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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Wednesday, November 17, 2021  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

NORTHEAST NATURAL ENERGY LLC  
707 VIRGINIA STREET EAST  
STE 1200  
CHARLESTON, WV 25301

Re: Permit Modification Approval for PHOENIX 2H  
47-061-01874-00-00

**Modified the production area of the pad**

NORTHEAST NATURAL ENERGY LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

A handwritten signature in blue ink, appearing to read 'James A. Martin', is positioned above the printed name and title.

James A. Martin  
Chief

Operator's Well Number: PHOENIX 2H  
Farm Name: CHARLES WENDELL MOORE & FRANK M. CHIST  
U.S. WELL NUMBER: 47-061-01874-00-00  
Horizontal 6A New Drill  
Date Modification Issued: 11/17/2021

Promoting a healthy environment.

11/19/2021

# PHOENIX WELL PAD

## BATTELLE DISTRICT, MONONGALIA COUNTY, WV

### AUGUST 2020 <sup>2021</sup> *Super Hawk*



TWO WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR MUST CONTACT THE WV ONE CALL SYSTEM, INC., 1-800-245-4848 (WV ONE CALL TICKET #2015627602 )

PLANS PREPARED BY:

**BOORD BENCHEK & ASSOCIATES, INC.**  
ENGINEERING, SURVEYING, CONSTRUCTION AND MINING SERVICES  
SOUTHPOINTE, PA 15317 PHONE: 724-746-1055

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21. UNDER DRAIN PROFILES
- 22-23. ACCESS ROAD AND AST ACCESS ROAD PROFILES
- 24-31. ACCESS ROAD CROSS-SECTIONS
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36. RECLAMATION PLAN OVERVIEW
- 37-43. RECLAMATION PLAN

TOTAL LIMITS OF DISTURBANCE: 71.17 AC.  
ACCESS ROAD DISTURBANCE AREA: 31.70 AC.  
WELL PAD DISTURBANCE AREA: 30.19 AC.  
AST PAD AND ACCESS ROAD DISTURBANCE AREA: 9.28 AC.

**PROPERTY PROJECT BOUNDARY ACREAGE**

- JOHN L. & HILDA DONALDSON (TAX MAP AND PARCEL 1-24-12): 3.69 AC.
- MARY C. WALLS (TAX MAP AND PARCEL 1-24-15): 10.70 AC.
- KEVIN D. & MARLA J. AMMONS (TAX MAP AND PARCEL 1-24-20): 7.44 AC.
- ELIZABETH ANN WILSON & RANDY LEE DURR (TAX MAP AND PARCEL 1-24-16): 5.92 AC.
- CHARLES WENDELL MOORE (TAX MAP AND PARCEL 1-24-19.1): 10.35 AC.
- FRANKLIN M. CHISLER (TAX MAP AND PARCEL 1-17-14.1): 30.25 AC.
- PHOENIX ENERGY RESOURCES LLC: 2.76 AC.



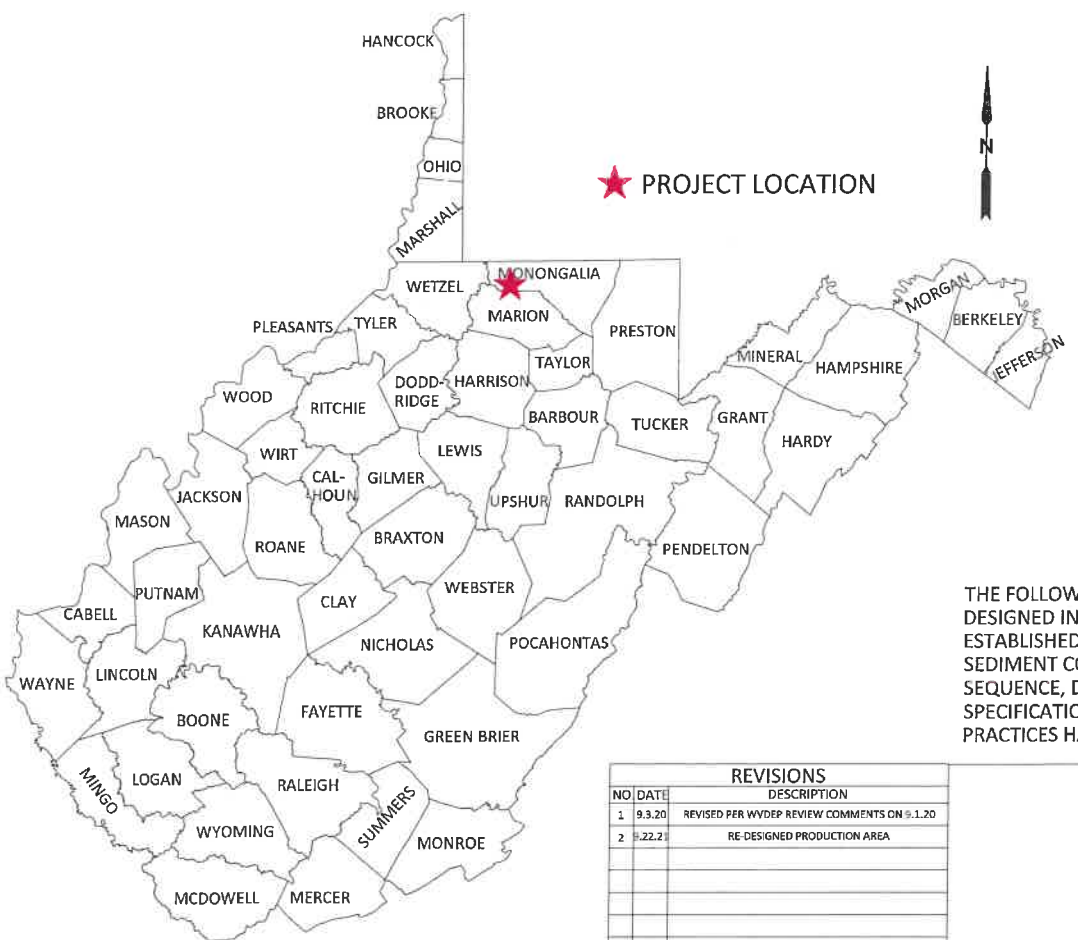
ANDREW BENCHEK  
P.E.

RECEIVED  
Office of Oil and Gas  
OCT 29 2021  
WV Department of  
Environmental Protection

OWNER

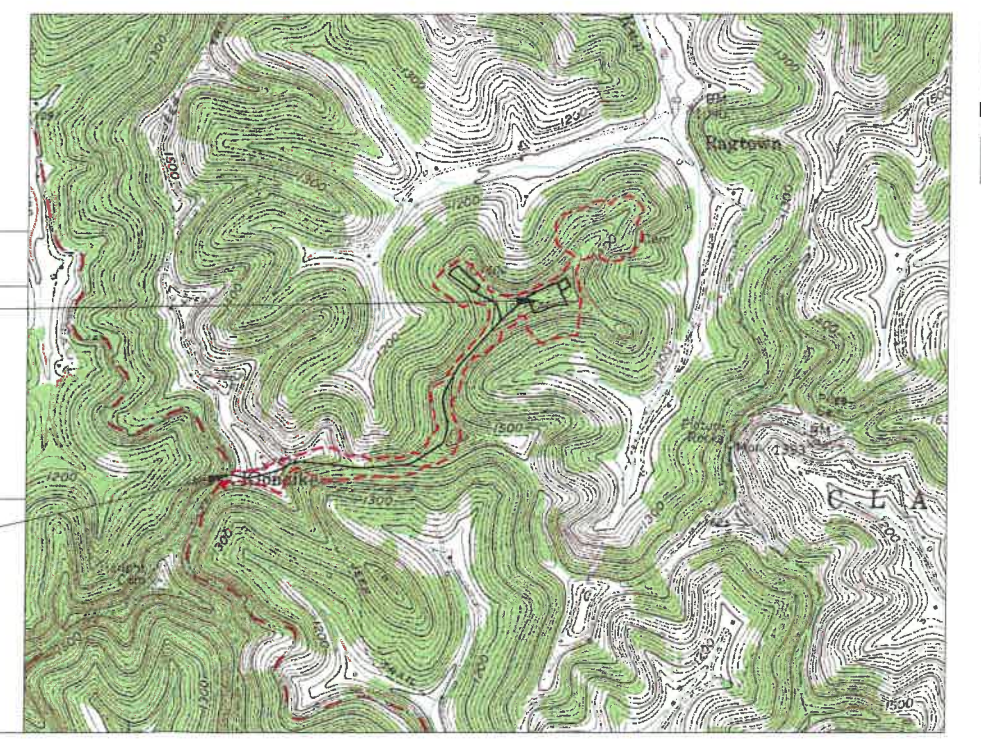
**northeast**  
NATURAL ENERGY

NORTHEAST NATURAL ENERGY, LLC  
707 VIRGINIA STREET SUITE 1200  
CHARLESTON, WV 25301



**COORDINATES**

|                                |
|--------------------------------|
| CENTER OF WELL PAD<br>(NAD 83) |
| LAT: 39° 38' 29.00"            |
| LONG: 80° 16' 18.49"           |
| (NAD 27)                       |
| LAT: 39° 38' 28.71"            |
| LONG: 80° 16' 19.22"           |
| SITE ENTRANCE<br>(NAD 83)      |
| LAT: 39° 38' 05.18"            |
| LONG: 80° 17' 12.01"           |
| (NAD 27)                       |
| LAT: 39° 38' 04.89"            |
| LONG: 80° 17' 12.73"           |

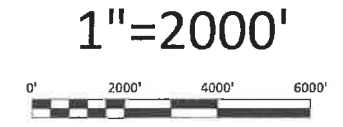


IN ACCORDANCE WITH WV 35 CSR 8 THE FOLLOWING EROSION & SEDIMENT CONTROL PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES ESTABLISHED BY THE CHIEF AND PROVIDED IN THE OFFICE'S EROSION AND SEDIMENT CONTROL FIELD MANUAL. A GENERAL CONSTRUCTION SEQUENCE, DESCRIPTION OF STABILIZATION METHODS, AND DETAILS & SPECIFICATIONS FOR EROSION & SEDIMENT BEST MANAGEMENT PRACTICES HAVE BEEN INCLUDED IN THE PROVIDED DETAIL SHEETS.

| REVISIONS |         |   |
|-----------|---------|---|
| NO        | DATE    | DESCRIPTION                                 |
| 1         | 9.3.20  | REVISED PER WVDEP REVIEW COMMENTS ON 9.1.20 |
| 2         | 9.22.21 | RE-DESIGNED PRODUCTION AREA                 |
|           |         |   |
|           |         |   |

**TITLE SHEET**  
PHOENIX WELL PAD  
BATTELLE DISTRICT, MONONGALIA COUNTY, WV

**SHEET**  
1  
OF  
43



11/19/2021

**APPROVED**  
**WV DEP OOG**  
 Modification  
 11/17/2021

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 WV Department of  
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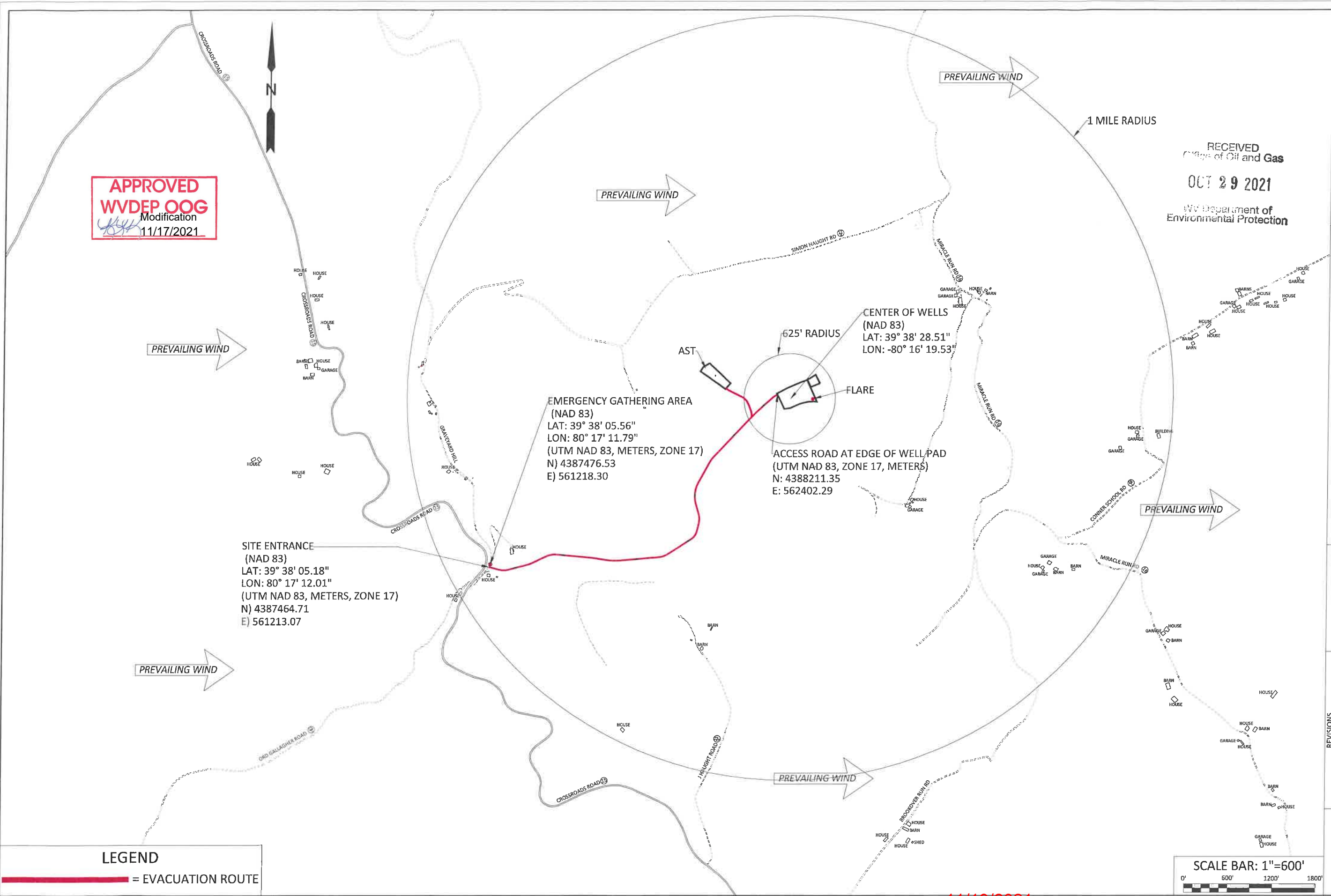
BOORD, BENCHEK and ASSOC., INC.  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

**EVACUATION ROUTE/PREVAILING WIND**

THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
 AUGUST 2020  
 PHOENIX WELL PAD  
 BATTELLE DISTRICT,  
 MONONGALIA COUNTY, PA

| NO. | DATE    | DESCRIPTION                |
|-----|---------|----------------------------|
| 2   | 9/22/21 | REDESIGNED PRODUCTION AREA |

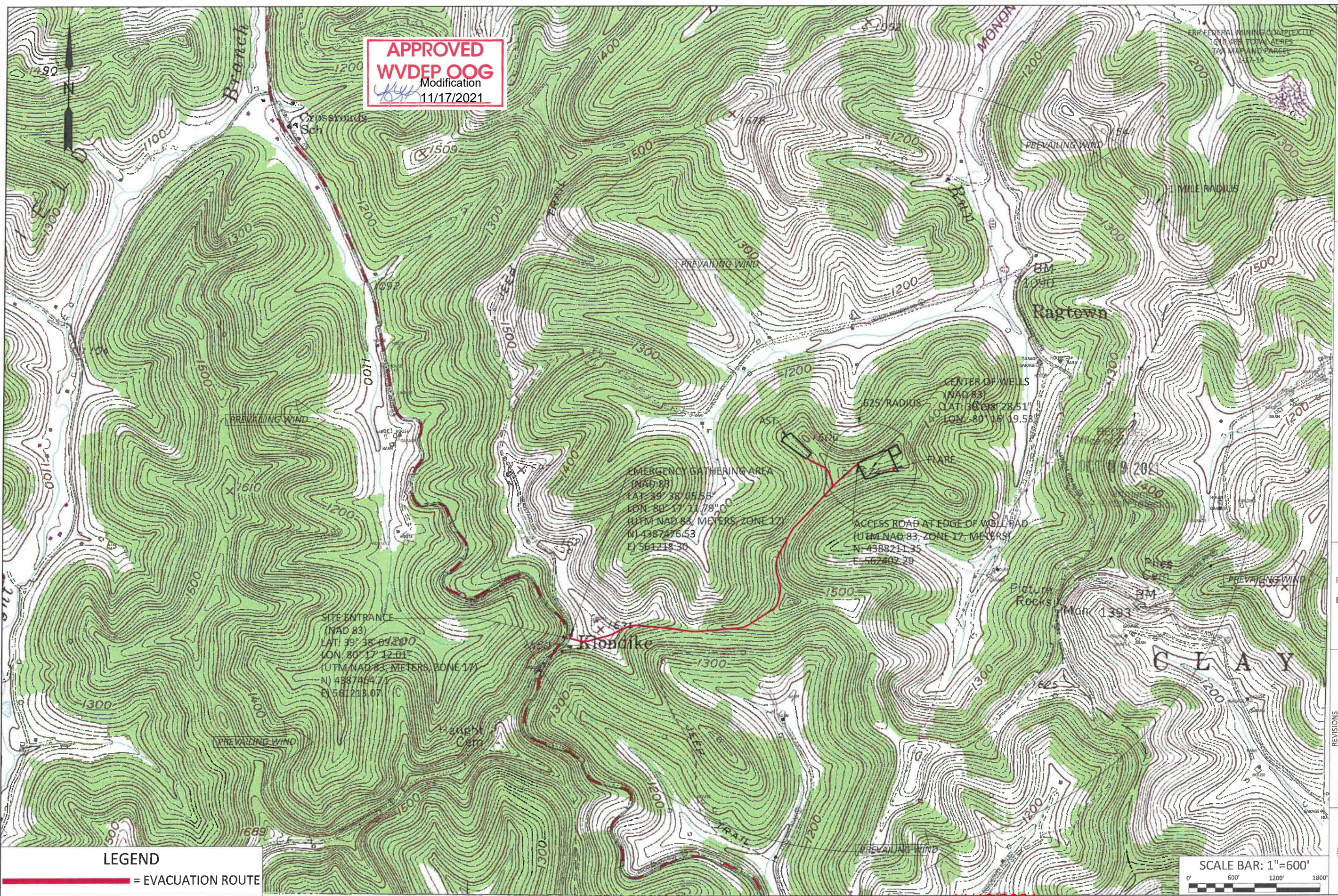


**LEGEND**  
 = EVACUATION ROUTE



11/19/2021

**APPROVED**  
**WVDEP OOG**  
 Modification  
 11/17/2021



**BOARD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
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 Southpointe, PA 15317 Phone: 724-746-1055

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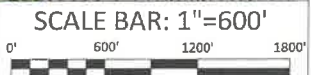
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 AUGUST 2020  
 PHOENIX WELL PAD  
 BATTELLE DISTRICT,  
 MONONGALIA  
 COUNTY, PA

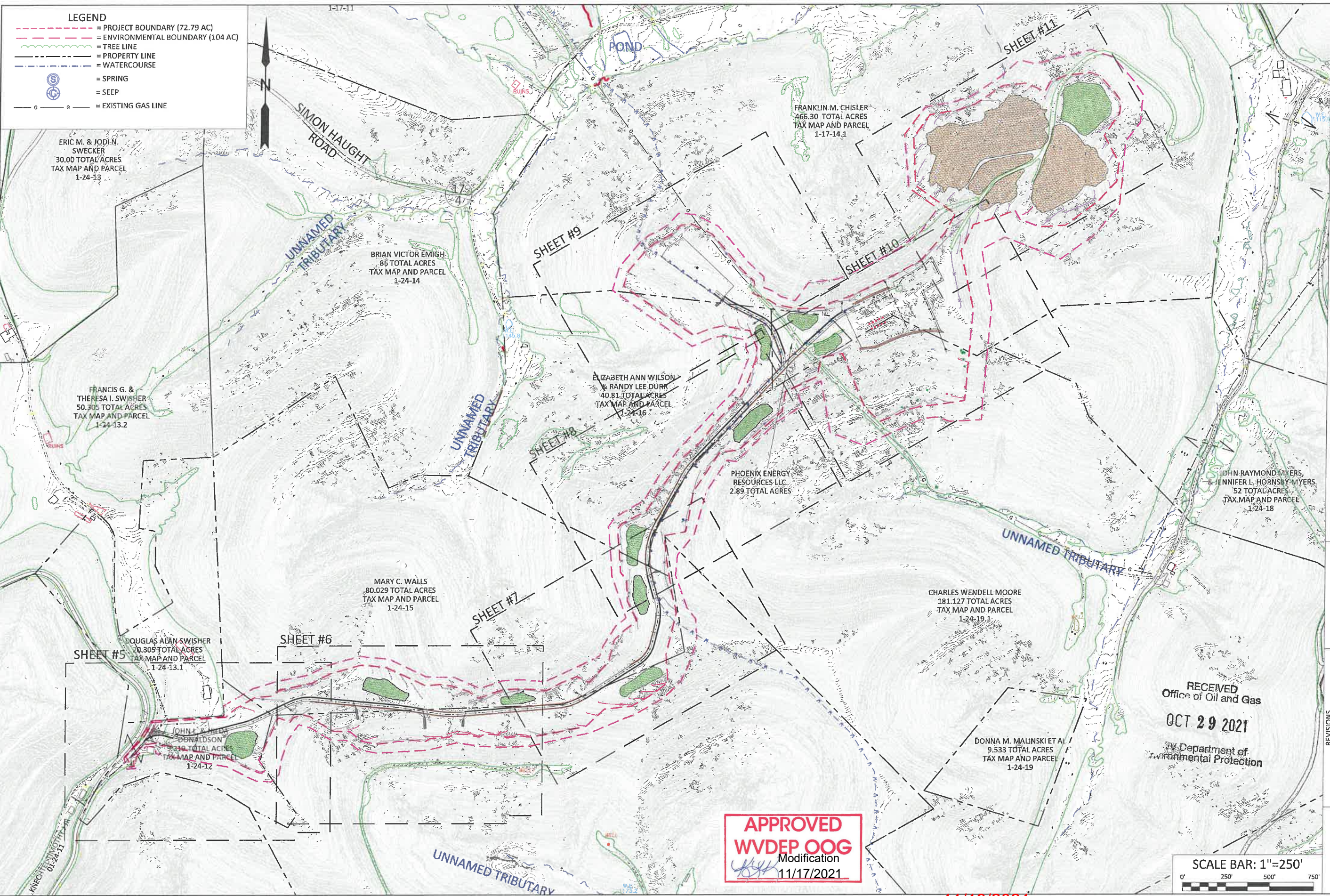
| NO. | DATE    | DESCRIPTION                |
|-----|---------|----------------------------|
| 2   | 9.22.21 | REDESIGNED PRODUCTION AREA |
|     |         |                            |
|     |         |                            |



**LEGEND**  
 = EVACUATION ROUTE



11/19/2021



**LEGEND**

- - - - - PROJECT BOUNDARY (72.79 AC)
- - - - - ENVIRONMENTAL BOUNDARY (104 AC)
- - - - - TREE LINE
- - - - - PROPERTY LINE
- - - - - WATERCOURSE
- (S) SPRING
- (G) SEEP
- - - - - EXISTING GAS LINE

ERIC M. & JODI N. SWECKER  
30.00 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-13

FRANCIS G. & THERESA I. SWISHER  
50.305 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-13.2

DOUGLAS ALAN SWISHER  
20.305 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-13.1

JOHN L. & NEDA DONALDSON  
9.316 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-12

BRIAN VICTOR EMIGH  
86 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-14

MARY C. WALLS  
80.029 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-15

ELIZABETH ANN WILSON & RANDY LEE DURR  
40.81 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-16

FRANKLIN M. CHISLER  
466.30 TOTAL ACRES  
TAX MAP AND PARCEL  
1-17-14.1

PHOENIX ENERGY RESOURCES LLC  
2.89 TOTAL ACRES

CHARLES WENDELL MOORE  
181.127 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-19.1

DONNA M. MALINSKI ET AL  
9.533 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-19

JOHN RAYMOND MYERS & JENNIFER L. HORNSBY MYERS  
52 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-18

**APPROVED**  
**WVDEP OOG**  
Modification  
11/17/2021

SCALE BAR: 1"=250'  
0' 250' 500' 750'

**BOORD, BENCHEK and ASSOC., INC.**  
Engineering, Surveying, Construction,  
and Mining Services  
Southpointe, PA 15317 Phone: 724-746-1055

**E&S CONTROL LAYOUT OVERVIEW**  
THIS DOCUMENT WAS PREPARED BY:  
BOORD, BENCHEK AND ASSOC., INC.  
FOR: NORTHEAST NATURAL ENERGY, LLC.

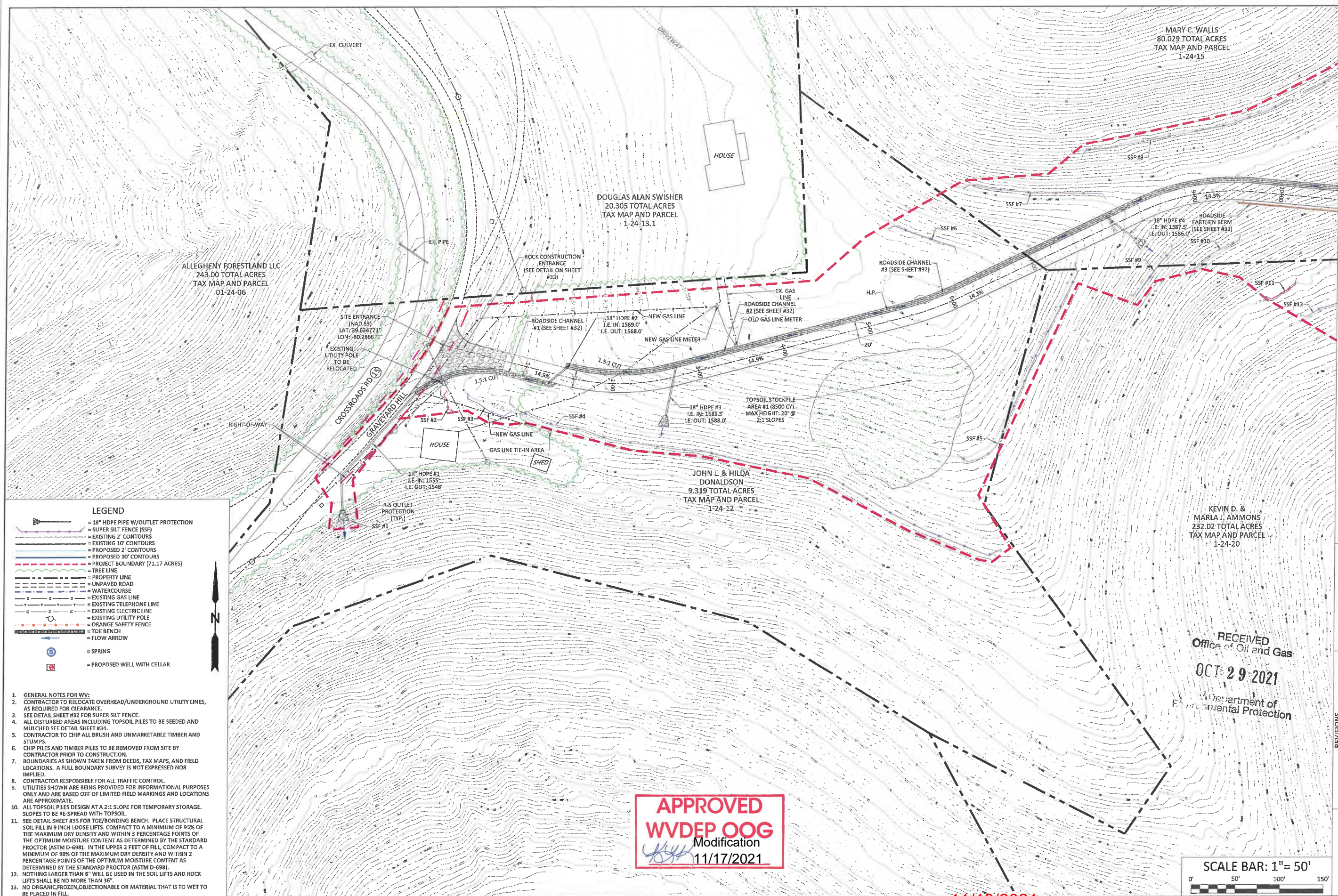
DATE:  
AUGUST 2020  
PHOENIX WELL PAD  
BATTELLE DISTRICT,  
MONONGALIA COUNTY, PA

RECEIVED  
Office of Oil and Gas  
OCT 29 2021  
WV Department of Environmental Protection

| NO. | DATE    | DESCRIPTION                                 |
|-----|---------|---|
| 1   | 8.20    | REVISED PER WVDEP REVIEW COMMENTS ON 8.1.20 |
| 2   | 9.22.21 | RE-DESIGNED PRODUCTION AREA                 |



11/19/2021



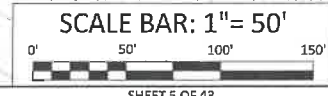
**LEGEND**

- = 18" HDPE PIPE W/OUTLET PROTECTION
- = SUPER SILT FENCE (SSF)
- = EXISTING 2' CONTOURS
- = EXISTING 10' CONTOURS
- = PROPOSED 2' CONTOURS
- = PROPOSED 10' CONTOURS
- = PROJECT BOUNDARY (71.17 ACRES)
- = TREE LINE
- = PROPERTY LINE
- = UNPAVED ROAD
- = WATERCOURSE
- = EXISTING GAS LINE
- = EXISTING TELEPHONE LINE
- = EXISTING ELECTRIC LINE
- = EXISTING UTILITY POLE
- = ORANGE SAFETY FENCE
- = TOE BENCH
- = FLOW ARROW
- = SPRING
- = PROPOSED WELL WITH CELLAR

- GENERAL NOTES FOR WVS:**
- CONTRACTOR TO RELOCATE OVERHEAD/UNDERGROUND UTILITY LINES, AS REQUIRED FOR CLEARANCE.
  - SEE DETAIL SHEET #32 FOR SUPER SILT FENCE.
  - ALL DISTURBED AREAS INCLUDING TOPSOIL PILES TO BE SEEDED AND MULCHED SEE DETAIL SHEET #34.
  - CONTRACTOR TO CHIP ALL BRUSH AND UNMARKETABLE TIMBER AND STUMPS.
  - CHIP PILES AND TIMBER PILES TO BE REMOVED FROM SITE BY CONTRACTOR PRIOR TO CONSTRUCTION.
  - BOUNDARIES AS SHOWN TAKEN FROM DEEDS, TAX MAPS, AND FIELD LOCATIONS. A FULL BOUNDARY SURVEY IS NOT EXPRESSED NOR IMPLIED.
  - CONTRACTOR RESPONSIBLE FOR ALL TRAFFIC CONTROL.
  - UTILITIES SHOWN ARE BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY AND ARE BASED OFF OF LIMITED FIELD MARKINGS AND LOCATIONS ARE APPROXIMATE.
  - ALL TOPSOIL PILES DESIGN AT A 2:1 SLOPE FOR TEMPORARY STORAGE. SLOPES TO BE RE-SPREAD WITH TOPSOIL.
  - SEE DETAIL SHEET #35 FOR TOE/BONDING BENCH. PLACE STRUCTURAL SOIL FILL IN 9 INCH LOOSE LIFTS. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AND WITHIN 3 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698). IN THE UPPER 2 FEET OF FILL, COMPACT TO A MINIMUM OF 98% OF THE MAXIMUM DRY DENSITY AND WITHIN 2 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698).
  - NOTHING LARGER THAN 6" WILL BE USED IN THE SOIL LIFTS AND ROCK LIFTS SHALL BE NO MORE THAN 36".
  - NO ORGANIC, FROZEN, OBJECTIONABLE OR MATERIAL THAT IS TO WET TO BE PLACED IN FILL.

**APPROVED**  
**WVDEP OOG**  
 Modification  
 11/17/2021

11/19/2021



**E&S CONTROL LAYOUT**

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DATE:  
 AUGUST 2020

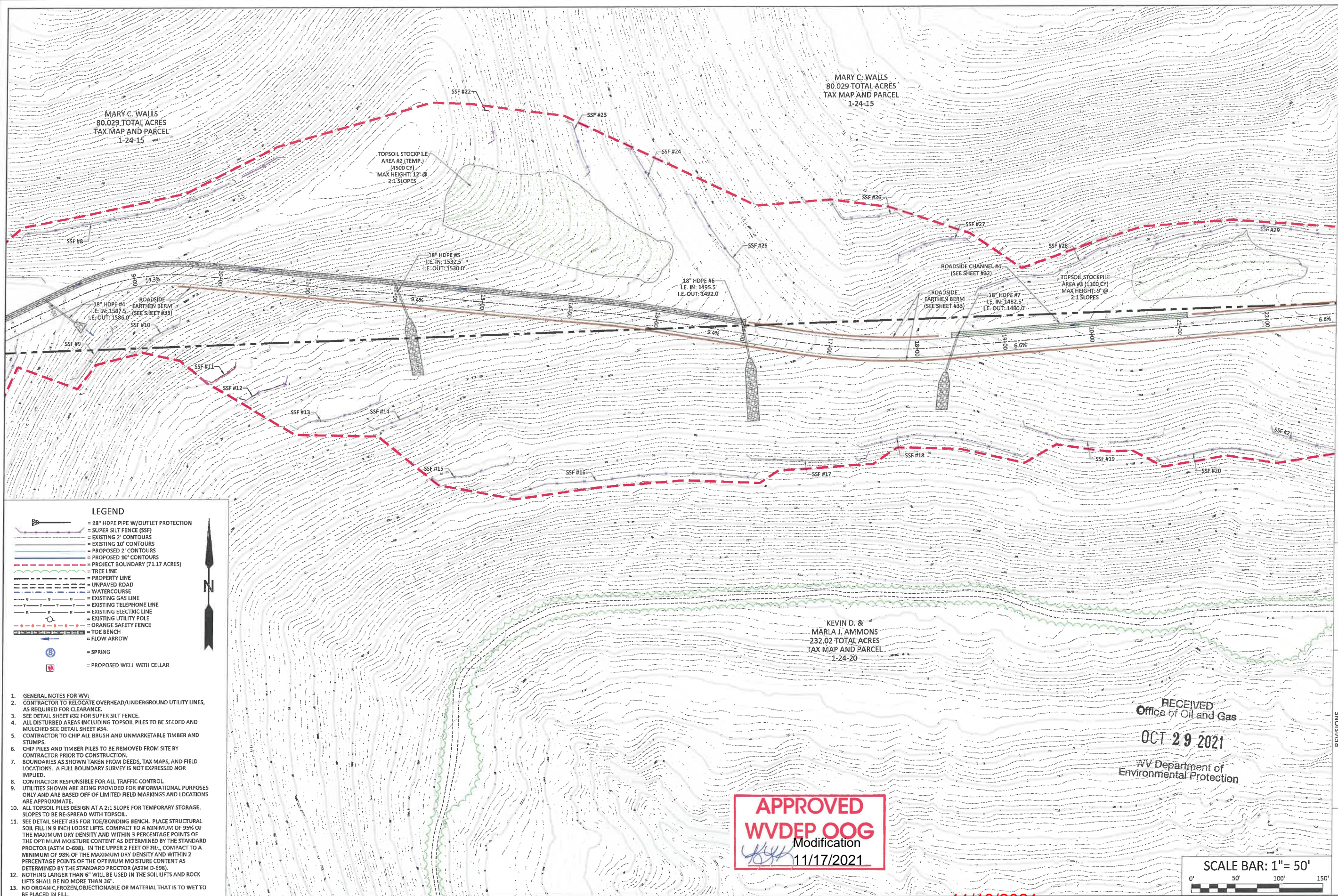
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 BATTELLE DISTRICT,  
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 OCT 29 2021  
 Department of Environmental Protection

| NO. | DATE   | DESCRIPTION                                 |
|-----|--------|---|
| 1   | 9.3.20 | REVISED PER WVDEP REVIEW COMMENTS ON 9.1.20 |

18444  
 STATE OF WEST VIRGINIA  
 PROFESSIONAL ENGINEER

**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055



MARY C. WALLS  
80.029 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-15

MARY C. WALLS  
80.029 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-15

TOPSOIL STOCKPILE  
AREA #2 (TEMP.)  
(4500 CY)  
MAX HEIGHT: 12' @  
2:1 SLOPES

TOPSOIL STOCKPILE  
AREA #3 (1100 CY)  
MAX HEIGHT: 9' @  
2:1 SLOPES

KEVIN D. &  
MARIA J. AMMONS  
232.02 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-20

**LEGEND**

- = 18" HDPE PIPE W/OUTLET PROTECTION
- = SUPER SILT FENCE (SSF)
- = EXISTING 2' CONTOURS
- = EXISTING 10' CONTOURS
- = PROPOSED 2' CONTOURS
- = PROPOSED 10' CONTOURS
- = PROJECT BOUNDARY (71.17 ACRES)
- = TREE LINE
- = PROPERTY LINE
- = UNPAVED ROAD
- = WATERCOURSE
- = EXISTING GAS LINE
- = EXISTING TELEPHONE LINE
- = EXISTING ELECTRIC LINE
- = EXISTING UTILITY POLE
- = ORANGE SAFETY FENCE
- = TOE BENCH
- = FLOW ARROW
- = SPRING
- = PROPOSED WELL WITH CELLAR

1. GENERAL NOTES FOR WV.
2. CONTRACTOR TO RELOCATE OVERHEAD/UNDERGROUND UTILITY LINES, AS REQUIRED FOR CLEARANCE.
3. SEE DETAIL SHEET #32 FOR SUPER SILT FENCE.
4. ALL DISTURBED AREAS INCLUDING TOPSOIL PILES TO BE SEEDED AND MULCHED SEE DETAIL SHEET #34.
5. CONTRACTOR TO CHIP ALL BRUSH AND UNMARKETABLE TIMBER AND STUMPS.
6. CHIP PILES AND TIMBER PILES TO BE REMOVED FROM SITE BY CONTRACTOR PRIOR TO CONSTRUCTION.
7. BOUNDARIES AS SHOWN TAKEN FROM DEEDS, TAX MAPS, AND FIELD LOCATIONS. A FULL BOUNDARY SURVEY IS NOT EXPRESSED NOR IMPLIED.
8. CONTRACTOR RESPONSIBLE FOR ALL TRAFFIC CONTROL.
9. UTILITIES SHOWN ARE BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY AND ARE BASED OFF OF LIMITED FIELD MARKINGS AND LOCATIONS ARE APPROXIMATE.
10. ALL TOPSOIL PILES DESIGN AT A 2:1 SLOPE FOR TEMPORARY STORAGE. SLOPES TO BE RE-SPREAD WITH TOPSOIL.
11. SEE DETAIL SHEET #35 FOR TOE/BONDING BENCH. PLACE STRUCTURAL SOIL FILL IN 9 INCH LOOSE LIFTS. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AND WITHIN 3 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698). IN THE UPPER 2 FEET OF FILL, COMPACT TO A MINIMUM OF 98% OF THE MAXIMUM DRY DENSITY AND WITHIN 2 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698).
12. NOTHING LARGER THAN 6" WILL BE USED IN THE SOIL LIFTS AND ROCK LIFTS SHALL BE NO MORE THAN 36"
13. NO ORGANIC, FROZEN, OBJECTIONABLE OR MATERIAL THAT IS TO WET TO BE PLACED IN FILL.

**E&S CONTROL LAYOUT**

**BOORD, BENCHEK and ASSOC., INC.**  
Engineering, Surveying, Construction,  
and Mining Services  
Southpointe, PA 15317 Phone: 724-746-1055

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**APPROVED**  
**WVDEP OOG**  
Modification  
11/17/2021

SCALE BAR: 1" = 50'  
0' 50' 100' 150'

| NO. | DATE   | DESCRIPTION                                       |
|-----|--------|---|
| 1   | 9.3.20 | REVISED PER WVDEP REVIEW COMMENTS<br>OCT 14, 2020 |

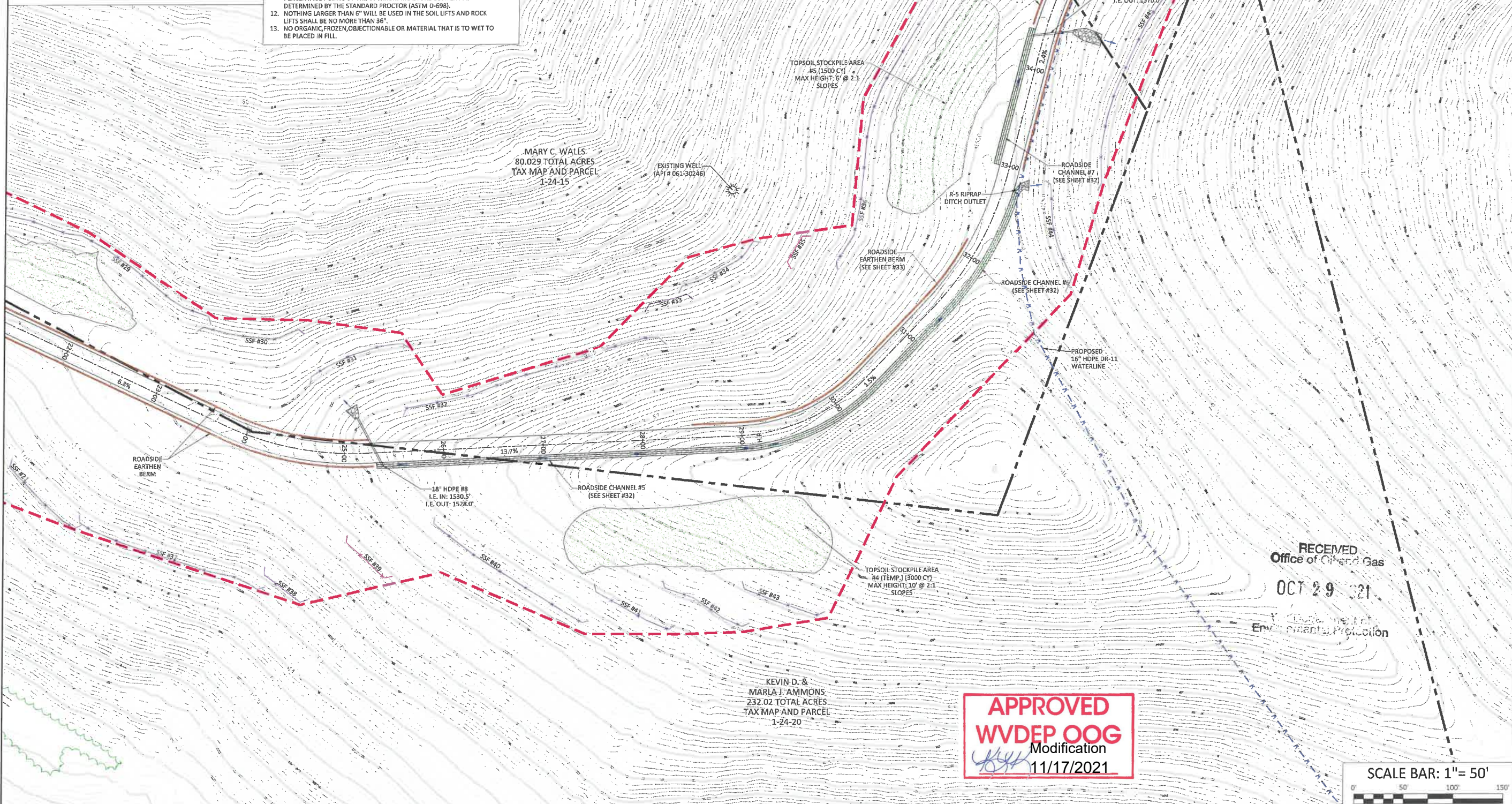


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**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services  
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 PHOENIX WELL PAD  
 BATTELLE DISTRICT,  
 MONONGALIA  
 COUNTY, PA

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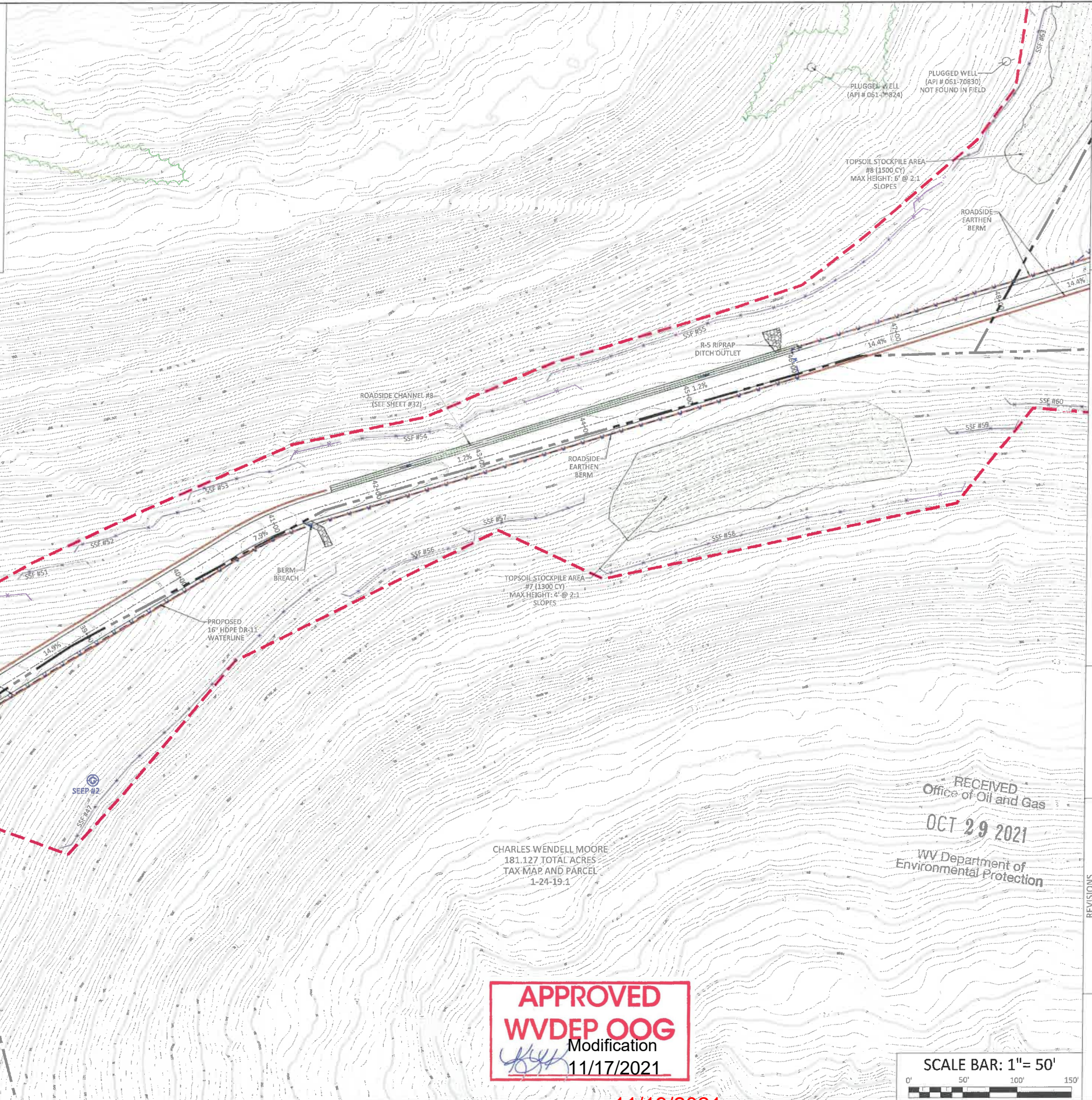
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**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

**E&S CONTROL LAYOUT**

THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE: AUGUST 2020  
 PHOENIX WELL PAD  
 BATTELLE DISTRICT,  
 MONONGALIA COUNTY, PA

RECEIVED  
 Office of Oil and Gas  
 OCT 29 2021  
 WV Department of  
 Environmental Protection

| NO. | DATE   | DESCRIPTION                                 |
|-----|--------|---|
| 1   | 9.3.20 | REVISED PER WVDEP REVIEW COMMENTS ON 9.1.20 |

**APPROVED**  
**WVDEP OOG**  
 Modification  
 11/17/2021

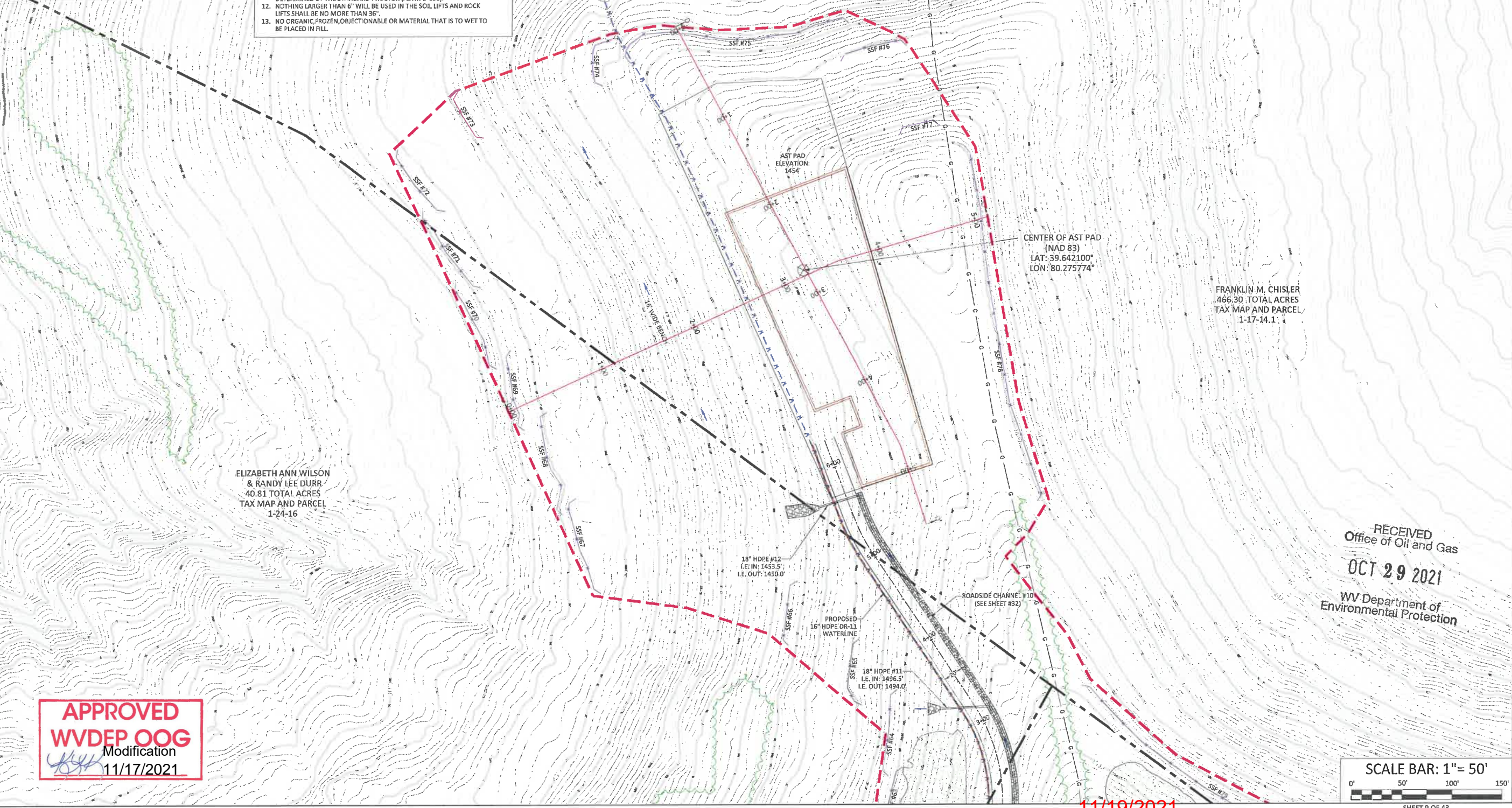


11/19/2021

**LEGEND**

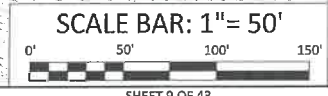
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- SUPER SILT FENCE (SSF)
- EXISTING 2' CONTOURS
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- PROPOSED 2' CONTOURS
- PROPOSED 10' CONTOURS
- PROJECT BOUNDARY (71.17 ACRES)
- TREE LINE
- PROPERTY LINE
- UNPAVED ROAD
- WATERCOURSE
- EXISTING GAS LINE
- EXISTING TELEPHONE LINE
- EXISTING ELECTRIC LINE
- EXISTING UTILITY POLE
- ORANGE SAFETY FENCE
- TOE BENCH
- FLOW ARROW
- SPRING
- PROPOSED WELL WITH CELLAR

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**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

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 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
 AUGUST 2020

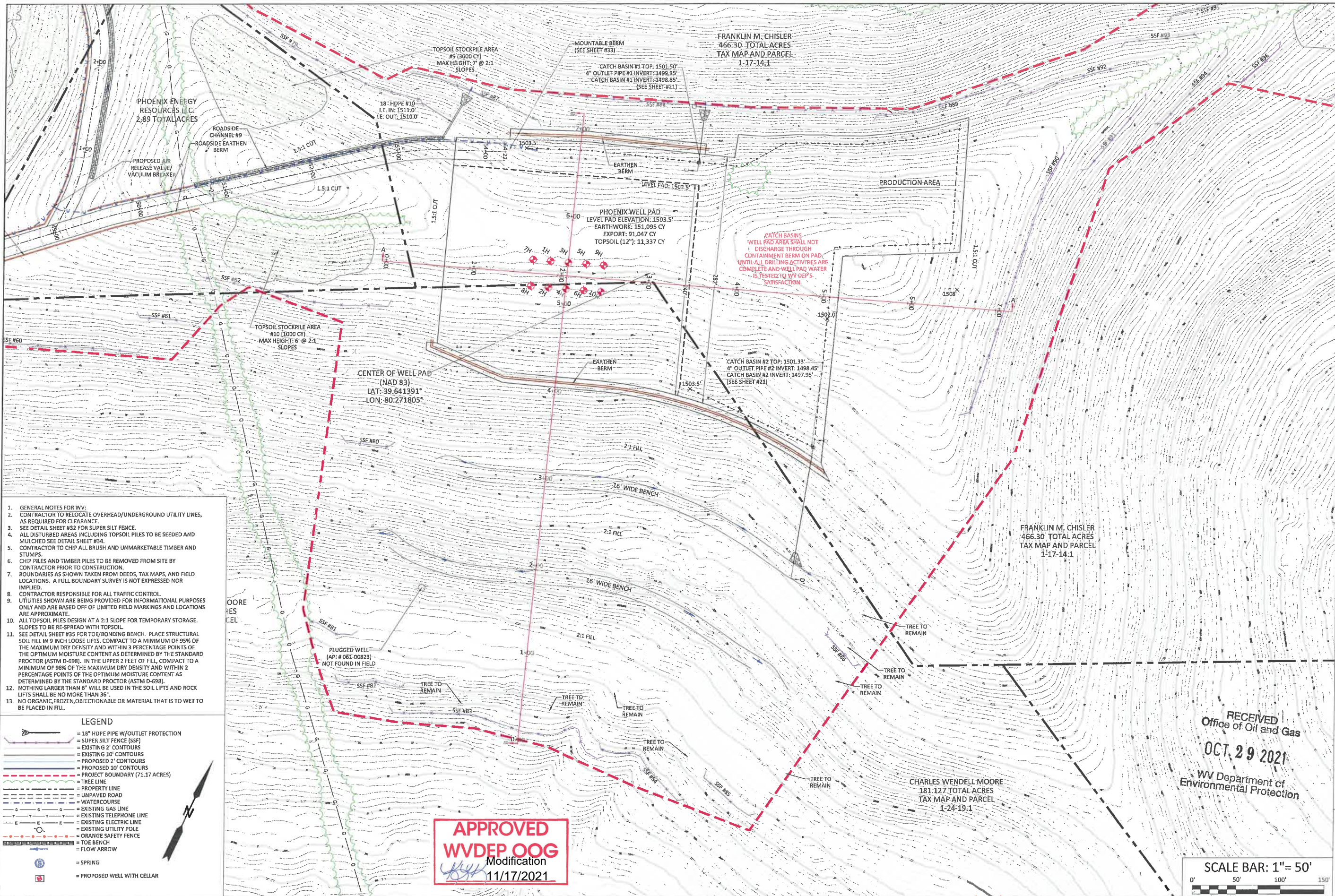
PHOENIX WELL PAD

BATTELLE DISTRICT,  
 MONONGALIA  
 COUNTY, PA

| NO. | DATE   | DESCRIPTION                                 |
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11/19/2021

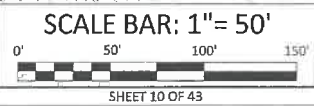


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|--------|-------------------------------------|
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|        | = EXISTING 2' CONTOURS              |
|        | = EXISTING 10' CONTOURS             |
|        | = PROPOSED 2' CONTOURS              |
|        | = PROPOSED 10' CONTOURS             |
|        | = PROJECT BOUNDARY (71.17 ACRES)    |
|        | = PROPERTY LINE                     |
|        | = UNPAVED ROAD                      |
|        | = WATERCOURSE                       |
|        | = EXISTING GAS LINE                 |
|        | = EXISTING TELEPHONE LINE           |
|        | = EXISTING ELECTRIC LINE            |
|        | = EXISTING UTILITY POLE             |
|        | = ORANGE SAFETY FENCE               |
|        | = TOE BENCH                         |
|        | = FLOW ARROW                        |
|        | = SPRING                            |
|        | = PROPOSED WELL WITH CELLAR         |

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**WVDEP OOG**  
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 11/17/2021

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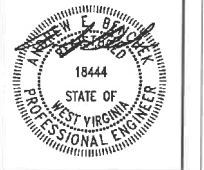
**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

**E&S CONTROL LAYOUT**  
 THIS DOCUMENT WAS PREPARED BY:  
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 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
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 MONONGALIA  
 COUNTY, PA

| NO. | DATE    | DESCRIPTION                       |
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| 1   | 8.3.20  | REVISED PER WVDEP REVIEW COMMENTS |
| 2   | 9.22.21 | RE-DESIGNED PRODUCTION AREA       |

RECEIVED  
 Office of Oil and Gas  
 OCT. 29 2021  
 WV Department of  
 Environmental Protection



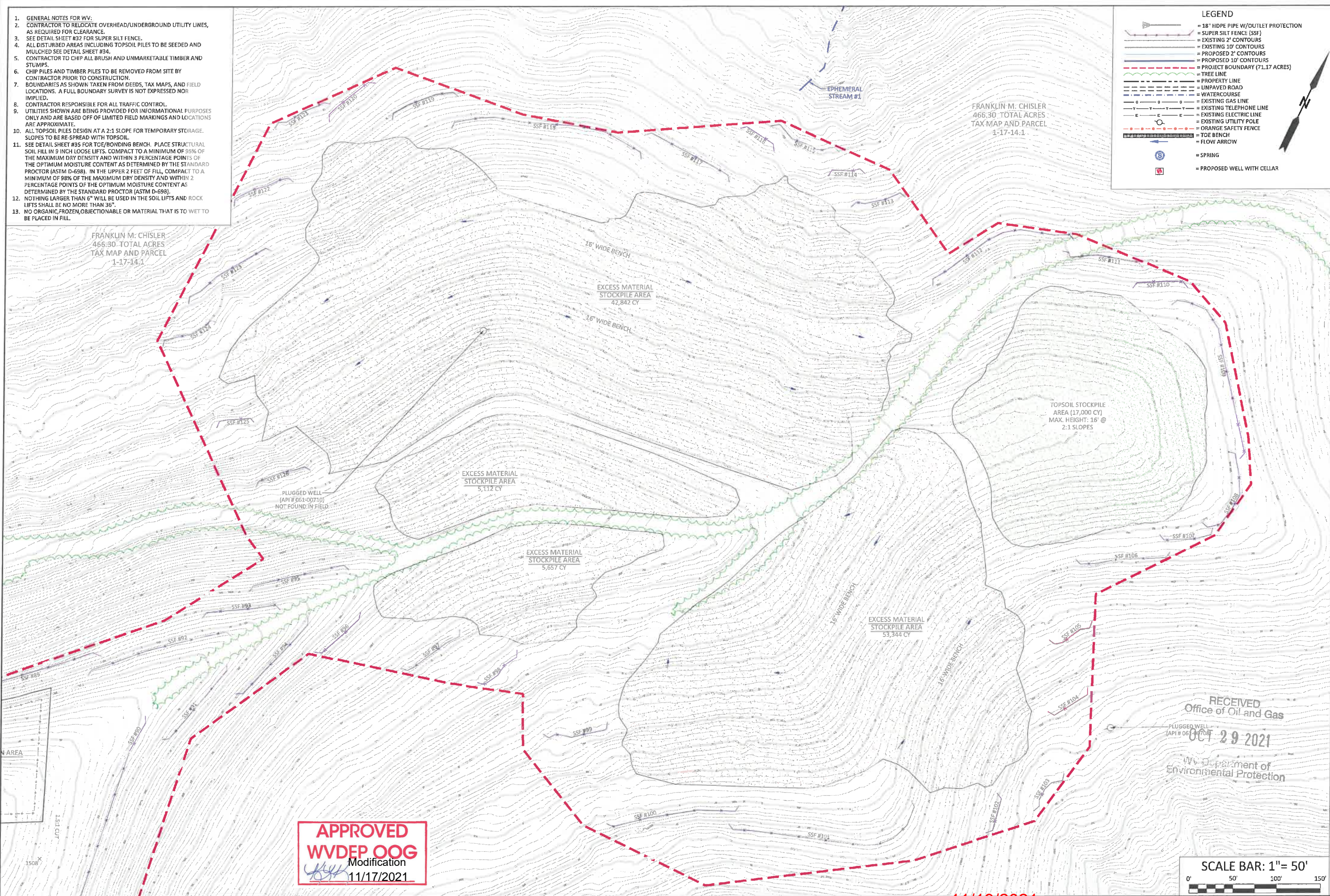
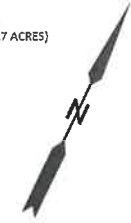
- GENERAL NOTES FOR WW.
- CONTRACTOR TO RELOCATE OVERHEAD/UNDERGROUND UTILITY LINES, AS REQUIRED FOR CLEARANCE.
- SEE DETAIL SHEET #37 FOR SUPER SILT FENCE.
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FRANKLIN M. CHISLER  
466.30 TOTAL ACRES  
TAX MAP AND PARCEL  
1-17-14.1

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466.30 TOTAL ACRES  
TAX MAP AND PARCEL  
1-17-14.1

**LEGEND**

- 18" HDPE PIPE W/OUTLET PROTECTION
- SUPER SILT FENCE (SSF)
- EXISTING 2" CONTOURS
- EXISTING 10' CONTOURS
- PROPOSED 2" CONTOURS
- PROPOSED 10' CONTOURS
- PROJECT BOUNDARY (71.17 ACRES)
- TREE LINE
- PROPERTY LINE
- UNPAVED ROAD
- WATERCOURSE
- EXISTING GAS LINE
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- EXISTING UTILITY POLE
- EXISTING ELECTRIC LINE
- EXISTING TELEPHONE POLE
- ORANGE SAFETY FENCE
- TOE BENCH
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- PROPOSED WELL WITH CELLAR



**APPROVED**  
**WVDEP OOG**  
Modification  
11/17/2021



**BOORD, BENCHEK and ASSOC., INC.**  
Engineering, Surveying, Construction,  
and Mining Services  
Southpointe, PA 15317 Phone: 724-746-1055

**E&S CONTROL LAYOUT**

THIS DOCUMENT WAS PREPARED BY:  
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DATE:  
AUGUST 2020  
PHOENIX WELL PAD  
BATTELLE DISTRICT,  
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| NO. | DATE    | DESCRIPTION                       |
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| 2   | 9.22.21 | RE-DESIGNED PRODUCTION AREA       |

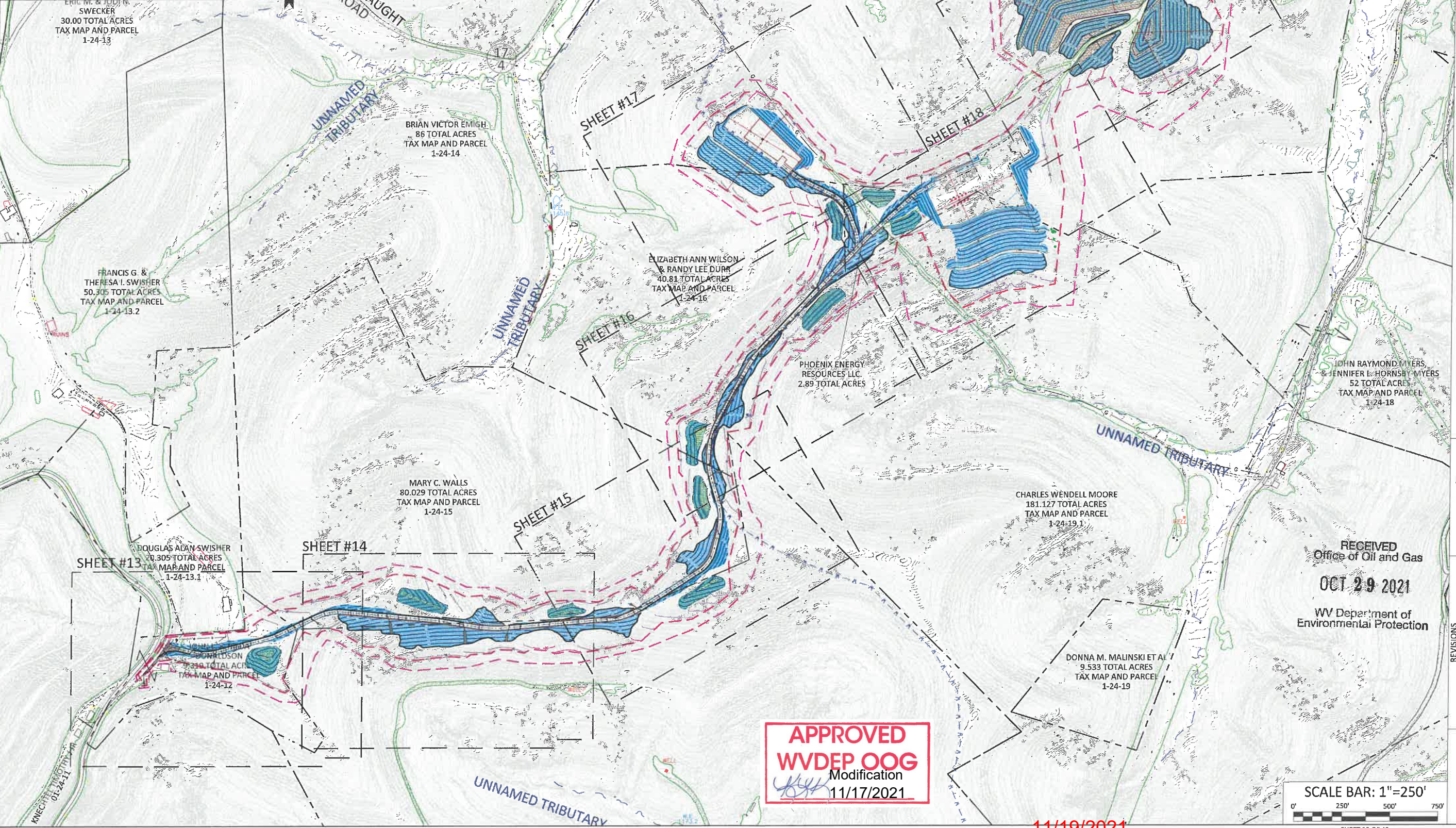
RECEIVED  
Office of Oil and Gas  
29 2021  
PLUGGED WELL (API # 061-00710)  
WV Department of Environmental Protection



11/19/2021

**LEGEND**

- - - - - PROJECT BOUNDARY (72.79 AC)
- - - - - ENVIRONMENTAL BOUNDARY (104 AC)
- - - - - TREE LINE
- - - - - PROPERTY LINE
- - - - - WATERCOURSE
- ⊙ SPRING
- ⊙ SEEP
- - - - - EXISTING GAS LINE



ERIC W. & JUDITH SWECKER  
30.00 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-13

FRANCIS G. & THERESA I. SWISHER  
50.305 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-13.2

BRIAN VICTOR EMIGH  
86 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-14

ELIZABETH ANN WILSON & RANDY LEE DURM  
40.81 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-16

FRANKLIN M. CHISLER  
466.30 TOTAL ACRES  
TAX MAP AND PARCEL  
1-17-14.1

PHOENIX ENERGY RESOURCES LLC  
2.89 TOTAL ACRES

JOHN RAYMOND MYERS & JENNIFER L. HORNSBY MYERS  
52 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-18

MARY C. WALLS  
80.029 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-15

CHARLES WENDELL MOORE  
181.127 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-19.1

DOUGLAS ALAN SWISHER  
70.305 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-13.1

DAVID WILSON  
9.336 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-12

DONNA M. MALINSKI ET AL  
9.533 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-19

**APPROVED**  
**WVDEP OOG**  
Modification  
11/17/2021

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Office of Oil and Gas  
**OCT 29 2021**  
WV Department of Environmental Protection

SCALE BAR: 1"=250'  
0' 250' 500' 750'

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Engineering, Surveying, Construction,  
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Southpointe, PA 15317 Phone: 724-746-1055

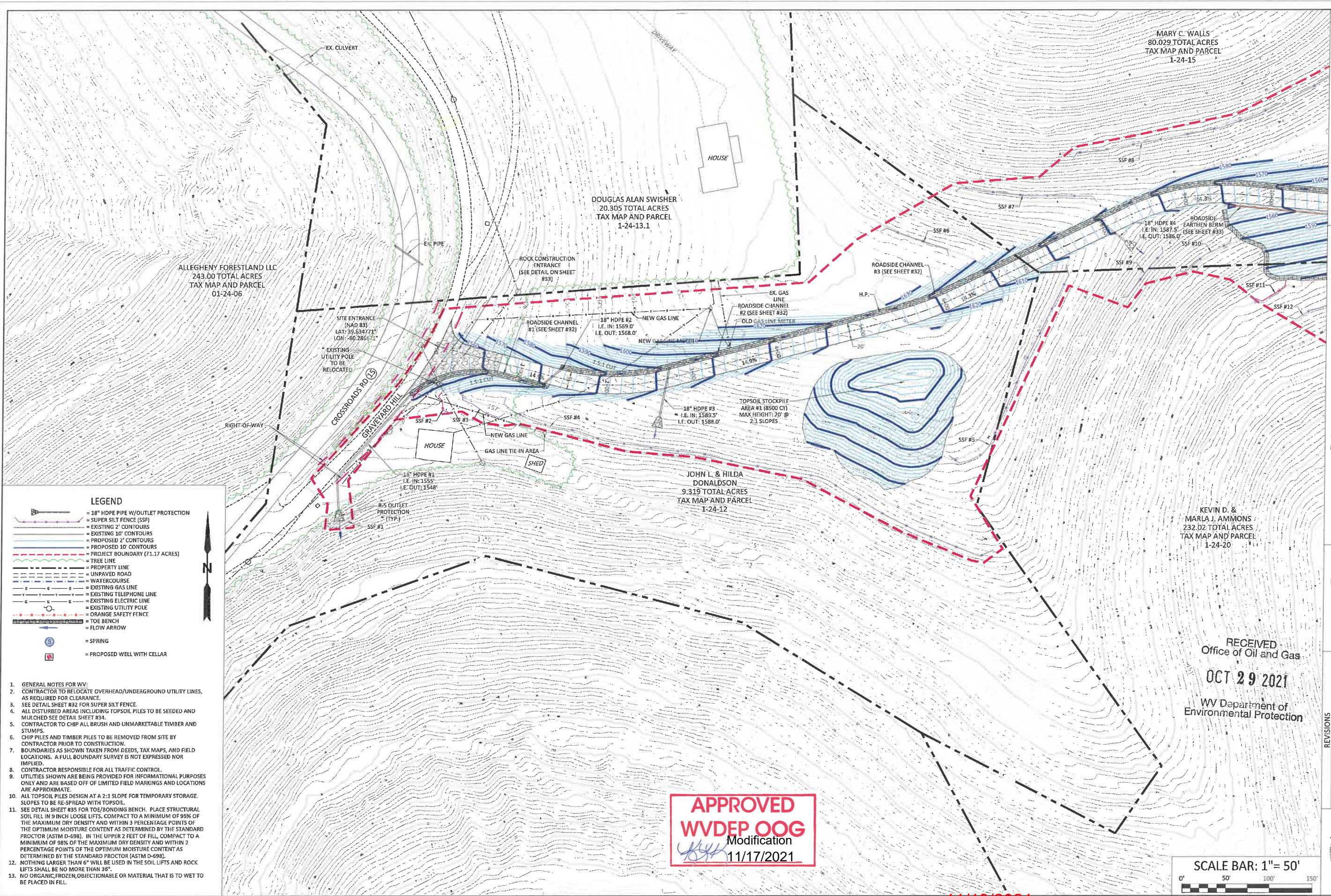
**E&S CONTROL AND SITE PLAN OVERVIEW**  
THIS DOCUMENT WAS PREPARED BY:  
BOORD, BENCHEK AND ASSOC., INC.  
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DATE:  
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11/19/2021



**LEGEND**

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- = SUPER SILT FENCE (SSF)
- = EXISTING 2' CONTOURS
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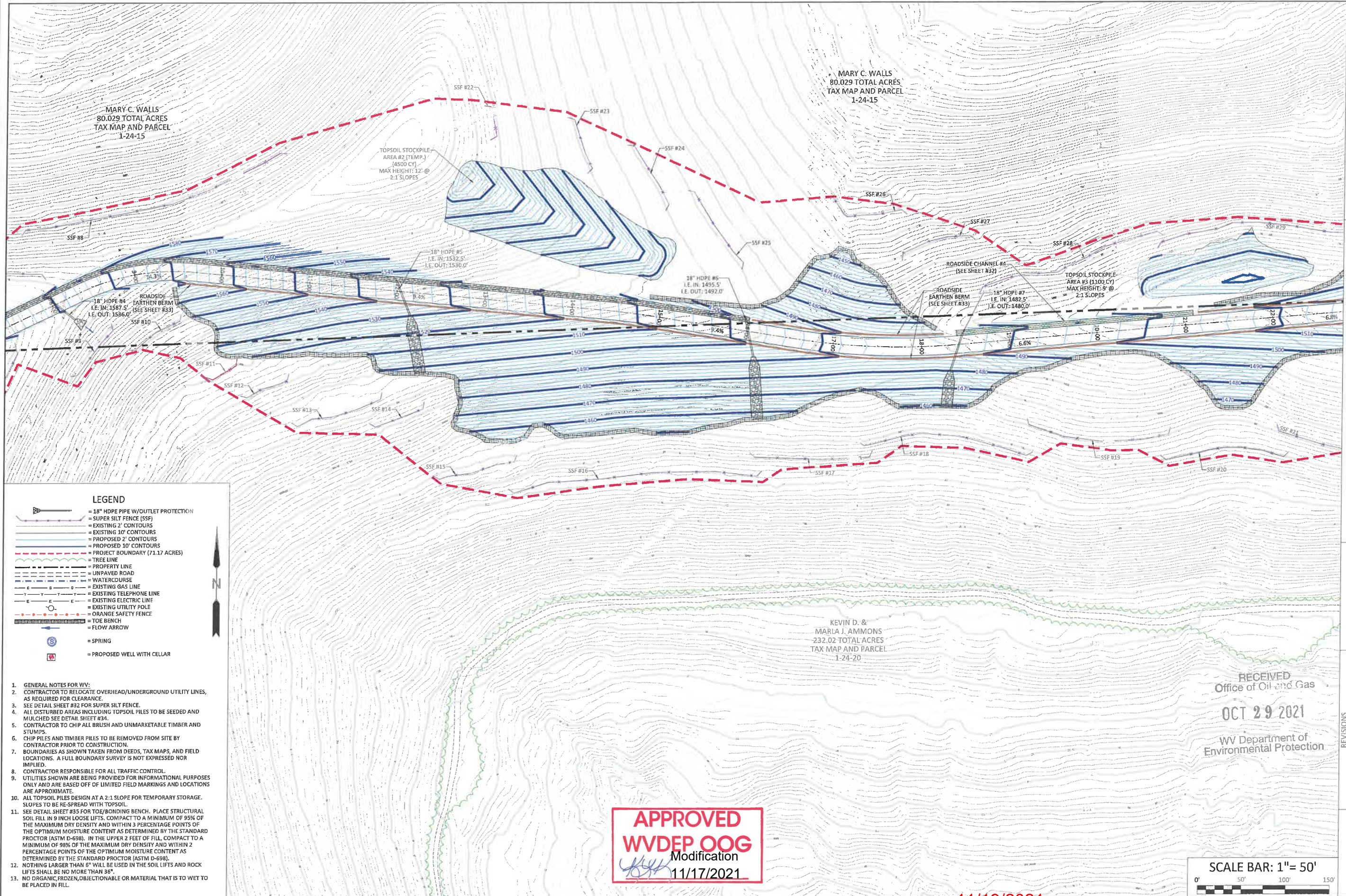


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**E&S CONTROL AND SITE PLAN**  
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SCALE BAR: 1" = 50'  
 0' 50' 100' 150'

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 Engineering, Surveying, Construction,  
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**E&S CONTROL AND  
 SITE PLAN**

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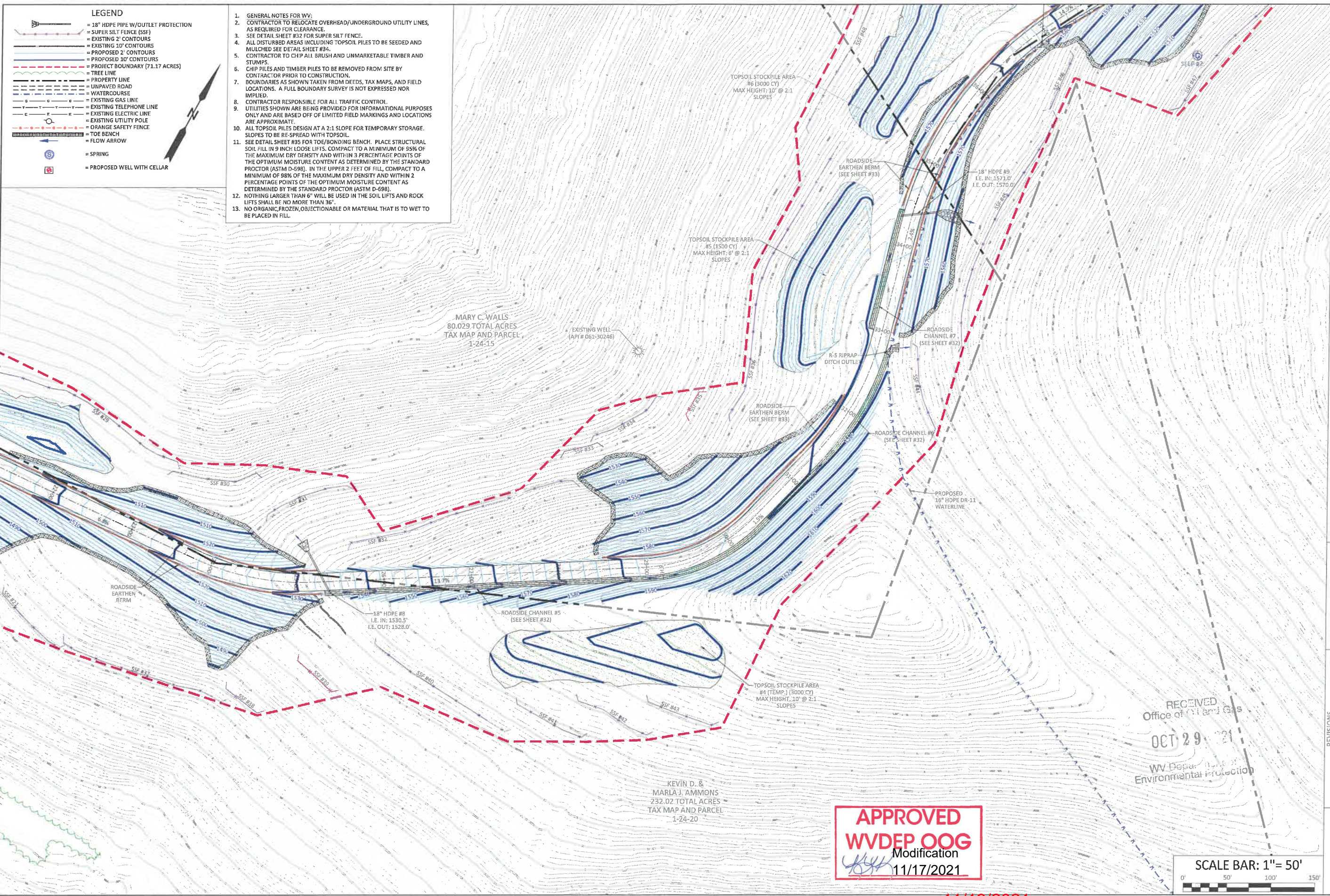


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- = PROPOSED WELL WITH CELLAR

1. GENERAL NOTES FOR WV:
2. CONTRACTOR TO RELOCATE OVERHEAD/UNDERGROUND UTILITY LINES, AS REQUIRED FOR CLEARANCE.
3. SEE DETAIL SHEET #32 FOR SUPER SILT FENCE.
4. ALL DISTURBED AREAS INCLUDING TOPSOIL PILES TO BE SEEDED AND MULCHED SEE DETAIL SHEET #34.
5. CONTRACTOR TO CHIP ALL BRUSH AND UNMARKETABLE TIMBER AND STUMPS.
6. CHIP PILES AND TIMBER PILES TO BE REMOVED FROM SITE BY CONTRACTOR PRIOR TO CONSTRUCTION.
7. BOUNDARIES AS SHOWN TAKEN FROM DEEDS, TAX MAPS, AND FIELD LOCATIONS. A FULL BOUNDARY SURVEY IS NOT EXPRESSED NOR IMPLIED.
8. CONTRACTOR RESPONSIBLE FOR ALL TRAFFIC CONTROL.
9. UTILITIES SHOWN ARE BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY AND ARE BASED OFF OF LIMITED FIELD MARKINGS AND LOCATIONS ARE APPROXIMATE.
10. ALL TOPSOIL PILES DESIGN AT A 2:1 SLOPE FOR TEMPORARY STORAGE. SLOPES TO BE RE-SPREAD WITH TOPSOIL.
11. SEE DETAIL SHEET #35 FOR TOE/BONDING BENCH. PLACE STRUCTURAL SOIL FILL IN 9 INCH LOOSE LIFTS. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AND WITHIN 3 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698). IN THE UPPER 2 FEET OF FILL, COMPACT TO A MINIMUM OF 98% OF THE MAXIMUM DRY DENSITY AND WITHIN 2 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698).
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**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

**E&S CONTROL AND  
 SITE PLAN**

THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
 AUGUST 2020

PHOENIX WELL PAD

BATTELLE DISTRICT,  
 MONONGALIA  
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| NO. | DATE   | DESCRIPTION                                 |
|-----|--------|---|
| 1   | 9.3.20 | REVISED PER WVDEP REVIEW COMMENTS ON 9.1.20 |

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 11/17/2021



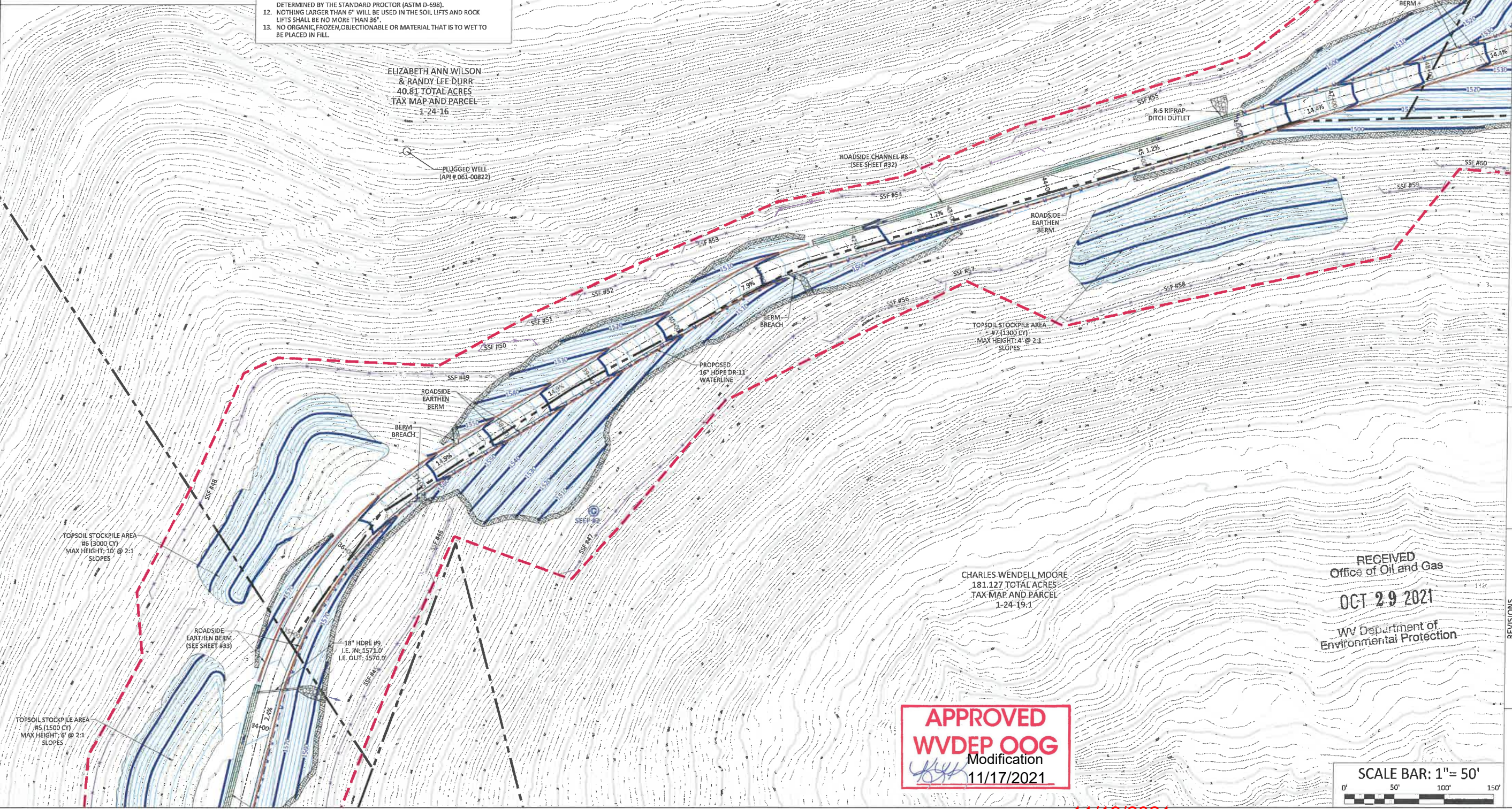
11/19/2021



**LEGEND**

- = 18" HDPE PIPE W/OUTLET PROTECTION
- = SUPER SILT FENCE (SSF)
- = EXISTING 2' CONTOURS
- = EXISTING 10' CONTOURS
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- = TREE LINE
- = PROPERTY LINE
- = UNPAVED ROAD
- = WATERCOURSE
- = EXISTING GAS LINE
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- = EXISTING ELECTRIC LINE
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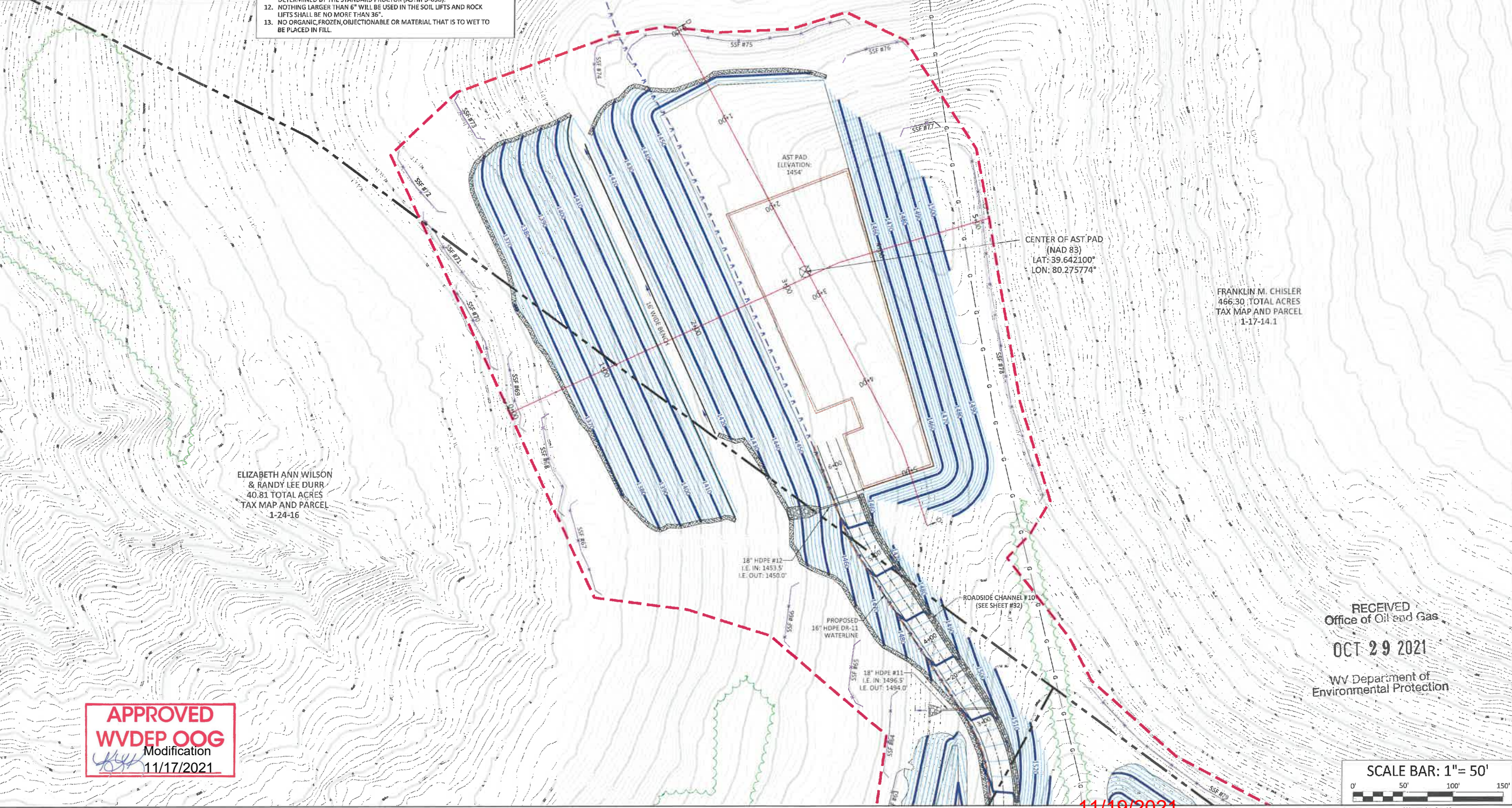


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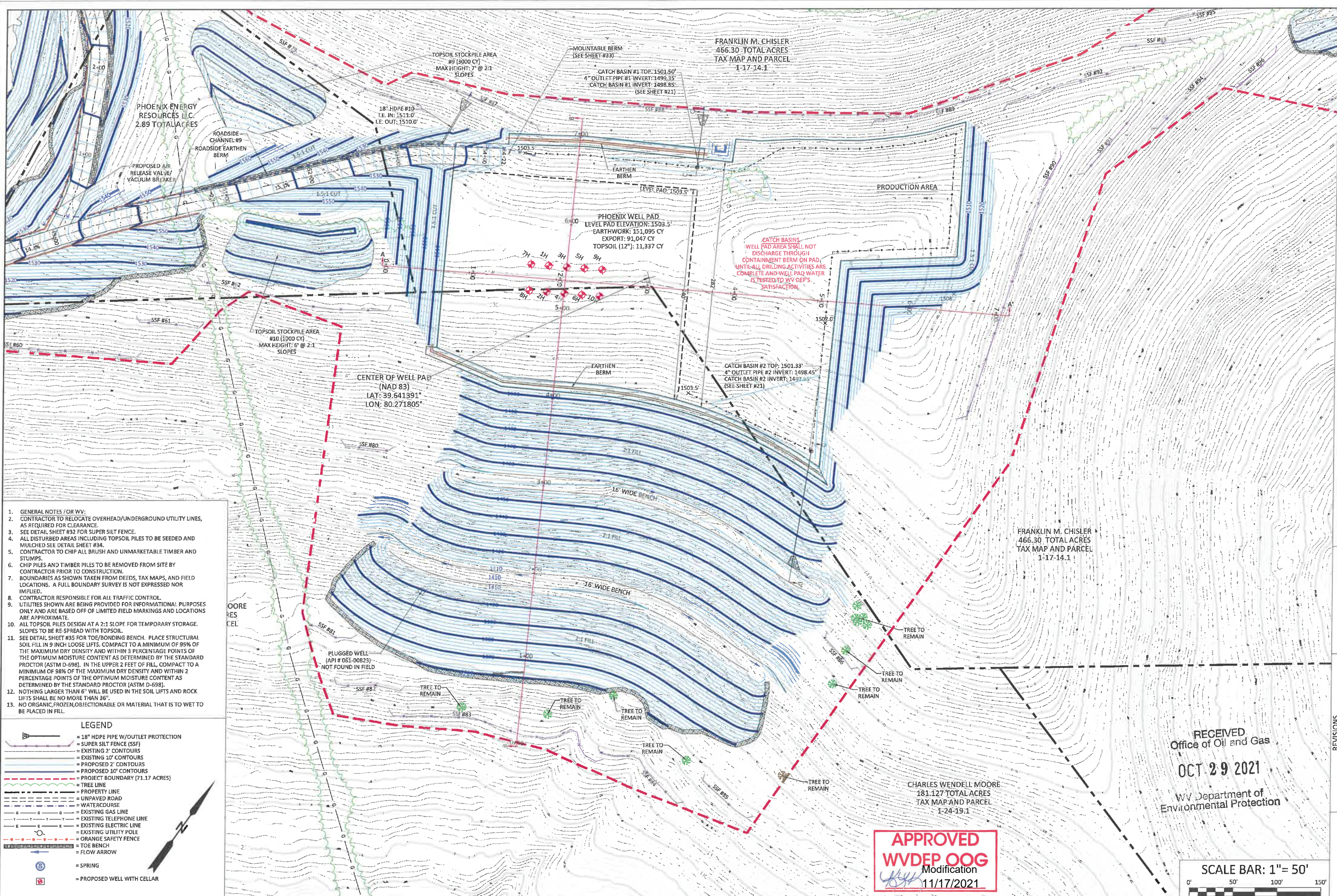
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 Southpointe, PA 15317 Phone: 724-746-1055

**E&S CONTROL AND SITE PLAN**

THIS DOCUMENT WAS PREPARED BY:  
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 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
 AUGUST 2020

PHOENIX WELL PAD  
 BATTELLE DISTRICT,  
 MONONGALIA  
 COUNTY, PA

| NO. | DATE    | DESCRIPTION                                  |
|-----|---------|--|
| 1   | 8.3.20  | REVISED PER WVDEP REVIEW COMMENTS ON 8.11.20 |
| 2   | 9.23.21 | RE-DESIGNED PRODUCTION AREA                  |

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11/19/2021

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FRANKLIN M. CHISLER  
466.30 TOTAL ACRES  
TAX MAP AND PARCEL  
1-17-14-1

**LEGEND**

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**E&S CONTROL AND  
SITE PLAN**

THIS DOCUMENT WAS PREPARED BY:  
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DATE:  
AUGUST 2020  
PHOENIX WELL PAD  
BATTELLE DISTRICT,  
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| NO. | DATE    | DESCRIPTION                       |
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| 1   | 9.3.20  | REVISED PER WVDEP REVIEW COMMENTS |
| 2   | 9.22.21 | RE-DESIGNED PRODUCTION AREA       |

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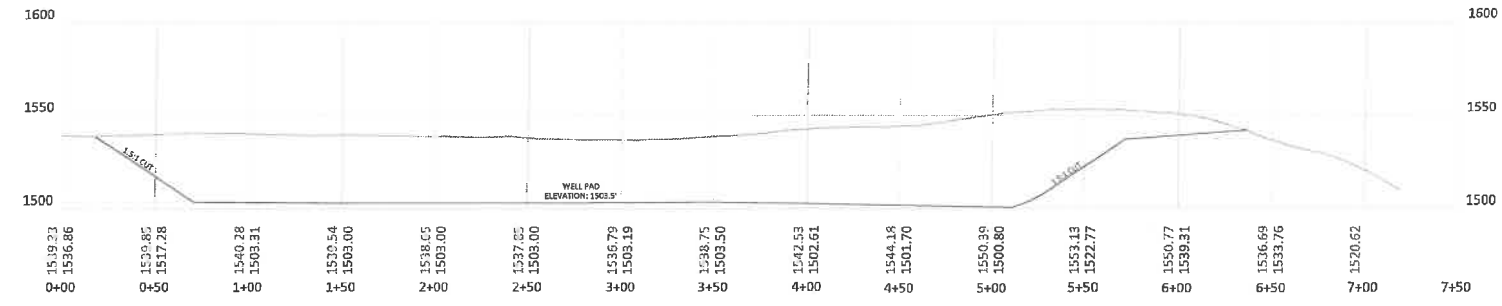
SCALE BAR: 1" = 50'  
0' 50' 100' 150'



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**WVDEP OOG**  
Modification  
11/17/2021

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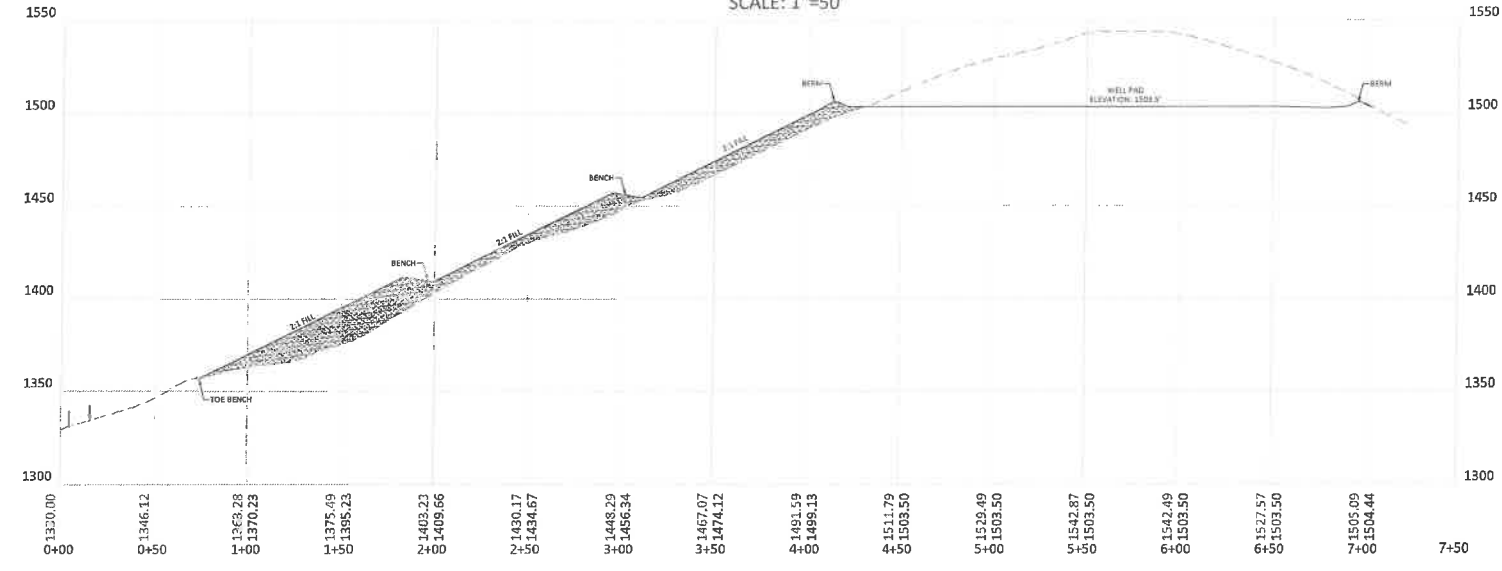
WELL PAD  
CROSS-SECTION A-A'  
SCALE: 1"=50'



LEGEND

- - - ORIGINAL GRADE
- PROPOSED GRADE
- PROJECT BOUNDARY
- SUPER SILT FENCE

WELL PAD  
CROSS-SECTION B-B'  
SCALE: 1"=50'

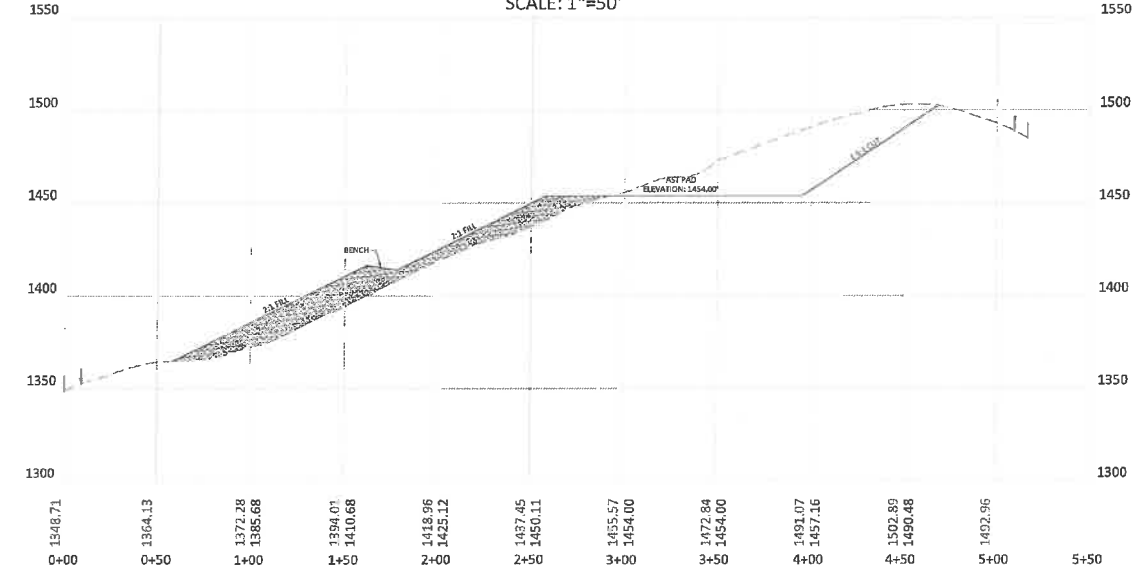


\*SEE DETAIL SHEET #35 FOR TOE/BONDING BENCH.

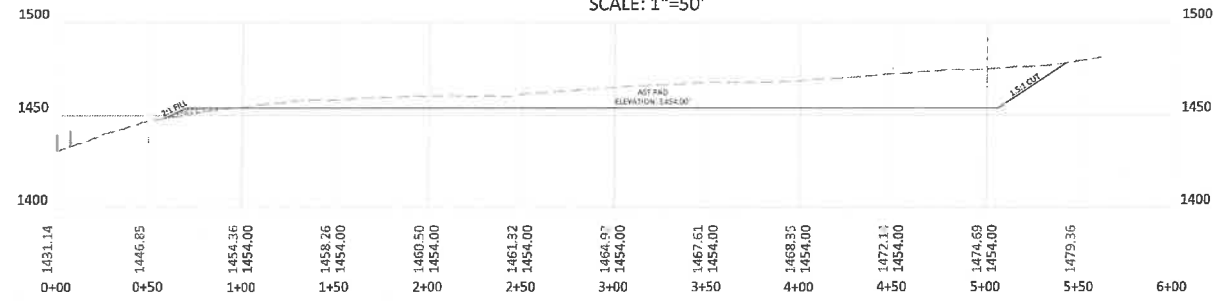
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AST PAD  
CROSS-SECTION C-C'  
SCALE: 1"=50'



AST PAD  
CROSS-SECTION D-D'  
SCALE: 1"=50'



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**WELL PAD AND AST PAD  
CROSS-SECTIONS**

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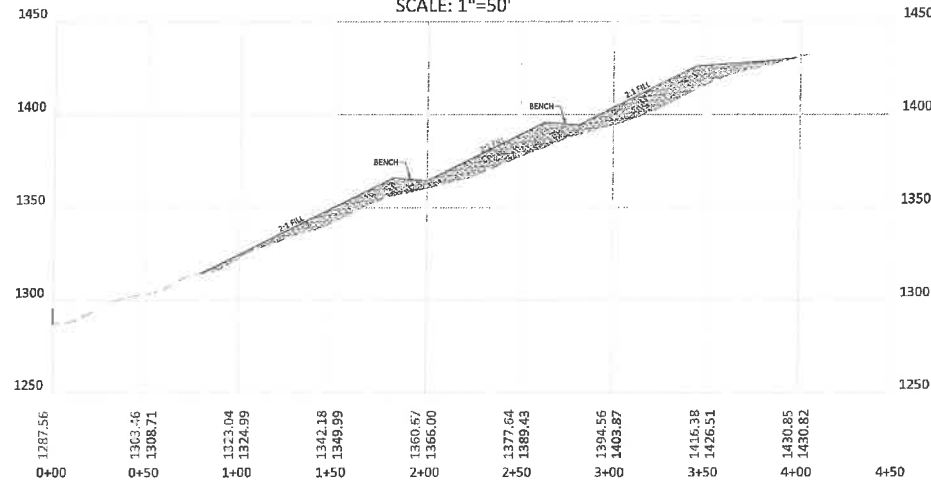
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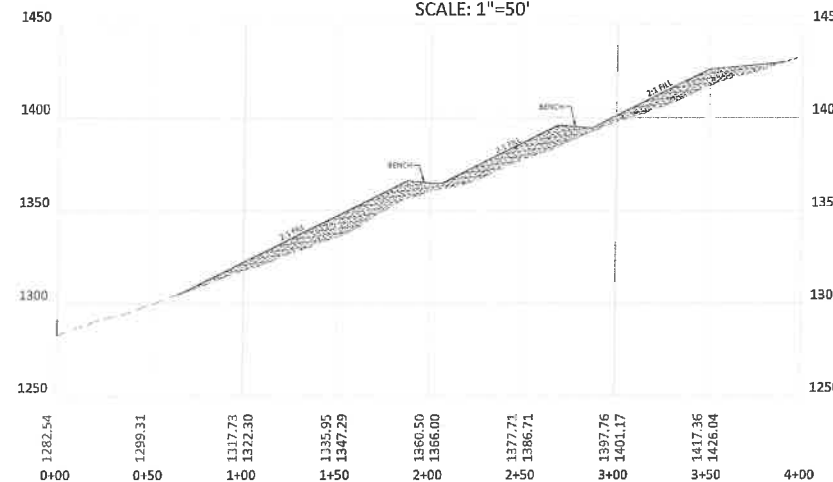
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EXCESS MATERIAL STOCKPILE AREA (42,842 CY)  
CROSS-SECTION E-E'  
SCALE: 1"=50'

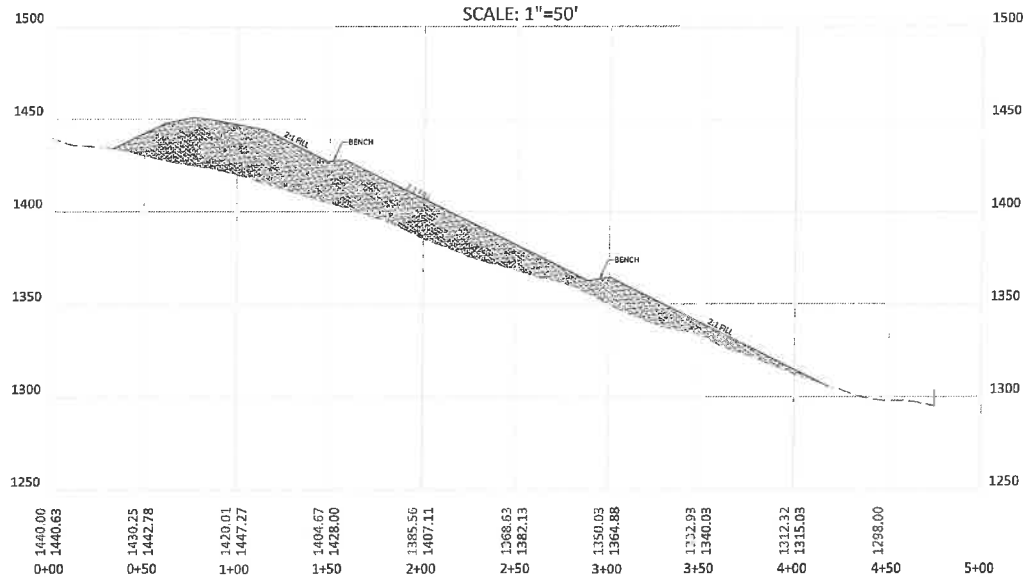


EXCESS MATERIAL STOCKPILE AREA (42,842 CY)  
CROSS-SECTION F-F'  
SCALE: 1"=50'

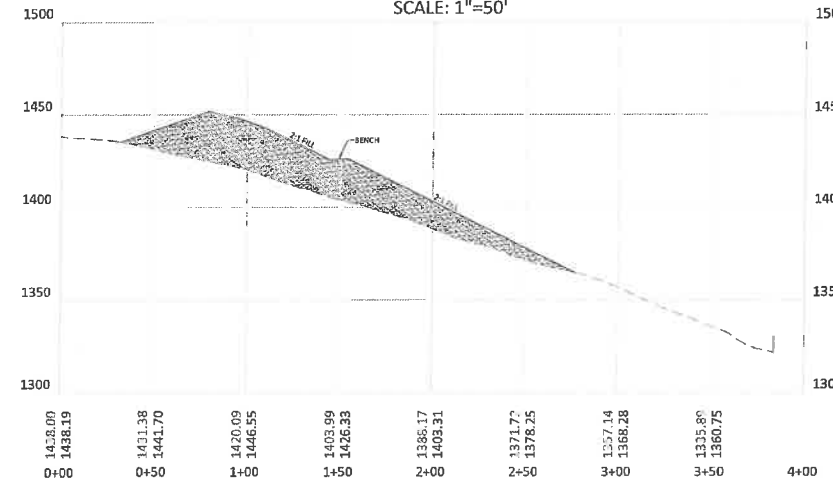


LEGEND  
 - - - - - ORIGINAL GRADE  
 - - - - - PROPOSED GRADE  
 --- PROJECT BOUNDARY  
 --- SUPER SILT FENCE

EXCESS MATERIAL STOCKPILE AREA (53,344 CY)  
CROSS-SECTION G-G'  
SCALE: 1"=50'



EXCESS MATERIAL STOCKPILE AREA (53,344 CY)  
CROSS-SECTION H-H'  
SCALE: 1"=50'



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EXCESS MATERIAL STOCKPILE AREA  
CROSS-SECTIONS

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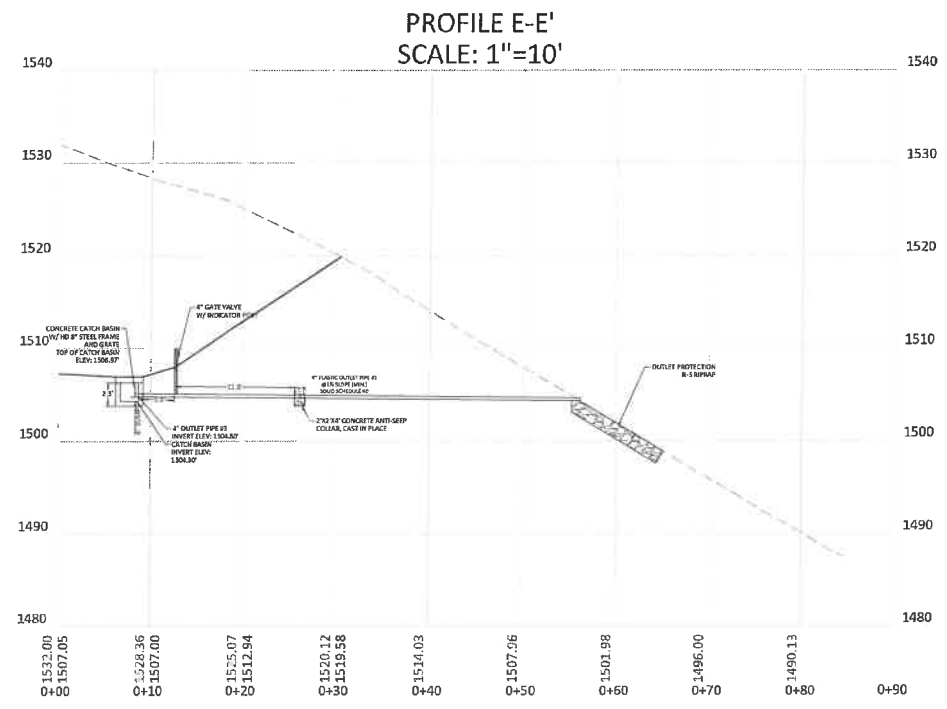
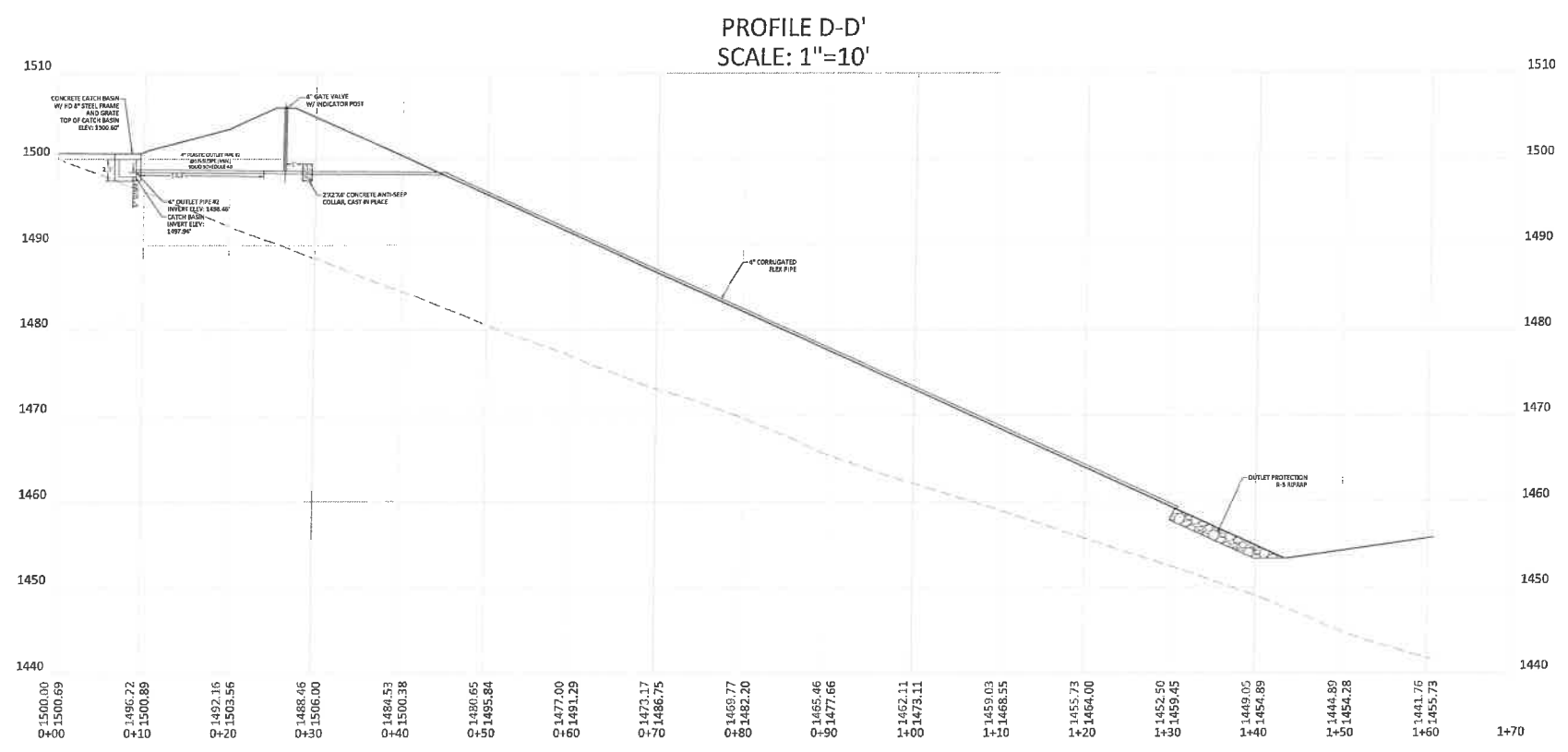
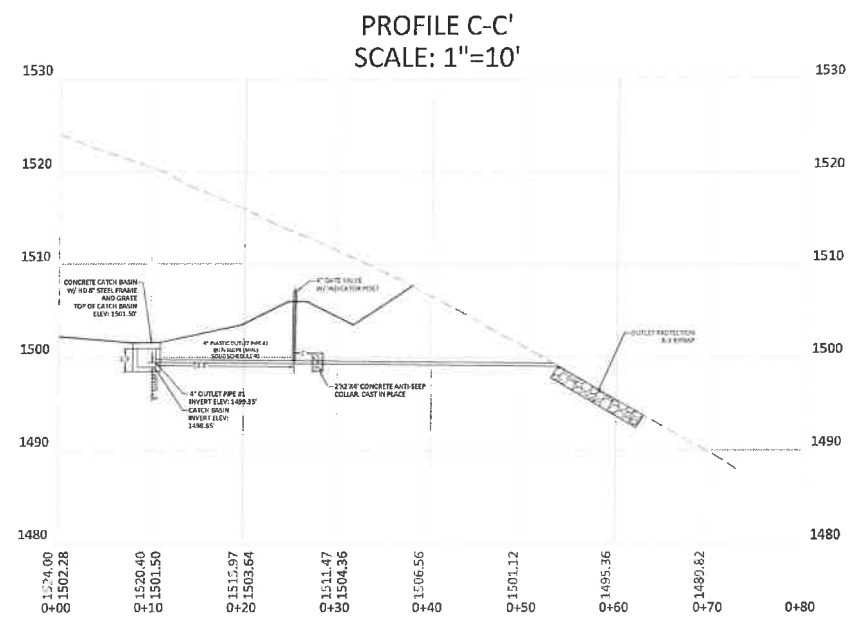
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**LEGEND**  
 EXISTING GRADE - - - - -  
 PROPOSED GRADE \_\_\_\_\_

**APPROVED**  
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 Modification  
*[Signature]*  
 11/17/2021

CATCH BASINS  
 WELL PAD AREA SHALL NOT DISCHARGE THROUGH CONTAINMENT BERM  
 ON PAD UNTIL ALL DRILLING ACTIVITIES ARE COMPLETE AND WELL PAD  
 WATER IS TESTED TO WV DEP'S SATISFACTION.

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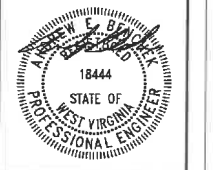


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**UNDER DRAIN  
 PROFILES**  
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 COUNTY, PA

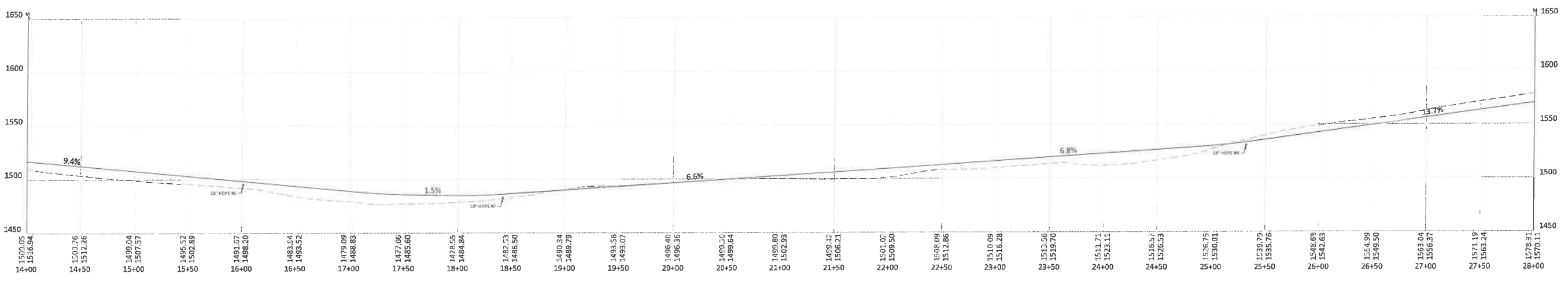
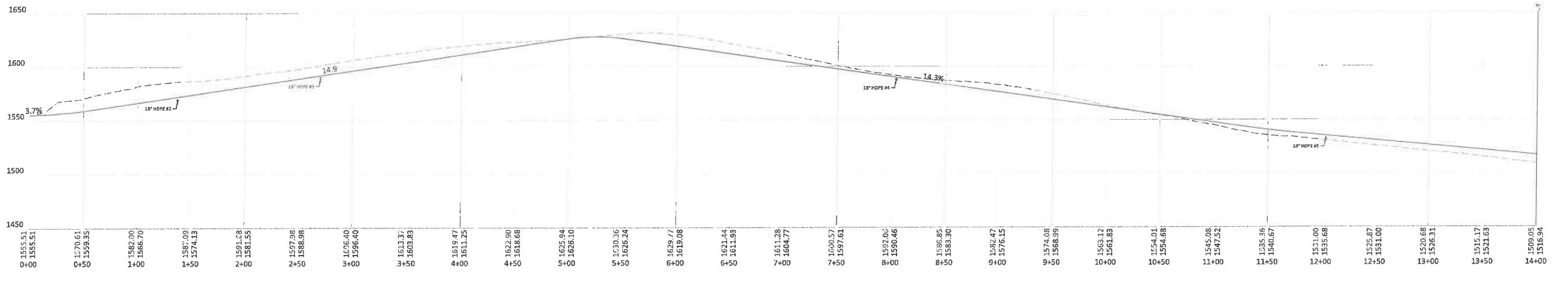
| NO. | DATE    | DESCRIPTION                 |
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| 2   | 9/22/21 | RE-DESIGNED PRODUCTION AREA |



11/19/2021

LEGEND  
 - - - ORIGINAL GRADE  
 — PROPOSED GRADE

ACCESS ROAD PROFILE  
 SCALE: 1"=50'



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ACCESS ROAD PROFILE  
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 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
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 COUNTY, PA

| NO. | DATE | REVISIONS DESCRIPTION |
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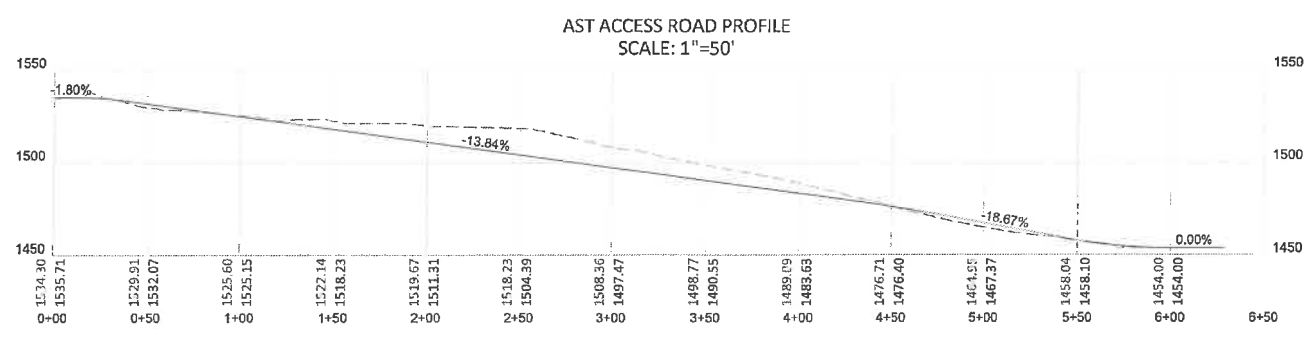
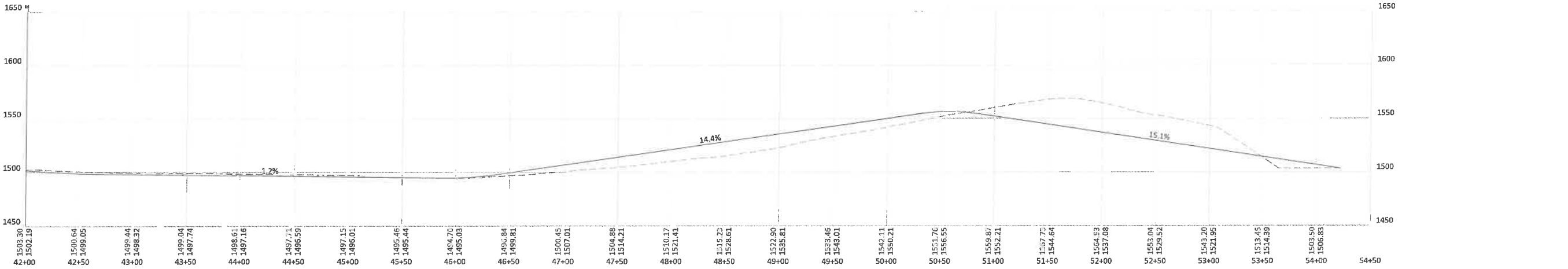
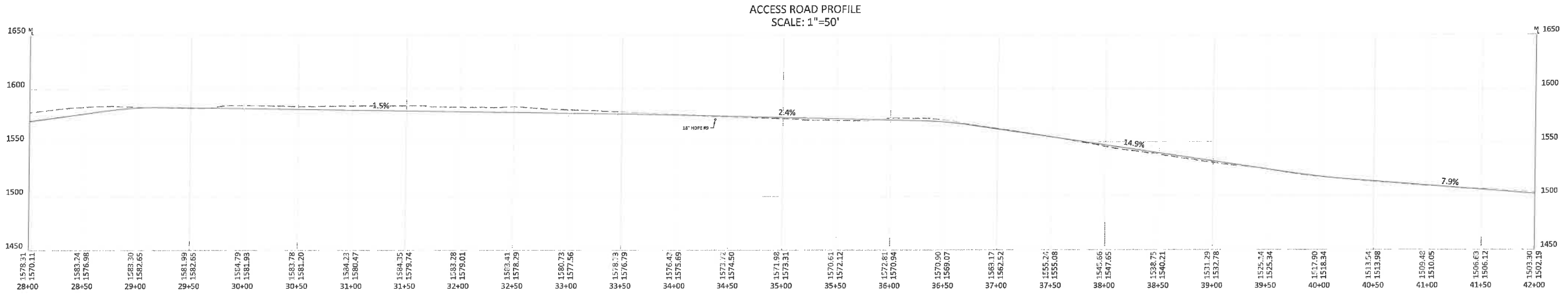
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**LEGEND**  
 - - - ORIGINAL GRADE  
 \_\_\_\_\_ PROPOSED GRADE

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 Southpointe, PA 15317 Phone: 724-746-1055

**ACCESS ROAD AND AST ACCESS ROAD PROFILES**

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 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
 AUGUST 2020  
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 COUNTY, PA

| NO. | DATE   | DESCRIPTION                                 |
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| 1   | 9.3.20 | REVISED PER WVDEP REVIEW COMMENTS ON 9.1.20 |

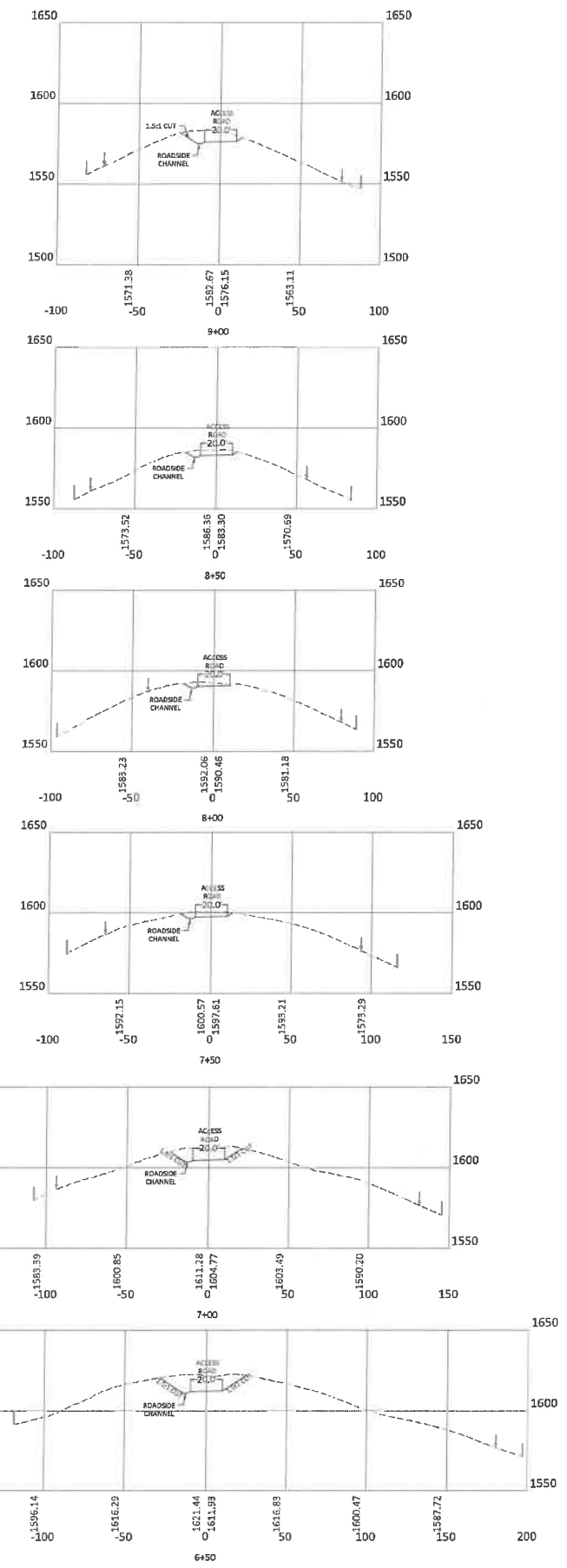
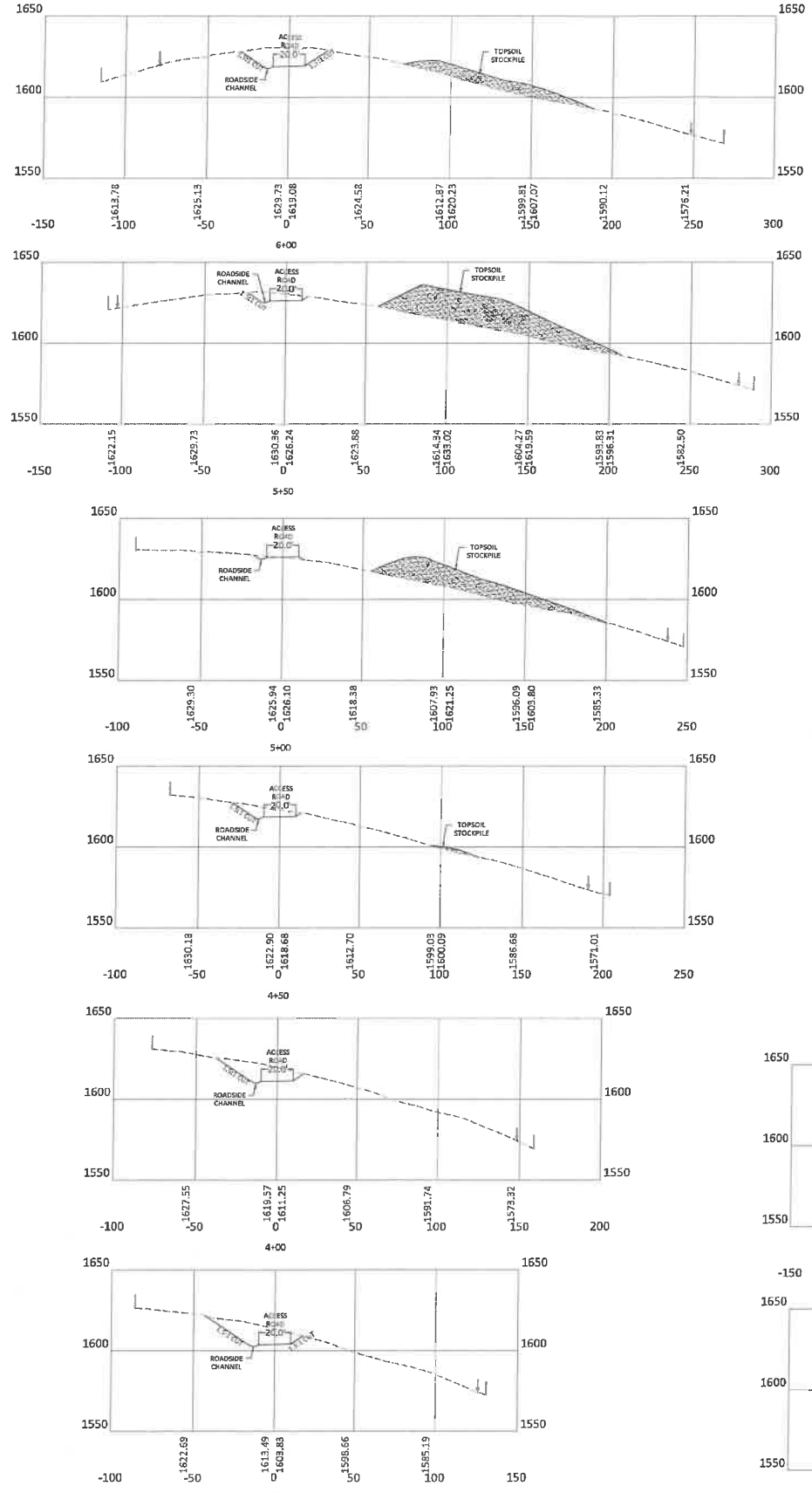
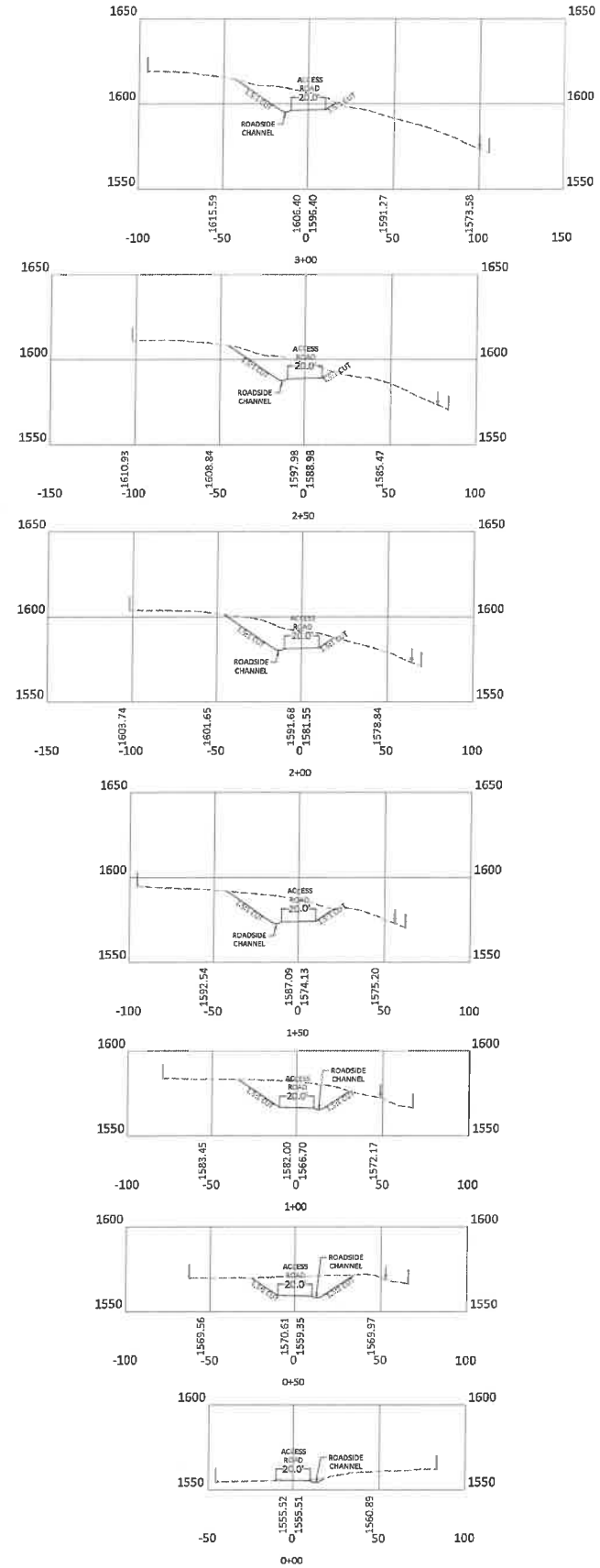
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ACCESS ROAD CROSS-SECTIONS  
SCALE: 1"=50'



LEGEND  
 - - - ORIGINAL GRADE  
 - - - PROPOSED GRADE  
 - - - PROJECT BOUNDARY  
 - - - SUPER SILT FENCE

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SCALE BAR: 1" = 50'  
 0' 50' 100' 150'

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ACCESS ROAD  
 CROSS-SECTIONS

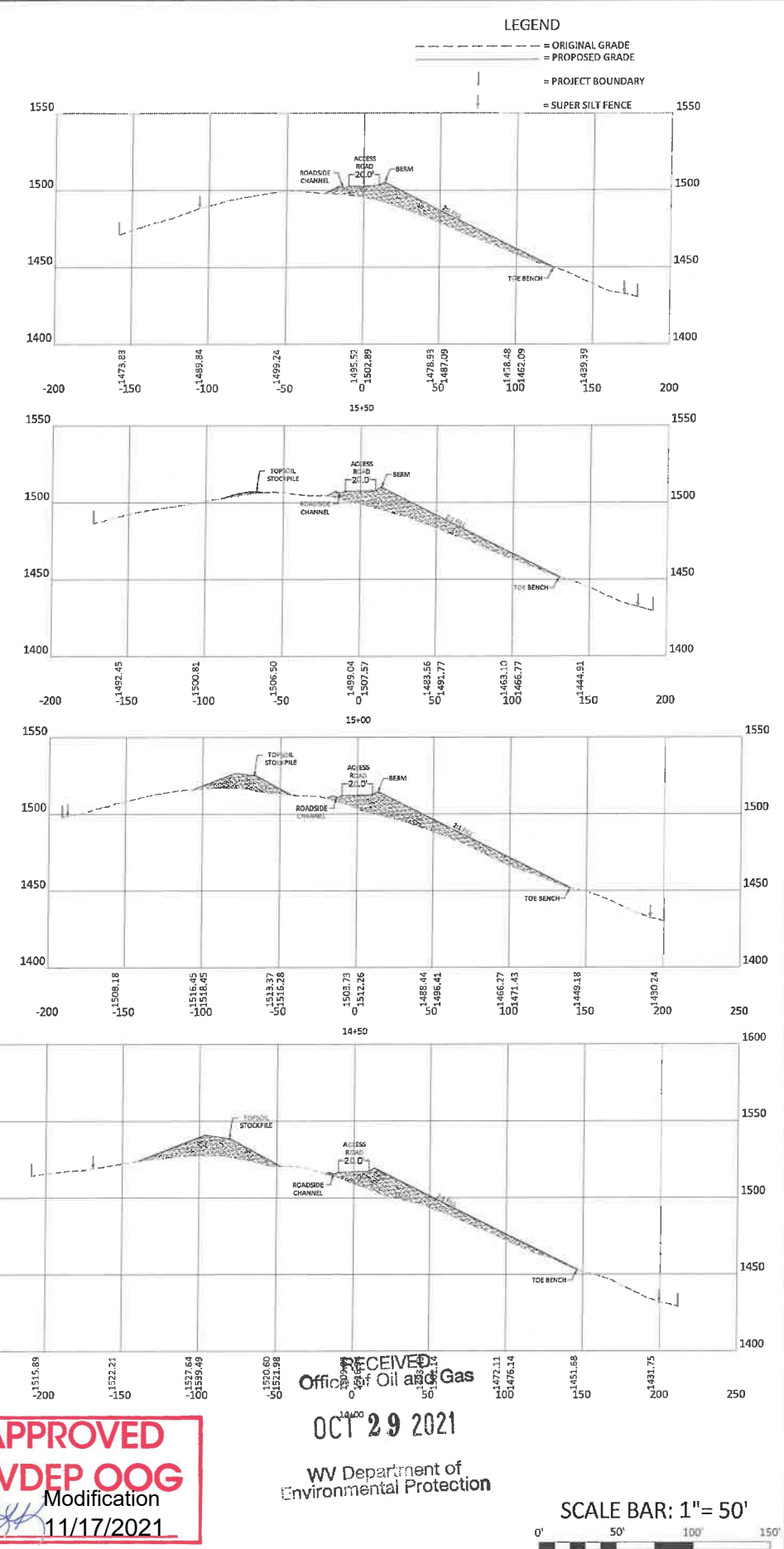
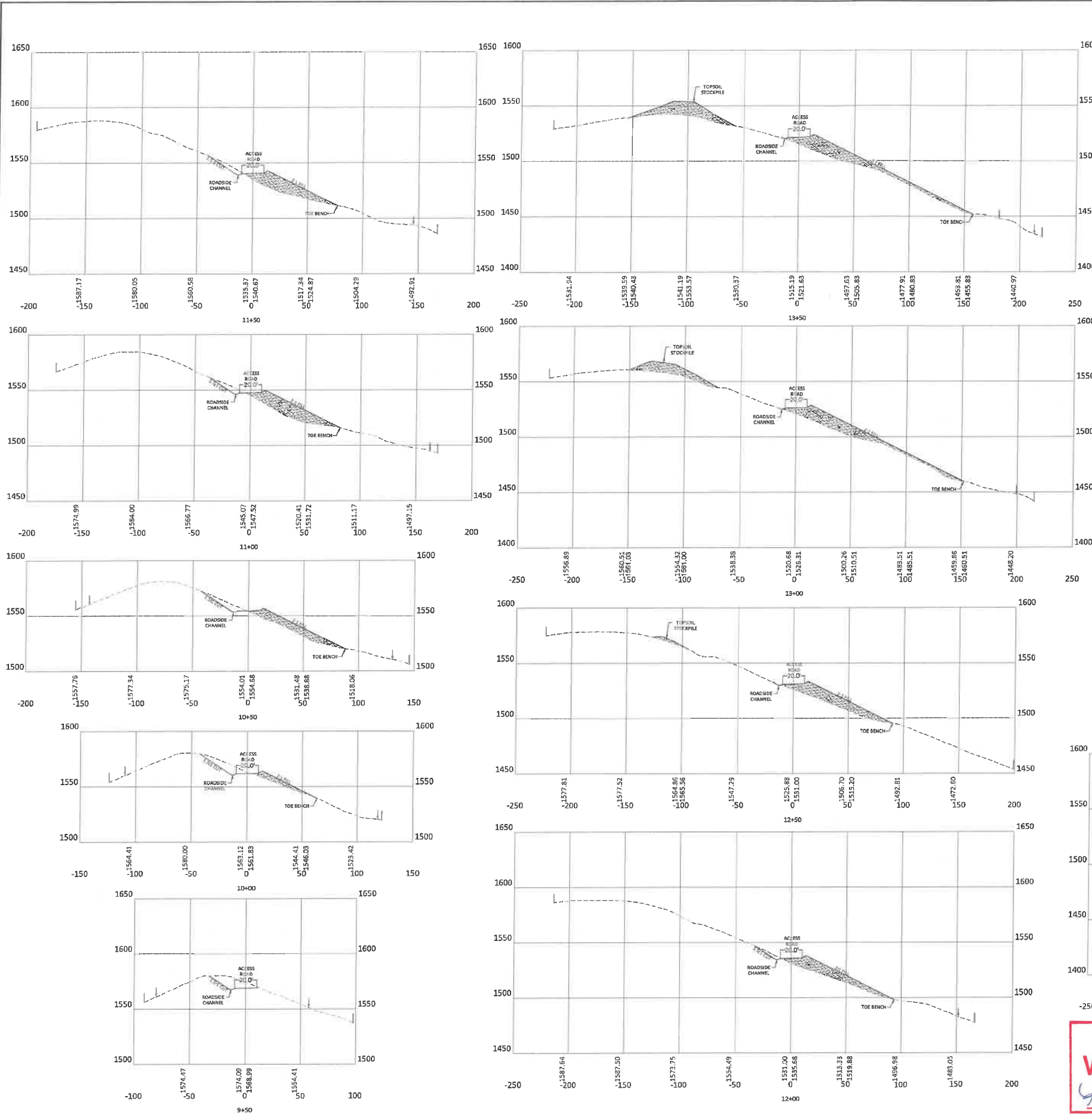
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**LEGEND**  
 - - - ORIGINAL GRADE  
 - - - PROPOSED GRADE  
 --- PROJECT BOUNDARY  
 --- SUPER SILTY FENCE

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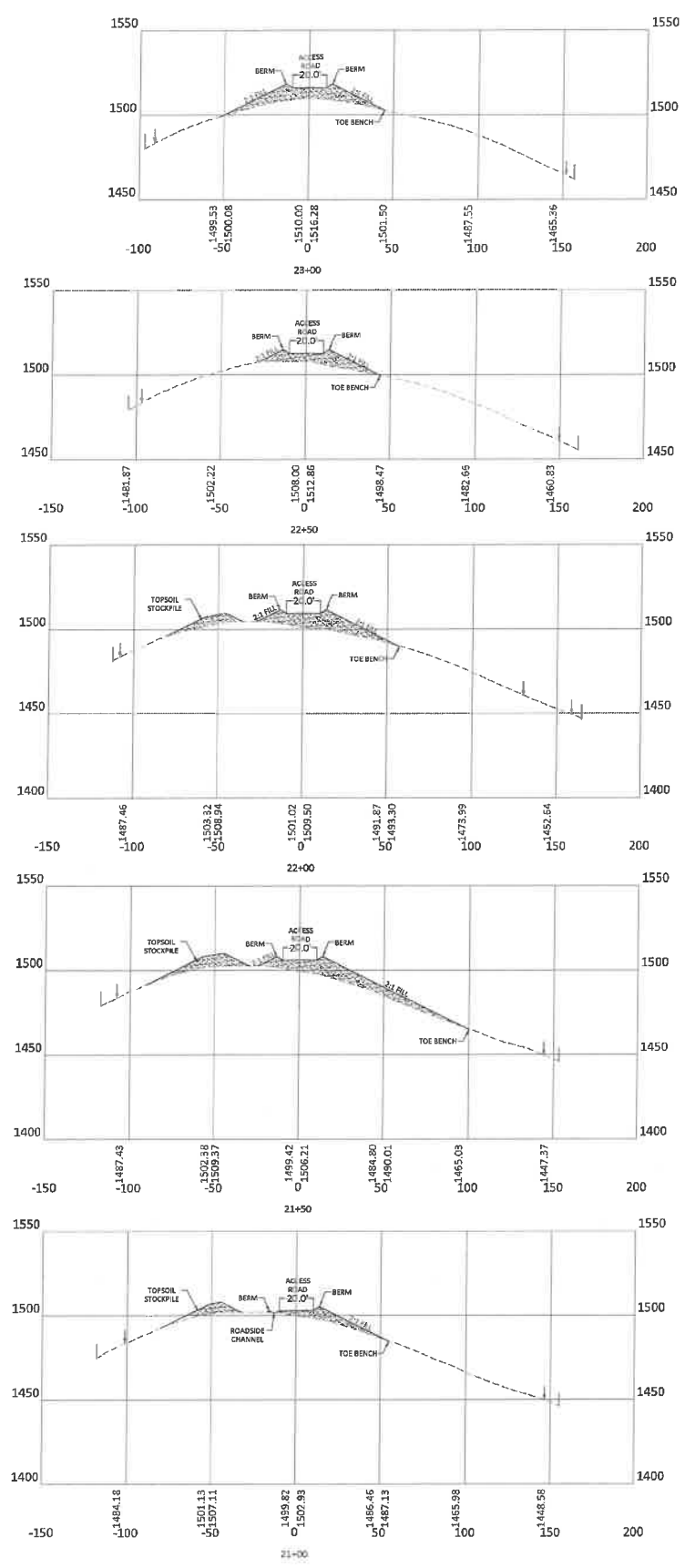
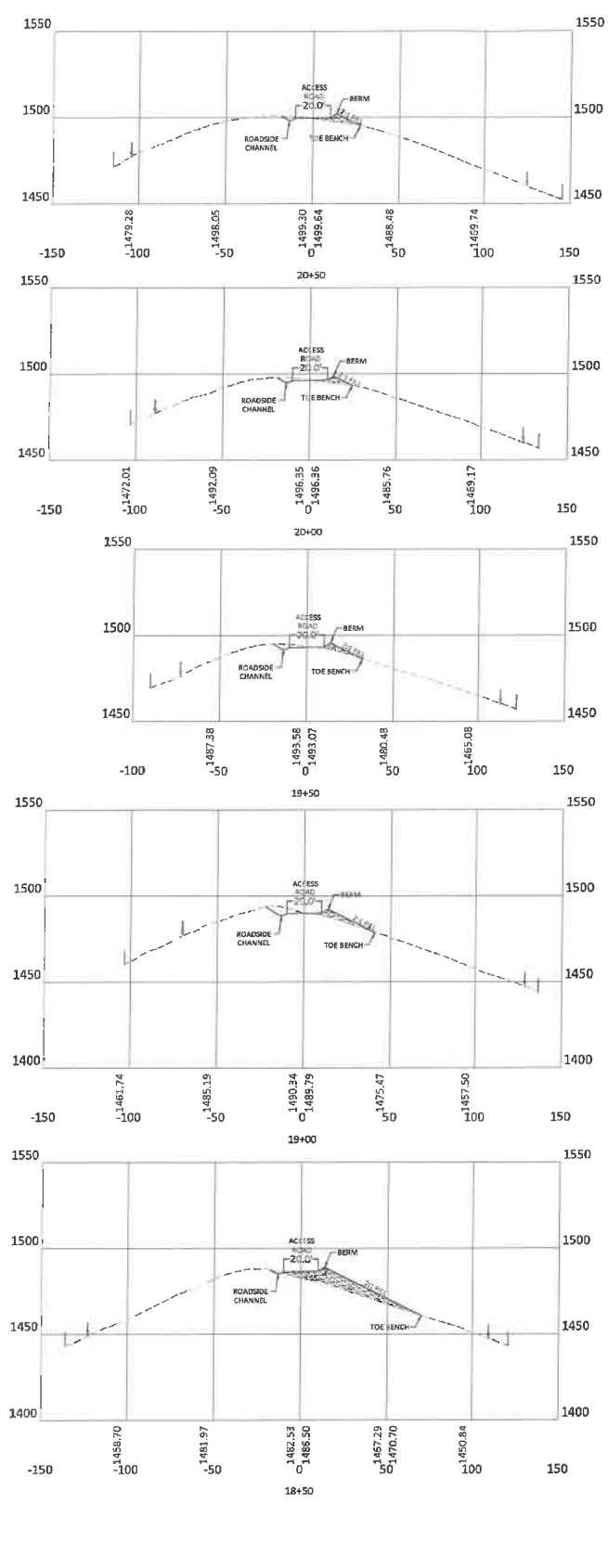
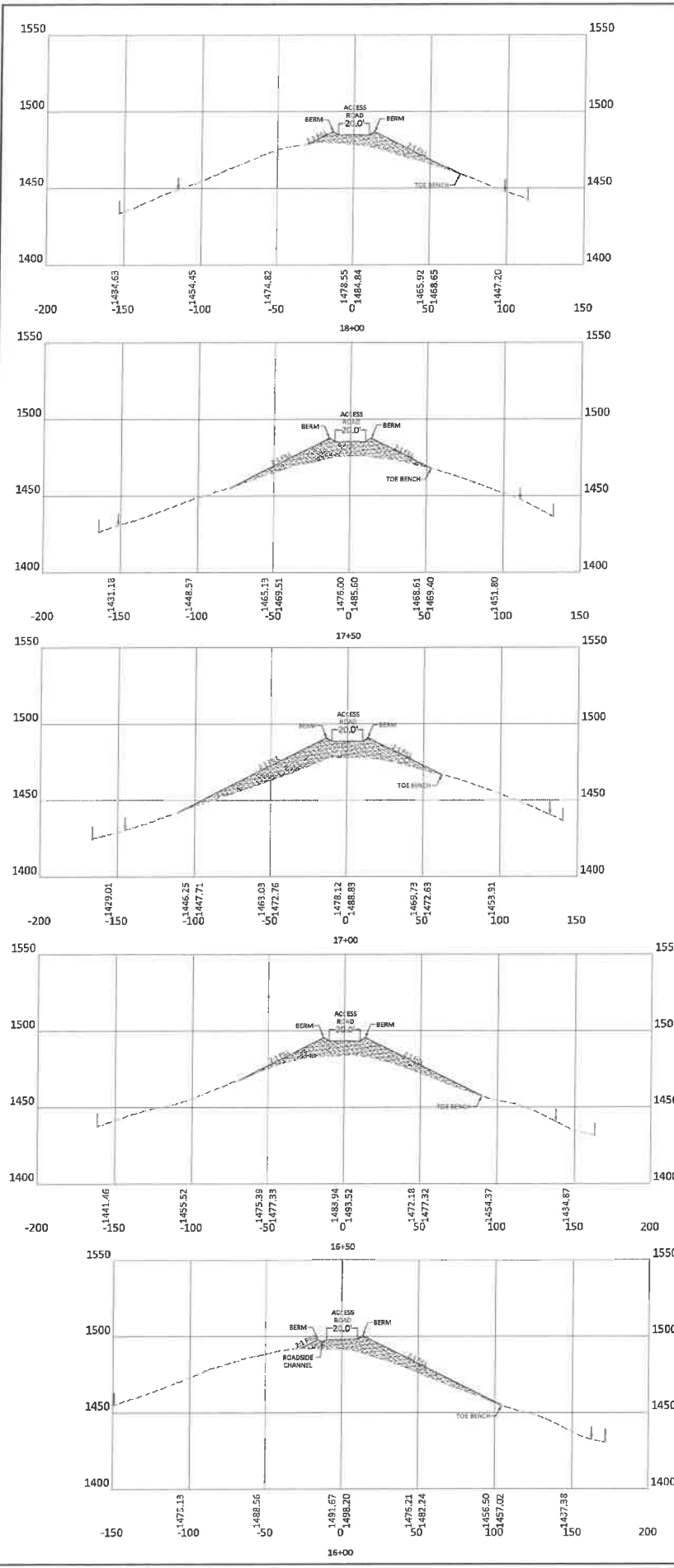
**ACCESS ROAD  
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**LEGEND**  
 - - - ORIGINAL GRADE  
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 - - - PROJECT BOUNDARY  
 - - - SUPER SILT FENCE

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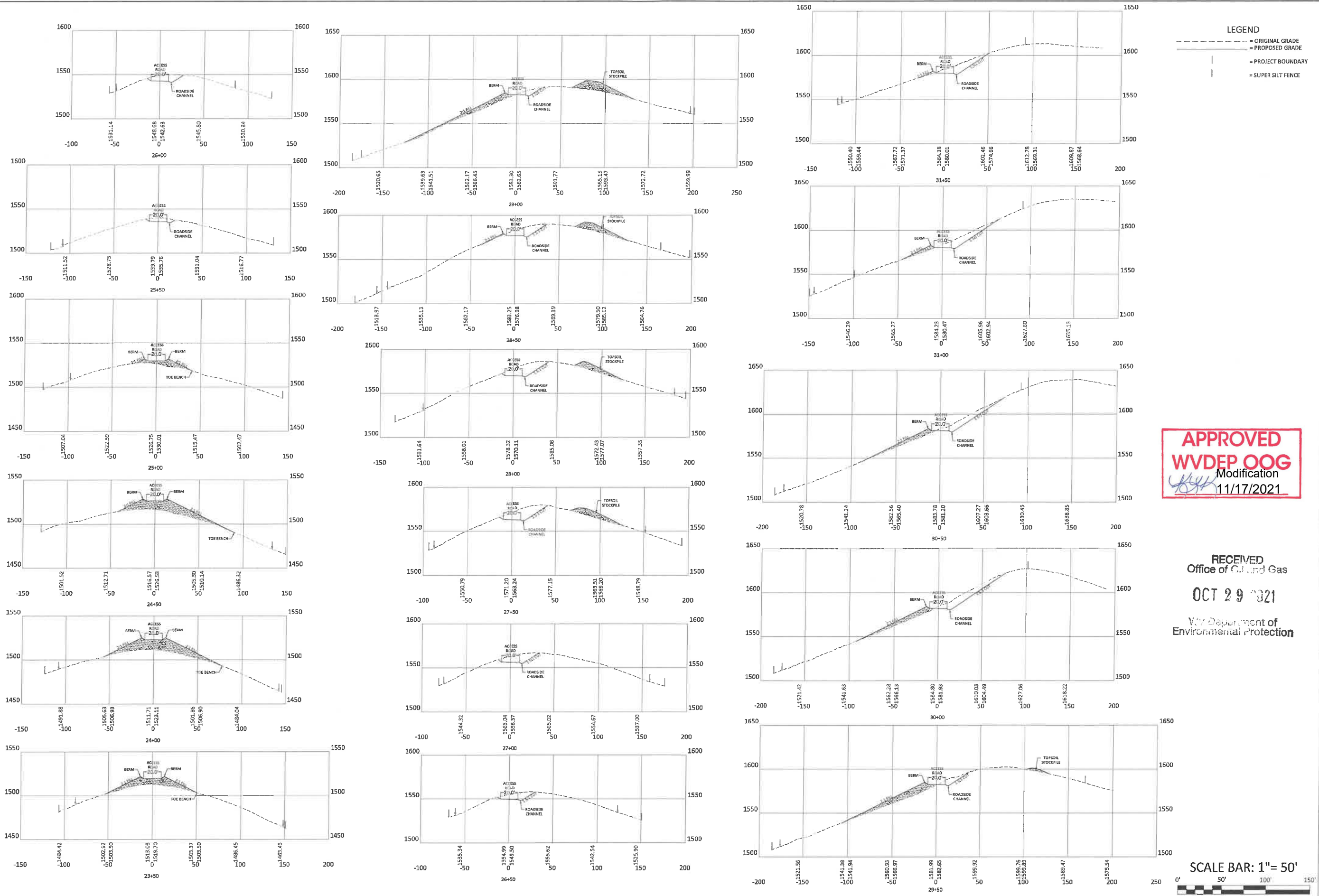
**ACCESS ROAD CROSS-SECTIONS**  
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**LEGEND**

- - - ORIGINAL GRADE
- PROPOSED GRADE
- PROJECT BOUNDARY
- - - SUPER SILT FENCE

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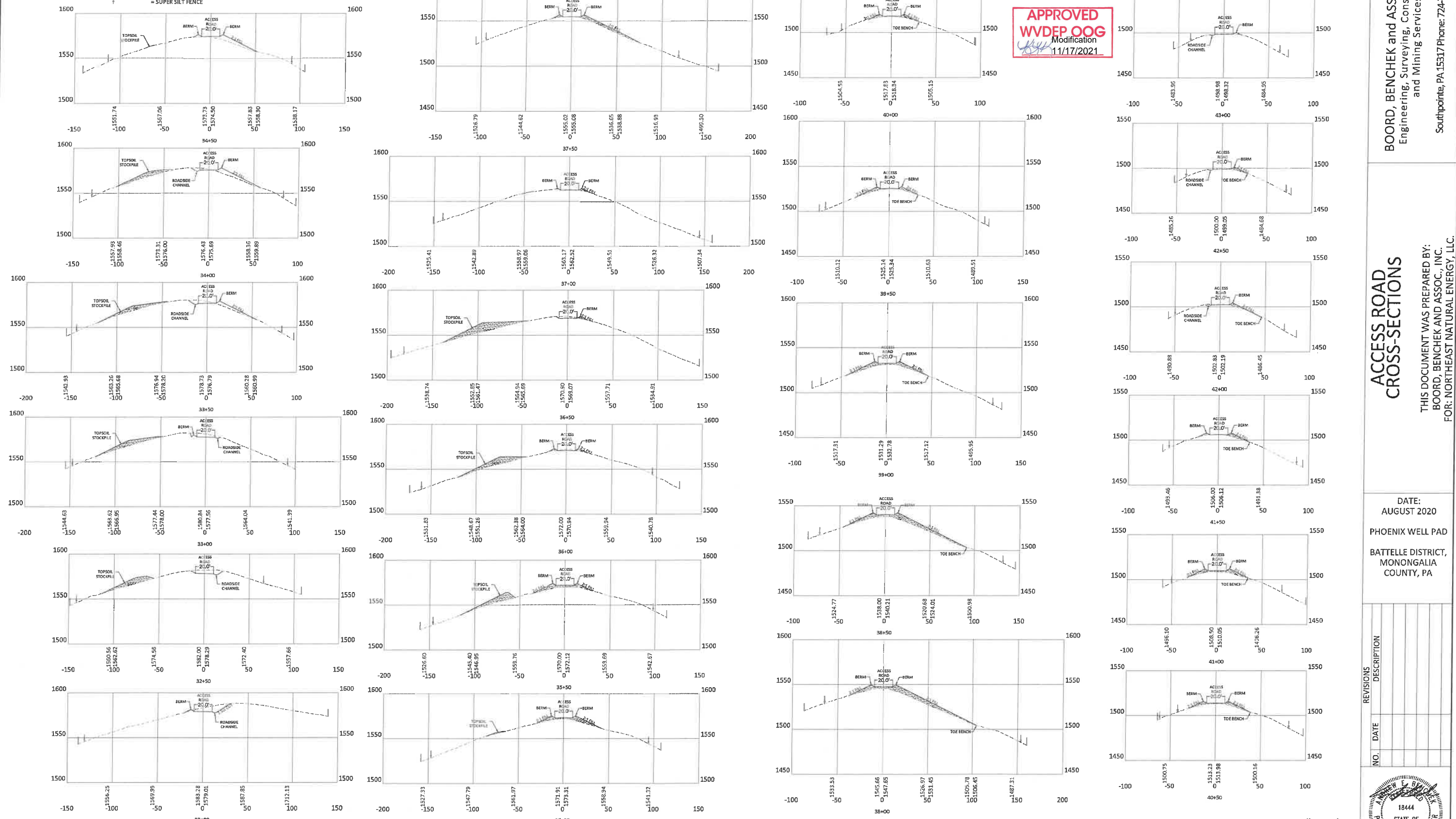
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LEGEND

- - - ORIGINAL GRADE
- PROPOSED GRADE
- PROJECT BOUNDARY
- SUPER SILT FENCE



SCALE BAR: 1" = 50'



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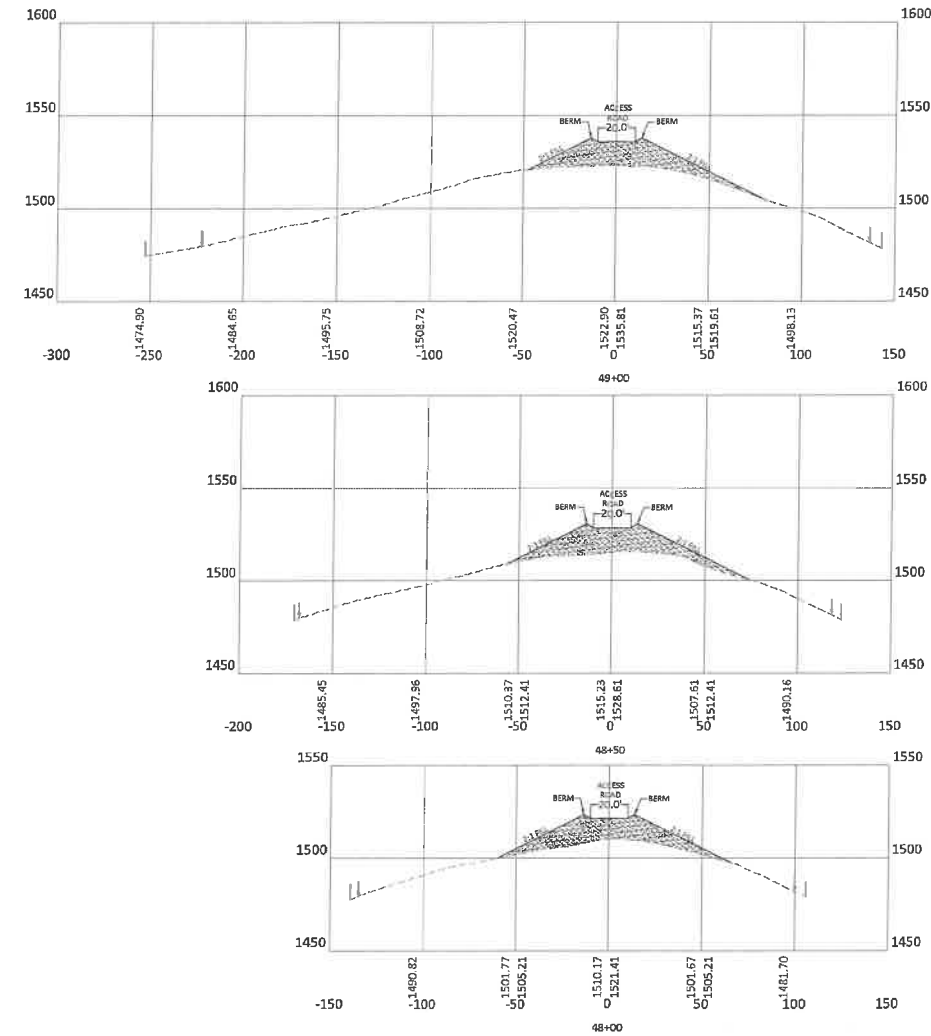
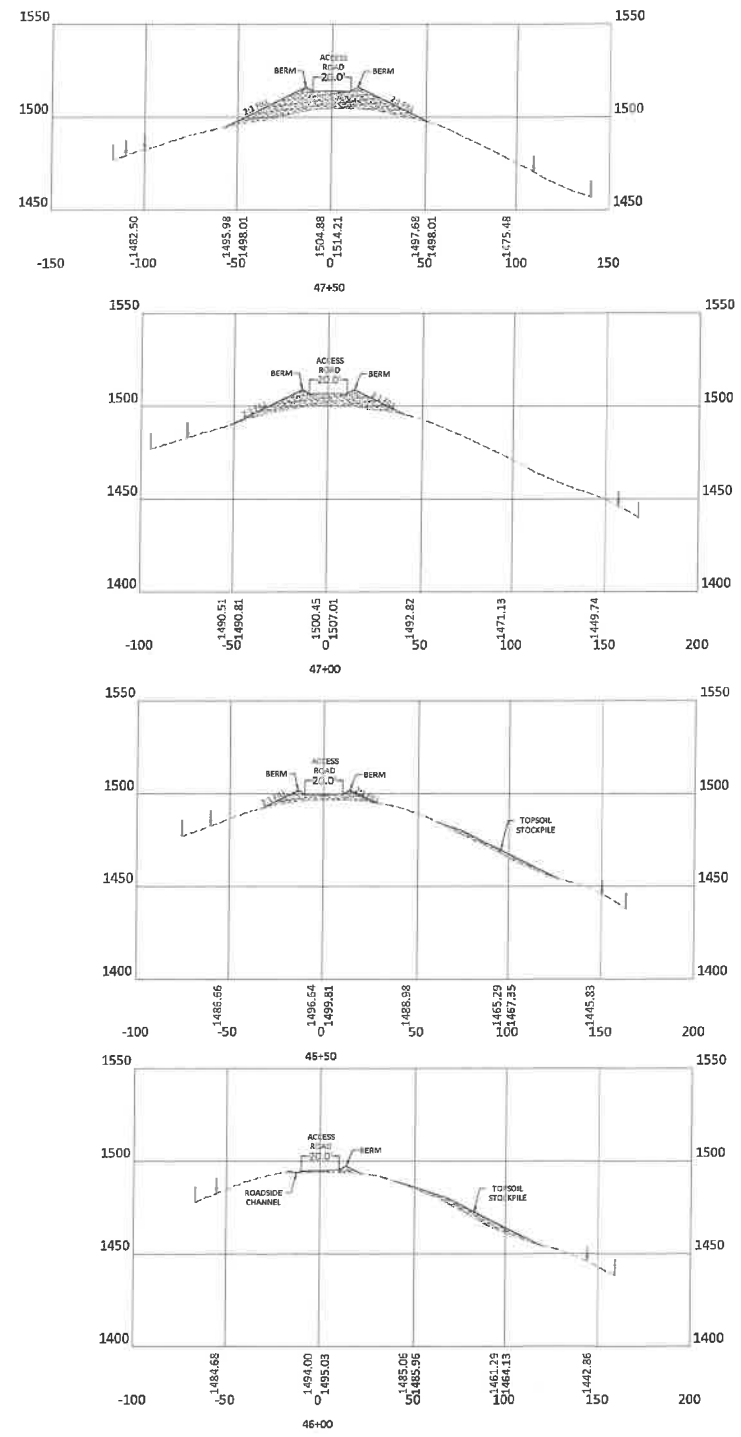
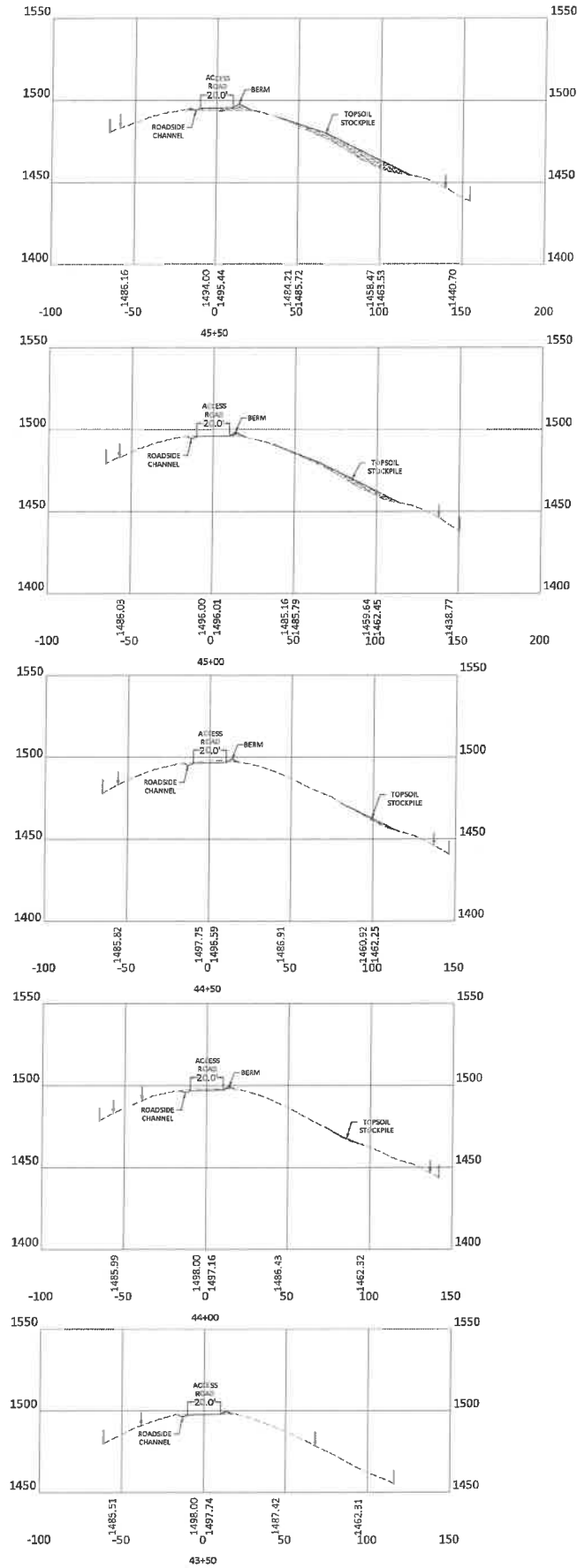
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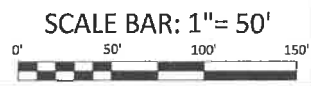
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 - - - ORIGINAL GRADE  
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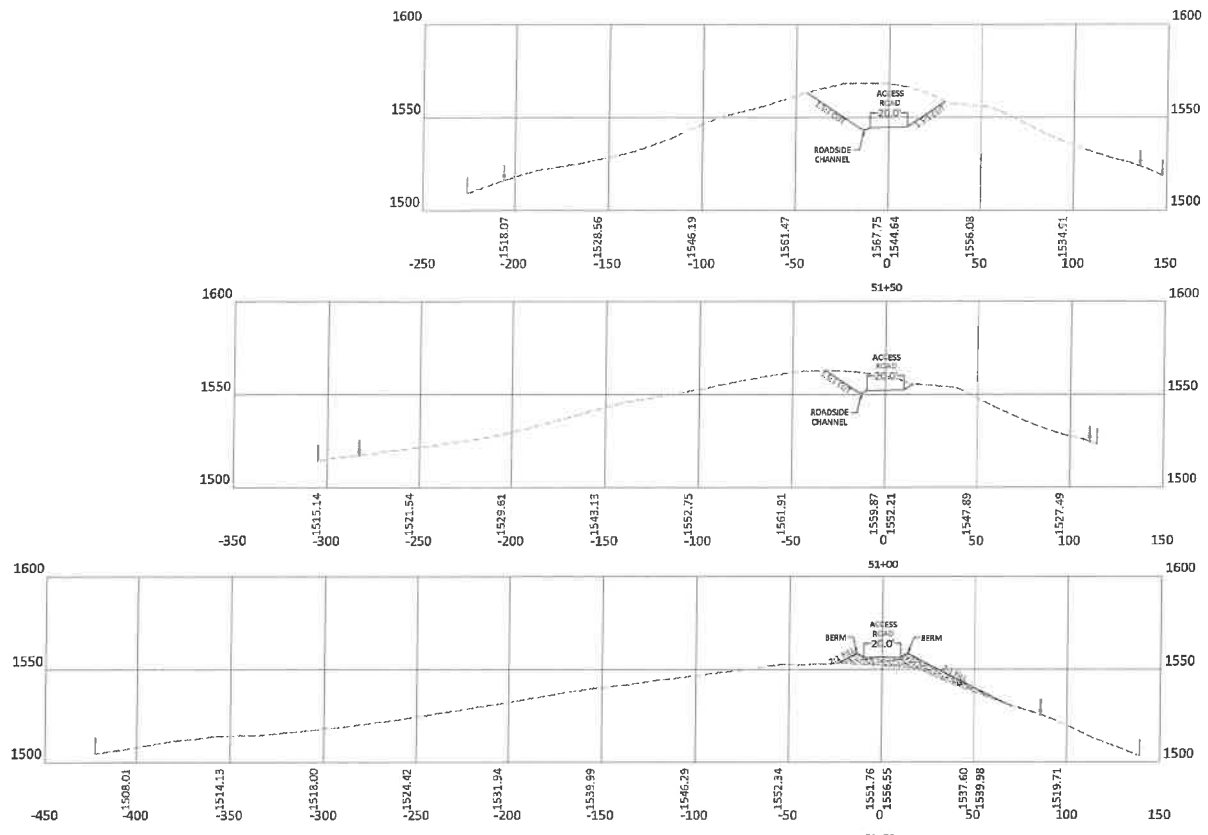
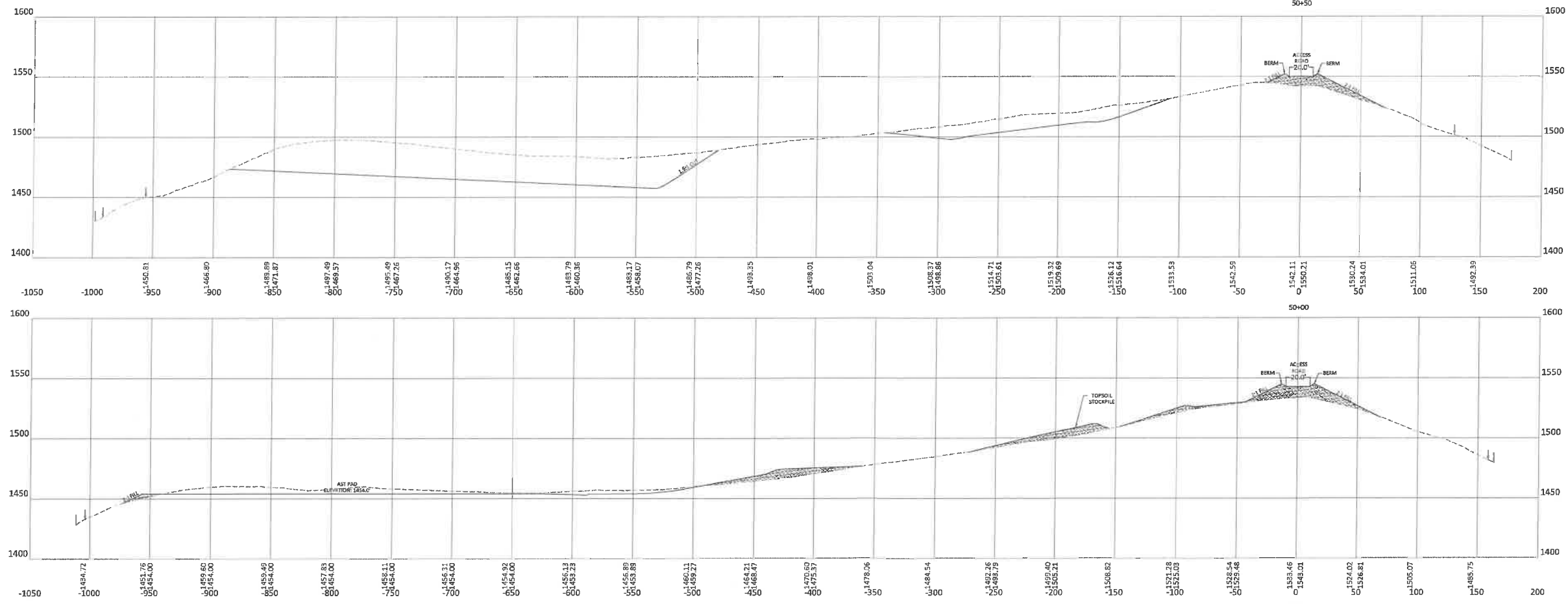
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**LEGEND**  
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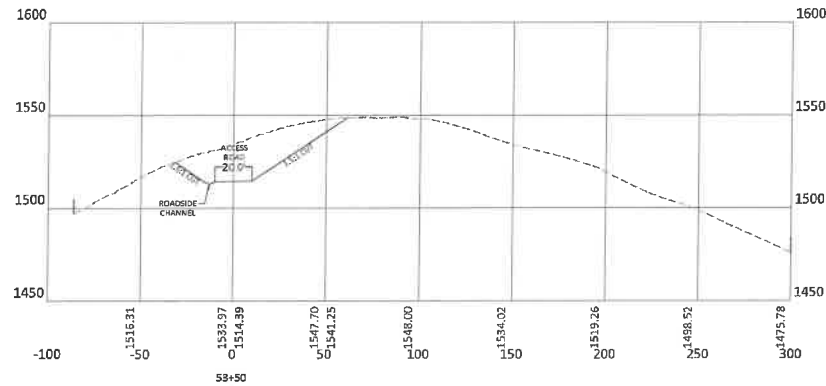
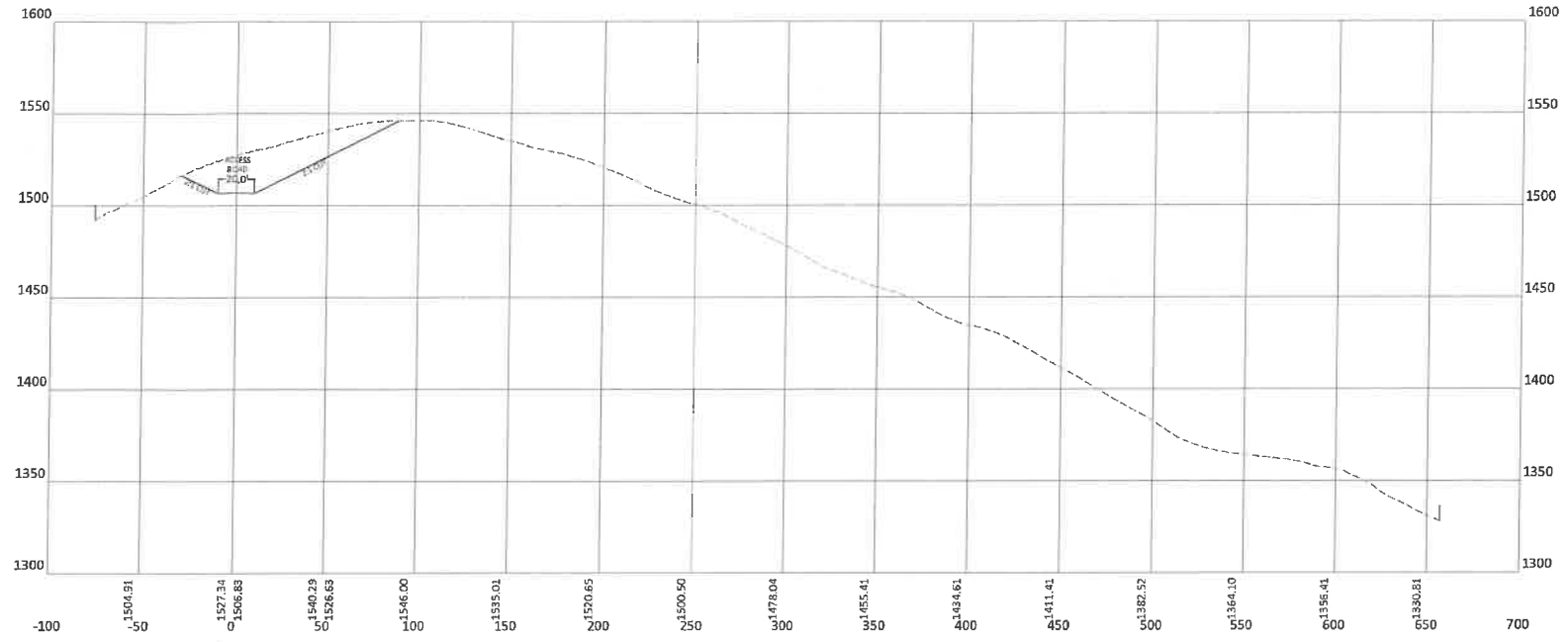
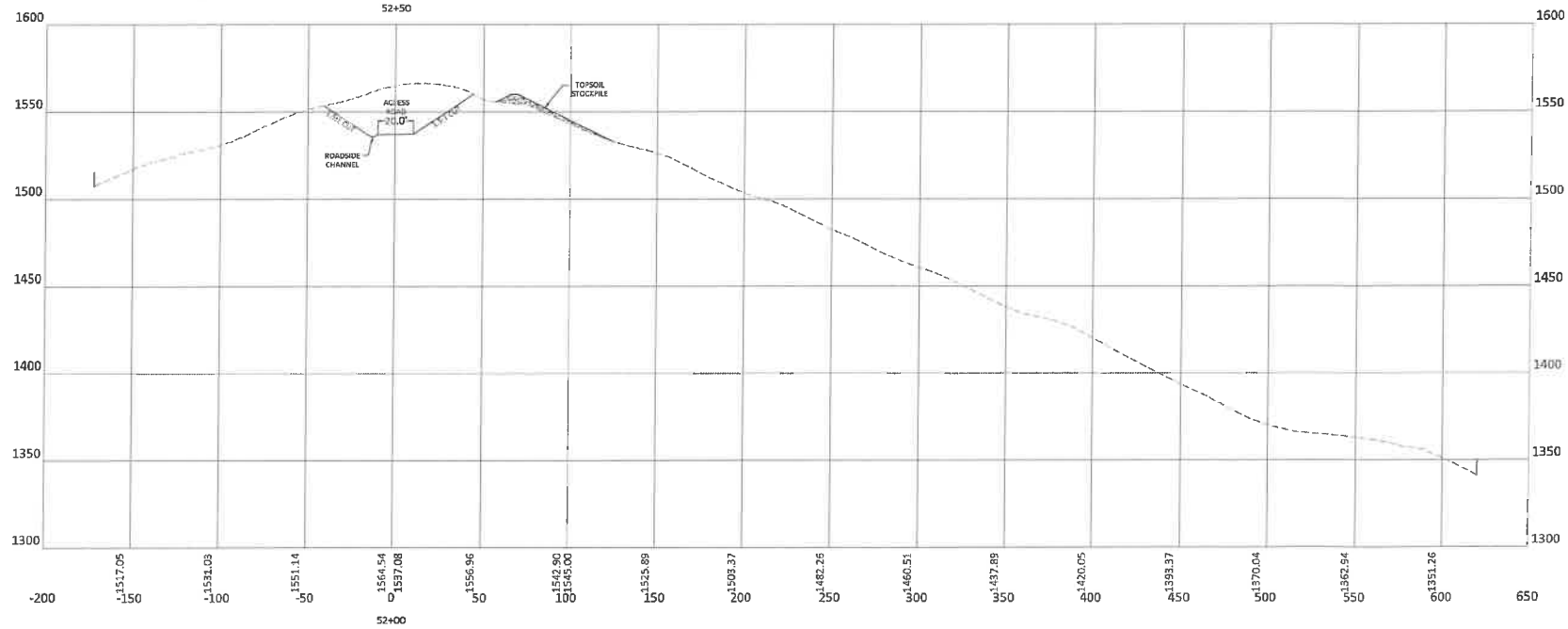
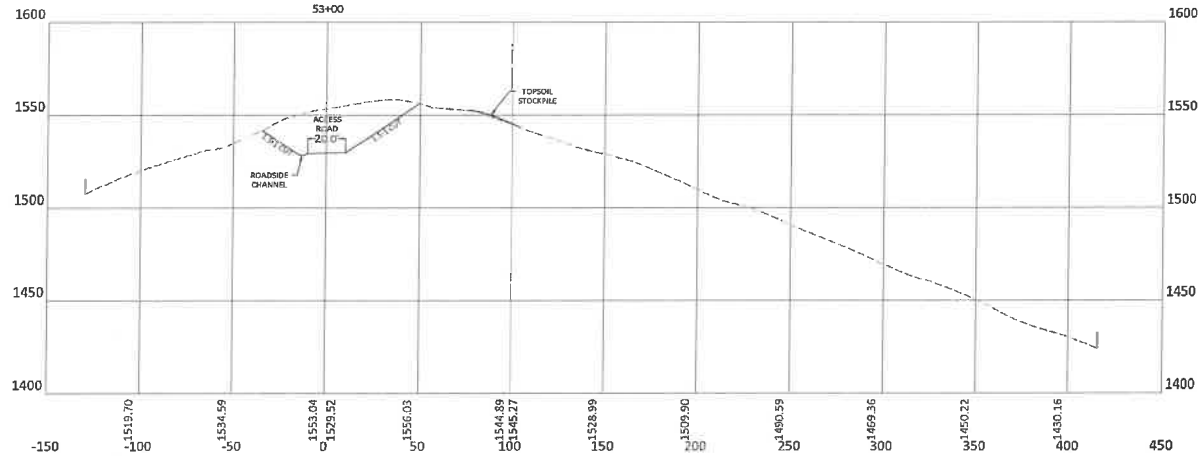
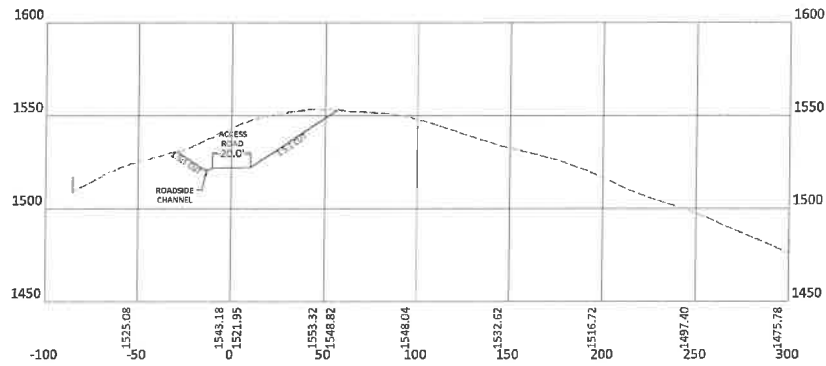
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**LEGEND**

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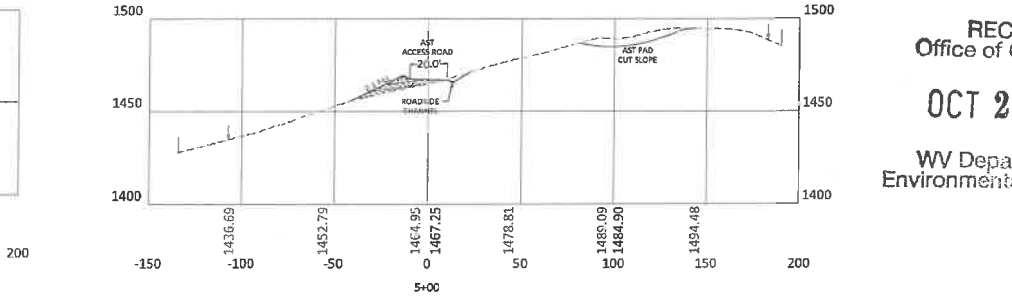
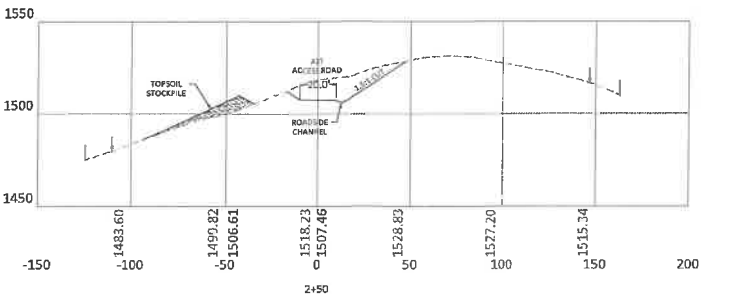
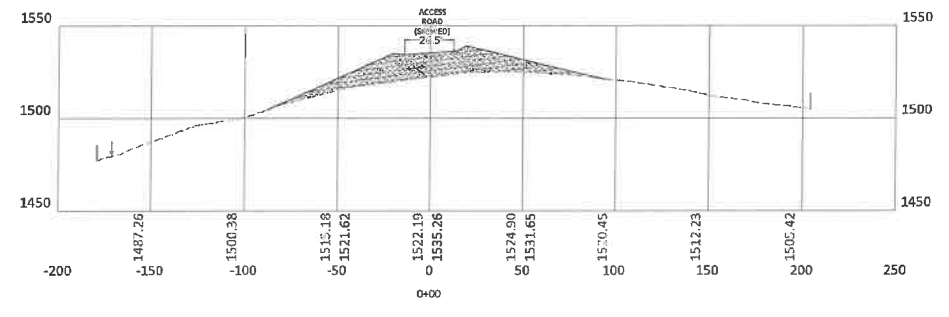
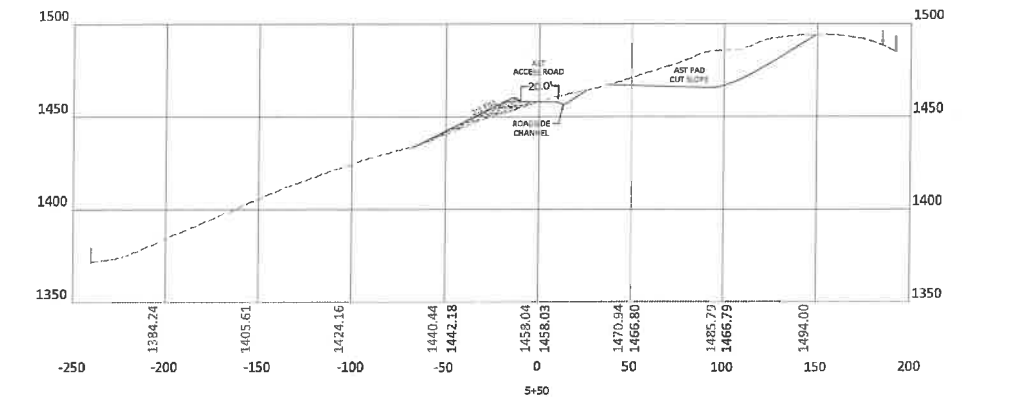
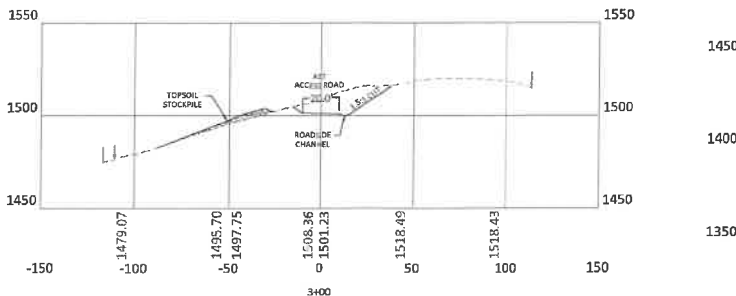
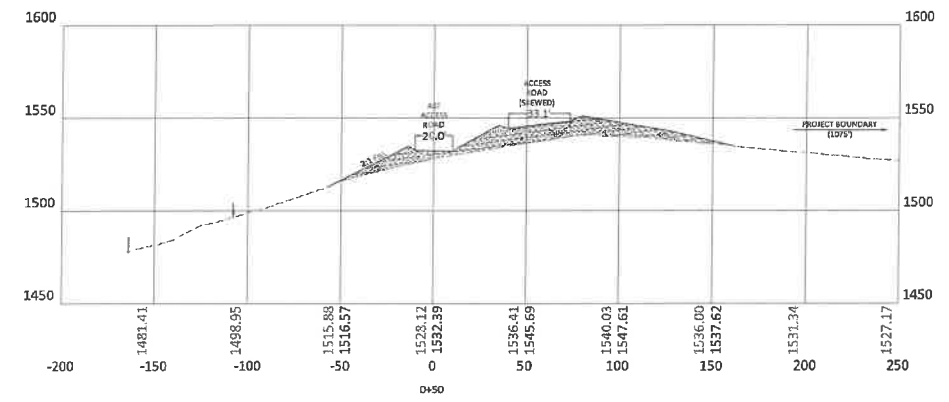
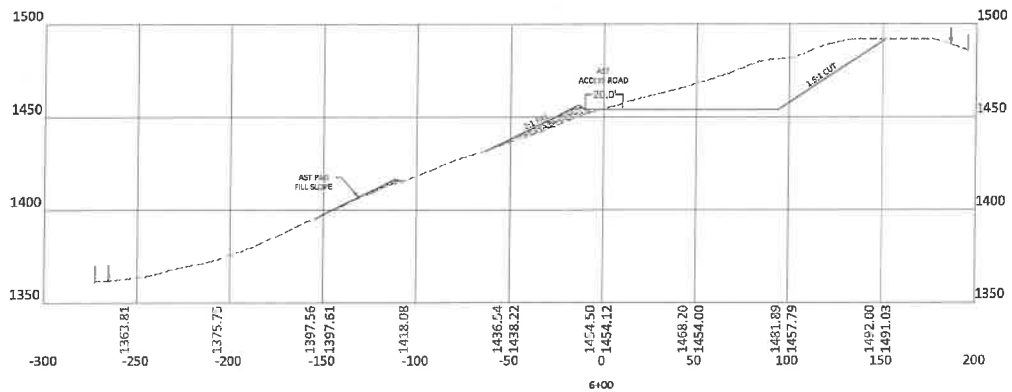
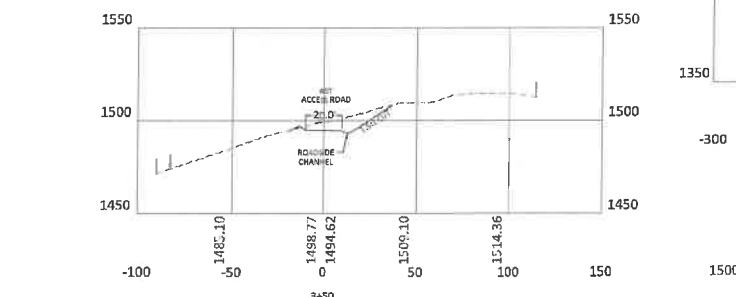
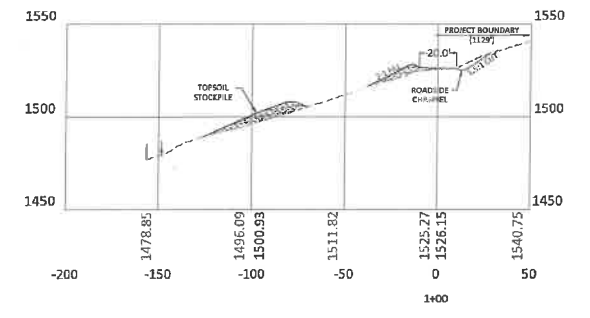
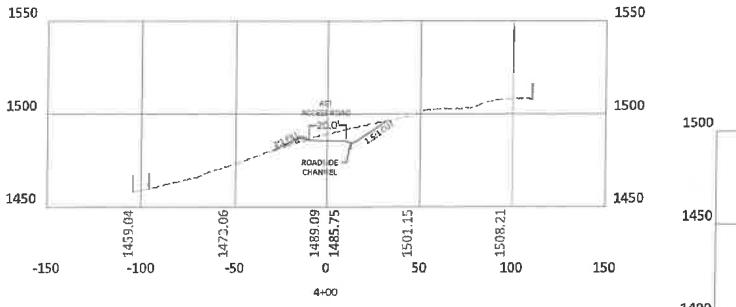
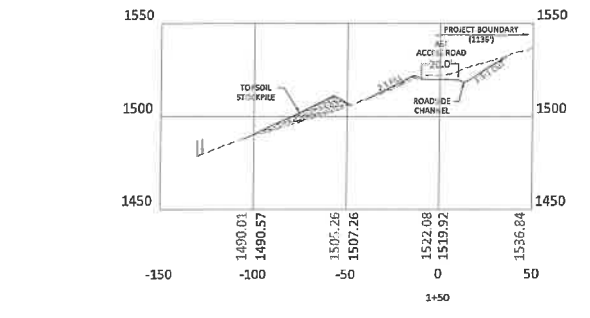
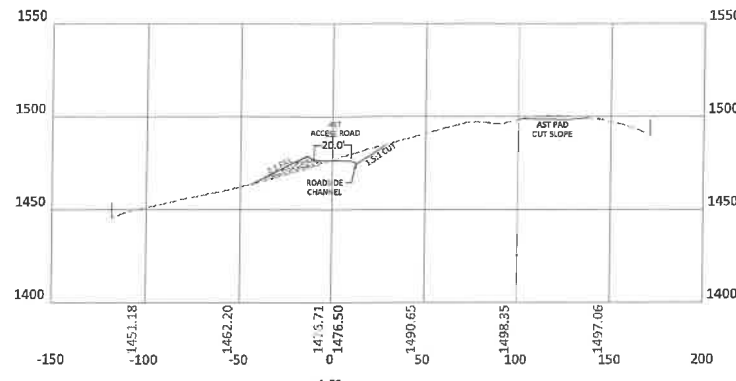
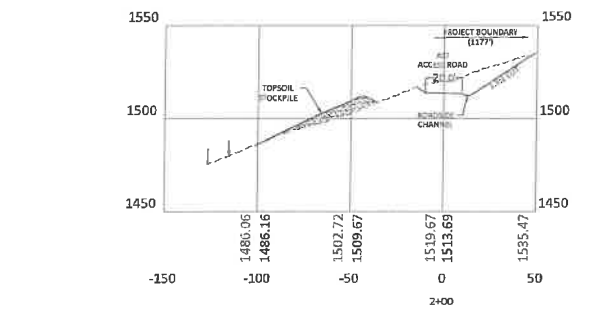
**BOORD, BENCHEK and ASSOC., INC.**  
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 Southpointe, PA 15317 Phone: 724-746-1055

DATE:  
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 BATTELLE DISTRICT,  
 MONONGALIA  
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11/19/2021

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**WV DEP OOG**  
 Modification  
 11/17/2021

**LEGEND**  
 - - - ORIGINAL GRADE  
 — PROPOSED GRADE  
 — PROJECT BOUNDARY  
 — SUPER SILT FENCE



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 CROSS-SECTIONS**

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 FOR: NORTHEAST NATURAL ENERGY, LLC.

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| NO. | DATE   | DESCRIPTION                         |
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| 1   | 9.3.20 | REVISION PER WV DEP REVIEW COMMENTS |
| 2   | 9.3.20 | REVISION PER WV DEP REVIEW COMMENTS |
| 3   | 9.3.20 | REVISION PER WV DEP REVIEW COMMENTS |
| 4   | 9.3.20 | REVISION PER WV DEP REVIEW COMMENTS |
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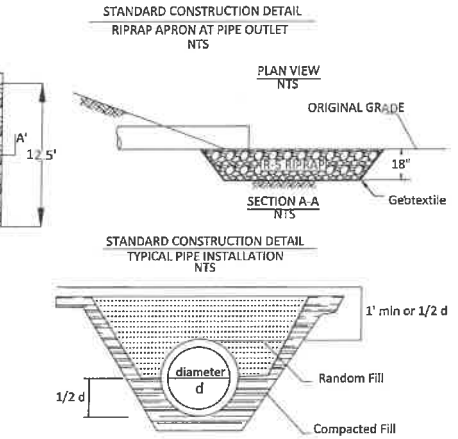
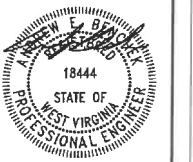


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**DETAIL SHEET**

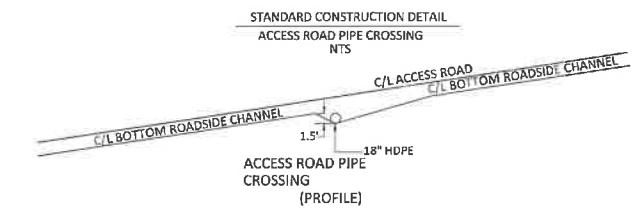
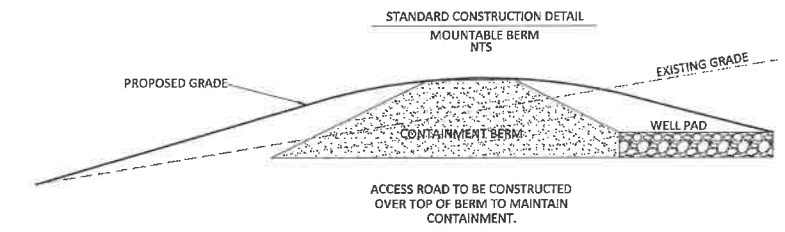
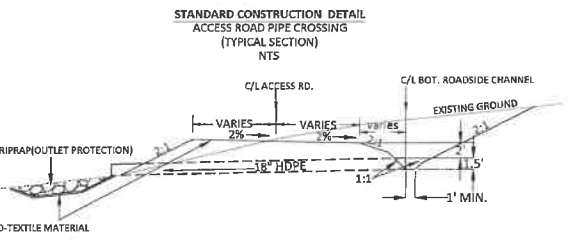
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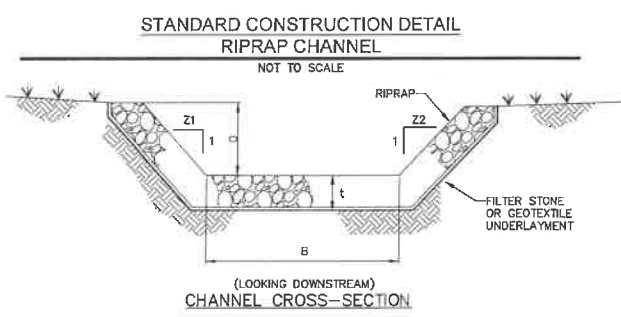
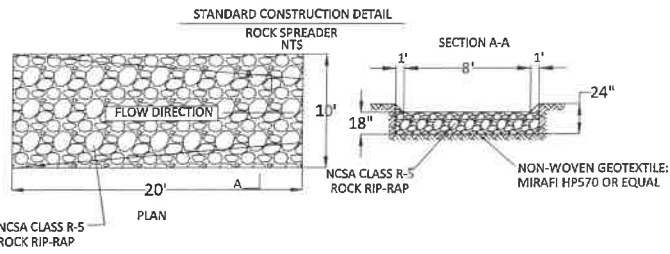
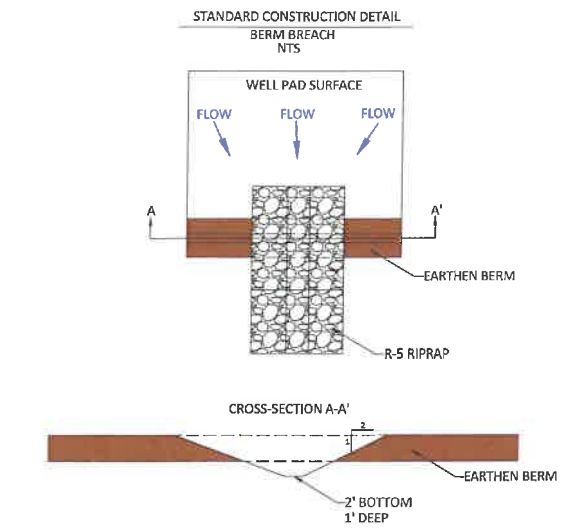
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| #1       | 1+0                | 109          | 1.5'    | HDPE | R-5                    |
| #2       | 1+36               | 31           | 1.5'    | HDPE | R-5                    |
| #3       | 2+70               | 60           | 1.5'    | HDPE | R-5                    |
| #4       | 2+04               | 43           | 1.5'    | HDPE | R-5                    |
| #5       | 12+06              | 44           | 1.5'    | HDPE | R-5                    |
| #6       | 16+01              | 44           | 1.5'    | HDPE | R-5                    |
| #7       | 18+42              | 45           | 1.5'    | HDPE | R-5                    |
| #8       | 25+32              | 55           | 1.5'    | HDPE | R-5                    |
| #9       | 34+37              | 42           | 1.5'    | HDPE | R-5                    |
| #10      | 53+50              | 44           | 1.5'    | HDPE | R-5                    |
| #11      | 3+19               | 50           | 1.5'    | HDPE | R-5                    |
| #12      | 5+65               | 42           | 1.5'    | HDPE | R-5                    |

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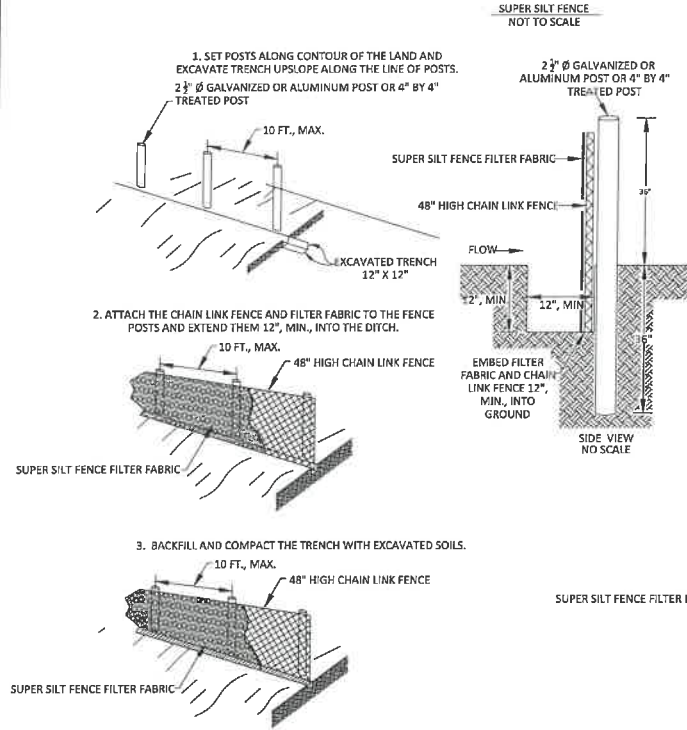
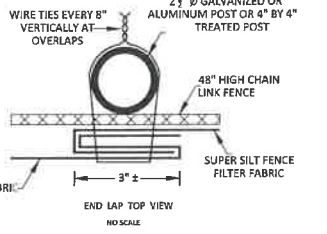
11/19/2021



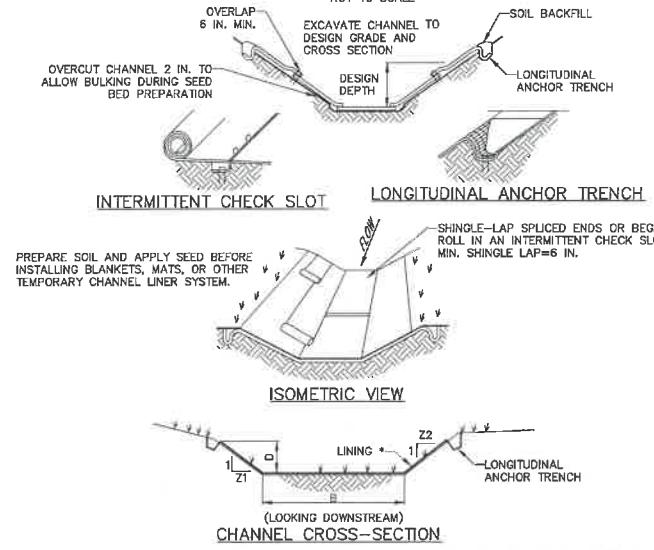
| CHANNEL NO. | STATIONS      | BOTTOM WIDTH B (FT) | DEPTH D (FT) | Z1 (FT) | Z2 (FT) | RIPRAP GRADATIO N (R-) | RIPRAP DEPTH T (IN) |
|-------------|---------------|---------------------|--------------|---------|---------|------------------------|---------------------|
| 1           | 0+00 - 1+40   | 2                   | 1            | 2       | 2       | 5                      | 27                  |
| 2           | 1+40 - 5+25   | 2                   | 1            | 2       | 2       | 5                      | 27                  |
| 3A          | 5+25 - 12+0   | 2                   | 1            | 2       | 2       | 5                      | 27                  |
| 3B          | 12+00 - 16+00 | 2                   | 1            | 2       | 2       | 4                      | 18                  |
| 5           | 25+35 - 29+15 | 2                   | 1            | 2       | 2       | 4                      | 18                  |
| 9           | 50+65 - 53+50 | 2                   | 1            | 2       | 2       | 5                      | 27                  |
| 10A         | 0+75 - 3+10   | 2                   | 1            | 2       | 2       | 4                      | 18                  |
| 10B         | 3+10 - 5+65   | 2                   | 1            | 2       | 2       | 5                      | 27                  |

**NOTES:**  
 FILTER STONE UNDERLAYMENT FOR BED SLOPES  $\geq 0.10$  FT/FT (10 %) SHALL BE USED.  
 CHANNEL DIMENSIONS ARE FOR THE COMPLETED CHANNEL AFTER ROCK PLACEMENT. CHANNEL MUST BE OVER-EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE VOLUME OF ROCK PLACED WITHIN THE CHANNEL WHILE PROVIDING THE SPECIFIED FINISHED DIMENSIONS.  
 CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE.  
 DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.  
 THE MINIMUM ROCK THICKNESS (t) SHALL BE 1.5 TIMES THE MAX ROCK SIZE.

**SUPER SILT FENCE NOTES:**  
 1. CHAIN LINK FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 608 OF THE WVDOH SPECIFICATIONS. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE POSTS WITH WIRE TIES OR STAPLES.  
 2. POSTS NEED NOT BE SET IN CONCRETE.  
 3. THE FILTER FABRIC SHALL BE FASTENED TO THE CHAIN LINK FENCE WITH TIES EVERY 24" AT THE TOP AND MID SECTION.  
 4. FABRIC AND FENCE SHALL BE EMBEDDED 12", MINIMUM, INTO THE GROUND.  
 5. A 6" MINIMUM OVERLAP SHALL BE PROVIDED WHERE TWO SECTIONS OF FABRIC ADJOIN. THE OVERLAPPED FABRIC SHALL BE FOLDED TOGETHER AND ATTACHED TO THE CHAIN LINK FENCE.  
 6. 4" BY 4" PRESSURE TREATED POSTS MAY BE SUBSTITUTED FOR METAL FENCE POSTS WITH THE APPROVAL OF THE ENGINEER.  
 7. THE LENGTH OF SLOPE ABOVE THE FENCE SHALL NOT EXCEED 400 FEET IN STEEP TERRAIN. IN FLATTER AREAS THE LENGTH CAN BE EXTENDED WITH THE APPROVAL OF THE ENGINEER.



**STANDARD CONSTRUCTION DETAIL VEGETATED CHANNEL**  
 NOT TO SCALE



\* SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, VEGETATIVE STABILIZATION FOR SOIL AMENDMENTS, SEED MIXTURES AND MULCHING INFORMATION

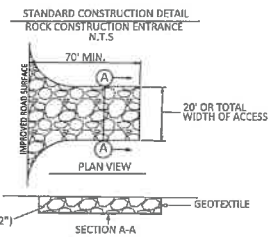
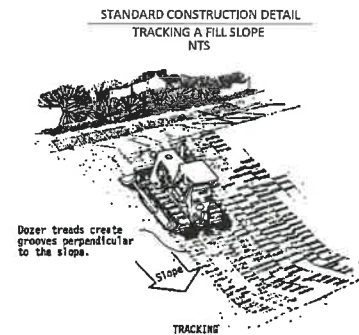
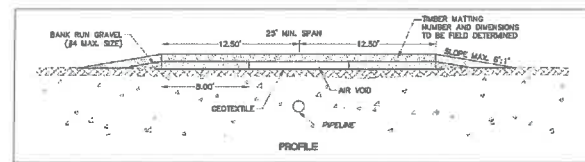
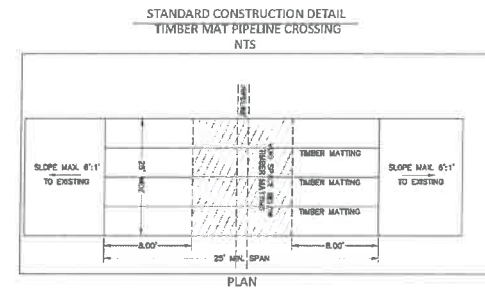
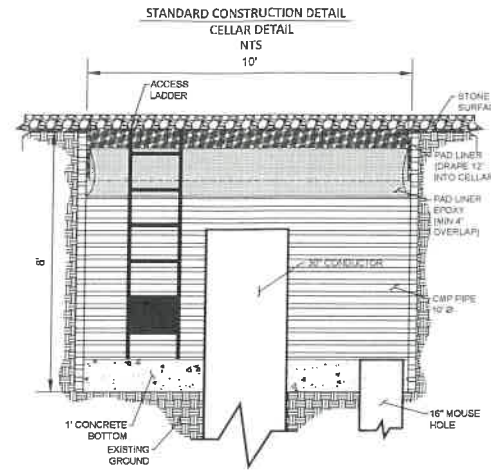
| CHANNEL NO. | STATIONS      | BOTTOM WIDTH B (FT) | DEPTH D (FT) | TOP WIDTH W (FT) | Z1 (FT) | Z2 (FT) | LINING * |
|-------------|---------------|---------------------|--------------|------------------|---------|---------|----------|
| 4           | 18+40 - 21+10 | 2                   | 1            | 6                | 2       | 2       | SC-250   |
| 6           | 29+15 - 32+75 | 2                   | 1            | 6                | 2       | 2       | SC-250   |
| 7           | 33+00 - 34+35 | 2                   | 1            | 6                | 2       | 2       | SC-250   |
| 8           | 41+60 - 46+00 | 2                   | 1            | 6                | 2       | 2       | SC-250   |

**NOTES:**  
 ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.  
 CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.  
 NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

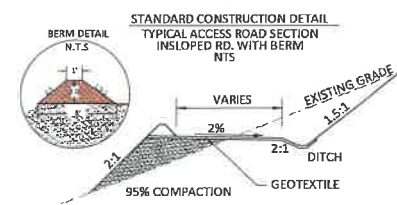
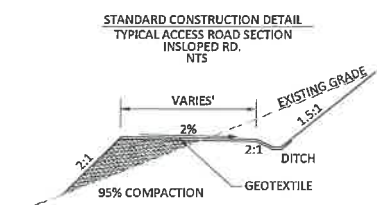
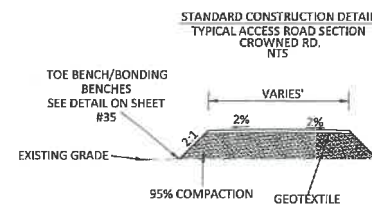
**CONSTRUCTION SEQUENCE FOR PHOENIX WELL PAD**

- 1) Install rock construction entrance from station 0+0 to station 0+70.
- 2) Install super silt fence (SSF) #1 - #126.
- 3) Clear/grub and remove topsoil from end of rock construction entrance to edge of well pad and place topsoil and timber in designated areas.
- 4) Construct access road from end of rock construction entrance to edge of well pad along roadside channel #1 - #9 and 18" HDPE #1 - #10 with outlet protection.
- 5) Place geotextile material on access road sub-grade from end of rock construction entrance to edge of well pad.
- 6) Place clean stone on access road from end of rock construction entrance to edge of well pad.
- 7) Re-spread topsoil across access road slopes.
- 8) Seed and mulch all disturbed areas including access road slopes.
- 9) Clear/grub and remove topsoil from well pad and excess material areas and place topsoil and timber in designated areas.
- 10) Construct well pad and place excess material in designated areas.
- 11) Place geotextile material on well pad sub-grade.
- 12) Re-spread topsoil across well pad slopes.
- 13) Seed and mulch all disturbed areas including slopes.
- 14) Clear/grub and remove topsoil from AST and AST access road areas and place materials in designated areas.
- 15) Construct AST, AST access road, roadside channel #10, and 18" HDPE #11 with outlet protection.
- 16) Place geotextile material on AST pad and AST access road sub-grade.
- 17) Place clean stone on AST pad and AST access road.
- 18) Re-spread topsoil across slopes.
- 19) Seed and mulch all disturbed areas including slopes.
- 20) Keep all erosion and sedimentation controls in place until there is 70% growth over the entire site.

\*Contractor may deviate from the construction sequence if the design deems it appropriate and all the eas through out the entire site. (e.g. borrow from well pad to finish building access road.)



ROCK CONSTRUCTION ENTRANCE THICKNESS WILL BE CONSTANTLY MAINTAINED TO SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL WILL BE MAINTAINED ON THE SITE FOR THIS PURPOSE. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS WILL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.



**COLLECTION CHANNEL SYNTHETIC LINER DETAILS**

**SC250 Turf Reinforcement Mat**

The composite turf reinforcement mat (C-TRM) shall be a machine-produced mat of 70% straw and 30% coconut fiber matrix incorporated into a permanent three-dimensional turf reinforcement matting. The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between a heavy duty UV stabilized netting with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, an ultra heavy UV stabilized, dramatically corrugated (stamped) intermediate netting with 0.5 x 0.5 inch (1.27 x 1.27 cm) openings, and covered by an ultra heavy UV stabilized netting with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings. The middle corrugated netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 inch (3.81cm) centers with UV stabilized polypropylene thread to form a permanent three-dimensional turf reinforcement matting.

The SC250 shall meet requirements established by the Erosion Control Technology Council (ECTC) Specification and the US Department of Transportation, Federal Highway Administration's (FHWA) Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-43 Section 713.15 as a type SA, B, and C Permanent Turf Reinforcement Mat.

Installation staple patterns shall be clearly marked on the turf reinforcement matting with environmentally safe paint. All mats shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

| Material Content |  |   |  |
|------------------|--|---|--|
| Matrix           | 70% Straw / 30% Coconut fibers                 | 0.35 lbs/yd <sup>2</sup> (0.19 kg/m <sup>2</sup> )        | 0.15 lbs/yd <sup>2</sup> (0.08 kg/m <sup>2</sup> ) |
| Nettings         | Top and Bottom, UV stabilized Polypropylene    | 5 lbs/1000 ft <sup>2</sup> (2.44 kg/100 m <sup>2</sup> )  |  |
|                  | Middle, corrugated UV stabilized Polypropylene | 24 lbs/1000 ft <sup>2</sup> (11.7 kg/100 m <sup>2</sup> ) |  |
| Thread           | Polypropylene, UV stabilized                   |   |  |

SC250 is available in the following roll sizes:

Width: 6.5 ft (2.0 m)  
 Length: 55.5 ft (16.9 m)  
 Weight ± 10%: 34 lbs (15.42 kg)  
 Area: 40.0 yd<sup>2</sup> (33.4 m<sup>2</sup>)

| Property            | Test Method        | Typical  | Net Only  |
|---------------------|--------------------|--|-----------|
| Thickness           | ASTM D6525         | 0.72 in (18.3 mm)                                | 0.49 in   |
| Resiliency          | ASTM 6524          | 95.2%  | ---       |
| Density             | ASTM D792          | 0.53 oz/in <sup>3</sup>                          | ---       |
| Mass/Unit Area      | ASTM 6566          | 17.88 oz/yd <sup>2</sup> (606 g/m <sup>2</sup> ) | ---       |
| Porosity            | ECTC Guidelines    | 88%  | ---       |
| Softness            | ASTM D1388         | 222.85 oz-in                                     | ---       |
| Light Penetration   | ECTC Guidelines    | 6.9%   | ---       |
| UV Stability        | ASTM D4355/1000 hr | 100%   | 100%      |
| Tensile Strength MD | ASTM D6818         | 620 lbs/R (9.05 MN/m)                            | 655 lbs/R |
| Elongation MD       | ASTM D6818         | 35%  | 25%       |
| Tensile Strength TD | ASTM D6818         | 737 lbs/R (10.75 MN/m)                           | 666 lbs/R |
| Elongation TD       | ASTM D6818         | 16%  | 16%       |

| Maximum Permissible Shear Stress |                                  | Short Duration                  | Long Duration |
|----------------------------------|----------------------------------|---------------------------------|---------------|
| Phase 1 Unvegetated              | 3.0 lbs/R <sup>2</sup> (144 Pa)  | 2.5 lbs/R <sup>2</sup> (120 Pa) |               |
| Phase 2 Partially Veg.           | 8.0 lbs/R <sup>2</sup> (383 Pa)  | 8.0 lbs/R <sup>2</sup> (383 Pa) |               |
| Phase 3 Fully Veg.               | 10.0 lbs/R <sup>2</sup> (480 Pa) | 8.0 lbs/R <sup>2</sup> (383 Pa) |               |
| Velocity Unveg.                  |                                  | 9.5 ft/s (2.9 m/s)              |               |
| Velocity Veg.                    |                                  | 15 ft/s (4.6 m/s)               |               |

| Slope Design Data: C Factors |        | Slope Gradients (S) |        |
|------------------------------|--------|---------------------|--------|
| Slope Length (L)             | ≤ 3:1  | 3:1 - 2:1           | ≥ 2:1  |
| ≤ 20 ft (6 m)                | 0.0010 | 0.0209              | 0.0807 |
| 20-50 ft                     | 0.0081 | 0.0286              | 0.0574 |
| ≥ 50 ft (15.2 m)             | 0.0455 | 0.0555              | 0.081  |

| Roughness Coefficients- Unveg. |                    | Manning's n |  |
|--------------------------------|--------------------|-------------|--|
| Flow Depth                     | ≤ 0.50 ft (0.15 m) | 0.040       |  |
| 0.50 - 2.0 ft                  | 0.040              | 0.012       |  |
| ≥ 2.0 ft (0.90 m)              | 0.011              |             |  |

Product Participant of:

Updated 3/09

**APPROVED WVDEP OOG Modification 11/17/2021**

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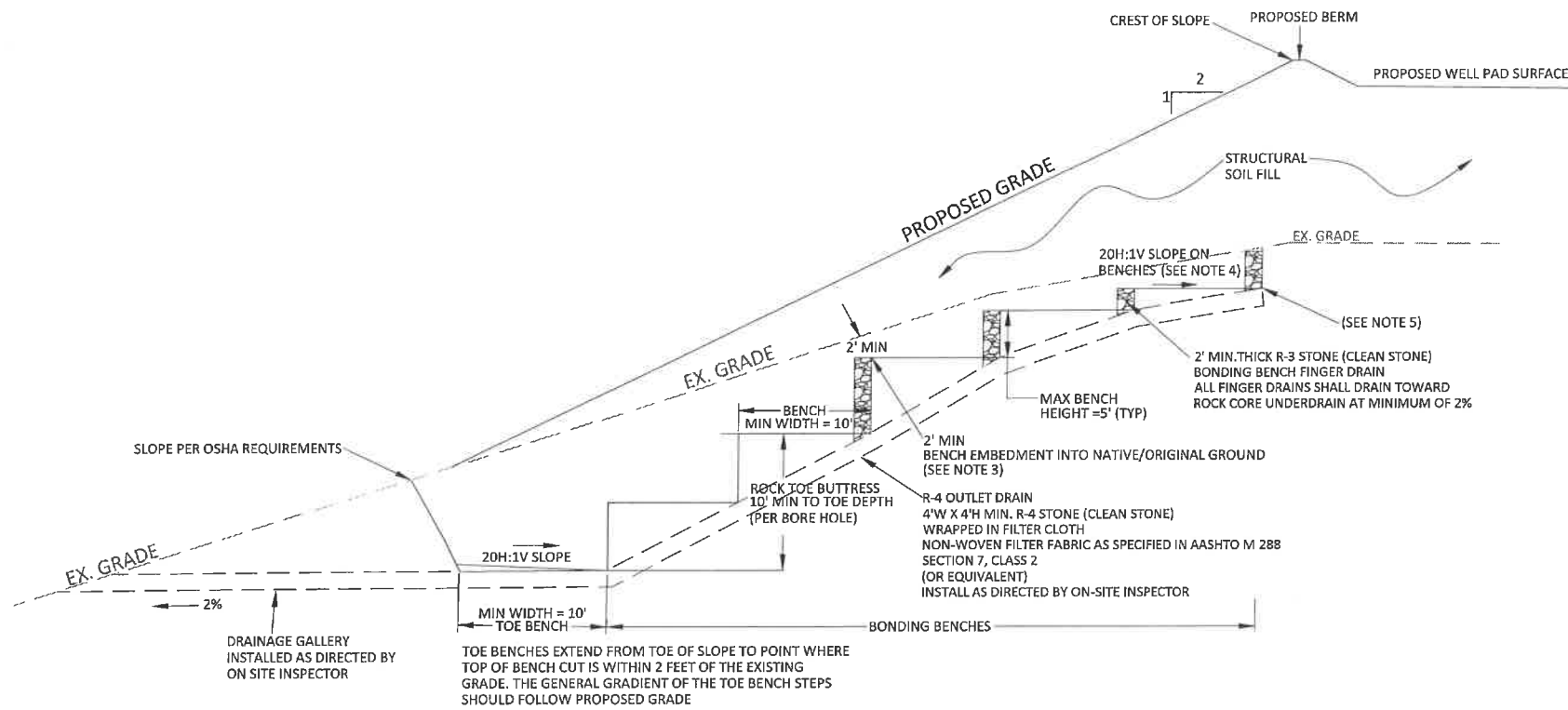
**DETAIL SHEET**  
 THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
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 PHOENIX WELL PAD  
 BATTELLE DISTRICT,  
 MONONGALIA COUNTY, PA

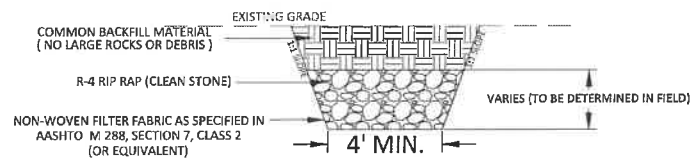
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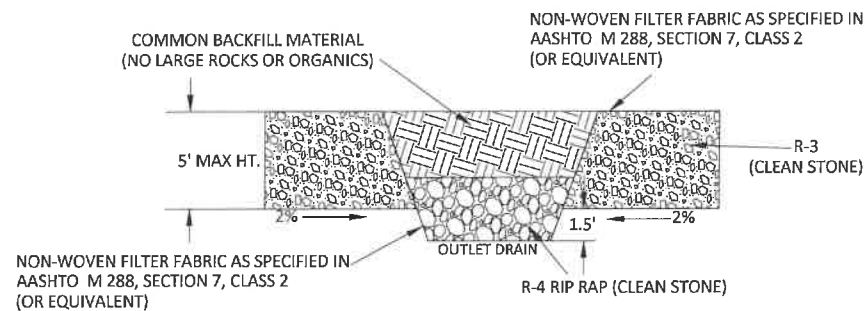
### TOE/BONDING BENCH TYPICAL (N.T.S)



### STONE DRAINAGE GALLERY (NTS)



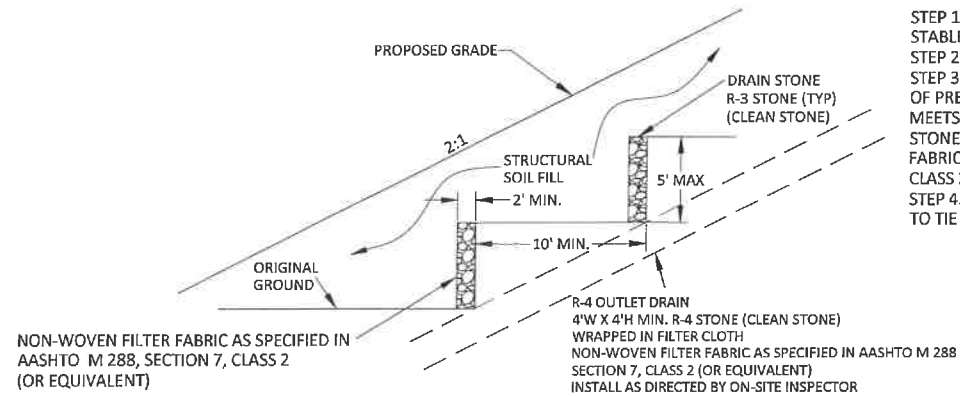
### R-4 OUTLET DRAIN DETAIL (NTS)



### TOE/BONDING BENCH NOTES

- TOE BENCHES SHALL BE CONSTRUCTED IN COMPETENT ROCK TO THE MINIMUM DEPTH REQUIRED. ADDITIONAL DEPTHS MAY BE REQUIRED IN FIELD DEPENDING UPON THE STABILITY OF SUBGRADE MATERIAL. AT THE REQUEST OF THE FIELD ENGINEER, PERFORM TEST PITS AND PROOFROLLING OF THE BENCH SUBGRADE TO EVALUATE THE SUBGRADE CONDITIONS. REMOVE UNSTABLE SOILS AND EXTEND THE DEPTH OF THE TOE BENCH AS REQUESTED BY THE ENGINEER. PROVIDE A HORIZONTAL (ALONG THE LENGTH OF THE TOE BENCH) GRADE OF AT LEAST 2% TO ALLOW WATER TO DRAIN TO LOW POINTS FOR OULET. 3 FT. OF R-4 STONE SHALL BE PLACED IN THE BOTTOM OF THE TOE KEY AND COVERED WITH NON-WOVEN FILTER FABRIC.
- AFTER FILLING TO TOP OF BENCH, EXCAVATE TRENCH AND INSTALL R-4 OUTLET DRAINS AND DRAINAGE GALLERYS AS DIRECTED BY ON SITE INSPECTOR.
- BONDING BENCHES SHALL BE EMBEDDED A MINIMUM OF 2 FEET BELOW THE NATIVE/ORIGINAL GROUND SURFACE EXCEPT WHERE NOTED. ADJUST THE HEIGHT OF THE BONDING BENCH TO ACCOMMODATE THE 2 FOOT MINIMUM EMBEDMENT DEPTH. EXCAVATION OF COAL AND/OR CARBONACEOUS SHALE IN THE TOE OR BONDING BENCHES MAY ENCOUNTER PERCHED WATER TABLES. PLANS TO CONTROL, DRAIN, AND TREAT IF NECESSARY ARE RECOMMENDED.
- PROVIDE A 20H:1V SLOPE ON ALL BENCH BOTTOMS IN THE DIRECTION SHOWN TO DIRECT SEEPAGE INTO BENCH DRAINS PLACED AT THE REAR OF THE BENCH.
- TERMINATE BONDING BENCHES WHEN THE NATIVE SLOPES ARE FLATTER THAN 5H:1V OR A MINIMUM OF 10 FEET BEHIND THE CREST OF SLOPE.
- THE CONTRACTOR IS RESPONSIBLE FOR SAFETY OF EXCAVATIONS, INCLUDING SEQUENCING OF BENCHING OPERATIONS, AND SLOPES PER OSHA 29CFR 1926.650 REQUIREMENTS, TO ALLOW THE APPROPRIATE ENGINEERING EVALUATIONS. THIS MAY REQUIRE STARTING EXCAVATION AT THE MID-HEIGHT OF THE BONDING BENCHES TO REMOVE THE SLOPE OVERBURDEN THAT COULD SLIDE INTO THE SUBSEQUENT TOE BENCH EXCAVATION.
- PLACE STRUCTURAL SOIL FILL IN 9 INCH LOOSE LIFTS. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AND WITHIN 3 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698). IN THE UPPER 2 FEET OF FILL, COMPACT TO A MINIMUM OF 98% OF THE MAXIMUM DRY DENSITY AND WITHIN 2 PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698).

### BENCH DRAIN DETAIL (NTS)



- EXCAVATE BENCH TO ORIGINAL AND STABLE SOIL.
- COMPACT FILL UP TO THE NEXT BENCH.
- EXCAVATE 2' WIDE TRENCH TO BOTTOM OF PREVIOUS BENCH, WHERE COMPACTED FILL MEETS NATURAL GROUND. USE R-3 STONE (CLEAN STONE) FOR DRAIN WITH NON-WOVEN FILTER FABRIC AS SPECIFIED IN AASHTO M 288, SECTION 7, CLASS 2 (OR EQUIVALENT) ON TOP AND FACE ONLY.
- RUN DRAINS ON A MINIMUM 2% GRADE TO TIE INTO DRAINAGE OUTLETS.

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DETAIL SHEET

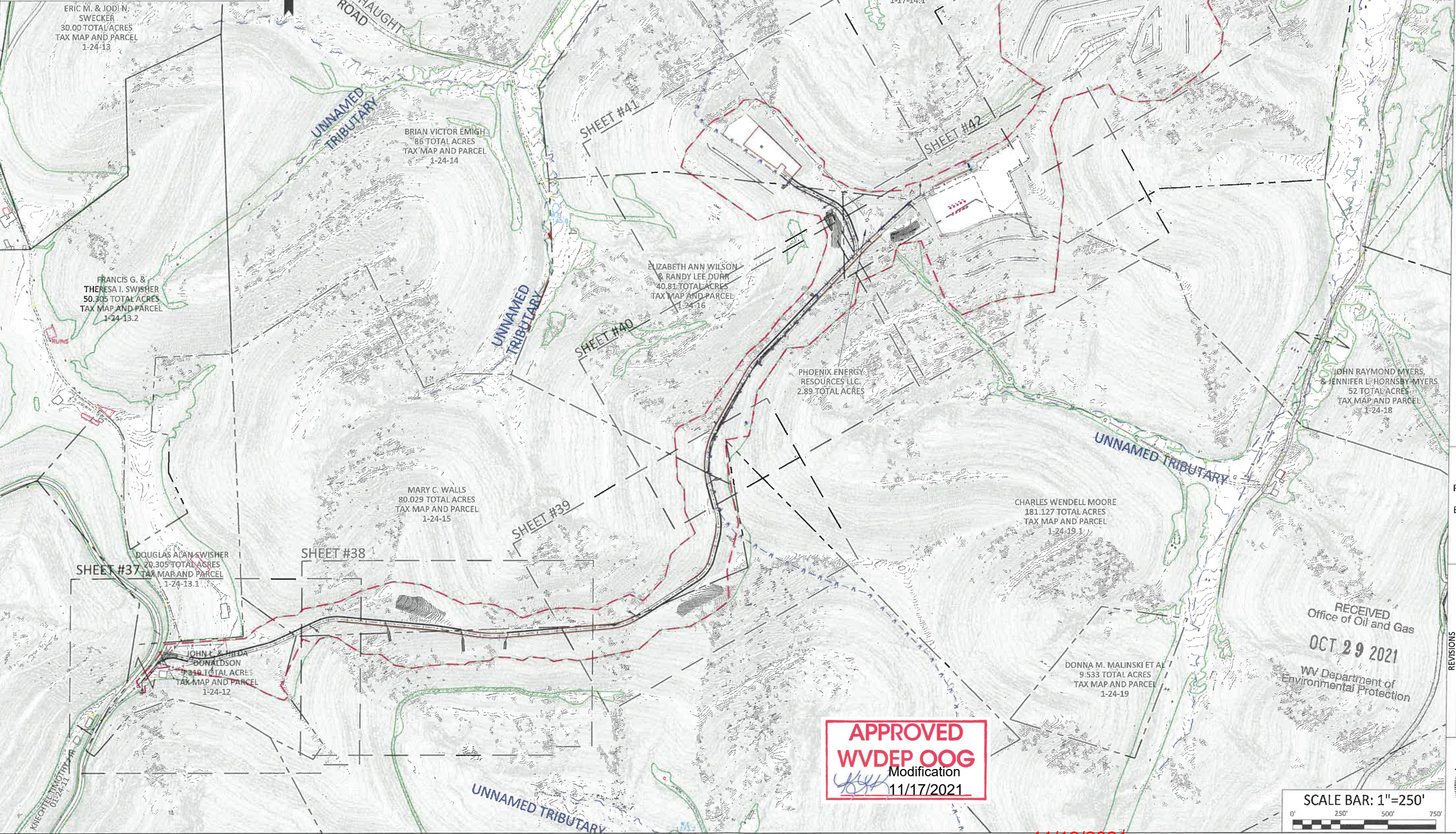
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BATTELLE DISTRICT,  
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BOORD, BENCHEK and ASSOC., INC.  
Engineering, Surveying, Construction,  
and Mining Services  
Southpointe, PA 15317 Phone: 724-746-1055

**LEGEND**

- - - - - PROJECT BOUNDARY (72.79 AC)
- - - - - ENVIRONMENTAL BOUNDARY (104 AC)
- - - - - TREE LINE
- - - - - PROPERTY LINE
- - - - - WATERCOURSE
- (S) = SPRING
- (G) = SEEP
- G - G - EXISTING GAS LINE



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**RECLAMATION PLAN  
 OVERVIEW**

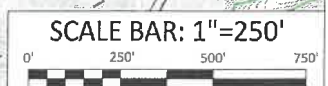
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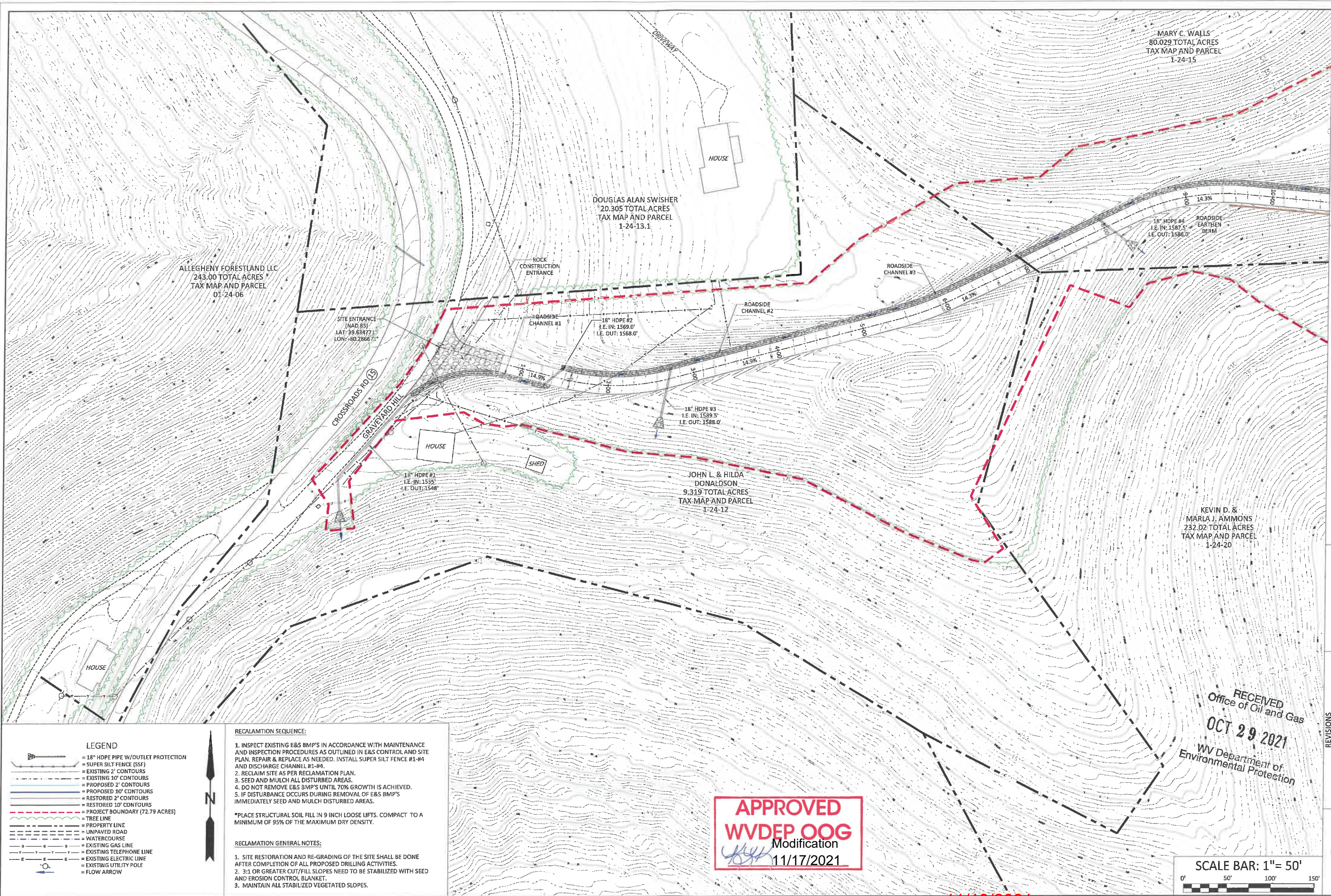
| NO. | DATE    | DESCRIPTION                       |
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| 1   | 8.3.20  | REVISED PER WVDEP REVIEW COMMENTS |
| 2   | 9.22.21 | RE-DESIGNED PRODUCTION AREA       |

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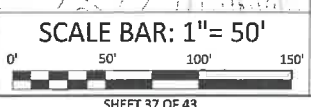
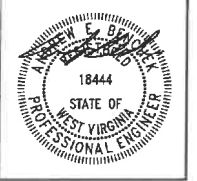
**RECLAMATION PLAN**

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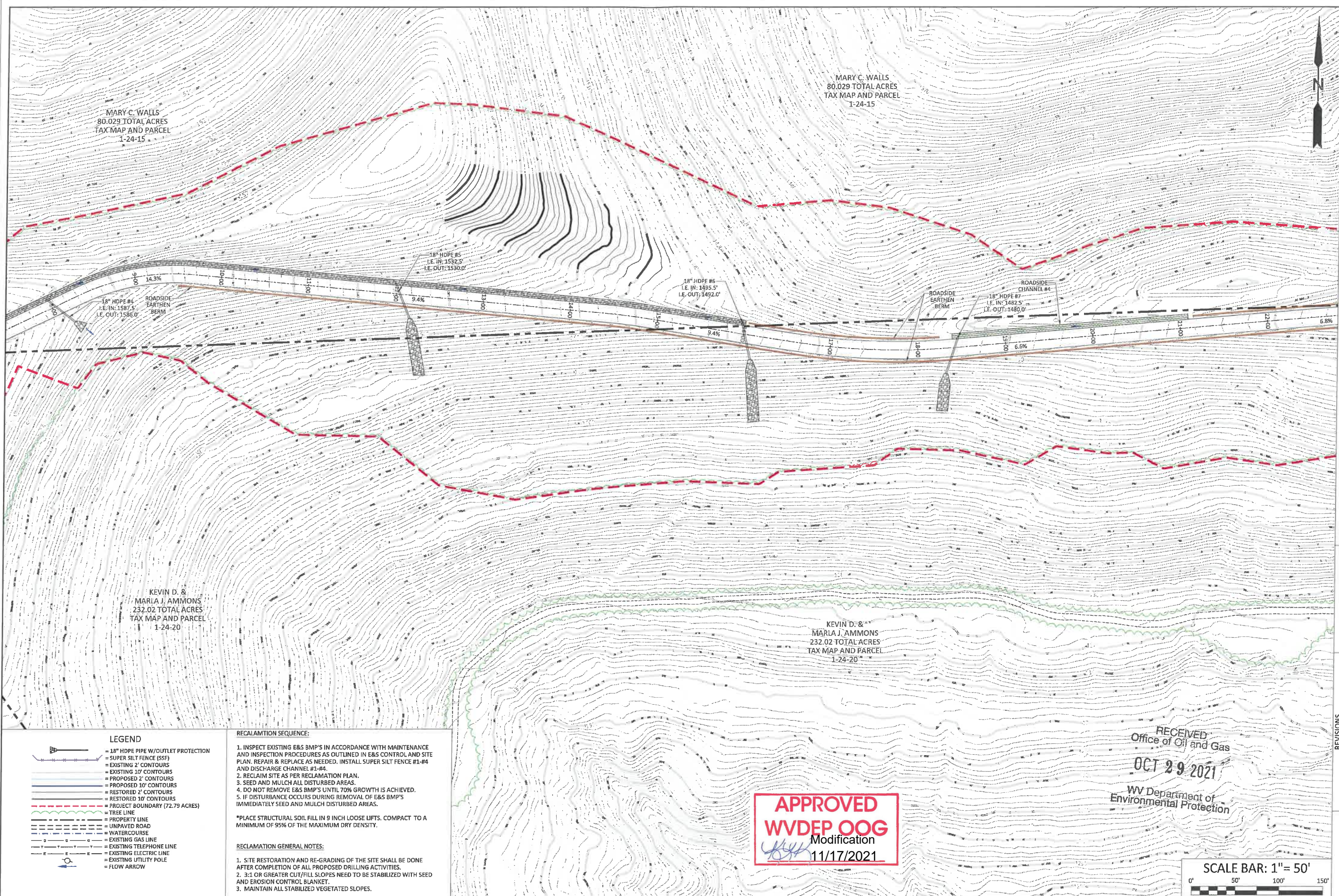
- LEGEND**
- 18" HDPE PIPE W/OUTLET PROTECTION
  - SUPER SILT FENCE (SSF)
  - EXISTING 2' CONTOURS
  - EXISTING 10' CONTOURS
  - PROPOSED 2' CONTOURS
  - PROPOSED 10' CONTOURS
  - RESTORED 2' CONTOURS
  - RESTORED 10' CONTOURS
  - PROJECT BOUNDARY (72.79 ACRES)
  - TREE LINE
  - PROPERTY LINE
  - UNPAVED ROAD
  - WATERCOURSE
  - EXISTING GAS LINE
  - EXISTING TELEPHONE LINE
  - EXISTING ELECTRIC LINE
  - EXISTING UTILITY POLE
  - FLOW ARROW

- RECLAMATION SEQUENCE:**
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**APPROVED**  
**WVDEP OOG**  
 Modification  
 11/17/2021

11/19/2021





**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

**RECLAMATION PLAN**

THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
 AUGUST 2020  
 PHOENIX WELL PAD  
 BATTELLE DISTRICT,  
 MONONGALIA COUNTY, PA

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |
|     |      |             |
|     |      |             |
|     |      |             |

- LEGEND**
- 18" HDPE PIPE W/OUTLET PROTECTION
  - SUPER SILT FENCE (SSF)
  - EXISTING 2' CONTOURS
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**APPROVED**  
**WVDEP OOG**  
 Modification  
 11/17/2021

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 Office of Oil and Gas  
 OCT 29 2021  
 WV Department of  
 Environmental Protection



11/19/2021

**LEGEND**

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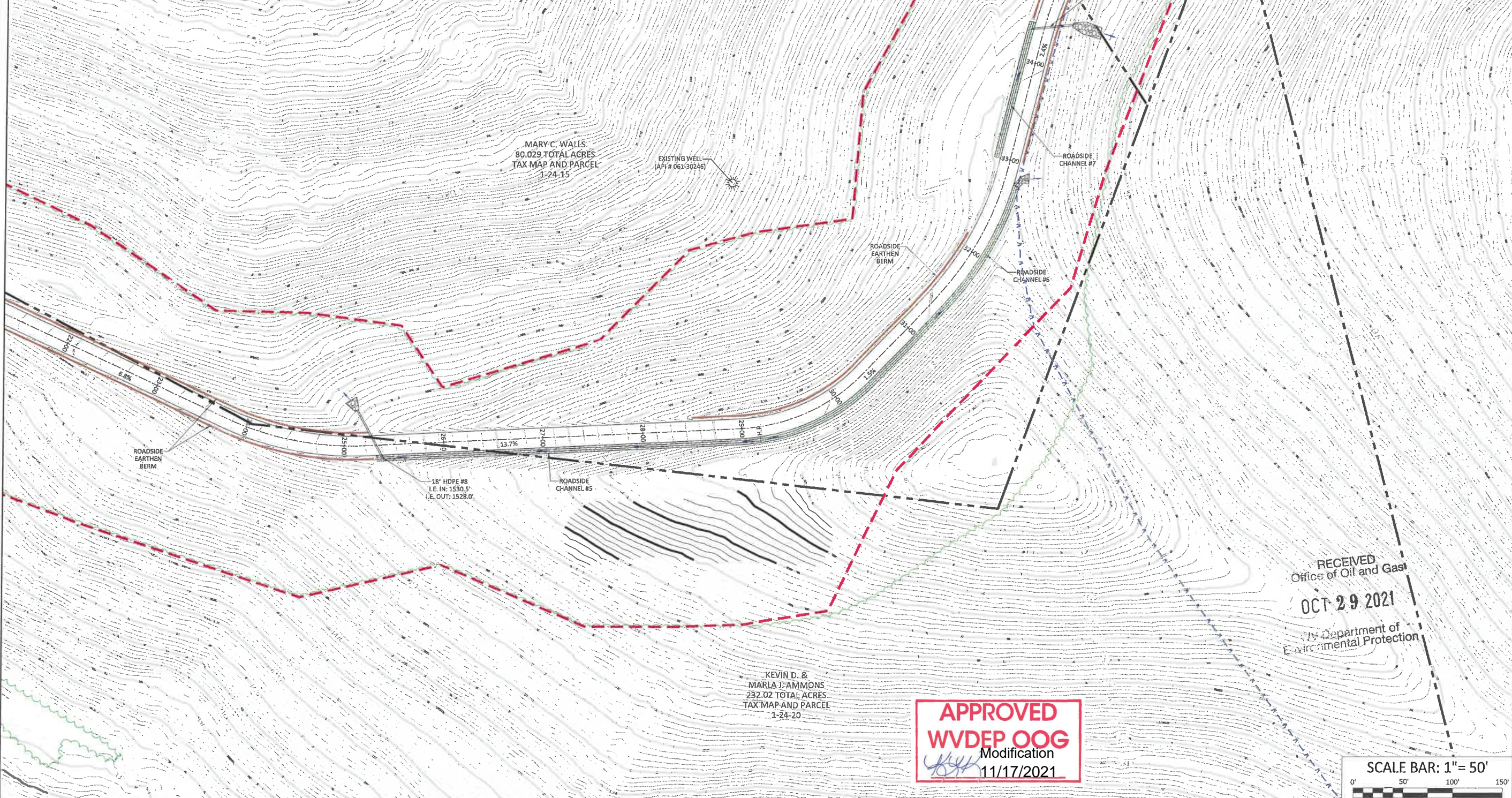
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**BOORD, BENCHEK and ASSOC., INC.**  
 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

**RECLAMATION PLAN**

THIS DOCUMENT WAS PREPARED BY:  
 BOORD, BENCHEK AND ASSOC., INC.  
 FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
 AUGUST 2020  
 PHOENIX WELL PAD  
 BATTELLE DISTRICT,  
 MONONGALIA  
 COUNTY, PA

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11/19/2021

**LEGEND**

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- EXISTING 2' CONTOURS
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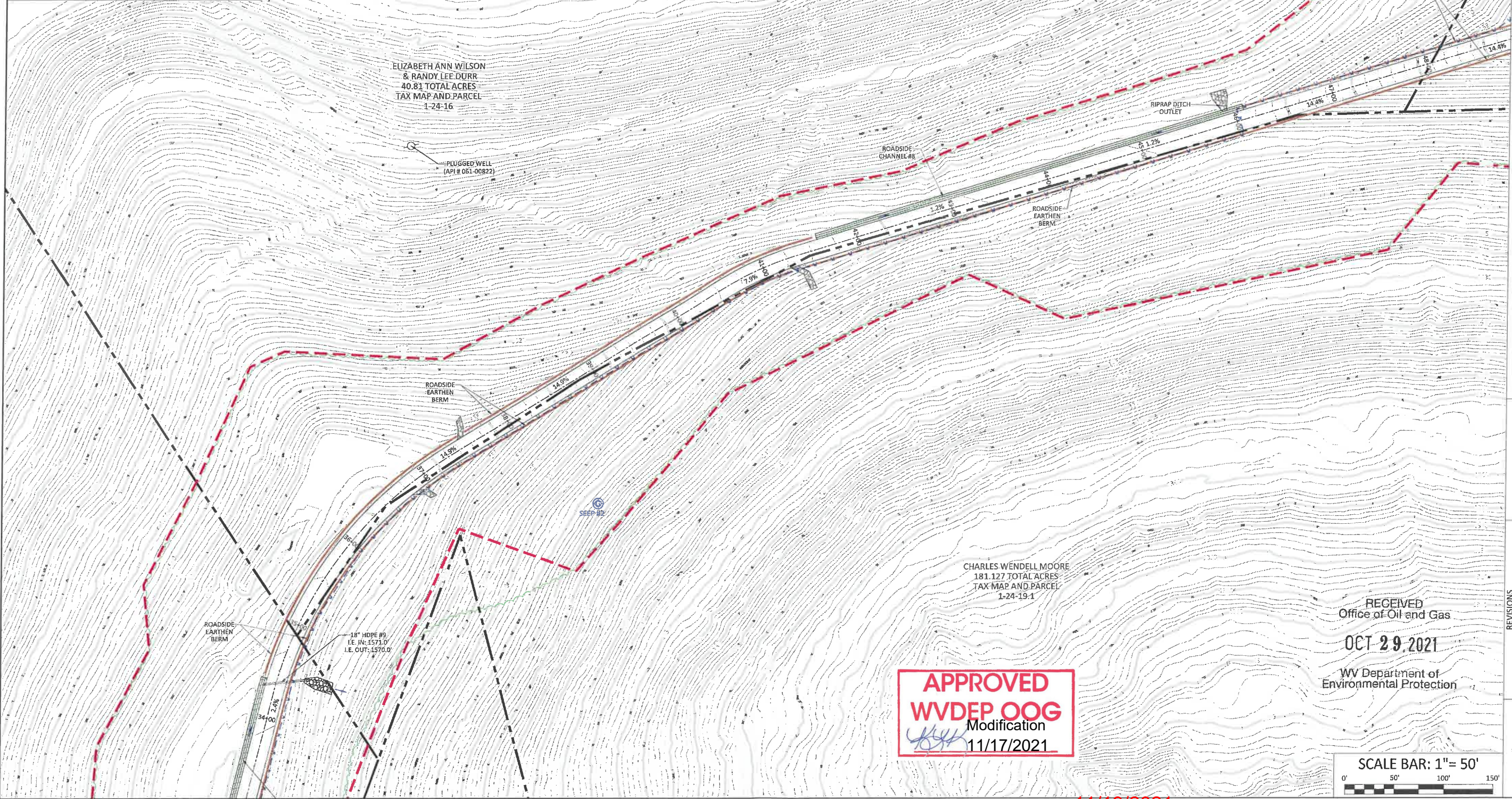
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 Engineering, Surveying, Construction,  
 and Mining Services  
 Southpointe, PA 15317 Phone: 724-746-1055

**RECLAMATION PLAN**

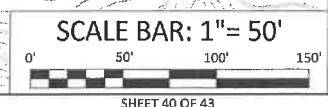
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DATE:  
 AUGUST 2020  
 PHOENIX WELL PAD  
 BATTELLE DISTRICT,  
 MONONGALIA  
 COUNTY, PA

| NO. | DATE | DESCRIPTION |
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 Office of Oil and Gas  
**OCT 29 2021**  
 WV Department of  
 Environmental Protection

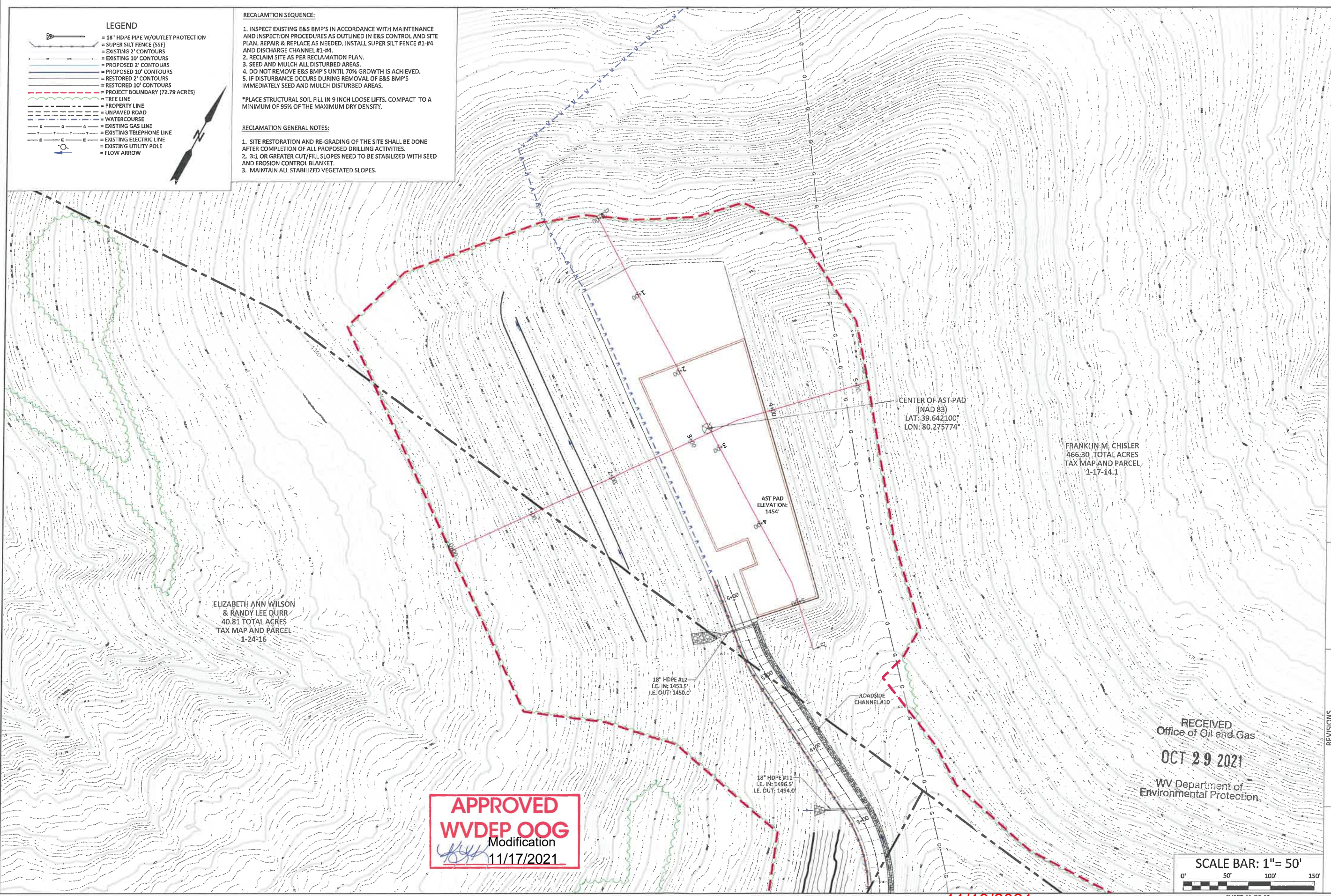
**APPROVED**  
**WVDEP OOG**  
 Modification  
 11/17/2021



11/19/2021

- LEGEND**
- 18" HDPE PIPE W/OUTLET PROTECTION
  - SUPER SILT FENCE (SSF)
  - EXISTING 2' CONTOURS
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ELIZABETH ANN WILSON  
& RANDY LEE DURR  
40.81 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-16

CENTER OF AST-PAD  
(NAD 83)  
LAT: 39.642100°  
LON: 80.275774°

FRANKLIN M. CHISLER  
466.30 TOTAL ACRES  
TAX MAP AND PARCEL  
1-17-14.1

18" HDPE #12  
I.E. IN: 1453.5'  
I.E. OUT: 1450.0'

18" HDPE #11  
I.E. IN: 1496.5'  
I.E. OUT: 1494.0'

ROADSIDE  
CHANNEL #10

**APPROVED**  
**WVDEP OOG**  
Modification  
11/17/2021

RECEIVED  
Office of Oil and Gas  
**OCT 29 2021**  
WV Department of  
Environmental Protection



11/19/2021

**BOORD, BENCHEK and ASSOC., INC.**  
Engineering, Surveying, Construction,  
and Mining Services  
Southpointe, PA 15317 Phone: 724-746-4055

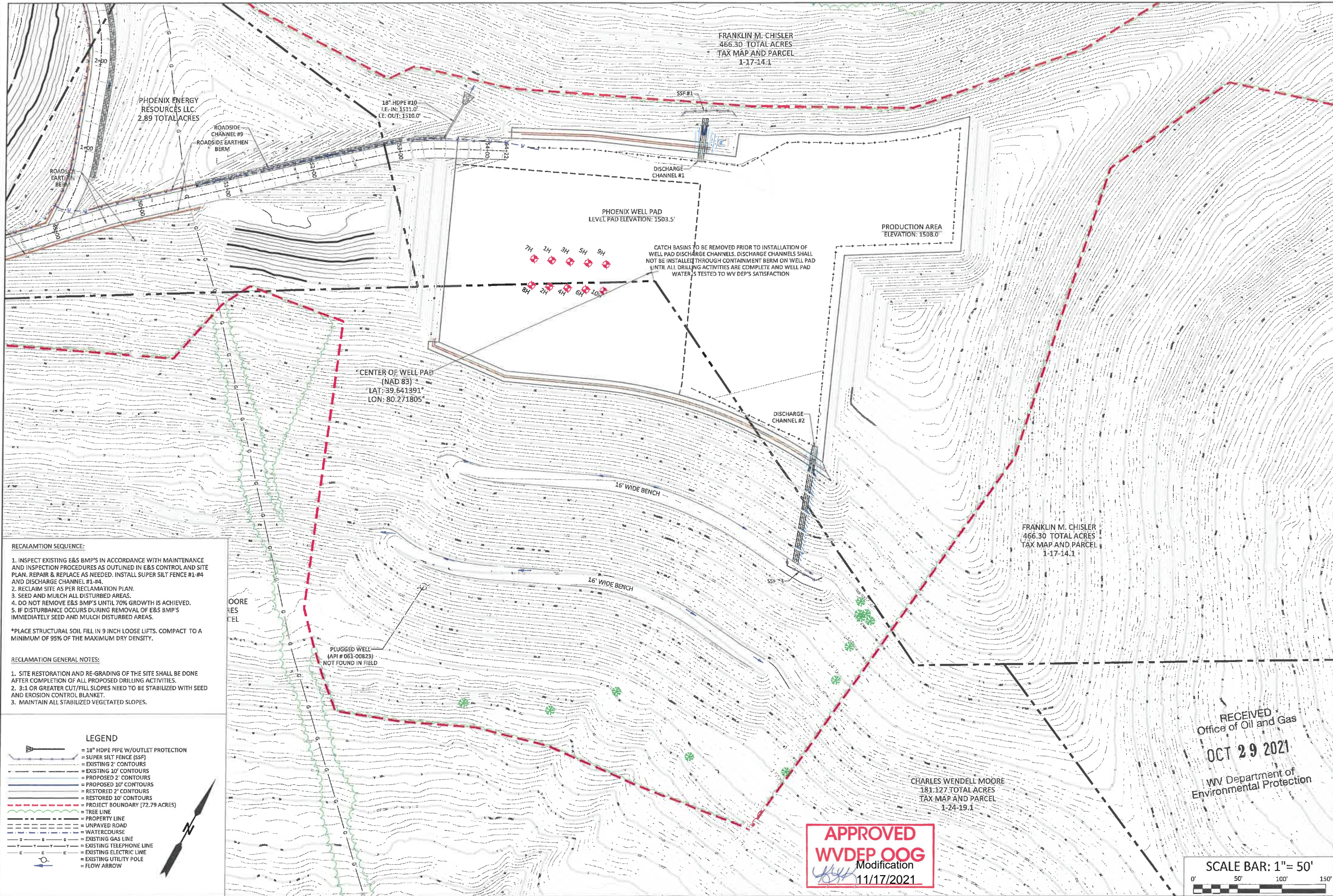
**RECLAMATION PLAN**

THIS DOCUMENT WAS PREPARED BY:  
BOORD, BENCHEK AND ASSOC., INC.  
FOR: NORTHEAST NATURAL ENERGY, LLC.

DATE:  
AUGUST 2020  
PHOENIX WELL PAD  
BATTELLE DISTRICT,  
MONONGALIA  
COUNTY, PA

| NO. | DATE   | DESCRIPTION                                 |
|-----|--------|---|
| 1   | 9.3.20 | REVISED PER WVDEP REVIEW COMMENTS ON 9.1.20 |





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**LEGEND**

- = 18" HDPE PIPE W/OUTLET PROTECTION
- = SUPER SILT FENCE (SSF)
- = EXISTING 2' CONTOURS
- = EXISTING 10' CONTOURS
- = PROPOSED 2' CONTOURS
- = PROPOSED 10' CONTOURS
- = RESTORED 2' CONTOURS
- = RESTORED 10' CONTOURS
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- = TREE LINE
- = PROPERTY LINE
- = UNPAVED ROAD
- = WATERCOURSE
- = EXISTING GAS LINE
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FRANKLIN M. CHISLER  
466.30 TOTAL ACRES  
TAX MAP AND PARCEL  
1-17-14.1

FRANKLIN M. CHISLER  
466.30 TOTAL ACRES  
TAX MAP AND PARCEL  
1-17-14.1

CHARLES WENDELL MOORE  
181.127 TOTAL ACRES  
TAX MAP AND PARCEL  
1-24-19.1

CATCH BASINS TO BE REMOVED PRIOR TO INSTALLATION OF WELL PAD DISCHARGE CHANNELS. DISCHARGE CHANNELS SHALL NOT BE INSTALLED THROUGH CONTAINMENT BERM ON WELL PAD UNTIL ALL DRILLING ACTIVITIES ARE COMPLETE AND WELL PAD WATER IS TESTED TO WV DEP'S SATISFACTION

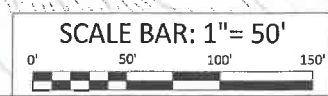
CENTER OF WELL PAD  
(NAD 83)  
LAT: 39.641391°  
LON: 80.271805°

PHOENIX WELL PAD  
LEVEL PAD ELEVATION: 1503.5'

PRODUCTION AREA  
ELEVATION: 1508.0'

**APPROVED**  
**WVDEP OOG**  
Modification  
11/17/2021

RECEIVED  
Office of Oil and Gas  
**OCT 29 2021**  
WV Department of  
Environmental Protection



**BOORD, BENCHEK and ASSOC., INC.**  
Engineering, Surveying, Construction,  
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Southpointe, PA 15317 Phone: 724-746-1055

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AUGUST 2020  
PHOENIX WELL PAD  
BATTELLE DISTRICT,  
MONONGALIA COUNTY, PA

| NO. | DATE    | DESCRIPTION                        |
|-----|---------|------------------------------------|
| 1   | 9.2.20  | REVISED PER WVDROP REVIEW COMMENTS |
| 2   | 9.23.21 | RE-DESIGNED PRODUCTION AREA        |

18444  
STATE OF WEST VIRGINIA  
PROFESSIONAL ENGINEER

11/19/2021

**RECLAMATION SEQUENCE:**

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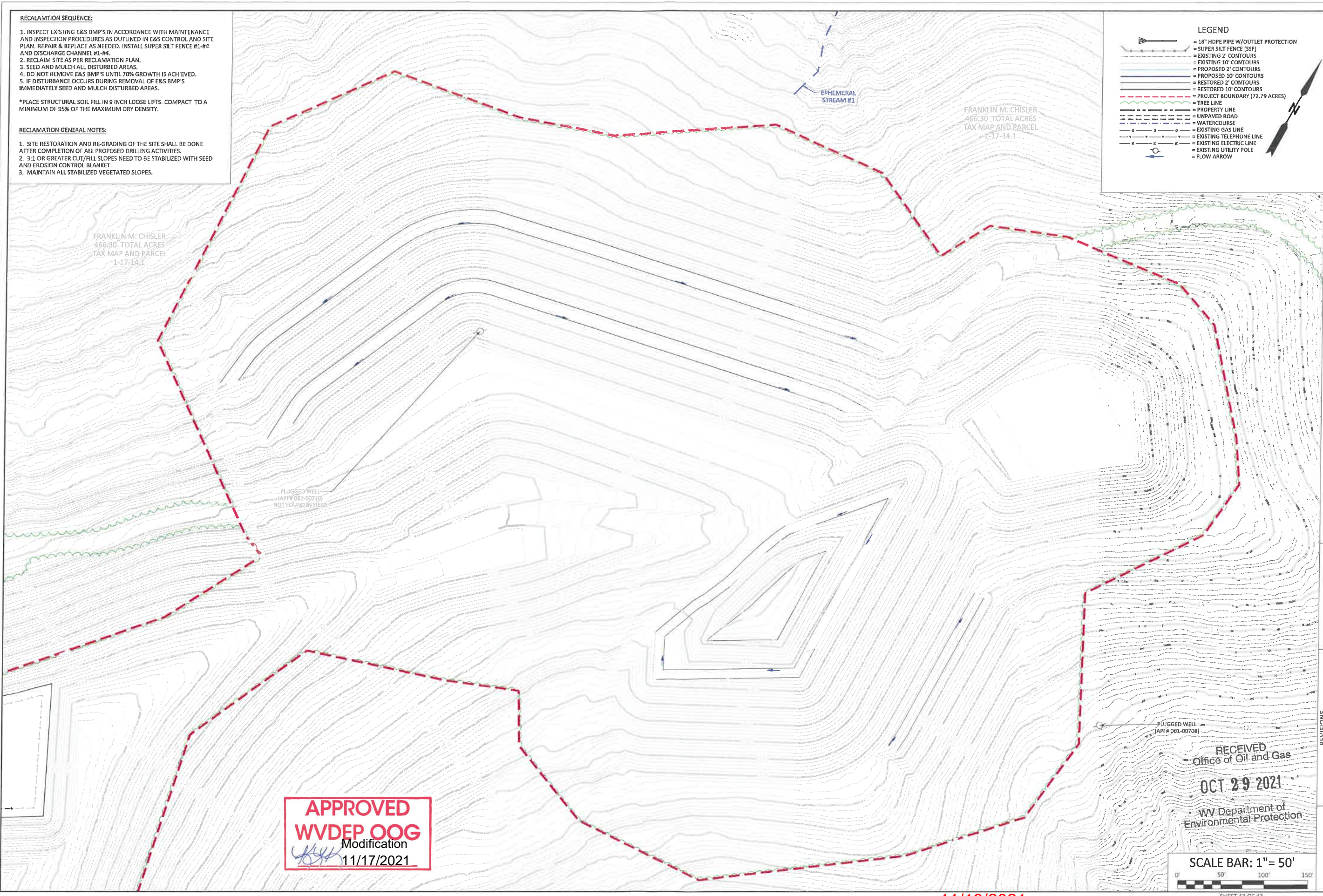
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AUGUST 2020

PHOENIX WELL PAD

BATTELLE DISTRICT,  
MONONGALIA  
COUNTY, PA

| NO. | DATE    | DESCRIPTION                 |
|-----|---------|-----------------------------|
| 2   | 9/22/21 | RE-DESIGNED PRODUCTION AREA |

RECEIVED  
Office of Oil and Gas  
OCT 29 2021  
WV Department of  
Environmental Protection

**APPROVED**  
**WVDEP OOG**  
Modification  
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SCALE BAR: 1" = 50'  
0' 50' 100' 150'



11/19/2021