DOCUMENT A00860

MASSACHUSETTS

DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF INTENT

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Notice of Intent

TEC Project File No. T0904

Ayer Road (Route 110/111) Improvements

Harvard, MA 01451

MassDOT Project Number 609213

Applicant/
Owner: **Town of Harvard Department of Public Works**
47 Depot Road
Harvard, MA 01451

Prepared by: **TEC, Inc.**
311 Main Street, Suite 201
Worcester, MA 01608

April 1, 2024

311 Main Street, Suite 201
Worcester, MA 01608
774.701.0550
TheEngineeringCorp.com
Create | Design | Innovate

Liz Allard
Land Use Administrator/ Conservation Agent
Conservation Commission
Town of Harvard
15 Elm Street
Harvard, MA 01451

RE: Notice of Intent Application; DOT Project #609213
Ayer Road Reconstruction & Multimodal Improvements

On behalf of the project Applicant/Owner, the Town of Harvard, TEC, Inc. is filing a Notice of Intent for the proposed reconstruction and multimodal transportation improvements along Ayer Road (Rt 110/111) starting from approximately 100 feet north of the State Highway Layout at Route 2 to the Harvard/Ayer town line.

The project involves the construction of a 10' wide shared use path for the length of the project, as well as reconstruction of Ayer Road. The project also includes work along Gebo Lane, approximately 650-feet from its intersection with Ayer Road to its intersection with Lancaster County Road, and along Lancaster County Road approximately 550-feet between Gebo Lane and Ayer Road. The length of the project is approximately 9,200 linear feet. The shared use path is also proposed to replace Lancaster County Road between Ayer Road and Gebo Lane. The Gebo Lane/ Ayer Road intersection is also proposed to be reconstructed to provide for an improved approach closer to 90 degrees. There are proposed stormwater improvements along the length of the project which is described in the stormwater analysis memo included herein. As the intent of the project is for the construction of a proposed shared use/bike path and the improvement of an existing public roadway, the project qualifies as a limited project under the MA Wetlands Protection Act 310 CMR 10.53(3)(f) and 310 CMR 10.53(6).

Wetland resource areas were evaluated and delineated by Rimmer Environmental Consulting, and a copy of the wetland evaluation and delineation report dated August 27, 2019 is included herein and provides in depth detail on the evaluation and methodology of delineation of resource areas.

Resource area impacts, and associated mitigation are proposed for Bordering Vegetated Wetlands (40 s.f. temporary, 676 s.f. permanent, 1,990 s.f. replication), Bank (160 l.f. temporary, 70 l.f. permanent), Land Under Water (708 s.f. temporary, 256 s.f. permanent), Riverfront Area (58,125 s.f. total disturbance within previously disturbed and degraded 200' RA, 1,920 s.f. reduction in impervious area within 200' RA), and Bordering Land Subject to Flooding (50 c.f. increase in flood storage volume). Mitigation includes Wetland replication at a ratio of just under 3:1, Bank restoration, Land Under Water restoration, decreased impervious area within Riverfront Areas, and Bordering Land Subject to Flooding storage volume increase. Further information regarding impacts and mitigation is included herein.

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As the Town of Harvard is the applicant, per 310 CMR 4.02, the project is exempt from being assessed a Notice of Intent filing fee.

The following documents are enclosed for your review in support of this project:

- Notice of Intent Application Package including WPA Form 3
- "MassDOT Highway Division Plans for Ayer Road (Route 110/111) in the Town of Harvard, 100% Submittal" prepared by TEC, Inc.

Please do not hesitate to contact me directly if you have any questions at 774-670-3569. Thank you for your attention to these matters.

Sincerely,
TEC, Inc.
"The Engineering Corporation"



Jared M. Duval, P.E.
Worcester Regional Director

LOCAL TOWN OF HARVARD CONSERVATION FILING FORMS

FORM C

REQUEST FOR WAIVER

HARVARD WETLANDS PROTECTION BYLAW

Date: April 1, 2024

To: Harvard Conservation Commission

From: Town of Harvard - DPW
(name of petitioner)

47 Depot Road, Harvard, MA
(address of petitioner)

RE: Harvard Wetlands Rules and Regulations

Request for Waiver

Pursuant to the provisions of §147-3 of the Regulations for the administration of The Harvard Wetlands Protection Bylaw, I hereby request a waiver from the Commission for compliance with the following section of the regulations:

§147-6.C: Harvard Filing Fees, §147-12: 50' No Disturbance Zone Setback

§147-12: 100' Vernal Pool No Disturbance Zone Setback, §147-12: 75' Roadway Setback

§147-14.C(1): Stormwater Management – Peak Flow and Volume 5% Reduction

The waiver is requested for the following reason(s):

See NOI Narrative and Plans

Signature of petitioner [signature] Telephone # 978-456-4130

FORM F

Wetland filing fees calculation worksheet for work in resource areas

	Fee	Total
Notice of Intent Fees		
1) *Single family*		
Septic Repair or Upgrade (Enter Fee & Skip to Total Fee)	$200.00	
New Construction or alteration involving 500sf or less of total construction	$300.00	
New Construction or alteration involving 501sf to 1499sf of total construction	$600.00	
New Construction or alteration involving 1500 sf or more of total construction	$900.00	
2) *Subdivision/mini Subdivision*		
Roads and Utilities only	$1,500.00	$1,500
Multifamily/Condominium Structures construction	$1,500.00	
3) *Commercial or Industrial Projects*	$1,500.00	

Additional charges under a Notice of Intent for disturbance within the buffer zone

1) Disturbance within the buffer zone	158,000 sf	x 0. 25 =	$39,500
2) Confirmation delineated wetland line	5,200 linear ft	x 0.50 =	$2,600
3) Alteration or replication of wetlands	1,990 sf	x 1.00 =	$1,990

TOTAL FILING FEE $45,590

Fee doubled if Notice of Intent is filed after work began or an Enforcement Order was issued

Other fees

Request for an amendment to an Order of Conditions	$200.00	
Request for an extension to an Order of Conditions	$125.00	
Request for a reissued Certificate of Compliance	$100.00	
Request for an Emergency Certificate of Compliance	$200.00	
Request for an Emergency Certification Form	$200.00	
Request for Certificate of Compliance with Expired OOC or Partial Certificate of Compliance	$125.00	
Request for Determination of Applicability (RDA)	$100.00	
Abbreviated Notice of Resource Area Delineation (ANRAD) (Minimum $100.00, Maximum $1,500.00)	___linear ft	x $1.50=

Note: These fees are in addition to recording and advertising fees, and to the State Wetlands Program Fees charged under MGL. Ch. 131 Sec.40 and 310 CMR 4.10(8)(n).

TOTAL FEE PAYABLE TO THE TOWN OF HARVARD $45,720

Waiver Requested:
Town Project

NOTICE OF INTENT NARRATIVE

INTRODUCTION AND PURPOSE

The Town of Harvard DPW is proposing a transportation improvement project on Ayer Road (Route 110/111) from approximately 100 feet north of the State Highway Layout at Route 2 to the Harvard/Ayer town line. The project also includes work along Gebo Lane, approximately 650-feet from its intersection with Ayer Road to its intersection with Lancaster County Road, and along Lancaster County Road approximately 550-feet between Gebo Lane and Ayer Road. The length of the project is approximately 9,200 linear feet. The project involves the construction of a shared use path for the length of the project, as well as reconstruction of Ayer Road. The shared use path is also proposed to replace Lancaster County Road between Ayer Road and Gebo Lane. The Gebo Lane/ Ayer Road intersection is also proposed to be reconstructed to provide for an approach closer to 90 degrees. There are proposed stormwater improvements along the length of the project. As the major intent of the project is for the construction of a proposed shared use/bike path and the improvement of an existing public roadway, the project qualifies as a limited project under the MA Wetlands Protection Act 310 CMR 53. It is TEC's opinion that the Order of Conditions should be granted as the project involves the improvement of an existing roadway and the existing stormwater management system for the roadway which will contribute to an improvement of the resource areas over current conditions.

Wetland resource areas were evaluated and delineated by Rimmer Environmental Consulting, and a copy of the wetland evaluation and delineation report dated August 27, 2019 is attached and provides in depth detail on the evaluation and methodology of delineation and resource areas. Resource area impacts will include both temporary and permanent impacts, which are discussed in further detail in the resource area impacts section below.

EXISTING CONDITIONS AND RESOURCE AREAS

Ayer Road, signed as Massachusetts State Routes 110 and 111, is a two lane, north-south, urban principal arterial roadway under the jurisdiction of the Town of Harvard. Beyond the southern project limits, Ayer Road widens to two lanes in each direction through its interchange with Route 2. Ayer Road provides a regional connection between Harvard town center and Route 2 to the south and the Town of Ayer and Route 2a to the north. Ayer Road provides a full cloverleaf interchange with Route 2. The posted regulatory speed limit along Ayer Road (Route 110/111) is 40 miles per hour (mph) south of Myrick Lane and 35 mph to the north of Myrick Lane. There are no sidewalks or designated bike lanes present along Ayer Road. Ayer Road experiences a high volume of cut-through truck traffic, often traveling at high speeds, from municipalities to the north to access Route 2 to the south. The corridor provides access to retail, office, and other commercial developments which serve as the primary commercial (non-residential or non-municipal/educational) section of the Town of Harvard.

Lancaster County Road and Poor Farm Road intersect Ayer Road (Route 110/111) to form an offset four-legged unsignalized intersection. The Ayer Road northbound and southbound approaches are free-flowing while the Lancaster County Road and the Poor Farm Road approaches are under stop-control. The Ayer Road northbound and southbound approaches both consist of a single general-purpose travel lane with directional flow separated by a marked double-yellow centerline. The Lancaster County Road approach consists of a single general-purpose lane with directional flow not delineated. The Poor Farm Road approach consists of a single general-purpose lane with directional flow separated by a single-yellow centerline. Sidewalks are not provided on either Ayer Road, Lancaster County Road, or Poor Farm Road. Crosswalks are not striped across the Ayer Road, Lancaster County Road, or Poor Farm Road approaches at the intersection. There are no traditional bicycle accommodations at the intersection.

Gebo Lane intersects Ayer Road (Route 110/111) from the west to form a three-legged unsignalized intersection. The Ayer Road northbound and southbound approaches are free flowing while the Gebo Lane approach is under stop-control. The Ayer Road northbound and southbound approaches both consist of a single general-purpose travel lane with directional flow separated by a marked double-yellow centerline. The Gebo Lane approach consists of a single general-purpose lane with directional flow not delineated. Sidewalks are not provided on either Ayer Road or Gebo Lane. Crosswalks are not striped across the Ayer Road and Gebo Lane approaches at the intersection. There are no traditional bicycle accommodations at the intersection.

Rimmer Environmental Consulting (REC) conducted a resource area evaluation and delineation of the project area in July 2019. At that time, wetland resources subject to jurisdiction under the Massachusetts Wetlands Protection Act (MGL Ch 131 §. 40) and the Town of Harvard Wetland Protection Bylaw (Chapter 119) within the project area were identified. Wetlands were delineated in accordance with the procedures established in the Mass. Wetlands Protection Act Regulations (310 CMR 10.00) and the Bylaw Regulations (chapter 147). Numbered sequences of flags or stakes were placed in the field to delineate the boundary between upland and wetland resources. Delineation flags as part of the project limits include BVW A1-A16, B1-B26, BB1-BB12, D1-23, E1-E5, F1-F21, G1-G54, H1-H15, J1-J22, K1-K14 and MAHW/Bank RFA1-RFA16, RFB1-RFB6, RFC1-RFC19. The flags/ stakes were survey located and are depicted on the proposed improvements plan set. Resource Areas associated with the project include Bordering Vegetated Wetlands,

intermittent streams, a perennial stream (Bower's Brook) and associated Riverfront Areas, Land Under Water and Waterways, Bank, and Bordering Land Subject to Flooding. A copy of the wetland evaluation and delineation report prepared by Rimmer Environmental Consulting dated August 27, 2019 is attached and provides for greater detail on the evaluation and methodology of delineation. In discussion with the local conservation agent, a resource area delineation review will be conducted upon filing of the NOI, and therefore it is not necessary to re-delineate due to time of original delineation being over 3 years from the date of filing. The following is a description of resource areas present along the site starting at the southern project limit and heading north to the Ayer town line:

The west side of Gebo Lane contains an unnamed, unmapped intermittent channel and associated BVW. There is also a retention basin containing primarily broadleaf cattail (*Typha latifolia*) facing Gebo Lane adjacent to the athletic field though this area is likely a stormwater management feature and may not be a jurisdictional wetland resource area. The intermittent stream flows from west to east under Gebo Lane through an existing 30" CMP. A drainage ditch along the east side of Gebo Lane flows to the south and converges with the intermittent stream and BVW. The channel contains a very narrow band of Bordering Vegetated Wetland, typically sapling red maple (*Acer rubrum*) honeysuckle (*Lonicera tatarica*) and black chokeberry (*Aronia melanocarpa*). The intermittent stream then flows east under Ayer Road through an existing 24" CMP. This stream is not indicated on the USGS topographic map. StreamStats indicates a watershed of less than 0.1 square miles. The channel directs surface flow generally to the south and under Ayer Road (Route 110/111) through an existing 24" CMP.

The stream continues from the 24" CMP culvert to the east side of Ayer Road and connects to a larger wetland system on the east side of Ayer Road known as Ayer Road Meadows. This Bordering Vegetated Wetland (BVW) borders Bowers Brook all the way to the Bowers Brook culvert which passes back under Ayer Road. This wetland consists of an over story of red maple, with an understory of elderberry (*Sambucas canadensis*) and highbush blueberry (*Vaccinium corymbosum*). Sensitive fern (*Onoclea sensibilis*) and skunk cabbage (*Symplocarpus foetidus*) are dominant as groundcover.

Bowers Brook is indicated as a perennial stream on USGS maps and StreamStats and is therefore has a 200- foot Riverfront Area extending from mean annual high water (MAHW). MAHW was determined based upon observation of bankfull indicators, including scour marks, water marks undercutting, changes in slope and changes in vegetation. Bordering Vegetated Wetland extends from Bank to the north which appears to be a man-made drainage ditch.

Bowers Brook passes back west under Ayer Road and north under Lancaster County Road and flows generally to the northwest eventually to Cold Spring Brook. Between Ayer Road and Lancaster County Road, the banks are very steep and there is an old beaver dam located close to the culvert under Ayer Road. There is a narrow BVW extending from the south bank parallel to Lancaster County Road and is a dense shrub swamp. There is what appears to be a stormwater basin associated with the post office located at 215 Ayer Road. The basin is dominated by wetland plants, including cattail, common reed (*Phragmites australis*) and sensitive fern, however if it is determined to be constructed in accordance with MassDEP Stormwater Management Regulations it would not be considered a jurisdictional wetland resource. The basin was delineated as if it were jurisdictional. After Lancaster County Road, the brook flows away from the project site.

There is associated BVW which eventually extends greater than 100' from the project site in the vicinity of 231 Ayer Road.

Under the FEMA NFIP, Bowers Brook is mapped as a regulatory floodway and has a 100 year and 500 year floodplain. The 100 year floodplain is elevated, however the elevation is not constant as it is a riverine floodplain. Floodplain is the vicinity of the project is between elevation 246 north of Lancaster County Road and elevation 250 south of Ayer Road. The floodway and 100 year floodplain are considered Bordering Land Subject to Flooding.

There is a small waterbody east of 6 Lancaster County Road. At approximately 6,000 square feet, it is too small to be regulated as a pond under 310 CMR 10.00; however there is no size limit under the Town of Harvard Wetland Bylaw. Wetland vegetation along its banks includes highbush blueberry and silky dogwood (Cornus amomum).

There is an unnamed intermittent stream which flows from east to west under Ayer Road, through a 36" RCP, north of 294 Ayer Road which is a tributary to Bowers Brook. This stream is not indicated on the USGS topographic map and is presumed to be intermittent. Also, USGS StreamStats indicates the drainage area is only 0.25 square miles, well under the minimum 0.5 square mile threshold for jurisdiction as a perennial stream. There was no flow at the time of inspection. There are no Bordering Vegetated Wetland extending from the banks of the stream in the vicinity of the project.

There is a small forested wetland and roadside swale located on the east side of the project site at 320 Ayer Road across from the entrance to Doe Orchards. The portion of this wetland closest to the road was delineated. It contains small red maple, northern arrow-wood (Viburnum recognitum) and green ash (Fraxinus pennsylvanica). This wetland appears to connect to a south flowing off-site intermittent stream to the east and qualifies as BVW. The wetlands and intermittent stream appear to eventually converge with the previously mentioned intermittent stream at 294 Ayer Road.

Another unnamed intermittent stream not shown on USGS topographic maps flows from east to west under Ayer Road just south of the Ayer municipal boundary through an existing 36" RCP. USGS StreamStats indicates it has a drainage area of only 0.16 square miles. This channel conveys flow west to Cold Spring Brook. Reed canary grass (Phalaris arundinacea) is growing up to the bank where it has not been mowed. The downstream side on the west side of Ayer Road contains a rocky channel. There was no flow through the culvert at the time of inspection. The banks on this side are vegetated primarily with upland vegetation, especially Japanese knotweed (Polygonum cuspidatum).

The project is not located within NHESP mapped priority or estimated habitats of rare species. There are two mapped potential vernal pools along the length of the project: 6 Lancaster County Road and 320 Ayer Road.

PROPOSED IMPROVEMENTS AND STORMWATER MANAGEMENT

The proposed improvements are needed to address the existing aging infrastructure, safety deficiencies regarding conflicting turning movements and lack of multi-modal accommodations. The multi-modal improvements are anticipated to include provision of bicycle and pedestrian accommodations, including bicycle lanes, curbing and sidewalk on the west side of Ayer Road, ADA/AAB compliance improvements, realignment of Gebo Lane to approximately 90-degrees approaching Ayer Road and incorporation of an improved unsignalized intersection with Gebo Lane, closure of Lancaster County Road to vehicular traffic between Gebo Lane and Ayer Road, upgrades to stormwater management infrastructure, pavement resurfacing, and new pavement markings and signs. Additionally, traffic safety features will be implemented compliant with today's industry standards in accordance with MassDOT construction specifications.

The conversion of Lancaster County Road to a shared use path/ non-motorized path would provide for an improvement to the potential vernal pool at 6 Lancaster County Road. There is no work proposed that would negatively impact the potential vernal pool at 320 Ayer Road.

The project intends to improve existing stormwater management throughout the limits of work over the existing conditions. This includes the installation of a new drainage network throughout the limits of the project including new deep sump catch basins, manholes, culverts, and stabilized stone pipe outfalls and discharges. The project qualifies as a redevelopment project and as a limited project as described in 310 CMR 10.05(6)(k)7, and therefore the project is required to meet certain stormwater standards to the maximum extent practicable. A drainage study has been included as an appendix of this application which justifies the project's accordance with the MassDEP checklist for stormwater report.

MITIGATION

Prior to construction, erosion and sedimentation barriers (compost tubes) will be installed between the project area and resource areas to establish a limit-of-work. The erosion and sedimentation barriers will be installed and maintained throughout construction per the regulations of the Harvard Wetland Protection Bylaws. Any dewatering will be required to be routed to a stilling basin/ dewatering bag before being discharged to resource areas. The project will result in the following resource area impacts:

Resource Area	Impacts +/-				
	Temporary	Area/ Station	Permanent	Area/ Station	Mitigation
BVW	40 s.f.	T4/ STA 65+30 R	12 s.f. 205 s.f. 51 s.f. 34 s.f. 60 s.f. 334 s.f. 676 s.f.	P1/ STA 19+50 L P3/ STA 21+50 L P4/ STA 28+75 R P5/ STA 29+15 R P6/ STA 65+30 R P7/ STA 65+40 L	40 s.f. restoration 1,990 s.f. replication
Bank	20 l.f. 90 l.f. 38 l.f. 12 l.f. 160 l.f.	T1/ STA 20+70 R T2/ STA 20+90 L T4/ STA 65+30 R T5/ STA 65+40 L	40 l.f. 6 l.f. 46 l.f. 70 l.f.*	P2/ STA 20+70 L P6/ STA 65+30 R P7/ STA 65+40 L	160 l.f. restoration 70 l.f. culvert
LUWW	86 s.f. 490 s.f. 80 s.f. 52 s.f. 708 s.f.	T1/ STA 20+70 R T2/ STA 20+90 L T4/ STA 65+30 R T5/ STA 65+40 L	180 s.f. 30 s.f. 46 s.f. 256 s.f.*	P2/ STA 20+70 L P6/ STA 65+30 R P7/ STA 65+40 L	708 s.f. restoration 95 s.f. culvert
0'-100' Riverfront (Bowers Brook)	27,050 s.f.**	STA 24+00 – 29+50	-		920 s.f. reduction in imp. area
100'-200' Riverfront (Bowers Brook)	31,075 s.f.**	STA 22+50 – 30+75	-		1,000 s.f. reduction in imp. area
BLSF (Bowers)	175 s.f.	T3/ STA 27+00 R	+50 c.f.***	T3/ STA 27+00 R	175 s.f., +50 c.f.***

*Bank and land under waterways permanent impacts resulting from extending of (2) existing intermittent stream culverts.
**Impacts within riverfront areas will take place within previously disturbed and degraded riverfront areas.
***Proposed headwall and outfall within BLSF will result in increase of flood storage. No fill proposed.

Permanent Bordering Vegetated Wetland impacts are necessitated by the proposed change in roadway alignments, the addition of a shared use path, limits of grading, and improvements to the roadway stormwater management system. To mitigate the impacts to resource areas, Bordering Vegetated Wetland replication is proposed at a ratio just under 3:1 to meet the Harvard Wetland Protection Bylaw Requirements of 1.5:1. Additional replication area was added to mitigate impacts to bank and land under water. All wetland replication will be conducted according to the construction special provisions/ specifications approved by MassDOT, provided herein.

The Bank and Land Under Water impacts are associated with the need to extend two existing intermittent stream crossings, one 30" culvert which passes under Ayer Road at the intersection with Gebo Lane and a 36" culvert which passes under Ayer Road in between #294 Ayer Road and #304 Ayer Road, as well as the restoration of impacts to the intermittent stream at the Gebo Lane intersection. The slight change in roadway alignment and addition of a shared use path along the west side of Ayer Road results in the necessity to extend the existing culverts to the west of Ayer Road approximately 20' and 15' respectively. New concrete headwalls are proposed to limit impacts further, and stone pipe outfalls are proposed to provide stabilization at the discharge.

All proposed work within the Bower's Brook Riverfront Area is within previously disturbed or degraded Riverfront Area according to the definitions as set forth in 310 CMR 10.58(5) and will result in an improvement over existing conditions as the project will result in a net reduction of impervious area within the Riverfront Area. No work is proposed on the existing Bower's Brook Stream Crossing Structures on Ayer Road or Lancaster County Road.

A drainage study was performed to assess the potential impacts of the proposed project. The proposed project will improve upon the existing stormwater management system and will incorporate additional Best Management Practices (BMPs) to the maximum extent feasible including maintaining existing drainage paths, maintaining existing vegetation to the maximum extent practicable, country drainage where feasible, grassed swales, deep sump and hooded catch basins, upgraded and properly sized drainage pipe networks, and stabilized discharge outfalls. This analysis has been prepared to verify that the proposed roadway improvements will not have an adverse effect on the stormwater discharged, resulting in an improvement in the stormwater runoff quality. The Stormwater Management Plan has been designed to meet the Stormwater Standards identified in the Massachusetts Stormwater Handbook and the Harvard Wetland Protection Bylaw to the maximum extent practicable. The proposed project reduces the risk of erosion and sedimentation via improvement to conveyance methods, addition of stabilized discharge outfalls, as well as ensuring revegetation of all disturbed areas within the limit of work. The upgrading of catch basins with deep sumps will result in improvement to treatment of stormwater runoff on Ayer Road as well. Please see the attached Drainage Study for further details.

WPA INLAND RESOURCE AREA PERFORMANCE STANDARDS

10.54: Bank

The proposed bank impact necessitated by the project will meet the performance standards of the WPA as the work will:

1. Not impair the physical stability of the bank.
   The culvert extensions are proposed to be constructed out of reinforced concrete pipe which will maintain stability. Temporary impacts to bank will be restored to its predevelopment conditions.
2. Not impair the water carrying capacity of the channel.
   The proposed 30" and 36" diameter RCPs are the same size as the existing stream crossing culverts and will provide for the same hydraulic capacity as the existing conditions. Temporary impacts to bank will be restored to its predevelopment conditions.
3. Not impair ground or surface water quality.
   The proposed culvert extensions and the temporary impacts and restoration to bank will not affect the water quality of the intermittent stream or ground water. Best management practices are proposed for the control of water, erosion, and sedimentation during construction.
4. Not impair the capacity of the bank to provide fisheries habitat.
   The proposed bank impacts are on intermittent streams which are unlikely to provide for fisheries habitat.
5. Not impair the capacity of the bank to provide important wildlife habitat function.
   The impact to bank is under 50' for both culvert extensions and therefore would not be deemed to impair the capacity to provide important wildlife habitat functions. Temporary impacts to bank will be restored to its predevelopment conditions.
6. No impact on habitat sites of rare species.
   No Estimated Habitat of State Listed Wildlife according to the most recent NHESP Habitat Maps is located within the project area.

The Bank impact is necessitated by the realignment of the roadway to add a 10' wide shared use path as required by the Massachusetts Department of Transportation Design Guidelines. The proposed construction has been designed using best management practices and practical measures to minimize adverse effects of the characteristics and functions of the resource area.

10.55: Bordering Vegetated Wetlands

The proposed BVW impact necessitated by the project will meet the performance standards of the WPA as the work will:

1. Work resulting in the loss of up to 5,000 square feet shall be replaced.
   The cumulative impact area to BVW is under 5,000 s.f. and a 3:1 replication is proposed.
2. The surface area of the replacement area shall be equal to or greater than the lost area.
   A 3:1 replication area ratio is proposed to replace the lost area which meets the local wetlands bylaw requirements and the WPA requirements for replacement area. Replication area protocols/ special provisions/ specifications are attached, and the replication effort shall be overseen by the MassDOT contracted wetland scientist.

3. Groundwater and surface elevation of the replacement area shall approximately equal that of the lost area. Horizontal configuration and location of the replacement area shall be similar to that of the lost area. The replacement area shall have an unrestricted hydraulic connection to the same waterway of the lost area. The replacement area shall be located within the same general area of the waterway as the lost area.
   Replication areas are proposed as close to the proposed impact areas to the maximum extent practicable, hydraulically connected to the same waterways, and at similar elevations as the lost areas to ensure similar groundwater levels.
4. At least 75% of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons.
   The replication areas are proposed to be seeded with a native wetland seed mix and will be monitored according to MassDOT specifications and the Town of Harvard Local Bylaw. Replication area protocols/ special provisions/ specifications are attached, and the replication effort shall be overseen by the MassDOT contracted wetland scientist.
5. No project shall have adverse effect on specified habitat sites of rare species.
   The impacted BVW is not located within an Estimated Habitat of State Listed Wildlife according to the most recent NHESP Habitat Maps.
6. Work shall not destroy or impair BVW within an Area of Critical Environmental Concern.
   The impacted BVW is not located within an ACEC as designated by the Secretary of EEA.

<u>10.56: Land under Water Bodies and Waterways</u>

The proposed Land Under Waterways impact necessitated by the project will meet the performance standards of the WPA as the work will:

1. Not impair the water carrying capacity of the channel.
   The proposed 30" and 36" diameter RCPs are the same size as the existing stream crossing culverts and will provide for the same hydraulic capacity as the existing conditions. Temporary impacts to land under water will be restored to its predevelopment conditions.
2. Not impair ground or surface water quality.
   The proposed culvert extensions and the temporary impacts and restoration to land under water will not affect the water quality of the intermittent stream or ground water. Best management practices are proposed for the control of water, erosion, and sedimentation during construction.
3. Not impair the capacity of the LUW to provide fisheries habitat.
   The proposed land under water impacts are for intermittent stream crossing which are unlikely to provide for fisheries habitat.
4. Not impair the capacity of the LUW to provide important wildlife habitat function.
   The impact to LUW is well under 5,000 s.f. and therefore would not be deemed to impair the capacity to provide important wildlife habitat functions. Temporary impacts to land under water will be restored to its predevelopment conditions.
5. No impact on habitat sites of rare species.
   No Estimated Habitat of State Listed Wildlife according to the most recent NHESP Habitat Maps is located within the project area.

The LUW impact is necessitated by the realignment of the roadway to add a 10' wide shared use path as required by the Massachusetts Department of Transportation Design Guidelines. The proposed construction has been designed using best management practices and practical measures to minimize adverse effects of the characteristics and functions of the resource area.

10.57: Land Subject to Flooding

The proposed Bordering Land Subject to Flooding impact necessitated by the project will meet the performance standards of the WPA as the work will:

1. Not cause an increase or contribute incrementally to an increase in the horizontal extent and level of flood water during peak flows.
   The impact within Bordering Land Subject to flooding is associated with the installation of a new stormwater management pipe outfall (headwall and stone lined outlet) below the 100-year elevated floodplain associated with Bower's Brook at the Ayer Road bridge. The construction of the headwall will result in an increase of flood storage below the 100-year flood elevation (50 c.f.+/-) therefore there is no need for compensatory storage and there will be no increase in the horizontal extent and level of flood water during peak flows.
2. Not impair capacity to provide important habitat functions.
   The work within the BLSF is well under 5,000 s.f. and therefore would not be deemed to impair its capacity to provide wildlife habitat functions.
3. No impact on habitat sites of rare species.
   No Estimated Habitat of State Listed Wildlife according to the most recent NHESP Habitat Maps is located within the project area.

10.58 Riverfront Area

The proposed work meets the performance standards for Riverfront Area as the project is for redevelopment within previously developed and degraded riverfront areas. The work is intended to improve upon existing conditions via a reduction in impervious area within the riverfront area (reduction of 1,920 s.f.) via the elimination of pavement for motor vehicle traffic over Lancaster County Road by replacing it with both crushed stone and loam and seed, and the improvement of the stormwater management system including an increase in water quality treatment via deep sump catch basins. The stormwater management design is intended to meet the standards established by the department. A Drainage Study has been included as an appendix of this application which justifies the project's accordance with the MassDEP Checklist for Stormwater Report. Work is not proposed closer to the river than currently exists, with the exception of the installation of (2) new stormwater system pipe discharges (headwalls and stone outfalls) within the Riverfront Area on the east side of Ayer Road. The outfalls have been designed and sized to prevent erosion or scour within the resource area, of which does not exist on all existing outfalls.

Alternatives Analysis:

- No Build: The project purpose is to improve upon the existing condition of Ayer Road, as well as the construction of a shared use path along the length of the project. The No Build alternative would not achieve the project goal and would leave the previously disturbed and degraded Riverfront Areas in the same condition as they currently are and allow for the continued degradation of existing roadway pavement conditions. There would be no

improvement to stormwater management or reduction of impervious area within the Riverfront Areas.

- Resurfacing Only: Resurfacing of Ayer Road and Lancaster County Road within the Riverfront Area rather than the proposed reconstruction and multimodal transportation improvements is an alternative, however this alternative would not provide for a reduction of degraded areas within the Riverfront Area, would not allow for the improvement of stormwater management along the roadways, and would not allow for the addition of a shared use path which is one of the project requirements/goals. This alternative is similar to the No Build alternative in that the Riverfront Area disturbed and degraded areas would remain the same.
- Restoration of Riverfront Areas: An alternative to the project which would significantly improve Riverfront Area conditions would be the removal of all degraded areas and restoration of the Riverfront Area within the controlled property limits. This would require the removal of all impervious areas within 200' of Bower's Brook in each direction, which would include the removal of Lancaster County Road, Ayer Road, and the elimination of a proposed shared use path. This alternative would not meet the project purpose of improving multimodal transportation along Ayer Road and significantly impact traffic/transportation operations in the area, and therefore is not a feasible alternative.
- Preferred Alternative/ Current Proposal: The current proposal achieves the project goal of multimodal transportation improvements along the Ayer Road (Route 100/111) corridor from Route 2 to the Ayer Town Line. This proposal includes the removal of Lancaster County Road and replacement of the road with a shared use path, resulting in a reduction of impervious area (1,920 s.f.) in the Riverfront Area, along with improvements to stormwater management on Ayer Road for the length of the project. The proposal meets all other performance standards of all other resource areas as outlined herein.

10.59: Estimated Habitats of Rare Wildlife

Not Applicable. No Estimated Habitat of State Listed Wildlife according to the most recent NHESP Habitat Maps is located within the project area.

LOCAL WETLAND PROTECTION BYLAW WAIVER REQUESTS

The following waivers of the Harvard Wetland Protection Bylaw and Rules are hereby respectfully requested by the Applicant:

- §147-6.C: Harvard Filing Fees. The project is for public roadway improvements on behalf of the Harvard DPW.

- §147-12: 50' No Disturbance Zone Setback. Much of the existing roadway and proposed improvements are located within 50' of resource areas.

- §147-12: 100' Vernal Pool No Disturbance Zone Setback. Work is proposed within 100' of a Potential Vernal Pool on Lancaster County Road. The work involves removal of existing pavement and conversion of a section of Lancaster County Road to a Shared Use Path which will eliminate motor vehicle passage in the vicinity of the Potential Vernal Pool.

- §147-12: 75' Roadway Setback. Much of the existing roadway and proposed improvements are located within 75' of resource areas.

- §147-14.C(1): Stormwater Management – Peak Flow and Volume 5% Reduction. The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. This includes the installation of a new drainage network throughout the limits of the project including new deep sump catch basins, manholes, culverts, and stabilized stone pipe outfalls and discharges. The project qualifies as a redevelopment project and as a limited project as described in 310 CMR 10.05(6)(k)7, and therefore the project is required to meet certain Stormwater Standards to the maximum extent practicable, including Standard 2 for Peak Flow Attenuation. Due to limited space within the Town's right-of-way, infiltration BMPs are not feasible, and therefore a volume reduction is not possible. A Drainage Study has been included as an appendix of this application which justifies the project's accordance with the MassDEP Checklist for Stormwater Report.

CONCLUSION

The proposed roadway improvement project along Ayer Road includes the reconstruction of the roadway, the improvement of the roadway's stormwater management system, improvements for both pedestrian and bicycle access, ADA/AAB improvements, improvement of the Gebo Lane intersection, elimination of the Lancaster County Road intersection, pavement resurfacing, and new pavement markings and street signage. The resource area impacts are necessary for the improvement of the transportation and stormwater infrastructure. Wetland replication is proposed to offset the loss of resource areas associated with the project. Construction period erosion and sedimentation controls are proposed to protect the resource areas during construction, and stabilization measures following construction will provide for permanent protection of the resource areas from impact. The Applicant requests that the Conservation Commission finds that the project as described in this Notice of Intent successfully upholds the interest of the Wetlands Protection Act and the Harvard Wetland Protection Bylaw, and subsequently issues an Order of Conditions for the proposed improvement project.

DRAINAGE STUDY

Ayer Road (Route 110/111) Transportation Improvements Drainage Study

Introduction

This drainage study was performed to study the stormwater runoff conditions for the Ayer Road Transportation Improvement Project in Harvard, MA. The Town of Harvard is proposing the transportation improvement project on Ayer Road (Route 110/111) from approximately 100 feet south of the State Highway Layout at the Route 2 to the Harvard/ Ayer town line. The project also includes work along Gebo Lane, approximately 650-feet from its intersection with Ayer Road to its intersection with Lancaster County Road, and along Lancaster County Road approximately 550-feet between Gebo Lane and Ayer Road. The length of the project is approximately 9,200 linear feet. Portions of the project are subject to the Massachusetts Department of Environmental Protection Wetlands Protection Act. This analysis has been performed to conclude that the proposed conditions for the project will not have any adverse effects on stormwater conditions.

Pre-Development Conditions

Ayer Road, signed as Massachusetts state Routes 110 and 111, is a two lane, north-south, urban principal arterial roadway under the jurisdiction of the Town of Harvard. Beyond the southern project limits, Ayer Road widens to two lanes in each direction through its interchange with Route 2. Ayer Road provides a regional connection between Harvard town center and Route 2 to the south and the Town of Ayer and Route 2a to the north. Ayer Road provides a full cloverleaf interchange with Route 2. The posted regulatory speed limit along Ayer Road (Route 110/111) is 40 miles per hour (mph) south of Myrick Lane and 35 mph to the north of Myrick Lane. There are no sidewalks or designated bike lanes present along Ayer Road. Ayer Road experiences a high volume of cut-through truck traffic, often traveling at high speeds, from municipalities to the north to access Route 2 to the south. The corridor provides access to retail, office, and other commercial developments which serve as the primary commercial (non-residential or non-municipal/educational) section of the Town of Harvard.

Lancaster County Road and Poor Farm Road intersect Ayer Road (Route 110/111) to form an offset four-legged unsignalized intersection. The Ayer Road northbound and southbound approaches are free-flowing while the Lancaster County Road and the Poor Farm Road approaches are under stop-control. The Ayer Road northbound and southbound approaches both consist of a single general-purpose travel lane with directional flow separated by a marked double-yellow centerline. The Lancaster County Road approach consists of a single general-purpose lane

with directional flow not delineated. The Poor Farm Road approach consists of a single general-purpose lane with directional flow separated by a single-yellow centerline. Sidewalks are not provided on either Ayer Road, Lancaster County Road, or Poor Farm Road. Crosswalks are not striped across the Ayer Road, Lancaster County Road, or Poor Farm Road approaches at the intersection. There are no traditional bicycle accommodations at the intersection.

Gebo Lane intersects Ayer Road (Route 110/111) from the west to form a three-legged unsignalized intersection. The Ayer Road northbound and southbound approaches are free flowing while the Gebo Lane approach is under stop-control. The Ayer Road northbound and southbound approaches both consist of a single general-purpose travel lane with directional flow separated by a marked double-yellow centerline. The Gebo Lane approach consists of a single general-purpose lane with directional flow not delineated. Sidewalks are not provided on either Ayer Road or Gebo Lane. Crosswalks are not striped across the Ayer Road and Gebo Lane approaches at the intersection. There are no traditional bicycle accommodations at the intersection.

Post-Development Conditions

The proposed improvements are needed to address the existing aging infrastructure, safety deficiencies regarding conflicting turning movements and lack of multi-modal accommodations. The multi-modal improvements are anticipated to include provision of bicycle and pedestrian accommodations, including bicycle lanes, curbing and sidewalk on one side of Ayer Road, ADA/AAB compliance improvements, realignment of Gebo Lane to approximately 90-degrees approaching Ayer Road and incorporation of an improved unsignalized intersection with Gebo Lane, closure of Lancaster County Road to vehicular traffic between Gebo Lane and Ayer Road, upgrades to stormwater management infrastructure, pavement resurfacing, and new pavement markings and signs. Additionally, traffic safety features will be implemented compliant with today's industry standards in accordance with MassDOT construction specifications.

The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. This includes the installation of a new drainage network throughout the limits of the project including new deep sump catch basins, manholes, culverts, and stabilized stone pipe outfalls and discharges. The project qualifies as a redevelopment project and as a limited project as described in 310 CMR 10.05(6)(k)7, and therefore the project is required to meet certain Stormwater Standards to the maximum extent practicable.

Low Impact Development

The roadway reconstruction design and shared use path addition has been designed with sensitive site design and low impact development techniques to the maximum extent practicable for the project. The project intends to preserve, replace, and enhance vegetation. Little tree clearing is necessary for the project

and the majority of work is proposed within an existing and previously developed right-of-way. The project also involves the reduction of impervious area within the riverfront area of Bowers Brook, which will allow for decreased runoff volume and peak flows, increased water quality, and increase groundwater recharge in the area. The project will maintain pre-development drainage patterns to the maximum extent practicable. Where existing structural stormwater management practices are located, new catch basins with sumps and hood will be utilized and drainage pipes replaced. Where existing country drainage is utilized, country drainage is intended to be maintained, including vegetated swales. New discharge outfalls are proposed to reduce velocity and prevent scour and erosion of resource areas where new outfalls are proposed, they currently don't exist, are undersized, or have not been maintained. Alternative stormwater management design was analysis, however it is not feasible to incorporate larger structural stormwater control measures such as infiltration BMPs, stormwater wetlands, bioretention BMPs, detention basins, subsurface recharge systems, sand filters, etc. due to space constraints as the project involves a limited right-of-way and would cause significant property ownership issues as well as the limitations due to the multiple wetland resource areas in the vicinity of the project.

Stormwater Standards

Standard 1: No New Untreated Discharges

No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. The project does propose several new stormwater discharges associated with the proposed improved stormwater system. The proposed stormwater system will provide for increased stormwater quality through the use of currently non-existent deep sump catch basins which will provide for increased TSS removal over existing conditions. The new discharges are proposed to be directed to stabilized stone energy dissipation outfalls to reduce velocity and prevent downstream erosion. As designed the project will meet Standard 1 and not discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Standard 2: Peak Rate Attenuation

Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates.

As a limited roadway/ redevelopment project, this project must meet this standard to the maximum extent practicable. The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. This includes the installation of a new drainage network throughout the limits of the project including new deep sump catch basins,

manholes, culverts, and stabilized stone pipe outfalls and discharges. Stormwater drainage system modifications are proposed to address the existing antiquated and failing drainage system along Ayer Road. The project will increase the overall impervious area of the project site (increase of 1.2 acres+/-), resulting in a slight increase of peak runoff rates (Table 1). This increase is due to the addition of a 10' wide shared use path as required by MassDOT design parameters, accounting for approximately 1.8 acres of total impervious, meaning the project actually results in a reduction of existing impervious surfaces by around 0.6 acres. Per the Stormwater Handbook, footpaths/bike paths are only required to meet the Standards to the maximum extent practicable, and as the project is a roadway located within a limited width right-of-way, it is not practicable to capture, convey, and attenuate runoff created by the shared use path over the length of the project without significant increases in construction costs. The slight peak flow increases, less than 1.8 cfs in all storm events, will be distributed over the length of the project, just under 2 miles of public roadway and across approximately 10.5 total acres of right-of-way, and it can be assumed the increase in flows will be de minimis to the multiple wetland resource areas the roadway discharges to.

The work associated with the elimination of Lancaster County Road will actually result in a reduction of 1,920 s.f. of impervious area within the 200' Riverfront Area of Bowers Brook, which will actually result in a reduction of peak flows in that area (Table 2).

Table 1 – Peak Flows (entirety of project area)

Storm Event (frequency)	2-year	10-year	25-year	100-year
24-Hour Rainfall (inches)	3.05	4.54	6.75	8.02
Pre-development Peak (cfs)	29.33	46.51	71.62	85.92
Post-development Peak (cfs)	31.09	48.05	72.87	87.04
% Change	+6.0%	+3.3%	+1.7%	+1.3%

The entire site eventually drains to Cold Spring Brook. For comparison, the following are the existing peak flows for Cold Spring Brook at the Ayer municipal line taken from USGS Stream Stats. As listed, it can be assumed that the proposed increases in flows will be de minimis.

Storm Event (frequency)	2-year	10-year	25-year	100-year
Peak Flow (cfs)	258	552	738	1060
% Change	+0.68%	+0.28%	+0.17%	+0.10%

Table 2 – Bowers Brook Riverfront Area Peak Flows

Storm Event (frequency)	2-year	10-year	25-year	100-year
24-Hour Rainfall (inches)	3.05	4.54	6.75	8.02
Pre-development (cfs)	3.24	5.14	7.92	9.50
Post-development (cfs)	3.14	5.04	7.83	9.42
% Change	-3.0%	-1.9%	-1.1%	-0.9%

For comparison, the following are the existing peak flows for Bowers Brook at Ayer Road taken from USGS Stream Stats.

Storm Event (frequency)	2-year	10-year	25-year	100-year
Peak Flow (cfs)	190	409	549	788

Standard 3: Recharge

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance.

As a limited roadway/ redevelopment project, this project must meet this standard to the maximum extent practicable. The project does not include any proposed groundwater recharge. BMPs, such as infiltration basins, that would provide recharge are not feasible due to limited public right-of-way area. There is a decrease of impervious area along Lancaster County Road (1,920 s.f.) as the existing motor vehicle passageway will be removed, which will provide for increased groundwater recharge. Overall, the project will increase the overall impervious area of the project site which is largely due to the construction of a 10' wide shared use path as required by MassDOT design parameters. Per the Stormwater Handbook, footpaths/bike paths are only required to meet the Standards to the maximum extent practicable.

Standard 4: Water Quality

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).

As a limited roadway/redevelopment project, this project must meet this standard to the maximum extent practicable. The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. As previously described, the project will improve the quality of

stormwater runoff over existing conditions by removing total suspended solids (TSS) prior to be being discharged, through the introduction of deep sump catch basins as part of the proposed improved stormwater management system, therefore the project meets the standard to the maximum extent practicable.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.

The proposed project area is not considered a land use with higher potential pollutant load since the land use is not changing, therefore, Standard 5 does not apply to this project.

Standard 6: Critical Areas

Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.

As a limited roadway/redevelopment project, this project must meet this standard to the maximum extent practicable. There is no municipal water supply the length of Ayer Road, and as such, there are several public water supplies located along the stretch of the project area. Each of the public water supplies has a Zone I and an IWPA. Portions of Ayer Road reconstruction are located within these IWPAs and one Zone I. A portion of the project does discharge stormwater to these critical areas. There are also a couple of mapped NHESP potential vernal pools within proximity to the project area which may qualify as critical areas. The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions while improving safety and operation of critical transportation infrastructure for all modes of travel within the project limits. As previously described, the project will improve the quality of stormwater runoff over existing conditions by removing total suspended solids (TSS) prior to be being discharged, including to critical areas, through the introduction of deep sump catch basins as part of the proposed improved stormwater management system, therefore the project meets the standard to the maximum extent practicable.

Standard 7: Redevelopment and Other Projects Subject to the Standards Only to the Maximum Extent Practicable

A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management

practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

This project is considered a redevelopment project as it is the reconstruction/ improvement of an existing roadway, and as such is required to meet Standards 2, 3, 4, 5, and 6 only to the maximum extent practicable. The intention of this project is to improve existing stormwater management throughout the length of the project over the existing conditions. This includes the installation of a new drainage network throughout the limits of the project including new deep sump catch basins, manholes, culverts, and stabilized stone pipe outfalls and discharges. The project has been designed to improve water quality using best management practices where feasible.

The project also qualifies as a limited project as described in 310 CMR 10.05(6)(m)6, and therefore the project is required to meet certain Stormwater Standards to the maximum extent practicable.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

This project in whole will disturb greater than one acre of land, and therefore the project requires coverage under the EPA NPDES Construction General Permit, and as such will require the development of a SWPPP.

The project has been designed to include erosion and sedimentation controls to prevent impacts to down gradient resource areas. Silt sacks for existing and proposed deep sump catch basins will be installed during construction within the project limits. Perimeter sediment control barriers will be installed in construction areas upgradient of adjacent resources areas. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and implemented by the Contractor prior to any earth disturbance.

See attached Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan.

Standard 9: Operation and Maintenance Plan

A Long -Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

The completed stormwater management system will be maintained by the Town of Harvard Department of Public Works. See attached Operation and Maintenance Plan.

Standard 10: Prohibition of Illicit Discharges

All illicit discharges to the stormwater management system are prohibited.

Only stormwater is proposed to be conveyed through the stormwater management system. No illicit materials will be permitted. The Town DPW is responsible for the maintenance of the stormwater system. See attached Illicit Discharge Compliance Statement.

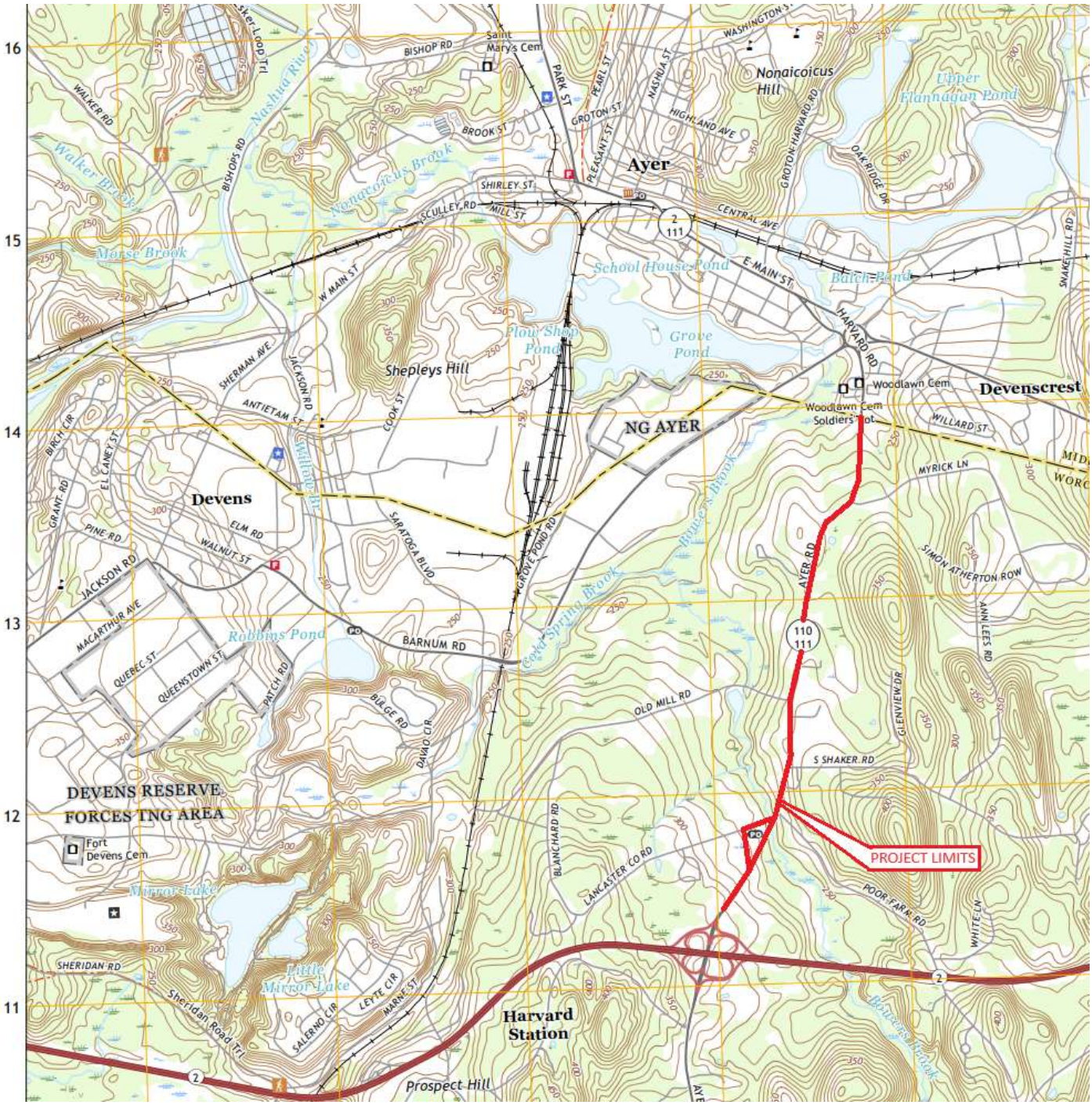
Conclusion

TEC believes the roadway improvement project will have positive impacts to the stormwater management of Ayer Road and the resource areas within and adjacent to the project area. As a redevelopment and limited project, the stormwater standards have been addressed to the maximum extent practicable.

SUPPORTING MAPS AND DATA

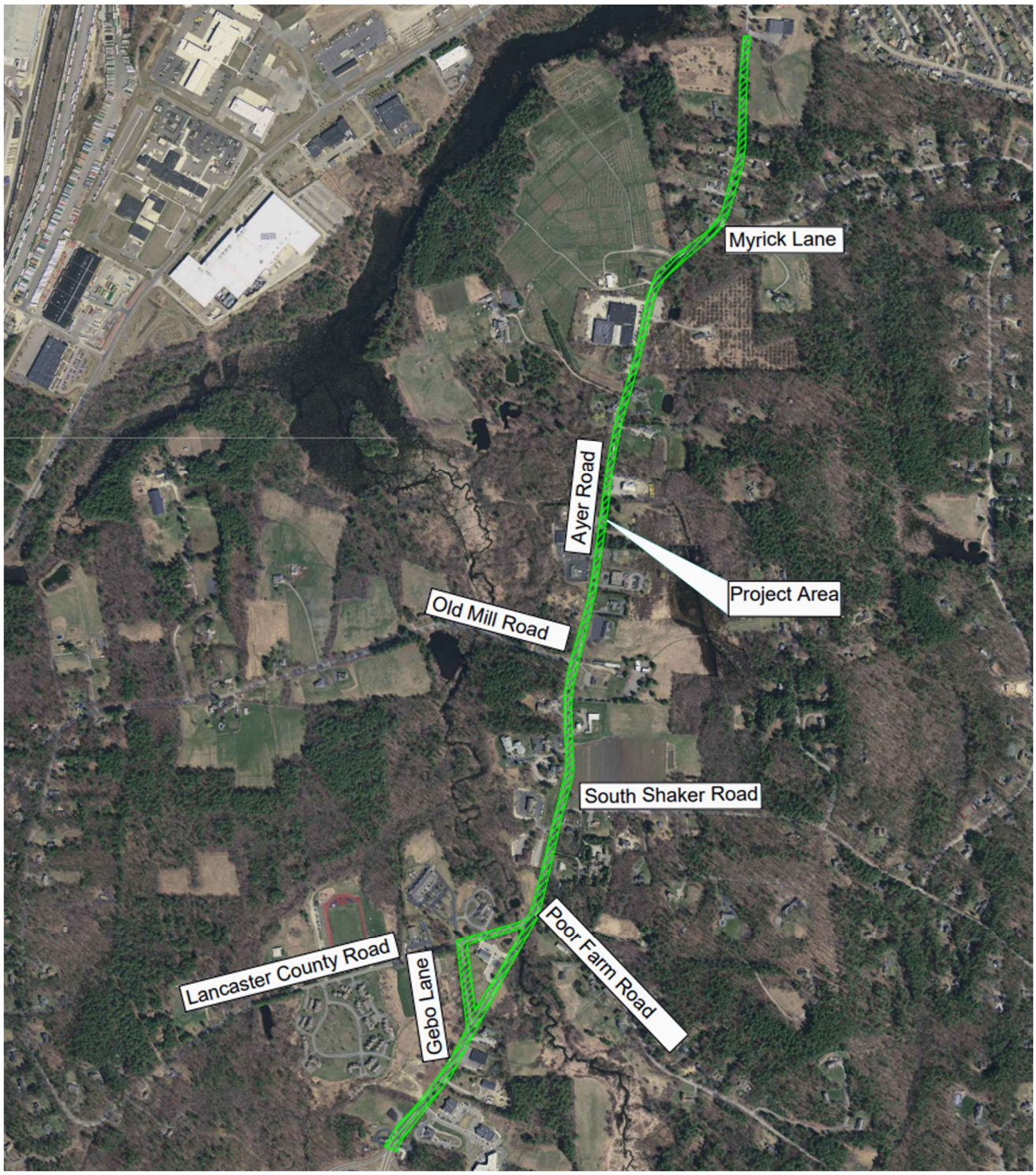
311 Main Street, Suite 201
Worcester, MA 01608
774.701.0550
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USGS Map



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Project Location Map



Ayer Road (Route 110/111)

Town of Harvard, MA

1 inch = 1500 Feet

0 1500 3000 4500

October 4, 2023

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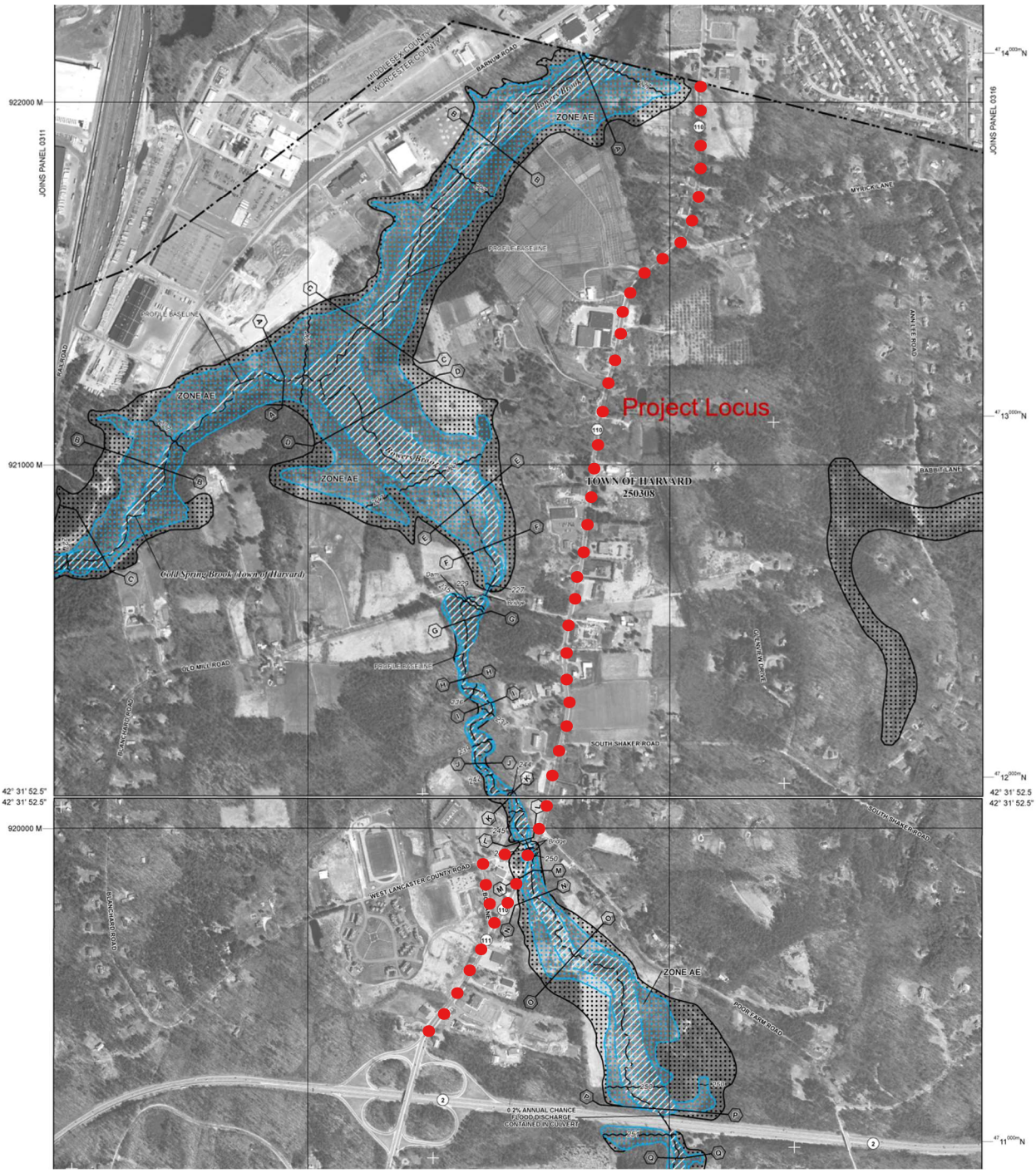
Large Scale	Property Line	Private Road ROW	Travel Way
CAI Town Line	Public Road	Right of Way	Wetland
PWater	Railroad	ROW Over	WaterLines
Private Road	Conservation Restriction	Property Hook	World Hillshade

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

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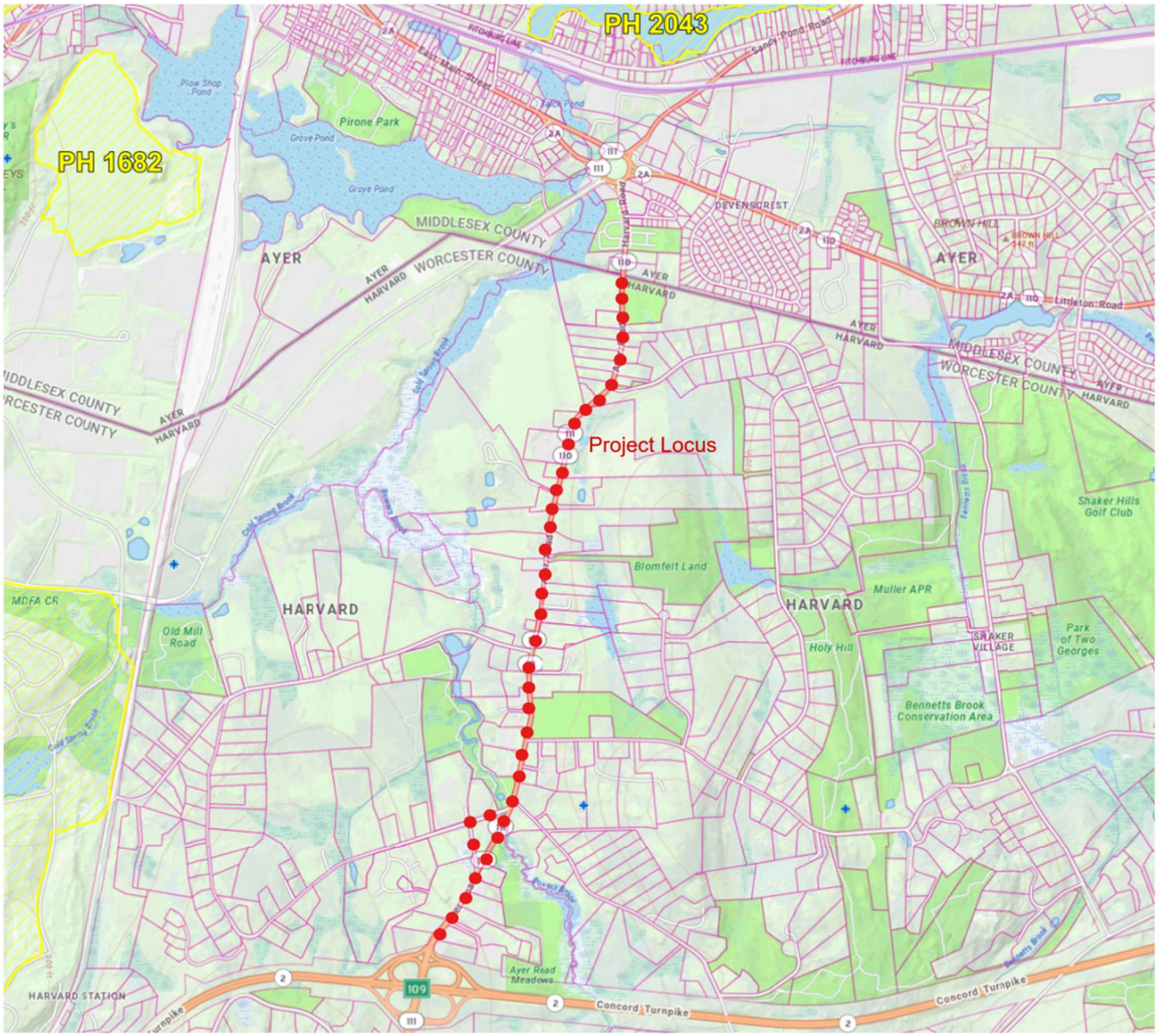
FEMA Map



N

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NHESP Map



NHESP Certified Vernal Pools

NHESP Priority Habitats of Rare Species

NHESP Estimated Habitats of Rare Wildlife

N

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	80
PROJECT FILE NO.	609213		

TITLE SHEET & INDEX

PLAN AND PROFILE OF

AYER ROAD (ROUTE 110/111)

IN THE TOWN OF

HARVARD

WORCESTER COUNTY

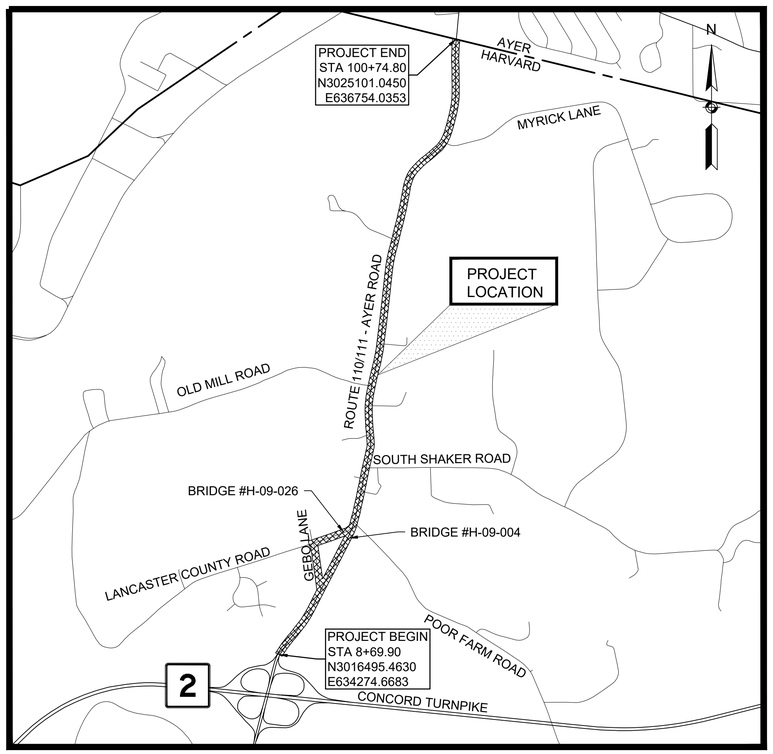
FEDERAL AID PROJECT NO.

WPA NOI SUBMITTAL

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	LEGEND & ABBREVIATIONS
3	CONSTRUCTION NOTES
4	KEY PLAN
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39-55	UTILITY PLANS
56-74	LANDSCAPE PLANS AND DETAILS
75-77	CONSTRUCTION DETAILS
78-79	PEDESTRIAN CURB RAMP DETAILS
80	DRIVEWAY DETAILS



LENGTH OF PROJECT = 9,204.90 FEET = 1.743 MILES

DESIGN DESIGNATION (AYER ROAD)

DESIGN SPEED	45 MPH
ADT (2019)	14,227
ADT (2029)	17,173
K	8.1%
D	57.3% NB
T (PEAK HOUR)	2.9%
T (AVERAGE DAY)	3.6%
DHV	1397
DDHV	800
FUNCTIONAL CLASSIFICATION	URBAN ARTERIAL

4/1/2024	WPA NOI SUBMITTAL	-
DATE	DESCRIPTION	REV #

TEC
The Engineering Corp

TEC, Inc.

282 Merrimack Street
2nd Floor
Lawrence, MA 01843
978-794-1792

311 Main Street
2nd Floor
Worcester, MA 01608
508-868-5104

169 Ocean Blvd, Unit 3
PO Box 249
Hampton, NH 03842
603-601-8154

www.TheEngineeringCorp.com

massDOT
Massachusetts Department of Transportation
Highway Division

APPROVED

CHIEF ENGINEER **DATE**

609213_HD1(NOI TITLE SHEET).DWG Plotted on 3-Apr-2024 7:04 PM

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB/GI	CATCH BASIN OR GUTTER INLET
	CBCI/GICI	CATCH BASIN OR GUTTER INLET W/ CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TREE PROTECTION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
WSO	WSO	WATER SHUTOFF/CURB STOP
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT CONTROL BARRIER
		TREE LINE
		EDGE OF PAVEMENT
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF MICROMILLING AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CONTROLLER CABINET, FOUNDATION
		CONTROLLER CABINET, FOUNDATION, CONC. PAD
		MAST ARM FOUNDATION (SCALE OF BLOCK = DIAMETER IN INCHES)
		MAST ARM (LENGTH NOTED)
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD
		MAST ARM OR TS POLE MOUNTED SIGN
		EMERGENCY PRE-EMPTION RECEIVER
		EMERGENCY PRE-EMPTION CONFIRMATION STROBE
		PEDESTRIAN PUSH BUTTON
		YAGI ANTENNA
		BICYCLE WIRE LOOP DETECTOR (SIZE AS NOTED)
		WIRE LOOP DETECTOR (SIZE AND TYPE NOTED)
		TRAFFIC SIGN (1 POST)
		TRAFFIC SIGN (2 POST)
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
		BIKE LANE LEGEND - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW LINE

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
AP	ANGLE POINT
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWP	DETECTABLE WARNING PANEL
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GC	GRANITE CURB
GCC	GRANITE CURB CORNER
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDWL	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HP	HIGH POINT
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LOG	LIMIT OF GRADING
LP	LIGHT POLE / LOW POINT
LSA	LANDSCAPE AREA
L&S	LOAM AND SEED
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCR	PEDESTRIAN CURB RAMP
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	80
PROJECT FILE NO.	609213		

LEGEND & ABBREVIATIONS

ABBREVIATIONS (cont.)

GENERAL

PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATERWAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
RRFB	RECTANGULAR RAPID FLASHING BEACON
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SGE	SLOPED GRANITE EDGING
SHLD	SHOULDER
SHLO	STATE HIGHWAY LAYOUT LINE
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SUP	SHARED USE PATH
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UPL	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

TRAFFIC SIGNAL ABBREVIATIONS

CAB	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY UPRAISED HAND
FDW	FLASHING UPRAISED HAND
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

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HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	3	80
PROJECT FILE NO.		609213	

CONSTRUCTION NOTES

CONSTRUCTION NOTES:

1. EXISTING CONDITIONS INFORMATION COMPILED FROM SURVEY BY HANCOCK ASSOCIATES, PERFORMED IN JULY AND AUGUST, 2019.

   HORIZONTAL DATUM = NAD83 (MASSACHUSETTS STATE PLANE COORDINATES)
   VERTICAL DATUM = NAVD88

2. ALL EXISTING STATE, COUNTY, AND TOWN LOCATION LINES HAVE BEEN ESTABLISHED FROM AN ACTUAL ON-THE-GROUND SURVEY. ALL PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.

3. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL CONTACT DIGSAFE (1-888-DIGSAFE) A MINIMUM OF 72 HOURS PRIOR TO ANY CONSTRUCTION TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

5. ALL MUNICIPALLY OWNED UTILITY STRUCTURES (CATCH BASINS, DRAIN MANHOLES, WATER GATES, ETC.) SHALL BE ADJUSTED BY THE CONTRACTOR TO FINISHED GRADE UNLESS DIRECTED OTHERWISE.

6. ALL PRIVATELY OWNED UTILITY STRUCTURES (GAS GATES, ELECTRIC /TELEPHONE MANHOLES, ETC.) SHALL BE ADJUSTED TO FINISHED GRADE BY THE PRIVATE UTILITY COMPANY, UNLESS DIRECTED OTHERWISE. THE CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE ALTERATION AND ADJUSTMENT, AS NECESSARY.

7. PROPOSED LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 1.0% (MINIMUM) UNLESS OTHERWISE NOTED.

8. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

9. ALL DISTURBED AREAS OUTSIDE THE CURBLINE SHALL BE STABILIZED WITH 4" LOAM AND SEED, UNLESS OTHERWISE NOTED.

10. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R), AS APPROVED BY THE ENGINEER.

11. THE TERM "MEET EXIST" MEANS TO MEET BOTH THE EXISTING ALIGNMENT AND ELEVATION.

12. ALL EXISTING TREES WITHIN THE PROJECT LIMITS SHALL BE RETAINED AND PROTECTED WITH TREE PROTECTION UNLESS INDICATED OTHERWISE ON THE DRAWINGS. ALL PROVIDED DIMENSIONS REFER TO THE DIAMETER AT BREAST HEIGHT.

13. AN UNOBSTRUCTED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 3'-0" (EXCLUDING THE WIDTH OF CURB) SHALL BE MAINTAINED PAST ALL OBSTRUCTIONS (UTILITY POLES, LIGHT POLES, SIGNS, MAILBOXES, ALONG DRIVEWAY OPENINGS, ETC.)

14. ALL OBJECTS SHALL BE A MINIMUM DISTANCE OF 2'-0" (EXCLUDING THE WIDTH OF CURB) FROM THE SHARED USE PATH (UTILITY POLES, LIGHT POLES, SIGNS, MAILBOXES, ALONG DRIVEWAY OPENINGS, ETC.)

15. DETECTABLE WARNING PANELS ARE REQUIRED ON ALL PROPOSED PEDESTRIAN CURB RAMPS AND SHALL BE INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARDS.

16. IN INSTANCES WHERE AN EXISTING MANHOLE, HANDHOLE, OR OTHER "SURFACE" TYPE STRUCTURE THAT IS NOT CALLED OUT TO BE REMOVED OR RESET IS WITHIN THE PROPOSED OR EXISTING (IF RECIPROCAL OR WITHIN PROJECT LIMITS) ACCESSIBLE SURFACE, THE STRUCTURE SHALL BE CAREFULLY ADJUSTED SUCH THAT THE TOP MOST SURFACES OR THE STRUCTURE COVER SHALL BE FLUSH WITH THE CURB RAMP SURFACE.

17. RUMBLE STRIPS SHALL BE INSTALLED ON ALL CENTERLINES ON AYER ROAD. ALL CENTERLINE RUMBLE STRIPS SHALL BE SINUSOIDAL (TYPE C).

18. IN AREAS OF EXISTING ROADWAY / SIDEWALK WHERE LOAM AND SEED IS PROPOSED, THE CONTRACTOR SHALL REMOVE EXISTING ROADWAY / SIDEWALK AND SUBBASE, AND REPLACE WITH SUITABLE EXCAVATED MATERIAL AND PROPOSED 4" LOAM AND SEED TO MEET FINAL GRADE.

SURVEY NOTES:

1. THE HORIZONTAL DATUM FOR THIS SURVEY IS THE MASSACHUSETTS COORDINATE SYSTEM, NAD 1983, MAINLAND ZONE. SAID HORIZONTAL DATUM WAS ESTABLISHED VIA GPS OBSERVATIONS UTILIZING REALIZATION NAD83(2011) AND GEOID 12A.

2. THE PROJECT SOURCE BENCHMARKS ARE MASSACHUSETTS GEODETIC SURVEY (MAGS) POINT ID'S 18370 (STATION 6640) AND 18371 (STATION 6641). SAID BENCHMARKS ARE BRASS RIVETS IN LEDGE, AND ARE SHOWN AS BENCHMARKS ON THIS PLAN. THE ELEVATION OF SAID BENCHMARKS ARE 278.26' AND 284.80', RESPECTFULLY, AND ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). ELEVATIONS SHOWN HEREON REFER TO SAID NAVD88.

3. UNDERGROUND UTILITIES ARE SHOWN HEREON FROM FIELD LOCATIONS OF SURFACE VISIBLE STRUCTURES AND FROM AVAILABLE RECORD INFORMATION ON FILE AT THE TOWN OF HARVARD PUBLIC WORKS AND PRIVATE UTILITY COMPANIES. OTHER UNDERGROUND UTILITIES MAY EXIST. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION, SIZE & ELEVATION OF ALL UTILITIES WITHIN THE AREA OF PROPOSED WORK AND TO CONTACT "DIG-SAFE" AT 811 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR CONSTRUCTION.

4. THE LIMIT OF BORDERING VEGETATED WETLANDS SHOWN HEREON WAS DELINEATED BY THE ENGINEERING CORP AND LOCATED VIA FIELD SURVEY BY HANCOCK ASSOCIATES.

5. THIS PLAN IS THE RESULT OF AN ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY HANCOCK ASSOCIATES IN JULY AND AUGUST OF 2019.

6. THE HARVARD/AYER TOWN LINE IS SHOWN APPROXIMATELY HEREON FROM THE MASSACHUSETTS BUREAU OF GEOGRAPHIC INFORMATION (MASSGIS).

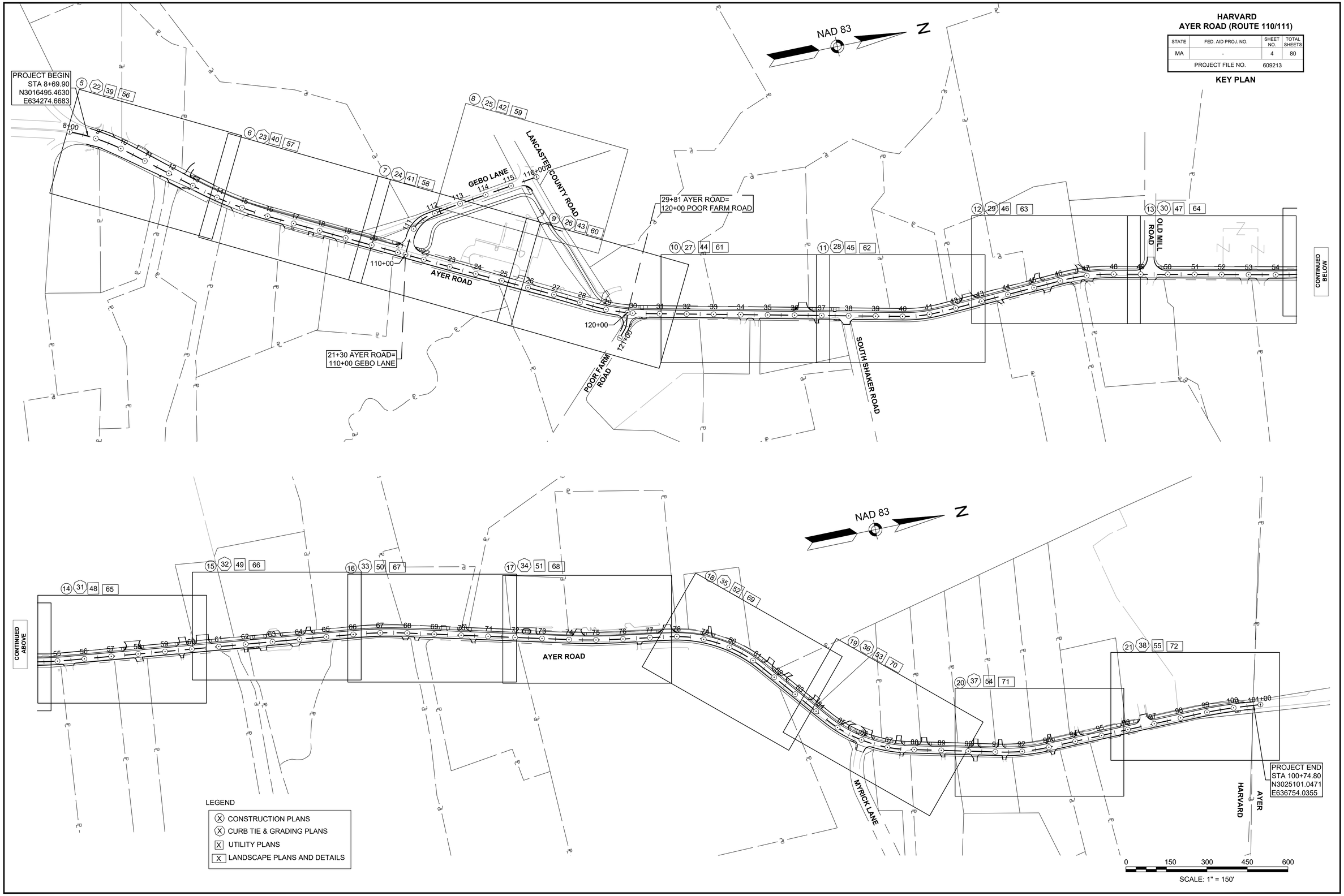
7. ABUTTING PROPERTY LINES HAVE BEEN COMPILED FROM RECORD INFORMATION.

609213_HD2(NOI LEGEND).DWG Plotted on 3-Apr-2024 7:04 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	4	80
PROJECT FILE NO.	609213		

KEY PLAN



609213_HD3(NOI KEY PLAN).DWG Plotted on 3-Apr-2024 7:05 PM

GUARDRAIL DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS
NONE	NONE	SEE UTILITY PLANS	SEE UTILITY PLANS

LEGEND

△# = DRIVEWAY NUMBER

□# = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	5	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 1 OF 17

609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:05 PM

NAD 83

ROUTE 110/111 - AYER ROAD
(1950 TOWN LAYOUT - STATE HIGHWAY ALTERATION 33799A)

185 AYER ROAD
12 LANCASTER COUNTY ROAD LLC
ASSESSORS MAP 8, BLOCK 59
DEED BOOK 46796, PAGE 296
PLAN BOOK 226, PLAN 27

187 AYER ROAD
12 LANCASTER COUNTY ROAD, LLC
ASSESSORS MAP 8, BLOCK 60
DEED BOOK 54974, PAGE 74
PLAN BOOK 226, PLAN 27

AYER ROAD
WHEELER REALTY TRUST
ASSESSORS MAP 8, BLOCK 62, LOT 2
DEED BOOK 21362, PAGE 50
PLAN BOOK 721, PLAN 46

184 AYER ROAD
PHOENIX-DURANGO LLC
ASSESSORS MAP 8, BLOCK 41
DEED BOOK 64869, PAGE 275
PLAN BOOK 219, PLAN 95

188 AYER ROAD
SAMANTHA'S REALTY LLC
ASSESSORS MAP 8, BLOCK 40, LOT 1
DEED BOOK 33654, PAGE 159
PLAN BOOK 780, PLAN 121

196 AYER ROAD
BOWERS BROOK LLC
ASSESSORS MAP 8, BLOCK 40
DEED BOOK 45722, PAGE 348
PLAN BOOK 881, PLAN 28

198 AYER ROAD
AYER ROAD REALTY LLC
ASSESSORS MAP 8, BLOCK 40, LOT 3
DEED BOOK 45608, PAGE 289
PLAN BOOK 881, PLAN 28

200 AYER ROAD
HARVARD OFFICE PARK LLC
ASSESSORS MAP 8, BLOCK 40, LOT 2
DEED BOOK 28957, PAGE 72
PLAN BOOK 780, PLAN 121

1950 STATE ALTERATION	1950 TOWN LAYOUT

1950 TOWN LAYOUT	1924 COUNTY LAYOUT

PROJECT BEGIN
STA 8+69.90
N3016495.4630
E634274.6683

8+00 | 9 | 10 | 11 | 12 | 13 | 14 | 140+00 | 141

R=760.00'
L=222.12'

PT +22.12

PC +16.54

PC +15.24

N39°07'50"E
293.12'

RET FIRE ESCAPE STEPS
RET HMA WALK
RET SIGN
MEET EXIST DWY (SAWCUT)
PROP TEMP EASEMENT
R&R MB (2)
PROP TEMP EASEMENT
RET PLANTER
RET BOULDERS
REM EXIST PVMT; PROP 4" L&S
MEET EXIST DWY (SAWCUT)
PROP HMA DWY (TYP)
BENCHMARK: MAG IN UPL80-1 EL=311.69'
PROP 4" L&S (TYP)
PROP TEMP EASEMENT
MEET EXIST GRAV DWY
RET TREE; PROP TREE PROTECTION
PROP FULL DEPTH PVMT
RET WALL
APPROX LOG (TYP)
PROP 10' HMA SHARED USE PATH
R&S GRANITE BLOCKS (TYP)
RET FLASHER
LIMIT OF HMA MILL & OVERLAY
BEGIN HMA BERM TYPE A - MODIFIED
PROP CONST ℄
PROP HMA BERM TYPE A - MODIFIED
PROP HMA MILL & OVERLAY
RET POST
RET STUMP
PROP EOP
PROP GC; TYPE VB AT 7" REVEAL
PROP HMA DWY
PROP BIKE RAMP
PROP 2.5' GRASS BUFFER
PROP GC; TYPE VB (TYP)
PROP SAWCUT (TYP)
PROP LAYOUT ALTERATION
PROP TEMP EASEMENT
PROP TEMP EASEMENT
BRICK WALK
MEET EXIST DWY (SAWCUT)
APPROX LOG (TYP)
PROP DRAINAGE SEDIMENT REMOVAL
PROP TEMP EASEMENT
PROP HMA DWY
MEET EXIST DWY (SAWCUT)
RET SGE
PROP CC PCR W/ DWP
PROP EOP
PROP PB (TYP)
PROP RRFB (TYP)
PROP 5.5' CEM CONC SW
PROP 3" ELEC CONDUIT (TYP)
MEET EXIST SW AND GC
PROP TEMP EASEMENT
RET STONE WALL

1950 TOWN LAYOUT - STATE HIGHWAY ALTERATION 33799A

0 20 50 100
SCALE: 1" = 20'

CONTINUED ON SHEET NO. 6

GUARDRAIL DETAILS

STA 19+14 RT TO STA 19+39 RT TANGENT END TREATMENT, TL-2
STA 19+39 RT TO STA 21+14 RT GUARDRAIL, TL-2

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

- (#) = DRIVEWAY NUMBER
- [#] = PEDESTRIAN CURB RAMP NUMBER

IMPACT TYPE

- PERMANENT IMPACTS 12 SF
- TEMPORARY IMPACTS 0 SF

RESOURCE AREA IMPACT TYPE

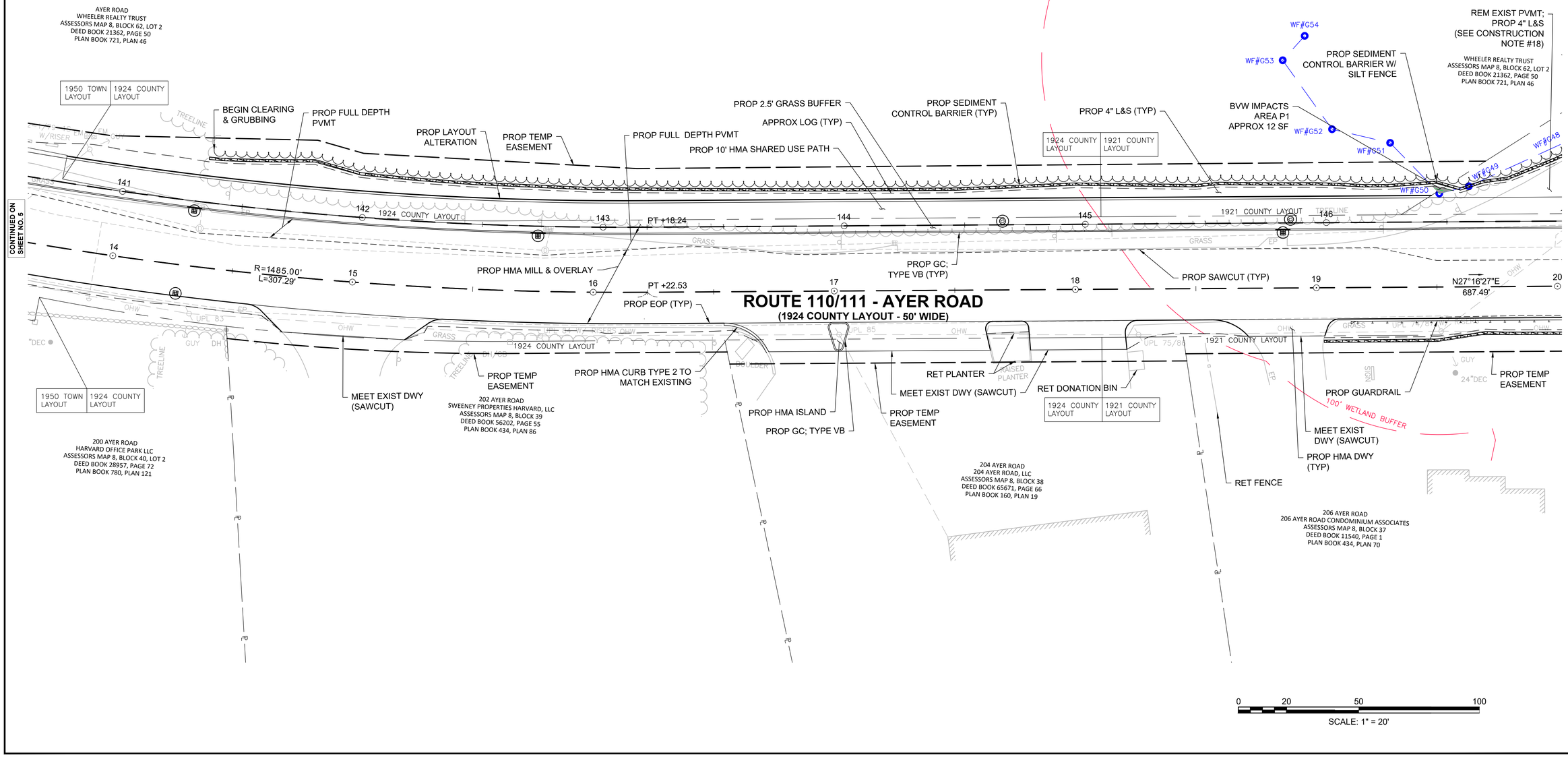
- BORDERING VEGETATED WETLANDS (BVW) 12 SF (12 SF PERMANENT, 0 SF TEMPORARY)

RESOURCE AREA IMPACTS			
AREA	DURATION	RESOURCE AREA	IMPACT
P1	PERMANENT	BVW	12 SF

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 2 OF 17



609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:05 PM

GUARDRAIL DETAILS

STA 19+14 RT TO STA 19+39 RT TANGENT END TREATMENT, TL-2
STA 19+39 RT TO STA 21+14 RT GUARDRAIL, TL-2
STA 21+14 RT TO STA 21+39 RT TANGENT END TREATMENT, TL-2

STA 20+28 LT TO STA 20+38 LT TRAILING ANCHORAGE
STA 20+38 LT TO STA 21+00 LT GUARDRAIL, TL-2
STA 110+39 LT TO STA 111+34 LT GUARDRAIL - CURVED, TL-2
STA 111+34 LT TO STA 111+57 LT TANGENT END TREATMENT, TL-2

STA 24+13 RT TO STA 24+38 RT TANGENT END TREATMENT, TL-2
STA 24+38 RT TO STA 27+00 RT GUARDRAIL, TL-2

TRAFFIC SIGNAL CONDUIT

SEE BELOW

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

CONTINUED ON SHEET NO. 8

LEGEND

△# = DRIVEWAY NUMBER
= PEDESTRIAN CURB RAMP NUMBER

HARVARD AYER ROAD (ROUTE 110/111)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 3 OF 17

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

GEBO LANE (PUBLIC - VARIABLE WIDTH)

LANCASTER COUNTY ROAD
INHABITANTS OF THE TOWN OF HARVARD
ASSESSORS MAP 8, BLOCK 62, LOT 4
DEED BOOK 21051, PAGE 25
PLAN BOOK 721, PLAN 46

WHEELER REALTY TRUST
ASSESSORS MAP 8, BLOCK 62, LOT 2
DEED BOOK 21362, PAGE 50
PLAN BOOK 721, PLAN 46

206 AYER ROAD
206 AYER ROAD CONDOMINIUM ASSOCIATES
ASSESSORS MAP 8, BLOCK 37
DEED BOOK 11540, PAGE 1
PLAN BOOK 434, PLAN 70

215 AYER ROAD
APIF - MASSACHUSETTS, LLC
ASSESSORS MAP 8, BLOCK 61
DEED BOOK 65530, PAGE 161
PLAN BOOK 299, PLAN 81
PLAN BOOK 365, PLAN 118

AYER ROAD
INHABITANTS OF THE TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 8, BLOCK 36
DEED BOOK 6223, PAGE 264
PLAN BOOK 434, PLAN 86

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

RESOURCE AREA IMPACTS			
AREA	DURATION	RESOURCE AREA	IMPACT
P2	PERMANENT	BANK	41 LF
P2	PERMANENT	LUW	181 SF
P3	PERMANENT	BVW	205 SF
T1	TEMPORARY	BANK	17 LF
T1	TEMPORARY	LUW	86 SF
T2	TEMPORARY	BANK	86 LF
T2	TEMPORARY	LUW	431 SF

IMPACT TYPE
PERMANENT IMPACTS 386 SF
TEMPORARY IMPACTS 517 SF

RESOURCE AREA IMPACT TYPE
BORDERING VEGETATED WETLANDS (BVW) 205 SF (205 SF PERMANENT, 0 SF TEMPORARY)
LAND UNDER WATER (LUW) 698 SF (181 SF PERMANENT, 517 SF TEMPORARY)
BANK IMPACT 144 LF (41 LF PERMANENT, 103 LF TEMPORARY)

SCALE: 1" = 20'

609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:06 PM

GUARDRAIL DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

△# = DRIVEWAY NUMBER

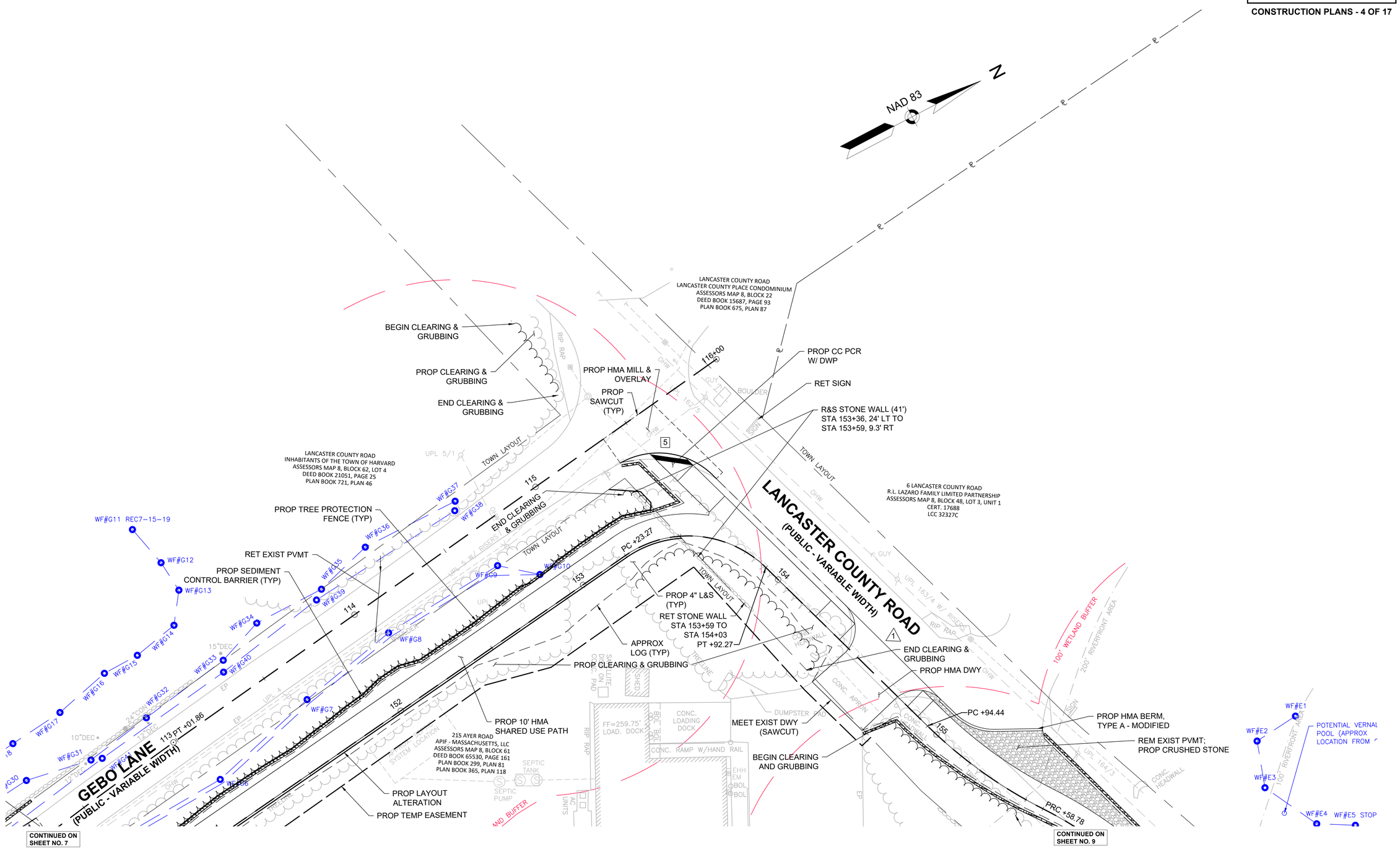
□# = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	8	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 4 OF 17

609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:06 PM



GUARDRAIL DETAILS

STA 24+38 TO STA 27+00 RT GUARDRAIL, TL-2
STA 27+00 TO STA 27+35 RT MODIFIED TRANSITION TO BRIDGE RAIL

STA 26+39 LT TO STA 26+64 LT TANGENT END TREATMENT, TL-2
STA 26+64 LT TO STA 27+26 LT GUARDRAIL, TL-2
STA 27+26 LT TO STA 27+60 LT MODIFIED TRANSITION TO BRIDGE RAIL

STA 27+57 RT TO STA 27+91 RT MODIFIED TRANSITION TO BRIDGE RAIL
STA 27+91 RT TO STA 29+15 RT GUARDRAIL, TL-2 (DEEP POST)
STA 29+15 RT TO STA 29+41 RT FLARED END TREATMENT, TL-2

STA 27+82 LT TO STA 28+16 LT MODIFIED TRANSITION TO BRIDGE RAIL
STA 28+16 LT TO STA 28+41 LT GUARDRAIL, TL-2
STA 28+41 LT TO STA 28+66 LT FLARED END TREATMENT, TL-2

CONTINUED ON SHEET NO. 8

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

△# = DRIVEWAY NUMBER

[#] = PEDESTRIAN CURB RAMP NUMBER

IMPACT TYPE

PERMANENT IMPACTS
85 SF

TEMPORARY IMPACTS
175 SF

RESOURCE AREA IMPACT TYPE

BORDERING VEGETATED WETLANDS (BVW)
85 SF (85 SF PERMANENT, 0 SF TEMPORARY)

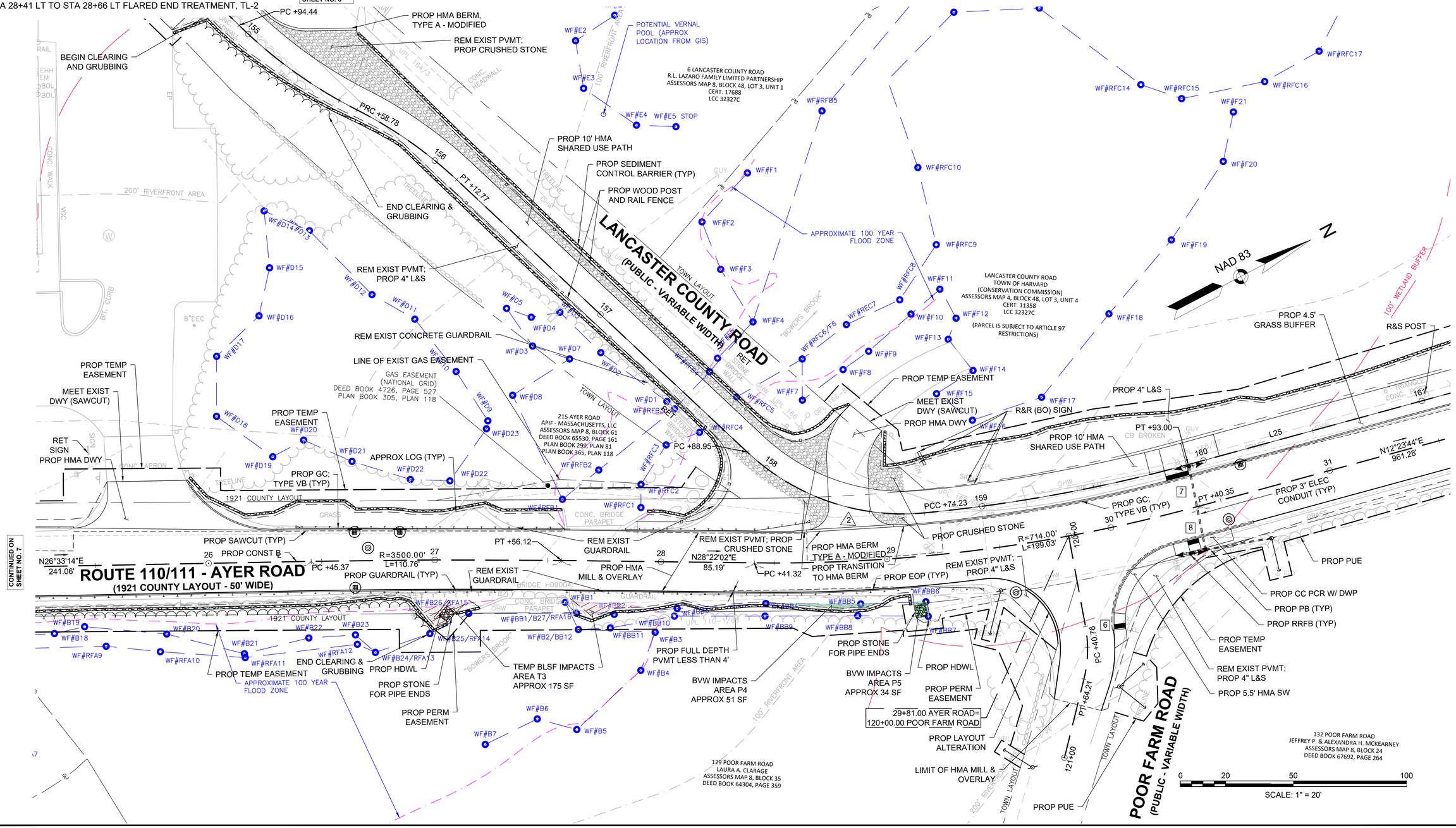
BORDERING LAND SUBJECT TO FLOODDING (BLSF)
175 SF (0 SF PERMANENT, 175 SF TEMPORARY)

RESOURCE AREA IMPACTS			
AREA	DURATION	RESOURCE AREA	IMPACT
P4	PERMANENT	BVW	51 SF
P5	PERMANENT	BVW	34 SF
T3	TEMPORARY	BLSF	175 SF

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	9	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 5 OF 17



609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:06 PM

GUARDRAIL DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

△# = DRIVEWAY NUMBER

□# = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	10	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 6 OF 17

CONTINUED ON SHEET NO. 9

CONTINUED ON SHEET NO. 11

ROUTE 110/111 - AYER ROAD

(1921 COUNTY LAYOUT - 50' WIDE)

NAD 83 N

100' WETLAND BUFFER

100' RIVERFRONT AREA

200' RIVERFRONT AREA

LANCASTER COUNTY ROAD
TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 4, BLOCK 48, LOT 3, UNIT 4
CERT. 11358
LCC 32327C
(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

231 AYER ROAD
SCHOOL HOUSE 1870 TRUST
ASSESSORS MAP 4, BLOCK 48, LOT 2
CERT. 17941
LCC 32327B

231 AYER ROAD
SCHOOL HOUSE 1870 TRUST
ASSESSORS MAP 4, BLOCK 48, LOT 2
CERT. 17941
LCC 32327B

233 AYER ROAD
SHAKER PLACE OFFICES, LLC
ASSESSORS MAP 4, BLOCK 48, LOT 1
DEED BOOK 34484, PAGE 146
PLAN BOOK 548, PLAN 46

132 POOR FARM ROAD
JEFFREY P. & ALEXANDRA H. MCKEARNEY
ASSESSORS MAP 8, BLOCK 24
DEED BOOK 67692, PAGE 264

232 AYER ROAD
BRYAN & REBECCA KELLEY
ASSESSORS MAP 8, BLOCK 23
DEED BOOK 57957, PAGE 89

236 AYER ROAD
ROBERT A. WILLIAMS JR.
& JANET M. WILLIAMS
ASSESSORS MAP 4, BLOCK 47
DEED BOOK 61011, PAGE 81
PLAN BOOK 347, PLAN 77

242 AYER ROAD
DAVID M. & MARTIN D. POUTRY
ASSESSORS MAP 4, BLOCK 46
DEED BOOK 27509, PAGE 388
PLAN BOOK 246, PLAN 69

PROP TEMP EASEMENT
R&S POST
BEGIN CLEARING & GRUBBING
END CLEARING & GRUBBING
PROP 4" L&S (TYP)
APPROX LOG (TYP)
PROP PUE
PROP TEMP EASEMENT
R&R (BO) SIGN
R&S WOOD POST
PROP GC; TYPE VB (TYP)
PROP 10' HMA SHARED USE PATH
R&R STONE WALL
PROP 4.5' GRASS BUFFER
BEGIN CLEARING & GRUBBING
PROP CC PCR W/ DWP (TYP)
END CLEARING & GRUBBING
MEET EXIST DWY (SAWCUT)
RET LP
RET STONE WALL
PROP PUE
RET SIGN
PROP TEMP EASEMENT
RET TREE
PROP SAWCUT (TYP)
PROP HMA MILL & OVERLAY
PROP FULL DEPTH PVMT LESS THAN 4'
R&S BOULDER (TYP)
PROP CONST ℄
PROP FULL DEPTH PVMT
N12°23'44"E
961.28'
PROP EOP (TYP)
PROP TEMP EASEMENT
PROP PUE
R&R MB
PROP HMA DWY (TYP)
MEET EXIST DWY (SAWCUT)
PROP PUE
R&R MB
MEET EXIST DWY (SAWCUT)
PROP PUE
BEGIN CLEARING & GRUBBING
PROP TEMP EASEMENT
END CLEARING & GRUBBING
PROP HMA DWY (TYP)
MEET EXIST DWY (SAWCUT)
R&R MB

1921 COUNTY LAYOUT
6" TRIANGLE CONC. PAD
TREELINE
BOULDERS
3'X8' WOOD POST
GRASS
6'STOCKADE
WOOD
RET
OHW
UPL
EP
MB

0 20 50 100

SCALE: 1" = 20'

609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:06 PM

GUARDRAIL DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS
NONE	NONE	SEE UTILITY PLANS	SEE UTILITY PLANS

LEGEND

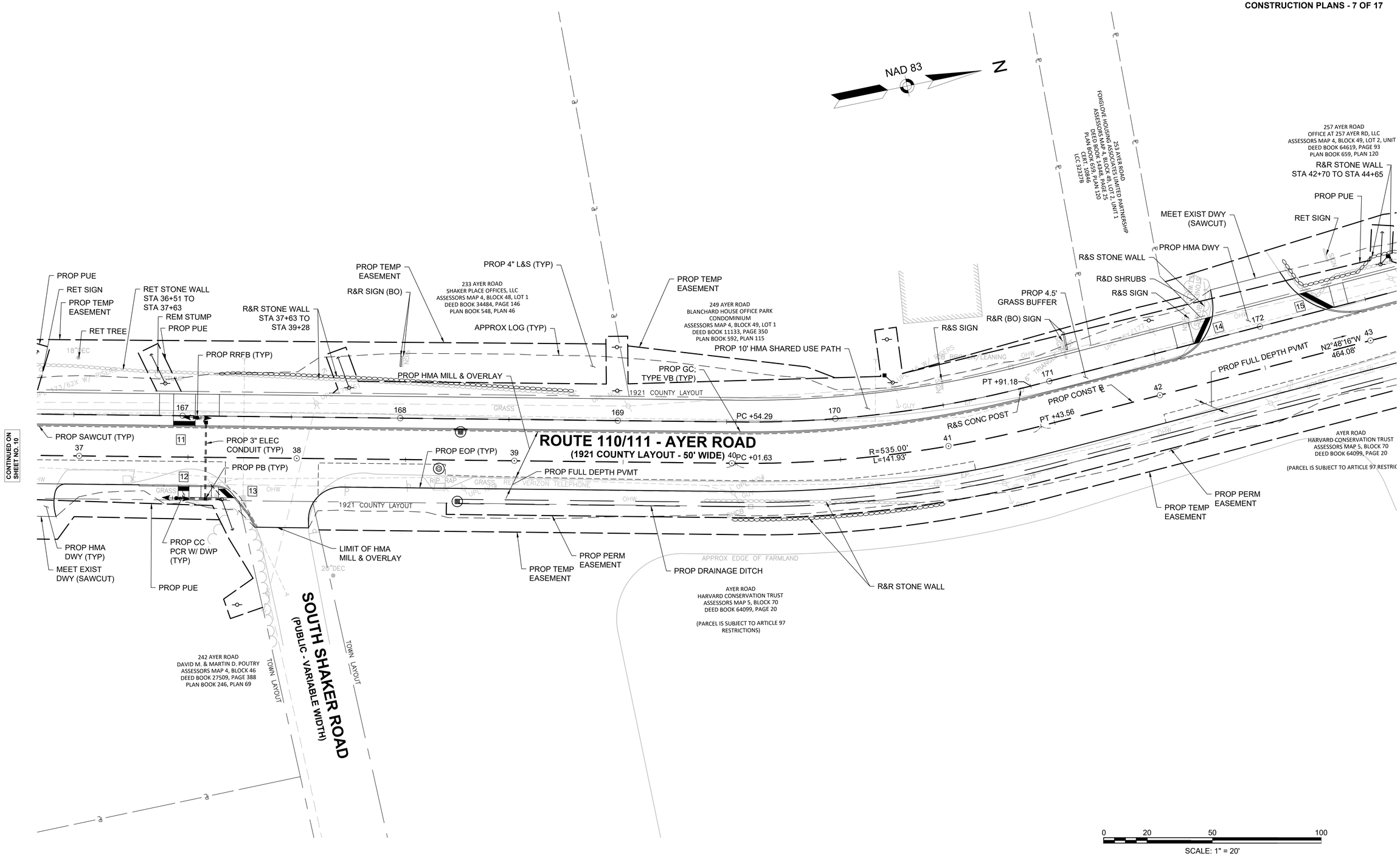
△# = DRIVEWAY NUMBER

[#] = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	11	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 7 OF 17



609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:06 PM

GUARDRAIL DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

△# = DRIVEWAY NUMBER

□# = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	12	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 8 OF 17

NAD 83

N

259 AYER ROAD
259 AYER ROAD LLC
ASSESSORS MAP 4, BLOCK 51
DEED BOOK 69129, PAGE 227
PLAN BOOK 462, PLAN 72

AYER ROAD
REM REALTY TRUST
ASSESSORS MAP 4, BLOCK 52, LOT 2
DEED BOOK 56380, PAGE 389

257 AYER ROAD
OFFICE AT 257 AYER RD, LLC
ASSESSORS MAP 4, BLOCK 49, LOT 2, UNIT 2
DEED BOOK 64619, PAGE 93
PLAN BOOK 659, PLAN 120

AYER ROAD
HARVARD CONSERVATION TRUST
ASSESSORS MAP 5, BLOCK 70
DEED BOOK 64099, PAGE 20

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

256 AYER ROAD
256 AYER ROAD, LLC
ASSESSORS MAP 4, BLOCK 41
DEED BOOK 59556, PAGE 235
PLAN BOOK 281, PLAN 117

262 AYER ROAD
DKMF REALTY, LLC
ASSESSORS MAP 4, BLOCK 40
DEED BOOK 61126, PAGE 24

264 AYER ROAD
THREE SEASONS TREESCAPE, LLC
ASSESSORS MAP 4, BLOCK 39
DEED BOOK 64293, PAGE 91
PLAN BOOK 379, PLANS 10-11

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

BEGIN CLEARING & GRUBBING
PROP TEMP EASEMENT
PROP PUE
END CLEARING & GRUBBING
R&R STONE WALL
MEET EXIST DWY (SAWCUT)
PROP 4" L&S (TYP)
PROP HDWL
PROP PERM DRAINAGE EASEMENT
PROP STONE FOR PIPE ENDS
PROP 4.5' GRASS BUFFER
PROP 10' HMA SHARED USE PATH
APPROX LOG (TYP)
PROP 4" L&S (TYP)
R&R STONE WALL STA 42+70 TO STA 44+65
RET SIGN
PROP GC; TYPE VB (TYP)
PROP CONST ℄
R&R SIGN (BO)
R&S PLANTER
R&R MB (2)
PROP SAWCUT (TYP)
PROP HMA MILL & OVERLAY
R&R MB
RET SIGN
PROP FULL DEPTH PVMT
MEET EXIST DWY (SAWCUT)
RET TREE; PROP TREE PROTECTION
MEET EXIST DWY (SAWCUT)
PROP TEMP EASEMENT
PROP PUE
PROP EOP (TYP)
PROP DRAINAGE DITCH
RET LP
MEET EXIST DWY (SAWCUT)
PROP PERM EASEMENT
REM TREE
PROP HMA DWY (TYP)
MEET EXIST DWY (SAWCUT)
PROP PERM EASEMENT
R&R (BO) LP
PROP TEMP EASEMENT
PROP PUE
N2°48'16"W 464.08'
1921 COUNTY LAYOUT
PC +55.26
PC +07.64
PT +44.22
PT +91.71
R=715.00'
L=184.07'
20"DEC
30"DEC
173
174
175
176
177
178
43
44
45
46
47
48

CONTINUED ON SHEET NO. 11

CONTINUED ON SHEET NO. 13

0 20 50 100

SCALE: 1" = 20'

609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:06 PM

GUARDRAIL DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

△# = DRIVEWAY NUMBER

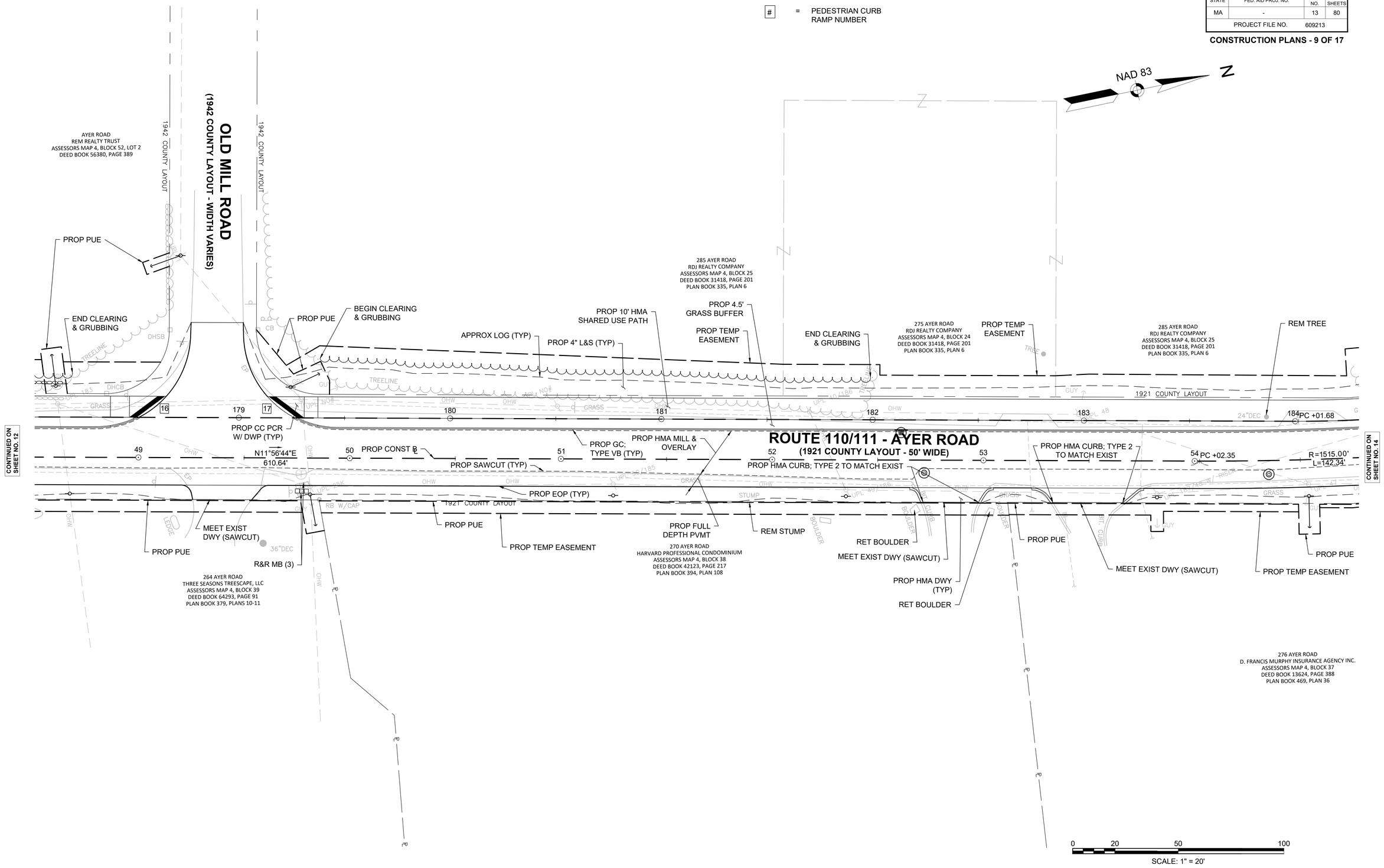
[#] = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	13	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 9 OF 17

609213_HD5(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:06 PM



GUARDRAIL DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS
NONE	NONE	SEE UTILITY PLANS	SEE UTILITY PLANS

LEGEND

△# = DRIVEWAY NUMBER

[#] = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 10 OF 17

609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:07 PM

NAD 83 N

285 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 25
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

289 AYER ROAD
289 AYER LLC
ASSESSORS MAP 4, BLOCK 26
DEED BOOK 58259, PAGE 155
PLAN BOOK 241, PLAN 7

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

PROP 10' HMA SHARED USE PATH
PROP PUE
REM TREE
PROP TEMP EASEMENT
PROP PUE
PROP PUE
PROP TEMP EASEMENT
R&R STONE WALL
RET PLANTER WITH SIGN
PROP PUE
PROP TEMP EASEMENT
RET LP
R&R STONE WALL
RET LP
APPROX LOG (TYP)
PROP CC PCR W/ DWP (TYP)
PROP 4.5' GRASS BUFFER
RET LP
REM STUMP
REM STUMP
RET LP
R&S CONC BARRIER (2)
MEET EXIST DWY (SAWCUT)
RET SIGN
RET LP
RET STONE WALL STA 59+45 TO STA 59+47
R&R STONE WALL STA 58+17 TO STA 59+45
PROP 4" L&S (TYP)
MEET EXIST DWY (SAWCUT)
PROP PUE
REM HDWL
MEET EXIST DWY (SAWCUT)
PROP HMA DWY (TYP)
PROP GC; TYPE VB (TYP)
PROP SAWCUT (TYP)
PROP CONST E
R&R MB
PROP HMA MILL & OVERLAY
PROP FULL DEPTH PVMT
PROP PUE
PROP TEMP EASEMENT
MEET EXIST DWY (SAWCUT)
R&R MB
PROP PUE
PROP TEMP EASEMENT
MEET EXIST DWY (SAWCUT)
RET BOULDERS
RET TREE; PROP TREE PROTECTION
PROP PUE
PROP TEMP EASEMENT
MEET EXIST DWY (SAWCUT)
PROP HMA DWY (TYP)
PROP PUE
PROP PUE
PROP TEMP EASEMENT

PC +01.68
PT +48.66
PT +44.69
R=1515.00'
L=142.34'
N6°33'44"E
1057.99'

CONTINUED ON SHEET NO. 13

CONTINUED ON SHEET NO. 15

276 AYER ROAD
FRANCIS MURPHY INSURANCE AGENCY INC.
ASSESSORS MAP 4, BLOCK 37
DEED BOOK 13624, PAGE 388
PLAN BOOK 469, PLAN 36

280 AYER ROAD
YUKON HOLDINGS, LLC
ASSESSORS MAP 4, BLOCK 36
DEED BOOK 48875, PAGE 84
PLAN BOOK 469, PLAN 36

284 AYER ROAD
DAVID B. ALEXANDER
ASSESSORS MAP 4, BLOCK 35
DEED BOOK 63500, PAGE 332
PLAN BOOK 587, PLAN 5

288 AYER ROAD
THE 39 EATON REALTY TRUST
ASSESSORS MAP 4, BLOCK 34
DEED BOOK 67617, PAGE 325
PLAN BOOK 389, PLAN 9

0 20 50 100
SCALE: 1" = 20'

GUARDRAIL DETAILS

STA 64+09 RT TO 64+34 RT TANGENT END TREATMENT, TL-2
STA 64+34 RT TO 65+84 RT GUARDRAIL, TL-2 (DEEP POST)
STA 65+84 RT TO 66+09 RT TANGENT END TREATMENT, TL-2

STA 64+49 LT TO 64+59 LT TRAILING ANCHORAGE
STA 64+59 LT TO 67+22 LT GUARDRAIL, TL-2 (DEEP POST)
STA 67+22 LT TO 67+47 LT TANGENT END TREATMENT, TL-2

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

△# = DRIVEWAY NUMBER

□# = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 11 OF 17

IMPACT TYPE

PERMANENT IMPACTS
453 SF

TEMPORARY IMPACTS
172 SF

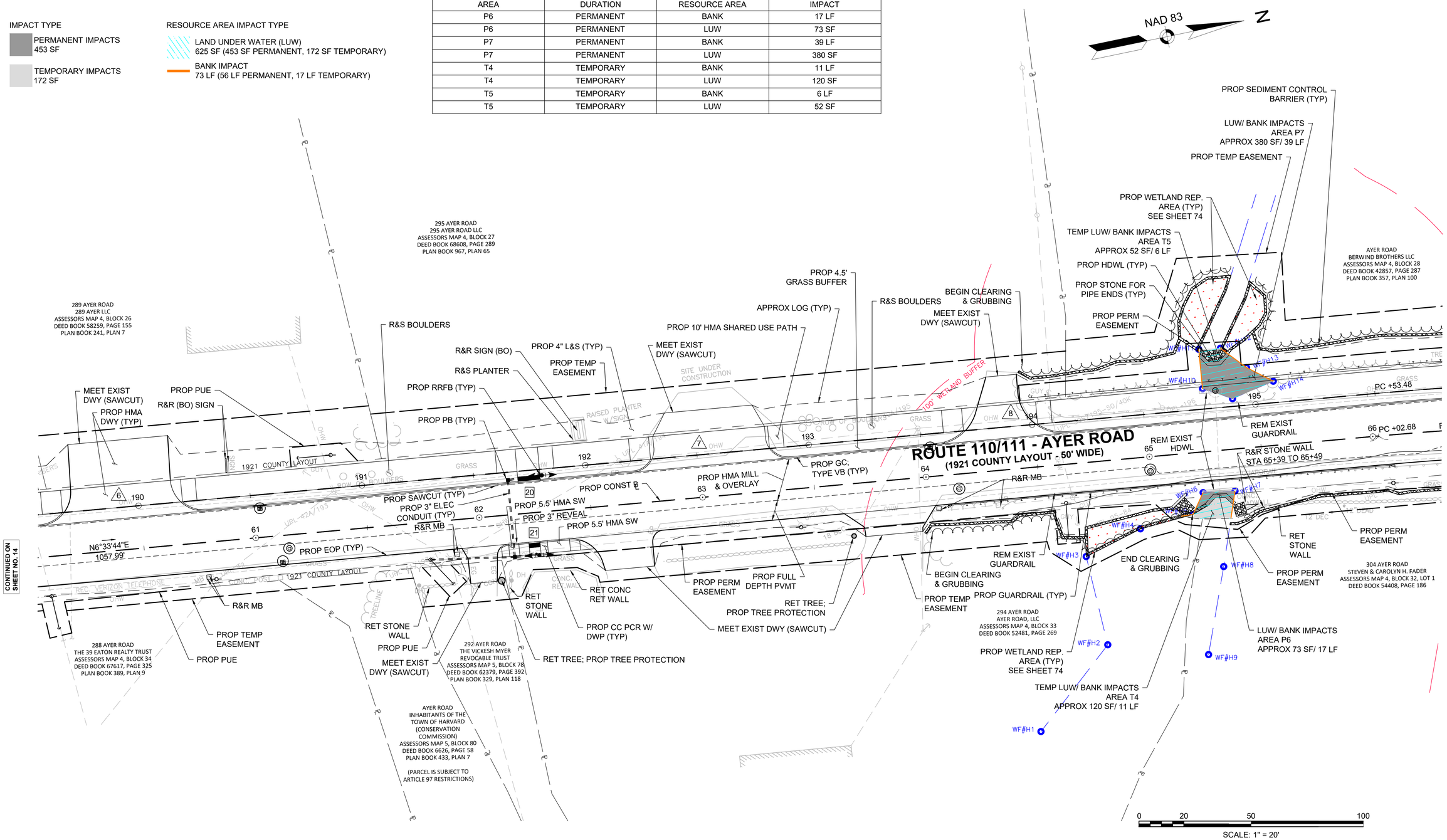
RESOURCE AREA IMPACT TYPE

LAND UNDER WATER (LUW)
625 SF (453 SF PERMANENT, 172 SF TEMPORARY)

BANK IMPACT
73 LF (56 LF PERMANENT, 17 LF TEMPORARY)

RESOURCE AREA IMPACTS

AREA	DURATION	RESOURCE AREA	IMPACT
P6	PERMANENT	BANK	17 LF
P6	PERMANENT	LUW	73 SF
P7	PERMANENT	BANK	39 LF
P7	PERMANENT	LUW	380 SF
T4	TEMPORARY	BANK	11 LF
T4	TEMPORARY	LUW	120 SF
T5	TEMPORARY	BANK	6 LF
T5	TEMPORARY	LUW	52 SF



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GUARDRAIL DETAILS

STA 64+09 RT TO 64+34 RT TANGENT END TREATMENT, TL-2
STA 64+34 RT TO 65+84 RT GUARDRAIL, TL-2 (DEEP POST)
STA 65+84 RT TO 66+09 RT TANGENT END TREATMENT, TL-2

STA 64+49 LT TO 64+59 LT TRAILING ANCHORAGE
STA 64+59 LT TO 67+22 LT GUARDRAIL, TL-2 (DEEP POST)
STA 67+22 LT TO 67+47 LT TANGENT END TREATMENT, TL-2

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

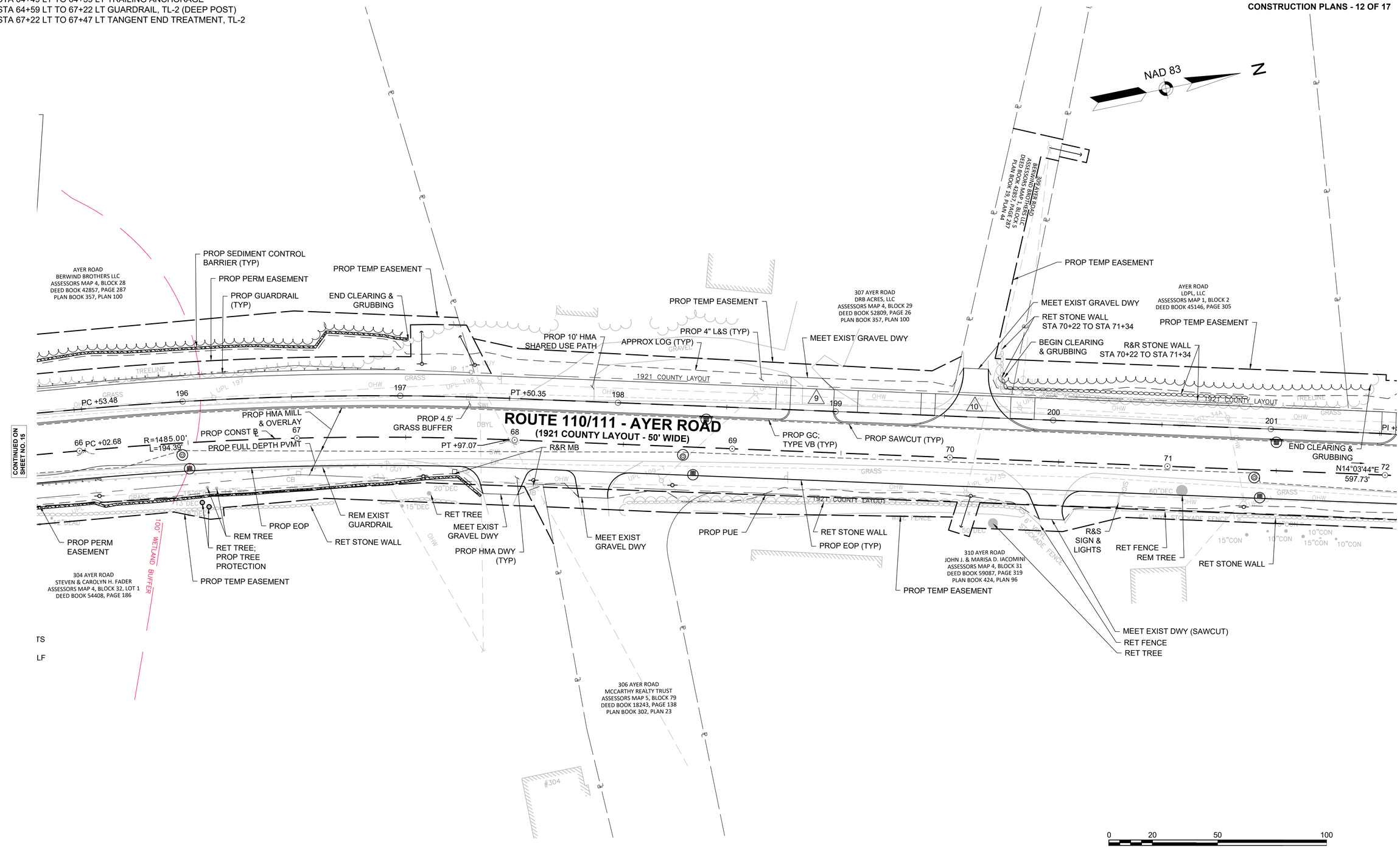
△# = DRIVEWAY NUMBER

[#] = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 12 OF 17



609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:07 PM

GUARDRAIL DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

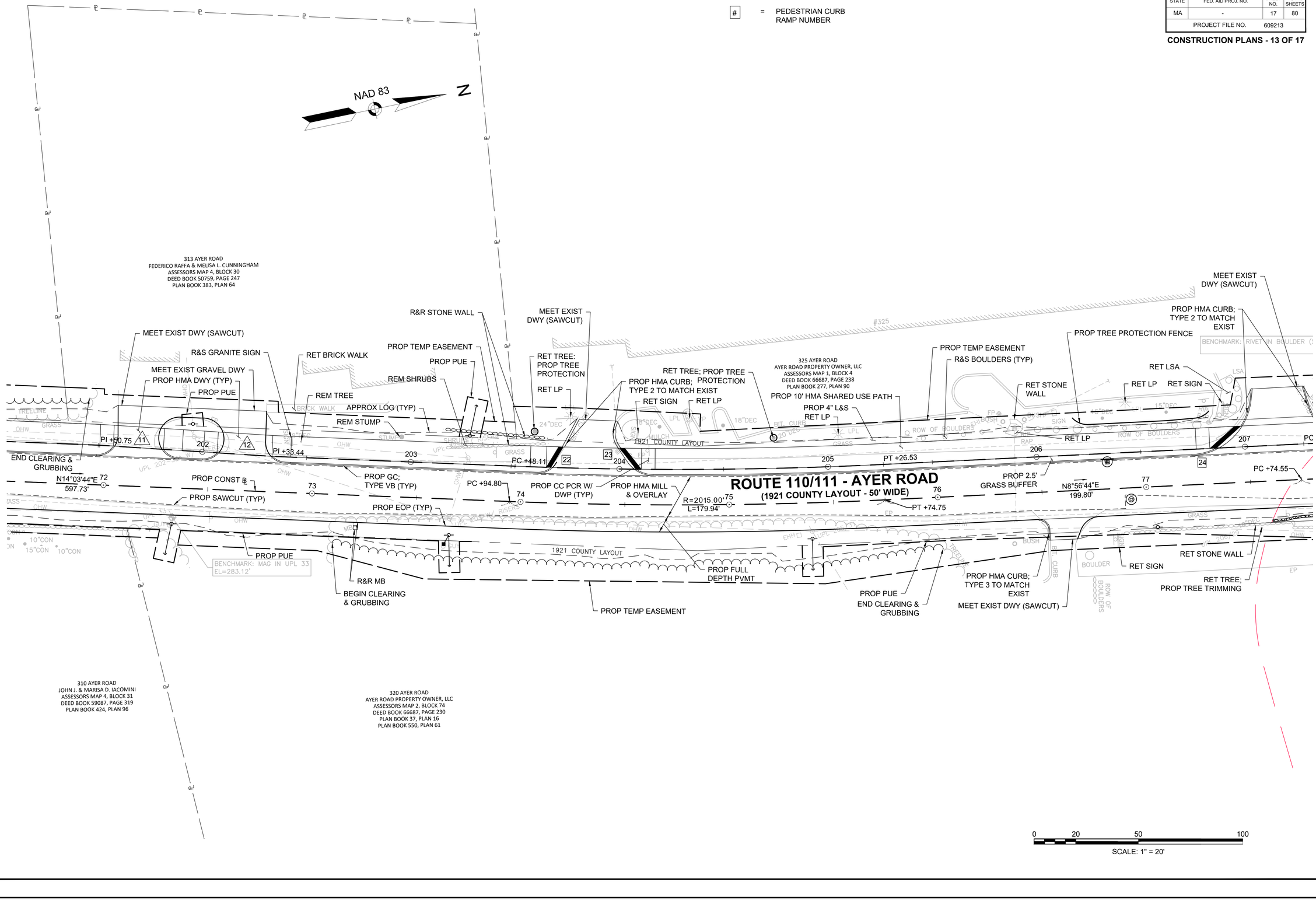
△# = DRIVEWAY NUMBER

[#] = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 13 OF 17



609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:07 PM

GUARDRAIL DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

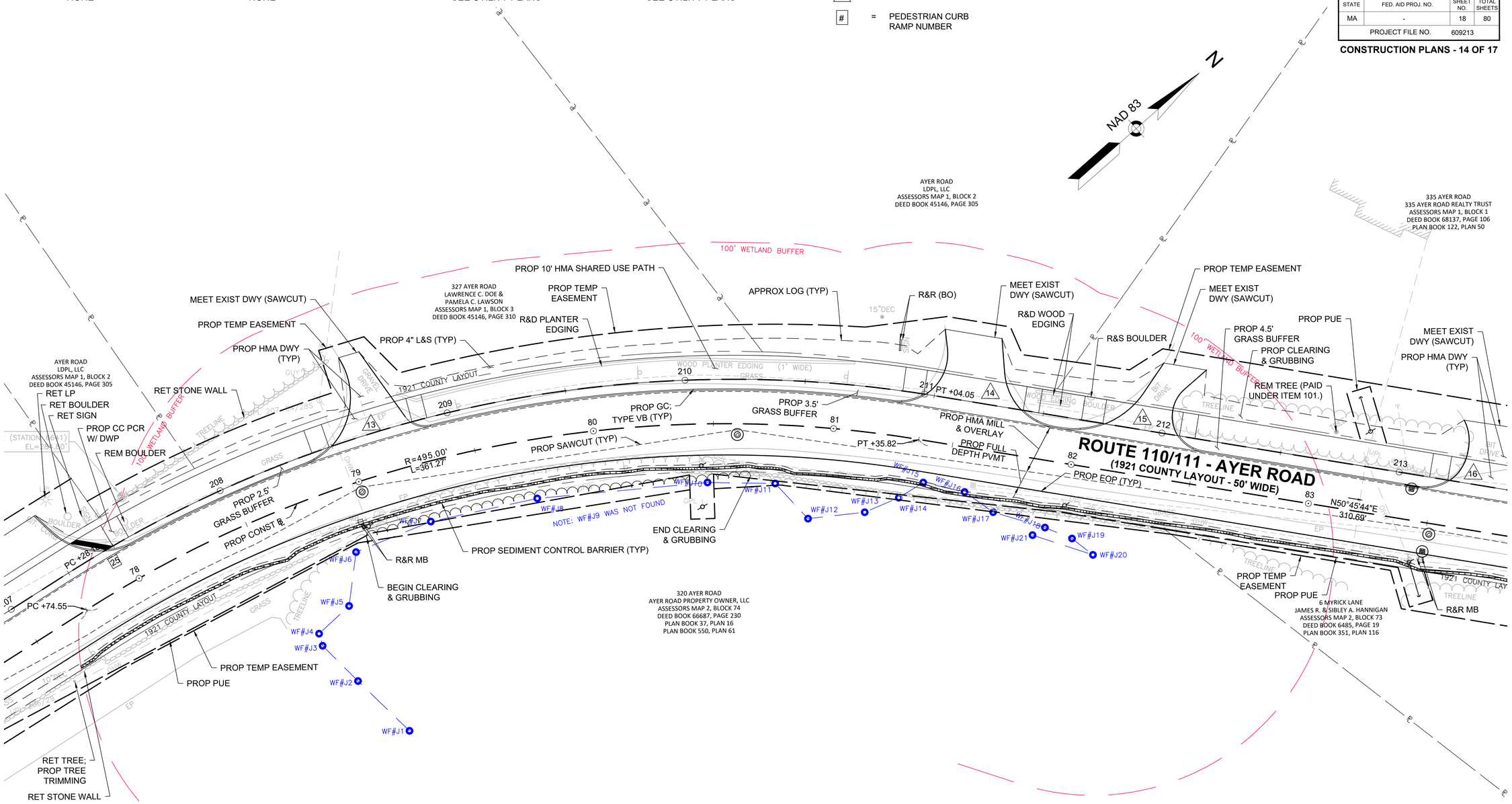
△# = DRIVEWAY NUMBER

[#] = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 14 OF 17



609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:07 PM

GUARDRAIL DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

△# = DRIVEWAY NUMBER

□# = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 15 OF 17

CONTINUED ON SHEET NO. 18

CONTINUED ON SHEET NO. 20

609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:07 PM

335 AYER ROAD
335 AYER ROAD REALTY TRUST
ASSESSORS MAP 1, BLOCK 1
DEED BOOK 68137, PAGE 106
PLAN BOOK 122, PLAN 50

341 AYER ROAD
ELIZABETH MAE SHUMAN JOYCE &
CHRISTOPHER MICHAEL JOYCE
ASSESSORS MAP 2, BLOCK 1
DEED BOOK 68063, PAGE 317
PLAN BOOK 122, PLAN 50

343 AYER ROAD
KATHLEEN M. DECOT
ASSESSORS MAP 2, BLOCK 2
DEED BOOK 50213, PAGE 223
PLAN BOOK 122, PLAN 50

345 AYER ROAD
GEOFFREY O. & JENNIFER K. GILLARD
ASSESSORS MAP 2, BLOCK 3
DEED BOOK 57294, PAGE 103
PLAN BOOK 122, PLAN 50

346 AYER ROAD
FRANK, JR. & BARBARA S. HEIM
ASSESSORS MAP 2, BLOCK 11
DEED BOOK 4971, PAGE 277
PLAN BOOK 329, PLAN 92

344 AYER ROAD
KATIE ELIZABETH & NATHAN J. BERG
ASSESSORS MAP 2, BLOCK 12
DEED BOOK 59619, PAGE 196
PLAN BOOK 393, PLAN 112

6 MYRICK LANE
JAMES R. & SIBLEY A. HANNIGAN
ASSESSORS MAP 2, BLOCK 73
DEED BOOK 6485, PAGE 19
PLAN BOOK 351, PLAN 116

MYRICK LANE
TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 2, BLOCK 13
DEED BOOK 5247, PAGE 433
PLAN BOOK 349, PLAN 92
(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

NAD 83

N

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

MYRICK LANE
(PUBLIC - 50' WIDE)

BEGIN CLEARING & GRUBBING
END CLEARING & GRUBBING
PROP TEMP EASEMENT
PROP PUE
REM HEDGE
R&R STONE WALL
RET STONE WALL
MEET EXIST DWY (SAWCUT)
PROP HMA DWY (TYP)
PROP 4.5' GRASS BUFFER
R&S BOUND
PROP TEMP EASEMENT
PROP GC; TYPE VB (TYP)
APPROX LOG (TYP)
R&S BOULDERS
R&S WALL
PROP 10' HMA SHARED USE PATH
PROP 4" L&S (TYP)
RET FENCE
STA 86+63 TO 86+68
R&S FENCE STA 86+68 TO 86+70
PROP 3" ELEC CONDUIT (TYP)
PROP CONST ℄
PROP SAWCUT (TYP)
PROP HMA MILL & OVERLAY
PROP FULL DEPTH PVMT
PROP SEDIMENT CONTROL BARRIER (TYP)
PROP TEMP EASEMENT
PROP CC PCR W/ DWP (TYP)
PROP RRFB (TYP)
PROP EOP (TYP)
PROP PB (TYP)
PROP 5.5 HMA SIDEWALK
LIMIT OF HMA MILL & OVERLAY
R&R MB
R&R MB (2)
RET TREE
RET BOULDER
PC +11.36
PC +46.51
PT +28.31
PT +75.85
R=505.00'
L=329.35'
N13°23'44"E
341.21'
1921 COUNTY LAYOUT
TOWN LAYOUT

0 20 50 100

SCALE: 1" = 20'

GUARDRAIL DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS
NONE	NONE	SEE UTILITY PLANS	SEE UTILITY PLANS

LEGEND

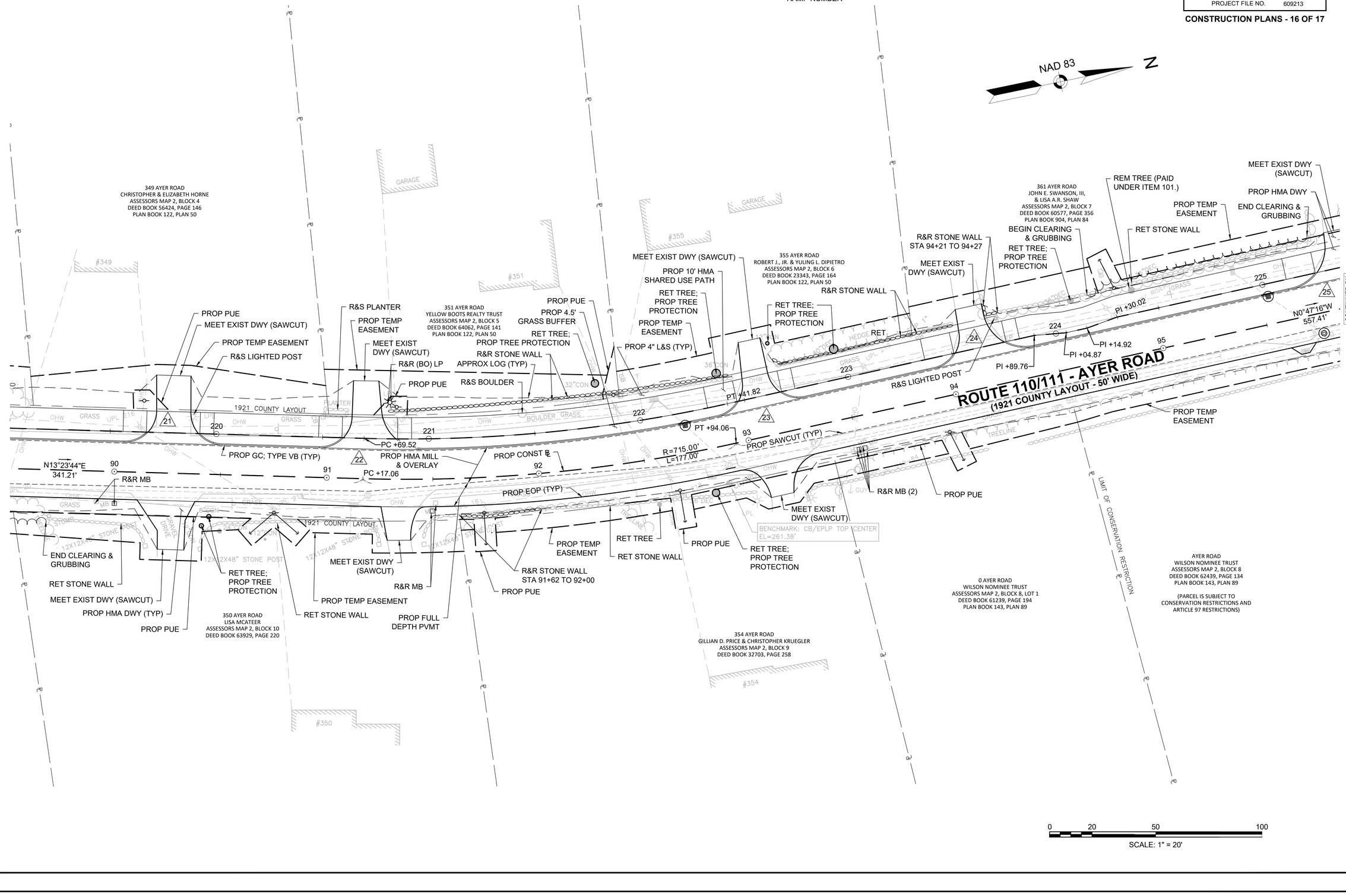
△# = DRIVEWAY NUMBER

□# = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 16 OF 17



609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:08 PM

GUARDRAIL DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

LEGEND

△# = DRIVEWAY NUMBER

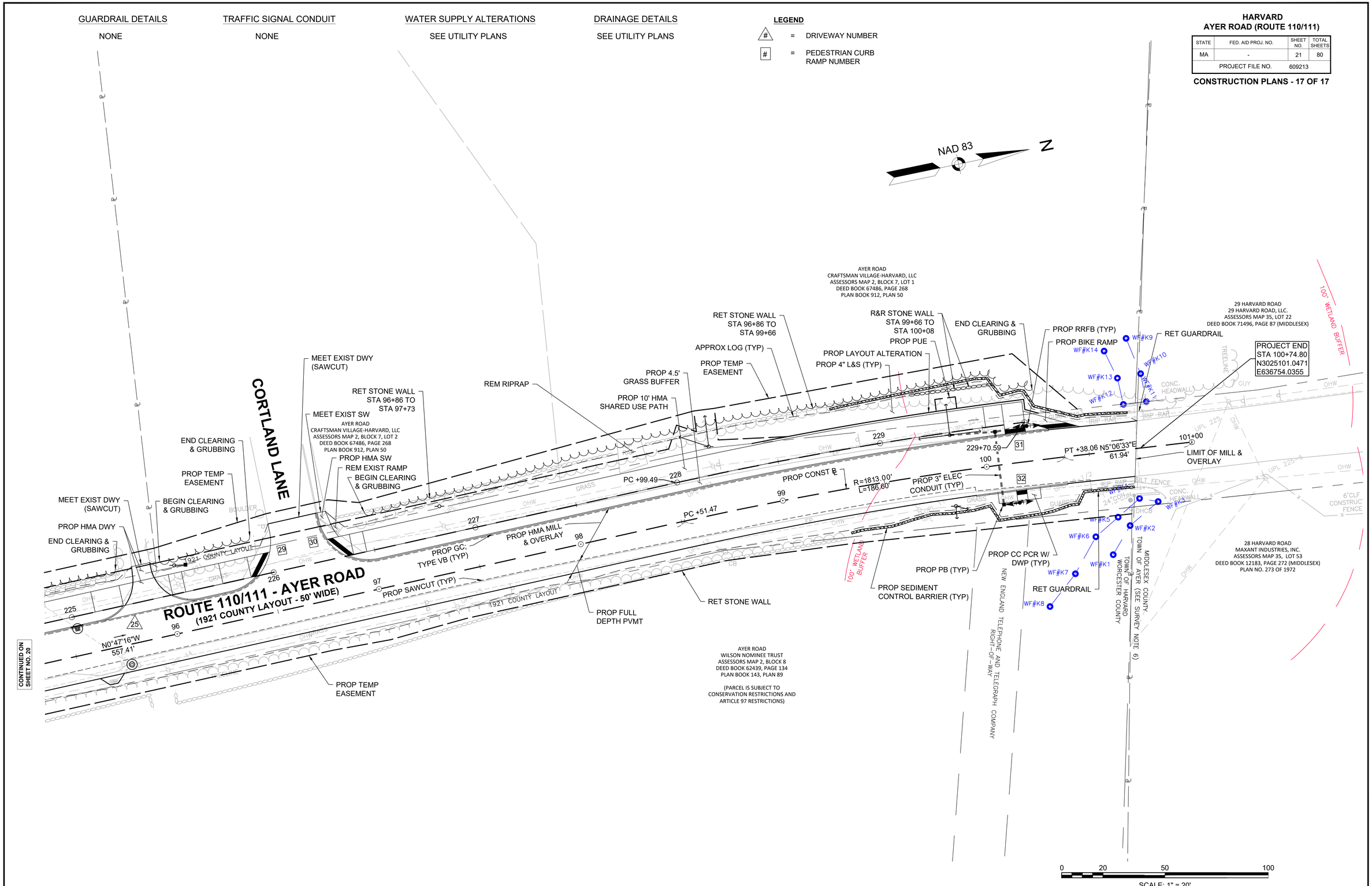
[#] = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	80
PROJECT FILE NO.	609213		

CONSTRUCTION PLANS - 17 OF 17

609213_HDS(NOI CONSTRUCTION PLANS).DWG Plotted on 3-Apr-2024 7:08 PM



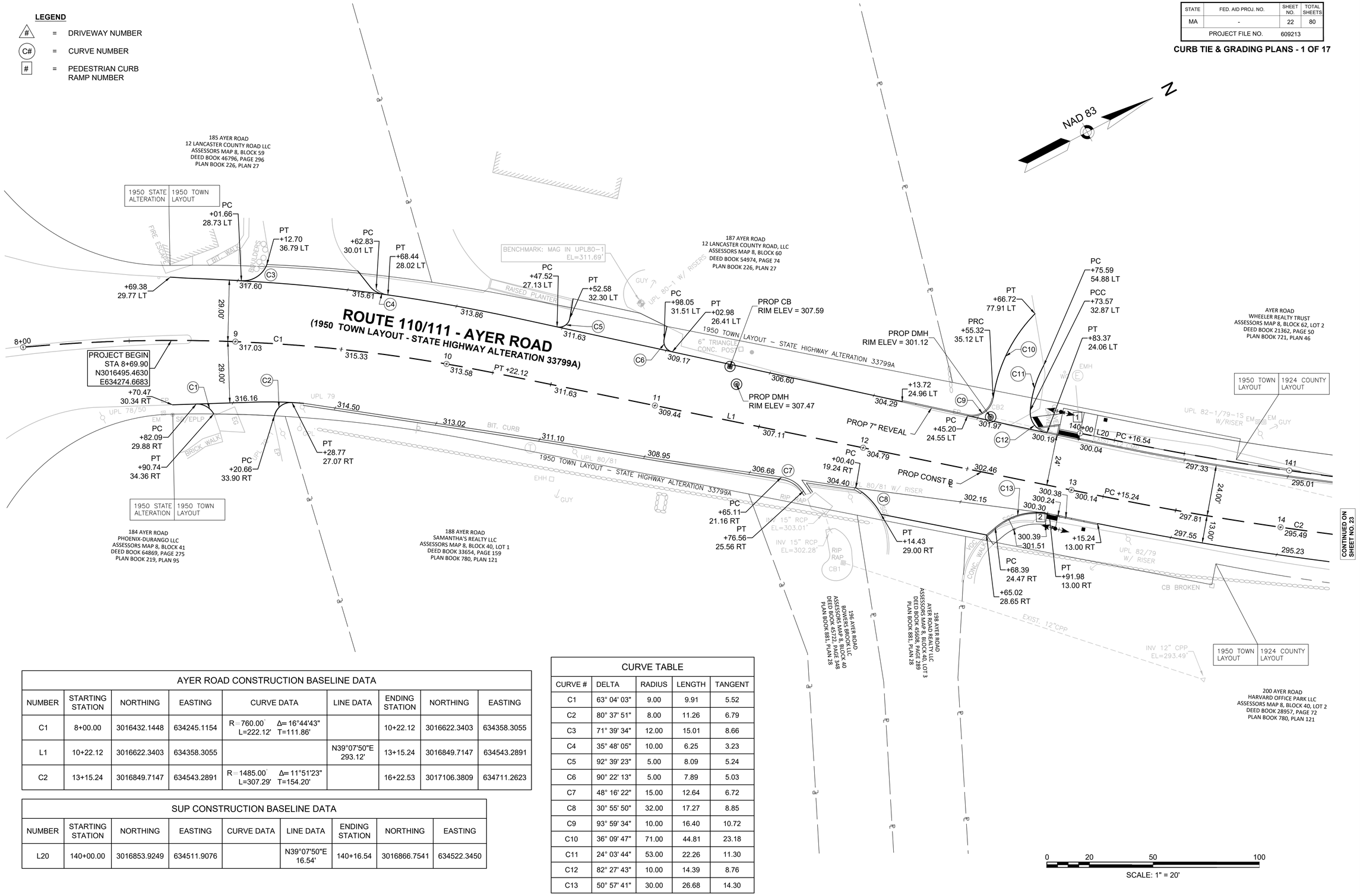
HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 1 OF 17

LEGEND

- (#) = DRIVEWAY NUMBER
- (C#) = CURVE NUMBER
- [#] = PEDESTRIAN CURB RAMP NUMBER



CONTINUED ON SHEET NO. 23

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	8+00.00	3016432.1448	634245.1154	R=760.00' Δ=16°44'43" L=222.12' T=111.86'		10+22.12	3016622.3403	634358.3055
L1	10+22.12	3016622.3403	634358.3055		N39°07'50"E 293.12'	13+15.24	3016849.7147	634543.2891
C2	13+15.24	3016849.7147	634543.2891	R=1485.00' Δ=11°51'23" L=307.29' T=154.20'		16+22.53	3017106.3809	634711.2623

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L20	140+00.00	3016853.9249	634511.9076		N39°07'50"E 16.54'	140+16.54	3016866.7541	634522.3450

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C1	63° 04' 03"	9.00	9.91	5.52
C2	80° 37' 51"	8.00	11.26	6.79
C3	71° 39' 34"	12.00	15.01	8.66
C4	35° 48' 05"	10.00	6.25	3.23
C5	92° 39' 23"	5.00	8.09	5.24
C6	90° 22' 13"	5.00	7.89	5.03
C7	48° 16' 22"	15.00	12.64	6.72
C8	30° 55' 50"	32.00	17.27	8.85
C9	93° 59' 34"	10.00	16.40	10.72
C10	36° 09' 47"	71.00	44.81	23.18
C11	24° 03' 44"	53.00	22.26	11.30
C12	82° 27' 43"	10.00	14.39	8.76
C13	50° 57' 41"	30.00	26.68	14.30

609213_HDR(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:08 PM

HARVARD
AYER ROAD (ROUTE 110/111)

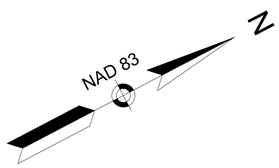
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	23	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 2 OF 17

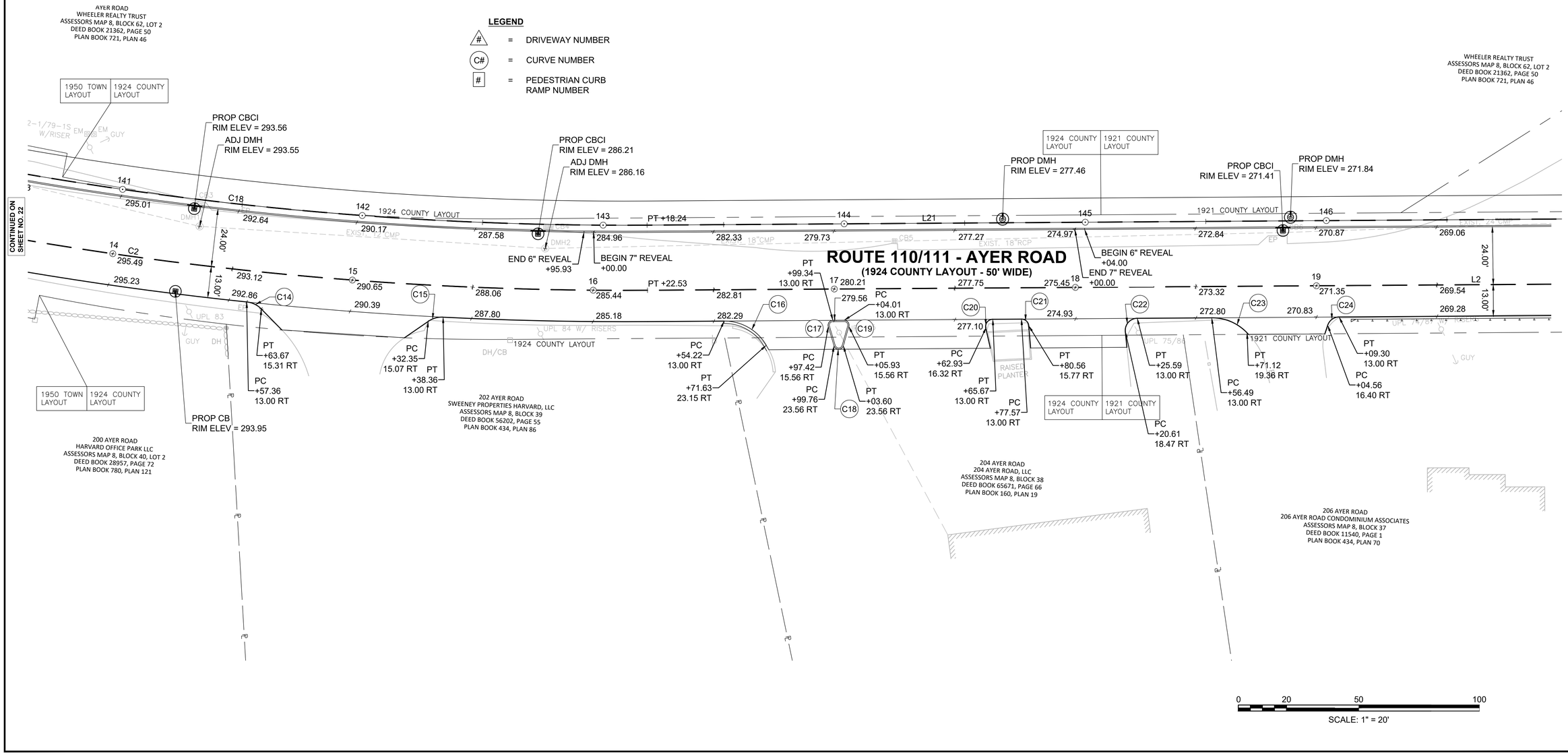
AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C2	13+15.24	3016849.7147	634543.2891	R=1485.00' Δ=11°51'23" L=307.29' T=154.20'		16+22.53	3017106.3809	634711.2623
L2	16+22.53	3017106.3809	634711.2623		N27°16'27"E 687.49'	23+10.02	3017717.4371	635026.3047

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C18	140+16.54	3016866.7541	634522.3450	R=1458.00' Δ=11°51'23" L=301.71' T=151.39'		143+18.24	3017118.7536	634687.2641
L21	143+18.24	3017118.7536	634687.2641		N27°16'27"E 555.14'	148+73.39	3017612.1792	634941.6596

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C14	39° 38' 52"	10.00	6.92	3.60
C15	37° 25' 59"	10.00	6.53	3.39
C16	60° 30' 15"	20.00	21.12	11.66
C17	106° 15' 37"	2.00	3.71	2.67
C18	147° 28' 47"	2.00	5.15	6.86
C19	106° 15' 37"	2.00	3.71	2.67
C20	102° 24' 04"	3.00	5.36	3.73
C21	85° 30' 40"	3.00	4.48	2.77
C22	95° 20' 35"	5.00	8.32	5.49
C23	46° 59' 24"	20.00	16.40	8.69
C24	71° 18' 49"	5.00	6.22	3.59



LEGEND
- # = DRIVEWAY NUMBER
- C# = CURVE NUMBER
- # = PEDESTRIAN CURB RAMP NUMBER



609213_HDB(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:09 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	24	80
PROJECT FILE NO.		609213	

CURB TIE & GRADING PLANS - 3 OF 17

609213_HDB(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:09 PM

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C25	90° 00' 00"	40.00	62.83	40.00
C26	89° 12' 27"	40.00	62.28	39.45
C27	50° 04' 14"	120.00	104.87	56.05
C28	53° 10' 28"	120.00	111.37	60.06
C32	94° 31' 21"	15.00	24.75	16.23

CONTINUED ON SHEET NO. 25

LANCASTER COUNTY ROAD
INHABITANTS OF THE TOWN OF HARVARD
ASSESSORS MAP 8, BLOCK 62, LOT 4
DEED BOOK 21051, PAGE 25
PLAN BOOK 721, PLAN 46

WHEELER REALTY TRUST
ASSESSORS MAP 8, BLOCK 62, LOT 2
DEED BOOK 21362, PAGE 50
PLAN BOOK 721, PLAN 46

215 AYER ROAD
APIF - MASSACHUSETTS, LLC
ASSESSORS MAP 8, BLOCK 61
DEED BOOK 65530, PAGE 161
PLAN BOOK 299, PLAN 81
PLAN BOOK 365, PLAN 118

206 AYER ROAD
206 AYER ROAD CONDOMINIUM ASSOCIATES
ASSESSORS MAP 8, BLOCK 37
DEED BOOK 11540, PAGE 1
PLAN BOOK 434, PLAN 70

AYER ROAD
INHABITANTS OF THE TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 8, BLOCK 36
DEED BOOK 6223, PAGE 264
PLAN BOOK 434, PLAN 86

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

GEBO LANE
(PUBLIC - VARIABLE WIDTH)

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

21+29.95 AYER ROAD=
110+00.00 GEBO LANE

CONTINUED ON SHEET NO. 23
CONTINUED ON SHEET NO. 26

GEBO LANE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L15	110+00.00	3017557.3878	634943.7881		N62°43'33"W 68.77'	110+68.77	3017588.9039	634882.6595
C15	110+68.77	3017588.9039	634882.6595	R=120.00' Δ=53°10'28" L=111.37' T=60.06'		111+80.14	3017675.6508	634819.3131
L16	111+80.14	3017675.6508	634819.3131		N9°33'05"W 52.12'	112+32.26	3017727.0502	634810.6644
C16	112+32.26	3017727.0502	634810.6644	R=2000.00' Δ=1°59'38" L=69.60' T=34.80'		113+01.86	3017795.8686	634800.3125

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L2	16+22.53	3017106.3809	634711.2623		N27°16'27"E 687.49'	23+10.02	3017717.4371	635026.3047
C3	23+10.02	3017717.4371	635026.3047	R=7500.00' Δ=0°43'13" L=94.29' T=47.14'		24+04.31	3017801.5117	635068.9843
L3	24+04.31	3017801.5117	635068.9843		N26°33'14"E 241.06'	26+45.37	3018017.1438	635176.7482

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L21	143+18.24	3017118.7536	634687.2641		N27°16'27"E 555.14'	148+73.39	3017612.1792	634941.6596
C19	148+73.39	3017612.1792	634941.6596	R=35.00' Δ=93°24'11" L=57.06' T=37.14'		149+30.45	3017660.2239	634924.7147
L22	149+30.45	3017660.2239	634924.7147		N66°07'44"W 41.99'	149+72.44	3017677.2162	634886.3174
C20	149+72.44	3017677.2162	634886.3174	R=50.00' Δ=59°08'36" L=51.61' T=28.37'		150+24.05	3017716.8583	634856.9227
L23	150+24.05	3017716.8583	634856.9227		N6°59'07"W 299.22'	153+23.27	3018013.8587	634820.5329

LEGEND

- △# = DRIVEWAY NUMBER
- (C#) = CURVE NUMBER
- [#] = PEDESTRIAN CURB RAMP NUMBER

0 20 50 100
SCALE: 1" = 20'

GEBO LANE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C16	112+32.26	3017727.0502	634810.6644	R=2000.00' Δ=1°59'38" L=69.60' T=34.80'		113+01.86	3017795.8686	634800.3125
L17	113+01.86	3017795.8686	634800.3125		N7°33'27"W 298.14'	116+00.00	3018091.4178	634761.1003

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L23	150+24.05	3017716.8583	634856.9227		N6°59'07"W 299.22'	153+23.27	3018013.8587	634820.5329
C21	153+23.27	3018013.8587	634820.5329	R=50.00' Δ=79°04'20" L=69.00' T=41.27'		153+92.27	3018067.5157	634854.7830
L24	153+92.27	3018067.5157	634854.7830		N72°05'13"E 102.17'	154+94.44	3018098.9394	634951.9963
C22	154+94.44	3018098.9394	634951.9963	R=210.00' Δ=17°33'22" L=64.35' T=32.43'		155+58.78	3018127.7297	635009.2614

LEGEND

△# = DRIVEWAY NUMBER

(C#) = CURVE NUMBER

[#] = PEDESTRIAN CURB RAMP NUMBER

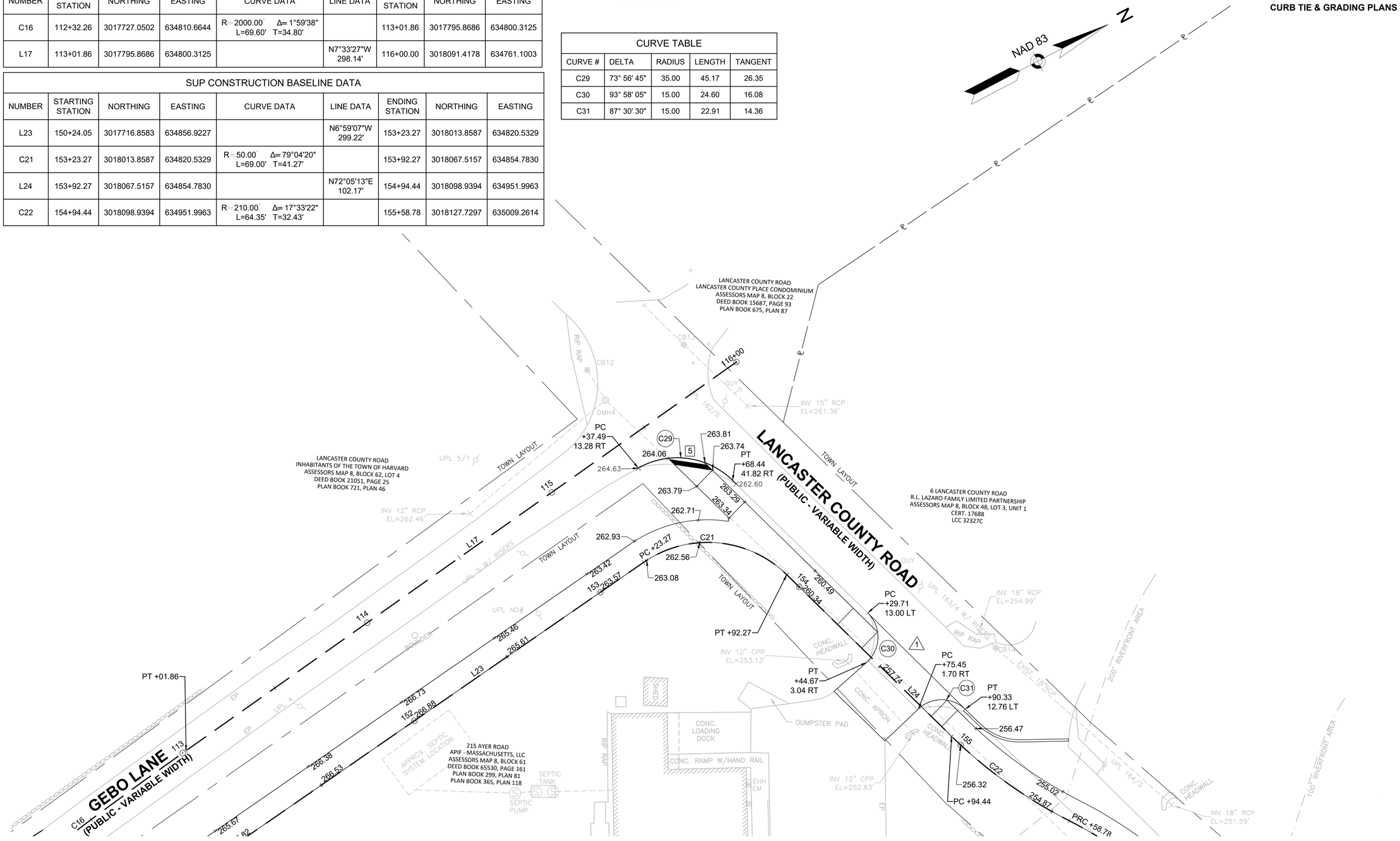
CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C29	73° 56' 45"	35.00	45.17	26.35
C30	93° 58' 05"	15.00	24.60	16.08
C31	87° 30' 30"	15.00	22.91	14.36

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 4 OF 17

609213_HDR(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:10 PM



CONTINUED ON SHEET NO. 24

CONTINUED ON SHEET NO. 26

0 20 50 100

SCALE: 1" = 20'

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 5 OF 17

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C32	94° 31' 21"	15.00	24.75	16.23
C33	60° 35' 20"	45.00	47.59	26.29
C34	91° 25' 02"	10.00	15.96	10.25
C35	49° 43' 17"	30.00	26.03	13.90
C36	41° 05' 49"	25.00	17.93	9.37
C37	91° 44' 32"	10.00	16.01	10.31
C38	91° 31' 58"	30.00	47.93	30.81
C39	13° 51' 05"	43.00	10.40	5.22
C40	14° 09' 26"	50.00	12.35	6.21
C41	11° 07' 56"	67.00	13.02	6.53
C42	83° 13' 22"	35.00	50.84	31.09

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L3	24+04.31	3017801.5117	635068.9843		N26°33'14"E 241.06'	26+45.37	3018017.1438	635176.7482
C4	26+45.37	3018017.1438	635176.7482	R=3500.00' Δ=1°48'47" L=110.76' T=55.38'		27+56.12	3018115.4179	635227.8205
L4	27+56.12	3018115.4179	635227.8205		N28°22'02"E 85.19'	28+41.32	3018190.3795	635268.2965
C5	28+41.32	3018190.3795	635268.2965	R=714.00' Δ=15°58'17" L=199.03' T=100.17'		30+40.35	3018376.3473	635337.3884
L5	30+40.35	3018376.3473	635337.3884		N12°23'44"E 961.28'	40+01.63	3019315.2225	635543.7376

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C22	154+94.44	3018098.9394	634951.9963	R=210.00' Δ=17°33'22" L=64.35' T=32.43'		155+58.78	3018127.7297	635009.2614
C23	155+58.78	3018127.7297	635009.2614	R=190.00' Δ=16°16'45" L=53.98' T=27.18'		156+12.77	3018152.4311	635057.0587
L25	156+12.77	3018152.4311	635057.0587		N70°48'35"E 176.18'	157+88.95	3018210.3418	635223.4462
C24	157+88.95	3018210.3418	635223.4462	R=100.00' Δ=48°51'56" L=85.29' T=45.43'		158+74.23	3018267.1603	635283.5718
C25	158+74.23	3018267.1603	635283.5718	R=695.00' Δ=9°47'29" L=118.77' T=59.53'		159+93.00	3018380.4258	635318.8313
L26	159+93.00	3018380.4258	635318.8313		N12°23'44"E 961.28'	169+54.29	3019319.3011	635525.1805

POOR FARM ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L18	120+00.00	3018318.9796	635322.2560		S72°50'31"E 40.76'	120+40.76	3018306.9543	635361.2045
L19	120+64.21	3018295.5395	635381.4855		S48°24'48"E 35.79'	121+00.00	3018271.7855	635408.2529

LEGEND

- (#) = DRIVEWAY NUMBER
- C# = CURVE NUMBER
- [#] = PEDESTRIAN CURB RAMP NUMBER

CONTINUED ON SHEET NO. 38
CONTINUED ON SHEET NO. 25
CONTINUED ON SHEET NO. 27

6 LANCASTER COUNTY ROAD
R.L. LAZARO FAMILY LIMITED PARTNERSHIP
ASSESSORS MAP 8, BLOCK 48, LOT 3, UNIT 1
CERT. 17688
LCC 32327C

LANCASTER COUNTY ROAD
TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 4, BLOCK 48, LOT 3, UNIT 4
CERT. 11358
LCC 32327C

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

215 AYER ROAD
APIF - MASSACHUSETTS, LLC
ASSESSORS MAP 8, BLOCK 61
DEED BOOK 65530, PAGE 161
PLAN BOOK 299, PLAN 81
PLAN BOOK 365, PLAN 118

129 POOR FARM ROAD
LAURA A. CLARAGE
ASSESSORS MAP 8, BLOCK 35
DEED BOOK 64304, PAGE 359

132 POOR FARM ROAD
JEFFREY P. & ALEXANDRA H. MCKEARNEY
ASSESSORS MAP 8, BLOCK 24
DEED BOOK 67692, PAGE 264

GAS EASEMENT (NATIONAL GRID)
DEED BOOK 4726, PAGE 527
PLAN BOOK 305, PLAN 118

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

LANCASTER COUNTY ROAD
(PUBLIC - VARIABLE WIDTH)

POOR FARM ROAD
(PUBLIC - VARIABLE WIDTH)

29+81 AYER ROAD=
120+00.00 POOR FARM ROAD

NAD 83

SCALE: 1" = 20'

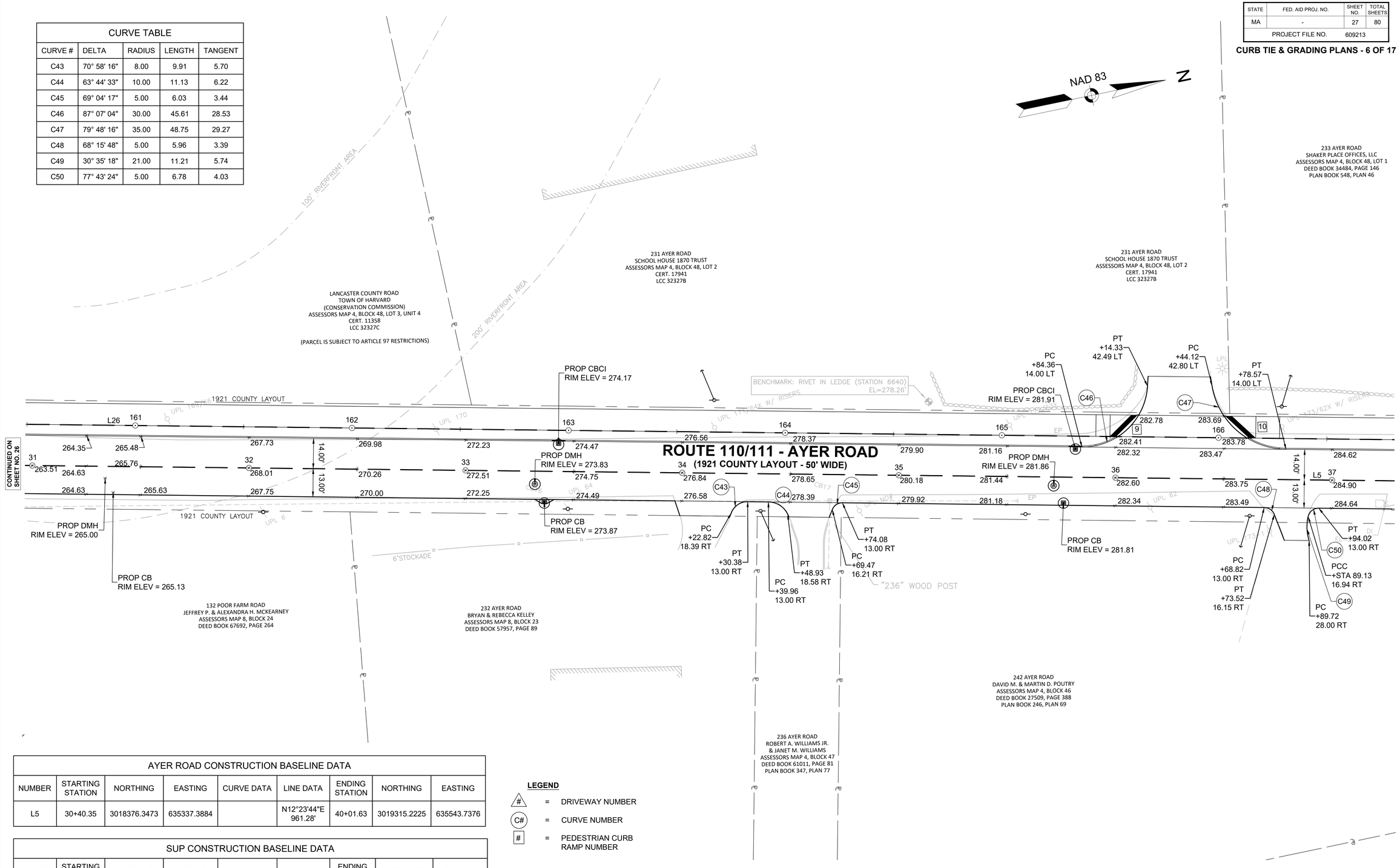
609213_HDR(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:10 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 6 OF 17

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C43	70° 58' 16"	8.00	9.91	5.70
C44	63° 44' 33"	10.00	11.13	6.22
C45	69° 04' 17"	5.00	6.03	3.44
C46	87° 07' 04"	30.00	45.61	28.53
C47	79° 48' 16"	35.00	48.75	29.27
C48	68° 15' 48"	5.00	5.96	3.39
C49	30° 35' 18"	21.00	11.21	5.74
C50	77° 43' 24"	5.00	6.78	4.03



AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L5	30+40.35	3018376.3473	635337.3884		N12°23'44"E 961.28'	40+01.63	3019315.2225	635543.7376

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L26	159+93.00	3018380.4258	635318.8313		N12°23'44"E 961.28'	169+54.29	3019319.3011	635525.1805

LEGEND

△# = DRIVEWAY NUMBER
(C#) = CURVE NUMBER
[#] = PEDESTRIAN CURB RAMP NUMBER

609213_HDR(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:10 PM

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L5	30+40.35	3018376.3473	635337.3884		N12°23'44"E 961.28'	40+01.63	3019315.2225	635543.7376
C6	40+01.63	3019315.2225	635543.7376	R=535.00' Δ=15°12'00" L=141.93' T=71.38'		41+43.56	3019456.2415	635555.5683
L6	41+43.56	3019456.2415	635555.5683		N2°48'16"W 464.08'	46+07.64	3019919.7653	635532.8624

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L26	159+93.00	3018380.4258	635318.8313		N12°23'44"E 961.28'	169+54.29	3019319.3011	635525.1805
C26	169+54.29	3019319.3011	635525.1805	R=516.00' Δ=15°12'00" L=136.89' T=68.85'		170+91.18	3019455.3119	635536.5911
L27	170+91.18	3019455.3119	635536.5911		N2°48'16"W 464.08'	175+55.26	3019918.8357	635513.8851

LEGEND

- △# = DRIVEWAY NUMBER
- (C#) = CURVE NUMBER
- [#] = PEDESTRIAN CURB RAMP NUMBER

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C50	77° 43' 24"	5.00	6.78	4.03
C51	50° 20' 31"	10.00	8.79	4.70
C52	91° 46' 36"	15.00	24.03	15.47
C53	85° 45' 55"	25.00	37.42	23.22
C54	70° 43' 33"	35.00	43.20	24.84

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 7 OF 17

233 AYER ROAD
SHAKER PLACE OFFICES, LLC
ASSESSORS MAP 4, BLOCK 48, LOT 1
DEED BOOK 34484, PAGE 146
PLAN BOOK 548, PLAN 46

249 AYER ROAD
BLANCHARD HOUSE OFFICE PARK CONDOMINIUM
ASSESSORS MAP 4, BLOCK 49, LOT 1
DEED BOOK 11133, PAGE 350
PLAN BOOK 592, PLAN 115

253 AYER ROAD
FOXGLOVE HOUSING ASSOCIATES LIMITED PARTNERSHIP
ASSESSORS MAP 4, BLOCK 49, LOT 25
DEED BOOK 13348, PAGE 125
PLAN BOOK 659, PLAN 120
CERT 1-33278
LCC 33278

257 AYER ROAD
OFFICE AT 257 AYER RD, LLC
ASSESSORS MAP 4, BLOCK 49, LOT 2, UNIT 2
DEED BOOK 64619, PAGE 93
PLAN BOOK 659, PLAN 120

242 AYER ROAD
DAVID M. & MARTIN D. POUTRY
ASSESSORS MAP 4, BLOCK 46
DEED BOOK 27509, PAGE 388
PLAN BOOK 246, PLAN 69

AYER ROAD
HARVARD CONSERVATION TRUST
ASSESSORS MAP 5, BLOCK 70
DEED BOOK 64099, PAGE 20

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

AYER ROAD
HARVARD CONSERVATION TRUST
ASSESSORS MAP 5, BLOCK 70
DEED BOOK 64099, PAGE 20

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTI

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

SOUTH SHAKER ROAD
(PUBLIC - VARIABLE WIDTH)

NAD 83 N

CONTINUED ON SHEET NO. 29

CONTINUED ON SHEET NO. 27

0 20 50 100
SCALE: 1" = 20'

609213_HDB(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:11 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 8 OF 17

609213_HDR(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:11 PM

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L6	41+43.56	3019456.2415	635555.5683		N2°48'16"W 464.08'	46+07.64	3019919.7653	635532.8624
C7	46+07.64	3019919.7653	635532.8624	R=715.00' Δ=14°45'00" L=184.07' T=92.55'		47+91.71	3020102.7405	635547.4896
L7	47+91.71	3020102.7405	635547.4896		N11°56'44"E 610.64'	54+02.35	3020700.1545	635673.8810

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L27	170+91.18	3019455.3119	635536.5911		N2°48'16"W 464.08'	175+55.26	3019918.8357	635513.8851
C27	175+55.26	3019918.8357	635513.8851	R=734.00' Δ=14°45'00" L=188.96' T=95.00'		177+44.22	3020106.6732	635528.9011
L28	177+44.22	3020106.6732	635528.9011		N11°56'44"E 657.46'	184+01.68	3020749.8981	635664.9844

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C54	70° 43' 33"	35.00	43.20	24.84
C55	59° 28' 20"	30.00	31.14	17.14
C56	106° 35' 49"	20.00	37.21	26.83
C57	107° 15' 41"	10.00	18.72	13.58
C58	59° 17' 42"	10.00	10.35	5.69
C59	50° 49' 28"	10.00	8.87	4.75
C60	85° 59' 32"	10.00	15.01	9.32
C61	39° 58' 42"	33.00	23.03	12.00
C62	65° 25' 06"	5.00	5.71	3.21
C63	43° 20' 17"	5.00	3.78	1.99
C64	31° 09' 42"	15.00	8.16	4.18
C65	40° 07' 41"	35.00	24.51	12.78
C66	61° 40' 03"	5.00	5.38	2.98
C67	87° 47' 00"	45.00	68.94	43.29

259 AYER ROAD
259 AYER ROAD LLC
ASSESSORS MAP 4, BLOCK 51
DEED BOOK 69129, PAGE 227
PLAN BOOK 462, PLAN 72

AYER ROAD
REM REALTY TRUST
ASSESSORS MAP 4, BLOCK 52, LOT 2
DEED BOOK 56380, PAGE 389

AYER ROAD
REM REALTY TRUST
ASSESSORS MAP 4, BLOCK 52, LOT 2
DEED BOOK 56380, PAGE 389

257 AYER ROAD
OFFICE AT 257 AYER RD, LLC
ASSESSORS MAP 4, BLOCK 49, LOT 2, UNIT 2
DEED BOOK 64619, PAGE 93
PLAN BOOK 659, PLAN 120

AYER ROAD
HARVARD CONSERVATION TRUST
ASSESSORS MAP 5, BLOCK 70
DEED BOOK 64099, PAGE 20

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

256 AYER ROAD
256 AYER ROAD, LLC
ASSESSORS MAP 4, BLOCK 41
DEED BOOK 59556, PAGE 235
PLAN BOOK 281, PLAN 117

262 AYER ROAD
DMM REALTY, LLC
ASSESSORS MAP 4, BLOCK 40
DEED BOOK 61126, PAGE 24

264 AYER ROAD
THREE SEASONS TREESCAPE, LLC
ASSESSORS MAP 4, BLOCK 39
DEED BOOK 64293, PAGE 91
PLAN BOOK 379, PLANS 10-11

CONTINUED ON SHEET NO. 28

CONTINUED ON SHEET NO. 30

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

LEGEND

△# = DRIVEWAY NUMBER
(C#) = CURVE NUMBER
[#] = PEDESTRIAN CURB RAMP NUMBER

0 20 50 100
SCALE: 1" = 20'

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 9 OF 17

609213_HDR(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:11 PM

LEGEND

= DRIVEWAY NUMBER

C# = CURVE NUMBER

= PEDESTRIAN CURB RAMP NUMBER

NAD 83 N

AYER ROAD
REM REALTY TRUST
ASSESSORS MAP 4, BLOCK 52, LOT 2
DEED BOOK 56380, PAGE 389

OLD MILL ROAD
(1942 COUNTY LAYOUT - WIDTH VARIES)

1942 COUNTY LAYOUT

285 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 25
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

275 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 24
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

285 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 25
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

1921 COUNTY LAYOUT

PT +24.50 57.26 LT
PC +79.53 14.00 LT
287.56
287.70
PC +49.58 58.08 LT
PT +94.57 14.00 LT
PC +01.68

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

PROP CONST ℄
PROP CB RIM ELEV = 285.80
PROP DMH RIM ELEV = 285.82
PROP DMH RIM ELEV = 284.07
PC +02.35

PC +20.28 13.00 RT
PT +25.18 17.02 RT
PT +61.83 13.00 RT
PC +58.01 14.77 RT
PC +65.19 13.00 RT
PT +69.78 16.01 RT
PC +00.83 14.96 RT
PT +04.80 13.00 RT
PT +31.21 17.31 RT
PC +22.99 13.00 RT
PT +75.90 13.00 RT
PC +72.67 14.18 RT

264 AYER ROAD
THREE SEASONS TREESCAPE, LLC
ASSESSORS MAP 4, BLOCK 39
DEED BOOK 64293, PAGE 91
PLAN BOOK 379, PLANS 10-11

270 AYER ROAD
HARVARD PROFESSIONAL CONDOMINIUM
ASSESSORS MAP 4, BLOCK 38
DEED BOOK 42123, PAGE 217
PLAN BOOK 394, PLAN 108

276 AYER ROAD
D. FRANCIS MURPHY INSURANCE AGENCY INC.
ASSESSORS MAP 4, BLOCK 37
DEED BOOK 13624, PAGE 388
PLAN BOOK 469, PLAN 36

CONTINUED ON SHEET NO. 29

CONTINUED ON SHEET NO. 31

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L7	47+91.71	3020102.7405	635547.4896		N11°56'44"E 610.64'	54+02.35	3020700.1545	635673.8810
C8	54+02.35	3020700.1545	635673.8810	R=1515.00' Δ=5°23'00" L=142.34' T=71.22'		55+44.69	3020840.5950	635696.7630

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L28	177+44.22	3020106.6732	635528.9011		N11°56'44"E 657.46'	184+01.68	3020749.8981	635664.9844
C28	184+01.68	3020749.8981	635664.9844	R=500.00' Δ=5°23'00" L=46.98' T=23.51'		184+48.66	3020796.2481	635672.5362

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C67	87° 47' 00"	45.00	68.94	43.29
C68	78° 38' 22"	5.00	6.86	4.10
C69	49° 45' 24"	5.00	4.34	2.32
C70	88° 49' 37"	45.00	69.76	44.09
C71	66° 35' 32"	5.00	5.81	3.28
C72	52° 34' 16"	5.00	4.59	2.47
C73	55° 19' 01"	10.00	9.65	5.24
C74	40° 15' 35"	5.00	3.51	1.83

0 20 50 100

SCALE: 1" = 20'

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 10 OF 17

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C8	54+02.35	3020700.1545	635673.8810	R=1515.00' Δ=5°23'00" L=142.34' T=71.22'		55+44.69	3020840.5950	635696.7630
L8	55+44.69	3020840.5950	635696.7630		N6°33'44"E 1057.99'	66+02.68	3021891.6571	635817.6733

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C28	184+01.68	3020749.8981	635664.9844	R=500.00' Δ=5°23'00" L=46.98' T=23.51'		184+48.66	3020796.2481	635672.5362
L29	184+48.66	3020796.2481	635672.5362		N6°33'44"E 1104.82'	195+53.48	3021893.8285	635798.7977

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C75	52° 08' 24"	5.00	4.55	2.45
C76	56° 15' 14"	10.00	9.82	5.35
C77	138° 35' 25"	20.00	48.38	52.92
C78	72° 13' 55"	10.00	12.61	7.30
C79	125° 33' 14"	20.00	43.83	38.88
C80	85° 37' 59"	15.00	22.42	13.90
C81	99° 39' 06"	20.00	34.79	23.69
C82	79° 55' 25"	10.00	13.95	8.38
C83	88° 14' 16"	15.00	23.10	14.55

LEGEND

△# = DRIVEWAY NUMBER
(C#) = CURVE NUMBER
[#] = PEDESTRIAN CURB RAMP NUMBER

NAD 83 N

285 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 25
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

289 AYER ROAD
289 AYER LLC
ASSESSORS MAP 4, BLOCK 26
DEED BOOK 58259, PAGE 155
PLAN BOOK 241, PLAN 7

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

PC +01.68
PT +48.66
PT +44.69
PROP DMH RIM ELEV = 284.07
PROP CBCI RIM ELEV = 282.62
PROP DMH RIM ELEV = 282.61
PC +16.70 13.00 RT
PT +20.61 14.94 RT
PC +59.45 17.44 RT
PT +67.76 13.00 RT
PC +39.18 14.00 LT
PT +52.41 49.00 LT
PC +09.78 45.63 LT
PT +26.05 14.00 LT
PROP CBCI RIM ELEV = 279.81
PROP CONST CB
PROP DMH RIM ELEV = 279.83
PROP CB RIM ELEV = 279.74
PC +81.38 13.00 RT
PT +90.91 19.95 RT
PC +36.19 14.00 LT
PT +55.90 37.35 LT
PC +82.87 22.25 LT
PT +92.71 14.00 LT
PC +04.82 14.00 LT
PT +19.69 28.54 LT
PC +41.91 13.00 RT
PT +56.87 26.86 RT
1921 COUNTY LAYOUT
UPL 45/190-1 W/ RISERS
UPL 46 W/ RISERS
UPL 188 W/ RISERS
UPL 45/191 W/ RISERS
JERSEY BARRIER
TRANS CONC. PAD
HMA
REC. VERIZON TELEPHR
DI (BROKEN)
CONTINUED ON SHEET NO. 30
CONTINUED ON SHEET NO. 32

276 AYER ROAD
D. FRANCIS MURPHY INSURANCE AGENCY INC.
ASSESSORS MAP 4, BLOCK 37
DEED BOOK 13624, PAGE 388
PLAN BOOK 469, PLAN 36

280 AYER ROAD
YUKON HOLDINGS, LLC
ASSESSORS MAP 4, BLOCK 36
DEED BOOK 48875, PAGE 84
PLAN BOOK 469, PLAN 36

284 AYER ROAD
DAVID B. ALEXANDER
ASSESSORS MAP 4, BLOCK 35
DEED BOOK 63500, PAGE 332
PLAN BOOK 587, PLAN 5

288 AYER ROAD
THE 39 EATON REALTY TRUST
ASSESSORS MAP 4, BLOCK 34
DEED BOOK 67617, PAGE 325
PLAN BOOK 389, PLAN 9

0 20 50 100
SCALE: 1" = 20'

609213_HDB(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:12 PM

LEGEND

△# = DRIVEWAY NUMBER

(C#) = CURVE NUMBER

[#] = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

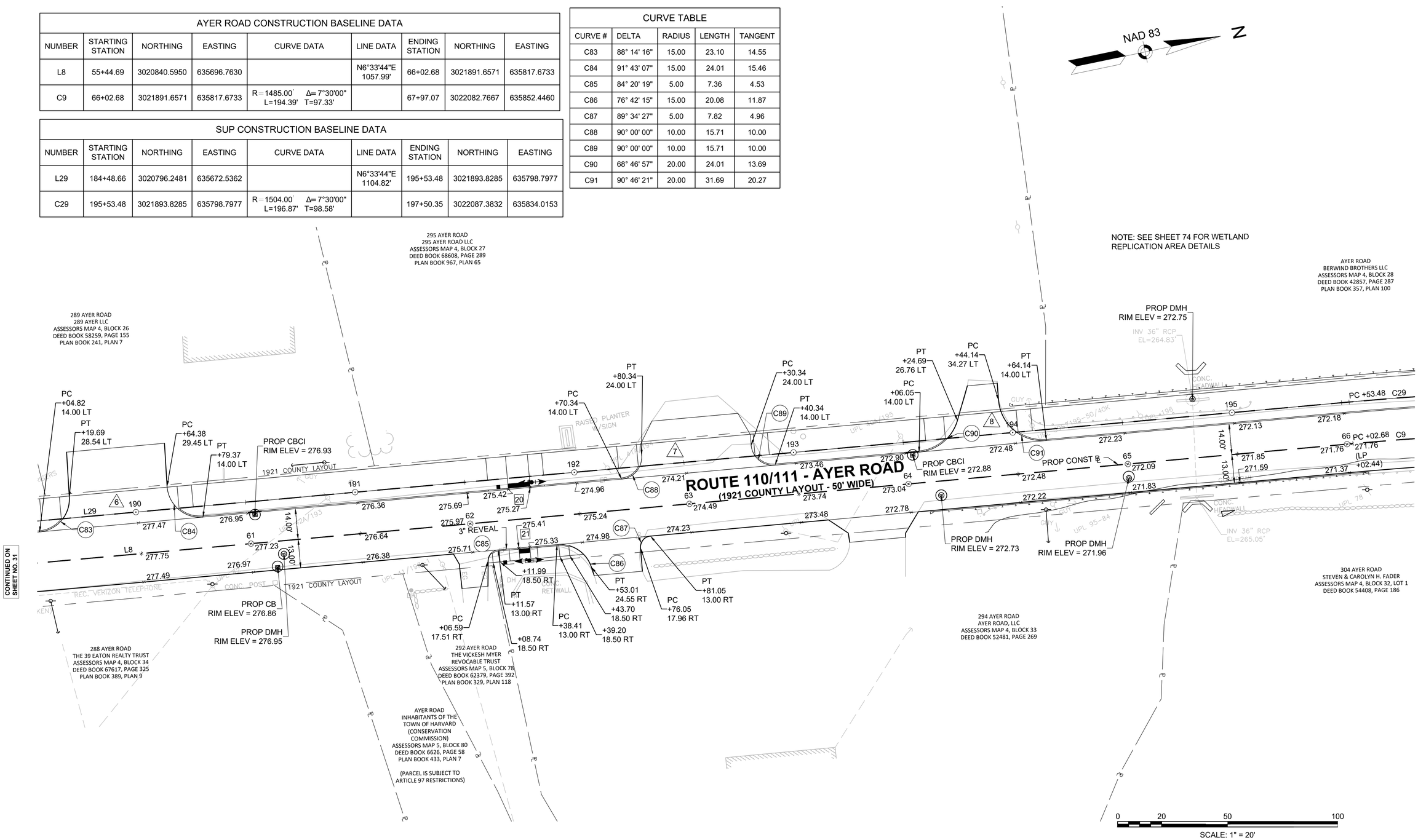
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 11 OF 17

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L8	55+44.69	3020840.5950	635696.7630		N6°33'44"E 1057.99'	66+02.68	3021891.6571	635817.6733
C9	66+02.68	3021891.6571	635817.6733	R=1485.00' Δ=7°30'00" L=194.39' T=97.33'		67+97.07	3022082.7667	635852.4460

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L29	184+48.66	3020796.2481	635672.5362		N6°33'44"E 1104.82'	195+53.48	3021893.8285	635798.7977
C29	195+53.48	3021893.8285	635798.7977	R=1504.00' Δ=7°30'00" L=196.87' T=98.58'		197+50.35	3022087.3832	635834.0153

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C83	88° 14' 16"	15.00	23.10	14.55
C84	91° 43' 07"	15.00	24.01	15.46
C85	84° 20' 19"	5.00	7.36	4.53
C86	76° 42' 15"	15.00	20.08	11.87
C87	89° 34' 27"	5.00	7.82	4.96
C88	90° 00' 00"	10.00	15.71	10.00
C89	90° 00' 00"	10.00	15.71	10.00
C90	68° 46' 57"	20.00	24.01	13.69
C91	90° 46' 21"	20.00	31.69	20.27



609213_HDB(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:12 PM

LEGEND

△# = DRIVEWAY NUMBER

(C#) = CURVE NUMBER

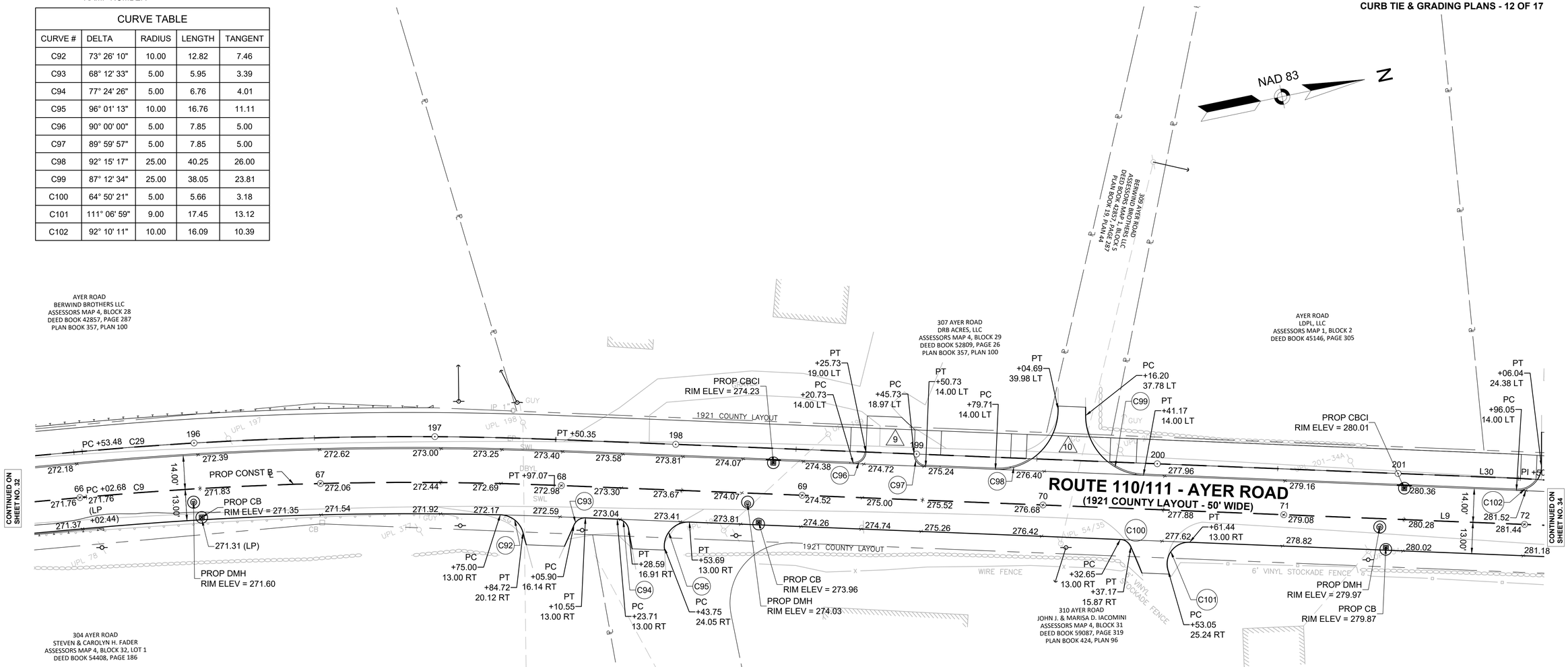
[#] = PEDESTRIAN CURB RAMP NUMBER

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C92	73° 26' 10"	10.00	12.82	7.46
C93	68° 12' 33"	5.00	5.95	3.39
C94	77° 24' 26"	5.00	6.76	4.01
C95	96° 01' 13"	10.00	16.76	11.11
C96	90° 00' 00"	5.00	7.85	5.00
C97	89° 59' 57"	5.00	7.85	5.00
C98	92° 15' 17"	25.00	40.25	26.00
C99	87° 12' 34"	25.00	38.05	23.81
C100	64° 50' 21"	5.00	5.66	3.18
C101	111° 06' 59"	9.00	17.45	13.12
C102	92° 10' 11"	10.00	16.09	10.39

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	33	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 12 OF 17



AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C9	66+02.68	3021891.6571	635817.6733	R=1485.00' Δ=7°30'00" L=194.39' T=97.33'		67+97.07	3022082.7667	635852.4460
L9	67+97.07	3022082.7667	635852.4460		N14°03'44"E 597.73'	73+94.80	3022662.5869	635997.6807

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C29	195+53.48	3021893.8285	635798.7977	R=1504.00' Δ=7°30'00" L=196.87' T=98.58'		197+50.35	3022087.3832	635834.0153
L30	197+50.35	3022087.3832	635834.0153		N14°03'44"E 400.40'	201+50.75	3022475.7853	635931.3032

609213_HDR(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:12 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	34	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 13 OF 17

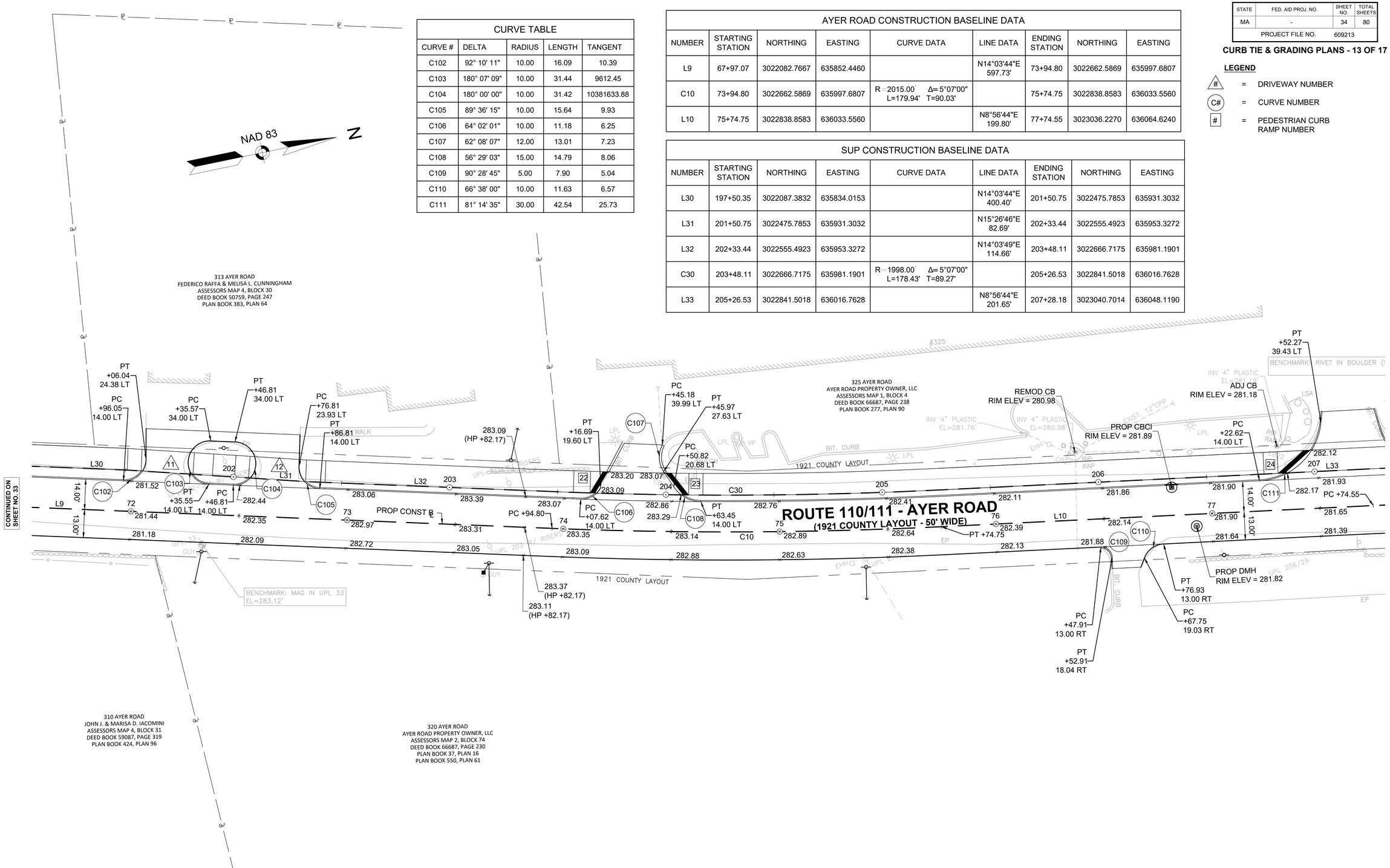
LEGEND

△# = DRIVEWAY NUMBER
(C#) = CURVE NUMBER
[#] = PEDESTRIAN CURB RAMP NUMBER

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C102	92° 10' 11"	10.00	16.09	10.39
C103	180° 07' 09"	10.00	31.44	9612.45
C104	180° 00' 00"	10.00	31.42	10381633.88
C105	89° 36' 15"	10.00	15.64	9.93
C106	64° 02' 01"	10.00	11.18	6.25
C107	62° 08' 07"	12.00	13.01	7.23
C108	56° 29' 03"	15.00	14.79	8.06
C109	90° 28' 45"	5.00	7.90	5.04
C110	66° 38' 00"	10.00	11.63	6.57
C111	81° 14' 35"	30.00	42.54	25.73

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L9	67+97.07	3022082.7667	635852.4460		N14°03'44"E 597.73'	73+94.80	3022662.5869	635997.6807
C10	73+94.80	3022662.5869	635997.6807	R=2015.00' Δ=5°07'00" L=179.94' T=90.03'		75+74.75	3022838.8583	636033.5560
L10	75+74.75	3022838.8583	636033.5560		N8°56'44"E 199.80'	77+74.55	3023036.2270	636064.6240

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L30	197+50.35	3022087.3832	635834.0153		N14°03'44"E 400.40'	201+50.75	3022475.7853	635931.3032
L31	201+50.75	3022475.7853	635931.3032		N15°26'46"E 82.69'	202+33.44	3022555.4923	635953.3272
L32	202+33.44	3022555.4923	635953.3272		N14°03'49"E 114.66'	203+48.11	3022666.7175	635981.1901
C30	203+48.11	3022666.7175	635981.1901	R=1998.00' Δ=5°07'00" L=178.43' T=89.27'		205+26.53	3022841.5018	636016.7628
L33	205+26.53	3022841.5018	636016.7628		N8°56'44"E 201.65'	207+28.18	3023040.7014	636048.1190



609213_HDB(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:13 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	35	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 14 OF 17

LEGEND

- #△ = DRIVEWAY NUMBER
- C# = CURVE NUMBER
- # = PEDESTRIAN CURB RAMP NUMBER

NAD 83

N

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

AYER ROAD
LDPL, LLC
ASSESSORS MAP 1, BLOCK 2
DEED BOOK 45146, PAGE 305

327 AYER ROAD
LAWRENCE C. DOE &
PAMELA C. LAWSON
ASSESSORS MAP 1, BLOCK 3
DEED BOOK 45146, PAGE 310

335 AYER ROAD
335 AYER ROAD REALTY TRUST
ASSESSORS MAP 1, BLOCK 1
DEED BOOK 68137, PAGE 106
PLAN BOOK 122, PLAN 50

320 AYER ROAD
AYER ROAD PROPERTY OWNER, LLC
ASSESSORS MAP 2, BLOCK 74
DEED BOOK 66687, PAGE 230
PLAN BOOK 37, PLAN 16
PLAN BOOK 550, PLAN 61

6 MYRICK LANE
JAMES R. & SIBLEY A. HANNIGAN
ASSESSORS MAP 2, BLOCK 73
DEED BOOK 6485, PAGE 19
PLAN BOOK 351, PLAN 116

PROP DMH
RIM ELEV = 280.43

PROP DMH
RIM ELEV = 278.97

PROP CBCI
RIM ELEV = 276.77

PROP DMH
RIM ELEV = 276.91

PROP CB
RIM ELEV = 276.84

CONTINUED ON SHEET NO. 34

CONTINUED ON SHEET NO. 36

AYER ROAD CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C11	77+74.55	3023036.2270	636064.6240	R=495.00' Δ=41°49'00" L=361.27' T=189.10'		81+35.82	3023342.6476	636240.4959
L11	81+35.82	3023342.6476	636240.4959		N50°45'44"E 310.69'	84+46.51	3023539.1706	636481.1329

SUP CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L33	205+26.53	3022841.5018	636016.7628		N8°56'44"E 201.65'	207+28.18	3023040.7014	636048.1190
C31	207+28.18	3023040.7014	636048.1190	R=515.00' Δ=41°49'00" L=375.87' T=196.75'		211+04.05	3023359.5027	636231.0968
L34	211+04.05	3023359.5027	636231.0968		N50°45'44"E 307.31'	214+11.36	3023553.8866	636469.1146

CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C112	72° 23' 46"	30.00	37.91	21.96
C113	100° 04' 29"	30.00	52.40	35.80
C114	68° 25' 08"	10.00	11.94	6.80
C115	104° 16' 08"	20.00	36.40	25.72
C116	76° 14' 19"	25.00	33.27	19.62
C117	65° 15' 05"	35.00	39.86	22.41
C118	129° 29' 03"	15.00	33.90	31.79
C119	89° 59' 59"	18.00	28.27	18.00
C120	37° 11' 50"	18.00	11.69	6.06

0 20 50 100
SCALE: 1" = 20'

609213_HDR(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:13 PM

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L11	81+35.82	3023342.6476	636240.4959		N50°45'44"E 310.69'	84+46.51	3023539.1706	636481.1329
C12	84+46.51	3023539.1706	636481.1329	R=505.00' Δ=37°22'00" L=329.35' T=170.77'		87+75.85	3023813.3123	636652.9611
L12	87+75.85	3023813.3123	636652.9611		N13°23'44"E 341.21'	91+17.06	3024145.2390	636732.0102

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L34	211+04.05	3023359.5027	636231.0968		N50°45'44"E 307.31'	214+11.36	3023553.8866	636469.1146
C32	214+11.36	3023553.8866	636469.1146	R=486.00' Δ=37°22'00" L=316.96' T=164.34'		217+28.31	3023817.7141	636634.4781
L35	217+28.31	3023817.7141	636634.4781		N13°23'44"E 341.21'	220+69.52	3024149.6408	636713.5271

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C119	89° 59' 59"	18.00	28.27	18.00
C120	37° 11' 50"	18.00	11.69	6.06
C121	91° 13' 34"	18.00	28.66	18.39
C122	54° 54' 14"	5.00	4.79	2.60
C123	138° 56' 01"	12.00	29.10	32.04
C124	22° 22' 41"	50.00	19.53	9.89
C125	83° 27' 41"	20.00	29.13	17.84
C126	23° 59' 37"	50.00	20.94	10.62
C127	138° 57' 14"	12.00	29.10	32.06
C128	78° 23' 54"	20.00	27.37	16.31
C129	88° 28' 35"	20.00	30.88	19.48
C130	88° 35' 16"	10.00	15.46	9.76
C131	94° 58' 34"	20.00	33.15	21.82
C132	82° 07' 49"	5.00	7.17	4.36
C133	96° 21' 17"	25.00	42.04	27.94
C134	85° 10' 57"	25.00	37.17	22.98

LEGEND

- (#) = DRIVEWAY NUMBER
- C# = CURVE NUMBER
- # = PEDESTRIAN CURB RAMP NUMBER

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	36	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 15 OF 17

335 AYER ROAD
335 AYER ROAD REALTY TRUST
ASSESSORS MAP 1, BLOCK 1
DEED BOOK 68137, PAGE 106
PLAN BOOK 122, PLAN 50

343 AYER ROAD
KATHLEEN M. DECOT
ASSESSORS MAP 2, BLOCK 2
DEED BOOK 50213, PAGE 223
PLAN BOOK 122, PLAN 50

345 AYER ROAD
GEOFFREY O. & JENNIFER K. GILLARD
ASSESSORS MAP 2, BLOCK 3
DEED BOOK 57294, PAGE 103
PLAN BOOK 122, PLAN 50

341 AYER ROAD
ELIZABETH MAE SHUMAN JOYCE &
CHRISTOPHER MICHAEL JOYCE
ASSESSORS MAP 2, BLOCK 1
DEED BOOK 66963, PAGE 37

346 AYER ROAD
FRANK, JR. & BARBARA S. HEIM
ASSESSORS MAP 2, BLOCK 11
DEED BOOK 4971, PAGE 277
PLAN BOOK 329, PLAN 92

344 AYER ROAD
KATIE ELIZABETH & NATHAN J. BERG
ASSESSORS MAP 2, BLOCK 12
DEED BOOK 59619, PAGE 196
PLAN BOOK 393, PLAN 112

6 MYRICK LANE
JAMES R. & SIBLEY A. HANNIGAN
ASSESSORS MAP 2, BLOCK 73
DEED BOOK 6485, PAGE 19
PLAN BOOK 351, PLAN 116

MYRICK LANE
TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 2, BLOCK 13
DEED BOOK 5247, PAGE 433
PLAN BOOK 348, PLAN 42
(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTION(S))
TOWN LAYOUT

ROUTE 110/111 - AYER ROAD (1921 COUNTY LAYOUT - 50' WIDE)

MYRICK LANE (PUBLIC - 50' WIDE)

PROP CBCI ELEV = 276.77
PT +58.31 44.71 LT
PC +61.98 33.83 LT
PT +61.98 32.00 LT
PC +80.92 32.39 LT
PC +43.98 14.00 LT
PT +98.91 14.00 LT
PT +04.21 16.11 LT
PC +99.99 14.00 LT
PC +55.90 44.63 LT
PCC +37.62 34.98 LT
PC +83.83 45.03 LT
PCC +03.59 34.98 LT
PC +29.27 33.04 LT
PT +50.67 14.00 LT
PC +95.13 14.00 LT
PROP CBCI RIM ELEV = 274.87
PROP CBCI RIM ELEV = 273.46
PROP CBCI RIM ELEV = 270.35
PT +70.28 14.00 LT
PC +45.37 36.90 LT
PT +26.23 41.66 LT
PT +69.52 14.00 LT
PC +48.09 35.31 LT
PC +01.27 14.00 LT
PT +28.70 23.65 LT
PC +18.21 14.00 LT
PT +28.31
PT +75.85
PT +46.09 14.00 LT
PC +46.51
PROP DMH RIM ELEV = 276.91
PROP CB RIM ELEV = 276.84
PROP DMH RIM ELEV = 276.34
PROP DMH RIM ELEV = 275.59
PROP DMH RIM ELEV = 270.26
PROP DMH RIM ELEV = 274.10
PROP DMH RIM ELEV = 274.88
PROP CONST R 87
PT +65.19 13.00 RT
PC +60.40 17.34 RT
PT +41.51 13.00 RT
PC +22.99 29.34 RT
PC +77.09 13.00 RT
PT +95.81 31.09 RT
PC +36.90 RT
PT +23.65 RT
PC +14.00 RT
PT +14.00 RT
PC +31.31 RT
PT +75.85 RT
PC +14.00 RT
PT +50.67 RT
PC +03.59 RT
PT +04.21 RT
PC +99.99 RT
PT +61.98 RT
PC +43.98 RT
PT +58.31 RT
PC +83.83 RT
PT +55.90 RT
PC +29.27 RT
PT +18.21 RT
PC +48.09 RT
PT +69.52 RT
PC +26.23 RT
PT +45.37 RT
PT +70.28 RT
PC +01.27 RT
PT +28.70 RT
PC +14.00 RT
PT +28

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	37	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 16 OF 17

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C135	91° 35' 37"	15.00	23.98	15.42
C136	88° 27' 31"	15.00	23.16	14.60
C137	89° 17' 57"	15.00	23.38	14.82
C138	85° 21' 45"	20.00	29.80	18.44
C139	29° 13' 10"	26.00	13.26	6.78
C140	63° 44' 51"	5.00	5.56	3.11
C141	55° 57' 39"	10.00	9.77	5.31
C142	83° 53' 52"	15.00	21.96	13.48
C143	34° 05' 05"	20.00	11.90	6.13
C144	89° 58' 30"	15.00	23.56	14.99
C145	77° 08' 04"	15.00	20.19	11.96
C146	86° 31' 39"	15.00	22.65	14.12
C147	90° 19' 33"	20.00	31.53	20.11
C148	83° 37' 08"	20.00	29.19	17.89

LEGEND

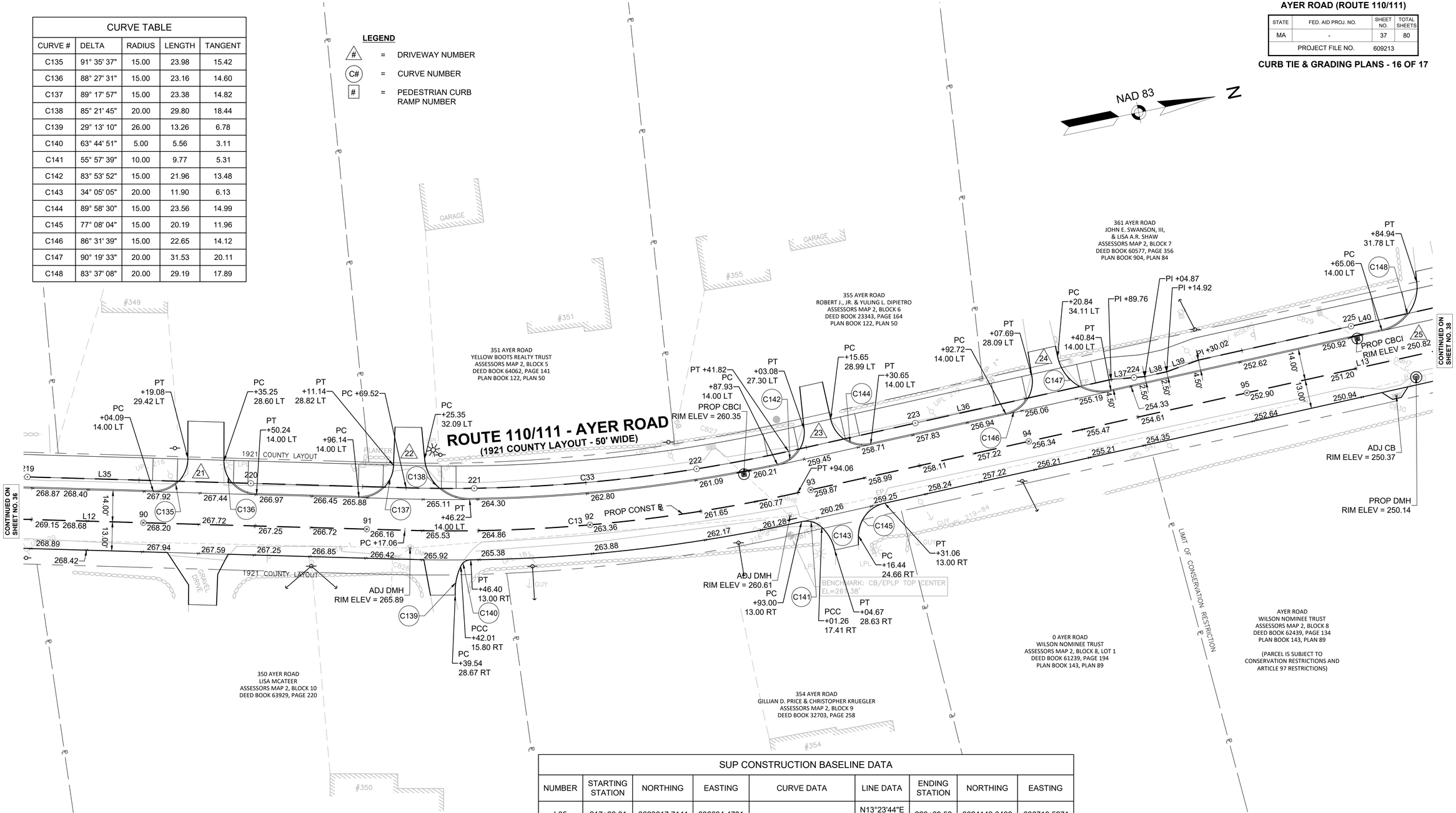
△# = DRIVEWAY NUMBER

(C#) = CURVE NUMBER

[#] = PEDESTRIAN CURB RAMP NUMBER

NAD 83

N



AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L12	87+75.85	3023813.3123	636652.9611		N13°23'44"E 341.21'	91+17.06	3024145.2390	636732.0102
C13	91+17.06	3024145.2390	636732.0102	R=715.00' Δ=14°11'00" L=177.00' T=88.95'		92+94.06	3024320.7153	636751.3951
L13	92+94.06	3024320.7153	636751.3951		N0°47'16"W 557.41'	98+51.47	3024878.0720	636743.7316

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L35	217+28.31	3023817.7141	636634.4781		N13°23'44"E 341.21'	220+69.52	3024149.6408	636713.5271
C33	220+69.52	3024149.6408	636713.5271	R=696.00' Δ=14°11'00" L=172.29' T=86.59'		222+41.82	3024320.4540	636732.3969
L37	223+89.76	3024468.3834	636730.3629		N6°49'10"E 15.11'	224+04.87	3024483.3846	636732.1568
L38	224+04.87	3024483.3846	636732.1568		N0°47'16"W 10.05'	224+14.92	3024493.4344	636732.0186
L39	224+14.92	3024493.4344	636732.0186		N8°23'43"W 15.11'	224+30.02	3024508.3797	636729.8129
L40	224+30.02	3024508.3797	636729.8129		N0°47'16"W 369.47'	227+99.49	3024877.8108	636724.7334

0 20 50 100

SCALE: 1" = 20'

609213_HDB(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:14 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	38	80
PROJECT FILE NO.	609213		

CURB TIE & GRADING PLANS - 17 OF 17

609213_HDR(NOI CURB TIE & GRADING).DWG Plotted on 3-Apr-2024 7:14 PM

AYER ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L13	92+94.06	3024320.7153	636751.3951		N0°47'16"W 557.41'	98+51.47	3024878.0720	636743.7316
C14	98+51.47	3024878.0720	636743.7316	R=1813.00' Δ=5°53'49" L=186.60' T=93.38'		100+38.06	3025064.4536	636750.7637
L14	100+38.06	3025064.4536	636750.7637		N5°06'33"E 61.94'	101+00.00	3025126.1449	636756.2795

SUP CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C34	227+99.49	3024877.8108	636724.7334	R=1832.00' Δ=5°21'05" L=171.10' T=85.61'		229+70.59	3025048.7590	636730.3681
L40	224+30.02	3024508.3797	636729.8129		N0°47'16"W 369.47'	227+99.49	3024877.8108	636724.7334

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C148	83° 37' 08"	20.00	29.19	17.89
C149	91° 25' 06"	20.00	31.91	20.50
C150	89° 12' 44"	25.00	38.93	24.66
C151	90° 47' 16"	25.00	39.61	25.35

LEGEND

△# = DRIVEWAY NUMBER

C# = CURVE NUMBER

= PEDESTRIAN CURB RAMP NUMBER

NAD 83 N

CORTLAND LANE

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

1921 COUNTY LAYOUT

AYER ROAD
CRAFTSMAN VILLAGE-HARVARD, LLC
ASSESSORS MAP 2, BLOCK 7, LOT 2
DEED BOOK 67486, PAGE 268
PLAN BOOK 912, PLAN 50

AYER ROAD
CRAFTSMAN VILLAGE-HARVARD, LLC
ASSESSORS MAP 2, BLOCK 7, LOT 1
DEED BOOK 67486, PAGE 268
PLAN BOOK 912, PLAN 50

29 HARVARD ROAD
29 HARVARD ROAD, LLC.
ASSESSORS MAP 35, LOT 22
DEED BOOK 71496, PAGE 87 (MIDDLESEX)

28 HARVARD ROAD
MAXANT INDUSTRIES, INC.
ASSESSORS MAP 35, LOT 53
DEED BOOK 12183, PAGE 272 (MIDDLESEX)
PLAN NO. 273 OF 1972

AYER ROAD
WILSON NOMINEE TRUST
ASSESSORS MAP 2, BLOCK 8
DEED BOOK 62439, PAGE 134
PLAN BOOK 143, PLAN 89

(PARCEL IS SUBJECT TO CONSERVATION RESTRICTIONS AND ARTICLE 97 RESTRICTIONS)

NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY
RIGHT-OF-WAY

TOWN OF HARVARD
WORCESTER COUNTY

TOWN OF AYER (SEE SURVEY NOTE 6)
MIDDLESEX COUNTY

PROJECT END
STA 100+74.80
N3025101.0471
E636754.0355

+74.80
13.29 LT

+70.85
13.00 RT

+38.06
13.00 RT

PC +65.06 14.00 LT
PT +84.94 31.78 LT
PC +94.41 34.50 LT
PC +29.33 14.00 LT
PT +14.41 14.00 LT
PT +54.33 38.66 LT
PC +78.25 39.34 LT
PT +03.25 14.00 LT

PC +99.49
PC +51.47
PROP CONST ℄
PT +38.06

PROP CBCI
RIM ELEV = 250.82

ADJ CB
RIM ELEV = 250.37

PROP DMH
RIM ELEV = 250.14

INV 36" RCP
EL=230.05'

INV 36" RCP
EL=230.61'

CONC. HEADWALL

6'CLF CONSTRUC' FENCE

SILT FENCE

GUARDRAIL

RIP RAP

HEADWALL

GUY

UPL

GPL

DHCB

CB

CONTINUED ON SHEET NO. 37

0 20 50 100

SCALE: 1" = 20'

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	39	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 1 OF 17

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
1	PROP CB	11+30.99	25.0 LT	307.59		I=302.09' (2)	OFFSET TOP
2	PROP DMH	11+35.65	17.5 LT	307.49	I=301.99' (1)	I=302.39' (2A)	
2A	PROP DMH	12+55.95	26.1 LT	301.65	I=296.15' (2)	I=296.05' (5)	

185 AYER ROAD
12 LANCASTER COUNTY ROAD LLC
ASSESSORS MAP 8, BLOCK 59
DEED BOOK 46796, PAGE 296
PLAN BOOK 226, PLAN 27

1950 STATE ALTERATION | 1950 TOWN LAYOUT

PROP TEMP EASEMENT

PROJECT BEGIN
STA 8+69.90
N3016495.4630
E634274.6683

RET UP

PROP TEMP EASEMENT

187 AYER ROAD
12 LANCASTER COUNTY ROAD, LLC
ASSESSORS MAP 8, BLOCK 60
DEED BOOK 54974, PAGE 74
PLAN BOOK 226, PLAN 27

1950 TOWN LAYOUT – STATE HIGHWAY ALTERATION 33799A

5' - 12" PIPE OPTION

ROUTE 110/111 - AYER ROAD

PT +22.12

RET UP

RET UP

RET TMH

PROP TEMP EASEMENT

PROP TEMP EASEMENT

1950 STATE ALTERATION | 1950 TOWN LAYOUT

184 AYER ROAD
PHOENIX-DURANGO LLC
ASSESSORS MAP 8, BLOCK 41
DEED BOOK 64869, PAGE 275
PLAN BOOK 219, PLAN 95

188 AYER ROAD
SAMANTHA'S REALTY LLC
ASSESSORS MAP 8, BLOCK 40, LOT 1
DEED BOOK 33654, PAGE 159
PLAN BOOK 780, PLAN 121

PROP DRAINAGE SEDIMENT REMOVAL

PROP TEMP EASEMENT

196 AYER ROAD
BOWERS BROOK LLC
ASSESSORS MAP 8, BLOCK 40
DEED BOOK 45722, PAGE 348
PLAN BOOK 881, PLAN 28

198 AYER ROAD
AYER ROAD REALTY LLC
ASSESSORS MAP 8, BLOCK 40, LOT 3
DEED BOOK 45608, PAGE 289
PLAN BOOK 881, PLAN 28

AYER ROAD
WHEELER REALTY TRUST
ASSESSORS MAP 8, BLOCK 62, LOT 2
DEED BOOK 21362, PAGE 50
PLAN BOOK 721, PLAN 46

PROP TEMP EASEMENT

PROP LAYOUT ALTERATION

1950 TOWN LAYOUT | 1924 COUNTY LAYOUT

REM EXIST CB

REM EXIST 12" CMP

PC +16.54

173' - 12" RCP

PC +15.24

RET UP

4' - 12" PIPE OPTION

PROP TEMP EASEMENT

PROP 3" ELEC CONDUIT (TYP)

RET UP; PROP SERVICE CONNECTION W/ RISER, WEATHERHEAD, & DISCONNECT

1950 TOWN LAYOUT | 1924 COUNTY LAYOUT

200 AYER ROAD
HARVARD OFFICE PARK LLC
ASSESSORS MAP 8, BLOCK 40, LOT 2
DEED BOOK 28957, PAGE 72
PLAN BOOK 780, PLAN 121

CONTINUED ON SHEET NO. 40

CB1
RIM=301.34'
INV=299.1' (TOP HOOD)
SUMP=297.9' (TOP DEBRIS)

CB2
RIM=301.12'
INV=296.9'
SUMP=296.9'

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

NAD 83 N

0 20 50 100
SCALE: 1" = 20'

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:15 PM

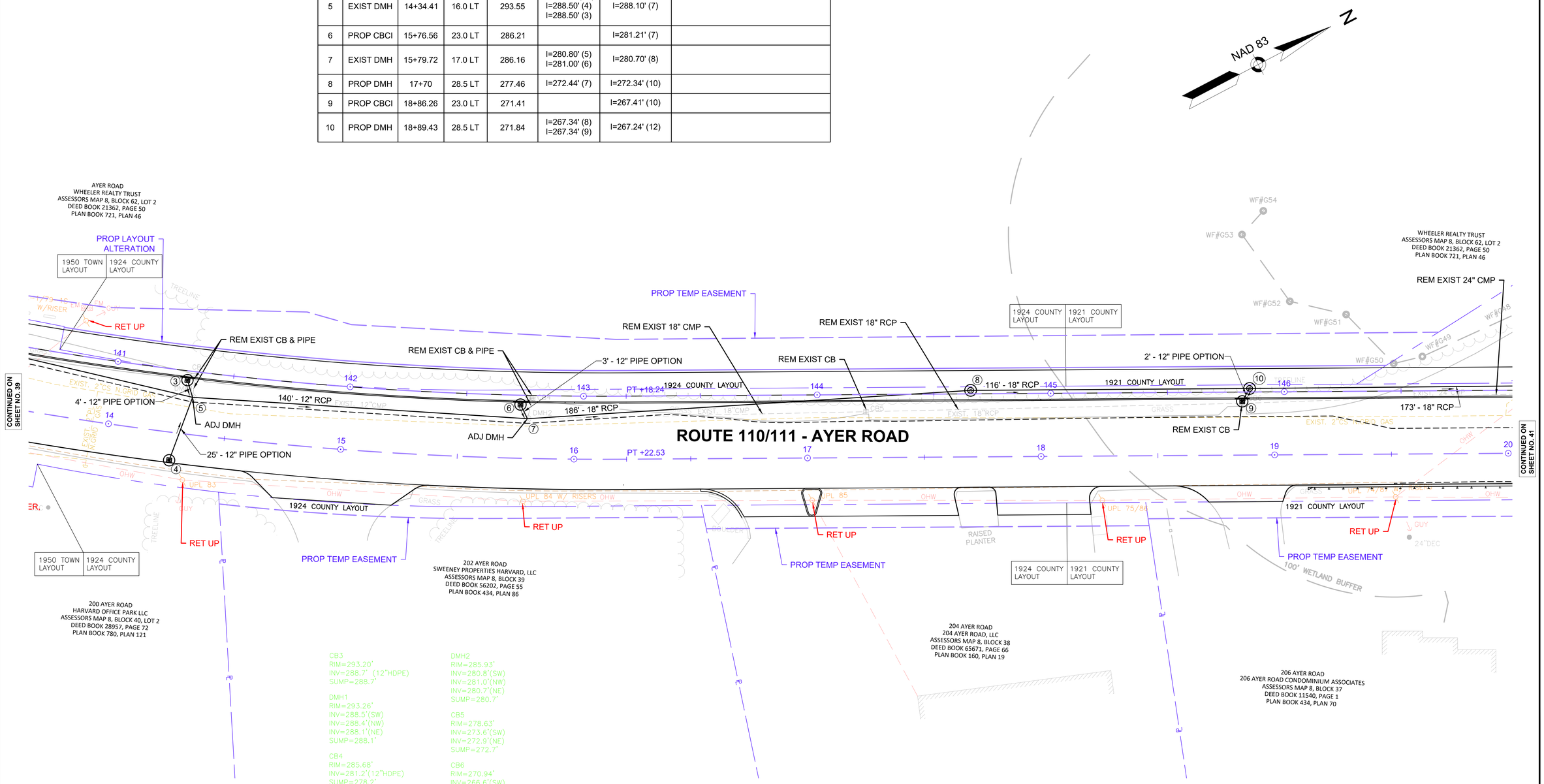
HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	40	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 2 OF 17

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:15 PM

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
3	PROP CBCI	14+31.29	23.0 LT	293.56		I=288.60' (5)	
4	PROP CB	14+27.70	12.0 RT	293.95		I=289.45' (5)	
5	EXIST DMH	14+34.41	16.0 LT	293.55	I=288.50' (2A) I=288.50' (4) I=288.50' (3)	I=288.10' (7)	
6	PROP CBCI	15+76.56	23.0 LT	286.21		I=281.21' (7)	
7	EXIST DMH	15+79.72	17.0 LT	286.16	I=280.80' (5) I=281.00' (6)	I=280.70' (8)	
8	PROP DMH	17+70	28.5 LT	277.46	I=272.44' (7)	I=272.34' (10)	
9	PROP CBCI	18+86.26	23.0 LT	271.41		I=267.41' (10)	
10	PROP DMH	18+89.43	28.5 LT	271.84	I=267.34' (8) I=267.34' (9)	I=267.24' (12)	



NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	41	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 3 OF 17

CONTINUED ON SHEET NO. 42

CONTINUED ON SHEET NO. 40

CONTINUED ON SHEET NO. 43

ROUTE 110/111 - AYER ROAD

GEBO LANE

LANCASTER COUNTY ROAD
INHABITANTS OF THE TOWN OF HARVARD
ASSESSORS MAP 8, BLOCK 62, LOT 4
DEED BOOK 21051, PAGE 25
PLAN BOOK 721, PLAN 46

215 AYER ROAD
APIF - MASSACHUSETTS, LLC
ASSESSORS MAP 8, BLOCK 61
DEED BOOK 65530, PAGE 161
PLAN BOOK 299, PLAN 81
PLAN BOOK 365, PLAN 118

WHEELER REALTY TRUST
ASSESSORS MAP 8, BLOCK 62, LOT 2
DEED BOOK 21362, PAGE 50
PLAN BOOK 721, PLAN 46

206 AYER ROAD
206 AYER ROAD CONDOMINIUM ASSOCIATES
ASSESSORS MAP 8, BLOCK 37
DEED BOOK 11540, PAGE 1
PLAN BOOK 434, PLAN 70

AYER ROAD
INHABITANTS OF THE TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 8, BLOCK 36
DEED BOOK 6223, PAGE 264
PLAN BOOK 434, PLAN 86

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

CB7
RIM=254.76'
INV=250.7'
SUMP=248.6'

CB8
RIM=255.42'
INV=250.5'(SW)
INV=250.4'(NE)
SUMP=250.6'(TOP DEBRIS)

DMH3
RIM=252.92'
INV=249.2'(SW)
INV=249.1'(N)
SUMP=249.7'(TOP DEBRIS)

CB9
RIM=253.23'
INV=250.2'(W)
INV=250.3'(NE)
INV=249.8'(SE)
SUMP=250.6'(TOP DEBRIS)

CB10
RIM=252.00'
INV=*NPV*
SUMP=249.8'(TOP DEBRIS)
(UNABLE TO OPEN)

PROP GAS RELOCATION (BO-NGRID)
RELOCATE UP (BO)
34' - 30" PIPE OPTION
MATCH EXIST INVERTS
TOWN LAYOUT
REM EXIST 30" CMP
REM EXIST 24" CMP
RET UP
17' - 18" RCP
3' - 12" PIPE OPTION
173' - 18" RCP
COORDINATE WITH NGRID PRIOR TO PIPE REPLACEMENT
70' - 30" RCP
104' - 24" RCP CLASS V
PROP LAYOUT ALTERATION
PROP TEMP EASEMENT
PROP PERM EASEMENT
RET UP; PROP TEMPORARY SUPPORT FOR EXCAVATION OF HEADWALL (BO)
PROP TS CONDUIT (TYP)
1921 COUNTY LAYOUT
RET EXIST CB
PROP GAS RELOCATION (BO-NGRID)
REMOD CB; R&D F&G PROP F&C
RET EXIST DMH
6' - 12" PIPE OPTION
295' - 12" RCP CLASS IV
SEPTIC TANK
SEPTIC PUMP
APPROX. SEPTIC SYSTEM LOCATION
100' WETLAND BUFFER
200' RIVERFRONT AREA
CONC. WALK
CONC. APRON
RIP RAP
INV 12" CPF EL=252.83
WMH RIM=257.92' SUMP=251.5'
FF=259.75' LOAD. DOCK
FF=259.76'
FF=259.79'
EXIST. 2"CS N.GRID GAS
EXIST. 2"PL N.GRID GAS
NAD 83
N
SCALE: 1" = 20'
0 20 50 100

DRAINAGE STRUCTURE TABLE

NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
11	PROP CBCI	20+63.78	23.0 LT	265.43		I=261.43' (12)	
12	PROP DMH	20+66.56	29.0 LT	265.90	I=260.90' (10) I=261.33' (11)	I=260.80' (13)	
13	PROP HDWL	20+73.60	47.0 LT		I=260.21' (12)	I=260.21' (14)	REFER TO MASSDOT STANDARD DRAWING E 206.5.0
14	PROP HDWL	20+70.99	23.5 RT		I=258.64' (13)		REFER TO MASSDOT STANDARD DRAWING E 206.4.0
15	PROP HDWL	21+04.69	84.2 LT		I=262.00' (16)		REFER TO MASSDOT STANDARD DRAWING E 206.4.0
16	PROP DI	111+78.79	18.0 RT	267.02		I=262.52' (15)	
17	PROP CBCI	23+64.69	20.3 LT	256.00		I=251.50' (18)	
18	PROP DMH	23+71.59	12.7 LT	255.94	I=251.40' (17)	I=251.30' (21)	

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

609213_HD10(NO) UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:15 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	42	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 4 OF 17

CB12
RIM=263.66'
INV=260.4'(15" PLASTIC)
SUMP=259.2'

DMH4
RIM=264.23'
INV=259.5'(W)
INV=259.5'(E)
INV=259.7'(S)
SUMP=259.0'

CB13
RIM=264.04'
INV=261.6'(W)
INV=261.6'(E)
SUMP=260.3'

CB14
RIM=256.72'
INV=253.4'(W)
INV=253.3'(E)
SUMP=252.6'

NAD 83

LANCASTER COUNTY ROAD
LANCASTER COUNTY PLACE CONDOMINIUM
ASSESSORS MAP 8, BLOCK 22
DEED BOOK 15687, PAGE 93
PLAN BOOK 675, PLAN 87

LANCASTER COUNTY ROAD
INHABITANTS OF THE TOWN OF HARVARD
ASSESSORS MAP 8, BLOCK 62, LOT 4
DEED BOOK 21051, PAGE 25
PLAN BOOK 721, PLAN 46

215 AYER ROAD
APIF - MASSACHUSETTS, LLC
ASSESSORS MAP 8, BLOCK 61
DEED BOOK 65530, PAGE 161
PLAN BOOK 299, PLAN 81
PLAN BOOK 365, PLAN 118

6 LANCASTER COUNTY ROAD
R.L. LAZARO FAMILY LIMITED PARTNERSHIP
ASSESSORS MAP 8, BLOCK 48, LOT 3, UNIT 1
CERT. 17688
LCC 32327C

GEBO LANE

LANCASTER COUNTY ROAD

RET CB
RET DMH
RET UP
RET HDWL
RET EXIST 12" CPP
PROP LAYOUT ALTERATION
PROP TEMP EASEMENT
REM UP (BO)
UPL NO#
UPL 5/1
UPL 4
UPL 163/4 W/ RIPPS
UPL 164/3
PC +23.27
PT +92.27
PC +94.44
PRC +58.78
PT +01.86
116+00
INV 12" RCP EL=262.46'
INV 15" RCP EL=261.36'
INV 12" CPP EL=253.13'
INV 12" CPP EL=252.83'
INV 18" RCP EL=254.99'
INV 18" RCP EL=251.59'
EXIST 18" RCP
EXIST 2"PL N.GRID GAS
OHW
UPL S.W./ RISERS
RIP RAP
CONC. APRON
CONC. LOADING DOCK
CONC. RAMP W/HAND RAIL
DUMPSTER PAD
SATELLITE DISH ON CONC. PAD
SHED
FF=259.75'
LOAD. DOCK
APPROX. SEPTIC SYSTEM LOCATION
SEPTIC TANK
SEPTIC PUMP
100' WETLAND BUFFER
200' RIVERFRONT AREA
100' RIVERFRONT AREA
POTENTIAL VERNAL POOL (APPROX LOCATION FROM G
WF#G11 REC7-15-19
WF#G12
WF#G13
WF#G14
WF#G15
WF#G16
WF#G17
WF#G18
WF#G30
WF#G31
WF#G32
WF#G33
WF#G34
WF#G35
WF#G36
WF#G37
WF#G38
WF#G39
WF#G40
WF#G41
WF#G6
WF#G7
WF#G8
WF#G9
WF#G10
WF#E1
WF#E2
WF#E3
WF#E4
WF#E5 STOP
CB12
CB13
DMH4
15"DEC
10"DEC
24"CON
GG
GUY
OHP
FENCE
TREELINE
BOULDER
EHH
EM
OBOL
BOL
GM
SANIT MH
CONTINUED ON SHEET NO. 41
CONTINUED ON SHEET NO. 43

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:16 PM

CONTINUED ON SHEET NO. 42

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
24	PROP HDWL	29+15.24	23.8 RT		I=252.22' (25)		REFER TO MASSDOT STANDARD DRAWING E 206.4.0
25	PROP DMH	29+54.31	20.8 RT	254.87	I=252.66' (26)	I=252.66' (24)	
26	PROP DMH	30+51.29	9.1 RT	261.58	I=257.08' (27) I=256.68' (28)	I=256.58' (25)	
27	PROP CBCI	30+62.60	13.0 LT	261.50		I=257.50' (26)	

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	43	80
PROJECT FILE NO.		609213	

UTILITY PLANS - 5 OF 17

609213_HD10(NO) UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:16 PM

RET HDWL
PC +94.44
RET EXIST 12" CPP
PRC +58.78
RET UP
PT +12.77
RET UP
LANCASTER COUNTY ROAD
TOWN LAYOUT
PC +88.95
RET UP
REM UP (BO)
PCC +74.23
PT +40.35
21' - 12" PIPE OPTION
PT +93.00
REM UP (BO)
277' - 12" RCP
PROP TEMP EASEMENT
PROP PERM EASEMENT
PROP GAS RELOCATION (BO-NGRID)
GAS EASEMENT (NATIONAL GRID) DEED BOOK 4726, PAGE 527 PLAN BOOK 305, PLAN 118
RET EXIST CB
PROP TEMP EASEMENT
1921 COUNTY LAYOUT
5' - 12" PIPE OPTION
ADJ CB
295' - 12" RCP CLASS IV
PC +45.37
14' - 12" PIPE OPTION
11' - 12" PIPE OPTION
41' - 18" RCP
PT +56.12
PC +41.32
ROUTE 110/111 - AYER ROAD
TEST PIT PRIOR TO RELOCATING POLE
96' - 18" RCP
39' - 18" RCP
RET UP (BO)
RET UP
RET UP
PROP TEMP EASEMENT
PROP PERM EASEMENT
PROP LAYOUT ALTERATION
RELOCATE UP (BO)
PROP GUY WIRE (BO)
RELOCATE UP & GUY WIRE (BO)
PROP PUE
PROP UP & GUY WIRES (BO)
PROP 3" ELEC CONDUIT (TYP)
ADJ TMH (BO-VERIZON)
REM EXIST CB (2)
REM EXIST 18" CMP
REM EXIST 12" CMP
UPGRADE UP (BO)
PROP GUY (BO)
PROP PUE
PROP SERVICE CONNECTION W/ RISER, WEATHERHEAD, & DISCONNECT
PROP TEMP EASEMENT
PROP PUE
POOR FARM ROAD
TOWN LAYOUT
TOWN LAYOUT
100' WETLAND BUFFER
100' RIVERFRONT AREA
200' RIVERFRONT AREA
200' RIVERFRONT AREA
APPROXIMATE 100 YEAR FLOOD ZONE
APPROXIMATE 100 YEAR FLOOD ZONE
POTENTIAL VERNAL POOL (APPROX LOCATION FROM GIS)
"BOWERS BROOK"
"BOWERS BROOK"
NAD 83
N
SCALE: 1" = 20'
0 20 50 100

6 LANCASTER COUNTY ROAD
R.L. LAZARO FAMILY LIMITED PARTNERSHIP
ASSESSORS MAP 8, BLOCK 48, LOT 3, UNIT 1
CERT. 17688
LCC 32327C

LANCASTER COUNTY ROAD
TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 4, BLOCK 48, LOT 3, UNIT 4
CERT. 11358
LCC 32327C
(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

215 AYER ROAD
APIF - MASSACHUSETTS, LLC
ASSESSORS MAP 8, BLOCK 61
DEED BOOK 65530, PAGE 161
PLAN BOOK 299, PLAN 81
PLAN BOOK 365, PLAN 118

129 POOR FARM ROAD
LAURA A. CLARAGE
ASSESSORS MAP 8, BLOCK 35
DEED BOOK 64304, PAGE 359

132 POOR FARM ROAD
JEFFREY P. & ALEXANDRA H. MCKEARNEY
ASSESSORS MAP 8, BLOCK 24
DEED BOOK 67692, PAGE 264

CB10
RIM=252.00'
INV=*NPV*
SUMP=249.8'(TOP DEBRIS)
(UNABLE TO OPEN)

CB11
RIM=251.65'
INV=248.9'(NW)
SUMP=246.5'
TOP WATER=248.5'

CB15
RIM=258.96'
INV=255.7'(S)
INV=*NPV*(N)
SUMP=253.0'(TOP DEBRIS)

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
19	PROP CBCI	26+64.70	12.7 LT	251.56		I=248.06' (21)	
20	PROP CB	26+64.71	12.0 RT	251.55		I=248.05' (21)	
21	PROP SPECIAL DMH	26+70.58	5.5 LT	251.73	I=247.63' (18) I=247.73' (19) I=247.73' (22) I=247.73' (20)	I=247.13' (23)	5' DIAMETER
22	PROP CBCI	26+84.62	12.4 LT	251.59		I=248.09' (21)	
23	PROP HDWL	27+03.46	22.4 RT		I=246.72' (21)		REFER TO MASSDOT STANDARD DRAWING E 206.4.0

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

CONTINUED ON SHEET NO. 41

CONTINUED ON SHEET NO. 44

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
28	PROP DMH	33+32.05	6.0 RT	273.83	I=269.33' (30) I=269.23' (29) I=268.93' (31)	I=268.83' (26)	
29	PROP CB	33+36.52	14.0 RT	273.87		I=269.37' (28)	OFFSET TOP
30	PROP CBCI	33+42.81	13.0 LT	274.17		I=270.17' (28)	OFFSET TOP
31	PROP DMH	35+71.52	4.0 RT	281.86	I=277.36' (33) I=277.36' (32) I=276.96' (34)	I=276.86' (28)	
32	PROP CB	35+76.12	12.0 RT	281.81		I=277.81' (31)	
33	PROP CBCI	35+81.36	13.0 LT	281.91		I=277.91' (31)	

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	44	80
PROJECT FILE NO.		609213	

UTILITY PLANS - 6 OF 17

CB16
RIM=273.39'
INV=268.3'(N)
INV=267.4'(S)
SUMP=266.6'

CB17
RIM=278.75'
INV=273.9'(N)
INV=276.7'(E)
INV=273.9'(E)
INV=273.7'(S)
SUMP=273.5'

NAD 83

100' WETLAND BUFFER
100' RIVERFRONT AREA
200' RIVERFRONT AREA

LANCASTER COUNTY ROAD
TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 4, BLOCK 48, LOT 3, UNIT 4
CERT. 11358
LCC 32327C

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

231 AYER ROAD
SCHOOL HOUSE 1870 TRUST
ASSESSORS MAP 4, BLOCK 48, LOT 2
CERT. 17941
LCC 32327B

231 AYER ROAD
SCHOOL HOUSE 1870 TRUST
ASSESSORS MAP 4, BLOCK 48, LOT 2
CERT. 17941
LCC 32327B

ROUTE 110/111 - AYER ROAD

1921 COUNTY LAYOUT

277' - 12" RCP

5' - 12" PIPE OPTION

18' - 12" PIPE OPTION

236' - 12" RCP

5' - 12" PIPE OPTION

16' - 12" PIPE OPTION

290' - 12" RCP

REM EXIST 12" CMP

REM EXIST CB

REM EXIST CB

REM EXIST PIPE

REM EXIST DI; PLUG AND ABAN ANY EXIST PIPES

REM UP (BO)

REM UP (BO)

REM UP (BO)

UPGRADE UP (BO)

UPGRADE UP (BO)

PROP TEMP EASEMENT

PROP PUE

PROP GAS RELOCATION (BO-NGRID)

PROP GUY WIRE (BO)

RELOCATE UP (BO); ELECTRIC RISER RELOCATION LOCATION NO. 1

PROP PUE

PROP GUY WIRE (BO)

RELOCATE UP (BO); ELECTRIC RISER RELOCATION LOCATION NO. 2

PROP TEMP EASEMENT

PROP PUE

PROP TEMP EASEMENT

PROP TEMP EASEMENT

PROP PUE

PROP GUY WIRE (BO)

PROP TEMP EASEMENT

RELOCATE UP (BO)

PROP PUE

PROP TEMP EASEMENT

PROP UP (BO)

PROP GUY WIRE (BO)

RELOCATE UP (BO)

REM UP (BO)

PROP PUE

PROP TEMP EASEMENT

RET LP

132 POOR FARM ROAD
JEFFREY P. & ALEXANDRA H. MCKEARNEY
ASSESSORS MAP 8, BLOCK 24
DEED BOOK 67692, PAGE 264

232 AYER ROAD
BRYAN & REBECCA KELLEY
ASSESSORS MAP 8, BLOCK 23
DEED BOOK 57957, PAGE 89

236 AYER ROAD
ROBERT A. WILLIAMS JR.
& JANET M. WILLIAMS
ASSESSORS MAP 4, BLOCK 47
DEED BOOK 61011, PAGE 81
PLAN BOOK 347, PLAN 77

242 AYER ROAD
DAVID M. & MARTIN D. POUTRY
ASSESSORS MAP 4, BLOCK 46
DEED BOOK 27509, PAGE 388
PLAN BOOK 246, PLAN 69

CONTINUED ON SHEET NO. 43

CONTINUED ON SHEET NO. 45

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

609213_HD10(NO) UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:17 PM

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
34	PROP DMH	38+65.34	4.0 RT	288.35	I=283.65' (35) I=283.15' (36)	I=283.05' (31)	
35	PROP CBCI	38+75.15	13.0 LT	288.34		I=283.84' (34)	
36	PROP DI	38+74	19.0 RT	287.59		I=283.26' (34)	TYPE DF

CB18
RIM=286.27'
INV=284.0'(E)
INV=284.0'(W)
SUMP=284.2'(TOP DEBRIS)

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	45	80
PROJECT FILE NO.		609213	

UTILITY PLANS - 7 OF 17

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:17 PM

233 AYER ROAD
SHAKER PLACE OFFICES, LLC
ASSESSORS MAP 4, BLOCK 48, LOT 1
DEED BOOK 34484, PAGE 146
PLAN BOOK 548, PLAN 46

NAD 83 N

253 AYER ROAD
FOXGLOVE HOUSING ASSOCIATES LIMITED PARTNERSHIP
ASSESSORS MAP 4, BLOCK 49, LOT 2, UNIT 1
DEED BOOK 14348, PAGE 25
PLAN BOOK 659, PLAN 120
CERT. 139846
LCC 3327B

257 AYER ROAD
OFFICE AT 257 AYER RD, LLC
ASSESSORS MAP 4, BLOCK 49, LOT 2, UNIT 1
DEED BOOK 64619, PAGE 93
PLAN BOOK 659, PLAN 120

PROP PUE
PROP GUY WIRE (BO)
RELOCATE UP (BO); ELECTRIC RISER RELOCATION LOCATION NO. 2
PROP PUE
PROP UP & GUY WIRE (BO)
RELOCATE UP (BO)
PROP GUY WIRE (BO)
PROP PUE
PROP TEMP EASEMENT
233 AYER ROAD
SHAKER PLACE OFFICES, LLC
ASSESSORS MAP 4, BLOCK 48, LOT 1
DEED BOOK 34484, PAGE 146
PLAN BOOK 548, PLAN 46
PROP PUSH BRACE (BO)
PROP TEMP EASEMENT
249 AYER ROAD
BLANCHARD HOUSE OFFICE PARK CONDOMINIUM
ASSESSORS MAP 4, BLOCK 49, LOT 1
DEED BOOK 11133, PAGE 350
PLAN BOOK 592, PLAN 115
PROP PUSH BRACE (BO)
PROP PB ON EXIST CONDUIT; PROP 5' 2-4" CONDUIT (BO-NGRID)
RELOCATE UP (BO); RELOCATE ELECTRIC RISER (BO-NGRID)
RELOCATE UP (BO)
PROP GUY WIRE (BO)
RELOCATE UP (BO); RELOCATE ELECTRIC RISER (BO-NGRID)

1921 COUNTY LAYOUT
EXIST. 2"CS N.GRID GAS
GRASS
PC +61.18
PT +84.37
PT +43.56
PC +01.63
167 168 169 170 172 43 42 41 40 39 38 37
35 34 36

CONTINUED ON SHEET NO. 46

CONTINUED ON SHEET NO. 44

REM EXIST DI; PLUG AND ABAN ANY EXIST PIPES
PROP 3" ELEC CONDUIT (TYP)
RELOCATE UP (BO)
16' - 12" PIPE OPTION
290' - 12" RCP
ADJ CB
13' - 12" PIPE OPTION
REM EXIST DI; PLUG AND ABAN ANY EXIST PIPES
PROP TELE CONDUIT (BO-VERIZON)
PROP SERVICE CONNECTION W/ RISER, WEATHERHEAD, & DISCONNECT
PROP GUY WIRE (BO)
PROP PUE
PROP TEMP EASEMENT
PROP PUSH BRACE (BO)
RET UP
BEGIN DRAINAGE DITCH
REM UP (BO)
PROP PERM DRAIN EASEMENT
PROP TEMP EASEMENT
REM UP (BO)
ADJ TMH (BO-VERIZON)
PROP DRAINAGE DITCH
REM UP (BO)
REM UP (BO)

ROUTE 110/111 - AYER ROAD

SOUTH SHAKER ROAD

TOWN LAYOUT

242 AYER ROAD
DAVID M. & MARTIN D. POUTRY
ASSESSORS MAP 4, BLOCK 46
DEED BOOK 27509, PAGE 388
PLAN BOOK 246, PLAN 69

AYER ROAD
HARVARD CONSERVATION TRUST
ASSESSORS MAP 5, BLOCK 70
DEED BOOK 64099, PAGE 20

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

AYER ROAD
HARVARD CONSERVATION TRUST
ASSESSORS MAP 5, BLOCK 70
DEED BOOK 64099, PAGE 20

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	46	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 8 OF 17

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
37	PROP HDWL	44+66.32	37.6 LT		I=285.94' (39)		REFER TO MASSDOT STANDARD DRAWING E 206.4.0
38	PROP SPECIAL CBCI	44+74.92	13.0 LT	289.48		I=286.28' (39)	
39	PROP DMH	44+82.76	13.0 LT	289.41	I=286.10' (41) I=286.16' (40) I=286.21' (38)	I=286.08' (37)	
40	PROP SPECIAL CB	44+99.92	13.0 LT	289.29		I=286.29' (39)	
41	PROP DI	45+05.13	20.5 RT	288.49		I=286.28' (39)	

NAD 83

AYER ROAD
REM REALTY TRUST
ASSESSORS MAP 4, BLOCK 52, LOT 2
DEED BOOK 56380, PAGE 389

259 AYER ROAD
259 AYER ROAD LLC
ASSESSORS MAP 4, BLOCK 51
DEED BOOK 69129, PAGE 227
PLAN BOOK 462, PLAN 72

257 AYER ROAD
OFFICE AT 257 AYER RD, LLC
ASSESSORS MAP 4, BLOCK 49, LOT 2, UNIT 2
DEED BOOK 64619, PAGE 93
PLAN BOOK 659, PLAN 120

AYER ROAD
HARVARD CONSERVATION TRUST
ASSESSORS MAP 5, BLOCK 70
DEED BOOK 64099, PAGE 20

PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

256 AYER ROAD
256 AYER ROAD, LLC
ASSESSORS MAP 4, BLOCK 41
DEED BOOK 59556, PAGE 235
PLAN BOOK 281, PLAN 117

262 AYER ROAD
DNAP REALTY LLC
ASSESSORS MAP 4, BLOCK 40
DEED BOOK 61124, PAGE 24

264 AYER ROAD
THREE SEASONS TREESCAPE, LLC
ASSESSORS MAP 4, BLOCK 39
DEED BOOK 64293, PAGE 91
PLAN BOOK 379, PLANS 10-11

ROUTE 110/111 - AYER ROAD

28' - 18" RCP
4' - 12" DIP
37' - 18" DIP
13' - 12" DIP
33'-12" RCP UNDER DWY
INV 18" RCP (IN) EL=285.94
INV 12" PLASTIC EL=286.91
INV 12" PLASTIC(TOP PIPE - DEBRIS) EL=286.15

PROP PUE
PROP TEMP EASEMENT
PROP PERM DRAIN EASEMENT
PROP GUY WIRE (BO)
PROP PB ON EXIST CONDUIT; PROP 5' 2-4" CONDUIT (BO-NGRID)
RELOCATE UP (BO); RELOCATE ELECTRIC RISER (BO-NGRID)
BEGIN DRAINAGE DITCH
END DRAINAGE DITCH
PROP GUY WIRE (BO)
RELOCATE UP (BO)
R&R (BO) LP
ADJ GG (BO-NGRID)
REM UP (BO)
PROP UP & GUY WIRE (BO) ELECTRIC RISER RELOCATION LOCATION NO. 3
PROP UP (BO)
PROP UP (BO) (NGRID TO CONFIRM)
RELOCATE UP (BO)
RET LP
RELOCATE UP & GUY WIRE (BO)
RET UP

1921 COUNTY LAYOUT
PC +55.34
PC +07.64
PT +44.30
PT +91.71

CONTINUED ON SHEET NO. 45
CONTINUED ON SHEET NO. 47

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

608213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:17 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	47	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 9 OF 17

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
42	PROP CBCI	52+61.01	13.0 LT	285.80		I=281.80' (43)	
43	PROP DMH	52+71.98	6.0 RT	285.82	I=281.32' (42)	I=281.22' (44)	
44	PROP DMH	54+35	6.5 RT	284.07	I=279.57' (43)	I=279.47' (46)	

NAD 83

AYER ROAD
REM REALTY TRUST
ASSESSORS MAP 4, BLOCK 52, LOT 2
DEED BOOK 56380, PAGE 389

1942 COUNTY LAYOUT

OLD MILL ROAD

UPGRADE UP & GUY WIRE (BO)

PROP PUE

PROP TEMP EASEMENT

RELOCATE UP & GUY WIRE (BO)

285 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 25
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

REM UP (BO)

275 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 24
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

1921 COUNTY LAYOUT

ROUTE 110/111 - AYER ROAD

PC +01.76

18' - 12" PIPE OPTION

159' - 12" RCP

PC +02.35

136' - 12" RCP

PROP UP (BO)

ADJ TMH (BO-VERIZON)

EL=288.53'

264 AYER ROAD
THREE SEASONS TREESCAPE, LLC
ASSESSORS MAP 4, BLOCK 39
DEED BOOK 64293, PAGE 91
PLAN BOOK 379, PLANS 10-11

270 AYER ROAD
HARVARD PROFESSIONAL CONDOMINIUM
ASSESSORS MAP 4, BLOCK 38
DEED BOOK 42123, PAGE 217
PLAN BOOK 394, PLAN 108

RET EXIST CB

ADJ GG (BO-NGRID)

RELOCATE UP (BO); ELECTRIC RISER RELOCATION LOCATION NO. 4

REM GUY WIRE (BO)

RELOCATE UP (BO)

PROP GUY WIRE (BO)

276 AYER ROAD
D. FRANCIS MURPHY INSURANCE AGENCY INC.
ASSESSORS MAP 4, BLOCK 37
DEED BOOK 13624, PAGE 388
PLAN BOOK 469, PLAN 36

CB19
RIM=283.93'
INV=280.8'
SUMP=280.5'

CONTINUED ON SHEET NO. 46

CONTINUED ON SHEET NO. 48

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:18 PM

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
45	PROP CBCI	55+61.05	13.0 LT	282.62		I=278.62' (46)	
46	PROP DMH	55+74.76	6.5 RT	282.61	I=278.11' (44) I=278.21' (45)	I=278.01' (49)	
47	PROP CBCI	58+29.05	13.0 LT	279.81		I=275.81' (49)	
48	PROP CB	58+37.91	12.0 RT	279.74		I=275.74' (49)	OFFSET TOP

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	48	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 10 OF 17

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:18 PM

NAD 83 N

285 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 25
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

289 AYER ROAD
289 AYER LLC
ASSESSORS MAP 4, BLOCK 26
DEED BOOK 58259, PAGE 155
PLAN BOOK 241, PLAN 7

ROUTE 110/111 - AYER ROAD

1921 COUNTY LAYOUT

PC +01.76
PT +48.74
PT +44.69

136' - 12" RCP
20' - 12" PIPE OPTION
262' - 15" RCP
18' - 12" PIPE OPTION
3' - 12" PIPE OPTION
270' - 15" RCP

RET LP
RET CB
REM UP (BO)
REM EXIST DI; PLUG AND ABAN EXIST PIPES
UPGRADE UP (BO)

R&R FLOOD LIGHT (BO)
RELOCATE UP (BO); ELECTRIC RISER RELOCATION LOCATION NO. 5
RELOCATE UP (BO); ELECTRIC RISER RELOCATION LOCATION NO. 6
RELOCATE UP (BO); ELECTRIC RISER RELOCATION LOCATION NO. 7
RELOCATE UP (BO)
PROP UP & GUY WIRE (BO)

PROP PUE
PROP GUY WIRE (BO)
PROP TEMP EASEMENT
PROP GUY WIRE (BO)
PROP PB ON EXIST CONDUIT; PROP 10' 2-4" CONDUIT (BO-NGRID)

CONTINUED ON SHEET NO. 47
CONTINUED ON SHEET NO. 49

276 AYER ROAD
RANCIS MURPHY INSURANCE AGENCY INC.
ASSESSORS MAP 4, BLOCK 37
DEED BOOK 13624, PAGE 388
PLAN BOOK 469, PLAN 36

280 AYER ROAD
YUKON HOLDINGS, LLC
ASSESSORS MAP 4, BLOCK 36
DEED BOOK 48875, PAGE 84
PLAN BOOK 469, PLAN 36

284 AYER ROAD
DAVID B. ALEXANDER
ASSESSORS MAP 4, BLOCK 35
DEED BOOK 63500, PAGE 332
PLAN BOOK 587, PLAN 5

288 AYER ROAD
THE 39 EATON REALTY TRUST
ASSESSORS MAP 4, BLOCK 34
DEED BOOK 67617, PAGE 325
PLAN BOOK 389, PLAN 9

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	49	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 11 OF 17

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:18 PM

DRAINAGE STRUCTURE TABLE

NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
50	PROP CBCI	61+03	13.0 LT	276.93		I=272.93' (52)	
51	PROP CB	61+11.08	12.0 RT	276.86		I=272.86' (52)	OFFSET TOP
52	PROP DMH	61+14.46	6.0 RT	276.95	I=272.35' (49) I=272.65' (50) I=272.65' (51)	I=272.25' (54)	
53	PROP CBCI	64+03.05	13.0 LT	272.88		I=268.88' (54)	
54	PROP DMH	64+14.31	6.5 RT		I=268.43' (52) I=268.43' (53)	I=268.33' (55)	
55	PROP DMH	64+99.89	6.5 RT	272.26	I=267.66' (54)	I=267.56' (56)	OFFSET TOP
56	PROP HDWL	65+11.87	21.1 RT	269.34	I=267.40' (55)		REFER TO MASSDOT STANDARD DRAWING E 206.4.0
57	PROP SPECIAL DMH	65+31.92	26.8 LT		I=264.84' ()	I=264.82' (58)	5' DIAMETER
58	PROP HDWL	65+32.50	39.8 LT		I=264.76' (57)		REFER TO MASSDOT STANDARD DRAWING E 206.6.0
59	PROP HDWL	65+29.77	21.0 RT			I=265.06' ()	REFER TO MASSDOT STANDARD DRAWING E 206.6.0
60	PROP FES	65+40.58	26.5 RT	268.32	I=266.38' (61)		

NAD 83 N

295 AYER ROAD
295 AYER ROAD LLC
ASSESSORS MAP 4, BLOCK 27
DEED BOOK 68608, PAGE 289
PLAN BOOK 967, PLAN 65

289 AYER ROAD
289 AYER LLC
ASSESSORS MAP 4, BLOCK 26
DEED BOOK 58259, PAGE 155
PLAN BOOK 241, PLAN 7

ROUTE 110/111 - AYER ROAD

PROP GUY WIRE (BO)
PROP TEMP EASEMENT
PROP PUE
RELOCATE UP (BO)
REM UP (BO)
PROP TEMP EASEMENT
PROP TEMP EASEMENT
REM UP (BO)
RET UP
PROP PERM DRAINAGE AND GUARDRAIL EASEMENT
REM UP (BO)
REM UP (BO)
PROP TEMP EASEMENT

1921 COUNTY LAYOUT
270' - 15" RCP
18' - 12" PIPE OPTION
296' - 15" RCP CLASS IV
1921 COUNTY LAYOUT
3' - 12" PIPE OPTION
19' - 12" PIPE OPTION
82' - 15" RCP CLASS IV
11' - 36" RCP
3' - 12" PIPE
RET EXIST RCP
PROP 3'-36" RCP
17' - 15" RCP CLASS IV
106' - 15" RCP CLASS IV

RELOCATE UP (BO)
RELOCATE UP (BO)
RELOCATE UP (BO)
RELOCATE UP (BO)
PROP GUY WIRE (BO)
PROP SERVICE CONNECTION W/ RISER, WEATHERHEAD, & DISCONNECT
PROP GUY WIRE (BO)
PROP 3" ELEC CONDUIT (TYP)
PROP PUE
PROP PUE
PROP PUE
PROP PUE
PROP TEMP EASEMENT
PROP TEMP EASEMENT
PROP PUE
PROP PERM DRAINAGE EASEMENT
PROP PUE
UPGRADE UP (BO)
PROP UP & GUY WIRE (BO)

288 AYER ROAD
THE 39 EATON REALTY TRUST
ASSESSORS MAP 4, BLOCK 34
DEED BOOK 67617, PAGE 325
PLAN BOOK 389, PLAN 9

292 AYER ROAD
THE VICKESH MYER REVOCABLE TRUST
ASSESSORS MAP 5, BLOCK 78
DEED BOOK 62379, PAGE 392
PLAN BOOK 329, PLAN 118

AYER ROAD
INHABITANTS OF THE TOWN OF HARVARD (CONSERVATION COMMISSION)
ASSESSORS MAP 5, BLOCK 80
DEED BOOK 6626, PAGE 58
PLAN BOOK 433, PLAN 7

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

294 AYER ROAD
AYER ROAD, LLC
ASSESSORS MAP 4, BLOCK 33
DEED BOOK 52481, PAGE 269

AYER ROAD
BERWIND BROTHERS LLC
ASSESSORS MAP 4, BLOCK 28
DEED BOOK 42857, PAGE 287
PLAN BOOK 357, PLAN 100

304 AYER ROAD
STEVEN & CAROLYN H. FADER
ASSESSORS MAP 4, BLOCK 32, LOT 1
DEED BOOK 54408, PAGE 186

CONTINUED ON SHEET NO. 48

CONTINUED ON SHEET NO. 50

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	50	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 12 OF 17

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
61	PROP DMH	66+47	5.5 RT	271.60	I=267.20' (63) I=267.20' (62)	I=267.10' (60)	
62	PROP CB	66+50	12.0 RT	271.35		I=267.35' (61)	
63	PROP DMH	68+77.48	4.5 RT	274.03	I=269.63' (66) I=269.73' (65) I=269.73' (64)	I=269.53' (61)	OFFSET TOP
64	PROP CB	68+82.44	12.0 RT	273.96		I=269.96' (63)	OFFSET TOP
65	PROP CBCI	68+87.50	13.0 LT	274.23		I=270.23' (63)	
66	PROP DMH	71+40.03	3.5 RT	279.97	I=275.47' (68) I=275.47' (67)	I=275.37' (63)	
67	PROP CB	71+42.90	12.0 RT	279.87		I=275.57' (66)	OFFSET TOP
68	PROP CBCI	71+49.55	13.0 LT	280.01		I=276.01' (66)	

NAD 83 N

ROUTE 110/111 - AYER ROAD

AYER ROAD
BERWIND BROTHERS LLC
ASSESSORS MAP 4, BLOCK 28
DEED BOOK 42857, PAGE 287
PLAN BOOK 357, PLAN 100

307 AYER ROAD
DRB ACRES, LLC
ASSESSORS MAP 4, BLOCK 29
DEED BOOK 52809, PAGE 26
PLAN BOOK 357, PLAN 100

AYER ROAD
LDPL, LLC
ASSESSORS MAP 1, BLOCK 2
DEED BOOK 45146, PAGE 305

307 AYER ROAD
BERWIND BROTHERS LLC
ASSESSORS MAP 4, BLOCK 5
DEED BOOK 42857, PAGE 287
PLAN BOOK 19, PLAN 44

304 AYER ROAD
STEVEN & CAROLYN H. FADER
ASSESSORS MAP 4, BLOCK 32, LOT 1
DEED BOOK 54408, PAGE 186

306 AYER ROAD
MCCARTHY REALTY TRUST
ASSESSORS MAP 5, BLOCK 79
DEED BOOK 18243, PAGE 138
PLAN BOOK 302, PLAN 23

310 AYER ROAD
JOHN J. & MARISA D. IACOMINI
ASSESSORS MAP 4, BLOCK 31
DEED BOOK 59087, PAGE 319
PLAN BOOK 424, PLAN 96

310 AYER ROAD
JOHN J. & MARISA D. IA
ASSESSORS MAP 4, BL
DEED BOOK 59087, PA
PLAN BOOK 424, PLA

REM UP (BO)
PROP UP & GUY WIRE (BO)
PROP PUE
PROP TEMP EASEMENT
PROP PERM EASEMENT
RELOCATE UP; PROP GUY WIRE (BO)
RET UP
PROP GUY WIRE (BO)
PROP PUE
PROP TEMP EASEMENT
REM UP (BO)
REM UP (BO)
REM UP (BO)
1921 COUNTY LAYOUT
PC +53.56
PT +50.43
PC +02.68
PT +97.07
3' - 12" PIPE OPTION
226' - 12" RCP CLASS IV
16' - 12" PIPE OPTION
5' - 12" PIPE OPTION
259' - 12" RCP CLASS IV
15' - 12" PIPE OPTION
5' - 12" PIPE OPTION
1921 COUNTY LAYOUT
UPGRADE UP (BO)
106' - 15" RCP CLASS IV
PROP PUE
PROP TEMP EASEMENT
PROP PUE
RELOCATE UP (BO)
PROP UP (BO)
PROP PUE
PROP TEMP EASEMENT
UPGRADE UP (BO)
PROP PUE
PROP TEMP EASEMENT
RELOCATE UP (BO)
PROP GUY WIRE (BO)
RELOCATE UP (BO)
100' WETLAND BUFFER
CONTINUED ON SHEET NO. 49
CONTINUED ON SHEET NO. 51

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:18 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	51	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 13 OF 17

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
69	PROP CBCI	76+81.92	13.0 LT	281.89		I=277.89' (70)	
70	PROP DMH	76+92.60	5.5 RT	281.82	I=277.42' (69)	I=277.32' (71)	

NAD 83

CB20
RIM=282.07'
INV=280.2'
SUMP=276.6'
TOP WATER=280.4'

CB21
RIM=280.38'
INV=278.1'(NW)
INV=278.2'(N)
INV=277.7'(E)
SUMP=275.6'

CB22
RIM=280.76'
INV=278.6'
SUMP=276.6'

313 AYER ROAD
FEDERICO RAFFA & MELISA L CUNNINGHAM
ASSESSORS MAP 4, BLOCK 30
DEED BOOK 50759, PAGE 247
PLAN BOOK 383, PLAN 64

325 AYER ROAD
AYER ROAD PROPERTY OWNER, LLC
ASSESSORS MAP 1, BLOCK 4
DEED BOOK 66687, PAGE 238
PLAN BOOK 277, PLAN 90

310 AYER ROAD
JOHN J. & MARISA D. IACOMINI
ASSESSORS MAP 4, BLOCK 31
DEED BOOK 59087, PAGE 319
PLAN BOOK 424, PLAN 96

320 AYER ROAD
AYER ROAD PROPERTY OWNER, LLC
ASSESSORS MAP 2, BLOCK 74
DEED BOOK 66687, PAGE 230
PLAN BOOK 37, PLAN 16
PLAN BOOK 550, PLAN 61

ROUTE 110/111 - AYER ROAD

1921 COUNTY LAYOUT

PI +50.83
PI +38.52
PC +48.19
PC +94.80
PT +26.61
PT +74.75

RET LP
RET EHH
PROP PUE
PROP TEMP EASEMENT
PROP GUY WIRE (BO-CHARTER)
RELOCATE UP & RISER (BO-CHARTER)
RELOCATE UP (BO); RET EXIST ANCHOR; ELECTRIC RISER RELOCATION LOCATION NO. 8
RELOCATE UP (BO)
PROP GUY WIRE (BO)
RELOCATE UP (BO); RELOCATE ELECTRIC RISER (BO-NGRID)
PROP PB ON EXIST CONDUIT; PROP 5' 2-4" CONDUIT (BO-NGRID)
ADJ GG (BO-NGRID)
ADJ CB
REMOD CB
ADJ EHH
UPGRADE UP (BO)
17' - 12" PIPE OPTION
201' - 12" RCP

CONTINUED ON SHEET NO. 50
CONTINUED ON SHEET NO. 52

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:19 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	52	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 14 OF 17

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
71	PROP DMH	79+00	4.5 RT	280.43	I=276.03' (70)	I=275.93' (72)	
72	PROP DMH	80+60	4.5 RT	278.97	I=274.57' (71)	I=274.47' (75)	
73	PROP CBCI	83+41.37	13.0 LT	276.77		I=272.77' (75)	
74	PROP CB	83+49.94	12.0 RT	276.84		I=272.84' (75)	
75	PROP DMH	83+51.47	4.5 RT	276.91	I=272.51' (72) I=272.61' (73) I=272.61' (74)	I=272.41' (76)	

NAD 83 N

AYER ROAD
LDPL, LLC
ASSESSORS MAP 1, BLOCK 2
DEED BOOK 45146, PAGE 305

327 AYER ROAD
LAWRENCE C. DOE &
PAMELA C. LAWSON
ASSESSORS MAP 1, BLOCK 3
DEED BOOK 45146, PAGE 310

AYER ROAD
LDPL, LLC
ASSESSORS MAP 1, BLOCK 2
DEED BOOK 45146, PAGE 305

335 AYER ROAD
335 AYER ROAD REALTY TRUST
ASSESSORS MAP 1, BLOCK 1
DEED BOOK 68137, PAGE 106
PLAN BOOK 122, PLAN 50

320 AYER ROAD
AYER ROAD PROPERTY OWNER, LLC
ASSESSORS MAP 2, BLOCK 74
DEED BOOK 66687, PAGE 230
PLAN BOOK 37, PLAN 16
PLAN BOOK 550, PLAN 61

6 MYRICK LANE
JAMES R. & SIBLEY A. HANNIGAN
ASSESSORS MAP 2, BLOCK 73
DEED BOOK 6485, PAGE 19
PLAN BOOK 351, PLAN 116

ROUTE 110/111 - AYER ROAD

100' WETLAND BUFFER
PROP TEMP EASEMENT
RET UP
GUY (T)
GRAVEL DRIVE
1921 COUNTY LAYOUT
WOOD PLANTER EDGING (1' WIDE)
GRASS
209
210
211
PT +04.13
212
ADJ GG (BO-NGRID)
BIT DRIVE
PROP PUE
PROP GUY WIRE (BO)
RELOCATE UP (BO); ELECTRIC RISER RELOCATION LOCATION NO. 9
213
208
80
81
82
83
72
71
73
74
75
79
78
154' - 12" RCP
287' - 12" RCP
201' - 12" RCP
104' - 12" RCP
16' - 12" PIPE OPTION
4' - 12" PIPE OPTION
PT +35.82
REM EXIST CB
PC +28.01
PC +74.55
TREELINE
BOULDER
LPL
GPL
OHW
WF#J1
WF#J2
WF#J3
WF#J4
WF#J5
WF#J6
WF#J7
WF#J8
WF#J9 WAS NOT FOUND
WF#J10
WF#J11
WF#J12
WF#J13
WF#J14
WF#J15
WF#J16
WF#J17
WF#J18
WF#J19
WF#J20
WF#J21
PROP PUSH BRACE (BO)
RELOCATE UP (BO)
ADJ TMH (BO-VERIZON)
UPGRADE UP (BO)
PROP TEMP EASEMENT
PROP PUE
CB23
RIM=276.78'
INV=274.3'
SUMP=273.6'(TOP DEBRIS)

CONTINUED ON SHEET NO. 51

CONTINUED ON SHEET NO. 53

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:19 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	53	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 15 OF 17

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
76	PROP DMH	84+59.36	6.0 RT	276.34	I=271.84' (75)	I=271.74' (78)	OFFSET TOP
77	PROP CBCI	85+59.13	13.0 LT	274.87		I=271.37' (78)	
78	PROP DMH	85+65.11	6.0 RT	275.59	I=271.09' (76) I=271.19' (77)	I=270.99' (79)	
79	PROP DMH	86+58.93	6.0 RT	274.88	I=270.38' (78)	I=270.28' (81)	OFFSET TOP
80	PROP CBCI	87+11.94	13.0 LT	273.46		I=269.96' (81)	
81	PROP DMH	87+19.61	6.0 RT	274.10	I=269.60' (79) I=269.70' (80)	I=269.50' (83)	OFFSET TOP
82	PROP CBCI	88+73.30	13.0 LT	270.35		I=266.35' (83)	
83	PROP DMH	88+85.13	9.6 RT	270.26	I=265.75' (81) I=265.85' (82)	I=265.65' (84)	OFFSET TOP

CB24
RIM=274.66'
INV=270.6'(SW)
INV=270.5'(NE)
SUMP=269.8'

CB25
RIM=270.47'
INV=265.3'(SW)
INV=266.4'(S)
INV=263.9'(NE)
SUMP=263.5'

335 AYER ROAD
335 AYER ROAD REALTY TRUST
ASSESSORS MAP 1, BLOCK 1
DEED BOOK 68137, PAGE 106
PLAN BOOK 122, PLAN 50

343 AYER ROAD
KATHLEEN M. DECOT
ASSESSORS MAP 2, BLOCK 2
DEED BOOK 50213, PAGE 223
PLAN BOOK 122, PLAN 50

345 AYER ROAD
GEOFFREY O. & JENNIFER K. GILLARD
ASSESSORS MAP 2, BLOCK 3
DEED BOOK 57294, PAGE 103
PLAN BOOK 122, PLAN 50

341 AYER ROAD
ELIZABETH MAE SHUMAN JOYCE &
CHRISTOPHER MICHAEL JOYCE
ASSESSORS MAP 2, BLOCK 1
DEED BOOK 66963, PAGE 37

346 AYER ROAD
FRANK, JR. & BARBARA S. HEIM
ASSESSORS MAP 2, BLOCK 11
DEED BOOK 4971, PAGE 277
PLAN BOOK 329, PLAN 92

344 AYER ROAD
KATIE ELIZABETH & NATHAN J. BERG
ASSESSORS MAP 2, BLOCK 12
DEED BOOK 59619, PAGE 196
PLAN BOOK 393, PLAN 112

6 MYRICK LANE
JAMES R. & SIBLEY A. HANNIGAN
ASSESSORS MAP 2, BLOCK 73
DEED BOOK 6485, PAGE 19
PLAN BOOK 351, PLAN 116

MYRICK LANE
TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 2, BLOCK 13
DEED BOOK 5297, PAGE 435
PLAN BOOK 340, PLAN 42
(PARCEL IS SUBJECT TO ARTICL RESTRICTIONS)

NAD 83 N

ROUTE 110/111 - AYER ROAD

1921 COUNTY LAYOUT

TOWN LAYOUT

MYRICK LANE

6' STOCKADE

BIT DRIVE

GRAVEL DRIVE

CONTINUED ON SHEET NO. 82

CONTINUED ON SHEET NO. 84

16' - 12" PIPE OPTION

4' - 12" PIPE OPTION

104' - 12" RCP

103' - 12" RCP

91' - 12" RCP

57' - 12" RCP

231' - 12" RCP

162' - 12" RCP

22' - 12" PIPE OPTION

PC +46.51

PC +11.27

PT +28.56

PT +75.85

PROP TEMP EASEMENT

PROP PUE

PROP GUY WIRE (BO)

RELOCATE UP (BO)

RELOCATE UP; PROP GUY WIRE (BO)

RELOCATE UP, RISER, & GUY WIRE (BO)

RELOCATE UP & RISER (BO)

RELOCATE UP (BO); ELECTRIC RISER RELOCATION LOCATION NO. 10

PROP UP (BO)

PROP GUY WIRES (BO)

REM UP (BO)

RET UP

RET TMH

ADJ GG (BO-NGRID)

ADJ TMH (BO-VERIZON)

PROP 3" ELEC CONDUIT (TYP)

REM EXIST 12" CMP

REM EXIST 12" RCP

REM EXIST CB

REM EXIST 4" PVC

PROP SERVICE CONNECTION W/ RISER, WEATHERHEAD, & DISCONNECT

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:20 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	54	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 16 OF 17

DRAINAGE STRUCTURE TABLE							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
84	EXIST DMH	91+19.60	7.9 RT	265.89	I=258.80' (83)	I=258.70' (86)	
85	PROP CBCI	92+72.01	13.0 LT	260.35		I=255.35' (86)	
86	EXIST DMH	92+88.60	9.4 RT	260.61	I=254.00' (85) I=254.00' (84)	I=253.90' (88)	
87	PROP CBCI	95+53.48	13.0 LT	250.82		I=246.44' (88)	
88	PROP DMH	95+75.45	9.6 RT	250.14	I=244.45' (EX CB30) I=244.23' (87) I=244.28' (86)	I=244.01' (EX)	

NAD 83 N

ROUTE 110/111 - AYER ROAD

1921 COUNTY LAYOUT

349 AYER ROAD
CHRISTOPHER & ELIZABETH HORNE
ASSESSORS MAP 2, BLOCK 4
DEED BOOK 56424, PAGE 146
PLAN BOOK 122, PLAN 50

351 AYER ROAD
YELLOW BOOTS REALTY TRUST
ASSESSORS MAP 2, BLOCK 5
DEED BOOK 64062, PAGE 141
PLAN BOOK 122, PLAN 50

355 AYER ROAD
ROBERT J., JR. & YULING L. DIPIETRO
ASSESSORS MAP 2, BLOCK 6
DEED BOOK 23343, PAGE 164
PLAN BOOK 122, PLAN 50

361 AYER ROAD
JOHN E. SWANSON, III,
& LISA A.R. SHAW
ASSESSORS MAP 2, BLOCK 7
DEED BOOK 60577, PAGE 356
PLAN BOOK 904, PLAN 84

350 AYER ROAD
LISA MCATEER
ASSESSORS MAP 2, BLOCK 10
DEED BOOK 63929, PAGE 220

354 AYER ROAD
GILLIAN D. PRICE & CHRISTOPHER KRUEGLER
ASSESSORS MAP 2, BLOCK 9
DEED BOOK 32703, PAGE 258

0 AYER ROAD
WILSON NOMINEE TRUST
ASSESSORS MAP 2, BLOCK 8, LOT 1
DEED BOOK 61239, PAGE 194
PLAN BOOK 143, PLAN 89

AYER ROAD
WILSON NOMINEE TRUST
ASSESSORS MAP 2, BLOCK 8
DEED BOOK 62439, PAGE 134
PLAN BOOK 143, PLAN 89

(PARCEL IS SUBJECT TO CONSERVATION RESTRICTIONS AND ARTICLE 97 RESTRICTIONS)

PROP PUE
PROP GUY WIRE (BO)
REM EXIST CB & PIPE
PROP TEMP EASEMENT
RELOCATE UP (BO); ELECTRIC RISER RELOCATION LOCATION NO. 11
REM UP (BO)
28' - 12" PIPE OPTION
ADJ CB; RET PIPE
RELOCATE UP (BO)
R&S LIGHTED POST
PC +60.59
PT +34.56
24' - 12" PIPE OPTION
PT +94.06
ADJ DMH
283' - 12" RCP
REM EXIST PIPE
PC +17.06
231' - 12" RCP
167' - 12" RCP
REM EXIST CB & 12" RCP
ABAN EXIST PIPE
PROP GUY WIRE (BO)
RELOCATE UP & GUY WIRE (BO)
REM EXIST PIPE
REM EXIST CB
LIMIT OF CONSERVATION RESTRICTION

CB26
RIM=265.01'
INV=260.1'(E)
INV=259.4'(NW-12"RCP)
SUMP=259.4'

DMH5
RIM=265.01'
INV=259.2'(SE-12"RCP)
INV=258.8'(SW)
INV=258.7'(N)
SUMP=259.0'(TOP DEBRIS)

CB27
RIM=260.09'
INV=255.1'
SUMP=255.1'

CB28
RIM=259.84'
INV=254.3'(12"RCP)
SUMP=254.3'(TOP DEBRIS)

DMH6
RIM=259.84'
INV=254.2'(SE)
INV=254.0'(S)
INV=254.0'(SW)
INV=254.0'(NE)
SUMP=254.0'

CB29 (BURIED DOUBLE BASIN)
RIM=251.29'
INV=246.34'

CB30
RIM=250.09'
INV=244.8'(12"RCP)
SUMP=244.8'

DMH7
RIM=249.82'
INV=244.45' (A)
INV=244.28' (B)
INV=244.23' (C)
INV=244.01' (D)

CONTINUED ON SHEET NO. 53

CONTINUED ON SHEET NO. 55

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:20 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	55	80
PROJECT FILE NO.	609213		

UTILITY PLANS - 17 OF 17

609213_HD10(NOI UTILITY PLANS).DWG Plotted on 3-Apr-2024 7:20 PM

NAD 83 N

CORTLAND LANE

ROUTE 110/111 - AYER ROAD

AYER ROAD
CRAFTSMAN VILLAGE-HARVARD, LLC
ASSESSORS MAP 2, BLOCK 7, LOT 1
DEED BOOK 67486, PAGE 268
PLAN BOOK 912, PLAN 50

AYER ROAD
CRAFTSMAN VILLAGE-HARVARD, LLC
ASSESSORS MAP 2, BLOCK 7, LOT 2
DEED BOOK 67486, PAGE 268
PLAN BOOK 912, PLAN 50

AYER ROAD
WILSON NOMINEE TRUST
ASSESSORS MAP 2, BLOCK 8
DEED BOOK 62439, PAGE 134
PLAN BOOK 143, PLAN 89

(PARCEL IS SUBJECT TO CONSERVATION RESTRICTIONS AND ARTICLE 97 RESTRICTIONS)

29 HARVARD ROAD
29 HARVARD ROAD, LLC.
ASSESSORS MAP 35, LOT 22
DEED BOOK 71496, PAGE 87 (MIDDLESEX)

28 HARVARD ROAD
MAXANT INDUSTRIES, INC.
ASSESSORS MAP 35, LOT 53
DEED BOOK 12183, PAGE 272 (MIDDLESEX)
PLAN NO. 273 OF 1972

PROJECT END
STA 100+74.80
N3025101.0471
E636754.0355

PROP TEMP EASEMENT
PROP GUY WIRE (BO)
PROP LAYOUT ALTERATION
PROP SERVICE CONNECTION W/ RISER, WEATHERHEAD, & DISCONNECT
PROP SIDEWALK ANCHOR GUY WIRE (BO)
RELOCATE UP (BO)
RET UP
PROP PUE
PROP 3" ELEC CONDUIT (TYP)
PROP SIDEWALK ANCHOR GUY (BO)
REM UP (BO)
RELOCATE UP (BO); RELOCATE ELECTRIC RISER (BO-NGRID)
PROP PB ON EXIST CONDUIT; PROP 5' 2-4" CONDUIT (BO-NGRID)
28' - 12" PIPE OPTION
ADJ CB; RET PIPE

1921 COUNTY LAYOUT
PC +79.67
PC +51.47
PT +38.06
229+70.43
101+00

100' WETLAND BUFFER

NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY RIGHT-OF-WAY

TOWN OF HARVARD WORCESTER COUNTY

TOWN OF AYER (SEE SURVEY NOTE 6) MIDDLESEX COUNTY

CB30
RIM=250.09'
INV=244.8'(12"RCP)
SUMP=244.8'

DMH7
RIM=249.82'
INV=244.45' (A)
INV=244.28' (B)
INV=244.23' (C)
INV=244.01' (D)

CONTINUED ON SHEET NO. 54

NOTES:
1. CONTRACTOR SHALL PERFORM TREE TRIMMING / CLEARING TO PROVIDE 10' CLEAR OFF THE BACK OF UTILITY POLES.
2. ALL PROPOSED CATCH BASINS SHALL HAVE 4' SUMPS UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

SEEDING AND MULCH LEGEND

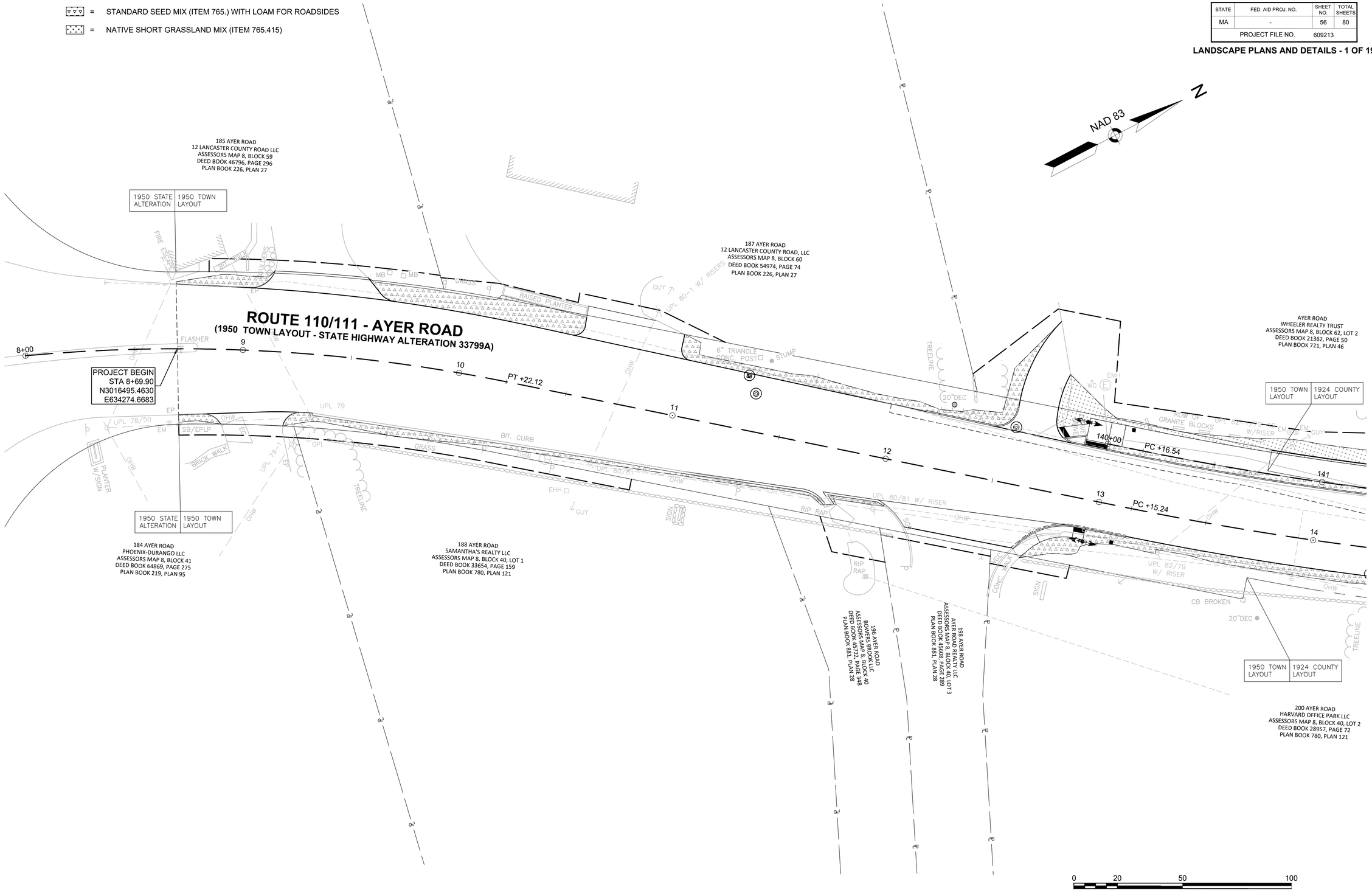
= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

= NATIVE SHORT GRASSLAND MIX (ITEM 765.415)

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	56	80
PROJECT FILE NO.		609213	

LANDSCAPE PLANS AND DETAILS - 1 OF 19



609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:21 PM

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

= NATIVE SHORT GRASSLAND MIX (ITEM 765.415)

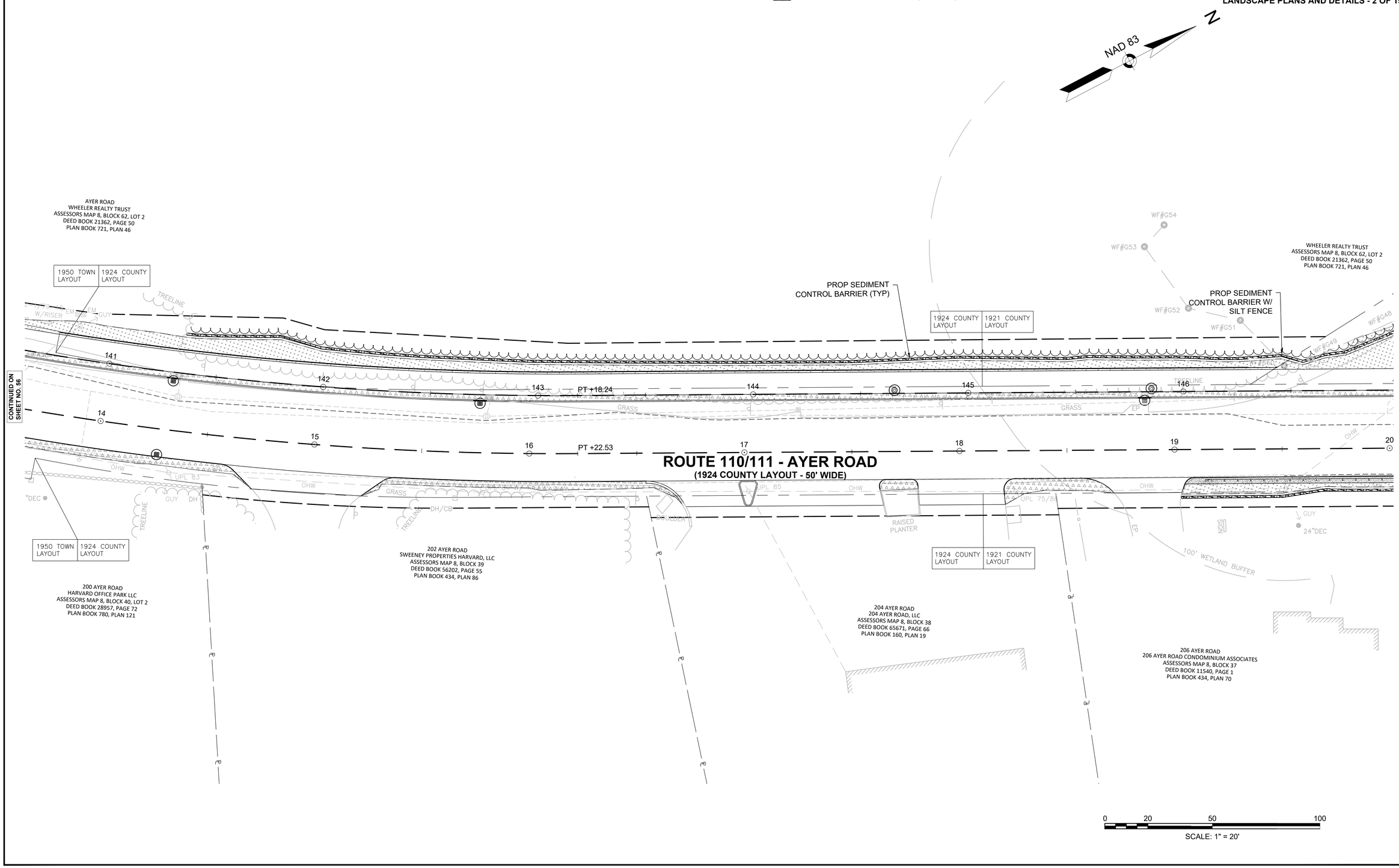
= PAVEMENT MILLING MULCH (ITEM 769.)

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	57	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 2 OF 19

609213_HD11(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:21 PM



SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

= NATIVE SHORT GRASSLAND MIX (ITEM 765.415)

= PAVEMENT MILLING MULCH (ITEM 769.)

= WETLAND SEED MIX (ITEM 765.555)

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	58	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 3 OF 19

CONTINUED ON SHEET NO. 10

LANCASTER COUNTY ROAD
INHABITANTS OF THE TOWN OF HARVARD
ASSESSORS MAP 8, BLOCK 62, LOT 4
DEED BOOK 21051, PAGE 25
PLAN BOOK 721, PLAN 46

GEBO LANE
(PUBLIC - VARIABLE WIDTH)

215 AYER ROAD
APIF - MASSACHUSETTS, LLC
ASSESSORS MAP 8, BLOCK 61
DEED BOOK 65530, PAGE 161
PLAN BOOK 299, PLAN 81
PLAN BOOK 365, PLAN 118

PROP SEDIMENT CONTROL BARRIER (TYP)

NATIVE SHORT GRASSLAND MIX

PROP INT. STREAM REST. AREA SEE SHEET 74

PROP WETLAND REP. AREA, TYP. SEE SHEET 74

WHEELER REALTY TRUST
ASSESSORS MAP 8, BLOCK 62, LOT 2
DEED BOOK 21362, PAGE 50
PLAN BOOK 721, PLAN 46

PC +32.26
PT +80.14
PT +24.05
PC +72.44
PT +30.45
PC +68.77
PC +73.39

EXISTING VEGETATION TO BE PRESERVED WITHIN LIMITS SHOWN

POTENTIAL STAGING AREA. SEE GENERAL CONSTRUCTION NOTES #8 AND #9.

NAD 83 N

100' WETLAND BUFFER
100' RIVERFRONT AREA
200' RIVERFRONT AREA
GRASS
CONC. WALK
VGC
RAMP
BIT. CURB
CONC. APRON
SEPTIC TANK
SEPTIC PUMP
AC UNITS
FF=259.76'
FF=259.79'
STONE RET.WALL
SIGN
GUARDRAIL
TREELINE
STUMP
TRIANGLE CONC. POST

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

20 21 110+00 22 23 PC +10.02 24 PT +04.31 25

CONTINUED ON SHEET NO. 57

CONTINUED ON SHEET NO. 59

21+29.95 AYER ROAD=
110+00.00 GEBO LANE

PROP INT. STREAM REST. AREA SEE SHEET 74

PROP SEDIMENT CONTROL BARRIER (TYP)

206 AYER ROAD
206 AYER ROAD CONDOMINIUM ASSOCIATES
ASSESSORS MAP 8, BLOCK 37
DEED BOOK 11540, PAGE 1
PLAN BOOK 434, PLAN 70

AYER ROAD
INHABITANTS OF THE TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 8, BLOCK 36
DEED BOOK 6223, PAGE 264
PLAN BOOK 434, PLAN 86

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

0 20 50 100
SCALE: 1" = 20'

609213_HD11(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:21 PM

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

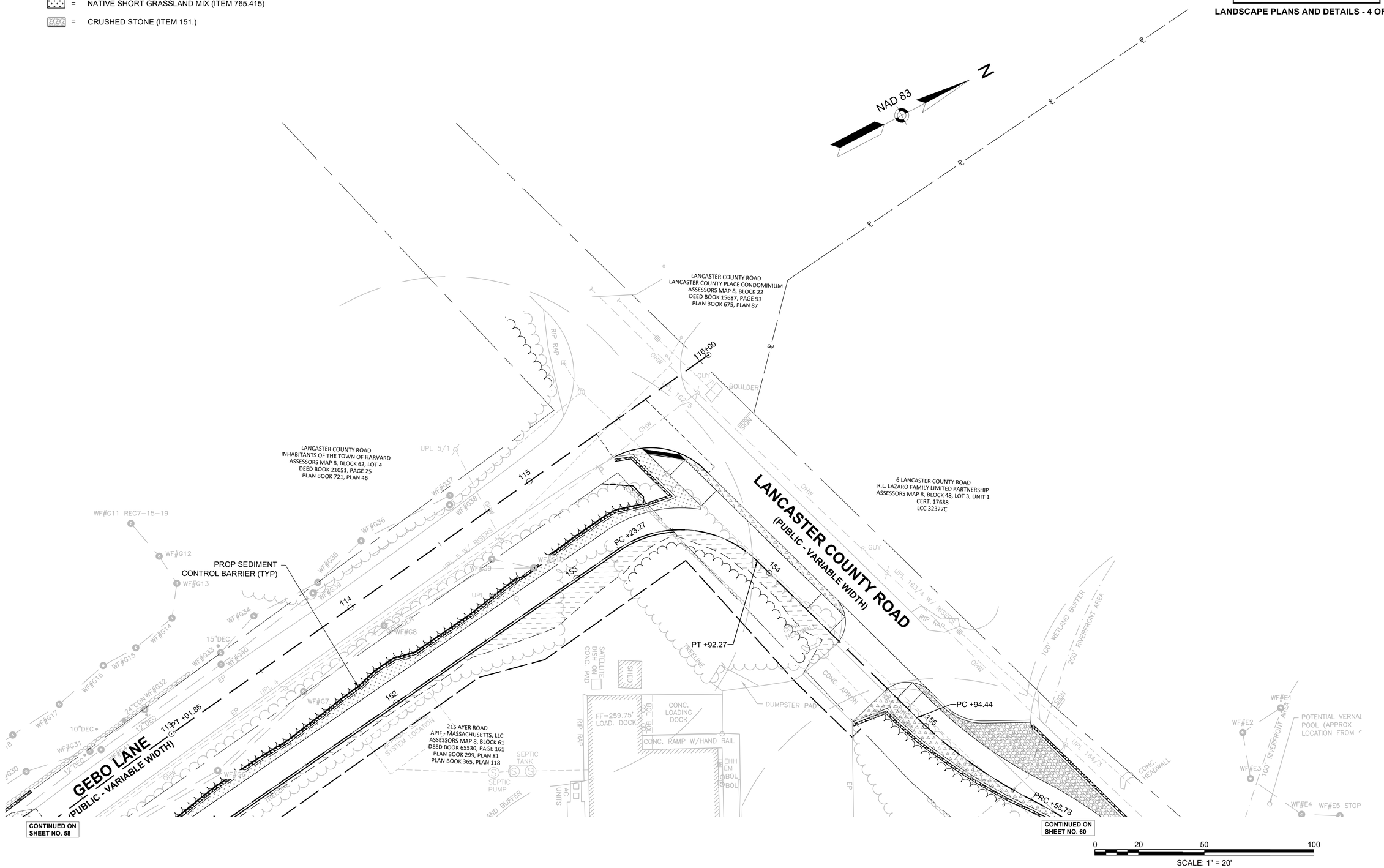
= NATIVE SHORT GRASSLAND MIX (ITEM 765.415)

= CRUSHED STONE (ITEM 151.)

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	59	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 4 OF 19



609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:21 PM

SEEDING AND MULCH LEGEND

- = STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS
- = STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES
- = NATIVE SHORT GRASSLAND MIX (ITEM 765.415)
- = PAVEMENT MILLING MULCH (ITEM 769.)
- = CRUSHED STONE (ITEM 151.)

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	60	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 5 OF 19

609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:21 PM

CONTINUED ON SHEET NO. 10

PC +94.44

155

PRC +58.78

156

PT +12.77

157

PC +88.95

158

PCC +74.23

159

PT +93.00

160

161

PT +40.35

31

30

PT +56.12

26

27

28

29

PC +45.37

PC +41.32

120+00

121+00

PT +64.21

PC +40.76

29+81.00 AYER ROAD=
120+00.00 POOR FARM ROAD

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

LANCASTER COUNTY ROAD
(PUBLIC - VARIABLE WIDTH)

POOR FARM ROAD
(PUBLIC - VARIABLE WIDTH)

PROP SEDIMENT CONTROL BARRIER (TYP)

6 LANCASTER COUNTY ROAD
R.L. LAZARO FAMILY LIMITED PARTNERSHIP
ASSESSORS MAP 8, BLOCK 48, LOT 3, UNIT 1
CERT. 17688
LCC 32327C

LANCASTER COUNTY ROAD
TOWN OF HARVARD
(CONSERVATION COMMISSION)
ASSESSORS MAP 4, BLOCK 48, LOT 3, UNIT 4
CERT. 11358
LCC 32327C
(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

215 AYER ROAD
APIF - MASSACHUSETTS, LLC
ASSESSORS MAP 8, BLOCK 61
DEED BOOK 65530, PAGE 161
PLAN BOOK 299, PLAN 81
PLAN BOOK 365, PLAN 118

GAS EASEMENT
(NATIONAL GRID)
DEED BOOK 4726, PAGE 527
PLAN BOOK 305, PLAN 118

129 POOR FARM ROAD
LAURA A. CLARAGE
ASSESSORS MAP 8, BLOCK 35
DEED BOOK 64304, PAGE 359

132 POOR FARM ROAD
JEFFREY P. & ALEXANDRA H. MCKEARNEY
ASSESSORS MAP 8, BLOCK 24
DEED BOOK 67692, PAGE 264

POTENTIAL VERNAL POOL (APPROX LOCATION FROM GIS)

APPROXIMATE 100 YEAR FLOOD ZONE

"BOWERS BROOK"

100' RIVERFRONT AREA

200' RIVERFRONT AREA

100' WETLAND BUFFER

CONTINUED ON SHEET NO. 99

CONTINUED ON SHEET NO. 61

NAD 83

N

0 20 50 100

SCALE: 1" = 20'

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

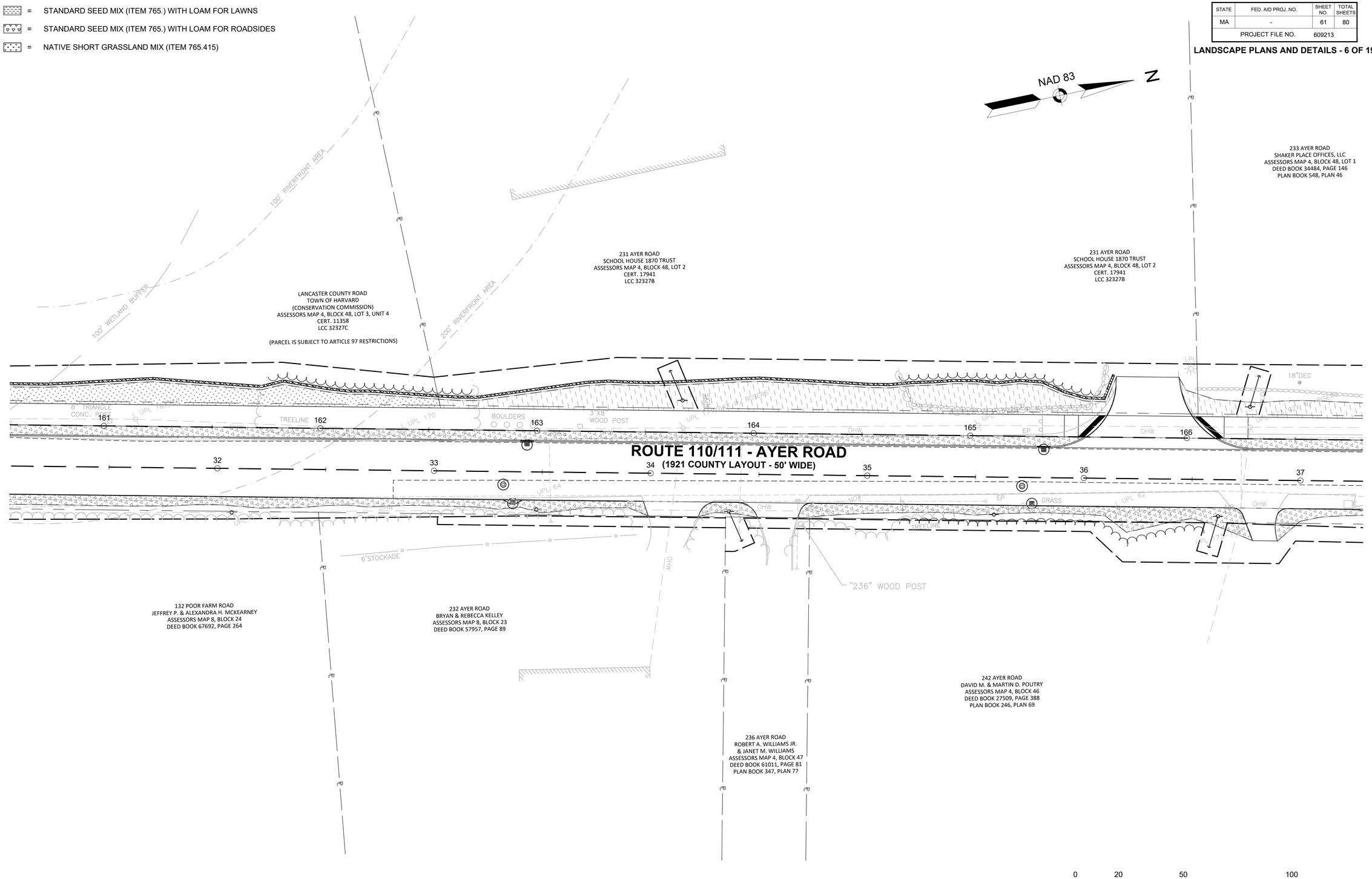
= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

= NATIVE SHORT GRASSLAND MIX (ITEM 765.415)

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	61	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 6 OF 19



CONTINUED ON SHEET NO. 60

CONTINUED ON SHEET NO. 62

609213_HD11(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:22 PM

SEEDING AND MULCH LEGEND

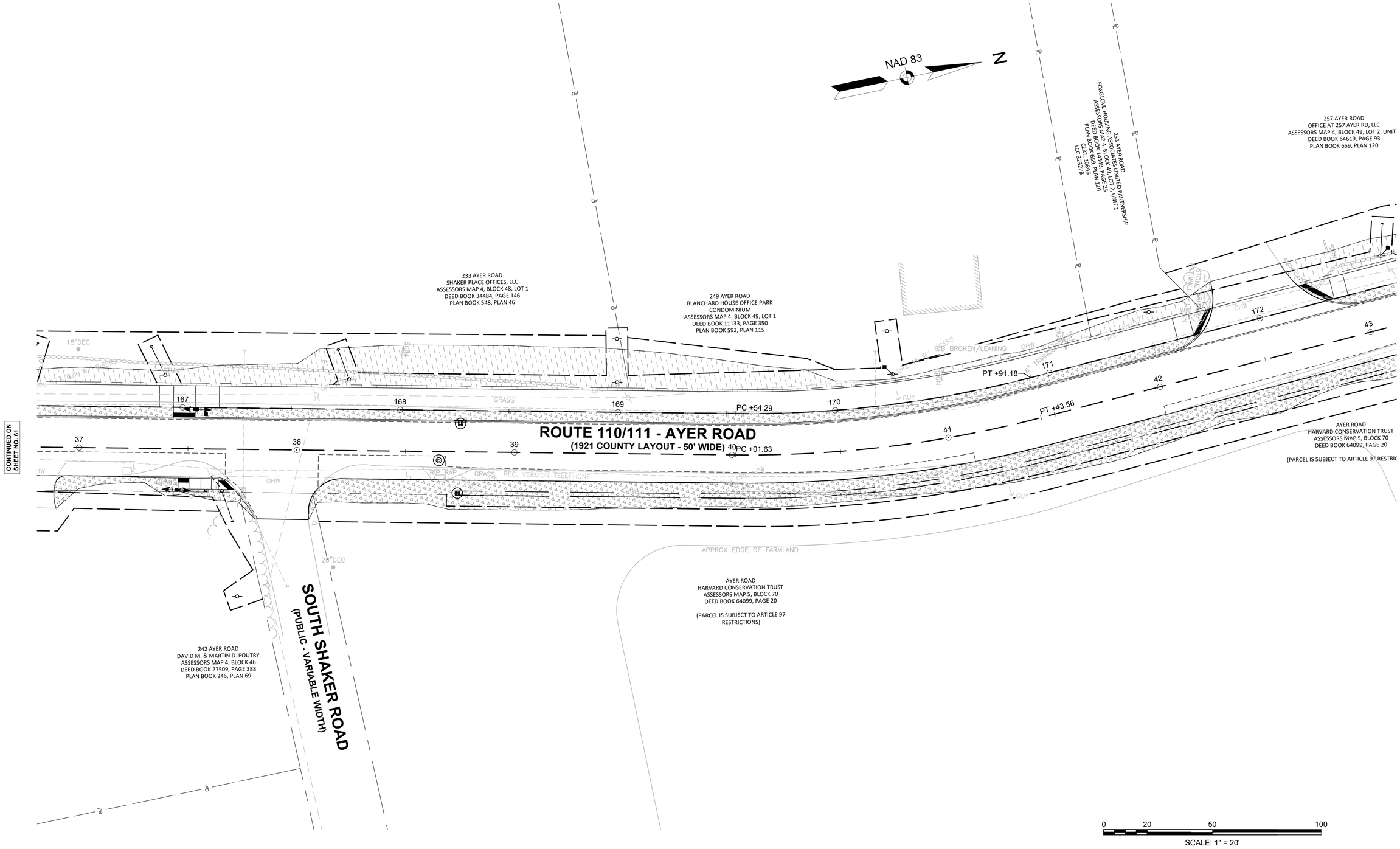
= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	62	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 7 OF 19



609213_HD11(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:22 PM

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	63	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 8 OF 19

NAD 83 N

259 AYER ROAD
259 AYER ROAD LLC
ASSESSORS MAP 4, BLOCK 51
DEED BOOK 69129, PAGE 227
PLAN BOOK 462, PLAN 72

AYER ROAD
REM REALTY TRUST
ASSESSORS MAP 4, BLOCK 52, LOT 2
DEED BOOK 56380, PAGE 389

257 AYER ROAD
OFFICE AT 257 AYER RD, LLC
ASSESSORS MAP 4, BLOCK 49, LOT 2, UNIT 2
DEED BOOK 64619, PAGE 93
PLAN BOOK 659, PLAN 120

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

PC +55.26
PC +07.64
PT +44.22
PT +91.71

264 AYER ROAD
THREE SEASONS TREESCAPE, LLC
ASSESSORS MAP 4, BLOCK 39
DEED BOOK 64293, PAGE 91
PLAN BOOK 379, PLANS 10-11

262 AYER ROAD
DKMM REALTY, LLC
ASSESSORS MAP 4, BLOCK 40
DEED BOOK 61126, PAGE 24

AYER ROAD
HARVARD CONSERVATION TRUST
ASSESSORS MAP 5, BLOCK 70
DEED BOOK 64099, PAGE 20

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

256 AYER ROAD
256 AYER ROAD, LLC
ASSESSORS MAP 4, BLOCK 41
DEED BOOK 59556, PAGE 235
PLAN BOOK 281, PLAN 117

CONTINUED ON SHEET NO. 62

CONTINUED ON SHEET NO. 64

0 20 50 100
SCALE: 1" = 20'

609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:22 PM

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	64	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 9 OF 19

609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:22 PM

NAD 83

AYER ROAD
REM REALTY TRUST
ASSESSORS MAP 4, BLOCK 52, LOT 2
DEED BOOK 56380, PAGE 389

OLD MILL ROAD
(1942 COUNTY LAYOUT - WIDTH VARIES)

285 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 25
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

275 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 24
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

285 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 25
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

CONTINUED ON SHEET NO. 63

CONTINUED ON SHEET NO. 65

264 AYER ROAD
THREE SEASONS TREESCAPE, LLC
ASSESSORS MAP 4, BLOCK 39
DEED BOOK 64293, PAGE 91
PLAN BOOK 379, PLANS 10-11

270 AYER ROAD
HARVARD PROFESSIONAL CONDOMINIUM
ASSESSORS MAP 4, BLOCK 38
DEED BOOK 42123, PAGE 217
PLAN BOOK 394, PLAN 108

276 AYER ROAD
D. FRANCIS MURPHY INSURANCE AGENCY INC.
ASSESSORS MAP 4, BLOCK 37
DEED BOOK 13624, PAGE 388
PLAN BOOK 469, PLAN 36

0 20 50 100
SCALE: 1" = 20'

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	65	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 10 OF 19

609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:22 PM

NAD 83 N

285 AYER ROAD
RDJ REALTY COMPANY
ASSESSORS MAP 4, BLOCK 25
DEED BOOK 31418, PAGE 201
PLAN BOOK 335, PLAN 6

289 AYER ROAD
289 AYER LLC
ASSESSORS MAP 4, BLOCK 26
DEED BOOK 58259, PAGE 155
PLAN BOOK 241, PLAN 7

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

PC +01.68
PT +48.66
PT +44.69

CONTINUED ON SHEET NO. 64

CONTINUED ON SHEET NO. 66

276 AYER ROAD
FRANCIS MURPHY INSURANCE AGENCY INC.
ASSESSORS MAP 4, BLOCK 37
DEED BOOK 13624, PAGE 388
PLAN BOOK 469, PLAN 36

280 AYER ROAD
YUKON HOLDINGS, LLC
ASSESSORS MAP 4, BLOCK 36
DEED BOOK 48875, PAGE 84
PLAN BOOK 469, PLAN 36

284 AYER ROAD
DAVID B. ALEXANDER
ASSESSORS MAP 4, BLOCK 35
DEED BOOK 63500, PAGE 332
PLAN BOOK 587, PLAN 5

288 AYER ROAD
THE 39 EATON REALTY TRUST
ASSESSORS MAP 4, BLOCK 34
DEED BOOK 67617, PAGE 325
PLAN BOOK 389, PLAN 9

0 20 50 100
SCALE: 1" = 20'

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

= NATIVE SHORT GRASSLAND MIX (ITEM 765.415)

= PAVEMENT MILLING MULCH (ITEM 769.)

= WETLAND SEED MIX (ITEM 765.555)

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	66	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 11 OF 19

609213_HD11(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:22 PM

NAD 83 N

289 AYER ROAD
289 AYER LLC
ASSESSORS MAP 4, BLOCK 26
DEED BOOK 58259, PAGE 155
PLAN BOOK 241, PLAN 7

295 AYER ROAD
295 AYER ROAD LLC
ASSESSORS MAP 4, BLOCK 27
DEED BOOK 68608, PAGE 289
PLAN BOOK 967, PLAN 65

PROP SEDIMENT CONTROL BARRIER (TYP)

INT STREAM RESTORATION AREA SEE SHEET 74

PROP WETLAND REP. AREA, TYP. SEE SHEET 74

AYER ROAD
BERWIND BROTHERS LLC
ASSESSORS MAP 4, BLOCK 28
DEED BOOK 42857, PAGE 287
PLAN BOOK 357, PLAN 100

SITE UNDER CONSTRUCTION

APPROX LIMIT OF GRAVEL ENTRANCE

RAISED PLANTER W/SIGN

CONC. BOUNDS

ROW BOULDERS

CONC. RET.WALL

TREELINE

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

PC +53.48

PC +02.68

288 AYER ROAD
THE 39 EATON REALTY TRUST
ASSESSORS MAP 4, BLOCK 34
DEED BOOK 67617, PAGE 325
PLAN BOOK 389, PLAN 9

292 AYER ROAD
THE VICKESH MYER REVOCABLE TRUST
ASSESSORS MAP 5, BLOCK 78
DEED BOOK 62379, PAGE 392
PLAN BOOK 329, PLAN 118

AYER ROAD
INHABITANTS OF THE TOWN OF HARVARD (CONSERVATION COMMISSION)
ASSESSORS MAP 5, BLOCK 80
DEED BOOK 6626, PAGE 58
PLAN BOOK 433, PLAN 7

(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

294 AYER ROAD
AYER ROAD, LLC
ASSESSORS MAP 4, BLOCK 33
DEED BOOK 52481, PAGE 269

304 AYER ROAD
STEVEN & CAROLYN H. FADER
ASSESSORS MAP 4, BLOCK 32, LOT 1
DEED BOOK 54408, PAGE 186

PROP WETLAND REP. AREA, TYP. SEE SHEET 74

INT STREAM RESTORATION AREA SEE SHEET 74

WF#H1 WF#H2 WF#H3 WF#H8 WF#H9

CONTINUED ON SHEET NO. 65

CONTINUED ON SHEET NO. 67

0 20 50 100

SCALE: 1" = 20'

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

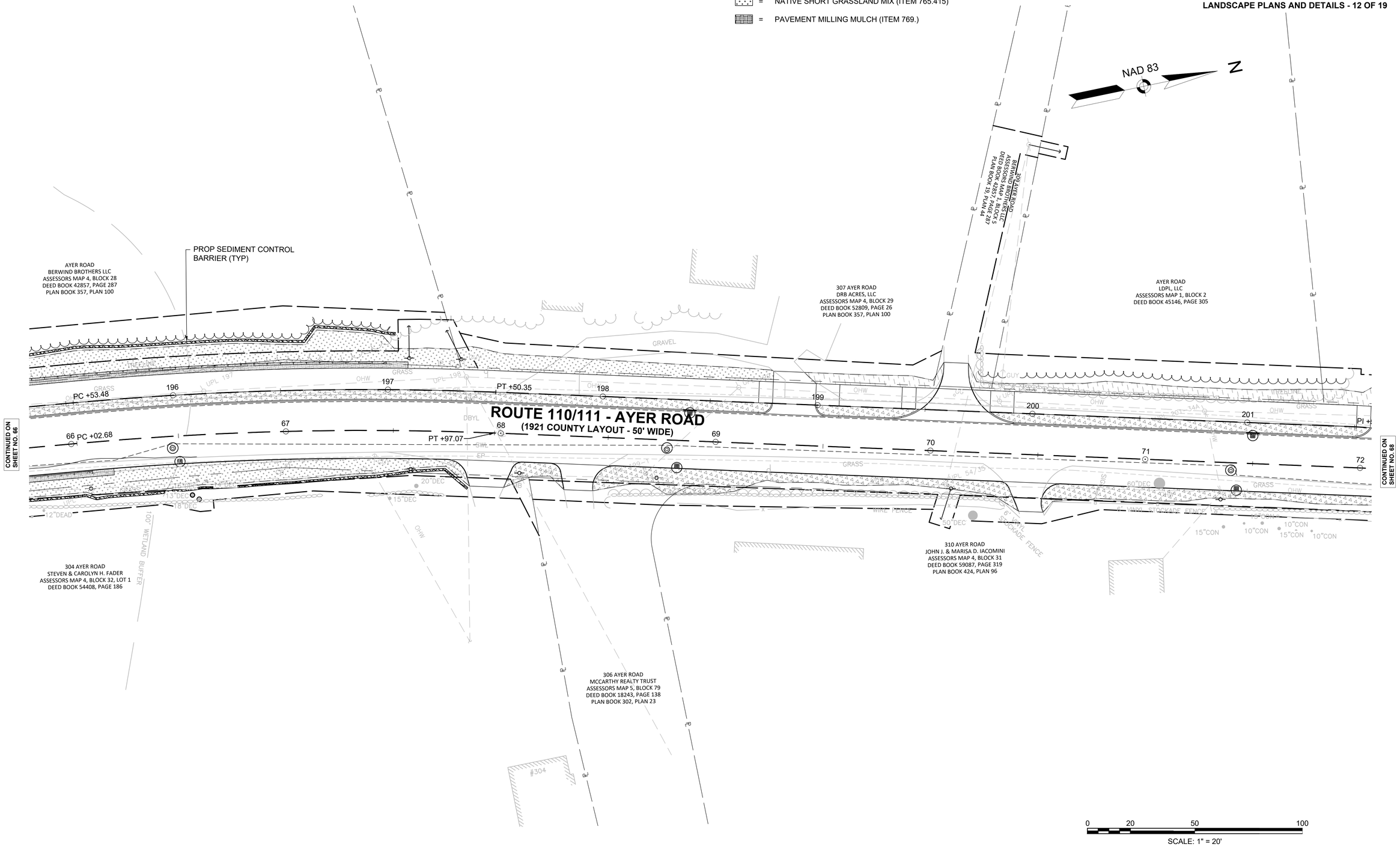
= NATIVE SHORT GRASSLAND MIX (ITEM 765.415)

= PAVEMENT MILLING MULCH (ITEM 769.)

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	67	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 12 OF 19



CONTINUED ON SHEET NO. 66

CONTINUED ON SHEET NO. 68

609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:23 PM

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	68	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 13 OF 19

609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:23 PM

313 AYER ROAD
FEDERICO RAFFA & MELISA L. CUNNINGHAM
ASSESSORS MAP 4, BLOCK 30
DEED BOOK 50759, PAGE 247
PLAN BOOK 383, PLAN 64

325 AYER ROAD
AYER ROAD PROPERTY OWNER, LLC
ASSESSORS MAP 1, BLOCK 4
DEED BOOK 66687, PAGE 238
PLAN BOOK 277, PLAN 90

310 AYER ROAD
JOHN J. & MARISA D. IACOMINI
ASSESSORS MAP 4, BLOCK 31
DEED BOOK 59087, PAGE 319
PLAN BOOK 424, PLAN 96

320 AYER ROAD
AYER ROAD PROPERTY OWNER, LLC
ASSESSORS MAP 2, BLOCK 74
DEED BOOK 66687, PAGE 230
PLAN BOOK 37, PLAN 16
PLAN BOOK 550, PLAN 61

NAD 83 N

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

PI +50.75 PI +38.44 PC +48.11 PC +94.80 PT +26.53 PT +74.75 PC +74.55

72 73 74 75 76 77 202 203 204 205 206 207

CONTINUED ON SHEET NO. 67

CONTINUED ON SHEET NO. 69

0 20 50 100
SCALE: 1" = 20'

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	69	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 14 OF 19

609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:23 PM

NAD 83

N

AYER ROAD
LDPL, LLC
ASSESSORS MAP 1, BLOCK 2
DEED BOOK 45146, PAGE 305

327 AYER ROAD
LAWRENCE C. DOE &
PAMELA C. LAWSON
ASSESSORS MAP 1, BLOCK 3
DEED BOOK 45146, PAGE 310

AYER ROAD
LDPL, LLC
ASSESSORS MAP 1, BLOCK 2
DEED BOOK 45146, PAGE 305

335 AYER ROAD
335 AYER ROAD REALTY TRUST
ASSESSORS MAP 1, BLOCK 1
DEED BOOK 68137, PAGE 106
PLAN BOOK 122, PLAN 50

320 AYER ROAD
AYER ROAD PROPERTY OWNER, LLC
ASSESSORS MAP 2, BLOCK 74
DEED BOOK 66687, PAGE 230
PLAN BOOK 37, PLAN 16
PLAN BOOK 550, PLAN 61

6 MYRICK LANE
JAMES R. & SIBLEY A. HANNIGAN
ASSESSORS MAP 2, BLOCK 73
DEED BOOK 6485, PAGE 19
PLAN BOOK 351, PLAN 116

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

PC +28.07
PC +74.55
PT +04.05
PT +35.82

PROP SEDIMENT CONTROL BARRIER (TYP)

NOTE: WF#J9 WAS NOT FOUND

CONTINUED ON SHEET NO. 68

CONTINUED ON SHEET NO. 70

0 20 50 100

SCALE: 1" = 20'

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	70	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 15 OF 19

335 AYER ROAD
335 AYER ROAD REALTY TRUST
ASSESSORS MAP 1, BLOCK 1
DEED BOOK 68137, PAGE 106
PLAN BOOK 122, PLAN 50

343 AYER ROAD
KATHLEEN M. DECOT
ASSESSORS MAP 2, BLOCK 2
DEED BOOK 50213, PAGE 223
PLAN BOOK 122, PLAN 50

345 AYER ROAD
GEOFFREY O. & JENNIFER K. GILLARD
ASSESSORS MAP 2, BLOCK 3
DEED BOOK 57294, PAGE 103
PLAN BOOK 122, PLAN 50

341 AYER ROAD
ELIZABETH MAE SHUMAN JOYCE &
CHRISTOPHER MICHAEL JOYCE
ASSESSORS MAP 2, BLOCK 1
DEED BOOK 66963, PAGE 37

346 AYER ROAD
FRANK, JR. & BARBARA S. HEIM
ASSESSORS MAP 2, BLOCK 11
DEED BOOK 4971, PAGE 277
PLAN BOOK 329, PLAN 92

346 AYER ROAD
FRANK, JR. & BARBARA S. HEIM
ASSESSORS MAP 2, BLOCK 11
DEED BOOK 4971, PAGE 277
PLAN BOOK 329, PLAN 92

344 AYER ROAD
KATIE ELIZABETH & NATHAN J. BERG
ASSESSORS MAP 2, BLOCK 12
DEED BOOK 59619, PAGE 196
PLAN BOOK 393, PLAN 112

6 MYRICK LANE
JAMES R. & SIBLEY A. HANNIGAN
ASSESSORS MAP 2, BLOCK 73
DEED BOOK 6485, PAGE 19
PLAN BOOK 351, PLAN 116

MYRICK LANE
TOWN OF HARVARD
(CONSERVATION COMMISION)
ASSESSORS MAP 2, BLOCK 13
DEED BOOK 5257, PAGE 43
PLAN BOOK 2499, PLAN 42
(PARCEL IS SUBJECT TO ARTICLE 97 RESTRICTIONS)

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

MYRICK LANE
(PUBLIC - 50' WIDE)

PROP SEDIMENT CONTROL BARRIER (TYP)

PC +11.36
PC +46.51
PT +28.31
PT +75.85

CONTINUED ON SHEET NO. 69

CONTINUED ON SHEET NO. 71

0 20 50 100
SCALE: 1" = 20'

609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:23 PM

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	71	195
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 16 OF 19

609213_HD11(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:23 PM

NAD 83 N

349 AYER ROAD
CHRISTOPHER & ELIZABETH HORNE
ASSESSORS MAP 2, BLOCK 4
DEED BOOK 56424, PAGE 146
PLAN BOOK 122, PLAN 50

351 AYER ROAD
YELLOW BOOTS REALTY TRUST
ASSESSORS MAP 2, BLOCK 5
DEED BOOK 64062, PAGE 141
PLAN BOOK 122, PLAN 50

355 AYER ROAD
ROBERT J., JR. & YULING L. DIPIETRO
ASSESSORS MAP 2, BLOCK 6
DEED BOOK 23343, PAGE 164
PLAN BOOK 122, PLAN 50

361 AYER ROAD
JOHN E. SWANSON, III,
& LISA A.R. SHAW
ASSESSORS MAP 2, BLOCK 7
DEED BOOK 60577, PAGE 356
PLAN BOOK 904, PLAN 84

#349 #351 #355 GARAGE GARAGE

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

PC +69.52 PC +17.06 PT 241.82 PT +94.06

PI +82.26 PI +04.87 PI +14.92 PI +30.02

90 91 92 93 94 95 220 221 222 223 225

CONTINUED ON SHEET NO. 105

CONTINUED ON SHEET NO. 107

12X12X48" STONE POST

350 AYER ROAD
LISA MCATEER
ASSESSORS MAP 2, BLOCK 10
DEED BOOK 63929, PAGE 220

#350

354 AYER ROAD
GILLIAN D. PRICE & CHRISTOPHER KRUEGLER
ASSESSORS MAP 2, BLOCK 9
DEED BOOK 32703, PAGE 258

#354

0 AYER ROAD
WILSON NOMINEE TRUST
ASSESSORS MAP 2, BLOCK 8, LOT 1
DEED BOOK 61239, PAGE 194
PLAN BOOK 143, PLAN 89

AYER ROAD
WILSON NOMINEE TRUST
ASSESSORS MAP 2, BLOCK 8
DEED BOOK 62439, PAGE 134
PLAN BOOK 143, PLAN 89

(PARCEL IS SUBJECT TO CONSERVATION RESTRICTIONS AND ARTICLE 97 RESTRICTIONS)

LIMIT OF CONSERVATION RESTRICTION

0 20 50 100
SCALE: 1" = 20'

SEEDING AND MULCH LEGEND

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR LAWNS

= STANDARD SEED MIX (ITEM 765.) WITH LOAM FOR ROADSIDES

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	72	80
PROJECT FILE NO.	609213		

LANDSCAPE PLANS AND DETAILS - 17 OF 19

609213_HD111(NOI LANDSCAPE PLANS).DWG Plotted on 3-Apr-2024 7:23 PM

NAD 83 N

AYER ROAD
CRAFTSMAN VILLAGE-HARVARD, LLC
ASSESSORS MAP 2, BLOCK 7, LOT 1
DEED BOOK 67486, PAGE 268
PLAN BOOK 912, PLAN 50

AYER ROAD
CRAFTSMAN VILLAGE-HARVARD, LLC
ASSESSORS MAP 2, BLOCK 7, LOT 2
DEED BOOK 67486, PAGE 268
PLAN BOOK 912, PLAN 50

29 HARVARD ROAD
29 HARVARD ROAD, LLC.
ASSESSORS MAP 35, LOT 22
DEED BOOK 71496, PAGE 87 (MIDDLESEX)

PROJECT END
STA 100+74.70
N3025100.9454
E636754.0264

CORTLAND LANE

ROUTE 110/111 - AYER ROAD
(1921 COUNTY LAYOUT - 50' WIDE)

PC +51.47

PT +38.06

229+70.59

PROP SEDIMENT CONTROL BARRIER (TYP)

100' WETLAND BUFFER

AYER ROAD
WILSON NOMINEE TRUST
ASSESSORS MAP 2, BLOCK 8
DEED BOOK 62439, PAGE 134
PLAN BOOK 143, PLAN 89

(PARCEL IS SUBJECT TO CONSERVATION RESTRICTIONS AND ARTICLE 97 RESTRICTIONS)

NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY RIGHT-OF-WAY

TOWN OF HARVARD WORCESTER COUNTY

MIDDLESEX COUNTY TOWN OF AYER (SEE SURVEY NOTE 6)

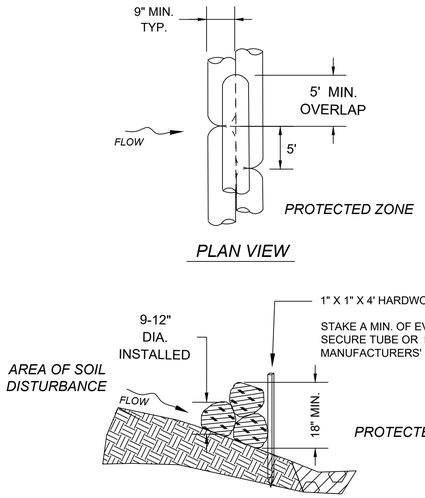
28 HARVARD ROAD
MAXANT INDUSTRIES, INC.
ASSESSORS MAP 35, LOT 53
DEED BOOK 12183, PAGE 272 (MIDDLESEX)
PLAN NO. 273 OF 1972

CONTINUED ON SHEET NO. 71

0 20 50 100

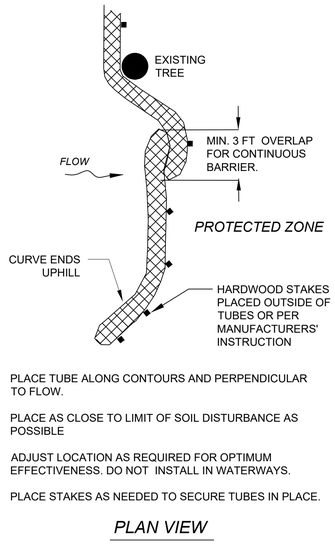
SCALE: 1" = 20'

609213_HD11(NO) CONSTRUCTION DETAILS).DWG Plotted on 3-Apr-2024 7:25 PM



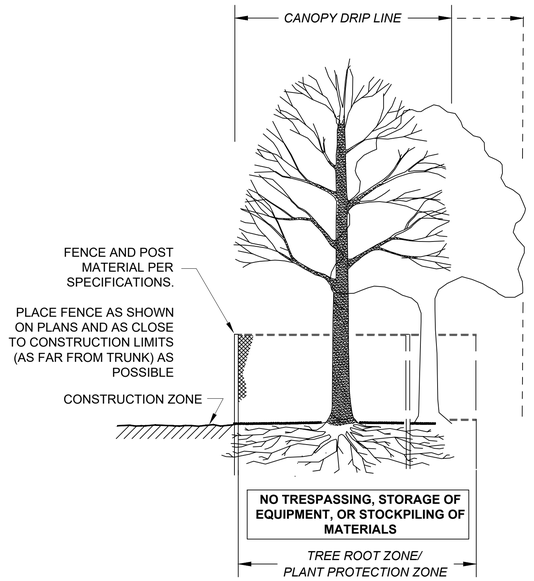
COMPOST FILTER TUBE BERM (SLOPES 2:1 OR STEEPER)

NOT TO SCALE

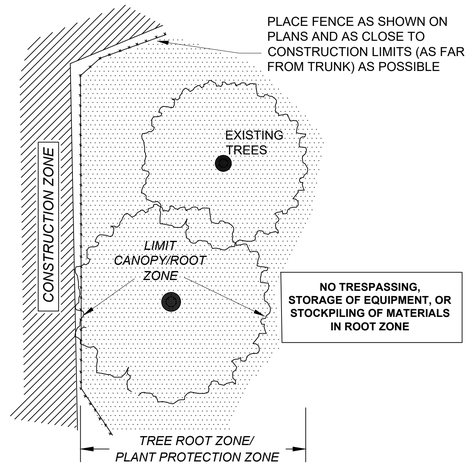


COMPOST FILTER TUBE

NOT TO SCALE



SECTION - FENCE PROTECTION OF ROOT ZONE



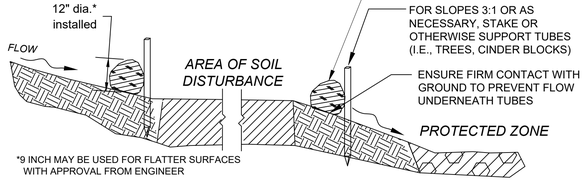
PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

TREE PROTECTION - ROOT ZONE

NOT TO SCALE

CAPTURE SEDIMENT AND PREVENT FLOW OFF SITE

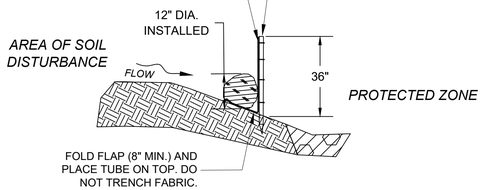
REDUCE HIGH WATER FLOW ONTO WORK ZONE



SECTION

SEDIMENT BARRIER - COMPOST FILTER TUBES

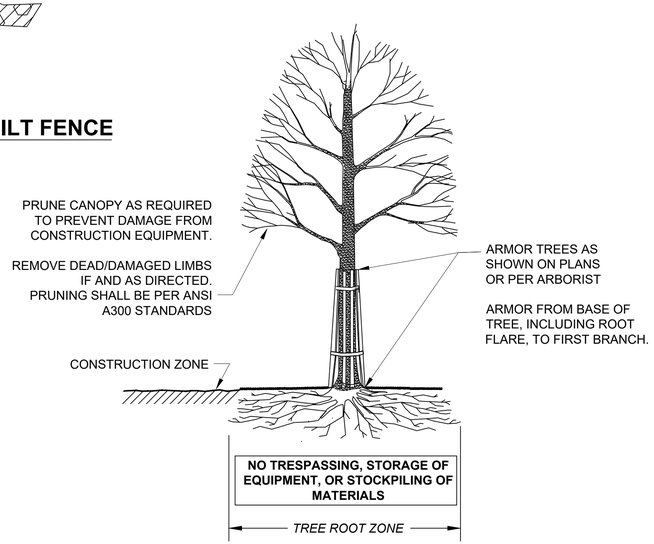
NOT TO SCALE



SECTION

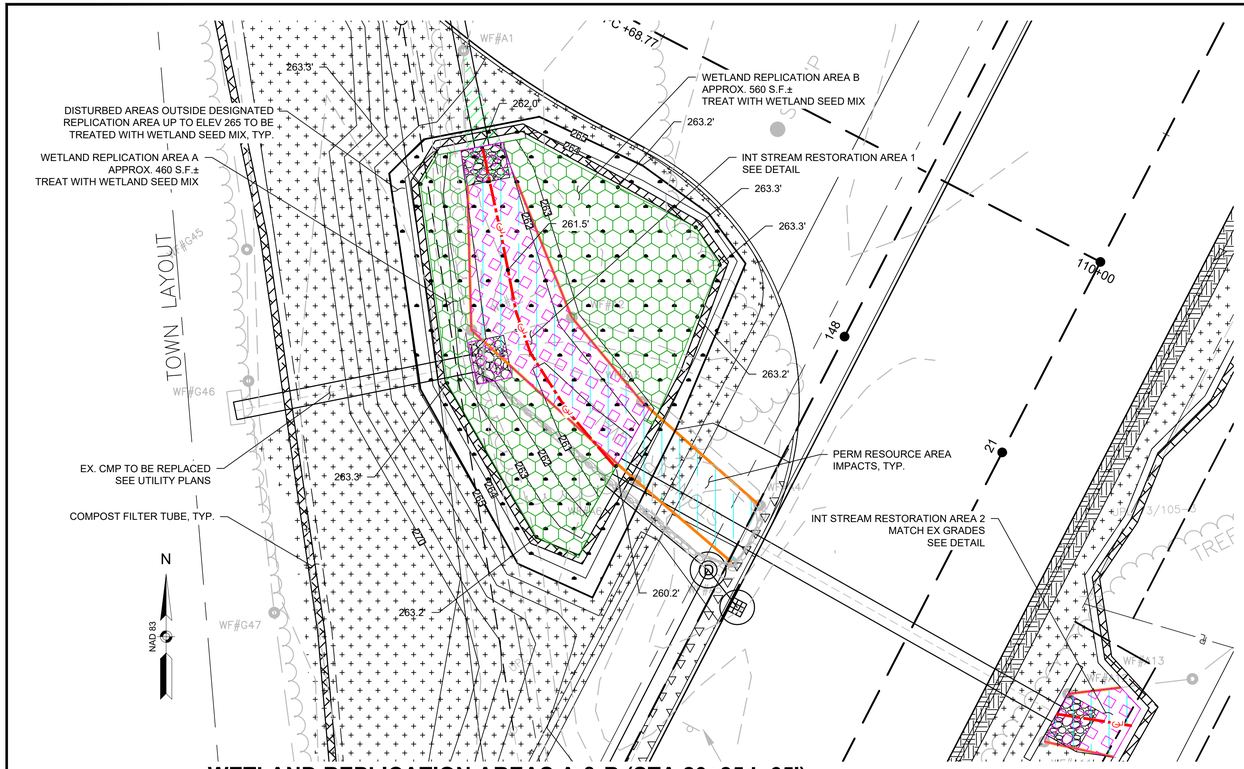
COMPOST FILTER TUBE & SILT FENCE

NOT TO SCALE



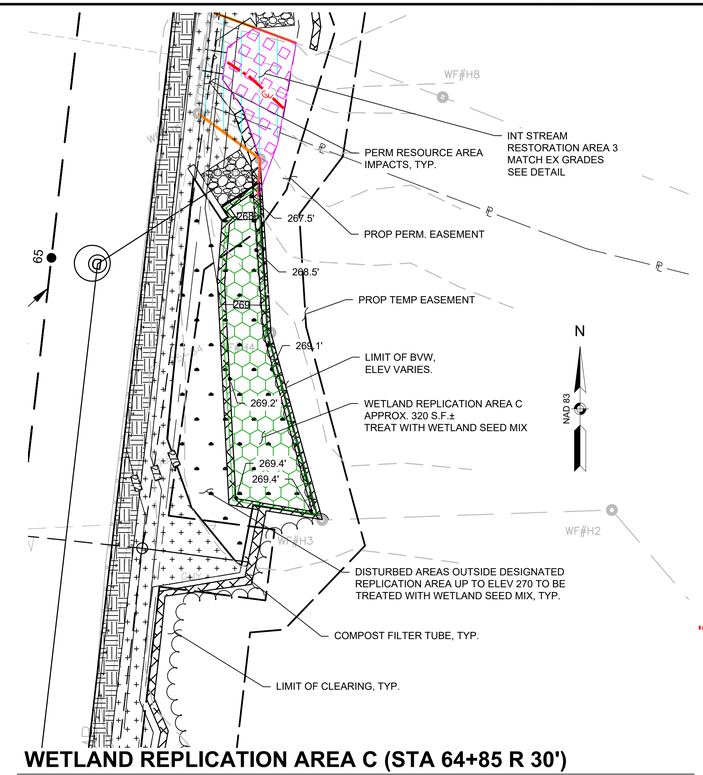
SECTION - TRUNK ARMORING & PRUNING

TREE PROTECTION - TRUNK



WETLAND REPLICATION AREAS A & B (STA 20+85 L 65')

SCALE: 1"=10'



WETLAND REPLICATION AREA C (STA 64+85 R 30')

SCALE: 1"=10'

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	74	80
PROJECT FILE NO.	609213		

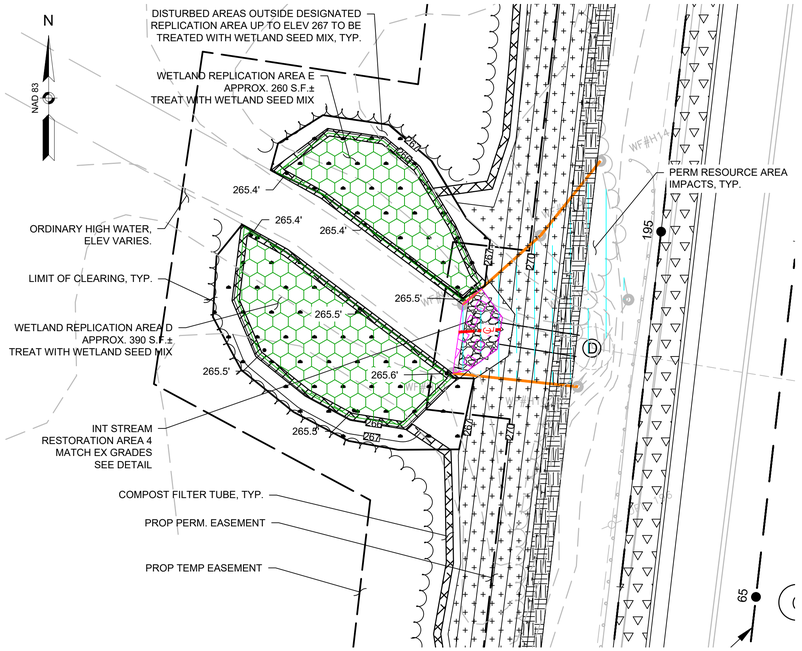
LANDSCAPE PLANS AND DETAILS - 19 OF 19

RESOURCE AREA IMPACT TYPE

- BORDERING VEGETATED WETLANDS (BVW)
- LAND UNDER WATER (LUW)
- BANK IMPACT

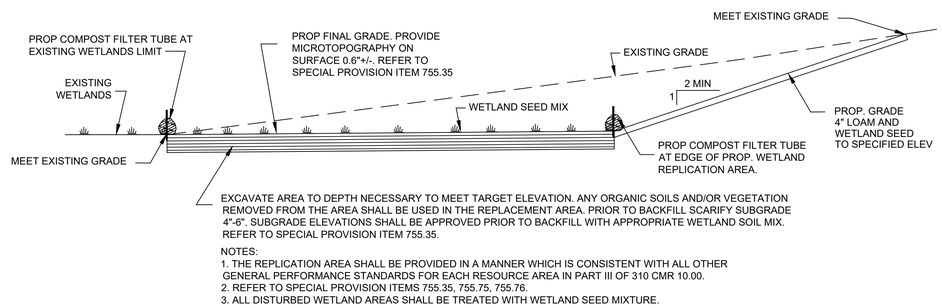
WETLAND REPLICATION TYPE

- BVW REPLICATION AREA
- LUW INT STREAM RESTORATION AREA
- BANK RESTORATION CENTERLINE



WETLAND REPLICATION AREAS D & E (STA 65+30 L 60')

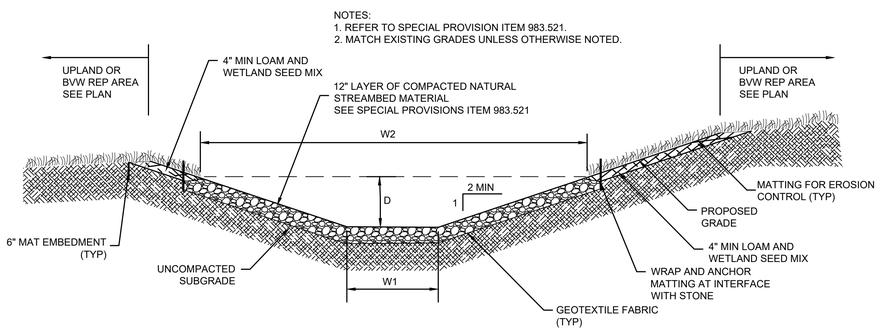
SCALE: 1"=10'



NOTES:
1. THE REPLICATION AREA SHALL BE PROVIDED IN A MANNER WHICH IS CONSISTENT WITH ALL OTHER GENERAL PERFORMANCE STANDARDS FOR EACH RESOURCE AREA IN PART III OF 310 CMR 10.00.
2. REFER TO SPECIAL PROVISION ITEMS 755.35, 755.75, 755.76.
3. ALL DISTURBED WETLAND AREAS SHALL BE TREATED WITH WETLAND SEED MIXTURE.

TYPICAL SECTION AT WETLAND REPLICATION AREA

NOT TO SCALE



TYPICAL SECTION AT INT. STREAM RESTORATION AREA

NOT TO SCALE

RESOURCE AREA MITIGATION

AREA	RESOURCE AREA	MITIGATION
REP A	BVW	460 SF
REP B	BVW	560 SF
REP C	BVW	320 SF
REP D	BVW	390 SF
REP E	BVW	260 SF
REST 1	LUW	490 SF
REST 1	BANK	90 LF
REST 2	LUW	86 SF
REST 2	BANK	20 LF
REST 3	LUW	80 SF
REST 3	BANK	38 LF
REST 3	BVW	40 SF
REST 4	LUW	52 SF
REST 4	BANK	12 LF

WETLAND/STREAM REPLICATION/RESTORATION NOTES

1. REPLICATION AREA LOCATIONS AND ELEVATIONS ARE APPROXIMATE. PRIOR TO CONSTRUCTION, EXACT LOCATION OF THE REPLICATION AREAS WILL BE DETERMINED BY THE WETLANDS SCIENTIST.
2. THE CONTRACTOR SHALL PLAN AND EXECUTE OPERATIONS IN A MANNER MINIMIZING THE AMOUNT OF EXCAVATED AND EXPOSED FILL OR OTHER FOREIGN MATERIALS THAT COULD BE WASHED OR OTHERWISE CARRIED INTO REPLICATION AREA AND NEARBY RESOURCE AREAS.
3. CONSTRUCTION OF AND ACCESS TO THE REPLICATION AREA SHALL MINIMIZE DAMAGE TO EXISTING VEGETATION AND SOILS.
4. THE REPLICATION AREA SHALL BE PROVIDED IN A MANNER WHICH IS CONSISTENT WITH ALL OTHER GENERAL PERFORMANCE STANDARDS FOR EACH RESOURCE AREA IN PART III OF 310 CMR 10.00.
5. ALL DISTURBED WETLAND AREAS SHALL BE TREATED WITH WETLAND SEED MIXTURE.
6. SEDIMENT BARRIERS SHALL BE INSTALLED ALONG THE DOWNSLOPE PERIMETER OF THE REPLICATION AREA BEGINNING AND ENDING IN THE SURROUNDING UPLAND SO THAT NO EXCAVATED MATERIAL OR DISTURBED SOIL CAN ENTER ADJACENT WETLANDS OR WATERS. THE CONTRACTOR SHALL ENSURE THAT ALL SEDIMENT BARRIERS FUNCTION AS INTENDED AND AT ALL TIMES PER THE SPECIFICATIONS OF THOSE RESPECTIVE ITEMS.
7. SEE SPECIAL PROVISION ITEMS 755.35, 755.45, 755.75, 755.76, 983.521.

STREAM RESTORATION AREA TABLE

AREA	D	W1	W2
1	6"	24"	48"
2	6"	24"	48"
3	12"	48"	96"
4	12"	48"	96"

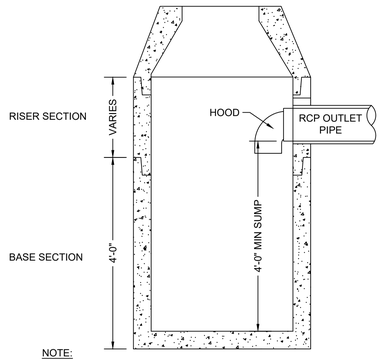
609213_HD11(NO) CONSTRUCTION DETAILS).DWG Plotted on 3-Apr-2024 7:27 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	75	80
PROJECT FILE NO.	609213		

CONSTRUCTION DETAILS - 1 OF 3

609213_HD11(NO) CONSTRUCTION DETAILS).DWG Plotted on 3-Apr-2024 7:27 PM

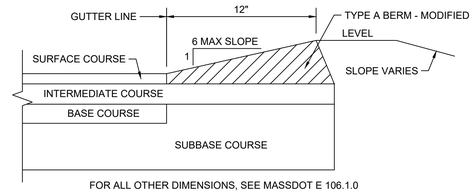


NOTE:

ALL CATCH BASINS SHALL CONFORM TO MASSDOT CONSTRUCTION STANDARD E 201.4.0 EXCEPT FOR 4' SUMP DEPTH AS SHOWN

DEEP SUMP CATCH BASIN WITH HOOD

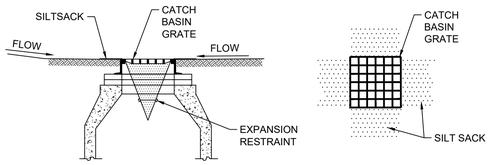
N.T.S.



FOR ALL OTHER DIMENSIONS, SEE MASSDOT E 106.1.0

HOT MIX ASPHALT BERM, TYPE A - MODIFIED

N.T.S.

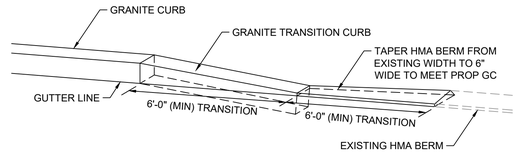


NOTES:

1. INSTALL SILT SACK IN EXISTING CATCH BASINS BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL INTERMEDIATE COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. GRATE TO BE PLACED OVER SILT SACK.
3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.

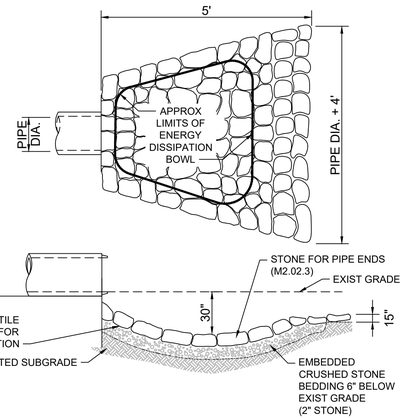
INLET PROTECTION SILT SACK IN CATCH BASIN

N.T.S.



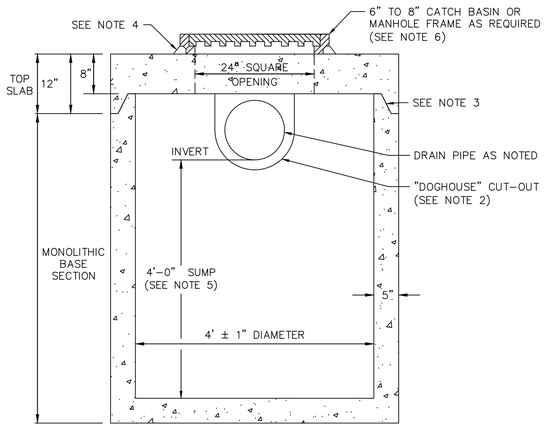
GRANITE CURB TRANSITION TO HMA BERM

N.T.S.



STONE FOR PIPE ENDS

N.T.S.



SPECIAL CATCH BASIN/MANHOLE (SHALLOW)

N.T.S.

NOTES:

1. ALL SECTIONS SHALL BE DESIGNED FOR HL-93 LOADING.
2. PROVIDE DOGHOUSE OPENING FOR PIPE WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. TOP SLAB SHALL NOT REST DIRECTLY ON PIPE. GROUT ALL PIPE CONNECTIONS WITH NON-SHRINK GROUT.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN AND MANHOLE FRAMES SHALL BE SET IN FULL MORTAR BED.
5. OMIT 4' SUMP FOR MANHOLE STRUCTURES.
6. FRAME ELEVATION SHALL BE INSTALLED AT FINISH GRADE USING VARIABLE FRAME DEPTHS AND VARIABLE HEIGHT BRICK COURSES.



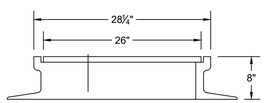
PLAN - FRAME



PLAN - COVER

NOTES:

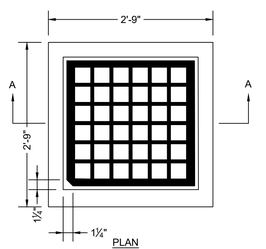
1. FRAME AND COVER SHALL BE RATED FOR HL-93 LOADING.
2. MATERIAL - CAST IRON.
3. MINIMUM MASS - 265 LBS.
4. ALL MH FRAMES AND COVERS SHALL BE ADA AND AAB COMPLIANT.
5. MANHOLE COVERS SHALL HAVE A DIAMOND PATTERN, PICK HOLES, AND THE WORD "DRAIN" OR "SEWER" CAST IN 3-INCH LETTERS.



SECTION - FRAME

MANHOLE FRAME & COVER

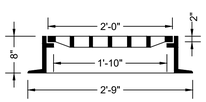
N.T.S.



PLAN

NOTES:

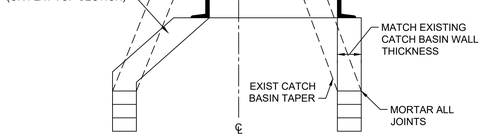
1. FRAME AND COVER SHALL BE RATED FOR HL-93 LOADING.
2. MATERIAL - CAST IRON.
3. MINIMUM FRAME WEIGHT:
   4 FLANGE - 295 LB
   3 FLANGE - 264 LB



SECTION A-A

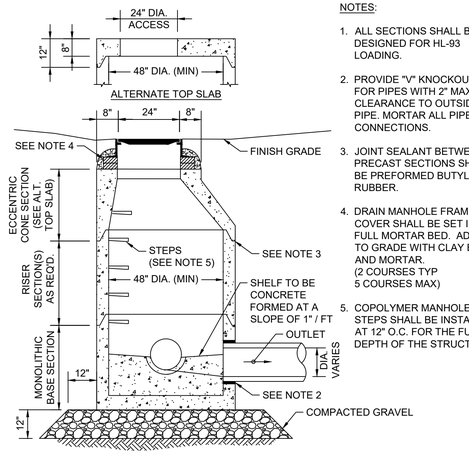
CATCH BASIN FRAME & GRATE (MUNICIPAL STANDARD)

N.T.S.



CATCH BASIN REMODEL

N.T.S.

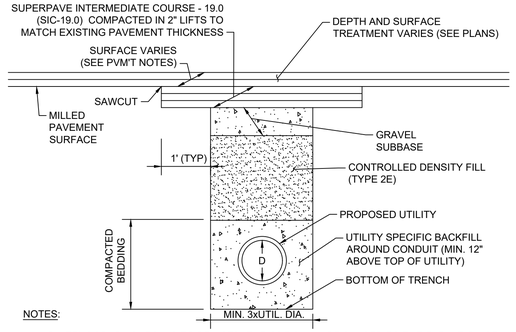


NOTES:

1. ALL SECTIONS SHALL BE DESIGNED FOR HL-93 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR. (2 COURSES TYP 5 COURSES MAX)
5. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.

DRAIN MANHOLE

N.T.S.

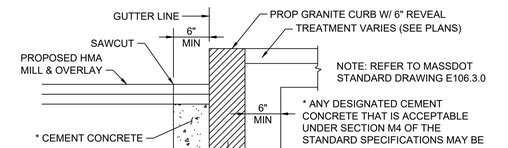


NOTES:

1. IF A TEMPORARY PATCH IS TO BE USED, THE CDF SHALL BE PLACED TO THE ELEVATION OF THE ADJOINING SUBGRADE, THEN GRAVEL SHALL BE PLACED AND COMPACTED TO WITHIN 3 ½ INCHES OF THE FINISHED GRADE. THE LAST 3 ½ INCHES SHALL BE HOT MIX ASPHALT PLACED IN TWO LAYERS: 1 ¼" SURFACE COURSE OVER 2" INTERMEDIATE COURSE.
2. MATERIAL WHICH MEETS THE SPECIFICATION FOR GRAVEL BORROW TYPE C (M1.03.0 TYPE C), PLACED AND COMPACTED IN LAYERS NO GREATER THAN 6", MAY BE USED IN PLACE OF THE CDF WITH APPROVAL FROM THE DISTRICT HIGHWAY DIRECTOR.
3. THE EXPOSED EDGES OF ALL LONGITUDINAL AND TRANSVERSE SAW CUT JOINTS SHALL BE TREATED WITH HOT POURED RUBBERIZED ASPHALT JOINT SEALANT MEETING MASSDOT SPECIFICATIONS.
4. YELLOW METAL FOIL MARKING TYPE SHALL BE PLACED 18" OVER THE CONDUIT (METAL MARKING TAPE/WIRE SHOULD BE USED FOR NON-METALLIC CONDUIT).
5. FOR ROADS WITH AN EXISTING CEMENT CONCRETE BASE, A REINFORCED, HIGH EARLY STRENGTH AIR ENTRAINED, CLASS "F" CEMENT CONCRETE SLAB SHALL BE CAST IN PLACE TO MEET THE EXISTING PAVEMENT. SPECIFIC JOINT DETAILS WITH THE EXISTING PAVEMENT SHALL BE APPROVED DEPENDENT ON THE EXISTING SITE CONDITIONS.
6. ALL TRENCH DIMENSIONS SHALL BE IN ACCORDANCE WITH SUB-SECTION 140.80 OF THE MASSDOT STANDARDS AND SPECIFICATIONS FOR HIGHWAYS AND BRIDGES

UTILITY TRENCH

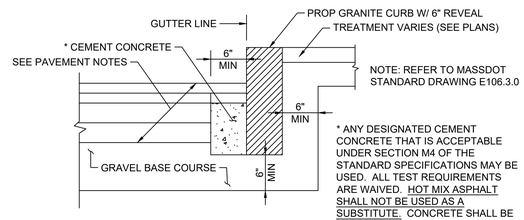
N.T.S.



* ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE. CONCRETE SHALL BE INCLUDED IN PRICE BID FOR VARIOUS GRANITE CURB ITEMS FOR 6" OFFSET FROM FACE OF CURB.

GRANITE CURB IN HMA MILL & OVERLAY

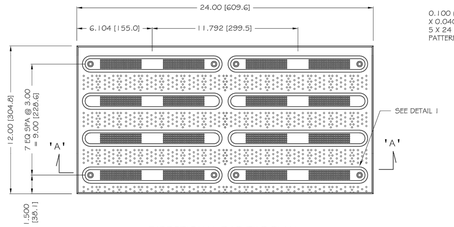
N.T.S.



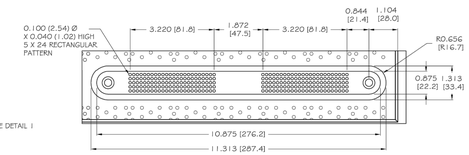
* ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE. CONCRETE SHALL BE INCLUDED IN PRICE BID FOR VARIOUS GRANITE CURB ITEMS FOR 6" OFFSET FROM FACE OF CURB.

GRANITE CURB IN FULL DEPTH PAVEMENT

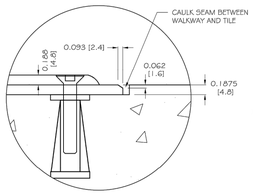
N.T.S.



DIRECTIONAL BAR TILE PLAN

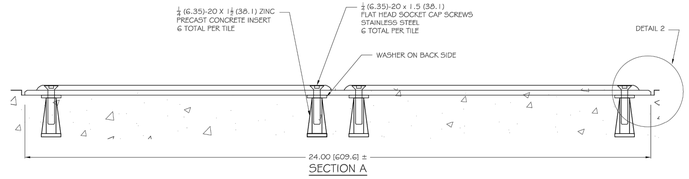


DETAIL 1



DETAIL 2

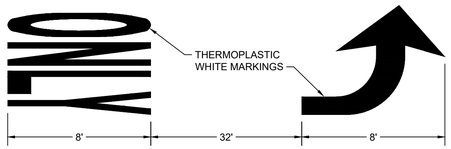
NOTE: PRIMARY DIMENSION INCHES
mm IN PARENTHESES



SECTION A

DETECTABLE WARNING PANELS FOR BIKE RAMPS

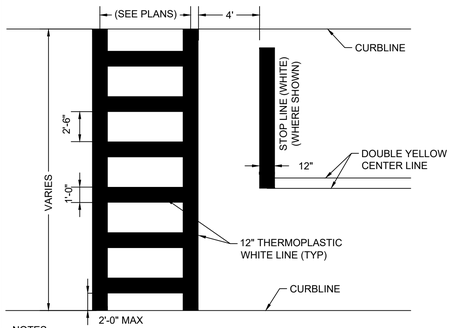
N.T.S.



NOTE: SPACING SHALL BE SAME FOR RIGHT TURN LANE AND THRU ONLY PAVEMENT MARKING (REFER TO MASSDOT STANDARD DRAWING TR.6.1)

LEFT TURN LANE PAVEMENT MARKING

N.T.S.

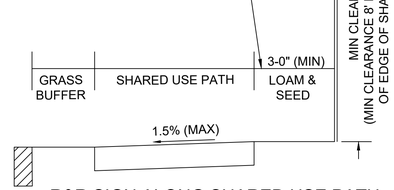


NOTES:

1. ALL 12" LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED. ALL 24" LINES MAY BE EITHER ONE 24" LINE OR A COMBINATION OF TWO - 12" LINES.
2. LAYOUT OF CROSSWALKS SHALL BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION.
3. CROSSWALK BARS SHALL BE PLACED OUTSIDE THE VEHICULAR WHEEL PATH WHEREVER POSSIBLE.
4. OMIT STOP BAR WHERE NOT SHOWN ON TRAFFIC SIGN & PAVEMENT MARKING PLANS.

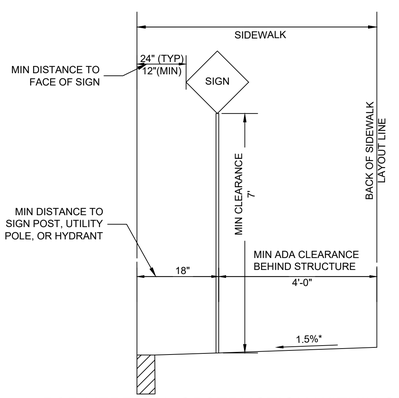
CROSSWALK PAVEMENT MARKING (LADDER)

N.T.S.



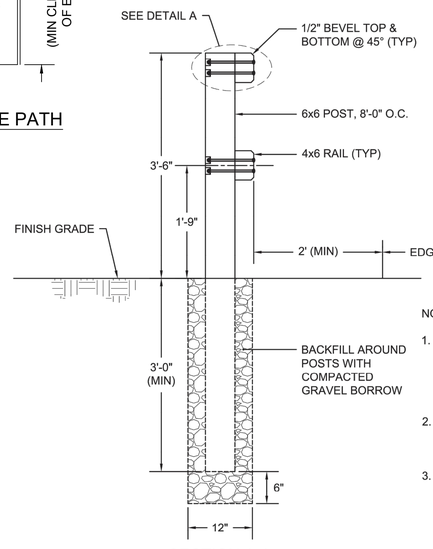
R&R SIGN ALONG SHARED USE PATH

N.T.S.



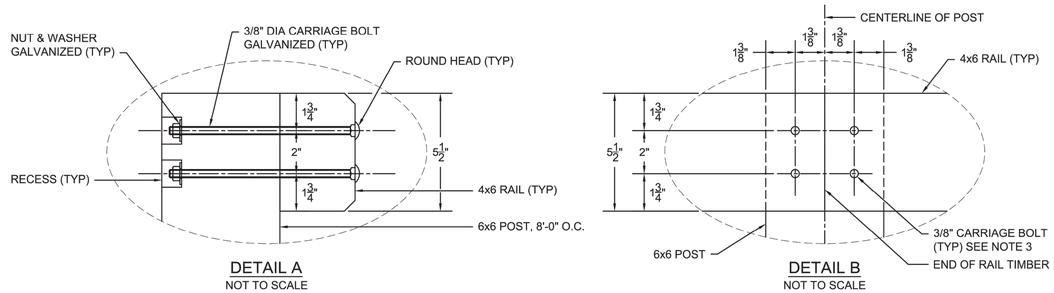
R&R VERTICAL OBSTRUCTION WITHIN SIDEWALK

N.T.S.



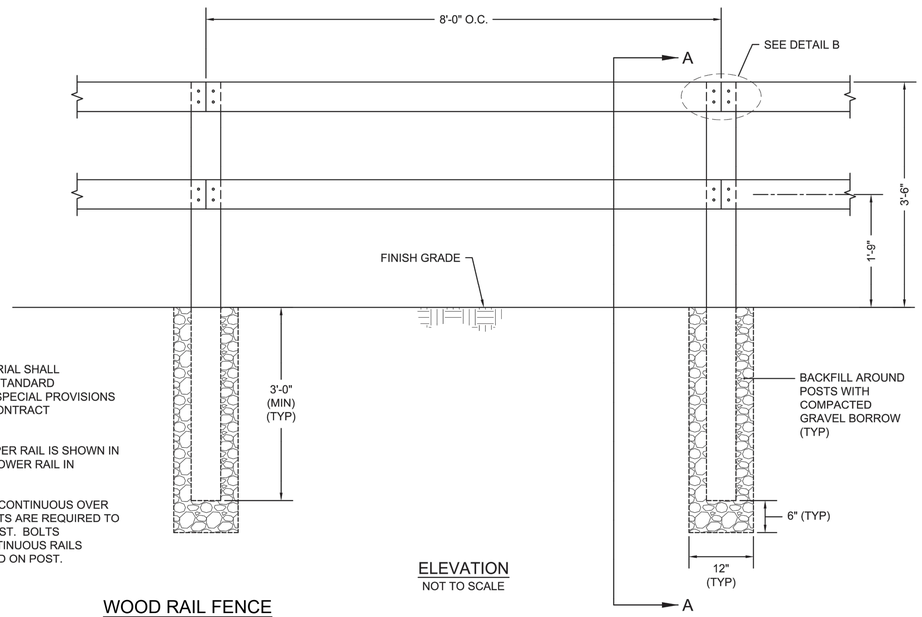
SECTION A-A

NOT TO SCALE



DETAIL A
NOT TO SCALE

DETAIL B
NOT TO SCALE



NOTES:

1. ALL FENCING MATERIAL SHALL CONFORM TO THE STANDARD SPECIFICATIONS & SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.
2. MOUNTING FOR UPPER RAIL IS SHOWN IN DETAIL A. MOUNT LOWER RAIL IN SIMILAR FASHION.
3. IF A RAIL TIMBER IS CONTINUOUS OVER A POST ONLY 2 BOLTS ARE REQUIRED TO ATTACH RAIL TO POST. BOLTS INSTALLED ON CONTINUOUS RAILS SHALL BE CENTERED ON POST.

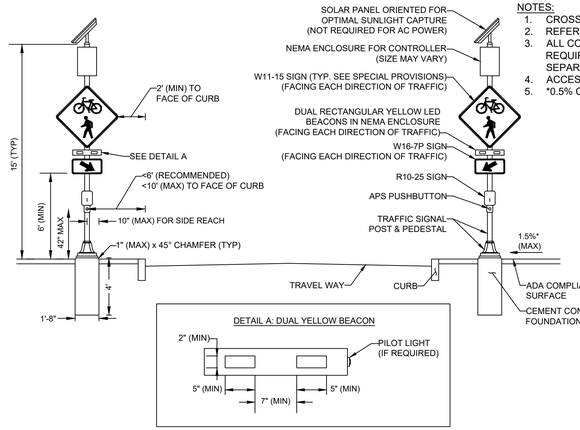
WOOD RAIL FENCE

N.T.S.

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	76	80
PROJECT FILE NO.	609213		

CONSTRUCTION DETAILS - 2 OF 3



DETAIL A: DUAL YELLOW BEACON

RECTANGULAR RAPID FLASHING BEACON (RRFB)

N.T.S.

NOTES:

1. CROSSWALK AND ADA-COMPLIANT RAMPS NOT SHOWN. SEE PLANS FOR LOCATIONS.
2. REFER TO THE SPECIAL PROVISIONS FOR SIGN DIMENSIONS.
3. ALL CONDUIT, PULL BOXES, SERVICE CONNECTIONS, AND EQUIPMENT GROUNDING REQUIRED FOR AC POWERS IS NOT SHOWN IN THIS DETAIL AND SHALL BE PAID FOR SEPARATELY UNDER THEIR RESPECTIVE PAY ITEMS.
4. ACCESS TO ALL PEDESTRIAN ACTUATED CONTROLS SHALL BE ADA/AAB COMPLIANT
5. *0.5% CONSTRUCTION TOLERANCE FOR CROSS-SLOPE

MAJOR ITEMS LIST

2 CEMENT CONCRETE FOUNDATIONS PER 812.30.1
2 15' TRAFFIC SIGNAL POSTS & PEDESTALS
2 APS PUSHBUTTON SYSTEMS
4 DUAL RECTANGULAR YELLOW LED BEACONS IN NEMA ENCLOSURES
2 R10-25 SIGNS
4 W11-15 SIGNS
2 W16-7PR SIGNS
2 W16-7PL SIGNS
2 SOLAR PANEL SYSTEMS (NOT REQUIRED FOR AC POWER)
2 NEMA ENCLOSURES FOR ALL COMPONENTS NEEDED TO MEET FUNCTIONAL REQUIREMENTS PER SPECIAL PROVISIONS
2 BATTERY SYSTEMS (NOT REQUIRED FOR AC POWER)

PLUS ALL MOUNTING AND SUPPORTING HARDWARE AND WIRING NECESSARY TO COMPLETE A WORKING SYSTEM.

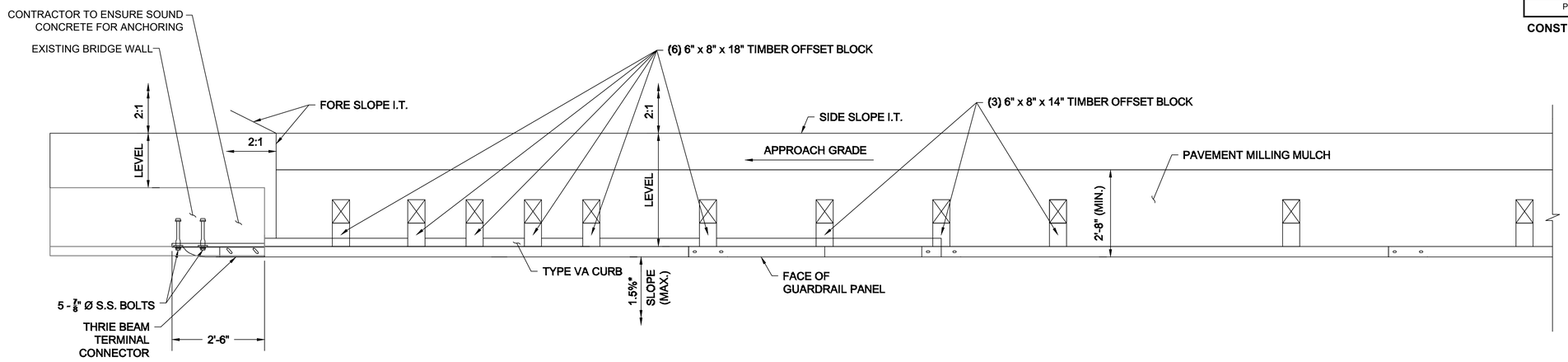
609213_HD11(NO) CONSTRUCTION DETAILS).DWG Plotted on 3-Apr-2024 7:28 PM

HARVARD
AYER ROAD (ROUTE 110/111)

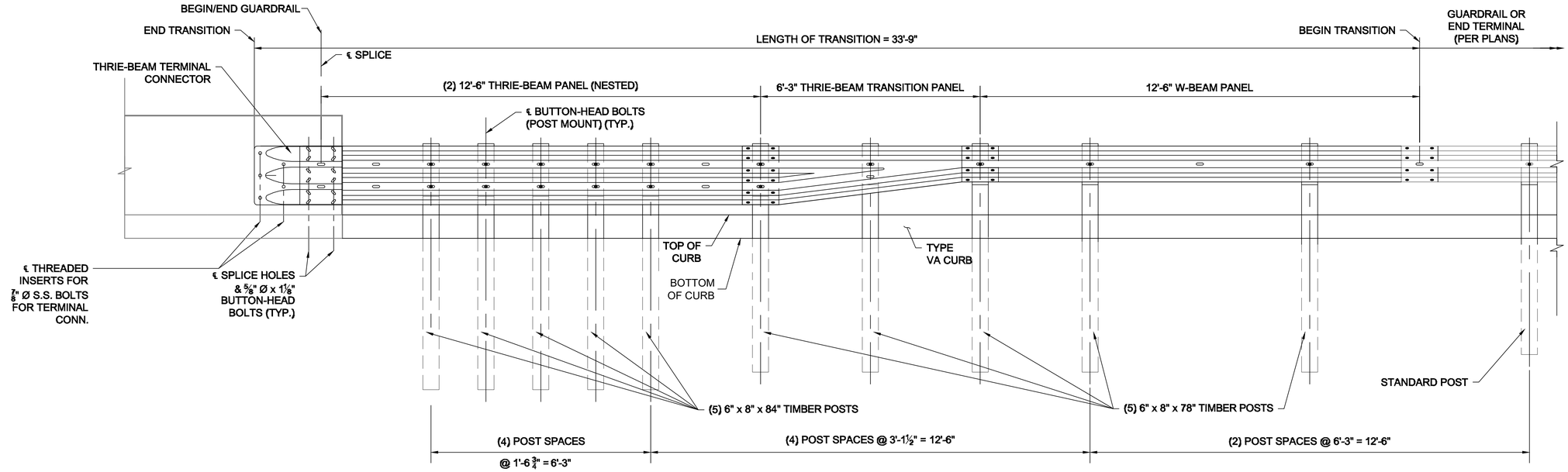
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	77	80
PROJECT FILE NO.	609213		

CONSTRUCTION DETAILS - 3 OF 3

609213_HD11(NO) CONSTRUCTION DETAILS).DWG Plotted on 3-Apr-2024 7:28 PM



PLAN



ELEVATION

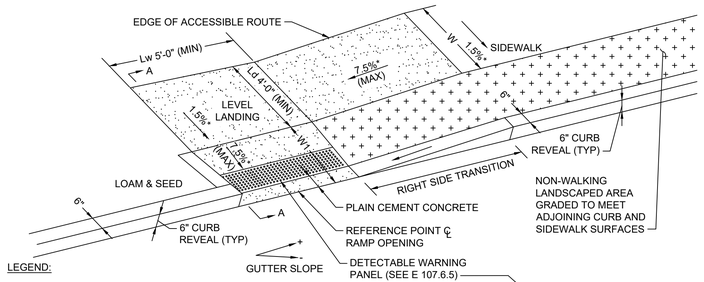
MODIFIED TRANSITION TO BRIDGE RAIL (FACE OF CURB)
N.T.S.

NOTE: REFER TO MASSDOT STANDARD DRAWING E400.3.6

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	78	80
PROJECT FILE NO.	609213		

PEDESTRIAN CURB RAMP DETAILS - 1 OF 2

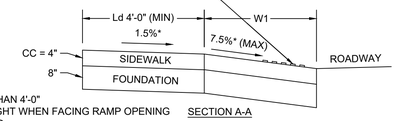


LEGEND:

W = SIDEWALK WIDTH
W1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES:

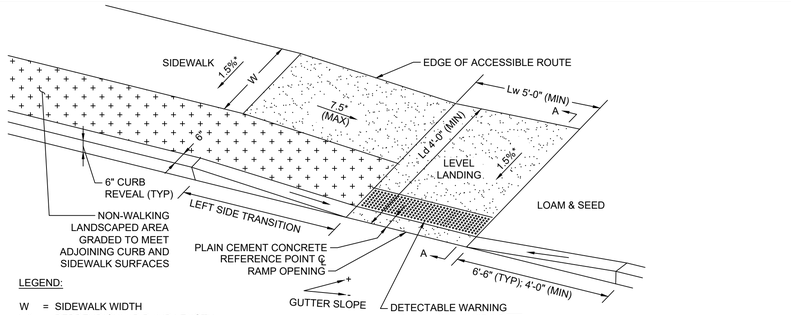
1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING RAMP OPENING
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS



PEDESTRIAN CURB RAMP TYPE A

N.T.S.

PEDESTRIAN CURB RAMP DATA									
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	PERPENDICULAR RAMP LENGTH (W1)	RIGHT SIDE TRANSITION		
				WIDTH (Lw)	DEPTH (Ld)			TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH
1	AYER ROAD	12+93.7	24.0' LT	10'-0"	10'-0"	-4.7%	3'-0"	6'-6"	6"	10'-0"

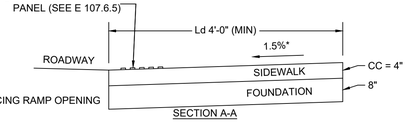


LEGEND:

W = SIDEWALK WIDTH
W1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES:

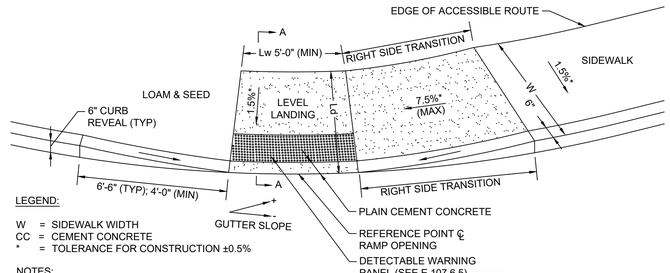
1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING RAMP OPENING
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS



PEDESTRIAN CURB RAMP TYPE B

N.T.S.

PEDESTRIAN CURB RAMP DATA									
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	LEFT SIDE TRANSITION		
				WIDTH (Lw)	DEPTH (Ld)		TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH
31	AYER ROAD	100+15.9	14.0' LT	10'-0"	15'-0"	-1.4%	9'-0"	6"	10'-0"

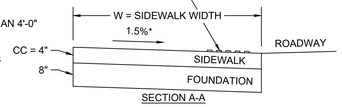


LEGEND:

W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES:

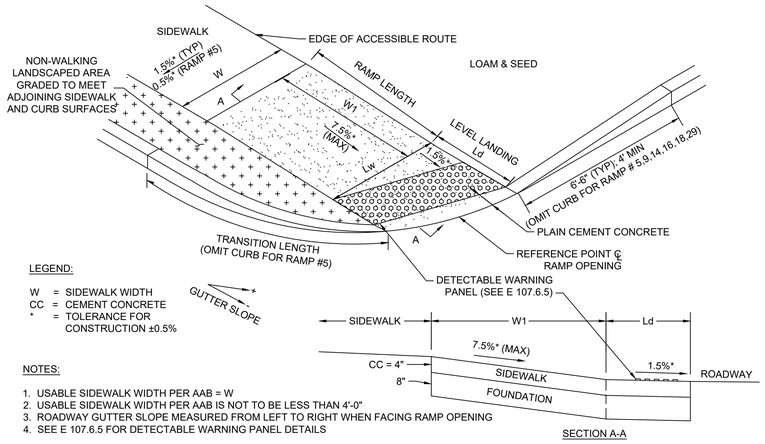
1. USABLE SIDEWALK WIDTH PER AAB = W-6"
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING RAMP OPENING
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS
5. SEE E 107.2.1 FOR ALL OTHER DETAILS



PEDESTRIAN CURB RAMP TYPE C

N.T.S.

PEDESTRIAN CURB RAMP DATA									
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	RIGHT SIDE TRANSITION		
				WIDTH (Lw)	DEPTH (Ld)		TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH
2	AYER ROAD	12+93.7	13.2' RT	5'-0"	5'-6"	+4.7%	15'-0"	6"	5'-6"



LEGEND:

W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

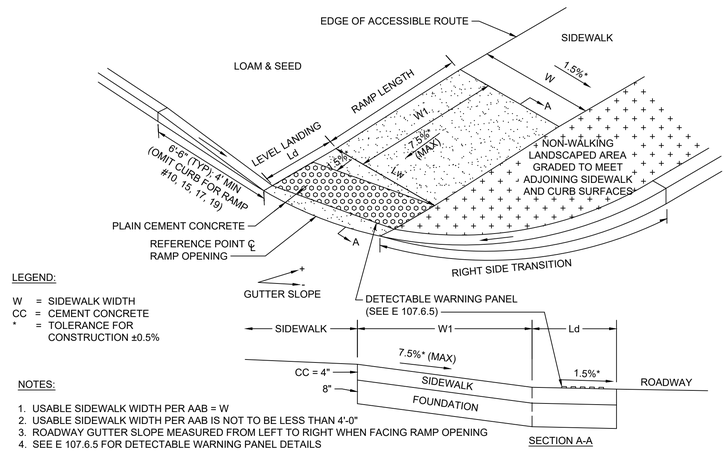
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING RAMP OPENING
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS

PEDESTRIAN CURB RAMP TYPE D

N.T.S.

PEDESTRIAN CURB RAMP DATA								
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	RAMP LENGTH (W1)	SIDEWALK WIDTH (W)
				WIDTH (Lw)	DEPTH (Ld)			
3	AYER ROAD	20+97.9	31.2' LT	10'-0"	18'-6"	-3.2%	14'-0"	10'-0"
5	GEBO LANE	115+57.5	22.2' RT	10'-0"	17'-8"	+4.7%	20'-0"	10'-0"
9	AYER ROAD	36+06.2	23.5' LT	10'-0"	12'-6"	+2.3%	6'-6"	10'-0"
14	AYER ROAD	42+29.1	23.5' LT	10'-0"	10'-10"	-0.6%	7'-8"	10'-0"
16	AYER ROAD	49+07.1	23.4' LT	10'-0"	16'-8"	-1.1%	9'-0"	10'-0"
18	AYER ROAD	57+56.2	23.5' LT	10'-0"	8'-9"	-1.1%	9'-0"	10'-0"
22	AYER ROAD	74+17.9	21.9' LT	10'-0"	7'-11"	-0.5%	7'-8"	10'-0"
24	AYER ROAD	77+42.2	21.2' LT	10'-0"	15'-4"	-0.1%	6'-6"	10'-0"
29	AYER ROAD	96+48.9	23.5' LT	10'-0"	8'-9"	-3.5%	14'-0"	10'-0"



LEGEND:

W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

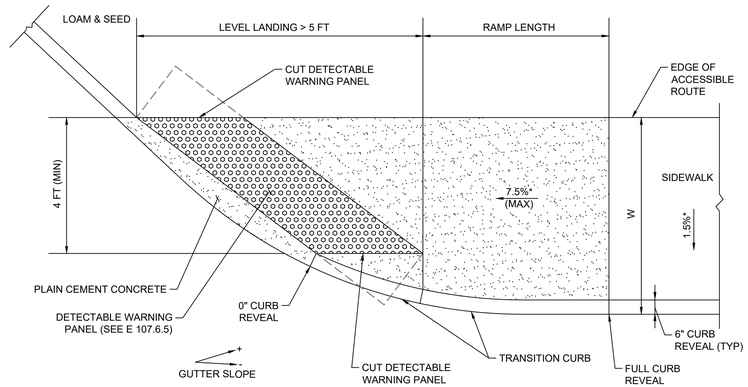
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING RAMP OPENING
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS

PEDESTRIAN CURB RAMP TYPE E

N.T.S.

PEDESTRIAN CURB RAMP DATA								
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	RAMP LENGTH (W1)	SIDEWALK WIDTH (W)
				WIDTH (Lw)	DEPTH (Ld)			
4	AYER ROAD	21+62.0	31.2' LT	10'-0"	18'-7"	-3.2%	6'-6"	10'-0"
10	AYER ROAD	36+54.7	23.4' LT	10'-0"	14'-0"	+2.3%	11'-0"	10'-0"
15	AYER ROAD	42+78.0	23.4' LT	10'-0"	14'-1"	-1.0%	6'-6"	10'-0"
17	AYER ROAD	49+67.0	23.4' LT	10'-0"	16'-8"	-1.5%	6'-6"	10'-0"
19	AYER ROAD	58+09.0	23.5' LT	10'-0"	8'-9"	-1.1%	6'-6"	10'-0"
23	AYER ROAD	74+50.2	21.7' LT	10'-0"	10'-8"	-0.5%	6'-6"	10'-0"
25	AYER ROAD	77+87.1	21.3' LT	10'-0"	14'-11"	+0.1%	7'-8"	10'-0"



PEDESTRIAN CURB RAMP TYPE D OR TYPE E WHEN LEVEL LANDING > 5 FEET

N.T.S.

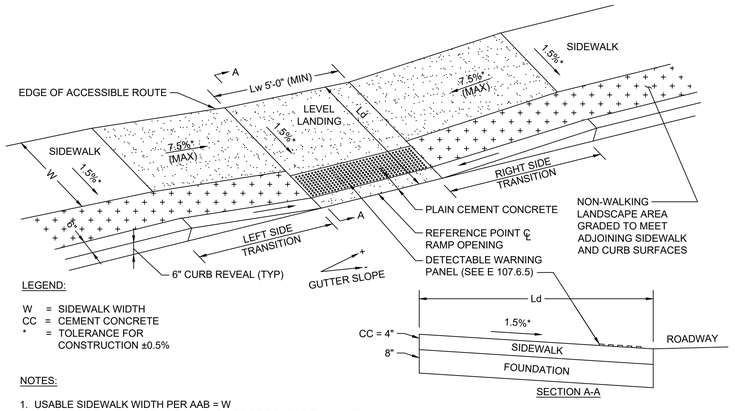
PEDESTRIAN CURB RAMP DATA									
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	RIGHT SIDE TRANSITION		
				WIDTH (Lw)	DEPTH (Ld)		TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH
13	AYER ROAD	38+70.0	16.0' RT	4'-0"	7'-4"	-2.3%	3'-3"	3"	5'-6"

609213_HD11(NO) CONSTRUCTION DETAILS).DWG Plotted on 3-Apr-2024 7:29 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	79	80
PROJECT FILE NO.	609213		

PEDESTRIAN CURB RAMP DETAILS - 2 OF 2



LEGEND:

W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

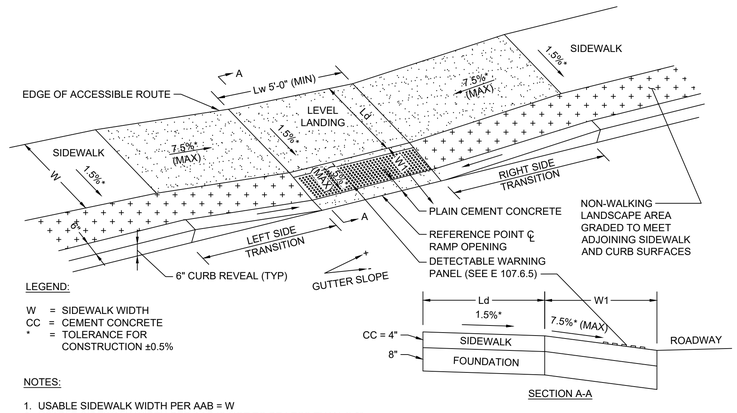
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING RAMP OPENING
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS

PEDESTRIAN CURB RAMP TYPE F

N.T.S.

PEDESTRIAN CURB RAMP DATA												
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION		
				WIDTH (Lw)	DEPTH (Ld)		TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH (W)	TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH (W)
11	AYER ROAD	37+48.2	14.0' LT	10'-0"	15'-0"	+2.3%	6'-6"	6"	10'-0"	11'-0"	6"	10'-0"
20	AYER ROAD	62+23.7	14.0' LT	10'-0"	15'-0"	-1.5%	9'-0"	6"	10'-0"	6'-6"	6"	10'-0"



LEGEND:

W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

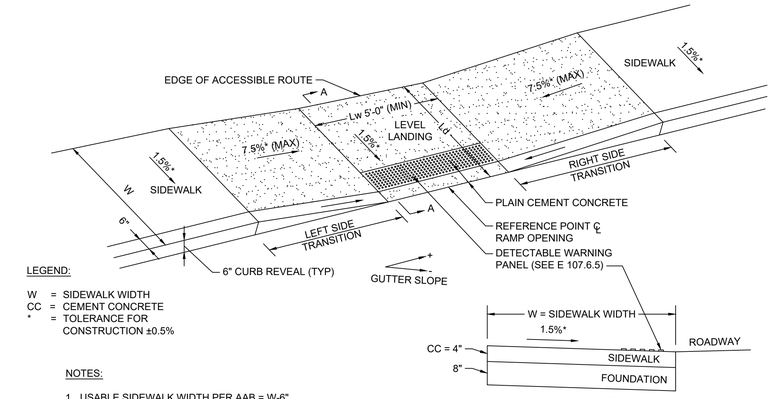
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING RAMP OPENING
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS

PEDESTRIAN CURB RAMP TYPE G

N.T.S.

PEDESTRIAN CURB RAMP DATA												
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	PERPENDICULAR RAMP LENGTH (W1)	LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION		
				WIDTH (Lw)	DEPTH (Ld)			TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH (W)	TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH (W)
7	AYER ROAD	30+34.4	14.0' LT	10'-0"	10'-0"	+5.0%	5'-0"	6'-6"	6"	10'-0"	15'-0"	6"	10'-0"
26	AYER ROAD	85+75.6	14.0' LT	10'-0"	10'-0"	-0.8%	5'-0"	7'-8"	6"	10'-0"	6'-6"	6"	10'-0"



LEGEND:

W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

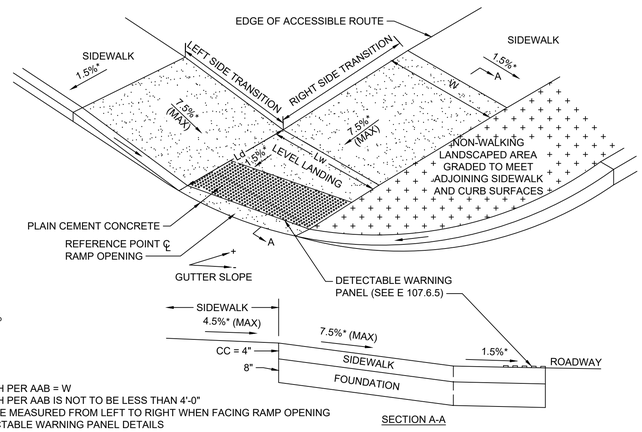
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W-6"
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING RAMP OPENING
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS
5. SEE E 107.2.1 FOR ALL OTHER DETAILS

PEDESTRIAN CURB RAMP TYPE H

N.T.S.

PEDESTRIAN CURB RAMP DATA											
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		ROADWAY GUTTER SLOPE	LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION		
				WIDTH (Lw)	DEPTH (Ld)		TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH (W)	TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH (W)
8	AYER ROAD	30+33.7	13.0' RT	5'-0"	5'-6"	-4.0%	15'-0"	6"	5'-6"	6'-6"	6"	5'-6"
12	AYER ROAD	37+48.2	13.0' RT	5'-0"	5'-6"	-2.3%	5'-6"	3"	5'-6"	6'-6"	6"	N/A
21	AYER ROAD	62+23.5	13.0' RT	5'-0"	5'-6"	+1.5%	3'-3"	3"	5'-6"	4'-6"	3"	5'-6"
27	AYER ROAD	85+74.6	13.0' RT	5'-0"	5'-6"	+0.8%	6'-6"	6"	5'-6"	7'-8"	6"	5'-6"
32	AYER ROAD	100+15.3	13.0' RT	5'-0"	5'-6"	+1.4%	6'-6"	6"	5'-6"	9'-0"	6"	5'-6"



LEGEND:

W = SIDEWALK WIDTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

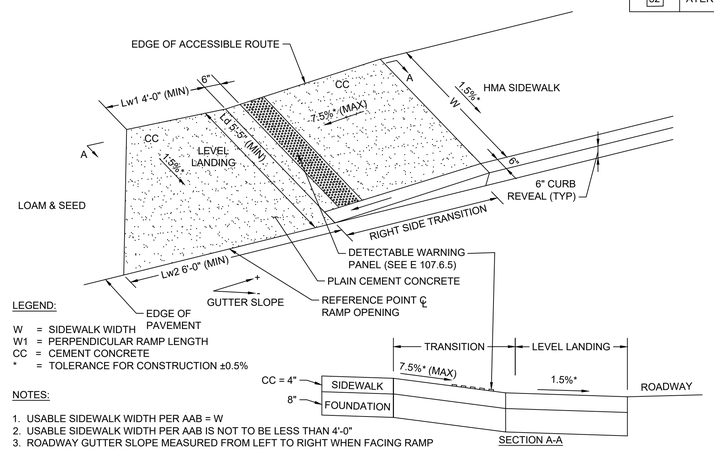
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING RAMP OPENING
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS

PEDESTRIAN CURB RAMP TYPE I

N.T.S.

PEDESTRIAN CURB RAMP DATA												
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING		AYER ROAD ROADWAY GUTTER SLOPE	LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION		
				WIDTH (Lw)	DEPTH (Ld)		TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH (W)	TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH (W)
30	AYER ROAD	96+83.6	23.5' LT	10'-0"	8'-9"	-3.5%	6'-6"	6"	4'-6"	6'-6"	6"	10'-0"



LEGEND:

W = SIDEWALK WIDTH
W1 = PERPENDICULAR RAMP LENGTH
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%

NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING RAMP
4. SEE E 107.6.5 FOR DETECTABLE WARNING PANEL DETAILS

PEDESTRIAN CURB RAMP RAMP TYPE J

N.T.S.

PEDESTRIAN CURB RAMP DATA													
RAMP #	BASELINE REFERENCE	STATION	OFFSET	LEVEL LANDING			AYER ROAD ROADWAY GUTTER SLOPE	LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION		
				WIDTH (Lw1)	WIDTH (Lw2)	DEPTH (Ld)		TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH (W)	TRANSITION LENGTH	CURB REVEAL	SIDEWALK WIDTH (W)
6	POOR FARM ROAD	120+47.2	12.0' LT	5'-0"	8'-0"	5'-6"	+2.1%	6.5'	6"	5'-6"	-	-	-
28	AYER ROAD	85+93.3	35.8' RT	4'-0"	6'-6"	5'-6"	+2.6%	-	-	-	7'-8"	6"	5'-6"

PEDESTRIAN CURB RAMP NOTES:

1. MAXIMUM ALLOWABLE SLOPE OF ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE DESIGNED TO 4.5% ±0.5% (7.5% ±0.5% FOR CURB RAMPS)
2. A MINIMUM OF 3'-0" CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
3. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
4. RAMP, CURB AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.
5. WHERE ACCESSIBLE ROUTES ARE LESS THAN 5' IN WIDTH (EXCLUDING CURBING) A 5'x5' PASSING AREA SHALL BE PROVIDED AT INTERVALS NOT TO EXCEED 200 FT.
6. ELIMINATE CURBING AT RAMP WHERE IT ABUTS ROADWAY.
7. DETECTABLE WARNING PANELS ARE REQUIRED ON ALL OF THE PROPOSED PEDESTRIAN CURB RAMPS AND ARE TO BE INSTALLED IN ACCORDANCE WITH CONSTRUCTION STANDARD E 107.6.5 (OCTOBER 2017). CONTRACTOR SHALL PROVIDE 6" BETWEEN DETECTABLE WARNING PANEL AND EDGE OF CONCRETE WHERE IT ABUTS LOAM & SEED.
8. PEDESTRIAN RAMP SLOPES AND CROSS SLOPES SHALL HAVE A CONSTRUCTION TOLERANCE OF ±0.5%.

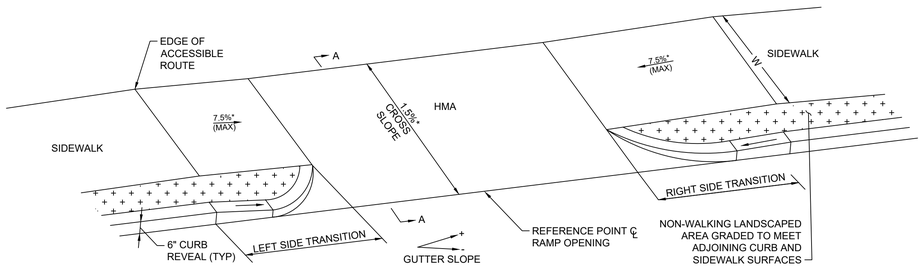
609213_HD11(NO) CONSTRUCTION DETAILS).DWG Plotted on 3-Apr-2024 7:29 PM

HARVARD
AYER ROAD (ROUTE 110/111)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	80	80
PROJECT FILE NO.	609213		

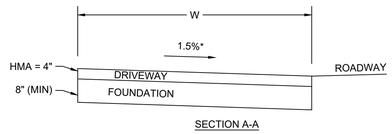
DRIVEWAY DETAILS

609213_HD11(NO) CONSTRUCTION DETAILS).DWG Plotted on 3-Apr-2024 7:30 PM



LEGEND:

W = SIDEWALK WIDTH
HMA = HOT MIX ASPHALT
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%



SECTION A-A

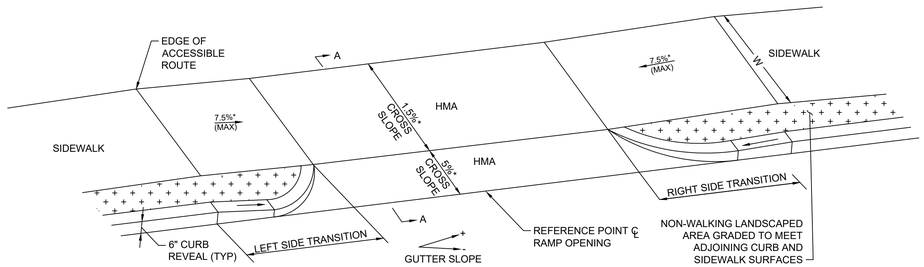
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING DRIVEWAY OPENING

SIDEWALK THROUGH DRIVEWAY TYPE A

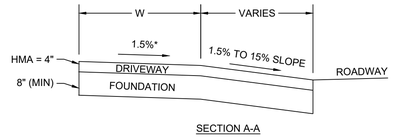
N.T.S.

DRIVEWAY DATA												
DWY #	BASELINE REFERENCE	STATION	OFFSET	DRIVEWAY SURFACE	DWY WIDTH @ GUTTER	ROADWAY GUTTER SLOPE	WIDTH OF ACCESSIBLE ROUTE	LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION		
								LENGTH	CURB REVEAL	SW WIDTH (W)	LENGTH	CURB REVEAL	SW WIDTH (W)
1	SUP	154+60.0	12.9' LT	HMA	60'-7"	+3.6%	10'-0"	6'-6"	N/A	10'-0"	15'-0"	N/A	10'-0"
3	AYER ROAD	45+14.0	14.0' LT	HMA	70'-3"	LT: -0.8% RT: +0.3%	10'-0"	7'-8"	6"	10'-0"	7'-8"	6"	10'-0"
4	AYER ROAD	46+91.4	14.0' LT	HMA	61'-0"	+1.0%	10'-0"	6'-6"	6"	10'-0"	9'-0"	6"	10'-0"
5	AYER ROAD	59+64.5	14.0' LT	HMA	56'-6"	-1.1%	10'-0"	9'-0"	6"	10'-0"	6'-6"	6"	10'-0"
6	AYER ROAD	60+42.0	14.0' LT	HMA	74'-8"	-1.1%	10'-0"	9'-0"	6"	10'-0"	6'-6"	6"	10'-0"
7	AYER ROAD	63+05.3	14.0' LT	HMA	70'-0"	-1.5%	10'-0"	9'-0"	6"	10'-0"	6'-6"	6"	10'-0"
8	AYER ROAD	64+35.1	14.0' LT	HMA	58'-1"	-1.1%	10'-0"	9'-0"	6"	10'-0"	6'-6"	6"	10'-0"
9	AYER ROAD	69+35.7	14.0' LT	HMA	30'-0"	+2.4%	10'-0"	6'-6"	6"	10'-0"	11'-0"	6"	10'-0"
11	AYER ROAD	72+15.9	14.0' LT	HMA	39'-6"	+1.8%	10'-0"	6'-6"	6"	10'-0"	9'-0"	6"	10'-0"
12	AYER ROAD	72+66.8	14.0' LT	HMA	40'-0"	+1.2%	10'-0"	6'-6"	6"	10'-0"	9'-0"	6"	10'-0"
14	AYER ROAD	81+56.8	14.0' LT	HMA	68'-2"	-1.3%	10'-0"	9'-0"	6"	10'-0"	6'-6"	6"	10'-0"
15	AYER ROAD	82+23.2	14.0' LT	HMA	59'-10"	-1.3%	10'-0"	9'-0"	6"	10'-0"	6'-6"	6"	10'-0"
16	AYER ROAD	83+71.7	14.0' LT	HMA	54'-6"	-0.7%	10'-0"	7'-8"	6"	10'-0"	6'-6"	6"	10'-0"
17	AYER ROAD	85+23.1	14.0' LT	HMA	44'-9"	-0.6%	10'-0"	7'-8"	6"	10'-0"	6'-6"	6"	10'-0"
18	AYER ROAD	86+22.9	14.0' LT	HMA	54'-0"	-0.9%	10'-0"	7'-8"	6"	10'-0"	6'-6"	6"	10'-0"
21	AYER ROAD	90+27.2	14.0' LT	HMA	46'-2"	-2.1%	10'-0"	11'-0"	6"	10'-0"	6'-6"	6"	10'-0"
22	AYER ROAD	91+21.0	14.0' LT	HMA	49'-8"	-2.8%	10'-0"	11'-0"	6"	10'-0"	6'-6"	6"	10'-0"
23	AYER ROAD	93+12.4	14.0' LT	HMA	42'-3"	-3.3%	10'-0"	14'-0"	6"	10'-0"	6'-6"	6"	10'-0"
25	AYER ROAD	95+89.7	14.0' LT	HMA	45'-4"	-3.5%	10'-0"	14'-0"	6"	10'-0"	6'-6"	6"	10'-0"



LEGEND:

W = SIDEWALK WIDTH
HMA = HOT MIX ASPHALT
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%



SECTION A-A

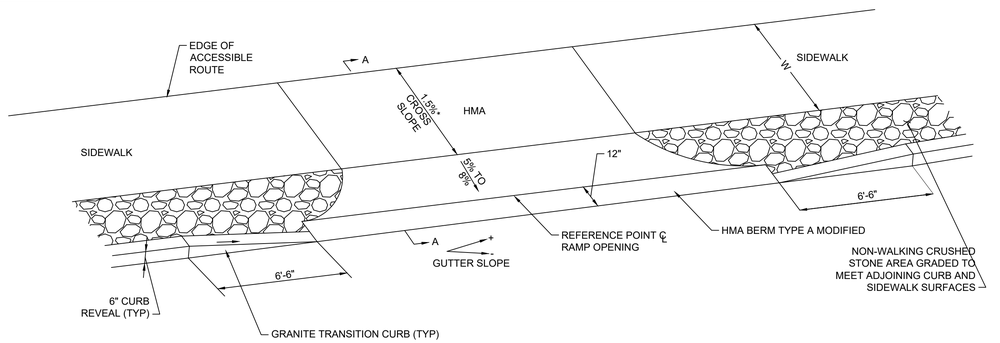
NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING DRIVEWAY OPENING

SIDEWALK THROUGH DRIVEWAY TYPE B

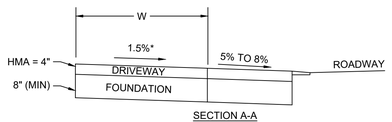
N.T.S.

DRIVEWAY DATA												
DWY #	BASELINE REFERENCE	STATION	OFFSET	DRIVEWAY SURFACE	DWY WIDTH @ GUTTER	ROADWAY GUTTER SLOPE	WIDTH OF ACCESSIBLE ROUTE	LEFT SIDE TRANSITION			RIGHT SIDE TRANSITION		
								LENGTH	CURB REVEAL	SW WIDTH (W)	LENGTH	CURB REVEAL	SW WIDTH (W)
10	AYER ROAD	70+10.4	14.0' LT	HMA	61'-6"	+2.4%	10'-0"	6'-6"	6"	10'-0"	11'-0"	6"	10'-0"
13	AYER ROAD	79+07.7	14.0' LT	HMA	55'-5"	-0.8%	10'-0"	7'-8"	6"	10'-0"	6'-6"	6"	10'-0"
19	AYER ROAD	87+43.9	14.0' LT	HMA	49'-10"	-1.7%	10'-0"	9'-0"	6"	10'-0"	6'-6"	6"	10'-0"
20	AYER ROAD	88+35.9	14.0' LT	HMA	69'-0"	-2.1%	10'-0"	11'-0"	6"	10'-0"	6'-6"	6"	10'-0"
24	AYER ROAD	94+16.8	14.0' LT	HMA	48'-0"	-3.5%	10'-0"	14'-0"	6"	10'-0"	6'-6"	6"	10'-0"



LEGEND:

W = SIDEWALK WIDTH
HMA = HOT MIX ASPHALT
CC = CEMENT CONCRETE
* = TOLERANCE FOR CONSTRUCTION ±0.5%



SECTION A-A

NOTES:

1. USABLE SIDEWALK WIDTH PER AAB = W
2. USABLE SIDEWALK WIDTH PER AAB IS NOT TO BE LESS THAN 4'-0"
3. ROADWAY GUTTER SLOPE MEASURED FROM LEFT TO RIGHT WHEN FACING DRIVEWAY OPENING

SIDEWALK THROUGH DRIVEWAY TYPE C

N.T.S.

DRIVEWAY DATA							
DWY #	BASELINE REFERENCE	STATION	OFFSET	DRIVEWAY SURFACE	DWY WIDTH @ GUTTER	ROADWAY GUTTER SLOPE	WIDTH OF ACCESSIBLE ROUTE
2	AYER ROAD	28+83.7	13.5' LT	HMA	38'-4"	+2.6%	10'-0"