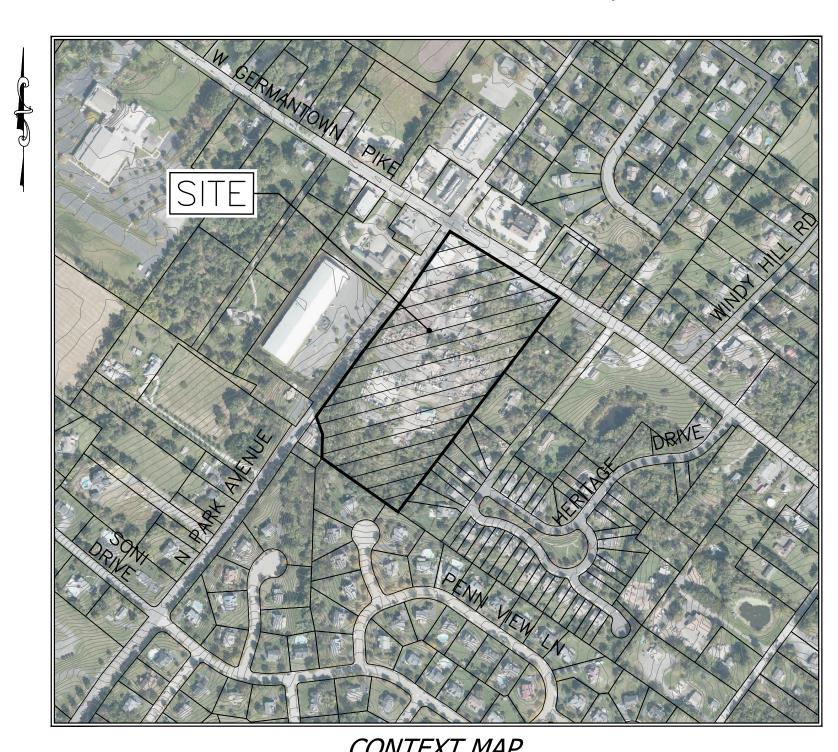
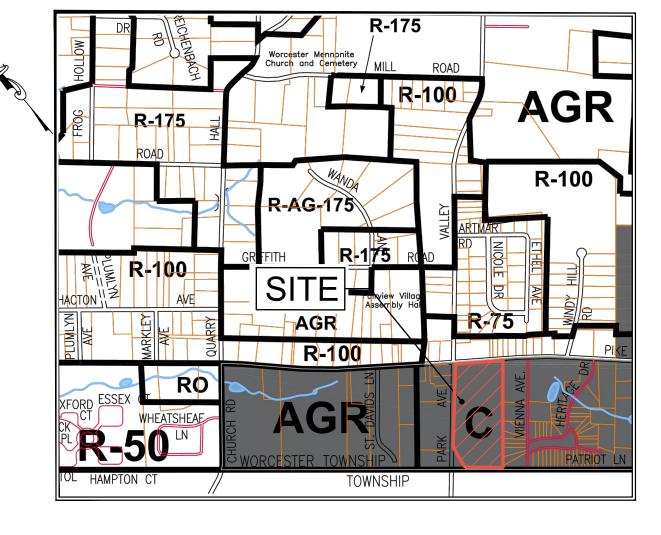
WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA

SHEET DESCRIPTION						
1	COVER SHEET					
2	LEGEND & NOTES					
3	EXISTING FEATURES					
4	EXISTING RESOURCES PLAN					
5	NATURAL RESOURCES PROTECTION PLAN					
6	TREE SURVEY PLAN					
7	DEMOLITION PLAN					
8	SITE PLAN					
9	GRADING PLAN					
9A	DRAINAGE PLAN					
10	UTILITY PLAN					
11	LANDSCAPING PLAN					
12	LIGHTING PLAN					
13	EROSION AND SEDIMENT CONTROL PLAN					
14	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN					
15	STORM SEWER PROFILES	STORM SEWER PROFILES				
16	STORM SEWER PROFILES					
17	STORM SEWER PROFILES					
18	SANITARY SEWER PROFILES					
19	DRIVEWAY PROFILES					
20	CONSTRUCTION DETAILS					
21	CONSTRUCTION DETAILS					
22	WATER DETAILS					
23	SANITARY SEWER DETAILS					
24	STORM SEWER DETAILS					
25	STORM SEWER DETAILS					
26	EROSION & SEDIMENT CONTROL DETAILS					
27	EROSION & SEDIMENT CONTROL DETAILS					
28	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS					
29	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS					
30	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS					
31	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS					
32	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS					
33	POST CONSTRUCTION STORMWATER MANAGEMENT NOTES					
34	LANDSCAPE AND LIGHTING DETAILS					
*" SHEETS IND	DICATED TO BE INCLUDED IN RECORD PLAN SET					





DESIGNATION ZONING CLASSIFICATION AGRICULTURAL RESIDENTIAL RESIDENTIAL R-100 RESIDENTIAL RESIDENTIAL R-50 RESIDENTIAL RESIDENTIAL OFFICE R-AG-175 RESIDENTIAL AGRICULTURAL RESIDENTIAL AGRICULTURAL R-AG-200 COMMERCIAL LIMITED INDUSTRIAL LAND PRESERVATION DISTRICT SHOPPING CENTER MOBILE HOME DEVELOPMENT MULTI-RESIDENTIAL USE OVERLAY DISTRICT AGE QUALIFIED RESIDENTIAL COMMUNITY

SITE & ADJACENT ZONING DISTRICT

ZONING MAP SCALE: 1"=1,000'

OWNER/APPLICANT:

BT WORCESTER, LLC 200 DRYDEN ROAD, SUITE 2000 DRESHER, PA 19025 (215) 938 - 7300INFO@BETINVESTMENTS.COM

UTILITY USER LIST ACT NUMBER 287 OF 1974 AS AMENDED

440 WAYNE AVENUE PHILADELPHIA, PA. 19140 CONTACT: ROBERT HARVEY EMAIL: BOB_HARVEY@CABLE.COMCAST.COM

COMCAST APOLLO RD PLYMOUTH MEETING, PA. 19462 CONTACT: TOM DEMSEY PHONE: 215-285-8738

PHONE: 610-292-3575

PENNSYLVANIA AMERICAN WATER 171 W JOHNSON HIGHWAY NORRISTOWN, PA 19401 CONTACT: NOEL GIESSLER EMAIL: NOEL.GIESSLER@AMWATER.COM

VERIZON PENNSYLVANIA LLC 1050 VIRGINIA DR FORT WASHINGTON, PA. 19034 CONTACT: DARLINE LEPPERD JOHNSON PHONE: 215–591–6354 C/O USIC LLC 450 S HENDERSON RD SUITE B KING OF PRUSSIA, PA. 19406 CONTACT: NIKKIA SIMPKINS EMAIL: NIKKIASIMPKINS@USICLLC.COM PHONE: 610-292-8057

700 WESTON PKWY CARY, NC. 27513 CONTACT: VICTOR WOOD EMAIL: VICTOR.S.WOOD@VERIZON.COM WORCESTER TOWNSHIP

VERIZON BUSINESS FORMERLY MCI

1721 SOUTH VALLEY FORGE ROAD P.O. BOX 767 WORCESTER, PA 19490 CONTACT: ROBERT DHULSTER EMAIL: BDHULSTER@WORCESTERTWP.COM

CERTIFICATE OF CONFORMANCE - P.E.

I HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE, THESE PLANS ARE IN CONFORMITY WITH ENGINEERING, ZONING, BUILDING, SANITATION AND OTHER APPLICABLE TOWNSHIP ORDINANCES AND REGULATIONS.

CHRISTOPHER W. JENSEN, P.E. LICENSE NO. PE076464

APPROVED

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

SIGNATURE, CHAIRMAN DATE SIGNED

SIGNATURE, SECRETARY

DATE SIGNED (TOWNSHIP NOTARY SEAL)

REVIEWED

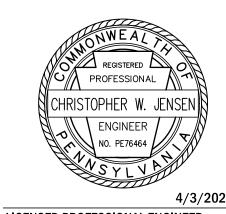
REVIEWED THIS _____ DAY OF_____

REVIEWED BY THE TOWNSHIP ENGINEER OF WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PA

PREPARED BY THE MONT	ND REVIEWED. A REPORT HAS BEEN GOMERY COUNTY PLANNING COMMISSION IN MUNICIPALITIES PLANNING CODE.
MONTGOMERY COUNTY PI	FOR THE DIRECTOR



							C	
			PRG	PRG	ROP	PRG	ВУ	
			PER CKS REVIEW LETTER DATED 01/24/2024	11/17/2023 PER CKS REVIEW LETTER DATED 11/22/2022	REVISED ENTRANCE ON GERMANTOWN PIKE	10/04/2022 PER CKS REVIEW LETTER DATED 03/11/2022	REVISIONS	
			3/7/2024	11/17/2023	4/3/2023	10/04/2022	DATE	
			4	3	2	1	NO.	



4/3/202 LICENSED PROFESSIONAL ENGINEER STATE OF PA LICENSE No. PE076464						
RCESTER, LLC	PN #67-00-01606-001 N PIKE, WORCESTER TOWNSHIP, COMMONWEALTH OF PENNSYLVANIA	R SHEET				

AND	
YOUR GOALS	S. OUR MISSION.
1700 MARKET STF PHILADELPHI TEL 215-2 FAX 215-6	A, PA 19103 82-7850

OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

CGG/JPK/ROP	
CHECKED BY	l CV
DS	
DRAWN BY PG/SR/ROP	SHEET
DATE 1/27/22	1
SCALE	
1" = 50'	
DDOL NO	1

ENGINEER'S STORMWATER CERTIFICATION:

I, ZACHARY H. RANSTEAD, ON THIS DATE ______, HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE THAT THE STORMWATER MANAGEMENT SITE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE WORCESTER TOWNSHIP STORMWATER ORDINANCE, CHAPTER 206

ZACHARY H. RANSTEAD LICENSE # PE063078

APPLICANT'S STORMWATER CERTIFICATION:

THE APPLICANT HEREBY ACKNOWLEDGES THAT ANY REVISION TO THE APPROVED STORMWATER MANAGEMENT SITE PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE MUNICIPALITY, AND THAT A REVISED EROSION AND SEDIMENT CONTROL PLAN SHALL BE SUBMITTED TO, AND APPROVED BY, THE CONSERVATION DISTRICT OR MUNICIPALITY (AS APPLICABLE) FOR A DETERMINATION OF ADEQUACY PRIOR TO CONSTRUCTION OF THE REVISED FEATURES.

BT WORCESTER, LLC

COMMONWEALTH OF PENNSYLVANIA, COUNTY OF MONTGOMERY:

ON THIS THE _____ DAY OF _____, 20___, BEFORE ME, THE SUBSCRIBER, PERSONALLY APPEARED BT WORCESTER, LLC, AND THAT AS MUCH TO DO SO, HE/SHE EXECUTED THE FOREGOING PLAN BY SIGNING THE NAME OF SAID CORPORATION BY HIMSELF/HERSELF AS ________, THAT THE SAID CORPORATION IS THE OWNER OF THE DESIGNATED LAND, THAT ALL NECESSARY APPROVAL OF THE PLAN HAS BEEN OBTAINED AND ENDORSED THEREON AND THAT THE SAID CORPORATION DESIRES THAT THE FOREGOING PLAN MAY BE DULY RECORDED.

3Y:	
OWNER	
BT WORCESTER, LLC	
 NOTARY PUBLIC	

MY COMMISSION EXPIRES ON THIS ____ DAY OF _____, 20 ___.

WORCESTER TOWNSHIP, MONTGOMERY COUNTY PA,

DATE SIGNED

MONTGOMERY COUNTY PLANNING COMMISSION APPROVAL

RECORDED	IN THE MONTGOMERY	COUNTY COURTHOUSE	THIS _	DAY OF	 . 0
20	_ IN PLAN BOOK	, PAGE	·		
MCPC No.					
WO C 140		 •			

- ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILITIES SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVEGROUND INSPECTION OF THE SITE. COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL AND VERTICAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE GUARANTEED. PURSUANT TO REQUIREMENTS OF THE PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974. AS AMENDED BY ACT 181 OF 2006. CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. PA LAW REQUIRES THREE WORKING DAYS NOTICE FOR CONSTRUCTION PHASE. CALL THE PA ONE CALL SYSTEM AT 1-800-242-1776. SERIAL NO. 20213502294 WAS PLACED FOR SURVEY PURPOSES
- PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS BY ALL OF THE PERMITTING AUTHORITIES.
- 5. ALL PROPOSED IMPROVEMENTS SHALL COMPLY WITH "THE AMERICAN DISABILITIES ACT", "ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES", AND "THE PENNSYLVANIA UNIVERSAL ACCESSIBILITY ACT".
- THIS PLAN SHALL NOT BE USED FOR BUILDING STAKEOUT PURPOSES. PROPOSED BUILDING LOCATION AS DEPICTED IS WITHIN ACCEPTABLE TOLERANCES FOR SITE WORK ONLY. PLEASE REFER TO ARCHITECTURAL/STRUCTURAL PLANS FOR EXACT BUILDING
- THE BUILDING FOOTPRINTS DEPICTED HEREON HAVE BEEN TRANSPOSED FROM ARCHITECTURAL PLANS. FINAL BUILDING DIMENSIONS MAY VARY SLIGHTLY FROM THOSE DEPICTED HEREON BUT SHALL ULTIMATELY CONFORM TO ALL APPLICABLE ZONING SETBACKS, IMPERVIOUS SURFACE COVERAGE RATIOS, ETC. CONTRACTOR SHALL NOTIFY PROJECT ENGINEER IF FINAL BUILDING FOOTPRINTS SUBSTANTIALLY VARY FROM THE FOOTPRINTS HEREON.
- CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH PENNDOT "PUBLICATION 408", LATEST EDITION, MUNICIPAL STANDARDS AND SPECIFICATIONS, AND UTILITY AUTHORITY/CO. STANDARDS AND SPECIFICATIONS, WHICHEVER ARE MORE RESTRICTIVE.
- SIGNED/SEALED STRUCTURAL DESIGN CALCULATIONS AND CONSTRUCTION DETAILS OF PROPOSED RETAINING WALL(S) SHALL BE SUBMITTED BY THE CONTRACTOR TO THE PROJECT ENGINEER AND MUNICIPALITY FOR APPROVAL PRIOR TO CONSTRUCTION.
- 10. CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS AND COMPLETE ALL WORK INDICATED OR IMPLIED ON THE PROJECT PLANS AND/OR SPECIFICATIONS THAT ARE NOT EXISTING ON THE PROJECT SITE AND THAT ARE NOT SPECIFICALLY NOTED AS 'FUTURE' OR 'NOT IN CONTRACT (NIC)', 'BY OTHERS', 'BY OTHER CONTRACTORS', 'BY
- 11. THE CONTRACTOR SHALL BE FAMILIAR WITH AND RESPONSIBLE FOR ANY/ALL CERTIFICATIONS, INSPECTIONS, ETC. REQUIRED BY ALL GOVERNING JURISDICTIONAL AGENCIES DURING AND AFTER CONSTRUCTION FOR SIGN-OFF AND CERTIFICATE OF OCCUPANCY ISSUANCE INCLUDING BUT NOT LIMITED TO PROCUREMENT OF SERVICES SCHEDULING OF FIFLD OBSERVATIONS AND COORDINATION WITH REPRESENTATIVES OF THE APPROPRIATE PARTIES. CONTRACTOR IS RESPONSIBLE TO COORDINATE CERTIFICATIONS, SIGN-OFFS, ETC. NECESSARY FOR JOB CLOSEOUT AND ISSUANCE OF CERTIFICATE OF OCCUPANCY.
- 12. THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND IN CASE OF CONFLICT SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF ANY SUCH DISCREPANCY BETWEEN GEOTECHNICAL REPORT AND PLANS, ETC.
- 13. THE PROPERTY SURVEY AS CERTIFIED SHALL BE CONSIDERED A PART OF THESE
- 14. THESE PLANS ARE BASED ON INFORMATION PROVIDED TO OUR OFFICE AT THE TIME OF PLAN PREPARATION. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND NOTIFY THE ENGINEER IN WRITING IF ACTUAL SITE CONDITIONS DIFFER FROM THAT SHOWN ON THE PLAN, OR IF THE PROPOSED WORK WOULD BE INHIBITED BY ANY OTHER EXISTING SITE FEATURES.
- 15. ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION, CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK DUE TO DISCREPANCIES OR CONFLICTS ON THE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN PRIOR TO THE START OF WORK AND MATERIALS PROCUREMENT.
- 16. ADA RAMPS ARE SHOWN WITH RAMP TYPE.
- 17. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL/MEPF PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELÉVATIONS. PRECISE BUILDING DIMENSIONS, EXACT BUILDING UTILITY SERVICE LOCATIONS AND SITE ELECTRICAL
- 18. DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, COUNTY, STATE AND FEDERAL LAWS AND APPLICABLE CODES, CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF HAZARDOUS/UNSUITABLE MATERIAL IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES AND LAWS.
- 19. THE CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION AND SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS. AS WELL AS ADDITIONAL PROVISIONS TO ASSURE STABILITY OF CONTIGUOUS STRUCTURES,
- 20. THE CONTRACTOR IS TO EXERCISE CARE WHEN PERFORMING WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES AND FACILITIES THAT ARE TO REMAIN CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING THE APPROPRIATE MEASURES AS NECESSARY TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT TO REMAIN, AND PROVIDE A SAFE WORK AREA.
- 21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND SHALL REPLACE ALL SIGNAL INTERCONNECTION CABLE, CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION.
- 22. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE DONE TO EXISTING ITEMS DURING CONSTRUCTION SUCH AS BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, SIDEWALK, ETC. REPAIR SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS. CONTRACTOR IS RESPONSIBLE TO PROVIDE DOCUMENTATION OF THE CONDITION OF EXISTING ITEMS TO THE OWNER'S DESIGNATED REPRESENTATIVE PRIOR TO CONSTRUCTION START.
- 23. CONCRETE SHALL HAVE THE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS INDICATED IN SPECIFICATIONS AND REFERENCE DOCUMENTS UNLESS OTHERWISE NOTED ON THE PLANS, DETAILS AND/OR GEOTECHNICAL REPORT.
- 24. THE ENGINEER IS NOT RESPONSIBLE FOR CONSTRUCTION METHODS/MEANS FOR COMPLETION OF THE WORK DEPICTED ON THESE PLANS NOR ANY CONFLICTS/SCOPE REVISIONS WHICH RESULT FROM THE SAME. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING METHODS/MEANS FOR COMPLETION OF THE WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND NOTIFICATION OF OWNER AND ENGINEER OF RECORD IN WRITING WHEN A CONFLICT IS IDENTIFIED.
- 25. NEITHER THE PROFESSIONAL ACTIVITIES OF T&M ASSOCIATES NOR THE PRESENCE OF T&M ASSOCIATES OR ITS EMPLOYEES AND SUB-CONSULTANTS AT A CONSTRUCTION/PROJECT SITE, SHALL RELIEVE THE CONTRACTOR OF ITS OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS. METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. T&M ASSOCIATES AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE CONTROL OVER THE CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES IN CONNECTION WITH THEIR WORK OR HEALTH OR SAFETY PROGRAMS OR PROCEDURES. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY. THE ENGINEER OF RECORD HEREIN IS NOT RESPONSIBLE FOR JOB SITE SAFETY NOR HAS HE BEEN RETAINED FOR SUCH PURPOSES. T&M ASSOCIATES SHALL BE INDEMNIFIED BY THE CONTRACTOR AND SHALL BE MADE AN ADDITIONAL INSURED UNDER THE CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE.
- 26. T&M ASSOCIATES SHALL REVIEW AND COMMENT OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA. SAMPLES AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT. BUT ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN CONCEPT AND THE INFORMATION SHOWN IN THE CONSTRUCTION MEANS OR METHODS. COORDINATION OF THE WORK WITH OTHER TRADES AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. T&M ASSOCIATES' REVIEW SHALL BE CONDUCTED WITH REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM SHALL NOT INDICATE THAT T&M ASSOCIATES HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. T&M ASSOCIATES SHALL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT BROUGHT TO THE ATTENTION OF T&M IN WRITING BY THE CONTRACTOR. T&M ASSOCIATES SHALL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OR CORRELATED ITEMS HAVE NOT BEEN RECEIVED.

- 27. THIS SHEET IS PART OF A LAND DEVELOPMENT PLAN SET ON RECORD AT THE MUNICIPALITY OF JURISDICTION.
- 28. ALL CURB RADII SHALL BE MIN. 5' UNLESS OTHERWISE NOTED OR DIMENSIONED.
- 29. AN AS-BUILT PLAN SHALL BE PREPARED FOR THE PROJECT INDICATING ACTUAL LOCATIONS, DIMENSIONS, AND ELEVATIONS OF ALL COMPLETED IMPROVEMENTS. THE PLAN SHALL BE PREPARED BY A PROFESSIONAL SURVEYOR REGISTERED IN THE STATE OF PENNSYLVANIA AND CERTIFIED BY THE ENGINEER WHO PREPARED THE FINAL PLAN. THE AS-BUILT PLAN SHALL BE FILED WITH THE TOWNSHIP NO LATER THAN NINETY (90) DAYS AFTER THE DATE OF SUBSTANTIAL COMPLETION OF THE DEVELOPMENT.
- 30. THE OWNER/EQUITABLE OWNER OF THE PROPERTIES WILL BE RESPONSIBLE FOR THE ONGOING INSPECTIONS, OPERATION, REPAIR, AND MAINTENANCE OF THE STORMWATER MANAGEMENT BMP'S AND CONVEYANCE SYSTEMS AFTER COMPLETION OF CONSTRUCTION.
- 31. A BLANKET STORMWATER MANAGEMENT EASEMENT OVER THE ENTIRE SITE IS PROPOSED TO BE GRANTED TO THE TOWNSHIP TO ALLOW LEGAL ACCESS AND MAINTENANCE VEHICLE ACCESS FOR MAINTENANCE OF ALL STORMWATER MANAGEMENT FACILITIES SHOULD THE NEED ARISE.
- 32. ALL PROPOSED PEDESTRIAN FACILITIES WITHIN THE SITE AND WITHIN THE PUBLIC RIGHT-OF-WAY (INCLUDING CURB RAMPS AND PEDESTRIAN ACCESS ROUTES) SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE U.S. ACCESS BOARD, PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) OF THE ACCESSIBILITY GUIDELINES OF BUILDINGS AND FACILITIES (ADAAG), PENNDOT DESIGN MANUAL PART CHAPTER 6. AND PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION (PUBLICATION 72M, RC-67M). UNLESS SPECIFIED OTHERWISE THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO INSTALLATION.
- 33. WORK ON SITE IS ALLOWED FROM 7AM TO 7PM, MONDAY THROUGH SATURDAY. NO WORK IS ALLOWED ON SUNDAY. WORK HOURS WILL BE STRICTLY ENFORCED BY THE
- 34. FIRE SPRINKLER SYSTEMS ARE PROPOSED TO BE INSTALLED WITHIN THE MULTI-FAMILY BUILDINGS

GENERAL DEMOLITION NOTES

- 1. ALL DEMOLITION ACTIVITIES ARE TO BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AS WELL AS ALL FEDERAL, STATE AND LOCAL REGULATIONS. ANY DISCREPANCIES OR DEVIATIONS IDENTIFIED BY THE CONTRACTOR SHALL BE REPORTED TO THE ENGINEER IN WRITING FOR RESOLUTION PRIOR TO
- THE FIRM OR ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFFTY OR SUPERVISION. CONTRACTOR IS TO PROCEED WITH THE DEMOLITION IN A SYSTEMATIC AND SAFE MANNER, FOLLOWING ALL THE OSHA REQUIREMENTS AND OTHER FEDERAL, STATE, AND LOCAL REGULATIONS, TO ENSURE THE PUBLIC AND CONTRACTOR SAFETY.
- 3. PRIOR TO STARTING ANY DEMOLITION, CONTRACTOR IS RESPONSIBLE FOR/TO:
 - A. ENSURE COPIES OF ALL PERMITS AND APPROVALS ARE ON SITE FOR REVIEW.
 - B. THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR TO SITE DISTURBANCE.
 - C. ALL EXISTING UTILITIES AND SERVICES, INCLUDING BUT NOT LIMITED TO GAS. WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE. FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE, SHALL BE VERTICALLY AND HORIZONTALLY LOCATED. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES.
 - D. PROTECT AND MAINTAIN IN OPERATION, ALL ACTIVE SYSTEMS THAT ARE NOT BEING REMOVED DURING DEMOLITION ACTIVITIES.
 - E. FAMILIARIZE THEMSELVES WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AND RELOCATION AS IDENTIFIED OR REQUIRED FOR PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.
 - COORDINATE WITH UTILITY COMPANIES AND TOWNSHIP REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS AS MAY BE REQUIRED TO MINIMIZE THE IMPACT OF THE AFFECTED PARTIES.
 - ANY AND ALL CONTAMINANTS SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS. DOCUMENTATION OF ANY AND ALL ENVIRONMENTAL WORK INCLUDING HAZARDOUS MATERIAL, SOILS, ASBESTOS, OR OTHER WORK REFERENCED OR IMPLIED HEREIN IS SOLELY THE RESPONSIBILITY OF THE OWNER'S ENVIRONMENTAL CONSULTANT.
- 4. THE CONTRACTOR SHALL PROVIDE ALL THE "MEANS AND METHODS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES AND ANY OTHER IMPROVEMENTS TO REMAIN ON OR OFF SITE.
- 5. IN ABSENCE OF WRITTEN SPECIFICATION, THE CONTRACTOR SHALL PERFORM EARTH MOVING ACTIVITIES, DEMOLITION AND REMOVAL OF ALL FOUNDATION WALLS, FOOTINGS, AND OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE IN ACCORDANCE WITH DIRECTION BY OWNER'S GEOTECHNICAL ENGINEER.
- EXPLOSIVES SHALL NOT BE USED WITHOUT PRIOR WRITTEN CONSENT OF THE OWNER. ALL THE REQUIRED PERMITS AND EXPLOSIVE CONTROL MEASURES THAT ARE REQUIRED BY THE FEDERAL, STATE, AND LOCAL GOVERNMENTS SHALL BE IN PLACE PRIOR TO STARTING AN EXPLOSIVE PROGRAM. THE CONTRACTOR IS ALSO RESPONSIBLE FOR ALL INSPECTION AND SEISMIC VIBRATION TESTING THAT IS REQUIRED TO MONITOR THE EFFECTS ON ALL LOCAL STRUCTURES.
- 7. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH: THE "MANUAL ON UNIFORM TRAFFIC CONTROL." AS WELL AS FEDERAL, STATE, AND LOCAL REGULATIONS WHEN DEMOLITION RELATED ACTIVITIES IMPACT ROADWAYS OR ROADWAY RIGHT-OF-WAYS.
- 8. CONDUCT DEMOLITION ACTIVITIES IN SUCH A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND OTHER ADJACENT FACILITIES. STREET CLOSURE PERMITS MUST BE RECEIVED FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY.
- 9. DEMOLITION ACTIVITIES AND EQUIPMENT SHALL NOT USE AREAS OUTSIDE THE DEFINED PROPERTY LINES, WITHOUT WRITTEN PERMISSION OF THE OWNER, AND/OR APPROPRIATE GOVERNMENT AGENCY.
- 10. USE DUST CONTROL MEASURES TO LIMIT THE AMOUNT OF AIRBORNE DUST AND DIRT RISING AND SCATTERING IN THE AIR TO WITHIN FEDERAL, STATE, AND/OR LOCAL STANDARDS. AFTER THE DEMOLITION IS COMPLETE, ADJACENT STRUCTURES AND IMPROVEMENTS SHALL BE CLEANED OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO THEIR "PRE-DEMOLITION" CONDITION.
- 11. CONTRACTOR IS RESPONSIBLE TO SAFEGUARD SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE UNAUTHORIZED ENTRY OF
- 12. THIS DEMOLITION PLAN IS INTENDED TO IDENTIFY THOSE EXISTING ITEMS/CONDITIONS WHICH ARE TO BE REMOVED. IT IS NOT INTENDED TO PROVIDE DIRECTION OTHER THAN THAT ALL METHODS AND MEANS ARE TO BE IN ACCORDANCE WITH STATE, FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE.
- 13. THE DEMOLITION CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN AS A RESULT OF HIS ACTIVITIES. ALL REPAIRS SHALL USE NEW MATERIAL. THE REPAIRS SHALL RESTORE THE ITEM TO THE PRE-DEMOLITION CONDITION.
- 14. DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES. CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF HAZARDOUS/UNSUITABLE MATERIAL IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, AND LAWS.

15. THE CONTRACTOR SHALL COORDINATE SERVICE SHUTOFF AND DISCONNECT/REMOVAL

PROCEDURES WITH EACH RESPECTIVE UTILITY COMPANY FOR THE EXISTING UTILITIES

SHOWN TO BE REMOVED. 16. THE DEMOLITION PLAN IS NOT INTENDED TO SHOW EROSION CONTROL MEASURES. FOR SUCH GUIDELINES AND DETAILS, SEE THE EROSION AND SEDIMENT CONTROL

PLAN AND DETAILS.

17. ALL EXISTING FEATURES WITHIN THE LIMIT OF DISTURBANCE (AS DEFINED ON THE PLAN SET) ARE TO BE REMOVED (UNLESS OTHERWISE NOTED) AT NO ADDITIONAL COST TO THE OWNER WHETHER OR NOT EXPLICITLY DEPICTED ON THIS PLAN. FEATURES TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO ALL TREES, VEGETATION, STRUCTURES, ABANDONED UTILITIES, AND ABANDONED IRRIGATION PIPE AND SYSTEM COMPONENTS. CONTRACTOR SHALL ABANDON ANY WELLS PRESENT WITHIN THE LIMIT OF DISTURBANCE IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS.

GRADING NOTES

- 1. VERTICAL DATUM IS NAVD 1988 AND ESTABLISHED BY OBSERVATIONS REFERENCED TO THE NGS CORS NETWORK.
- 2. THE MINIMUM SLOPE IN GRASSED AREAS SHALL NOT BE LESS THAN 2% AND THE MINIMUM IN PAVED AREAS SHOULD NOT BE LESS THAN 1%.
- 3. RUNOFF FROM IMPERVIOUS AREAS SHALL NOT BE DIRECTED INTO THE SANITARY
- SEWER OR ONTO ADJACENT PROPERTIES. 4. WALLS IN EXCESS OF 30" IN HEIGHT REQUIRE A SAFETY FENCE A MINIMUM OF
- 42" IN HEIGHT. REFER TO DETAIL SHEETS. 5. PAVEMENT SHALL BE SAW CUT IN STRAIGHT LINES TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS SHALL BE REMOVED

FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT

6. IN CASE OF DISCREPANCIES BETWEEN PLANS, THE SITE / RECORD PLAN WILL SUPERSEDE IN ALL CASES. THE ENGINEER OF RECORD MUST BE IMMEDIATELY

BE PERMITTED.

- NOTIFIED IN WRITING OF ANY CONFLICTS. THE CONTRACTOR SHALL BE REQUIRED TO SECURE ALL NECESSARY PERMITS (INCLUDING DEP, ETC.) FOR ALL OFF-SITE HAUL AND/OR BORROW SITES.
- CONTRACTOR SHALL SUPPLY A COPY OF APPROVALS TO DESIGN ENGINEER AND OWNER PRIOR TO INITIATING WORK. 8. EXISTING INLETS AND STORM SEWER INDICATED AS FILLED W/DEBRIS SHALL BE CLEANED AND FLUSHED. NEW INLETS AND PIPES SHALL BE CHECKED FOR
- 9. DEPTH OF EXISTING UTILITIES IN PORTIONS OF THE SITE ARE UNKNOWN. WHERE FXISITNG UTILITIES ARE TO REMAIN AND ARE FOUND TO HAVE INADEQUATE GROUND COVER AFTER FINAL PROPOSED GRADES HAVE BEEN ESTABLISHED, THE DESIGN ENGINEER SHALL BE CONTACTED IMMEDIALTELY AND PRIOR TO FURTHER CONSTRUCTION ACTIVITIES IN THE AREA OF SAID CONFLICT.

SILT/DEBRIS AFTER CONSTRUCTION AND FLUSHED/CLEANED IF NECESSARY.

- 10. ALL DESIGNERS AND CONTRACTORS UTILIZING THIS PLAN AND THE INFORMATION CONTAINED THEREON ARE CAUTIONED TO COMPLY WITH THE REQUIREMENTS OF PENNSYLVANIA ACT 287. LOCATION OF EXISTING AND PROPOSED UNDERGROUND UTILITIES AND FACILITIES SHOWN ON THE DRAWINGS HAVE BEEN DEVELOPED FROM INFORMATION MADE AVAILABLE, COMPLETENESS AND ACCURACY OF LOCATION AND DEPTH OF UTILITIES AND FACILITIES CANNOT BE GUARANTEED. THE CONTRACTOR IS TO VERIFY THE DEPTH AND LOCATION OF ALL UTILITIES AND FACILITIES BEFORE THE START OF WORK. UTILIZE HAND EXCAVATION AS REQUIRED. WORK IS ALSO TO BE DONE IN ACCORDANCE WITH THE STANDARDS OF THE UTILITY COMPANIES WHOSE FACILITIES ARE IN THE PROXIMITY OF THE WORK. OTHER UTILITIES MAY BE REQUIREMENTS OF PENNSYLVANIA ACT 38 (1991). THE CONTRACTOR SHALL CONTACT THE PENNSYLVANIA ONE CALL SYSTEM AT 1-800-242-1776, AT LEAST 3 DAYS PRIOR TO EXCAVATION.
- 11. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE AND LOCAL CODES. AND ALL REGULATIONS APPLIETMENT TO THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970. ALL WORK SHALL BE DONE IN ACCORDANCE WITH PROJECT SPECIFICATIONS INCLUDING CURRENT APPLICABLE STANDARDS AND REQUIREMENTS. WHERE ANY STANDARDS SEEM IN CONFLICT WITH THESE DRAWINGS, NOTIFY THE DESIGN ENGINEER AND CONSTRUCTION MANAGER FOR DIRECTION PRIOR TO PROCEEDING WITH WORK.
- 12. CONTRACTORS SHALL HAVE ALL REQUIRED SUBMITTAL APPROVALS PRIOR TO BEGINNING WORK OR ORDERING MATERIALS.
- 13. CONTRACTORS SHALL VERIFY ALL DIMENSIONS, INVERTS, ELEVATIONS, AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH THE WORK OR PROCUREMENT OF MATERIALS. VARIATIONS BETWEEN DRAWINGS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED PRIOR TO PROCEEDING WITH THE WORK
- 14. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY, PROCEDURES, MEANS AND METHODS, SEQUENCING, AND COORDINATION.
- 15. ALL WORK SHALL BE PERFORMED BY QUALIFIED, EXPERIENCED PERSONNEL.
- 16. CONTRACTOR SHALL NOTIFY THE OWNER OF PREEXISTING CONDITIONS OF DETERIORATION IN AREAS OF WORK THAT ARE UNCOVERED OR EXPOSED DURING
- 17. FIELD CHANGES REQUIRE PRIOR DESIGN ENGINEERING REVIEW AND WRITTEN CONFIRMATION.
- 18. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR TO ANY SIDEWALKS, LAWN, TREES. PAVING, AND OTHER IMPROVEMENTS DISTURBED OR DAMAGED BY DEMOLITION ACTIVITIES PROPOSED HEREIN.
- 19. CONTRACTOR SHALL PROVIDE PROPER TEMPORARY BRACING AND SHORING OF ALL CONSTRUCTION TO REMAIN OR DEMOLITION WORK IN PROGRESS.
- 20. CONTRACTOR SHALL PROVIDE LAYOUT, LINE AND GRADE UNLESS OTHERWISE
- 21. CONTRACTOR SHALL NOTIFY THE OWNER OF ANY DISCREPANCIES WITHIN THE DRAWINGS, SPECIFICATIONS, CODES OR STANDARDS FOR CORRECTIVE ACTION PRIOR TO START OF WORK.

22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND PROTECTION

OF VEHICULAR AND PEDESTRIAN TRAFFIC. ALL TRAFFIC CONTROL MEASURES SHALL

BE IN ACCORDANCE WITH LOCAL, PENNDOT & OSHA REGULATIONS. 23. CONTRACTOR SHALL PROVIDE PROTECTION FOR EXISTING UTILITIES UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL IMMEDIATELY REPAIR ANY UTILITY LINE INTERRUPTION AT NO ADDITIONAL CONTRACT COST. THE CONTRACTOR SHALL

DURING THE WORK TO INSURE AGAINST DAMAGE AT NO ADDITIONAL COST.

PROVIDE ADEQUATE PROTECTION AND SUPPORT FOR ALL UTILITIES EXPOSED

- 24. CONTRACTOR SHALL PROVIDE TEMPORARY DEWATERING OF EXCAVATIONS THROUGHOUT THE DURATION OF CONTRACT AT NO ADDITIONAL COST.
- 25. EXISTING UTILITIES SHOWN ARE BASED ON AVAILABLE DATA. DUE TO THE POTENTIAL LACK OF COMPLETE OR ACCURATE DATA REGARDING EXISTING ONSITE AND OFFSITE UTILITIES, THE CONTRACTOR SHALL ASSESS AVAILABLE DATA, SHALL REQUEST UTILITY COMPANY MARKOUTS. SHALL COORDINATE WITH AFFECTED UTILITY COMPANIES, AND SHALL DIG TEST PITS AT ALL PROPOSED UTILITY CROSSING LOCATIONS SO THAT FLEVATIONS CAN BE TAKEN TO ASSESS POTENTIAL CONFLICTING PIPES/UTILITIES PRIOR TO ANY PROPOSED UTILITY CONSTRUCTION. IF UNEXPECTED UTILITY LOCATIONS OR ELEVATIONS OR PIPE CONFLICTS ARE ENCOUNTERED DURING CONSTRUCTION, OR IF TEST PITS REVEAL POTENTIAL CONFLICT, DESIGN ENGINEER SHALL BE NOTIFIED SO THAT ELEVATIONS AND LOCATIONS (WHERE NECESSARY) OF AFFECTED UTILITIES CAN BE OBTAINED TO FACILITATE NECESSARY DESIGN ADJUSTMENTS.
- 26. REMOVAL OF EXISTING UTILITIES SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES.
- 27. REFER TO THE SITE / RECORD PLAN FOR ADDITIONAL NOTES.
- 28. ALL SIDEWALKS, CROSSWALK, TRAILS, ENTRANCES, AND RAMPS TO BE BUILT IN ACCORDANCE WITH ADA STANDARDS. MAXIMUM LONGITUDINAL SLOPE TO BE 5%. MAXIMUM CROSS SLOPE TO BE 2%. IT IS RECOMMENDED TO CONSTRUCT CROSS SLOPES AT 1.5% AND LONGITUDINAL SLOPES AT 4.9% TO ALLOW FOR CONSTRUCTION TOLERANCE.
- 29. REFER TO ADA CURB RAMP CONSTRUCTION DETAILS AND ADA ACCESSIBILITY PLAN FOR ADDITIONAL INFORMATION SPECIFIC TO CURB RAMP AND ACCESSIBLE ROUTE GRADING.

PLACEMENT OF FILL NOTES:

- 1. BACKFILLING, TO THE SUBGRADE ELEVATION, SHALL BE DONE IN LAYERS OF SIX (6) TO EIGHT (8) INCHES AND EACH LAYER SHALL BE THOROUGHLY TAMPED BY AN APPROVED MECHANICAL TAMPER TO A MINIMUM DENSITY OF 95% AT OPTIMUM MOISTURE AS DETERMINED BY ASTM D-698 OR AASHTO T-99 WITH SUITABLE BACKFILL MATERIAL. BACKFILLING OR TAMPING WITH TRENCHING MACHINES IS PROHIBITED.
- 2. THE FILL MATERIAL SHALL CONTAIN THE PROPER MOISTURE CONTENT TO OBTAIN THE REQUIRED COMPACTION. WETTING OR DRYING OF THE MATERIAL OR ANY OTHER MANIPUALTION SHALL BE REQURIED TO SECURE UNIFORM MOSITURE CONTENT THROUGHOUT THE LAYER. IF THE MATERIAL IS TOO WET TO PERMIT PROPER COMPACTION, ALL WORK ON PORTIONS THUS AFFECTED SHALL BE DELAYED UNTIL THE WET MATERIAL HAS EITHER DRIED TO THE MOISTURE CONTENT OR HAS BEEN REMOVED. A LAYER OF FILL SHALL NOT BE ADDED UNTIL THE PREVIOUS LAYER HAS ATTAINED THE REQUIRED PERCENT COMPACTION.
- 3. SUITABLE BACKFILL MATERIAL IS MATERIAL CONTAINING NO DEBRIS, ORGANIC MATTER, FROZEN MATERIAL OR LARGE ROCKS OR STONES WITH A DIAMETER OF GREATER THAN ONE-HALF THE THICKNESS OF THE COMPACTED LAYERS BEING PLACED. IN ADDITION, BACKFILL MATERIAL SHALL NOT CONTAIN VEGETATION, MASSES OF ROOTS, INDIVIDUAL ROOTS, CINDERS, ASHES, REFUSE, BOULDERS, AND ANY OTHER MATERIAL WHICH IN THE OPINION OF THE ENGINEER, IS

EXISTING DATA SOURCE NOTES:

- TOPOGRAPHIC FEATURES SHOWN FROM ACTUAL FIELD SURVEY BY ASH ASSOCIATES DURING JUNE AND JULY OF 2021 AND IS LIMITED TO SHOWING FEATURES OF INTEREST ONLY. CONTOUR LINES IN AREAS OF DEBRIS PILES AND OTHER STOCKPILES (WOOD, ASPHALT, ETC.) MAY NOT BE ACCURATE AS ACTUAL GROUND COULD NOT BE LOCATED. NOT ALL FILL
- VERTICAL DATUM IS NAVD 1988 AND ESTABLISHED BY GPS OBSERVATIONS REFERENCED TO THE NGS CORS NETWORK. SITE BENCHMARK IS A MAGNETIC NAIL SET AS SHOWN. SITE BENCHMARK FLEVATION=460 10'
- HORIZONTAL DATUM IS NAD 83, STATE PLANE COORDINATES OF PENNSYLVANIA AND ESTABLISHED GPS OBSERVATIONS REFERENCED TO THE NGS CORS NETWORK.
- 4. THE RESULTS OF THE SURVEY DIFFER SIGNIFICANTLY FROM THE RECORD INFORMATION CONTAIN IN INSTRUMENT No. 1993068585 (DEED BOOK 5101 PAGE 0796) AND IN COMMITMENT FOR TITLE INSURANCE, COMMITMENT NO.: PAFA21-3007 GD, THE METES FROM THESE DOCUMENTS ARE REFLECTED ON THE PLAN AS FOLLOWS: (1,138 50') (1) S 43° 10' W 69 PERCHES
- (COURSE No.) BEARING DISTANCE (CONVERSION OF PERCHES TO FEET) (SIGNIFYING DEED) 5. THIS PLAN WAS MADE AS PER INSTRUCTIONS OF APPLICANT AND WITHOUT THE BENEFIT OF A TITLE REPORT. OTHER RIGHTS TO PROPERTY MAY EXIST.
- 6. THIS PLAN DOES NOT SHOW ENVIRONMENTAL HAZARDS, OR ARCHEOLOGICAL SITES.
- 7. ENTIRE SITE IS LOCATED IN FLOOD ZONE "X" AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. PER FEMA FLOOD INSURANCE RATE MAP (FIRM) OF MONTGOMERY COUNTY, PANEL 245 OF 451, MAP # 42091C0245G, REVISED MARCH 2,
- 8. ULTIMATE RIGHT OF WAY LINES FOR W GERMANTOWN PIKE AND NORTH PARK AVENUE ARE SHOWN FOR SETBACK PURPOSES ONLY.

STORM SEWER NOTES

- ROOF LEADERS SHALL BE CONNECTED DIRECTLY TO THE PROPOSED STORMWATER MANAGEMENT SYSTEM OR DIRECTED VIA SURFACE GRADES TO INLETS/STORMWATER MANAGEMENT SYSTEMS. LEAF TRAPS, GUTTER GUARDS, AND/OR CLÉANOUTS TO BE PROVIDED TO PREVENT CLOGGING BY UNWANTED DEBRIS.
- ALL STORM CONVEYANCE PIPE SHALL BE SMOOTH LINED DOUBLE WALLED HIGH DENSITY POLYETHYLENE PIPE (HDPE), UNLESS OTHERWISE SPECIFIED. ALL ROOF LEADERS SHALL BE SCHEDULE 40 PVC.
- ALL DETENTION AND RETENTION BASIN EMBANKMENTS SHALL BE PLACED IN 8 INCH MAXIMUM LIFTS TO A MINIMUM 95% DRY DENSITY. PRIOR TO PROCEEDING TO THE NEXT LIFT, COMPACTION SHALL BE CHECKED BY THE MUNICIPAL ENGINEER OR AN APPROVED GEOTECHNICAL ENGINEER WHO SHALL PROVIDE THE MUNICIPAL ENGINEER WITH A WRITTEN REPORT. COMPACTION TESTS SHALL BE PERFORMED USING THE MODIFIED PROCTOR METHOD IN ACCORDANCE WITH ASTM D-1577-07. COMPACTION TESTS SHALL BE RUN ON THE LEADING AND TRAILING EDGE AS WELL AS THE TOP OF THE BERM.
- 4. ANTI-SEEP COLLARS SHALL BE INSTALLED AROUND THE PIPE BARREL WITHIN THE NORMAL SATURATION ZONE OF THE DETENTION BASIN BERMS. THE ANTI-SEEP COLLARS AND THEIR CONNECTIONS TO THE PIPE BARRELS SHALL BE WATERTIGHT THE ANTI-SEEP COLLARS SHALL EXTEND A MINIMUM OF TWO FEET BEYOND THE OUTSIDE OF THE PRINCIPAL PIPE BARREL. THE MAXIMUM SPACING BETWEEN COLLARS SHALL BE FOURTEEN (14) TIMES THE MINIMUM PROJECTION OF THE COLLAR MEASURED PERPENDICULAR TO THE PIPE. A MINIMUM OF TWO (2) ANTI-SEEP COLLARS SHALL BE INSTALLED ON EACH OUTLET PIPE.
- IF A CONFLICT ARISES DURING THE INSTALLATION OF ANY PART OF THE STORM SEWER SYSTEM THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY IN WRITING.
- 6. LANDSCAPING, FENCES AND STRUCTURES SHALL BE PLACED A MINIMUM OF 5 FEET AWAY FROM STORM SEWERS OUTSIDE OF THE RIGHT OF WAY OF STREETS.
- RFFER TO SITE / RECORD PLAN FOR ADDITIONAL NOTES. 8. ALL STORM SEWER INLETS MUST BE IDENTIFIED WITH A STORM DRAIN MARKER. STORM DRAIN MARKERS SHALL BE STAINLESS STEEL AFFIXED TO THE INLET HOOD WITH ADHESIVE, RIVETS, OR BOLTS, (MARKER MAY BE BOLTED TO THE GRATE IN OFF-ROAD LOCATIONS). MARKER SHALL HAVE A MINIMUM DIAMETER OF 3 1 AND INCLUDE "NO DUMPING-DRAINS TO WATERWAY" AND A FISH SYMBOL. ALTERNATE DESIGNS/SIZES MAY BE USED IF APPROVED BY THE TOWNSHIP.

RECORD NOTES

TO THIS BLANKET EASEMENT.

THE PLAN RECORDED WITH THE

DEEDS IS NOT TO SCALE. AN

RECORDED PLANS IS ON FILE

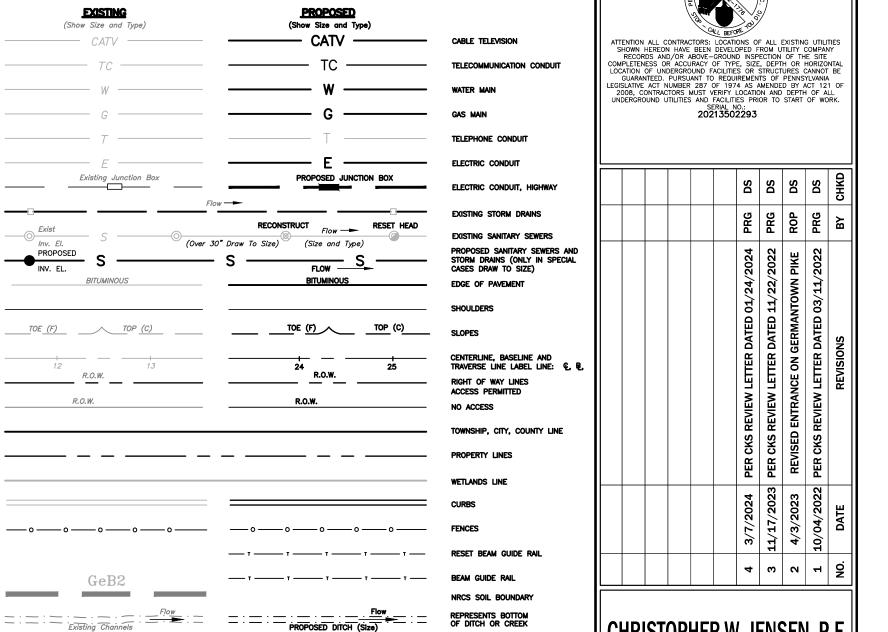
WORCESTER TOWNSHIP.

MONTGOMERY COUNTY RECORDER OF

ACCURATE, TO SCALE, COPY OF THE

- 1. PLAN SHEETS IN THIS SET, WHICH ARE NOT BEING RECORDED, WHICH ARE ON FILE AT WORCESTER TOWNSHIP SHALL BE CONSIDERED PART OF THE FINAL RECORD PLAN AS IF RECORDED WITH SAME.
- 2. A BLANKET EASEMENT IS HEREBY PROPOSED ACROSS THE ENTIRE SITE FOR STORMWATER MANAGEMENT INSPECTIONS AND MAINTENANCE. WORCESTER TOWNSHIP IS DEEMED A PARTY

STANDARD LEGEND



LEVEL LINE

SITE STATISTICS

 APPLICANT/OWNER OF RECORD: BT WORCESTER, LLC 200 DRYDEN ROAD, SUITE 2000 DRESHER, PA 19025 (215) 938-7300

INFO@BETINVESTMENTS.COM

2. EXISTING PROPERTY IDENTIFICATION TAX MAP PARCEL REFERENCE - TMP 67-04-56 APN: 67-00-01606-001 RECORDED DEED DATA REFERENCE - CHESTER COUNTY, DEED BOOK 5101, PAGE 0796 TRACT LOCATION: 2974 GERMANTOWN PIKE

WORCESTER TOWNSHIP, MONTGOMERY COUNTY, PENNSYLVANIA 3. DEVELOPABLE AREA SUMMARY GROSS TRACT AREA=
PUBLIC RIGHT OF WAY =
ULTIMATE RIGHT OF WAY =

ITILITY EASEMENTS =

EXISTING USE: MOTOR VEHICLE SALES, MOTOR VEHICLE REPAIR, RESTAURANT, RETAIL & CONTRACTOR YARD

PROPOSED USE: MULTI-FAMILY RESIDENTIAL

DEVELOPABLE AREA =

EXISTING - PUBLIC SEWER SERVICE PROVIDED BY WORCESTER TOWNSHIP PROPOSED - PUBLIC SEWER SERVICE PROVIDED BY WORCESTER TOWNSHIP EXISTING - PUBLIC WATER SERVICE PROVIDED BY PA AMERICAN WATER CO NORRISTOWN DIST PROPOSED — PUBLIC WATER SERVICE PROVIDED BY PA AMERICAN WATER CO NORRISTOWN DIST

ACRES ACRES ACRES ACRES ACRES ACRES 0.000 0.000 0.000

ACRES ACRES

SEWER SERVICE

ZONING DATA EXISTING ZONING DISTRICT CLASSIFICATION: COMMERCIAL (C) / MULTI RESIDENTIAL USE OVERLAY DISTRICT (MR)

ZONING (BY DISTRICT:)	COMMERCIAL (C)	MULTI RESIDENTIAL (MR)	
	REQUIRED	REQUIRED	<u>PROPOSED</u>
MINIMUM LOT AREA	25,000 S.F.	5.0 ACRES	13.94 ACRES
MINIMUM LOT WIDTH	100 FEET	300 FEET	544 FEET
MAXIMUM BUILDING COVERAGE	30%	20%	9%
MAXIMUM IMPERVIOUS COVERAGE	50%	50% *	42%
MINIMUM FRONT YARD SETBACK	45 FEET	100 FEET	117.99 FEET
MINIMUM SIDE YARD SETBACK	20 FEET	75 FEET	N.A.
MINIMUM REAR YARD SETBACK	50 FEET	75 FEET	140 FEET
MINIMUM DISTRICT YARD SETBACK	75 FEET	N.A.	140 FEET
MAXIMUM BUILDING HEIGHT / STORIES	30 FEET / 2 STORIES	45 FEET / 4 STORIES *	45 FEET / 4 STORIES
MAXIMUM BUILDING SIZE (LENGTH)	N.A.	200 FEET *	200 FEET
MAXIMUM ACCESSORY STRUCTURE HEIGHT / STORIES	N.A.	15 FEET / 1.5 STORIES *	N.A.
MAXIMUM SIGN HEIGHT	20 FEET	N.A.	< 20 FEET
MAXIMUM DENSITY	N.A.	12 D.U./ACRE	11.76 D.U. / ACRE
MINIMUM BUILDING TO BUILDING SEPARATE	N.A.	30 FEET ***	75 FEET
MINIMUM PARKING SETBACK (FRONT/REAR) N. PARK AVENUE	20 FEET	75 FEET (25 FEET **)	25 FEET **
MINIMUM PARKING SETBACK (FRONT/REAR) GERMANTOWN PIKE	20 FEET	75 FEET (20 FEET **)	20 FEET **
MINIMUM PARKING SETBACK (SIDE)	5 FEET	75 FEET	75 FEET
MINIMUM OFF-STREET PARKING	N.A.	2 SPACES / UNIT *	2.61 SPACES/ UNIT
* - ORDINANCE 2021-285 AMENDMENT TO MR-MULTI-RESIDENTIAL DISTRIC	T CODE		
** DED ZONING ADDDOVAL DECEMED ON HIME 10 2000 (CEE DELOW)			

** - PER ZONING APPROVAL RECEIVED ON JUNE 16, 2022. (SEE BELOW)

*** - ORDINANCE 2021-285 SUCH MINIMUM DISTANCE CAN BE INCREASED TO NOT LESS THAN 75 FEET IF DETERMINED THAT THE FRONT OR REAR OF ANY SUCH BUILDING IS SUBSTANTIALLY PARALLEL TO THE FRONT OR REAR OF A SIMILARLY USED BUILDING

ZONING APPROVAL

WORCESTER TOWNSHIP.

THE ZONING HEARING BOARD OF WORCESTER TOWNSHIP ISSUED AN ORDER REGARDING APPLICATION ZHB 2022-08 ON JUNE 16, 2022. THE ZONING HEARING BOARD APPROVED THE FOLLOWING ZONING RELIEF:

1. A VARIANCE FROM SECTION 150-138A(4)(b) TO ALLOW INSTALLATION OF OUTFALL STRUCTURES WITH ASSOCIATED DISCHARGE PIPING AND SIDEWALK WITHIN THE FLOODPLAIN CONSERVATION DISTRICT. 2. A VARIANCE FROM SECTION 150-138B(11) TO ALLOW INSTALLATION OF OUTFALL STRUCTURES WITH ASSOCIATED DISCHARGE PIPING, AND SIDEWALK WITHIN THE

FLOODPLAIN CONSERVATION DISTRICT 3. A VARIANCE FROM SECTION 150-88(D) TO ALLOW A REDUCTION OF THE 75-FOOT PARKING SETBACK TO A 20-FOOT SETBACK ALONG GERMANTOWN PIKE AND A 25-FOOT SETBACK ALONG NORTH PARK AVENUE.

THE DECISION OR ORDER ISSUED BY THE ZONING HEARING BOARD IS SUBJECT TO THE FOLLOWING CONDITIONS.

- 1. THE APPLICANT SHALL CONSTRUCT THE MULTI-FAMILY DEVELOPMENT AS SHOWN ON THE PLANS MARKED AS EXHIBITS A-5 THROUGH A-8 2. THE APPLICANT SHALL COMPLY WITH ALL REQUIREMENTS OF THE WORCESTER TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE, EXCEPT TO THE EXTENT WAIVED BY THE BOARD OF SUPERVISORS.
- 3. THE APPLICANT SHALL INSTALL TREES AND LANDSCAPING ALONG GERMANTOWN PIKE AND PARK AVENUE TO THE SATISFACTION OF THE TOWNSHIP ENGINEER, THE TOWNSHIP PLANNING COMMISSION, AND THE BOARD OF SUPERVISORS. 4. THE APPLICANT SHALL APPLY FOR AND OBTAIN ALL APPLICABLE TOWNSHIP, COUNTY AND STATE PERMITS AND APPROVALS RELATIVE TO THE CONSTRUCTION AND USE IN
- 5. ALL USE AND DEVELOPMENT PERMITTED BY THIS DECISIONS SHALL CONFORM TO THE EXHIBITS AND TESTIMONY PRESENTED BY THE APPLICANT, UNLESS INCONSISTENT WITH ANY SPECIFIC CONDITIONS IMPOSED BY THIS BOARD, IN WHICH CASE THESE SPECIFIC CONDITIONS SHALL TAKE PRECEDENCE. 6. EXCEPT AS PERMITTED BY PRIOR DECISIONS OF THIS BOARD, THE USE OF SUBJECT PROPERTY SHALL OTHERWISE COMPLY WITH THE WORCESTER TOWNSHIP CODE, INCLUDING, BUT NOT LIMITED TO, ALL OTHER PROVISIONS OF ARTICLE XX OF THE ZONING ORDINANCE GOVERNING THE FLOODPLAIN CONSERVATION DISTRICT, AS WELL AS

ALL STORM WATER MANAGEMENT FENCING, SETBACK, PARKING, LIGHTING, SIGN AND NOISE REGULATIONS, AND ALL OTHER CODES, REGULATIONS AND ORDINANCES OF



TEL 215-282-7850

FAX 215-627-3459

OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

CGG/JPK/ROP CHECKED BY DRAWN BY PG/SR/ROP 1/27/22 SEE PLAN SCALE NOTE PROJ. NO.

BETI00056

DRAWING

PROFESSIONAL CHRISTOPHER W. JENSE ENGINEER / 🕽 NO. PE76464 龙

CHRISTOPHER W. JENSEN, P.E.

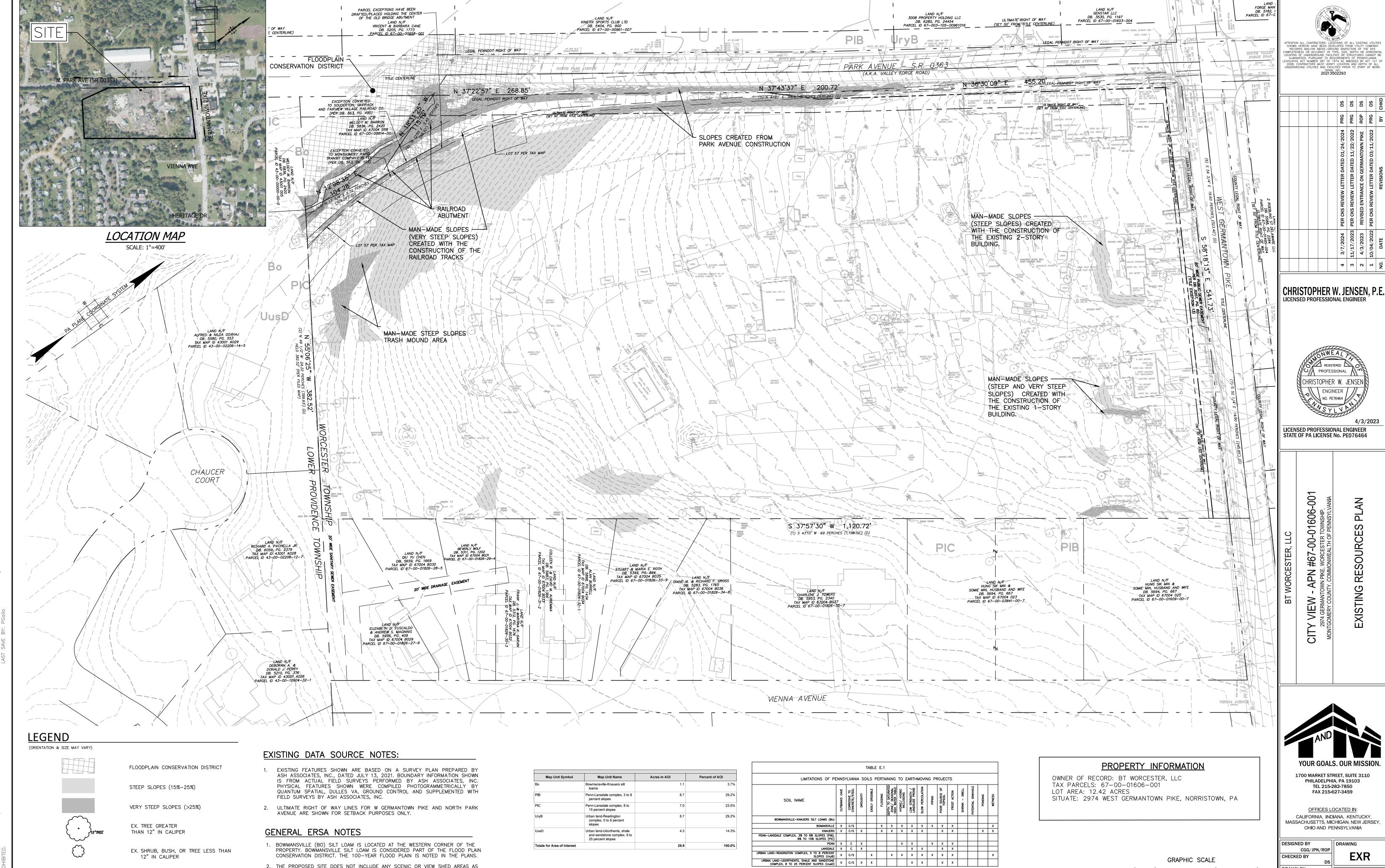
LICENSED PROFESSIONAL ENGINEER

4/3/2023 LICENSED PROFESSIONAL ENGINEER STATE OF PA LICENSE No. PE076464

909 0

AND





CONSERVATION DISTRICT. THE 100-YEAR FLOOD PLAIN IS NOTED IN THE PLANS.

2. THE PROPOSED SITE DOES NOT INCLUDE ANY SCENIC OR VIEW SHED AREAS AS

3. THE PROPOSED SITE DOES HAVE VERIFIED WETLAND AREAS. WETLANDS ARE

SHOWN IN THE TOWNSHIP MASTER PLAN.

DELINEATED IN THE PLANS.

4/3/2023

CHECKED BY

DRAWN BY

PG/SR/ROP SHEET

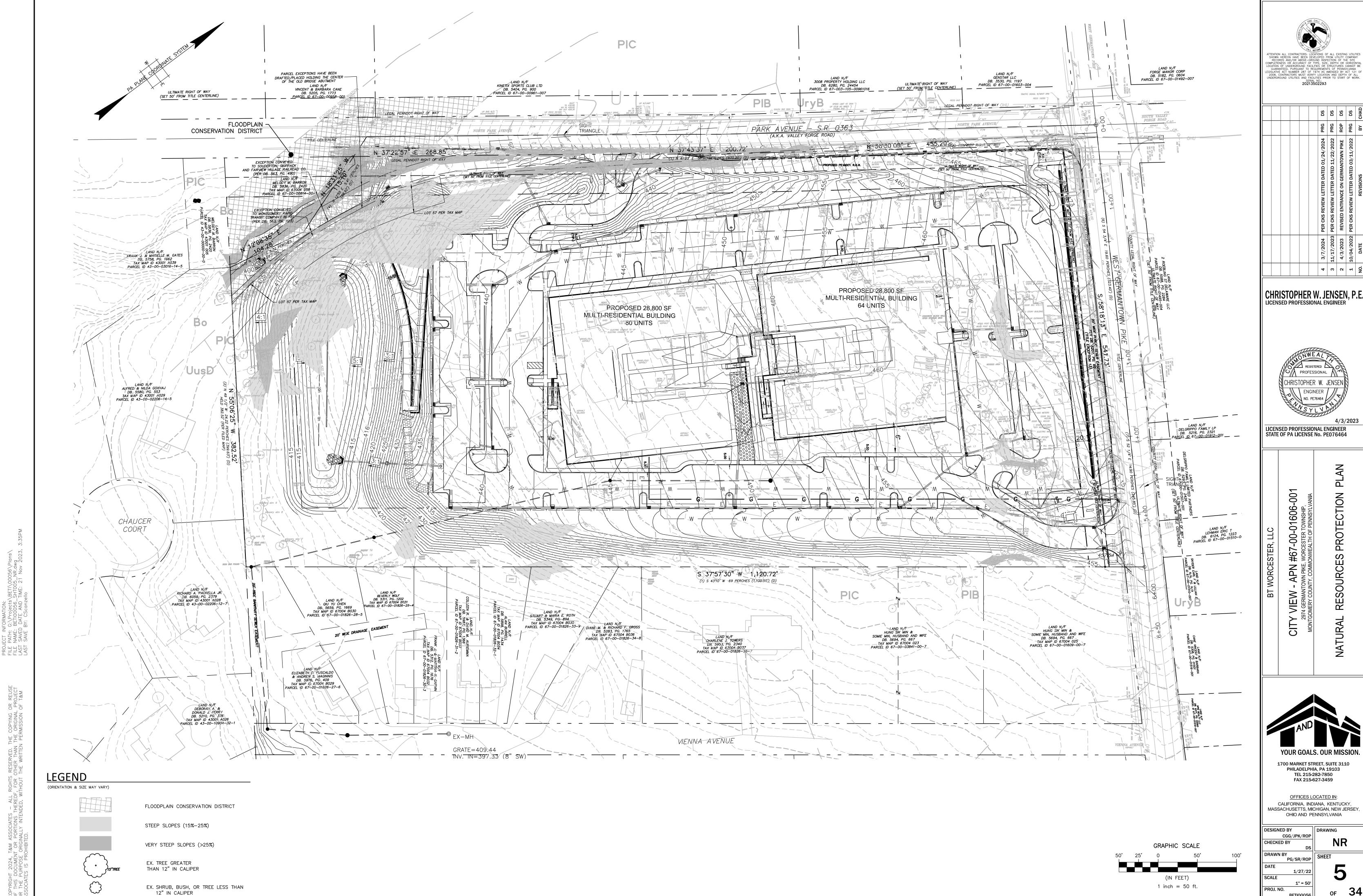
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OF

GRAPHIC SCALE

(IN FEET) 1 inch = 50 ft.

12" IN CALIPER



CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER

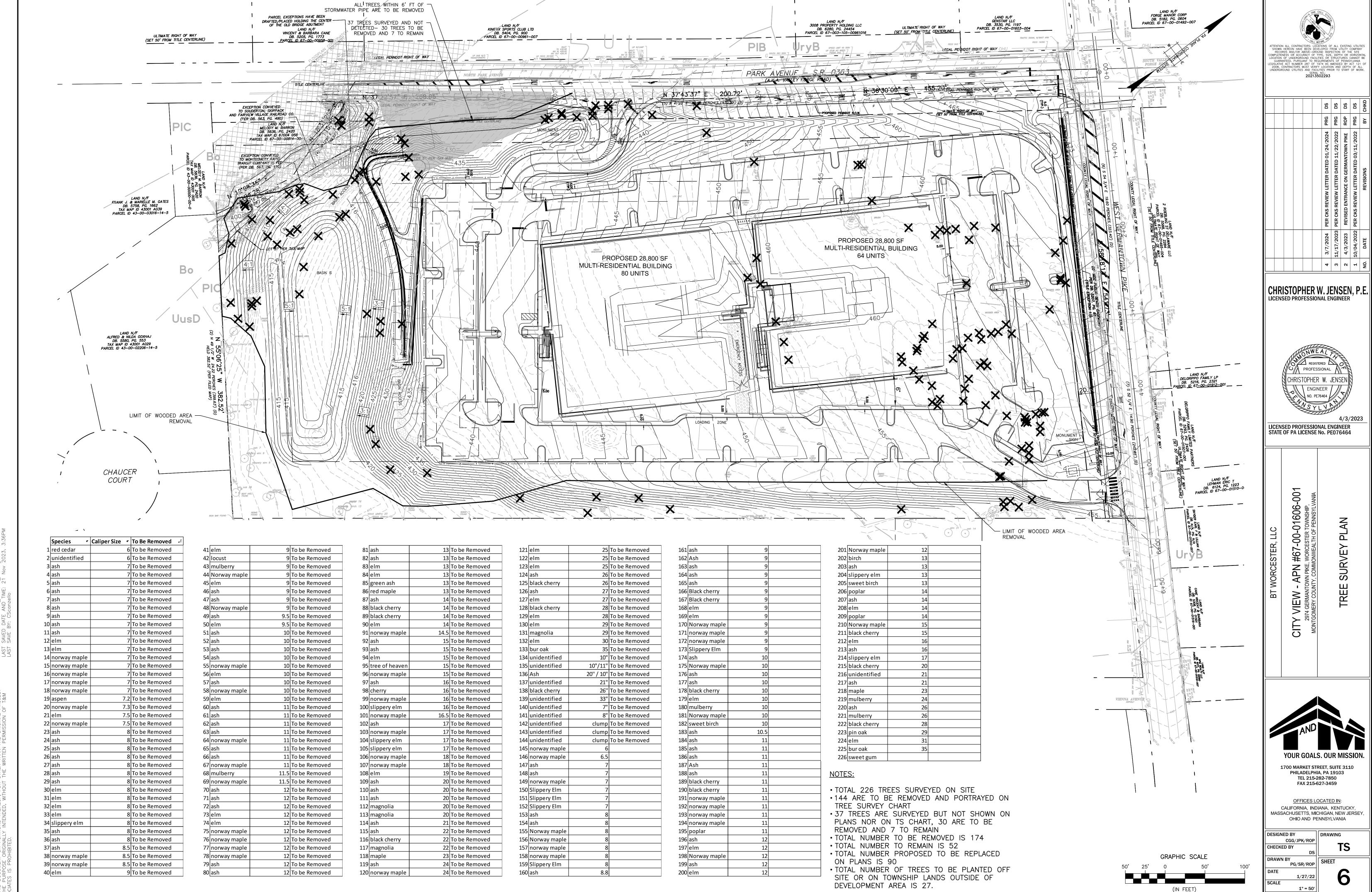


LICENSED PROFESSIONAL ENGINEER STATE OF PA LICENSE No. PE076464

1700 MARKET STREET, SUITE 3110 PHILADELPHIA, PA 19103 TEL 215-282-7850

CALIFORNIA, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

of **34** BETI00056



1 inch = 50 ft.

OF

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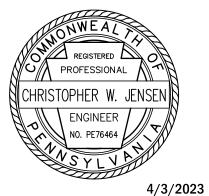


ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXIS SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILIT

ATTENTION ALL CONTRACTORS: LOCATIONS OF ALL EXISTING UTILIT SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPAN RECORDS AND/OR ABOVE-GROUND INSPECTION OF THE SITE COMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZON LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT GUARANTEED. PURSUANT TO REQUIREMENTS OF PENNSYLVANIA LEGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF AL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WOI SERIAL NO.: 20213502293

		PRG	PRG	ROP	PRG	ВУ	
		PER CKS REVIEW LETTER DATED 01/24/2024	11/17/2023 PER CKS REVIEW LETTER DATED 11/22/2022	REVISED ENTRANCE ON GERMANTOWN PIKE	10/04/2022 PER CKS REVIEW LETTER DATED 03/11/2022	REVISIONS	
		3/7/2024	11/17/2023	4/3/2023	10/04/2022	DATE	
		4	3	2	1	NO.	

CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER



LICENSED PROFESSIONAL ENGINEER STATE OF PA LICENSE No. PE076464

STATE OF PA LICENSE NO. PEO/6

CITY VIEW - APN #67-00-01606-001
2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP,
MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA
DEMOLITION PLAN



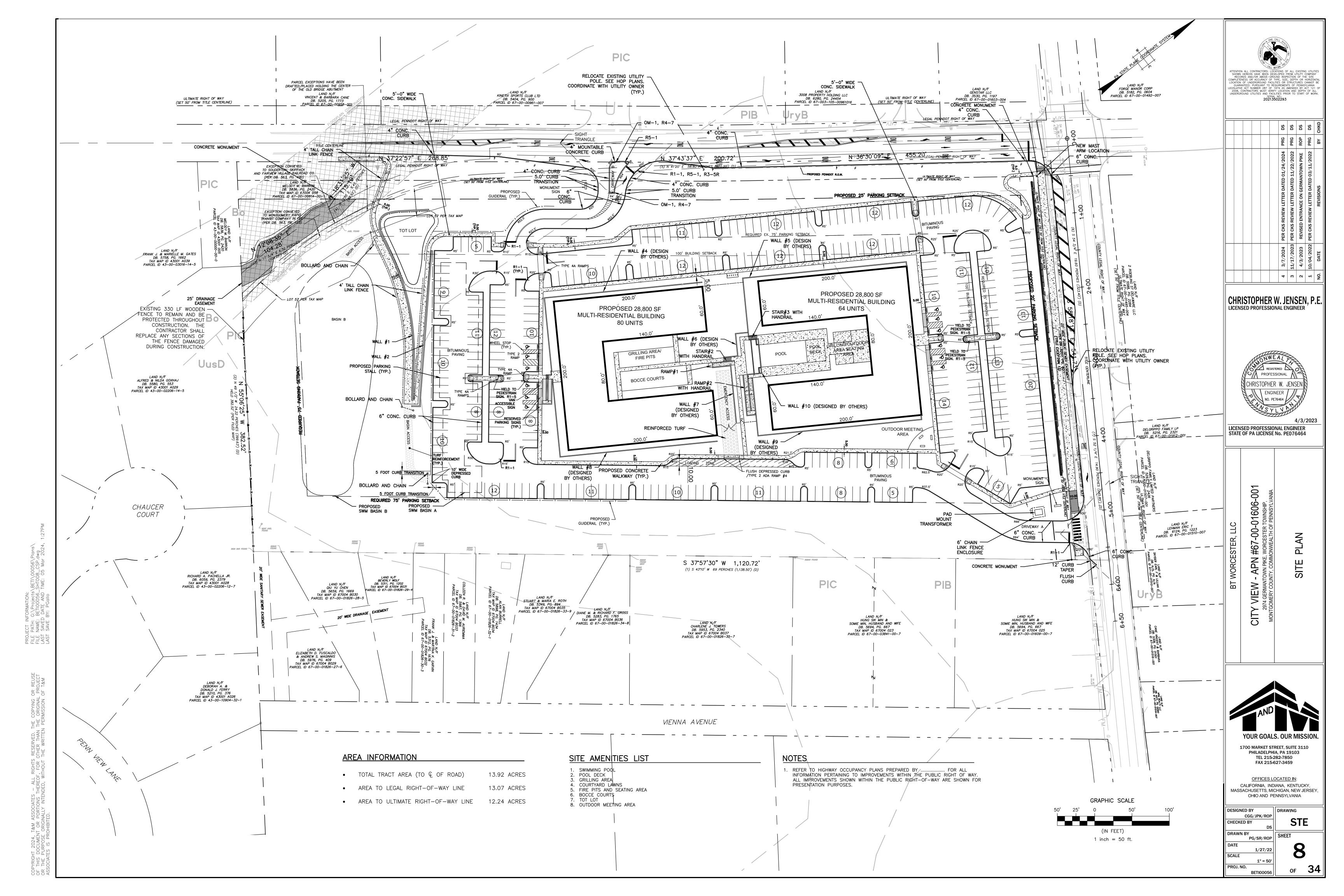
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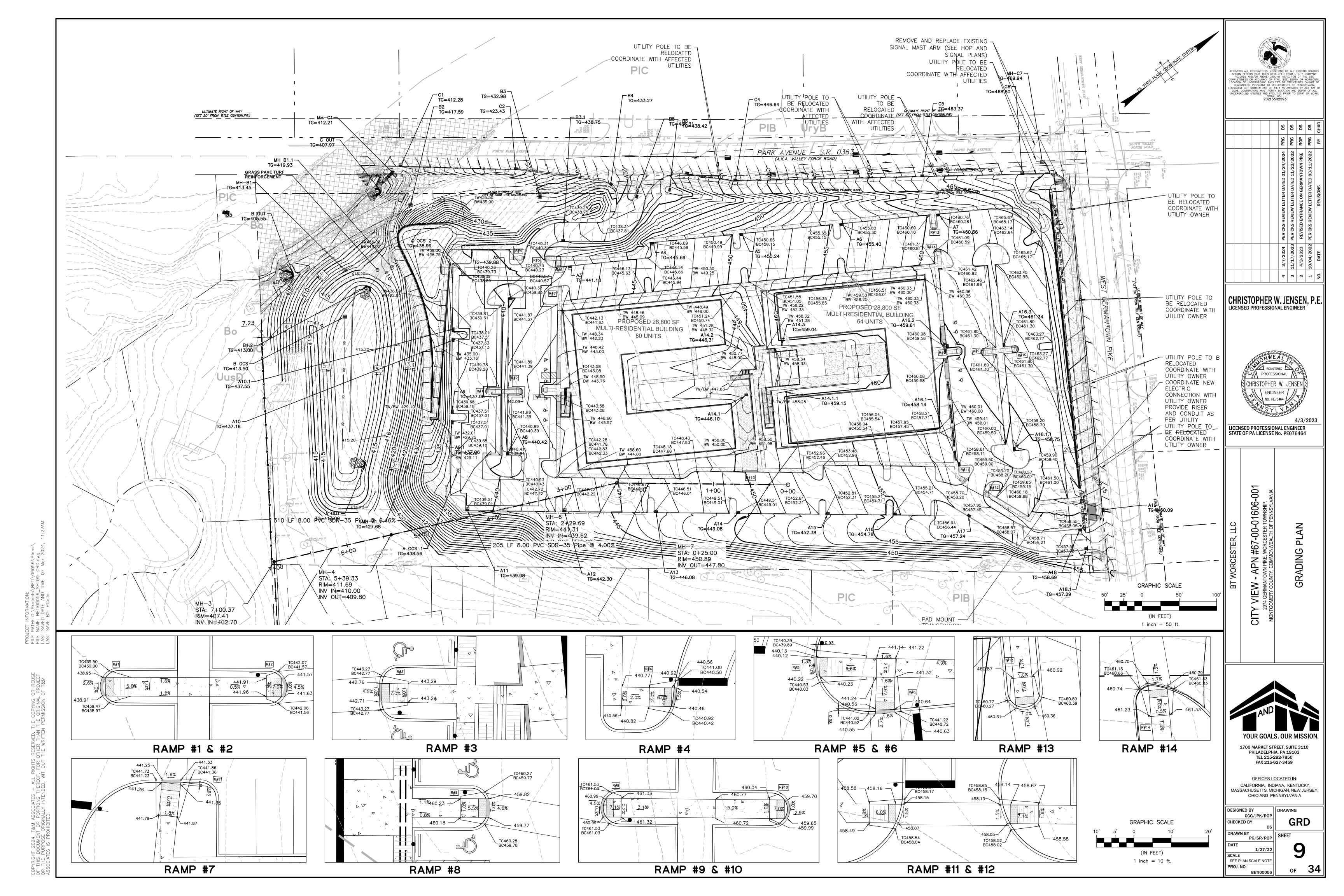
OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

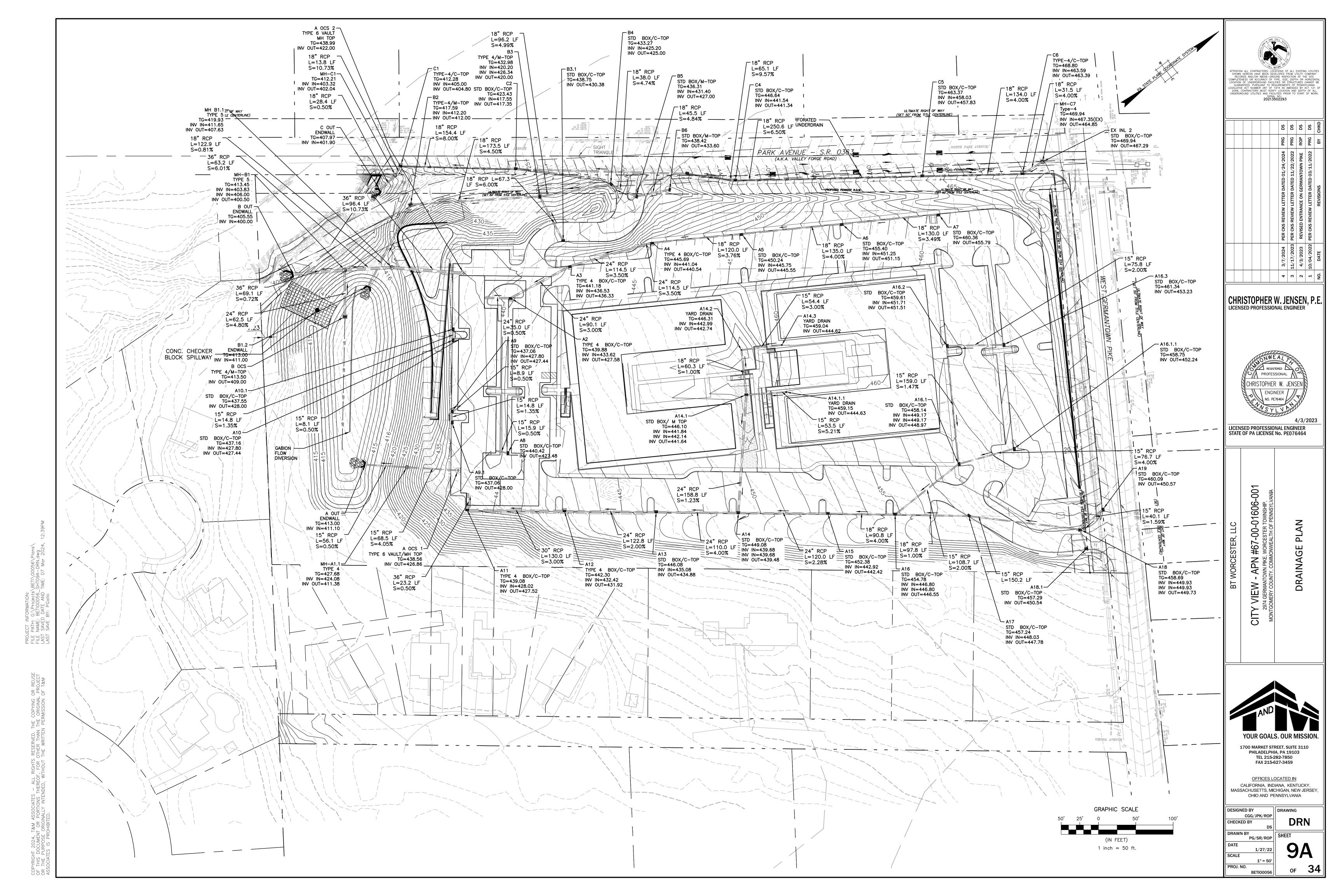
ESIGNED BY	DRAWING
CGG/JPK/ROP	
HECKED BY	DEM
DS	
RAWN BY	SHEET
PG/SR/ROP	SHEET
DATE	
1/27/22	
CALE	
1" = 50'	_

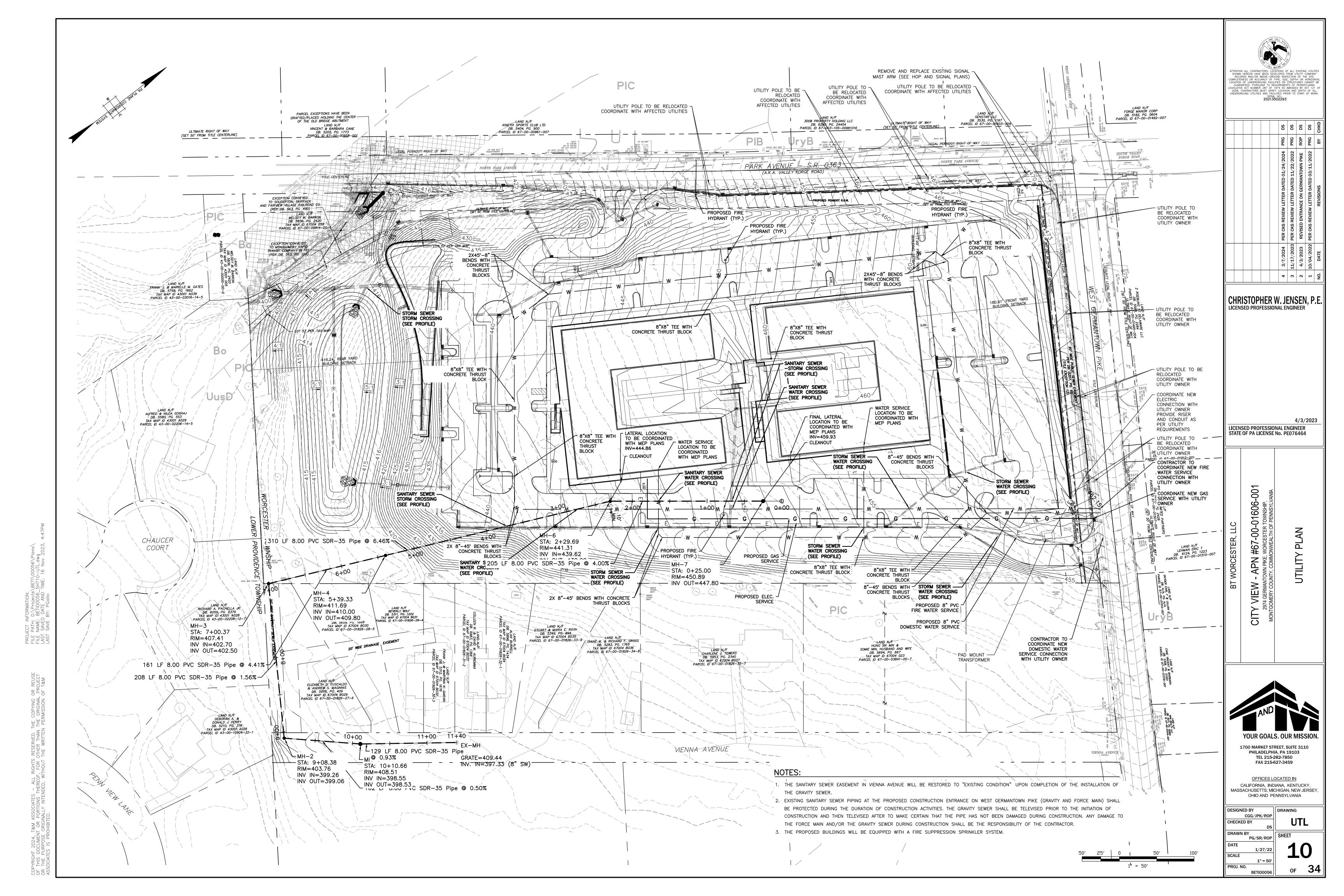
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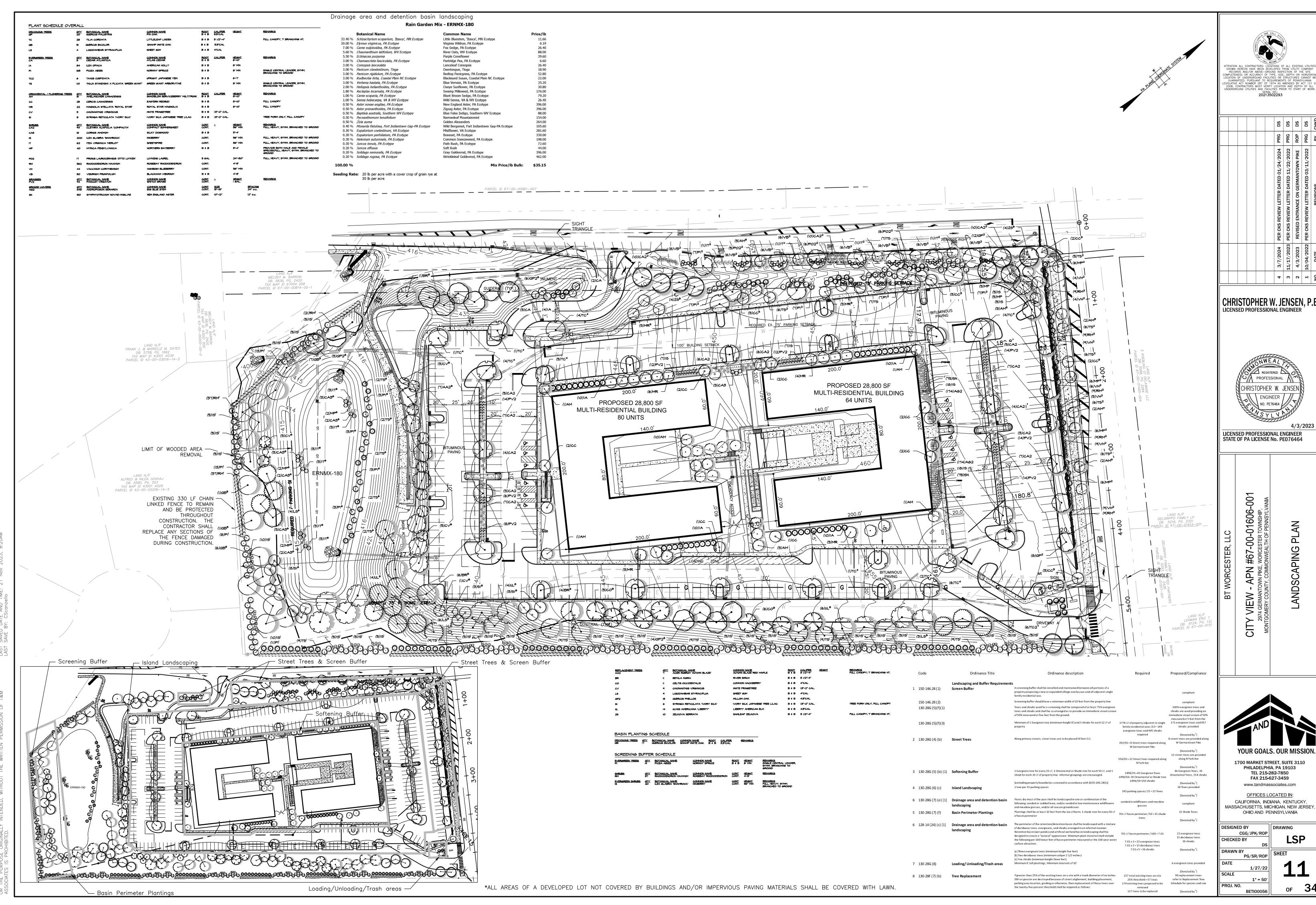
of **34**







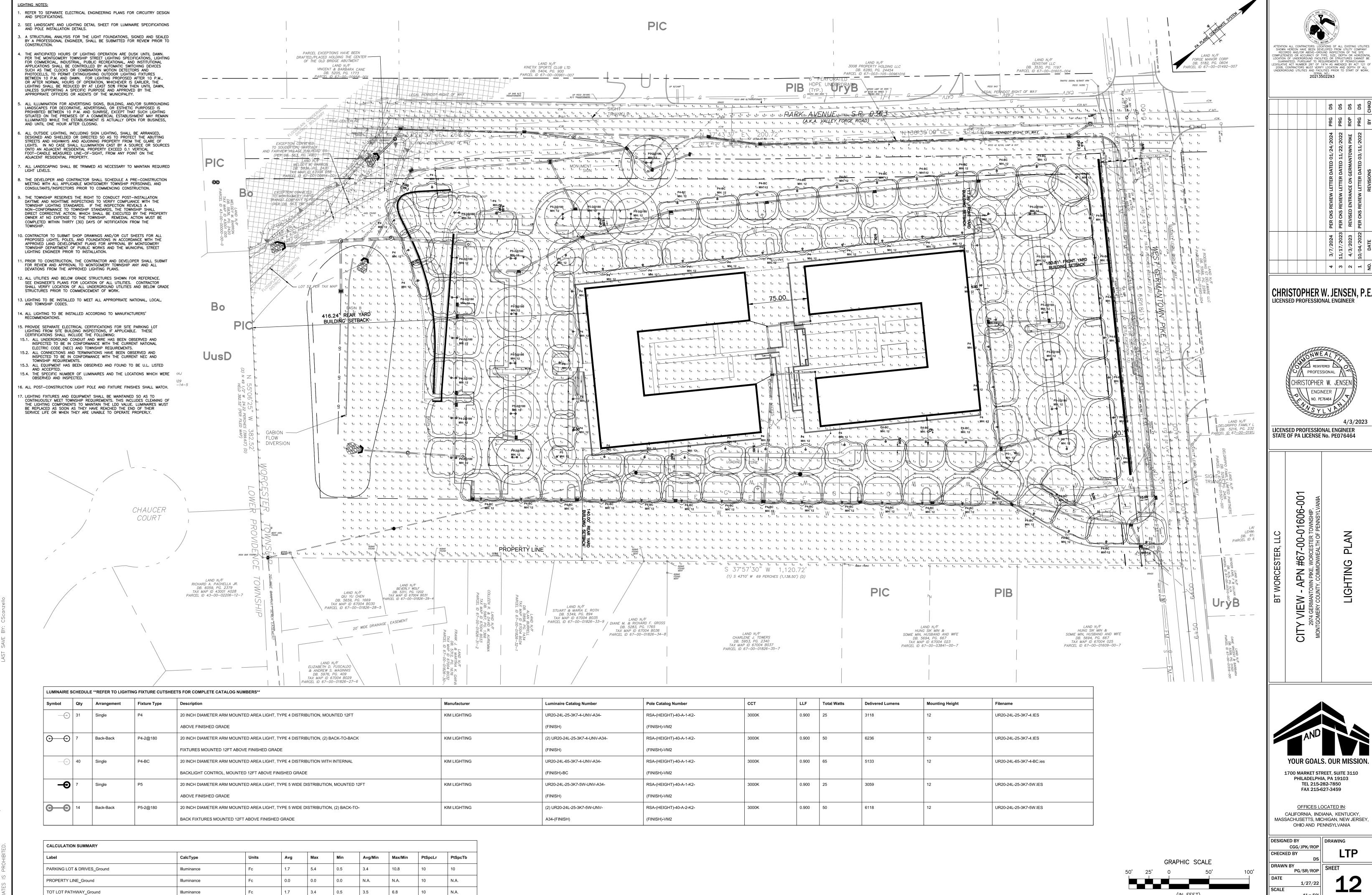




		PER CKS REVIEW LETTER DATED 01/24/2024	PER CKS REVIEW LETTER DATED 11/22/2022	REVISED ENTRANCE ON GERMANTOWN PIKE	10/04/2022 PER CKS REVIEW LETTER DATED 03/11/2022	REVISIONS
		3/7/2024	11/17/2023	4/3/2023	10/04/2022	DATE

CHRISTOPHER W. JENSEN, P.E.

SIGNED BY	DRAWING
CGG/JPK/ROP	
ECKED BY	l ISP
DS	
AWN BY PG/SR/ROP	SHEET
TE 1/27/22	11



TOT LOT_Ground

Illuminance

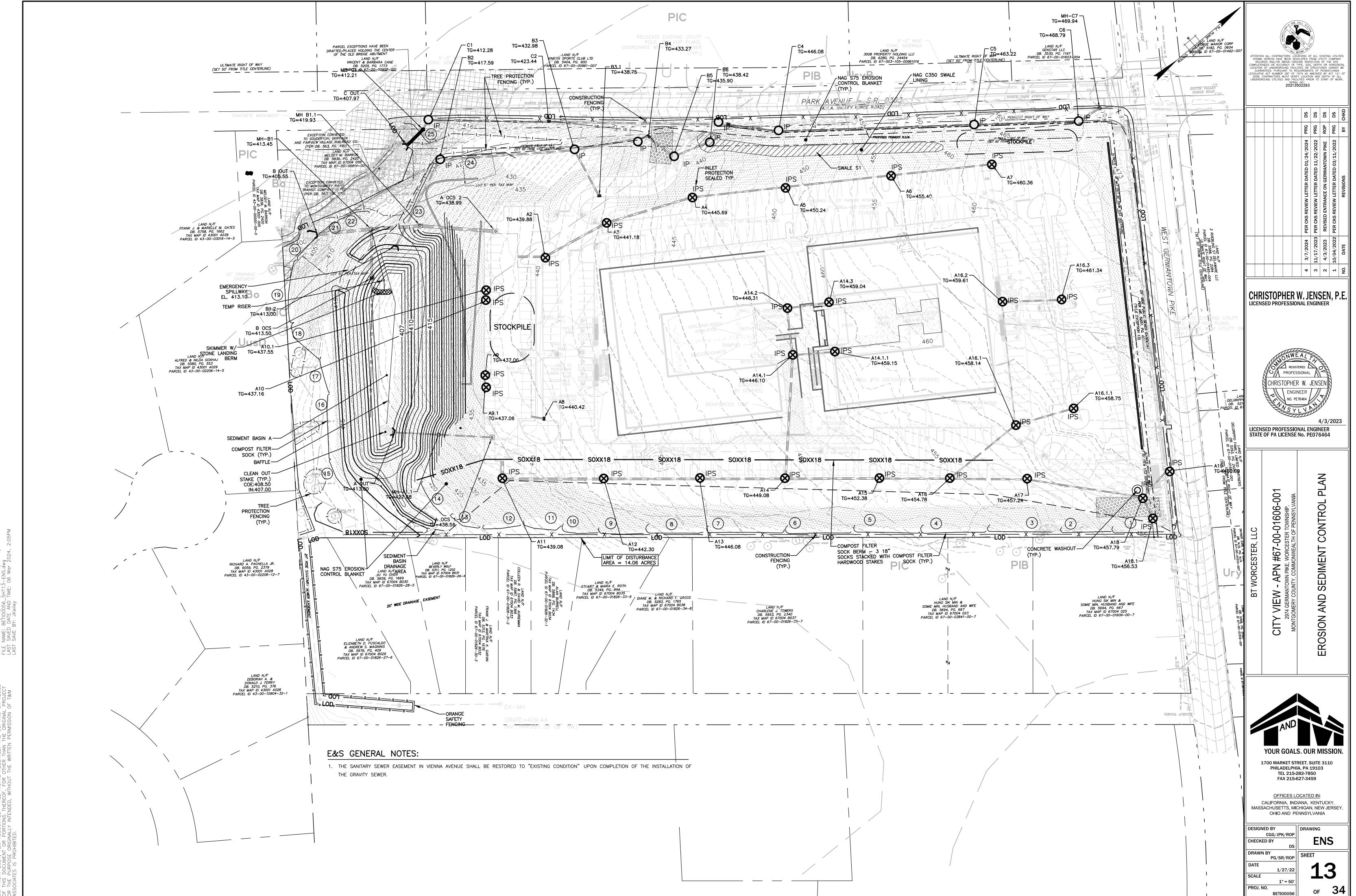
0.7

1 inch = 50 ft.

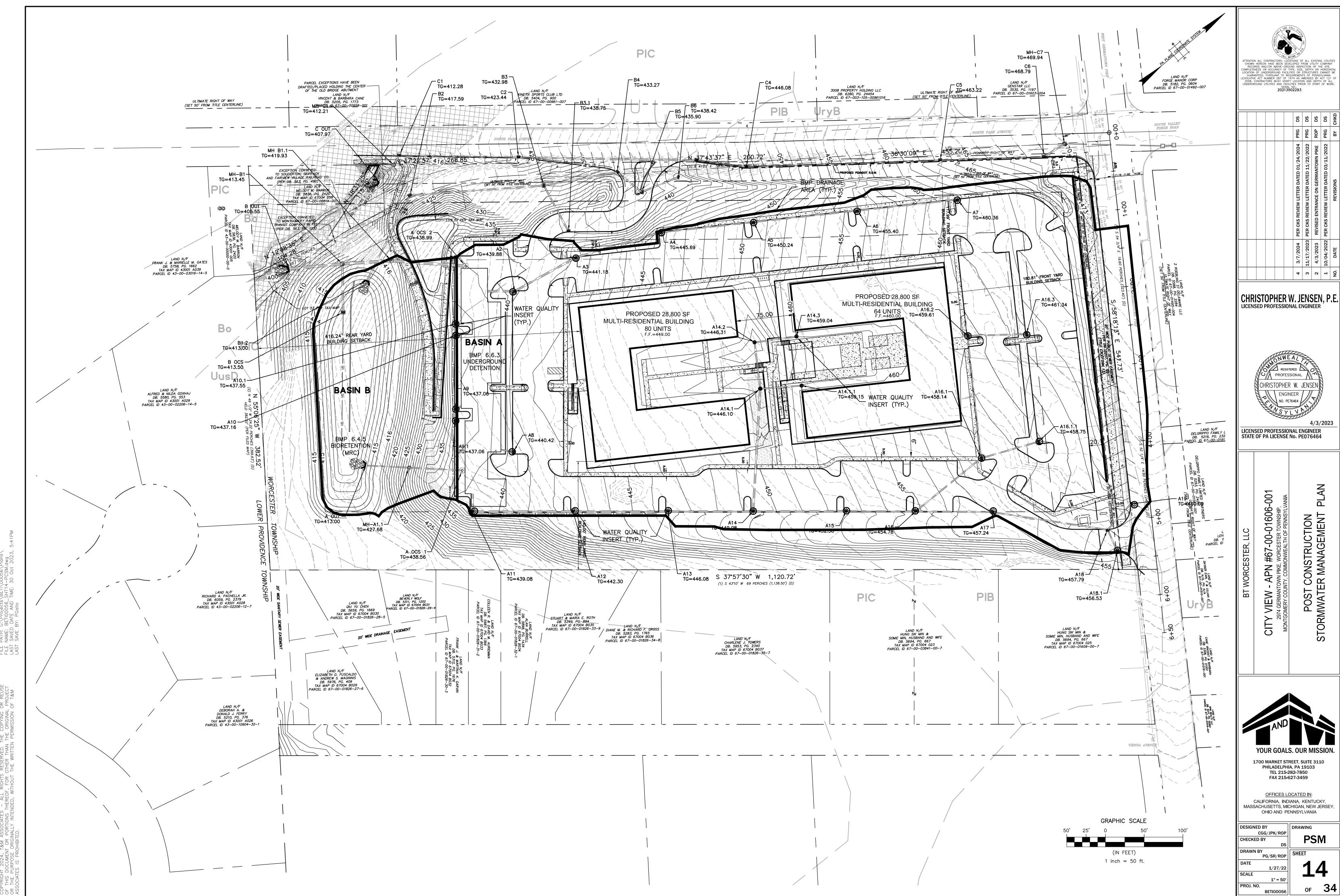
PG/SR/ROP SHEET

BETI00056

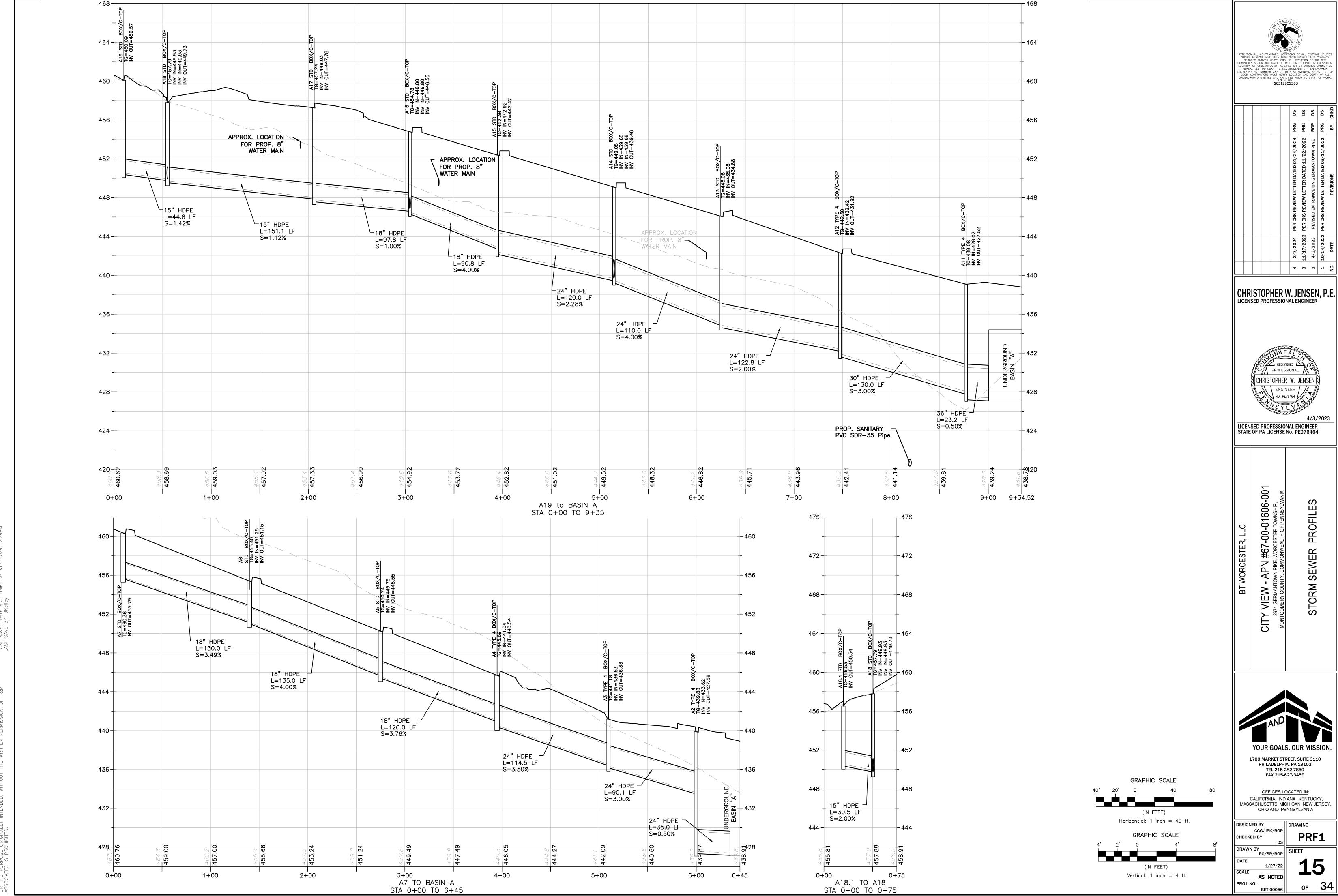
4/3/2023



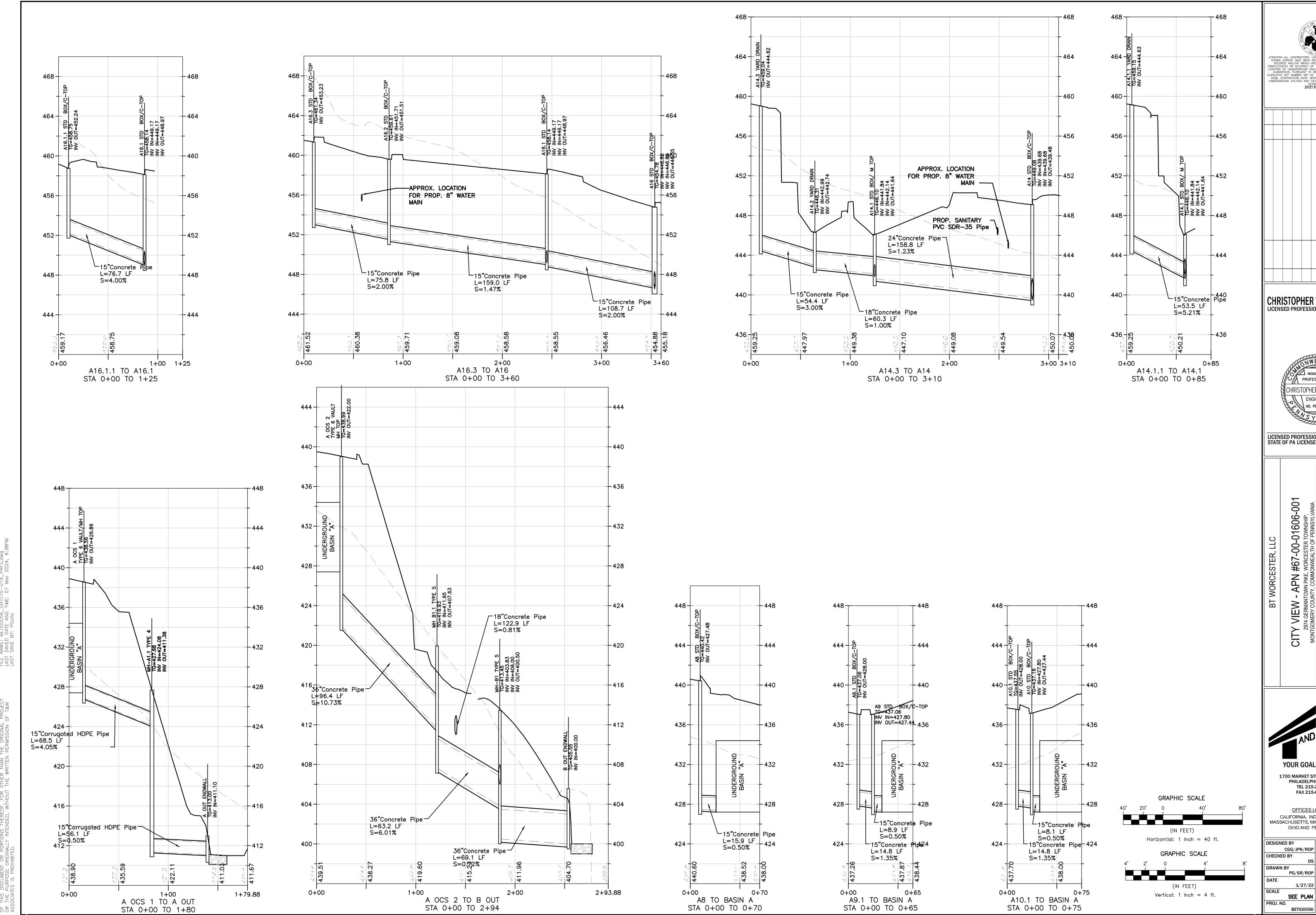
OF



PROJECT INF FILE PATH: G FILE NAME: B LAST SAVED LAST SAVE B



PROJECT INFORMATION: FILE PATH: G:\Projects\E FILE NAME: BETIO0056_S LAST SAVED DATE AND T LAST SAVE BY: JKelley



SHOWN HEREON HAVE BEEN DEVELOPED FROM UTILITY COMPANY RECORDS AND/OR ABOVE—GROUND INSPECTION OF THE SITE DOMPLETENESS OR ACCURACY OF TYPE, SIZE, DEPTH OR HORIZONTAL LOCATION OF UNDERGROUND FACILITIES OR STRUCTURES CANNOT BE CUARANTEED, PURSUANT TO REQUIREMENTS OF PENNSYLVANIA EGISLATIVE ACT NUMBER 287 OF 1974 AS AMENDED BY ACT 121 O 2008, CONTRACTORS MUST VERIFY LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES AND FACILITIES PRIOR TO START OF WORK. SERIAL NO: 20213502293

DS DS DS DS

CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER

4 w 0 H



LICENSED PROFESSIONAL ENGINEER STATE OF PA LICENSE No. PE076464

VIEW - APN #67-00-01606-001 4 GERMANTOWN PIKE, WORCESTER TOWNSHIP, DMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA **PROFILES**

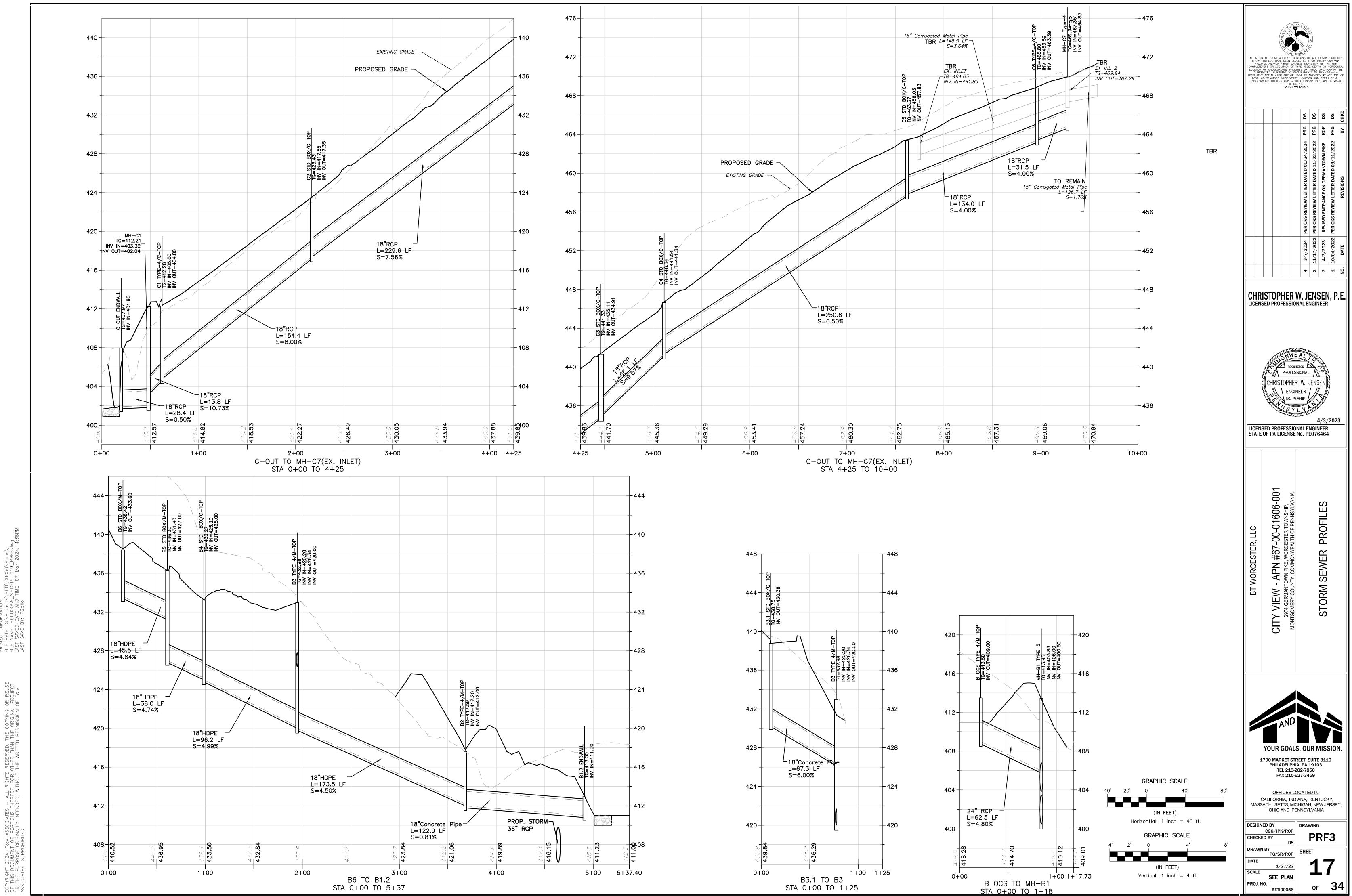
STORM SEWER

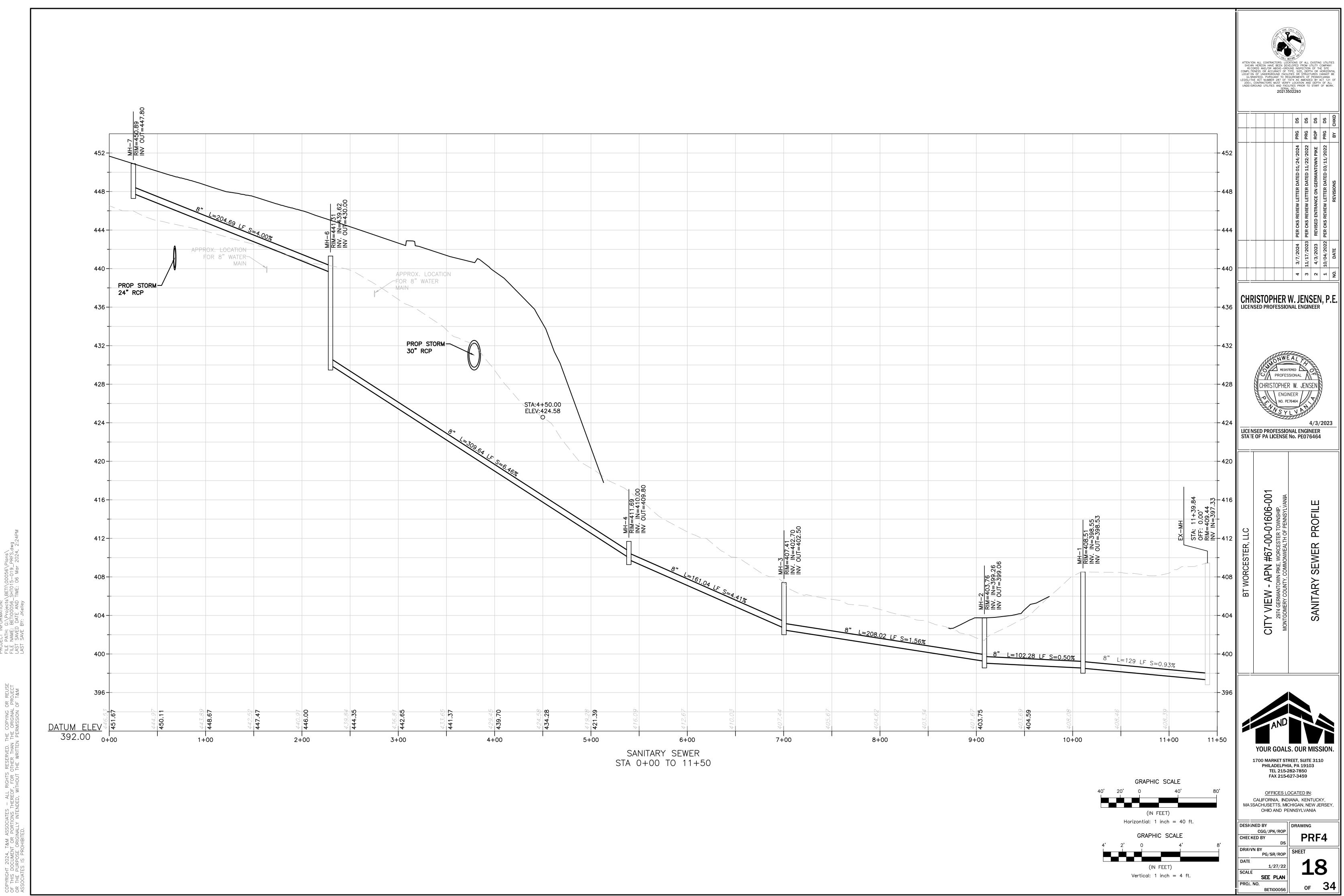


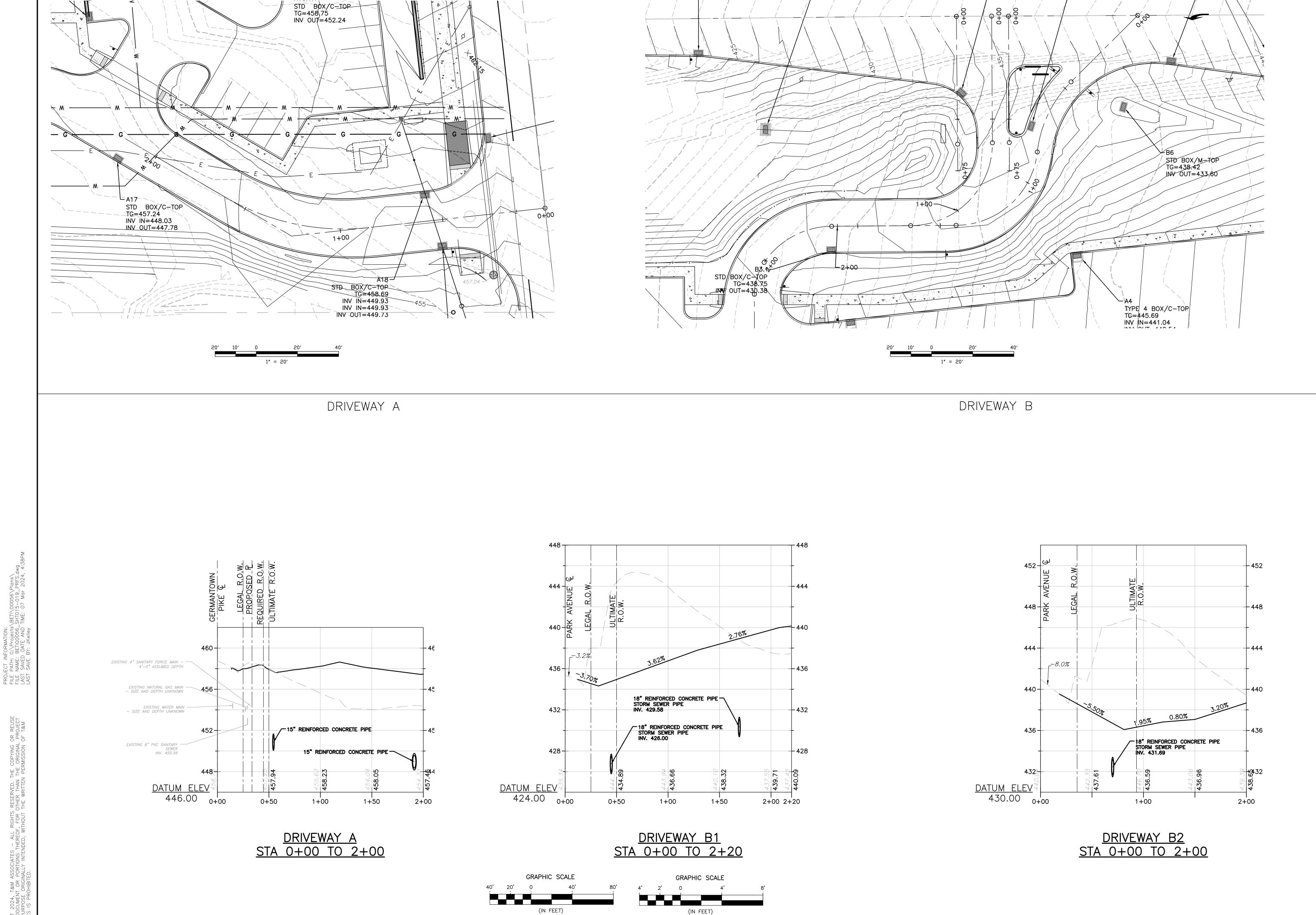
OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

CGG/JPK/ROP PRF2 PG/SR/ROP SHEET

16 OF 34







Vertical: 1 inch = 4 ft.

Horizontial: 1 inch = 40 ft.

1700 MARKET STREET, SUITE 3110 PHILADELPHIA, PA 19103 TEL 215-282-7850 FAX 215-627-3459

CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER

LICENSED PROFESSIONAL ENGINEER STATE OF PA LICENSE No. PE076464

CITY VIEW - APN #67-00-01606-001 2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP, MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

BT WORCESTER, LLC

4/3/2023

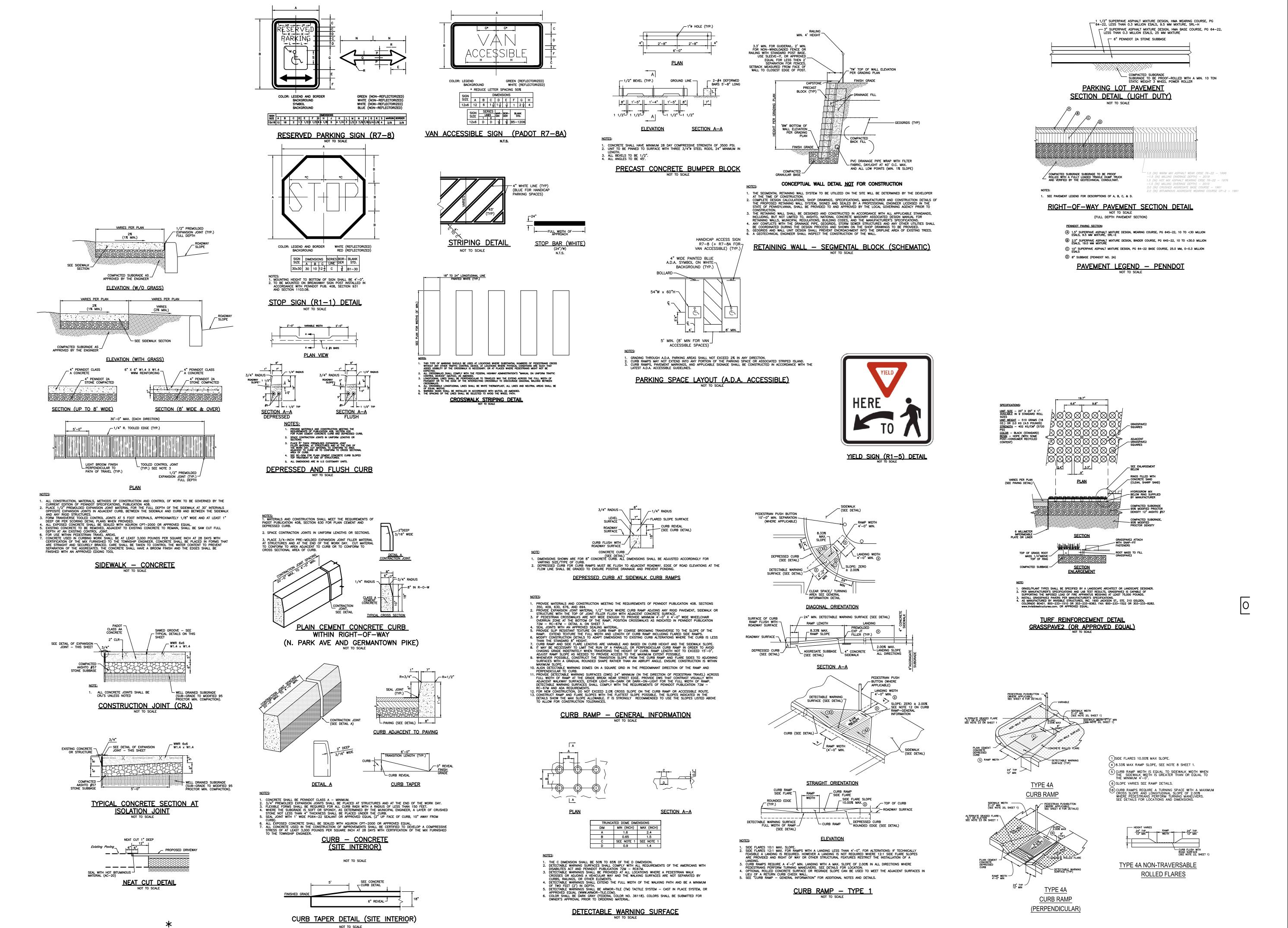
DRIVEWAY PROFILES

OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY CGG/JPK/ROP PRF5 CHECKED BY

PG/SR/ROP | SHEET SEE PLAN

of **34** BETI00056



CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER



STATE OF PA LICENSE No. PE076464

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ORCESTER,

BT

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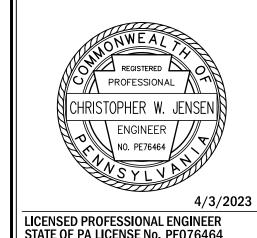
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AS NOTED



			DS	SO	SO	DS	СНКВ	
			PRG	PRG	ROP	PRG	ВУ	
			PER CKS REVIEW LETTER DATED 01/24/2024	11/17/2023 PER CKS REVIEW LETTER DATED 11/22/2022	REVISED ENTRANCE ON GERMANTOWN PIKE	10/04/2022 PER CKS REVIEW LETTER DATED 03/11/2022	REVISIONS	
			3/7/2024	11/17/2023	4/3/2023	10/04/2022	DATE	
			4	3	2	1	NO.	

CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER



STATE OF PA LICENSE No. PE076464

#67-00-01606-001 E, WORCESTER TOWNSHIP, MONWEALTH OF PENNSYLVANIA DETAIL



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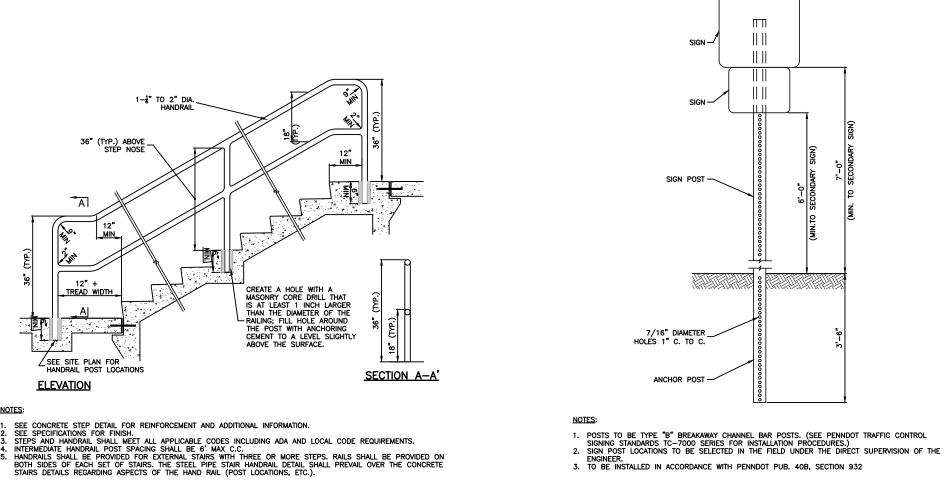
OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

CGG/JPK/ROP CHECKED BY

DRAWN BY

BETI00056

PG/SR/ROP SHEET AS NOTED



STEEL PIPE STAIR HANDRAIL

NOT TO SCALE

|| || SIGN POST — 7/16" DIAMETER ___ HOLES 1" C. TO C. ANCHOR POST -

ПП

SIGN POST — PENNDOT



LINE POSTS

TOP & BRACE RAILS

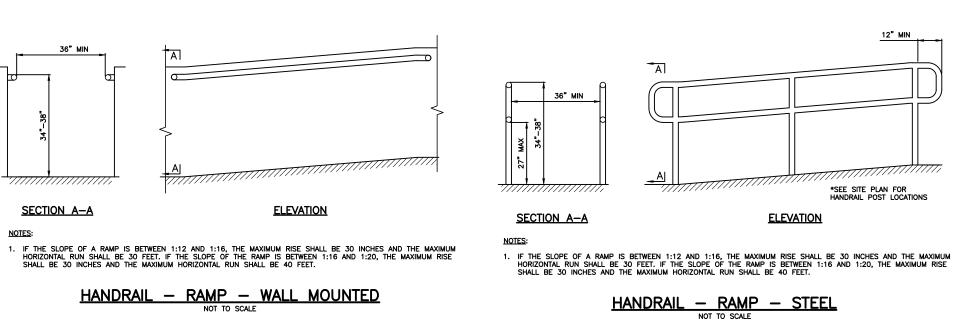
FENCE - CHAIN LINK

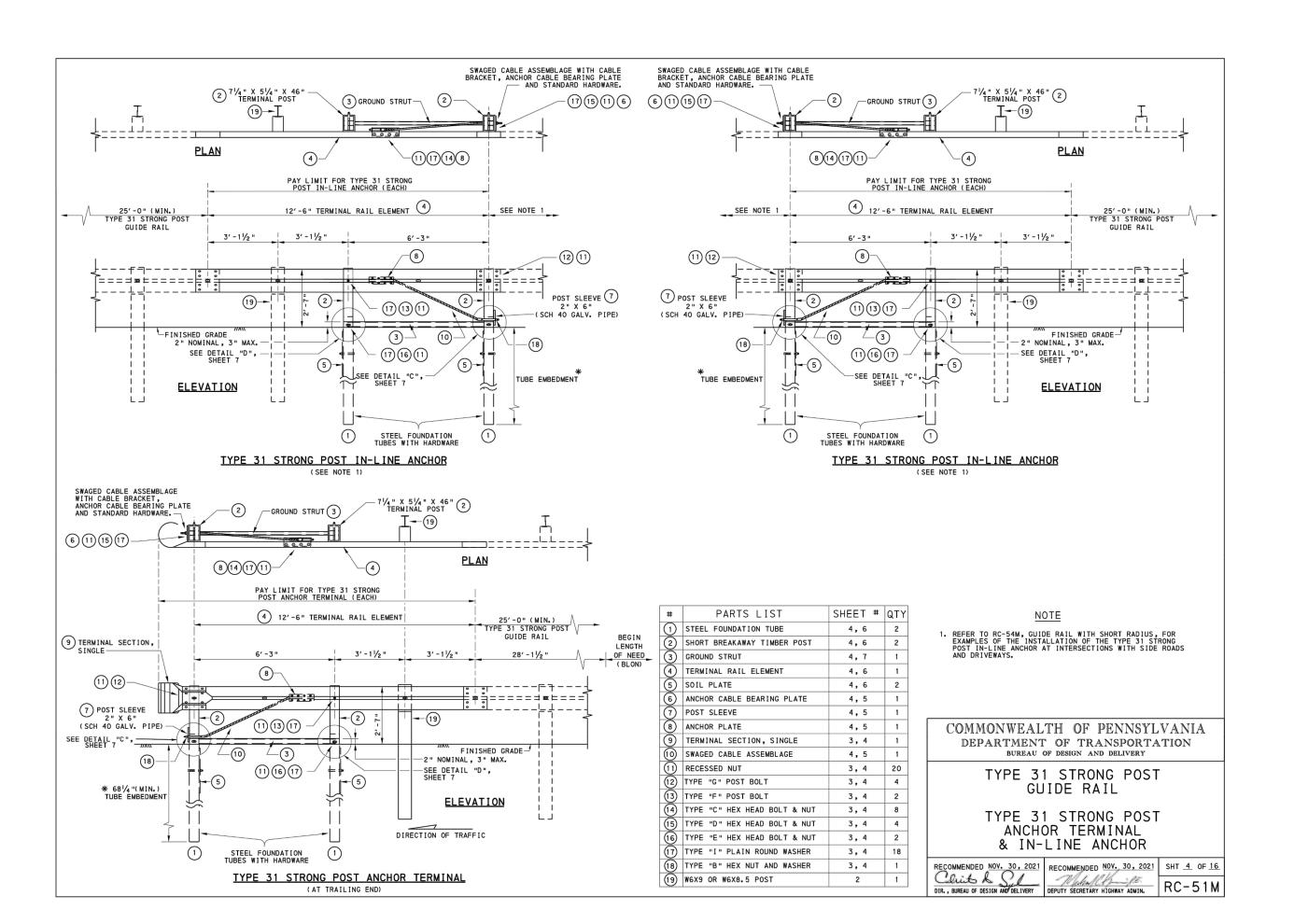
NOT TO SCALE

> INRU 0 48 12 >6 THRU 18 72 24 * ALL POSTS 3 IN. CLEARANCE FROM BOTTOM OF CONCRETE BASE

FABRIC HEIGHT END, CORNER & LINE BRACE POSTS

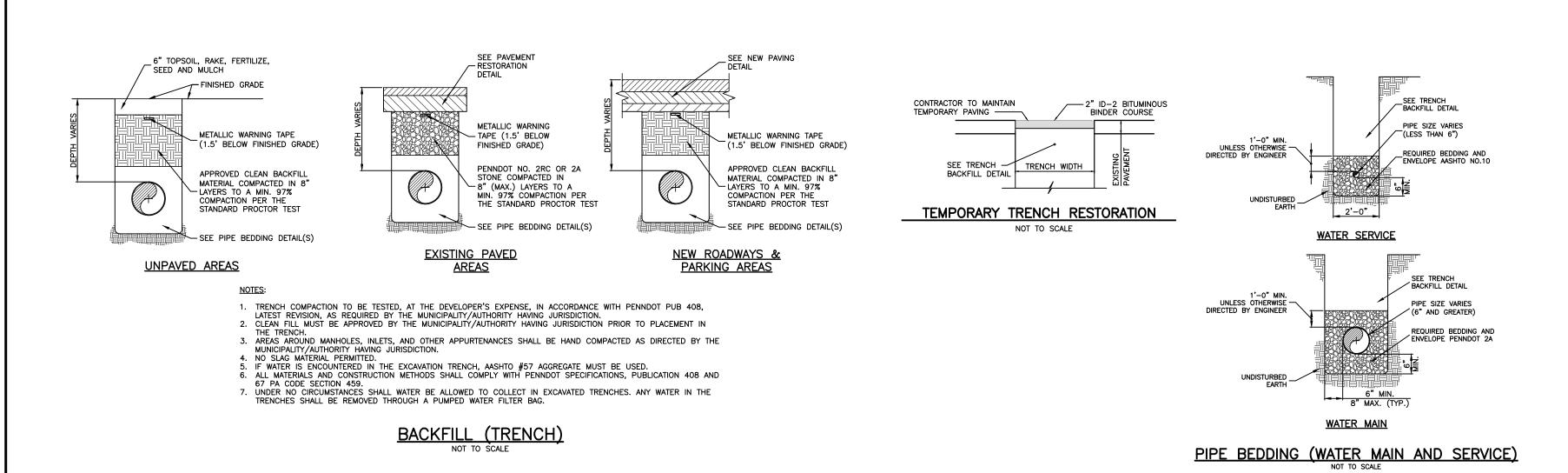
SECTION A-A

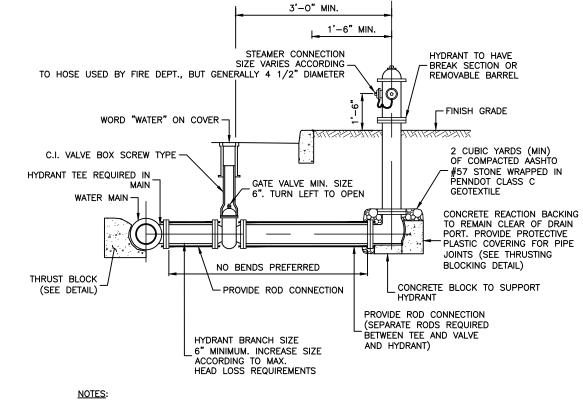




GUIDE RAIL DETAIL

NOT TO SCALE





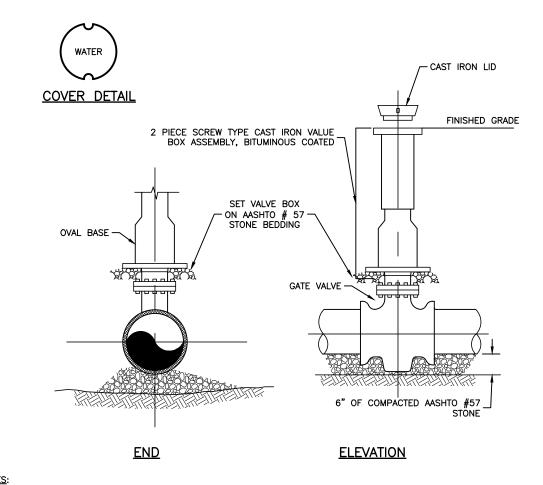
 MAXIMUM HEAD LOSS 5 PSI BETWEEN MAIN AND HYDRANT OUTLET FOR 750 GPM FLOW.
 HYDRANT TO BE PLACED WITH STREAMER CONNECTION FACING STREET @ 1'-6" BEHIND FACE OF CURB OR E.O.P. (TYP.) 3. MEGA-LUG REQUIRED AT VALVE (ON HYDRANT SIDE ONLY IF HYDRANT TEE IS UTILIZED) AND AT HYDRANT.

4. ALL PROPOSED PLUMBING TO BE INSTALLED IN STRICT ACCORDANCE WITH SPECIFICATIONS OF

AUTHORITY HAVING JURISDICTION.

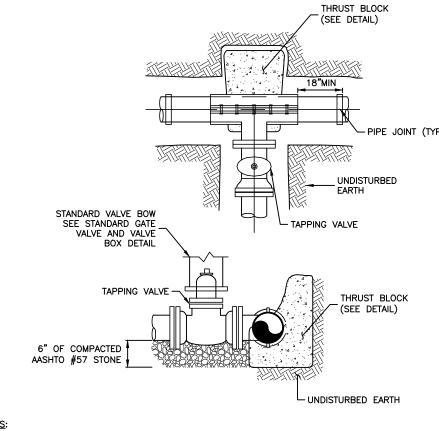
5. MINIMUM OF 4'-0" OF COVER OVER ALL PIPES.

6. HYDRANT TO HAVE 5 \(\frac{1}{4}\)" SEAT OPENING. FIRE HYDRANT NOT TO SCALE

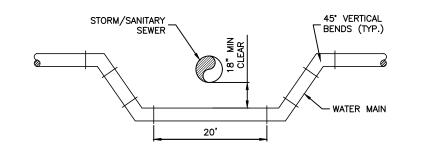


STANDARD GATE VALVE AND VALVE BOX NOT TO SCALE

1. VALVE SHALL NOT COME INTO CONTACT WITH VALVE.



1. TAPPING SLEEVE SHALL BE AIR-TESTED PRIOR TO THE LIVE MAIN BEING TAPPED.



NOTES: 1. ALL PIPE AND FITTINGS SHALL BE RESTRAINED PER AUTHORITY SPECIFICATIONS AND BY DIRECTION OF THE ENGINEER.

2. THE USE OF CONCRETE THRUST BLOCK SHALL BE PER THE DIRECTION OF THE AUTHORITY AND ENGINEER.

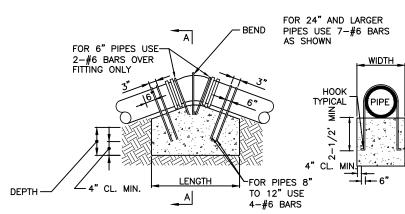
STORM SEWER — SANITARY SEWER
WATER CROSSING
NOT TO SCALE

BEARING S	URFACE	REQU	IRED -	- SQ.F	T. HORI		. THRU RKING F			& VER	TICAL	THRUST	DOWN	WARD	125 P.	S.I.
PIPE SIZE		6" 8	k 8"			10" و	k 12"			16" 18	3" 20"			2	4"	
TYPE OF BEARING MATERIAL						DEC	GREE O	F BENI	OR [)EFLEC	ΓΙΟΝ					
AND ALLOWABLE LOADS	22.5°	45°	90°	D.E.	22.5°	45°	90•	D.E.	22.5°	45°	90°	D.E.	22.5°	45°	90°	D.E
SAND 0.75 TON/SQ.FT.	3.4	6.0	11.0	6.4	6.7	12.8	23.4	14.2	14.8	28.8	52.9	34.4	26.1	48.3	89.7	64.
SOFT CLAY 1 TON/SQ.FT.	2.6	4.6	8.2	4.8	5.0	9.6	17.5	10.7	11.2	21.7	39.7	28.2	19.6	36.3	67.3	48.
SAND AND GRAVEL 2 TON/SQ.FT.	1.3	2.3	4.1	2.4	2.5	4.8	8.8	5.3	5.6	10.8	20.0	14.1	9.8	13.1	33.6	24.
CLAY 4 TON/SQ.FT.	1.0	1.2	2.1	1.3	1.3	2.4	4.4	2.7	2.8	5.4	10.0	7.2	4.9	9.1	16.8	12.
SOFT ROCK 5 TON/SQ.FT.	1.0	1.0	1.6	1.0	1.0	1.9	3.5	2.2	1.6	4.4	8.0	5.7	3.9	7.3	13.5	9.
ROCK 15 TON/SQ.FT	ı	-	1.0	0.4	-	1.0	1.2	0.8	1.0	1.4	2.6	1.9	1.3	2.4	4.5	3.2
PIPE SIZE		3	o"			3	6"			4	2"			4	8"	
TYPE OF BEARING MATERIAL						DEC	GREE O	F BENI	OR [DEFLEC ⁻	TION		1	ı		
AND ALLOWABLE LOADS	22.5°	45°	90°	D.E.	22.5°	45°	90°	D.E.	22.5°	45°	90°	D.E.	22.5°	45°	90°	D.E

BEARING MATERIAL						DEC	REE O	F BENI	ORE	EFLECT	ΓΙΟΝ					
AND ALLOWABLE LOADS	22.5°	45°	90°	D.E.	22.5°	45°	90•	D.E.	22.5°	45°	90*	D.E.	22.5°	45°	90°	D.
SAND 0.75 TON/SQ.FT.	40.3	76.5	139.0	99.1	55.5	107.5	197.5	140.0	74.3	144.7	266. 5	188.7	83.2	182.3	336. 2	23
SOFT CLAY 1 TON/SQ.FT	30.2	57.4	104.3	74.3	41.6	80.6	148.0	105.0	55.7	108.5	200. 0	141.6	70.0	136.7	252. 2	178
SAND AND GRAVEL 2 TON/SQ.FT.	15.1	28.7	52.1	37.2	20.8	40.3	74.0	52.5	27.9	54.3	100.0	70.8	35.0	68.3	126.1	89
CLAY 4 TON/SQ.FT.	7.6	14.6	26	18.6	10.4	20.2	37.0	26.3	14.0	27.0	50.0	35.3	17.5	34.2	63.0	44
SOFT ROCK 5 TON/SQ.FT.	6.0	11.5	20.9	14.9	8.3	16.1	29.6	21.0	11.2	21.7	40.0	28.3	14.0	27.3	50.4	35
ROCK 15 TON/SQ.FT.	2.0	3.8	7.0	5.0	1.4	2.8	5.4	7.0	3.7	7.2	13.3	9.4	4.7	9.1	16.8	12

NOTES: 1. D.E. DENOTES DEAD END.

WATER-THRUST BLOCKING TABLE

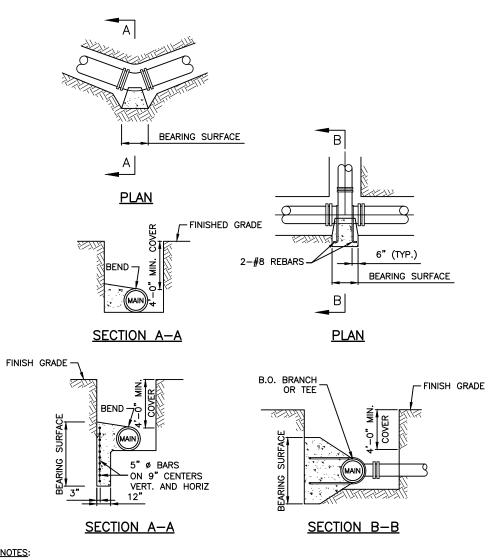


TAPPING SLEEVE AND VALVE

NOT TO SCALE

	DEPTH —	∠ 4" (CL. MIN. 🗕	A		2" USE BARS	-11-	o	
:	TYPICAL	SECTION	l – VER	TICAL TH	<u>IRUST UI</u>	<u>PWARD</u>	SEC ⁻	ΓΙΟΝ Α-Α	4
	CON	CRETE BLOC	KING DIMENS	IONS, VERTI	CAL THRUST	UPWARD 15	0 P.S.I. WO	RKING PRESS	URE
		LENGTH			WIDTH			DEPTH	
PIPE SIZES	11 ¼"	22 ¼"	45"	11 🕌 "	22 ¼"	45"	11 ¼"	22 ¼"	45"
6" & 8"	3'	4'	6'	3'	3'	3'	2'	3'	4'
10" & 12"	3.5'	4'	7'	4'	4'	4'	2.5'	3'	4'
14" & 16"	4'	6'	9'	4.5'	4.5'	4.5'	3.5'	4'	5'
18" & 20"	5'	6.5'	11.5'	5'	5'	5'	4'	5'	5.5'
24"	5'	9,	12.5'	5'	5'	6'	4.5'	5'	6'
30"	5.5'	9'	13.5'	5.5'	6'	7'	5.5'	6'	7'
36"	6.5'	11'	14'	5.5'	6.5'	7'	6'	6.5'	7'
42"	9'	13.5'	15'	6'	7'	7'	6'	7'	7'
48"	10'	14'	16'	6'	7'	7'	6'	7'	7'
2. Al 3. Al 4. Pa	- LL CONC. SI LL REINFORG LL FITTINGS AINT ALL EX	CING STEEL S AND JOINTS	SHALL BE DI SHALL BE (L WITH TWO	EFORMED BA COVERED WI' COATS OF	NGTH OF 300 RS. (ASTM C IH POLYETHE VALDURA PAI THE PIPE.	RADE 60) LENE FILM	BEFORE PLA	CING CONC.	

THRUST BLOCKING TABLE-VERTICAL-UPWARD



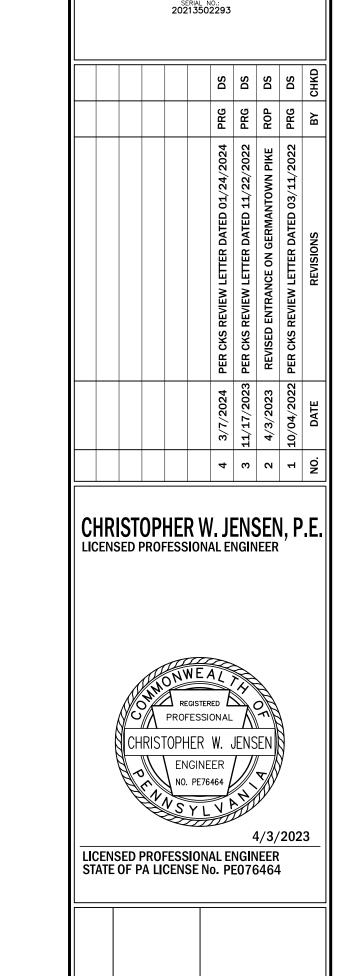
1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
2. ALL REINFORCING STEEL SHALL BE DEFORMED BARS (ASTM GRADE 60).
3. ALL FITTINGS AND JOINTS SHALL BE COVERED WITH POLYETHYLENE FILM BEFORE PLACING OF CONCRETE.

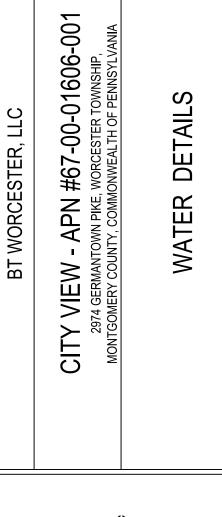
4. PAINT ALL EXPOSED STEEL WITH TWO COATS OF BITUMASTIC PAINT OR EPOXY COATING.

5. FOR THE REQUIRED BEARING SURFACE SEE STANDARD THRUST BLOCKING DETAIL.

6. BEARING SURFACE MUST BE UNDISTURBED EARTH.

WATER-HORIZONTAL THRUST BLOCKING







FAX 215-627-3459 www.tandmassociates.com

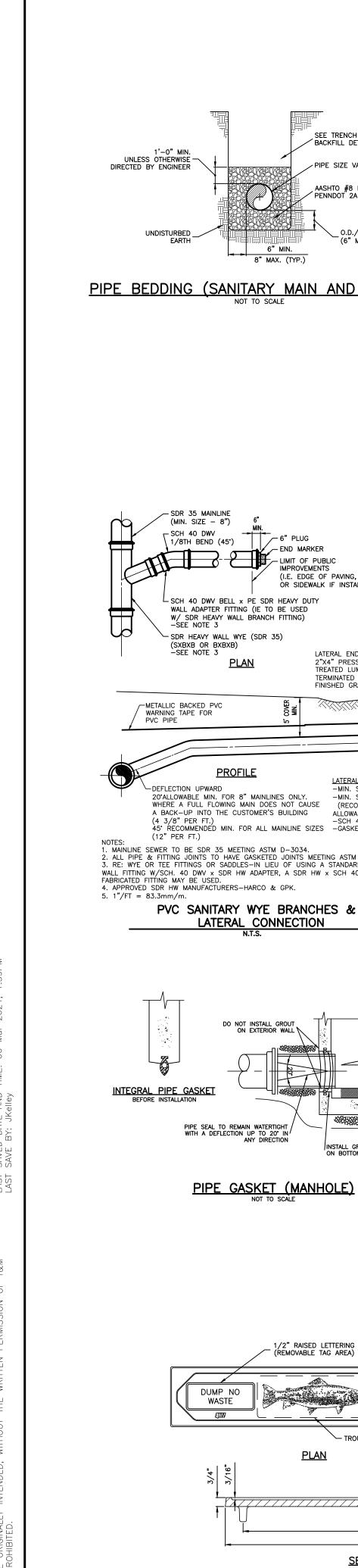
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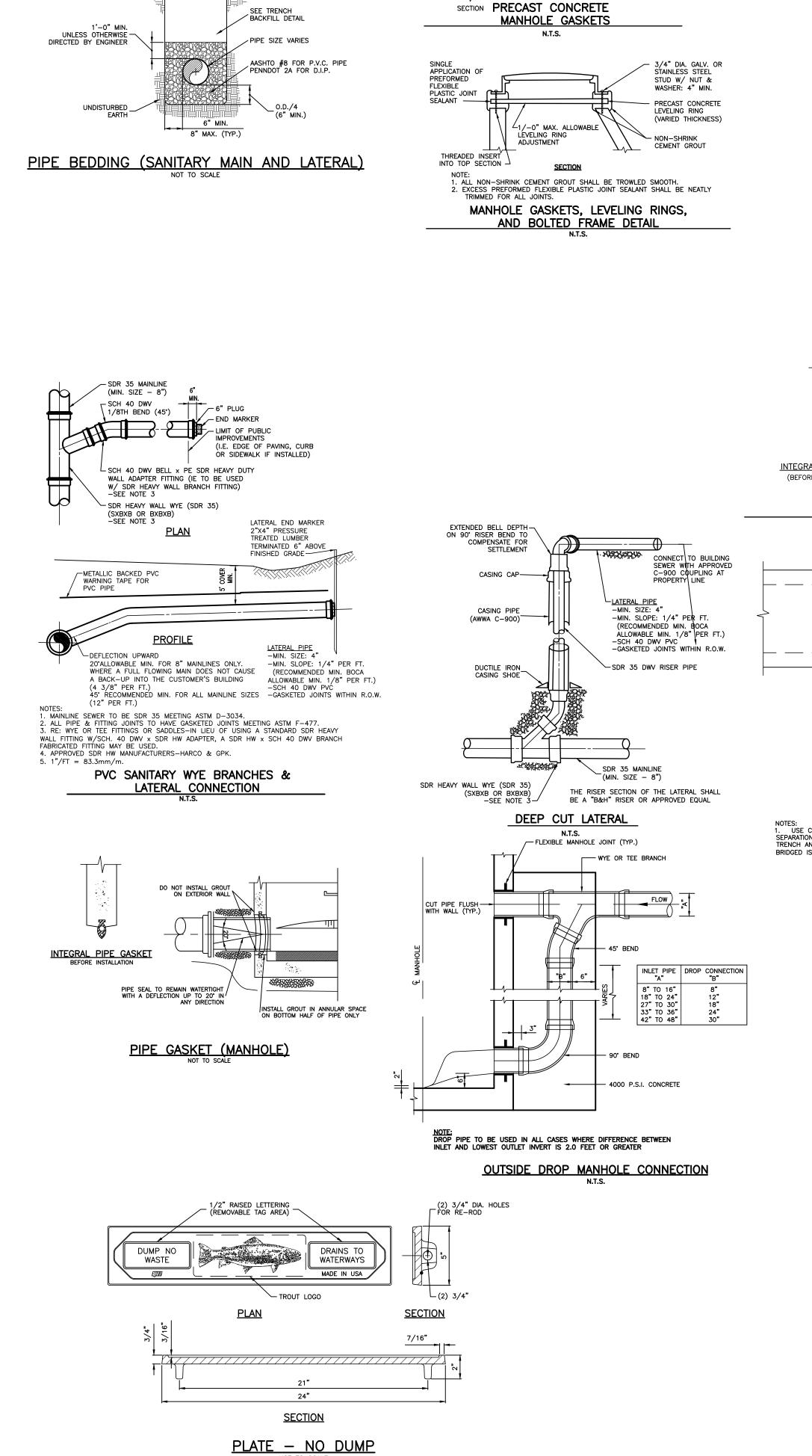
CGG/JPK/ROP CHECKED BY

-- PG/SR/ROP SHEET DRAWN BY

AS NOTED

BETI00056

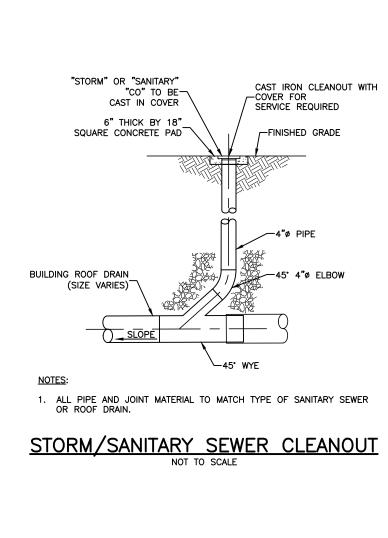


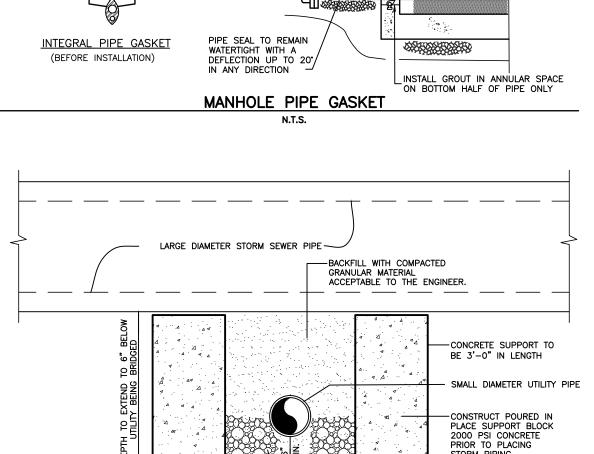


NOTE:
ALL INLETS MUST BE STENCILED "NO DUMPING — DRAINS TO WATERWAY"

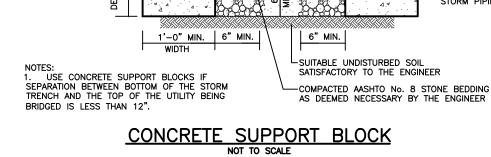
NOTE: MAKE WATERTIGHT BY PROVIDING A DOUBLE SEALED JOINT — USE EITHER 2-1" BUTYL

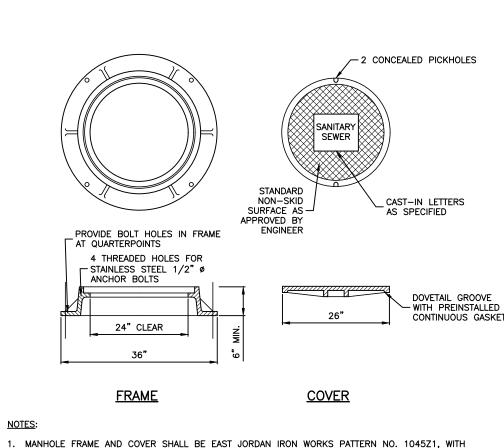
GASKETS OR 1-1" BUTYL GASKET & 1-RUBBER O-RING





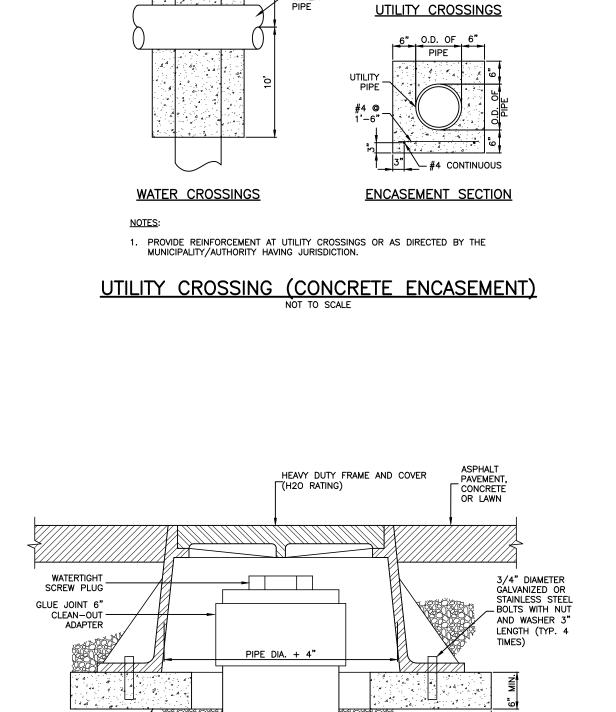
DO NOT INSTALL GROUT ON EXTERIOR WALL





MANHOLE FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS PATTERN NO. 1045Z1, WITH SELF-SEALING GASKET TYPE COVER OR APPROVED EQUAL.
 ALL MATERIAL SHALL BE GRAY CAST IRON, ASTM 148-83 CL35.
 CASTINGS SHALL BE DESIGNED FOR AASHTO HIGHWAY LOADING CLASS HS-20.
 PROVIDE FOUR (4) ANCHOR BOLT HOLES IN FRAME TO ACCOMMODATE 3/4"ANCHOR BOLTS.
 COVER SHALL HAVE THE WORDS "SANITARY SEWER" CAST THEREON, LETTERING MINIMUM 2" HIGH.

SANITARY MANHOLE FRAME AND COVER



SANITARY _ SEWER _

OTHER _ UTILITIES _

SANITARY SEWER MUST PASS
UNDER POTABLE
WATER PIPE

POTABLE

PENNDOT CLASS 'A' CONCRETE

CONCRETE RING SUPPORT

(CONCRETE SHALL NOT -

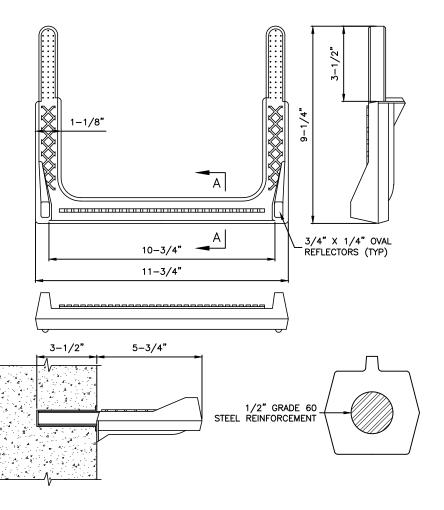


AGGREGATE COMPACTED AROUND AND BELOW

PROTECTION SLEEVE

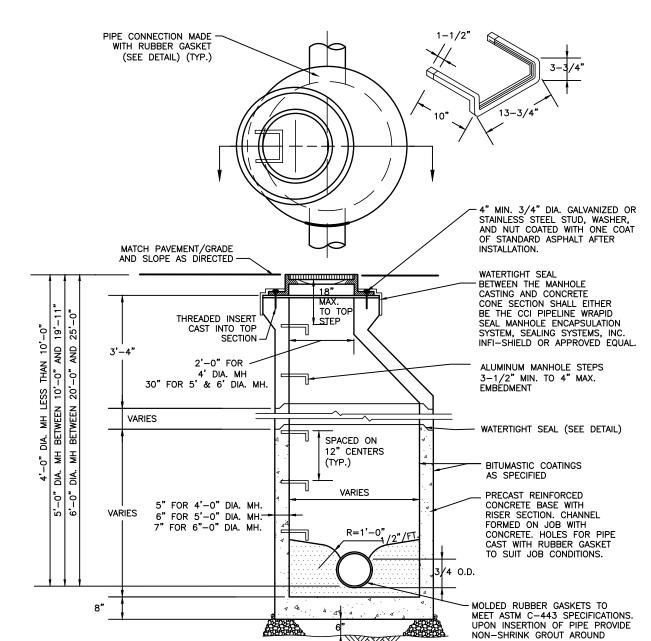
CLEAN-OUT PROTECTION SLEEVE

NOT TO SCALE



STEPS TO BE FABRICATED FROM COPOLYMER POLYPROPYLENE PLASTIC.
 STEP SPACING SHALL BE 1 FOOT CENTER TO CENTER

POLYPROPYLENE MANHOLE STEP



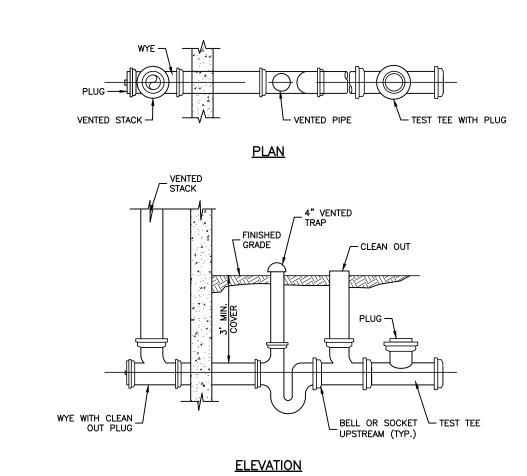


WITH PRECAST CONCRETE BASE

1. BOLTING OF MANHOLE FRAME AND COVER NOT

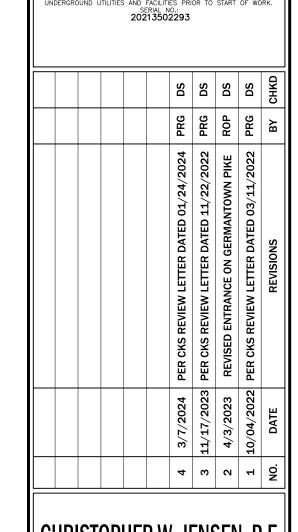
REQUIRED FOR MANHOLES.
2. ALL STONE GRADATIONS ARE AASHTO

5. WHERE CASTINGS ARE EXPOSED TO SURFACE RUNOFF, O—RING GASKETS WILL BE REQUIRED.
6. O—RING & MOLDED RUBBER GASKETS PERTAIN STRICTLY TO SANITARY SEWERS.



1. BUILDING SEWER FROM RIGHT-OF-WAY LINE TO BUILDING PLUMBING SYSTEM SHALL CONFORM TO THE INTERNATIONAL PLUMBING CODE.
2. PIPE TO BE EMBEDDED IN AGGREGATE (SEE PIPE EMBEDMENT DETAIL).

SEWER - BUILDING



CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER



STATE OF PA LICENSE No. PE076464

-001 S 7-00-01606-DETAIL SEWER #67 SANITARY



PHILADELPHIA, PA 19103 TEL 215-282-7850 FAX 215-627-3459 www.tandmassociates.com OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY CGG/JPK/ROP CHECKED BY DRAWN BY

PG/SR/ROP AS NOTED

BETI00056



GENERAL NOTES: 1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED. U.S. CUSTOMARY UNITS IN () PARENTHESIS. 2. METRIC UNITS INDICATED ARE SOFT CONVERTED FROM U.S. CUSTOMARY UNITS. 3. DESIGN SPECIFICATIONS:
AASIMTO LAFD BRIDGE DESIGN SPECIFICATIONS AND AS SUPPLEMENTED
BY THE DESIGN MANUAL, PART 4, STRUCTURES. DESIGN IS IN ACCORDANCE WITH THE LOAD AND RESISTANCE FACTOR DESIGN METHOD (LRFD). 4. CONSTRUCTION SPECIFICATIONS:
PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH THE
CURRENT VERSION OF THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
PUBLICATION 408, AASHTO/AWS BRIDGE WELDING CODE AND THE CONTRACT
SPECIAL PROVISIONS. 6. IF A REQUIRED DETAIL IS NOT FOUND IN THIS STANDARD OR ON THE CONTRACT DRAWINGS A SPECIAL SUBMISSION REQUESTING ACCEPTANCE FOR SPECIFIC DETAILS MUST BE MADE TO THE BUREAU OF DESIGN HIGHWAY QUALITY ASSURANCE DIVISION CHIEF. 7. FOR INLET BOX DETAILS REFER TO RC-46M. PLACEMENT NOTES: CONCRETE TOP UNIT OR FRAME IS SUITED FOR A PARTICULAR 1. EACH TYPE OF CURROLLE TO SUBJECT TO STRUCTURE AS FOLLOWS:

TYPE C CONCRETE TOP UNIT AND TYPE C ALTERNATE CONCRETE TOP UNIT WITH A TYPE C FRAME ARE DESIGNATED FOR INSTALLATION WITH NON-

WITH A TYPE C FRAME ARE DESIGNATED FOR INSTALLATION WITH NONMOUNTABLE CURBS.

TYPE M CONCRETE TOP UNIT AND TYPE M FRAMES ARE DESIGNATED FOR
INSTALLATION IN AREAS ADJACENT TO MEDIANS AND MOUNTABLE CURBS.
TYPES CONCRETE TOP UNIT IS DESIGNATED FOR INSTALLATION IN
SHOULDER SWALE AREAS.

TYPE DHI CONCRETE TOP UNIT IS DESIGNATED FOR INSTALLATION IN
SHOULDER SWALE AREAS WITH A TYPE DHI INLET BOX.

TYPE DHI LEVEL CONCRETE TOP UNIT IS DESIGNATED FOR INSTALLATION IN
AREAS ADJACENT TO MEDIANS WITH A TYPE DHI INLET BOX. 2. PLACEMENT OF CONCRETE TOP UNITS:
TYPE C AND TYPE C ALTERNATE:
DOWEL THE TOP UNIT INTO THE ADJACENT CURB SECTIONS WITH
2-#25 X 300 mm (2-#8 x 1'-0") DOWEL BARS. PLACE 20 mm (3/4")
WIDE PREMOLDED EXPANSION JOINT FILLER BETWEEN THE TOP UNIT AND
ADJACENT CURB.
TYPE MY.

PPE M: PLACE THE TOP UNIT OR FRAME ADJACENT TO THE BACK EDGE OF THE CURB, FLUSH WITH THE PAVEMENT SURFACE, WHEN REQUIRED WITHIN A CONCRETE MOUNTABLE CURB SECTION. THE PLACEMENT OF THE TOP UNIT IS DEPENDENT ON THE GUTTER ELEVATION AND THE RATE OF THE BACK SLOPE. FOR BACK SLOPES GREATER THAN 12(21), LOCATE THE INLET TOP WHERE THE BACK SLOPE SEGERATER THAN 12(21), LOCATE THE INLET TOP WHERE THE BACK SLOPE LINE INTERSECTS THE BACK, TOP, OUTSIDE CORNER OF THE INLET TOP, FOR BACK SLOPES LESS THAN 12 (21), LOCATE THE INLET WHERE THE BACK SLOPE LINE INTERSECTS THE EDGE OF THE INLET GRATE.

PLACE THE TOP UNIT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. 3. THE SELECTION OF COMPONENTS TO ACHIEVE A SPECIFIED INLET ASSEMBLY IS THE CONTRACTOR'S RESPONSIBILITY, UNLESS OTHERWISE INDICATED ON THE CONTRACT DOCUMENTS. 4. SET THE PRECAST CONCRETE TOP UNITS ON A NON-SHRINK GROUT PAD TO PROVIDE FULL BEARING ON THE SUPPORTING SURFACE. NON-SHRINK GROUT IS ALSO PERMITTED FOR CROSS SLOPE AND LONGITUDINAL GRADE ADJUSTMENTS.
PROVIDE NON-SHRINK GROUT IN ACCORDANCE WITH PUBLICATION 408, SECTION 1001.2(3),
MINIMUM GROUT DEPTH = 13 mm (")
MAXMUM GROUT DEPTH = 25 mm (1")
FOR ALTERNATE GRADE ADJUSTMENT SYSTEMS, WHICH DO NOT REQUIRE NON-SHRINK GROUT, REFER TO NOTE 5 UNDER THE GRADE ADJUSTMENT FING GENERAL NOTES ON SHEET 12.

 $5.\,BRICK$ OR BRICK AND MORTAR ARE NOT ALLOWED FOR GRADE ADJUSTMENTS FOR NEW OR REHABILITATION PROJECTS. GENERAL GRATE NOTES:

STRUCTURAL STEEL GRATES = 89 mm (3 CASF IRON GRATES = 64 mm (2 ") DEPTH WITH 64 mm (2 ") PERIMETER DEPTH (MINIMUM)

2. THE SELECTION OF THE TYPE OF GRATE MATERIAL IS THE CONTRACTOR'S RESPONSIBILITY, UNLESS OTHERWISE INDICATED ON THE CONTRACT DOCUMENTS.

CONCRETE TOP UNIT - TYPE C

CONCRETE TOP UNIT - TYPE M

GRADE ADJUSTMEN RING, SEE NOTE 4.

INLET BOX

CONCRETE TOP UNIT NOTES: 1. SHEETS 2 THRU 6 AND 18 THRU 20 DEPICTS THE DIMENSIONS REQUIRED FOR UNIFORMITY AND INTERCHANGEABILITY. IT DOES NOT INCLUDE DETAILS REQUIRE FOR FABRICATION OR MANUFACTURING. FOR DEVATIONS OR MODIFICATIONS OF THE STANDARDS, SUBMIT SHOP DRAWINGS TO THE BUREAU OF DESIGN HIGHWAY QUALITY ASSURANCE OWNSON CHIEF FOR REVIEW AND ACCEPTANCE.

2. PROVIDE PRECAST CONCRETE TOP UNITS SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15. 3. PROVIDE WELDED INLET ANGLE ASSEMBLIES SUPPLIED BY A MANUFACTURER LISTED IN BULLETIN 15. 4. CAST-IN-PLACE TOP UNITS MAY BE MONOLITHIC WITH THE INLET BOX. 5. PROVIDE MATERIALS AND WORKMANSHIP IN ACCORDANCE WITH THE PUBLICATION 406 SECTIONS 605 AND 714, AASHTO/AWS BRIDGE WELDING CODE AND THE CONTRACT SPECIAL PROVISIONS. 6. THE SIZE OF THE INLET TOP UNITS IS BASED ON THE MINIMUM DIMENSIONS INDICATED FOR THE STANDARD INLET BOX AS SHOWN ON RC-46M.

PROVIDE A TOP SLAB TO SUPPORT THE INLET TOP UNITS IF A STANDARD INLET BOX IS NOT SPECIFIED. REFER TO RC-46M FOR ADDITIONAL INFORMATION. 8, FABRICATOR IS RESPONSIBLE FOR LIFTING, HANDLING AND TRANSPORTATION STRESSES. LIFTING DEVICES (IF REQUIRED): PRO♥IDE GALVANIZED STEEL OR PLASTIC LIFTING DEVICES FOR HANDLING AND PROVIDE GALVANIZED STEEL OR PLASTIC LIFTING DEVICES FOR HANDLING AND INSTALLATION.

LIFTING HOLES, WITH A MAXIMUM OUTSIDE DIAMETER EQUAL TO 41 mm (1 PERMITTED IN THE SIDEWALLS, LOCATE LIFTING HOLES BASED ON THE CENTER OF GRAVITY OF THE FABRICATED IN LIET TOP.

FILL LIFTING DEVICES WITH NON-SHRINK GROUT AFTER INSTALLATION IF THE LIFTING DEVICE IS LOCATED ON THE TOP SURFACE. HOLES IN THE SIDEWALLS ARE NOT REQUIRED TO BE FILLED WITH NON-SHRINK GROUT.

PROVIDE LIFTING DEVICES WITH A MINIMUM CAPACITY OF AT LEAST FOUR TIMES THE CALCULATED LOAD ON THE DEVICE.

10.PROVIDE THE FOLLOWING CONCRETE CLASS:

CAST-IN-PLACE: CLASS A CEMENT CONCRETE [DESIGN COMPRESSIVE STRENGTH,
fo = 21 MPa (3,000 PSI)]
PRE-6XT: CLASS AA CEMENT CONCRETE, MODIFIED [DESIGN COMPRESSIVE STRENGTH,
fo = 28 MPa (4,000 PSI)] 11.A HIGHER STRENGTH OF CONCRETE MAY BE SUBSTITUTED FOR A LOWER STRENG OF CONCRETE AT NO ADDITIONAL COST TO THE DEPARTMENT. SUBMIT MIX DESIGN TO THE DEPARTMENT FOR REVIEW AND ACCEPTANCE. 12.PROVIDE GRADE 420 (GRADE 60) DEFORMED REINFORCEMENT BARS THAT MEET THI REQUIREMENTS OF ASTM A615M (A615) OR ASTM A706M (A706). DO NOT WELD REINFORCEMENT BARS WITHOUT A PENNDOT APPROVED WELDING PROCEDURE.

13 CLEAR COVER FOR STEEL: PRECAST: 38 mm (1 CAST-IN-PLACE: 50 mm (2") ISANCHORING OF ANGLES AND PLATES: PROVIDE EITHER STUDS OR BENT BAR ANCHORS IN ACCORDANCE WITH THE INDICATED DETAILS.
STUDS: PROVIDE STUDS CONPORMING TO AASHTO M169 (ASTM A108).
WELD STUDS TO ANGLES OR PLATES.
BENT BAR ANCHORS: PROVIDE GRADE 420 (GRADE 60) DEFORMED REINFORCEMENT BARS THAT MEET THE REQUIREMENTS OF ASTM A615M (A615) OR ASTM A75M (A706). WELD BARS TO ANGLES OR PLATES USING A PENNDOT APPROVED WELDING PROCEDURE.

18,PRECAST TOP UNITS: TAPERS MAY BE PROVIDED ON THE INSIDE AND/OR OUTSIDE VERTICA FACES OF THE INLET TOPS TO FACILITATE FORM STRIPPING. TAPERS MAY RESULT IN BOTTOM DIMENSIONS THAT VARY TO A MAXIMUM 50 mm (2). BOI TOM DIMENSIONS THAT VARY TO A MAXIMUM 50 mm (2*).

19.REHABILITATION PROJECTS:
PROVIDE CONCRETE TOP UNITS IN ACCORDANCE WITH THE DETAILS
SHOWN ON SHEETS 16 THRU 20 IF THE AVAILABLE DEPTH IS LESS THAN
THE DEPTHS DETAILED ON SHEETS 2 THRU 4.
PROVIDE CONCRETE TOP UNITS IN ACCORDANCE WITH THE DETAILS
SHOWN ON SHEETS 2 THRU 4 IF THE AVAILABLE DEPTH IS GREATER THAN
THE DEPTHS DETAILED ON SHEETS 2 THRU 4.
CONTRACTOR TO REMOVE THE EXISTING TOP UNIT AND ANY GRADE
ADJUSTMENT DEVICES, INCLUDING BRICK AND MORTAR AND GRADE
ADJUSTMENT RINGS, DOWN TO THE TOP OF THE EXISTING INLET BOX,
THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE REQUIRED DEPTH
OF THE NEW CONCRETE TOP UNIT MASED ON THE AVAILABLE DEPTH COST
OF THIS WORK IS INCIDENTAL TO THE COST OF THE CONCRETE TOP UNIT THE
DEPTH OF THE CONCRETE TOP UNIT MUST A LAWA'S BE MAXIMULED.
FOR A PRECAST CONCRETE TOP UNIT THE CONTRACTOR MUST PROVIDE
THE AVAILABLE DEPTH TO THE FABRICATION IN
ACCORDANCE WITH THIS STANDARD.
FOR A CAST-IN-PLACE CONCRETE TOP UNIT THE CONTRACTOR IS TO
CONSTRUCT THE NEW TOP IN ACCORDANCE WITH THIS STANDARD.

CONCRETE TOP UNIT - TYPE C ALTERNATE
WITH TYPE C FRAME

INDEX OF SHEETS 6 CONCRETE TOP UNITS - TYPE D-H LEVEL
7 STRUCTURAL STEEL GRATE
8 STRUCTURAL STEEL GRATE - BICYCLE SAFE
 14
 TYPE C FRAME

 15
 TYPE M FRAME

 16
 TYPE M PLACEMENT AT MEDIAN - 1

 17
 TYPE M PLACEMENT AT MEDIAN - 2
 CONCRETE TOP UNITS - TYPE M AND TYPE S FOR REHABILITATION PROJECTS CONCRETE TOP UNITS - TYPE C FOR REHABILITATION PROJECTS

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES

MUST BE USED ON PLANS. METRIC AND
ENGLISH VALUES SHOWN MAY NOT BE MIXED.

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

INLET TOPS, GRATES, AND FRAMES

GENERAL NOTES

RECOMMENDED JUN. 1, 2010 RECOMMENDED JUN. 1, 2010 SHT 1_OF 20 _

NOTES: 1. FOR ADDITIONAL NOTES, SEE SHEETS 1 - 3.

SEE RC-45M FOR DETAILS.

2. STANDARD INLET BOXES SHOWN, PROVIDE TOP SLABS FOR OTHER INLET BOX TYPES.

INLET BOX SUBBASE PREPARATION DETAIL

WEEPHOLE DETAIL
(SEE GENERAL NOTE 15 ON SHEET 1)

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES

MUST BE USED ON PLANS. METRIC AND
ENGLISH VALUES SHOWN MAY NOT BE MIXED.

DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN

INLET BOXES

COMMENDED JUN. 1, 2010 RECOMMENDED JUN. 1, 2010 SHT 4 OF 45

RC-46M

INLET ASSEMBLIES - 1

DIRECTOR, BUREAU OF DESIGN RC-45M

410 (16") = MIN. LAP LENGTH (TYP) CONCRETE TOP UNITS - TYPE C ALTERNATE FOR REHABILITATION PROJECTS PLAN VIEW - TYPE M

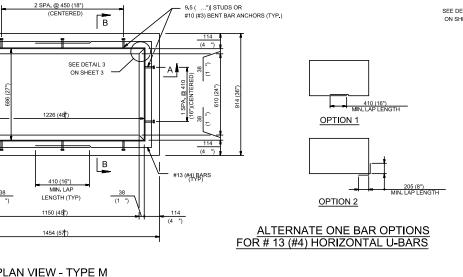
DETAIL 1

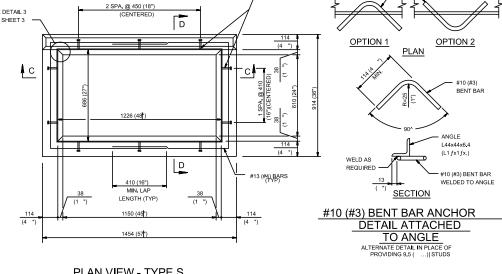
2 SPA. @ 450 (18") (CENTERED)

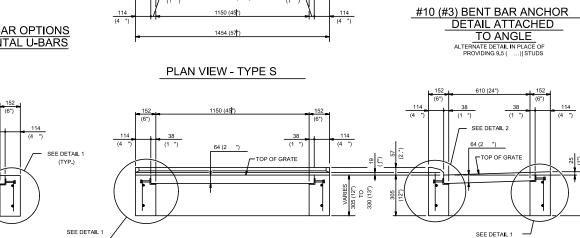
PLAN VIEW - TYPE C

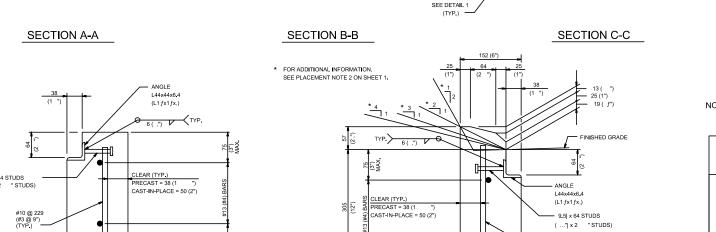
SECTION E-E

DETAIL 3









DETAIL 2

203 38 (8") (1 ")

127

SECTION G-G

SECTION F-F

203 38 (8") (1 ")

DETAIL 4

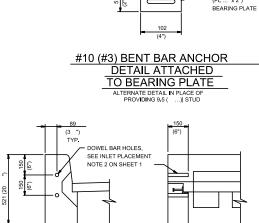
9.5| x 102 STUDS (..."| x 4")(TYP.) OR #10 (#3) BENT BAR ANCHOR (SEE DETAIL THIS SHEET)

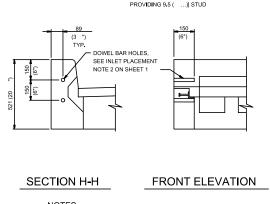
38 114 (4 ")

SECTION D-D OR ADDITIONAL NOTES. SEE SHEET 1. NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES

MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED. COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN INLET TOPS, GRATES, AND FRAMES CONCRETE TOP UNITS TYPE M AND TYPE S

COMMENDED JUN. 1, 2010 | RECOMMENDED JUN. 1, 2010 | SHT 2 OF 20 _ - DIRECTOR, BUREAU OF DESIGN RC-45M RC-46M #10 (#3) BENT BAR





NOTES

1. FOR ADDITIONAL NOTES, SEE SHEET 1. 2. A MAXIMUM OF TWO HOLES ARE PERMITTED IN THE PLATE TO POSITION AND HOLD THE PLATE IN PLACE DURING FABRICATION, HOLES ARE NOT PERMITTED TO BE GREATER THAN 6 mm (___,") DIAMETER.

NOTE: EITHER ALL METRIC OR ALL ENGLISH VALUES MUST BE USED ON PLANS. METRIC AND ENGLISH VALUES SHOWN MAY NOT BE MIXED. COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF TRANSPORTATION
BUREAU OF DESIGN INLET TOPS, GRATES, AND FRAMES CONCRETE TOP UNITS OMMENDED __JUN. 1, 2010 ___ RECOMMENDED __JUN. 1, 2010 ___ SHT 3_OF 20 ___

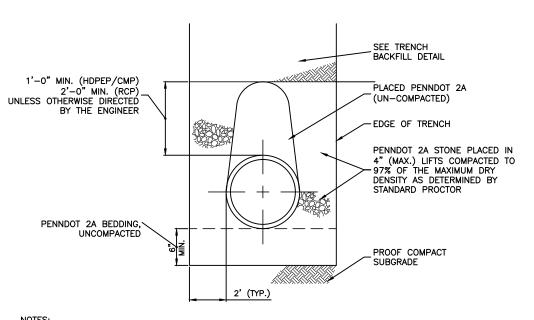
- DIRECTOR, BUREAU OF DESIGN RC-45M

GRATE (STRUCTURAL GRADE ADJUSTMENT └─ INLET BOX 1. FOR ADDITIONAL NOTES SEE INLET BOX NOTES, RC46M SHEETS 1, 2, AND 3 OF 44.

GRATE (STRUCTURAL STEEL SHOWN)

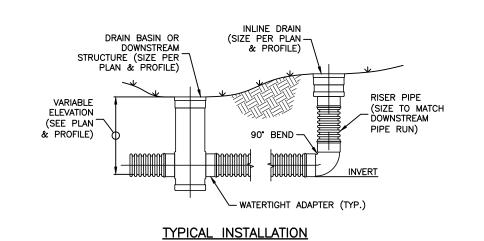
TOP SLAB NOT PERMITTED ON TYP D-H INLET BOX.
SEE RC-45M FOR DETAILS FOR THE CONCRETE TOP UNITS, FRAMES, AND GRATES. 4. PROVIDE GRADE ADJUSTMENT RINGS WHEN REQUIRED. SEE RC-45M FOR DETAILS.

INLET — DOUBLE M NOT TO SCALE

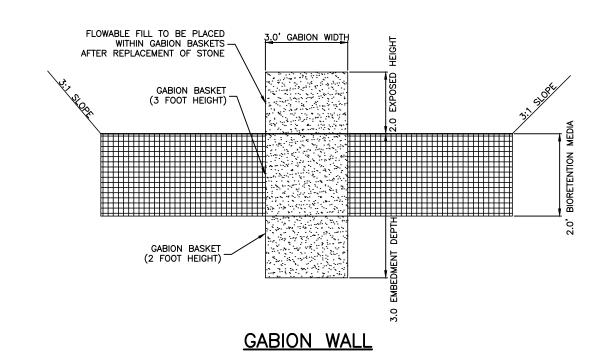


1. IF TRENCH IS EXTREMELY WET DUE TO HIGH GROUNDWATER, USE AASHTO #57 STONE UP TO THE HAUNCHES OF THE PIPE. REMAINDER OF BEDDING TO BE PENNDOT 2A.

2. FOLLOW 'PIPE INSTALLATION PROCEDURES' PER PENNDOT PUBLICATION 72M — RC-30M.



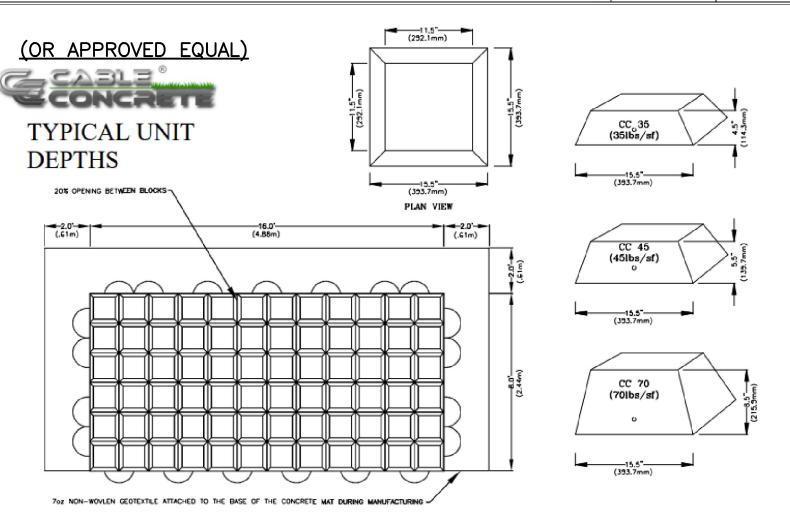
1. INLINE AND DRAIN BASIN TO BE NYLOPLAST OR APPROVED EQUAL. CONTACT INFO: NYLOPLAST-ADS 3130 VERONA AVENUE BUFORD, GEORGIA 30518
www.ADS-PIPE.com
(866) 888-8479
2. INSTALL PER MANUFACTURING SPECS AND DIRECTIONS. NYLOPLAST-ADS PVC STRUCTURE

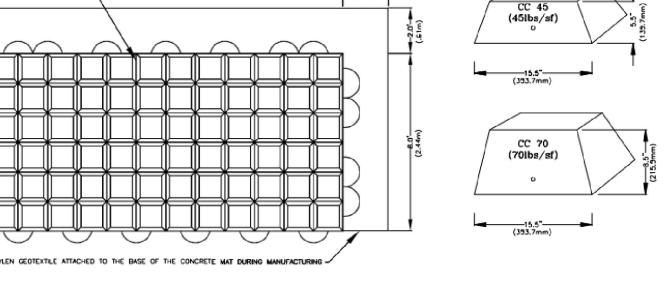


INLET BOX WITH TYPE M FRAME

1. ALL STORM SEWER INLETS MUST BE IDENTIFIED WITH A STORM DRAIN MARKER. STORM DRAIN MARKERS SHALL BE STAINLESS STEEL AFFIXED TO THE INLET HOOD WITH ADHESIVE, RIVETS, OR BOLTS. (MARKER MAY BE BOLTED TO THE GRATE IN OFF-ROAD LOCATIONS). MARKER SHALL HAVE A MINIMUM DIAMETER OF 3 1 INCHES AND INCLUDE "NO DUMPING-DRAINS TO WATERWAY" AND A FISH SYMBOL. ALTERNATE DESIGNS/SIZES MAY BE USED IF APPROVED BY THE TOWNSHIP.

INLET AND MANHOLE CONSTRUCTION. INLET AND MANHOLE CASTINGS AND CONCRETE CONSTRUCTION SHALL BE EQUIVALENT TO PENNDOT DESIGN STANDARDS. MANHOLE CASTINGS AND COVERS SHALL HAVE THE WORD "STORM" CAST IN TWO-INCH-HIGH LETTERS ON THE TOP OF THE COVER. ALL INLET GRATES SHALL BE "BICYCLE SAFE" HEAVY-DUTY STRUCTURAL STEEL. ALL STORM SEWER INLETS MUST BE IDENTIFIED WITH A STORM DRAIN MARKER ("ENVIRONMENTAL" TYPE).





CHECKERED BLOCK DETAIL

NOT TO SCALE



CGG/JPK/ROP CHECKED BY DRAWN BY PG/SR/ROP

OF BETI00056

00 -00-01606-ESTER TOWNSHIP, ALTH OF PENNSYLV BT

SERIAL NO.: 20213502293

LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL / CHRISTOPHER W. JENSEN

M ENGINEER

LICENSED PROFESSIONAL ENGINEER

STATE OF PA LICENSE No. PE076464

NO. PE76464

4/3/2023

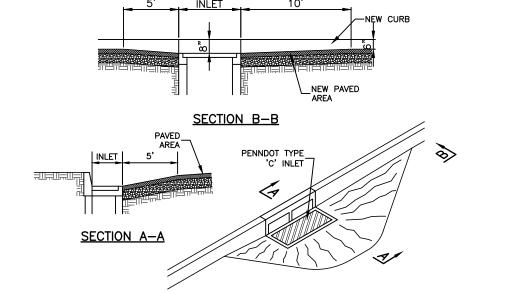
FAX 215-627-3459 www.tandmassociates.com OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA **DESIGNED BY**

1. ALL MATERIALS AND CONSTRUCTION METHODS TO MEET THE REQUIREMENTS OF PENNDOT PUBLICATION 408 AND 72-M (RC-34M), LATEST REVISION.

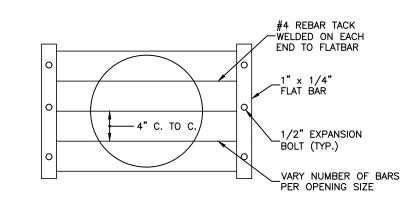
STRUCTURAL STEEL GRATE-BICYCLE SAFE

GUTTER FLOW

STRUCTURAL STEEL GRATE (BICYCLE SAFE)



ISOMETRIC VIEW INLET PAVING TAPER



1. THE NUMBER OF ROWS AND LENGTH OF REBAR REQUIRED DEPENDS ON OPENINGS. REBAR TO COVER THE ENTIRE SIZE OF THE OPENING. TYPICAL FOR ALL OUTLET OPENING SHAPES (CIRCULAR SHOWN GRAPHICALLY).

ALL MATERIAL TO BE EPOXY COATED. 5. CHILD SAFETY GRATES SHALL BE PROVIDED ON ALL ENDWALLS, (SEE DETAIL).

CHILD SAFETY GRATE

<u>DETAIL</u> D

FLEXSTORM® INLET FILTERS

FLEXSTORM PURE (PERMANENT) FILTERS

FILTERS FOR FRAMES/G			(OR A	PPROV	ED EQ	UAL)
Sizing Guidelines (Opening diameter up to)	Storage Capacity ft³ (m³)	FX-Large Sediment + Trash	FX+ Trash + Oils	PC-Oils, Fine Sediments & TSS	PC+ Excessive Oils, Fine Sediments & TSS	M
18" (450 mm)	1.6 (0.05)	62SHDRFX	62SHDRFXP	62SHDRPC	62SHDRPCP	289
24" (600 mm)	2.1 (0.06)	62MHDRFX	62MHDRFXP	62MHDRPC	62MHDRPCP	
36" (900 mm)	3.8 (0.11)	62LHDRFX	62LHDRFXP	62LHDRPC	62LHDRPCP	
42" (1050 mm)	4.2 (0.12)	62XLHDRFX	62XLHDRFXP	62XLHDRPC	62XLHDRPCP	

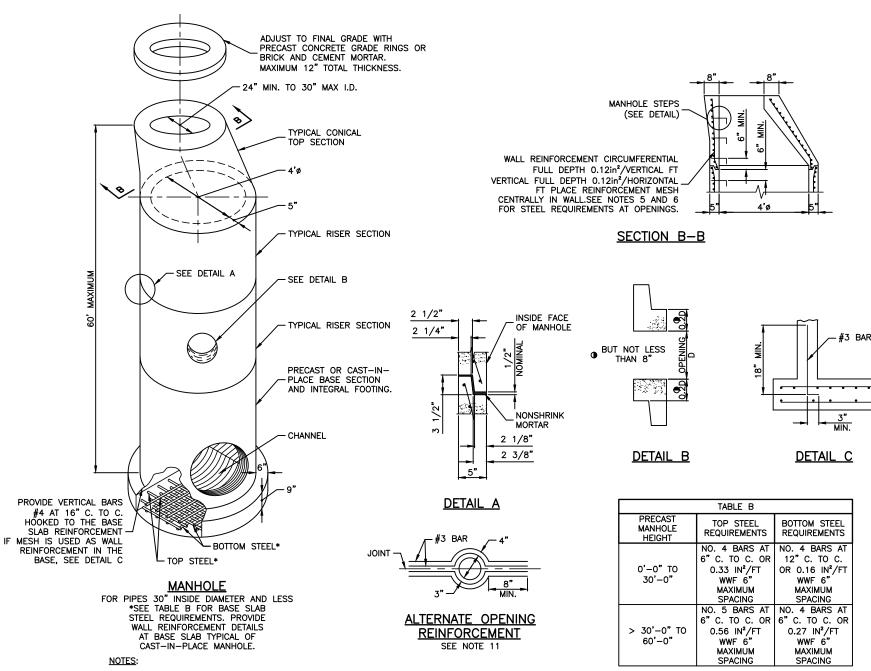
FILTERS FOR RECTANGULAR/

T	SQUARE FRAME	S/ GRAIES				
	Sizing Guidelines (Up to)	Storage Capacity ft³ (m³)	FX-Large Sediment + Trash	FX+ Trash + Oils	PC-Oils, Fine Sediments & TSS	PC+ Excessive Oils, Fine Sediments & TSS
	16" x 16" (400 x 400 mm)	1.6 (0.05)	62SHDFX	62SHDFXP	62SHDPC	62SHDPCP
	24" x 24" (600 x 600 mm)	2.1 (0.06)	62MHDFX	62MHDFXP	62MHDPC	62MHDPCP
	36" x 24" (900 x 600 mm)	3.8 (0.11)	62LHDFX	62LHDFXP	62LHDPC	62LHDPCP
	48" x 48" (1200 x 1200 mm)	6.6 (0.18)	62XLHDFX	62XLHDFXP	62XLHDPC	62XLHDPCP



GOND IN					
Sizing Guidelines	Storage Capacity ft³ (m³)	FX-Large Sediment + Trash	FX+ Trash + Oils	PC-Oils, Fine Sediments & TSS	PC+ Excessive Oils, Fine Sediments & TSS
Up to 4' (1.2 m)	3.3 (0.09)	6HDWM1FX	6HDWM1FXP	6HDWM1PC	6HDWM1PCP
Between 4' & 8' (1.2 & 2.4 m)	6.6 (0.18)	62HDWM2FX	62HDWM2FXP	62HDWM2PC	62HDWM2PCP
Between 8' & 12' (2.4 & 3.7 m)	9.9 (0.28)	62HDWM3FX	62HDWM3FXP	62HDWM3PC	62HDWM3PCP
Between 12' & 16' (3.6 m & 4.9 m)	13.2 (0.37)	62HDWM4FX	62HDWM4FXP	62HDWM4PC	62HDWM4PCP

*Custom sizes and bag depths available. Typical depth is 22" (550 mm).



NOTES:

1. PRECAST MANHOLES MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 714, MAY BE SUBSTITUTED FOR THE STANDARD CAST—IN—PLACE MANHOLE. FOR DEVIATION OR MODIFICATION OF THE STANDARDS, SUBMIT SHOP DRAWINGS FOR APPROVAL.

2. FOR RISERS OR BASE SECTIONS WITH OPENINGS, PROVIDE A MINIMUM HEIGHT OF SECTION SO AS TO PROVIDE AN UNCUT WALL EQUAL TO 20% OF THE OPENING, BUT NO LESS THAN 8°, BETWEEN THE OPENING AND THE CLOSEST JOINT BETWEEN RISERS — SEE DETAIL B.

3. FOR PRECAST RISER OR BASE SECTIONS WITH ONE OPENING LOCATED AT DEPTHS TO 60′, PROVIDE CIRCUMFERENTIAL REINFORCEMENT IN ACCORDANCE WITH SECTION B—B. FOR SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTH OF 10′ AND LESS, PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.16 IN²/VERTICAL FT. FOR THE HEIGHT OF RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTH GREATER THAN 10′, BUT LESS THAN OR EQUAL TO 25′, PROVIDE CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.44 IN²/VERTICAL FT. FOR THE HEIGHT OF THE RISER OR BASE SECTION.

4. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTHS GREATER THAN 25′, USE A 10″ THICK WALL RISER OR BASE SECTION WITH CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.22 IN²/VERTICAL FT. EACH FACE.

5. FOR RISERS OR BASE SECTIONS WITH TWO OR MORE OPENINGS, LOCATED AT DEPTHS GREATER THAN 25′, USE A 10″ THICK WALL RISER OR BASE SECTION WITH CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.22 IN²/VERTICAL FT. EACH FACE.

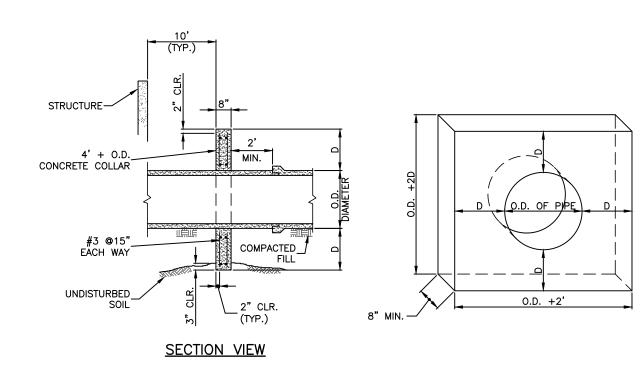
6. MARK RISERS OR BASE SECTIONS WITH TWO OR SHOULD REPORTINGS AS SHOWN ON REINFORCEMENT DETAILS AT OPENINGS.

8. PROVIDE ANDITIONAL REINFORCEMENT BARS AROUND OPENINGS AS SHOWN ON REINFORCEMENT DETAILS AT OPENINGS.

8. PROVIDE MANHOLE STEPS MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION DIMENSION FOR NON—DETERIORATING MATERIAL STEPS.

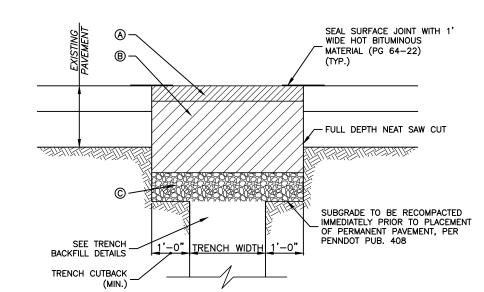
10. MECHANICAL ANCHOR REQUIRED FOR INSTALLATION OF STEPS WITHOUT HOOKS.

11. THE ALTERNATE OPENING REINFORCEMENT DETAIL IS NOT DESIRABLE BY DESIGN. USE IT TO MEET EXISTING PIPE ELEVATIONS.



USE PENNDOT CLASS A CONCRETE.
 MAINTAIN A MINIMUM 6" COVER OVER ANTI-SEEP COLLAR.
 THE CONNECTION OF ANTI-SEEP COLLARS TO OUTLET PIPES SHALL BE WATERTIGHT.
 O-RING GASKETS SHALL BE USED ON BASIN DISCHARGE PIPES THROUGH BERM AREAS.
 MAXIMUM SPACING OF ANTI-SEEP COLLARS THROUGH BERM AREAS SHALL BE 40 FEET.
 MINIMUM REINFORCEMENT SHALL BE PROVIDED USING #3 BARS ◎ 1'-3" HORIZONTAL AND VERTICAL SPACING.
 PRECAST ANTI-SEEP COLLARS SHALL NOT BE USED IN PLACE OF CAST-IN-PLACE COLLARS.
 A QUALITY NON-SHRINK GROUT MATERIAL SHALL BE USED TO SEAL THE ANNULAR SPACE BETWEEN THE COLLAR AND THE PIPE SURFACE. THE GROUT SHALL BE INSTALLED FOR THE FULL THICKNESS OF THE COLLAR.

ANTI-SEEP COLLAR



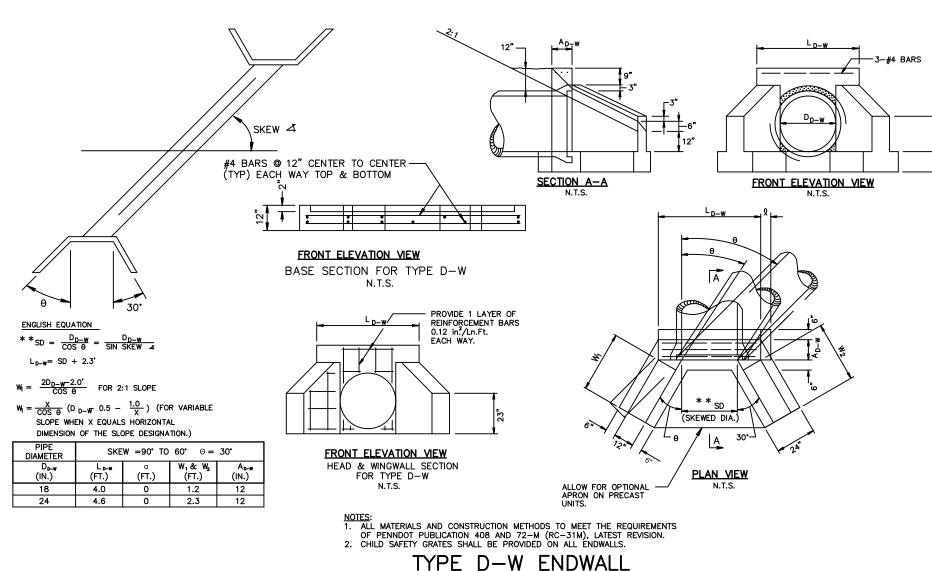
EXPOSED VERTICAL AND HORIZONTAL SURFACES SHALL BE PREPARED AS STATED IN PENNDOT PUB. 408, SECT. 401.3(f).
 TACK COAT MATERIAL SHALL BE APPLIED TO THE ENTIRE SURFACE PRIOR TO APPLICATION OF THE WEARING SURFACE UNLESS WAIVED BY PENNDOT.
 ALL MATERIAL AND CONSTRUCTION METHODS SHALL COMPLY WITH PENNDOT SECURIOR DIVIDIOR OF THE PROPERTY.

ALL MATERIAL AND CONSTRUCTION METHODS SHALL COMPLY WITH PENNDOT SPECIFICATIONS, PUBLICATION 408, LATEST REVISION.
 IF WORK IS COMPLETED WITHIN PENNDOT RIGHT OF WAY, SPECIAL CONDITIONS OF THE HIGHWAY OCCUPANCY PERMIT SHALL SUPERCEDE THIS DETAIL.
 REFER TO TYPICAL STREET CROSS SECTION FOR DESCRIPTIONS OF A,B,C AND D.

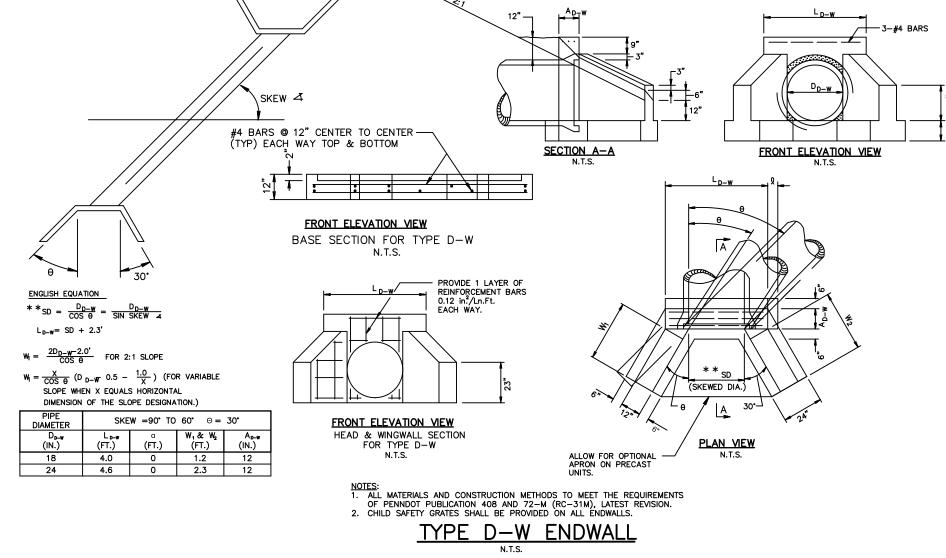
PAVEMENT RESTORATION (BITUMINOUS)

(A) SUPERPAVE ASPHALT MIXTURE DESIGN, HMA WEARING COURSE, PG 64-22, 0 TO <0.3 MILLION DESIGN ESALS, 9.5 MM MIXTURE, 1 1/2" DEPTH, SRL H ® SUPERPAVE ASPHALT MIXTURE DESIGN, HMA BASE COURSE, PG 64-22, 0 TO <0.3

MILLION DESIGN ESALS, 25 MM MIXTURE, 4 1/2" DEPTH © SUBBASE (PENNDOT. 2A) 6" DEPTH



NOTES: 1. STEPS FOR ALL MANHOLES AND INLETS SHALL BE COPOLYMER POLYPROPYLENE PLASTIC MODEL NO. PS-4-B AS MANUFACTURED BY M.A. 2. THE PORTION TO BE EMBEDDED IN THE CONCRETE SHALL BE IN ACCORDANCE WITH THE LATEST O.S.H.A. STANDARDS (3" MINIMUM 3. ALL MANHOLE STEPS TO MEET OR EXCEED ASTM AND O.S.H.A. STANDARDS. MANHOLE/INLET STEP DETAIL



PROFESSIONAL CHRISTOPHER W. JENSE T ENGINEER NO. PE76464 4/3/2023 LICENSED PROFESSIONAL ENGINEER STATE OF PA LICENSE No. PE076464

CHRISTOPHER W. JENSEN, P.E.

LICENSED PROFESSIONAL ENGINEER

'-00-01606-ESTER TOWNSHIP,

BT



1700 MARKET STREET, SUITE 3110 PHILADELPHIA, PA 19103 TEL 215-282-7850 FAX 215-627-3459 www.tandmassociates.com

OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

CGG/JPK/ROP HECKED BY

RAWN BY PG/SR/ROP

AS NOTED

1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY:
BEST MANAGEMENT PRODUCTS, INC. OR PRE-APPROVED EQUAL.
53 MT. ARCHER RD.
LYME, CT 06371
(860)434-0277, (860)434-3195 FAX
TOLL FREE: (800)504-8008 OR (888)354-7585
WFB SITF: www.bmpins.com

TOLL FREE: (800)504-8008 OR (888)354-7585

WEB SITE: www.bmpinc.com

2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.

3. ALL HOODS SHALL BE PLACED OVER THE OUTLET PIPE OF THE NOTED STRUCTURES.

4. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL)

5. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATION RECOMMENDATION.

6. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.

7. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING

TO STRUCTURE CONFIGURATION.

8. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF

O. THE SORFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOUTH AND FREE OF LOOSE MATERIAL.

9. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8' STAINLESS STEEL BOLTS AND OIL—RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)

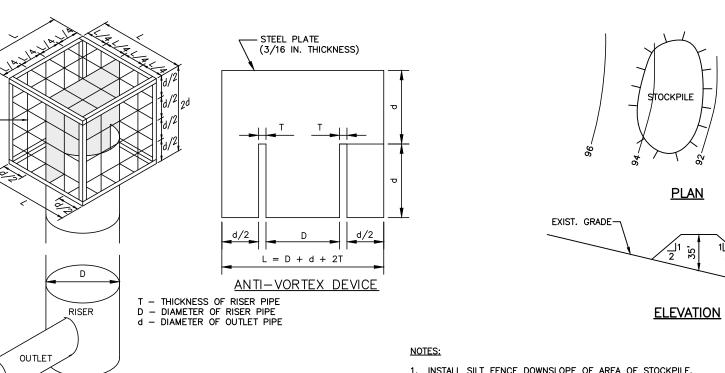
10. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT. INSTALLATION INSTRUCTIONS

A. INSTALLATION INSTRUCTIONS

B. DVC ANTI-SIPHON VENT DIDE AND ADAPTED. 3. PVC ANTI—SIPHON VENT PIPE AND ADAPTER
C. OIL—RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
D. 3/8" STAINLESS STEEL BOLTS

ANCHOR SHIELDS 11. CONTRACTOR SHALL SEQUENCE INSTALLATION OF SNOUTS WITH STORM STRUCTURES AND REQUIRED AS-BUILT SURVEYS ACCORDINGLY. 12. CONCRETE (TO SHAPE BOTTOM) SHALL NOT BE PROVIDED IN SUMPS OF STRUCTURES WITH SNOUTS

THE BLANKET SHOULD NOT BE STRETCHED; OVERLAP BLANKET ENDS 6 IN. MIN. WITH THE UPSLOPE BLANKED OVERLYING THE DOWNSLOPE BLANKET REFER TO MANUF. RECOMMENDED STAPLING PATTERN FOR STEEPNESS AND LENGTH OF SLOPE BEING BLANKETED IT MUST MAINTAIN (SHINGLE STYLE). STAPLE SECURELY. SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET. PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS. BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS. STANDARD CONSTRUCTION DETAIL #11-1 **EROSION CONTROL BLANKET INSTALLATION** SLOPE LENGTH DIAMETER (in.) SEE ESC PLANS 33.0 SEE ESC PLANS SEE ESC PLANS SEE ESC PLANS 33.0 SEE ESC PLANS SEE ESC PLANS SEE ESC PLANS 33.0 SEE ESC PLANS 33.0 SEE ESC PLANS 33.0 SEE ESC PLANS



STANDARD CONSTRUCTION DETAIL #7-5

TRASH RACK AND ANTI-VORTEX DEVICE

EXISTING TREE TO BE

FERTILIZE, WATER AND

(SEE DETAIL)

PREPARE SEED BED

BLANKET INSTALLATION

(INCLUDING APPLICATION OF LIME

FERTILIZER AND SEED) PRIOR TO

WHERE ROOT LOSS WILL OCCUR, PRUNE ROOTS 1' BEYOND THE FENCE.

CLEAN CUTS. BACKFILL IMMEDIATELY AND COVER WITH 3" OF MULCH.

- USE A VIBRATING KNIFE OR NARROW TRENCHER TO MAKE SHARP

INSTALL BEGINNING OF ROLL

IN 6 IN. x 6 IN. ANCHOR
TRENCH, STAPLE, BACKFILL
AND COMPACT SOIL

NO ENTRY, STORAGE, DISTURBANCE OR ALTERATION SHALL OCCUR IN AREA WITHIN TREE PROTECTION FENCE.

TREE PROTECTION AND PRUNING

SLOPE, ROLL BLANKETS IN DIRECTION OF WATER FLOW

ORANGE CONSTRUCTION FENCE

- EXISTING GRADE

#4 BARS (TYP) WELDED TO — THE ANGLES AND AT EACH

INTERSECTION OF THE BARS.

PRUNE LIMBS IN THE WAY

START OF CONSTRUCTION

FENCE TO BE INSTALLED 15' FROM TREE TRUNK OR 2'

OVERLAPPED

(4 IN. MIN.)

SOCK NO.

WHICHEVER IS GREATER

NOTES:

. INSTALL SILT FENCE DOWNSLOPE OF AREA OF STOCKPILE. 2. PLACE STOCKPILE IN AREAS SHOWN ON EROSION CONTROL PLAN WITHOUT BLOCKING NATURAL DRAINAGE PATTERNS FOLLOW DIMENSIONS SHOWN ABOVE. HEIGHT SHOULD NOT EXCEED 35 FT. SIDE SLOPES SHOULD NOT BE STEEPER 1. SEED IMMEDIATELY WITH PENNDOT SEEDING FORMULA "C" IF MATERIAL IS NOT TO BE USED WITHIN 20 DAYS. FOLLOW "SEEDING, FERTILIZATION SCHEDULE & SPECIFICATIONS."

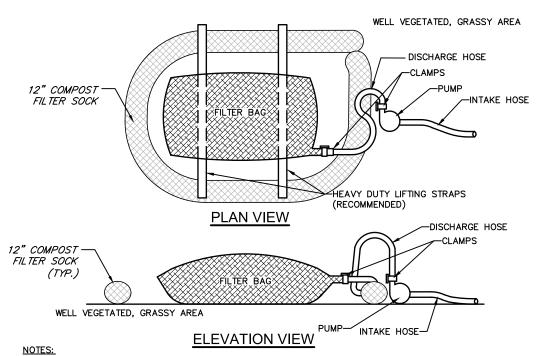
5. LOCATION(S) AND SIZE(S) OF SOIL STOCKPILES ARE APPROXIMATE AND SHALL BE ADJUSTED PER FIELD AND CONSTRUCTION SEQUENCE CONDITIONS. CONTRACTOR SHALL VERIFY REQUIRED SIZE(S). REQUIREMENTS FROM THE STANDARDS DETAIL MUST BE FOLLOWED FOR STOCKPILES.

18" SILT FENCE OR 8" SILT SOXX (OR GREATER)

SEED W/ PENNDOT FORMULA -"C" IF NOT USED WITHIN

> 18" SILT FENCE OR 8" SILT SOXX (OR GREATER)

TOPSOIL STOCKPILE AND MAINTENANCE

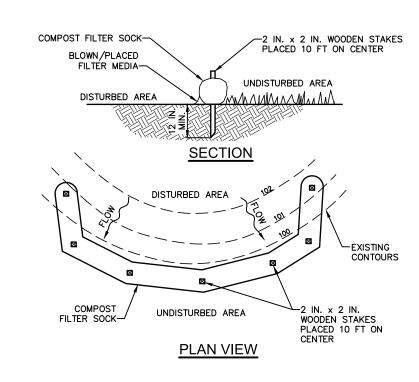


LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

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

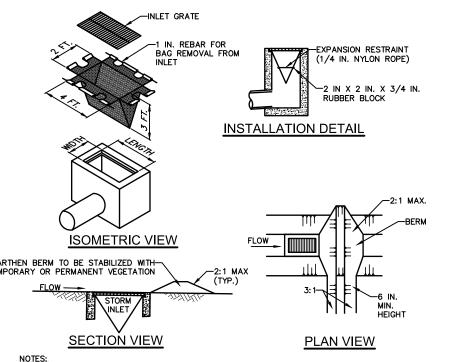
A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED. BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS. DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR INSTALLATIONS IN SPECIAL PROTECTION OR IMPAIRED WATERSHEDS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV AND IMPAIRED WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE. THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE. THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED. FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

MODIFIED CONSTRUCTION DETAIL #3-16 ABACT PUMPED WATER FILTER BAG FOR HQ, EV AND IMPAIRED WATERSHEDS NOTE: MODIFICATION TO STANDARD DETAIL /TALICIZED.



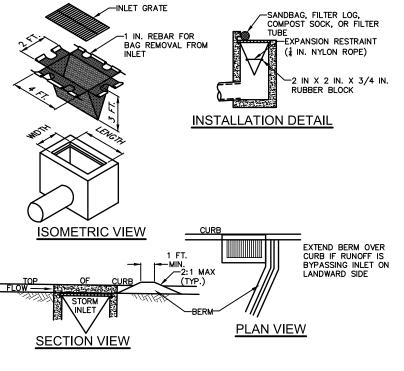
SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN. COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION. BIODEGRADABLE COMPOST 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.

STANDARD CONSTRUCTION DETAIL #4-1 COMPOST FILTER SOCK



MAXIMUM DRAINAGE AREA = 1/2 ACRE. INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS. ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY. AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE. INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES. DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-16 FILTER BAG INLET PROTECTION - TYPE M INLET

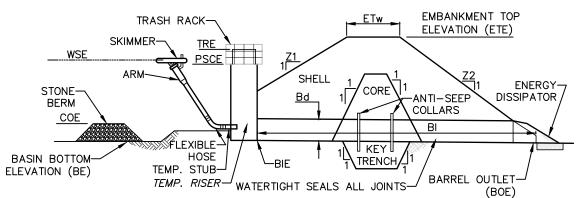


MAXIMUM DRAINAGE AREA = 1/2 ACRE. INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS. ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT. AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

STANDARD CONSTRUCTION DETAIL #4-15 FILTER BAG INLET PROTECTION - TYPE C INLET



			TEMP RISER	TEMP RISER	TEMP		EMBA	NKMENT		CLEAN OUT	ВОТТОМ
BASIN NO.	Z1 (FT)	Z2 (FT)	DIA TRd (IN)	CREST ELEV TRCE (FT)	RISER MAT'L	TOP ELEV ETE (FT)	TOP WIDTH ETw (FT)	KEY TRENCH DEPTH (FT)	KEY TRENCH WIDTH (FT)	ELEV COE (FT)	ELEV BE (FT)
Α	3	3	48	412.20	HDPE	415.50	10	2	4	408.3	407.0
		SKIMM	IER		OU	TLET BAR	REL				
	DIA SAd	LENGT SAi	H MAT'I	DIA Bd	INLET ELEV BIE	ΜΔΤΊ	LENGTH BI	OUTLET ELEV			

NOTES: SEDIMENT BASINS, INCLUDING ALL APPURTENANT WORKS, SHALL BE CONSTRUCTED TO THE DETAIL AND DIMENSIONS SHOWN ON THE E&S PLAN DRAWINGS.

(IN) (FT)

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 TO 9 IN. THE MAXIMUM ROCK SIZE SHALL BE NO GREATER THAN 2/3 THE LIFT

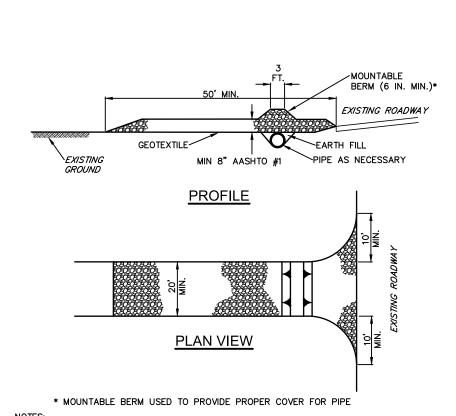
UPON COMPLETION, THE EMBANKMENT SHALL BE SEEDED, MULCHED, BLANKETED OR OTHERWISE STABILIZED ACCORDING TO THE SPECIFICATIONS OF THE E&S PLAN DRAWINGS. TREES SHALL NOT BE PLANTED ON THE

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. A CLEAN OUT STAKE SHALL BE PLACED NEAR THE CENTER OF EACH BASIN. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED E CLEAN OUT ELEVATION ON THE STAKE AND THE BASIN RESTORED TO ITS ORIGINAL DIMENSIONS. DISPOSE OF MATERIALS REMOVED FROM THE BASIN IN THE MANNER DESCRIBED IN THE E&S PLAN.

BASIN EMBANKMENTS, SPILLWAYS, AND OUTLETS SHALL BE INSPECTED FOR EROSION, PIPING AND SETTLEMENT. NECESSARY REPAIRS SHALL BE IMMEDIATELY. DISPLACED RIPRAP WITHIN THE OUTLET ENERGY DISSIPATER SHALL

ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE STABILIZED INSIDE THE BASIN BEFORE CONVERSION TO A STORMWATER MANAGEMENT FACILITY. THE DEVICE SHOWN IN STANDARD CONSTRUCTION DETAIL #7-16 MAY BE USED TO DEWATER SATURATED SEDIMENT PRIOR TO ITS REMOVAL. ROCK FILTERS SHALL

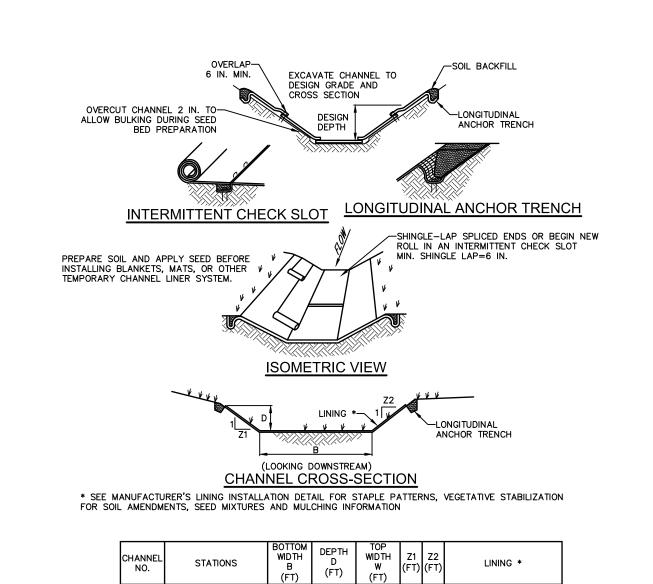
MODIFIED CONSTRUCTION DETAIL #7-4 SEDIMENT BASIN EMBANKMENT AND SPILLWAY DETAILS - SKIMMER NOT TO SCALE



REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE. RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE. 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. 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. VACUUM STREET SWEEPING OF ON—SITE PAVED AREAS FROM ROCK CONSTRUCTION ENTRANCE TO ROADWAY SHALL BE PERFORMED SUCH THAT NO SEDIMENT IS DEPOSITED ON ROADWAYS. VACUUMING TO BE PERFORMED AT A MINIMUM AT THE END OF DEPOSITED ON ROADWAYS. VACUUMING TO BE PERFORMED AT A MINIMUM AT THE END OF EACH WORK DAY OR MORE FREQUENTLY AS NECESSARY. IF ROADWAY DEPOSITION OCCURS, VACUUM ROADWAY IMMEDIATELY. ALL VACUUM COLLECTION SHALL BE DEPOSITED ON SITE OR DISPOSED OF PROPERLY. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

MODIFIED CONSTRUCTION DETAIL #3-1 ABACT ROCK CONSTRUCTION ENTRANCE / STREET SWEEPING NOT TO SCALE

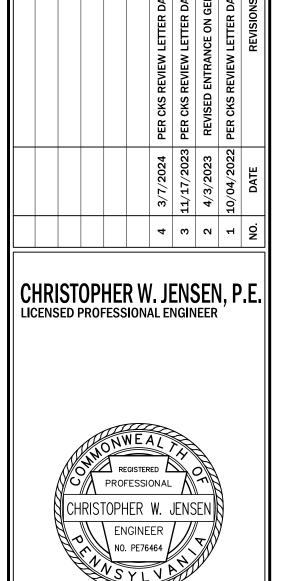
NOTE: MODIFICATION TO STANDARD DETAIL ITALICIZED.



ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES. CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS
PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

NO MORE THAN ONE THIRD OF THE SHOOT (GRASS LEAF) SHALL BE REMOVED IN ANY MOWING. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED. EXCESS VEGETATION SHALL BE REMOVED FROM PERMANENT CHANNELS TO ENSURE SUFFICIENT CHANNEL CAPACITY.

STANDARD CONSTRUCTION DETAIL #6-1 VEGETATED CHANNEL



LICENSED PROFESSIONAL ENGINEER

STATE OF PA LICENSE No. PE076464

4/3/2023

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OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

CGG/JPK/ROP HECKED B RAWN BY PG/SR/ROP

BETI00056

GENERAL EROSION & SEDIMENT CONTROL PROCEDURES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN PREPARED BY T&M ASSOCIATES. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THI REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENC MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND

OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE OF THE MONTGOMERY COUNTY CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.

3. AT LEAST THREE (3) DAYS PRIOR TO THE START OF ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.

 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 AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED

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. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS UNLESS REQUIRED TO MINIMIZE DISTURBANCE.

TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED AT THE LOCATION(S) SHOWN ON THE PLAN IN THE AMOUNTS NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. TOPSOIL SHOULD CONTAIN ABOUT 45% MINERAL MATERIAL, 50% PORE SPACE, AND 5% ORGANIC MATERIAL. TABLE 11.1 (ON THIS SHEET) GIVES THE APPROPRIATE QUANTITIES OF TOPSOIL FOR VARIOUS DEPTHS. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER

IMMFDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES OF MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF

10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND RECYCLED OR DISPOSED IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THIS 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 CERTIFIED CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN

13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER UNDISTURBED VEGETATED AREAS. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG 14. VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT DIRECTLY FROM THE CONSTRUCTION SITE ONTO ANY PUBLIC ROAD. VEHICLES AND EQUIPMENT MAY ENTER AND EXIT THE CONSTRUCTION SITE ONLY VIA A

15. 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. THE CONTRACTOR WILL MAINTAIN AND MAKE AVAILABLE TO MONTGOMERY COUNTY CONSERVATION DISTRICT COMPLETE, WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS. 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, PEDI ACCEMENT BMS OR MODIFICATIONS OF THOSE INSTALLED WILL BE REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE

16. 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.

SEDIMENT TRACKED ONTO ANY ROADWAY OR SIDEWALK SHALL B RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND AS NEEDED THROUGHOUT THE WORKDAY OR AS DIRECTED BY CONSERVATION DISTRICT OR MUNICIPALITY AND DISPOSED AS A MANNER DESCRIBED IN THIS INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.

ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN A MANNER DESCRIBED ON PLAN DRAWINGS. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES. 19. UPON FINAL GRADING, 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 ÆGETATED SHALL HAVE A MINIMUM FOUR (4) INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM

20. 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. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES. 21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.

22. 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. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO ELLS

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, SHALI BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.

IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT AND UPON RECEIPT OF CLEAN TEST SAMPLES THE OPERATOR SHALL STABILIZE THOSE AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH OR OTHER PROTECTIVE BLANKETING SHALL BE APPLIED AT THE RECOMMENDED RATES AND METHODS. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE RE-DISTURBED WITHIN 1 YEAR SHALL BE SEEDED AND MULCHED WITH A QUICK GROWING TEMPORARY SEEDING MIXTURE AND MULCH. DISTURBED AREAS, WHICH ARE EITHER AT FINISHED GRADE OR WILL NOT BE RE-DISTURBED 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. EROSION AND SEDIMENT CONTROLS (BMP'S) MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE GENERAL SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE CONTROLS. EROSION AND SEDIMENT BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO ER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE

29. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS. TEMPORARY CONTROLS MAY BE REMOVED ONLY UPON APPROVAL OF THE MONTGOMERY

30. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE CONTROLS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVALS/CONVERSIONS ARE TO BE DONE ONLY

31. FAILURE TO CORRECTLY INSTALL SEDIMENT CONTROL FACILITIES OR FAILURE TO PREVENT SEDIMENT LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTIONS TO RESOLVE FAILURES OF SEDIMENT CONTROL FACILITIES MAY RESULT IN ADMINISTRATIVE, CIVIL AND/OF CRIMINAL PENALTIES BEING INSTITUTED BY THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION AS DEFINED IN SECTION 602 OF THE CLEAN STREAMS LAW OF PENNSYLVANIA. 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.

MAINTENANCE OF EROSION CONTROL <u>FACILITIES</u>

32. IN THE EVENT OF SINKHOLE DISCOVERY OR OCCURRENCE, A PROFESSIONAL GEOLOGIST OR ENGINEER SHALL BE CONTACTED CONCERNING MITIGATION. ADDITIONALY, THE MONTGOMERY COUNTY CONSERVATION DISTRICT SHALL BE IMMEDIATELY MADE AWARE OF THE SINKHOLE DISCOVERY.

THE CONTRACTOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.

STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR

34. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III,

36. THE OPERATOR / PERMITTEE SHALL BE RESPONSIBLE FOR THE PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION

CONTROLS (BMPS) AND RELATED ITEMS INCLUDED WITHIN THIS PLAN AND

37. EROSION AND SEDIMENT BMP CONTROLS MUST BE CONSISTENT WITH STANDARDS AND SPECIFICATIONS OF THE DEPARTMENT OF ENVIRONMENTAL

38. ALL EROSION AND SEDIMENTATION CONTROL FACILITIES SHALL BE MAINTAINED IN THE APPROVED DESIGN CONDITION THROUGHOUT THE

CONSTRUCTION PERIOD OR UNTIL THE DESIGN AREA IS STABILIZED.

ELIMINATE ALL SUCH PROBLEMS.

OF MORE THAN TWENTY (20) DAYS.

PROTECTION "EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL"

39. SHOULD ANY MEASURES CONTAINED WITHIN THIS PLAN PROVE INCAPABLE OF ADEQUATELY REMOVING SEDIMENT FROM ON—SITE FLOWS PRIOR TO DISCHARGE OR OF STABILIZING THE SURFACES INVOLVED, ADDITIONAL MEASURES MUST BE IMMEDIATELY IMPLEMENTED BY THE OPERATOR TO

40. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE CONTRACTOR

MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE MONTGOMERY COUNTY

41. THE CONTRACTOR SHALL NOTIFY THE MONTGOMERY COUNTY CONSERVATION DISTRICT PRIOR TO ANY CESSATION IN EARTHMOVING ACTIVITIES

CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE APPLICABLE COUNTY CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR

ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR

43. MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS

44. HAY OR STRAW MULCH MUST BE APPLIED TO ALL SEEDED AREAS AT 3.0

6. SEDIMENT MUST BE REMOVED FROM STORM WATER INLET PROTECTION

47. 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

48. ALL VEGETATED AREAS IN UNDISTURBED SECTIONS WILL REMAIN FOR EROSION PROTECTION. CONTRACTORS AND EQUIPMENT WILL BE RESTRAINED FROM VENTURING INTO ALL AREAS NOT BEING GRADED. DISTURBED AREAS WILL REMAIN EXPOSED FOR THE SHORTEST TIME POSSIBLE.

49. DUST WILL BE KEPT WITHIN TOLERABLE LIMITS BY EITHER THE USE OF

50. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO

RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS HAS BEEN ACHIEVED ACROSS THE UPSLOPE AREAS.

DISTURBANCE ACTIVITY THAT WILL EXCEED 4 DAYS, OR ANY STAGE THEREOF, WITH THE EXCEPTION OF REMEDIATION AREAS WITH PENDING TEST SAMPLE RESULTS, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE

APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION. (PLEASE NOTE THA HYDROSEED IS NOT CONSIDERED STABILIZATION UNTIL IT GERMINATES). HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE.

VISUAL INSPECTIONS

1) THE PERMITTEE AND CO-PERMITTEE(S) MUST ENSURE THAT VISUAL SITE INSPECTIONS ARE CONDUCTED WEEKLY, AND WITHIN 24 HOURS AFTER EACH MEASURABLE RAINFALL EVENT THROUGHOUT THE DURATION OF CONSTRUCTION WAS

DISTRICT. THE VISUAL SITE INSPECTIONS AND REPORTS SHALL BE COMPLETED IN A FORMAT PROVIDED BY THE DEPARTMENT, AND CONDUCTED BY QUALIFIED PERSONNEL, TRAINED AND EXPERIENCED IN EROSION AND SEDIMENT CONTROL, TO ASCERTAIN THAT E&S BMPS AND PCSM BMPS ARE PROPERLY

CONSTRUCTED AND MAINTAINED TO EFFECTIVELY MINIMIZE POLLUTION TO THE WATERS OF THIS COMMONWEALTH. A WRITTEN REPORT OF EACH INSPECTION

SHALL BE LOGGED ONTO DEP FORM 3150-FM-BWEW0083 DATED 2/2012

NONCOMPLIANCE REPORTING
WHERE E&S, PCSM OR PPC BMPS ARE FOUND TO BE INOPERATIVE OR INEFFECTIVE DURING AN INSPECTION, OR ANY OTHER TIME, THE PERMITTEE

E INITIAL CONTACT. NONCOMPLIANCE REPORTS SHALL INCLUDE THE

AND CO-PERMITTEE(S) SHALL, WITHIN 24 HOURS, CONTACT THE DEPARTMEN OR AUTHORIZED CONSERVATION DISTRICT, BY PHONE OR PERSONAL CONTAC FOLLOWED BY THE SUBMISSION OF A WRITTEN REPORT WITHIN 5 DAYS OF

OLLOWING INFORMATION:

) ANY CONDITION ON THE PROJECT SITE WHICH MAY ENDANGER PUBLIC

HEALTH, SAFETY, OR THE ENVIRONMENT, OR INVOLVE INCIDENTS WHICH CAUSE OR THREATEN POLLUTION;

THE PERIOD OF NONCOMPLIANCE, INCLUDING THE EXACT DATES AND

THE DATE OR SCHEDULE OF DATES, AND IDENTIFYING REMEDIES FOR

REDUCTION, LOSS, OR FAILURE OF THE BMPS UPON REDUCTION, LOSS, OR FAILURE OF THE BMPS, THE PERMITTEE AND

CO-PERMITTEE(S) SHALL TAKE IMMEDIATE ACTION TO RESTORE THE BMPS OR PROVIDE AN ALTERNATE METHOD OF TREATMENT. SUCH RESTORED BMPS OR

ALTERNATE TREATMENT SHALL BE AT LEAST AS EFFECTIVE AS THE ORIGINAL

1. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF

2. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE REUSED, SALVAGED, REINSTALLED, OR OTHERWISE INDICATED TO REMAIN ON THE PROPERTY, DEMOLISHED OR EXCAVATED MATERIALS SHALL BE REMOVED FROM THE SITE. MATERIALS SLATED FOR REMOVAL FROM THE SITE SHALL BE

3. DEBRIS SHALL NOT BE PERMITTED TO ACCUMULATE ON THE JOB-SITE

OR OTHER GOVERNMENTAL AGENCY CURRENT REGULATIONS.

THE OPERATION SHALL REMOVE FROM THE SITE, RESTCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTE IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL OR OTHER GOVERNMENT AGENCY CURRENT REGULATIONS INCLUDING BUT NOT LIMITED TO: THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE

OSED OF IN ACCORDANCE WITH ANY AND ALL APPLICABLE MUNICIPAL

DUST AND DIRT SHALL BE HELD TO A MINIMUM DURING DEMOLITION, BY WETTING DOWN, AS REQUIRED. ON SITE BURNING OF MATERIALS WILL NOT BE PERMITTED. AT THE COMPLETION OF WORK, THE ENTIRE AREA

NVOLVED SHALL BE CLEAN AND LEFT IN A NEAT CONDITION, FREE OF

4. RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH OR FROM THIS PROJECT SITE SHALL BE UNDERTAKEN IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION RULES AND

SEDIMENT REMOVED FROM CONTROL FACILITIES AS A PART OF REGULAR MAINTENANCE SHALL BE DISPOSED OF UPSLOPE OF CONTROL FACILITIES IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.

6. REFER TO THE SITE / RECORD PLAN FOR ADDITIONAL NOTES.

should be 2,000 lb/acre at a minimum.

RECYCLING OR DISPOSAL METHODS

STEPS BEING TAKEN TO REDUCE, ELIMINATE, AND PREVENT RECURRENCE

TIMES AND/OR ANTICIPATED TIME WHEN THE ACTIVITY WILL RETURN TO

AND UNTIL THE RECEIPT AND ACKNOWLEDGEMENT OF THE NOTICE OF

ERMINATION (NOT) BY THE DEPARTMENT OR AUTHORIZED CONSERVATION

MONITORING, INSPECTION, AND REPORTING

REQUIREMENTS

F THE NONCOMPLIANCE: AND

CORRECTING NONCOMPLIANCE CONDITIONS.

51. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH

45. CLEAN FILL AND TOPSOIL STOCKPILE HEIGHTS MUST NOT EXCEED 35

42. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT

TONS PER ACRE (SEE TABLE 11.6 ON THIS SHEET).

CONSTRUCTION, STABILIZATION AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROLS AND RELATED ITEMS INCLUDED WITHIN THE PLAN HEREWITH. THE CONTRACTOR SHALL SCHEDULE AND CONDUCT HIS OPERATIONS TO MINIMIZE EROSION OF SOILS AND TO PREVENT SILTING AND MUDDYING OF STREAMS, RIVERS AND DRAINAGE SYSTEMS EROSION AND SEDIMENTATION POLLUTION CONTROL SPECIALISTS'

CONTACTS: MONTGOMERY COUNTY CONSERVATION DISTRICT: (610) 925-4920 PADEP SOUTHEAST REGIONAL OFFICE (484) 250-5900 REMAIN IN PLACE UNTIL THE SITE IS STABILIZED, REGARDLESS IF CONSTRUCTION IS TAKING PLACE OR NOT. 4. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT POLLUTION

CONTROLS (BMPS) MUST BE PROPERLY MAINTAINED. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. A WRITTEN REPORT OF EACH INSPECTION SHALL BE LOGGED ONTO DEP FORM 3150-FM-BWEW0083 DATED 2/2012 AND KEPT ON SITE AT ALL TIMES. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND RENETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT CONTROLS OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.

5. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES. SEEDED AREAS THAT WASH OUT MUST BE FILLED AND GRADED AS NECESSARY, AND THEN RESEEDED, AN ANCHORING METHOD SHOULD THEN BE USED TO HOLD SEED AND MULCH IN PLACE; THIS IS ESPECIALLY IMPORTANT AROUND WATER COURSES, IN SWALES, AND AREAS OF CONCENTRATED FLOWS,

7. IN THE EVENT OWNERS OF THE PROPERTY OR THE OPERATOR FAILS TO PROPERLY MAINTAIN THE CONTROL FACILITIES, THE TOWNSHIP SHALL HAVE THE RIGHT TO ENTER SAID AREA AND PERFORM THE REQUIRED MAINTENANCE

IN THE EVENT THAT THE DEPARTMENT OF ENVIRONMENTAL PROTECTION 8. IN THE EVENT THAT THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE MONTGOMERY COUNTY CONSERVATION DISTRICT, THE MUNICIPALITY OR THE DESIGN ENGINEER OR THEIR AGENTS DEEM THAT ADDITIONAL CONTROLS, MEASURES OR PROCEDURES BEYOND THOSE SHOWN OR DESCRIBED ARE NECESSARY TO CONTROL OR CORRECT CONDITIONS WHICH WERE UNFORESEEN DURING THE DESIGN STAGE, THE CONTRACTOR SHALL BE RESPONSIBLE TO IMPLEMENT ADDITIONAL CONTROLS, MEASURES OR PROCEDURES AS IS DEEMED REASONABLY NECESSARY AND WARRANTED. REASONABLY NECESSARY AND WARRANTED.

SURROUNDING ROADS. ANY SEDIMENT THAT IS TRACKED ONTO THE SURROUNDING ROADS MUST BE CLEANED OFF BEFORE THE END OF THE DAY UTILIZING MECHANICAL METHODS OR VIA HAND SWEEPING TO THE SATISFACTION OF THE MONTGOMERY COUNTY CONSERVATION DISTRICT AND NY FILTER FABRIC FENCE, WHICH HAS BEEN UNDERMINED OR TOPPED, MUST BE REPLACED IMMEDIATELY WITH ROCK FILTER OUTLETS.

ANY SOIL BORROW OR SPOIL SITES, ON OR OFFSITE SHALL HAVE AN APPROVED AND IMPLEMENTED EROSION CONTROL PLAN BY THE MONTGOMERY COUNTY CONSERVATION DISTRICT. TRANSPORTATION OF ANY EXCESS MATERIALS SHALL BE SUCH THAT SPILLAGE, TRACKING OFF SITE AND OTHER DISTURBANCES ARE KEPT TO A MINIMUM.

12. THE CONTRACTOR SHALL PERIODICALLY AND ESPECIALLY AFTER HEAVY RAINFALL, INSPECT ALL CONTROL FACILITIES FOR PROPER FUNCTION. FACILITIES SHALL BE REPAIRED IF DAMAGES OR MALFUNCTIONING OR REPLACED AS NECESSARY. MAINTENANCE OF ALL CONTROL FACILITIES SHALL CONTINUE UNTIL THE ENTIRE AREA TRIBUTARY TO THE FACILITY IS STABILIZED. 13. THE MONTGOMERY COUNTY CONSERVATION DISTRICT MUST BE CONTACTE 13. THE MONIGOMERY COUNTY CONSERVATION DISTRICT MUST BE CONTACTED PRIOR TO REMOVAL OF ANY EROSION AND SEDIMENTATION CONTROL DEVICE SUCH AS FILTER FABRIC FENCES, ROCK FILTERS, INLET PROTECTION, TEMPORARY CHANNELS, ETC. TEMPORARY CONTROLS MAY BE REMOVED ONLY AFTER A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER, WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION HAS BEEN ACHIEVED ACROSS THE UPSLOPE AREAS.

RESPONSIBILITIES FOR FILL MATERIALS

. THE OPERATOR MUST USE ENVIRONMENTAL DUE DILIGENCE TO ENSURE THAT ANY NECESSARY FILL MATERIAL ASSOCIATED WITH THIS PROJECT QUALIFIES AS CLEAN FILL. ALL FILL MATERIAL MUST BE USED IN ACCORDANCE WITH PADEP'S POLICY "MANAGEMENT OF FILL", DOCUMENT NUMBER 258-2182-773. A COPY OF THIS POLICY IS AVAILABLE ONLINE AT WARM DEPURED STATE BALLS

2. CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON—WATER SOLUBLE, NON—DECOMPOSED, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM THE WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR ASPHALT THAT HAS

3. CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE: FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP—1A AND FP—1B FOUND IN PADEP'S POLICY "MANAGEMENT OF FILL"

4. ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE PADEP FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY DESCRIBED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL. A COPY OF FORM FP-001 CAN BE FOUND AT WWW.DEPWEB.STATE.PA.US

5. ENVIRONMENTAL DUE DILIGENCE: INVESTIGATIVE TECHNIQUES, INCLUDING BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREEN, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS

6. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF A REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF PADEP'S POLICY "MANAGEMENT OF FILL"

7. FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE MUNICIPAL OR RESIDUAL WASTE REGULATIONS IN 25 PA CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE

ALL FILLS SHALL BE COMPACTED SUFFICIENTLY FOR THEIR INTENDED PURPOSE AND AS REQUIRED TO REDUCE SUPPING, EROSION OR EXCESS 9. REFER TO SITE / RECORD PLAN FOR ADDITIONAL NOTES.

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Во	Bowmansville-Knauers silt loams	1.1	
PIB	Penn-Lansdale complex, 3 to 8 percent slopes	8.7	
PIC	Penn-Lansdale complex, 8 to 15 percent slopes	7.0	
UryB	Urban land-Readington complex, 0 to 8 percent slopes	8.7	
UusD	Urban land-Udorthents, shale and sandstone complex, 8 to 25 percent slopes	4.3	
Totals for Area of Interest		29.9	

	TABLE 11.1	
	of Topsoil Required for Application to	
Depth (in)	Per 1,000 Square Feet	Per Acre
1	3.1	134
2	6.2	268
3	9.3	403
4	12.4	537
5	15.5	672
6	18.6	806
7	21.7	940
8	24.8	1,074

Soil Amendment Application Rate Equivalents

240 lb.

25 lb.

40 lb.

12.5 lb.

Adapted from Penn State, "Erosion Control and Conservation Plantings on Noncropland"

emporary Seeding Application Rate

2,480 lb.

210 lb.

410 lb.

100 lb.

agricultural fields

topsoil stockpiles

Soil Amendment Per Acre Per 1,000 sq. ft. Per 1,000 sq. yd.

10-10-20 fertilizer 1,000 lb.

0-10-10 fertilizer 500 lb.

1 ton

Agricultural lime

Mulch Application Rates

		Application Rate (M	in.)	
Mulch Type	Per Acre	Per 1,000 sq. ft.	Per 1,000 sq. yd.	Notes
Straw	3 tons	140 lb.	1,240 lb.	Either wheat or oat straw, free of weeds, not chopped or finely broken
Hay	3 tons	140 lb.	1,240 lb.	Timothy, mixed clover and timothy or other native forage grasses
Wood Chips	4 - 6 tons	185 - 275 lb.	1,650 - 2,500 lb.	May prevent germination of grasses and legumes
Hydromulch	1 ton	47 lb.	415	See limitations above

ay be applied on steeper slopes provided a tackifier is used. The application rate for any hydromulci

CONSTRUCTION SEQUENCE

GENERAL SEQUENCE NOTES:

AT LEAST 7 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN PREPARER, AND THE CONSERVATION DISTRICT TO AN ON-SITE MEETING. ALSO, AT LEAST 3 WORKING DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES. SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.

EROSION AND SEDIMENT BMPS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPS. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.

NOTE: NO ACTIVITIES SHALL DISTURB IDENTIFIED WATERS OF THE U.S. WITHOUT PRIOR APPROVAL OF PADEP. DISTURBANCES SHALL BE IN STRICT ACCORDANCE WITH IDENTIFIED PLAN AREAS WHICH ARE MINIMIZED FOR PROPOSED IMPROVEMENTS.

CRITICAL STAGE ITEMS THAT REQUIRE INSPECTION BY THE ENGINEER ARE

SITE CONSTRUCTION SEQUENCE 1. INSTALL CONSTRUCTION ENTRANCE, INSTALL PERIMETER COMPOST SOCK AND TREE PROTECTION

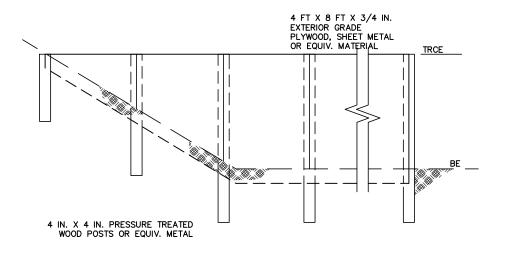
CRITICAL STAGE - INSPECT CONSTRUCTION ENTRANCE AND COMPOST SOCK 2. INSTALL STORM SEWER B OUT TO OCS 2 (NOT INCLUDING OCS 2 STRUCTURE) AND B1 TO B3 FROM BOTTOM TO TOP. STABILIZE EACH DAY WITH EITHER TOPSOIL SEEDING AND MULCH. INSTALL INLET PROTECTIONS. CRITICAL STAGE — ENSURE CONSTRUCTED INLETS ARE PROPERLY INSTALLED, STABILIZED AND PROTECTED

3. GRADE SEDIMENT BASIN A AND INSTALL TEMPORARY RISER, SKIMMER DEVICES, AND ALL OTHER BASIN RELATED CONTROL STRUCTURES AS INDICATED IN THE ENS PLAN. INSTALL COMPOST FILTER SOCK BERM AS SHOWN ON THE PLAN. CRITICAL STAGE - SEDIMENT BASIN A AND CONTROL STRUCTURES TO BE INSPECTED PRIOR TO

4. MASS GRADING OF SITE MAY BEGIN. REMOVE EXISTING SITE FEATURES AND DISPOSE PROPERLY. STORE EXCESS FILL IN ESTABLISHED STOCKPILE AREA. INSTALL STORM SEWER AND UTILITIES, INCLUDING WALLS. ENSURE ONSITE RUNOFF IS DIRECTED TO SEDIMENT BASIN A AT ALL TIMES. DO NOT INSTALL CURBING UPSLOPE OF THE SEDIMENT BASIN UNTIL THE CONTRIBUTING DRAINAGE AREA IS STABILIZED AND THE STORM INLETS NO LONGER NEED TO BE SEALED. INSTALL NEW PAVEMENT AND SIDEWALKS TO BINDER COURSE. STABILIZE SLOPES WITH EROSION CONTROL BLANKETS WHERE

CRITICAL STAGE - INSPECTION OF SITE STABILIZATION AND CONVERSION OF SEDIMENT BASIN 5. WHEN TRIBUTARY DRAINAGE AREAS ARE 70% STABILIZED, CONVERT SEDIMENT BASIN TO PERMANENT BASIN. MUST BE APPROVED BY CONSERVATION DISTRICT AND ENGINEER. DESILT AND STABILIZE. REMOVE SKIMMER AND ESTABLISH FINAL OUTLET STRUCTURE. EXCAVATE TO INSTALL UNDERGROUND HOPE CRATE STORMWATER FACILITY, FACILITY MUST BE PROTECTED FROM SILTATION AT ALL TIMES. INSTALL CRATES PER MANUFACTURER RECOMMENDATIONS. INSTALL OCS 1 AND OCS 2. COMPLETE FINAL GRADING OF SLOPE BETWEEN UNDERGROUND DETENTION AND MRC BASIN. STABILIZES FLOPE MITH SOD. AND COMPLETE AND SENANCIAN.

CRITICAL STAGE — DESIGN ENGINEER SITE INSPECTION TO VERIFY FUNCTION OF MRC BASIN 1 AND UNDERGROUND DETENTION FACILITY AND 90% STABILIZATION. NO CONTROLS MAY BE REMOVED WITHOUT MCCD APPROVAL. 6. ONLY WHEN SITE IS 90% UNIFORMLY STABILIZED, REMOVE PERIMETER CONTROLS. COMPOST FROM SOCKS MAY BE RE-SPREAD ON SITE OR DISPOSED OF PROPERLY. 7. FILE NOTICE OF TERMINATION FORM.



BAFFLE TEMPORARY BOTTOM
RISER BOTTOM
ENCIRCLE CREST FLEY BOTTOM

SEE APPROPRIATE BASIN DETAIL FOR PROPER LOCATION AND ORIENTATION. AN ACCEPTABLE ALTERNATIVE IS TO INSTALL A SUPER SILT FENCE AT THE BAFFLE LOCATION

IN POOLS WITH DEPTHS EXCEEDING 7', THE TOP OF THE PLYWOOD BAFFLE DOES NOT NEED TO EXTEND TO THE TEMPORARY RISER CREST. SUPER SILT FENCE BAFFLES NEED NOT EXTEND TO TRCE ELEVATION. BAFFLES SHALL BE TIED INTO ONE SIDE OF THE BASIN UNLESS OTHERWISE SHOWN ON THE PLAN DRAWINGS. SUBSTITUTION OF MATERIALS NOT SPECIFIED IN THIS DETAIL SHALL BE APPROVED BY THE DEPARTMENT OR THE LOCAL CONSERVATION DISTRICT BEFORE INSTALLATION. DAMAGED OR WARPED BAFFLES SHALL BE REPLACED WITHIN 7 DAYS OF INSPECTION. BAFFLES REQUIRING SUPPORT POSTS SHALL NOT BE INSTALLED IN BASINS REQUIRING IMPERVIOUS LINERS.

OR LENGTH HEIGHT CREST ELEV.

A 220 5.2 412.2 407.0

STANDARD CONSTRUCTION DETAIL #7-14

Mixture		Seeding Rate -	Pure Live Seed 1	Recommended Seed Mixtures for	Nurse	Seed Mixture
Number	Species	Most Sites	Adverse Sites	Site Condition	Crop	(Select one mix
	Spring oats (spring), or	64	96	Slopes and Banks (not mowed)		
	Annual ryegrass (spring or fall), or	10	15	Well-drained	1 plus	3, 5, 8, or 12 ¹
12	Winter wheat (fall), or	90	120	Variable drainage	1 plus	3 or 7
	Winter rye (fall)	56	112	Slopes and Banks (mowed)		
	Tall fescue, or	60	75	Well-drained	1 plus	2 or 10
	Fine fescue, or	35	40	Slopes and Banks (grazed/hay)		
23	Kentucky bluegrass, plus	25	30	Well-drained	1 plus	2, 3, or 13
-	Redtop4, or	3	3	Gullies and Eroded Areas	1 plus	3, 5, 7, or 12°
	Perennial ryegrass	15	20	Erosion Control Facilities (BMPs)		
	Birdsfoot trefoil, plus	6	10	Sod waterways, spillways, frequent water flow areas	1 plus	2, 3, or 4
3	Tall fescue	30	35	Drainage ditches		
3	Birdsfoot trefoil, plus	6	10	Shallow, less than 3 feet deep	1 plus	2, 3, or 4
4	Reed canarygrass	10	15	Deep, not mowed	1 plus	5 or 7
4		10	15	Pond banks, dikes, levees, dams, diversion channels,		
58	Crownvetch, plus		25	And occasional water flow areas		
5"	Tall fescue, or	20		Mowed areas	1 plus	2 or 3
	Perennial ryegrass	20	25	Non-mowed areas	1 plus	5 or 7
6 5,8	Crownvetch, plus	10	15	For hay or silage on diversion channels and		
6	Annual ryegrass	20	25	occasional water flow areas	1 plus	3 or 13
	Birdsfoot trefoil, plus	6	10	Highways ²		
78	Crownvetch, plus	10	15	Non-mowed areas	4 10 5 100	5 0
	Tall fescue	20	30	Pure crownvetch ³	1 plus	5 or 6
	Flatpea, plus	20	30	Well-drained	1 plus	5, 7, 8, 9, or 10 3 or 7
8	Tall fescue, or	20	30	Variable drained Poorly drained	1 plus 1 plus	3 or 4
	Perennial ryegrass	20	25	Areas mowed several times per year	1 plus 1 plus	2, 3, or 10
	Serecia lespedeza, plus	10	20	Utility Right-of-way) pius	2, 3, OF 10
9 ⁶	Tall fescue, plus	20	25	Well-drained	1 plus	5, 8, or 12 ¹
	Redtop ⁴	3	3	Variable drained	1 plus	3 or 7
	Tall fescue, plus	40	60	Well-drained areas for grazing/hay	1 plus	2, 3, or 13
10	Fine fescue	10	15	Effluent Disposal Areas	1 plus	3 or 4
	Deertongue, plus	15	20	Sanitary Landfills	1 plus	3. 5. 7. 11 ¹ , or 12 ¹
11	Birdsfoot trefoil	6	10	Surface mines	i pius	D, U, F, 17, Ut 12
	Switchgrass, or	15	20	Spoils, mine wastes, fly ash, slag, settling basin		
12 7	Big Bluestem, plus	15	20	Residues and other severely disturbed areas	1 plus	3, 4, 5, 7, 8, 9, 11 ¹ , or 1
	Birdsfoot trefoil	6	10	(lime to soil test)	, pioo	0, 1, 0, 1, 0, 0, 11, 0, 1
	Orchardgrass, or	20	30	Severely disturbed areas for grazing/hay	1 plus	3 or 13
13	Smooth bromegrass, plus	25	35	Penn State, "Erosion Control and Conservation Plantings of		
10	Birdsfoot trefoil	6	10	9		
n State "Erec	ion Control and Conservation Plantings on Noncro		10	1. For seed mixtures 11 and 12, only use spring oats or w	eening love	egrass (included in mix) as
Ol S is the pro	duct of the percentage of pure seed times percen	ipiai iu tago gormination divided	by 100 For	Contact the Pennsylvania Department of Transportation		

IDEQUATE PROVISIONS STALL BE MADE TO PREVENT SORFACE WATER FROM DAMAGING THE COT FI JUT AND FILLS SHALL NOT ENDANGER ADJOINING PROPERTY. ILL SHALL BE PLACED AND COMPACTED SO AS TO MINIMIZE SLIDING OR EROSION OF THE SOIL.

required to plant one acre. All mixtures in this table are shown in terms of PLS.

If high-quality seed is used, for most sites seed spring oats at a rate of 2 bushels per acre, winter wheat at 11.5 bushels per acre, and winter rye at 1 bushel per acre. If germination is below 90%, increase these suggested seeding rates by 0.5 bushel per acre.

This mixture is suitable for frequent mowing. Do not cut shorter than 4 inches.

Keep seeding rate to that recommended in table. These species have many seeds per pound and are very competitive. To seed small quantities of small seeds such as weeping lovegrass and redtop, dilute with dry sawdust, sand, rich rulls, buckwheat hulls, etc.

Use for highway slopes and similar sites where the desired species after establishment is crownvetch. Do not mow shorter than 9 to 10 inches.
 Seed mixtures containing crown vetch should not be used in areas adjacent to wetlands or stream channels that the breaking active of this reaction.

GRADING FOR DRAINAGE

IN ORDER TO PROVIDE MORE SUITABLE SITES FOR BUILDING AND OTHER USES, IMPROVE SURFACE DRAINAGE AND CONTROL EROSION, THE FOLLOWING REQUIREMENTS SHALL BE MET:

ALL LOTS, TRACTS OR PARCELS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AWAY FROM BUILDINGS AND DISPOSE OF IT WITHOUT PONDING, AND ALL LAND WITHIN A DEVELOPMENT SHALL BE GRADED TO DRAIN AND DISPOSE OF SURFACE WATER WITHOUT PONDING, EXCEPT WHERE APPROVED BY THE TOWNSHIP SUPERVISORS.

ALL DRAINAGE PROVISIONS SHALL BE OF SUCH DESIGN TO ADEQUATELY HANDLE THE SURFACE RUNOFF AND CARRY IT TO THE NEAREST SUITABLE OUTLET SUCH AS A CURBED

ALL DRAINAGE PROVISIONS SHALL BE OF SUCH DESIGN TO ADEQUALELY HANDLE THE SURFACE RUNOFF AND CARRY IT TO THE NEAREST SUITABLE QUITLET SUCH AS A CURBED STREET, STORM DRAIN OR NATURAL WATERCOURSE OR PROPERLY DESIGNED SWALE. WHERE DRAINAGE SWALES ARE USED TO DIVERT SURFACE WATERS AWAY FROM BUILDINGS, THEY SHALL BE SODDED OR PLANTED AS REQUIRED AND SHALL OF SUCH SLOPE, SHAPE AND SIZE AS TO CONFORM TO THE REQUIREMENTS OF THE TOWNSHIP.
 CONCENTRATION OF SURFACE WATER RUNOFF SHALL ONLY BE PERMITTED IN PROPERLY DESIGNED AND MAINTAINED SWALES, WATERCOURSES OR RETENTION BASINS.
 NO INCREASED SURFACE RUNOFF WILL BE PERMITTED TO LEAVE THE PROPERTY BEING SUBDIVIDED OR DEVELOPED BY WAY OF NATURAL WATERCOURSES OR STORM DRAINAGE

PIPES WITHOUT FIRST BEING SUITABLY RETAINED IN SUCH A WAY AS TO MAINTAIN RUNOFF VOLUME EXISTING ON THE SITE PREVIOUS TO SUBDIVISION OR DEVELOPMENT.

a. CUT AND FILL SLOPES SHALL NOT BE STEEPER THAN 2:1 UNLESS STABILIZED BY A RETAINING WALL OR CRIBBING, EXCEPT AS APPROVED BY THE TOWNSHIP SUPERVISORS

e. FILLS SHALL NOT ENCROACH ON NATURAL WATERCOURSES OR CONSTRUCTED CHANNELS.
f. FILLS PLACED ADJACENT TO NATURAL WATER COURSES OR CONSTRUCTED CHANNELS.
g. GRADING WILL NOT BE DONE IN SUCH A WAY SO AS TO DIVERT WATER ONTO THE PROPERTY OF ANOTHER LANDOWNER WITHOUT THE EXPRESSED CONSENT OF THE TOWNSHIP SUPERVISORS.

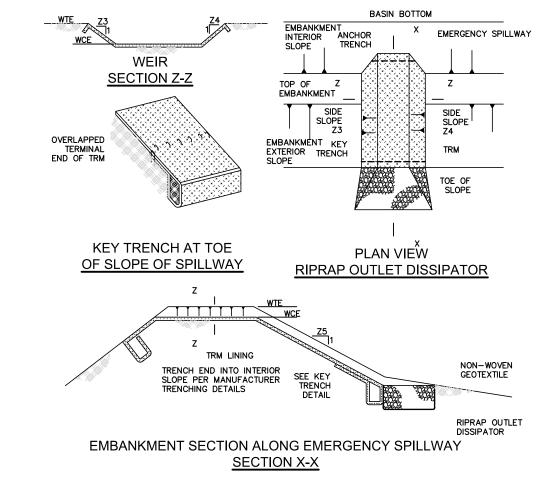
WHEN HANDLED UNDER SPECIAL CONDITIONS.

ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATER FROM DAMAGING THE CUT FACE OF EXCAVATIONS OF THE SLOPING SURFACES OF FILLS.

SUPERVISORS.

h. DURING GRADING OPERATIONS, NECESSARY MEASURES FOR DUST CONTROL WILL BE EXERCISED.

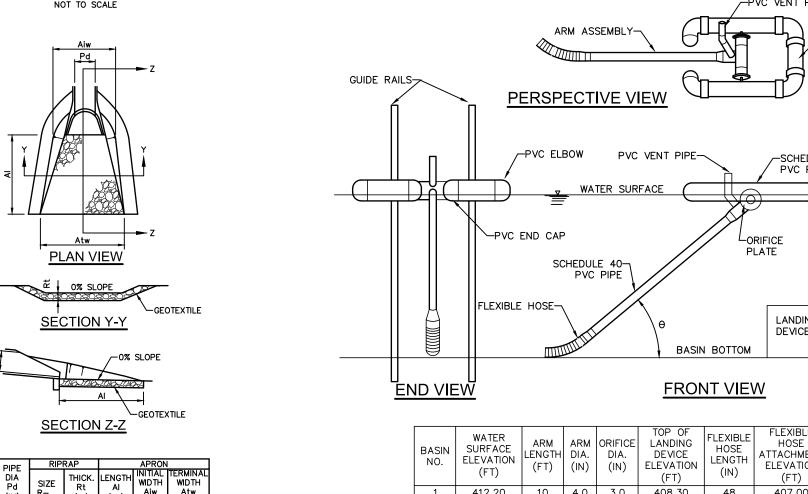
i. GRADING EQUIPMENT WILL NOT BE ALLOWED TO CROSS LIVE STREAMS. PROVISION WILL BE MADE FOR THE INSTALLATION OF CULVERTS OR BRIDGES.



A 3 3 415.50 413.10 35 NAGC350 E 3 0 5 35 N/A N/A HEAVY EQUIPMENT SHALL NOT CROSS OVER SPILLWAY WITHOUT PRECAUTIONS TAKEN TO PROTECT TRM LINING. DISPLACED LINER WITHIN THE SPILLWAY AND/OR OUTLET CHANNEL SHALL BE REPLACED IMMEDIATELY RIPRAP AT TOE OF EMBANKMENT SHALL BE EXTENDED A SUFFICIENT LENGTH IN BOTH DIRECTIONS TO PREVENT SCOUR.

THE USE OF BAFFLES THAT REQUIRE SUPPORT POSTS ARE RESTRICTED FROM USE IN BASINS REQUIRING IMPERVIOUS

SEDIMENT BASIN EMERGENCY SPILLWAY WITH TRM LINING



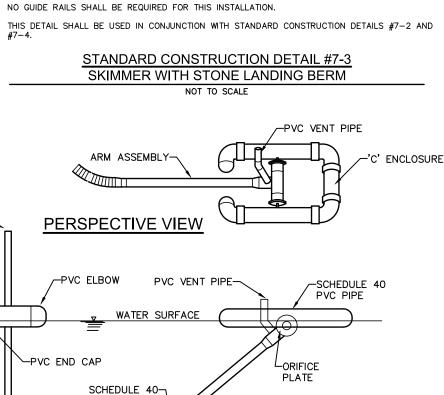
NOTES:

ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

STANDARD CONSTRUCTION DETAIL #9-1 RIPRAP APRON AT PIPE OUTLET WITH FLARED END SECTION OR ENDWALL

SKIMMER SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. ANY MALFUNCTIONING SKIMMER SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION. THE SKIMMER TO RESPOND TO FLUCTUATING WATER ELEVATIONS. SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHES THE LEVEL MARKED ON THE SEDIMENT CLEAN-OUT STAKE OR THE TOP OF THE LANDING DEVICE. A SEMI-CIRCULAR LANDING ZONE MAY BE SUBSTITUTED FOR THE GUIDE RAILS (STANDARD

				TABLE	E.1											
LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTHMOVING PROJECTS																
SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL	DROUGHTY	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	WETNESS
BOWMANSVILLE-KNAUERS SILT LOAMS (Bo)																
BOMANSVILLE	х	C/S			х	х	х	х	х	х	х	х				>
KNAUERS	х	C/S	х		х	×	Х	х	Х		х	Х			х	>
PENN-LANSDALE COMPLEX, 3% TO 8% SLOPES (PIB), 8% TO 15% SLOPES (PIC)																
PENN	X	С	х				Х	Х		х	х	Х				
LANSDALE	Х	С	х					Х	Х		Х	Х				
URBAN LAND-READINGTON COMPLEX, 0 TO 8 PERCENT SLOPES (UryB)	х	C/S		х		x	x	х	x	х	х	x				;
URBAN LAND-UDORTHENTS, SHALE AND SANDSTONE COMPLEX, 8 TO 25 PERCENT SLOPES (UusD)	x	C/S	x	х				x	x		x	x				



STORAGE

ELEVATION

∠TRASH RACK

PERMANENT OUTLET-

FACILITY

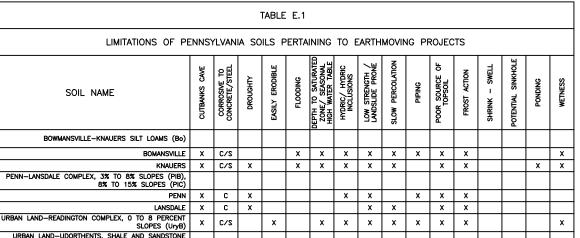
FLEXIBLE—

LANDING FLEXIBLE HOSE NO. ELEVATION LENGTH DIA. DIA. DEVICE 1 412.20 10 4.0 3.0 408.30

ORIFICE DIAMETER MUST BE EQUAL TO OR LESS THAN ARM DIAMETER A ROPE SHALL BE ATTACHED TO THE SKIMMER ARM TO FACILITATE ACCESS TO THE SKIMMER ONCE

ICE OR SEDIMENT BUILDUP AROUND THE PRINCIPAL SPILLWAY SHALL BE REMOVED SO AS TO ALLOW CONSTRUCTION DETAIL # 7-3).

STANDARD CONSTRUCTION DETAIL #7-1 SKIMMER NOT TO SCALE



5	<u> </u>	REVISIONS	<u> </u>	DATE
	PRG	10/04/2022 PER CKS REVIEW LETTER DATED 03/11/2022	PER CK	10/04/2022 PER CK
	ROP	REVISED ENTRANCE ON GERMANTOWN PIKE	REVIS	4/3/2023 REVIS
	PRG	11/17/2023 PER CKS REVIEW LETTER DATED 11/22/2022	PER C	11/17/2023 PER C
	PRG	PER CKS REVIEW LETTER DATED 01/24/2024	PER C	3/7/2024 PER C

CHRISTOPHER W. JENSEN, P.E LICENSED PROFESSIONAL ENGINEER



STATE OF PA LICENSE No. PE076464

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DESIGNED BY

FAX 215-627-3459

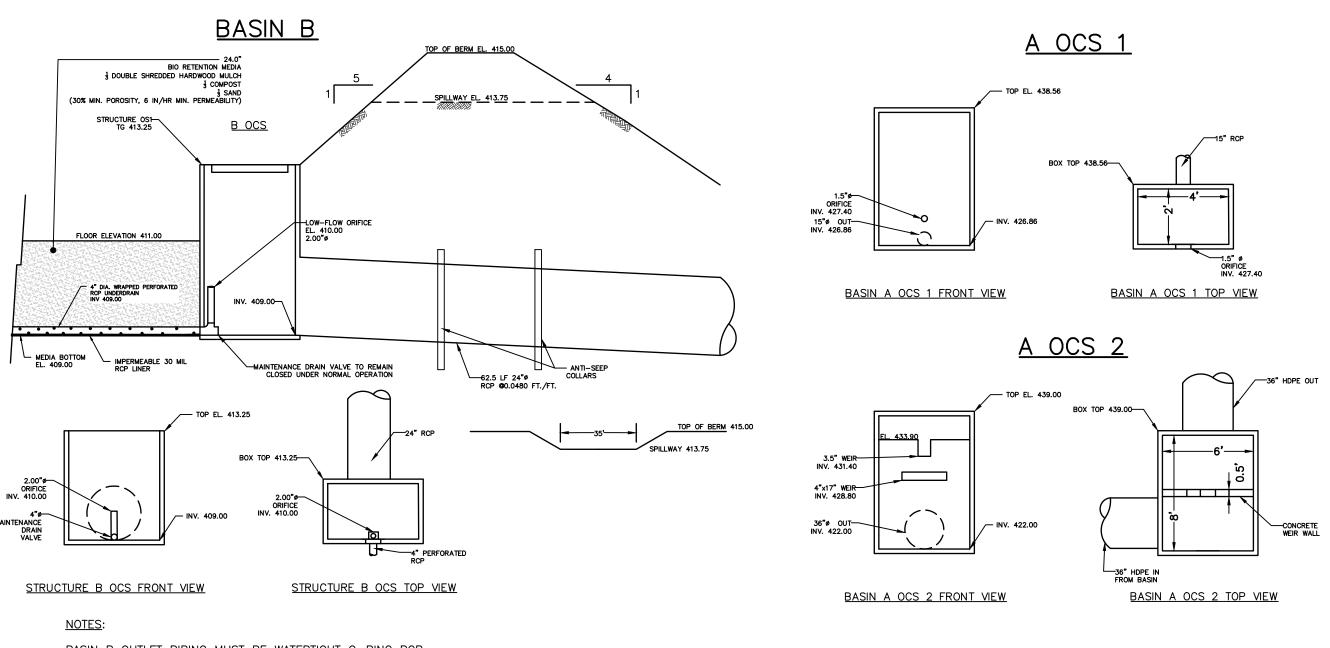
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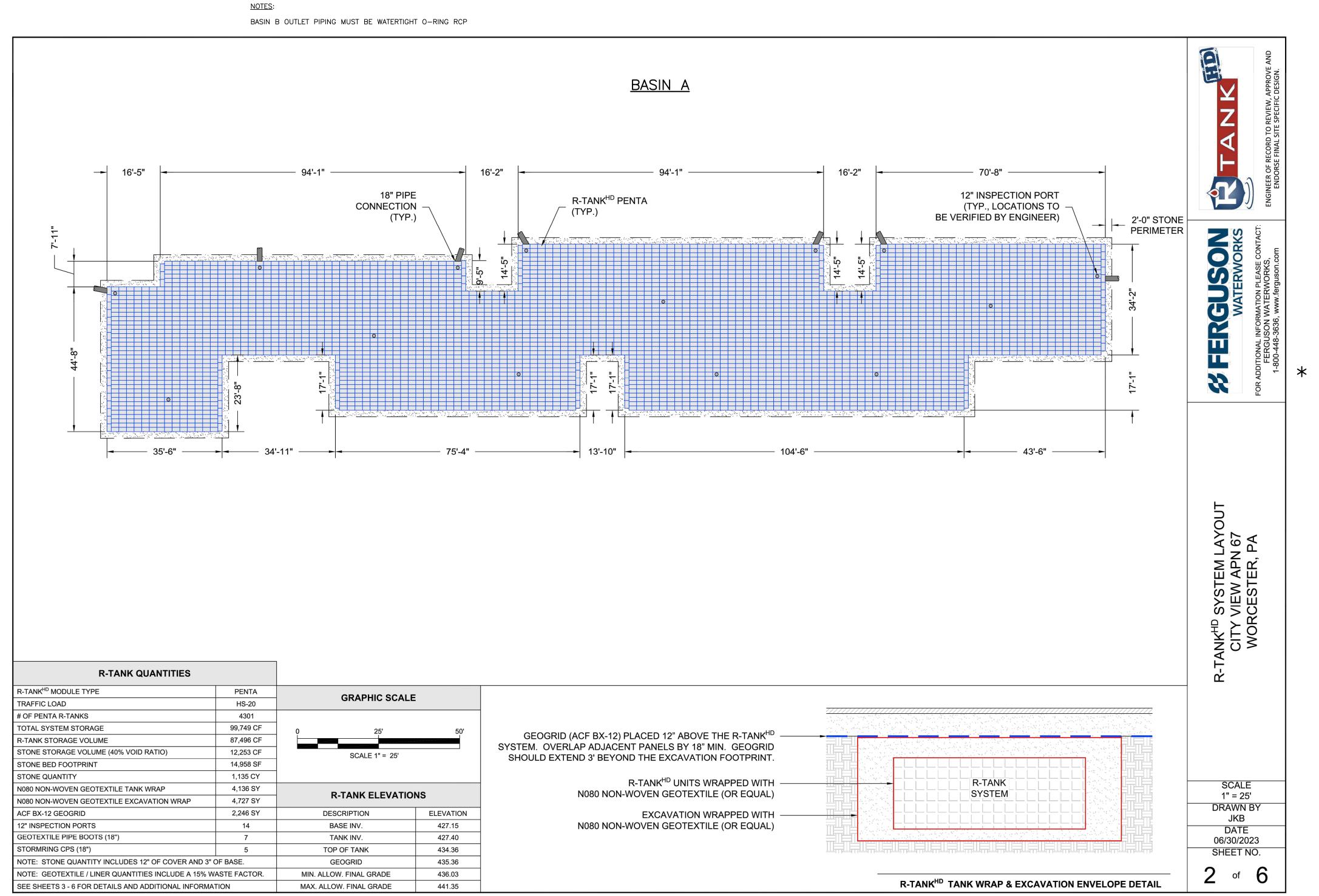
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DRAWING











			SO	SO	SO	SO	СНКD	
			PRG	PRG	ROP	PRG	ВУ	
			PER CKS REVIEW LETTER DATED 01/24/2024	11/17/2023 PER CKS REVIEW LETTER DATED 11/22/2022	REVISED ENTRANCE ON GERMANTOWN PIKE	10/04/2022 PER CKS REVIEW LETTER DATED 03/11/2022	REVISIONS	
			3/7/2024	11/17/2023	4/3/2023	10/04/2022	DATE	
			4	3	2	н	Ö.	ĺ

CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER



CONSTRUCTION STORMWATER MANAGEMENT DETAILS VIEW - APN #67-00-01606-001 AG GERMANTOWN PIKE, WORCESTER TOWNSHIP, COMMONWEALTH OF PENNSYLVANIA



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CHECKED BY DRAWN BY

PG/SR/ROP SHEET

BASIN A *FERGUSON R-TANK (OR APPROVED EQUAL)

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CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER



STATE OF PA LICENSE No. PE076464

CONSTRUCTION STORMWATER MANAGEMENT DETAILS 7-00-01606-001 CESTER TOWNSHIP, EALTH OF PENNSY! VANIA

POST

1700 MARKET STREET, SUITE 3110 PHILADELPHIA, PA 19103 TEL 215-282-7850 FAX 215-627-3459 OFFICES LOCATED IN

CALIFORNIA, INDIANA, KENTUCKY

DET-10 CHECKED BY PG/SR/ROP SHEET

AS NOTED of **34** BETI00056

PLAN VIEW

OUTLET PIPE

EXPANDING RING

BACK PLATE

FRONT COVER

REFERENCE VIEW

QBYPASS ?

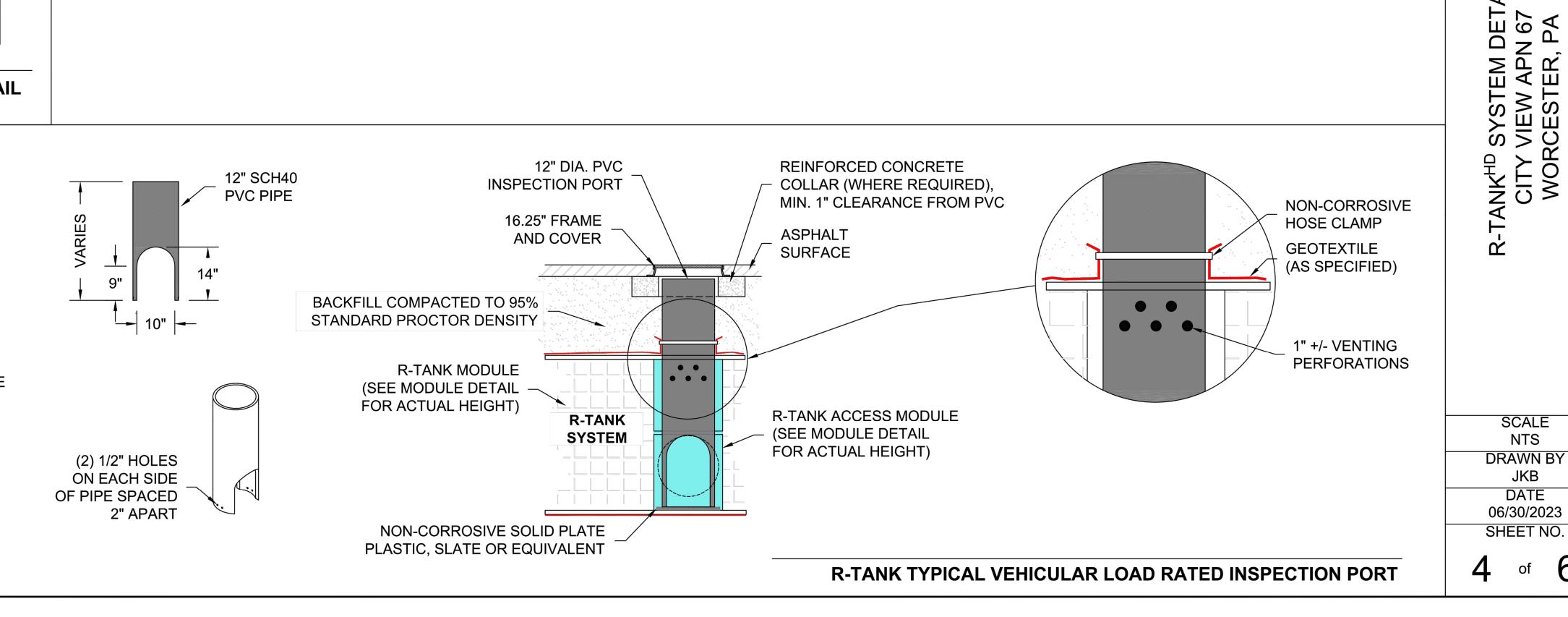
PIPE DIA. (A)	STUB LENGTH (B)	CPS DEPTH (C)	CPS HEIGHT (D)	CPS WIDTH (E)
6"	4.00"	8.50"	10.00"	10.00"
8"	6.00"	11.00"	12.25"	11.50"
10"	8.00"	16.00"	13.50"	13.50"
12"	8.00"	16.00"	15.50"	15.50"
15"	8.00"	16.00"	21.50"	18.50"
18"	8.00"	16.00"	28.00"	21.50"
24"	10.00"	18.00"	40.00"	28.00"

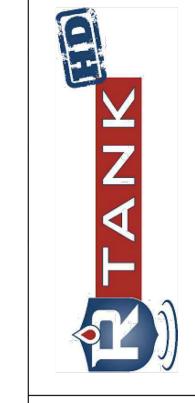
STORMRING CPS PRETREATMENT DETAIL

NOTES

PROJECT INFORMATION: FILE PATH: G:\Projects\BETI\00056\Plans\ FILE NAME: BETI00056_SHT20-30-DETAILS.dwg LAST SAVED DATE AND TIME: 06 Mar 2024, 1:3 LAST SAVE BY: JKelley

- 1. THE INSPECTION PORT IS USED IN THE ACCESS MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION.
- 2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
- 3. R-TANK^{HD}, R-TANK^{SD}, R-TANK^{UD} AND R-TANK^{XD} MAY BE USED IN TRAFFIC APPLICATIONS.
- 4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
- 5. IF INSPECTION PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.







SCALE

NTS

JKB DATE

of

BT WORCESTER, LLC

4/3/2023 LICENSED PROFESSIONAL ENGINEER STATE OF PA LICENSE No. PE076464

CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER

- APN #67-00-01606-001 TOWN PIKE, WORCESTER TOWNSHIP, INTY, COMMONWEALTH OF PENNSYLVANIA

CONSTRUCTION STORMWATER MANAGEMENT DETAILS CITY VIEW -POST

1700 MARKET STREET, SUITE 3110 PHILADELPHIA, PA 19103 TEL 215-282-7850

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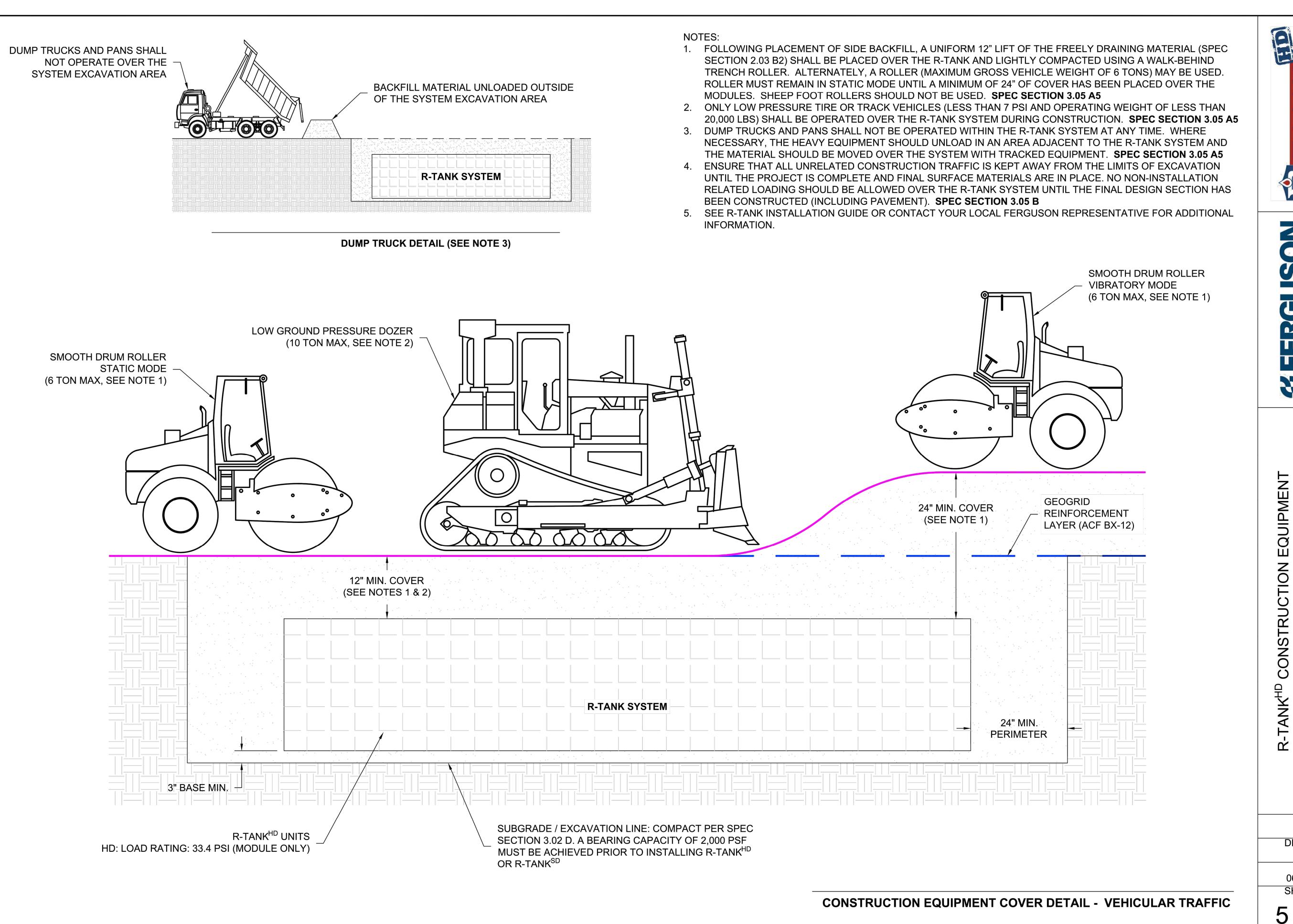
of **34**

DET-11 **CHECKED BY** PG/SR/ROP SHEET

BETI00056

AS NOTED

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CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER

LICENSED PROFESSIONAL ENGINEER STATE OF PA LICENSE No. PE076464

CITY VIEW - APN #67-00-01606-001 2974 GERMANTOWN PIKE, WORCESTER TOWNSHIP, MONTGOMERY COUNTY, COMMONWEALTH OF PENNSYLVANIA

BT WORCESTER, LLC

POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS

EQUIPN CONSTRUCTION EC COVER DETAIL CITY VIEW APN 67 WORCESTER, PA

SCALE NTS DRAWN BY JKB DATE

06/30/2023 SHEET NO.

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DET-12 CHECKED BY

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R-TANK SPECIFICATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 DESCRIPTION OF WORK INCLUDED

- A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
- Provide and install R-TankLD/, R-TankHD/, R-TankSD/, or R-TankU/D/ system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
- Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
- Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 QUALITY CONTROL

- All materials shall be manufactured in ISO certified facilities.
- Installation Contractor shall demonstrate the following experience:
- 1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
- 2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
- 3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.
- C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
- Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 SUBMITTALS

- Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
- Submit manufacturer's product data, including compressive strength and unit weight.
- Submit manufacturer's installation instructions. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
- Submit material certificates for geotextile, geogrid, base course and backfill materials.
- Submit required experience and personnel requirements as specified in Section 1.03.
- Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 DELIVERY, STORAGE, AND HANDLING

- Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds
- two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
- Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc. Cold weather:
- 1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
- 2. Do not use frozen materials or materials mixed or coated with ice or frost.
- 3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 PREINSTALLATION CONFERENCE.

A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 PROJECT CONDITIONS

- Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be
- allowed on the system at any time. Protect adjacent work from damage during R-Tank system installation.
- All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
- Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

2.01 R-TANK UNITS

- A. R-Tank Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
- B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank ^{LD} VALUE	R-Tank ^{HD} VALUE	R-Tank ^{SD} VALUE	R-Tank ^{UD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	28.9 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (STONE BACKFILL)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (STONE BACKFILL)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F			

C. Supplier: Ferguson Waterworks 2831 Cardwell Road Richmond, VA 23234 (T): 800-448-3636; (F): 804-743-7779 www.ferguson.com

2.02 GEOSYNTHETICS

- A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
- 1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent).
- 2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (ACF M200 or equivalent) shall be used. B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (ACF BX12 or equivalent) to reinforce backfill above the R-Tank system.
- Geogrid is not always required for R-TankUD/ installations, and is often not required for non-traffic load applications.

2.03 BACKFILL & COVER MATERIALS

- Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
- Side and Top Backfill: Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
- 1. Traffic Applications Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system.

of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

- a. For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top
- of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill. 2. Non-Traffic / Green Space Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for
- Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil

Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index

2.04 OTHER MATERIALS

Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection

PART 3 - EXECUTION

3.01 ASSEMBLY OF R-TANK UNITS

A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2

3.02 LAYOUT AND EXCAVATION

- A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
- All excavations must be prepared with OSHA approved excavated sides and sufficient working space. C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other
- means until construction is complete. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
- 1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
- 2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications. E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per
- 1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
- 2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
- 3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 PREPARATION OF BASE

- A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within 1/2" (+/- 1/4") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's
- 1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
- 2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 INSTALLATION OF THE R-TANKS

- A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
- Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
- C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners
- and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans. 1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall
- system footprint. Refer to R-Tank Installation Guide for more details 2. For UD installations, there is no perpendicular end row required.
- D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
- E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (butted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
- Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
- If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with 'U" bend or venting bollard to inhibit the ingress of debris. A ground level

3.05 BACKFILLING OF THE R-TANK UNITS

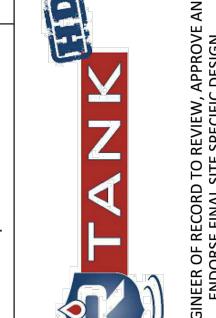
A. Backfill and fill with recommended materials as follows:

concrete or steel cover can be used.

- 1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
- 2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory
- 3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank
- 4. No compaction equipment is permissible to operate directly on the R-Tank modules.
- 5. Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.
- a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
- b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.
- 6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
- 7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a
- uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B. 8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
- Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).
- Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding
- Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

3.06 MAINTENANCE REQUIREMENTS

- A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
- All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of
- operation and at least yearly thereafter. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.
- D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.



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LICENSED PROFESSIONAL ENGINEER STATE OF PA LICENSE No. PE076464

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WORCESTER, LLC

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CONSTRUCTION STORMWATER MANAGEMENT DETAILS

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2. TREES SHALL BE ADEQUATELY PROTECTED DURING CONSTRUCTION. 3. TREES CREDITED FOR STORMWATER MANAGEMENT SHALL BE CLEARLY LABELED ON

- CONSTRUCTION DRAWINGS AND RECORDED ON RECORD PLAN FOR PROJECT. 4. TREES SHALL BE MAINTAINED AND PROTECTED FOR THE LIFE OF THE PROJECT (50 YEARS) OR UNTIL REDEVELOPMENT OCCURS.
- 5. NO MORE THAN 25% OF THE RUNOFF VOLUME CAN BE MITIGATED THROUGH THE USE OF TREES.
- 6. FSCROW SHALL BE PROVIDED FOR THE REPLACEMENT OF ANY PROTECTED TREES. USED FOR STORMWATER CREDITS THAT DIE WITHIN 5 YEARS OF CONSTRUCTION.
- DEAD TREES SHALL BE REPLACED WITHIN 6 MONTHS. 7. TREES SHALL BE LOCATED ON THE DEVELOPMENT PROJECT. 8. MAY BE APPLIED FOR TREES REQUIRED UNDER STREET TREE OR LANDSCAPING
- REQUIREMENTS 9. MAY BE APPLIED FOR TREES PLANTED AS PART OF RIPARIAN BUFFER IMPROVEMENT.

NON-NATIVE SPECIES ARE NOT APPLICABLE.

BMP 6.4.5 BIORETENTION (MRC): VEGETATION - SEE APPENDIX B OF PA BMP MANUAL

EXECUTION A. SUBGRADE PREPARATION

- 1. 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.
- 2. WHERE EROSION OF SUB-GRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING IN THE GRADED BOTTOM, THIS MATERIAL SHALL BE REMOVED.
- 3. BRING SUB-GRADE OF MRC AREA TO LINE, GRADE, AND ELEVATIONS INDICATED. INSTALL IMPERMEABLE LINER PER MANUFACTURER'S RECOMMENDATIONS. FILL AND LIGHTLY REGRADE ANY AREAS DAMAGED BY EROSION, PONDING, OR TRAFFIC COMPACTION. ALL MRC AREAS SHALL BE LEVEL GRADE ON THE BOTTOM.
- 4. HALF EXCAVATION AND NOTIFY ENGINEER IMMEDIATELY IF EVIDENCE OF SINKHOLE ACTIVITY OR PINNACLES OF CARBONATE BEDROCK ARE ENCOUNTERED IN THE MRC ARFA.
- B. MRC INSTALLATION. 1. UPON COMPLETION OF SUB-GRADE WORK, THE ENGINEER SHALL BE NOTIFIED AND SHALL INSPECT AT HIS/HER DISCRETION BEFORE PROCEEDING WITH MRC
- INSTALLATION. 2. FOR THE SUBSURFACE STORAGE BED INSTALLATION, UNDERDRAIN AND FILTER
- MEDIA SHOULD BE PLACED ON THE BOTTOM TO THE SPECIFIED DEPTH. 3. PLANTING SOIL SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUB-GRADE
- PREPARATION BED INSTALLATION. ANY ACCUMULATION OF DEBRIS OR SEDIMENT THAT TAKES PLACE AFTER APPROVAL OF SUB-GRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF PLANTING SOIL AT NO EXTRA COST TO THE OWNER. 4. INSTALL PLANTING SOIL (EXCEEDING ALL CRITERIA) IN 18-INCH MAXIMUM LIFTS
- AND LIGHTLY COMPACT (TAMP WITH 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 DRAWINGS. 5. PLANT TREES AND SHRUBS ACCORDING TO SUPPLIER'S RECOMMENDATIONS AND
- ONLY FROM MID-MARCH THROUGH THE END OF JUNE OR FROM MID-SEPTEMBER THROUGH MID-NOVEMBER. 6. INSTALL 2-3" 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. 7. PROTECT MRC AREAS FROM SEDIMENT AT ALL TIMES DURING CONSTRUCTION. HAY BALES, DIVERSION BERMS AND OR OTHER APPROPRIATE MEASURES SHALL BE
- USED AT THE TOE OF THE SLOPES THAT ARE ADJACENT TO MRC AREAS TO PREVENT SEDIMENT FROM WASHING INTO THESE AREAS DURING SITE DEVELOPMENT. 8. WHEN THE SITE IS FULLY VEGETATED AND THE SOIL MANTLE STABILIZED THE PLAN DESIGNER SHALL BE NOTIFIED AND SHALL INSPECT THE MRC DRAINAGE AREA AT HIS/HER DISCRETION BEFORE THE AREA IS BROUGHT ONLINE AND SEDIMENT
- CONTROL DEVICES REMOVED. 9. WATER VEGETATION AT THE END OF EACH DAY FOR TWO WEEKS AFTER PLANTING IS COMPLETED. CONTRACTOR SHOULD PROVIDE A ONE-YEAR 80% CARE AND REPLACEMENT WARRANTY FOR ALL PLANTING BEGINNING AFTER INSTALLATION AND INSPECTION OF ALL PLANTS.

BMP 6.6.3 DRY EXTENDED DETENTION BASIN: 1. SITE PREPARATION

- ALL EXCAVATION AREAS, EMBANKMENTS, AND WHERE STRUCTURES ARE TO BE INSTALLED SHALL BE CLEARED AND GRUBBED AS NECESSARY, BUT TREES AND EXISTING VEGETATION SHOULD BE RETAINED AND INCORPORATED WITHIN THE DRY DETENTION BASIN AREA WHERE POSSIBLE
- B. WHERE FEASIBLE, TREES AND OTHER NATIVE VEGETATION SHOULD BE PROTECTED. A MINIMUM 10-FOOT RADIUS AROUND THE INLET AND OUTLET STRUCTURES CAN BE CLEARED TO ALLOW CONSTRUCTION. ANY CLEARED MATERIAL SHOULD BE USED AS MULCH FOR EROSION CONTROL OR SOIL
- STABILIZATION. CARE SHOULD BE TAKEN TO PREVENT COMPACTION OF THE BOTTOM OF THE RESERVOIR. IF COMPACTION SHOULD OCCUR, SOILS SHOULD BE RESTORED AND AMENDED.
- 2. EARTH FILL MATERIAL & PLACEMENT THE FILL MATERIAL SHOULD BE TAKEN FROM APPROVED DESIGNATED EXCAVATION AREAS. IT SHOULD BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6 INCHES, OR OTHER OBJECTIONABLE MATERIALS. MATERIALS ON THE OUTER SURFACE OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION.
- AREAS WHERE FILL IS TO BE PLACED SHOULD BE SCARIFIED PRIOR TO PLACEMENT. FILL MATERIALS FOR THE EMBANKMENT SHOULD BE PLACED IN MAXIMUM 8-INCH LIFTS. PRINCIPAL SPILLWAY SHOULD BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT. THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE SITE SHOULD
- CONTROLLED. FOR THE EMBANKMENT, EACH LIFT SHOULD BE COMPACTED TO 95% OF THE STANDARD PROCTOR, FILL MATERIAL SHOULD CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED IN TO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE 3. EMBANKMENT CORE
- A. THE CORE SHOULD BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHOULD BE AT LEAST FOUR FEET. THE HEIGHT SHOULD EXTEND UP TO AT LEAST THE 10-YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHOULD BE 1 TO 1 OR FLATTER. THE CORE SHOULD BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. THE CORE SHOULD BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.
- 4. STRUCTURE BACKFILL BACKFILL ADJACENT TO PIPES AND STRUCTURES SHOULD BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FIL SHOULD BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHOULD FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHOULD DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET TO ANY PART OF THE STRUCTURE. EQUIPMENT SHOULD NOT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24 INCHES OR GREATER OVER THE STRUCTURE OR PIPE.
- STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF THE PADOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. MATERIAL SHOULD BE PLACED SO THAT A MINIMUM OF 6 INCHES OF FLOWABLE FILL SHOULD BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL MATERIAL SHOULD BE 7 INCHES TO ASSURE FLOWABILITY OF THE MIXTURE. ADEQUATE MEASURES SHOULD BE TAKEN (SAND BAGS, ETC. TO PREVENT FLOATING THE PIPE. WHEN USING FLOWABLE FILL ALL METAL PIPE SHOULD B BITUMINOUS COATED, ADJOINING SOIL FILL SHOULD BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 4 INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT.
- C. REFER TO CHAPTER 220 OF PENNDOT PUB. 408 (2012).
- ROCK RIPRAP SHOULD MEET THE REQUIREMENTS OF PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. STABILIZATION
- ALL BORROW AREAS SHOULD BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHOULD BE STABILIZED BY SEEDING, PLANTING AND MULCHING.
- AN OPERATION AND MAINTENANCE PLAN IN ACCORDANCE WITH LOCAL OR STATE REGULATIONS WILL BE PREPARED FOR ALL BASINS. AS A MINIMUM, A DAM AND INSPECTION CHECKLIST SHOULD BE INCLUDED AS PART OF THE OPERATION AND MAINTENANCE PLAN AND PERFORMED AT LEAST ANNUALLY.

BMP 6.7.3 SOIL AMENDMENT: SCOPE

THIS SPECIFICATION COVERS THE USE OF COMPOST FOR SOIL AMENDMENT AND THE MECHANICAL RESTORATION OF COMPACTED, ERODED AND NON-VEGETATED SOILS. SOIL AMENDMENT AND RESTORATION IS NECESSARY WHERE EXISTING SOIL HAS BEEN DEEMED UNHEALTHY IN ORDER TO RESTORE SOIL STRUCTURE AND FUNCTION, INCREASE INFILTRATION POTENTIAL AND SUPPORT HEALTHY VEGETATIVE COMMUNITIES. B. SOIL AMENDMENT PREVENTS AND CONTROLS EROSION BY ENHANCING THE SOIL SURFACE TO PREVENT THE INITIAL DETACHMENT AND TRANSPORT OF SOIL PARTICLES.

3. SUB-SOILING TO RELIEVE COMPACTION

OCCUR BEFORE COMPOST PLACEMENT.

- BEFORE THE TIME THE COMPOST IS PLACED AND PREFERABLY WHEN EXCAVATION IS COMPLETED, THE SUBSOIL SHALL BE IN A LOOSE, FRIABLE CONDITION TO A DEPTH OF 20 INCHES BELOW FINAL TOPSOIL GRADE AND THERE SHALL BE NO EROSION RILLS OR WASHOUTS IN THE SUBSOIL SURFACE EXCEEDING 3 INCHES IN DEPTH.
- B. TO ACHIEVE THIS CONDITION, SUBSOILING, RIPPING, OR SCARIFICATION OF THE SUBSOIL WILL BE REQUIRED AS DIRECTED BY THE OWNERS S REPRESENTATIVE, WHEREVER THE SUBSOIL HAS BEEN COMPACTED BY EQUIPMENT OPERATION OR HAS BECOME DRIED OUT AND CRUSTED AND WHERE NECESSARY TO OBLITERATE EROSION RILLS. SUB-SOILING SHALL BE REQUIRED TO REDUCE SOIL COMPACTION IN ALL AREAS WHERE PLANT ESTABLISHMENT IS PLANNED.
- SUBSOILED AREAS SHALL BE LOOSENED TO LESS THAN 1400 KPA (200 PSI) TO A DEPTH OF 20 INCHES BELOW FINAL TOPSOIL GRADE. WHEN DIRECTED BY THE OWNER'S REPRESENTATIVE, THE CONTRACTOR SHALL VERIFY THAT THE SUB-SOILING WORK CONFORMS

SUB-SOILING SHALL FORM A TWO-DIRECTIONAL GRID. CHANNELS SHALL BE CREATED

SUB-SOILING SHALL BE PERFORMED BY THE PRIME OR EXCAVATING CONTRACTOR AND SHALL

BY A COMMERCIALLY AVAILABLE, MULTI-SHANKED, PARALLELOGRAM IMPLEMENT (SOLID-SHANK RIPPER). THE EQUIPMENT SHALL BE CAPABLE OF EXERTING A PENETRATION FORCE NECESSARY FOR THE SITE. NO DISC CULTIVATORS CHISEL PLOWS, OR SPRING-LOADED EQUIPMENT WILL BE ALLOWED. THE GRID CHANNELS SHALL BE SPACED A MINIMUM OF 12 INCHES TO A MAXIMUM OF 36 INCHES APART, DEPENDING ON EQUIPMENT, SITE CONDITIONS, AND THE SOIL MANAGEMENT PLAN. THE CHANNEL DEPTH SHALL BE A MINIMUM OF 20 INCHES OR AS SPECIFIED IN THE SOIL MANAGEMENT PLAN, IF SOILS ARE SATURATED. THE CONTRACTOR SHALL DELAY OPERATIONS UNTIL THE SOIL WILL NOT HOLD A BALL WHEN SQUEEZED. ONLY ONE PASS SHALL BE PERFORMED ON ERODIBLE SLOPES GREATER THAN 1 VERTICAL TO 3 HORIZONTAL. WHEN ONLY ONE PASS IS USED, WORK SHOULD BE AT RIGHT ANGLES TO THE DIRECTION OF SURFACE DRAINAGE, WHENEVER PRACTICAL EXCEPTIONS TO SUB-SOILING INCLUDE AREAS WITHIN THE DRIP LINE OF ANY EXISTING TREES, OVER UTILITY INSTALLATIONS WITHIN 30 INCHES OF THE SURFACE, WHERE TRENCHING/DRAINAGE LINES ARE INSTALLED, WHERE COMPACTION IS BY DESIGN (ABUTMENTS, FOOTINGS, OR IN SLOPES). AND ON INACCESSIBLE SLOPES, AS APPROVED BY THE OWNER'S

REPRESENTATIVE. IN CASÉS WHERE EXCEPTIONS OCCUR, THE CONTRACTOR SHALL OBSERVE A

4. COMPOST SOIL AMENDMENT INSTALLATION A. A. SPREAD 2-3 INCHES OF APPROVED COMPOST ON EXISTING SOIL. TILL ADDED SOIL INTO FXISTING SOIL WITH A ROTARY TILLER THAT IS SET TO A DEPTH OF 6 INCHES. ADD AN ADDITIONAL 4 INCHES OF APPROVED COMPOST TO BRING THE AREA UP TO GRADE. B. B. AFTER PERMANENT PLANTING/SEEDING, 2-3 INCHES OF COMPOST BLANKET WILL BE APPLIED TO ALL AREAS NOT PROTECTED BY GRASS OR OTHER PLANTS.

MINIMUM SETBACK OF 20 FEET OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

ARCHEOLOGICAL CLEARANCES MAY BE REQUIRED IN SOME INSTANCES.

TABLE 1 COMPOST STANDARDS ORGANIC MATTER CONTENT: 80% - 100% (DRY WEIGHT BASIS) ORGANIC PORTION: FIBROUS AND ELONGATED PH 5.5 - 8.0 MOISTURE CONTENT: 35% - 55%

PARTICLE SIZE: 98% PASS THROUGH 1" SCREEN C. SOLUBLE SALT CONCENTRATION: 5.0 DS/M (MMHOS/CM) MAXIMUM

BMP 6.7.3 SOIL AMENDMENT:

NATURAL DRAINAGE FEATURES.

- AREA SHALL NOT BE SUBJECT TO GRADING OR MOVEMENT OF EXISTING SOILS. 2. EXISTING NATIVE VEGETATION IN A HEALTHY CONDITION MAY NOT BE REMOVED.
- INVASIVE NON-NATIVE VEGETATION MAY BE REMOVED. 4. PRUNING OR OTHER REQUIRED MAINTENANCE OF VEGETATION IS PERMITTED.
- 5. ADDITIONAL PLANTING IS PERMITTED.
- 6. AREA SHALL BE PROTECTED BY HAVING THE LIMITS OF DISTURBANCE CLEARLY SHOWN ON ALL CONSTRUCTION DRAWINGS AND DELINEATED IN THE FIELD. 7. THE AREA NOT SUBJECT TO GRADING SHALL BE CLEARLY DELINEATED ON THE STORMWATER

MANAGEMENT PLAN, IF FUTURE GRADING OR DISTURBANCE OF THIS AREA OCCURS. SUBSEQUENT STORMWATER MANAGEMENT MUST BE PROVIDED TO ADDRESS DISTURBANCE.

PCSM PLAN GENERAL DESIGN NOTES 1. THIS PCSM PLAN PRESERVES THE INTEGRITY OF STREAM CHANNELS AND MAINTAINS AND PROTECTS THE PHYSICAL, BIOLOGICAL AND CHEMICAL QUALITIES OF THE RECEIVING STREAM BY PROTECTING THE EXISTING

- 2. THIS PCSM PLAN PREVENTS AN INCREASE IN THE RATE OF STORMWATER RUNOFF AND MINIMIZES ANY INCREASE IN STORMWATER RUNOFF VOLUME BY USE OF STRUCTURAL BMPS TO FACILITATE STORAGE AND MANAGED RELEASE OF STORMWATER.
- 3. THIS PCSM PLAN MINIMIZES THE EXTENT OF THE PROJECT AREA, IMPERVIOUS AREAS, LAND CLEARING AND GRADING BY CAREFUL SELECTION OF THE USEABLE SITE AREA AND MAINTAINING THE MAJORITY OF THE NATURAL AREA.
- 4. THE PCSM PLAN MINIMIZES THE DURATION OF EARTH DISTURBANCE BY COMPLETING WORK UNDER THE THE CONSTRUCTION SEQUENCE IN ONE PHASE AND WORKING UNDER AN ACCELERATED CONSTRUCTION SCHEDULE.
- 5. THE PCSM PLAN MAXIMIZES THE PROTECTION OF THE EXISTING DOWNSTREAM DRAINAGE FEATURES AND VEGETATION BY AVOIDING THE STREAM CHANNEL AND UTILIZING PERIMETER CONTROL BMPS (COMPOST FILTER SOCKS) AROUND THE PROJECT AREA.
- 6. THE PCSM PLAN MINIMIZES SOIL COMPACTION BY A CAREFUL SELECTION OF THE USABLE SITE AREA REQUIRED FOR THE IMPROVEMENTS AND MINIMIZING THE DISTURBANCE OF VIRGIN SOILS. IT ALSO UTILIZES STRUCTURAL OR NONSTRUCTURAL BMPS THAT PREVENT OR MINIMIZE CHANGES IN STORMWATER RUNOFF AND MAINTAIN STREAM BASEFLOW.
- 7. POST-CONSTRUCTION THERMAL IMPACTS WILL BE MINIMIZED BY THE INSTALLATION OF THE PROPOSED VEGETATED SWALE AND BIO-RETENTION FACILITIES, WHICH WILL ALLOW MIXING AND COOLING OF RUNOFF. DURING CONSTRUCTION, THERMAL IMPACTS ARE MINIMIZED BY RUNOFF FILTERING THROUGH COMPOST FILTER SOCKS.
- 8. THERE ARE NO EXISTING WETLANDS ON THE SITE.
- 9. WATERS OF THE U.S. ARE DESIGNATED AS WWF. MF: THEREFORE, NO SPECIAL PROTECTION IS REQUIRED AND RIPARIAN BUFFERS ARE NOT APPLICABLE. PROTECTION OF WETLANDS WITHIN RIPARIAN FOREST BUFFER AND RIPARIAN BUFFER OFFSET IS NOT SHOWN ON THE PLANS AS THESE FEATURES DO NOT EXIST WITHIN THE LIMIT OF DISTURBANCE OR PERMIT
- 10. AREAS PROPOSED FOR INFILTRATION BMPS SHALL BE PROTECTED FROM SEDIMENTATION AND COMPACTION DURING THE CONSTRUCTION PHASE, SO AS TO MAINTAIN THEIR MAXIMUM INFILTRATION CAPACITY.
- 11. INFILTRATION BMPS SHALL NOT BE CONSTRUCTED NOR RECEIVE RUNOFF UNTIL THE ENTIRE CONTRIBUTORY DRAINAGE AREA TO THE INFILTRATION BMP HAS RECEIVED FINAL STABILIZATION.
- 12. THE STORMWATER MANAGEMENT SYSTEM IS A PERMANENT FIXTURE THAT CAN BE ALTERED OR REMOVED ONLY AFTER APPROVAL OF A REVISED PLAN BY THE MUNICIPALITY, WHICH SHALL BE RECORDED WITH THE RECORD PLAN AND WHICH SHALL BE APPLICABLE TO ALL FUTURE

SIGNATURE OF OWNER

13. I HEREBY CERTIFY THAT THE DRAINAGE PLAN MEETS ALL DESIGN STANDARDS AND CRITERIA OF THE DELAWARE RIVER SOUTH WATERSHED ACT 167 STORMWATER MANAGEMENT ORDINANCE

__DATE____ (DESIGN ENGINEER)

ENGINEER.

14. THE MUNICIPAL ENGINEER OR HIS MUNICIPAL ASSIGNEE SHALL OBSERVE ALL PHASES OF THE INSTALLATION OF THE PERMANENT STORMWATER MANAGEMENT FACILITIES AS DEEM APPROPRIATE BY THE MUNICIPAL

- 15. DURING CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE TOWNSHIP ENGINEER'S OFFICE THREE (3) DAYS PRIOR TO THE CONSTRUCTION OF ANY PROPOSED INFILTRATION BMP STORMWATER FACILITY.
- 16. THE TOWNSHIP SHALL HAVE THE RIGHT TO ENTER PRIVATE PROPERTY TO INSPECT AND REPAIR, IF NECESSARY, ANY STORMWATER MANAGEMENT
- 17. THE STORMWATER MANAGEMENT FACILITIES ARE A PERMANENT PART OF THE DEVELOPMENT AND SHALL NOT BE REMOVED, ALTERED, OR MODIFIED.

BMP MAINTENANCE & INSPECTION

- BMP 5.6.3 RE-VEGETATE AND RE-FOREST DISTURBED AREAS, USING NATIVE SPECIES PART TWO - REVEGETATE AND REFOREST:
- TREES SHALL BE ADEQUATELY PROTECTED DURING CONSTRUCTION.
- TREES SHALL BE MAINTAINED AND PROTECTED FOR THE LIFE OF THE PROJECT (50) YEARS) OR UNTIL REDEVELOPMENT OCCURS.
- ESCROW SHALL BE PROVIDED FOR THE REPLACEMENT OF ANY PROTECTED TREES USED FOR STORMWATER CREDITS THAT DIE WITHIN 5 YEARS OF CONSTRUCTION. DEAD
- TREES SHALL BE REPLACED WITHIN 6 MONTHS.

BMP 6.4.5 BIO-RETENTION (MRC):

- PROPERLY DESIGNED AND INSTALLED MRC AREAS REQUIRE SOME REGULAR MAINTENANCE. WHILE VEGETATION IS BEING ESTABLISHED, PRUNING AND WEEDING MAY BE REQUIRED.
- DFTRITUS MAY ALSO NEED TO BE REMOVED EVERY YEAR, PERENNIAL PLANTINGS MAY BE CUT DOWN AT THE END OF THE GROWING SEASON. MULCH SHOULD 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 MRC AREAS SHOULD BE INSPECTED AT LEAST TWO TIMES PER YEAR FOR SEDIMENT
- BUILDUP, EROSION, VEGETATIVE CONDITIONS, ETC. DURING PERIODS OF EXTENDED DROUGHT, MRC AREAS MAY REQUIRE WATERING. TREES AND SHRUBS SHOULD BE INSPECTED TWICE PER YEAR TO EVALUATE HEALTH.

BMP 6.4.8 VEGETATED SWALE:

SWALES SHALL BE KEPT FREE OF ANY BLOCKAGE AT ALL TIMES.

- MAINTENANCE ACTIVITIES TO BE DONE ANNUALLY AND WITHIN 48 HOURS AFTER EVERY MAJOR STORM INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, AND SEDIMENT AND
- DEBRIS ACCUMULATION (ADDRESS WHEN > 3 INCHES AT ANY SPOT OR COVERING VEGETATION) INSPECT VEGETATION ON SIDE SLOPES FOR EROSION AND FORMATION OF RILLS OR GULLIES, CORRECT AS NEEDED PER AMENDED SOIL SEEDING/MULCHING SPECIFICATION).
- INSPECT FOR POOLS OF STANDING WATER; DEWATER AND DISCHARGE TO AN APPROVED LOCATION AND RESTORE TO DESIGN GRADE
- INSPECT FOR UNIFORMITY IN CROSS-SECTION AND LONGITUDINAL SLOPE, CORRECT AS NEEDED • INSPECT SWALE INLET (CURB CUTS, PIPES, ETC.) AND OUTLET FOR SIGNS OF EROSION OR BLOCKAGE, CORRECT AS NEEDED

MAINTENANCE ACTIVITIES TO BE DONE AS NEEDED:

- PLANT ALTERNATIVE GRASS SPECIES IN THE EVENT OF UNSUCCESSFUL ESTABLISHMENT RESEED BARE AREAS; INSTALL APPROPRIATE EROSION CONTROL MEASURES WHEN NATIVE SOIL IS
- EXPOSED OR EROSION CHANNELS ARE FORMING WATER DURING DRY PERIODS, FERTILIZE, AND APPLY PESTICIDE ONLY WHEN ABSOLUTELY

WINTER CONDITIONS ALSO NECESSITATE ADDITIONAL MAINTENANCE CONCERNS, WHICH INCLUDE THE

- INSPECT SWALE IMMEDIATELY AFTER THE SPRING MELT, REMOVE RESIDUALS (E.G. SAND) AND REPLACE DAMAGED VEGETATION WITHOUT DISTURBING REMAINING VEGETATION.
- IF ROADSIDE RUNOFF IS DIRECTED TO THE SWALE, MULCHING AND/OR SOIL AERATION/MANIPULATION MAY BE REQUIRED IN THE SPRING TO RESTORE SOIL STRUCTURE AND MOISTURE CAPACITY AND TO REDUCE THE IMPACTS OF DEICING AGENTS.

BMP 6.6.4 WATER QUALITY FILTERS & HYDRODYNAMIC DEVICES (SNOUT)

FOLLOW THE MANUFACTURER'S GUIDELINES FOR MAINTENANCE, ALSO TAKING INTO ACCOUNT EXPECTED POLLUTANT LOAD AND SITE CONDITIONS. INLETS SHOULD BE INSPECTED WEEKLY DURING CONSTRUCTION. POST—CONSTRUCTION. THEY SHOULD BE EMPTIED WHEN OVER HALF FULL OF SEDIMENT (AND TRASH) AND CLEANED AT LEAST TWICE A YEAR. THEY SHOULD ALSO BE INSPECTED AFTER RUNOFF EVENTS. MAINTENANCE IS CRUCIAL TO THE EFFECTIVENESS OF THIS BMP. THE MORE FREQUENT A WATER QUALITY INSERT IS CLEANED, THE MORE EFFECTIVE IT WILL BE. SOME SITES HAVE FOUND KEEPING A LOG OF SEDIMENT AMOUNT DATE REMOVED HELPFUL IN PLANNING A MAINTENANCE SCHEDULE. ENVIRONMENTAL TECHNOLOGY VERIFICATION (ETV) PROGRAM AND THE TECHNOLOGY ACCEPTANCE AND RECIPROCITY PARTNERSHIP (TARP) MAY BE AVAILABLE TO ASSIST WITH THE DEVELOPMENT OF A MONITORING PLAN. THESE PROGRAMS ARE DETAILED IN THE PABMP MANUAL SECTION 6.3

DISPOSAL OF REMOVED MATERIAL WILL DEPEND ON THE NATURE OF THE DRAINAGE AREA AND THE INTENT AND FUNCTION OF THE WATER QUALITY INSERT. MATERIAL REMOVED FROM WATER QUALITY INSERTS THAT SERVE HOT SPOTS SUCH AS FLIFTING STATIONS OR THAT RECEIVE A LARGE AMOUNT OF DEBRIS SHOULD BE HANDLING ACCORDING TO DEP REGULATIONS FOR THAT TYPE OF SOLID WASTE, SUCH AS A LANDFILL THAT IS APPROVED BY DEP TO ACCEPT SOLID WASTE. WATER QUALITY INSERTS THAT PRIMARILY CATCH SEDIMENT AND DETRITUS FROM AREAS SUCH AS LAWNS MAY REUSE THE WASTE ON SITE.

VACTOR TRUCKS MAY BE AN EFFICIENT CLEANING MECHANISM.

WINTER CONCERNS: THERE IS LIMITED DATA STUDYING COLD WEATHER EFFECTS ON WATER QUALITY INSERT EFFECTIVENESS. FREEZING MAY RESULT IN MORE RUNOFF BYPASSING THE TREATMENT SYSTEM, SALT STRATIFICATION MAY ALSO REDUCE DETENTION TIME. COLDER TEMPERATURES REDUCE THE SETTLING VELOCITY OF PARTICLES. WHICH CAN RESULT IN FEWER PARTICLES BEING TRAPPED SALT AND SAND ARE SIGNIFICANTLY INCREASED IN THE WINTER, AND MAY WARRANT MORE FREQUENT MAINTENANCE. SOMETIMES FREEZING MAKES ACCESSING DEVICES FOR MAINTENANCE DIFFICULT.

BMP 6.6.3 DRY EXTENDED DETENTION BASIN:

ALL BASIN STRUCTURES EXPECTED TO RECEIVE AND/OR TRAP DEBRIS AND SEDIMENT SHOULD BE INSPECTED FOR CLOGGING AND EXCESSIVE DEBRIS AND SEDIMENT ACCUMULATION AT LEAST FOUR TIMES PER YEAR, AS WELL AS AFTER EVERY STORM GREATER THAN 1 INCH. STRUCTURES INCLUDE BASIN BOTTOMS, TRASH RACKS, OUTLETS STRUCTURES, RIPRAP OR GABION STRUCTURES, AND INLETS.

SEDIMENT REMOVAL SHOULD BE CONDUCTED WHEN THE BASIN IS COMPLETELY DRY. SEDIMENT SHOULD BE DISPOSED OF PROPERLY AND ONCE SEDIMENT IS REMOVED, DISTURBED AREAS NEED TO BE IMMEDIATELY STABILIZED AND REVEGETATED. MOWING AND/OR TRIMMING OF VEGETATION SHOULD BE PERFORMED AS NECESSARY TO SUSTAIN THE

SYSTEM, BUT ALL DETRITUS SHOULD BE REMOVED FROM THE BASIN. VEGETATED AREAS SHOULD BE INSPECTED ANNUALLY FOR EROSION. VEGETATED AREAS SHOULD BE INSPECTED ANNUALLY FOR UNWANTED GROWTH OF EXOTIC/INVASIVE

VEGETATIVE COVER SHOULD BE MAINTAINED AT A MINIMUM OF 95 PERCENT. IF VEGETATIVE COVER HAS BEEN REDUCED BY 10%, VEGETATION SHOULD BE REESTABLISHED.

BMP 6.7.3 SOIL AMENDMENT: DESIGN CONSIDERATIONS

- 1. TREATING COMPACTION BY SOIL RESTORATION
- A. SOIL AMENDMENT MEDIA USUALLY CONSISTS OF COMPOST, BUT CAN INCLUDE MULCH, MANURES,
- SAND, AND MANUFACTURED MICROBIAL SOLUTIONS. B. COMPOST SHOULD BE ADDED AT A RATE OF 2:1 (SOIL: COMPOST). IF A PROPRIETARY PRODUCT IS USED, THE MANUFACTURER'S INSTRUCTIONS SHOULD BE FOLLOWED IN TERMS OF MIXING AND
- C. SOIL RESTORATION SHOULD NOT BE USED ON SLOPES GREATER THAN 30% IN THESE AREAS, DEEP-ROOTED VEGETATION CAN BE USED TO INCREASE STABILITY. D. SOIL RESTORATION SHOULD NOT TAKE PLACE WITHIN THE DRIP LINE OF A TREE TO AVOID
- DAMAGING THE ROOT SYSTEM. E. ON-SITE SOILS WITH AN ORGANIC CONTENT OF AT LEAST 5 PERCENT CAN BE PROPERLY
- STOCKPILED (TO MAINTAIN ORGANIC CONTENT) AND REUSED.
- F. PROCEDURE: ROTOTILL, OR RIP THE SUBGRADE, REMOVE ROCKS, DISTRIBUTE THE COMPOST, SPREAD THE NUTRIENTS, ROTOTILL AGAIN. G. ADD 6 INCHES COMPOST / AMENDMENT AND TILL UP TO 8 INCHES FOR MINOR COMPACTION.
- H. ADD 10 INCHES COMPOST / AMENDMENT AND TILL UP TO 20 INCHES FOR MAJOR COMPACTION.
- 2. TREATING COMPACTION BY RIPPING / SUBSOILING / TILLING / SCARIFICATION A. SUBSOILING IS ONLY EFFECTIVE WHEN PERFORMED ON DRY SOILS.
- B. RIPPING, SUBSOILING, OR SCARIFICATION OF THE SUBSOIL SHOULD BE PERFORMED WHERE SUBSOIL HAS BECOME COMPACTED BY EQUIPMENT OPERATION, DRIED OUT AND CRUSTED, OR WHERE NECESSARY TO OBLITERATE EROSION RILLS.
- C. RIPPING (SUBSOILING) SHOULD BE PERFORMED USING A SOLID-SHANK RIPPER AND TO A DEPTH
- OF 20 INCHES, (8 INCHES FOR MINOR COMPACTION). D. SHOULD BE PERFORMED BEFORE COMPOST IS PLACED AND AFTER ANY EXCAVATION IS
- E. SUBSOILING SHOULD NOT BE PERFORMED WITHIN THE DRIP LINE OF ANY EXISTING TREES OVER UNDERGROUND UTILITY INSTALLATIONS WITHIN 30 INCHES OF THE SURFACE, WHERE TRENCHING/DRAINAGE LINES ARE INSTALLED, WHERE COMPACTION IS BY DESIGN. SUBSOILING SHOULD NOT BE PERFORMED WITH COMMON TILLAGE TOOLS SUCH AS A DISK OR CHISEL PLOW BECAUSE THEY ARE TOO SHALLOW AND CAN COMPACT THE SOIL JUST BENEATH THE TILLAGE DEPTH.

OPERATION & MAINTENANCE & WATER QUALITY FACILITIES

THE FOLLOWING NOTES BELOW DESCRIBE GENERAL OPERATION AND MAINTENANCE MEASURES FOR POST CONSTRUCTION STORMWATER MANAGEMENT BEST MANAGEMENT PRACTICES (PCSM BMPs). REQUIREMENTS SPECIFIC TO EACH INDIVIDUAL BMP ARE PROVIDED IN RESPECTIVE DETAILS. MAINTENANCE OF SAID BMPS CAN INCLUDE RECONSTRUCTION SHOULD A FAILURE OCCUR. THEREFORE, THESE RESPECTIVE DETAILS INCLUDE CONSTRUCTION SEQUENCES FOR RESTORATION PER THE APPROVED DESIGN. ANY RECONSTRUCTION ACTIVITIES REQUIRE TOWNSHIP, COUNTY CONSERVATION DISTRICT AND PADEP APPROVAL.

OPERATION & MAINTENANCE RESPONSIBILTIES

ALL STORMWATER MANAGEMENT FACILITIES AND ALL PROPOSED STORM SEWER PIPING LOCATED OUTSIDE OF ROADWAYS RIGHTS-OF-WAY SHALL BE OWNED AND MAINTAINED BY GREAT VALLEY SCHOOL DISTRICT. APPLICABLE BMPS ARE DRY EXTENDED DETENTION BASINS, UNDERGROUND DETENTION BASINS, MRC BASIN AND VEGETATED SWALES, OWNER SHALL NOTIFY THE TOWNSHIP OF THE RESPECTIVE PERSONS RESPONSIBLE FOR ONGOING INSPECTIONS, OPERATION, REPAIR, AND MAINTENANCE OF THE BMP AND CONVEYANCE SYSTEMS AFTER COMPLETION OF CONSTRUCTION. IF RESTORATION ACTIVITIES ARE REQUIRED, A SCHEDULE INDICATING THE DATE WHEN THE RESTORATION ACTIVITIES WILL BE STARTED AND COMPLETED SHALL BE PREPARED AND SUBMITTED TO THE

- THE PERSON RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF A BMP OR CONVEYANCE SHALL MAKE RECORDS OF THE INSTALLATION AND OF ALL MAINTENANCE AND REPAIRS, AND SHALL RETAIN THE RECORDS
- FOR AT LEAST 10 YEARS. THESE RECORDS SHALL BE SUBMITTED TO THE TOWNSHIP, COUNTY CONSERVATION DISTRICT AND PADEP IF REQUESTED. THE TOWNSHIP RESERVES THE RIGHT, BUT NOT THE RESPONSIBILITY, TO CONDUCT BMP INSPECTIONS AT
- . THE OWNER OF EACH BMP AND CONVEYANCE SHALL KEEP ON FILE WITH THE TOWNSHIP THE NAME, ADDRESS, ND TELEPHONE NUMBER OF THE PERSON RESPONSIBLE FOR MAINTENANCE ACTIVITIES AND IMPLEMENTATION OF THE O&M PLAN. IN THE EVENT OF A CHANGE, NEW INFORMATION SHALL BE SUBMITTED BY THE BMP OR CONVEYANCE OWNER TO THE TOWNSHIP WITHIN 30 CALENDAR DAYS OF THE CHANGE.

INSPECTION ACTIVITIES SHALL, AT A MINIMUM, INCLUDE:

REASONABLE TIMES.

- INSPECTING FOR DAMAGE TO THE FACILITY. INSPECTING EMBANKMENT AND EMERGENCY SPILLWAY FOR EROSION, SEEPS OR LEAKS,
- FAILURE OF SLOPE PROTECTION OR RIPRAP AND ADEQUATE GROUND COVER. ENSURE THE EMERGENCY SPILLWAY IS CLEAR OF OBSTRUCTIONS AND DEBRIS. MONITOR SEDIMENT ACCUMULATIONS IN ALL STORMWATER MANAGEMENT, STORMWATER CONVEYANCE AND
- WATER QUALITY FACILITIES. ENSURE INLET AND OUTLET DEVICES ARE FREE OF DEBRIS AND OPERATIONAL. INSPECT OUTFALLS FOR RIPRAP FAILURES AND SLOPE FROSION
- INSPECT FACILITIES FOR UNDESIRABLE VEGETATIVE OR WOODY GROWTH. INSPECT FOR PROPER INFILTRATION FUNCTION.
- THE LANDOWNER(S) ACKNOWLEDGE THAT, PER THE PROVISIONS OF THE TOWNSHIP'S STORMWATER MANAGEMENT ORDINANCE, IT IS UNLAWFUL TO MODIFY, REMOVE, FILL, LANDSCAPE, ALTER OR IMPAIR THE FFFECTIVENESS OF, OR PLACE ANY STRUCTURE, OTHER VEGETATION, YARD WASTE, BRUSH CUTTINGS, OR OTHER WASTE OR DEBRIS INTO ANY PERMANENT STORMWATER MANAGEMENT BMP OR CONVEYANCE DESCRIBED IN THIS O&M PLAN OR TO ALLOW THE BMP OR CONVEYANCE TO EXIST IN A CONDITION WHICH DOES NOT CONFORM TO THIS O&M PLAN, WITHOUT WRITTEN APPROVAL FROM THE TOWNSHIP.

NO BMP OR MAN-MADE CONVEYANCE MAY BE USED BY THE OWNER OR OTHERS FOR ANY PURPOSE OTHER THAN ITS INTENDED STORMWATER CONTROL FUNCTION, OR, IF APPROVED BY THE TOWNSHIP ENGINEER, A STATEMENT OF SPECIFIC ALLOWABLE USES OF THE BMP (I.E., RECREATIONAL BENEFITS THAT MAY BE ASSOCIATED WITH CERTAIN BMPS OWNED BY A HOMEOWNERS' ASSOCIATION, OR ALLOWABLE USES BY AN INDIVIDUAL RESIDENTIAL LANDOWNER).

BMP CHARACTERISTICS & FUNCTIONALITY

DRY EXTENDED DETENTION/UNDERGROUND DETENTION AN EXTENDED DETENTION BASIN IS AN EARTHEN STRUCTURE CONSTRUCTED EITHER BY IMPOUNDMENT OF A NATURAL DEPRESSION OR EXCAVATION OF EXISTING SOIL, THAT PROVIDES TEMPORARY STORAGE OF RUNOFF AND FUNCTIONS HYDRAULICALLY TO ATTENUATE STORMWATER RUNOFF PEAKS, IT CAN ALSO BE PROVIDED IN A VARIETY OF SUB-SURFACE STRUCTURAL ELEMENTS, SUCH AS LARGE PIPES OR OTHER STRUCTURAL MEDIA PLACED IN AN AGGREGATE FILLED BED IN THE SOIL MANTLE.

BIORETENTION IS AN EXCAVATED SHALLOW SURFACE DEPRESSION PLANTED WITH NATIVE VEGETATION TO CAPTURE AND TREAT RUNOFF. BIORETENTION TREATS STORMWATER BY ALLOWING FILTERING AND SETTLING OF SUSPENDED SOLIDS AND SEDIMENT AT THE SURFACE AS WELL AS INFILTRATION AND POLLUTANT REMOVAL VIA PLANT/SOIL/MICROBE COMPLEX MEDIA. THE BIORETENTION-FACILITY SPECIFIC TO THIS PROJECT IS INTENDED TO MANAGE RUNOFF VIA THE MANAGED RELEASE CONCEPT (MRC). THE GOAL OF MRC IS TO TEMPORARILY IMPOUND THE RUNOFF FROM STORM EVENTS UP TO AND INCLUDING THE 2-YEAR/24-HOUR STORM, AND THEN RELEASE THROUGH AND UNDERDRAIN AND CONTROL STRUCTURE AT A RATE SIMILAR TO THE LATERAL UNSATURATED FLOW MOVEMENT TO THE RECEIVING WATERS OF UNDEVELOPED AREAS.

VEGETATED SWALES ARE BROAD, SHALLOW, PARABOLIC CHANNELS THAT ARE DENSELY PLANTED WITH A VARIETY OF TREES. SHRUBS AND/OR GRASSES. THEY ARE DESIGNED TO ATTENUATE OR INFILTRATE RUNOFF VOLUME FROM

ADJACENT IMPERVIOUS SURFACES AND ALLOW SETTLING OF POLLUTANTS.

GENERAL MAINTENANCE PROCEDURES (ALL FACILITIES) OBSTRUCTIONS AND DEBRIS (ALL FACILITIES) ALL STORMWATER MANAGEMENT FACILITIES SHALL BE CLEARED OF ALL DEBRIS AND LITTER ON A REGULAR BASIS AND AFTER ALL MAJOR STORM EVENTS. ADDITIONALLY, FLOATING DEBRIS SHALL BE REMOVED, AND THE FACILITY

SHALL BE INSPECTED FOR VISIBLE POLLUTION OR SHORELINE PROBLEMS. ERODED CHANNELS OR AREAS OF EXCESSIVE EROSION NEAR THE FACILITY SHALL BE BACKFILLED AND STABILIZED IMMEDIATELY. SEDIMENT ACCUMULATION (ALL FACILITIES) MONITOR SEDIMENT ACCUMULATIONS IN ALL STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES. REMOVE SEDIMENT IF STORAGE VOLUMES HAVE BEEN REDUCED SIGNIFICANTLY (HALF OF FOREBAY STORAGE) OR THE POOLS BECOME STAGNANT. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE STORMWATER MANAGEMENT AND WATER QUALITY FACILITIES ON A REGULAR BASIS (EVERY 2 TO 10 YEARS FOR BASINS) AND SHALL EITHER BE REMOVED FROM THE SITE OR DISPOSED OF ON-SITE AT AN APPROVED DISPOSAL AREA. MAINTENANCE OF CATCH BASINS

AND INLETS IS BEST DONE AT LEAST ANNUALLY OR AS NECESSARY WITH A VACUUM TRUCK. ALL COLLECTED WASTE

MUST BE HANDLED AND DISPOSED OF ACCORDING TO LOCAL ENVIRONMENTAL REQUIREMENTS. PRIOR TO ON-SITE

DISPOSAL OF SEDIMENT, THE OWNER SHALL ACQUIRE THE APPROPRIATE EARTH DISTURBANCE PERMITS FROM THE MUNICIPALITY AND/OR THE CONSERVATION DISTRICT. MRC FACILITY OBSERVATIONS SHALL BE MADE TO DETERMINE THE LENGTH OF TIME NEEDED FOR RETAINED WATER TO DRAWDOWN INTO THE SOIL MEDIA AFTER A STORM EVENT. THE OBSERVATIONS SHALL BE MADE BY READING THE WATER LEVEL IN THE DEPRESSION OF THE MRC BASIN BED SEVERAL TIMES OVER A PERIOD OF TWO (2) DAYS AFTER A LARGE STORM EVENT. THE FIRST OF THESE OBSERVATIONS SHALL PROVIDE A RECORD OF HOW WELL THE SYSTEM IS

WORKING WHEN COMPARING FUTURE OBSERVATIONS. MEASUREMENTS SHOULD BE TAKEN AFTER EACH RAIN EVENT OF 0.5-INCHES OR MORE, OR MONTHLY, AS DETERMINED BY LOCAL WEATHER CONDITIONS. AT A MINIMUM, OBSERVATIONS SHALL BE MADE TWICE THE FIRST YEAR AND YEARLY THEREAFTER. AT A MINIMUM, OPERATION AND MAINTENANCE PROCEDURES FOR MRC AREAS SHALL INCLUDE:

- THE OVERLYING VEGETATION OF SUBSURFACE MRC FEATURES SHALL BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS REVEGETATED AS SOON AS POSSIBLE * MOWING AND/OR TRIMMING OF VEGETATION SHALL BE PERFORMED QUARTERLY TO SUSTAIN THE SYSTEM, BUT ALL DETRITUS SHOULD BE REMOVED FROM THE BASIN. VEGETATED AREAS SHALL BE INSPECTED QUARTERLY FOR EROSION. VEGETATED AREAS SHALL BE INSPECTED QUARTERLY FOR UNWANTED GROWTH OF EXOTIC/INVASIVE SPECIES. * VEGETATIVE COVER SHALL BE MAINTAINED AT A MINIMUM OF 95 PERCENT. IF VEGETATIVE COVER HAS BEEN
- FLOOR OF STORAGE AREA. SEDIMENT REMOVAL SHALL BE CONDUCTED WHEN THE BASIN IS COMPLETELY DRY. SEDIMENT SHALL BE DISPOSED OF PROPERLY AND ONCE SEDIMENT IS REMOVED, DISTURBED AREAS NEED TO BE IMMEDIATELY STABILIZED AND RE-VEGETATED, AS APPLICABLE. FENCES AND GATES SHALL BE INSPECTED FOR DAMAGE AND REPAIRED AS NECESSARY

SALT IS ACCEPTABLE FOR USE AS A DEICER ON THE PAVEMENT. THOUGH NONTOXIC. ORGANIC DEICERS.

* ACCESS TO MRC BASINS SHOULD BE PROHIBITED, AND CARE SHALL BE TAKEN TO AVOID COMPACTION OF

APPLIED EITHER AS BLENDED, MAGNESIUM CHLORIDE-BASED LIQUID PRODUCTS OR AS PRETREATED SALT, ARE VEGETATED AREAS

REDUCED BY 10%, VEGETATION SHOULD BE REESTABLISHED.

REPAIR EXTENSIVE LEAKAGE, SPALLS OR FRACTURES.

VEGETATED AREAS SHALL BE MAINTAINED WITH A MINIMUM UNIFORM VEGETATIVE 70% PERENNIAL VEGETATIVE COVER WITH A DENSITY CAPABLE OF RESISTING ACCELERATED EROSION AND SEDIMENTATION. VEGETATED AREAS THAT WASH OUT MUST BE FILLED AND GRADED AS NECESSARY AND THEN RESEEDED. AN ANCHORING METHOD SHOULD THEN BE USED TO HOLD SEED AND MULCH IN PLACE; THIS IS ESPECIALLY IMPORTANT ON STEEP SLOPES. AT A MINIMUM, OPERATION AND MAINTENANCE PROCEDURES FOR THE WHIP PLANTING AREAS SHALL INCLUDE: TREES AND SHRUBS SHOULD BE INSPECTED TWICE PER YEAR TO EVALUATE HEALTH.

DUTLET STRUCTURES (ALL FACILITIES): DURING DRY CONDITIONS. CONCRETE SPILLWAY STRUCTURES SHALL BE INSPECTED TO DETERMINE IF WATER IS PASSING THROUGH ANY JOINTS OR OTHER STRUCTURE CONTACTS AND TO IDENTIFY ANY CRACKS. SPALLING. BROKEN OR LOOSE SECTIONS. ANY CRACKED, SPALLED, BROKEN OR LOOSE SECTIONS SHALL BE CLEANED AND REFILLED WITH AN APPROPRIATE CONCRETE PATCHING MATERIAL. A PROFESSIONAL ENGINEER SHALL BE CONSULTED TO

* ADDITIONAL PLANTINGS PROVIDED AS NECESSARY TO MAINTAIN STABILIZATION.

THE TRENCH SIDE SLOPES SHALL BE STEPPED BACK AT A 2:1 SLOPE, MINIMUM. EARTH EMBANKMENTS (ALL FACILITIES): ALL ANIMAL BURROWS SHALL BE BACKFILLED AND COMPACTED AND BURROWING ANIMALS SHALL BE REMOVED FROM

ALL SEEDLINGS NOT INDICATED ON LANDSCAPE PLANS SHALL BE REMOVED AT THE FIRST OPPORTUNITY. SIMILARLY,

ENGINEER. VERTICAL TRENCHING TO EXPOSE THE BARREL SHALL NOT BE ALLOWED UNDER ANY CIRCUMSTANCES.

ANY REPAIRS MADE TO THE PRINCIPAL SPILLWAY (RISER OR BARREL) SHALL BE REVIEWED BY A PROFESSIONAL

ANY VINE COVER AND BRUSH SHALL BE REMOVED FROM THE EMBANKMENT TO ALLOW FOR INSPECTIONS. THE OWNERS, HEIRS, AND/OR ASSIGNS OF THE PROJECT SITE SHALL MAINTAIN OWNERSHIP OF AND BE RESPONSIBLE FOR THE MAINTENANCE OF THE STORM SEWER SYSTEM AND DETENTION FACILITY. IN THE EVENT SAID OWNERS, HEIRS, AND/OR ASSIGNS FAIL TO PROPERLY MAINTAIN SAID FACILITIES, THE MUNICIPALITY SHALL HAVE THE RIGHT TO PERFORM SAID MAINTENANCE AT THE EXPENSE OF THE OWNERS AFTER PROPER NOTIFICATION OF THE

FAILURE INDICATORS: THIS SECTION DEFINES FAILURE OF THE PRIMARY BMPS AS RELATED TO DEWATERING TIME.

MRC FACILITY - THE MRC FACILITY IS DESIGNED TO RECEIVE RUNOFF FROM THE MAJORITY OF THE SITE AS WELL AS A PORTION OF OFF-SITE RUNOFF. ITS PLANTING MEDIA IS DESIGNED TO FILTER THE INFLOW AND DEWATER (TO INVERT OF UNDERDRAIN) IN APPROXIMATELY 72 HOURS AFTER ALL STORMS EQUAL OR GREATER THAN A 2.7 INCH RAIN EVENT. IF A LONGER OR CONSTANT STANDING WATER DEPTH OCCURS, THERE MAY BE AN ISSUE WITH UNDERDRAIN / ORIFICE CLOGGING AND THE UNDERDRAIN PIPE SHOULD BE FLUSHED. SHOULD THIS ACTION NOT CORRECT THE ISSUE, THE

FILTER MEDIA SHOULD BE ASSESSED AND REPLACED TO THE EXTENT REQUIRED TO RESTORE FUNCTION.

VEGETATION RE-ESTABLISHMENT PER THE ORIGINAL DESIGN SHALL BE REQUIRED IN THE MEDIA REPLACEMENT

EROSION AND SEDIMENTATION POLLUTION CONTROL SPECIALISTS' CONTACTS: MONTGOMERY COUNTY CONSERVATION DISTRICT: (610) 489-4506

QUALITY FACILITIES, SEE THE 2006 PENNSYLVANIA STORMWATER BMP MANUAL.

CONSTRUCTION OF THE REVISED FEATURES, SHALL BE SIGNED BY THE APPLICANT.

PADEP SOUTHEAST REGIONAL OFFICE: (484) 250-5900

PCSM PLAN REVISIONS: ANY REVISION TO THE APPROVED SWM SITE PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE TOWNSHIP, AND A REVISED EROSION AND SEDIMENT CONTROL PLAN SHALL BE SUBMITTED TO, AND APPROVED BY, THE CONSERVATION DISTRICT OR TOWNSHIP (AS APPLICABLE) FOR A DETERMINATION OF ADEQUACY PRIOR TO THE

FOR ADDITIONAL INFORMATION REGARDING MAINTENANCE OF SPECIFIC STORMWATER MANAGEMENT AND WATER

CONSTRUCTION SEQUENCE

GENERAL SEQUENCE NOTES:

AT LEAST 7 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES. THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS. THE FROSION AND SEDIMENT CONTROL PLAN PREPARER, AND THE CONSERVATION DISTRICT TO AN ON-SITE MEETING. ALSO, AT LEAST 3 WORKING DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.

EROSION AND SEDIMENT BMPS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPS.

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.

CRITICAL STAGE ITEMS THAT REQUIRE INSPECTION BY THE ENGINEER ARE SPECIFIED.

NOTE: NO ACTIVITIES SHALL DISTURB IDENTIFIED WATERS OF THE U.S. WITHOUT PRIOR APPROVAL OF PADEP. DISTURBANCES SHALL BE IN STRICT ACCORDANCE WITH IDENTIFIED PLAN AREAS WHICH ARE MINIMIZED FOR PROPOSED IMPROVEMENTS.

SITE CONSTRUCTION SEQUENCE

1. INSTALL CONSTRUCTION ENTRANCE, INSTALL PERIMETER COMPOST SOCK AND TREE PROTECTION

CRITICAL STAGE - INSPECT CONSTRUCTION ENTRANCE AND COMPOST SOCK

2. INSTALL STORM SEWER B OUT TO OCS 2 (NOT INCLUDING OCS 2 STRUCTURE) AND B1 TO B3 FROM BOTTOM TO TOP. STABILIZE EACH DAY WITH EITHER TOPSOIL SEEDING AND MULCH. INSTALL INLET PROTECTIONS.

CRITICAL STAGE - ENSURE CONSTRUCTED INLETS ARE PROPERLY INSTALLED, STABILIZED AND PROTECTED

3. GRADE SEDIMENT BASIN A AND INSTALL TEMPORARY RISER, SKIMMER DEVICES, AND ALL OTHER BASIN RELATED CONTROL STRUCTURES AS INDICATED IN THE ENS PLAN. INSTALL COMPOST FILTER SOCK BERM AS SHOWN ON THE PLAN.

CRITICAL STAGE - SEDIMENT BASIN A AND CONTROL STRUCTURES TO BE INSPECTED PRIOR TO ADVANCING

4. MASS GRADING OF SITE MAY BEGIN. REMOVE EXISTING SITE FEATURES AND DISPOSE PROPERLY. STORE EXCESS FILL IN ESTABLISHED STOCKPILE AREA. INSTALL STORM SEWER AND UTILITIES. INCLUDING WALLS. ENSURE ONSITE RUNOFF IS DIRECTED TO SEDIMENT BASIN A AT ALL TIMES. DO NOT INSTALL CURBING UPSLOPE OF THE SEDIMENT BASIN UNTIL THE CONTRIBUTING DRAINAGE AREA IS STABILIZED AND THE STORM INLETS NO LONGER NEED TO BE SEALED. INSTALL NEW PAVEMENT AND SIDEWALKS TO BINDER COURSE. STABILIZE SLOPES WITH EROSION CONTROL BLANKETS WHERE INDICATED.

CRITICAL STAGE - INSPECTION OF SITE STABILIZATION AND CONVERSION OF SEDIMENT BASIN

5. WHEN TRIBUTARY DRAINAGE AREAS ARE 70% STABILIZED, CONVERT SEDIMENT BASIN TO PERMANENT BASIN. MUST BE APPROVED BY CONSERVATION DISTRICT AND ENGINEER. DESILT AND STABILIZE. REMOVE SKIMMER AND ESTABLISH FINAL OUTLET STRUCTURE. EXCAVATE TO INSTALL UNDERGROUND HDPE CRATE STORMWATER FACILITY. FACILITY MUST BE PROTECTED FROM SILTATION AT ALL TIMES. INSTALL CRATES PER MANUFACTURER RECOMMENDATIONS. INSTALL OCS 1 AND OCS 2. COMPLETE FINAL GRADING OF SLOPE BETWEEN UNDERGROUND DETENTION AND MRC BASIN. STABILIZE SLOPE WITH SOD, AND COMPLETE ANY FINAL LANDSCAPING. INSTALL MRC BASIN MEDIA AND PLANTINGS WHERE INDICATED.

CRITICAL STAGE - DESIGN ENGINEER SITE INSPECTION TO VERIFY FUNCTION OF MRC BASIN 1 AND UNDERGROUND DETENTION FACILITY AND 90% STABILIZATION. NO CONTROLS MAY BE REMOVED WITHOUT MCCD APPROVAL

6. ONLY WHEN SITE IS 90% UNIFORMLY STABILIZED, REMOVE PERIMETER CONTROLS. COMPOST FROM

RESPONSIBILITIES TROPENFILL MATERIALS 1. THE OPERATOR MUST USE ENVIRONMENTAL DUE DILIGENCE TO ENSURE THAT ANY NECESSARY FILL MATERIAL ASSOCIATED WITH THIS PROJECT QUALIFIES AS CLEAN

FILL. ALL FILL MATERIAL MUST BE USED IN ACCORDANCE WITH PADEP'S POLICY

SOCKS MAY BE RE-SPREAD ON SITE OR DISPOSED OF PROPERLY.

- "MANAGEMENT OF FILL". DOCUMENT NUMBER 258-2182-773. A COPY OF THIS POLICY IS AVAILABLE ONLINE AT WWW.DEPWEB.STATE.PA.US. 2. CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSED, INERT, SOLID MATERIAL, THE TERM INCLUDES SOIL, ROCK STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM TH WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS
- ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE). 3. CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE: FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1A AND FP-1B FOUND IN PADEP'S

PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE

AUTHORIZED (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR

- POLICY "MANAGEMENT OF FILL" ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE PADEP FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL. A
- COPY OF FORM FP-001 CAN BE FOUND AT WWW.DEPWEB.STATE.PA.US. 5. ENVIRONMENTAL DUE DILIGENCE: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREEN, ANALYTICAL
- 6. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF A REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF PADEP'S POLICY "MANAGEMENT OF FILL".

REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE

MUNICIPAL OR RESIDUAL WASTE REGULATIONS IN 25 PA CODE CHAPTERS 287

RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE.

7. FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL.

- 8. ALL FILLS SHALL BE COMPACTED SUFFICIENTLY FOR THEIR INTENDED PURPOSE AND AS REQUIRED TO REDUCE SUPPING, EROSION OR EXCESS SATURATION.
- 9. REFER TO SITE / RECORD PLAN FOR ADDITIONAL NOTES.

TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS.

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Во	Bowmansville-Knauers silt loams	1.1	3.7%
PIB	Penn-Lansdale complex, 3 to 8 percent slopes	8.7	29.2%
PIC	Penn-Lansdale complex, 8 to 15 percent slopes	7.0	23.5%
UryB	Urban land-Readington complex, 0 to 8 percent slopes	8.7	29.2%
UusD	Urban land-Udorthents, shale and sandstone complex, 8 to 25 percent slopes	4.3	14.3%
Totals for Area of Interest	1	29.9	100.0%

			•	TABLE	E.1											
LIMITATIONS OF PENNSYLVANIA SOILS PERTAINING TO EARTHMOVING PROJECTS																
SOIL NAME	CUTBANKS CAVE	CORROSIVE TO CONCRETE/STEEL	ркоиснт	EASILY ERODIBLE	FLOODING	DEPTH TO SATURATED ZONE/ SEASONAL HIGH WATER TABLE	HYDRIC/ HYDRIC INCLUSIONS	LOW STRENGTH / LANDSLIDE PRONE	SLOW PERCOLATION	PIPING	POOR SOURCE OF TOPSOIL	FROST ACTION	SHRINK - SWELL	POTENTIAL SINKHOLE	PONDING	
BOWMANSVILLE-KNAUERS SILT LOAMS (Bo)																Ī
BOMANSVILLE	Х	C/S			х	Х	Х	Х	Х	х	х	х				I
KNAUERS	Х	C/S	Х		х	Х	Х	Х	Х		х	х			х	T
PENN-LANSDALE COMPLEX, 3% TO 8% SLOPES (PIB), 8% TO 15% SLOPES (PIC)																Ī
PENN	Х	С	Х				Х	х		х	х	х				I
LANSDALE	X	С	X					Х	X		Х	х				
URBAN LAND-READINGTON COMPLEX, 0 TO 8 PERCENT SLOPES (UryB)	x	C/S		х		х	x	х	x	х	х	х				
URBAN LAND-UDORTHENTS, SHALE AND SANDSTONE COMPLEX, 8 TO 25 PERCENT SLOPES (UusD)	х	c/s	х	×				×	х		×	х				I



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		PRG	PRG	ROP	PRG	ВУ
		PER CKS REVIEW LETTER DATED 01/24/2024	11/17/2023 PER CKS REVIEW LETTER DATED 11/22/2022	REVISED ENTRANCE ON GERMANTOWN PIKE	PER CKS REVIEW LETTER DATED 03/11/2022	REVISIONS
		3/7/2024	11/17/2023	4/3/2023	10/04/2022	DATE
		4	3	2	4	<u>8</u>

CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER



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CGG/JPK/ROP

DESIGNED BY

2. THE CONTRACTOR SHALL VERIFY ALL UTILITIES WITHIN WORK AREA PRIOR TO COMMENCING WITH ANY EXCAVATIONS AND SHALL BE RESPONSIBLE FOR THEIR PROTECTION.

- 3. THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS SHOWN ON THE DRAWINGS, AS SPECIFIED, AND IN QUANTITIES INDICATED ON THE PLANT LIST. IF A DISCREPANCY SHOULD ARISE BETWEEN THE AMOUNT OF PLANTS SHOWN ON THE PLAN VS. THE PLANT SCHEDULE, THE PLAN
- 4. ALL PLANTS SHALL BE NURSERY GROWN.

BEEN INSTALLED IN THE PLANTING PIT.

- 5. ALL PLANTS SHALL BE HARDY UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT.
- 6. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OR GROWTH. THEY SHALL BE SOUND, HEALTHY AND VIGOROUS WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF THEY SHALL BE FREE OF DISEASE AND INSECT PESTS, EGGS OR LARVAE. THEY SHALL HAVE HEALTHY WELL-DEVELOPED ROOT SYSTEMS.
- 7. SUBSTITUTIONS: WHEN PLANTS OF A SPECIFIED KIND OR SIZE ARE NOT AVAILABLE WITHIN A REASONABLE DISTANCE, SUBSTITUTIONS MAY BE MADE UPON REQUEST BY THE CONTRACTOR IF APPROVED BY THE LANDSCAPE ARCHITECT OR HIS/HER REPRESENTATIVE.
- 8. ALL AREAS TO BE SHOWN AS LAWN SHALL BE SEEDED, AS SPECIFIED, AND WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED WITH A MINIMUM OF 90% COVER PER 5 SQUARE FEET OF LAWN AREA AVERAGE.
- 9. TREE LOCATIONS MAY NEED TO BE ADJUSTED BASED ON LOCATIONS OF UTILITIES, FIELD CONDITIONS, OR FINAL GRADING. THE CONTRACTOR SHALL NOTIFY THE OWNER AND/OR THEIR REPRESENTATIVE IF ADJUSTMENTS ARE NECESSARY.
- IO. ALL SHRUBS TO BE PLANTED IN CONTINUOUS MULCH BEDS UNLESS OTHERWISE NOTED. ALL PLANTING BEDS TO RECEIVE 3" SHREDDED
- II. ALL PLANTS DELIVERED TO THE SITE MUST BE INSTALLED WITHIN 24 HOURS. IF PLANTS MUST BE STORED LONGER THAN 24 HOURS THEY ARE TO BE HEELED IN WITH MULCH AND SUFFICIENTLY WATERED TO PREVENT DRYNESS AND DESICCATION. IN NO CASE SHALL PLANTS BE STORED MORE THAN 72 HOURS WITHOUT APPROVAL FROM THE OWNERS REPRESENTATIVE.
- 12. ROOT BALLS OF ALL PLANTS SHALL BE ADEQUATELY PROTECTED AT ALL TIMES FROM SUN AND DRYING WINDS OR FROST. PLANTS WITH BROKEN ROOT BALLS, TRUNK AND BARK DAMAGE OR EXCESSIVE DAMAGE TO THE CROWN SHALL BE REPLACED PRIOR TO PLANTING. 13. ROPES AT TOP OF BALL SHALL BE CUT. REMOVE TOP 1/3 OF BURLAP MINIMUM. ALL NON- BIODEGRADABLE MATERIAL SHALL BE TOTALLY
- 14. PREPARATION OF PLANTING: CLEAN SOIL EXCAVATED FROM PLANTING PIT OF ROOTS, PLANTS, STONES LARGER THAN 2", CLAY LUMPS, AND OTHER EXTRANEOUS MATERIALS HARMFUL OR TOXIC TO PLANT GROWTH.

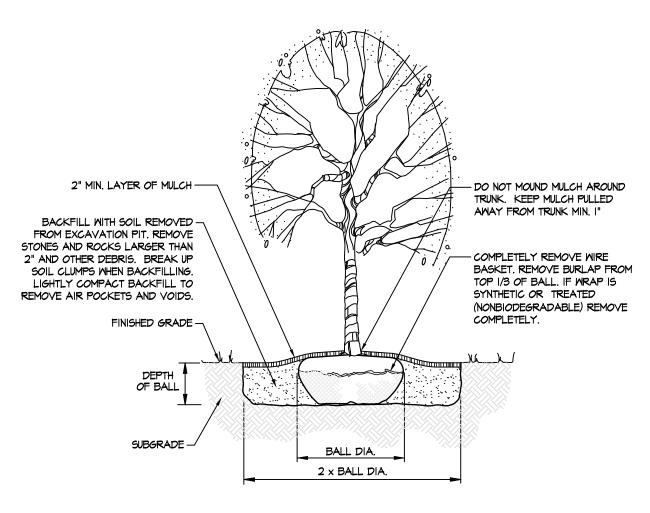
REMOVED. WIRE BASKETS SHALL BE CAREFULLY REMOVED ENTIRELY AT THE TIME OF PLANTING, PREFERABLY AFTER THE ROOT BALL HAS

- 15. DO NOT ALLOW AIR POCKETS TO FORM WHEN BACKFILLING. 16. NO PLANT SHALL BE PLACED IN THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT OR HIS/HER EQUAL.
- 17. INSTALL ALL PLANTS SO THAT THE TOP OF THE ROOTBALL IS SLIGHTLY ABOVE FINISHED GRADE. IN NO CASE SHALL THE PLAN BE INSTALLED WITH NO LESS THAN THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL ROOT CROWN. EXCESS SOIL MAY EXIST AROUND THE ROOT CROWN FROM NURSERY OPERATIONS. THIS EXCESS MATERIAL SHALL BE REMOVED PRIOR TO PLANTING TO DETERMINE THE PROPER BALL INSTALLATION DEPTH.
- 18. ALL EXISTING TREES THAT ARE TO BE SAVED AS DETERMINED BY LANDSCAPE ARCHITECT SHALL BE PROTECTED UNTIL CONSTRUCTION HAS BEEN COMPLETED. AREA WITHIN DRIPLINE SHALL NOT BE TRAVELED ACROSS BY CONSTRUCTION TRAFFIC.
- 19. TREES PLANTED ALONG STREETS SHALL HAVE A SINGLE STRAIGHT TRUNK THAT DOES NOT FORK BELOW 61
- 20. ALL PLANTS SHALL BE BALLED AND WRAPPED OR CONTAINER GROWN AS SPECIFIED. NO CONTAINER GROWN STOCK WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL NON-BIODEGRADEABLE ROOT WRAPPING MATERIAL SHALL BE REMOVED AT TIME OF PLANTING.
- 21. WITH CONTAINER GROWN STOCK, THE CONTAINER SHALL BE REMOVED AND THE CONTAINER BALL CUT THROUGH THE SURFACE IN TWO VERTICAL LOCATIONS MINIMUM.
- 22. THE CONTRACTOR SHALL LAYOUT WITH IDENTIFIABLE STAKES INDIVIDUAL TREE AND SHRUB LOCATIONS AND AREAS FOR MULTIPLE PLANTING ALONG WITH THE ARRANGEMENTS AND OUTLINE OF PLANTING BEDS AS INDICATED ON DRAWING. THE LAYOUT OF PLANTING WILL THEN BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO ANY EXCAVATION OF PLANT PITS OR PLANT BEDS.
- 23. AT PLANTING TIME, ALL PLANT MATERIAL SHALL TRIMMED TO REMOVE BROKEN AND/OR DEAD VEGETATIVE MATERIAL.
- 24. ALL PLANTS SHALL BE INSTALLED AS PER THE PLANTING DETAILS AND THE CONTRACT SPECIFICATIONS, WHERE APPLICABLE.
- 25. ALL PLANTS SHALL BE INSTALLED PLUMB UNLESS OTHERWISE SPECIFIED.
- 26. ALL PLANTS SHALL BE THOROUGHLY WATERED TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL THEN BE MATERED WEEKLY OR MORE OFTEN, IF NECESSARY, DURING THE FIRST GROWING SEASON.
- 27. CONDITIONS DETRIMENTAL TO PLANTS: THE CONTRACTOR SHALL NOTIFY THE PROJECT REPRESENTATIVE IN WRITING OF ALL SOIL OR DRAINAGE CONDITIONS WHICH THE CONTRACTOR CONSIDERS DETRIMENTAL TO THE GROWTH OF PLANTS. HE SHALL STATE THE CONDITIONS AND SUBMIT A PROPOSAL FOR CORRECTING THE CONDITIONS INCLUDING ANY CHANGE IN COST FOR REVIEW AND ACCEPTANCE BY THE PROJECT REPRESENTATIVE.

26. WARRANT TREES AND SHRUBS FOR A MINIMUM PERIOD OF EIGHTEEN (18) MONTHS AFTER DATE OF WRITTEN FINAL ACCEPTANCE BY THE LANDSCAPE ARCHITECT AND/OR THE OWNERS AUTHORIZED REPRESENTATIVE AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MONITOR THE PROJECT PLANTINGS DURING THE WARRANTY PERIOD AND NOTIFY THE OWNER IF PROBLEMS DEVELOP. PLANTS THAT DIE DURING THE WARRANTY PERIOD SHALL BE REMOVED IMMEDIATELY AND REPLACED.

29. ANY TREE OR SHRUB WHICH DIES WITHIN IS MONTHS OF PLANTING SHALL BE REPLACED IN KIND, ANY TREE OR SHRUB WHICH WITHIN IS MONTHS OF PLANTING OR REPLANTING IS DEEMED BY THE TOWNSHIP NOT TO BE HEALTHY AND VIGOROUS SHALL BE REPLACED IN KIND. REPLACEMENTS MAY BE OF A SUBSTITUTE SPECIES ONLY WHEN APPROVED BY THE TOWNSHIP.

SPACING VARIES
SEE PLANTING SCHEDULE



DECIDUOUS TREE PLANTING

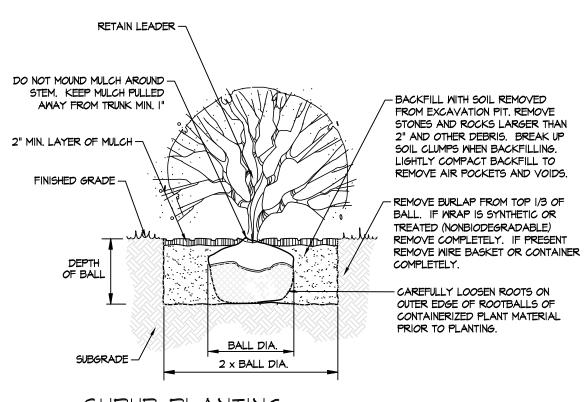
NOT TO SCALE

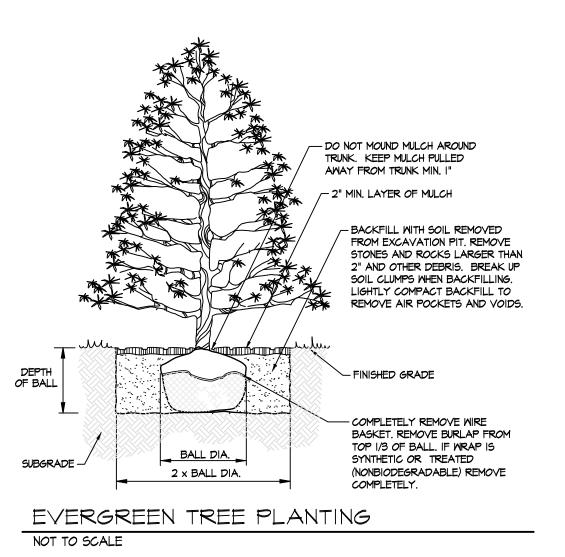
PLANT LOCATION (TYP.)

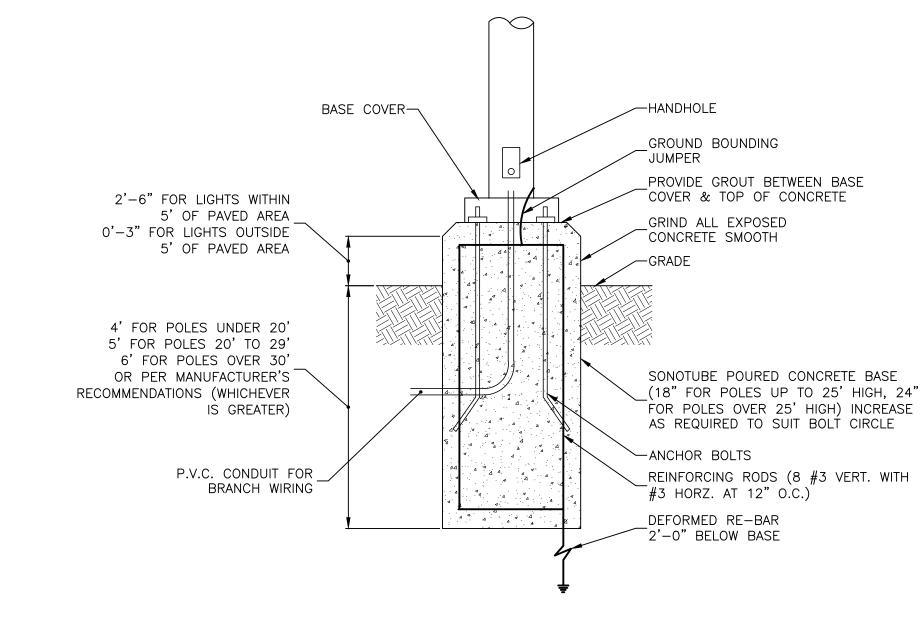
SEE PLANT LIST FOR SPACING

PLANT SPACING DIAGRAM

NOT TO SCALE







TYPICAL ORDER EXAMPLE: OPS SA 8L 4F UNV 40K8 BLK ALBCS1

WHT - White

SA - Side Arm Mount

20213502293

CHRISTOPHER W. JENSEN, P.E. LICENSED PROFESSIONAL ENGINEER



STATE OF PA LICENSE No. PE076464

AND

WORCESTER, BT

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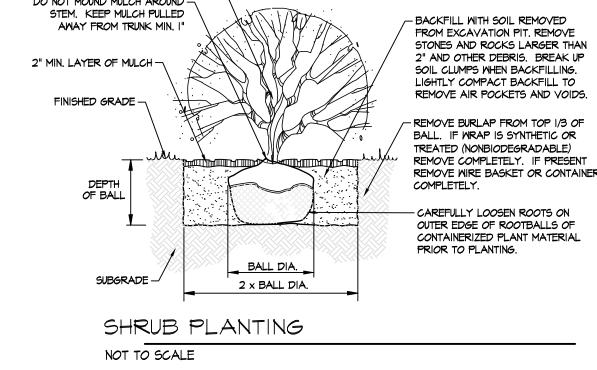
1700 MARKET STREET, SUITE 3110 PHILADELPHIA, PA 19103 TEL 215-282-7850 FAX 215-627-3459 www.tandmassociates.com

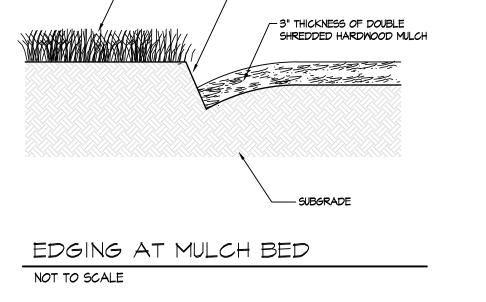
OFFICES LOCATED IN: CALIFORNIA, INDIANA, KENTUCKY, MASSACHUSETTS, MICHIGAN, NEW JERSEY, OHIO AND PENNSYLVANIA

DESIGNED BY CGG/JPK/ROP CHECKED BY PG/SR/ROP

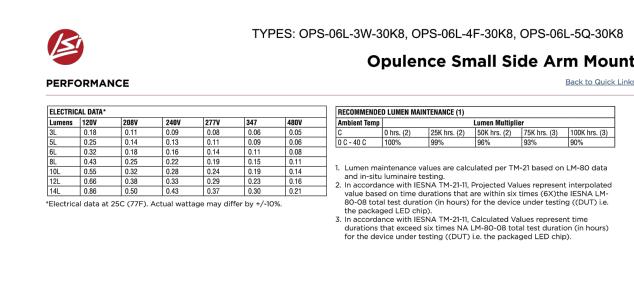
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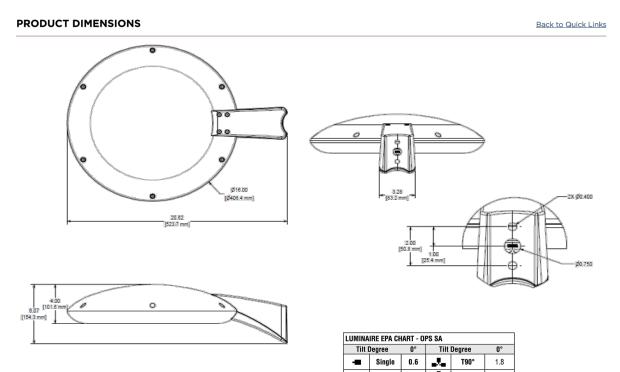
BETI00056





- SPADE-CUT EDGE





■ Single 0.6 ■ T90° 1.8
■ 1.1 TN120° 1.8 **1.2** ■ Q60°

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ORDERING GUIDE

OPS - Opulance Small

Accessory Ordering Information

CONTROLS ACCESSORIES

Twist Lock Photocell (120V) for use with CR7

Twist Lock Photocell (347V) for use with CR7

AirLink 5 Pin Twist Lock Controller

AirLink 7 Pin Twist Lock Controlle

Shorting Cap for use with CR7

FUSING ACCESSORIES

Double Fusing (347\)

FOOTNOTES: 1 - Consult Facotry for 347-480V.

Description

LSI Industries Inc. 10000 Alliance Rd. Cincinnati, OH 45242 • www.lsicorp.com 13) 372-3200 • ©2021 LSI Industries Inc. All Rights Reserved. Specifications subject to change without notice.

Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
 IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.

Page 2/5 Rev. 10/04/21

TYPES: OPS-06L-3W-30K8, OPS-06L-4F-30K8, OPS-06L-5Q-30K8

5L - 5,000 Lumens 6L - 6,000 Lumens 8L - 8,000 Lumens 10L - 10,000 Lumens 12L - 12,000 Lumens 14L - 14,000 Lumens

30KB - 3,000K CCT - 80 CRI GMP - Gun Metal Gray

ALBCS1 - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24'MH)'

27K8 - 2,700K CCT - 80 CRI

MSV - Metallic Silver
PLP - Platinum Plus

ALBCS2 - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' MH)'

Stand-Alone Centrole

(-20°C)'

CR7P - 7 Pin Control Receptacle ANSI C136.41 w

OUNTING ACCESSORIES

5° Square Pole Quick Mount Bracke

d Pole Quick Mount Bracket

° Round Pole Quick Mount Brack

orative Base Cover (4 / 5" Round Pole ' Linear Bird Spike Kit (4' Recommended per Lun

Wall Mount Bracket

Round Pole Tenon Adapte

IMSBT1 - Integral Bluetooth™ Motion and Photocell Sensor (8-24' MH) 1.3 IMSBT2 - Integral Bluetooth™ Motion and Photocell Sensor (25-40' MH) 1.3

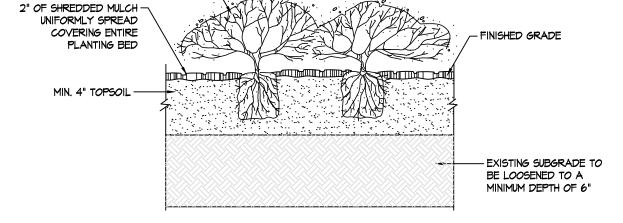
Opulence Small Side Arm Mount

BB - Battery Back-up (0°C)1

CWBB - Cold Weather Battery Back-up

BKA 2RNM TN120 CLR

BKS PQMH RD B2 CLR BKS PQ15 RD B2 CLR



I. GROUND COVER MATERIAL SHALL BEAR SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE IN THE NURSERY.

PLUG AND PERENNIAL PLANTING

NOT TO SCALE

EMERGENCY SEEDING RECOMMENDATIONS TOWNSHIP OF WORCESTER

DURING CONSTRUCTION, ALL DISTURBED AREAS SHOULD BE SEEDED ACCORDING TO THE FOLLOWING INSTRUCTIONS: SEEDING RECOMMENDATION FOR SIX TO TWELVE-MONTHS PERIODS.

I. INSTALL NEEDED WATER-CONTROL MEASURES.

SEE PLANT LIST

FOR SPECIES AND SPACING

- 2. PERFORM ALL CULTURAL OPERATIONS AT RIGHT ANGLES TO THE SLOPE.
- 3. LIME ACCORDING TO SOIL TEST OR KNOWLEDGE OF THE SITE OR APPLY TWO TONS OF GROUND LIMESTONE PER ACRE.
- 4. FERTILIZE ACCORDING TO SOIL TEST OR KNOWLEDGE OF THE SITE OR APPLY 40-40-40 PER ACRE.
- 5. INCORPORATE LIME AND FERTILIZER INTO THE TOP FOUR INCHES OF SURFACE SOIL BY DISCING OR OTHER SUITABLE MEANS.
- 6. SEED ONE OF OF THE FOLLOWING MIXTURES AT THE MOST SUITABLE DATE, APPLY UNIFORMLY WITH A DRILL OR BY BROADCASTING:
- a. MARCH I TO OCTOBER I: 20 POUNDS OF ANNUAL RYE GRASS OR FIELD BROMEGRASS PER ACRE.
- b. MARCH I TO MAY 30: 20 POUNDS OF ANNUAL RYE GRASS OR FIELD BROMEGRASS AND 64 POUNDS OF SPRING OATS PER ACRE. c. AUGUST I TO NOVEMBER I: 20 POUNDS OF ANNUAL RYE GRASS OR FIELD BROMEGRASS AND II2 POUNDS OF WINTER RYE PER ACRE.
- 7. COVER GRASS AND LEGUME SEEDS ONE-FOURTH-INCH DEEP WITH CULTIPACKER OR HARROW. COVER RYE OR OATS ABOUT TWO INCHES DEEP.
- 8. MOW RYE OR OATS JUST BEFORE THEY HEAD OUT IF SLOPE PERMITS.
- SECTION 130-6 SHALL PREVAIL IN CASES OF CONFLICT WITH THE ABOVE PROVISIONS.



March 27, 2024

Mr. Sean Halbom Township Manager 1721 South Valley Forge Road Worcester, PA 19490

RE: Waiver Request Letter - City View

2974 Germantown Pike, Norristown, PA 19403

Worcester Township, Montgomery County, Pennsylvania

T&M Project No. BETI00056

Below is a list of three (3) waiver requests for the City View Project. The list below identifies ordinance chapter, ordinance section, ordinance requirement, waiver request and the justification for the request. We are requesting that the Worcester Township Planning Commission review and make a recommendation to approve these waiver requests as a part of the Subdivision and Land Development Application for Preliminary Land Development and Conditional Use.

WAIVER #1

Chapter: Chapter 129 Stormwater Management **Section:** 129-18.G(4)(5), Grading and Drainage

Requirement: (4) "Excavation. No excavation shall be made with a cut face steeper in slope than

four horizontal to one vertical (4:1 = 25%)..."

(5) "Fill. No fill shall be made which creates any exposed surface steeper in slope

than four horizontal to one vertical (4:1 = 25%)..."

Request: To allow for excavation and/or fill to be made with a three horizontal to one vertical

(3:1 = 33%).

Justification: Slopes within excavation and/or fill of three horizontal to one vertical (3:1 = 33%) are

sufficient to sustain a stable slope. Additionally, a letter from a Professional Engineer

licensed in the Commonwealth of Pennsylvania stating such will be provided.

WAIVER #2

Chapter: Chapter 129 Stormwater Management Section: 129-18.G(6), Grading and Drainage

Requirement: "Slopes and fences. The top or bottom edge of slopes shall be a minimum of five feet

from property or right-of-way lines of streets or alleys in order to permit the normal

rounding of the edge without encroaching on the abutting property."

Request: To allow grading to occur within five feet of the property line, property right-of-way

lines for streets or alleys.

Justification: The project is required to obtain an HOP Permit from PennDOT and Montgomery

County for improvements along North Park Avenue and Germantown Pike, respectively. Grading proposed within 5 feet along the property right-of-way is associated with the cited HOP Permits, and it will be reviewed and approved by

PennDOT and the County respectively.

Additionally, in order to allow for grading within five feet of the property line the applicant will obtain the required construction and/or grading easement from the

adjoining property owners.

Mr. Sean Halbom Township Manager City View Page 2



WAIVER #3

Chapter: Chapter 129 Stormwater Management

Section: 129-18.H(10), Stormwater Detention/retention Basins

Requirement: "All portions of a detention basin bottom shall have a minimum slope of 2%. For

portions of basin bottoms with grades less than 2%, the applicant shall provide a landscape design, which minimizes maintenance provisions and encourages infiltration. These requirements may be altered when approved by the Township

Engineer."

Request: To allow the basin bottom of proposed detention basin(s) to be installed at 0%.

Justification: The proposed above ground basin (Basin B) is to be a MRC Basin, due to the lack of

infiltration noted during testing completed in March 2022 and February 2024. As part of the MRC design a 4" diameter wrapped perforated pipe is proposed to dewater the basin within the required MRC timeframe. The proposed perforated pipe

allows for basin dewatering.

If you have any questions or require any additional information, please do not hesitate to contact me by phone at 215-486-4357 or by email dstewart@tandmassociates.com.

Sincerely, T&M Associates

David Stewart Group Manager



Sean Halbom Township Manager Township of Worcester PO Box 767 Worcester, PA 19490

Re: City View

Preliminary Plan Review – 3rd Review

2974 Germantown Pike

Worcester Township, Montgomery County, PA

Land Development submission #4

T&M File No. BETI00056

CKS Ref # 7550

We are in receipt of the CKS Engineers Third Review letter dated January 24, 2024, regarding the above referenced project. We have reviewed the comments contained in the above referenced letter and offer the following in support of the current application. For your convenience and to expedite the review and approval process, the original comments are included, and T&M responses are provided in **bold font**.

ZONING

Sheet 2 includes a table entitled "Zoning Data". The table indicates the maximum density allowed by
ordinance is twelve dwelling units per acre. The proposed plans show a density of 11.76 dwelling units per
acre. We note that since the time of the last plan submission, 46 units have been removed from the plans.
This reduction of units reduces the overall density so that the previously required Transferable Development
Rights (TDRs) are no longer required.

T&M Response: Acknowledged

2. In the zoning table on Sheet 2, the minimum parking setback along Germantown Pike is required to be 75'. The proposed setback is 25'. Zoning relief was obtained by ZHB 2022- 08 order dated June 16, 2022.

T&M Response: Acknowledged

3. Approval from the Zoning Hearing Board has been obtained to allow the installation of storm sewer, riprap and grading within the Flood Plain Conservation District. (150-138.A(4)). This was by ZHB 2022-08, dated June 16, 2022.

T&M Response: Acknowledged

SUBDIVISION AND LAND DEVELOPMENT

4. The list of utilities now include Lower Providence Township and the Lower Providence Township Authority. These are not included in this project. The list should be revised.

T&M Response: These utilities have been removed from the list. Refer to Drawing CVR, Cover Sheet.

5. The plans should show the proposed height of the buildings. The Zoning Table on Sheet 2 shows that the height will meet the 45' height restriction, but a note on the plan indicating the specific height is requested.

T&M Response: The building height has been updated to be 45' on he Zoning Data Table. Refer to Drawing LEG, Legend and Notes.





6. Architectural Drawings of the building must be submitted to the Township.

T&M Response: Schematic Design Building Elevations, prepared by Humphreys & Partners Architects, L.P., dated 12/22/2023 are included with this submission.

7. The plans show a 25' setback to the parking area at the front along Germantown Pike. As stated previously, this does not meet the required 75' setback. Relief was obtained by ZHB 2022-08 order dated June 16, 2022.

T&M Response: Acknowledged

8. The applicant will be required to prepare a Planning Module for this project for sanitary sewer service. This module will need to be submitted to the Pennsylvania Department of Environmental Projection (PADEP) for review and approval in order to revise the Township's current Act 537 Plan. The Township will need to review the planning module prior to submission and execution for PADEP.

T&M Response: Noted.

The water supply design and all associated details should be review and approved by the Pennsylvania Water Company for this project.

T&M Response: Noted.

10. The applicant should confirm with the Pennsylvania American Water Company the type of meter pits (if any) that will be required for this project. If meter pits are required, they should be shown on the plan in order to make sure they don't impact or conflict with other utilities.

T&M Response: Noted.

11. Fire Marshall approval is required. Additionally, The Worcester Fire Marshall should review the plans to verify that he is satisfied with the number and location of fire hydrants shown on the plans.

T&M Response: Will Comply

12. The Applicant will be required to purchase sanitary sewer tapping fees from the Township. The Township will determine the adequate number of EDUs required for this project and convey that information to the applicant.

T&M Response: Acknowledged.

13. Approval from the Township's Traffic Consultant is required.

T&M Response: Noted.

14. The Existing Feature plan, Sheet 3, indicates that a wooden fence separates the subject property from Parcel 43-00-02206-14-5 but the note on sheets 7 and 8 states chain link. This discrepancy must be addressed.

T&M Response: The callout on Drawing DEM, Demolition Plan and Drawing STE Site Plan has been updated to state, "Existing 330 LF Wooden Fence....". Refer to the referenced sheets.

15. A trash enclosure detail is provided on Sheet 21 but the location of the enclosure could not be found on the plans.

T&M Response: The trash enclosure detail has been removed from the plans. There is a proposed trash collection room within each building.



16. A 12-foot high Emergency Gate detail is shown on the Sheet 21 but the plans do not indicate 12-foot high fence or gate. Please note that fencing can be no higher than 6-feet per Z.O. 150-182.

T&M Response: The detail has been removed from the plans. Refer to Drawing DET-2, Construction Details.

17. The sidewalk widths must be added to the plans.

T&M Response: The site plan has been updated with dimensions noting the width along the sidewalk at multiple points. Refer to Drawing STE, Site Plan.

18. There are numerous notes on the plan regarding the walls that will be required as part of the project. The note says "wall(by others)". The design of the walls should be submitted with the Final Plans submission for review.

T&M Response: Will Comply.

- 19. The following approvals will be required in conjunction with this project:
 - a. Pennsylvania American Water Company
 - b. Pennsylvania Department of Environmental Protection (Planning Module & NPDES Permit)
 - Montgomery County Conversation District (Erosion and Sedimentation Control and Stormwater NPDES Permit)
 - d. PennDOT Park Avenue
 - e. Montgomery County Germantown Pike

T&M Response: Noted.

STORMWATER MANAGEMENT AND GRADING

The following comments pertain to the grading, stormwater management/storm drainage and erosion and sedimentation control aspects of the current Preliminary Plan submission and are based upon the requirements of the Worcester Township's Stormwater Management Ordinance (SMO) and/or Subdivision and Land Development Ordinance:

20. The applicant is advised that a NPDES permit, along with an Erosion and Sedimentation Control Plan pertaining to the proposed site development, which is approved by the Montgomery County Conservation District, will be required prior to plan recording. (SMO 129-12)

T&M Response: Acknowledged

21, A Stormwater Management Agreement will be required. The Agreement shall be reviewed and approved by the Township Solicitor prior to plan approval. (SMO 129-138)

T&M Response: Noted.

22. Stormwater Infiltration testing has not been performed, which is required. The applicant's response states infiltration testing was performed and is included in the Stormwater Narrative.

No infiltration testing is included in the report and must be included in future submission.

Additionally, information about the site contamination must be submitted to the Township including type of contamination, location, etc. Depending on the information provided, Phase I/Phase II Environmental Study



maybe required. The Applicant's response indicates that information pertaining to the soil contamination will be provided under separate cover. This office has not received any additional information.

T&M Response: Infiltration Testing was originally completed in March of 2022. Additionally, Infiltration Testing was completed in February of 2024. The infiltration results are included with this resubmission. The revised report will be submitted under separate cover.

Information pertaining to the site contamination will be provided under separate cover.

23. The matting for Swale S1 must be shown on Sheet 13.

T&M Response: Drawing ENS, Erosion and Sediment Control Plan has been updated to show NAG C350 Lining as the matting for Swale S1. Refer to the cited drawing.

24. Additional information must be provided regarding Sediment Basin A. We note that the Emergency Spillway Elevation on Sheets 13, and 27 do not match. No elevation or sizing information is provided in the skimmer details and no detail for the temporary riser is shown.

T&M Response: The spillway elevation provided on Drawings ENS, Erosion and Sediment Control Plan and Drawing DET-8, Erosion and Sediment Control Plan have been updated to show an elevation of 413.10. Additionally, the Skimmer Standard Construction Detail on Drawing DET-8, Erosion and Sediment Control Plan has been updated with the sizing information. The temporary riser detail will be added to the detail sheet during the NPDES Approval process.

25. Calculations for the rip-rap sizing must be provided. We recommend that a minimum rip-rap size of R-4 be proposed.

T&M Response: Calculations for the proposed riprap is included in this resubmission. The revised report will be submitted under separate cover.

26. No cut or fill shall be made steeper than 4 horizontal to 1 vertical (4:1). It appears the project proposes 3:1 slopes throughout the site. A waiver has been requested. (SMO 129- 18.G(4)(5))

T&M Response: Acknowledged

27. Grading must be 5 feet from property lines to allow for normal rounding of the contours. There are multiple areas that the limit of disturbance is closer than five feet to the property boundary. (129-18.G(6)).

A waiver has been requested. We note temporary grading easements may be required.

T&M Response: A waiver has been requested and a temporary grading easement will be obtained from the adjacent property owner. Refer to the attached Waiver Request Letter.

28. Chapter 105 permitting from PADEP will be required at a minimum for the pipe outfall near North Park Avenue and for the basin outfall pipe.

T&M Response: Noted.

29. Roof drain locations must be indicated on the plan. (SMO 129-18(C)(20))

The applicant's response indicates that roof drains will be added during final plans.

T&M Response: Schematic Design Building Elevations, prepared by Humphreys & Partners Architects, L.P., dated 12/22/2023 are included with this submission. Roof drain locations will be provided at a later date, under separate cover.

30. A profile of storm sewer B 003 to MH-B1 must be added to the plans.

T&M Response: A profile of B OCS to MH-B1 has been added to Drawing PRF3, Storm Sewer Profiles.



31. All portions of the basin bottom shall have a minimum slope of 2%. The proposed Basin B appears bottom is flat. The applicant's response states that a waiver will be requested. SMO 129-18.H(10)).

T&M Response: A waiver has been requested. Refer to the attached Waiver Request Letter.

32. A stabilized access drive with an access easement has been shown for Basin B. The engineer's response that indicates Grass Pave Turf Reinforcement has been called out on the plans. This office cannot find this plan reference for the Basin Access Drive. (SMO 129- 18-H(22).

T&M Response: Refer to Drawing GRD, Grading Plan for the cited Grass Pave Turf Reinforcement (from the paved concrete sidewalk to the basin berm).

33. A drainage and grading easement will be required for the improvements on TMP 67-064-058.

T&M Response: Noted. The applicant will obtain the noted easements from the cited Property.

34. A maximum of 4:1 slopes are required for excavations. 3:1 slopes or steeper appear adjacent to the tot lot. The applicant's response states a waiver will be requested.

T&M Response: A waiver has been requested (Waiver #1). Refer to the included Waiver Request Letter.

35. Copies of all environmental reports for the property should be provided to the Township. The applicant's response indicates these reports will be under separate cover.

T&M Response: The environmental reports will be provided under separate cover.

If you have any questions, clarification, or need additional information, please contact me.

Very truly yours, T&M Associates Consulting Engineers

David Stewart Group Manager