August 14, 2024
Revised May 22, 2025

Mr. Robert Foran
Transcontinental Pipeline Company
2800 Post Oak Blvd.
Houston, TX 77056

Dear Mr. Patel:

Subject: Revised Geotechnical Engineering Letter Report
Geohazard Assessment – Southeast Supply Enhancement Pipeline
Pittsylvania County, Virginia
Davidson, Forsyth, Guilford, and Rockingham Counties North Carolina
CEC Project 340-665

Civil & Environmental Consultants, Inc. (CEC) presents to Transcontinental Pipeline Company (Transco) this revised letter report presenting our findings and recommendations associated with the subject project. The report was revised to reflect updates in the proposed pipeline alignments and workspaces. CEC developed this revised report to summarize our literature review and to present opinions and recommendations for implementing best management practices to address potential geohazards during pipeline construction. Attachments to this report include Attachment A – "Important Information about Your Geotechnical Engineering Report" and Attachment B – "Geohazard Figures and Details".

The following sections of this report include a discussion, data obtained and significance determination, conclusions and recommendations, standard of care and report limitations, and closing remarks.

1.0 DISCUSSION

Transco is proposing to install two (2) buried natural gas pipelines in Virginia and North Carolina as part of the Southeast Supply Enhancement Pipeline Project (SSE). The two pipelines include the proposed 42-inch Eden Loop pipeline in Pittsylvania County, Virginia and Rockingham County, North Carolina, and the proposed 42-inch Salem Loop pipeline in Guilford, Forsyth, and Davidson Counties, North Carolina. Transco provided CEC with the online data server, "Geolink", that contained files "SurveyData_SSE", "EA_Pipe_SSE", "EA_Access_Road_SSE", "SRV_Workspace_SSE", "ENV_Waterways_Line_SSE", "ENV_Wetland_Area_SSE", "SSE_3D_Contours", and "SSE_LIDAR_IMAGERY" presenting the pipeline centerlines, proposed workspace, existing features, and topography. CEC used this information to generate mile point stationing measured in tenth miles along each pipeline alignment according to the starting mile point presented in the Geolink data. The geohazard assessment discussed herein was developed based on the pipeline centerline, proposed workspace, and mile point stationing.

2.0 DATA OBTAINED AND SIGNIFICANCE DETERMINATION

CEC conducted a desktop literature review to identify and evaluate potentially hazardous naturally occurring geologic formations and soil conditions (geohazards) along the pipeline alignments. CEC reviewed publicly available documents as outlined in Section 2.1 relative to soil types and geology, landslides, slope gradients, karst geology/sinkholes, mining, and coal outcrops. CEC's purpose in reviewing these documents was to identify potential areas for further field study and, where appropriate, provide recommendations to reduce the risk of ground movement or environmental impact due to naturally

occurring geohazards during and after new pipeline construction. Based on the literature review, CEC identified locations that appeared to be at an elevated risk for ground movement due to naturally occurring geohazards.

2.1 Desktop Literature Review

CEC reviewed the following publicly available information to identify potential geohazard Areas of Interest (AOIs) that may be encountered along the project limits:

- United States Department of Agriculture (USDA), On-line Soil Survey Geographic Database for Pittsylvania County, Virginia, and Rockingham, Davidson, Forsyth, and Guilford Counties, North Carolina;
- United States Geological Survey, "Surficial Materials in the Conterminous United States", Open-File Report OFR-03-275, dated 2004;
- Commonwealth of North Carolina Department of Environmental Quality, "Terranes and Major Geologic Elements of North Carolina" – Map 1, dated September 29, 2015 (online);
- Commonwealth of North Carolina Department of Environmental Quality, "Physiographic Provinces of North Carolina" – Map 1, dated September 29, 2015 (online);
- Commonwealth of Virginia Department of Conservation and Recreation, Division of Natural Heritage, "Overview of the Physiography and Vegetation of Virginia" ver. 2.0, March 2021;
- United States Geological Survey (USGS), Geologic Map of North Carolina - Map 1, dated 1985 (online);
- United States Geological Survey (USGS), Geologic Map of Virginia - Map 1, dated 1993 (online);
- Commonwealth of Virginia Department of Energy, "Sinkholes and Karst" (online);
- Commonwealth of North Carolina Department of Environmental Quality, "North Carolina Mining permits" interactive map (online);
- Commonwealth of Virginia Department of Energy, "Mineral Mining" interactive map (online);
- United States Geological Survey, "Landslide Overview Map of the Conterminous United States", dated 1978;
- United States Environmental Protection Agency (USEPA), Map of Radon Zones (Online);
- Commonwealth of North Carolina Geological Survey Department of Environmental Quality Division of Energy, Mineral, and Land Resources (NCGS), "North Carolina Radon Potential Map", (online).
- Commonwealth of Virginia Department of Health, "EPA Radon Risk Map for Virginia" (online);
- Commonwealth of Virginia Department of Energy, "Radon – Radon zones in Virginia" (online);
- Commonwealth of North Carolina Department of Water Resources Division of Energy, Mineral and Land Resources – North Carolina Geological Survey and Division of Water Resources, Water Quality Regional Operations Section, "Areas of Relative Susceptibility to Elevated Radon in Groundwater in North Carolina" 2006;
- Commonwealth of Virginia Department of Energy, "Arsenic", (online);
- Commonwealth of North Carolina Department of Environmental Quality – Geological Survey, "North Carolina Radon Potential" (online);
- Sanders, Alison P et al. "Arsenic in North Carolina: public health implications." *Environment international* vol. 38,1 (2012): 10-6;
- Commonwealth of Virginia Division of Geology and Mineral Resources (VADGMR), "Karst Geology of Virginia", dated 1993 (online)

- U.S. Geological Survey, "2023 US 50-State National Seismic Hazard Model: Overview and Implications"; 2023

Sections 2.2 through 2.8 present pertinent data obtained from the material referenced above for each of the pipeline alignments (i.e. Eden Loop and Salem Loop).

2.2 Physiographic Setting

The SSE project pipeline will be located in the Piedmont Upland Section of the Piedmont Physiographic Province. The Piedmont Province is the non-mountainous portion of the Appalachian Highland, one of the eight major geologic divisions of the United States. The Piedmont Province consists of deeply weathered bedrock and a relatively rare occurrence of solid outcrops. Outcrops are commonly restricted to stream valleys where the soil layer has been removed by erosion. The bedrock geology of the Piedmont is a complex array of igneous, metamorphic and sedimentary rocks, separated by fault zones and other tectonic features.

2.3 Soils

According to the USGS OFR-03-275 publication, "Surficial Materials in the Conterminous United States", the near surface soils within the assessment boundary of the SSE pipeline alignment generally consists of moderately thin (generally less than 10-feet thick) residual materials developed from igneous, metamorphic, and sedimentary rocks. The distribution of the residual material is patchy in areas and includes alluvial (placed by water) and colluvial (placed by slope movement) deposits.

Soil origins within the project assessment boundary consist of residuum, saprolite, fill or man-made material, and alluvium. Saprolite is the weathering product of crystalline bedrock and retains the original rock structure, foliation, and jointing. Saprolite is known to have both soil-like and rock-like aspects, having the strength and compressibility of soil and the structure and fractures of rock. Joints, parting planes, and foliation zones of the original bedrock are normally filled with clay or are clay coated and may be sheared and slickensided or lack mineral cementation, causing weak zones of critical importance to stability.

2.4 Landslides Mapping

CEC used the U.S. Geological Survey, Map MF-771, "Landslide Overview of the Conterminous United States", coupled with LiDAR derivative mapping such as slopeshade and multi-directional hillshade, to visually evaluate landslide hazards along the proposed pipeline alignments. The USGS publication maps relative landslide incidence and areas susceptible to landslides, indicate regions with slope stability hazards. The USGS mapping process included evaluation of geologic units and the percentage of area where landslides occurred in each unit. Three categories of landslide incidence and susceptibility were generated. Units or parts of units having more than 15 percent of their areas involved in landsliding were placed in the category of highest incidence; units having between 15 and 1.5 percent of their areas involved in landsliding were placed in a middle or moderate category; and those with less than 1.5 percent are in a category of lowest incidence. Susceptibility categories were generated based on the probable response of the geologic unit to natural or artificial cutting or loading of slopes or anomalously high precipitation, therefore, are largely subjective. The following table summarizes the designated susceptibility and incidence of landslide occurrence along the lateral and loop alignments.

Table 1 – USGS Landslide Hazard Designation

Pipeline Alignment	Landslide Hazard		
	Mile Point	*Susceptibility*	*Incidence*
Salem Loop	1331.38 – 1341.30	Moderate	Low
	1341.30 – 1355.52	Moderate	Moderate
Eden Loop	1382.53 – 1401.73	Moderate	Low
	1401.73 – 1413.76	High	Moderate

Information within the USGS publication is highly generalized, due to the lack of precise landslide information during the time of issuance. As such, slopeshade and multi-directional hillshade imagery was also used to visually identify landslides based on typical morphologic landslide characteristics such as scarps, hummocky topography, and bulging toes. Landslide susceptibility and incidence categories and LiDAR derived potentially unstable areas are illustrated on the figures in Attachment B.

2.5 Topography

CEC performed a qualitative review of the proposed alignments topography based on the 2024 LiDAR data provided by Transco. CEC's review consisted of assessing the orientation of the proposed pipelines with respect to the existing topography (topographic contours), erosional patterns observed within slopeshade and hillshade imagery, and existing wetlands and streams. This review was performed in conjunction with the review of the other desktop references pertaining to surficial and bedrock geology as discussed throughout this letter report. CEC considered, in a qualitative manner, the potential impact of standard pipeline construction practices on the anticipated soil and rock strength. The actions of trenching and development of the construction right-of-way have the potential to create situations where relatively strong bedrock or stiff to hard residual soils that existed before construction are replaced with less competent pipeline and restoration backfill, when compared to undisturbed natural soil and bedrock, after construction. CEC also qualitatively considered how typical construction practices have the potential to influence groundwater flow patterns, such as by potentially concentrating groundwater flow in pipe trenches, in construction and post-construction conditions. Based on these considerations, existing slopes steeper than 3H:1V (horizontal: vertical), which may be more susceptible to slope movements after pipeline installation, are illustrated on the Geohazard Figures in Attachment B.

2.6 Bedrock Geology

2.6.1 Stratigraphy

The bedrock geology beneath the SSE pipeline alignment varies from igneous and metamorphic bedrock formations to sedimentary bedrock formations. Thirteen (13) formations are anticipated to exist beneath the proposed alignment. The anticipated bedrock formation name, map symbol, age, and description are presented in Table 2 below and bedrock formation contacts are displayed on the figures presented in Attachment B.

Table 2 – Anticipated Bedrock Formations

Pipeline Alignment	Bedrock Formation			
	Name	*Symbol*	*Age*	*Description*
Salem Loop	Granitic Rock	PPg	Permian/ Pennsylvanian	megacrystic to equigranular
	Biotite Gneiss and Schist	CZbg	Cambrian/ Late Proterozoic	Inequigranular and megacrystic; abundant potassic feldspar and garnet; interlayered and gradational with calc-silicate rock, sillimanite-mica schist, mica schist, and amphibolite. Contains small masses of granitic rock.
Eden Loop	Leatherwood Granite	CAlw	Cambrian	Porphyritic biotite granite
	Fork Mountain Formation	CAZfm	Cambrian	Quartzose mica schist, garnet-biotite gneiss, calc-silicate quartzite, and melange
	Rich Acres Formation	CAra	Cambrian	Norite, metagabbro, and diorite
	Alligator Back Formation	CAZab	Cambrian	Garnet-mica schist, garnet amphibolite, and hornblende granite gneiss
	Mylonite Gneiss	my	Proterozoic - Paleozoic	Includes mylonite, mylonite gneiss, and cataclastic rocks; lithology highly variable
	Cow Branch	TRcb	Triassic	Mudstone with minor sandstone, laterally continuous bedding
	Pine Hall Formation	TRdp	Triassic	sandstone, mudstone, and conglomerate
	Newark Supergroup	TRc	Upper Triassic	Conglomerate and mixed clasts
	Newark Supergroup	TRcs	Upper Triassic	Interbedded sandstone, siltstone, shale, and coal
	Newark Supergroup	TRs	Upper Triassic	Sandstone (undifferentiated)
	Newark Supergroup	TRss	Upper Triassic	Interbedded sandstone, siltstone, and shale
	Ashe Formation	Zau	Proterozoic	Biotite gneiss and garnetiferous amphibolite

2.6.2 Seismic Risk

During an earthquake, seismic waves travel out from an earthquake epicenter through the surrounding rock. Ground motion is greater closer to the event, or epicenter. In general, ground motion decreases away from the epicenter, however, the amount of ground motion at the surface is related to more than just distance from the epicenter. The type of material can impact ground motion; for instance, solid bedrock is observed to reduce ground motion while thick deposits of clay, sand, or fill tends to experience greater motion.

Seismic hazards can be assessed based on peak ground acceleration. During an earthquake, a particle attached to the earth will move back and forth irregularly. The horizontal force a structure must withstand during an earthquake is related to ground acceleration. Peak ground acceleration is the maximum acceleration experienced by a particle during an earthquake. The USGS produces ground motion hazard maps at a given level of probability. According the USGS national seismic hazard map, the SSE pipeline is located within an area deemed as having a moderately low seismic hazard ranking with a 5 to 25 percent chance of a damaging earthquake to occur in 100 years.

The USGS Quaternary Fold and Fault database was reviewed to identify any Quaternary faults that would be encountered by the SSE project. No faults were identified in the vicinity of the alignment based on our review. However, the proposed Eden Loop pipeline crosses seven (7) historic regional faults at approximate mile posts 1390.68, 1391.98, 1394.33, 1394.35, 1397.68, 1399.51, and 1412.23.

2.6.3 Karst Topography

According to VADGMR and the NCGS, the risk for Karst formation is unlikely due to the absence of soluble rock units within the bedrock formations stratigraphy. The Newark Supergroup (TRc) formation is the only local formation that possesses carbonate type rock. However, the formation is a conglomerate of mixed rock types, reducing the likelihood of karst development. There are no documented sinkholes or surface depressions in the vicinity of the proposed SSE alignment, based on VADGMR and NCGS mapping.

2.7 Mining and Coal Conditions

Thin, moderate- to well-developed, bituminous coal beds of late Triassic age are present within the Newark Supergroup (TRcs). This is the only documented formation that possesses coal within the project assessment boundary. The reviewed references indicate no surface or deep coal mining activities have occurred within the proposed workspace for the project alignments.

3.0 CONCLUSIONS

CEC notes that the preliminary opinions presented herein are based on CEC's review of published data. Field representative observation under the direction of a professional geotechnical engineer during construction can be utilized to determine if new geohazards have manifested, verify the conclusions presented herein, and provide additional recommendations as needed.

3.1 Surficial Geology and Groundwater

3.1.1 Landslide Susceptible Soils

Based on research of landslide susceptible areas at the site, the proposed pipeline construction could potentially encounter landslide susceptible soils. Areas of unstable soils that may be susceptible to landslides are soils that shrink or swell with changes in moisture and are located in areas with steep relief. Based on landslide incidence and susceptibility mapping conducted by the USGS, majority of the project area is deemed as having a moderate susceptibility to landsliding events. A small portion of the Eden Loop has a high susceptibility. Additionally, CEC delineated potentially unstable areas during our review of the LiDAR imagery. Pipeline construction in these areas could result in excavations that break the continuity of the slope, fills that could change loading conditions on the slope, and as a result increase the risk of slope

instability during and after pipeline construction. The portions of the pipeline alignment that meet these criteria are presented in Table 3.

Table 3 – Landslide Susceptible Soils

Pipeline Alignment	**Potentially Unstable Areas** *Mile Point*
Salem Loop	1331.44 – 1331.49
	1331.57 – 1331.58
	1331.87 – 1331.88
	1332.78 – 1332.80
	1334.03 – 1334.09
	1334.58 – 1334.60
	1334.99 – 1335.00
	1335.93 – 1335.96
	1345.89 – 1345.91
	1346.04 – 1346.07
	1348.64 – 1348.66
	1349.63 – 1349.65
	1349.69 – 1349.73
	1349.84 – 1349.88
	1351.38 – 1351.39
	1351.87 – 1351.88
	1351.93 – 1351.95
	1352.29 – 1352.30
	1353.70 – 1353.71
	1353.82 – 1353.86
	1355.27 – 1355.28
Eden Loop	1384.64 – 1384.65
	1386.25 – 1386.29
	1387.82 – 1387.87
	1390.12 – 1390.21
	1392.66 – 1392.69
	1393.56 – 1393.58
	1395.72 – 1395.74
	1397.05 – 1397.06
	1397.71 – 1397.73
	1399.41 – 1399.43
	1401.16 – 1401.17
	1411.50 – 1411.52
	1411.57 – 1411.59
	1412.77 – 1412.79

3.1.2 Side Slope Alignments

Portions of the pipeline alignment are oriented parallel or nearly parallel to the topographic contour of the slope (side slope alignment). During pipeline construction, a level working surface (construction right-of-way) is typically created to support construction equipment and materials. Following pipeline installation, the excavations are backfilled to restore the right-of-way to preconstruction grade. Temporary excavations

and fill embankments must be utilized to create the construction right-of-way along a side slope alignment. Temporary excavations break the continuity of the slope and impact surface and groundwater conditions while temporary fill embankments may surcharge landslide susceptible soils. Topographical depressions within side slope alignments exacerbate the risk of instability as a result of pipeline construction due to the likelihood of ground and surface water accumulation in the pipeline trench. As a result, side slope alignments can sometimes present an increased risk of instability during and after pipeline construction. Installation of subsurface drainage at side slope locations may be required to control build up of pore water pressures within the pipeline trench and reduce the risk of landsliding. The portions of the pipeline alignment that meet these criteria are presented in Table 4.

Table 4 – Side Slope Alignments

Pipeline Alignment	**Side Slope Areas** *Mile Point*		
Salem Loop	1331.65 – 1331.73	1336.55 – 1336.60	1344.65 – 1344.75
	1332.03 – 1332.05	1336.67 – 1336.73	1344.83 – 1344.85
	1332.31 – 1332.35	1336.91 – 1336.92	1344.92 – 1345.04
	1332.58 – 1332.62	1337.59 – 1337.72	1345.14 – 1345.19
	1332.68 – 1332.70	1337.84 – 1337.88	1345.45 – 1345.73
	1333.45 – 1333.46	1337.97 – 1338.04	1346.05 – 1346.11
	1333.49 – 1333.51	1338.30 – 1338.34	1347.47 – 1347.50
	1333.54 – 1333.56	1338.41 – 1338.45	1347.85 – 1347.98
	1333.78 – 1333.80	1338.53 – 1338.83	1348.35 – 1348.38
	1333.84 – 1334.10	1338.88 – 1339.07	1348.56 – 1348.66
	1334.24 – 1334.28	1339.37 – 1339.44	1349.66 – 1349.78
	1334.32 – 1334.34	1339.63 – 1339.66	1350.05 – 1350.08
	1334.45 – 1334.47	1339.95 – 1340.00	1350.36 – 1350.41
	1334.65 – 1334.69	1340.17 – 1340.19	1350.67 – 1350.69
	1334.72 – 1334.91	1340.45 – 1340.52	1351.66 – 1351.77
	1335.10 – 1335.15	1340.74 – 1340.84	1351.91 – 1351.96
	1335.43 – 1335.45	1340.89 – 1340.93	1353.00 – 1353.04
Salem Loop	1335.69 – 1335.74	1343.39 – 1343.51	1353.50 – 1353.52
	1335.83 – 1335.87	1343.66 – 1346.70	1353.56 – 1353.58
	1336.15 – 1336.20	1343.83 – 1343.90	1353.81 – 1353.87
	1336.36 – 1336.39	1344.29 – 1344.38	1354.82 – 1354.84
	Continued in next column	*Continued in next column*	
Eden Loop	1383.40 – 1383.47	1393.33 – 1393.36	1400.19 – 1400.29
	1383.67 – 1383.72	1393.39 – 1393.50	1400.36 – 1400.41
	1383.85 – 1383.86	1394.01 – 1394.09	1400.49 – 1400.54
	1383.99 – 1384.02	1394.20 -1394.39	1400.77 – 1400.81
	1384.29 – 1384.30	1394.79 – 1394.82	1401.36 – 1401.39
	1386.15 – 1386.18	1394.94 – 1394.95	1403.70 – 1403.78
	1386.41 – 1386.50	1395.70 – 1395.80	1405.17 – 1405.20
	1387.76 – 1387.79	1395.88 – 1395.92	1405.33 – 1405.36
	1388.12 – 1388.16	1396.24 – 1396.33	1405.44 – 1405.51
	1389.06 – 1389.08	1396.49 – 1396.56	1406.11 – 1406.15
	1389.39 – 1389.41	1396.62 – 1396.64	1407.12 – 1407.17
	1389.59 – 1389.63	1397.09 – 1397.19	1407.82 – 1407.91

Pipeline Alignment	Side Slope Areas *Mile Point*		
Eden Loop	1389.70 – 1389.74	1397.41 – 1397.46	1408.23 – 1408.30
	1390.29 – 1390.34	1397.59 – 1397.63	1409.06 - 1409.07
	1390.58 – 1390.60	1397.75 – 1397.79	1409.33 – 1409.36
	1390.65 – 1390.68	1397.90 – 1397.92	1409.48 – 1409.50
	1393.01 – 1393.02	1398.25 – 1398.26	1409.69 – 1409.70
			1409.84 – 1409.86
	1393.34 – 1393.43	1399.80 – 1399.88	1411.50 – 1411.52
			1413.40 - 1413.48
	Continued in next column	*Continued in next column*	

3.1.3 Steep Slopes

Steep slope areas that were previously stable may become unstable due to excavations and temporary stockpiles made during the installation of pipelines. Each additional pipeline installed will increase the width of excavation and fill placement across the slope. In areas with shallow depth to bedrock, trenching and construction activities will, by necessity, break down the structure of the existing rock. Once the pipeline is installed, the backfill may not have adequate strength without geotechnical treatment to permit reconstruction of the slope at contours of steeper than 2H:1V. Pipeline construction may also impact surface and groundwater conditions in that the pipeline trenches could serve as a likely collection point and conduit for ground water during and after pipeline construction. Temporary soil stockpiling along steep slopes could also increase the risk of surficial sliding and/or mobilizing underlying landslide susceptible soil, if present. Steep slope areas are presented in the figures included in Attachment B. Areas steeper than 2H:1V are considered potential candidates for trench backfill treatments such as soil cement, to provide adequate strength for slope reconstruction. Additionally, slopes steeper than 3H:1V in areas of apparent shallow groundwater are also potential candidates for the installation of subsurface drainage.

Table 5 – Steep Slopes

Pipeline Alignment	Steep Slope Areas *Mile Point*	
Salem Loop	1331.48 – 1331.49	1337.06 – 1337.07
	1331.87 – 1331.89	1337.84 – 1337.87
	1332.73 – 1332.76	1339.98 – 1339.99
	1332.78 – 1332.79	1340.05 – 1340.06
	1333.06 – 1333.08	1340.31 – 1340.32
	1333.12 – 1333.13	1342.65 – 1342.66
	1333.83 – 1333.84	1342.74 – 1342.75
	1334.02 – 1334.08	1343.20 – 1343.21
	1334.59 – 1334.60	1343.34 – 1343.35
	1334.98 – 1335.00	1345.37 – 1345.38
	1335.55 – 1335.56	1346.34 – 1346.35
	1335.95 – 1335.96	1348.04 – 1348.05
	1336.04 – 1336.05	1349.90 – 1349.91
	Continued in next column	1352.85 – 1352.86
Eden Loop	1386.40 – 1386.41	1397.20 – 1397.21
	1388.22 – 1388.23	1401.17 – 1401.18

Pipeline Alignment	Steep Slope Areas *Mile Point*	
Eden Loop	1389.77 – 1389.79	1401.51 – 1401.52
	1390.19 – 1390.24	1402.50 – 1402.51
	1391.51 – 1391.52	1404.03 – 1404.07
	1392.42 – 1392.43	1407.49 – 1407.51
	1392.67 – 1392.69	1408.39 – 1408.40
	Continued in next column	

3.2 Karst and Land Subsidence

Karst terrain is a landscape feature formed by the dissolution of soluble bedrock. Karst features form as a result of minerals dissolving out of the rock via rainwater. The surface of Karst terrain is often pocketed with depressions. In well-developed Karst terrain, chains of sinkholes form what are known as solution valleys and streams that frequently disappear underground. Potential Karst bedrock in the area of the SSE pipeline consists of narrow belts of the Newark Supergroup (TRc) formation. This is not a true carbonate formation, but rather a conglomerate that contains a small percentage of carbonate rock. Based on our review of the publicly available geologic mapping, the potential for the development of Karst features and related Karst hazards within the proposed project alignment is negligible.

Land subsidence due to the underground mining is unlikely within the proposed SSE alignment since underground mining was not identified to have occurred within the SSE project area.

4.0 RECOMMENDATIONS

The following recommendations should be incorporated during pipeline construction to address the identified geohazards within the proposed pipeline ROW.

4.1 Geohazard Mitigation Measures

Based on the conclusions presented, CEC anticipates the following geohazard mitigation measures may be necessary, pending inspection of field conditions under the direction of a professional geotechnical engineer during construction. These measures are specific to providing landslide mitigation in the post construction condition. The following landslide mitigation measures specific to construction conditions may be necessary to execute the work between the approximate mile posts identified.

4.2.1 The Implementation of Soil Cement Pipeline Trench Backfill In Accordance With Detail 7 in Attachment C:

Table 6 – Steep Slope Mitigation

Pipeline Alignment	Steep Slope Areas *Mile Point*	
Salem Loop	1331.48 – 1331.49	1337.06 – 1337.07
	1332.73 – 1332.76	1337.84 – 1337.87
	1332.78 – 1332.79	1340.05 – 1340.06
	1333.06 – 1333.08	1340.31 – 1340.32
	1333.12 – 1333.13	1342.65 – 1342.66
	1334.59 – 1334.60	1342.74 – 1342.75
	1334.98 – 1335.00	1344.78 – 1344.79

Pipeline Alignment	Steep Slope Areas	
	Mile Point	
Salem Loop	1335.55 – 1335.56	1345.37 – 1345.38
	1335.95 – 1335.96	1346.34 – 1346.35
	1336.04 – 1336.05	1348.04 – 1348.05
	Continued in next column	1349.90 – 1349.91
Eden Loop	1388.22 – 1388.23	1403.60 – 1403.61
	1390.19 – 1390.26	1404.03 – 1404.06
	1392.66 – 1392.68	1407.06 – 1407.07
	1397.20 – 1397.21	1408.40 – 1408.41
	Continued in next column	

4.2.2 Install Pipelines Within a Competent Soil and/or Bedrock Trench:

Table 7 – Unstable Area Mitigation

Pipeline Alignment	Mile Point	
Salem Loop	1331.44 – 1331.49	1348.64 – 1348.66
	1331.57 – 1331.58	1349.63 – 1349.65
	1331.87 – 1331.88	1349.69 – 1349.73
	1332.78 – 1332.80	1349.84 – 1349.88
	1334.03 – 1334.09	1351.38 – 1351.39
	1334.58 – 1334.60	1351.87 – 1351.88
	1334.99 – 1335.00	1351.93 – 1351.95
	1335.93 – 1335.96	1352.29 – 1352.30
	1345.89 – 1345.91	1353.70 – 1353.71
	1346.04 – 1346.07	1353.82 – 1353.86
	Continued in next column	1355.27 – 1355.28
Eden Loop	1384.64 – 1384.65	1397.05 – 1397.06
	1386.25 – 1386.29	1397.70 – 1397.72
	1387.82 – 1387.84	1399.41 – 1399.43
	1390.12 – 1390.20	1401.16 – 1401.17
	1392.66 – 1392.78	1411.50 – 1411.51
	1393.56 – 1393.58	1411.57 – 1411.59
	1395.72 – 1395.74	1412.77 – 1412.79
	Continued in next column	

A high percentage of landslides along a pipeline alignment can be attributed to uncontrolled surface and ground water. Surface water best management practices should be implemented according to the erosion and sedimentation control plans for controlling soil erosion thereby reducing the risk of slope instability. Temporary and/or permanent water bars are typical erosion and sedimentation control features used to direct surface water off the right-of-way to prevent oversaturating site soils. CEC recommends that water bar discharge points should be located outside of potentially unstable areas, including off right-of-way locations. Discharging water bars within potentially unstable areas can exacerbate unstable slope conditions potentially causing environmental impacts due to slope failures.

Groundwater buildup along the pipeline alignment could result in excess pore pressures, resulting in potential slope instability. CEC observed several locations where erosional features and topographical depressions would suggest that ground water will be encountered during or after construction. The observations concerning the potential for ground water presence indicate the addition of supplementary drainage measures along segments of the pipeline alignment may be appropriate. Installation of subsurface drainage, in general accordance with Geohazard Mitigation Details included in Attachment B, may be required at the locations presented in Table 8 in Attachment C, pending inspection of field conditions during construction under the direction of a professional geotechnical engineer:

4.3 Seismic Mitigation

The USGS Quaternary Fold and Fault database was reviewed for potential fault crossings along the pipeline alignment. No Quaternary faults were identified; however, the proposed Eden Loop pipeline crosses seven (7) historic regional faults at approximate mile points 1390.68, 1391.98, 1394.33, 1394.35, 1397.68, 1399.51, and 1412.23. CEC recommends that the pipeline trench in these areas is backfilled with clean, loose sand within approximately 50 feet on either side of the identified historic fault. The loose sand should be backfilled to at least 1 foot above the top of the pipe to facilitate movement of the pipe in the event the fault shifts.

4.4 Oversight and Monitoring

4.4.1 Construction Oversight

The data collected and opinions presented in this report are based on CEC's review of published documents and the limited insight into the site surface and subsurface conditions that could be garnered during our desktop study. CEC recommends that a site reconnaissance be conducted in highly susceptible areas after site clearing and prior to pipeline installation. Highly susceptible areas to be observed prior to construction should consist of potentially unstable areas delineated during our desktop study, identified steep slopes, and at proposed side slope alignments where topographic depressions and/or evidence of shallow groundwater is evident.

CEC recommends having geotechnical personnel on-site during construction in areas where geohazard mitigation measures are recommended. This allows a geotechnical engineer to evaluate the actual surface and subsurface conditions encountered during construction, assess the appropriateness of the recommendations, modify recommendations when required, modify the locations of mitigation measures where required, revise proposed mitigation measures, and confirm CEC's recommendations are being correctly implemented.

5.0 POST-CONSTRUCTION MONITORING

CEC recommends that AOIs described herein and additional AOIs generated during construction are visually monitored by trained personnel under the supervision of a geotechnical engineer for signs of instability until vegetation has stabilized. Visual monitoring should be performed within 24-hours of a rainfall event under the permit requirement and two times per month at a minimum. CEC assumes that the pipeline right-of-way will be monitored by Transco environmental inspectors following rainfall events.

Field conditions related to slope movement can evolve over long periods of time. CEC recommends periodic monitoring of field conditions in areas of steep slopes and where mitigation measures are proposed

to limit the potential for geohazards to threaten pipeline assets. Periodic monitoring of steep slopes and mitigation measures can be conducted concurrently with other asset inspections.

6.0 STANDARD OF CARE AND REPORT LIMITATIONS

This revised letter report was prepared for the purpose of design review. Reliance on this letter report by any party other than Transco or its authorized agents is expressly forbidden. Contractors should not rely on the conclusions and interpretations in this letter report for purposes of bid development.

The services performed by CEC were conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the geotechnical engineering profession practicing contemporaneously under similar conditions in the locality of the project. No warranty, express or implied, is made. Attachment A contains a document entitled "Important Information About This Geotechnical-Engineering Report." This document further explains the realities of geotechnical engineering and the limitations that exist in evaluating geotechnical issues.

5.0 CLOSING REMARKS

CEC appreciates this opportunity to be of service to Transco. Please call if you have any questions or comments.

Very truly yours,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Hannah Bullock
Assistant Project Manager

Michael L. Schumaker, P.E.
Principal

Enclosures:
- Attachment A – Important Information about This Geotechnical-Engineering Report
- Attachment B – Geohazard Figures and Details
- Attachment C – Table 8 – Subsurface Drainage Schedule

340-665-LR-GEOT-Southeast Supply Enhancement Pipeline

ATTACHMENT A

IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

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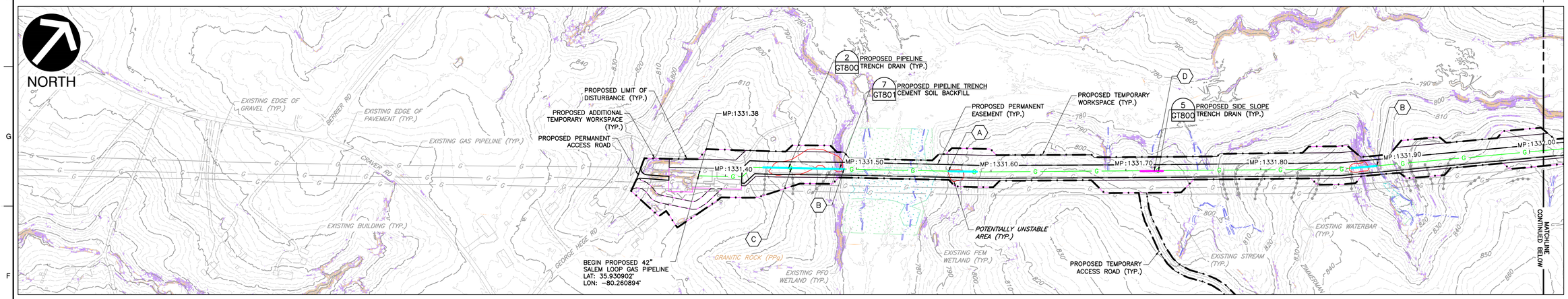
ATTACHMENT B

GEOHAZARD FIGURES



PLAN VIEW
SCALE: 1" = 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION

NOTES

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LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
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- EXISTING FAULT BOUNDARY
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- EXISTING STEEP SLOPE (3H:1V – 2H:1V)
- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (SEE NOTE 1) (MP:1330.00)
- PROPOSED SALEM LOOP PIPELINE (G)
- PROPOSED EDEN LOOP PIPELINE (G)
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
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- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 058042 MICHAEL L. SCHUMAKER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2025	UPDATE TO WORKSPACE AFTER ISSUANCE
2	10/1/2025	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/2/2025	UPDATED PROPOSED FEATURES BASED ON REVISED EDEN LOOP ALIGNMENT

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GUILFORD, FORSYTH, AND DAVIDSON COUNTIES
NORTH CAROLINA

SALEM LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

DRAWING NO.:
GT101

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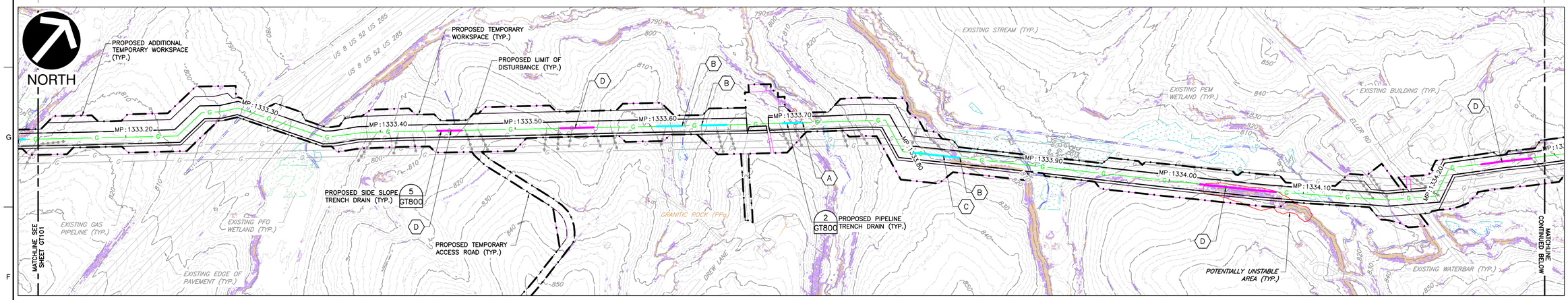

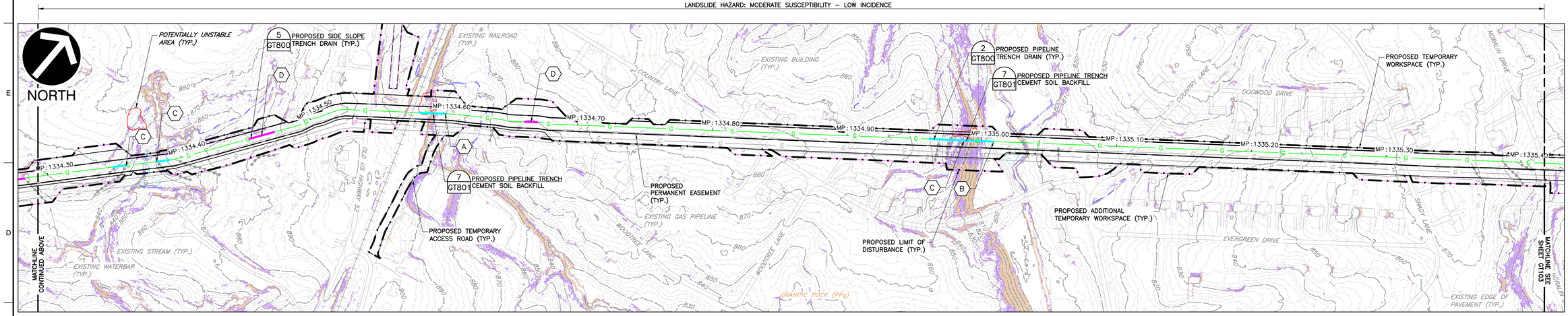

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KEY NOTES

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NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMAKER

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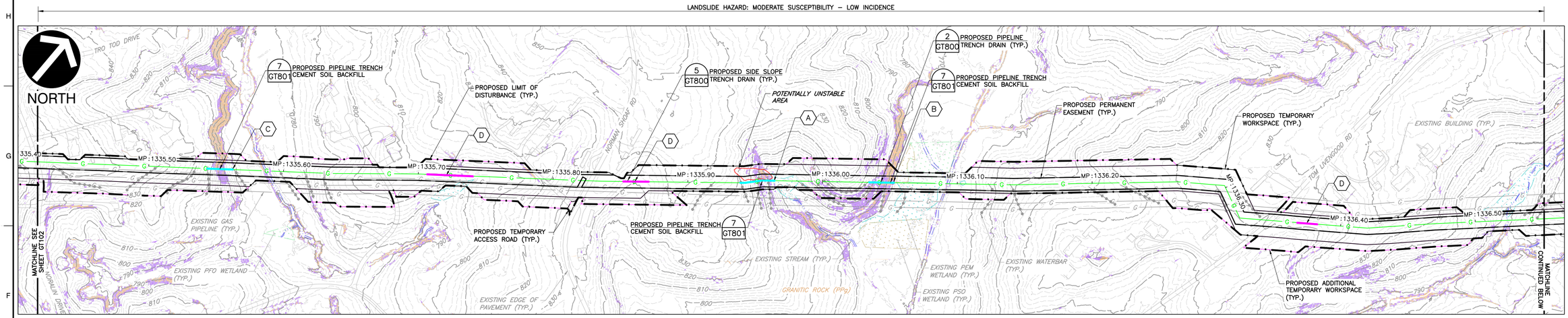
DRAWING NO.: **GT102** 5



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LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
- EXISTING PFO WETLAND (BY OTHERS)
- EXISTING POW WETLAND (BY OTHERS)
- EXISTING PSS WETLAND (BY OTHERS)
- EXISTING PUB WETLAND (BY OTHERS)
- EXISTING EDGE OF GRAVEL
- EXISTING GAS PIPELINE
- EXISTING WATERBAR
- EXISTING BEDROCK BOUNDARY
- EXISTING BEDROCK NAME (MAP SYMBOL)
- EXISTING FAULT BOUNDARY
- EXISTING POTENTIALLY UNSTABLE AREA
- EXISTING STEEP SLOPE (3H:1V – 2H:1V)
- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (SEE NOTE 1)
- PROPOSED SALEM LOOP PIPELINE
- PROPOSED EDEN LOOP PIPELINE
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMAKER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2025	UPDATE TO WORKSPACE AFTER ISSUANCE
2	10/7/2025	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/2/2025	UPDATED PROPOSED FEATURES BASED ON REVISED EDEN LOOP ALIGNMENT

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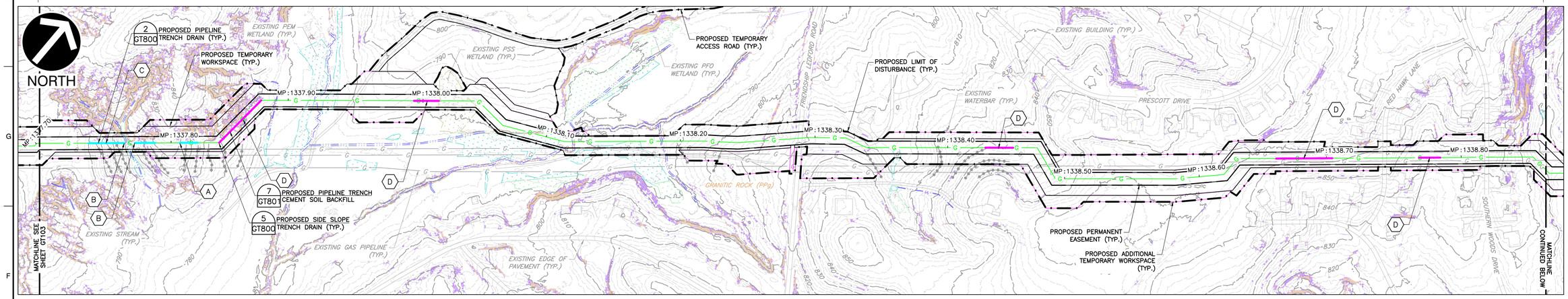
SOUTHEAST SUPPLY ENHANCMENT
GUILFORD, FORSYTH, AND DAVIDSON COUNTIES
NORTH CAROLINA

SALEM LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
DATE:	MAY 2025
CHECKED BY:	HCB
DWG SCALE:	1" = 200'
PROJECT NO:	340-665
APPROVED BY:	MLS

DRAWING NO.: **GT103**

P:\340-0001\340-665_CADD\dwg\GT03\340665-GT03-SALEM-01.dwg[GT103] LS(4/30/2025 - hbullock) - LO: 5/1/2025 8:17 AM



PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION

NOTES

1. THE PIPELINE STATIONING SHOWN HEREIN IS MEASURED IN TENTH MILES. PIPELINE STATIONING IS BASED ON GEOLINK FILES ACCESSED ON 8/1/2024.
2. THE LIMIT OF POTENTIALLY UNSTABLE AREAS DEPICTED HEREIN ARE BASED ON VISUAL OBSERVATIONS OF THE 2024 LIDAR IMAGERY. ACTUAL CONDITIONS MAY DIFFER.
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LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
- EXISTING PFO WETLAND (BY OTHERS)
- EXISTING POW WETLAND (BY OTHERS)
- EXISTING PSS WETLAND (BY OTHERS)
- EXISTING PUB WETLAND (BY OTHERS)
- EXISTING EDGE OF GRAVEL
- EXISTING GAS PIPELINE (G)
- EXISTING WATERBAR
- EXISTING BEDROCK BOUNDARY
- EXISTING BEDROCK NAME (MAP SYMBOL) (GRANITIC ROCK (PPg))
- EXISTING FAULT BOUNDARY
- EXISTING POTENTIALLY UNSTABLE AREA
- EXISTING STEEP SLOPE (3H:1V – 2H:1V)
- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (SEE NOTE 1) (MP:1330.00)
- PROPOSED SALEM LOOP PIPELINE (G)
- PROPOSED EDEN LOOP PIPELINE (G)
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMAKER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2024	UPDATE TO WORKSPACE AFTER ISSUANCE
2	12/1/2024	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/2/2025	UPDATED PROPOSED FEATURES BASED ON REVISED EDEN LOOP ALIGNMENT

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GUILFORD, FORSYTH, AND DAVIDSON COUNTIES
NORTH CAROLINA

SALEM LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

DRAWING NO.: **GT104**

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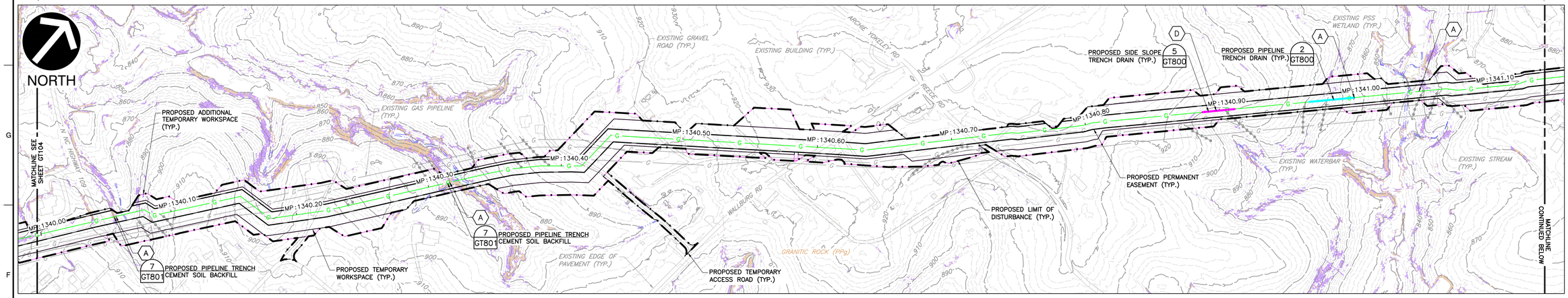

PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
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LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
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- EXISTING BUILDING/STRUCTURE
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SCALE IN FEET
0 200 400

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMAKER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2025	UPDATE TO WORKSPACE AFTER ISSUANCE
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NORTH CAROLINA

SALEM LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

DRAWING NO.: **GT105**

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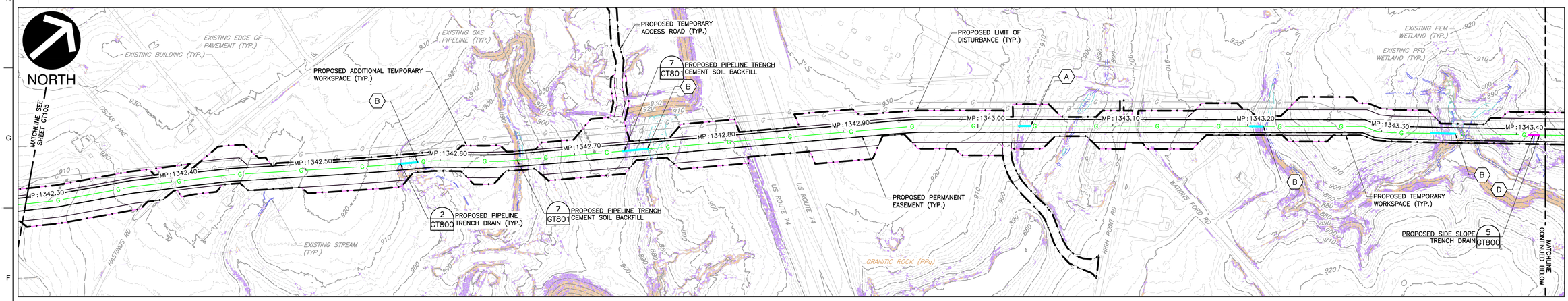

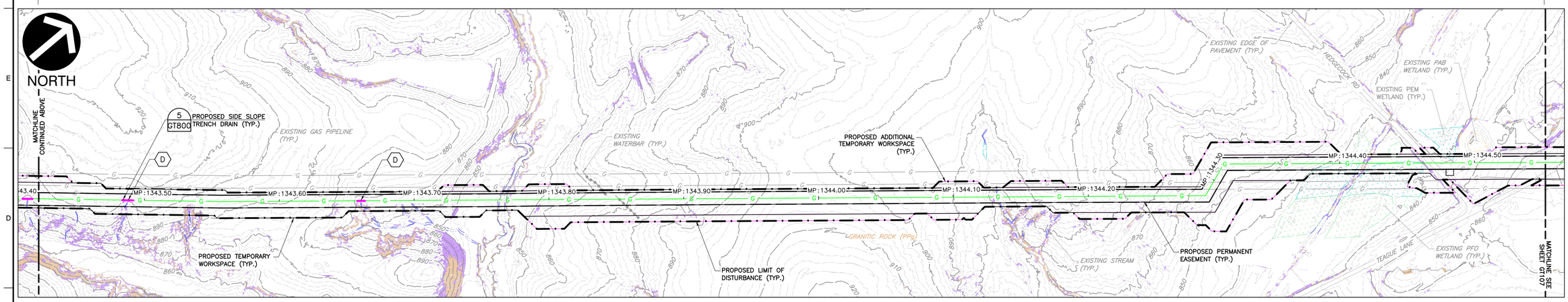

PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
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- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
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LEGEND

950 EXISTING INDEX CONTOUR	EXISTING EDGE OF GRAVEL	PROPOSED PERMANENT EASEMENT
EXISTING INTERMEDIATE CONTOUR	G EXISTING GAS PIPELINE	PROPOSED TEMPORARY WORKSPACE
EXISTING STATE BOUNDARY	EXISTING WATERBAR	PROPOSED ADDITIONAL TEMPORARY WORKSPACE
EXISTING COUNTY BOUNDARY	EXISTING BEDROCK BOUNDARY	PROPOSED PERMANENT ACCESS ROAD
EXISTING EDGE OF PAVEMENT	GRANITIC ROCK (PPg) EXISTING BEDROCK NAME (MAP SYMBOL)	PROPOSED TEMPORARY ACCESS ROAD
EXISTING RAILROAD	EXISTING FAULT BOUNDARY	PROPOSED TRENCH DRAIN
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EXISTING STREAM (BY OTHERS)	EXISTING STEEP SLOPE (3H:1V – 2H:1V)	
EXISTING PEM WETLAND (BY OTHERS)	EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)	
EXISTING PAB WETLAND (BY OTHERS)	PROPOSED LIMIT OF DISTURBANCE	
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EXISTING POW WETLAND (BY OTHERS)	G PROPOSED SALEM LOOP PIPELINE	
EXISTING PSS WETLAND (BY OTHERS)	G PROPOSED EDEN LOOP PIPELINE	
EXISTING PUB WETLAND (BY OTHERS)	PROPOSED DIRECTIONAL DRILL	

SCALE IN FEET
0 200 400

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUNKER

REVISION RECORD

NO	DATE	DESCRIPTION
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SALEM LOOP
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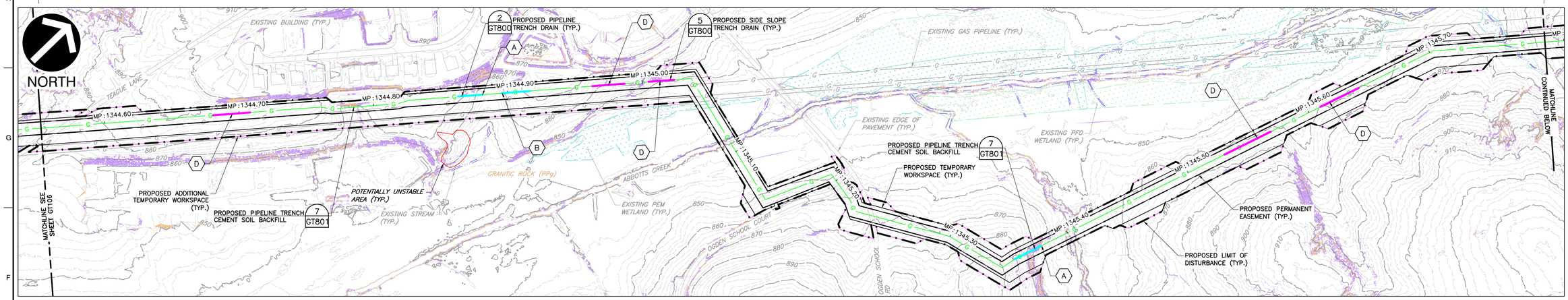
DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

DRAWING NO.:
GT106



PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

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- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
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LEGEND

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- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
- EXISTING PFO WETLAND (BY OTHERS)
- EXISTING POW WETLAND (BY OTHERS)
- EXISTING PSS WETLAND (BY OTHERS)
- EXISTING PUB WETLAND (BY OTHERS)
- EXISTING EDGE OF GRAVEL
- EXISTING GAS PIPELINE (G)
- EXISTING WATERBAR
- EXISTING BEDROCK BOUNDARY
- EXISTING BEDROCK NAME (MAP SYMBOL) (GRANITIC ROCK (PPg))
- EXISTING FAULT BOUNDARY
- EXISTING POTENTIALLY UNSTABLE AREA
- EXISTING STEEP SLOPE (3H:1V – 2H:1V)
- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (MP:1330.00) (SEE NOTE 1)
- PROPOSED SALEM LOOP PIPELINE (G)
- PROPOSED EDEN LOOP PIPELINE (G)
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2024	UPDATE TO WORKSPACE AFTER ISSUANCE
2	12/17/2024	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/2/2025	UPDATED PROPOSED FEATURES BASED ON REVISED EDEN LOOP ALIGNMENT

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GUILFORD, FORSYTH, AND DAVIDSON COUNTIES
NORTH CAROLINA

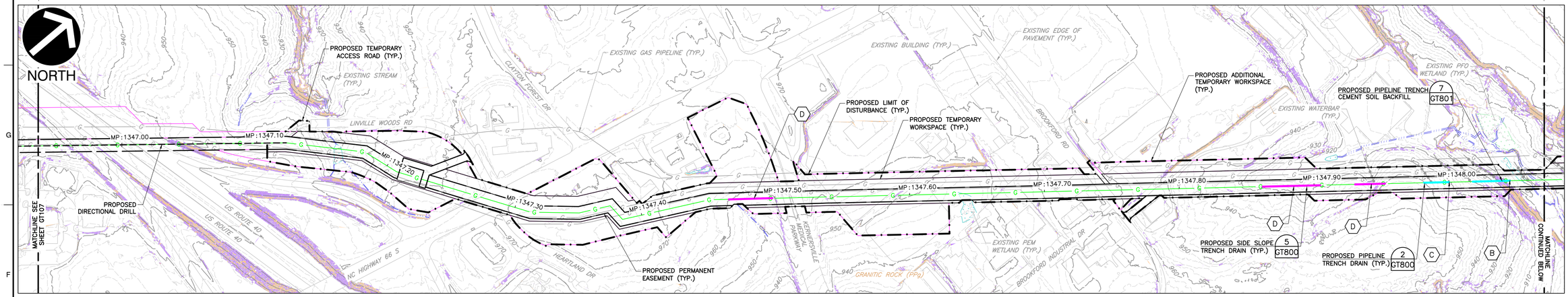
SALEM LOOP
GEOHAZARD ASSESSMENT

DATE:	MAY 2025
DRAWN BY:	CZB
CHECKED BY:	HCB
DWG SCALE:	1" = 200'
PROJECT NO:	340-665
APPROVED BY:	MLS

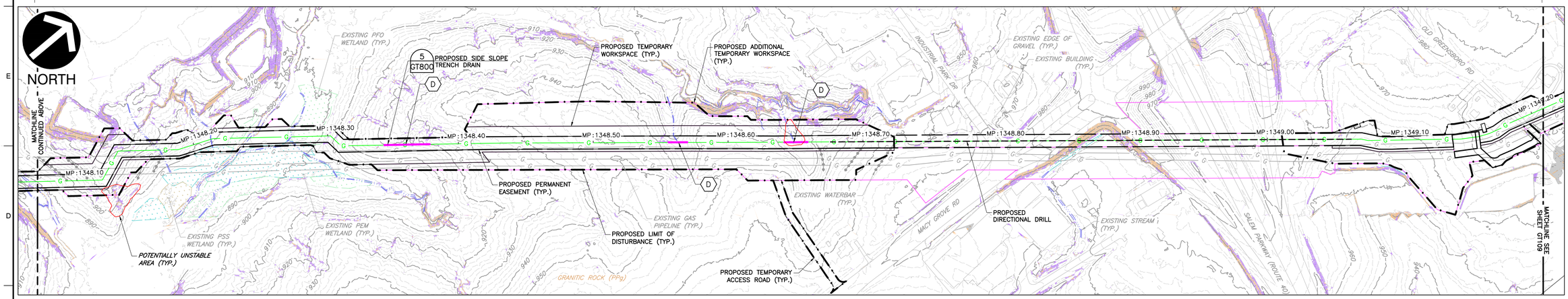
NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMAKER

DRAWING NO.:
GT107

LANDSLIDE HAZARD: MODERATE SUSCEPTIBILITY – MODERATE INCIDENCE



LANDSLIDE HAZARD: MODERATE SUSCEPTIBILITY – MODERATE INCIDENCE



PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION

NOTES

1. THE PIPELINE STATIONING SHOWN HEREIN IS MEASURED IN TENTH MILES. PIPELINE STATIONING IS BASED ON GEOLINK FILES ACCESSED ON 8/1/2024.
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LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
- EXISTING PFO WETLAND (BY OTHERS)
- EXISTING POW WETLAND (BY OTHERS)
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- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (MP:1330.00) (SEE NOTE 1)
- PROPOSED SALEM LOOP PIPELINE (G)
- PROPOSED EDEN LOOP PIPELINE (G)
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMAKER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2025	UPDATE TO WORKSPACE AFTER ISSUANCE
2	10/1/2025	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/2025	UPDATED PROPOSED FEATURES BASED ON REVISED EDEN LOOP ALIGNMENT

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NORTH CAROLINA

SALEM LOOP
GEOHAZARD ASSESSMENT

DATE:	MAY 2025
DRAWN BY:	CZB
DWG SCALE:	1" = 200'
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS

DRAWING NO.: **GT108**

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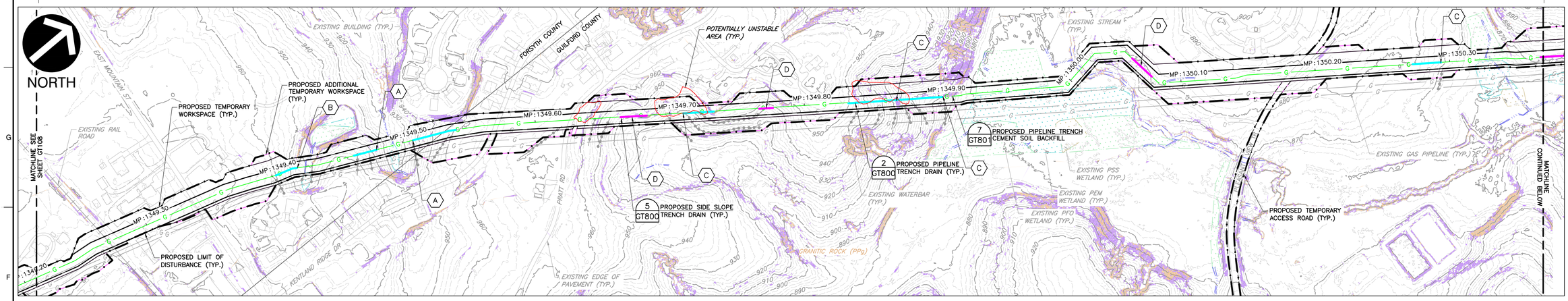

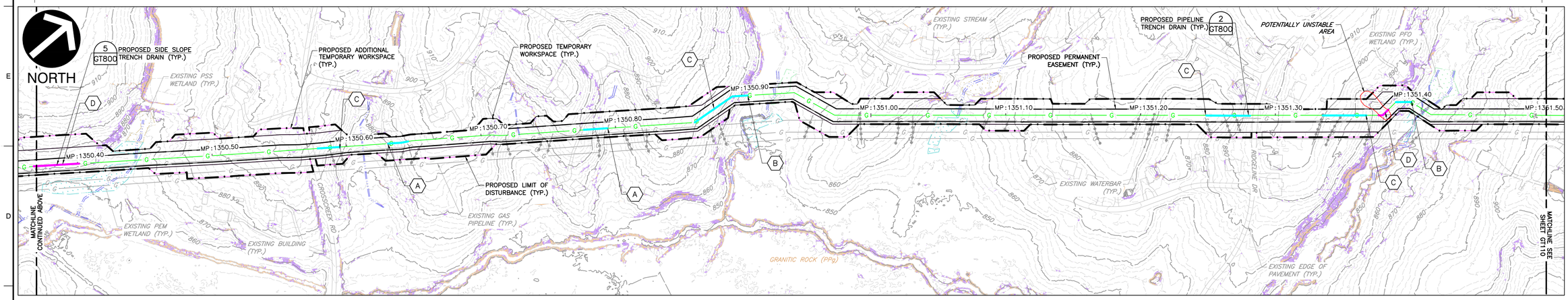

PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION

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LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
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- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (SEE NOTE 1) (MP:1330.00)
- PROPOSED SALEM LOOP PIPELINE (G)
- PROPOSED EDEN LOOP PIPELINE (G)
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMACKER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2024	UPDATE TO WORKSPACE AFTER ISSUANCE
2	12/17/2024	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/2/2025	UPDATED PROPOSED FEATURES BASED ON REVISED EDEN LOOP ALIGNMENT

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NORTH CAROLINA

SALEM LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
DATE:	MAY 2025
CHECKED BY:	HCB
DWG SCALE:	1" = 200'
PROJECT NO:	340-665
APPROVED BY:	MLS

DRAWING NO.:
GT109

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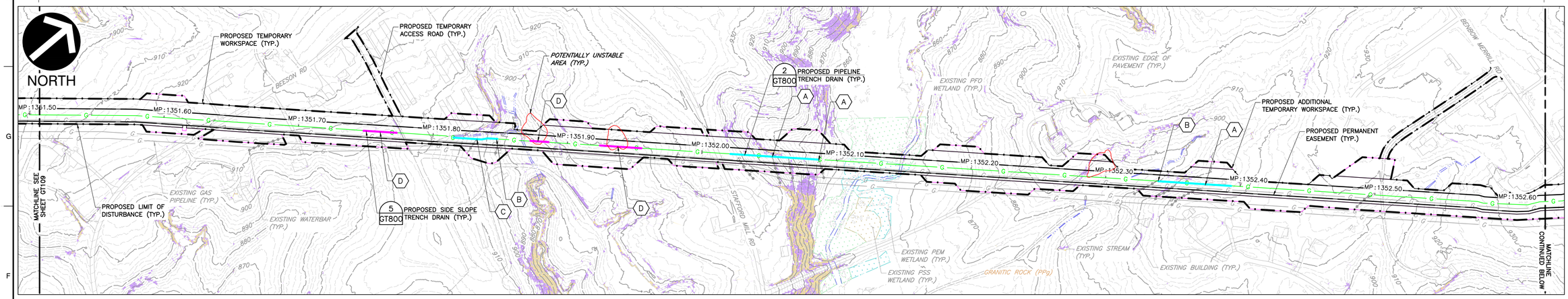

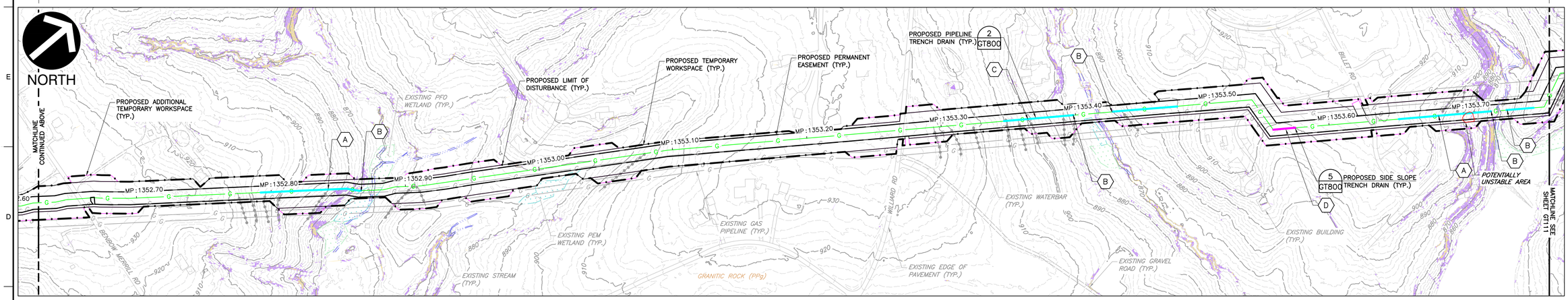

PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION

NOTES

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LEGEND

950 EXISTING INDEX CONTOUR	EXISTING EDGE OF GRAVEL	PROPOSED PERMANENT EASEMENT
EXISTING INTERMEDIATE CONTOUR	G EXISTING GAS PIPELINE	PROPOSED TEMPORARY WORKSPACE
APPROXIMATE STATE BOUNDARY	EXISTING WATERBAR	PROPOSED ADDITIONAL TEMPORARY WORKSPACE
APPROXIMATE COUNTY BOUNDARY	EXISTING BEDROCK BOUNDARY	PROPOSED PERMANENT ACCESS ROAD
EXISTING EDGE OF PAVEMENT	GRANITIC ROCK (PPg) EXISTING BEDROCK NAME (MAP SYMBOL)	PROPOSED TEMPORARY ACCESS ROAD
EXISTING RAILROAD	EXISTING FAULT BOUNDARY	PROPOSED TRENCH DRAIN
EXISTING BUILDING/STRUCTURE	EXISTING POTENTIALLY UNSTABLE AREA	PROPOSED SIDE SLOPE TRENCH DRAIN
EXISTING STREAM (BY OTHERS)	EXISTING STEEP SLOPE (3H:1V – 2H:1V)	
EXISTING PEM WETLAND (BY OTHERS)	EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)	
EXISTING PAB WETLAND (BY OTHERS)	PROPOSED LIMIT OF DISTURBANCE	
EXISTING PFO WETLAND (BY OTHERS)	MP:1330.00 PROPOSED PIPELINE MILE POINT (SEE NOTE 1)	
EXISTING POW WETLAND (BY OTHERS)	G PROPOSED SALEM LOOP PIPELINE	
EXISTING PSS WETLAND (BY OTHERS)	G PROPOSED EDEN LOOP PIPELINE	
EXISTING PUB WETLAND (BY OTHERS)	PROPOSED DIRECTIONAL DRILL	

SCALE IN FEET
0 200 400

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUNNIKER

REVISION RECORD

NO	DATE	DESCRIPTION
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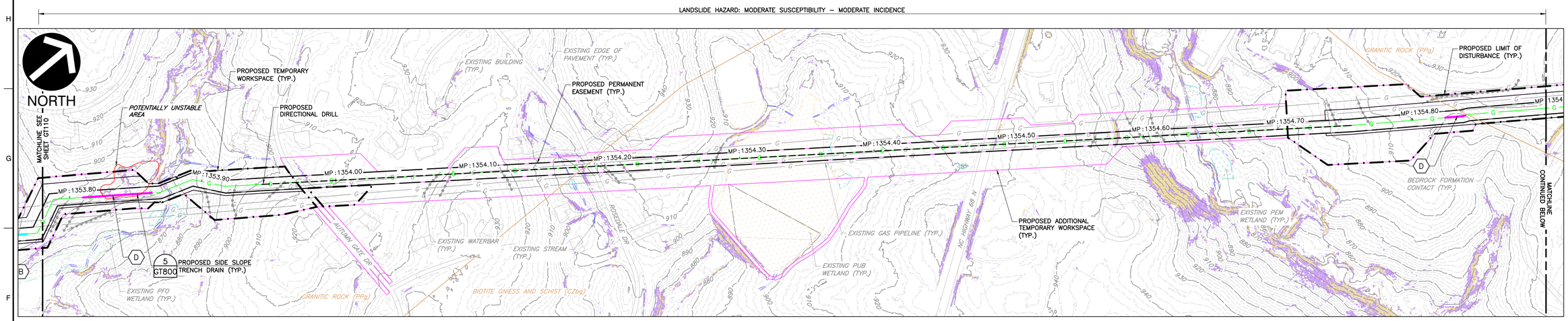
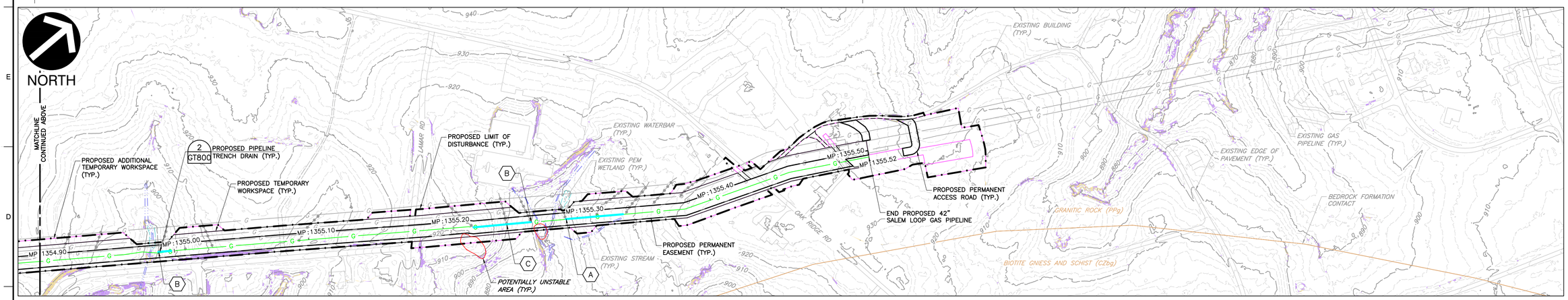
SALEM LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

DRAWING NO.: **GT110**





PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

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LEGEND

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- EXISTING GAS PIPELINE (G)
- EXISTING WATERBAR
- EXISTING BEDROCK BOUNDARY
- EXISTING BEDROCK NAME (MAP SYMBOL) (GRANITIC ROCK (PPg))
- EXISTING FAULT BOUNDARY
- EXISTING POTENTIALLY UNSTABLE AREA
- EXISTING STEEP SLOPE (3H:1V – 2H:1V)
- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (SEE NOTE 1) (MP:1330.00)
- PROPOSED SALEM LOOP PIPELINE (G)
- PROPOSED EDEN LOOP PIPELINE (G)
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMAKER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2024	UPDATE TO WORKSPACE AFTER ISSUANCE
2	12/17/2024	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/2/2025	UPDATED PROPOSED FEATURES BASED ON REVISED EDEN LOOP ALIGNMENT

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TRANSCONTINENTAL PIPELINE CO.
SOUTHEAST SUPPLY ENHANCMENT
GUILFORD, FORSYTH, AND DAVIDSON COUNTIES
NORTH CAROLINA

SALEM LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
DATE:	MAY 2025
CHECKED BY:	HCB
DWG SCALE:	1" = 200'
PROJECT NO.:	340-665
APPROVED BY:	MLS

DRAWING NO.: **GT111**

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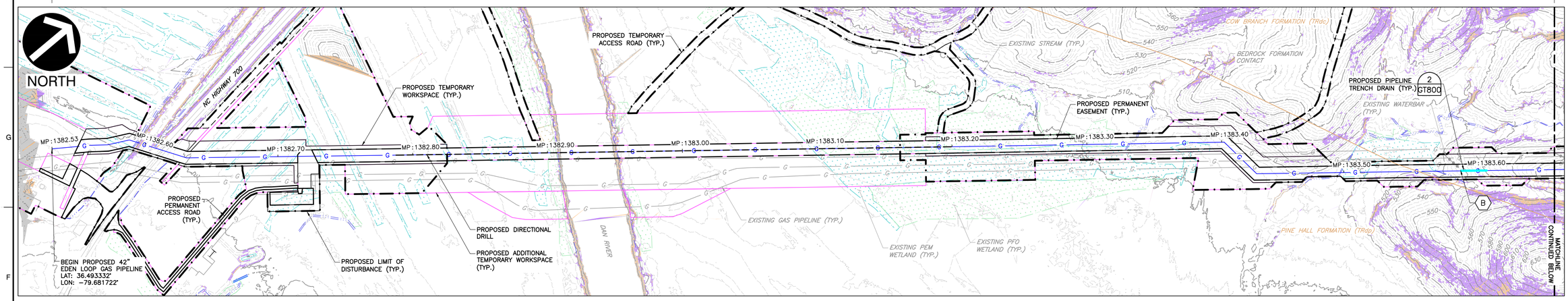

PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION
- (E) BACKFILL PIPELINE TRENCH WITH CLEAN SAND FOR A MINIMUM THICKNESS OF 4 FEET WITHIN 50 FEET OF HISTORIC FAULT CROSSINGS

NOTES

1. THE PIPELINE STATIONING SHOWN HEREIN IS MEASURED IN TENTH MILES. PIPELINE STATIONING IS BASED ON GEOLINK FILES ACCESSED ON 8/1/2024.
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LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
- EXISTING PFO WETLAND (BY OTHERS)
- EXISTING POW WETLAND (BY OTHERS)
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- EXISTING PUB WETLAND (BY OTHERS)
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- PROPOSED PERMANENT EASEMENT
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- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHIMMER

REVISION RECORD

NO	DATE	DESCRIPTION
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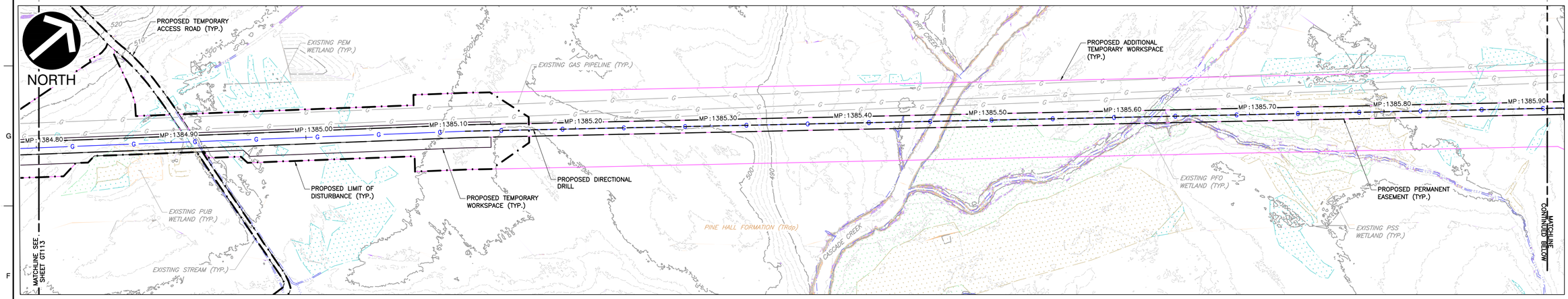
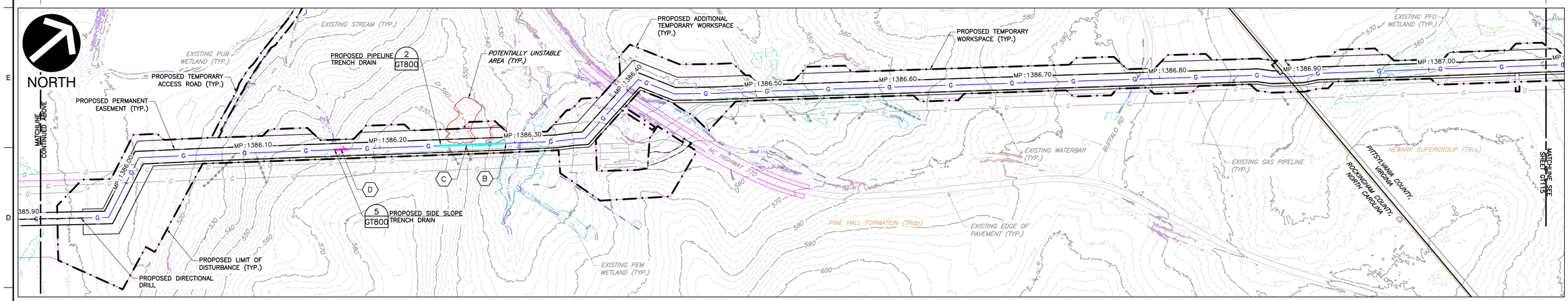
SOUTHEAST SUPPLY ENHANCMENT
ROCKINGHAM COUNTY, NORTH CAROLINA AND PITTSYLVANIA COUNTY, VIRGINIA

EDEN LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
DATE:	MAY 2025
DWG SCALE:	1" = 200'
PROJECT NO:	340-665
APPROVED BY:	MLS

DRAWING NO.: **GT113**





PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION
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NOTES

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LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
- EXISTING PFO WETLAND (BY OTHERS)
- EXISTING POW WETLAND (BY OTHERS)
- EXISTING PSS WETLAND (BY OTHERS)
- EXISTING PUB WETLAND (BY OTHERS)
- EXISTING EDGE OF GRAVEL
- EXISTING GAS PIPELINE (G)
- EXISTING WATERBAR
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- EXISTING FAULT BOUNDARY
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- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (SEE NOTE 1) (MP:1330.00)
- PROPOSED SALEM LOOP PIPELINE (G)
- PROPOSED EDEN LOOP PIPELINE (G)
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

COMMONWEALTH OF VIRGINIA
MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMAKER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2024	UPDATE TO WORKSPACE AFTER ISSUANCE
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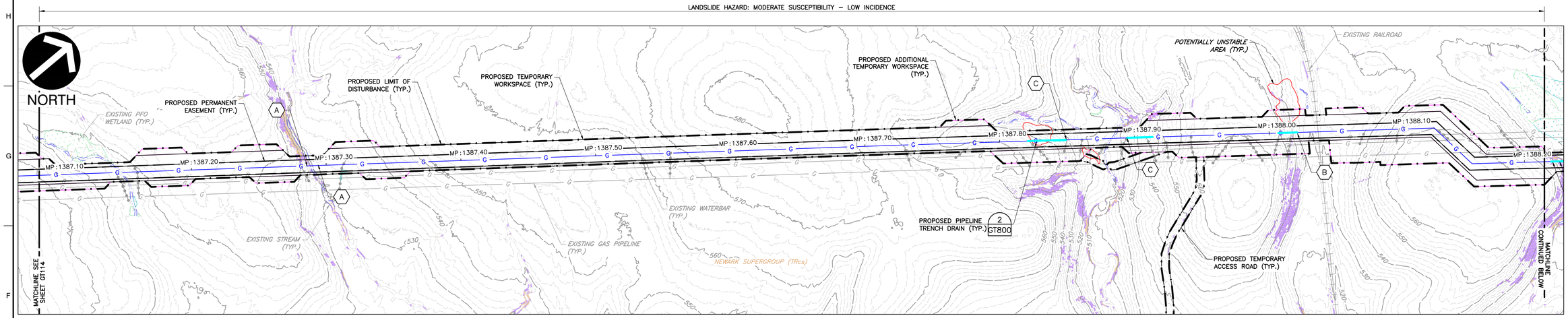
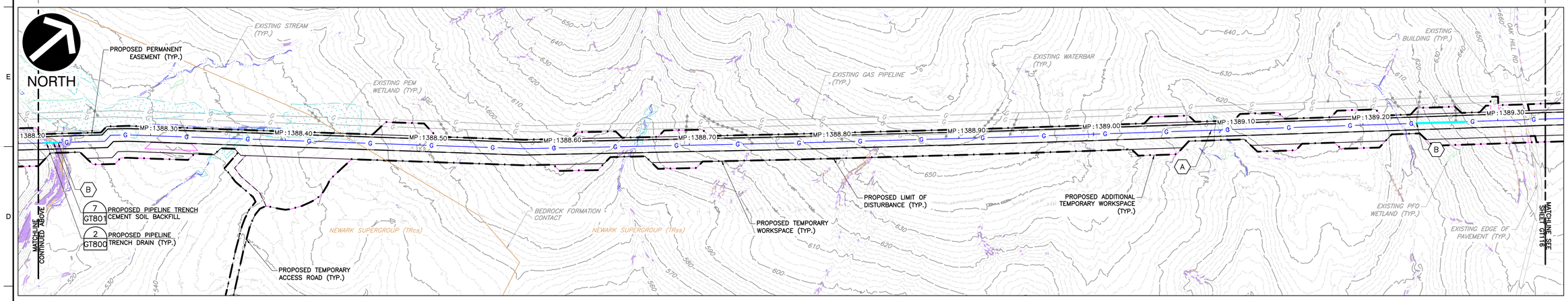
TRANSCONTINENTAL PIPELINE CO. SOUTHEAST SUPPLY ENHANCMENT ROCKINGHAM COUNTY, NORTH CAROLINA AND PITTSYLVANIA COUNTY, VIRGINIA

EDEN LOOP GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

DRAWING NO.: **GT114**





PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION
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LEGEND

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- MP:1330.00 PROPOSED PIPELINE MILE POINT (SEE NOTE 1)
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SCALE IN FEET
0 200 400

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EDEN LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
DATE:	MAY 2025
DWG SCALE:	1" = 200'
PROJECT NO.:	340-665
APPROVED BY:	MLS

COMMONWEALTH OF VIRGINIA
MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

DRAWING NO.:
GT115

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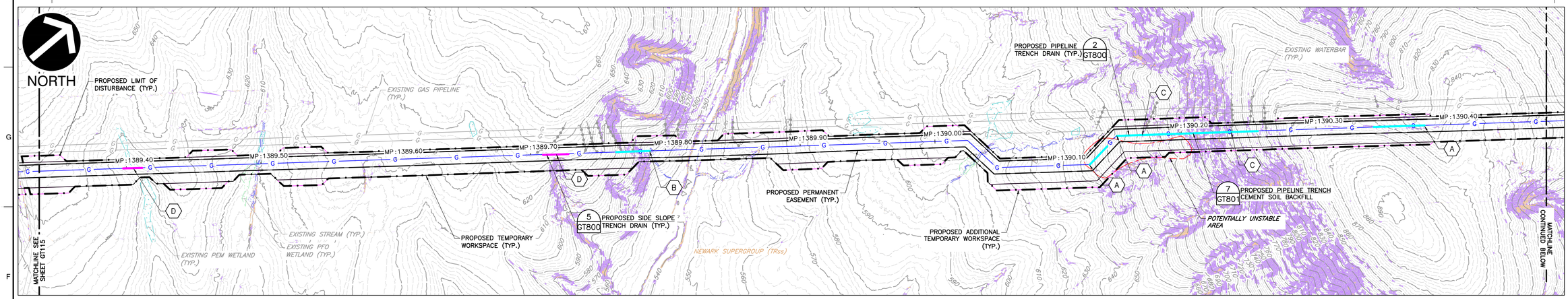

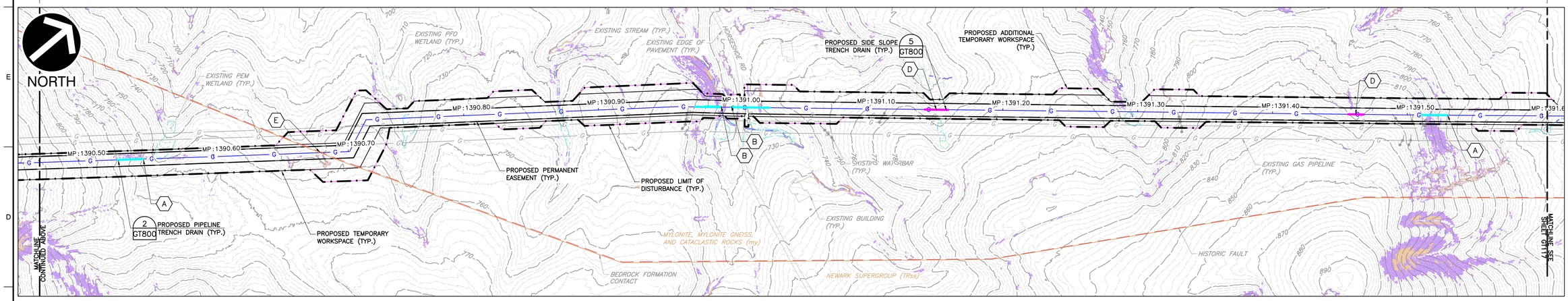

PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
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- EXISTING WATERBAR
- EXISTING BEDROCK BOUNDARY
- EXISTING BEDROCK NAME (MAP SYMBOL) (GRANITIC ROCK (PPg))
- EXISTING FAULT BOUNDARY
- EXISTING POTENTIALLY UNSTABLE AREA
- EXISTING STEEP SLOPE (3H:1V – 2H:1V)
- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (SEE NOTE 1) (MP:1330.00)
- PROPOSED SALEM LOOP PIPELINE (G)
- PROPOSED EDEN LOOP PIPELINE (G)
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

COMMONWEALTH OF VIRGINIA
MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2024	UPDATE TO WORKSPACE AFTER ISSUANCE
2	12/17/2024	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/2/2025	UPDATED PROPOSED FEATURES BASED ON REVISED EDEN LOOP ALIGNMENT

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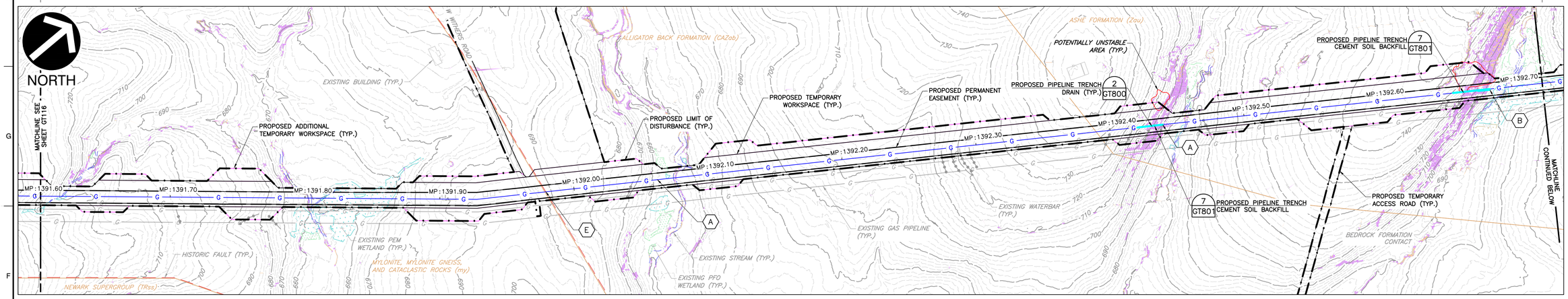
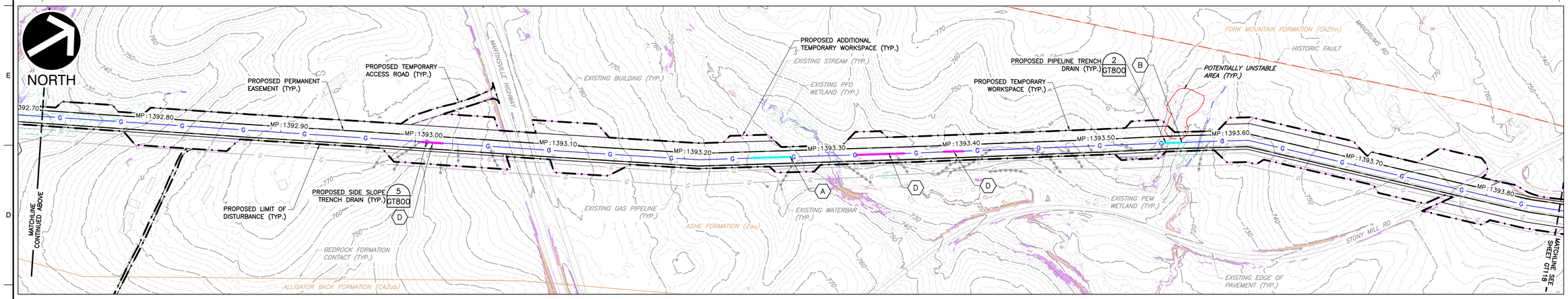
SOUTHEAST SUPPLY ENHANCMENT
ROCKINGHAM COUNTY, NORTH CAROLINA AND PITTSYLVANIA COUNTY, VIRGINIA

EDEN LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
DATE:	MAY 2025
DWG SCALE:	1" = 200'
PROJECT NO:	340-665
APPROVED BY:	MLS

DRAWING NO.:
GT116





PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION
- (E) BACKFILL PIPELINE TRENCH WITH CLEAN SAND FOR A MINIMUM THICKNESS OF 4 FEET WITHIN 50 FEET OF HISTORIC FAULT CROSSINGS

NOTES

1. THE PIPELINE STATIONING SHOWN HEREIN IS MEASURED IN TENTH MILES. PIPELINE STATIONING IS BASED ON GEOLINK FILES ACCESSED ON 8/1/2024.
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LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
- EXISTING PFO WETLAND (BY OTHERS)
- EXISTING POW WETLAND (BY OTHERS)
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- MP:1330.00 PROPOSED PIPELINE MILE POINT (SEE NOTE 1)
- PROPOSED SALEM LOOP PIPELINE (G)
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- PROPOSED DIRECTIONAL DRILL
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- PROPOSED TEMPORARY WORKSPACE
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- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

COMMONWEALTH OF VIRGINIA
C. MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

REVISION RECORD

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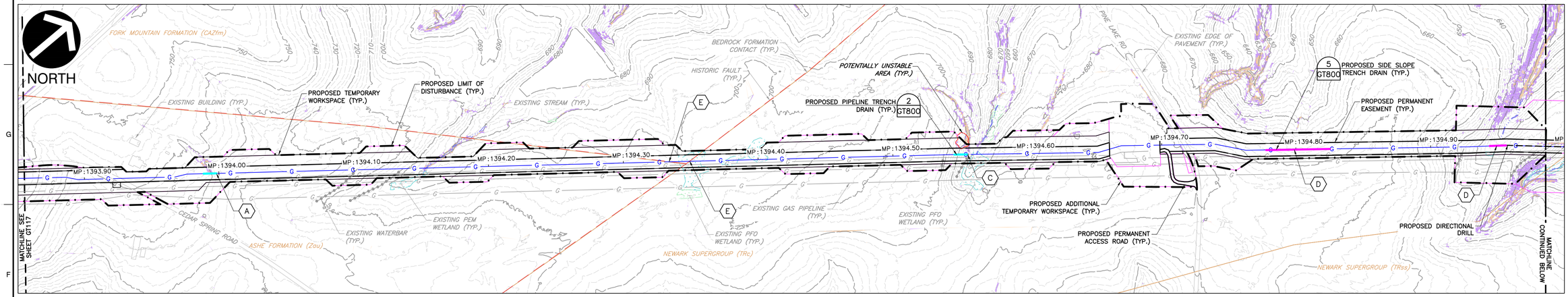
ROCKINGHAM COUNTY, NORTH CAROLINA AND PITTSYLVANIA COUNTY, VIRGINIA

EDEN LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

DRAWING NO.: **GT117**



PLAN VIEW

SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
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LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
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- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
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- PROPOSED TRENCH DRAIN
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SCALE IN FEET
0 200 400

COMMONWEALTH OF VIRGINIA
MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION
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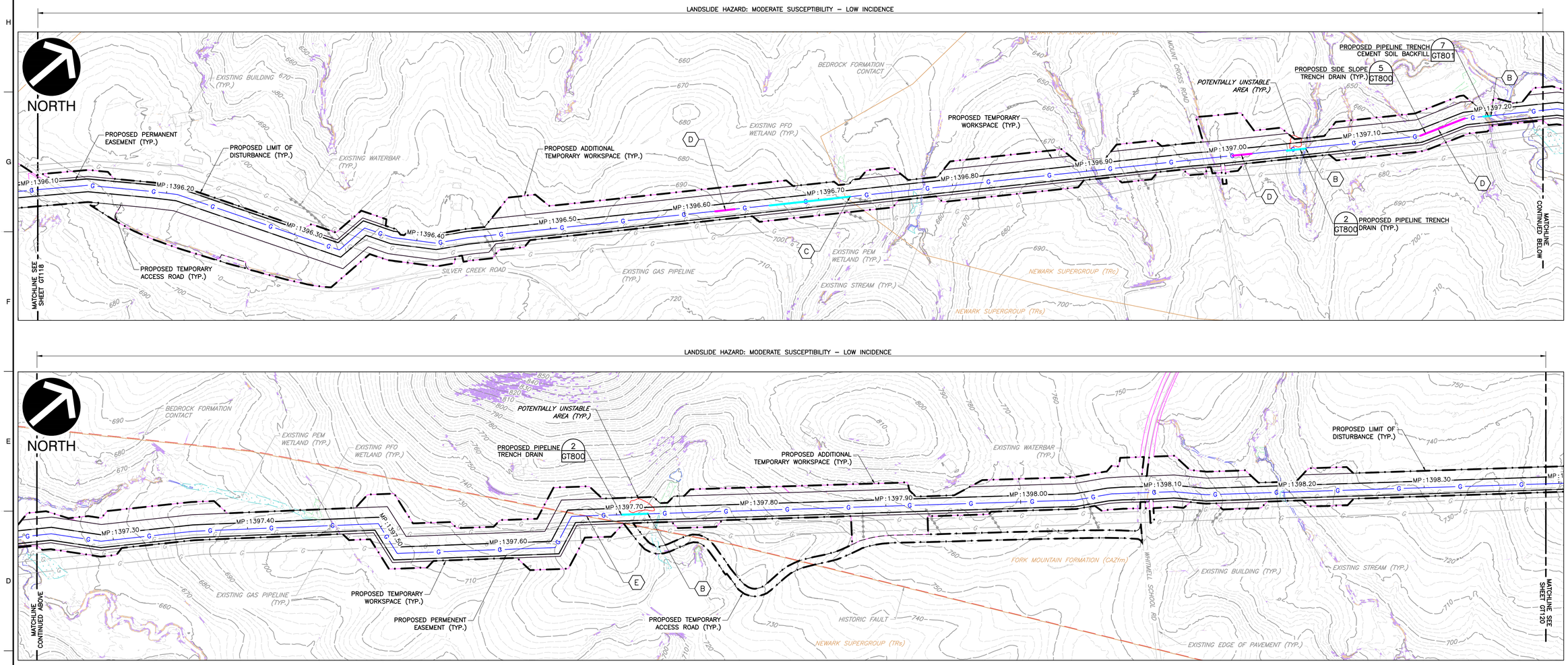
EDEN LOOP
GEOHAZARD ASSESSMENT

DATE:	MAY 2025
DWG SCALE:	1" = 200'
PROJECT NO:	
DRAWN BY:	C2B
CHECKED BY:	HCB
APPROVED BY:	340-665
	MLS

DRAWING NO.: **GT118**



PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

A	FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
B	FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
C	FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
D	FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION
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NOTES

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LEGEND

950 EXISTING INDEX CONTOUR	EXISTING EDGE OF GRAVEL	PROPOSED PERMANENT EASEMENT
EXISTING INTERMEDIATE CONTOUR	G EXISTING GAS PIPELINE	PROPOSED TEMPORARY WORKSPACE
APPROXIMATE STATE BOUNDARY	EXISTING WATERBAR	PROPOSED ADDITIONAL TEMPORARY WORKSPACE
APPROXIMATE COUNTY BOUNDARY	EXISTING BEDROCK BOUNDARY	PROPOSED PERMANENT ACCESS ROAD
EXISTING EDGE OF PAVEMENT	GRANITIC ROCK (PPg) EXISTING BEDROCK NAME (MAP SYMBOL)	PROPOSED TEMPORARY ACCESS ROAD
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EXISTING PUB WETLAND (BY OTHERS)	PROPOSED DIRECTIONAL DRILL	

SCALE IN FEET
0 200 400

COMMONWEALTH OF VIRGINIA
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PROFESSIONAL ENGINEER

REVISION RECORD

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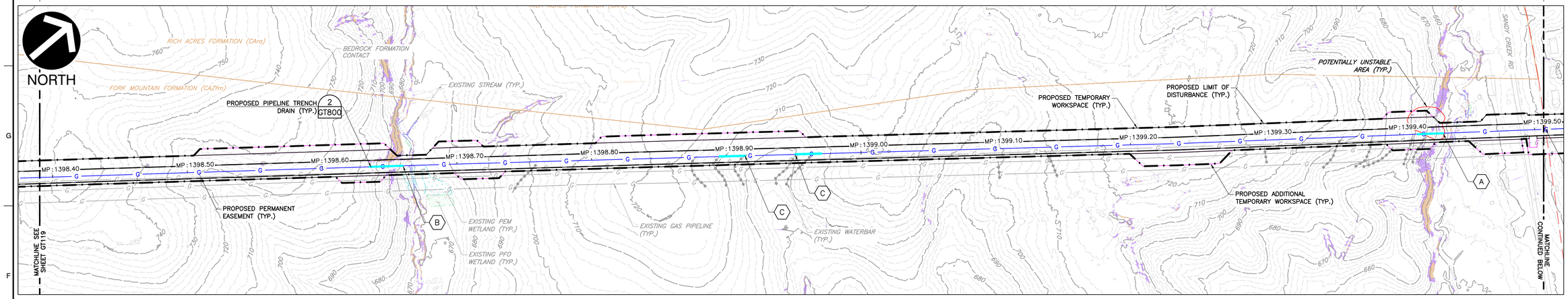
DRAWN BY:	CZB
DATE:	MAY 2025
CHECKED BY:	HCB
DWG SCALE:	1" = 200'
PROJECT NO:	340-665
APPROVED BY:	MLS

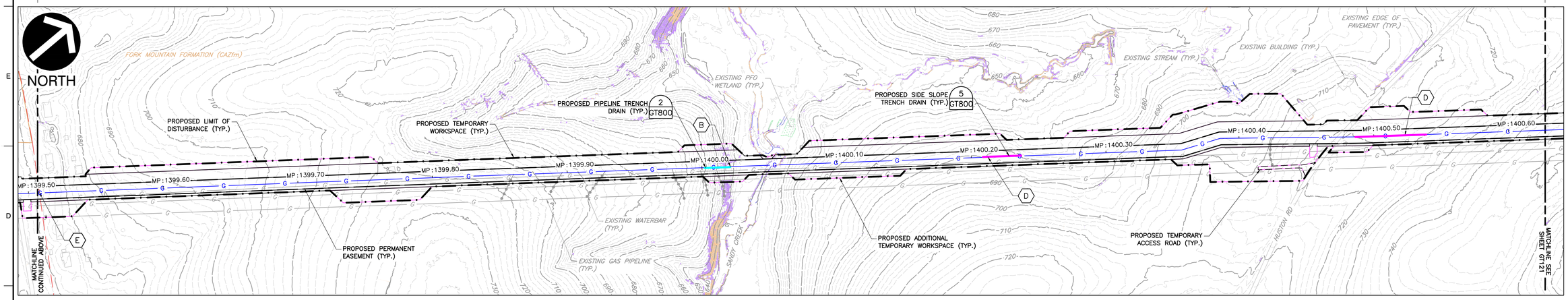
DRAWING NO.:
GT119

P:\340-2001\340-665_CADD\Dwg\GT03\340665-GT03-EDEN-03.dwg[GT119] LS(12/23/2024 - hbullock) - LP: 4/29/2025 12:05 PM

LANDSLIDE HAZARD: MODERATE SUSCEPTIBILITY – LOW INCIDENCE



LANDSLIDE HAZARD: MODERATE SUSCEPTIBILITY – LOW INCIDENCE



PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

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LEGEND

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EXISTING INTERMEDIATE CONTOUR	G EXISTING GAS PIPELINE	PROPOSED TEMPORARY WORKSPACE
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SCALE IN FEET
0 200 400

COMMONWEALTH OF VIRGINIA
MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2024	UPDATE TO WORKSPACE AFTER ISSUANCE
2	12/13/2024	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/2/2025	UPDATED PROPOSED FEATURES BASED ON REVISED EDEN LOOP ALIGNMENT

700 Cherrington Parkway
Moon Township, PA 15108
Ph: 412.429.2324 800.365.2324
www.cecinc.com

Civil & Environmental Consultants, Inc.

TRANSCONTINENTAL PIPELINE CO.
SOUTHEAST SUPPLY ENHANCMENT
ROCKINGHAM COUNTY, NORTH CAROLINA AND PITTSYLVANIA COUNTY, VIRGINIA

EDEN LOOP
GEOHAZARD ASSESSMENT

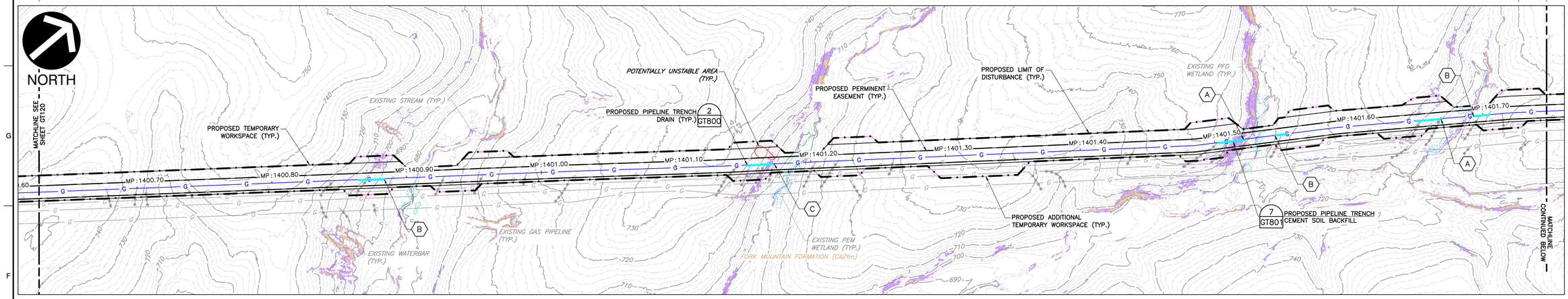
DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

DRAWING NO.:
GT120
23

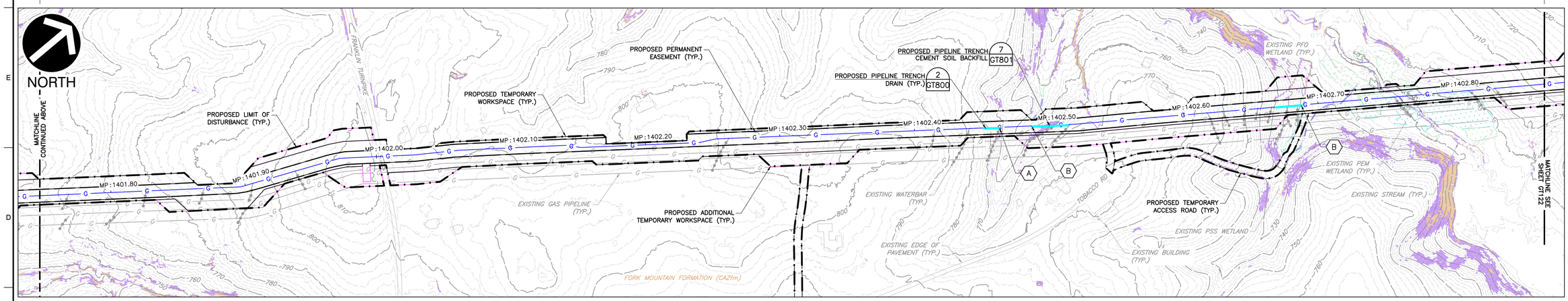
P:\340-0001\340-665\-CAD\Dwg\GT01\340665-GT03-EDEN-02.dwg[GT120] LS(12/23/2024 - Modified) - LP, 4/29/2025 12:14 PM

LANDSLIDE HAZARD: MODERATE SUSCEPTIBILITY – LOW INCIDENCE

LANDSLIDE HAZARD: HIGH SUSCEPTIBILITY – MODERATE INCIDENCE



LANDSLIDE HAZARD: HIGH SUSCEPTIBILITY – MODERATE INCIDENCE



PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION
- (E) BACKFILL PIPELINE TRENCH WITH CLEAN SAND FOR A MINIMUM THICKNESS OF 4 FEET WITHIN 50 FEET OF HISTORIC FAULT CROSSINGS

NOTES

1. THE PIPELINE STATIONING SHOWN HEREIN IS MEASURED IN TENTH MILES. PIPELINE STATIONING IS BASED ON GEOLINK FILES ACCESSED ON 8/1/2024.
2. THE LIMIT OF POTENTIALLY UNSTABLE AREAS DEPICTED HEREIN ARE BASED ON VISUAL OBSERVATIONS OF THE 2024 LIDAR IMAGERY. ACTUAL CONDITIONS MAY DIFFER.
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LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
- EXISTING POW WETLAND (BY OTHERS)
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- EXISTING PSS WETLAND (BY OTHERS)
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- EXISTING WATERBAR
- EXISTING BEDROCK BOUNDARY
- GRANITIC ROCK (PPg) — EXISTING BEDROCK NAME (MAP SYMBOL)
- EXISTING FAULT BOUNDARY
- EXISTING POTENTIALLY UNSTABLE AREA
- EXISTING STEEP SLOPE (3H:1V – 2H:1V)
- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- MP:1330.00 — PROPOSED PIPELINE MILE POINT (SEE NOTE 1)
- PROPOSED SALEM LOOP PIPELINE (G)
- PROPOSED EDEN LOOP PIPELINE (G)
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
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SCALE IN FEET
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COMMONWEALTH OF VIRGINIA
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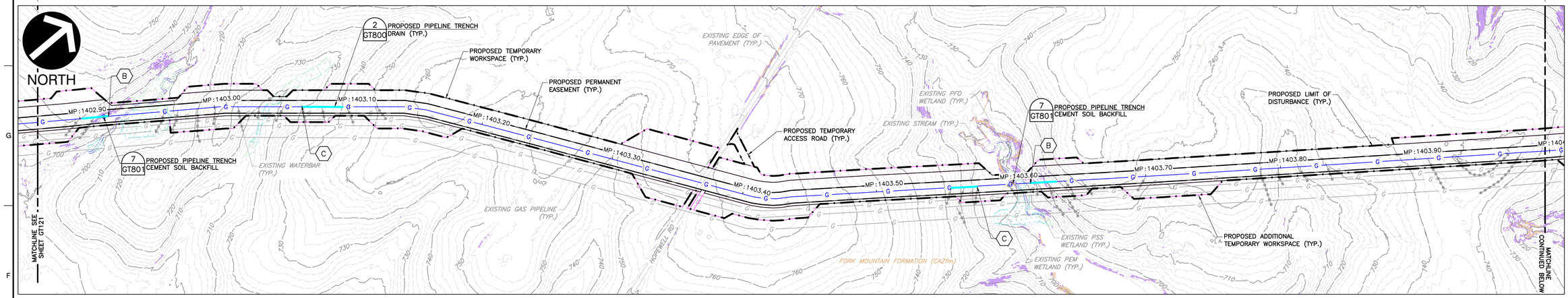
EDEN LOOP
GEOHAZARD ASSESSMENT

DATE:	MAY 2025
DWG SCALE:	1" = 200'
DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS

DRAWING NO.:
GT121



PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

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LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
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- EXISTING PEM WETLAND (BY OTHERS)
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SCALE IN FEET
0 200 400

COMMONWEALTH OF VIRGINIA
MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2025	UPDATE TO WORKSPACE AFTER ISSUANCE
2	10/7/2025	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/2026	UPDATED PROPOSED FEATURES BASED ON REVISED EDEN LOOP ALIGNMENT

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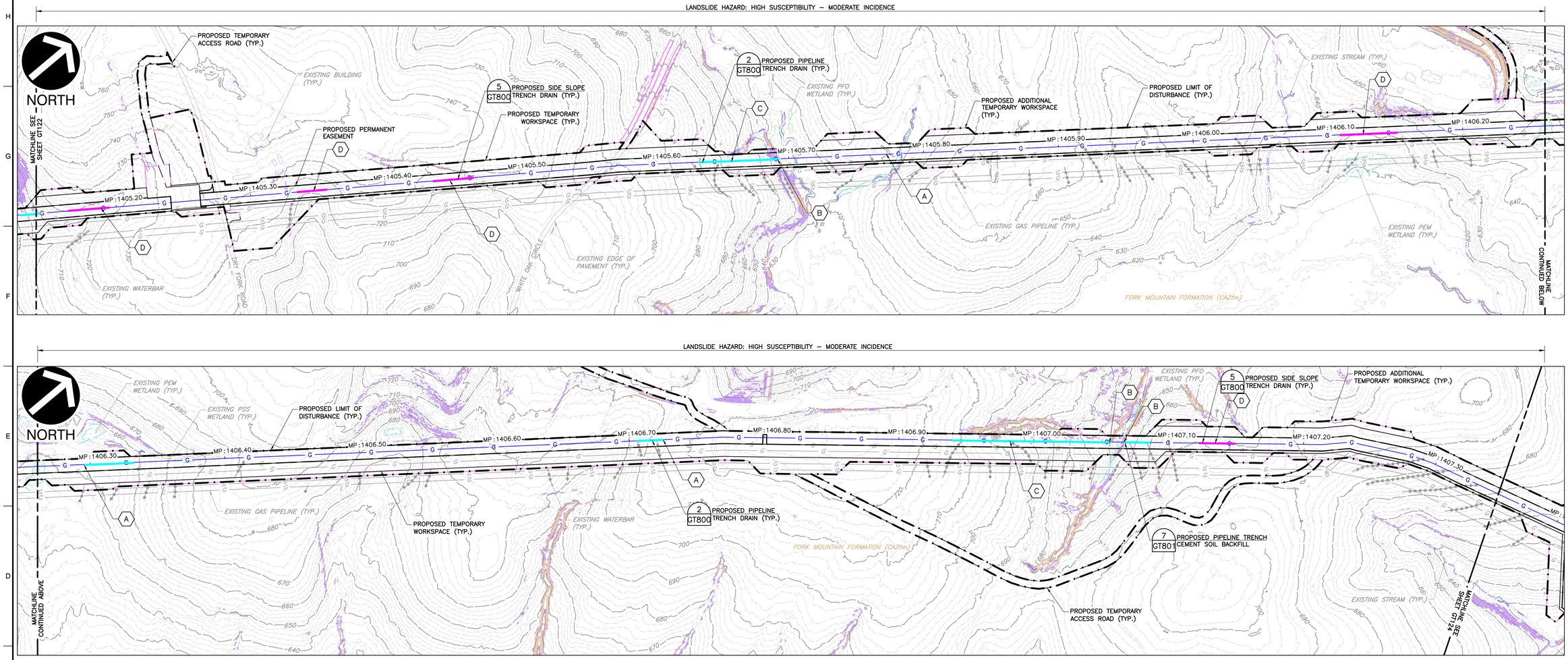
EDEN LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

DRAWING NO.: **GT122**



PLAN VIEW
SCALE: 1" = 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
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LEGEND

- EXISTING INDEX CONTOUR (950)
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SCALE IN FEET
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COMMONWEALTH OF VIRGINIA
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PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION
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EDEN LOOP
GEOHAZARD ASSESSMENT

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DWG SCALE:	1" = 200'
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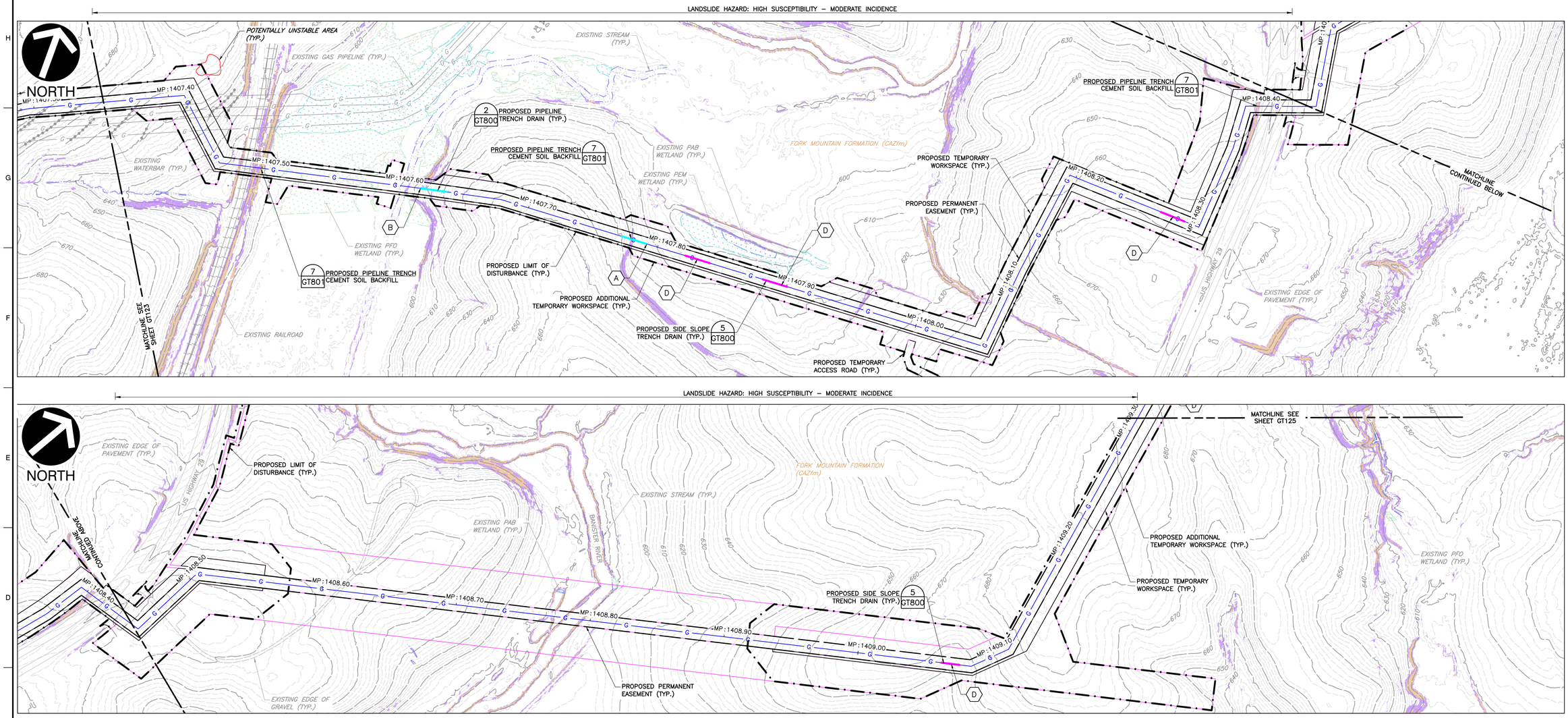
APPROVED BY:	MLS

DRAWING NO.: **GT123**

P:\340-665\340-665\-CAD\Dwg\GT03\340665-GT03-EDEN-03.dwg[GT123] LS(12/20/2024 - Hatched) - LR 4/29/2025 2:24 PM



KEY NOTES

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SCALE IN FEET
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PLAN VIEW
SCALE: 1"= 200'

REVISION RECORD

NO	DATE	DESCRIPTION
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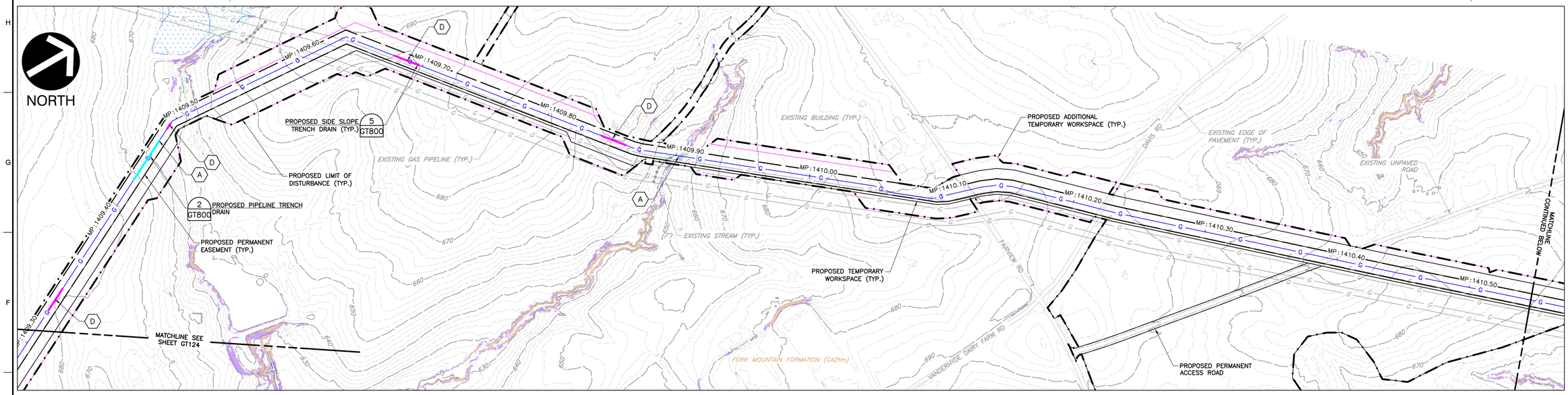
EDEN LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

COMMONWEALTH OF VIRGINIA
MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

DRAWING NO.:
GT124



PLAN VIEW
SCALE: 1"= 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION
- (E) BACKFILL PIPELINE TRENCH WITH CLEAN SAND FOR A MINIMUM THICKNESS OF 4 FEET WITHIN 50 FEET OF HISTORIC FAULT CROSSINGS

NOTES

1. THE PIPELINE STATIONING SHOWN HEREIN IS MEASURED IN TENTH MILES. PIPELINE STATIONING IS BASED ON GEOLINK FILES ACCESSED ON 8/1/2024.
2. THE LIMIT OF POTENTIALLY UNSTABLE AREAS DEPICTED HEREIN ARE BASED ON VISUAL OBSERVATIONS OF THE 2024 LIDAR IMAGERY. ACTUAL CONDITIONS MAY DIFFER.
3. CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
4. REFER TO THE GEOTECHNICAL ENGINEERING LETTER REPORT FOR COMPLETE GEOHAZARD FINDINGS, DESCRIPTIONS, AND EXPLANATIONS.

REFERENCES

1. EXISTING TOPOGRAPHY IS A COMBINATION OF PUBLIC DATA AND UNMANNED AERIAL SYSTEM (UAS) RECORDED DATA COLLECTED FOR WILLIAMS IN 2024. PUBLIC CONTOURS DERIVED FROM 2-FT CONTOURS CONSTRUCTED FROM PUBLICLY AVAILABLE U.S.G.S LIDAR (LIGHT DETECTION AND RANGING) ELEVATION POINTS. TOPOGRAPHIC CONTOURS MAPPED AT AN INTERVAL OF 2 FEET; OBTAINED FROM DATA.GIS.VA.GOV; DATED 2018 AND DATA.GIS.NC.GOV; DATED 2015 AND 2016.
2. EXISTING LANDSLIDE SUSCEPTIBILITY CATEGORIES PRESENTED HEREIN ARE BASED ON THE U.S. GEOLOGICAL SURVEY PUBLICATION "LANDSLIDE OVERVIEW OF THE CONTERMINOUS UNITED STATES, MAP MF-771" DATED 1976.
3. STREAM AND WETLAND LOCATIONS WERE DELINEATED BY OTHERS AND OBTAINED FROM FILES TITLED "ENV_WATERWAYS_LINE_SSE" AND "ENV_WETLAND_AREA_SSE" ACCESSED THROUGH GEOLINK ON 7/31/2024.
4. BEDROCK GEOLOGY AND ASSOCIATED FEATURES OBTAINED FROM THE U.S.G.S. MINERARL RESOURCES ONLINE SPATIAL DATABASE FOR NORTH CAROLINA AND VIRGINIA.
5. PIPELINE INFORMATION PRESENTED HEREIN WERE OBTAINED FROM FILES TITLED "SurveyData_SSE", "EA_PIPE_SSE" "EA_ACCESS_ROAD_SSE", AND "SRV_WORKSPACE_SSE" ACCESSED THROUGH GEOLINK ON 4/23/2025.

LEGEND

- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
- EXISTING PFO WETLAND (BY OTHERS)
- EXISTING POW WETLAND (BY OTHERS)
- EXISTING PSS WETLAND (BY OTHERS)
- EXISTING PUB WETLAND (BY OTHERS)
- EXISTING EDGE OF GRAVEL
- EXISTING GAS PIPELINE
- EXISTING WATERBAR
- EXISTING BEDROCK BOUNDARY
- EXISTING BEDROCK NAME (MAP SYMBOL)
- EXISTING FAULT BOUNDARY
- EXISTING POTENTIALLY UNSTABLE AREA
- EXISTING STEEP SLOPE (3H:1V – 2H:1V)
- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (SEE NOTE 1)
- PROPOSED SALEM LOOP PIPELINE
- PROPOSED EDEN LOOP PIPELINE
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

COMMONWEALTH OF VIRGINIA
MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/5/2025	UPDATE TO WORKSPACE AFTER ISSUANCE
2	10/3/2025	UPDATED PROPOSED PIXTURES BASED ON REVISED ALIGNMENT
3	11/3/2025	UPDATED PROPOSED PIXTURES BASED ON REVISED EDEN LOOP ALIGNMENT

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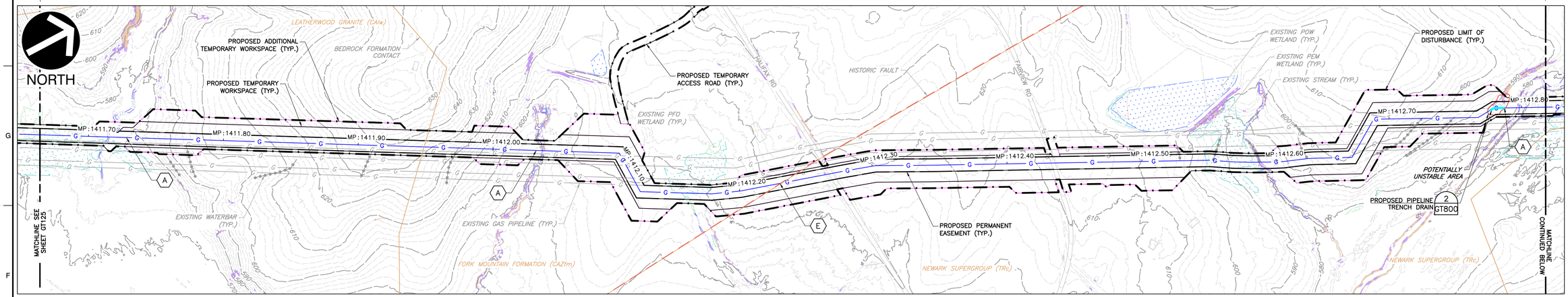
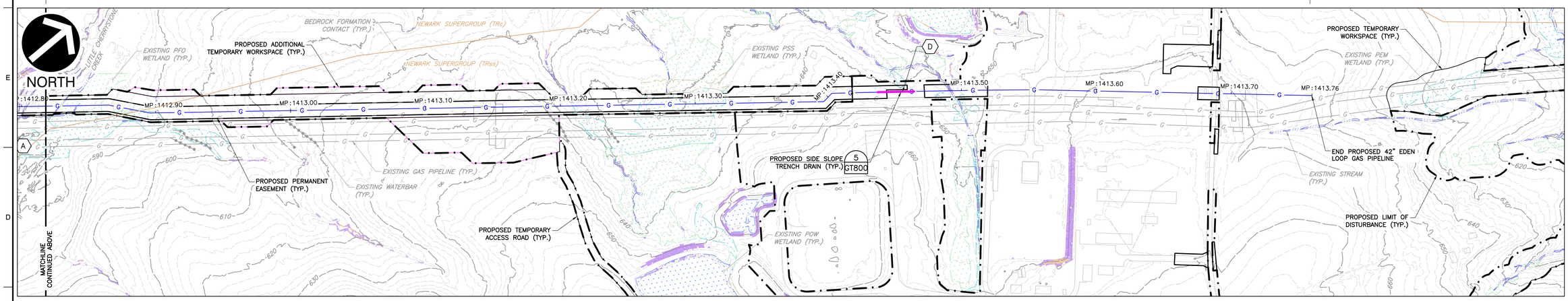
SOUTHEAST SUPPLY ENHANCMENT
ROCKINGHAM COUNTY, NORTH CAROLINA AND
PITTSYLVANIA COUNTY, VIRGINIA

EDEN LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	1" = 200'

DRAWING NO.:
GT125





PLAN VIEW
SCALE: 1" = 200'

KEY NOTES

- (A) FURNISH AND INSTALL DRAINED TRENCH PLUG PER DETAIL 1, SHEET GT800
- (B) FURNISH AND INSTALL SLOPE TOE DRAIN OUTLET PER DETAIL 3, SHEET GT800
- (C) FURNISH AND INSTALL WATERBAR TRENCH DRAIN OUTLET AS NEEDED PER DETAIL 4, SHEET GT800
- (D) FURNISH AND INSTALL SIDE SLOPE TRENCH DRAIN PER DETAIL 5, SHEET GT800 AS NEEDED WITHIN TOPOGRAPHICAL AND PIPELINE TRENCH SAGS. OUTLET DRAIN LOCATION(S) TO BE DETERMINED IN THE FIELD DURING CONSTRUCTION
- (E) BACKFILL PIPELINE TRENCH WITH CLEAN SAND FOR A MINIMUM THICKNESS OF 4 FEET WITHIN 50 FEET OF HISTORIC FAULT CROSSINGS

NOTES

1. THE PIPELINE STATIONING SHOWN HEREIN IS MEASURED IN TENTH MILES. PIPELINE STATIONING IS BASED ON GEOLINK FILES ACCESSED ON 8/1/2024.
2. THE LIMIT OF POTENTIALLY UNSTABLE AREAS DEPICTED HEREIN ARE BASED ON VISUAL OBSERVATIONS OF THE 2024 LIDAR IMAGERY. ACTUAL CONDITIONS MAY DIFFER.
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4. REFER TO THE GEOTECHNICAL ENGINEERING LETTER REPORT FOR COMPLETE GEOHAZARD FINDINGS, DESCRIPTIONS, AND EXPLANATIONS.

REFERENCES

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3. STREAM AND WETLAND LOCATIONS WERE DELINEATED BY OTHERS AND OBTAINED FROM FILES TITLED "ENV_WATERWAYS_LINE_SSE" AND "ENV_WETLAND_AREA_SSE" ACCESSED THROUGH GEOLINK ON 7/31/2024.
4. BEDROCK GEOLOGY AND ASSOCIATED FEATURES OBTAINED FROM THE U.S.G.S. MINEARL RESOURCES ONLINE SPATIAL DATABASE FOR NORTH CAROLINA AND VIRGINIA.
5. PIPELINE INFORMATION PRESENTED HEREIN WERE OBTAINED FROM FILES TITLED "SurveyData_SSE", "EA_PIPE_SSE" "EA_ACCESS_ROAD_SSE", AND "SRV_WORKSPACE_SSE" ACCESSED THROUGH GEOLINK ON 4/23/2025.

LEGEND

- EXISTING INDEX CONTOUR (950)
- EXISTING INTERMEDIATE CONTOUR
- APPROXIMATE STATE BOUNDARY
- APPROXIMATE COUNTY BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING RAILROAD
- EXISTING BUILDING/STRUCTURE
- EXISTING STREAM (BY OTHERS)
- EXISTING PEM WETLAND (BY OTHERS)
- EXISTING PAB WETLAND (BY OTHERS)
- EXISTING PFO WETLAND (BY OTHERS)
- EXISTING POW WETLAND (BY OTHERS)
- EXISTING PSS WETLAND (BY OTHERS)
- EXISTING PUB WETLAND (BY OTHERS)
- EXISTING EDGE OF GRAVEL
- EXISTING GAS PIPELINE (G)
- EXISTING WATERBAR
- EXISTING BEDROCK BOUNDARY
- EXISTING BEDROCK NAME (MAP SYMBOL) (GRANITIC ROCK (PPg))
- EXISTING FAULT BOUNDARY
- EXISTING POTENTIALLY UNSTABLE AREA
- EXISTING STEEP SLOPE (3H:1V – 2H:1V)
- EXISTING STEEP SLOPE (STEEPER THAN 2H:1V)
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED PIPELINE MILE POINT (SEE NOTE 1) (MP:1330.00)
- PROPOSED SALEM LOOP PIPELINE (G)
- PROPOSED EDEN LOOP PIPELINE (G)
- PROPOSED DIRECTIONAL DRILL
- PROPOSED PERMANENT EASEMENT
- PROPOSED TEMPORARY WORKSPACE
- PROPOSED ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PERMANENT ACCESS ROAD
- PROPOSED TEMPORARY ACCESS ROAD
- PROPOSED TRENCH DRAIN
- PROPOSED SIDE SLOPE TRENCH DRAIN

SCALE IN FEET
0 200 400

COMMONWEALTH OF VIRGINIA
C. MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/15/2024	UPDATE TO WORKSPACE AFTER ISSUANCE
2	10/1/2024	UPDATED PROPOSED PIXTURES BASED ON REVISED ALIGNMENT
3	3/2/2025	UPDATED PROPOSED PIXTURES BASED ON REVISED EDEN LOOP ALIGNMENT

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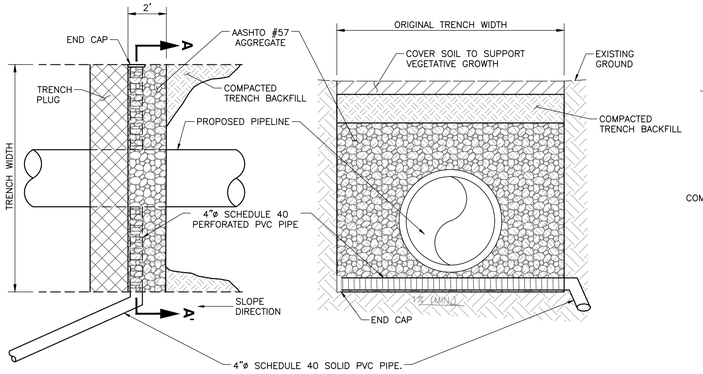
SOUTHEAST SUPPLY ENHANCMENT
ROCKINGHAM COUNTY, NORTH CAROLINA AND PITTSYLVANIA COUNTY, VIRGINIA

EDEN LOOP
GEOHAZARD ASSESSMENT

DRAWN BY:	CZB
CHECKED BY:	HCB
DATE:	MAY 2025
DWG SCALE:	1" = 200'
PROJECT NO:	340-665
APPROVED BY:	MLS

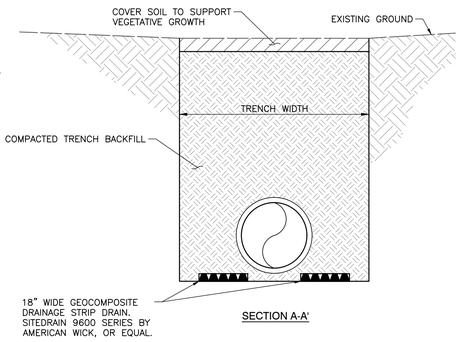
DRAWING NO.:
GT126



NOTE:

1. DAYLIGHT DISCHARGE PIPE TO RIPRAP EMBEDMENT TERMINUS (SEE DETAIL 9).
2. SLOPE BASE OF PIPE TRENCH, AT THE UPSLOPE SIDE OF TRENCH PLUG TOWARDS THE OUTLET PIPE AT A MINIMUM 1% GRADE.

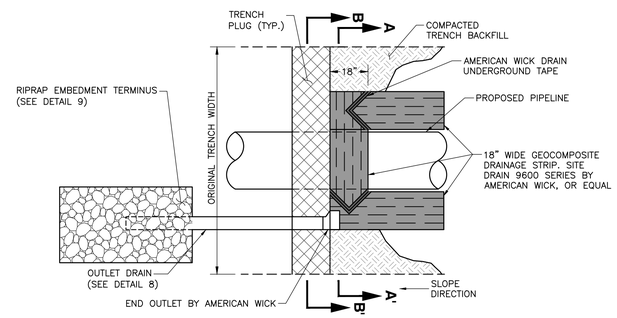
DETAIL 1
DRAINED TRENCH PLUG
NOT TO SCALE

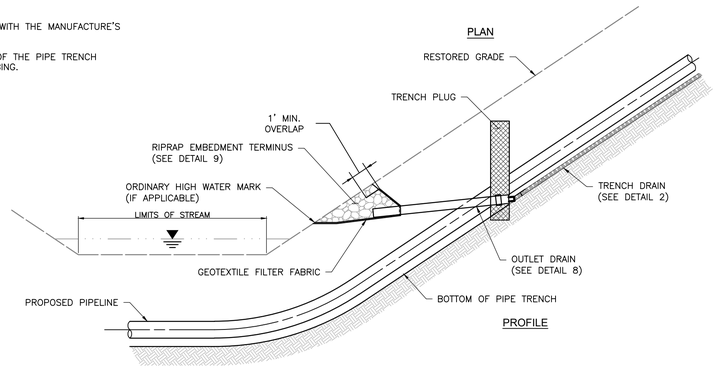


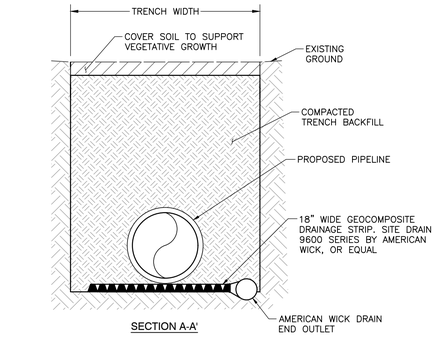
NOTES:

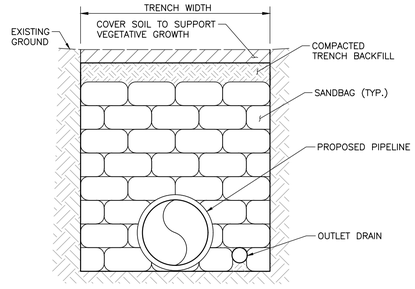
1. SPLICE GEOCOMPOSITE DRAINAGE STRIPS IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS.
2. PLACE GEOCOMPOSITE DRAINAGE STRIPS AT THE BOTTOM OF THE PIPE TRENCH PRIOR TO BACKFILLING. DO NOT CRUSH DRAIN WITH CRIBBING.

DETAIL 2
TRENCH DRAIN
NOT TO SCALE

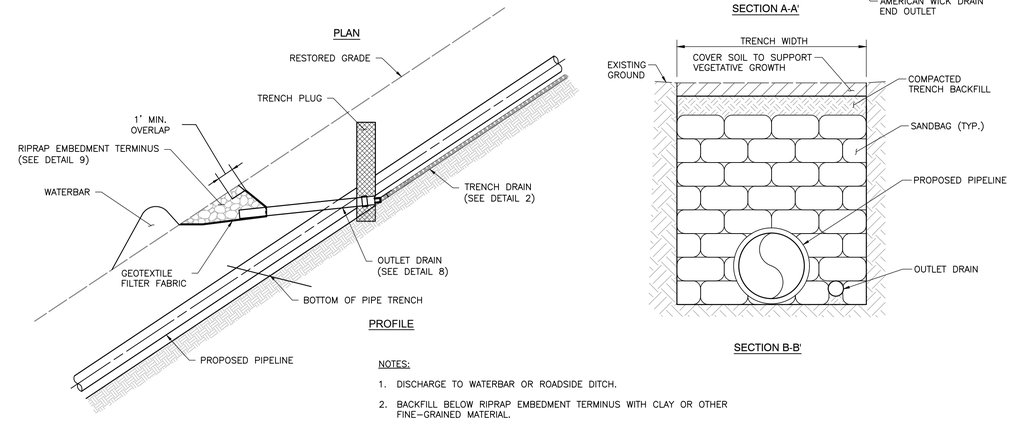








DETAIL 3
SLOPE TOE TRENCH DRAIN OUTLET
NOT TO SCALE



NOTES:

1. DISCHARGE TO WATERBAR OR ROADSIDE DITCH.
2. BACKFILL BELOW RIPRAP EMBEDMENT TERMINUS WITH CLAY OR OTHER FINE-GRAINED MATERIAL.

DETAIL 4
WATERBAR TRENCH DRAIN OUTLET
NOT TO SCALE

SIDE SLOPE DETAIL NOTES

1. INSTALL TOP OF PIPELINE AT 8' BELOW THE EXISTING GROUND SURFACE. EVALUATE ACTUAL LANDSLIDE/COLLUVIUM DEPTH PRIOR TO TRENCHING BY EXCAVATING TEST PITS UNDER THE DIRECTION OF A CEC GEOTECHNICAL REPRESENTATIVE. CONSIDER DEEPENING/SHALLOWING PIPELINE BASED ON FINDINGS.
2. MONITOR AREAS UPSLOPE AND DOWNSLOPE FROM TRENCH FOR MOVEMENT DURING PIPELINE TRENCHING AND INSTALLATION.
3. SLOPE TEMPORARY EXCAVATION AWAY FROM PIPELINE TRENCH.
4. INSTALL OUTLET DRAINS AS SHOWN ON PLAN.
5. INSTALL CONTINUOUS GEOCOMPOSITE DRAINAGE STRIP IN BOTTOM OF PIPELINE TRENCH. INSTALL DRAINAGE GEOCOMPOSITE ON UPSLOPE CUT FACE AT 50% COVERAGE.
6. SPLICE GEOCOMPOSITE DRAINAGE STRIPS PER MANUFACTURERS RECOMMENDATIONS.
7. INSTALL AS NEEDED BASED ON FIELD CONDITIONS.

DETAIL 5
SIDE SLOPE TRENCH DRAIN
NOT TO SCALE

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/1/2024	UPDATE TO WORKSPACE AFTER BSUNACO
2	12/13/2024	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	5/5/2025	UPDATED PROPOSED FEATURES BASED ON REVISED ESEN LOOP ALIGNMENT

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GEOTECHNICAL DETAILS

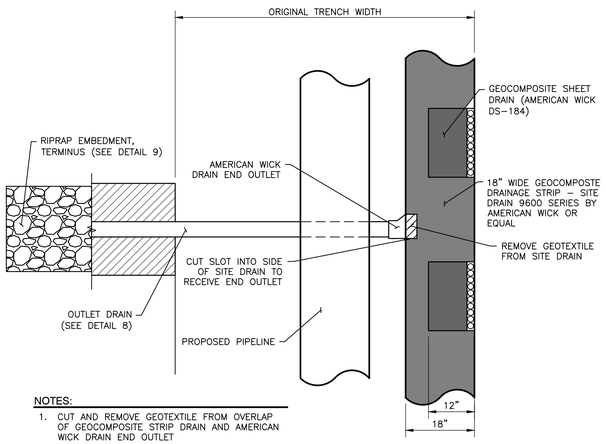
DRAWN BY:	CZB
CHECKED BY:	HCB
PROJECT NO:	340-665
APPROVED BY:	MLS
DATE:	MAY 2025
DWG SCALE:	N.T.S

DRAWING NO.:
GT800

COMMONWEALTH OF VIRGINIA
MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMAKER

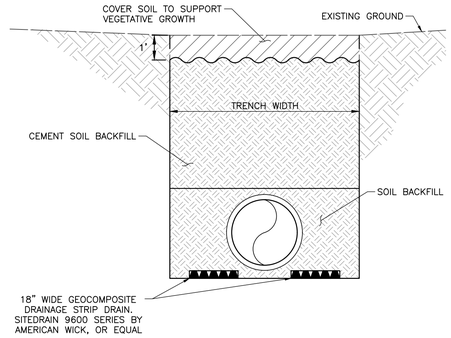
P:\340-2001\340-665\-CADD\dwg\GT03\340665-GT03-DETAILS.dwg[GT800] LS(12/17/2024 - nbullock) - LP: 5/22/2025 8:05 AM



NOTES:

1. CUT AND REMOVE GEOTEXTILE FROM OVERLAP OF GEOCOMPOSITE STRIP DRAIN AND AMERICAN WICK DRAIN END OUTLET

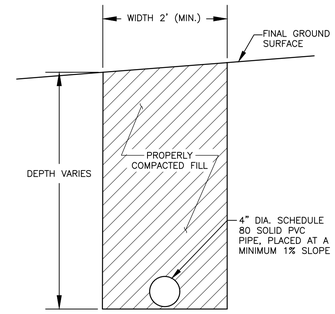
DETAIL 6
SIDE SLOPE GEOCOMPOSITE DRAINAGE STRIP TO OUTLET PIPE CONNECTION
NOT TO SCALE



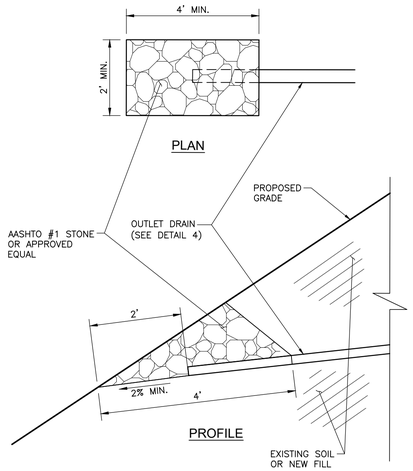
NOTES:

1. CEMENT SOIL BACKFILL SHALL BE THOROUGHLY MIXED WITH 8% CEMENT. BREAK ALL CLUMPS AND CLODS DURING MIXING. ADD WATER DURING MIXING AS NECESSARY TO PROPERLY HYDRATE.
2. LEAVE SURFACE OF BACKFILL ROUGHENED AND COVER WITH 1 FOOT OF SOIL FOR VEGETATION.
3. EXTEND CEMENT SOIL BACKFILL LIMITS TO INCLUDE ALL DISTURBED AREAS AND TRAVEL LANE BACKFILL.

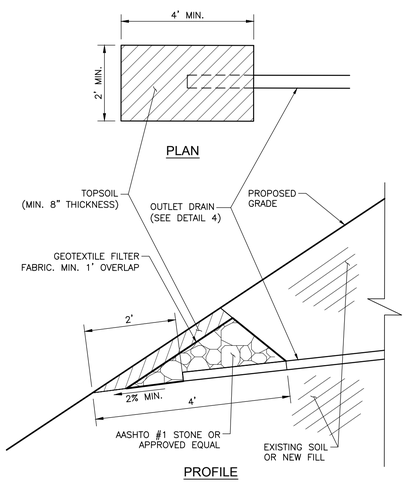
DETAIL 7
PIPELINE TRENCH CEMENT SOIL BACKFILL
NOT TO SCALE



DETAIL 8
OUTLET DRAIN
NOT TO SCALE



DETAIL 9
RIPRAP EMBEDMENT TERMINUS
NOT TO SCALE



DETAIL 9A
VEGETATED RIPRAP EMBEDMENT TERMINUS
NOT TO SCALE

REVISION RECORD

NO	DATE	DESCRIPTION
1	8/15/2025	UPDATE TO HYDROFLEX AFTER ISSUANCE
2	9/17/2025A	UPDATED PROPOSED FEATURES BASED ON REVISED ALIGNMENT
3	3/2/2026	UPDATED PROPOSED FEATURES BASED ON REVISED ESEN LOOP ALIGNMENT

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GEOTECHNICAL DETAILS

DATE:	MAY 2025
DWG SCALE:	N/A
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CHECKED BY:	HCB
APPROVED BY:	MLS

COMMONWEALTH OF VIRGINIA
MICHAEL L. SCHUMAKER
Lic. No. 68254
PROFESSIONAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 058042 ENGINEER MICHAEL L. SCHUMAKER

DRAWING NO.:
GT801

ATTACHMENT C

TABLE 8 – SUBSURFACE DRAINAGE SCHEDULE

Table 8 - Subsurface Drainage Schedule

Pipeline Alignment	Drainage Location, Type, and Construction Detail		
	Mile Point	*Orientation*	*Details*
Salem Loop	1331.43 – 1331.49	Down slope	2; 3; 4
	1331.57 – 1331.59	Down slope	1; 2
	1331 .71 – 1331.73	Side slope	5
	1331.87 – 1331.89	Down slope	2; 3
	1332.04 – 1332.05	Side slope	5
	1332.30 – 1332.33	Side slope	5
	1332.58 – 1332.59	Side slope	5
	1332.68 – 1332.70	Side slope	5
	1332.72 – 1332.75	Down slope	1; 2
	1332.77 – 1332.79	Down slope	1; 2
	1333.06 – 1333.09	Down slope	2; 3
	1333.12 – 1333.13	Down slope	2; 3
	1333.44 – 1333.46	Side slope	5
	1333.53 – 1333.56	Side slope	5
	1333.61 – 1333.62	Down slope	2; 3
	1333.64 – 1333.66	Down slope	2; 3
	1333.70 – 1333.71	Down slope	1; 2
	1333.81 – 1333.84	Down slope	2; 3; 4
	1334.02 – 1334.08	Side slope	5
	1334.24 – 1334.28	Side slope	5
	1334.35 – 1334.36	Down slope	2; 4
	1334.38 – 1334.39	Down slope	2; 4
	1334.45 – 1334.47	Side slope	5
	1334.58 – 1334.60	Down slope	1; 2
	1334.66 – 1334.67	Side slope	5
	1334.96 – 1335.01	Down slope	2; 3; 4
	1335.54 – 1335.56	Down slope	2; 4
	1335.71 – 1335.74	Side slope	5
	1335.85 – 1335.87	Side slope	5
	1335.94 – 1335.97	Down slope	1; 2
	1336.03 – 1336.05	Down slope	2; 3
	1336.37 – 1336.38	Side slope	5
	1336.72 – 1336.73	Side slope	5
	1336.89 – 1336.90	Down slope	2; 3
	1336.91 – 1336.93	Side slope	5
	1337.06 – 1337.07	Down slope	2; 3

Pipeline Alignment	Drainage Location, Type, and Construction Detail		
	Mile Point	*Orientation*	*Details*
Salem Loop	1337.74 – 1337.77	Down slope	2; 3; 4
	1337.77 – 1337.79	Down slope	2; 3
	1337.81 – 1337.82	Down slope	1; 2
	1337.83 – 1337.87	Side slope	5
	1337.99 – 1338.01	Side slope	5
	1338.43 – 1338.45	Side slope	5
	1338.66 – 1338.71	Side slope	5
	1338.77 – 1338.79	Side slope	5
	1338.95 – 1338.97	Side slope	5
	1339.03 – 1339.05	Side slope	5
	1339.28 – 1339.29	Down slope	2; 3
	1339.42 - 1339.44	Side slope	5
	1340.06	--	1
	1340.32	--	1
	1340.89 – 1340.91	Side slope	5
	1340.97 – 1341.00	Down slope	1; 2
	1341.05	--	1
	1341.64	--	1
	1341.66	--	1
	1342.57 – 1342.58	Down slope	2; 3
	1342.74 – 1342.76	Down slope	2; 3
	1343.03 – 1343.04	Down slope	1; 2
	1343.20 - 1343.21	Down slope	2; 3
	1343.34 – 1343.36	Down slope	2; 3
	1343.41 – 1343.42	Side slope	5
	1343.48 – 1343.49	Side slope	5
	1343.65 – 1343.66	Side slope	5
	1344.68 – 1344.71	Side slope	5
	1344.86 – 1344.88	Down slope	1; 2
	1344.89 – 1344.92	Down slope	2; 3
	1344.96 – 1344.99	Side slope	5
	1345.01 – 1344.02	Side slope	5
	1345.36 - 1345.38	Down slope	1; 2
	1345.53 - 1345.57	Side slope	5
	1345.61 – 1345.64	Side slope	5
	1345.89 – 1345.91	Down slope	2; 3
	1345.95 – 1345.96	Side slope	5
	1346.02	--	1
	1346.05 – 1346.07	Side slope	5

Pipeline Alignment	Drainage Location, Type, and Construction Detail		
	Mile Point	*Orientation*	*Details*
Salem Loop	1346.09 – 1346.11	Side slope	5
	1346.32 – 1346.36	Down slope	2; 3
	1347.47 - 1347.50	Side slope	5
	1347.86 - 1347.91	Side slope	5
	1347.93 - 1347.95	Side slope	5
	1347.98 - 1348.00	Down slope	2; 4
	1348.02 - 1348.05	Down Slope	2; 3
	1348.34 - 1348.38	Side slope	5
	1348.56 – 1348.57	Side slope	5
	1348.65 - 1348.66	Side slope	5
	1349.40 - 1349.42	Down slope	2; 3
	1349.46 – 1349.48	Down slope	1; 2
	1349.51 - 1349.54	Down slope	1; 2
	1349.66 - 1349.68	Side slope	5
	1349.71 – 1349.73	Down slope	2; 4
	1349.77 – 1349.78	Side slope	5
	1349.83 – 1349.91	Down slope	2; 4
	1350.06 – 1350.08	Side slope	5
	1350.27 – 1350.29	Down slope	2; 4
	1350.37 – 1350.40	Side slope	5
	1350.58 – 1350.60	Down slope	2; 4
	1350.63 – 1350.65	Down slope	1; 2
	1350.78 - 1350.79	Down slope	1; 2
	1350.86 – 1350.91	Down slope	2; 3; 4
	1351.25 – 1351.28	Down slope	2; 4
	1351.33 – 1351.37	Down slope	2; 4
	1351.38 – 1351.39	Side slope	5
	1351.39 - 1351.41	Down slope	2; 3
	1351.75 - 1351.77	Side slope	5
	1351.82 - 1351.85	Down slope	2; 3; 4
	1351.87 - 1351.89	Side slope	5
	1351.93 -1351.96	Side slope	5
	1352.02 - 1352.09	Down slope	1; 2
	1352.34 - 1352.39	Down slope	1; 2; 3
	1352.79 - 1352.87	Down slope	1; 2; 3
	1353.35 - 1353.40	Down slope	2; 3; 4
	1353.43 - 1353.48	Down slope	2; 3
	1353.56 - 1353.58	Side slope	5
	1353.65 - 1353.72	Down slope	1; 2; 3

Pipeline Alignment	Drainage Location, Type, and Construction Detail		
	Mile Point	*Orientation*	*Details*
Salem Loop	1353.73 - 1353.75	Down slope	2; 3
	1353.81 - 1353.86	Side slope	5
	1354.82 - 1354.84	Side slope	5
	1354.99 - 1355.00	Down slope	2; 3
	1355.22 - 1355.27	Down slope	2; 3; 4
	1355.29 - 1355.33	Down slope	1; 2
Eden Loop	1383.59 - 1383.61	Down slope	2; 4
	1383.71 - 1383.73	Side slope	5
	1383.85 - 1383.86	Side slope	5
	1383.91 - 1383.93	Down slope	2; 4
	1383.96 - 1383.98	Down slope	2; 4
	1384.02 - 1384.04	Down slope	1; 2
	1384.07 - 1384.10	Down slope	1; 2
	1384.16 - 1384.20	Down slope	2; 4
	1384.22 - 1384.24	Down slope	2; 4
	1384.34 - 1384.36	Down slope	2; 3
	1384.53	--	1
	1384.64 - 1384.66	Down slope	2; 3
	1386.17 - 1386.18	Side slope	5
	1386.24 - 1386.29	Down slope	2; 3; 4
	1387.28	--	1
	1387.29	--	1
	1387.82 - 1387.85	Down slope	2; 4
	1387.89 - 1387.91	Down slope	2; 4
	1388.00 - 1388.02	Down slope	2; 3
	1388.23 - 1388.24	Down slope	2; 3
	1389.09	--	1
	1389.24 - 1389.28	Down slope	2; 3
	1389.40 - 1389.42	Side slope	5
	1389.72 - 1389.73	Side slope	5
	1389.77 - 1389.79	Down slope	1; 2
	1390.12 - 1390.15	Down slope	1; 2
	1390.16 - 1390.27	Down slope	1; 2; 4
	1390.35 - 1390.39	Down slope	1; 2
	1390.53 - 1390.55	Down slope	1; 2
	1390.97 - 1390.99	Down slope	2; 3
	1391.00 -1391.03	Down slope	2; 3
	1391.14 - 1391.16	Side slope	5
	1391.46 - 1391.47	Side slope	5

Pipeline Alignment	Drainage Location, Type, and Construction Detail		
	Mile Point	*Orientation*	*Details*
Eden Loop	1391.51 - 1391.53	Down slope	1; 2
	1392.06	--	1
	1392.42 - 1392.44	Down slope	1; 2
	1392.66 - 1392.68	Down slope	2; 3
	1393.00 - 1393.02	Side slope	5
	1393.25 - 1393.28	Down slope	1; 2
	1393.30 - 1393.36	Side slope	5
	1393.39- 1393.41	Side slope	5
	1393.55 - 1393.57	Down slope	2; 3
	1393.99 - 1394.00	Down slope	1; 2
	1394.55 - 1394.56	Down slope	2; 4
	1394.78 - 1394.84	Side slope	5
	1394.94 - 1394.96	Side slope	5
	1395.72 - 1395.75	Side slope	5
	1395.88 - 1395.91	Side slope	5
	1396.62 - 1396.63	Side slope	5
	1396.66 - 1396.72	Down slope	2; 4
	1397.01 - 1397.02	Side slope	5
	1397.05 - 1397.06	Down slope	2; 3
	1397.15 - 1397.18	Side slope	5
	1397.19 - 1397.20	Down slope	2; 3
	1397.70 - 1397.73	Down slope	2; 3
	1398.64 - 1398.66	Down slope	2; 3
	1398.89 - 1398.91	Down slope	2; 4
	1398.95 - 1398.97	Down slope	2; 4
	1399.41 - 1399.43	Down slope	1; 2
	1400.00 - 1400.02	Down slope	2; 3
	1400.21 - 1400.24	Side slope	5
	1400.49 - 1400.54	Side slope	5
	1400.86 - 1400.88	Down slope	2; 3
	1401.15 - 1401.17	Down slope	2; 4
	1401.50 - 1401.52	Down slope	1; 2
	1401.54 - 1401.55	Down slope	2; 3
	1401.65 - 1401.67	Down slope	1; 2
	1401.69 - 1401.71	Down slope	2; 3
	1402.45 - 1402.46	Down slope	1; 2
	1402.49 - 1402.51	Down slope	2; 3
	1402.67 - 1402.69	Down slope	2; 3
	1402.90 - 1402.92	Down slope	2; 3

Pipeline Alignment	Drainage Location, Type, and Construction Detail		
	Mile Point	*Orientation*	*Details*
Eden Loop	1403.06 - 1403.10	Down slope	2; 4
	1403.56 - 1403.58	Down slope	2; 4
	1403.61 - 1403.63	Down slope	2; 3
	1404.04 - 1404.07	Down slope	2; 4
	1404.17 - 1404.19	Down slope	2; 4
	1404.65 - 1404.67	Down slope	1; 2
	1404.92 - 1404.94	Down slope	2; 4
	1404.97 - 1404.98	Down slope	1; 2
	1405.09 - 1405.11	Down slope	1; 2
	1405.13 - 1405.14	Down slope	1; 2
	1405.16 - 1405.19	Side slope	5
	1405.33 - 1405.36	Side slope	5
	1405.44 - 1405.47	Side slope	5
	1405.63 - 1405.69	Down slope	2; 3; 4
	1405.77	--	1
	1406.11 - 1406.15	Side slope	5
	1406.00 - 1406.33	Down slope	1; 2
	1406.71 - 1406.73	Down slope	1; 2
	1406.94 - 1407.06	Down slope	2; 3; 4
	1407.07 - 1407.09	Down slope	2; 3
	1407.12 - 1407.15	Side slope	5
	1407.62 - 1407.64	Down slope	2; 3
	1407.77 - 1407.79	Down slope	1; 2
	1407.82 - 1407.84	Side slope	5
	1407.88 - 1407.90	Side slope	5
	1408.27 - 1408.29	Side slope	5
	1409.06 - 1409.08	Side slope	5
	1409.33 - 1409.35	Side slope	5
	1409.44 - 1409.48	Down slope	1; 2
	1409.49 - 1409.50	Side slope	5
	1409.68 - 1409.70	Side slope	5
	1409.84 - 1409.86	Side slope	5
	1409.9	--	1
	1410.91	--	1
	1411.50 - 1411.52	Side slope	5
	1411.73	--	1
	1412.03	--	1
	1412.78 - 1412.79	Down slope	1; 2
	1413.44 - 1413.47	Side slope	5