



**US Army Corps
Of Engineers**
Wilmington District

PUBLIC NOTICE

Issue Date: August 12, 2016
Comment Deadline: September 12, 2016
Corps Action ID Number: SAW-2015-01762

The Wilmington District, Corps of Engineers (Corps) received an application from Development Solutions BRY, LLC seeking Department of the Army authorization to impact 0.2076-acre of riparian wetlands and 1,3450 linear feet of stream, associated with development of a transportation oriented mixed-use development in Mecklenburg County, North Carolina.

Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at <http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram.aspx>

Applicant: Development Solutions BRY, LLC
Attn: Kim Gualtieri
516 North West Street
Raleigh, North Carolina 27603

AGENT (if applicable): Environmental Services, Inc.
Attn: Mr. Jeff Benton
1905 Ebenezer Road
Rock Hill, South Carolina 29732

Authority

The Corps evaluates this application and decides whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of the following Statutory Authorities:

- ☒ Section 404 of the Clean Water Act (33 U.S.C. 1344)
- ☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403)
- ☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413)

Location

Directions to Site: The site is located in the northeast quadrant of the intersection of Hambright Road and NC-116 (Old Statesville Road) in the town of Huntersville, Mecklenburg County, North Carolina. PINs: 01911108, 01911117, 01911118, 01911137, 01911139, 01911140, 01913151, 01913152, and 01913177.

Project Area (acres): ±217-acres Nearest Town: Huntersville
Nearest Waterway: Cane Creek River Basin: Yadkin-Pee Dee 03040105
Latitude and Longitude: 35.38453 N, -80.82165 W

Existing Site Conditions

The project area is comprised of existing residential development (apartments), land recently cleared for new development, and existing timberland. Upland forested communities are dominated by a canopy of sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), loblolly pine (*Pinus taeda*), yellow poplar (*Liriodendron tulipifera*), and American beech (*Fagus grandifolia*). The shrub layer is primarily saplings of the canopy species, but also includes ironwood (*Carpinus caroliniana*), Chinese privet (*Ligustrum sinense*), and red cedar (*Juniperus virginiana*). The groundcover consists of vines such as Japanese honeysuckle (*Lonicera japonica*) and wild grape (*Vitis rotundifolia*) with herbaceous individuals such as Christmas fern (*Polystichum acrostichoides*), and blackberry (*Rubus argutus*) also being present. Topography in the area is generally moderately sloped, but there are some areas severely sloped. The total length of jurisdictional streams located on the property is ±10,513 linear feet. The total area of jurisdictional wetlands located on site is 6.796-acres.

Applicant's Stated Purpose

The applicant's stated purpose is to provide a public transportation linked, residential development in northern Mecklenburg County.

Project Description

Previous developers began master planning the Bryton development prior to the economic recession that began in early 2008 (see Figure 5 – Concept Plan). The original development concept included residential development within the current project area and commercial development to the south of Hambright Road. A Nationwide Permit 39 verification was issued on November 5, 2007 (and reissued on October 19, 2009) to place fill material in 3,815 linear feet of intermittent stream and 0.172 acre of wetlands to facilitate the construction of the commercial portions of the Bryton development. A Nationwide Permit 14 verification was issued on October 15, 2008 to place fill material in 290 linear feet of stream to extend Hambright Road to Everett Keith Road and to provide access to the original Bryton development. While site grading for the commercial development was completed in 2010, the commercial development as proposed was never built. Since 2012, a Walmart and McDonalds have been built on portions of the property and other businesses are beginning to develop parcels within the commercial portion of the original Bryton development. This commercial portion of the original Bryton development is currently under different ownership than the residential development described in this notice.

The current project area includes a ±217-acre assemblage of parcels located north of Hambright Road. The proposed Bryton residential development is a high-end walking community with a planned transportation hub nearby (LYNX Red Line station). The proposed development would

contain single family residential, multi-family residential, light commercial, and park-like green space. The proposed development is part of an effort to bring a multi-faceted, pedestrian oriented community to the Huntersville, Mecklenburg County, North Carolina.

A Nationwide Permit 29 permit verification authorizing the placement of fill material in 0.09 acre of wetlands and 104 linear feet was issued on August 28, 2015 for the first phase of the proposed Bryton residential development. Apartments are currently being constructed on Hambright Road at the south central portion of the project area. The current proposal seeks to authorize impacts necessary to complete site grading for the entire Bryton residential development.

Avoidance and Minimization

The applicant provided the following information in support of efforts to avoid and/or minimize impacts to the aquatic environment:

Wetland and stream impacts on the preferred alternative have been avoided and/or minimized to the greatest extent practicable. The project will impact approximately 1,335 linear feet (12.7% of the streams located on site). Total impacts to wetlands on site are approximately 0.2076-acre (3% of the total wetland area located on site). The vast majority of jurisdictional areas are avoided by the development of the property. The reason that the vast majority of jurisdictional areas are avoided is that the developer's engineer took care to try and avoid the largest system present on site (Cane Creek drainage). This drainage is also affected by beavers and has extensive wetlands associated with it. The designers were able to avoid all but one road crossing to this system, which is needed to access the northeastern corner of the project site. All other impacts are to either, unnamed tributaries (and their associated wetlands) of Cane Creek or to even smaller tributaries further in the headwaters located on site (Engineering Drawings: Figures 0-11).

The designers tried several configurations, especially in high impacts areas (Impact Nos. 7 and 8), but with the topography of the area and the fact that the tributaries here bisect the property through the middle portions of the area, it was impossible to configure the development (apartment buildings, parking, storm water control, sewer, etc.) in such a manner to avoid the impacts in this area. The same can be said for Impact Numbers 1 through 6. Impact 1 could not be avoided due to the significant loss of area for development. The tributary and its associated wetland bisect the development area in such a manner as to limit the ability to develop the area without impact. Impact 2 is needed for access and has been minimized as much as possible, and are generally due to the topography in the area and the need to create a safe crossing. Impact 3 was minimized because there will be no permanent impact associated with this sewer line crossing. Impact 4 is a road crossing that minimized impacts by only proposing the road crossing over the stream. The designer eliminated three lots in this area in order to avoid and minimize the impact in this area. Impact 5 is another area where impacts are unavoidable due to challenging topography in the area. However, the impacts were limited to the headwaters (and associated wetlands) of these two small headwater streams. Impact 6 (much the same as Impact 2) is needed for access and impacts are minimized as much as possible. It should be noted here that additional minimization measures such as the use of bottomless culverts for the stream crossings were reviewed. However, they were eliminated due to the challenging topography in the area of each

road crossing and the significant cost associated with designing and constructing a "bottomless" culvert. When feasible, the current site design also integrated sewer lines and roads and/or road crossings within the same easement to further reduce impacts (this was not practicable in the 10 instance of the one sewer crossing). Further, the proposed site plan establishes "green-space" corridors that bisect the site and encompasses a large portion of streams and wetlands on-site. In order to demonstrate that avoidance and minimization has been achieved to the greatest extent practicable while still maintaining the overall purpose and need of the project, we compared a concept plan that was developed by the initial developers of the Bryton property (Figure 5 – Concept Plan). The impacts proposed initially in the concept plan, when compared with what is currently proposed, show very little difference in overall proposed impacts. However, it should be noted that the concept plan does not include stormwater facilities, which are generally located at lower topographic locations on the site (low drainage points). This would lead to additional impacts not depicted on the map and would certainly surpass the impacts currently proposed. In summary, the developer and his engineer has designed a site that meets the stated purpose and need of the project while avoiding and minimizing impacts to jurisdictional areas to the greatest extent practicable.

Compensatory Mitigation

The applicant offered the following compensatory mitigation plan to offset unavoidable functional loss to the aquatic environment:

The applicant proposes to compensate for wetland and stream impacts through the purchase of both stream and wetland mitigation from the NC Division of Mitigation Services (NCDMS). Application has been made to the NCDMS since there are no wetland or stream mitigation banks in the project service area. The applicant proposes to compensate for unavoidable impacts to waters of the United States at a 2:1 (2 mitigation units for every 1 unit of impact) ratio for perennial streams, a 1:1 mitigation ratio for impacts to intermittent streams, and a 1:1 ratio for wetlands.

Essential Fish Habitat

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, this Public Notice initiates the Essential Fish Habitat (EFH) consultation requirements. The Corps' initial determination is that the proposed project would not affect EFH or associated fisheries managed by the South Atlantic or Mid Atlantic Fishery Management Councils or the National Marine Fisheries Service.

Cultural Resources

Pursuant to Section 106 of the National Historic Preservation Act of 1966, Appendix C of 33 CFR Part 325, and the 2005 Revised Interim Guidance for Implementing Appendix C, the District Engineer consulted district files and records and the latest published version of the National Register of Historic Places and initially determines that:

- ☒ No historic properties, nor properties eligible for inclusion in the National Register, are present within the Corps' permit area; therefore, there will be no historic properties affected. The Corps subsequently requests concurrence from the SHPO (or THPO).

The District Engineer's final eligibility and effect determination will be based upon coordination with the SHPO and/or THPO, as appropriate and required, and with full consideration given to the proposed undertaking's potential direct and indirect effects on historic properties within the Corps-identified permit area.

Endangered Species

Pursuant to the Endangered Species Act of 1973, the Corps reviewed the project area, examined all information provided by the applicant and consulted the latest North Carolina Natural Heritage Database. Based on available information:

- ☒ The Corps determines that the proposed project would not affect federally listed endangered or threatened species or their formally designated critical habitat.

Other Required Authorizations

The Corps forwards this notice and all applicable application materials to the appropriate State agencies for review.

North Carolina Division of Water Resources (NCDWR): The Corps will generally not make a final permit decision until the NCDWR issues, denies, or waives the state Certification as required by Section 401 of the Clean Water Act (PL 92-500). The receipt of the application and this public notice, combined with the appropriate application fee, at the NCDWR Central Office in Raleigh constitutes initial receipt of an application for a 401 Certification. A waiver will be deemed to occur if the NCDWR fails to act on this request for certification within sixty days of receipt of a complete application. Additional information regarding the 401 Certification may be reviewed at the NCDWR Central Office, 401 and Buffer Permitting Unit, 512 North Salisbury Street, Raleigh, North Carolina 27604-2260. All persons desiring to make comments regarding the application for a 401 Certification should do so, in writing, by September 12, 2016 to:

NCDWR Central Office
Attention: Ms. Karen Higgins, 401 and Buffer Permitting Unit
(USPS mailing address): 1617 Mail Service Center, Raleigh, NC 27699-1617

Or,

(physical address): 512 North Salisbury Street, Raleigh, North Carolina 27604

North Carolina Division of Coastal Management (NCDCM):

☒ Based upon all available information, the Corps determines that this application for a Department of Army (DA) permit does not involve an activity which would affect the coastal zone, which is defined by the Coastal Zone Management (CZM) Act (16 U.S.C. § 1453).

Evaluation

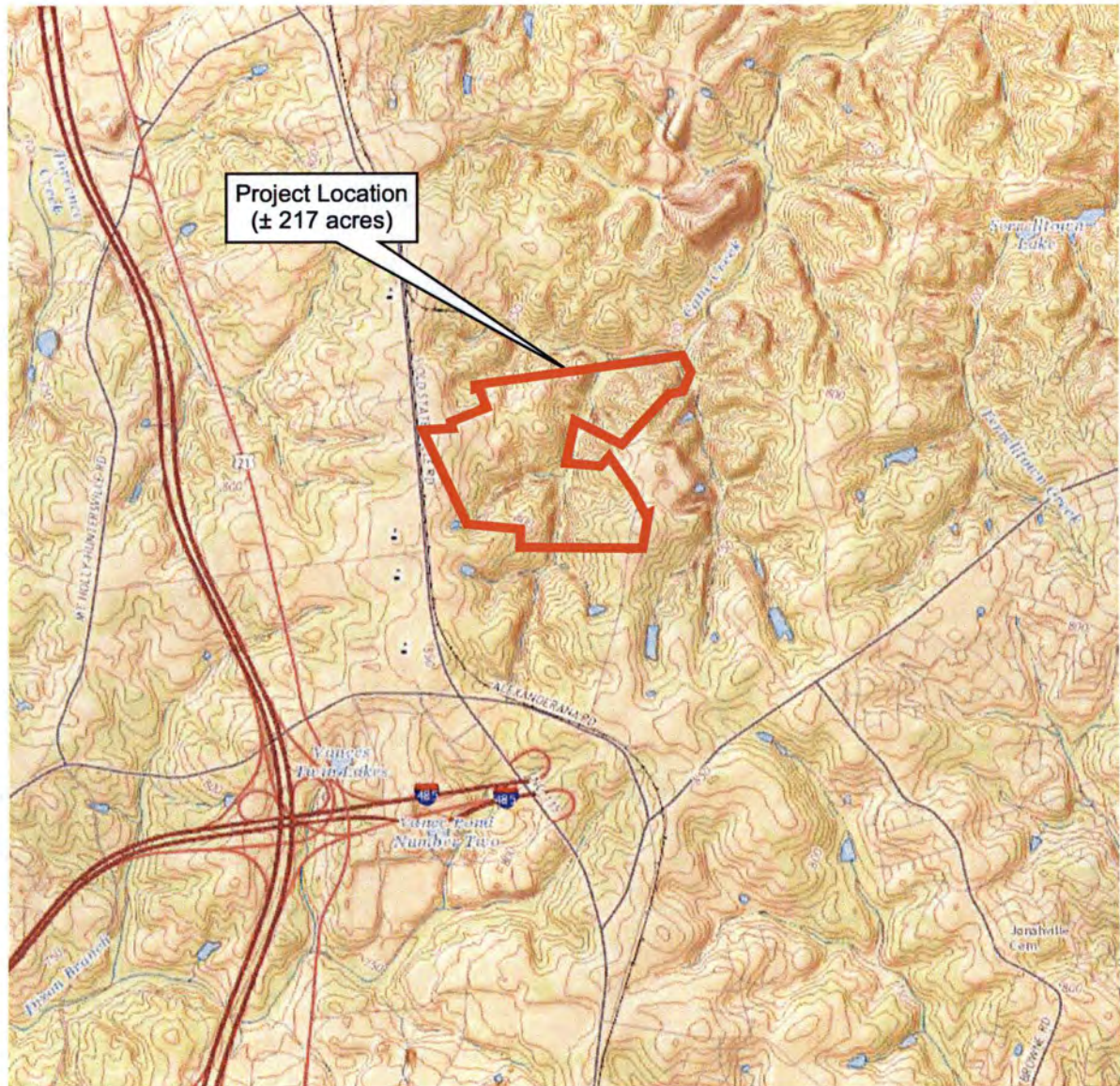
The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the discharge of dredged or fill materials in waters of the United States, the evaluation of the impact of the activity on the public interest will include application of the Environmental Protection Agency's 404(b)(1) guidelines.

Commenting Information

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials, including any consolidated State Viewpoint or written position of the Governor; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing shall be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

The Corps of Engineers, Wilmington District will receive written comments pertinent to the proposed work, as outlined above, until 5pm, September 12, 2016. Comments should be submitted to David L Shaeffer, Asheville Regulatory Field Office, 151 Patton Avenue, Room 208, Asheville, North Carolina 28801, at (704) 510-1437.



Project Location

Not To Scale
Source: Landvoyage.com,
USGS Cornelius (NC) Quadrangle, 2000.
Disclaimer: The information depicted on this figure is for
informational purposes only and was not prepared for, and is
not suitable for legal or engineering purposes.



**ENVIRONMENTAL
SERVICES, INC.**

9401-C Southern Pine Boulevard
Charlotte, North Carolina 28273
(704) 523-7225
(704) 523-7226 Fax

www.environmentalservicesinc.com

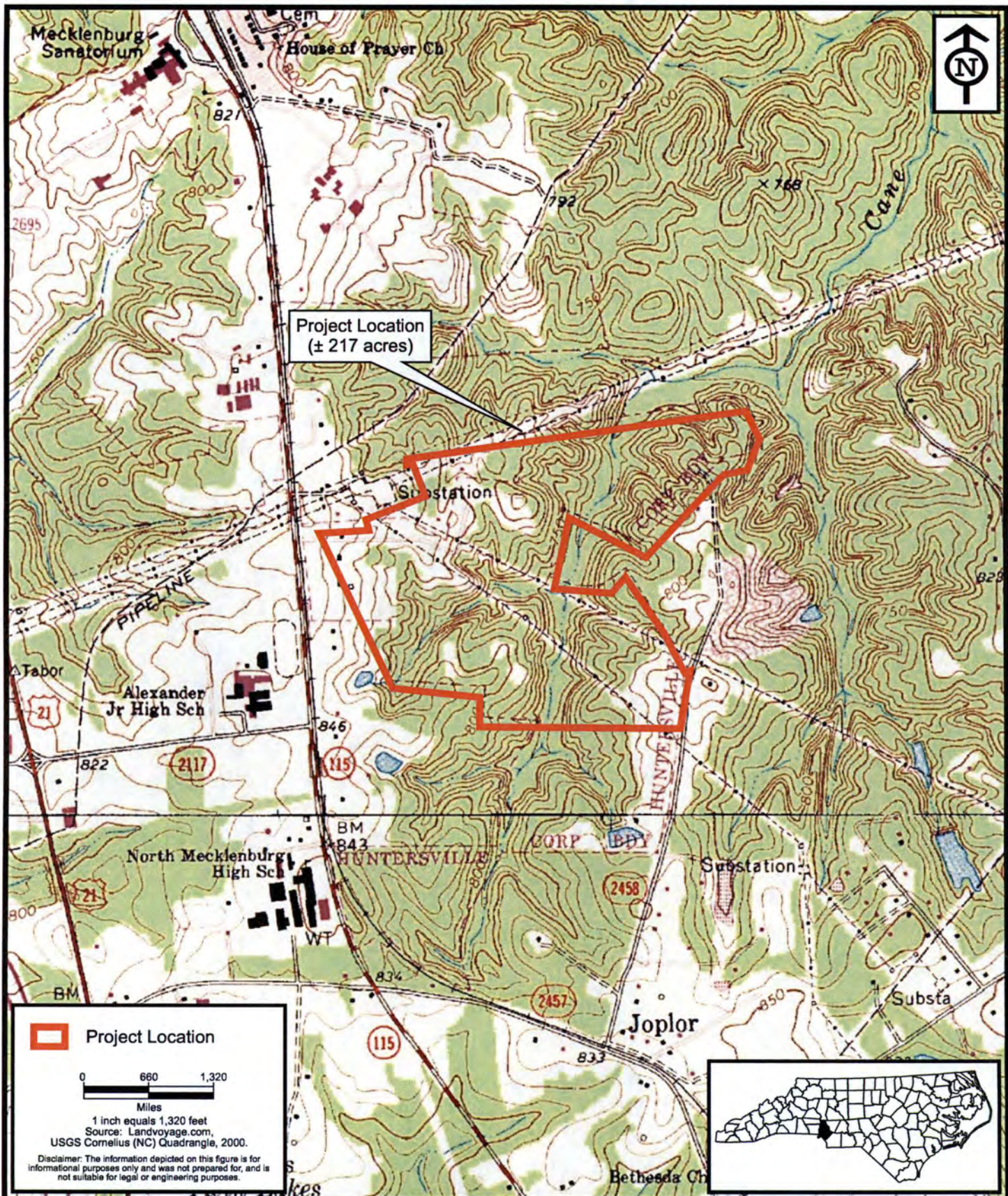
General Project Location
Bryton Development
Mecklenburg County, North Carolina

Project: ER13071.02

Date: Feb 2016

Drwn/Chkd: JMB/SPP

Figure: 1



ENVIRONMENTAL SERVICES, INC.
 9401-C Southern Pine Boulevard
 Charlotte, North Carolina 28273
 (704) 523-7225
 (704) 523-7226 Fax
www.environmentalservicesinc.com

Project Location
Bryton Development
 Mecklenburg County, North Carolina

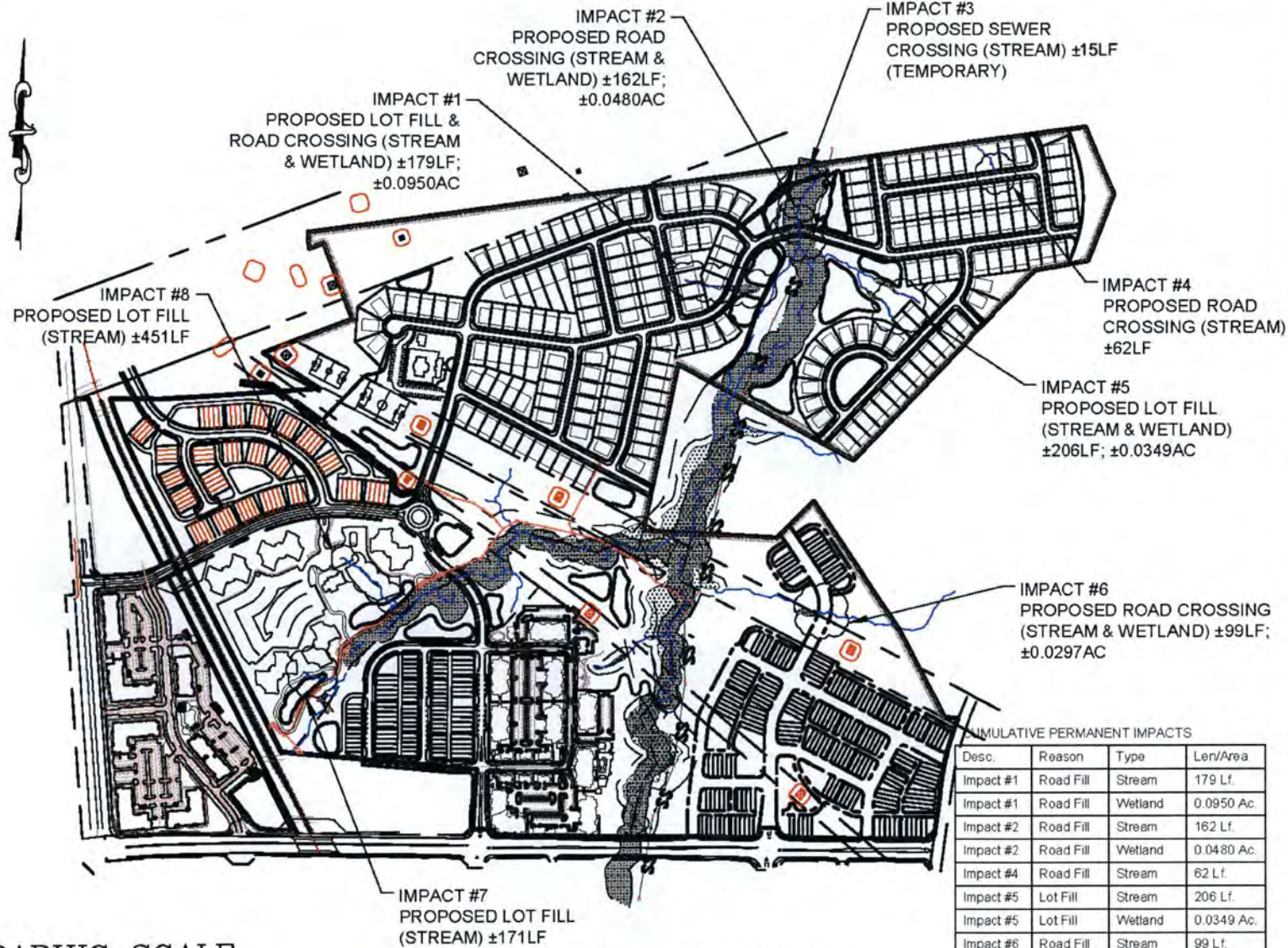
Project: ER13071.02
 Date: Feb 2016
 Drwn/Chkd: JMB/SPP
 Figure: 2



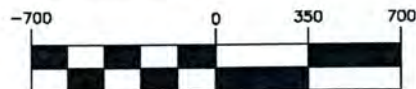
**ENVIRONMENTAL
SERVICES, INC.**
1905 Ebenezer Road
Rock Hill, South Carolina 29732
(704) 523-7225
(704) 523-7226 Fax
www.environmentalservicesinc.com

NRCS Soils
Bryton Development
Mecklenburg County, North Carolina

Project: ER13071.00
Date: Feb 2016
Drwn/Chkd: JMB/SP
Figure: 3



GRAPHIC SCALE



1 inch = 700 ft.

CUMULATIVE TEMPORARY IMPACTS

Desc.	Reason	Type	Len/Area
Impact #3	Utility	Stream	15 Lf.
Total Stream			15 Lf.
Total Wetlands			0.0000 Ac.

CUMULATIVE PERMANENT IMPACTS

Desc.	Reason	Type	Len/Area
Impact #1	Road Fill	Stream	179 Lf.
Impact #1	Road Fill	Wetland	0.0950 Ac.
Impact #2	Road Fill	Stream	162 Lf.
Impact #2	Road Fill	Wetland	0.0480 Ac.
Impact #4	Road Fill	Stream	62 Lf.
Impact #5	Lot Fill	Stream	206 Lf.
Impact #5	Lot Fill	Wetland	0.0349 Ac.
Impact #6	Road Fill	Stream	99 Lf.
Impact #6	Road Fill	Wetland	0.0297 Ac.
Impact #7	Lot Fill	Stream	171 Lf.
Impact #8	Lot Fill	Stream	451 Lf.
Total Stream			1,330 Lf.
Total Wetlands			0.2076 Ac.

Bryton

Town of Huntersville, North Carolina

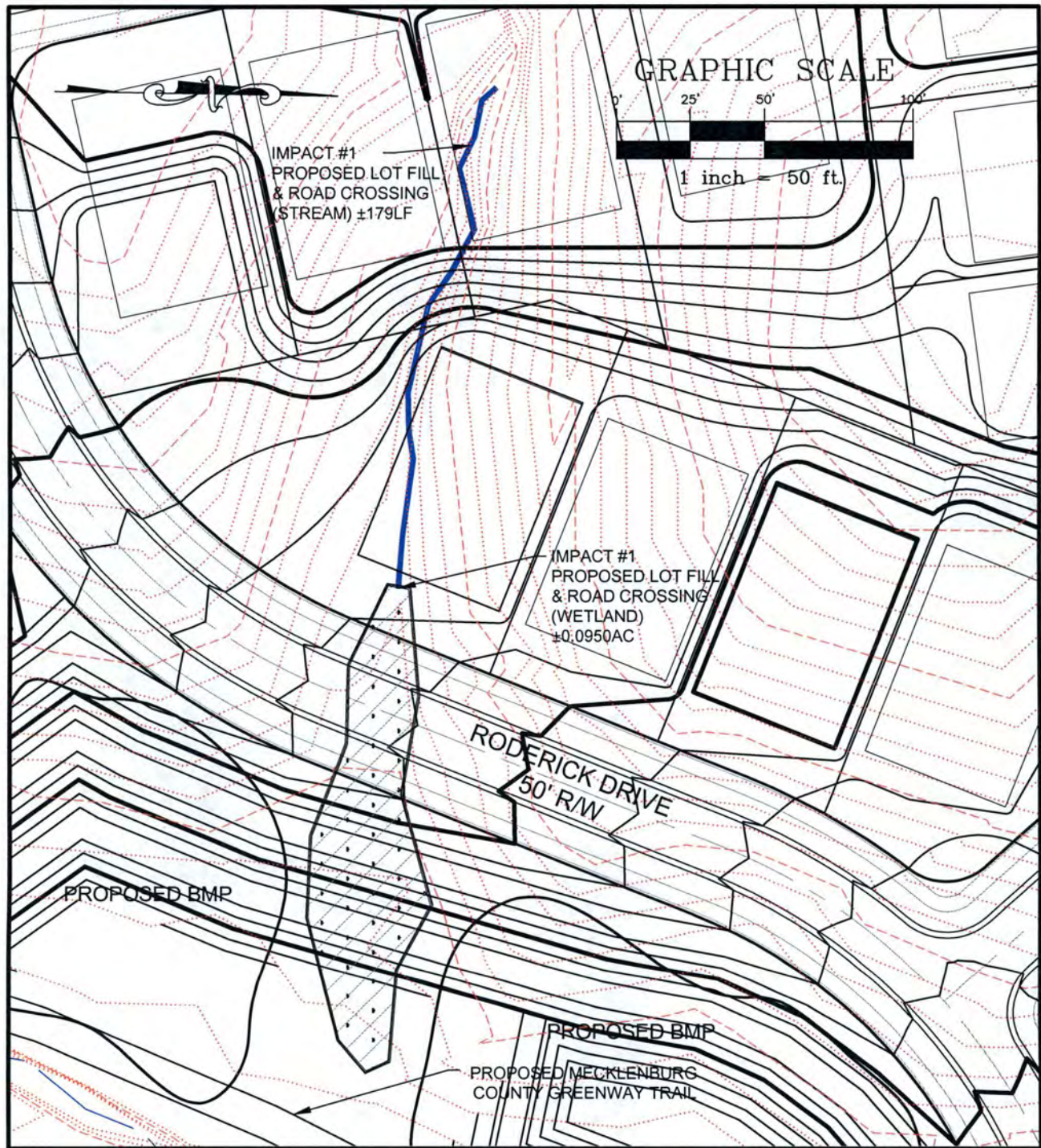
R. Joe Harris & Associates, Inc.
Engineering • Planning • Management



127 Bin Cherry Drive, Suite 201, Fort Mill, S.C. 29708 (803) 802-2799 Fax (803) 802-0886

Drawn By: DBG Date: 02-08-2016 Rev:

Engineer: PLM Scale: 1" = 700' Figure: 0



IMPACT #1
PLAN VIEW - PROPOSED LOT FILL & ROAD CROSSING

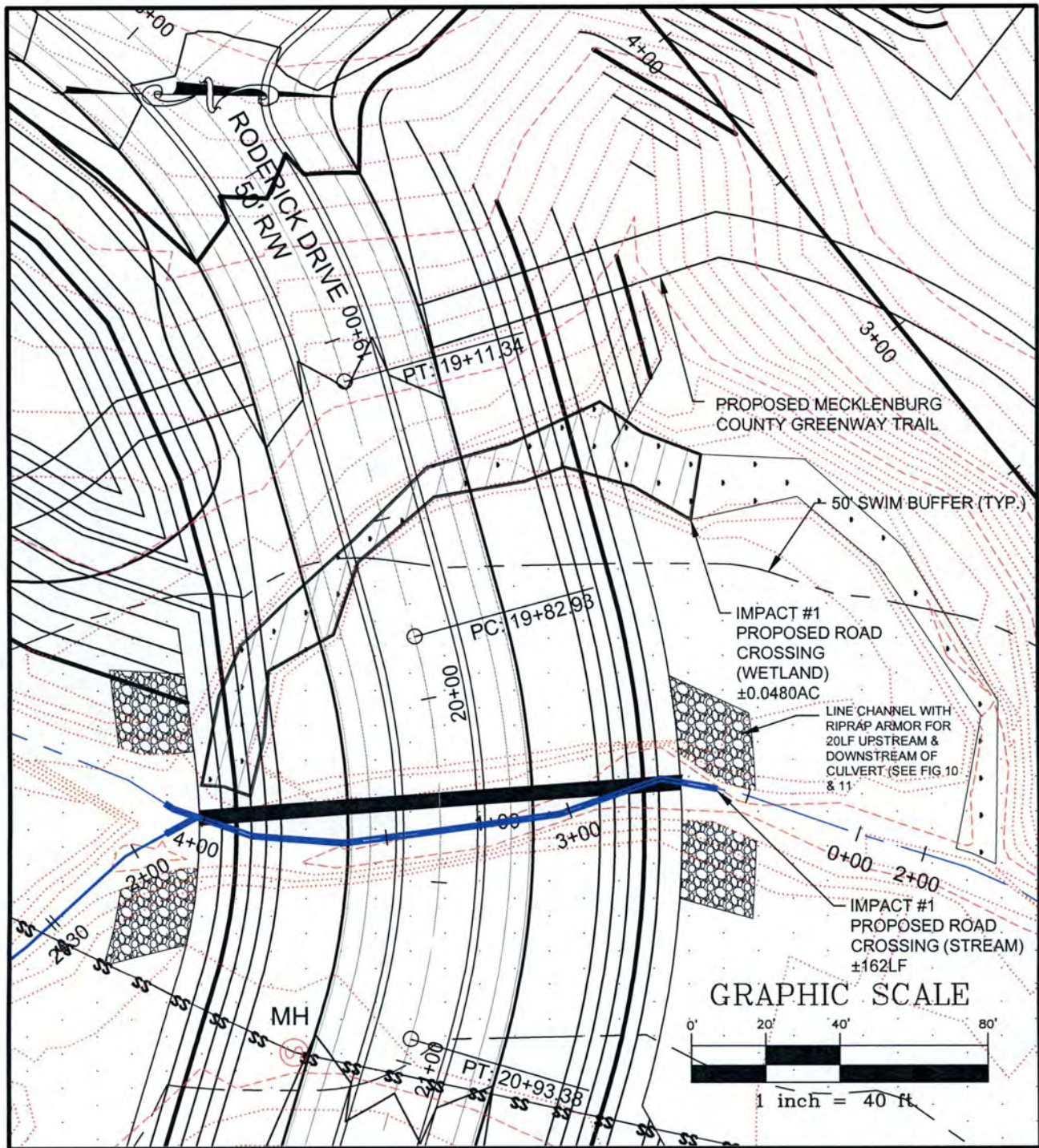
Bryton
Town of Huntersville, North Carolina

Drawn By: DBG	Date: 02-08-2016	Rev:
Engineer: PLM	Scale: AS SHOWN	Figure: 1



R. Joe Harris & Associates, Inc.
Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886



IMPACT #2
PLAN VIEW - PROPOSED ROAD CROSSING

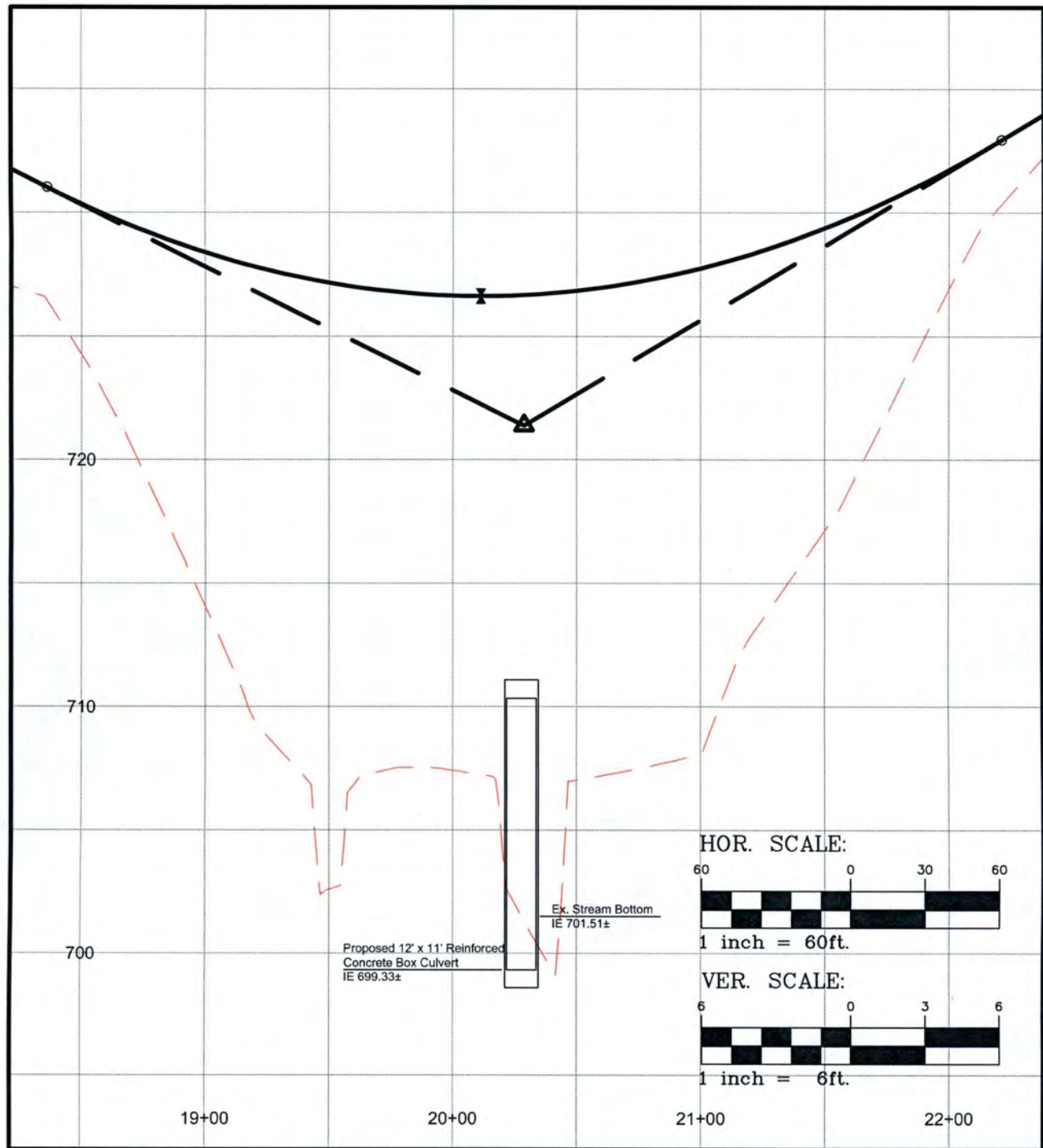
Bryton
 Town of Huntersville, North Carolina

Drawn By: DBG	Date: 02-08-2016	Rev:
Engineer: PLM	Scale: AS SHOWN	Figure: 2A



R. Joe Harris & Associates, Inc.
 Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886



IMPACT #2
PROFILE VIEW - CENTERLINE OF ROAD CROSSING

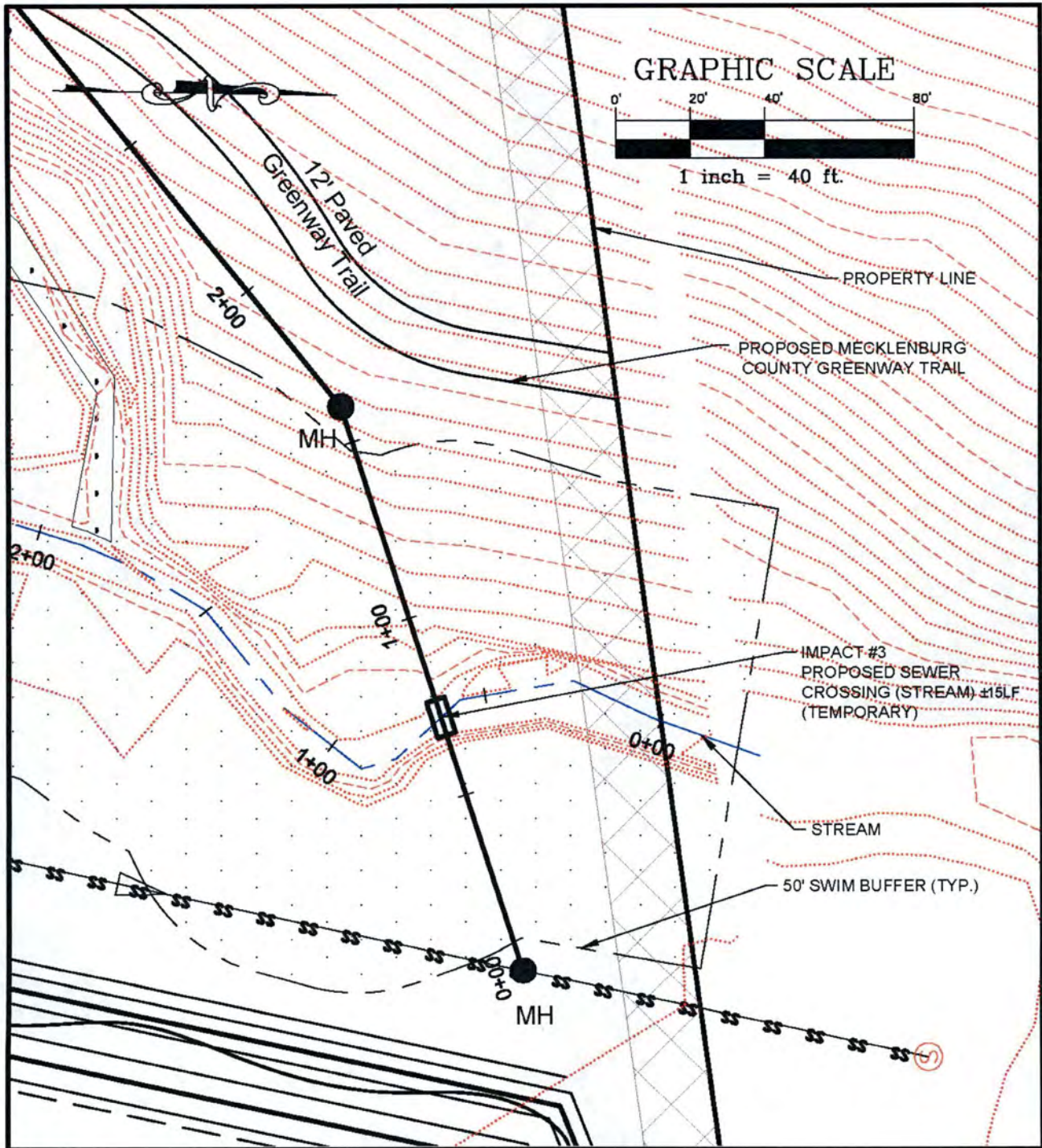
Bryton
 Town of Huntersville, North Carolina

Drawn By: <i>DBG</i>	Date: <i>02-08-2016</i>	Rev:
Engineer: <i>PLM</i>	Scale: <i>AS SHOWN</i>	Figure: <i>2B</i>



R. Joe Harris & Associates, Inc.
 Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886



IMPACT #3
PLAN VIEW - PROPOSED SEWER CROSSING

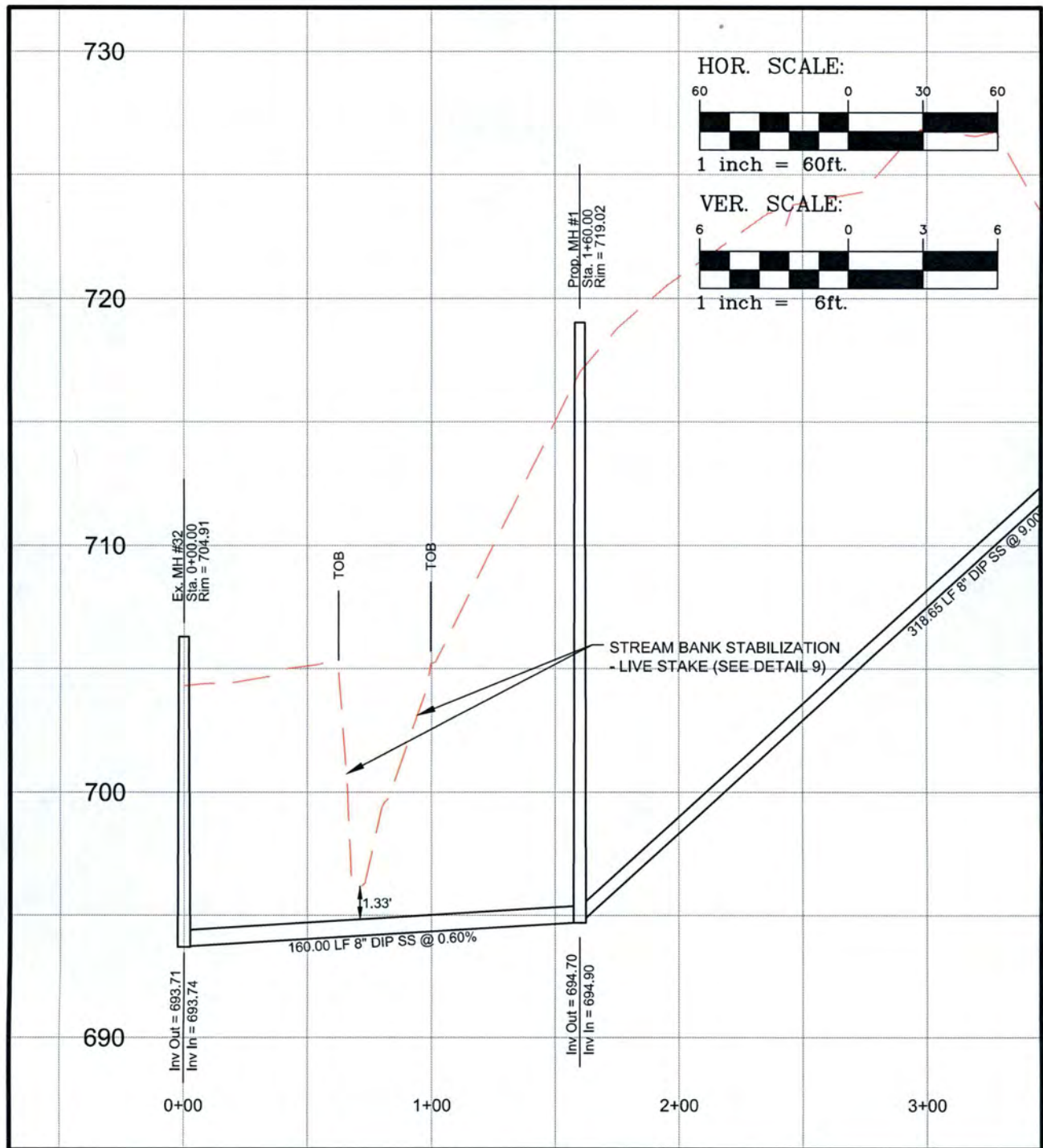
Bryton
 Town of Huntersville, North Carolina

Drawn By: DBG	Date: 02-08-2016	Rev:
Engineer: PLM	Scale: AS SHOWN	Figure: 3A



R. Joe Harris & Associates, Inc.
 Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, SC 29708 (803) 802-1799 Fax (803) 802-0886



IMPACT #3
PROFILE VIEW - OPEN CUT SEWER LINE CROSSING STREAM

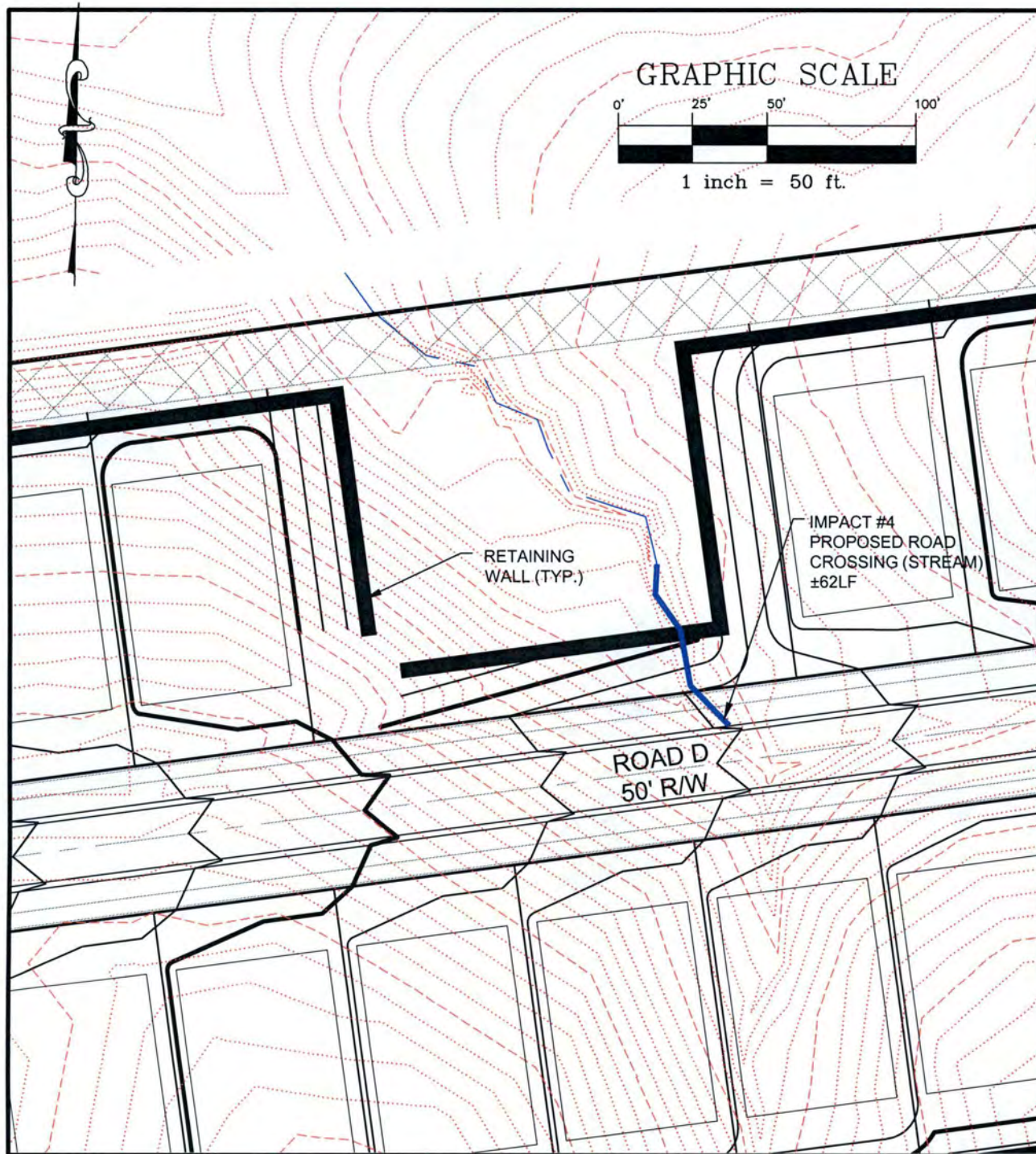
Bryton
Town of Huntersville, North Carolina



R. Joe Harris & Associates, Inc.
Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886

Drawn By: <i>DBG</i>	Date: <i>02-08-2016</i>	Rev:
Engineer: <i>PLM</i>	Scale: <i>AS SHOWN</i>	Figure: <i>3B</i>



IMPACT #4
PLAN VIEW - PROPOSED LOT FILL & ROAD CROSSING

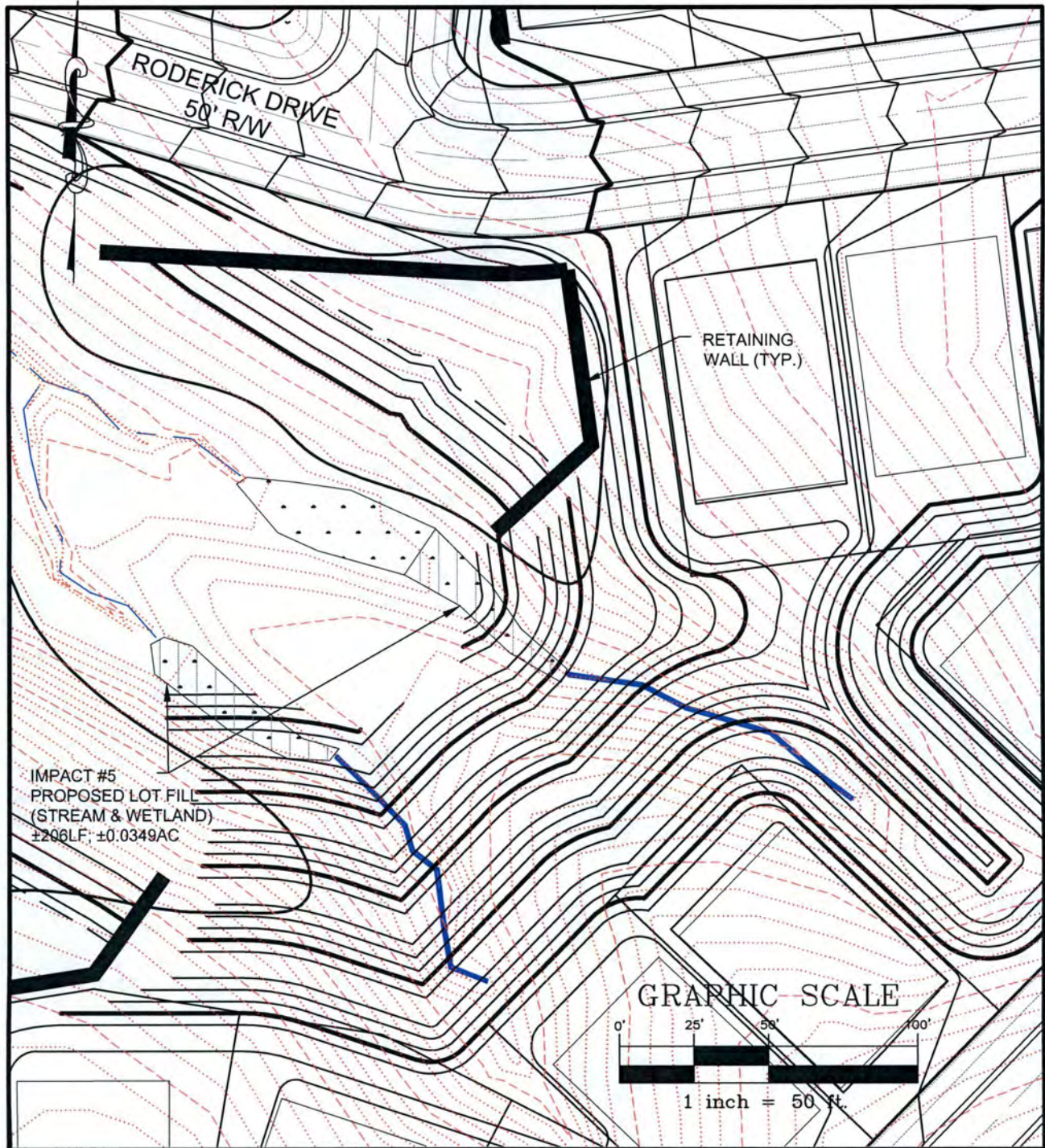
Bryton
Town of Huntersville, North Carolina

Drawn By: DBG	Date: 02-08-2016	Rev:
Engineer: PLM	Scale: AS SHOWN	Figure: 4



R. Joe Harris & Associates, Inc.
Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886



IMPACT #5
PLAN VIEW - PROPOSED LOT FILL

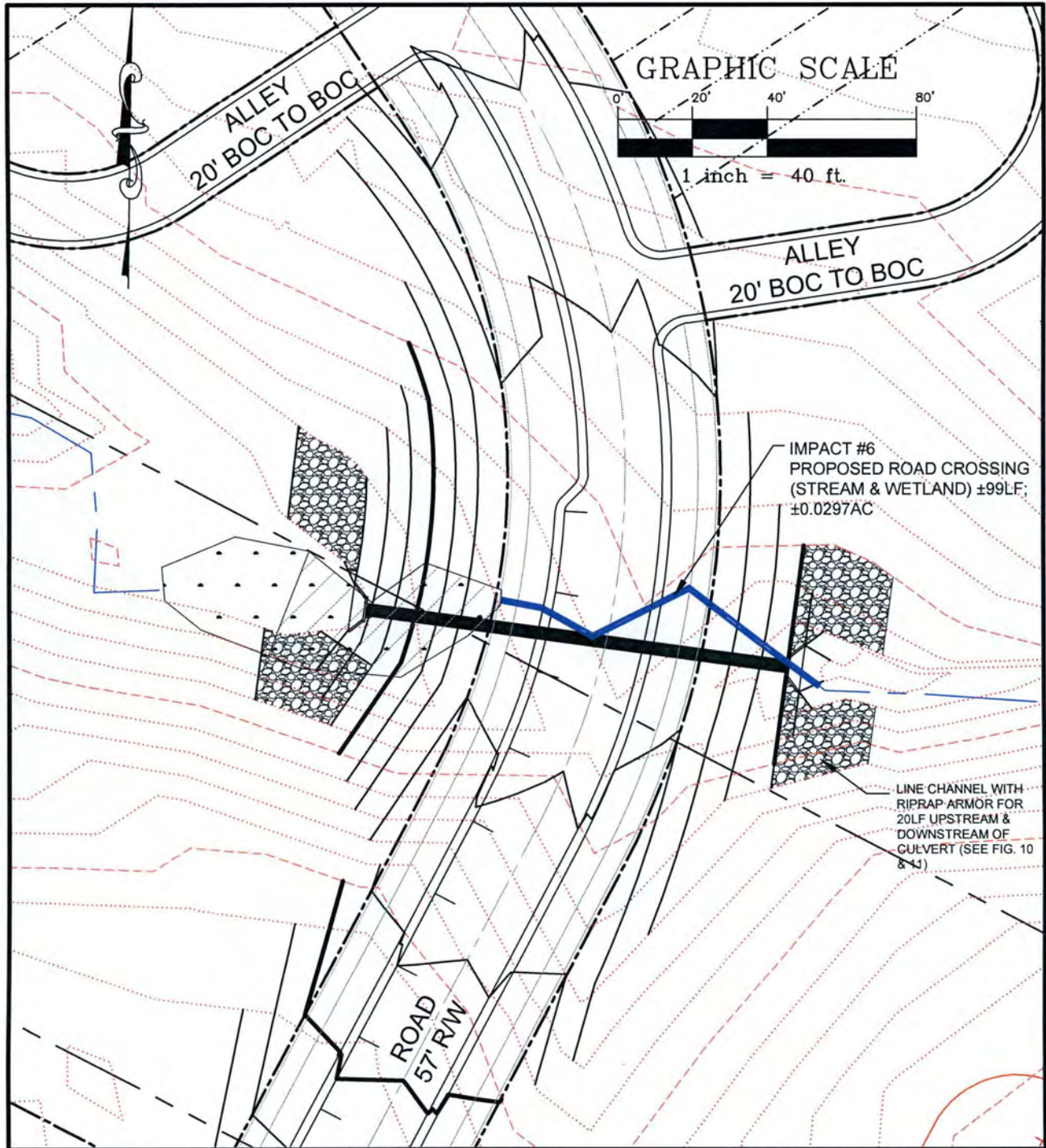
Bryton
Town of Huntersville, North Carolina

Drawn By: <i>DBG</i>	Date: <i>02-08-2016</i>	Rev:
Engineer: <i>PLM</i>	Scale: <i>AS SHOWN</i>	Figure: <i>5</i>



R. Joe Harris & Associates, Inc.
Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886



IMPACT #6
PLAN VIEW - PROPOSED ROAD CROSSING

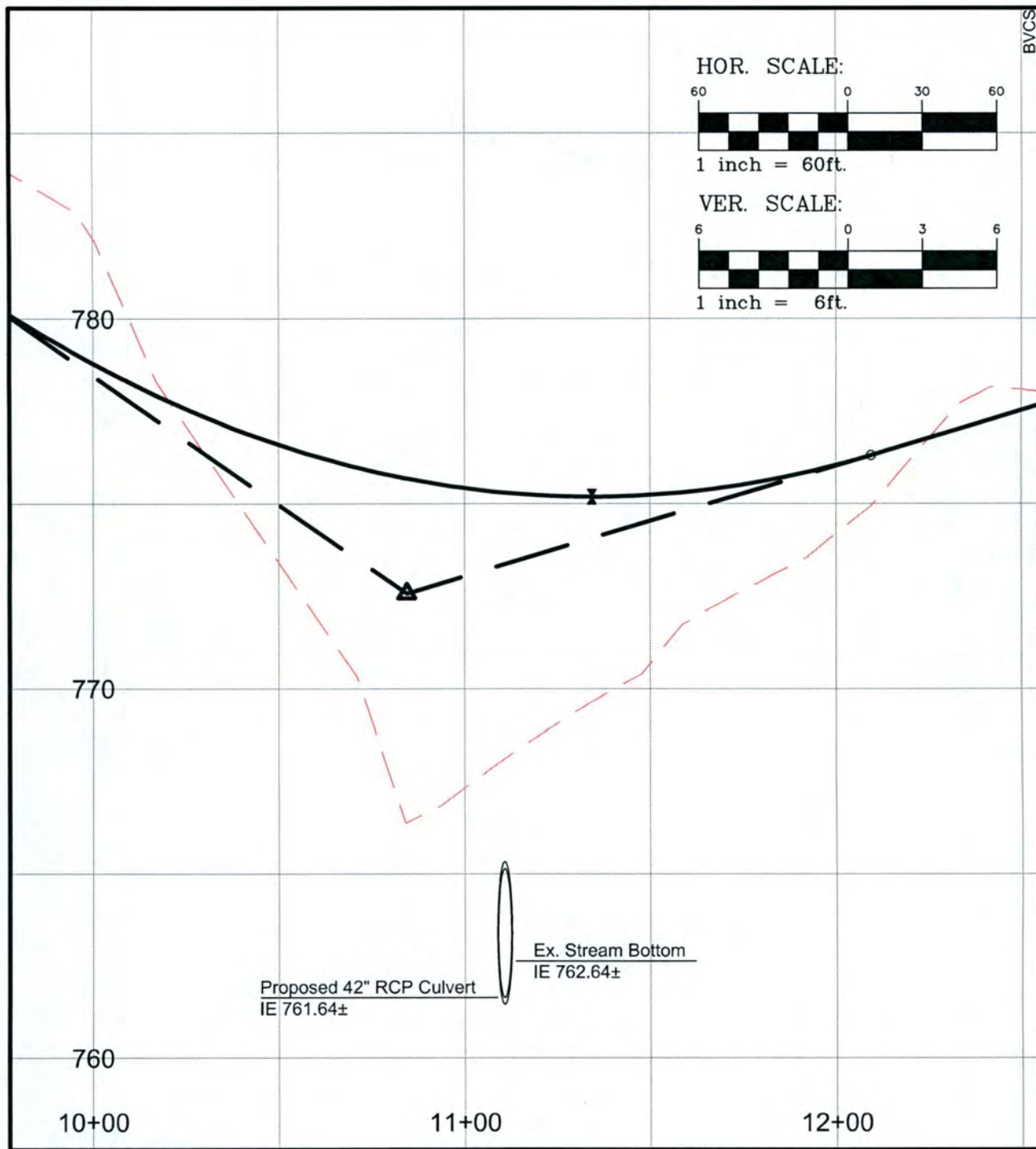
Bryton
 Town of Huntersville, North Carolina

Drawn By: <i>DBG</i>	Date: <i>02-08-2016</i>	Rev:
Engineer: <i>PLM</i>	Scale: <i>AS SHOWN</i>	Figure: <i>6A</i>




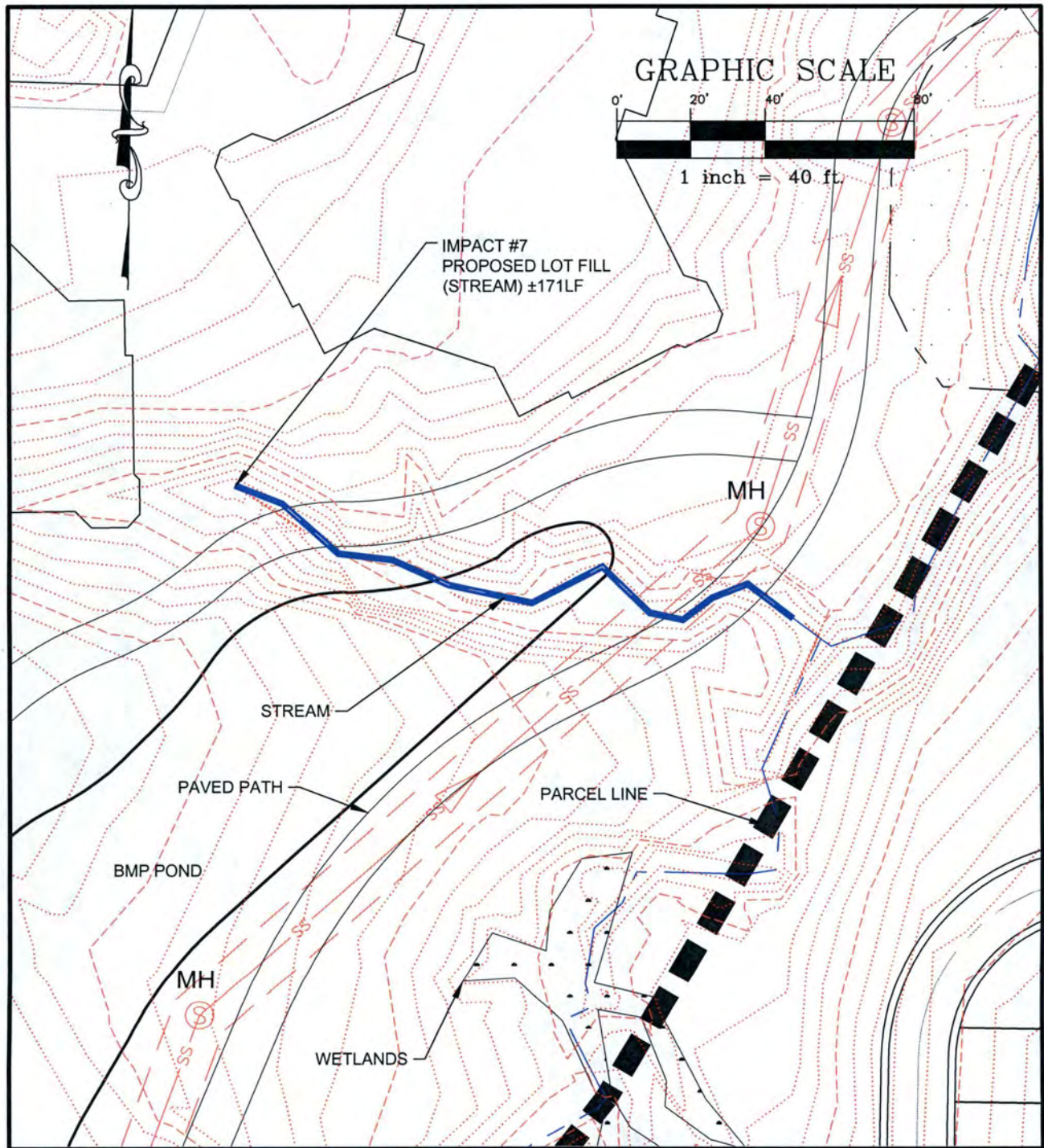
R. Joe Harris & Associates, Inc.
 Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886



IMPACT #6
PROFILE VIEW - CENTERLINE OF ROAD CROSSING

<p>Bryton Town of Huntersville, North Carolina</p>				<p>R. Joe Harris & Associates, Inc. Engineering • Planning • Management</p>	
Drawn By: DBG	Date: 02-08-2016	Rev:		<p>127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886</p>	
Engineer: PLM	Scale: AS SHOWN	Figure: 6B			



IMPACT #7
PLAN VIEW - PROPOSED LOT FILL

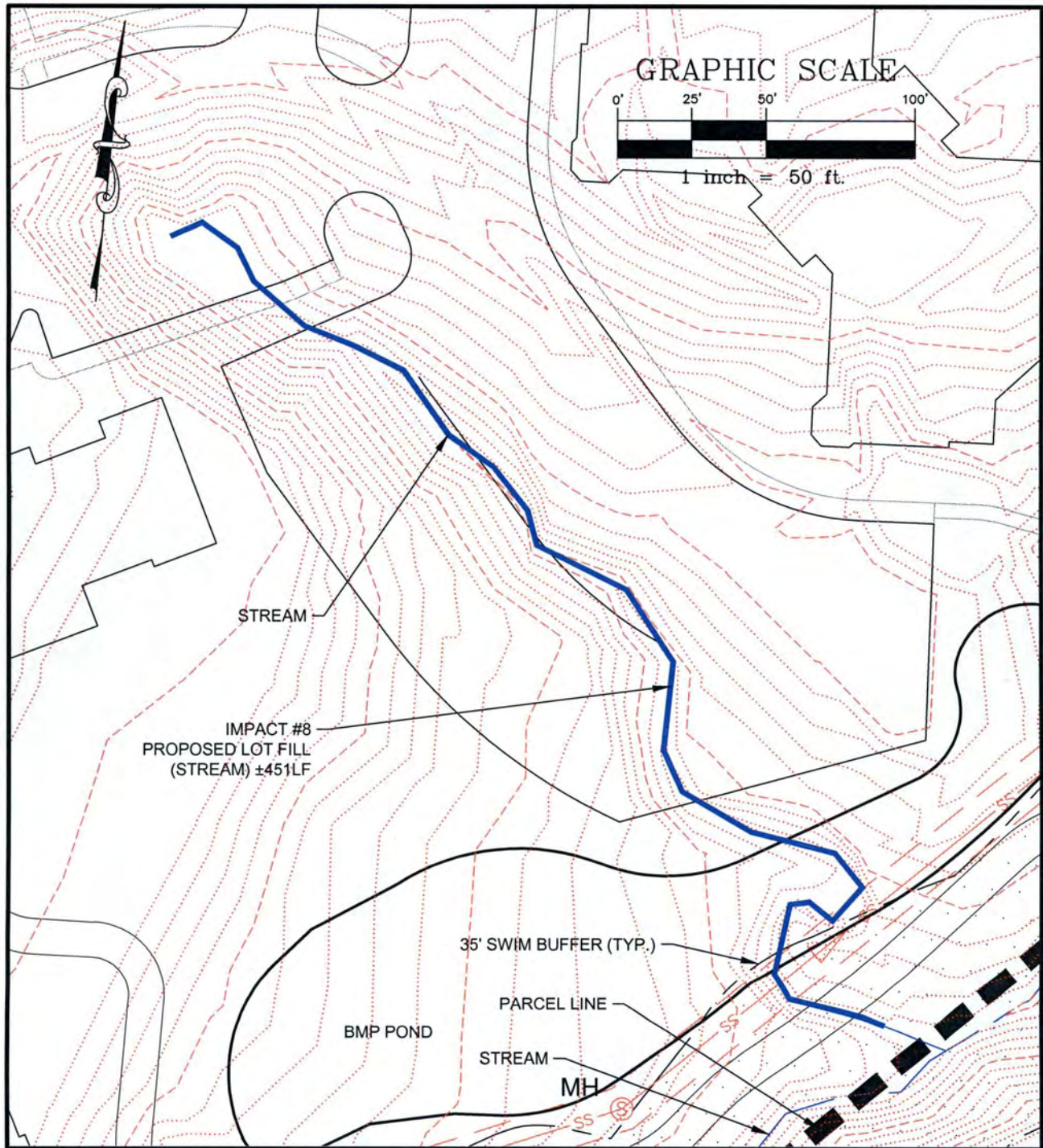
Bryton
 Town of Huntersville, North Carolina

Drawn By: DBG	Date: 02-08-2016	Rev:
Engineer: PLM	Scale: AS SHOWN	Figure: 7



R. Joe Harris & Associates, Inc.
 Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886



IMPACT #8
PLAN VIEW - PROPOSED LOT FILL

Bryton
Town of Huntersville, North Carolina

Drawn By: DBG	Date: 02-08-2016	Rev:
Engineer: PLM	Scale: AS SHOWN	Figure: 8



R. Joe Harris & Associates, Inc.
Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886

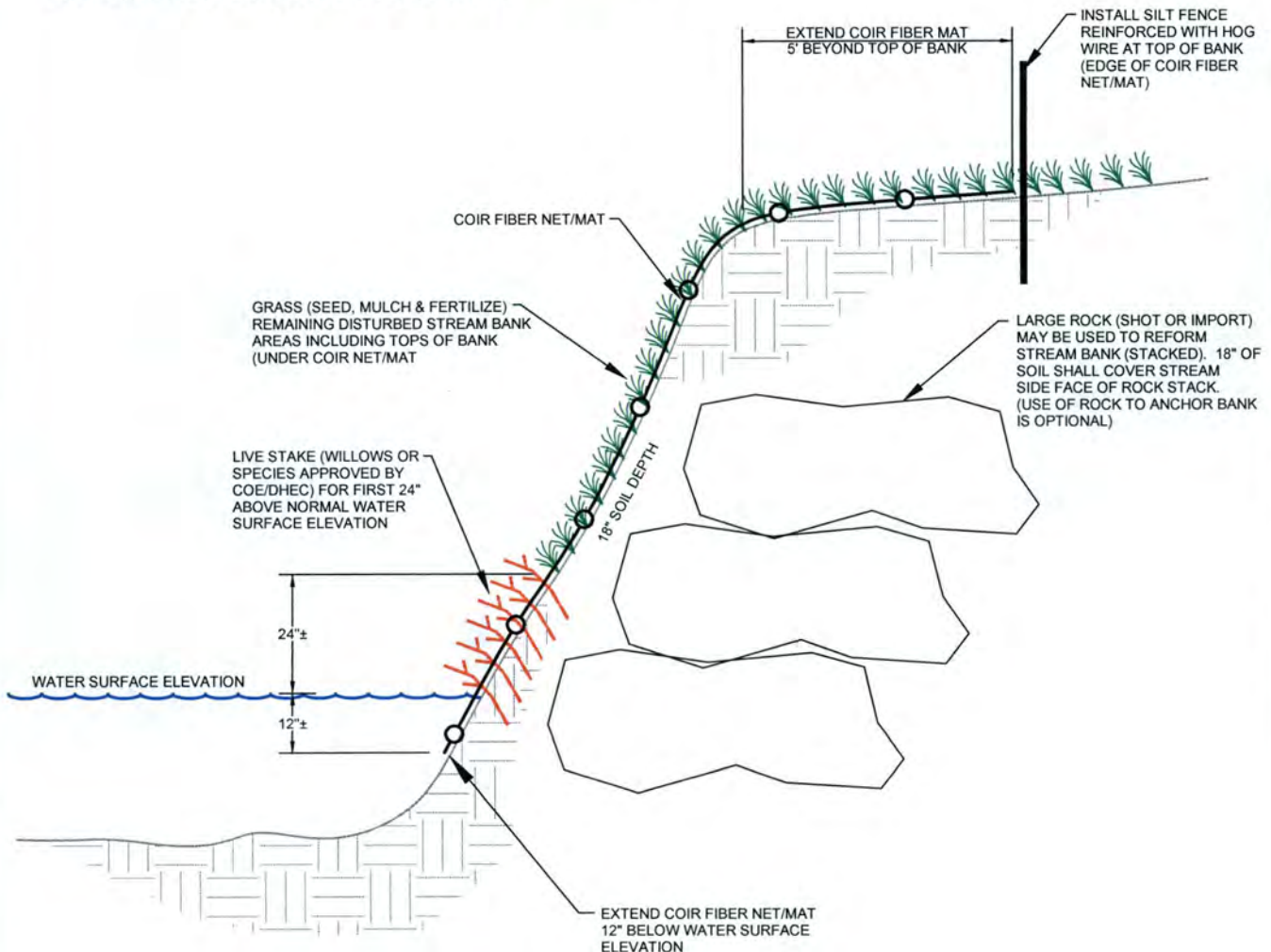
NOTES FOR STREAM BANK STABILIZATION:

1. UPON COMPLETION OF STREAM CROSSING WORK, CONTRACTOR SHALL BACKFILL AND MECHANICALLY TAMP (NO SPECIFIC DENSITY) SOILS INTO PLACE AND DRESS DISTURBED SURFACES.
2. BEGINNING AT A POINT 2' ABOVE WATER SURFACE ELEVATION, GRASS (SEED, FERTILIZER & STRAW MULCH) STREAM BANK, TOP OF BANK AND DISTURBED AREAS UPLAND OF STREAM.
3. INSTALL COIR FIBER NET/MAT STARTING MINIMUM 12" BELOW WATER SURFACE ELEVATION AND EXTENDING A MINIMUM 5' BEYOND TOP OF BANK. MINIMUM SPECIFICATIONS FOR COIR FIBER NET/MAT AS FOLLOWS:
 - MIN. THICKNESS OF 0.30 INCHES
 - 100% COCONUT FIBER AND WOVEN INTO TWINE
 - AVG. WEIGHT OF 20 OUNCES/SQ. YD.
4. COIR FIBER NET/MAT SHALL BE SECURELY HELD IN PLACE WITH USE OF WOODEN STAKES AND WIRE STAPLES (AS NEEDED).
5. INSTALL LIVE STAKES BEGINNING AT WATER SURFACE ELEVATION AND EXTENDING 2 VERTICAL FEET UP THE STREAM BANK. SEE LIVE STAKE DETAIL FOR ADDITIONAL REQUIREMENTS.
6. INSTALL SILT FENCE W/WIRE REINFORCEMENT ALONG TOP OF BANK (ADJACENT TO END OF COIR FIBER NET/MAT) FOR WIDTH OF DISTURBED SOILS.



1. LIVE STAKES SHALL BE APPROXIMATELY 24" IN LENGTH
2. LIVE STAKES SHALL BE 0.5" - 1.5" IN DIAMETER AT TIME OF PLANTING
3. LIVE STAKES SHALL BE BLACK WILLOW OR SPECIES SPECIFIED BY COE/DHEC OR CONSULTANT
4. SPECIES SHALL BE DORMANT AT TIME OF ACQUISITION AND PLANTING AND LOCALLY GROWN/HARVESTED
5. LIVE STAKES SHALL BE SPACED 3' O.C.
6. LIVE STAKES SHALL BE PLANTED A MINIMUM OF 18" IN DEPTH WITH NO MORE THAN 4"-6" OF STAKE EXPOSED

LIVE STAKE DETAIL



STREAM BANK STABILIZATION - LIVE STAKE

TYPICAL DETAIL - N.T.S.

Bryton
Huntersville, North Carolina



R. Joe Harris & Associates, Inc.

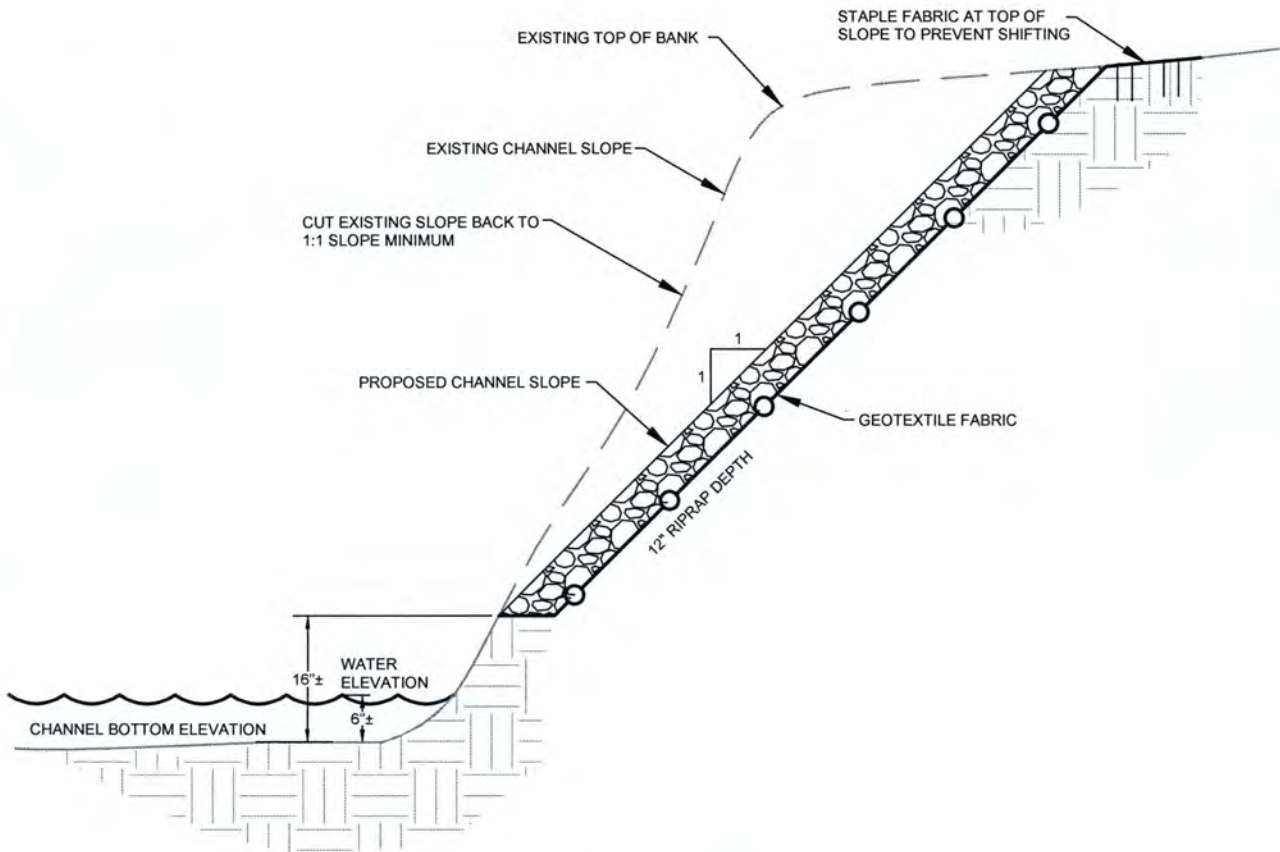
Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886

Drawn By: DBG	Date: 02-08-2016	Rev:
Engineer: PLM	Scale: AS SHOWN	Figure: 9

NOTES FOR STREAM BANK STABILIZATION:

1. UPON COMPLETION OF STREAM CROSSING WORK, CONTRACTOR SHALL BACKFILL AND MECHANICALLY TAMP (NO SPECIFIC DENSITY) SOILS INTO PLACE AND DRESS DISTURBED SURFACES.
2. BEGINNING AT A POINT 16" ABOVE CHANNEL BOTTOM ELEVATION, CUT BANK BACK AT A 1:1 MINIMUM SLOPE TO JUST ABOVE THE TOP OF CULVERT.
3. RIPRAP WILL NEED TO BE RECESSED 12" INTO THE CHANNEL BANK, SO THE BANK WILL NEED TO BE CUT DOWN 12" & GEOTEXTILE FABRIC PLACED INTO THE CUTOUT.
4. GEOTEXTILE FABRIC SHALL BE SECURELY HELD IN PLACE WITH USE OF WOODEN STAKES AND WIRE STAPLES (AS NEEDED).
5. RIPRAP WILL BE PLACED ON THE CHANNEL BANKS AT A DEPTH OF 12". FINAL RIPRAP LAYER SHOULD BE FLUSH WITH THE REST OF THE CHANNEL SLOPE.
6. ALL BANK STABILIZATION SHALL BE PLACED ABOVE HIGH WATER MARK



STREAM BANK STABILIZATION
- RIPRAP ARMOR
 TYPICAL DETAIL - N.T.S.

Bryton
 Huntersville, North Carolina

Drawn By: <i>DBG</i>	Date: <i>02-08-2016</i>	Rev:
Engineer: <i>PLM</i>	Scale: <i>AS SHOWN</i>	Figure: <i>10</i>



R. Joe Harris & Associates, Inc.
 Engineering • Planning • Management

127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886

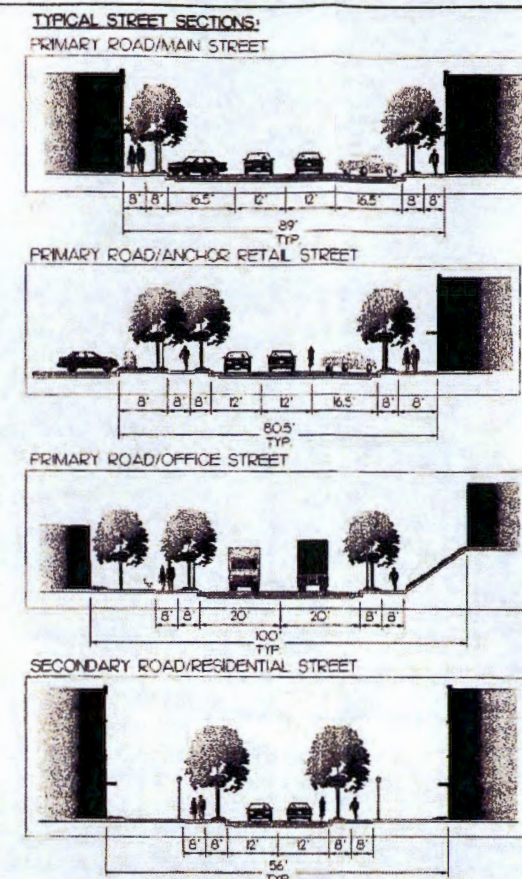
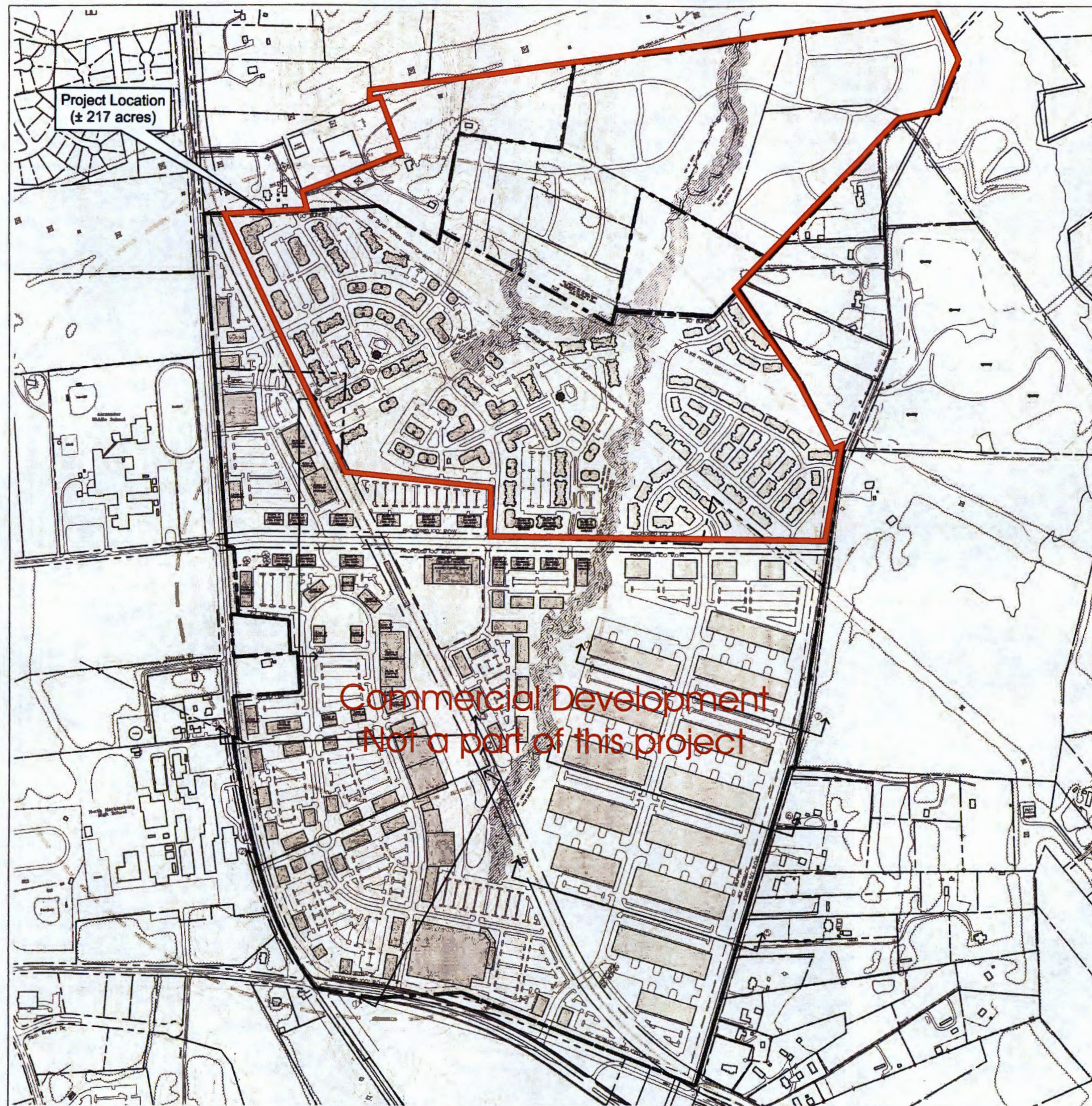
1. INSTALL CLASS I RIP-RAP DAM WITH GEOTEXTILE FABRIC UNDERLAYMENT TO DIMENSIONS AND HEIGHT REQUIRED.
2. INSTALL 6" LAYER OF WASHED #57 STONE ON UPSTREAM FACE OF ROCK DAM.
3. TRENCH (TOE) PLASTIC LINER INTO STREAM BED AND OVERLAP LINER AS NEEDED TO PROVIDE WATERTIGHT SEAL (MAY NEED TO USE GRANULAR BENTONITE, MASTIC OR OTHER ENVIRONMENTALLY SAFE SEALANT).
4. LINER SHALL BE DURABLE ENOUGH TO WITHSTAND WATER PRESSURES EXERTED ON THE MATERIAL ONCE IT FACES THE TEMPORARY COFFERDAM AND BLOCKS WATERFLOW. GEOMEMBRANES AND/OR OTHER MATERIALS MAY BE USED.
5. WHILE LINER IS BEING TRENCHED INTO STREAM BED, POSITION BYPASS PUMPS AND HOSES TO INTERCEPT AND PUMP WATER. ONCE LINER HAS BEEN TRENCHED ACROSS ENTIRE WIDTH OF STREAM, ROLL LINER ONTO UPSTREAM FACE OF COFFER DAM AND BEGIN BYPASS PUMPING OF WORK SITE.
6. INSTALL SANITARY SEWER (TRENCH ACROSS "DRY" STREAM BED) AND COMPLETE WORK AS DILIGENTLY AS POSSIBLE. RESTORE WORK AREA TO PRE-CONSTRUCTION CONTOURS.
7. ONCE SEWER WORK HAS BEEN COMPLETED, REMOVE COFFER DAM & RESTORE STREAM BED TO PRE-CONSTRUCTION CONTOURS. REMOVE AS MUCH STONE AS PRACTICAL FROM STREAM BED.
8. LIVE STAKE AND COIR MAT STREAM BANKS (SEE DETAIL).
9. STREAM FLOW (WATER SOURCE TO DOWNSTREAM CHANNEL) SHALL BE MAINTAINED AT ALL TIMES VIA FREEFLOW THROUGH CHANNEL OR BYPASS PUMPING (AS MUCH AS PRACTICAL).
10. BYPASS PUMPS SHALL BE OF SIZE AND QUANTITY NECESSARY TO PREVENT WATER FROM OVERTOPPING THE COFFER DAM AND ENTERING INTO THE WORK SPACE.
11. CONTRACTOR MAY STAGE COFFER DAM TO COMPLETE ONE HALF THE SEWER CROSSING AT A TIME, POSSIBLY ELIMINATING NEED FOR TEMPORARY BYPASS PUMPING.
12. ALL SEWER EXCAVATION AND TRENCHING SHALL BE "IN-THE-DRY" AND TRENCHING THROUGH FLOWING WATER IS NOT PERMITTED.
13. PRIOR TO INSTALLATION, MANUFACTURER SPECIFICATIONS OF FILTER MEDIA SHALL BE PROVIDED TO THE EROSION CONTROL INSPECTOR FOR APPROVAL AND USE. DISCHARGE FROM FILTER MEDIA SHALL MEET OR EXCEED THE PROVISIONS OF THE CLEAN WATER ACT.
14. ENSURE THAT PUMP PRESSURE DOES NOT EXCEED FILTER MEDIA PRESSURE RATING.
15. FILTER MEDIA MAY BE, BUT NOT LIMITED TO, SAND MEDIA FILTRATION DEVICES, RATED FILTER FABRIC BAGS OR POLYMER BASED Dewatering PRACTICES.
16. PUMP STRAINER SHALL NOT BE IN CONTACT WITH BOTTOM OF POND



TYPICAL DETAIL - N.T.S.

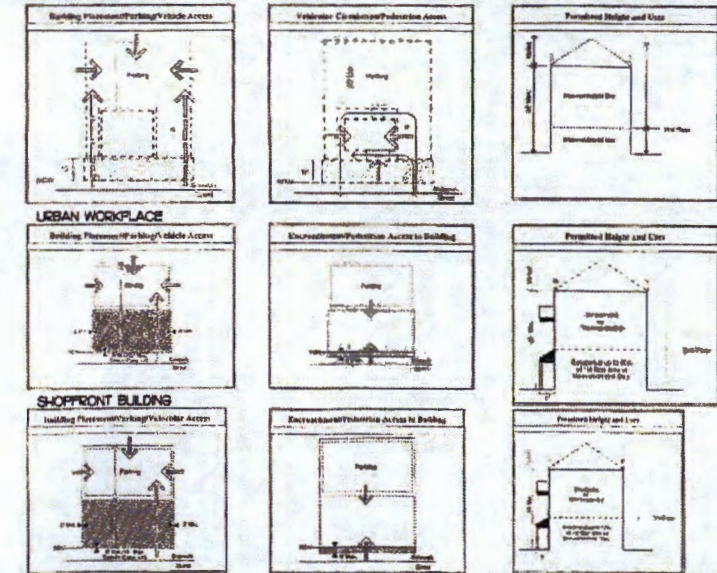
127 Ben Casey Drive Suite 101, Fort Mill, S.C. 29708 (803) 802-1799 Fax: (803) 802-0886

Drawn By: DBG	Date: 02-08-2016	Rev:
Engineer: PLM	Scale: AS SHOWN	Figure: 11



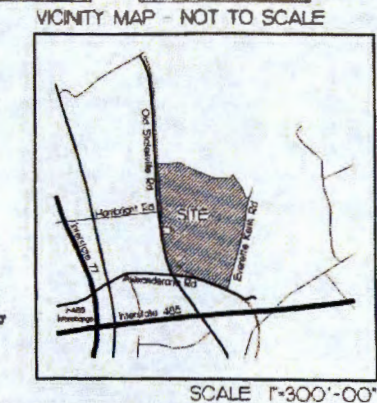
NOTE: THE ILLUSTRATIVE BUILDING SECTIONS ARE SCHEMATIC IN NATURE AND ARE INTENDED TO DEPICT THE OVERALL PEDESTRIAN ENVIRONMENT.

TYPICAL BUILDING LOT TYPES:
REFER TO "ARTICLE 4: BUILDING AND LOT TYPES" IN THE TOWN OF HUNTERVILLE ZONING ORDINANCE FOR ADDITIONAL INFORMATION.
HIGHWAY COMMERCIAL



NOTES:

1. BUILDING LAYOUT AND ORIENTATION IS SUBJECT TO CHANGE BUT SHALL CONFORM TO THE BUILDING ENVELOPE LINE.
2. FINAL BUILDING LOCATIONS TO BE DETERMINED DURING THE SUBDIVISION SKETCH PLAN REVIEW.



LandDesign®

233 N Graham Street, Charlotte, NC 28202
V: 704.333.0325 F: 704.333.2146
www.LandDesign.com

BURTON ENGINEERING ASSOCIATES

ONE ENGINEERS
LAND PLANNERS

1000 Parkway Rd., Suite 100, Charlotte, NC 28203
(704) 366-8811 • Fax (704) 366-8811

Tyler, Superior Design
1000 Parkway Rd., Suite 100
Charlotte, NC 28203
Phone: 704.333.0325
Fax: 704.333.2146

LAND DEVELOPMENT DESIGN SERVICES

BRYTON

HUNTERVILLE, NORTH CAROLINA

AMERICAN ASSET CORPORATION / RHEIN-MEDALL COMMUNITIES

SPECIAL USE PERMIT

REVISIONS:

02/20/06 REVISIONS PER TOWN COMMENTS

03/17/06 REVISIONS PER TOWN COMMENTS

04/12/06 REVISIONS PER TOWN COMMENTS

04/12/06 REVISIONS PER TOWN COMMENTS

04/12/06 REVISIONS PER TOWN COMMENTS

10/16/06 APPROVED REVISION SET

DATE: 06/27/05

DESIGNED BY: RP, CLK

DRAWN BY: AP

CHECKED BY: RP

SCALE: 1"=300'-0"

PROJECT #: 1005060

SHEET #:

TDS.1.2

Figure 5 - Concept Plan