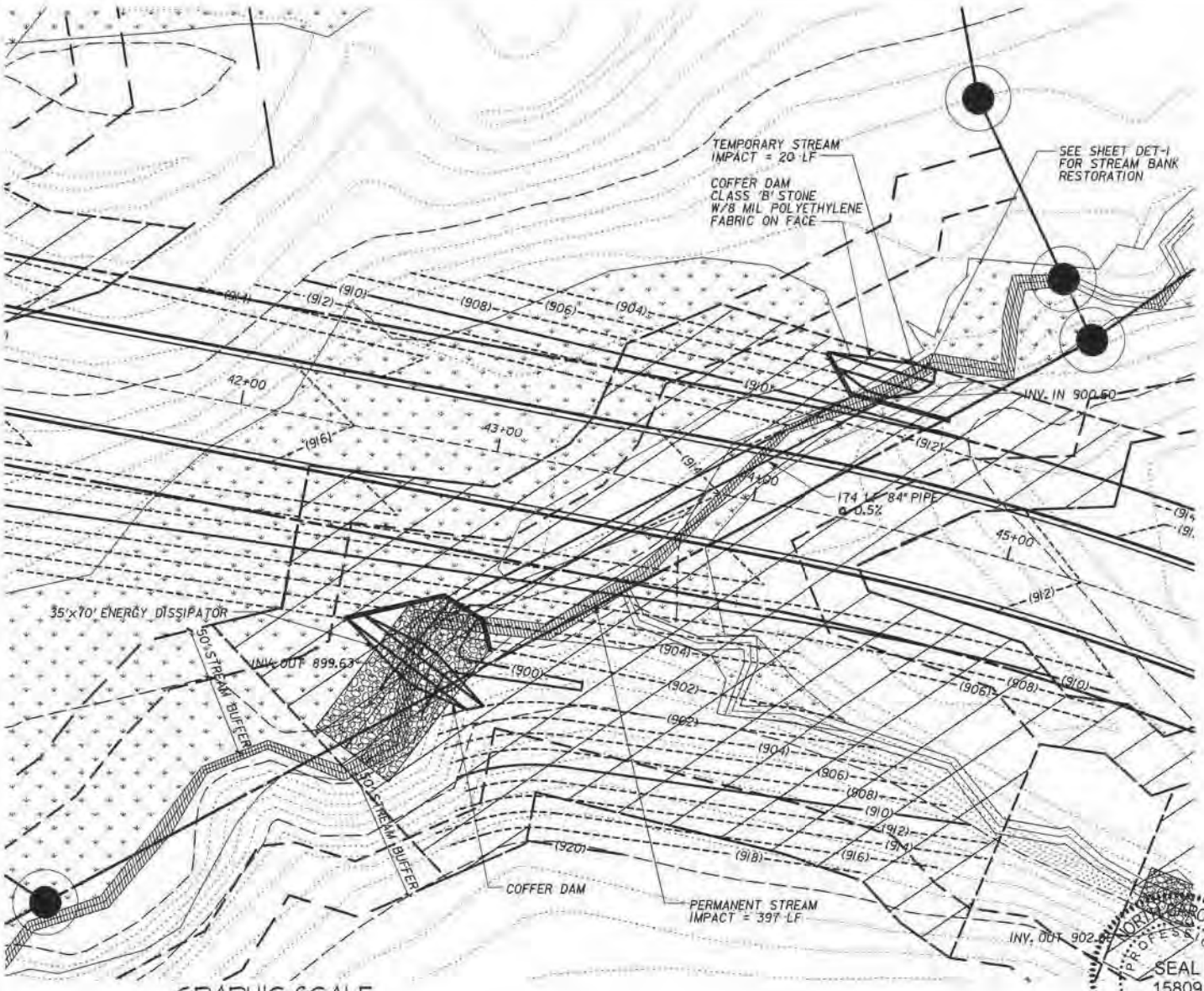
PRELIMINARY
NOT FOR CONSTRUCTION

TRIAD BUSINESS PARK
Road Extension
Old Greensboro Road
Deep River Township, Guilford County
Kernersville, North Carolina

Revisions

OVERALL
EXHIBIT 1A

EXH-1A



GRAPHIC SCALE

40 0 20 40 80 160

IN FEET

1 inch = 40 ft.

VICINITY MAP

SCALE 1" = 2000'

North

STREAM BUFFER IMPACTS
ZONE 1 = 31,364 SF
ZONE 2 = 14,375 SF
TEMP. STREAM IMPACTS = 20 LF
PERM. STREAM IMPACTS = 397 LF
TEMP. WETLAND IMPACTS = 0.003 AC.
PERM. WETLAND IMPACTS = 0.687 AC.

NORTH CAROLINA PROFESSIONAL SEAL 15809 ENGINEER L. ALLAN HILL

JUNE 10, 2015

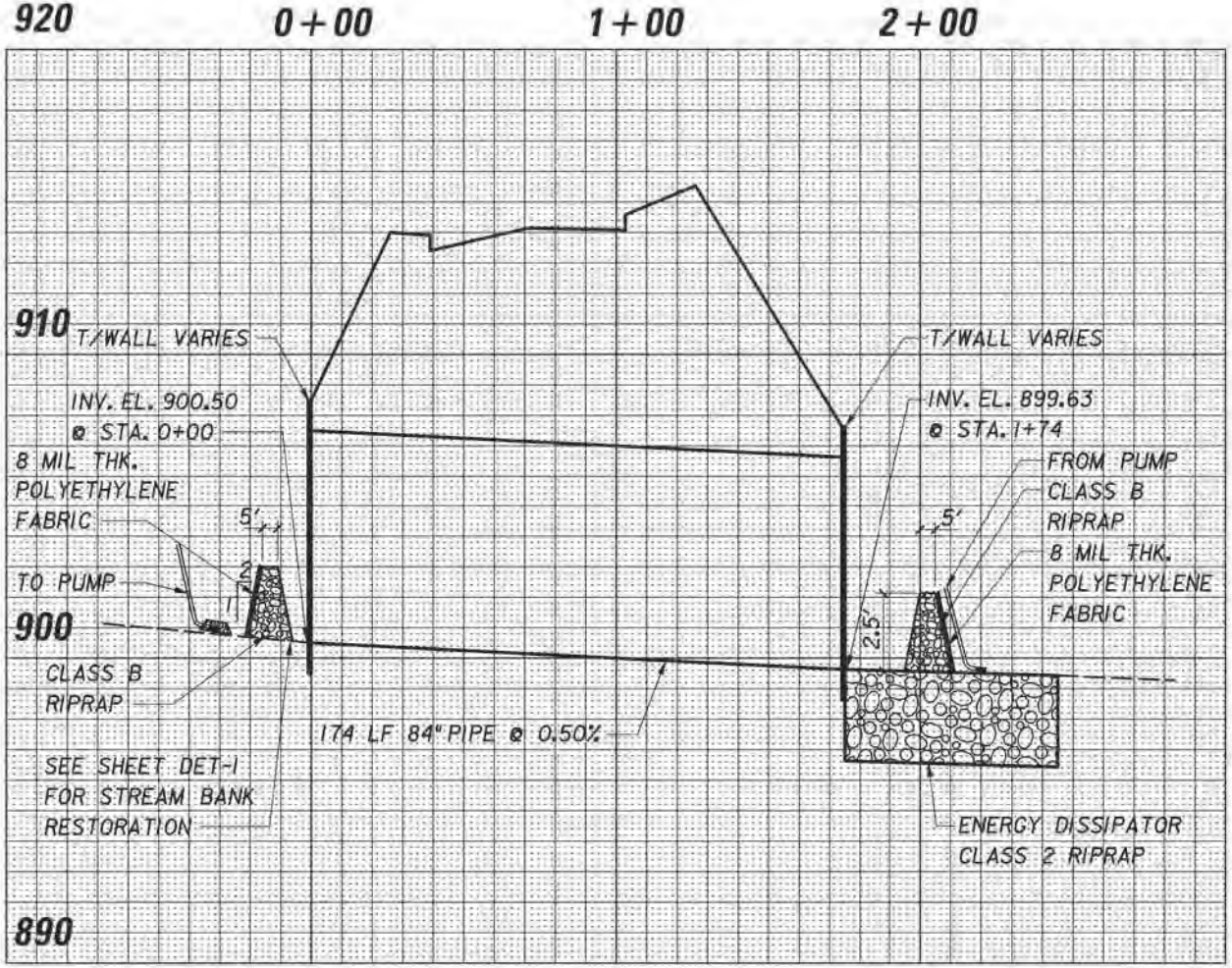
Triad Business Park

Old Greensboro Road Extension

Kernersville, NC

STREAM AND WETLAND IMPACTS

SS–1 (EXH1)



STREAM CROSSING

VICINITY MAP

SCALE 1" = 2000'

North

CONSTRUCTION IN EXISTING STREAM

1. KEEP CLEARING AND EXCAVATION OF STREAM BANKS AND BED TO A MINIMUM.
2. INSTALL PUMP AND LINE TO PUMP FLOW FROM AREA UPSTREAM OF CONSTRUCTION AREA TO AREA DOWNSTREAM OF CONSTRUCTION AREA. BEGIN PUMPING AND CONTINUE PUMPING WHILE WORKING WITHIN STREAM LIMITS.
3. INSTALL UPSTREAM COFFER DAM. CONSTRUCT DAMS WITH CLASS B STONE AND POLYETHYLENE FABRIC. COVER PIPE INLET WITH FABRIC AND SAND BAGS.
4. INSTALL DOWNSTREAM COFFER DAM TO PREVENT BACK FLOW INTO CONSTRUCTION AREA.
5. INSTALL TEMPORARY SILT FENCE AND SILT FENCE STONE OUTLETS ALONG TOP OF BANK ON EACH SIDE OF THE CONSTRUCTION AREA PER PLANS.
6. INSTALL DEWATERING BASIN OR SILT BAG AT TOP OF BANK. DEWATER CONSTRUCTION AREA BETWEEN COFFER DAMS USING THE BASIN OR SILT BAG.
7. INSTALL PIPE PER PLANS AND CONSTRUCT ENERGY DISSIPATOR.
8. UPON COMPLETION OF CONSTRUCTION, REMOVE COFFER DAMS.
9. CONSTRUCT RETAINING WALLS AND FILL FOR DRIVEWAY.

GRAPHIC SCALE

-40 0 40 80 160

IN FEET

1 inch = 40 ft.

NORTH CAROLINA PROFESSIONAL SEAL 15809 ENGINEER L. ALLAN HILL

JUNE 10, 2015

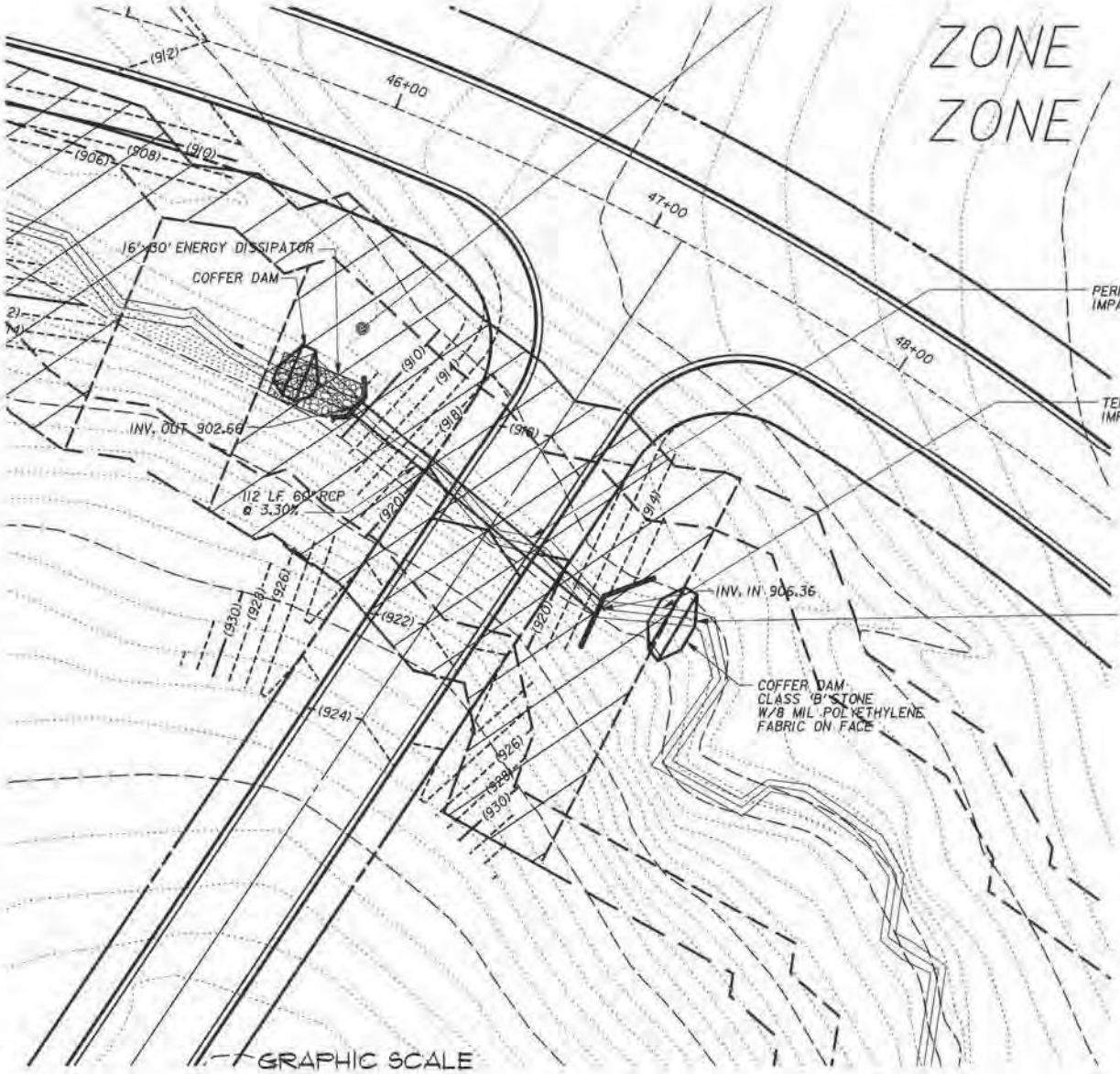
Triad Business Park

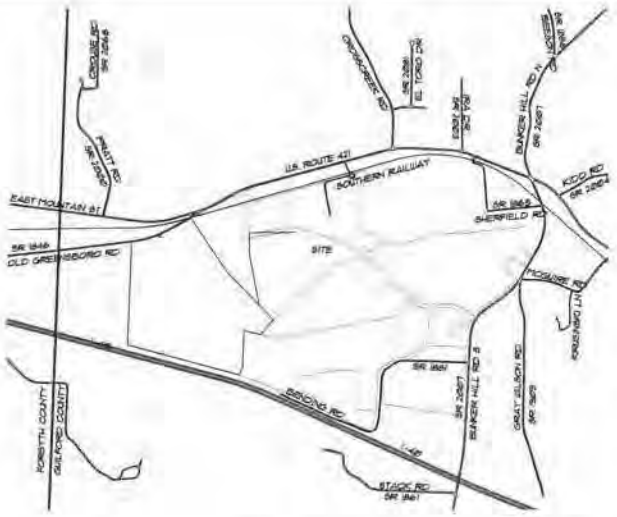
Old Greensboro Road Extension

Kernersville, NC

STREAM AND WETLAND IMPACT

SS–2 (EXH1)





VICINITY MAP
SCALE 1" = 2000'

STREAM BUFFER IMPACTS
ZONE 1 = 13068 SF
ZONE 2 = 8277 SF
TEMP. STREAM IMPACTS = 24 LF
PERM. STREAM IMPACTS = 156 LF
WETLAND IMPACTS = 0.0 AC.

NORTH CAROLINA PROFESSIONAL SEAL 15809 ENGINEER L. ALLAN HILL

JUNE 10, 2015

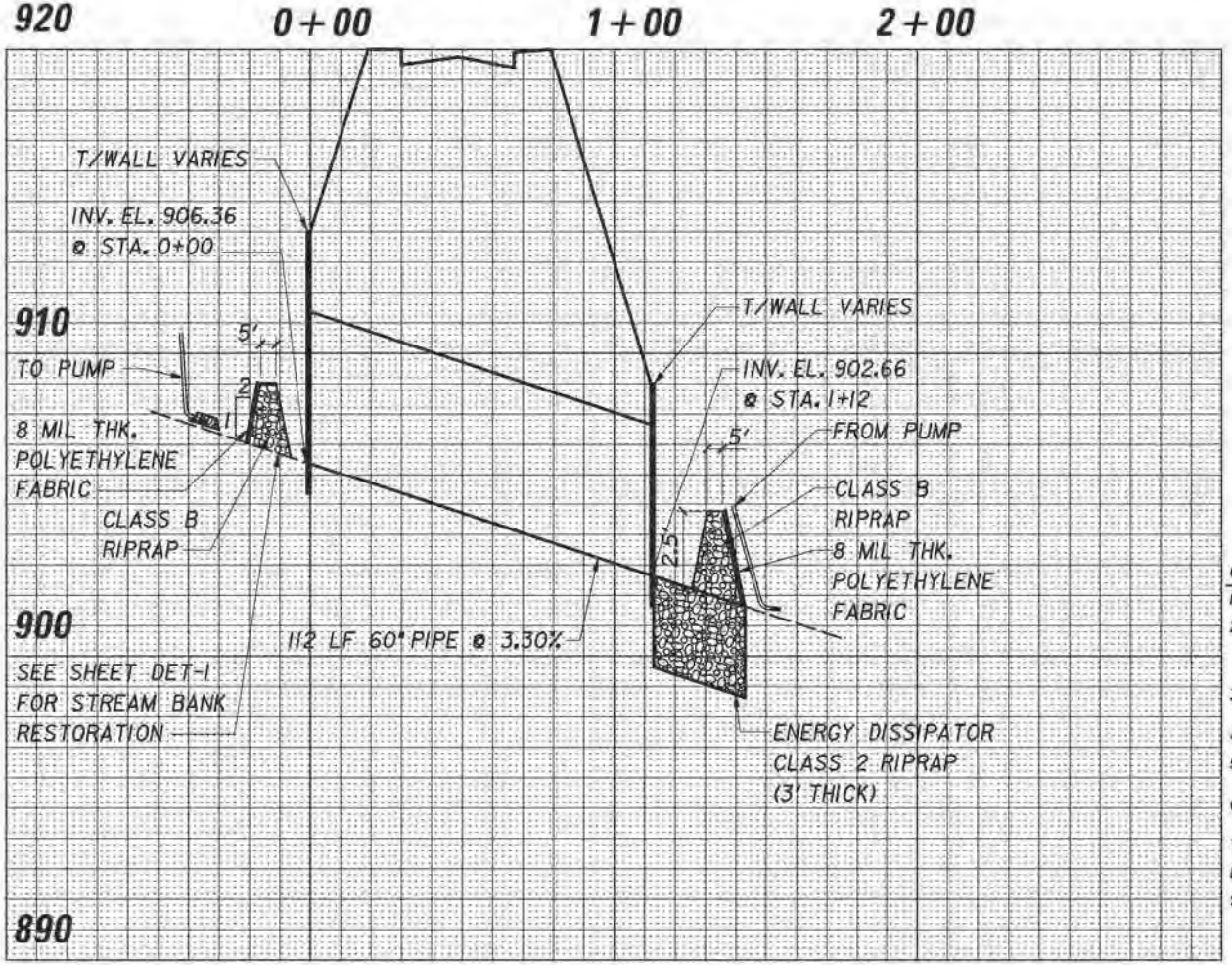
Triad Business Park

Old Greensboro Road Extension

Kernersville, NC

STREAM AND WETLAND IMPACT

SS-3 (EXH1)



STREAM CROSSING

GRAPHIC SCALE

40 0 40 80 120 160

IN FEET

1 inch = 40 ft.

VICINITY MAP

SCALE 1" = 2000'

North

CONSTRUCTION IN EXISTING STREAM

1. KEEP CLEARING AND EXCAVATION OF STREAM BANKS AND BED TO A MINIMUM.
2. INSTALL PUMP AND LINE TO PUMP FLOW FROM AREA UPSTREAM OF CONSTRUCTION AREA TO AREA DOWNSTREAM OF CONSTRUCTION AREA. BEGIN PUMPING AND CONTINUE PUMPING WHILE WORKING WITHIN STREAM LIMITS.
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8. UPON COMPLETION OF CONSTRUCTION, REMOVE COFFER DAMS.
9. CONSTRUCT RETAINING WALLS AND FILL FOR DRIVEWAY.

NORTH CAROLINA PROFESSIONAL SEAL 15809 ENGINEER L. ALLAN HILL

JUNE 10, 2015

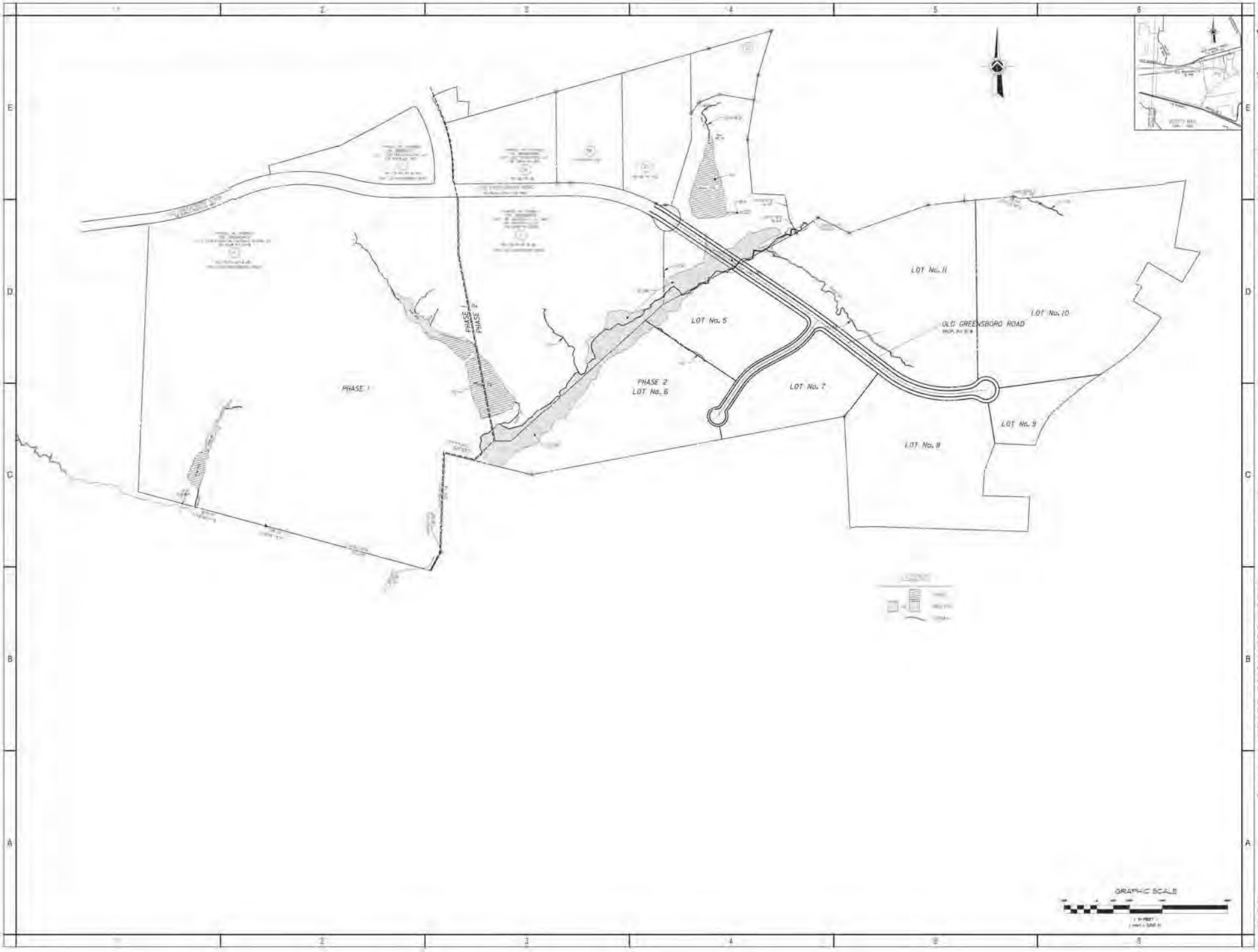
Triad Business Park

Old Greensboro Road Extension

Kernersville, NC

STREAM AND WETLAND IMPACT

SS–4 (EXH1)



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NC Engineering Lic. C-1105

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PRELIMINARY
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TRIAD BUSINESS PARK

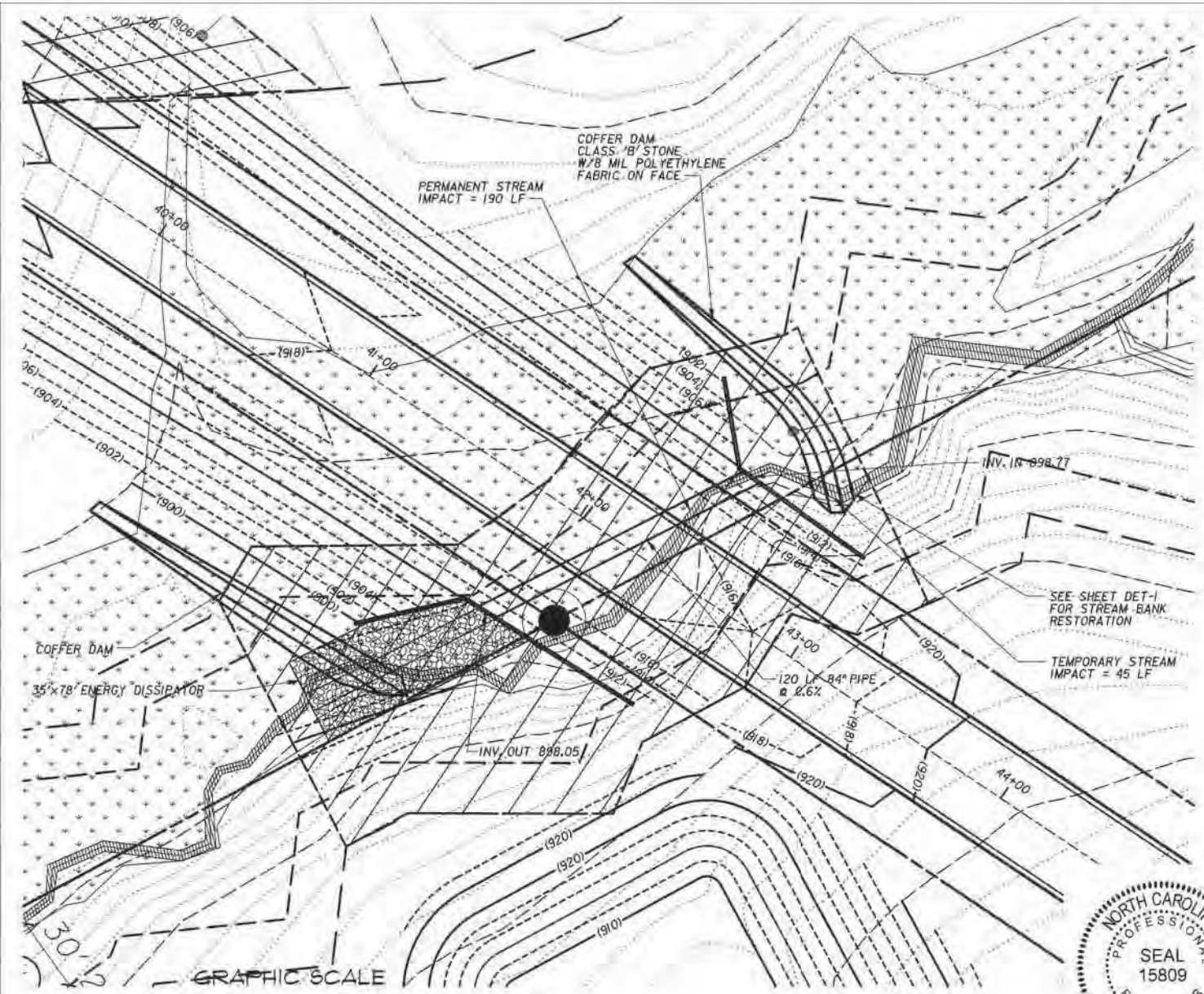
Road Extension

Old Greensboro Road
Deep River Township, Guilford County
Kernersville, North Carolina

Revisions

OVERALL
EXHIBIT 2A

EXH-2A



VICINITY MAP
SCALE 1" = 2000'

STREAM BUFFER IMPACTS
ZONE 1 = 18,296 SF
ZONE 2 = 10,455 SF
TEMP. STREAM IMPACTS = 45 LF
PERM. STREAM IMPACTS = 190 LF
TEMP. WETLAND IMPACTS = 0.06 AC.
PERM. WETLAND IMPACTS = 0.59 AC.

NORTH CAROLINA PROFESSIONAL SEAL 15809 ENGINEER L. ALLAN HILL

JUNE 10, 2015

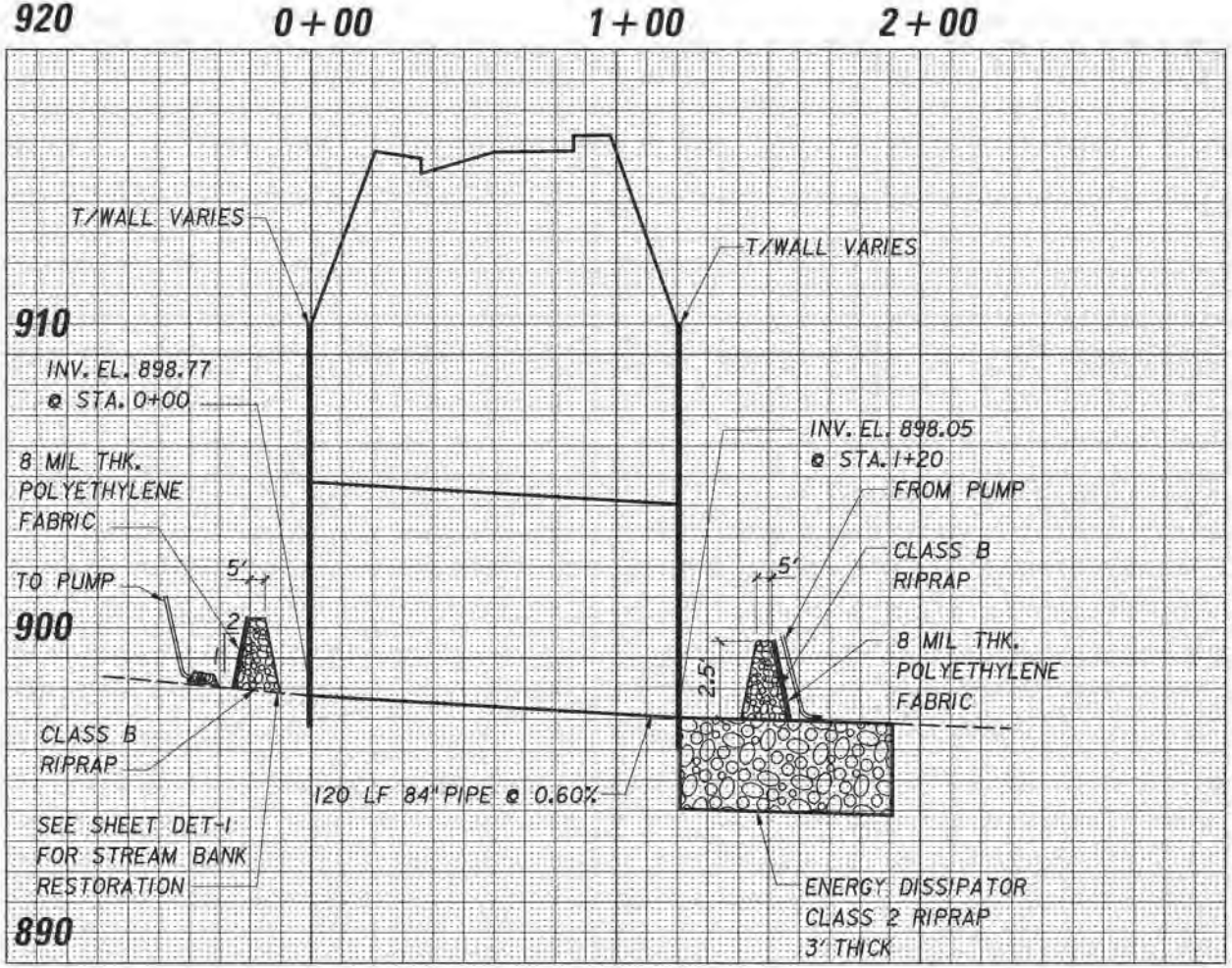
Triad Business Park

Old Greensboro Road Extension

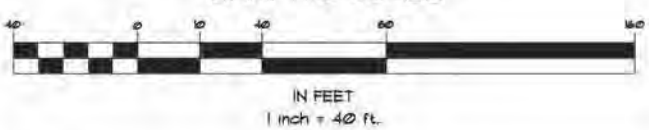
Kernersville, NC

STREAM AND WETLAND IMPACTS W/RETAINING WALL

SS–1 (EXH2)



STREAM CROSSING



VICINITY MAP

SCALE 1" = 2000'

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Old Greensboro Road Extension

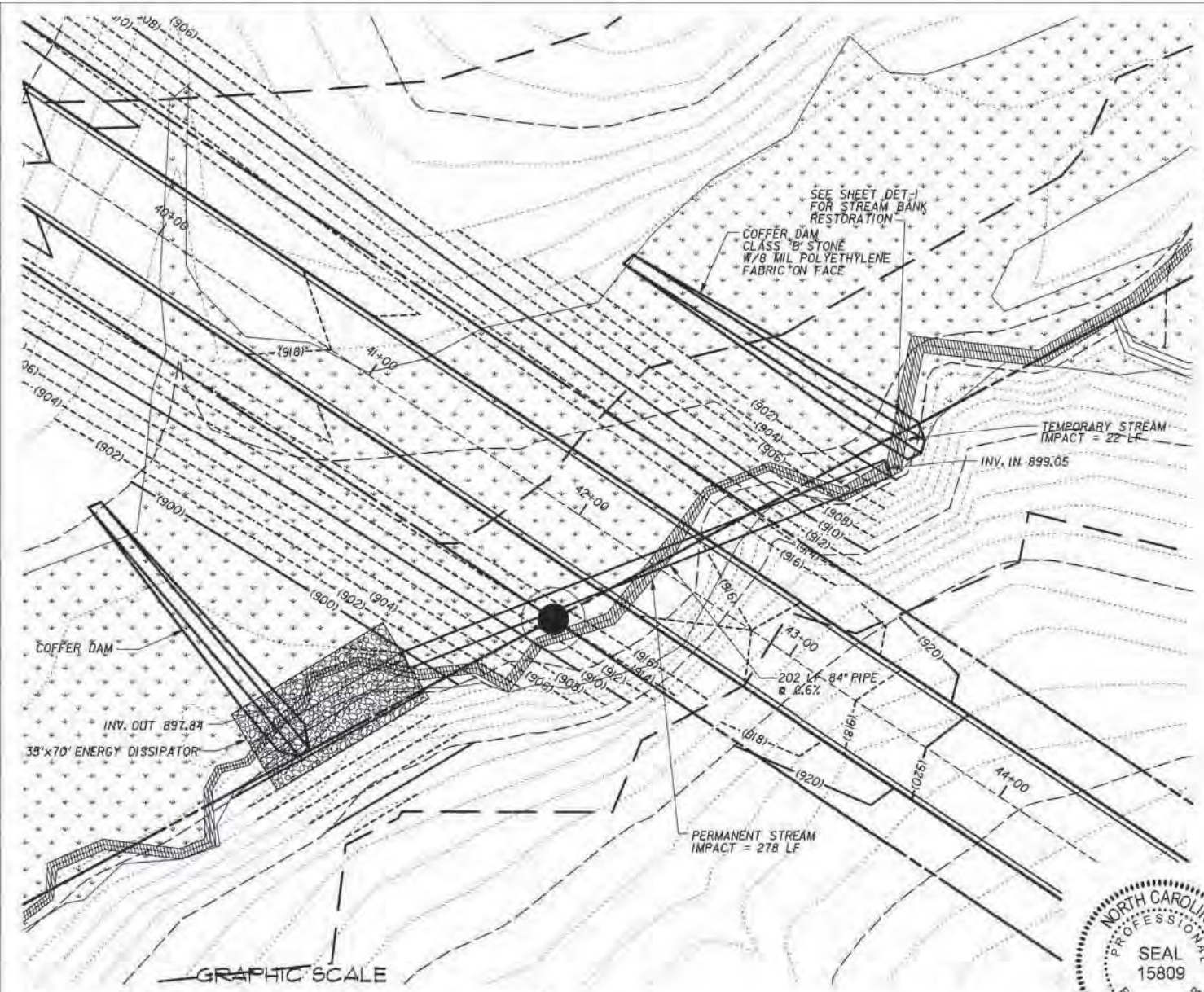
Kernersville, NC

STREAM AND WETLAND IMPACTS W/RETAINING WALL

SS-2 (EXH2)

NORTH CAROLINA PROFESSIONAL SEAL 15809 ENGINEER L. ALLAN HILL

JUNE 10, 2015



GRAPHIC SCALE

40 0 40 80 160

IN FEET
1 inch = 40 ft.

VICINITY MAP
SCALE 1" = 2000'

STREAM BUFFER IMPACTS
ZONE 1 = 19,856 SF
ZONE 2 = 9,960 SF
TEMP. STREAM IMPACTS = 22 LF
PERM. STREAM IMPACTS = 278 LF
TEMP. WETLAND IMPACTS = 0.06 AC.
PERM. WETLAND IMPACTS = 0.68 AC.

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JUNE 10, 2015

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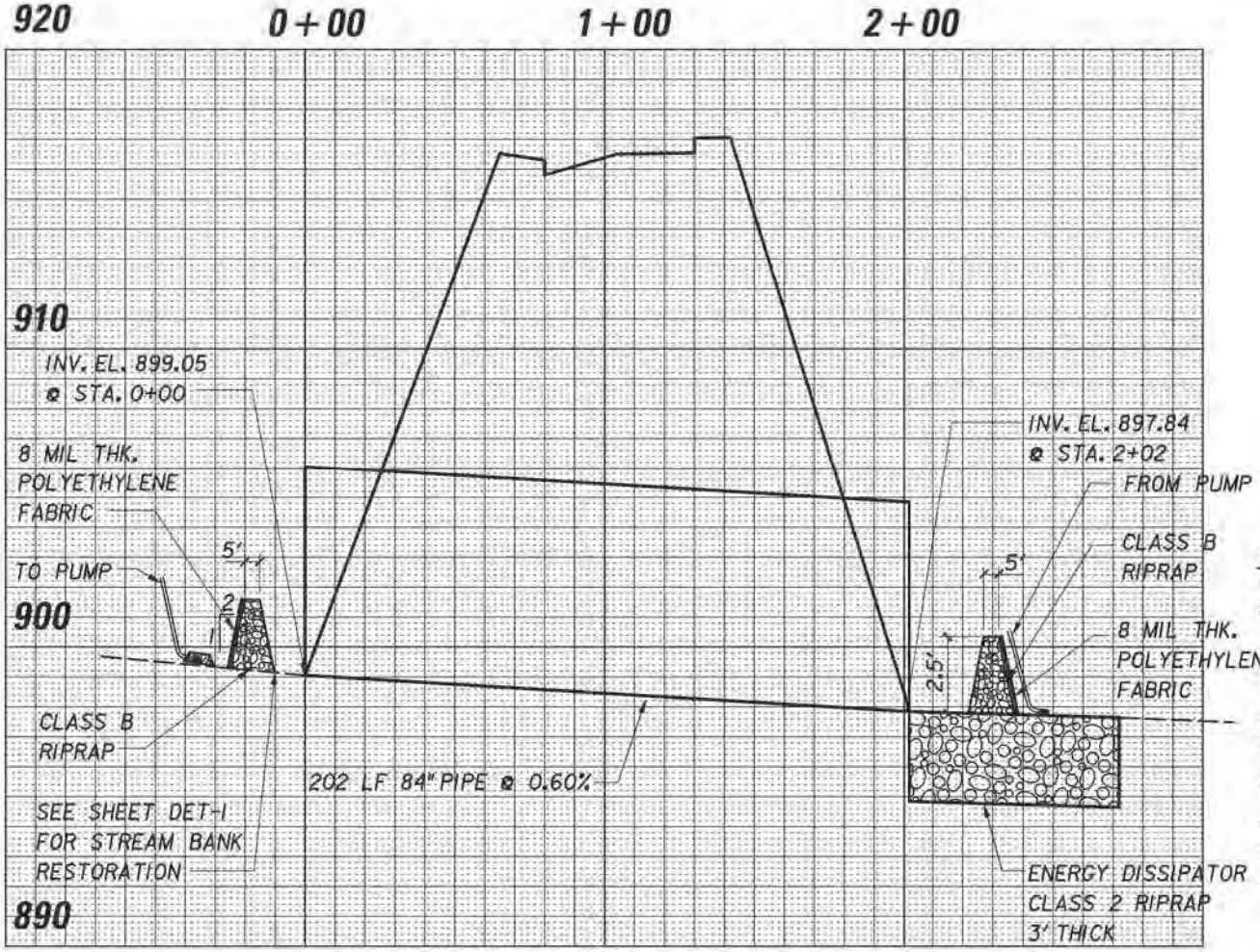
Kernersville, NC

STREAM AND WETLAND IMPACTS W/O RETAINING WALL

SS-3 (EXH2)



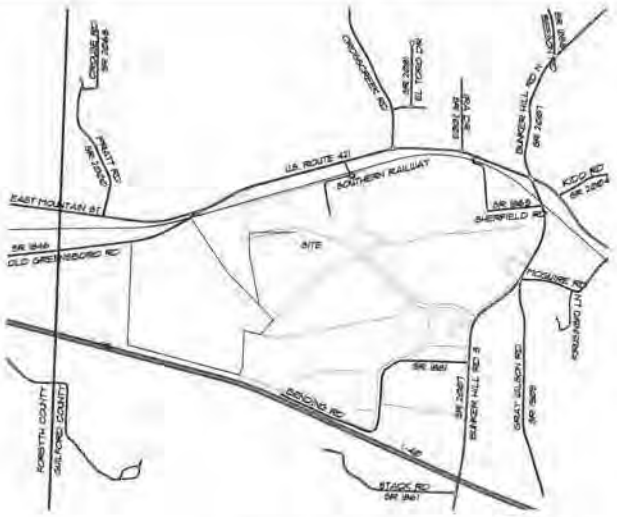
STREAM CROSSING

GRAPHIC SCALE

40 0 20 40 80 160

IN FEET

1 inch = 40 ft.



VICINITY MAP

SCALE 1" = 2000'

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Kernersville, NC

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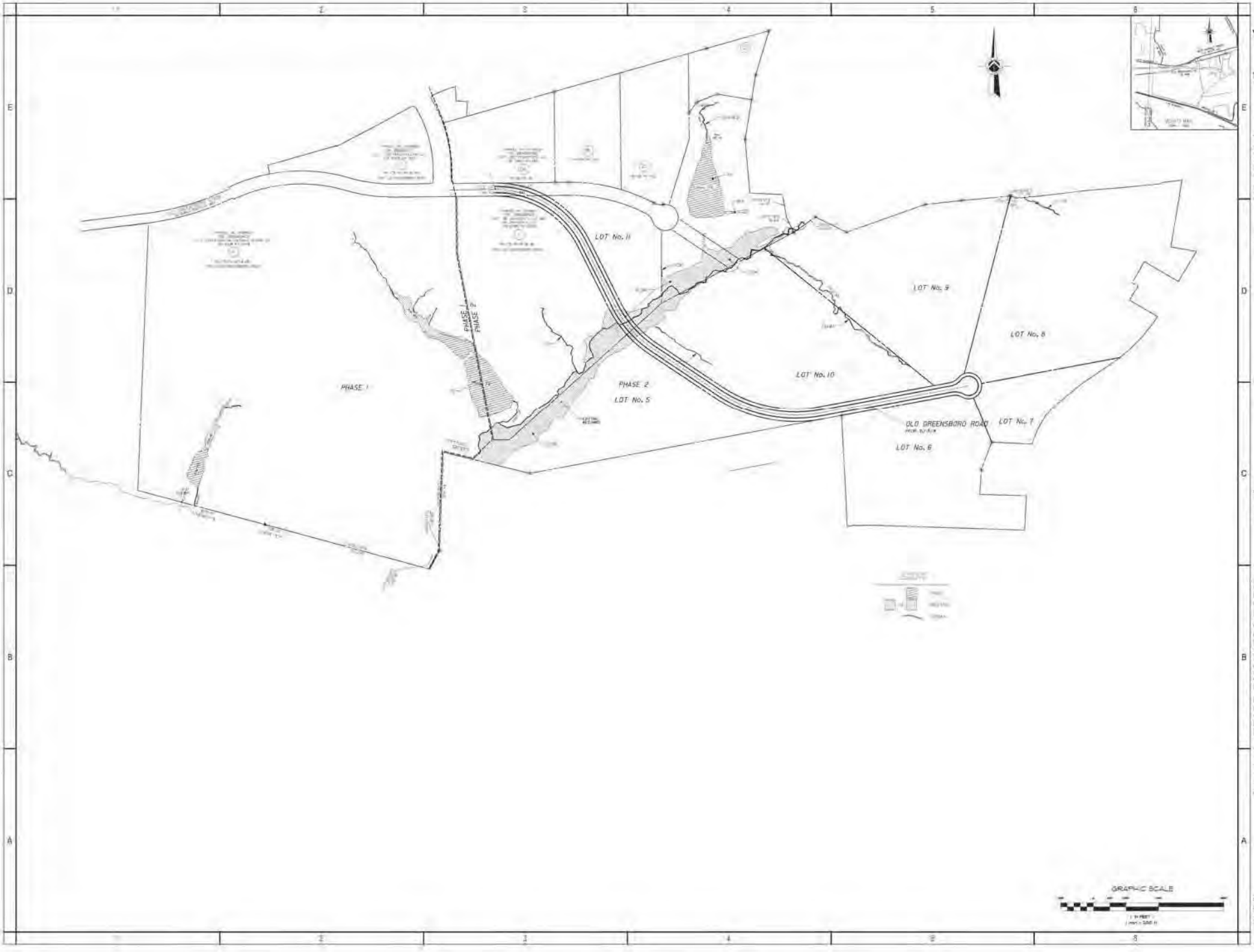
JUNE 10, 2015

STREAM AND WETLAND IMPACTS W/O RETAINING WALL

SS-4 (EXH2)



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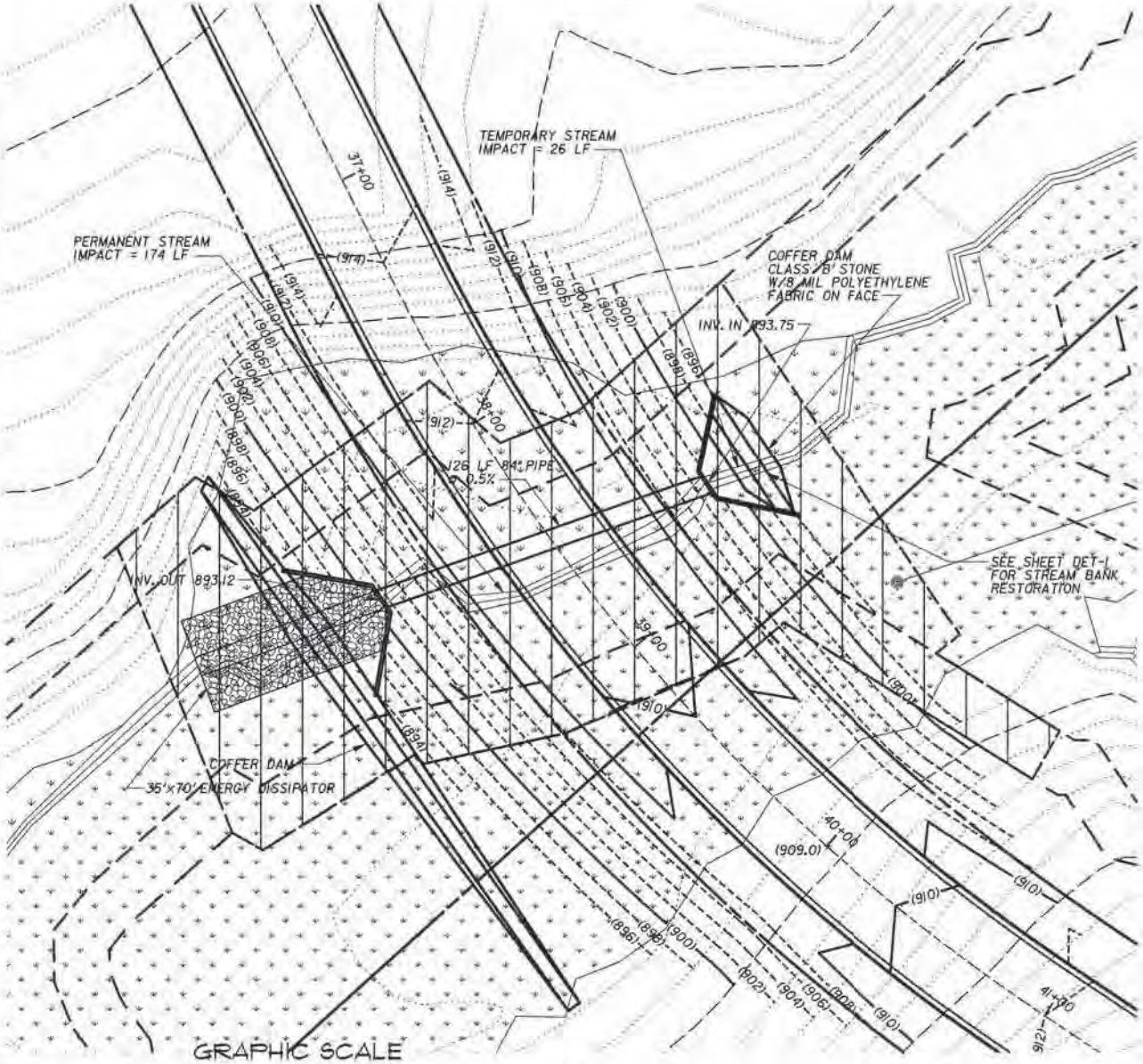
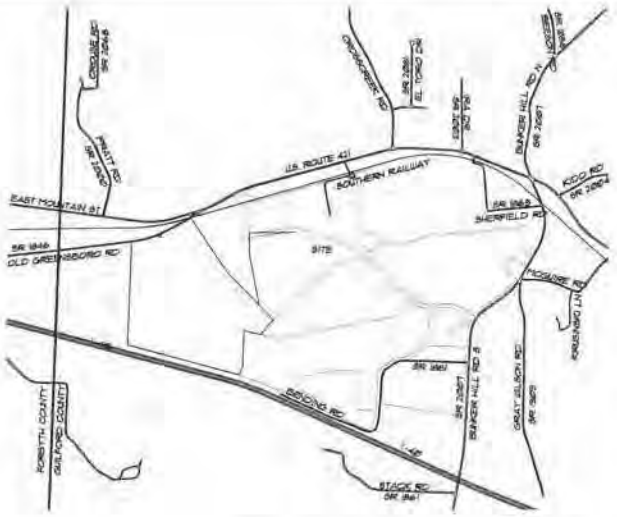
Revisions

OVERALL
EXHIBIT 3A

EXH-3A





VICINITY MAP
SCALE 1" = 2000'

STREAM BUFFER IMPACTS
ZONE 1 = 19,602 SF
ZONE 2 = 11,762 SF
TEMP. STREAM IMPACT = 26 LF
PERM. STREAM IMPACT = 174 LF
TEMP. WETLAND IMPACT = 0.06 AC.
PERM. WETLAND IMPACT = 0.85 AC.

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Old Greensboro Road Extension

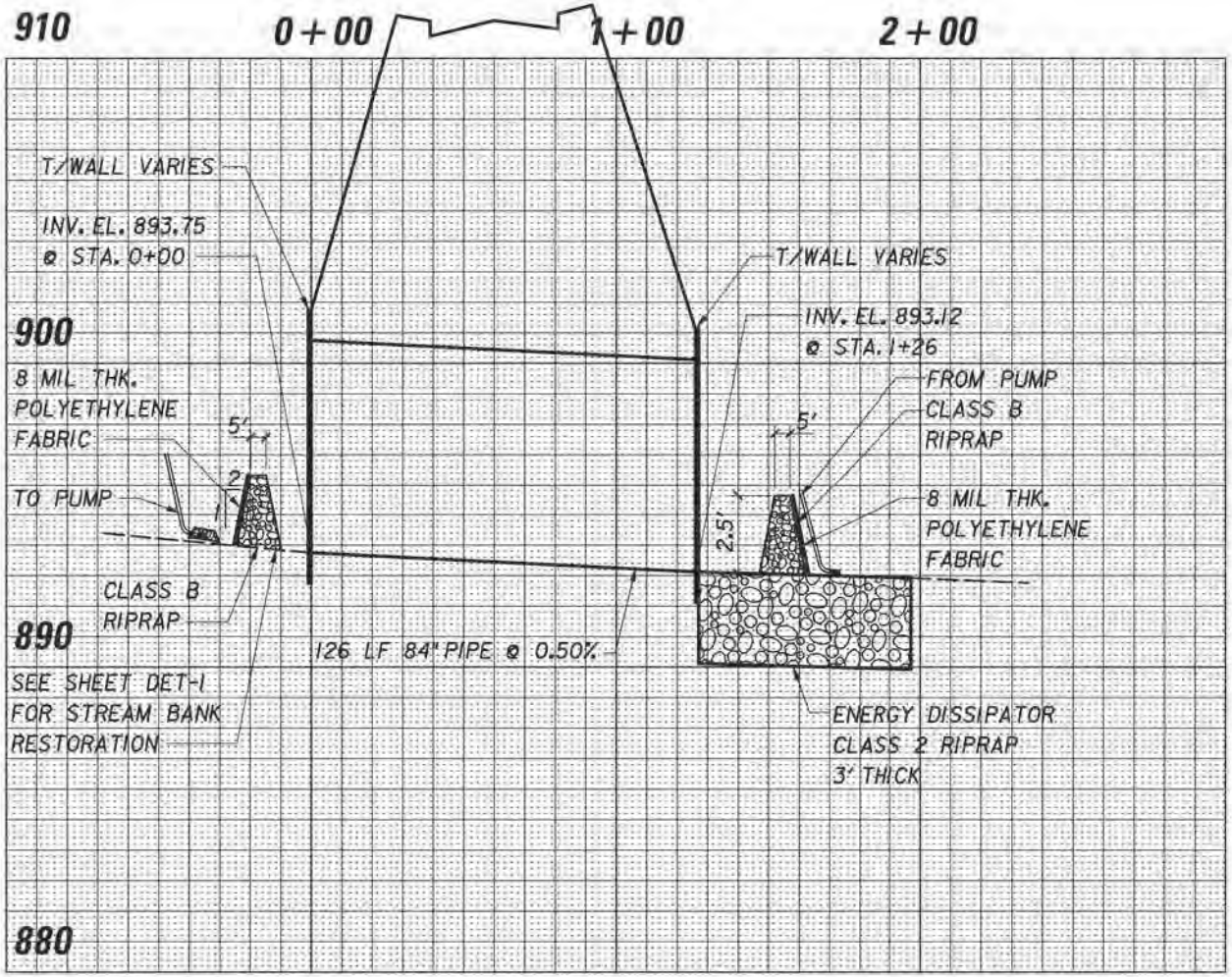
Kernersville, NC

NORTH CAROLINA PROFESSIONAL SEAL 15809 ENGINEER L. ALLAN HILL

JUNE 10, 2015

PERMANENT STREAM AND WETLAND IMPACT

SS–1 (EXH3)



STREAM CROSSING

VICINITY MAP

SCALE 1" = 2000'

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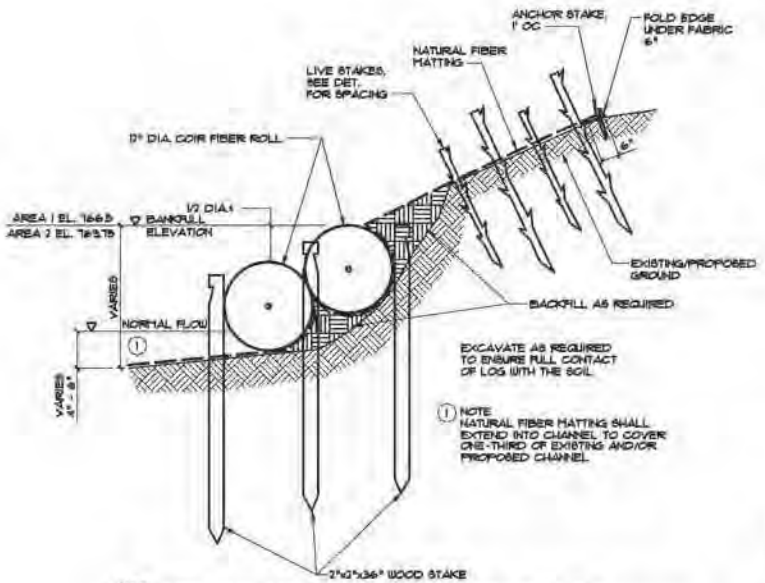
Kernersville, NC

NORTH CAROLINA PROFESSIONAL SEAL 15809 ENGINEER L. ALLAN HILL

JUNE 10, 2015

PERMANENT STREAM AND WETLAND IMPACT

SS–2 (EXH3)

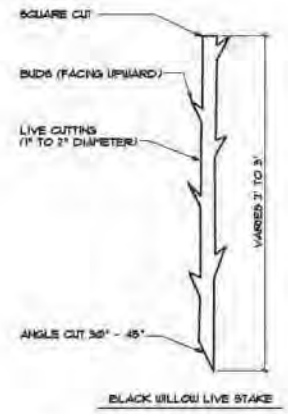


NOTE
1. STAKE SHALL BE EVENLY SPACED ALONG THE FIBER ROLLS (2' TO 3' APART).
2. STAKES SHALL BE DRIVEN FLUSH WITH THE FIBER ROLL.
3. TOP FIBER ROLLS SHALL NOT HORIZONTALLY EXTEND BEYOND THE END OF THE LOWER ROLL.
4. COIR FIBER ROLLS SHALL BE BIOLOGS BY BON TERRA AMERICA OR EQUIVALENT.
5. NATURAL FIBER MATTING SHALL BE CPS MAT5 BY BON TERRA OR EQUIVALENT.

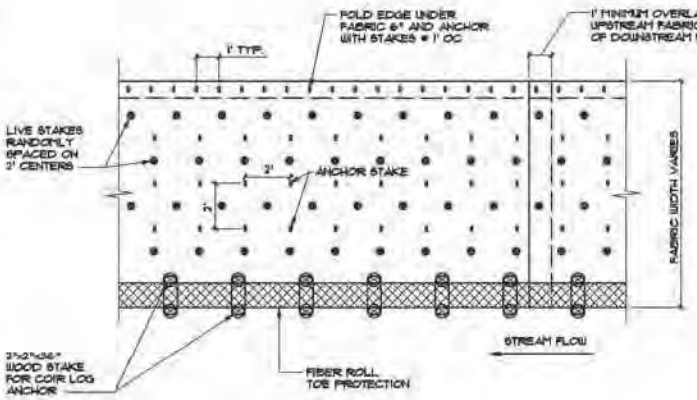
DOUBLE COIR FIBER ROLL TOE STABILIZATION WITH LIVE STAKES.

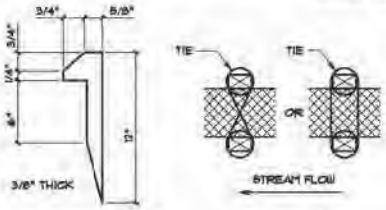
DETAIL A/DET-1

NO SCALE



BLACK WILLOW LIVE STAKE





12" ECO ANCHOR STAKE

TYING DIAGRAM

NOTE
1. MATTING SHALL BE ROLLED PARALLEL OR PERPENDICULAR ALONG STREAMBANK.
2. MATTING SHALL EXTEND BELOW THE TOE PROTECTION TO 1/3 CHANNEL WIDTH AND A MINIMUM OF ONE FOOT OVER TOP OF BANK. IF MORE THAN ONE ROLL IS REQUIRED, MID-BANK OVERLAP SHOULD BE A MINIMUM OF ONE FOOT AND SECURELY FASTENED WITH ANCHOR STAKES.
3. LIVE STAKES SHALL BE BLACK WILLOW.

LIVE STAKES WITH NATURAL FIBER MATTING

DETAIL B/DET-1

NO SCALE

NORTH CAROLINA PROFESSIONAL SEAL 15809 ENGINEER L. ALLAN HILL

JUNE 10, 2015

Triad Business Park

Old Greensboro Road Extension

Kernersville, NC

STREAM AND WETLAND IMPACTS

DET–1

APPENDIX III

STREAM EVALUATION FORMS

USACE AID#_____ DWQ #_____ Site #____(indicate on attached map)

STREAM QUALITY ASSESSMENT WORKSHEET

Provide the following information for the stream reach under assessment:

1. Applicant's name: TBP
2. Evaluator's name: Luckey, PEI
3. Date of evaluation: 4/28/14
4. Time of evaluation: 3:00
5. Name of stream: UT W. Fork Deep River
6. River basin: Cape Fear
7. Approximate drainage area: 30 Acres
8. Stream order: 1st
9. Length of reach evaluated: 400'
10. County: Guilford
11. Site coordinates (if known): prefer in decimal degrees.
12. Subdivision name (if any):

Latitude (ex. 34.872312): _____ Longitude (ex. –77.556611):_____

Method location determined (circle): GPS Topo Sheet Ortho (Aerial) Photo/GIS Other GIS Other_____

13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location): See Attachments

14. Proposed channel work (if any): N/A
15. Recent weather conditions: Typical
16. Site conditions at time of visit: Typical
17. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed _IV_(I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES If yes, estimate the water surface area: 0.15 Acres
19. Does channel appear on USGS quad map? YES
20. Does channel appear on USDA Soil Survey? YES
21. Estimated watershed land use: _20_% Residential __10_% Commercial __10__% Industrial __30_% Agricultural _20_% Forested ___% Cleared / Logged ___% Other (_____)
22. Bankfull width: 3-6'
23. Bank height (from bed to top of bank): 1-2'
24. Channel slope down center of stream: ___Flat (0 to 2%) _X_Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)
25. Channel sinuosity: ____Straight ___Occasional bends _X_Frequent meander ___Very sinuous ___ Braided channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 59 Comments: Perennial

Evaluator's Signature 4/29/14 Date

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	3
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	2
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	3
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	2
	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	4
	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	3
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	3
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	4
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	3
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	2
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	2
	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	3
	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	3
	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	2
HABITAT	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	2
	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	4
	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	3
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	2
BIOLOGY	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	3
	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	3
	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	3
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						59

* These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Date: 4/29/14	**Project/Site:** TBP	**Latitude:**
Evaluator: Luckey, PEI	**County:** Guilford	**Longitude:**
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30** 37	**Stream Determination (circle one)** Ephemeral Intermittent (Perennial)	**Other** Kernersville *e.g. Quad Name:*

A. Geomorphology (Subtotal = 18)	Absent	Weak	Moderate	Strong
1[a]. Continuity of channel bed and bank	0	1	2	(3)
2. Sinuosity of channel along thalweg	0	1	(2)	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	(2)	3
4. Particle size of stream substrate	0	1	2	(3)
5. Active/relict floodplain	0	1	(2)	3
6. Depositional bars or benches	0	1	(2)	3
7. Recent alluvial deposits	0	(1)	2	3
8. Headcuts	0	(1)	2	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	0	0.5	(1)	1.5
11. Second or greater order channel	No = (0)		Yes = 3	

[a] artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 9)				
12. Presence of Baseflow	0	1	(2)	3
13. Iron oxidizing bacteria	0	(1)	2	3
14. Leaf litter	1.5	(1)	0.5	0
15. Sediment on plants or debris	0	0.5	(1)	1.5
16. Organic debris lines or piles	0	0.5	(1)	1.5
17. Soil-based evidence of high water table?	No = 0		Yes = (3)	

C. Biology (Subtotal = 10)				
18. Fibrous roots in streambed	3	(2)	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	(2)	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	0	0.5	(1)	1.5
24. Amphibians	0	0.5	(1)	1.5
25. Algae	0	0.5	(1)	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = (0)			

*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

APPENDIX IV

WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: TBP Old Greensboro Road Extension City/County: Kernersville/Guilford Sampling Date: 4/28/14

Applicant/Owner: TBP State: North Carolina Sampling Point: DP-1

Investigator(s): Luckey/Brame, PEI Section, Township, Range:

Landform (hillslope, terrace, etc.) Bottomland Hardwoods Local relief (concave, convex, none):

Slope (%): 2 Lat: Long: Datum:

Soil Map Unit Name: Madison clay loam (McD2) NWI Classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
The three sampling criteria are present. The sampling point is located within a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ____
Water Table Present?	Yes ___	No X	Depth (inches): >12"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): >12"

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology indicators are present.

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point DP-1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Liquidambar straciflua	30	Y	FAC
2. Acer rubrum	20	Y	FAC
3. Prunus serotina	5	N	FACU
4.			
5.			
6.			
7.			
8.			
	55	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30')			
1. Liquidambar straciflua	20	Y	FAC
2. Cornus amomum	10	Y	FACW
3. Juniperus virginiana	2	N	FACU
4. Cornus florida	2	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	34	= Total Cover	

Herb Stratum (Plot size: 30')			
1. Eulalia viminea	20	Y	FAC
2. Lonicera japonica	10	Y	FAC
3. Parthenocissus quinquefolia	2	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	32	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. Toxicodendron radicans	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		X 2 =	
FAC species		X 3 =	
FACU species		X 4 =	
UPL species		X 5 =	
Column Totals:		(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

___ 3 - Prevalence Test is ≤ 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation is present.

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	5YR 4/6	100					L	
9-16	2.5Y 4/1	80	5YR 4/6	20	C	RM	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (s4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Suface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Red Parent Material (TF2)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Hydric soil indicators are present.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: TBP Old Greensboro Road Extension City/County: Kernersville/Guilford Sampling Date: 4/28/14

Applicant/Owner: TBP State: North Carolina Sampling Point: DP-2

Investigator(s): Luckey/Brame, PEI Section, Township, Range: _____

Landform (hillslope, terrace, etc.) Sideslope Local relief (concave, convex, none): _____

Slope (%): 4 Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Madison clay loam (McD2) NWI Classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
The three sampling criteria are not present. The sampling point is not located within a wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): _____
Water Table Present?	Yes ___	No X	Depth (inches): >12"
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): >12"

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology indicators are not present.

VEGETATION (Four Strata) - Use scientific names of plants. Sampling Point DP-2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Juniperus virginiana	20	Y	FACU
2. Acer rubrum	20	Y	FAC
3. Pinus taeda	5	N	FAC
4.			
5.			
6.			
7.			
8.			
	45	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30')			
1. Liquidambar straciflua	10	Y	FAC
2. Juniperus virginiana	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20	= Total Cover	

Herb Stratum (Plot size: 30')			
1. Lonicera japonica	10	Y	FAC
2. Smilax rotundifolia	5	Y	FAC
3. Parthenocissus quinquefolia	5	Y	FAC
4. Quercus sp.	5	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1. Lonicera japonica	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 78 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		X 2 =	
FAC species		X 3 =	
FACU species		X 4 =	
UPL species		X 5 =	
Column Totals:		(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is > 50%

___ 3 - Prevalence Test is ≤ 3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation is present.

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	5YR 5/6	100					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ____ Histosol (A1)
- ____ Histic Epipedon (A2)
- ____ Black Histic (A3)
- ____ Hydrogen Sulfide (A4)
- ____ Stratified Layers (A5)
- ____ 2 cm Muck (A10) **(LRR N)**
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ____ Sandy Gleyed Matrix (s4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Dark Surface (S7)
- ____ Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- ____ Thin Dark Suface (S9) **(MLRA 147, 148)**
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)
- ____ Iron Manganese Masses (F12) **(LRR N, MLRA 136)**
- ____ Umbric Surface (F13) **(MLRA 136, 122)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 148)**

Indicators for Problematic Hydric Soils[3]:

- ____ 2 cm Muck (A10) **(MLRA 147)**
- ____ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ____ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ____ Red Parent Material (TF2)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in Remarks)

[3]Indicators of Hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

Hydric soil indicators are not present.

APPENDIX V

USACE JD

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

COPY

Action Id. SAW-2013-00556 County: Guilford U.S.G.S. Quad: NC-KERNERSVILLE

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner:	Samet Corporation attn: Brian Hall	**Agent:**	Pilot Environmental, Inc. attn: Michael Brame
Address:	P.O. Box 8050 Greensboro, NC, 27419	**Address:**	P.O. Box 128 Kernersville, NC 27285

Size (acres) ~250 Nearest Town Kernersville
Nearest Waterway Deep River River Basin Deep. North Carolina.
USGS HUC 3030003 Coordinates 36.107556 N, -80.023197 W
Location description: The project area is located south of West Market Street and north of I-40 Business, between the Guilford/Forsythe County line and Bunker Hill Road in Kernersville, Guilford County, North Carolina.

Indicate Which of the Following Apply:

A. Preliminary Determination

_ Based on preliminary information, there may be wetlands on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

B. Approved Determination

_ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

X There are waters of the U.S. including wetlands on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ We strongly suggest you have the wetlands on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

_ The waters of the U.S. including wetlands on your project area have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

X The waters of the U.S. including wetlands have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on 9/8/2014. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ There are no waters of the U.S., to include wetlands, present on the above described project area which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

_ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in Morehead City, NC, at (252) 808-2808 to determine their requirements.

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **David Bailey** at **910-251-4469 or David.E.Bailey2@usace.army.mil.**

C. Basis For Determination:

The site exhibits features with Ordinary High Water and wetlands as defined in the 1987 wetland delineation manual and applicable regional supplements. The waters on site include several Unnamed Tributaries (UTs) to West Fork Deep River, all Relatively Permanent Waters (RPWs), which flow via West Fork Deep River to the Deep River, a Traditionally Navigable Water – and abutting and adjacent wetlands. This determination is based on a field verification by David E. Bailey (USACE) on 5/15/2014.

D. Remarks:

The wetlands and other Waters of the US within the property were originally flagged by ECS Carolinas, with updates made by Pilot Environmental, Inc. with changes made in the field by David E. Bailey (USACE), and are approximated on the attached figure entitled "Wetlands Delineation, Triad Business Park", dated 6/23/2014. Note that Stream SE, wetland WE, and pond PCA, and at least portions of stream ISH and wetland WSH were permanently filled as authorized by NWP 39 dated 7/31/2008, Action ID: SAW-2008-01894.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **11/7/2014**.

It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: _____
David E. Bailey

Date: **September 8, 2014** Expiration Date: **September 8, 2019**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete our Customer Satisfaction Survey, located online at http://regulatory.usacesurvey.com/.

Copy furnished:
Sue Homewood, NCDENR-DWR, 585 Waughtown Street, Winston-Salem, NC 27107
Allan Hill, Triad Design Group, P.C., 4807-C Koger Blvd., Greensboro, NC 27407

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: **Samet Corporation (attn: Brian Hall)**	File Number: **SAW-2013-00556**	Date: **September 8, 2014**
Attached is:		See Section below
☐ INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
☐ PROFFERED PERMIT (Standard Permit or Letter of permission)		B
☐ PERMIT DENIAL		C
☒ APPROVED JURISDICTIONAL DETERMINATION		D
☐ PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: **District Engineer, Wilmington Regulatory Division** **attn: David E. Bailey** **Raleigh Regulatory Field Office** **3331 Heritage Trade Drive, Suite 105** **Wake Forest, North Carolina 27587**	If you only have questions regarding the appeal process you may also contact: Mr. Jason Steele, Administrative Appeal Review Officer CESAD-PDO U.S. Army Corps of Engineers, South Atlantic Division 60 Forsyth Street, Room 10M15 Atlanta, Georgia 30303-8801 Phone: (404) 562-5137

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, Raleigh Regulatory Field Office, attn: David Bailey, 3331 Heritage Trade Drive, Suite 105, Wake Forest, North Carolina 27587

For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137

APPENDIX VI

PREVIOUS PERMIT APPROVALS

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

FILE COPY

Action ID. **SAW-2008-01894** County: **Guilford** USGS Quad: **Kernersville**

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner / Authorized Agent: **FedEx Ground Package System, Inc.**
Address: **Attn: William Conner**
1000 FedEx Drive
Moon Township, Pennsylvania 15108

Telephone No.: **412-859-2280**

Size and location of property (water body, road name/number, town, etc.): **127.31 acres; located North of Interstate 40, West of Bunker Hill Road, South of West Market Street and East of the Forsyth, Guilford County line in Guilford, County North Carolina.**

Description of projects area and activity: **This authorization is for the discharge of clean fill material within 0.19 acre of adjacent wetland (impact site #1), 225 linear feet of perennial stream channel (impact site #2) and 0.22 acre of open water habitat (impact site #3) for the development of a commercial package distribution facility. The project must be conducted in accordance with the application and drawings submitted on May 27, 2008. As compensatory mitigation, the applicant will provide payment to the North Carolina Ecosystem Enhancement Program (NCEEP) (See Special Conditions on Page 3).**

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)

Authorization: Regional General Permit Number: ____
Nationwide Permit Number: **39**

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted plans. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone (919) 733-1786) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management .

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact Andrew Williams at telephone number 919-876-8441 extension 26.

Corps Regulatory Official Andrew Williams Date: **July 31, 2008**

Expiration Date of Verification: **July 31, 2010**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://regulatory.usacesurvey.com/ to complete the survey online.

Determination of Jurisdiction:

☐ Based on preliminary information, there appear to be waters of the US including wetlands within the above described project area. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☒ There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued _____. Action ID _____

Basis of Jurisdictional Determination: **The stream is a relatively permanent water (RPW) and an unnamed tributary to an unnamed tributary (RPW) to the West Fork of the the Deep River (RPW). The West Fork of the Deep River flows to and through several impoundments, and is a tributary to the Deep River, a traditionally navigable water (TNW). The Deep River is a tributary to the Cape Fear River, a navigable water of the United States. The Ordinary High Water Mark (OHWM) of the unnamed tributary was indicated by the following physical characteristics: clear natural line impressed on the bank, shelving, changes in the character of the soil, and the destruction of terrestrial vegetation. The wetlands are contiguous with the unnamed tributary and meet the hydrophytic vegetation, wetland hydrology, and hydric soil criteria of the 1987 Corps of Engineers Wetland Delineation Manual. The open waters are an impoundment of the unnamed tributary to the unnamed tributary to the West Fork of the Deep River.**

This jurisdictional determination is only for the waters/wetlands proposed for impacts associated with this Nationwide Permit and does not include any other waters/wetlands that may be located on the property.

Appeals Information (This information applies only to approved jurisdictional determinations.)

Attached to this verification is an approved jurisdictional determination. If you are not in agreement with that approved jurisdictional determination, you can make an administrative appeal under 33 CFR 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

District Engineer, Wilmington Regulatory Division
Attn: Andrew Williams, Project Manager,
Raleigh Regulatory Field Office
U.S. Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the District Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **September 29, 2008**.

It is not necessary to submit an RFA form to the District Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Andrew Williams

Date **July 31, 2008** Expiration Date **July 31, 2012**

Summary of Authorized Impacts and Required Mitigation

Action ID #	NWP / GP #	Open Water (ac)		Wetland (ac)		Unimportant Steam (lf)		Important Stream (lf)	
		Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
SAW-2008-01894	NWP 39		0.22		0.19				225
Impact Totals		0	0.22	0	0.19	0	0	0	225

Total Loss of Waters of the U.S. (ac)	0.436	Total Loss of Waters of the U.S. (lf)	225
Required Wetland Mitigation (ac)	0.19 **In-Lieu/EEP**	Required Stream Mitigation (lf)	450 **In-Lieu/EEP**

Additional Remarks and/or Special Permit Conditions:

Special Conditions: As compensatory mitigation, the applicant will provide payment to the North Carolina Ecosystem Enhancement Program (NCEEP) for 450 linear feet of warm stream credits to offset unavoidable impacts of 225 linear feet of warm water stream (2:1 ratio) and for 0.19 acre of riparian wetlands credit to offset unavoidable impact of 0.19 acre of riparian wetlands (1:1 ratio) within the Cape Fear River Basin, Hydrologic Unit Code 03030003. Payment must be made prior to conducting the authorized work.

Remarks: Impacts to waters of the United States for this project (SAW-2008-01894) and all other proposed impacts to waters of the United States within and associated with the Triad Business Park, including two (2) additional projects, SAW-2008-02092 (Triad Business Park) and SAW-2008-01599 (NE Sewerline Improvements, Phase I) are a single and complete project as defined in the Code of Federal Regulations (CFR) at 33 CFR 330.2(i). The use of more than one Nationwide Permit (NWP) for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specific acreage limit. Based on the information that has been submitted to date, impacts to waters of the United States for the three (3) project listed above, do not exceed the threshold limits of the applicable NWPs. The threshold limits of the applicable NWPs are 0.5 acre loss of waters of the United States, including 300 linear feet of stream channels with important aquatic function. Therefore, if either of these threshold limits is exceeded within the boundary of Triad Business Park (including but not limited to, the three (3) projects listed above) then this NWP verification is not applicable to your project.

SURVEY PLATS, FIELD SKETCH, WETLAND DELINEATION FORMS, PROJECT PLANS, ETC., MUST BE ATTACHED TO THE FILE COPY OF THIS FORM, IF REQUIRED OR AVAILABLE.

Copy Furnished:

Sue Homewood
North Carolina Department of Natural Resources
Division of Water Quality
585 Waughtown Street
Winston-Salem, NC 27107

Phil May
Carolina Ecosystems, Inc.
8208 Brian Court
Garner, North Carolina 27529

L. Allen Hill
Triad Design Group, PC
4807-C Koger Boulevard
Greensboro, North Carolina 27407

Mr. Terry Houk
City of High Point
211 South Hamilton Street
High Point, North Carolina 27260

Brian Hall
TDO Real Estate Holding, LLC
P.O. Box 8050
Greensboro, North Carolina 27419

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

FILE COPY

Action ID. SAW-2008-01599 County: Guilford USGS Quad: Kernersville

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner / Authorized Agent: City of High Point--Attn: Terry Houk
Address: 211 South Hamilton Street
High Point, North Carolina 27260

Telephone No.: 336-883-3215
Size and location of property (water body, road name/number, town, etc.): 11.5 acres (approximately); 17,000 feet (approximate) sewerline along an unnamed tributary to the West Fork of the Deep River located east of the Forsyth, Guilford County line, south of Interstate 40 and north of SR 1850 in Guilford County, North Carolina. The project is known as the *Northwest Sewer Improvements Phase I.*

Description of projects area and activity: This authorization is for the temporary discharge of clean fill material within six (6) jurisdictional stream channels and six (6) adjacent wetlands. The authorized temporary impacts at each individual stream crossing are as follows: Site 2: 47 linear feet (lf). Site 3: 26 lf. Site 7: 33 lf. Site 10: 31 lf. Site 14: 31 lf. Site 18: 31 lf. The total authorized temporary stream impacts are 199 lf. The authorized temporary impacts at each individual wetland are as follows: Site 8: 0.01 acre. Site 11: 0.04 acre. Site 12: 0.06 acre. Site 14: 0.04 acre. Site 15: 0.01 acre. Site 18: 0.03 acre. The total authorized temporary adjacent wetland impacts are 0.19 acre. This also authorizes the permanent maintenance of a 15 foot corridor at each wetland crossing for a total of 0.13 acre permantent impacts. Mitigation is required for the permanent impacts to wetlands (see Permit Conditions below). The project must be conducted in accordance with the application and drawings submitted on May 06, 2008 accept for the proposed impacts plans and sheets, which were resubmitted with revisions on September 15, 2008.

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)
Authorization: Regional General Permit Number: ____
Nationwide Permit Number: 12

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted plans. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone (919) 733-1786) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management .

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact Andrew Williams at telephone number 919-876-4884 extension 26.

Corps Regulatory Official Andrew Williams Date: October 24, 2008

Expiration Date of Verification: October 24, 2010

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://regulatory.usacesurvey.com/ to complete the survey online.

Determination of Jurisdiction:

☐ Based on preliminary information, there appear to be waters of the US including wetlands within the above described project area. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☒ There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued _____. Action ID _____

Basis of Jurisdictional Determination: **The streams are relatively permanent waters (RPW) and an unnamed tributaries to an unnamed tributary to the West Fork of the Deep River, an RPW. The West Fork of the Deep River is a tributary to the Deep River, a traditionally navigable water (TNW). The Deep River is a tributary to the Cape Fear River, a navigable water of the United States. The Ordinary High Water Mark (OHWM) of the unnamed tributaries were indicated by the following physical characteristics: clear natural line impressed on the bank, shelving, and the destruction of terrestrial vegetation. The wetlands are contiguous with and/or adjacent to the one of the unnamed tributaries and meet the hydrophytic vegetation, wetland hydrology, and hydric soil criteria of the 1987 Corps of Engineers Wetland Delineation Manual.**

This jurisdictional determination is only for the waters/wetlands proposed for impacts associated with this Nationwide Permit and does not include any other waters/wetlands that may be located on the property.

Appeals Information (This information applies only to approved jurisdictional determinations.)

Attached to this verification is an approved jurisdictional determination. If you are not in agreement with that approved jurisdictional determination, you can make an administrative appeal under 33 CFR 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

District Engineer, Wilmington Regulatory Division
Attn: Andrew Williams, Project Manager,
Raleigh Regulatory Field Office
U.S. Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the District Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **December 22, 2008**.

It is not necessary to submit an RFA form to the District Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Andrew Williams

Date **October 24, 2008** Expiration Date **October 24, 2013**

Summary of Authorized Impacts and Required Mitigation

Action ID #	NWP / GP #	Open Water (ac)		Wetland (ac)		Unimportant Steam (lf)		Important Stream (lf)	
		Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
SAW-2008-01599	NWP 12			0.19				199	
Impact Totals		0	0	0.19	0	0	0	199	0

Total Loss of Waters of the U.S. (ac)	0	Total Loss of Waters of the U.S. (lf)	0
Required Wetland Mitigation (ac)	0.26 In-Lieu/EEP	Required Stream Mitigation (lf)	0

Special Permit Conditions: **None**

1. In order to compensate for impacts to 0.13-acre of riparian wetlands the permittee shall make payment to the North Carolina Ecosystem Enhancement Program (NC EEP) in the amount determined by the NC EEP, sufficient to perform the restoration of 0.26-acre of riparian wetlands (2:1 ratio) in the Cape Fear River Basin, Cataloging Unit 03030003.

2. Construction within jurisdictional areas on the property shall begin only after the permittee has made full payment to the NC EEP and provided a copy of the payment documentation to the Corps, and the NC EEP has provided written confirmation to the Corps that it agrees to accept responsibility for the mitigation work required, in compliance with the MOU between the North Carolina Department of Environment and Natural Resources and the United States Army Corps of Engineers, Wilmington District, dated November 4, 1998.

Remarks: Impacts to waters of the United States for this project (SAW-2008-01599) and all other proposed impacts to waters of the United States within and associated with the Triad Business Park, including two (2) additional projects, SAW-2008-02092 (Triad Business Park) and SAW-2008-01894 (Project Hermes) are a single and complete project as defined in the Code of Federal Regulations (CFR) at 33 CFR 330.2(i). The use of more than one Nationwide Permit (NWP) for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specific acreage limit. Based on the information that has been submitted to date, impacts to waters of the United States for the three (3) project listed above, do not exceed the threshold limits of the applicable NWPs. The threshold limits of the applicable NWPs are 0.5 acre loss of waters of the United States, including 300 linear feet of stream channels with important aquatic function. Therefore, if either of these threshold limits is exceeded within the boundary of Triad Business Park (including but not limited to, the three (3) projects listed above) then this NWP verification is not applicable to your project.

SURVEY PLATS, FIELD SKETCH, WETLAND DELINEATION FORMS, PROJECT PLANS, ETC., MUST BE ATTACHED TO THE FILE COPY OF THIS FORM, IF REQUIRED OR AVAILABLE.

Copy Furnished:
Sue Homewood
North Carolina Department of Natural Resources
Division of Water Quality
585 Waughtown Street
Winston-Salem, NC 27107

Phil May
Carolina Ecosystems, Inc.
8208 Brian Court
Garner, North Carolina 27529

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

FILE COPY

Action ID. SAW-2008-02092 County: Guilford USGS Quad: Guilford

GENERAL PERMIT (REGIONAL AND NATIONWIDE) VERIFICATION

Property Owner / Authorized Agent: TDO Real Estate Holding, LLC--attn: Arthur Samet
Address: P.O. Box 8050
Greensboro, North Carolina 27419

Telephone No.: 336-544-2600
Size and location of property (water body, road name/number, town, etc.): 327 acre (approximately); The site is located approximately 2000 feet southeast of the easternmost intersection of West Market Street and Old Greensboro Road, in Guilford County, North Carolina and is identified as the *Triad Business Park*.

Description of projects area and activity: This authorization is for the temporary discharge of clean fill material within 0.011 acre of stream channel (125 linear feet) and 0.31 acre of jurisdictional forested wetlands at four (4) stream locations and two (2) wetland locations. These temporary impacts are associated with the installation of a sanitary sewer for the Triad Business Park. The project must be conducted in accordance with the application and drawings submitted on July 21, 2008. As compensatory mitigation, for impacts to 0.31-acre of riparian wetlands the permittee shall make payment to the North Carolina Ecosystem Enhancement Program (NCEEP) in the amount determined by the NCEEP, sufficient to perform the restoration of 0.62-acre of riparian wetlands, in the Cape Fear River Basin, Cataloging Unit 03030003. Payment must be made prior to conducting the authorized work.

Applicable Law: ☒ Section 404 (Clean Water Act, 33 USC 1344)
☐ Section 10 (Rivers and Harbors Act, 33 USC 403)
Authorization: Regional General Permit Number: ____
Nationwide Permit Number: 12

Your work is authorized by the above referenced permit provided it is accomplished in strict accordance with the attached conditions and your submitted plans. Any violation of the attached conditions or deviation from your submitted plans may subject the permittee to a stop work order, a restoration order and/or appropriate legal action.

This verification will remain valid until the expiration date identified below unless the nationwide authorization is modified, suspended or revoked. If, prior to the expiration date identified below, the nationwide permit authorization is reissued and/or modified, this verification will remain valid until the expiration date identified below, provided it complies with all requirements of the modified nationwide permit. If the nationwide permit authorization expires or is suspended, revoked, or is modified, such that the activity would no longer comply with the terms and conditions of the nationwide permit, activities which have commenced (i.e., are under construction) or are under contract to commence in reliance upon the nationwide permit, will remain authorized provided the activity is completed within twelve months of the date of the nationwide permit's expiration, modification or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend or revoke the authorization.

Activities subject to Section 404 (as indicated above) may also require an individual Section 401 Water Quality Certification. You should contact the NC Division of Water Quality (telephone (919) 733-1786) to determine Section 401 requirements.

For activities occurring within the twenty coastal counties subject to regulation under the Coastal Area Management Act (CAMA), prior to beginning work you must contact the N.C. Division of Coastal Management .

This Department of the Army verification does not relieve the permittee of the responsibility to obtain any other required Federal, State or local approvals/permits.

If there are any questions regarding this verification, any of the conditions of the Permit, or the Corps of Engineers regulatory program, please contact Andrew Williams at telephone number 919-876-8441 extension 26.

Corps Regulatory Official Andrew Williams Date: September 12, 2008

Expiration Date of Verification: September 12, 2010

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at our website at http://regulatory.usacesurvey.com/ to complete the survey online.

Determination of Jurisdiction:

☐ Based on preliminary information, there appear to be waters of the US including wetlands within the above described project area. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

☐ There are Navigable Waters of the United States within the above described project area subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☒ There are waters of the US and/or wetlands within the above described project area subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

☐ The jurisdictional areas within the above described project area have been identified under a previous action. Please reference jurisdictional determination issued _____. Action ID _____

Basis of Jurisdictional Determination: **The streams are relatively permanent waters (RPW) and are unnamed tributaries to the an unnamed tributary to the West Fork of Deep River, an RPW. The West Fork of Deep River flows to and through Oak Hollow and High Point Lakes, impoundments of the West Fork of Deep River. High Point Lake discharges to the Deep River, a Traditionally Navigable Water (TNW), which is a tributary to the Cape Fear River, a navigable water of the United States. The Ordinary High Water Mark (OHWM) of the unnamed tributary was indicated by the following physical characteristics: clear natural line impressed on the bank, shelving, and the destruction of terrestrial vegetation. The wetlands are contiguous with the unnamed tributary and meet the hydrophytic vegetation, wetland hydrology, and hydric soil criteria of the 1987 Corps of Engineers Wetland Delineation Manual. The ponds located on site are impoundments of the unnamed tributaries.**

Appeals Information (This information applies only to approved jurisdictional determinations.)

Attached to this verification is an approved jurisdictional determination. If you are not in agreement with that approved jurisdictional determination, you can make an administrative appeal under 33 CFR 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

District Engineer, Wilmington Regulatory Division
Attn: Andrew Williams, Project Manager,
Raleigh Regulatory Field Office
U.S. Army Corps of Engineers
3331 Heritage Trade Drive, Suite 105
Wake Forest, North Carolina 27587

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the District Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Novemeber 10, 2008**.

It is not necessary to submit an RFA form to the District Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Andrew Williams

Date **September 12, 2008** Expiration Date **September 12, 2013**

Summary of Authorized Impacts and Required Mitigation

Action ID #	NWP / GP #	Open Water (ac)		Wetland (ac)		Unimportant Steam (lf)		Important Stream (lf)	
		Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent
SAW-2008-02092	NWP 12			0.31				125	
Impact Totals		0	0	0.31	0	0	0	125	0
Total Loss of Waters of the U.S. (ac)				0		Total Loss of Waters of the U.S. (lf)			0
Required Wetland Mitigation (ac)		0.62	In-Lieu/EEP			Required Stream Mitigation (lf)		0	

Additional Remarks and/or Special Permit Conditions:
Special Conditions:

1. In order to compensate for impacts to 0.31-acre of riparian wetlands the permittee shall make payment to the North Carolina Ecosystem Enhancement Program (NCEEP) in the amount determined by the NCEEP, sufficient to perform the restoration of 0.62-acre of riparian wetlands, in the Cape Fear River Basin, Cataloging Unit 03030003.

Construction within jurisdictional areas on the property shall begin only after the permittee has made full payment to the NCEEP and provided a copy of the payment documentation to the Corps, and the NCEEP has provided written confirmation to the Corps that it agrees to accept responsibility for the mitigation work required, in compliance with the MOU between the North Carolina Department of Environment and Natural Resources and the United States Army Corps of Engineers, Wilmington District, dated November 4, 1998.

2. The Permittee shall preserve and maintain all the jurisdictional waters and wetlands at the Triad Business Park as shown on the wetlands delineation map received by the Corps of Engineers on July 21, 2008, excluding the waters/wetlands at the Project Hermes (SAW-2008-01894) site. Additionally, the permittee shall preserve and maintain a 30 foot buffer around all of the stream and pond features shown on the wetlands delineation map received by the Corps of Engineers on July 21, 2008. The jurisdictional areas, including the 30 foot buffer area, is referred to as the conservation area. The permittee is prohibited from performing any of the following activities within the conservation area: Filling; grading; excavating; earth movement of any kind; construction of roads, walkways, buildings, signs, or any other structure; any activity that may alter the drainage patterns in the conservation area; the destruction, mowing, or other alteration of vegetation within the conservation area; disposal or storage of any garbage, trash, or other waste material; or any other activity which would result in the wetlands/waters being adversely impacted or destroyed.

3. Prior to December 31, 2008, the Permittee shall execute and cause to be recorded Restrictive Covenants, that comply with language specified by the Wilmington District Army Corps of Engineers Restrictive Covenant Guidance, August 2003, prohibiting those activities listed in condition 2 above. The only areas that are to be excluded from the restrictive covenants are those jurisdictional areas that have been permitted for impacts under nationwide permits for Triad Business Park (SAW-2008-02092), Project Hermes (SAW-2008-01894) and the City of High Point Sewer Line (SAW-2008-01599). The permittee shall provide a copy of the recorded restrictive covenants to the Corps of Engineers within 30 days of recording.

Remarks: Impacts to waters of the United States for this project (SAW-2008-02092) and all other proposed impacts to waters of the United States within and associated with the Triad Business Park, including two (2) additional projects, SAW-2008-01894 (Project Hermes) and SAW-2008-01599 (NE Sewerline Improvements, Phase I) are a single and complete project as defined in the Code of Federal Regulations (CFR) at 33 CFR 330.2(i). The use of more than one Nationwide Permit (NWP) for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specific acreage limit. Based on the information that has been submitted to date, impacts to waters of the United States for the three (3) projects listed above, do not exceed the threshold limits of the applicable NWPs. The threshold limits of the applicable NWPs are 0.5 acre loss of waters of the United States, including 300 linear feet of stream channels with important aquatic function. Therefore, if either of these

threshold limits is exceeded within the boundary of Triad Business Park (including but not limited to, the three (3) projects listed above) then this NWP verification is not applicable to your project.

SURVEY PLATS, FIELD SKETCH, WETLAND DELINEATION FORMS, PROJECT PLANS, ETC., MUST BE ATTACHED TO THE FILE COPY OF THIS FORM, IF REQUIRED OR AVAILABLE.

Copy Furnished:
Sue Homewood
North Carolina Department of Natural Resources
Division of Water Quality
585 Waughtown Street
Winston-Salem, NC 27107

Phil May
Carolina Ecosystems, Inc.
8208 Brian Court
Garner, North Carolina 27529

L. Allen Hill
Triad Design Group, PC
4807-C Koger Boulevard
Greensboro, North Carolina 27407

Mr. Terry Houk
City of High Point
211 South Hamilton Street
High Point, North Carolina 27260

Brian Hall
TDO Real Estate Holding, LLC
P.O. Box 8050
Greensboro, North Carolina 27419

2008085841
GUILFORD CO, NC FEE $35.00
PRESENTED & RECORDED:
12-31-2008 01:27:16 PM
JEFF L. THIGPEN
REGISTER OF DEEDS
BY: MARY MORGAN
DEPUTY-GB

BK: R 6963
PG: 452-459

NORTH CAROLINA

GUILFORD COUNTY

Prepared by and Return to:
Donald G. Sparrow, Sparrow Wolf & Dennis, PA

P/U SWD

AMENDMENT TO DECLARATION OF PROTECTIVE COVENANTS, CONDITIONS, RESTRICTIONS AND RESERVATIONS

THIS AMENDMENT TO DECLARATION OF PROTECTIVE COVENATNS, CONDITIONS, RESTRICTIONS AND RESERVATIONS made effective as of December 31, 2008.

WITNESSETH:

WHEREAS, on September 30, 2008, TDO Land Holding, LLC, a North Carolina limited liability company ("TDO"), NB JOHNSON II, LLC and SB JOHNSON II, LLC, both Florida limited liability companies ("Johnson") collectively hereinafter sometimes referred to as Declarants, executed a Declaration of Protective Covenants, Conditions, Restrictions and Reservations ("Declarations"), the same being recorded in Book 6939, Page 2897, in the Guilford County Registry, and

WHEREAS, Article 9 of the Declaration permits amendment by the Declarants; and

WHEREAS, the U.S. Army Corps of Engineers issued a permit to TDO Land Holding, LLC to conduct certain activities and to establish certain wetlands delineation, as shown on a survey entitled "Wetlands Delineation, Triad Business Park, Deep River Township, Guilford County, Kernersville, North Carolina, prepared by Regional Land Surveyors, Inc. attached as Exhibits A and A-1; and

WHEREAS, as a condition to issuing said permit, entitled SAW-2008-02092, the U.S. Army Corps of Engineers required that Declarant place upon all areas shown as wetlands delineation on Exhibits A and A-1 of Triad Business Park, save and except Lot 4, Triad Business Park Phase I, as shown on plat recorded in the Office of the Register of Deeds of Guilford County, North Carolina, in Plat Book 175, Pages 97 and 98 be further restricted in accordance with the restrictions set forth below;

NOW, THEREFORE, Declarants hereby amend said Declaration by adding the following Article to the Declaration:

ARTICLE 12: CONSERVATION AREA

12.0 The areas shown on the Wetland Delineation Plat as Conservation Areas as shown on Exhibits A and A-1 attached hereto shall be maintained in perpetuity in their natural or mitigated condition. No person or entity shall perform any of the following activities on such conservation area:

a. fill, grade, excavate or perform any other land disturbing activities
b. cut, mow, burn, remove, or harm any vegetation
c. construct or place any roads, trails, walkways, buildings, mobile homes, signs, utility poles or towers, or any other permanent or temporary structures
d. drain or otherwise disrupt or alter the hydrology or drainage ways of the conservation area
e. dump or store soil, trash, or other waste
f. graze or water animals, or use for any agricultural or horticultural purpose.

This 31st day of December, 2008.

SIGNATURE PAGES TO FOLLOW

TDO LAND HOLDING, LLC

By: _____
Arthur L. Samet, Manager

By: _____
, Manager

NORTH CAROLINA
GUILFORD COUNTY

I, Anita C. Yates, a Notary Public of Guilford County, North Carolina, certify that Arthur L. Samet, on behalf of TDO Land Holding, LLC, personally appeared before me this day, acknowledged to me that he voluntarily signed the foregoing instrument for the purpose stated therein and in the capacity indicated.

Witness my hand and notarial seal this the 23rd day of Dec, 2008.

_____
Notary Public

ANITA C. YATES NOTARY PUBLIC GUILFORD COUNTY, NC

My commission expires:

2/27/11

NORTH CAROLINA
GUILFORD COUNTY

I, _____, a Notary Public of _____, North Carolina, certify that _____, on behalf of TDO Land Holding, LLC, personally appeared before me this day, acknowledged to me that he voluntarily signed the foregoing instrument for the purpose stated therein and in the capacity indicated.

Witness my hand and notarial seal this the _____ day of _____, 2008.

_____
Notary Public

My commission expires:

_____

TDO LAND HOLDING, LLC

By: _____
Arthur L. Samet, Manager

By: _____
, Manager

NORTH CAROLINA
GUILFORD COUNTY

I, Anita C. Yates, a Notary Public of Guilford County, North Carolina, certify that Arthur L. Samet, on behalf of TDO Land Holding, LLC, personally appeared before me this day, acknowledged to me that he voluntarily signed the foregoing instrument for the purpose stated therein and in the capacity indicated.

Witness my hand and notarial seal this the 23rd day of Dec, 2008.

_____
Notary Public

ANITA C. YATES NOTARY PUBLIC GUILFORD COUNTY, NC

My commission expires:

2/27/11

NORTH CAROLINA
GUILFORD COUNTY

I, Connie A Ader, a Notary Public of Forsyth, North Carolina, certify that Grover Shugart, Jr. on behalf of TDO Land Holding, LLC, personally appeared before me this day, acknowledged to me that he voluntarily signed the foregoing instrument for the purpose stated therein and in the capacity indicated.

Witness my hand and notarial seal this the 29th day of Dec, 2008.

_____
Notary Public

CONNIE A. ADER NOTARY PUBLIC FORSYTH COUNTY, N. C. My Comm. Exp. 3-27-2010

My commission expires:

3/27/2010

NB JOHNSON II, LLC

By: _____

STATE OF FLORIDA
Palm Beach COUNTY

I, Beverley Pingel, a Notary Public of Florida, certify that Nathan Butters, on behalf of NB JOHNSON II, LLC, personally appeared before me this day, acknowledged to me that he voluntarily signed the foregoing instrument for the purpose stated therein and in the capacity indicated.

Witness my hand and notarial seal this the 30th day of December, 2008.

BEVERLEY PINGEL
Comm# DD0794550
Expires 6/20/2012
Florida Notary Asen., Inc

_____
Notary Public

My commission expires:

_____

SB JOHNSON II, LLC

By: _____

STATE OF FLORIDA
Palm Beach COUNTY

I, Beverley Pingel, a Notary Public of Florida, certify that Samuel Butters, on behalf of SB JOHNSON II, LLC, personally appeared before me this day, acknowledged to me that he voluntarily signed the foregoing instrument for the purpose stated therein and in the capacity indicated.

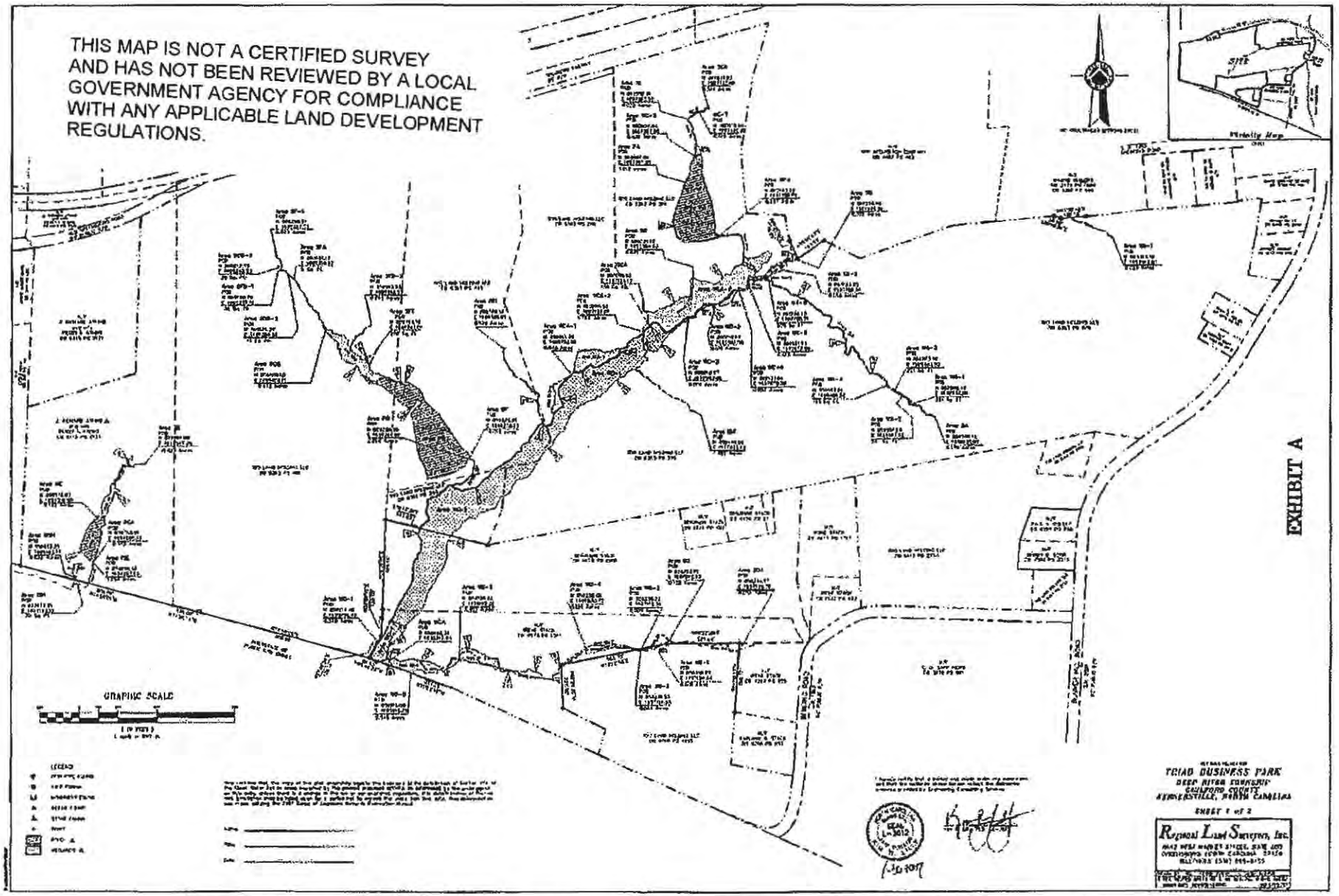
Witness my hand and notarial seal this the 30th day of December, 2008.

BEVERLEY PINGEL
Comm# DD0794550
Expires 6/20/2012
Florida Notary Assn., Inc

_____
Notary Public

My commission expires: _____

F:\U.S.ers\DGS\SAMET\TDO\AmentmentToRestrictiveCovenants-Johnson.doc


THIS MAP IS NOT A CERTIFIED SURVEY AND HAS NOT BEEN REVIEWED BY A LOCAL GOVERNMENT AGENCY FOR COMPLIANCE WITH ANY APPLICABLE LAND DEVELOPMENT REGULATIONS.
EXHIBIT A
GRAPHIC SCALE
TRIAD BUSINESS PARK
Regional Land Surveyors, Inc.

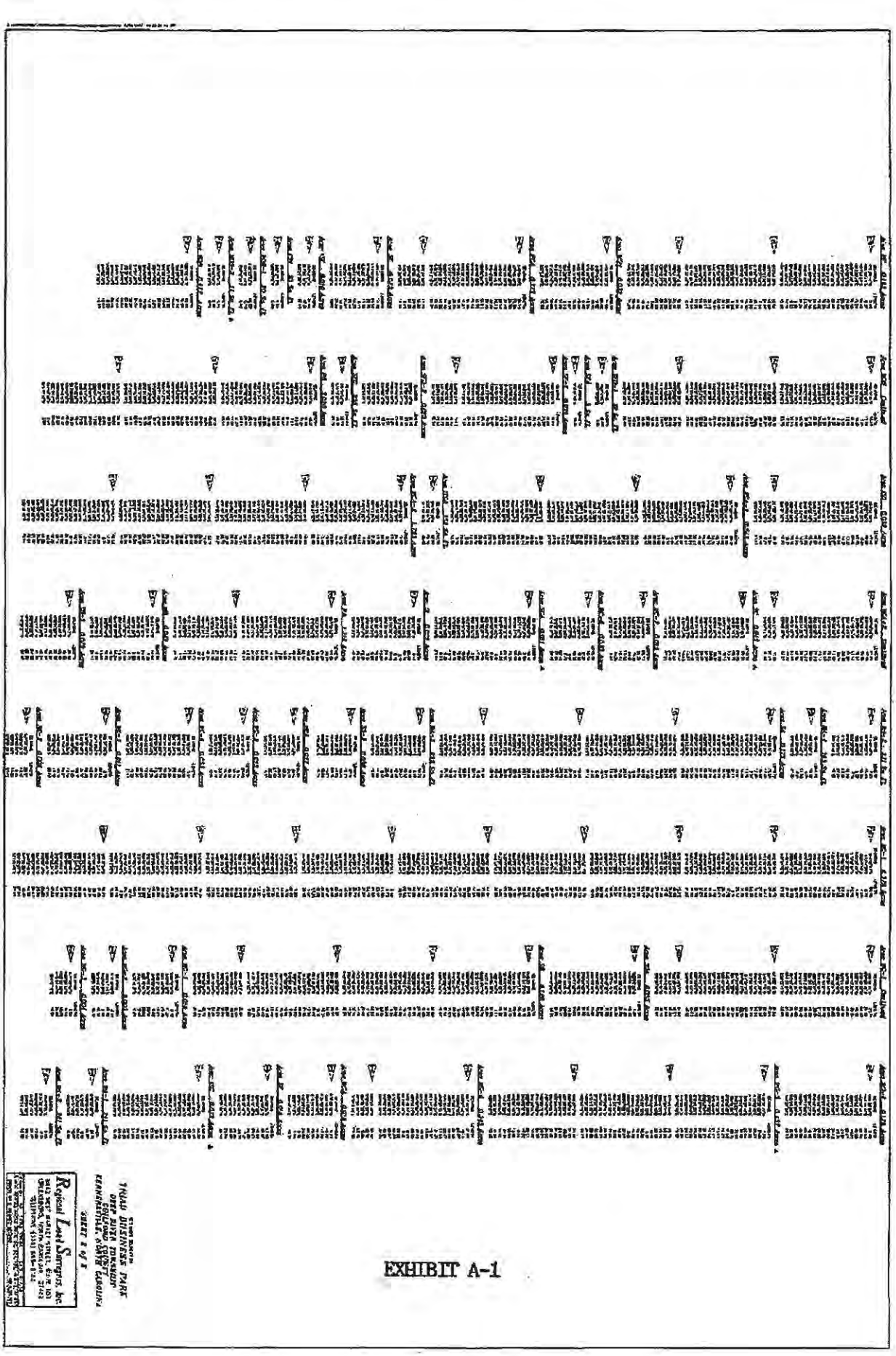
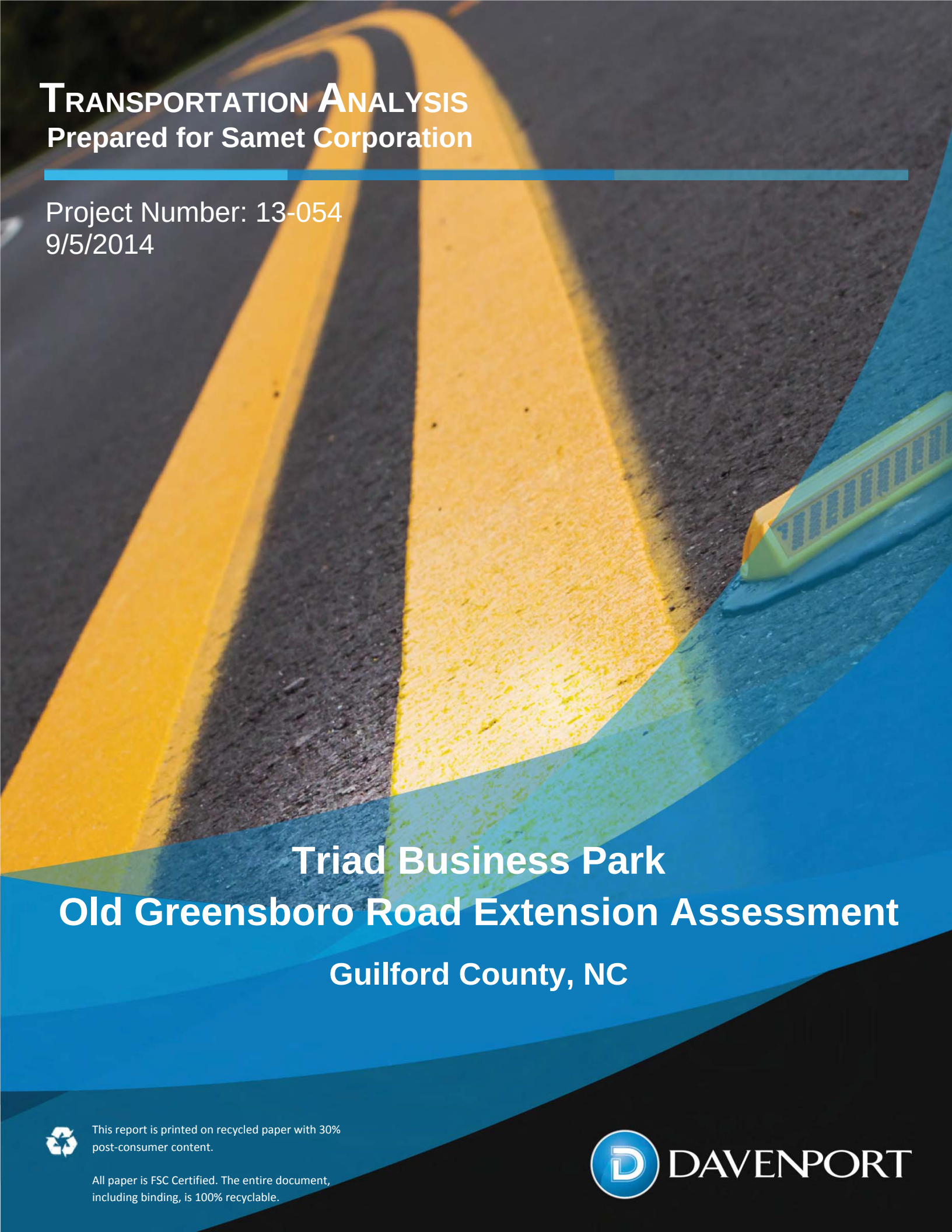


EXHIBIT A-1

APPENDIX VII

ALTERNATIVE'S ANALYSIS SUPPLEMENTAL INFORMATION



Transportation Analysis
Prepared for Samet Corporation

Project Number: 13-054
9/5/2014

Triad Business Park
Old Greensboro Road Extension Assessment

Guilford County, NC

DAVENPORT

DAVENPORT

Transportation Analysis

Triad Business Park
Old Greensboro Road Extension Assessment
Guilford County, NC

Prepared for Samet Corporation
September 5, 2014

Analysis by: Mary Morgan, P.E.

Drafting/Graphics by: Mary Morgan, P.E.

Reviewed by: John M. Davenport, Jr, P.E.
Nick Liguori, P.E

Sealed by: Mary Morgan, P.E.

SEAL

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Serving the Southeast since 2002

Triad Business Park – Old Greensboro Road Extension Assessment
Guilford County, NC
Prepared for Samet Corporation
September 5, 2014

Executive Summary

This study was conducted to provide an evaluation of the potential extension of Old Greensboro Road through the Triad Business Park to Bunker Hill Road. The Triad Business Park is located off Mountain Street and Bunker Hill Road in Guilford County, NC.

The park contains over 300 acres with 14 industrial lots. DAVENPORT previously prepared a Transportation Impact Analysis (TIA) for the site in 2007 and provided recommendations for interim (Phase 1) and full build conditions. A portion of the western side of the park is developed and the remainder of the park is currently undeveloped. Access is currently provided by Old Greensboro Road and also by Business Park Drive which intersects with Mountain Street.

Old Greensboro Road runs through the western side of the park and currently terminates west of a stream near the center of the site. The proposed extension of Old Greensboro Road will extend it from its existing eastern terminus to Bunker Hill Road. DAVENPORT was retained to determine the effects with and without the extension in place related to traffic operations, roadway capacity, travel time, and safety. The following intersections were included in the study:

- Market Street at Bunker Hill Road
- Bunker Hill Road at Proposed Access
- Mountain Street at Business Park Drive/Triad Park Entrance
- Old Greensboro Road at Business Park Drive
- Macy Grove Road at Old Greensboro Road
- I-40 Business Eastbound Ramps at Macy Grove Road
- I-40 Business Westbound Ramps at Macy Grove Road
- Mountain Street at Macy Grove Road Ramps

To determine the impacts of the potential extension of Old Greensboro Road, the above-mentioned intersections were analyzed for the following two scenarios:

- Future Build Conditions without the Old Greensboro Road Extension
- Future Build Conditions with the Old Greensboro Road Extension

Assuming an absorption rate of 15 acres per year, a buildout year of 2028 was utilized for this analysis. This analysis was carried out based on North Carolina Department of Transportation (NCDOT) typical standards. Information regarding the property was provided by the developer, Samet Corporation.

Benefits of the Old Greensboro Road Extension

This section discusses the benefits of the Old Greensboro Road Extension and its impacts on roadway capacity, travel time, and safety.

Capacity of Roadway Network

As shown in the capacity analysis results, the surrounding roadway network is anticipated to be at or near capacity in future build conditions. With the extension of Old Greensboro Road, site traffic will be able to remain onsite using the extension when traveling to and from the west (see Exhibit A of the report). Without the Old Greensboro Road Extension, site traffic will have to travel on Bunker Hill Road then to Mountain Street to reach destinations to the west. Therefore, the Extension helps relieve congestion on offsite roadways and intersections by keeping the Triad Business Park traffic onsite. This results in improved level of service for the following intersections:

- Market Street at Bunker Hill Road (LOS E to LOS C)
- Bunker Hill Road at Proposed Access (LOS B to LOS A)
- Mountain Street at Business Park Drive/Triad Park Entrance (LOS E to LOS D)
- Mountain Street at Macy Grove Road Ramps (LOS C to LOS B)

Additionally, the new I-40 Business interchange at Macy Grove Road that will be constructed with TIP U-2800 provides an ideal access to the interstate for truck traffic traveling to and from the Triad Business Park. The next nearest interchange with I-40 is located at Sandy Ridge Road, east of the site. This interchange currently experiences capacity deficiencies and is anticipated to worsen in future conditions as traffic volumes continue to grow. Therefore, the Extension will provide a more direct access to the interstate for Triad Business Park traffic and diverts site traffic from the congested interchange at Sandy Ridge Road.

Travel Time

As shown in Exhibit A of the report, site traffic traveling to/from the west from the eastern portion of the Triad Business Park will be routed around the site without the Old Greensboro Road Extension. This results in additional travel distance, travel time and emissions for affected site traffic. Site traffic will travel an additional distance of approximately 1.25 miles without the Extension and based on SimTraffic model results, will have approximately six minutes of additional travel time. Analysis results show that approximately 480 PM peak hour trips would be subject to this additional travel time, distance, and emissions.

Furthermore, since offsite intersections will experience increased traffic without the Extension, this will increase the delay, travel time, and emissions at affected intersections for both site traffic and background traffic.

Safety – Highway-Rail Grade Crossings

The Old Greensboro Road Extension would allow for truck traffic to avoid the highway-rail grade crossing on Bunker Hill Road. This crossing is located just south of the intersection at Mountain Street. The control devices at this crossing consist of active flashing red lights and gates and a railroad crossing sign (Crossbuck, R15-1) is provided at the crossing. In addition, advance warning signs (W10-1) and grade crossing pavement markings are provided in advance of the crossing.

As discussed in the Methodology section of this report, 15% of site traffic was assumed to travel to/from the west on Mountain Street and 40% was assumed to travel to/from the new I-40 Business interchange on Macy Grove Road.

With the Extension in place, site traffic traveling to/from the west on Mountain Street will be able to remain on Old Greensboro Road and then travel on Business Park Drive to reach their destination. This site traffic would travel through the grade crossing located on Business Park Drive. Site traffic traveling to/from the new interchange on Macy Grove Road will be able to access the site directly from Old Greensboro Road and not travel through any at grade crossings.

Without the Extension, affected site traffic will be rerouted around the site and through the grade crossing on Bunker Hill Road to reach these destinations. Consequently, the construction of the Old Greensboro Road Extension will enhance the safety of this grade crossing by reducing the volumes of truck traffic on Bunker Hill Road. Moreover, the Extension will result in reduced traffic on all of the grade crossings in the area; this is due to the creation of a route from the new interchange on Macy Grove Road for site traffic via Old Greensboro Road without any rail crossings.

Highway-Rail Grade Crossing on Bunker Hill Road

Safety – General

The frequency of accidents generally increases with the amount of vehicle-miles traveled. By reducing the travel time and distance of site traffic, this will tend to reduce the frequency and probability of accidents offsite. Also, the safety of an intersection can be improved with better level of service and operation. As discussed, the extension of Old Greensboro Road is anticipated to improve the operation of several offsite intersections. The improved operation will enhance the safety of these intersections.

In addition, the Extension will decrease the offsite truck traffic associated with the Triad Business Park. The Extension will allow trucks traveling from the eastern portion of the Park to remain onsite when traveling west, and avoid interaction with traffic on Bunker Hill Road and Mountain Street.

Implications to the Triad Business Park & Kernersville Area

As outlined in this report, the construction of the Old Greensboro Road Extension will enhance the operation and safety of the surrounding roadway network. This will inherently benefit the operations within the Park by provide safer and more efficient travel to and from the site. The Extension also allows site traffic to remain onsite when traveling to and from destinations within the Triad Business Park itself. This will enhance internal operations while relieving offsite congestion.

The Extension will provide adequate access to the future eastern portion of the Triad Business Park. Without the Extension, the majority of site traffic from the eastern portion of the Park will have to travel through the intersection of Market Street at Bunker Hill Road. This intersection is anticipated to operate at an unacceptable level of service under this scenario (more information can be found in the Capacity Analysis section of this report). This is expected even with the recent improvements of TIP R-2611. As previously discussed, the lack of the Extension will also result in increased travel time and delay for affected site traffic. Therefore, the future construction of the remainder of the Triad Business Park is encumbered without the extension of Old Greensboro Road.

The Triad Business Park has the ability to serve the Kernersville area with job growth, increased tax base, and overall economic development. As previously discussed, the construction of the Old Greensboro Road Extension will enhance the surrounding area with improved roadway capacity, operation, and safety. Therefore, the Extension will serve as a benefit to the Kernersville area.

Recommendations

The extension of Old Greensboro Road is recommended to enhance the operation of the surrounding roadway network by reducing offsite traffic and keeping site traffic within the site. The Extension will provide adequate access to the future eastern portion of the Triad Business Park and enhance onsite operations. Lastly, the Extension is anticipated to benefit the surrounding area with improved traffic operations and safety while also supporting future economic growth. The recommended cross section for the extension is three lanes – one through lane in each direction and a two-way left turn lane.

Consistent with the prior study conducted by DAVENPORT for the Triad Business Park in 2007, the following improvements are recommended for the Proposed Access at Bunker Hill Road:

- Signalization
- A southbound right turn lane with 150 feet of storage
- Separate right and left turn egress lanes

The intersection of Old Greensboro Road at Business Park Drive should be further evaluated for improvements as the Triad Business Park continues development of lots and if Old Greensboro Road extension is implemented.

If needed, the future interchange of Macy Grove Road at I-40 Business can be further evaluated in the future when it is in operation to better determine expected operation and any needs.

The recommended improvements are depicted in Figure 10 of the report.

Summary and Conclusion

The Triad Business Park is located off Mountain Street and Bunker Hill Road in Guilford County, NC. The park contains over 300 acres with 14 industrial lots and DAVENPORT previously prepared a Transportation Impact Analysis (TIA) for the site in 2007. A portion of the western side of the park is developed and the remainder of the park is currently undeveloped. Access is currently provided by Old Greensboro Road and also by Business Park Drive which intersects with Mountain Street.

This study was conducted to provide an evaluation of the potential extension of Old Greensboro Road through the Triad Business Park to Bunker Hill Road. Old Greensboro Road runs through the western side of the park and currently terminates west of a stream near the center of the site. The proposed extension of Old Greensboro Road will extend it from its existing eastern terminus to Bunker Hill Road.

DAVENPORT was retained to determine the effects with and without the extension in place related to traffic operations, roadway capacity, travel time, and safety. Two scenarios were considered in this analysis: Future Build Conditions without the Old Greensboro Road Extension; and Future Build Conditions with the Old Greensboro Road Extension.

The capacity analysis of this study found that the construction of the Extension results in improved level of service for the following offsite intersections:

- Market Street at Bunker Hill Road (LOS E to LOS C)
- Bunker Hill Road at Proposed Access (LOS B to LOS A)
- Mountain Street at Business Park Drive/Triad Park Entrance (LOS E to LOS D)
- Mountain Street at Macy Grove Road Ramps (LOS C to LOS B)

This is due to the fact that site traffic is able to remain onsite when traveling to/from the west instead of being routed around the site and increasing traffic on offsite roadways. Less traffic on the offsite roadways results in improved level of service, delay, and safety for the affected intersections. Furthermore, the Extension will decrease the truck traffic associated with the Triad Business Park on offsite roadways and rail grade crossings. The Extension will allow trucks traveling from the eastern portion of the Park to remain onsite when traveling west, and avoid rail crossings and interaction with traffic on Bunker Hill Road and Mountain Street.

The absence of the Extension results in additional travel time, distance, and emissions for site traffic traveling from the eastern portion of the park to destinations to the west. An additional distance of 1.25 miles and time of approximately six minutes is estimated. Analysis results show that approximately 480 PM peak hour trips would be subject to this additional travel time. Also, the extension will enhance internal operations by provide adequate access and allowing site traffic to remain onsite when traveling to destinations within the Triad Business Park.

Based on the results of this study, the extension of Old Greensboro Road is recommended to provide adequate access to the remainder of the Triad Business Park, and enhance the safety and operation of the surrounding roadway network. The recommended cross section for the extension is three lanes – one through lane in each direction and a two-way left turn lane.

Other improvements include signalization and turn lanes, consistent with the prior study conducted by DAVENPORT for the Triad Business Park in 2007, at the Proposed Access at Bunker Hill Road. The intersection of Old Greensboro Road at Business Park Drive should be further evaluated for improvements as the Triad Business Park continues development of lots, particularly if Old Greensboro Road extension is constructed.

In conclusion, this study has reviewed the impacts of the proposed Old Greensboro Road Extension, and has determined that its construction is necessary in order to provide adequate access to the remainder of the Triad Business Park and improved operation and safety of the surrounding roadway network.

DAVENPORT

Triad Business Park – Old Greensboro Road Extension Assessment
Guilford County, NC
Prepared for Samet Corporation
September 5, 2014

Table of Contents

Triad Business Park – Old Greensboro Road Extension Assessment
Guilford County, NC
Prepared for Samet Corporation
September 5, 2014

1.0 Introduction

This study was conducted to provide an evaluation of the potential extension of Old Greensboro Road through the Triad Business Park to Bunker Hill Road. The Triad Business Park is located off Mountain Street and Bunker Hill Road in Guilford County, NC. Figure 1 provides a site plan and Figures 2A and 2B provide site location and vicinity maps, respectively.

The park contains over 300 acres with 14 industrial lots. DAVENPORT previously prepared a Transportation Impact Analysis (TIA) for the site in 2007 and provided recommendations for interim (Phase 1) and full build conditions. A portion of the western side of the park is developed and the remainder of the park is currently undeveloped. Access is currently provided by Old Greensboro Road and also by Business Park Drive which intersects with Mountain Street.

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- I-40 Business Westbound Ramps at Macy Grove Road
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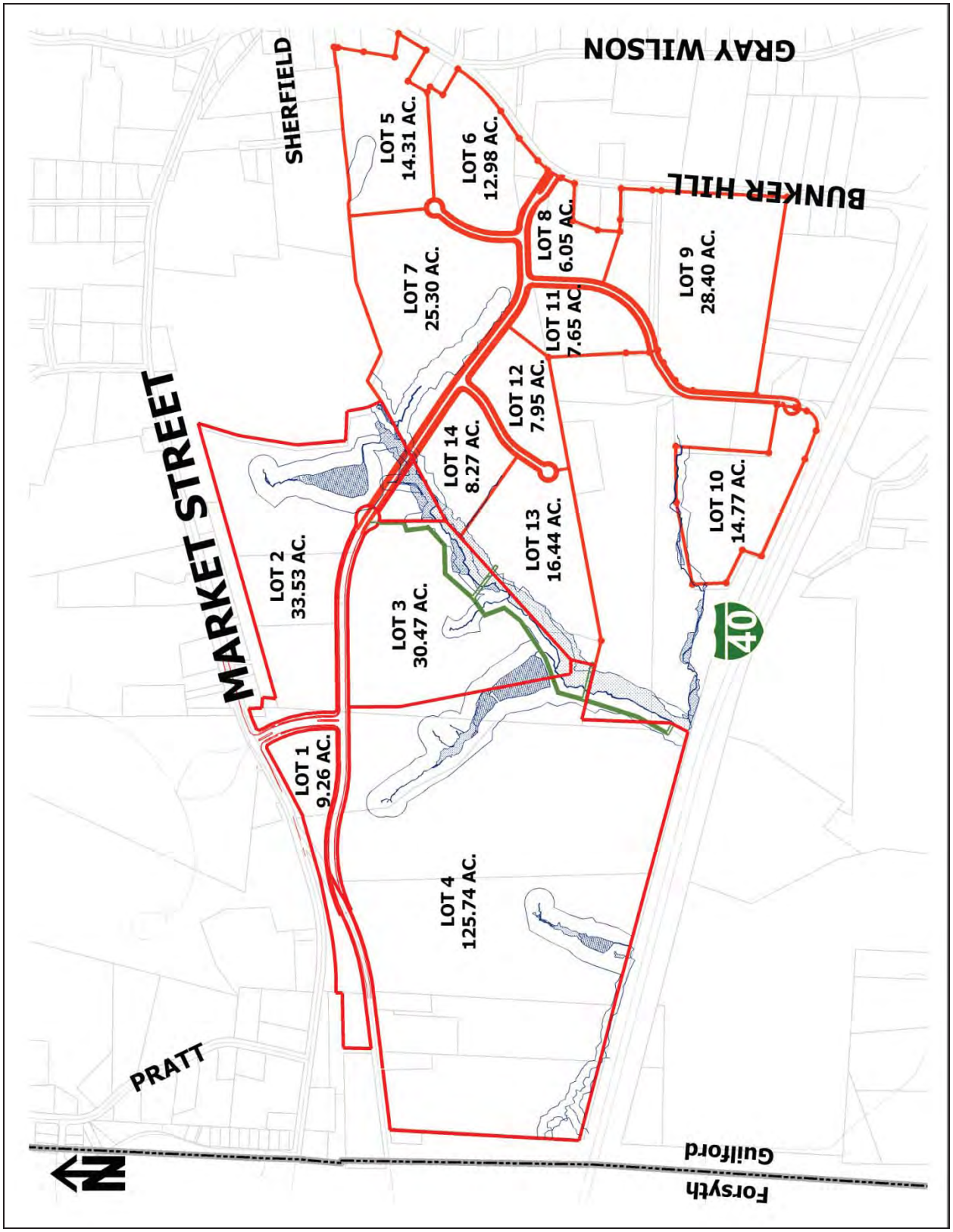

Figure 1 – Site Plan

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FIGURE 2A
SITE LOCATION MAP

SITE INDICATOR

DAVENPORT

FIGURE 2B
VICINITY MAP

STUDY INTERSECTIONS
EXISTING
PROPOSED

2.0 Existing Conditions

2.1 Inventory

A field investigation was conducted by DAVENPORT staff to determine the existing roadway conditions in the study area. Table 2.1 contains the results of this effort. Figure 3 illustrates the existing lane geometry.

Table 2.1 - Street Inventory

Facility Name	Route #	Typical Cross Section	Pavement Width	Speed Limit	Maintained By
Mountain Street / Market Street	SR 1008	2-lane undivided	Approx. 24 feet	45 MPH	NCDOT
Bunker Hill Road	SR 2007	2-lane undivided	Approx. 20 feet	35 MPH	NCDOT
Old Greensboro Road	SR 1846	2-lane undivided	Approx. 22 feet	45 MPH	NCDOT
Business Park Drive	1994	2-lane divided 2-lane w/ TWLTL at site	Approx. 50 feet	Not posted	NCDOT
Macy Grove Road	1860	2-lane undivided	Approx. 22 feet	45 MPH	NCDOT
I-40 Business	421	8-lane divided	Approx. 96 feet	65 MPH	NCDOT

2.2 Existing Traffic Volumes

Existing traffic volumes for this project were collected by DAVENPORT staff. Table 2.2 contains the dates these counts were conducted. Figure 4 shows existing AM and PM peak hour volumes. More information can be found in the Traffic Volume Data section of the appendix.

Table 2.2 - Traffic Volume Data

Count Location	Date Taken	By
Market Street at Bunker Hill Road	8/5/2014	DAVENPORT
Mountain Street at Business Park Drive/Triad Park Entrance	8/5/2014	DAVENPORT
Old Greensboro Road at Business Park Drive	8/5/2014	DAVENPORT

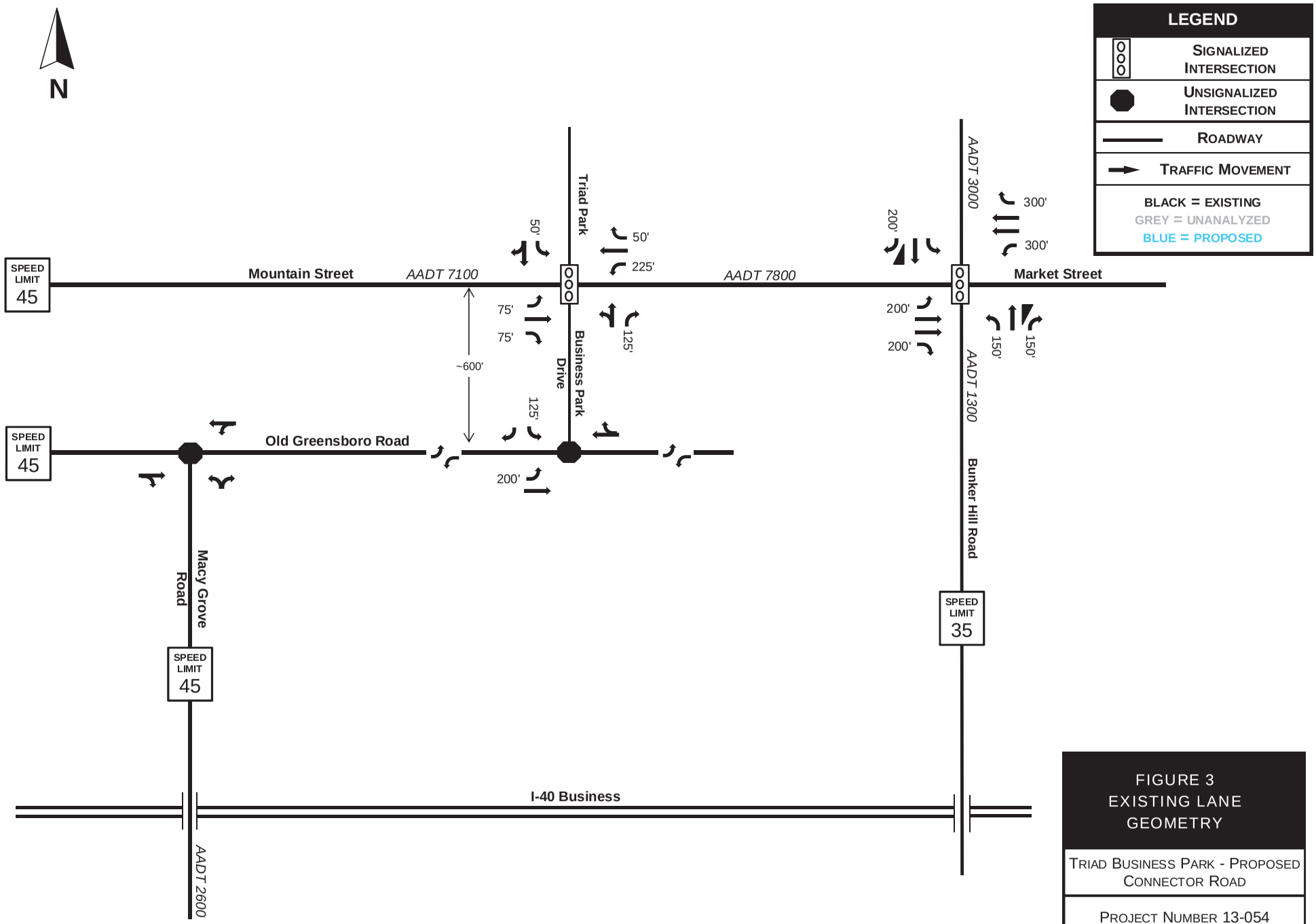


FIGURE 3
EXISTING LANE GEOMETRY

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

PROJECT NUMBER 13-054

DAVENPORT

*** NOT TO SCALE ***

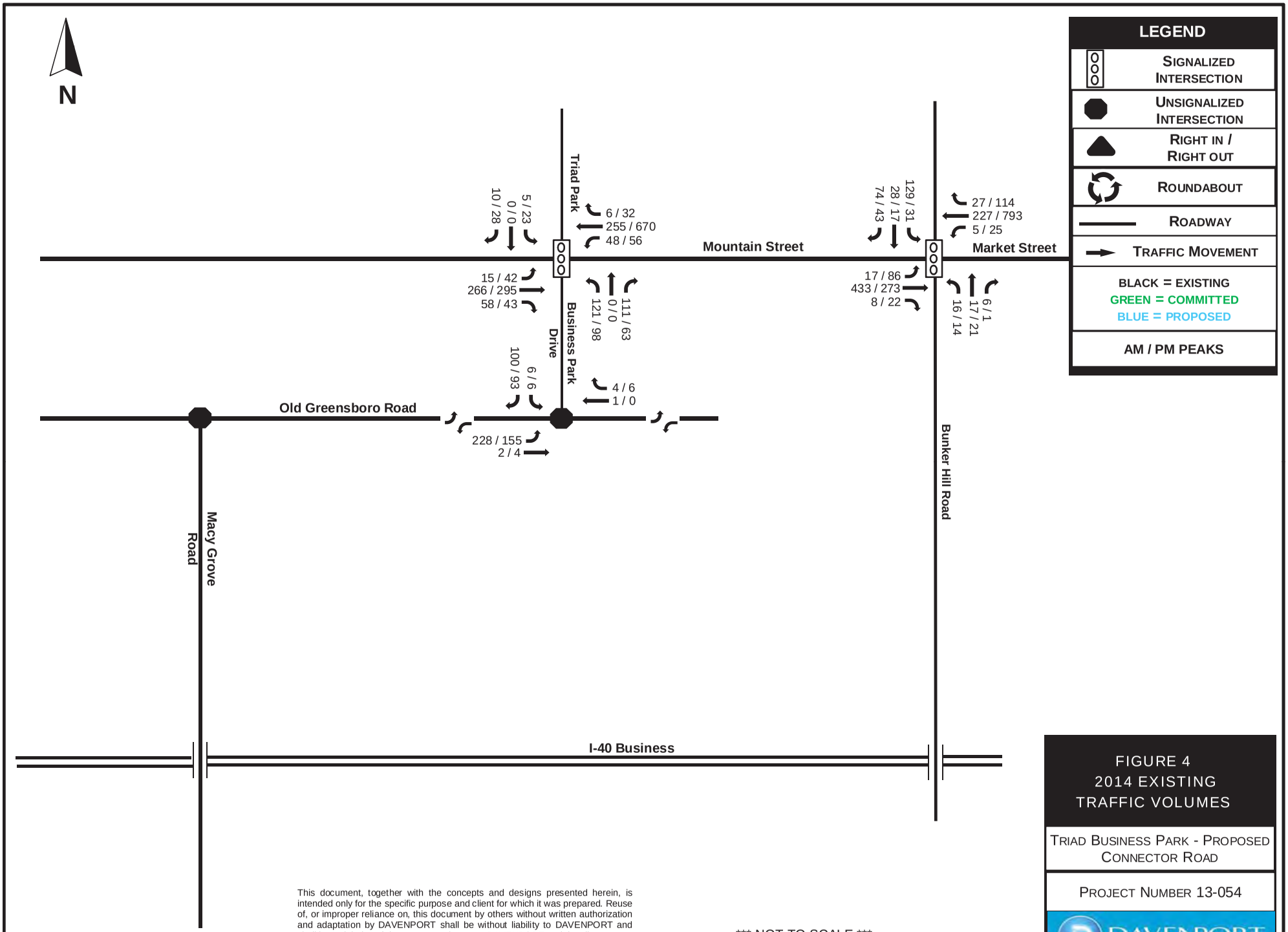


FIGURE 4
2014 EXISTING
TRAFFIC VOLUMES

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

PROJECT NUMBER 13-054

DAVENPORT

*** NOT TO SCALE ***

3.0 Approved Developments and Committed Improvements

3.1 Approved Developments

Approved developments are developments that have been recently approved in the area, but not yet constructed. There are two (2) developments in the vicinity of the project to be included in the analysis.

The Kernersville Medical Center and the VA Healthcare Center are located on Kernersville Medical Parkway in Kernersville, NC. An update to the traffic analysis for this development was last provided by Little John Engineering Associates in 2014. The site consists of a hospital, VA Clinic, medical offices, and the Blue Diamond Site which proposes retail, office, and industrial uses.

Currently, the hospital has been constructed and is in operation. Therefore, potential trips from the VA Clinic, medical offices, and Blue Diamond Site were estimated and distributed onto the study area roadways.

Another development in the area is the Carrollton Mixed Use Development. The proposed Carrollton Mixed-Use Development is located on the southwest quadrant of NC 66 and Old Salem Road in Kernersville, North Carolina. The transportation impact analysis was last updated by DAVENPORT in 2013 for this development. The proposed development will ultimately consist of retail, residential, and a commercial/business park. The development has a trip generation potential of 1,236 net trips in the AM peak and 1,673 net trips in the PM peak. Given this development's location, the background growth rate applied to existing volumes was assumed to account for traffic associated with this development.

More information related to the approved developments can be found in the Supporting Documentation section of the appendix.

3.2 Committed Improvements

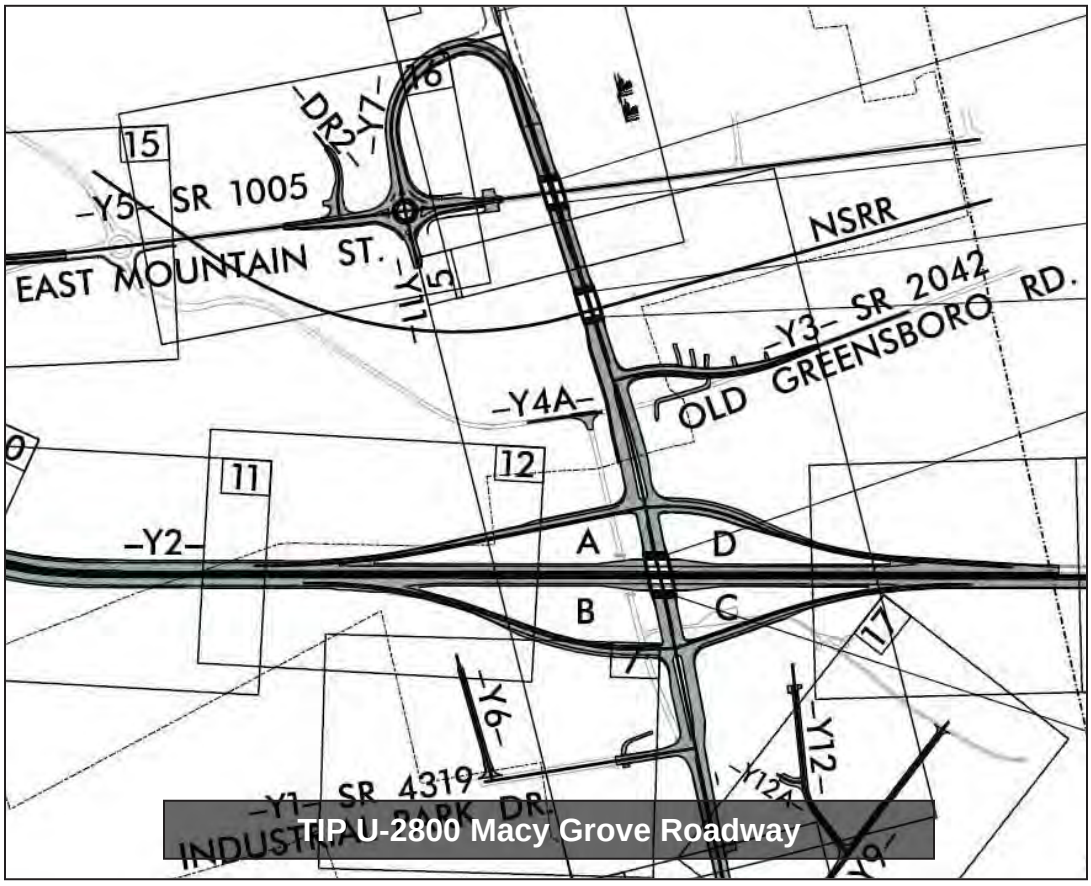
Committed Improvements are improvements that are planned by NCDOT, a local municipality, or a developer in the area, but not yet constructed. Per NCDOT, there are two (2) committed improvement in the study area.

Project R-2611 is currently underway and involves widening Market Street to a multi-lane facility from Colfax to NC 68. The intersection of Market Street at Bunker Hill Road has been improved as part of this project to include additional through lanes and turn lanes. These improvements were assumed to be in place in existing conditions.

TIP U-2800 involves widening Macy Grove Road to multi-lanes north of Industrial Park Drive. The project includes construction of an interchange with I-40 Business. Macy Grove Road will be grade separated from Mountain Street and will junction with Mountain Street with a roundabout configuration. The project will also remove the western leg of the Macy Grove Road at Old Greensboro Road intersection, making it a signalized T-intersection. TIP U-2800 is scheduled to be complete in October 2015.

TIP U-4734 proposes to extend Macy Grove Road north of Mountain Street to NC 150 (North Main Street). This project is currently unfunded for construction and therefore not considered in this analysis.

A graphical representation of all committed improvements is shown in Figure 5.



TIP U-2800 Macy Grove Roadway

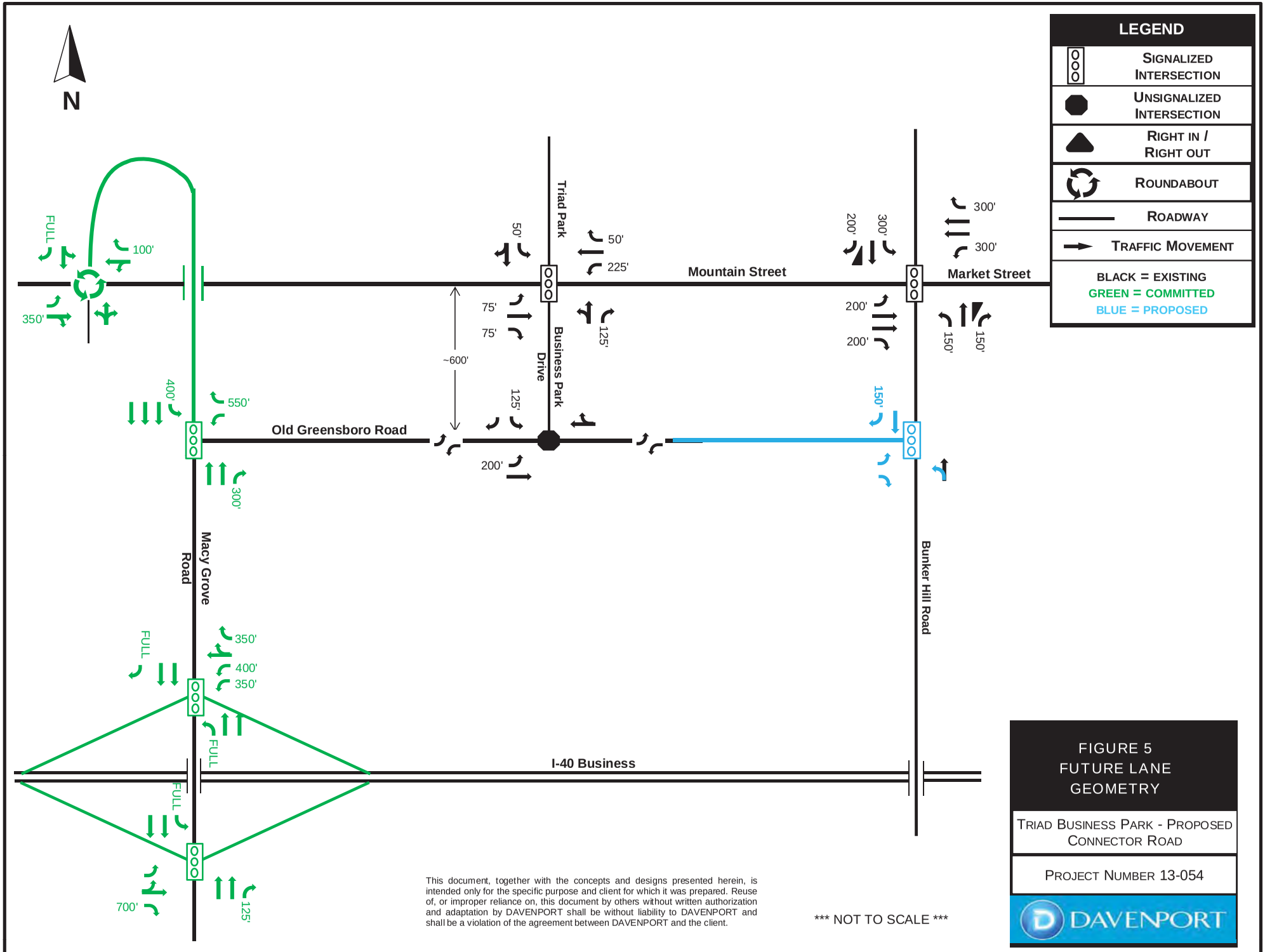


FIGURE 5
FUTURE LANE GEOMETRY

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

PROJECT NUMBER 13-054

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*** NOT TO SCALE ***

4.0 Methodology

4.1 Base Assumptions and Standards

In general, the analysis for this project was conducted utilizing commonly accepted NCDOT standards. The following table contains a summary of the base assumptions:

Table 4.1 - Assumptions	
Peak Hour Factor	0.90
Background Traffic Annual Growth Rate	2.0% per year for all roadways
Analysis Software	Synchro/SimTraffic Version 7.0 Sidra Intersection Version 5.1
Base Signal Timing/Phasing	Provided by NCDOT
Lane widths	12 feet
Truck percentages	3%

Old Greensboro Road at Business Park Drive looking east

4.2 Trip Generation

As indicated earlier, the Triad Business Park consists of over 300 acres comprised of 14 lots. Table 4.2 provides a summary of the developed and remaining acreage per lot.

Table 4.2 - Development Summary

Lot	Acres	Developed (acres)	Remaining (acres)
Lot 1	9.26		9.26
Lot 2	33.53	15	18.53
Lot 3	30.47		30.47
Lot 4	125.74	125.74	0
Lot 5	14.31		14.31
Lot 6	12.98		12.98
Lot 7	25.3		25.3
Lot 8	6.05		6.05
Lot 9	28.4		28.4
Lot 10	14.77		14.77
Lot 11	7.65		7.65
Lot 12	7.95		7.95
Lot 13	16.44		16.44
Lot 14	8.27		8.27
Total	**341.12**	**140.74**	**200.38**

Consistent with the TIA prepared by DAVENPORT in 2007, site densities for each lot were determined by using densities of square footage per acre at a comparable industrial park (Union Cross Industrial Park, Forsyth County – 5,960 square feet per acre). TripGen 2013 software, based on the 9th edition of ITE Trip Generation Manual, was used to project trips for this development. Table 6.3 presents the results.

Table 4.3 - ITE Trip Generation

Triad Business Park - Remaining Development

Average Weekday Driveway Volumes				24 Hour Two-Way	AM Peak Hour		PM Peak Hour	
Land Use	ITE Land Code	Size		Volume	Enter	Exit	Enter	Exit
General Light Industrial	110	1,194	Th.Sq.Ft. GFA	8,819	1,162	158	186	1,364
Total Trips				**8,819**	**1,162**	**158**	**186**	**1,364**

4.3 Trip Distribution

Site trips for the remainder of the Triad Business Park development were distributed based on the existing traffic patterns and engineering judgment. The directional distributions for site trips are as follows:

- 30% to and from the east on Market Street
- 25% to and from the west on I-40 Business
- 15% to and from the west on Mountain Street
- 15% to and from the east on I-40 Business
- 10% to and from the south on Bunker Hill Road
- 5% to and from the north on Bunker Hill Road

With the extension in place, all site traffic entering and exiting from Macy Grove Road and the new I-40 Business interchange to the west will be able to access the site by using Old Greensboro Road. Without the extension in place, site traffic on the east side of the Triad Business Park will have to travel around the site via Bunker Hill Road, to Mountain Street, then finally to the new roundabout to access Macy Grove Road.

Exhibit A provides a depiction of the routing of site traffic with and without the extension. The project trip distribution is shown in Figure 6A for the scenario without the Old Greensboro Road Extension and Figure 6B for the scenario with the extension

4.4 Future No-Build Traffic

The 2028 future no build traffic volumes were computed by applying a 2.0% compounded annual growth rate to the 2014 existing traffic volumes. Future traffic volumes along Macy Grove Road were estimated by using traffic volume forecasts associated with TIP U-2800. These volumes were converted from two-way AADT to peak hour volumes using the NCDOT Volume Breakout Spreadsheet. Forecast volumes from years 2012 and 2030 were interpolated to obtain 2028 estimates. Volumes along Macy Grove Road were balanced by using forecast volumes from the future interchange and adjusting down, where necessary, to account for traffic due to the Triad Business Park. More information can be found in the Traffic Volume Data section of the appendix.

Figure 7 shows the 2017 future no build traffic volumes for AM and PM peaks.

4.5 Future Build Traffic

The 2028 build-out traffic volume was obtained by summing the 2028 future no build volumes and site trips due to the proposed development. Site trips without the extension are shown in Figure 8A and with the extension in Figure 8B. 2028 future build volumes are shown for the scenarios with and without the Old Greensboro Road extension in Figures 9A and 9B, respectively. More information can be found in the Traffic Volume Data section of the appendix.

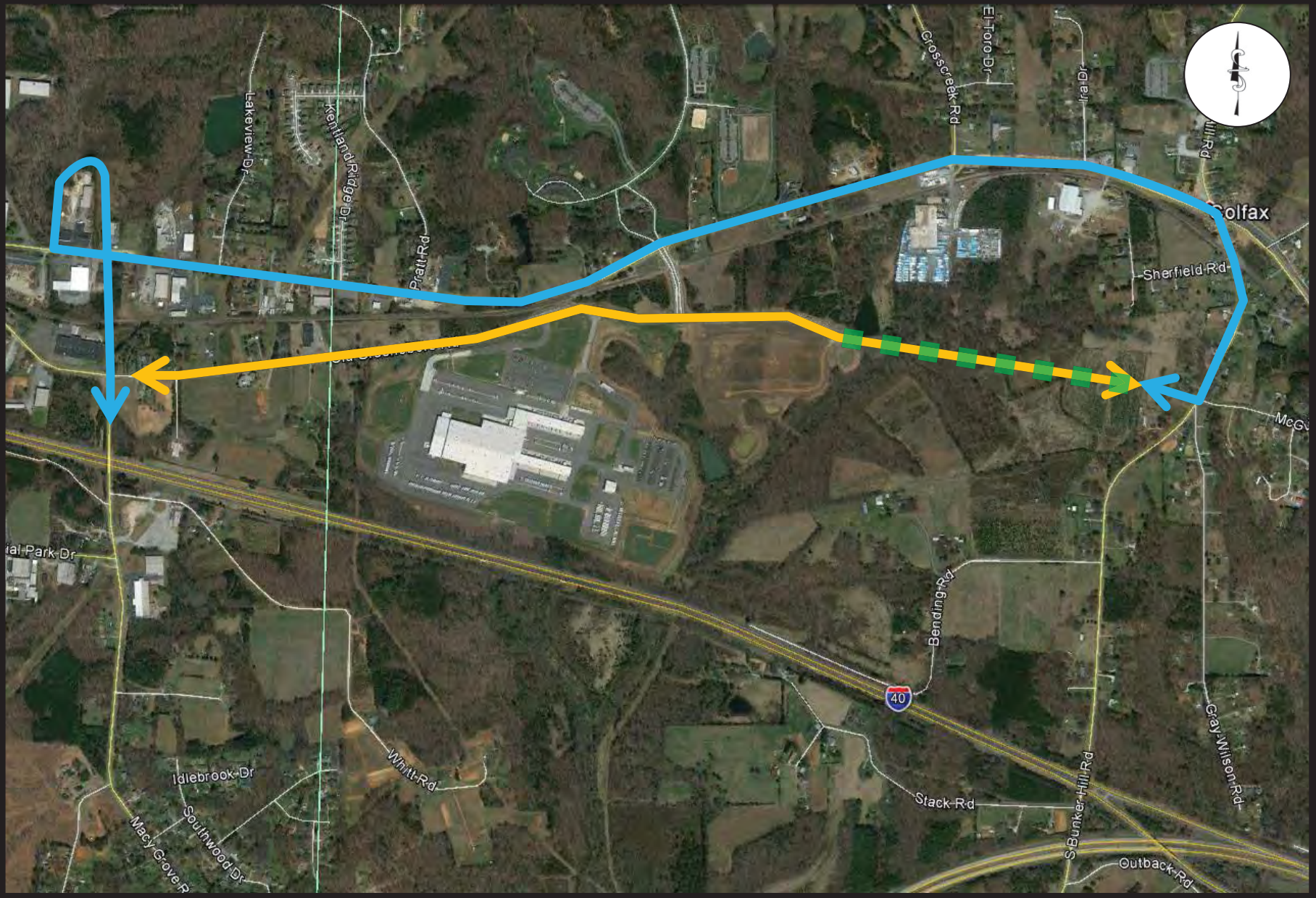

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EXHIBIT A

SITE TRAFFIC REROUTING WITH & WITHOUT EXTENSION

ROUTE WITHOUT EXTENSION
ROUTE WITH EXTENSION
PROPOSED EXTENSION

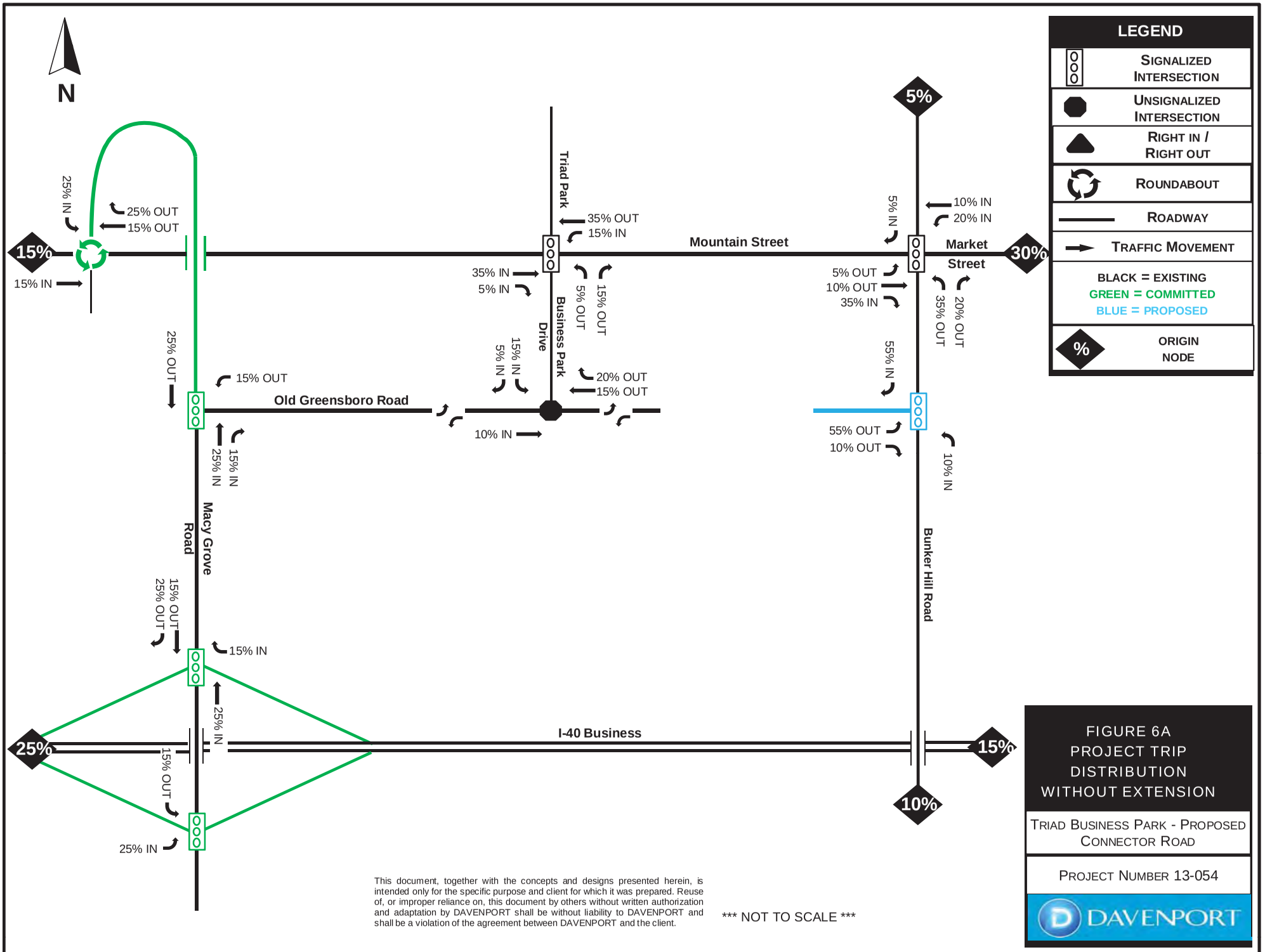

FIGURE 6A
PROJECT TRIP DISTRIBUTION WITHOUT EXTENSION

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

PROJECT NUMBER 13-054

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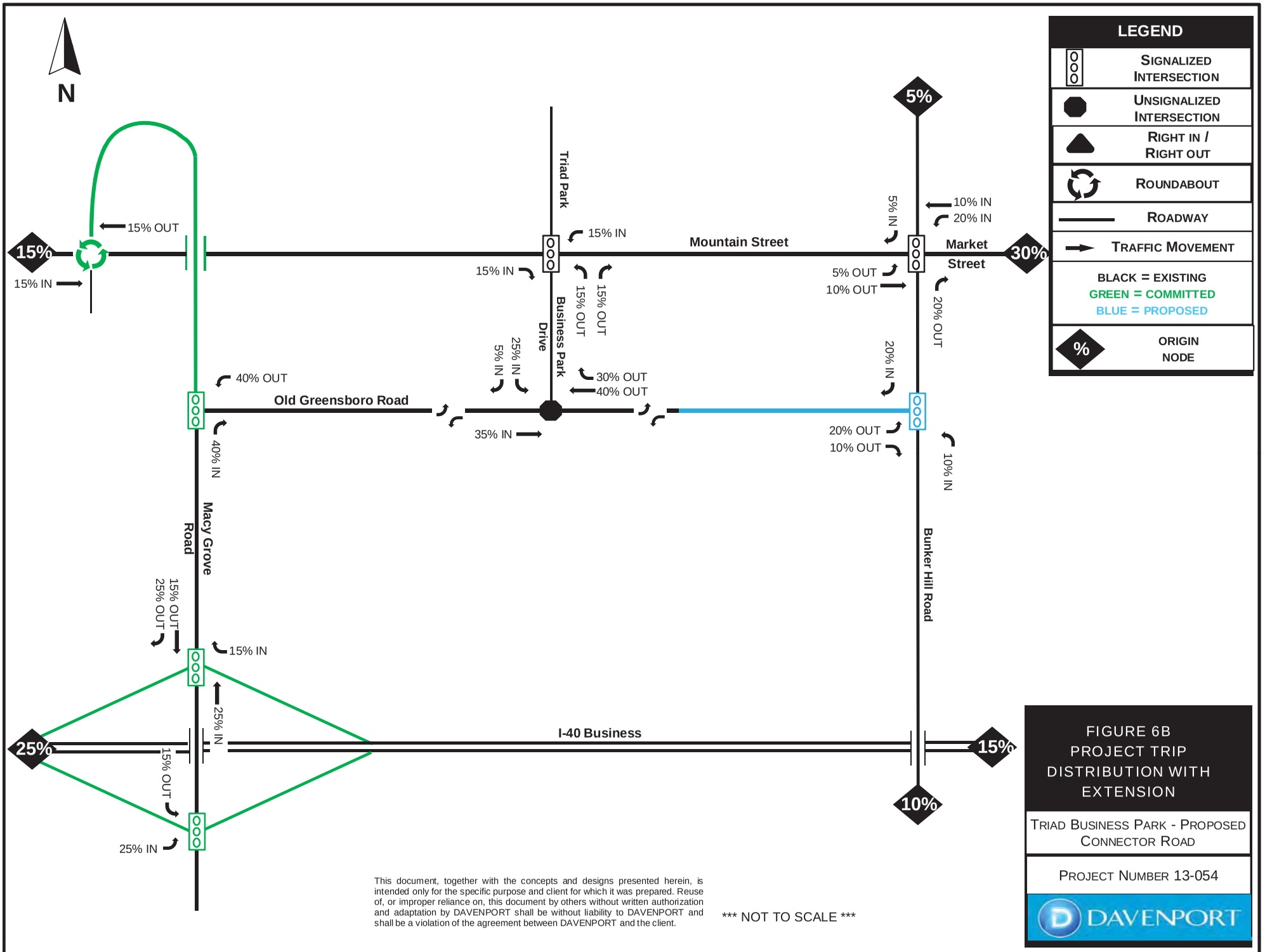

FIGURE 6B
PROJECT TRIP DISTRIBUTION WITH EXTENSION

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

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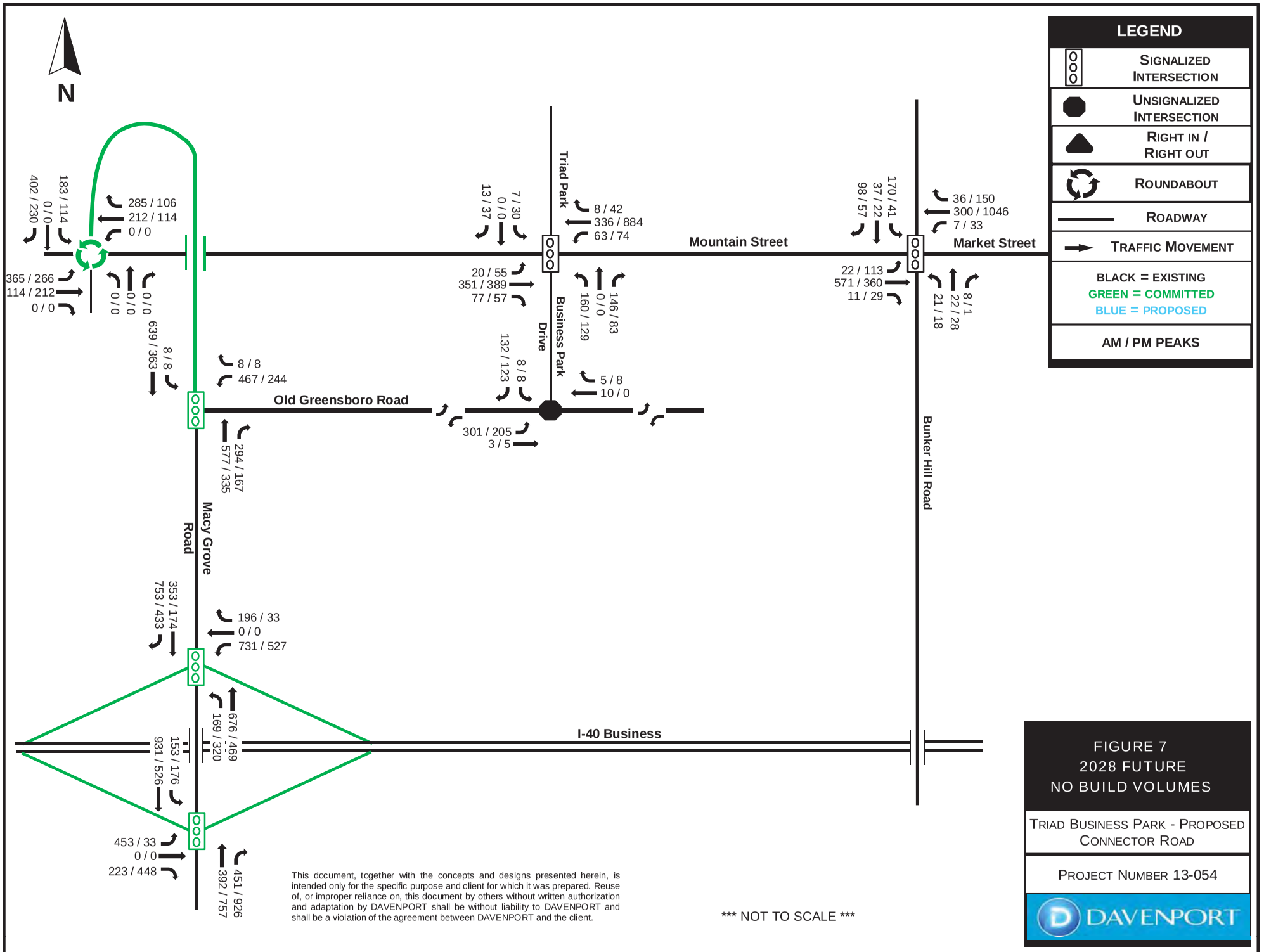

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FIGURE 7
2028 FUTURE
NO BUILD VOLUMES

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

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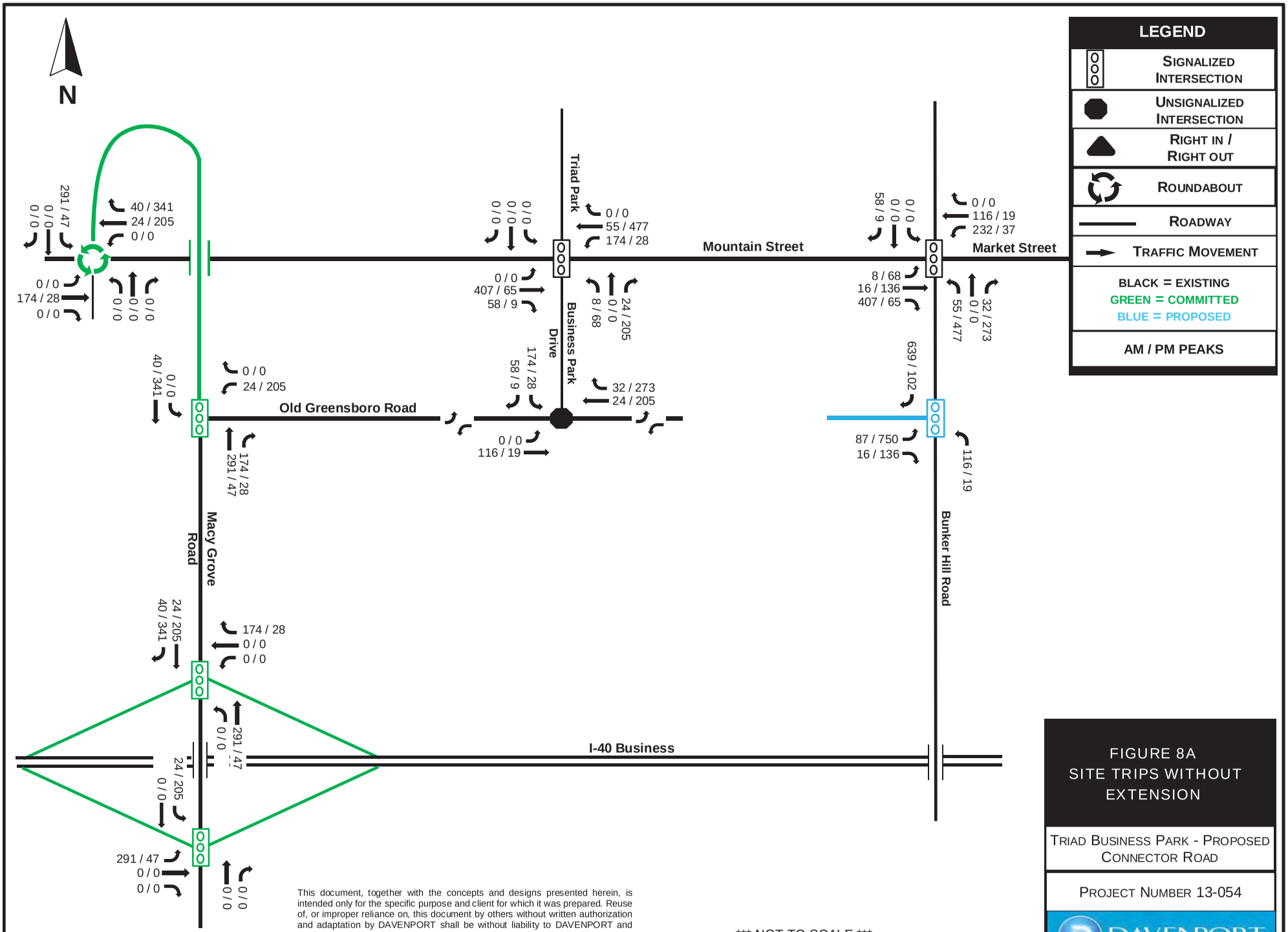

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FIGURE 8A
SITE TRIPS WITHOUT EXTENSION

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

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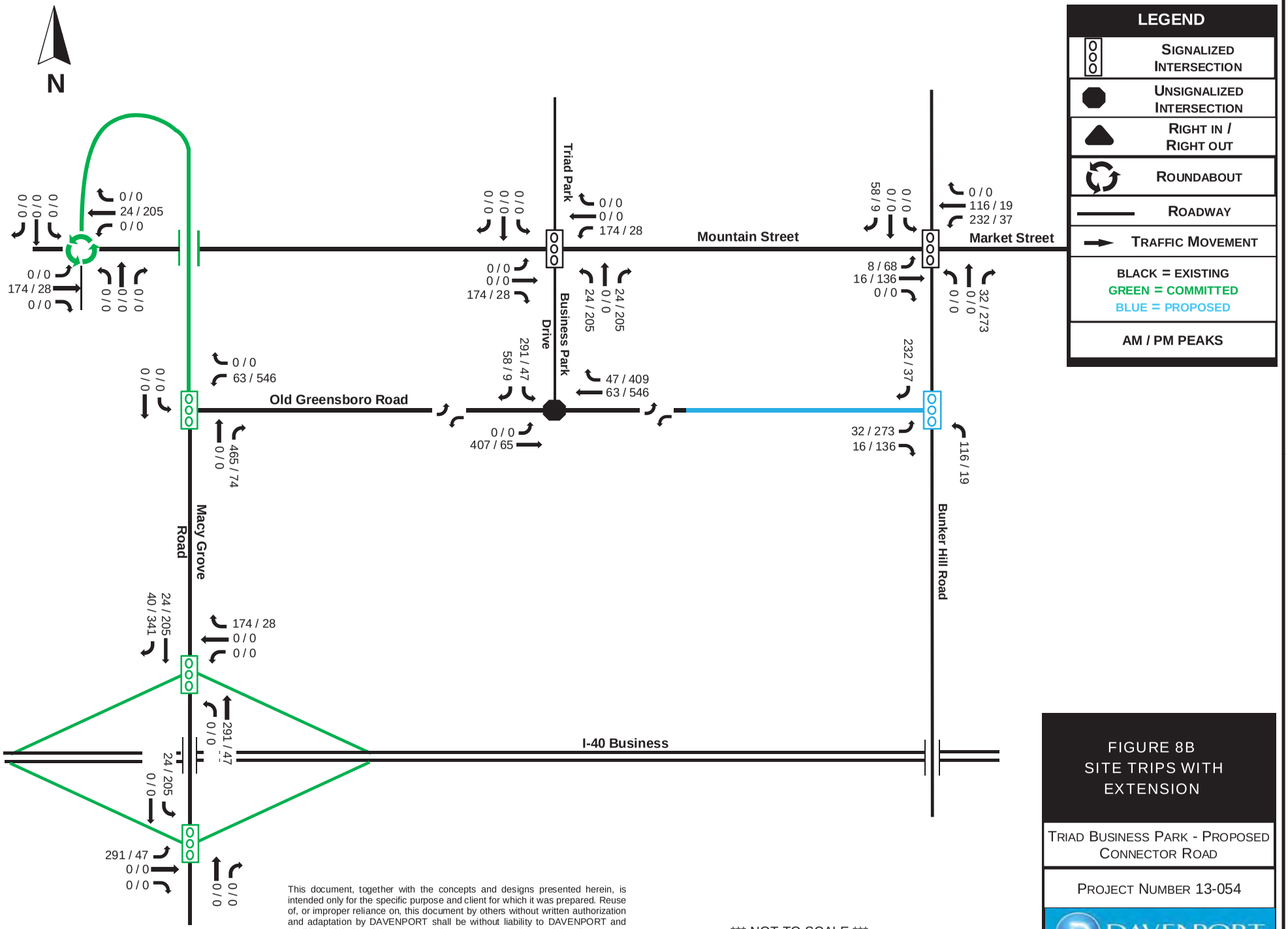

FIGURE 8B
SITE TRIPS WITH EXTENSION

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

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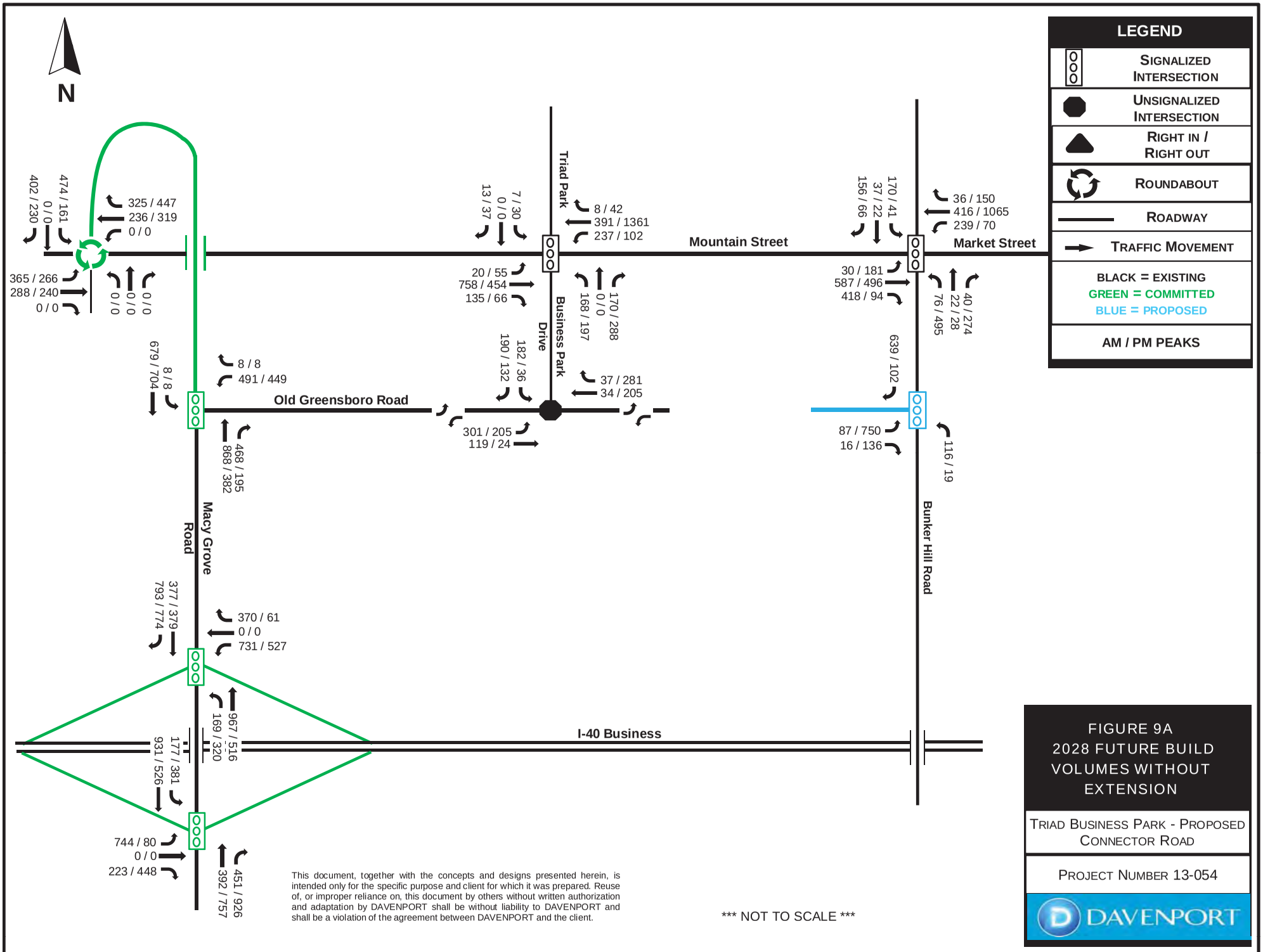

FIGURE 9A
2028 FUTURE BUILD VOLUMES WITHOUT EXTENSION

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

PROJECT NUMBER 13-054

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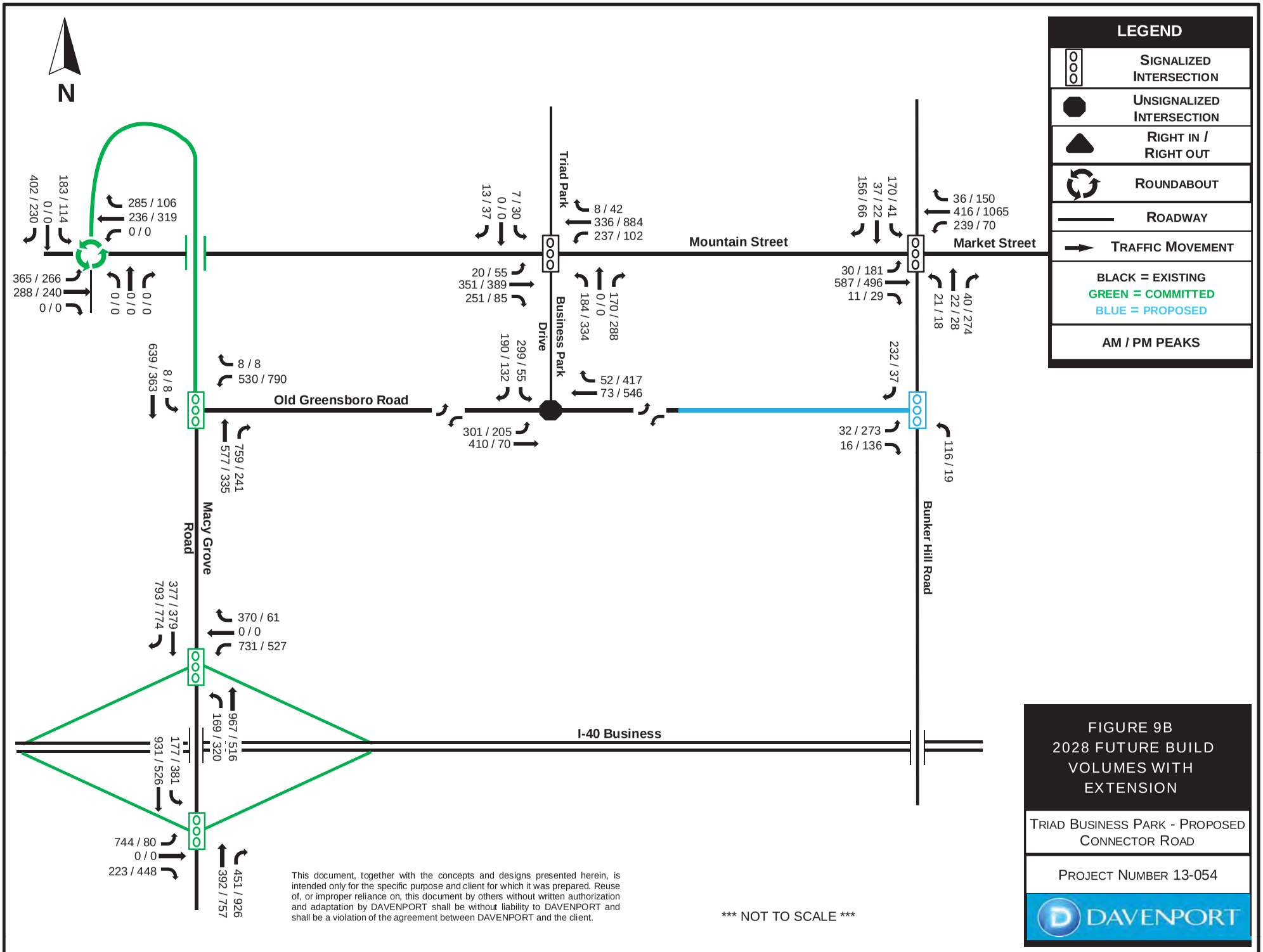

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FIGURE 9B
2028 FUTURE BUILD VOLUMES WITH EXTENSION

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

PROJECT NUMBER 13-054

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5.0 Capacity Analysis

5.1 Level of Service Evaluation Criteria

The Transportation Research Board's Highway Capacity Manual (HCM) utilizes a term "level of service" to measure how traffic operates in intersections and on roadway segments. There are currently six levels of service ranging from A to F. Level of service "A" represents the best conditions and Level of Service "F" represents the worst. Synchro Traffic Modeling software was used to determine the level of service for studied intersections. Note for unsignalized intersection analysis, the level of service noted is for the worst approach of the intersection. This is typically the left turn movement for the side street approach, due to the number of opposing movements. All worksheet reports from the analyses can be found in the Appendix.

Table 5.1 – Highway Capacity Manual

Levels of Service and Control Delay Criteria

Signalized Intersection		**Unsignalized Intersection**	
Level of Service	Control Delay Per vehicle (sec)	Level of Service	Delay Range (sec)
A	≤ 10	A	≤ 10
B	> 10 and ≤ 20	B	> 10 and ≤ 15
C	> 20 and ≤ 35	C	> 15 and ≤ 25
D	> 35 and ≤ 55	D	> 25 and ≤ 35
E	> 55 and ≤ 80	E	> 35 and ≤ 50
F	> 80	F	> 50

5.2 Discussion of Results

The results of the capacity analysis are discussed by intersection below:

Market Street at Bunker Hill Road

This signalized intersection is anticipated to operate at LOS B in the AM peak and LOS E in the PM peak in future conditions without the extension of Old Greensboro Road. With the extension in place, the LOS will remain at B during the AM peak, and improve to LOS C during the PM peak.

Bunker Hill Road at Proposed Access

The proposed access on Bunker Hill Road was assumed to have the recommended improvements in place from the prior 2007 study which include signalization, a southbound right turn lane, and separate right and left turn egress lanes. With these improvements, LOS A is anticipated during the AM peak and LOS B during the PM peak in the scenario without the extension. In the scenario with the Old Greensboro Road extension, LOS A is expected to remain during the AM peak, and the LOS will be improved to LOS A during the PM peak.

Mountain Street at Business Park Drive/Triad Park Entrance

Without the Old Greensboro Road extension, LOS C is anticipated during the AM peak and LOS E during the PM peak in future build conditions. With the extension in place, the intersection is anticipated to be improved to LOS B during the AM peak and LOS D during the PM peak.

Old Greensboro Road at Business Park Drive

The southbound approach of this unsignalized intersection is anticipated to operate at LOS D during the AM peak and LOS B during the PM peak without the Old Greensboro Road extension. With the extension in place, site traffic will have the opportunity to remain onsite and travel through this intersection to reach Macy Grove Road and the new I-40 Business interchange. While this will relieve congestion and delay on offsite roadways, this intersection will experience increased traffic and delay with the extension in place and operate at LOS F and E during the AM and PM peaks, respectively.

As the Triad Business Park continues development of lots and if Old Greensboro Road extension is implemented, this intersection can be further evaluated for improvements to improve the LOS and accommodate future traffic volumes.

Macy Grove Road at Old Greensboro Road

This intersection will be signalized and three-legged in future conditions. LOS C is anticipated during the AM and PM peaks for the scenario without the extension. Increased traffic on the minor road (Old Greensboro Road) is anticipated with the extension in place and the intersection is estimated to operate at LOS D and C during the AM and PM peaks, respectively.

I-40 Business Eastbound Ramps at Macy Grove Road

In the scenario without the Old Greensboro Road extension, LOS C and F are anticipated during the AM and PM peaks, respectively. This is anticipated to remain unchanged in the scenario with the extension in place. As discussed in the Methodology section of this report, future traffic volumes at this interchange were estimated by using TIP forecast volumes. If needed, this interchange can be further evaluated in the future when it is in operation with actual traffic volumes to better determine expected operation and any needs.

I-40 Business Westbound Ramps at Macy Grove Road

For both scenarios with and without the Old Greensboro Road extension, LOS E is anticipated during the AM peak and LOS D during the PM peak. As discussed with the eastbound ramps, this interchange can be further evaluated in the future if necessary.

Mountain Street at Macy Grove Road Ramps

This future intersection will be a roundabout and serve as the junction between Mountain Street and Macy Grove Road. In the scenario without the extension, LOS C is anticipated in the AM peak and LOS A in the PM peak. With the extension in place, less traffic is anticipated at this intersection and the LOS improves to LOS B during the AM peak and remains at LOS A during the PM peak.

5.3 Level of Service Summary

Table 5.2 summarizes the level of service analysis at the study intersections. Intersections that improve with the construction of the Old Greensboro Road Extension are shaded in yellow.

Table 5.2 - Level of Service Summary		
AM Peak	2028 Future Build without Extension	2028 Future Build with Extension
Market Street at Bunker Hill Road	**B (19.6)**	**B (17.1)**
Bunker Hill Road at Proposed Access	**A (10)**	**A (5.9)**
Mountain Street at Business Park Drive/Triad Park Entrance	**C (27.6)**	**B (18.5)**
Old Greensboro Road at Business Park Drive	D (33.4) SB Approach	F (385.4) SB Approach
Macy Grove Road at Old Greensboro Road	C (26.1)	D (53.1)
I-40 Business Eastbound Ramps at Macy Grove Road	C (30.5)	C (29.9)
I-40 Business Westbound Ramps at Macy Grove Road	E (61.4)	E (63.6)
Mountain Street at Macy Grove Road Ramps	**C (18.7) Roundabout**	**B (14.8) Roundabout**
PM Peak	2028 Future Build without Extension	2028 Future Build with Extension
Market Street at Bunker Hill Road	**E (66.7)**	**C (23.7)**
Bunker Hill Road at Proposed Access	**B (14.7)**	**A (10)**
Mountain Street at Business Park Drive/Triad Park Entrance	**E (59.6)**	**D (54)**
Old Greensboro Road at Business Park Drive	B (14.1) SB Approach	E (38.7) SB Approach
Macy Grove Road at Old Greensboro Road	C (24.3)	C (33.7)
I-40 Business Eastbound Ramps at Macy Grove Road	F (98.7)	F (98.8)
I-40 Business Westbound Ramps at Macy Grove Road	D (40.4)	D (40)
Mountain Street at Macy Grove Road Ramps	**A (9.6) Roundabout**	**A (9.1) Roundabout**
LOS (delay in seconds) Note for unsignalized conditions, LOS and delay indicates only minor street approach with longest delay		

6.0 Benefits of the Old Greensboro Road Extension

This section discusses the benefits of the Old Greensboro Road Extension and its impacts on roadway capacity, travel time, and safety.

6.1 Capacity of Roadway Network

As shown in the capacity analysis results, the surrounding roadway network is anticipated to be at or near capacity in future build conditions. With the extension of Old Greensboro Road, site traffic will be able to remain onsite using the extension when traveling to and from the west (see Exhibit A). Without the Old Greensboro Road Extension, site traffic will have to travel on Bunker Hill Road then to Mountain Street to reach destinations to the west. Therefore, the Extension helps relieve congestion on offsite roadways and intersections by keeping the Triad Business Park traffic onsite. This results in improved level of service for the following intersections:

- Market Street at Bunker Hill Road (LOS E to LOS C)
- Bunker Hill Road at Proposed Access (LOS B to LOS A)
- Mountain Street at Business Park Drive/Triad Park Entrance (LOS E to LOS D)
- Mountain Street at Macy Grove Road Ramps (LOS C to LOS B)

Additionally, the new I-40 Business interchange at Macy Grove Road that will be constructed with TIP U-2800 provides an ideal access to the interstate for truck traffic traveling to and from the Triad Business Park. The next nearest interchange with I-40 is located at Sandy Ridge Road, east of the site. This interchange currently experiences capacity deficiencies and is anticipated to worsen in future conditions as traffic volumes continue to grow. Therefore, the Extension will provide a more direct access to the interstate for Triad Business Park traffic and diverts site traffic from the congested interchange at Sandy Ridge Road.

6.2 Travel Time

As shown in Exhibit A, site traffic traveling to/from the west from the eastern portion of the Triad Business Park will be routed around the site without the Old Greensboro Road Extension. This results in additional travel distance, travel time and emissions for affected site traffic. Site traffic will travel an additional distance of approximately 1.25 miles without the Extension and based on SimTraffic model results, will have approximately six minutes of additional travel time. Analysis results show that approximately 480 PM peak hour trips would be subject to this additional travel time, distance, and emissions.

Furthermore, since offsite intersections will experience increased traffic without the Extension, this will increase the delay, travel time, and emissions at affected intersections for both site traffic and background traffic.

6.3 Safety – Highway-Rail Grade Crossings

The Old Greensboro Road Extension would allow for truck traffic to avoid the highway-rail grade crossing on Bunker Hill Road. This crossing is located just south of the intersection at Mountain Street. The control devices at this crossing consist of active flashing red lights and gates and a railroad crossing sign (Crossbuck, R15-1) is provided at the crossing. In addition, advance warning signs (W10-1) and grade crossing pavement markings are provided in advance of the crossing.

As discussed in the Methodology section of this report, 15% of site traffic was assumed to travel to/from the west on Mountain Street and 40% was assumed to travel to/from the new I-40 Business interchange on Macy Grove Road.

With the Extension in place, site traffic traveling to/from the west on Mountain Street will be able to remain on Old Greensboro Road and then travel on Business Park Drive to reach their destination. This site traffic would travel through the grade crossing located on Business Park Drive. Site traffic traveling to/from the new interchange on Macy Grove Road will be able to access the site directly from Old Greensboro Road and not travel through any at grade crossings.

Without the Extension, affected site traffic will be rerouted around the site and through the grade crossing on Bunker Hill Road to reach these destinations. Consequently, the construction of the Old Greensboro Road Extension will enhance the safety of this grade crossing by reducing the volumes of truck traffic on Bunker Hill Road. Moreover, the Extension will result in reduced traffic on all of the grade crossings in the area; this is due to the creation of a route from the new interchange on Macy Grove Road for site traffic via Old Greensboro Road without any rail crossings.

Highway-Rail Grade Crossing on Bunker Hill Road

6.4 Safety – General

The frequency of accidents generally increases with the amount of vehicle-miles traveled. By reducing the travel time and distance of site traffic, this will tend to reduce the frequency and probability of accidents offsite. Also, the safety of an intersection can be improved with better level of service and operation. As discussed, the extension of Old Greensboro Road is anticipated to improve the operation of several offsite intersections. The improved operation will enhance the safety of these intersections.

In addition, the Extension will decrease the offsite truck traffic associated with the Triad Business Park. The Extension will allow trucks traveling from the eastern portion of the Park to remain onsite when traveling west, and avoid interaction with traffic on Bunker Hill Road and Mountain Street.

6.5 Implications to the Triad Business Park & Kernersville Area

As outlined in this report, the construction of the Old Greensboro Road Extension will enhance the operation and safety of the surrounding roadway network. This will inherently benefit the operations within the Park by provide safer and more efficient travel to and from the site. The Extension also allows site traffic to remain onsite when traveling to and from destinations within the Triad Business Park itself. This will enhance internal operations while relieving offsite congestion.

The Extension will provide adequate access to the future eastern portion of the Triad Business Park. Without the Extension, the majority of site traffic from the eastern portion of the Park will have to travel through the intersection of Market Street at Bunker Hill Road. This intersection is anticipated to operate at an unacceptable level of service under this scenario (more information can be found in the Capacity Analysis section of this report). This is expected even with the recent improvements of TIP R-2611. As previously discussed, the lack of the Extension will also result in increased travel time and delay for affected site traffic. Therefore, the future construction of the remainder of the Triad Business Park is encumbered without the extension of Old Greensboro Road.

The Triad Business Park has the ability to serve the Kernersville area with job growth, increased tax base, and overall economic development. As previously discussed, the construction of the Old Greensboro Road Extension will enhance the surrounding area with improved roadway capacity, operation, and safety. Therefore, the Extension will serve as a benefit to the Kernersville area.

7.0 Recommendations

The extension of Old Greensboro Road is recommended to enhance the operation of the surrounding roadway network by reducing offsite traffic and keeping site traffic within the site. The Extension will provide adequate access to the future eastern portion of the Triad Business Park and enhance onsite operations. Lastly, the Extension is anticipated to benefit the surrounding area with improved traffic operations and safety while also supporting future economic growth. The recommended cross section for the extension is three lanes – one through lane in each direction and a two-way left turn lane.

Consistent with the prior study conducted by DAVENPORT for the Triad Business Park in 2007, the following improvements are recommended for the Proposed Access at Bunker Hill Road:

- Signalization
- A southbound right turn lane with 150 feet of storage
- Separate right and left turn egress lanes

The intersection of Old Greensboro Road at Business Park Drive should be further evaluated for improvements as the Triad Business Park continues development of lots and if Old Greensboro Road extension is implemented.

If needed, the future interchange of Macy Grove Road at I-40 Business can be further evaluated in the future when it is in operation to better determine expected operation and any needs.

The recommended improvements are depicted in Figure 10.

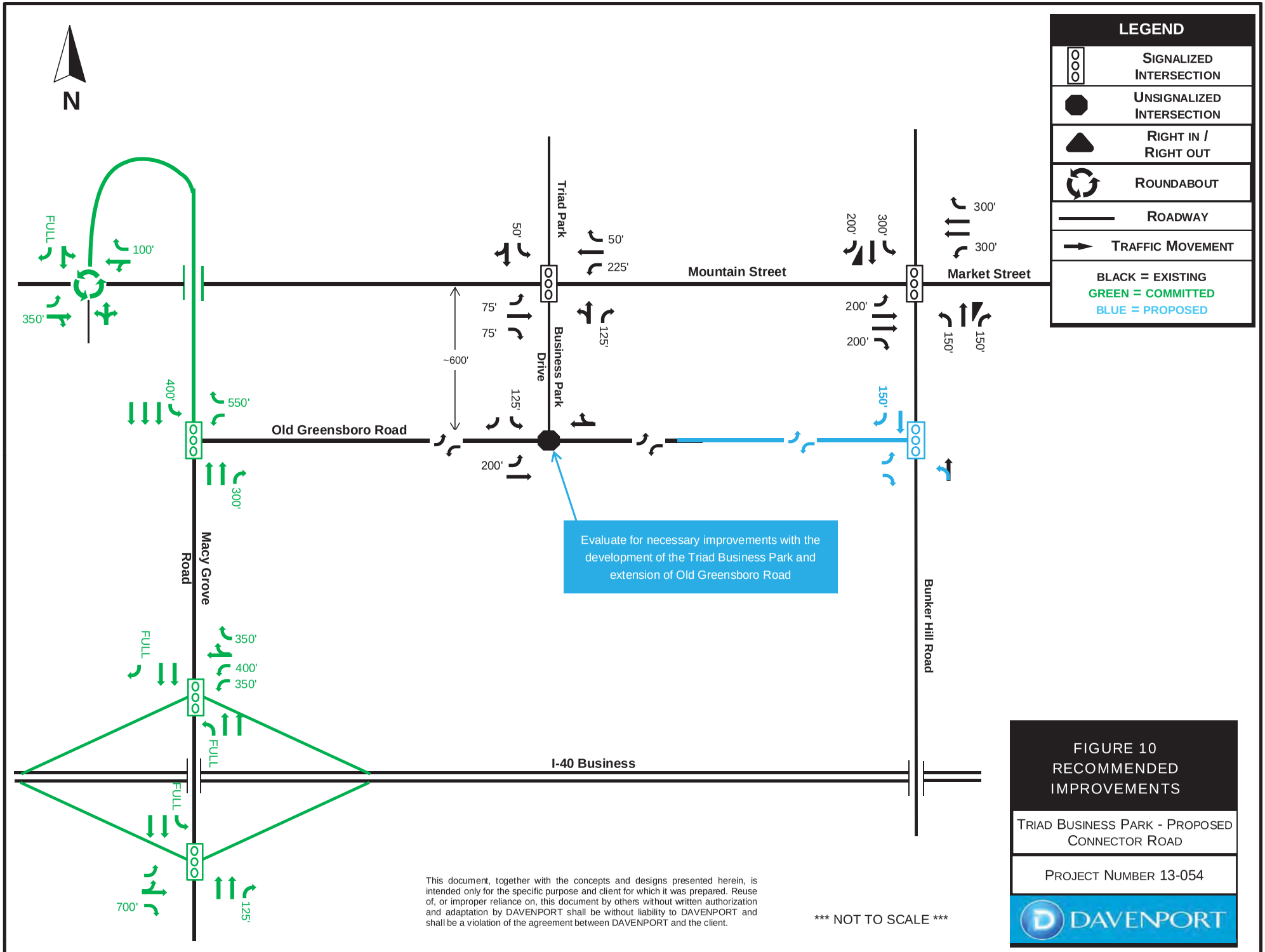

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FIGURE 10
RECOMMENDED IMPROVEMENTS

TRIAD BUSINESS PARK - PROPOSED CONNECTOR ROAD

PROJECT NUMBER 13-054

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9.0 Summary and Conclusion

The Triad Business Park is located off Mountain Street and Bunker Hill Road in Guilford County, NC. The park contains over 300 acres with 14 industrial lots and DAVENPORT previously prepared a Transportation Impact Analysis (TIA) for the site in 2007. A portion of the western side of the park is developed and the remainder of the park is currently undeveloped. Access is currently provided by Old Greensboro Road and also by Business Park Drive which intersects with Mountain Street.

This study was conducted to provide an evaluation of the potential extension of Old Greensboro Road through the Triad Business Park to Bunker Hill Road. Old Greensboro Road runs through the western side of the park and currently terminates west of a stream near the center of the site. The proposed extension of Old Greensboro Road will extend it from its existing eastern terminus to Bunker Hill Road.

DAVENPORT was retained to determine the effects with and without the extension in place related to traffic operations, roadway capacity, travel time, and safety. Two scenarios were considered in this analysis: Future Build Conditions without the Old Greensboro Road Extension; and Future Build Conditions with the Old Greensboro Road Extension.

The capacity analysis of this study found that the construction of the Extension results in improved level of service for the following offsite intersections:

- Market Street at Bunker Hill Road (LOS E to LOS C)
- Bunker Hill Road at Proposed Access (LOS B to LOS A)
- Mountain Street at Business Park Drive/Triad Park Entrance (LOS E to LOS D)
- Mountain Street at Macy Grove Road Ramps (LOS C to LOS B)

This is due to the fact that site traffic is able to remain onsite when traveling to/from the west instead of being routed around the site and increasing traffic on offsite roadways. Less traffic on the offsite roadways results in improved level of service, delay, and safety for the affected intersections. Furthermore, the Extension will decrease the truck traffic associated with the Triad Business Park on offsite roadways and rail grade crossings. The Extension will allow trucks traveling from the eastern portion of the Park to remain onsite when traveling west, and avoid rail crossings and interaction with traffic on Bunker Hill Road and Mountain Street.

The absence of the Extension results in additional travel time, distance, and emissions for site traffic traveling from the eastern portion of the park to destinations to the west. An additional distance of 1.25 miles and time of approximately six minutes is estimated. Analysis results show that approximately 480 PM peak hour trips would be subject to this additional travel time. Also, the extension will enhance internal operations by provide adequate access and allowing site traffic to remain onsite when traveling to destinations within the Triad Business Park.

Based on the results of this study, the extension of Old Greensboro Road is recommended to provide adequate access to the remainder of the Triad Business Park, and enhance the safety and operation of the surrounding roadway network. The recommended cross section for the extension is three lanes – one through lane in each direction and a two-way left turn lane.

Other improvements include signalization and turn lanes, consistent with the prior study conducted by DAVENPORT for the Triad Business Park in 2007, at the Proposed Access at Bunker Hill Road. The intersection of Old Greensboro Road at Business Park Drive should be further evaluated for improvements as the Triad Business Park continues development of lots, particularly if Old Greensboro Road extension is constructed.

In conclusion, this study has reviewed the impacts of the proposed Old Greensboro Road Extension, and has determined that its construction is necessary in order to provide adequate access to the remainder of the Triad Business Park and improved operation and safety of the surrounding roadway network.

KERNERSVILLE FIRE RESCUE

Fire Marshal's Office

Post Office Drawer 728 • Kernersville, North Carolina 27285-0728

July 1, 2015

Mr. Jeff Hatling
Director of Community Development
Town of Kernersville

Mr. Hatling:

This letter shall serve as a statement in support of the effort to establish a stream crossing and continue Old Greensboro Road from its current dead-end and through the eastern portion of the Triad Business Park to Bunker Hill Road.

Without a crossing, the eastern portion of the business park is essentially cut-off from the western portion and emergency response times are extended beyond nationally recognized standards. In order to respond to the eastern portion of the park without a stream crossing, fire apparatus will be forced to travel W. Market Street outside the city limits to Bunker Hill Road as opposed to traveling a continuous route on Old Greensboro Road and remaining within current Kernersville city limits. This is a more direct route and would enable the fire department units to respond within appropriate time frames and provide emergency medical and/or emergency fire services as needed. Extended response times effect the Insurance Services Office ratings of the fire department and have a negative effect on insurance rates in the areas of extended response times.

It is my opinion that the stream crossing will enable our department to better serve the occupancies within the eastern portion of the park thereby providing timely emergency services; protecting lives and reducing property loss. The proposed crossing is within the best interest of public safety.

Please contact me if you need further information or have any questions.

Respectfully,

Bruce Hennequin
Fire Marshal
Kernersville Fire Rescue

Telephone 336-996-6791 • Fax 336-996-4298

Kernersville Police Department

Scott A. Cunningham
Chief of Police

Post Office Box 728
Kernersville, NC 27285
Phone: 336.996.2390
Fax: 336.992.5470

June 25, 2015

Mr. Jeff Hatling
Director, Community Development
Town of Kernersville

Mr. Hatling;

I am writing in support of the project to establish a roadway across the stream near the current dead-end of Old Greensboro Road. Continuing the roadway across the stream will have immediate and definite benefits for the citizens regarding public safety.

The proposed road continuance, which requires the stream to be crossed, will provide better access into the general area. It will allow for more frequent and efficient patrols by personnel of the Kernersville Police Department (KPD). Officers will have quicker response times to the immediate area and to the Macy Grove/421 interchange area. This would enhance general service to the area it would allow for a second ingress/egress route as opposed to the current one way in/out situation.

As Chief of the Kernersville Police Department, I am interested in and will support any and all efforts to increase the safety of our community and our citizens. I believe this roadway expansion and stream crossing is essential and beneficial.

Please feel free to contact me if I can be of further assistance in this or any other public safety matter.

Respectfully,

Scott A. Cunningham, Ph.D.
Chief of Police
Kernersville Police Department

Schematic Design Estimate Summary - TBP Road Extension Exhibit 2 B ridge

Recap - With Taxes and Insurance ,Indirect Costs are Spread

Group 1: Divisions
Group 2: Minor ItemCode Groups

Estimator :
Project Size : 0 SF

Description	TotalCost
01 - General trades	
Design	64,635.44
Pre-Construction Services	17,972.96
Project Management and Coordination	130,274.18
Construction progress documentation	6,389.01
Quality control	42,593.37
Temporary utilities	3,194.50
Construction facilities	13,257.19
Construction aids	2,129.67
Project identification	661.53
Cleaning	7,458.74
Closeout submittals	
* Total 01 - General trades	288,566.58
02 - Sitework	
Mitigation Fees	247,618.71
Site demolition	7,217.98
Site clearing	34,607.12
Grading	222,859.02
Erosion and sedimentation control	194,420.38
Water distribution	170,554.52
Sanitary sewers	
Storm drainage	440,504.93
Flexible pavement	639,270.11
Curbs and gutters	65,873.31
Sidewalks	58,024.95
Fences and gates	21,464.40
Retaining walls	
Bridge Structure	2,129,668.70
Lawns and grass	47,917.55
* Total 02 - Sitework	4,280,001.67
21 - Contingency	
Other construction	159,725.15
* Total 21 - Contingency	159,725.15
Total Estimate	4,728,293.41

Conceptual Design Estimate Summary - TBP Road Extension Exhibit 1

Recap - With Taxes and Insurance ,Indirect Costs are Spread

Group 1: Divisions
Group 2: Minor ItemCode Groups

Estimator :
Project Size : 0 SF

Description	Quantity	UM	TotalCost
01 - General trades			
Design			64,635.44
Pre-Construction Services			17,972.96
Project Management and Coordination			130,274.18
Construction progress documentation			6,389.01
Quality control			42,593.37
Temporary utilities			3,194.50
Construction facilities			13,257.19
Construction aids			2,129.67
Project identification			661.53
Cleaning			7,458.74
Closeout submittals			
* Total 01 - General trades			288,566.58
02 - Sitework			
Mitigation Fees			319,629.20
Site demolition			7,217.98
Site clearing			43,189.68
Grading			268,245.83
Erosion and sedimentation control			201,796.76
Water distribution			207,243.38
Sanitary sewers			
Storm drainage			604,822.72
Flexible pavement	14,596.00	SY	844,789.74
Curbs and gutters			89,978.50
Sidewalks			71,982.80
Fences and gates			21,464.40
Retaining walls			
Lawns and grass			53,241.72
* Total 02 - Sitework			2,733,602.70
21 - Contingency			
Other construction			159,725.15
* Total 21 - Contingency			159,725.15
Total Gross Cost			3,181,894.44

Conceptual Design Estimate Summary - TBP Road Extension 2 A

Recap - With Taxes and Insurance ,Indirect Costs are Spread

Group 1: Divisions
Group 2: Minor ItemCode Groups

Estimator :
Project Size : 0 SF

Description	Quantity	UM	TotalCost
01 - General trades			
Design			64,635.44
Pre-Construction Services			17,972.96
Project Management and Coordination			130,274.18
Construction progress documentation			6,389.01
Quality control			42,593.37
Temporary utilities			3,194.50
Construction facilities			13,257.19
Construction aids			2,129.67
Project identification			661.53
Cleaning			7,458.74
Closeout submittals			
* Total 01 - General trades			288,566.58
02 - Sitework			
Mitigation Fees			207,612.88
Site demolition			7,217.98
Site clearing			34,607.12
Grading			220,729.35
Erosion and sedimentation control			194,420.38
Water distribution			170,554.52
Sanitary sewers			
Storm drainage			531,315.07
Flexible pavement	12,146.00	SY	703,390.38
Curbs and gutters			72,528.53
Sidewalks			58,024.95
Fences and gates			21,464.40
Retaining walls			
Lawns and grass			47,917.55
* Total 02 - Sitework			2,269,783.11
21 - Contingency			
Other construction			159,725.15
* Total 21 - Contingency			159,725.15
Total Estimate			2,718,074.85

Conceptual Design Estimate Summary - TBP Road Extension Exhibit 2 B

Recap - With Taxes and Insurance ,Indirect Costs are Spread

Group 1: Divisions
Group 2: Minor ItemCode Groups

Estimator :
Project Size : 0 SF

Description	Quantity	UM	TotalCost
01 - General trades			
Design			64,635.44
Pre-Construction Services			17,972.96
Project Management and Coordination			130,274.18
Construction progress documentation			6,389.01
Quality control			42,593.37
Temporary utilities			3,194.50
Construction facilities			13,257.19
Construction aids			2,129.67
Project identification			661.53
Cleaning			7,458.74
Closeout submittals			
* Total 01 - General trades			288,566.58
02 - Sitework			
Mitigation Fees			247,618.71
Site demolition			7,217.98
Site clearing			34,607.12
Grading			222,859.02
Erosion and sedimentation control			194,420.38
Water distribution			170,554.52
Sanitary sewers			
Storm drainage			440,504.93
Flexible pavement	12,146.00	SY	703,390.38
Curbs and gutters			72,528.53
Sidewalks			58,024.95
Fences and gates			21,464.40
Retaining walls			
Lawns and grass			47,917.55
* Total 02 - Sitework			2,221,108.47
21 - Contingency			
Other construction			159,725.15
* Total 21 - Contingency			159,725.15
Total Estimate			2,669,400.21

Conceptual Design Estimate Summary - TBP Road Extension Exhibit 3

Recap - With Taxes and Insurance ,Indirect Costs are Spread

Group 1: Divisions
Group 2: Minor ItemCode Groups

Estimator : Bill Wooten
Project Size : 0 SF

Description	Quantity	UM	TotalCost
01 - General trades			
Design			64,635.44
Pre-Construction Services			17,972.96
Project Management and Coordination			130,274.18
Construction progress documentation			6,389.01
Quality control			42,593.37
Temporary utilities			3,194.50
Construction facilities			13,257.19
Construction aids			2,129.67
Project identification			661.53
Cleaning			7,458.74
Closeout submittals			
* Total 01 - General trades			288,566.58
02 - Sitework			
Mitigation Fees			268,610.85
Site demolition			7,217.98
Site clearing			36,545.11
Grading			230,590.88
Erosion and sedimentation control			174,575.33
Water distribution			207,243.38
Sanitary sewers			
Storm drainage			477,530.29
Flexible pavement	12,226.00	SY	708,007.51
Curbs and gutters			76,348.62
Sidewalks			61,078.90
Fences and gates			21,464.40
Retaining walls			
Lawns and grass			53,241.72
* Total 02 - Sitework			2,322,454.97
21 - Contingency			
Other construction			159,725.15
* Total 21 - Contingency			159,725.15
Total Estimate			2,770,746.71

APPENDIX VIII

NCDENR-DMS LETTER

NCDENR

North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Division of Mitigation Services

Donald R. van der Vaart
Secretary

April 23, 2015

Brian Hall
TDO Land Holding, LLC
309 Gallimore Dairy Road
Greensboro, NC 27409

Expiration of Acceptance: October 23, 2015

Project: TBP- Old Greensboro Road Extension

County: Guilford

The purpose of this letter is to notify you that the NCDENR Division of Mitigation Services (DMS) is willing to accept payment for compensatory mitigation for impacts associated with the above referenced project as indicated in the table below. Please note that this decision does not assure that participation in the DMS in-lieu fee mitigation program will be approved by the permit issuing agencies as mitigation for project impacts. It is the responsibility of the applicant to contact permitting agencies to determine if payment to the DMS will be approved. You must also comply with all other state, federal or local government permits, regulations or authorizations associated with the proposed activity including G.S. § 143-214.11.

This acceptance is valid for six months from the date of this letter and is not transferable. **If we have not received a copy of the issued 404 Permit/401 Certification/CAMA permit within this time frame, this acceptance will expire.** It is the applicant's responsibility to send copies of the permits to DMS. Once DMS receives a copy of the permit(s) an invoice will be issued based on the required mitigation in that permit and payment must be made prior to conducting the authorized work. The amount of the in-lieu fee to be paid by an applicant is calculated based upon the Fee Schedule and policies listed at www.nceep.net.

Based on the information supplied by you in your request to use the DMS, the impacts that may require compensatory mitigation are summarized in the following table. The amount of mitigation required and assigned to DMS for this impact is determined by permitting agencies and may exceed the impact amounts shown below.

	River Basin	CU Location	Stream (feet)			Wetlands (acres)			Buffer I (Sq. Ft.)	Buffer II (Sq. Ft.)
			Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Randleman	
Impact	Cape Fear	03030003	0	0	235	0.65	0	0	20,000	13,000

Upon receipt of payment, DMS will take responsibility for providing the compensatory mitigation. The mitigation will be performed in accordance with the In-Lieu Fee Program instrument dated July 28, 2010.

Thank you for your interest in the DMS in-lieu fee mitigation program. If you have any questions or need additional information, please contact Kelly Williams at (919) 707-8915.

Sincerely,

James B. Stanfill

James. B Stanfill
Asset Management Supervisor

cc: David Bailey, USACE-Raleigh
Sue Homewood, NCDWR-Winston-Salem
Brad Luckey, agent