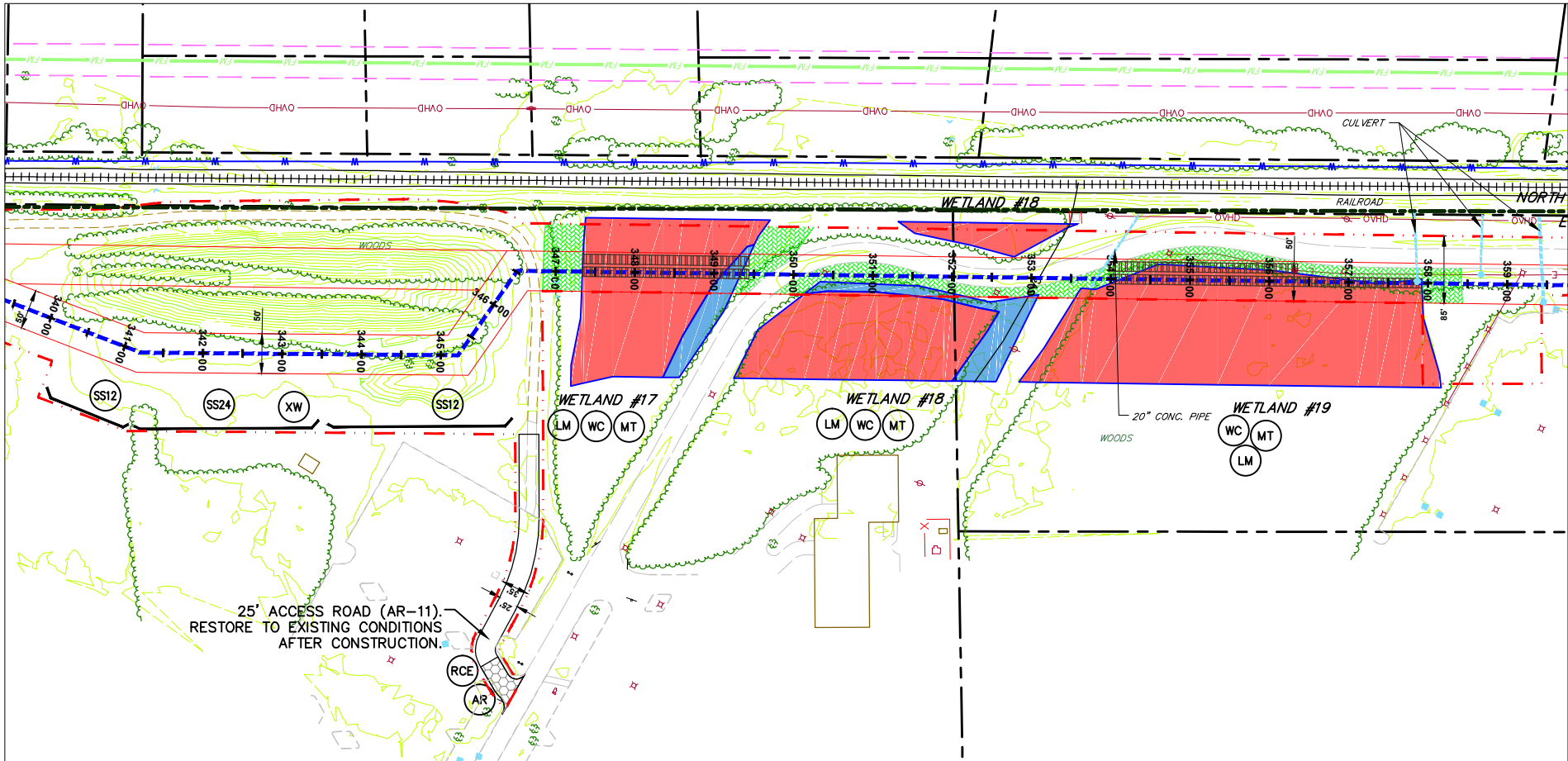


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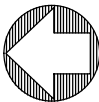
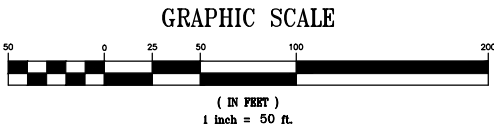
ACCESS ROAD (AR-11),  
WETLAND #17,  
WETLAND #18,  
& WETLAND #19  
SCALE: 1" = 100'

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
5. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:  
a) WETLAND #17, #18 & #19 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "C".
6. REFER TO DETAIL SHEET 5 FOR "RCE" DETAIL.
7. REFER TO DETAIL SHEET 5 FOR "AR" DETAIL.
8. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.
9. REFER TO DETAIL SHEET 6 FOR INLET PROTECTION DETAIL.

GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.



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LEGEND

INDEX CONTOUR

395

CONTOUR

400

PROPERTY LINE

TEMP. CONSTRUCTION EASEMENT/LIMIT OF DISTURBANCE

PERMANENT PIPELINE R.O.W.

CENTERLINE PIPELINE R.O.W.

ABOVE GROUND PIPE

CONVENTIONAL BORE

HDD

FENCE

EDGE WOODS

WETLANDS

PEN/PSS

PFO

STONE WALL

OVERHEAD/UTILITY POLE

PERENNIAL STREAM

FLOW

EPHEMERAL/INTERMITTENT STREAM

FLOW

ORD. HIGH WATER MARK

FLOODWAY

SOIL TYPE & BOUNDARY

SILT/COXX OR EQUIV. 12" HEIGHT

SS12

SILT/COXX OR EQUIV. 24" HEIGHT

SS24

SILT/COXX OR EQUIV. 32" HEIGHT

SS32

ROCK CONSTRUCTION ENTRANCE

RCE

LOG MAT

LM

EROSION CONTROL MATTING

MT

STREAMBANK RESTORATION

SBR

TEMP. PIPE

TP

WATERBAR

WB

ROCK FILTER BERM

RFB

BRIDGE

BR

WETLAND CROSSING

WC

SEDIMENT SILT COXX PROTECTION AT WATER BAR

SSO

ACCESS ROAD

AR

HIGHWAY BORING

HWB

HIGHWAY CUT

HWC

ACCESS RD. X-ING (PAVED ROAD)

APR

ACCESS RD. w/CULVERT

ARC

UTILITY LINE STREAM X-ING WITH DAM AND PUMPING OR WITH PIPE FLUME

ULF

TRENCH BREAKER/PLUG

TB/P

LONGITUDINAL DIVERSION GRADING

LDG

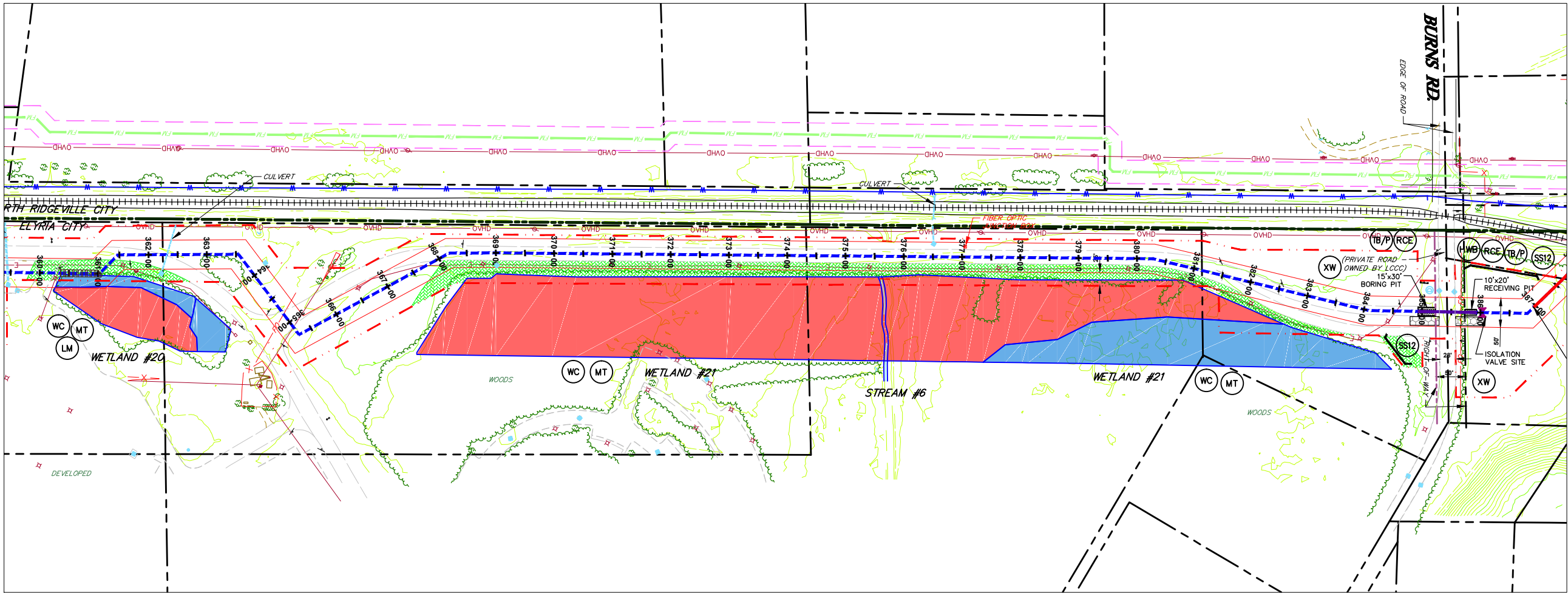
EXTRA WORKSPACE

XW

LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.

E&SPC SITE DETAIL				
AVON LAKE GAS ADDITION PROJECT				
SEAL	NO.	REVISIONS	DATE	CARLISLE, EATON & LAGRANGE TOWNSHIPS AVON, AVON LAKE, ELYRIA & NORTH RIDGEVILLE CITIES LORAIN COUNTY OHIO
			DRAWN BY: AEJ CHECKED BY: SJC DATE: 12.15.14 SCALE: AS NOTED	PROJECT NO. NRG-1007 SHEET NO. 61 OF 88
			3355 Route 611, Suite 1 Bartonsville, PA 18321-7822 570.688.9550 Fax 570.688.9768	

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**WETLAND #20, WETLAND #21, STREAM #6, & BURNS RD.**

SCALE: 1" = 100'

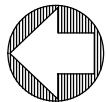
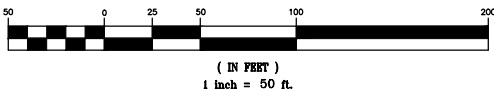
**NOTES:**

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
5. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:
  - a) WETLAND #20 & #21 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "C".
6. REFER TO DETAIL SHEET 5 FOR "RCE" DETAIL.
7. REFER TO DETAIL SHEET 3 FOR "HMB" DETAIL. PLACE TRENCH BREAKERS ON EITHER SIDE OF THE EXISTING ROAD.
8. REFER TO DETAIL SHEET 3 FOR "PAVED TWP ROAD CROSSING" FOR TRENCH BACKFILL AND ROAD SURFACE RESTORATION.
9. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.
10. REFER TO DETAIL SHEET 6 FOR INLET PROTECTION DETAIL.

**GENERAL NOTES:**

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

**GRAPHIC SCALE**



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**LEGEND**

- INDEX CONTOUR
- CONTOUR
- PROPERTY LINE
- TEMP. CONSTRUCTION EASEMENT/LIMIT OF DISTURBANCE
- PERMANENT PIPELINE R.O.W.
- CENTERLINE PIPELINE R.O.W.
- ABOVE GROUND PIPE
- CONVENTIONAL BORE
- HDD
- FENCE
- EDGE WOODS
- WETLANDS
- STONE WALL
- OVERHEAD/UTILITY POLE
- PERENNIAL STREAM
- EPHEMERAL/INTERMITTENT STREAM
- ORD. HIGH WATER MARK LINE
- FLOODWAY
- SOIL TYPE & BOUNDARY
- SILT/SOXX OR EQUIV. 12" HEIGHT
- SILT/SOXX OR EQUIV. 24" HEIGHT
- SILT/SOXX OR EQUIV. 32" HEIGHT
- ROCK CONSTRUCTION ENTRANCE
- LOG MAT
- EROSION CONTROL MATTING
- STREAMBANK RESTORATION
- TEMP. PIPE
- WATERBAR
- ROCK FILTER BERM
- BRIDGE
- WETLAND CROSSING
- SEDIMENT SILT SOXX PROTECTION AT WATER BAR
- ACCESS ROAD
- HIGHWAY BORING
- HIGHWAY CUT
- ACCESS RD. X-ING (PAVED ROAD)
- ACCESS RD. w/CULVERT
- UTILITY LINE STREAM X-ING WITH DAM AND PUMPING OR WITH PIPE FLUME
- TRENCH BREAKER/PLUG
- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE

LIMIT OF CONSTRUCTION AND  
LIMIT OF DISTURBANCE - 235 AC.

**E&SPC SITE DETAIL**

**AVON LAKE GAS ADDITION PROJECT**

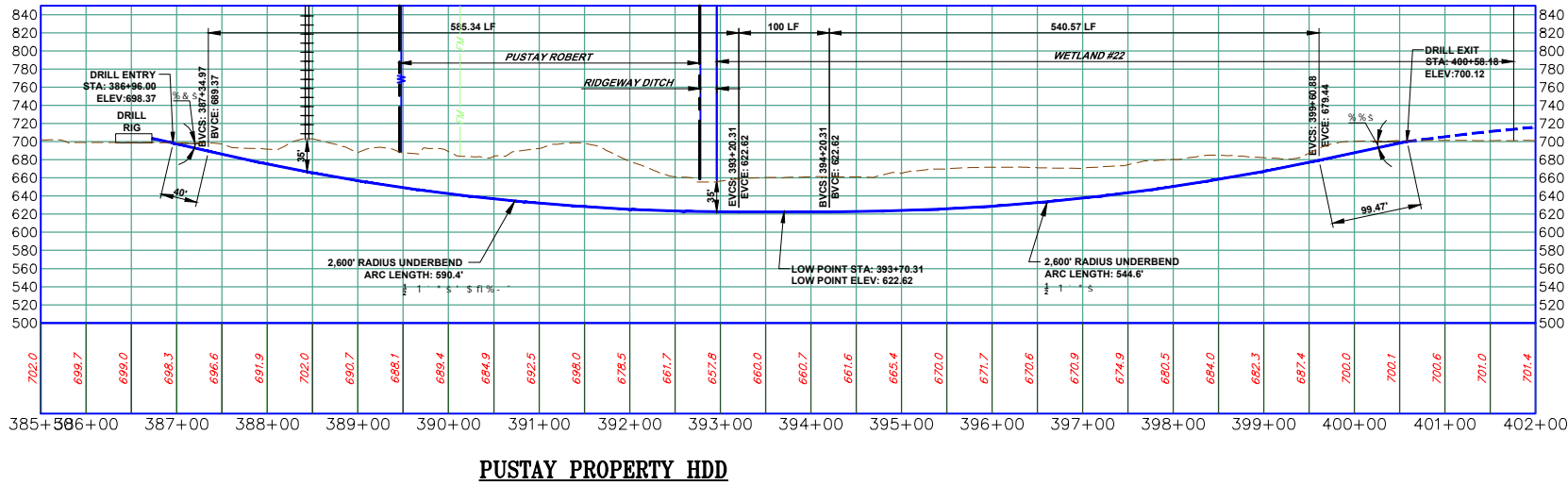
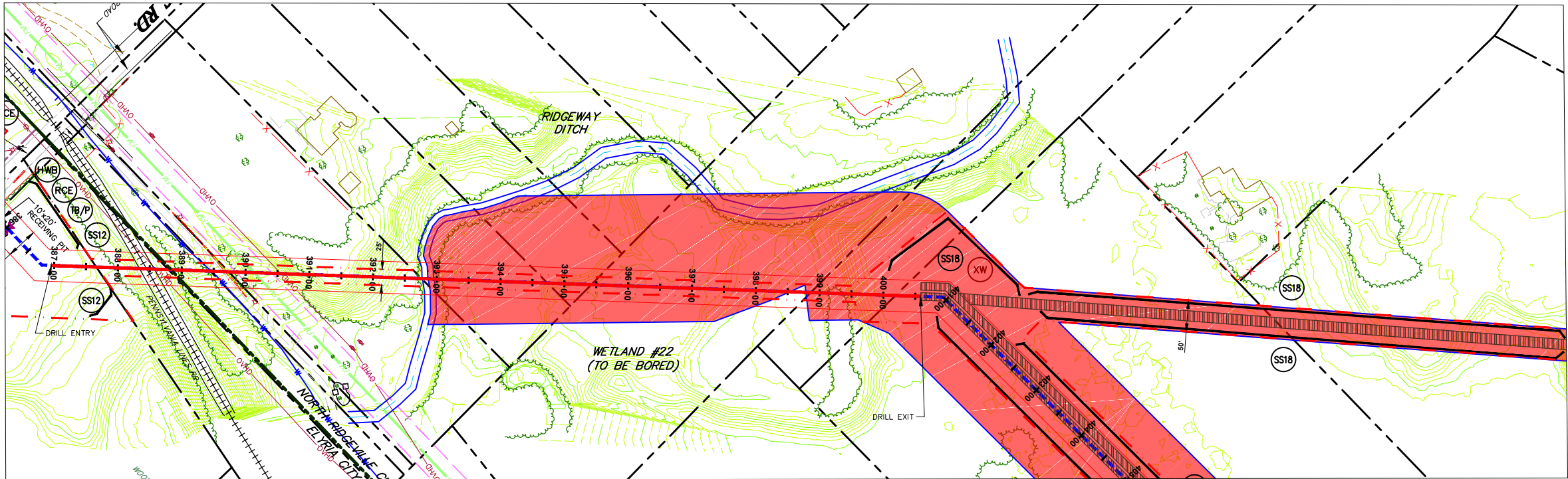
CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO. NRG-1007  
SHEET NO. 62 OF 88

3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768





RIDGEWAY DITCH & WETLAND #22  
SCALE: 1" = 100'

NOTES:

1. RIDGEWAY DITCH AND WETLAND #22 TO BE BORED.
2. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. REFER TO DETAIL SHEET 3 FOR "TB" DETAIL.

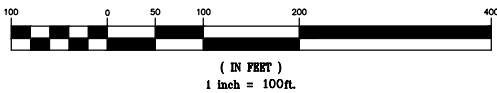
**LEGEND**

- INDEX CONTOUR
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- PROPERTY LINE
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- TRENCH BREAKER/PLUG
- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE
- LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.

HDD PROFILE

(ON 22x34 SHEET)  
HORIZONTAL & VERTICAL

GRAPHIC SCALE



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GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

E&SPC SITE DETAIL

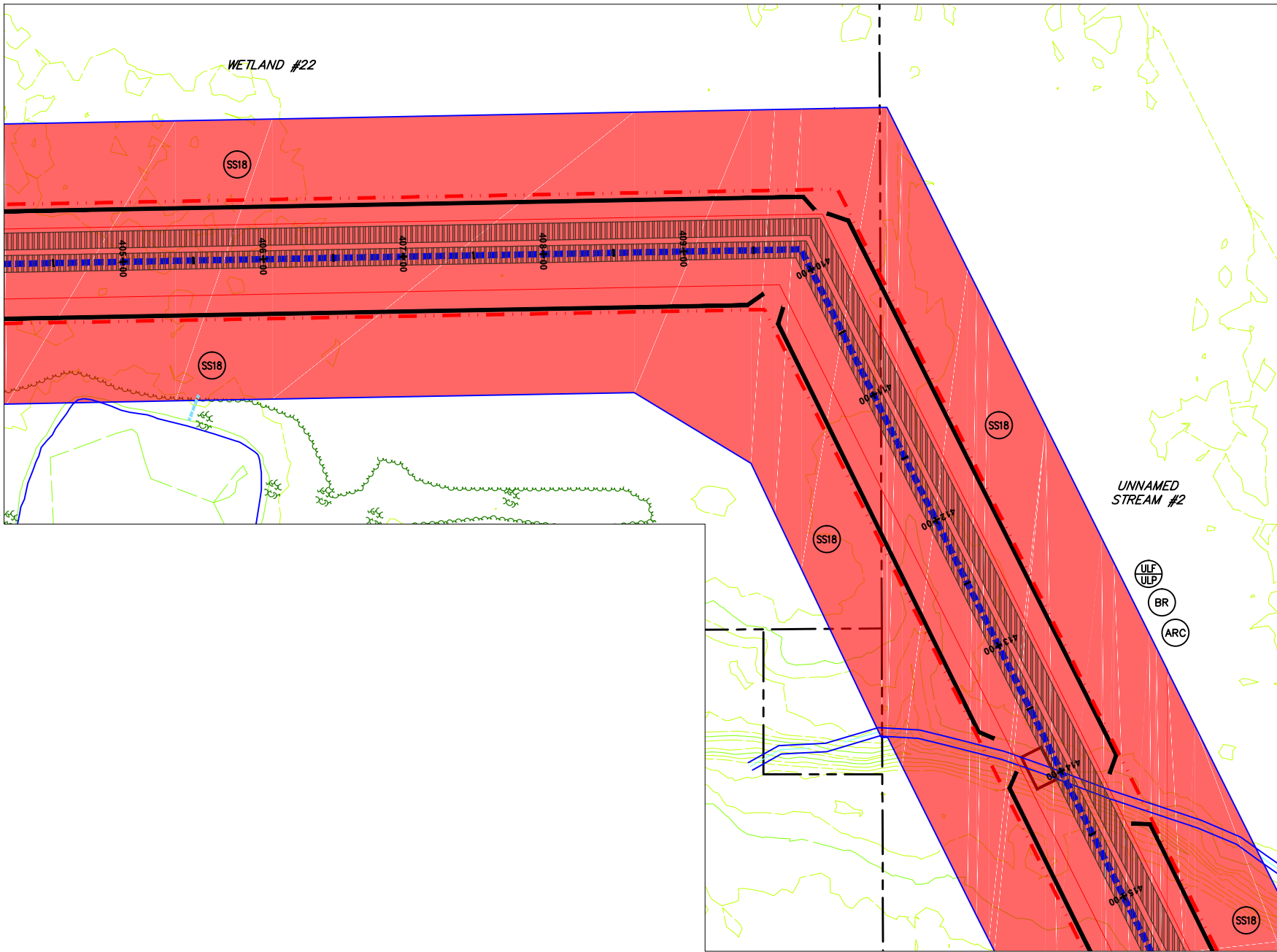
AVON LAKE GAS ADDITION PROJECT

CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO. NRG-1007  
SHEET NO. 63 OF 88  
3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768

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WETLAND #23 & UNNAMED STREAM #2

SCALE: 1" = 50'

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
5. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
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7. REFER TO DETAIL SHEET 4 FOR "ULF" OR "ULP" DETAIL. UTILIZE FOR STREAM CROSSINGS.
8. ALTHOUGH A BRIDGE IS SHOWN, A TEMPORARY CULVERT CROSSING MAY BE INSTALLED. REFER TO DETAIL SHEET 1 FOR "BR" DETAIL AND FOR THE SPECIFIED SIZE AND NUMBER OF CULVERTS.
9. REFER TO DETAIL SHEET 4 FOR "ARC" DETAIL.
10. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

UNNAMED STREAM #2 PROFILE

(ON 22x34 SHEET)

HORIZONTAL



( IN FEET )  
1 inch = 20 ft.

(ON 22x34 SHEET)

VERTICAL



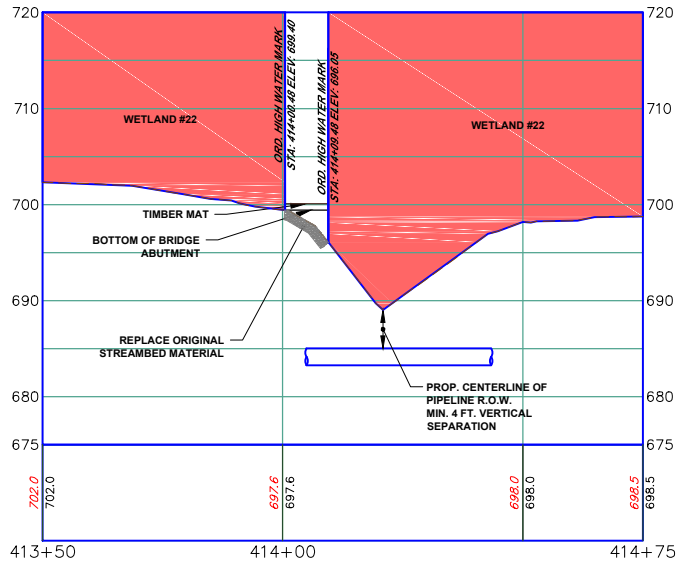
( IN FEET )  
1 inch = 10 ft.

GRAPHIC SCALE



( IN FEET )  
1 inch = 50 ft.

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UNNAMED STREAM #2 PROFILE

LEGEND

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- TEMP. CONSTRUCTION EASEMENT/LIMIT OF DISTURBANCE
- PERMANENT PIPELINE R.O.W.
- CENTERLINE PIPELINE R.O.W.
- ABOVE GROUND PIPE
- CONVENTIONAL BORE
- HDD
- FENCE
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- STONE WALL
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- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE

LIMIT OF CONSTRUCTION AND  
LIMIT OF DISTURBANCE - 235 AC.

E&SPC SITE DETAIL

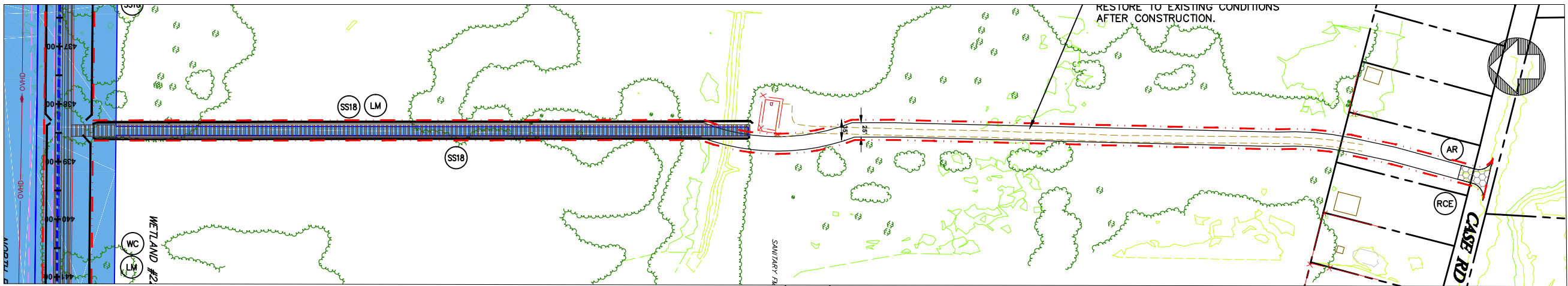
AVON LAKE GAS ADDITION PROJECT

CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO. NRG-1007  
SHEET NO. 64 OF 88  
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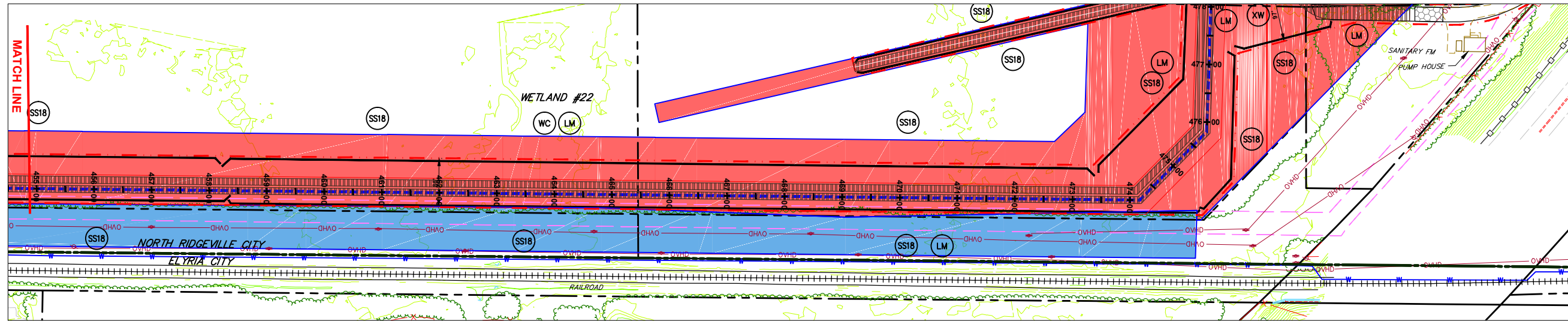
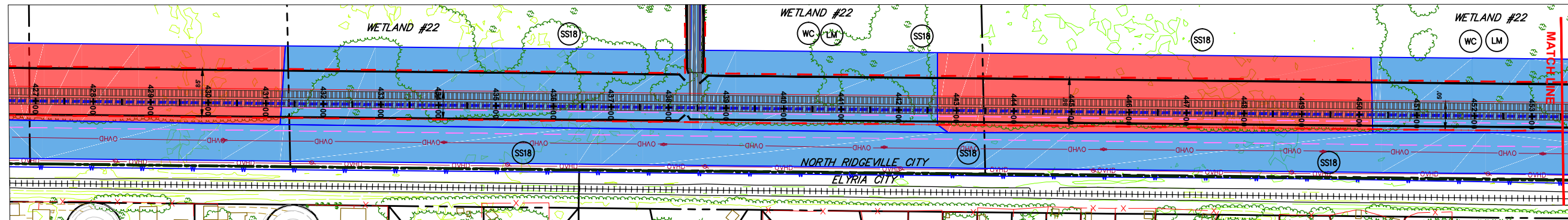


**ACCESS ROAD (AR-12) TO CASE RD**

**NOTES:**

SCALE: 1" = 100'

1. REFER TO DETAIL SHEET 5 FOR "RCE" OR DETAIL.
2. REFER TO DETAIL SHEET 5 FOR "AR" DETAIL.



**WETLAND #22**

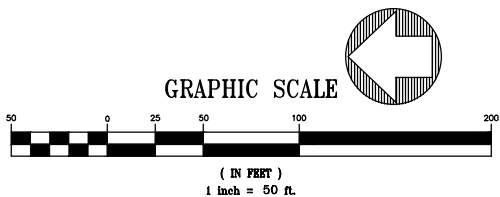
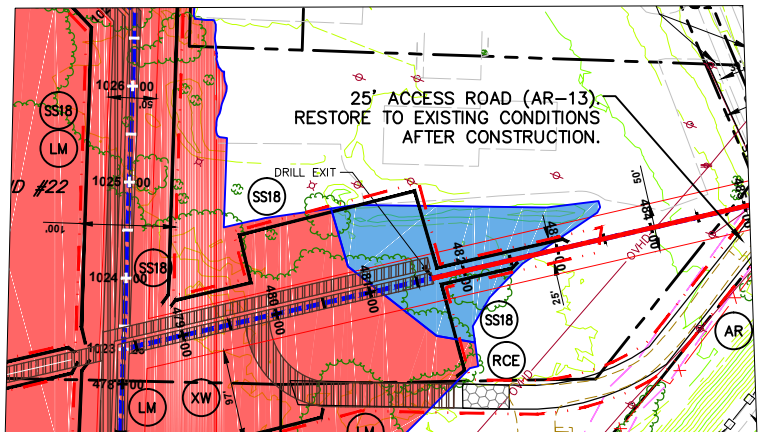
SCALE: 1" = 50'

**NOTES:**

1. REFER TO DETAIL SHEET 3 FOR "IB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
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5. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

**GENERAL NOTES:**

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.



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**LEGEND**

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- FLOODWAY
- SOIL TYPE & BOUNDARY
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- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE
- LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.

**E&SPC SITE DETAIL**

**AVON LAKE GAS ADDITION PROJECT**

CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

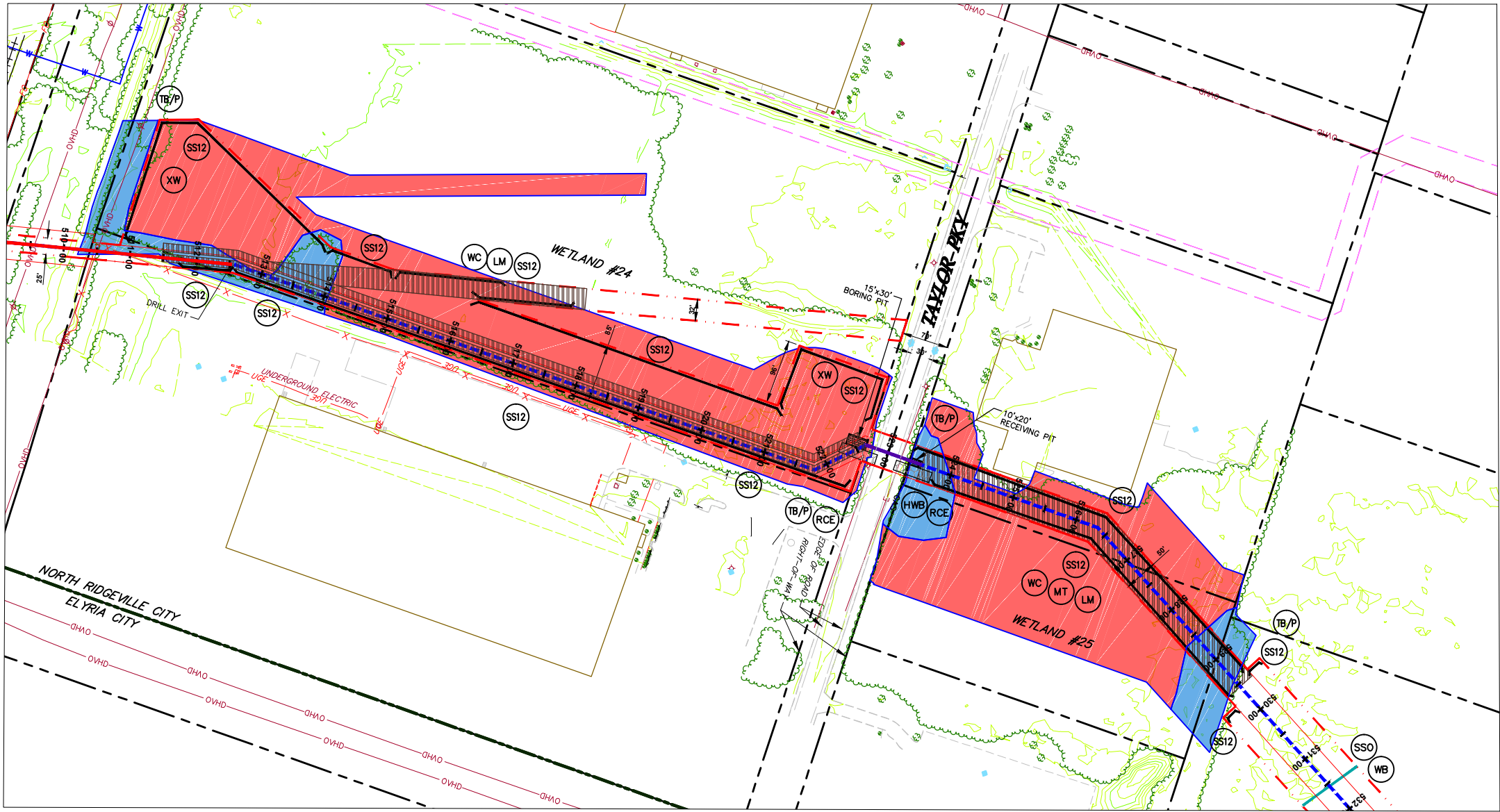
**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
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3355 Route 611, Suite 1  
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570.688.9550  
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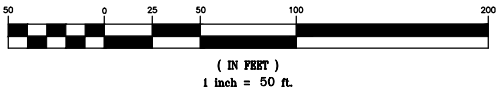
WETLAND #24, TAYLOR PARKWAY, & WETLAND #25

SCALE: 1" = 100'

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
5. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:
  - a) WETLAND #25 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "C".
6. REFER TO DETAIL SHEET 5 FOR "RCE" OR DETAIL.
7. REFER TO DETAIL SHEET 3 FOR "HWB" DETAIL. PLACE TRENCH BREAKERS ON EITHER SIDE OF THE EXISTING ROAD.
8. REFER TO DETAIL SHEET 3 FOR "TB" DETAIL.
9. REFER TO DETAIL SHEET 6 FOR INLET PROTECTION DETAIL.

GRAPHIC SCALE



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GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

LEGEND

- INDEX CONTOUR
- CONTOUR
- PROPERTY LINE
- TEMP. CONSTRUCTION EASEMENT/LIMIT OF DISTURBANCE
- PERMANENT PIPELINE R.O.W.
- CENTERLINE PIPELINE R.O.W.
- ABOVE GROUND PIPE
- CONVENTIONAL BORE
- HDD
- FENCE
- EDGE WOODS
- WETLANDS
- STONE WALL
- OVERHEAD/UTILITY POLE
- PERENNIAL STREAM
- EPHEMERAL/INTERMITTENT STREAM
- ORD. HIGH WATER MARK
- FLOODWAY
- SOIL TYPE & BOUNDARY
- SILT/COX OR EQUIV. 12" HEIGHT
- SILT/COX OR EQUIV. 24" HEIGHT
- SILT/COX OR EQUIV. 32" HEIGHT
- ROCK CONSTRUCTION ENTRANCE
- LOG MAT
- EROSION CONTROL MATTING
- STREAMBANK RESTORATION
- TEMP. PIPE
- WATERBAR
- ROCK FILTER BERM
- BRIDGE
- WETLAND CROSSING
- SEDIMENT SILT COX PROTECTION AT WATER BAR
- ACCESS ROAD
- HIGHWAY BORING
- HIGHWAY CUT
- ACCESS RD. X-ING (PAVED ROAD)
- ACCESS RD. w/CULVERT
- UTILITY LINE STREAM X-ING WITH DAM AND PUMPING OR WITH PIPE FLUME
- TRENCH BREAKER/PLUG
- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE

LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.

E&SPC SITE DETAIL

AVON LAKE GAS ADDITION PROJECT

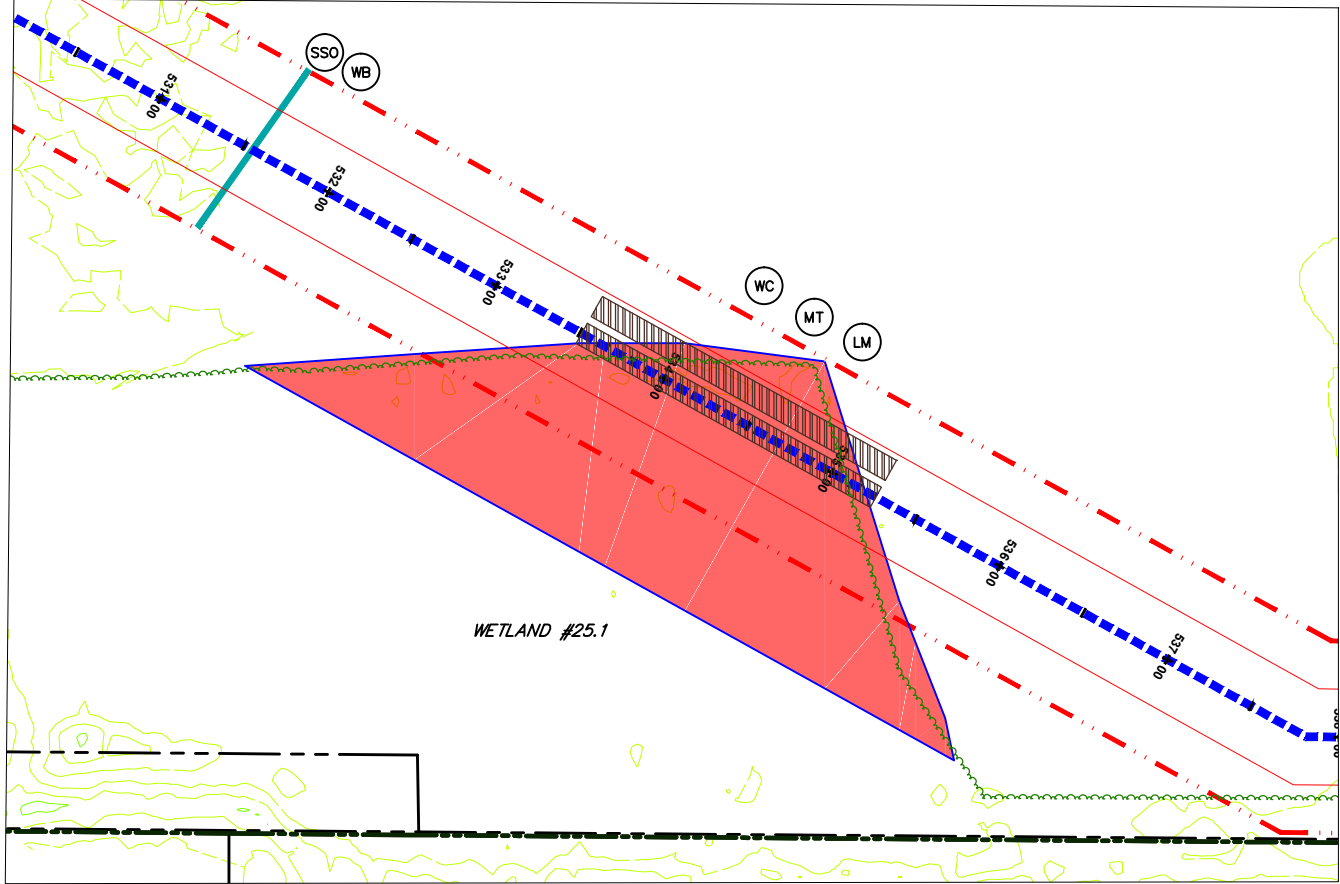
CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO. NRG-1007  
SHEET NO. 67 OF 88

3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768



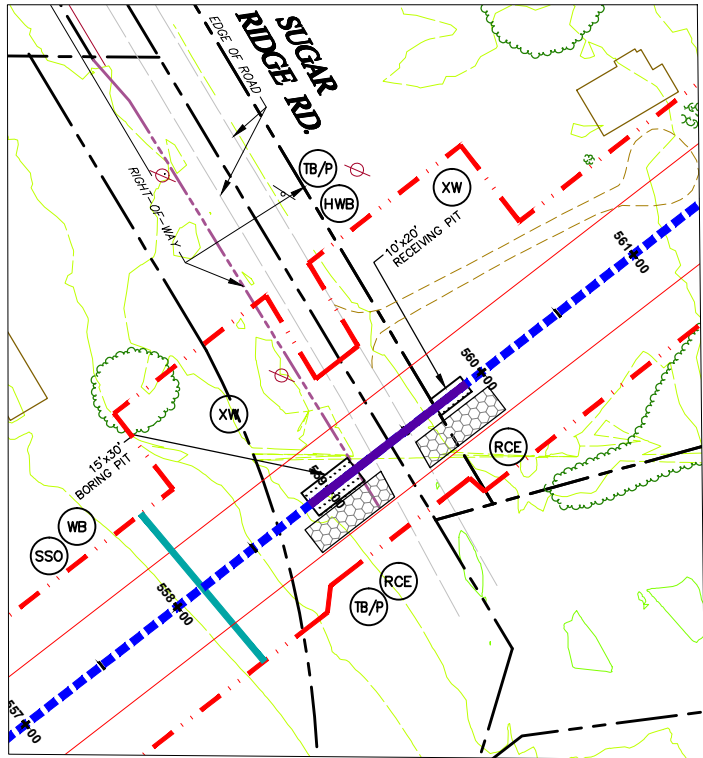


### WETLAND #25.1

SCALE: 1" = 50'

#### NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
5. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

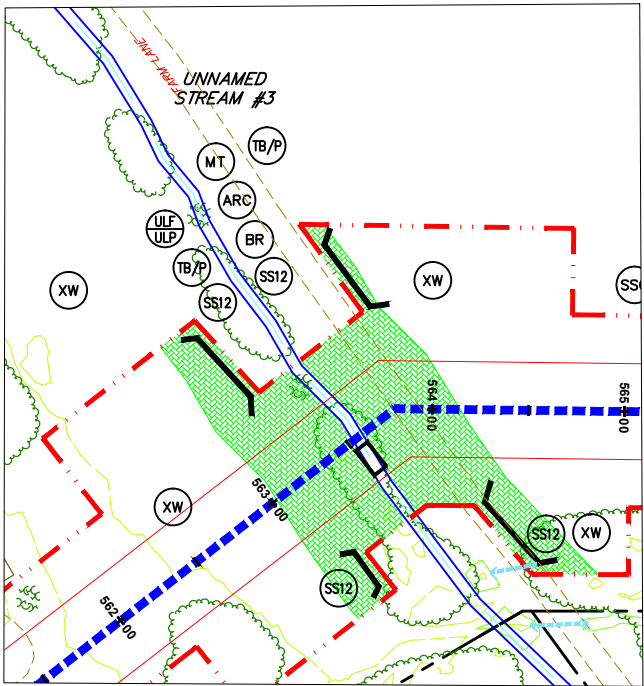
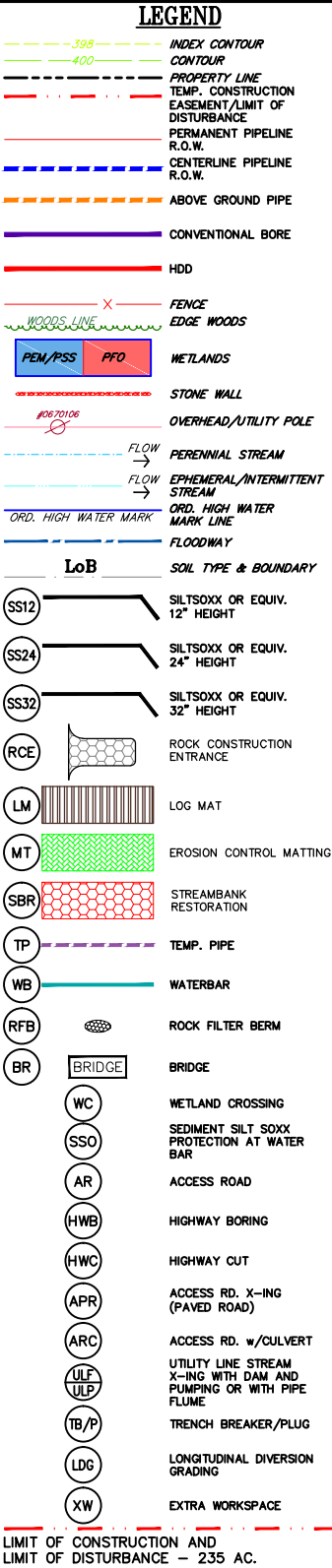


### SUGAR RIDGE ROAD

SCALE: 1" = 50'

#### NOTES:

1. REFER TO DETAIL SHEET 5 FOR "RCE" OR DETAIL.
2. REFER TO DETAIL SHEET 3 FOR OR "HWB" DETAIL. PLACE TRENCH BREAKERS ON EITHER SIDE OF THE EXISTING ROAD.
3. REFER TO DETAIL SHEET 3 FOR "STONE/DIRT TWP ROAD CROSSING DETAIL" OR "PAVED TWP ROAD CROSSING" FOR TRENCH BACKFILL AND ROAD SURFACE RESTORATION.
4. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.



### UNNAMED STREAM #3

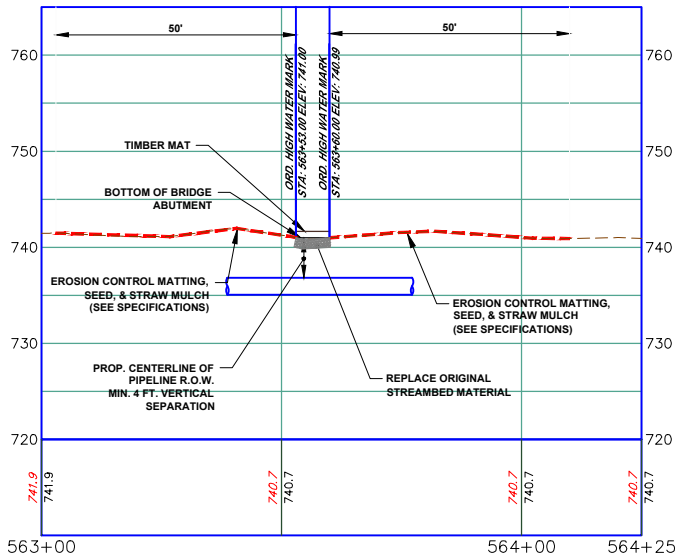
SCALE: 1" = 50'

#### NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL.
3. STREAM #2 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "B".
4. ALTHOUGH A BRIDGE IS SHOWN, A TEMPORARY CULVERT CROSSING MAY BE INSTALLED. REFER TO DETAIL SHEET 1 FOR "BR" DETAIL AND FOR THE SPECIFIED SIZE AND NUMBER OF CULVERTS.
5. REFER TO DETAIL SHEET 4 FOR "ARC" DETAIL.
6. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

#### GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.



### UNNAMED STREAM #3 PROFILE

(ON 22x34 SHEET)

HORIZONTAL

#### GRAPHIC SCALE



( IN FEET )

1 inch = 20 ft.

(ON 22x34 SHEET)

VERTICAL

#### GRAPHIC SCALE



( IN FEET )

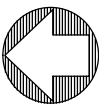
1 inch = 10 ft.

#### GRAPHIC SCALE



( IN FEET )

1 inch = 50 ft.



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SEAL

### E&SPC SITE DETAIL

#### AVON LAKE GAS ADDITION PROJECT

CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

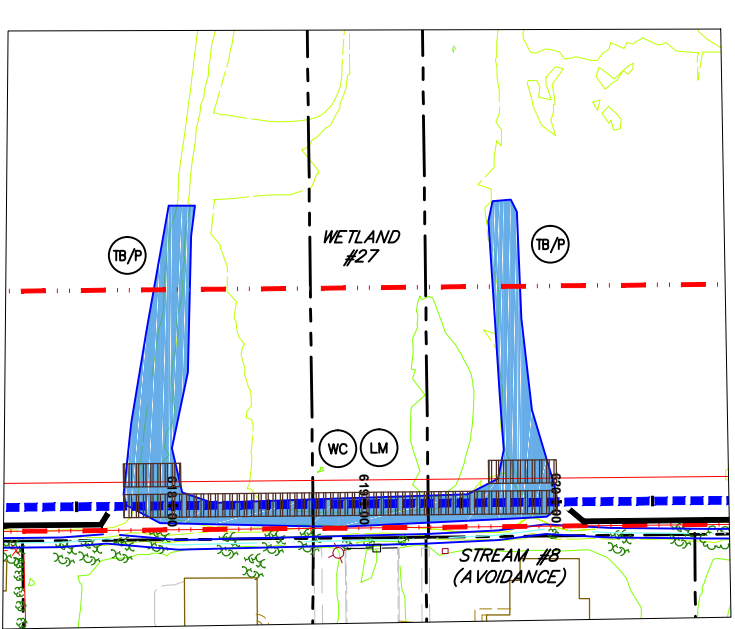
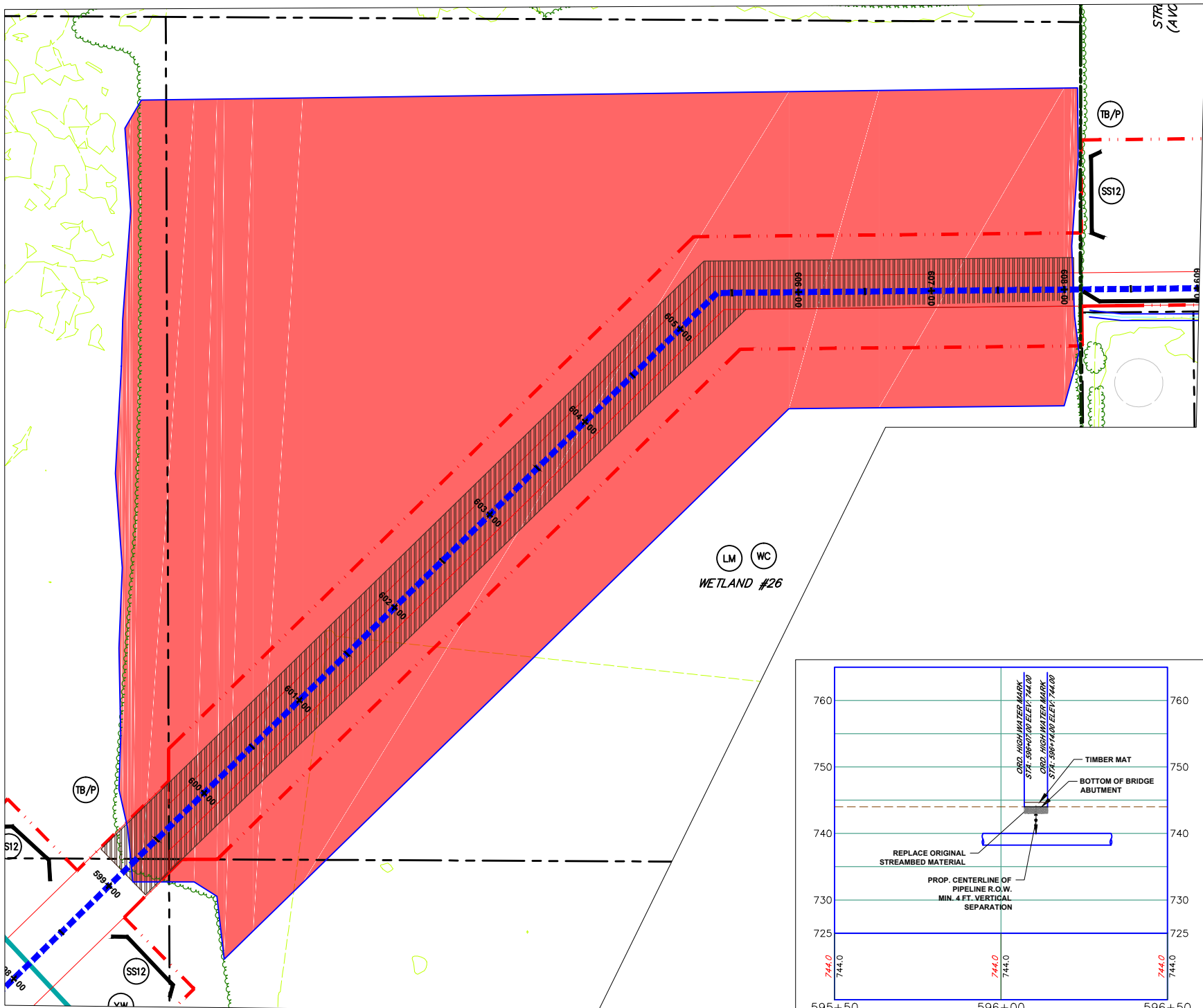
**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO.: NRG-1007  
SHEET NO.: 68 OF 88

3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768



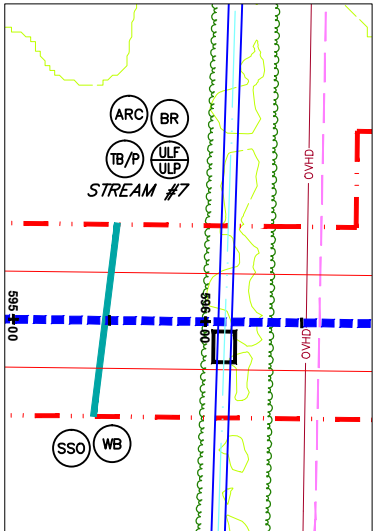
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WETLAND #27 & STREAM #8 (AVOIDANCE)

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
5. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.



STREAM #7

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WB" DETAIL.
3. REFER TO DETAIL SHEET 3 FOR "SSO" DETAIL.
4. REFER TO DETAIL SHEET 4 FOR "ULF" DETAIL. UTILIZE FOR STREAM CROSSINGS.
5. ALTHOUGH A BRIDGE IS SHOWN, A TEMPORARY CULVERT CROSSING MAY BE INSTALLED. REFER TO DETAIL SHEET 1 FOR "BR" DETAIL AND FOR THE SPECIFIED SIZE AND NUMBER OF CULVERTS.
6. REFER TO DETAIL SHEET 4 FOR "ARC" DETAIL.
7. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

STREAM #7 PROFILE

(ON 22x34 SHEET)

GRAPHIC SCALE



( IN FEET )  
1 inch = 20 ft.

(ON 22x34 SHEET)

GRAPHIC SCALE



( IN FEET )  
1 inch = 10 ft.

GRAPHIC SCALE



( IN FEET )  
1 inch = 50 ft.

GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

LEGEND

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- SILT/SSOXX OR EQUIV. 32" HEIGHT
- ROCK CONSTRUCTION ENTRANCE
- LOG MAT
- EROSION CONTROL MATTING
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- TEMP. PIPE
- WATERBAR
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- BRIDGE
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- TRENCH BREAKER/PLUG
- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE

LIMIT OF CONSTRUCTION AND  
LIMIT OF DISTURBANCE - 235 AC.

E&SPC SITE DETAIL

AVON LAKE GAS ADDITION PROJECT

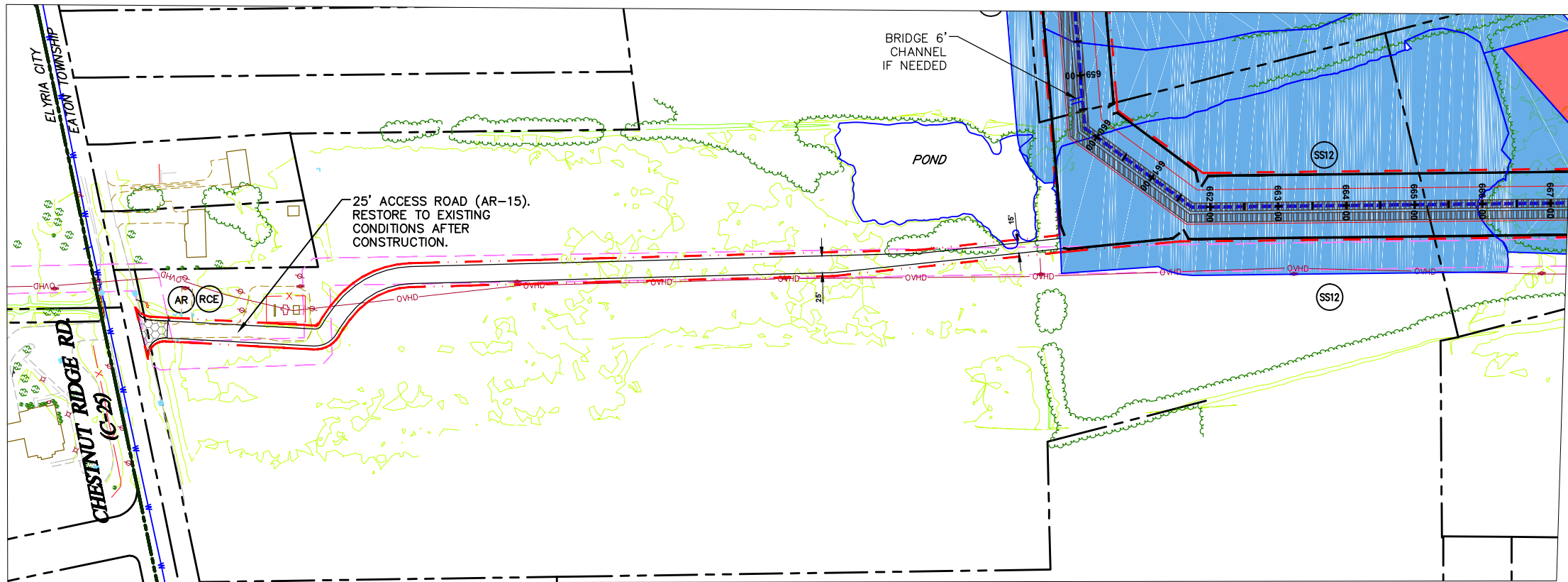
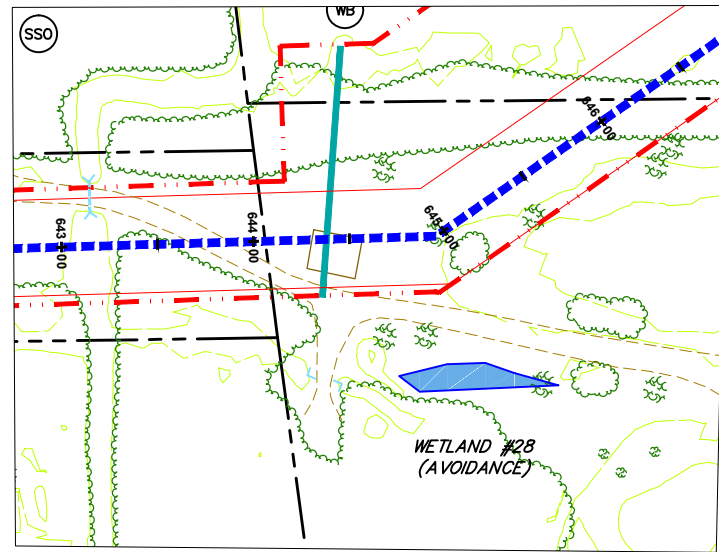
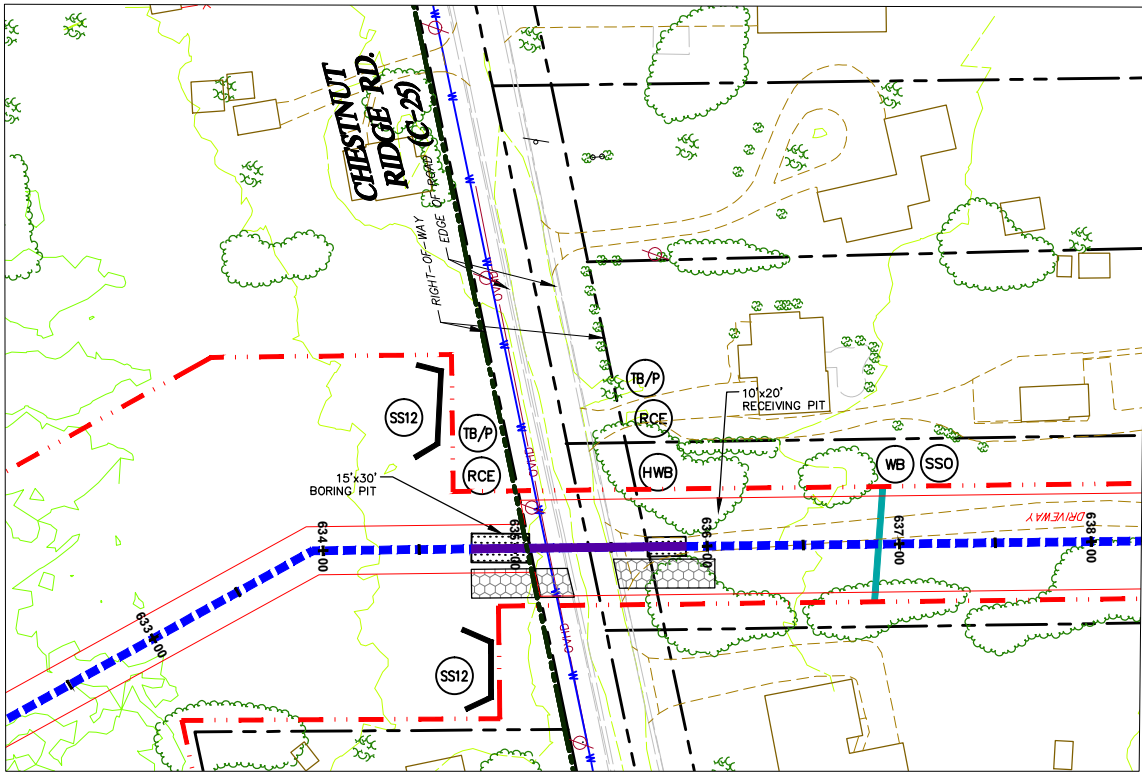
CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO. NRG-1007  
SHEET NO. 69 OF 88

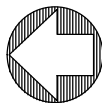
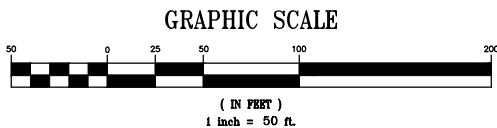
3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768

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**GENERAL NOTES:**

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.



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- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE

LIMIT OF CONSTRUCTION AND  
LIMIT OF DISTURBANCE - 235 AC.

**E&SPC SITE DETAIL**

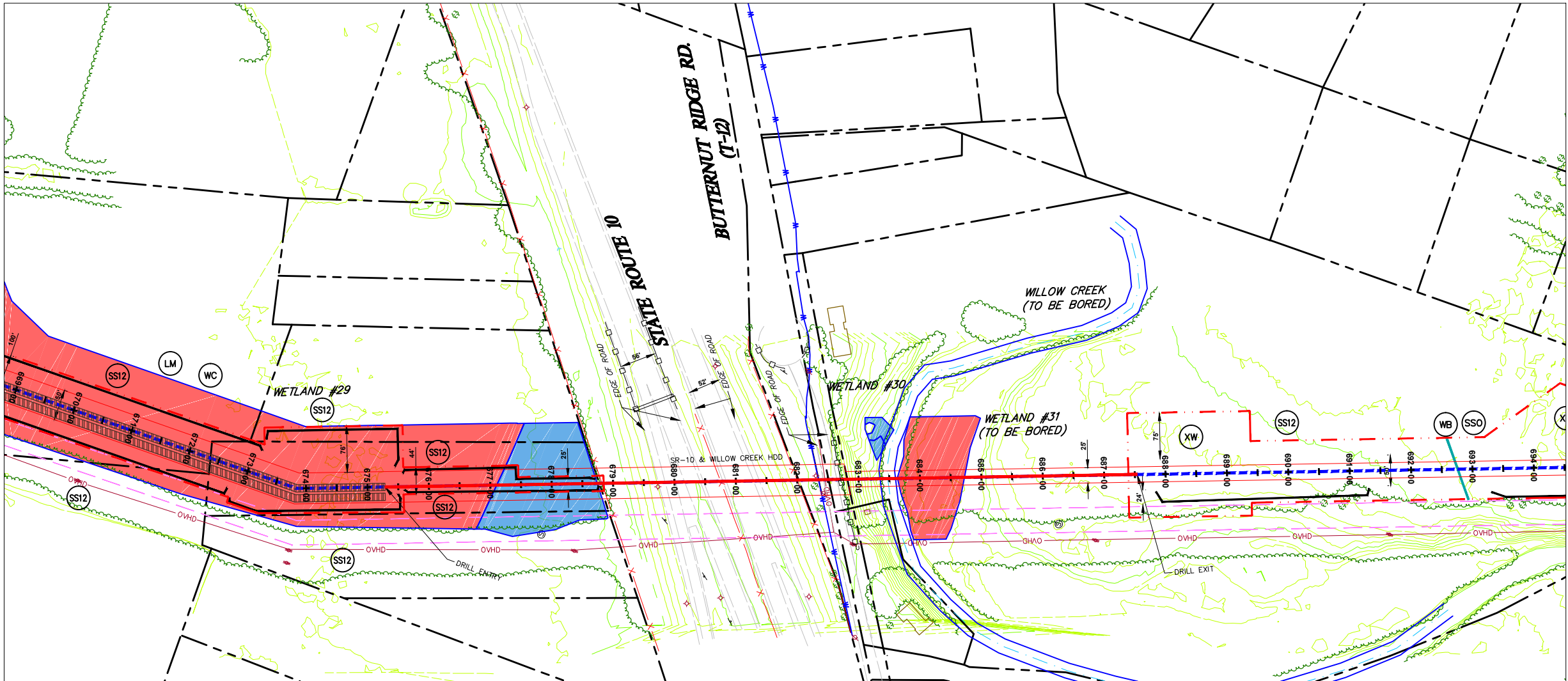
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					CARLISLE, EATON & LAGRANGE TOWNSHIPS AVON, AVON LAKE, ELYRIA & NORTH RIDGEVILLE CITIES LORAIN COUNTY OHIO		
					DRAWN BY: AEJ CHECKED BY: SJC DATE: 12.15.14 SCALE: AS NOTED		
					PROJECT NO. NRG-1007 SHEET NO. 70 OF 88		
					3355 Route 611, Suite 1 Bartonsville, PA 18321-7822 570.688.9550 Fax 570.688.9768		

**Hanover**  
Engineering Associates Inc



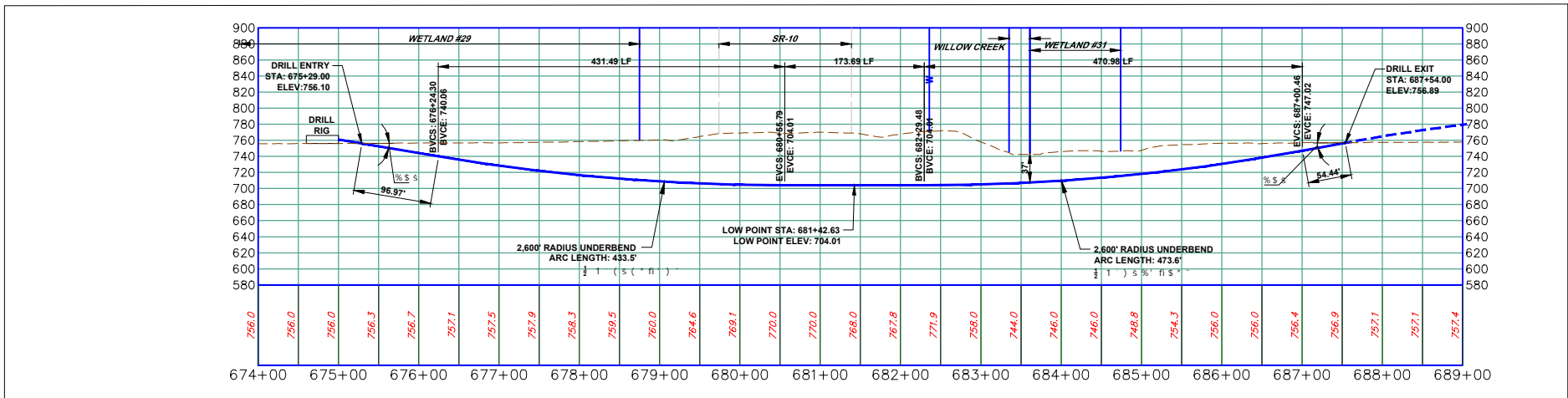


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STATE ROUTE 10, BUTTERNUT RIDGE RD (T-12), WETLAND #30,  
WILLOW CREEK & WETLAND #31

SCALE: 1" = 100'



HDD PROFILE

(ON 22x34 SHEET)  
HORIZONTAL & VERTICAL

GRAPHIC SCALE



( IN FEET )

1 inch = 100ft.



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SEAL

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LIMIT OF CONSTRUCTION AND  
LIMIT OF DISTURBANCE - 235 AC.

GENERAL NOTES:

- SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
- STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

E&SPC SITE DETAIL

AVON LAKE GAS ADDITION PROJECT

CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
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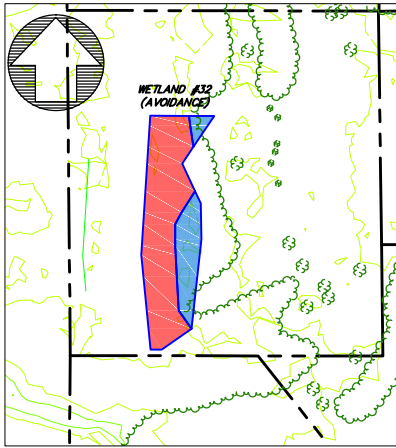
**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO. NRG-1007  
SHEET NO. 72 OF 88

3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768

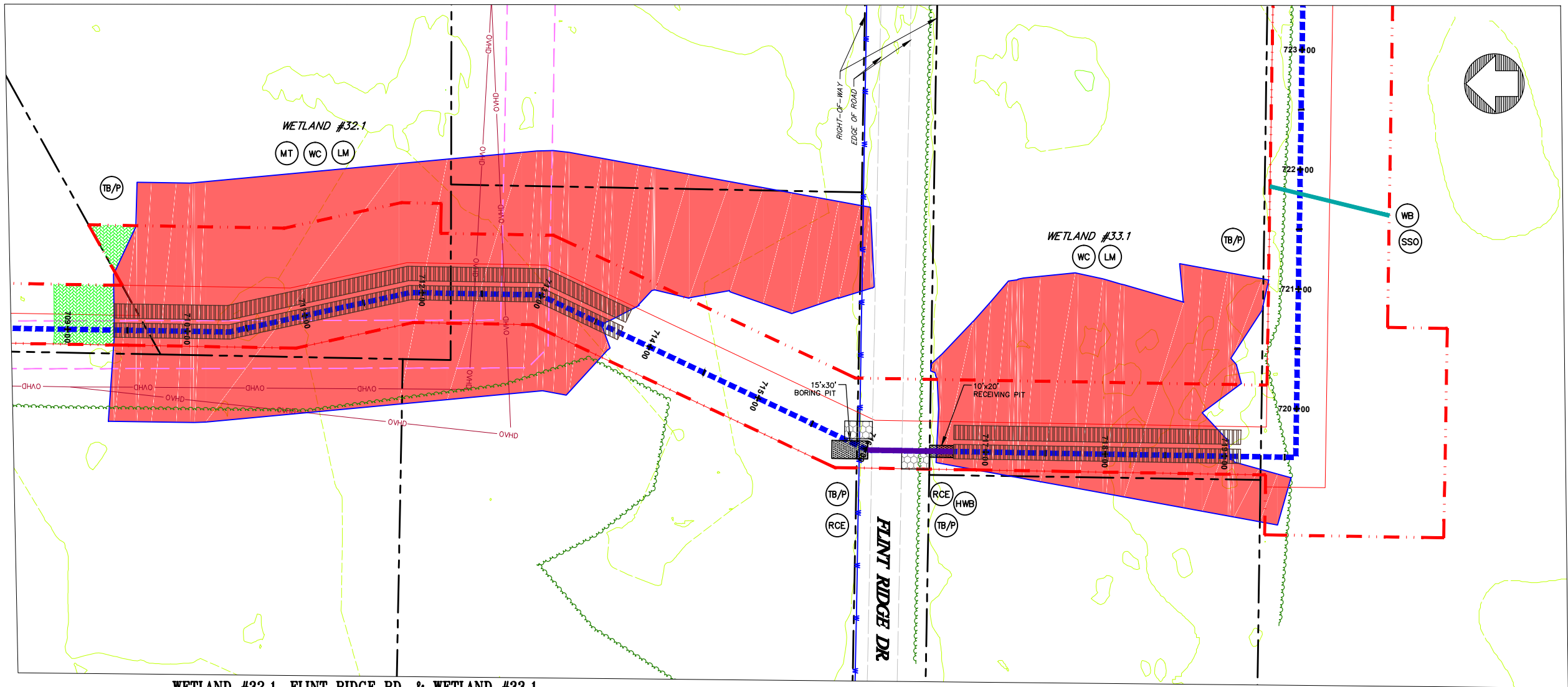


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WETLAND #32 (AVOIDANCE)

SCALE: 1" = 50'



WETLAND #32.1, FLINT RIDGE RD. & WETLAND #33.1

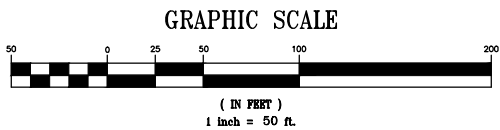
SCALE: 1" = 50'

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
5. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:
  - a) WETLAND #32.1 & #33.1 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "C".
6. REFER TO DETAIL SHEET 5 FOR "RCE" OR DETAIL.
7. REFER TO DETAIL SHEET 3 FOR OR "HWB" DETAIL. PLACE TRENCH BREAKERS ON EITHER SIDE OF THE EXISTING ROAD.
8. REFER TO DETAIL SHEET 3 FOR "WB" DETAIL.
9. REFER TO DETAIL SHEET 3 FOR "SSO" DETAIL.
10. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.



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LEGEND

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- TEMP. CONSTRUCTION EASEMENT/LIMIT OF DISTURBANCE
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- CENTERLINE PIPELINE R.O.W.
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- CONVENTIONAL BORE
- HDD
- FENCE
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- STONE WALL
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- PERENNIAL STREAM
- EPHEMERAL/INTERMITTENT STREAM
- ORD. HIGH WATER MARK
- FLOODWAY
- SOIL TYPE & BOUNDARY
- SILT/SSX OR EQUIV. 12" HEIGHT
- SILT/SSX OR EQUIV. 24" HEIGHT
- SILT/SSX OR EQUIV. 32" HEIGHT
- ROCK CONSTRUCTION ENTRANCE
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- EROSION CONTROL MATTING
- STREAMBANK RESTORATION
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- WATERBAR
- ROCK FILTER BERM
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- WETLAND CROSSING
- SEDIMENT SILT SOXX PROTECTION AT WATER BAR
- ACCESS ROAD
- HIGHWAY BORING
- HIGHWAY CUT
- ACCESS RD. X-ING (PAVED ROAD)
- ACCESS RD. w/CULVERT
- UTILITY LINE STREAM X-ING WITH DAM AND PUMPING OR WITH PIPE FLUME
- TRENCH BREAKER/PLUG
- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE

LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.

E&SPC SITE DETAIL

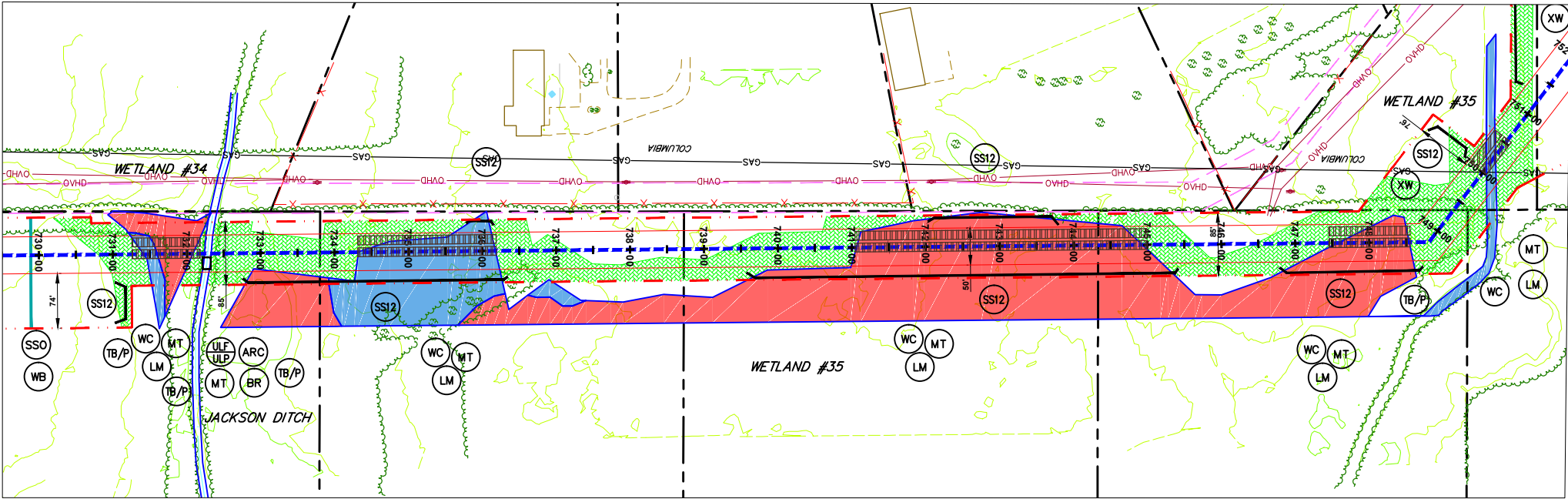
AVON LAKE GAS ADDITION PROJECT

CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO. NRG-1007  
SHEET NO. 73 OF 88  
3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768

Y:\Projects\Energy\NRG Energy\NRG-1007-Avon Lakes Pipeline\DWG\ESPC\ ESPC-NRG-1007-Avon LAKE-006-SITE DETAILS-2.dwg Dec 14,2014 -- 5:17pm



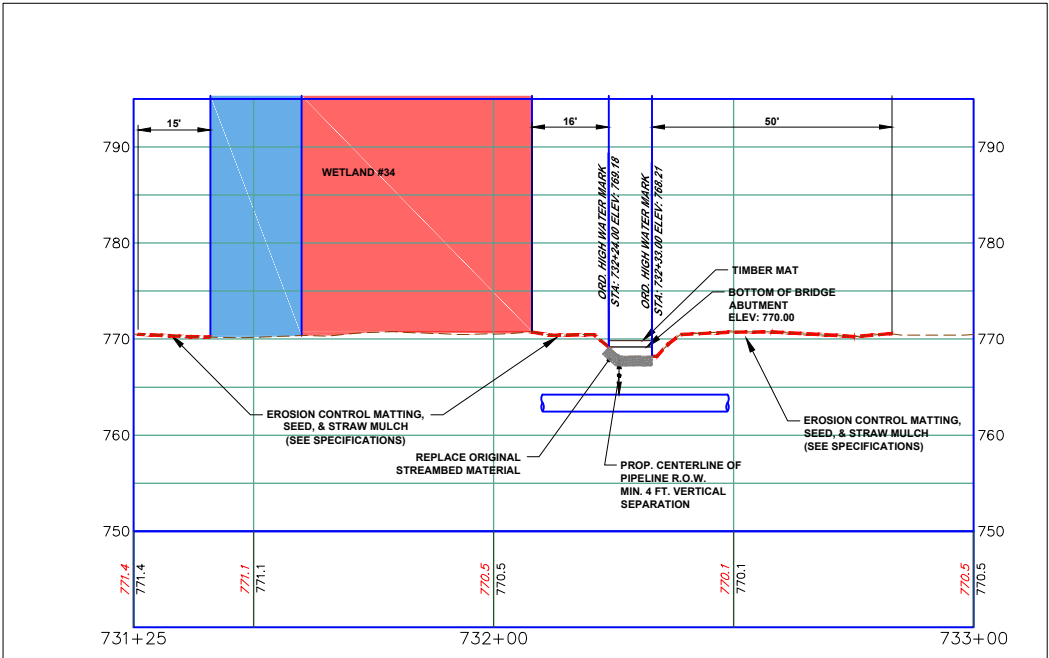
**WETLAND #34, JACKSON DITCH.  
& WETLAND #35**  
SCALE: 1" = 100'

**NOTES:**

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WB" DETAIL.
3. REFER TO DETAIL SHEET 3 FOR "SSO" DETAIL.
4. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
5. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
6. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
7. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:  
a) WETLAND #34 & #35 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "C".  
b) JACKSON DITCH USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "B".
8. REFER TO DETAIL SHEET 4 FOR "ULF" OR "ULP" DETAIL. UTILIZE FOR STREAM CROSSINGS.
9. ALTHOUGH A BRIDGE IS SHOWN, A TEMPORARY CULVERT CROSSING MAY BE INSTALLED. REFER TO DETAIL SHEET 1 FOR "BR" DETAIL AND FOR THE SPECIFIED SIZE AND NUMBER OF CULVERTS.
10. REFER TO DETAIL SHEET 4 FOR "ARC" DETAIL.
11. REFER TO DETAIL SHEET 3 FOR "TB" DETAIL.

**LEGEND**

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- ACCESS RD. w/CULVERT
- UTILITY LINE STREAM X-ING WITH DAM AND PUMPING OR WITH PIPE FLUME
- TRENCH BREAKER/PLUG
- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE
- LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.



**JACKSON DITCH PROFILE**

(ON 22x34 SHEET)

**GRAPHIC SCALE**



( IN FEET )

1 inch = 20 ft.

(ON 22x34 SHEET)

**GRAPHIC SCALE**



( IN FEET )

1 inch = 10 ft.

**JACKSON DITCH**

**GRAPHIC SCALE**



( IN FEET )

1 inch = 50 ft.

**GENERAL NOTES:**

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

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SEAL

**E&SPC SITE DETAIL**

**AVON LAKE GAS ADDITION PROJECT**

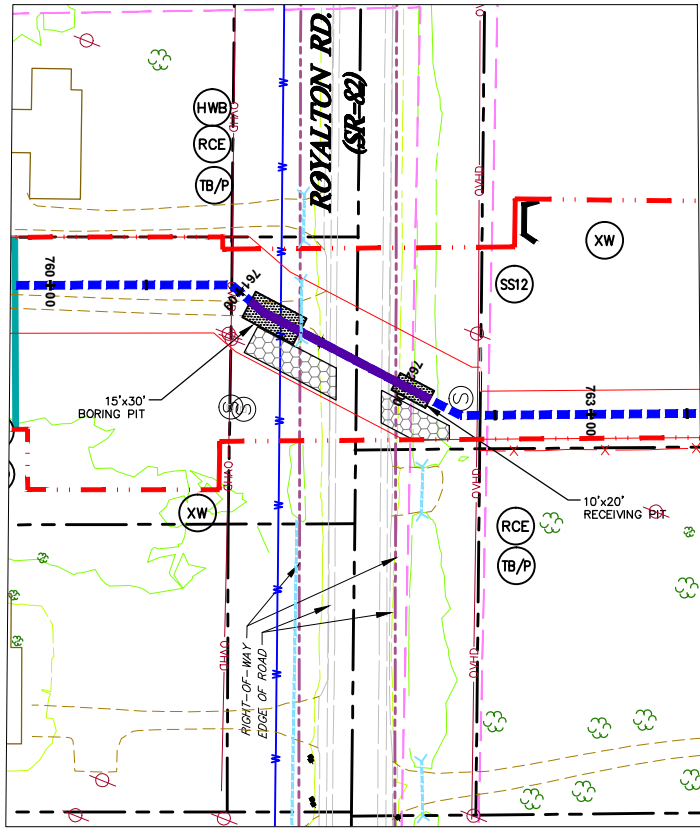
CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO.: NRG-1007  
SHEET NO.: 74 OF 88

3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768



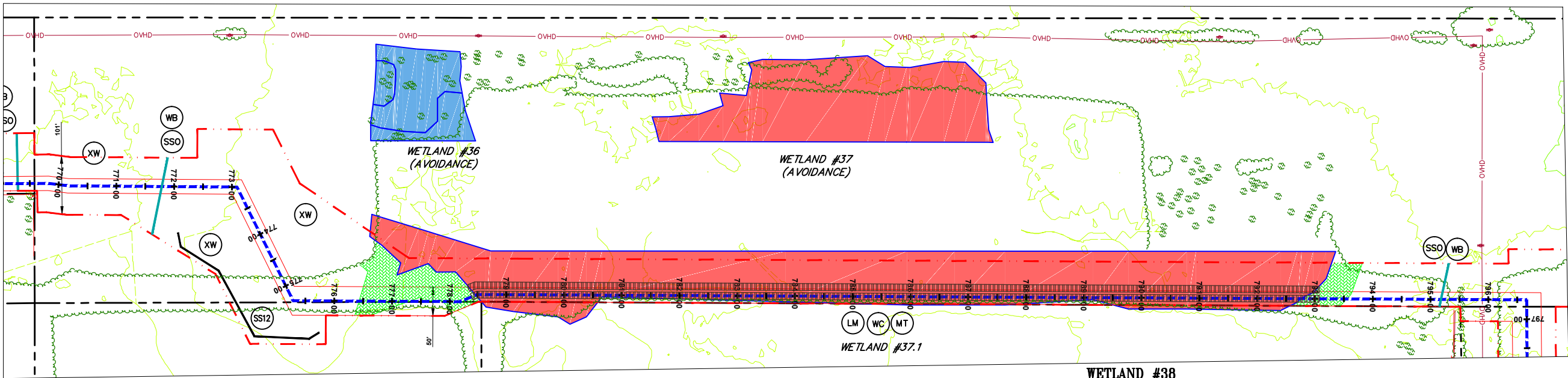


### ROYALTON RD (SR-82)

SCALE: 1" = 50'

#### NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 5 FOR "RCE" DETAIL.
3. REFER TO DETAIL SHEET 5 FOR "AR" DETAIL.
4. REFER TO DETAIL SHEET 3 FOR "HWB" DETAIL. PLACE TRENCH BREAKERS ON EITHER SIDE OF THE EXISTING ROAD.
5. REFER TO DETAIL SHEET 3 FOR "STONE/DIRT TWP ROAD CROSSING DETAIL" OR "PAVED TWP ROAD CROSSING" FOR TRENCH BACKFILL AND ROAD SURFACE RESTORATION.
6. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.
7. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.



### WETLAND #36 (AVOIDANCE), WETLAND #27 (AVOIDANCE) & WETLAND #37.1

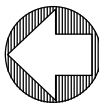
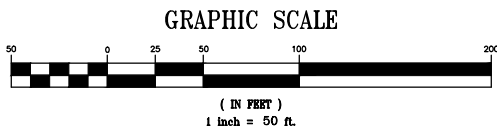
SCALE: 1" = 100'

#### NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
5. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:
  - a) WETLAND #37.1 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "C".
6. REFER TO DETAIL SHEET 3 FOR "WB" DETAIL.
7. REFER TO DETAIL SHEET 3 FOR "SSO" DETAIL.
8. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

#### GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.



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- TRENCH BREAKER/PLUG
- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE
- LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.

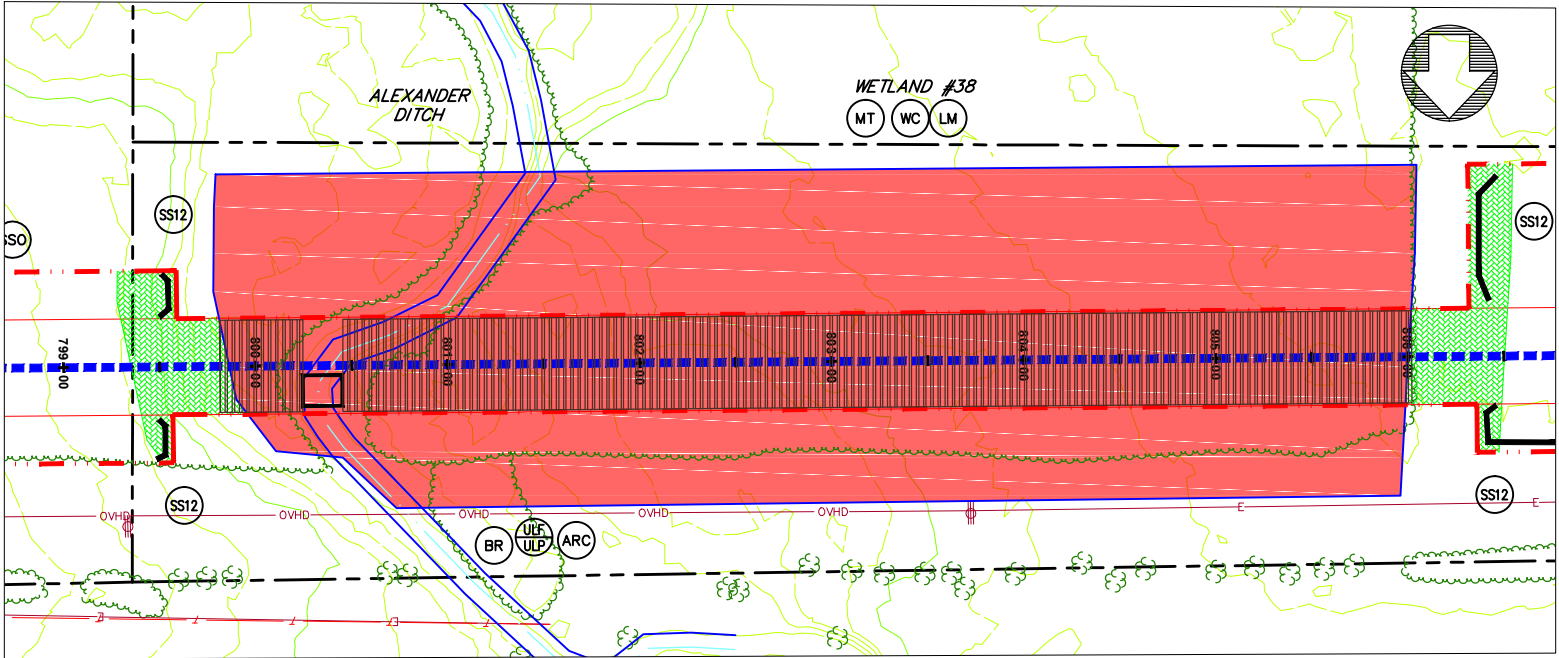
#### E&SPC SITE DETAIL

### AVON LAKE GAS ADDITION PROJECT

CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO.: NRG-1007  
SHEET NO.: 75 OF 88  
3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768

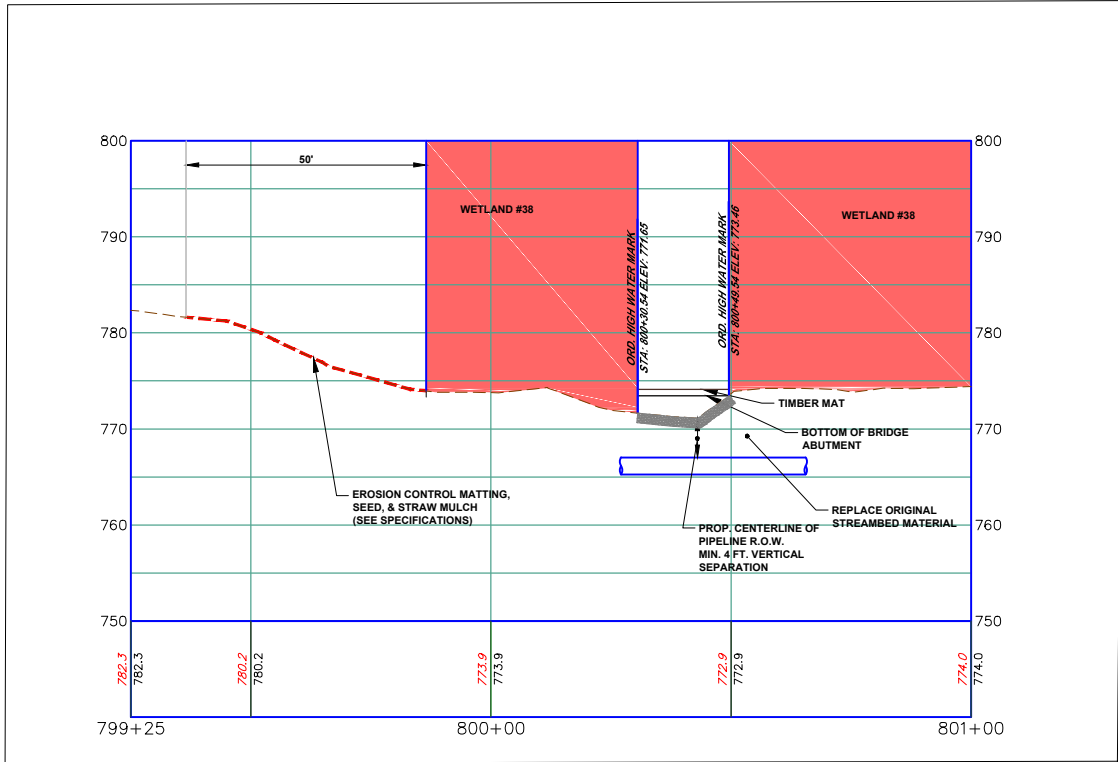


WETLAND #38 & ALEXANDER DITCH

SCALE: 1" = 50'

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
5. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:
  - a) WETLAND #38 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "C".
  - b) ALEXANDER DITCH USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "B".
6. REFER TO DETAIL SHEET 4 FOR "ULP" OR "ULP" DETAIL. UTILIZE FOR STREAM CROSSINGS.
7. ALTHOUGH A BRIDGE IS SHOWN, A TEMPORARY CULVERT CROSSING MAY BE INSTALLED. REFER TO DETAIL SHEET 1 FOR "BR" DETAIL AND FOR THE SPECIFIED SIZE AND NUMBER OF CULVERTS.
8. REFER TO DETAIL SHEET 4 FOR "ARC" DETAIL.
9. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.



ALEXANDER DITCH PROFILE

(ON 22x34 SHEET)  
HORIZONTAL  
GRAPHIC SCALE



( IN FEET )  
1 inch = 20 ft.

(ON 22x34 SHEET)  
VERTICAL  
GRAPHIC SCALE



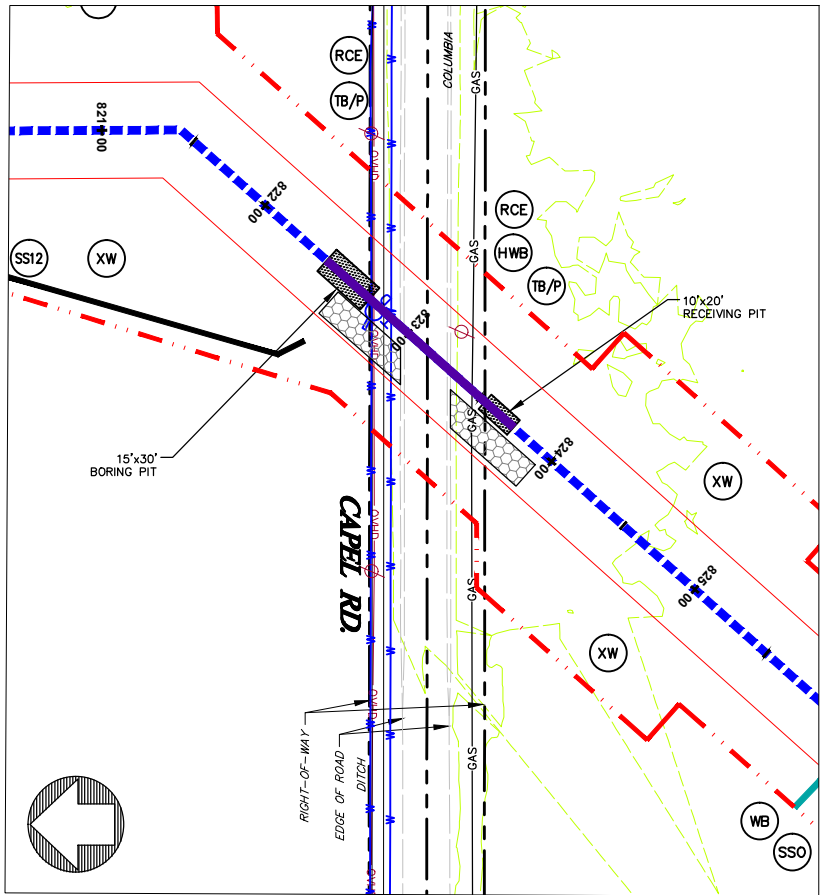
( IN FEET )  
1 inch = 10 ft.

GRAPHIC SCALE



( IN FEET )  
1 inch = 50 ft.

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CAPEL RD

SCALE: 1" = 50'

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 5 FOR "RCE" DETAIL.
3. REFER TO DETAIL SHEET 3 FOR "HWB" DETAIL. PLACE TRENCH BREAKERS ON EITHER SIDE OF THE EXISTING ROAD.
4. REFER TO DETAIL SHEET 3 FOR "STONE/DIRT TWP ROAD CROSSING DETAIL" OR "PAVED TWP ROAD CROSSING" FOR TRENCH BACKFILL AND ROAD SURFACE RESTORATION.
5. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

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- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE

LIMIT OF CONSTRUCTION AND  
LIMIT OF DISTURBANCE - 235 AC.

E&SPC SITE DETAIL

AVON LAKE GAS ADDITION PROJECT

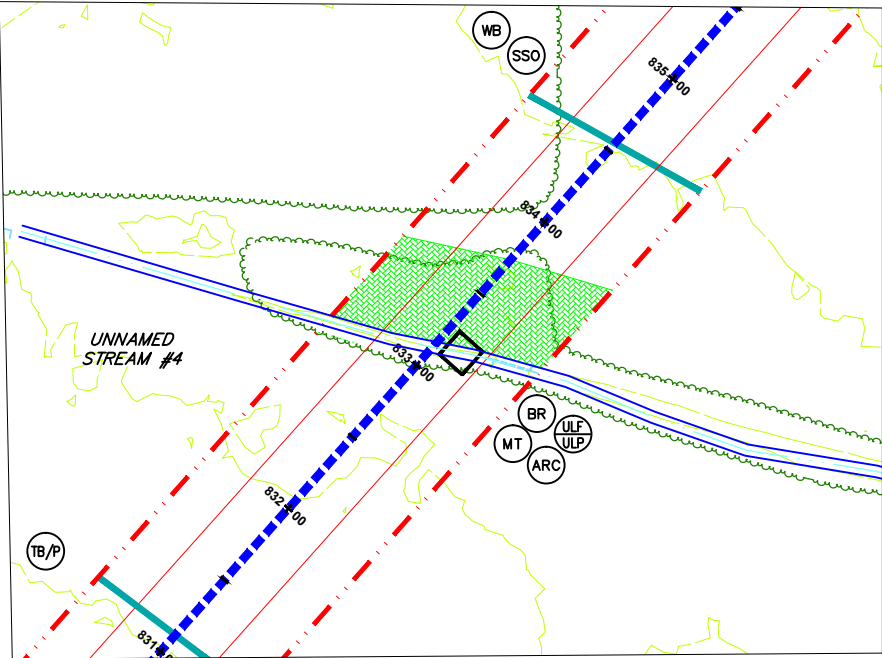
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**Hanover**  
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DRAWN BY: AEJ  
CHECKED BY: SJC  
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3355 Route 611, Suite 1  
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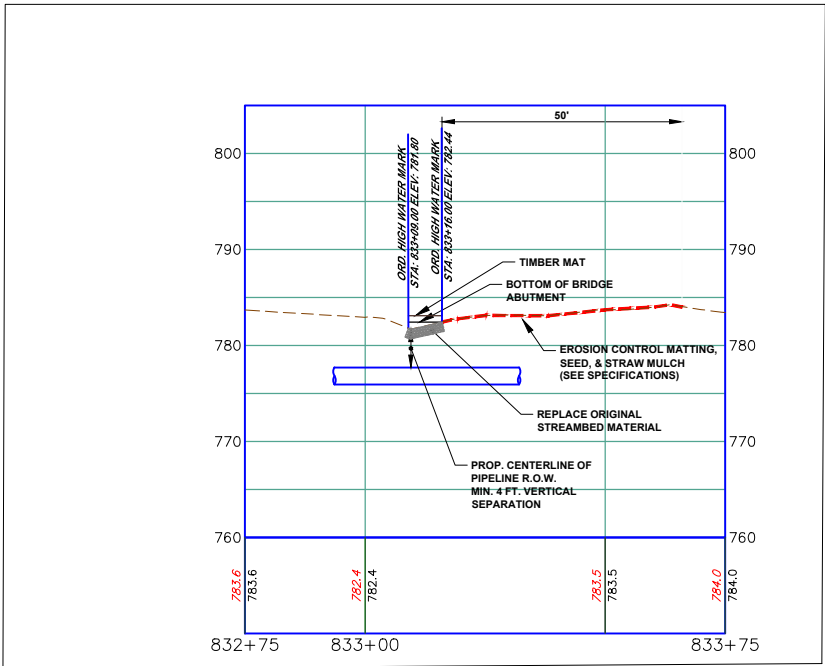




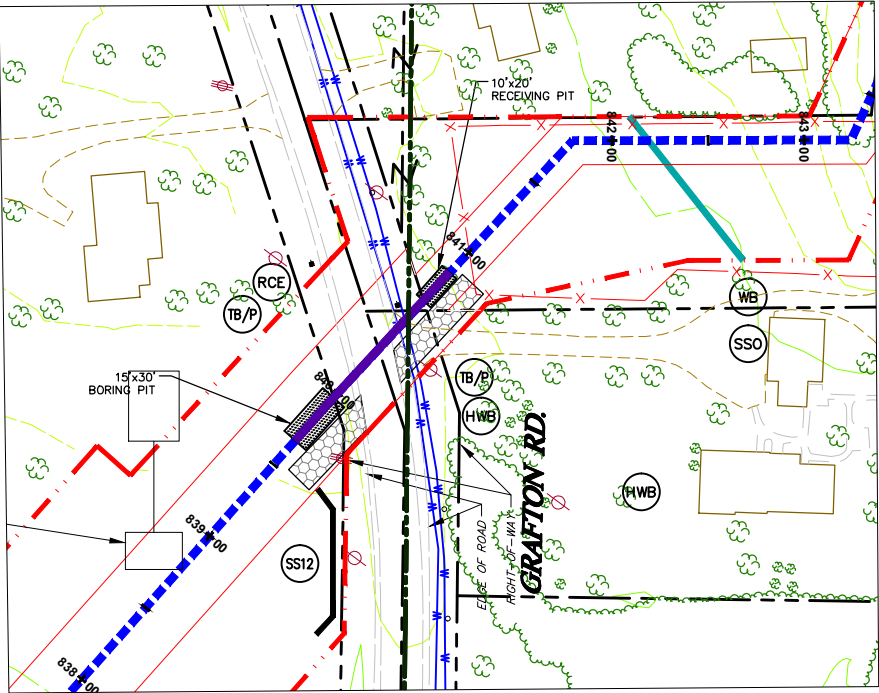
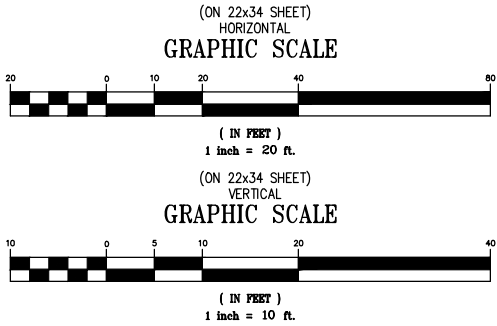
UNNAMED STREAM #4  
SCALE: 1" = 50'

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:
  - a) UNNAMED STREAM #4 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "B".
3. REFER TO DETAIL SHEET 4 FOR "ULP" OR "ULP" DETAIL. UTILIZE FOR STREAM CROSSINGS.
4. ALTHOUGH A BRIDGE IS SHOWN, A TEMPORARY CULVERT CROSSING MAY BE INSTALLED. REFER TO DETAIL SHEET 1 FOR "BR" DETAIL AND FOR THE SPECIFIED SIZE AND NUMBER OF CULVERTS.
5. REFER TO DETAIL SHEET 3 FOR "TB" DETAIL.



UNNAMED STREAM #4 PROFILE



GRAFTON RD.

SCALE: 1" = 50'

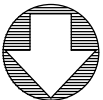
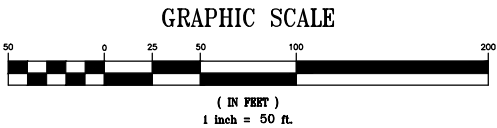
NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "HWB" DETAIL. PLACE TRENCH BREAKERS ON EITHER SIDE OF THE EXISTING ROAD.
3. REFER TO DETAIL SHEET 3 FOR "STONE/DIRT TWP ROAD CROSSING DETAIL" OR "PAVED TWP ROAD CROSSING" FOR TRENCH BACKFILL AND ROAD SURFACE RESTORATION.
4. REFER TO DETAIL SHEET 3 FOR "TB" DETAIL.

LEGEND	
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	EXTRA WORKSPACE
	LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.

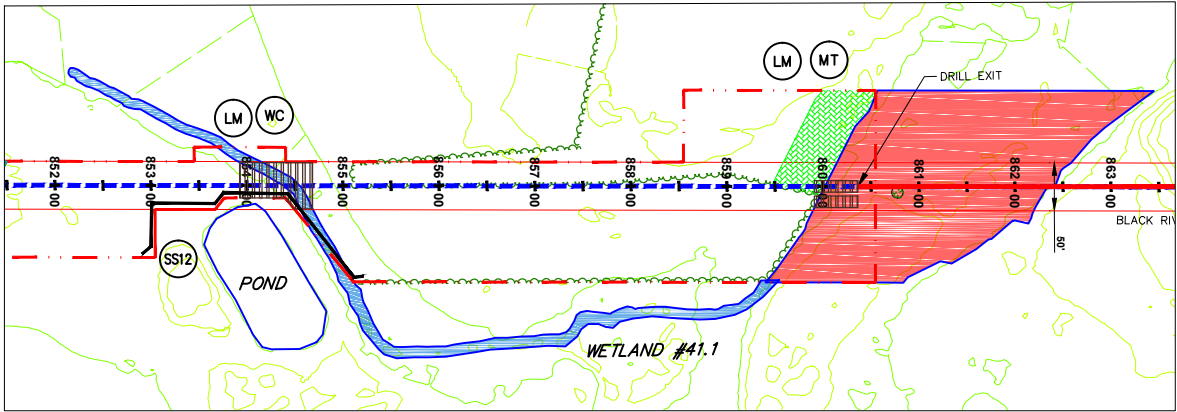
GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

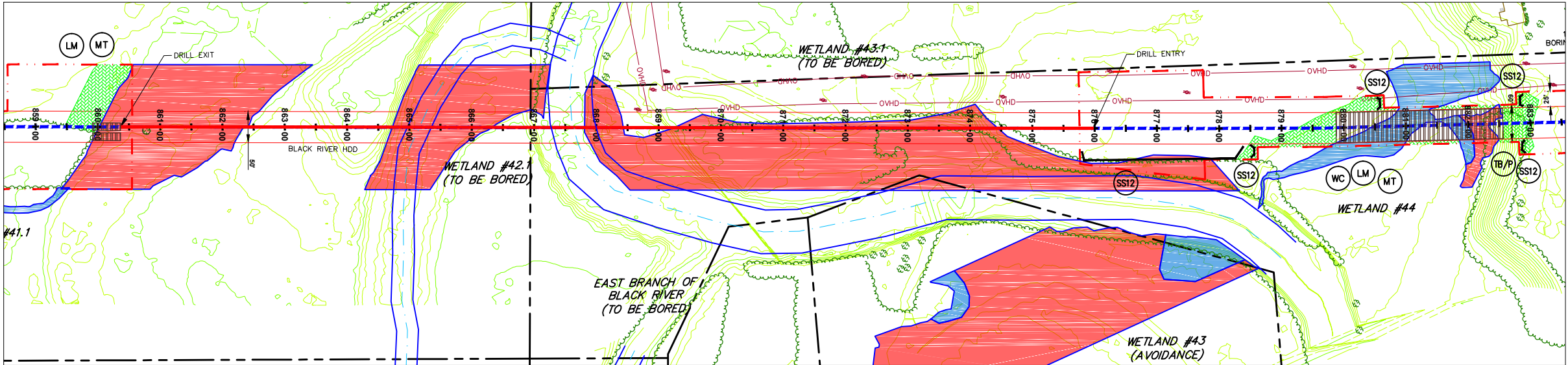


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SEAL	NO.	REVISIONS	DATE	AVON LAKE GAS ADDITION PROJECT			
				CARLISLE, EATON & LAGRANGE TOWNSHIPS AVON, AVON LAKE, ELYRIA & NORTH RIDGEVILLE CITIES LORAIN COUNTY OHIO	DRAWN BY: AEJ	PROJECT NO.	
					CHECKED BY: SJC	NRG-1007	
					DATE: 12.15.14	SHEET NO.	
					SCALE:	77 OF 88	
					AS NOTED		
				3355 Route 611, Suite 1 Bartonsville, PA 18321-7822 570.688.9550 Fax 570.688.9768			
				Hanover Engineering Associates Inc			



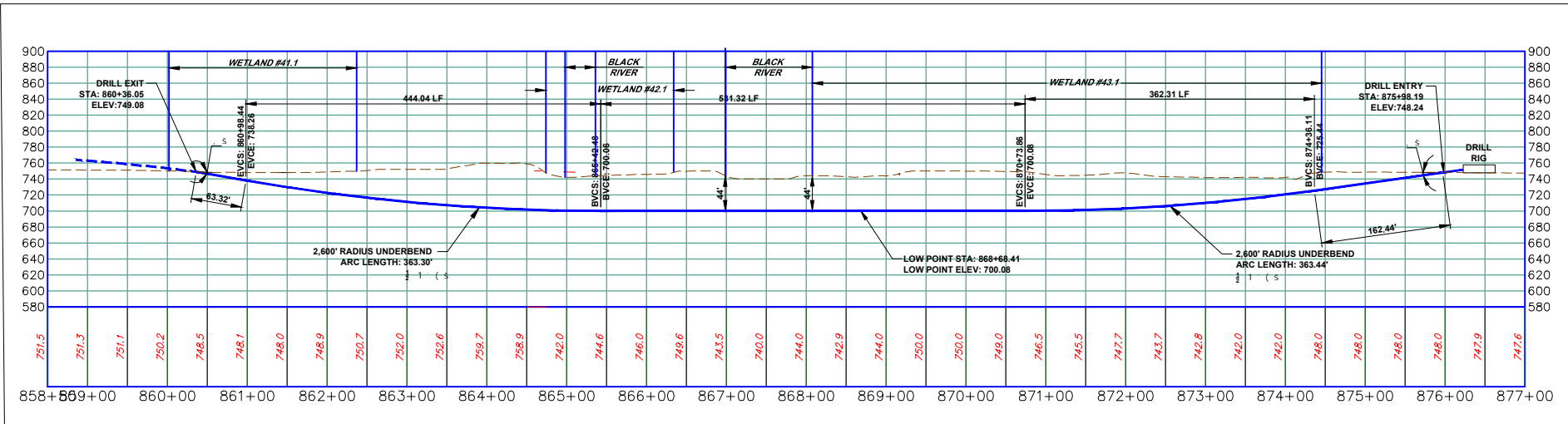
WETLAND #41.1  
SCALE: 1" = 100'



WETLAND #42.1, BLACK RIVER, WETLAND #43 (AVOIDANCE),  
WETLAND #43.1 & WETLAND #44  
SCALE: 1" = 100'

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
5. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:  
a) WETLAND #44 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "C".
6. REFER TO DETAIL SHEET 3 FOR "TB" DETAIL.



BLACK RIVER HDD

(ON 22x34 SHEET)  
HORIZONTAL & VERTICAL  
GRAPHIC SCALE  
( IN FEET )  
1 inch = 100ft



GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

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- CENTERLINE PIPELINE R.O.W.
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- PERENNIAL STREAM
- EPHEMERAL/INTERMITTENT STREAM
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- FLOODWAY
- SOIL TYPE & BOUNDARY
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- SILT/SOX OR EQUIV. 24" HEIGHT
- SILT/SOX OR EQUIV. 32" HEIGHT
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- ACCESS ROAD
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- ACCESS RD. X-ING (PAVED ROAD)
- ACCESS RD. w/CULVERT
- UTILITY LINE STREAM X-ING WITH DAM AND PUMPING OR WITH PIPE FLUME
- TRENCH BREAKER/PLUG
- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE

LIMIT OF CONSTRUCTION AND  
LIMIT OF DISTURBANCE - 235 AC.

E&SPC SITE DETAIL

AVON LAKE GAS ADDITION PROJECT

CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

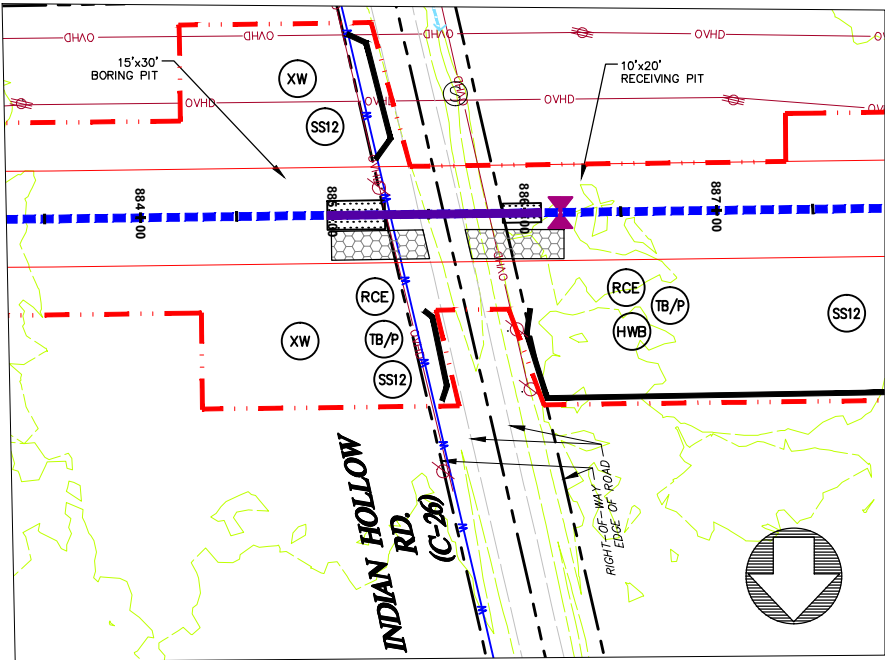
**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO. NRG-1007  
SHEET NO. 78 OF 88

3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768



Y:\Projects\Energy\NRG Energy\NRG-1007-Avon Lake Pipeline\DWG\ESPC\ESPC-NRG-1007-Avon Lake-006-SITE DETAILS-2.dwg Dec 14,2014 -- 5:28pm

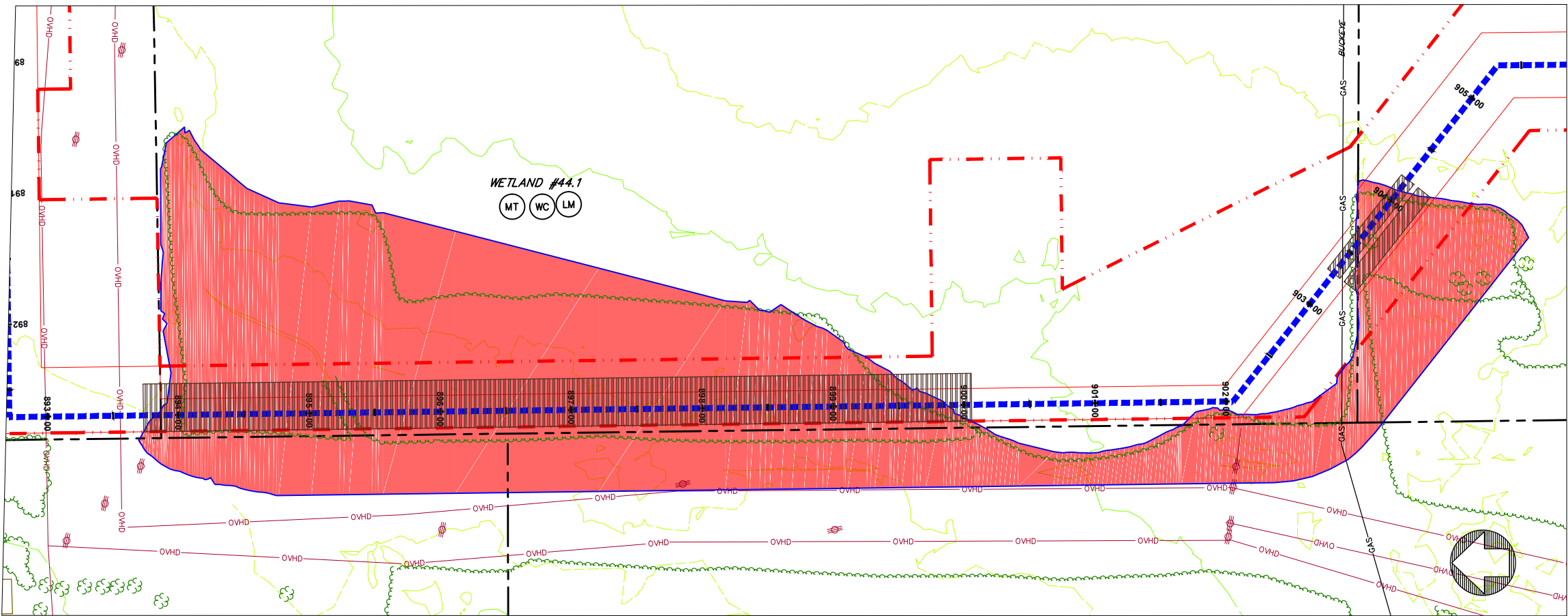


### INDIAN HOLLOW ROAD

SCALE: 1" = 50'

#### NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 5 FOR "RCE" OR "BRCE" DETAIL.
3. REFER TO DETAIL SHEET 3 FOR "HWB" DETAIL. PLACE TRENCH BREAKERS ON EITHER SIDE OF THE EXISTING ROAD.
4. REFER TO DETAIL SHEET 3 FOR "STONE/DIRT TWP ROAD CROSSING DETAIL" OR "PAVED TWP ROAD CROSSING" FOR TRENCH BACKFILL AND ROAD SURFACE RESTORATION.
5. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.



### WETLAND #44.1

SCALE: 1" = 50'

#### NOTES:

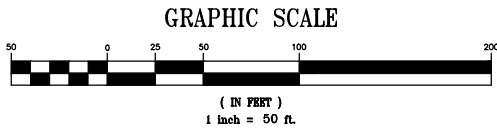
1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
4. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
5. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

### LEGEND

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HDD	
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EDGE WOODS	
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STONE WALL	
OVERHEAD/UTILITY POLE	
PERENNIAL STREAM	
EPHEMERAL/INTERMITTENT STREAM	
ORD. HIGH WATER MARK	
FLOODWAY	
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STREAMBANK RESTORATION	
TEMP. PIPE	
WATERBAR	
ROCK FILTER BERM	
BRIDGE	
WETLAND CROSSING	
SEDIMENT SILT/COXX PROTECTION AT WATER BAR	
ACCESS ROAD	
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ACCESS RD. X-ING (PAVED ROAD)	
ACCESS RD. w/CULVERT	
UTILITY LINE STREAM X-ING WITH DAM AND PUMPING OR WITH PIPE FLUME	
TRENCH BREAKER/PLUG	
LONGITUDINAL DIVERSION GRADING	
EXTRA WORKSPACE	
LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.	

#### GENERAL NOTES:

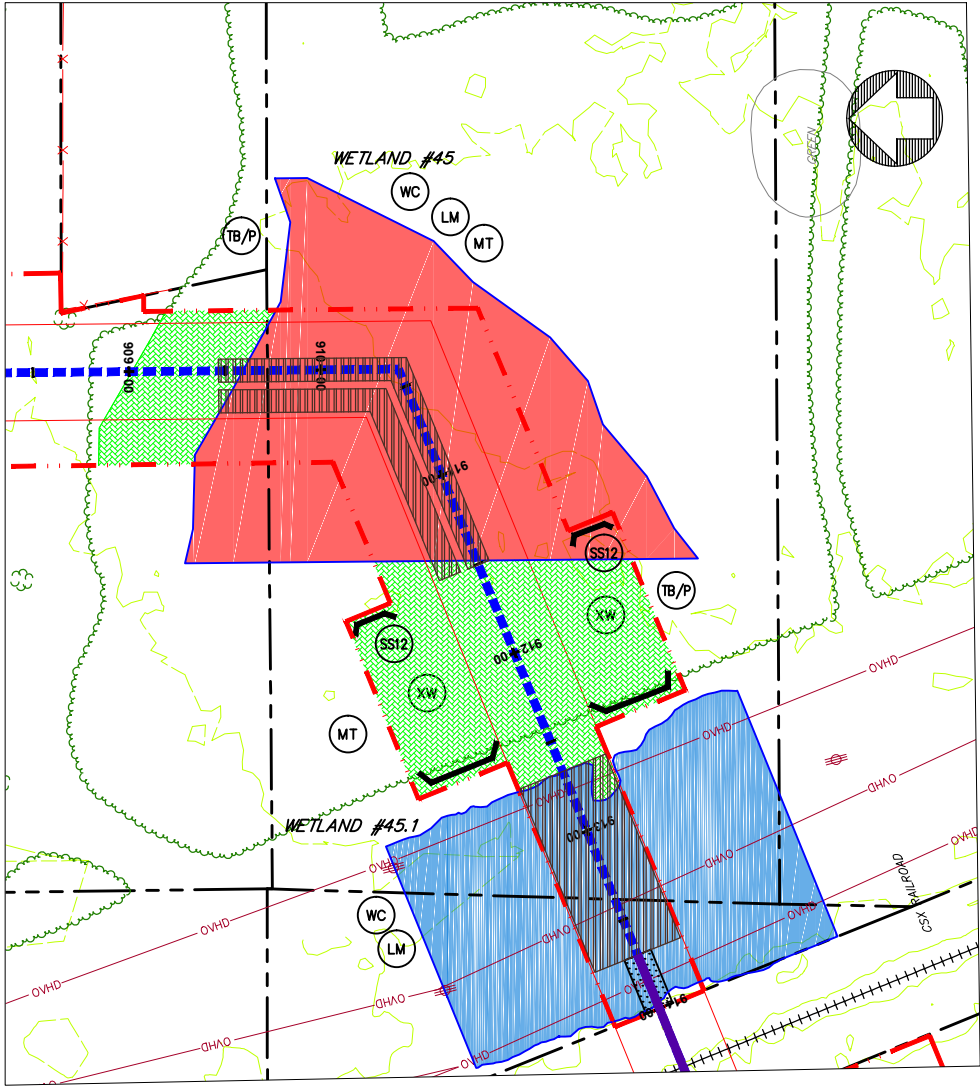
1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.



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E&SPC SITE DETAIL			
AVON LAKE GAS ADDITION PROJECT			
CARLISLE, EATON & LAGRANGE TOWNSHIPS AVON, AVON LAKE, ELYRIA & NORTH RIDGEVILLE CITIES LORAIN COUNTY OHIO	NO.	REVISIONS	DATE
<b>Hanover</b> Engineering Associates Inc	DRAWN BY:	AEJ	PROJECT NO.
	CHECKED BY:	SJC	NRG-1007
	DATE:	12.15.14	SHEET NO.
	SCALE:	AS NOTED	79 OF 88
			3355 Route 611, Suite 1 Bartonsville, PA 18321-7822 570.688.9550 Fax 570.688.9768

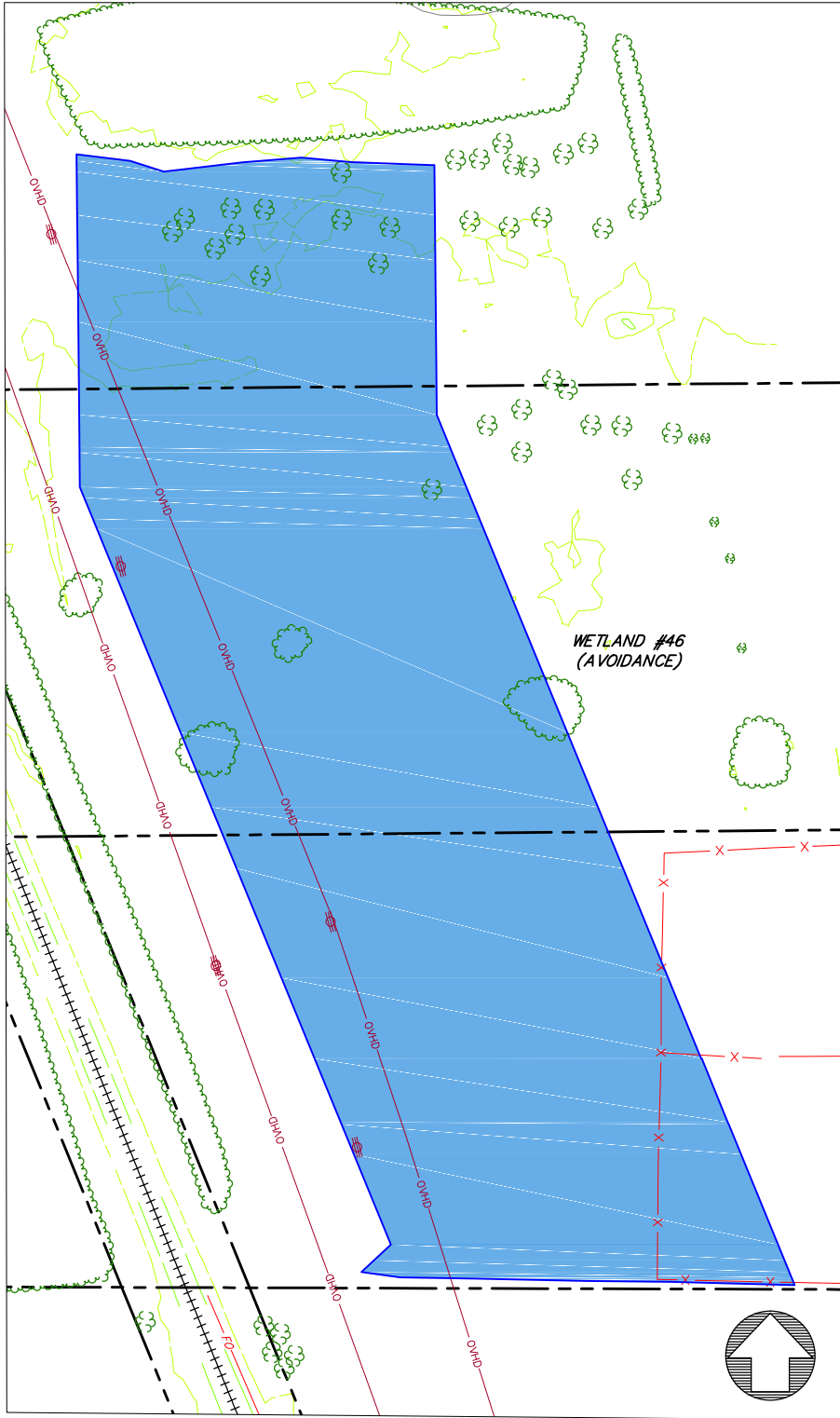
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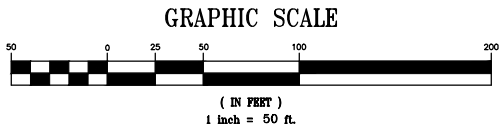
WETLAND #45 & WETLAND #45.1  
SCALE: 1" = 50'

NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
3. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
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5. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:  
a) WETLAND #45 & #45.1 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "C".
6. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.



WETLAND #46 (AVOIDANCE)  
SCALE: 1" = 50'



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	HDD
	FENCE
	EDGE WOODS
	WETLANDS
	STONE WALL
	OVERHEAD/UTILITY POLE
	FLOW
	PERENNIAL STREAM
	EPHEMERAL/INTERMITTENT STREAM
	ORD. HIGH WATER MARK
	FLOODWAY
LoB SOIL TYPE & BOUNDARY	
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	SILT/CLAY OR EQUIV. 24" HEIGHT
	SILT/CLAY OR EQUIV. 32" HEIGHT
	ROCK CONSTRUCTION ENTRANCE
	LOG MAT
	EROSION CONTROL MATTING
	STREAMBANK RESTORATION
	TEMP. PIPE
	WATERBAR
	ROCK FILTER BERM
	BRIDGE
	WETLAND CROSSING
	SEDIMENT SILT SOXX PROTECTION AT WATER BAR
	ACCESS ROAD
	HIGHWAY BORING
	HIGHWAY CUT
	ACCESS RD. X-ING (PAVED ROAD)
	ACCESS RD. w/CULVERT
	UTILITY LINE STREAM X-ING WITH DAM AND PUMPING OR WITH PIPE FLUME
	TRENCH BREAKER/PLUG
	LONGITUDINAL DIVERSION GRADING
	EXTRA WORKSPACE
LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.	

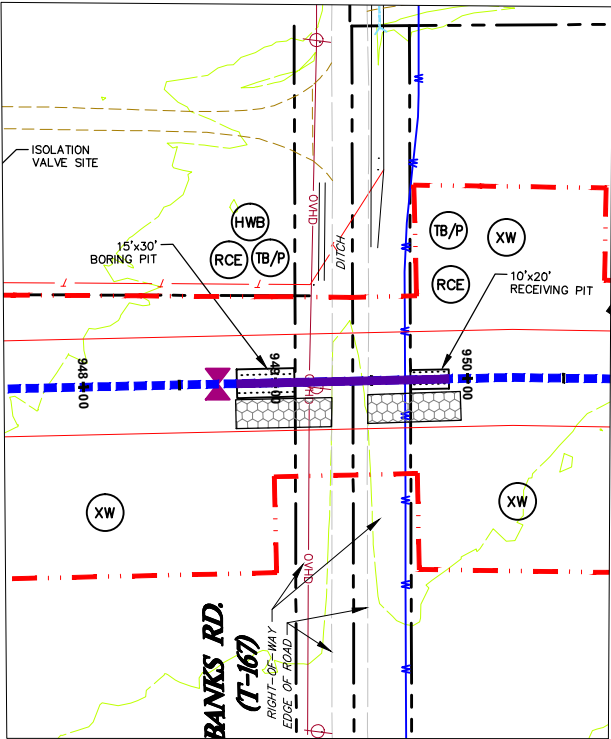
GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

E&SPC SITE DETAIL

SEAL	NO.	REVISIONS	DATE	AVON LAKE GAS ADDITION PROJECT			
				CARLISLE, EATON & LAGRANGE TOWNSHIPS AVON, AVON LAKE, ELYRIA & NORTH RIDGEVILLE CITIES LORAIN COUNTY OHIO	DRAWN BY: AEJ	PROJECT NO.	
					CHECKED BY: SJC	NRG-1007	
					DATE: 12.15.14		SHEET NO.
					SCALE: AS NOTED		80 OF 88
				<b>Hanover</b> Engineering Associates Inc	3355 Route 611, Suite 1 Bartonsville, PA 18321-7822 570.688.9550 Fax 570.688.9768		

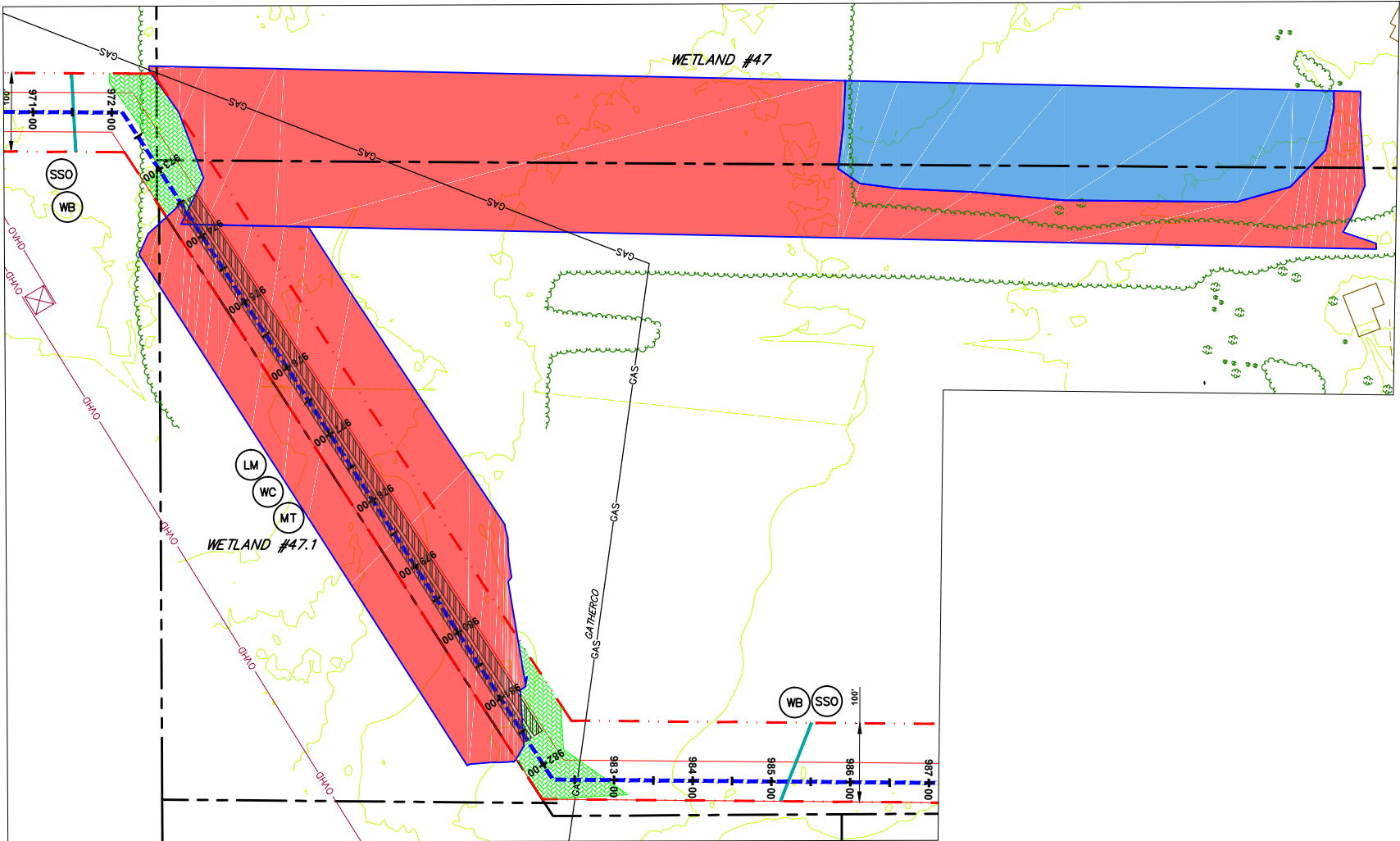




**BANKS ROAD**  
SCALE: 1" = 50'

**NOTES:**

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 5 FOR "RCE" OR "BRCE" DETAIL.
3. REFER TO DETAIL SHEET 3 FOR "HWP" DETAIL. PLACE TRENCH BREAKERS ON EITHER SIDE OF THE EXISTING ROAD.
4. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

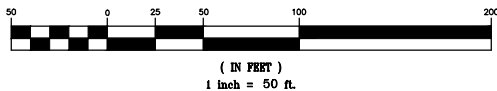


**WETLAND #47 & WETLAND #47.1**  
SCALE: 1" = 100'

**NOTES:**

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WB" DETAIL.
3. REFER TO DETAIL SHEET 3 FOR "SSO" DETAIL.
4. REFER TO DETAIL SHEET 3 FOR "WC" DETAIL.
5. PLACE SEDIMENT BARRIER/SIGNAGE AROUND PERIMETER OF WETLAND PRIOR TO ANY EARTHWORK. IF THE CONTRACTOR IS NOT SURE WHERE THE WETLAND "LIMIT" IS, HE SHALL CONTACT THE OWNER TO HAVE THE WETLAND REMARKED.
6. THE CONTRACTOR SHALL PLACE LOG MATS TO CROSS THE WETLAND AREA. ALL APPLICABLE WETLAND AREA WITHIN THE LIMITS OF CONSTRUCTION/DISTURBANCE SHALL BE COVERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES AND/OR REPAIRS REQUIRED AS A RESULT OF DAMAGE TO WETLANDS AND WATERCOURSES AT NO COST TO THE FACILITY OWNER.
7. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:
  - a) WETLAND #47 & 47.1 USE BLANKET TYPE S75 OR APPROVED EQUAL, STAPLE PATTERN "C".
8. REFER TO DETAIL SHEET 3 FOR "FB" DETAIL.

**GRAPHIC SCALE**



**GENERAL NOTES:**

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

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SEAL

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- STONE WALL
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- EPHEMERAL/INTERMITTENT STREAM
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- TRENCH BREAKER/PLUG
- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE

LIMIT OF CONSTRUCTION AND  
LIMIT OF DISTURBANCE - 235 AC.

**E&SPC SITE DETAIL**

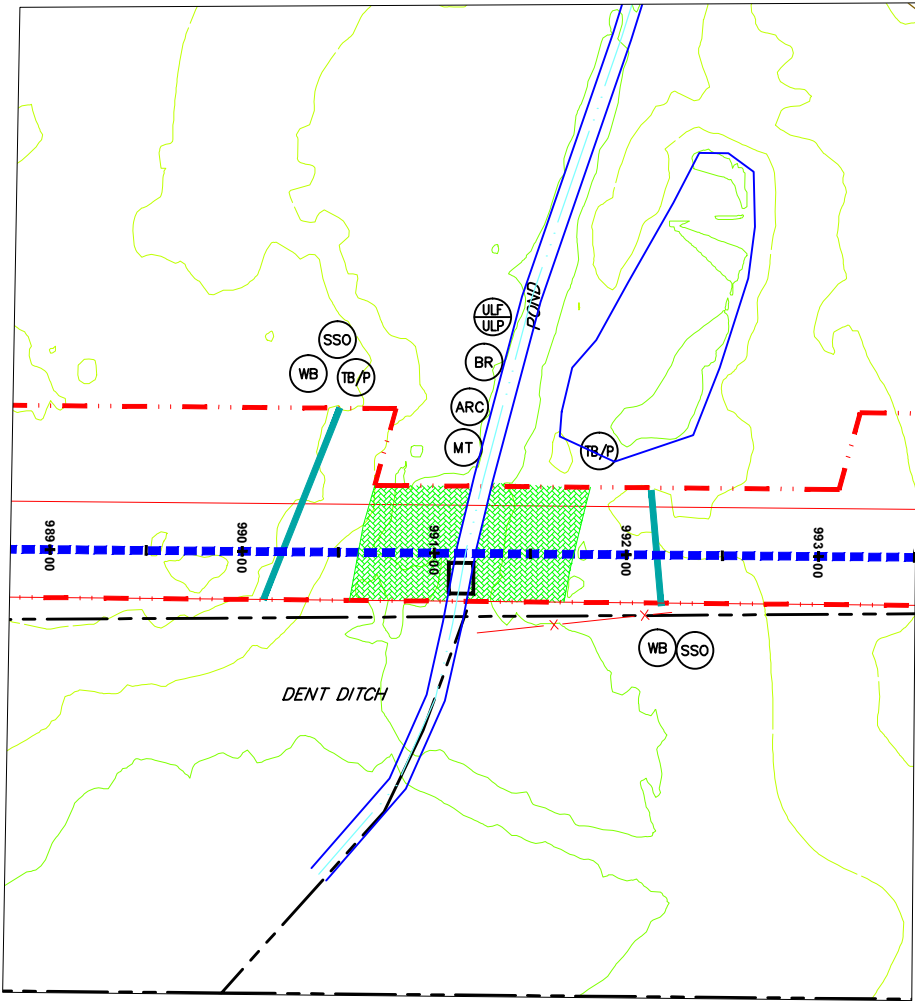
**AVON LAKE GAS ADDITION PROJECT**

CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO. NRG-1007  
SHEET NO. 81 OF 88

3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768

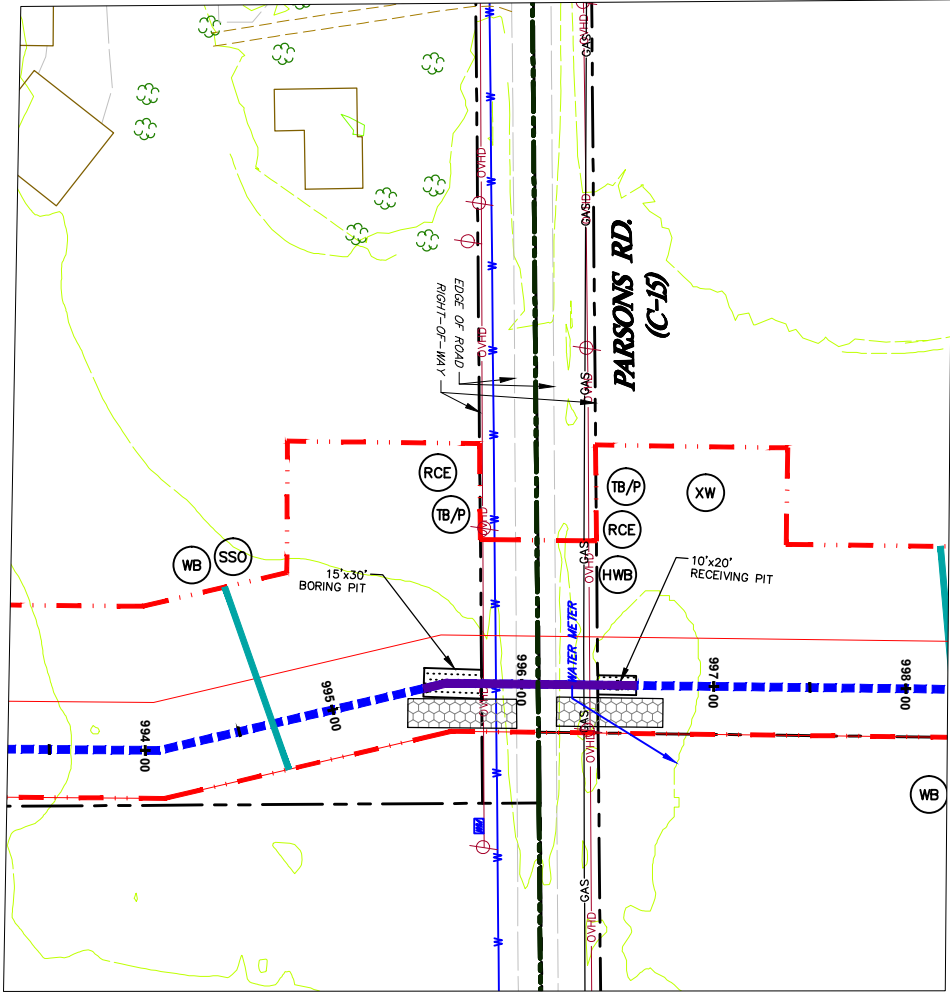


### DENT DITCH

SCALE: 1" = 50'

#### NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 3 FOR "WB" DETAIL.
3. REFER TO DETAIL SHEET 3 FOR "SSO" DETAIL.
4. REFER TO DETAIL SHEET 6 FOR "MT" DETAIL:  
a) DENT DITCH USE BLANKET TYPE S75 OR APPROVED EQUAL STAPLE PATTERN "B".
5. REFER TO DETAIL SHEET 4 FOR "ULP" OR "ULP" DETAIL. UTILIZE FOR STREAM CROSSINGS.
6. ALTHOUGH A BRIDGE IS SHOWN, A TEMPORARY CULVERT CROSSING MAY BE INSTALLED. REFER TO DETAIL SHEET 1 FOR "BR" DETAIL AND FOR THE SPECIFIED SIZE AND NUMBER OF CULVERTS.
7. REFER TO DETAIL SHEET 4 FOR "ARC" DETAIL.
8. REFER TO DETAIL SHEET 3 FOR "TB" DETAIL.

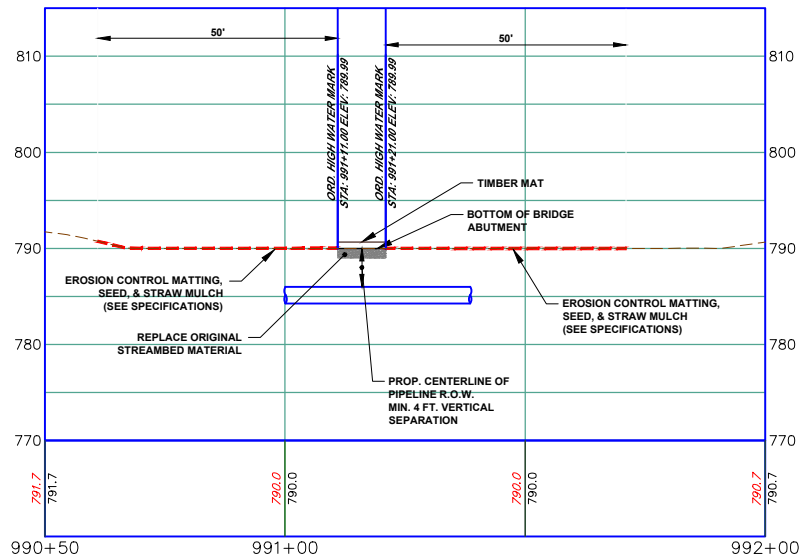


### PARSONS RD.

SCALE: 1" = 50'

#### NOTES:

1. REFER TO DETAIL SHEET 3 FOR "TB/P" DETAIL. ADDITIONAL TRENCH BREAKERS SHALL BE USED IF NEEDED.
2. REFER TO DETAIL SHEET 5 FOR "RCE" DETAIL.
3. REFER TO DETAIL SHEET 3 FOR "HWC" DETAIL. PLACE TRENCH BREAKERS ON EITHER SIDE OF THE EXISTING ROAD.
4. REFER TO DETAIL SHEET 3 FOR "STONE/DIRT TWP ROAD CROSSING DETAIL" OR "PAVED TWP ROAD CROSSING" FOR TRENCH BACKFILL AND ROAD SURFACE RESTORATION.
5. REFER TO DETAIL SHEET 3 FOR "TB" DETAIL.



### DENT DITCH PROFILE

(ON 22x34 SHEET)

HORIZONTAL

GRAPHIC SCALE



( IN FEET )

1 inch = 20 ft.

(ON 22x34 SHEET)

VERTICAL

GRAPHIC SCALE



( IN FEET )

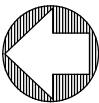
1 inch = 10 ft.

### GRAPHIC SCALE



( IN FEET )

1 inch = 50 ft.



#### GENERAL NOTES:

1. SEE DETAIL SHEET 1 FOR SCHEDULE FOR PIPES/BRIDGES.
2. STREAM BUFFER IS 25 FEET FROM THE ORDINARY HIGH WATER MARK AND WETLAND BUFFER IS 25 FT. FROM WETLAND BOUNDARY.

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- ACCESS RD. w/CULVERT
- UTILITY LINE STREAM X-ING WITH DAM AND PUMPING OR WITH PIPE FLUME
- TRENCH BREAKER/PLUG
- LONGITUDINAL DIVERSION GRADING
- EXTRA WORKSPACE
- LIMIT OF CONSTRUCTION AND LIMIT OF DISTURBANCE - 235 AC.

### E&SPC SITE DETAIL

#### AVON LAKE GAS ADDITION PROJECT

CARLISLE, EATON & LAGRANGE TOWNSHIPS  
AVON, AVON LAKE, ELYRIA &  
NORTH RIDGEVILLE CITIES  
LORAIN COUNTY  
OHIO

**Hanover**  
Engineering Associates Inc

DRAWN BY: AEJ  
CHECKED BY: SJC  
DATE: 12.15.14  
SCALE: AS NOTED  
PROJECT NO.: NRG-1007  
SHEET NO.: 82 OF 88

3355 Route 611, Suite 1  
Bartonsville, PA 18321-7822  
570.688.9550  
Fax 570.688.9768

SEAL



Instructions For Staging Of Earthmoving Activities:

CONSTRUCTION MUST BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE. THIS SCHEDULE IS DESIGNED TO MINIMIZE SOIL EROSION AND SEDIMENTATION. THE CONTRACTOR MAY DEViate SLIGHTLY FROM THE STAGING OF PERMANENT SITE IMPROVEMENTS, BUT NO DEVIATION FROM THE RELATIVE ORDER OF EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE ALLOWED.

FACILITIES TO CONTROL THE TRANSPORT OF SOIL MATERIAL FROM THE CONSTRUCTION AREA SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBANCE OR PAVEMENT REMOVAL.

NOTE: THE STAGING OF EARTHMOVING ACTIVITIES FOR THIS PROJECT IS A GENERAL DESCRIPTION OF THE WORK REQUIRED. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH COMPANY STANDARDS, THE OHIO DEPARTMENT OF ENVIRONMENTAL PROTECTION REGULATIONS, AND ALL OTHER APPLICABLE FEDERAL, STATE OR LOCAL REQUIREMENTS.

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. CONSTRUCTION MAY START AT MULTIPLE POINTS. THE CONTRACTOR SHALL PLACE ALL BMPs FOR THAT SECTION OR AREA PRIOR TO THE START OF CONSTRUCTION.

AT LEAST SEVEN (7) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE COMPANY SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, ALL APPROPRIATE MUNICIPAL, STATE & FEDERAL OFFICIALS, THE LOCAL COUNTY CONSERVATION DISTRICT, AND THE EROSION AND SEDIMENTATION CONTROL PLAN PREPARER TO AN ON-SITE PRECONSTRUCTION MEETING. THE MAIN LINE CONTRACTOR SHALL HAVE PRESENT THE SUPERVISORY PERSON RESPONSIBLE FOR THE GENERAL CONSTRUCTION AND SUPERVISORY PERSON RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF BMPs FOR THE PROJECT. THE COMPANY SHALL HAVE PRESENT AT LEAST ONE COMPANY PERSON WHO HAS ENFORCEMENT AUTHORITY TO ASSURE THAT THE CONTRACTOR COMPLIES WITH THE DESIGNED BMPs. THE COMPANY SHOULD ALSO HAVE AT LEAST ONE OF THE COMPANY'S INSPECTION PERSONNEL (WITH STOP WORK AUTHORITY) WHO WILL BE ON SITE TO ASSURE THAT THE CONTRACTOR COMPLIES WITH THE DESIGNED BMPs AND IS QUALIFIED TO DIRECT THE INSTALLATION OF ADDITIONAL BMPs AS NECESSARY, BEFORE IMPLEMENTING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E & S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE COUNTY CONSERVATION DISTRICT.

AT LEAST THREE (3) DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE ONE CALL SYSTEM INCORPORATED AT 1-800-362-2764 FOR BURIED UTILITIES LOCATION.

BEFORE IMPLEMENTING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE APPROPRIATE CONSERVATION DISTRICT.

THE CONTRACTOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH OHIO EPA'S SOLID WASTE MANAGEMENT REGULATIONS AT OAC CHAPTER 3745. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE. BEFORE DISPOSING OF SOIL OR RECEIVING BORROW FOR THE SITE, THE CONTRACTOR MUST ASSURE THAT EACH SOIL OR BORROW AREA HAS AN EROSION AND SEDIMENTATION CONTROL PLAN APPROVED BY OHIO EPA, AND WHICH IS BEING IMPLEMENTED AND MAINTAINED ACCORDING TO THEIR REGULATIONS.

THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN INCLUDING THE SOIL EROSION CONTROL DRAWINGS AND NARRATIVE SHALL BE AVAILABLE ON SITE AT ALL TIMES DURING EARTH DISTURBANCE.

SEQUENCE OF BMP INSTALLATION AND REMOVAL DURING PIPELINE CONSTRUCTION

1. STAKE/FLAG DISTURBED RIGHT-OF-WAY EXTENTS, CLEARLY IDENTIFYING WETLAND AND STREAM EDGES AND BUFFERS. INSTALL SIGNS OR OTHER MEANS TO IDENTIFY IMPORTANT PROJECT ATTRIBUTES SUCH AS APPROVED ACCESS ROADS, NO REFUELING ZONES, WETLAND/STREAM BOUNDS, ETC.
2. SCHEDULE A PRECONSTRUCTION CONFERENCE AS DESCRIBED ABOVE AND PROVIDE AT LEAST THREE (3) WORKING DAYS, SEVENTY-TWO (72) HOURS NOTICE TO THE OHIO EPA PRIOR TO COMMENCEMENT OF SITE GRADING WORK.  
NOTE: IT IS INTENDED THAT THE PIPELINE PROJECT WILL BEGIN AT ONE END AND PROGRESS IN AN ORDERLY FASHION TO THE OTHER END. IT IS ALSO INTENDED THAT DISTURBED SOILS WILL BE RESTORED TO THEIR VEGETATED STATE AS SOON AS IS PRACTICAL WITH PERMANENT BMPs PROPERLY INSTALLED AND MAINTAINED. DUE TO THE NATURE OF THE TERRAIN AND OTHER FACTORS, DEVIATION FROM THE SEQUENTIAL PROGRESS OF THE PROJECT FROM ONE END TO THE OTHER WILL BE ALLOWED WITH PERMISSION FROM THE COMPANY, BUT THE SEQUENCE OF BMP INSTALLATION RELATED TO SOIL DISTURBANCE, ESPECIALLY STREAM AND WETLAND CROSSINGS, IS AN ABSOLUTE.
3. PRIOR TO ACCESSING THE RIGHT-OF-WAY FROM A PUBLIC ROAD, INSTALL THE REQUIRED BMPs PER THE SPECIFIC DETAIL DESIGN. THE PRIORITY IS TYPICALLY TO FIRST BE SILT FENCE, FILTER SOXX, STRAW BAILS, ETC., THEN CULVERTS IF REQUIRED, FOLLOWED BY ROCK PADS AND THEN ALL OTHER BMPs AS DESIGNED.
4. FOR RIGHT-OF-WAY IN UPLAND AREAS, THE RIGHT-OF-WAY IS FIRST TO MOWED/BRUSH HOGGED/HYDRO-AXED; TREES CUT; BRUSH, LIMBS, AND TREES UNDER 6 INCHES CHIPPED, WITH CHIPS BROADCAST OFF RIGHT-OF-WAY (PROVIDED ON SAME PROPERTY COVERED BY F.O.W. OPTION) AND LOGS STACKED IN DESIGNATED AREAS.
5. AS STREAMS OR WETLANDS ARE ENCOUNTERED DURING CLEARING, INSTALL TEMPORARY OR PERMANENT BMPs PER DETAILED DESIGN. TEMPORARY BMPs ARE TO INCLUDE SILT FENCE OR EQUIVALENT ACROSS ENTIRE RIGHT-OF-WAY ON BOTH SIDES UNTIL PERMANENT BMPs ARE INSTALLED. CLEARING EQUIPMENT IS NOT TO CROSS ANY STREAM OR WETLAND EXCEPT ON TIMBER MATS.
6. IN ACTIVE AGRICULTURAL AREAS, CROPS ARE TO BE BRUSH HOGGED IF NECESSARY AND THE TOPSOIL STRIPPED PRIOR TO ANY VEHICULAR TRAVEL ON THE RIGHT-OF-WAY. ALL TOPSOIL THAT IS STRIPPED IS TO BE PLACED ON ONE SIDE OF THE RIGHT-OF-WAY IN THE DESIGNATED AREA ON TOP OF UNDISTURBED TOPSOIL. FOR RIGHT-OF-WAY WHICH SPECIFIC BMPs SUCH AS UPOLE DIVERSION DITCHES, SILT FENCE, ETC. IS DESIGNED, THOSE BMPs ARE TO BE INSTALLED PRIOR TO STRIPPING.
7. PRIOR TO GRADING OR OTHER EARTH DISTURBANCE ON THE RIGHT-OF-WAY, PERMANENT DOWN SLOPE BMPs ARE TO BE INSTALLED. SPECIFICALLY, AS GRADING APPROACHES STREAM OR WETLAND CROSSINGS, NO EARTH DISTURBANCE IS TO OCCUR WITHIN 50 FEET OF THE STREAM OR WETLAND WITH DESIGNED BMPs INSTALLED AT THAT PARTICULAR CROSSING.
8. AT THE END OF EACH WORK DAY WHERE THE RIGHT-OF-WAY HAS BEEN GRADED INCLUDING ANY STRIPPING, STUMPING, LEVELING, TWO-TONE ON SIDE SLOPES, ETC., BMPs ARE TO BE INSTALLED. IN NO CASE IS THE CONTRACTOR TO LEAVE THE JOB SITE AT THE END OF THE WORK DAY WITHOUT TEMPORARY OR PERMANENT BMPs (SPECIFICALLY WATER BARS) BEING INSTALLED. THE CONTRACTOR IS NOT REQUIRED TO MAINTAIN WATER BARS DURING THE WORK DAY UNLESS THE ENVIRONMENTAL INSPECTOR DETERMINES THAT THERE IS A RISK OF A RAIN EVENT THAT WARRANTS THEIR INSTALLATION/MAINTENANCE.
9. AS CROSSINGS ARE CONSTRUCTED, THE DETAIL DESIGN IS TO BE FOLLOWED PAYING PARTICULAR ATTENTION TO THE SPECIFIC NOTES SECTION OF THE DRAWING.
10. ONCE ALL REQUIRED BMPs ARE IN PLACE ON THE DISTURBED RIGHT-OF-WAY, DITCHING, STRINGING, BENDING OPERATIONS, WELDING, ETC. CAN BEGIN. ONCE THE PIPE IS LOWERED INTO THE TRENCH, TRENCH BREAKERS ARE TO BE INSTALLED PER THE STANDARD SPACING SPECIFICATION. NOTE THAT THE DETAILED CROSSING DESIGNS REQUIRE SPECIFIC LOCATIONS OF TRENCH BREAKERS.
11. IT IS DESIGNED THAT THE AMOUNT AND DURATION OF OPEN TRENCH BE MINIMIZED DURING THE PROJECT. IN GENERAL, NO TRENCH SHALL BE OPEN AT ONE TIME FOR MORE THAN 30 DAYS EXCEPT FOR TIE IN LOCATIONS WITHOUT THE APPROVAL OF THE COMPANY.
12. ALL AREAS OF OPEN TRENCH MUST HAVE INSTALLED TRENCH BREAKERS/TRENCH PLUGS AS LISTED IN TRENCH BREAKERS/TRENCH PLUGS DETAIL ON DETAIL SHEET 3.
13. IF TOPSOIL PILES ARE EXPOSED FOR GREATER THAN 2 DAYS, THEY SHALL BE SEEDED IN ACCORDANCE WITH DETAILS PROVIDED HEREIN. WHERE CESSATION OF EARTH DISTURBANCE ACTIVITY WILL EXCEED TWO (2) DAYS, THE SITE SHALL IMMEDIATELY SEEDED, MULCHED OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION.
14. PRIOR TO ANY PERMANENT SEEDING, LIME, AND FERTILIZING APPLICATION, A SOIL TEST SHALL BE PERFORMED TO DETERMINE THE PH FACTOR.
15. LIME, FERTILIZE, SEED, AND MULCH THE DISTURBED AREAS PER THE COMPANY SPECIFICATIONS. IN AREAS OF STEEP SLOPES OR OBVIOUS AREAS WHERE POTENTIAL EROSION MAY OCCUR, AND EROSION CONTROL MAT OR FLEXIBLE GROWTH MEDIUM (FGM) SHALL BE USED. FGM SHALL BE APPLIED PER THE MANUFACTURER'S SPECIFICATIONS.
16. ONCE A SECTION OF THE PIPELINE HAS BEEN STABILIZED, NO CONSTRUCTION TRAFFIC SHALL OCCUR TO REMOVE ANY BMPs UNTIL THE SECTION HAS ACHIEVED 85% PERENNIAL VEGETATIVE COVER. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 80% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NONVEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING OR OTHER MOVEMENTS.

PERMANENT STABILIZATION - ALTERNATE FINAL RESTORATION NOTE

- A. LIMITING EXPOSED AREAS - "EARTH DISTURBANCE ACTIVITIES SHALL BE PLANNED AND CONDUCTED TO MINIMIZE THE EXTENT AND DURATION OF THE DISTURBANCE."

THE LENGTH OF TIME FOR CONSTRUCTING ACCESS ROADS, UTILITY LINE TRENCHING, TRENCH BACK-FILLING, FINAL GRADING, AND CLEANUP SHOULD BE KEPT TO A MINIMUM. GOOD PLANNING AND SCHEDULING OF THE VARIOUS UTILITY CONSTRUCTION ITEMS, TOGETHER WITH TIMELY AVAILABILITY OF MATERIALS, ADEQUATE EQUIPMENT, AND ADEQUATE MANPOWER, WILL HELP REDUCE THE TIME OF EXPOSURE OF DISTURBED LAND.

LARGE DIAMETER STEEL PIPELINES WITH WELDED JOINTS WHERE THE PIPE JOINTS ARE WELDED WHILE THE PIPE IS OUT OF THE TRENCH USUALLY REQUIRE A FAIRLY LONG LENGTH OF OPEN PIPELINE TRENCH. THE TOTAL TIME FROM TRENCH EXCAVATION TO PLACEMENT OF BACKFILL FOR THIS TYPE OF PIPELINE CONSTRUCTION SHOULD GENERALLY BE LIMITED TO NO MORE THAN THIRTY (30) CALENDAR DAYS AT ANY GIVEN POINT ALONG THE PIPELINE. THIS MEANS THAT, FOR EXAMPLE, THAT FROM THE TIME THAT TRENCH EXCAVATION ACTIVITIES COMMENCE AT STATION 1+00 UNTIL THE TRENCH IS BACKFILLED AT STATION 1+00, NO MORE THAN THIRTY (30) CALENDAR DAYS SHOULD EXPIRE. AT ANY GIVEN PLACE ALONG THE PIPELINE TRENCH WHERE THE TIME TO EXCAVATE AND BACKFILL THE TRENCH WILL EXCEED THIRTY (30) CALENDAR DAYS, OR THE TIME SPECIFIED IN THE PERMIT, THE CONTRACTOR SHALL CONTACT THE COMPANY TO DETERMINE IF THE ADDITIONAL TIME CAN BE APPROVED UNDER A MINOR MODIFICATION. WHERE EARTH DISTURBANCE ACTIVITY IS NOT COMPLETED IN AN AREA WHERE THE TRENCH HAS BEEN BACKFILLED, BMPs SHOULD BE MAINTAINED AND TEMPORARY STABILIZATION PROVIDED AS REQUIRED ACCORDING TO §102.22(B). WHERE DISTURBANCE ACTIVITIES HAVE BEEN COMPLETED, PERMANENT STABILIZATION SHALL BE PROVIDED AS REQUIRED UNDER §102.22(A).

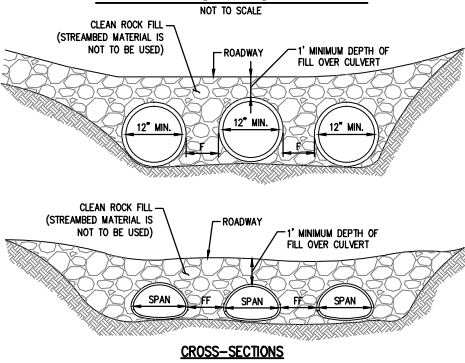
NO SOIL IS TO BE HAULED OFF SITE WITHOUT A SEPARATE EROSION AND SEDIMENTATION CONTROL PLAN REVIEWED FOR ADEQUACY BY THE OHIO EPA OR THE LOCAL COUNTY CONSERVATION DISTRICT AS APPROPRIATE.

INSPECTION - ALL BMPs SHOULD BE INSPECTED AFTER EACH MEASURABLE RAINFALL RUNOFF EVENT AND ON A WEEKLY BASIS. ANY NECESSARY REPAIRS MUST BE MADE IMMEDIATELY TO ENSURE EFFECTIVE AND EFFICIENT OPERATION.

General Notes:

1. BMPs SHOWN MAY NEED TO BE FIELD ADJUSTED TO FIT ACTUAL CONDITIONS. IN SOME CASES, THE NEXT LARGER BMP MAY BE NEEDED DUE TO UNFORESEEN CONDITIONS. ADDITIONAL BMPs MAY BE REQUIRED OTHER THAN THOSE SHOWN. THE CONTRACTOR SHALL TAKE WHATEVER MEASURES NECESSARY TO PREVENT SILT FROM LEAVING THE SITE.
2. ALL PIPES/BRIDGES ARE FOR CONSTRUCTION ONLY AND THE SITE OF SAID PIPES/BRIDGES SHALL BE RESTORED TO ORIGINAL TOPOGRAPHY AND STABILIZED WITHIN FIVE (5) DAYS AFTER TERMINATION OF ITS INTENDED USE OR AT THE END OF THE ONE (1) YEAR PERIOD, WHICHEVER OCCURS FIRST.

Temporary Stream Crossing With Multiple Pipes Detail



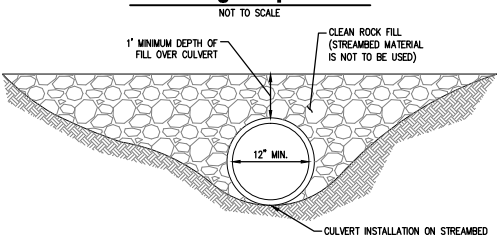
CROSS-SECTIONS

- NOTES:
1. MULTIPLE PIPES AND MULTIPLE SPAN BRIDGES AND CULVERTS WHICH MAY TEND TO COLLECT DEBRIS, CONTRIBUTE TO THE FORMATION OF ICE JAMS AND INCREASE HEAD LOSSES SHALL BE AVOIDED TO THE MAXIMUM EXTENT PRACTICABLE. CROSSINGS OF LESS THAN 15 FEET SHALL BE BY ONE SPAN, EXCEPT WHERE CONDITIONS MAKE IT IMPRACTICAL TO AFFECT THE CROSSING WITHOUT MULTIPLE SPANS.
  2. PROVIDE 50' STABILIZED ACCESS TO CROSSING ON BOTH SIDES OF STREAM CHANNEL. PIPES SHALL EXTEND BEYOND THE TOE OF THE ROADWAY.
  3. RUNOFF FROM THE ROADWAY SHALL BE DIVERTED OFF THE ROADWAY AND INTO A SEDIMENT REMOVAL BMP BEFORE IT REACHES THE ROCK APPROACH TO THE CROSSING.

MAINTENANCE

1. TEMPORARY STREAM CROSSINGS SHALL BE INSPECTED ON A DAILY BASIS.
2. DAMAGED CROSSINGS SHALL BE REPAIRED WITHIN 24 HOURS OF THE INSPECTION AND BEFORE ANY SUBSEQUENT USE.
3. SEDIMENT DEPOSITS ON THE CROSSING OR ITS APPROACHES SHALL BE REMOVED WITHIN 24 HOURS OF THE INSPECTION.
4. AS SOON AS THE TEMPORARY CROSSING IS NO LONGER NEEDED, IT SHALL BE REMOVED. ALL MATERIALS SHALL BE DISPOSED OF PROPERLY AND DISTURBED AREAS STABILIZED.

Temporary Stream Crossing With Single Pipe Detail



CROSS-SECTION VIEW

NOTES:

1. PROVIDE 50' STABILIZED ACCESS TO CROSSING ON BOTH SIDES OF STREAM CHANNEL.
2. PIPES SHALL EXTEND BEYOND THE TOE OF THE ROADWAY.
3. RUNOFF FROM THE ROADWAY SHALL BE DIVERTED OFF THE ROADWAY AND INTO A SEDIMENT REMOVAL BMP BEFORE IT REACHES THE ROCK APPROACH TO THE CROSSING.

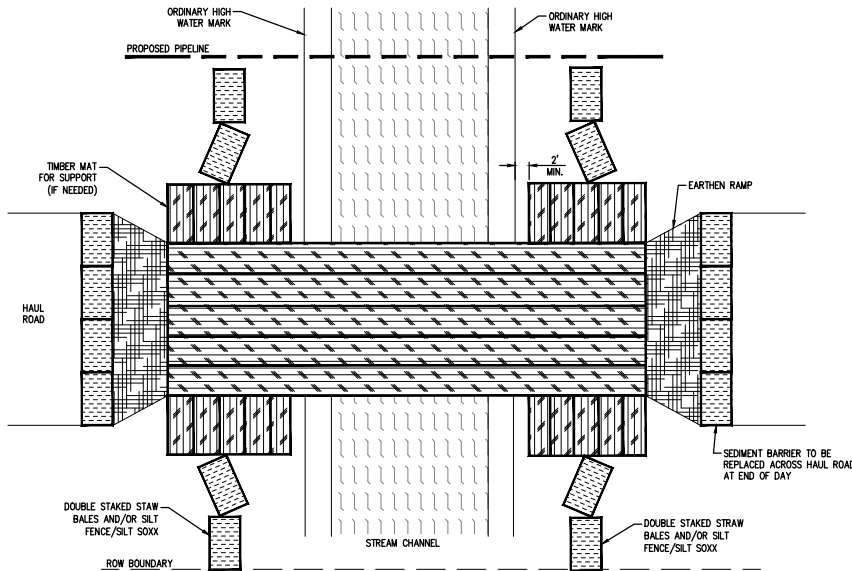
MAINTENANCE:

1. TEMPORARY STREAM CROSSINGS SHALL BE INSPECTED ON A DAILY BASIS.
2. DAMAGED CROSSINGS SHALL BE REPAIRED WITHIN 24 HOURS OF THE INSPECTION AND BEFORE ANY SUBSEQUENT USE.
3. SEDIMENT DEPOSITS ON THE CROSSING OR ITS APPROACHES SHALL BE REMOVED WITHIN 24 HOURS OF THE INSPECTION.
4. AS SOON AS THE TEMPORARY CROSSING IS NO LONGER NEEDED, IT SHALL BE REMOVED. ALL MATERIALS SHALL BE DISPOSED OF PROPERLY AND DISTURBED AREAS STABILIZED.

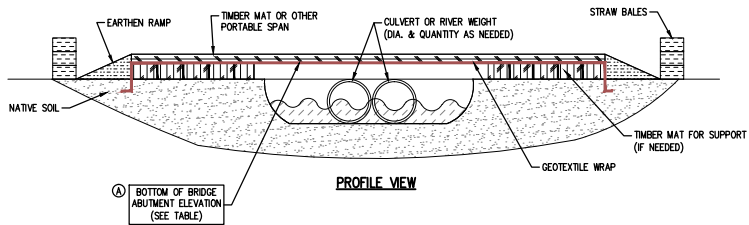
Timber Mat Bridge Detail

NOT TO SCALE

BR



PLAN VIEW



PROFILE VIEW

NOTES:

1. STRAW BALES TO BE PLACED ACROSS BRIDGE ENTRANCE EVERY NIGHT.
2. THE CONTRACTOR HAS THE OPTION TO INSTALL PIPES OR BRIDGE TO CROSS STREAM. IF USING BRIDGE, CULVERTS MAY BE USED TO STABILIZE BRIDGE. THE QUANTITY AND DIAMETER OF CULVERTS SHALL BE AS NEEDED TO STABILIZE THE BRIDGE AND TO MEET THE MINIMUM BRIDGE ELEVATION SHOWN IN TABLE BELOW. IF USING PIPES, THE DIAMETER AND QUANTITY OF PIPES SHALL BE AS SHOWN IN TABLE BELOW.
3. CONTRACTOR HAS THE OPTION TO CHOOSE BETWEEN PUMPING OR FLUMING STREAM FLOW FOR TRENCH CROSSING.

GENERAL NOTES:	
1.	ALL BMPs SHALL BE INSPECTED AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ANY NECESSARY REPAIRS MUST BE MADE IMMEDIATELY TO ENSURE EFFECTIVE AND EFFICIENT OPERATION.
2.	BMPs SHOWN MAY NEED TO BE FIELD ADJUSTED TO FIT ACTUAL CONDITIONS.
3.	IN SOME CASES, THE NEXT LARGER BMP MAY BE NEEDED DUE TO UNFORESEEN CONDITIONS.
4.	ADDITIONAL BMPs MAY BE REQUIRED OTHER THAN THOSE SHOWN.
5.	THE CONTRACTOR SHALL TAKE WHATEVER MEASURES NECESSARY TO PREVENT SEDIMENT FROM LEAVING THE SITE.

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SEAL

E&SPC TYPICAL DETAIL SHEET 1

NO.		REVISIONS	DATE	AVON LAKE GAS ADDITION PROJECT			
				CARLISLE, EATON & LAGRANGE TOWNSHIPS AVON, AVON LAKE, ELYRIA & NORTH RIDGEVILLE CITIES LORAIN COUNTY OHIO		PROJECT NO. NRG-1007 SHEET NO. 83 of 88	
				DRAWN BY: AEJ CHECKED BY: SJC DATE: 12.15.14 SCALE: AS NOTED		3355 Route 611, Suite 1 Bartonsville, PA 18321-7822 570.688.9550 Fax 570.688.9768	
				Hanover Engineering Associates Inc			

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**Case No(s). 14-1717-GA-BLN**

Summary: Application of NRG Ohio Pipeline Company LLC continued - Attachment K (Part 6)  
electronically filed by Teresa Orahod on behalf of Sally Bloomfield