

RUHE MINOR SUBDIVISION

ZONING DATA

R-4 - MEDIUM DENSITY RESIDENTIAL
USE: RESIDENTIAL

	REQUIRED	PROVIDED
MINIMUM LOT AREA (WITH PRIVATE UTILITIES)	LOT 1 43560 S.F. LOT 2 43560 S.F. LOT 3 43560 S.F. LOT 4 43560 S.F.	43920 S.F. 46900 S.F. 43588 S.F. 43729 S.F.
MINIMUM LOT WIDTH AT R.O.W.	LOT 1 80 FT LOT 2 80 FT LOT 3 80 FT LOT 4 80 FT	247.96 FT 149.97 FT 82.72 FT 120.51 FT

	FRONT	LOT 1	LOT 2	LOT 3	LOT 4
MINIMUM BUILDING SETBACK	25 FT	19 FT(EX.)	251 FT	413 FT	141 FT
SIDE	10 FT	30 FT	26 FT	10 FT	47 FT
REAR	30 FT	134 FT	30 FT	70 FT	79 FT

	MAXIMUM BUILDING HEIGHT	35 FT
WATER: PUBLIC PROPOSED	LOT 1: 26.2%	
SEWER: PRIVATE PROPOSED	LOT 2: 8.47%	
	LOT 3: 8.71%	
	LOT 4: 5.98%	

SITE DATA

OWNER: WILLIAM H. RUHE, ET. AL.
APPLICANT: ROBERT H. RUHE
1558 N. MUEHLBERG ST.
ALLENTOWN, PA 18104

TAX MAP DATA: PIN 548777128174 1
ID 088NE3 002 009

DEED REFERENCE: 2012006215

TOTAL AREA: 4.5920 ACRES

LENGTH OF PROPOSED DRIVE: 246 FT

WAIVERS

PRIVATE STREET (Ordinance Requirement):

1. §11-32(b)(1): CURBS ARE REQUIRED ON ALL PUBLIC AND PRIVATE STREETS.

A waiver from this requirement is requested for installation of curb along the shared private driveway. Curbing is provided along the western radius of the entrance driveway and along the proposed widening of Huckleberry Road on the western frontage of the property.

2. §11-32(c)(1)(A): SIDEWALKS SHALL BE REQUIRED WITHIN ALL SUBDIVISIONS.

A waiver from this requirement is requested due to the low traffic volume on the shared private driveway and limited connectivity with existing structures.

3. §11-32(a)(2)(C): CUL-DE-SAC SHALL HAVE A RIGHT-OF-WAY OF 52-FOOT RADIUS AND A CURB RADIUS OF 40 FEET.

A waiver of this requirement is requested as the proposed shared driveway cul-de-sac provides a 30-foot edge of pave radius and a 42-foot right-of-way/access easement radius. This is a cul-de-sac on a shared private driveway and not a local road, we therefore request a smaller radius for the proposed cul-de-sac.

4. §11-33(c)(1): PRIVATE STREET WIDTH.

A waiver from this requirement is requested as dimensional requirements between the existing residential structures prohibits a private street width of 36 feet. A 20-foot cartway is proposed for this shared private driveway.

5. §11-33(d)(1)(A): GRADING BETWEEN THE CURB AND RIGHT-OF-WAY LINE TO BE NO GREATER THAN 3/8" VERTICAL PER FOOT HORIZONTAL.

A waiver from this requirement is requested for grading within the easement for the private driveway to be a maximum of 1 foot vertical to 3 feet horizontal. The existing structures do not permit grading to current ordinance.

6. §11-32(a)(3)(E)(i): CENTERLINES OF INTERSECTING STREETS, TWO STREETS INTERSECTING A THIRD STREET FROM OPPOSITE SIDES SHALL EITHER INTERSECT WITH A COMMON CENTERLINE, OR THEIR CENTERLINES SHALL BE OFFSET (SEE DIAGRAM) A MINIMUM DISTANCE OF FOUR HUNDRED (400) FEET, IF THE INTERSECTING STREET IS A COLLECTOR STREET.

A waiver of this requirement is requested as the proposed private driveway is to remain at its current location which is 347.59 feet from Joseph Circle.

HUCKLEBERRY ROAD:
7. §11-33(b)(1): CARTWAY WIDTH REQUIREMENTS. (Across Frontage of Lot 3 & 4)

A waiver from this requirement is requested for width of cartway along Huckleberry Road. The ordinance requires a 40-foot cartway for collector streets. The eastern frontage (Lot 3 and 4) of the property is not contiguous with any roadway widening to the west as there is an outparcel of limited size immediately to the west of lot 4. There is no proposed widening to the existing 24-foot cartway due to safety concerns of a very limited widened roadway with severe grading restrictions at the two adjoining parcels.

8. §11-33(b)(1): CARTWAY WIDTH REQUIREMENTS. (Across Frontage of Lots 1 and 2)

A waiver from this requirement is requested for width of cartway along Huckleberry Road. The ordinance requires a 40-foot cartway for collector streets. The western frontage (Lots 1 and 2) of the property requires a taper from 20 feet to 16 feet roadway half-width with taper length as coordinated with the Township Engineer due to the existing structure and lot grading of the out-parcel just to the east of the private roadway.

9. §11-32(b)(1): SIDEWALKS SHALL BE REQUIRED WITH A WIDTH OF 5 FEET ALONG COLLECTOR STREETS AT A LOCATION 1 FOOT INSIDE OF THE RIGHT-OF-WAY LINE. (Frontage of Lots 1 and 2)

A waiver from the sidewalk width and location is requested. The proposed sidewalk shall be 4 feet wide and located 7 to 8 feet inside the right-of-way line. This is required in order to provide a pedestrian facility due to the existing structures and area topography.

10. §11-33(d)(1)(A): GRADING BETWEEN THE CURB AND RIGHT-OF-WAY LINE TO BE NO GREATER THAN 3/8" VERTICAL PER FOOT HORIZONTAL. (All Lots)

A waiver from this requirement is requested for grading within the right-of-way for the Huckleberry Road to be a maximum of 1 foot vertical to 4 feet horizontal due to the existing structures and area topography.

DEFERRALS
11. §11-32(a)(1): SIDEWALKS SHALL BE REQUIRED WITH A WIDTH OF 5 FEET ALONG COLLECTOR STREETS AT A LOCATION 1 FOOT INSIDE OF THE RIGHT-OF-WAY LINE. (Frontage of Lots 3 & 4)

A deferral from this requirement is requested due to inability to connect a sidewalk to other sidewalk facilities.

12. §11-32(b)(1): CURBS ARE REQUIRED ON ALL PUBLIC AND PRIVATE STREETS. (Across Frontage of Lots 3 & 4)

A deferral from this requirement is requested for installation of curbs along Huckleberry Road for the eastern frontage (Lot 3 & 4). Since huckleberry road cannot be reasonably widened in this area, a waiver is requested for curb until such time as the roadway would be widened.

GENERAL NOTES

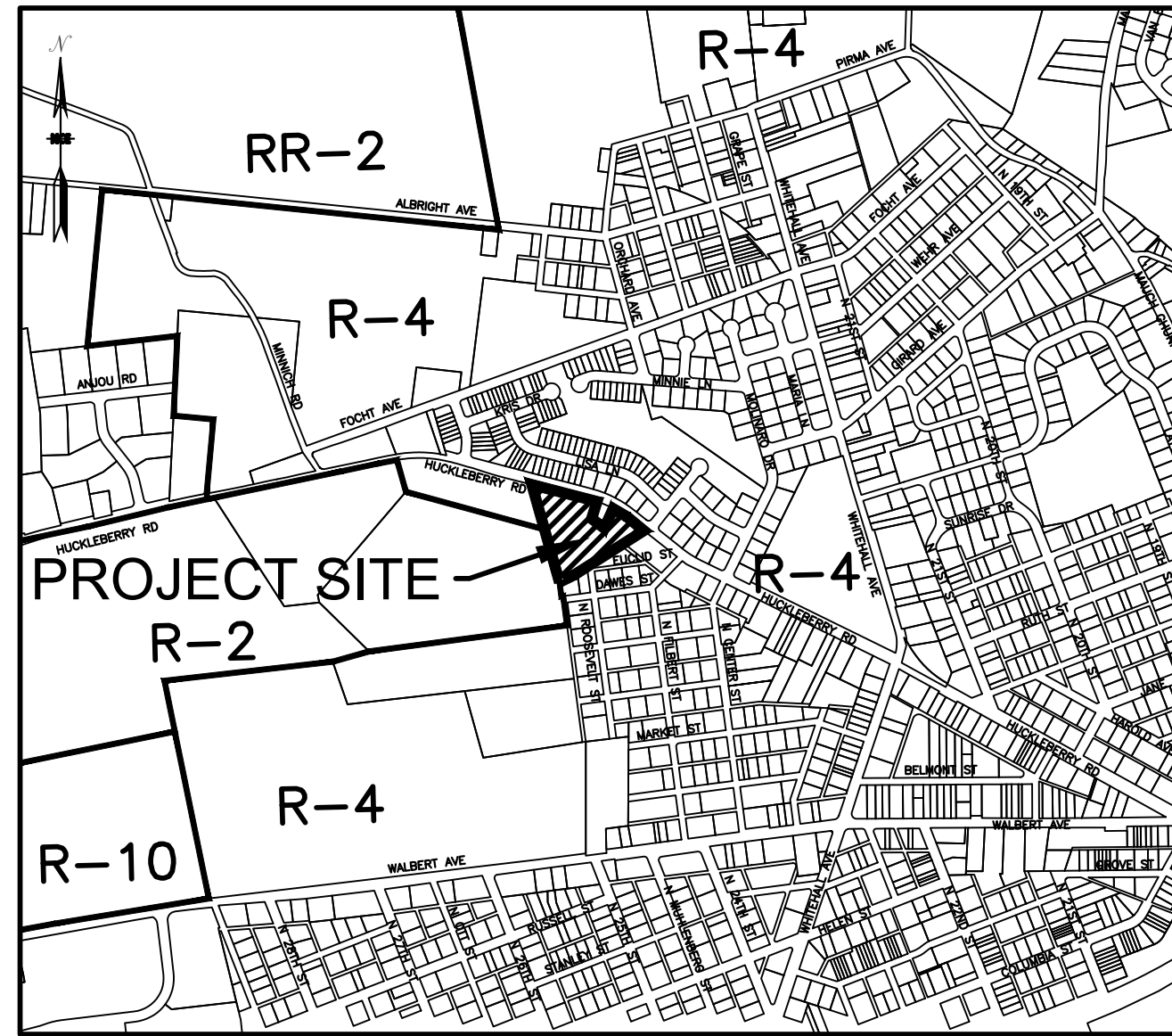
- PROPERTY IS OUTSIDE OF THE 500 YEAR FLOOD PLAIN.
- ALL CONSTRUCTION OF STORM SEWERAGE SYSTEMS, WATER SYSTEMS, SANITARY SEPTIC SYSTEMS, AND ROADS ARE TO BE IN ACCORDANCE WITH THE TOWNSHIP SPECIFICATIONS AND STANDARDS FOR CONSTRUCTION.
- DEP, NPDES, CCD, AND LVPC PERMITS ARE REQUIRED FOR THIS PROJECT. ALL REQUIRED PERMITS AND APPROVALS SHOULD BE OBTAINED AND COPIES PROVIDED TO THE TOWNSHIP AND THE TOWNSHIP ENGINEER'S OFFICE.
- EXISTING WELLS AND ON-LOT SEWAGE DISPOSAL SYSTEMS STATED TO BE REMOVED/ABANDONED SHALL BE ABANDONED IN ACCORDANCE WITH PADEP REGULATIONS AND PROCEDURES.
- THE DETAILS ON THESE PLANS DEPICT A MINIMUM STANDARD FOR ALL CONSTRUCTION WITHIN THE TOWNSHIP AND THAT INCORPORATION OF PORTIONS OR ALL OF THE TOWNSHIP'S STANDARD CONSTRUCTION DETAILS ON THE PLANS CONSTITUTES AN ACCEPTANCE OF AND ENDORSEMENT OF THOSE STANDARDS BY THE DEVELOPER AND THE DEVELOPER'S ENGINEER.
- EXISTING BARN SHALL BE USED FOR STORAGE ONLY.
- AN ADDITIONAL AMOUNT OF IMPERVIOUS AREA HAS BEEN ACCOUNTED FOR IN THE STORMWATER CALCULATIONS FOR THIS PROJECT AND FOR ANY FUTURE IMPERVIOUS AREAS SUCH AS SHEEDS, PATIOS, POOLS, ETC. THIS AREA IS LISTED BELOW FOR EACH OF THE LOTS:
LOT 2: 0.009 ACRES (400 SQUARE FEET)
LOT 3: 0.01 ACRES (450 SQUARE FEET PROPOSED AS DECK ON PLAN)
LOT 4: 0.009 ACRES (400 SQUARE FEET)
- ALL REQUIRED WATER DISTRIBUTION SYSTEM SHUT-OFFS OR SERVICE INTERRUPTIONS SHALL BE COORDINATED THROUGHOUT THE PROJECT AND THROUGHOUT THE CONTRACT PERIOD OF SEVENTY-TWO(72) HOUR ADVANCE NOTICE TO THE TOWNSHIP PUBLIC WORKS DEPARTMENT PRIOR TO PLANNED WATER SYSTEM SHUT DOWN.
- THE CONTRACTOR SHALL NOT OPERATE EXISTING VALVES, FIRE HYDRANTS OR APPURTENANCES WITHIN THE TOWNSHIP WATER DISTRIBUTION, UPON REQUEST TOWNSHIP PERSONNEL WILL BE AVAILABLE TO OPERATE THE EXISTING VALVES, ETC.
- THE CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS, ELEVATIONS AND DIMENSIONS PRIOR TO BEGINNING CONSTRUCTION OPERATIONS.
- EXCAVATION IN PAVED AREAS SHALL BE SAW-CUT FULL PAVEMENT DEPTH PRIOR TO INITIAL EXCAVATION AND AGAIN AT FINAL TRENCH RESTORATION.
- THE CONTRACTOR IS RESPONSIBLE TO PROVIDE AND MAINTAIN TEMPORARY AND / OR PERMANENT SUPPORT FOR ALL EXISTING UTILITY LINES ENCOUNTERED DURING THE EXCAVATION AND INSTALLATION OF THE WATER MAIN AND APPURTENANCES. SPECIFIC UTILITY SUPPORT METHODS OR PROCEDURES SHALL BE AS RECOMMENDED BY THE AFFECTED UTILITY COMPANY, AT NO ADDITIONAL COST TO THE TOWNSHIP OR OWNER.
- CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN ACCORDANCE WITH ACT 287 (LATEST REVISION) SEVENTY-TWO (72) HOURS PRIOR TO COMMENCEMENT OF ANY FIELD OPERATIONS.
- ALL TRENCHES SHALL BE COMPLETELY BACKFILLED AT THE END OF EACH WORKDAY, NO EXCAVATION SHALL REMAIN OPEN DURING NON-WORKING HOURS. ALL PAVED AREAS DISTURBED BY CONSTRUCTION ACTIVITY SHALL BACKFILLED AND COMPACTED WITH 2A STONE AND TEMPORARILY PAVED BY THE END OF THE WORK DAY.
- ALL MAIN LINE FITTINGS, TEE, BENDS, SLEEVES, ETC. SHALL BE JOINED USING MEG-A-LUG GLANDS FOR THRUST RESTRAINT. FIELD LOK GASKETS SHALL BE INSTALLED IN ALL PUSH-ON JOINTS WITHIN 40', EITHER SIDE, OF ALL VERTICAL AND HORIZONTAL BENDS FOR 12" AND SMALLER PIPE. IN ADDITION CONCRETE THRUST BLOCKS SHALL BE PROVIDED AT ALL END CAPS, FLUGS, FITTINGS, ETC.
- ADJACENT PROPERTIES SHALL NOT BE USED FOR SITE INGRESS/EGRESS, MATERIAL OR EQUIPMENT STORAGE OR CONTRACTOR PERSONNEL PARKING.
- ALL AREAS DISTURBED OUTSIDE THE WORK ZONE AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE GRADED, SEEDED AND/OR PAVED TO MEET ORIGINAL PRE-CONSTRUCTION CONDITIONS.
- THE APPLICANT ACKNOWLEDGES THAT FOLLOWING APPROVAL OF THIS PLAN, PLAN CHANGES MAY BE REQUIRED TO ADDRESS THE COMMENTS AND REGULATIONS OF OUTSIDE AGENCIES RESPONSIBLE TO REVIEW ANY ASPECT OF THE PROJECT REFLECTED ON THIS PLAN, INCLUDING BUT NOT LIMITED TO POST-CONSTRUCTION STORMWATER MANAGEMENT AND NPDES PERMIT REGULATIONS. IN THE EVENT OF CHANGES TO THE PLAN FOLLOWING APPROVAL (WHETHER OR NOT THE PLAN HAS BEEN RECORDED) THE APPLICANT SHALL SUBMIT THE REVISED PLAN TO THE TOWNSHIP FOR REVIEW BEFORE THE APPLICANT MAY MOVE FORWARD WITH CONSTRUCTION ACTIVITIES PURSUANT TO THE REVISED PLAN (WHETHER OR NOT THE PLAN HAS BEEN RECORDED).
- NOTWITHSTANDING ANY PROVISIONS OF THE TOWNSHIP STORM WATER MANAGEMENT PLAN, INCLUDING EXEMPTION AND WAIVER PROVISIONS, ANY LANDOWNER AND ANY PERSON ENGAGED IN THE ALTERATION OR DEVELOPMENT OF LAND WHICH MAY AFFECT STORM WATER RUNOFF CHARACTERISTICS SHALL IMPLEMENT SUCH MEASURES AS ARE REASONABLY NECESSARY TO PREVENT INJURY TO HEALTH, SAFETY OR OTHER PROPERTY. SUCH MEASURES SHALL INCLUDE SUCH ACTIONS AS ARE REQUIRED TO MANAGE THE RATE, VOLUME, DIRECTION AND QUALITY OF RESULTING STORM WATER RUNOFF IN A MANNER WHICH OTHERWISE ADEQUATELY PROTECTS HEALTH AND PROPERTY FROM INJURY AND DAMAGE.
- MUNICIPALITY REVIEW AND APPROVAL OF THE DRAINAGE PLAN OR THE SUBSEQUENT OBSERVATION AND APPROVAL OF STORM WATER MANAGEMENT FACILITIES, SHALL NOT CONSTITUTE LAND DEVELOPMENT ON BEHALF OF OR BY THE MUNICIPALITY OR OTHERWISE CAUSE THE MUNICIPALITY TO BE ENGAGED IN THE ALTERATION OR DEVELOPMENT OF LAND, BY SUBMITTING AN APPLICATION UNDER THE TOWNSHIP STORM WATER MANAGEMENT PLAN, THE DEVELOPER HEREBY AGREES TO INDEMNIFY, DEFEND, AND HOLD HARMLESS THE MUNICIPALITY AND ALL ITS REPRESENTATIVES, SERVANTS, EMPLOYEES, OFFICIALS AND CONSULTANTS OF AND FROM ANY AND ALL CLAIMS, DEMANDS, CAUSES OF ACTION OR SUITS WHICH ARISE OUT OF OR RELATE TO THE REVIEW, APPROVAL, CONSTRUCTION OR OBSERVATION OF THE DEVELOPER'S DRAINAGE PLAN AND STORM WATER MANAGEMENT FACILITIES.

PRELIMINARY/FINAL PLAN

2442 HUCKLEBERRY ROAD

SOUTH WHITEHALL TOWNSHIP

LEHIGH COUNTY, PENNSYLVANIA



LOCATION MAP
SCALE 1" = 1000'

Site Design By:

KCE
KEYSTONE
CONSULTING
ENGINEERS

www.KCEinc.com

East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville

Civil Engineers &
Surveyors

5012 Medical Center Circle
Suite 1, Allentown, PA 18106
610-395-0971 (P)
610-391-8942 (F)

SHEET INDEX

DESCRIPTION	SHEET	ORIGINAL DATE	LAST REVISED
TITLE SHEET *	1	03/05/2021	09/20/2023
EXISTING FEATURES & DEMOLITION PLAN	2	03/05/2021	09/20/2023
EXISTING FEATURES (EXPANDED VIEW, 60 SCALE)	3	03/05/2021	09/20/2023
SUBDIVISION PLAN *	4	03/05/2021	09/20/2023
EASEMENT PLAN *	5	03/05/2021	09/20/2023
RECORD PLAN *	6	03/05/2021	09/20/2023
FIRE TRUCK TURN PLAN	7	04/17/2021	09/20/2023
GARBAGE TRUCK TURN PLAN	8	07/19/2021	09/20/2023
GRADING & DRAINAGE PLAN	9	03/05/2021	09/20/2023
UTILITY PLAN	10	03/05/2021	09/20/2023
LANDSCAPING PLAN	11	03/05/2021	09/20/2023
SHARED PRIVATE DRIVEWAY & DRIVEWAY PROFILES	12	03/05/2021	09/20/2023
STORMWATER PLAN & PROFILE	13	03/05/2021	09/20/2023
WATER SYSTEM PLAN & PROFILE	14	03/05/2021	09/20/2023
CONSTRUCTION DETAILS	15	03/05/2021	09/20/2023
UTILITY DETAILS	16	03/05/2021	09/20/2023
STORMWATER DETAILS	17	03/05/2021	09/20/2023
EROSION & SEDIMENTATION CONTROL PLAN	18	03/05/2021	09/20/2023
EROSION & SEDIMENTATION CONTROL DETAILS	19	03/05/2021	09/20/2023
EROSION & SEDIMENTATION CONTROL DETAILS 2	20	03/05/2021	09/20/2023
POST CONSTRUCTION STORMWATER * MANAGEMENT PLAN	21	03/05/2021	09/20/2023
POST CONSTRUCTION STORMWATER * MANAGEMENT DETAILS	22	03/05/2021	09/20/2023
POST CONSTRUCTION STORMWATER * MANAGEMENT DETAILS 2	23	03/05/2021	09/20/2023

* PLANS TO BE RECORDED

SURVEY NOTES

- REFERENCE IS MADE TO A PLAN ENTITLED "SURVEY & PLAN FOR VICTOR D.D. KUHN'S" DATED MAY 1, 1948 PREPARED BY BASCOM & SIEGER REGISTERED ENGINEERS DRAWING DR 18 / 103.
- ELEVATIONS ARE REFERENCED TO NGVD 29 DATUM AND ARE DERIVED FROM SCALED DIMENSIONS FROM THE ALLENTOWN WEST USGS QUADRANGLE.
- THIS PLAN IS BASED UPON A FIELD SURVEY CONDUCTED AS OF FEBRUARY 12, 2021 BY KEYSTONE CONSULTING ENGINEERS INC. USING A TRIMBLE S5 TOTAL STATION AND A TRIMBLE R-8 GPS WITH KEYNET AND REPRESENTS EXISTING FEATURES AND TOPOGRAPHY ON LANDS NOW OR FORMERLY OF WILLIAM H. RUHE, ET AL.
- UTILITY LOCATIONS DEPICTED HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF OBVIOUS ABOVE-GROUND EVIDENCE. UNDERGROUND LINES WHOSE PRESENCE IS NOT IMPLIED ON THE SURFACE BY MARKINGS OR STRUCTURES MAY NOT HAVE BEEN SHOWN. THIS PLAN DOES NOT GUARANTEE THAT ADDITIONAL UTILITIES DO NOT EXIST.
- THE EXISTENCE AND LOCATIONS OF UNDERGROUND UTILITIES ON THE SITE SHALL BE VERIFIED BY THE CONTRACTOR IN ACCORDANCE WITH PA ACT 187 AND 121 PRIOR TO COMMENCING ANY EXCAVATION WORK.
- PROPERTY OWNER NAME, DEED AND TAX PARCEL IDENTIFIER INFORMATION AS SHOWN IS BASED UPON LEHIGH COUNTY TAX MAP RECORDS AS OF FEBRUARY 12, 2021 AND IS SUBJECT TO THE ACCURACIES OR INACCURACIES THEREOF.
- INES AS SHOWN WITH BEARINGS AND DISTANCES OR CURVE INFORMATION INDICATE LINES MEASURED BY THIS SURVEY. LINES WITHOUT ANY GEOMETRIC ANNOTATION MAY HAVE BEEN PLOTTED USING RECORD INFORMATION AND ARE INTENDED FOR GENERAL SITE ORIENTATION ONLY.
- ELEVATIONS AND CONTOURS AS SHOWN HEREON ARE BASED UPON GPS OBSERVATIONS USING A TRIMBLE R-8 WITH KEYNET AND ARE ACCURATE WITHIN 0.15' OF USGS NORTH AMERICAN VERTICAL DATUM OF 1988.
- THIS SURVEY AND PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE SEARCH AND IS THEREFORE SUBJECT TO ANY EASEMENTS OR OTHER PERTINENT FACTS WHICH SUCH MIGHT DISCLOSE.

SOUTH WHITEHALL TOWNSHIP REVIEW SCOPE

THIS PLAN HAS BEEN REVIEWED BY THE TOWNSHIP STAFF AND TOWNSHIP ENGINEER FOR CONSISTENCY WITH MUNICIPAL REGULATIONS AND ORDINANCES RELATING TO LAND USAGE AND DIMENSIONAL REQUIREMENTS OF ZONING, INVESTIGATIONS REGARDING PERIPHERAL LAND AND PLAN ISSUES WHICH ARE NOT REQUIRED AS PART OF A REVIEW PROCESS SUCH AS CLARITY OF TITLE, SUBSURFACE CONDITIONS INCLUDING BUT NOT LIMITED TO, SOIL AND WATER QUALITY, KARST GEOLOGICAL ACTIVITY, AND HISTORIC AND ARCHEOLOGICAL ISSUES, OR SUCH OTHER ISSUES (AS APPROPRIATE) THAT MAY AFFECT THE MERCHANTABILITY OF THE LAND, HAVE NOT BEEN INVESTIGATED OR REVIEWED BY THE TOWNSHIP OR THE TOWNSHIP ENGINEER. THE TOWNSHIP AND TOWNSHIP ENGINEER MAKE NO REPRESENTATION OR WARRANTY CONCERNING THESE ISSUES, WHICH SHOULD BE ADDRESSED BY QUALIFIED PROFESSIONALS, COMMISSIONED BY THE DEVELOPER AND/OR LAND OWNER(S) AS APPROPRIATE, AND ENGAGED IN APPROPRIATE FIELD OF PRACTICE. DIMENSIONS AND GEOMETRY OF THE PROPERTY BOUNDARY AND ANY INTERNAL LOTS AND STREETS HAVE BEEN OVERVIEWED WITH RESPECT TO APPLICABLE ORDINANCE STANDARDS FOR MATHEMATICAL COMPLETENESS, CLARITY OF DEPICTION, CONSISTENCY, CLOSURE, AND AREA (ONLY). THE RESEARCH FOR DETERMINATION AND LOCATION OF PROPERTY LINES, STREET RIGHTS-OF-WAY, AND OTHER EASEMENTS, ETC. ARE THE RESPONSIBILITY OF THE SURVEYOR OF RECORD WHOSE SEAL APPEARS ON THIS PLAN, AND HAVE NOT BEEN INDEPENDENTLY CONFIRMED OR VERIFIED BY THE TOWNSHIP, THE TOWNSHIP ENGINEER, OR THE TOWNSHIP SOLICITOR.

OWNER'S STATEMENT:

THE UNDERSIGNED IS THE OWNER, EQUITABLE OWNER, OR HAS AN OPTION OR CONDITIONAL CONTRACT OF SALE ON THE LAND PROPOSED TO BE SUBDIVIDED OR DEVELOPED AND HAS NO LITIGATION OR LIENS EXIST OR ARE PENDING ON THE SITE.

OWNER

OWNER'S CERTIFICATION:

I BEING DULY SWORN ACCORDING TO LAW DEPOSE AND SAY THAT I AM THE SOLE OWNER OF THIS PROPERTY, IN PEACEFUL POSSESSION OF THE SAME, AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE THEREOF. I DO FURTHER DEPOSE AND SAY THAT I HAVE COMPLIED WITH ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20____ BY WHICH THE TOWNSHIP BOARD OF COMMISSIONERS CONDITIONALLY WAIVED THE REQUIREMENTS OF THE TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE FOR THE PROJECT REFLECTED ON THIS PLAN. I AGREE THAT I SHALL EXONERATE, INDEMNIFY, PROTECT, DEFEND AND SAVE HARMLESS THE TOWNSHIP FROM ANY AND ALL CLAIMS, LAWSUITS, DAMAGES AND LIABILITIES OF EVERY KIND, CHARACTER AND MANNER WHATSOEVER PERTAINING TO, RELATING TO, RESULTING FROM, CAUSED BY OR ARISING OUT OF THE TOWNSHIP'S APPROVAL OF THE WAIVER REQUEST AS EVIDENCED BY RESOLUTION 20____, ALL AS MORE FULLY OUTLINED IN RESOLUTION 20____. OWNER:

WILLIAM H. RUHE
OWNER

ADJACENT OWNER'S STATEMENT:

THE UNDERSIGNED ACKNOWLEDGES ALL IMPROVEMENTS PROPOSED ON AND AROUND THE PROPERTY AT 2436 HUCKLEBERRY ROAD ARE LIMITED TO ADJUSTMENT OF DRIVEWAY AND GRADING THE IN, HAVE BEEN AGREED UPON.

JOHN P. LUTZ
ADJACENT PROPERTY OWNER

REVIEWED BY THE LEHIGH VALLEY PLANNING COMMISSION:

COUNTY PLANNING COMMISSION STAFF PERSON DATE

APPROVED BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION:

APPROVED _____ BY THE SOUTH WHITEHALL

TOWNSHIP PLANNING COMMISSION.

CHAIRMAN

SECRETARY

APPROVED BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL:

APPROVED _____ BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL.

PRESIDENT

SECRETARY

TOWNSHIP ENGINEER

TOWNSHIP WAIVER ACKNOWLEDGEMENT:

BASED UPON AND EXPRESSLY IN RELIANCE ON THE FOREGOING CERTIFICATIONS OF THE OWNER AND DESIGN PROFESSIONAL, THE WITHIN PLAN IS ACCEPTED BY SOUTH WHITEHALL TOWNSHIP AS THE PLAN SATISFYING ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20____.

PRESIDENT

PROFESSIONAL ENGINEER'S CERTIFICATION

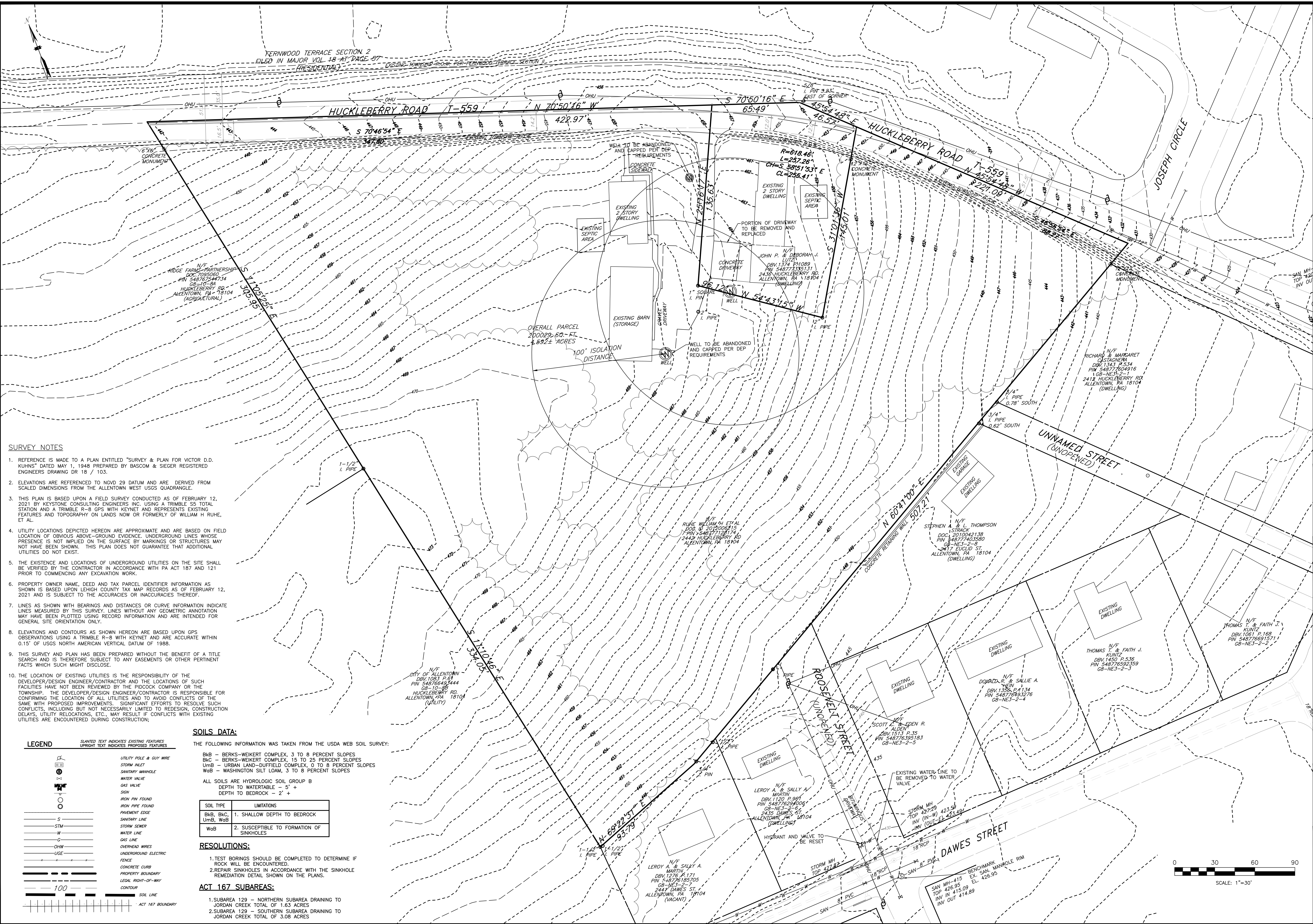
I, ALAN R. FORNWALT, P.E., A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY THAT THE ACCOMPANYING APPLICATION, PLANS AND SUPPORTING DOCUMENTATION ARE TRUE AND CORRECT, TO THE BEST OF MY KNOWLEDGE.

ALAN R. FORNWALT P.E. PE 070819
KEYSTONE CONSULTING ENGINEERS, INC.
5012 MEDICAL CENTER CIRCLE, ALLENTOWN, PA 18106

LEHIGH COUNTY RECORDER OF DEEDS:

LEHIGH COUNTY OFFICIAL

DATE



- SURVEY NOTES**
- REFERENCE IS MADE TO A PLAN ENTITLED "SURVEY & PLAN FOR VICTOR D.D. KUHN'S" DATED MAY 1, 1948 PREPARED BY BASCOM & SIEGER REGISTERED ENGINEERS DRAWING DR 18 / 103.
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 - PROPERTY OWNER NAME, DEED AND TAX PARCEL IDENTIFIER INFORMATION AS SHOWN IS BASED UPON LEHIGH COUNTY TAX MAP RECORDS AS OF FEBRUARY 12, 2021 AND IS SUBJECT TO THE ACCURACIES OR INACCURACIES THEREOF.
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 - THIS SURVEY AND PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE SEARCH AND IS THEREFORE SUBJECT TO ANY EASEMENTS OR OTHER PERTINENT FACTS WHICH SUCH MIGHT DISCLOSE.
 - THE LOCATION OF EXISTING UTILITIES IS THE RESPONSIBILITY OF THE DEVELOPER/DESIGN ENGINEER/CONTRACTOR AND THE LOCATIONS OF SUCH FACILITIES HAVE NOT BEEN REVIEWED BY THE PIDCOCK COMPANY OR THE TOWNSHIP. THE DEVELOPER/DESIGN ENGINEER/CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL UTILITIES AND TO AVOID CONFLICTS OF THE SAME WITH PROPOSED IMPROVEMENTS. SIGNIFICANT EFFORTS TO RESOLVE SUCH CONFLICTS, INCLUDING BUT NOT NECESSARILY LIMITED TO REDESIGN, CONSTRUCTION DELAYS, UTILITY RELOCATIONS, ETC., MAY RESULT IF CONFLICTS WITH EXISTING UTILITIES ARE ENCOUNTERED DURING CONSTRUCTION.

SOILS DATA:

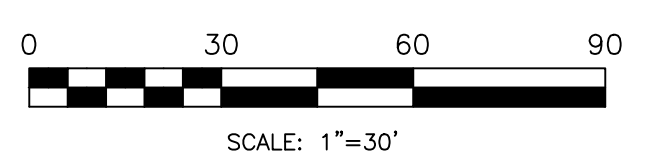
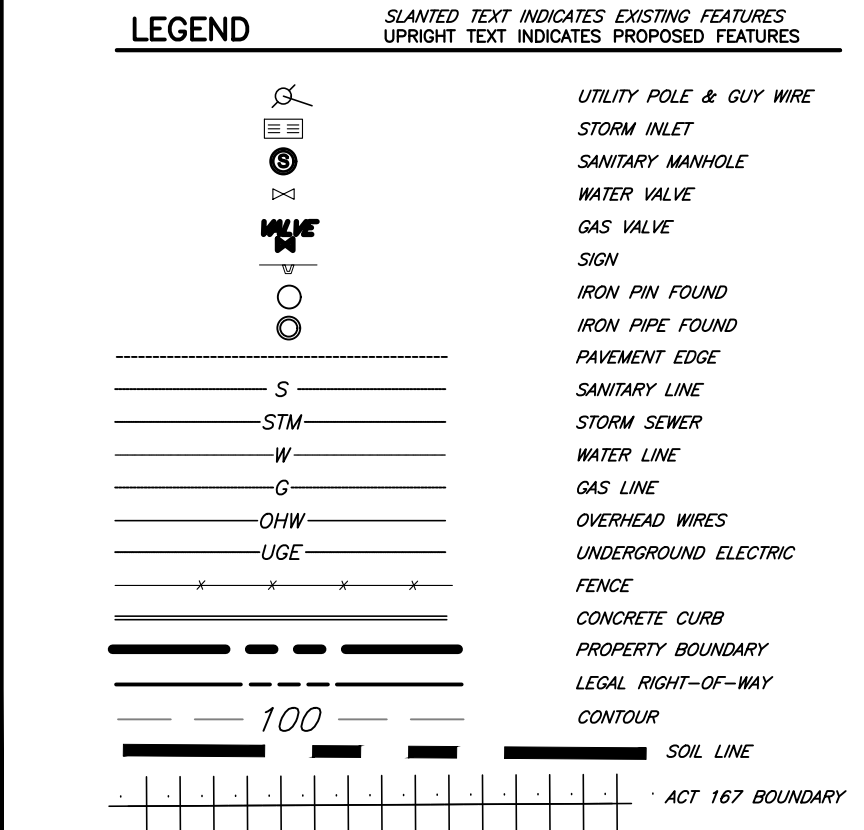
THE FOLLOWING INFORMATION WAS TAKEN FROM THE USDA WEB SOIL SURVEY:

BkB - BERKS-WEIKERT COMPLEX, 3 TO 8 PERCENT SLOPES
 BkC - BERKS-WEIKERT COMPLEX, 15 TO 25 PERCENT SLOPES
 UmB - URBAN LAND-DUFFIELD COMPLEX, 0 TO 8 PERCENT SLOPES
 WbB - WASHINGTON SILT LOAM, 3 TO 8 PERCENT SLOPES

ALL SOILS ARE HYDROLOGIC SOIL GROUP B
 DEPTH TO WATERTABLE - 5' +
 DEPTH TO BEDROCK - 2' +

SOIL TYPE	LIMITATIONS
BkB, BkC, UmB, WbB	1. SHALLOW DEPTH TO BEDROCK
WbB	2. SUSCEPTIBLE TO FORMATION OF SINKHOLES

- RESOLUTIONS:**
- TEST BORINGS SHOULD BE COMPLETED TO DETERMINE IF ROCK WILL BE ENCOUNTERED.
 - REPAIR SINKHOLES IN ACCORDANCE WITH THE SINKHOLE REMEDIATION DETAIL SHOWN ON THE PLANS.
- ACT 167 SUBAREAS:**
- SUBAREA 129 - NORTHERN SUBAREA DRAINING TO JORDAN CREEK TOTAL OF 1.63 ACRES
 - SUBAREA 129 - SOUTHERN SUBAREA DRAINING TO JORDAN CREEK TOTAL OF 3.08 ACRES



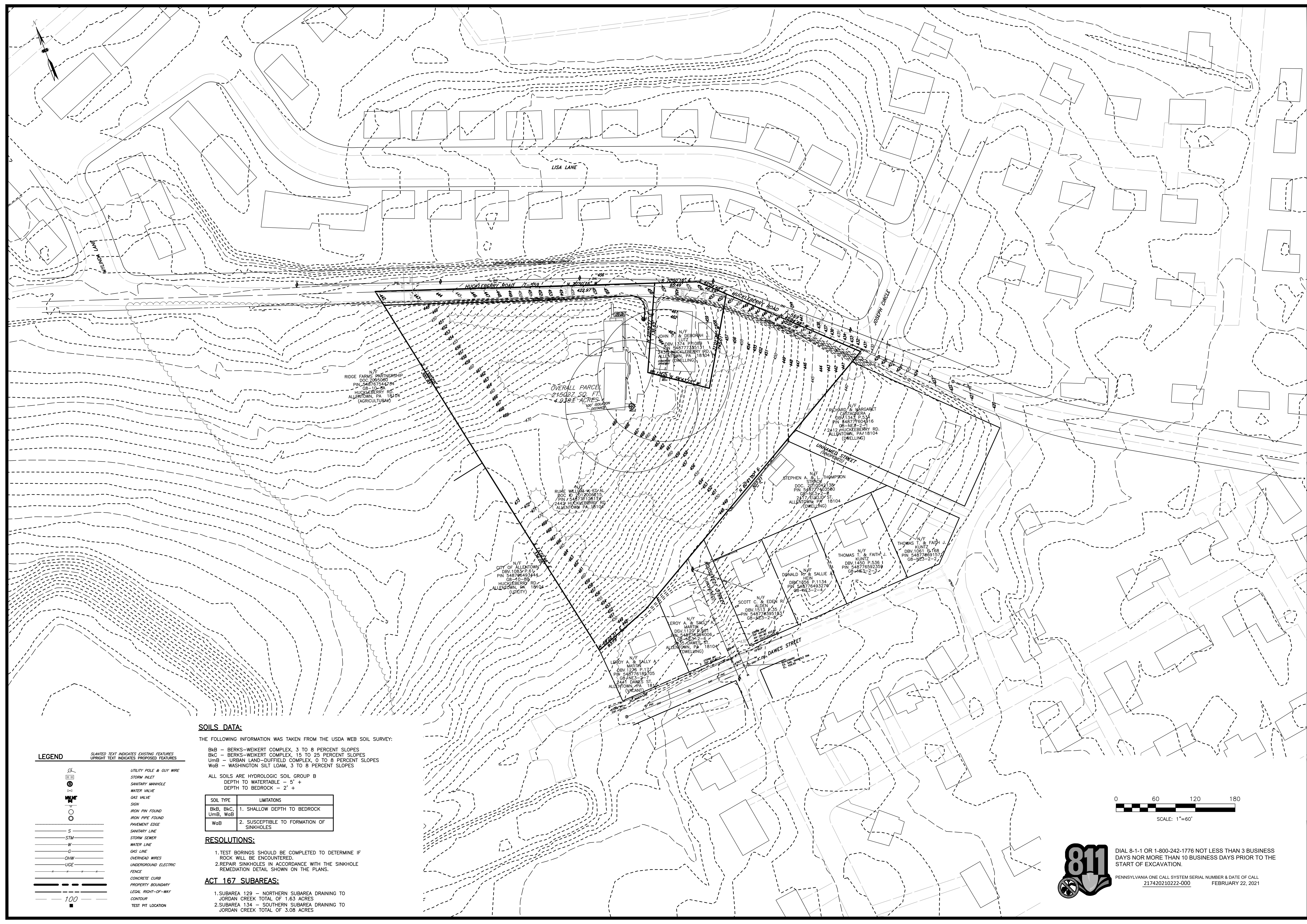
KEYSTONE CONSULTING ENGINEERS, INC.
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EXISTING FEATURES & DEMOLITION PLAN
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

REVISIONS	DATE	BY	CHK
06/16/2021	MSN	MSN	IMK
12/16/2021	MSN	MSN	IMK
09/20/2023	IMK	IMK	IMK

DESIGNED BY: KCE
 DRAWN BY: MFC
 CHECKED BY: MFC/ARF
 DATE: March 05, 2021
 SCALE: 1" = 30'
 JOB NUMBER: CW-20-128
 SHEET: 2 OF 23



SOILS DATA:
 THE FOLLOWING INFORMATION WAS TAKEN FROM THE USDA WEB SOIL SURVEY:

BkC - BERKS-WEIKERT COMPLEX, 3 TO 8 PERCENT SLOPES
 BkC - BERKS-WEIKERT COMPLEX, 15 TO 25 PERCENT SLOPES
 UmB - URBAN LAND-DUFFIELD COMPLEX, 0 TO 8 PERCENT SLOPES
 WbB - WASHINGTON SILT LOAM, 3 TO 8 PERCENT SLOPES

ALL SOILS ARE HYDROLOGIC SOIL GROUP B
 DEPTH TO WATERTABLE - 5' +
 DEPTH TO BEDROCK - 2' +

SOIL TYPE	LIMITATIONS
BkC, BkC, UmB, WbB	1. SHALLOW DEPTH TO BEDROCK
WbB	2. SUSCEPTIBLE TO FORMATION OF SINKHOLES

RESOLUTIONS:

- TEST BORINGS SHOULD BE COMPLETED TO DETERMINE IF ROCK WILL BE ENCOUNTERED.
- REPAIR SINKHOLES IN ACCORDANCE WITH THE SINKHOLE REMEDIATION DETAIL SHOWN ON THE PLANS.

ACT 167 SUBAREAS:

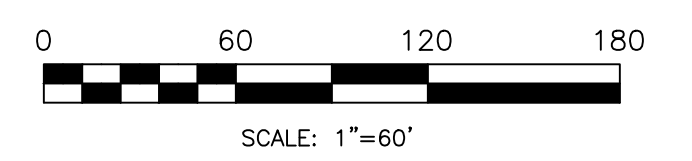
- SUBAREA 129 - NORTHERN SUBAREA DRAINING TO JORDAN CREEK TOTAL OF 1.63 ACRES
- SUBAREA 134 - SOUTHERN SUBAREA DRAINING TO JORDAN CREEK TOTAL OF 3.08 ACRES

LEGEND

SLANTED TEXT INDICATES EXISTING FEATURES
 UPRIGHT TEXT INDICATES PROPOSED FEATURES

	UTILITY POLE & GUY WIRE
	STORM INLET
	SANITARY MANHOLE
	WATER VALVE
	GAS VALVE
	SIDEWALK
	IRON PIN FOUND
	IRON PIPE FOUND
	PAVEMENT EDGE
	SANITARY LINE
	STORM SEWER
	WATER LINE
	GAS LINE
	OVERHEAD WIRES
	UNDERGROUND ELECTRIC FENCE
	CONCRETE CURB
	PROPERTY BOUNDARY
	LEGAL RIGHT-OF-WAY CONTOUR
	TEST PIT LOCATION

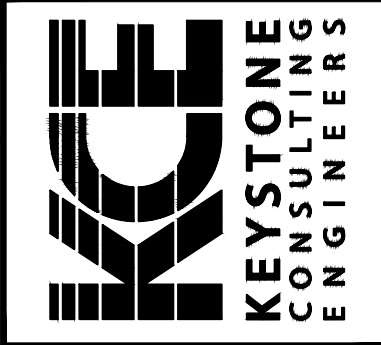
100



811 DIAL 8-1-1 OR 1-800-242-1776 NOT LESS THAN 3 BUSINESS DAYS NOR MORE THAN 10 BUSINESS DAYS PRIOR TO THE START OF EXCAVATION.

PENNSYLVANIA ONE CALL SYSTEM SERIAL NUMBER & DATE OF CALL
 217420210222-000 FEBRUARY 22, 2021

KEYSTONE CONSULTING ENGINEERS, INC.
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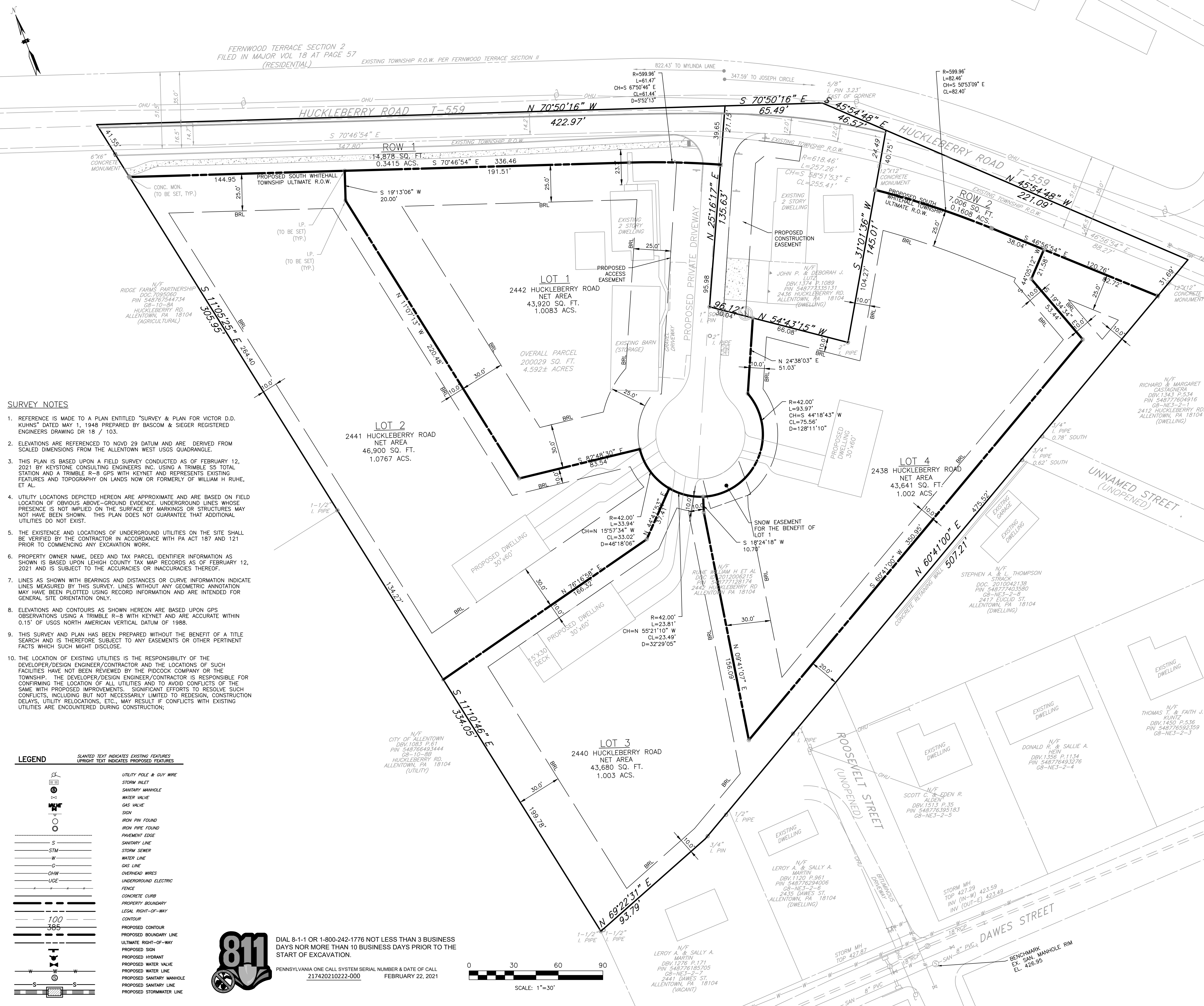


EXISTING FEATURES (EXPANDED VIEW, 60 SCALE)
RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY:	REVISIONS
KCE	BY DATE
MFC	MSN 06/16/2021
MFC/ARF	MSN 12/16/2021
March 05, 2021	IMK 09/20/2023
SCALE: 1" = 60'	
JOB NUMBER: CW-20-128	
SHEET: 3 OF 23	

FERNWOOD TERRACE SECTION 2
FILED IN MAJOR VOL 18 AT PAGE 57
(RESIDENTIAL)

EXISTING TOWNSHIP R.O.W. PER FERNWOOD TERRACE SECTION II



- SURVEY NOTES**
- REFERENCE IS MADE TO A PLAN ENTITLED "SURVEY & PLAN FOR VICTOR D.D. KUHN'S" DATED MAY 1, 1948 PREPARED BY BASCOM & SIEGER REGISTERED ENGINEERS DRAWING DR 18 / 103.
 - ELEVATIONS ARE REFERENCED TO NGVD 29 DATUM AND ARE DERIVED FROM SCALED DIMENSIONS FROM THE ALLENTOWN WEST USGS QUADRANGLE.
 - THIS PLAN IS BASED UPON A FIELD SURVEY CONDUCTED AS OF FEBRUARY 12, 2021 BY KEYSTONE CONSULTING ENGINEERS INC. USING A TRIMBLE S5 TOTAL STATION AND A TRIMBLE R-8 GPS WITH KEYNET AND REPRESENTS EXISTING FEATURES AND TOPOGRAPHY ON LANDS NOW OR FORMERLY OF WILLIAM H RUHE, ET AL.
 - UTILITY LOCATIONS DEPICTED HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF OBVIOUS ABOVE-GROUND EVIDENCE. UNDERGROUND LINES WHOSE PRESENCE IS NOT IMPLIED ON THE SURFACE BY MARKINGS OR STRUCTURES MAY NOT HAVE BEEN SHOWN. THIS PLAN DOES NOT GUARANTEE THAT ADDITIONAL UTILITIES DO NOT EXIST.
 - THE EXISTENCE AND LOCATIONS OF UNDERGROUND UTILITIES ON THE SITE SHALL BE VERIFIED BY THE CONTRACTOR IN ACCORDANCE WITH PA ACT 187 AND 121 PRIOR TO COMMENCING ANY EXCAVATION WORK.
 - PROPERTY OWNER NAME, DEED AND TAX PARCEL IDENTIFIER INFORMATION AS SHOWN IS BASED UPON LEHIGH COUNTY TAX MAP RECORDS AS OF FEBRUARY 12, 2021 AND IS SUBJECT TO THE ACCURACIES OR INACCURACIES THEREOF.
 - LINE AS SHOWN WITH BEARINGS AND DISTANCES OR CURVE INFORMATION INDICATE LINES MEASURED BY THIS SURVEY. LINES WITHOUT ANY GEOMETRIC ANNOTATION MAY HAVE BEEN PLOTTED USING RECORD INFORMATION AND ARE INTENDED FOR GENERAL SITE ORIENTATION ONLY.
 - ELEVATIONS AND CONTOURS AS SHOWN HEREON ARE BASED UPON GPS OBSERVATIONS USING A TRIMBLE R-8 WITH KEYNET AND ARE ACCURATE WITHIN 0.15' OF USGS NORTH AMERICAN VERTICAL DATUM OF 1988.
 - THIS SURVEY AND PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE SEARCH AND IS THEREFORE SUBJECT TO ANY EASEMENTS OR OTHER PERTINENT FACTS WHICH SUCH MIGHT DISCLOSE.
 - THE LOCATION OF EXISTING UTILITIES IS THE RESPONSIBILITY OF THE DEVELOPER/DESIGN ENGINEER/CONTRACTOR AND THE LOCATIONS OF SUCH FACILITIES HAVE NOT BEEN REVIEWED BY THE PIDCOCK COMPANY OR THE TOWNSHIP. THE DEVELOPER/DESIGN ENGINEER/CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL UTILITIES AND TO AVOID CONFLICTS OF THE SAME WITH PROPOSED IMPROVEMENTS. SIGNIFICANT EFFORTS TO RESOLVE SUCH CONFLICTS, INCLUDING BUT NOT NECESSARILY LIMITED TO REDESIGN, CONSTRUCTION DELAYS, UTILITY RELOCATIONS, ETC., MAY RESULT IF CONFLICTS WITH EXISTING UTILITIES ARE ENCOUNTERED DURING CONSTRUCTION.

LEGEND

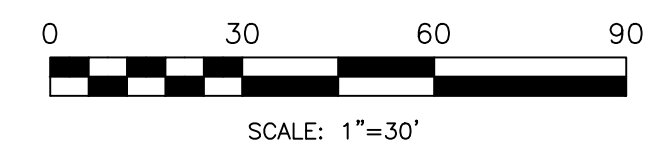
SLANTED TEXT INDICATES EXISTING FEATURES
UPRIGHT TEXT INDICATES PROPOSED FEATURES

	UTILITY POLE & GUY WIRE
	STORM INLET
	SANITARY MANHOLE
	WATER VALVE
	GAS VALVE
	IRON PIN FOUND
	IRON PIPE FOUND
	PAVEMENT EDGE
	SANITARY LINE
	STORM SEWER
	WATER LINE
	GAS LINE
	OVERHEAD WIRES
	UNDERGROUND ELECTRIC
	FENCE
	CONCRETE CURB
	PROPERTY BOUNDARY
	LEGAL RIGHT-OF-WAY
	CONTOUR
	PROPOSED CONTOUR
	PROPOSED BOUNDARY LINE
	ULTIMATE RIGHT-OF-WAY
	PROPOSED SIGN
	PROPOSED HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER LINE
	PROPOSED SANITARY MANHOLE
	PROPOSED SANITARY LINE
	PROPOSED STORMWATER LINE

811

DIAL 8-1-1 OR 1-800-242-1776 NOT LESS THAN 3 BUSINESS DAYS NOR MORE THAN 10 BUSINESS DAYS PRIOR TO THE START OF EXCAVATION.

PENNSYLVANIA ONE CALL SYSTEM SERIAL NUMBER & DATE OF CALL
217420210222-000 FEBRUARY 22, 2021



OWNER'S STATEMENT:
THE UNDERSIGNED IS THE OWNER, EQUITABLE OWNER, OR HAS AN OPTION OR CONDITIONAL CONTRACT OF SALE ON THE LAND PROPOSED TO BE SUBDIVIDED OR DEVELOPED AND HAS NO LITIGATION OR LIENS EXIST OR ARE PENDING ON THE SITE.

OWNER'S CERTIFICATION:
I BEING DULY SWORN ACCORDING TO LAW DEPOSE AND SAY THAT I AM THE SOLE OWNER OF THIS PROPERTY, IN PEACEFUL POSSESSION OF THE SAME, AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE THEREOF. I DO FURTHER DEPOSE AND SAY THAT I HAVE COMPLIED WITH ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20____ BY WHICH THE TOWNSHIP BOARD OF COMMISSIONERS CONDITIONALLY WAIVED THE REQUIREMENTS OF THE TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE FOR THE PROJECT REFLECTED ON THIS PLAN. I AGREE THAT I SHALL EXONERATE, INDEMNIFY, PROTECT, DEFEND AND SAVE HARMLESS THE TOWNSHIP FROM ANY AND ALL CLAIMS, LAWSUITS, DAMAGES AND LIABILITIES OF EVERY KIND, CHARACTER AND MANNER WHATSOEVER PERTAINING TO, RELATING TO, RESULTING FROM, CAUSED BY OR ARISING OUT OF THE TOWNSHIP'S APPROVAL OF THE WAIVER REQUEST AS EVIDENCED BY RESOLUTION 20____ ALL AS MORE FULLY OUTLINED IN RESOLUTION 20____.

ADJACENT OWNER'S STATEMENT:
THE UNDERSIGNED ACKNOWLEDGES ALL IMPROVEMENTS PROPOSED ON AND AROUND THE PROPERTY AT 2438 HUCKLEBERRY ROAD ARE LIMITED TO ADJUSTMENT OF DRIVEWAY AND GRADING TIE IN, HAVE BEEN AGREED UPON.

APPROVED BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION:
APPROVED _____ BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION.
MONTH DAY YEAR

APPROVED BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL:
APPROVED _____ BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL.
MONTH DAY YEAR

TOWNSHIP WAIVER ACKNOWLEDGEMENT:
BASED UPON AND EXPRESSLY IN RELIANCE ON THE FOREGOING CERTIFICATIONS OF THE OWNER AND DESIGN PROFESSIONAL, THE WITHIN PLAN IS ACCEPTED BY SOUTH WHITEHALL TOWNSHIP AS THE PLAN SATISFYING ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20____.

PROFESSIONAL ENGINEER'S CERTIFICATION
I, ALAN R. FORNWALT, P.E., A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY THAT THE ACCOMPANYING APPLICATION, PLANS AND SUPPORTING DOCUMENTATION ARE TRUE AND CORRECT, TO THE BEST OF MY KNOWLEDGE.

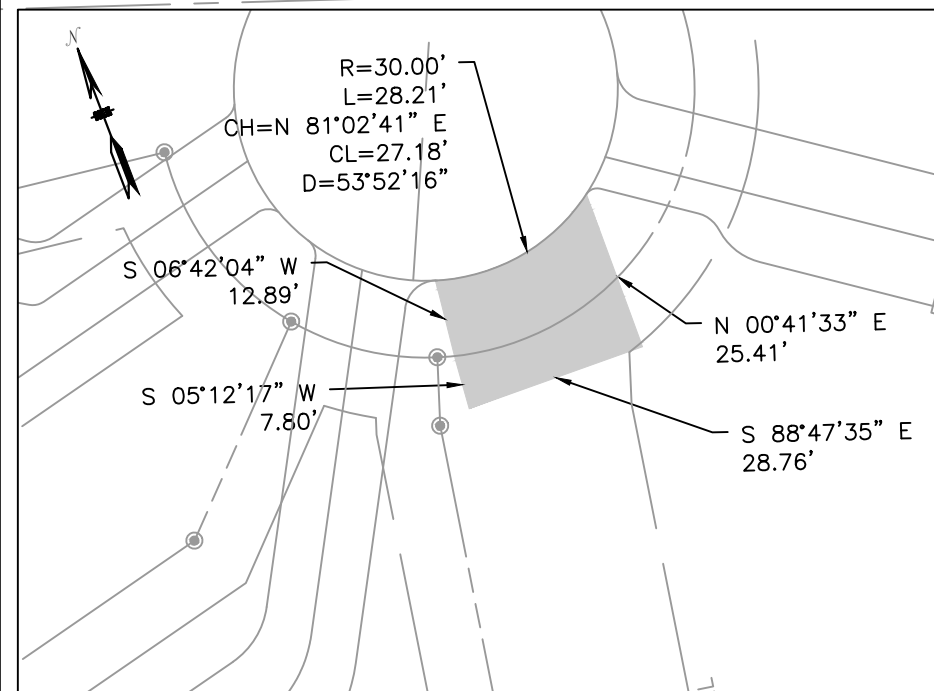
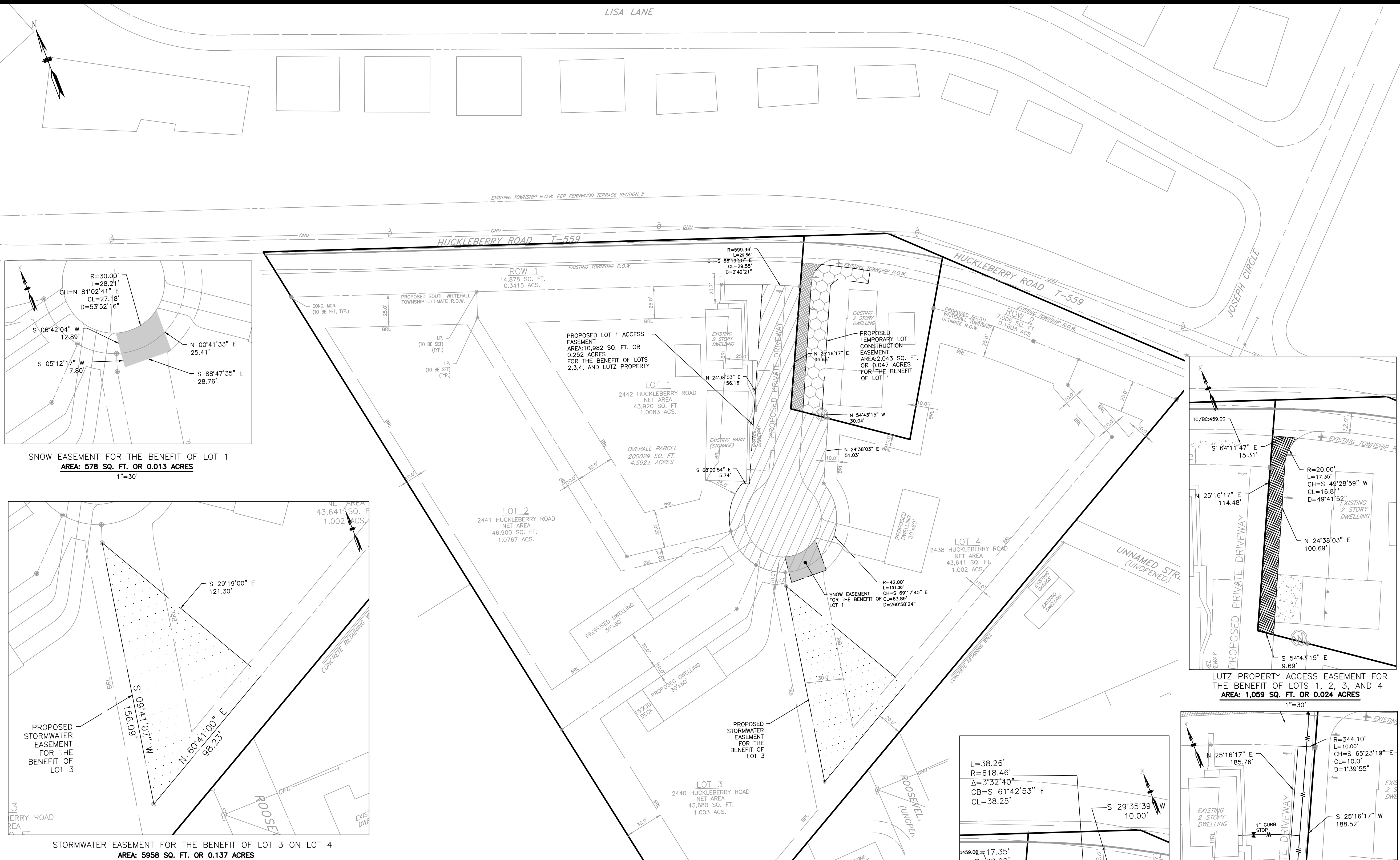
LEHIGH COUNTY RECORDER OF DEEDS:
LEHIGH COUNTY OFFICIAL _____ DATE _____

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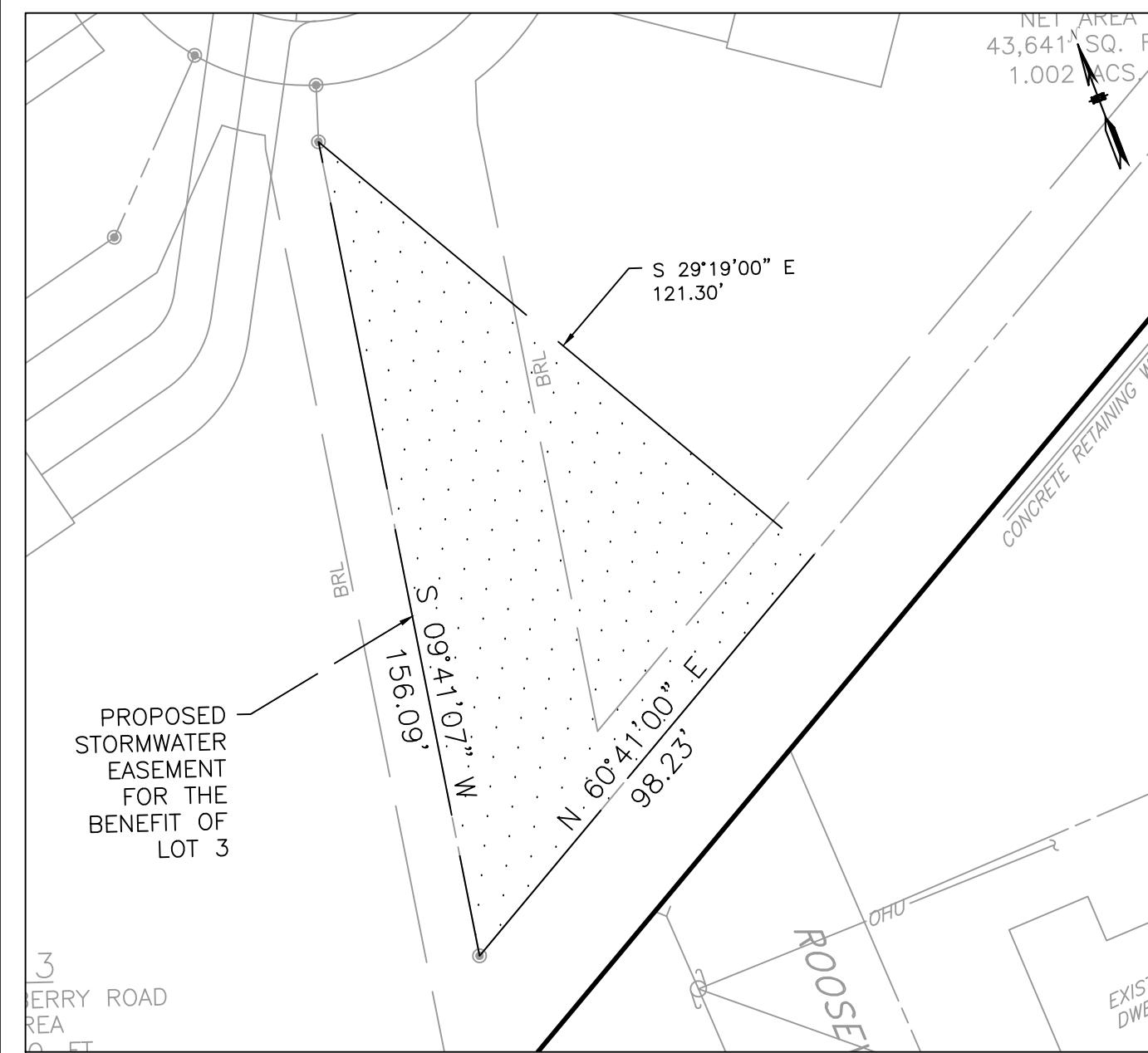


SUBDIVISION PLAN
RUHE MINOR/SUBFINAL PLAN
PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

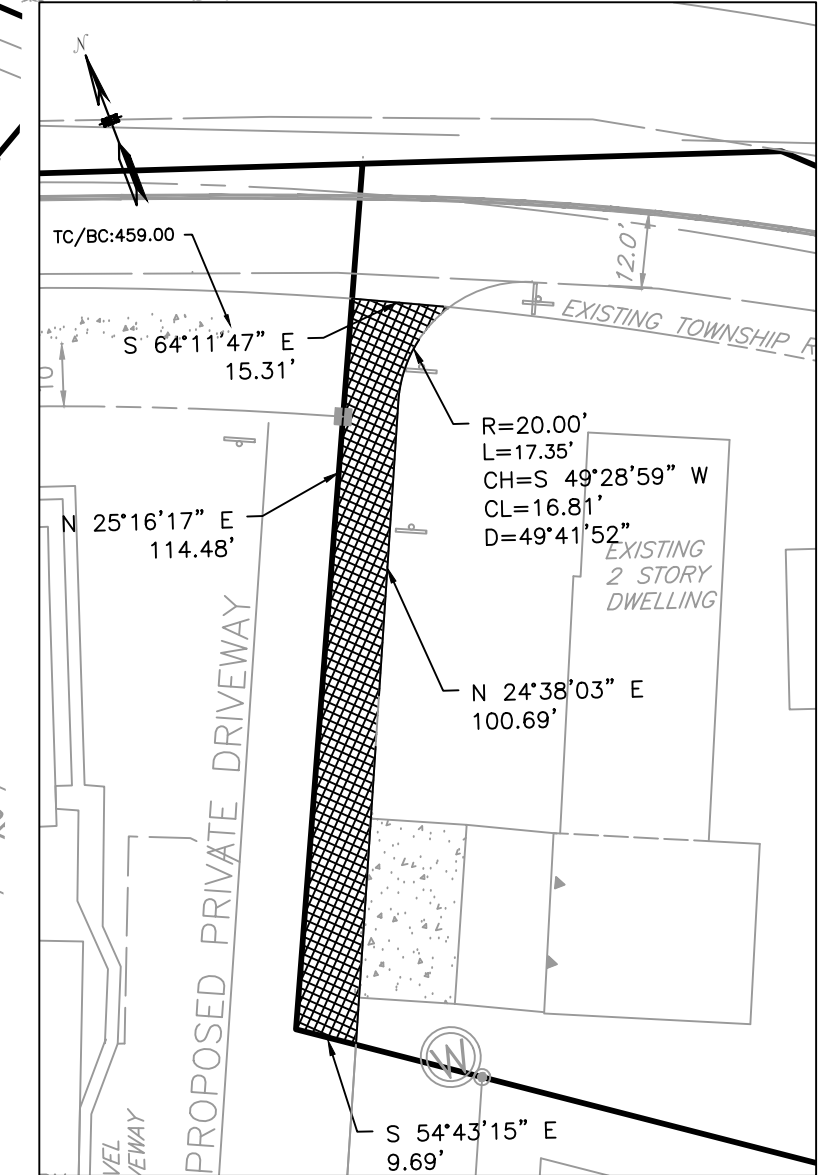
DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	MARCH 5, 2021
SCALE:	1" = 30'
JOB NUMBER:	CW-20-128
SHEET:	4 OF 23



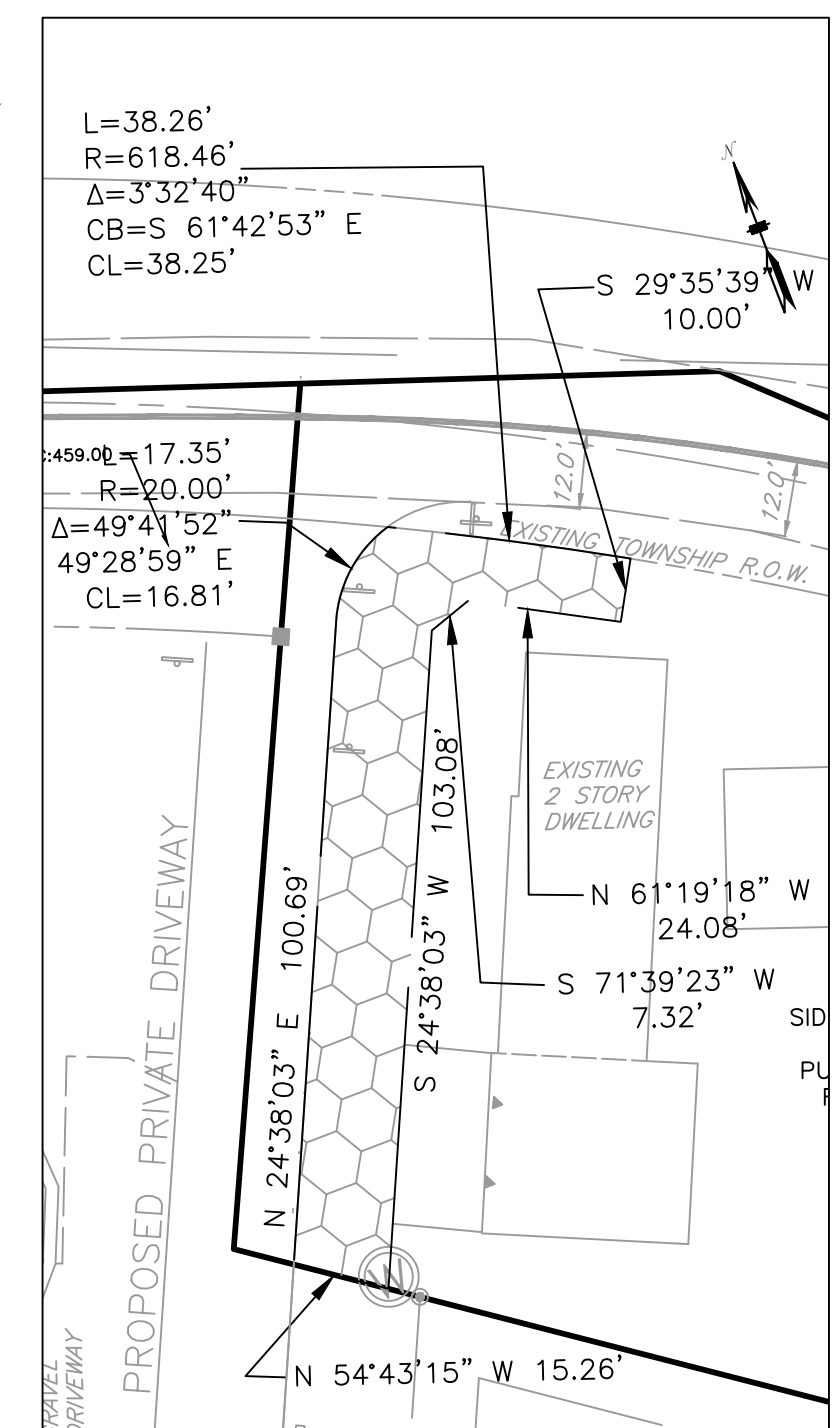
SNOW EASEMENT FOR THE BENEFIT OF LOT 1
AREA: 578 SQ. FT. OR 0.013 ACRES
1"=30'



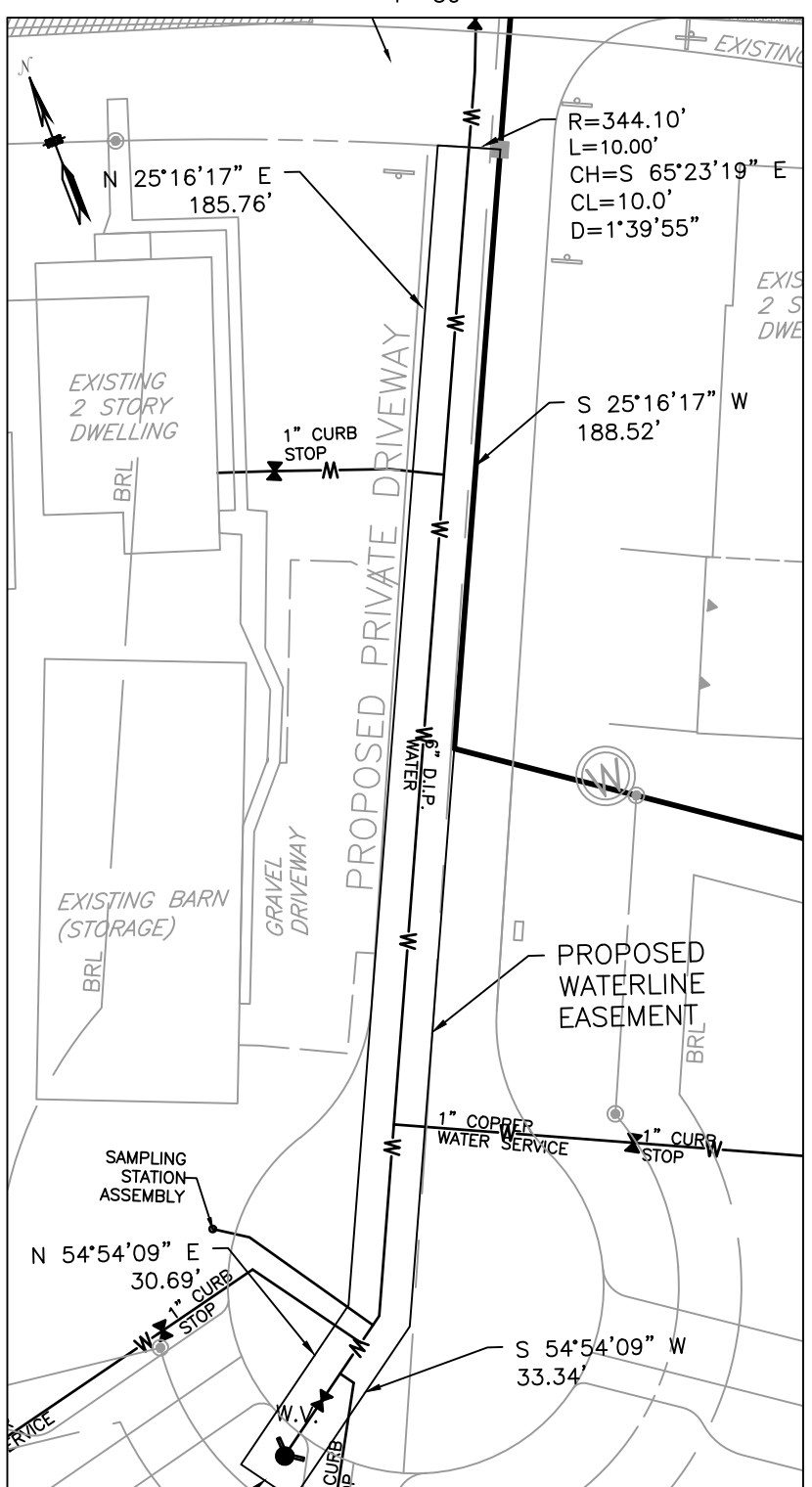
STORMWATER EASEMENT FOR THE BENEFIT OF LOT 3 ON LOT 4
AREA: 5958 SQ. FT. OR 0.137 ACRES
1"=30'



LUTZ PROPERTY ACCESS EASEMENT FOR THE BENEFIT OF LOTS 1, 2, 3, AND 4
AREA: 1,059 SQ. FT. OR 0.024 ACRES
1"=30'



TEMPORARY CONSTRUCTION EASEMENT FOR THE BENEFIT OF LOT 1
AREA: 2,043 SQ. FT. OR 0.047 ACRES
1"=30'



WATER LINE EASEMENT ON LOT 1 FOR THE BENEFIT OF SOUTH WHITEHALL TOWNSHIP
AREA: 2,193 SQ. FT. OR 0.053 ACRES
1"=30'

OWNER'S STATEMENT:
THE UNDERSIGNED IS THE OWNER, EQUITABLE OWNER, OR HAS AN OPTION OR CONDITIONAL CONTRACT OF SALE ON THE LAND PROPOSED TO BE SUBDIVIDED OR DEVELOPED AND HAS NO LITIGATION OR LIENS EXIST OR ARE PENDING ON THE SITE.

OWNER'S CERTIFICATION:
I BEING DULY SWORN ACCORDING TO LAW DEPOSE AND SAY THAT I AM THE SOLE OWNER OF THIS PROPERTY, IN PEACEFUL POSSESSION OF THE SAME, AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE THEREOF. I DO FURTHER DEPOSE AND SAY THAT I HAVE COMPLIED WITH ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20... BY WHICH THE TOWNSHIP BOARD OF COMMISSIONERS CONDITIONALLY WAIVED THE REQUIREMENTS OF THE TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE FOR THE PROJECT REFLECTED ON THIS PLAN. I AGREE THAT I SHALL EXONERATE, INDEMNIFY, PROTECT, DEFEND AND SAVE HARMLESS THE TOWNSHIP FROM ANY AND ALL CLAIMS, LAWSUITS, DAMAGES AND LIABILITIES OF EVERY KIND, CHARACTER AND MANNER WHATSOEVER PERTAINING TO, RELATING TO, RESULTING FROM, CAUSED BY OR ARISING OUT OF THE TOWNSHIP'S APPROVAL OF THE WATERS REQUEST AS EVIDENCED BY RESOLUTION 20... ALL AS MORE FULLY OUTLINED IN RESOLUTION 20...
OWNER:

ADJACENT OWNER'S STATEMENT:
THE UNDERSIGNED ACKNOWLEDGES ALL IMPROVEMENTS PROPOSED ON AND AROUND THE PROPERTY AT 2436 HUCKLEBERRY ROAD ARE LIMITED TO ADJUSTMENT OF DRIVEWAY AND GRADING TIE IN, HAVE BEEN AGREED UPON.

ADJACENT OWNER'S STATEMENT:
THE UNDERSIGNED ACKNOWLEDGES ALL IMPROVEMENTS PROPOSED ON AND AROUND THE PROPERTY AT 2436 HUCKLEBERRY ROAD ARE LIMITED TO ADJUSTMENT OF DRIVEWAY AND GRADING TIE IN, HAVE BEEN AGREED UPON.

APPROVED BY THE LEHIGH VALLEY PLANNING COMMISSION:
COUNTY PLANNING COMMISSION STAFF PERSON DATE
APPROVED BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION:
APPROVED MONTH DAY YEAR BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION.

APPROVED BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL:
APPROVED MONTH DAY YEAR BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL.

TOWNSHIP WAIVER ACKNOWLEDGEMENT:
BASED UPON AND EXPRESSLY IN RELIANCE ON THE FOREGOING CERTIFICATIONS OF THE OWNER AND DESIGN PROFESSIONAL, THE WITHIN PLAN IS ACCEPTED BY SOUTH WHITEHALL TOWNSHIP AS THE PLAN SATISFYING ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20...
PRESIDENT SECRETARY

PROFESSIONAL ENGINEER'S CERTIFICATION
I, ALAN R. FORNWALT, P.E., A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY THAT THE ACCOMPANYING APPLICATION, PLANS AND SUPPORTING DOCUMENTATION ARE TRUE AND CORRECT, TO THE BEST OF MY KNOWLEDGE.

ALAN R. FORNWALT P.E. PE 070819
KEYSTONE CONSULTING ENGINEERS, INC.
5012 MEDICAL CENTER CIRCLE, ALLENTOWN, PA 18106

LEHIGH COUNTY RECORDER OF DEEDS:
LEHIGH COUNTY OFFICIAL DATE

LEGEND

Symbol	UTILITY POLE & GUY WIRE
Symbol	STORM INLET
Symbol	SANITARY MANHOLE
Symbol	WATER VALVE
Symbol	GAS VALVE
Symbol	IRON PIN FOUND
Symbol	IRON PIPE FOUND
Symbol	PAVEMENT EDGE
Symbol	SANITARY LINE
Symbol	STORM SEWER
Symbol	WATER LINE
Symbol	GAS LINE
Symbol	OVERHEAD WIRES
Symbol	UNDERGROUND ELECTRIC
Symbol	CONCRETE CURB
Symbol	PROPERTY BOUNDARY
Symbol	LEGAL RIGHT-OF-WAY
Symbol	CONTOUR
Symbol	PROPOSED CONTOUR
Symbol	PROPOSED BOUNDARY LINE
Symbol	ULTIMATE RIGHT-OF-WAY
Symbol	PROPOSED SIGN
Symbol	PROPOSED HYDRANT
Symbol	PROPOSED WATER VALVE
Symbol	PROPOSED WATER LINE
Symbol	PROPOSED SANITARY MANHOLE
Symbol	PROPOSED SANITARY LINE
Symbol	PROPOSED STORMWATER LINE

SURVEY NOTES

- THIS PLAN IS BASED UPON A FIELD SURVEY CONDUCTED AS OF FEBRUARY 12, 2021 BY KEYSTONE CONSULTING ENGINEERS, INC. USING A TRIMBLE S5 TOTAL STATION AND A TRIMBLE R-8 GPS WITH KEYNET AND REPRESENTS EXISTING FEATURES AND TOPOGRAPHY ON LANDS NOW OR FORMERLY OF WILLIAM H. RUHE, ET AL.
- UTILITY LOCATIONS DEPICTED HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF OBVIOUS ABOVE-GROUND EVIDENCE, UNDERGROUND LINES WHOSE PRESENCE IS NOT INDICATED ON THE SURFACE BY MARKINGS OR STRUCTURES MAY NOT HAVE BEEN SHOWN. THIS PLAN DOES NOT GUARANTEE THAT ADDITIONAL UTILITIES DO NOT EXIST.
- THE EXISTENCE AND LOCATIONS OF UNDERGROUND UTILITIES ON THE SITE SHALL BE VERIFIED BY THE CONTRACTOR IN ACCORDANCE WITH PA ACT 187 AND 121 PRIOR TO COMMENCING ANY EXCAVATION WORK.
- PROPERTY OWNER NAME, DEED AND TAX PARCEL IDENTIFYING INFORMATION AS SHOWN IS BASED UPON LEHIGH COUNTY TAX MAP RECORDS AS OF FEBRUARY 12, 2021 AND IS SUBJECT TO THE ACCURACIES OR INACCURACIES THEREOF.
- LINES AS SHOWN WITH BEARINGS AND DISTANCES OR CURVE INFORMATION INDICATE LINES MEASURED BY THIS SURVEY. LINES WITHOUT ANY GEOMETRIC ANNOTATION MAY HAVE BEEN PLOTTED USING RECORD INFORMATION AND ARE INTENDED FOR GENERAL SITE ORIENTATION ONLY.
- ELEVATIONS AND CONTOURS AS SHOWN HEREON ARE BASED UPON GPS OBSERVATIONS USING A TRIMBLE R-8 GPS WITH KEYNET AND ARE ACCURATE WITHIN 0.15' OF USGS NORTH AMERICAN VERTICAL DATUM OF 1988.
- THIS SURVEY AND PLAN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE SEARCH AND IS THEREFORE SUBJECT TO ANY EASEMENTS OR OTHER PERTINENT FACTS WHICH SUCH MIGHT DISCLOSE.

STORMWATER EASEMENT NOTES

- A STORMWATER MANAGEMENT ACCESS BLANKET EASEMENT HAS BEEN PROVIDED FOR ACCESS TO POST CONSTRUCTION STORMWATER MANAGEMENT BMPs FOR OPERATION AND MAINTENANCE PROCEDURES.
- ALL DRAINAGE EASEMENTS REQUIRED BY ORDINANCE OR SHOWN ON THE RECORD PLAN SHALL BE CONVEYED BY THE RESPECTIVE PROPERTY OWNER TO THE BENEFIT OF SOUTH WHITEHALL TOWNSHIP AND ITS SUCCESSORS AND ASSIGNS. IT SHALL BE THE PERPETUAL RESPONSIBILITY OF THE PROPERTY OWNER TO MAINTAIN THE EASEMENT AREAS ON THE LOT AND KEEP THEM CLEAR OF ANY AND ALL OBSTRUCTIONS TO PROPER DRAINAGE. PROPERTY OWNER SHALL CONVEY RIGHTS OF ACCESS IN, UNDER AND ACROSS THE EASEMENT AREAS TO SOUTH WHITEHALL TOWNSHIP FOR PURPOSES OF ACCESSING AND MAINTAINING ANY AND ALL PUBLIC DRAINAGE IMPROVEMENTS, INCLUDING PIPES AND APPURTENANCES, IN SAID AREAS.
- IN THE EVENT THAT THE PROPERTY OWNER FAILS TO PROPERLY MAINTAIN DRAINAGE STRUCTURES, SMILES AND APPURTENANCES, AFTER NOTIFICATION TO THE PROPERTY OWNER BY THE TOWNSHIP, THE TOWNSHIP IS AUTHORIZED TO ENTER UPON THE PROPERTY TO PERFORM SUCH MAINTENANCE AND THEREAFTER RECOVER THE COST OF PERFORMING SUCH SERVICE FROM THE PROPERTY OWNER. IN ORDER TO ENFORCE THE RECOVERY OF SUCH COST OF SERVICE, THE TOWNSHIP SHALL HAVE THE RIGHT TO FILE A LITIGATION AGAINST SUCH PROPERTY OWNER AND THEREAFTER TO EXERCISE ITS REMEDIES IN ACCORDANCE WITH THE TOWNSHIP'S CODE.
- IN PRESENTATION OF PROPER CREDENTIALS, DULY AUTHORIZED REPRESENTATIVES OF THE TOWNSHIP OR DEP MAY ENTER AT REASONABLE TIMES UPON ANY PORTION OF THE PROPERTY TO INSPECT AND MAINTAIN THE POST-CONSTRUCTION STORMWATER BMPs IN ACCORDANCE WITH THE RECORDED POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN.
- IT SHALL BE UNLAWFUL TO ALTER OR REMOVE ANY PERMANENT STORMWATER BMP REQUIRED BY AN APPROVED BMP O&M PLAN OR TO ALLOW THE PROPERTY TO REMAIN IN A CONDITION WHICH DOES NOT CONFORM TO AN APPROVED BMP O&M PLAN UNLESS AN EXEMPTION IS GRANTED IN WRITING BY SOUTH WHITEHALL TOWNSHIP.
- THE DEVELOPER, ITS SUCCESSORS OR ASSIGNS, HEREBY RESERVES THE RIGHT TO ENTER UPON EACH AND EVERY LOT AND AREA OF THE SUBDIVISION/DEVELOPMENT DEPICTED HEREON, UNTIL EXPIRATION OF THE STATUTORY MAINTENANCE PERIOD FOLLOWING DEDICATION OF PUBLIC IMPROVEMENTS AS SET FORTH IN SECTION 509 OF THE PENNSYLVANIA MUNICIPALITIES PLANNING CODE, AS AMENDED, 53 P.S. 10509, FOR THE PURPOSE OF COMPLETING ANY LANDSCAPING AS REQUIRED BY THE MUNICIPALITY AND FURTHER, TO MAKE SUCH MODIFICATIONS IN GRADING AND/OR DRAINAGE IMPROVEMENTS ON ANY LOT AS MAY BE NECESSARY IN THE DISCRETION OF THE DEVELOPER, ITS SUCCESSORS OR ASSIGNS, AND/OR THE MUNICIPAL ENGINEER FOR SATISFACTORY STORM WATER MANAGEMENT.

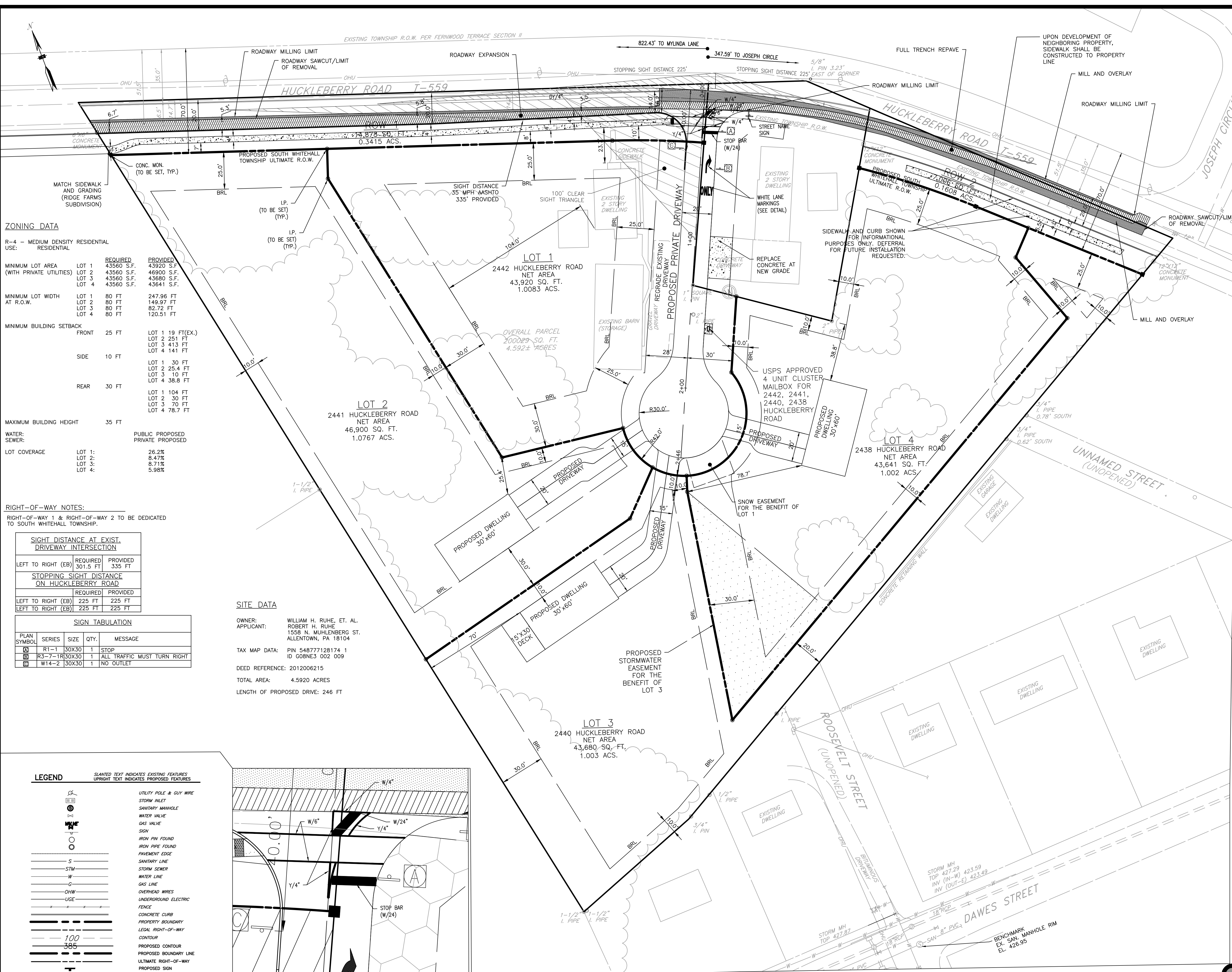


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EASEMENT PLAN
RUHE MINOR SUBDIVISION PLAN
PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	MARCH 5, 2021
SCALE:	1" = 30'
JOB NUMBER:	CW-20-128
SHEET:	5 OF 23

REVISIONS:
DATE: 06/16/2021
BY: MSN
DATE: 12/16/2021
BY: MSN
DATE: 09/20/2023
BY: IMK



ZONING DATA

R-4 - MEDIUM DENSITY RESIDENTIAL RESIDENTIAL

	REQUIRED	PROVIDED
MINIMUM LOT AREA (WITH PRIVATE UTILITIES)	LOT 1 43560 S.F. LOT 2 43560 S.F. LOT 3 43560 S.F. LOT 4 43560 S.F.	LOT 1 43920 S.F. LOT 2 46900 S.F. LOT 3 43680 S.F. LOT 4 43641 S.F.
MINIMUM LOT WIDTH AT R.O.W.	LOT 1 80 FT LOT 2 80 FT LOT 3 80 FT LOT 4 80 FT	LOT 1 247.96 FT LOT 2 149.97 FT LOT 3 82.72 FT LOT 4 120.51 FT
MINIMUM BUILDING SETBACK	FRONT 25 FT SIDE 10 FT REAR 30 FT	LOT 1 19 FT (EX.) LOT 2 251 FT LOT 3 413 FT LOT 4 141 FT LOT 1 30 FT LOT 2 25.4 FT LOT 3 10 FT LOT 4 38.8 FT LOT 1 104 FT LOT 2 30 FT LOT 3 70 FT LOT 4 76.7 FT
MAXIMUM BUILDING HEIGHT	35 FT	
WATER: PUBLIC PROPOSED		
SEWER: PRIVATE PROPOSED		
LOT COVERAGE	LOT 1: 26.2% LOT 2: 8.47% LOT 3: 8.71% LOT 4: 5.98%	

RIGHT-OF-WAY NOTES:
RIGHT-OF-WAY 1 & RIGHT-OF-WAY 2 TO BE DEDICATED TO SOUTH WHITEHALL TOWNSHIP.

SIGHT DISTANCE AT EXIST. DRIVEWAY INTERSECTION

LEFT TO RIGHT (EB)	REQUIRED	PROVIDED
	301.5 FT	335 FT

STOPPING SIGHT DISTANCE ON HUCKLEBERRY ROAD

LEFT TO RIGHT (EB)	REQUIRED	PROVIDED
	225 FT	225 FT

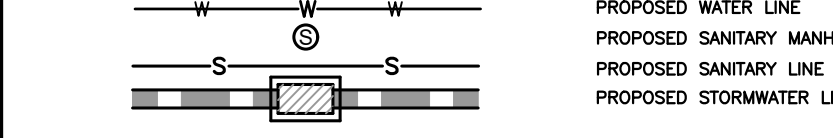
SIGN TABULATION

PLAN SYMBOL	SERIES	SIZE	QTY.	MESSAGE
(S)	R1-1	30X30	1	STOP
(R)	R3-7-1R	30X30	1	ALL TRAFFIC MUST TURN RIGHT
(O)	W14-2	30X30	1	NO OUTLET

LEGEND

SLANTED TEXT INDICATES EXISTING FEATURES
UPRIGHT TEXT INDICATES PROPOSED FEATURES

(Symbol)	UTILITY POLE & GUY WIRE
(Symbol)	STORM INLET
(Symbol)	SANITARY MANHOLE
(Symbol)	WATER VALVE
(Symbol)	GAS VALVE
(Symbol)	SIGN
(Symbol)	IRON PIN FOUND
(Symbol)	IRON PIPE FOUND
(Symbol)	PAVEMENT EDGE
(Symbol)	SANITARY LINE
(Symbol)	STORM SEWER
(Symbol)	WATER LINE
(Symbol)	GAS LINE
(Symbol)	OVERHEAD WIRES
(Symbol)	UNDERGROUND ELECTRIC
(Symbol)	FENCE
(Symbol)	CONCRETE CURB
(Symbol)	PROPERTY BOUNDARY
(Symbol)	LEGAL RIGHT-OF-WAY
(Symbol)	CONTOUR
(Symbol)	PROPOSED CONTOUR
(Symbol)	PROPOSED BOUNDARY LINE
(Symbol)	ULTIMATE RIGHT-OF-WAY
(Symbol)	PROPOSED SIGN
(Symbol)	PROPOSED HYDRANT
(Symbol)	PROPOSED WATER VALVE
(Symbol)	PROPOSED WATER LINE
(Symbol)	PROPOSED SANITARY MANHOLE
(Symbol)	PROPOSED SANITARY LINE
(Symbol)	PROPOSED STORMWATER LINE



SITE DATA

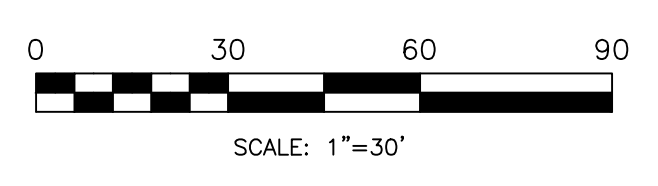
OWNER: WILLIAM H. RUHE, ET. AL.
APPLICANT: ROBERT H. RUHE
1558 N. MUHLENBERG ST.
ALLENTOWN, PA 18104

TAX MAP DATA: PIN 54877128174 1
ID G08NE3 002 009

DEED REFERENCE: 2012006215

TOTAL AREA: 4.5920 ACRES
LENGTH OF PROPOSED DRIVE: 246 FT

UTILITY NOTES:
THE APPLICANT IS RESPONSIBLE FOR JOINING THE PA ONE CALL SYSTEM AND IS RESPONSIBLE FOR THE MARKING OF ALL UNDERGROUND UTILITIES PRIOR TO THE UTILITIES BEING FORMALLY ACCEPTED BY AND DEDICATED TO THE TOWNSHIP.



OWNER'S STATEMENT:
THE UNDERSIGNED IS THE OWNER, EQUITABLE OWNER, OR HAS AN OPTION OR CONDITIONAL CONTRACT OF SALE ON THE LAND PROPOSED TO BE SUBDIVIDED OR DEVELOPED AND HAS NO LITIGATION OR LIENS EXIST OR ARE PENDING ON THE SITE.

OWNER: _____

OWNER'S CERTIFICATION:
I BEING DULY SWORN ACCORDING TO LAW DEPOSE AND SAY THAT I AM THE SOLE OWNER OF THIS PROPERTY, IN PEACEFUL POSSESSION OF THE SAME, AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE THEREOF. I DO FURTHER DEPOSE AND SAY THAT I HAVE COMPLIED WITH ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20... BY WHICH THE TOWNSHIP BOARD OF COMMISSIONERS CONDITIONALLY WAIVED THE REQUIREMENTS OF THE TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE FOR THE PROJECT REFLECTED ON THIS PLAN. I AGREE THAT I SHALL EXONERATE, INDEMNIFY, PROTECT, DEFEND AND SAVE HARMLESS THE TOWNSHIP FROM ANY AND ALL CLAIMS, LAWSUITS, DAMAGES AND LIABILITIES OF EVERY KIND, CHARACTER AND MANNER WHATSOEVER PERTAINING TO, RELATING TO, RESULTING FROM, CAUSED BY OR ARISING OUT OF THE TOWNSHIP'S APPROVAL OF THE WAIVER REQUEST AS EVIDENCED BY RESOLUTION 20... ALL AS MORE FULLY OUTLINED IN RESOLUTION 20... OWNER: _____

WILLIAM H. RUHE
OWNER

ADJACENT OWNER'S STATEMENT:
THE UNDERSIGNED ACKNOWLEDGES ALL IMPROVEMENTS PROPOSED ON AND AROUND THE PROPERTY AT 2436 HUCKLEBERRY ROAD ARE LIMITED TO ADJUSTMENT OF DRIVEWAY AND GRADING-TIE IN, HAVE BEEN AGREED UPON.

JOHN P. LUTZ
ADJACENT PROPERTY OWNER

REVIEWED BY THE LEHIGH VALLEY PLANNING COMMISSION:

COUNTY PLANNING COMMISSION STAFF PERSON: _____ DATE: _____

APPROVED BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION:

APPROVED: _____ BY THE SOUTH WHITEHALL PLANNING COMMISSION:
MONTH DAY YEAR

TOWNSHIP PLANNING COMMISSION:

CHAIRMAN: _____

SECRETARY: _____

APPROVED BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL:

APPROVED: _____ BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL:
MONTH DAY YEAR

PRESIDENT: _____ SECRETARY: _____

TOWNSHIP ENGINEER: _____

TOWNSHIP WAIVER ACKNOWLEDGEMENT:
BASED UPON AND EXPRESSLY IN RELIANCE ON THE FOREGOING CERTIFICATIONS OF THE OWNER AND DESIGN PROFESSIONAL, THE WITHIN PLAN IS ACCEPTED BY SOUTH WHITEHALL TOWNSHIP AS THE PLAN SATISFYING ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20... PRESIDENT: _____ SECRETARY: _____

PROFESSIONAL ENGINEER'S CERTIFICATION

I, ALAN R. FORNWALT, P.E., A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY THAT THE ACCOMPANYING APPLICATION, PLANS AND SUPPORTING DOCUMENTATION ARE TRUE AND CORRECT, TO THE BEST OF MY KNOWLEDGE.

ALAN R. FORNWALT P.E. PE 070819
KEYSTONE CONSULTING ENGINEERS, INC.
5012 MEDICAL CENTER CIRCLE, ALLENTOWN, PA 18106

LEHIGH COUNTY RECORDER OF DEEDS:

LEHIGH COUNTY OFFICIAL: _____ DATE: _____

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Engineering firm of choice since 1972

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East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville
www.KCEINC.com



RECORD PLAN

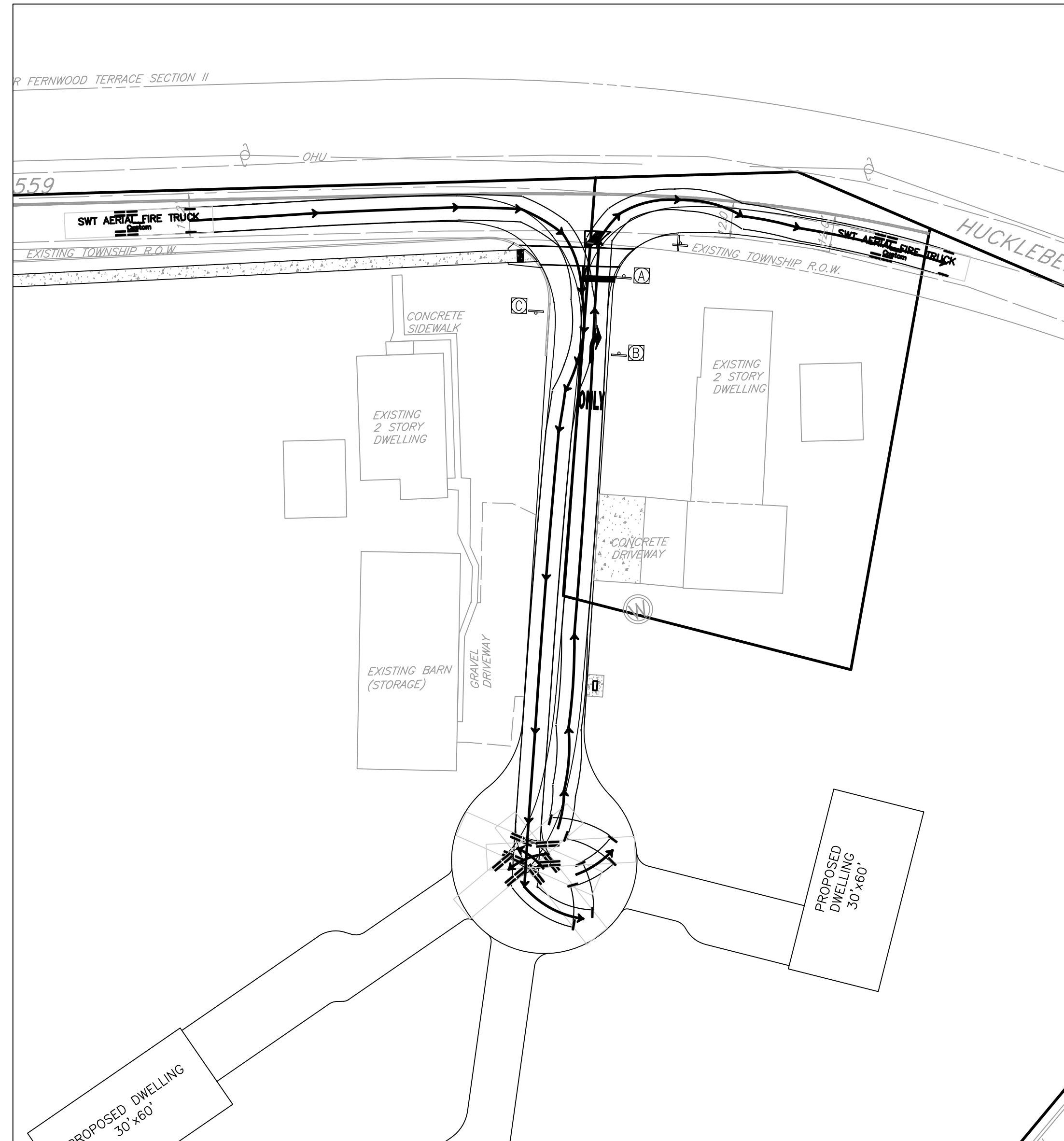
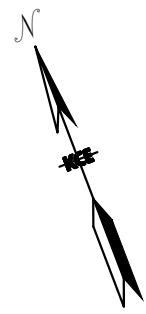
RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY:	DATE:	BY:	DATE:
KCE	06/16/2021	MSN	09/20/2023
MFC/ARF	12/16/2021	IMK	
MFC/ARF	MARCH 5, 2021		
	SCALE: 1" = 30'		
	JOB NUMBER: CW-20-128		
	SHEET: 6 OF 23		



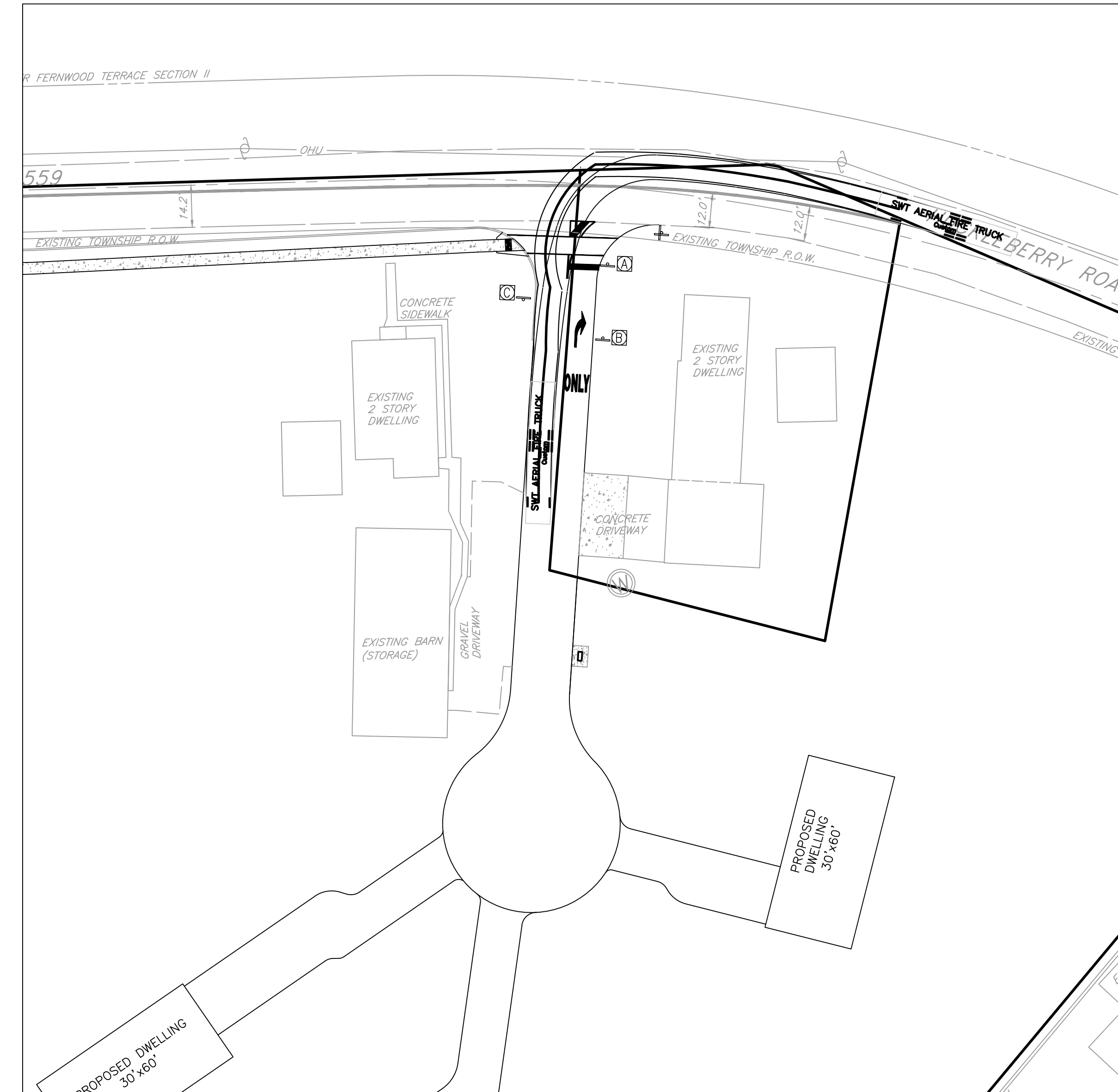
DIAL 8-1-1 OR 1-800-242-1776 NOT LESS THAN 3 BUSINESS DAYS NOR MORE THAN 10 BUSINESS DAYS PRIOR TO THE START OF EXCAVATION.

PENNSYLVANIA ONE CALL SYSTEM SERIAL NUMBER & DATE OF CALL
217420210222-000 FEBRUARY 22, 2021



SWT FIRE TRUCK RIGHT IN-RIGHT OUT TURNING TEMPLATE

1"=30'

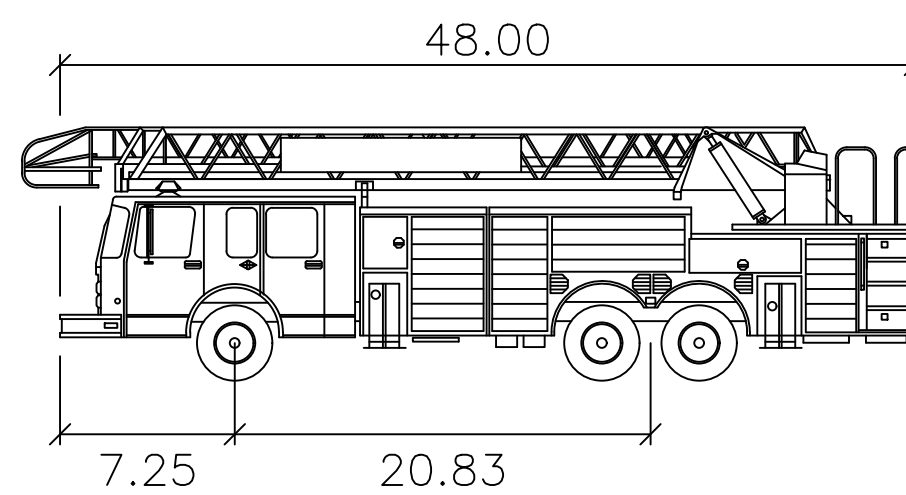


SWT FIRE TRUCK WESTBOUND LEFT TURN TURNING TEMPLATE

1"=30'

LEGEND

SLANTED TEXT INDICATES EXISTING FEATURES UPRIGHT TEXT INDICATES PROPOSED FEATURES	
UTILITY POLE & GUY WIRE	⊕
STORM INLET	⊞
SANITARY MANHOLE	⊞
WATER VALVE	⊞
GAS VALVE	⊞
SIGN	⊞
IRON PIN FOUND	⊞
IRON PIPE FOUND	⊞
PAVEMENT EDGE	—
SANITARY LINE	—
STORM SEWER	—
WATER LINE	—
GAS LINE	—
OVERHEAD WIRES	—
UNDERGROUND ELECTRIC	—
FENCE	—
CONCRETE CURB	—
PROPERTY BOUNDARY	—
LEGAL RIGHT-OF-WAY	—
CONTOUR	—
PROPOSED CONTOUR	—
PROPOSED BOUNDARY LINE	—
ULTIMATE RIGHT-OF-WAY	—
PROPOSED SIGN	—
PROPOSED HYDRANT	—
PROPOSED WATER VALVE	—
PROPOSED WATER LINE	—
PROPOSED SANITARY MANHOLE	—
PROPOSED SANITARY LINE	—
PROPOSED STORMWATER LINE	—



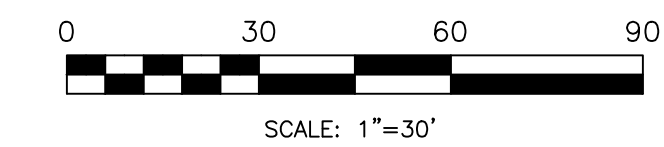
SWT Aerial Fire Truck

	feet
Width	: 8.33
Track	: 8.33
Lock to Lock Time	: 6.0
Steering Angle	: 44.0



DIAL 8-1-1 OR 1-800-242-1776 NOT LESS THAN 3 BUSINESS DAYS NOR MORE THAN 10 BUSINESS DAYS PRIOR TO THE START OF EXCAVATION.

PENNSYLVANIA ONE CALL SYSTEM SERIAL NUMBER & DATE OF CALL
217420210222-000 FEBRUARY 22, 2021



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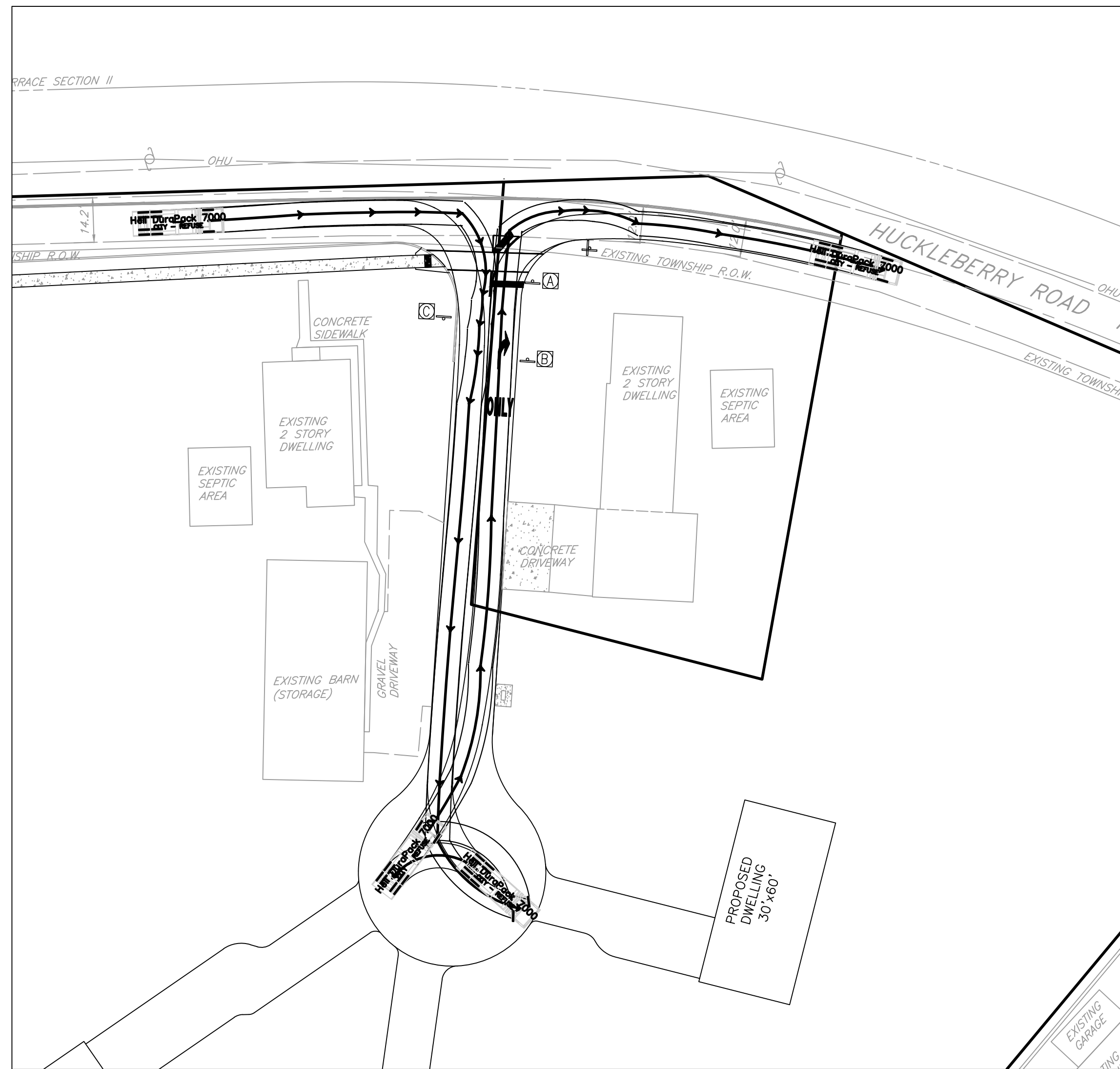


FIRE TRUCK TURN PLAN

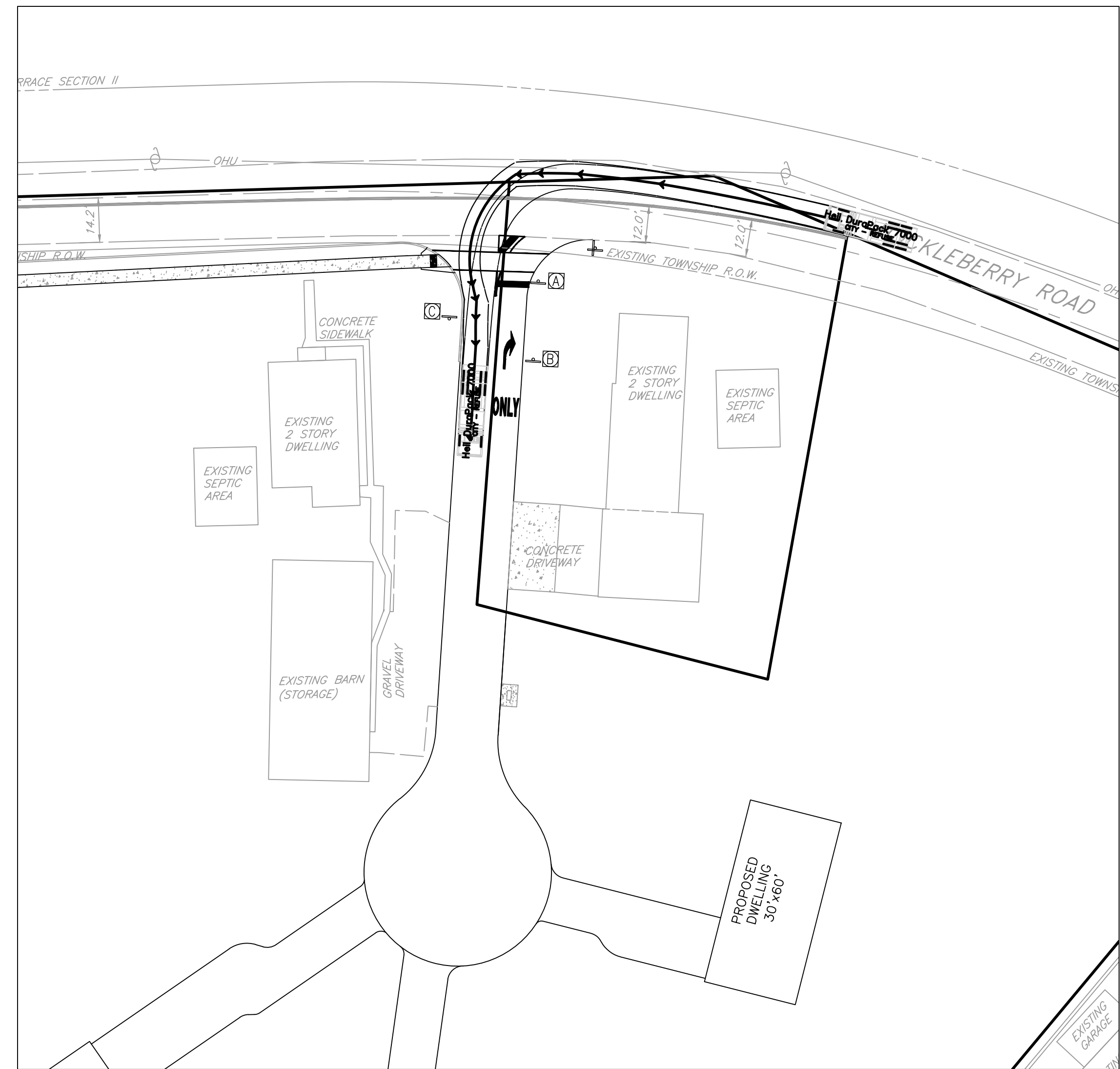
**RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN**
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	MARCH 5, 2021
SCALE:	1" = 30'
JOB NUMBER:	CW-20-128
SHEET:	7 OF 23

REVISIONS	DATE
BY	DATE
MSN	06/16/2021
MSN	12/16/2021
IMK	09/20/2023



GARBAGE TRUCK RIGHT IN-RIGHT OUT TURNING TEMPLATE
1"=30'

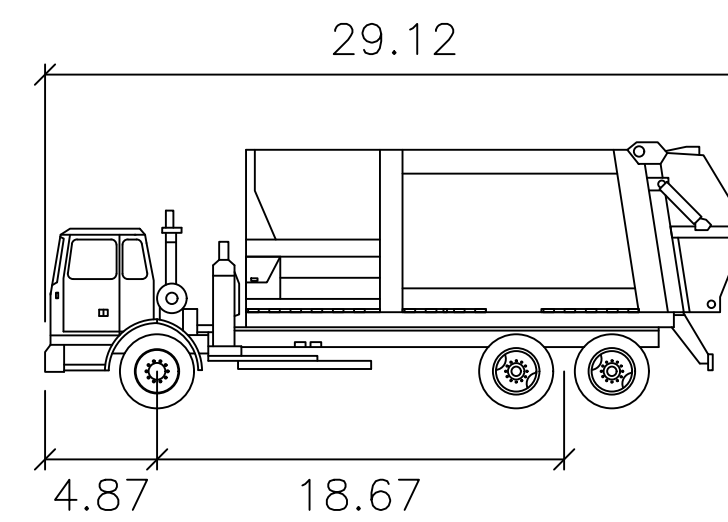


GARBAGE TRUCK WESTBOUND LEFT TURN TURNING TEMPLATE
1"=30'

LEGEND

SLANTED TEXT INDICATES EXISTING FEATURES
UPRIGHT TEXT INDICATES PROPOSED FEATURES

	UTILITY POLE & GUY WIRE
	STORM INLET
	SANITARY MANHOLE
	WATER VALVE
	GAS VALVE
	SIGN
	IRON PIN FOUND
	IRON PIPE FOUND
	PAVEMENT EDGE
	SANITARY LINE
	STORM SEWER
	WATER LINE
	GAS LINE
	OVERHEAD WIRES
	UNDERGROUND ELECTRIC FENCE
	CONCRETE CURB
	PROPERTY BOUNDARY
	LEGAL RIGHT-OF-WAY
	CONTOUR
	PROPOSED CONTOUR
	PROPOSED BOUNDARY LINE
	ULTIMATE RIGHT-OF-WAY
	PROPOSED SIGN
	PROPOSED HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER LINE
	PROPOSED SANITARY MANHOLE
	PROPOSED SANITARY LINE
	PROPOSED STORMWATER LINE



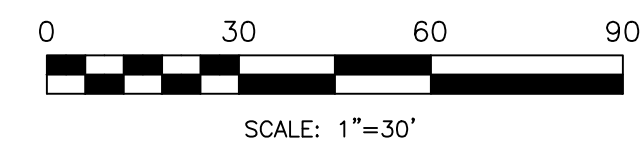
Heil DuraPack 7000
feet

Width : 8.00
Track : 8.00
Lock to Lock Time : 6.0
Steering Angle : 45.0



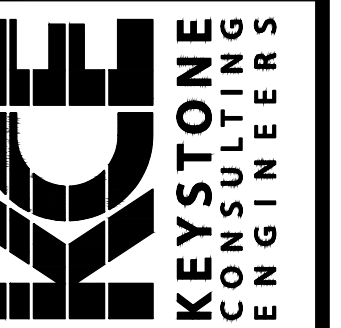
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217420210222-000 FEBRUARY 22, 2021



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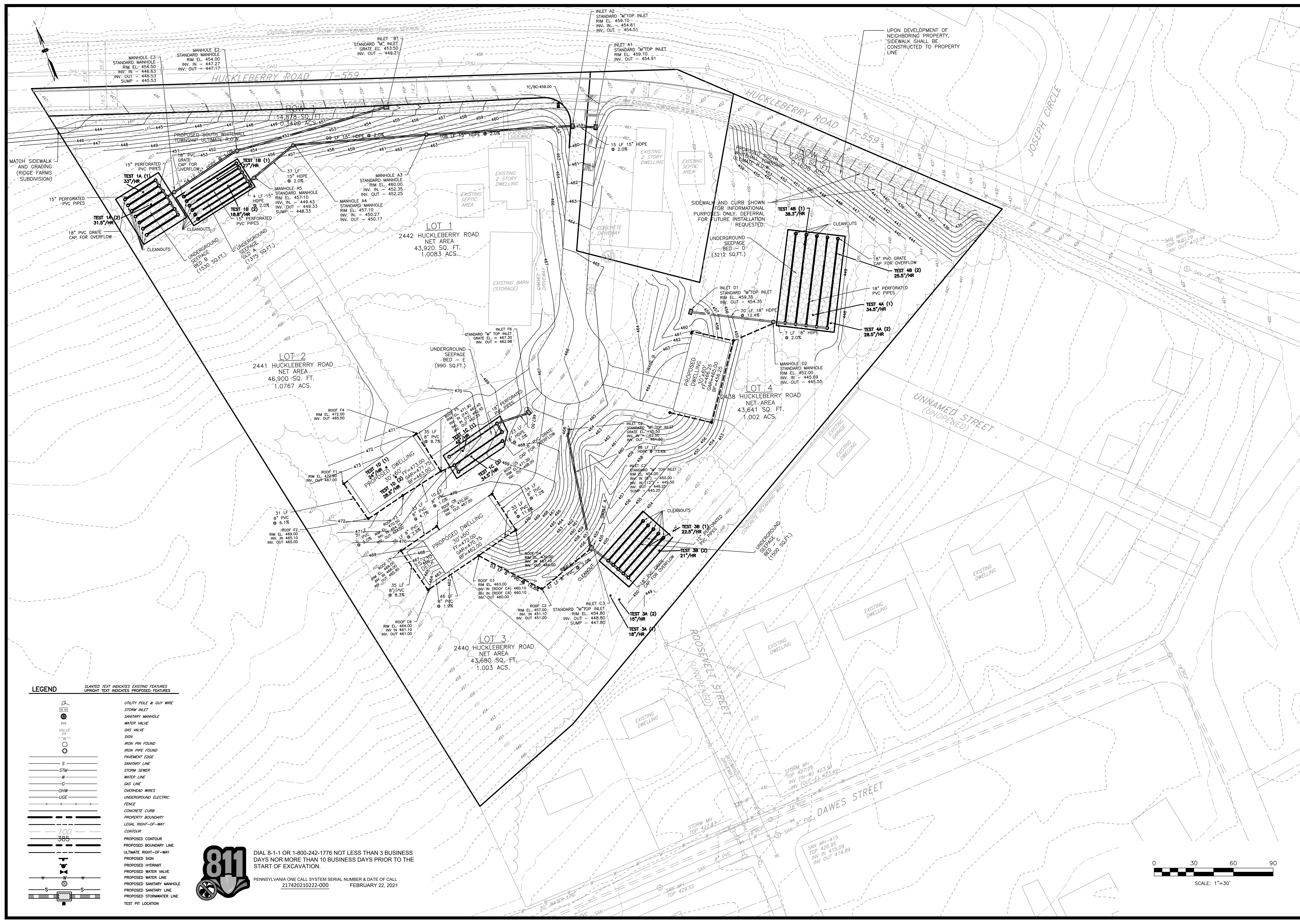
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GARBAGE TRUCK TURN PLAN

RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY: KCE	REVISIONS	DATE
	BY	DATE
DRAWN BY: MSN	MSN	06/16/2021
CHECKED BY: MFC/ARF	MSN	12/16/2021
DATE: MARCH 5, 2021	IMK	09/20/2023
SCALE: 1" = 30'		
JOB NUMBER: CW-20-128		
SHEET: 8 OF 23		



LEGEND

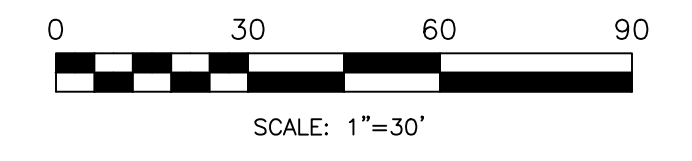
SLANTED TEXT INDICATES EXISTING FEATURES
 UPRIGHT TEXT INDICATES PROPOSED FEATURES

	UTILITY POLE & GUY WIRE
	STORM INLET
	SANITARY MANHOLE
	WATER VALVE
	GAS VALVE
	SIGN
	IRON PIN FOUND
	IRON PIPE FOUND
	PAVEMENT EDGE
	SANITARY LINE
	STORM SEWER
	WATER LINE
	GAS LINE
	OVERHEAD WIRES
	UNDERGROUND ELECTRIC
	FENCE
	CONCRETE CURB
	PROPERTY BOUNDARY
	LEGAL RIGHT-OF-WAY
	CONTOUR
	PROPOSED CONTOUR
	PROPOSED BOUNDARY LINE
	ULTIMATE RIGHT-OF-WAY
	PROPOSED SIGN
	PROPOSED HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER LINE
	PROPOSED SANITARY MANHOLE
	PROPOSED SANITARY LINE
	PROPOSED STORMWATER LINE
	TEST PIT LOCATION

811

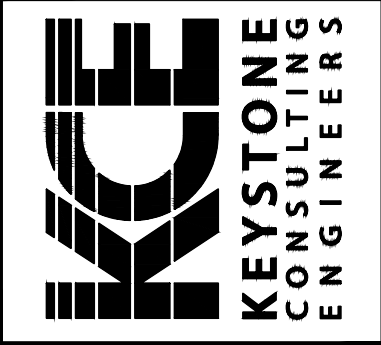
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PENNSYLVANIA ONE CALL SYSTEM SERIAL NUMBER & DATE OF CALL
 217420210222-000 FEBRUARY 22, 2021



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Engineering firm of choice since 1972

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GRADING & DRAINAGE PLAN
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

REVISIONS	
BY	DATE
MSN	06/16/2021
MSN	12/16/2021
JMK	09/20/2023

DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	March 05, 2021
SCALE:	1" = 30'
JOB NUMBER:	CW-20-128
SHEET:	9 OF 23



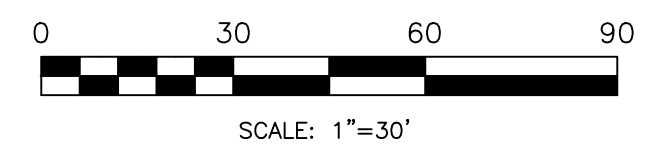
LEGEND

SLANTED TEXT INDICATES EXISTING FEATURES
 UPRIGHT TEXT INDICATES PROPOSED FEATURES

	UTILITY POLE & GUY WIRE
	STORM INLET
	SANITARY MANHOLE
	WATER VALVE
	GAS VALVE
	SIGN
	IRON PIN FOUND
	IRON PIPE FOUND
	PAVEMENT EDGE
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	ULTIMATE RIGHT-OF-WAY
	PROPOSED SIGN
	PROPOSED HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER LINE
	PROPOSED SANITARY MANHOLE
	PROPOSED SANITARY LINE
	PROPOSED STORMWATER LINE

811 DIAL 8-1-1 OR 1-800-242-1776 NOT LESS THAN 3 BUSINESS DAYS NOR MORE THAN 10 BUSINESS DAYS PRIOR TO THE START OF EXCAVATION.

PENNSYLVANIA ONE CALL SYSTEM SERIAL NUMBER & DATE OF CALL
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UTILITY PLAN	
RUE MINOR SUBDIVISION	
PRELIMINARY/FINAL PLAN	
2442 HUCKLEBERRY ROAD	
SOUTH WHITEHALL TOWNSHIP	
LEHIGH COUNTY, PENNSYLVANIA	
DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	March 05, 2021
SCALE:	1" = 30'
JOB NUMBER:	CW-20-128
SHEET:	10 OF 23

REVISIONS	DATE
BY	DATE
MSN	06/16/2021
MSN	12/16/2021
JMK	09/20/2023



LEGEND

SLANTED TEXT INDICATES EXISTING FEATURES
UPRIGHT TEXT INDICATES PROPOSED FEATURES

	UTILITY POLE & GUY WIRE
	STORM INLET
	SANITARY MANHOLE
	WATER VALVE
	GAS VALVE
	SIGN
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	SANITARY LINE
	STORM SEWER
	WATER LINE
	GAS LINE
	OVERHEAD WIRES
	UNDERGROUND ELECTRIC
	FENCE
	CONCRETE CURB
	PROPERTY BOUNDARY
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	CONTOUR
	PROPOSED BOUNDARY LINE
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	PROPOSED SIGN
	PROPOSED HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER LINE
	PROPOSED SANITARY MANHOLE
	PROPOSED SANITARY LINE
	PROPOSED STORMWATER LINE
	TEST PIT LOCATION

LANDSCAPE PLAN LEGEND

DECIDUOUS TREE



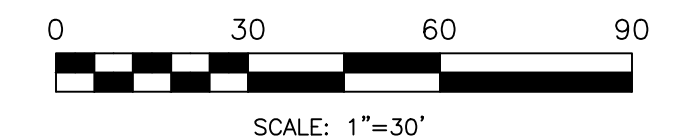
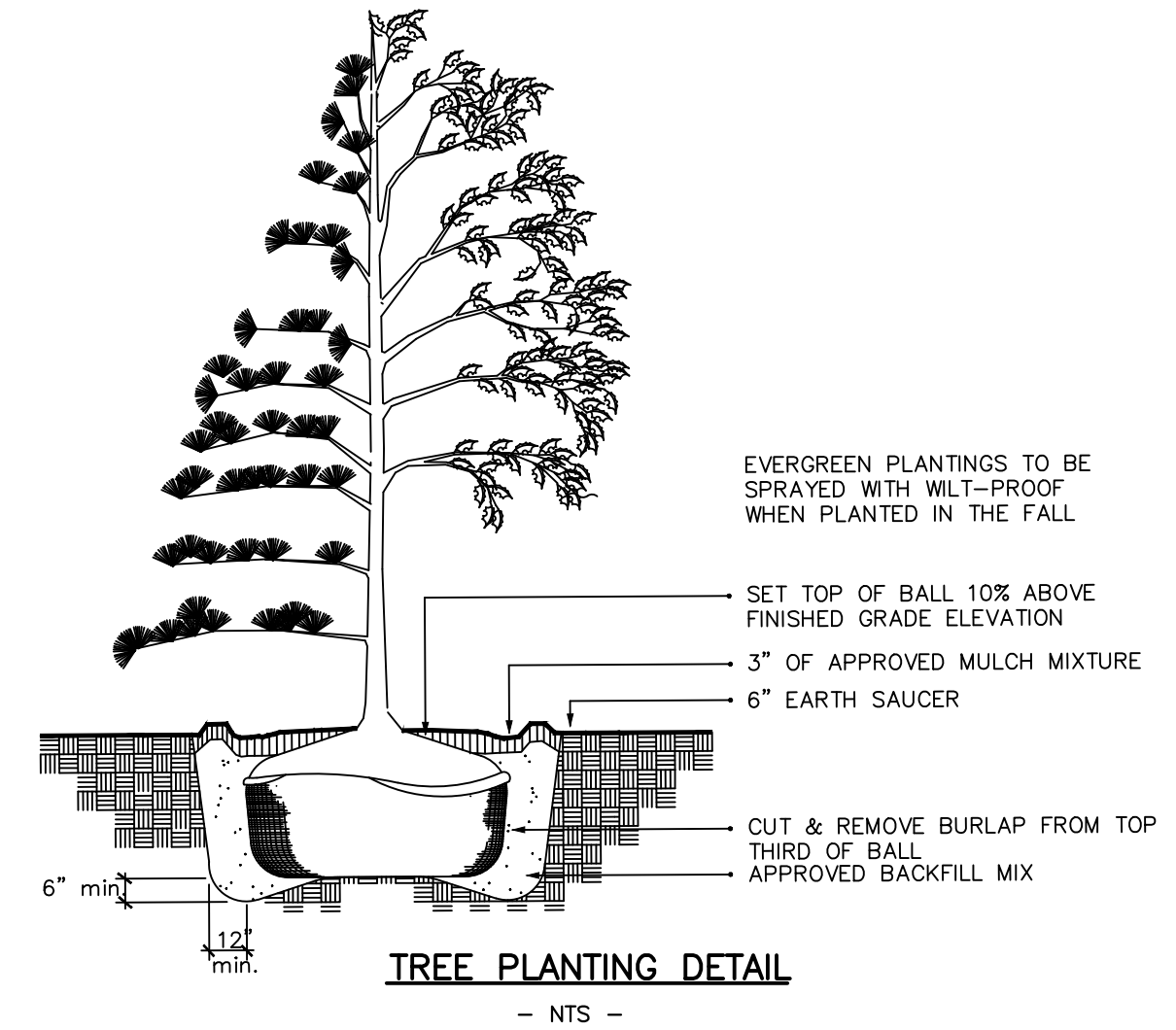
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PENNSYLVANIA ONE CALL SYSTEM SERIAL NUMBER & DATE OF CALL
217420210222-000 FEBRUARY 22, 2021

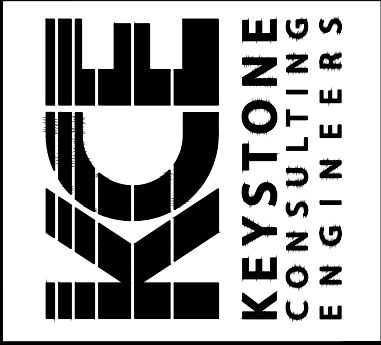
PLANT SCHEDULE

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	FAMILY	SIZE	CONDITION	COMMENTS
STREET TREES							
AR	8	ACER RUBRUM 'RED SUNSET'	RED MAPLE	ACERACEAE	2" - 2 1/2" CAL.	B&B	
PA	5	PLATANUS x ACERIFOLIA 'BLOODGOOD'	LONDON PLANETREE	PLATANACEAE	2" - 2 1/2" CAL.	B&B	
ZS	6	ZELKOVA SERRATA 'GREEN VASE'	JAPANESE ZELKOVA	ULMACEAE	2" - 2 1/2" CAL.	B&B	

NOTES:
 1. PLANTS SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK, LATEST EDITION.
 2. WHERE DISCREPANCIES OCCUR BETWEEN THE PLAN AND THE PLANT SCHEDULE, THE PLAN SHALL PREVAIL.
 3. INSTALLATION OF SHADE TREES SHALL BE DEFERRED UNTIL AFTER THE INSTALLATION OF PROPOSED SIDEWALKS.



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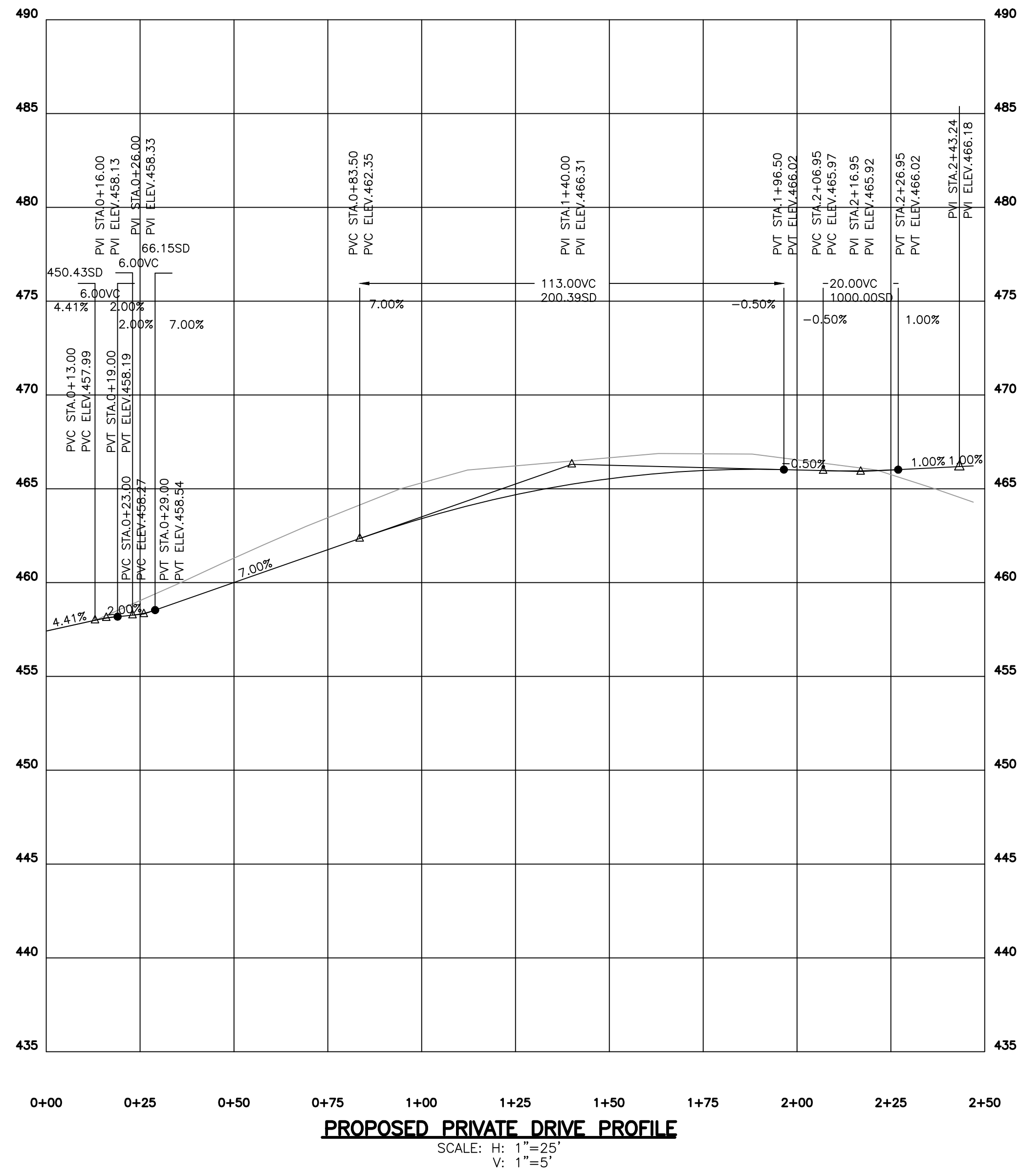
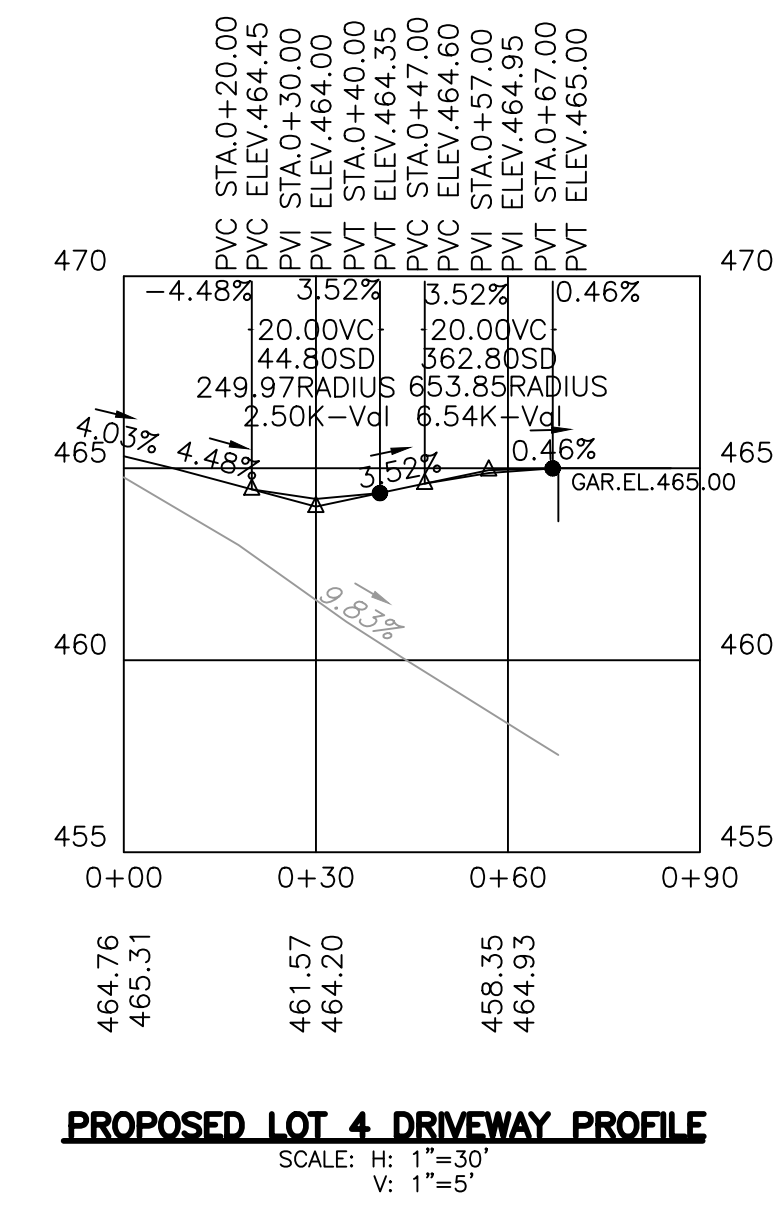
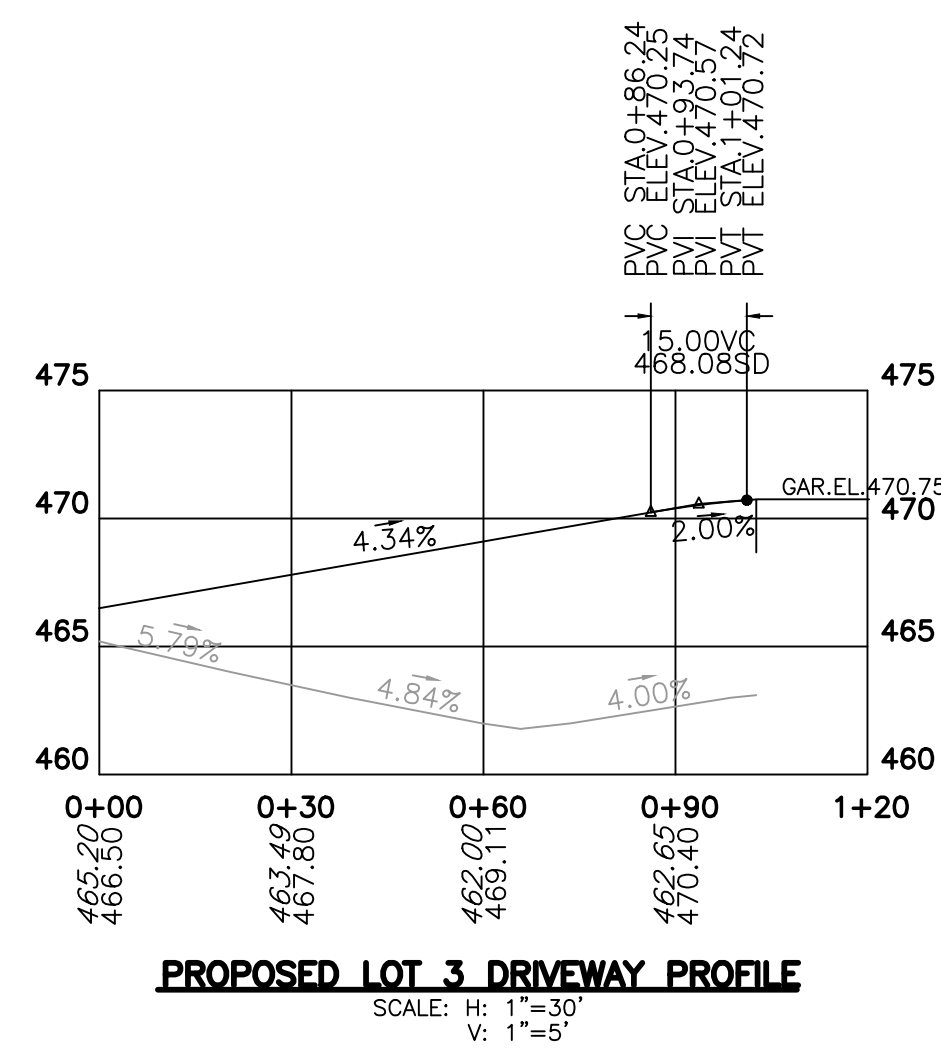
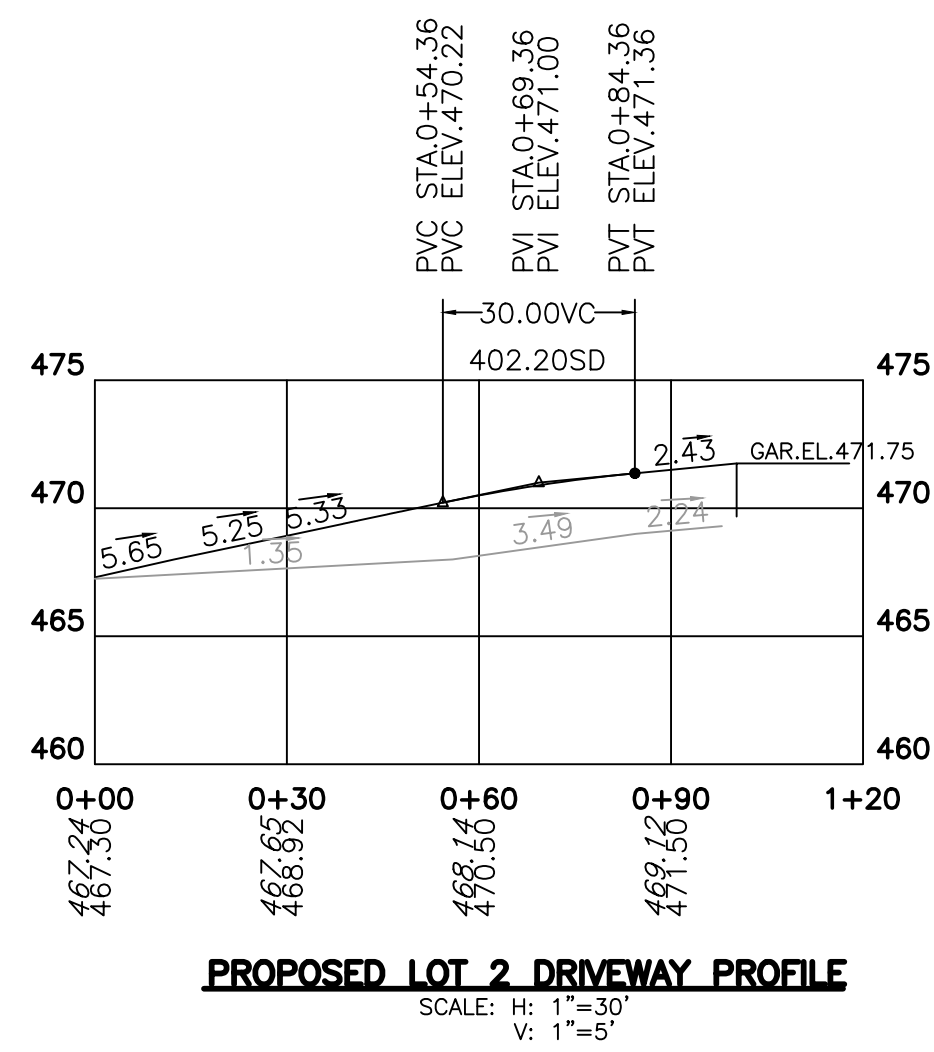


LANDSCAPE PLAN
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

REVISIONS

BY	DATE
MSN	06/16/2021
MSN	12/16/2021
IMK	09/20/2023

DESIGNED BY: KCE
 DRAWN BY: MSN
 CHECKED BY: MFC/ARF
 DATE: March 05, 2021
 SCALE: 1" = 30'
 JOB NUMBER: CW-20-128
 SHEET: 11 OF 23

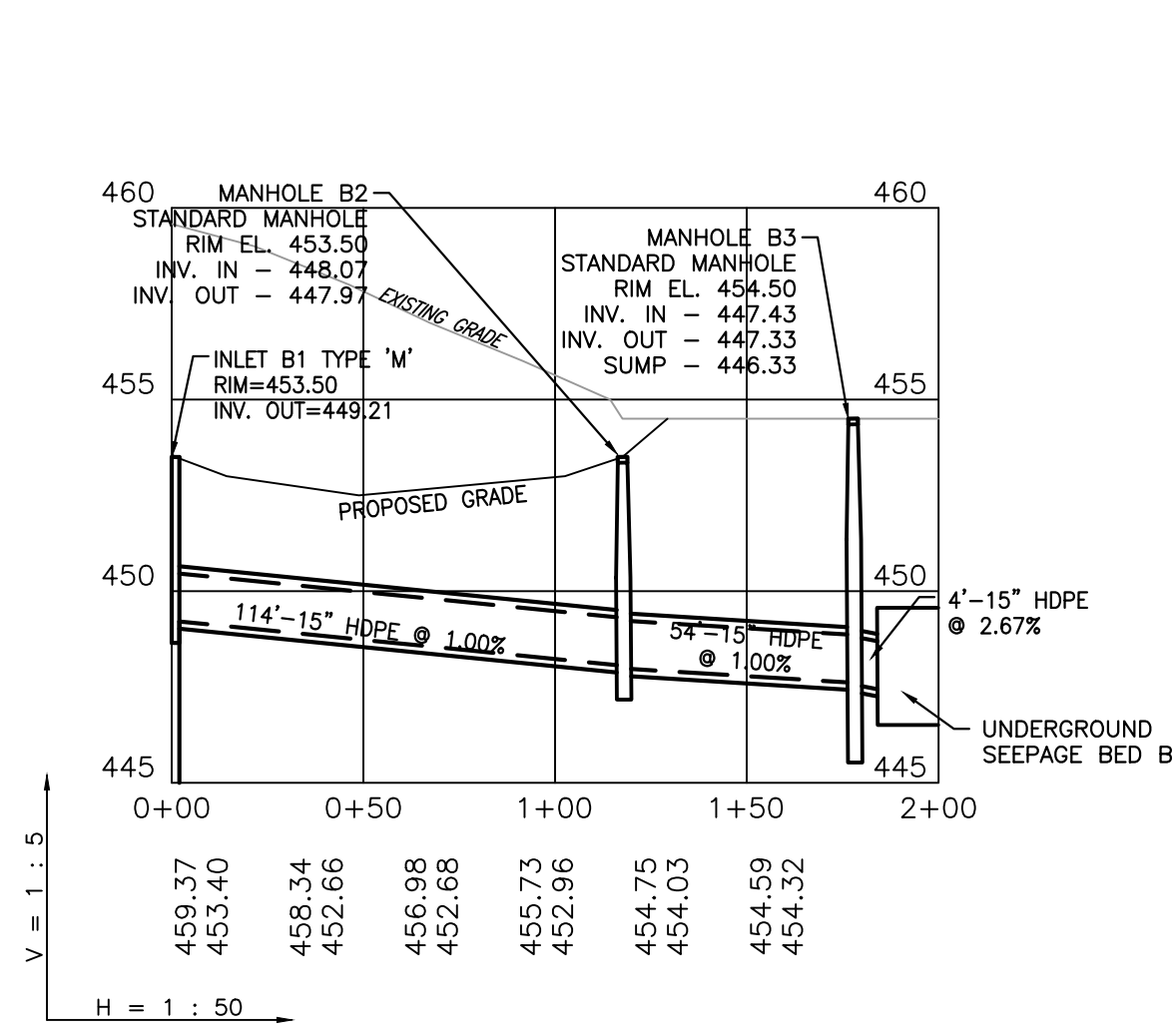
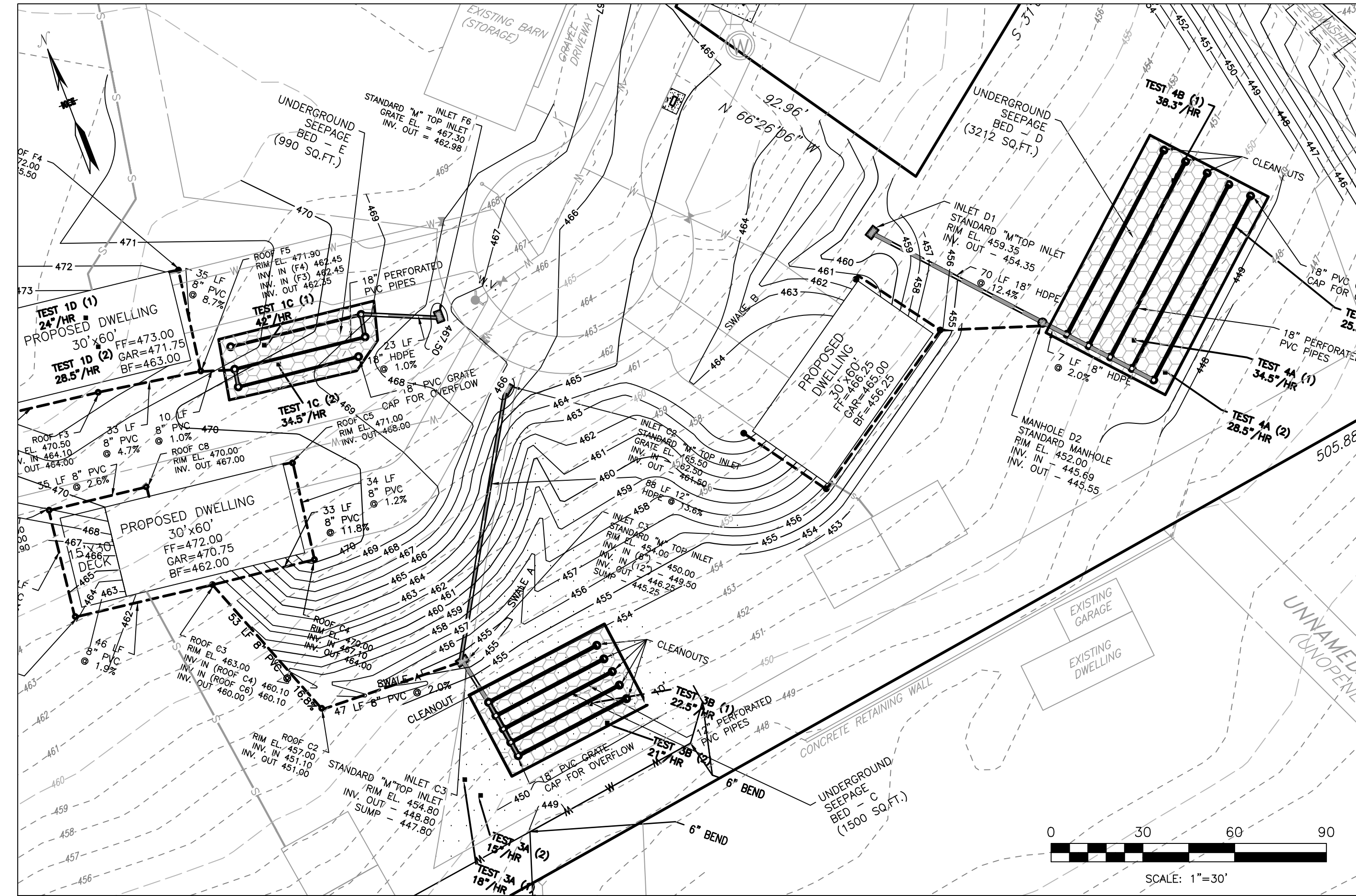
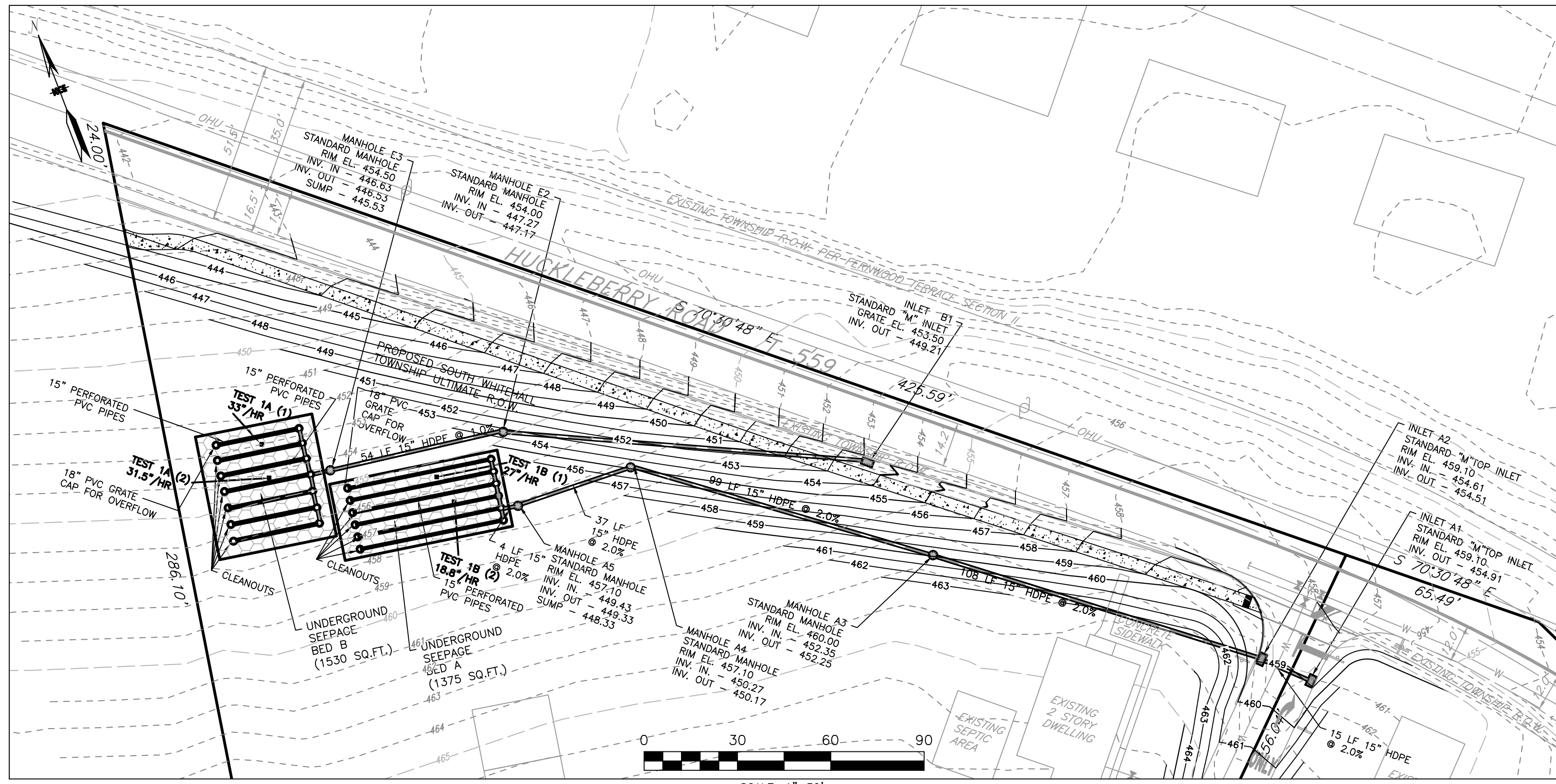


SHARED PRIVATE DRIVEWAY & DRIVEWAY PROFILES

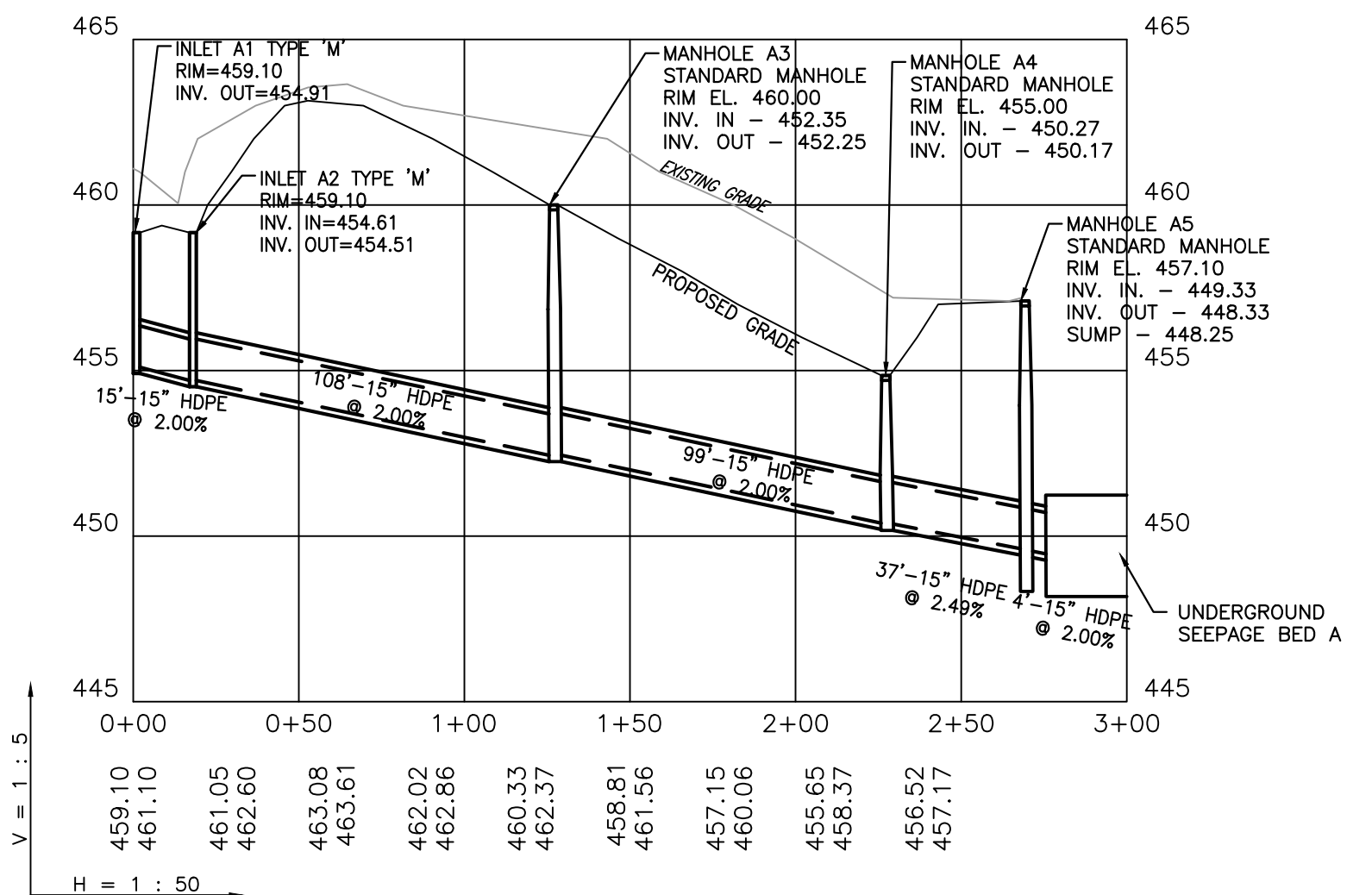
**RUHE MINOR SUBDIVISION
 PRELIMINARY/FINAL PLAN**
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	March 05, 2021
SCALE:	AS SHOWN
JOB NUMBER:	CW-20-128
SHEET:	12 OF 23

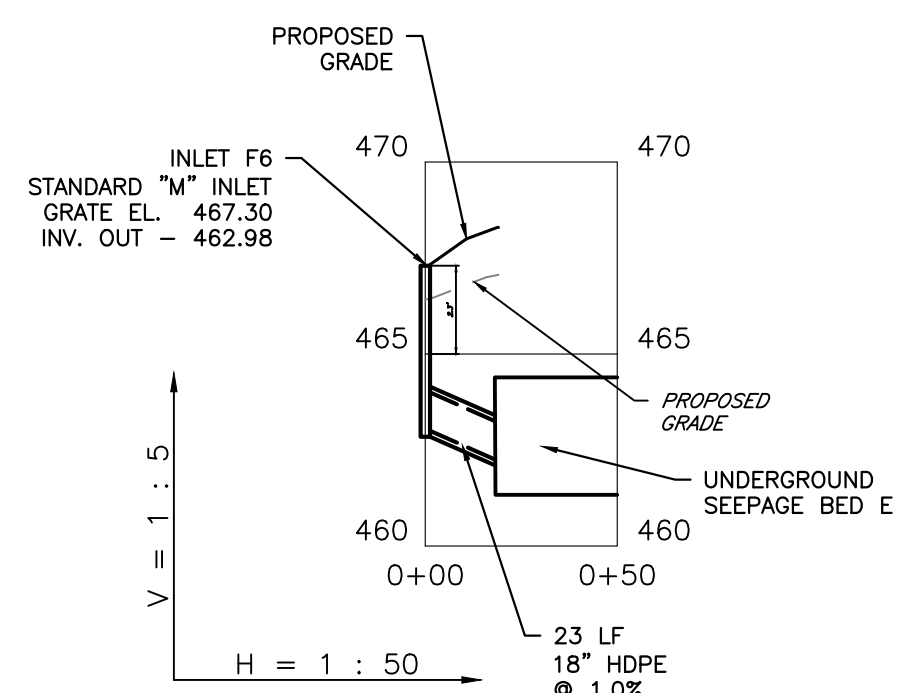
REVISIONS	BY	DATE
1	MSN	06/16/2021
2	MSN	12/16/2021
3	IMK	09/20/2023



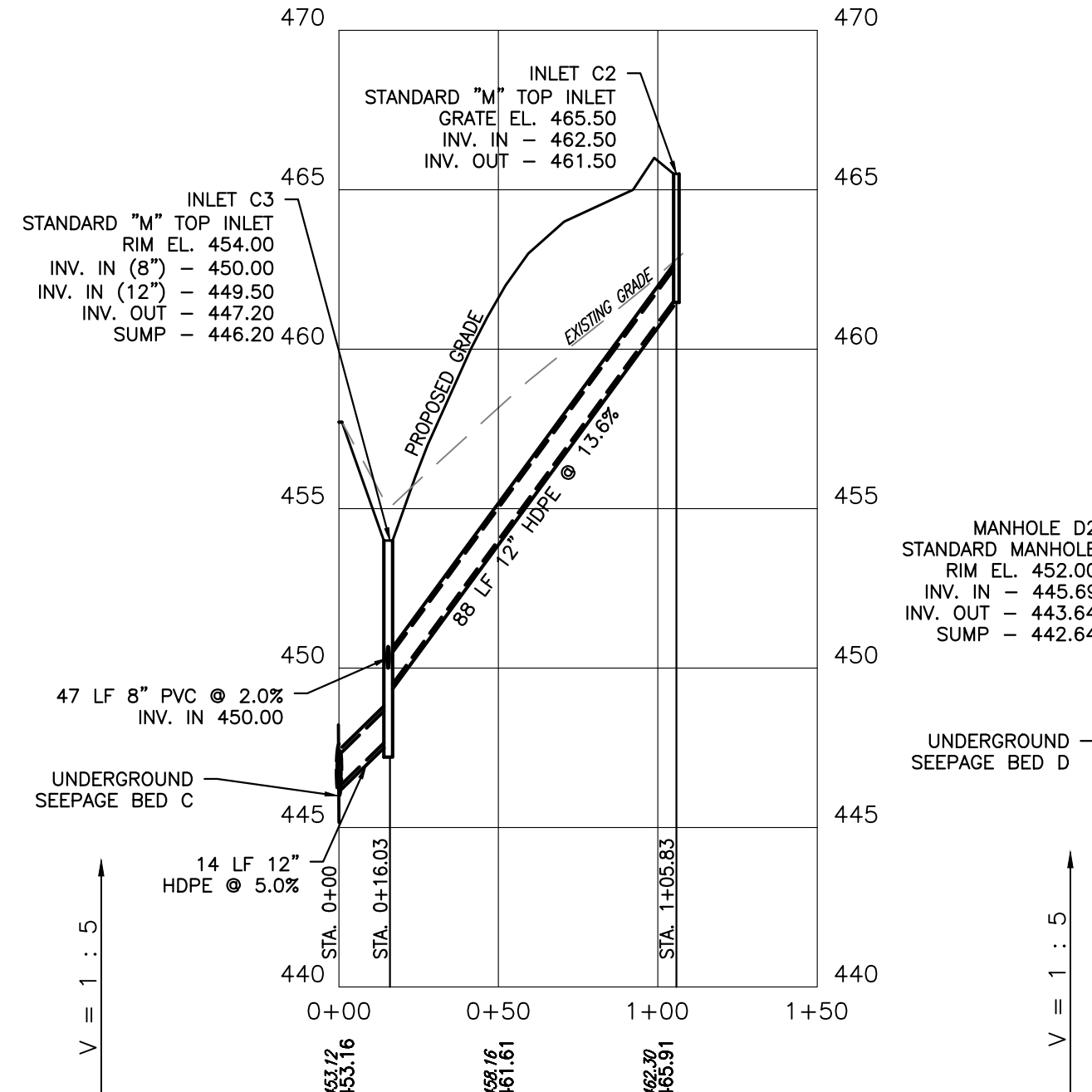
STORM SEWER INLET B1 TO UNDERGROUND SEEPAGE BED B PROFILE



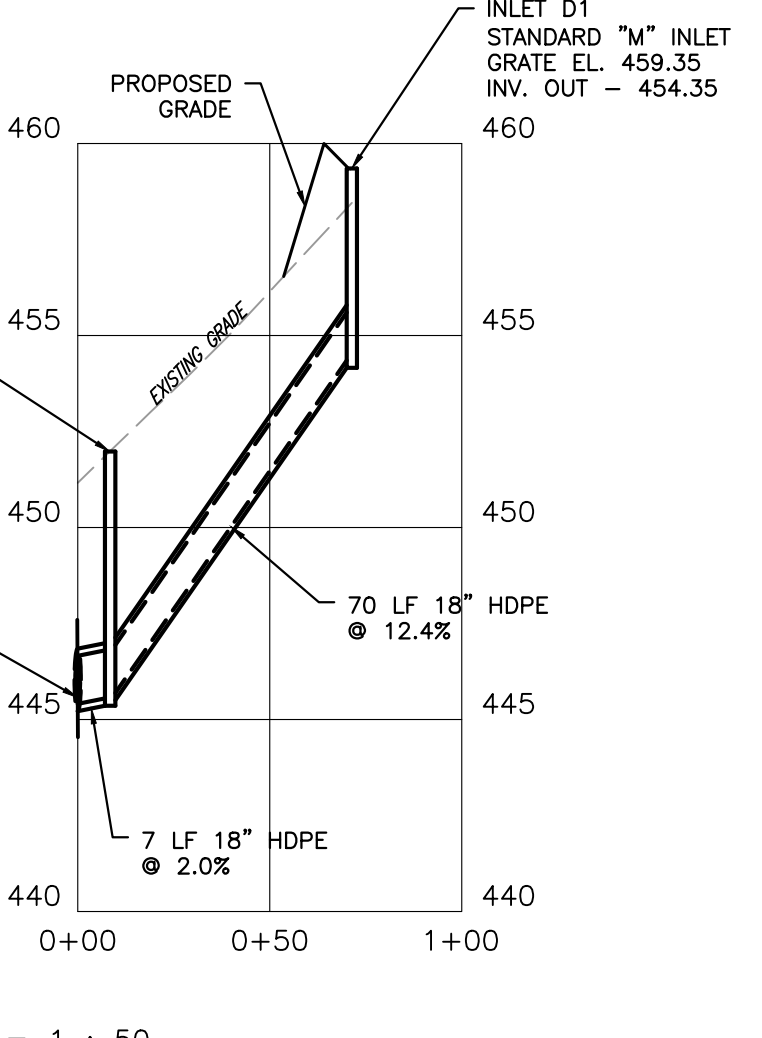
STORM SEWER INLET A1 TO UNDERGROUND SEEPAGE BED A PROFILE



STORM SEWER INLET F6 TO UNDERGROUND SEEPAGE BED E



UNDERGROUND SEEPAGE BED C TO INLET C2



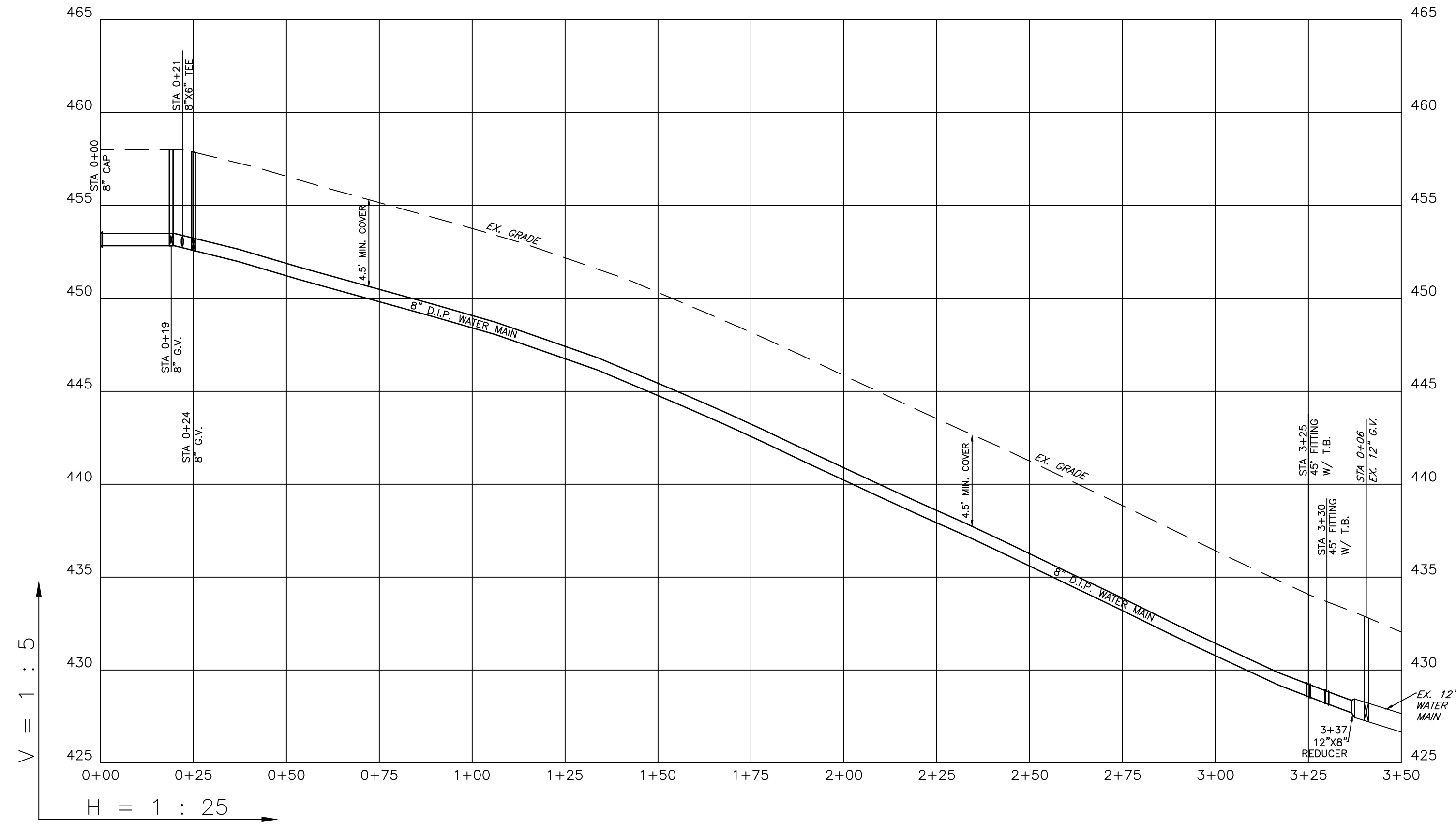
STORM SEWER INLET D1 TO UNDERGROUND SEEPAGE BED D

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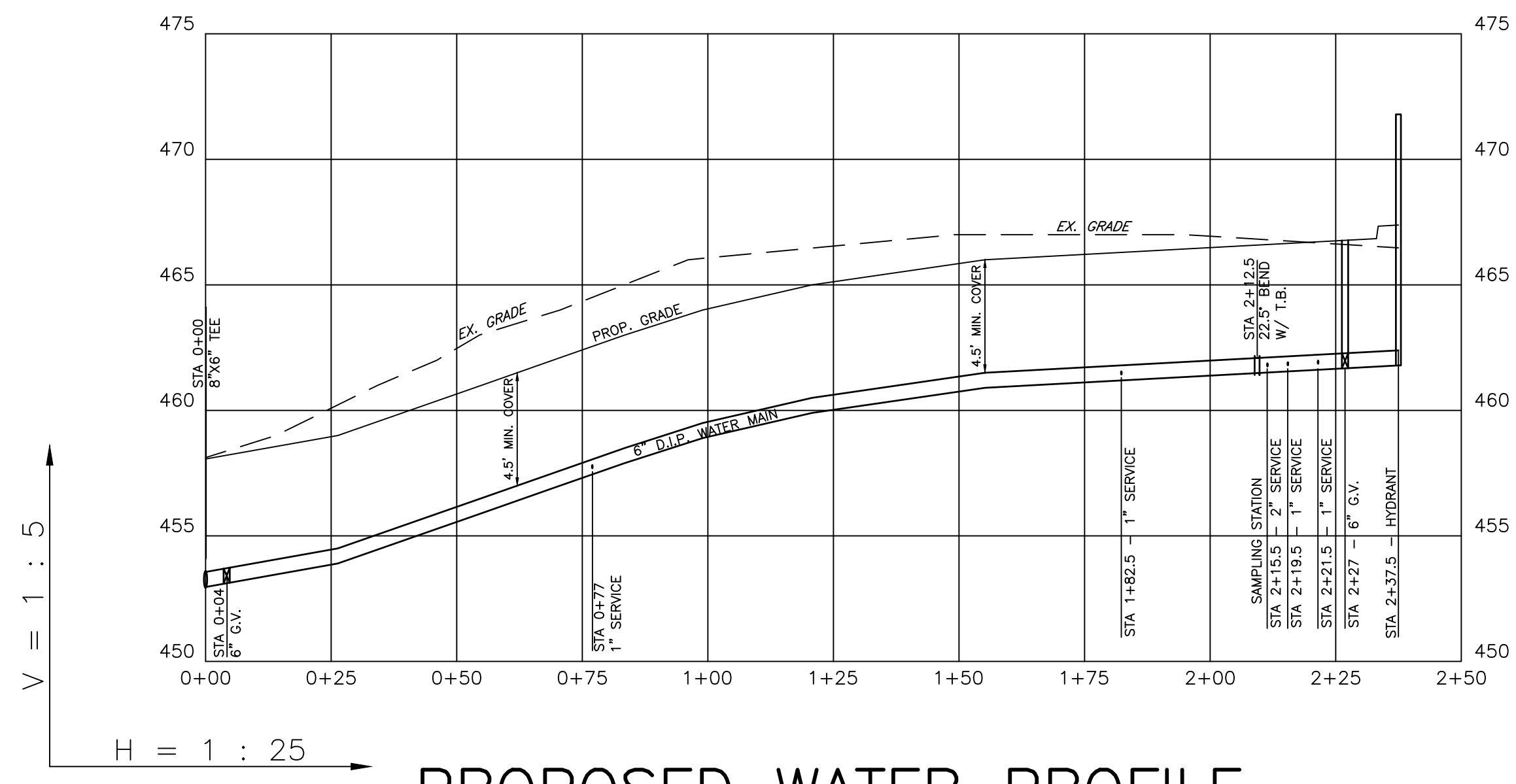


STORMWATER PLAN AND PROFILE
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY:	KCE
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SHEET:	13 OF 23



**PROPOSED WATER PROFILE
HUCKLEBERRY ROAD**



**PROPOSED WATER PROFILE
PRIVATE DRIVE**

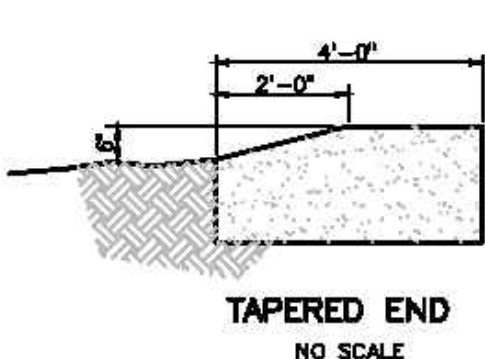
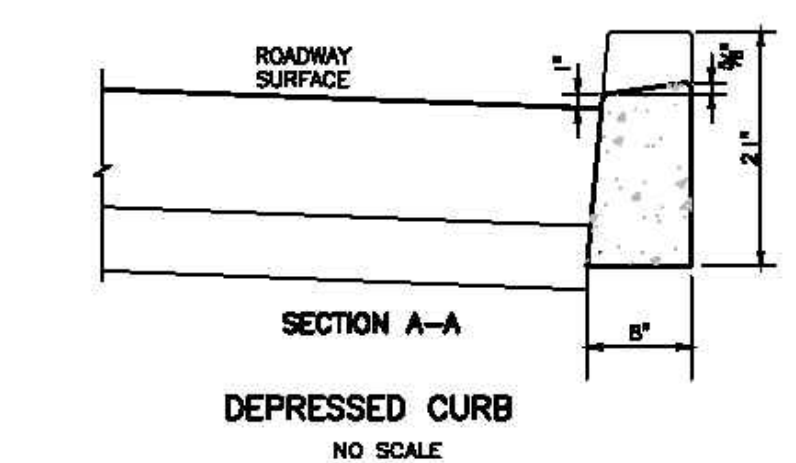
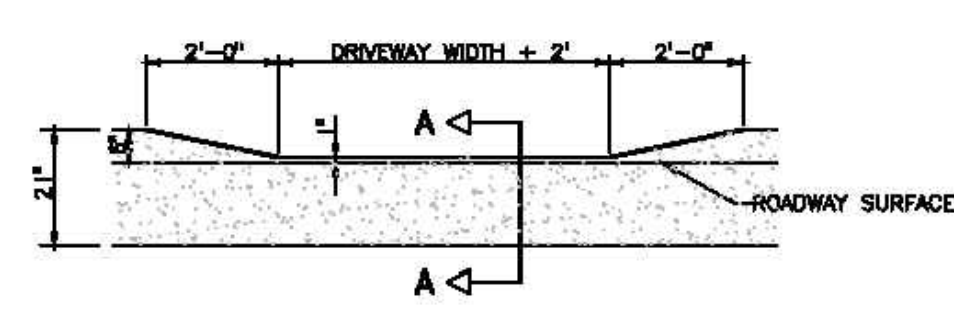
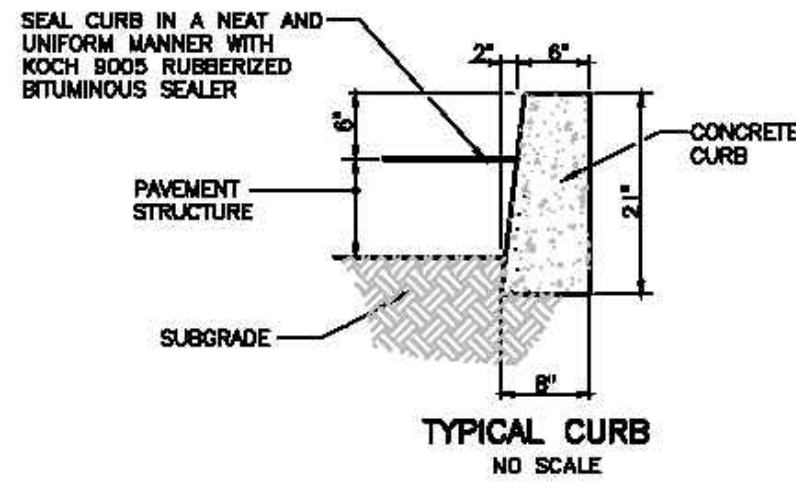
DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	March 05, 2021
SCALE:	AS SHOWN
JOB NUMBER:	CW-20-128
SHEET:	14 OF 23

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	MSN	06/16/2021
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	IMK	09/20/2023

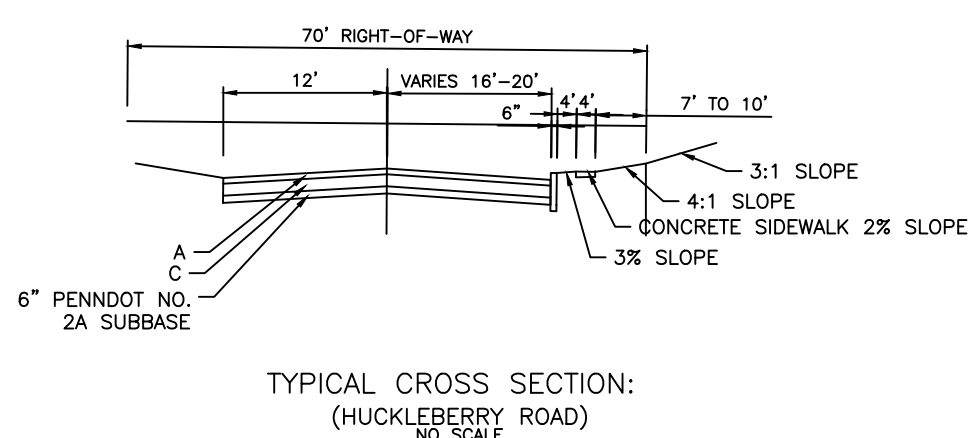
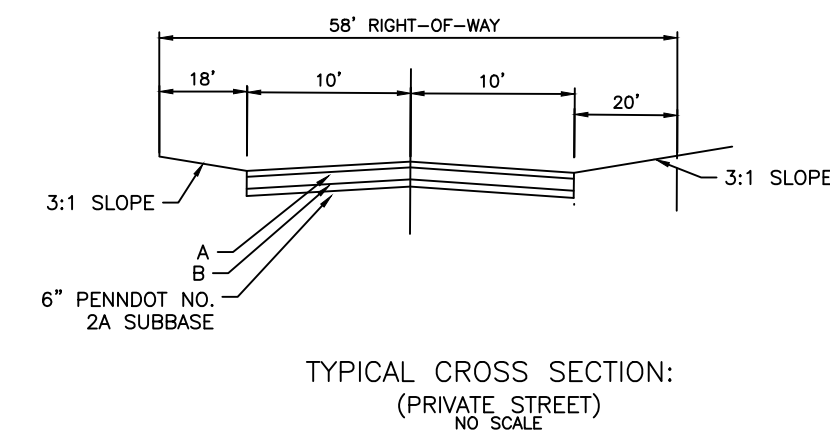
WATER SYSTEM PLAN AND PROFILE
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
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- NOTES:**
- EXISTING CURB REMOVAL SHALL BE IN COMPLETE SECTIONS (JOINT TO JOINT), NOT PARTIAL SECTIONS.
 - PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PENNDOT SPECIFICATIONS, PUBLICATION 408, CURRENT EDITION, SECTION 630.
 - SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS, 10'-0" MAX. TO 4'-0" MIN.
 - PLACE 1/2 INCH BITUMINOUS PREMOULDED EXPANSION JOINT FILLER MATERIAL AT STRUCTURES AND AT THE END OF THE WORK DAY. CUT MATERIAL TO CONFORM TO AREA ADJACENT TO CURB OR TO CONFORM TO CROSS SECTIONAL AREA OF CURB.
 - EXPANSION JOINTS SHALL BE SPACED AS REQUIRED BY THE TOWNSHIP - TYPICALLY 30' O. C.

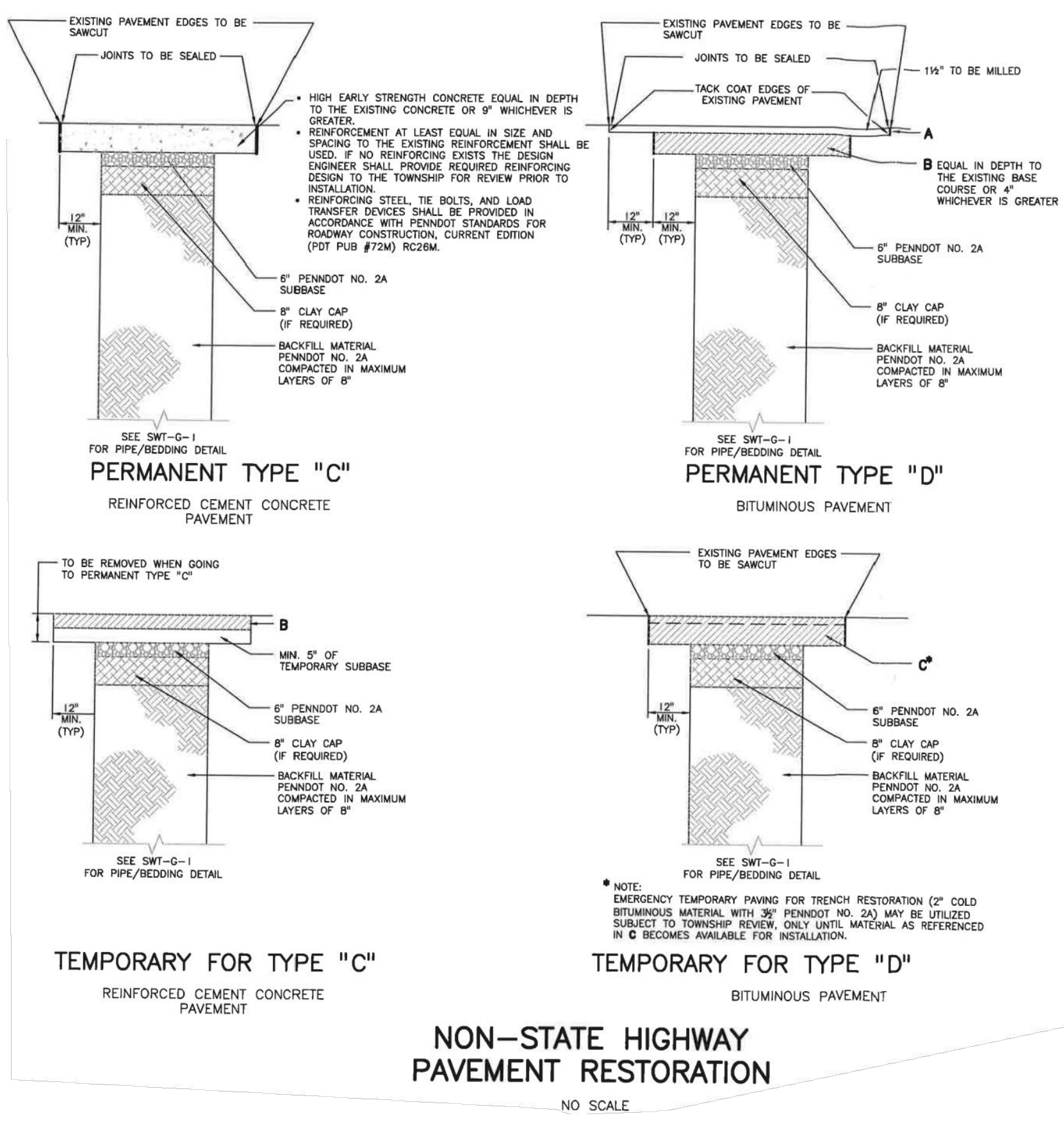
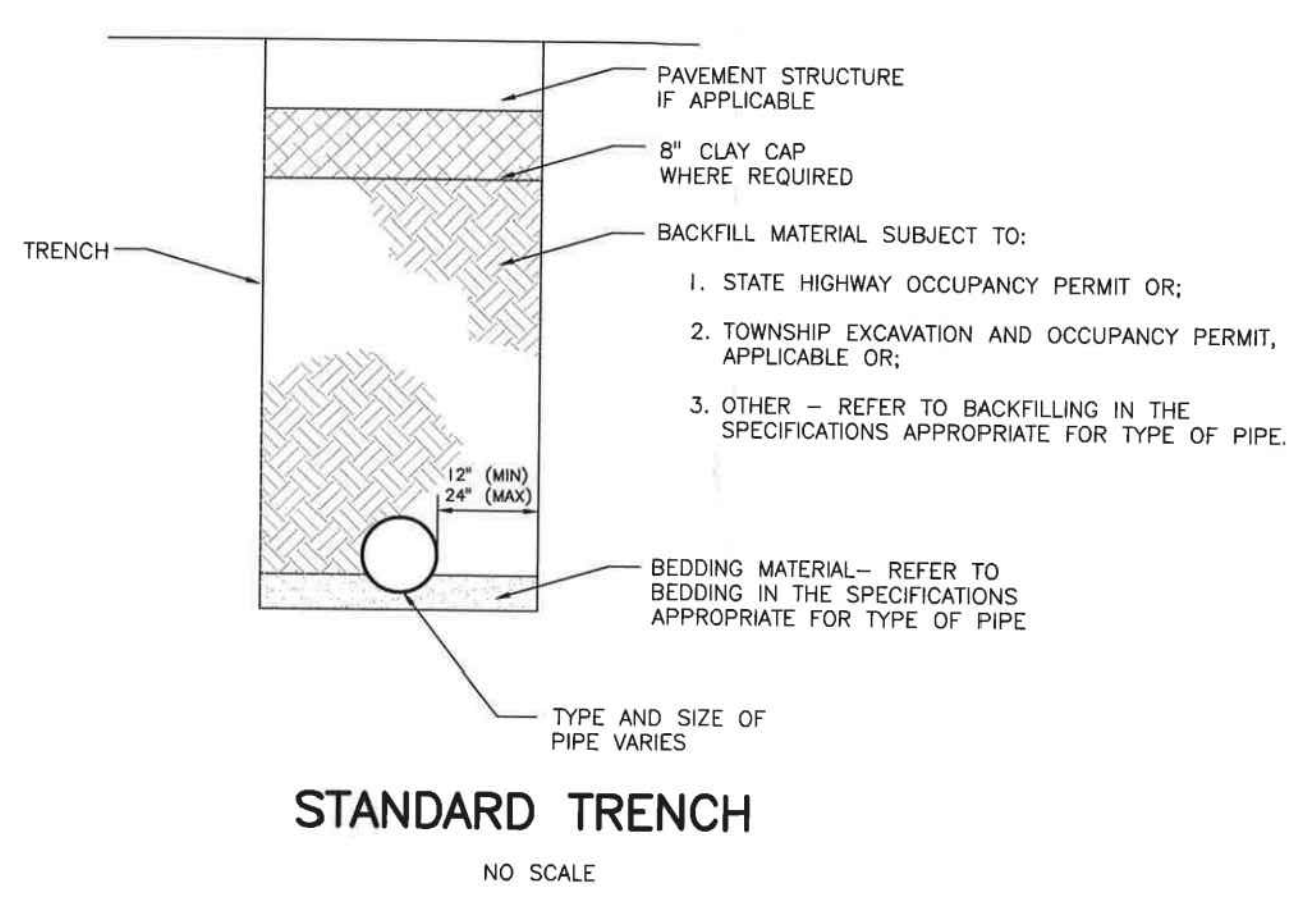
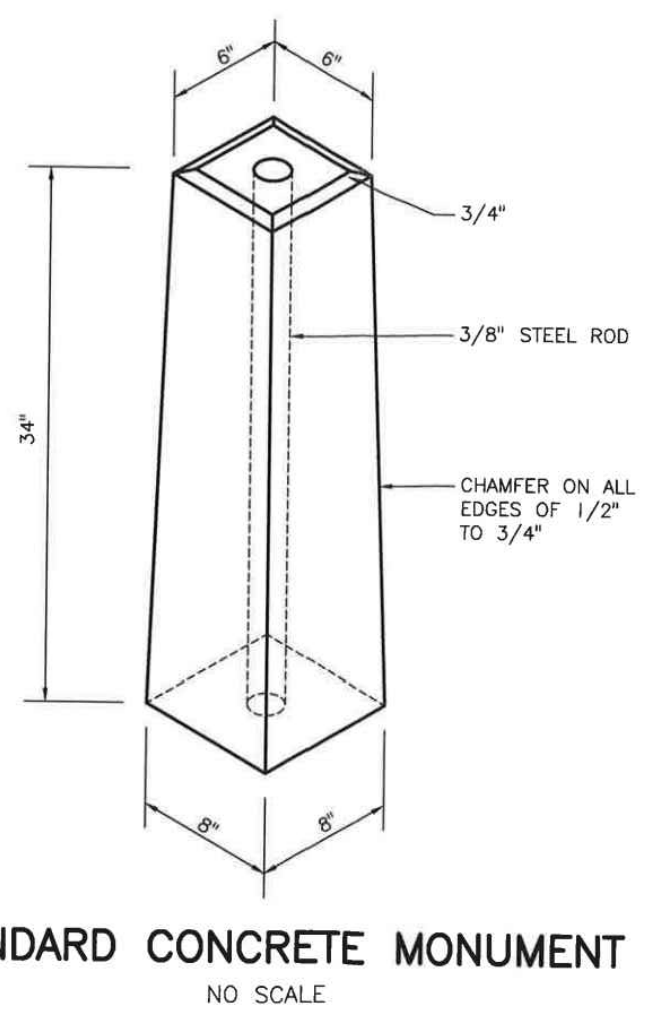


- PAVEMENT MATERIALS:**
- 1 1/2" SUPERPAVE ASPHALT 9.5mm, PG64-22, 0.0 TO 0.3 MILLION ESAL, SRL-L, HMA WEARING COURSE.
 - 4" SUPERPAVE ASPHALT, 25.0mm, PG64-22, 0.0 TO 0.3 MILLION ESAL, HMA BASE COURSE.
 - 4 1/2" SUPERPAVE ASPHALT AS DEFINED IN B.

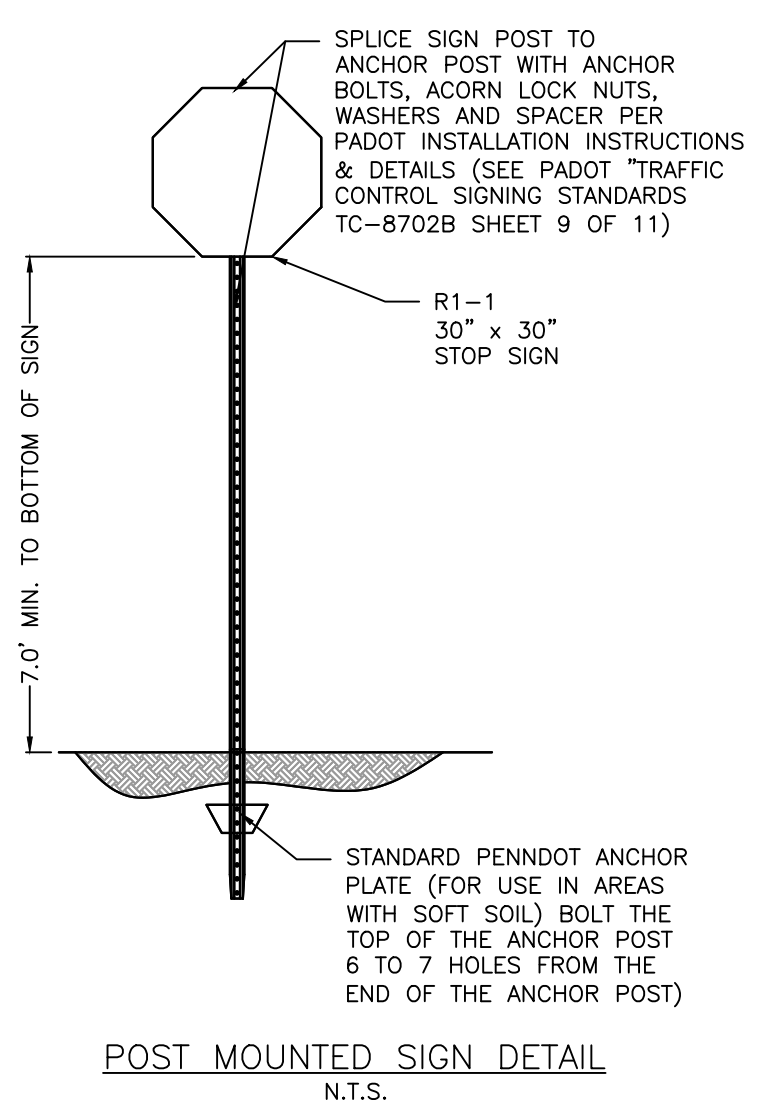
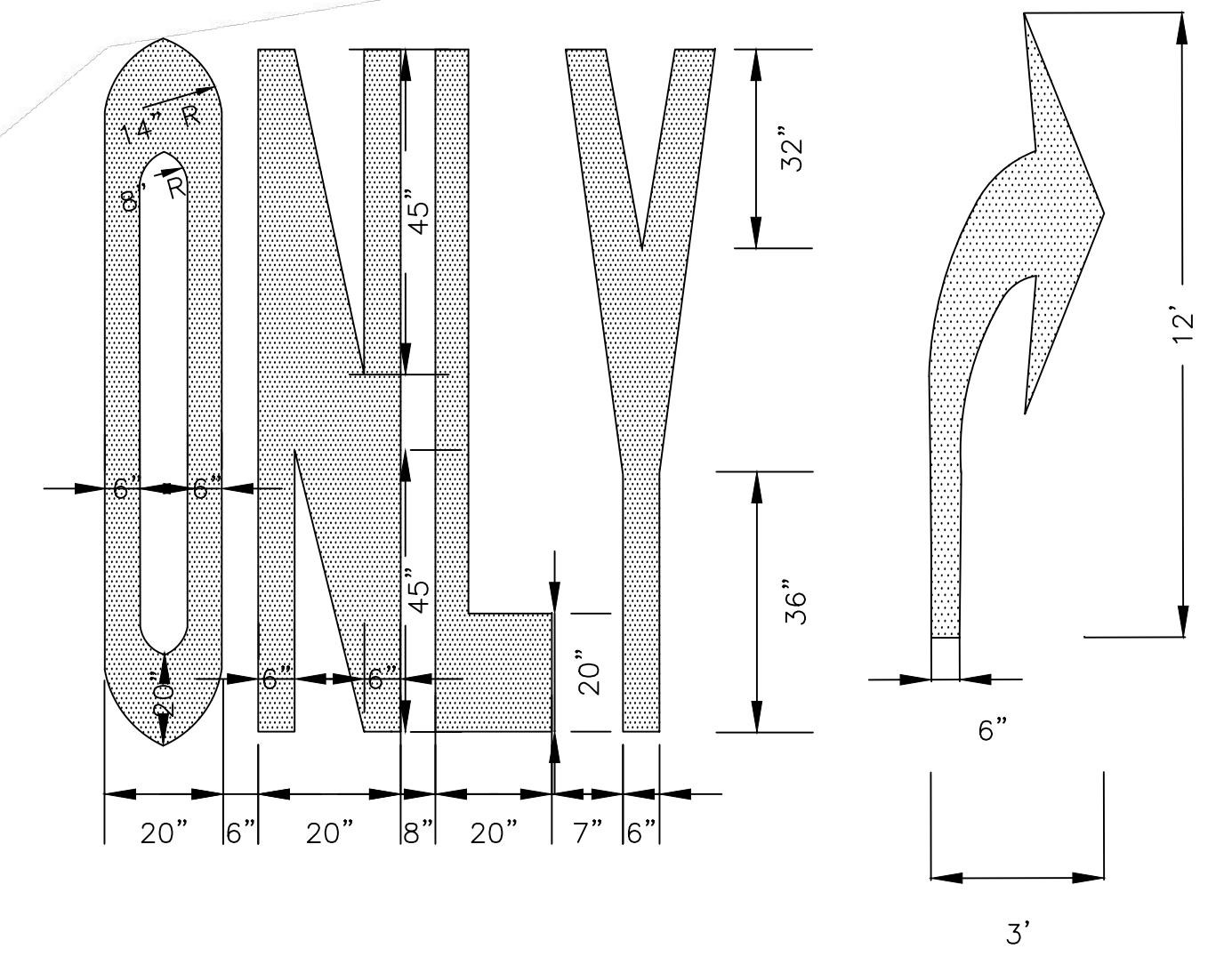
- PAVEMENT NOTES:**
- PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PENNDOT SPECIFICATIONS, PUBLICATION 408, CURRENT EDITION, SECTIONS 203, 204, 205, 206, 210, 309, 350, 409, 630 AND 676.
 - SEAL CURB IN ACCORDANCE WITH CONCRETE CURB DETAILS SWT-R-5.
 - THE FOLLOWING ABBREVIATIONS APPEAR ON THIS SHEET:
 - ESAL - EQUIVALENT SINGLE AXLE LOAD
 - SRL - SKID RESISTANCE LEVEL
 - HMA - HOT MIXED ASPHALT
 - PG - PERFORMANCE GRADE

PROPOSED ROADWAY CROSS SECTIONS

- NOTES:**
- LOCATION: PERMANENT REFERENCE MONUMENTS SHALL BE LOCATED AT EACH STREET INTERSECTION, AT THE BEGINNING AND ENDING OF ALL STREET CURVES, AND AT EXTERIOR CORNERS OF THE SUBDIVISION DESIGNATED BY THE TOWNSHIP ENGINEER.
 - THE DEVELOPER MAY INSTALL MONUMENTS ON ONLY ONE SIDE OF THE STREET PROVIDED THAT ENOUGH MONUMENTS ARE SET TO PERMIT A SURVEYOR TO STAKE OUT ACCURATELY ANY BUILDING LOT ON THE FINAL PLAN.
 - TYPE: REFERENCE MONUMENTS SHALL BE CONSTRUCTED OF STEEL REINFORCED PORTLAND CEMENT TO THE DIMENSIONS SHOWN ON THIS DRAWING, OR AS REVIEWED IN ADVANCE IN WRITING BY THE TOWNSHIP ENGINEER.
 - PLACEMENT: REFERENCED MONUMENTS SHALL BE PLACED SO THAT THE TOP OF THE MONUMENT IS FLUSH WITH FINISH GRADE.



- NOTES:**
- PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PENNDOT SPECIFICATIONS, PUBLICATION 408, CURRENT EDITION, SECTIONS 203, 204, 205, 206, 210, 309, 350 AND 409.
 - PERMANENT BITUMINOUS PAVING TYPE IN TRENCH SHALL MATCH EXISTING TYPE OF PAVING IN THE ROAD.
 - WARNING TAPE SHALL BE PLACED AT A MINIMUM OF 2' ABOVE ANY MANHOLE PIPE OR LATERAL.
- A** - 1 1/2" SUPERPAVE ASPHALT 9.5mm, PG 64-22, 0.0 TO 0.3 MILLION ESAL, SRL-L, HMA WEARING COURSE.
- B** - 4" SUPERPAVE ASPHALT, 25.0mm, PG 64-22, 0.0 TO 0.3 MILLION ESAL, HMA BASE COURSE.
- C** - 5 1/2" SUPERPAVE ASPHALT AS DEFINED IN B.
- NOTES:**
- SEAL CURB IN ACCORDANCE WITH CONCRETE CURB DETAILS SWT-R-5.
 - THE FOLLOWING ABBREVIATIONS APPEAR ON THIS SHEET:
 - ESAL - EQUIVALENT SINGLE AXLE LOAD
 - SRL - SKID RESISTANCE LEVEL
 - HMA - HOT MIXED ASPHALT
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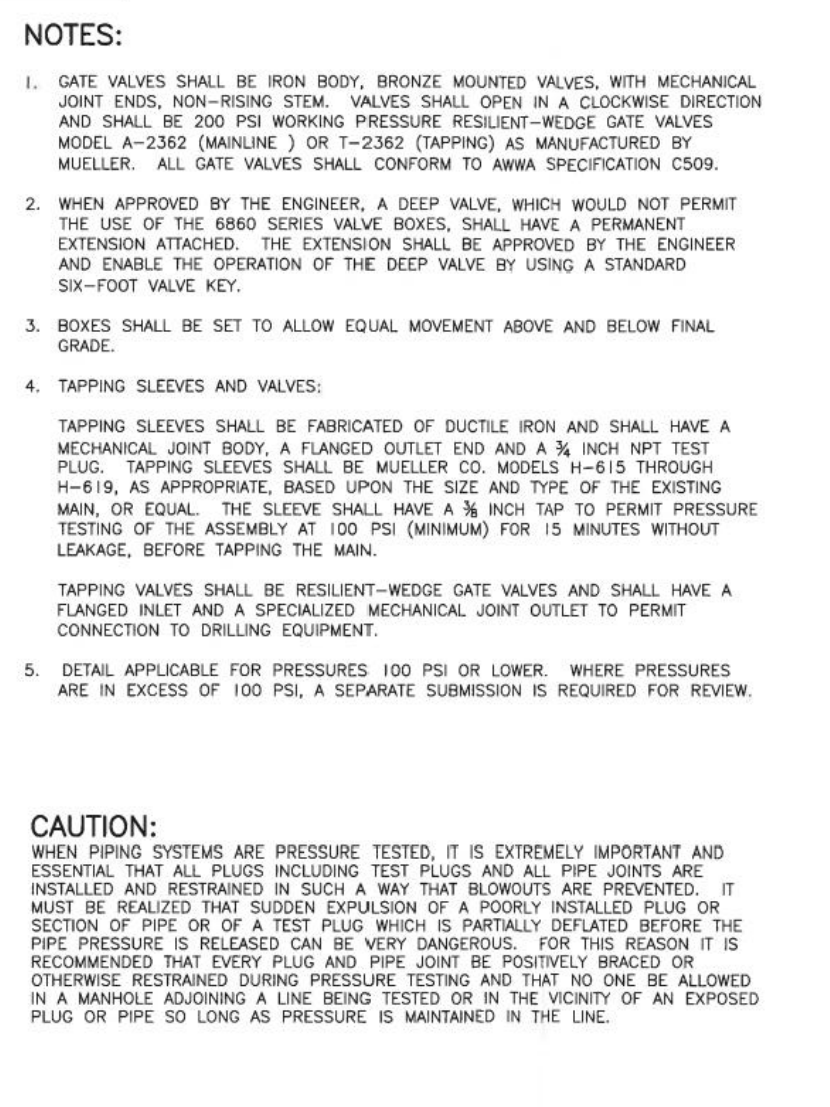
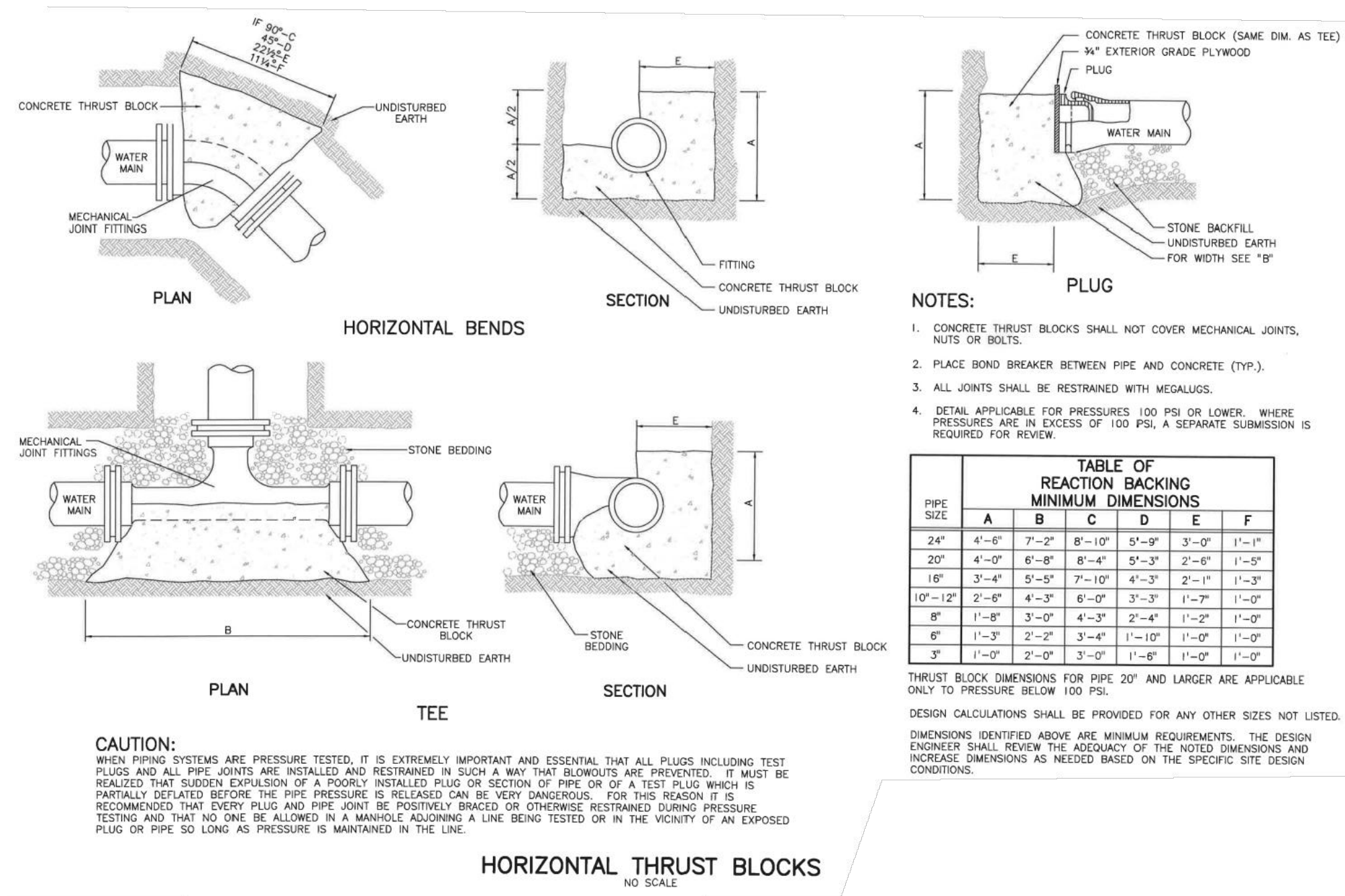


- NOTES:**
- POST MOUNTED SIGNS SHALL BE TYPE B CHANNEL BAR POSTS AND SHALL CONFORM TO PADOT "TRAFFIC CONTROL SIGNING STANDARDS" TC-8702B SHEET 8 THRU 11 OF 11. APPROPRIATE POSTS SHALL BE SELECTED BASED ON THE SIZE OF THE SIGN USING THE SELECTION TABLES CONTAINED THEREIN.
 - SIGN INSTALLATION SHALL BE IN ACCORDANCE WITH PADOT "TRAFFIC CONTROL SIGNING STANDARDS" TC-8702B SHEETS 8 THRU 11 OF 11 AS AMENDED.
 - SEE CIVIL PLANS FOR EXACT LOCATION, TYPE AND SIZE OF SIGNS. ALL REGULATORY (R SERIES) SIGNS SHALL CONFORM TO THE PADOT "HANDBOOK OF APPROVED SIGNS", PUBLICATION 236M, AS AMENDED UNLESS OTHERWISE SPECIFIED.
 - SIGNS SHALL BE SETBACK 2' FROM CURBLINES OR OTHER OBSTRUCTIONS AS MEASURED FROM THE FACE/EDGE OF THE SIGN.
 - RESERVED PARKING SPACE SIGNS SHALL CONFORM TO DEPARTMENT OF JUSTICE "ADA STANDARDS FOR ACCESSIBLE DESIGN" AS AMENDED.
 - ALL SIGNS SHALL BE INSTALLED WITH ACORN NUT FASTENERS.

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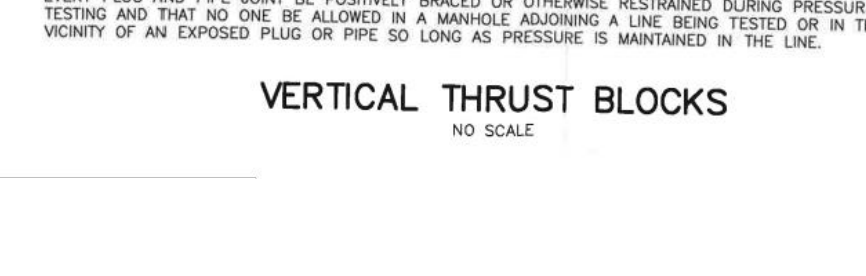
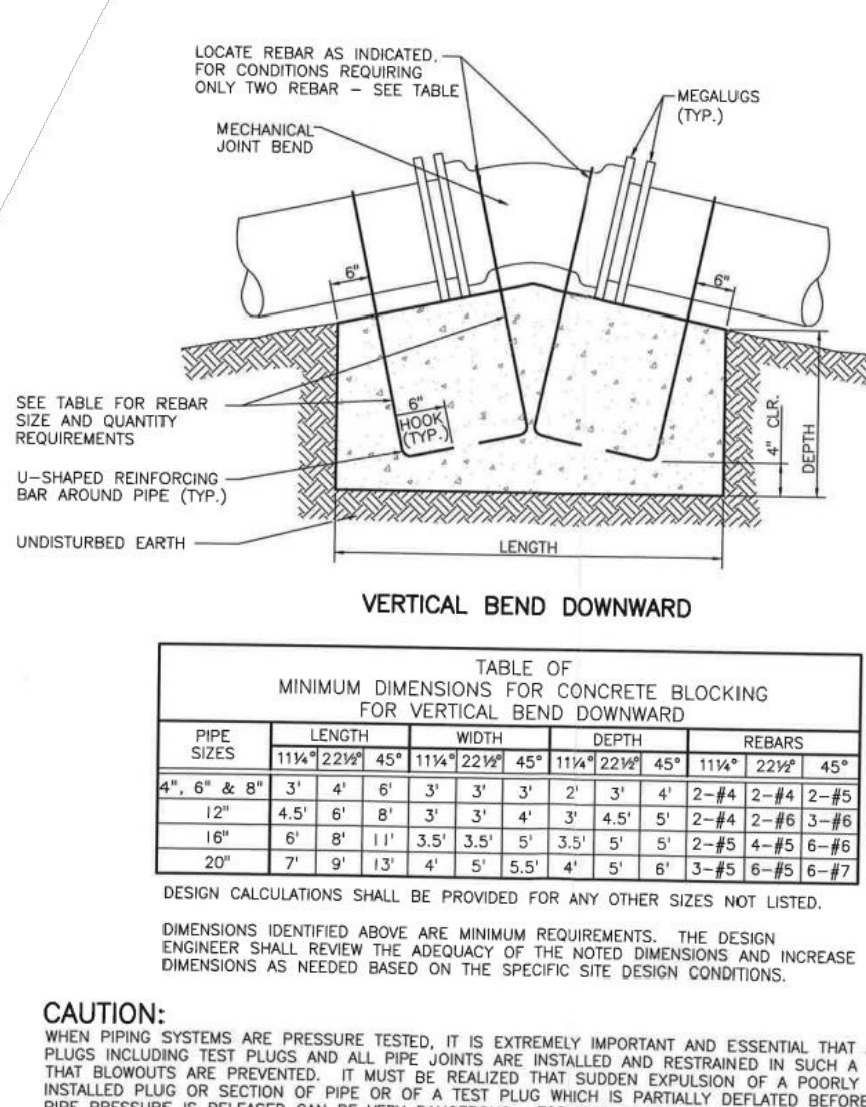
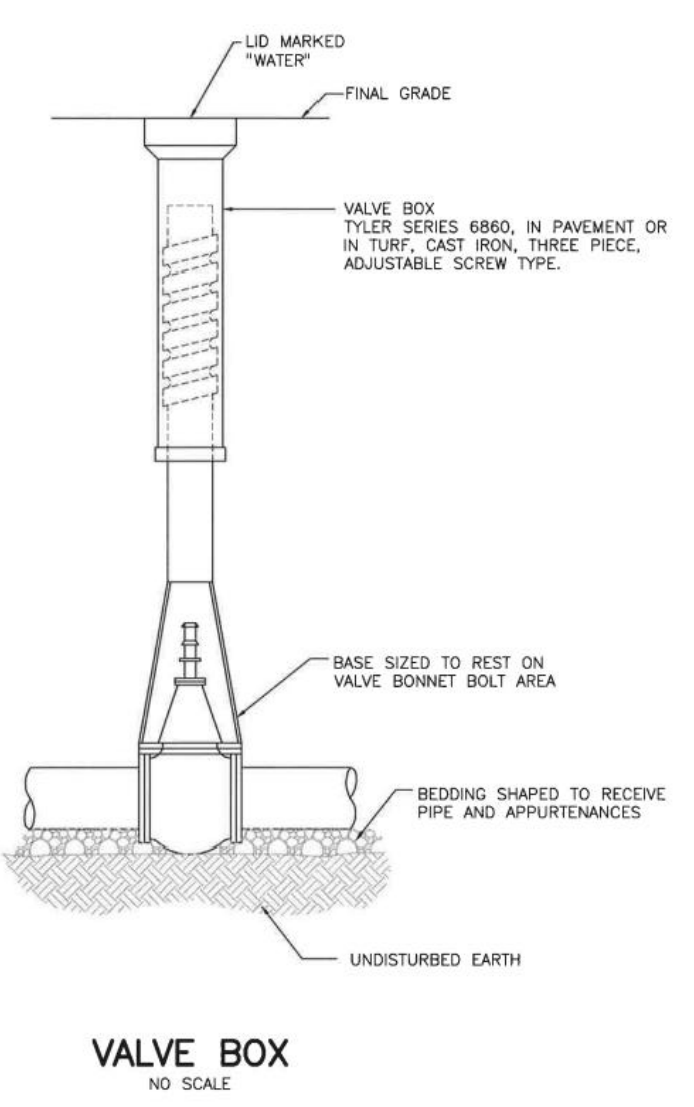
CONSTRUCTION DETAILS	
RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN	
2442 HUCKLEBERRY ROAD	
SOUTH WHITEHALL TOWNSHIP LEHIGH COUNTY, PENNSYLVANIA	
DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	March 05, 2021
SCALE:	AS SHOWN
JOB NUMBER:	CW-20-128
SHEET:	15 OF 23
REVISIONS	
BY:	DATE
MSN	06/16/2021
MSN	12/16/2021
IMK	09/20/2023



NOTES:

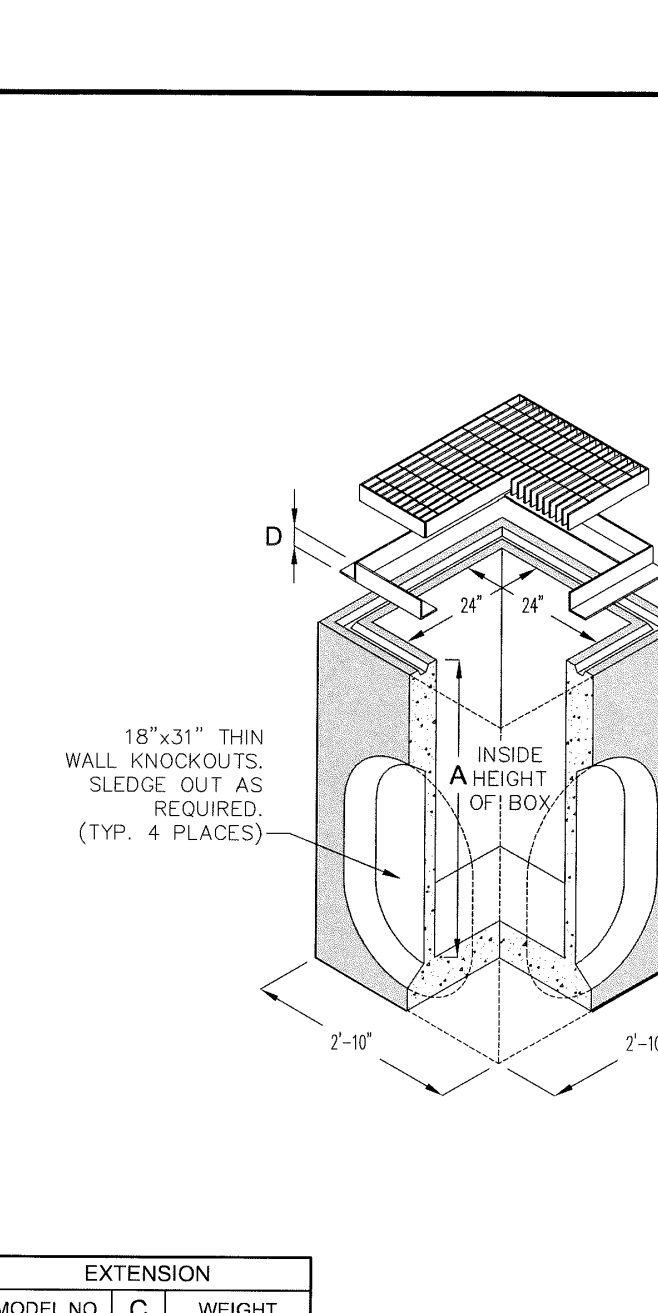
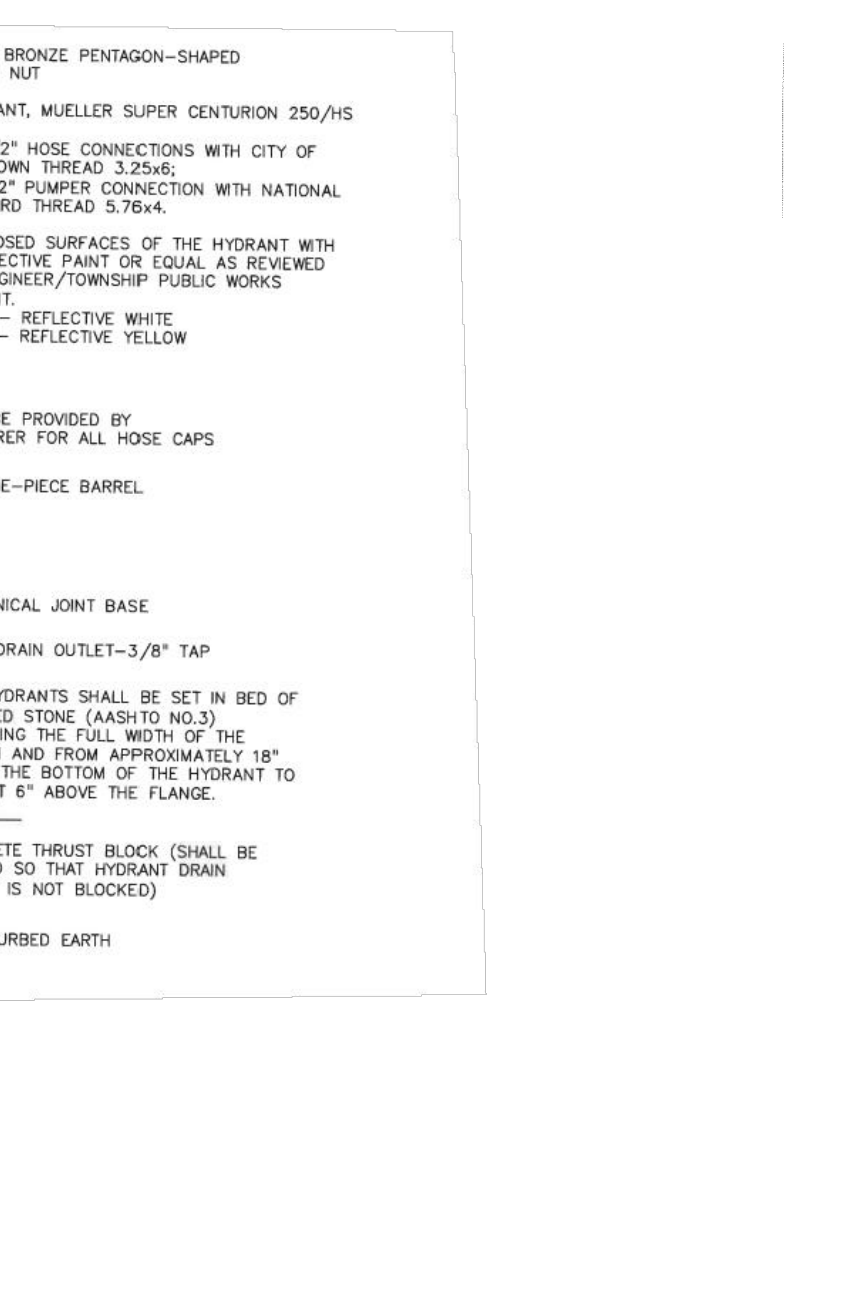
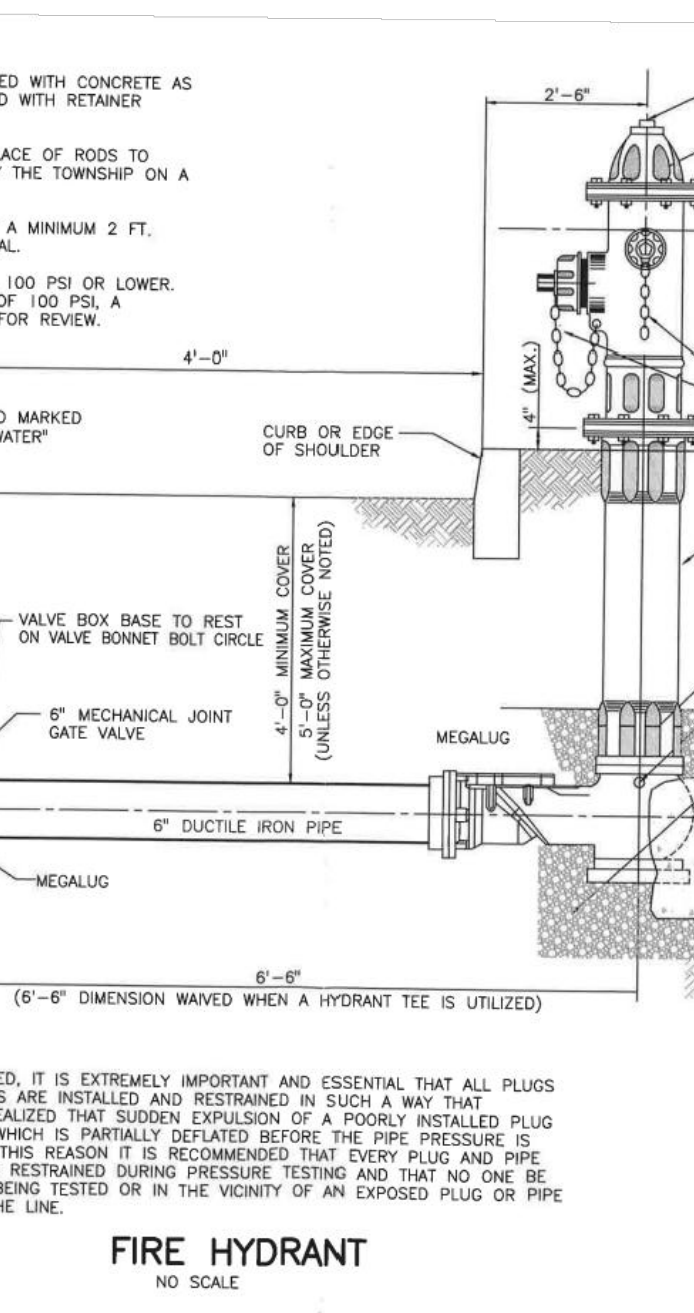
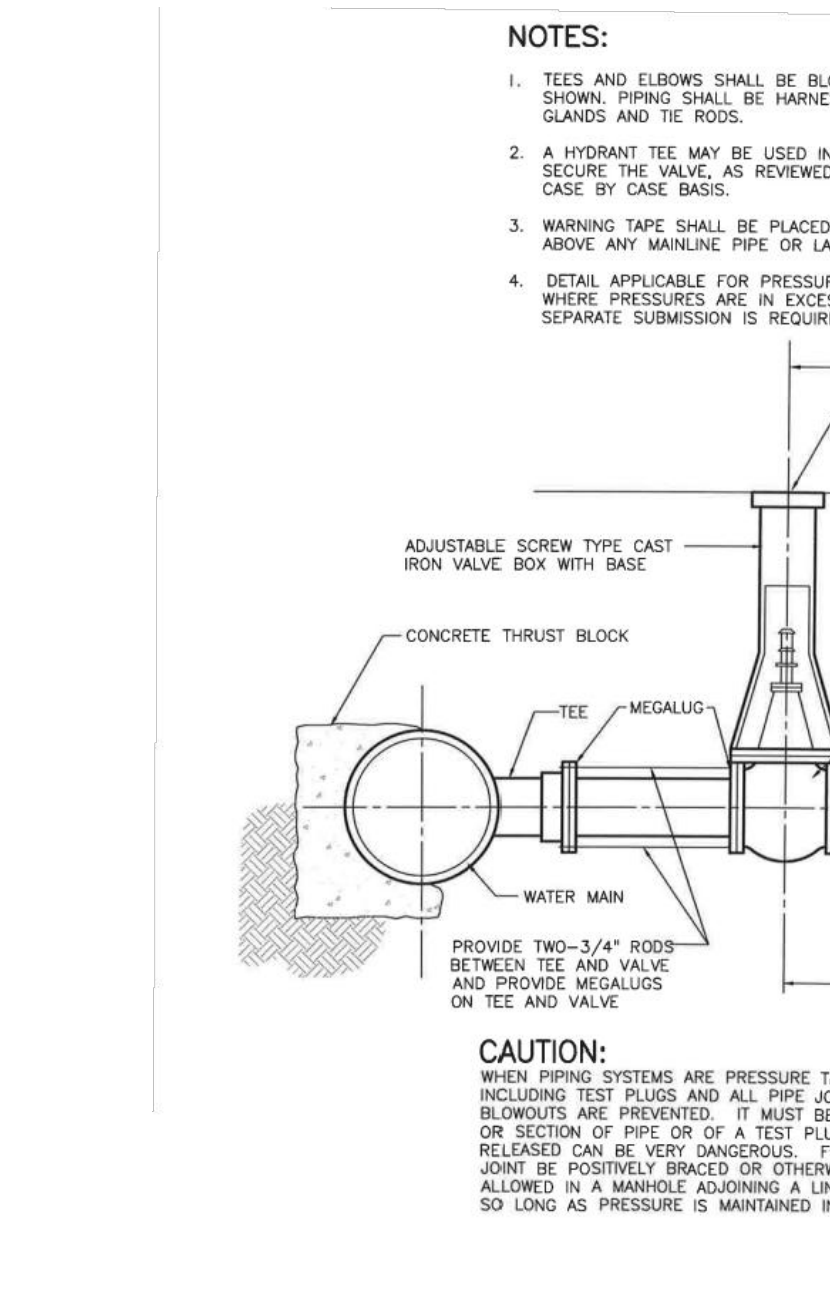
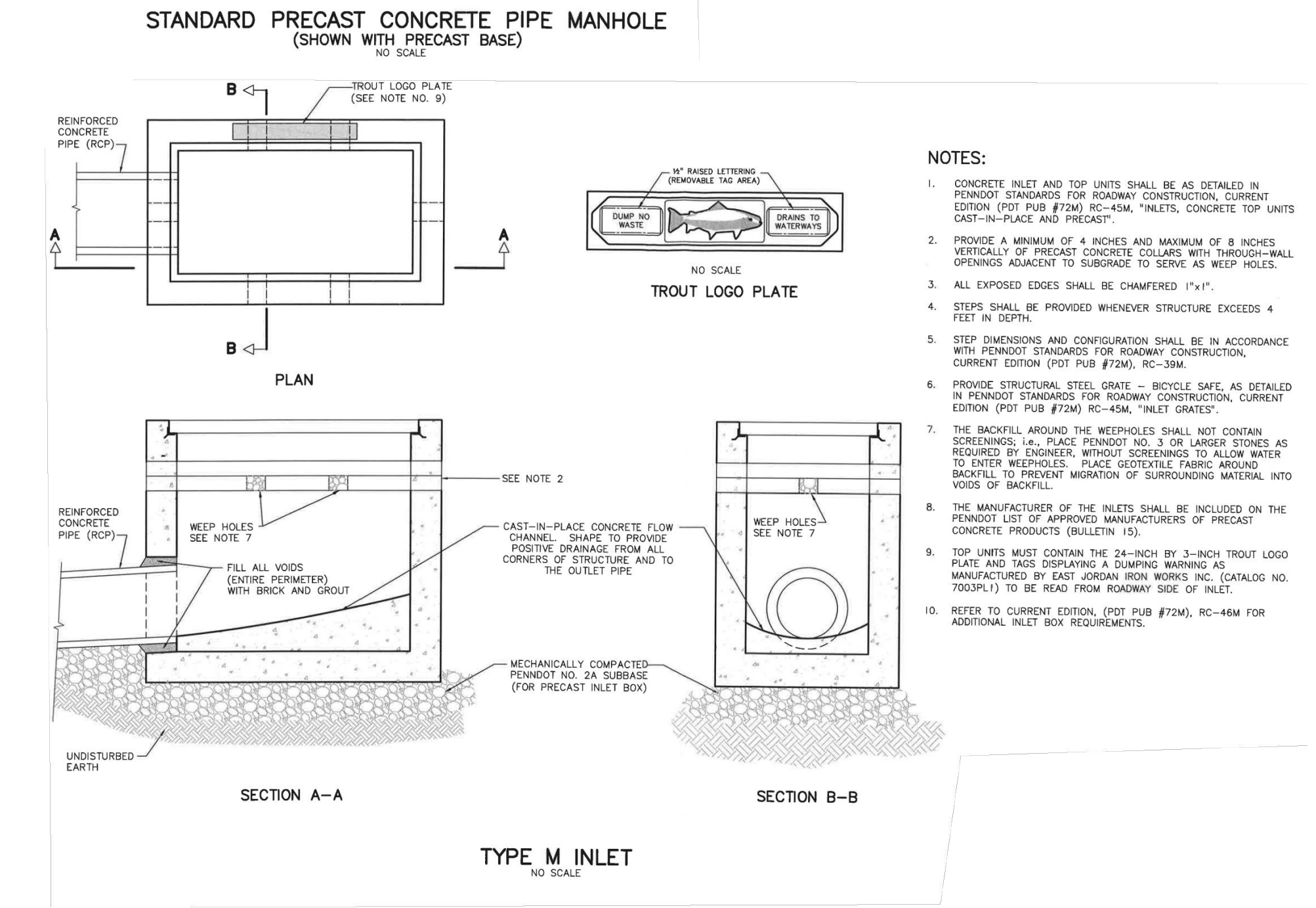
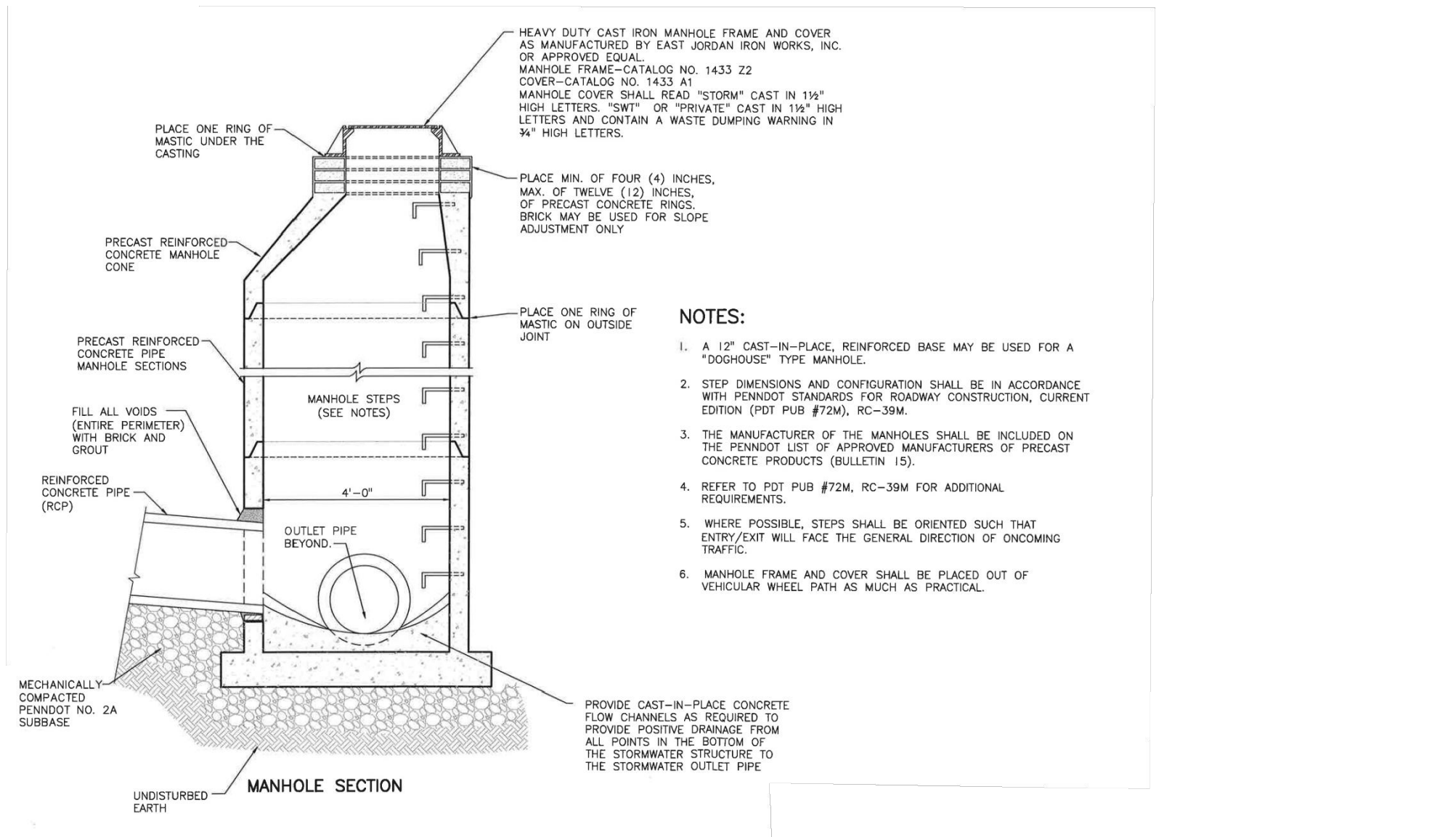
- GATE VALVES SHALL BE IRON BODY, BRONZE MOUNTED VALVES, WITH MECHANICAL JOINT ENDS, NON-RISING STEM. VALVES SHALL OPEN IN A CLOCKWISE DIRECTION AND SHALL BE 200 PSI WORKING PRESSURE RESILIENT-WEDGE GATE VALVES MODEL A-2362 (MANLINE) OR T-2362 (TAPPING) AS MANUFACTURED BY MUELLER. ALL GATE VALVES SHALL CONFORM TO AWWA SPECIFICATION C509.
- WHEN APPROVED BY THE ENGINEER, A DEEP VALVE WHICH WOULD NOT PERMIT THE USE OF THE 6860 SERIES VALVE BOXES, SHALL HAVE A PERMANENT EXTENSION ATTACHED. THE EXTENSION SHALL BE APPROVED BY THE ENGINEER AND ENABLE THE OPERATION OF THE DEEP VALVE BY USING A STANDARD SIX-FOOT VALVE KEY.
- BOXES SHALL BE SET TO ALLOW EQUAL MOVEMENT ABOVE AND BELOW FINAL GRADE.
- TAPPING SLEEVES AND VALVES: TAPPING SLEEVES SHALL BE FABRICATED OF DUCTILE IRON AND SHALL HAVE A MECHANICAL JOINT BODY, A FLANGED OUTLET END AND A 3/4" HIGH RFP TEST PLUG. TAPPING SLEEVES SHALL BE MUELLER CO. MODELS H-615 THROUGH H-619, AS APPROPRIATE, BASED UPON THE SIZE AND TYPE OF THE EXISTING MAIN, OR EQUAL. THE SLEEVE SHALL HAVE A 3/4" INCH TAP TO PERMIT PRESSURE TESTING OF THE ASSEMBLY AT 100 PSI (MINIMUM) FOR 15 MINUTES WITHOUT LEAKAGE, BEFORE TAPPING THE MAIN.
- TAPPING VALVES SHALL BE RESILIENT-WEDGE GATE VALVES AND SHALL HAVE A FLANGED INLET AND A SPECIALIZED MECHANICAL JOINT OUTLET TO PERMIT CONNECTION TO DRILLING EQUIPMENT.
- DETAIL APPLICABLE FOR PRESSURES 100 PSI OR LOWER, WHERE PRESSURES ARE IN EXCESS OF 100 PSI, A SEPARATE SUBMISSION IS REQUIRED FOR REVIEW.

CAUTION: WHEN PIPING SYSTEMS ARE PRESSURE TESTED, IT IS EXTREMELY IMPORTANT AND ESSENTIAL THAT ALL PLUGS INCLUDING TEST PLUGS AND ALL PIPE JOINTS ARE INSTALLED AND RESTRAINED IN SUCH A WAY THAT BLOWOUTS ARE PREVENTED. IT MUST BE REALIZED THAT SUDDEN EXPLOSION OF A POORLY INSTALLED PLUG OR SECTION OF PIPE OR OF A TEST PLUG WHICH IS PARTIALLY DEFLECTED BEFORE THE PIPE PRESSURE IS RELEASED CAN BE VERY DANGEROUS. FOR THIS REASON IT IS RECOMMENDED THAT EVERY PLUG AND PIPE JOINT BE POSITIVELY BRACED OR OTHERWISE RESTRAINED DURING PRESSURE TESTING AND THAT NO ONE BE ALLOWED IN A MANHOLE ADJOINING A LINE BEING TESTED OR IN THE VICINITY OF AN EXPOSED PLUG OR PIPE SO LONG AS PRESSURE IS MAINTAINED IN THE LINE.



CAUTION: WHEN PIPING SYSTEMS ARE PRESSURE TESTED, IT IS EXTREMELY IMPORTANT AND ESSENTIAL THAT ALL PLUGS INCLUDING TEST PLUGS AND ALL PIPE JOINTS ARE INSTALLED AND RESTRAINED IN SUCH A WAY THAT BLOWOUTS ARE PREVENTED. IT MUST BE REALIZED THAT SUDDEN EXPLOSION OF A POORLY INSTALLED PLUG OR SECTION OF PIPE OR OF A TEST PLUG WHICH IS PARTIALLY DEFLECTED BEFORE THE PIPE PRESSURE IS RELEASED CAN BE VERY DANGEROUS. FOR THIS REASON IT IS RECOMMENDED THAT EVERY PLUG AND PIPE JOINT BE POSITIVELY BRACED OR OTHERWISE RESTRAINED DURING PRESSURE TESTING AND THAT NO ONE BE ALLOWED IN A MANHOLE ADJOINING A LINE BEING TESTED OR IN THE VICINITY OF AN EXPOSED PLUG OR PIPE SO LONG AS PRESSURE IS MAINTAINED IN THE LINE.

NOTE: DETAIL APPLICABLE FOR PRESSURES 100 PSI OR LOWER, WHERE PRESSURES ARE IN EXCESS OF 100 PSI, A SEPARATE SUBMISSION IS REQUIRED FOR REVIEW.



NOTES:

- TEES AND ELBOWS SHALL BE BLOCKED WITH CONCRETE AS SHOWN. PIPING SHALL BE HARNESSSED WITH RETAINER GLANDS AND THE ROOS.
- A HYDRANT TEE MAY BE USED IN PLACE OF ROOS TO SECURE THE VALVE, AS REVIEWED BY THE TOWNSHIP ON A CASE BY CASE BASIS.
- WARNING TAPE SHALL BE PLACED AT A MINIMUM 2 FT. ABOVE ANY MANLINE PIPE OR LATERAL.
- DETAIL APPLICABLE FOR PRESSURES 100 PSI OR LOWER, WHERE PRESSURES ARE IN EXCESS OF 100 PSI, A SEPARATE SUBMISSION IS REQUIRED FOR REVIEW.

CAUTION: WHEN PIPING SYSTEMS ARE PRESSURE TESTED, IT IS EXTREMELY IMPORTANT AND ESSENTIAL THAT ALL PLUGS INCLUDING TEST PLUGS AND ALL PIPE JOINTS ARE INSTALLED AND RESTRAINED IN SUCH A WAY THAT BLOWOUTS ARE PREVENTED. IT MUST BE REALIZED THAT SUDDEN EXPLOSION OF A POORLY INSTALLED PLUG OR SECTION OF PIPE OR OF A TEST PLUG WHICH IS PARTIALLY DEFLECTED BEFORE THE PIPE PRESSURE IS RELEASED CAN BE VERY DANGEROUS. FOR THIS REASON IT IS RECOMMENDED THAT EVERY PLUG AND PIPE JOINT BE POSITIVELY BRACED OR OTHERWISE RESTRAINED DURING PRESSURE TESTING AND THAT NO ONE BE ALLOWED IN A MANHOLE ADJOINING A LINE BEING TESTED OR IN THE VICINITY OF AN EXPOSED PLUG OR PIPE SO LONG AS PRESSURE IS MAINTAINED IN THE LINE.

NOTES:

- CONCRETE THRUST BLOCKS SHALL NOT COVER MECHANICAL JOINTS, NUTS OR BOLTS.
- PLACE BOND BREAKER BETWEEN PIPE AND CONCRETE (TYP.).
- ALL JOINTS SHALL BE RESTRAINED WITH MEGALUGS.
- DETAIL APPLICABLE FOR PRESSURES 100 PSI OR LOWER, WHERE PRESSURES ARE IN EXCESS OF 100 PSI, A SEPARATE SUBMISSION IS REQUIRED FOR REVIEW.

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NOTES:

- A 12" CAST-IN-PLACE, REINFORCED BASE MAY BE USED FOR A "DOGHOUSE" TYPE MANHOLE.
- STEP DIMENSIONS AND CONFIGURATION SHALL BE IN ACCORDANCE WITH PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, CURRENT EDITION (POT PUB #72M), RC-39M.
- THE MANUFACTURER OF THE MANHOLES SHALL BE INCLUDED ON THE PENNDOT LIST OF APPROVED MANUFACTURERS OF PRECAST CONCRETE PRODUCTS (BULLETIN 15).
- REFER TO POT PUB #72M, RC-39M FOR ADDITIONAL REQUIREMENTS.
- WHERE POSSIBLE, STEPS SHALL BE ORIENTED SUCH THAT ENTRY/EXIT WILL FACE THE GENERAL DIRECTION OF ONCOMING TRAFFIC.
- MANHOLE FRAME AND COVER SHALL BE PLACED OUT OF VEHICULAR WHEEL PATH AS MUCH AS PRACTICAL.
- PROVIDE CAST-IN-PLACE CONCRETE FLOW CHANNELS AS REQUIRED TO PROVIDE POSITIVE DRAINAGE FROM ALL POINTS IN THE BOTTOM OF THE STORMWATER STRUCTURE TO THE STORMWATER OUTLET PIPE.
- PROVIDE TWO-3/4" RODS BETWEEN TEE AND VALVE AND PROVIDE MEGALUGS ON TEE AND VALVE.
- THE BACKFILL AROUND THE WEEPHOLES SHALL NOT CONTAIN SCREENINGS, IN PLACE PENNDOT NO. 3 OR LARGER STONES AS REQUIRED BY ENGINEER, WITHOUT SCREENINGS TO ALLOW WATER TO ENTER WEEPHOLES. PLACE GEOTEXTILE FABRIC AROUND BACKFILL TO PREVENT MIGRATION OF SURROUNDING MATERIAL INTO VOIDS OF BACKFILL.
- THE MANUFACTURER OF THE INLETS SHALL BE INCLUDED ON THE PENNDOT LIST OF APPROVED MANUFACTURERS OF PRECAST CONCRETE PRODUCTS (BULLETIN 15).
- TOP UNITS MUST CONTAIN THE 24-INCH BY 3-INCH TROUT LOGO PLATE AND TAPE DISPLAYING A DUMPING WARNING AS MANUFACTURED BY EAST JORDAN IRON WORKS INC. (CATALOG NO. 7009P-1) TO BE READ FROM ROADWAY SIDE OF INLET.
- REFER TO CURRENT EDITION, (POT PUB #72M), RC-46M FOR ADDITIONAL INLET BOX REQUIREMENTS.

EXTENSION

MODEL NO.	C	WEIGHT
RS242406	6"	300 LBS.
RS242412	12"	600 LBS.

■ FRAME AND GRATE ASSEMBLY AVAILABLE IN TRAFFIC OR PEDESTRIAN MODELS.
■ DESIGN FOR H-20-44 BRIDGE LOADING.
■ ASSEMBLY TO BE PLACED ON A 6" BASE OF CRUSHER RUN FOR EASE OF INSTALLATION AND EVEN LOAD DISTRIBUTION.
■ FOR COMPLETE DESIGN AND PRODUCT INFORMATION, CONTACT JENSEN PRECAST.

ILLUSTRATION IS TYPICAL ONLY OF GENERAL SERIES CONFIGURATION FOR SPECIFIC CONFIGURATION. CALL JENSEN PRECAST.

24" X 24" DRAIN INLET

JENSEN PRECAST

DI2424

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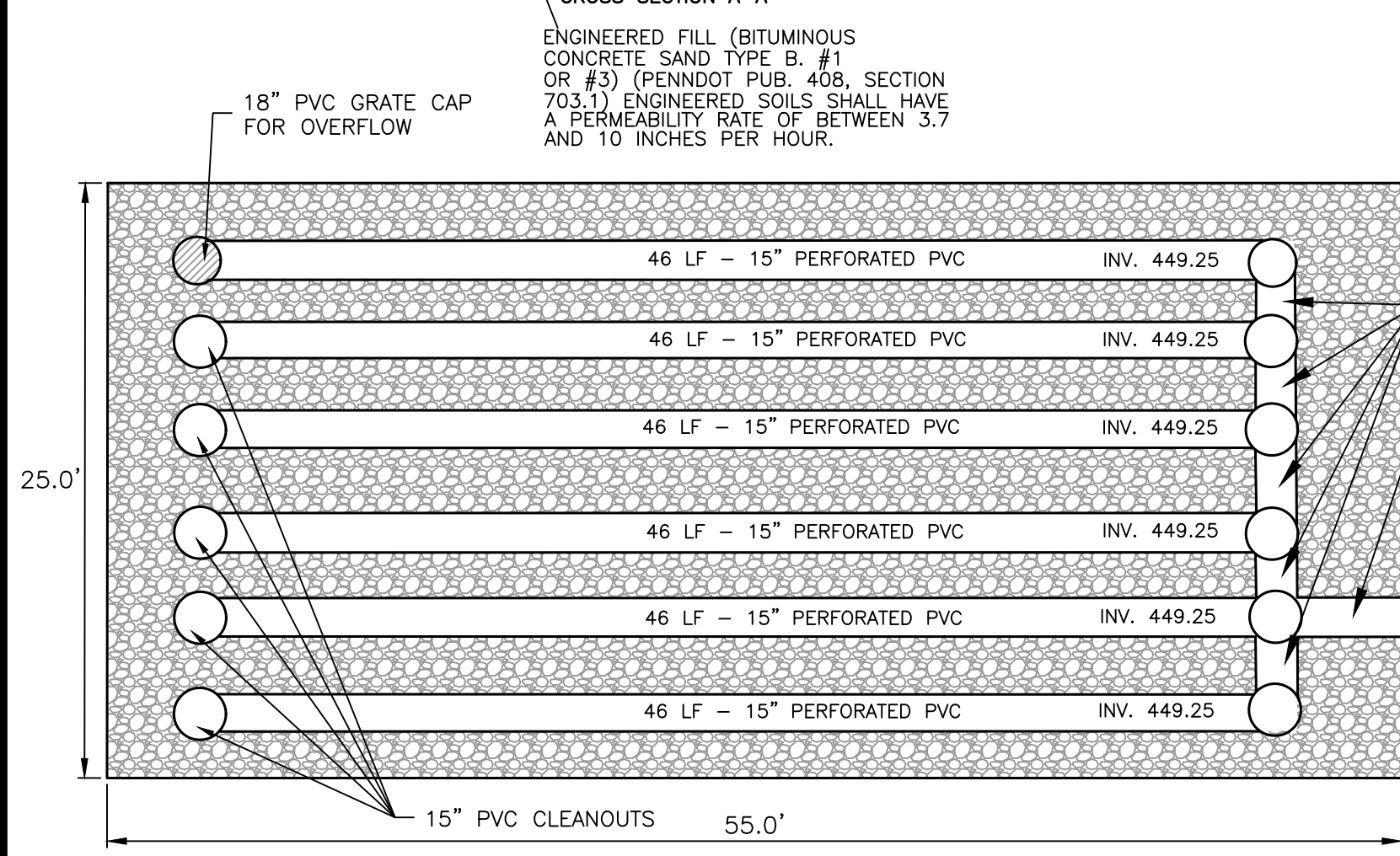
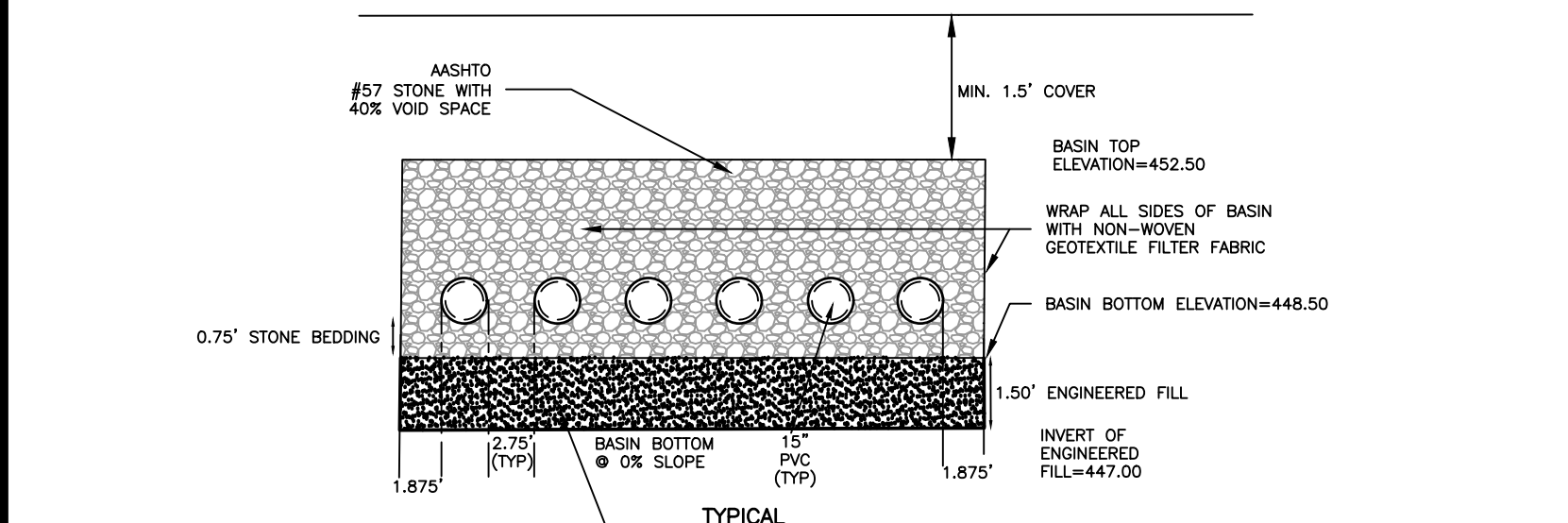
UTILITY DETAILS

RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

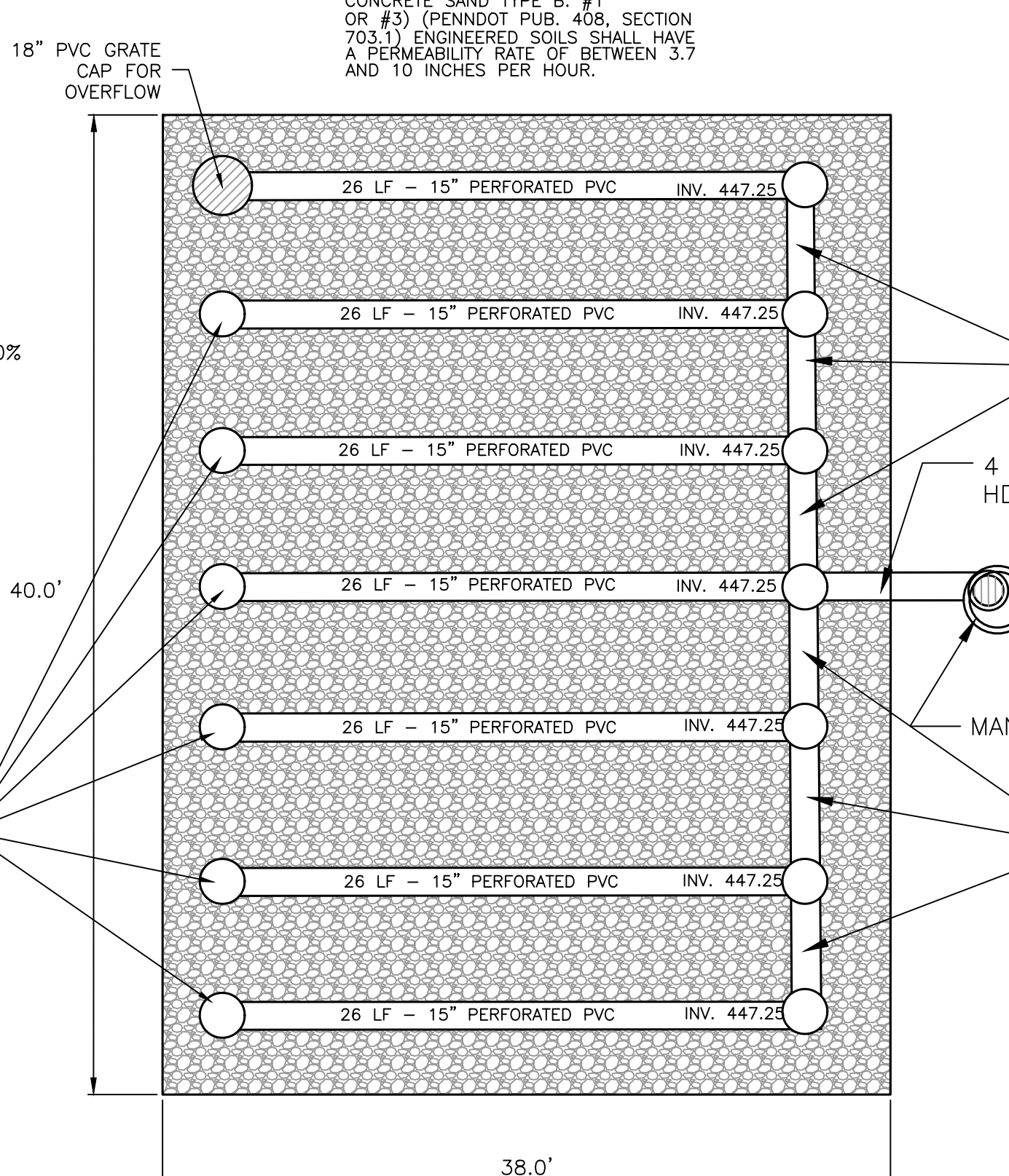
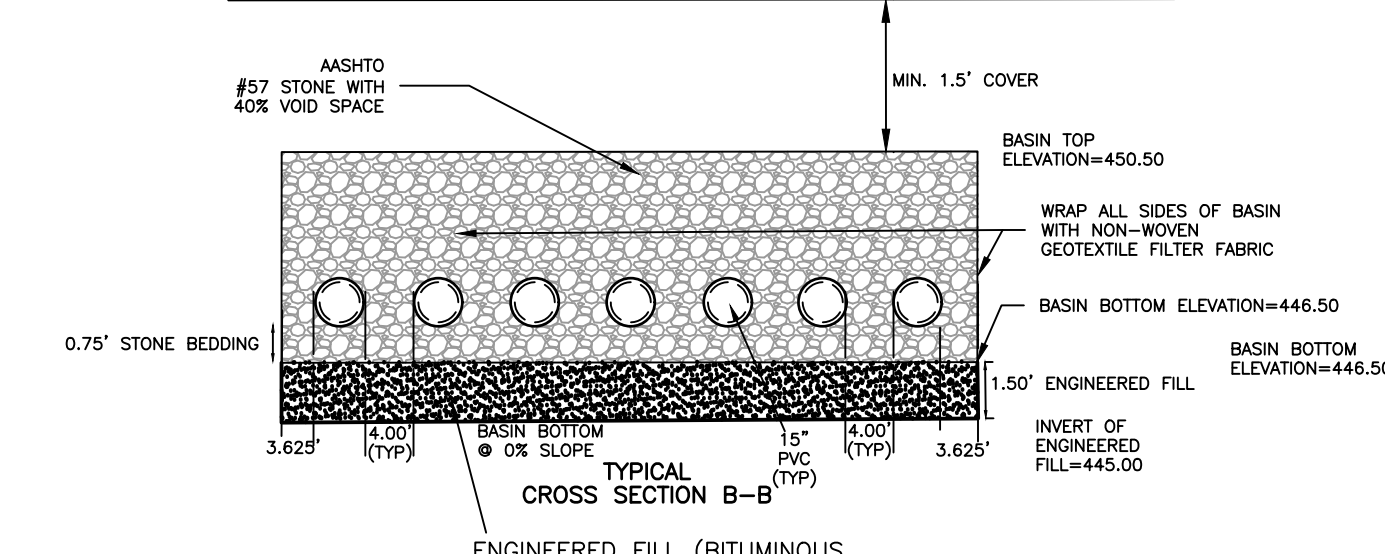
REVISIONS

NO.	DATE	BY	DESCRIPTION
1	06/16/2021	MSN	MSN
2	12/16/2021	MSN	MSN
3	09/20/2023	IMK	IMK

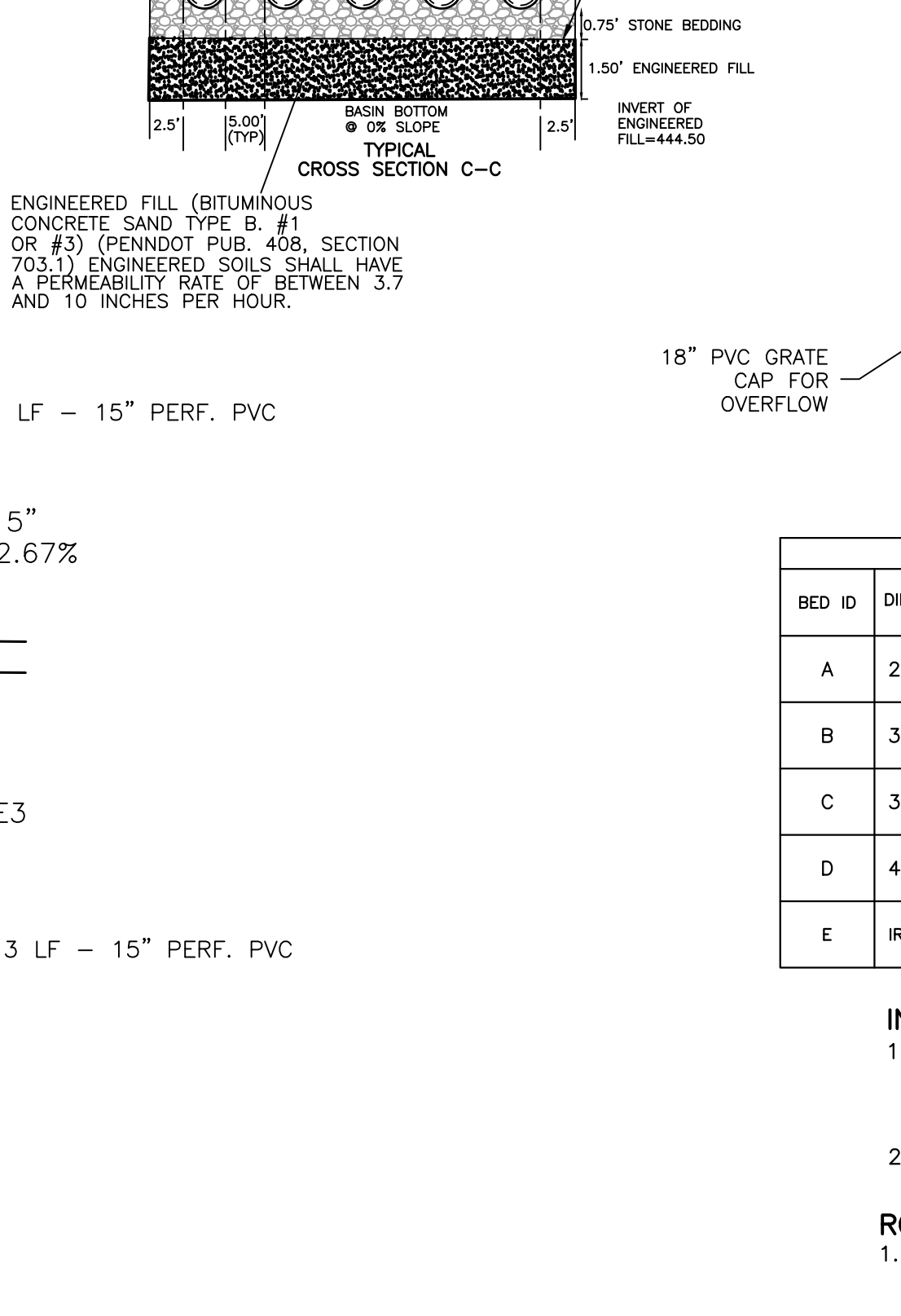
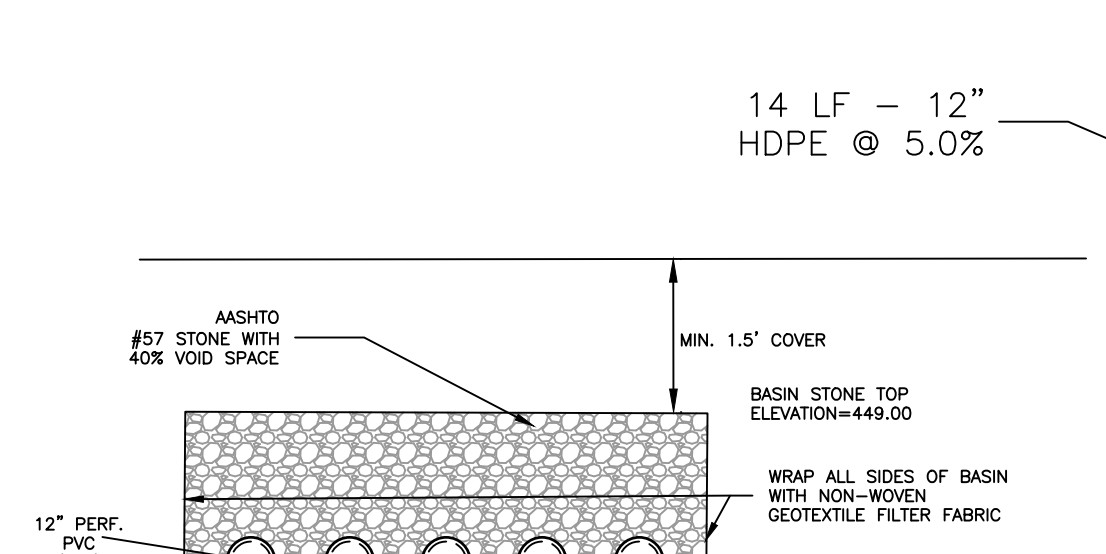
DESIGNED BY: KCE
DRAWN BY: MFC/ARE
CHECKED BY: MFC/ARE
DATE: March 05, 2021
SCALE: N.T.S.
JOB NUMBER: CW-20-128
SHEET: 16 OF 23



UNDERGROUND SEEPAGE BED A DETAIL
N.T.S.
BASIN BOTTOM AREA 1375 SQ.FT.



UNDERGROUND SEEPAGE BED B DETAIL
N.T.S.
BASIN BOTTOM AREA 1520 SQ.FT.



UNDERGROUND SEEPAGE BED C DETAIL
N.T.S.
BASIN BOTTOM AREA 1500 SQ.FT.

SEEPAGE BED DETAIL										
BED ID	BED DIMENSIONS (FT)	INFILTRATION BED FOOTPRINT (SQ.FT.)	STONE DEPTH (D) (FT)	ENGINEERED FILL DEPTH (FT)	DISTRIBUTION PIPE SIZE (IN)	INFILTRATION BED BOTTOM ELE.	ENGINEERED FILL INV. ELE.	DISTRIBUTION PIPE INV. ELE.	TEST ID	TEST ELE.
A	25 X 55	1375	4.0	1.5	15	448.50	447.00	449.25	1B(1&2)	448.50
B	38 X 40	1520	4.0	1.5	15	446.50	445.00	447.25	1A(1&2)	446.00
C	30 X 50	1500	3.0	1.5	12	446.00	444.50	446.50	3A/3B	445.50
D	44 X 73	3212	4.0	1.5	18	443.00	441.50	443.50	4B	445.10
E	IRREGULAR	990	3.0	1.5	18	462.25	460.75	462.75	1C/1D	461.50

INFILTRATION RATE NOTES

- ALL UNDERGROUND SEEPAGE BEDS ARE TO BE UNDERLAIN BY 18" OF ENGINEERED FILL. ONCE COMPLETED, INFILTRATION TESTS SHALL BE CONDUCTED TO VERIFY INFILTRATION RATE OF THE SEEPAGE BED MEETS OR EXCEEDS THE DESIGNED INFILTRATION RATE OF 2.5"/HOUR. THIS IS A CRITICAL STAGE AND SHOULD OVERSEEN BY A LICENSED PROFESSIONAL.
- POST CONSTRUCTION INFILTRATION TESTING RESULTS WILL BE SENT TO THE LEHIGH COUNTY CONSERVATION DISTRICT TO VERIFY THE BEDS MEET OR EXCEED THE DESIGN INFILTRATION RATE OF 2.5"/HOUR.

ROOF LEADER AND YARD DRAINAGE NOTES

- IT IS THE RESPONSIBILITY OF THE DESIGN ENGINEER TO DESIGN A ROOF LEADER CONSISTENT WITH THE ACTUAL DWELLING PROPOSED FOR CONSTRUCTION ON THE INDIVIDUAL LOT GRADING PLAN. THE ROOF LEADER SYSTEM SHALL BE DESIGNED TO CAPTURE THE EQUIVALENT AMOUNT OF ROOF TOP AS SHOWN ON THE BMP DRAINAGE MAP ATTACHED TO THE APPROVED PCSM PLAN AND DIRECT THE STORM FLOWS TO THE SEEPAGE BED. THE YARD DRAINAGE SYSTEM SHALL INCLUDE APPROPRIATE GRADING AND THE 2X2 YARD INLET.
- MODIFICATIONS TO THE APPROVED PCSM PLAN MAY BE REQUIRED BY LCDD WHEN AN EQUIVALENT TRIBUTARY AREA TO THAT WHICH IS SHOWN ON THE BMP DRAINAGE MAP IS NOT CAPTURED AND DIRECTED TO THE SEEPAGE BED.

CONSTRUCTION NOTES

- LEAF/DEBRIS TRAP MAY BE CONSTRUCTED OF 18" HDPE, PEP OR EQUIVALENT.
- STONE FOR THE SEEPAGE BED SHALL BE 2 INCH TO 1 INCH UNIFORMLY GRADED COARSE AGGREGATE, WITH A WASH LOSS OF NO MORE THAN 0.5 ASHTO SIZE NUMBER 3 PER ASHTO SPECIFICATIONS AND SHALL HAVE Voids EQUAL TO OR GREATER THAN 40%.
- NON-WOVEN GEOTEXTILE SHALL CONSIST OF NEEDLED NON WOVEN POLYPROPYLENE FIBERS AND MEET THE FOLLOWING PROPERTIES:

- A. GRAB TENSILE STRENGTH (ASTM-D4632) 120 LBS.
- B. MULLEN BURST STRENGTH (ASTM-d3786) 225 PSI.
- C. FLOW RATE (ASTM-D4491) 95 GAL/MIN/SF
- D. UV RESISTANCE AFTER 500 HRS (ASTM D4355) 70
- E. HEAT SET OR HEAT CALENDARED FABRICS ARE NO PERMITTED. ACCEPTABLE TYPES INCLUDE MIRAFI 140n, AMOCO 4547, AND GEOTEX 451

SEEPAGE BED NOTES

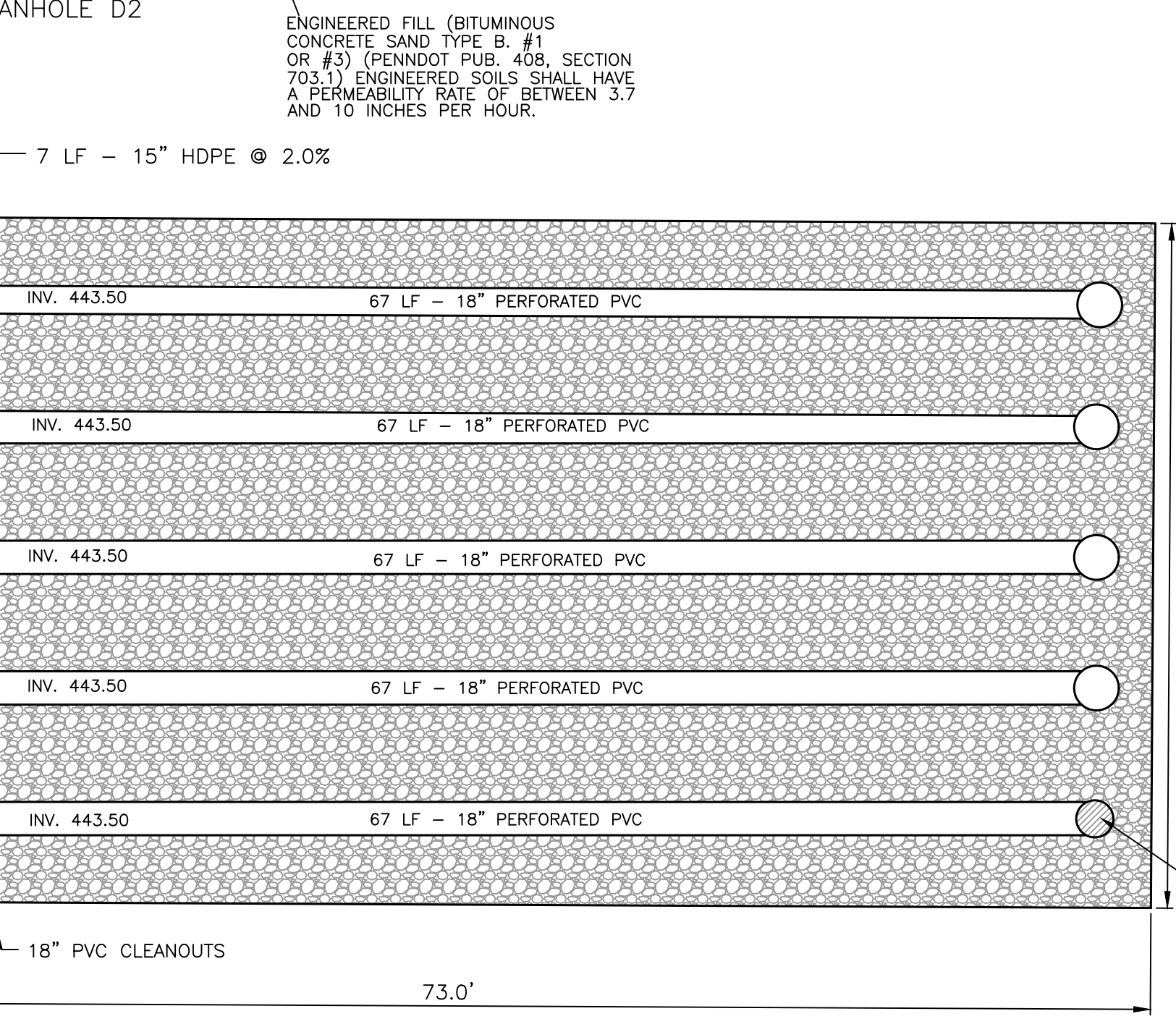
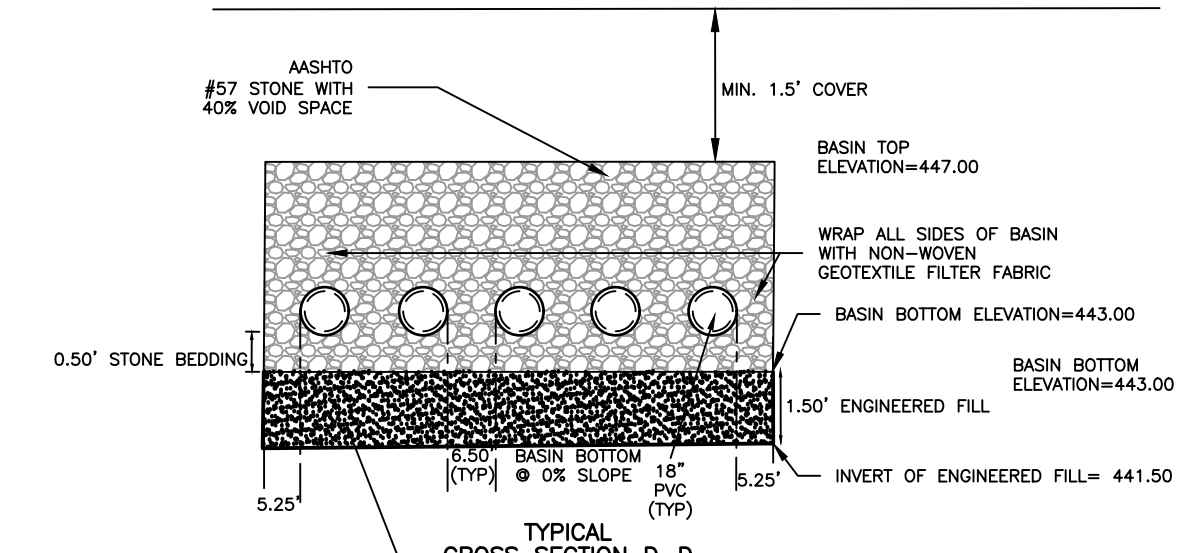
- THE INDIVIDUAL LOT OWNER IS RESPONSIBLE FOR THE PROPER OPERATION AND MAINTENANCE OF THE SEEPAGE BED ON HIS OR HER LOT IN PERPETUITY. THE INDIVIDUAL LOT OWNER SHALL INSPECT, CLEAN, REMOVE SILT OR OTHER DEBRIS AND OTHERWISE MAINTAIN THE CLEANOUT STRUCTURE(S) AND RECHARGE PIT(S) IN PROPER WORKING ORDER.
- THE SEEPAGE BED SHALL BE LEVEL.
- PIPING SHALL BE PERFORATED ONLY WITHIN THE SUBSURFACE INFILTRATION BED FOOTPRINT.

CONSTRUCTION SEQUENCE UNDERGROUND SEEPAGE BEDS

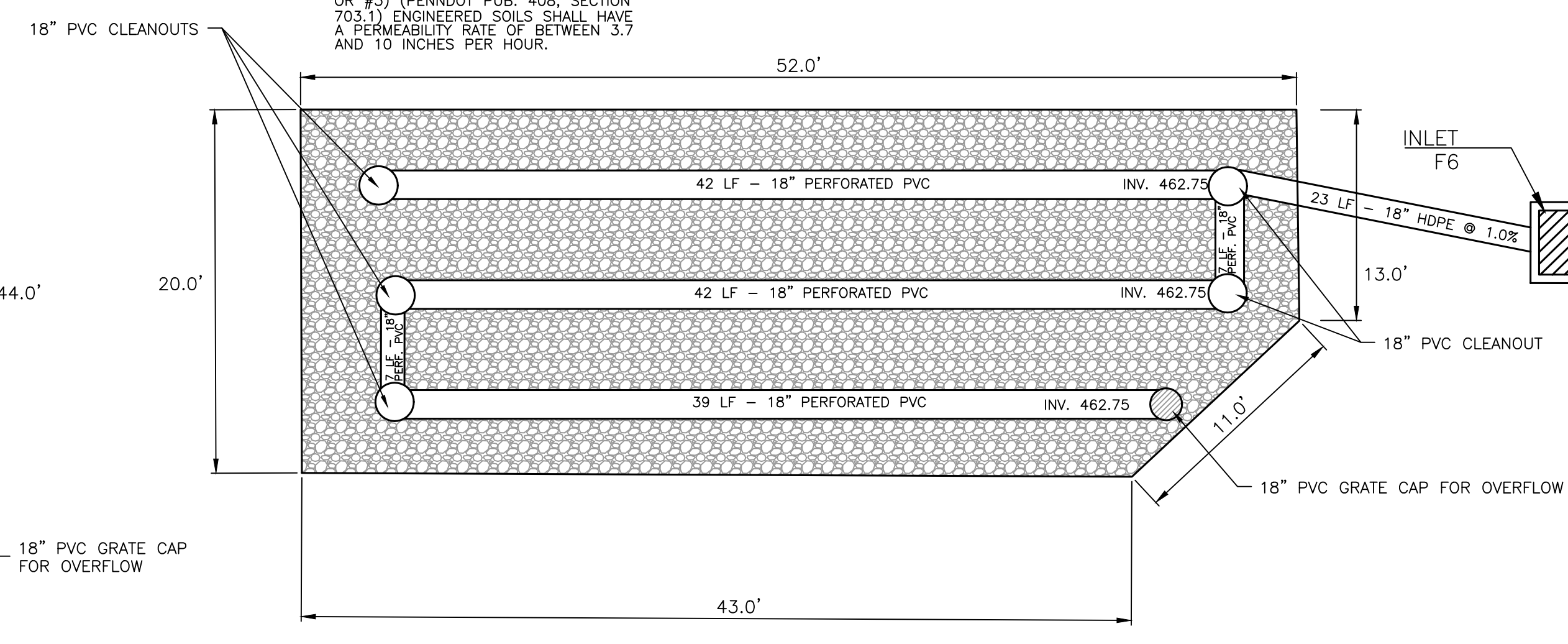
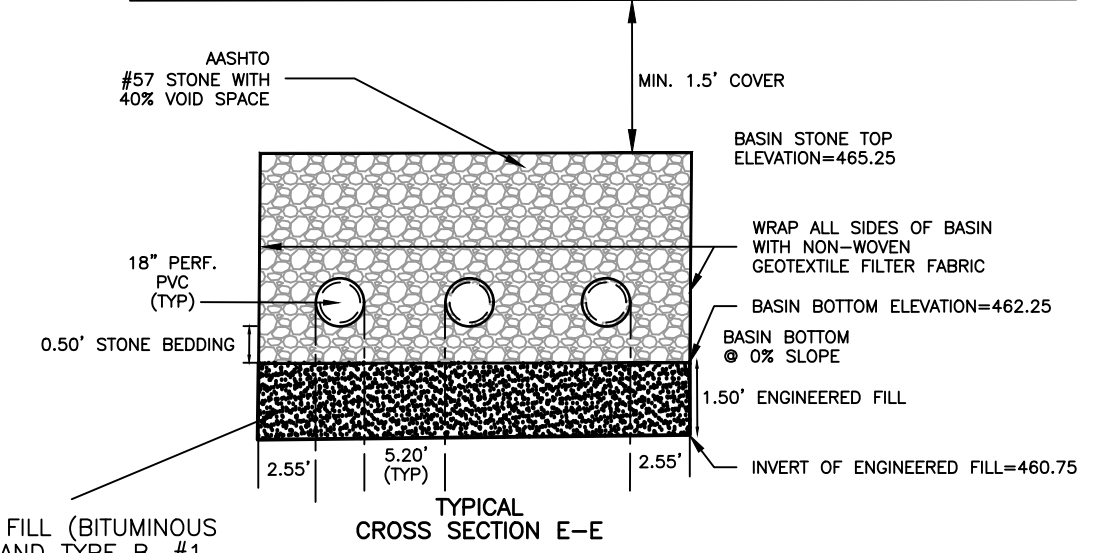
- DUE TO THE NATURE OF CONSTRUCTION SITES, SEEPAGE BEDS SHOULD BE INSTALLED TOWARD THE END OF THE CONSTRUCTION PERIOD.
- INSTALL AND MAINTAIN ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
- THE EXISTING SUBGRADE UNDER THE BED AREAS SHOULD NOT BE COMPACTED OR SUBJECT TO EXCESSIVE EQUIPMENT TRAFFIC PRIOR TO GEOTEXTILE AND STONE BED PLACEMENT.
- WHERE EROSION OF SUBGRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING, THIS MATERIAL SHOULD BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6" WITH A YORK RATE OR EQUIVALENT AND LIGHT TRACTOR. ALL FINE GRADING SHOULD BE DONE BY HAND. ALL BED BOTTOMS SHOULD BE AT LEVEL GRADE.
- INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CLEANOUTS, PERFORATED PIPING, AND ALL OTHER NECESSARY STORMWATER STRUCTURES.
- GEOTEXTILE AND BED AGGREGATE SHOULD BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION AND INSTALLATION OF STRUCTURES. GEOTEXTILE SHOULD BE PLACED IN ACCORDANCE WITH MANUFACTURERS STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF GEOTEXTILE SHOULD OVERLAP A MINIMUM OF 16 INCHES. IT SHOULD ALSO BE SECURED AT LEAST 4 FEET OUTSIDE OF BED IN ORDER TO PREVENT ANY RUNOFF OR SEDIMENT FROM ENTERING THE STORAGE BED. THIS EDGE STRIP SHOULD REMAIN IN PLACE UNTIL ALL BARE SOILS CONTIGUOUS TO THE BED IS STABILIZED AND VEGETATED. AS THE SITE IS FULLY STABILIZED, EXCESS GEOTEXTILE ALONG BED EDGES CAN BE CUT BACK TO THE EDGE OF THE BED.
- CLEAN WASHED, UNIFORMLY GRADED AGGREGATE SHOULD BE PLACED IN THE BED IN MAXIMUM 8 INCH LIFTS. EACH LAYER SHOULD BE LIGHTLY COMPACTED WITH CONSTRUCTION EQUIPMENT BEING KEPT OFF THE BED AS MUCH AS POSSIBLE.
- TOPSOIL SHOULD BE PLACED OVER THE SEEPAGE BED IN MAXIMUM 6 INCH LIFTS.
- SEED AND STABILIZE TOPSOIL.
- DO NOT REMOVE EROSION CONTROLS UNTIL SITE IS FULLY STABILIZED.

MAINTENANCE

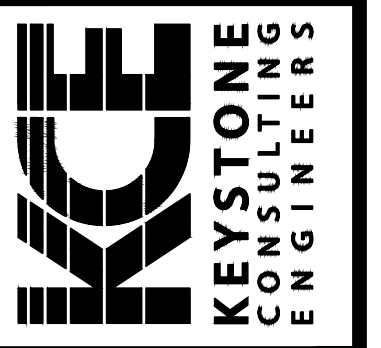
- INSPECT UNDERGROUND SEEPAGE BED AT LEAST FOUR TIMES A YEAR, AS WELL AS AFTER EVERY STORM EXCEEDING 1 INCH.
- DISPOSE OF SEDIMENT, DEBRIS/TRASH, AND ANY OTHER WASTE MATERIAL REMOVED FROM SEEPAGE BED AT A SUITABLE DISPOSAL/RECYCLING FACILITY AND IN COMPLIANCE WITH LOCAL, STATE AND FEDERAL WASTE REGULATIONS.
- EVALUATE THE DRAIN DOWN TIME TO ENSURE THE MAXIMUM TIME OF 72 HOURS IS NOT BEING EXCEEDED. IF DRAIN DOWN TIME AREA EXCEEDING THE MAXIMUM, DRAIN THE SEEPAGE BED VIA PUMPING AND CLEAN OUT PERFORATED PIPING. IF SLOW DRAINAGE PERSISTS, THE SYSTEM MAY NEED REPLACING.
- REGULARLY CLEAN OUT GUTTERS AND ENSURE PROPER CONNECTIONS TO FACILITATE THE EFFECTIVENESS OF THE SEEPAGE BED.
- REPLACE FILTER SCREENS THAT INTERCEPT ROOF RUNOFF AS NECESSARY.



UNDERGROUND SEEPAGE BED D DETAIL
N.T.S.
BASIN BOTTOM AREA 3212 SQ.FT.

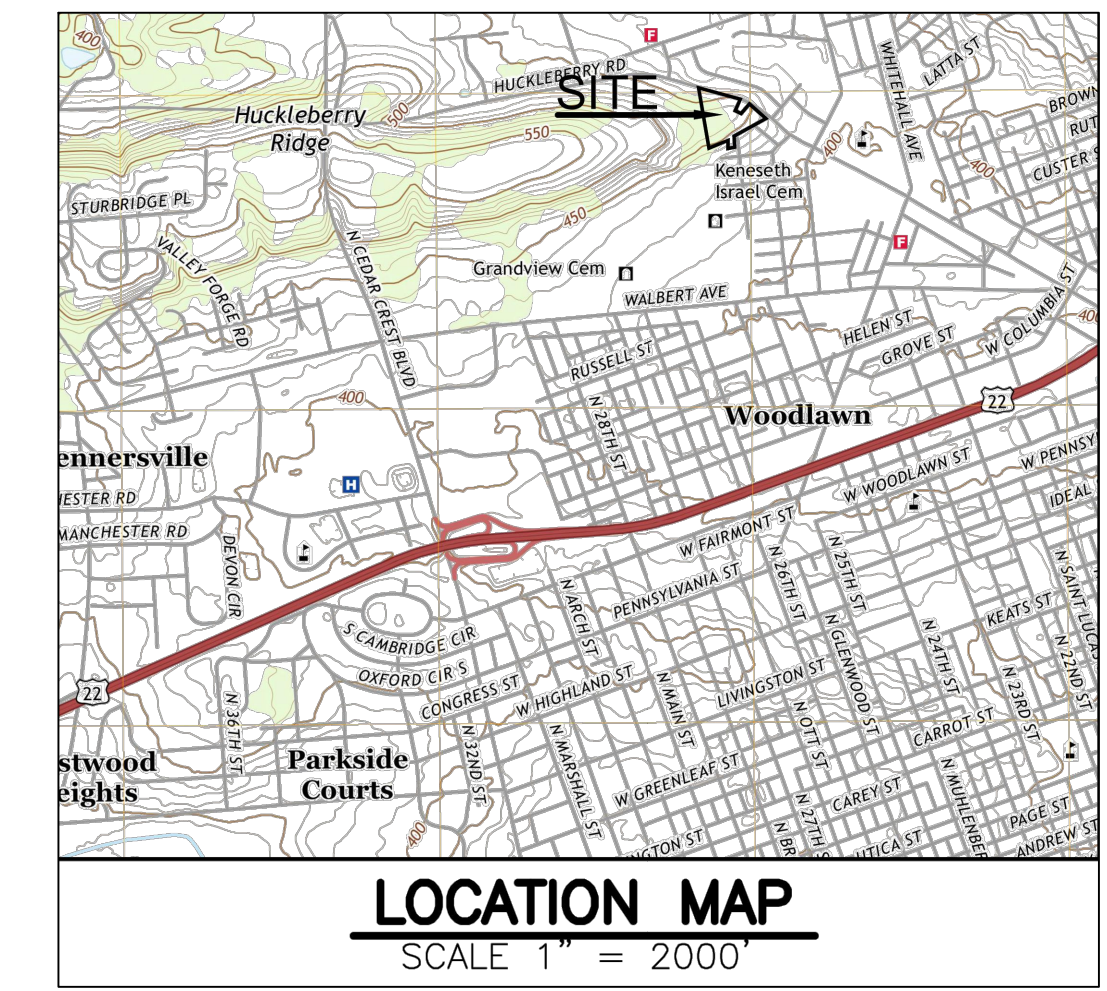
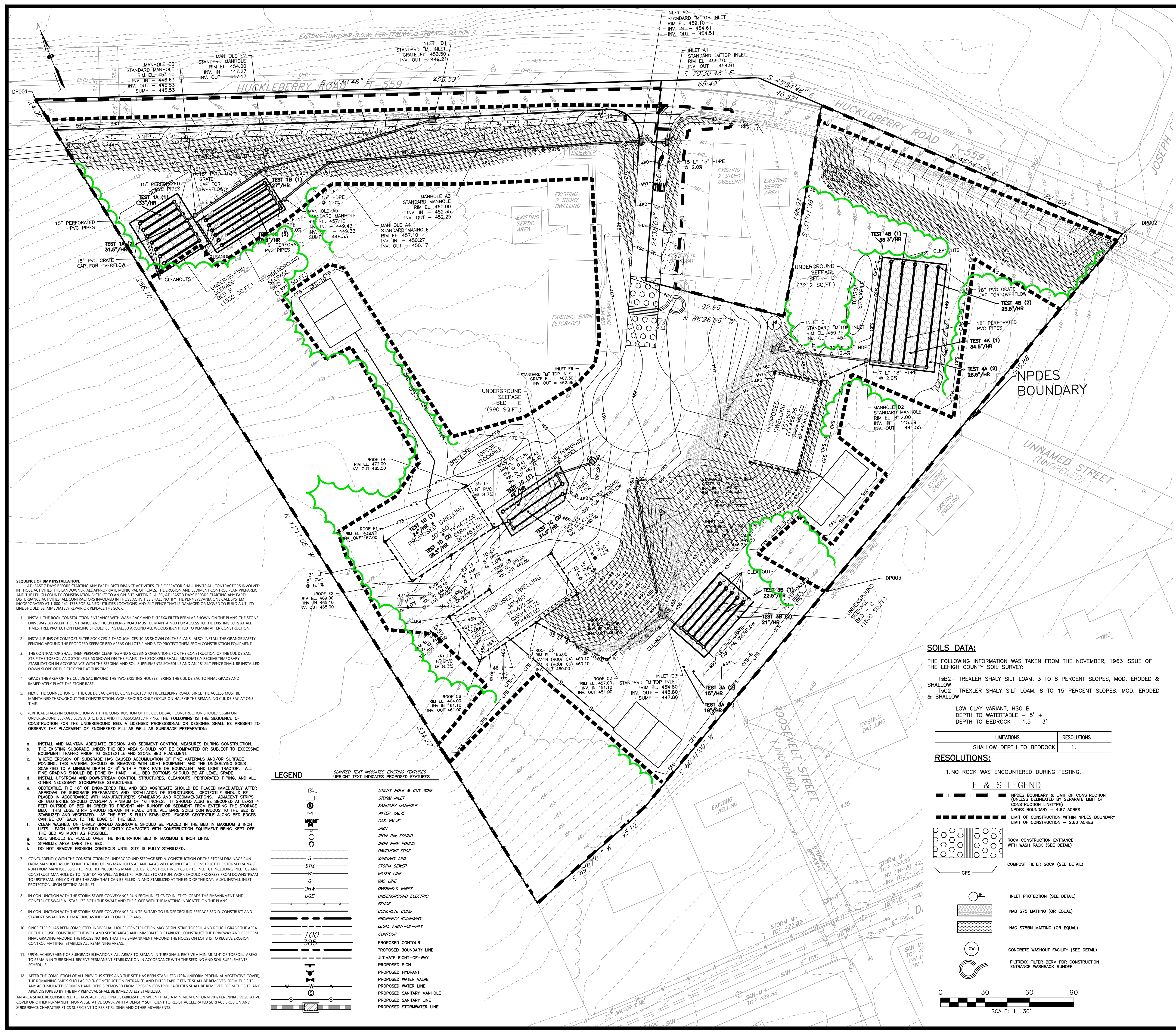


UNDERGROUND SEEPAGE BED E DETAIL
N.T.S.
BASIN BOTTOM AREA 990 SQ.FT.



REVISIONS	BY	DATE
	MSN	06/16/2021
	MSN	12/16/2021
	IMK	09/20/2023

DESIGNED BY:	KCE
DRAWN BY:	MFC/ARF
CHECKED BY:	March 05, 2021
DATE:	N.T.S.
SCALE:	CW-20-128
JOB NUMBER:	17 OF 23
SHEET:	



CHAPTER 93 RECEIVING WATERSHED CLASSIFICATION:
 TSF, MF – TROUT STOCKED FISHERY & MIGRATORY FISHERY
 –DRAINS TO THE JORDAN CREEK.
SEDIMENT DISPOSAL NOTE:
 SEDIMENT REMOVED FROM BMP'S SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
 *** PROCEDURES WHICH ENSURE THAT THE PROPER MEASURES FOR THE RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH OR FROM THE PROJECT SITE WILL BE UNDERTAKEN IN ACCORDANCE WITH DEPARTMENT REGULATIONS.

1. ALL MATERIALS ASSOCIATED WITH THIS PROJECT THAT ARE SUITABLE FOR RECYCLING SHALL BE RECYCLED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
2. ALL WASTES MATERIALS ASSOCIATED WITH THIS PROJECT SHALL BE DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
3. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE COUNTY ENGINEER DISTRICT AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL/ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.

CLEAN FILL NOTE
 CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-BIODEGRADABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DRESSED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER 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 BEEN PROCESSED FOR RE-USE.
 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 THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".
 ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE 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 THE END OF THESE INSTRUCTIONS.

ENVIRONMENTAL DUE DILIGENCE: THE APPLICANT MUST PERFORM ENVIRONMENTAL DUE DILIGENCE TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: 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 SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. 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. IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL". FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE. THESE REGULATIONS ARE AVAILABLE ON-LINE AT WWW.PACODE.COM.

EROSION CONTROL MAINTENANCE NOTES:
 DURING CONSTRUCTION, MAINTENANCE OF THE CONTROL FACILITIES WILL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. EROSION CONTROLS WILL BE INSPECTED WEEKLY OR AFTER EACH EROSION-PRODUCING STORM, AND CLEANED AND REPAIRED AS NECESSARY.
 THE COMPOST FILTER SOCKS AND ROCK FILTER OUTLETS WILL BE REPAIRED AND REPLACED AS NECESSARY UNTIL STABILIZATION OF THE TRIBUTARY AREAS IS ACHIEVED. SEDIMENT WILL BE REMOVED WHEN IT REACHES A DEPTH OF ONE-HALF THE HEIGHT OF THE FENCE OR ROCK FILTER OUTLET.
 THE ROCK CONSTRUCTION ENTRANCE WILL BE INSPECTED REGULARLY, AND THE THICKNESS SHALL BE MAINTAINED BY ADDING ROCK. SEDIMENT FROM THE ROCK WILL BE REMOVED AS NECESSARY. ALL DIRT OR MUD TRACKED ONTO ADJACENT PAVED AREAS MUST BE REMOVED AT THE END OF EACH WORKDAY.
 ALL SILT REMOVED DURING MAINTENANCE AND CLEANING OF EROSION AND SEDIMENTATION CONTROL DEVICES WILL BE INCORPORATED INTO THE FINE GRADING UPSTREAM FROM A SEDIMENT CONTROL DEVICE.
 INLET FILTERS WILL BE CLEANED WHEN THE SEDIMENT TRAPPED THEREIN REACHES A DEPTH OF ONE-HALF THE TOTAL DEPTH OF THE FILTER.

EROSION AND SEDIMENTATION CONTROL PLAN PREPARER
 ELISA A. HIGLEY, E.I.T., CESSWI, CPESC, CPSWQ
 KEYSTONE CONSULTING ENGINEERS, INC.
 5012 MEDICAL CENTER CIRCLE
 ALLENTOWN PA 18106
 (610) 395-0971

SOCK NO.	Dia. In.	LOCATION	SLOPE PERCENT	SLOPE LENGTH ABOVE BARRIER (FT)
CFS 1	24"	Lot 4	7.2%	313'
CFS 2	32"	Lot 4	5.0%	178'
CFS 3	12"	Lot 4	7.6%	224'
CFS 4	12"	Lot 4	9.2%	209'
CFS 5	8"	Lot 4	9.6%	187'
CFS 6	24"	Lot 3	7.2%	340'
CFS 7	8"	Lot 3	8.6%	134'
CFS 8	18"	Lot 2	5.0%	10'
CFS 9	5"	Lot 2	2.4%	109'
CFS 10	5"	Lot 2	7.4%	102'
CFS 11	8"	Lutz Property	5.3%	170'
CFS 12	5"	ROW 1	8.3%	84'
CFS 13	5"	ROW 1	12.7%	55'
CFS 14	18"	Lot 2	10.4%	198'

DESIGNED BY: KCE
DRAWN BY: MSN
CHECKED BY: MFC/ARF
DATE: March 05, 2021
SCALE: 1" = 30'
JOB NUMBER: CW-20-128
SHEET: 18 OF 23

REVISIONS

BY	DATE	DESCRIPTION
EAH	06/16/2021	
EAH	12/16/2021	
IMK	09/20/2023	

811
 DIAL 8-1-1 OR 1-800-242-1776 NOT LESS THAN 3 BUSINESS DAYS NOR MORE THAN 10 BUSINESS DAYS PRIOR TO THE START OF EXCAVATION.
 PENNSYLVANIA ONE CALL SYSTEM SERIAL NUMBER & DATE OF CALL
 217420210222-000 FEBRUARY 22, 2021

KEYSTONE CONSULTING ENGINEERS, INC.
Engineering firm of choice since 1972
 5012 MEDICAL CENTER CIRCLE, ALLENTOWN, PA 18106 610-395-0971
 East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville
 www.KCEINC.com

EROSION AND SEDIMENTATION PLAN
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES:

All earth disturbances, including clearing and grubbing as well as cuts and fills shall be done in accordance with the approved E&S plan. A copy of the approved drawings (stamped, signed and dated by the reviewing agency) must be available at the project site at all times. The reviewing agency shall be notified of any changes to the approved plan prior to implementation of those changes. The reviewing agency may require a written submission of those changes for review and approval at its discretion.

At least 7 days prior to starting any earth disturbance activities, including clearing and grubbing, the owner and/or operator shall invite all contractors, the landowner, appropriate municipal officials, the E&S plan preparer, the PCSM plan preparer, the licensed professional responsible for oversight of critical stages of implementation of the PCSM plan, and a representative from the local conservation district to an on-site preconstruction meeting.

At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, the Pennsylvania One Call System Inc. shall be notified at 1-800-242-1776 for the location of existing underground utilities.

All earth disturbance activities shall proceed in accordance with the sequence provided on the plan drawings. Deviation from that sequence must be approved in writing from the local conservation district or by the Department prior to implementation.

Areas to be filled are to be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots and other objectionable material.

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 areas outside the limit of disturbance boundaries shown on the plan maps. These areas must be clearly marked and fenced off before clearing and grubbing operations begin.

Topsoil required for the establishment of vegetation shall be stockpiled at the location(s) shown on the plan map(s) in the amount necessary to complete the final grading of all exposed areas that are to be stabilized by vegetation. Each stockpile shall be protected in the manner shown on the plan drawings. Stockpile heights shall not exceed 35 feet. Stockpile slopes shall be 2H:1V or flatter.

Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to minimize the potential for erosion and sediment pollution and notify the local conservation district and/or the regional office of the Department.

All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code 260.1 et seq., 271.1, and 287.1 et seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at this site.

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.

The contractor is responsible for ensuring that any material brought on site is clean fill. Form FP-001 must be retained by the property owner for any fill material affected by a spill or release of a regulated substance but qualifying as clean fill due to analytical testing.

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 discharging over non-disturbed areas.

Vehicles and equipment may neither enter directly nor exit directly onto any public road. Vehicles and Equipment may only enter and exit the construction site via a stabilized rock construction entrance.

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 operator will maintain and make available to Lehigh County Conservation District complete, written inspection logs of all those inspections. All preventative and maintenance work, including clean out, replacement, regrading, reseeded, remodeling and reinstallation must be performed immediately. If the E&S BMPs fail to perform as expected, replacement BMPs, or modifications of those installed will be required.

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 public roadway or sidewalk shall be returned to the construction site by the end of each work day and disposed in the manner described in this plan. In no case shall the sediment be washed, shoveled, or swept into any roadside ditch, storm sewer, or surface water.

All sediment removed from BMPs shall be disposed of in the manner described on the 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.

Areas which are to be topsoiled shall be scarified to a minimum depth of 3 to 5 inches - 6 to 12 inches on compacted soils - prior to placement of topsoil. Areas to be vegetated shall have a minimum 4 inches of topsoil in place prior to seeding and mulching. Fill outcrops shall have a minimum of 2 inches of topsoil.

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.

All earthen fills shall be placed in compacted layers not to exceed 9 inches in thickness.

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 fills.

Fill shall not be placed on saturated or frozen surfaces.

Seeps or springs encountered during construction shall be handled in accordance with the standard and specification for subsurface drain or other approved method.

All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in competent bedrock and rock fills need not be vegetated. Seeded areas within 50 feet of a surface water, or as otherwise shown on the plan drawings, shall be blanketed according to the standards of this plan.

Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or other protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.

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.

Erosion and sediment BMPs must be constructed, stabilized, and functional before site disturbance begins within the tributary areas of those BMPs. E&S BMPs shall remain functional as such until all areas tributary to them are permanently stabilized or until they are replaced by another BMP approved by the local conservation district or the Department.

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.

After final site stabilization has been achieved, temporary erosion and sediment BMPs must be removed or converted to permanent post construction stormwater management BMPs. Areas disturbed during removal or conversion of the BMPs shall be stabilized immediately. In order to ensure rapid revegetation of disturbed areas, such removal/conversions are to be done only during the germinating season.

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 to schedule a final inspection.

Failure to correctly install E&S BMPs, failure to prevent sediment-laden runoff from leaving the construction site or failure to take immediate corrective action to resolve failure of E&S BMPs may result in administrative, civil, and/or criminal penalties being instituted by the Department as defined in Section 802 of the Clean Streams Law. The Clean Streams Law provides for up to \$10,000 per day in civil penalties, up to \$10,000 in summary criminal penalties, and up to \$25,000 in misdemeanor criminal penalties for each violation.

In the event of sinkhole discovery a professional geologist or engineer will be contacted concerning mitigation. Additionally, the Lehigh County Conservation District will be made aware of the sinkhole discovery immediately.

The operator shall assure that the approved erosion and sediment control plan is properly and completely implemented.

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, Water Resources, Chapter 102, Erosion Control.

The E&S control plan mapping must display a PA ONE CALL SYSTEM INCORPORATED symbol including the site identification number. (This is a numbered symbol not a note.)

At stream crossings, 50' buffer areas should be maintained. On buffers, clearing, sod disturbances, excavation, and equipment traffic should be minimized. Activities such as stacking logs, burning cleared brush, discharging rainwater from trenches, welding pipe sections, refueling and maintaining equipment should be accomplished outside of buffers.

All wetlands must be delineated and protected with orange safety fence prior to any earthmoving activity.

Straw mulch shall be applied in long strands, not chopped or finely broken

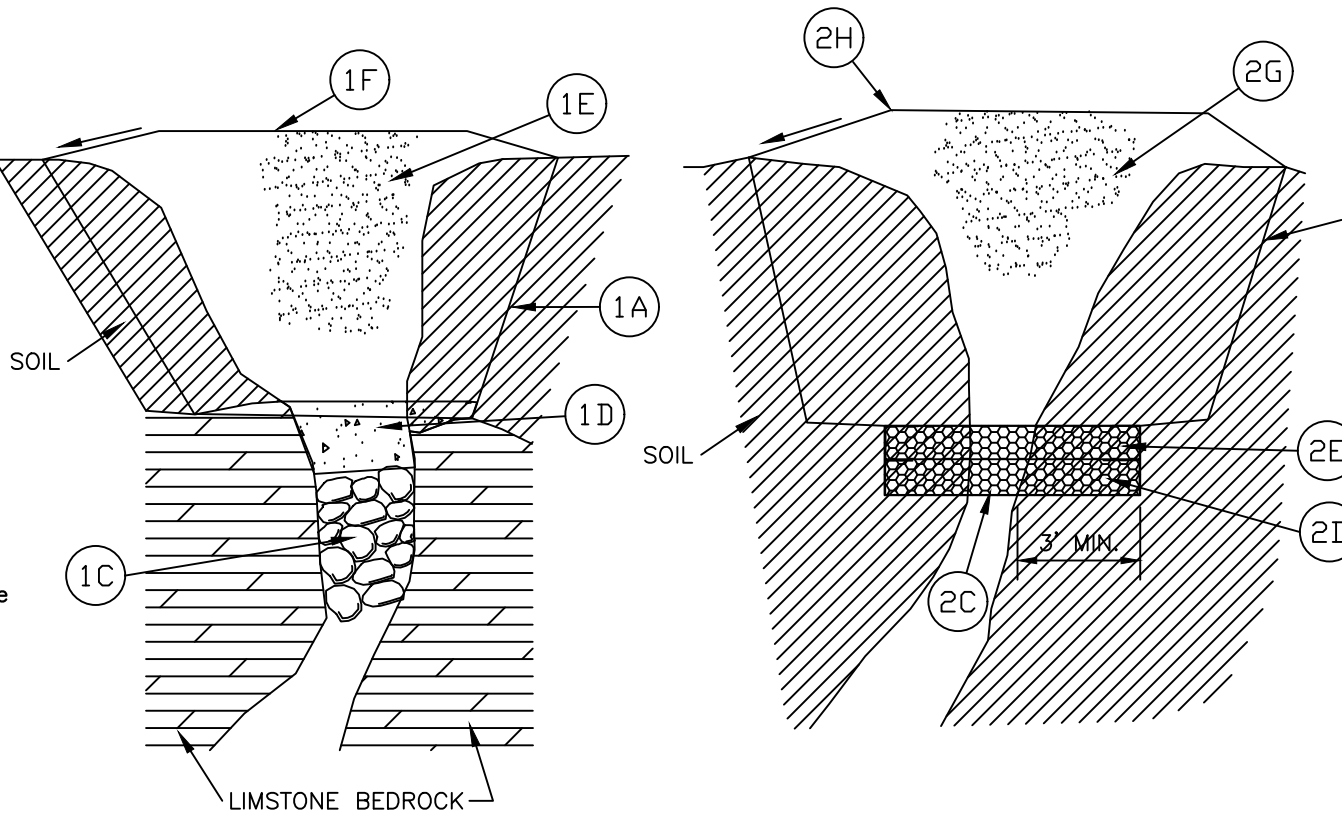
Concrete wash water shall be handled in the manner described on the plan drawings. In no case shall it be allowed to enter any surface waters or groundwater systems.

All channels shall be kept free of obstructions including but not limited to fill, rocks, leaves, woody debris, accumulated sediment, excess vegetation, and construction material/wastes.

Erosion control blanketing shall be installed on all slopes 3H:1V or steeper within 50 feet of a surface water and on all other disturbed areas specified on the plan maps and/or detail sheets.

Fill material for embankments shall be free of roots, or other woody vegetation, organic material, large stones, and other objectionable materials. The embankment shall be compacted in maximum 8" layered lifts at 95% density.

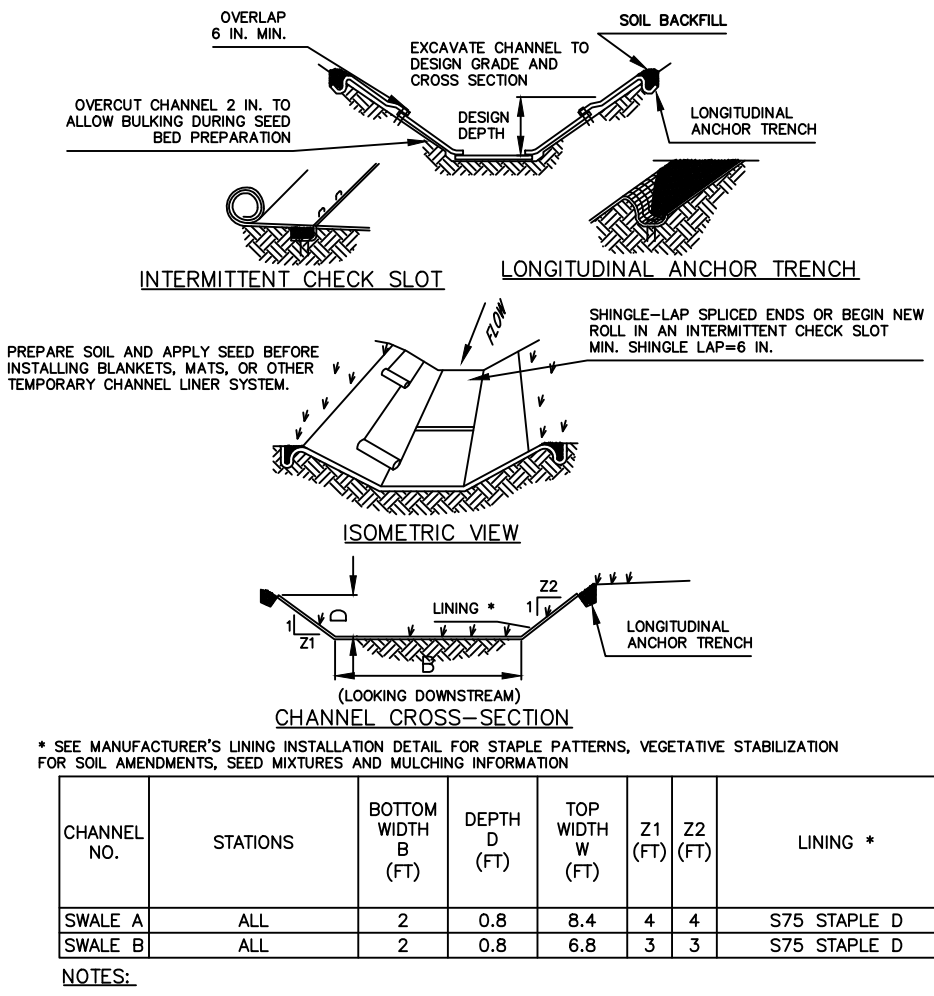
SINKHOLE REPAIR (IF ENCOUNTERED)



GENERAL GUIDELINES FOR SINKHOLE REPAIR

** THE TOWNSHIP GEOECONOMIC REPRESENTATIVE SHOULD BE CONSULTED PRIOR TO IMPLEMENTING A REPAIR PROCEDURE.

- ORIFICE LOCATED AND EXTENDING INTO ROCK:
 - EXCAVATE UNTIL FIRM SOIL IS ENCOUNTERED. EXCAVATIONS MORE THAN 4' DEEP SHOULD BE SHORED OR SLOPED FOLLOWING OSHA REQUIREMENTS.
 - WASH ROCK SURFACE AND CLEAN ORIFICE.
 - IF NECESSARY, PLUG ORIFICE WITH QUARRY ROCK.
 - BACKFILL ORIFICE AND A MINIMUM OF 2 FEET ABOVE ROCK SURFACE WITH HIGH SLUMP LEAN CONCRETE (K-CRETE).
 - BACKFILL EXCAVATION WITH COMPACTED, IMPERMEABLE SOIL TO THE GROUND SURFACE. COMPACT BACKFILL TO 95% OF DRY DENSITY.
 - PROVIDE POSITIVE SURFACE DRAINAGE.
 - CONSULT GEOLOGIST OR GEOTECHNICAL ENGINEER IF UNUSUAL CIRCUMSTANCES ARE ENCOUNTERED.
- ORIFICE LOCATED BUT ROCK NOT ENCOUNTERED, OR ORIFICE NOT LOCATED:
 - EXCAVATE UNTIL FIRM SOIL IS ENCOUNTERED. EXCAVATIONS MORE THAN 4 FEET DEEP SHOULD BE SHORED OR SLOPED FOLLOWING OSHA REQUIREMENTS.
 - CLEAN LOOSE SOILS FROM BOTTOM.
 - PLACE LAYER OF HEAVY-DUTY NON-WOVEN GEOTEXTILE FABRIC (TYPAR 3401, MIRAFI 500X OR EQUIVALENT).
 - PLACE AND COMPACT 1 FOOT OF COARSE AGGREGATE (PENNDOT 2A MODIFIED), COMPACT TO 95% OF DRY DENSITY.
 - LAP OVER FIRST LAYER OF FABRIC AND PLACE SECOND LAYER OF FABRIC.
 - REPEAT STEPS D. AND E. AS NECESSARY (MINIMUM 2 COURSES).
 - BACKFILL REMAINDER OF EXCAVATION WITH COMPACTED, IMPERMEABLE SOIL TO THE GROUND SURFACE. COMPACT BACKFILL TO 95% OF DRY DENSITY.
 - PROVIDE POSITIVE SURFACE DRAINAGE.
 - CONSULT GEOLOGIST OR GEOTECHNICAL ENGINEER IF UNUSUAL CIRCUMSTANCES ARE ENCOUNTERED.



CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING *
SWALE A	ALL	2	0.8	8.4	4	4	S75 STAPLE D
SWALE B	ALL	2	0.8	8.8	3	3	S75 STAPLE D

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.



WELL VEGETATED, GRASSY AREA

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-3788	350 PSI
UV RESISTANCE	ASTM D-4355	70%
ADS % 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 IT IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED UNDER FILTER STONES TO INCREASE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5X. FOR SLOPES EXCEEDING 5X, CLEAN ROCK OR OTHER HIGHLY EROSION RESISTANT MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

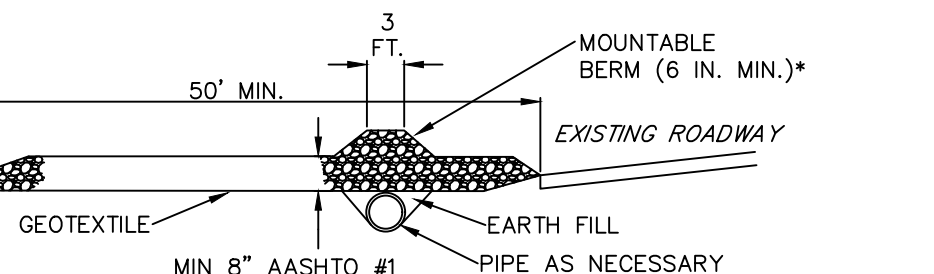
NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED UNDER BAGS LOCATED IN HD OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

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

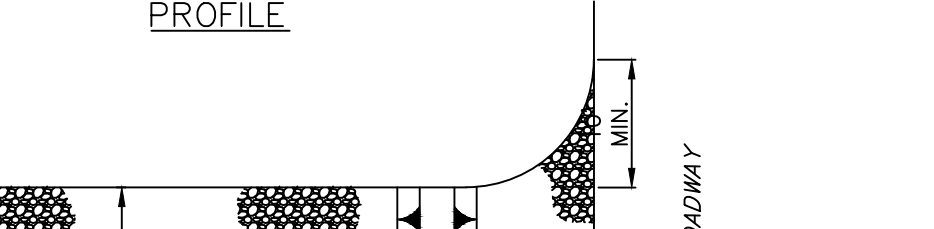
THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER. WHENEVER IS LESS, PUMP INTAKES SHALL BE FLOATING AND SCREENED.

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

STANDARD CONSTRUCTION DETAIL #3-16 PUMPED WATER FILTER BAG



PROFILE



PLAN VIEW

NOTES:

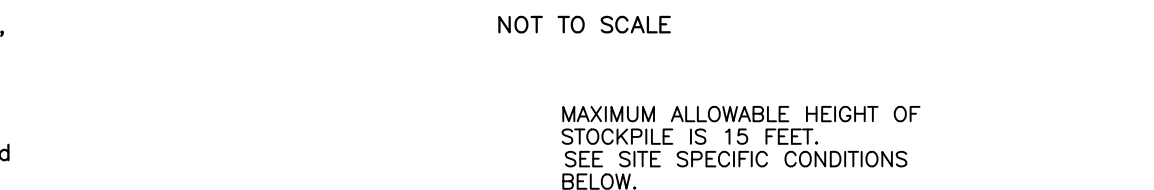
WASH RACK SHALL BE 20 FEET (MIN.) WIDE OR TOTAL WIDTH OF ACCESS.

WASH RACK SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE ANTICIPATED CONSTRUCTION VEHICULAR TRAFFIC.

A WATER SUPPLY SHALL BE MADE AVAILABLE TO WASH THE WHEELS OF ALL VEHICLES EXITING THE SITE.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACES UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES. DAMAGE TO THE WASH RACK SHALL BE REPAIRED PRIOR TO FURTHER USE OF THE RACK. ALL SEDIMENT DEPOSITED ON ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

STANDARD CONSTRUCTION DETAIL #3-2 ROCK CONSTRUCTION ACCESS WITH WASH RACK



NOT TO SCALE

MAXIMUM ALLOWABLE HEIGHT OF STOCKPILE IS 15 FEET.

SEE SITE SPECIFIC CONDITIONS BELOW.

* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:
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.

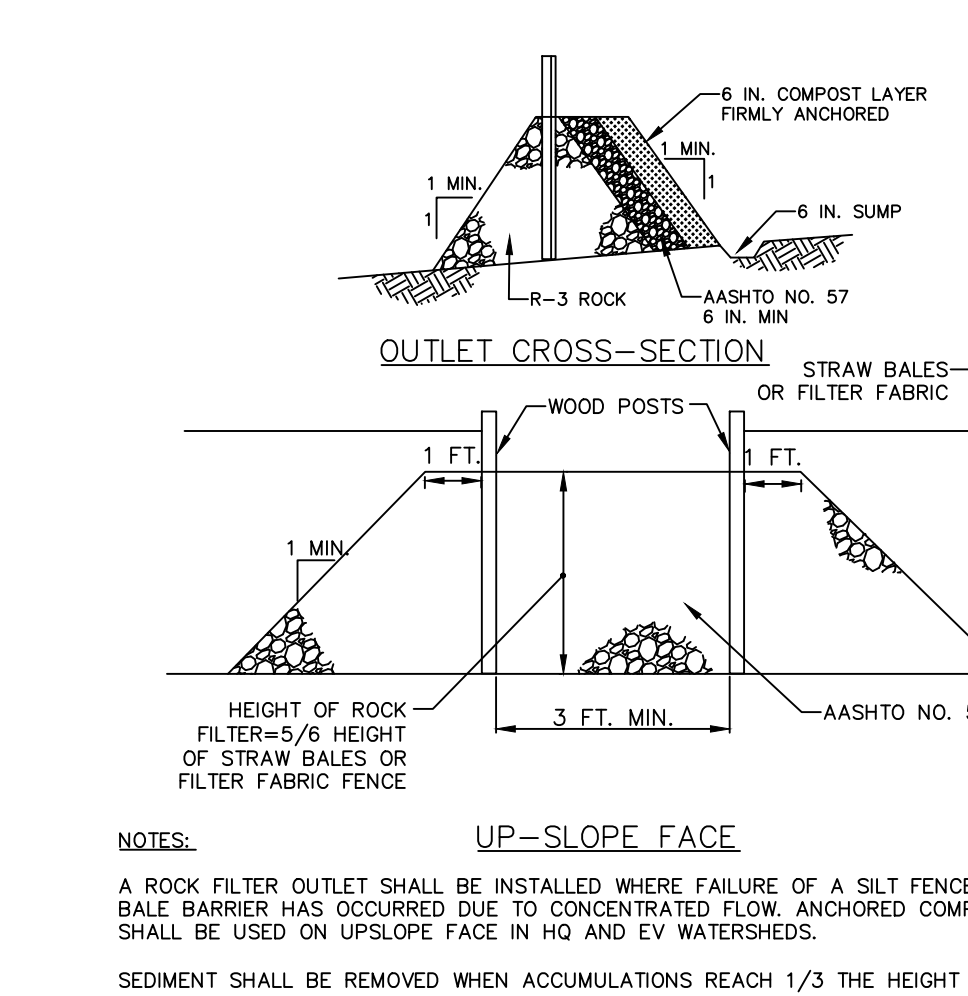
MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

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

STANDARD CONSTRUCTION DETAIL #3-1 STOCKPILED TOPSOIL AND FILL MATERIAL

NOT TO SCALE

MAINTENANCE:
1. The stockpiled topsoil and fill material will be inspected on a daily basis and after every runoff event. All necessary repairs will be made immediately.
2. All stockpiles will be temporary seeded and mulched at all times.

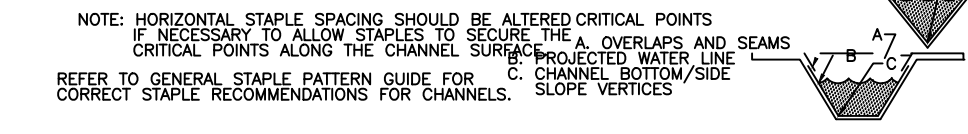


DETAIL ROCK FILTER OUTLET NOT TO SCALE

STANDARD CONSTRUCTION DETAIL #37

Channel installation

NOTE: HORIZONTAL STAPLE SPACING SHOULD BE ALTERED CRITICAL POINTS IF NECESSARY TO ALLOW SPACES TO SECURE THE A OVERLAPS AND SEAMS. REFER TO GENERAL STAPLE PATTERN GUIDE FOR CHANNEL BOTTOM/SIDE CORRECT STAPLE RECOMMENDATIONS FOR CHANNELS. SLOPE VARIATIONS:



DETAIL ROCK FILTER OUTLET NOT TO SCALE

SEEDING AND SOIL SUPPLEMENTS

THE FOLLOWING SPECIFICATIONS ARE IN ACCORDANCE WITH PENNDOT PUBLICATION #408, SECTION 804.

TEMPERARY SEED MIXTURES

SEED TYPE	% BY WEIGHT	PURITY	MAX. WEED SEED
(PENNDOT FORMULA D) ANNUAL REGRASS	100	95%	0.10%
APPLY SEED AT A RATE OF 50 LBS. PER ACRE. APPLY STRAW MULCH (SEE MULCH APPLICATION RATES TABLE) SEEDING SEASON DATES: MARCH 15 TO OCTOBER 15			

PERMANENT SEED MIXTURE

SEED TYPE	% BY WEIGHT	PURITY	MAX. WEED SEED
(PENNDOT FORMULA B) PERENNIAL REGRASS MIXTURE *	20	97%	0.10%
CREEPING RED FESCUE	30	97%	0.10%
HARDTOST BLOSSOMS MIXTURE ** (POA PRATIENSIS)	50	97%	0.15%

APPLY SEED AT A RATE OF 105 LBS. PER ACRE. APPLY MULCH (SEE MULCH APPLICATION RATES TABLE) APPLY PULVERIZED AGRICULTURAL LIMESTONE AT A RATE OF 2 TONS/ACRE UNLESS TESTING HAS BEEN PERFORMED.

APPLY 10-20-20 ANALYSIS COMMERCIAL FERTILIZER AT A RATE OF 880 LBS./ACRE UNLESS TESTING HAS BEEN PERFORMED.

APPLY 38-0-0 UREAFORM FERTILIZER AT A RATE OF 250 LBS./ACRE UNLESS TESTING HAS BEEN PERFORMED.

* A COMBINATION OF APPROVED CERTIFIED VARIETIES WITH NO ONE VARIETY EXCEEDING 50% OF THE TOTAL BLUEGRASS COMPONENT.

** A COMBINATION OF APPROVED CERTIFIED VARIETIES WITH NO ONE VARIETY EXCEEDING 25% OF THE TOTAL BLUEGRASS COMPONENT.

PERMANENT SEED MIXTURES ON STEEP SLOPES (SLOPES EXCEEDING 3:1)

SEED TYPE	% BY WEIGHT	PURITY	MAX. WEED SEED
(PENNDOT FORMULA D) TALL FESCUE	60	90%	0.10%
(FESTUCA ARUNDINACEA VAR. KENTUCKY 21)			
CREEPING RED FESCUE	30	97%	0.10%
ANNUAL REGRASS	10	95%	0.10%

APPLY SEED AT A RATE OF 105 LBS. PER ACRE. MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS MUST BE INSTALLED.

APPLY PULVERIZED AGRICULTURAL LIMESTONE AT A RATE OF 2 TONS/ACRE UNLESS TESTING HAS BEEN PERFORMED.

APPLY 10-20-20 ANALYSIS COMMERCIAL FERTILIZER AT A RATE OF 880 LBS./ACRE UNLESS TESTING HAS BEEN PERFORMED.

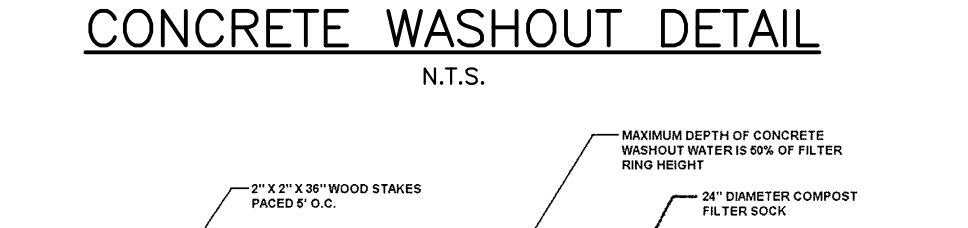
APPLY 38-0-0 UREAFORM FERTILIZER AT A RATE OF 250 LBS./ACRE UNLESS TESTING HAS BEEN PERFORMED.

SEEDING SEASON DATES: MARCH 15 TO JUNE 1; AUGUST 1 TO OCTOBER 15

MULCH TYPE	PER ACRE	APPLICATION RATE (MIN.) PER 1,000 SQ. YD.	NOTES	
STRAW	3 TONS	140 LB	1,240 LB	ENTER WEIGHT OR GAT STRAW. FINE 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	4-8 TONS	180-275 LB.	1,650-2,500 LB.	MAY PREVENT GERMINATION OF GRASSES AND LEGUMES.
HORMONACH	1 TON	47 LB.	415 LB.	IF UTILIZED ON SLOPES STEEPER THAN 3X, USE WOOD CHIP HORMONACH WITH A TACKLER.

APPLICATION RATE (MIN.)

NOTES:
1. INSTALL ON FINISHED GRADE FOR OPTIMAL PERFORMANCE.
2. DOUBLE 2" QUARTER ROUND BERM OR FRAMED CONFINEMENT FOR ADED HEIGHT.



CONCRETE WASHOUT DETAIL N.T.S.

MAXIMUM DEPTH OF CONCRETE WASHOUT BETWEEN BERM OF FILTER ROCK

* QUARTER ROUND BERM OR FRAMED CONFINEMENT FOR ADED HEIGHT

1" X 2" X 36" WOODEN STAKES PLACED P.O.C.

24" DIAMETER COMPOST FILTER SOCK - 18" OVERLAP ON UPSLOPE SIDE OF FILTER BERM

DIRECT CONCRETE WASHOUT INTO FILTER BERM

GEOMEMBRANE

NOTES:
1. INSTALL ON FINISHED GRADE FOR OPTIMAL PERFORMANCE.
2. DOUBLE 2" QUARTER ROUND BERM OR FRAMED CONFINEMENT FOR ADED HEIGHT.

1" X 2" X 36" WOODEN STAKES PLACED P.O.C.

24" DIAMETER COMPOST FILTER SOCK - 18" OVERLAP ON UPSLOPE SIDE OF FILTER BERM

DIRECT CONCRETE WASHOUT INTO FILTER BERM

GEOMEMBRANE

A suitable impervious geomembrane shall be placed at the location of the washout prior to installing the socks.

Adapted from Filtrtex

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KEYSTONE CONSULTING ENGINEERS, INC.
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KEYSTONE CONSULTING ENGINEERS

EROSION AND SEDIMENTATION DETAILS

RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
LEHIGH COUNTY, PENNSYLVANIA
SOUTH WHITEHALL TOWNSHIP

DESIGNED BY:	KCE
DRAWN BY:	MFC/ARF
CHECKED BY:	MSK
DATE:	March 05, 2021
SCALE:	AS SHOWN
JOB NUMBER:	CW-20-128
SHEET:	19 OF 23

STANDARD EROSION AND SEDIMENT CONTROL PLAN NOTES:

All earth disturbances, including clearing and grubbing as well as cuts and fills shall be done in accordance with the approved E&S plan. A copy of the approved drawings (stamped, signed and dated by the reviewing agency) must be available at the project site at all times. The reviewing agency shall be notified of any changes to the approved plan prior to implementation of those changes. The reviewing agency may require a written submittal of those changes for review and approval at its discretion.

At least 7 days prior to starting any earth disturbance activities, including clearing and grubbing, the owner and/or operator shall invite all contractors, the landowner, appropriate municipal officials, the E&S plan preparer, the PCSM plan preparer, the licensed professional responsible for oversight of critical stages of implementation of the PCSM plan, and a representative from the local conservation district to an on-site preconstruction meeting.

At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, the Pennsylvania One Call System Inc. shall be notified at 1-800-242-1776 for the location of existing underground utilities.

All earth disturbance activities shall proceed in accordance with the sequence provided on the plan drawings. Deviation from that sequence must be approved in writing from the local conservation district or by the Department prior to implementation.

Areas to be filled are to be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots and other objectionable material.

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 areas outside the limit of disturbance boundaries shown on the plan maps. These areas must be clearly marked and fenced off before clearing and grubbing operations begin.

Topsoil required for the establishment of vegetation shall be stockpiled at the location(s) shown on the plan map(s) in the amount necessary to complete the finish grading of all exposed areas that are to be stabilized by vegetation. Each stockpile shall be protected in the manner shown on the plan drawings. Stockpile heights shall not exceed 35 feet. Stockpile slopes shall be 2H:1V or flatter.

Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to minimize the potential for erosion and sediment pollution and notify the local conservation district and/or the regional office of the Department.

All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the Department's Solid Waste Management Regulations at 25 Pa. Code 260.1 et seq., 271.1, and 287.1 et. seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at this site.

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.

The contractor is responsible for ensuring that any material brought on site is clean fill. Form FP-001 must be retained by the property owner for any fill material affected by a spill or release of a regulated substance but qualifying as clean fill due to analytical testing.

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 discharging over non-disturbed areas.

Vehicles and equipment may neither enter directly nor exit directly onto any public road. Vehicles and Equipment may only enter and exit the construction site via a stabilized rock construction entrance.

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 operator will maintain and make available to Lehigh County Conservation District complete, written inspection logs of those inspections. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, re-mulching and renetting must be performed immediately, if the E&S BMPs fail to perform as expected, replacement BMPs, or modifications of those installed will be required.

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 public roadway or sidewalk shall be returned to the construction site by the end of each work day and disposed in the manner described in this plan. In no case shall the sediment be washed, shoveled, or swept into any roadside ditch, storm sewer, or surface water.

All sediment removed from BMPs shall be disposed of in the manner described on the 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.

Areas which are to be topsoiled shall be scarified to a minimum depth of 3 to 5 inches - 6 to 12 inches on compacted soils - prior to placement of topsoil. Areas to be vegetated shall have a minimum 4 inches of topsoil in place prior to seeding and mulching. Fill outcrops shall have a minimum of 2 inches of topsoil.

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.

All earthen fills shall be placed in compacted layers not to exceed 9 inches in thickness.

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 fills.

Fill shall not be placed on saturated or frozen surfaces.

Seeps or springs encountered during construction shall be handled in accordance with the standard and specification for subsurface drain or other approved method.

All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in competent bedrock and rock fills need not be vegetated. Seeded areas within 50 feet of a surface water, or as otherwise shown on the plan drawings, shall be blanketed according to the standards of this plan.

Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or other protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.

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.

Erosion and sediment BMPs must be constructed, stabilized, and functional before site disturbance begins within the tributary areas of those BMPs. E&S BMPs shall remain functional as such until all local tributary to them are permanently stabilized or until they are replaced by another BMP approved by the local conservation district or the Department.

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.

After final site stabilization has been achieved, temporary erosion and sediment BMPs must be removed or converted to permanent post construction stormwater management BMPs. Areas disturbed during removal or conversion of the BMPs shall be stabilized immediately. In order to ensure rapid revegetation of disturbed areas, such removal/conversions are to be done only during the germinating season.

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 to schedule a final inspection.

Failure to correctly install E&S BMPs, failure to prevent sediment-laden runoff from leaving the construction site or failure to take immediate corrective action to resolve failure of E&S BMPs may result in administrative, civil, and/or criminal penalties being instituted by the Department as defined in Section 802 of the Clean Streams Law. The Clean Streams Law provides for up to \$10,000 per day in civil penalties, up to \$10,000 in summary criminal penalties, and up to \$25,000 in misdemeanor criminal penalties for each violation.

In the event of sinkhole discovery a professional geologist or engineer will be contacted concerning mitigation. Additionally, the Lehigh County Conservation District will be made aware of the sinkhole discovery immediately.

The operator shall assure that the approved erosion and sediment control plan is properly and completely implemented.

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, Water Resources, Chapter 102, Erosion Control.

The E&S control plan mapping must display a PA ONE CALL SYSTEM INCORPORATED symbol including the site identification number. (This is a numbered symbol not a note.)

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All wetlands must be delineated and protected with orange safety fence prior to any earthmoving activity.

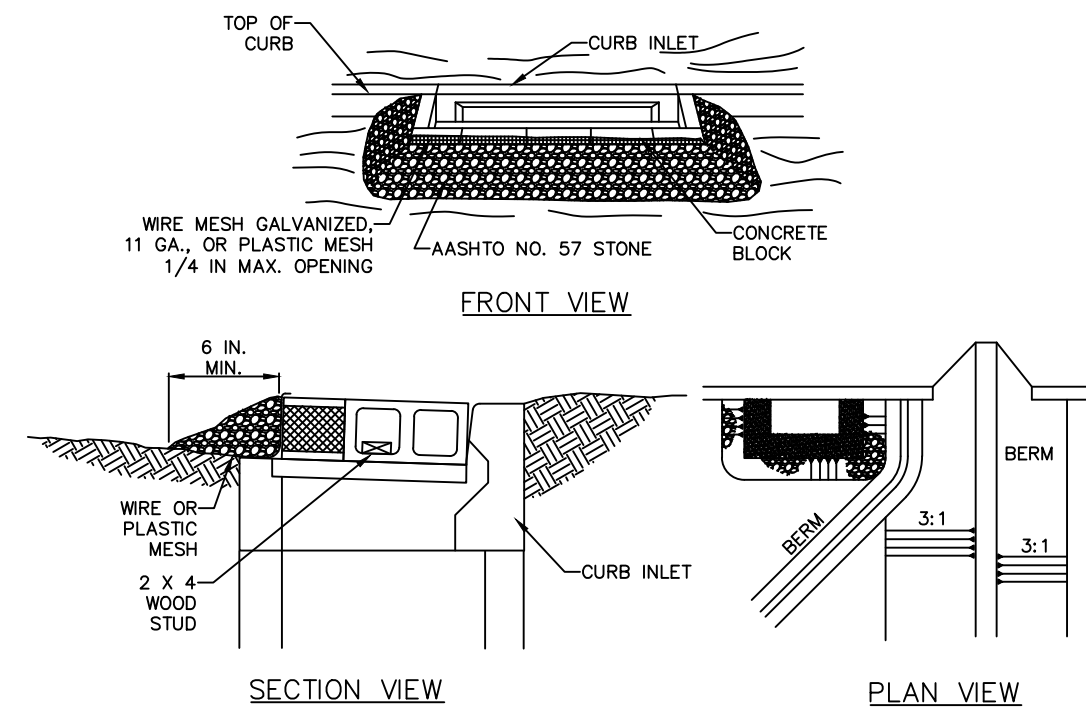
Straw mulch shall be applied in long strands, not chopped or finely broken

Concrete wash water shall be handled in the manner described on the plan drawings. In no case shall it be allowed to enter any surface waters or groundwater systems.

All channels shall be kept free of obstructions including but not limited to fill, rocks, leaves, woody debris, accumulated sediment, excess vegetation, and construction material/wastes.

Erosion control blanketing shall be installed on all slopes 3H:1V or steeper within 50 feet of a surface water and on all other disturbed areas specified on the plan maps and/or detail sheets.

Fill material for embankments shall be free of roots, or other woody vegetation, organic material, large stones, and other objectionable materials. The embankment shall be compacted in maximum 8" layered lifts at 95% density.



NOTES:

MAXIMUM DRAINAGE AREA = 1 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 PROVIDED AND MAINTAINED IMMEDIATELY DOWN GRADIENT OF THE PROTECTED INLET 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.

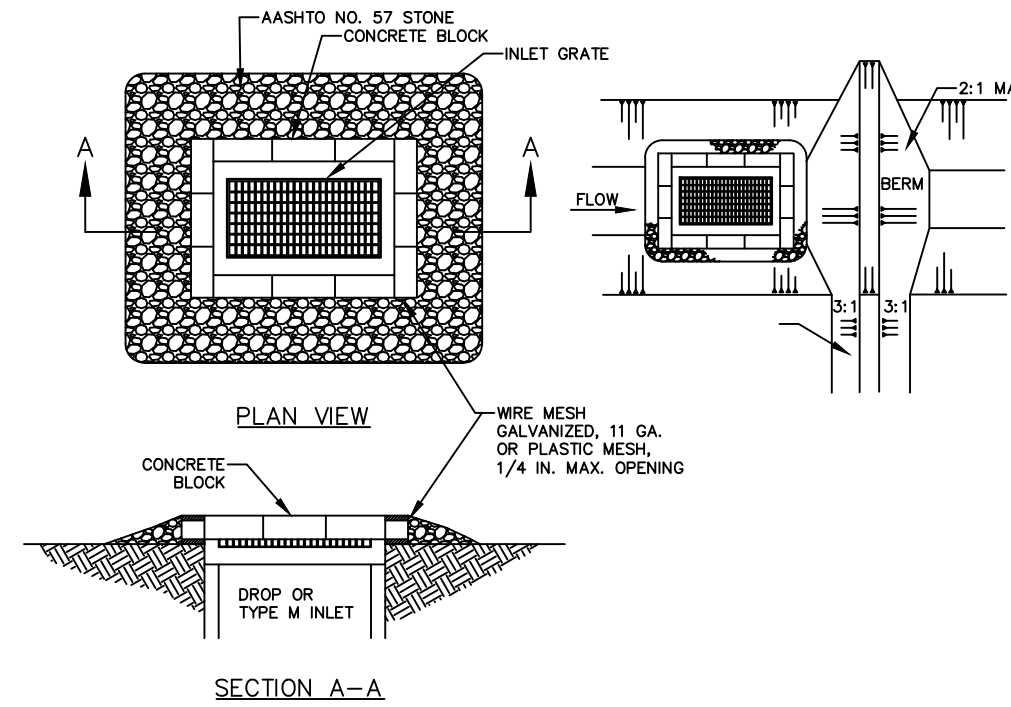
SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE STONE. DAMAGED OR CLOGGED INSTALLATIONS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

FOR SYSTEMS DISCHARGING TO HO OR EV SURFACE WATER, A 6 INCH THICK COMPOST LAYER SHALL BE SECURELY ANCHORED ON OUTSIDE AND OVER TOP OF STONE.

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

**STANDARD CONSTRUCTION DETAIL #4-17
STONE AND CONCRETE BLOCK INLET PROTECTION - TYPE C INLET**

NOT TO SCALE



NOTES:

MAXIMUM DRAINAGE AREA = 1 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS NOT LOCATED AT A LOW POINT.

ROLLED EARTHEN BERM IN ROADWAY SHALL BE PROVIDED AND MAINTAINED IMMEDIATELY DOWN GRADIENT OF THE PROTECTED INLET 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 TO REMAIN PERMANENTLY.

TOP OF BLOCK SHALL BE AT LEAST 6 INCHES BELOW ADJACENT ROADS IF PONDING WATER WOULD POSE A SAFETY HAZARD TO TRAFFIC.

SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE HEIGHT OF THE STONE. DAMAGED OR CLOGGED INSTALLATIONS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

FOR SYSTEMS DISCHARGING TO HO OR EV SURFACE WATER, A 6 INCH THICK COMPOST LAYER SHALL BE SECURELY ANCHORED ON OUTSIDE AND OVER TOP OF STONE. COMPOST SHALL MEET THE STANDARDS IN TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

**STANDARD CONSTRUCTION DETAIL #4-18
STONE AND CONCRETE BLOCK INLET PROTECTION - TYPE M INLET**

NOT TO SCALE

TABLE 4.2 - COMPOST STANDARDS

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

TABLE 4 - ABSORBED MASS OF NUTRIENTS AND METALS IN UNVEGETATED PLOT RUNOFF FROM 30-MINUTE, HIGH-INTENSITY (100-mm/hr.) RAINSTORM

ELEMENT	COMPOST TREATMENT		CONVENTIONAL TREATMENTS		
	BIOSOLIDS	YARDWASTE	BIOINDUSTRIAL COMPOST	COMPACTED SUBSOIL	TOPSOIL
	GEOMETRIC MEAN (mg)				
CHROMIUM	0.01 b	<0.01 a	<0.01 b	0.92 c	0.76 c
COPPER	0.02 b	<0.01 a	0.01 b	1.03 c	0.66 c
NICKEL	<0.01 b	<0.01 a	<0.01 b	0.96 c	0.67 c
LEAD	0.01 b	<0.01 a	<0.01 b	1.82 c	0.95 c
ZINC	0.10 b	<0.01 a	0.03 b	6.55 c	3.99 c
NITROGEN	0.47 b	<0.01 a	0.09 a,b	266.65 c	211.87 c
PHOSPHORUS	0.45 b	<0.01 a	0.09 a,b	36.47 c	29.01 c
POTASSIUM	0.17 b	<0.01 a	0.09 a,b	103.94 c	71.57 c

MEANS WITHIN THE SAME ROW WITH DIFFERENT LETTER DESIGNATIONS ARE SIGNIFICANTLY DIFFERENT (p<0.05)

HIGHEST	MEDIUM	LOWEST
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TABLE 4.1 - COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS

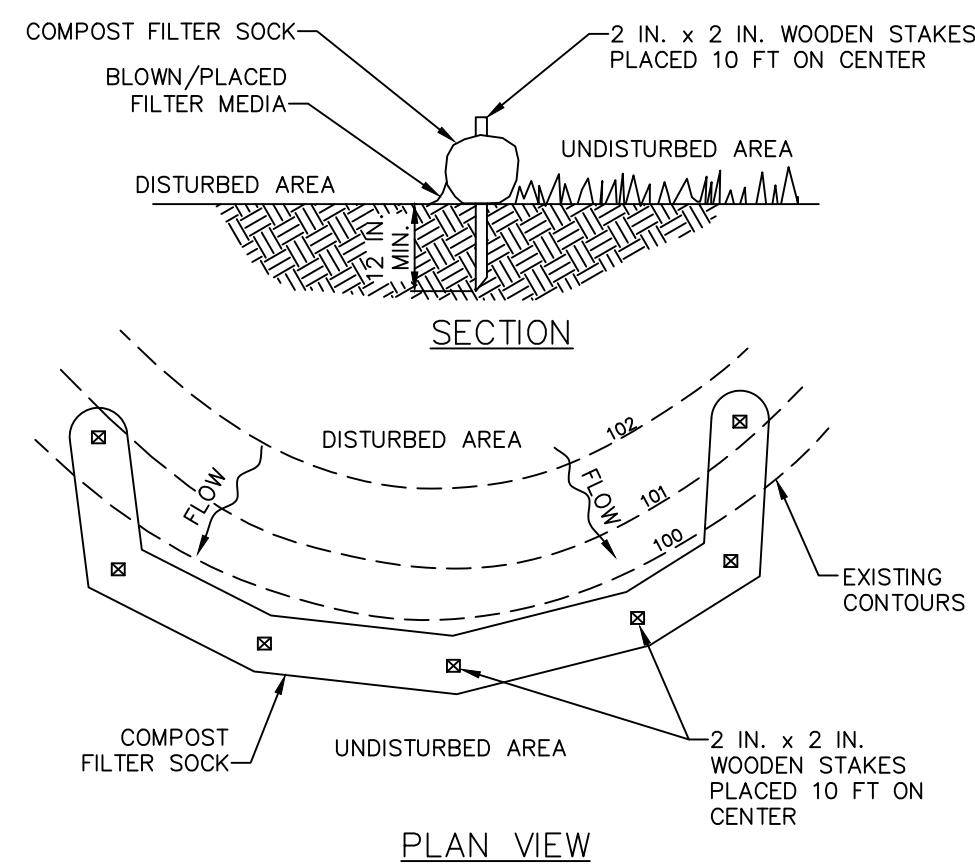
MATERIAL TYPE	3 MIL HDPE	5 MIL HDPE	5 MIL HDPE	MULTI-FILAMENT POLYPROPYLENE (MFPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (HDMFPP)
MATERIAL CHARACTERISTICS	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE	BIO-DEGRADABLE	PHOTO-DEGRADABLE	PHOTO-DEGRADABLE
SOCK DIAMETERS	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
MESH OPENING	3/8"	3/8"	3/8"	3/8"	3/8"
TENSILE STRENGTH		26 PSI	26 PSI	44 PSI	202PSI
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% AT 1000 HR.	23% AT 1000 HR.		100% AT 1000 HR.	100% AT 1000 HR.
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS

TWO-PLY SYSTEMS

INNER CONTAINMENT NETTING	HDPE BIAXIAL NET
	CONTINUOUSLY WOUND FUSION-WELDED JUNCTURES
OUTER FILTRATION MESH	3/4" x 3/4" MAX. APERTURE SIZE COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH)
	3/8" MAX. APERTURE SIZE

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

CONTRACTOR SHALL USE 5 MIL HDPE PHOTO-DEGRADABLE COMPOST SOCK. SEE PLAN FOR SIZE DIAMETERS AND LOCATIONS.



NOTES:

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 SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

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.

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**

NOT TO SCALE

SOCK NO.	Dia. In.	LOCATION	SLOPE PERCENT	SLOPE LENGTH ABOVE BARRIER (FT)
CFS 1	24"	Lot 4	7.2%	313'
CFS 2	32"	Lot 4	50%	178'
CFS 3	12"	Lot 4	7.6%	224'
CFS 4	12"	Lot 4	9.2%	206'
CFS 5	8"	Lot 4	9.6%	167'
CFS 6	24"	Lot 3	7.2%	340'
CFS 7	8"	Lot 3	8.6%	134'
CFS 8	18"	Lot 2	50%	10'
CFS 9	5"	Lot 2	2.4%	106'
CFS 10	5"	Lot 2	7.4%	102'
CFS 11	8"	Lutz Property	5.3%	170'
CFS 12	5"	ROW 1	8.3%	84'
CFS 13	5"	ROW 1	12.7%	55'
CFS 14	18"	Lot 2	10.4%	198'

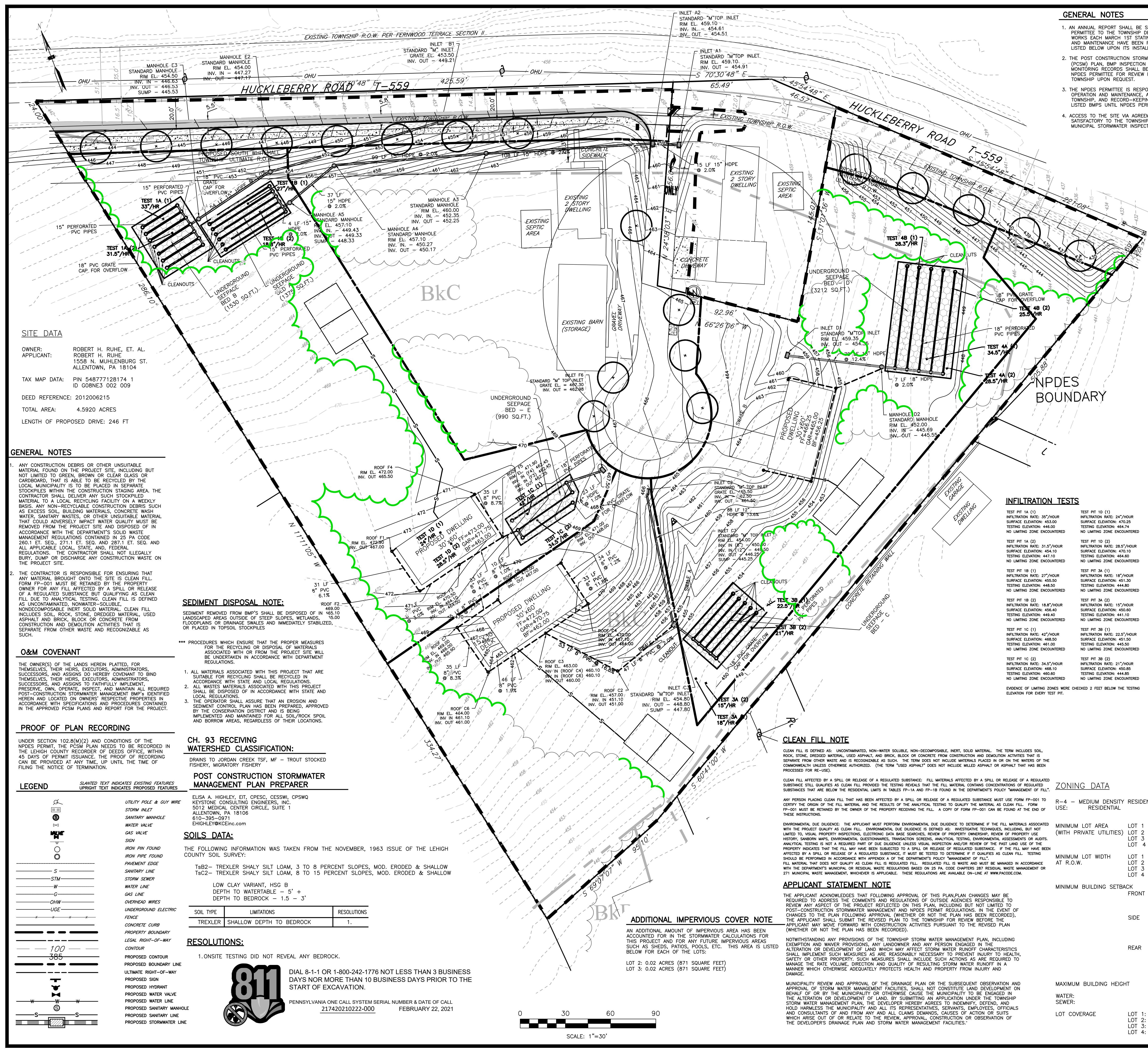
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 5012 MEDICAL CENTER CIRCLE, ALLENTOWN, PA 18106 610-395-0971
 East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville
 www.KCEINC.com



EROSION AND SEDIMENTATION DETAILS 2
RUIHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY: KCE
 DRAWN BY: MFC/ARF
 CHECKED BY: MSN
 DATE: March 05, 2021
 SCALE: AS SHOWN
 JOB NUMBER: CW-20-128
 SHEET: 20 OF 23

REVISIONS:
 BY: DATE
 EAH 06/16/2021
 EAH 12/16/2021
 IMK 09/20/2023



GENERAL NOTES

1. AN ANNUAL REPORT SHALL BE SUBMITTED BY THE NPDES PERMITTEE TO THE TOWNSHIP DEPARTMENT OF PUBLIC WORKS EACH MARCH 1ST STATING THAT THE OPERATION AND MAINTENANCE HAVE BEEN PERFORMED FOR EACH BMP LISTED BELOW UPON ITS INSTALLATION.
2. THE POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) PLAN, BMP INSPECTION REPORTS, AND BMP MONITORING RECORDS SHALL BE MADE AVAILABLE BY THE NPDES PERMITTEE FOR REVIEW BY PAPEP, LOCD, AND THE TOWNSHIP UPON REQUEST.
3. THE NPDES PERMITTEE IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE ANNUAL REPORT TO THE TOWNSHIP, AND RECORD-KEEPING OF MONITORING THE LISTED BMPS UNTIL NPDES PERMIT TERMINATION.
4. ACCESS TO THE SITE VIA AGREEMENT AND/OR EASEMENTS SATISFACTORY TO THE TOWNSHIP SHALL BE PROVIDED FOR MUNICIPAL STORMWATER INSPECTION AND MAINTENANCE.

OWNER'S STATEMENT:
 THE UNDERSIGNED IS THE OWNER, EQUITABLE OWNER, OR HAS AN OPTION OR CONDITIONAL CONTRACT OF SALE ON THE LAND PROPOSED TO BE SUBDIVIDED OR DEVELOPED AND HAS NO LITIGATION OR LIENS EXIST OR ARE PENDING ON THE SITE.

OWNER'S CERTIFICATION:
 I BEING DULY SWORN ACCORDING TO LAW DOPOSE AND SAY THAT I AM THE SOLE OWNER OF THIS PROPERTY, IN PEACEFUL POSSESSION OF THE SAME, AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE THEREOF. I DO FURTHER DEPOSE AND SAY THAT I HAVE COMPLIED WITH ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20... BY WHICH THE TOWNSHIP BOARD OF COMMISSIONERS CONDITIONALLY WAIVED THE REQUIREMENTS OF THE TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE FOR THE PROJECT REFLECTED ON THIS PLAN. I AGREE THAT I SHALL EXONERATE, INDEMNIFY, PROTECT, DEFEND AND SAVE HARMLESS THE TOWNSHIP FROM ANY AND ALL CLAIMS, LAWSUITS, DAMAGES AND LIABILITIES OF EVERY KIND, CHARACTER AND MANNER WHATSOEVER PERTAINING TO, RELATING TO, RESULTING FROM, CAUSED BY OR ARISING OUT OF THE TOWNSHIP'S APPROVAL OF THE WAIVER REQUEST AS EVIDENCED BY RESOLUTION 20... ALL AS MORE FULLY OUTLINED IN RESOLUTION 20...
 OWNER:

WILLIAM H. RUHE
 OWNER

ADJACENT OWNER'S STATEMENT:
 THE UNDERSIGNED ACKNOWLEDGES ALL IMPROVEMENTS PROPOSED ON AND AROUND THE PROPERTY AT 2436 HUCKLEBERRY ROAD ARE LIMITED TO ADJUSTMENT OF DRIVEWAY AND GRADING THE IN, HAVE BEEN AGREED UPON.

JOHN P. LUTZ
 ADJACENT PROPERTY OWNER
REVIEWED BY THE LEHIGH VALLEY PLANNING COMMISSION:

COUNTY PLANNING COMMISSION STAFF PERSON DATE
APPROVED BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION:

APPROVED MONTH DAY YEAR BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION.

CHAIRMAN SECRETARY

APPROVED BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL:

APPROVED MONTH DAY YEAR BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL.

PRESIDENT SECRETARY

TOWNSHIP ENGINEER

TOWNSHIP WAIVER ACKNOWLEDGEMENT:
 BASED UPON AND EXPRESSLY IN RELIANCE ON THE FOREGOING CERTIFICATIONS OF THE OWNER AND DESIGN PROFESSIONAL, THE WITHIN PLAN IS ACCEPTED BY SOUTH WHITEHALL TOWNSHIP AS THE PLAN SATISFYING ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20...
 PRESIDENT SECRETARY

PROFESSIONAL ENGINEER'S CERTIFICATION

I, ALAN R. FORNWALT, P.E., A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY THAT THE ACCOMPANYING APPLICATION, PLANS AND SUPPORTING DOCUMENTATION ARE TRUE AND CORRECT, TO THE BEST OF MY KNOWLEDGE.

ALAN R. FORNWALT P.E. PE 070819
 5012 MEDICAL CENTER CIRCLE, ALLENTOWN, PA 18106

LEHIGH COUNTY RECORDER OF DEEDS:

LEHIGH COUNTY OFFICIAL DATE

SITE DATA

APPLICANT: ROBERT H. RUHE, ET AL.
 ROBERT H. RUHE
 1558 N. MUHLBURG ST.
 ALLENTOWN, PA 18104
 TAX MAP DATA: PIN 54877128174 1
 ID G08N3 002 009
 DEED REFERENCE: 2012006215
 TOTAL AREA: 4.5920 ACRES
 LENGTH OF PROPOSED DRIVE: 246 FT

GENERAL NOTES

1. ANY CONSTRUCTION DEBRIS OR OTHER UNSUITABLE MATERIAL FOUND ON THE PROJECT SITE, INCLUDING BUT NOT LIMITED TO GREEN, BROWN OR CLEAR GLASS OR CARDBOARD, THAT IS ABLE TO BE RECYCLED BY THE LOCAL MUNICIPALITY IS TO BE PLACED IN SEPARATE STOCKPILES WITHIN THE CONSTRUCTION STAGING AREA. THE CONTRACTOR SHALL DELIVER ANY SUCH STOCKPILED MATERIAL TO A LOCAL RECYCLING FACILITY ON A WEEKLY BASIS. ANY NON-RECYCLABLE CONSTRUCTION DEBRIS SUCH AS EXCESS SOIL, BUILDING MATERIALS, CONCRETE WASH WATER, SANITARY WASTES, OR OTHER UNSUITABLE MATERIAL THAT COULD ADVERSELY IMPACT WATER QUALITY MUST BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS CONTAINED IN 25 PA CODE 2601.1 ET. SEQ. AND 287.1 ET. SEQ. AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP OR DISCHARGE ANY CONSTRUCTION WASTE ON THE PROJECT SITE.

2. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ONTO THE SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL. DUE TO ANALYTICAL TESTING, CLEAN FILL IS DEFINED AS UNCONTAMINATED, NONWATER-SOLUBLE, NONDECOMPOSABLE INERT SOLID MATERIAL. CLEAN FILL INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND RECOGNIZABLE AS SUCH.

SEDIMENT DISPOSAL NOTE:

SEDIMENT REMOVED FROM BMP'S SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES

*** PROCEDURES WHICH ENSURE THAT THE PROPER MEASURES FOR THE RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH OR FROM THE PROJECT SITE WILL BE UNDERTAKEN IN ACCORDANCE WITH DEPARTMENT REGULATIONS.

O&M COVENANT

THE OWNER(S) OF THE LANDS HEREIN PLATTED, FOR THEMSELVES, THEIR HEIRS, EXECUTORS, ADMINISTRATORS, SUCCESSORS, AND ASSIGNS DO HEREBY COVENANT TO BIND THEMSELVES, THEIR HEIRS, EXECUTORS, ADMINISTRATORS, SUCCESSORS, AND ASSIGNS TO FAITHFULLY IMPLEMENT, PRESERVE, OWN, OPERATE, INSPECT, AND MAINTAIN ALL REQUIRED POST-CONSTRUCTION STORMWATER MANAGEMENT BMP'S IDENTIFIED HEREIN AND LOCATED ON OWNERS' RESPECTIVE PROPERTIES IN ACCORDANCE WITH SPECIFICATIONS AND PROCEDURES CONTAINED IN THE APPROVED PCSM PLANS AND REPORT FOR THE PROJECT.

PROOF OF PLAN RECORDING

UNDER SECTION 102.8(M)(2) AND CONDITIONS OF THE NPDES PERMIT, THE PCSM PLAN NEEDS TO BE RECORDED IN THE LEHIGH COUNTY RECORDER OF DEEDS OFFICE, WITHIN 45 DAYS OF PERMIT ISSUANCE. THE PROOF OF RECORDING CAN BE PROVIDED AT ANY TIME, UP UNTIL THE TIME OF FILING THE NOTICE OF TERMINATION.

LEGEND

- UTILITY POLE & GUY WIRE
- STORM INLET
- SANITARY MANHOLE
- WATER VALVE
- PROV. VALVE
- SOIL
- IRON PIN FOUND
- IRON PIPE FOUND
- PAVEMENT EDGE
- SANITARY LINE
- STORM SEWER
- WATER LINE
- GAS LINE
- OVERHEAD WIRES
- UNDERGROUND ELECTRIC FENCE
- CONCRETE CURB
- PROPERTY BOUNDARY
- LEGAL RIGHT-OF-WAY
- CONTOUR
- PROPOSED CONTOUR
- PROPOSED BOUNDARY LINE
- ULTIMATE RIGHT-OF-WAY
- PROPOSED SIGN
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- PROPOSED WATER LINE
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY LINE
- PROPOSED STORMWATER LINE

CH. 93 RECEIVING WATERSHED CLASSIFICATION:

DRAINS TO JORDAN CREEK TSP, MF - TROUT STOCKED FISHERY, MIGRATORY FISHERY

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN PREPARER

ELISA A. HIGHLEY, EIT, CPESC, CESSM, CPSWQ
 KEYSTONE CONSULTING ENGINEERS, INC.
 5012 MEDICAL CENTER CIRCLE, SUITE 1
 ALLENTOWN, PA 18106
 610-395-0971
 EHIGHLEY@KCEINC.COM

SOILS DATA:

THE FOLLOWING INFORMATION WAS TAKEN FROM THE NOVEMBER, 1963 ISSUE OF THE LEHIGH COUNTY SOIL SURVEY:
 T9B2 - TREXLER SHALY SILT LOAM, 3 TO 8 PERCENT SLOPES, MOD. ERODED & SHALLOW
 T9C2 - TREXLER SHALY SILT LOAM, 8 TO 15 PERCENT SLOPES, MOD. ERODED & SHALLOW

LOW CLAY VARIANT, HSG B
 DEPTH TO WATER TABLE - 5' ±
 DEPTH TO BEDROCK - 1.5 - 3'

SOIL TYPE	LIMITATIONS	RESOLUTIONS
TREXLER	SHALLOW DEPTH TO BEDROCK	1.

RESOLUTIONS:

1. ONSITE TESTING DID NOT REVEAL ANY BEDROCK.

DIAL 8-1-1 OR 1-800-242-1776 NOT LESS THAN 3 BUSINESS DAYS NOR MORE THAN 10 BUSINESS DAYS PRIOR TO THE START OF EXCAVATION.
 PENNSYLVANIA ONE CALL SYSTEM SERIAL NUMBER & DATE OF CALL
 217420210222-000 FEBRUARY 22, 2021

INfiltrATION TESTS

TEST PIT 1A (1)	INfiltrATION RATE: 35"/HOUR SURFACE ELEVATION: 463.00 TESTING ELEVATION: 444.74 NO LIMITING ZONE ENCOUNTERED	TEST PIT 1A (2)	INfiltrATION RATE: 24"/HOUR SURFACE ELEVATION: 470.25 TESTING ELEVATION: 443.50 NO LIMITING ZONE ENCOUNTERED	TEST PIT 4A (1)	INfiltrATION RATE: 28.5"/HOUR SURFACE ELEVATION: 449.50 TESTING ELEVATION: 442.45 NO LIMITING ZONE ENCOUNTERED
TEST PIT 1B (1)	INfiltrATION RATE: 31.5"/HOUR SURFACE ELEVATION: 464.10 TESTING ELEVATION: 447.10 NO LIMITING ZONE ENCOUNTERED	TEST PIT 1B (2)	INfiltrATION RATE: 27"/HOUR SURFACE ELEVATION: 465.50 TESTING ELEVATION: 445.00 NO LIMITING ZONE ENCOUNTERED	TEST PIT 4A (2)	INfiltrATION RATE: 38.3"/HOUR SURFACE ELEVATION: 451.30 TESTING ELEVATION: 445.50 NO LIMITING ZONE ENCOUNTERED
TEST PIT 1C (1)	INfiltrATION RATE: 18.8"/HOUR SURFACE ELEVATION: 466.40 TESTING ELEVATION: 441.10 NO LIMITING ZONE ENCOUNTERED	TEST PIT 1C (2)	INfiltrATION RATE: 42"/HOUR SURFACE ELEVATION: 468.50 TESTING ELEVATION: 445.00 NO LIMITING ZONE ENCOUNTERED	TEST PIT 4B (1)	INfiltrATION RATE: 15"/HOUR SURFACE ELEVATION: 451.50 TESTING ELEVATION: 441.10 NO LIMITING ZONE ENCOUNTERED
TEST PIT 1D (1)	INfiltrATION RATE: 34.5"/HOUR SURFACE ELEVATION: 466.60 TESTING ELEVATION: 444.85 NO LIMITING ZONE ENCOUNTERED	TEST PIT 1D (2)	INfiltrATION RATE: 21"/HOUR SURFACE ELEVATION: 468.50 TESTING ELEVATION: 444.85 NO LIMITING ZONE ENCOUNTERED	TEST PIT 4B (2)	INfiltrATION RATE: 25.5"/HOUR SURFACE ELEVATION: 449.50 TESTING ELEVATION: 443.30 NO LIMITING ZONE ENCOUNTERED

CLEAN FILL NOTE

CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, 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 OTHER 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 BEEN PROCESSED FOR RE-USE).

CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE: FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE SHALL QUALIFY 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 THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL". ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORDER 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 THE END OF THESE INSTRUCTIONS.

ENVIRONMENTAL DUE DILIGENCE: THE APPLICANT MUST PERFORM ENVIRONMENTAL DUE DILIGENCE TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANDWICH MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSECTION SCREENING, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OF ADJACENT PROPERTIES, AND VISUAL INSPECTION. 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 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 THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL". FILL MATERIALS THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA CODE CHAPTERS 287 REGULATED WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE. THESE REGULATIONS ARE AVAILABLE ON-LINE AT WWW.PA.GOV/CODE.COM.

ADDITIONAL IMPERVIOUS COVER NOTE

AN ADDITIONAL AMOUNT OF IMPERVIOUS AREA HAS BEEN ACCOUNTED FOR IN THE STORMWATER CALCULATIONS FOR THIS PROJECT AND FOR ANY FUTURE IMPERVIOUS AREAS SUCH AS SHEDS, PATIOS, POOLS, ETC. THIS AREA IS LISTED BELOW FOR EACH OF THE LOTS:
 LOT 2: 0.02 ACRES (871 SQUARE FEET)
 LOT 3: 0.02 ACRES (871 SQUARE FEET)

MUNICIPALITY REVIEW AND APPROVAL OF THE DRAINAGE PLAN OR THE SUBSEQUENT OBSERVATION AND APPROVAL OF STORM WATER MANAGEMENT FACILITIES, SHALL NOT CONSTITUTE LAND DEVELOPMENT ON BEHALF OF OR BY THE MUNICIPALITY OR OTHERWISE CAUSE THE MUNICIPALITY TO BE ENGAGED IN THE ALTERATION OR DEVELOPMENT OF LAND. BY SUBMITTING AN APPLICATION UNDER THE TOWNSHIP STORM WATER MANAGEMENT PLAN, THE DEVELOPER HEREBY AGREES TO INDEMNIFY, DEFEND, AND HOLD HARMLESS THE MUNICIPALITY AND ITS REPRESENTATIVES, EMPLOYEES, OFFICIALS AND CONSULTANTS OF AND FROM ANY AND ALL CLAIMS, DAMAGES, CAUSES OF ACTION OR SUITS WHICH ARISE OUT OF OR RELATE TO THE REVIEW, APPROVAL, CONSTRUCTION OR OPERATION OF THE DEVELOPER'S DRAINAGE PLAN AND STORM WATER MANAGEMENT FACILITIES.

ZONING DATA

R-4 - MEDIUM DENSITY RESIDENTIAL RESIDENTIAL

MINIMUM LOT AREA (WITH PRIVATE UTILITIES)	REQUIRED	PROVIDED
LOT 1	43560 S.F.	43920 S.F.
LOT 2	43560 S.F.	46900 S.F.
LOT 3	43560 S.F.	43588 S.F.
LOT 4	43560 S.F.	43729 S.F.

MINIMUM LOT WIDTH AT R.O.W.	LOT 1	LOT 2	LOT 3	LOT 4
	80 FT	80 FT	82.72 FT	80 FT
			247.96 FT	149.97 FT
			82.72 FT	120.51 FT

MINIMUM BUILDING SETBACK	FRONT	LOT 1	LOT 2	LOT 3	LOT 4
	25 FT	19 FT (EX.)	2 251 FT	3 413 FT	4 141 FT
			10 FT	10 FT	10 FT
				30 FT	30 FT

MAXIMUM BUILDING HEIGHT	FRONT	LOT 1	LOT 2	LOT 3	LOT 4
	35 FT	26.2%	8.47%	6.71%	5.98%

WATER: PUBLIC PROPOSED
 SEWER: PRIVATE PROPOSED

LOT COVERAGE	LOT 1	LOT 2	LOT 3	LOT 4
	26.2%	8.47%	6.71%	5.98%

KEYSTONE CONSULTING ENGINEERS, INC.
Engineering firm of choice since 1972
 5012 MEDICAL CENTER CIRCLE, ALLENTOWN, PA 18106 610-395-0971
 East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville
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POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY: KCE
 DRAWN BY: MSN
 CHECKED BY: MFC/ARF
 DATE: March 05, 2021
 SCALE: 1" = 30'
 JOB NUMBER: CW-20-128
 SHEET: 21 OF 23

REVISIONS:

BY	DATE	DESCRIPTION
EAH	6/16/2021	
EAH	12/16/2021	
IMK	09/20/2023	

PCSM STANDARD NOTES

PERMIT TERMINATION
UPON PERMANENT STABILIZATION OF EARTH DISTURBANCE ACTIVITIES UNDER § 102.27(a)(2) (RELATING TO PERMANENT STABILIZATION), AND INSTALLATION OF BMPs IN ACCORDANCE WITH AN APPROVED PLAN PREPARED AND IMPLEMENTED IN ACCORDANCE WITH §§ 102.4 AND 102.8 (RELATING TO EROSION AND SEDIMENT CONTROL REQUIREMENTS; AND PCSM REQUIREMENTS), THE PERMITTEE OR CO-PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR CONSERVATION DISTRICT.

THE NOTICE OF TERMINATION MUST INCLUDE:

- THE FACILITY NAME, ADDRESS AND LOCATION.
- THE OPERATOR NAME AND ADDRESS.
- THE PERMIT NUMBER.
- THE REASON FOR PERMIT TERMINATION.
- IDENTIFICATION OF THE PERSONS WHO HAVE AGREED TO AND WILL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs IN ACCORDANCE WITH §102.8(M) AND
- PROOF OF COMPLIANCE WITH §102.8(M)(2).

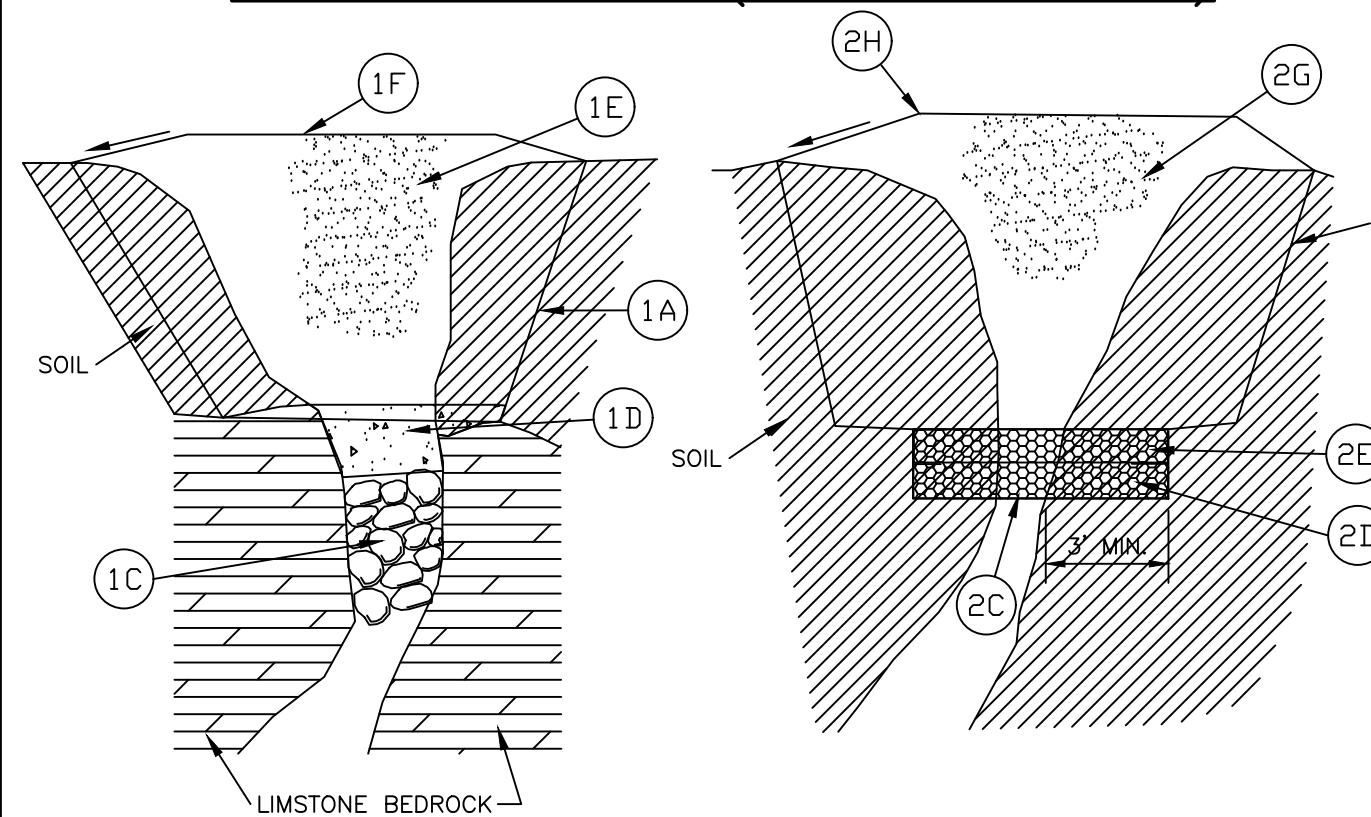
PCSM REQUIREMENTS

- PCSM REPORTING AND RECORDKEEPING:** THE PCSM PLAN, INSPECTION REPORTS, AND MONITORING RECORDS SHALL BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.
- LICENSED PROFESSIONAL OVERSIGHT OF CRITICAL STAGES:** A LICENSED PROFESSIONAL OR A DESIGNEE SHALL BE PRESENT ON-SITE AND BE RESPONSIBLE DURING CRITICAL STAGES OF IMPLEMENTATION OF THE APPROVED PCSM PLAN. THE CRITICAL STAGES MAY INCLUDE THE INSTALLATION OF UNDERGROUND TREATMENT OR STORAGE BMPs, STRUCTURALLY ENGINEERED BMPs, OR OTHER BMPs AS DEEMED APPROPRIATE BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.
- FINAL CERTIFICATION:** THE PERMITTEE SHALL INCLUDE WITH THE NOTICE OF TERMINATION "RECORD DRAWINGS" WITH A FINAL CERTIFICATION STATEMENT FROM A LICENSED PROFESSIONAL, WHICH READS AS FOLLOWS:

"I (NAME) DO HEREBY CERTIFY PURSUANT TO THE PENALTIES OF 18 PA.C.S.A. §4024 TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE ACCOMPANYING RECORD DRAWINGS ACCURATELY REFLECT THE AS-BUILT CONDITIONS, ARE TRUE AND CORRECT, AND ARE IN CONFORMANCE WITH CHAPTER 102 OF THE RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE PROJECT SITE WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PCSM PLAN, ALL APPROVED PLAN CHANGES AND ACCEPTED CONSTRUCTION PRACTICES."

- THE PERMITTEE SHALL RETAIN A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN.
- THE PERMITTEE SHALL PROVIDE A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN TO THE PERSON IDENTIFIED IN THIS SECTION AS BEING RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs.

SINKHOLE REPAIR (IF ENCOUNTERED)



GENERAL GUIDELINES FOR SINKHOLE REPAIR

- THE TOWNSHIP GEOTECHNICAL REPRESENTATIVE SHOULD BE CONSULTED PRIOR TO IMPLEMENTING A REPAIR PROCEDURE.
- ORIFICE LOCATED AND EXTENDING INTO ROCK:
 - EXCAVATE SOILS TO ROCK SURFACE. EXCAVATIONS MORE THAN 4' DEEP SHOULD BE SHORED OR SLOPED FOLLOWING OSHA REQUIREMENTS.
 - WASH ROCK SURFACE AND CLEAN ORIFICE.
 - IF NECESSARY, PLUG ORIFICE WITH QUARRY ROCK.
 - BACKFILL ORIFICE AND A MINIMUM OF 2 FEET ABOVE ROCK SURFACE WITH HIGH SLUMP LEAN CONCRETE (K-CRETE).
 - BACKFILL EXCAVATION WITH COMPACTED, IMPERMEABLE SOIL TO THE GROUND SURFACE. COMPACT BACKFILL TO 95% OF DRY DENSITY.
 - PROVIDE POSITIVE SURFACE DRAINAGE.
 - CONSULT GEOLOGIST OR GEOTECHNICAL ENGINEER IF UNUSUAL CIRCUMSTANCES ARE ENCOUNTERED.
 - ORIFICE LOCATED BUT ROCK NOT ENCOUNTERED, OR ORIFICE NOT LOCATED:
 - EXCAVATE UNTIL FIRM SOIL IS ENCOUNTERED. EXCAVATIONS MORE THAN 4 FEET DEEP SHOULD BE SHORED OR SLOPED FOLLOWING OSHA REQUIREMENTS.
 - CLEAN LOOSE SOILS FROM BOTTOM.
 - PLACE LAYER OF HEAVY-DUTY NON-WOVEN GEOTEXTILE FABRIC (TYPAR 3401, MIRAFL 500X OR EQUIVALENT).
 - PLACE AND COMPACT 1 FOOT OF COARSE AGGREGATE (PENNDOT 2A MODIFIED), COMPACT TO 95% OF DRY DENSITY.
 - LAP OVER FIRST LAYER OF FABRIC AND PLACE SECOND LAYER OF FABRIC.
 - REPEAT STEPS D. AND E. AS NECESSARY (MINIMUM 2 COURSES).
 - BACKFILL REMAINDER OF EXCAVATION WITH COMPACTED, IMPERMEABLE SOIL TO THE GROUND SURFACE. COMPACT BACKFILL TO 95% OF DRY DENSITY.
 - PROVIDE POSITIVE SURFACE DRAINAGE.
 - CONSULT GEOLOGIST OR GEOTECHNICAL ENGINEER IF UNUSUAL CIRCUMSTANCES ARE ENCOUNTERED.

VEGETATED SWALE SEQUENCE OF CONSTRUCTION:
THE FOLLOWING SEQUENCE SHALL BE PERFORMED AS INDICATED IN THE SEQUENCE OF CONSTRUCTION FOUND ON THE EROSION & SEDIMENT CONTROL PLAN:

- BEGIN VEGETATED SWALE CONSTRUCTION ONLY WHEN TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE. VEGETATED SWALES SHOULD BE CONSTRUCTED AND STABILIZED EARLY IN THE CONSTRUCTION SCHEDULE, PREFERABLY BEFORE MASS EARTHWORK AND PAVING INCREASE THE RATE AND VOLUME OF RUNOFF. (EROSION AND SEDIMENT CONTROL METHODS SHALL ADHERE TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, MARCH 2000 OR LATEST EDITION.)
- ROUGH GRADE THE VEGETATED SWALE. EQUIPMENT SHALL AVOID EXCESSIVE COMPACTION AND/OR LAND DISTURBANCE. EXCAVATING EQUIPMENT SHOULD OPERATE FROM THE SIDE OF THE SWALE AND NEVER ON THE BOTTOM. IF EXCAVATION LEADS TO SUBSTANTIAL COMPACTION OF THE SUBGRADE (WHERE AN INFILTRATION TRENCH IS NOT PROPOSED), 18 INCHES SHALL BE REMOVED AND REPLACED WITH A BLEND OF TOPSOIL AND SAND TO PROMOTE INFILTRATION AND BIOLOGICAL GROWTH. AT THE VERY LEAST, TOPSOIL SHALL THOROUGHLY FLOVED INTO THE SUBGRADE IN ORDER TO PENETRATE THE COMPACTION ZONE AND PROMOTE AERATION AND THE FORMATION OF MACROPORES. FOLLOWING THIS, THE AREA SHOULD BE DISKED PRIOR TO FINAL GRADING OF TOPSOIL.
- FINE GRADE THE VEGETATED SWALE. ACCURATE GRADING IS CRUCIAL FOR SWALES. EVEN THE SMALLEST NON-CONFORMITIES MAY COMPROMISE FLOW CONDITIONS.
- SEED, VEGETATE AND INSTALL PROTECTIVE LINING AS PER APPROVED PLANS AND ACCORDING TO FINAL PLANTING LIST. PLANT THE SWALE AT A TIME OF YEAR WHEN SUCCESSFUL ESTABLISHMENT WITHOUT IRRIGATION IS MOST LIKELY. HOWEVER, TEMPORARY IRRIGATION MAY BE NEEDED IN PERIODS OF LITTLE RAIN OR DROUGHT. VEGETATION SHOULD BE ESTABLISHED AS SOON AS POSSIBLE TO PREVENT EROSION AND SCOUR.
- ONCE ALL TRIBUTARY AREAS ARE SUFFICIENTLY STABILIZED, REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL. IT IS VERY IMPORTANT THAT THE SWALE BE STABILIZED BEFORE RECEIVING UPLAND STORMWATER FLOW.
- FOLLOW MAINTENANCE GUIDELINES.

NOTE: IF A VEGETATED SWALE IS USED FOR RUNOFF CONVEYANCE DURING CONSTRUCTION, IT SHOULD BE REGRADED AND RESEEDED IMMEDIATELY AFTER CONSTRUCTION AND STABILIZATION HAS OCCURRED. ANY DAMAGED AREAS SHOULD BE FULLY RESTORED TO ENSURE FUTURE FUNCTIONALITY OF THE SWALE.

BMP O&M PLAN

INLETS AND SUMPS

- INSPECT INLETS AND SUMPS AT LEAST EVERY THREE MONTHS AND FOLLOWING SIGNIFICANT RAINFALL EVENTS (PRECIPITATION ≥ 1 IN.).
- REMOVE SEDIMENT AND DEBRIS FROM INLET SUMPS WHEN ACCUMULATIONS REACH HALF THE DEPTH OF THE SUMP.
- INLET SUMPS AT LEAST EVERY PER YEAR. FLUSH ANTI-SIPHON VENTS WITH WATER TO ASSURE PROPER OPERATION.

DISPOSAL OF WASTE

- RECYCLE OR DISPOSE OF ALL WASTE REMOVED FROM THE SITE IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS CONTAINED IN 25 PA. CODE § 260.1 ET. SEQ., § 271.1 ET. SEQ. AND 287.1 ET. SEQ.
- REDISTRIBUTE SEDIMENT FROM LAWN AND LANDSCAPED AREAS IN VEGETATED AREAS ON THE SITE.
- DO NOT ILLEGALLY BURY, DUMP OR DISCHARGE ANY WASTE ON THE PROJECT SITE.

RIP-RAP APRONS

MAINTENANCE ACTIVITIES TO BE PERFORMED ANNUALLY AND WITHIN 48 HOURS FOLLOWING A MAJOR STORM EVENT (>1-IN. RAINFALL DEPTH):

- INSPECT RIP-RAP APRONS.
- CORRECT EROSION PROBLEMS.
- REMOVE AND PROPERLY DISPOSE OF LITTER AND SEDIMENT.
- PLACE ADDITIONAL ROCK AS NEEDED TO RESTORE RIP-RAP APRONS TO DESIGN CONDITIONS.

GENERAL RECOMMENDATIONS

FACILITY OWNERS OR OPERATORS SHALL MAINTAIN AN INSPECTION LOG DOCUMENTING ALL INSPECTION DATES, OBSERVATIONS, AND MAINTENANCE ACTIVITIES RELATED TO REQUIRED POST-CONSTRUCTION STORMWATER BMPs.

RECYCLING AND DISPOSAL OF MATERIALS

ANTICIPATED PROJECT WASTES INCLUDE VEGETATED WASTE, BITUMINOUS PAVEMENT, AND CONCRETE BUILDING MATERIALS.

ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET. SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THIS SITE.

SEDIMENT DISPOSAL NOTE

SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES

*** PROCEDURES WHICH ENSURE THAT THE PROPER MEASURES FOR THE RECYCLING OR DISPOSAL OF MATERIALS ASSOCIATED WITH OR FROM THE PROJECT SITE WILL BE UNDERTAKEN IN ACCORDANCE WITH DEPARTMENT REGULATIONS.

- MATERIALS ASSOCIATED WITH THIS PROJECT THAT ARE SUITABLE FOR RECYCLING SHALL BE RECYCLED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
- WASTES MATERIALS ASSOCIATED WITH THIS PROJECT SHALL BE DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
- THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE CONSERVATION DISTRICT AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL/ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.

CRITICAL STAGES OF PCSM BMP INSTALLATION

A LICENSED PROFESSIONAL OR HIS DESIGNEE SHALL BE PRESENT ON THE PROJECT SITE DURING THE FOLLOWING CRITICAL STAGES OF PCSM BMP INSTALLATION.

- CONSTRUCTION AND STABILIZATION OF UNDERGROUND SEEPAGE BEDS, CONSISTENT WITH DESIGN SPECIFICATIONS
- NOTE: REFER TO THE DETAILED SEQUENCE OF PCSM BMP INSTALLATION HEREIN FOR ADDITIONAL INFORMATION.

SPECIFICATIONS FOR SEEDING STABILIZATION AND SOIL SUPPLEMENTS

TEMP. NON-VEGETATIVE SURFACE STABILIZATION

TEMPORARY MULCH TYPE: HAY OR STRAW
APPLICATION RATE: 3 TONS/AC.

TEMPORARY SEED MIXTURE

PENNDOT FORMULA E PER PennDOT PUB. 408, SEC. 804
ANNUAL RYEGRASS 100 98% 90%

APPLICATION RATE: 10 LBS. PER 1,000 S.Y.
FERTILIZER TYPE: 10-10-10
FERTILIZER APPLICATION RATE: 30 LBS. PER 1,000 S.Y.
LIME APPLICATION RATE: 400 LBS. PER 1,000 S.Y.
SEEDING PERIOD: MARCH 15 TO OCTOBER 15

PERMANENT SEED MIXTURE - TYPICAL

PENNDOT FORMULA B PER PennDOT PUB. 408, SEC. 804

PERENNIAL RYEGRASS 20 98% 90%
CREEPING RED FESCUE 30 98% 85%
KENTUCKY BLUEGRASS 50 98% 80%

APPLICATION RATE: 44 LBS. PER 1,000 S.Y.
FERTILIZER TYPE: 10-20-20
FERTILIZER APPLICATION RATE: 30 LBS. PER 1,000 S.Y.
LIME APPLICATION RATE: 400 LBS. PER 1,000 S.Y.
SEEDING PERIOD: MARCH 15 TO OCTOBER 15

PERMANENT SEED MIXTURE - SLOPES > 3:1

PENNDOT FORMULA D PER PennDOT PUB. 408, SEC. 804

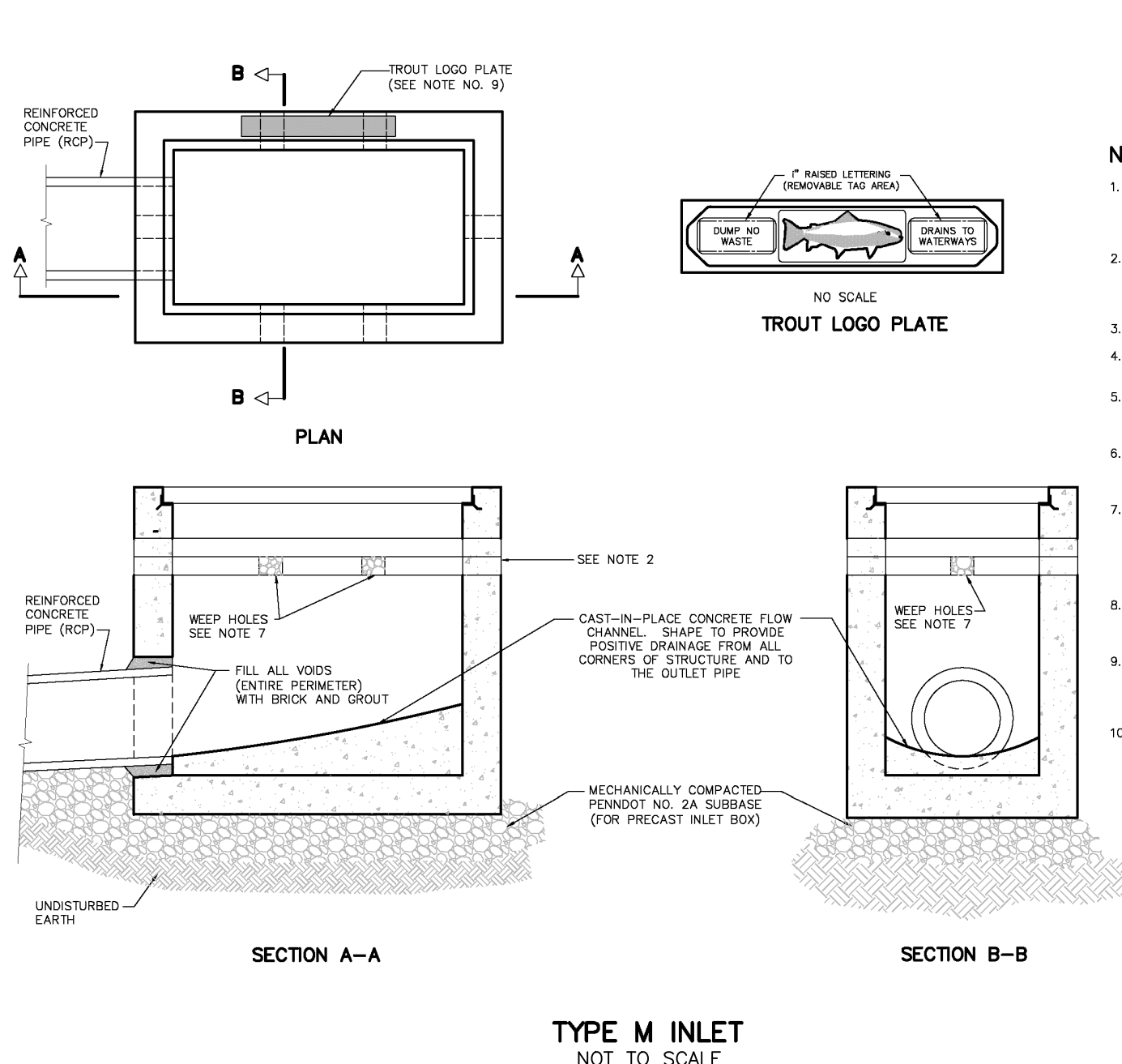
TALL FESCUE 70 98% 90%
CREEPING RED FESCUE 30 98% 85%
(FESTUCA ARUNDINACEA VAR. KENTUCKY 21)

APPLICATION RATE: 22 LBS. PER 1,000 S.Y.
FERTILIZER TYPE: 10-20-20 COMMERCIAL FERTILIZER
FERTILIZER APPLICATION RATE: 140 LBS. PER 1,000 S.Y. *
FERTILIZER TYPE: 38-0-0 (UREAFORM FERTILIZER)
FERTILIZER APPLICATION RATE: 52 LBS. PER 1,000 S.Y. *
LIME APPLICATION RATE: 830 LBS. PER 1,000 S.Y. *
MULCH: APPROVED EROSION MATTING REQUIRED
SEEDING PERIOD: MARCH 15 TO OCTOBER 15

* UNLESS TESTING HAS BEEN PERFORMED

NOTES

- THE CUTOFF DATE FOR HYDROSEEDING IS NOVEMBER 15.
- SLURRY APPLICATIONS OF SEED USING A CELLULOSE TACKIFIER SHALL INCLUDE A STRAW MULCH BINDER AT A RATE OF 3 TONS PER ACRE



NOTES:

- CONCRETE INLET AND TOP UNITS SHALL BE AS DETAILED IN PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, CURRENT EDITION (DOT PUB #72M) RC-34M, "INLETS, CONCRETE TOP UNITS, CAST-IN-PLACE AND PRECAST".
- PROVIDE A MINIMUM OF 4 INCHES AND MAXIMUM OF 8 INCHES VERTICALLY OF PRECAST CONCRETE SOLARS WITH THROUGH-WALL OPENINGS ADJACENT TO SUBGRADE TO SERVE AS WEEP HOLES.
- ALL EXPOSED EDGES SHALL BE CHAMFERED 1/4".
- STEPS SHALL BE PROVIDED WHENEVER STRUCTURE EXCEEDS 4 FEET IN DEPTH.
- STEP DIMENSIONS AND CONFIGURATION SHALL BE IN ACCORDANCE WITH PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, CURRENT EDITION (DOT PUB #72M) RC-30M, "TALENT GRATES".
- PROVIDE STRUCTURAL STEEL GRATE - BICYCLE SAFE, AS DETAILED IN PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, CURRENT EDITION (DOT PUB #72M) RC-43M, "TALENT GRATES".
- THE BACKFILL AROUND THE WEEP HOLES SHALL NOT CONTAIN SCREENINGS. IN PLACE PENNDOT NO. 3 OR LARGER STONES AS REQUIRED BY ENGINEER. WITHOUT SCREENINGS TO ALLOW WATER TO ENTER WEEP HOLES. PLACE GEOTEXTILE FABRIC AROUND BACKFILL TO PREVENT MIGRATION OF SURROUNDING MATERIAL INTO VOIDS OF BACKFILL.
- THE MANUFACTURER OF THE INLETS SHALL BE INCLUDED ON THE PENNDOT LIST OF APPROVED MANUFACTURERS OF PRECAST CONCRETE PRODUCTS (BULLETIN 15).
- TOP UNITS MUST CONTAIN THE 24-INCH BY 3-INCH TROUT LOGO PLATE AND TAGS DISPLAYING A DAMPING WARNING AS MANUFACTURED BY EAST JORDAN IRON WORKS INC. (CATALOG NO. 70091-1) TO BE READ FROM ROADWAY SIDE OF INLET.
- TOP UNITS MUST CONTAIN THE 24-INCH BY 3-INCH TROUT LOGO PLATE AND TAGS DISPLAYING A DAMPING WARNING AS MANUFACTURED BY EAST JORDAN IRON WORKS INC. (CATALOG NO. 70091-1) TO BE READ FROM ROADWAY SIDE OF INLET.
- REFER TO DOT PUB #72M, RC-48M FOR ADDITIONAL REQUIREMENTS.

OWNER'S STATEMENT:

THE UNDERSIGNED IS THE OWNER, EQUITABLE OWNER, OR HAS AN OPTION OR CONDITIONAL CONTRACT OF SALE ON THE LAND PROPOSED TO BE SUBDIVIDED OR DEVELOPED AND HAS NO LITIGATION OR LIENS EXIST OR ARE PENDING ON THE SITE.

OWNER'S CERTIFICATION:

I BEING DULY SWORN ACCORDING TO LAW DEPOSE AND SAY THAT I AM THE SOLE OWNER OF THIS PROPERTY, IN PEACEFUL POSSESSION OF THE SAME, AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE THEREOF. I DO FURTHER DEPOSE AND SAY THAT I HAVE COMPLIED WITH ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20-____ BY WHICH THE TOWNSHIP BOARD OF COMMISSIONERS CONDITIONALLY WAIVED THE REQUIREMENTS OF THE TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE FOR THE PROJECT REFLECTED ON THIS PLAN. I AGREE THAT I SHALL EXONERATE, INDEMNIFY, PROTECT, DEFEND AND SAVE HARMLESS THE TOWNSHIP FROM ANY AND ALL CLAIMS, LAWSUITS, DAMAGES AND LIABILITIES OF EVERY KIND, CHARACTER AND MANNER WHATSOEVER PERTAINING TO, RELATING TO, RESULTING FROM, CAUSED BY OR ARISING OUT OF THE TOWNSHIP'S APPROVAL OF THE WAIVER REQUEST AS EVIDENCED BY RESOLUTION 20-____, ALL AS MORE FULLY OUTLINED IN RESOLUTION 20-____.

WILLIAM H. RUHE
OWNER

ADJACENT OWNER'S STATEMENT:

THE UNDERSIGNED ACKNOWLEDGES ALL IMPROVEMENTS PROPOSED ON AND AROUND THE PROPERTY AT 2436 HUCKLEBERRY ROAD ARE LIMITED TO ADJUSTMENT OF DRIVEWAY AND GRADING THE IN. HAVE BEEN AGREED UPON.

JOHN P. LUTZ
ADJACENT PROPERTY OWNER

REVIEWED BY THE LEHIGH VALLEY PLANNING COMMISSION:

COUNTY PLANNING COMMISSION STAFF PERSON DATE

APPROVED BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION:

APPROVED _____ BY THE SOUTH WHITEHALL
MONTH DAY YEAR
TOWNSHIP PLANNING COMMISSION.

CHAIRMAN

APPROVED BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL:

APPROVED _____ BY THE BOARD OF
MONTH DAY YEAR
COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL.

PRESIDENT SECRETARY

TOWNSHIP ENGINEER

TOWNSHIP WAIVER ACKNOWLEDGEMENT:

BASED UPON AND EXPRESSLY IN RELIANCE ON THE FOREGOING CERTIFICATIONS OF THE OWNER AND DESIGN PROFESSIONAL, THE WITHIN PLAN IS ACCEPTED BY SOUTH WHITEHALL TOWNSHIP AS THE PLAN SATISFYING ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20-____.

PRESIDENT

PROFESSIONAL ENGINEER'S CERTIFICATION

I, ALAN R. FORNWALT, P.E., A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY THAT THE ACCOMPANYING APPLICATION, PLANS AND SUPPORTING DOCUMENTATION ARE TRUE AND CORRECT, TO THE BEST OF MY KNOWLEDGE.

ALAN R. FORNWALT P.E. PE 070819
KEYSTONE CONSULTING ENGINEERS, INC.
5012 MEDICAL CENTER CIRCLE, ALLENTOWN, PA 18106

LEHIGH COUNTY RECORDER OF DEEDS:

LEHIGH COUNTY OFFICIAL DATE

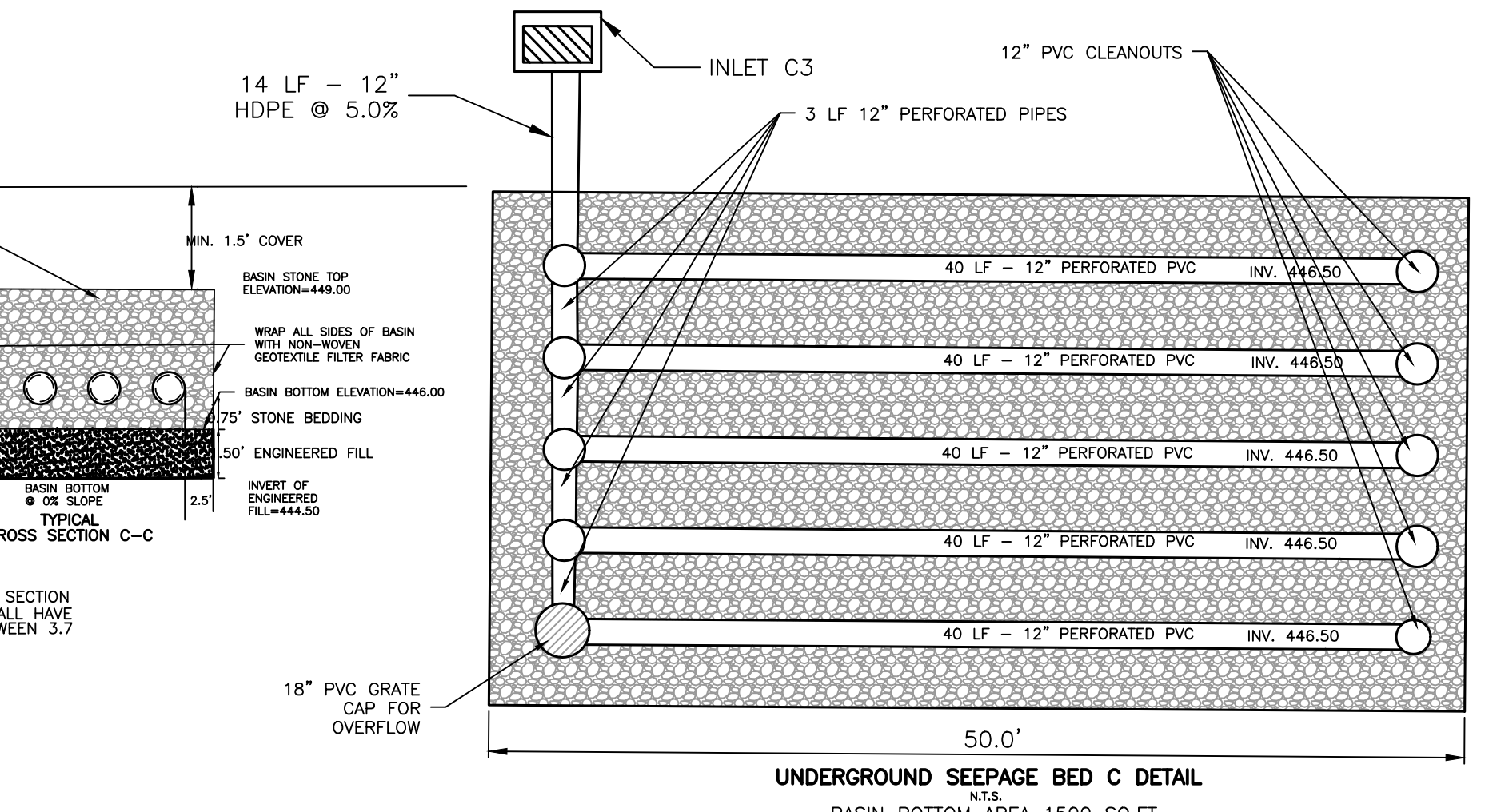
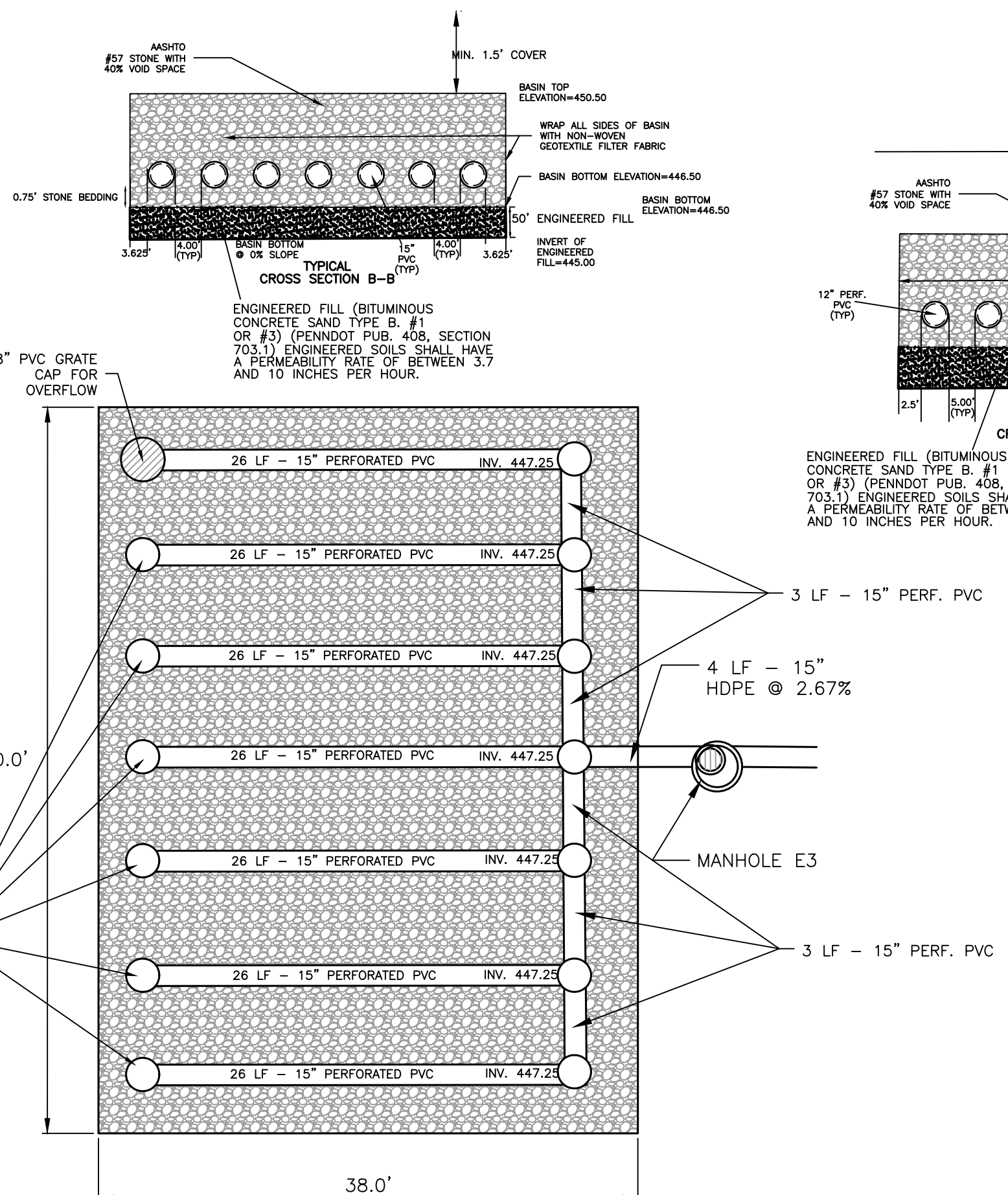
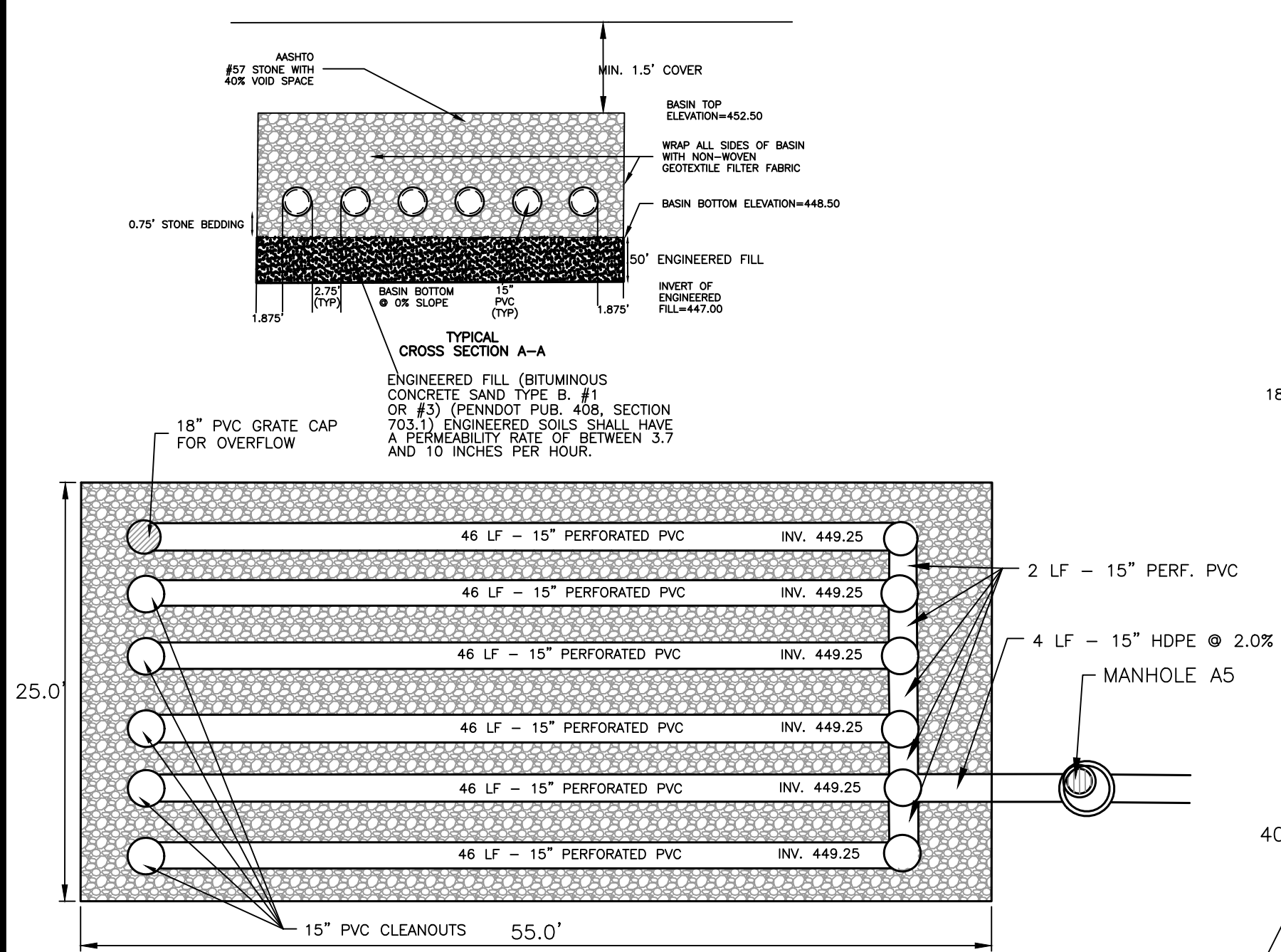
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POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS
RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
LEHIGH COUNTY, PENNSYLVANIA

REVISIONS	BY	DATE
1	EAF	06/16/2021
2	MSN	12/16/2021
3	IMK	09/20/2023

DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	March 05, 2021
SCALE:	AS SHOWN
JOB NUMBER:	CW-20-128
SHEET:	22 OF 23



SEEPAGE BED DETAIL		INFILTRATION BED		ENGINEERED FILL		DISTRIBUTION PIPE		TEST ID		TEST ELEV.		
BED ID	BED DIMENSIONS (FT)	STONE DEPTH (0) (FT)	ENGINEERED FILL (1) (FT)	INFILTRATION BED (2) (FT)	ENGINEERED FILL (3) (FT)	DISTRIBUTION PIPE (4) (IN)	PIPE INV. ELEV.	TEST ID	TEST ELEV.	TEST ID	TEST ELEV.	
A	25 X 55	1375	4.0	1.5	15	448.50	447.00	449.25	1B(1&2)	448.50		
B	38 X 40	1520	4.0	1.5	15	446.50	445.00	447.25	1A(1&2)	446.00		
C	30 X 50	1500	3.0	1.5	12	446.00	444.50	446.50	3A/3B	445.50		
D	44 X 73	3212	4.0	1.5	18	443.00	441.50	443.50	4B	445.10		
E	IRREGULAR	990	3.0	1.5	18	462.25	460.75	462.75	1C/10	461.50		

INFILTRATION RATE NOTES

- ALL UNDERGROUND SEEPAGE BEDS ARE TO BE UNDERLAIN BY 18" OF ENGINEERED FILL. ONCE COMPLETED, INFILTRATION TESTS SHALL BE CONDUCTED TO VERIFY INFILTRATION RATE OF THE SEEPAGE BED MEETS OR EXCEEDS THE DESIGNED INFILTRATION RATE OF 2.5"/HOUR. THIS IS A CRITICAL STAGE AND SHOULD BE OVERSEEN BY A LICENSED PROFESSIONAL.
- POST CONSTRUCTION INFILTRATION TESTING RESULTS WILL BE SENT TO THE LEHIGH COUNTY CONSERVATION DISTRICT TO VERIFY THE BEDS MEET OR EXCEED THE DESIGN INFILTRATION RATE OF 2.5"/HOUR.

ROOF LEADER AND YARD DRAINAGE NOTES

- IT IS THE RESPONSIBILITY OF THE DESIGN ENGINEER TO DESIGN A ROOF LEADER CONSISTENT WITH THE ACTUAL DWELLING PROPOSED FOR CONSTRUCTION ON THE INDIVIDUAL LOT GRADING PLAN. THE ROOF LEADER SYSTEM SHALL BE DESIGNED TO CAPTURE THE EQUIVALENT AMOUNT OF ROOF TOP AS SHOWN ON THE BMP DRAINAGE MAP ATTACHED TO THE APPROVED PCSM PLAN AND DIRECT THE STORM FLOWS TO THE SEEPAGE BED. THE YARD DRAINAGE SYSTEM SHALL INCLUDE APPROPRIATE GRADING AND THE 2X2 YARD INLET.
- MODIFICATIONS TO THE APPROVED PCSM PLAN MAY BE REQUIRED BY LCDD WHEN AN EQUIVALENT TRIBUTARY AREA TO THAT WHICH IS SHOWN ON THE BMP DRAINAGE MAP IS NOT CAPTURED AND DIRECTED TO THE SEEPAGE BED.

CONSTRUCTION NOTES

- LEAF/DEBRIS TRAP MAY BE CONSTRUCTED OF 18" HDPE, PEP OR EQUIVALENT.
- STONE FOR THE SEEPAGE BED SHALL BE 2 INCH TO 1 INCH UNIFORMLY GRADED COARSE AGGREGATE, WITH A WASH LOSS OF NO MORE THAN 0.5 ASHTO SIZE NUMBER 3 PER ASHTO SPECIFICATIONS AND SHALL HAVE Voids EQUAL TO OR GREATER THAN 40%.
- NON-WOVEN GEOTEXTILE SHALL CONSIST OF NEEDED NON WOVEN POLYPROPYLENE FIBERS AND MEET THE FOLLOWING PROPERTIES:
 - A. GRAB TENSILE STRENGTH (ASTM-D4632) 120 LBS.
 - B. MULLEN BURST STRENGTH (ASTM-D3786) 225 PSI.
 - C. FLOW RATE (ASTM-D491) 95 GAL/MIN/SF
 - D. UV RESISTANCE AFTER 500 HRS (ASTM D4355) 70
 - E. HEAT SET OR HEAT CALENDARED FABRICS ARE NOT PERMITTED. ACCEPTABLE TYPES INCLUDE MIRAFI 140n, AMOCO 4547, AND GEOTEX 451

SEEPAGE BED NOTES

- THE INDIVIDUAL LOT OWNER IS RESPONSIBLE FOR THE PROPER OPERATION AND MAINTENANCE OF THE SEEPAGE BED ON HIS OR HER LOT IN PERPETUITY. THE INDIVIDUAL LOT OWNER SHALL INSPECT, CLEAN, REMOVE SILT OR OTHER DEBRIS AND OTHERWISE MAINTAIN THE CLEANOUT STRUCTURE(S) AND RECHARGE PIT(S) IN PROPER WORKING ORDER.
- THE SEEPAGE BED SHALL BE LEVEL.
- PIPING SHALL BE PERFORATED ONLY WITHIN THE SUBSURFACE INFILTRATION BED FOOTPRINT.

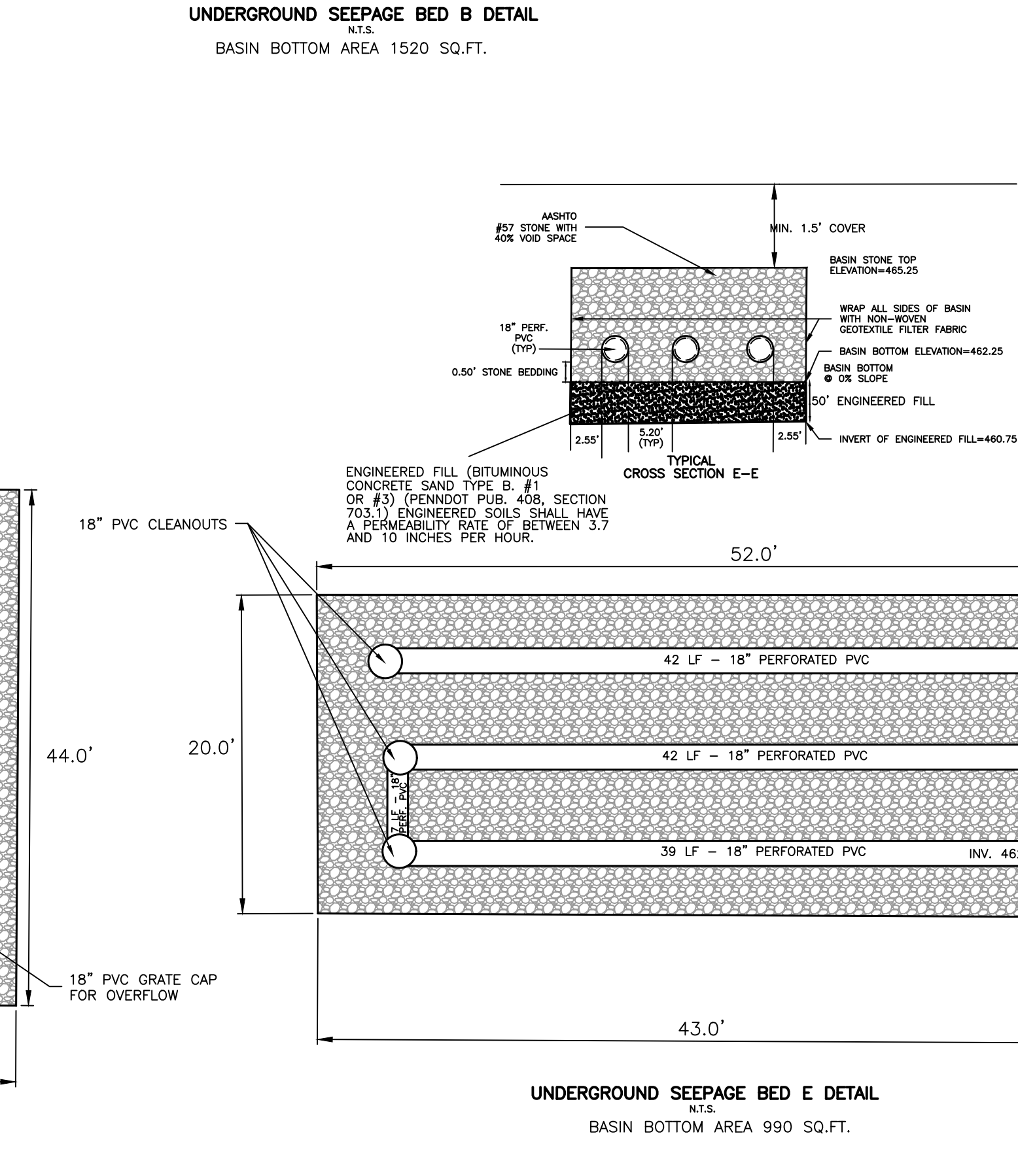
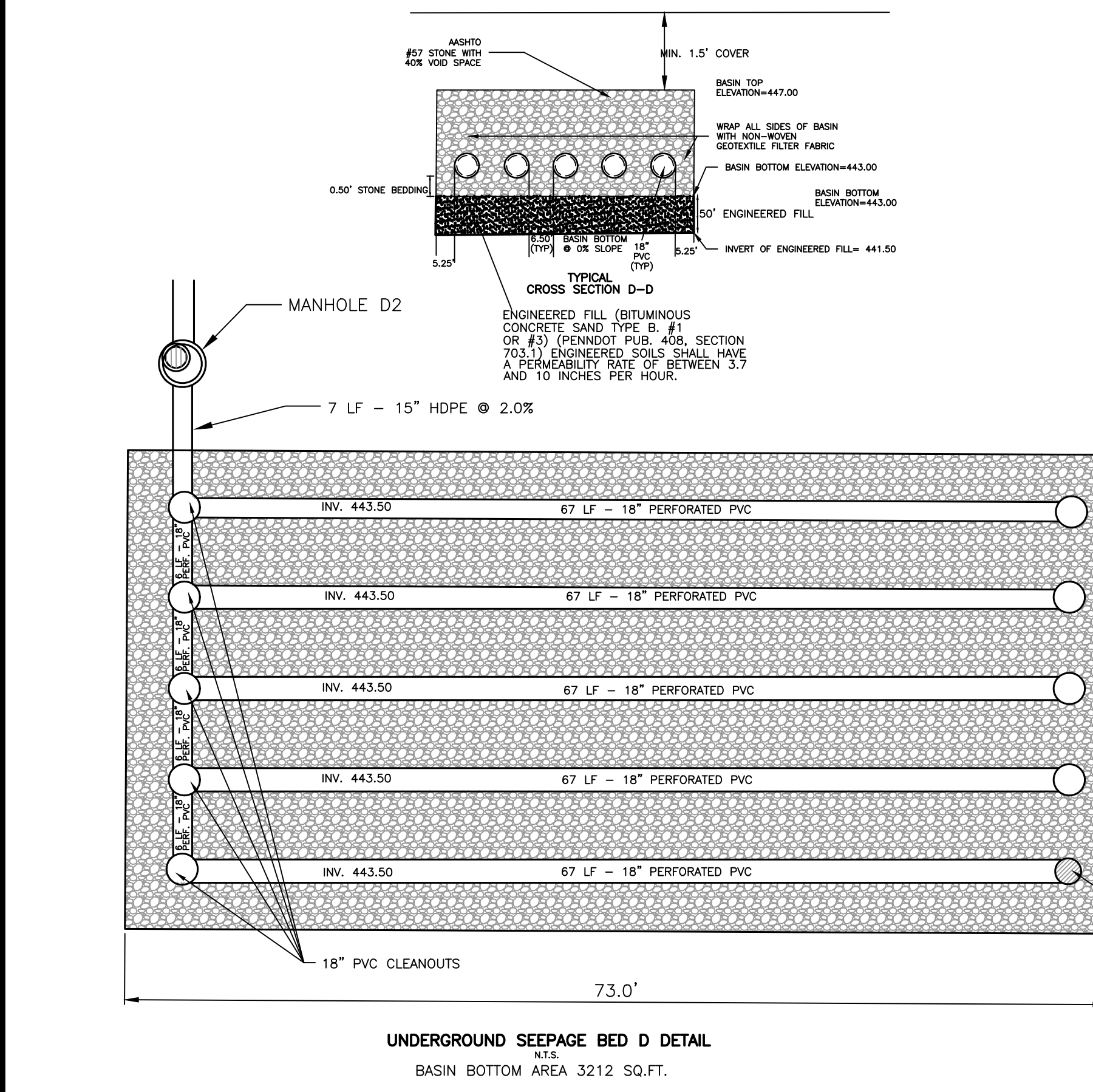
CONSTRUCTION SEQUENCE UNDERGROUND SEEPAGE BEDS

- DUE TO THE NATURE OF CONSTRUCTION SITES, SEEPAGE BEDS SHOULD BE INSTALLED TOWARD THE END OF THE CONSTRUCTION PERIOD.
- INSTALL AND MAINTAIN ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
- THE EXISTING SUBGRADE UNDER THE BED AREAS SHOULD NOT BE COMPACTED OR SUBJECT TO EXCESSIVE EQUIPMENT TRAFFIC PRIOR TO GEOTEXTILE AND STONE BED PLACEMENT.
- WHERE EROSION OF SUBGRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING, THIS MATERIAL SHOULD BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6" WITH A YORK RATE OR EQUIVALENT AND LIGHT TRACTOR. ALL FINE GRADING SHOULD BE DONE BY HAND. ALL BED BOTTOMS SHOULD BE AT LEVEL GRADE.
- INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CLEANOUTS, PERFORATED PIPING, AND ALL OTHER NECESSARY STORMWATER STRUCTURES.
- GEOTEXTILE AND BED AGGREGATE SHOULD BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION AND INSTALLATION OF STRUCTURES. GEOTEXTILE SHOULD BE PLACED IN ACCORDANCE WITH MANUFACTURERS STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF GEOTEXTILE SHOULD OVERLAP A MINIMUM OF 16 INCHES. IT SHOULD ALSO BE SECURED AT LEAST 4 FEET OUTSIDE OF BED IN ORDER TO PREVENT ANY RUNOFF OR SEDIMENT FROM ENTERING THE STORAGE BED. THIS EDGE STRIP SHOULD REMAIN IN PLACE UNTIL ALL BARE SOILS CONTIGUOUS TO THE BED IS STABILIZED AND VEGETATED. AS THE SITE IS FULLY STABILIZED, EXCESS GEOTEXTILE ALONG BED EDGES CAN BE CUT BACK TO THE EDGE OF THE BED.
- CLEAN WASHED, UNIFORMLY GRADED AGGREGATE SHOULD BE PLACED IN THE BED IN MAXIMUM 8 INCH LIFTS. EACH LAYER SHOULD BE LIGHTLY COMPACTED WITH CONSTRUCTION EQUIPMENT BEING KEPT OFF THE BED AS MUCH AS POSSIBLE.
- TOPSOIL SHOULD BE PLACED OVER THE SEEPAGE BED IN MAXIMUM 6 INCH LIFTS.
- SEED AND STABILIZE TOPSOIL.
- DO NOT REMOVE EROSION CONTROLS UNTIL SITE IS FULLY STABILIZED.

MAINTENANCE

UNDERGROUND SEEPAGE BEDS REQUIRE REGULAR AND EFFECTIVE MAINTENANCE TO ENSURE PROLONGED FUNCTIONING.

- INSPECT UNDERGROUND SEEPAGE BED AT LEAST FOUR TIMES A YEAR, AS WELL AS AFTER EVERY STORM EXCEEDING 1 INCH.
- DISPOSE OF SEDIMENT, DEBRIS/TRASH, AND ANY OTHER WASTE MATERIAL REMOVED FROM SEEPAGE BED AT A SUITABLE DISPOSAL/RECYCLING FACILITY AND IN COMPLIANCE WITH LOCAL, STATE AND FEDERAL WASTE REGULATIONS.
- EVALUATE THE DRAIN DOWN TIME TO ENSURE THE MAXIMUM TIME OF 72 HOURS IS NOT BEING EXCEEDED. IF DRAIN DOWN TIMES AREA EXCEEDING THE MAXIMUM, DRAIN THE SEEPAGE BED VIA PUMPING AND CLEAN OUT PERFORATED PIPING. IF SLOW DRAINAGE PERSISTS, THE SYSTEM MAY NEED REPLACING.
- REGULARLY CLEAN OUT GUTTERS AND ENSURE PROPER CONNECTIONS TO FACILITATE THE EFFECTIVENESS OF THE SEEPAGE BED.
- REPLACE FILTER SCREENS THAT INTERCEPT ROOF RUNOFF AS NECESSARY.



OWNER'S STATEMENT:

THE UNDERSIGNED IS THE OWNER, EQUITABLE OWNER, OR HAS AN OPTION OR CONDITIONAL CONTRACT OF SALE ON THE LAND PROPOSED TO BE SUBDIVIDED OR DEVELOPED AND HAS NO LITIGATION OR LIENS EXIST OR ARE PENDING ON THE SITE.

OWNER _____

OWNER'S CERTIFICATION:

I BEING DULY SWORN ACCORDING TO LAW DEPOSE AND SAY THAT I AM THE SOLE OWNER OF THIS PROPERTY, IN PEACEFUL POSSESSION OF THE SAME, AND THAT THERE ARE NO SUITS PENDING AFFECTING THE TITLE THEREOF. I DO NOT HAVE ANY OTHER INTEREST IN THIS PROPERTY. I HAVE COMPLIED WITH ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20____ BY WHICH THE TOWNSHIP BOARD OF COMMISSIONERS CONDITIONALLY WAIVED THE REQUIREMENTS OF THE TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE FOR THE PROJECT REFLECTED ON THIS PLAN. I AGREE THAT I SHALL EXONERATE, INDEMNIFY, PROTECT, DEFEND AND SAVE HARMLESS THE TOWNSHIP FROM ANY AND ALL CLAIMS, LAWSUITS, DAMAGES AND LIABILITIES OF EVERY KIND, CHARACTER AND MANNER WHATSOEVER PERTAINING TO, RELATING TO, RESULTING FROM, CAUSED BY OR ARISING OUT OF THE TOWNSHIP'S APPROVAL OF THE WAIVER REQUEST AS EVIDENCED BY RESOLUTION 20____, ALL AS MORE FULLY OUTLINED IN RESOLUTION 20____.

OWNER: _____

ADJACENT OWNER'S STATEMENT:

THE UNDERSIGNED ACKNOWLEDGES ALL IMPROVEMENTS PROPOSED ON AND AROUND THE PROPERTY AT 2436 HUCKLEBERRY ROAD ARE LIMITED TO ADJUSTMENT OF DRIVEWAY AND GRADING THE IN, HAVE BEEN AGREED UPON.

ADJACENT OWNER: _____

REVIEWED BY THE LEHIGH VALLEY PLANNING COMMISSION:

JOHN P. LUTZ
ADJACENT PROPERTY OWNER

COUNTY PLANNING COMMISSION STAFF PERSON _____ DATE _____

APPROVED BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION:

APPROVED _____ BY THE SOUTH WHITEHALL TOWNSHIP PLANNING COMMISSION.
MONTH DAY YEAR

CHAIRMAN _____

SECRETARY _____

APPROVED BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL:

APPROVED _____ BY THE BOARD OF COMMISSIONERS OF THE TOWNSHIP OF SOUTH WHITEHALL.
MONTH DAY YEAR

PRESIDENT _____ SECRETARY _____

TOWNSHIP ENGINEER _____

TOWNSHIP WAIVER ACKNOWLEDGEMENT:

BASED UPON AND EXPRESSLY IN RELIANCE ON THE FOREGOING CERTIFICATIONS OF THE OWNER AND DESIGN PROFESSIONAL, THE WITHIN PLAN IS ACCEPTED BY SOUTH WHITEHALL TOWNSHIP AS THE PLAN SATISFYING ALL REQUIREMENTS, PROVISIONS AND CONDITIONS OF RESOLUTION 20____.

PRESIDENT _____

PROFESSIONAL ENGINEER'S CERTIFICATION

I, ALAN R. FORNWALT, P.E., A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY THAT THE ACCOMPANYING APPLICATION, PLANS AND SUPPORTING DOCUMENTATION ARE TRUE AND CORRECT, TO THE BEST OF MY KNOWLEDGE.

ALAN R. FORNWALT, P.E. PE 070819
KEYSTONE CONSULTING ENGINEERS, INC.
5012 MEDICAL CENTER CIRCLE, ALLENTOWN, PA 18106

LEHIGH COUNTY RECORDER OF DEEDS:

LEHIGH COUNTY OFFICIAL _____ DATE _____

KEYSTONE CONSULTING ENGINEERS, INC.
Engineering firm of choice since 1972
5012 MEDICAL CENTER CIRCLE, ALLENTOWN, PA 18106 610-395-0971
East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville
www.KCEINC.com



DESIGNED BY: KCE	DRAWN BY: MSN	CHECKED BY: MFC/ARF	DATE: March 05, 2021	SCALE: AS SHOWN	JOB NUMBER: CW-20-128	SHEET: 23 OF 23
REVISIONS	DATE	BY	DATE			
	06/16/2021	EAF	12/16/2021			
	09/20/2023	MSN	09/20/2023			
		IMK				

POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS 2

RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN

2442 HUCKLEBERRY ROAD

SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA