TOWNSHIP OF HOPEWELL

MERCER COUNTY

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October 2, 2015

The attached documents are detailed engineering drawings prepared by PennEast. These are excerpts from the documents filed with FERC by PennEast. These documents are for Hopewell Township ONLY.

These documents include the Key Map, Mainline Plans and Profiles, Horizontal Directional Drilling (HDD) Plans and Profiles, Access Road Details, Residential Site Specific Details and Typical Construction Details.

These documents are part of many documents filed with FERC by the PennEast Pipeline Company, LLC for "Certificates of Public Convenience and Necessity and Related Authorizations" on September 24, 2015. The following is a link to the FERC site which includes all documents filed on 9/24/15: http://elibrary.ferc.gov/idmws/file_list.asp?document_id=14380457

TIPS FOR HOW TO READ THESE MAPS

- Page numbers are found at the lower right corner. These page numbers were created by Hopewell Township to assist residents in locating information specific to their lot.

- Page numbers 1, 2 and 3 found in this set of documents are NOT found on the documents as filed with FERC. These pages were created by Hopewell Township to assist homeowners I their review of this proposal.

- Page 5 is a legend of terms and graphic symbols used in the maps.

- The pipeline drawings begin on the west side of the township and sequence to the east.

- Table of Contents for this Map Set can be found on Page 3.

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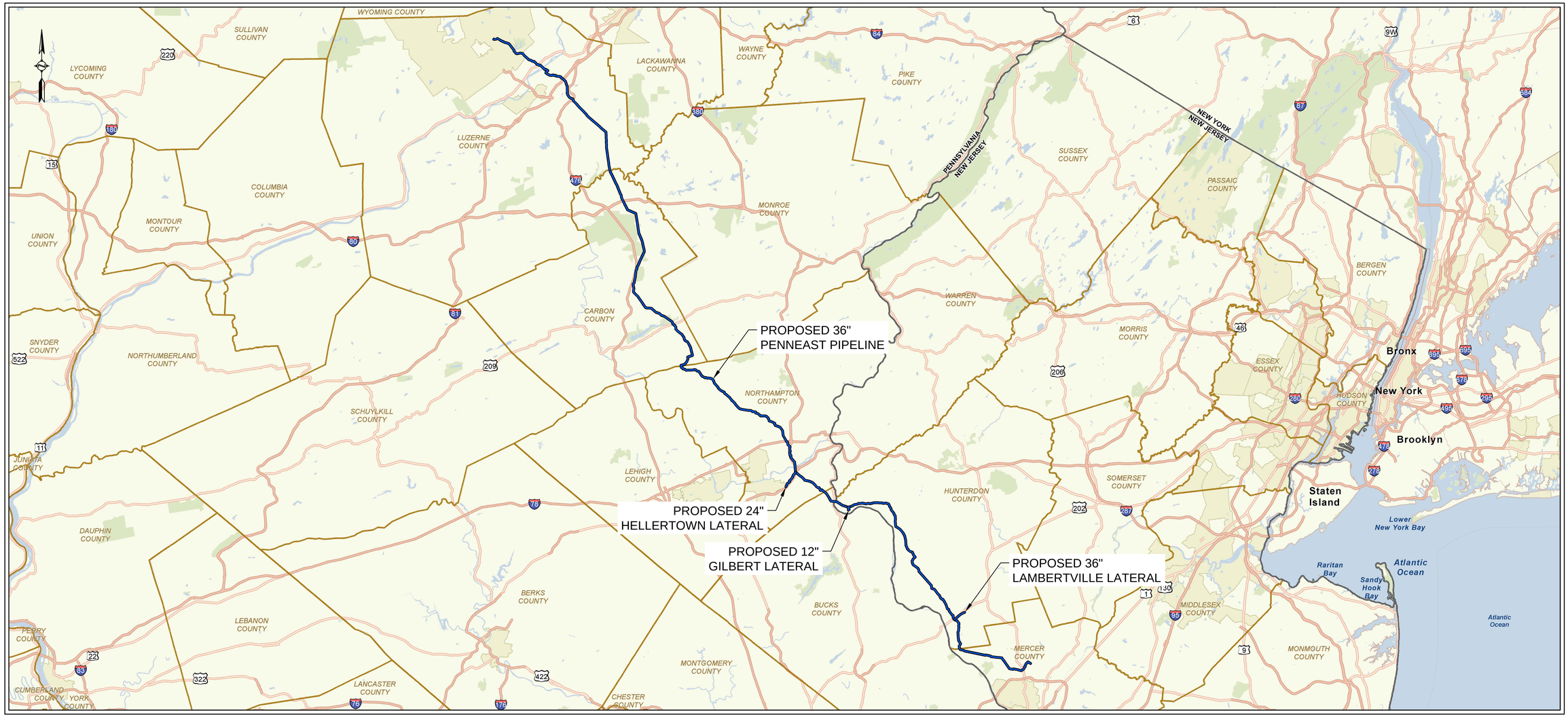
PENNEAST PIPELINE COMPANY, LLC

PENNEAST PIPELINE

PENNSYLVANIA, NEW JERSEY



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024-03-00-003	CIVIL SITE PLAN - HELLERTOWN LAUNCHER & MAINLINE LAUNCHER/RECEIVER/MLV-8
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GRAPHIC SCALE

10 MILE 5 M 0 10 MILE

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

PREPARED FOR

PennEast PIPELINE

PREPARED BY

Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

COVER SHEET
PROPOSED 36" PENNEAST PIPELINE
PROPOSED 24" HELLERTOWN LATERAL
PROPOSED 12" GILBERT LATERAL
PROPOSED 36" LAMBERTVILLE LATERAL

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-01-01-001	D

MUSYM	DESCRIPTION
AbA	Albrights silt loam, 0 to 3 percent slopes
AbB2	Albrights silt loam 3 to 8 percent slopes moderately eroded
AbrA	Abbottstown silt loam, 0 to 2 percent slopes
AbrB	Abbottstown silt loam, 2 to 6 percent slopes
AcB	Albrights very stony loam, 0 to 8 percent slopes
AdB2	Allenwood gravelly loam and silt loam, 3 to 8 percent slopes, moderately eroded
AfA	Allenwood silt loam, 0 to 3 percent slopes
AfB	Allenwood silt loam, 3 to 8 percent slopes
Ag	Alluvial land
AlB	Alton gravelly loam, 3 to 8 percent slopes
AnA	Andover-Buchanan gravelly loams, 0 to 3 percent slopes
AnB	Alvira gravelly silt loam, 0 to 8 percent slopes
AoB	Andover-Buchanan gravelly loams, 0 to 8 percent slopes, extremely stony
ArB	Alvira very stony silt loam, 0 to 8 percent slopes
ArD	Arnot-Rock outcrop complex, 8 to 25 percent slopes
AsA	Alvira and Shelmadine silt loams, 0 to 3 percent slopes
ASF	Arnot-Rock outcrop complex, steep
AtB	Alvira and Shelmadine very stony silt loams, 0 to 8 percent slopes
BfB	Bedington-Berks complex, 3 to 8 percent slopes
BhmB2	Birdsboro loam, 2 to 6 percent slopes, eroded
BhmC2	Birdsboro loam, 6 to 12 percent slopes, eroded
BhnB	Birdsboro silt loam, 2 to 6 percent slopes
BhnC2	Birdsboro silt loam, 6 to 12 percent slopes, eroded
BkA	Berks-Weikert complex, 0 to 3 percent slopes
BkB	Berks-Weikert complex, 3 to 8 percent slopes
BkC	Berks-Weikert complex, 8 to 15 percent slopes
BkD	Berks-Weikert complex, 15 to 25 percent slopes
BkF	Berks-Weikert complex, 25 to 60 percent slopes
BoyAt	Bowmansville silt loam, 0 to 2 percent slopes, frequently flooded
BrB	Braceville gravelly loam, 3 to 8 percent slopes
BrC	Braceville gravelly loam, 8 to 15 percent slopes
BtA	Brinkerton-Comly silt loams, 0 to 3 percent slopes
BtB	Brinkerton-Comly silt loams, 3 to 8 percent slopes
BuB	Buchanan gravelly loam, 3 to 8 percent slopes
BucA	Bucks silt loam, 0 to 2 percent slopes
BucB	Bucks silt loam, 2 to 6 percent slopes
BucB2	Bucks silt loam, 2 to 6 percent slopes, eroded
BucC2	Bucks silt loam, 6 to 12 percent slopes, eroded
BvB	Buchanan gravelly loam, 0 to 8 percent slopes, extremely stony
CaB	Califon loam, 3 to 8 percent slopes
CanBb	Califon gravelly loam, 0 to 8 percent slopes, very stony
CbB	Califon loam, 0 to 8 percent slopes, extremely stony
CF	Cut and fill land
ChB	Chenango gravelly loam, 3 to 8 percent slopes
ChC	Chenango gravelly loam, 8 to 15 percent slopes
ChcA	Chalfont silt loam, 0 to 2 percent slopes
ChcB	Chalfont silt loam, 2 to 6 percent slopes
ChcB2	Chalfont silt loam, 2 to 6 percent slopes, eroded
ChcC2	Chalfont silt loam, 6 to 12 percent slopes, eroded
ChcCb	Chalfont silt loam, 6 to 12 percent slopes, very stony
ClA	Clarksburg silt loam, 0 to 3 percent slopes
ClB	Chippewa silt loam, 3 to 8 percent slopes
CmB	Clarksburg silt loam, 3 to 8 percent slopes
CnB	Chippewa silt loam, 0 to 8 percent slopes, extremely stony
CoB	Cokesbury-Califon channery silt loams, 0 to 8 percent slopes, very stony
CoxA	Croton silt loam, 0 to 2 percent slopes
CoxB	Croton silt loam, 2 to 6 percent slopes
CoxBb	Croton silt loam, 0 to 6 percent slopes, very stony
CpA	Comly silt loam, 0 to 3 percent slopes
CpB	Comly silt loam, 3 to 8 percent slopes
CrB	Comly silt loam, 0 to 8 percent slopes, extremely stony
CtA	Conotton gravelly loam, 0 to 3 percent slopes
DaA	Delaware fine sandy loam, 0 to 3 percent slopes
DdD	Dekalb extremely stony sandy loam, 8 to 25 percent slopes
DeD	Dekalb very stony loam, 8 to 25 percent slopes
DeF	Dekalb very stony loam, 25 to 100 percent slopes
DgC	Duffield-Ryder silt loams, 8 to 15 percent slopes
DOZA	Doylestown and Reaville variant silt loams, 0 to 2 percent slopes
DrA	Drifton loam, 0 to 3 percent slopes
DrB2	Drifton loam, 3 to 8 percent slopes, moderately eroded
DsB	Drifton very stony loam, 0 to 8 percent slopes
DuA	Duffield silt loam, 0 to 3 percent slopes
DuB	Duffield silt loam, 3 to 8 percent slopes
Fl	Fluvaquents
FtC2	Fleetwood sandy loam, 8 to 15 percent slopes, moderately eroded
FvF	Fleetwood very stony loam, shallow, 25 to 100 percent slopes
FwB	Fleetwood very stony sandy loam, 0 to 8 percent slopes
FwD	Fleetwood very stony sandy loam, 8 to 25 percent slopes
Gb	Gibraltar silt loam
GKAPCC	Gladstone and Parker soils, 8 to 15 percent slopes, extremely stony
GlB	Gladstone gravelly loam, 3 to 8 percent slopes
GlC	Gladstone gravelly loam, 8 to 15 percent slopes
GmD	Gladstone gravelly loam, 8 to 25 percent slopes, very bouldery
GmF	Gladstone gravelly loam, 25 to 55 percent slopes, very bouldery
GnD	Gladstone-Parker gravelly loams, 15 to 25 percent slopes
GP	Gravel pits
GrB	Glenville silt loam, 3 to 8 percent slopes
HaA	Hartleton channery silt loam, 0 to 3 percent slopes
HaB2	Hartleton channery silt loam, 3 to 8 percent slopes, moderately eroded
HaC2	Hartleton channery silt loam, 8 to 15 percent slopes, moderately eroded
HaC3	Hartleton channery silt loam, 8 to 15 percent slopes, severely eroded
HdyB	Hazleton channery loam, 2 to 6 percent slopes
HdyC2	Hazleton channery loam, 6 to 12 percent slopes, eroded
HdyD	Hazleton channery loam, 12 to 18 percent slopes
HdyDb	Hazleton channery loam, 6 to 18 percent slopes, very stony
HdyEb	Hazleton channery loam, 18 to 40 percent slopes, very stony
HgF	Hazleton-Rubble land complex, 25 to 60 percent slopes

MUSYM	DESCRIPTION
Ho	Holly silt loam
HtA	Hazleton loam, 0 to 3 percent slopes
HtB	Hazleton loam, 3 to 8 percent slopes
HtB2	Hazleton loam, 3 to 8 percent slopes, moderately eroded
HvB	Hazleton very stony loam, 0 to 8 percent slopes
HvD	Hazleton very stony loam, 8 to 25 percent slopes
Hy	Holly silt loam
KcB2	Klinesville channery silt loam, 3 to 8 percent slopes, moderately eroded
KcC2	Klinesville channery silt loam, 8 to 15 percent slopes, moderately eroded
KcC3	Klinesville channery silt loam, 8 to 15 percent slopes, severely eroded
KcD2	Klinesville channery silt loam, 15 to 25 percent slopes, moderately eroded
KcD3	Klinesville channery silt loam, 15 to 25 percent slopes, severely eroded
KcE2	Klinesville channery silt loam, 25 to 35 percent slopes, moderately eroded
KcE3	Klinesville channery silt loam, 25 to 35 percent slopes, severely eroded
KcF	Klinesville channery silt loam, 35 to 80 percent slopes
KkoC	Klinesville channery loam, 6 to 12 percent slopes
KkoD	Klinesville channery loam, 12 to 18 percent slopes
KkoE	Klinesville channery loam, 18 to 35 percent slopes
KvF	Klinesville very stony silt loam, 25 to 80 percent slopes
LaB	Lackawanna channery silt loam, 3 to 8 percent slopes
LaC	Lackawanna channery silt loam, 8 to 15 percent slopes
LaD	Lackawanna channery silt loam, 15 to 25 percent slopes
LbB	Laidig very gravelly loam, 0 to 8 percent slopes, extremely stony
LbD	Laidig very gravelly loam, 8 to 25 percent slopes, extremely stony
LbmB	Lansdale loam, 2 to 6 percent slopes
LbmC2	Lansdale loam, 6 to 12 percent slopes, eroded
LbmD	Lansdale loam, 12 to 18 percent slopes
LcB	Lackawanna very stony silt loam, 3 to 8 percent slopes
LcD	Lackawanna very stony silt loam, 8 to 25 percent slopes
LdB	Laidig very stony loam, 3 to 8 percent slopes
LdD	Laidig very stony loam, 8 to 25 percent slopes
LDXB2	Lawrenceville and Mount Lucas silt loams, 2 to 6 percent slopes, eroded
LeA	Leck kill channery silt loam, 0 to 3 percent slopes
LeB2	Leck kill channery silt loam, 3 to 8 percent slopes, moderately eroded
LeC2	Leck kill channery silt loam, 8 to 15 percent slopes, moderately eroded
LeC3	Leck kill channery silt loam, 8 to 15 percent slopes, severely eroded
LeD2	Leck kill channery silt loam, 15 to 25 percent slopes, moderately eroded
LeD3	Leck kill channery silt loam, 15 to 25 percent slopes, severely eroded
LEF	Lackawanna and Bath soils, steep, extremely stony
LegB	Legore gravelly loam, 2 to 6 percent slopes
LegC	Legore gravelly loam, 6 to 12 percent slopes
LegD	Legore gravelly loam, 12 to 18 percent slopes
LegE	Legore gravelly loam, 18 to 30 percent slopes
LemB	Lehigh silt loam, 2 to 6 percent slopes
LemBb	Lehigh silt loam, 2 to 6 percent slopes, very stony
LemC2	Lehigh silt loam, 6 to 12 percent slopes, eroded
LemD2	Lehigh silt loam, 12 to 18 percent slopes, eroded
LkB	Leck kill very stony loam, 0 to 8 percent slopes
LkD	Leck kill very stony loam, 8 to 25 percent slopes
LkF	Leck kill very stony loam, 25 to 100 percent slopes
Ln	Linden soils
LtA	Lickdale and Tughill very stony loams, 0 to 8 percent slopes
LvD	Lordstown very stony silt loam, 8 to 25 percent slopes
LvF	Lordstown very stony silt loam, 25 to 80 percent slopes
MaB	Mardin channery silt loam, 3 to 8 percent slopes
MaC	Mardin channery silt loam, 8 to 15 percent slopes
Mb	Middlebury silt loam
McB	Mardin channery silt loam, 3 to 8 percent slopes, very stony
McD	Mardin channery silt loam, 8 to 25 percent slopes, very stony
MdB	Middlebury silt loam, 3 to 8 percent slopes
Mg	Mine dump
Mh	Mine dump, burned
MoB	Morris channery silt loam, 0 to 8 percent slopes
MoB2	Montevallo channery silt loam, 3 to 8 percent slopes, moderately eroded
MoC2	Montevallo channery silt loam, 8 to 15 percent slopes, moderately eroded
MoD2	Montevallo channery silt loam, 15 to 25 percent slopes, moderately eroded
MoE2	Montevallo channery silt loam, 25 to 35 percent slopes, moderately eroded
MoF2	Montevallo channery silt loam, 35 to 100 percent slopes, eroded
MonB	Mount Lucas silt loam, 2 to 6 percent slopes
MonBb	Mount Lucas silt loam, 0 to 6 percent slopes, very stony
MonCb	Mount Lucas silt loam, 6 to 12 percent slopes, very stony
MopBb	Mount Lucas-Watchung silt loams, 0 to 6 percent slopes, very stony
MrB	Morris very stony silt loam, 0 to 8 percent slopes
MsB	Morris very stony silt loam, 0 to 8 percent slopes
MsC	Morris very stony silt loam, 8 to 15 percent slopes
Mu	Muck
NehB	Neshaminy silt loam, 2 to 6 percent slopes
NehC2	Neshaminy silt loam, 6 to 12 percent slopes, eroded
NehCb	Neshaminy silt loam, 6 to 12 percent slopes, very stony
NehDb	Neshaminy silt loam, 12 to 18 percent slopes, very stony
NehEb	Neshaminy silt loam, 18 to 35 percent slopes, very stony
NemCb	Neshaminy-Mount Lucas silt loams, 6 to 12 percent slopes, very stony
NvB	Norwich soils, 0 to 8 percent slopes, extremely stony
OlB	Oquaga and Lordstown channery silt loams, 3 to 8 percent slopes
OlC	Oquaga and Lordstown channery silt loams, 8 to 15 percent slopes
OlD	Oquaga and Lordstown channery silt loams, 15 to 25 percent slopes
OpB	Oquaga and Lordstown extremely stony silt loams, 3 to 8 percent slopes
OpD	Oquaga and Lordstown extremely stony silt loams, 8 to 25 percent slopes
OXF	Oquaga and Lordstown extremely stony silt loams steep
Pa	Papakating silty clay loam
ParC	Parker cobbly loam, 3 to 15 percent slopes
ParEe	Parker cobbly loam, 18 to 40 percent slopes, extremely stony
PdtB	Pattenburg gravelly loam, 2 to 6 percent slopes
PdtC2	Pattenburg gravelly loam, 6 to 12 percent slopes, eroded
PdtE	Pattenburg gravelly loam, 18 to 40 percent slopes
PdtmB	Pattenburg gravelly loam, moderately wet, 2 to 6 percent slopes
PeoB	Penn channery silt loam, 2 to 6 percent slopes

MUSYM	DESCRIPTION
PeoC	Penn channery silt loam, 6 to 12 percent slopes
PeoC2	Penn channery silt loam, 6 to 12 percent slopes, eroded
PeoD	Penn channery silt loam, 12 to 18 percent slopes
PepB	Penn-Bucks complex, 2 to 6 percent slopes
PomAs	Pope fine sandy loam, high bottom, 0 to 2 percent slopes, occasionally flooded
Pr	Pits, quarry
Ps	Pope soils
QukB	Quakertown silt loam, 2 to 6 percent slopes
QukC	Quakertown silt loam, 6 to 12 percent slopes
QukC2	Quakertown silt loam, 6 to 12 percent slopes, eroded
RdB	Rexford loam, 3 to 8 percent slopes
REFA	Readington and Abbottstown silt loams, 0 to 2 percent slopes
REFB	Readington and Abbottstown silt loams, 2 to 6 percent slopes
REFB2	Readington and Abbottstown silt loams, 2 to 6 percent slopes, eroded
REFC2	Readington and Abbottstown silt loams, 6 to 12 percent slopes, eroded
RehB	Reaville silt loam, 2 to 6 percent slopes
RehB2	Reaville silt loam, 2 to 6 percent slopes, eroded
RehC2	Reaville silt loam, 6 to 12 percent slopes, eroded
RepwB	Reaville wet variant silt loam, 2 to 6 percent slopes
RksC	Riverhead gravelly sandy loam, 8 to 15 percent slopes
ROPF	Rough broken land, shale
RorAt	Rowland silt loam, 0 to 2 percent slopes, frequently flooded
RyB	Ryder-Duffield silt loams, 3 to 8 percent slopes
RzF	Ryder-Rock outcrop complex, 25 to 75 percent slopes
ShA	Shelmadine silt loam, 0 to 3 percent slopes
Sm	Strip mine
SmB	Shelmadine very stony silt loam, 0 to 8 percent slopes
SwB	Swartswood very stony loam, 0 to 8 percent slopes
Tg	Tioga silt loam
TmB	Tioga and Middlebury very stony loams, 0 to 8 percent slopes
TuB	Tunkhannock gravelly loam, 3 to 8 percent slopes
TuC	Tunkhannock gravelly loam, 8 to 15 percent slopes
UbB	Udorthents, limestone, 0 to 8 percent slopes
UgD	Udorthents, schist and gneiss, 8 to 25 percent slopes
UhD	Udorthents, shale and sandstone, 8 to 25 percent slopes
UkaB	Urban land, 0 to 8 percent slopes
UoB	Urban land-Duffield complex, 0 to 8 percent slopes
UpB	Urban land-Gladstone complex, 0 to 8 percent slopes
UudB	Urban land-Udorthents, limestone complex, 0 to 8 percent slopes
UudD	Urban land-Udorthents, limestone complex, 8 to 25 percent slopes
UusB	Urban land-Udorthents, shale and sandstone complex, 0 to 8 percent slopes
VeF	Very stony land, 25 to 120 percent slopes
VoB	Volusia channery silt loam, 0 to 8 percent slopes
VrB	Volusia channery silt loam, 0 to 8 percent slopes, extremely stony
VrC	Volusia channery silt loam, 8 to 15 percent slopes, extremely stony
VsB	Volusia very stony loam, 0 to 8 percent slopes
W	Water
Wa	Wayland silt loam
WaA	Washington silt loam, 0 to 3 percent slopes
WaB	Washington silt loam, 3 to 8 percent slopes
WaC	Washington silt loam, 8 to 15 percent slopes
WaD	Washington silt loam, 15 to 25 percent slopes
WeB	Weikert and Klinesville channery silt loams, 3 to 8 percent slopes
WkB	Weikert-Berks complex, 3 to 8 percent slopes
WkC	Weikert-Berks complex, 8 to 15 percent slopes
WkD	Weikert-Berks complex, 15 to 25 percent slopes
WlB	Wellsboro channery silt loam, 3 to 8 percent slopes
WlC	Wellsboro channery silt loam, 8 to 15 percent slopes
WlD	Wellsboro channery silt loam, 15 to 25 percent slopes
WmB	Wellsboro very stony silt loam, 3 to 8 percent slopes
WmD	Wellsboro very stony silt loam, 8 to 25 percent slopes
WrB	Wurtsboro channery loam, 3 to 8 percent slopes
WrC	Wurtsboro channery loam, 8 to 15 percent slopes
WrD	Wurtsboro channery loam, 15 to 25 percent slopes
WsB2	Watson silt loam, 3 to 8 percent slopes, moderately eroded
WtB	Wurtsboro extremely stony loam, 3 to 8 percent slopes
WtD	Wurtsboro extremely stony loam, 8 to 25 percent slopes
WyD	Wyoming gravelly loam, 15 to 25 percent slopes
WyF	Wyoming gravelly loam, 25 to 60 percent slopes

LEGENDS

PROPOSED

- PROPOSED PIPELINE
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED ABOVE GROUND FACILITY
- ROCK CONSTRUCTION ENTRANCE 2
- PROPOSED PIPEYARD
- PROPOSED STAGING AREA
- PROPOSED FENCE
- ACCESS ROAD
- PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE
- PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (TEMPORARY)
- PERMANENT TRENCH PLUG

EXISTING

- PROPERTY LINE
- STREAM (PUBLIC)
- STREAM (DELINEATED)
- 1260' MAJOR CONTOURS
- 1261' MINOR CONTOURS
- EXISTING PIPELINE
- OH EXISTING OVERHEAD LINE
- WETLAND (PUBLIC)
- WETLAND (DELINEATED)
- WETLAND (AGRICULTURAL MODIFIED)
- EXISTING FENCE
- PE-LU-001.000 PROPERTY OWNER
- WATERBODY (DELINEATED)
- WATERBODY (PUBLIC)
- RAILROAD CENTERLINE
- ROAD CENTERLINE
- TRAIL CENTERLINE
- UTILITY POLE
- STRUCTURE

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

PREPARED FOR

PennEast PIPELINE

PREPARED BY

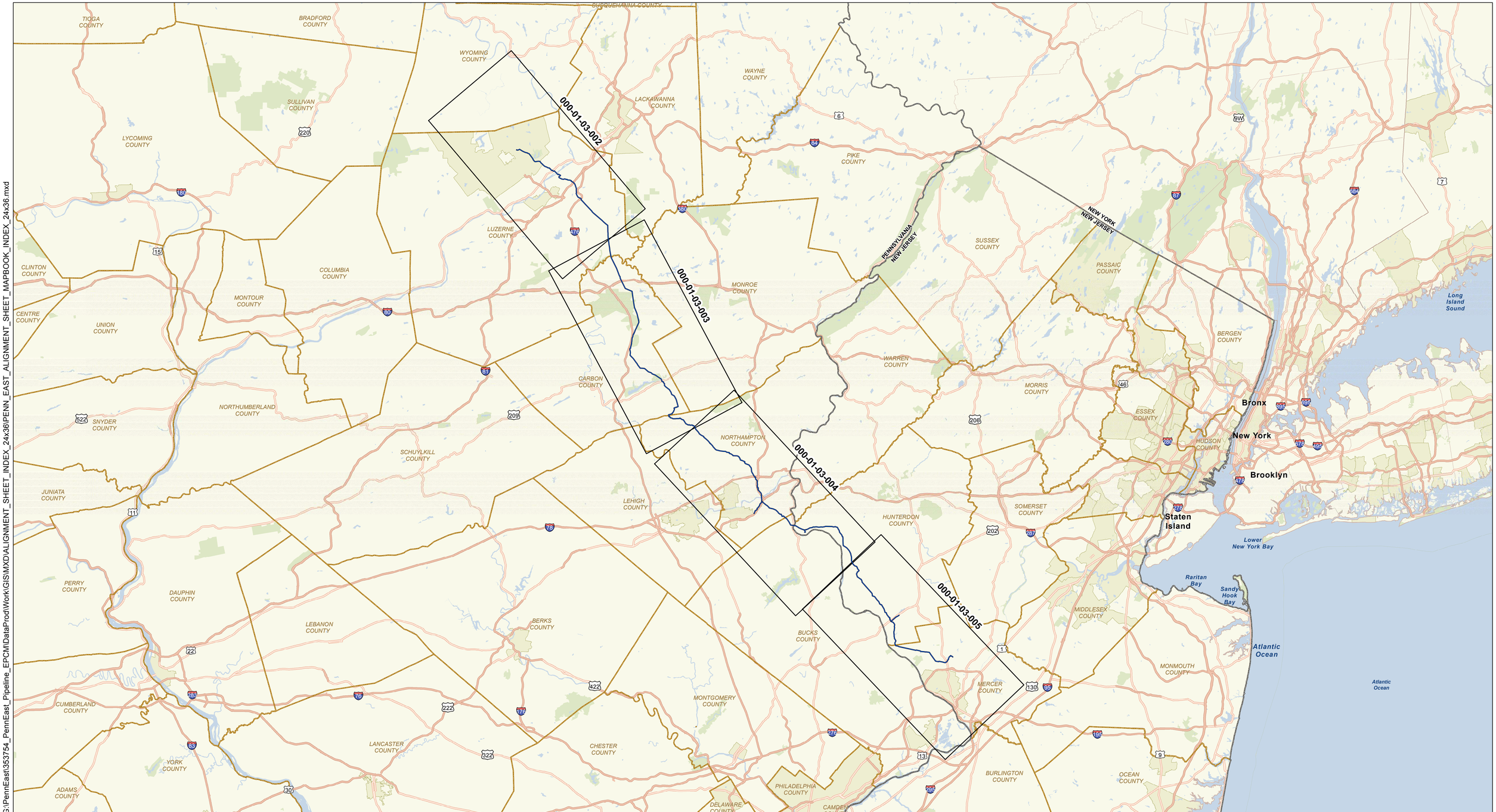
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

LEGENDS
PROPOSED 36" PENNEAST PIPELINE
PROPOSED 24" HELLERTOWN LATERAL
PROPOSED 12" GILBERT LATERAL
PROPOSED 36" LAMBERTVILLE LATERAL

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-01-01-002	D

G:\PennEast\353754_PennEast_Pipeline_EPCM\DataProd\Work\GIS\MXD\ALIGNMENT_SHEET_INDEX_24x36\PENN_EAST_ALIGNMENT_SHEET_MAPBOOK_INDEX_24x36.mxd



PROPOSED PENNEAST PIPELINE CENTERLINE
MAJOR HIGHWAY
HIGHWAY
SHEET INDEX
WATER BODY
CITY AREA
PARK
COUNTY BOUNDARY
STATE BOUNDARY

PENNEAST PIPELINE PROJECT

ALIGNMENT SHEET INDEX

SHEET INDEX

PENNSYLVANIA AND NEW JERSEY

MILES
6 0 6 12

N W E S

ABSOLUTE SCALE: 1:380,160

REFERENCE SCALE: 1 IN = 6 MILES

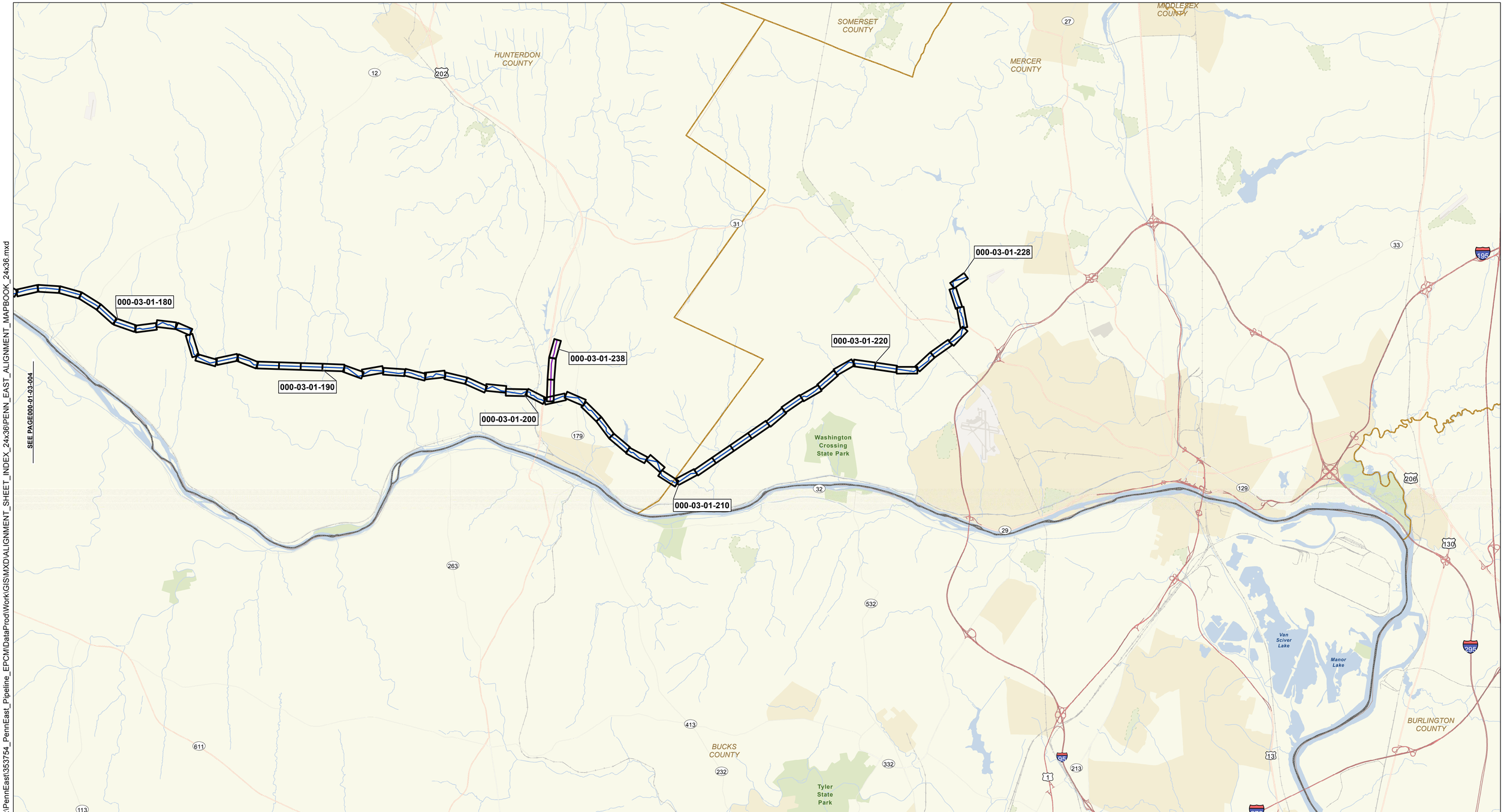
PennEast PIPELINE

Hatch Mott MacDonald

PENNEAST PROPRIETARY

DRAWN BY:	HMM 09/18/2015
CHECKED BY:	HMM
APPROVED BY:	HMM
REV. DATE:	09/18/2015
REVISION:	D
DESC:	FERC FINAL FILING
DWG. NO.:	000-01-03-001

09182015-1117-OVE-000



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09/18/2015-1117-OVE-000

- PROPOSED PENNEAST PIPELINE CENTERLINE
- PROPOSED HELLERTOWN LATERAL
- PROPOSED GILBERT LATERAL
- PROPOSED LAMBERTVILLE LATERAL
- INTERSTATE
- HIGHWAY
- MAJOR ROAD
- LOCAL ROAD
- RAILROAD
- PAGE INDEX
- WATER BODY
- URBAN AREA
- PARKS
- COUNTY BOUNDARY
- STATE BOUNDARY

PENNEAST PIPELINE PROJECT

ALIGNMENT SHEET INDEX

PAGE INDEX

HUNTERDON & MERCER COUNTIES
NEW JERSEY

1 0 1 2 MILES

ABSOLUTE SCALE: 1:62,500

REFERENCE SCALE: 1 IN = 1 MILE

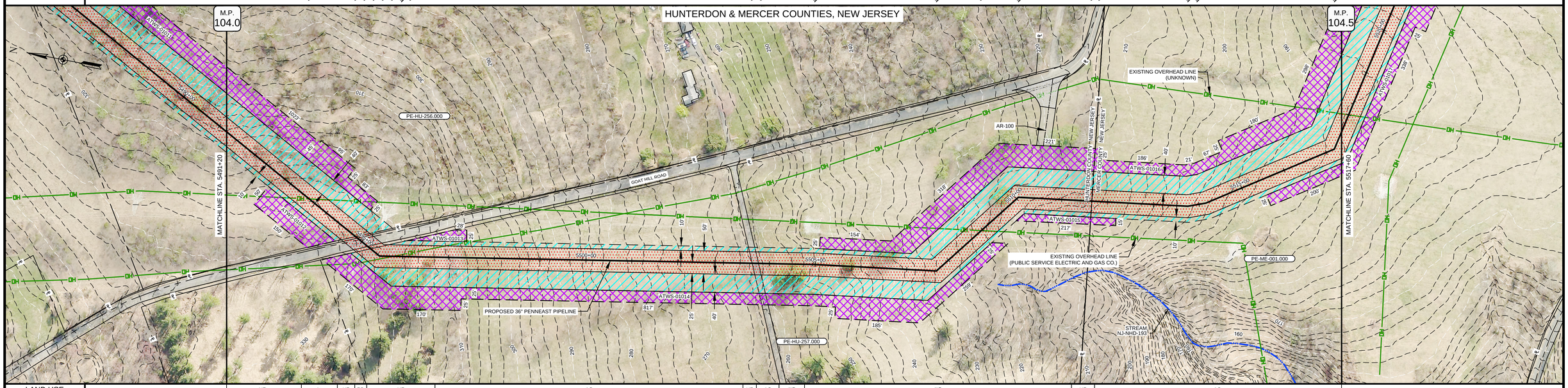
PennEast PIPELINE

Hatch Mott MacDonald

PENNEAST PROPRIETARY

DRAWN BY:	HMM 09/18/2015
CHECKED BY:	HMM
APPROVED BY:	HMM
REV. DATE:	09/18/2015
REVISION:	D
DESC:	FERC FINAL FILING
DWG. NO.:	000-01-03-005

OWNERSHIP / FOOTAGE	PE-HU-256.000 363' · GOAT HILL RD 42' · PE-HU-257.000 1641' · PE-ME-001.000 594'
STATIONING	5493+52 OVERHEAD WIRE; 5494+83 PROPERTY LINE; 5494+88 EDGE OF ROAD; 5494+93 CENTERLINE OF GOAT HILL RD; 5495+16 EDGE OF ROAD; 5495+25 PROPERTY LINE; 5495+50 PI = 37°59'32" LT; 5495+70 OVERHEAD WIRE; 5500+43 EDGE OF DRIVEWAY; 5503+76 EDGE OF DRIVEWAY; 5504+09 PI = 13°55'06" RT; 5507+05 PI = 45°00'00" LT; 5508+66 OVERHEAD WIRE; 5510+05 PI = 45°00'00" RT; 5511+66 PROPERTY LINE; 5511+66 COUNTY LINE; 5513+75 PI = 37°54'46" LT; 5514+19 PI = 37°54'46" LT; 5517+19 PI = 44°33'31" LT



LAND USE	UF · OL · UF · RD · UF · AG · UF · AG · AG · AG · UF · AG
MATERIAL & COATING	354' (1) · 60' (4) · 2226' (1); 5495+50 (14); 5498+74; 5498+34; 5507+45 (13); 5510+05 (13); 5517+19 (13)
SOILS	PeoB · RehB · PeoB · RehB · AbrB · AbrB · PeoC
ENVIRONMENTAL SITE SPECIFIC E&S	2 13 26 39; 5 14 30; 9 18 35; 10 21 36 · 2 13 26 39; 5 14 30; 9 18 35; 10 21 36
CLASS LOCATION	CLASS I
DESIGN FACTOR	0.72 · 0.6 · 0.72
MAOP	1480 PSIG

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE ( )

PERMANENT TRENCH PLUG ▲

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

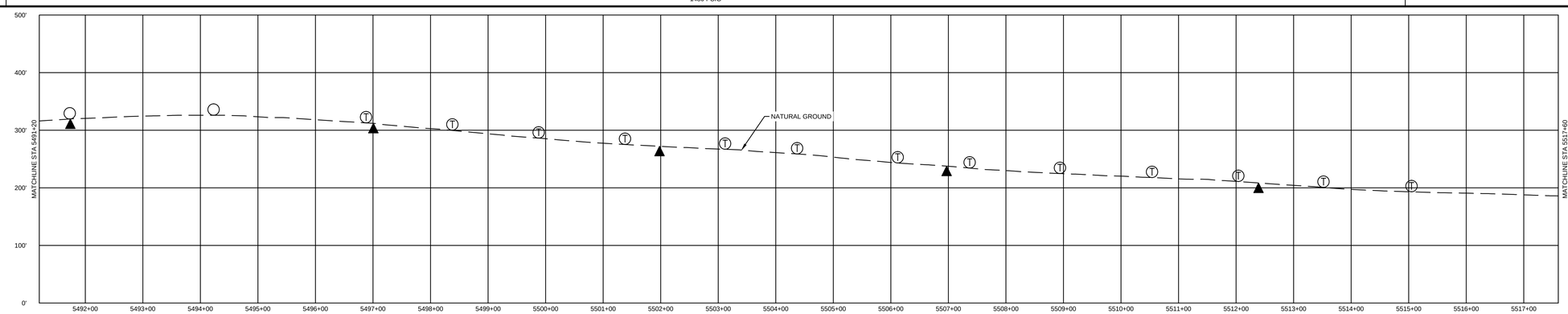
TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 23 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
1. THE BEST MANAGEMENT PRACTICE (BMP) NUMBERS NOTED ABOVE CORRESPOND TO SPECIFIC DETAILS FOUND ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS. THE BMP DETAILS INCLUDE GENERAL LAYOUT, LOCATION, DIMENSION, CONSTRUCTION, NOTES, MATERIALS, ETC. THAT SHALL BE FOLLOWED DURING CONSTRUCTION OF THE PIPELINE.
2. THE APPROX. LOCATION AND TYPE OF SEDIMENT BARRIERS TO BE INSTALLED ALONG THE CONSTRUCTION WORKSPACE ARE LOCATED IN TABLES ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS.
3. CONTRACTOR SHALL INSTALL ONLY APPROVED PADEP/NJDEP DETAILS.



SOILS	LAND USE	MATERIAL			REFERENCE DRAWINGS	
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG) · 10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION	DWG. NO.	TITLE
	2. COMMERCIAL / INDUSTRIAL (CI)	1	2580'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	3. UPLAND FOREST (UF)	4	40'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE / ARO COATED		
	4. INSTITUTIONAL (IN)	13	3	ELBOW, NON-SEGMENTABLE, 45°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	5. URBAN (UR)	14	1	ELBOW, SEGMENTABLE, 45°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)					
	7. RESIDENTIAL (RE)					
	8. ROADWAYS / RAILROADS (RD)				000-03-03-077	ACCESS ROAD DETAIL
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)				000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

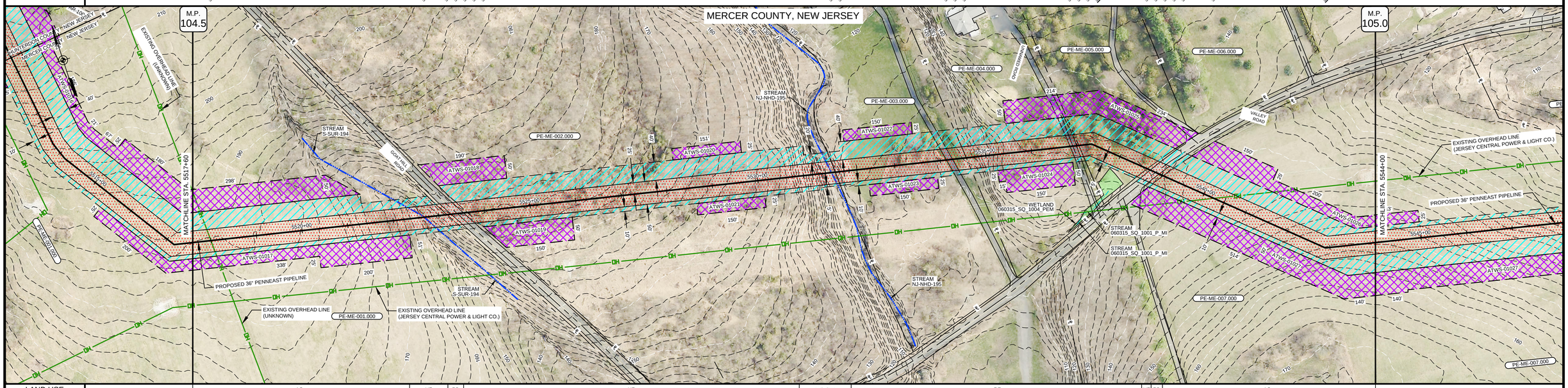
PENNEAST MAINLINE
PROPOSED 36" PIPELINE
HUNTERDON & MERCER COUNTIES, NEW JERSEY
STA. 5491+20 TO STA. 5517+60

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-209	D

OWNERSHIP / FOOTAGE	PE-ME-001.000 558'	GOAT HILL RD 45'	PE-ME-002.000 807'	PE-ME-003.000 287'	PE-ME-004.000 247'	PE-ME-005.000 161'	VALLEY RD 38'	PE-ME-007.000 497'

STATIONING

5518+00 OVERHEAD WIRE
5522+68 CENTERLINE OF STREAM S-SUR-194
5523+18 PROPERTY LINE
5523+40 EDGE OF ROAD
5523+54 CENTERLINE OF GOAT HILL RD
5523+63 EDGE OF ROAD
5523+63 PROPERTY LINE
5531+61 CENTERLINE OF STREAM NJ-NHD-195
5531+70 PROPERTY LINE
5534+14 EDGE OF DRIVEWAY
5534+27 EDGE OF DRIVEWAY
5534+57 EDGE OF DRIVEWAY
5534+57 PROPERTY LINE
5536+85 EDGE OF DRIVEWAY
5536+89 EDGE OF DRIVEWAY
5537+04 PROPERTY LINE
5537+32 PI = 34°14'53" RT.
5538+65 PROPERTY LINE
5538+72 EDGE OF ROAD
5538+85 CENTERLINE OF VALLEY RD
5539+43 EDGE OF ROAD
5539+43 PROPERTY LINE
5540+24 OVERHEAD WIRE
5542+90 PI = 30°06'05" LT.



LAND USE	AG	UF	RD	UF	WB OW	RE	UF	RD	AG

MATERIAL & COATING

551' (1) | 60' (4) | 771' (1) | 40' (2) | 677' (1) | 50' (4) | 491' (1)

5532+11 | 5532+71 | 5533+42 | 5533+82 | 5537+32 (14) | 5538+05 | 5539+05 | 5542+80 (14)

SOILS	PeoC	LemB	PeoB	PeoC	PeoD	PeoB	RehB	ROPF	RorAt	BoyAt	KkoE	PeoB	PeoC

ENVIRONMENTAL SITE SPECIFIC E&S: 2 13 26 39 / 5 14 30 / 9 18 35 / 10 21 36

CLASS LOCATION	CLASS I	CLASS II
DESIGN FACTOR	0.72 / 0.6 / 0.72	0.6 / 0.5 / 0.6
MAOP	1480 PSIG	

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
1. THE BEST MANAGEMENT PRACTICE (BMP) NUMBERS NOTED ABOVE CORRESPOND TO SPECIFIC DETAILS FOUND ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS. THE BMP DETAILS INCLUDE GENERAL LAYOUT, LOCATION, DIMENSION, CONSTRUCTION, NOTES, MATERIALS, ETC. THAT SHALL BE FOLLOWED DURING CONSTRUCTION OF THE PIPELINE.
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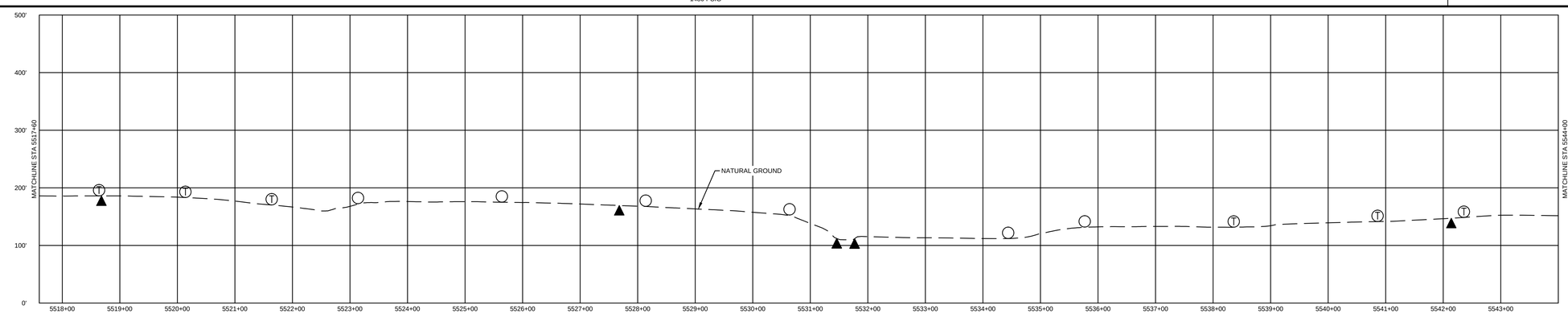


SOILS: FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002

LAND USE:
1. AGRICULTURAL (AG)
2. COMMERCIAL / INDUSTRIAL (CI)
3. UPLAND FOREST (UF)
4. INSTITUTIONAL (IN)
5. URBAN (UR)
6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)
7. RESIDENTIAL (RE)
8. ROADWAYS / RAILROADS (RD)
9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)
10. OPEN WATERBODIES (WB / OW)

MATERIAL		
TAG	QUANTITY	DESCRIPTION
1	2490'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
2	40'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE / ARO COATED
4	110'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE / ARO COATED
14	2	ELBOW, SEGMENTABLE, 45°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED

REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR: PennEast Pipeline

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

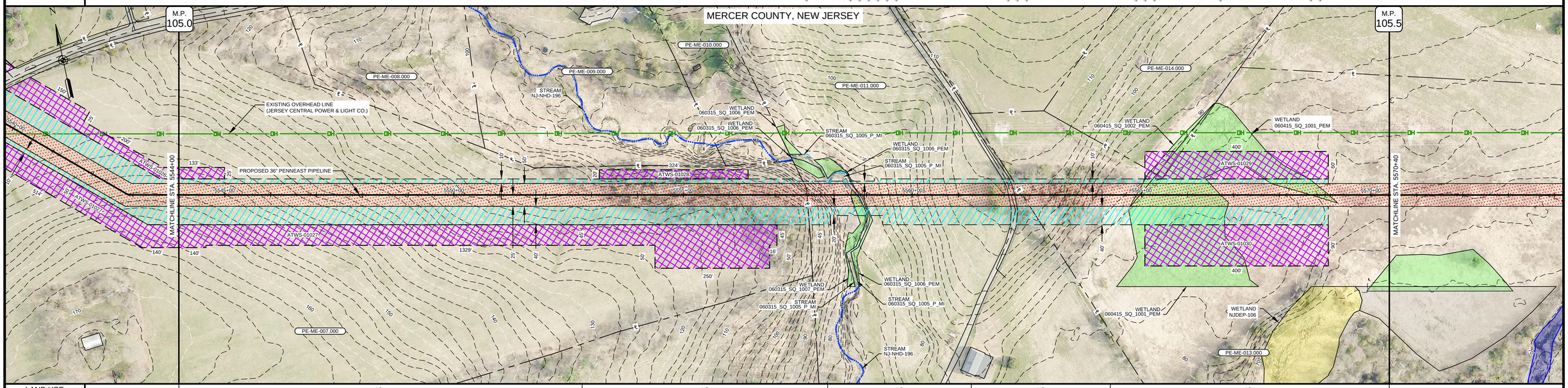
PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5517+60 TO STA. 5544+00

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-210	D

OWNERSHIP / FOOTAGE	PE-ME-007.000 1370'	PE-ME-011.000 470'	PE-ME-013.000 800'

STATIONING

5557+70 PROPERTY LINE
5558+45 ENTER/ EXIT WETLAND
5559+79 EDGE OF WETLAND
5559+79 ENTER/ EXIT WETLAND
5559+79 EDGE OF STREAM 060315_SQ_1005_P_MI
5559+45 EDGE OF STREAM 060315_SQ_1005_P_MI
5559+45 ENTER/ EXIT WETLAND
5559+45 EDGE OF WETLAND
5559+40 ENTER/ EXIT WETLAND
5562+10 EDGE OF DRIVEWAY
5562+23 EDGE OF DRIVEWAY
5562+40 PROPERTY LINE
5564+88 ENTER/ EXIT WETLAND
5564+96 ENTER/ EXIT WETLAND
5564+96 ENTER/ EXIT WETLAND
5566+72 ENTER/ EXIT WETLAND
5569+49 ENTER/ EXIT WETLAND
5569+66 ENTER/ EXIT WETLAND



LAND USE	AG	UF	AG	UF	AG
MATERIAL & COATING	1460' (1)	40' (2)	454' (1)		686' (5)
SOILS	PeoC	REFC2	KkoE	BhmB2 PeoC KkoE	RorAt BhnB RorAt

5558+40 5559+90 5559+54

ENVIRONMENTAL SITE SPECIFIC E&S

	11 18 34	1G 10 21 36	1G 10 21 36	11 18 34	11 18 34
	5 21 36	11 15 23 37	11 15 23 37	5 21 36	5 21 36
	9 32 39	5 17 28 38	5 17 28 38	9 32 39	9 32 39
	10 33	9 18 35 39	9 18 35 39	10 33	10 33

	2 13 26 39	11 18 34	11 18 34		
	5 14 30	5 21 36	5 21 36		
	9 18 35	9 32 39	9 32 39		
	10 21 36	10 33	10 33		

CLASS LOCATION	CLASS II
DESIGN FACTOR	0.6
MAOP	1480 PSIG

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
1. THE BEST MANAGEMENT PRACTICE (BMP) NUMBERS NOTED ABOVE CORRESPOND TO SPECIFIC DETAILS FOUND ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS. THE BMP DETAILS INCLUDE GENERAL LAYOUT, LOCATION, DIMENSION, CONSTRUCTION, NOTES, MATERIALS, ETC. THAT SHALL BE FOLLOWED DURING CONSTRUCTION OF THE PIPELINE.
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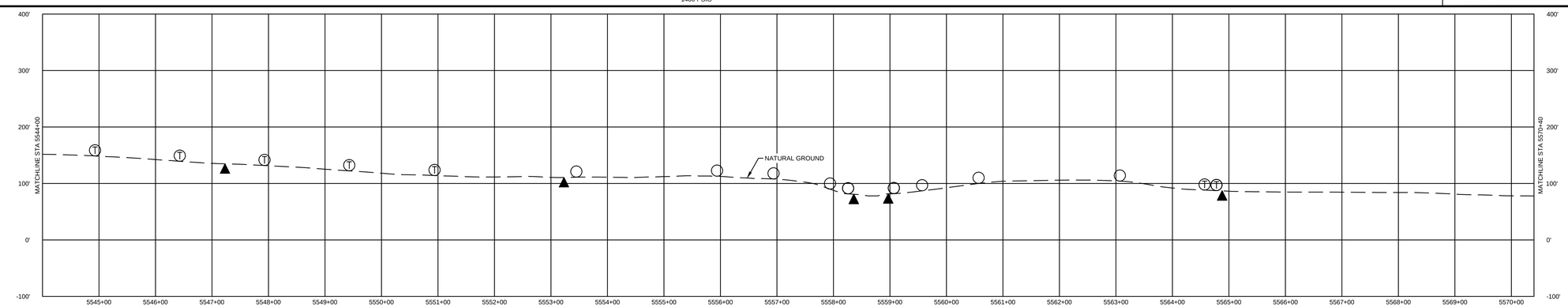


SOILS	LAND USE		MATERIAL			REFERENCE DRAWINGS	
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION	DWG. NO.	TITLE
	2. COMMERCIAL / INDUSTRIAL (CI)		1	1914'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	3. UPLAND FOREST (UF)		2	40'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE / ARO COATED		
	4. INSTITUTIONAL (IN)		5	686'	PIPE, 36.000" OD x .951 WT, API 5L, X-70, DSAW, FBE / ARO COATED		
	5. URBAN (UR)						
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)						
	7. RESIDENTIAL (RE)						
	8. ROADWAYS / RAILROADS (RD)						
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)					000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS				
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

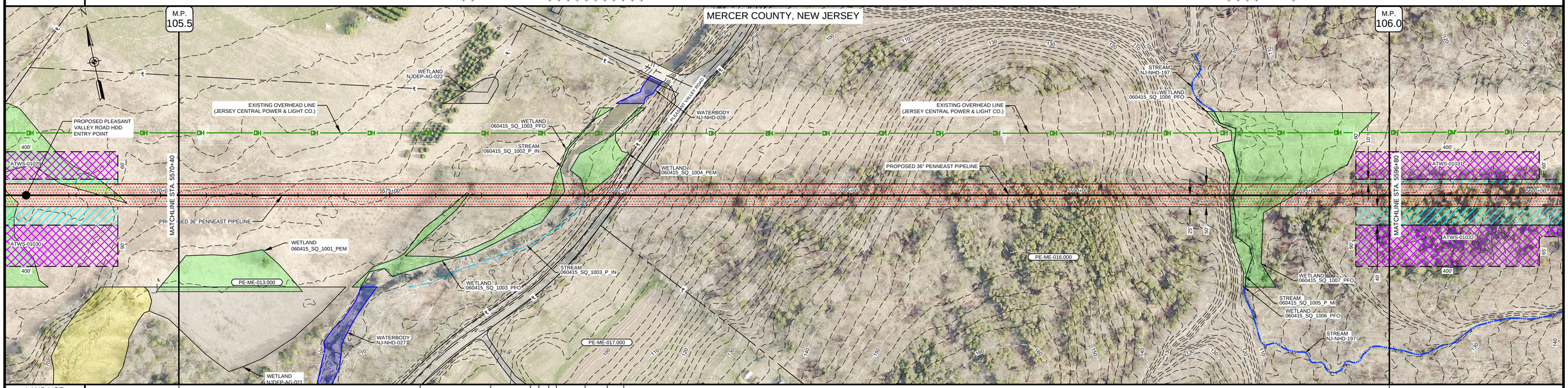
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5544+00 TO STA. 5570+40

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-211	D

OWNERSHIP / FOOTAGE	PE-ME-013.000 930' · PLEASANT VALLEY RD 41' · PE-ME-016.000 1669'
STATIONING	5570+40 · 5576+61 ENTER/ EXIT WETLAND · 5576+70 ENTER/ EXIT WETLAND · 5578+50 ENTER EXIT WETLAND · 5578+75 ENTER EXIT WETLAND · 5578+75 CENTERLINE OF STREAM 060415_SQ_1002_P_IN · 5578+25 CENTERLINE OF STREAM 060415_SQ_1002_P_IN · 5579+29 ENTER EXIT WETLAND · 5579+70 ENTER EXIT WETLAND · 5579+86 EDGE OF ROAD · 5580+06 CENTERLINE OF PLEASANT VALLEY RD · 5580+11 EDGE OF ROAD · 5580+11 PROPERTY LINE · 5583+31 ENTER/ EXIT WETLAND · 5583+41 CENTERLINE OF STREAM 060415_SQ_1005_P_MI · 5583+46 ENTER EXIT WETLAND · 5583+61 ENTER EXIT WETLAND · 5584+72 ENTER EXIT WETLAND · 5596+80



LAND USE	AG	UF	AG	UF	AG	UF	WB OW	UF	RD	UF					
MATERIAL & COATING	2640' (5)														
SOILS	RorAt	BhnB	RorAt	BhmC2	PeoB	KkoE	PeoB	KkoE	BoyAt	RehC2					
ENVIRONMENTAL SITE SPECIFIC E&S															
CLASS LOCATION	CLASS II						CLASS I								
DESIGN FACTOR	0.6						0.72								
MAOP	1480 PSIG														

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
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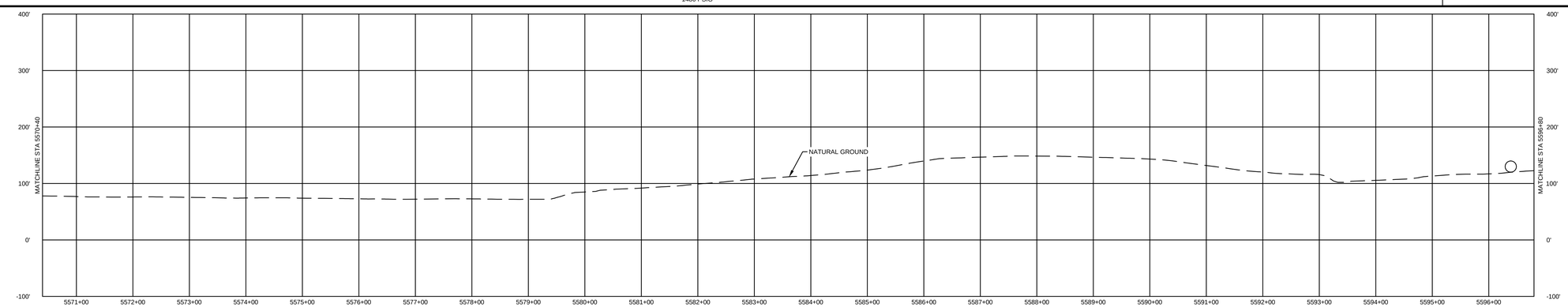
2. THE APPROX. LOCATION AND TYPE OF SEDIMENT BARRIERS TO BE INSTALLED ALONG THE CONSTRUCTION WORKSPACE ARE LOCATED IN TABLES ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS.
3. CONTRACTOR SHALL INSTALL ONLY APPROVED PADEP/NJDEP DETAILS.



SOILS
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002

LAND USE	
1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)
2. COMMERCIAL / INDUSTRIAL (CI)	
3. UPLAND FOREST (UF)	
4. INSTITUTIONAL (IN)	
5. URBAN (UR)	
6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)	
7. RESIDENTIAL (RE)	
8. ROADWAYS / RAILROADS (RD)	
9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)	

MATERIAL		
TAG	QUANTITY	DESCRIPTION
5	2640'	PIPE, .36.000" OD x .951 WT, API 5L, X-70, DSAW, FBE / ARO COATED

REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-07-008	HDD EXHIBIT PLAN AND PROFILE
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

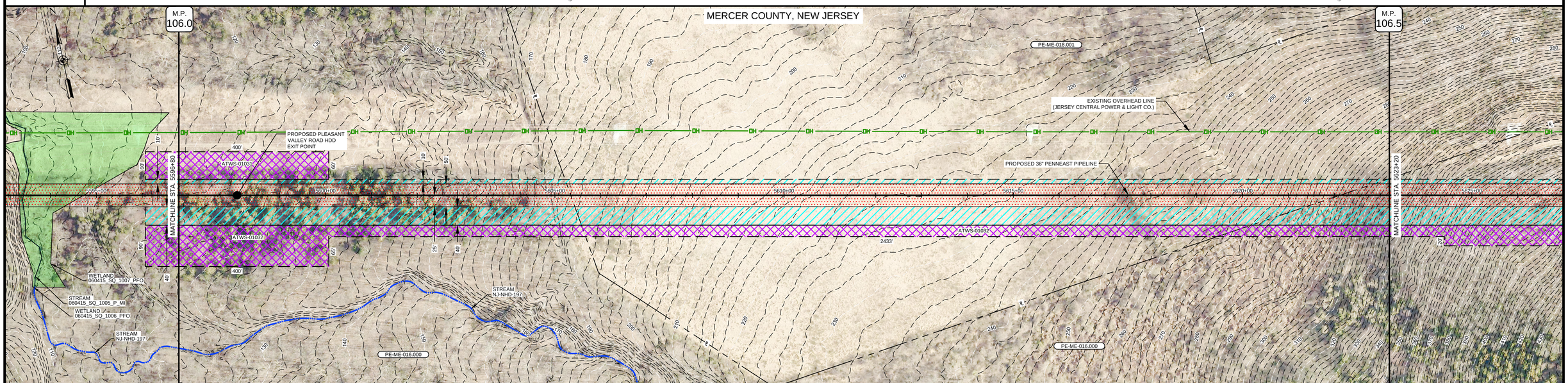
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5570+40 TO STA. 5596+80

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-212	D

OWNERSHIP / FOOTAGE	PE-ME-016.000 855' · PE-ME-018.001 1677' · PE-ME-016.000 108'
STATIONING	5596+80 · 5605+35 · 5622+12 · 5623+20 · 5605+35 PROPERTY LINE · 5622+12 PROPERTY LINE



LAND USE	UF	OL	UF	OL	UF			
MATERIAL & COATING	74' (5)	5597+54	2566' (1)					
SOILS	RehC2	LemC2	LDXB2	NehB	LegC	LegD	LegE	
ENVIRONMENTAL SITE SPECIFIC E&S								
CLASS LOCATION	CLASS I							
DESIGN FACTOR	0.72							
MAOP	1480 PSIG							

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

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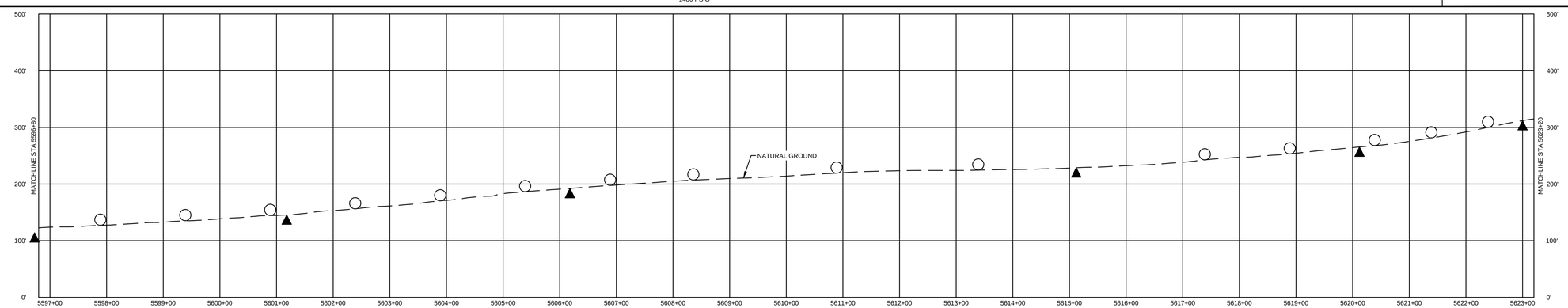

SOILS	LAND USE		MATERIAL		
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION
	2. COMMERCIAL / INDUSTRIAL (CI)		1	2566'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
	3. UPLAND FOREST (UF)		5	74'	PIPE, 36.000" OD x .951 WT, API 5L, X-70, DSAW, FBE / ARO COATED
	4. INSTITUTIONAL (IN)				
	5. URBAN (UR)				
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)				
	7. RESIDENTIAL (RE)				
	8. ROADWAYS / RAILROADS (RD)				
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)				

REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
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A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
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CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

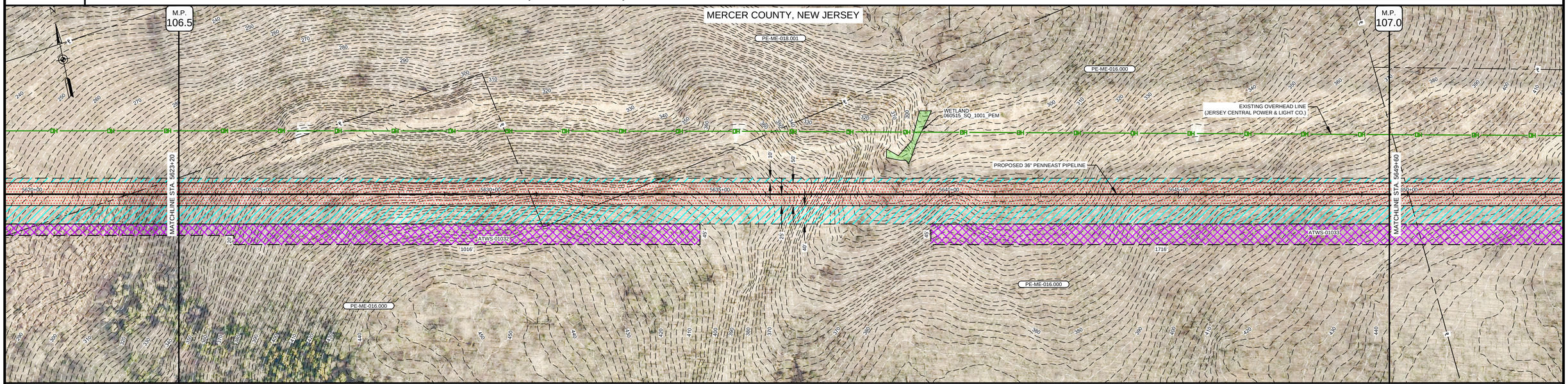
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5596+80 TO STA. 5623+20

SCALE	DRAWING NO.	REVISION
1 = 100'	000-03-01-213	D

OWNERSHIP / FOOTAGE	PE-ME-016.000 766' | PE-ME-018.001 204' | PE-ME-016.000 1670'
STATIONING	5623+20 | 5630+86 | 5632+90 | 5649+60
LAND USE	UF | OL | UF
MATERIAL & COATING	2640' (1)
SOILS	LegE | LegD
ENVIRONMENTAL SITE SPECIFIC E&S	
CLASS LOCATION	CLASS I
DESIGN FACTOR	0.72
MAOP	1480 PSIG



PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

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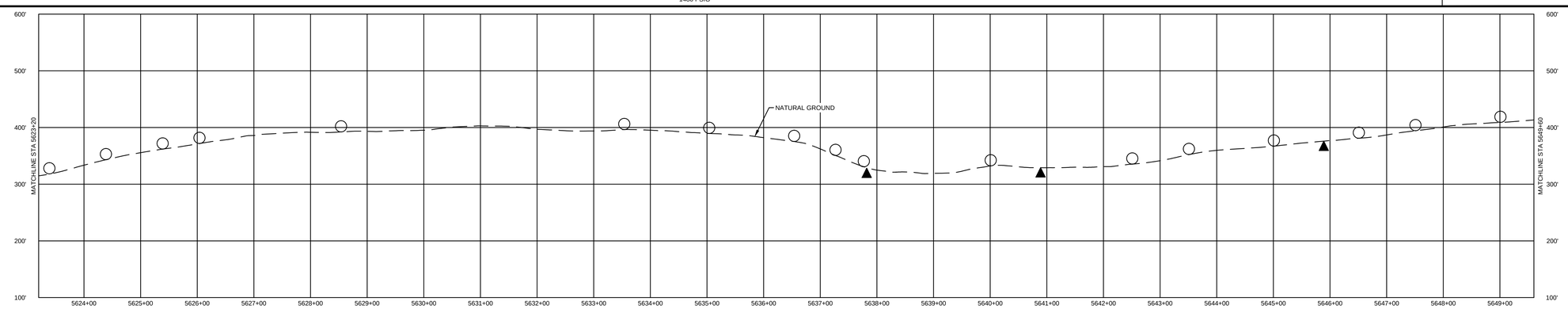

SOILS
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002

LAND USE	
1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)
2. COMMERCIAL / INDUSTRIAL (CI)	
3. UPLAND FOREST (UF)	
4. INSTITUTIONAL (IN)	
5. URBAN (UR)	
6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)	
7. RESIDENTIAL (RE)	
8. ROADWAYS / RAILROADS (RD)	
9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)	

MATERIAL		
TAG	QUANTITY	DESCRIPTION
1	2640'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED

REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
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APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

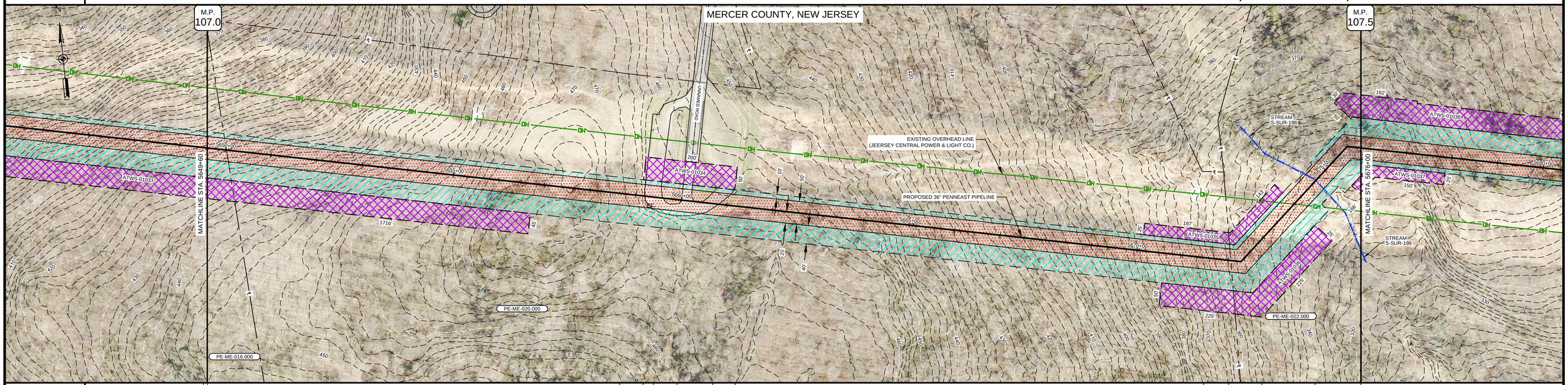
PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5623+20 TO STA. 5649+60

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-214	D

OWNERSHIP / FOOTAGE	PE-ME-016.000 42'	PE-ME-020.000 2204'	PE-ME-022.000 394'

STATIONING

5650+02 PROPERTY LINE
5659+20 EDGE OF ROAD
5659+40 EDGE OF ROAD
5660+01 EDGE OF ROAD
5660+14 CENTERLINE OF UNNAMED ROAD
5660+28 EDGE OF ROAD
5660+44 EDGE OF ROAD
5660+62 EDGE OF ROAD
5672+06 PROPERTY LINE
5672+08 P.I. = 53°32'25" LT.
5673+49 OVERHEAD WIRE
5674+69 CENTERLINE OF STREAM S-SUR-198
5675+70 P.I. = 33°36'07" RT.



LAND USE	UF	OL	RD	OL	RD	OL	UF	OL	UF	OL	UF

MATERIAL & COATING

	946' (1)	5659+06	190' (4)	5660+06	1504' (1)	5672+06 (16)	5675+70 (16)

SOILS	LegD	NehCb	LegD	MonCb	MonBb

ENVIRONMENTAL SITE SPECIFIC E&S

2	13	26	39
5	14	30	
9	18	35	
10	21	36	

CLASS LOCATION	CLASS I
DESIGN FACTOR	0.72 / 0.6 / 0.72
MAOP	1480 PSIG

PROFILE

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TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE ( )

PERMANENT TRENCH PLUG ▲

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

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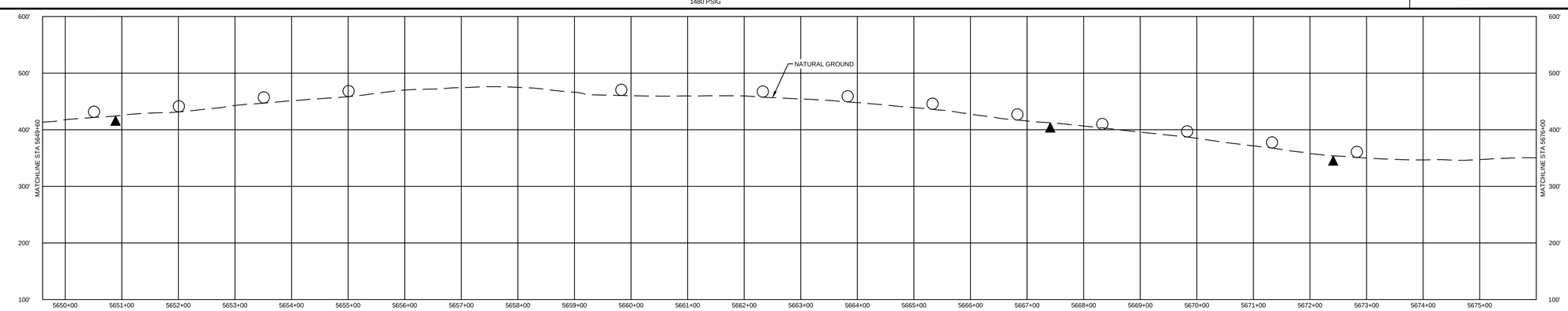

SOILS	LAND USE	
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)
	2. COMMERCIAL / INDUSTRIAL (CI)	
	3. UPLAND FOREST (UF)	
	4. INSTITUTIONAL (IN)	
	5. URBAN (UR)	
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)	
	7. RESIDENTIAL (RE)	
	8. ROADWAYS / RAILROADS (RD)	
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)	

MATERIAL		
TAG	QUANTITY	DESCRIPTION
1	2450'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
4	190'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE / ARO COATED
16	2	ELBOW, SEGMENTABLE, 90°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED

REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-03-078	ACCESS ROAD DETAIL
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
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APPROVALS	
DRAWN BY	DATE
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CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

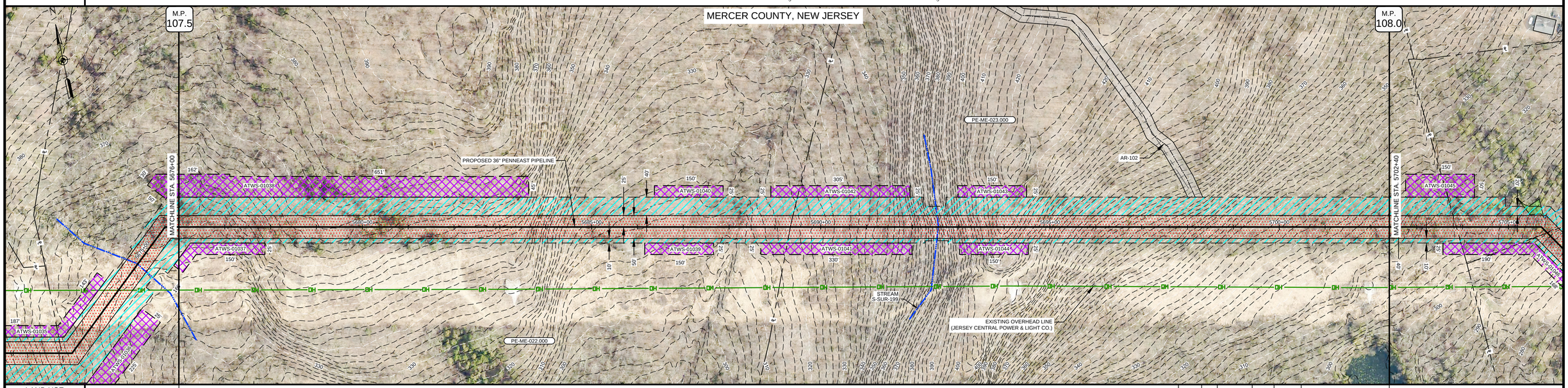
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5649+60 TO STA. 5676+00

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-215	D

OWNERSHIP / FOOTAGE	PE-ME-022.000 1334' | PE-ME-023.000 1306'
STATIONING	



LAND USE	UF | OL | UF | OL | UF | OL | UF
MATERIAL & COATING	2640' (1)
SOILS	MonBb | NehCb | MonBb | NehCb | NehEb | NehCb | NehEb | NehC2 | QukC | ChcC2
ENVIRONMENTAL SITE SPECIFIC E&S	
CLASS LOCATION	CLASS I
DESIGN FACTOR	0.72
MAOP	1480 PSIG

PROFILE

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TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

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SLOPE (%)	SPACING (FT)
<5	250
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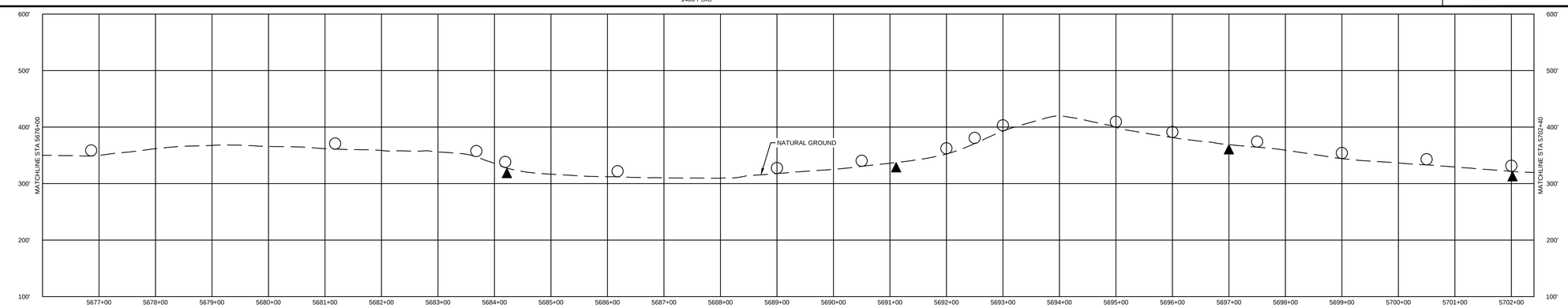

SOILS	LAND USE		MATERIAL		
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION
	2. COMMERCIAL / INDUSTRIAL (CI)		1	2640'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
	3. UPLAND FOREST (UF)				
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REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-03-079	ACCESS ROAD DETAIL
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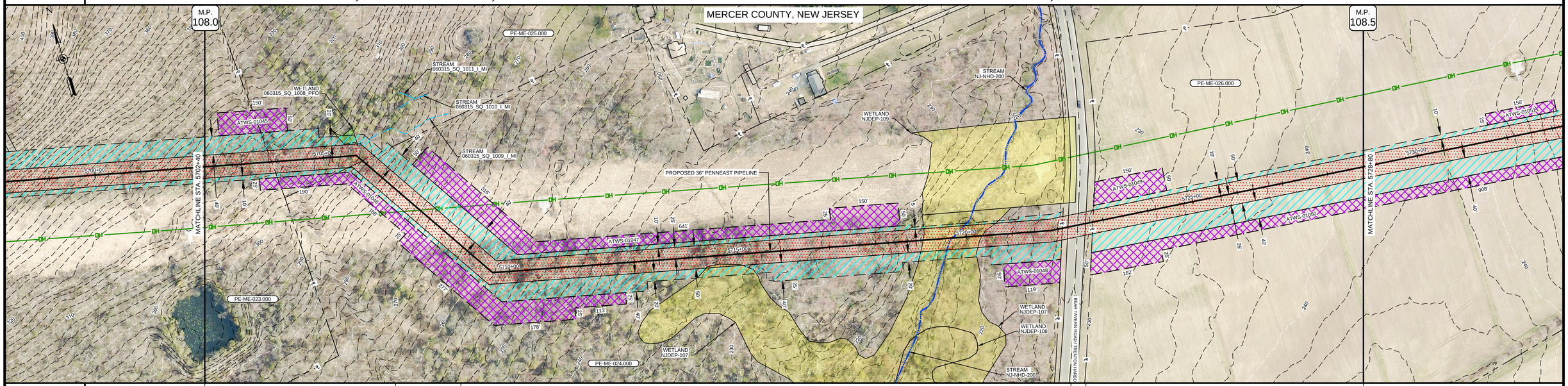
SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-216	D

OWNERSHIP / FOOTAGE	PE-ME-023.000 146'	PE-ME-025.000 203'	PE-ME-024.000 1621'	BEAR TAVERN RD/ TRENTON HARBOURTON RD 68'	PE-ME-026.000 602'

STATIONING: 5702+40; 5703+86 PROPERTY LINE; 5703+80; 5705+72 PI L_44°50'10" RT; 5705+80 PROPERTY LINE; 5707+54 OVERHEAD WIRE; 5709+83 PI L_44°59'33" LT; 5719+05 ENTER/ EXIT WETLAND; 5719+49 CENTERLINE OF STREAM NJ-NHD-200; 5720+34 ENTER/ EXIT WETLAND; 5721+85 PI L_71°24'42" LT; 5722+10 PROPERTY LINE; 5722+20 EDGE OF ROAD; 5722+44 CENTERLINE OF BEAR TAVERN RD/ TRENTON HARBOURTON RD; 5722+62 EDGE OF ROAD; 5722+78 PROPERTY LINE; 5728+80



LAND USE	UF	OL	UF	RD	AG		
MATERIAL & COATING	1710' (1)	47' (2)	214' (1)	80' (4)	596' (1)		
SOILS	ChcC2	ChcB2	ChcC2	DOZA	RehC2	PeoB	RehB
ENVIRONMENTAL SITE SPECIFIC E&S				11 18 34; 5 21 36; 9 32 39; 10 33		2 13 26 39; 5 14 30; 9 18 35; 10 21 36	
CLASS LOCATION	CLASS I						
DESIGN FACTOR	0.72				0.6	0.72	
MAOP	1480 PSIG						

MATERIAL & COATING: 13 @ 5705+72; 13 @ 5709+83; 5719+50; 5719+90; 5722+04; 5722+84

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE ○

PERMANENT TRENCH PLUG ▲

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

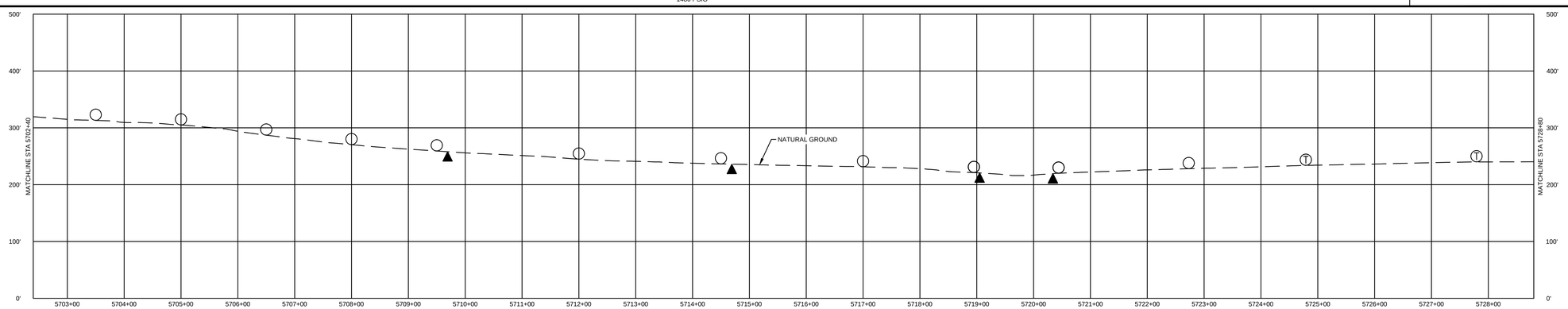
TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
1. THE BEST MANAGEMENT PRACTICE (BMP) NUMBERS NOTED ABOVE CORRESPOND TO SPECIFIC DETAILS FOUND ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS. THE BMP DETAILS INCLUDE GENERAL LAYOUT, LOCATION, DIMENSION, CONSTRUCTION, NOTES, MATERIALS, ETC. THAT SHALL BE FOLLOWED DURING CONSTRUCTION OF THE PIPELINE.
2. THE APPROX. LOCATION AND TYPE OF SEDIMENT BARRIERS TO BE INSTALLED ALONG THE CONSTRUCTION WORKSPACE ARE SHOWN ON THE TABLES ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS.
3. CONTRACTOR SHALL INSTALL ONLY APPROVED PADEP/NJDEP DETAILS.

PROFILE



SOILS	LAND USE		MATERIAL			REFERENCE DRAWINGS	
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION	DWG. NO.	TITLE
	2. COMMERCIAL / INDUSTRIAL (CI)		1	2520'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	3. UPLAND FOREST (UF)		2	40'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE / ARO COATED		
	4. INSTITUTIONAL (IN)		4	80'	PIPE, 36.000" OD x .781 WT, API 5L, X-70, DSAW, FBE / ARO COATED		
	5. URBAN (UR)		13	2	ELBOW, NON-SEGMENTABLE, 45°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)						
	7. RESIDENTIAL (RE)						
	8. ROADWAYS / RAILROADS (RD)						
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)					000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

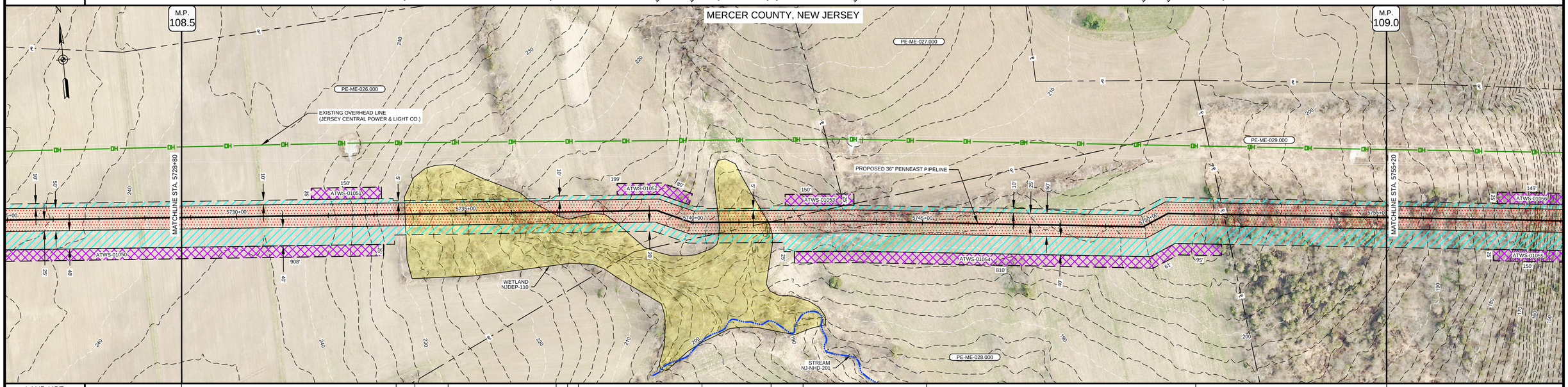
PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5702+40 TO STA. 5728+80

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-217	D

OWNERSHIP / FOOTAGE	PE-ME-026.000 1288'	PE-ME-027.000 997'	PE-ME-028.000 355'

STATIONING

5733+49 ENTER/ EXIT WETLAND
5736+46 ENTER/ EXIT WETLAND
5739+17 P.I. = 19+49.47' RT.
5739+97 P.I. = 19+21.20' LT.
5740+57 ENTER/ EXIT WETLAND
5741+64 ENTER/ EXIT WETLAND
5741+68 PROPERTY LINE
5743+53 P.I. = 1+25.45' RT.
5749+39 P.I. = 28+19.46' LT.
5750+43 P.I. = 29+16.02' RT.
5751+65 PROPERTY LINE



LAND USE	AG		UF	AG	UF		AG	UF	AG	UF		AG	UF	AG	UF		AG	UF
SOILS	RehB		PeoB		RehB		PeoC		RehB	PeoC			PeoB				
CLASS LOCATION	CLASS I											CLASS II					
DESIGN FACTOR	0.72											0.6					
MAOP	1480 PSIG																

MATERIAL & COATING

5729+17 (14) — 5729+97 (14) — 5749+52 (14) — 5750+43 (14)

2640' (1)

ENVIRONMENTAL SITE SPECIFIC E&S

11 18 34 / 5 21 36 / 9 32 39 / 10 33

11 18 34 / 5 21 36 / 9 32 39 / 10 33

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
1. THE BEST MANAGEMENT PRACTICE (BMP) NUMBERS NOTED ABOVE CORRESPOND TO SPECIFIC DETAILS FOUND ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS. THE BMP DETAILS INCLUDE GENERAL LAYOUT, LOCATION, DIMENSION, CONSTRUCTION, NOTES, MATERIALS, ETC. THAT SHALL BE FOLLOWED DURING CONSTRUCTION OF THE PIPELINE.
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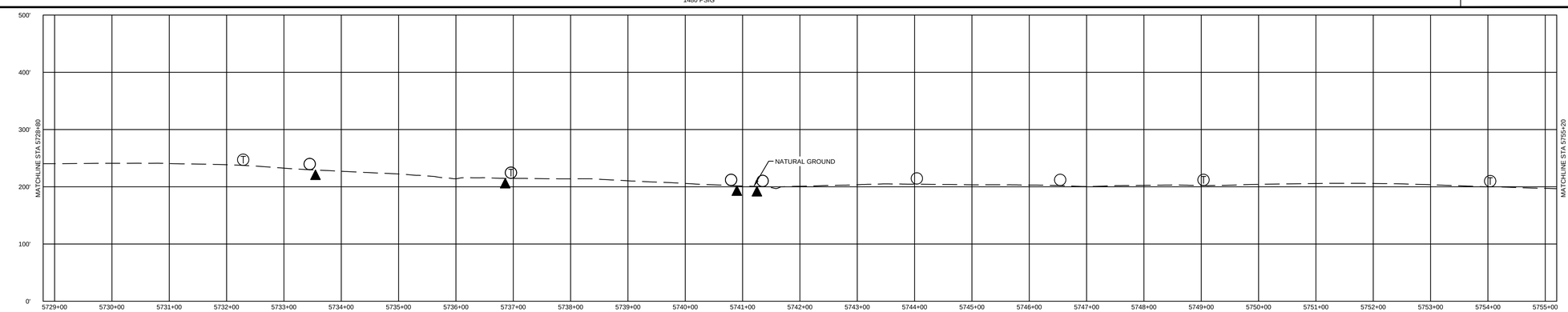
3. CONTRACTOR SHALL INSTALL ONLY APPROVED PADEP/NJDEP DETAILS.



SOILS	LAND USE		MATERIAL		
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION
	2. COMMERCIAL / INDUSTRIAL (CI)		1	2640'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
	3. UPLAND FOREST (UF)		14	4	ELBOW, SEGMENTABLE, 45°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
	4. INSTITUTIONAL (IN)				
	5. URBAN (UR)				
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)				
	7. RESIDENTIAL (RE)				
	8. ROADWAYS / RAILROADS (RD)				
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)				

REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

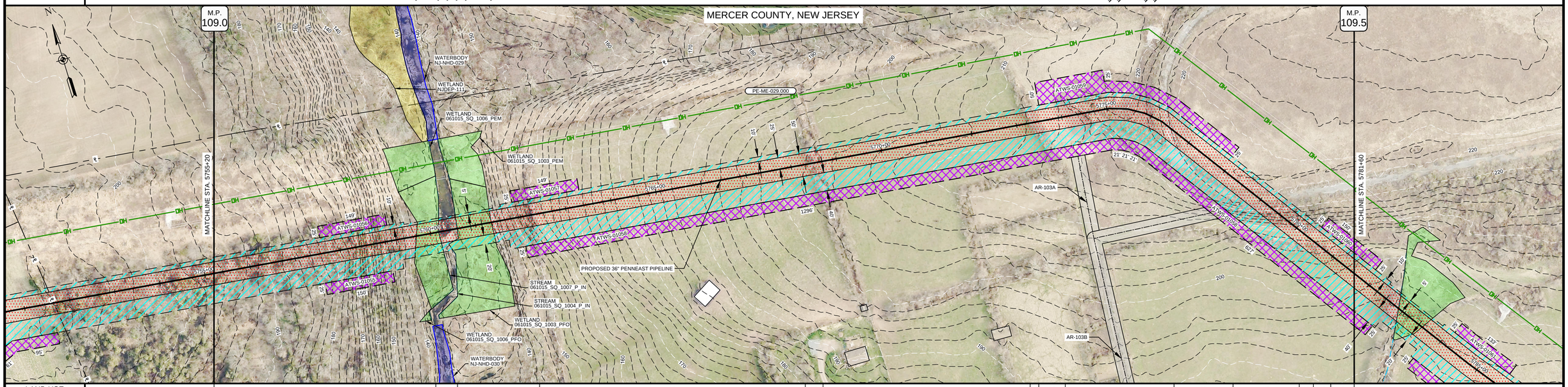
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5728+80 TO STA. 5755+20

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-218	D

OWNERSHIP / FOOTAGE	5755+20 — PE-ME-029.000 (2640') — 5781+60
STATIONING	5759+69 ENTER/ EXIT WETLAND; 5759+18 ENTER/ EXIT WETLAND; 5759+18 EDGE OF STREAM 061015_SQ_1007_P_IN; 5759+59 EDGE OF STREAM 061015_SQ_1004_P_IN; 5760+59 ENTER/ EXIT WETLAND; 5761+35 ENTER/ EXIT WETLAND; 5776+06 PI = 12+12°00' Rt; 5776+16 PI = 14+14°00' Rt; 5776+26 PI = 12+12°00' Rt; 5776+36 PI = 14+14°00' Rt



LAND USE	UF	WB OW	UF	AG	UF	AG	UF	AG	UF	SP	UF	AG	UF	AG					
MATERIAL & COATING	477' (1)	5759+97	60' (2)	5760+57	2103' (1)														
SOILS	PeoB	KkoE	BhnB	RorAt	KkoE	PeoC	BucB2	BucB	BucC2	BucB	REFB2								
ENVIRONMENTAL SITE SPECIFIC E&S	1I 18 34; 5 21 36; 9 32 39; 10 33	1G 10 21 36; 1I 15 23 37; 5 17 28 38; 9 18 35 39	1G 10 21 36; 1I 15 23 37; 5 17 28 38; 9 18 35 39	1I 18 34; 5 21 36; 9 32 39; 10 33															
CLASS LOCATION	CLASS II																		
DESIGN FACTOR	0.6																		
MAOP	1480 PSIG																		

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
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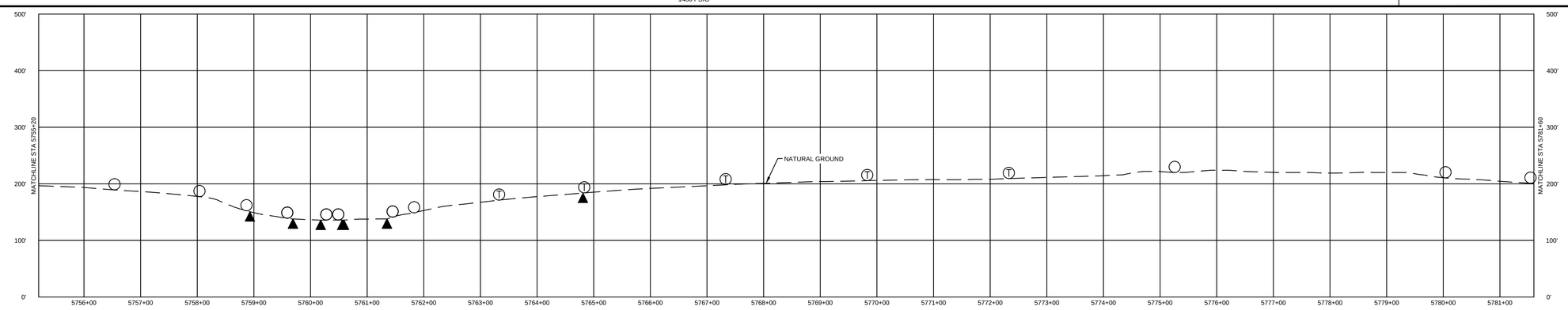


SOILS	LAND USE		MATERIAL		
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION
	2. COMMERCIAL / INDUSTRIAL (CI)		1	2580'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
	3. UPLAND FOREST (UF)		2	60'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE / ARO COATED
	4. INSTITUTIONAL (IN)				
	5. URBAN (UR)				
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)				
	7. RESIDENTIAL (RE)				
	8. ROADWAYS / RAILROADS (RD)				
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)				

REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-03-080	ACCESS ROAD DETAIL
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR: PennEast Pipeline

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

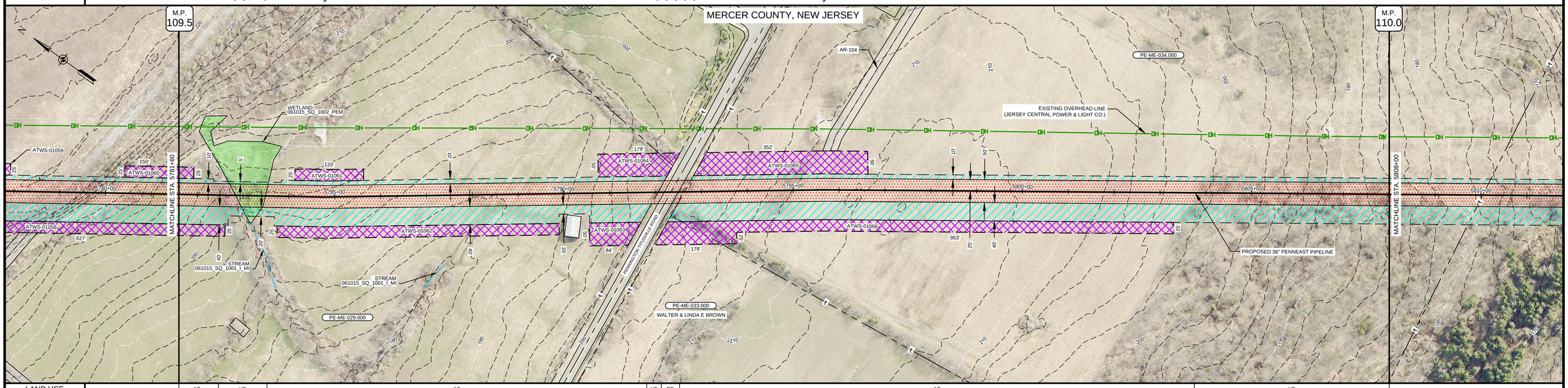
PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5755+20 TO STA. 5781+60

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-219	D

OWNERSHIP / FOOTAGE	PE-ME-029.000 1045'	PENNINGTON TITUSVILLE RD 58'	PE-ME-034.000 1537'

STATIONING

5782+83 ENTER/ EXIT WETLAND
5782+83 CENTERLINE OF STREAM 061015_SQ_1001_I_MI
5783+49 ENTER/ EXIT WETLAND
5784+77 P.I. = 1°53'23" LT
5792+05 PROPERTY LINE
5792+10 EDGE OF ROAD
5792+54 CENTERLINE OF PENNINGTON TITUSVILLE RD
5792+46 EDGE OF ROAD
5792+63 PROPERTY LINE
5795+66 P.I. = 1°16'33" RT



LAND USE	AG	UF	AG	UF	RD	AG	UF

MATERIAL & COATING

103' (1) | 5782+83 | 40' (2) | 5783+49 | 896' (1) | 5791+46 | 70' (4) | 5792+46 | 1531' (1)

SOILS	REFB2	BucB	REFB2	REFB	PeoB	REFB	BucB2	PeoC	ChcB	RehB2	RehC2	PeoB	BucB2

ENVIRONMENTAL SITE SPECIFIC E&S

1F 10 21 39	1I 18 34	2 13 26 39
1I 15 23	5 21 36	5 14 30
5 17 28	9 32 39	9 18 35
9 18 38	10 33	10 21 36

CLASS LOCATION	CLASS II	CLASS I
DESIGN FACTOR	0.6	0.5 0.6 0.72
MAOP	1480 PSIG	

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

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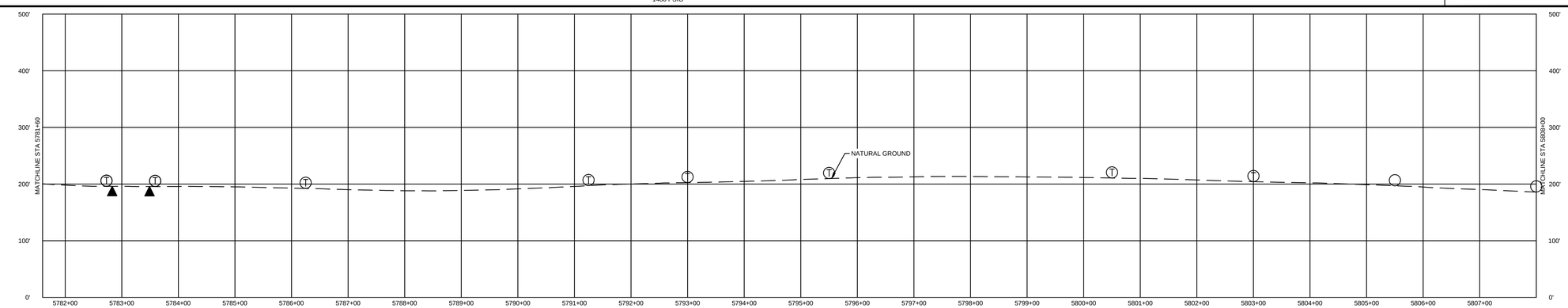


SOILS	LAND USE		MATERIAL			REFERENCE DRAWINGS	
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION	DWG. NO.	TITLE
	2. COMMERCIAL / INDUSTRIAL (CI)		1	2530'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	3. UPLAND FOREST (UF)		2	40'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE / ARO COATED		
	4. INSTITUTIONAL (IN)		4	70'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE / ARO COATED		
	5. URBAN (UR)						
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)						
	7. RESIDENTIAL (RE)					000-03-02-095	RESIDENTIAL SITE SPECIFIC
	8. ROADWAYS / RAILROADS (RD)					000-03-03-081	ACCESS ROAD DETAIL
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)					000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS				
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

Hatch Mott MacDonald

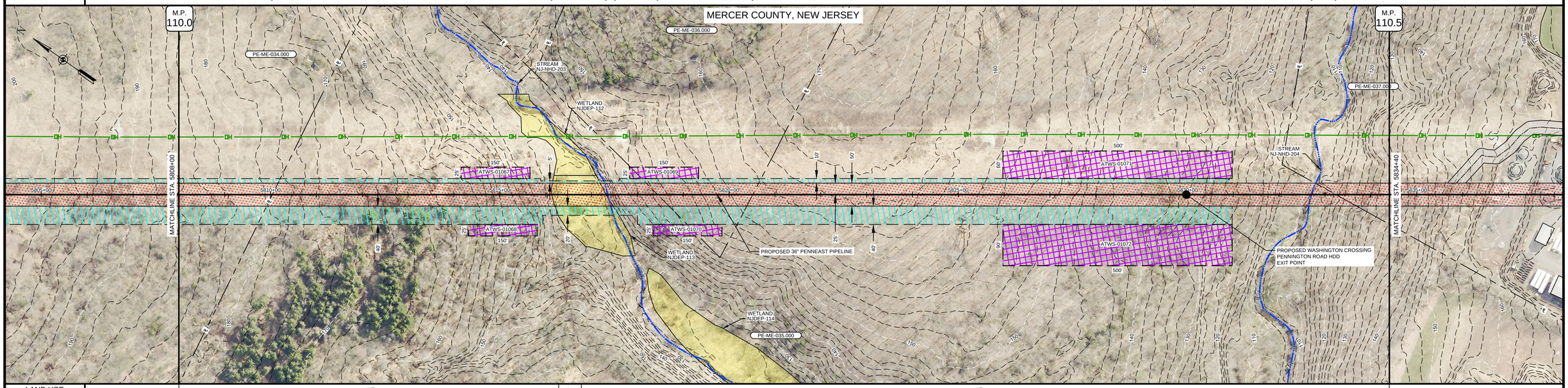
PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5781+60 TO STA. 5808+00

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-220	D

OWNERSHIP / FOOTAGE	PE-ME-034.000	PE-ME-035.000	PE-ME-036.000	PE-ME-035.000	PE-ME-037.000
	204'	840'	208'	1272'	116'

STATIONING: 5808+00; 5810+04 PROPERTY LINE; 5810+04; 5816+13 ENTER/ EXIT WETLAND; 5817+32 ENTER/ EXIT WETLAND; 5817+35 CENTERLINE OF STREAM NJ-NHD-203; 5818+44 PROPERTY LINE; 5818+44; 5820+52 PROPERTY LINE; 5820+52; 5832+70 CENTERLINE OF STREAM NJ-NHD-204; 5833+24 PROPERTY LINE; 5833+24; 5834+40



LAND USE	UF	OL	UF

MATERIAL & COATING: 915' (1); 1817+15; 40' (2); 1817+55; 1338' (1); 5830+91; 347' (5)

SOILS	BucB2	KkoE	PeoC	RorAt	KkoE	KkoC	PeoB	BucB	BucC2	RorAt	KkoE

ENVIRONMENTAL SITE SPECIFIC E&S

CLASS LOCATION	CLASS I
DESIGN FACTOR	0.72
MAOP	1480 PSIG

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

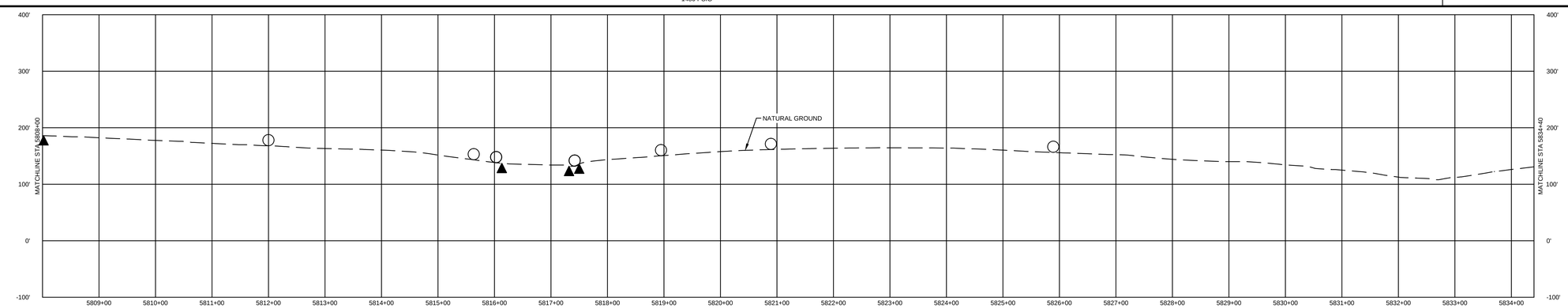
TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
1. THE BEST MANAGEMENT PRACTICE (BMP) NUMBERS NOTED ABOVE CORRESPOND TO SPECIFIC DETAILS FOUND ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS. THE BMP DETAILS INCLUDE GENERAL LAYOUT, LOCATION, DIMENSION, CONSTRUCTION, NOTES, MATERIALS, ETC. THAT SHALL BE FOLLOWED DURING CONSTRUCTION OF THE PIPELINE.
2. THE APPROX. LOCATION AND TYPE OF SEDIMENT BARRIERS TO BE INSTALLED ALONG THE CONSTRUCTION WORKSPACE ARE LOCATED IN TABLES ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS.
3. CONTRACTOR SHALL INSTALL ONLY APPROVED PADEP/NJDEP DETAILS.



SOILS	LAND USE		MATERIAL			REFERENCE DRAWINGS	
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION	DWG. NO.	TITLE
	2. COMMERCIAL / INDUSTRIAL (CI)		1	2253'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	3. UPLAND FOREST (UF)		2	40'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE/ARO COATED		
	4. INSTITUTIONAL (IN)		5	347'	PIPE, 36.000" OD x .951 WT, API 5L, X-70, DSAW, FBE/ARO COATED		
	5. URBAN (UR)						
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)						
	7. RESIDENTIAL (RE)						
	8. ROADWAYS / RAILROADS (RD)						
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)					000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS				
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR: PennEast Pipeline

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

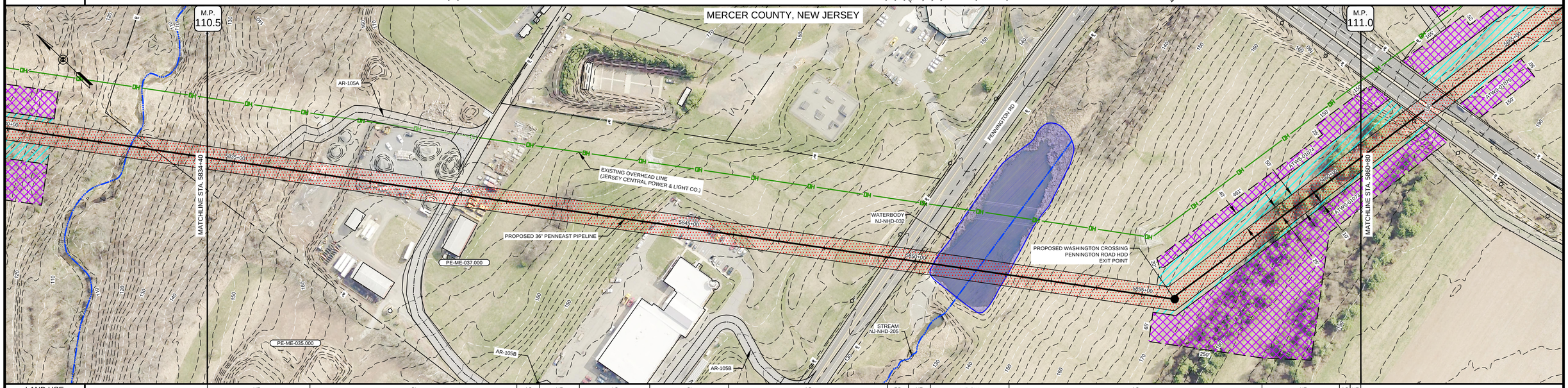
PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5808+00 TO STA. 5834+40

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-221	D

OWNERSHIP / FOOTAGE	5834+40	PE-ME-037.000 1497'	5849+37	CO RD 546 / WASHINGTON CROSSING PENNINGTON RD 70'	5850+07	PE-ME-040.000 1073'	5860+80

STATIONING

5839+73 EDGE OF ROAD
5839+86 EDGE OF ROAD
5849+37 PROPERTY LINE
5849+42 EDGE OF ROAD
5849+75 CENTERLINE OF Co Rtl 546 / WASHINGTON CROSSING PENNINGTON RD
5849+99 EDGE OF ROAD
5850+07 PROPERTY LINE
5850+46 ENTER EXIT WATERBODY NJ-NHD-032
5851+36 CENTERLINE OF STREAM NJ-NHD-205
5852+04 ENTER EXIT WATERBODY NJ-NHD-032
5856+65 P.I. - 45°00'00" LT



LAND USE	UF	CI	AG	UF	AG	CI	AG	RD	UF	WB OW	AG	UF	AG	UF

MATERIAL & COATING: 2093' (5) — 5856+65 (13) — 5855+33 — 547' (1)

SOILS	KkoE	KkoC	PeoB	REFB	BucB2	RorAt	PeoD	PeoC	PeoB

ENVIRONMENTAL SITE SPECIFIC E&S

CLASS LOCATION	CLASS I	CLASS III	CLASS I	CLASS II
DESIGN FACTOR	0.72	0.5	0.72	0.6
MAOP	1480 PSIG			

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
1. THE BEST MANAGEMENT PRACTICE (BMP) NUMBERS NOTED ABOVE CORRESPOND TO SPECIFIC DETAILS FOUND ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS. THE BMP DETAILS INCLUDE GENERAL LAYOUT, LOCATION, DIMENSION, CONSTRUCTION, NOTES, MATERIALS, ETC. THAT SHALL BE FOLLOWED DURING CONSTRUCTION OF THE PIPELINE.
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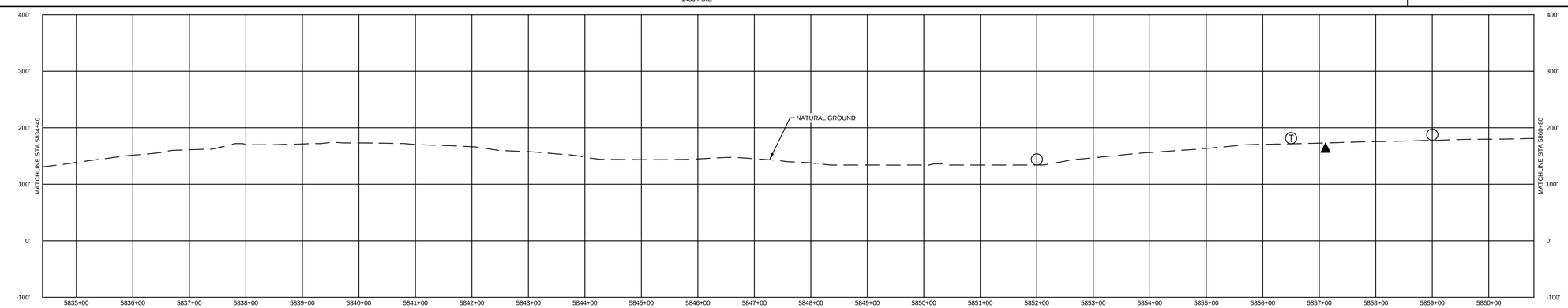
3. CONTRACTOR SHALL INSTALL ONLY APPROVED PADEP/NJDEP DETAILS.



SOILS	LAND USE		MATERIAL			REFERENCE DRAWINGS	
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION	DWG. NO.	TITLE
	2. COMMERCIAL / INDUSTRIAL (CI)		1	547'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	3. UPLAND FOREST (UF)		5	2093'	PIPE, 36.000" OD x .951 WT, API 5L, X-70, DSAW, FBE/ARO COATED		
	4. INSTITUTIONAL (IN)		13	1	ELBOW, NON-SEGMENTABLE, 45°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	5. URBAN (UR)						
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)					000-03-02-096 --- 097	RESIDENTIAL SITE SPECIFIC
	7. RESIDENTIAL (RE)					000-03-07-009	HDD EXHIBIT PLAN AND PROFILE
	8. ROADWAYS / RAILROADS (RD)					000-03-03-082	ACCESS ROAD DETAIL
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)					000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5834+40 TO STA. 5860+80

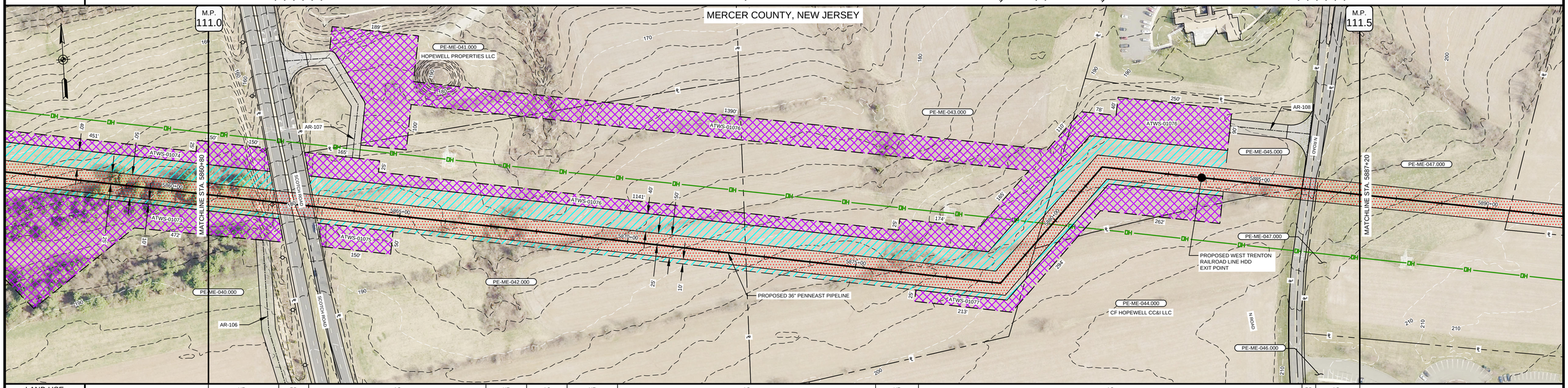
SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-222	D

OWNERSHIP / FOOTAGE	PE-ME-040.000	SCOTCH RD	PE-ME-041.000	PE-ME-042.000	PE-ME-043.000	PE-ME-044.000	PE-ME-045.000	PE-ME-046.000	PE-ME-047.000
	148'	85'		946'	679'	649'	6'	33'	94'

STATIONING

5860+80 | 5862+28 | 5863+13 | 5872+59 | 5879+38 | 5885+87 | 5885+93 | 5886+26 | 5887+20

5862+28 PROPERTY LINE
5862+32 EDGE OF ROAD
5862+41 EDGE OF ROAD
5862+70 EDGE OF ROAD
5863+09 EDGE OF ROAD
5863+13 PROPERTY LINE
5872+59 PROPERTY LINE
5878+18 P.I. = 05°00'55" LT.
5879+38 PROPERTY LINE
5879+49 OVERHEAD WIRE
5881+55 P.I. = 54°04'10" RT.
5885+87 PROPERTY LINE
5885+93 PROPERTY LINE
5886+09 EDGE OF ROAD
5886+21 CENTERLINE OF NORTH RD
5886+26 EDGE OF ROAD
5886+26 PROPERTY LINE



LAND USE	UF	RD	AG	UF	AG	UF	AG	UF	AG			RD	AG
SOILS	PeoB		BucB2				BucB				BucB2	BucB	
CLASS LOCATION	CLASS II										CLASS III	CLASS II	
DESIGN FACTOR	0.6	0.5	0.6								0.5	0.6	
MAOP	1480 PSIG												

MATERIAL & COATING

141' (1) | 5862+21 | 100' (4) | 5863+21 | 1924' (1) | 5878+18 (16) | 5881+55 (16) | 5882+45 | 174' (3) | 5884+19 | 301' (5)

ENVIRONMENTAL SITE SPECIFIC E&S: 2, 13, 26, 39 / 5, 14, 30 / 9, 18, 35 / 10, 21, 36

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 23 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
1. THE BEST MANAGEMENT PRACTICE (BMP) NUMBERS NOTED ABOVE CORRESPOND TO SPECIFIC DETAILS FOUND ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS. THE BMP DETAILS INCLUDE GENERAL LAYOUT, LOCATION, DIMENSION, CONSTRUCTION, NOTES, MATERIALS, ETC. THAT SHALL BE FOLLOWED DURING CONSTRUCTION OF THE PIPELINE.
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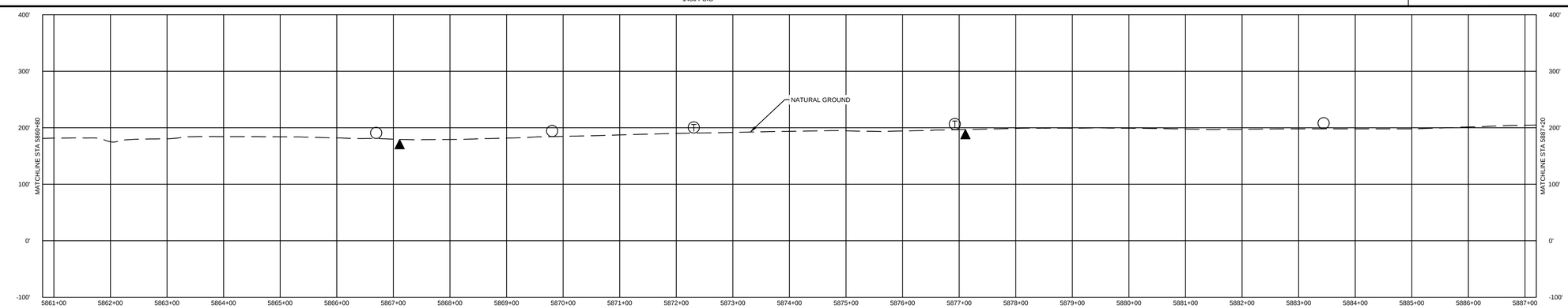
3. CONTRACTOR SHALL INSTALL ONLY APPROVED PADEP/NJDEP DETAILS.

PROFILE



SOILS	LAND USE		MATERIAL		
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION
	2. COMMERCIAL / INDUSTRIAL (CI)		1	2065'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
	3. UPLAND FOREST (UF)		3	174'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE COATED
	4. INSTITUTIONAL (IN)		4	100'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE/ARO COATED
	5. URBAN (UR)		5	301'	PIPE, 36.000" OD x .951 WT, API 5L, X-70, DSAW, FBE/ARO COATED
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)		16	2	ELBOW, SEGMENTABLE, 90°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
	7. RESIDENTIAL (RE)				
	8. ROADWAYS / RAILROADS (RD)				
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)				

REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-03-083 --- 084	ACCESS ROAD DETAIL
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

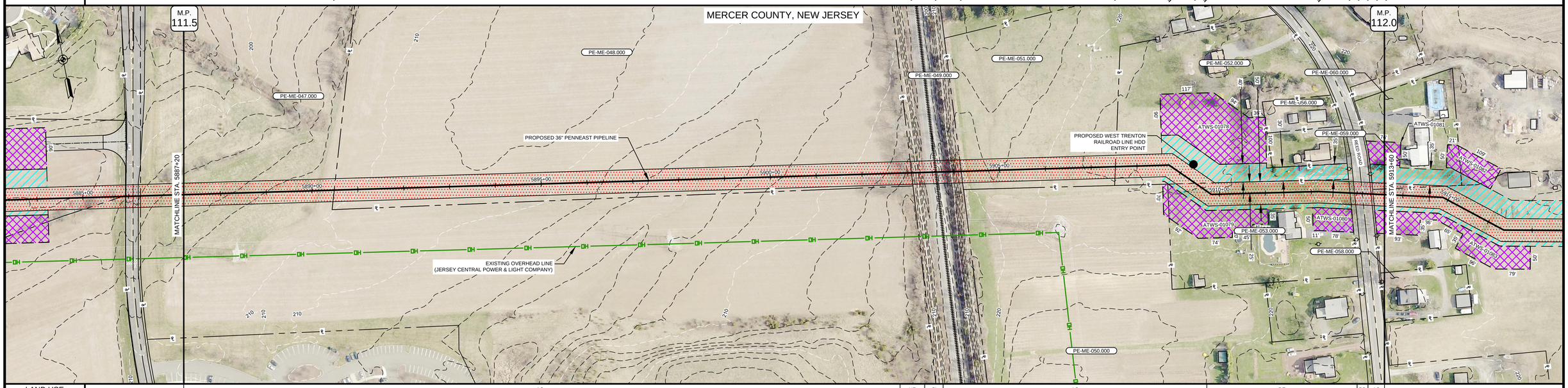
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5860+80 TO STA. 5887+20

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-223	D

OWNERSHIP / FOOTAGE	5887+20 — PE-ME-047.000 328' — 5890+48 — PE-ME-048.000 1260' — 5903+08 — PE-ME-049.000 108' — 5904+16 — PE-ME-051.000 337' — 5907+53 — PE-ME-052.000 187' — 5909+40 — PE-ME-053.000 345' — 5912+85 — REED ROAD 50' — 5913+35 — PE-ME-058.000 25' — 5913+60
STATIONING	5890+48 PROPERTY LINE; 5903+08 PROPERTY LINE; 5903+61 CENTERLINE OF RAILROAD; 5904+16 PROPERTY LINE; 5907+53 PROPERTY LINE; 5908+70 P.I. = 38°26'02" RT.; 5909+40 PROPERTY LINE; 5909+82 P.I. = 34°15'11" LT.; 5912+16 P.I. = 4°16'11" RT.; 5912+85 PROPERTY LINE; 5912+95 EDGE OF ROAD; 5913+17 CENTERLINE OF REED RD; 5913+31 EDGE OF ROAD; 5913+35 PROPERTY LINE



LAND USE	AG; UF; CI; AG; RE; RD; AG
MATERIAL & COATING	2139' (5); 421' (3); 60' (4); 20' (3)
SOILS	BucB; BucB2; REFB; BucB
ENVIRONMENTAL SITE SPECIFIC E&S	2, 13, 26, 39; 5, 14, 30; 9, 18, 35; 10, 21, 36
CLASS LOCATION	CLASS II; CLASS III
DESIGN FACTOR	0.6; 0.5
MAOP	1480 PSIG

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE (○)

PERMANENT TRENCH PLUG (▲)

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
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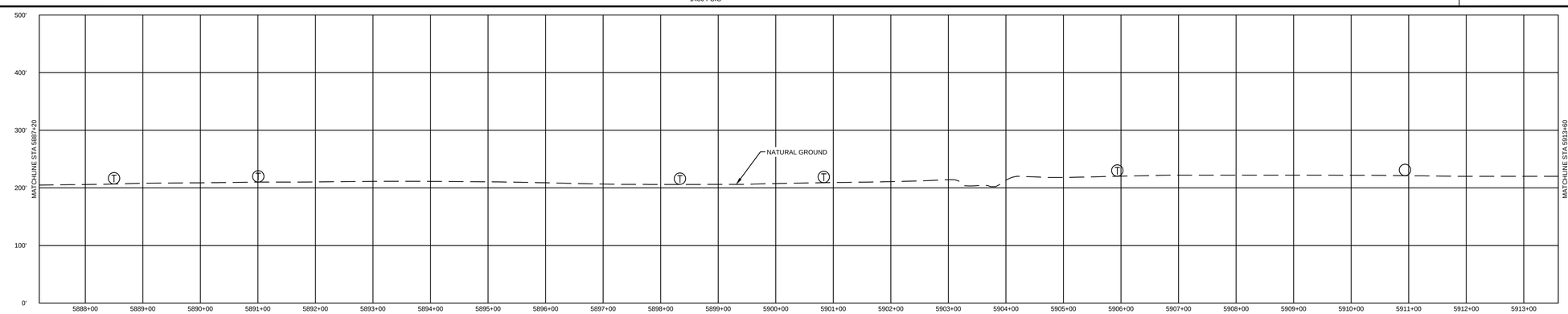


SOILS	LAND USE		MATERIAL		
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION
	2. COMMERCIAL / INDUSTRIAL (CI)		3	441'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE COATED
	3. UPLAND FOREST (UF)		4	60'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE/ARO COATED
	4. INSTITUTIONAL (IN)		5	2139'	PIPE, 36.000" OD x .951 WT, API 5L, X-70, DSAW, FBE/ARO COATED
	5. URBAN (UR)		18	2	ELBOW, SEGMENTABLE, 45°, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE COATED
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)				
	7. RESIDENTIAL (RE)				
	8. ROADWAYS / RAILROADS (RD)				
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)				

REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-02-098	RESIDENTIAL SITE SPECIFIC
000-03-07-010	HDD EXHIBIT PLAN AND PROFILE
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

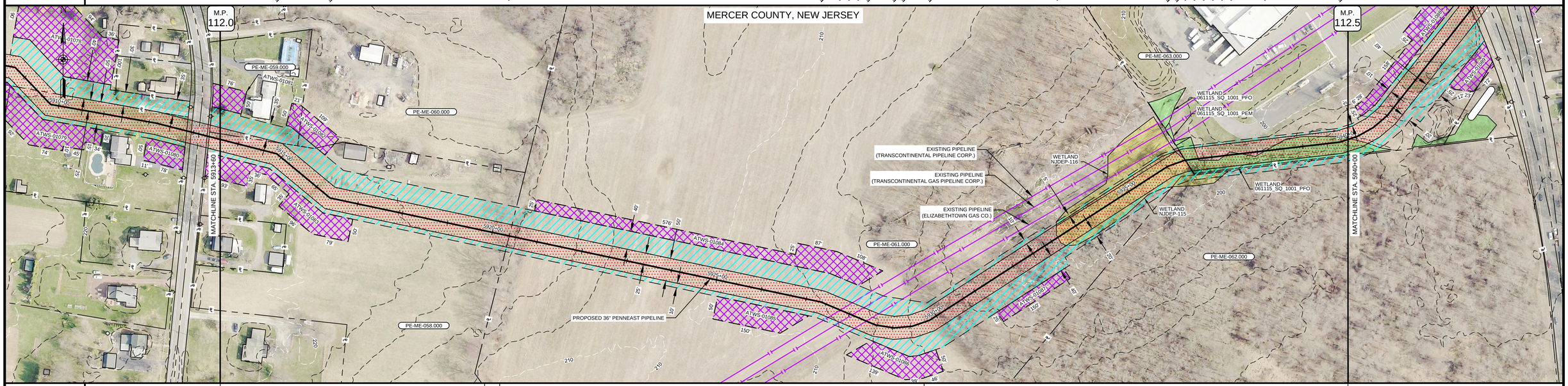
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5887+20 TO STA. 5913+60

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-224	D

OWNERSHIP / FOOTAGE	PE-ME-058.000 678' · PE-ME-061.000 1603' · PE-ME-062.000 359'
STATIONING	5914+87 PI - 25°30'22" RT · 5915+38 PI - 27°44'33" LT · 5920+38 PROPERTY LINE · 5922+33 PI - 10°56'45" RT · 5922+79 CENTERLINE OF FOREIGN TRANSMISSION PIPELINE · 5926+06 CENTERLINE OF FOREIGN TRANSMISSION PIPELINE · 5926+40 CENTERLINE OF FOREIGN TRANSMISSION PIPELINE · 5928+92 PI - 13°56'34" LT · 5929+02 PI - 13°56'34" LT · 5929+42 PI - 13°56'34" LT · 5929+92 PI - 13°56'34" LT · 5933+16 ENTER/ EXIT WETLAND · 5936+01 PI - 13°36'40" RT · 5936+11 PI - 13°36'40" RT · 5936+41 PROPERTY LINE · 5936+41 ENTER/ EXIT WETLAND · 5936+49 ENTER/ EXIT WETLAND · 5937+49 ENTER/ EXIT WETLAND · 5937+63 ENTER/ EXIT WETLAND · 5938+18 ENTER/ EXIT WETLAND · 5939+41 PI - 11°15'50" LT



LAND USE	AG	UF	AG	UF	
MATERIAL & COATING	898' (3)	5922+58	1372' (1)	5936+30	370' (3)
SOILS	BucB	REFB	BucB	REFB	
ENVIRONMENTAL SITE SPECIFIC E&S				11 18 34 · 5 21 36 · 9 32 39 · 10 33	11 18 34 · 5 21 36 · 9 32 39 · 10 33 · 11 18 34 · 5 21 36 · 9 32 39 · 10 33
CLASS LOCATION	CLASS III		CLASS I	CLASS II	CLASS III
DESIGN FACTOR	0.5		0.72	0.6	0.5
MAOP	1480 PSIG				

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE ○

PERMANENT TRENCH PLUG ▲

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

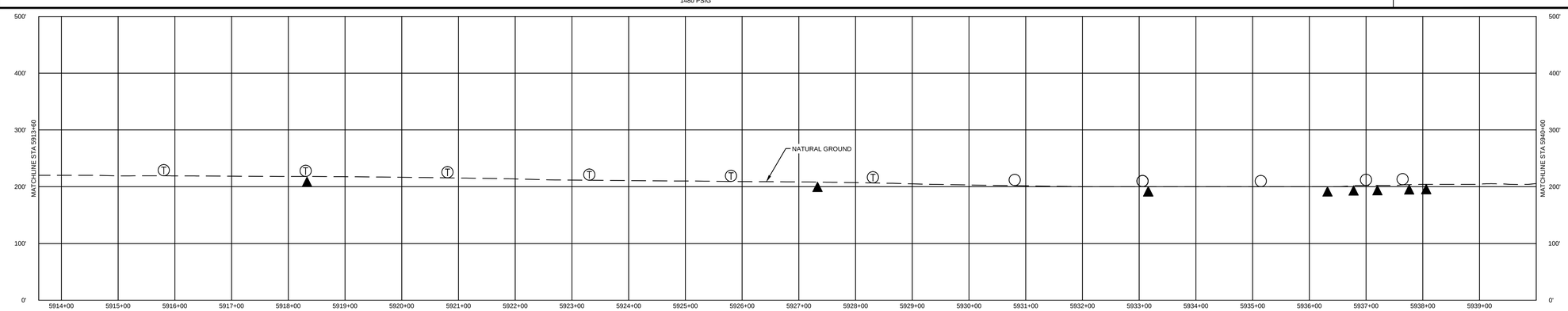
TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

GENERAL NOTES:
1. THE BEST MANAGEMENT PRACTICE (BMP) NUMBERS NOTED ABOVE CORRESPOND TO SPECIFIC DETAILS FOUND ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS. THE BMP DETAILS INCLUDE GENERAL LAYOUT, LOCATION, DIMENSION, CONSTRUCTION, NOTES, MATERIALS, ETC. THAT SHALL BE FOLLOWED DURING CONSTRUCTION OF THE PIPELINE.
2. THE APPROX. LOCATION AND TYPE OF SEDIMENT BARRIERS TO BE INSTALLED ALONG THE CONSTRUCTION WORKSPACE ARE INDICATED IN TABLES ON THE BEST MANAGEMENT PRACTICE DETAIL SHEETS.
3. CONTRACTOR SHALL INSTALL ONLY APPROVED PADEP/NJDEP DETAILS.



SOILS

FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002

LAND USE

1. AGRICULTURAL (AG)
2. COMMERCIAL / INDUSTRIAL (CI)
3. UPLAND FOREST (UF)
4. INSTITUTIONAL (IN)
5. URBAN (UR)
6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)
7. RESIDENTIAL (RE)
8. ROADWAYS / RAILROADS (RD)
9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)
10. OPEN WATERBODIES (WB / OW)

MATERIAL

TAG	QUANTITY	DESCRIPTION
1	1372'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
3	1268'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE COATED
18	2	ELBOW, SEGMENTABLE, 45°, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE COATED

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-02-098	RESIDENTIAL SITE SPECIFIC
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

	DATE
DRAWN BY: HMM	9/23/2015
CHECKED BY: HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR: PennEast Pipeline

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

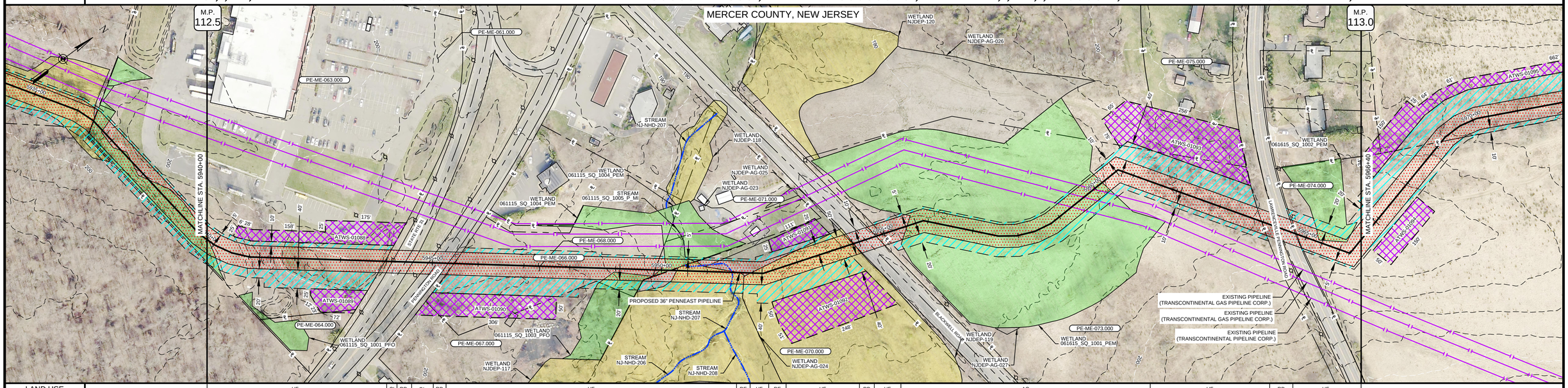
PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5913+60 TO STA. 5940+00

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-225	D

OWNERSHIP / FOOTAGE																							
	5940+00	PE-ME-063.000 397'	5943+97	STATE RTE 31 & PENNINGTON RD 150'	5945+47	PE-ME-066.000 439'	5949+86	PE-ME-071.000 36'	5950+22	PE-ME-070.000 383'	5954+05	BLACKWELL RD 91'	5954+96	PE-ME-073.000 901'	5963+97	LAWRENCEVILLE PENNINGTON RD 78'	5964+75	PE-ME-076.000 165'	5966+40				

STATIONING

5940+05 ENTER/ EXIT WETLAND
5940+21 P.I. - 11°15'03" LT
5940+49 P.I. - 11°15'03" LT
5941+01 P.I. - 11°16'00" LT
5943+97 PROPERTY LINE
5944+13 EDGE OF ROAD
5944+41 CENTERLINE OF STATE RTE 31
5944+90 EDGE OF ROAD
5945+12 EDGE OF ROAD
5945+41 CENTERLINE OF PENNINGTON RD
5945+91 EDGE OF ROAD
5946+08 PROPERTY LINE
5949+86 PROPERTY LINE
5949+87 ENTER/ EXIT WETLAND
5950+18 ENTER/ EXIT WETLAND
5950+22 PROPERTY LINE
5950+34 ENTER/ EXIT WETLAND
5951+53 CENTERLINE OF STREAM NJ-NHD-207
5951+71 ENTER/ EXIT WETLAND
5951+86 ENTER/ EXIT WETLAND
5952+22 ENTER/ EXIT WETLAND
5952+22 P.I. - 20°01'51" LT
5954+05 PROPERTY LINE
5954+29 EDGE OF ROAD
5954+50 ENTER/ EXIT WETLAND
5954+61 CENTERLINE OF BLACKWELL RD
5954+96 PROPERTY LINE
5955+52 ENTER/ EXIT WETLAND
5955+90 P.I. - 25°49'55" RT
5957+57 P.I. - 17°24'02" LT
5957+77 P.I. - 17°24'02" LT
5958+37 P.I. - 17°24'02" LT
5958+77 P.I. - 17°24'02" LT
5959+34 CENTERLINE OF FOREIGN TRANSMISSION PIPELINE
5959+69 CENTERLINE OF FOREIGN TRANSMISSION PIPELINE
5959+96 CENTERLINE OF FOREIGN TRANSMISSION PIPELINE
5960+20 ENTER/ EXIT WETLAND
5960+64 P.I. - 98°29'12" RT
5963+97 PROPERTY LINE
5964+35 EDGE OF ROAD
5964+58 CENTERLINE OF LAWRENCEVILLE PENNINGTON RD
5964+75 PROPERTY LINE
5964+78 EDGE OF ROAD
5966+01 P.I. - 30°23'51" LT



LAND USE	UF	CI	RD	OL	RD	UF	RE	UF	RE	UF	RD	UF	AG	UF	RD	UF

MATERIAL & COATING

	392'	160'	504'	78'	40'	222'	110'	885'	90'	159'
	1	4	3	1	2	1	4	1	4	1

5942+92 5945+92 5950+56 5951+34 5951+74 5953+96 5955+06 5963+91 5964+81
5952+22 (14) 5955+90 (14) 5960+64 (16)

SOILS	REFB	REFA	DOZA	REFA	BucB

ENVIRONMENTAL SITE SPECIFIC E&S

11 18 34	2 13 26 39	2 13 26 39	11 18 34	2 13 26 39	2 13 26 39
5 21 36	5 14 30	5 14 30	5 21 36	5 14 30	5 14 30
9 32 39	9 18 35	9 18 35	9 32 39	9 18 35	9 18 35
10 33	10 21 36	10 21 36	10 33	10 21 36	10 21 36

CLASS LOCATION	CLASS II	CLASS III	CLASS II
DESIGN FACTOR	0.6	0.5	0.6 | 0.5 | 0.6 | 0.5 | 0.6
MAOP	1480 PSIG		

PROFILE

THE LOCATION OF TRENCH PLUGS AND SLOPE BREAKERS ARE INTENDED TO BE USED AS A GUIDELINE ONLY. EXACT LOCATION TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CHIEF INSPECTOR.

TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE ○

PERMANENT TRENCH PLUG ▲

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

SEE FIGURES 16 THRU 21 FOR SPECIFICATIONS.

IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

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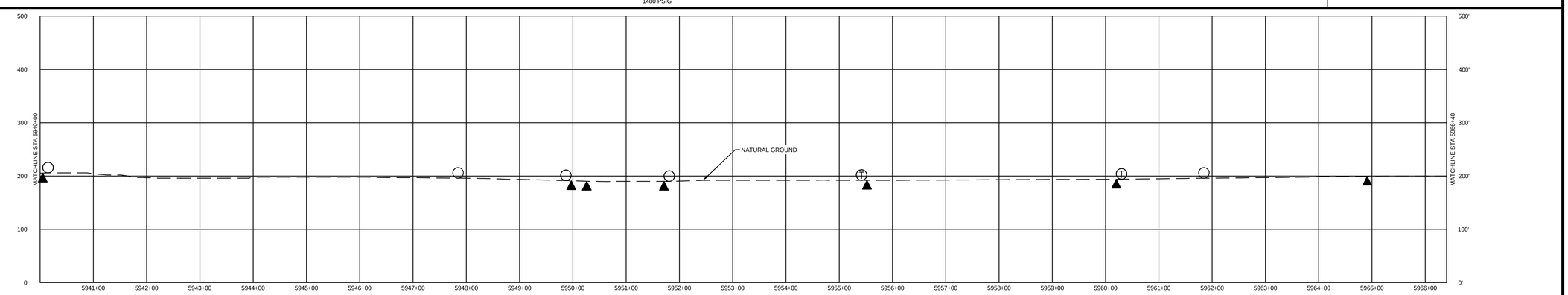


SOILS	LAND USE		MATERIAL			REFERENCE DRAWINGS	
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)	TAG	QUANTITY	DESCRIPTION	DWG. NO.	TITLE
	2. COMMERCIAL / INDUSTRIAL (CI)		1	1736'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	3. UPLAND FOREST (UF)		2	40'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE/ARO COATED		
	4. INSTITUTIONAL (IN)		3	504'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE COATED		
	5. URBAN (UR)		4	360'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE/ARO COATED		
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)		14	2	ELBOW, SEGMENTABLE, 45°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	7. RESIDENTIAL (RE)		16	1	ELBOW, SEGMENTABLE, 90°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED		
	8. ROADWAYS / RAILROADS (RD)					000-03-02-099 --- 100	RESIDENTIAL SITE SPECIFIC
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)					000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

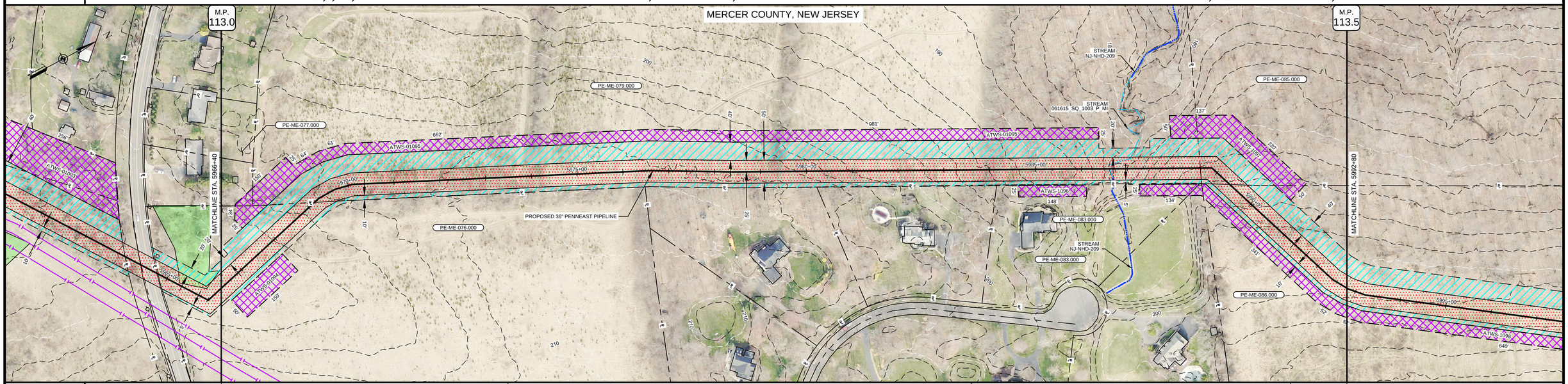
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5940+00 TO STA. 5966+40

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-226	D

OWNERSHIP / FOOTAGE	5966+40; PE-ME-076.000 276'; 5969+16; PE-ME-079.000 1943'; 5984+59; PE-ME-085.000 79'; 5990+38; PE-ME-086.000 342'; 5992+80
STATIONING	5969+16 PROPERTY LINE; 5969+20 PI = 12°20'58" RT; 5969+60 PI = 12°20'58" RT; 5970+09 PI = 12°20'58" RT; 5976+58 PI = 3°28'56" RT; 5979+41 PI = 11°19'22" LT; 5981+61 CENTERLINE OF STREAM 061615_SQ_1003_P_MI; 5989+59 PROPERTY LINE; 5989+65 PI = 11°17'22" RT; 5989+38 PROPERTY LINE; 5992+43 PI = 11°42'50" LT



LAND USE	UF	AG	UF	AG
MATERIAL & COATING	2004' (1)		40' (2)	596' (1)
SOILS	BucB			
ENVIRONMENTAL SITE SPECIFIC E&S			1G 10 21 36; 11 15 23 37; 5 17 28 38; 9 18 35 39	
CLASS LOCATION	CLASS II			
DESIGN FACTOR	0.6			
MAOP	1480 PSIG			

PROFILE

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TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE ○

PERMANENT TRENCH PLUG ▲

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
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>25 - 35	200
35 - 100	100
100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

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IN AG FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL PERMANENT TRENCH PLUGS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED. (FERC PLAN)

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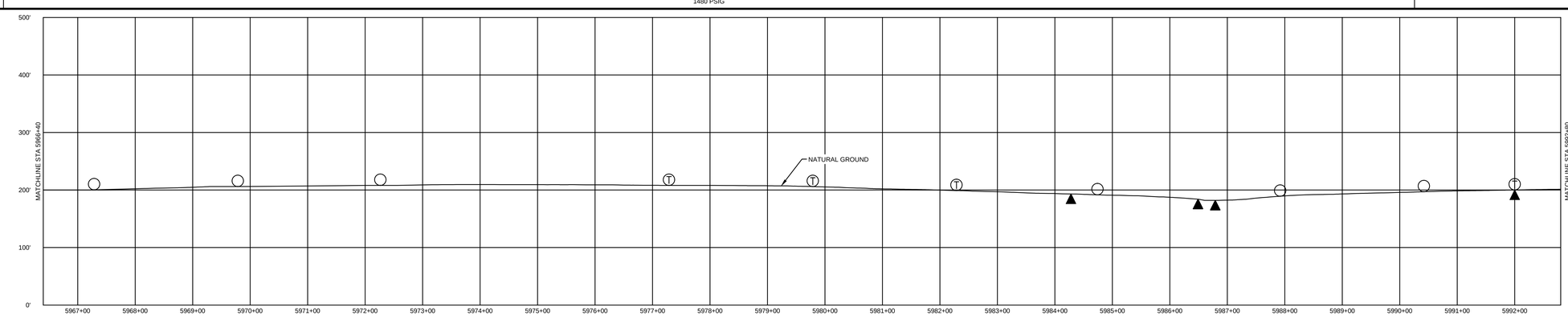


SOILS	LAND USE	
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)
	2. COMMERCIAL / INDUSTRIAL (CI)	
	3. UPLAND FOREST (UF)	
	4. INSTITUTIONAL (IN)	
	5. URBAN (UR)	
	6. OPEN LAND (EXISTING ROW, OPEN FIELDS, NON-AGRICULTURAL) (OL)	
	7. RESIDENTIAL (RE)	
	8. ROADWAYS / RAILROADS (RD)	
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)	

MATERIAL		
TAG	QUANTITY	DESCRIPTION
1	2600'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
2	40'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE/ARO COATED
14	1	ELBOW, SEGMENTABLE, 45°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED

REFERENCE DRAWINGS	
DWG. NO.	TITLE
000-03-02-100 -- 101	RESIDENTIAL SITE SPECIFIC
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

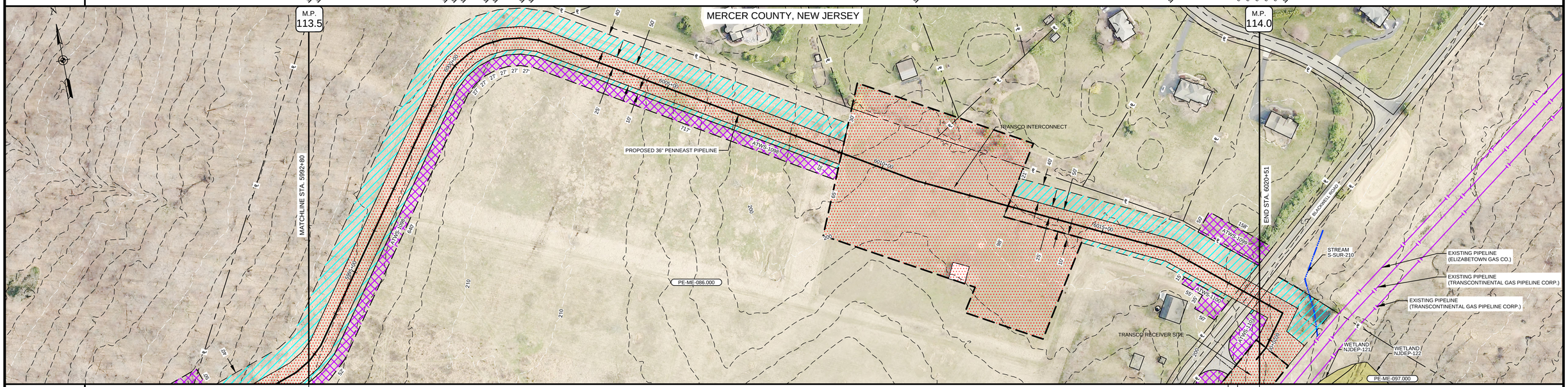
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5966+40 TO STA. 5992+80

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-227	D

OWNERSHIP / FOOTAGE	5992+80 — PE-ME-086.000 2546' — 6018+26 — BLACKWELL RD 51' — 6018+77 — PE-ME-097.000 174' — 6020+51
STATIONING	5992+80 PI = 11°40'59" LT; 5993+23 PT = 11°40'59" LT; 5999+43 PI = 12°12'48" RT; 5999+63 PT = 12°12'48" RT; 6000+43 PI = 12°12'48" RT; 6001+63 PT = 12°12'48" RT; 6001+63 PI = 12°12'48" RT; 6002+83 PT = 12°12'48" RT; 6010+78 PI = 5°03'24" LT; 6018+54 PI = 12°40'55" RT; 6018+20 PROPERTY LINE; 6018+37 EDGE OF ROAD; 6018+47 CENTERLINE OF BLACKWELL RD; 6018+57 EDGE OF ROAD; 6018+71 PROPERTY LINE; 6019+25 PI = 38°30'22" RT



LAND USE	AG — RD — OL
MATERIAL & COATING	2537' (1) — 70' (4) — 164' (1) — 6018+17 — 6018+87 — 6019+25 (16)
SOILS	BucB — BucB2 — BucB — BucA — BucB — REFB
ENVIRONMENTAL SITE SPECIFIC E&S	2, 13, 26, 39; 5, 14, 30; 9, 18, 35; 10, 21, 36
CLASS LOCATION	CLASS II
DESIGN FACTOR	0.6 — 0.5 — 0.6
MAOP	1480 PSIG

PROFILE

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TEMPORARY SLOPE BREAKER (T)

PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE ○

PERMANENT TRENCH PLUG ▲

WATERBAR SPACING	
SLOPE (%)	SPACING (FT)
<5	250
5 - 15	150
>15 - 30	100
>30	50

TRENCH PLUG SPACING	
SLOPE (%)	SPACING (FT)
<5	1000
5 - 15	500
>15 - 25	300
>25 - 35	200
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100	50

TRENCH PLUGS ARE REQUIRED AT ALL WATERBODY AND WETLAND CROSSINGS REGARDLESS OF SLOPE.*

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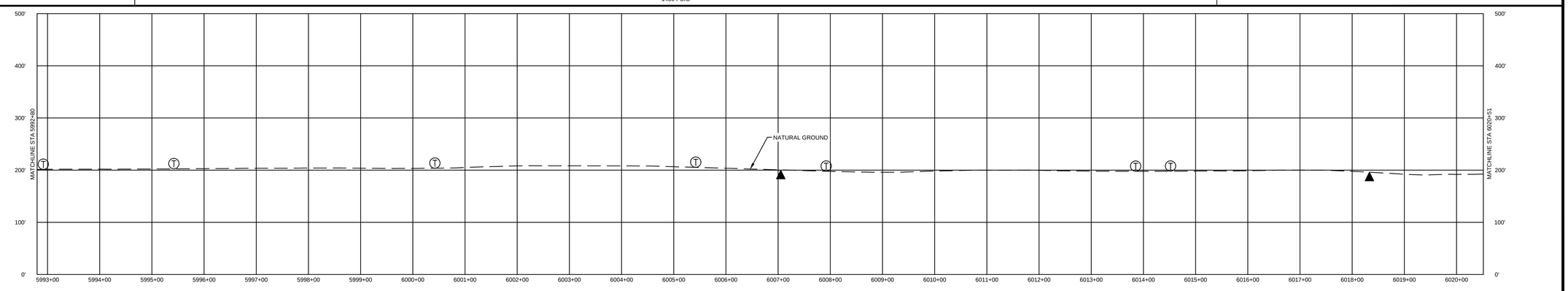

SOILS	LAND USE	
FOR SOILS DESCRIPTIONS SEE DWG: 000-01-01-002	1. AGRICULTURAL (AG)	10. OPEN WATERBODIES (WB / OW)
	2. COMMERCIAL / INDUSTRIAL (CI)	
	3. UPLAND FOREST (UF)	
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	5. URBAN (UR)	
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	7. RESIDENTIAL (RE)	
	8. ROADWAYS / RAILROADS (RD)	
	9. SPECIAL LAND USE (CHURCHES, PARKS, ETC) (SP)	

MATERIAL		
TAG	QUANTITY	DESCRIPTION
1	2701'	PIPE, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED
4	70'	PIPE, 36.000" OD x .761 WT, API 5L, X-70, DSAW, FBE/ARO COATED
16	1	ELBOW, SEGMENTABLE, 90°, 36.000" OD x .634 WT, API 5L, X-70, DSAW, FBE COATED

REFERENCE DRAWINGS	
DWG. NO.	TITLE
027-03-00-001	CIVIL SITE PLAN
027-03-00-002	CIVIL SITE PLAN
000-03-02-102	RESIDENTIAL SITE SPECIFIC
027-03-01-001	PLOT PLAN
000-03-08-001 --- 002	TYPICAL CONSTRUCTION ROW DETAILS

REVISIONS					
NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

SCALE PLAN: 1" = 100'
SCALE PROFILE H: 1" = 100'
SCALE PROFILE V: 1" = 100'

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

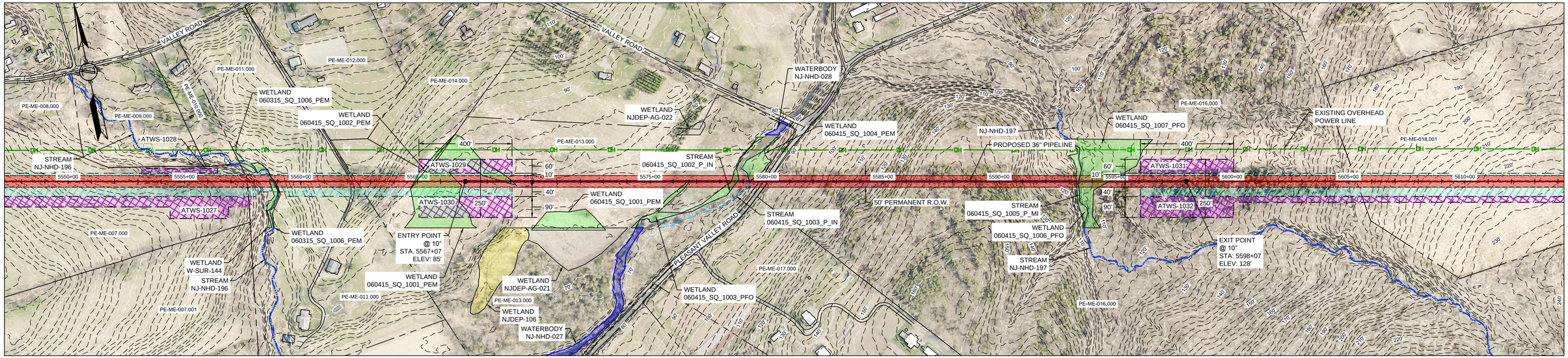
PREPARED BY

Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE
PROPOSED 36" PIPELINE
MERCER COUNTY, NEW JERSEY
STA. 5992+80 TO STA. 6020+51

SCALE	DRAWING NO.	REVISION
1" = 100'	000-03-01-228	D



DRAFT CONCEPTUAL HDD NOTES:

1. THE HDD BORE PATH DEPICTED ON THIS DRAWING IS CONSIDERED "DRAFT CONCEPTUAL" AND IS SUBJECT TO CHANGE BASED ON GEOTECHNICAL DATA, TOPOGRAPHICAL SURVEY, AND/OR ADDITIONAL INFORMATION REGARDING BIOLOGICAL FEATURE DELINEATIONS. THE HDD BORE PATH WILL BE ISSUED AS "FINAL CONCEPTUAL" AFTER COLLECTION AND EVALUATION OF BOTH TOPOGRAPHICAL SURVEY AND GEOTECHNICAL DATA AND AFTER BIOLOGICAL FEATURE DELINEATIONS ARE FINAL.
2. EXISTING CONTOURS TAKEN FROM PICTOMETRY, 2015.
3. FINAL EQUIPMENT LAYOUT AND GRADING WITHIN THE DEPICTED WORKSPACES IS BY OTHERS.
4. EROSION AND SEDIMENT CONTROL IS NOT DEPICTED ON THIS DRAWING. REFER TO ESCGP PLANS FOR EROSION AND SEDIMENT CONTROL REQUIREMENTS.
5. ALL PERSONNEL AND EQUIPMENT SHALL REMAIN WITHIN THE PERMITTED LIMIT OF DISTURBANCE DEPICTED ON THIS DRAWING UNLESS OTHERWISE AUTHORIZED BY THE CLIENT.

HORIZONTAL LENGTH: 3,100'

DRILL LENGTH: 3,113'

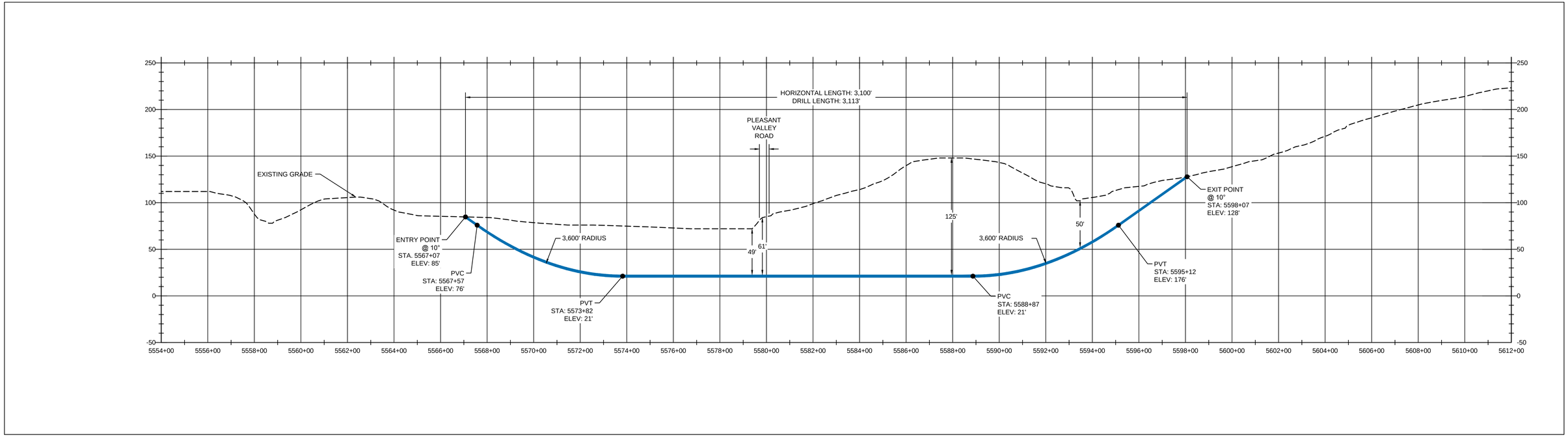
PROPOSED PIPE IS 36" O.D. X .500 W.T., GR, X-60, WITH FBE ARO COATING.

PLEASANT VALLEY ROAD HDD PLAN VIEW

LEGEND

200' 100' 0' 200'

- PROPOSED 36" PIPELINE
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PIPEYARD
- PROPOSED STAGING AREA
- ACCESS ROAD
- PROPERTY LINE
- MAJOR CONTOURS (1260')
- MINOR CONTOURS (1261')
- EXISTING PIPELINE
- EXISTING OVERHEAD LINE (OH)
- RAILROAD CENTERLINE
- ROAD CENTERLINE
- TRAIL CENTERLINE
- STREAM (PUBLIC)
- STREAM (DELINEATED)
- WETLAND (PUBLIC)
- WETLAND (DELINEATED)
- WETLAND (AGRICULTURAL MODIFIED)
- WATERBODY (DELINEATED)
- WATERBODY (PUBLIC)



PLEASANT VALLEY ROAD HDD PROFILE

HORIZ SCALE: 200' 100' 0' 200'

VERT SCALE: 50' 25' 0' 50'

NOTES:
1. THE CONTOURS SHOWN WERE PROVIDED BY PICTOMETRY, 2015.
2. UTILITIES SHOWN WERE DIGITIZED FROM IMAGERY AND ALL LOCATIONS ARE APPROXIMATE.
3. IMAGERY WAS PROVIDED BY PICTOMETRY, 2015

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-01-212	ALIGNMENT SHEET
000-03-01-213	ALIGNMENT SHEET

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2015	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2015	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
HMM	6/18/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

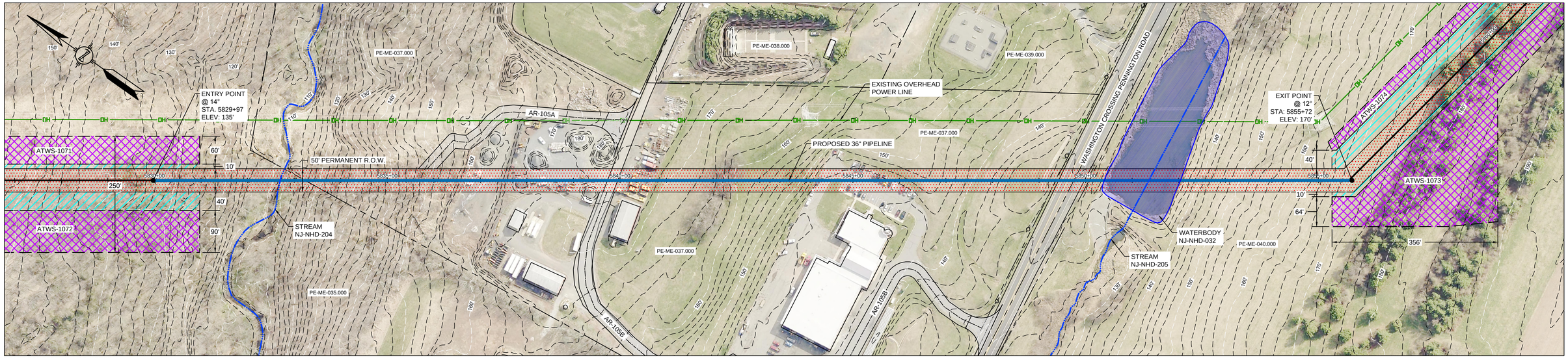
PREPARED BY

Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PROPOSED 36" PIPELINE
HDD EXHIBIT PLAN AND PROFILE
PLEASANT VALLEY ROAD
HUNTERDON COUNTY, NJ

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-07-008	D



DRAFT CONCEPTUAL HDD NOTES:

1. THE HDD BORE PATH DEPICTED ON THIS DRAWING IS CONSIDERED "DRAFT CONCEPTUAL" AND IS SUBJECT TO CHANGE BASED ON GEOTECHNICAL DATA, TOPOGRAPHICAL SURVEY, AND/OR ADDITIONAL INFORMATION REGARDING BIOLOGICAL FEATURE DELINEATIONS. THE HDD BORE PATH WILL BE ISSUED AS "FINAL CONCEPTUAL" AFTER COLLECTION AND EVALUATION OF BOTH TOPOGRAPHICAL SURVEY AND GEOTECHNICAL DATA AND AFTER BIOLOGICAL FEATURE DELINEATIONS ARE FINAL.
2. EXISTING CONTOURS TAKEN FROM PICTOMETRY, 2015.
3. FINAL EQUIPMENT LAYOUT AND GRADING WITHIN THE DEPICTED WORKSPACES IS BY OTHERS.
4. EROSION AND SEDIMENT CONTROL IS NOT DEPICTED ON THIS DRAWING. REFER TO ESCGP PLANS FOR EROSION AND SEDIMENT CONTROL REQUIREMENTS.
5. ALL PERSONNEL AND EQUIPMENT SHALL REMAIN WITHIN THE PERMITTED LIMIT OF DISTURBANCE DEPICTED ON THIS DRAWING UNLESS OTHERWISE AUTHORIZED BY THE CLIENT.

HORIZONTAL LENGTH: 2,575'

DRILL LENGTH: 2,600'

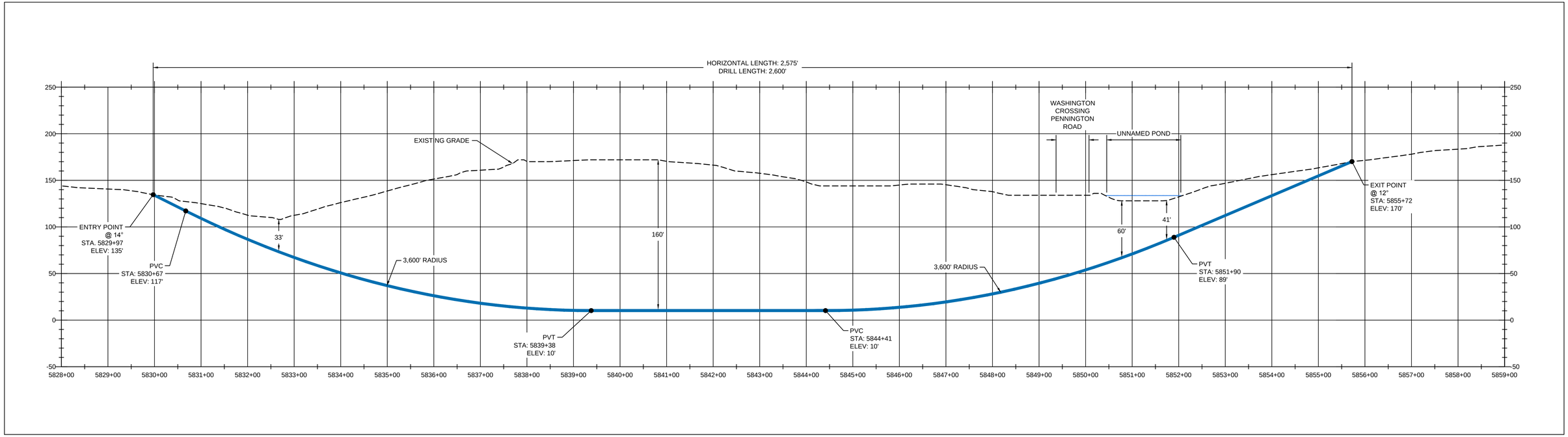
PROPOSED PIPE IS 36" O.D. X .500 W.T., GR, X-60, WITH FBE ARO COATING.

WASHINGTON CROSSING PENNINGTON ROAD HDD PLAN VIEW

LEGEND

100' 50' 0' 100'

PROPOSED 36" PIPELINE		PROPERTY LINE		STREAM (PUBLIC)
PROPOSED PERMANENT EASEMENT	1260'	MAJOR CONTOURS		STREAM (DELINEATED)
TEMPORARY WORKSPACE	1261'	MINOR CONTOURS		WETLAND (PUBLIC)
ADDITIONAL TEMPORARY WORKSPACE		EXISTING PIPELINE		WETLAND (DELINEATED)
PROPOSED PIPEYARD	OH	EXISTING OVERHEAD LINE		WETLAND (AGRICULTURAL MODIFIED)
PROPOSED STAGING AREA		RAILROAD CENTERLINE		WATERBODY (DELINEATED)
ACCESS ROAD		ROAD CENTERLINE		WATERBODY (PUBLIC)
		TRAIL CENTERLINE		



WASHINGTON CROSSING PENNINGTON ROAD HDD PROFILE

HORIZ SCALE: 100' 50' 0' 100'

VERT SCALE: 50' 25' 0' 50'

NOTES:
1. THE CONTOURS SHOWN WERE PROVIDED BY PICTOMETRY, 2015.
2. UTILITIES SHOWN WERE DIGITIZED FROM IMAGERY AND ALL LOCATIONS ARE APPROXIMATE.
3. IMAGERY WAS PROVIDED BY PICTOMETRY, 2015

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-01-221	ALIGNMENT SHEET
000-03-01-222	ALIGNMENT SHEET
000-03-03-082	ACCESS ROAD DETAIL

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2015	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2015	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
HMM	6/18/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

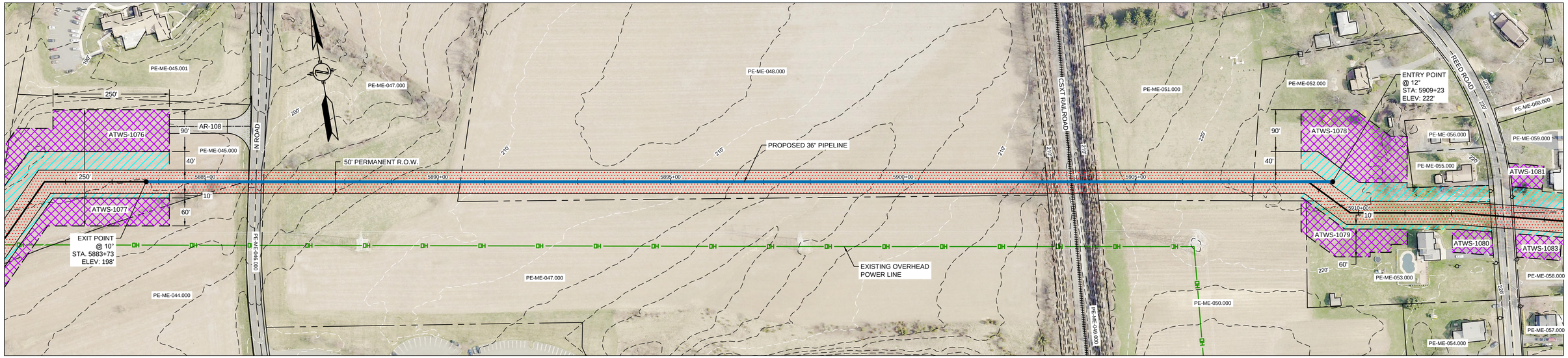
PREPARED BY

Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PROPOSED 36" PIPELINE
HDD EXHIBIT PLAN AND PROFILE
WASHINGTON CROSSING PENNINGTON ROAD
HUNTERDON / MERCER COUNTIES, NJ

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-07-009	D



DRAFT CONCEPTUAL HDD NOTES:

1. THE HDD BORE PATH DEPICTED ON THIS DRAWING IS CONSIDERED "DRAFT CONCEPTUAL" AND IS SUBJECT TO CHANGE BASED ON GEOTECHNICAL DATA, TOPOGRAPHICAL SURVEY, AND/OR ADDITIONAL INFORMATION REGARDING BIOLOGICAL FEATURE DELINEATIONS. THE HDD BORE PATH WILL BE ISSUED AS "FINAL CONCEPTUAL" AFTER COLLECTION AND EVALUATION OF BOTH TOPOGRAPHICAL SURVEY AND GEOTECHNICAL DATA AND AFTER BIOLOGICAL FEATURE DELINEATIONS ARE FINAL.
2. EXISTING CONTOURS TAKEN FROM PICTOMETRY, 2015.
3. FINAL EQUIPMENT LAYOUT AND GRADING WITHIN THE DEPICTED WORKSPACES IS BY OTHERS.
4. EROSION AND SEDIMENT CONTROL IS NOT DEPICTED ON THIS DRAWING. REFER TO ESCGP PLANS FOR EROSION AND SEDIMENT CONTROL REQUIREMENTS.
5. ALL PERSONNEL AND EQUIPMENT SHALL REMAIN WITHIN THE PERMITTED LIMIT OF DISTURBANCE DEPICTED ON THIS DRAWING UNLESS OTHERWISE AUTHORIZED BY THE CLIENT.

HORIZONTAL LENGTH: 2,550'

DRILL LENGTH: 2,560'

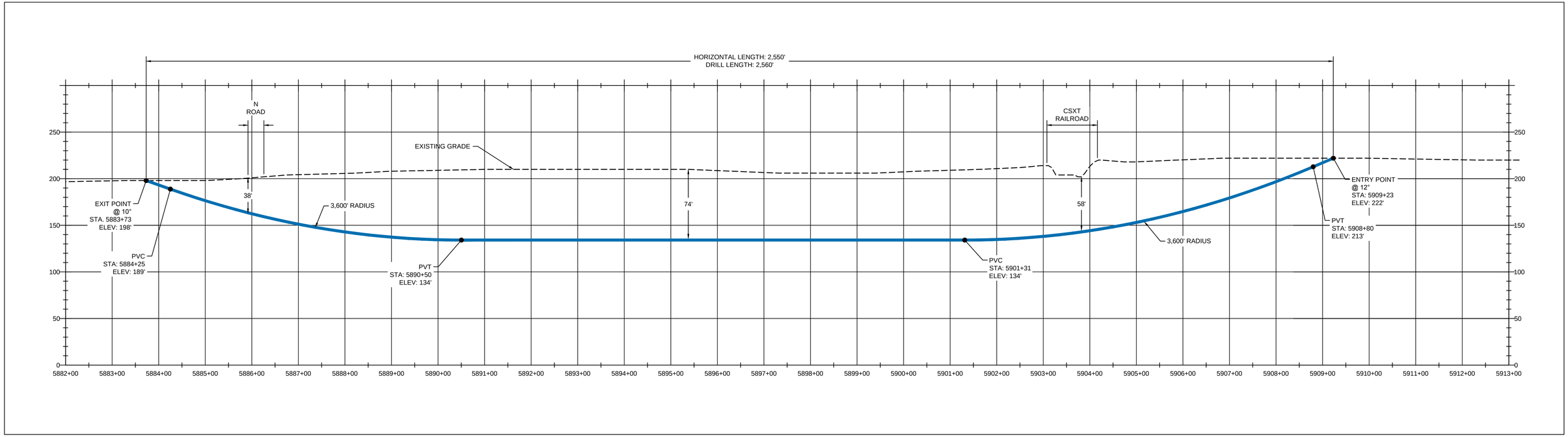
PROPOSED PIPE IS 36" O.D. X .500 W.T., GR, X-60, WITH FBE ARO COATING.

CSXT RAILROAD HDD PLAN VIEW

LEGEND

100' 50' 0' 100'

- PROPOSED 36" PIPELINE
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED PIPEYARD
- PROPOSED STAGING AREA
- ACCESS ROAD
- PROPERTY LINE
- MAJOR CONTOURS (1260')
- MINOR CONTOURS (1261')
- EXISTING PIPELINE
- EXISTING OVERHEAD LINE (OH)
- RAILROAD CENTERLINE
- ROAD CENTERLINE
- TRAIL CENTERLINE
- STREAM (PUBLIC)
- STREAM (DELINEATED)
- WETLAND (PUBLIC)
- WETLAND (DELINEATED)
- WETLAND (AGRICULTURAL MODIFIED)
- WATERBODY (DELINEATED)
- WATERBODY (PUBLIC)



CSXT RAILROAD HDD PROFILE

HORIZ SCALE: 100' 50' 0' 100'

VERT SCALE: 50' 25' 0' 50'

NOTES:
1. THE CONTOURS SHOWN WERE PROVIDED BY PICTOMETRY, 2015.
2. UTILITIES SHOWN WERE DIGITIZED FROM IMAGERY AND ALL LOCATIONS ARE APPROXIMATE.
3. IMAGERY WAS PROVIDED BY PICTOMETRY, 2015

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-01-223	ALIGNMENT SHEET
000-03-01-224	ALIGNMENT SHEET
000-03-03-084	ACCESS ROAD DETAIL

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2015	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2015	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
HMM	6/18/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

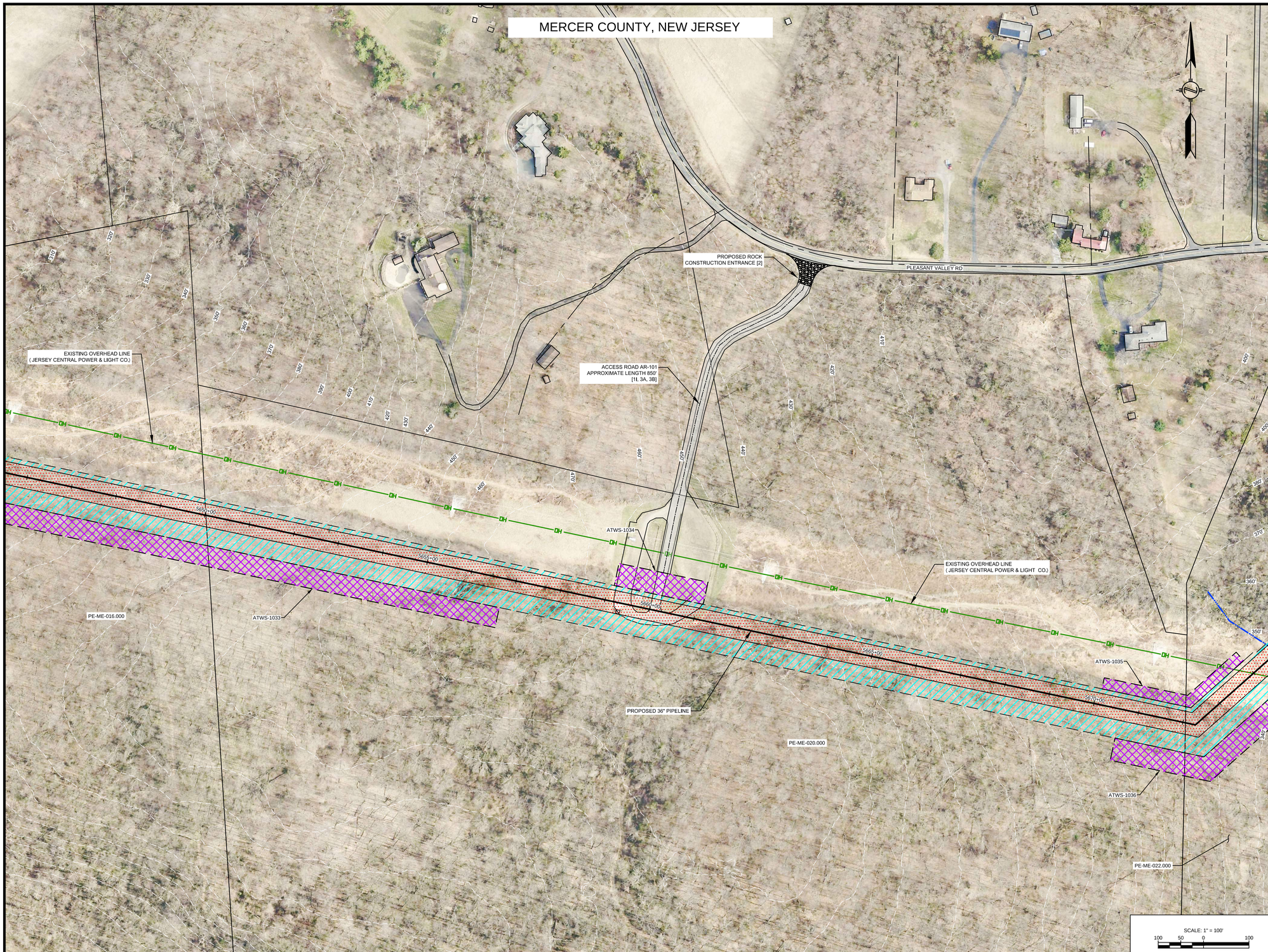
PREPARED BY

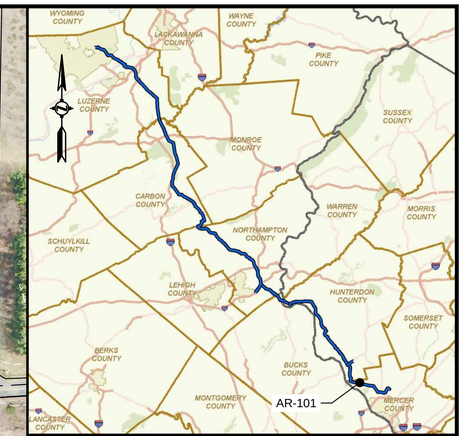
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PROPOSED 36" PIPELINE
HDD EXHIBIT PLAN AND PROFILE
CSXT RAILROAD
MERCER COUNTY, NJ

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-07-010	D





LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

PROPOSED

- PROPOSED PIPELINE
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED ABOVE GROUND FACILITY
- ROCK CONSTRUCTION ENTRANCE
- PROPOSED PIPEYARD
- PROPOSED STAGING AREA
- PROPOSED FENCE
- ACCESS ROAD
- PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE
- PERMANENT TRENCH PLUG

EXISTING

- PROPERTY LINE
- STREAM (PUBLIC)
- STREAM (DELINEATED)
- 1260' EXISTING CONTOURS
- EXISTING PIPELINE
- OH EXISTING OVERHEAD LINE
- WETLAND (PUBLIC)
- WETLAND (DELINEATED)
- WETLAND (AGRICULTURAL MODIFIED)
- EXISTING FENCE
- PE-LU-052.000 LINE LIST NUMBER
- WATERBODY (DELINEATED)
- WATERBODY (PUBLIC)

NOTES:
1. THE CONTOURS SHOWN WERE PROVIDED BY PICTOMETRY, 2015. ADDITIONAL CONTOURS SUPPLEMENTED FROM PASDA.
2. UTILITIES SHOWN WERE DIGITIZED FROM IMAGERY AND ALL LOCATIONS ARE APPROXIMATE.
3. IMAGERY WAS PROVIDED BY PICTOMETRY 2015

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-01-215	ALIGNMENT SHEET

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
CHECKED BY	DATE
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

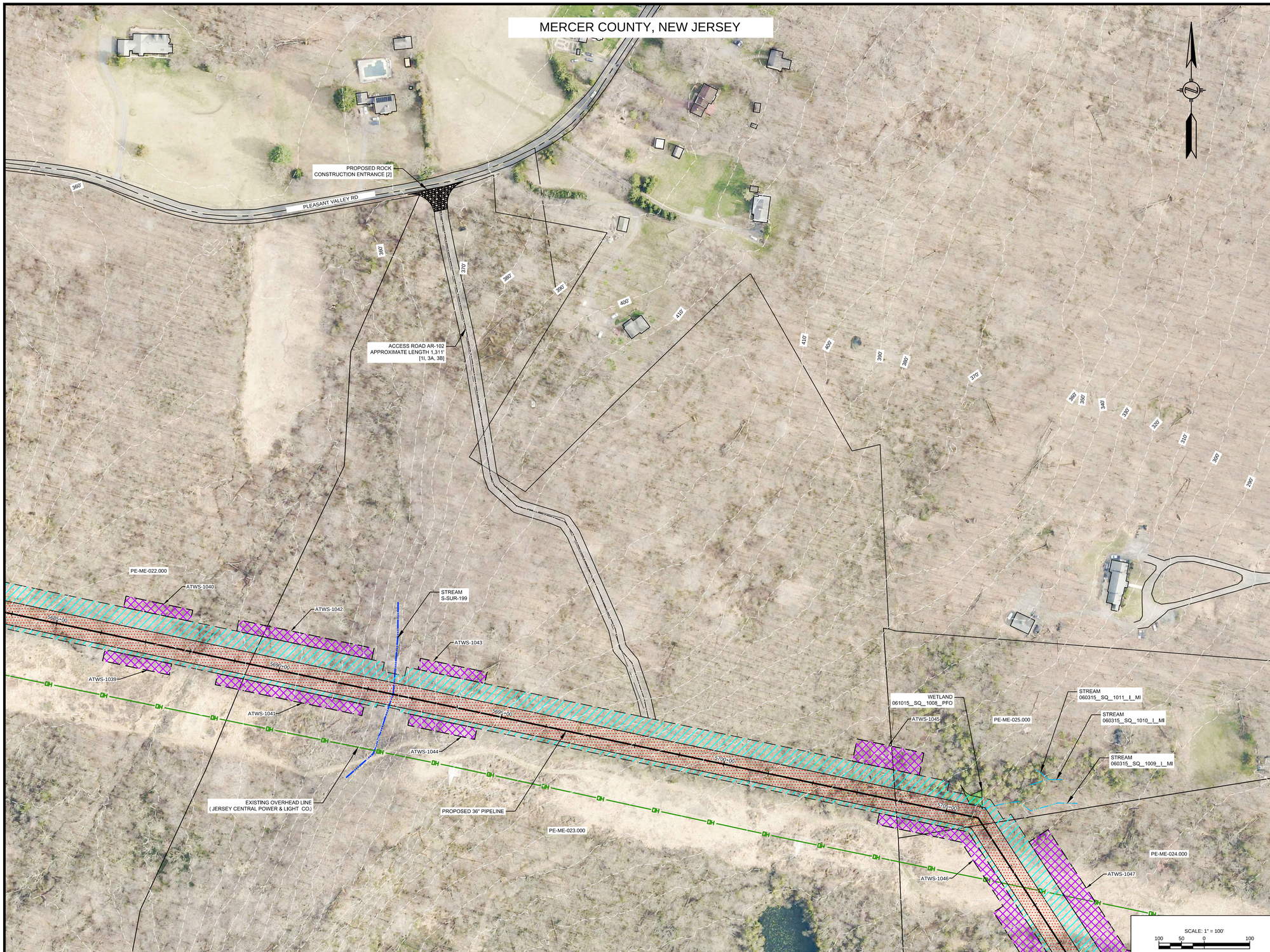
PREPARED BY

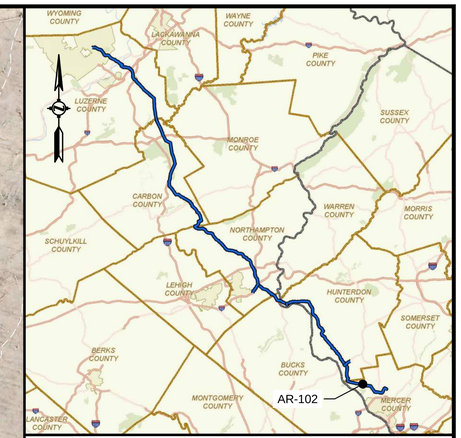
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

ACCESS ROAD DETAIL
AR-101
MERCER COUNTY, NEW JERSEY

SCALE	DRAWING NO.	REVISION
AS NOTED	000-03-03-078	D





LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

PROPOSED

- PROPOSED PIPELINE
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED ABOVE GROUND FACILITY
- ROCK CONSTRUCTION ENTRANCE
- PROPOSED PIPEYARD
- PROPOSED STAGING AREA
- PROPOSED FENCE
- ACCESS ROAD
- PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE
- PERMANENT TRENCH PLUG

EXISTING

- PROPERTY LINE
- STREAM (PUBLIC)
- STREAM (DELINEATED)
- 1260' EXISTING CONTOURS
- EXISTING PIPELINE
- OH EXISTING OVERHEAD LINE
- WETLAND (PUBLIC)
- WETLAND (DELINEATED)
- WETLAND (AGRICULTURAL MODIFIED)
- EXISTING FENCE
- PE-LU-052.000 LINE LIST NUMBER
- WATERBODY (DELINEATED)
- WATERBODY (PUBLIC)

NOTES:
1. THE CONTOURS SHOWN WERE PROVIDED BY PICTOMETRY, 2015. ADDITIONAL CONTOURS SUPPLEMENTED FROM PASDA.
2. UTILITIES SHOWN WERE DIGITIZED FROM IMAGERY AND ALL LOCATIONS ARE APPROXIMATE.
3. IMAGERY WAS PROVIDED BY PICTOMETRY 2015

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-01-216	ALIGNMENT SHEET

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
CHECKED BY	DATE
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

Hatch Mott MacDonald

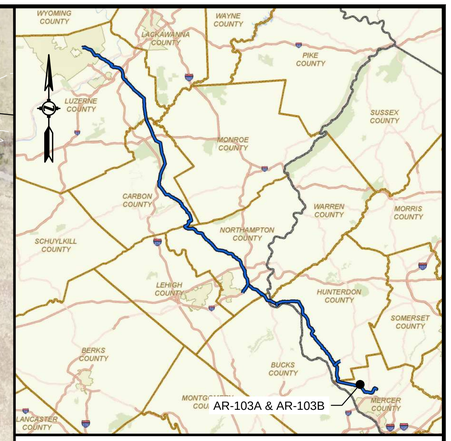
PENNEAST PIPELINE PROJECT

ACCESS ROAD DETAIL
AR-102
MERCER COUNTY, NEW JERSEY

SCALE	DRAWING NO.	REVISION
AS NOTED	000-03-03-079	D

MERCER COUNTY, NEW JERSEY

ATWS-1056
ATWS-1057
ATWS-1055
WETLAND 051015__SQ__1006__PFO
WETLAND 061015__SQ__1003__PFO
STREAM 061015__SQ__1004__P__IN
PROPOSED 36" PIPELINE
ACCESS ROAD AR-103A APPROXIMATE LENGTH 180' [1I, 3A, 3B]
ATWS-1059
ATWS-1058
EXISTING OVERHEAD LINE (JERSEY CENTRAL POWER & LIGHT COMPANY)
ATWS-1060
WETLAND 061015__SQ__1002__PEM
EXISTING OVERHEAD LINE (JERSEY CENTRAL POWER & LIGHT COMPANY)
ATWS-1061
STREAM 061015___SQ___1001___I___MI
ATWS-1062
STREAM 061015___SQ___1001___I___MI
ATWS-1063
PE-ME-029.000
PE-ME-029.000
PE-ME-033.000
ACCESS ROAD AR-103B APPROXIMATE LENGTH 1,969' [1I, 3A, 3B]
WATERBODY NJ-NHD-031
PROPOSED ROCK CONSTRUCTION ENTRANCE [2]
PENNINGTON TITUSVILLE RD
5765'00
5770'00
5775'00
5780'00
5785'00
5790'00
31'
[30]
2
SCALE: 1" = 100'
100 50 0 100



LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

PROPOSED

- PROPOSED PIPELINE
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED ABOVE GROUND FACILITY
- ROCK CONSTRUCTION ENTRANCE
- PROPOSED PIPEYARD
- PROPOSED STAGING AREA
- PROPOSED FENCE
- ACCESS ROAD
- PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE
- PERMANENT TRENCH PLUG

EXISTING

- PROPERTY LINE
- STREAM (PUBLIC)
- STREAM (DELINEATED)
- 1260' — EXISTING CONTOURS
- EXISTING PIPELINE
- OH — EXISTING OVERHEAD LINE
- WETLAND (PUBLIC)
- WETLAND (DELINEATED)
- WETLAND (AGRICULTURAL MODIFIED)
- EXISTING FENCE
- PE-LU-052.000 — LINE LIST NUMBER
- WATERBODY (DELINEATED)
- WATERBODY (PUBLIC)

NOTES:
1. THE CONTOURS SHOWN WERE PROVIDED BY PICTOMETRY, 2015. ADDITIONAL CONTOURS SUPPLEMENTED FROM PASDA.
2. UTILITIES SHOWN WERE DIGITIZED FROM IMAGERY AND ALL LOCATIONS ARE APPROXIMATE.
3. IMAGERY WAS PROVIDED BY PICTOMETRY 2015

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-01-219	ALIGNMENT SHEET

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
CHECKED BY	DATE
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL
DATE

PREPARED FOR
PennEast PIPELINE

PREPARED BY
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

ACCESS ROAD DETAIL
AR-103A & AR-103B
MERCER COUNTY, NEW JERSEY

SCALE	DRAWING NO.	REVISION
AS NOTED	000-03-03-080	D

MERCER COUNTY, NEW JERSEY

WETLAND
061015_SQ_1002_PEM

EXISTING OVERHEAD LINE
(JERSEY CENTRAL POWER & LIGHT COMPANY)

ATWS-1058

ATWS-1061

STREAM
061015___SQ___1001___I___MI

PE-ME-029.000

ATWS-1062

STREAM
061015___SQ___1001___I___MI

ATWS-1064

PE-ME-032.000

PROPOSED ROCK
CONSTRUCTION ENTRANCE [2]

ATWS-1063

ATWS-1065

PENNINGTON TITUSVILLE RD

PE-ME-033.000

AR-104
APPROXIMATE LENGTH 863'
[1I, 3A, 3B]

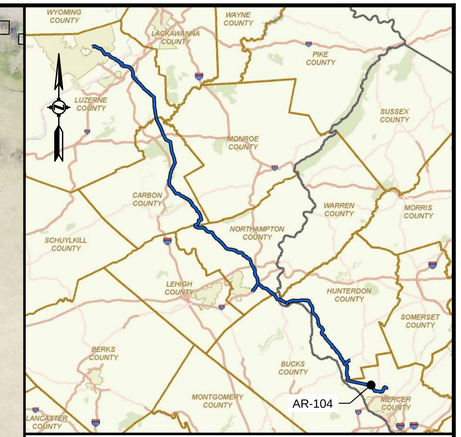
EXISTING OVERHEAD LINE
(JERSEY CENTRAL POWER & LIGHT COMPANY)

PROPOSED 36" PIPELINE

ATWS-1066

PE-ME-034.000

SCALE: 1" = 100'
100 50 0 100



LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

PROPOSED

- PROPOSED PIPELINE
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED ABOVE GROUND FACILITY
- ROCK CONSTRUCTION ENTRANCE
- PROPOSED PIPEYARD
- PROPOSED STAGING AREA
- PROPOSED FENCE
- ACCESS ROAD
- PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE
- PERMANENT TRENCH PLUG

EXISTING

- PROPERTY LINE
- STREAM (PUBLIC)
- STREAM (DELINEATED)
- 1260' EXISTING CONTOURS
- EXISTING PIPELINE
- OH EXISTING OVERHEAD LINE
- WETLAND (PUBLIC)
- WETLAND (DELINEATED)
- WETLAND (AGRICULTURAL MODIFIED)
- EXISTING FENCE
- PE-LU-052.000 LINE LIST NUMBER
- WATERBODY (DELINEATED)
- WATERBODY (PUBLIC)

NOTES:
1. THE CONTOURS SHOWN WERE PROVIDED BY PICTOMETRY, 2015. ADDITIONAL CONTOURS SUPPLEMENTED FROM PASDA.
2. UTILITIES SHOWN WERE DIGITIZED FROM IMAGERY AND ALL LOCATIONS ARE APPROXIMATE.
3. IMAGERY WAS PROVIDED BY PICTOMETRY 2015

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-01-220	ALIGNMENT SHEET

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
CHECKED BY	DATE
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL

DATE

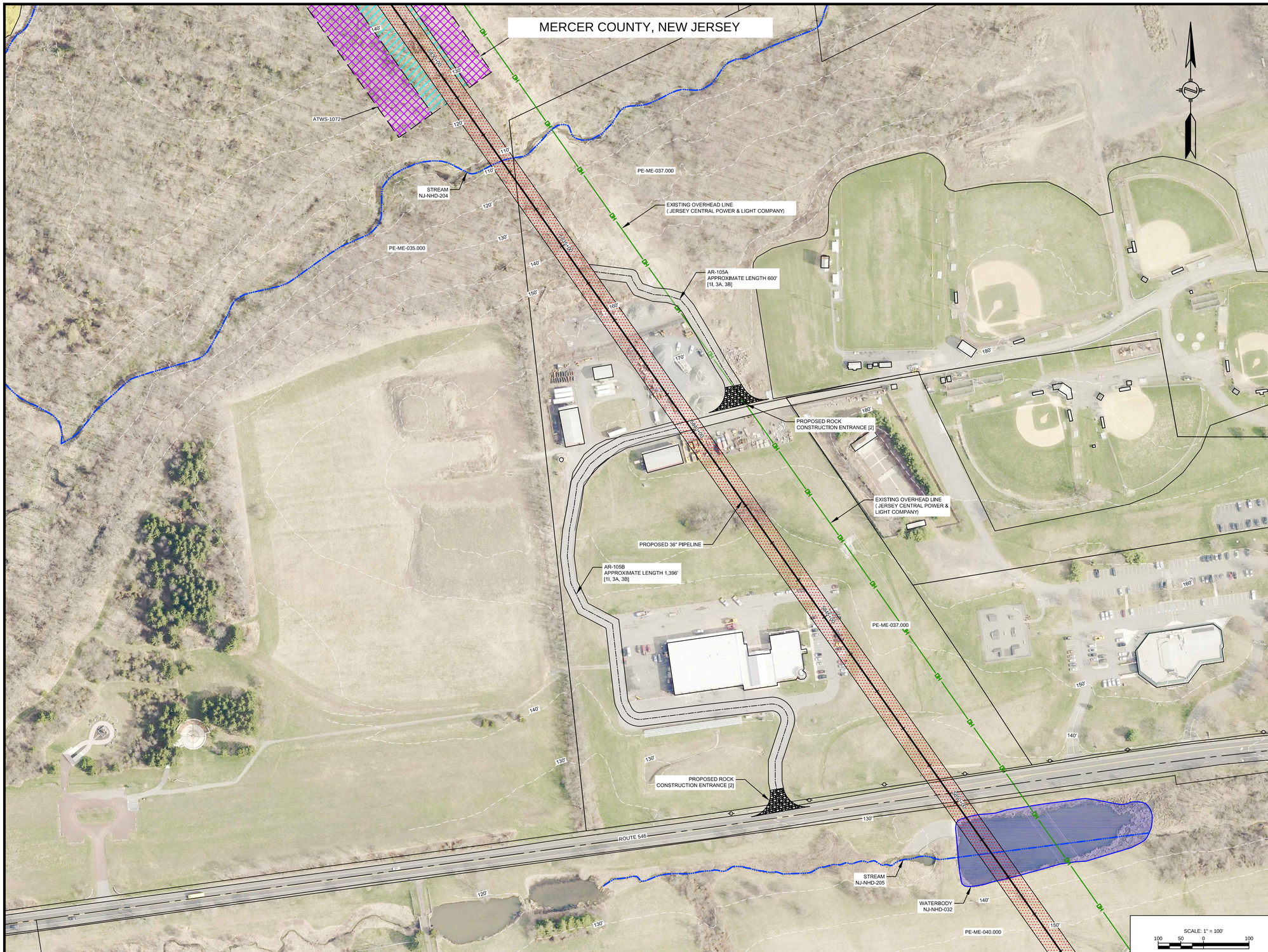
PREPARED FOR
PennEast PIPELINE

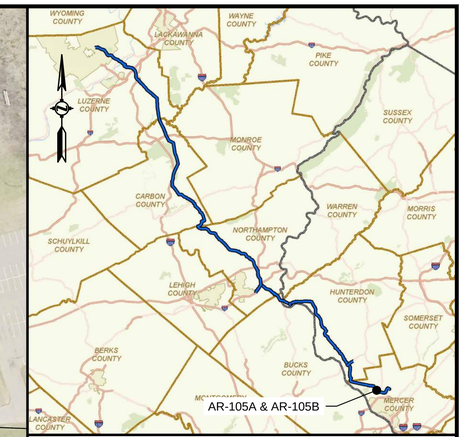
PREPARED BY
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

ACCESS ROAD DETAIL
AR-104
MERCER COUNTY, NEW JERSEY

SCALE	DRAWING NO.	REVISION
AS NOTED	000-03-03-081	D





LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

PROPOSED

- PROPOSED PIPELINE
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED ABOVE GROUND FACILITY
- ROCK CONSTRUCTION ENTRANCE
- PROPOSED PIPEYARD
- PROPOSED STAGING AREA
- PROPOSED FENCE
- ACCESS ROAD
- PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE
- PERMANENT TRENCH PLUG

EXISTING

- PROPERTY LINE
- STREAM (PUBLIC)
- STREAM (DELINEATED)
- 1260' EXISTING CONTOURS
- EXISTING PIPELINE
- OH EXISTING OVERHEAD LINE
- WETLAND (PUBLIC)
- WETLAND (DELINEATED)
- WETLAND (AGRICULTURAL MODIFIED)
- EXISTING FENCE
- PE-LU-052.000 LINE LIST NUMBER
- WATERBODY (DELINEATED)
- WATERBODY (PUBLIC)

NOTES:
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2. UTILITIES SHOWN WERE DIGITIZED FROM IMAGERY AND ALL LOCATIONS ARE APPROXIMATE.
3. IMAGERY WAS PROVIDED BY PICTOMETRY 2015

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-07-009	HDD EXHIBIT PLAN AND PROFILE
000-03-01-222	ALIGNMENT SHEET

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
CHECKED BY	DATE
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL

DATE

PREPARED FOR
PennEast PIPELINE

PREPARED BY
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

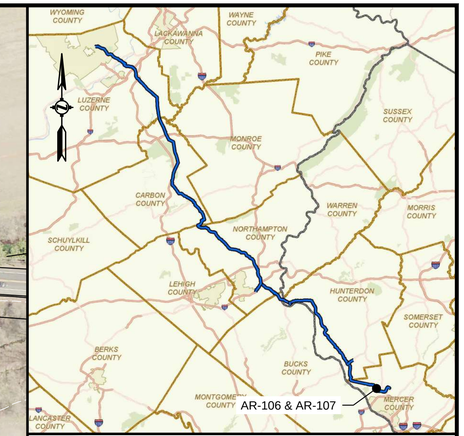
ACCESS ROAD DETAIL
AR-105A & AR-105B
MERCER COUNTY, NEW JERSEY

SCALE	DRAWING NO.	REVISION
AS NOTED	000-03-03-082	D

MERCER COUNTY, NEW JERSEY

PE-ME-037.000
PE-ME-040.000
PE-ME-041.000
PE-ME-042.000
PE-ME-043.000
ROUTE 546
Route 611
STREAM NJ-NHD-205
WATERBODY NJ-NHD-032
ACCESS ROAD AR-107 APPROXIMATE LENGTH 328' [1I, 3A, 3B]
PROPOSED ROCK CONSTRUCTION ENTRANCE [2]
EXISTING OVERHEAD LINE (JERSEY CENTRAL POWER & LIGHT COMPANY)
ATWS-1076
ATWS-1074
ATWS-1073
ATWS-1075
PROPOSED 36" PIPELINE
ACCESS ROAD AR-106 APPROXIMATE LENGTH 600' [1I, 3A, 3B]
PROPOSED ROCK CONSTRUCTION ENTRANCE [2]
5866+00
5865+00
5870+00
5875+00
160'
150'
140'
130'

SCALE: 1" = 100'
100 50 0 100



LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

PROPOSED

- PROPOSED PIPELINE
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED ABOVE GROUND FACILITY
- ROCK CONSTRUCTION ENTRANCE
- PROPOSED PIPEYARD
- PROPOSED STAGING AREA
- PROPOSED FENCE
- ACCESS ROAD
- PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE
- PERMANENT TRENCH PLUG

EXISTING

- PROPERTY LINE
- STREAM (PUBLIC)
- STREAM (DELINEATED)
- 1260' EXISTING CONTOURS
- EXISTING PIPELINE
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- WETLAND (PUBLIC)
- WETLAND (DELINEATED)
- WETLAND (AGRICULTURAL MODIFIED)
- EXISTING FENCE
- PE-LU-052.000 LINE LIST NUMBER
- WATERBODY (DELINEATED)
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NOTES:
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3. IMAGERY WAS PROVIDED BY PICTOMETRY 2015

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-01-223	ALIGNMENT SHEET

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
CHECKED BY	DATE
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL
DATE

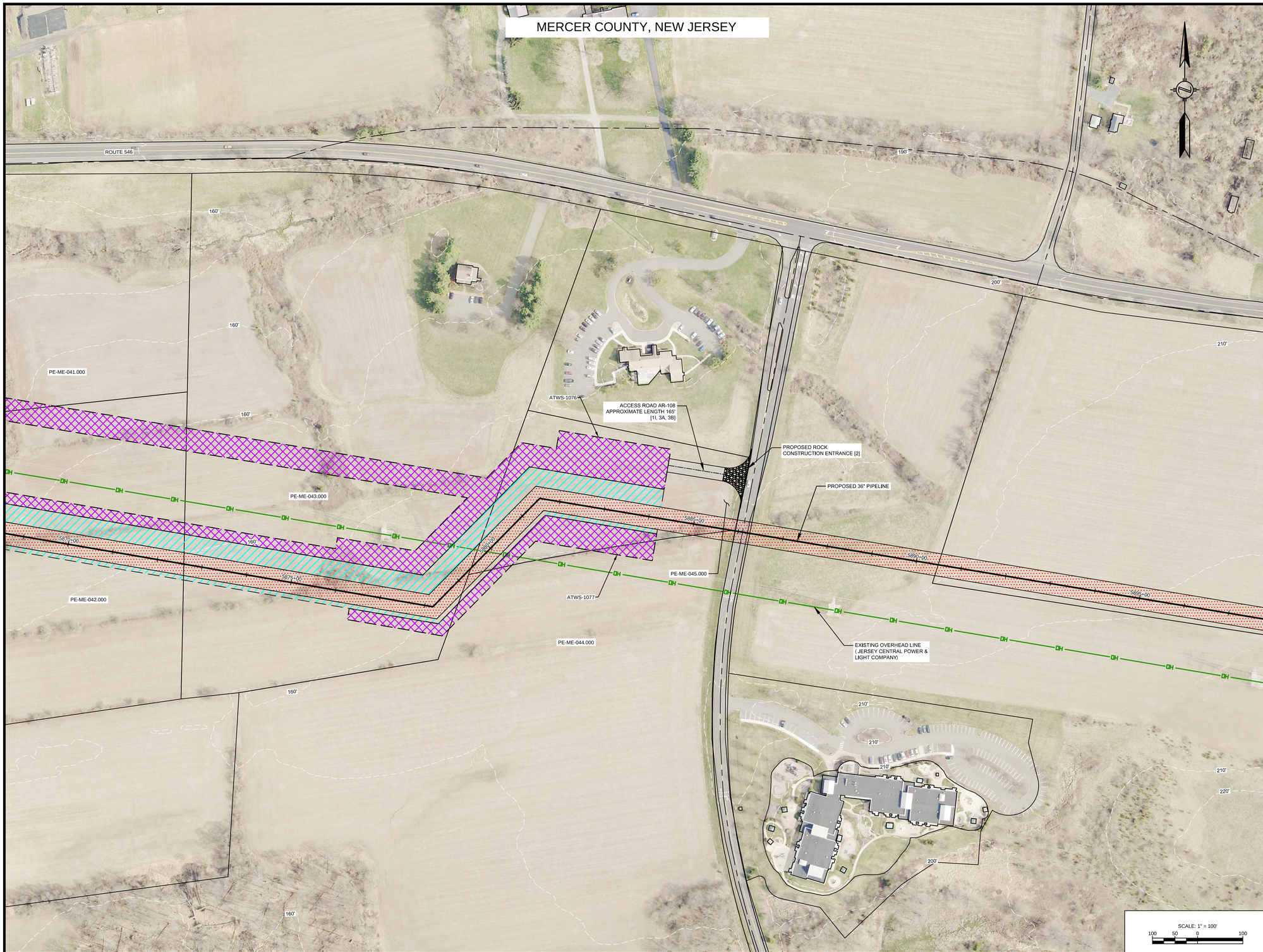
PREPARED FOR
PennEast PIPELINE

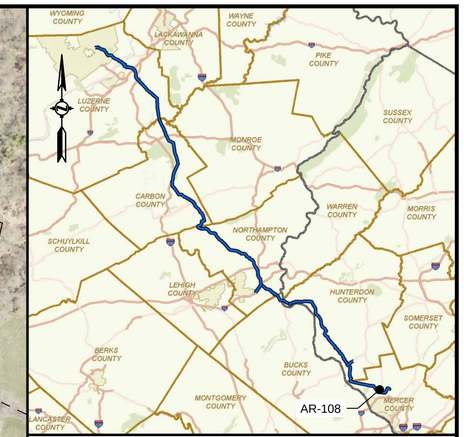
PREPARED BY
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

ACCESS ROAD DETAIL
AR-106 & AR-107
MERCER COUNTY, NEW JERSEY

SCALE	DRAWING NO.	REVISION
AS NOTED	000-03-03-083	D





LOCATION MAP
SCALE: 1" = 15 MILES

LEGENDS

PROPOSED

- PROPOSED PIPELINE
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE
- PROPOSED ABOVE GROUND FACILITY
- ROCK CONSTRUCTION ENTRANCE
- PROPOSED PIPEYARD
- PROPOSED STAGING AREA
- PROPOSED FENCE
- ACCESS ROAD
- PERMANENT WATERBARS WITH COMPOST FILTER SOCK AT WATERBAR DISCHARGE
- PERMANENT TRENCH PLUG

EXISTING

- PROPERTY LINE
- STREAM (PUBLIC)
- STREAM (DELINEATED)
- 1260' EXISTING CONTOURS
- EXISTING PIPELINE
- OH EXISTING OVERHEAD LINE
- WETLAND (PUBLIC)
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- WATERBODY (DELINEATED)
- WATERBODY (PUBLIC)

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3. IMAGERY WAS PROVIDED BY PICTOMETRY 2015

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-07-010	HDD EXHIBIT PLAN AND PROFILE
000-03-01-223	ALIGNMENT SHEET

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
CHECKED BY	DATE
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

PREPARED BY

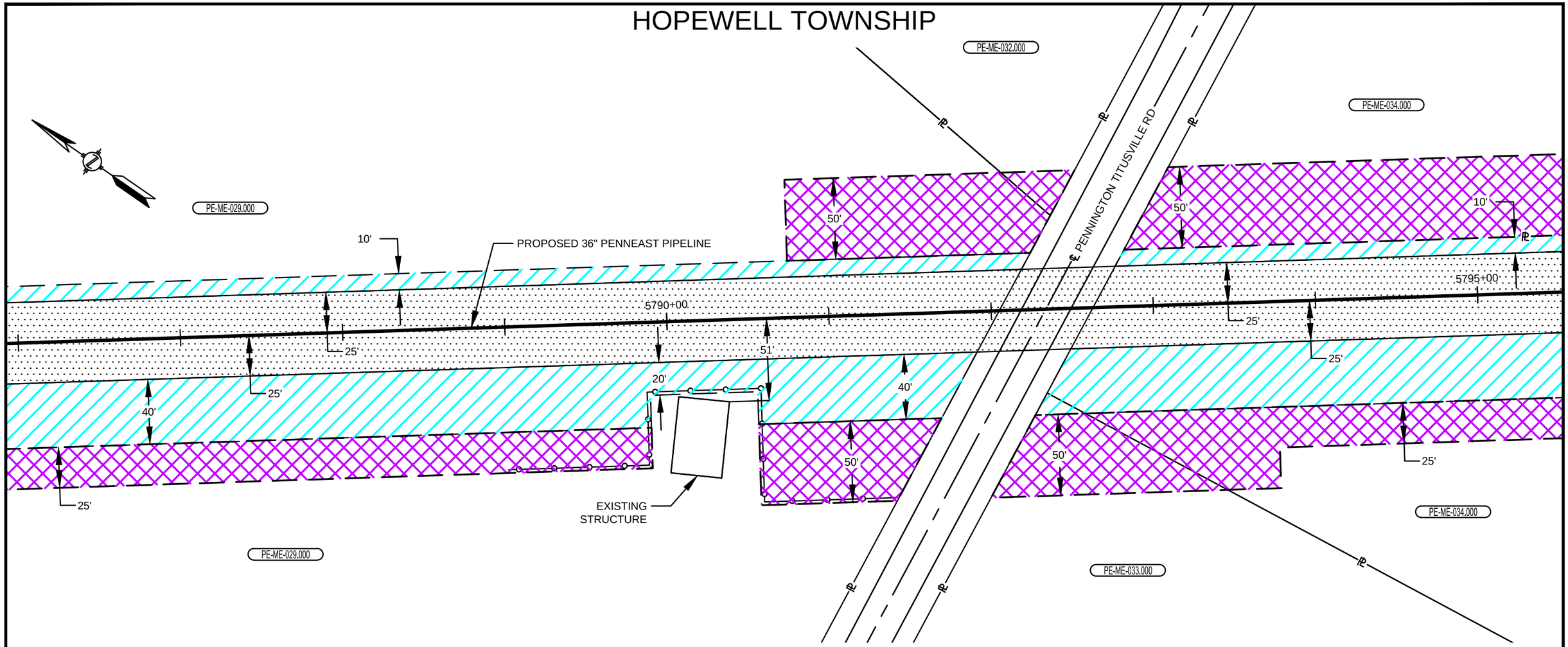
Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

ACCESS ROAD DETAIL
AR-108
MERCER COUNTY, NEW JERSEY

SCALE	DRAWING NO.	REVISION
AS NOTED	000-03-03-084	D

HOPEWELL TOWNSHIP



PLAN VIEW

SCALE: 1" = 60'

LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- EXISTING PIPELINE
- PROPERTY LINE
- PROPOSED STAGING AREA / WAREYARD
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)

GRAPHIC SCALE

60' 30' 0 60'

NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT.
2. STRUCTURES WITHIN L.O.D. WILL BE REMOVED, RELOCATED OR PROTECTED PER LAND OWNER AGREEMENT.
3. STRUCTURES WERE PROVIDED BY PICTOMETRY®, 2015.

CONSTRUCTION TECHNIQUES

ONE OF THE FOLLOWING TECHNIQUES SHALL BE UTILIZED FOR A RESIDENCE WITHIN 50 FEET OF CONSTRUCTION WORKSPACE FOR A LONGITUDINAL DISTANCE OF 100 FEET EITHER SIDE OF THE RESIDENCE OR COMMERCIAL STRUCTURE:

1. THE SEWER LINE TECHNIQUE IS A LESS EFFICIENT ALTERNATIVE TO THE MAINLINE METHOD OF CONSTRUCTION. IT IS TYPICALLY USED WHEN THE PIPELINE IS TO BE INSTALLED IN VERY CLOSE PROXIMITY TO AN EXISTING STRUCTURE OR WHEN AN OPEN DITCH WOULD ADVERSELY IMPACT A COMMERCIAL/RESIDENTIAL ESTABLISHMENT. THE TECHNIQUE INVOLVES INSTALLING PIPE ONE JOINT AT A TIME WHEREBY THE WELDING, X-RAY AND COATING ACTIVITIES ARE ALL PERFORMED IN THE OPEN TRENCH. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED OR THE OPEN TRENCH IS COVERED WITH STEEL PLATES OR TIMBER MATS.
2. THE DRAG SECTION CONSTRUCTION TECHNIQUE, WHILE LESS EFFICIENT THAN MAINLINE METHODS, IS NORMALLY PREFERRED OVER THE SEWER LINE ALTERNATIVE. THIS TECHNIQUE INVOLVES THE TRENCHING, INSTALLATION AND BACKFILL OF A PREFABRICATED LENGTH OF PIPE CONTAINING SEVERAL SEGMENTS ALL IN ONE DAY. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED AND/OR COVERED WITH STEEL PLATES OR TIMBER MATS.

NO.	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
D	09/18/2015	HMM	FERC FINAL FILING		

REVISIONS

DIVISION:		OP. AREA.:	
STATE: NEW JERSEY		CO./PAR.: MERCER	
SECTION:	TOWNSHIP: HOPEWELL	RANGE:	
DFT: HMM	DATE: 09/23/2015	SCALE: 1"=60'	
CHK: HMM	DATE: 09/23/2015	FILENAME: 000-03-02-095.DWG	
APPR:	DATE:		

PENNEAST PIPELINE PROJECT
PROPOSED 36" PENNEAST PIPELINE
RESIDENTIAL SITE SPECIFIC
MERCER COUNTY, NEW JERSEY

PennEast PIPELINE

811 Know what's below. Call before you dig.

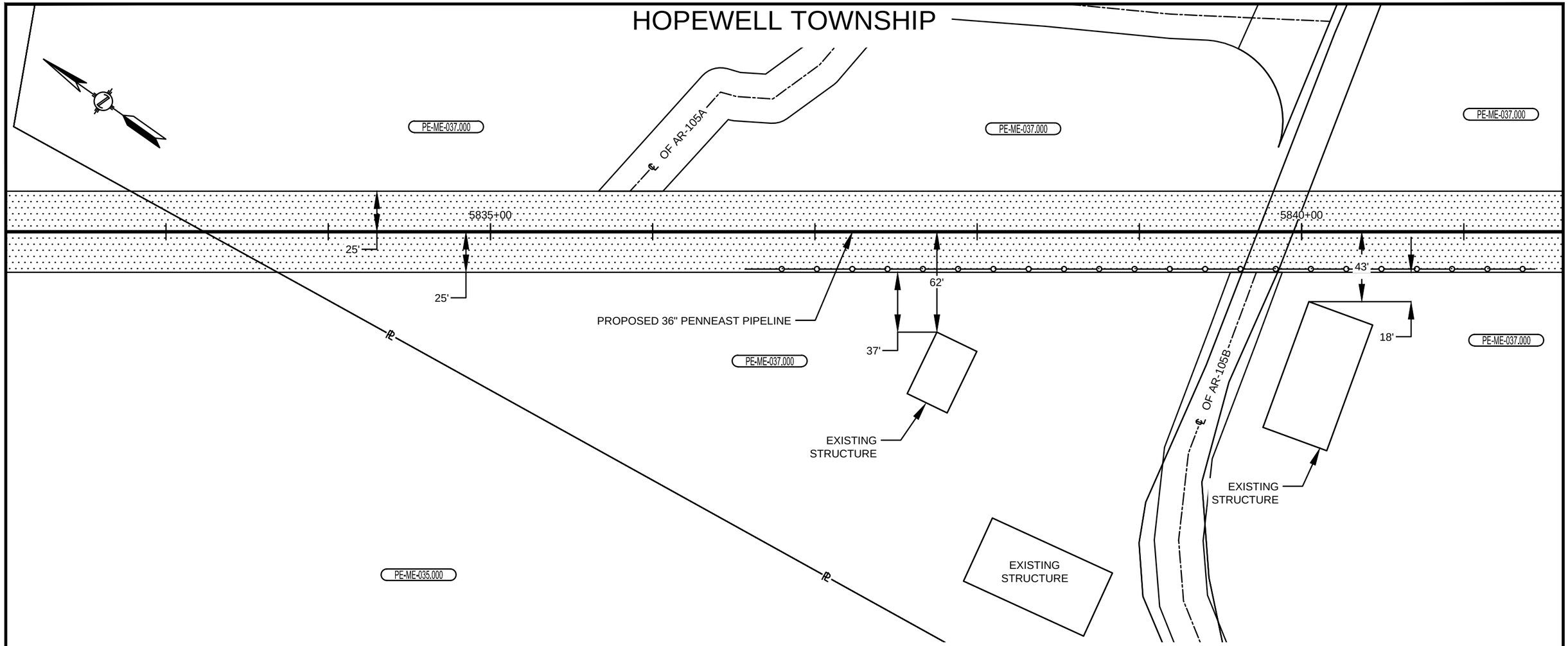
000-03-02-095

SHEET: 01 OF 01

TYPE: ACAD

D

PLOTDATE FILEPATH



PLAN VIEW

SCALE: 1" = 60'

LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- EXISTING PIPELINE
- PROPERTY LINE
- PROPOSED STAGING AREA / WAREYARD
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)

GRAPHIC SCALE

60' 30' 0 60'

NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT.
2. STRUCTURES WITHIN L.O.D. WILL BE REMOVED, RELOCATED OR PROTECTED PER LAND OWNER AGREEMENT.
3. STRUCTURES WERE PROVIDED BY PICTOMETRY®, 2015.

CONSTRUCTION TECHNIQUES

ONE OF THE FOLLOWING TECHNIQUES SHALL BE UTILIZED FOR A RESIDENCE WITHIN 50 FEET OF CONSTRUCTION WORKSPACE FOR A LONGITUDINAL DISTANCE OF 100 FEET EITHER SIDE OF THE RESIDENCE OR COMMERCIAL STRUCTURE:

1. THE SEWER LINE TECHNIQUE IS A LESS EFFICIENT ALTERNATIVE TO THE MAINLINE METHOD OF CONSTRUCTION. IT IS TYPICALLY USED WHEN THE PIPELINE IS TO BE INSTALLED IN VERY CLOSE PROXIMITY TO AN EXISTING STRUCTURE OR WHEN AN OPEN DITCH WOULD ADVERSELY IMPACT A COMMERCIAL/RESIDENTIAL ESTABLISHMENT. THE TECHNIQUE INVOLVES INSTALLING PIPE ONE JOINT AT A TIME WHEREBY THE WELDING, X-RAY AND COATING ACTIVITIES ARE ALL PERFORMED IN THE OPEN TRENCH. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED OR THE OPEN TRENCH IS COVERED WITH STEEL PLATES OR TIMBER MATS.
2. THE DRAG SECTION CONSTRUCTION TECHNIQUE, WHILE LESS EFFICIENT THAN MAINLINE METHODS, IS NORMALLY PREFERRED OVER THE SEWER LINE ALTERNATIVE. THIS TECHNIQUE INVOLVES THE TRENCHING, INSTALLATION AND BACKFILL OF A PREFABRICATED LENGTH OF PIPE CONTAINING SEVERAL SEGMENTS ALL IN ONE DAY. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED AND/OR COVERED WITH STEEL PLATES OR TIMBER MATS.

NO.	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
D	09/18/2015	HMM	FERC FINAL FILING		

REVISIONS

DIVISION:		OP. AREA.:	
STATE: NEW JERSEY		CO./PAR.: MERCER	
SECTION:	TOWNSHIP: HOPEWELL	RANGE:	
DFT: HMM	DATE: 09/23/2015	SCALE: 1"=60'	
CHK: HMM	DATE: 09/23/2015	FILENAME: 000-03-02-096.DWG	
APPR:	DATE:		

PENNEAST PIPELINE PROJECT
PROPOSED 36" PENNEAST PIPELINE
RESIDENTIAL SITE SPECIFIC
MERCER COUNTY, NEW JERSEY

PennEast PIPELINE

811 Know what's below. Call before you dig.

000-03-02-096

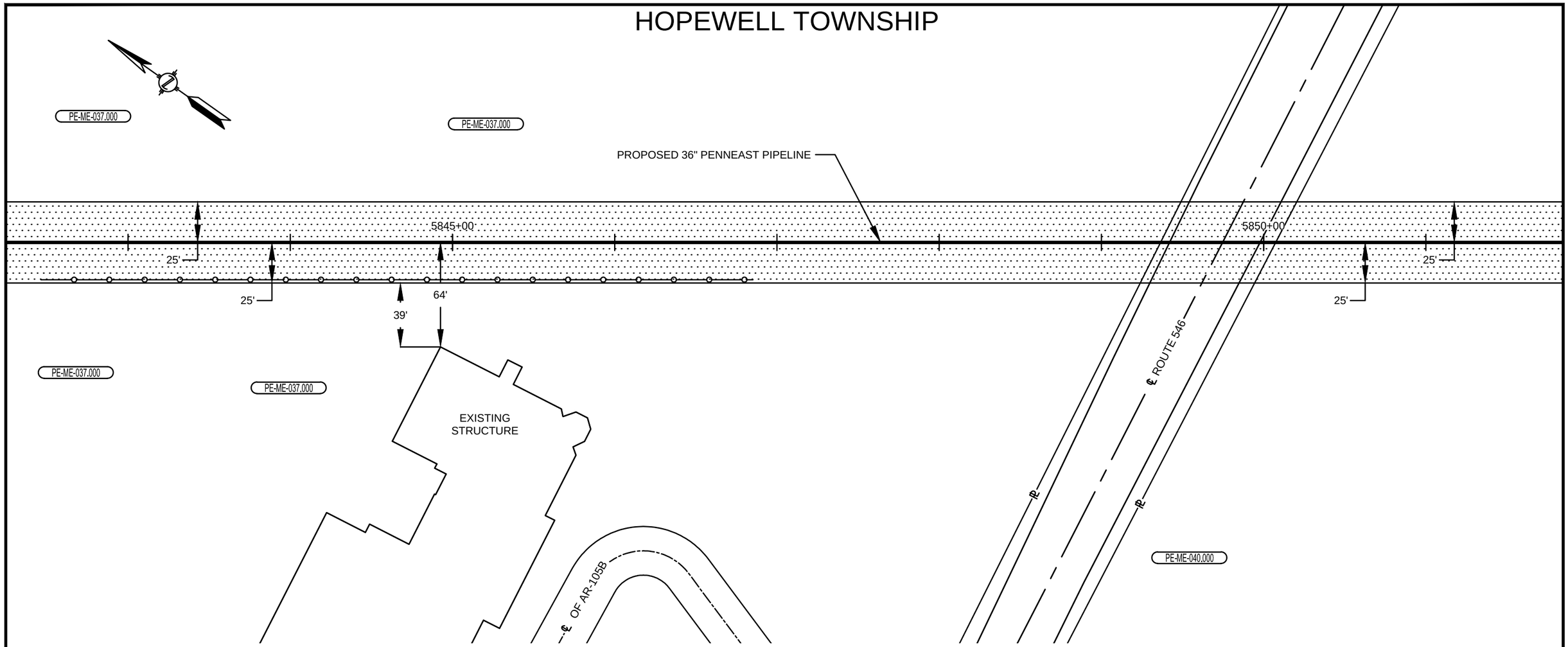
SHEET: 01 OF 01

TYPE: ACAD

D

PLOTDATE FILEPATH

HOPEWELL TOWNSHIP



PLAN VIEW

SCALE: 1" = 60'

LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- EXISTING PIPELINE
- PROPERTY LINE
- PROPOSED STAGING AREA / WAREYARD
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)

GRAPHIC SCALE

60' 30' 0 60'

NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT.
2. STRUCTURES WITHIN L.O.D. WILL BE REMOVED, RELOCATED OR PROTECTED PER LAND OWNER AGREEMENT.
3. STRUCTURES WERE PROVIDED BY PICTOMETRY®, 2015.

CONSTRUCTION TECHNIQUES

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1. THE SEWER LINE TECHNIQUE IS A LESS EFFICIENT ALTERNATIVE TO THE MAINLINE METHOD OF CONSTRUCTION. IT IS TYPICALLY USED WHEN THE PIPELINE IS TO BE INSTALLED IN VERY CLOSE PROXIMITY TO AN EXISTING STRUCTURE OR WHEN AN OPEN DITCH WOULD ADVERSELY IMPACT A COMMERCIAL/RESIDENTIAL ESTABLISHMENT. THE TECHNIQUE INVOLVES INSTALLING PIPE ONE JOINT AT A TIME WHEREBY THE WELDING, X-RAY AND COATING ACTIVITIES ARE ALL PERFORMED IN THE OPEN TRENCH. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED OR THE OPEN TRENCH IS COVERED WITH STEEL PLATES OR TIMBER MATS.
2. THE DRAG SECTION CONSTRUCTION TECHNIQUE, WHILE LESS EFFICIENT THAN MAINLINE METHODS, IS NORMALLY PREFERRED OVER THE SEWER LINE ALTERNATIVE. THIS TECHNIQUE INVOLVES THE TRENCHING, INSTALLATION AND BACKFILL OF A PREFABRICATED LENGTH OF PIPE CONTAINING SEVERAL SEGMENTS ALL IN ONE DAY. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED AND/OR COVERED WITH STEEL PLATES OR TIMBER MATS.

NO.	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
D	09/18/2015	HMM	FERC FINAL FILING		

REVISIONS

DIVISION:		OP. AREA.:	
STATE: NEW JERSEY		CO./PAR.: MERCER	
SECTION:	TOWNSHIP: HOPEWELL	RANGE:	
DFT: HMM	DATE: 09/23/2015	SCALE: 1"=60'	
CHK: HMM	DATE: 09/23/2015	FILENAME: 000-03-02-097.DWG	
APPR:	DATE:		

PENNEAST PIPELINE PROJECT
PROPOSED 36" PENNEAST PIPELINE
RESIDENTIAL SITE SPECIFIC
MERCER COUNTY, NEW JERSEY

PennEast PIPELINE

811 Know what's below. Call before you dig.

000-03-02-097

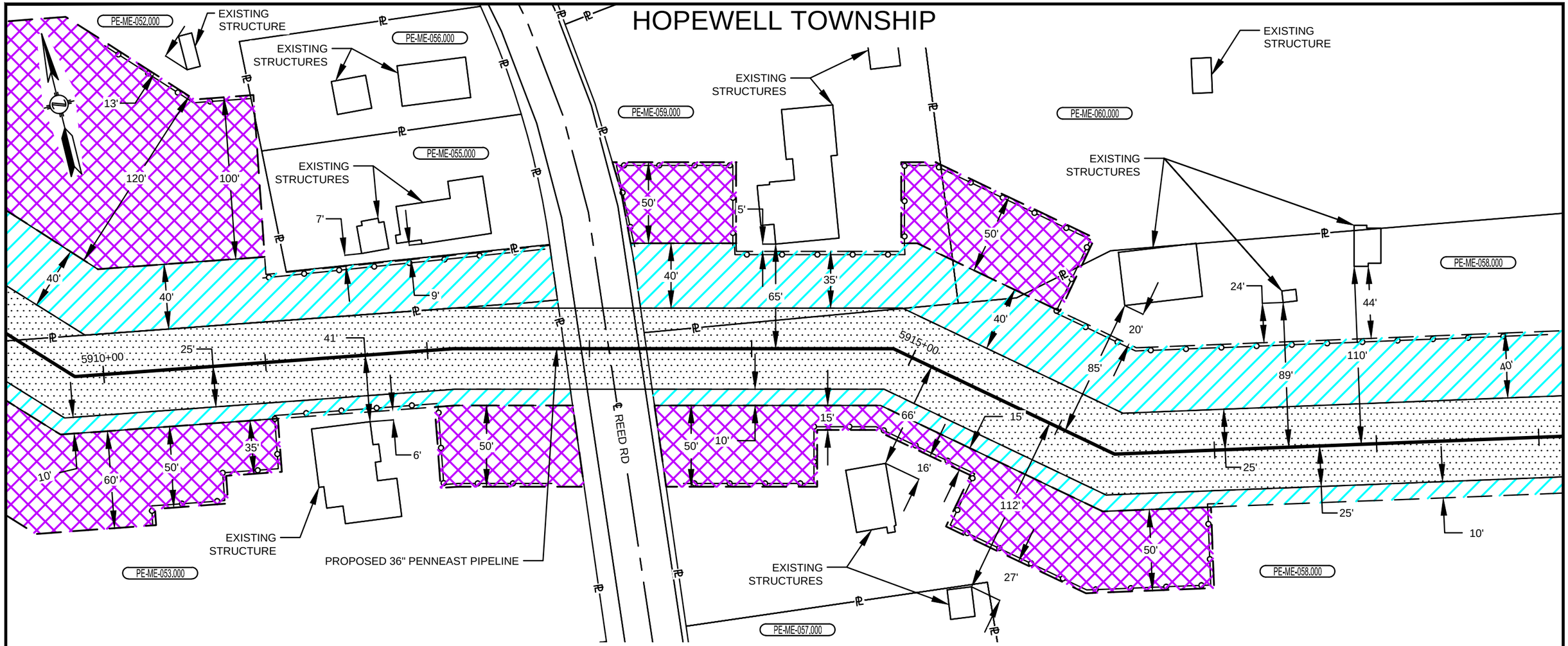
SHEET: 01 OF 01

TYPE: ACAD

D

PLOTDATE FILEPATH

HOPEWELL TOWNSHIP



PLAN VIEW

SCALE: 1" = 60'

LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- EXISTING PIPELINE
- PROPERTY LINE
- PROPOSED STAGING AREA / WAREYARD
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)

GRAPHIC SCALE

60' 30' 0 60'

NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT.
2. STRUCTURES WITHIN L.O.D. WILL BE REMOVED, RELOCATED OR PROTECTED PER LAND OWNER AGREEMENT.
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CONSTRUCTION TECHNIQUES

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NO.	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
D	09/18/2015	HMM	FERC FINAL FILING		

REVISIONS

PLOTDATE FILEPATH

DIVISION:		OP. AREA.:	
STATE: NEW JERSEY		CO./PAR.: MERCER	
SECTION:	TOWNSHIP: HOPEWELL	RANGE:	
DFT: HMM	DATE: 09/23/2015	SCALE: 1"=60'	
CHK: HMM	DATE: 09/23/2015	FILENAME: 000-03-02-098.DWG	
APPR:	DATE:		

PENNEAST PIPELINE PROJECT
PROPOSED 36" PENNEAST PIPELINE
RESIDENTIAL SITE SPECIFIC
MERCER COUNTY, NEW JERSEY

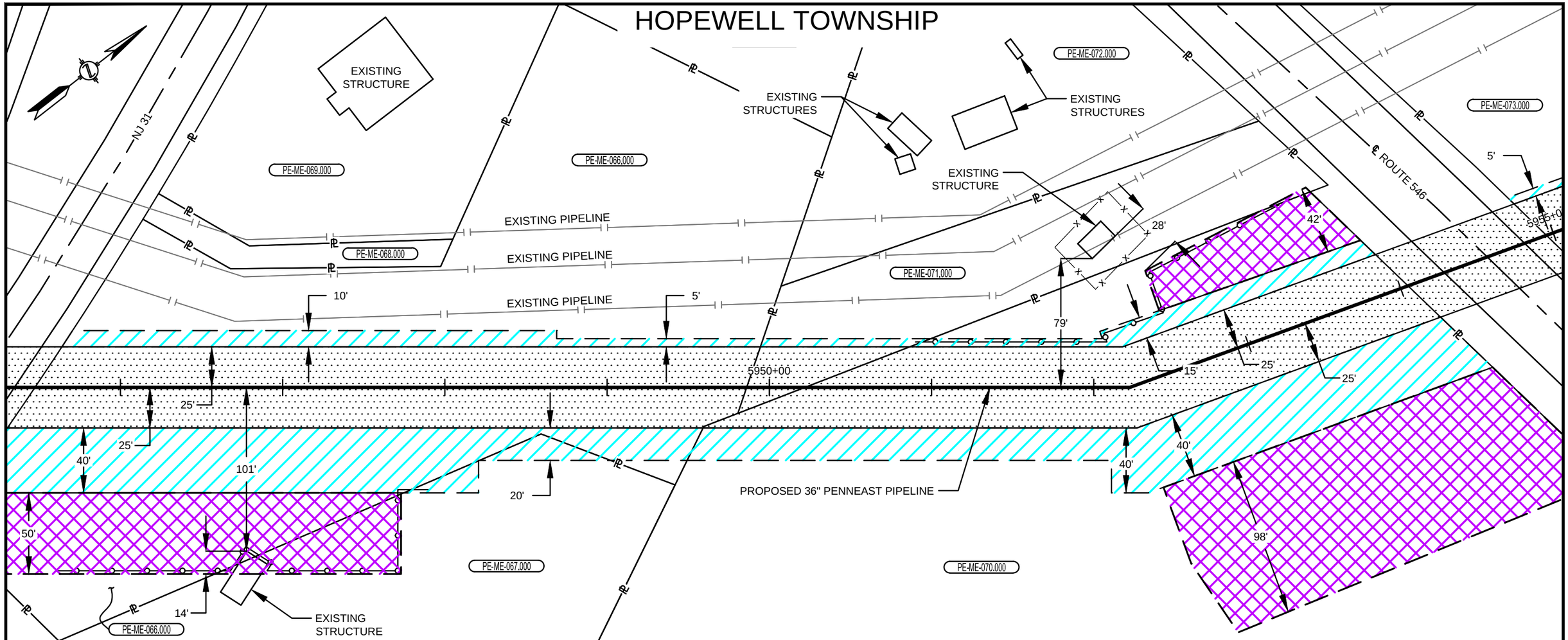
PennEast PIPELINE

811 Know what's below. Call before you dig.

000-03-02-098

SHEET: 01 OF 01
TYPE: ACAD
D

HOPEWELL TOWNSHIP



PLAN VIEW

SCALE: 1" = 60'

LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- EXISTING PIPELINE
- PROPERTY LINE
- PROPOSED STAGING AREA / WAREYARD
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)

GRAPHIC SCALE

60' 30' 0 60'

NOTES:

1. SAFETY FENCE WILL BE INSTALLED AT THE EDGE OF THE LIMIT OF DISTURBANCE (L.O.D.) FOR A DISTANCE OF 100 FEET ON EITHER SIDE OF THE RESIDENCE OR BUSINESS ESTABLISHMENT.
2. STRUCTURES WITHIN L.O.D. WILL BE REMOVED, RELOCATED OR PROTECTED PER LAND OWNER AGREEMENT.
3. STRUCTURES WERE PROVIDED BY PICTOMETRY®, 2015.

CONSTRUCTION TECHNIQUES

ONE OF THE FOLLOWING TECHNIQUES SHALL BE UTILIZED FOR A RESIDENCE WITHIN 50 FEET OF CONSTRUCTION WORKSPACE FOR A LONGITUDINAL DISTANCE OF 100 FEET EITHER SIDE OF THE RESIDENCE OR COMMERCIAL STRUCTURE:

1. THE SEWER LINE TECHNIQUE IS A LESS EFFICIENT ALTERNATIVE TO THE MAINLINE METHOD OF CONSTRUCTION. IT IS TYPICALLY USED WHEN THE PIPELINE IS TO BE INSTALLED IN VERY CLOSE PROXIMITY TO AN EXISTING STRUCTURE OR WHEN AN OPEN DITCH WOULD ADVERSELY IMPACT A COMMERCIAL/RESIDENTIAL ESTABLISHMENT. THE TECHNIQUE INVOLVES INSTALLING PIPE ONE JOINT AT A TIME WHEREBY THE WELDING, X-RAY AND COATING ACTIVITIES ARE ALL PERFORMED IN THE OPEN TRENCH. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED OR THE OPEN TRENCH IS COVERED WITH STEEL PLATES OR TIMBER MATS.
2. THE DRAG SECTION CONSTRUCTION TECHNIQUE, WHILE LESS EFFICIENT THAN MAINLINE METHODS, IS NORMALLY PREFERRED OVER THE SEWER LINE ALTERNATIVE. THIS TECHNIQUE INVOLVES THE TRENCHING, INSTALLATION AND BACKFILL OF A PREFABRICATED LENGTH OF PIPE CONTAINING SEVERAL SEGMENTS ALL IN ONE DAY. AT THE END OF EACH DAY THE NEWLY INSTALLED PIPE IS BACKFILLED AND/OR COVERED WITH STEEL PLATES OR TIMBER MATS.

NO.	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
D	09/18/2015	HMM	FERC FINAL FILING		

REVISIONS

PLOTDATE FILEPATH

DIVISION:		OP. AREA.:	
STATE: NEW JERSEY		CO./PAR.: MERCER	
SECTION:	TOWNSHIP: HOPEWELL	RANGE:	
DFT: HMM	DATE: 09/23/2015	SCALE: 1"=60'	
CHK: HMM	DATE: 09/23/2015	FILENAME: 000-03-02-099.DWG	
APPR:	DATE:		

PENNEAST PIPELINE PROJECT
PROPOSED 36" PENNEAST PIPELINE
RESIDENTIAL SITE SPECIFIC
MERCER COUNTY, NEW JERSEY

PennEast PIPELINE

811 Know what's below. Call before you dig.

000-03-02-099

SHEET: 01 OF 01

TYPE: ACAD

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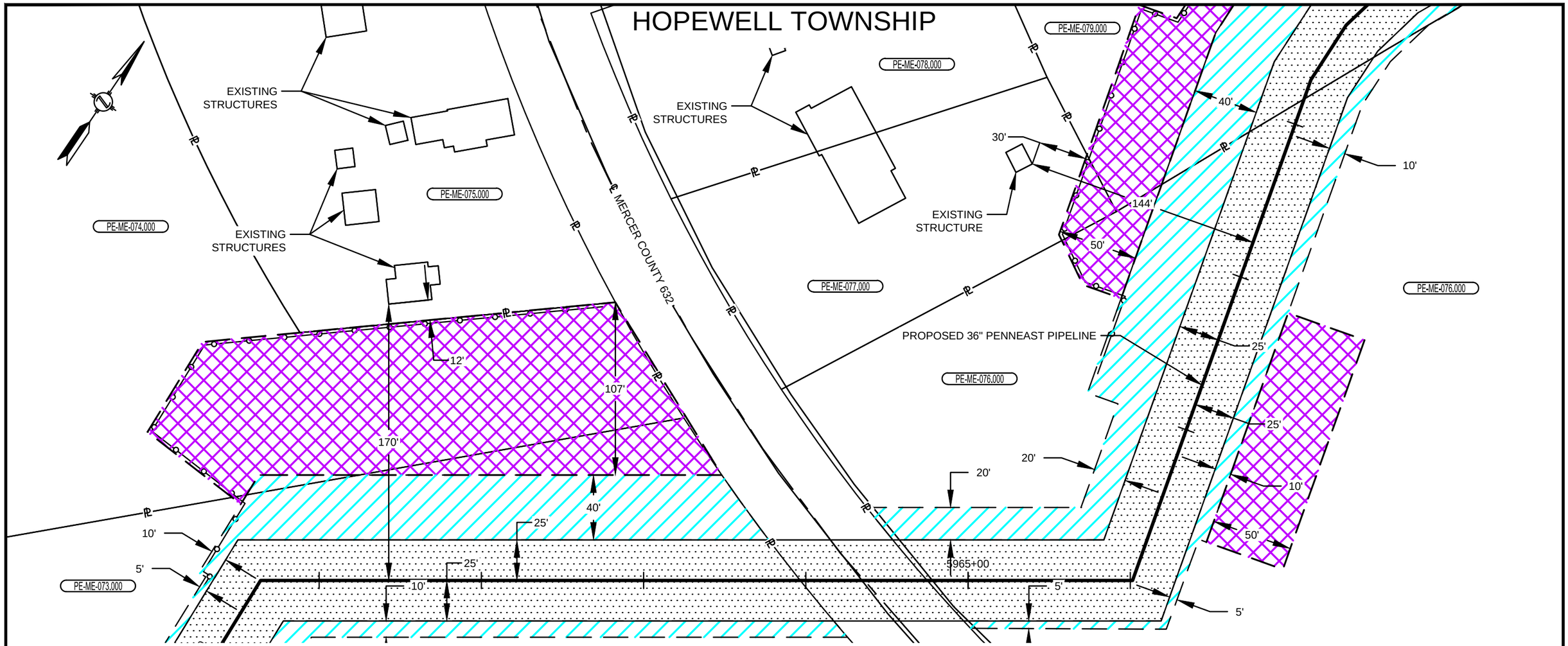

PLAN VIEW

SCALE: 1" = 60'

LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- EXISTING PIPELINE
- PROPERTY LINE
- PROPOSED STAGING AREA / WAREYARD
- PROPOSED PERMANENT EASEMENT
- TEMPORARY WORKSPACE
- ADDITIONAL TEMPORARY WORKSPACE (ATWS)

GRAPHIC SCALE

60' 30' 0 60'

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3. STRUCTURES WERE PROVIDED BY PICTOMETRY®, 2015.

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D	09/18/2015	HMM	FERC FINAL FILING		

REVISIONS

DIVISION:		OP. AREA.:	
STATE: NEW JERSEY		CO./PAR.: MERCER	
SECTION:	TOWNSHIP: HOPEWELL	RANGE:	
DFT: HMM	DATE: 09/23/2015	SCALE: 1"=60'	
CHK: HMM	DATE: 09/23/2015	FILENAME: 000-03-02-100.DWG	
APPR:	DATE:		

PENNEAST PIPELINE PROJECT
PROPOSED 36" PENNEAST PIPELINE
RESIDENTIAL SITE SPECIFIC
MERCER COUNTY, NEW JERSEY

PennEast PIPELINE

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SHEET: 01 OF 01

TYPE: ACAD

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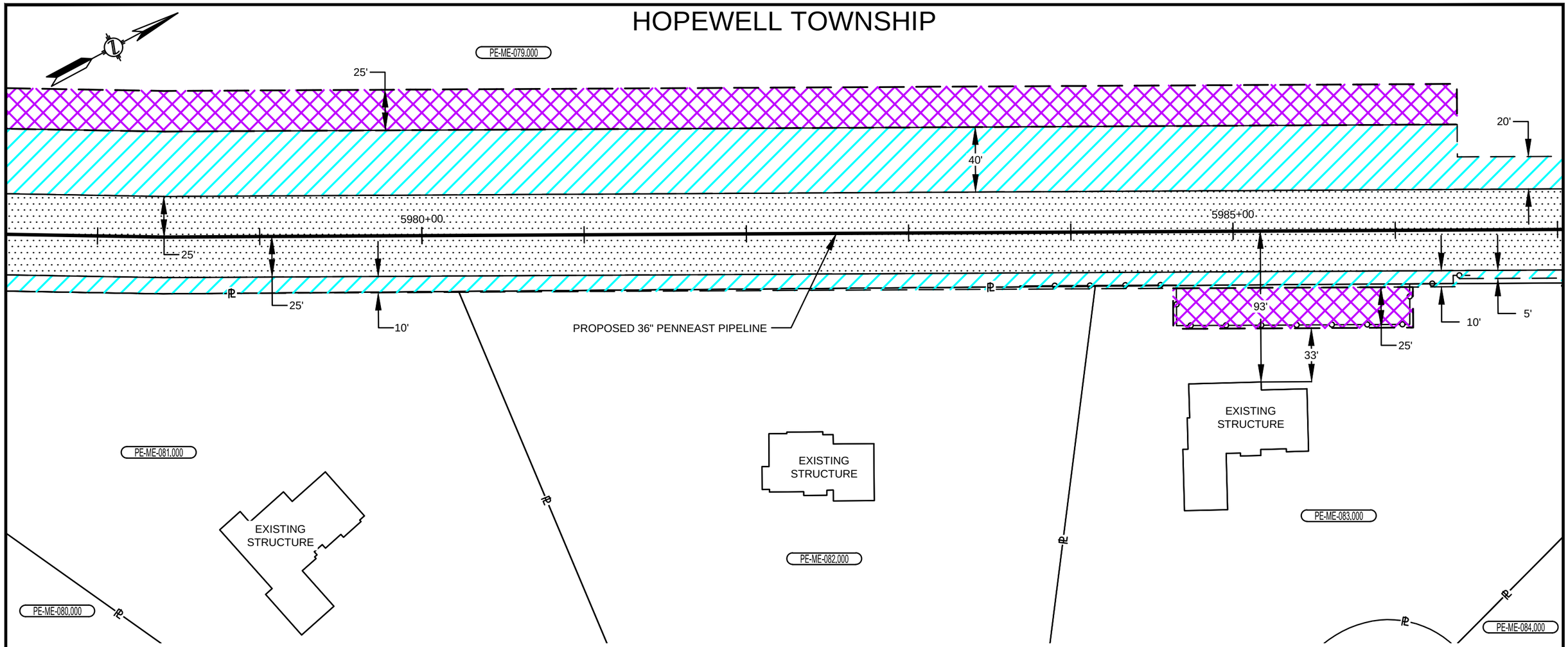
HOPEWELL TOWNSHIP



PLAN VIEW

SCALE: 1" = 60'

LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
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60' 30' 0 60'

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D	09/18/2015	HMM	FERC FINAL FILING		

REVISIONS

DIVISION:		OP. AREA.:	
STATE: NEW JERSEY		CO./PAR.: MERCER	
SECTION:	TOWNSHIP: HOPEWELL	RANGE:	
DFT: HMM	DATE: 09/23/2015	SCALE: 1"=60'	
CHK: HMM	DATE: 09/23/2015	FILENAME: 000-03-02-101.DWG	
APPR:	DATE:		

PENNEAST PIPELINE PROJECT
PROPOSED 36" PENNEAST PIPELINE
RESIDENTIAL SITE SPECIFIC
MERCER COUNTY, NEW JERSEY

PennEast PIPELINE

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000-03-02-101

SHEET: 01 OF 01

TYPE: ACAD

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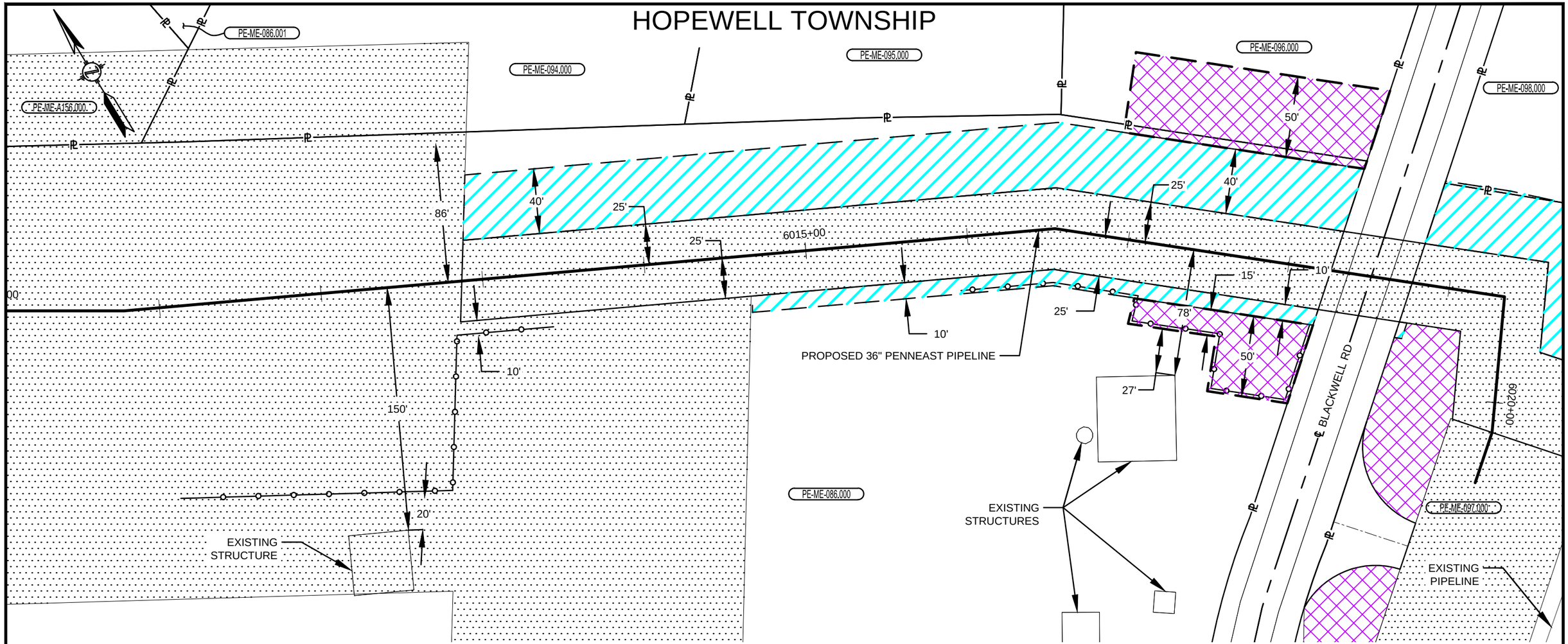
HOPEWELL TOWNSHIP



PLAN VIEW

SCALE: 1" = 60'

LEGEND

- SAFETY FENCE
- PROPOSED PIPELINE
- EXISTING PIPELINE
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NO.	DATE	BY	DESCRIPTION	PROJ. ID	APPR.
D	09/18/2015	HMM	FERC FINAL FILING		

REVISIONS

DIVISION:		OP. AREA.:	
STATE: NEW JERSEY		CO./PAR.: MERCER	
SECTION:	TOWNSHIP: HOPEWELL	RANGE:	
DFT: HMM	DATE: 09/23/2015	SCALE: 1"=60'	
CHK: HMM	DATE: 09/23/2015	FILENAME: 000-03-02-102.DWG	
APPR:	DATE:		

PENNEAST PIPELINE PROJECT
PROPOSED 36" PENNEAST PIPELINE
RESIDENTIAL SITE SPECIFIC
MERCER COUNTY, NEW JERSEY

PennEast PIPELINE

811 Know what's below. Call before you dig.

000-03-02-102

SHEET: 01 OF 01

TYPE: ACAD

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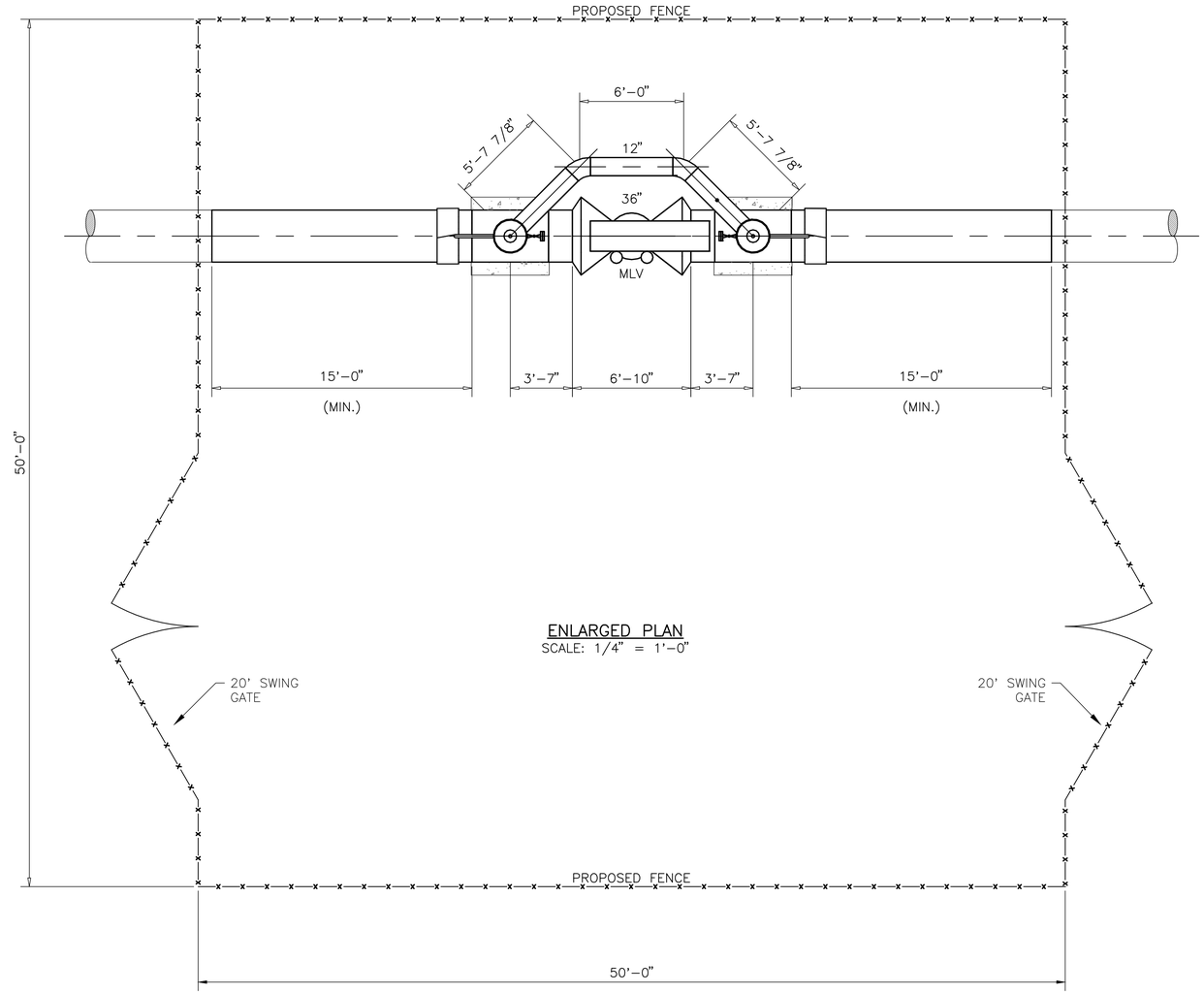
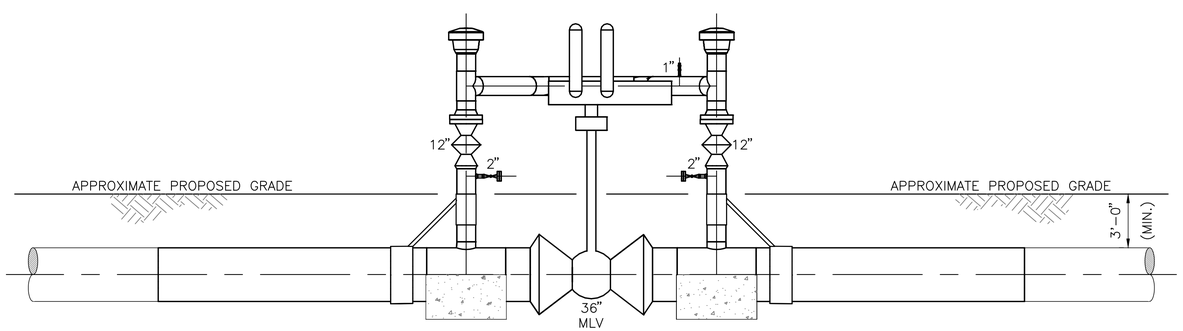
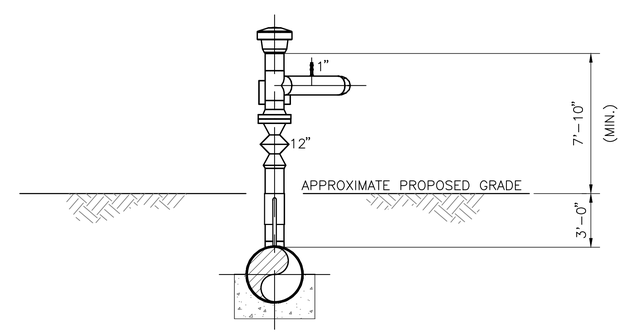


ENLARGED PLAN
SCALE: 1/4" = 1'-0"



ELEVATION "A-A"
SCALE: 1/4" = 1'-0"



ELEVATION "B-B"
SCALE: 1/4" = 1'-0"

REFERENCE DRAWINGS

DWG. NO.	TITLE
000-03-01-(001-228)	ALIGNMENT SHEETS (001-228)

REVISIONS

NO.	REVISIONS	DATE	DRAWN	CK	APPR
A	ISSUED FOR DRAFT RESOURCE REPORT 1	11/4/2014	QPS	QPS	QPS
B	PRELIMINARY ISSUE	12/17/2014	QPS	QPS	QPS
C	FERC DRAFT FILING	4/13/2015	QPS	QPS	QPS
D	FERC FINAL FILING	9/23/2015	HMM	HMM	HMM

APPROVALS

DRAWN BY	DATE
HMM	09/23/15
CHECKED BY	DATE
HMM	09/23/15
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE

CLIENT APPROVAL

DATE

PREPARED FOR

PennEast PIPELINE

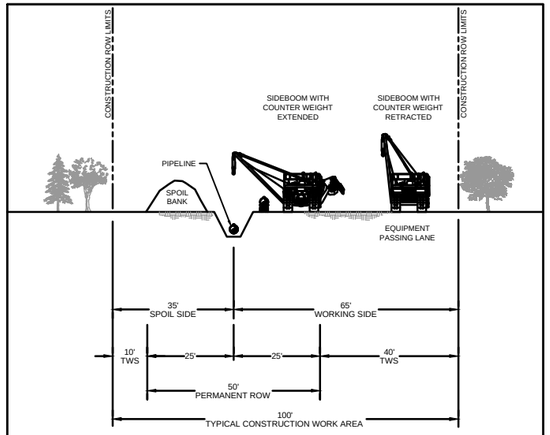
PREPARED BY

Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PENNEAST MAINLINE VALVE SETTING
MAINLINE VALVE DETAILS

SCALE	DRAWING NO.	REVISION
1/4"=1'-0"	029-03-00-001	D



NOTES:

1. INSTALL TEMPORARY SLOPE BREAKERS UP SLOPE AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR OR OTHER QUALIFIED PROFESSIONAL.
2. IN FORESTED AREAS, RESTRICT ROOT GRUBBING TO ONLY THAT AREA OVER THE DITCHLINE.
3. PIPE SECTION MAY BE FABRICATED WITHIN FORESTED AREAS ADJACENT TO ALIGNMENT, OR IN A STAGING AREA OUTSIDE THE FOREST AND WALKED IN.
4. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY, REPLACE TOPSOIL IF APPLICABLE AND INSTALL PERMANENT EROSION CONTROL.

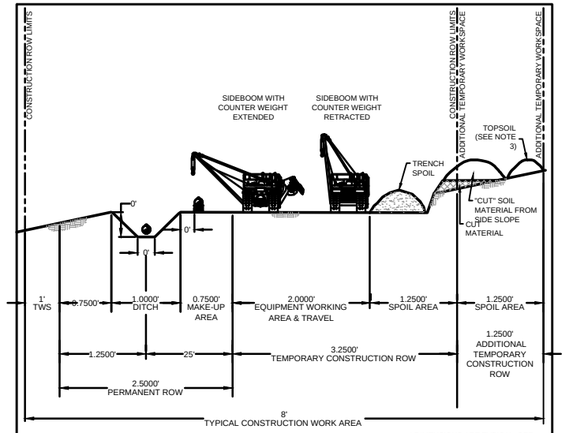
REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	06/25/15	FERC FINAL	DW	AD	MW
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TYPICAL UPLAND WORKSPACE

PREPARED BY: HMM

FIGURE NUMBER: FIGURE 1A



* DIMENSIONS ARE TYPICAL, SEE ALIGNMENT SHEETS FOR ACTUAL RIGHT-OF-WAY CONFIGURATIONS AND CLEARING LIMITS

NOTES:

1. CONSTRUCTION RIGHT-OF-WAY WILL TYPICALLY BE 100 FEET WIDE CONSISTING OF 50 FEET OF PERMANENT EASEMENT, 50 FEET TEMPORARY WORKSPACE AND ADDITIONAL WORKSPACE THAT WILL BE NECESSARY AT ROAD, RAIL AND RIVER CROSSINGS AND OTHER SPECIAL CIRCUMSTANCES, AS REQUIRED. CERTAIN SITUATIONS MAY REQUIRE A NARROWER WIDTH.
2. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CANALS OR WETLANDS.
3. DITCH LINE TOPSOIL WHERE REQUIRED BY LAND OWNER.
4. CLEAR AND STAKE ADDITIONAL RIGHT-OF-WAY TO ALLOW FOR EXTRA SPOIL.
5. ENSURE SIDE BOOM TRACTORS ARE EQUIPPED WITH BOOM EXTENDERS AND COUNTER-WEIGHTS IF REQUIRED.
6. USE BACKHOE TO ASSIST BULLDOZERS WITH REPLACING CUTS.
7. EMPLOY EROSION CONTROL MEASURES SUCH AS BREAKERS, CROSS DITCHES, BERMS AND REVEGETATION.

REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	06/25/15	FERC FINAL	DW	AD	MW
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
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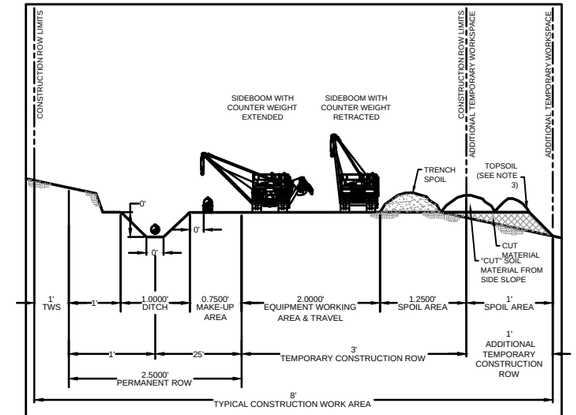
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TYPICAL UPWARD SIDE SLOPE WORKSPACE CONSTRUCTION AREA

PREPARED BY: HMM

FIGURE NUMBER: FIGURE 1B



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2. LEAVE GAPS IN SPOIL PILES AT OBVIOUS DRAINAGES. DO NOT PUSH UPLAND SOILS INTO CANALS OR WETLANDS.
3. DITCH LINE TOPSOIL WHERE REQUIRED BY LAND OWNER.
4. CLEAR AND STAKE ADDITIONAL RIGHT-OF-WAY TO ALLOW FOR EXTRA SPOIL.
5. ENSURE SIDE BOOM TRACTORS ARE EQUIPPED WITH BOOM EXTENDERS AND COUNTER-WEIGHTS IF REQUIRED.
6. USE BACKHOE TO ASSIST BULLDOZERS WITH REPLACING CUTS.
7. EMPLOY EROSION CONTROL MEASURES SUCH AS BREAKERS, CROSS DITCHES, BERMS AND REVEGETATION.

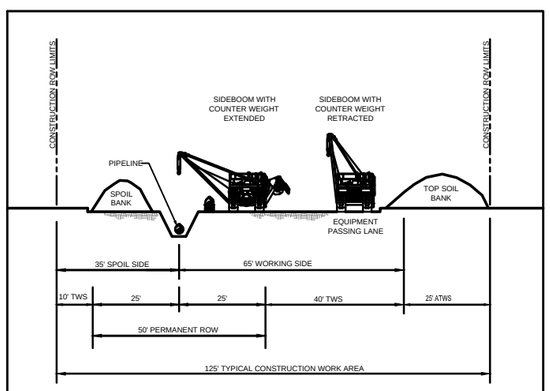
REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	06/25/15	FERC FINAL	DW	AD	MW
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TYPICAL DOWNWARD SIDE SLOPE WORKSPACE CONSTRUCTION AREA

PREPARED BY: HMM

FIGURE NUMBER: FIGURE 1C



NOTES:

1. THE DIMENSIONS SHOWN ON THIS FIGURE ARE TYPICAL.
2. VARIATIONS FOR STAGING AREAS MAY BE NECESSARY DUE TO SITE-SPECIFIC TERRAIN FEATURES/CROSSINGS.
3. OTHER CONFIGURATIONS OF TOPSOIL AND SUBSOIL ARE ACCEPTABLE PROVIDED THEY ARE KEPT SEPARATE.
4. UP TO 12 INCHES OF TOPSOIL REMOVED.
5. TOPSOIL AND SUBSOIL PILES WILL BE ADEQUATELY PROTECTED FROM EROSION AND SEDIMENTATION.

REV	REV	REVISION DESCRIPTION	BY	CKD	APP
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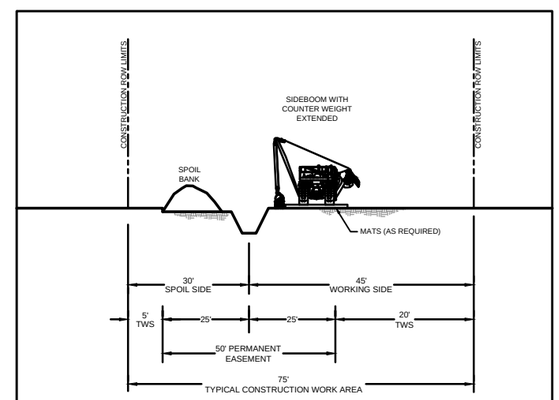
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TYPICAL AGRICULTURAL WORKSPACE

PREPARED BY: HMM

FIGURE NUMBER: FIGURE 1D



NOTES:

1. FLAG WETLAND BOUNDARIES PRIOR TO CLEARING.
2. CONSTRUCTION ROW NARROWED TO 75 FEET WIDTH MAXIMUM IN ALL WETLANDS.
3. REFUEL STATIONARY EQUIPMENT 100 FEET AWAY FROM WETLAND OR STREAM BOUNDARIES.
4. INSTALL TEMPORARY SLOPE BREAKER UP SLOPE AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR OR OTHER QUALIFIED PROFESSIONAL.
5. AVOID IMPACT AND/OR DISTURBANCE TO ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS (STRAW BALES AND/OR SILT FENCE) AT EDGE OF ROW AND ALONG WETLAND EDGE AS REQUIRED.
6. RESTRICT ROOT GRUBBING TO ONLY THAT AREA OVER THE DITCHLINE.
7. TOPSOIL STRIPPING SHALL NOT BE REQUIRED IN SATURATED SOIL CONDITIONS.
8. LEAVE FOAM TRENCH PLUGS AT THE EDGE OF SATURATED WETLANDS UNTIL JUST PRIOR TO TRENCHING.
9. INSTALL TIMBER MATS FOR EQUIPMENT CROSSINGS THROUGH ENTIRE WETLAND AREA.
10. WHILE TRENCHING THROUGH WETLANDS, PLACE SPOIL TO ALLOW FOR PROPER SURFACE DRAINAGE.
11. PIPE SECTION MAY BE FABRICATED WITHIN THE WETLAND AND ADJACENT TO ALIGNMENT, OR IN STAGING AREA OUTSIDE THE WETLAND AND WALKED IN.
12. LOWER-IN PIPE, THEN INSTALL PERMANENT TRENCH PLUGS AT WETLAND EDGES AND BACKFILL IMMEDIATELY.
13. REMOVE ANY TIMBER MATS OR PREFABRICATED MATS FROM WETLANDS UPON COMPLETION.
14. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY, REPLACE TOPSOIL IF APPLICABLE AND INSTALL PERMANENT EROSION CONTROL.

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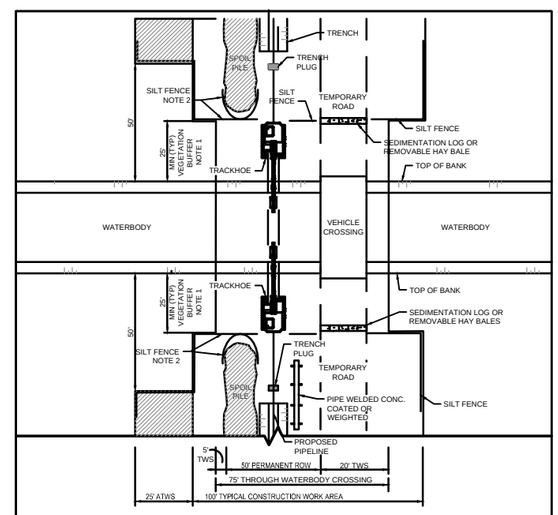
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TYPICAL WETLAND CROSSSING

PREPARED BY: HMM

FIGURE NUMBER: FIGURE 1E



NOTES:

1. THE REQUIRED SET BACK FOR TWS IS 25' FROM TOP OF BANK OR AS SHOWN ON PLANS BASED ON PERMIT REQUIREMENTS.
2. THE MINIMUM REQUIRED SET BACK FOR SPOIL PILE IS 25' FROM THE TOP OF BANK. THIS MATERIAL MUST BE CONTAINED AND SURROUNDED BY SILT FENCE PROTECTION TO PREVENT SATURATED SOIL FROM FLOWING BACK INTO THE WATERBODY.
3. STAKED STRAW BALES MAY BE USED IN LIEU OF SILT FENCE.
4. SCHEDULE CONSTRUCTION DURING LOW FLOW PERIOD TO THE MAXIMUM EXTENT PRACTICABLE.
5. EXCAVATE TRENCH THROUGH PLUGS. WORK IS TO BE COMPLETED AS QUICKLY AS PRACTICABLE.
   A. LOWER IN PIPE AND BACKFILL IMMEDIATELY WITH SPOIL MATERIAL.
   B. IF BLASTING IS REQUIRED, USE CONTROLLED BLASTING TECHNIQUES TO PREVENT DAMAGE TO THE FLOW CONVEYANCE SYSTEM. ALTERNATELY, BLASTING MAY BE ACCOMPLISHED PRIOR TO CONSTRUCTING THE CROSSING.

REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	06/25/15	FERC FINAL	DW	AD	MW
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TYPICAL OPEN CUT WATERBODY CROSSING

PREPARED BY: HMM

FIGURE NUMBER: FIGURE 1F

CLIENT APPROVAL

DATE

NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	FINAL FERC FILING	09/18/15	HMM	HMM	HMM

REVISIONS

APPROVALS	DATE
DRAWN BY: HMM	9/23/2015
CHECKED BY: HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE
#	#

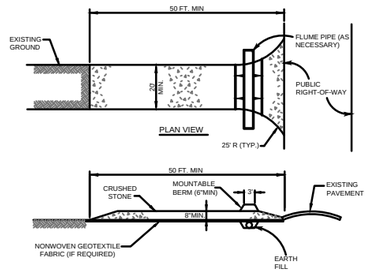
PREPARED FOR

PREPARED BY

PENNEAST PIPELINE PROJECT

ROW TYPICALS

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-08-001	A



CONSTRUCTION SPECIFICATIONS:

1. STONE SIZE = AASHTO #1: 1 1/2" - 3 1/2" CRUSHED STONE
2. ALL STONE MUST BE PLACED ON NON-WOVEN GEOTEXILE FABRIC IF USED IN RESIDENTIAL OR ACTIVE AGRICULTURAL AREAS.
3. LENGTH = FIFTY (50) FEET MIN. (IF SITE CONDITIONS ALLOW)
4. WIDTH = TWENTY (20) FEET MIN.
5. THICKNESS = EIGHT (8) INCHES MINIMUM. (IF SITE CONDITIONS ALLOW)
6. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A DRIVEABLE BERM OR OTHER TEMPORARY EROSION CONTROL DEVICE CAN BE USED.
7. THE ENTRANCE SHALL BE PERIODICALLY INSPECTED AND MAINTAINED IN A CONDITION THAT MINIMIZES TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. MAINTENANCE MAY INCLUDE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE REPAIR / CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ANY SEDIMENT THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED AS SOON AS PRACTICAL. WASHING OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, CULVERTS OR OTHER DRAINAGES IS NOT ACCEPTABLE.

Know what's below. Call before you dig.

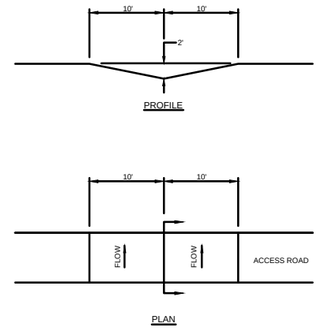
REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15 FERC FINAL	HMM	HMM	HMM
C	04/13/15 FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14 PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14 ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

ROCK ACCESS PAD INSTALLATION AND MAINTENANCE

FIGURE 2



- BROAD-BASED DIPS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN AND AT THE LOCATIONS SHOWN ON THE PLAN DRAWINGS.
- DIPS SHALL BE ORIENTED SO AS TO DISCHARGE TO THE LOW SIDE OF THE ROADWAY.
- DIPS SHALL BE INSPECTED DAILY. DAMAGED OR NON-FUNCTIONING DIPS SHALL BE REPAIRED BY THE END OF THE WORKDAY.
- MAXIMUM SPACING OF BROAD-BASED DIPS SHALL BE AS SHOWN ON FIGURE 3B.
- DISCHARGES SHOULD BE TO THE DOWN SLOPE SIDE OF ACCESS ROADS WITH A MAXIMUM GRADIENT OF 3% IN THE DIP.
- ACCESS ROADS WITH GRADES STEEPER THAN 5% SHOULD USE FIGURE 3B.

Know what's below. Call before you dig.

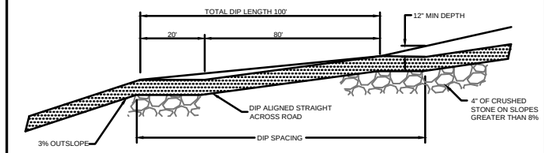
REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15 FERC FINAL	HMM	HMM	HMM
C	04/13/15 FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14 PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14 ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

BROAD-BASED DIP FOR LOW GRADIENT (≤5%) ROADWAYS

FIGURE 3A



BROAD-BASED DIPS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN AND AT THE LOCATIONS SHOWN ON THE PLAN DRAWINGS.

DIPS SHALL BE ORIENTED SO AS TO DISCHARGE TO THE LOW SIDE OF THE ROADWAY.

DIPS SHALL BE INSPECTED DAILY. DAMAGED OR NON-FUNCTIONING DIPS SHALL BE REPAIRED BY THE END OF THE WORKDAY.

MAXIMUM SPACING OF BROAD-BASED DIPS SHALL BE AS SHOWN IN THE TABLE BELOW.

DISCHARGES SHOULD BE TO THE DOWNSLOPE SIDE OF THE ACCESS ROADS WITH A MAXIMUM GRADIENT OF 3% IN THE DIP.

MAXIMUM SPACING OF BROAD-BASED DIPS

Road Grade (Percent)	Spacing Between Dips, Culverts, or Diffectors (feet)
<2	300
3	235
4	200
5	180
6	165
7	155
8	150
9	145
10	140

Know what's below. Call before you dig.

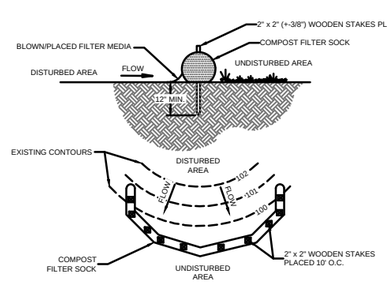
REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15 FERC FINAL	HMM	HMM	HMM
C	04/13/15 FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14 PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14 ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

BROAD-BASED DIP FOR HIGH GRADIENT (5%-10% MAXIMUM) ROADWAYS

FIGURE 3B



ADAPTED FROM FILETREXX

SOCK FABRIC SHALL MEET MINIMUM SPECIFICATIONS OF TABLE 4.1. COMPOST SHALL MEET THE FOLLOWING STANDARDS:

ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.5
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	30-50% PASS THROUGH 3/8" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 dS MAXIMUM

NOTES:

1. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT.
2. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
3. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
4. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
5. BIODEGRADABLE FILTER SOCK SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
6. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK. STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS SOIL SUPPLEMENT.
7. THIS BMP IS AN APPROVED ABACT (ANTIDEGRADATION BEST AVAILABLE COMBINATION OF TECHNOLOGIES) FOR USE IN HQ/EV WATERSHEDS.
8. 18" COMPOST FILTER SOCK MAY BE SUBSTITUTED FOR SUPER SILT FENCE.
9. 12" COMPOST FILTER SOCK MAY BE SUBSTITUTED FOR 18" TO 30" SILT FENCE

Know what's below. Call before you dig.

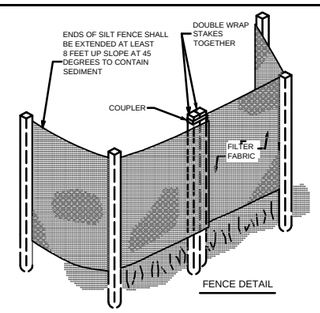
REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15 FERC FINAL	HMM	HMM	HMM
C	04/13/15 FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14 PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14 ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

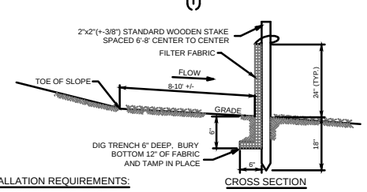
PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

STANDARD CONSTRUCTION COMPOST FILTER SOCK

FIGURE 4





INSTALLATION REQUIREMENTS:

WHEN USING SILT FENCE, PLACE IT:

BETWEEN DISTURBED AREAS AND DOWN-SLOPE ENVIRONMENTAL RESOURCE AREAS

AT THE BASE OF ALL SLOPES NEXT TO WETLANDS, WATERBODIES, AND ROAD CROSSINGS

AT THE INLET AND OUTLET OF OPEN DRAINAGE STRUCTURES

APPROXIMATELY 8-10 FEET BEYOND THE TOE OF THE SLOPE TO GIVE THE SEDIMENT ROOM TO COLLECT

USE SANDBAGS TO KEY IN THE BOTTOM OF THE FABRIC WHERE IT IS NOT FEASIBLE TO TRENCH IT IN (LEDGES, ROCKY SOIL, LARGE ROOTS, ETC.) THIS CAN ONLY BE IMPLEMENTED FOR SMALL AREAS. (< 10 LINEAR FEET)

MAINTENANCE REQUIREMENTS:

- INSPECT SILT FENCE:
  - DAILY IN AREAS OF ACTIVE CONSTRUCTION
  - WEEKLY IN AREAS WITH NO CONSTRUCTION
  - WITHIN 24 HOURS FOLLOWING EACH STORMWATER EVENT
- REPAIR OR REPLACE SILT FENCE AS NEEDED
- REMOVE ACCUMULATED SEDIMENTS TO AN UPLAND AREA WHEN SEDIMENT REACHES 1/2 THE ABOVE GROUND HEIGHT OF FENCE

Know what's below. Call before you dig.

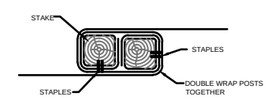
REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15 FERC FINAL	HMM	HMM	HMM
C	04/13/15 FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14 PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14 ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

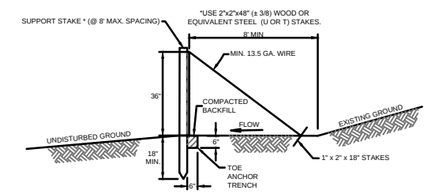
PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

SILT FENCE INSTALLATION AND MAINTENANCE

FIGURE 5





FABRIC WIDTH SHALL BE 48" MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES. AN 18" SUPPORT STAKE SHALL BE DRIVEN 12" MINIMUM INTO UNDISTURBED GROUND.

FILTER FABRIC FENCE MUST BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION MUST BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.

FENCE SHALL BE MOVE AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.

Know what's below. Call before you dig.

REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15 FERC FINAL	HMM	HMM	HMM
C	04/13/15 FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14 PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14 ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

REINFORCED (HEAVE DUTY 36") SILT FENCE

FIGURE 6

CLIENT APPROVAL

DATE

NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	FINAL FERC FILING	09/18/15	HMM	HMM	HMM

REVISIONS

APPROVALS	DATE
DRAWN BY: HMM	9/23/2015
CHECKED BY: HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE
#	#

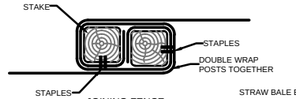
PREPARED FOR: PennEast Pipeline

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

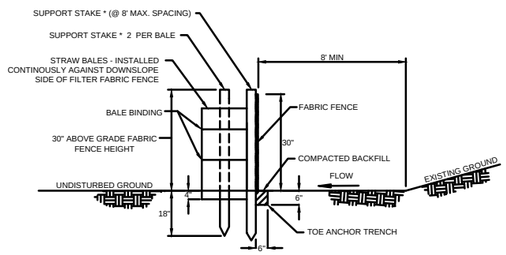
TYPICAL E&S DETAILS

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-09-001	A



JOINING FENCE SECTIONS

STRAW BALE BACKING REQUIRED FOR FABRIC FENCE TALLER THAN 24" ABOVE GRADE (STRAW BALE DEPICTED N.T.S.)



*USE 2"x2"x48" (± 3/8) WOOD OR EQUIVALENT STEEL STAKES

WIDTH SHALL BE 42" MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES.

FILTER FABRIC FENCE MUST BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION MUST BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

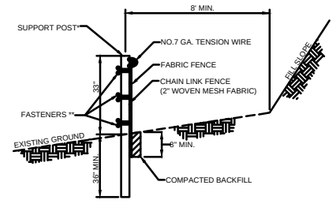
SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

REV	DATE	DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

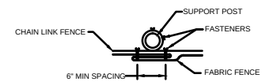
FILTER FENCE REINFORCED BY STAKED STRAW BALES

FIGURE 7



*POSTS SPACED @ 10' MAX. USE 2 1/2" DIA. HEAVY DUTY GALVANIZED OR ALUMINUM POSTS.

**CHAIN LINK TO POST FASTENERS SPACED @ 14" MAX. USE ALUMINUM WIRE OR NO. 9 GALVANIZED STEEL PRE-FORMED CLIPS. CHAINLINK TO TENSION WIRE FASTENERS SPACED @ 60" MAX. USE NO. 13.5 GA. GALVANIZED STEEL WIRE. FABRIC TO CHAIN FASTENERS SPACED @ 24" MAX C. TO C.



JOINING FENCE SECTIONS

NOTES:

1. FILTER FABRIC WIDTH SHALL BE 42" MINIMUM.
2. CHAIN LINK SHALL BE GALVANIZED NO. 11.5 GA. STEEL WIRE WITH 2 ½" OPENING, NO. 11 GA. ALUMINUM COATED STEEL WIRE IN ACCORDANCE WITH ASTM-A-491, OR GALVANIZED NO. 9 STEEL WIRE TOP AND BOTTOM WITH GALVANIZED NO. 11 GA. STEEL INTERMEDIATE WIRES. NO. 7 GA. TENSION WIRE INSTALLED HORIZONTALLY THROUGH HOLES AT TOP AND BOTTOM OF CHAIN-LINK FENCE OR ATTACHED WITH HOG RINGS AT 5' (MAX.) CENTERS.
3. SILT FENCE SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO MAIN BARRIER ALIGNMENT.
4. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.
5. FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.

REV	DATE	DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
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A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

SUPER FILTER FABRIC FENCE (SUPER SILT FENCE)

FIGURE 8

TABLE 4.3
Maximum Slope Length for Filter Fabric Fence

Slope - Percent	Maximum Slope Length (ft) Above Fence: Standard (18" High) Silt fence	Maximum Slope Length (ft) Above Fence: Super Silt Fence
2 (or less)	150	1000
5	100	550
10	50	325
15	35	215
20	25	175
25	20	135
30	15	100
35	15	85
40	15	75
45	10	60
50	10	50

PA DEP

Maximum Slope Length for Compost Filter Sock

Slope - Percent	Maximum Slope Length (ft) Above Sock, Filter Sock Diameter (inches): 8	12	18	24	32
5	200	200	350	500	650
10	100	150	250	300	400
15	50	100	200	250	350
20	25	70	150	200	250
25	20	50	100	150	200
30	20	40	80	100	125
>35	20	40	60	90	100

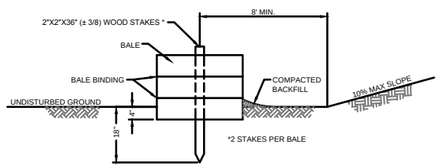
ADAPTED FROM PA DEP GRAPH

REV	DATE	DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

MAXIMUM SLOPE LENGTH FOR FILTER FABRIC FENCE AND COMPOST FILTER SOCK

FIGURE 9



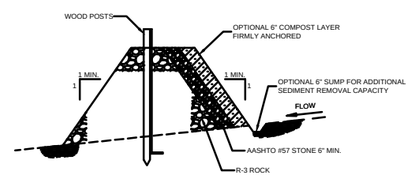
1. STRAW BALE BARRIER SHALL NOT BE USED FOR PROJECTS EXTENDING MORE THAN 3 MONTHS.
2. STRAW BALE BARRIER SHALL BE PLACED AT EXISTING LEVEL GRADE WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. FIRST STAKE OF EACH BALE SHALL BE ANGLED TOWARD ADJACENT BALE TO DRAW BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE TOP OF THE BALE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.
3. COMPACTED BACKFILL TO EXTEND APPROXIMATELY 4 INCHES ABOVE GROUND LEVEL.
4. BARRIER SHALL BE INSPECTED WEEKLY AFTER EACH RUNOFF EVENT. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE ABOVE GROUND HEIGHT OF THE BARRIER. DAMAGED OR DETERIORATED BALES SHALL BE REPLACED IMMEDIATELY UPON INSPECTION.
5. ANY SECTION OF STRAW BALE BARRIER WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET. SEE FIGURE #11.
6. BALES SHALL BE REMOVED WHEN THE TRIBUTARY AREA HAS BEEN PERMANENTLY STABILIZED.
7. STRAW BALE BARRIER MAY BE SUBSTITUTED FOR 18" SILT FENCE.
8. MAXIMUM SLOPE LENGTH FOR STRAW BALE BARRIERS SHALL FELLOW TABLE 4.3 FOR STARDARD (18" HIGH) SILT FENCE.
9. STRAW BALE BARRIERS SHALL NOT BE PERMITTED ON SLOPES GREATER THAN 50 PERCENT.

REV	DATE	DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

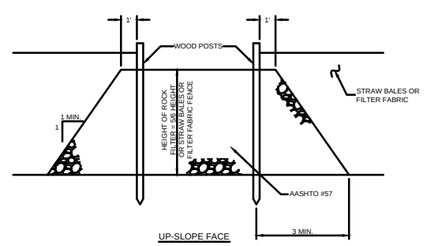
PENNEAST PIPELINE PROJECT

STRAW BALE BARRIER

FIGURE 10



OUTLET CROSS-SECTION



UP-SLOPE FACE

NOTES:

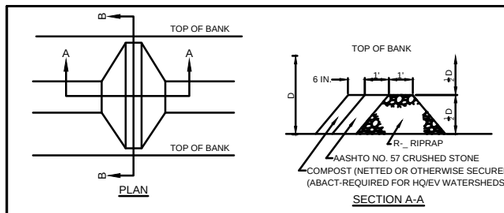
1. A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A STRAW BALE BARRIER OR FILTER FABRIC FENCE HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UP SLOPE FACE IN "HQ AND EV WATERSHEDS."
2. INSPECT WEEKLY AND AFTER EACH RUNOFF EVENT. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

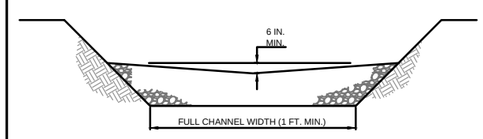
REV	DATE	DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

ROCK FILTER OUTLET

FIGURE 11





SECTION B-B

FOR D ≥ 3 FT. - USE R-4
FOR D ≥ 2 FT. TO D < 3 FT. - USE R-3
NOT APPLICABLE FOR D < 2 FT.

NOTES:

SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTERS.

IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, INSTALLER REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE DISTURBED AREAS.

REV	DATE	DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

ROCK FILTER

FIGURE 12

CLIENT APPROVAL

DATE

NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	FINAL FERC FILING	09/18/15	HMM	HMM	HMM

REVISIONS

APPROVALS	DATE
DRAWN BY: HMM	9/23/2015
CHECKED BY: HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE
#	#

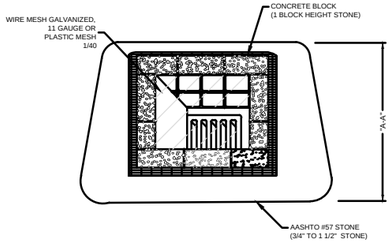
PREPARED FOR: PennEast Pipeline

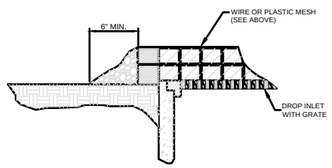
PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

TYPICAL E&S DETAILS

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-09-002	A





DETAIL "A-A"

NOTES:

1. MAXIMUM DRAINAGE AREA = 1 ACRE
2. INSPECT WEEKLY AND AFTER EACH STORMWATER EVENT. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE HEIGHT OF THE STONE. DAMAGED OR CLOGGED INSTALLATIONS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

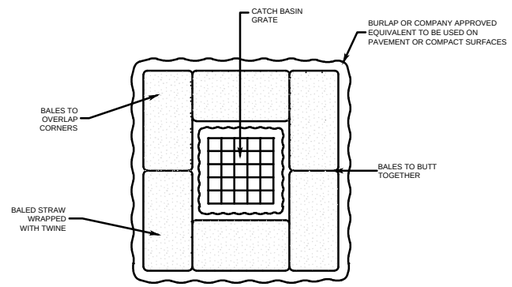
REV	DATE	DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

STONE & CONCRETE BLOCK INLET PROTECTION

FIGURE 13



NOTES:

1. SURROUND STREET DRAINAGE STRUCTURE INLET WITH BALES PRIOR TO CONSTRUCTION AND MAINTAIN UNTIL CONSTRUCTION IS COMPLETED.
2. FOR BALES PLACED ON PAVEMENT (OR COMPACT SURFACES), PLACE BURLAP OR COMPANY APPROVED EQUIVALENT BETWEEN PAVEMENT AND BALE.
3. REMOVE ACCUMULATED SEDIMENT.

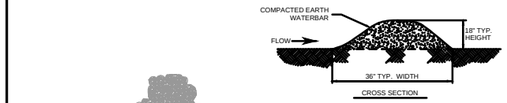
REV	DATE	DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

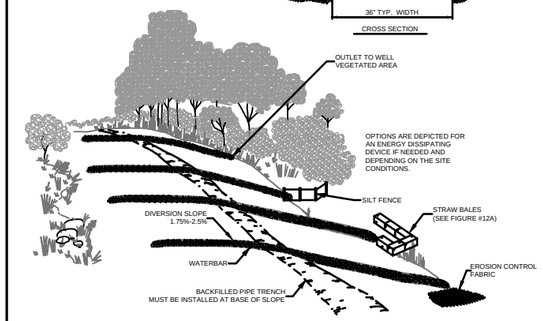
PENNEAST PIPELINE PROJECT

STRAW BALE BARRIER INLET PROTECTION

FIGURE 14



CROSS SECTION



INSTALLATION REQUIREMENTS:

- INSTALL PERMANENT WATERBARS IN ALL AREAS EXECPT RESIDENTIAL OR AGRICULTURAL AS NECESSARY TO AVOID EXCESSIVE EROSION

MAXIMUM SPACING FOR PERMANENT WATERBAR	
SLOPE (%)	SPACING (FT.)
<5	250
5 - 15	150
>15 - 30	100
>30	50

- CONSTRUCT ENERGY DISSIPATING DEVICE USING COMPACTED EARTH AND ROCK.
- INSTALL A PROTECTIVE LINER, WHEREVER ERODIBLE SOILS ARE PRESENT, OR WHERE THERE IS NOT SUFFICIENT VEGETATIVE GROWTH.
- INSTALL WITH A 1.75%-2.5% OUTFALL ANGLE.
- POSITION OUTFALL TO PREVENT SEDIMENT DISCHARGE INTO WETLANDS, WATERBODIES, OR OTHER SENSITIVE RESOURCES.
- ON SLOPES GREATER THAN 30 PERCENT, INSTALL WATERBARS WITH EROSION CONTROL BLANKET ON THE SWALE SIDE.
- FILTER RUN-OFF WATER BY CONSTRUCTING THE OUTLET IN A WELL VEGETATED STABLE AREA, OR BY USING AN ENERGY DISSIPATING DEVICE (SILT FENCE, STRAW BALES, EROSION CONTROL FABRIC), AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
- BACKFILLED PIPE TRENCH MUST BE INSTALLED AT BASE OF SLOPE

MAINTENANCE REQUIREMENTS:

- INSPECT WATERBARS IS DURING AND FOLLOWING CONSTRUCTION AND MAKE REPAIRS AS NEEDED.
- KEEP THE CHANNEL FREE OF DEBRIS AND OBSTRUCTIONS.
- SEED AND MULCH PERMANENT WATERBARS FOLLOWING CONSTRUCTION.

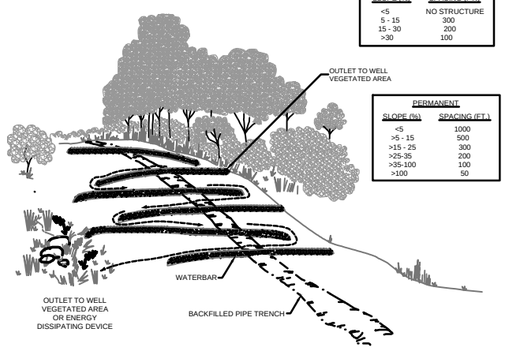
REV	DATE	DESCRIPTION	BY	CKD	APP
D	9/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

PERMANENT WATERBAR INSTALLATION AND MAINTENANCE

FIGURE 15



TEMPORARY	
SLOPE (%)	SPACING (FT.)
<5	NO STRUCTURE
5 - 15	300
15 - 30	200
>30	100

PERMANENT	
SLOPE (%)	SPACING (FT.)
<5	1000
>5 - 15	500
>15 - 25	300
>25-35	200
>35-100	100
>100	50

INSTALLATION REQUIREMENTS:

1. INSTALL IN ALL AREAS EXCEPT RESIDENTIAL OR AGRICULTURAL(UNLESS AUTHORIZED BY LANDOWNER OR LAND MANAGING AGENCY).
2. CONSTRUCT USING EARTH FILLED SACKS OR STAKED STRAW BALES FOR TEMPORARY OR COMPACTED EARTH AND ROCK FOR PERMANENT.
3. INSTALL WITH A 1.75%-2.5% OUTFALL ANGLE.
4. FOR TEMPORARY CHEVRON INTERCEPTOR DIKES, POSITION OUTFALL TO PREVENT SEDIMENT DISCHARGE INTO WETLANDS, WATERBODIES, OR OTHER SENSITIVE RESOURCES.
5. FILTER RUN-OFF WATER BY CONSTRUCTING AN OUTLET USING AN ENERGY DISSIPATING DEVICE (SILT FENCE, STRAW BALES, EROSION CONTROL FABRIC), AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.

NOTE:
CHEVRON INTERCEPTOR DIKES TO BE UTILIZED ONLY IN TOPOGRAPHY WHERE WATER WILL NOT FLOW OFF THE RIGHT-OF-WAY.

MAINTENANCE REQUIREMENTS:

1. INSPECT DURING AND FOLLOWING CONSTRUCTION, AND MAKE REPAIRS AS NEEDED.
2. KEEP THE CHANNEL FREE OF DEBRIS AND OBSTRUCTIONS.
3. SEED AND MULCH PERMANENT INTERCEPTOR DIKES FOLLOWING CONSTRUCTION.

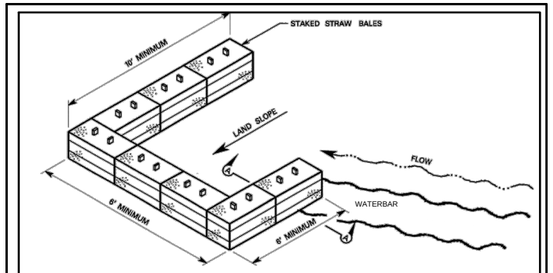
REV	DATE	DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

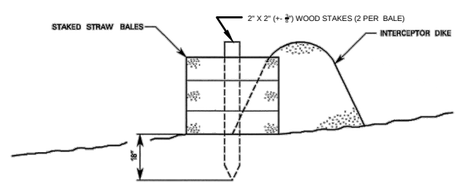
PENNEAST PIPELINE PROJECT

CHEVRON WATERBAR INSTALLATION AND MAINTENANCE

FIGURE 16



PLAN VIEW



SECTION "A-A"
CROSS SECTION VIEW

INSTALLATION REQUIREMENTS:

- **WHEN USING STRAW BALES PLACE THEM WITH THEIR ENDS TIGHTLY ABUTTING.**
- **PLACE WITH BALING STRINGS / WIRE ON THE SIDE (NOT IN CONTACT WITH THE GROUND).**

STANDARD 18" FILER FABRIC FENCE MAY BE SUBSTITUTED FOR STRAW BALES

MAINTENANCE REQUIREMENTS:

- **REMOVE ACCUMULATED SEDIMENTS TO AN UPLAND AREA WHEN SEDIMENT REACHES 1/3 THE HEIGHT OF STRAW BALES OR 1/2 THE HEIGHT OF SILT FENCE.**

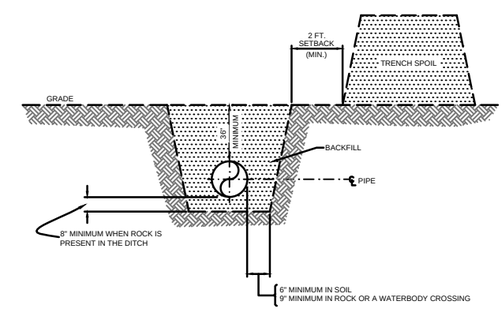
REV	DATE	DESCRIPTION	BY	CKD	APP
D	9/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

J-HOOK SEDIMENT BARRIER AT OUTLET OF WATERBAR

FIGURE 17



CROSS-SECTION VIEW OF TYPICAL TRENCH

NOTES:

1. ALL ORIGINAL CONTOURS WILL BE RE-ESTABLISHED UPON COMPLETION OF PIPE INSTALLATION, EXCEPT IN WETLANDS, A CROWN MAY BE LEFT TO ACCOUNT FOR DITCH SETTLING, AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
2. IN COLD WATER FISHERY STREAMS, THE TOP 12" OF THE TRENCH WILL BE BACKFILLED WITH CLEAN GRAVEL OR NATIVE COBBLES.

REV	DATE	DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

TYPICAL TRENCH DETAIL

FIGURE 18

CLIENT APPROVAL

DATE

REVISIONS					
NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	FINAL FERC FILING	09/18/15	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE
#	#

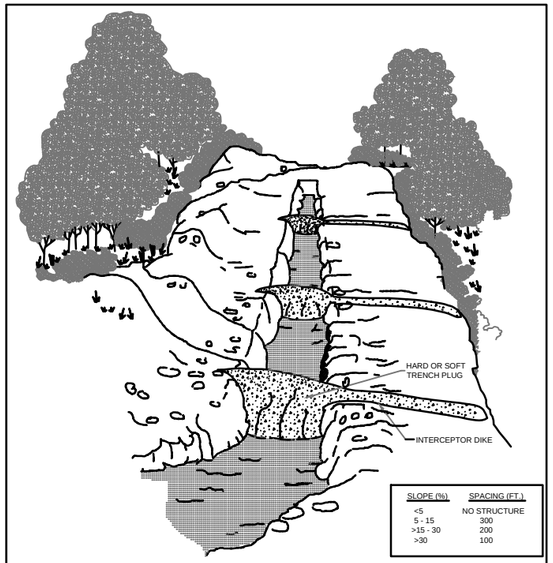
PREPARED FOR: PennEast Pipeline

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

TYPICAL E&S DETAILS

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-09-003	A



SLOPE (%)	SPACING (FT.)
<5	NO STRUCTURE
5 - 15	300
>15 - 30	200
>30	100

NOTES:

1. TEMPORARY TRENCH PLUGS WILL BE USED IN CONJUNCTION WITH TEMPORARY INTERCEPTOR DIKES TO PREVENT WATER FROM OVERFLOWING INTO SENSITIVE RESOURCE AREAS.
2. DIVERT TRENCH OVERFLOW TO A WELL-VEGETATED OFF-R.O.W. LOCATION OR INSTALL APPROPRIATE ENERGY DISSIPATING DEVICE/SEDIMENT REMOVAL BMP (SILT FENCE, STRAW BALES, EROSION CONTROL FABRIC).
3. USE TEMPORARY TRENCH PLUGS AT ALL WATERBODY CROSSINGS.

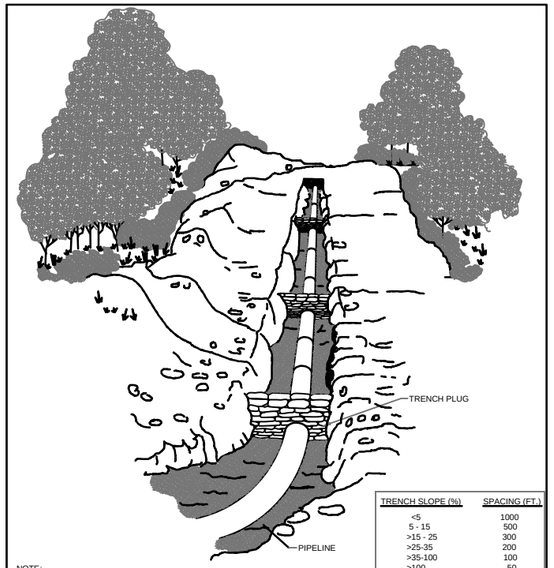
REV	REV	REVISION DESCRIPTION	BY	CKD	APP

PENNEAST PIPELINE PROJECT

TEMPORARY WATERBARS AND TEMPORARY TRENCH PLUGS

PREPARED BY: Hatch Mott MacDonald

FIGURE 19



TRENCH SLOPE (%)	SPACING (FT.)
<5	1000
5 - 15	500
>15 - 25	300
>25-35	200
>35-100	100
>100	50

NOTE:

1. PLUG MATERIAL SHALL CONSIST OF CLAY, BENTONITE, OR CONCRETE FILLED SACKS, EXCEPT WHERE TRENCH SLOPE IS GREATER THAN 100%, CEMENT FILLED BAGS SHALL BE USED.
2. TOPSOIL SHALL NOT BE USED TO FILL SACKS.
3. PERMANENT IMPERVIOUS TRENCH PLUGS ARE REQUIRED FOR ALL WATERBODY AND WETLAND CROSSINGS, AS WELL AS UP SLOPE FROM ROADWAY AND RAILROAD CUT SLOPES.

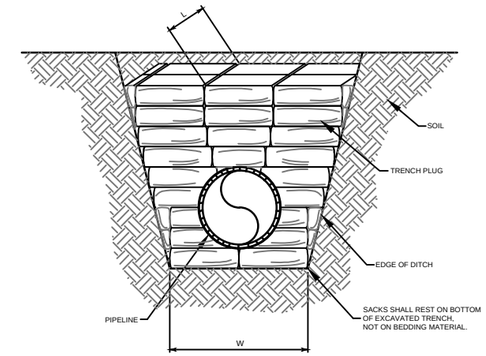
REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

PERMANENT TRENCH PLUGS FOLLOWING PIPELINE INSTALLATION

PREPARED BY: Hatch Mott MacDonald

FIGURE 20



D = PIPE DIAMETER
D1 = APPROXIMATELY 24"
D2 = APPROXIMATELY 6" (8" MIN. IN ROCK)
D3 = APPROXIMATELY 12"
W = D + 2 to 4 FEET
L = 24" MINIMUM
D1 + D3 = 36" MINIMUM

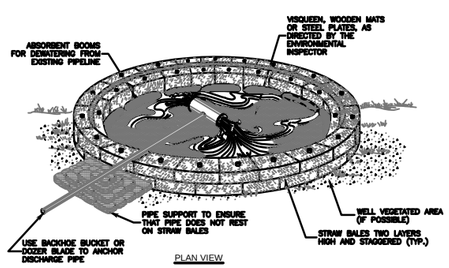
REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

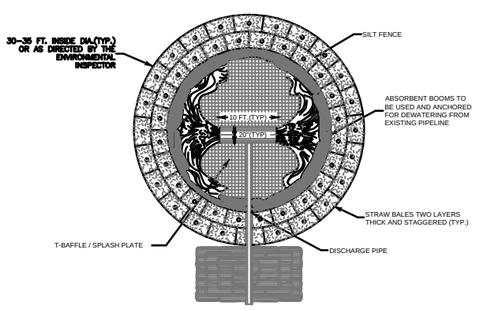
TRENCH PLUG DETAIL

PREPARED BY: Hatch Mott MacDonald

FIGURE 21



PLAN VIEW



TOP VIEW

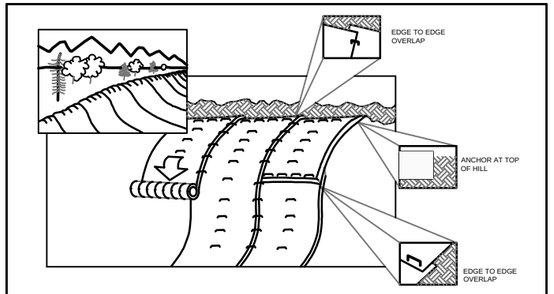
REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TYPICAL DEWATERING STRUCTURE

PREPARED BY: Hatch Mott MacDonald

FIGURE 22



NOTES:

1. EROSION CONTROL MATTING (BLANKETS) SHALL BE USED ON SLOPES 3:1 OR STEEPER, SEEDED AREAS WITHIN 50 FEET OF ANY SURFACE WATER, SEEDED AREAS WITHIN 100 FEET OF ANY SPECIAL PROTECTION WATER (HQ/EV), AND OTHER LOCATIONS IDENTIFIED IN THE PLAN.
2. EROSION CONTROL MATTING SHALL MEET THE REQUIREMENTS SPECIFIED IN THE PLAN AND/OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
3. STAPLES SHALL BE MADE OF 11 GAUGE WIRE, U-SHAPED WITH 6" LEGS AND A 1" CROWN. STAPLES SHALL BE DRIVEN INTO THE GROUND FOR THE FULL LENGTH OF THE STAPLE LEGS.
4. MATTING SHALL BE INSTALLED ACCORDING TO MANUFACTURER SPECIFICATIONS OR AS STATED BELOW:
   - EXTEND TOP OF BLANKET 3 FEET PAST THE UPPER EDGE OF THE SLOPE.
   - ANCHOR ("KEY") THE UPPER EDGE OF THE BLANKET INTO THE SLOPE USING A 6" DEEP TRENCH AND ROLL THE BLANKET DOWN THE HILL. DOUBLE STAPLE EVERY 12" BEFORE BACKFILLING AND COMPACTING TRENCH.
   - AVOID STRETCHING EROSION CONTROL MATTING (LOOSELY) DURING INSTALLATION.
   - BRING MAT ROLL BACK OVER THE TOP OF THE TRENCH AND CONTINUE TO ROLL DOWN SLOPE. STAPLE EVERY 12" WHERE MAT EXITS THE TRENCH AT THE TOP OF THE SLOPE.
   - WHEN BLANKETS ARE SPLICED DOWN-SLOPE TO ADJOINING MATS (SLOPE OR STREAM BANK MATS), THE UPPER BLANKET SHALL BE PLACED OVER THE LOWER MAT (SHINGLE STYLE) WITH APPROXIMATELY 6" OF OVERLAP. STAPLE THROUGH THE OVERLAPPED AREA EVERY 12".
   - OVERLAP ADJACENT BLANKETS 6". STAPLE EDGES OF BLANKETS AND CENTER EVERY 36".
5. IN LIVESTOCK AREAS WHERE EROSION CONTROL MATTING IS APPLIED TO THE SLOPES, FENCING WILL BE USED IF NECESSARY TO EXCLUDE LIVESTOCK, WITH PERMISSION OF THE LANDOWNER.
6. BLANKETS SHOULD BE INSPECTED WEEKLY AND AFTER EACH STORMWATER EVENT UNTIL PERMANENT STABILIZATION HAS BEEN ACHIEVED. DAMAGED OR DISPLACED BLANKETS SHOULD BE RESTORED OR REPLACED AS NECESSARY.

REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

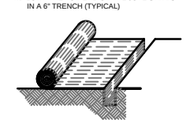
PENNEAST PIPELINE PROJECT

EROSION CONTROL BLANKETS

PREPARED BY: Hatch Mott MacDonald

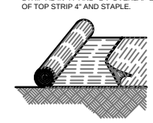
FIGURE 23

A. BURY THE TOP END OF THE JUTE STRIPS IN A 6" TRENCH (TYPICAL)

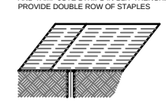


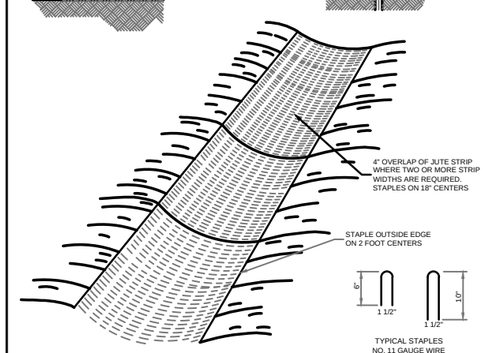
B. DOUBLE STAPLE EVERY 12" BEFORE BACKFILLING AND COMPACTING.

C. BURY AND TAMP UPPER END OF LOWER STRIP AS IN "A" AND "B". OVERLAP END OF TOP STRIP 4" AND STAPLE.



D. WHERE FABRIC STOPS, FOLD, BURY, AND TAMP JUTE STRIPS IN SLIT TRENCH. PROVIDE DOUBLE ROW OF STAPLES





REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

EROSION CONTROL FABRIC INSTALLATION

PREPARED BY: Hatch Mott MacDonald

FIGURE 24

CLIENT APPROVAL

DATE

REVISIONS						APPROVALS	
NO.	DESCRIPTION	DATE	DRAWN	CK	APPR	DRAWN BY	DATE
						HMM	9/23/2015
						CHECKED BY	DATE
						HMM	9/23/2015
						ENG. APPROVAL	DATE
						P.M. APPROVAL	DATE
A	FINAL FERC FILING	09/18/15	HMM	HMM	HMM	#	#

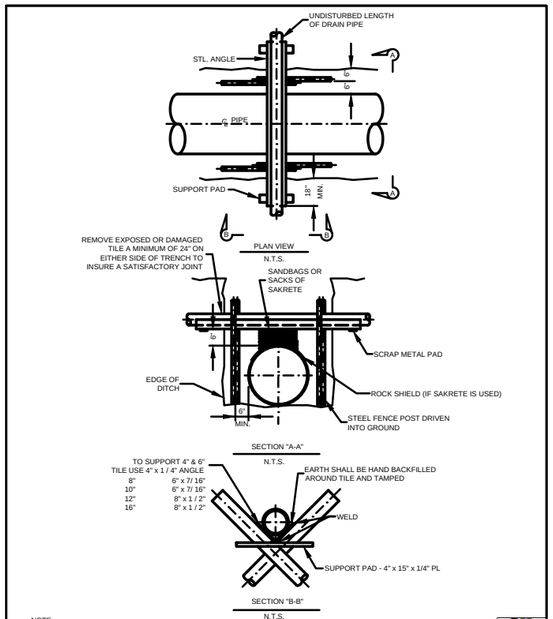
PREPARED FOR: PennEast Pipeline

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

TYPICAL E&S DETAILS

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-09-004	A



NOTE:

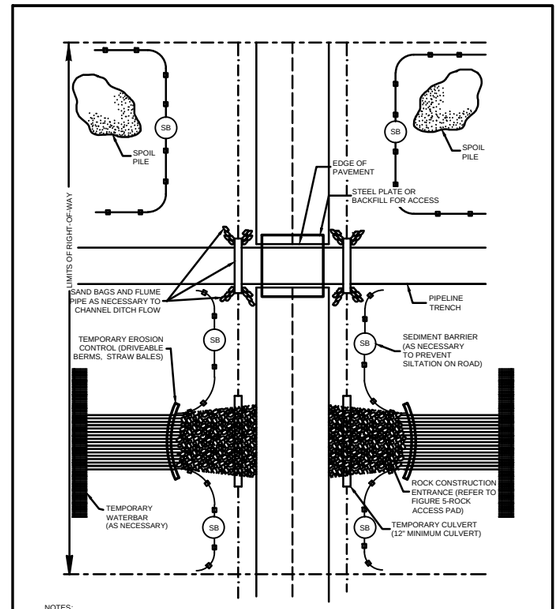
1. USE OF SAKRETE SHALL REQUIRE PRIOR COMPANY APPROVAL.

REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

DRAIN TILE REPAIR PROCEDURE

FIGURE 25



NOTES:

1. SB TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND / OR STRAW BALES

REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
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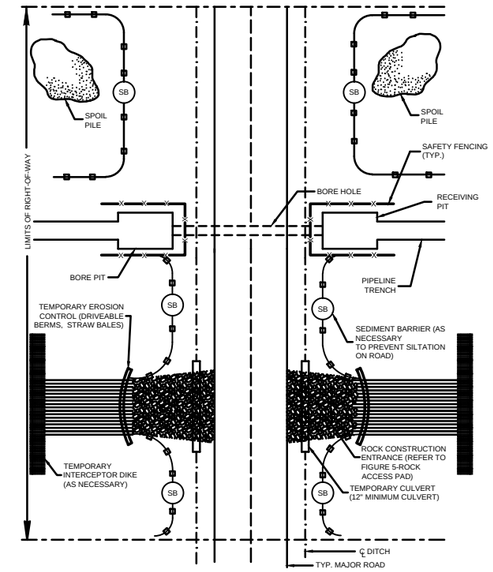
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TYPICAL PAVED ROAD CROSSING CONTROL MEASURES (OPEN CUT)

FIGURE 26



NOTES:

1. SB TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND / OR STRAW BALES

REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
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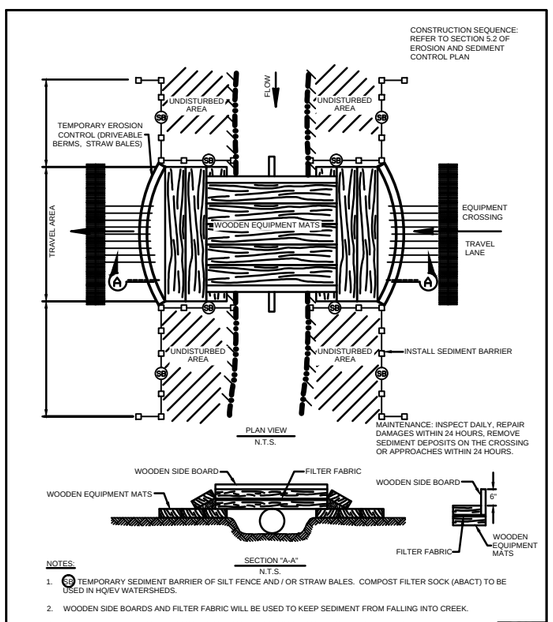
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TYPICAL PAVED ROAD CROSSING CONTROL MEASURES (BORED CROSSING)

FIGURE 27



NOTES:

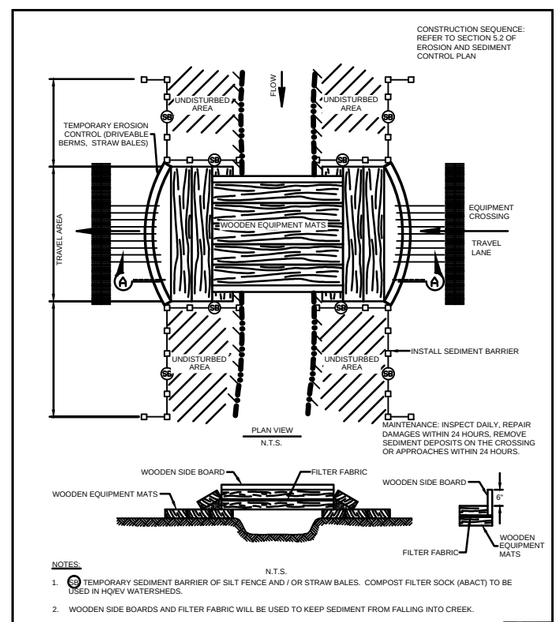
1. SB TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND / OR STRAW BALES. COMPOST FILTER SOCK (ABACT) TO BE USED IN HQ/EV WATERSHEDS.
2. WOODEN SIDE BOARDS AND FILTER FABRIC WILL BE USED TO KEEP SEDIMENT FROM FALLING INTO CREEK.
3. EQUIPMENT MATS TYPICALLY CONSTRUCTED OF HARDWOOD OR OTHER SUITABLE MATERIAL TO ACCOMMODATE THE HEAVIEST EQUIPMENT USED.
4. TEMPORARY WATERBAR TO DISCHARGE TO SEDIMENT REMOVAL DEVICE.

REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TEMPORARY EQUIPMENT BRIDGE (EQUIPMENT MAT AND CULVERTS)

FIGURE 28



NOTES:

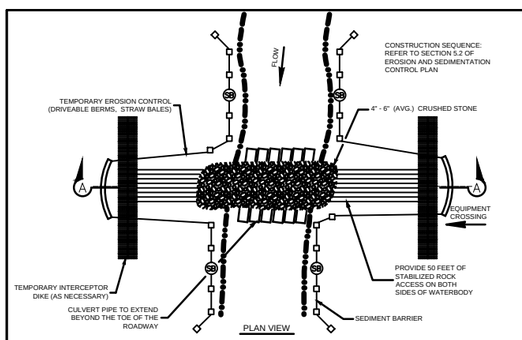
1. SB TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND / OR STRAW BALES. COMPOST FILTER SOCK (ABACT) TO BE USED IN HQ/EV WATERSHEDS.
2. WOODEN SIDE BOARDS AND FILTER FABRIC WILL BE USED TO KEEP SEDIMENT FROM FALLING INTO CREEK.
3. EQUIPMENT MATS TYPICALLY CONSTRUCTED OF HARDWOOD OR OTHER SUITABLE MATERIAL TO ACCOMMODATE THE HEAVIEST EQUIPMENT USED.
4. TEMPORARY WATERBAR TO DISCHARGE TO SEDIMENT REMOVAL DEVICE.

REV	REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TEMPORARY EQUIPMENT BRIDGE (EQUIPMENT MATS)

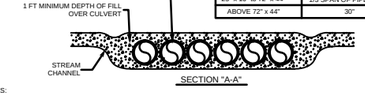
FIGURE 29



MAINTENANCE: INSPECT DAILY, REPAIR DAMAGES WITHIN 24 HOURS, REMOVE SEDIMENT DEPOSITS ON THE CROSSING OR APPROACHES WITHIN 24 HOURS.

MIMIMUM DISTANCE BETWEEN CULVERTS TABLE

PIPE DIAMETER	MINIMUM DISTANCE
12" to 24"	12"
24" to 72"	1/2 DIAMETER (D)
72" to 120"	36"
PIPE ARCH SIZE	MINIMUM DISTANCE
18" x 11" to 25" x 16"	12"
25" x 16" to 72" x 44"	1/3 SPAN OF PIPE ARCH
ABOVE 72" x 44"	30"



NOTES:

1. ALIGN FLUME PIPES TO PREVENT EROSION AND STREAMBED SCOUR.
2. SB TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND/ OR STRAW BALES. COMPOST FILTER SOCK (ABACT)TO BE USED IN HQ/EV WATERSHEDS.
3. CULVERT PIPES WILL HAVE A MINIMUM DIAMETER OF 12".
4. TEMPORARY INTERCEPTOR DIKE TO DISCHARGE TO SEDIMENT REMOVAL DEVICE.

REV	REV	REVISION DESCRIPTION	BY	CKD	APP
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C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PENNEAST PIPELINE PROJECT

TEMPORARY EQUIPMENT BRIDGE (CRUSHED STONE AND CULVERTS)

FIGURE 30

CLIENT APPROVAL

DATE

NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	FINAL FERC FILING	09/18/15	HMM	HMM	HMM

REVISIONS

APPROVALS	DATE
DRAWN BY: HMM	9/23/2015
CHECKED BY: HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE
#	#

PREPARED FOR

PENNEAST PIPELINE

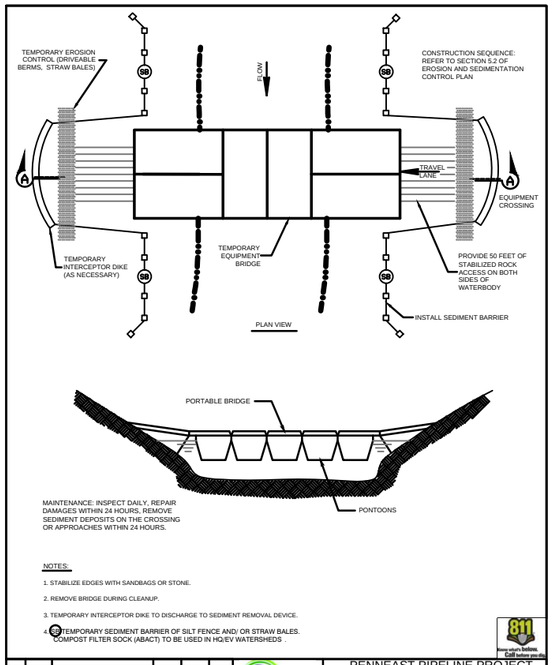
PREPARED BY

Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

TYPICAL E&S DETAILS

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-09-005	A



NOTES:

1. STABILIZE EDGES WITH SANDBAGS OR STONE.
2. REMOVE BRIDGE DURING CLEANUP.
3. TEMPORARY INTERCEPTOR DIKE TO DISCHARGE TO SEDIMENT REMOVAL DEVICE.
4. TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND/ OR STRAW BALES. COMPOST FILTER SOCK (ABACT) TO BE USED IN HQ/EV WATERSHEDS .

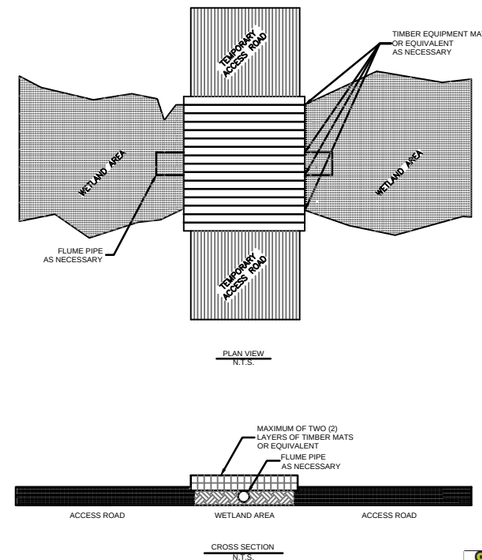
REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15 FERC FINAL	HMM	HMM	HMM
C	04/13/15 FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14 PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14 ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

TEMPORARY EQUIPMENT BRIDGE (FLEXI-FLOAT OR PORTABLE)

FIGURE 31



REV	REVISION DESCRIPTION	BY	CKD	APP

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

TYPICAL TEMPORARY ACCESS ROAD THROUGH WETLANDS

FIGURE 32

WETLAND CROSSING GENERAL PROCEDURES

Clearing and Grading

1. Limit construction activity and ground disturbance in wetland areas to a construction ROW width of 75 feet or as shown on the construction plans. With written approval from the FERC for site-specific conditions, construction ROW width within the boundaries of federally delineated wetlands may be expanded beyond 75 feet.
2. Wetland boundaries and buffers must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.
3. Restrict extra work areas (such as staging areas and additional spoil storage areas) to those shown only on the construction plans. All extra work areas must be located at least 50 feet away from wetland boundaries, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land. If site-specific conditions do not permit a 50-foot setback, the Company can receive written approval from the FERC to locate these extra work areas closer than 50 feet from the wetland.
4. Above ground facilities shall not be located in any wetland, except as permitted or where the location of such facilities outside of wetlands would prohibit compliance with DOT regulations.
5. Use timber riprap, prefabricated equipment mats or terra mats on the working side of the ROW during clearing operations. Do not use more than two layers of timber riprap to stabilize the ROW.
6. Cut vegetation just above ground level and grind stumps to ground level, leaving existing root systems in place.Immediately remove all cut trees, chips from grinding and branches from the wetland and stockpile in an upland area on ROW for disposal.
7. Limit pulling of tree stumps and grading activities to directly over trench line. Do not grade or remove stumps or root systems from the rest of the ROW in wetlands unless the Chief Inspector and EI determine that safety-related construction constraints require removal of tree stumps from under the working side of the ROW.
8. Do not cut trees outside of the construction ROW to obtain timber for riprap or equipment mats.
9. Cleared materials (slash, logs, brush, wood chips) shall not be permanently placed within wetland areas.

Temporary Erosion and Sediment Control

1. Install sediment barriers immediately prior to ground disturbance at the following locations:
   A. Within the ROW at the edge of the boundary between wetland and upland;
   B. Across the entire ROW immediately upslope of the wetland boundary to prevent sediment flow into the wetland;
   C. Along the edge of the ROW, where the ROW slopes toward the wetland, to protect adjacent off ROW wetland; and
   D. Along the edge of the ROW as necessary to contain spoil and sediment within the ROW through wetlands.
2. Maintain all sediment barriers throughout construction and reinstall as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete.
3. Depth of topsoil segregation should be 12 inches, if present, unless otherwise indicated by the landowner if relating to agricultural land.

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PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

WETLAND PIPELINE CONSTRUCTION REQUIREMENTS

FIGURE 33

Crossing Procedure

1. Minimize the length of time that topsoil is segregated and the trench is open.
2. Do not use rock / soil imported from outside the wetland, tree stumps, or brush riprap to stabilize the ROW.
3. Perform topsoil segregation and trench dewatering.
4. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.
5. Use "push-off" or "float" techniques to place the pipe in the trench where water and other site conditions allow.
6. Install trench plugs and/or seal the trench bottom as necessary to maintain the original wetland hydrology at locations where the pipeline trench may drain a wetland.
7. Install a permanent interceptor dike and a trench plug at the base of slopes near the boundary between the wetland and adjacent upland areas. In addition, install sediment barriers. Permanent interceptor dikes shall not be installed in agricultural areas.
8. Restore segregated topsoil to its original position after backfilling is complete. When required, additional material imported from off the ROW must be approved by the EI. The original wetland contours and flow regimes will be restored to the extent practical.

Cleanup and Restoration

1. Revegetate the ROW with annual ryegrass at 45 lbs / acre Pure Live Seed or with the recommended wetland seed mix, unless standing water is present.
2. **Do not use lime or fertilizer in wetland areas.**
3. Mulch the disturbed ROW.
4. In the event that final seeding and mulching is deferred more than 20 days after the trench is backfilled, all slopes adjacent to wetlands shall be mulched with 3 tons / acre of straw for a minimum of 100 feet on each side of the crossing.
5. Remove all timber riprap and prefabricated equipment mats upon completion of construction.
6. Develop specific procedures in coordination with the appropriate land management or state agency, where necessary, to prevent the invasion or spread of undesirable exotic vegetation (such as purple loose strife and phragmites). Additionally, install matting at exceptional value wetland crossing.
7. Ensure that all disturbed areas permanently revegetate.
8. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after upland revegetation and stabilization of adjacent upland areas are sucessful.

REV	REVISION DESCRIPTION	BY	CKD	APP
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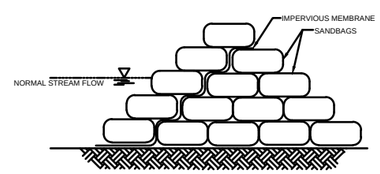
A	11/04/14 ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

WETLAND PIPELINE CONSTRUCTION REQUIREMENTS

FIGURE 34



NOTE: 2 BAG MIN. HEIGHT ABOVE NORMAL BASE FLOW

REV	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15 FERC FINAL	HMM	HMM	HMM
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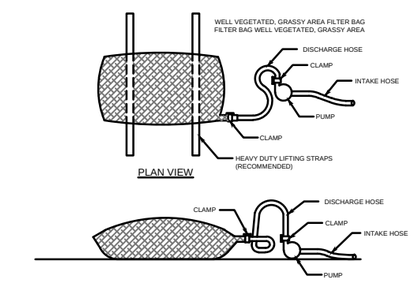
B	12/16/14 PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14 ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

SANDBAG DIVERSION DAM OR COFFERDAM

FIGURE 35



NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

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A	11/04/14 ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

FILTER BAG

FIGURE 36

CLIENT APPROVAL

DATE

REVISIONS					
NO.	DESCRIPTION	DATE	DRAWN	CK	APPR
A	FINAL FERC FILING	09/18/15	HMM	HMM	HMM

APPROVALS	
DRAWN BY	DATE
HMM	9/23/2015
CHECKED BY	DATE
HMM	9/23/2015
ENG. APPROVAL	DATE
P.M. APPROVAL	DATE
#	#

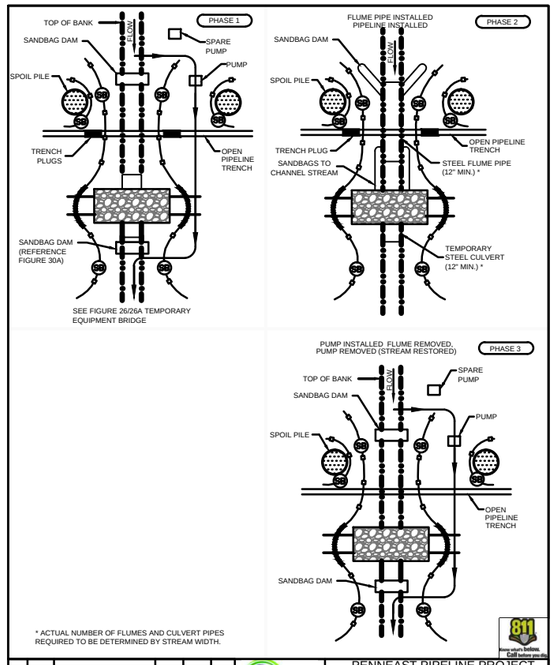
PREPARED FOR PennEast PIPELINE

PREPARED BY Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

TYPICAL E&S DETAILS

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-09-006	A



* ACTUAL NUMBER OF FLUMES AND CULVERT PIPES REQUIRED TO BE DETERMINED BY STREAM WIDTH.

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A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

MODIFIED DRY CROSSINGS

FIGURE 37

CONSTRUCTION SEQUENCE:

PHASE 1:
- INSTALL DAM AND PUMP CROSSING IF FLOW IS PRESENT AT THE TIME OF CONSTRUCTION
- DIG PIPELINE TRENCH

PHASE 2:
- INSTALL FLUME CROSSING
- REMOVE DAM AND PUMP COMPONENTS
- MONITOR AND MAINTAIN FLUME CROSSING AND ASSOCIATED SEDIMENT BARRIERS AS REQUIRED

PHASE 3:
- RE-INSTALL DAM AND PUMP CROSSING
- REMOVE FLUME
- INSTALL PIPELINE
- BACKFILL TRENCH AND COMPLETE RESTORATION
- PIPELINE INSTALLATION MUST BE COMPLETED WITHIN 24 HOURS FOR MINOR WATERBODIES. THIS TIME PERIOD BEGINS AS SOON AS FLUME PIPE IS REMOVED.

GENERAL NOTES:

1. SAND BAGS MUST BE FILLED WITH SAND FREE OF SILT, ORGANICS, AND OTHER MATERIAL.
2. TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND / OR STRAW BALES, OR OTHER APPROPRIATE MATERIALS. COMPOST FILTER SOCK (ABACT) IN HQ/EV WATERSHEDS.
3. DO NOT REFUEL OR STORE FUEL WITHIN 100 FEET OF WATERBODY, UNLESS APPROVED IN ADVANCE BY ENVIRONMENTAL INSPECTOR.
4. GRUBBING SHALL NOT TAKE PLACE WITHIN 10 FEET OF TOP-OF-BANK UNTIL ALL MATERIALS REQUIRED TO COMPLETE THE CROSSING ARE ON SITE AND PIPE IS READY FOR INSTALLATION.
5. TRENCH PLUGS SHALL BE INSTALLED WITHIN THE TRENCH ON BOTH SIDES OF THE STREAM CHANNEL (SEE FIGURE 20B).
6. WATER ACCUMULATING WITHIN THE WORK AREA SHALL BE PUMPED TO A SEDIMENT BAG OR SEDIMENT TRAP.
7. ALL EXCESS EXCAVATED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE STREAM CROSSING AREA.
8. ALL DISTURBED AREAS WITHIN 50 FEET OF THE TOP-OF-BANK SHALL BE BLANKETED OR MATTED WITHIN 72 HOURS OF INITIAL DISTURBANCE UNLESS OTHERWISE AUTHORIZED. APPROPRIATE STREAMBANK PROTECTION SHALL BE PROVIDED WITHIN THE CHANNEL.

FLUMED CROSSING NOTES:

1. ALIGN FLUME(S) TO PREVENT BANK EROSION AND STREAM SCOUR.
2. THE ENDS OF THE FLUME AND CULVERT MUST EXTEND TO AN UNDISTURBED AREA.

PUMPED CROSSING NOTES:

1. INSTALL AND SEAL SANDBAGS UPSTREAM AND DOWNSTREAM OF THE CROSSING.
2. CREATE AN UPSTREAM SUMP USING SANDBAGS IF NATURAL SUMP IS UNAVAILABLE FOR THE INTAKE HOSE.
3. MONITOR PUMPS AT ALL TIMES DURING STREAM CROSSING PROCEDURE.
4. USE SUFFICIENT PUMPS, INCLUDING ONSITE BACKUP PUMPS, TO MAINTAIN DOWNSTREAM FLOW.
5. SCREEN PUMP INTAKES AND MAINTAIN SUFFICIENT DISTANCE BETWEEN PUMP INTAKE AND STREAM BOTTOM TO PREVENT PUMPING OF CHANNEL BOTTOM MATERIALS.
6. NUMBER OF FLUME PIPES FOR EQUIPMENT BRIDGE WILL VARY DEPENDING ON SITE CONDITIONS.

REV	DATE	REVISION DESCRIPTION	BY	CKD	APP
D	09/18/15	FERC FINAL	HMM	HMM	HMM
C	04/13/15	FERC DRAFT FILING	MLS	MWC	JMH
B	12/16/14	PRELIMINARY ISSUE	RJC	JAM	JMH
A	11/04/14	ISSUED FOR DRAFT RESOURCE REPORT 1	JBB	JMA	JMH

PREPARED BY: Hatch Mott MacDonald

PENNEAST PIPELINE PROJECT

MODIFIED DRY CROSSINGS
CONSTRUCTION SEQUENCE AND NOTE

FIGURE 38

SEED MIX RECOMMENDATIONS
"NORTHERN ZONE"[1]

UPLAND AREAS

Lime	4 tons/acre, or per soil test recommendations
Fertilizer	1000 lbs./acre (10-20-20)
Mulch (Wheat Straw)	3.0 tons/acre

1. **Upland Seed Mix** — 75 lbs./acre Pure Live Seed (PLS)

Kentucky Bluegrass	25%
Red Fescue[2]	25%
Redtop	10%
Perennial ryegrass	25%
White clover	5%
Birdsfoot Trefoil (Minimum 20% hard seed)	10%

2. **Pasture Mix** — 20 lbs./acre PLS

(For use only in disturbed pasture areas with landowner's permission.)

Kentucky Bluegrass	31%
Medium Red clover	26%
Norcen Trefoil	17%
Poly Perennial Rye	26%

3. **Recommended Seeding Dates :**

(For the establishment of temporary or permanent vegetation.)

Spring:	March 15 - May 30
Fall:	August 1 - October 15

WINTER STABILIZATION

If restoration can not occur prior to October 15, seed the ROW with 1.5 bushels per acre of winter rye or similar variety of rye as requested by the landowner. Mulch ROW at 3.0 tons per acre with wheat straw, including areas adjacent to streams and wetland crossings. Seed segregated topsoil piles with winter rye and mulch at a rate of 3.0 tons per acre.

WETLAND AREAS

DO NOT USE LIME OR FERTILIZER !!!

Mulch (Wheat Straw)	3.0 tons/acre

1. **Wetland Seed Mix**

Annual Ryegrass	40 lbs./acre PLS

1 The Northern Zone is generally defined as extending north from the Northern borders of Arkansas and Tennessee.
2 Fescue must be endophyte-free.

NOTE: For Seeding/Fertility Recommendations in upland areas refer to Attachment 1.

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PENNEAST PIPELINE PROJECT

SEED MIX RECOMMENDATIONS
NORTHERN ZONE

FIGURE 39

CLIENT APPROVAL

DATE

REVISIONS						APPROVALS	
NO.	DESCRIPTION	DATE	DRAWN	CK	APPR	DRAWN BY	DATE
						HMM	9/23/2015
						CHECKED BY	DATE
						HMM	9/23/2015
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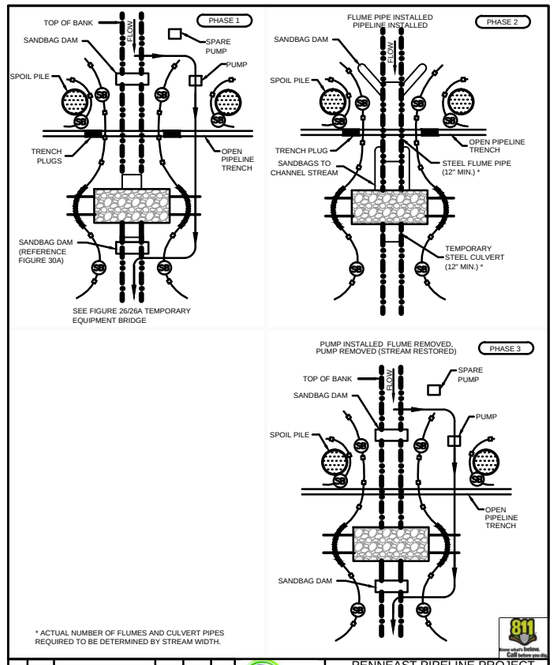
PENNEAST PIPELINE PROJECT

TYPICAL E&S DETAILS

SCALE	DRAWING NO.	REVISION
AS SHOWN	000-03-09-007	A



* ACTUAL NUMBER OF FLUMES AND CULVERT PIPES REQUIRED TO BE DETERMINED BY STREAM WIDTH.

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PENNEAST PIPELINE PROJECT

MODIFIED DRY CROSSINGS

FIGURE 37

CONSTRUCTION SEQUENCE:

PHASE 1:
- INSTALL DAM AND PUMP CROSSING IF FLOW IS PRESENT AT THE TIME OF CONSTRUCTION
- DIG PIPELINE TRENCH

PHASE 2:
- INSTALL FLUME CROSSING
- REMOVE DAM AND PUMP COMPONENTS
- MONITOR AND MAINTAIN FLUME CROSSING AND ASSOCIATED SEDIMENT BARRIERS AS REQUIRED

PHASE 3:
- RE-INSTALL DAM AND PUMP CROSSING
- REMOVE FLUME
- INSTALL PIPELINE
- BACKFILL TRENCH AND COMPLETE RESTORATION
- PIPELINE INSTALLATION MUST BE COMPLETED WITHIN 24 HOURS FOR MINOR WATERBODIES. THIS TIME PERIOD BEGINS AS SOON AS FLUME PIPE IS REMOVED.

GENERAL NOTES:

1. SAND BAGS MUST BE FILLED WITH SAND FREE OF SILT, ORGANICS, AND OTHER MATERIAL.
2. (18) TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND / OR STRAW BALES, OR OTHER APPROPRIATE MATERIALS. COMPOST FILTER SOCK (ABACT) IN HQ/EV WATERSHEDS.
3. DO NOT REFUEL OR STORE FUEL WITHIN 100 FEET OF WATERBODY, UNLESS APPROVED IN ADVANCE BY ENVIRONMENTAL INSPECTOR.
4. GRUBBING SHALL NOT TAKE PLACE WITHIN 10 FEET OF TOP-OF-BANK UNTIL ALL MATERIALS REQUIRED TO COMPLETE THE CROSSING ARE ON SITE AND PIPE IS READY FOR INSTALLATION.
5. TRENCH PLUGS SHALL BE INSTALLED WITHIN THE TRENCH ON BOTH SIDES OF THE STREAM CHANNEL (SEE FIGURE 20B).
6. WATER ACCUMULATING WITHIN THE WORK AREA SHALL BE PUMPED TO A SEDIMENT BAG OR SEDIMENT TRAP.
7. ALL EXCESS EXCAVATED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE STREAM CROSSING AREA.
8. ALL DISTURBED AREAS WITHIN 50 FEET OF THE TOP-OF-BANK SHALL BE BLANKETED OR MATTED WITHIN 72 HOURS OF INITIAL DISTURBANCE UNLESS OTHERWISE AUTHORIZED. APPROPRIATE STREAMBANK PROTECTION SHALL BE PROVIDED WITHIN THE CHANNEL.

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PENNEAST PIPELINE PROJECT

MODIFIED DRY CROSSINGS
CONSTRUCTION SEQUENCE AND NOTE

FIGURE 38

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"NORTHERN ZONE"[1]

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Fertilizer	1000 lbs./acre (10-20-20)
Mulch (Wheat Straw)	3.0 tons/acre

1. **Upland Seed Mix**

	75 lbs./acre Pure Live Seed (PLS)
Kentucky Bluegrass	25%
Red Fescue[2]	25%
Redtop	10%
Perennial ryegrass	25%
White clover	5%
Birdsfoot Trefoil (Minimum 20% hard seed)	10%

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NOTE: For Seeding/Fertility Recommendations in upland areas refer to Attachment 1.

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PENNEAST PIPELINE PROJECT

SEED MIX RECOMMENDATIONS
NORTHERN ZONE

FIGURE 39

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