

**STATE OF MAINE**  
**MAINE DEPARTMENT OF TRANSPORTATION**  
Letter of Transmittal

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**Town:** Lisbon and Sabattus

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Attached is one (1) copy of Soils Report No. 2009-18, entitled "Report of SUBSURFACE INVESTIGATION FOR RECONSTRUCTION OF ROUTE 9, LISBON AND SABATTUS, MAINE" dated: June 1, 2009.

This report is available in TEDOCS as Document # 959860.

att: 1 of 2009-18

Maine Department of Transportation  
Highway Program  
Geotechnical Group  
Augusta, Maine

Report of

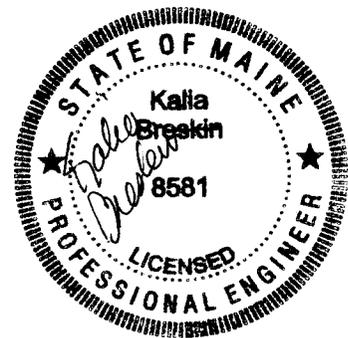
**SUBSURFACE INVESTIGATION FOR  
RECONSTRUCTION OF ROUTE 9  
LISBON AND SABATTUS, MAINE**

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Androscoggin County  
PIN 10017.00

Federal STP-1001(700)S  
June 1, 2009

Soils Report No. 2009-18

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## **1.0 INTRODUCTION**

### **1.1 General**

The Maine Department of Transportation (MDOT) is planning highway improvements to a section of Route 9 in the Towns of Lisbon and Sabattus, Androscoggin County, Maine. The project begins 50 meters north of the intersection of Rte 9 and Frost Hill Road in Lisbon Falls, and extends northerly for 11.3 km. The project is needed to improve horizontal and vertical alignment, improve ride quality and drainage, and pave shoulders. Full reconstruction of this highway is required. The bridge over Barker Brook at Station 6+120 will be replaced as part of this project. This report summarizes the site subsurface conditions and discusses our recommendations for the proposed reconstruction of Route 9.

### **1.2 Summary of Recommendations**

These recommendations are discussed in detail in Section 3.0, Evaluation and Recommendations.

- Reinforcement geotextile may be needed under some areas of the roadway surface to obtain adequate compaction. Only non-woven geotextile should be used for this application.
- Existing gravel does not meet MaineDOT specifications for gravel and should not be reused as gravel on this project.
- No fill or gravel should be placed over existing pavement surface. Existing HMA should be removed in fill sections.
- Existing HMA should not be used as cold reclaim or blended with the upper 150 mm of the aggregate Base Course (Type B) gravel. It may be used as surcharge over Type B gravel.

## 2.0 SITE CONDITIONS

### 2.1 General Site Conditions

Route 9 in the area of this project runs north and south between Route 96 in Lisbon Falls and the Maine Turnpike in Sabattus. Land immediately adjacent to the roadway is fully developed with residential properties in the first ½ km of this project, but further north development is thinner and more rural in nature. Many houses and wells are very close to the roadway. Six intersections with local roads carry through traffic, and another six intersections serve small residential developments. The intersection of Route 9 with the Crowley Road and Bowdoinham Road is a high accident location, although existing sight distance is excellent.

The terrain is hilly, and extensive ledge outcrops are visible in some areas of the project.

Several curves will be flattened as part of this project to improve safety, and changes in vertical alignment require cuts or fills of as much as two meters. Reconstruction of the bridge at Barker Brook will require cuts and fills of three meters or more.

### 2.2 Native Soils

Native soils in this area are glacial deposits. They include till, loose to dense sand interbedded with silt in end moraines, marine near-shore deposits of sand, gravel and mud, and clay-silts of the Presumpscot Formation. There are also large areas of thin drift, with bedrock exposed or less than ten feet below the ground surface.

Glacial deposition left a wide range of soil variability in this area, and dissimilar subsurface conditions exist within short distances or adjacent to each other. Copies of the Maine Geologic Survey Surficial Soils Map, National Wetland Inventory, and NRCS Soils maps and keys for the area of this project are included in Appendix A. Soil and bedrock units we anticipate at subgrade level are as follows:

<u>Approximate Limits</u>	<u>Subgrade soils</u>
1+000 to 1+900	Marine nearshore deposits
1+900 to 5+150	Till
5+150 to 5+400	Marine nearshore deposits
5+400 to 5+540	End moraine
5+550 to 5+800	Marine nearshore deposits
5+800 to 6+200	Presumpscot Formation
6+200 to 6+250	Marine nearshore deposits
6+250 to 6+800	End moraine
6+800 to 7+250	Till
7+250 to 8+400	End moraine
8+400 to 8+500	Marine nearshore deposits
8+500 to 9+050	Presumpscot Formation
9+050 to 9+400	End moraine
9+400 to 11+500	Till/shallow bedrock/exposed ledge
11+500 to 11+750	End moraine
11+750 to end of project	Marine nearshore deposits

Some sections of embankment fill were built over the native soils. All soil types except Presumpscot Formation clays will support a properly constructed embankment side slope. Clays of the Presumpscot Formation may need additional reinforcement to support the pavement section, and extra care may be needed for side slope construction when soils are very wet or saturated.

### **2.3 Exposed Ledge**

Exposed ledge is visible in many locations along the existing highway. Outcrops are visible along the roadway near the following Stations:

Station 1+480 Right  
Station 2+720 Right  
Station 4+860 Right  
Station 6+870 Left  
Station 7+080 Left  
Station 8+990 Left  
Station 9+400 Left  
Station 9+650 to 9+680 Left and Right  
Station 10+060 to 10+780 Left and Right  
Station 11+100 Left  
Station 11+700 to 11+800 Right

Other possible outcrops were indicated by the survey of this project, but they could not be distinguished from buried boulders without excavation outside MaineDOT Right of Way.

### **2.4 Existing Pavement**

The existing pavement is generally in poor condition and appears to have been treated with Maintenance mulch, shimmed and overlaid many times. Traffic and loadings are moderate along this roadway, with heavy truck volumes projected at 6% and 9% of AADT. Existing lanes are 3.3 meters wide or less, and shoulders are unpaved, 0.6 to 1.2 meters wide with a variable cross slope. The highway was improved between King Road and Crowley Road by MDOT Maintenance staff within the past decade, however the treatment involved placing a thin lift of gravel and new hot mix asphalt over the existing pavement structure. The treatment has not held up well, and this part of the highway is now similar in condition to the rest of the project.

### **2.5 Surface Water Drainage**

Although much of this highway follows a ridge, the topography of the surrounding land has left some areas with limited capacity to drain surface water. There are a few areas that drain to culvert pipes with a very flat slope from the outlet. The culvert at Station 2+360 drains to a flat field, and a sloped outlet channel will be required for proper flow. The culvert at Station 5+350 drains to a bowl with no clearly defined outlet near the highway. Some other outlets will be relocated at the request of abutting property owners to increase the usable area of their yards.

### **3.0 EVALUATION AND RECOMMENDATIONS**

#### **3.1 Subsurface Investigation**

The subsurface investigation for this project included 42 hollow-stem auger borings to sample and test subbase and subgrade soils in October, 2003. An additional 147 probes were done to profile subsurface ledge in areas where shallow bedrock will affect the design and construction of this highway. A Falling Weight Deflectometer (FWD) analysis was done using data from the borings and traffic data to support design of the pavement structure. Boring logs and probe data are included in Appendix C, and lab testing data are included in Appendix D. The FWD analysis and pavement designs are included in Appendix E.

#### **3.2 Native Soils**

We do not anticipate settlement or stability problems on the project. No deep fills or steep slopes are proposed in areas where soft soils would cause problems during construction, although cuts may be problematic when the soils are saturated. We did not encounter deposits of organic soils in our subsurface investigation. The soil types vary along the project, and are as follows:

Station 1+000 to Station 1+900 Deposits of loose to medium dense GRAVEL and SAND. An area of shallow bedrock extends from approximately Station 1+400 to 1+650. These sandy soils will drain well. Substantial changes in alignment are not proposed in this area, although excavation in the sideslopes will be required for shoulders and ditching.

Station 1+900 to Station 5+300 Native soils in this section are Till. Soils are mixed strata of SAND, GRAVEL, and SILT in layers and lenses of varying thickness and densities. These soils will drain poorly. Shallow bedrock was encountered in several areas and a few outcrops were visible near the highway. Large cuts and fills are not proposed in this area.

Station 5+300 to 5+900 The highway in this area lies over areas of sandy SILT and silty SAND. These soils drain poorly, and construction may be difficult during wet weather.

Station 5+900 to Station 7+500 Soils here are generally Sandy Clay SILT of the Presumpscot Formation. Fine grained soils are generally stiff. Substantial changes in horizontal and vertical alignment are proposed in this area. Shallow bedrock and bedrock outcrops occur near the bridge over Barker Brook at Station 6+120. A four meter deep cut and fills of as much as three meters are proposed in this area with 1v:2h sideslopes, but the nearby borings indicate very dense SAND and silty SAND close to the bridge.

Station 7+500 to Station 8+850 Generally thin strata of medium dense to dense GRAVEL and SAND with some layers or lenses of SILT. No major changes in alignments are proposed in this area.

Station 8+850 to Station 9+500 Clay silts of the Presumpscot Formation, interbedded with SAND and GRAVEL layers and lenses. These soils drain very poorly. Minor

changes to alignment are required in this area, with cuts and fills of less than a meter in the roadway. Geotextile may be required under the roadway between Station 9+380 and 9+480.

Station 9+500 to 11+500 Soils here are generally SAND with smaller amounts of gravel and silt in thin layers over shallow bedrock. Only minor changes in horizontal alignment are proposed, but improvements will be made to the vertical alignment. Substantial cuts are required in this area, and rock excavation will be necessary.

Station 11+500 to end of project Native soils are generally SAND and SILT. No major changes in horizontal or vertical alignment are required in this area, and cuts and fills for shoulder and ditch construction are minor.

### **3.2 Frost Penetration**

Depth of frost varies with the soil type, but it will be deeper in granular soils than in fine-grained clay-silt soils. The design freezing index for this area of the state is 1350 and the mean freezing index is 950. This translates into frost depths under 760 mm of hot-mix asphalt and gravel of approximately 1150 mm over fine-grained subgrade and 1750 mm under coarse grained soils with low fines content. Depth of frost should be considered in the design and construction of any drainage systems at flat grades.

### **3.3 Side Slopes**

Although there are soils along this project that would create slope stability problems, the steeper side slopes and higher fills along this project are generally not in areas of weak soils. Deep cuts and fills are not proposed for areas of silt subgrade where flatter slopes would be needed for stability. Cut slopes will stand with vegetative cover and a 1:2 back slope. Any soil cuts or embankment side slopes that must be steeper than 1v:2h should have riprap cover to prevent surficial erosion.

### **3.4 Shallow Ledge**

Our subsurface investigation encountered shallow ledge in many places throughout the project, but it was most common north of Barker Brook. The bedrock surface is irregular, and in many places ledge spikes up for short distances. Ledge will be less than four meters below the ground surface almost continuously from Station 9+500 to the northern end of the project. In many places ledge was encountered less than a meter below the existing roadway surface, and outcrops are extensive along the roadside. Some shallow ledge is also anticipated in the areas near Station 7+000 and Station 8+000.

Drilling under side slopes is not always possible due to problems of drill rig access, and almost all borings are under the existing roadway.

MaineDOT Maintenance forces do not report rockfall problems from the ledge slopes along this highway, and most joint sets appeared to be flat or dipping at low angles. Where a rock cut will be directly adjacent to the highway, a 4v:1h slope may be used, but an adequate rockfall zone should be provided if the cut will be higher than 2.5 meters.

Where shallow ledge is anticipated under the sideslopes but a thin, well-vegetated overburden makes it difficult to estimate the depth to ledge, we recommend that ledge cuts be designed, but sufficient Right of Way should be acquired to allow for a 2:1 slope to be built in case apparent outcrops turn out to be boulders, or the ledge is too deep to use a 4:1 slope. If continuous ledge is encountered during construction, steeper side slopes can be used. An adequate rockfall zone should be provided for the maximum anticipated height of rock cut.

In areas where ledge is not exposed at the top of the proposed cut and sideslopes will require a ledge cut under shallow soils, a stone buttress may be needed to hold the soils in place at the top of the cut slope.

Where ledge excavation is required under the highway, fracture blasting to a depth of 1.5 meters below subgrade is needed to allow drainage during the spring thaw.

### **3.5 Groundwater**

Shallow groundwater was encountered in several borings. A fairly consistent shallow groundwater surface was found approximately 1 meter to 1.2 meters below the existing pavement surface on the south side of the hill between the existing dip at Station 8+850 and Station 9+320. Native soils in this area include a layer of loose, wet, olive silt, and are subject to severe frost action. Use of a geotextile may be needed in this area to support the subbase gravel. Improved drainage should help remove this water, and a shallow ditch and underdrain should be considered to further lower the groundwater table. Overexcavation to the depth of frost would eliminate the problem of frost action, but this is not considered a feasible option for this area.

In several areas of sand subgrade where shallow groundwater was not encountered, underdrain is not needed in curbed box sections. These soils will drain well. Surface water control can be achieved by grading, and groundwater should not affect the pavement structure over a sand subgrade.

### **3.6 Surface Water Drainage**

Many pipes along this project are inadequate for runoff from the design storm, and pipe sizes will be increased.

At Station 2+360 Left, a swale will be needed along the property line to allow adequate outlet for the collected surface water. At Stations 3+460 Left and 3+580 Left, the culverts will be placed at a skew to the roadway at the request of the downstream property owners. Easements will be required for these relocations.

During severe storms and during the spring thaw, stormwater ponds on both sides of the culvert at Station 5+350. This is a depression with higher ground on all sides, and the native soils are Silt with some sand. The profile of the roadway will be raised by as much as 0.6 meters in this area to prevent ponded water extending onto the highway. An outlet channel extending at least 18 meters to the west beyond the end of the culvert will be provided to permit water to drain away from the highway.

### 3.7 Pavement Design

Our drill crew found existing hot mix asphalt thickness to vary between 70 mm and 220 mm under the travel lanes. Shoulders are not paved. There is sand and gravel below the asphalt pavement for much of the project, although in some places this gravel may be the native soil. The gravel thickness under the roadway varies from 100 mm at Station 2+200 to 690 mm at Station 7+450. An earlier layer of bituminous pavement or macadam was found below the base gravel at a depth of approximately 0.6 meters in borings at Station 8+500 and Station 8+850, the area improved by MaineDOT Maintenance staff. In some sections of roadway the bituminous pavement was placed directly on native sands, and there is no gravel base or subbase.

The resilient modulus ( $M_r$ ) determined by FWD testing is extremely variable along this project, as is typical of glacially deposited soils. The extremely low deflection values represent shallow ledge and do not relate to the properties of the soil, and were not considered in calculating the average modulus. Short sections with extremely high deflections should be reinforced with a geotextile to help support the loads on weak subsurface soils. We recommend the following values of  $M_r$  for use in the design of this project:

<u>Station to Station</u>	<u><math>M_r</math> (kPa)</u>
1+000 to 2+000	34,000
2+000 to 2+360	20,000
2+360 to 3+740	40,000
3+740 to 7+500	29,000
7+500 to 9+050	34,000
9+050 to 9+500	20,000
9+500 to 11+550	34,000
11+550 to end	29,000

The weakest sections of this highway are in areas where it is not feasible to raise the profile, and outlets for drainage are problematic. These should be reinforced with a base gravel to provide an adequate pavement section. In these areas, Existing HMA should not be used as cold reclaim or blended with the upper 150 mm of Type B gravel. Reclaim may be used as surcharge over Type B gravel.

The existing asphalt pavement must be removed before placement of fill or gravel in sections where the roadway surface is to be raised. It may be used as a surcharge over the Type B gravel, or it could be stockpiled for other projects or disposed of. Salvaged bituminous pavement is an uncontrolled material. In general the permeability is low - on the order of 1.9 ft/day (Permeability of Base Materials for Maine Roads Report, Technical Report ME 01-10, March 2004.) Adequate permeability of base gravel is critical to increasing the longevity of pavement structures - "Among the reasons cited for pavement failures, inadequate base drainage has been identified as a nationwide problem", Technical Guide Paper on Subsurface Pavement Drainage, Technical Paper 90-01, FHWA. The strength of recycled material is variable and depends on the quality of the in-place HMA. From the NETTCP HMA paving inspector manual pg 7-8: "it has been shown the bearing capacity of the granular material decreases proportionally with an increase in RAP." Also, RAP continues to densify under traffic loading due to the

difficulty in obtaining adequate densification during construction, to the detriment of the HMA above it.

Only one of the subbase gravel samples that was tested met a MaineDOT specification for subbase gravel. In most samples, the fines content was much higher than our specification allows. Existing subbase gravel should not be reused as gravel on this project.

Some areas of this project will have fine sands or clay-silt subgrades. It may be necessary to use a stabilization or reinforcement geotextile below the subbase on these soils to obtain adequate compaction. Only non-woven geotextile meeting the requirements of MaineDOT Standard Specification 722.01 should be used for this application.

### **3.8 Shoulders**

Paved highway shoulders support the pavement structure of the travel lanes. Stress concentration that results from a sudden change in pavement thickness will lead to cracking, and increased water inflow into the base and subbase. Stress concentrations should particularly be avoided when they are subject to external loading. This highway is relatively narrow and winding, and off-tracking by heavy vehicles can be anticipated. We recommend the full depth pavement extend at least 0.3 meters onto the shoulders to extend the life of the pavement structure on the travel lanes.

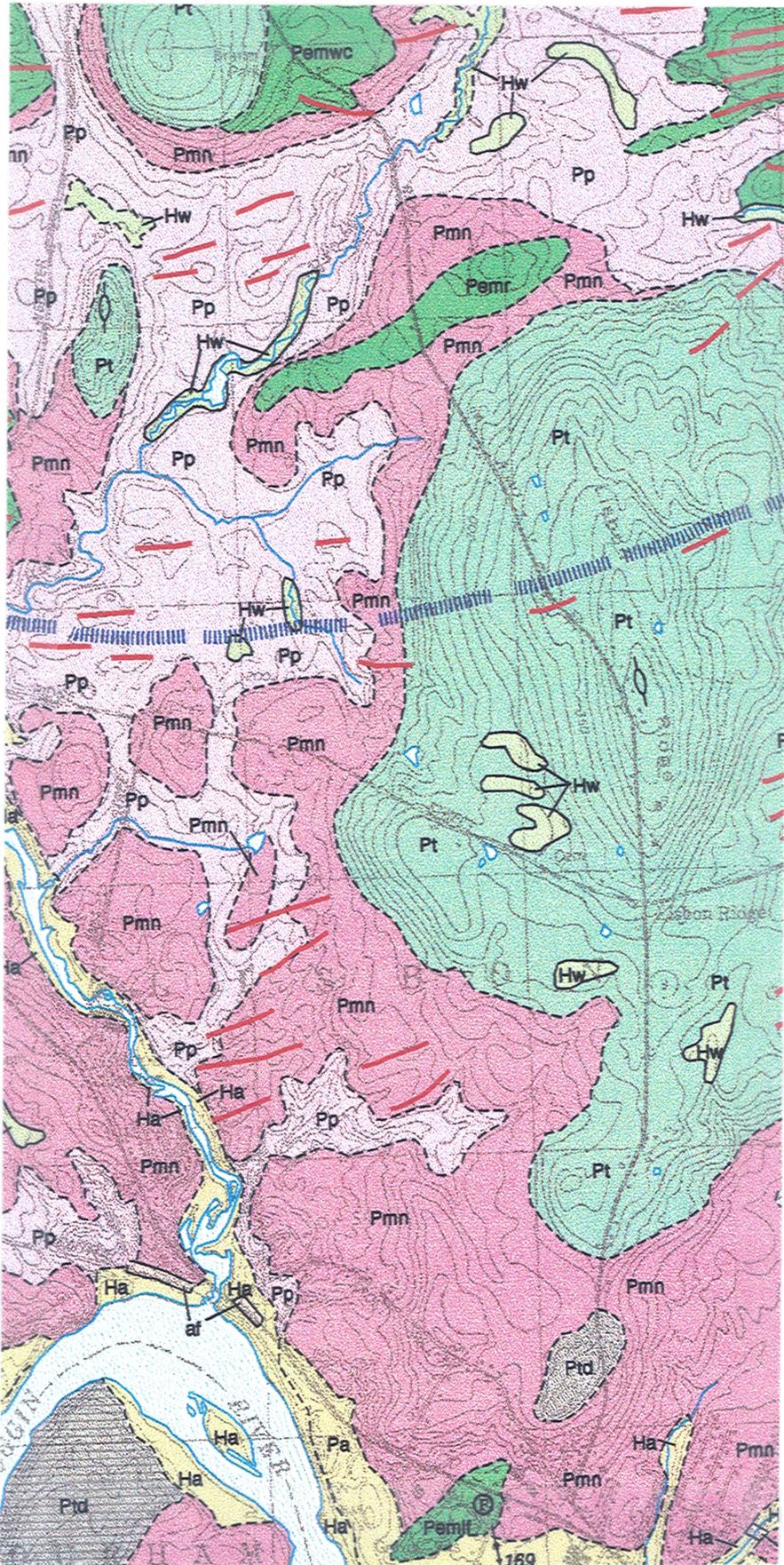
### **3.9 Side Roads**

Five of the side roads along this project should be designed for significant traffic loadings. Of these, Crowley Road and Bowdoinham Road at Station 8+960 receive almost as much traffic as Route 9 in this area. The truck volumes may be lower than on Route 9, but the pavement must withstand braking action by heavy vehicles. These roads should have the same pavement section as is used on the adjacent section of Route 9. Webster Road, Upland Road and Gould Road should have pavement sections comparable to the section on the MaineDOT project for Upland Road. On all other minor side roads, a thinner pavement section will be adequate to support projected loadings.

**Appendix A**  
**Mapped Information**  
Surficial Soils Map  
NRCS Soils Survey  
National Wetlands Inventory

# Surficial Geology

Southern part of project



## Lisbon Falls North Quadrangle, Maine

Surficial geologic mapping by

**Thomas K. Weddle**  
**Amanda E. Normand**  
**Alexa A. Bernotavicz**

Digital cartography by:  
**Robert A. Johnston**

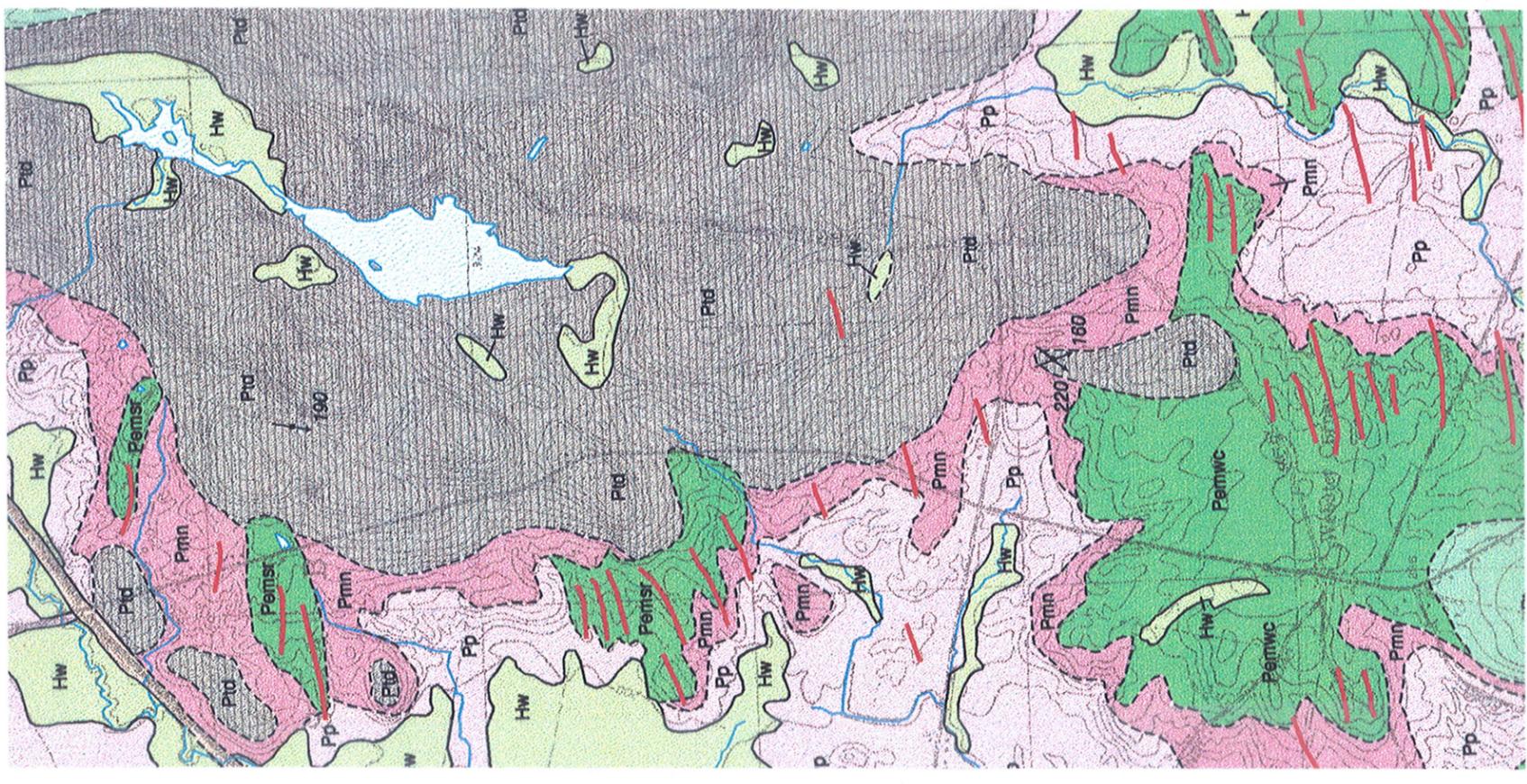
**Robert G. Marvinyey**  
State Geologist

Cartographic design and editing by:  
**Robert D. Tucker**

Funding for the preparation of this map was provided in part by the U.S. Geological Survey  
STATEMAP Program, Cooperative Agreement No. 98HQAG2052.

# Surficial Geology

Northern part of project



at

**Artificial fill** - Includes landfills, highway and railroad embankments, and dredge spoil areas. These units are mapped only where they are resolvable using the contour lines on the map, or where they define the limits of wetland units. Minor artificial fill is present in virtually all developed areas of the quadrangle.

Ha

**Stream alluvium** - Gray to brown fine sand and silt with some gravel. Comprises flood plains along present streams and rivers. Extent of alluvium approximates areas of potential flooding.

Hw

**Freshwater wetlands** - Muck, peat, silt, and sand. Poorly drained areas, often with standing water.

Pa

**Braided-stream alluvium** - Pleistocene alluvium consisting of fluviially deposited sand and gravel; trough-crossbeds with rare mud drapes and intraclasts are found in exposures or excavations in this unit.

Pmn

**Marine nearshore deposits** - Pleistocene gravel, sand, and mud deposited as a result of wave activity in nearshore or shallow-marine environments; not associated with beach morphology.

Pp

**Presumpscot Formation** - Massive to laminated silty clay with rare dropstones and occasional shelly horizons, which overlie rock and till, and are interbedded with and overlie end moraines and marine fan deposits; includes sand deposited as a distal unit of submarine fans.

Pem

**End moraines** - Linear ridges consisting of bedded sand and gravel interbedded with Presumpscot Formation silty clay and overlain by till on the ice-proximal faces of the moraines. Some moraines, or groups of moraines, have been assigned a unique geographic name listed below:

- Pemsr - Sabattus River moraines
- Pemwc - Webster Corner moraines
- Pemr - Ridge Road moraine
- Pemfb - Fisher Brook moraines
- Pemlf - Little Falls moraines
- Pemh - Hudson Road moraines

Pmd

**Marine delta** - Glacial-marine delta composed primarily of sorted and stratified sand and gravel. Deposit was graded to surface of late-glacial sea and is distinguished by flat top and foreset and topset beds. Deltas have been assigned a unique geographic name listed below:

- Pmdph - Pleasant Hill delta; topset-foreset contact at elevation 323 feet (Thompson and others, 1989).
- Pmdpb - Purington Brook delta; topset-foreset contact at elevation 298 feet (Kettlebottom Road delta of Thompson and others, 1989).

Pmf

**Submarine outwash fans** - Thick sand and gravel accumulations formed at the mouth of subglacial tunnels along the receding late Pleistocene ice margin. The sand and gravel is interbedded with and overlain by Presumpscot Formation clay at the distal edges of the fans, and interlayered with and overlain by till at their ice-contact faces. Some fans, or groups of fans have been assigned a unique geographic name listed below:

- Pmfsp - Sabattus Pond fans
- Pmfmb - Maxwell Brook fan
- Pmfsr - Sabattus River fans
- Pmfk - Kettle bottom fan
- Pmfwb - West Bowdoin fan
- Pmfhc - Higgins Corner fan
- Pmfwh - Whites Hill fan

Pgi

**Ice-contact deposits** - Sand and gravel deposited against remnant masses of glacial ice; massive to well stratified; commonly has collapse features and irregular topography.

Pt

**Till** - Gravely to bouldery, sandy, or silty matrix diamicticton.

Ptd

**Thin-drift areas** - Areas with generally less than ten feet of drift covering bedrock. Till overlies bedrock on hillslopes and ridge crests; Presumpscot Formation silty clay is present in depressions; and nearshore deposits overlie till, Presumpscot Formation, and bedrock on hillslopes and at the base of these slopes. Small rock outcrops, and areas of numerous small outcrops are shown as gray areas.

Contact between units; dashed where inferred.

195

**Glacial striations or grooves** - observations made at dot. Number indicates azimuth (in degrees) of ice-flow direction. Where two directions are observed in the same outcrop, flags indicate older trends where discerned.

End moraine

**End moraine** - Ridge of till, sand, and gravel deposited and/or deformed by glacial ice, often mantled by Presumpscot Formation.

Meltwater channel

**Meltwater channel** - Channel eroded by meltwater or later meteoric runoff.

Ice margin position

**Ice margin position** - Line shows approximate position of ice margin during glacial retreat for major ice-margin positions.

Drumlin or glacially streamlined hill

**Drumlin or glacially streamlined hill.**

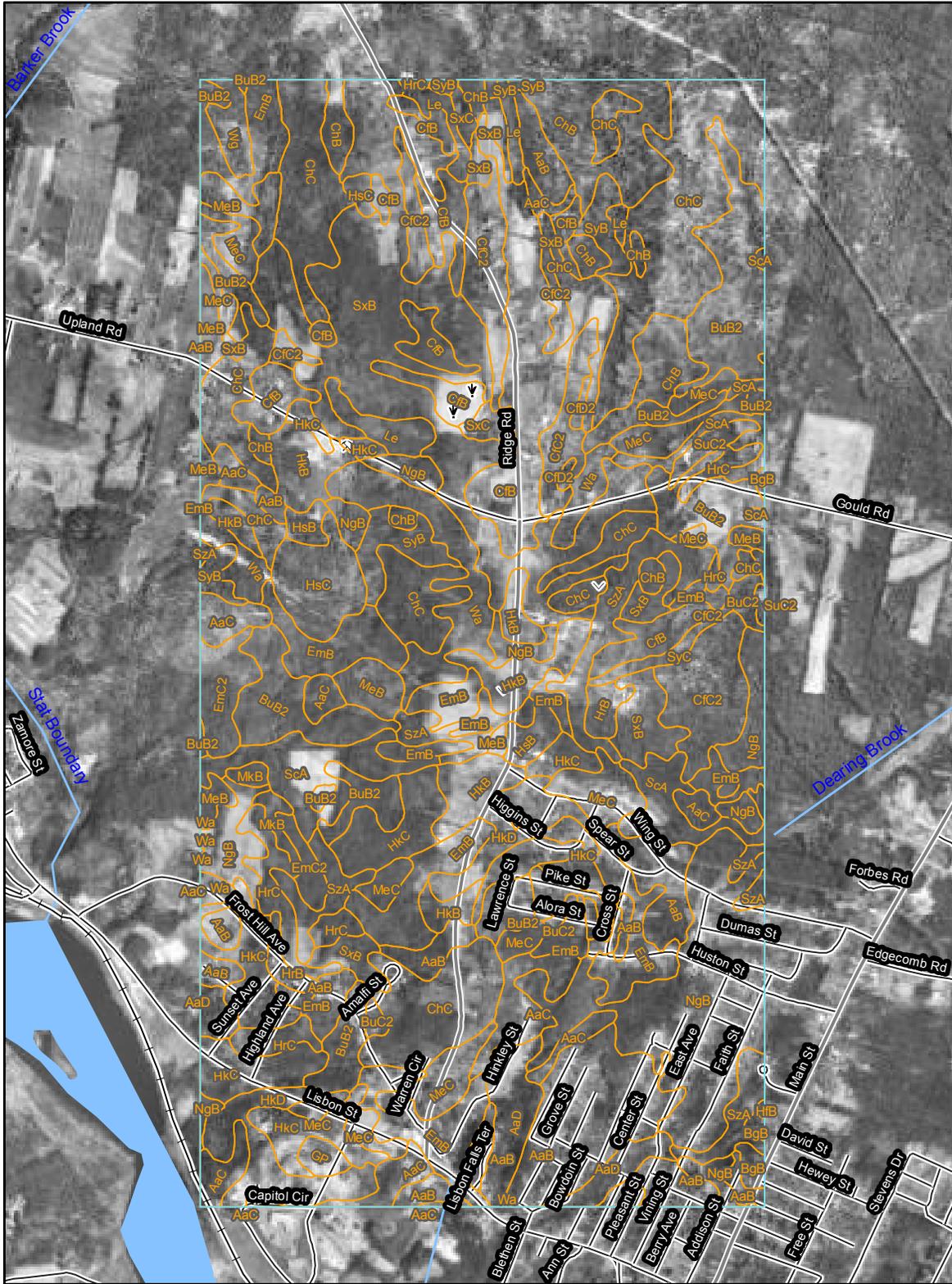
Soil Map—Androscoggin and Sagadahoc Counties, Maine  
(southern part of project)

70° 5' 24"

70° 2' 53"

44° 2' 25"

44° 2' 26"



43° 59' 59"

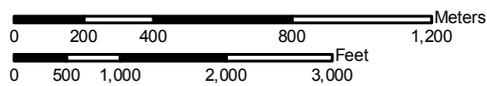
44° 0' 0"

70° 5' 21"

70° 2' 51"

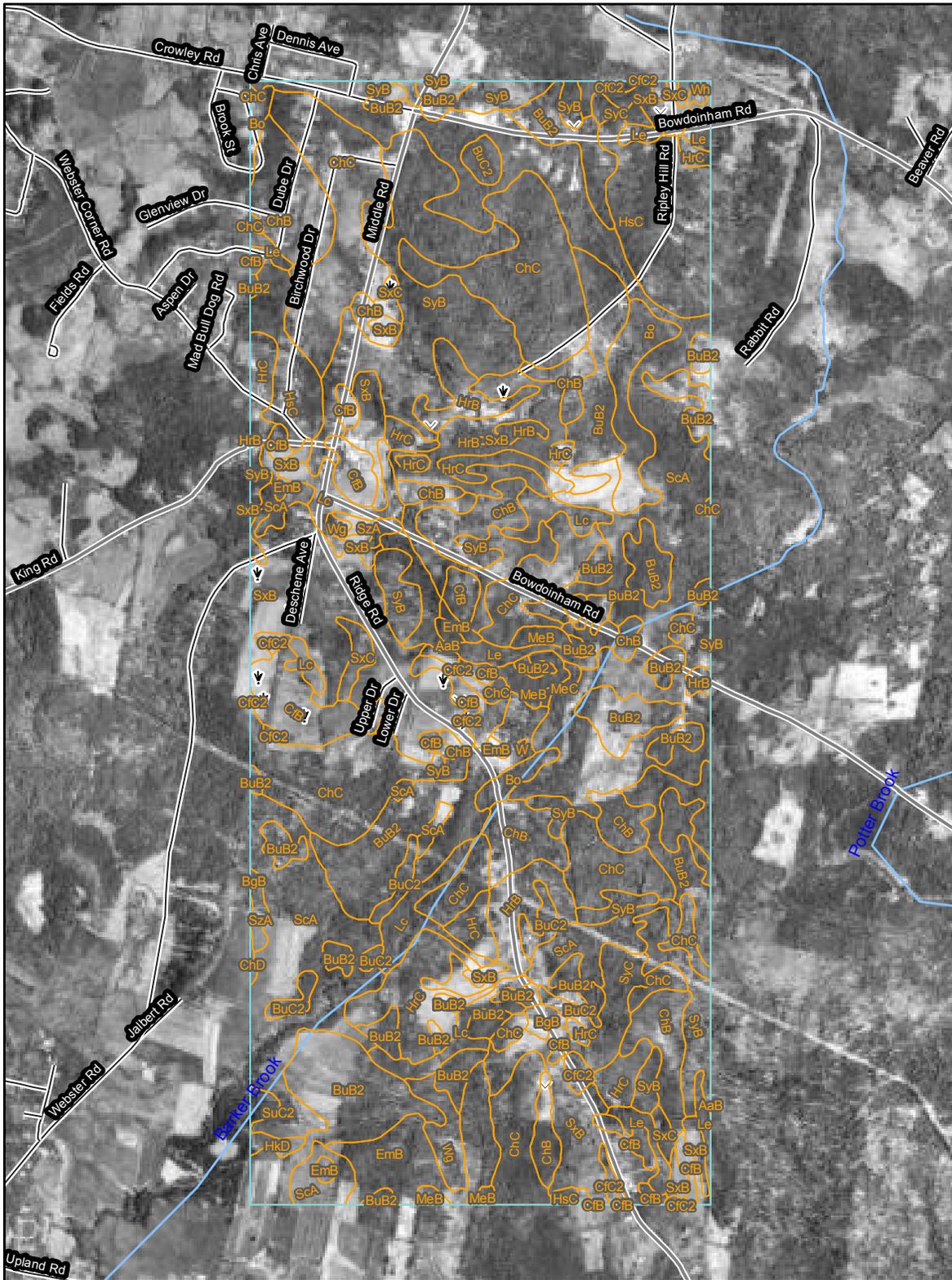


Map Scale: 1:21,500 if printed on A size (8.5" x 11") sheet.

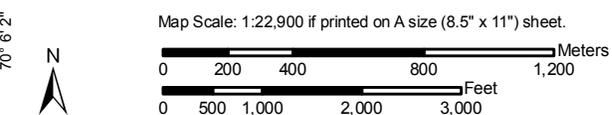


Soil Map—Androscoggin and Sagadahoc Counties, Maine  
(middle part of project)

70° 6' 5" 70° 3' 24" 44° 4' 29" 44° 4' 30"



44° 1' 53" 44° 1' 55"



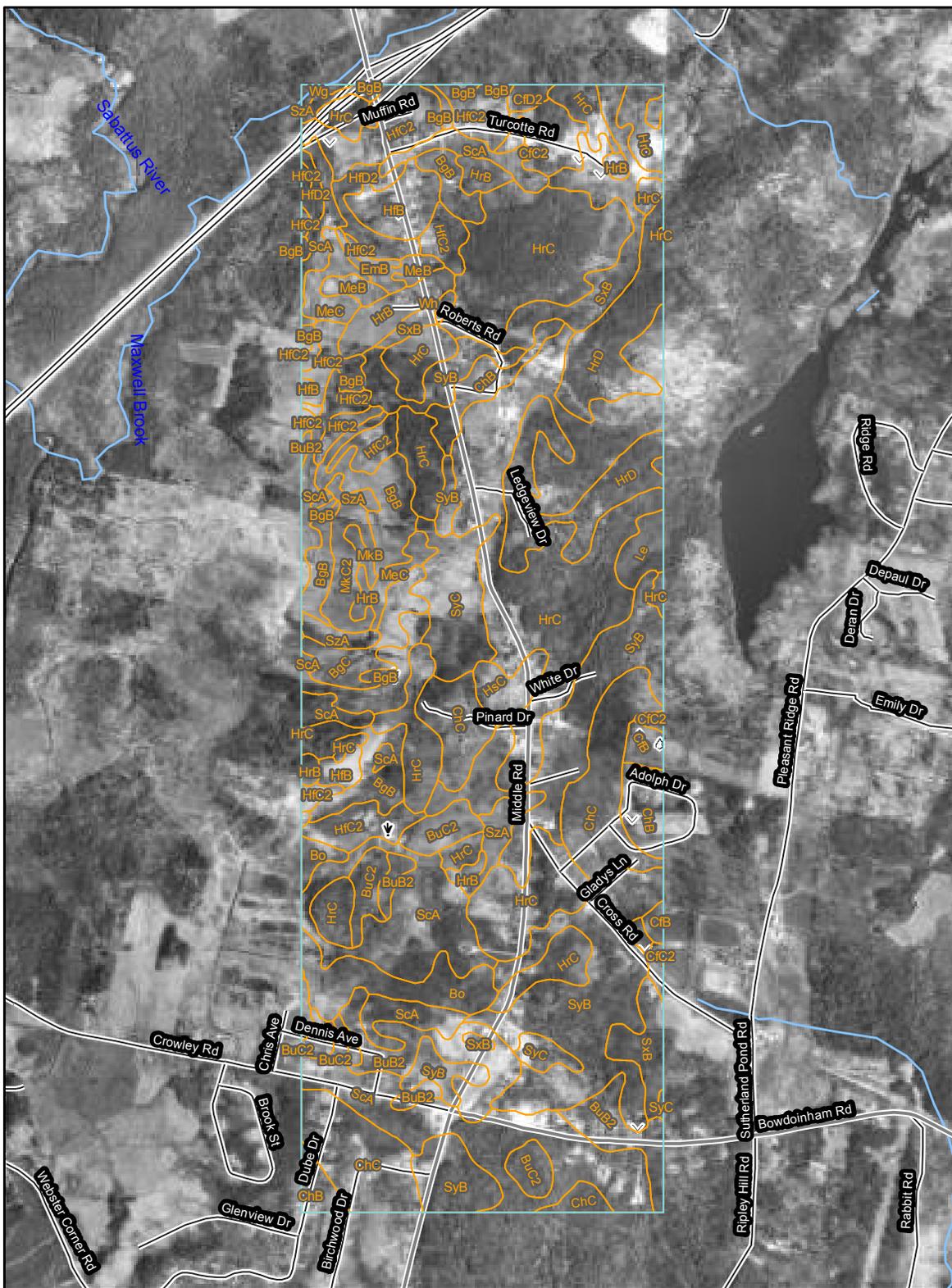
Soil Map—Androscoggin and Sagadahoc Counties, Maine  
(northern part of project)

70° 6' 2"

70° 3' 44"

44° 6' 11"

44° 6' 12"

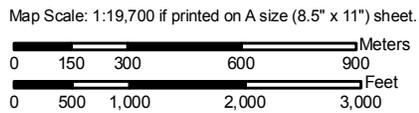


44° 3' 57"

44° 3' 59"

70° 5' 59"

70° 3' 42"



## MAP LEGEND

 Area of Interest (AOI)	 Very Stony Spot
 Soils	 Wet Spot
 Area of Interest (AOI)	 Other
 Soils	<b>Special Line Features</b>
 Very Stony Spot	 Gully
 Soils	 Short Steep Slope
 Very Stony Spot	 Other
 Soils	<b>Political Features</b>
 Very Stony Spot	 Cities
 Soils	<b>Water Features</b>
 Very Stony Spot	 Oceans
 Soils	 Streams and Canals
 Very Stony Spot	<b>Transportation</b>
 Soils	 Rails
 Very Stony Spot	 Interstate Highways
 Soils	 US Routes
 Very Stony Spot	 Major Roads
 Soils	 Local Roads
 Very Stony Spot	 Severely Eroded Spot
 Soils	 Sinkhole
 Very Stony Spot	 Slide or Slip
 Soils	 Sodic Spot
 Very Stony Spot	 Spoil Area
 Soils	 Stony Spot

## MAP INFORMATION

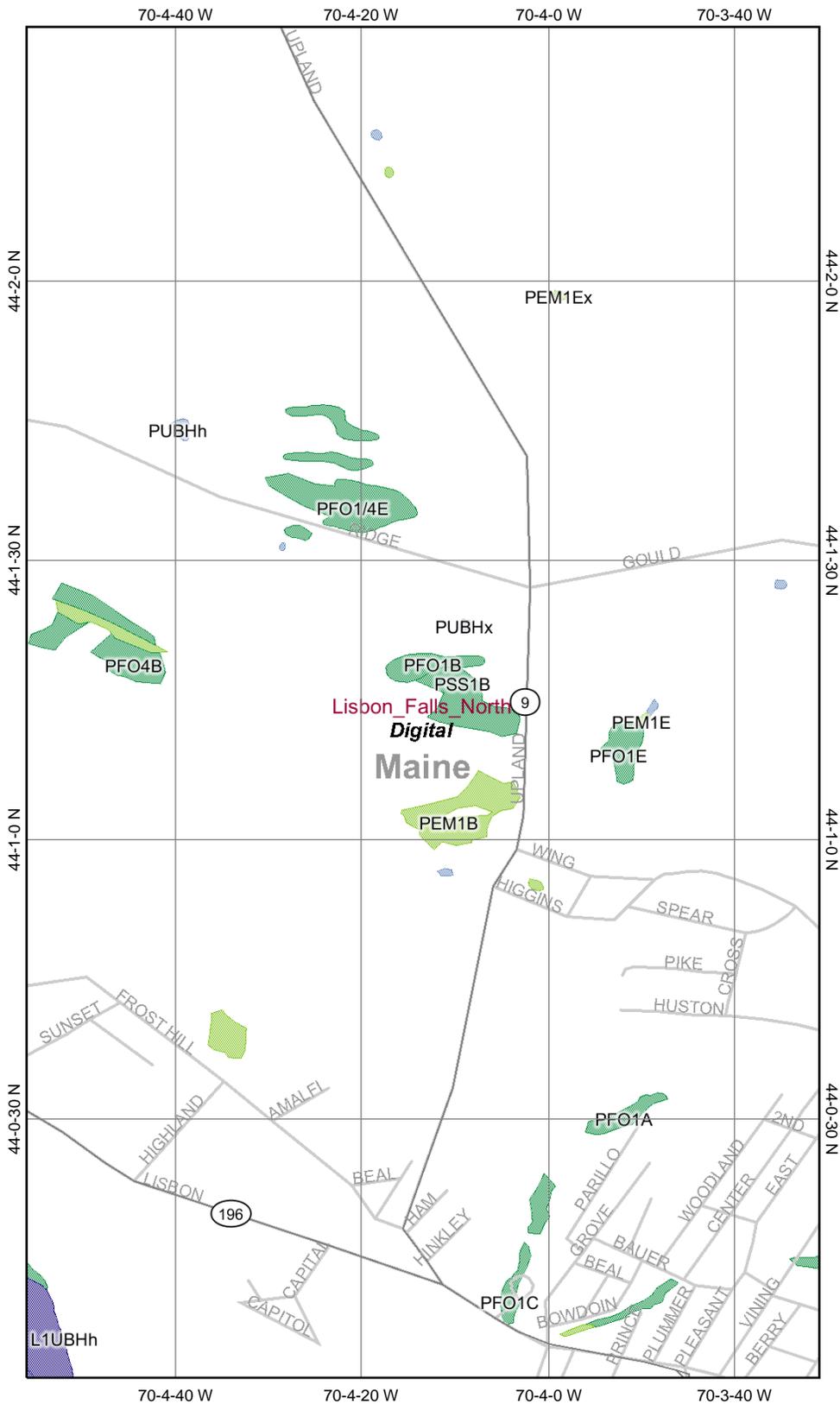
Map Scale: 1:19,700 if printed on A size (8.5" x 11") sheet.  
 The soil surveys that comprise your AOI were mapped at 1:15,840.  
 Please rely on the bar scale on each map sheet for accurate map measurements.  
 Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: UTM Zone 19N NAD83  
 This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.  
 Soil Survey Area: Androscoggin and Sagadahoc Counties, Maine  
 Survey Area Data: Version 12, Jan 9, 2009  
 Date(s) aerial images were photographed: 4/29/1998  
 The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Androscoggin and Sagadahoc Counties, Maine (ME606)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BgB	Belgrade very fine sandy loam, 2 to 8 percent slopes	61.7	5.9%
BgC	Belgrade very fine sandy loam, 8 to 15 percent slopes	12.5	1.2%
Bo	Biddeford silt loam	22.4	2.2%
BuB2	Buxton silt loam, 0 to 8 percent slopes, eroded	36.6	3.5%
BuC2	Buxton silt loam, 8 to 15 percent slopes, eroded	21.9	2.1%
CfB	Charlton fine sandy loam, 0 to 8 percent slopes	5.5	0.5%
CfC2	Charlton fine sandy loam, 8 to 15 percent slopes, erode d	12.9	1.2%
CfD2	Charlton fine sandy loam, 15 to 25 percent slopes, erod ed	2.8	0.3%
ChB	Charlton very stony fine sandy loam, 0 to 8 percent slo pes	23.3	2.2%
ChC	Charlton very stony fine sandy loam, 8 to 15 percent sl opes	68.5	6.6%
EmB	Elmwood fine sandy loam, 2 to 8 percent slopes	3.0	0.3%
HfB	Hartland very fine sandy loam, 2 to 8 percent slopes	15.6	1.5%
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	57.4	5.5%
HfD2	Hartland very fine sandy loam, 15 to 25 percent slopes, eroded	10.7	1.0%
HkC	Hinckley gravelly sandy loam, 8 to 15 percent slopes	0.0	0.0%
HrB	Hollis fine sandy loam, 0 to 8 percent slopes	20.0	1.9%
HrC	Hollis fine sandy loam, 8 to 15 percent slopes	243.2	23.3%
HrD	Hollis fine sandy loam, 15 to 45 percent slopes	51.1	4.9%
HsC	Hollis very rocky fine sandy loam, 8 to 15 percent slo pes	8.1	0.8%
Le	Leicester very stony fine sandy loam	6.3	0.6%
MeB	Melrose fine sandy loam, 0 to 8 percent slopes	5.5	0.5%
MeC	Melrose fine sandy loam, 8 to 20 percent slopes	11.5	1.1%
MkB	Merrimac fine sandy loam, 0 to 8 percent slopes	1.9	0.2%

<b>Androscoggin and Sagadahoc Counties, Maine (ME606)</b>			
<b>Map Unit Symbol</b>	<b>Map Unit Name</b>	<b>Acres in AOI</b>	<b>Percent of AOI</b>
MkC2	Merrimac fine sandy loam, 8 to 15 percent slopes, eroded	10.0	1.0%
ScA	Scantic silt loam, 0 to 3 percent slopes	114.7	11.0%
SxB	Sutton loam, 0 to 8 percent slopes	41.6	4.0%
SyB	Sutton very stony loam, 0 to 8 percent slopes	132.5	12.7%
SyC	Sutton very stony loam, 8 to 15 percent slopes	26.3	2.5%
SzA	Swanton fine sandy loam, 0 to 3 percent slopes	11.9	1.1%
Wg	Whately fine sandy loam	1.3	0.1%
Wh	Whitman loam	1.1	0.1%
<b>Totals for Area of Interest</b>		<b>1,041.6</b>	<b>100.0%</b>

# southern part of project



## Legend

### Ohio\_wet\_scan

- 0
- 1
- Out of range

### Interstate Major Roads

- Other Road
- Interstate
- State highway
- US highway

### Roads

- Cities

### USGS Quad Index 24K

### Lower 48 Wetland Polygons

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

### Lower 48 Available Wetland Data

- Non-Digital
- Digital
- No Data
- Scan

### NHD Streams

### Counties 100K

### States 100K

### South America

### North America

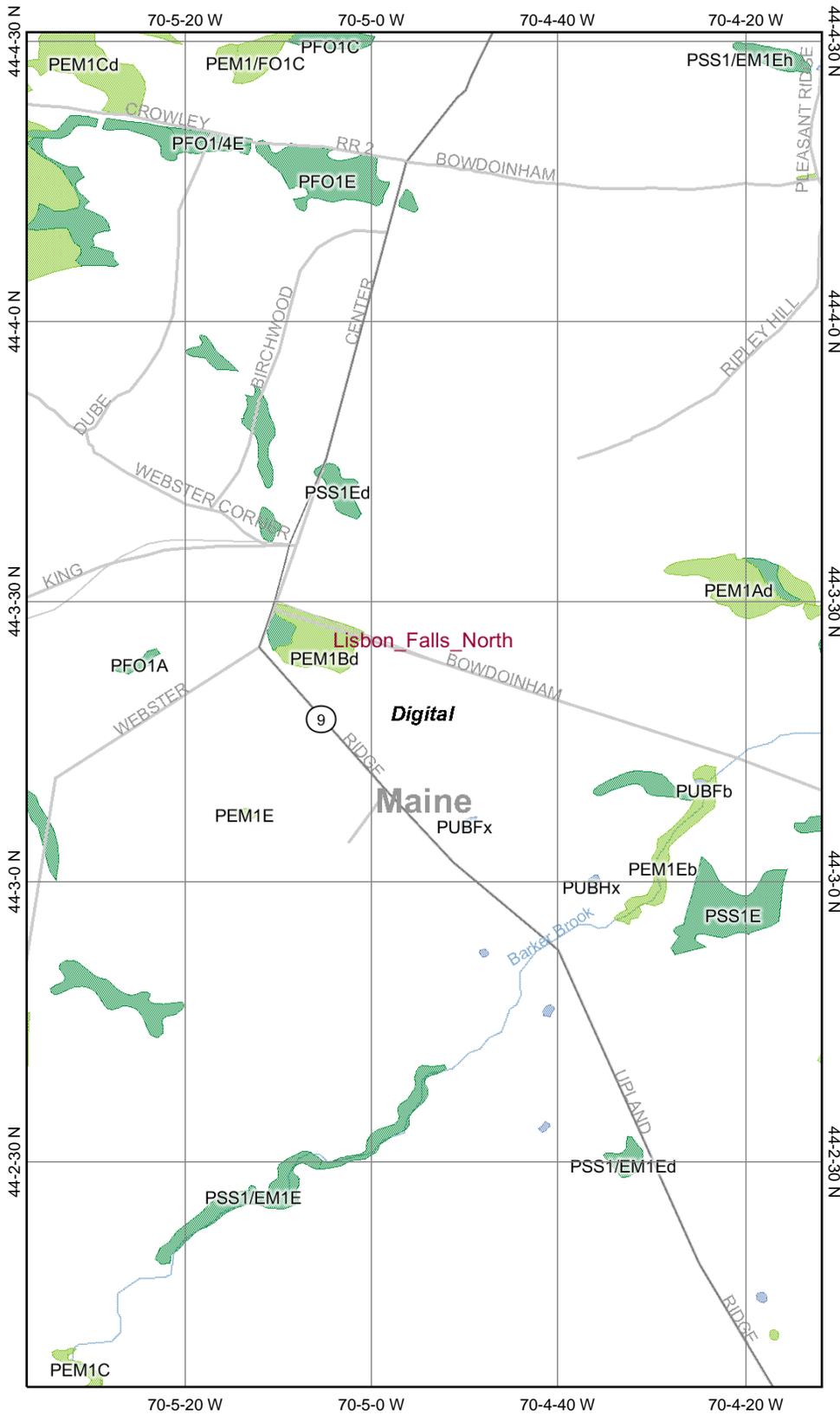


Scale: 1:21,500

Map center: 44° 1' 15" N, 70° 4' 13" W

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

# middle part of project



## Legend

- Ohio\_wet\_scan**
- 0
- 1
- Out of range
- Interstate**
- Major Roads**
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons**
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data**
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America

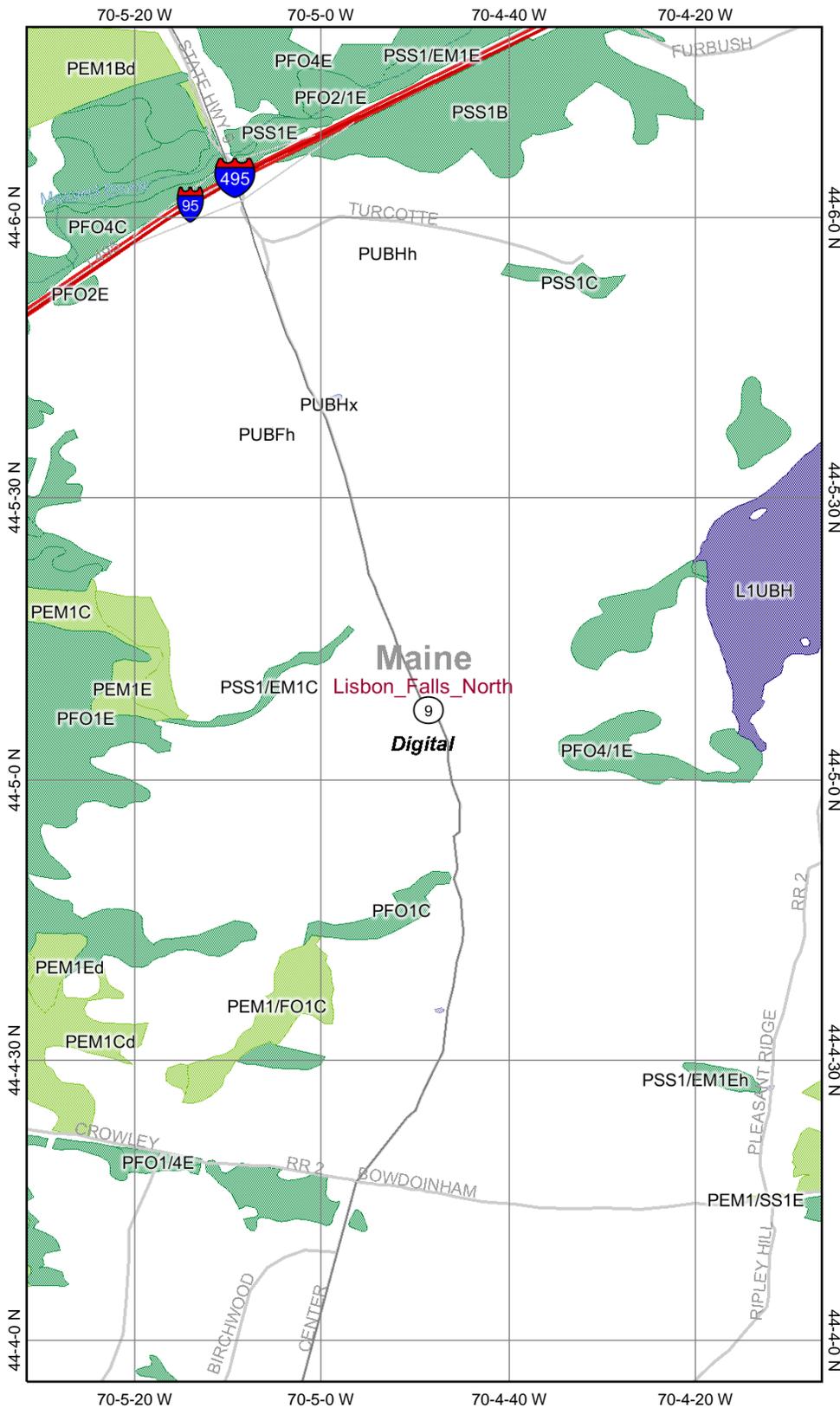
Map center: 44° 3' 18" N, 70° 4' 54" W



Scale: 1:21,500

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

# northern part of project



## Legend

### Ohio\_wet\_scan

- 0
- 1
- Out of range

### Interstate Major Roads

- Other Road
- Interstate
- State highway
- US highway

### Roads

- Cities

### USGS Quad Index 24K

### Lower 48 Wetland Polygons

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

### Lower 48 Available Wetland Data

- Non-Digital
- Digital
- No Data
- Scan

### NHD Streams

- Counties 100K
- States 100K
- South America
- North America

Map center: 44° 5' 8" N, 70° 4' 49" W



Scale: 1:21,500

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

**Appendix B**  
**Geoplans**

Note: Sheets with no borings or probes are not included in this plan set.

METRIC

1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	1	43

10017.00

Date: 6/2/2009

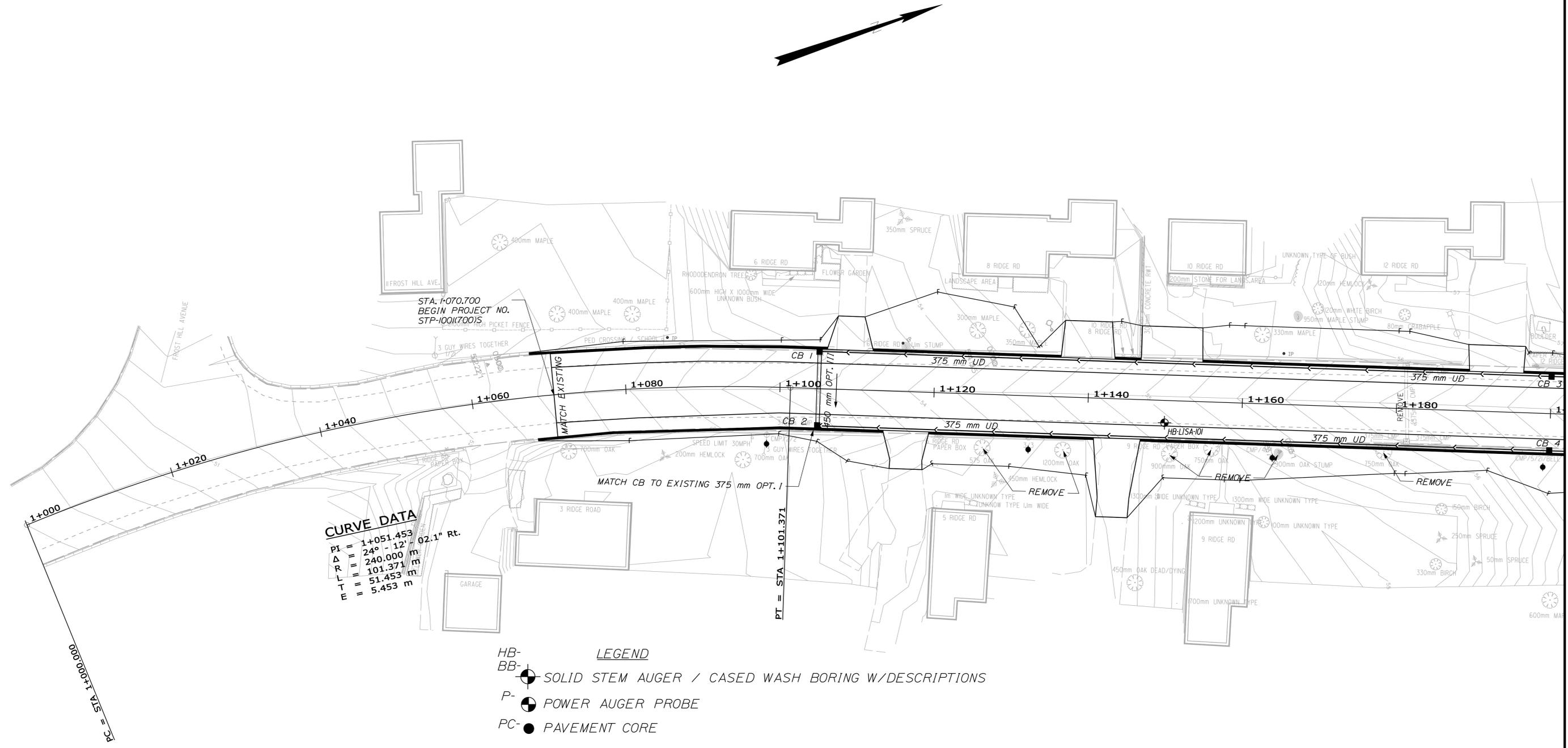
Username: kity.breskin

Division: GEOTECH

Filename: ... \GEOTECH\MSTA\001\_Ceoplans.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	REMOLTON
REVISIONS		
FIELD CHANGES		

**PLANS**



**CURVE DATA**  
 PI = 1+051.453  
 Δ = 24° - 12' - 02.1" Rt.  
 R = 240.000 m  
 L = 101.371 m  
 T = 51.453 m  
 E = 5.453 m

**LEGEND**

- HB- SOLID STEM AUGER / CASED WASH BORING W/DESCRIPTIONS
- BB- POWER AUGER PROBE
- P- PAVEMENT CORE

**KEY**

- R = Refusal of augers (actual nature of refusal surface unknown)
- NR = No Refusal surface encountered
- W = Weathered ledge

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

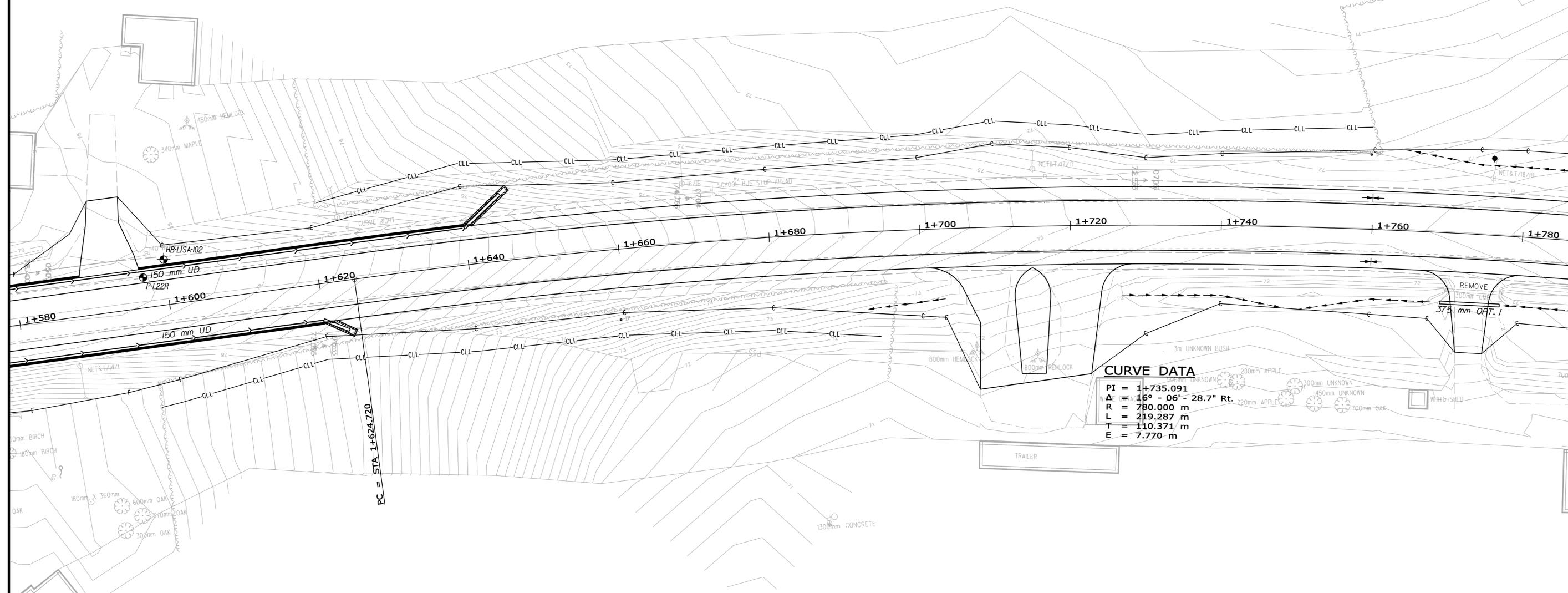
SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	2	43

10017.00



Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\002\_Geoplan2.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

PLANS

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

Date: 6/2/2009

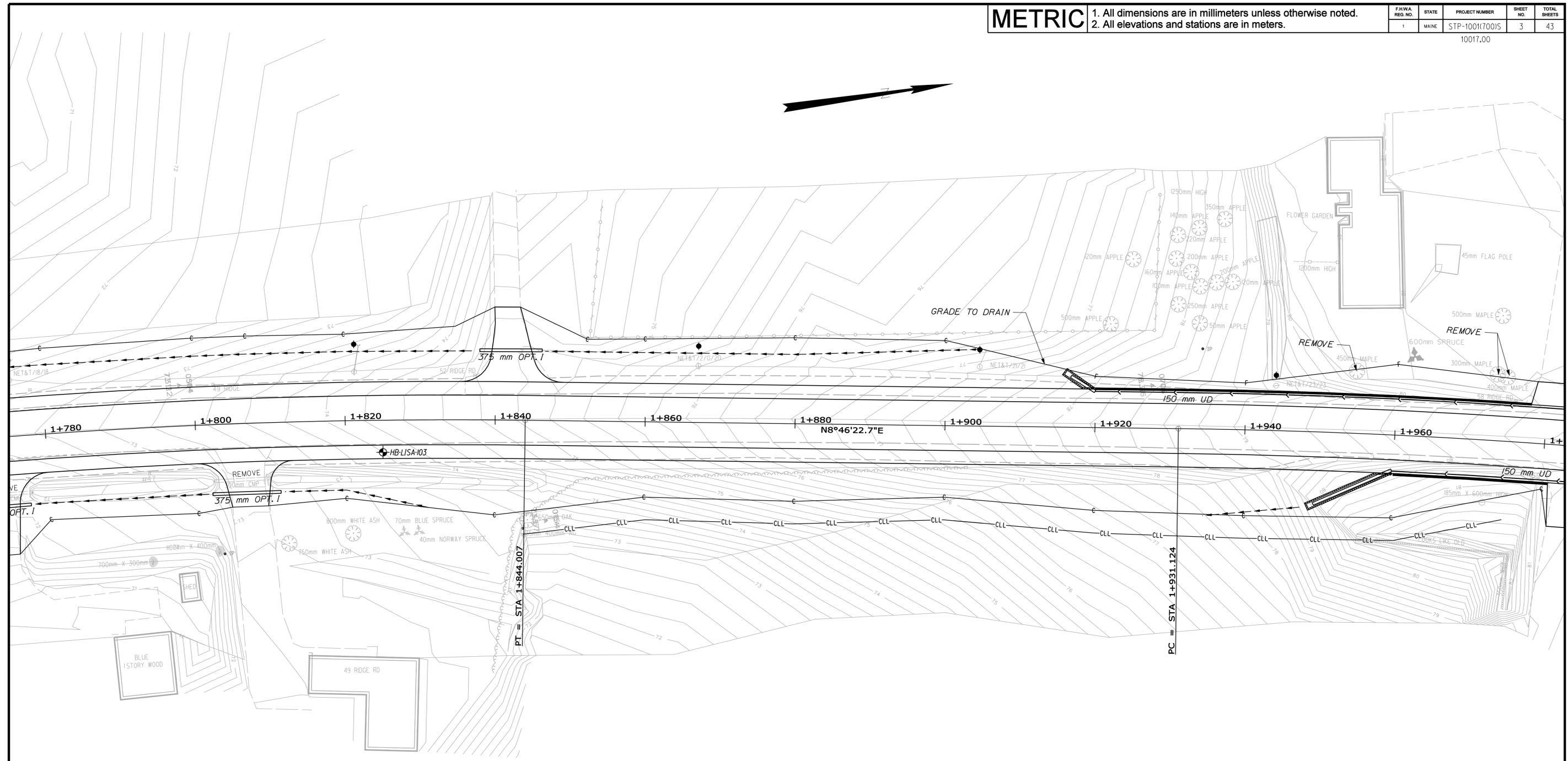
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\003\_Geoplan3.dgn

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	3	43



PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	
REVISIONS		
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9  
*GEOPANS*

SHEET OF AUGUSTA, MAINE

**METRIC**

1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	4	43

10017.00

Date: 6/2/2009

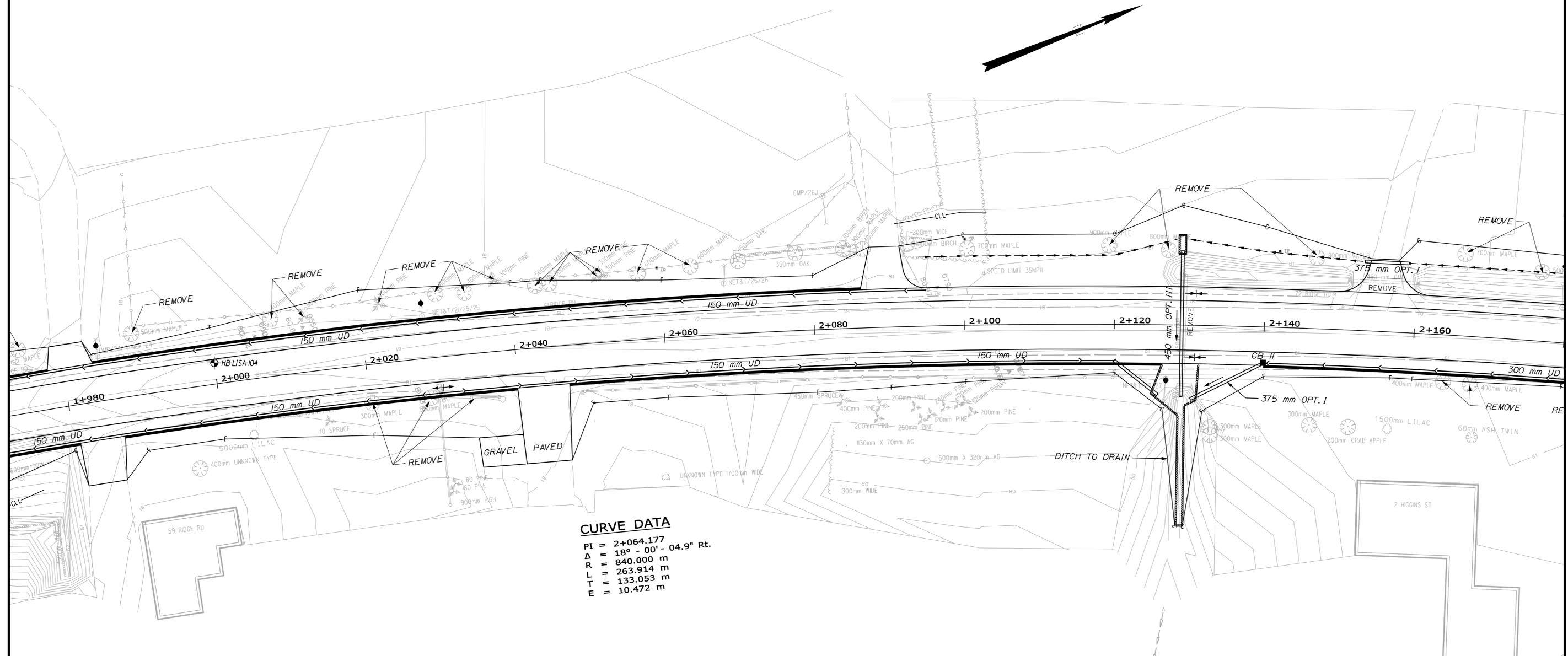
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\004\_Geoplan4.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**



**CURVE DATA**

PI = 2+064.177  
 Δ = 18° - 00' - 04.9" Rt.  
 R = 840.000 m  
 L = 263.914 m  
 T = 133.053 m  
 E = 10.472 m

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

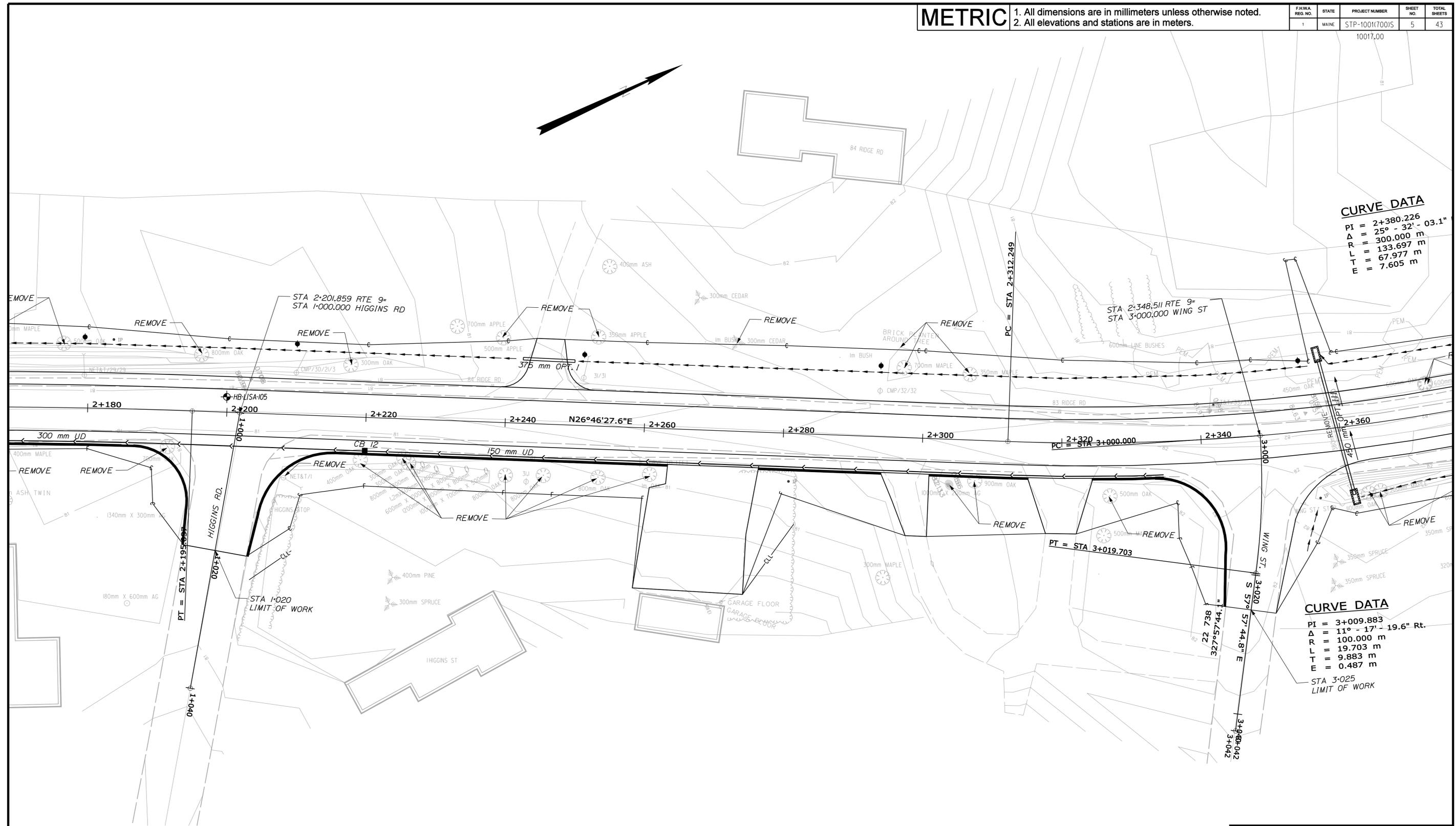
SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	5	43

**CURVE DATA**  
 PI = 2+380.226  
 Δ = 25° - 32' - 03.1"  
 R = 300.000 m  
 L = 133.697 m  
 T = 67.977 m  
 E = 7.605 m

**CURVE DATA**  
 PI = 3+009.883  
 Δ = 11° - 17' - 19.6" Rt.  
 R = 100.000 m  
 L = 19.703 m  
 T = 9.883 m  
 E = 0.487 m  
 STA 3+025  
 LIMIT OF WORK



Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\005\_Geoplan5.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	REMOLTON
REVISIONS		
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9  
**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	6	43

10017.00

Date: 6/2/2009

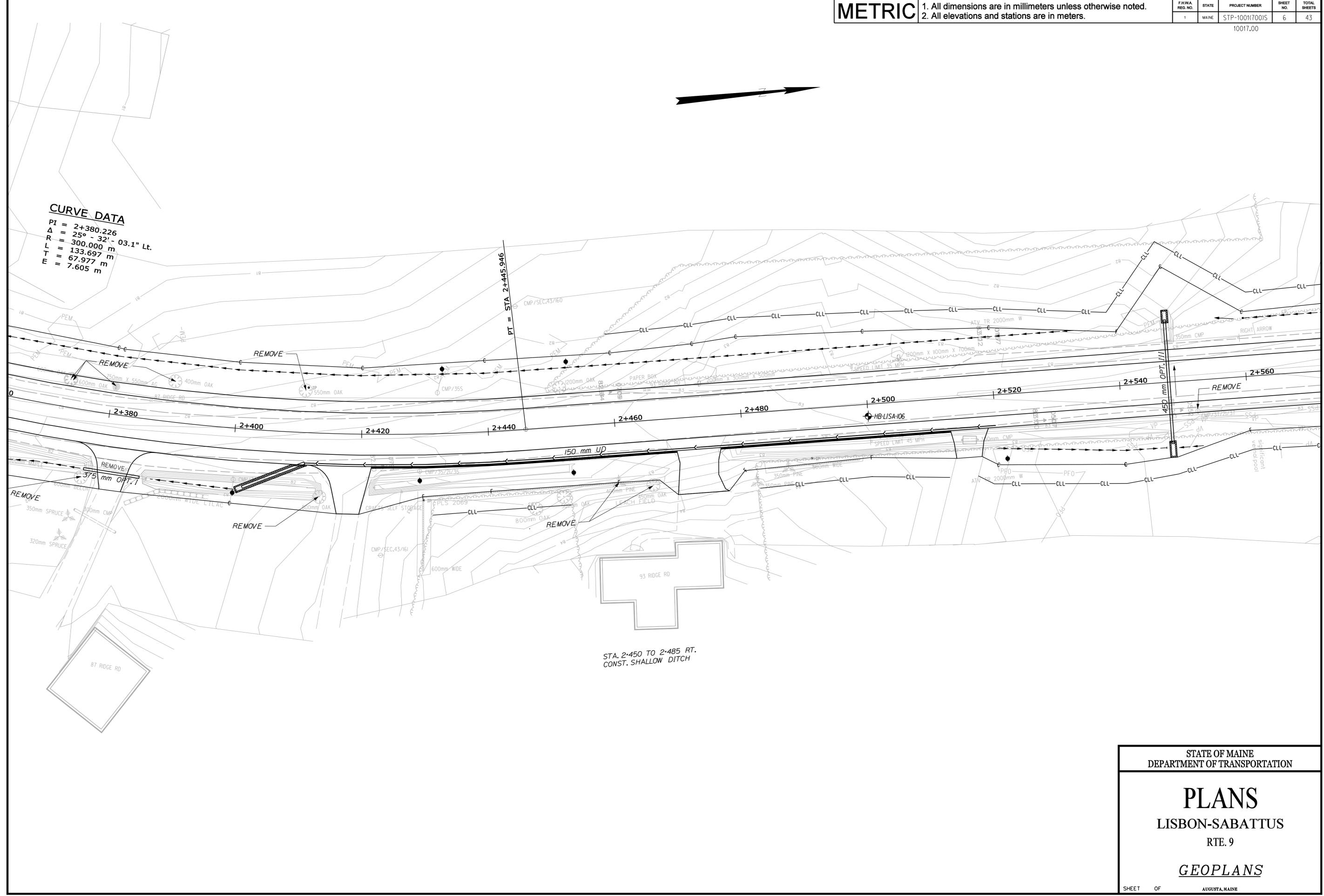
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\006\_Geoplans6.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	APR 09
REVISIONS		
FIELD CHANGES		

**PLANS**



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

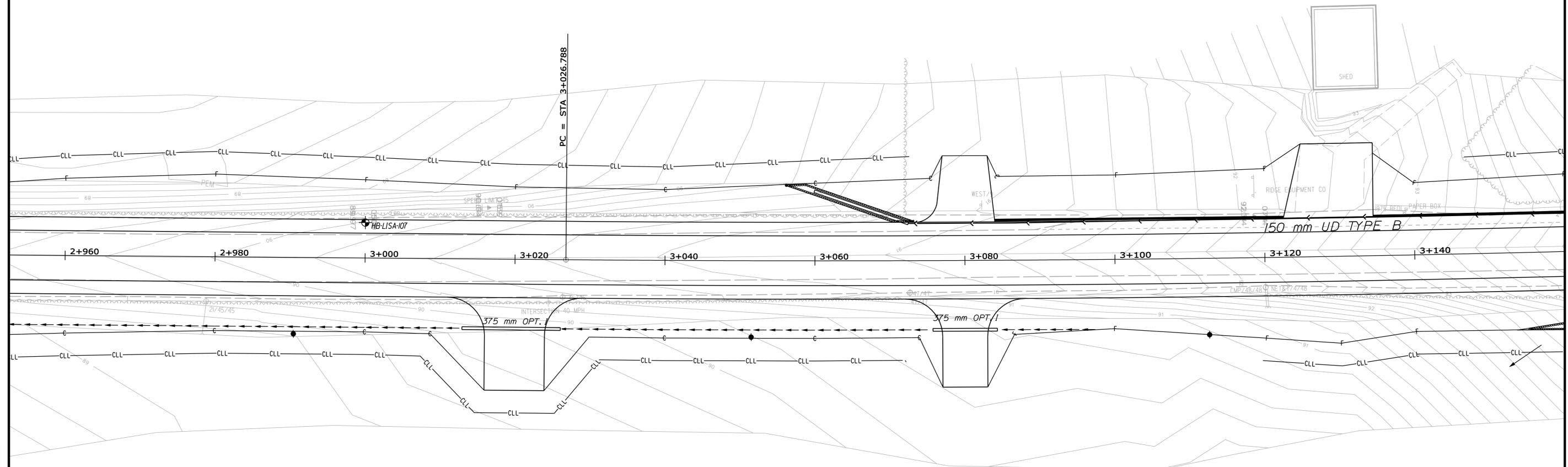
**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	7	43

10017.00

**CURVE DATA**

PI = 3+153  
 $\Delta = 3^\circ - 4'$   
 R = 4000.0  
 L = 256.5  
 T = 128.3  
 E = 2.057



Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\007\_Geoplan7.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	8	43

10017.00

**CURVE DATA**

PI = 3+155.096  
 $\Delta$  = 3° - 40' - 28.2" Lt.  
R = 4000.000 m  
L = 256.528 m  
T = 128.308 m  
E = 2.057 m

**CURVE DATA**

PI = 5+044.592  
 $\Delta$  = 2° - 35' - 33.2" Rt.  
R = 800.000 m  
L = 36.199 m  
T = 18.103 m  
E = 0.205 m

**CURVE DATA**

PI = 5+013.272  
 $\Delta$  = 8° - 55' - 40.2" Rt.  
R = 170.000 m  
L = 26.489 m  
T = 13.272 m  
E = 0.517 m

Date: 6/2/2009

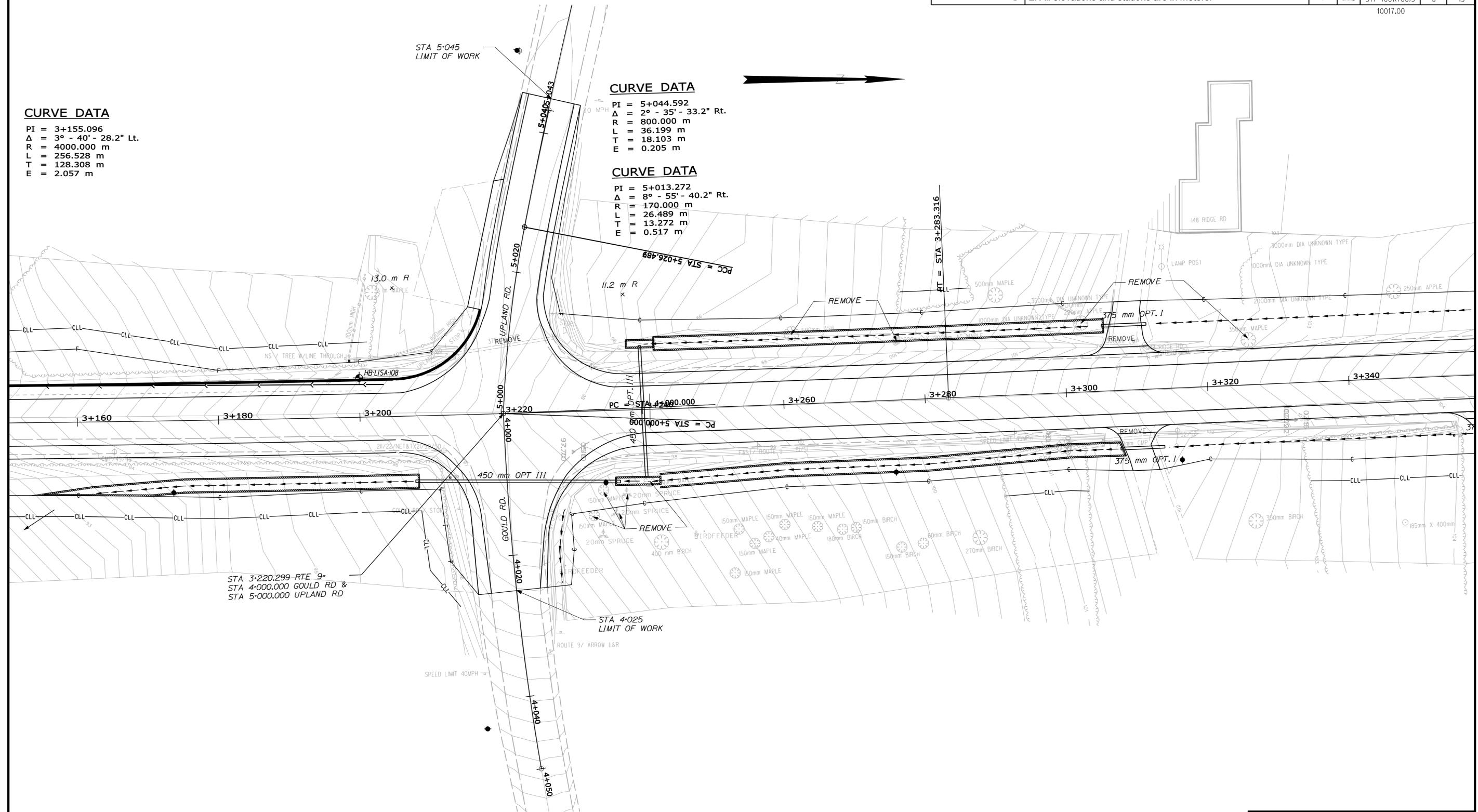
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\008\_Geoplan8.dgn

PROJECT DESIGN ENGINEER	DATE
K. BRESKIN	APR 09
DESIGN-DETAILED	
CHECKED	
REVISIONS	
FIELD CHANGES	

**PLANS**



STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

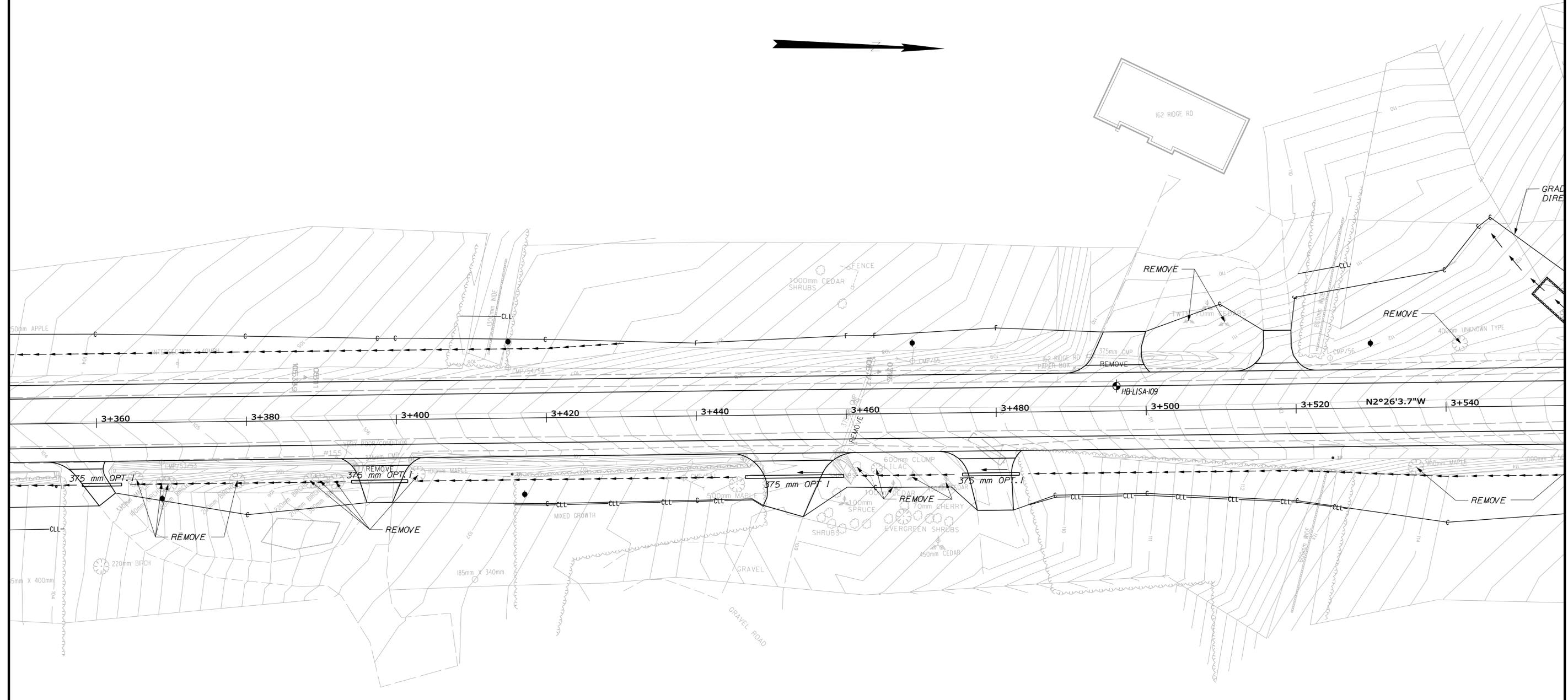
**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	9	43

10017.00



Date: 6/2/2009

Username: kilty.breskin

Division: GEOTECH

Filename: ... \geotech\msta\009\_Geoplans.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	10	43

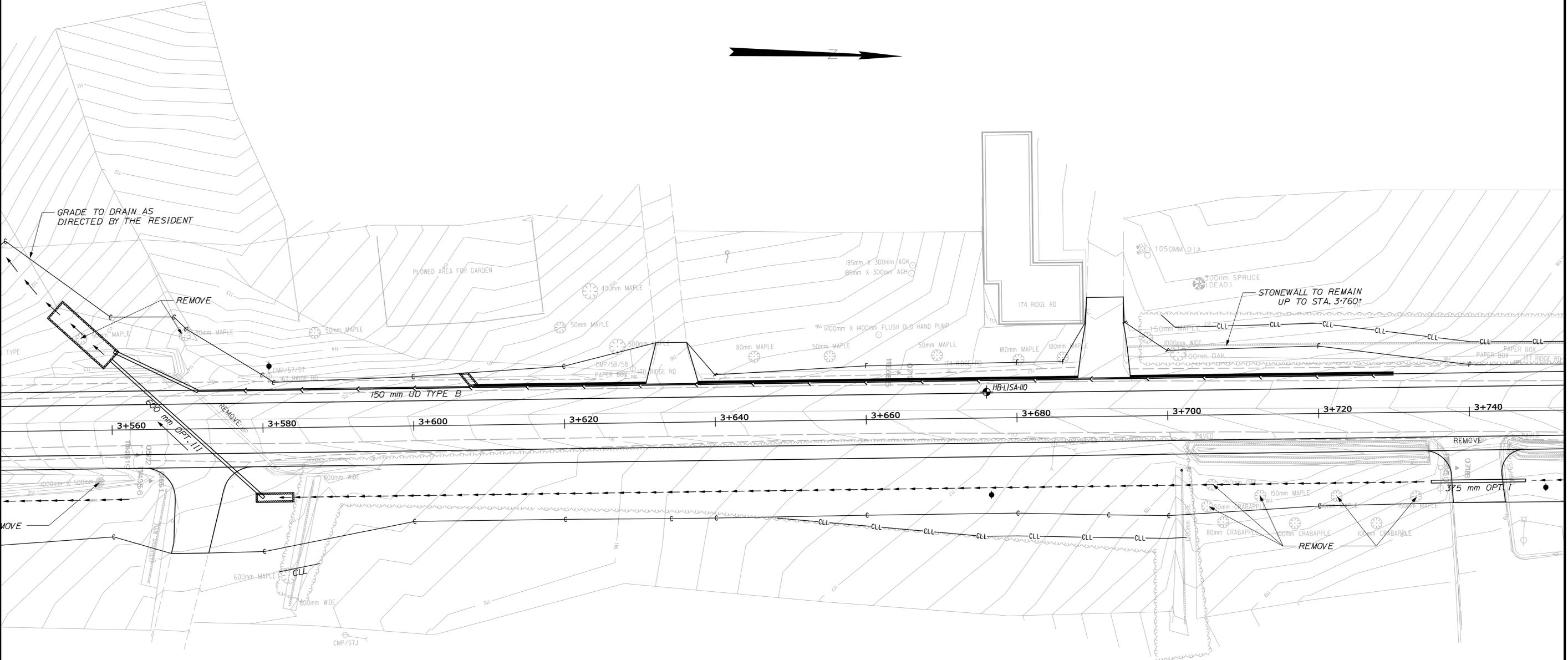
10017.00

Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\010\_Geoplan10.dgn



PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	REVISION
REVISIONS		
FIELD CHANGES		

PLANS

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	11	43

10017.00

Date: 6/2/2009

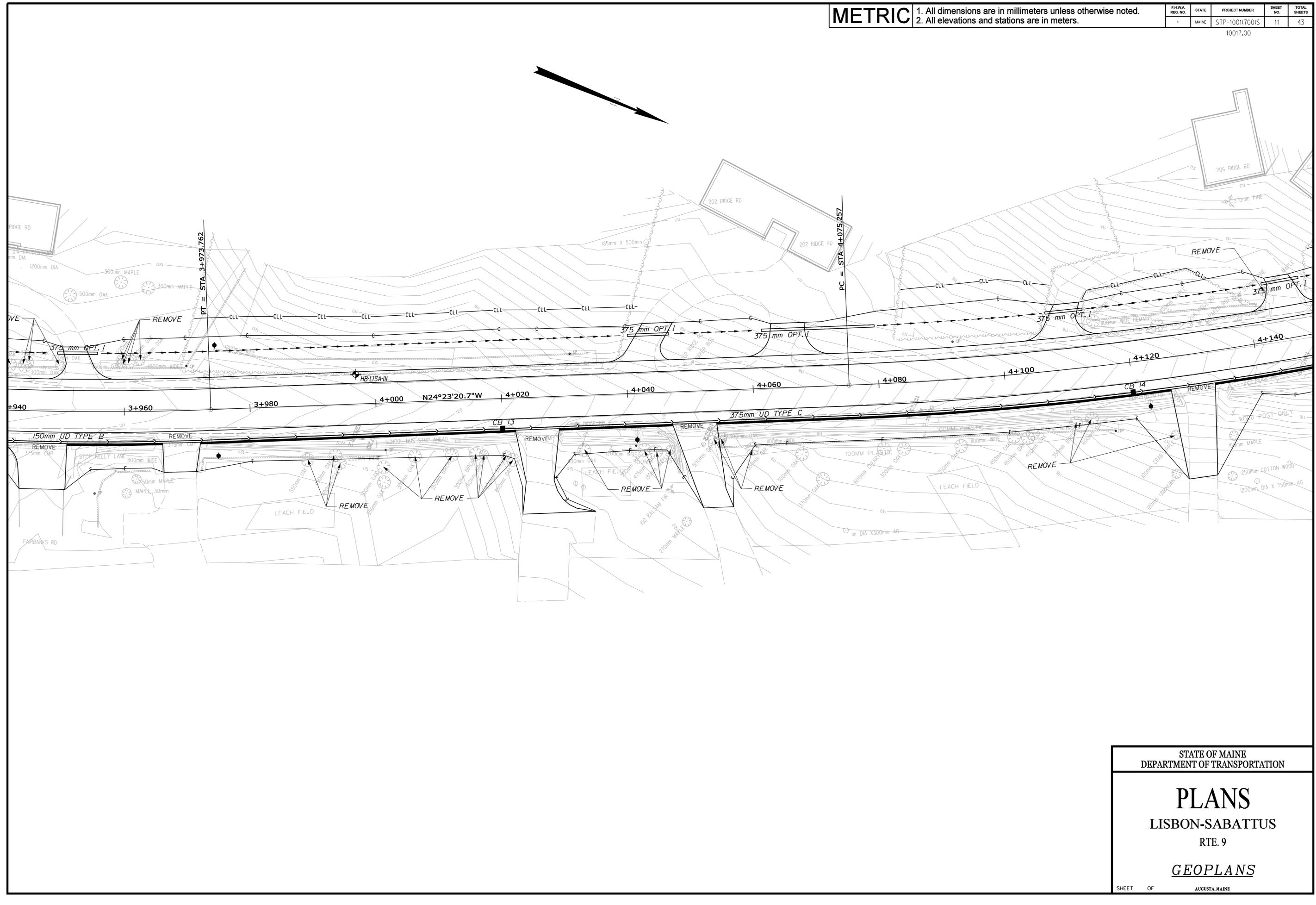
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\011\_Ceoplant1.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

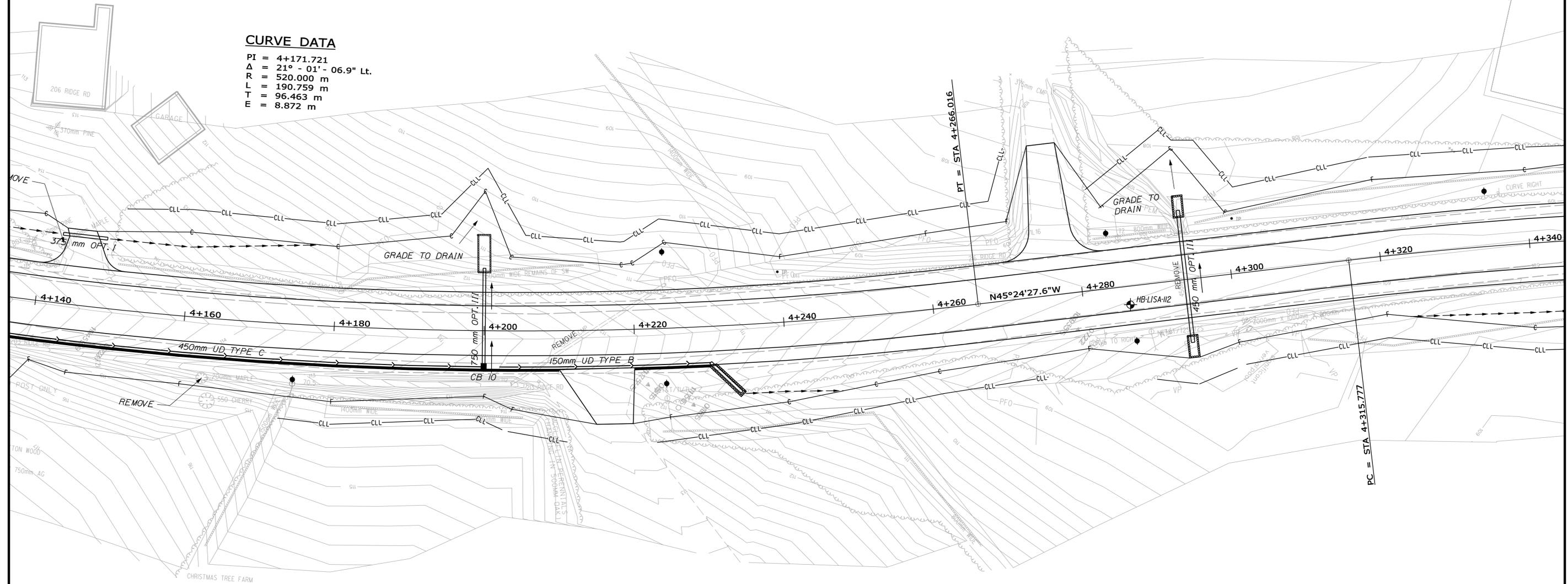
**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	12	43

10017.00

**CURVE DATA**

PI = 4+171.721  
 $\Delta = 21^\circ - 01' - 06.9''$  Lt.  
 R = 520.000 m  
 L = 190.759 m  
 T = 96.463 m  
 E = 8.872 m



Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\012\_Geoplan12.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

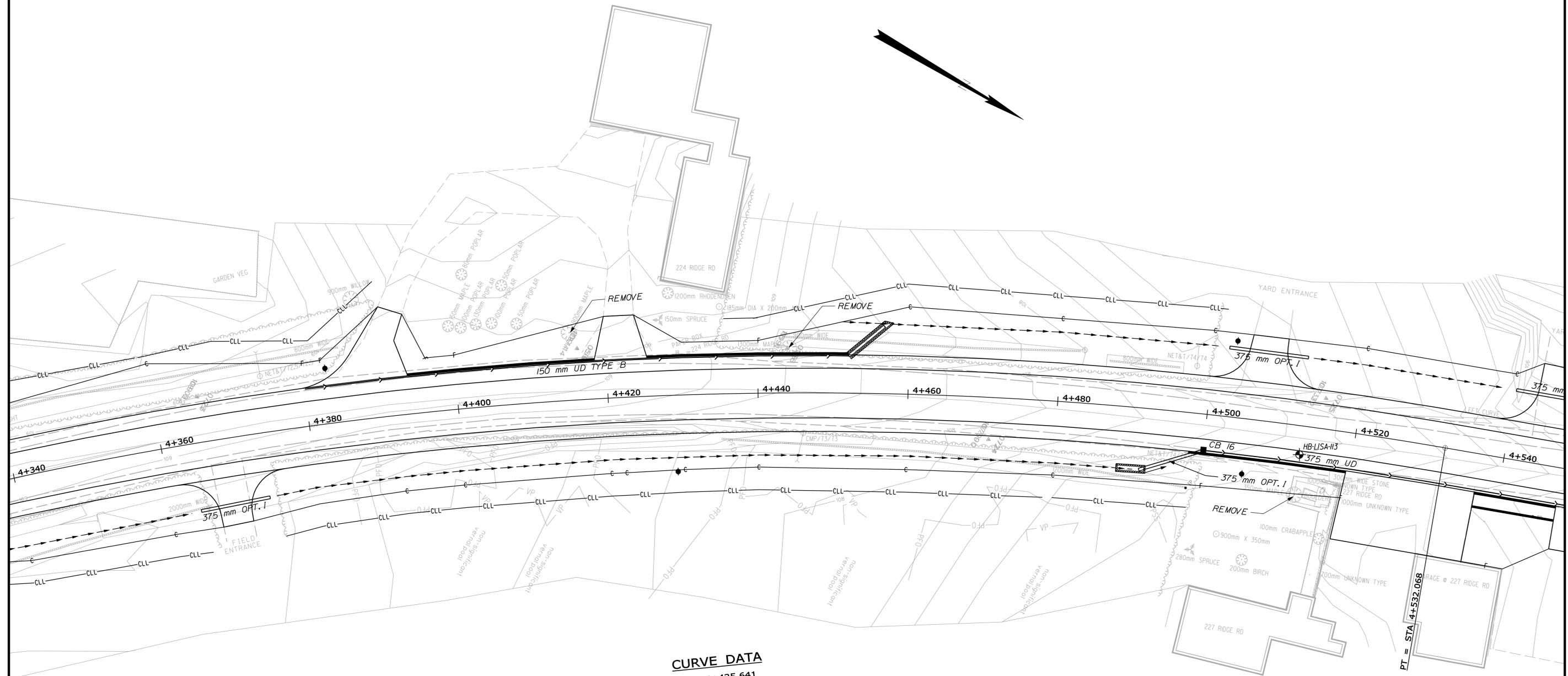
**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	13	43

10017.00



**CURVE DATA**  
 PI = 4+425.641  
 Δ = 24° - 47' - 06.3" RT.  
 R = 500.000 m  
 L = 216.291 m  
 T = 109.864 m  
 E = 11.928 m

Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\013\_Geoplans.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

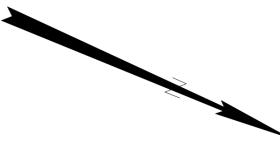
**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

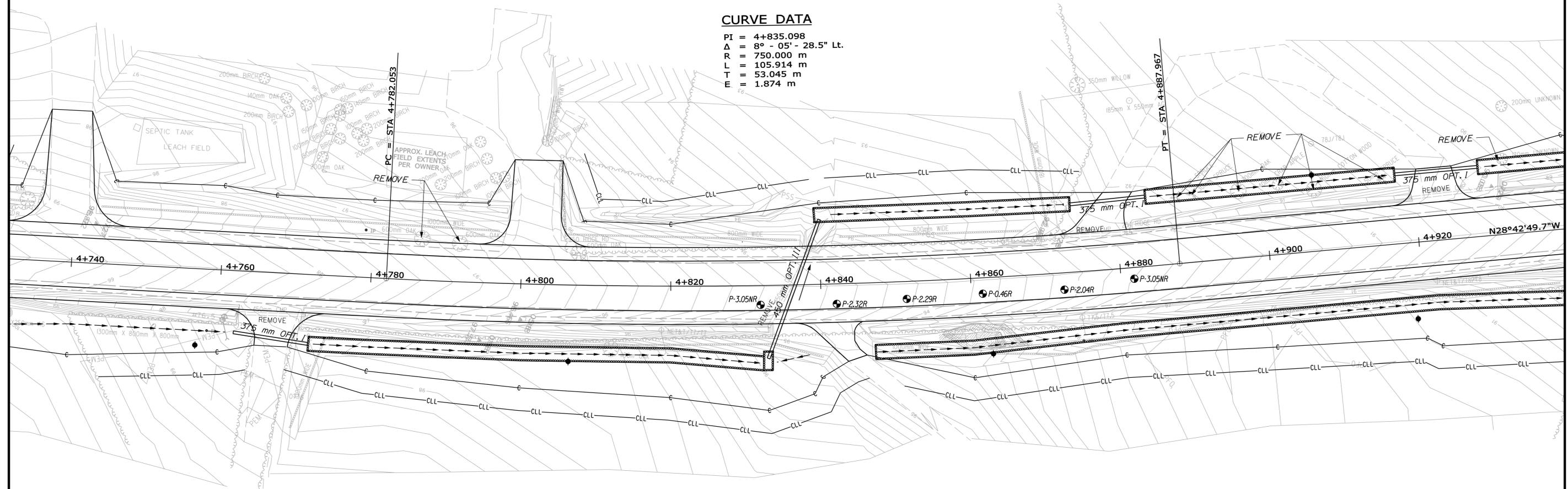
FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	14	43

10017.00



**CURVE DATA**

PI = 4+835.098  
 $\Delta = 8^\circ - 05' - 28.5''$  Lt.  
 R = 750.000 m  
 L = 105.914 m  
 T = 53.045 m  
 E = 1.874 m



Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\014\_Geoplans4.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	15	43

10017.00

Date: 6/2/2009

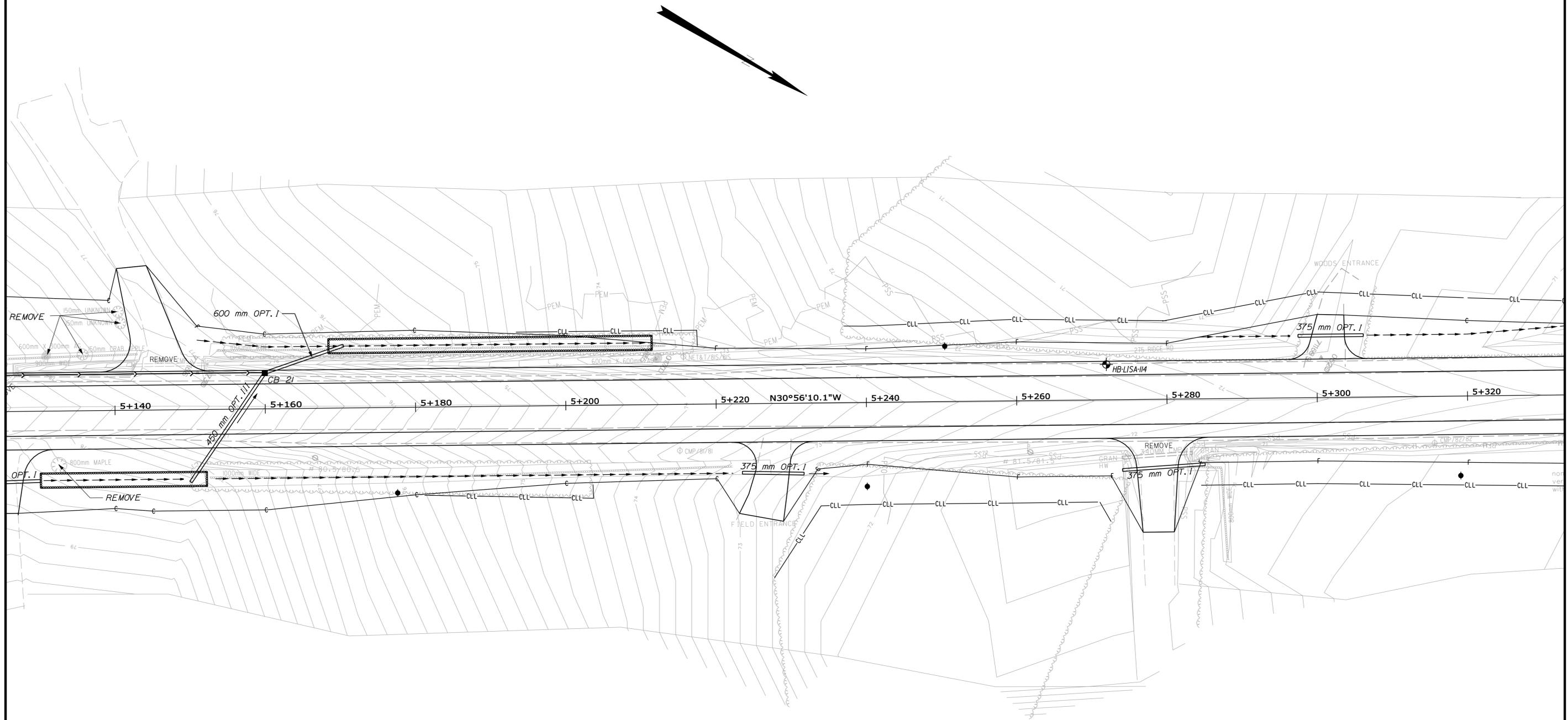
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\015\_Geoplans.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

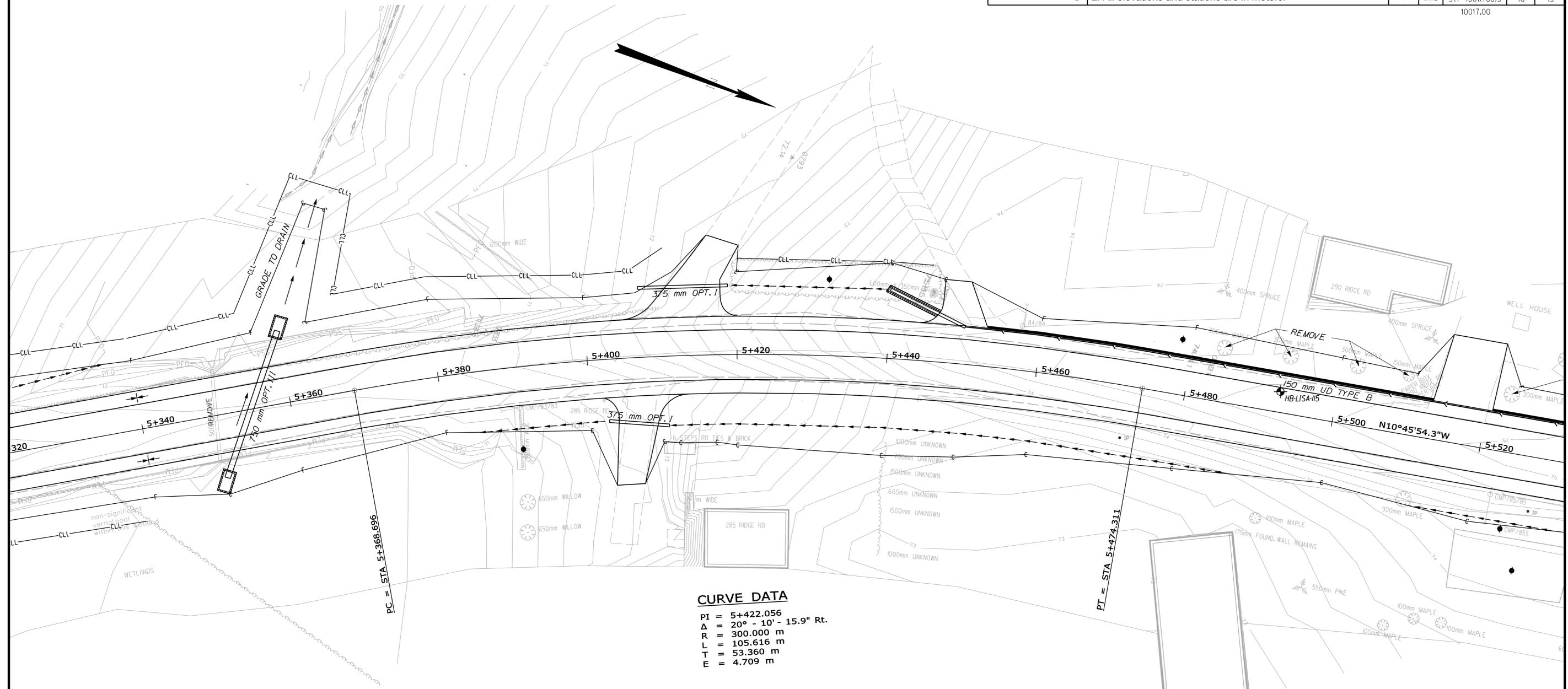
**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	16	43

10017.00

Filename: ... \geotech\msta\016\_Geoplan16.dgn  
 Division: GEOTECH  
 Username: kity.breskin  
 Date: 6/2/2009

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		



**CURVE DATA**

PI = 5+422.056  
 $\Delta$  = 20° - 10' - 15.9" Rt.  
 R = 300.000 m  
 L = 105.616 m  
 T = 53.360 m  
 E = 4.709 m

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	17	43

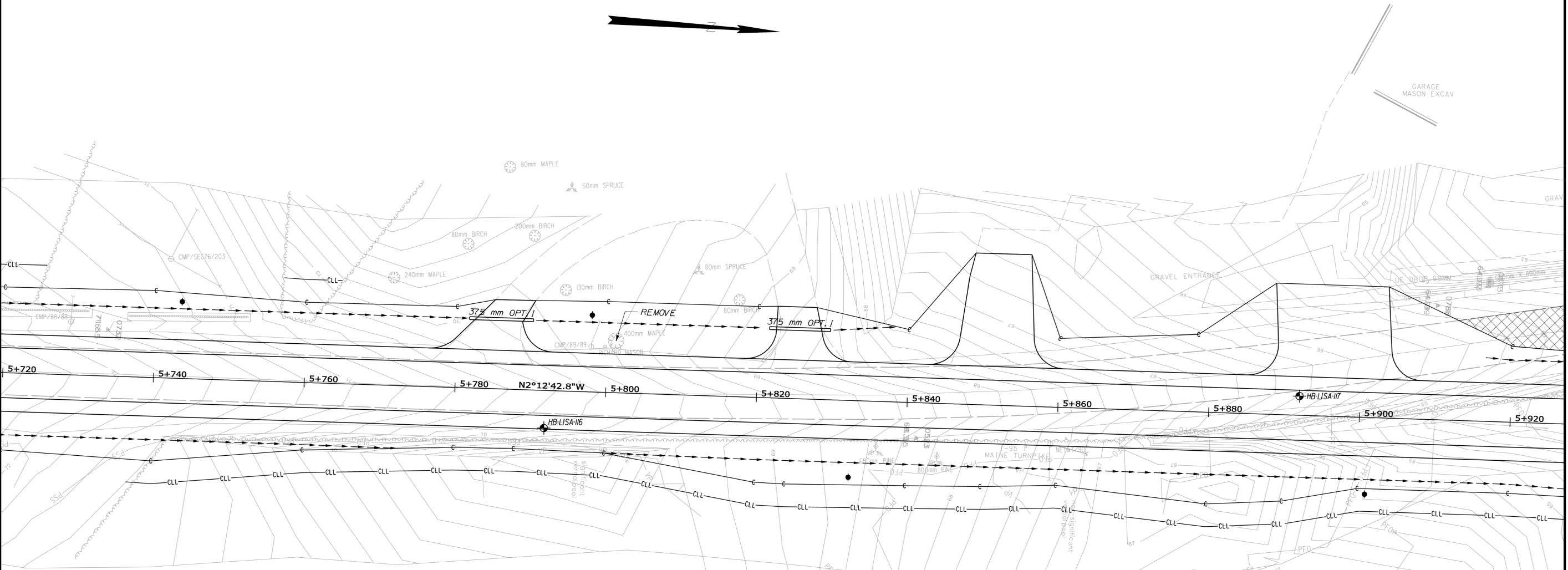
10017.00

Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\017\_Geoplans17.dgn



PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOLLTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9  
**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	18	43

10017.00

Date: 6/2/2009

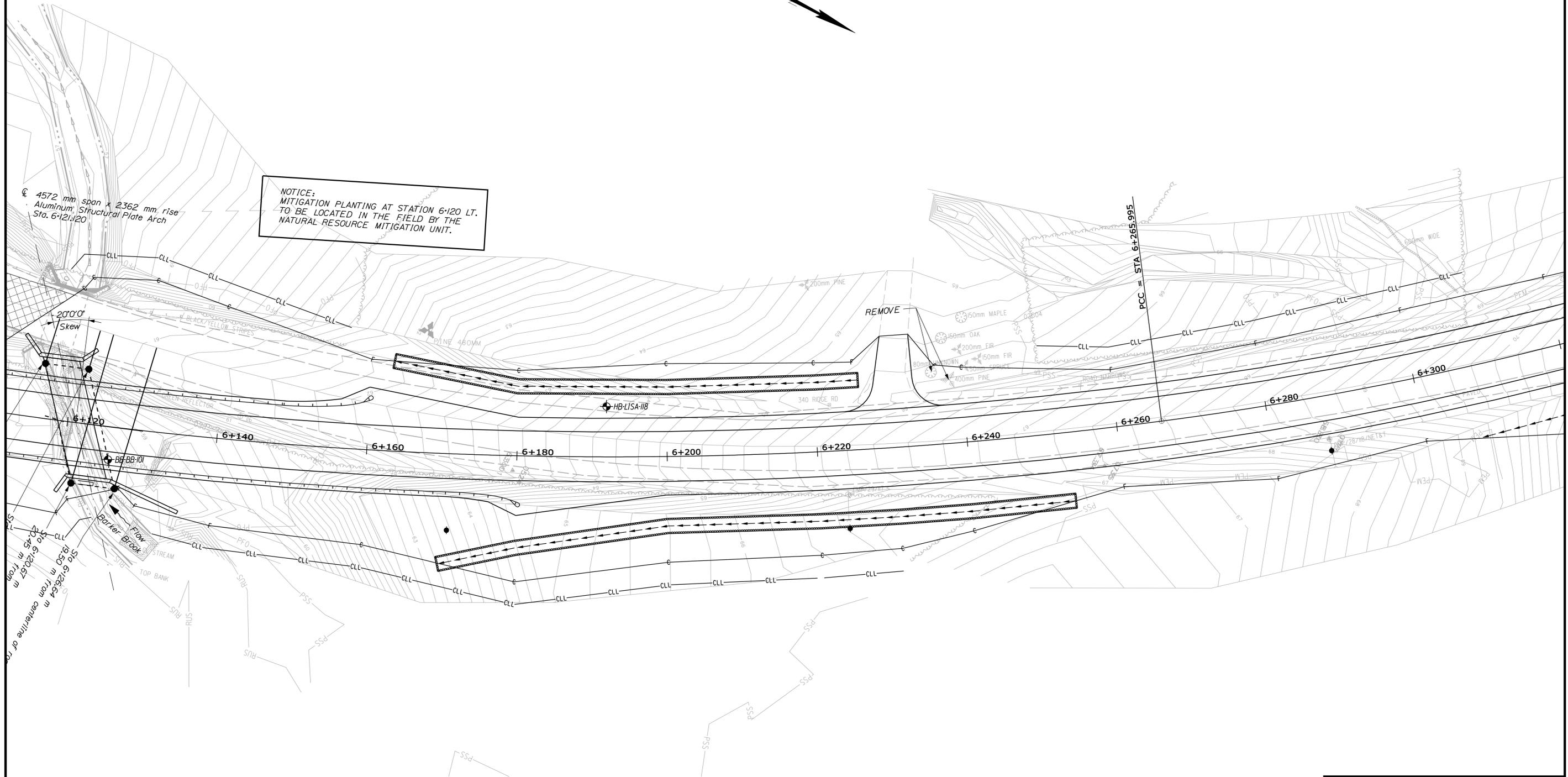
Username: kilty.breskin

Division: GEOTECH

Filename: ... \geotech\msta\018\_Geoplans18.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
DESIGN-DETAILED		
CHECKED	A. MOUSSEAU	IRMOULTON 2009
REVISIONS		
FIELD CHANGES		

**PLANS**



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

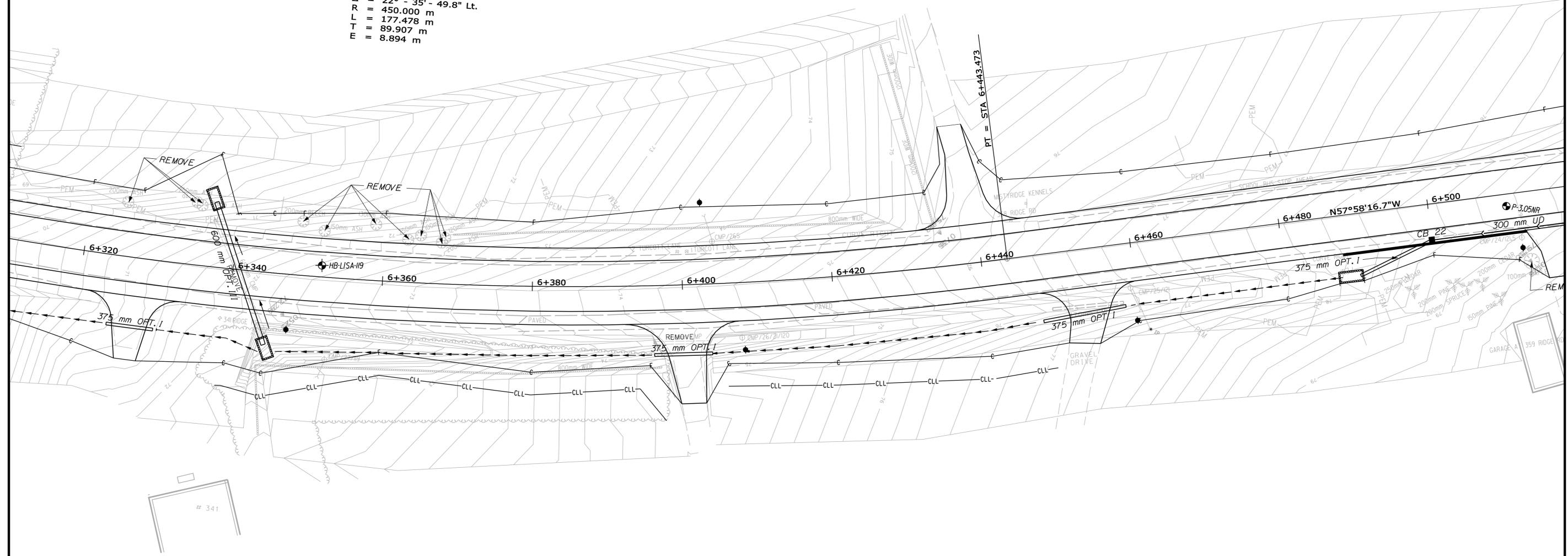
SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	19	43

10017.00

**CURVE DATA**  
 PI = 6+355.902  
 $\Delta = 22^\circ - 35' - 49.8''$  Lt.  
 R = 450.000 m  
 L = 177.478 m  
 T = 89.907 m  
 E = 8.894 m



Filename: ... \geotech\msta\019\_Geoplans19.dgn  
 Division: GEOTECH  
 Username: kity.breskin  
 Date: 6/2/2009

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9  
**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

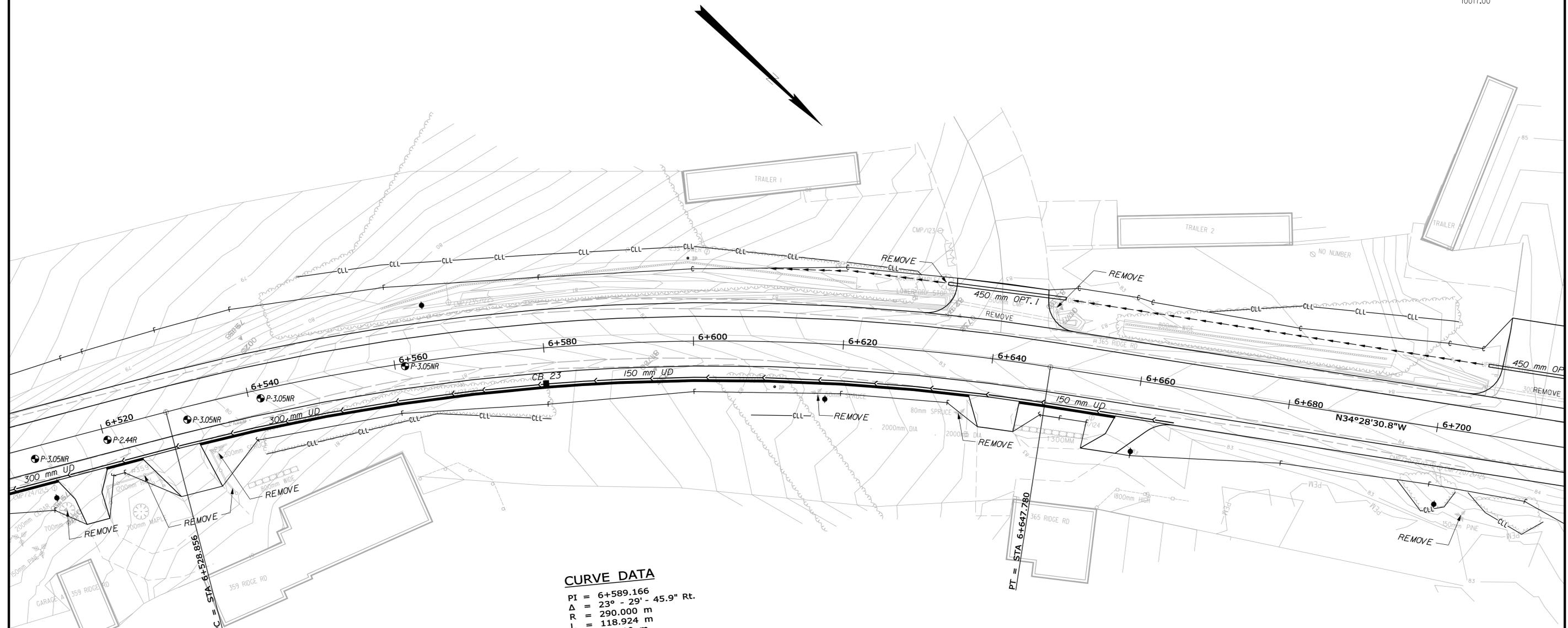
FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	20	43

10017.00

Filename: ... \geotech\msta\020\_Geoplan20.dgn Division: GEOTECH Username: kity.breskin Date: 6/2/2009

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	REVISIONS
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**



**CURVE DATA**  
 PI = 6+589.166  
 Δ = 23° - 29' - 45.9" Rt.  
 R = 290.000 m  
 L = 118.924 m  
 T = 60.310 m  
 E = 6.205 m

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	21	43

10017.00

Date: 6/2/2009

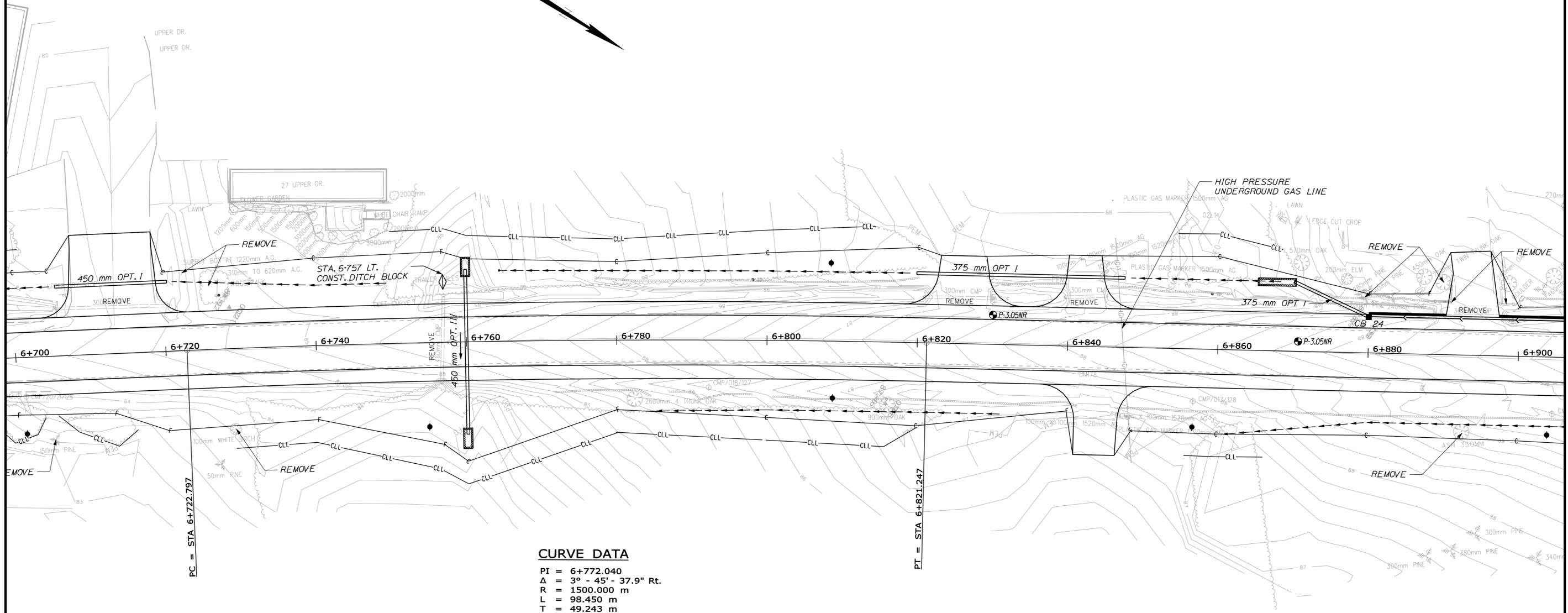
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\021\_Geoplan21.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	REVISIONS
REVISIONS		FIELD CHANGES
FIELD CHANGES		

**PLANS**



**CURVE DATA**  
 PI = 6+772.040  
 Δ = 3° - 45' - 37.9" Rt.  
 R = 1500.000 m  
 L = 98.450 m  
 T = 49.243 m  
 E = 0.808 m

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9  
**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	22	43

10017.00

Date: 6/2/2009

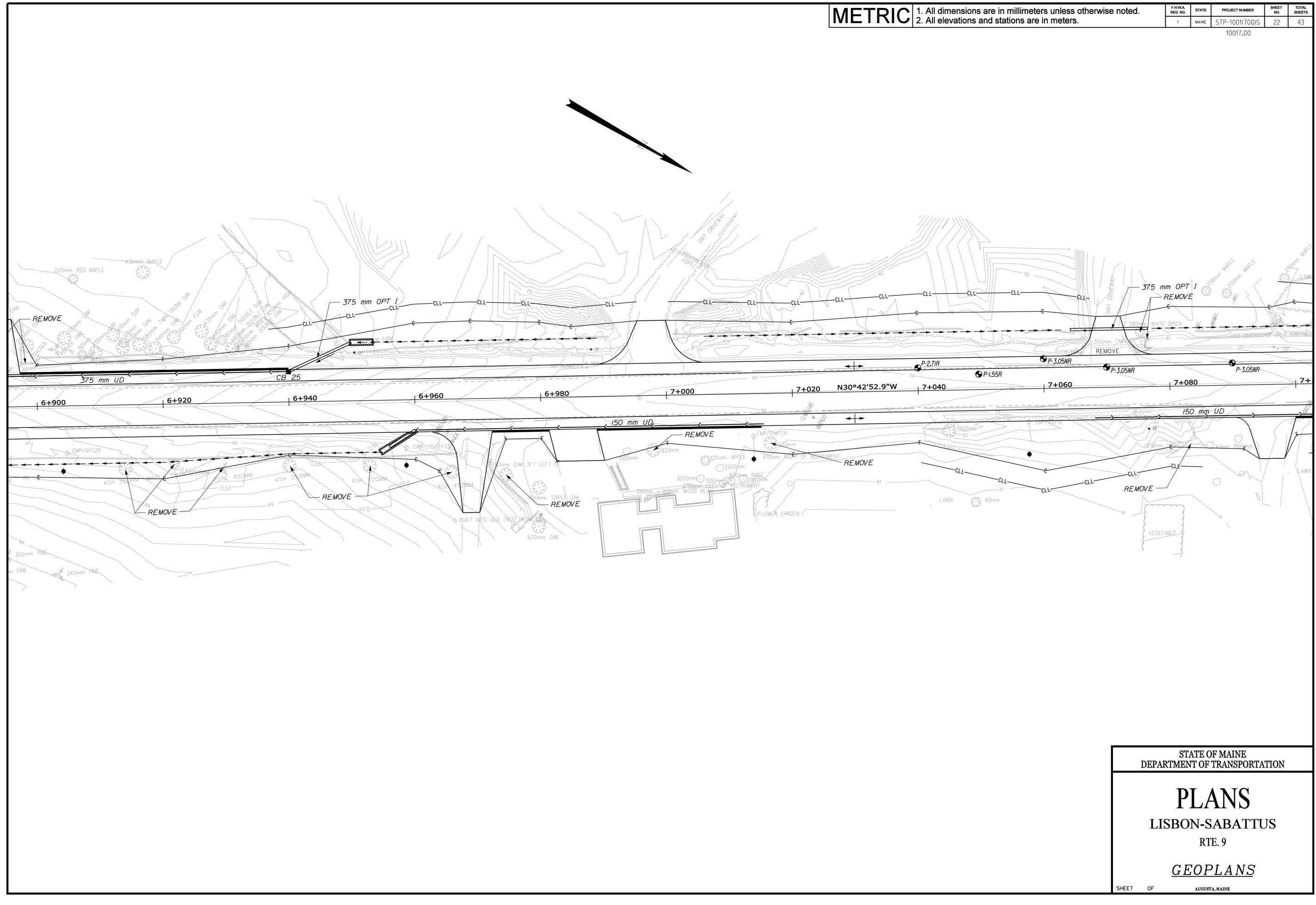
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\mst022\_Geoplan22.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

METRIC

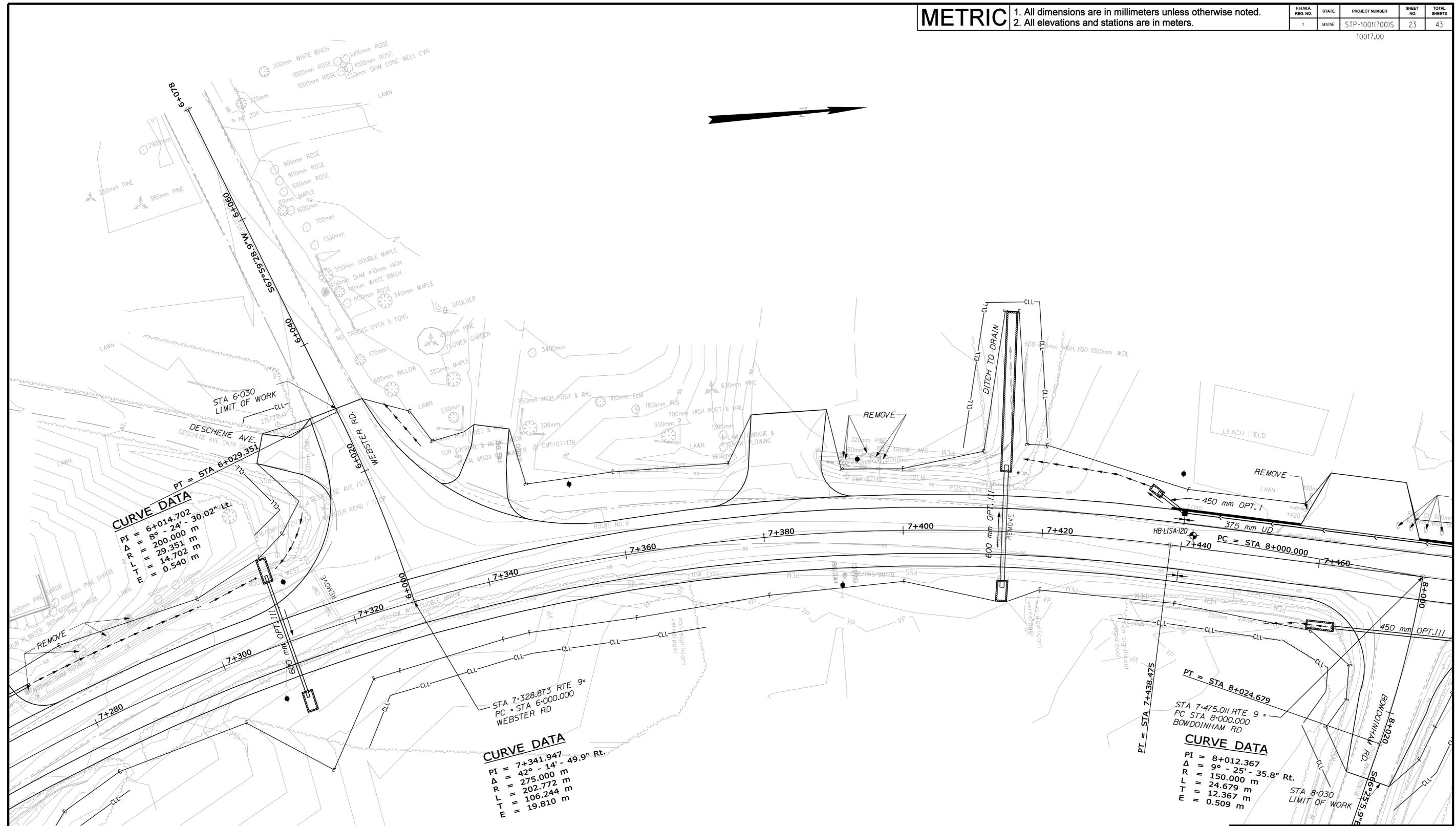
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2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	23	43

10017.00

Filename: ... \geotech\mst\023\_Geoplan23.dgn Division: GEOTECH Username: kity.breskin Date: 6/2/2009

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	2009
REVISIONS		
FIELD CHANGES		



STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

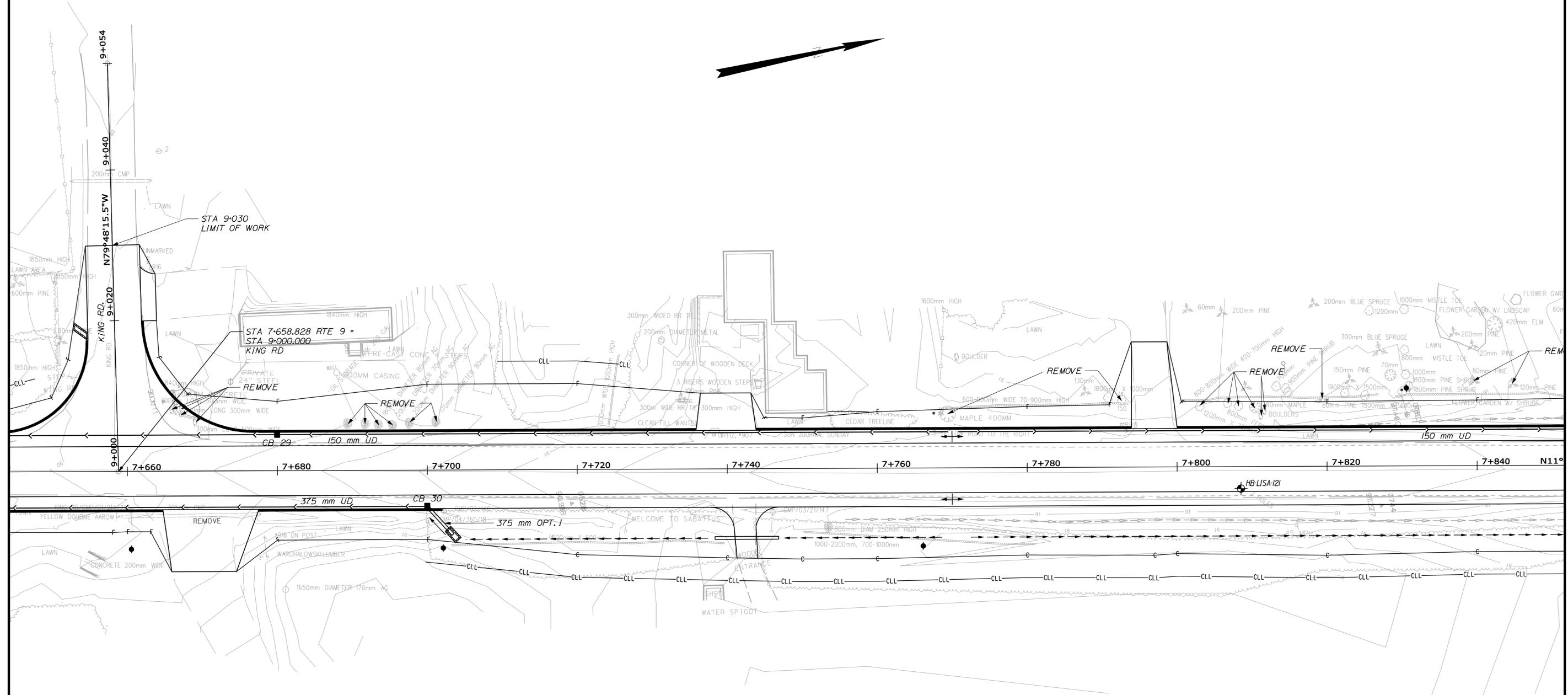
SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	24	43

10017.00

Filename: ... \geotech\mst024\_Geoplan24.dgn Division: GEOTECH Username: kity.breskin Date: 6/2/2009



PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	25	43

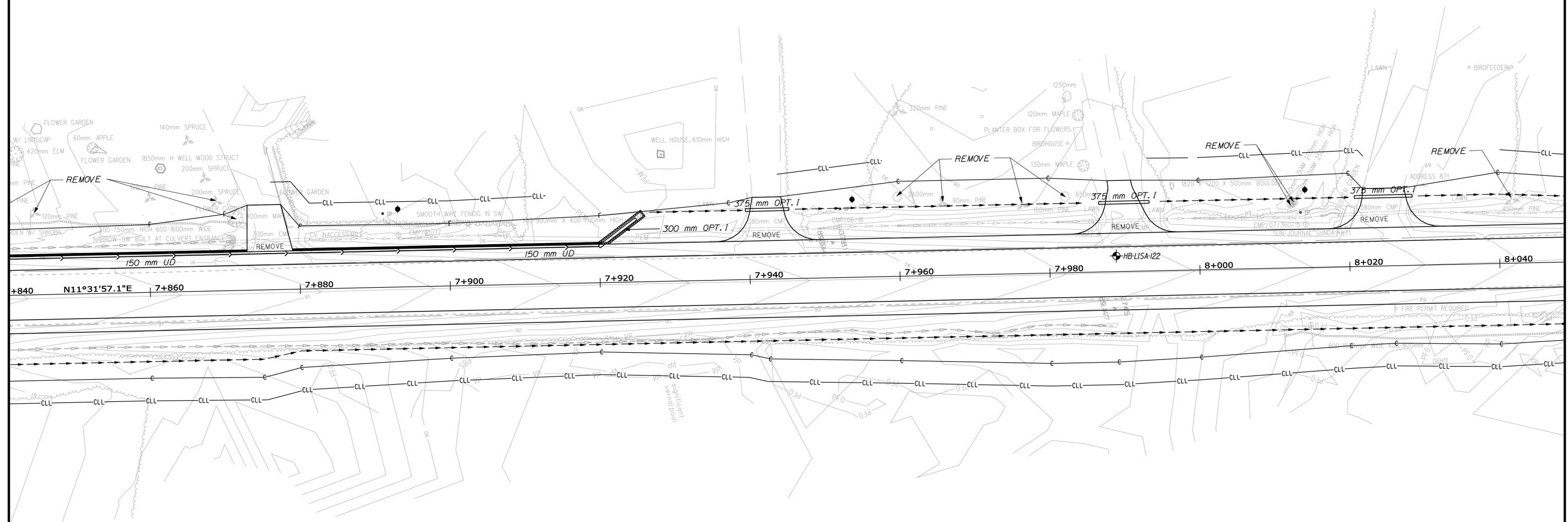
10017.00

Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\025\_Geoplan25.dgn



PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	K. BRESKIN	T. WHITE
CHECKED	A. MOUSSEAU	R. MOUTON
REVISIONS		
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	26	43

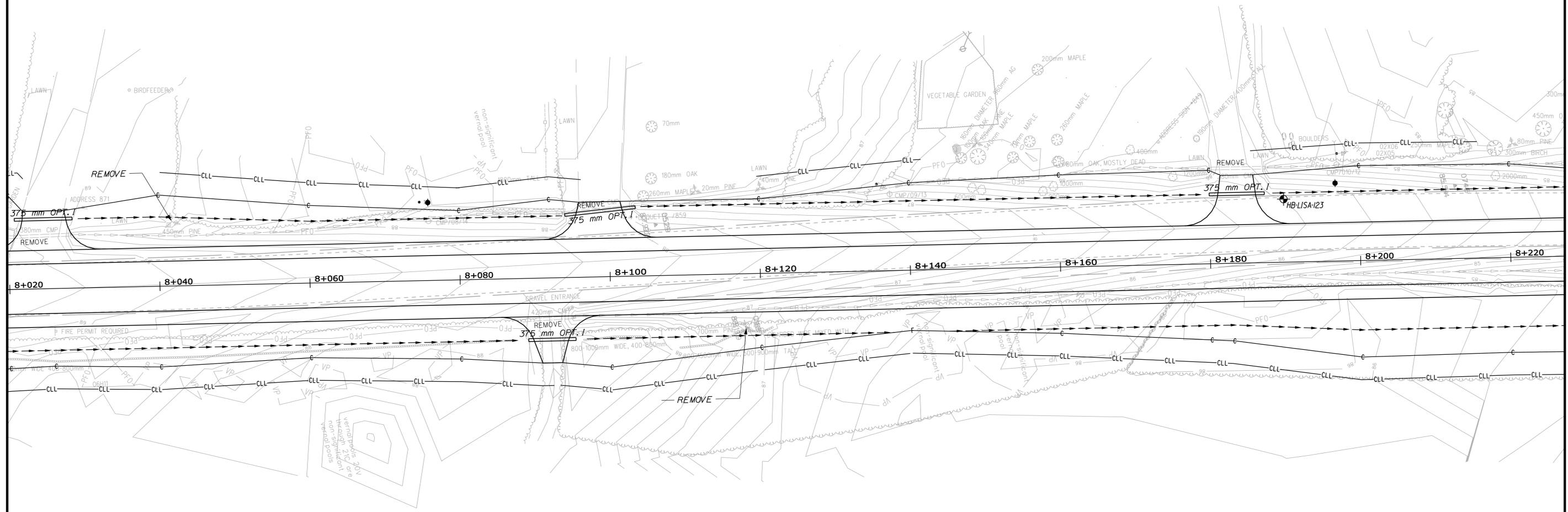
10017.00

Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\026\_Geoplan26.dgn



PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

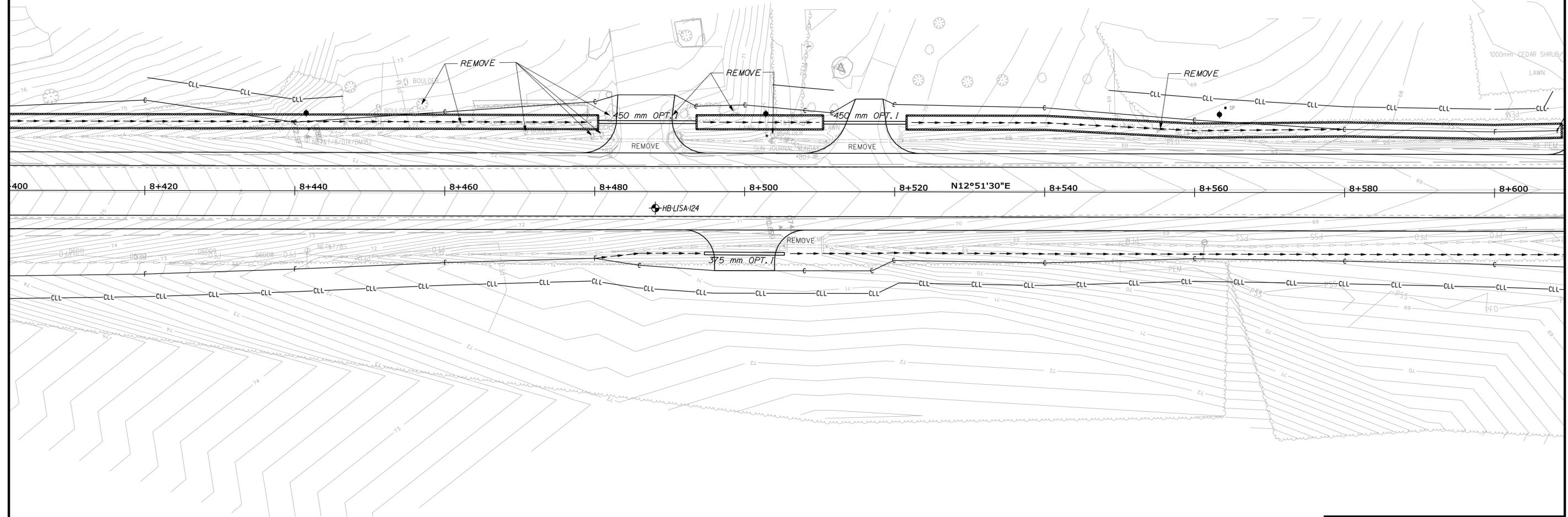
**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	27	43

10017.00



Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\027\_Geoplan27.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	2009
REVISIONS		
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\028\_Geoplan28.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	K. BRESKIN	T. WHITE
CHECKED	A. MOUSSEAU	R. MOUTON
REVISIONS		
FIELD CHANGES		

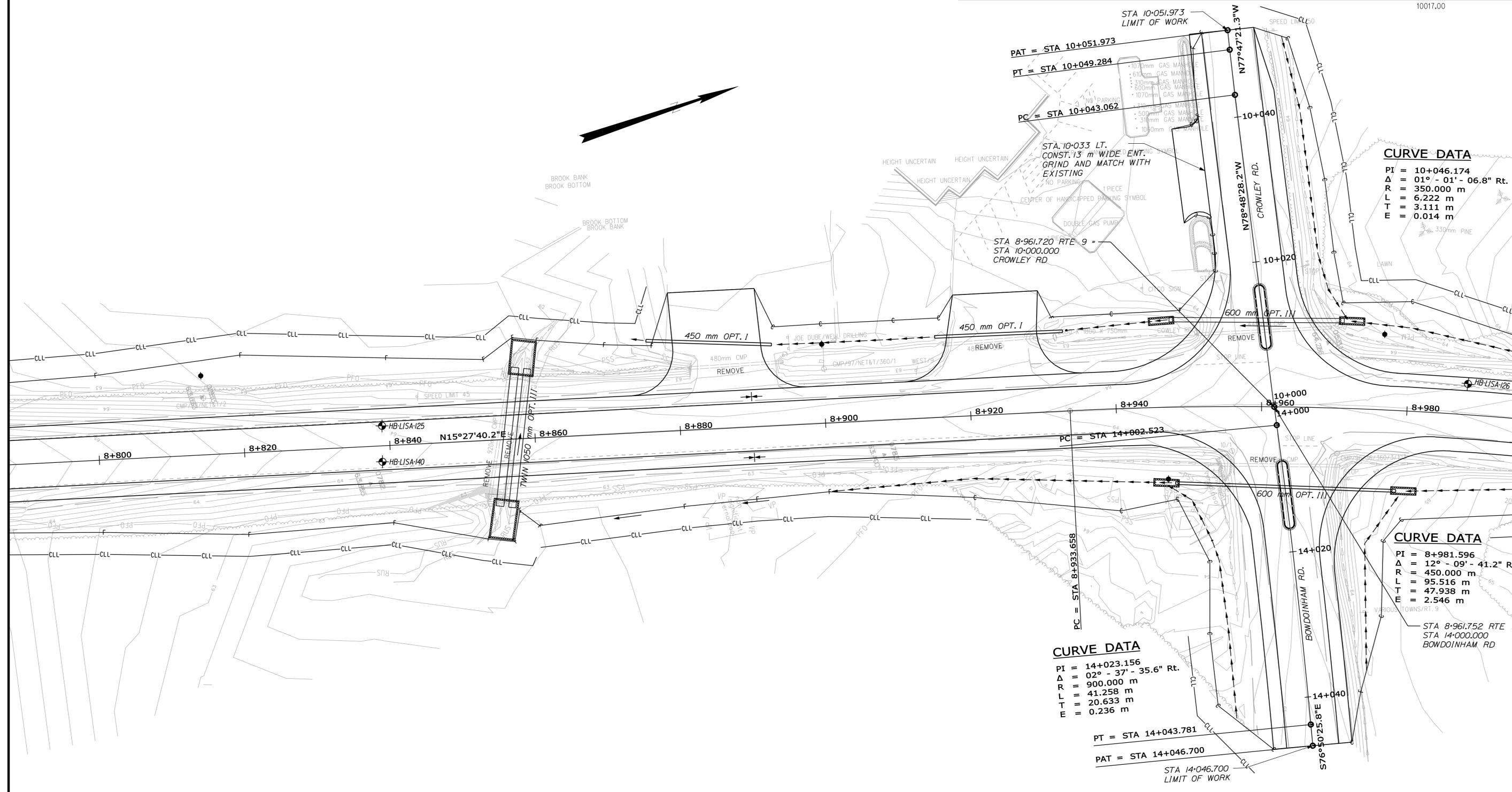
PLANS

METRIC

1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	28	43

10017.00



**CURVE DATA**

PI = 10+046.174  
 Δ = 01° - 01' - 06.8" Rt.  
 R = 350.000 m  
 L = 6.222 m  
 T = 3.111 m  
 E = 0.014 m

**CURVE DATA**

PI = 14+023.156  
 Δ = 02° - 37' - 35.6" Rt.  
 R = 900.000 m  
 L = 41.258 m  
 T = 20.633 m  
 E = 0.236 m

**CURVE DATA**

PI = 8+981.596  
 Δ = 12° - 09' - 41.2" Rt.  
 R = 450.000 m  
 L = 95.516 m  
 T = 47.938 m  
 E = 2.546 m

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE



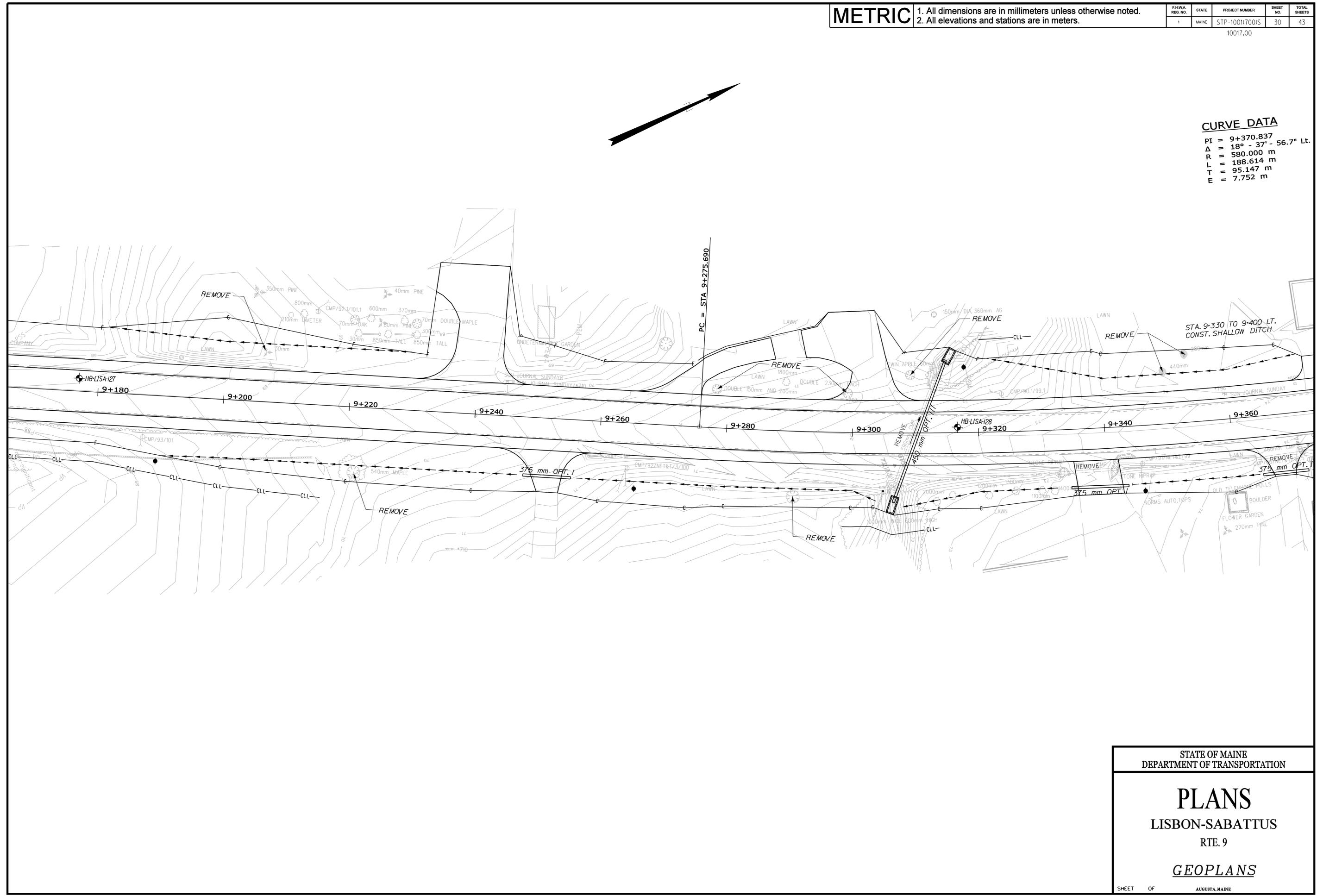
**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	30	43

**CURVE DATA**  
 PI = 9+370.837  
 Δ = 18° - 37' - 56.7" Lt.  
 R = 580.000 m  
 L = 188.614 m  
 T = 95.147 m  
 E = 7.752 m

Filename: ... \geotech\msta\030\_Geoplan30.dgn  
 Division: GEOTECH  
 Username: kity.breskin  
 Date: 6/2/2009

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
  
**PLANS**  
 LISBON-SABATTUS  
 RTE. 9  
  
**GEOPLANS**

SHEET OF AUGUSTA, MAINE

METRIC

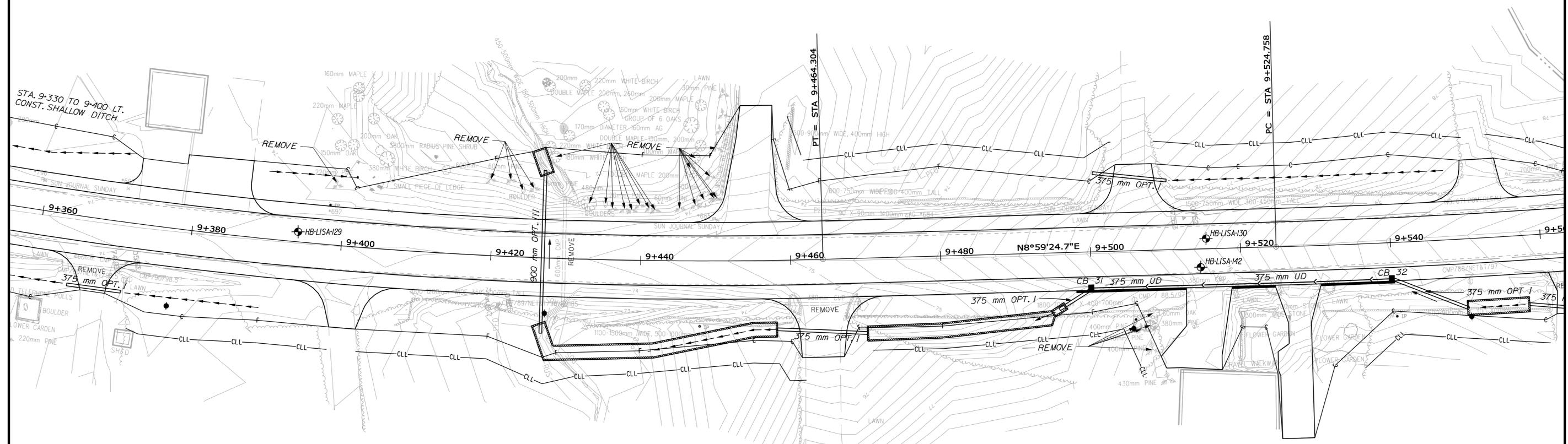
1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	31	43

10017.00

**CURVE DATA**

PI = 9+370.837  
 $\Delta = 18^\circ - 37' - 56.7''$  Lt.  
 R = 580.000 m  
 L = 188.614 m  
 T = 95.147 m  
 E = 7.752 m



Date: 6/2/2009

Username: kilty.breskin

Division: GEOTECH

Filename: ... \geotech\msta\031\_Geoplan31.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	2009
REVISIONS		
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

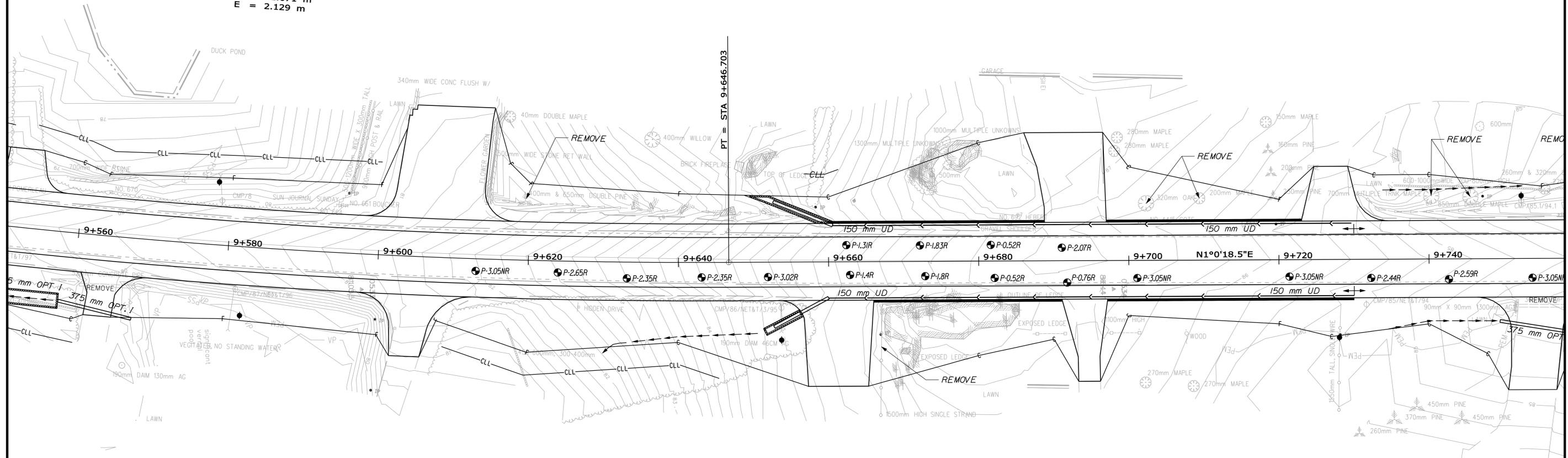
**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	32	43

10017.00

**CURVE DATA**

PI = 9+585.829  
 $\Delta = 7^\circ - 59' - 06.2''$  Lt.  
 R = 875.000 m  
 L = 121.945 m  
 T = 61.071 m  
 E = 2.129 m



Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\032\_Geoplan32.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	APR 09
REVISIONS		
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

METRIC

1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

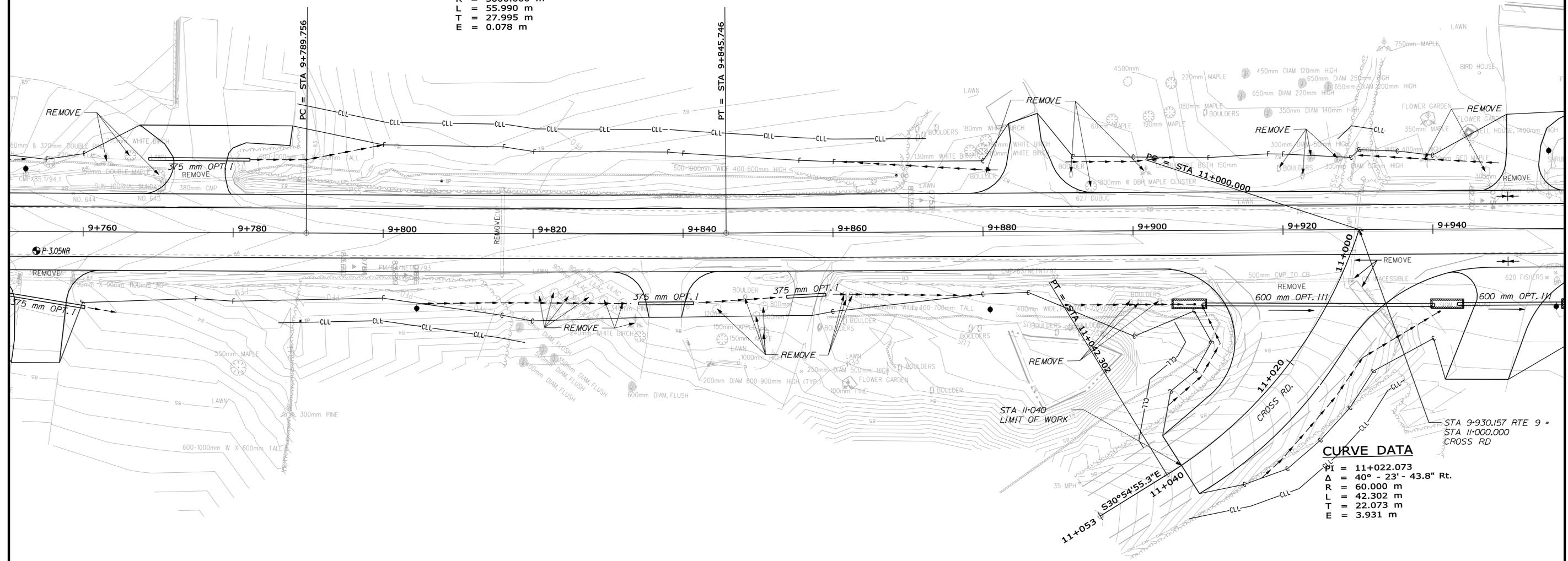
FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	33	43

10017.00



**CURVE DATA**

PI = 9+817.751  
 Δ = 0° - 38' - 29.8" Lt.  
 R = 5000.000 m  
 L = 55.990 m  
 T = 27.995 m  
 E = 0.078 m



**CURVE DATA**

PI = 11+022.073  
 Δ = 40° - 23' - 43.8" Rt.  
 R = 60.000 m  
 L = 42.302 m  
 T = 22.073 m  
 E = 3.931 m

Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\033\_Geoplan33.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	2009
REVISIONS		
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	34	43

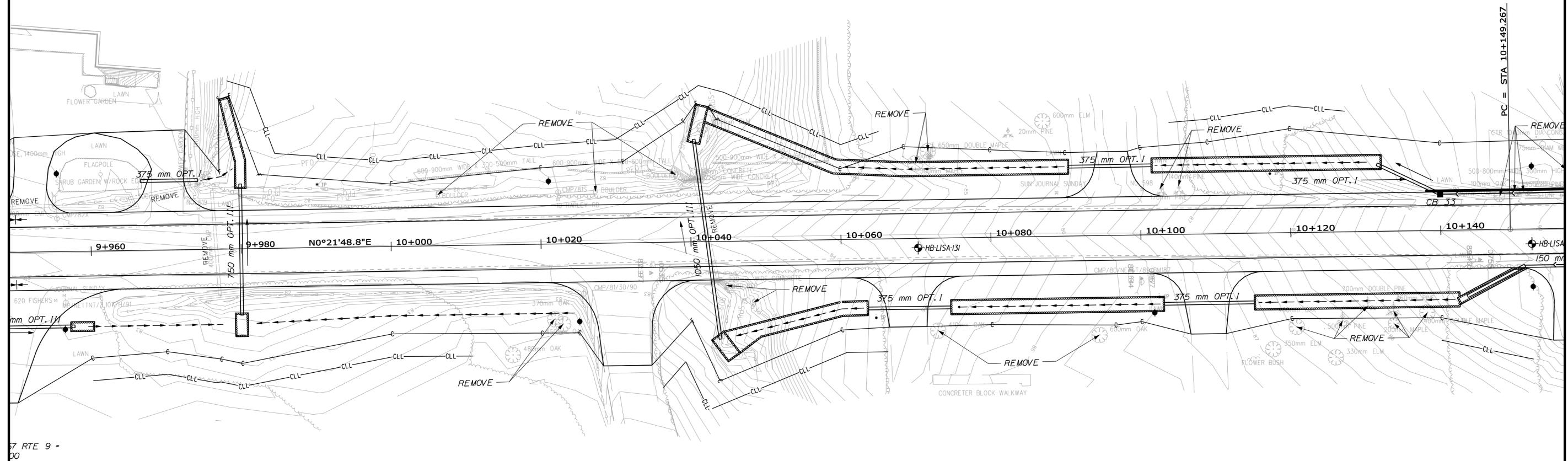
10017.00

Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\034\_Geoplan34.dgn



PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

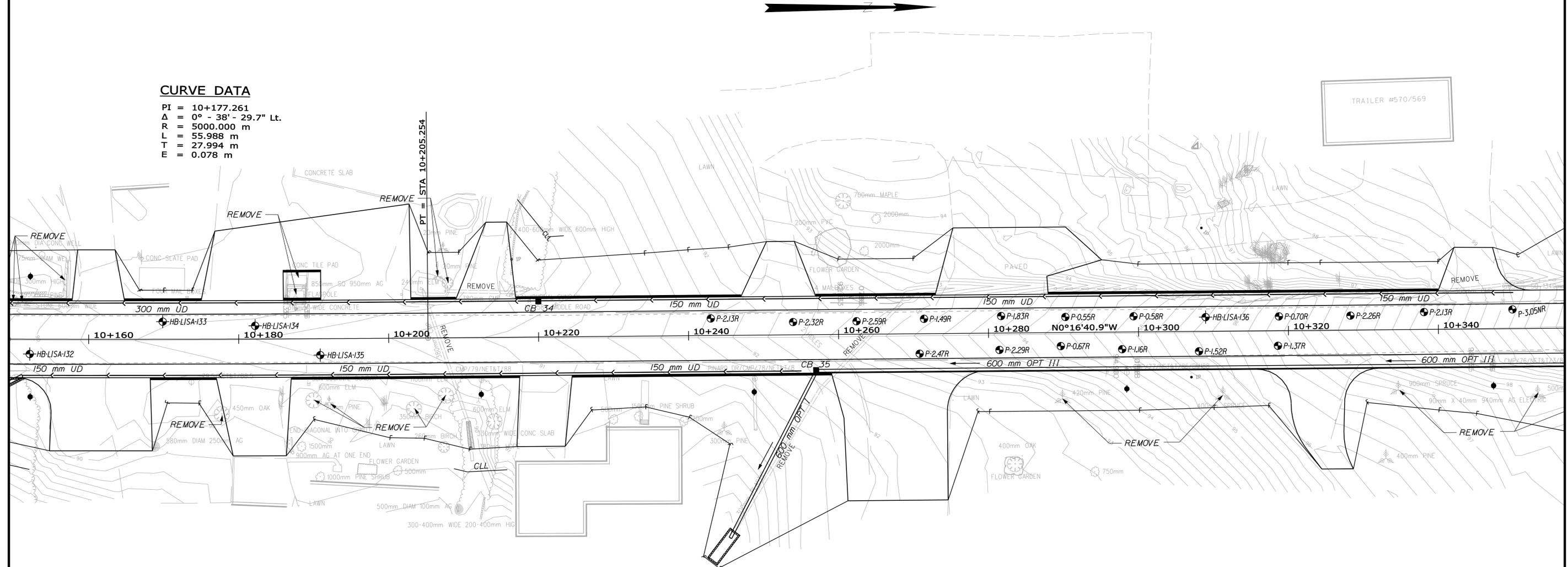
**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	35	43

10017.00

**CURVE DATA**

PI = 10+177.261  
 Δ = 0° - 38' - 29.7" Lt.  
 R = 5000.000 m  
 L = 55.988 m  
 T = 27.994 m  
 E = 0.078 m



Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\035\_Geoplan35.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	REVISION
REVISIONS		2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	36	43

10017.00

**CURVE DATA**

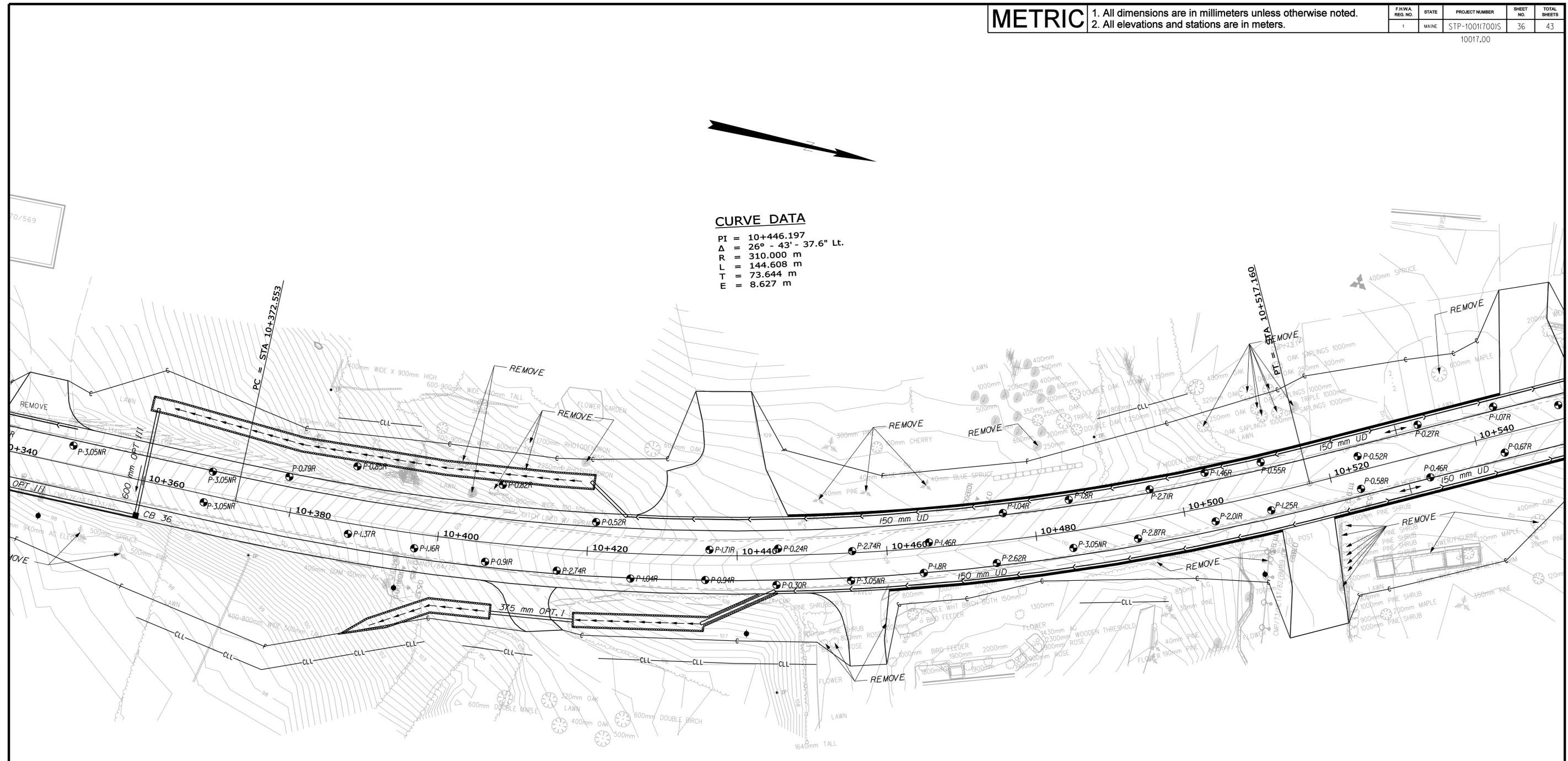
PI = 10+446.197  
 Δ = 26° - 43' - 37.6" Lt.  
 R = 310.000 m  
 L = 144.608 m  
 T = 73.644 m  
 E = 8.627 m



Filename: ... \geotech\msta\036\_Geoplan36.dgn  
 Division: GEOTECH  
 Username: kity.breskin  
 Date: 6/2/2009

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	37	43

10017.00

Date: 6/2/2009

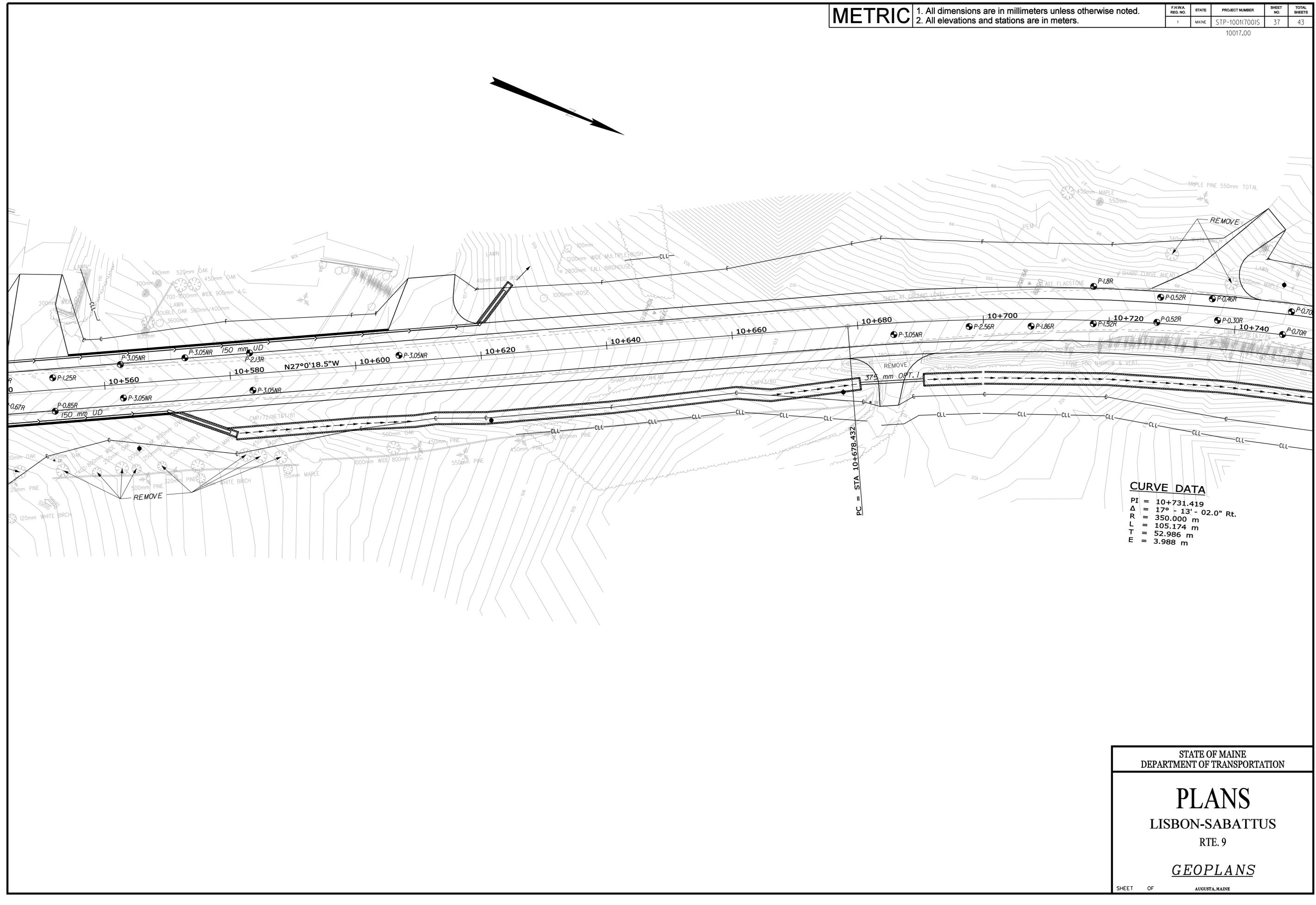
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\037\_Geoplan37.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	K. BRESKIN	T. WHITE
CHECKED	A. VOUSSEAU	R. MOUTON
REVISIONS		
FIELD CHANGES		

**PLANS**



**CURVE DATA**

PI	=	10+731.419
Δ	=	17° - 13' - 02.0" Rt.
R	=	350.000 m
L	=	105.174 m
T	=	52.986 m
E	=	3.988 m

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\038\_Geoplan38.dgn

PROJECT DESIGN ENGINEER	BY	DATE
DESIGN-DETAILED	K. BRESKIN	T. WHITE
CHECKED	A. VOUSSEAU	R. MOUTON
REVISIONS		
FIELD CHANGES		

PLANS

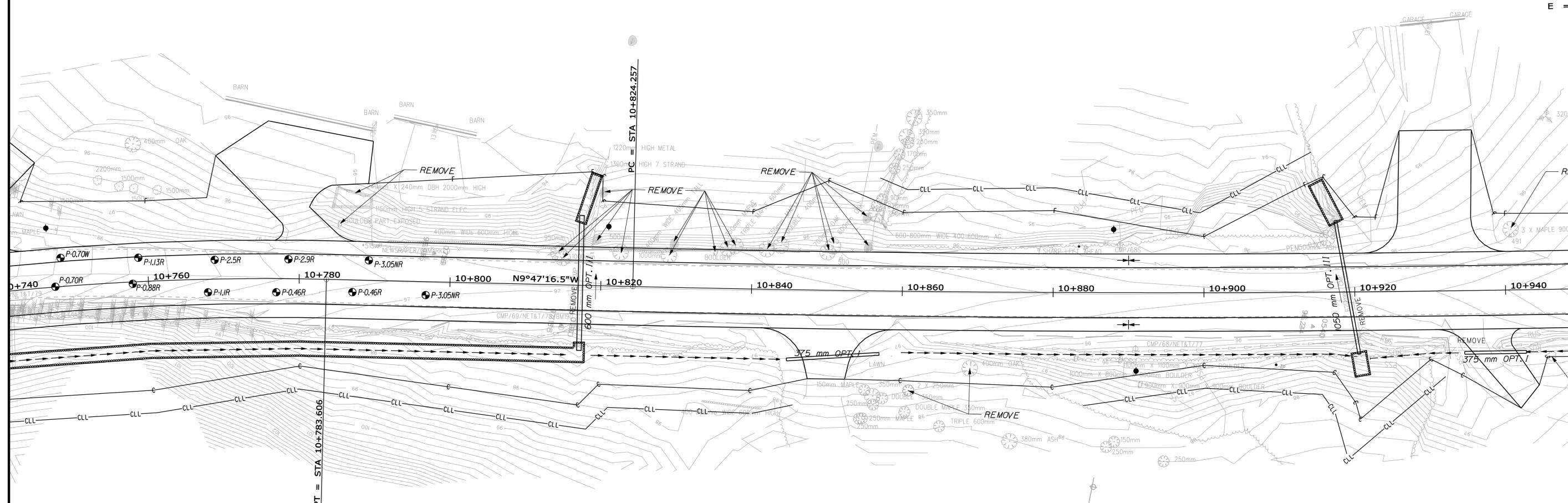
METRIC

1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	38	43

10017.00

CUR  
 PI =  
 Δ =  
 R =  
 L =  
 T =  
 E =



2.0" Rt.

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

METRIC

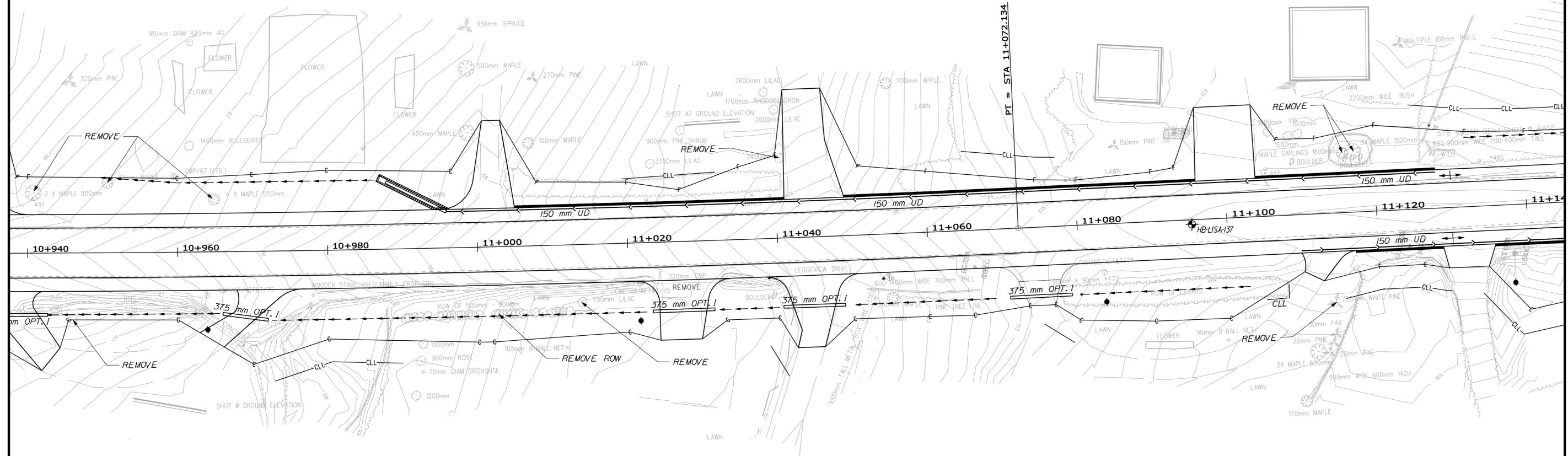
1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	39	43

10017.00

**CURVE DATA**

PI = 10+948.266  
 Δ = 4° - 44' - 02.8" Lt.  
 R = 3000.000 m  
 L = 247.878 m  
 T = 124.009 m  
 E = 2.562 m



Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\mst\039\_Geoplan39.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-10017001S	40	43

10017.00

Date: 6/2/2009

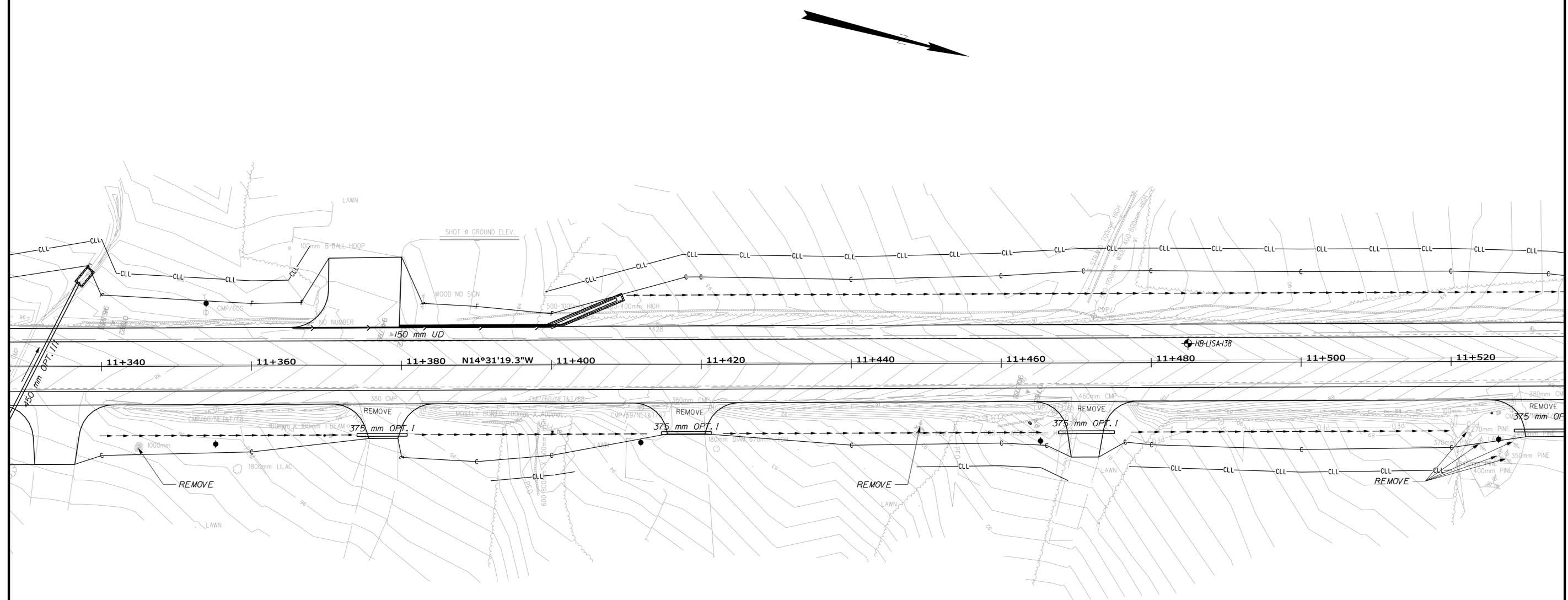
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\040\_Geoplan40.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED		
REVISIONS	A. VOUSSEAU	R. MOUTON
FIELD CHANGES		

**PLANS**



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

*GEOPANS*

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	41	43

10017.00

Date: 6/2/2009

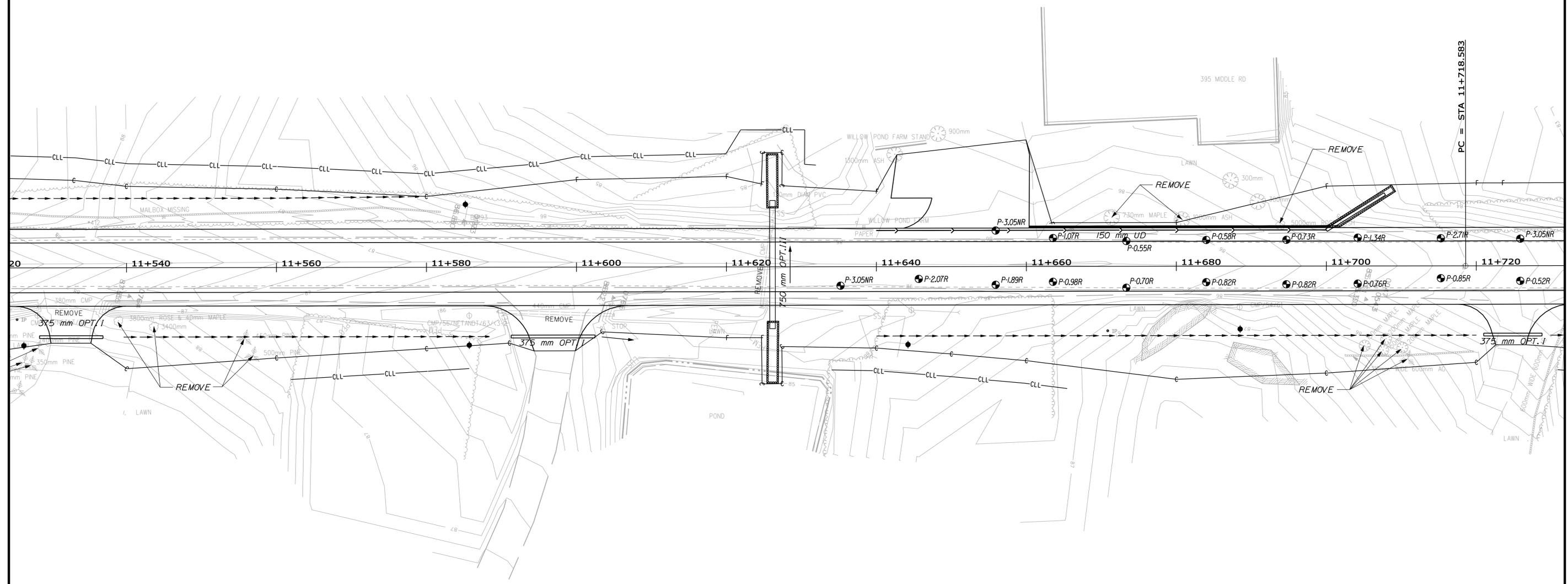
Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\041\_Geoplan41.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. MOUSSEAU	APR 09
REVISIONS		
FIELD CHANGES		

**PLANS**



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

*GEOPLANS*

SHEET OF AUGUSTA, MAINE

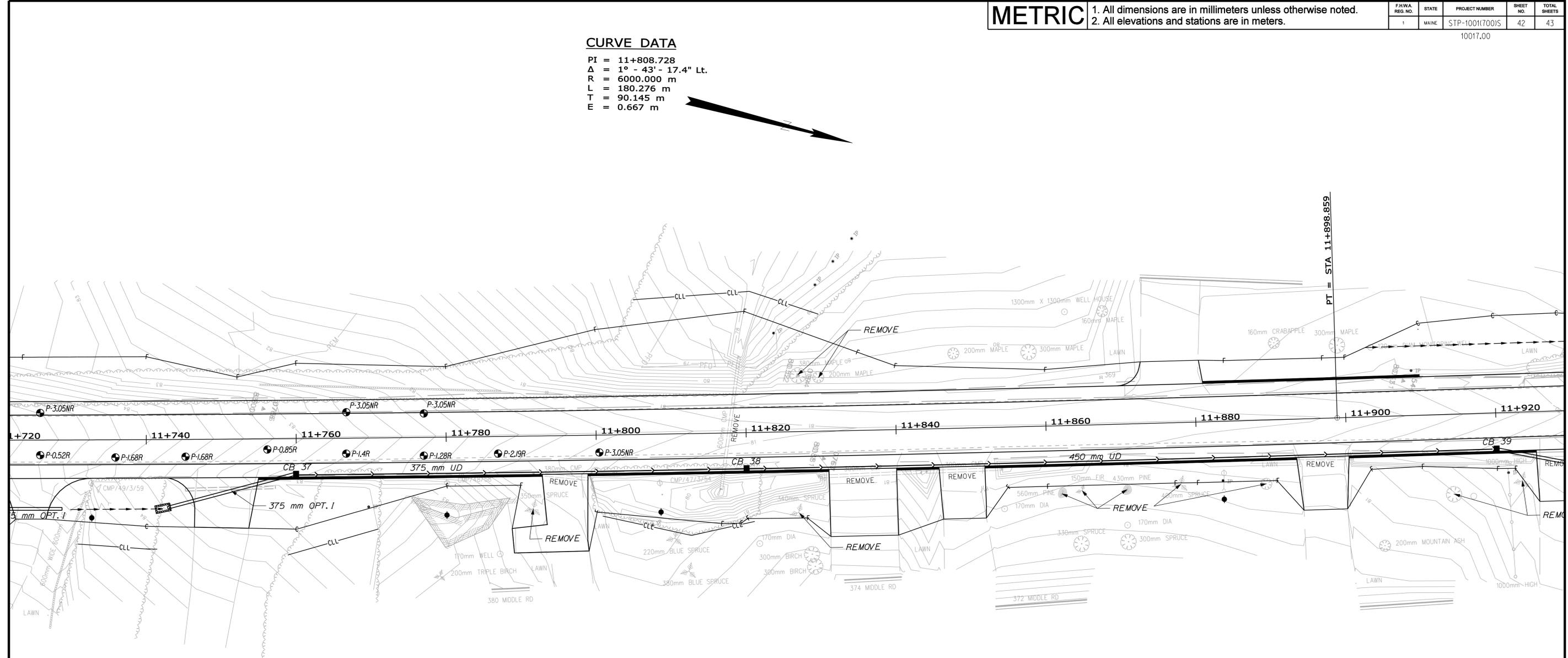
**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
 2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	42	43

10017.00

**CURVE DATA**

PI = 11+808.728  
 $\Delta = 1^\circ - 43' - 17.4''$  Lt.  
 R = 6000.000 m  
 L = 180.276 m  
 T = 90.145 m  
 E = 0.667 m



Date: 6/2/2009  
 Username: kity.breskin  
 Division: GEOTECH

Filename: ... \geotech\msta\042\_Geoplan42.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION

**PLANS**  
 LISBON-SABATTUS  
 RTE. 9

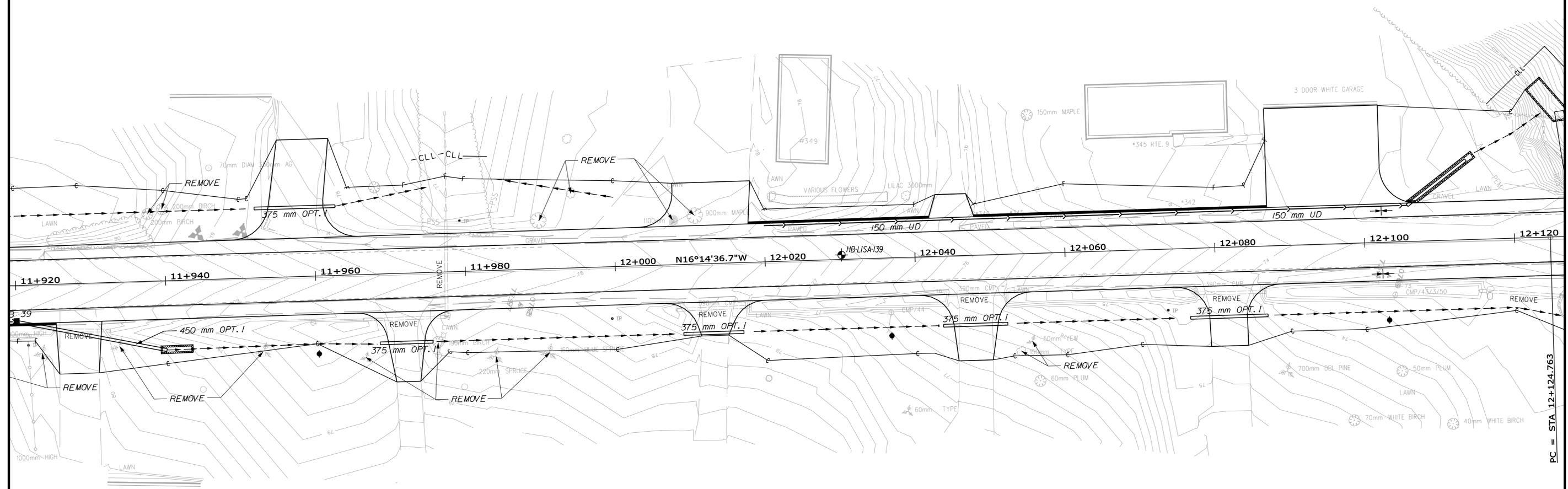
**GEOPLANS**

SHEET OF AUGUSTA, MAINE

**METRIC** 1. All dimensions are in millimeters unless otherwise noted.  
2. All elevations and stations are in meters.

FHWA REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	STP-1001(700)S	43	43

10017.00



Date: 6/2/2009

Username: kity.breskin

Division: GEOTECH

Filename: ... \geotech\msta\043\_Geoplan43.dgn

PROJECT DESIGN ENGINEER	BY	DATE
K. BRESKIN	T. WHITE	APR 09
CHECKED	A. VOUSSEAU	
REVISIONS	R. MOUTON	2009
FIELD CHANGES		

**PLANS**

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION

**PLANS**  
LISBON-SABATTUS  
RTE. 9

**GEOPLANS**

SHEET OF AUGUSTA, MAINE

PC = STA 12+124.763

**Appendix C**  
**Field Exploration Data**  
Boring logs  
Probe Summary Sheets

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 54.89	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> I+150, 2.9 Rt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	54.77		PAVEMENT.	G#176804 A-1-b, SW-SM WC=9.5%	
	1D/AB	61.0/43.2	0.30 - 0.91	9/10/8/4	18		54.28		Brown, damp, medium dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.61 m bgs.		
									(1D/B) 0.61-0.91 m bgs.		
1.2							53.68		Brown, damp, medium dense, silty fine to medium SAND.		
	2D	61.0/50.8	1.52 - 2.13	8/9/10/9	19				Brown, moist, medium dense, silty fine SAND.		
2.4											
							51.85				
3.6								<b>Bottom of Exploration at 3.05 m below ground surface.</b> No Refusal			
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> Northeast Diamond Drilling	<b>Elevation (m):</b> 78.30	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Palmer	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> B. Wilder	<b>Rig Type:</b> MOBILE B50	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 1+600, 6.0 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u(lab)</sub> = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
---	---	--

Depth (m)	Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log				
0								SSA			Brown, damp, medium dense, sandy GRAVEL, trace silt.	
	1D	61.0/15.2	0.30 - 0.91	6/11/12/21	23							
1.2								77.24			Bottom of Exploration at 1.07 m below ground surface. Refusal	1.07
1.5												
1.8												
2.1												
2.4												
2.7												
3.0												
3.3												
3.6												
3.9												
4.2												
4.5												
4.8												
5.1												
5.4												
5.7												
6.0												
6.3												
6.6												
6.9												
7.2												
7.5												
7.8												
8.1												
8.4												
8.7												
9.0												
9.3												
9.6												
9.9												
10.2												
10.5												
10.8												
11.1												
11.4												
11.7												
12.0												

**Remarks:**

<b>Driller:</b> Northeast Diamond Drilling	<b>Elevation (m):</b> 74.01	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Palmer	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> B. Wilder	<b>Rig Type:</b> MOBILE B50	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> I+825, 4.4 Rt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA					
	1D	61.0/10.2	0.30 - 0.91	5/6/3/3	9					Brown, moist, loose, sandy GRAVEL, trace silt.	
1.2							72.94				-1.07
	2D	61.0/15.2	1.52 - 2.13	4/4/6/9	10					Light brown, moist, loose, fine to medium SAND, trace silt.	
2.4							71.87				-2.13
										<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal	
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 80.80	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 2+000, 2.8 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	80.68	[Graphic Log]	PAVEMENT.	G#176806 A-3, SP-SM WC=14.0%	
	1D	61.0/33.0	0.30 - 0.91	6/2/3/9	5		80.53		Brown, damp, sandy GRAVEL, trace silt.		
									Brown, moist, loose, silty fine SAND.		
1.2							79.58		Light brown, damp, medium dense, fine SAND.		
	2D	61.0/50.8	1.52 - 2.13	8/9/11/11	20		78.67		<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal		
2.4											
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 81.11	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 2+200, 2.2 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> 1.22 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
---	--	--

Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	81.00	█	PAVEMENT.		
	1D/AB	61.0/43.2	0.30 - 0.91	10/6/5/5	11		80.94	█	Possible MACADAM.	-0.11	
							80.83	█			
							80.50	█	Brown, damp, sandy GRAVEL, trace silt.	-0.17	
1.2								█	Brown, moist, medium dense, fine to medium SAND, trace silt. (1D/A) 0.30-0.61 m bgs.	-0.27	
							79.89	█	(1D/B) 0.61-0.91 m bgs.	-0.61	
	2D	61.0/50.8	1.52 - 2.13	7/8/7/8	15			█	Brown, damp, medium dense, silty fine to coarse SAND.	-1.22	
							78.97	█	Brown, wet, medium dense, fine SAND.	-2.13	
2.4								█	<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal		
3.6								█			
4.8								█			
6								█			
7.2								█			
8.4								█			

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 83.00	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 2+500, 1.9 Rt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u(lab)</sub> = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information								Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows						
0								82.78		PAVEMENT.		
	1D/AB	61.0/15.2	0.30 - 0.91	10/10/5/6	15			82.39		Brown, damp, medium dense, SAND, trace silt. (1D/A) 0.30-0.61 m bgs.	-0.21	
										(1D/B) 0.61-0.91 m bgs.	-0.61	
1.2										Brown, moist, medium dense, silty fine SAND.		
	2D	61.0/53.3	1.52 - 2.13	7/9/7/7	16			81.47		Brown, moist, medium dense, silty fine to medium SAND, little gravel.	-1.52	
2.4								80.86		<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal	-2.13	
3.6												
4.8												
6.0												
7.2												
8.4												

**Remarks:**

<b>Driller:</b> Northeast Diamond Drilling	<b>Elevation (m):</b> 90.01	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Palmer	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> B. Wilder	<b>Rig Type:</b> MOBILE B50	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 3+000, 4.7 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA					
	1D	61.0/40.6	0.30 - 0.91	6/6/9/12	15		89.09		Brown, moist, medium dense, sandy GRAVEL, trace silt, (Fill).	G#176808 A-3, SP-SM WC=9.5%	
1.2											
	2D	61.0/61.0	1.68 - 2.29	16/16/24/40	40		87.72		Brown, moist, dense, silty SAND, trace gravel.	G#176809 A-4, SM WC=13.0%	
2.4									<b>Bottom of Exploration at 2.29 m below ground surface.</b> No Refusal		
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**



# Maine Department of Transportation

Soil/Rock Exploration Log  
METRIC UNITS

Project: Route 9

Location: Lisbon-Sabattus, Maine

Boring No.: HB-LISA-109

PIN: 10017.00

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 110.70	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 3+496.1, 3.3 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

**Definitions:**

D = Split Spoon Sample  
MD = Unsuccessful Split Spoon Sample attempt  
U = Thin Wall Tube Sample  
R = Rock Core Sample  
V = Insitu Vane Shear Test  
SSA = Solid Stem Auger

**Definitions:**

S<sub>u</sub> = Insitu Field Vane Shear Strength (kPa)  
T<sub>v</sub> = Pocket Torvane Shear Strength (kPa)  
q<sub>p</sub> = Unconfined Compressive Strength (Pa)  
S<sub>u</sub>(lab) = Lab Vane Shear Strength (kPa)  
WOH = weight of 64 kg hammer  
WOR = weight of rods

**Definitions:**

WC = water content, percent  
LL = Liquid Limit  
PL = Plastic Limit  
PI = Plasticity Index  
G = Grain Size Analysis  
C = Consolidation Test

Depth (m)	Sample Information								Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows						
0								110.59		PAVEMENT.		
	1D	61.0/43.2	0.30 - 0.91	15/19/19/18	38					Brown, damp, dense, fine to coarse SAND, some gravel.	G#176812 A-1-b, SW-SM WC=3.2%	
								109.94				
1.2										Light brown, moist, dense, silty fine SAND.		
	2D	51.3/35.6	1.52 - 2.04	14/19/22/25(50)	41						G#176813 A-4, ML WC=17.0%	
								108.66				
2.4								108.57		Augered into ROCK.		
										<b>Bottom of Exploration at 2.13 m below ground surface.</b>		
										Refusal		
3.6												
4.8												
6												
7.2												
8.4												

**Remarks:**

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 117.10	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 3+676, 3.4 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	117.01		PAVEMENT.		
	1D/AB	61.0/43.2	0.30 - 0.91	11/12/10/4	22		116.95		Possible MACADAM.	-0.09	G#176814 A-1-b, SW-SM WC=4.4%
							116.40		Brown, damp, medium dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.70 m bgs.	-0.15	
1.2							115.89			(1D/B) 0.70-0.91 m bgs. Olive, moist, medium dense, fine SAND.	-0.70
	2D	61.0/45.7	1.52 - 2.13	15/17/18/23	35			Olive, damp, dense, silty fine to medium SAND.		-1.22	
2.4											
							114.06				
3.6									<b>Bottom of Exploration at 3.05 m below ground surface.</b> No Refusal		
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> Northeast Diamond Drilling	<b>Elevation (m):</b> 120.21	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Palmer	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> B. Wilder	<b>Rig Type:</b> MOBILE B50	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 3+997, 4.7 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA				Brown, moist, loose, sandy GRAVEL, trace silt.	
	1D/A	61.0/33.0	0.30 - 0.91	2/3/2/3	5		119.60			(1D) 0.30-0.61 m bgs.	
							119.15			(1D/A) 0.61-0.91 m bgs.	G#176815 A-4, SM WC=36.1%
1.2										Light brown, loose, silty fine SAND, trace wood.	
	2D	61.0/61.0	1.52 - 2.13	12/19/27/30	46		118.08			Brown, moist, dense, silty SAND, trace gravel and roots, (Till).	G#176816 A-4, SM WC=13.5%
2.4										<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal	
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

# Maine Department of Transportation

Soil/Rock Exploration Log  
METRIC UNITS

Project: Route 9

Location: Lisbon-Sabattus, Maine

Boring No.: HB-LISA-112

PIN: 10017.00

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 109.39	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 4+286.2, 2.5 Rt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

**Definitions:**

D = Split Spoon Sample  
MD = Unsuccessful Split Spoon Sample attempt  
U = Thin Wall Tube Sample  
R = Rock Core Sample  
V = Insitu Vane Shear Test  
SSA = Solid Stem Auger

**Definitions:**

S<sub>u</sub> = Insitu Field Vane Shear Strength (kPa)  
T<sub>v</sub> = Pocket Torvane Shear Strength (kPa)  
q<sub>p</sub> = Unconfined Compressive Strength (Pa)  
S<sub>u</sub>(lab) = Lab Vane Shear Strength (kPa)  
WOH = weight of 64 kg hammer  
WOR = weight of rods

**Definitions:**

WC = water content, percent  
LL = Liquid Limit  
PL = Plastic Limit  
PI = Plasticity Index  
G = Grain Size Analysis  
C = Consolidation Test

Depth (m)	Sample Information								Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows						
0								SSA	109.28	 PAVEMENT. —0.12 Brown, damp, sandy GRAVEL, trace silt. —0.52 Augered into ROCK. —0.58 <b>Bottom of Exploration at 0.58 m below ground surface.</b> Refusal		
	1D	21.1/15.2	0.30 - 0.52	9/50(50)	---				108.88			
									108.81			
1.2												
2.4												
3.6												
4.8												
6												
7.2												
8.4												

**Remarks:**

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 107.20	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 4+512.9, 3.8 Rt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> 1.52 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	107.07	[Graphic Log Pattern]	PAVEMENT.	-0.13	G#176817 A-4, ML WC=14.8%
	1D/AB	61.0/40.6	0.30 - 0.91	8/6/3/4	9		106.59	[Graphic Log Pattern]	Brown, moist, loose, fine to coarse SAND, some gravel, trace silt. (1D/A) 0.30-0.61 m bgs.	-0.61	
								[Graphic Log Pattern]	(1D/B) 0.61-0.91 m bgs.		
1.2								[Graphic Log Pattern]	Brown, moist, medium stiff, fine sandy SILT.		
	2D	61.0/50.8	1.52 - 2.13	6/8/12/15	20	[Graphic Log Pattern]	105.67	[Graphic Log Pattern]	Brown, wet, medium dense, silty fine to medium SAND.	-1.52	
							105.07	[Graphic Log Pattern]		-2.13	
2.4								[Graphic Log Pattern]	<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal		
								[Graphic Log Pattern]			
3.6								[Graphic Log Pattern]			
4.8								[Graphic Log Pattern]			
6								[Graphic Log Pattern]			
7.2								[Graphic Log Pattern]			
8.4								[Graphic Log Pattern]			

**Remarks:**

<b>Driller:</b> Northeast Diamond Drilling	<b>Elevation (m):</b> 72.09	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Palmer	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> B. Wilder	<b>Rig Type:</b> MOBILE B50	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 5+272, 4.6 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA				Brown, moist, medium dense, sandy GRAVEL, trace silt.	G#176818 A-1-b, SW-SM WC=4.6%
	1D	61.0/15.2	0.30 - 0.91	8/8/7/4	15		71.32				
1.2										Brown, wet, loose, silty fine SAND, trace gravel.	
	2D	61.0/25.4	1.52 - 2.13	2/1/31/12	32		70.26 70.13 69.95			WOOD.	G#176819 A-4, ML WC=36.2%
2.4										Grey, wet, stiff, clayey SILT, trace fine sand, trace organics.	
										<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal	
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 74.71	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 5+492.6, 2.7 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	74.60		PAVEMENT.		
	1D/AB	61.0/38.1	0.30 - 0.91	15/9/7/5	16		74.54		Possible MACADAM.	-0.11	
							74.10		Brown, moist, medium dense, fine to coarse SAND, little gravel, trace silt. (1D/A) 0.30-0.61 m bgs.	-0.16	
1.2							73.49		(1D/B) 0.61-0.91 m bgs. Brown, moist, medium dense, fine sandy SILT.	-0.61	
	2D	61.0/48.3	1.52 - 2.13	6/10/13/15	23				Brown, damp, medium dense, silty fine to medium SAND.	-1.22	
2.4							72.57		<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal	-2.13	
3.6											
4.8											
6.0											
7.2											
8.4											

**Remarks:**

# Maine Department of Transportation

Soil/Rock Exploration Log  
METRIC UNITS

Project: Route 9

Location: Lisbon-Sabattus, Maine

Boring No.: HB-LISA-116

PIN: 10017.00

<b>Driller:</b> Northeast Diamond Drilling	<b>Elevation (m):</b> 70.01	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Palmer	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> B. Wilder	<b>Rig Type:</b> MOBILE B50	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 5+792, 4.9 Rt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

**Definitions:**

D = Split Spoon Sample  
MD = Unsuccessful Split Spoon Sample attempt  
U = Thin Wall Tube Sample  
R = Rock Core Sample  
V = Insitu Vane Shear Test  
SSA = Solid Stem Auger

**Definitions:**

S<sub>u</sub> = Insitu Field Vane Shear Strength (kPa)  
T<sub>v</sub> = Pocket Torvane Shear Strength (kPa)  
q<sub>p</sub> = Unconfined Compressive Strength (Pa)  
S<sub>u</sub>(lab) = Lab Vane Shear Strength (kPa)  
WOH = weight of 64 kg hammer  
WOR = weight of rods

**Definitions:**

WC = water content, percent  
LL = Liquid Limit  
PL = Plastic Limit  
PI = Plasticity Index  
G = Grain Size Analysis  
C = Consolidation Test

Depth (m)	Sample Information								Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows						
0								SSA				
	1D	61.0/30.5	0.30 - 0.91	3/6/6/7	12						Brown, wet, medium dense, medium to coarse sandy GRAVEL, trace silt.	
1.2								68.85				
	2D	9.4/9.4	1.52 - 1.62	50(100)	---			68.40			Brown, moist, very dense, silty fine to medium SAND, trace gravel and silt, (Till).	
2.4											<b>Bottom of Exploration at 1.62 m below ground surface.</b>	
											Refusal	
3.6												
4.8												
6												
7.2												
8.4												

**Remarks:**

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

<b>Driller:</b> Northeast Diamond Drilling	<b>Elevation (m):</b> 66.20	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Palmer	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> B. Wilder	<b>Rig Type:</b> MOBILE B50	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 5+892, 6.0 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> 1.83 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information								Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows						
0												
	1D	61.0/20.3	0.30 - 0.91	4/6/11/5	17			65.44		Brown, moist, sandy GRAVEL, trace silt, (Fill).		
1.2										Brown, wet, medium dense, medium to coarse SAND, little silt, trace gravel.		
	2D/A	43.2/35.6	1.52 - 1.96	5/47/60(125)				64.53		(2D) 1.52-1.68 m bgs. (2D/A) 1.68-1.95 m bgs.	G#176821 A-4, SM WC=10.7% G#176822 A-4, SM WC=9.1%	
2.4										Brown, moist, very dense, silty SAND, little gravel, (Till).		
	3D	45.7/40.6	3.05 - 3.51	9/54/98	152			62.70		Similar to above.	G#176823 A-2-4, SM WC=9.7%	
3.6										<b>Bottom of Exploration at 3.51 m below ground surface.</b> Refusal		
4.8												
6												
7.2												
8.4												

**Remarks:**

<b>Driller:</b> Northeast Diamond Drilling	<b>Elevation (m):</b> 63.70	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Palmer	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> B. Wilder	<b>Rig Type:</b> MOBILE B50	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 6+192, 6.6 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> 0.09 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information							Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows					
0							SSA	63.52		Brown, wet, sandy GRAVEL.	
	1D	61.0/40.6	0.30 - 0.91	2/4/4/7	8					Grey-brown, wet, stiff, sandy SILT, trace clay.	G#176824 A-4, ML WC=20.8%
1.2								62.48		Brown, wet, medium to coarse SAND, little silt, trace gravel, (Till).	
	2D	27.9/27.9	1.52 - 1.80	9/50(125)	---					Augered to 2.1 m bgs.	G#176825 A-1-b, SM WC=18.1%
2.4								61.60		<b>Bottom of Exploration at 2.10 m below ground surface.</b> Refusal	
3.6											
4.8											
6.0											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 72.21	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/30/03-10/30/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 6+351.8, 1.5 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> 0.91 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	72.07	█	PAVEMENT.	-0.14	
	1D	61.0/25.4	0.30 - 0.91	13/11/6/3	17			█	Brown, damp, mdium dense, fine to coarse SAND, some gravel, trace silt.		G#175076 A-1-b, SM WC=6.6%
							71.29	█		-0.91	
1.2							70.99	█	Similar to above, but wet.	-1.22	
	2D	61.0/61.0	1.52 - 2.13	5/6/7/10	13			█	Brown, damp, stiff, SILT.		G#118705 A-4, ML WC=25.9%
							70.07	█		-2.13	
2.4									<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal		
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 86.20	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/23/03-10/23/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 7+441.6, 1.7 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information							Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows					
0							86.13	SSA	PAVEMENT.		
	1D/AB	61.0/43.2	0.30 - 0.91	13/15/18/13	33				Brown, dry, dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.76 m bgs.	-0.07	
							85.44		(1D/B) 0.76-0.91 m bgs.	-0.76	
1.2							84.98		Olive, damp, dense, silty fine SAND, little medium sand.	-1.22	
	2D	61.0/55.9	1.52 - 2.13	3/5/8/11	13		84.06		Olive and grey, mottled, damp, stiff SILT, trace clay, trace fine sand.	-2.13	
2.4									<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal		
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 91.41	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/23/03-10/23/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 7+808.5, 2.9 Rt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	91.30		PAVEMENT.	G#118707 A-2-4, SM WC=11.8%	
	1D/AB	45.7/27.9	0.30 - 0.76	10/12/48	60		90.80		Brown, dry, very dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.61 m bgs.		
							90.65		(1D/B) 0.61-0.76 m bgs.		
1.2									Brown, damp, very dense, silty fine to medium SAND, little gravel, (Till).		
									Similar to above with cobbles, (Till).		
	2D	61.0/40.6	1.52 - 2.13	10/22/32/25	54						
2.4							89.28		<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal		
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 89.61	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/22/03-10/22/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 7+988.9, 2.1 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	89.49		PAVEMENT.		
	1D/AB	61.0/35.6	0.30 - 0.91	15/18/12/14	30				Brown, damp, medium dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.76 m bgs.	-0.12	
							88.85		(1D/B) 0.76-0.91 m bgs.	-0.76	
1.2									Brown, damp, medium dense, silty fine to medium SAND, little gravel, (Till).		
	2D	53.3/38.1	1.52 - 2.06	10/17/19/25(100)	36		88.09		Similar to above but moist and dense.	-1.52	
							87.57		<b>Bottom of Exploration at 2.04 m below ground surface.</b> Refusal	-2.04	
2.4											
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 86.20	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/22/03-10/22/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 8+189.9, 8.4 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information							Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows					
0							86.08		PAVEMENT. Brown, damp, medium dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.61 m bgs. (1D/B) 0.61-0.91 m bgs. Olive, moist, medium dense, silty fine SAND. Brown, moist, medium dense, silty fine to medium SAND, trace gravel.	G#118708 A-2-4, SM WC=11.9%	
	1D/AB	61.0/38.1	0.30 - 0.91	17/12/6/8	18		85.59				
							85.28				
1.2											
	2D	61.0/43.2	1.52 - 2.13	4/10/12/10	22		84.06				
2.4											
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 71.51	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/22/03-10/22/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 8+488.1, 2.2 Rt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> 1.01 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	71.41		PAVEMENT.		
	1D	61.0/33.0	0.30 - 0.91	14/17/16/12	33		71.38		Possible MACADAM.	-0.09	
							71.20			-0.12	
							71.05				
							70.93		Brown, dry, sandy GRAVEL, trace silt.	-0.30	
1.2							70.50		Brown, damp, dense, silty fine to coarse SAND, little gravel.	-0.46	
									Old PAVEMENT layer.		
	2D	61.0/40.6	1.52 - 2.13	4/29/18/28	47		69.98		Brown, damp, dense, silty fine to coarse SAND, little gravel.	-0.58	
									Olive, wet, sandy SILT.	-1.01	
							69.37		Brown, damp, dense, silty fine to medium SAND, some gravel, (Till).	-1.52	
2.4								Similar to above with cobbles, (Till).	-2.13		
							68.76	Brown, wet, very dense, silty fine to coarse SAND, some gravel, (Till).	-2.74		
3.6	3D	45.7/10.2	3.05 - 3.51	23/35/47	82		68.00		-3.51		
								<b>Bottom of Exploration at 3.51 m below ground surface.</b> No Refusal			

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 64.01	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/22/03-10/22/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 8+839.1, 2.7 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> 1.22 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	63.93		PAVEMENT.	G#118709 A-4, ML WC=21.5%	
	1D	61.0/25.4	0.30 - 0.91	14/23/26/26	49		63.89		Possible MACADAM.		
							63.40		Brown, dry, sandy GRAVEL, trace silt.		
							63.28		Old PAVEMENT layer.		
1.2							62.79		Brown, dry, dense, sandy GRAVEL, trace silt.		
	2D	61.0/35.6	1.52 - 2.13	2/2/2/3	4		61.87		Olive, wet, loose, silty fine to medium SAND.		
2.4									<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal		
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**





<b>Driller:</b> MDOT	<b>Elevation (m):</b> 72.51	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/16/03-10/16/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 9+316.7, 0.9 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> 1.68 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information								Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows						
0						SSA		72.39		PAVEMENT.		
	1D/AB	61.0/35.6	0.30 - 0.91	19/13/10/6	23			72.34		Possible MACADAM.	-0.12	
								71.90		Brown, damp, medium dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.61 m bgs.	-0.17	
1.2										(1D/B) 0.61-0.91 m bgs.	-0.61	
	2D	61.0/33.0	1.52 - 2.13	31/12/12/14	24			70.84		Brown, moist, medium dense, silty fine to medium SAND, little coarse SAND, little gravel.		
										Similar to 1D/B but wet.	-1.68	
2.4								70.38		<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal	-2.13	

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 74.31	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/16/03-10/16/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 9+394.1, 1.3 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	74.17		PAVEMENT.		
	1D/AB	61.0/27.9	0.30 - 0.91	9/7/8/12	15		74.13		Possible MACADAM.	-0.14	
							73.85		Brown, damp, medium dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.46 m bgs.	-0.18	G#118714 A-4, ML WC=19.1%
1.2							73.09		(1D/B) 0.46-0.91 m bgs. Olive, moist, sandy SILT, trace organics.	-0.46	
	2D	61.0/50.8	1.52 - 2.13	17/20/19/22	39				Brown, moist, dense, silty fine to medium SAND, little gravel, little coarse sand.	-1.22	G#118715 A-2-4, SM WC=13.9%
2.4							72.18		<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal	-2.13	

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 77.79	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/16/03-10/16/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 9+515.4, 1.4 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information								Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows						
0								77.69		PAVEMENT.		
	1D/AB	61.0/35.6	0.30 - 0.91	14/20/19/14	39			77.63		Possible MACADAM.	-0.10	
											-0.15	
								77.02		Brown, damp, medium dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.76 m bgs.	-0.76	
1.2								76.57		(1D/B) 0.76-0.91 m bgs. Brown, damp, medium dense, fine to medium SAND, little coarse sand, little gravel.	-1.22	
	2D	61.0/38.1	1.52 - 2.13	13/13/20/17	33					Brown, damp, dense, silty fine to coarse SAND, little gravel, occasional cobbles, (Till).	-2.13	
								75.65		<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal		
2.4												
3.6												
4.8												
6												
7.2												
8.4												

**Remarks:**

# Maine Department of Transportation

Soil/Rock Exploration Log  
METRIC UNITS

Project: Route 9

Location: Lisbon-Sabattus, Maine

Boring No.: HB-LISA-131

PIN: 10017.00

<b>Driller:</b>	MDOT	<b>Elevation (m):</b>	84.70	<b>Auger ID/OD:</b>	125 mm
<b>Operator:</b>	C. Mann	<b>Datum:</b>	NGVD	<b>Sampler:</b>	Standard Split Spoon
<b>Logged By:</b>	G. Lidstone	<b>Rig Type:</b>	CME 45C	<b>Hammer Wt./Fall:</b>	63.5 kg/760 mm
<b>Date Start/Finish:</b>	10/9/03-10/9/03	<b>Drilling Method:</b>	Solid Stem Augers	<b>Core Barrel:</b>	N/A
<b>Boring Location:</b>	10+070.3, 1.3 Rt.	<b>Casing ID/OD:</b>	N/A	<b>Water Level*:</b>	None Observed

**Definitions:**

D = Split Spoon Sample  
MD = Unsuccessful Split Spoon Sample attempt  
U = Thin Wall Tube Sample  
R = Rock Core Sample  
V = Insitu Vane Shear Test  
SSA = Solid Stem Auger

**Definitions:**

S<sub>u</sub> = Insitu Field Vane Shear Strength (kPa)  
T<sub>v</sub> = Pocket Torvane Shear Strength (kPa)  
q<sub>p</sub> = Unconfined Compressive Strength (Pa)  
S<sub>u</sub>(lab) = Lab Vane Shear Strength (kPa)  
WOH = weight of 64 kg hammer  
WOR = weight of rods

**Definitions:**

WC = water content, percent  
LL = Liquid Limit  
PL = Plastic Limit  
PI = Plasticity Index  
G = Grain Size Analysis  
C = Consolidation Test

Depth (m)	Sample Information							Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows					
0							SSA	84.61		PAVEMENT.	
	MD	15.2/0.0	0.30 - 0.46	62	---			84.56		Old unbound PAVEMENT.	-0.10
								84.09		Brown, dry, sandy GRAVEL, frequent cobbles, trace silt.	-0.15
										Brown, moist, silty fine to medium SAND.	-0.61
1.2								83.58		Weathered ROCK.	-1.13
								83.52		-1.19	
									<b>Bottom of Exploration at 1.19 m below ground surface.</b>		
									Refusal		
2.4											
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.



# Maine Department of Transportation

Soil/Rock Exploration Log  
METRIC UNITS

**Project:** Route 9  
**Location:** Lisbon-Sabattus, Maine

**Boring No.:** HB-LISA-133

**PIN:** 10017.00

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 90.40	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/9/03-10/9/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 10+169.9, 2.3 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

**Definitions:**

D = Split Spoon Sample  
MD = Unsuccessful Split Spoon Sample attempt  
U = Thin Wall Tube Sample  
R = Rock Core Sample  
V = Insitu Vane Shear Test  
SSA = Solid Stem Auger

**Definitions:**

S<sub>u</sub> = Insitu Field Vane Shear Strength (kPa)  
T<sub>v</sub> = Pocket Torvane Shear Strength (kPa)  
q<sub>p</sub> = Unconfined Compressive Strength (Pa)  
S<sub>u</sub>(lab) = Lab Vane Shear Strength (kPa)  
WOH = weight of 64 kg hammer  
WOR = weight of rods

**Definitions:**

WC = water content, percent  
LL = Liquid Limit  
PL = Plastic Limit  
PI = Plasticity Index  
G = Grain Size Analysis  
C = Consolidation Test

Depth (m)	Sample Information							Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows					
0							SSA	90.30		PAVEMENT.	
	1D	61.0/15.2	0.30 - 0.91	22/17/7/13	24			90.23		Old unbound PAVEMENT.	-0.11
										Brown, dry, medium dense, sandy GRAVEL, trace silt.	-0.18
1.2								89.49		Brown, moist, silty fine to medium SAND, little gravel.	-0.91
	2D	30.5/30.5	1.52 - 1.83	21/38/25(0)	---			88.57		<b>Bottom of Exploration at 1.83 m below ground surface.</b> Refusal	-1.83
2.4											
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

\* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 90.50	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/9/03-10/9/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 10+182.2, 1.7 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information							Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows					
0							SSA				
	1D/AB	61.0/38.1	0.30 - 0.91	13/11/8/8	19			90.37 90.33		PAVEMENT. Old unbound PAVEMENT.	-0.12 -0.17
								89.98		Brown, dry, medium dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.52 m bgs.	-0.52
1.2								89.28		(1D/B) 0.52-0.91 m bgs. Olive, moist, very stiff, fine sandy SILT.	-1.22
	2D	21.3/15.2	1.52 - 1.74	13/25(50)	---			88.76		Brown, moist, silty fine to medium SAND, little gravel.	-1.74
2.4										<b>Bottom of Exploration at 1.74 m below ground surface.</b> Refusal	
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**





<b>Driller:</b> MDOT	<b>Elevation (m):</b> 103.60	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/9/03-10/9/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 11+095.3, 0.6 Rt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	103.52		PAVEMENT.		
	1D/AB	36.8/27.9	0.30 - 0.67	13/16/25(50)	---		103.44		Possible MACADAM.	-0.09	
							103.14			-0.16	
							102.93		Brown, damp, sandy GRAVEL, trace silt. (1D/A) 0.30-0.46 m bgs.	-0.46	
1.2							102.87		(1D/B) 0.46-0.67 m bgs.	-0.67	
									Brown, moist, silty fine SAND, little gravel.	-0.73	
									Weathered ROCK.		
2.4									<b>Bottom of Exploration at 0.73 m below ground surface.</b>		
									Refusal		
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 90.10	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/9/03-10/9/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 11+485, 2.5 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> 1.16 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Depth (m)	Sample Information							Elevation (m)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows					
0							SSA	89.97		PAVEMENT.	
	1D/AB	61.0/40.6	0.30 - 0.91	14/18/13/14	31			89.93		Possible MACADAM.	
								89.49		Brown, damp, dense, sandy GRAVEL, trace silt. (1D/A) 0.30-0.61 m bgs.	
								88.94		(1D/B) 0.61-0.91 m bgs.	
1.2								88.57		Brown, moist, dense, fine to coarse SAND, trace silt.	
	2D	61.0/38.1	1.52 - 2.13	6/13/13/11	26			88.57		Similar to (B) above, but saturated.	
								87.97		Brown, moist, medium dense, silty fine SAND, little gravel.	G#118717 A-4, SM WC=10.0%
2.4	<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal										
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 77.11	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/9/03-10/9/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 12+030.2, 0.6 Lt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> 1.07 m bgs.

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	76.99	[Graphic Log]	ASPHALT PAVEMENT.	-0.13	G#118718 A-4, ML WC=21.6%
	1D/A	61.0/48.3	0.30 - 0.91	13/8/7/8	15		76.81	[Graphic Log]	Possible MACADAM.	-0.30	
							76.66	[Graphic Log]	(1D) 0.30-0.46 m bgs. Brown, moist, medium dense, SAND and GRAVEL.	-0.46	
1.2							76.05	[Graphic Log]	(1D/A) 0.46-0.91 m bgs. Brown, moist, medium dense, silty fine SAND.	-1.07	
	2D	61.0/61.0	1.52 - 2.13	3/3/7/47	10			[Graphic Log]	Olive brown, wet, loose sandy SILT.	-1.98	
							75.13	[Graphic Log]	Weathered COBBLE.	-2.13	
2.4							74.98	[Graphic Log]	<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal		

**Remarks:**

<b>Driller:</b> MDOT	<b>Elevation (m):</b> 64.10	<b>Auger ID/OD:</b> 125 mm SSA
<b>Operator:</b> C. Mann	<b>Datum:</b> NGVD	<b>Sampler:</b> Standard Split Spoon
<b>Logged By:</b> G. Lidstone	<b>Rig Type:</b> CME 45C	<b>Hammer Wt./Fall:</b> 63.5 kg/760 mm
<b>Date Start/Finish:</b> 10/22/03-10/22/03	<b>Drilling Method:</b> Solid Stem Augers	<b>Core Barrel:</b> N/A
<b>Boring Location:</b> 8+838.9, 2.2 Rt.	<b>Casing ID/OD:</b> N/A	<b>Water Level*:</b> None Observed

Definitions: D = Split Spoon Sample MD = Unsuccessful Split Spoon Sample attempt U = Thin Wall Tube Sample R = Rock Core Sample V = Insitu Vane Shear Test SSA = Solid Stem Auger	Definitions: S <sub>u</sub> = Insitu Field Vane Shear Strength (kPa) T <sub>v</sub> = Pocket Torvane Shear Strength (kPa) q <sub>p</sub> = Unconfined Compressive Strength (Pa) S <sub>u</sub> (lab) = Lab Vane Shear Strength (kPa) WOH = weight of 64 kg hammer WOR = weight of rods	Definitions: WC = water content, percent LL = Liquid Limit PL = Plastic Limit PI = Plasticity Index G = Grain Size Analysis C = Consolidation Test
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Sample Information										Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
Depth (m)	Sample No.	Pen/Rec (cm)	Sample Depth (m)	Blows (150 mm) Shear Strength (kPa) or RQD (%)	N-value	Casing Blows	Elevation (m)	Graphic Log			
0						SSA	64.00			G#118710 A-4, ML WC=34.0%	
	1D	61.0/38.1	0.30 - 0.91	11/15/21/17	36		63.96		Possible MACADAM. —0.10		
							63.49		Brown, dry, dense, sandy GRAVEL, trace silt. —0.14		
							63.40		Old PAVEMENT layer. —0.61		
1.2							62.88		Brown, dry, dense, sandy GRAVEL, trace silt. —0.70		
	2D	61.0/7.6	1.52 - 2.13	3/4/3/4	7		61.97		Olive, moist, medium stiff, sandy SILT, trace clay. —1.22		
2.4									<b>Bottom of Exploration at 2.13 m below ground surface.</b> No Refusal —2.13		
3.6											
4.8											
6											
7.2											
8.4											

**Remarks:**







State of Maine - Department of Transportation  
**Power Auger Probe Summary Sheet**

**Town(s): Lisbon-Sabattus Project Number: 10017.00**

Station (Meter)	Offset (Meter)	Weathered Rock (Meter)	Refusal (Meter)	No Refusal (Meter)	Water Depth (m)	Comments Date: 10/14, 10/20, 10/27/03
10+368.5	1.1 Rt.			3.05		
10+388.1	1.4 Rt.		1.37			
10+397.1	1.9 Rt.		1.16			
10+407.9	7.8 Lt.		0.82			
10+406.6	2.6 Rt.		0.91			
10+421	3.9 Lt.		0.52			
10+426	3.3 Rt.		1.04			
10+455.4	0.2 Lt.		2.74		2.38	
10+464.8	3.3 Rt.		1.80			
10+474.4	2.9 Rt.		2.62			
10+484.9	2.2 Rt.			3.05		
10+496	3.8 Lt.		2.71			
10+493.4	2.4 Rt.		2.87			
10+503.9	4.6 Lt.		1.46			
10+503.9	2.1 Rt.		2.01			
10+511.4	4.3 Lt.		0.55			
10+524.2	1.9 Lt.		0.52			
10+523.6	2.4 Rt.		0.58			
10+533	3.9 Lt.		0.27			
10+543.4	3.8 Lt.		1.07			
10+543.4	2.5 Rt.		0.67			
10+562.8	3.1 Lt.			3.05		
10+562.8	2.2 Rt.			3.05		
10+583.4	2.6 Rt.			3.05		
10+685.6	1.8 Rt.			3.05		
10+697.7	1.1 Rt.		2.56			
10+707.6	1.1 Rt.		1.86			
10+717.5	5.4 Lt.		1.80			
10+717.5	0.5 Rt.		1.52			
10+727.9	4.2 Lt.		0.52			
10+727.6	0.2 Lt.		0.52			
10+737.2	1.2 Lt.		0.30			
10+748.6	3.8 Lt.	0.70	0.76			
10+747.6	CL		0.70			
10+758.8	3.2 Lt.		1.13			
10+768.8	2.5 Lt.		2.50			
10+767.9	1.7 Rt.		1.10			
10+787.1	1.6 Rt.		0.46			
11+635.2	2.5 Rt.			3.05	1.98	
11+645.7	1.6 Rt.		2.07			
11+655.9	4.8 Lt.			3.05	2.59	Outcrop 11+670-11+710, 5 m Rt.
11+655.9	2.4 Rt.		1.89		1.77	
11+663.5	3.8 Lt.		1.07			
11+663.5	2.0 Rt.		0.98			
11+673.3	3.4 Lt.		0.55			
11+673.3	2.8 Rt.		0.70			

State of Maine - Department of Transportation  
**Power Auger Probe Summary Sheet**

**Town(s): Lisbon-Sabattus Project Number: 10017.00**

Station (Meter)	Offset (Meter)	Weathered Rock (Meter)	Refusal (Meter)	No Refusal (Meter)	Water Depth (m)	Comments Date: 10/14, 10/20, 10/27/03
11+684	3.5 Lt.		0.58			
11+684	2.1 Rt.		0.82			
11+694.7	3.5 Lt.		0.73			
11+694.7	2.4 Rt.		0.82			
11+704.2	3.7 Lt.		1.34			
11+704.2	2.4 Rt.		0.76			
11+715.3	3.6 Lt.		2.71		1.98	
11+715.3	1.6 Rt.		0.85			
11+725.9	3.6 Lt.			3.05	2.19	
11+725.9	2.0 Rt.		0.52			
11+735.9	2.4 Rt.		1.68		1.58	
11+745.2	2.3 Rt.		1.68		1.55	
11+756	1.4 Rt.		0.85			
11+766.7	3.5 Lt.			3.05	2.29	
11+766.7	2.1 Rt.		1.40		1.28	
11+777	3.2 Lt.			3.05	2.35	
11+777	2.4 Rt.		1.28			
11+786.9	2.3 Rt.		2.19		1.98	
11+800.4	2.3 Rt.			3.05	2.07	
4+831.9	2.6 Rt.			3.05		10/28/2003
4+842.1	2.7 Rt.		2.32			
4+851.4	2.3 Rt.		2.29			Outcrop 4+865-4+870, 4 m Rt.
6+510.4	1.6 Rt.			3.05		
6+520.4	1.6 Rt.		2.44		1.52	
6+870.7	1.3 Lt.			3.05		
7+070	3.2 Lt.			3.05		
7+090	3.5 Lt.			3.05		
9+681.5	2.1 Lt.		0.52			
9+682	2.3 Rt.		0.52			
9+691.1	1.7 Lt.		2.07			
9+691.8	2.9 Rt.		0.76			
9+701.1	2.3 Rt.			3.05		
9+721.4	2.2 Rt.			3.05		
9+732.3	2.4 Rt.		2.44		1.22	
9+742.6	2.7 Rt.		2.59		1.22	
9+753.8	2.6 Rt.			3.05	1.22	
10+290.4	2.1 Lt.		0.55			
10+289.6	1.8 Rt.		0.67			
10+297.8	2.3 Rt.		1.16			
10+308	2.6 Rt.		1.52			
10+318.7	1.9 Lt.		0.70			
10+318.6	2.0 Rt.		1.37			
10+328.3	1.9 Lt.		2.26			
10+338.1	2.3 Lt.		2.13		1.37	
10+349.9	2.6 Lt.			3.05		
10+368.8	3.2 Lt.			3.05		
10+379	4.6 Lt.		0.79			
10+387.8	7.6 Lt.		0.85			

State of Maine - Department of Transportation  
**Power Auger Probe Summary Sheet**

**Town(s): Lisbon-Sabattus Project Number: 10017.00**

Station (Meter)	Offset (Meter)	Weathered Rock (Meter)	Refusal (Meter)	No Refusal (Meter)	Water Depth (m)	Comments
1+597	4.0 Lt.		1.22			
4+861.5	2.1 Rt.		0.46			
4+872.4	2.2 Rt.		2.04			
4+881.8	1.5 Rt.			3.05		
6+531.4	1.7 Rt.			3.05		
6+541.6	1.1 Rt.			3.05		
6+561.4	0.3 Rt.			3.05		
6+830	3.9 Lt.			3.05		
7+040	3.6 Lt.		2.71			
7+049.7	2.4 Lt.		1.55			
7+060	4.7 Lt.			3.05		
9+613	1.6 Rt.			3.05		
9+624	1.5 Rt.		2.65			
9+633	2.2 Rt.		2.35			
9+643	2.0 Rt.		2.35			
9+652	2.0 Rt.		3.02			
9+662	2.2 Lt.		1.31			
9+662.9	1.7 Rt.		1.40			
9+672	2.1 Lt.		1.83			
9+673	2.0 Rt.		1.80			
10+243	2.3 Lt.		2.13			
10+253.9	1.7 Lt.		2.32			
10+262.4	1.7 Lt.		2.59			
10+271.4	2.0 Lt.		1.49			
10+270.8	2.6 Rt.		2.47			
10+281.7	2.3 Lt.		1.83			
10+281.4	2.2 Rt.		2.29			
10+299.4	2.1 Lt.		0.58			
10+416.1	2.9 Rt.		2.74			
10+436.3	0.9 Lt.		1.71			
10+435.8	3.2 Rt.		0.94			
10+445.5	0.9 Lt.		0.24			
10+445.2	3.9 Rt.		0.30			
10+455	3.7 Rt.			3.05		
10+465.7	0.7 Lt.		1.46			
10+476	3.6 Lt.		1.04			
10+485	4.2 Lt.		1.80			
10+511.4	2.3 Rt.		1.25			
10+533	3.2 Rt.		0.46			
10+552	1.9 Lt.		1.25			
10+552	3.4 Rt.		0.85			
10+573	3.4 Lt.			3.05		
10+583.4	3.3 Lt.		2.13			
10+607	1.1 Lt.			3.05		
10+736	4.5 Lt.		0.46			
10+757.9	0.2 Rt.		0.88			
10+778.5	2.6 Lt.		2.90			



**Appendix D**  
**Lab Test Data**  
Lab Testing Summary Sheet  
Grain Size Curves

**State of Maine - Department of Transportation  
Laboratory Testing Summary Sheet**

**Town(s): Lisbon-Sabattus**

**Project Number: 10017.00**

Boring & Sample Identification Number	Station (Meter)	Offset (Meter)	Depth (Meter)	Reference Number	G.S.D.C. Sheet	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-LISA-101, 2D	1+150	2.9 Rt.	1.52-2.13	176804	1	9.5			SW-SM	A-1-b	0
HB-LISA-103, 2D	1+825	4.4 Rt.	1.52-2.13	176805	1	21.8			ML	A-4	IV
HB-LISA-104, 2D	2+000	2.8 Lt.	1.52-2.13	176806	1	14.0			SP-SM	A-3	0
HB-LISA-105, 1D/B	2+200	2.2 Lt.	0.61-0.91	176807	1	15.9			SM	A-2-4	II
HB-LISA-107, 1D	3+000	4.7 Lt.	0.30-0.91	176808	1	9.5			SP-SM	A-3	0
HB-LISA-107, 2D	3+000	4.7 Lt.	1.68-2.29	176809	1	13.0			SM	A-4	III
HB-LISA-108, 1D	3+200	5.5 Lt.	0.46-1.07	176810	2	19.1			SM	A-2-4	II
HB-LISA-108, 2D	3+200	5.5 Lt.	1.52-2.1	176811	2	8.1			SM	A-2-4	II
HB-LISA-109, 1D	3+496.1	3.3 Lt.	0.30-0.91	176812	2	3.2			SW-SM	A-1-b	0
HB-LISA-109, 2D	3+496.1	3.3 Lt.	1.52-2.04	176813	2	17.0			ML	A-4	IV
HB-LISA-110, 1D/A	3+676	3.4 Lt.	0.30-0.70	176814	2	4.4			SW-SM	A-1-b	0
HB-LISA-111, 1D/A	3+997	4.7 Lt.	0.61-0.91	176815	3	36.1			SM	A-4	III
HB-LISA-111, 2D	3+997	4.7 Lt.	1.52-2.13	176816	3	13.5			SM	A-4	III
HB-LISA-113, 2D	4+512.9	3.8 Rt.	1.52-2.13	176817	3	14.8			ML	A-4	IV
HB-LISA-114, 1D	5+272	4.6 Lt.	0.30-0.91	176818	3	4.6			SW-SM	A-1-b	0
HB-LISA-114, 2D	5+272	4.6 Lt.	1.52-2.13	176819	3	36.2			ML	A-4	IV
HB-LISA-115, 1D/B	5+492.6	2.7 Lt.	0.61-0.91	176820	3	26.2			ML	A-4	IV
HB-LISA-117, 2D	5+892	6.0 Lt.	1.52-1.68	176821	4	10.7			SM	A-4	III
HB-LISA-117, 2D/A	5+892	6.0 Lt.	1.68-1.95	176822	4	9.1			SM	A-4	III
HB-LISA-117, 3D	5+892	6.0 Lt.	3.05-3.51	176823	4	9.7			SM	A-2-4	II
HB-LISA-118, 1D	6+192	6.6 Lt.	0.30-0.91	176824	4	20.8			ML	A-4	IV
HB-LISA-118, 2D	6+192	6.6 Lt.	1.52-1.8	176825	4	18.1			SM	A-1-b	II
HB-LISA-119, 1D	6+351.8	1.5 Lt.	0.30-0.91	175076	5	6.6			SM	A-1-b	II
HB-LISA-119, 2D	6+351.8	1.5 Lt.	1.52-2.13	118705	5	25.9			ML	A-4	IV
HB-LISA-120, 2D	7+441.6	1.7 Lt.	1.52-2.13	118706	5	23.6			CL-ML	A-4	IV
HB-LISA-121, 2D	7+808.5	2.9 Rt.	1.52-2.13	118707	5	11.8			SM	A-2-4	II
HB-LISA-123, 2D	8+189.9	8.4 Lt.	1.52-2.13	118708	5	11.9			SM	A-2-4	II
HB-LISA-140, 2D	8+838.9	2.2 Rt.	1.52-2.13	118710	5	34.0			ML	A-4	IV
HB-LISA-125, 2D	8+839.1	2.7 Lt.	1.52-2.13	118709	6	21.5			ML	A-4	IV
HB-LISA-126, 1D/A	8+988	4.2 Lt.	0.30-0.61	118711	6	10.8			SM	A-2-4	II
HB-LISA-126, 1D/B	8+988	4.2 Lt.	0.61-0.91	118712	6	27.2			CL-ML	A-4	IV
HB-LISA-127, 2D	9+176.9	2.0 Lt.	1.52-2.13	118713	6	24.0			CL-ML	A-4	IV
HB-LISA-129, 1D/B	9+394.1	1.3 Lt.	0.46-0.91	118714	7	19.1			ML	A-4	IV
HB-LISA-129, 2D	9+394.1	1.3 Lt.	1.52-2.13	118715	7	13.9			SM	A-2-4	II
HB-LISA-132, 2D	10+152.1	2.0 Rt.	1.52-1.92	118716	7	7.1			SM	A-1-b	II
HB-LISA-138, 2D	11+485	2.5 Lt.	1.52-2.13	118717	7	10.0			SM	A-4	III
HB-LISA-139, 2D	12+030.2	0.6 Lt.	1.52-2.13	118718	7	21.6			ML	A-4	IV

**Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).  
The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.**

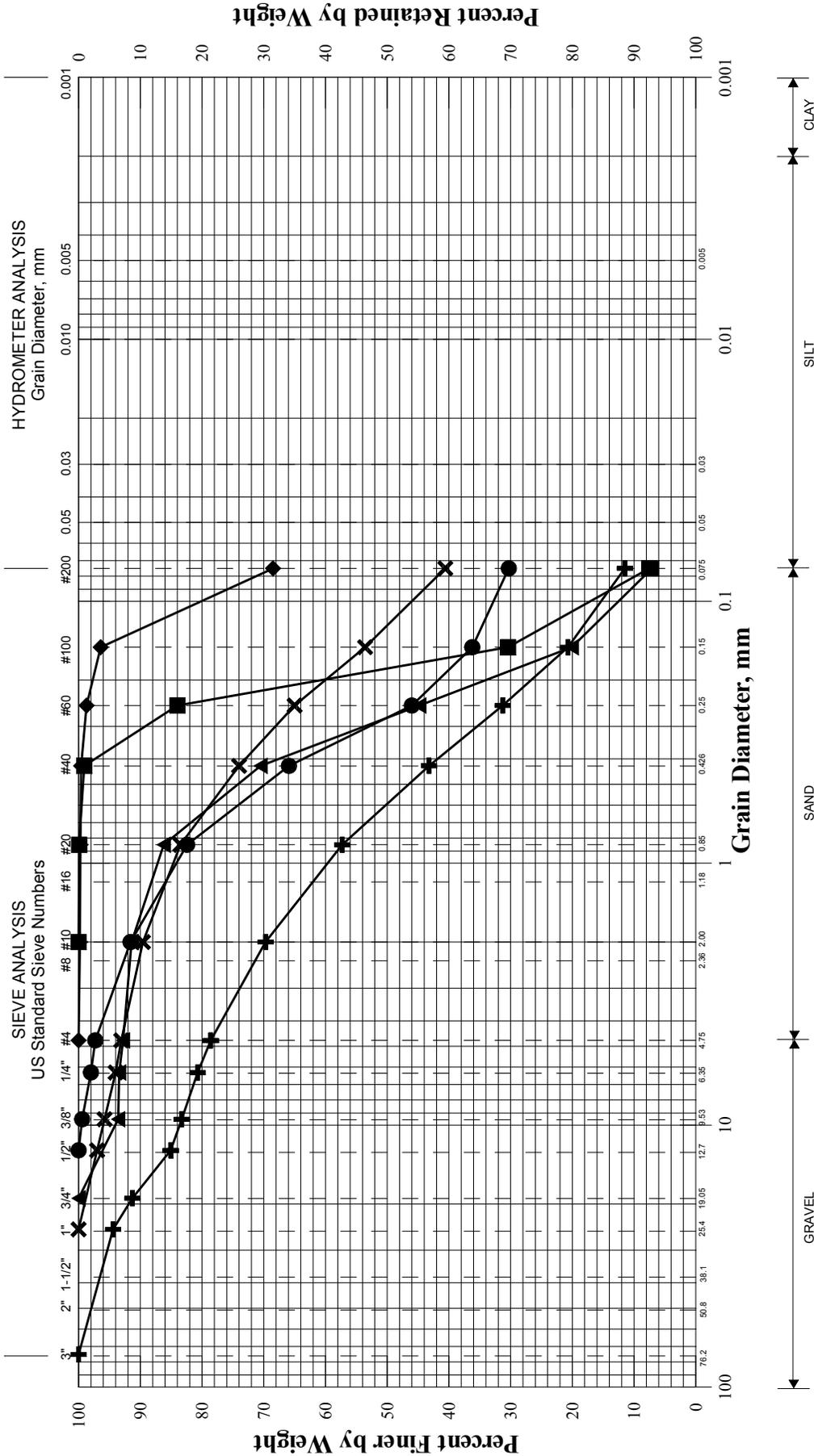
GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

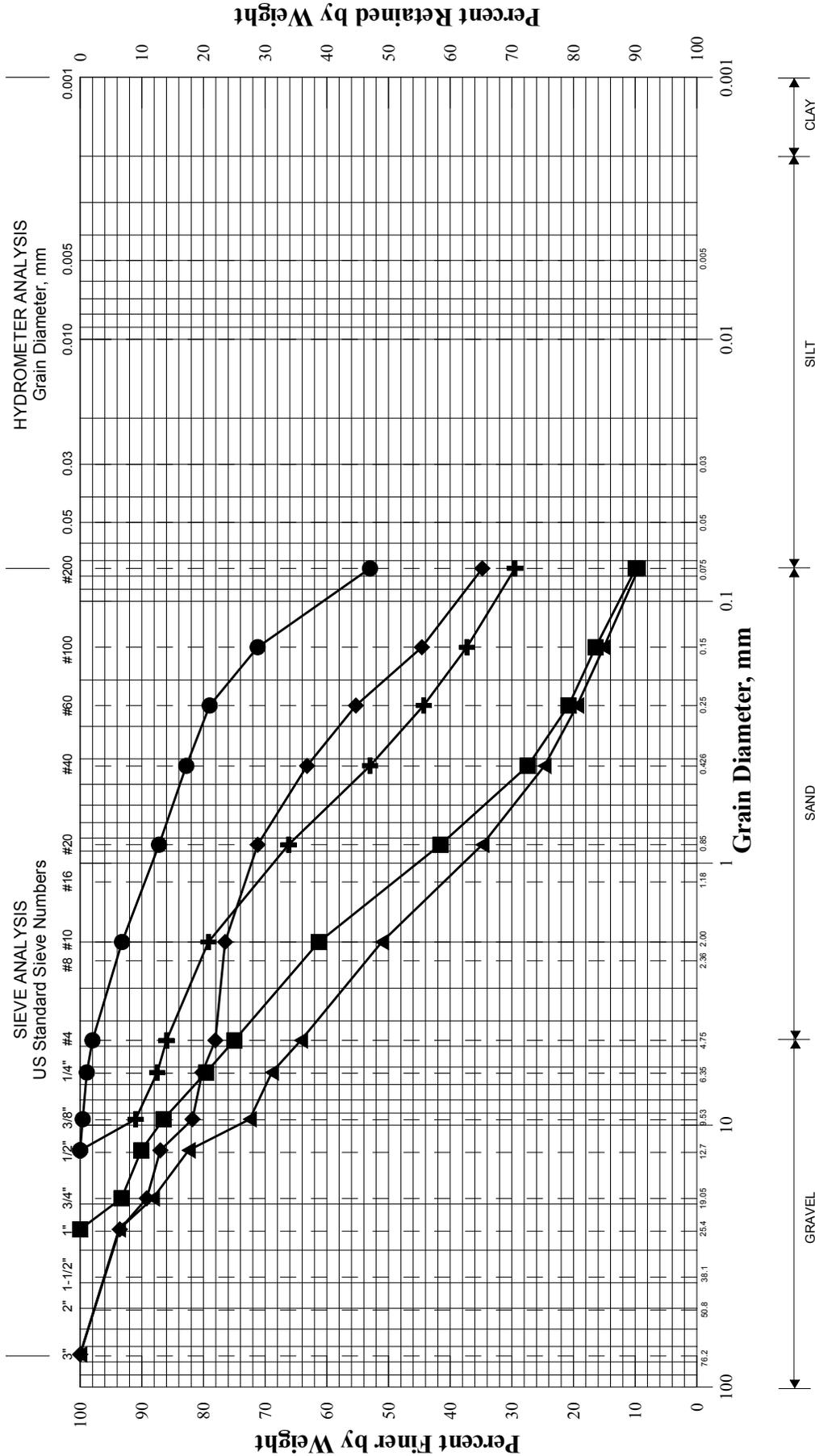
LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

State of Maine Department of Transportation  
GRAIN SIZE DISTRIBUTION CURVE



State of Maine Department of Transportation  
GRAIN SIZE DISTRIBUTION CURVE

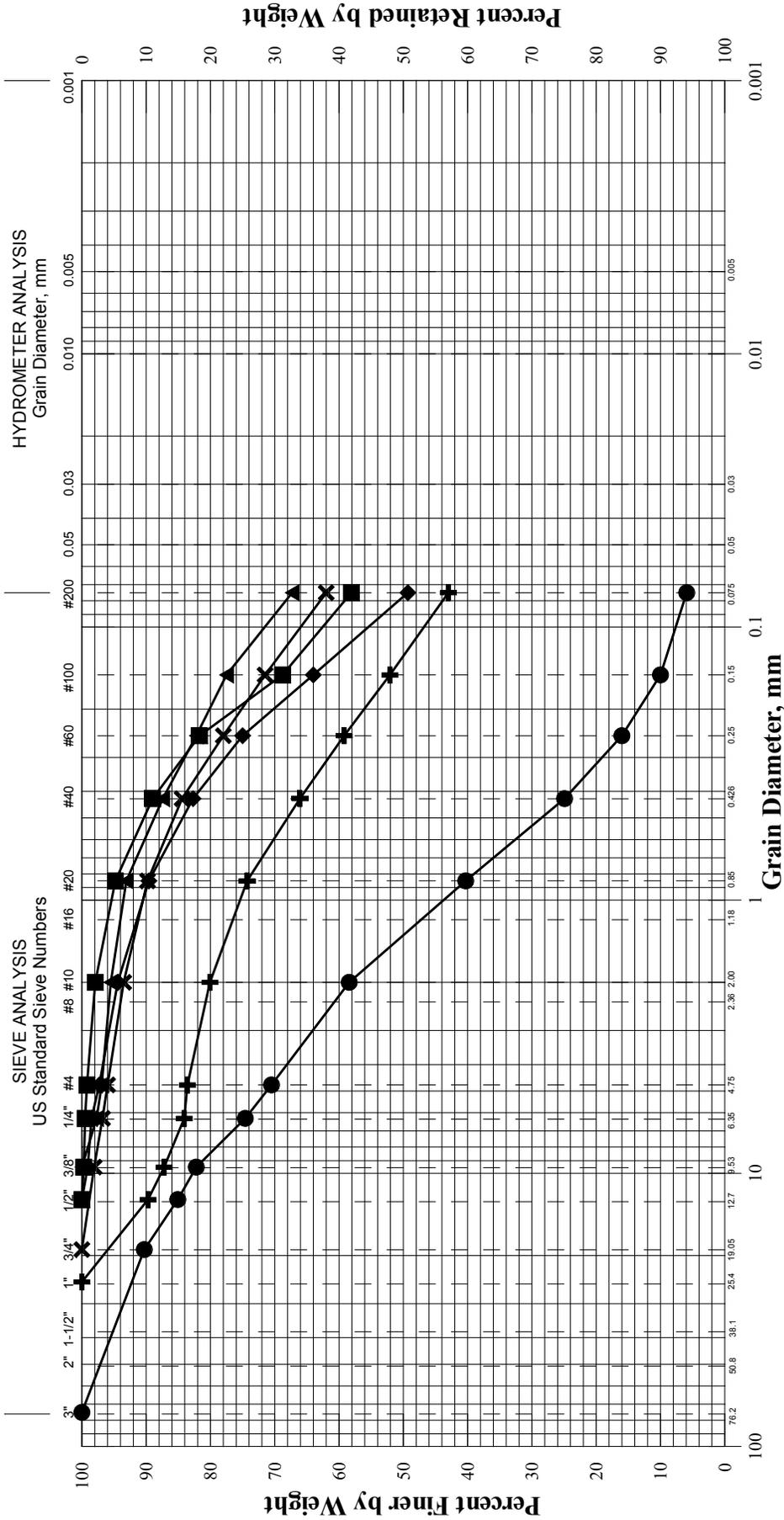


UNIFIED CLASSIFICATION

Symbol	Boring No.	Sample No.	Depth (m)	Description	w%	LL	PL	PI
+	HB-LISA-108	1D	0.46-1.07	SAND, some silt, little gravel.	19.1			
◆	HB-LISA-108	2D	1.52-2.1	SAND, some silt, some gravel.	8.1			
●	HB-LISA-109	1D	0.30-0.91	SAND, some gravel, trace silt.	3.2			
■	HB-LISA-109	2D	1.52-2.04	Sandy SILT, trace gravel.	17.0			
▲	HB-LISA-110	1D/A	0.30-0.70	Gravelly SAND, trace silt.	4.4			
X								

PIN: 10017.00  
 Town: Lisbon-Sabattus  
 Reported by: T. White  
 Date: 1/21/04

State of Maine Department of Transportation  
GRAIN SIZE DISTRIBUTION CURVE

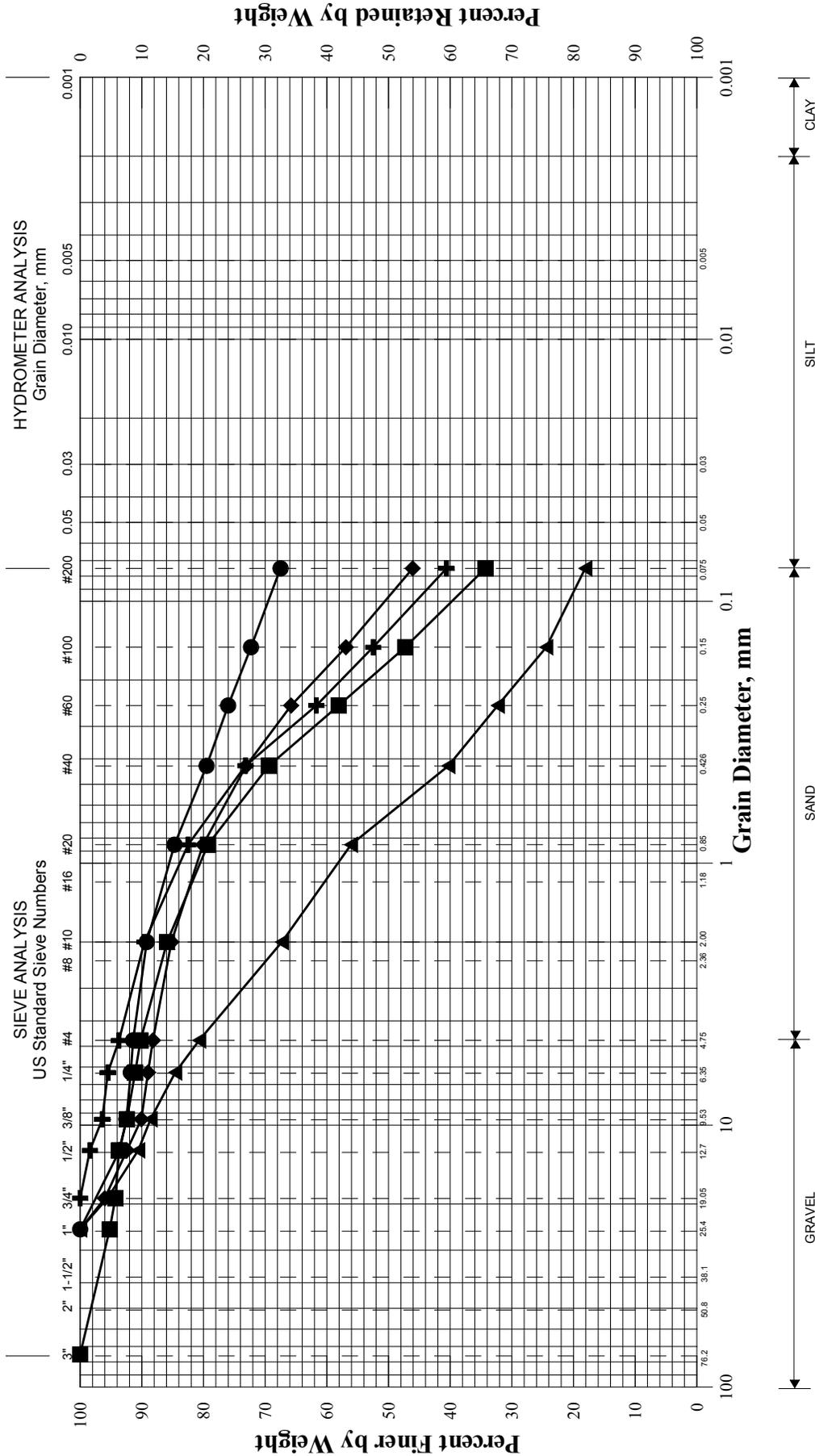


UNIFIED CLASSIFICATION

Symbol	Boring No.	Sample No.	Depth (m)	Description	w%	LL	PL	PI
+	HB-LISA-111	1D/A	0.61-0.91	Sandy SILT, little gravel.	36.1			
◊	HB-LISA-111	2D	1.52-2.13	Sandy SILT, trace gravel.	13.5			
■	HB-LISA-113	2D	1.52-2.13	Sandy SILT, trace gravel.	14.8			
●	HB-LISA-114	1D	0.30-0.91	SAND, some gravel, trace silt.	4.6			
X	HB-LISA-114	2D	1.52-2.13	SILT, some sand, trace gravel.	36.2			
	HB-LISA-115	1D/B	0.61-0.91	SILT, some sand, trace gravel.	26.2			

PIN: 10017.00  
 Town: Lisbon-Sabattus  
 Reported by: T. White  
 Date: 1/21/04

State of Maine Department of Transportation  
GRAIN SIZE DISTRIBUTION CURVE

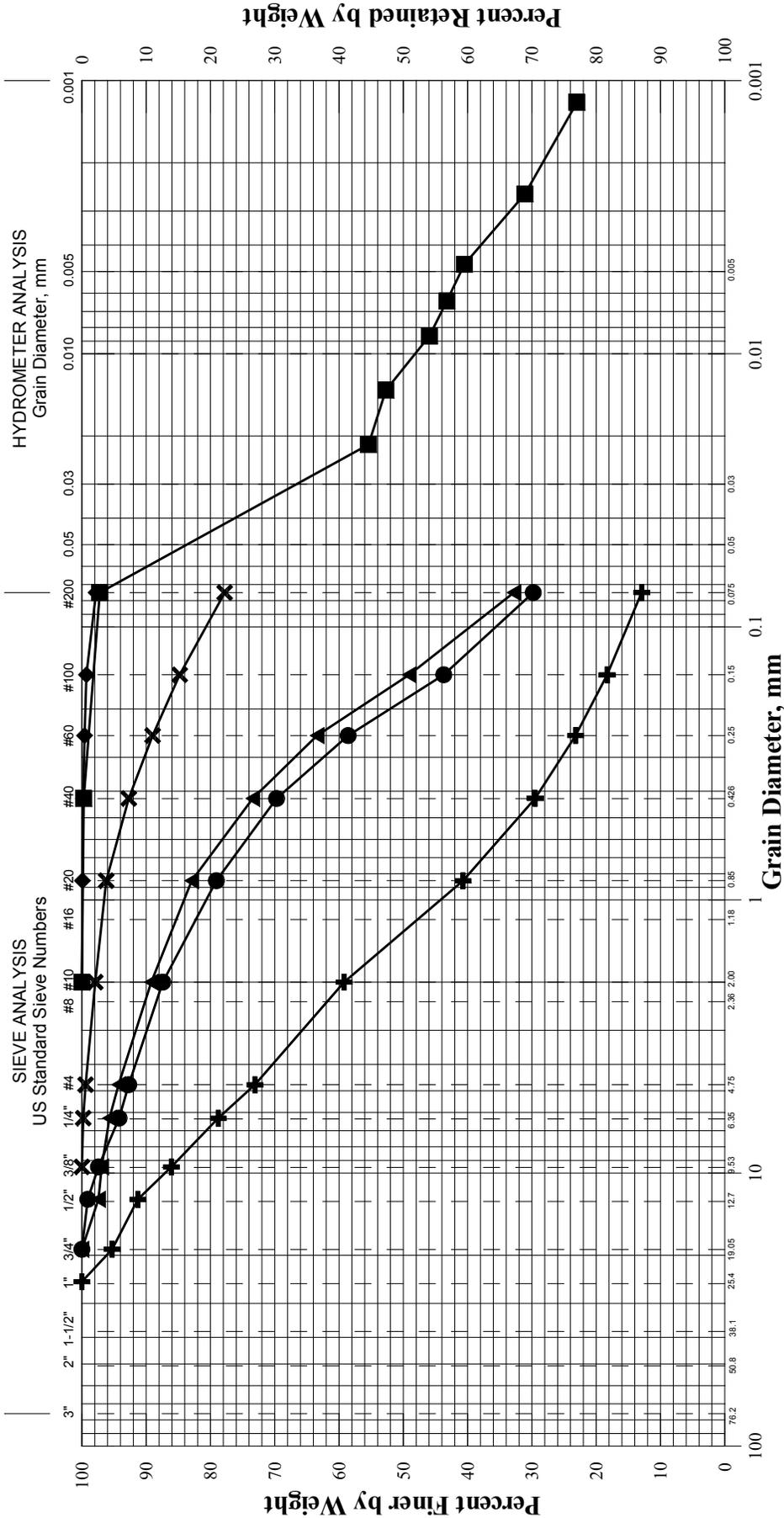


UNIFIED CLASSIFICATION

Boring No.	Sample No.	Depth (m)	Description	w%	LL	PL	PI
HB-LISA-117	2D	1.52-1.68	Silty SAND, trace gravel.	10.7			
HB-LISA-117	2D/a	1.68-1.95	Sandy SILT, little gravel.	9.1			
HB-LISA-117	3D	3.05-3.51	SAND, some silt, trace gravel.	9.7			
HB-LISA-118	1D	0.30-0.91	SILT, some sand, trace gravel.	20.8			
HB-LISA-118	2D	1.52-1.8	SAND, little gravel, little silt.	18.1			

PIN: 10017.00  
Town: Lisbon-Sabattus  
Reported by: T. White  
Date: 1/22/04

State of Maine Department of Transportation  
GRAIN SIZE DISTRIBUTION CURVE

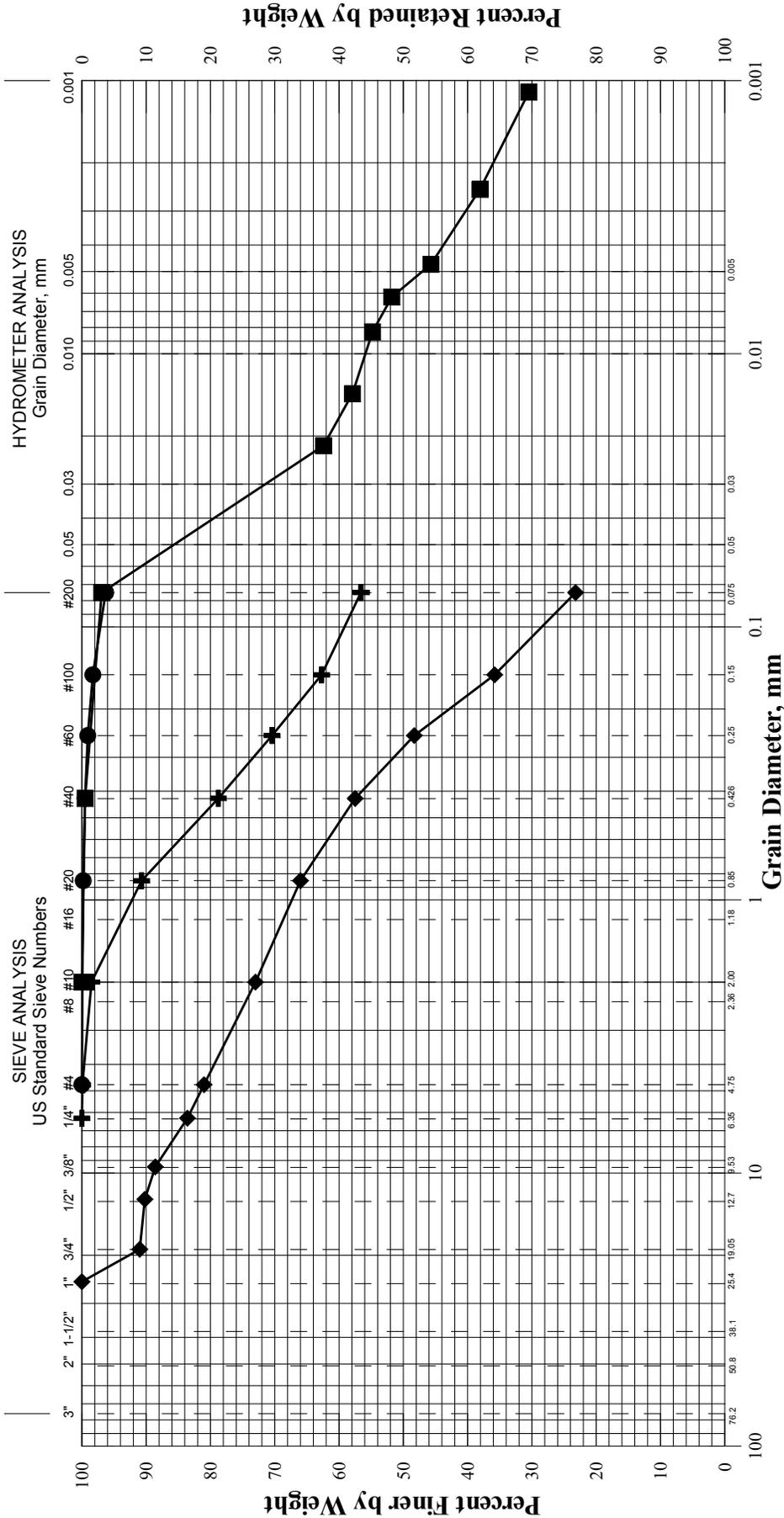


UNIFIED CLASSIFICATION

Boring No.	Sample No.	Depth (m)	Description	w%	LL	PL	PI
+ HB-LISA-119	1D	0.30-0.91	SAND, some gravel, little silt.	6.6			
◆ HB-LISA-119	2D	1.52-2.13	SILT, trace sand.	25.9			
■ HB-LISA-120	2D	1.52-2.13	SILT, some clay, trace sand.	23.6			
● HB-LISA-121	2D	1.52-2.13	SAND, some silt, trace gravel.	11.8			
▲ HB-LISA-123	2D	1.52-2.13	SAND, some silt, trace gravel.	11.9			
X HB-LISA-140	2D	1.52-2.13	SILT, some sand, trace gravel.	34.0			

PIN: 10017.00  
Town: Lisbon-Sabattus  
Reported by: T. White  
Date: 1/22/04

State of Maine Department of Transportation  
GRAIN SIZE DISTRIBUTION CURVE

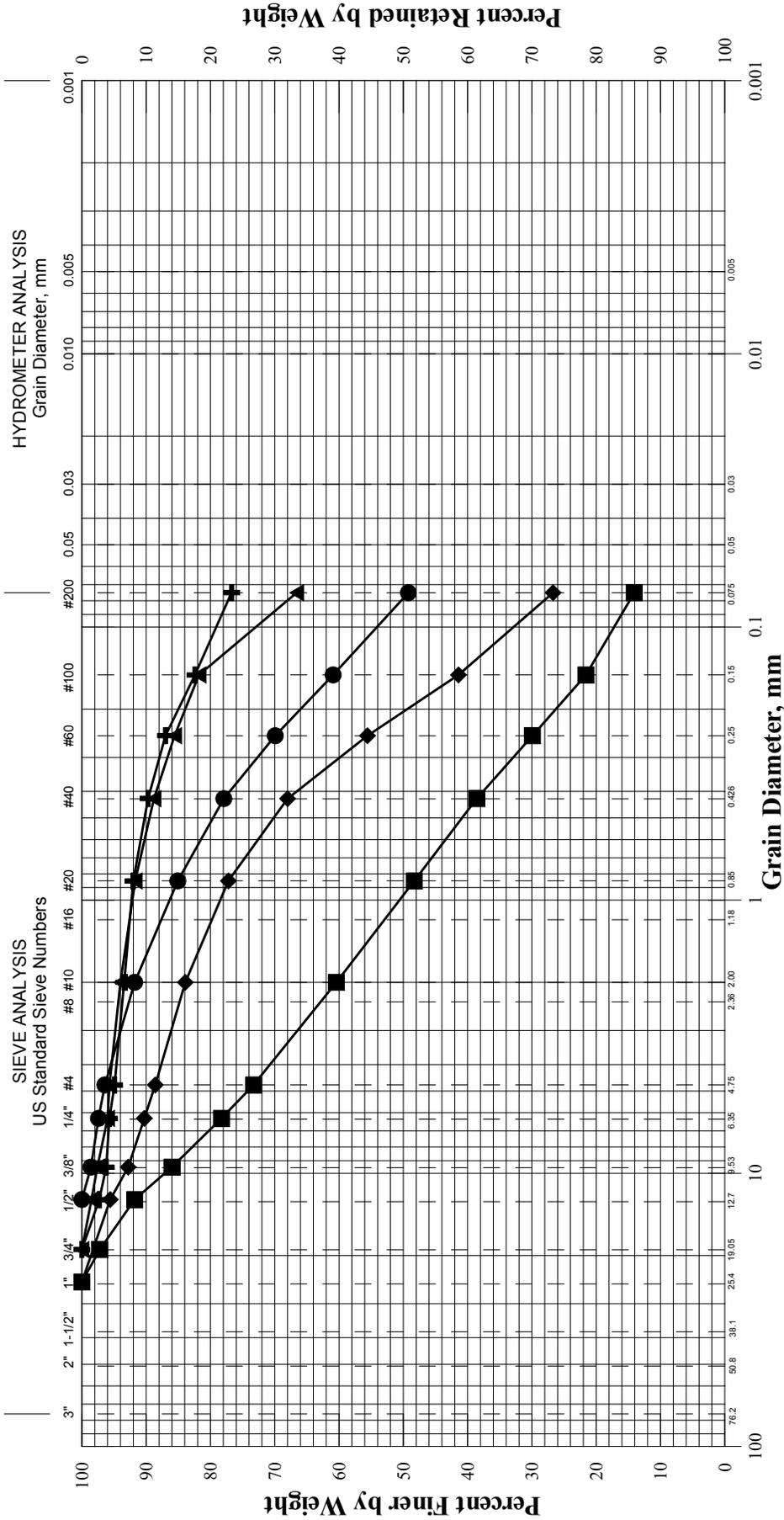


UNIFIED CLASSIFICATION

Boring No.	Sample No.	Depth (m)	Description	w%	LL	PL	PI
HB-LISA-125	2D	1.52-2.13	Sandy SILT, trace gravel.	21.5			
HB-LISA-126	1D/A	0.30-0.61	SAND, some silt, little silt.	10.8			
HB-LISA-126	1D/B	0.61-0.91	Clayey SILT, trace sand.	27.2			
HB-LISA-127	2D	1.52-2.13	SILT, trace sand.	24.0			

PIN: 10017.00
Town: Lisbon-Sabattus
Reported by: T. White
Date: 1/22/04

State of Maine Department of Transportation  
GRAIN SIZE DISTRIBUTION CURVE



UNIFIED CLASSIFICATION

Symbol	Boring No.	Sample No.	Depth (m)	Description	w%	LL	PL	PI
†	HB-LISA-129	1D/B	0.46-0.91	SILT, little sand, trace gravel.	19.1			
◆	HB-LISA-129	2D	1.52-2.13	SAND, some silt, little gravel.	13.9			
■	HB-LISA-132	2D	1.52-1.92	SAND, some gravel, little silt.	7.1			
●	HB-LISA-138	2D	1.52-2.13	Sandy SILT, trace gravel.	10.0			
▲	HB-LISA-139	2D	1.52-2.13	SILT, some sand, trace gravel.	21.6			
×								

PIN: 10017.00  
Town: Lisbon-Sabattus  
Reported by: T. White  
Date: 1/22/04

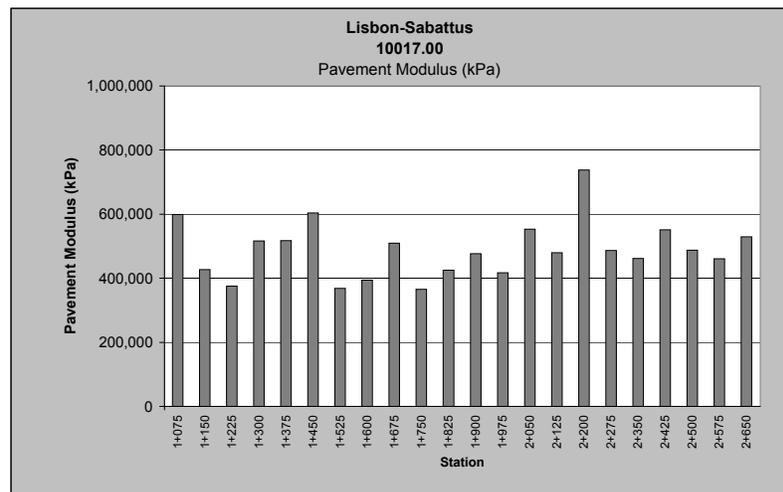
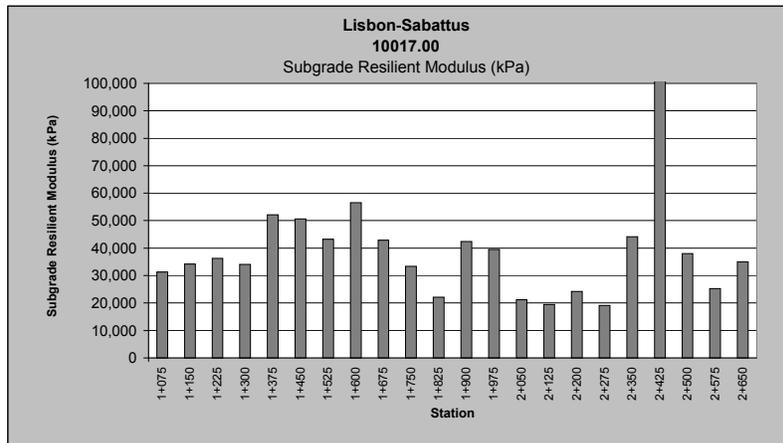
**Appendix E**  
**Pavement Data**  
FWD Analysis  
Traffic Data

Lisbon -Sabattus  
10017.00  
Route #9

January 12, 2004

Station (Meters)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
1+075	598,419	31,321	120	610
1+150	427,193	34,179	120	610
1+225	375,143	36,264	120	610
1+300	516,473	34,108	120	610
1+375	517,872	52,197	120	610
1+450	603,527	50,665	120	610
1+525	368,680	43,257	120	610
1+600	394,734	56,557	120	610
1+675	509,537	42,927	120	610
1+750	365,867	33,331	120	610
1+825	424,593	22,132	120	610
1+900	476,240	42,397	120	610
1+975	417,230	39,536	120	610
2+050	552,957	21,233	120	270
2+125	479,740	19,431	120	270
2+200	737,738	24,204	120	270
2+275	486,458	19,087	120	270
2+350	461,881	44,153	210	610
2+425	551,072	122,021	210	610
2+500	487,586	37,953	210	610
2+575	461,235	25,215	210	610
2+650	529,150	34,992	210	610

\* For actual Gravel Depths, see attached logdraft forms

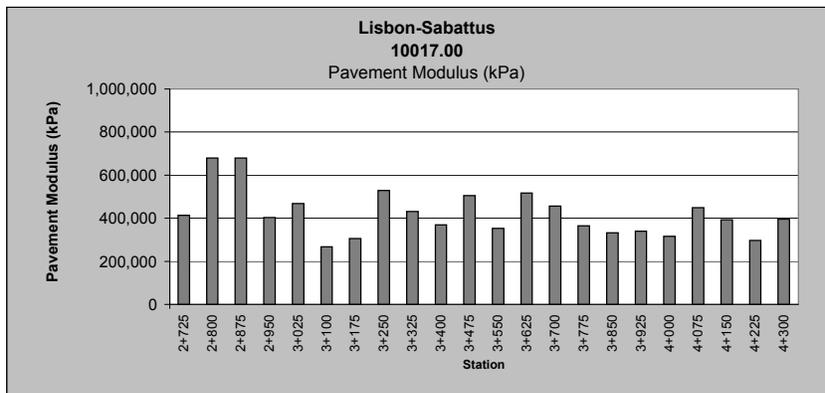
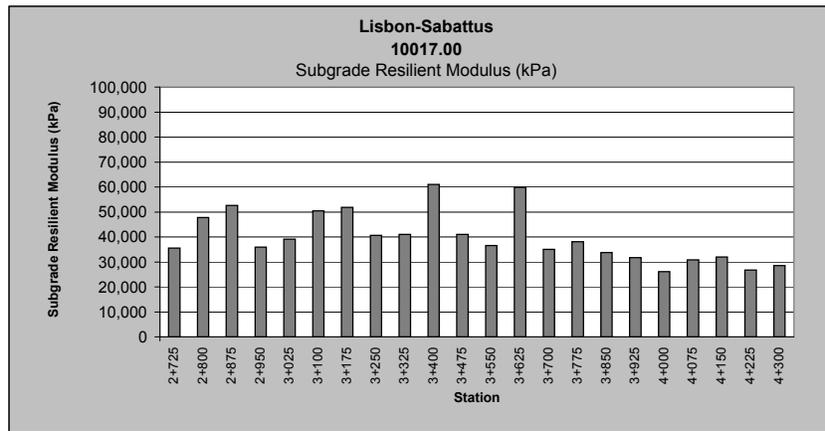


**Lisbon -Sabattus  
10017.00  
Route #9**

January 12, 2004

Station (Meters)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
2+725	413,387	35,550	210	610
2+800	678,884	47,790	210	610
2+875	679,059	52,641	210	610
2+950	402,928	35,909	110	760
3+025	468,119	39,120	110	760
3+100	267,903	50,477	110	760
3+175	306,324	51,857	110	760
3+250	528,314	40,580	110	760
3+325	430,991	41,037	110	760
3+400	369,201	61,023	110	760
3+475	505,749	40,971	110	760
3+550	353,728	36,597	110	760
3+625	516,535	59,928	110	760
3+700	456,160	35,062	90	700
3+775	364,885	38,139	90	700
3+850	332,553	33,742	90	700
3+925	339,643	31,740	90	700
4+000	315,493	26,096	90	700
4+075	449,360	30,827	90	700
4+150	392,919	31,972	90	700
4+225	297,468	26,692	220	760
4+300	395,944	28,583	220	760

\* For actual Gravel Depths, see attached logdraft forms

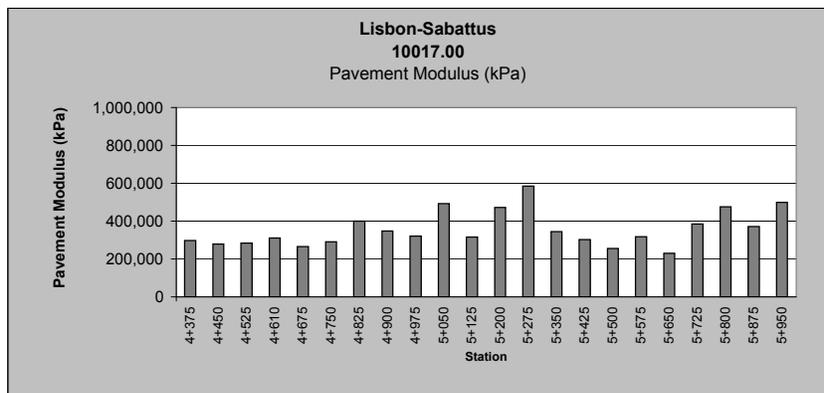
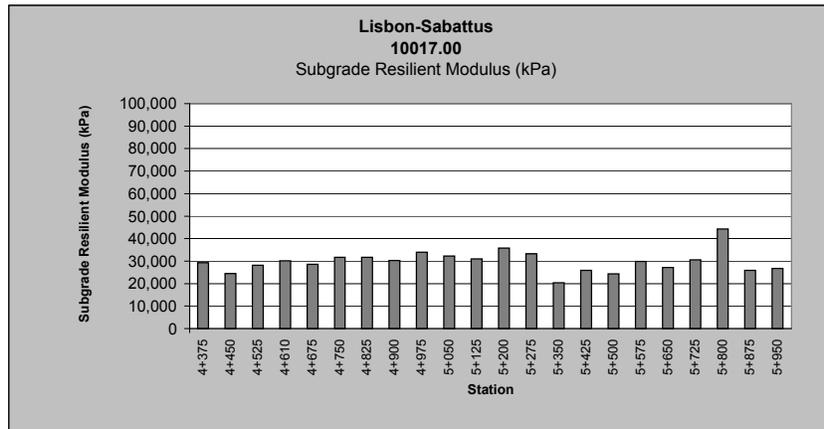


**Lisbon -Sabattus  
10017.00  
Route #9**

January 12, 2004

Station (Meters)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
4+375	296,716	29,213	120	520
4+450	279,521	24,449	120	520
4+525	284,211	28,112	130	610
4+610	311,264	30,155	130	610
4+675	265,836	28,507	130	610
4+750	290,851	31,695	130	610
4+825	400,547	31,741	130	610
4+900	347,391	30,284	130	610
4+975	321,446	33,878	130	610
5+050	492,195	32,246	130	610
5+125	316,415	30,945	130	610
5+200	472,980	35,801	130	610
5+275	585,491	33,189	130	610
5+350	344,479	20,421	110	610
5+425	303,071	25,873	110	610
5+500	254,901	24,316	110	610
5+575	316,851	29,886	110	610
5+650	230,388	27,134	110	610
5+725	384,202	30,571	110	610
5+800	476,042	44,296	110	610
5+875	371,719	25,822	110	610
5+950	499,133	26,680	110	610

\* For actual Gravel Depths, see attached logdraft forms

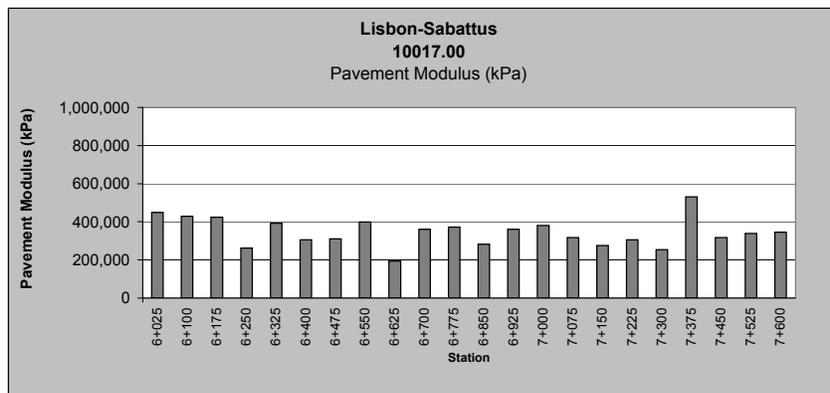
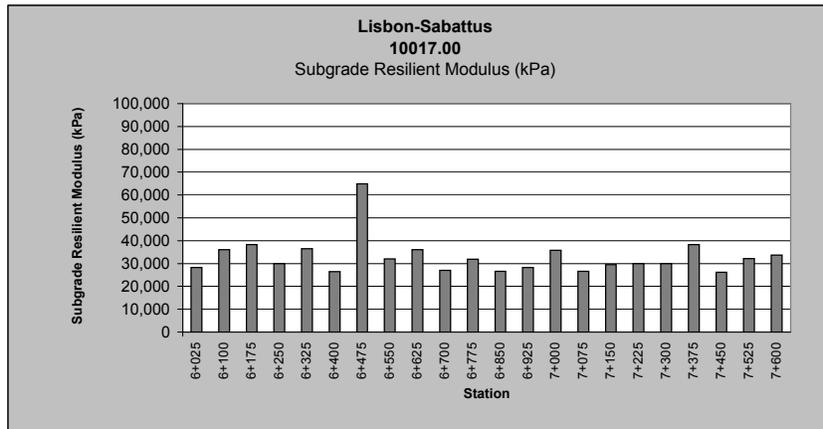


**Lisbon -Sabattus  
10017.00  
Route #9**

January 12, 2004

Station (Meters)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
6+025	449,150	28,240	110	610
6+100	428,982	36,083	110	610
6+175	424,005	38,311	110	610
6+250	262,430	29,999	140	760
6+325	392,080	36,502	140	760
6+400	304,884	26,403	140	760
6+475	310,065	64,882	140	760
6+550	399,136	32,062	140	760
6+625	193,206	36,111	70	760
6+700	360,604	26,992	70	760
6+775	372,177	31,963	70	760
6+850	282,682	26,549	70	760
6+925	361,215	28,271	70	760
7+000	380,100	35,729	70	760
7+075	317,555	26,611	70	760
7+150	275,225	29,465	70	760
7+225	304,823	29,884	70	760
7+300	253,550	29,971	70	760
7+375	530,963	38,368	70	760
7+450	316,971	26,173	70	760
7+525	338,230	32,106	110	760
7+600	345,224	33,636	110	760

\* For actual Gravel Depths, see attached logdraft forms

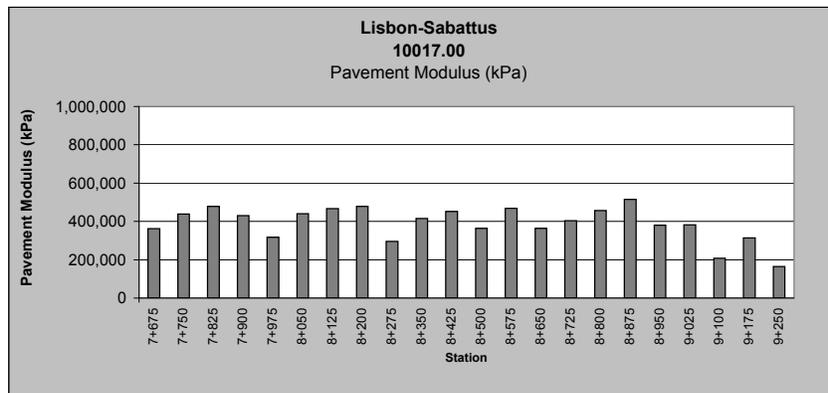
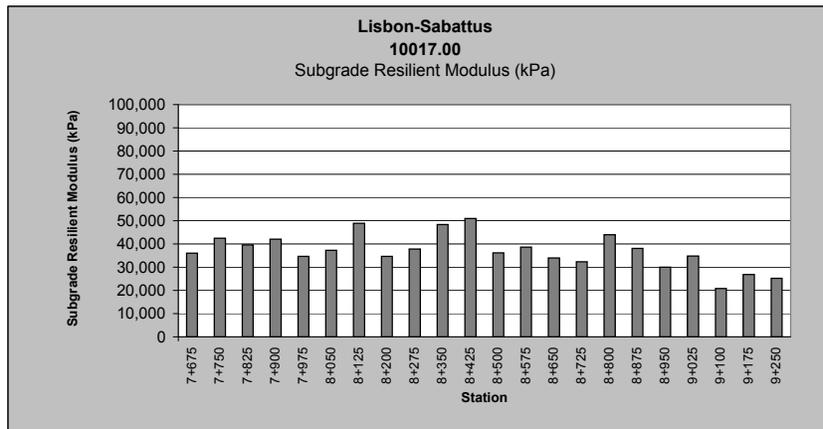


**Lisbon -Sabattus  
10017.00  
Route #9**

January 12, 2004

Station (Meters)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
7+675	361,647	36,052	110	760
7+750	439,278	42,464	110	760
7+825	478,423	39,602	110	610
7+900	430,237	42,114	110	610
7+975	316,554	34,629	120	760
8+050	439,498	37,254	120	760
8+125	467,293	48,965	120	760
8+200	477,745	34,637	120	610
8+275	295,142	37,761	120	610
8+350	414,559	48,370	120	610
8+425	451,490	50,903	120	610
8+500	364,241	36,224	90	760
8+575	469,057	38,665	90	760
8+650	363,951	33,985	90	760
8+725	403,670	32,270	90	760
8+800	456,528	44,005	90	760
8+875	514,523	38,023	100	760
8+950	380,982	29,995	100	760
9+025	382,295	34,778	100	760
9+100	207,870	20,823	100	760
9+175	314,023	26,896	140	760
9+250	165,189	25,149	140	760

\* For actual Gravel Depths, see attached logdraft forms

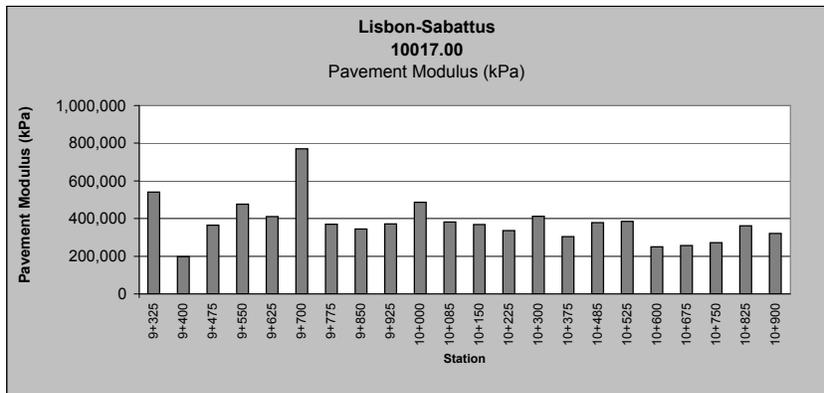
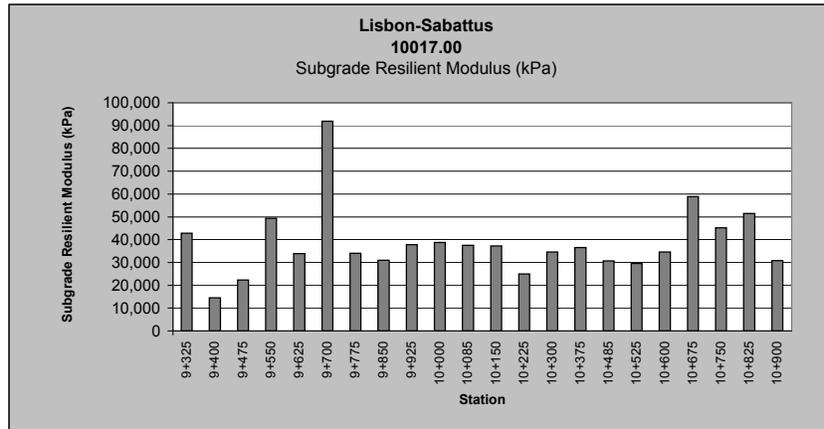


**Lisbon -Sabattus  
10017.00  
Route #9**

January 12, 2004

Station (Meters)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
9+325	540,574	42,837	120	610
9+400	197,281	14,436	140	460
9+475	364,462	22,256	140	460
9+550	476,120	49,396	100	760
9+625	411,106	33,880	100	760
9+700	769,636	91,883	100	760
9+775	370,153	34,073	100	760
9+850	344,610	30,916	80	760
9+925	370,855	37,807	80	760
10+000	485,730	38,786	80	760
10+085	381,442	37,545	100	610
10+150	368,854	37,277	100	610
10+225	335,901	25,011	110	760
10+300	412,884	34,636	110	760
10+375	304,596	36,549	110	760
10+485	378,429	30,689	110	760
10+525	385,208	29,504	110	760
10+600	250,123	34,603	110	760
10+675	256,855	58,859	110	760
10+750	271,381	45,161	110	760
10+825	361,603	51,452	110	760
10+900	321,511	30,891	110	760

\* For actual Gravel Depths, see attached logdraft forms

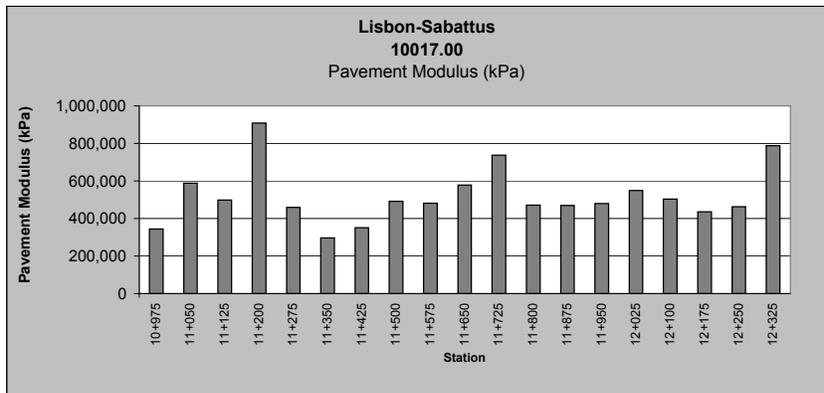
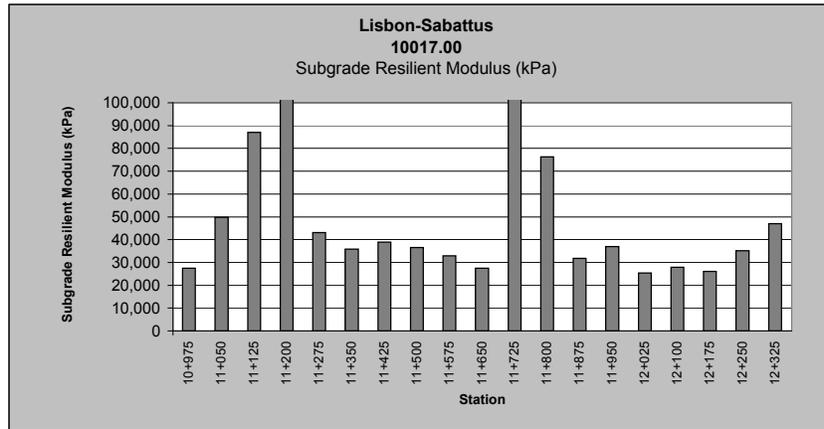


**Lisbon -Sabattus  
10017.00  
Route #9**

January 12, 2004

Station (Meters)	Existing Pavement Modulus (kPa)	Subgrade Resilient Modulus (kPa)	Pavement Depth (mm)	* Combined Pavement/Gravel Depth Used for Calculation (mm)
10+975	344,422	27,498	110	760
11+050	588,205	49,774	90	460
11+125	498,425	87,019	90	460
11+200	908,960	103,415	90	460
11+275	458,595	43,152	90	460
11+350	296,156	35,821	130	610
11+425	350,203	38,852	130	610
11+500	491,858	36,495	130	610
11+575	481,900	32,973	130	610
11+650	577,804	27,415	130	610
11+725	738,128	151,713	130	610
11+800	471,539	76,343	130	610
11+875	468,923	31,757	130	610
11+950	479,613	36,910	130	460
12+025	549,059	25,373	130	460
12+100	503,006	27,917	130	460
12+175	436,234	26,126	130	460
12+250	462,492	35,160	130	460
12+325	788,659	47,018	130	460

\* For actual Gravel Depths, see attached logdraft forms



# STATE OF MAINE

FILE: Rte 9

## INTERDEPARTMENTAL MEMORANDUM

Date of Request: 12/17/2008

TEDOCS #

Latest Date Needed By:

Return: 12/23/08

To: Ed Hanscom

Dept.: MDOT, Bureau of Planning

From: Atlee Mousseau

Dept.: Urban & Arterial

Subject: Request for Traffic Information

Project Manager: Heath Cowan

TOWN(S): Lisbon-Sabattus

P.I.N. 010017.00

Consultant Proj

COUNTY: Androscoggin

ROUTE: 9

LOCATION/ DESCRIPTION: DEFERRED Preconstruction Engineering for Future Improvements: Beginning 0.33 of a mile northerly of Route 196 and extending northeasterly 6.75 miles to the Maine Turnpike Overpass.

	Roadway Changes or Relocation (Attach Sketch)	Turning Movement needed (Provide Locations under Comments)	Other Please Describe Under Comments
Please Check Box if Applicable:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Prep By: RLD      Sec. 1      Sec. 2      Sec. 3      Sec. 4      Sec. 5

Town

Lisbon

Lisbon

Description of Sections      SR 9 SE/O      SR 9 S/O  
WEBSTER RD      GOULD RD

Low Count      High Count

1 Latest AADT (Year)		<u>2660(2006)</u>	<u>3600(2006)</u>			
2 Current <u>2009</u> AADT		<u>2820</u>	<u>3820</u>			
3 Future <u>2019</u> AADT		<u>3380</u>	<u>4580</u>			
4 Future <u>2029</u> AADT		<u>3950</u>	<u>5350</u>			
5 DHV - % of AADT		<u>13%</u>	<u>13%</u>	<u>  %</u>	<u>  %</u>	<u>  %</u>
6 Design Hourly Volume		<u>514</u>	<u>696</u>			
7 % Heavy Trucks (AADT)		<u>9%</u>	<u>6%</u>	<u>  %</u>	<u>  %</u>	<u>  %</u>
8 % Heavy Trucks (DHV)		<u>3%</u>	<u>2%</u>	<u>  %</u>	<u>  %</u>	<u>  %</u>
9 Direct Dist. (DHV)		<u>59%</u>	<u>59%</u>	<u>  %</u>	<u>  %</u>	<u>  %</u>
10 18-KIP Equivalent P 2.0		<u>177</u>	<u>167</u>			
11 18-KIP Equivalent P 2.5		<u>169</u>	<u>159</u>			

Notes or Remarks: 18-Kip ESALS is based on 20 year life

**PLEASE PROVIDE: (1) PIN NUMBER, (2) THE CURRENT & FUTURE YEARS FOR WHICH YOU WANT AADT CALCULATED, AND SEND TO MIKE MORGAN. ( A LOCATION MAP IS NO LONGER NEEDED.) TRAFFIC REQUESTS WILL BE FILLED ON A FIRST COME / SERVE BASIS. PLEASE SEND WHEN PROJECT KICKS OFF!**

Need Only Data Items Numbered

Comments: