EXHIBIT
D

Civil & Environmental Consultants, Inc.

October 26, 2023

Mr. Scott A. Shoup, P.E.
Shoup Engineering Inc.
329 Summerfield Drive
Baden, Pennsylvania 15005

Dear Mr. Shoup:

Subject: Response to Comments to September 27, 2023 Revision
Land Development and Conditional Use Applications
Tyche Well Pad and Associated Pipeline
West Deer Township, Allegheny County, Pennsylvania
Olympus Energy LLC and Hyperion Midstream LLC
CEC Project 317-141

Civil & Environmental Consultants, Inc. (CEC), on behalf of Olympus Energy LLC (Olympus) and Hyperion Midstream LLC (Hyperion), has prepared the following responses to comments on the Land Development Plan and Conditional Use Applications for the Tyche Well Pad and Associated Pipeline project located in West Deer Township, Allegheny County, Pennsylvania. The comments were provided via email from Shoup Engineering (Shoup) dated October 10, 2023.

The following documents have been revised:

- Attachment A – Revised Land Development Drawings.

To expedite review, Shoup's comments are provided in **bold** type followed by Olympus' and Hyperion's/CEC's response.

1. **Copies of the permanent and temporary driveway permits from Allegheny County for access to Bairdford Road should be submitted to the Township. The applicant has responded that copies will also be provided to the Township after their receipt.**

   RESPONSE: This is understood.

2. **Both the Geotechnical Report for the well pad and the Geologic Condition Assessment Report for the pipelines recommend that a geotechnical engineering representative be present during well pad earthwork and pipeline installation. The applicant has committed to engaging a Geotechnical Engineering Firm per the recommendations in this report and assessment.**

   RESPONSE: This is understood.

3. **On page 24 of the conditional use narrative, a response is provided that sound walls will be installed around the perimeter of the well pad as a sound mitigation measure. The applicant has replied that sound walls will be installed throughout the duration of all drilling and completions activities at the sites. The location of the walls should be shown on the plans.**

   RESPONSE: Land Development Drawing C200 has been updated to indicate the location of the proposed sound wall. A Sound Impact Assessment (prepared by others) was transmitted to the Township on October 19, 2023.

Additionally, the proposed stockpile location has been revised to shift the stockpile to the east. As a result, the proposed Limit of Disturbance has been revised. The Land Development Plans have been revised accordingly and are provided as an attachment to this letter. No changes to the proposed access road or well pad layout were required as part of this revision.

We trust the above responses sufficiently address your comments. However, should you have questions regarding these responses, please do not hesitate to contact us at (724) 327 5200.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Jessie M. Durso

Jessie M. Durso
Project Consultant

Ryan B. Dailey

Ryan B. Dailey, P.E.
Senior Project Manager

JMD:RBD/jg
Attachments

cc: Brian Dillemuth, Olympus (PDF)

L-317141.O26/P

ATTACHMENT A

REVISED LAND DEVELOPMENT DRAWINGS

OLYMPUS ENERGY LLC

TYCHE WELL PAD AND ASSOCIATED PIPELINE
FINAL LAND DEVELOPMENT PLAN

WEST DEER TOWNSHIP,
ALLEGHENY COUNTY, PENNSYLVANIA

UTILITY CONTACTS

ALLEGHENY COUNTY DEPARTMENT OF PUBLIC WORKS
542 FORBES AVE, 501 OFFICE BUILDING
PITTSBURGH, PA, 15219
CONTACT: JEAN STATLER
EMAIL: JEAN.STATLER@ALLEGHENYCOUNTY.US

CONSILDATED COMMUNICATIONS
4008 GIBSONIA ROAD
GIBSONIA, PA 15044
CONTACT: GABE WHITE
EMAIL: GABE.WHITE@CONSOLIDATED.COM

DEER CREEK DRAINAGE BASIN AUTHORITY
945 LITTLE DEER CREEK ROAD, PO BOX 148
RUSSELTON, PA 15076
CONTACT: CHUCK DEBALDO
EMAIL: CHUCK@DEERCREEKAUTHORITY.COM

DUQUESNE LIGHT COMPANY
2645 NEW BEAVER AVE PA-TD
PITTSBURGH, PA 15233
CONTACT: KYLIE PARSON
EMAIL: KPARSON@DUQLIGHT.COM

OAKMONT BOROUGH MUNICIPAL AUTHORITY
1201 ALLEGHENY AVE
OAKMONT, PA 15139
CONTACT: RYAN VERBANIC
EMAIL: OAKMONTWATER@1MARK.ORG

PEOPLES GAS COMPANY LLC
375 NORTH SHORE DRIVE
PITTSBURGH PA, 15212
CONTACT: MICHAEL DENNY
EMAIL: MICHAEL.DENNY@ PEOPLES-GAS.COM

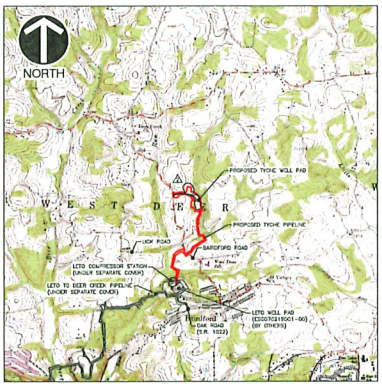
WEST DEER TOWNSHIP
109 E UNION ROAD
CHESWICK, PA 1508
CONTACT: JODY FRENCH
EMAIL: JFRENCH@WESTDEERTOWNSHIP.COM

WEST PENN POWER
21 S MAIN ST
AKRON, OH 44308
CONTACT: MELLYSSA ADAMS
EMAIL: MADAMS@FIRSTENERGYCORP.COM

PA ONE CALL DESIGN SERIAL NUMBER: 20213230901

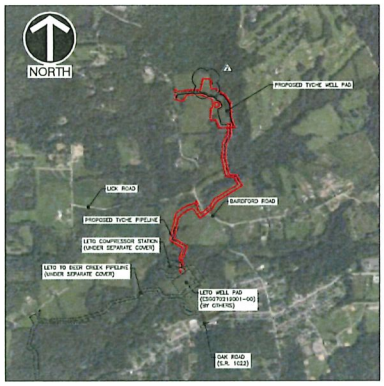
CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE–STOP CALL PENNSYLVANIA ONE CALL SYSTEM, INC. 1–800–242–1776

PENNSYLVANIA ACT 38 (1987) REQUIRES WE NOTIFY THOSE 3 WORKING DAYS NOTICE NOR MORE THAN 10 WORKING DAYS PRIOR TO CONSTRUCTION THAT WE WILL BE ADDING TO, OR DRILL, BORE, JACKS, BURY, BLADE, TRENCH, OR EXCAVATE WITHIN 10' OF THE CONSTRUCTION PHASE. THE LOCATION INDICATED IN THE STATE OF PENNSYLVANIA ONE CALL SYSTEM, INC. DESIGN STAGE.
HOWEVER, UNLESS THAT SIGN PLOTTED THEN, AVAILABLE INFORMATION AND THE LOCATION NOT BE GUARANTEED APPROXIMATE. OTHER UNDERGROUND UTILITIES MAY EXIST WHICH ARE NOT SHOWN. IF WE ARE ADDING TO, OR DRILL, BORE, JACKS, BURY, BLADE, TRENCH, OR EXCAVATE WITHIN 10' OF THE CONSTRUCTION PHASE, THE OWNER OF THE UNDERGROUND UTILITIES IS NOT MAY SHALL BE CONTACTED HOLD THE CONTRACTOR RESPONSIBLE FOR ANY UTILITY LOCATION SHOWN ON THIS PLAN.



PROJECT LOCATION MAP
REFERENCE: USGS 7.5 MIN. TOPOGRAPHIC QUADRANGLES
VALLEYSIDE, PA DATED 1961, PHOTOREVISED 1994, DURYEA, PA DATED 1973, PHOTOREVISED 1982, HOMESTEAD, PA DATED 1973, AND GLENSHAW, PA DATED 1968, PHOTOREVISED 1979.

SCALE IN FEET
0 2000 4000



PROJECT AERIAL MAP
REFERENCE: AERIAL PHOTOGRAPHY FROM GEOGRAPHICS INC.
PROJECTED BY AUTODESK, ACCESSED 05/21/2023

SCALE IN FEET
0 1000 2000

PROJECT DATA

PROPERTY OWNER
DONALD J. PODCZERWINSKI
310 BARDFORD ROAD
GIBSONIA, PA 15044

DEVELOPER
OLYMPUS ENERGY LLC
501 TECHNOLOGY DRIVE, SUITE 1200
CANONSBURG, PA 15317
PHONE: (724) 754-0119
ATTN: BRIAN DILLEMUTH

CML ENGINEER
CML & ENVIRONMENTAL CONSULTANTS, INC.
4350 NORTHERN PIKE, SUITE 141
MONROEVILLE, PA 15146
PHONE: (724) 327-5200
ATTN: RYAN B. DAILEY, P.E.

SHEET INDEX

DWG NO.	TITLE
C000	COVER SHEET
C100	EXISTING CONDITIONS
C200	SITE LAYOUT
C201	SITE LAYOUT WITH OIL AND GAS SETBACKS
C300	OVERALL POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN
C301-C302	POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN
C303-C305	POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN DETAILS
C900	OVERALL EROSION AND SEDIMENTATION CONTROL PLAN
C901-C902	EROSION AND SEDIMENTATION CONTROL PLAN
C903-C905	EROSION AND SEDIMENTATION CONTROL PLAN DETAILS
C907	GEOTECHNICAL DETAILS
C908	WELL PAD AND ACCESS ROAD PROFILES

AREA AND BULK REQUIREMENTS

ZONING DISTRICT : R-1 (RURAL RESIDENTIAL DISTRICT)		
PROPOSED USE: WELL PAD		
LAND USE EEM	REQUIRED	PROVIDED
MINIMUM LOT SIZE	43,560 SQ. FT.	2,273,142 SQ. FT.
MINIMUM LOT WIDTH	150 FT	1,435 FT.
MAXIMUM STRUCTURE HEIGHT	35 FT.	* >35 FT.
FRONT YARD SETBACK	50 FT.	>50 FT.
SIDE YARD SETBACK	25 FT.	>25 FT.
REAR YARD SETBACK	75 FT.	>75 FT.
MAXIMUM LOT COVERAGE	N/A	REFER TO C200

* MAXIMUM HEIGHT OF PERMANENT EQUIPMENT ON WELL PAD WILL MEET THE HEIGHT REQUIREMENTS OF THE ZONING ORDINANCE. TEMPORARY DRILLING AND COMPLETIONS EQUIPMENT WILL EXCEED THE HEIGHT REQUIREMENT AS ALLOWED UNDER SECTION 229-120.G.2.C

REVISION RECORD

NO.	DATE	DESCRIPTION
1	10/24/2023	REVISED PER COMMENTS PROVIDED BY TOWNSHIP ENGINEER ON 10/23/2023.
2	10/27/2023	REVISED TO ADD WALL AND FOLT INCLUDED IN PROFILE LOCATION.

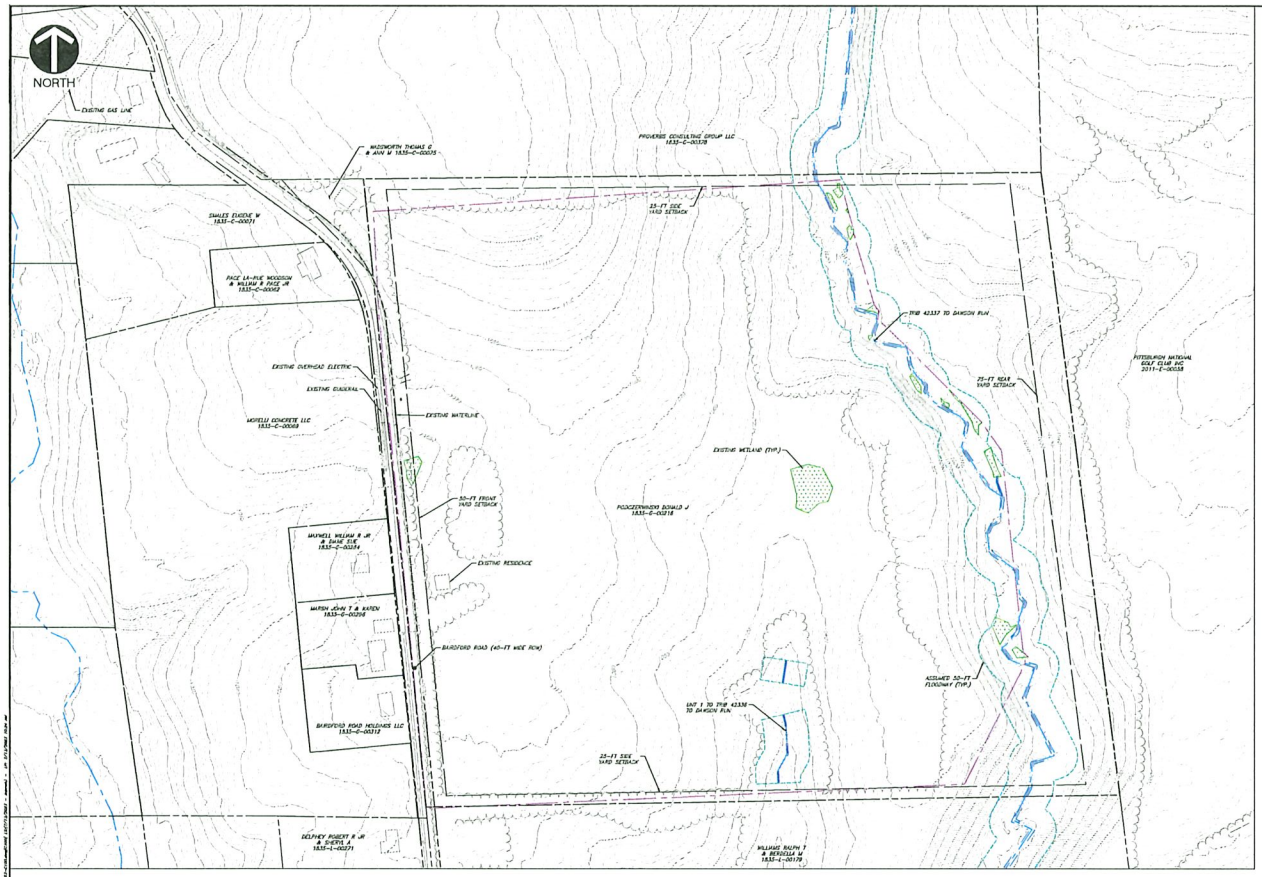
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
RYAN B. DAILEY
DAILEY
10/24/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD AND ASSOCIATED PIPELINE
COVER SHEET

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY	LC	DATE	07/14/2023	SCALE	NTS
CHECKED BY	JAE	DATE	07/14/2023	REVISION	2
APPROVED BY	RBD	DATE	07/14/2023	SHEET NUMBER	C000



LEGEND

- EXISTING PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING SETBACK LINE
- EXISTING INDEX (MAJOR) CONTOUR
- EXISTING INTERMEDIATE (MINOR) CONTOUR
- EXISTING ROADWAY CENTERLINE
- EXISTING EDGE OF PAVEMENT
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING OVERHEAD WIRE
- EXISTING STREAM
- EXISTING WETLAND
- EXISTING FLOODWAY
- STREAM AND WETLAND DELINEATION
- EXISTING TREE LINE
- EXISTING GUIDE RAIL

SCALE IN FEET
0 100 200

REFERENCES

1. EXISTING CONTOURS DERIVED FROM 2 BARE-EARTH DIGITAL ELEVATION MODEL (DEM) FILES OBTAINED FROM THE PENNSYLVANIA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES (DCNR) AT 3D.DCNR.PA.GOV IN 1-FOOT CONTOURS IN ASL VERTICAL. FOR THE SITE, CONTOUR DATA DERIVED FROM FIELD SURVEY. ADDITIONAL LIDAR SURVEY PERFORMED BETWEEN NOVEMBER 2018 AND MARCH 2020.
2. PROPERTY LINES SHOWN PER A COMBINATION OF RESTORATION SURVEY PERFORMED BY CEC, INC. IN NOVEMBER 2022, PARCEL DATA FROM CEC, INC. OCTOBER 2022, AND ALLEGHENY COUNTY GIS WEB PARCEL DATA.
3. EXISTING UTILITIES SHOWN PER A COMBINATION OF FIELD DATA AND FEATURES EXTRACTED FROM THE CEC, INC. AERIAL MAPPING.
4. AERIAL PHOTOGRAPHY FROM GEOIMAGERY DVD, PROVIDED BY AUTODESK, VERSION 20.1/2020
5. THE SITE WAS INVESTIGATED FOR STREAMS AND WETLANDS BY CEC, INC. IN JULY 2022, OCTOBER 2022, AND MARCH 2023

NOTE

THIS PLAN REPRESENTS A WORKING DRAWING OF FIELD EVIDENCE AND BOUNDARY CALCULATIONS BY CEC, INC. AS OF 11/15/2022 AS PART OF THE PROPERTY CONTAINING THE TYCHE WELL PAD SITE. THIS PLAN DOES NOT REPRESENT A BOUNDARY SURVEY FOR CONVEYANCE PURPOSES. FOR DEEDS AND DEED PLANS, THE STANDARDS OUTLINED IN THE DOCUMENT "PACSP LOCATION PLAN FOR OIL AND GAS WELLS".

REVISION RECORD		
NO.	DATE	DESCRIPTION

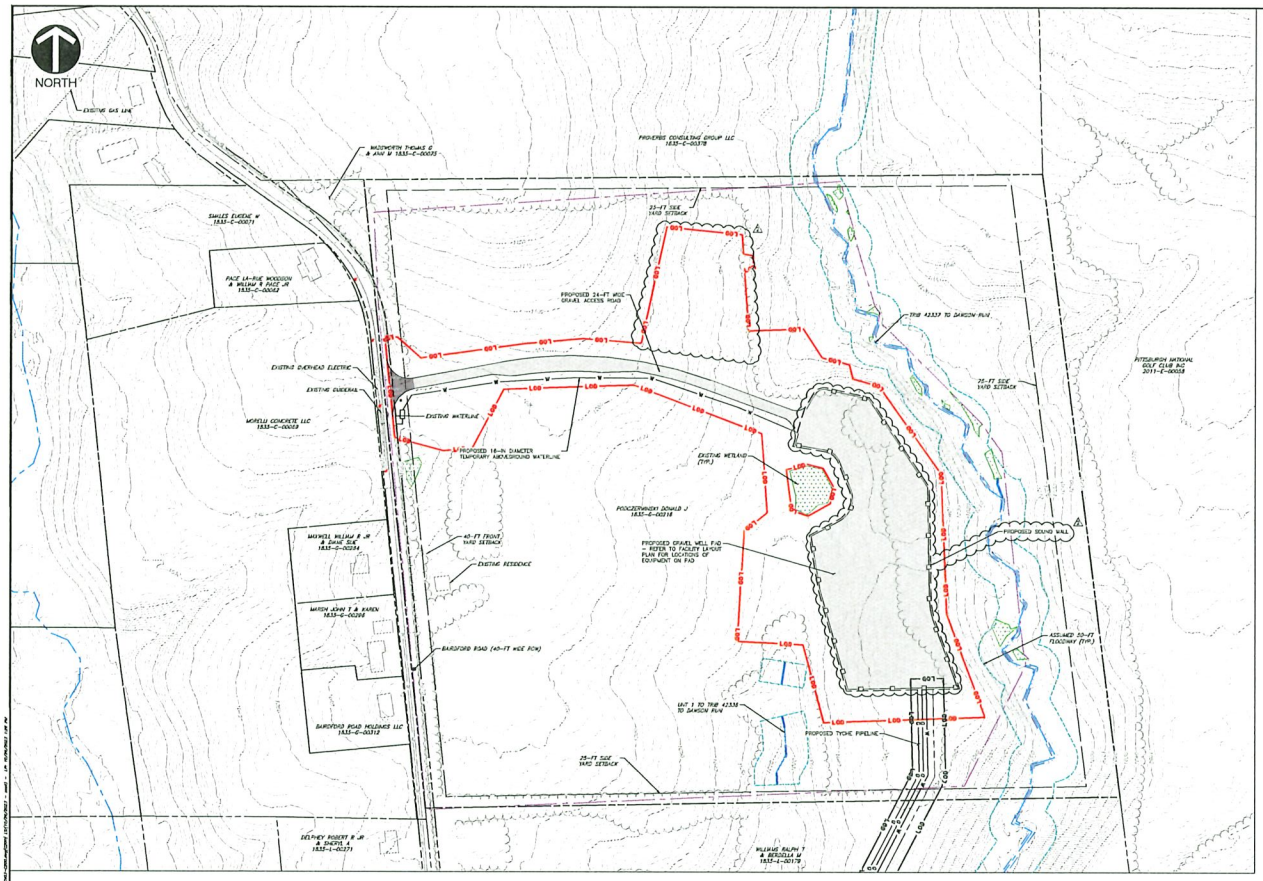
RYAN B. DAILEY
ENGINEER
PA REG. NO. 73337
7/24/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD AND ASSOCIATED PIPELINE
EXISTING CONDITIONS

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY	ML	DATE	07/14/2023	W.O.	ISSUE/REV.
CHECKED BY	JAE	DATE	07/14/2023	SHEET	REVISION 0
APPROVED BY	RBD	DATE	07/14/2023	SHEET NAME	C100



LEGEND

- EXISTING PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING SETBACK LINE
- EXISTING INDEX (MAJOR) CONTOUR
- EXISTING INTERMEDIATE (MINOR) CONTOUR
- EXISTING ROADWAY CENTERLINE
- EXISTING EDGE OF PAVEMENT
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING OVERHEAD WIRE
- EXISTING STREAM
- EXISTING WETLAND
- EXISTING FLOODWAY
- STREAM AND WETLAND DELINEATION
- EXISTING TREE LINE
- EXISTING GUIDE RAIL
- PROPOSED SOUND WALL

LOT COVERAGE	
TOTAL PROPERTY SIZE	53 ACRES
WELL PAD EQUIPMENT	0.24 ACRES (0.5%)
WELL PAD AND ACCESS ROAD	4.22 ACRES (8.1%)

SCALE IN FEET
0 100 200

REFERENCES

1. EXISTING CONTOURS OBTAINED FROM A SUBMERGENT DIGITAL TOPOGRAPHIC MODEL (DTM) DERIVED FROM AERIAL PHOTOGRAPHY FLOWN BY PENNSYLVANIA DEPARTMENT OF TRANSPORTATION (PENNDOT) ON APRIL 28 AND MAY 1, 2010. THE DTM IS STORED IN THE NAD 83/PENNSYLVANIA SOUTH FIPS 3702 COORDINATE SYSTEM. THE DTM WAS CONVERTED TO A 1-FOOT CONTOUR DATA SET. THE DTM WAS CONVERTED TO A 1-FOOT CONTOUR DATA SET. THE DTM WAS CONVERTED TO A 1-FOOT CONTOUR DATA SET. THE DTM WAS CONVERTED TO A 1-FOOT CONTOUR DATA SET.
2. PROPERTY LINES SHOWN FOR A COMBINATION OF VERIFICATION SURVEY DATA, PENNDOT RIGHT-OF-WAY MAPS, DEEDS, TAX MAPS, AERIAL SURVEY, SETBACK DATA, AND ALLEGHENY COUNTY GIS DATA.
3. EXISTING UTILITIES SHOWN PER A COMBINATION OF FIELD DATA AND FEATURES OBTAINED FROM ONE CALL PDS AERIAL MAPPING.
4. AERIAL PHOTOGRAPHY FROM: GEOSERVICES GIS, PROVIDED BY AUTODESK, ACCESSED 08/27/2013.
5. THE SITE WAS INVESTIGATED FOR WETLANDS AND WATERWAYS BY GEC, INC. IN JULY 2013, OCTOBER 2013, AND MARCH 2013.

REVISION RECORD		
NO.	DATE	DESCRIPTION
1	10/24/2013	REVISED PER COMMENTS PROVIDED BY TOWNSHIP ENGINEER OF TRUCKSOCK
2	11/20/2013	REVISED TO ADD SOUND WALL LAYOUT AND REVISED PIPELINE LOCATION.

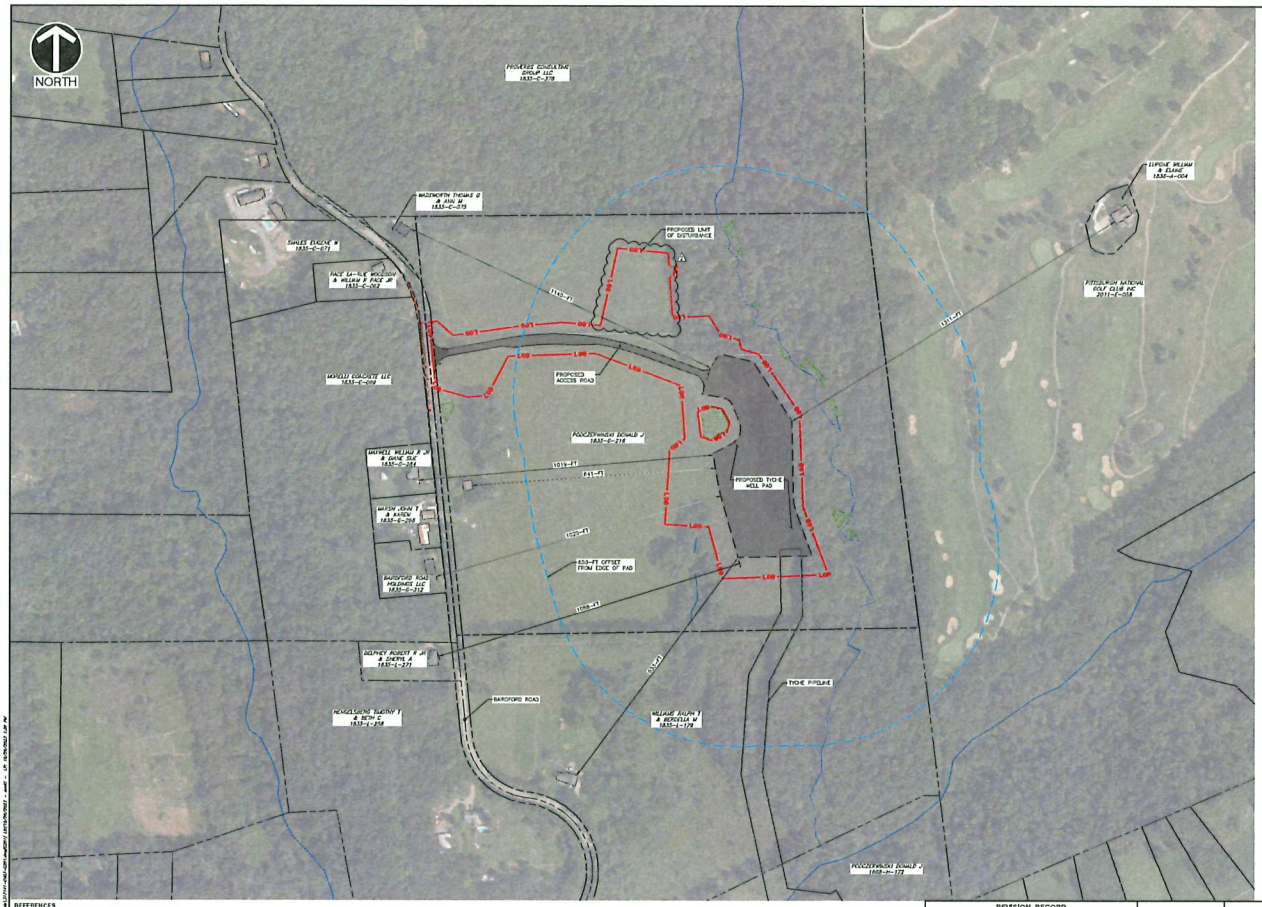
RANDY DALEY
PE-24421
10/24/2013

OLYMPUS ENERGY LLC
TYCHE WELL PAD AND ASSOCIATED PIPELINE
SITE LAYOUT

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
GEC

DRAWN BY	MC	DATE	07/24/2013	NTS	DOCUMENT
CHECKED BY	JMC	DATE	07/24/2013	SHEET	REVISION
APPROVED BY	RDD	DATE	07/24/2013	SHEET NAME	C200



REFERENCES

1. ENERGY CENTURY SERVICE FROM A BARE-EARTH DIGITAL ELEVATION MODEL (DERIVATED FROM LIDAR SURVEY DESCRIPTION AND RANDOM ELEVATION POINTS, DERIVATED FROM ON SITE SURVEY DATA) AND ALLEGHENY COUNTY GIS DATA BY THE GEOSPATIAL FOCUS TO WEST DEER TOWNSHIP, ALLEGHENY COUNTY, PENNSYLVANIA, PROJECT NO. GFCA, DATA SURVEY PERFORMED BETWEEN NOVEMBER 2019 AND MARCH 2020.
2. PROPERTY LINES SHOWN FOR A COMBINATION OF ABSTRACTION SURVEY DATA, FIELD SURVEY DATA, ENERGY CENTURY SERVICE, INC. DURING OCTOBER 2022, AND ALLEGHENY COUNTY GIS MAP TAXPEES DATA.
3. EXISTING UTILITIES SHOWN PER A COMBINATION OF FIELD DATA AND FEATURES EXTRACTED FROM ONE CALL AND AERIAL MAPPING.
4. AERIAL PHOTOGRAPHY FROM GEOSPATIAL SOL PROVIDED BY ALLEGHENY, ACCURACY 10 FT/2003
5. THE WTC WAS INVESTIGATED FOR STREAMS AND WETLANDS BY CEC, INC. IN JULY 2019, OCTOBER 2020, AND MARCH 2022

REVISION RECORD		
NO	DATE	DESCRIPTION
1	09/27/2023	REVISED PER COMMENTS PROVIDED BY TOWNSHIP ENGINEER ON 2023 0918
2	10/27/2023	REVISED TO ADD ROAD WIDENING ALLOWANCE AND REVISED INTERVALS (NOTION)

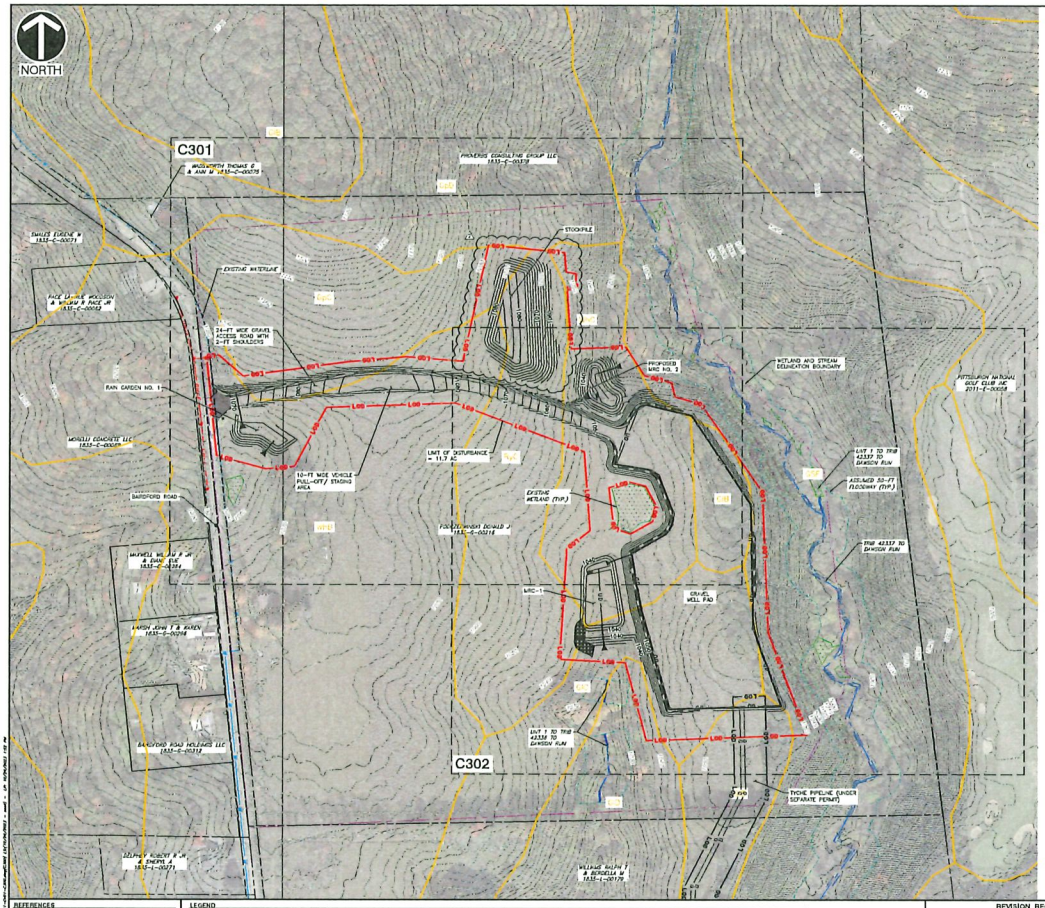
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
RYAN B. DAILEY
ENGINEER
CEC
10/24/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD AND ASSOCIATED PIPELINE
SITE LAYOUT WITH OIL & GAS SETBACKS

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY	AJ	DATE	DRAWING	1/16	DESIGNATED
CHECKED BY	JAE	DATE	DRAWING	SHEET	REVISION 2
APPROVED BY	RBD	DATE	DRAWING	SHEETNAME	C201



POST-CONSTRUCTION STORMWATER MANAGEMENT/SITE RESTORATION CONSTRUCTION SEQUENCE

THE SEQUENCE BELOW IS SPECIFIC TO THE POST-CONSTRUCTION STAGE OF THE PROJECT.

1. CONTRACTOR SHALL INSPECT INLETS, CHANNELS, STORM PIPES, RAIN GARDEN, AND MRC BMPS FOR SIGNS OF SEDIMENTATION. SEDIMENT SHALL BE REMOVED, AS NECESSARY, AND RESPRUCE ON SITE.
2. CONVERT SEDIMENT BASIN NO. 1 TO MRC BMP NO. 1. CONVERT OUTLET STRUCTURE FOR MRC-1 FOR PERMANENT USE BY REMOVING THE TEMPORARY SKIMMER, AND REMOVING THE PLUGS FROM THE PERMANENT OUTLET STRUCTURE ORIFICES.
3. COMPLETE CONSTRUCTION OF MRC BMPS BY INSTALLING IMPERVIOUS LINERS, UNDERDRAINS AND AMENDED SOIL MIX AS SHOWN ON THE DETAILS. COMPLETE CONSTRUCTION OF RAIN GARDEN BMP BY INSTALLING AMENDED SOIL MIX AS SHOWN ON THE DETAILS.
4. ONCE ALL DISTURBED AREAS HAVE BEEN STABILIZED AND A UNIFORM 70 PERCENT VEGETATIVE COVER HAS BEEN ESTABLISHED, THE E&S BMPS SHALL BE REMOVED. ANY AREAS DISTURBED DURING THE REMOVAL SHALL BE IMMEDIATELY STABILIZED AND SEEDED.

CRITICAL CONSTRUCTION STAGES

A LICENSED PROFESSIONAL ENGINEER OR DESIGNEE SHALL BE PRESENT ONSITE DURING CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, WHICH INCLUDES CONSTRUCTION OF RAIN GARDEN AND MRC BMPS. THE ENGINEER SHALL PERFORM INSPECTIONS BY THE LICENSED PROFESSIONAL ENGINEER OR DESIGNEE AS ARE REQUIRED UNDER THE CONSTRUCTION OF THOSE FACILITIES, SPECIFICALLY DURING EMBANKMENT CONSTRUCTION, OUTLET STRUCTURE INSTALLATION, UNDERDRAIN INSTALLATION, AND SOIL MEDIA PLACEMENT.

SCALE IN FEET
0 100 200

REFERENCES

1. EXISTING CONTOURS DERIVED FROM A SUBE-METER GRIDS, ELEVATION MODEL, CONSTRUCTED FROM LIDAR (LIGHT DETECTION AND RANGING) ELEVATION POINTS, PROVIDED BY ALLEGHENY COUNTY, PA. THE LIDAR DATA WAS COLLECTED IN 2012 AND 2013 RESPECTIVELY. FOR THE GRIDS, CONTOUR DATA DERIVED THROUGH FIELD SURVEYING, WERE LIDAR SURVEY PERFORMED BETWEEN NOVEMBER 2019 AND FEBRUARY 2020.
2. PROPERTY LINES SHOWN FOR A COMBINATION OF DEPOSITION SURVEY PERFORMED BY GAI, A CONFIDENTIAL SURVEY MAPS, INC. SURVEY DATABASE 2022, AND ALLEGHENY COUNTY GIS MAP PARCEL DATA.
3. EXISTING UTILITIES SHOWN PER A COMBINATION OF FIELD DATA AND FEATURES SUPPLIED FROM ONE CALL 811 DIGITAL MAPPING.
4. AERIAL PHOTOGRAPHY DATA, BEGGRAPHICS SOIL PROVIDED BY AUTODESK, ARCGIS WEB SERVICES.
5. SOIL SURVEY WAS DERIVED FROM SOIL SURVEY AND WETLANDS IN GIS, INC. IN JULY 2020, SOIL SURVEY DATA, AND WATER DATA.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING MAJOR CONTOUR (10-FT)
- EXISTING INTERMEDIATE CONTOUR (2-FT)
- WETLAND AND STREAM DELINEATION BOUNDARY
- EXISTING STREAM
- ASSUMED 50-FT FLOODWAY
- EXISTING OVERHEAD UTILITY
- EXISTING GAS LINE
- EXISTING WATER LINE
- EXISTING PAVED ROAD
- PROPOSED MAJOR CONTOUR (10-FT)
- PROPOSED INTERMEDIATE CONTOUR (2-FT)
- PROPOSED SWALE
- PROPOSED CULVERT
- PROPOSED RIPRAP APRON
- PROPOSED WELL PAD BERM
- PROPOSED WELL PAD UNDERDRAIN
- PROPOSED TOE OF BERM
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED GRAVEL ACCESS ROAD
- PROPOSED GRAVEL WELL PAD
- PROPOSED ASPHALT PAVEMENT
- PROPOSED 10-FT WIDE
- PROPOSED 100-FT OUTLET CHAIN
- SOIL BOUNDARY
- SOIL TYPE

REVISION RECORD

NO.	DATE	DESCRIPTION
1	10/27/2022	REVISED PER COMMENTS PROVIDED BY TOWNSHIP ENGINEER OR DESIGNEE
2	10/25/2023	REVISED STOCKPILE LOCATION

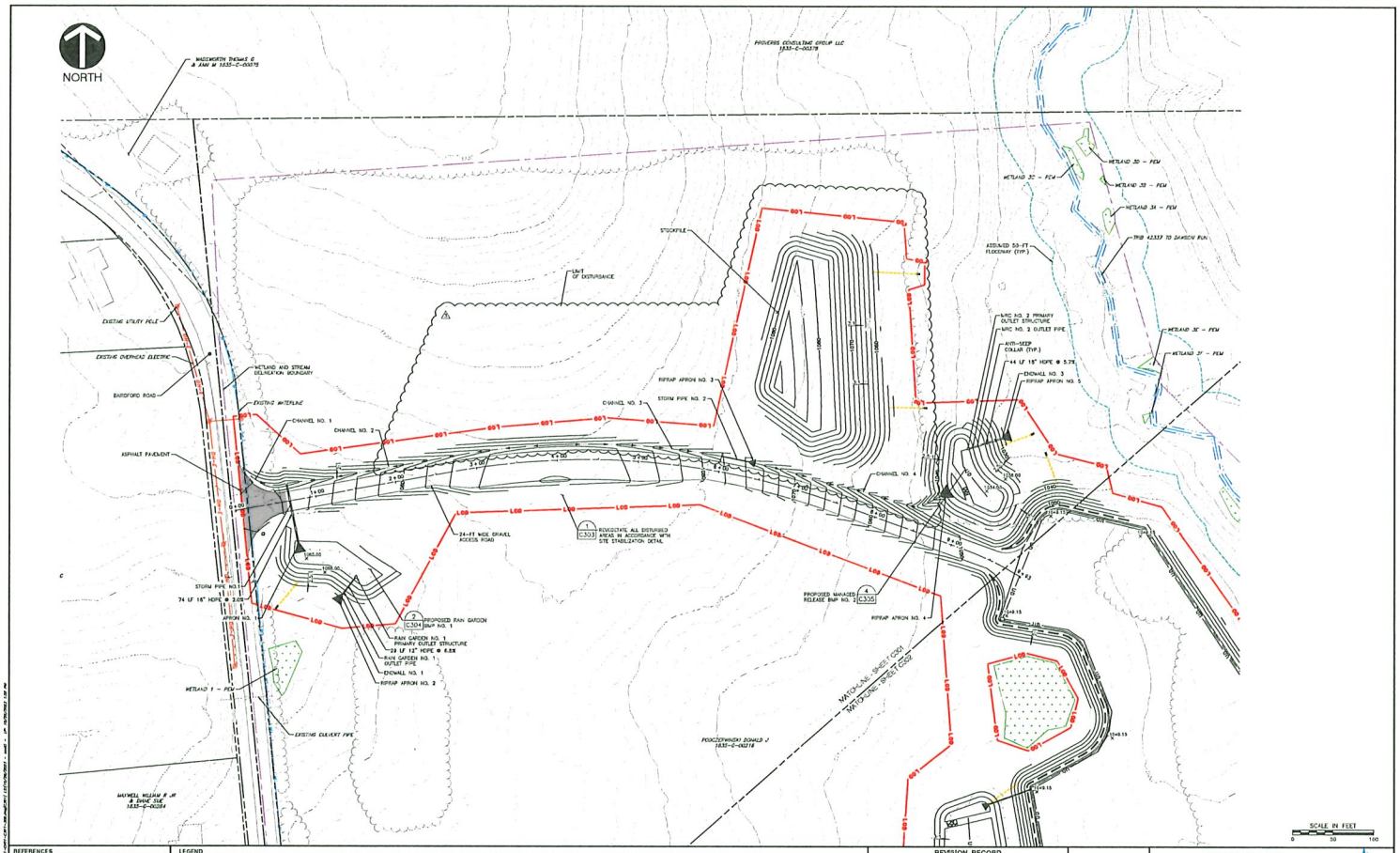
RYAN B. DAILEY
PROFESSIONAL ENGINEER
10/24/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD
OVERALL POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY	MC	DATE	07/14/2023	FILE	DESIGNED
CHECKED BY	JMC	DATE	07/14/2023	SHEET 11 OF 17	REVISION 2
APPROVED BY	RBD	DATE	07/14/2023	SHEET NAME	C300



REFERENCES

1. EXISTING CONTOURS DERIVED FROM A SUMMER-MONTH DIGITAL ELEVATION MODEL CONSTRUCTED FROM LIDAR PLANIMETRY DERIVED FROM MAPPING ELEVATION POINTS COLLECTED BY PENNSYLVANIA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES. THE DTA MODEL ADDITIONALLY WAS REFINED FURTHER WITH ADDITIONAL LIDAR DATASET PERTAINING BETWEEN REVISIONS 2018 AND MAYOR 2020.
2. PROPERTY LINES SHOWN FOR A COMBINATION OF SURVEYED DATA, PROPERTY LINE DATA IN COMMONWEALTH CONNECTIONS, INC. ONLINE DATABASE 2022, AND ALLEGHENY COUNTY GIS MAP PARCEL DATA.
3. EXISTING UTILITIES SHOWN PER A COMBINATION OF FIELD DATA AND FEATURES DERIVED FROM LIDAR AND AERIAL MAPPING.
4. AERIAL PHOTOGRAPHY USED AS BACKGROUND DATA PROVIDED BY ALTERGIS, RETRIEVED ON 5/1/2023.
5. THE SITE WAS INVESTIGATED FOR WETLANDS AND WATERWAYS BY CEC, INC. IN JULY 2022, OCTOBER 2022, AND MAYOR 2023.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING MAJOR CONTOUR (10-FT)
- EXISTING INTERMEDIATE CONTOUR (2-FT)
- WETLAND AND STREAM DELINEATION BOUNDARY
- EXISTING STREAM
- FLOWLINE 50-FT FLOODWAY
- EXISTING OVERHEAD ELECTRIC
- EXISTING GAS LINE
- EXISTING WATER LINE
- 1100 PROPOSED MAJOR CONTOUR (10-FT)
- PROPOSED INTERMEDIATE CONTOUR (2-FT)
- PROPOSED CHANNEL
- PROPOSED CULVERT
- PROPOSED RIPRAP APRON
- PROPOSED WELL PAD BERM
- PROPOSED WELL PAD UNDERDRAIN
- PROPOSED WELL PAD
- LOD PROPOSED LIMIT OF DISTURBANCE
- PROPOSED GRAVEL ACCESS ROAD
- PROPOSED GRAVEL WELL PAD
- PROPOSED ASPHALT PAVEMENT
- PROPOSED GAS LINE
- PROPOSED TOE-KEY OUTLET DRAIN
- SOIL BOUNDARY

REVISION RECORD

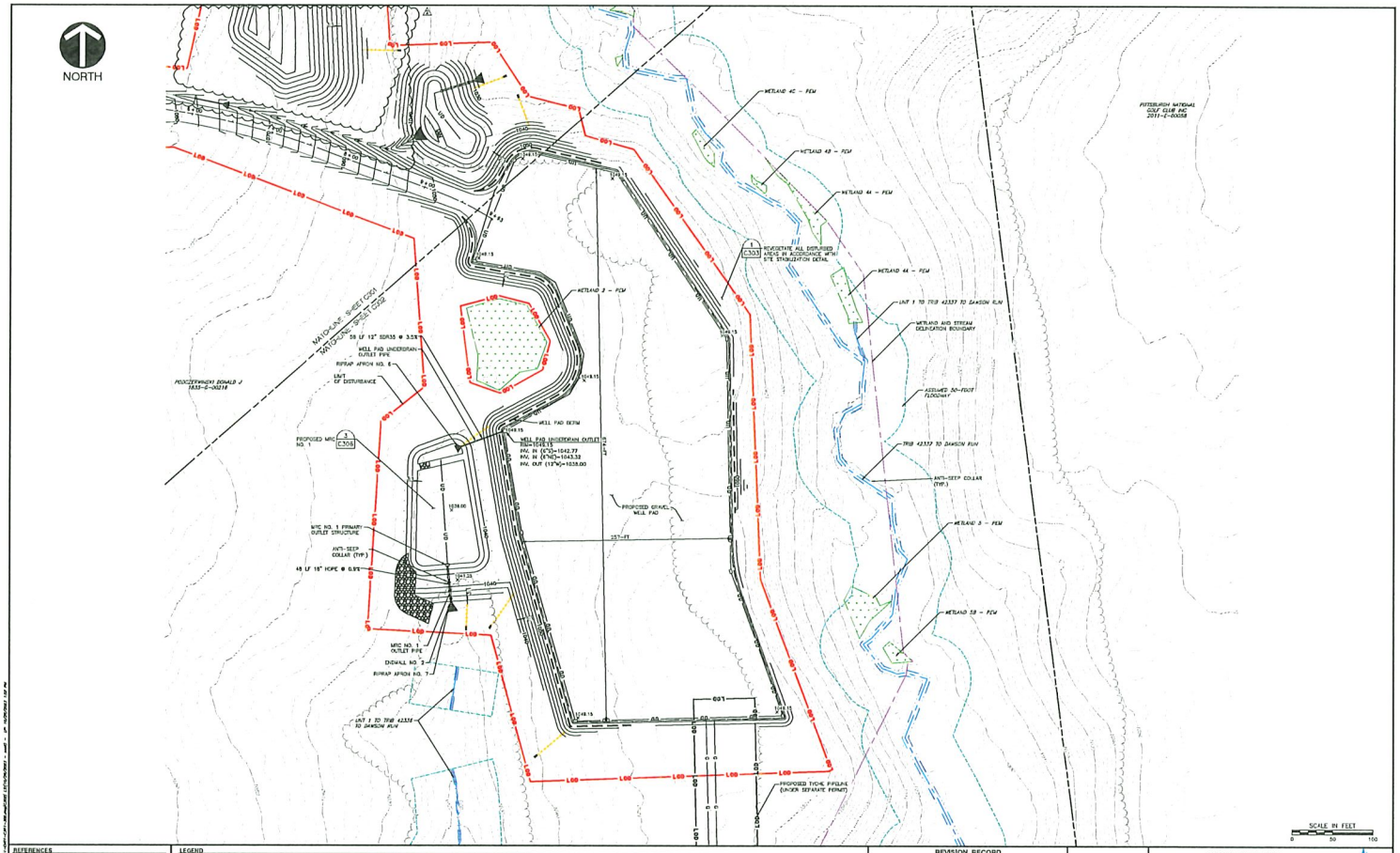
NO.	DATE	DESCRIPTION
1	10/27/23	REVISED PER COMMENTS PROVIDED BY TOWNSHIP ENGINEER ON 10/25/23.
2	11/20/23	REVISED STORMWATER LOCATION.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL RYAN B. DAILEY ENGINEER
10/24/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD
POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN
WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY:	MJ	DATE:	07-14-2023	V-1	SCALE: NTS
CHECKED BY:	JMC	DATE:	07-14-2023	SHEET	12 OF 17
APPROVED BY:	RBD	DATE:	07-14-2023	SHEET NAME	C301



REFERENCES

1. EXISTING CONTOURS DERIVED FROM A SUBE-EARTH DIGITAL ELEVATION MODEL CONSTRUCTED FROM NEAR EARTH SENSORS AND BUILDING ELEVATION POINTS COLLECTED BY PHOTOGRAMMETRY. THE DEM WAS PROVIDED BY PASCO, INC. (ORIGINAL FOR THE WORK CONTOUR DATA WERE DERIVED FROM PASCO, INC. LIDAR SURVEY PERFORMED BETWEEN FEBRUARY 2014 AND MARCH 2014).
2. PROPERTY LINES SHOWN FOR A COMBINATION OF GEOTAGGED SURVEY DATA(SUPPLIED BY GAI, A CHARGINGTON, CONSULTANTS, INC. CLOSE BETWEEN 2022, AND ALLEGHENY COUNTY GIS MAP TAXES DATA.
3. EXISTING UTILITIES SHOWN PER A COMBINATION OF FIELD DATA AND FEATURES SUPPLIED FROM ONE CALL AND VISUAL MAPPING.
4. LOCAL PHOTOGRAPHY FROM BIGGERHYDE DOL PROVIDED BY ACORDION, PROVIDED ON 01/2022.
5. THE ALL SURVEYED DATA FOR CULVERT AND MATCHLINES BY GEO, INC. IN JULY 2022, OCTOBER 2022, AND MARCH 2023.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING FOOT-OF-WALK
- EXISTING MAJOR CONTOUR (10-FT)
- EXISTING MINOR CONTOUR (2-FT)
- WETLAND AND STREAM DELINEATION BOUNDARY
- EXISTING STREAM
- ESTIMATED 50-FT FLOODWAY
- EXISTING OVERHEAD UTILITY
- EXISTING GAS LINE
- EXISTING WATER LINE
- PROPOSED FOOT-OF-WALK
- PROPOSED MAJOR CONTOUR (10-FT)
- PROPOSED INTERMEDIATE CONTOUR (2-FT)
- PROPOSED CHANNEL
- PROPOSED CULVERT
- PROPOSED RIPRAP APRON
- PROPOSED WELL PAD BERM
- PROPOSED WELL PAD UNDERDRAIN
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED GRAVEL WELL PAD
- PROPOSED GRAVEL WELL PAD
- PROPOSED ASPHALT PAVEMENT
- PROPOSED 100-YR
- PROPOSED 100-YR OUTLET CHAN
- SOIL BOUNDARY

REVISION RECORD

NO.	DATE	DESCRIPTION
1	04/18/23	REVISED PER COMMENTS PROVIDED BY TOWNSHIP ENGINEER OF RECORDS.
2	10/20/23	REVISED SITE PLAN & LOCATION.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL RYAN D. DALEY 084 10/24/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD
POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY

DRAWN BY	MC	DATE	07/14/2023	V.S.	ESTIMATE
CHECKED BY	JAE	DATE	07/14/2023	SHEET 13 OF 17	REVISION -
APPROVED BY	RDD	DATE	07/14/2023	SHEET NAME	C302

LONG-TERM OPERATION AND MAINTENANCE PROGRAM

A MAINTENANCE PROGRAM FOR POST-CONSTRUCTION STORMWATER MANAGEMENT (PCSM) CONTROL FEATURES HAS BEEN PREPARED. THE FACILITY OWNER WILL BE RESPONSIBLE FOR MAINTENANCE OF PCSM CONTROL FEATURES. THE OWNER SHALL IMMEDIATELY INITIATE A PLAN TO COMPLETE NECESSARY MAINTENANCE ACTIVITIES UPON IDENTIFYING ANY ITEM REQUIRING REPAIR AND/OR MAINTENANCE. THE PLAN SHALL INCLUDE THE PERSON(S) RESPONSIBLE FOR COMPLETING THE MAINTENANCE ACTIVITY AND AN ANTICIPATED TIMELINE FOR COMPLETION.

MAINTENANCE AND INSPECTION

RAIN GARDEN/ MANAGED RELEASE CONCEPT BMPS:

1. STORMWATER CONVEYANCE FACILITIES UPGRADIENT OF THE BMP SHOULD BE INSPECTED AND CLEANED AT LEAST TWO (2) TIMES PER YEAR AND AFTER RUNOFF EVENTS GREATER THAN 1-INCH;
2. THE VEGETATION ALONG THE SURFACE OF THE BMP (AND CONTRIBUTING DRAINAGE AREA) SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED AS SOON AS POSSIBLE;
3. CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS. MOW ONLY AS APPROPRIATE FOR VEGETATIVE SPECIES;
4. INSPECT AT LEAST TWO (2) TIMES PER YEAR AND AFTER RUNOFF EVENTS GREATER THAN 0.8-INCH AND MAKE SURE RUNOFF DRAINS DOWN WITHIN 72 HOURS;
5. AT LEAST TWO (2) TIMES PER YEAR, OR MORE IF HISTORICAL MAINTENANCE RECORDS INDICATE IT IS NECESSARY, INSPECT FOR ACCUMULATION OF SEDIMENT, DAMAGE TO OUTLET CONTROL STRUCTURES, EROSION, SIGN OF WATER CONTAMINATION/SPILLS, AND SLOPE STABILITY OF THE EMBANKMENTS. LEAF LITTER SHOULD BE REMOVED ANNUALLY; AND
6. AS NEEDED, REMOVE ACCUMULATED SEDIMENT AS REQUIRED TO MAINTAIN INFILTRATION THROUGH THE SOIL MEDIA AND TO MAINTAIN WATER QUALITY FUNCTIONALITY. RESTORE ORIGINAL CROSS-SECTION. PROPERLY DISPOSE OF SEDIMENT.

CHANNELS/VEGETATED SWALES:

1. CHANNELS SHALL BE INSPECTED AT LEAST QUARTERLY AND AFTER MAJOR RAINFALL EVENTS (GREATER THAN 1-INCH IN 24 HOURS).
2. CHANNELS SHOULD BE MAINTAINED TO ENSURE THAT THE SPECIFIED DIMENSIONS AND PROTECTIVE LINING ARE AVAILABLE AT ALL TIMES. A CHANNEL SHOULD BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25 PERCENT AT ANY LOCATION. DAMAGED CHANNEL LININGS SHOULD BE PROMPTLY REPLACED.

RIPRAP APRONS:

1. APRONS SHALL BE INSPECTED AT LEAST QUARTERLY AND AFTER MAJOR RAINFALL EVENTS (GREATER THAN 1-INCH IN 24 HOURS).
2. DISPLACED RIPRAP WITHIN THE APRON SHALL BE PROMPTLY REPLACED.

REVEGETATED AREAS:

1. REVEGETATED AREAS SHALL BE INSPECTED ANNUALLY.
2. REVEGETATED AREAS SHALL BE INSPECTED FOR BARE SPOTS, WASHOUTS, INVASIVE SPECIES, AND HEALTHY GROWTH DURING CONSTRUCTION. IDENTIFIED BARE SPORTS AND WASHOUTS SHALL BE REPAIRED WITHIN 10 BUSINESS DAYS OF INSPECTION.
3. REVEGETATED AREAS SHALL BE MOWED AT LEAST ANNUALLY TO MAINTAIN MEADOW SPECIES AND DISCOURAGE THE ESTABLISHMENT OF INVASIVE PLANT SPECIES, TO THE EXTENT PRACTICABLE.
4. IF INVASIVE PLANT SPECIES ARE IDENTIFIED WITHIN THE PERMITTED LIMIT OF DISTURBANCE, THEY SHALL BE MOWED DOWN TO THE GROUND AND/OR REMOVED BY HAND.
5. IF MOWING OR MECHANICAL REMOVAL IS TO BE CONDUCTED, ALL EQUIPMENT SHALL BE THOROUGHLY CLEANED VIA POWER WASHER, OR SIMILAR, PRIOR TO MOBILIZING TO THE SITE. EQUIPMENT SHALL ALSO BE CLEANED PRIOR TO DEPARTURE FROM THE SITE TO MINIMIZE THE POTENTIAL SPREAD OF INVASIVE SPECIES.
6. IF A PARTICULAR INVASIVE PLANT SPECIES BECOMES ESTABLISHED AND MECHANICAL MEANS ARE INEFFECTIVE IN THE CONTROL OF THE INVASIVE SPECIES, CHEMICAL AGENTS MAY BE REQUIRED. PRIOR TO APPLYING CHEMICAL AGENTS, OLYMPUS SHALL CONSULT WITH THE DEPARTMENT FOR RECOMMENDATIONS OR ALTERNATIVE METHODS THAT MAY BE APPLICABLE TO THE SPECIFIC SPECIES OF CONCERN.

MAINTENANCE COORDINATOR CONTACT INFORMATION:

CONTACT NAME: BRIAN DILLEMUTH
CONTACT TITLE: REGULATORY ADVISOR, OLYMPUS ENERGY LLC
CONTACT NUMBER: 724-754-0110

MANAGED RELEASE CONCEPT (MRC) BMP NOTES (REFER TO SHEETS C305-C306 FOR MRC DETAIL)

SUBGRADE PREPARATION

1. EXISTING SUBGRADE IN THE AMENDED SOIL MEDIA AREA SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC.
2. INITIAL EXCAVATION CAN BE PERFORMED DURING ROUGH SITE GRADING BUT SHALL NOT BE CARRIED TO WITHIN ONE FEET OF THE FINAL BOTTOM ELEVATION. FINAL EXCAVATION SHOULD NOT TAKE PLACE UNTIL ALL DISTURBED AREAS IN THE DRAINAGE AREA HAVE BEEN STABILIZED.
3. WHERE EROSION OF SUBGRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING IN THE GRADED BOTTOM, THIS MATERIAL SHALL BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE OR EQUIVALENT BY LIGHT TRACTOR.
4. BRING SUBGRADE OF AMENDED SOIL MEDIA AREA TO LINE, GRADE, AND ELEVATIONS AS INDICATED ON THE PLAN. FILL AND LIGHTLY REGRADE ANY AREAS DAMAGED BY EROSION, PONDING, OR TRAFFIC COMPACTION. ALL AMENDED SOIL MEDIA AREAS SHALL BE LEVEL GRADE ON THE BOTTOM.
5. HALT EXCAVATION AND NOTIFY ENGINEER IMMEDIATELY IF EVIDENCE OF SINKHOLE ACTIVITY OR PINNACLES OF CARBONATE BEDROCK ARE ENCOUNTERED IN THE AMENDED SOIL MEDIA AREA.

PLANTING SOIL

1. PLANTING SOIL MIX SHALL BE CLASSIFIED AS A MODIFIED SANDY LOAM ACCORDING TO THE USDA SOIL CLASSIFICATION AND SHALL CONSIST OF A 50% TOPSOIL (REMOVE ALL ROCKS AND FOREIGN MATTER), 20% COMPOST, AND 30% SAND.
2. PLANTING SOIL SHOULD BE APPROXIMATELY 4 INCHES DEEPER THAN THE BOTTOM OF THE LARGEST ROOT BALL OR PER DRAWINGS AND DETAILS WHICH EVER IS DEEPER.
3. THE PH SHOULD BE BETWEEN 5.5 AND 6.5, A CLAY CONTENT LESS THAN 10%, BE FREE OF TOXIC SUBSTANCES AND UNWANTED PLANT MATERIAL AND HAVE A 5-10% ORGANIC MATTER CONTENT.
4. PLANTING SOIL SHALL BE UNCOMPACTED. PLACE SOIL MEDIA GENTLY. DO NOT COMPACT SOIL MEDIA OR THE BASIN BOTTOM. THE PLACEMENT OF SOIL MEDIA SHOULD BE DONE FROM OUTSIDE THE BMP FOOTPRINT TO AVOID COMPACTION BY CONSTRUCTION EQUIPMENT. EQUIPMENT SHOULD NEVER DRIVE OVER PLACED SOIL MEDIA WITHOUT CONSTRUCTION MATTING.

AMENDED SOIL MEDIA AREA INSTALLATION

1. UPON COMPLETION OF SUBGRADE WORK, THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT AT HIS/HER DISCRETION BEFORE PROCEEDING WITH AMENDED SOIL MEDIA AREA INSTALLATION.
2. FOR THE SUBSURFACE STORAGE/INFILTRATION BED INSTALLATION, AMENDED SOILS SHOULD BE PLACED ON THE BOTTOM TO THE SPECIFIED DEPTHS.
3. PLANTING SOIL SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION/BED INSTALLATION AND UNDERDRAIN INSTALLATION. ANY ACCUMULATION OF DEBRIS OR SEDIMENT THAT TAKES PLACE AFTER APPROVAL OF SUBGRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF PLANTING SOILS AT NO EXTRA COST TO THE OWNER.
4. INSTALL PLANTING SOIL IN 18-INCH MAXIMUM LIFTS AND LIGHTLY COMPACT (TAMP WITH A BACKHOE BUCKET OR BY HAND). KEEP EQUIPMENT MOVEMENT OVER PLANTING SOIL TO A MINIMUM - DO NOT OVER COMPACT. INSTALL PLANTING SOIL TO GRADES INDICATED ON THE DRAWING.
5. INSTALL 2- TO 3-IN SHREDDED HARDWOOD MULCH (MINIMUM AGE 6 MONTHS) OR COMPOST MULCH EVENLY AS SHOWN ON PLANS. DO NOT APPLY MULCH IN AREAS WHERE GROUND COVER IS TO BE GRASS OR WHERE COVER WILL BE ESTABLISHED BY SEEDING.
6. PROTECT THE AMENDED SOIL MEDIA AREA FROM SEDIMENT AT ALL TIMES DURING CONSTRUCTION.
7. WHEN THE SITE IS FULLY VEGETATED AND THE SOIL MANTLE STABILIZED, THE PLAN DESIGNER SHALL BE NOTIFIED AND SHALL INSPECT THE MRC BMP AT HIS/HER DISCRETION BEFORE THE AREA IS BROUGHT ONLINE AND SEDIMENT CONTROL DEVICES REMOVED.
8. WATER VEGETATION AT THE END OF EACH DAY FOR TWO WEEKS AFTER PLANTING IS COMPLETED.
9. CONTRACTOR SHOULD PROVIDE A ONE-YEAR BOX CARE AND REPLACEMENT WARRANTY FOR ALL PLANTING BEGINNING AFTER INSTALLATION AND INSPECTION OF ALL PLANTS.

AMENDED SOIL MEDIA AREA SEEDING NOTES

1. VEGETATION ON THE INSIDE OF THE MRC BMP AREA SHALL BE EITHER ERNST CONSERVATION SEEDS' "NATIVE DETENTION AREA MIX" OR "RETENTION BASIN FLOOR MIX - LOW MAINTENANCE" SEED MIXES OR AN APPROVED EQUIVALENT. NO SUBSTITUTIONS AS TO THE SEED MIX SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
2. PRIOR TO COMMENCEMENT OF INSTALLATION, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES AND SHALL AVOID DAMAGING UTILITIES DURING INSTALLATION.
3. PRE-EMERGENT HERBICIDES, TREFLAN OR EPTAM, SHALL BE APPLIED TO THE PLANTING BED. APPLY AT MANUFACTURER'S RECOMMENDATIONS. HERBICIDES SHALL BE INCORPORATED INTO THE SOIL MIXES.
4. SEEDING: EVENLY APPLY THE SEED MIXTURE USING BROADCAST OR DRILL SEEDING METHODS THAT PLANT SEED LESS THAN ¼-INCH BELOW THE GROUND SURFACE. APPLY LEGUME SEED INOCULANTS SPECIFICALLY MADE FOR THE LEGUME SEED TYPE BEING APPLIED AT FIVE TIMES THE MANUFACTURER'S RECOMMENDED RATE. DO NOT USE SEED OR INOCULANT THAT HAS BEEN IMPROPERLY STORED, EXPIRED, OR SEED OLDER THAN 9 MONTHS FROM THE SEED TEST DATE. ALL SEEDED MRC BMP AREAS ARE TO BE MULCHED WITH SHREDDED MULCH OR LEAF COMPOST.
5. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE UNIFORM GRASS AND WILDFLOWER ESTABLISHMENT FOR A PERIOD OF ONE (1) YEAR BEGINNING UPON THE WRITTEN DATE OF SUBSTANTIAL COMPLETION OF THE PROJECT. ADDITIONAL SEEDING, IF NECESSARY SHALL BE MADE AT THE END OF THE WARRANTY PERIOD OR AT TIME AS DETERMINED BY THE OWNERS REPRESENTATIVE.
6. ALL IMPORTED TOPSOIL SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT.
7. EXISTING GRASS TO BE REMOVED, IF PRESENT, AND TOPSOIL TO BE SPREAD SMOOTH AND HAND-RAKED TO REMOVE ALL ROCKS AND DEBRIS LARGER THAT 1 INCH IN DIAMETER PRIOR TO LAYING SOD OR SEEDING.

MAINTENANCE AND INSPECTION

1. STORMWATER CONVEYANCE FACILITIES UPGRADIENT OF THE MANAGED RELEASE BMP SHOULD BE INSPECTED AND CLEANED AT LEAST TWO TIMES PER YEAR AND AFTER RUNOFF EVENTS.
2. THE VEGETATION ALONG THE SURFACE OF THE MANAGED RELEASE BMP SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED AS SOON AS PRACTICABLE.
3. VEHICLES SHOULD NOT BE PARKED OR DRIVEN ON THE MANAGED RELEASE BMP, AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS.
4. INSPECT THE MANAGED RELEASE BMP AFTER RUNOFF EVENTS AND MAKE SURE THE RUNOFF DRAINS DOWN WITHIN 72 HOURS.
5. INSPECT FOR ACCUMULATION OF SEDIMENT, DAMAGE TO OUTLET CONTROL STRUCTURES, SIGNS OF EROSION MEASURE DETERIORATIONS, SIGNS OF WATER CONTAMINATION/SPILLS, AND SLOPE STABILITY ISSUES IN THE MANAGED RELEASE BMP EMBANKMENTS.
6. MOW ONLY AS APPROPRIATE FOR VEGETATIVE COVER SPECIES.
7. REMOVE ACCUMULATED SEDIMENT FROM MANAGED RELEASE BMP, AS REQUIRED. RESTORE ORIGINAL CROSS-SECTION AND INFILTRATION RATE. PROPERLY DISPOSE OF SEDIMENT.

SEED MIXTURE USE

SITE CONDITION	SEED MIXTURE (SELECT ONE)*
CUT SLOPES AND FILLS (NOT MOWED) WELL DRAINED	4
CUT SLOPES AND FILLS (NOT MOWED) VARIABLE DRAINAGE	4
CUT SLOPES AND FILLS (MOWED)	1
CUT SLOPES AND FILLS (GRAZED/HAY)	1 OR 2
GULLIES AND ERODED AREAS	4
EROSION CONTROL BMPS - CHANNELS, DRAINAGE DITCHES, TRAPS, EMBANKMENTS, ETC.	1
EROSION CONTROL BMPS - FOR HAY OR SILAGE	2
RIGHT-OF-WAY, WELL-DRAINED	1, 2, OR 4
RIGHT-OF-WAY, VARIABLE DRAINAGE	2 OR 3
RIGHT-OF-WAY, WELL-DRAINED AREAS FOR GRAZING/HAY	2
STRIP MINED AREAS - SPOILS, WASTE AREAS, FLY ASH, SLAG, ETC.	2, 3, OR 4
STRIP MINED AREAS - FOR GRAZING/HAY	2 OR 4

* PLUS "NURSE CROP" OF 64 LBS/ACRE OF OATS OR 112 LBS/ACRE OF WINTER RYE

PERMANENT SEED MIXTURES

MIXTURE NUMBER	SEASON	SPECIES	SEEDLING RATE LB/AC
1	COOL	FINE FESCUE, PLUS REDTOP, PLUS BIRDSFOOT TREFOIL	46 4 6
2	COOL	ORCHARDGRASS PLUS BIRDSFOOT TREFOIL	26 6
3	WARM	DEERTONGUE, PLUS BIRDSFOOT TREFOIL	21 6
4	WARM	SWITCHGRASS OR BIG BLUESTEM, PLUS BIRDSFOOT TREFOIL	15 15 6

SOIL AMENDMENT APPLICATION RATES

	TEMPORARY SEEDING APPLICATION RATE PER ACRE	PERMANENT SEEDING APPLICATION RATE PER ACRE
AGRICULTURAL LIME	1 TON	6 TONS
10-10-10 FERTILIZER	500 LBS	--
10-20-20 FERTILIZER	--	1,000 LBS

* TYPICALLY NOT REQUIRED FOR TOPSOIL STOCKPILES
** OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS

MULCH APPLICATION RATES

	APPLICATION RATE (TON/AC)	NOTES
STRAW	3	EITHER WHEAT OR OAT STRAW, FREE OF WEEDS, NOT CHOPPED OR FINELY BROKEN
HAY	3	TIMOTHY, MIXED CLOVER AND TIMOTHY OR OTHER NATIVE FORAGE GRASSES
WOOD CHIPS	4-6	MAY PREVENT GERMINATION OF GRASSES AND LEGUMES
HYDROMULCH	1	SHREDDED PAPER MULCH SHOULD NOT BE USED ON SLOPES STEEPER THAN 5%. WOOD FIBER MULCH MAY BE APPLIED ON STEEPER SLOPES PROVIDED A TACKIFIER IS USED

DETAIL 1
SITE STABILIZATION

REVISION RECORD

NO	DATE	DESCRIPTION

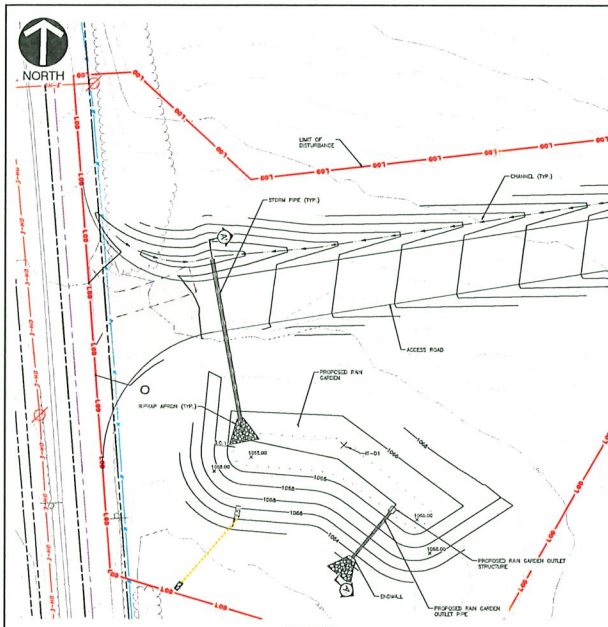
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
RYAN B. DAILEY
ENGINEER
7/14/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD
POST-CONSTRUCTION STORMWATER
MANAGEMENT PLAN DETAILS

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY	LML	DATE	07/14/2023	AFE		SEGMENT ID	
CHECKED BY	JMD	DATE	07/14/2023	SHEET	14 OF 17	REVISION	0
APPROVED BY	RBD	DATE	07/14/2023	SHEET NAME			C303



PLAN VIEW
SCALE IN FEET
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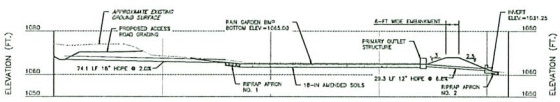


CROSS-SECTION A-A'
SCALE IN FEET (HORIZONTAL)
0 10 20
SCALE IN FEET (VERTICAL)
0 10 20

DETAIL 2
RAIN GARDEN NO. 1

SUBGRADE PREPARATION

1. EXISTING SUBGRADE IN THE BIORETENTION AREA SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC.
2. INITIAL EXCAVATION CAN BE PERFORMED DURING ROUGH SITE GRADING BUT SHALL NOT BE CARRIED TO WITHIN ONE FEET OF THE FINAL BOTTOM ELEVATION. FINAL EXCAVATION SHOULD NOT TAKE PLACE UNTIL ALL DISTURBED AREAS IN THE DRAINAGE AREA HAVE BEEN STABILIZED.
3. WHERE EROSION OF SUBGRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING IN THE EXCAVED BOTTOM, THIS MATERIAL SHALL BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE OR EQUIVALENT BY LIGHT TRACTOR.
4. BRING SUBGRADE OF BIORETENTION AREA TO LINE, GRADE, AND ELEVATIONS AS INDICATED ON THE PLAN. FILL AND LIGHTLY RESCARIFY ANY AREAS DAMAGED BY EROSION, PONDING, OR TRAFFIC COMPACTION. ALL BIORETENTION AREAS SHALL BE LEVEL GRADE ON THE BOTTOM.
5. HALT EXCAVATION AND NOTIFY ENGINEER IMMEDIATELY IF EVIDENCE OF SINKHOLE ACTIVITY OR FRACTURES OF CARBONATE BEDROCK ARE ENCOUNTERED IN THE BIORETENTION AREA AREA.

PLANTING SOIL

1. PLANTING SOIL MIX SHALL BE CLASSIFIED AS A MODIFIED SANDY LOAM ACCORDING TO THE USDA SOIL CLASSIFICATION AND SHALL CONSIST OF A 50% TOPSOIL (REMOVE ALL ROCKS AND FOREIGN MATTER), 20% COMPOST, AND 30% SAND.
2. PLANTING SOIL SHOULD BE APPROXIMATELY 4 INCHES DEEPER THAN THE BOTTOM OF THE LARGEST ROOT BALL OR PER DRAWINGS AND DETAILS WHICH EVER IS DEEPER.
3. THE PH SHOULD BE BETWEEN 5.5 AND 6.5, A CLAY CONTENT LESS THAN 10%, BE FREE OF TOXIC SUBSTANCES AND VIBRANTLY PLANT MATERIAL AND HAVE A 5-10% ORGANIC MATTER CONTENT.
4. PLANTING SOIL SHALL BE UNCOMPACTED

BIORETENTION AREA INSTALLATION

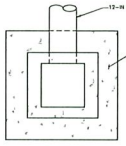
1. UPON COMPLETION OF SUBGRADE WORK, THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT AT MILWIER EXCEPTION BEFORE PROCEEDING WITH BIORETENTION AREA INSTALLATION.
2. FOR THE SUBSURFACE STORAGE/INFILTRATION BED INSTALLATION, AMENDED SOILS SHOULD BE PLACED ON THE BOTTOM TO THE SPECIFIED DEPTHS.
3. PLANTING SOIL SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION/BED INSTALLATION. ANY ACCUMULATION OF DEBRIS OR SEDIMENT THAT TAKES PLACE AFTER APPROVAL OF SUBSTRATE SHALL BE REMOVED PRIOR TO INSTALLATION OF PLANTING SOILS AT NO EXTRA COST TO THE OWNER.
4. INSTALL PLANTING SOIL IN 18-INCH MAXIMUM LIFTS AND LIGHTLY COMPACT (TAMP WITH A BACKHOE BUCKET OR BY HAND). KEEP EQUIPMENT MOVEMENT OVER PLANTING SOIL TO A MINIMUM – DO NOT OVER COMPACT. INSTALL PLANTING SOIL TO GRADES INDICATED ON THE DRAWING.
5. INSTALL 2- TO 3-IN SHREDDED HARDWOOD MULCH (MINIMUM AGE 6 MONTHS) OR COMPOST MULCH EVENLY AS SHOWN ON PLANS. DO NOT APPLY MULCH IN AREAS WHERE GROUND COVER IS TO BE GRASS OR WHERE COVER WILL BE ESTABLISHED BY SEEDING.
6. PROTECT THE BIORETENTION AREA FROM SEDIMENT AT ALL TIMES DURING CONSTRUCTION.
7. WHEN THE SITE IS FULLY VEGETATED AND THE SOIL MATRIX STABILIZED, THE PLAN ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT THE BIORETENTION AREA AT MILWIER EXCEPTION BEFORE THE AREA IS BROUGHT ONLINE AND SEDIMENT CONTROL DEVICES REMOVED.
8. WATER VEGETATION AT THE END OF EACH DAY FOR TWO WEEKS AFTER PLANTING IS COMPLETED.
9. CONTRACTOR SHOULD PROVIDE A ONE-YEAR BOTH CARE AND REPLACEMENT WARRANTY FOR ALL PLANTING BEGINNING AFTER INSTALLATION AND INSPECTION OF ALL PLANTS.

BIORETENTION AREA SEEDING NOTES

1. VEGETATION ON THE INSIDE OF THE BIORETENTION AREA SHALL BE EITHER ERNST CONSERVATION SEEDS' "NATIVE EXTENTION AREA MIX" OR "RETENTION BASIN FLOOR MIX – LOW MAINTENANCE" SEED MIXES OR AN APPROVED EQUIVALENT. NO SUBSTITUTIONS AS TO THE SEED MIX SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
2. PRIOR TO COMMENCEMENT OF INSTALLATION, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES AND SHALL AVOID DAMAGING UTILITIES DURING INSTALLATION.
3. PRE-EMERGENT HERBICIDE, TREFLAN OR EPTAM, SHALL BE APPLIED TO THE PLANTING BED APPLY AT MANUFACTURER'S RECOMMENDATIONS. HERBICIDES SHALL BE INCORPORATED INTO THE SOIL MIXES.
4. SEEDING: EVENLY APPLY THE SEED MIXTURE USING BROADCAST OR DRILL SEEDING METHODS THAT PLANT SEED LESS THAN ¼-INCH BELOW THE GROUND SURFACE. APPLY LEGUME SEED INOCULANTS SPECIFICALLY MADE FOR THE LEGUME SEED TYPE BEING APPLIED AT RATE TWICE THE MANUFACTURER'S RECOMMENDED RATE. DO NOT USE SEED OR INOCULANT THAT HAS BEEN IMPROPERLY STORED, DAMPED, OR SEED OLDER THAN 6 MONTHS FROM THE SEED TEST DATE. ALL SEEDED BIORETENTION AREA AREAS ARE TO BE MULCHED WITH SHREDDED MULCH OR LEAF COMPOST.
5. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE UNIFORM GRASS AND WILDFLOWER ESTABLISHMENT FOR A PERIOD OF ONE (1) YEAR BEGINNING UPON THE WRITTEN DATE OF SUBSTANTIAL COMPLETION OF THE PROJECT. ADDITIONAL SEEDING, IF NECESSARY SHALL BE MADE AT THE END OF THE WARRANTY PERIOD OR AT TIME AS DETERMINED BY THE OWNERS REPRESENTATIVE.
6. ALL IMPORTED TOPSOIL SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT.
7. EXISTING GRASS TO BE REMOVED, IF PRESENT, AND TOPSOIL TO BE SPREAD SMOOTH AND HAND-RAKED TO REMOVE ALL ROCKS AND DEBRIS LARGER THAN 1 INCH IN DIAMETER PRIOR TO LAYING SOD OR SEEDING.

BIORETENTION AREA MAINTENANCE

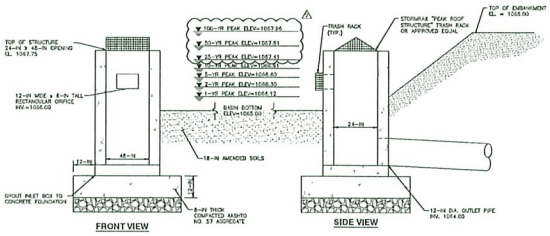
- BIORETENTION AREA SHALL BE INSPECTED QUARTERLY WHILE VEGETATION IS BEING ESTABLISHED. PRUNING AND/OR WEEDING SHALL BE PERFORMED AS NECESSARY DURING THIS TIME PERIOD.
- DEBRIS SHALL BE REMOVED ONCE PER YEAR. PERENNIAL PLANTINGS SHALL BE CUT AS NECESSARY AT THE END OF THE GROWING SEASON.
- MULCH SHALL BE RE-SPREAD WHEN EROSION IS EVIDENT AND BE REPLENISHED AS NEEDED. ONCE EVERY 2 TO 3 YEARS THE ENTIRE AREA MAY REQUIRE MULCH REPLACEMENT.
- BIORETENTION AREAS SHOULD BE INSPECTED AT LEAST TWO TIMES PER YEAR FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE CONDITIONS, ETC.



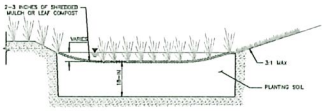
TOP VIEW

NOTES:

1. ALL CONCRETE SHALL BE CLASS A CONCRETE, 4000 PSI, 5% AIR ENTRAINED
2. INLET UNITS TO BE SEALED WITH 1-IN DIAMETER FLEXIBLE BUTYL RUBBER JOINT SEALANT, USE 1/2-IN DIAMETER FOR FRAME AND GRATE.
3. LIFTING HOLES TO BE POINTED WITH NON-SHRINK GROUT, AND LEFT WATERTIGHT, NEAT AND SMOOTH.
4. MAXIMUM ADJUSTMENT TO FINISHED GRADE USING PRECAST GRADE SPACERS SHALL NOT EXCEED NINE INCHES (9-IN)
5. PRECAST SECTIONS SHALL CONFORM TO ASTM C-478 AS REVISED.
6. INLET INVERT SHALL BE CONCRETE TO THE SPRING LINE OF PIPE WITH SIDES SLOPING 1/2-IN TO 1-FT TO INSIDE FACE OF PRECAST BASE SECTION.



FRONT VIEW **SIDE VIEW**



BIORETENTION AREA CROSS-SECTION
NTS

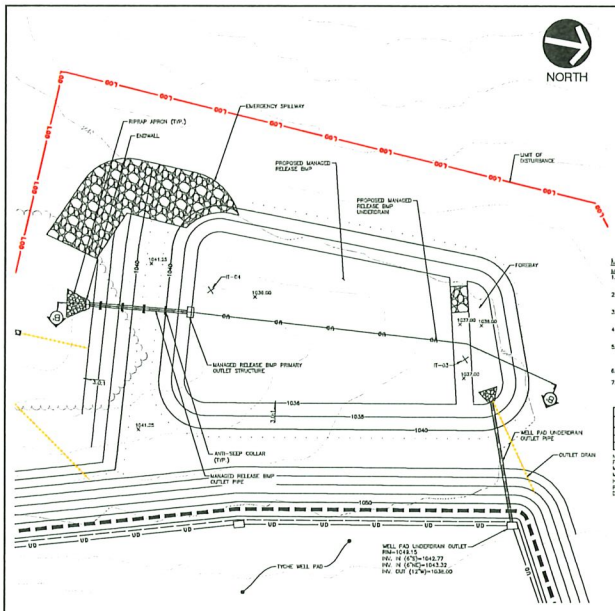
REVISION RECORD		
NO.	DATE	DESCRIPTION
1	10/26/2023	REVISED PER COMMENTS PROVIDED BY TOWNSHIP ENGINEER ON 10/26/2023.
2	11/20/2023	REVISED BY TOWNSHIP LOCATION.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL RYAN B. DAILEY DAILEY 10/26/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD
POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN DETAILS
WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CET

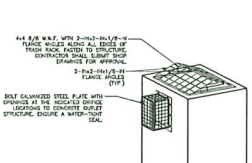
DRAWN BY	MC	DATE	07-14-2023	FILE	DESIGNED
CHECKED BY	JMC	DATE	07-14-2023	SHEET	REVISION 2
APPROVED BY	RBD	DATE	07-14-2023	SHEETNAME	C304



PLAN VIEW

SCALE IN FEET

0 20 40



PRIMARY OUTLET STRUCTURE TRASH RACK DETAIL

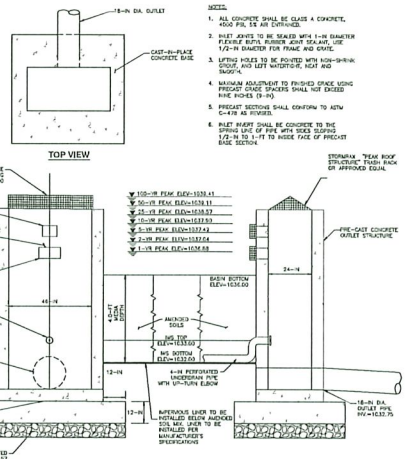
MANAGED RELEASE BMP NOTES:

MAINTENANCE AND INSPECTION

1. STORMWATER CONVEYANCE FACILITIES UPGRADIENT OF THE MANAGED RELEASE BMP SHOULD BE INSPECTED AND CLEANED AT LEAST TWO TIMES PER YEAR AND AFTER RUNOFF EVENTS.
2. THE VEGETATION ALONG THE SURFACE OF THE MANAGED RELEASE BMP SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED AS SOON AS PRACTICABLE.
3. VEHICLES SHOULD NOT BE PARKED OR DRIVEN ON THE MANAGED RELEASE BMP, AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS.
4. INSPECT THE MANAGED RELEASE BMP AFTER RUNOFF EVENTS AND MAKE SURE THE RUNOFF DRAINS DOWN WITHIN 72 HOURS.
5. INSPECT FOR ACCUMULATION OF SEDIMENT, DAMAGE TO OUTLET CONTROL STRUCTURES, SIGNS OF EROSION MEANDER DETERIORATING, SIGNS OF WATER CONTAMINATION/SPILLS, AND SLOPE STABILITY ISSUES IN THE MANAGED RELEASE BMP EMBANKMENTS.
6. MOW ONLY AS APPROPRIATE FOR VEGETATIVE COVER SPECIES.
7. REMOVE ACCUMULATED SEDIMENT FROM MANAGED RELEASE BMP, AS REQUIRED. RESTORE ORIGINAL CROSS-SECTION AND INFILTRATION RATE. PROPERLY DISPOSE OF SEDIMENT.

SOIL AMENDMENTS	
COMPONENT	% OF MIXTURE
TOPSOIL	50
COMPOST	20
SAND OR PEA GRAVEL	30

NOTE: ONLY COMPOST PRODUCTS THAT MEET ALL APPLICABLE STATE AND FEDERAL REGULATIONS PERTAINING TO ITS PRODUCTION AND DISTRIBUTION MAY BE USED IN THIS APPLICATION. APPROVED COMPOST PRODUCTS MUST MEET RELATED STATE AND FEDERAL CHEMICAL CONTAMINANT (E.G., HEAVY METALS, PESTICIDES, ETC.) AND PATHOGEN LIMIT STANDARDS PERTAINING TO THE FEEDSTOCKS (SOURCE MATERIALS) IN WHICH IT IS DERIVED.



NOTE MANUFACTURER MAY ADJUST DIMENSIONS OF ORIFICE OPENINGS TO MAINTAIN SUFFICIENT CONCRETE COVER BETWEEN OPENING. ORIFICE SIZE AND ELEVATIONS MUST STAY THE SAME AS DESIGNED.

NOTES:

1. ALL CONCRETE SHALL BE CLASS A CONCRETE, 4000 PSI, 5% AIR ENTRAINED.
2. INLET JOINTS TO BE SEALED WITH 1-IN DIAMETER FLEXIBLE BUTYL RUBBER JOINT SEALANT. USE 1/2-IN DIAMETER FOR FRAME AND GRATE.
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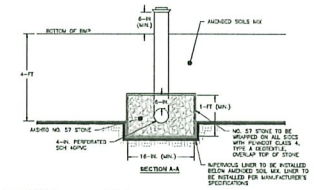
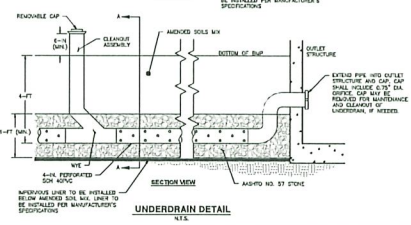
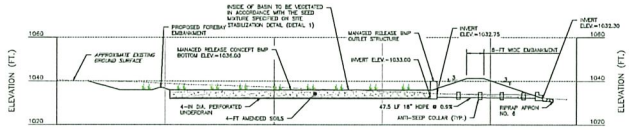




UNDERDRAIN DETAIL

N.T.S.



CROSS-SECTION B-B'

SCALE IN FEET (HORIZONTAL)

0 20 40

SCALE IN FEET (VERTICAL)

0 20 40

DETAIL 3
MANAGED RELEASE CONCEPT BMP NO. 1

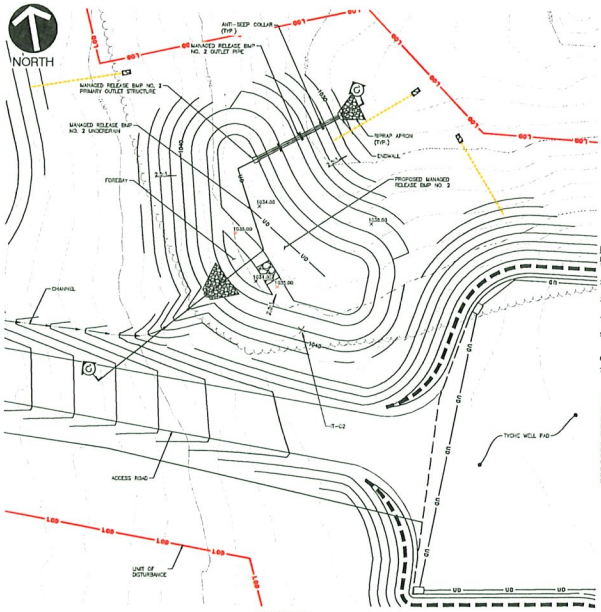
REVISION RECORD		
NO.	DATE	DESCRIPTION
1	06/30/23	REVISED PER COMMENTS PROVIDED BY TOWNSHIP ENGINEER OF RECORD.

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER RYAN B. DAILEY 075 PENNSYLVANIA
6/30/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD
POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN DETAILS
WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY

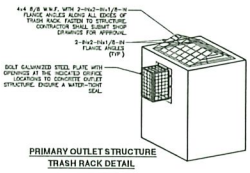
DRAWN BY	AC	DATE	07/14/2023	FILE	ESTIMATED
CHECKED BY	AMD	DATE	07/14/2023	SHEET	16 OF 17 REVISION
APPROVED BY	RBD	DATE	07/14/2023	SHEET NAME	C305



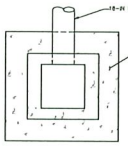
PLAN VIEW

SCALE IN FEET

0 20 40



PRIMARY OUTLET STRUCTURE TRASH RACK DETAIL



TOP VIEW

NOTES:

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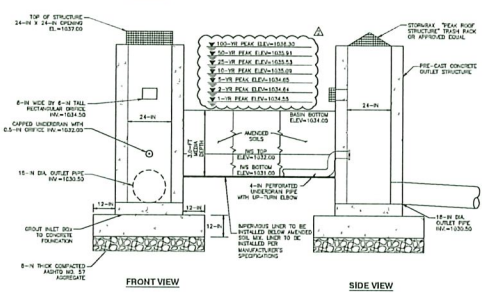

FRONT VIEW

SIDE VIEW

MANAGED RELEASE BMP NOTES:

MAINTENANCE AND INSPECTION

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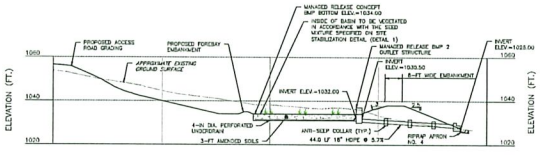
SOIL AMENDMENTS

COMPONENT	% OF MIXTURE
TOPSOIL	50
COMPOST	35
SAND OR PEA GRAVEL	30

NOTE: ONLY COMPOST PRODUCTS THAT MEET ALL APPLICABLE STATE AND FEDERAL REGULATIONS PERTAINING TO ITS PRODUCTION AND DISTRIBUTION SHOULD BE USED. THE COMPOST PRODUCT USED IN THE MANAGED RELEASE BMP MUST MEET REQUIRED STATE AND FEDERAL CHEMICAL CONTAMINANT (E.G., HEAVY METALS, PESTICIDES, ETC.) AND PATHOGEN LIMIT STANDARDS PERTAINING TO THE FEEDSTOCKS (SOURCE MATERIALS) IN WHICH IT IS DERIVED.



CROSS-SECTION C-C'

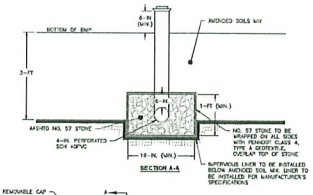
SCALE IN FEET (HORIZONTAL)

0 20 40

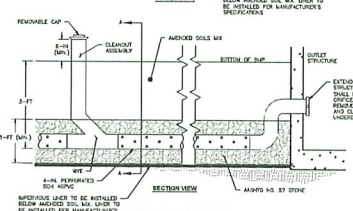
SCALE IN FEET (VERTICAL)

0 20 40

DETAIL 4
MANAGED RELEASE CONCEPT BMP NO. 2



SECTION A-A



SECTION VIEW

IMPERVIOUS LINER TO BE INSTALLED BELOW AMENDED SOIL MIX. LINER TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS

UNDERDRAIN DETAIL

N.T.S.

REVISION RECORD

NO.	DATE	DESCRIPTION
1	MAY 2022	STAMPED FOR LANDOWNER'S PROCEEDS OF TOWNSHIP CLEARANCE OR PLANNING
2	NOVEMBER	STAMPED WITH PUBLIC COMMENTS

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL RYAN B. DAILEY 10/24/2023

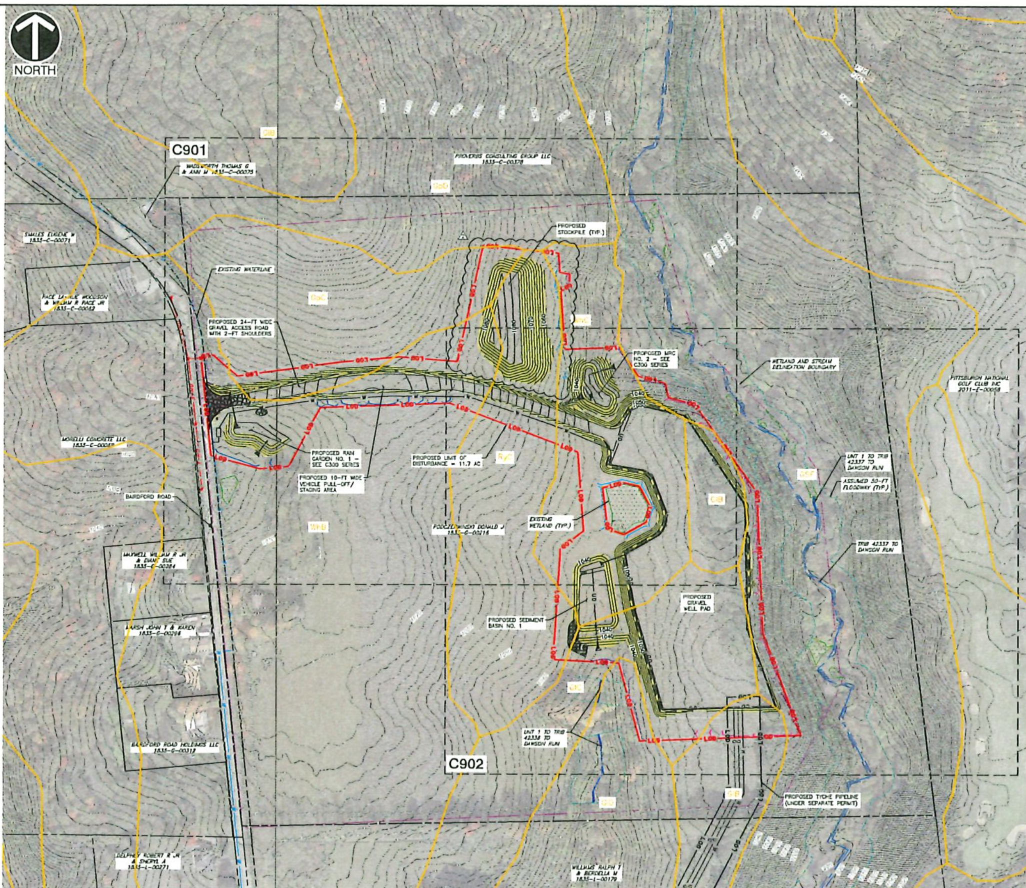
OLYMPUS ENERGY LLC
TYCHE WELL PAD
POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN DETAILS

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY

CEC

DRAWN BY	MC	DATE	07/14/2023	FILE	DETAIL4-CD
CHECKED BY	MC	DATE	07/14/2023	SHEET	17 OF 17
APPROVED BY	RBD	DATE	07/14/2023	SHEET NAME	C306



NOTES

1. THIS PLAN IS FOR EROSION AND SEDIMENTATION CONTROL PURPOSES ONLY.
2. EXISTING CONDITIONS AS DEPICTED ON THESE PLANS ARE GENERAL AND ILLUSTRATIVE IN NATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE AND BE FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING ON THIS PROJECT. IF CONDITIONS ENCOUNTERED DURING EXAMINATION ARE SIGNIFICANTLY DIFFERENT THAN THOSE SHOWN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
3. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLYING WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS DURING THE DURATION OF THE PROJECT FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUBCONTRACTORS TO INITIATE, MAINTAIN AND SUPERVISE SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
4. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER, OWNER'S REPRESENTATIVE, AND ENGINEER FOR ANY AND ALL INJURIES AND/OR DAMAGES TO PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES OCCURRING IN THE COURSE OF THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH LOCAL CODES, OBTAIN APPLICABLE PERMITS, AND PAY REQUIRED FEES PRIOR TO BEGINNING WORK.
6. CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS PLAN SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
7. A GEOTECHNICAL INVESTIGATION HAS BEEN PERFORMED ON THIS SITE. SEE GEOTECHNICAL REPORT FOR SITE SPECIFIC EARTHWORK OR CONSTRUCTION MEASURES (AS NECESSARY).
8. THE FOLLOWING CONSTRUCTION TECHNIQUES SHOULD BE FOLLOWED:
   - FILL SHOULD BE PLACED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
   - AT THE END OF EACH WORK DAY, NEW FILL PLACED DURING THE WORKDAY SHOULD BE SLOPED BACK TOWARD THE EXISTING HILLSIDE AND COMPACTED WITH A SMOOTH-DRUM ROLLER TO REDUCE THE IMPACTS OF PRECIPITATION AND THE POTENTIAL EROSION OF FINISHED SLOPE FACES.
   - FINISHED FILL SLOPE SURFACES SHOULD BE STABILIZED AS CONSTRUCTION PROGRESSES. ALL FINISHED FILL SLOPE SURFACES SHOULD BE SEEDED IN ACCORDANCE WITH THE PLAN DRAWINGS AT A MAXIMUM OF EVERY 10 FOOT VERTICAL INCREMENT OF FILL SLOPE CONSTRUCTED.
9. REFER TO THE FOLLOWING SHEETS FOR DETAILS OF THE PROPOSED BMPS SHOWN HEREON.
10. ASSUMED 50 FOOT FLOODWAYS SHOWN IN ACCORDANCE WITH THE FLOODWAY DEFINITION FOUND IN TITLE 25 OF THE PA CODE, CHAPTER 105.1.

CONSTRUCTION SEQUENCE

A GENERALIZED CONSTRUCTION SEQUENCE IS PROVIDED BELOW. THE CONSTRUCTION SEQUENCE IS INTENDED TO PROVIDE A GENERAL COURSE OF ACTION IN ORDER TO CONFORM TO THE APPLICABLE REGULATORY AGENCY REQUIREMENTS FOR TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROLS. NECESSARY PARTS FOR PROPER AND COMPLETE EXECUTION OF WORK PERTAINING TO THIS PLAN, WHETHER SPECIFICALLY MENTIONED OR NOT, ARE TO BE PERFORMED BY THE CONTRACTOR. IT IS NOT INTENDED FOR THE DRAWINGS AND THIS REPORT TO SHOW EVERY DETAILED PIECE OF MATERIAL OR EQUIPMENT. THE CONTRACTOR MAY BE REQUIRED TO ALTER CONTROLS BASED ON THEIR EFFECTIVENESS OR PREVAILING SITE CONDITIONS.

AT LEAST SEVEN (7) DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN PREPARER, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT AND/OR PADEP TO THE ONSITE PRE-CONSTRUCTION MEETING. AT LEAST THREE (3) DAYS PRIOR TO START OF EARTH DISTURBANCE ACTIVITIES OR EXPANDING INTO AREAS PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM, INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES.

ALL BMPS SHALL BE INSTALLED IN ACCORDANCE WITH: THE E&S PLAN STANDARD DETAILS; SPECIFICATIONS DEFINED IN THE PADEP EROSION AND SEDIMENT BEST MANAGEMENT PRACTICE (BMP) MANUAL OR ALTERNATIVE BMP LIST, LATEST EDITION, AND, WHERE APPLICABLE, THE PRODUCT MANUFACTURER'S RECOMMENDATIONS. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED, AND DATED) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.

1. LAYOUT THE LIMITS OF THE PROJECT, INCLUDING SURVEY STAKING THE LIMIT OF DISTURBANCE (LOD), ESTABLISH BENCHMARKS, REFERENCE POINTS AND SENSITIVE AREAS WHICH ARE TO BE PRESERVED (INCLUDING PCSM BMP LOCATIONS) OR AVOIDED DURING CONSTRUCTION. INSTALL ORANGE CONSTRUCTION SAFETY FENCE IN THE LOCATIONS IDENTIFIED ON THE E&S PLAN DRAWINGS TO PROTECT SENSITIVE AREAS.
2. LOCATE ACCESS POINT, INCLUDING CONSTRUCTION ENTRANCES, AND STAGING AREAS. INSTALL SEDIMENT BARRIERS AS SHOWN ON THE E&S PLAN DRAWINGS DOWNSLOPE OF THESE AREAS.
3. INSTALL ROCK CONSTRUCTION ENTRANCE (RCE) AT THE LOCATION SHOWN ON THE E&S PLANS AND IN ACCORDANCE WITH THE STANDARD DETAILS. RCE LOCATION MAY BE ADJUSTED WITHIN THE LOD AT THE LOCATION SHOWN ON THE E&S PLANS TO ACCOUNT FOR PREVAILING SITE CONDITIONS. RCE MAINTENANCE STOCKPILE MAY BE RELOCATED WITHIN THE LOD FROM LOCATION SHOWN ON THE E&S PLANS TO ALLOW FOR EFFICIENT FLOW OF CONSTRUCTION TRAFFIC.
4. MINIMIZE TOTAL AREA OF DISTURBANCE. REMOVE TREES AND BRUSH TO EFFECTIVELY INSTALL PERIMETER CONTROLS. LEVEL SIDE CUTS TO GRANT ACCESS FOR VEHICLES AND WORKERS TO SAFELY PERFORM THE INSTALLATION OF SEDIMENT BARRIERS AS SHOWN ON THE E&S PLANS. INSTALLATION, BMP SIZING AND SPACING MUST CONFORM TO THE DETAILS AND SPECIFICATIONS PROVIDED ON THE E&S PLANS.
5. CLEAR AND GRUB ONLY WITHIN THE LOD DEFINED ON THE E&S PLANS. NO GRUBBING OR EARTH DISTURBANCE SHALL OCCUR UNTIL BMPS ARE INSTALLED DOWNSLOPE OF TRIBUTARY AREAS.

ACCESS ROAD AND WELL PAD CONSTRUCTION

6. COMMENCE CONSTRUCTION OF SEDIMENT BASIN NO. 1 INCLUDING PERMANENT OUTLET STRUCTURE, OUTLET PIPE, ANTI-SEEP COLLARS AND TEMPORARY SKIMMER DEVICE. NOTE THAT CONSTRUCTION OF THE ANTI-SEEP COLLARS IS A CRITICAL STAGE OF CONSTRUCTION FOR WHICH THE ENGINEER OR THEIR DESIGNEE MUST BE PRESENT.
7. COMMENCE EARTHWORK OPERATIONS FOR THE GRAVEL ACCESS ROAD AND PAD. BEGIN ROUGH GRADING FOR THE PCSM BMPS, INCLUDING EMBANKMENT AND OUTLET STRUCTURE INSTALLATION. (NOTE: INSTALLATION OF ANTI-SEEP COLLARS IS A CRITICAL STAGE FOR WHICH THE LICENSED PROFESSIONAL ENGINEER, OR DESIGNEE, SHALL BE PRESENT). DO NOT INSTALL UNDERDRAIN OR AMENDED SOILS IN BMPS UNTIL TRIBUTARY AREAS HAVE BEEN ADEQUATELY STABILIZED. AS WORK PROGRESSES, INSTALL THE STORMWATER CONVEYANCE FEATURES (E.G., CHANNELS, CULVERTS, RIPRAP APRONS) AS SHOWN ON THE E&S PLANS, BEGINNING ON THE DOWNSTREAM END AND WORKING UPSTREAM. INSTALL STORMWATER CONVEYANCE FACILITIES DURING DRY (NO FLOW) CONDITIONS. INSTALL CHANNEL LINERS AND STABILIZE ACCESS ROAD WITH GRAVEL AS CONSTRUCTION PROGRESSES.
8. STABILIZE THE WELL PAD WITH GRAVEL ONCE FINAL SUBGRADE IS REACHED. STABILIZE ALL OTHER DISTURBED AREAS WITH PERMANENT SEED AND MULCH.
9. ONCE TRIBUTARY AREAS HAVE BEEN ADEQUATELY STABILIZED (I.E., GRAVEL, EROSION CONTROL BLANKET, MULCH, ETC. IS PLACED), CONVERT SEDIMENT BASIN NO. 1 TO MANAGED RELEASE CONCEPT BMP NO. 1 AND COMPLETE INSTALLATION OF RAIN GARDEN NO. 1 AND MANAGED RELEASE CONCEPT BMP NO. 2 AS SHOWN ON THE PCSM PLANS AND IN ACCORDANCE WITH THE STANDARD DETAILS. (NOTE: A LICENSED PROFESSIONAL ENGINEER OR DESIGNEE SHALL BE PRESENT ONSITE DURING CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, WHICH INCLUDES CONSTRUCTION OF THE MANAGED RELEASE CONCEPT BMPS. PERIODIC INSPECTIONS BY THE LICENSED PROFESSIONAL ENGINEER OR DESIGNEE SHALL OCCUR DURING UNDERDRAIN INSTALLATION AND PLACEMENT OF AMENDED SOILS.) SEDIMENT-LADEN WATER ENTERING THE PCSM BMPS SHALL BE AVOIDED TO THE EXTENT PRACTICABLE. REMOVE ALL ACCUMULATED SEDIMENT FROM CONTRIBUTING PIPES AND CHANNELS PRIOR TO INSTALLATION OF THE PCSM BMPS.
10. CONSTRUCTION WASTE MATERIALS SHALL BE DISPOSED OF AT A PADEP-APPROVED WASTE SITE AND IN ACCORDANCE WITH LOCAL AND STATE CODES AND PERMIT REQUIREMENTS (VERIFICATION OF PERMITS TO BE PROVIDED BY THE CONTRACTOR).
11. APPLY SOIL SUPPLEMENTS AND PERMANENT SEED AND MULCH TO DISTURBED AREAS WHEN IT IS ANTICIPATED THAT AN AREA EXCEEDING 15,000 SQUARE FEET WILL REACH FINAL GRADE AND WILL NO LONGER BE SUBJECTED TO CONSTRUCTION ACTIVITY. FOR SLOPE AREAS 3H:1V AND STEEPER AND AREAS WITHIN 50-FEET OF WETLANDS, THE AREA SHALL BE VERTICALLY TRACKED AND EROSION CONTROL BLANKETS SHALL BE INSTALLED ONCE SOIL SUPPLEMENTS, SEED, AND MULCH HAVE BEEN APPLIED. FOR SLOPE AREAS 3H:1V AND STEEPER, A STEEP SLOPE SEED MIXTURE SHALL BE USED.
12. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, THE SITE SHALL BE RESTORED IN ACCORDANCE WITH THE POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN. APPLY SOIL SUPPLEMENTS AND PERMANENT SEED AND MULCH TO ALL REMAINING DISTURBED AREAS.
13. RE-SEED, AS NECESSARY, ANY AREAS THAT BECOME DISTURBED OR WHERE VEGETATION HAS NOT BEEN ESTABLISHED.
14. REMOVE ALL TEMPORARY BMPS ONCE A UNIFORM 70% PERENNIAL VEGETATIVE COVER HAS ESTABLISHED ON ALL PREVIOUSLY DISTURBED AREAS.
15. IF FUTURE MAINTENANCE ACTIVITIES AT THE SITE ARE REQUIRED, OLYMPUS AND THE CONTRACTOR SHALL MONITOR EQUIPMENT LEAVING THE SITE TO ENSURE SEDIMENT IS NOT TRACKED ONTO THE ROADWAY. OLYMPUS SHALL OBTAIN ADDITIONAL PERMITS, IF NECESSARY, DEPENDING ON THE SCOPE OF MAINTENANCE ACTIVITIES. SEDIMENT DEPOSITED ONTO THE ROADWAY SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY.

REFERENCES

1. EXISTING CONTOURS DERIVED FROM A BARE-EARTH DIGITAL ELEVATION MODEL CONSTRUCTED FROM LIDAR (LIGHT DETECTION AND RANGING) ELEVATION POINTS. TOPOGRAPHIC CONTOURS MAPPED AT AN INTERVAL OF 1 FOOT, DEVELOPED BY NV5 GEOSPATIAL FOR THE USGS. CONTOUR DATA OBTAINED THROUGH PASDA PROGRAM. AERIAL LIDAR SURVEY PERFORMED BETWEEN NOVEMBER 2018 AND MARCH 2020.
2. PROPERTY LINES SHOWN PER A COMBINATION OF VERIFICATION SURVEY PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. DURING OCTOBER 2022, AND ALLEGHENY COUNTY TAX MAP PARCEL DATA.
3. EXISTING UTILITIES SHOWN PER A COMBINATION OF FIELD DATA AND FEATURES DIGITIZED FROM ONE CALL AND AERIAL MAPPING.
4. AERIAL PHOTOGRAPHY FROM GEOGRAPHICS SO, PROVIDED BY AUTODESK, ACCESSED 06/21/2023.
5. THE SITE WAS INVESTIGATED FOR STREAMS AND WETLANDS BY CEC, INC. IN JULY 2022, OCTOBER 2022, AND MARCH 2023.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING INDEX CONTOUR (10-FT)
- EXISTING INTERMEDIATE CONTOUR (2-FT)
- WETLAND AND STREAM DELINEATION BOUNDARY
- EXISTING STREAM
- ASSUMED 50-FT FLOODWAY
- EXISTING OVERHEAD ELECTRIC
- EXISTING GAS LINE
- EXISTING WATER LINE
- EXISTING PAVED ROAD
- PROPOSED INDEX CONTOUR (10-FT)
- PROPOSED INTERMEDIATE CONTOUR (2-FT)
- PROPOSED CHANNEL
- PROPOSED CULVERT
- PROPOSED RIPRAP APRON
- PROPOSED WELL PAD BERM
- PROPOSED WELL PAD UNDERDRAIN
- PROPOSED INLET
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED GRAVEL ACCESS ROAD
- PROPOSED GRAVEL WELL PAD
- PROPOSED ASPHALT PAVEMENT
- PROPOSED TOE-KEY
- PROPOSED TOE-KEY OUTLET DRAIN
- SOIL BOUNDARY
- SOIL TYPE
- PROPOSED SLOPE STABILIZATION
- PROPOSED 12-IN COMPOST FILTER SOCK
- PROPOSED 18-IN COMPOST FILTER SOCK
- PROPOSED 24-IN COMPOST FILTER SOCK
- PROPOSED 32-IN COMPOST FILTER SOCK
- PROPOSED ROCK CONSTRUCTION ENTRANCE
- PROPOSED ORANGE CONSTRUCTION FENCE
- FILTER SOCK BARRIER ID

REVISION RECORD

NO	DATE	DESCRIPTION
1	[illegible]	REVISED PER COMMENTS PROVIDED BY TOWNSHIP ENGINEER ON [illegible]
2	[illegible]	REVISED STOCKPILE LOCATION.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
RYAN B. DAILEY
ENGINEER
10/26/2023

OLYMPUS ENERGY LLC

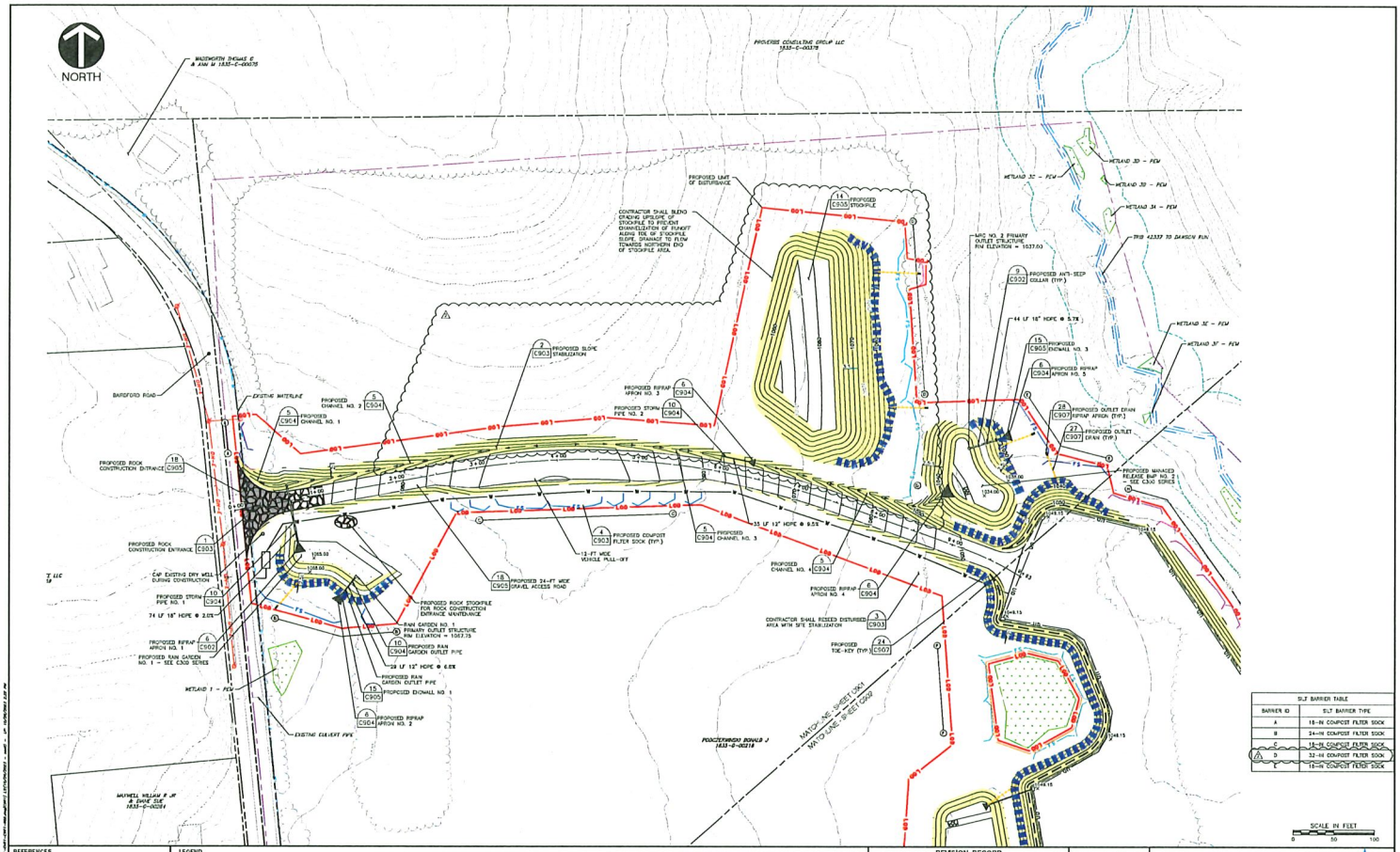
TYCHE WELL PAD
OVERALL EROSION AND SEDIMENTATION CONTROL PLAN

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY

CEC

DRAWN BY	LC	DATE	07/14/2023	AFE		SEGMENT ID
CHECKED BY	JMD	DATE	07/14/2023	SHEET	2 OF 17	REVISION 2
APPROVED BY	RBD	DATE	07/14/2023	SHEET NAME		C900



REFERENCES

1. EXISTING CONTOURS DERIVED FROM A SAME-DAY AERIAL SURVEY. ELEVATION DATA, CONTOURS AND SPOT ELEVATIONS ARE BASED ON THE NAVD 88 VERTICAL DATUM. THE ACCURACY OF THE CONTOURS AND SPOT ELEVATIONS IS ±1.0 FOOT. DUE TO THE PROFESSIONAL JUDGMENT REQUIRED IN THE PROCESS OF CONTOUR GENERATION, SPOT ELEVATIONS SHOULD BE GIVEN PRECEDENCE OVER CONTOURS IN AREAS WITH DENSE VEGETATION.
2. PROPERTY LINES SHOWN FROM A COMBINATION OF VERIFICATION SURVEY PERFORMED BY GRC, A COMMONWEALTH ENGINEERING, INC. CLOSING DETAILED DEED AND ALLEGHENY COUNTY GIS MAP PARCEL DATA.
3. EXISTING UTILITIES SHOWN FROM A COMBINATION OF FIELD DATA AND FEATURES PROVIDED BY GRC, A COMMONWEALTH ENGINEERING, INC.
4. AERIAL PHOTOGRAPHY DATA DERIVED FROM THE TOOL PROVIDED BY ACCUMAP, ACCESSED ON 01/2023.
5. THE GRC AND WATERWAYS FOR WETLANDS AND WETLANDS IN GRC, INC. IN JANUARY 2023, OCTOBER 2022, AND MARCH 2023.

LEGEND

- EXISTING PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING INTERMEDIATE CONTOUR (10-FT)
- EXISTING INTERMEDIATE CONTOUR (2-FT)
- WETLAND AND STREAM DELINEATION BOUNDARY
- EXISTING STREAM
- EXISTING WATER FEATURE
- EXISTING OVERHEAD ELECTRIC
- EXISTING GAS LINE
- EXISTING WATER LINE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED INTERMEDIATE CONTOUR (10-FT)
- PROPOSED INTERMEDIATE CONTOUR (2-FT)
- PROPOSED DRAINAGE
- PROPOSED DIVERSION
- PROPOSED RIPRAP APRON
- PROPOSED WELL PAD BERM
- PROPOSED WELL PAD UNDERDRAIN
- PROPOSED WELL PAD
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED GRAVEL ACCESS ROAD
- PROPOSED GRAVEL WELL PAD
- PROPOSED 10-FT WIDE PAVEMENT
- PROPOSED TOE-KEY
- PROPOSED 100-YEAR OUTLET DRAIN
- SOIL BOUNDARY
- PROPOSED SLOPE STABILIZATION
- PROPOSED 12-IN COMPOST FILTER SOCK
- PROPOSED 18-IN COMPOST FILTER SOCK
- PROPOSED 32-IN COMPOST FILTER SOCK
- PROPOSED 18-IN COMPOST FILTER SOCK
- PROPOSED ROCK CONSTRUCTION ENTRANCE
- PROPOSED ORANGE CONSTRUCTION FENCE
- FILTER SOCK BARRIER ID

REVISION RECORD

NO.	DATE	DESCRIPTION
1	10/24/2023	REVISED PER JURISDICTIONAL PROBLEMS SUBMITTED BY CONSTRUCTION COMMISSION OF PENNSYLVANIA
2	11/20/2023	REVISED ENTIRE PLAN LAYOUT

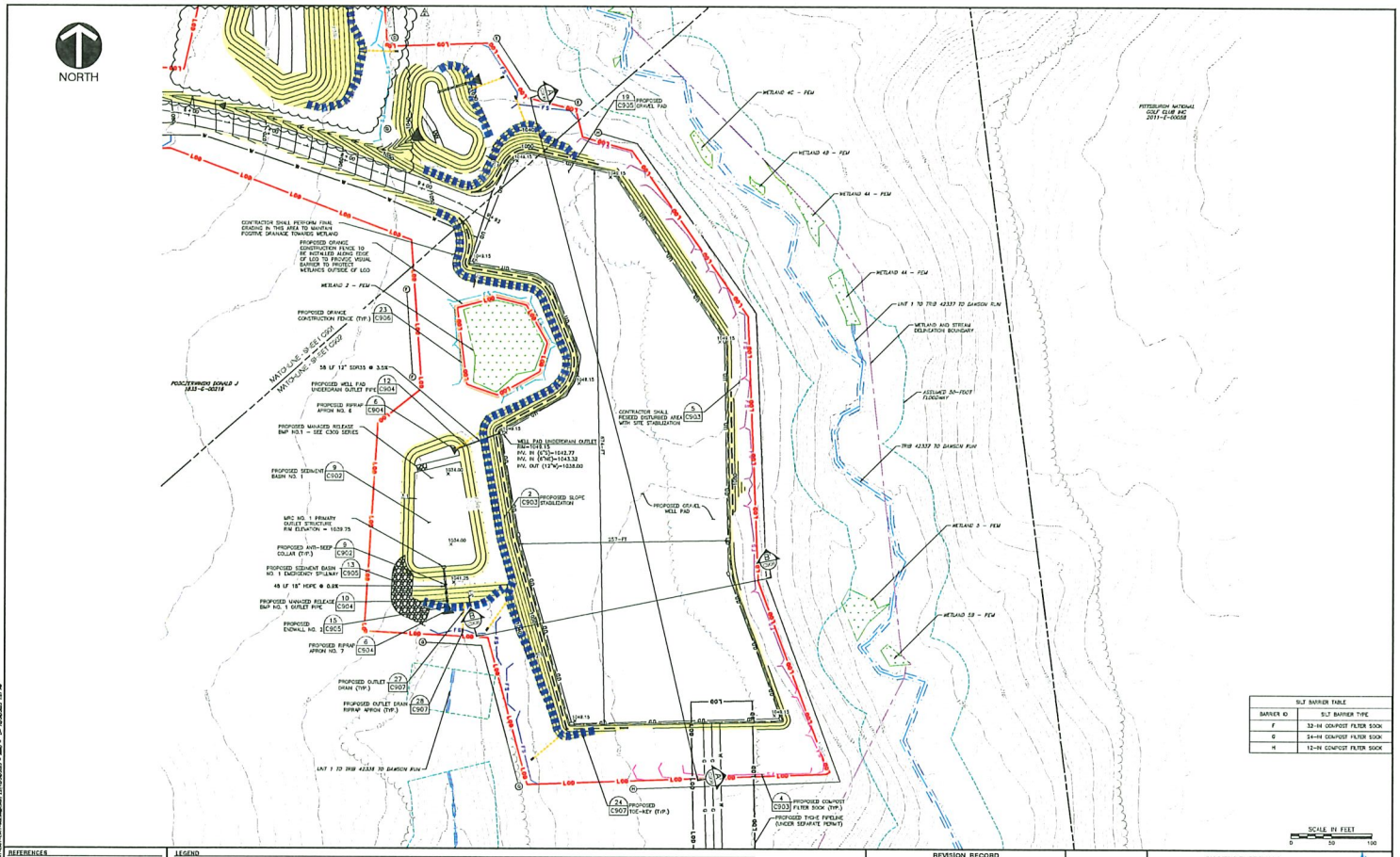
RYAN B. DAILEY
ENGINEER
10/24/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD
EROSION AND SEDIMENTATION CONTROL PLAN
WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY:	MC	DATE:	07/14/2023	SHEET:	1 OF 17
CHECKED BY:	AMD	DATE:	07/14/2023	SHEET NAME:	
APPROVED BY:	RBD	DATE:	07/14/2023	SHEET NAME:	

DESIGNATED
REVISION: 2
C901



SILT BARRIER TABLE	
BARRIER ID	SILT BARRIER TYPE
F	32-IN COMPOST FILTER SOCK
G	24-IN COMPOST FILTER SOCK
H	12-IN COMPOST FILTER SOCK

REFERENCES

1. EXISTING CONTOURS DERIVED FROM A SIMULATED DIGITAL ELEVATION MODEL (SDEM) PROVIDED BY THE PENNSYLVANIA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES. THE ACCURACY OF AN SDEM, BY A FACTOR SUCH AS FIVE, IS APPROXIMATELY TWICE THAT OF A DIGITAL ELEVATION MODEL (DEM) OF THE SAME RESOLUTION. THE SDEM CONTOURS PRESENTED HAVE BEEN SMOOTHED BY A 3-POINT MOVING AVERAGE FILTER AND HAVE ELEVATIONS ROUNDED TO 0.5 FT AND SURVEY DATA.
2. PROPERTY LINES SHOWN PER A COMBINATION OF VERIFICATION SURVEY PERFORMED BY GAI, A CONFIDENTIAL CONSULTANT, INC. CLIENT DATABASE DATA, AND ALLEGHENY COUNTY GIS WAP PARCEL DATA.
3. EXISTING UTILITIES SHOWN PER A COMBINATION OF FIELD DATA AND PERTINENT DATA PROVIDED BY THE CLIENT AND OTHERS.
4. AERIAL PHOTOGRAPHY DATA, DERIVED FROM THE PENNDOT GIS, PROVIDED BY AUTODESK, ACCESSED 05/21/2012.
5. THE SITE WAS INVESTIGATED FOR WETLANDS AND WATERWAYS ON DEC. 14, 15 AND 20, 2011, OCTOBER 2012, AND MARCH 2013.

LEGEND

EXISTING PROPERTY LINE
EXISTING INDEX CONTOUR
EXISTING INTERMEDIATE CONTOUR (10-FT)
EXISTING INTERMEDIATE CONTOUR (2-FT)
WETLAND AND STREAM DELINEATION BOUNDARY
EXISTING STREAM
EXISTING 100-YR FLOODPLAIN
EXISTING OVERHEAD ELECTRIC
EXISTING GAS LINE
EXISTING WATER LINE
EXISTING TREE LINE
PROPOSED INDEX CONTOUR (10-FT)
PROPOSED INTERMEDIATE CONTOUR (2-FT)
PROPOSED DRAINAGE
PROPOSED DELINEATED
PROPOSED RIPRAP APRON
PROPOSED WELL PAD BERM
PROPOSED WELL PAD UNDERDRAIN
PROPOSED LIMIT OF DISTURBANCE
PROPOSED GRAVEL ACCESS ROAD
PROPOSED GRAVEL WELL PAD
PROPOSED ASPHALT PAVEMENT
PROPOSED TREE
PROPOSED TOE-KEY OUTLET DRAIN
SOIL BOUNDARY
PROPOSED SLOPE STABILIZATION
PROPOSED 12-IN COMPOST FILTER SOCK
PROPOSED 18-IN COMPOST FILTER SOCK
PROPOSED 24-IN COMPOST FILTER SOCK
PROPOSED 32-IN COMPOST FILTER SOCK
PROPOSED ROCK CONSTRUCTION ENTRANCE
PROPOSED ORANGE CONSTRUCTION FENCE
FILTER SOCK BARRIER ID

REVISION RECORD

NO.	DATE	DESCRIPTION
1	10/17/2013	REVISED FOR COMMENTS PROVIDED BY TOWNSHIP ENGINEER OF RECORD
2	10/22/2013	REVISED STORMPIPE LOCATION

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL RYAN B. DAILEY 069478 ENGINEER

10/22/2013

OLYMPUS ENERGY LLC
TYCHE WELL PAD
EROSION AND SEDIMENTATION CONTROL PLAN

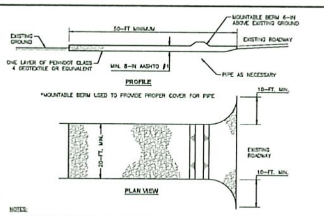
WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY	MC	DATE	07/14/2013	FILE	DESIGNATED
CHECKED BY	JAE	DATE	07/14/2013	SHEET 4 OF 17	REVISION 2
APPROVED BY	RBD	DATE	07/14/2013	SHEET NAME	C902

EROSION AND SEDIMENTATION CONTROL NOTES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE E&S PLAN. A COPY OF THE DRAWINGS MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM/SR PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE DEP TO AN ON-SITE PRECONSTRUCTION MEETING.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL.
6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THIS E&S PLAN.
7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.
8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN MAPS IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED THOSE SHOWN ON THE PLANS UNLESS APPROVED BY THE GEOTECHNICAL ENGINEER. STOCKPILES SHALL BE PLACED OUTSIDE OF AQUATIC RESOURCES.
9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE REGIONAL OFFICE OF THE DEPARTMENT.
10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET. SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.
12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.
13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS.
14. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
15. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.
16. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.
17. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS.
18. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES – 6 TO 12 INCHES ON COMPACTED SOILS – PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.
19. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
20. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 8 INCHES IN THICKNESS.
21. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
22. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL BE INCORPORATED INTO FILLS.
23. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
24. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
25. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.
26. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.
27. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION. CUT AND FILL SLOPES SHALL BE CAPABLE OF RESISTING FAILURE DUE TO SLUMPING, SLIDING, OR OTHER MOVEMENTS.
28. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE DEPARTMENT.
29. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE DEPARTMENT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.
30. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.
31. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE DEPARTMENT TO SCHEDULE A FINAL INSPECTION.
32. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE, OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE PENNSYLVANIA CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.
33. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER WITHIN 50 FEET OF A SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.
34. THE LOCATIONS OF EXISTING UTILITIES AND UNDERGROUND STRUCTURES SHOWN ARE APPROXIMATE AND THOSE SHOWN ARE NOT NECESSARILY ALL THE EXISTING UTILITIES AND STRUCTURES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT LOCATIONS OF ALL ABOVE AND BELOW GROUND UTILITIES AND STRUCTURES PRIOR TO INITIATING CONSTRUCTION ACTIVITIES.
35. CHANGES TO THE SOIL EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE APPROVED BY THE ENGINEER AND THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (PADEP). THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION AND SEDIMENTATION CONTROL STANDARDS.
36. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL PREPARED BY PADEP, BUREAU OF SOIL AND WATER CONSERVATION, LATEST EDITION.
37. ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE REQUIRED AS DEEMED NECESSARY BY THE PADEP, OWNER, OR WEST DEER TOWNSHIP IN THE EVENT THAT UNFORESEEN PROBLEMS ARISE DURING CONSTRUCTION.
38. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES TO BE REMOVED, RELOCATED AND/OR RAZED ARE DISCONNECTED PRIOR TO INITIATING EARTHMOVING ACTIVITIES.
39. TO PROTECT AGAINST ACCELERATED EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL IMMEDIATELY SEED OR MULCH ALL AREAS THAT WILL BE LEFT EXPOSED MORE THAN 4 DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, STRAW MULCH SHALL BE APPLIED AT A RATE OF 3 TONS PER ACRE OVERTOP EXPOSED AREAS.
40. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED BY THE CONTRACTOR TO MAKE IT SUITABLE TO SUPPORT VEGETATIVE GROUND COVER.
41. THE CONTRACTOR SHALL CONTROL DUST WITH WATER OR OTHER METHODS APPROVED BY THE PADEP AND THE OWNER.
42. THE CONTRACTOR SHALL INSTALL COMPOST FILTER SOCK ALONG THE PERIMETER OF ALL SOIL STOCKPILES AS INDICATED ON THE PLANS.
43. THE CONTRACTOR SHALL SUBMIT A PREPAREDNESS, PREVENTION AND CONTINGENCY (PPC) PLAN TO THE OWNER PRIOR TO CONSTRUCTION IF CHEMICALS, SOLVENTS OR OTHER HAZARDOUS WASTES OR MATERIALS WITH THE POTENTIAL TO CAUSE ACCIDENTAL POLLUTION DURING EARTHMOVING OR OTHER CONSTRUCTION ACTIVITIES ARE STORED OR USED ON SITE. THE PPC PLAN SHALL BE PREPARED IN ACCORDANCE WITH "GUIDELINES FOR THE DEVELOPMENT AND IMPLEMENTATION OF PREPAREDNESS, PREVENTION AND CONTINGENCY (PPC) PLANS", PREPARED BY PADEP BUREAU OF SOLID WASTE MANAGEMENT AND PADEP BUREAU OF WATER QUALITY MANAGEMENT.
44. THE CONTRACTOR SHALL CONSTRUCT A BERM AROUND AREAS WHERE HYDRAULIC FLUID AND DIESEL FUEL WILL BE STORED DURING CONSTRUCTION TO SERVE AS A CONTAINMENT AREA FOR THE CONTROL OF POSSIBLE SPILLS. SPILLS WITHIN THE CONTAINMENT AREA SHALL BE IMMEDIATELY CLEANED. TELEPHONE NUMBERS OF EMERGENCY RESPONSE TEAMS ARE TO BE KEPT ON SITE, AND THEY ARE TO BE NOTIFIED IN THE CASE OF A SPILL.
45. THE CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION.
46. THE CONTRACTOR SHALL PROVIDE THE LOCATIONS AND APPLICABLE PERMIT NUMBERS OF ALL THE OFF SITE DISPOSAL AND BORROW SITES THAT WILL BE UTILIZED DURING CONSTRUCTION TO THE PADEP PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL ALSO IDENTIFY THE EROSION AND SEDIMENTATION CONTROL MEASURES, WHICH WILL BE IMPLEMENTED AT THE DISPOSAL AND/OR BORROW SITES. IF THE DISPOSAL AND/OR BORROW SITES ARE NOT PERMITTED, AN EROSION AND SEDIMENTATION PLAN MUST BE APPROVED BY THE PADEP PRIOR TO THEIR USE.
47. RUNOFF DRAINS TO TRIBUTARIES 42336 AND 42337 TO DAWSON RUN, AND DAWSON RUN IN THE DEER CREEK WATERSHED. ACCORDING TO THE CHAPTER 93 WATER QUALITY STANDARDS, DEPARTMENT OF ENVIRONMENTAL PROTECTION, TITLE 25 ENVIRONMENTAL RESOURCES, COMMONWEALTH OF PENNSYLVANIA, THE RECEIVING WATERS ARE CLASSIFIED AS COLD WATER FISHES (CWF).TRIBUTARIES 42336 AND 42337 TO DAWSON RUN ARE CLASSIFIED AS SILTATION IMPAIRED.
48. SEE EROSION AND SEDIMENTATION CONTROL PLAN FOR DESCRIPTION OF PROPOSED CONTROLS NOT SHOWN HEREON.
49. PRACTICES AND PROCEDURES MUST BE IN PLACE TO ENSURE THE PROPER HANDLING, STORAGE, CONTROL, DISPOSAL, AND RECYCLING OF GARBAGE, FUELS OR SUBSTANCE WHICH MAY BE HARMFUL TO HUMAN, AQUATIC OR FISH LIFE. THESE ITEMS SHALL BE PREVENTED FROM ENTERING SPRINGS, STREAMS, PONDS, LAKES, WETLANDS, OR WATER COURSE OR WATER BODY. OILS, FUELS, LUBRICANTS AND COOLANTS SHALL BE PLACED IN SUITABLE CONTAINERS AND DISPOSED OF PROPERLY. ALL SYNTHETIC EROSION CONTROL FEATURES (E.G., SILT FENCING, NETTINGS, MATS), WHICH ARE INTENDED FOR TEMPORARY USE DURING CONSTRUCTION, SHALL BE COMPLETELY REMOVED AND PROPERLY DISPOSED OF IMMEDIATELY UPON COMPLETION OF ITS INTENDED PURPOSE. ORANGE CONSTRUCTION FENCE, AND SIMILAR, SHALL BE REMOVED AND PROPERLY DISPOSED OF IMMEDIATELY UPON COMPLETION OF ITS INTENDED PURPOSE. ONLY NATURAL FIBER MATERIALS, WHICH WILL 'COMPLETELY BREAKDOWN' WITHIN A REASONABLE TIMEFRAME AS TO BE DISTINGUISHABLE FROM THE NATURAL ENVIRONMENT, MAY BE ABANDONED IN PLACE. TRASH AND GARBAGE SHALL BE COLLECTED AND DISPOSED OF PROPERLY AS WELL.



NOTES:

1. REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.
2. RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.
3. MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

INSPECTION: ROCK CONSTRUCTION ENTRANCES SHALL BE INSPECTED DAILY AND AFTER EACH RUNOFF EVENT.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

DETAIL 1
ROCK CONSTRUCTION ENTRANCE
N.T.S.

SEED MIXTURE USE	
SITE CONDITION	SEED MIXTURE (SELECT ONE)*
CUT SLOPES AND FILLS (NOT MOWED) WELL DRAINED	4
CUT SLOPES AND FILLS (NOT MOWED) VARIABLE DRAINAGE	4
CUT SLOPES AND FILLS (MOWED)	1
CUT SLOPES AND FILLS (GRAZED/HAY)	1 OR 2
GULLIES AND ERODED AREAS	4
EROSION CONTROL BMPS – CHANNELS, DRAINAGE DITCHES, TRAPS, EMBANKMENTS, ETC.	1
EROSION CONTROL BMPS – FOR HAY OR SILAGE	2
RIGHT-OF-WAY, WELL-DRAINED	1, 2, OR 4
RIGHT-OF-WAY, VARIABLE DRAINAGE	2 OR 3
RIGHT-OF-WAY, WELL-DRAINED AREAS FOR GRAZING/HAY	2
STRIP MINED AREAS – SPOILS, WASTE AREAS, FLY ASH, SLAG, ETC.	2, 3, OR 4
STRIP MINED AREAS – FOR GRAZING/HAY	2 OR 4

* PLUS "NURSE CROP" OF 64 LBS/ACRE OF OATS OR 112 LBS/ACRE OF WINTER RYE

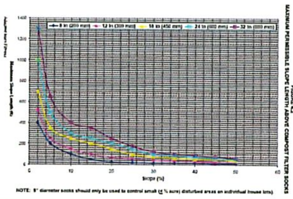
PERMANENT SEED MIXTURES			
MIXTURE NUMBER	SEASON	SPECIES	SEEDING RATE LB/AC
1	COOL	FINE FESCUE, PLUS REDTOP, PLUS BIRDSFOOT TREFOIL	46 4 8
2	COOL	ORCHARDGRASS PLUS BIRDSFOOT TREFOIL	26 8
3	WARM	DEERTONGUE, PLUS BIRDSFOOT TREFOIL	21 8
4	WARM	SWITCHGRASS OR BIG BLUESTEM, PLUS BIRDSFOOT TREFOIL	15 15 8

SOIL AMENDMENT APPLICATION RATES		
	TEMPORARY SEEDING APPLICATION RATE PER ACRE	PERMANENT SEEDING APPLICATION RATE PER ACRE
AGRICULTURAL LIME	1 TON	6 TONS
10-10-10 FERTILIZER	500 LBS	--
10-20-20 FERTILIZER	--	1,000 LBS

* TYPICALLY NOT REQUIRED FOR TOPSOIL STOCKPILES
** OR AS PER SOIL TEST; MAY NOT BE REQUIRED IN AGRICULTURAL FIELDS

MULCH APPLICATION RATES		
	APPLICATION RATE (TON/AC)	NOTES
STRAW	3	EITHER WHEAT OR OAT STRAW, FREE OF WEEDS, NOT CHOPPED OR FINELY BROKEN
HAY	3	TIMOTHY, MIXED CLOVER AND TIMOTHY OR OTHER NATIVE FORAGE GRASSES
WOOD CHIPS	4-6	MAY PREVENT GERMINATION OF GRASSES AND LEGUMES
HYDROMULCH	1	SHREDDED PAPER MULCH SHOULD NOT BE USED ON SLOPES STEEPER THAN 5%. WOOD FIBER MULCH MAY BE APPLIED ON STEEPER SLOPES PROVIDED A TACKIFIER IS USED

DETAIL 3
SITE STABILIZATION



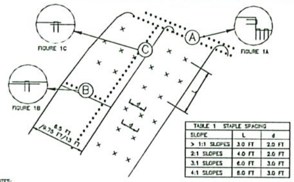


TABLE 1 STAPLE SPACING		
SLOPE	L	d
> 1:1 SLOPES	3.0 FT	2.0 FT
2:1 SLOPES	4.0 FT	2.0 FT
3:1 SLOPES	6.0 FT	3.0 FT
4:1 SLOPES	8.0 FT	3.0 FT

NOTES:

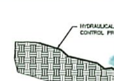
1. EROSION CONTROL BLANKETS SHALL BE INSTALLED OVERTOP OF ALL SLOPES GREATER THAN OR EQUAL TO 3:1 (HORIZONTAL:VERTICAL). EROSION CONTROL BLANKETS SHALL BE NORTH AMERICAN GREEN S150BN OR APPROVED EQUAL.
2. USE BIODEGRADABLE EROSION CONTROL MATS (JUTE, COIR, ETC.) WHERE SPECIFIED ON STREAM BANKS, DITCHES, AND STEEP SLOPES FOR TEMPORARY STABILIZATION OF UNVEGETATED SOIL.
3. PREPARE SOIL, INCLUDING GRADING, APPLICATION OF SOIL AMENDMENTS, AND SEED. THE SURFACE OF THE SOIL SHOULD BE SMOOTH AND FREE OF ROCKS, ROOTS AND OTHER OBSTRUCTIONS.
4. LAY BLANKETS ON STREAM BANKS AT RIGHT ANGLE TO THE STREAM CHANNEL, UNLESS THE ENTIRE STREAM BANK (FROM TOE TO TOP OF BANK) CAN BE COVERED BY A SINGLE WIDTH LAID PARALLEL TO THE CHANNEL. LAY MATS LOOSELY ON THE GROUND ALLOWING GOOD CONTACT BETWEEN SOIL AND BLANKETS.
5. ANCHOR MATS IN A 6-INCH DEEP x 6-INCH WIDE ANCHOR TRENCH AT THE TOE OF THE STREAM BANK OR SHORELINE. STAPLE/STAKE THE MAT IN THE TRENCH, BACKFILL AND COMPACT THE TRENCH WITH SOIL.
6. STAPLE THE OPEN MAT EDGE USING ONE ROW OF STAPLES AT 1.5 – 2 FOOT INTERVALS. THE MIDDLE OF THE MAT SHOULD BE STAPLED USING A PREFERRED STAPLE PATTERN (TABLE 1).
7. WHEN MAT SPLICING DOWN THE SLOPE IS NECESSARY, OVERLAP MATS 8 INCHES WITH THE UPSLOPE MAP EDGE ON TOP. USE TWO ROWS OF STAPLES/STAKES AND 12-INCH SPACING TO ANCHOR MATS (FIG. 1B). TO SPLICE MATS ACROSS THE SLOPE, OVERLAP THE SIDES OF MATS AT LEAST 6 INCHES WITH THE TRAILING EDGE OF THE TOP OVERLAPPING MAP ORIENTED IN A DOWNSTREAM DIRECTION. USE ONE ROW OF STAPLES/STAKES AND 12-INCH SPACING TO ANCHOR MATS (FIG. 1C).
8. ANCHOR THE MAT AT THE TOP OF THE SLOPE IN A 6-INCH DEEP X 6-INCH WIDE ANCHOR TRENCH. PLACE MAT, STAPLE/STAKE, BACKFILL AND COMPACT (FIG. 1A).

SOURCE: MODIFIED FROM ROLANKA INTERNATIONAL, HTTP://WWW.ROLANKA.COM/

INSPECTION: STABILIZED AREAS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE STABILIZED AREA.

MAINTENANCE: DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

OPTION 1
EROSION CONTROL BLANKET



INSTALLATION

STRICTLY COMPLY WITH EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS. USE APPROVED HYDRO-SPRAYING MACHINES WITH FAN-TYPE NOZZLE (50-DEGREE TIP). TO ACHIEVE OPTIMUM SOIL SURFACE COVERAGE, APPLY HP-FGM FROM OPPOSING DIRECTIONS TO SOIL SURFACE. ROUGH SURFACES (ROCKY TERRAIN, CAT TRACKS AND RIPPED SOILS) MAY REQUIRE HIGHER APPLICATION RATES TO ACHIEVE 100% COVER. SLOPE INTERRUPTION DEVICES OR WATER DIVERSION TECHNIQUES ARE RECOMMENDED WHEN SLOPE LENGTHS EXCEED 100 FEET. MAXIMUM SLOPE LENGTH IS FOR PRODUCT APPLICATIONS ON A 3H:1V SLOPE. FOR APPLICATION ON STEEPER SLOPES, SLOPE INTERRUPTION LENGTHS MAY NEED TO BE DECREASED BASED ON ACTUAL SITE CONDITIONS. NOT RECOMMENDED FOR CHANNELS OR AREAS WITH CONCENTRATED WATER FLOW. NO CHEMICAL ADDITIVES WITH THE EXCEPTION OF FERTILIZER, LIMING AND BIOSTIMULANT MATERIALS SHOULD BE ADDED TO THIS PRODUCT: TO ENSURE PROPER APPLICATION RATES, MEASURE AND STAKE AREA. FOR MAXIMUM PERFORMANCE, APPLY HP-FGM IN A TWO-STEP PROCESS AS FOLLOWS:

1. STEP ONE: APPLY FERTILIZER WITH SPECIFIED PRESCRIPTIVE AGRONOMIC FORMULATIONS AND 50% OF SEED WITH A SMALL AMOUNT OF HP-FGM FOR VISUAL METERING.
2. STEP TWO: MIX BALANCE OF SEED AND APPLY HP-FGM AT A RATE OF 50 LB PER 125 GALLONS OF WATER OVER FRESHLY SEEDED SURFACES. CONFIRM LOADING RATES WITH EQUIPMENT MANUFACTURER. DO NOT LEAVE SEEDED SURFACES UNPROTECTED, ESPECIALLY IF PRECIPITATION IS IMMINENT.

APPLICATION RATES: THESE APPLICATION RATES ARE FOR STANDARD CONDITIONS. DESIGNERS MAY WISH TO REDUCE RATES TO ENCOURAGE FASTER VEGETATION ESTABLISHMENT OR MAY NEED TO INCREASE APPLICATION RATES ON ROUGH SURFACES. CONSULT APPLICATION AND LOADING CHARTS TO DETERMINE NUMBER OF BAGS TO BE ADDED FOR DESIRED AREA AND APPLICATION RATE.

SLOPE GRADIENT / CONDITION	APPLICATION RATE
≤ 4H TO 1V	2500 LB/AC
> 4H TO 1V AND ≤ 3H TO 1V	3000 LB/AC
> 3H TO 1V AND ≤ 2H TO 1V	3500 LB/AC
> 2H TO 1V AND ≤ 1H TO 1V	4000 LB/AC
> 1H TO 1V	4500 LB/AC
BELOW ECB OR TRM	1500 LB/AC
AS INFILL FOR TRM	3500 LB/AC

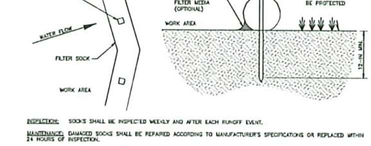
SOURCE: MODIFIED FROM ACF ENVIRONMENTAL, HTTP://ACFENVIRONMENTAL.COM

INSPECTION: STABILIZED AREAS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE STABILIZED AREA.

MAINTENANCE: DAMAGED OR DISPLACED HYDRAULICALLY APPLIED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

OPTION 2
HYDRAULICALLY APPLIED SLOPE STABILIZATION

DETAIL 2
SLOPE STABILIZATION
N.T.S.



INSPECTION: SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT.

MAINTENANCE: DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND REDISTRIBUTED ON SITE.

BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS, PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS (FROM TABLE 4.1 PADEP EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL)

MATERIAL TYPE	3 MIL HDPE	5 MIL HDPE	5 MIL HDPE	MULTI-FILAMENT POLYPROPYLENE (MFPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (HDMFPP)
MATERIAL CHARACTERISTICS	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE	BIO-DEGRADABLE	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE
SOCK DIAMETERS	12-IN, 18-IN	12-IN, 18-IN, 24-IN 32-IN	12-IN, 18-IN, 24-IN, 32-IN	12-IN, 18-IN, 24-IN, 32-IN	12-IN, 18-IN, 24-IN, 32-IN
MESH OPENING	⅜-IN	⅜-IN	⅜-IN	⅜-IN	⅛-IN
TENSILE STRENGTH		26 PSI	26 PSI	44 PSI	202 PSI
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% AT 1000 HR	23% AT 1000 HR		100% AT 1000 HR	100% AT 1000 HR
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS

TWO-PLY SYSTEMS	
INNER CONTAINMENT NETTING	HDPE BIAXIAL NET CONTINUOUSLY WOUND FUSION-WELDED JUNCTURES ¾-IN X ¾-IN MAX. APERTURE SIZE
OUTER FILTRATION MESH	COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH) 3/16-IN MAX. APERTURE SIZE

SOCK FABRICS COMPOSED OF BURLAP MAY BE USED ON PROJECTS LASTING 6 MONTHS OR LESS

DETAIL 4
COMPOST FILTER SOCK
N.T.S.

TABLE 4.2
Compost Standards

Organic Matter Content	25% - 100% (dry weight basis)
Organic Portion	Fibrous and elongated
pH	5.5 - 8.5
Moisture Content	30% - 60%
Particle Size	30% - 50% pass through 3/8" sieve
Soluble Salt Concentration	5.0 dS/m (mmhos/cm) Maximum

REVISION RECORD		
NO	DATE	DESCRIPTION

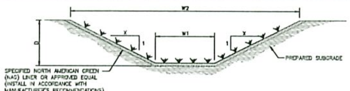
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL RYAN B. DAILEY ENGINEER
7/14/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD
EROSION AND SEDIMENTATION
CONTROL PLAN DETAILS

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY	LK	DATE	07/14/2023	AFE		SEGMENT ID	
CHECKED BY	JMD	DATE	07/14/2023	SHEET	5 OF 17	REVISION	0
APPROVED BY	RBD	DATE	07/14/2023	SHEET NAME			C903



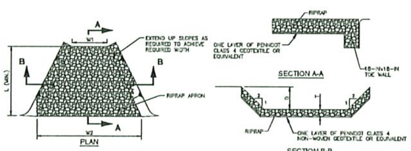
VEGETATED CHANNELS

CHANNEL	BOTTOM WIDTH W1 (FEET)	TOP WIDTH W2 (FEET)	DEPTH D (FEET)	SIDE SLOPES (X:1)	CHANNEL LENGTH (FEET)	LINER
1	2.0	10.0	2.0	2	60	NAG P300
2	2.0	10.0	2.0	2	300	NAG P300
3	2.0	10.0	2.0	2	210	NAG P550
4	2.0	10.0	2.0	2	240	NAG P300

INSPECTION: CHANNELS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT.

MAINTENANCE: CHANNELS SHOULD BE MAINTAINED TO ENSURE THAT THE SPECIFIED DESIGN DIMENSIONS AND PROTECTIVE LININGS ARE AVAILABLE AT ALL TIMES. A CHANNEL SHOULD BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. DAMAGED CHANNEL LININGS SHOULD BE REPAIRED OR REPLACED IMMEDIATELY.

DETAIL 5
CHANNEL DETAIL
N.T.S.



RIPRAP APRON DIMENSION TABLE

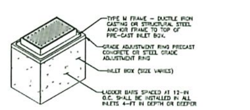
RIPRAP APRON	L (FT)	W1 (FT)	W2 (FT)	D50 (IN)	T (IN)	NSA NO.
1	8	4.5	12.5	6	18	R-4
2	6	3	9	9	27	R-5
3	6	3	9	9	27	R-5
4	6	6	12	6	18	R-4
5	8	4.5	12.5	6	18	R-4
6	12	3	15	9	27	R-5
7	8	4.5	12.5	6	18	R-4

NOTE: APRON SIZES LISTED ABOVE ARE THE MINIMUM AS REQUIRED BY THE PADEP E&S MANUAL. REFER TO PLAN DRAWINGS FOR ACTUAL APRON SIZES.

INSPECTION: APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT.

MAINTENANCE: DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

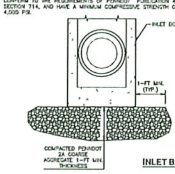
DETAIL 6
RIPRAP APRON
N.T.S.



TYPE 'M' INLET

NOTES:

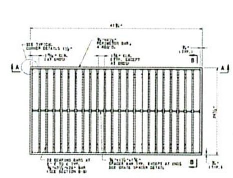
1. INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF PENNDOT PUBLICATION 408 SPECIFICATIONS, SECTIONS 605, 606, AND 714.
2. REFER TO PENNDOT BUREAU OF HIGHWAY DESIGN STANDARDS FOR ROADWAY CONSTRUCTION, SERIES RC-0 TO RC-100 SHEETS 1 THROUGH 9 OF RC-34, FOR DETAILS OF THE CAST IRON FRAMES AND GRATES, CONCRETE TOP UNITS, GRADE ADJUSTMENT RINGS, AND INLET BOXES.
3. CEMENT CONCRETE USED TO CONSTRUCT THE STORM SEWER INLETS SHALL BE CLASS AA, AND SATISFY THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTION 704.
4. REINFORCEMENT STEEL USED TO CONSTRUCT THE STORM SEWER INLETS SHALL BE ASTM-A615 GRADE 60 DEFORMED OR PLAIN STEEL BARS, AND SATISFY THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTION 709.1 AND 709.2 (IF APPLICABLE).
5. PRE-CAST REINFORCED CONCRETE STORM SEWER INLET BOXES, CONCRETE TOP UNITS, AND GRADE ADJUSTMENT RINGS SHALL CONFORM TO THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTION 714, AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.
6. FRAMES AND GRATES SHALL BE NON-ROCKING AND MADE OF HEAVY DUTY CAST IRON, AND SATISFY THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTION 605.2(a). ALL CASTINGS SHALL BE SET IN A FULL BED OF MORTAR.
7. GRADE ADJUSTMENT RINGS SHALL BE OF MASONRY OR PRECAST CONCRETE CONSTRUCTION.
8. INLETS SHALL BE SIZED TO ACCOMMODATE THE REQUIRED PIPE SIZE. REFER TO PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION RC-45M AND RC-46M.
9. BACKFILL PLACED AROUND THE STORM SEWER INLETS SHALL BE AASHTO NO. 57 AGGREGATE MEETING THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTION 703. THE AGGREGATE SHALL BE PLACED IN MAXIMUM 8-IN THICK LOOSE LIFTS AND COMPACTED TO A POINT OF NON-MOVEMENT BENEATH THE COMPACTION EQUIPMENT.
10. INLETS SHALL BE INSPECTED AND CLEANED A MINIMUM OF TWICE PER YEAR OR MORE FREQUENTLY, AS NEEDED.



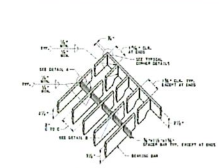
INLET BOX SUBBASE PREPARATION

NOTES:

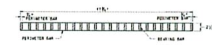
1. STANDARD INLET BOXES SHOWN, PROVIDE TOP FOR OTHER INLET BOX TYPES.
2. SEE STRUCTURAL STEEL GRATE NOTES FOR DETAILS FOR THE CONCRETE TOP UNITS, FRAMES, AND GRATES.
3. PROVIDE GRADE ADJUSTMENT RINGS WHEN REQUIRED.
4. COST OF PENNDOT 2A AGGREGATE IS INCIDENTAL TO THE INLET BOX.
5. SEE PENNDOT RC-46M DETAILS FOR ADDITIONAL INFORMATION.



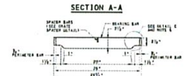
STRUCTURAL STEEL GRATE



GRATE SPACER DETAIL



SECTION A-A

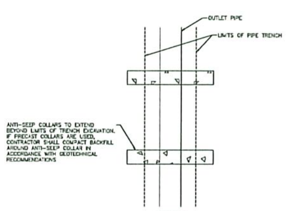


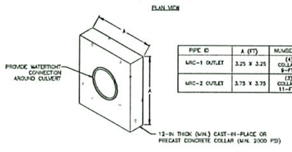
SECTION B-B

NOTES:

1. PROVIDE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH PUBLICATION 408, AASHTO/AWS BRIDGE WELDING CODE AND THE CONTRACT SPECIAL PROVISIONS.
2. THESE DETAILS OBTAINED FROM PENNDOT RC-45M AND RC-46M. SEE PENNDOT RC-45M AND RC-46M DETAILS FOR ADDITIONAL INFORMATION.

DETAIL 7
INLET
N.T.S.





PIPE ID	A (FT)	NUMBER OF COLLARS
MRC-1 OUTLET	3.25 X 3.25	(4) ANTI-SEEP COLLARS SPACED AT 9-FT FROM RISER
MRC-2 OUTLET	3.75 X 3.75	(3) ANTI-SEEP COLLARS SPACED AT 11-FT FROM RISER

DETAIL 9
ANTI-SEEP COLLAR
N.T.S.

STORMWATER PIPE DIMENSION TABLE						
PIPE ID	INV. UP	INV. DOWN	LENGTH (FT)	SLOPE (%)	SIZE (IN.)	MATERIAL
MRC NO. 1 OUTLET	1032.75	1032.30	48	0.95%	18-IN	HDPE
MRC NO. 2 OUTLET	1030.50	1028.00	44	5.68%	18-IN	HDPE
RAIN GARDEN OUTLET	1064.00	1062.00	29	6.83%	12-IN	HDPE
STORM PIPE NO. 1	1067.00	1065.50	74	2.02%	18-IN	HDPE
STORM PIPE NO. 2	1076.30	1072.92	35	9.53%	12-IN	HDPE
WELL PAD OUTLET	1038.00	1035.00	58	3.47%	12-IN	SDR35

NOTE: HDPE PIPE SHALL BE DUAL-WALL SMOOTH LINED

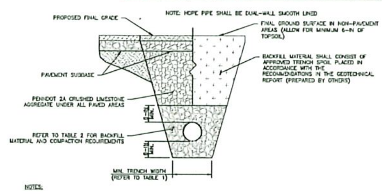


TABLE 1: MINIMUM TRENCH WIDTHS

PIPE DIAMETER (in.)	TRENCH WIDTH (in.)
4-10	28
12	30
15	34
18	39
24	48
30	56
36	64
42	72
48	80
54	88
60	96

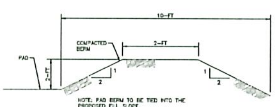
NOTES:

1. MATERIALS EXCAVATED DURING TRENCHING SHALL BE STOCKPILED A SUFFICIENT DISTANCE FROM TRENCHES TO PREVENT SLIDES OR CAVE-INS.
2. BACKFILL MATERIALS SHALL BE APPROVED BY THE OWNER'S ENGINEER OR THEIR REPRESENTATIVE BEFORE BEING PLACED. BACKFILL MATERIAL SHALL BE PLACED IN MAXIMUM 8-IN THICK LIFTS FOR FULL-SIZE COMPACTION EQUIPMENT, 4-IN LIFTS WITH HANDHELD EQUIPMENT.
3. AASHTO NO. 57 CRUSHED LIMESTONE AGGREGATE AND PENNDOT 2A CRUSHED LIMESTONE AGGREGATE SHALL SATISFY THE REQUIREMENTS OF PENNDOT PUBLICATION 408, SECTION 703.
4. THE MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT FOR THE BACKFILL MATERIALS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER. REFER TO THE GEOTECHNICAL REPORT (BY OTHERS) FOR ADDITIONAL INFORMATION.
5. THE CONTRACTOR SHALL CONSTRUCT TRENCHES AND PROVIDE ADEQUATE SHORING (WHERE NECESSARY) IN CONFORMANCE WITH THE LATEST OSHA REQUIREMENTS FOR CONSTRUCTION STANDARD FOR EXCAVATIONS (29 CFR PART 1926.650-.652 SUBPART P).
6. THE CONTRACTOR SHALL VERIFY THAT THE MINIMUM SPECIFIED PIPE COVER IS PROVIDED BETWEEN THE FINAL GROUND SURFACE AND TOP OF PIPE BEFORE LAYING PIPE. PROVIDE COVER IN ACCORDANCE WITH PIPE MANUFACTURE'S RECOMMENDATIONS.
7. INCREASE TRENCH WIDTH AS NECESSARY TO ALLOW FOR PROPER COMPACTION OF BEDDING/BACKFILL.
8. RECOMMENDED MANUFACTURER: ADVANCED DRAINAGE SYSTEMS, INC. (ADS), OR APPROVED EQUAL. PIPE TO BE FURNISHED AND INSTALLED WITH WATER TIGHT JOINTS.

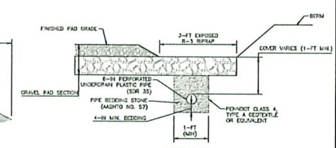
TABLE 2: BACKFILL MATERIAL

DESCRIPTION	SOIL CLASSIFICATIONS		
	ASTM D2321	ASTM D487	AASHTO M43
GRADED OR CRUSHED STONE, GRAVEL	CLASS I	–	5 56
WELL-GRADED SAND, GRAVELS AND GRAVEL/SAND MIXTURES, POORLY GRADED SAND, GRAVELS AND GRAVEL/SAND MIXTURES; LITTLE TO NO FINES	CLASS II	GW GP SW SP	57 6
SILTY OR CLAYEY GRAVELS, GRAVEL/SAND/SILT OR GRAVEL AND CLAY MIXTURES, SILTY OR CLAYEY SANDS, SAND/CLAY OR SAND/SILT MIXTURES	CLASS III	GW GP SW SP	GRAVEL AND SAND (<10% FINES)

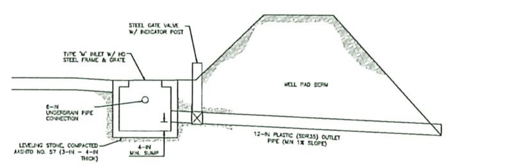
DETAIL 10
TYPICAL STORM SEWER CULVERT AND TRENCH
N.T.S.



DETAIL 8
WELL PAD BERM
N.T.S.



DETAIL 11
WELL PAD UNDERDRAIN
N.T.S.



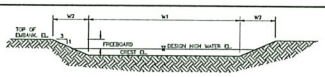
DETAIL 12
WELL PAD UNDERDRAIN OUTLET
N.T.S.

REVISION RECORD		
NO	DATE	DESCRIPTION
1	[illegible]	REVISED PER COMMENTS PROVIDED BY TOWNSHIP ENGINEER OR [illegible]
2	[illegible]	REVISED STOCKPILE LOCATION.

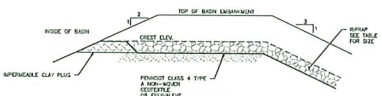
OLYMPUS ENERGY LLC
TYCHE WELL PAD
EROSION AND SEDIMENTATION CONTROL PLAN DETAILS
WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY	LC	DATE	07/14/2023	NTE	DOCUMENT ID
CHECKED BY	JMD	DATE	07/14/2023	SHEET 6 OF 17	REVISION
APPROVED BY	RBD	DATE	07/14/2023	SHEET NAME	C904



FRONT VIEW



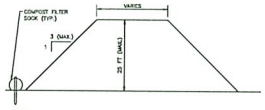
SIDE VIEW

SPILLWAY TABLE

LOCATION	W1 (FT)	W2 (FT)	TOP OF EMBANKMENT EL.	CREST EL.	SPILLWAY LINER	THICKNESS (T) (IN)	DESIGN HIGH WATER EL.	FREEBOARD (FT)
MPC-1	25	5.25	1041.25	1039.50	R-4 RIPRAP	18	1041.84	1.41

1. DESIGN HIGH WATER ELEVATION IS THE MAXIMUM 100-YEAR WATER SURFACE ELEVATION ANTICIPATED TO OCCUR.

DETAIL 13
EMERGENCY SPILLWAY
N.T.S.



NOTE:

1. STOCKPILES MAY NOT EXCEED 25 FT IN HEIGHT WITHOUT ADDITIONAL CONTROLS.

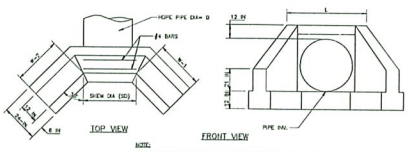
INSPECTION: STOCKPILES SHALL BE INSPECTED DAILY.

MAINTENANCE: STOCKPILES EXPOSED FOR GREATER THAN 4 DAYS MUST BE REVEGETATED.

DETAIL 14
STOCKPILE
N.T.S.

ENDWALL DIMENSION TABLE

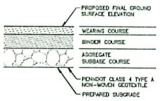
ENDWALL ID	PIPE INVERT	PIPE SIZE (IN.)
ENDWALL NO. 1	1062.00	12-IN
ENDWALL NO. 2	1032.30	18-IN
ENDWALL NO. 3	1028.00	18-IN



NOTE:

1. REFER TO PENNDOT STANDARDS FOR ROAD CONSTRUCTION, PUB. NO. 72M, FOR MORE INFORMATION.

DETAIL 15
ENDWALL
N.T.S.

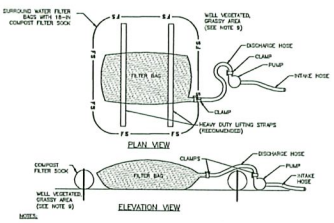


ITEM	PAVEMENT SECTION
9.5mm SUPERPAVE MIX WEARING COURSE PG 64-22 0.3 TO < 3 MILLION ESALS	1½-IN
25mm SUPERPAVE MIX BINDER COURSE PG 64-22 0.3 TO < 3 MILLION ESALS	8-IN
PENNDOT TYPE 2A AGGREGATE SUB-BASE COURSE	6-IN

NOTES:

1. THIS DETAIL ADOPTED FROM PENNDOT MINIMUM USE DRIVEWAY DESIGN FOR UNCONVENTIONAL GAS DRILLING AND HYDROFRACKING WELL SITES DETAIL.
2. PRIOR TO PLACEMENT OF AGGREGATE THE PAVEMENT SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT TO BE PREPARED BY OTHERS.
3. THE SUBGRADE SHALL BE GRADED AND SHAPED AS REQUIRED TO CONSTRUCT THE AGGREGATE BASE COURSE IN CONFORMANCE WITH THE GRADES, LINES AND THICKNESSES SHOWN ON THE DRAWINGS.
4. ALL WORK AND MATERIALS WITHIN THE RIGHT-OF-WAY MUST CONFORM TO PENNDOT REGULATIONS AND STANDARDS.

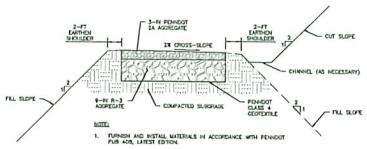
DETAIL 16
ASPHALT PAVEMENT TYPICAL SECTION
N.T.S.



NOTES:

1. FILTER BAGS MAY BE USED TO FILTER WATER PUMPED FROM DISTURBED AREAS SUCH AS UTILITY TRENCHES.
2. FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS.
3. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE FILLED OR FAILED.
4. BAGS SHALL BE LOCATED IN WELL VEGETATED (GRASSY) AREAS, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS FAR ENOUGH AWAY FROM STREAMS AND WETLANDS TO ALLOW THE WATER TO EITHER INFILTRATE INTO THE GROUND OR SPREAD OUT AS SHEET FLOW PRIOR TO REACHING THE STREAM OR WETLAND. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5 PERCENT.
5. THE PUMP RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHOULD BE FLOATING AND SCREENED.
6. FILTER BAGS SHALL BE INSPECTED DAILY AND ANY CORRECTIVE ACTION REQUIRED SHALL BE DONE IMMEDIATELY.
7. LOCATE BAG IN LEVEL AREAS (LESS THAN 5% GRADE). WHEN LEVEL AREAS ARE NOT AVAILABLE, PLACE ASTM NO. 57 COARSE AGGREGATE TO LEVEL THE BAG. REFER TO PENNDOT PUBLICATION 72M, STANDARDS FOR ROADWAY CONSTRUCTION, RC-75M FOR ADDITIONAL LEVELING DETAILS.
8. FILTER BAGS SHALL BE SURROUNDED BY A COMPOST FILTER SOCK RING.
9. IN THE EVENT THE PUMPED WATER FILTER BAG CAN NOT BE PLACED WITHIN A WELL VEGETATED, GRASSY AREA, A GEOTEXTILE UNDERLAYMENT SHALL BE UTILIZED TO PROVIDE A STABLE DISCHARGE LOCATION. COMPOST FILTER SOCKS SHALL BE INSTALLED DOWNSLOPE OF PUMPED WATER FILTER BAGS WHICH DO NOT DISCHARGE TO WELL VEGETATED, GRASSY AREAS.

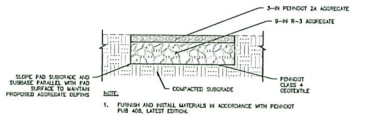
DETAIL 17
PUMPED WATER FILTER BAG
N.T.S.



NOTE:

1. FURNISH AND INSTALL MATERIALS IN ACCORDANCE WITH PENNDOT PUB 408, LATEST EDITION.

DETAIL 18
GRAVEL ACCESS ROAD
N.T.S.



NOTE:

1. FURNISH AND INSTALL MATERIALS IN ACCORDANCE WITH PENNDOT PUB 408, LATEST EDITION.

DETAIL 19
GRAVEL WELL PAD
N.T.S.

REVISION RECORD

NO.	DATE	DESCRIPTION

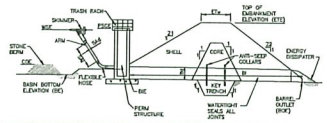
COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL RYAN B. DAILEY ENGINEER 7/16/2013

OLYMPUS ENERGY LLC
TYCHE WELL PAD
EROSION AND SEDIMENTATION CONTROL PLAN DETAILS

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY:	MJ	DATE:	07-14-2013	MFE	REVISED
CHECKED BY:	JMC	DATE:	07-14-2013	SHEET: 7 OF 17	REVISION: 0
APPROVED BY:	RBD	DATE:	07-14-2013	SHEET NAME:	C905



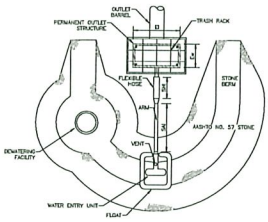
BASIN NO.	Z1 (FT)	Z2 (FT)	EMBANKMENT					PERMANENT STRUCTURE			
			TOP ELEV ETE (FT)	TOP WIDTH ETw (FT)	KEY TRENCH DEPTH (FT)	KEY TRENCH WIDTH (FT)	CLEAN OUT ELEV COE (FT)	CREST ELEV FSEE (FT)	REPRIMANDT POOL ELEVATION TPE (FT)	OUTLET ELEVATION FSOE (FT)	BARREL INVERT ELEV BIE (FT)
BASIN 1	3.0	3.0	1041.25	8	2	4	1035.00	1038.00	1039.00	1032.30	1032.75

BASIN NO.	SKIMMER					OUTLET BARREL				
	DIA SKM (IN)	ORIFICE DIA (IN)	LENGTH SKM (FT)	MATL	DIA BB (IN)	INLET ELEV BIE (FT)	MATL	LENGTH BB (FT)	OUTLET ELEV BOE (FT)
BASIN 1	3.00	3.00	7.10	PVC	18	1032.75	HDPE	48	1032.30

NOTES:

1. SEDIMENT BASINS, INCLUDING ALL APPURTENANT WORKS, SHALL BE CONSTRUCTED TO THE DETAIL AND DIMENSIONS SHOWN ON THE E&S PLAN DRAWINGS.
2. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO A DEPTH OF TWO FEET PRIOR TO ANY PLACEMENT AND COMPACTION OF EARTHEN FILL. IN ORDER TO FACILITATE MAINTENANCE AND RESTORATION, THE POOL AREA SHALL BE CLEARED OF ALL BRUSH, TREES, AND OBJECTIONABLE MATERIAL. FILL MATERIAL FOR THE EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN LAYERED LIFTS OF NOT MORE THAN 6-IN TO 8-IN. THE MAXIMUM ROCK SIZE SHALL BE NO GREATER THAN 2/3 THE LIFT THICKNESS.
3. UPON COMPLETION, STABILIZE THE EMBANKMENT WITH SEED, MULCH, BLANKETS OR OTHER STABILIZATION METHODS ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS. TREES SHALL NOT BE PLANTED ON THE EMBANKMENT.
4. INSPECT ALL SEDIMENT BASINS ON AT LEAST A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. PROVIDE ACCESS FOR SEDIMENT REMOVAL AND OTHER REQUIRED MAINTENANCE ACTIVITIES. PLACE A CLEAN OUT STAKE NEAR THE CENTER OF EACH BASIN. REMOVE ACCUMULATED SEDIMENT WHEN IT HAS REACHED THE CLEAN OUT ELEVATION ON THE STAKE AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED ON THE E&S PLAN.
5. INSPECT BASIN EMBANKMENTS, SPILLWAYS, AND OUTLETS FOR EROSION, PIPING, AND SETTLEMENT. PERFORM NECESSARY REPAIRS IMMEDIATELY. REPLACE DISPLACED RIPRAP WITHIN THE OUTLET ENERGY DISSIPATER IMMEDIATELY.
6. REMOVE ACCUMULATED SEDIMENT AND STABILIZE DISTURBED AREAS INSIDE THE BASIN BEFORE CONVERSION TO A STORMWATER MANAGEMENT FACILITY.

DETAIL 20
SEDIMENT BASIN AND SKIMMER
N.T.S.

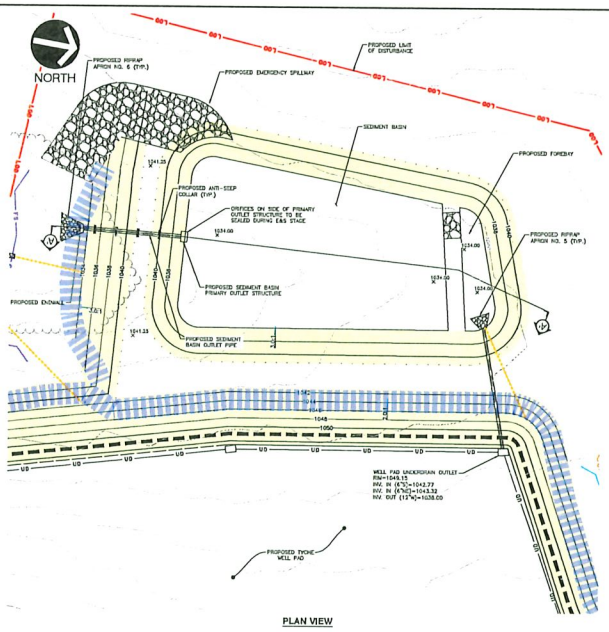


PLAN VIEW

NOTES:

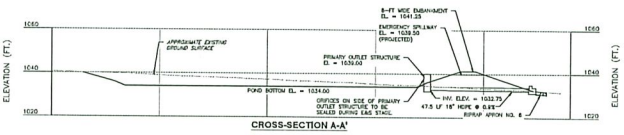
1. NO GUIDE RAILS SHALL BE REQUIRED FOR THIS INSTALLATION.
2. THIS DETAIL SHALL BE USED IN CONJUNCTION WITH PROP SKIMMER DETAIL.

DETAIL 21
SKIMMER STONE LANDING BERM
N.T.S.



PLAN VIEW

SCALE IN FEET
0 20 40

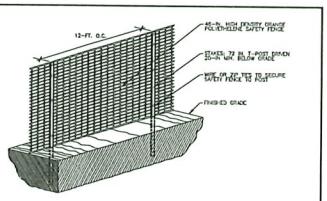


CROSS-SECTION A-A'

SCALE IN FEET (HORIZONTAL)
0 20 40

SCALE IN FEET (VERTICAL)
0 20 40

DETAIL 22
SEDIMENT BASIN DETAIL
N.T.S.



NOTES:

1. AREAS SHALL BE PROTECTED PER PLAN.
2. SAFETY FENCE SHOULD BE FASTENED SECURELY TO THE T-POSTS.
3. THE FENCING MUST REMAIN IN PLACE DURING CONSTRUCTION.

DETAIL 23
ORANGE CONSTRUCTION FENCE
N.T.S.

SEDIMENT BASIN NOTES:

1. SEDIMENT BASINS, INCLUDING APPURTENANT WORKS, SHALL BE CONSTRUCTED TO THE DETAIL AND DIMENSIONS SHOWN ON THE E&S PLAN DRAWINGS.
2. ACCESS FOR SEDIMENT REMOVAL AND OTHER REQUIRED MAINTENANCE ACTIVITIES SHALL BE PROVIDED.
3. A CLEAN OUT STAKE SHALL BE PLACED NEAR THE CENTER OF EACH BASIN. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED THE CLEAN OUT ELEVATION ON THE STAKE AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED IN THE E&S PLAN.
4. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO A DEPTH OF TWO FEET PRIOR TO ANY PLACEMENT AND COMPACTION OF EARTHEN FILL. IN ORDER TO FACILITATE MAINTENANCE AND RESTORATION, THE POOL AREA SHALL BE CLEARED OF ALL BRUSH, TREES, AND OBJECTIONABLE MATERIAL. FILL MATERIAL FOR THE EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN LAYERED LIFTS OF NOT MORE THAN 6-IN TO 8-IN. THE MAXIMUM ROCK SIZE SHALL BE NO GREATER THAN 2/3 THE LIFT THICKNESS. VERIFY SOIL FROM THE EXCAVATION OF BASIN FOR SUITABILITY AS EMBANKMENT MATERIAL. GEOTECHNICAL ENGINEER SHOULD VERIFY SOIL CAPABILITIES. EMBANKMENT SHOULD BE CONSTRUCTED PER GEOTECHNICAL RECOMMENDATIONS. UPON COMPLETION, THE EMBANKMENT SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS. TREES SHALL NOT BE PLANTED ON THE EMBANKMENT. SOILS ACCEPTABLE FOR EMBANKMENT CONSTRUCTION SHOULD BE LIMITED TO GC, GM, SC, SM, CL, OH MI, AS DESCRIBED IN ASTMD-2487 (UNIFIED SOILS CLASSIFICATION).
5. INSPECT SEDIMENT BASINS ON AT LEAST A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT (1.5 INCHES OF RAIN WITHIN 24 HOUR PERIOD). CHECK BASIN EMBANKMENTS, SPILLWAYS, AND OUTLETS FOR EROSION, PIPING AND SETTLEMENT. NECESSARY REPAIRS SHALL BE MADE IMMEDIATELY. DISPLACED RIPRAP WITHIN THE OUTLET ENERGY DISSIPATER SHALL BE REPLACED IMMEDIATELY. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE STABILIZED INSIDE THE BASIN BEFORE CONVERSION TO A STORMWATER MANAGEMENT FACILITY.
6. CHECK EMBANKMENTS, SPILLWAYS, AND OUTLETS FOR EROSION, PIPING AND SETTLEMENT. CLOGGED OR DAMAGED SPILLWAYS AND/OR EMBANKMENTS SHALL BE RESTORED TO THE DESIGN SPECIFICATIONS.
7. CLOGGED OR DAMAGED SPILLWAYS SHALL BE REPAIRED IMMEDIATELY. TRASH AND OTHER DEBRIS SHALL BE REMOVED FROM THE BASIN AND RISER.
8. A KEY TRENCH, OR CUTOFF TRENCH, IS REQUIRED FOR ALL PERMANENT BASINS. SEE DETAIL.
9. OUTLET BARRELS FOR PERMANENT AND TEMPORARY BASINS WITH TRIBUTARY DRAINAGE AREAS OF 10 ACRES OR MORE SHOULD BE SET IN A CONCRETE CRADLE.

REVISION RECORD		
NO.	DATE	DESCRIPTION

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER RYAN B. DALEY
7/6/2023

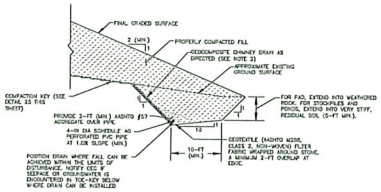
OLYMPUS ENERGY LLC
TYCHE WELL PAD
EROSION AND SEDIMENTATION CONTROL PLAN DETAILS

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY	BC	DATE	07/14/2023	SCALE	ESDM/DTD
CHECKED BY	JAK	DATE	07/14/2023	SHEET	1 OF 1 REVISION
APPROVED BY	RBD	DATE	07/14/2023	SHEET SIZE	24x36

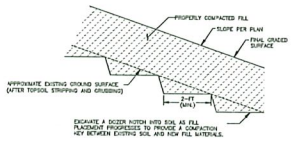
C906



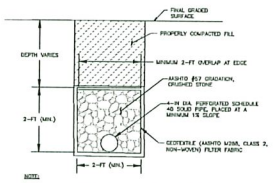
NOTES:

1. TRANSITION DEEPER FILL KEYS GRADUALLY INTO SHALLOWER FILL KEYS. RAISE FILL KEY DRAIN AS NECESSARY TO OUTLET DRAIN WITHIN THE LIMITS OF DISTURBANCE.
2. INSTALL GEOCOMPOSITE CHIMNEY DRAIN (STRIDRAIN, DS-180) ON THE UPHILLSLOPE SIDE OF TEMPORARY EXCAVATIONS AT LOCATIONS WHERE SEEPAGE OR EVIDENCE OF GROUNDWATER IS ENCOUNTERED.
3. TEMPORARY EXCAVATIONS THROUGH EXISTING FILL OR COLLUVIAL SOILS (IF ENCOUNTERED) SHALL BE SLOPED NO STEEPER THAN 1.5H:1V. TEMPORARY EXCAVATIONS IN RESIDUAL SOIL AND WEATHERED ROCK/BEDROCK SHALL BE SLOPED AT MAXIMUM GRADIENTS OF 1H:1V.

DETAIL 24
FILL FOUNDATION KEY
N.T.S.



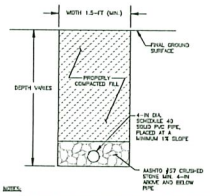
DETAIL 25
COMPACTION KEY
N.T.S.



NOTE:

1. INSTALL SUBSURFACE DRAINS AT LOCATIONS WHERE SEEPAGE IS ENCOUNTERED DURING CONSTRUCTION. OUTLET DRAINS BEYOND LIMITS OF NEW FILL OR CONNECT TO FILL KEY DRAINS.

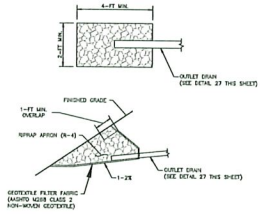
DETAIL 26
SUBSURFACE DRAIN
N.T.S.



NOTES:

1. INSTALL OUTLET DRAINS AT BASE OF TOE-KEYS. OUTLET BEYOND LIMITS OF NEW FILL AND WITHIN LIMIT OF DISTURBANCE.
2. OUTLET DRAIN LOCATIONS SHOWN ON THE PLANS ARE CONCEPTUAL AND MAY BE ALTERED DURING CONSTRUCTION DEPENDING ON CONDITIONS ENCOUNTERED IN THE FIELD.

DETAIL 27
OUTLET DRAIN
N.T.S.



DETAIL 28
OUTLET DRAIN RIPRAP APRON
N.T.S.

REVISION RECORD		
NO	DATE	DESCRIPTION

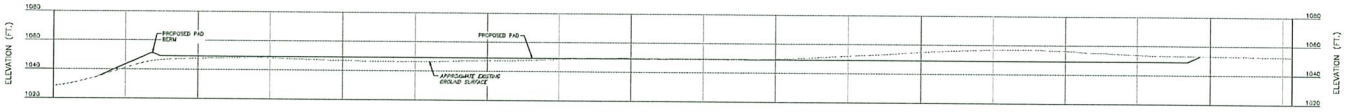
COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
AARON W. LAVAGE
PE-075-098
PENNSYLVANIA

OLYMPUS ENERGY LLC
TYCHE WELL PAD
GEOTECHNICAL DETAILS

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

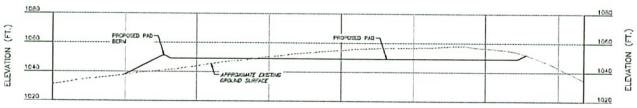
OLYMPUS ENERGY
CEC

DRAWN BY	MS	DATE	07-14-2023	KEY	DOCUMENTED
DESIGNED BY	JMC	DATE	07-14-2023	SHEET	5 OF 17 REVISION 0
APPROVED BY	RBD	DATE	07-14-2023	SHEET NAME	C907



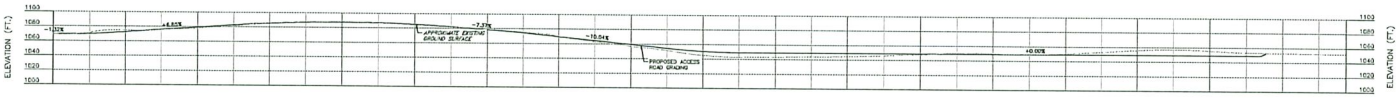
PAD CROSS-SECTION A-A

SCALE IN FEET (HORIZONTAL)
0 30 60
SCALE IN FEET (VERTICAL)
0 30 60



PAD CROSS-SECTION B-B

SCALE IN FEET (HORIZONTAL)
0 30 60
SCALE IN FEET (VERTICAL)
0 30 60



ACCESS ROAD PROFILE

SCALE IN FEET (HORIZONTAL)
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SCALE IN FEET (VERTICAL)
0 60 120

REVISION RECORD		
NO.	DATE	DESCRIPTION

RYAN B. DAILEY
ENGINEER
7/14/2023

OLYMPUS ENERGY LLC
TYCHE WELL PAD
PAD AND ACCESS ROAD
CROSS-SECTIONS

WEST DEER TOWNSHIP
ALLEGHENY COUNTY, PENNSYLVANIA

OLYMPUS ENERGY
CEC

DRAWN BY	MJ	DATE	07/14/2023	SCALE	REDACTED
CHECKED BY	JMC	DATE	07/14/2023	SHEET	10 OF 17
APPROVED BY	RBD	DATE	07/14/2023	SHEET NAME	C908