

Ruhe Subdivision

Minor Plan 2013-201

Planning Commission, 10/10/2024

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Landscape and Shade Tree Commission

Parks & Recreation Board

Lehigh Valley Planning Commission

South Whitehall Community Development Department Review

Zoning Review

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Response Letters

Memorandum

TO: PLANNING COMMISSION

FROM: David Manhardt, AICP, Director of Community Development

SUBJECT: Ruhe Subdivision
Minor Plan 2013-201
PRELIMINARY/FINAL PLAN REVIEW

DATE: September 18, 2024

COPIES: BOARD OF COMMISSIONERS, T. PETRUCCI, D. MANHARDT, L. HARRIER, J. ZATOR, ESQ., J. ALDERFER, ESQ, A. TALLARIDA, S. PIDCOCK, APPLICANT, SUB. FILE 2013-201

Location and Intent

An application to subdivide the property located at 2442 Huckleberry Road. The plan proposes to subdivide the 4.596-acre parcel into: Lot 1, containing the existing 2-story dwelling, barn and outbuilding on 1.0083 acres; Lot 2, containing 1.07673 acres; Lot 3, containing 1.0003 acres; and Lot 4, containing 1.0002 acres. All lots are proposed to be served by public water and private septic. The property is zoned R-4 Medium Density Residential. Robert H. Ruhe is the owner and applicant.



Previous Township Consideration

At their December 15, 2023, April 15, 2021, July 21, 2016, November 19, 2015, February 20, 2014 and March 28, 2013 meetings, the Planning Commission reviewed Minor Subdivision #2013-201 Ruhe Subdivision and took the plan under advisement.

Reviewing Agencies Comments Summaries

Township Engineer

The comments of the Township Engineer are contained in Mr. Anthony Tallarida's review dated October 3, 2024. His comments pertain to waiver/deferral requests, sewage planning, grading, stormwater management, and additional Township policies.

Township Water & Sewer Engineer

The comments of the Township Water and Sewer Engineer are contained in Mr. Jason Newhard's review dated October 4, 2024. His comments reference engineering details yet to be confirmed.

Township Geotechnical Consultant

The Township Geotechnical Consultant are contained in Mr. Chris Taylor's review dated September 24, 2024. His comments include a review of previous comments that have been adequately addressed. His remaining comments relate to on-site sewage disposal.

Public Works Department

The comments of the Township Public Works Department are contained in Mr. Herb Bender's review dated September 27, 2024. His comments pertain to fire flows and neighboring property's (2436 Huckleberry Road) connection to water. His comments also address the management of inlets and stormwater BMPs.

Public Safety Commission

To date the Public Safety Commission has yet to review the current submission. This plan will be reviewed at the October 7, 2024, Public Safety Commission Meeting.

Landscape and Shade Tree Commission

The Landscape and Shade Tree Commission last reviewed the plans at their September 25, 2023 meeting. Their comments are contained in Mr. Gregg Adam's memo dated October 12, 2023. The updated plans will be reviewed at the October 28, 2024 Landscape and Shade Tree Commission Meeting.

Parks and Recreation Board

The Parks and Recreation Board last reviewed the plans at their May 11, 2020 meeting. Their comments are contained in Mr. Gregg Adam's memo dated May 12, 2020. The updated plans will be reviewed at the October 14, 2024 Parks and Recreation Board meeting.

Lehigh Valley Planning Commission

The comments of the Lehigh Valley Planning Commission are contained in the stormwater review letter dated August 16, 2024. The Drainage Plan has been found to be consistent with the Act 167 requirements.

South Whitehall Community Development Department Review

The comments of the South Whitehall Township Community Development Department are contained in Mr. Christopher Strohler's review dated October 3, 2024. His comments pertain to Township board/commission/committee reviews, plan recording requirements, and consistency with Township long-range plans.

Zoning Review

The comments of the South Whitehall Township Zoning Officer are contained in Ms. Laura Harrier's review dated September 27, 2024. Her comments relate to the applicable Zoning Ordinance (June 1, 2013). Also included in the packet is the review letter dated January 13, 2022.

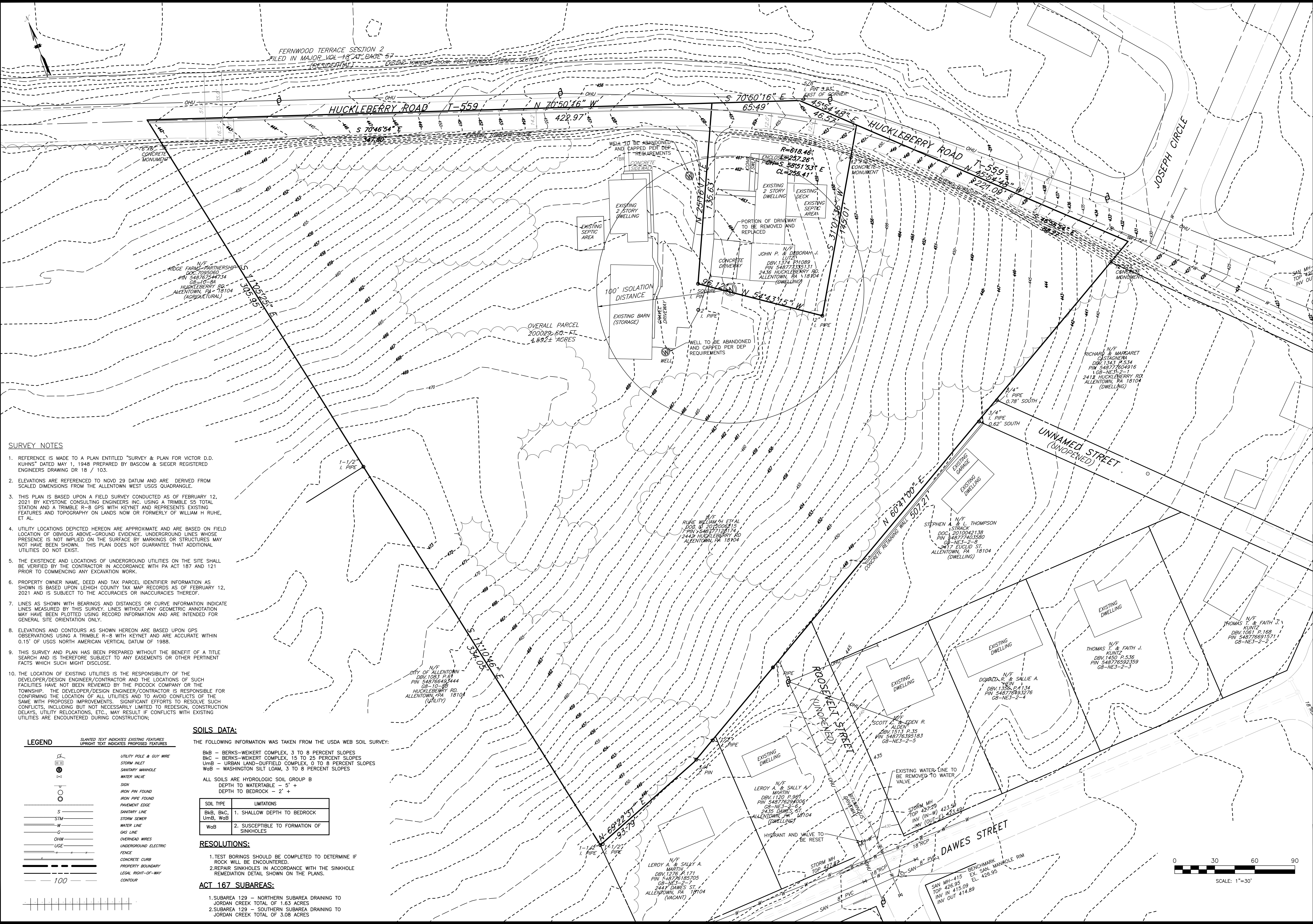
Community Development Department Recommendation

The Community Development Department does not recommend approval at this time.

Planning Commission deadline to act on the plan: October 10, 2024

Board of Commissioners deadline to act on the plan: November 13, 2024

Site Plan



SURVEY NOTES

1. 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.
2. ELEVATIONS ARE REFERENCED TO NGVD 29 DATUM AND ARE DERIVED FROM SCALED DIMENSIONS FROM THE ALLENTOWN WEST USGS QUADRANGLE.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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
- WoB - 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, WoB	1. SHALLOW DEPTH TO BEDROCK
WoB	2. SUSCEPTIBLE TO FORMATION OF SINKHOLES

RESOLUTIONS:

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

ACT 167 SUBAREAS:

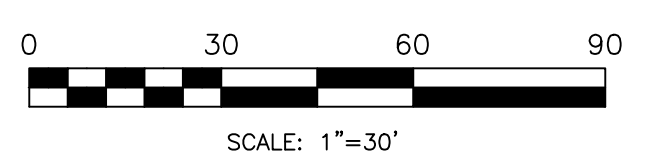
1. SUBAREA 129 - NORTHERN SUBAREA DRAINING TO JORDAN CREEK TOTAL OF 1.63 ACRES
2. SUBAREA 129 - SOUTHERN SUBAREA DRAINING TO JORDAN CREEK TOTAL OF 3.08 ACRES

LEGEND

SLANTED TEXT INDICATES EXISTING FEATURES
 UPRIGHT TEXT INDICATES PROPOSED FEATURES

- UTILITY POLE & GUY WIRE
- STORM INLET
- SANITARY MANHOLE
- WATER VALVE
- SSON
- 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

100



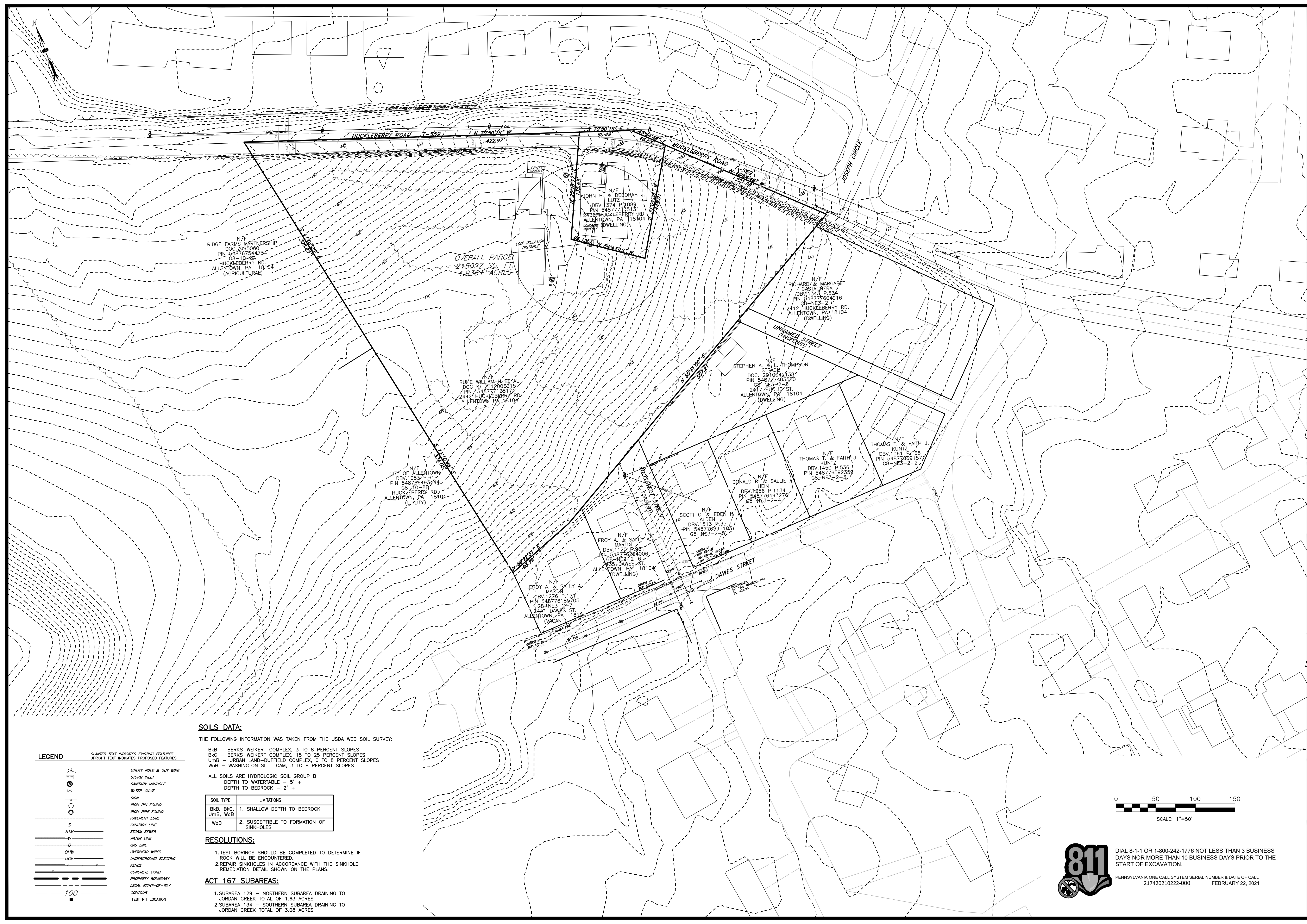
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EXISTING FEATURES & DEMOLITION PLAN
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

REVISIONS	DATE	BY
06/16/2021	MSN	MFC
12/16/2021	MSN	MFC
09/20/2023	IMK	IMK
11/17/2023	IMK	IMK
06/24/2024	IMK	IMK
09/12/2024	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



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BkK - BERKS-WEIKERT COMPLEX, 3 TO 8 PERCENT SLOPES
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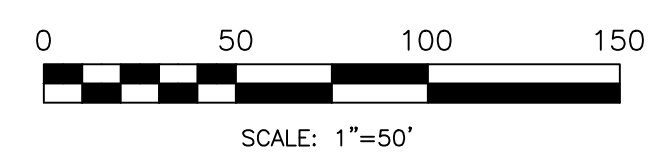
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	STORM INLET
	SANITARY MANHOLE
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	SIGN
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	STORM SEWER
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	UNDERGROUND ELECTRIC
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	PROPERTY BOUNDARY
	LEGAL RIGHT-OF-WAY
	CONTOUR
	TEST PIT LOCATION

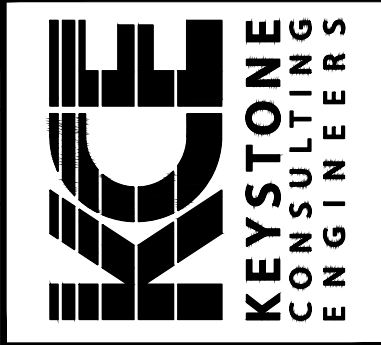
100'



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

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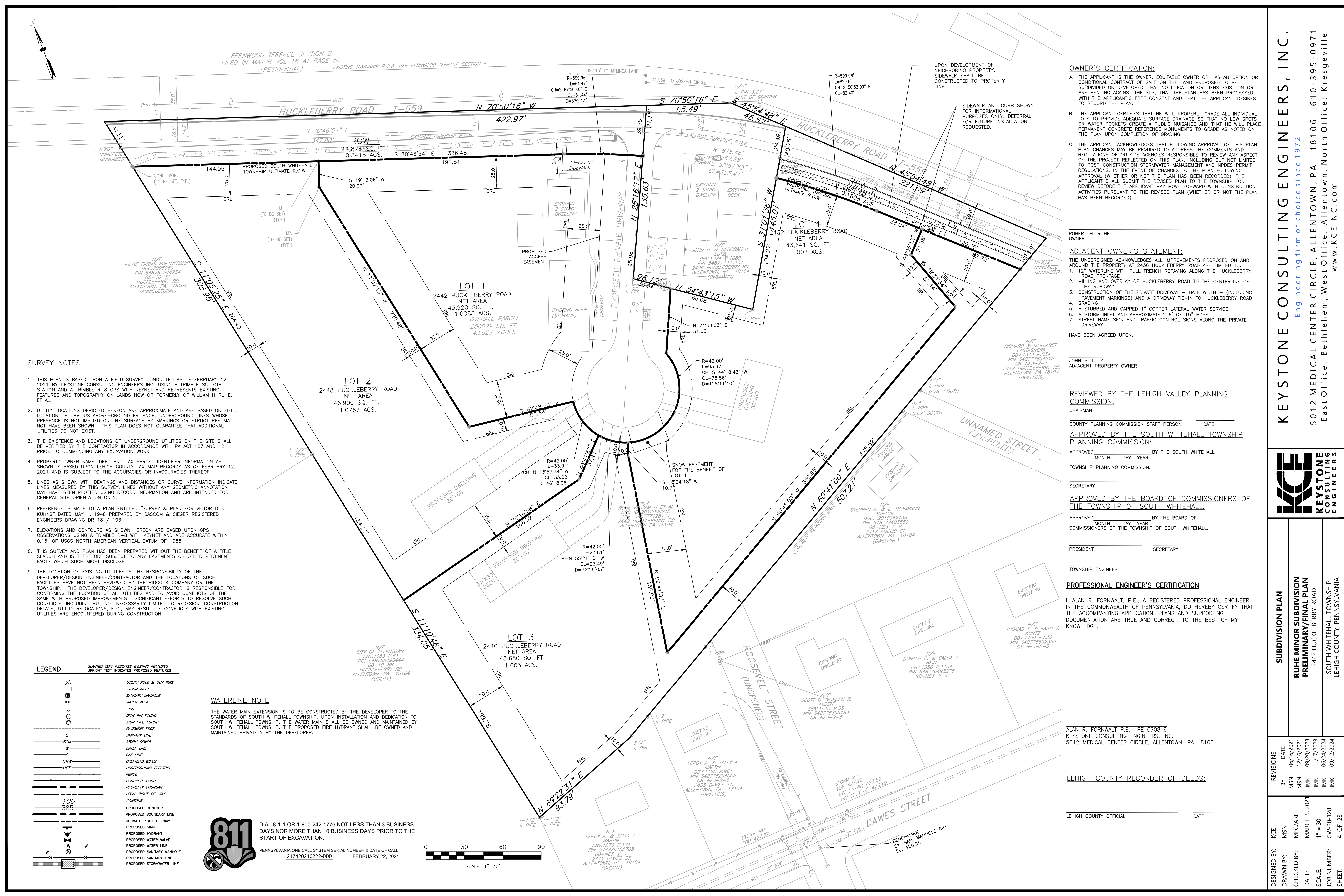


EXISTING FEATURES (EXPANDED VIEW, 50 SCALE)
RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

REVISIONS	DATE
BY: MSN	06/16/2021
BY: MSN	12/16/2021
BY: IMK	09/20/2023
BY: IMK	11/17/2023
BY: IMK	06/24/2024
BY: IMK	09/12/2024

DESIGNED BY: KCE	MFC
DRAWN BY: MFC	MFC/ARF
CHECKED BY: MFC/ARF	March 05, 2021
DATE: March 05, 2021	1" = 50'
SCALE: 1" = 50'	1" = 50'
JOB NUMBER: CW-20-128	3 OF 23
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**
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LEGEND

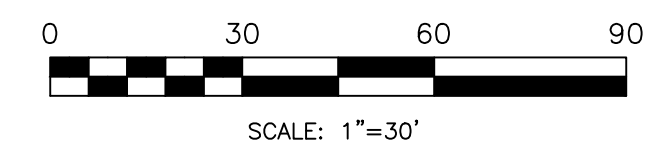
SLANTED TEXT INDICATES EXISTING FEATURES	UPRIGHT TEXT INDICATES PROPOSED FEATURES
	UTILITY POLE & GUY WIRE
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	SANITARY MANHOLE
	WATER VALVE
	SIGN
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	UNDERGROUND ELECTRIC
	FENCE
	CONCRETE CURB
	PROPERTY 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

WATERLINE NOTE

THE WATER MAIN EXTENSION IS TO BE CONSTRUCTED BY THE DEVELOPER TO THE STANDARDS OF SOUTH WHITEHALL TOWNSHIP. UPON INSTALLATION AND DEDICATION TO SOUTH WHITEHALL TOWNSHIP, THE WATER MAIN SHALL BE OWNED AND MAINTAINED BY SOUTH WHITEHALL TOWNSHIP. THE PROPOSED FIRE HYDRANT SHALL BE OWNED AND MAINTAINED PRIVATELY BY THE DEVELOPER.

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 CERTIFICATION:

A. THE APPLICANT IS THE OWNER, EQUITABLE OWNER OR HAS AN OPTION OR CONDITIONAL CONTRACT OF SALE ON THE LAND PROPOSED TO BE SUBDIVIDED OR DEVELOPED. THAT NO LITIGATION OR LIENS EXIST ON OR ARE PENDING AGAINST THE SITE, THAT THE PLAN HAS BEEN PROCESSED WITH THE APPLICANT'S FREE CONSENT AND THAT THE APPLICANT DESIRES TO RECORD THE PLAN.

B. THE APPLICANT CERTIFIES THAT HE WILL PROPERLY GRADE ALL INDIVIDUAL LOTS TO PROVIDE ADEQUATE SURFACE DRAINAGE SO THAT NO LOW SPOTS OR WATER POCKETS CREATE A PUBLIC NUISANCE AND THAT HE WILL PLACE PERMANENT CONCRETE REFERENCE MONUMENTS TO GRADE AS NOTED ON THE PLAN UPON COMPLETION OF GRADING.

C. 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).

ADJACENT OWNER'S STATEMENT:

THE UNDERSIGNED ACKNOWLEDGES ALL IMPROVEMENTS PROPOSED ON AND AROUND THE PROPERTY AT 2436 HUCKLEBERRY ROAD ARE LIMITED TO:

- 12" WATERLINE WITH FULL TRENCH REPAVING ALONG THE HUCKLEBERRY ROAD FRONTAGE
- MILLING AND OVERLAY OF HUCKLEBERRY ROAD TO THE CENTERLINE OF THE ROADWAY
- CONSTRUCTION OF THE PRIVATE DRIVEWAY - HALF WIDTH - (INCLUDING PAVEMENT MARKINGS) AND A DRIVEWAY TIE-IN TO HUCKLEBERRY ROAD
- GRADING
- A STUBBED AND CAPPED 1" COPPER LATERAL WATER SERVICE
- A STORM INLET AND APPROXIMATELY 6' OF 15" HDPE
- STREET NAME SIGN AND TRAFFIC CONTROL SIGNS ALONG THE PRIVATE DRIVEWAY

HAVE BEEN AGREED UPON.

ROBERT H. RUHE
OWNER

JOHN P. LUTZ
ADJACENT PROPERTY OWNER

REVIEWED BY THE LEHIGH VALLEY PLANNING COMMISSION:

CHAIRMAN _____ DATE _____

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 _____

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 _____

PROFESSIONAL ENGINEER'S CERTIFICATION

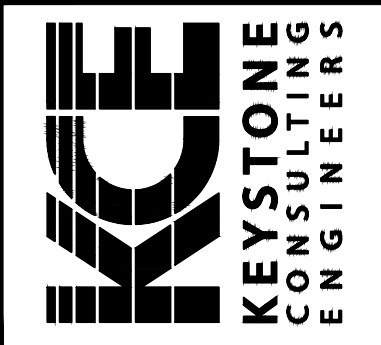
I, ALAN R. FORNWALT, P.E., A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF PENNSYLVANIA, DO HEREBY CERTIFY THAT THE ACCOMPANYING APPLICATION, PLANS AND SUPPORTING DOCUMENTATION ARE TRUE AND CORRECT, TO THE BEST OF MY KNOWLEDGE.

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

LEHIGH COUNTY RECORDER OF DEEDS:

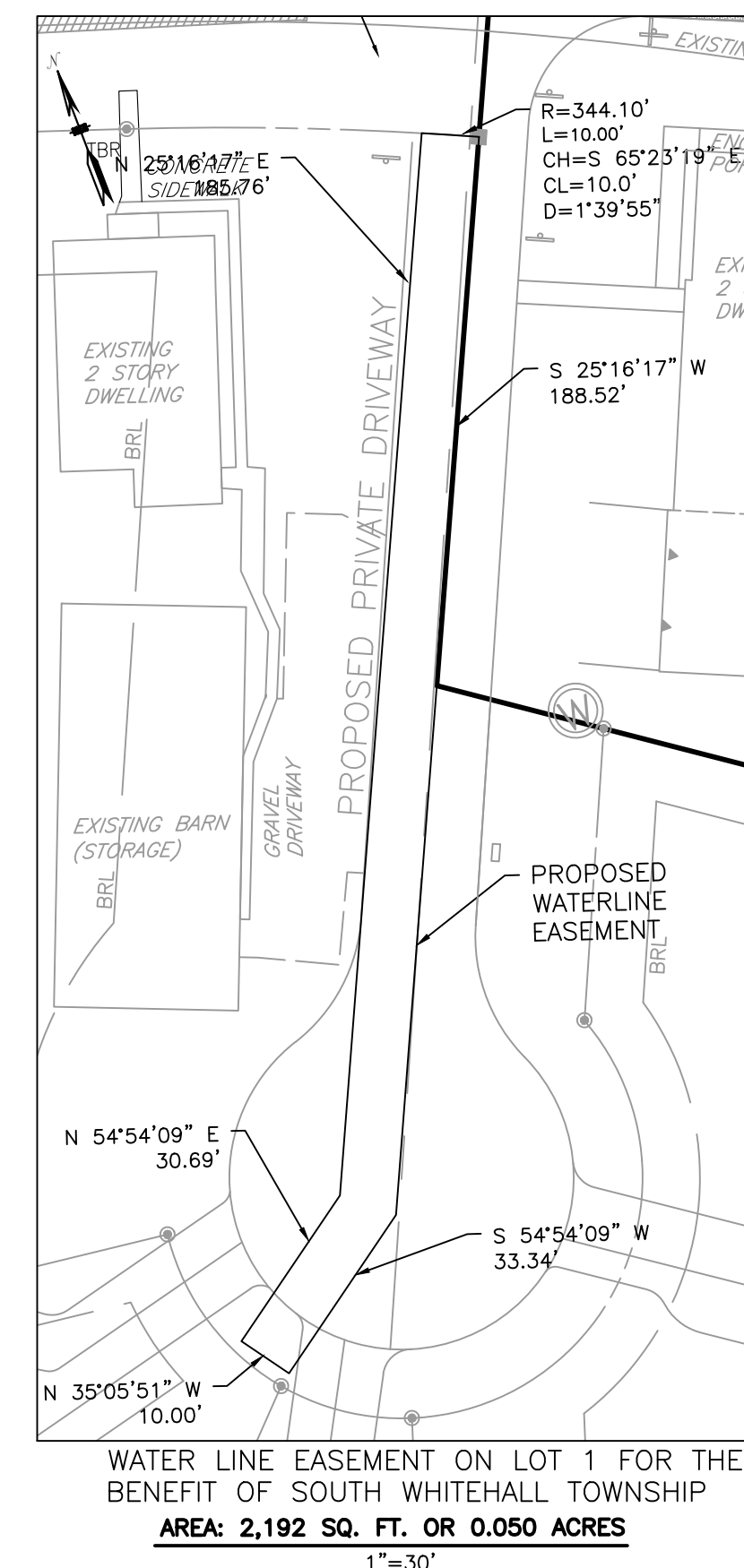
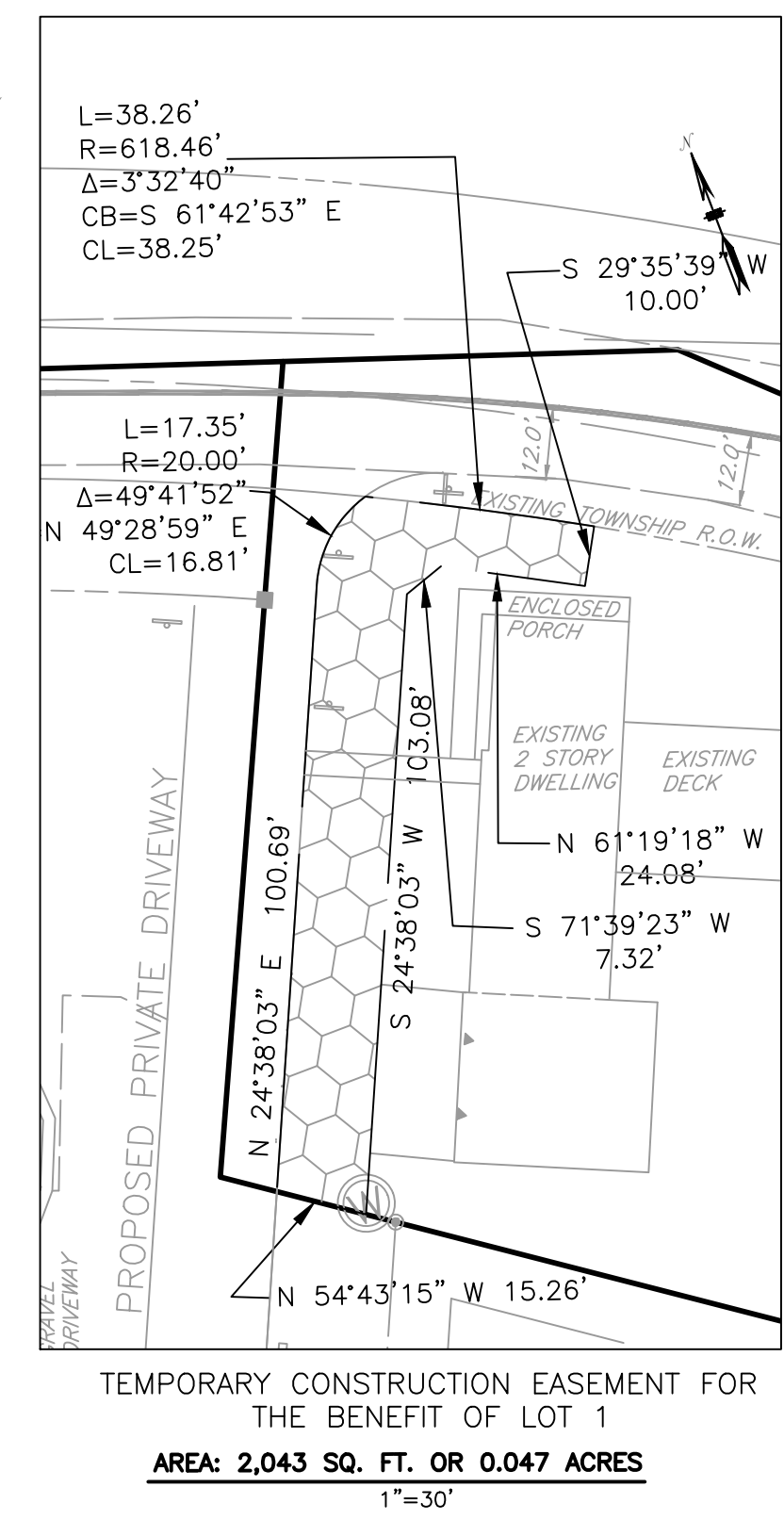
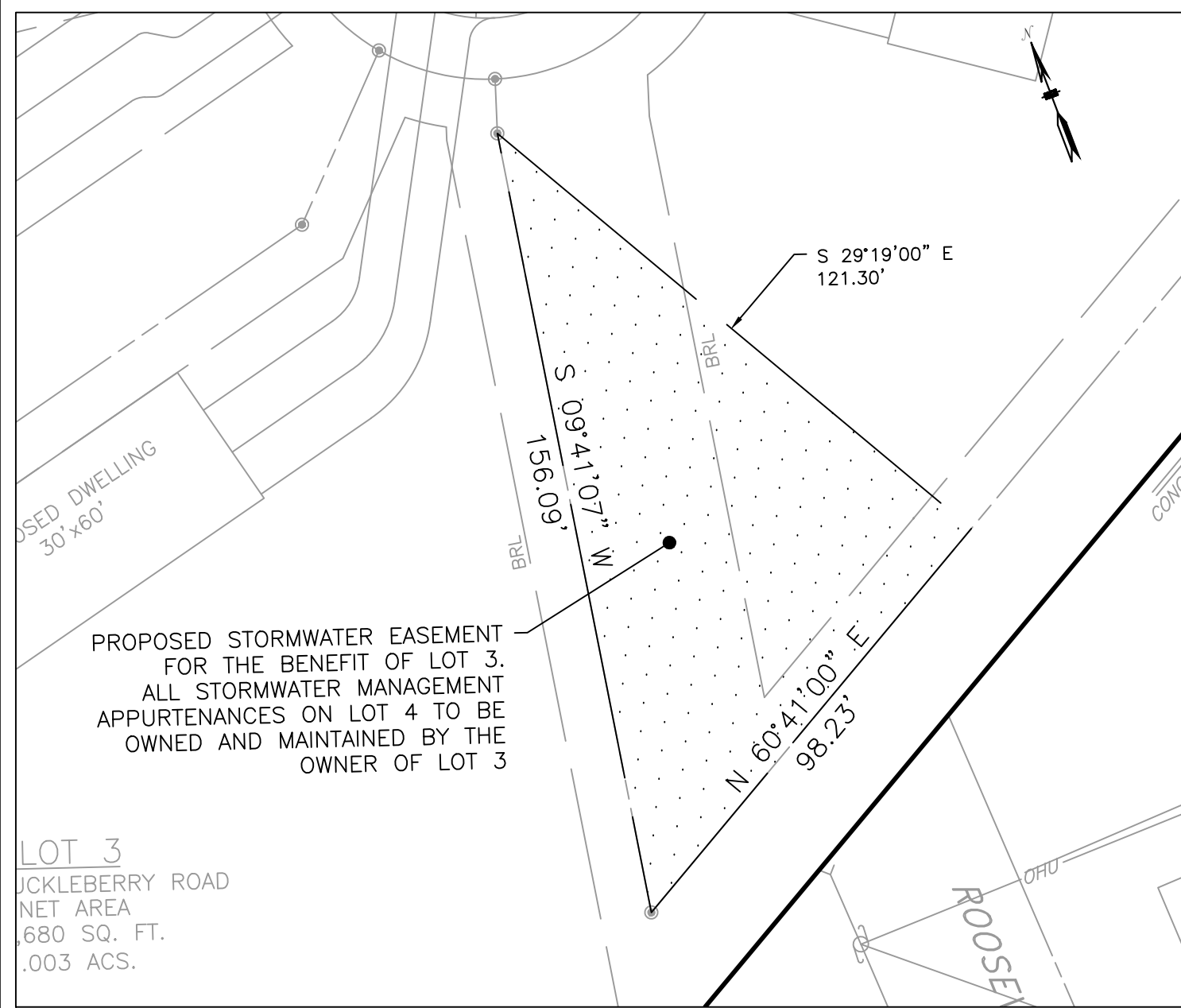
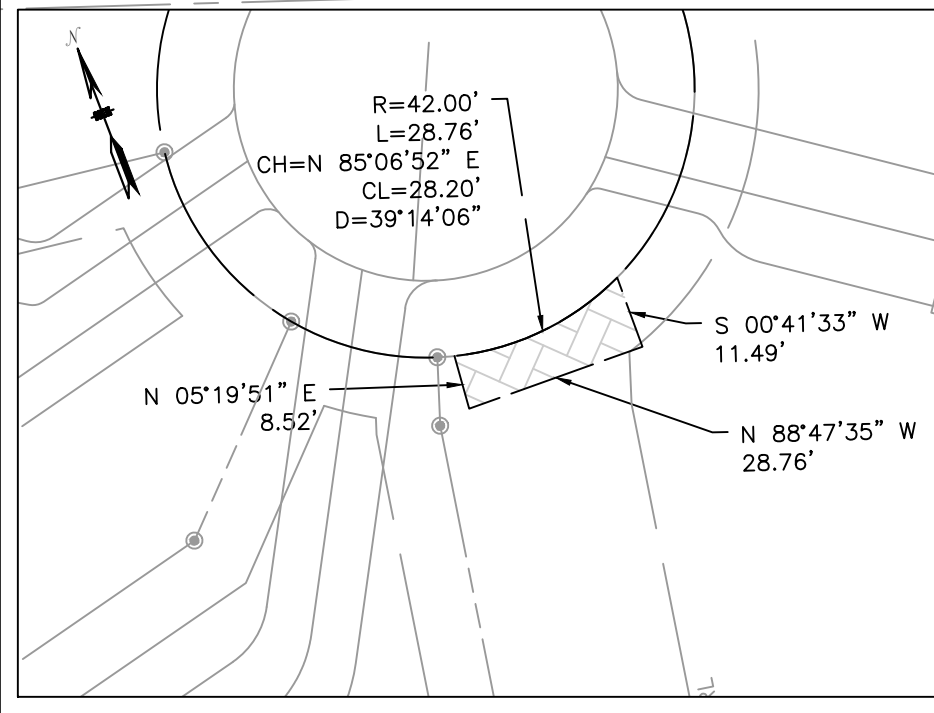
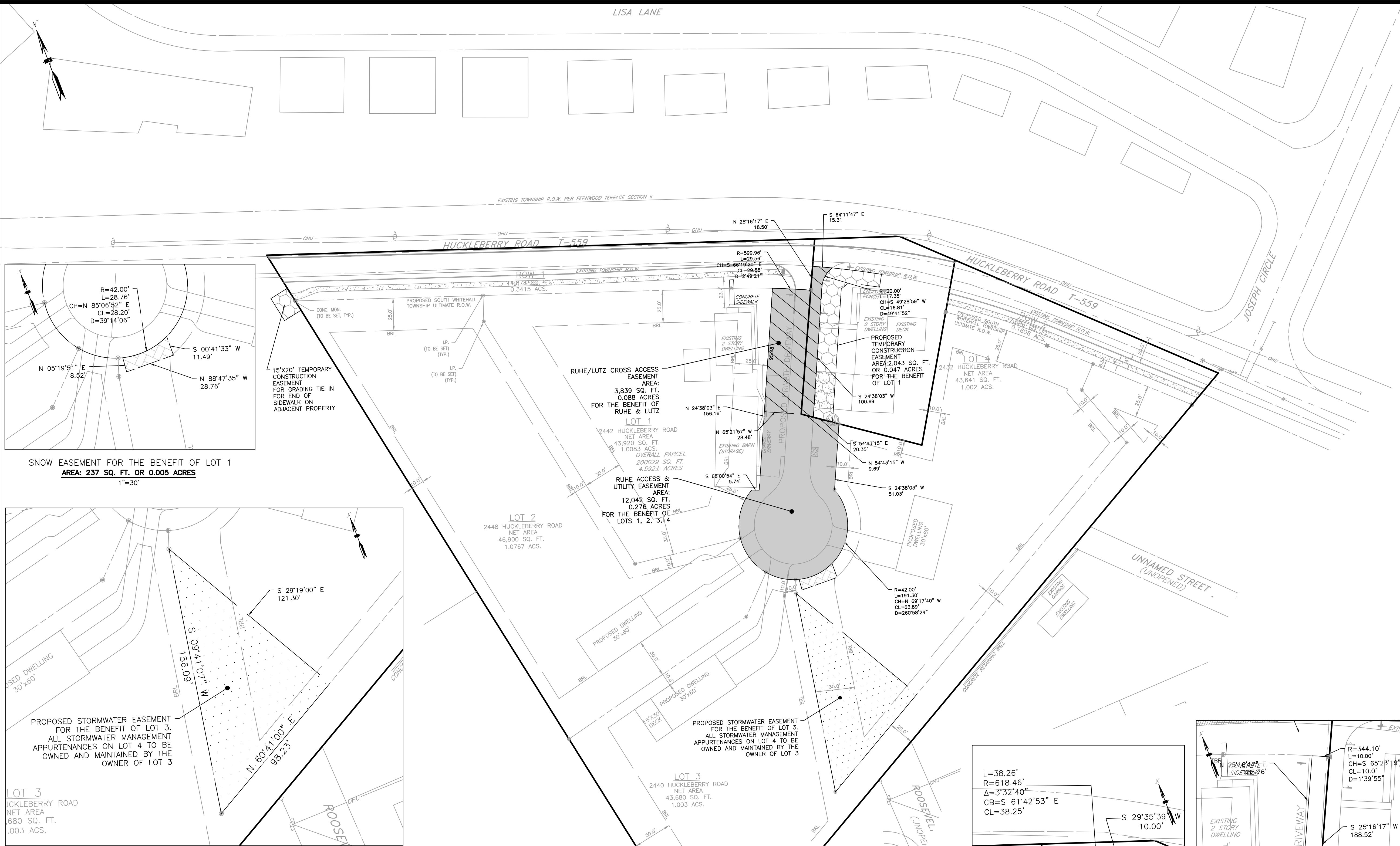
LEHIGH COUNTY OFFICIAL _____ DATE _____

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East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville
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SUBDIVISION 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:	4 OF 23



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JOHN P. LUTZ
ADJACENT PROPERTY OWNER

REVIEWED BY THE LEHIGH VALLEY PLANNING COMMISSION:
CHAIRMAN

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.

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

PROFESSIONAL ENGINEER'S CERTIFICATION

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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 table with symbols for utility pole & guy wire, storm inlet, sanitary manhole, water 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 sanitary line, ultimate right-of-way, proposed sign, proposed hydrant, proposed water valve, proposed water line, proposed sanitary manhole, proposed sanitary line, proposed stormwater line.

SURVEY NOTES
1. THIS PLAN IS BASED UPON A FIELD SURVEY CONDUCTED ON 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.

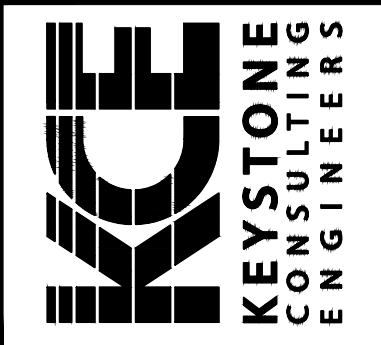
STORMWATER EASEMENT NOTES
10. A STORMWATER MANAGEMENT ACCESS BLANKET EASEMENT HAS BEEN PROVIDED FOR ACCESS TO POST CONSTRUCTION STORMWATER MANAGEMENT BMPs FOR OPERATION AND MAINTENANCE PROCEDURES.

WATERLINE NOTE
THE WATER MAIN EXTENSION IS TO BE CONSTRUCTED BY THE DEVELOPER TO THE STANDARDS OF SOUTH WHITEHALL TOWNSHIP. UPON INSTALLATION AND DEDICATION TO SOUTH WHITEHALL TOWNSHIP, THE WATER MAIN SHALL BE OWNED AND MAINTAINED BY SOUTH WHITEHALL TOWNSHIP. THE PROPOSED FIRE HYDRANT SHALL BE OWNED AND MAINTAINED PRIVATELY BY THE DEVELOPER.



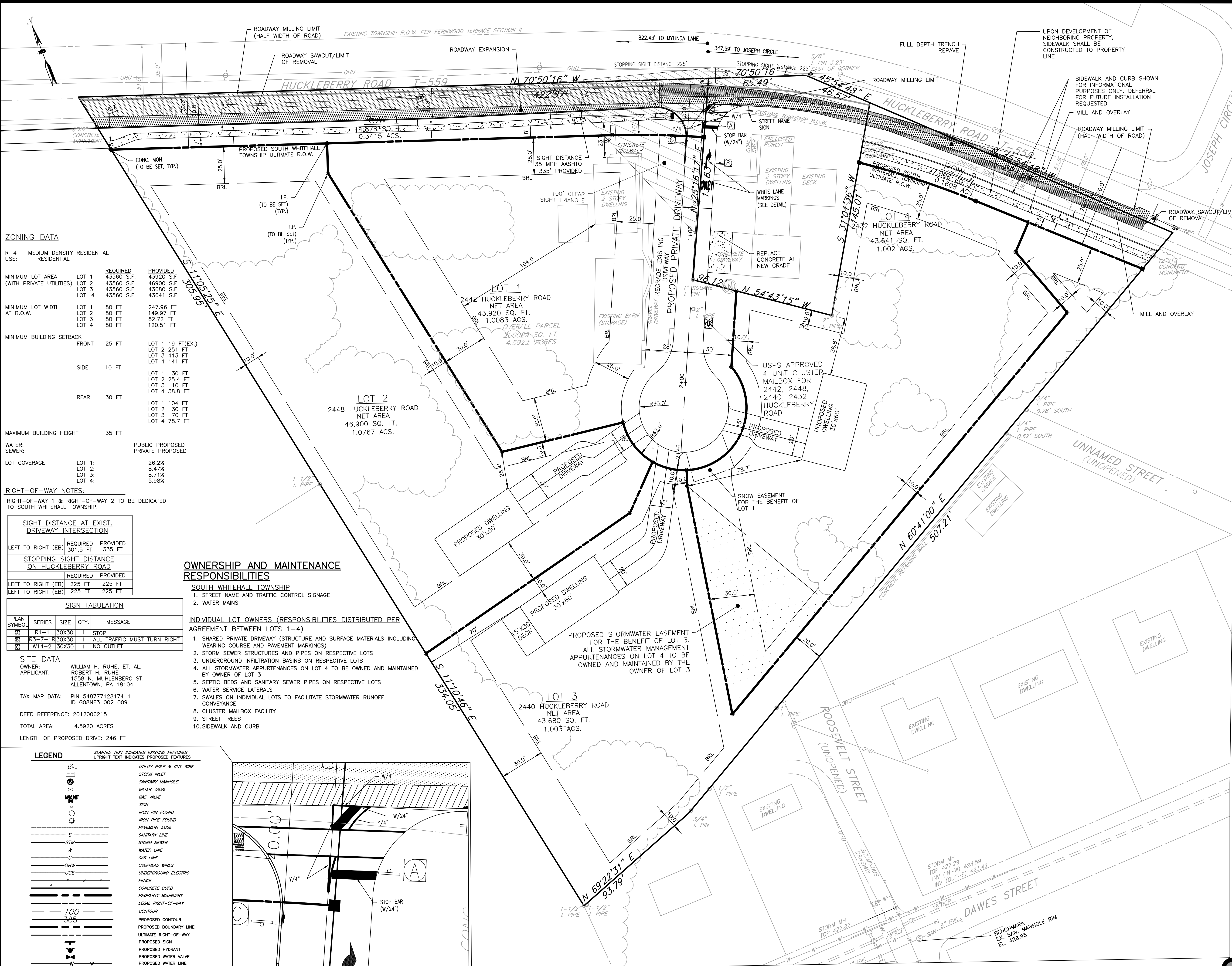
PENNSYLVANIA ONE CALL SYSTEM SERIAL NUMBER & DATE OF CALL
217420210222-000 FEBRUARY 22, 2021

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East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville
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EASEMENT PLAN
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

Table with columns: DESIGNED BY, DRAWN BY, CHECKED BY, DATE, SCALE, JOB NUMBER, SHEET. Includes revision table with columns: REVISIONS, BY, DATE.



ZONING DATA

R-4 - MEDIUM DENSITY RESIDENTIAL USE:

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.	43680 S.F.
LOT 4	43560 S.F.	43641 S.F.

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

MINIMUM BUILDING SETBACK	REQUIRED	PROVIDED
FRONT	25 FT	LOT 1 19 FT (EX.) LOT 2 25.1 FT LOT 3 4.13 FT LOT 4 14.1 FT
SIDE	10 FT	LOT 1 30 FT LOT 2 25.4 FT LOT 3 10 FT LOT 4 38.8 FT
REAR	30 FT	LOT 1 104 FT LOT 2 30 FT LOT 3 70 FT LOT 4 78.7 FT

MAXIMUM BUILDING HEIGHT	REQUIRED	PROVIDED
	35 FT	

LOT COVERAGE	REQUIRED	PROVIDED
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

SITE DATA
 OWNER: WILLIAM H. RUHE, ET. AL.
 APPLICANT: ROBERT H. RUHE
 1558 N. MUEHLBERG 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

LEGEND

SLANTED TEXT INDICATES EXISTING FEATURES
 UPRIGHT TEXT INDICATES PROPOSED FEATURES

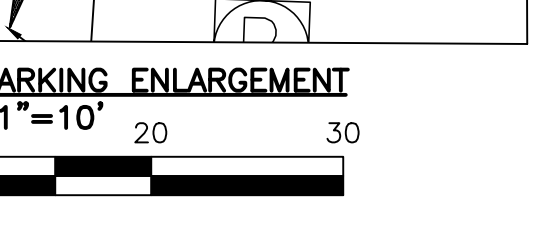
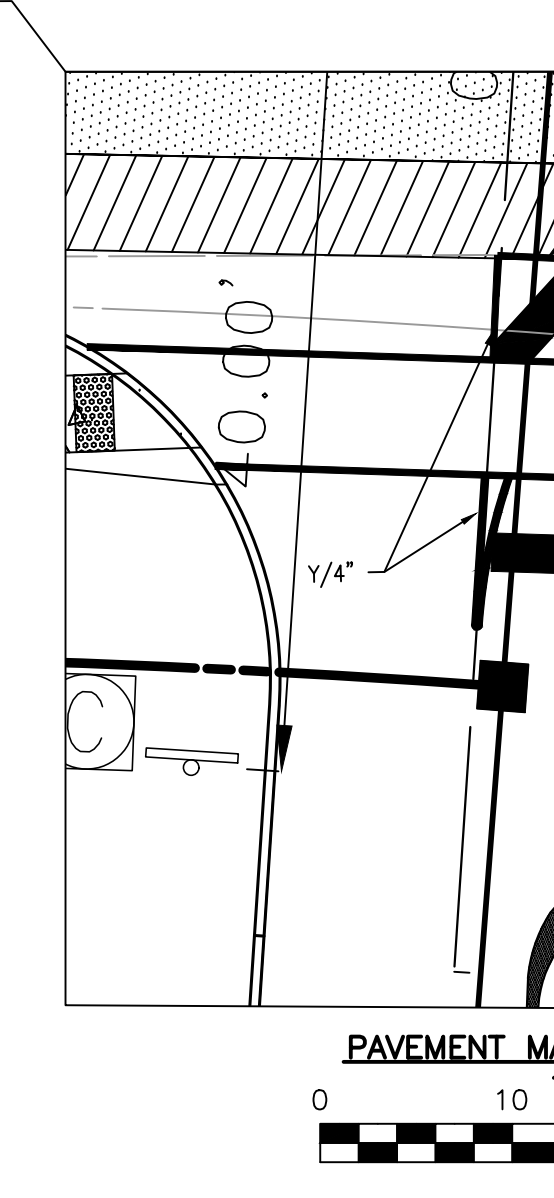
(Symbol)	UTILITY POLE & GUY WIRE
(Symbol)	STORM INLET
(Symbol)	SANITARY MANHOLE
(Symbol)	WATER VALVE
(Symbol)	GAS VALVE
(Symbol)	SIGN
(Symbol)	IRON PIN FOUND
(Symbol)	IRON PIPE FOUND
(Symbol)	PAVEMENT EDGE
(Symbol)	SANITARY LINE
(Symbol)	STORM SEWER
(Symbol)	WATER LINE
(Symbol)	GAS LINE
(Symbol)	OVERHEAD 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
(Symbol)	MILL AND OVERLAY
(Symbol)	FULL TRENCH REPAVE

OWNERSHIP AND MAINTENANCE RESPONSIBILITIES

- SOUTH WHITEHALL TOWNSHIP**
- STREET NAME AND TRAFFIC CONTROL SIGNAGE
 - WATER MAINS

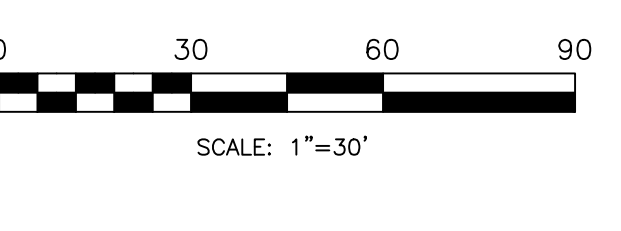
INDIVIDUAL LOT OWNERS (RESPONSIBILITIES DISTRIBUTED PER AGREEMENT BETWEEN LOTS 1-4)

- SHARED PRIVATE DRIVEWAY (STRUCTURE AND SURFACE MATERIALS INCLUDING WEARING COURSE AND PAVEMENT MARKINGS)
- STORM SEWER STRUCTURES AND PIPES ON RESPECTIVE LOTS
- UNDERGROUND INFILTRATION BASINS ON RESPECTIVE LOTS
- ALL STORMWATER APPURTENANCES ON LOT 4 TO BE OWNED AND MAINTAINED BY OWNER OF LOT 3
- SEPTIC BEDS AND SANITARY SEWER PIPES ON RESPECTIVE LOTS
- WATER SERVICE LATERALS
- SWALES ON INDIVIDUAL LOTS TO FACILITATE STORMWATER RUNOFF CONVEYANCE
- CLUSTER MAILBOX FACILITY
- STREET TREES
- SIDEWALK AND CURB



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.

WATERLINE NOTE
 THE WATER MAIN EXTENSION IS TO BE CONSTRUCTED BY THE DEVELOPER TO THE STANDARDS OF SOUTH WHITEHALL TOWNSHIP. UPON INSTALLATION AND DEDICATION TO SOUTH WHITEHALL TOWNSHIP, THE WATER MAIN SHALL BE OWNED AND MAINTAINED BY SOUTH WHITEHALL TOWNSHIP. THE PROPOSED FIRE HYDRANT SHALL BE OWNED AND MAINTAINED PRIVATELY BY THE DEVELOPER.



OWNER'S CERTIFICATION:

A. THE APPLICANT IS THE OWNER, EQUITABLE OWNER OR HAS AN OPTION OR CONDITIONAL CONTRACT OF SALE ON THE LAND PROPOSED TO BE SUBDIVIDED OR DEVELOPED, THAT NO LITIGATION OR LIENS EXIST ON OR ARE PENDING AGAINST THE SITE, THAT THE PLAN HAS BEEN PROCESSED WITH THE APPLICANT'S FREE CONSENT AND THAT THE APPLICANT DESIRES TO RECORD THE PLAN.

B. THE APPLICANT CERTIFIES THAT HE WILL PROPERLY GRADE ALL INDIVIDUAL LOTS TO PROVIDE ADEQUATE SURFACE DRAINAGE SO THAT NO LOW SPOTS OR WATER POCKETS CREATE A PUBLIC NUISANCE AND THAT HE WILL PLACE PERMANENT CONCRETE REFERENCE MONUMENTS TO GRADE AS NOTED ON THE PLAN UPON COMPLETION OF GRADING.

C. 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).

ADJACENT OWNER'S STATEMENT:

THE UNDERSIGNED ACKNOWLEDGES ALL IMPROVEMENTS PROPOSED ON AND AROUND THE PROPERTY AT 2436 HUCKLEBERRY ROAD ARE LIMITED TO:

- 12" WATERLINE WITH FULL TRENCH REPAVING ALONG THE HUCKLEBERRY ROAD FRONTAGE
- MILLING AND OVERLAY OF HUCKLEBERRY ROAD TO THE CENTERLINE OF THE ROADWAY
- CONSTRUCTION OF THE PRIVATE DRIVEWAY - HALF WIDTH - (INCLUDING PAVEMENT MARKINGS) AND A DRIVEWAY TIE-IN TO HUCKLEBERRY ROAD
- GRADING
- A STUBBED AND CAPPED 1" COPPER LATERAL WATER SERVICE
- A STORM INLET AND APPROXIMATELY 6' OF 15" HDPE
- STREET NAME SIGN AND TRAFFIC CONTROL SIGNS ALONG THE PRIVATE DRIVEWAY

HAVE BEEN AGREED UPON.

JOHN P. LUTZ
 ADJACENT PROPERTY OWNER

REVIEWED BY THE LEHIGH VALLEY PLANNING COMMISSION:

CHAIRMAN _____ DATE _____
 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.

SECRETARY _____

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 _____

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 _____

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

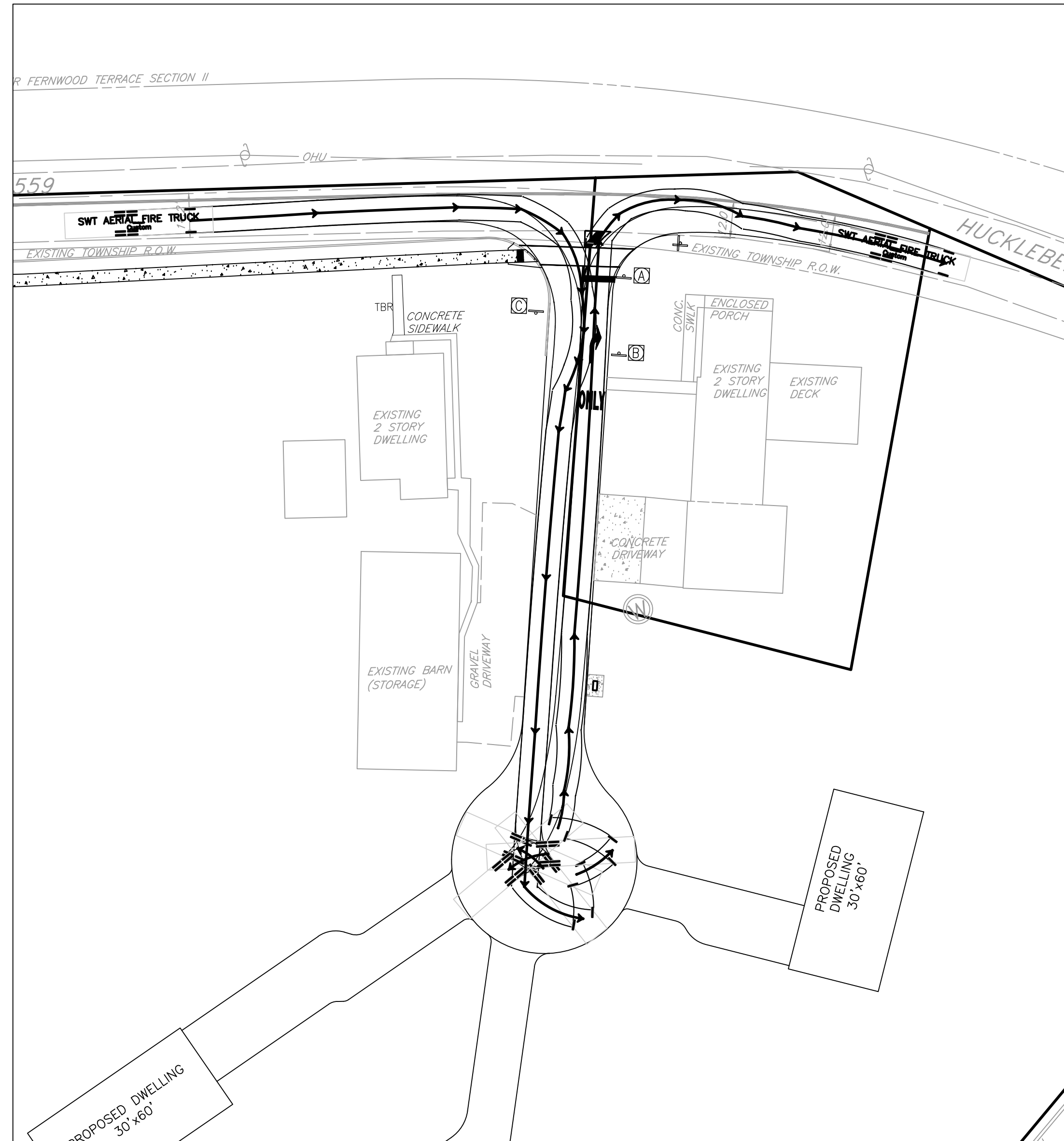
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RECORD PLAN
RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

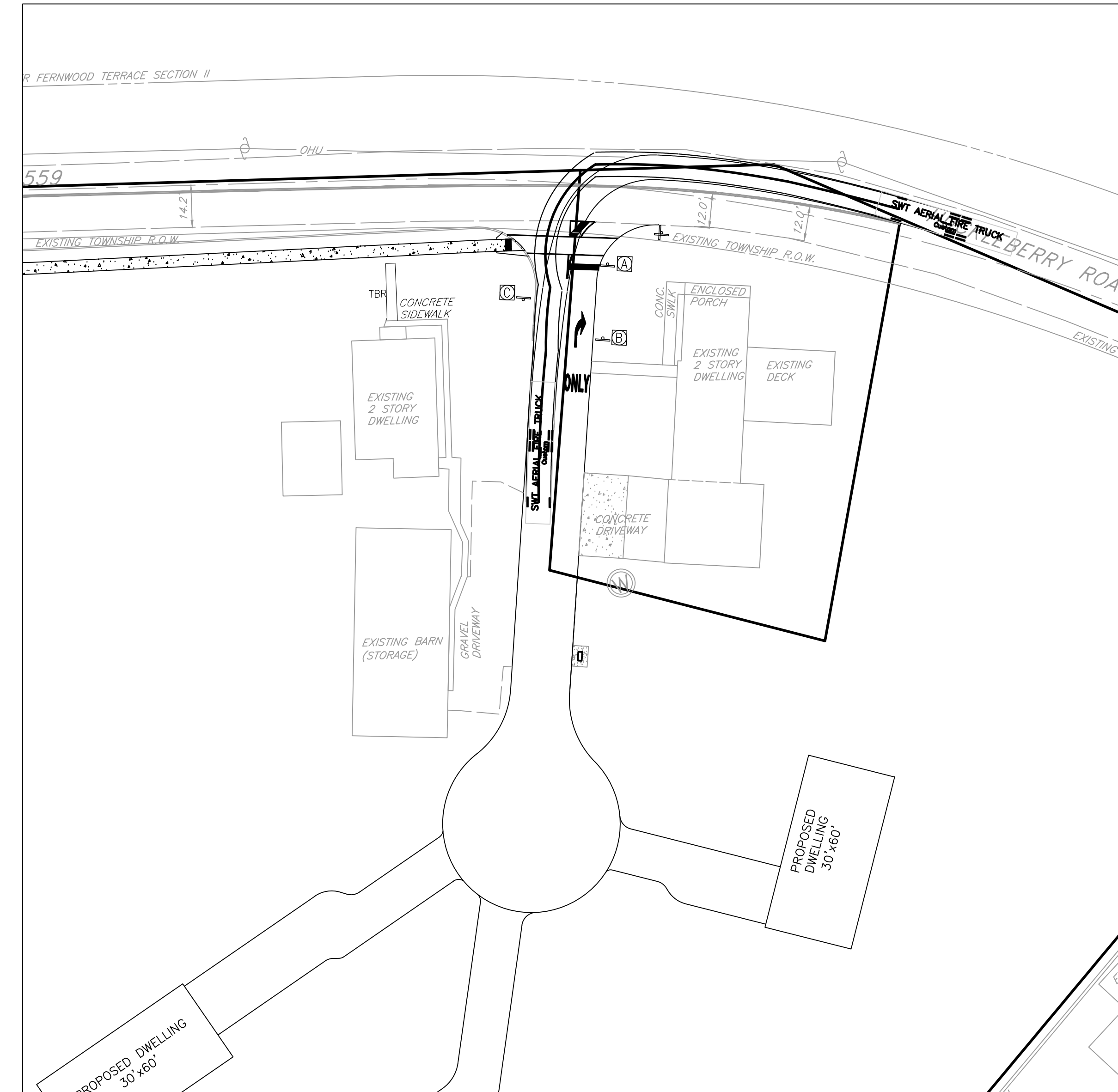
REVISIONS	BY	DATE
	MSN	06/16/2021
	MSN	12/16/2021
	IMK	09/20/2023
	IMK	11/17/2023
	IMK	06/24/2024
	IMK	09/12/2024

DESIGNED BY: KCE
 DRAWN BY: MFC/ARF
 CHECKED BY: MFC/ARF
 DATE: MARCH 5, 2021
 SCALE: 1" = 30'
 JOB NUMBER: CW-20-128
 SHEET: 6 OF 23



SWT FIRE TRUCK RIGHT IN-RIGHT OUT TURNING TEMPLATE

1"=30'



SWT FIRE TRUCK WESTBOUND LEFT TURN TURNING TEMPLATE

1"=30'

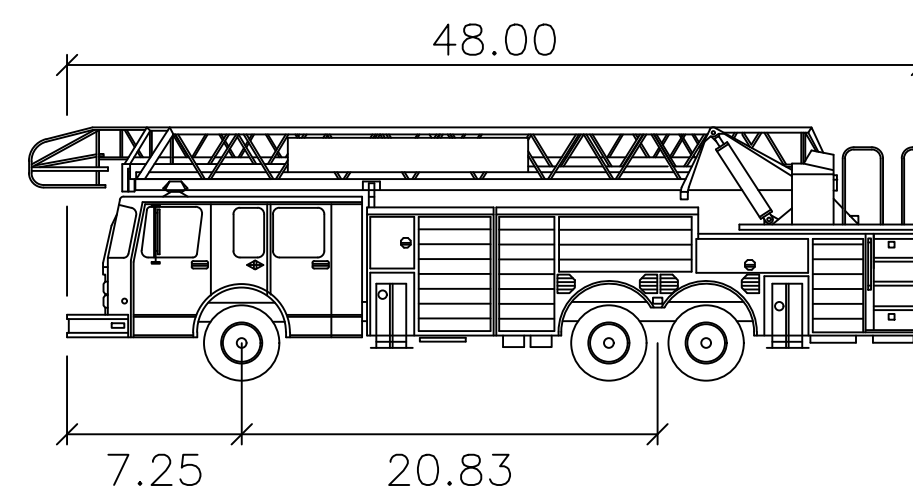
LEGEND

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



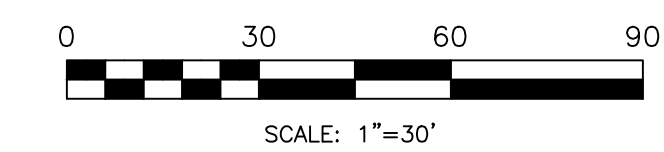
DIAL 8-1-1 OR 1-800-242-1776 NOT LESS THAN 3 BUSINESS DAYS NOR MORE THAN 10 BUSINESS DAYS PRIOR TO THE START OF EXCAVATION.

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



SWT Aerial Fire Truck

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



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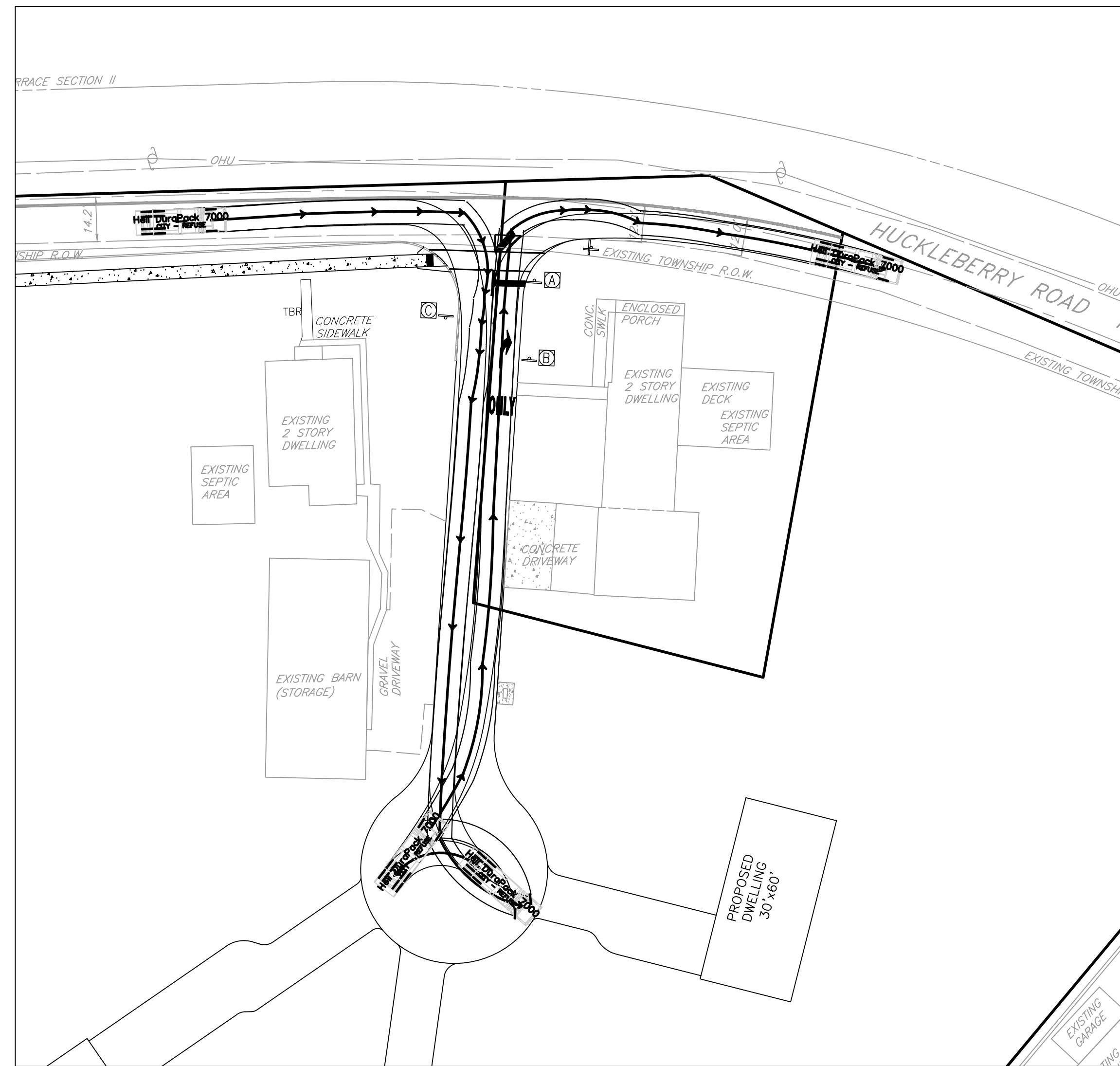
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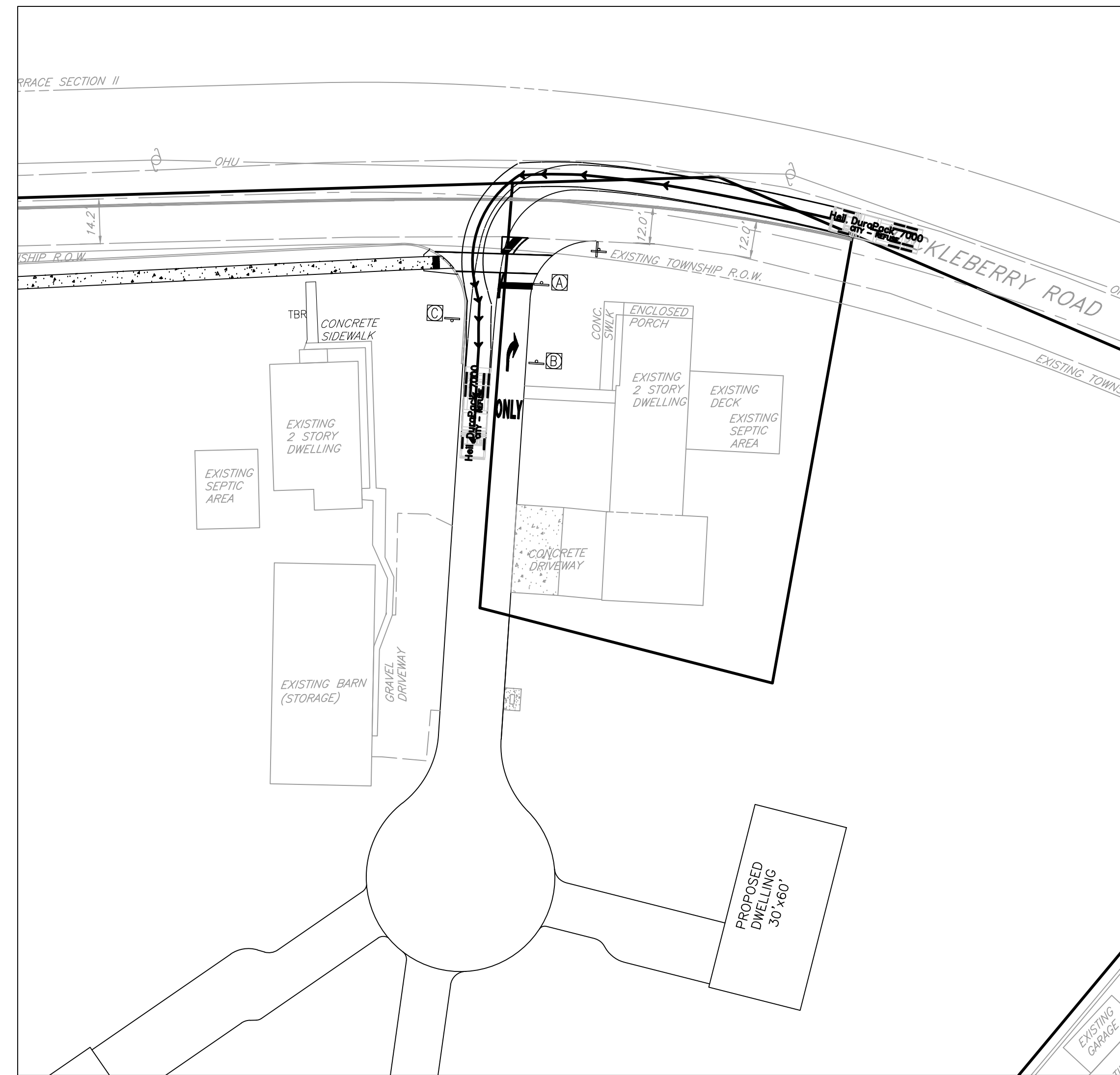
FIRE TRUCK TURN PLAN

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

DESIGNED BY: KCE	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'	IMK	11/17/2023
JOB NUMBER: CW-20-128		
SHEET: 7 OF 23		



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

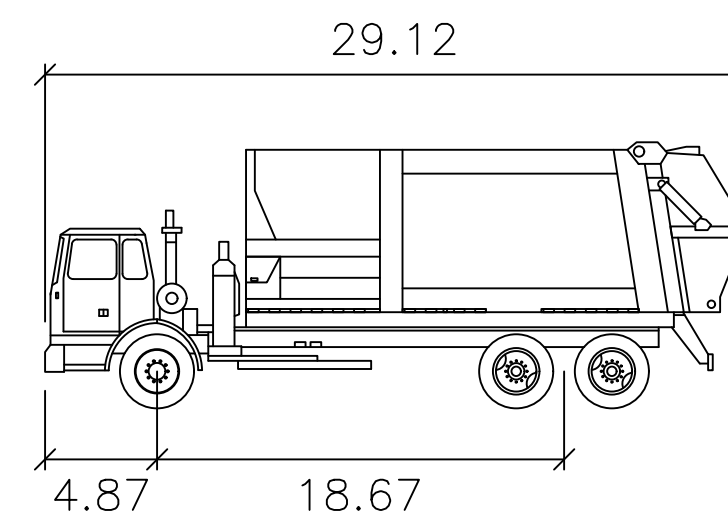


GARBAGE TRUCK WESTBOUND LEFT TURN TURNING TEMPLATE
1"=30'

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



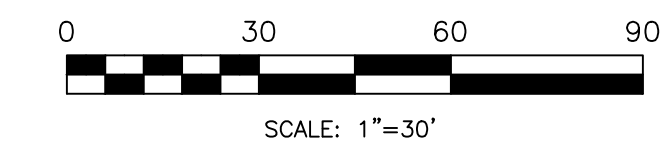
Heil DuraPack 7000
feet

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



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.

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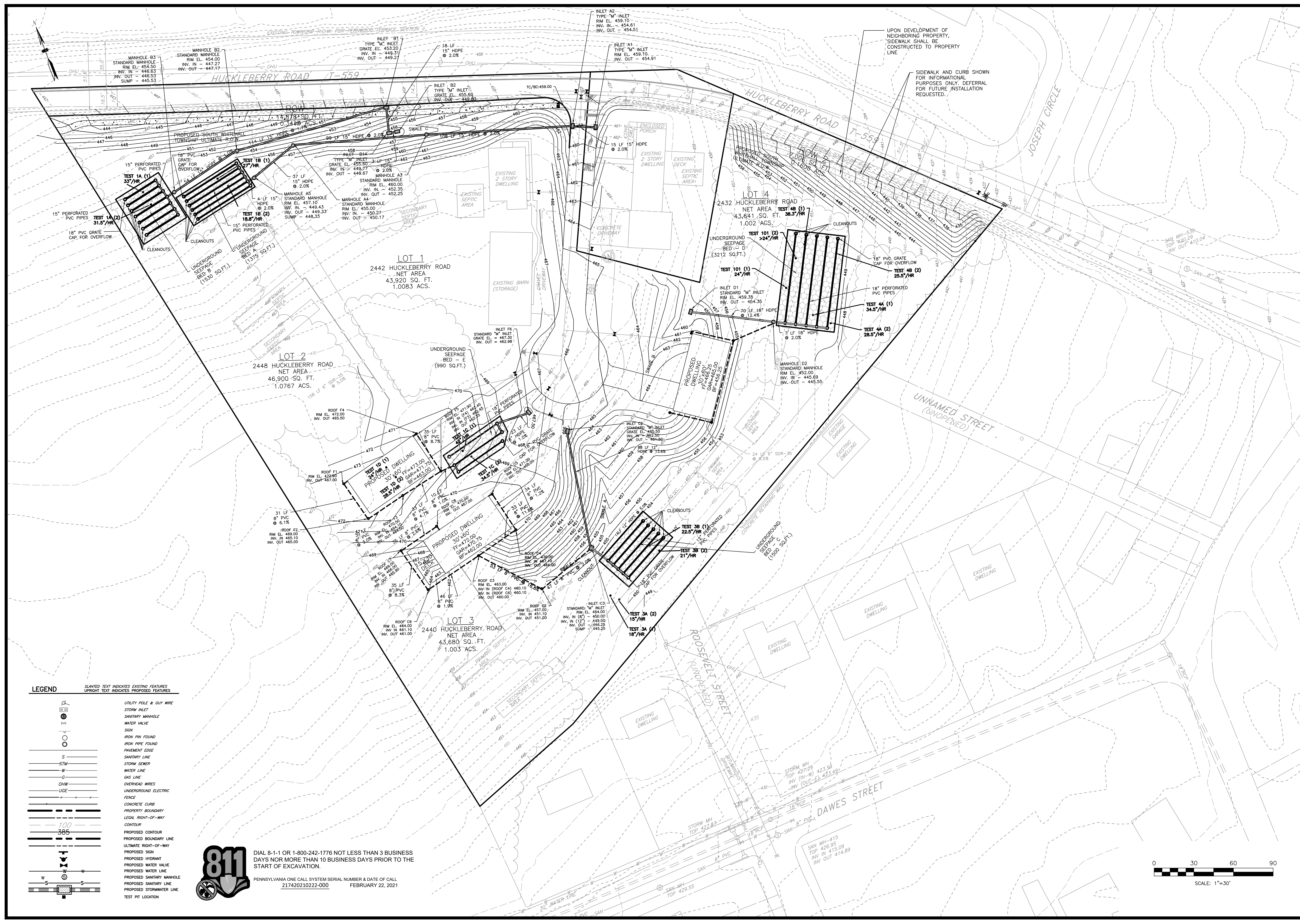
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East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville
www.KCEINC.com



GARBAGE TRUCK TURN PLAN

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

DESIGNED BY: KCE	DATE	06/16/2021
	BY: MSN	MSN
DRAWN BY: MSN	DATE	12/16/2021
	BY: MSN	IMK
CHECKED BY: MFC/ARF	DATE	09/20/2023
	BY: MFC/ARF	IMK
SCALE: 1" = 30'	DATE	MARCH 5, 2021
	BY: MFC/ARF	IMK
JOB NUMBER: CW-20-128	DATE	11/17/2023
	BY: MFC/ARF	IMK
SHEET: 8 OF 23		



LEGEND

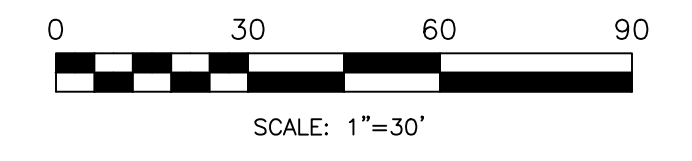
SLANTED TEXT INDICATES EXISTING FEATURES
UPRIGHT TEXT INDICATES PROPOSED FEATURES

	UTILITY POLE & GUY WIRE
	STORM INLET
	SANITARY MANHOLE
	WATER VALVE
	SIGN
	IRON PIN FOUND
	IRON PIPE FOUND
	PAVEMENT EDGE
	SANITARY LINE
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	WATER LINE
	GAS LINE
	OVERHEAD WIRES
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	FENCE
	CONCRETE CURB
	PROPERTY BOUNDARY
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	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

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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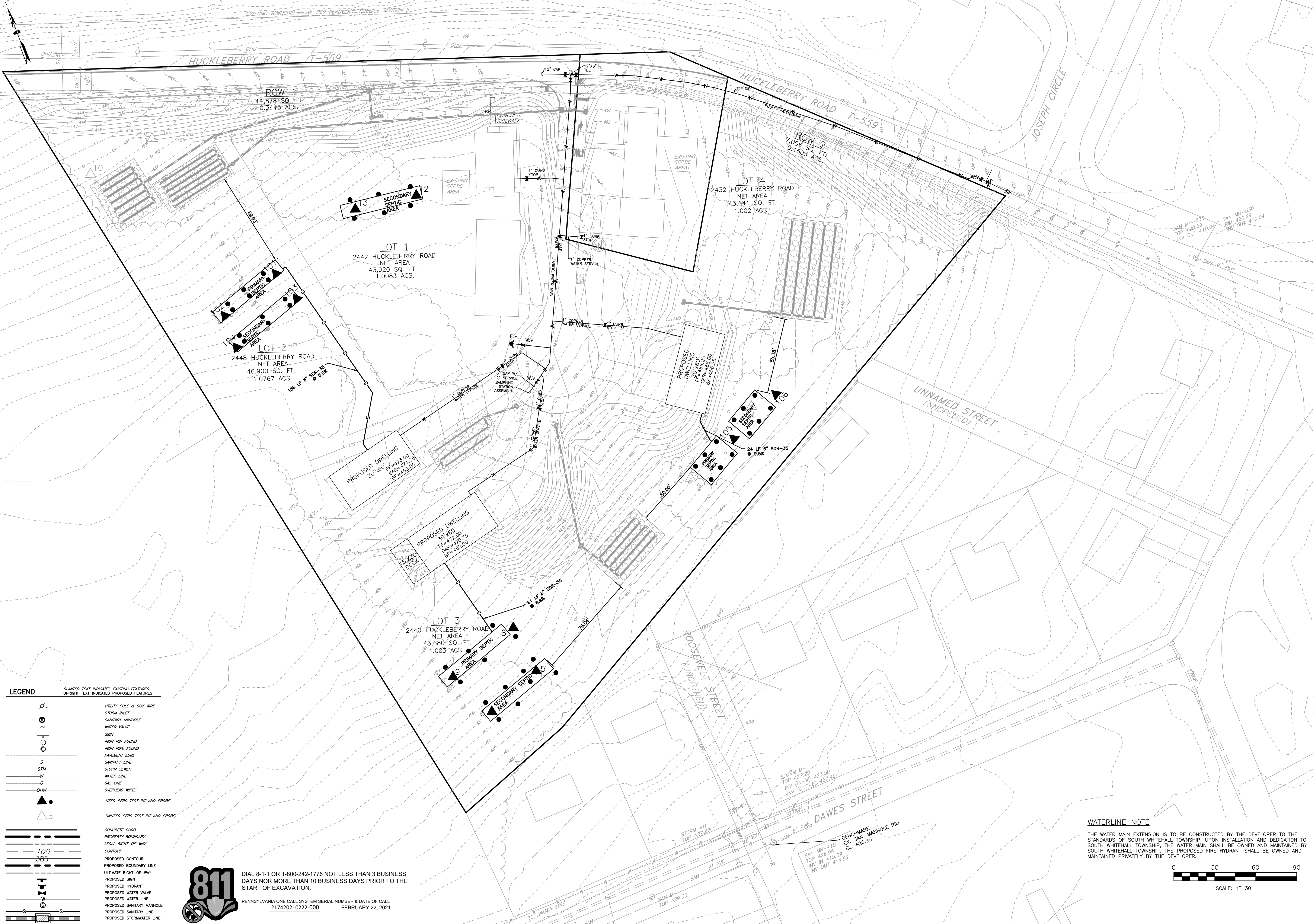
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East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville
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GRADING & DRAINAGE PLAN
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

REVISIONS	
BY	DATE
MSN	06/16/2021
MSN	12/16/2021
IMK	09/20/2023
IMK	11/17/2023
IMK	06/24/2024
IMK	09/12/2024

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
- SIW
- IRON PIN FOUND
- IRON PIPE FOUND
- PAVEMENT EDGE
- SANITARY LINE
- STORM SEWER
- WATER LINE
- GAS LINE
- OVERHEAD WIRES
- USED PERC TEST PIT AND PROBE
- UNUSED PERC TEST PIT AND PROBE
- 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



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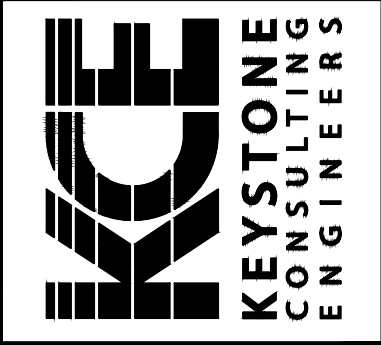
WATERLINE NOTE

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0 30 60 90
SCALE: 1"=30'

KEYSTONE CONSULTING ENGINEERS, INC.
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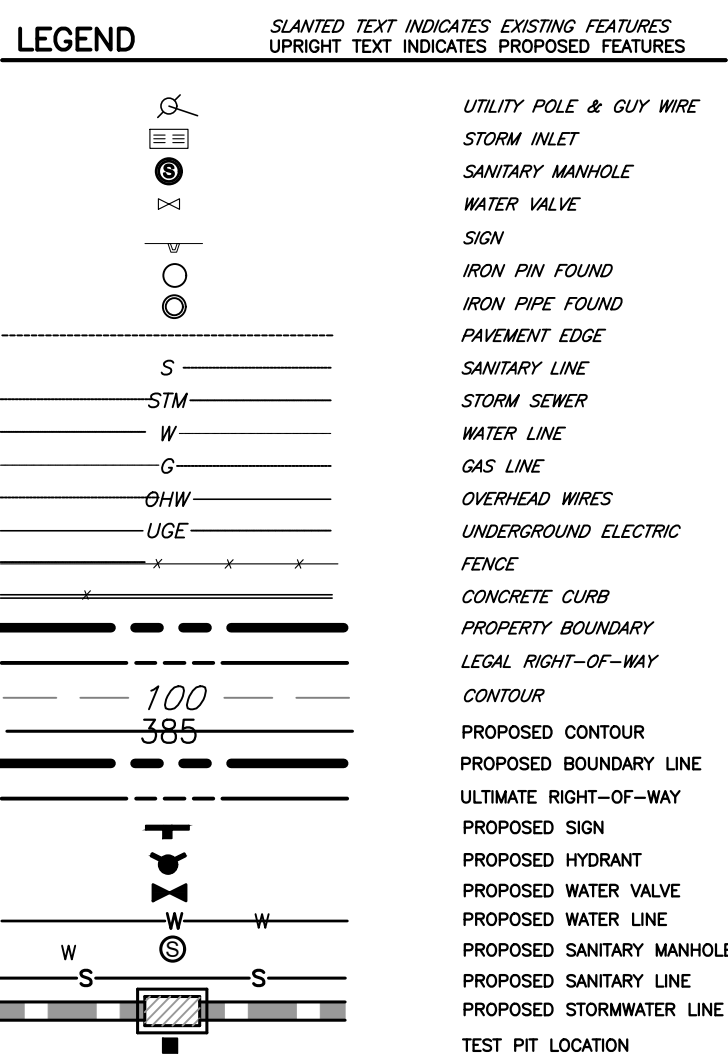
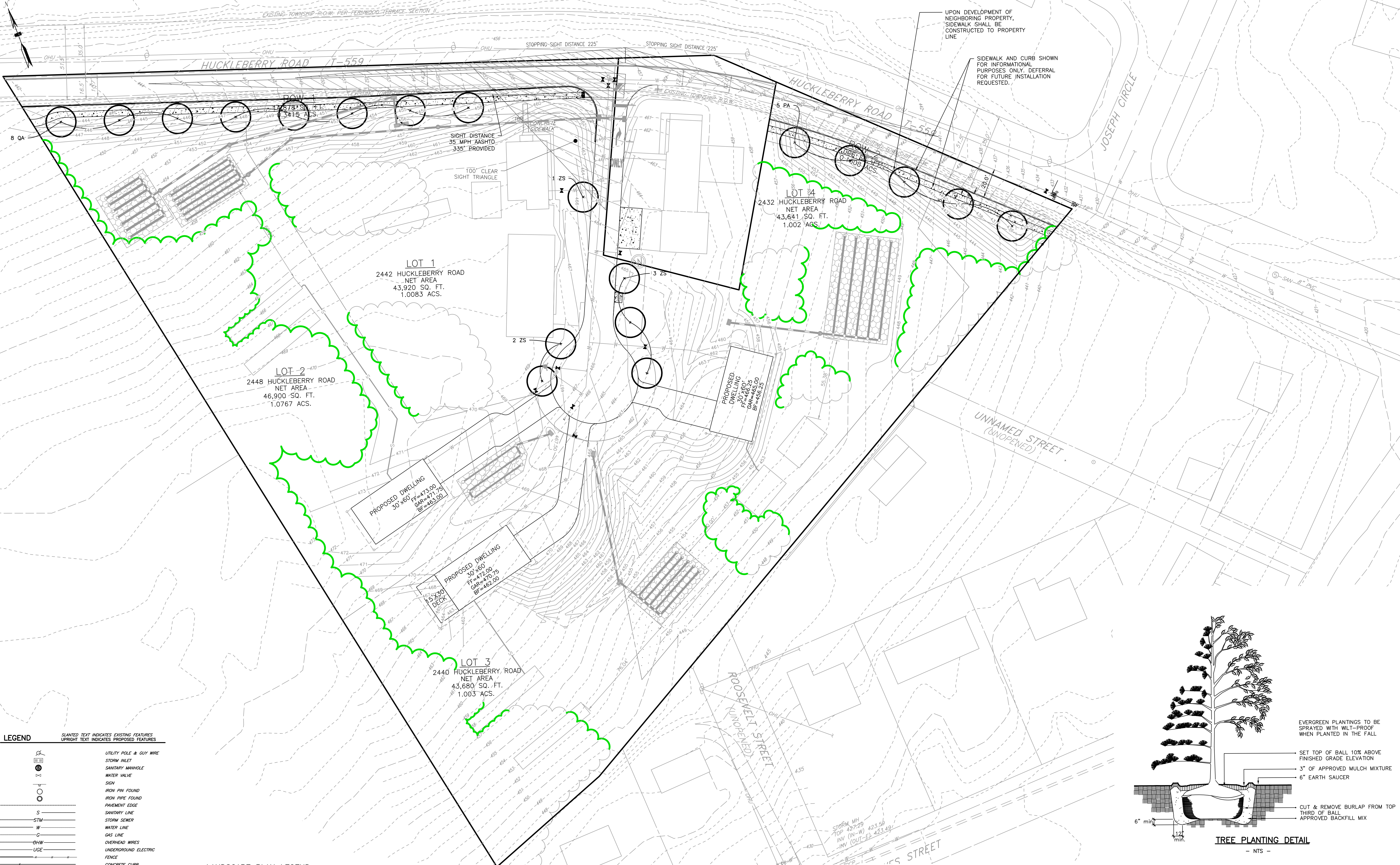
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East Office: Bethlehem, West Office: Allentown, North Office: Kresgeville
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UTILITY PLAN
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

REVISIONS	BY	DATE
	MSN	06/16/2021
	MSN	12/16/2021
	IMK	09/20/2023
	IMK	11/17/2023
	IMK	06/24/2024
	IMK	09/12/2024

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



LANDSCAPE PLAN LEGEND

DECIDUOUS TREE

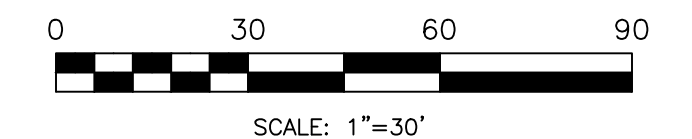
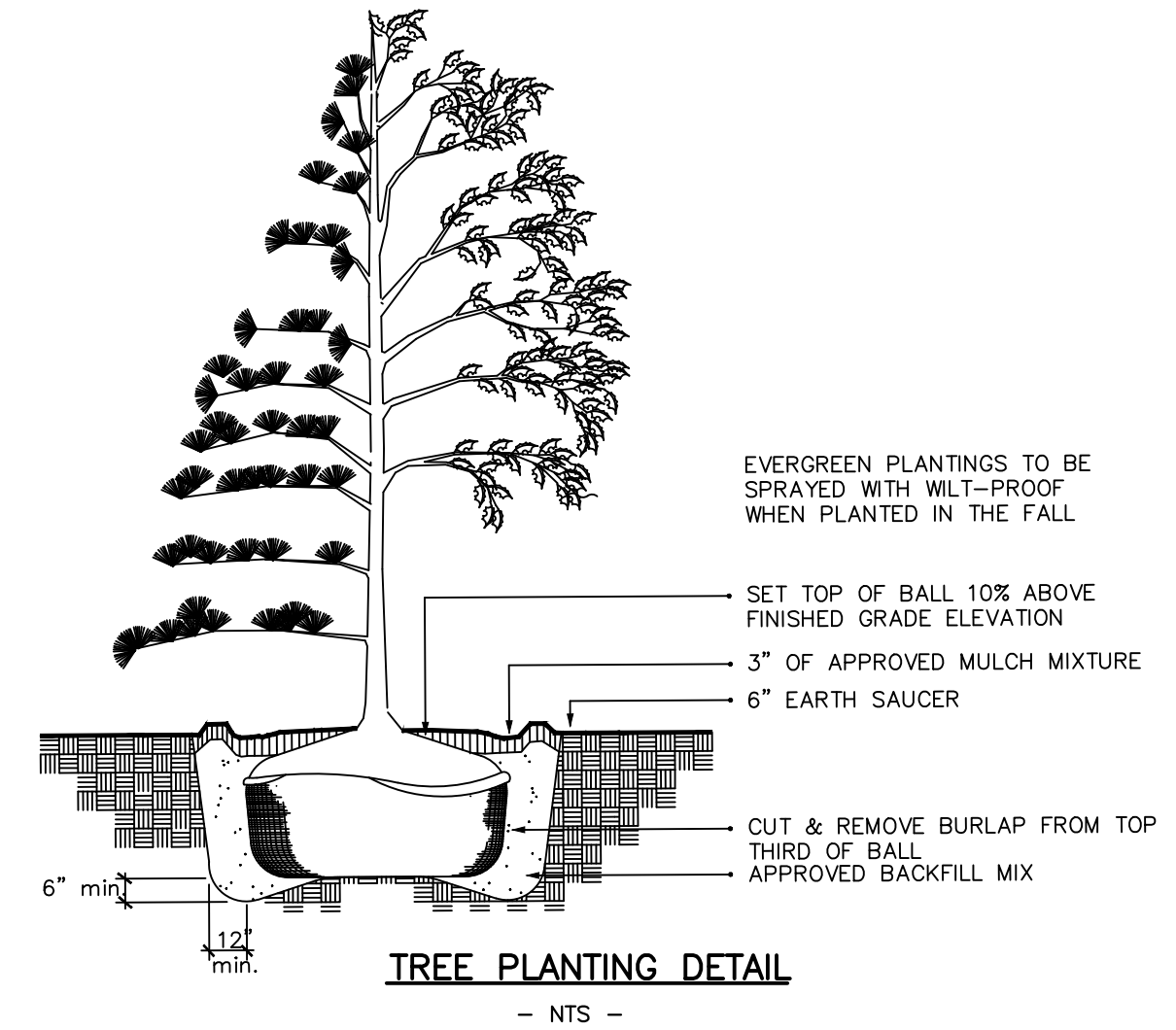
DIAL 8-1-1 OR 1-800-242-1776 NOT LESS THAN 3 BUSINESS DAYS NOR MORE THAN 10 BUSINESS DAYS PRIOR TO THE START OF EXCAVATION.

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

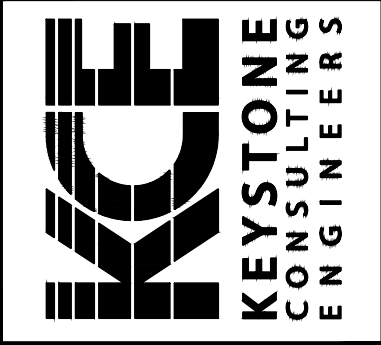
PLANT SCHEDULE

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	FAMILY	SIZE	CONDITION	COMMENTS
STREET TREES							
QA	8	<u>QUERCUS ALBA</u>	WHITE OAK	FAGACEAE	2" - 2 1/2" CAL.	B&B	
PA	5	<u>PLATANUS x ACERIFOLIA 'BLOODGOOD'</u>	LONDON PLANETREE	PLATANACEAE	2" - 2 1/2" CAL.	B&B	
ZS	6	<u>ZELKOVA SERRATA 'GREEN VASE'</u>	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.



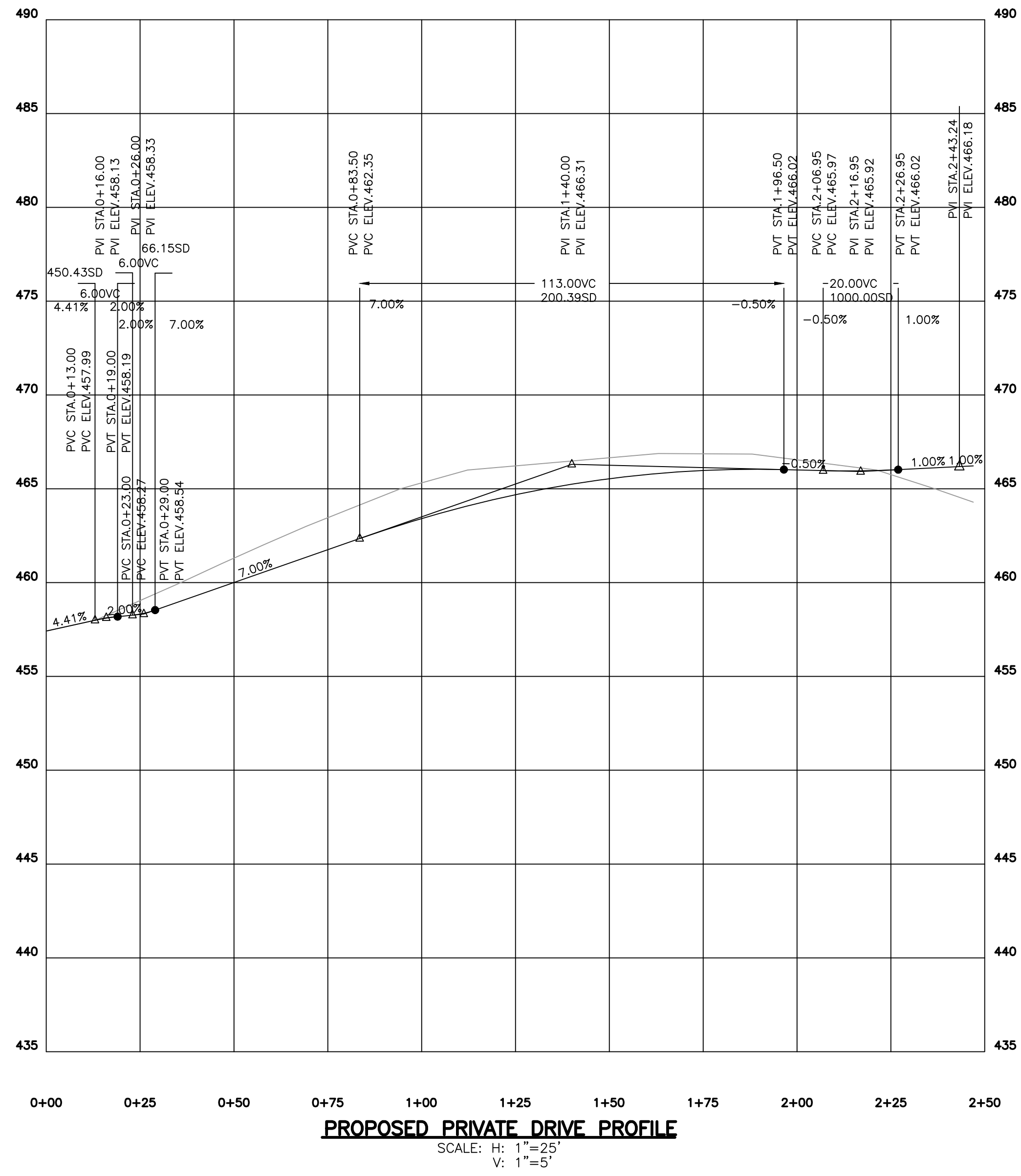
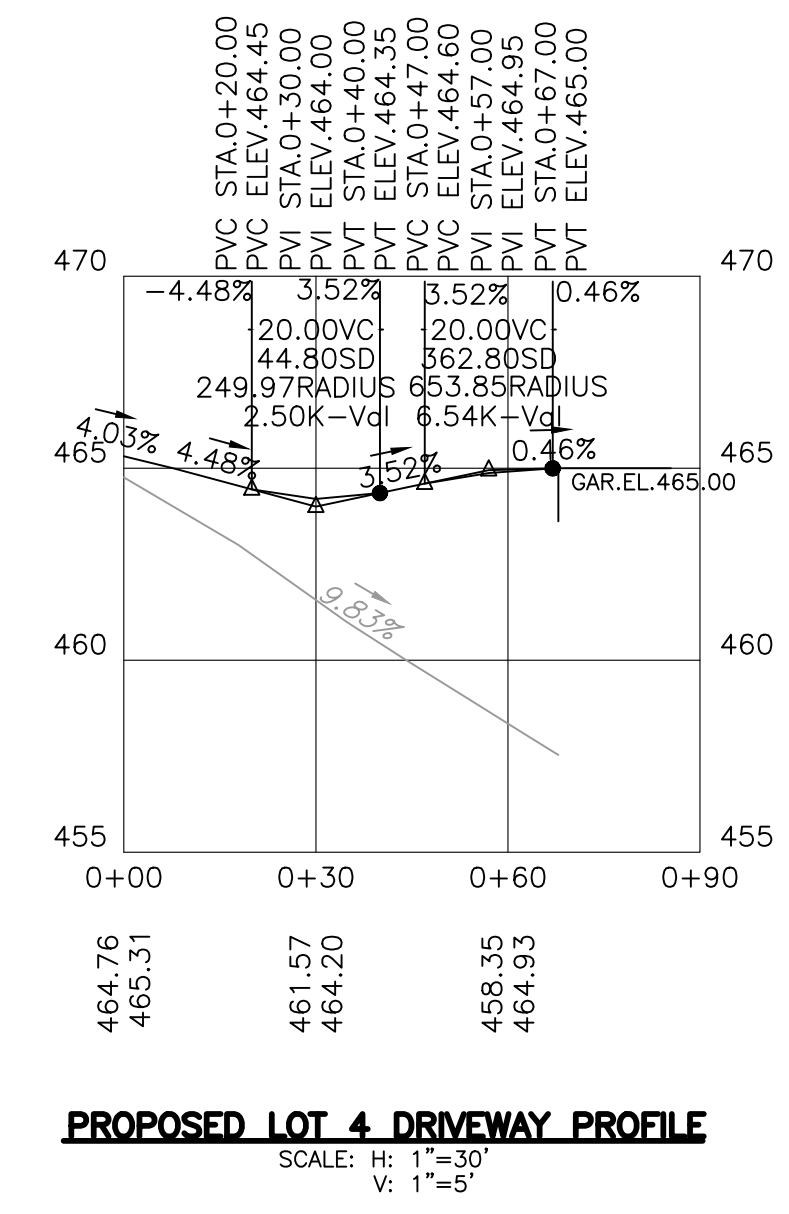
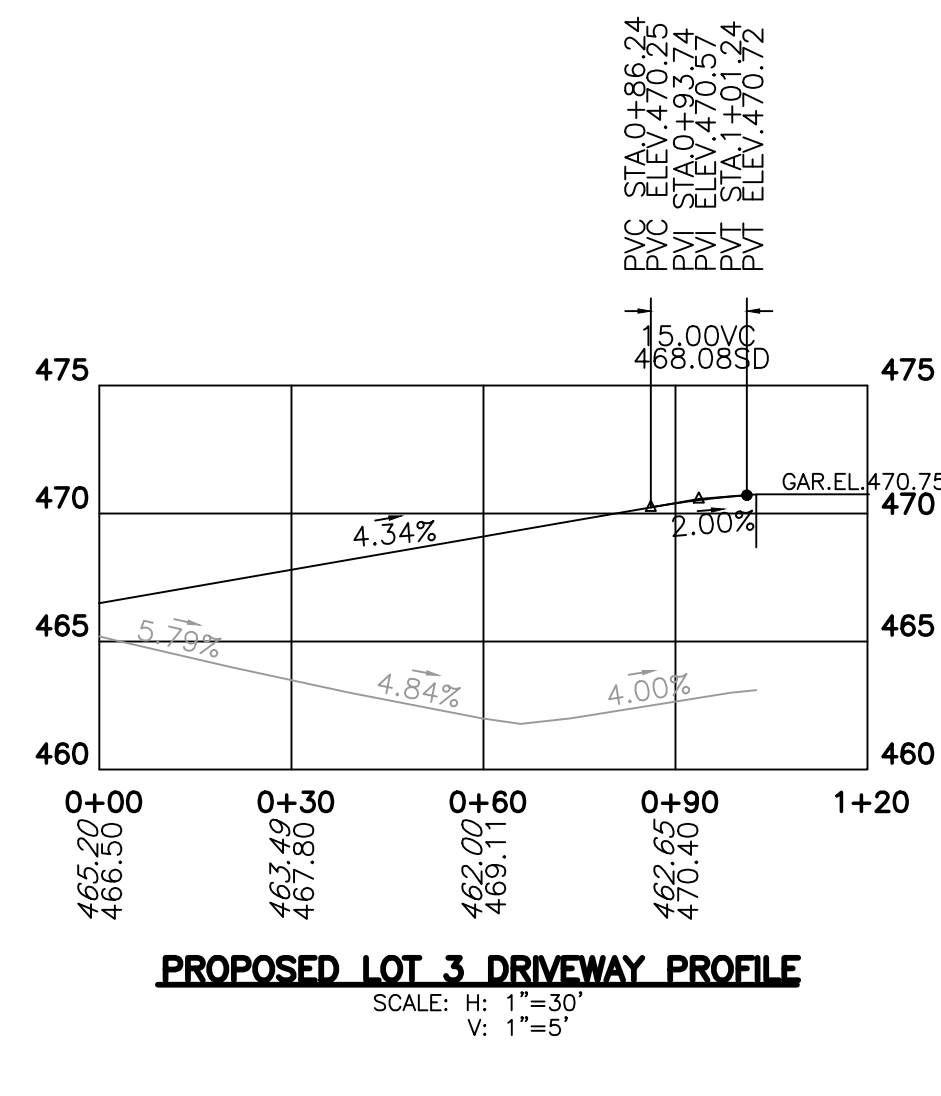
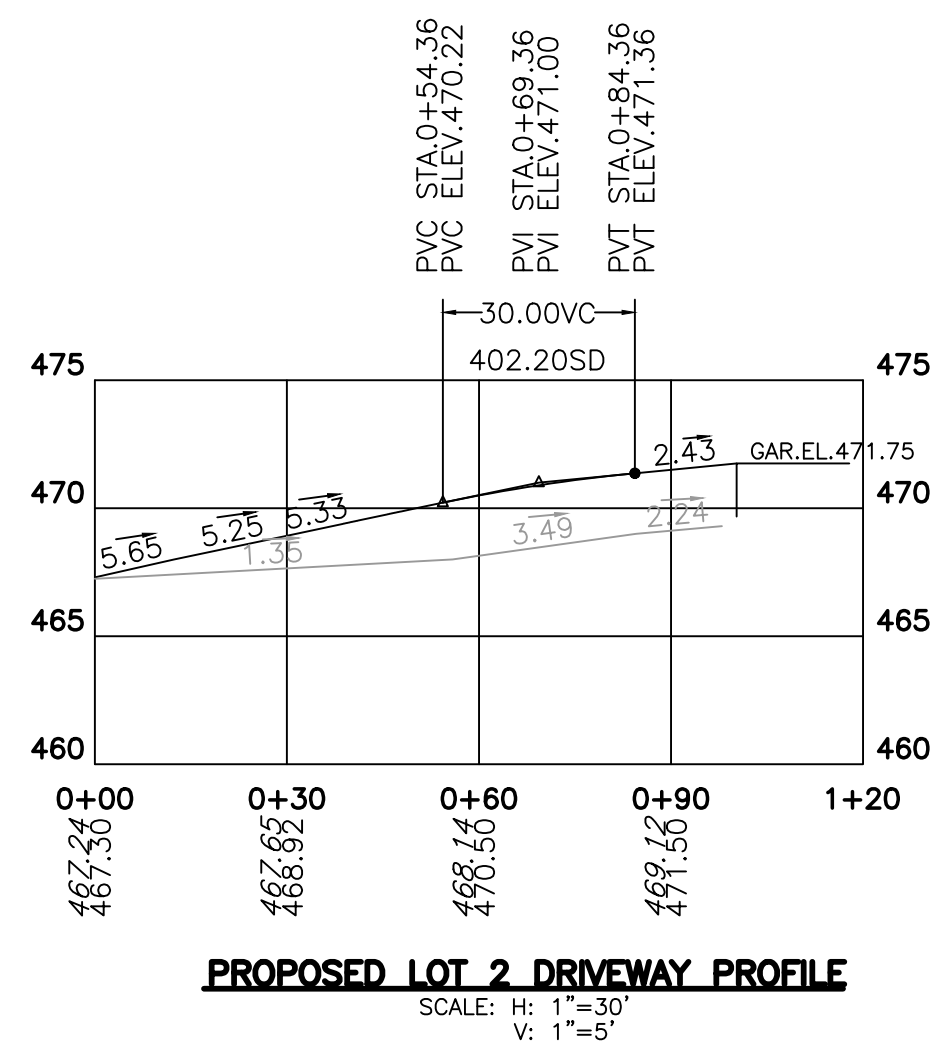
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LANDSCAPE PLAN
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

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

REVISIONS	DATE	BY
	06/16/2021	MSN
	12/16/2021	MSN
	09/20/2023	IMK
	11/17/2023	IMK
	06/24/2024	IMK
	09/12/2024	IMK



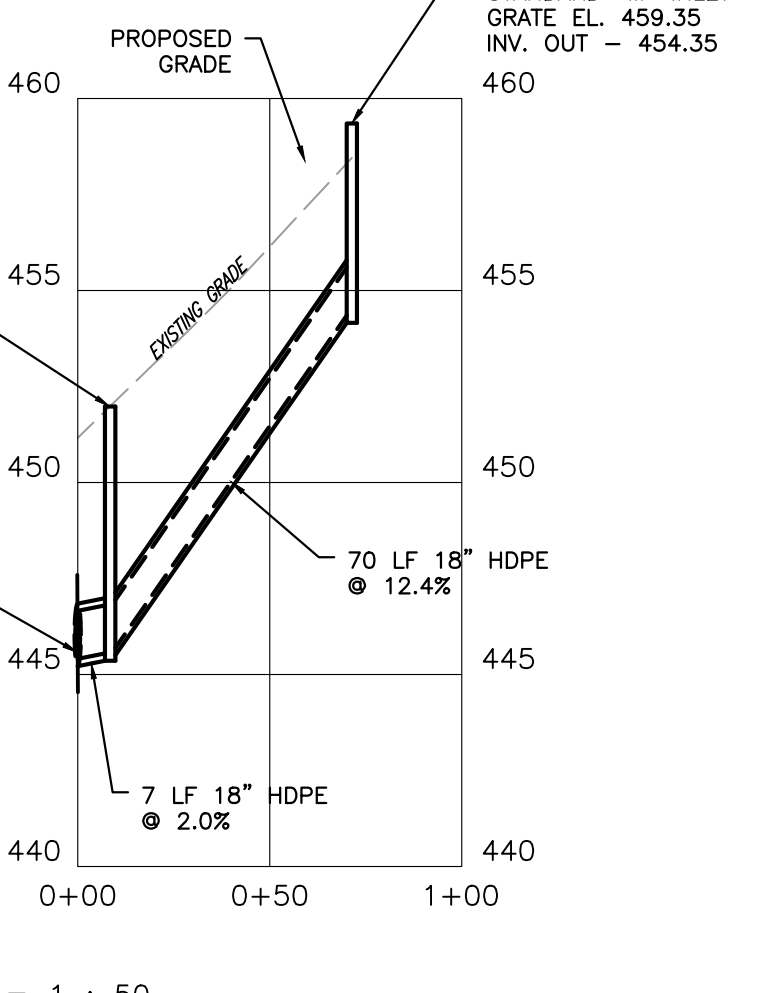
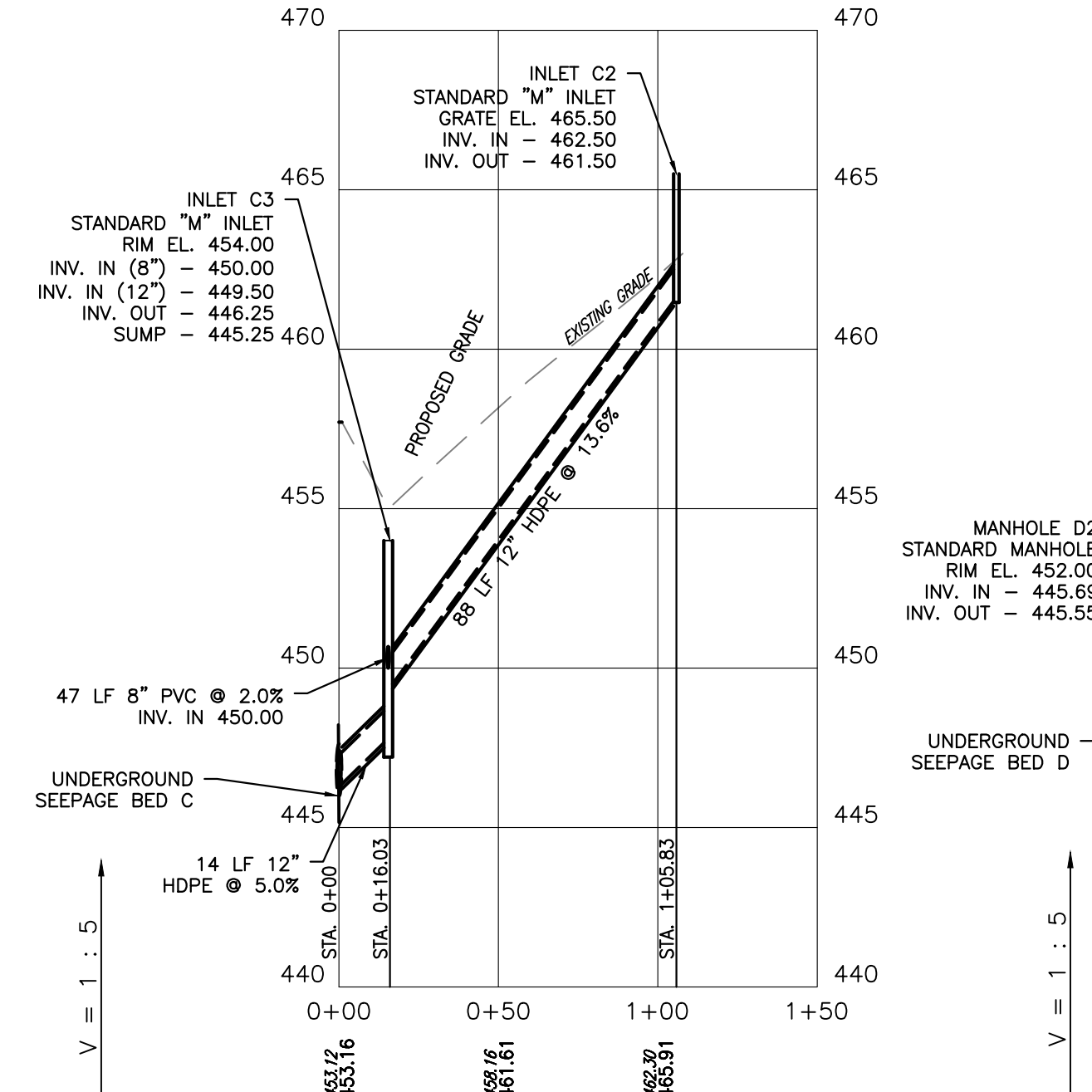
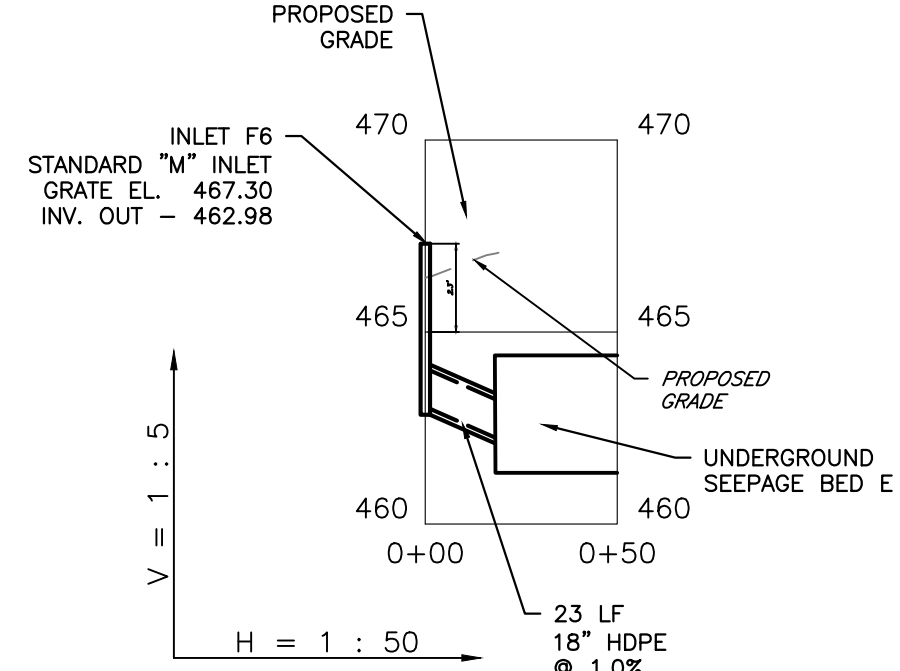
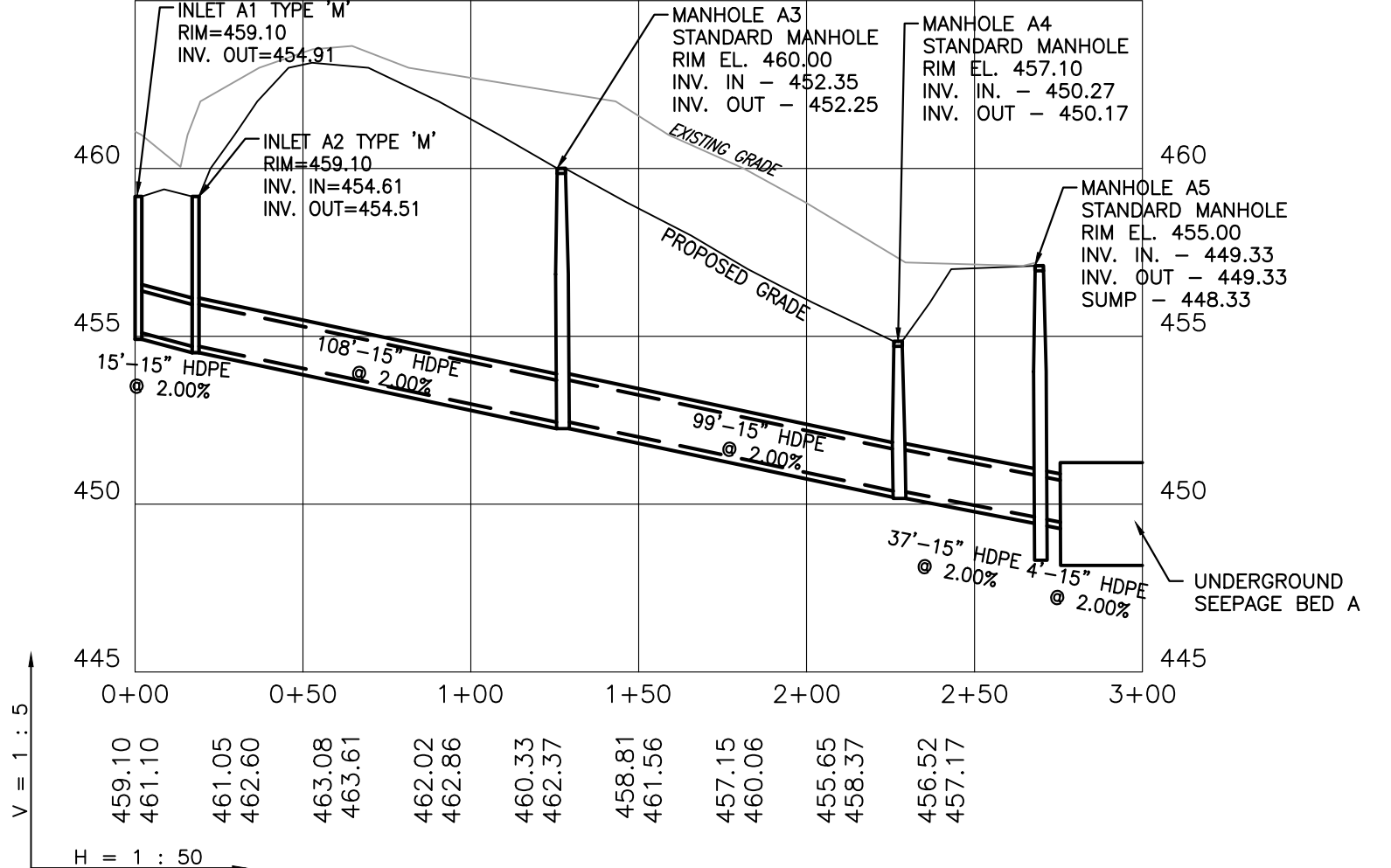
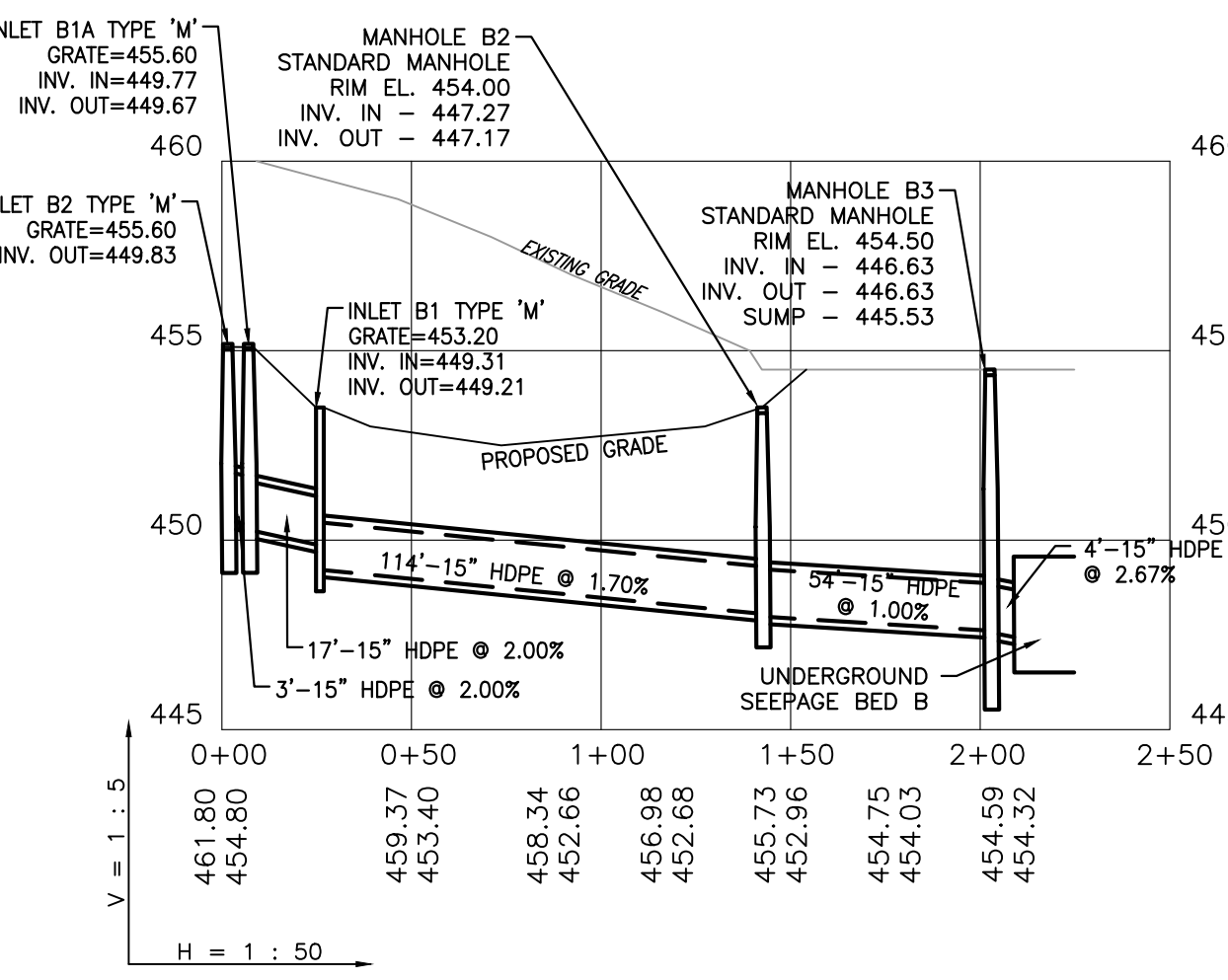
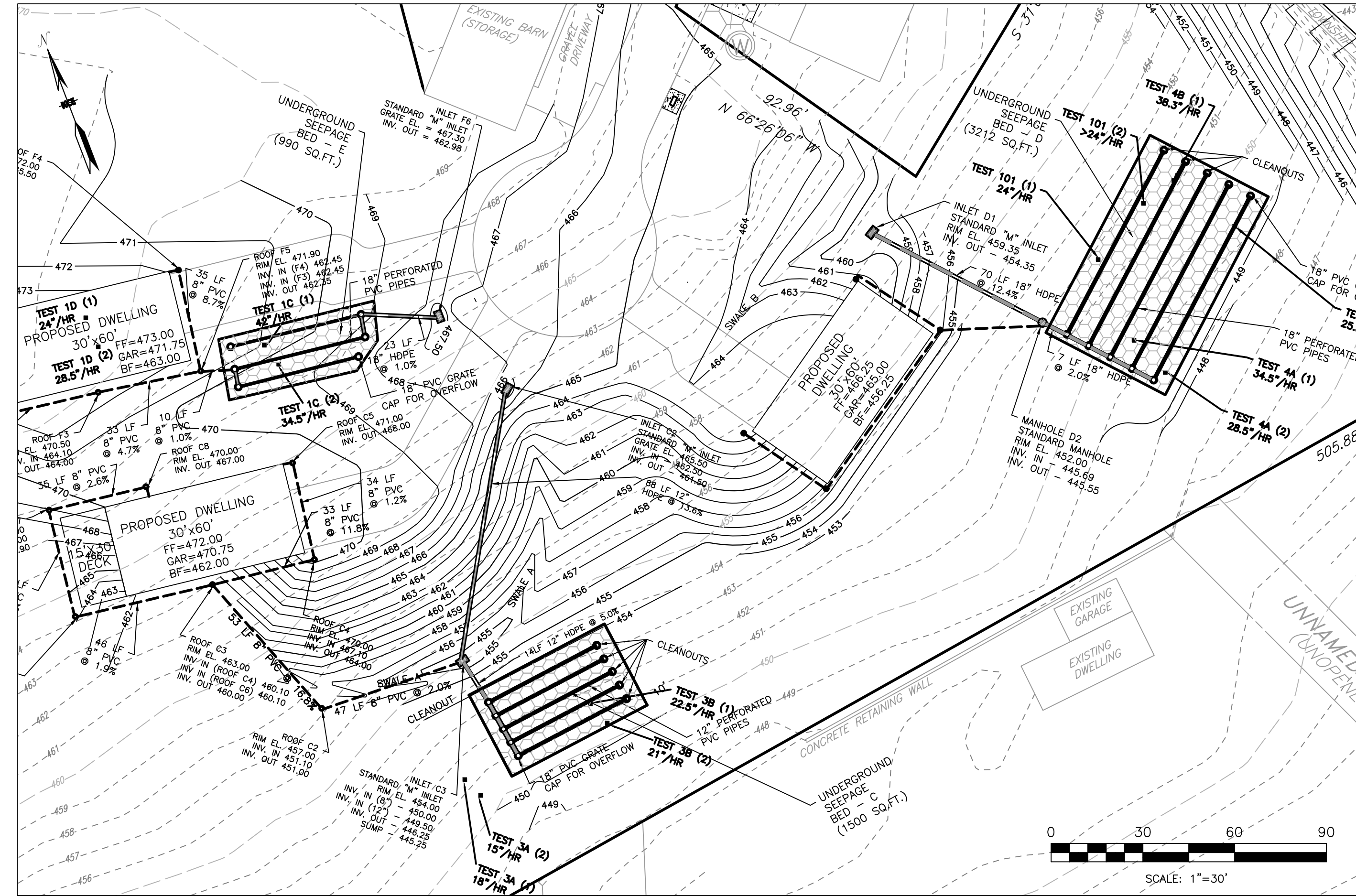
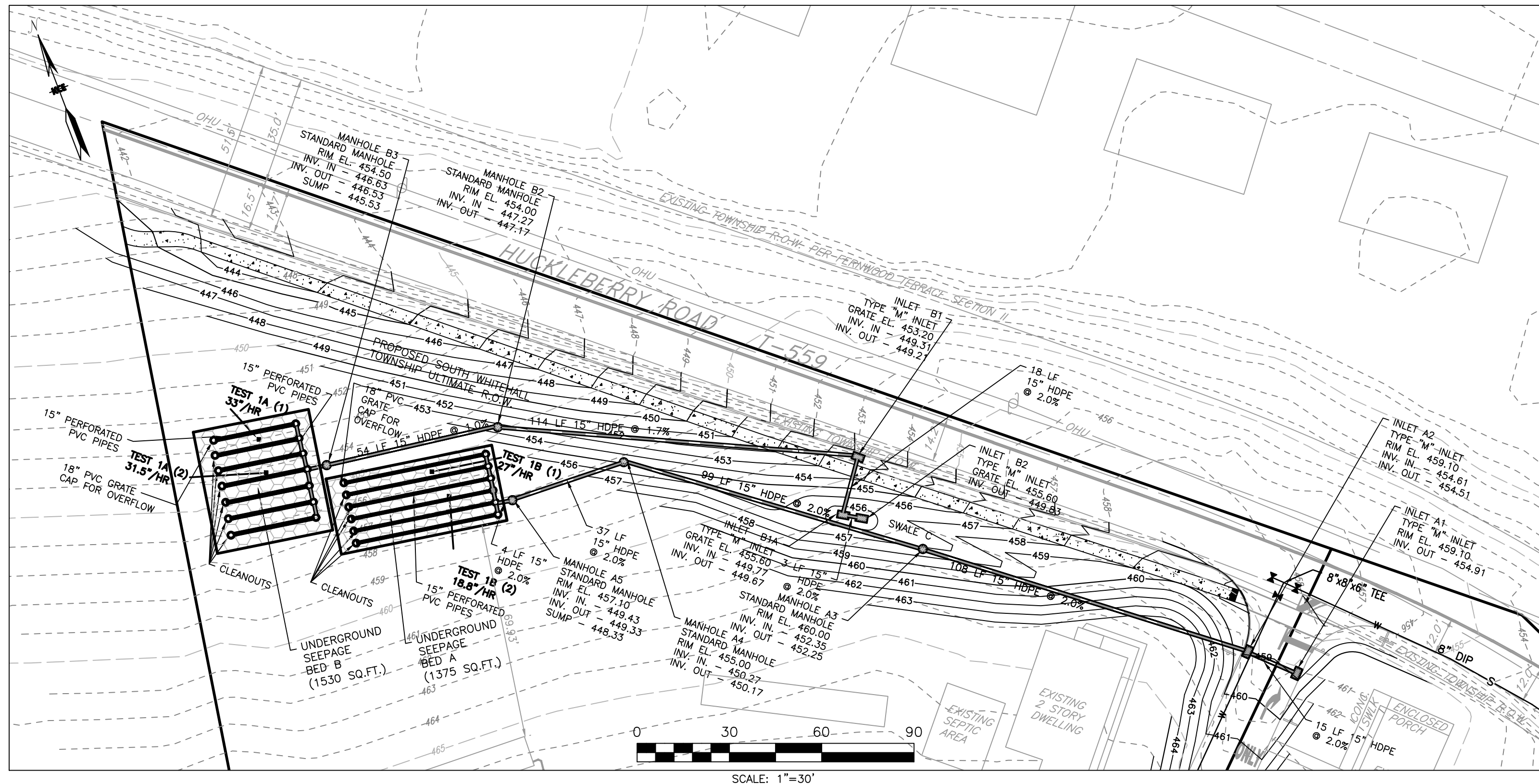
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DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	March 05, 2021
SCALE:	AS SHOWN
JOB NUMBER:	CW-20-128
SHEET:	12 OF 23

REVISIONS	DATE
BY	DATE
MSN	06/16/2021
MSN	12/16/2021
IMK	09/20/2023
IMK	11/17/2023

SHARED PRIVATE DRIVEWAY & DRIVEWAY PROFILES	
RUHE MINOR SUBDIVISION	
PRELIMINARY/FINAL PLAN	
2442 HUCKLEBERRY ROAD	
SOUTH WHITEHALL TOWNSHIP	
LEHIGH COUNTY, PENNSYLVANIA	



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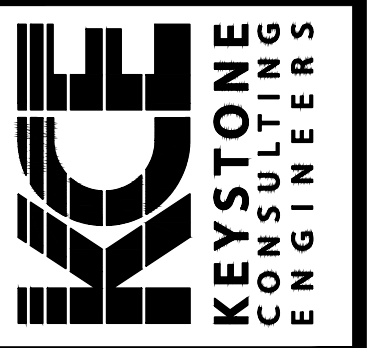
STORM SEWER INLET B2 TO UNDERGROUND SEEPAGE BED B PROFILE

STORM SEWER INLET A1 TO UNDERGROUND SEEPAGE BED A PROFILE

STORM SEWER INLET F6 TO UNDERGROUND SEEPAGE BED E

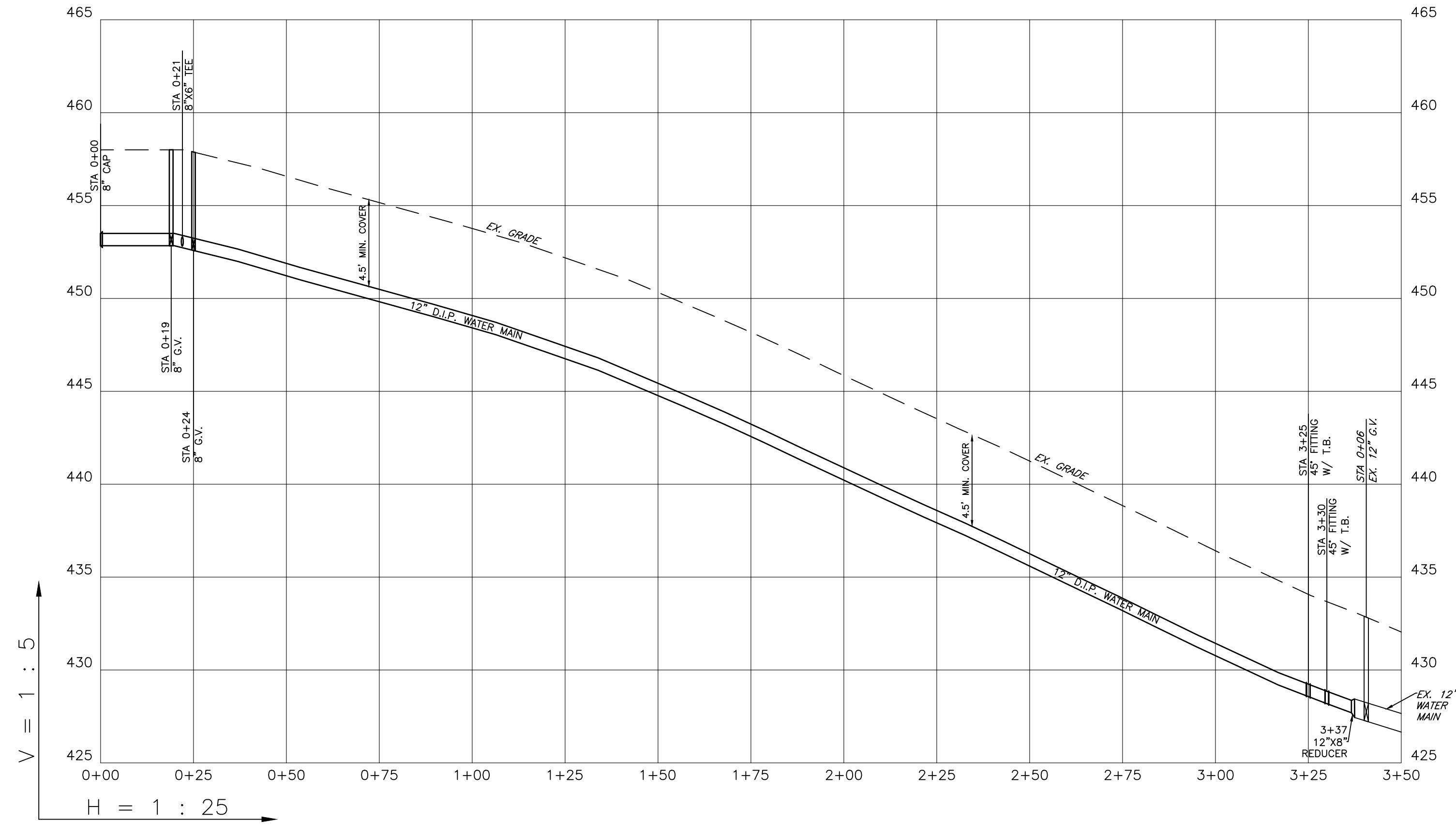
UNDERGROUND SEEPAGE BED C TO INLET C2

STORM SEWER INLET D1 TO UNDERGROUND SEEPAGE BED D

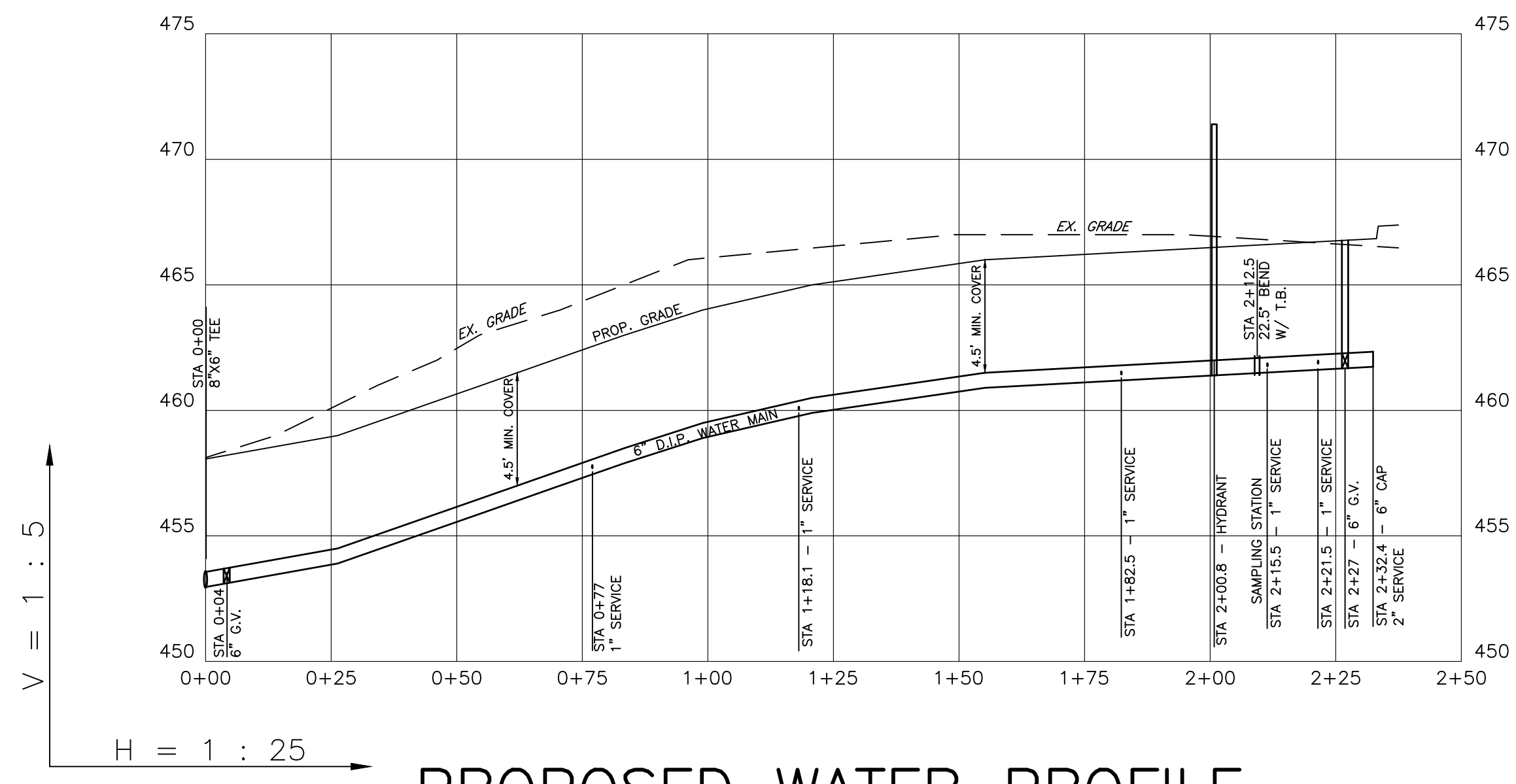


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DATE:	March 05, 2021
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JOB NUMBER:	CW-20-128
SHEET:	13 OF 23

REVISIONS	DATE
BY: MSN	06/16/2021
BY: MSN	12/16/2021
BY: IMK	09/20/2023
BY: IMK	11/17/2023
BY: IMK	06/24/2024



**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

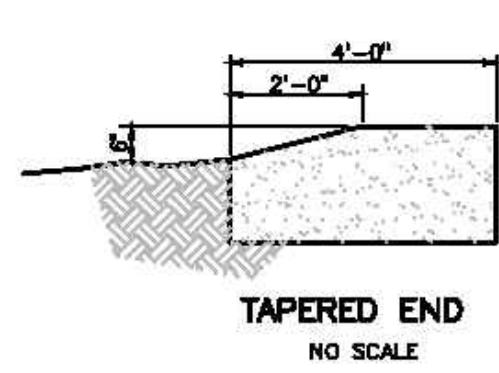
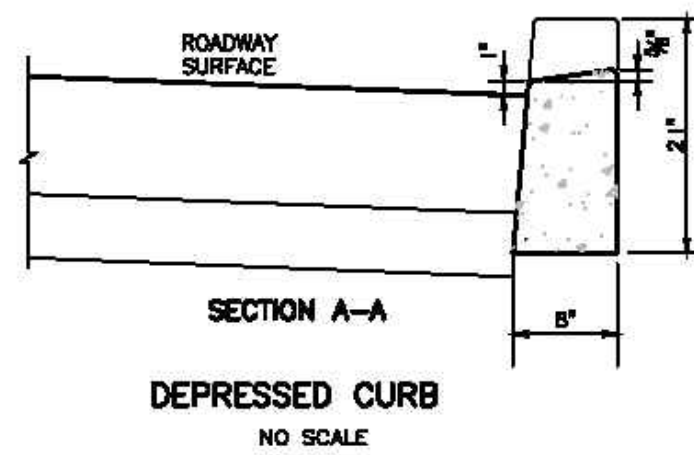
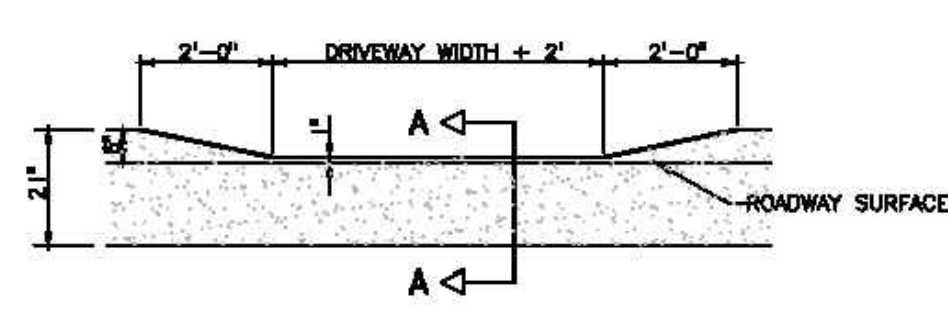
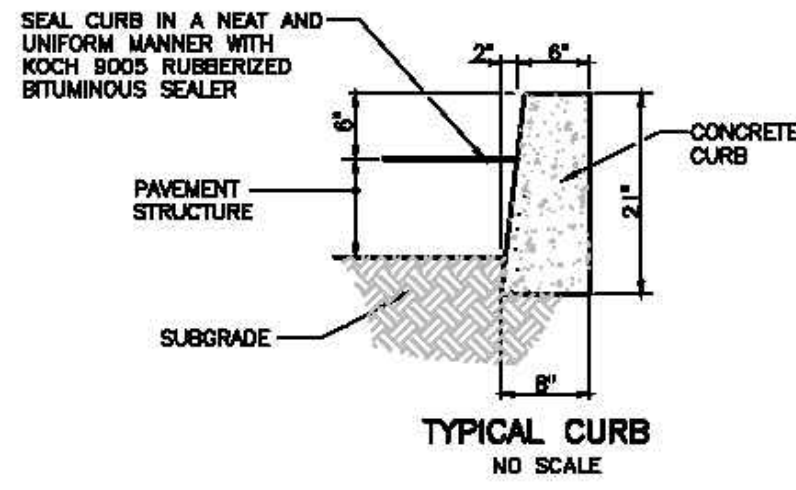
REVISIONS	
BY:	DATE
MSN	06/16/2021
MSN	12/16/2021
IMK	09/20/2023
IMK	11/17/2023

WATER SYSTEM PLAN AND PROFILE

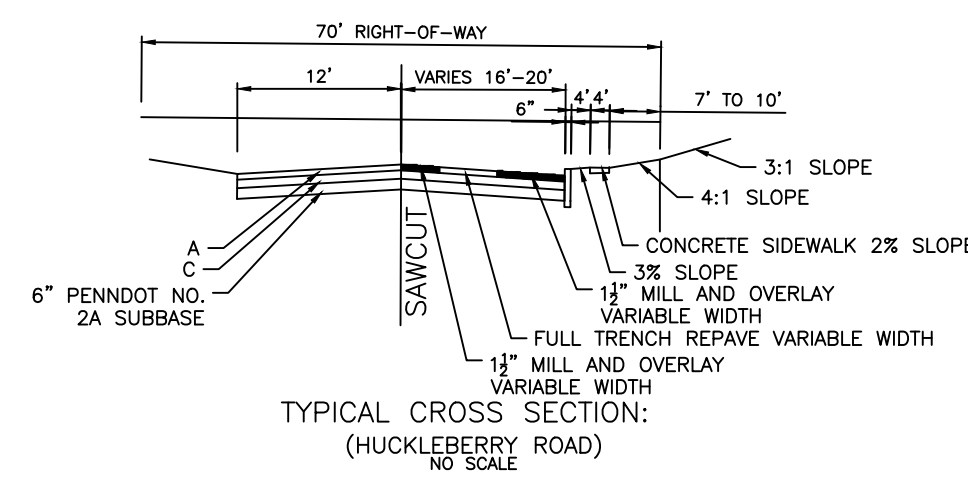
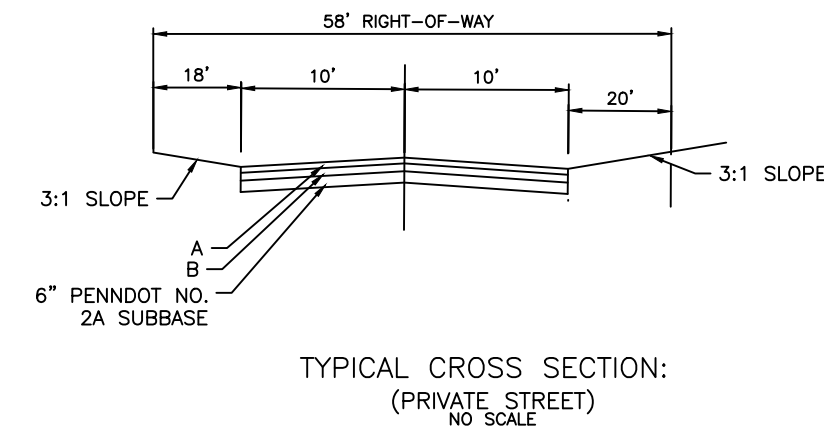
**RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN**
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA



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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.



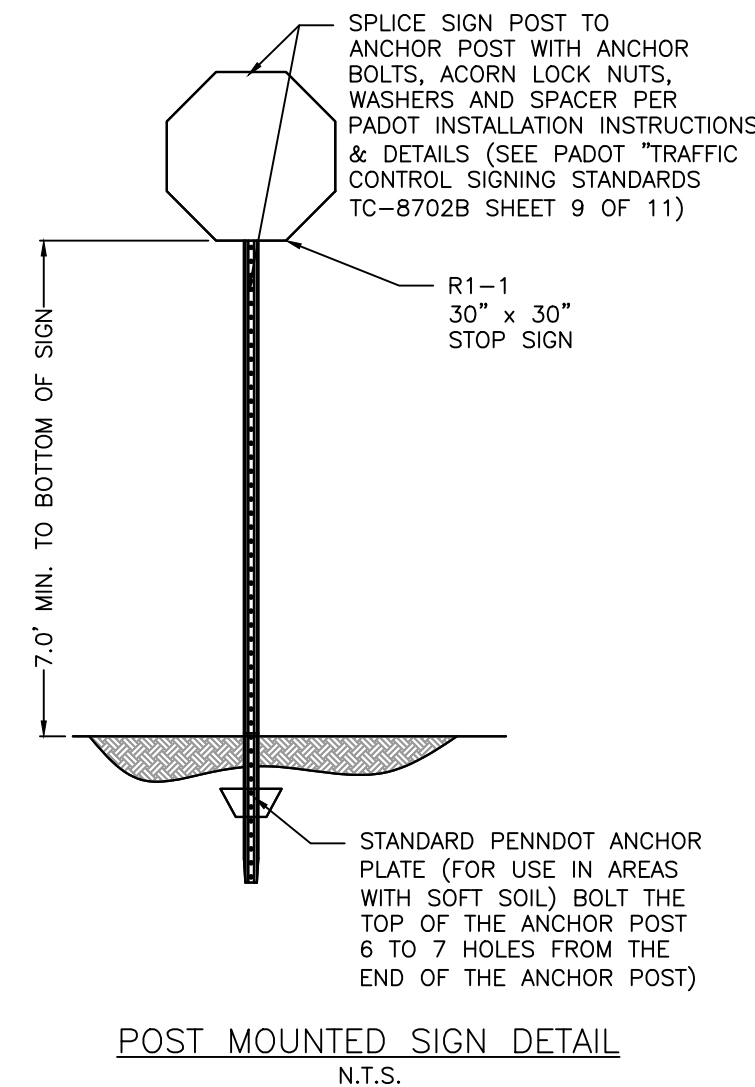
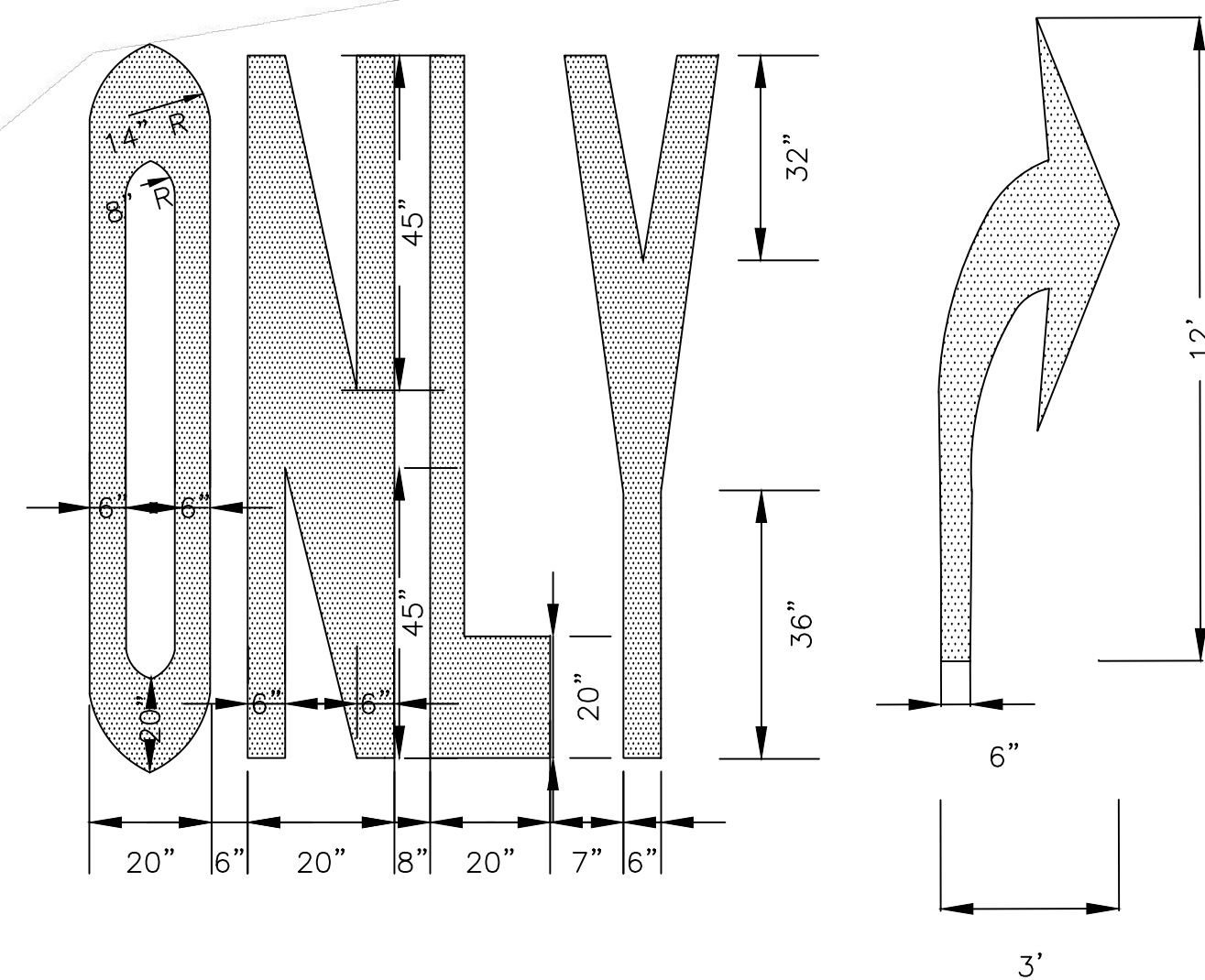
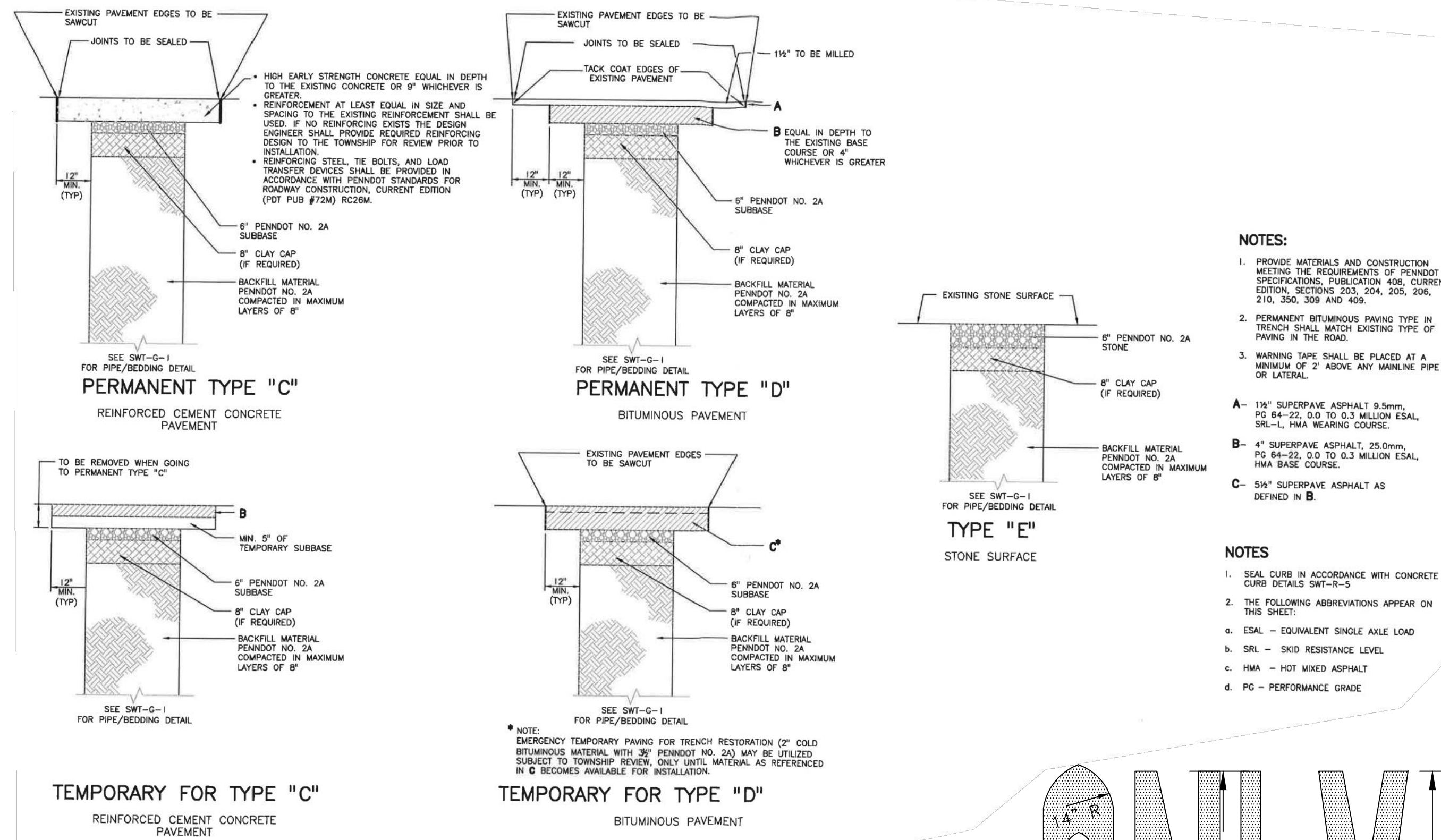
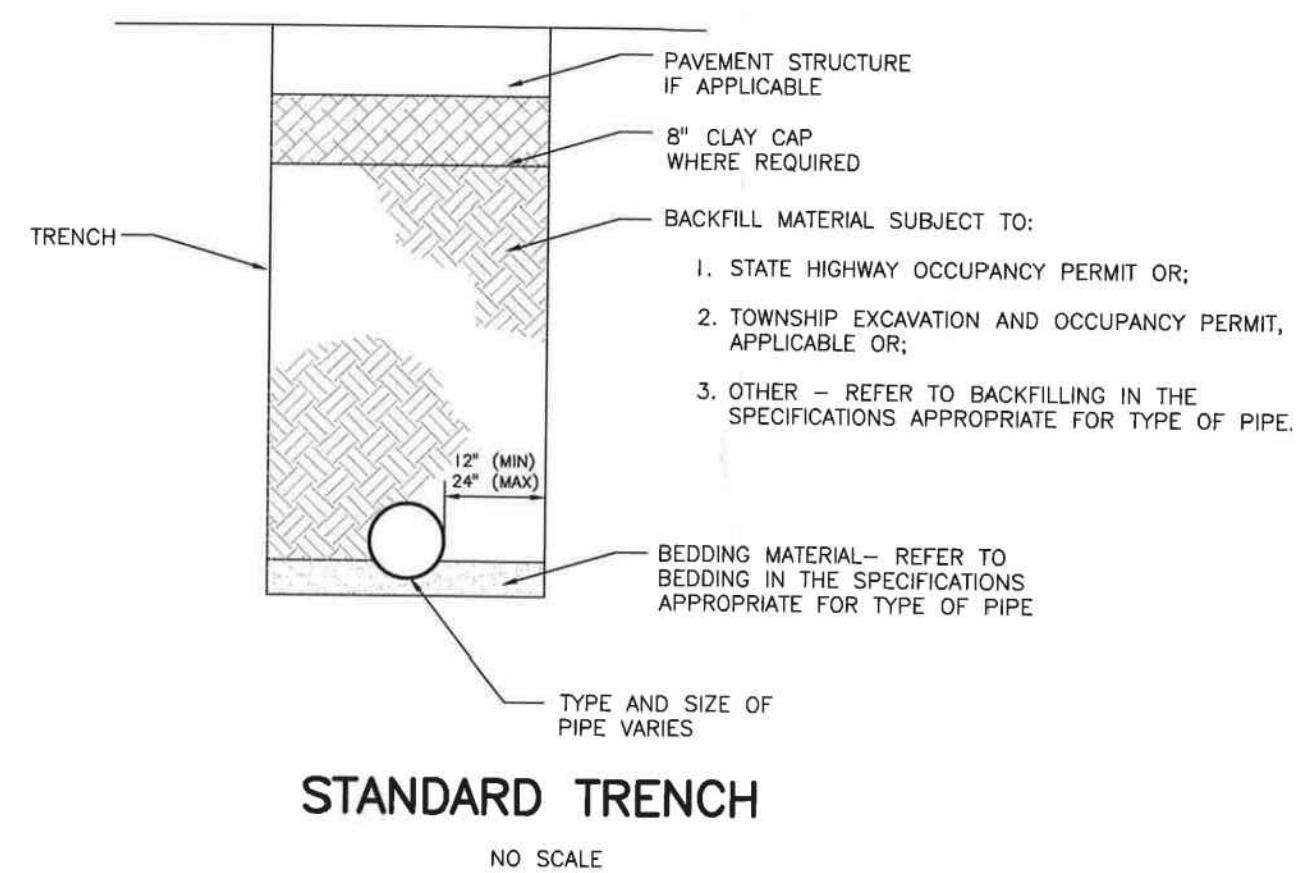
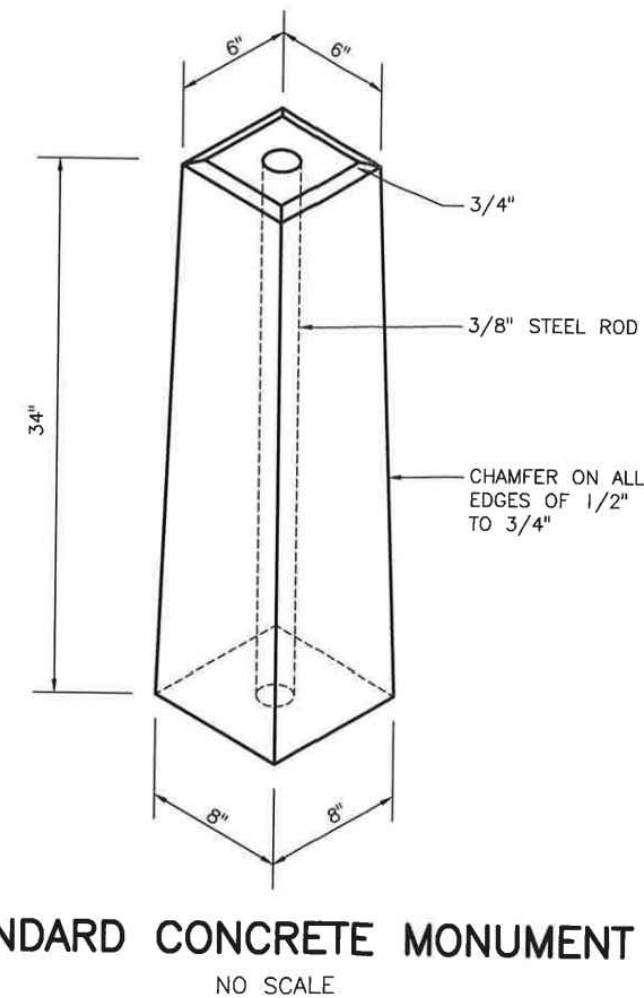
- PAVEMENT MATERIALS:**
- 1 1/2" SUPERPAVE ASPHALT 9.5mm, PG64-22, 0.0 TO 0.3 MILLION ESAL, SRL-L, HMA WEARING COURSE.
 - 4" SUPERPAVE ASPHALT, 25.0mm, PG64-22, 0.0 TO 0.3 MILLION ESAL, HMA BASE COURSE.
 - 4 1/2" SUPERPAVE ASPHALT AS DEFINED IN B.

- 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:

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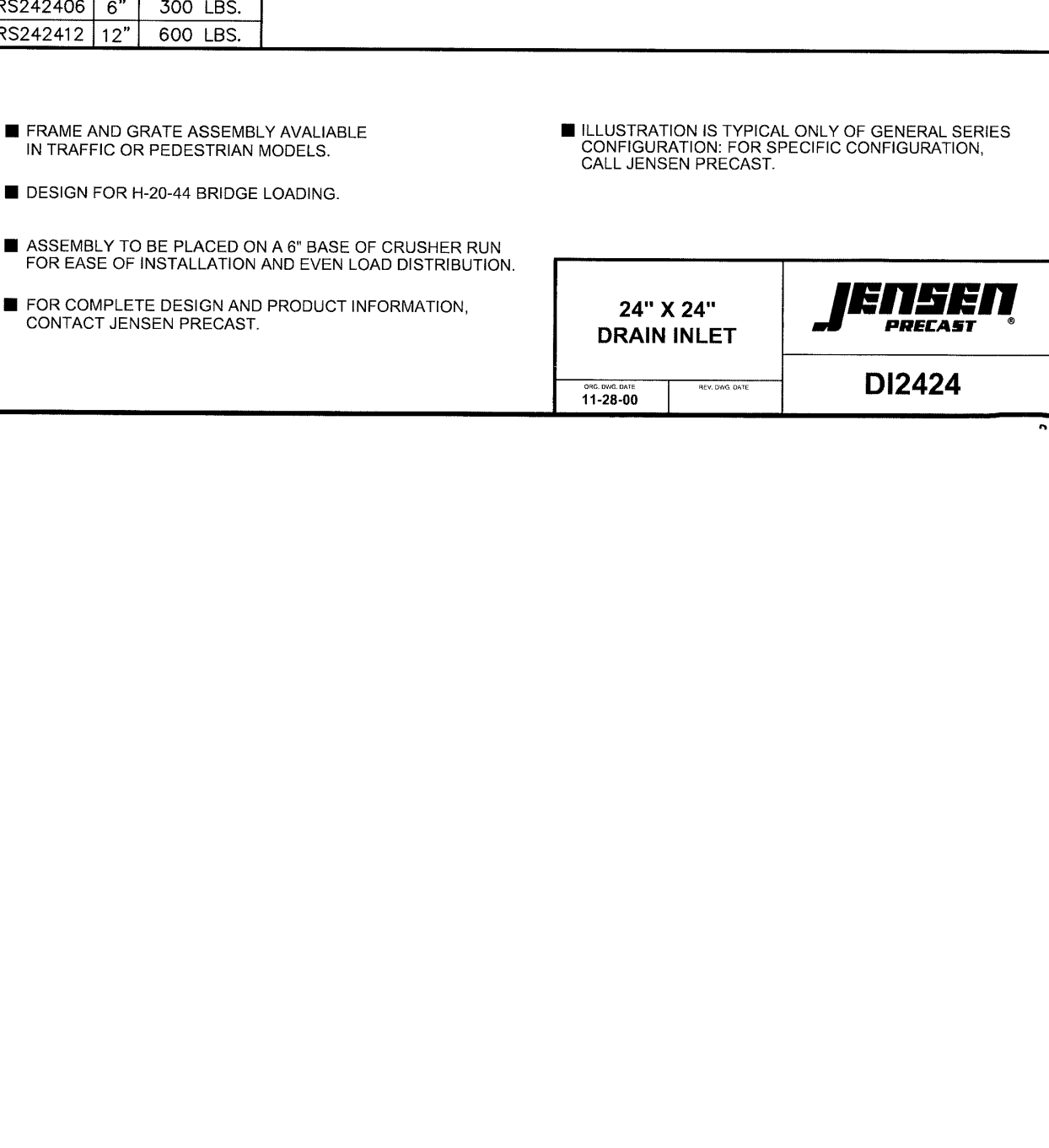
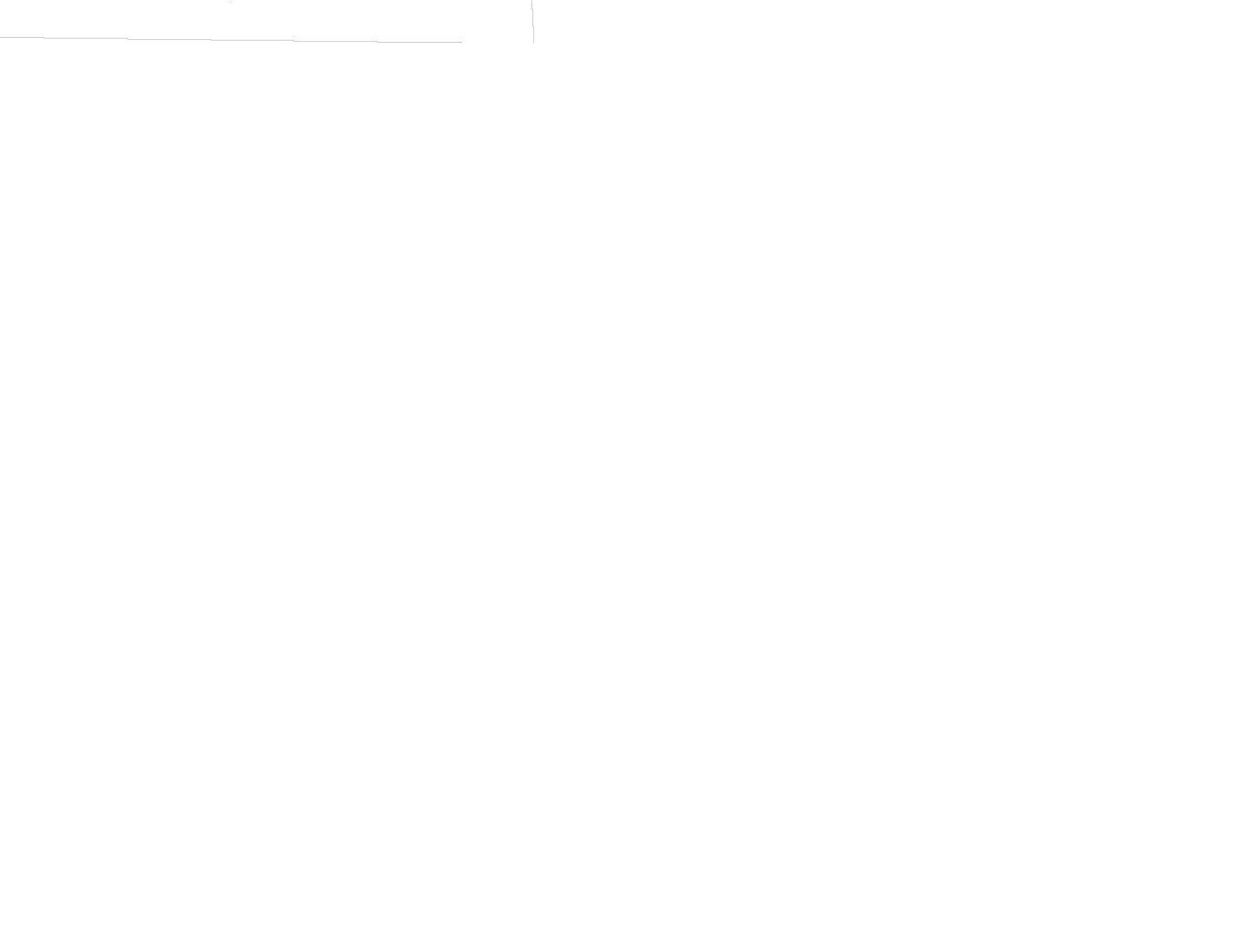
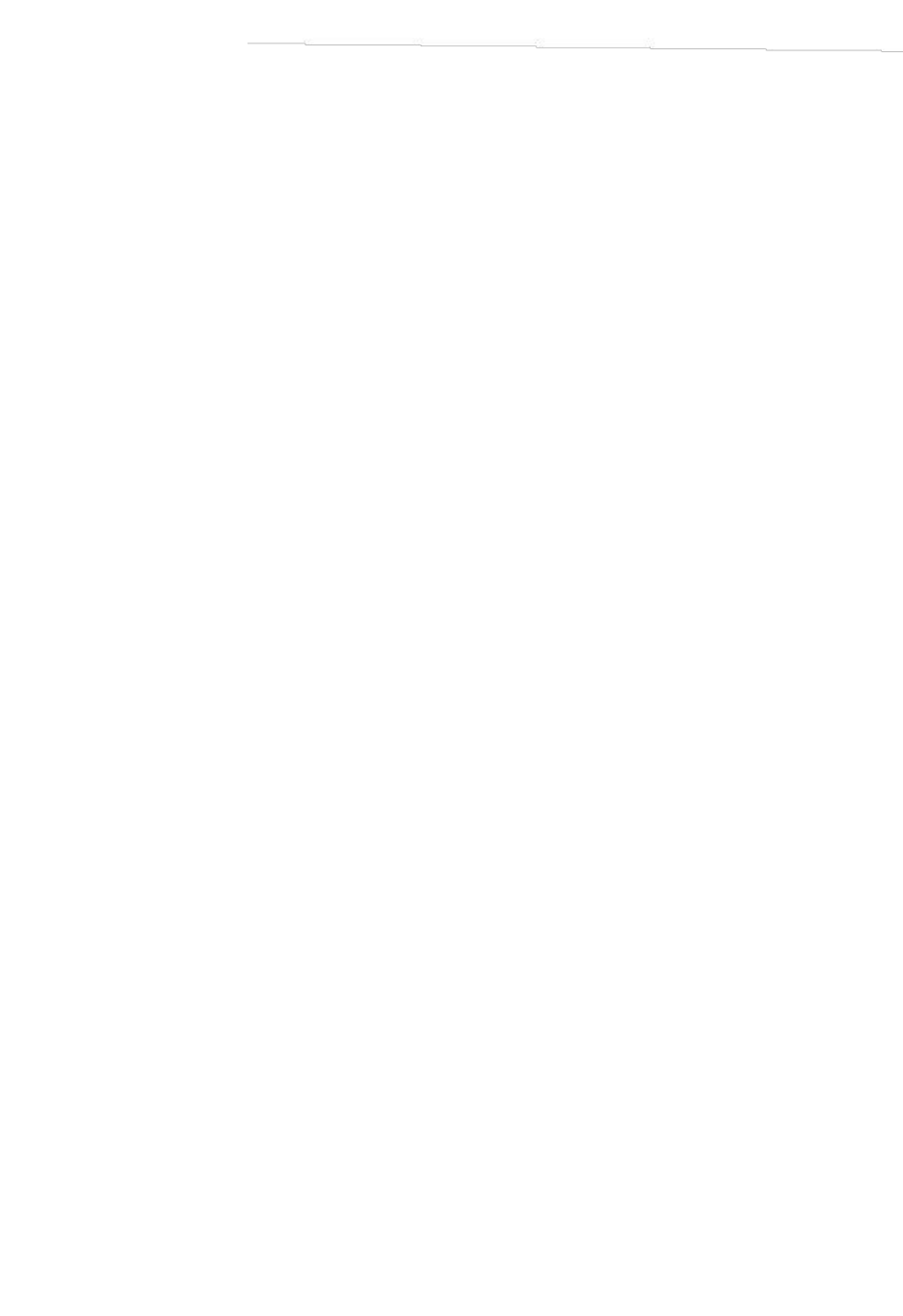
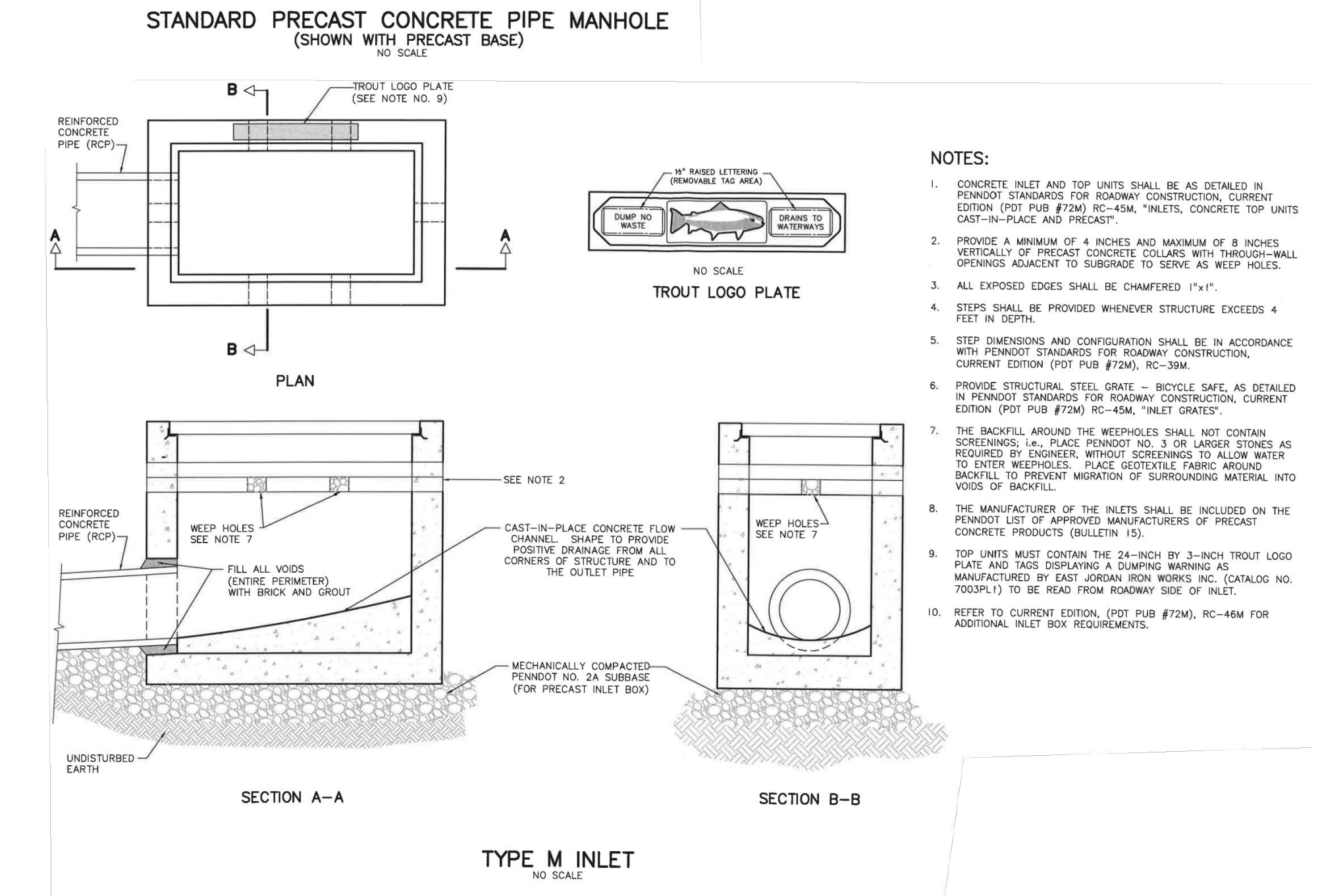
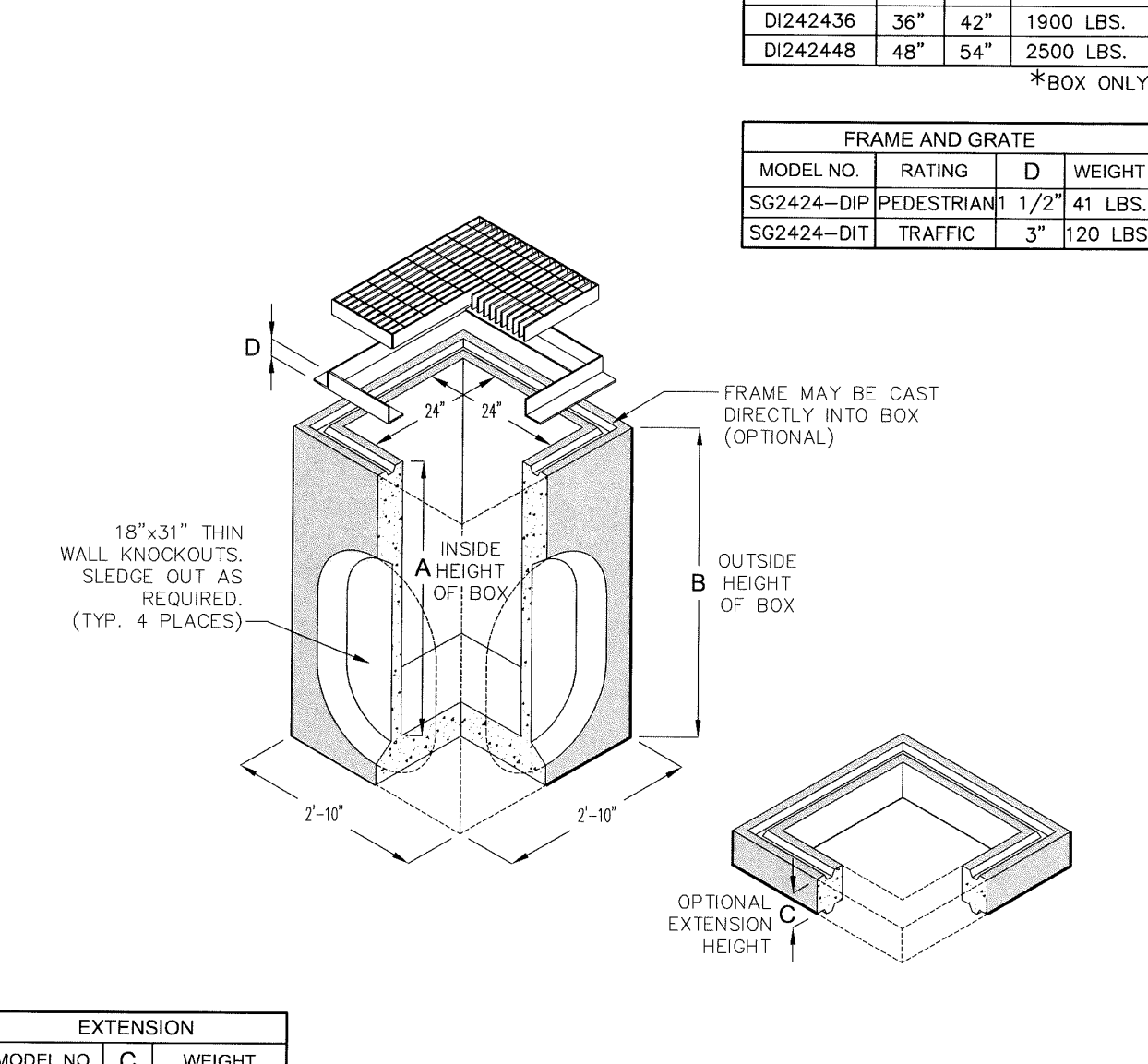
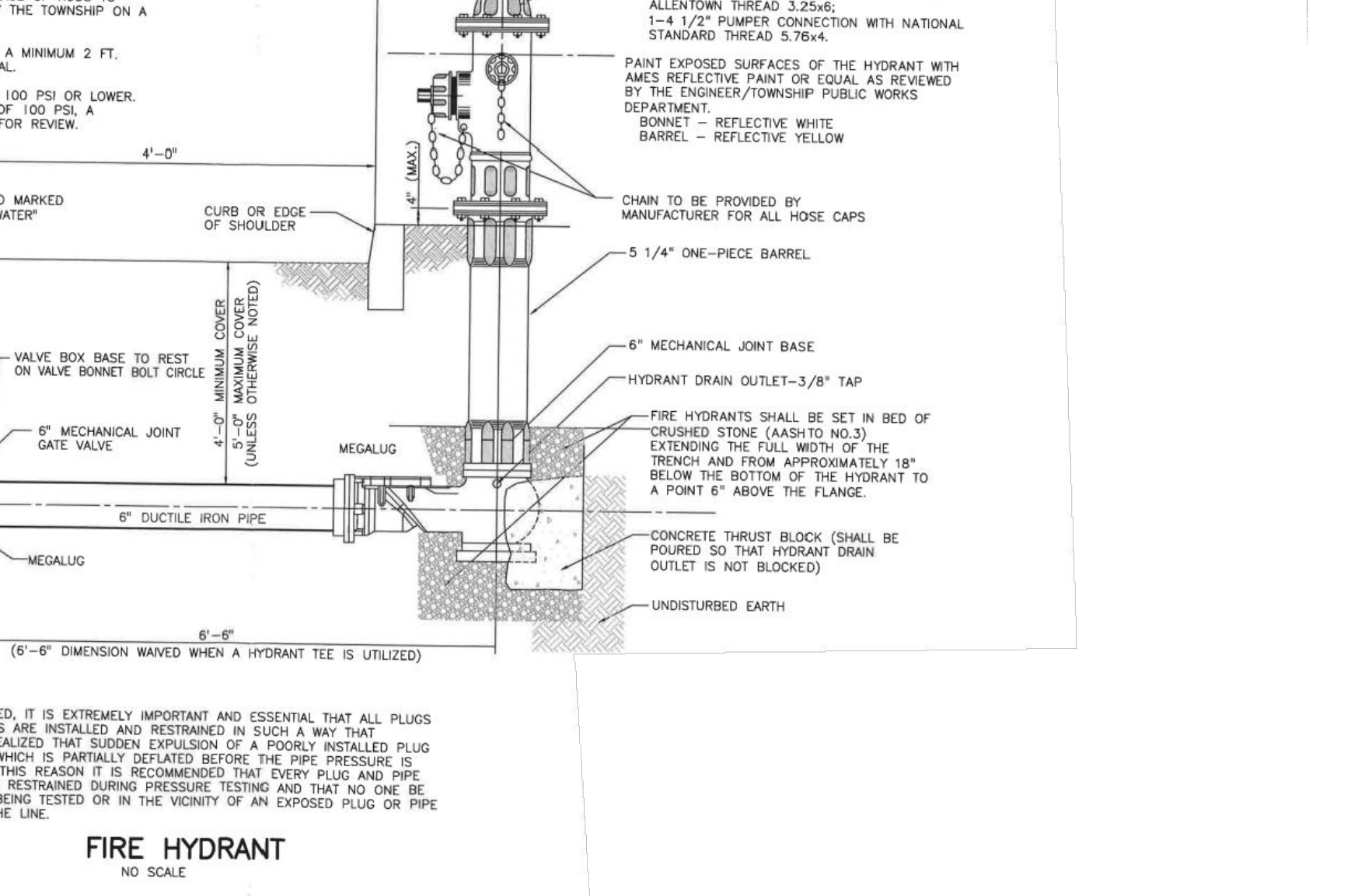
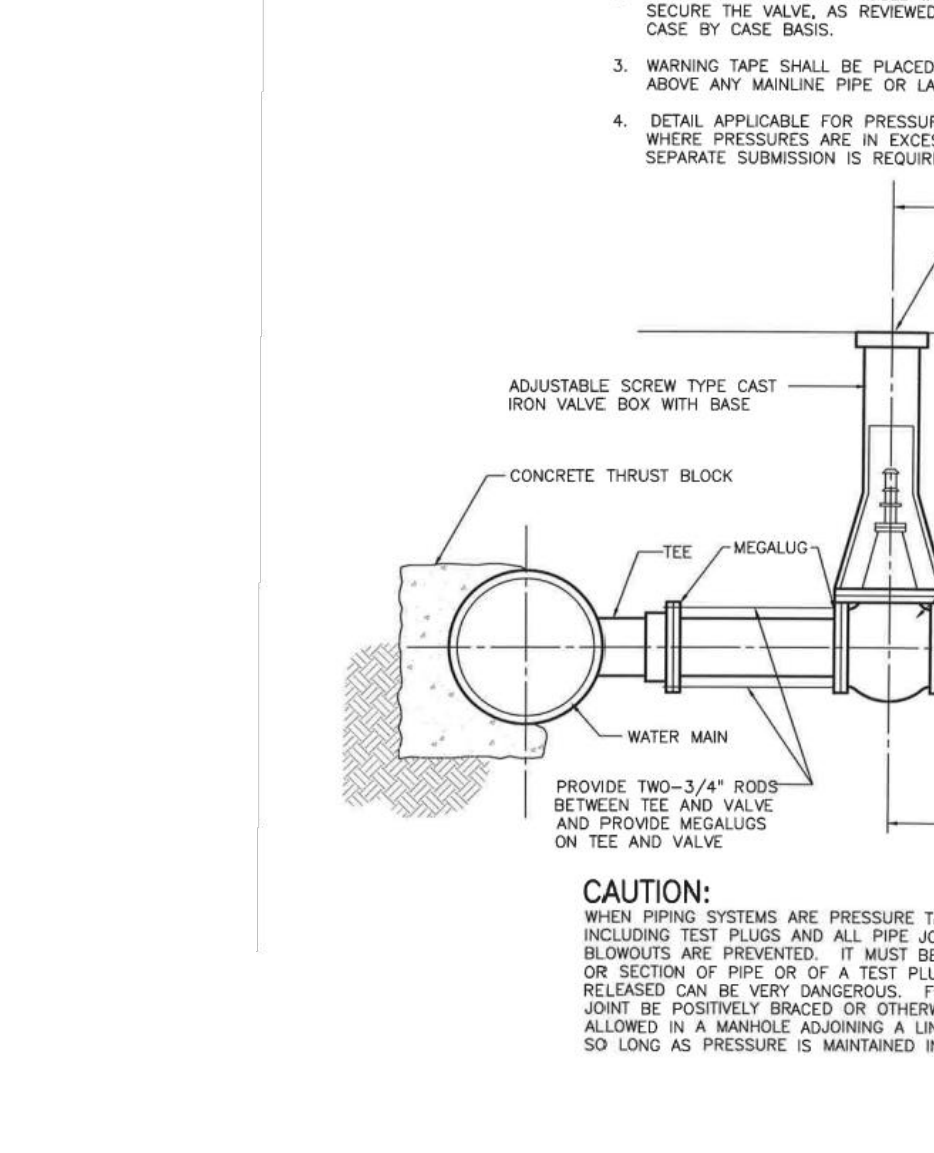
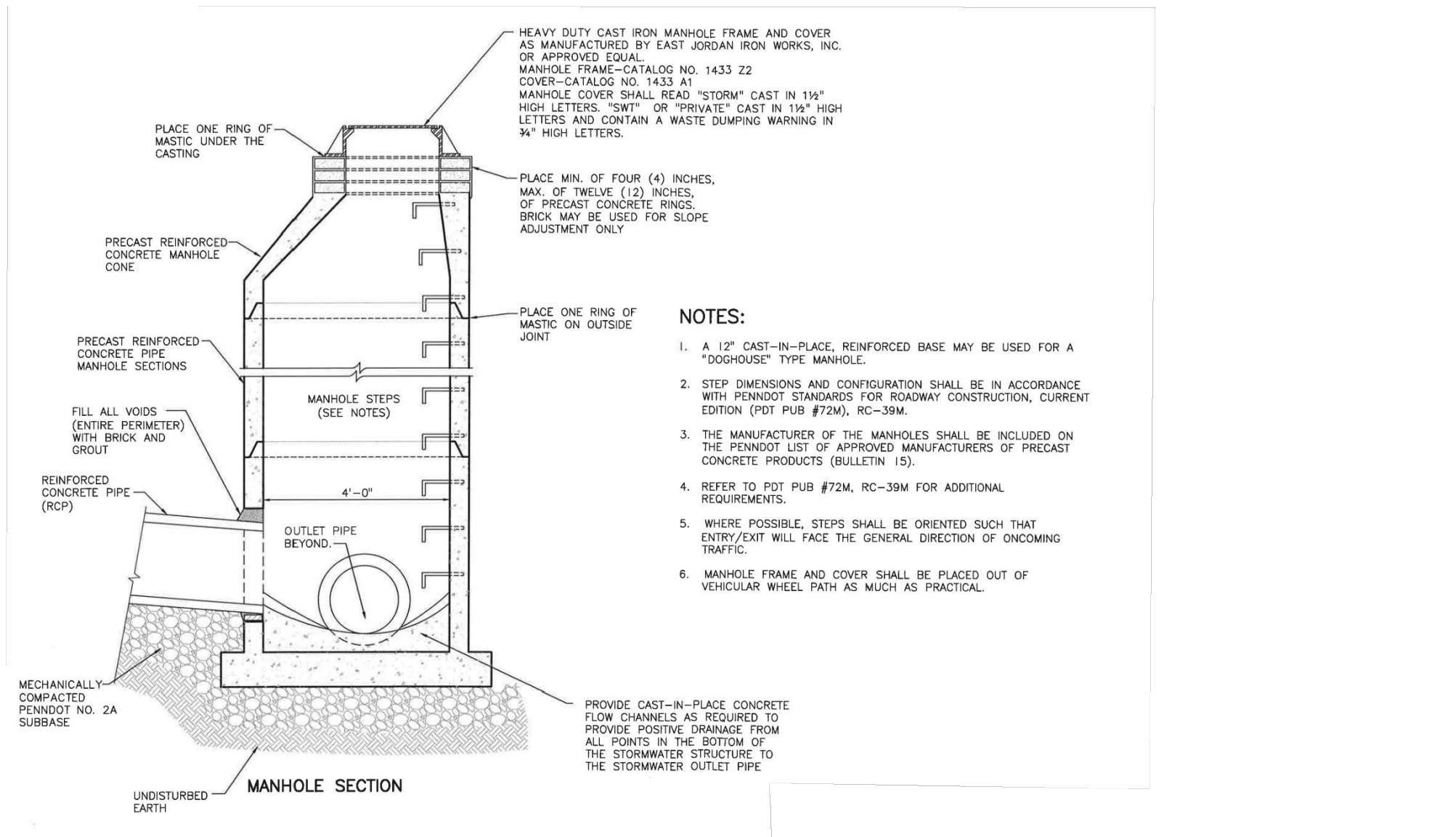
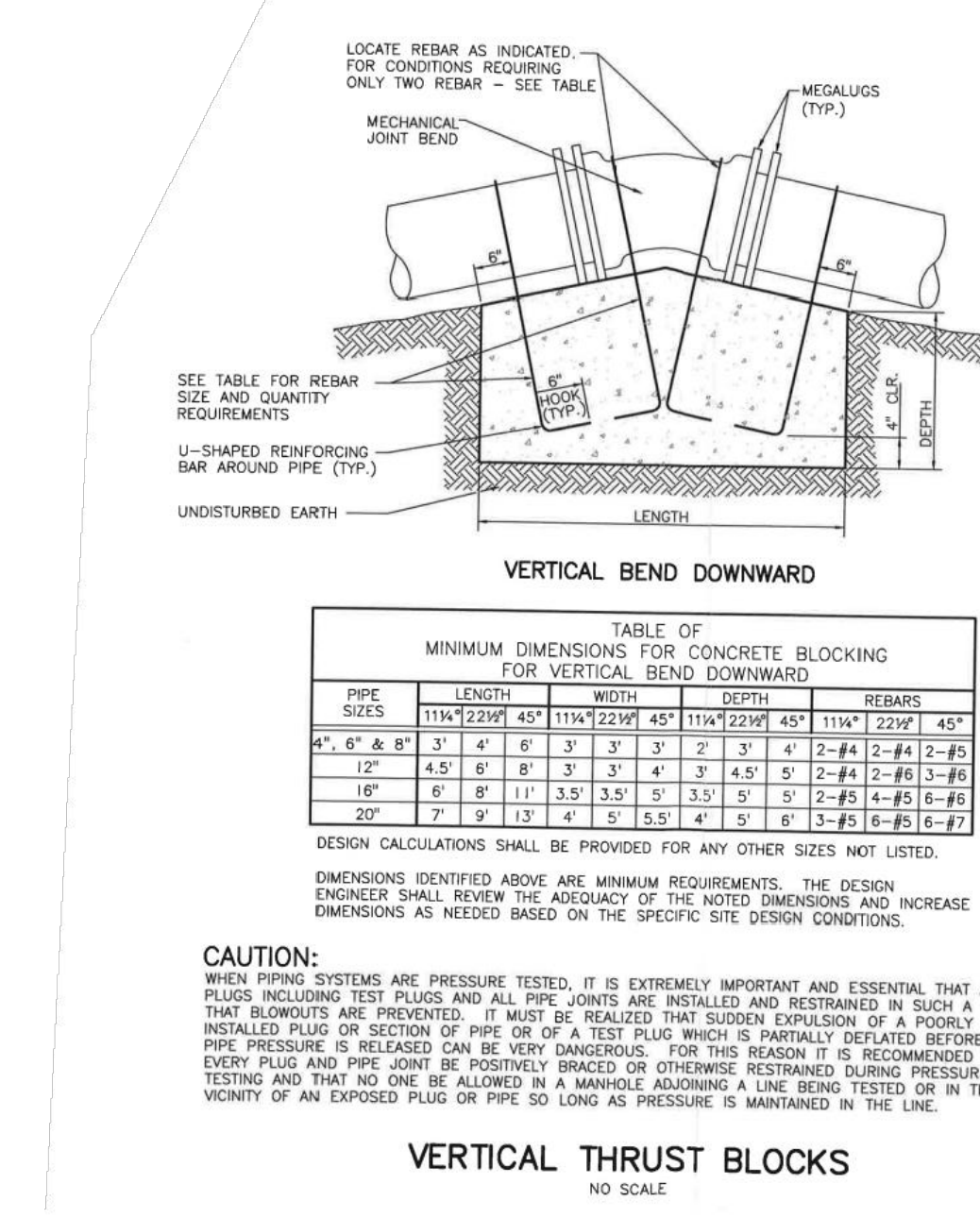
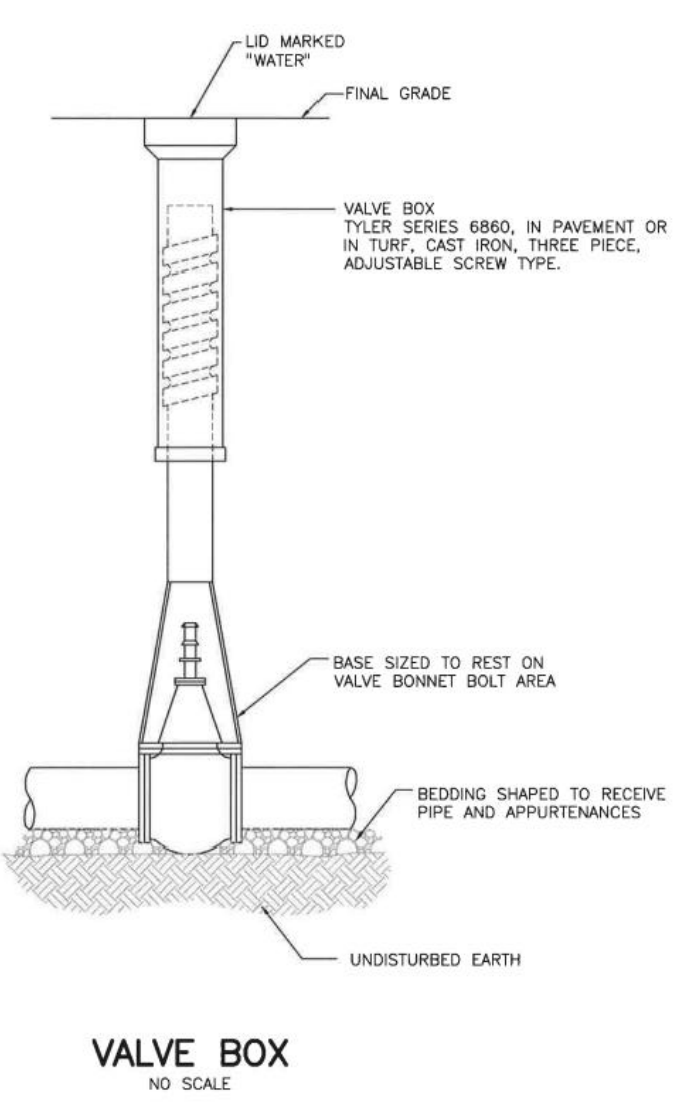
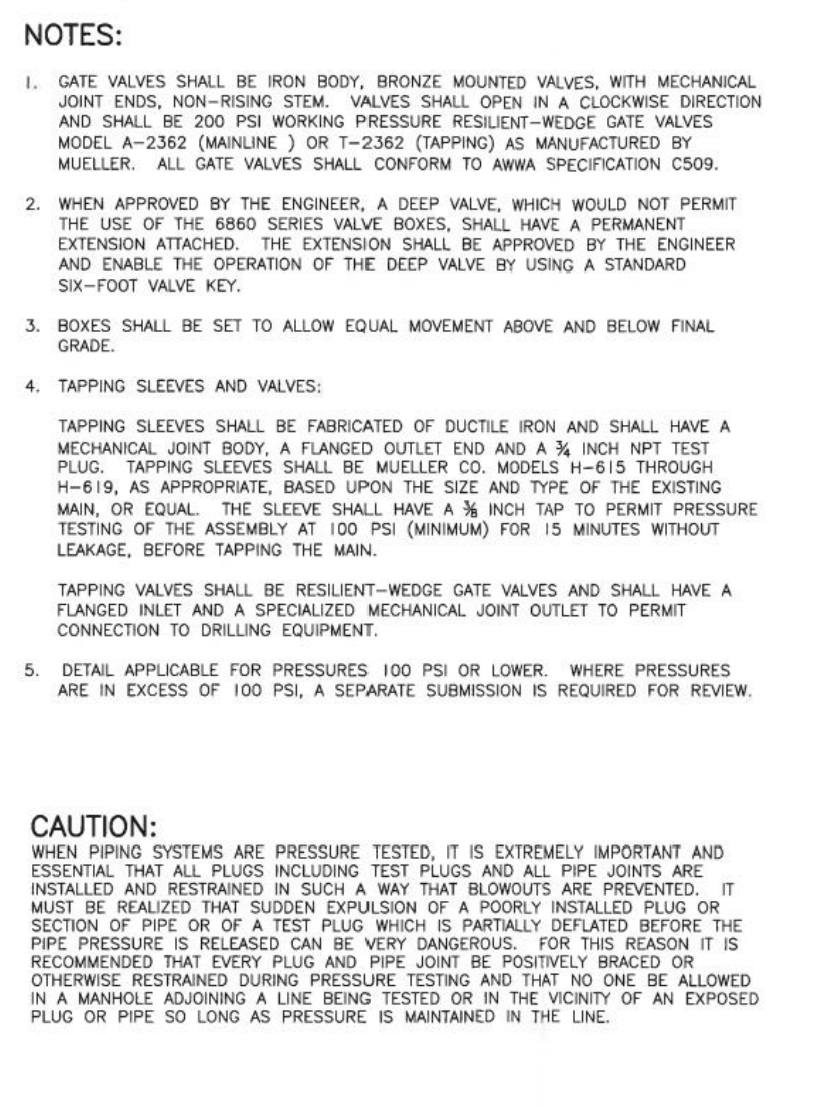
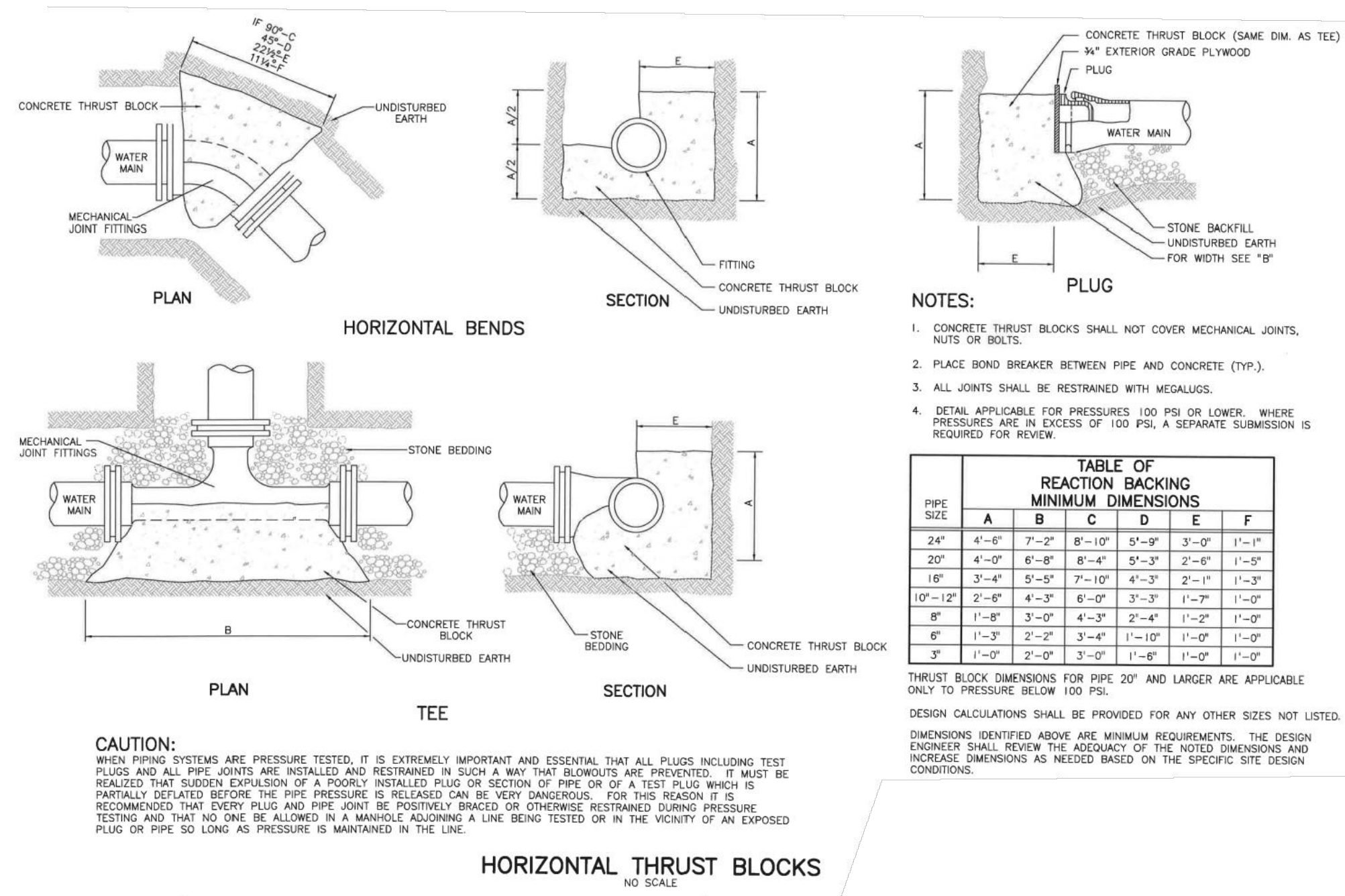
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CONSTRUCTION DETAILS
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY:	KCE	MSN
DRAWN BY:	MSN	MFC/ARF
CHECKED BY:	MSN	March 05, 2021
DATE:	INM	AS SHOWN
SCALE:	INM	CW-20-128
JOB NUMBER:	INM	15 OF 23
SHEET:		



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KEYSTONE CONSULTING ENGINEERS

UTILITY DETAILS

RUIHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN

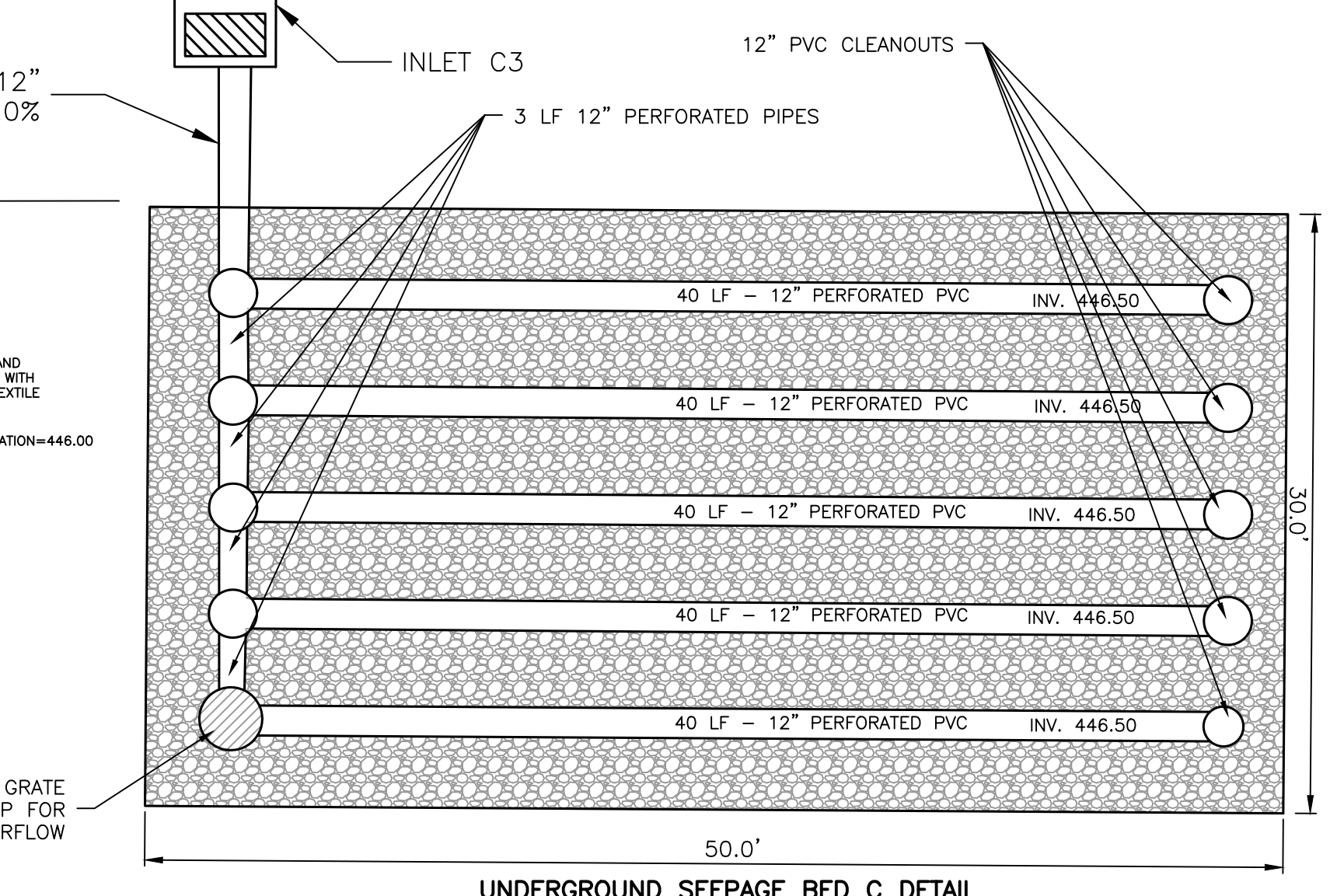
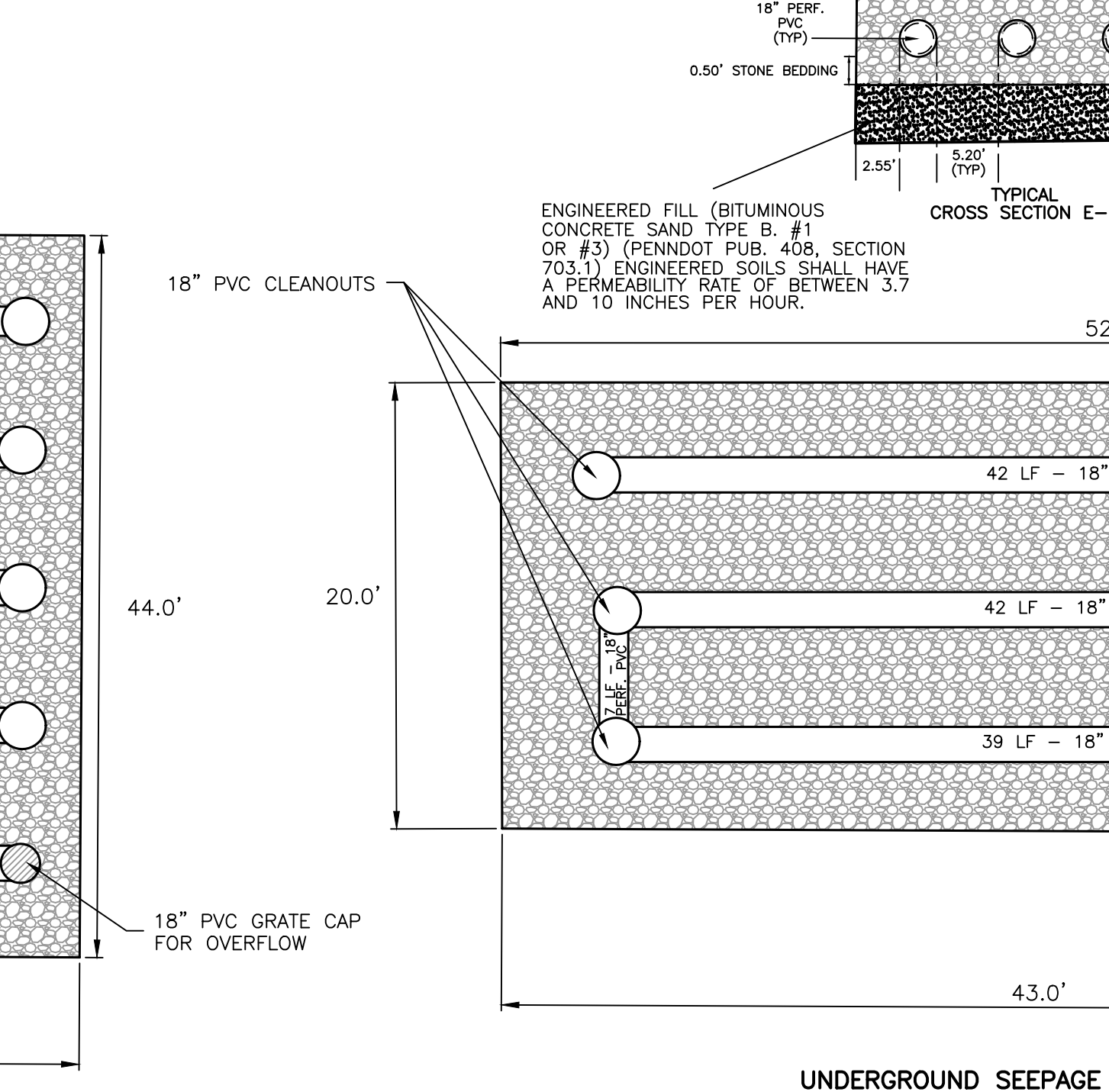
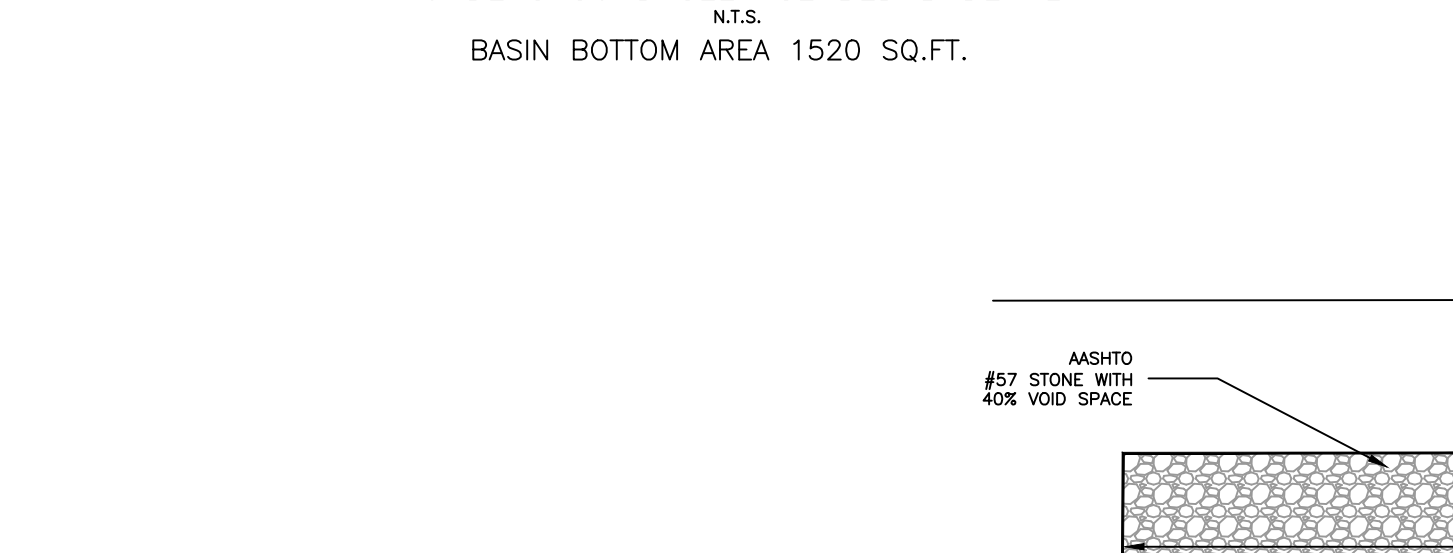
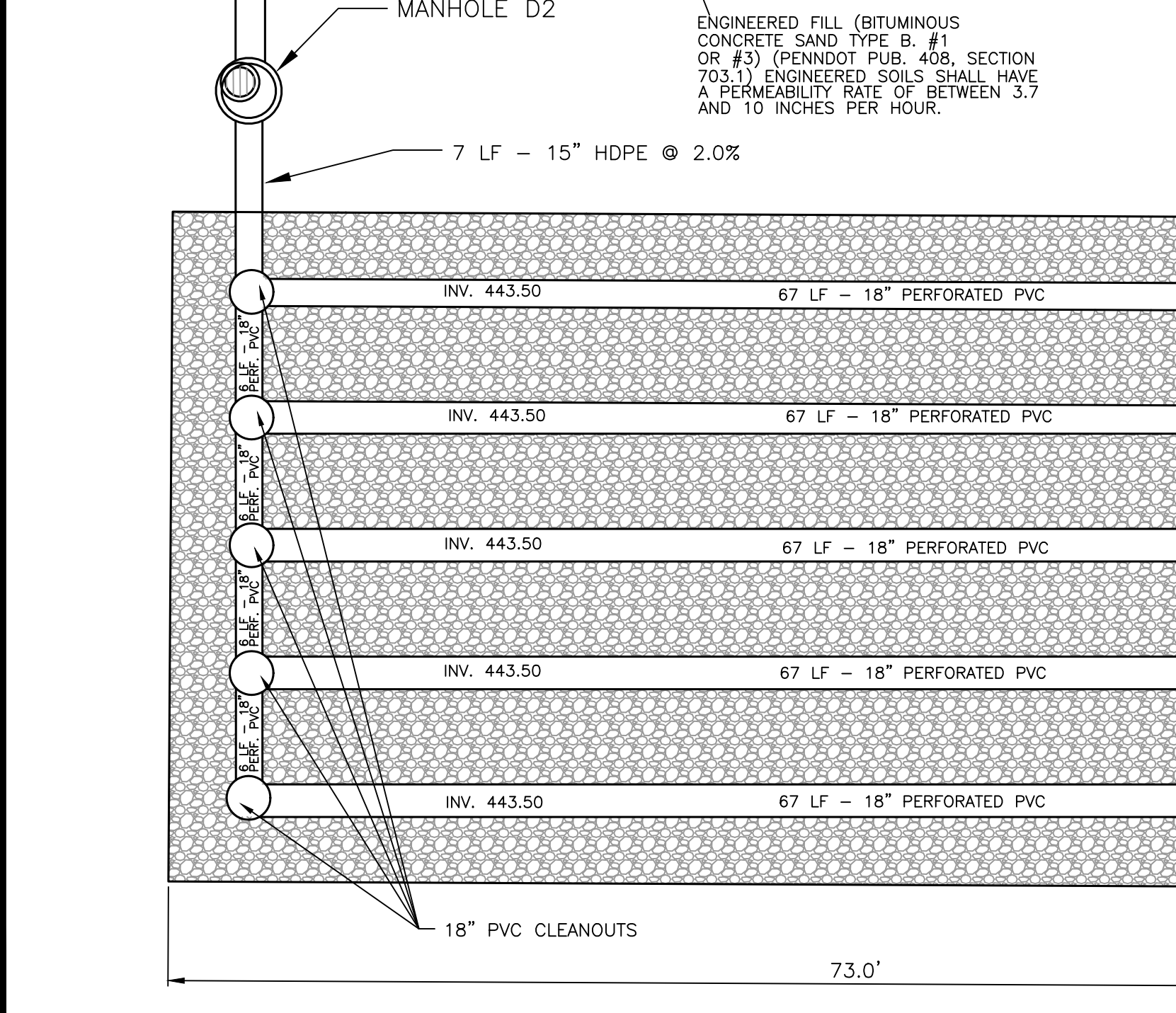
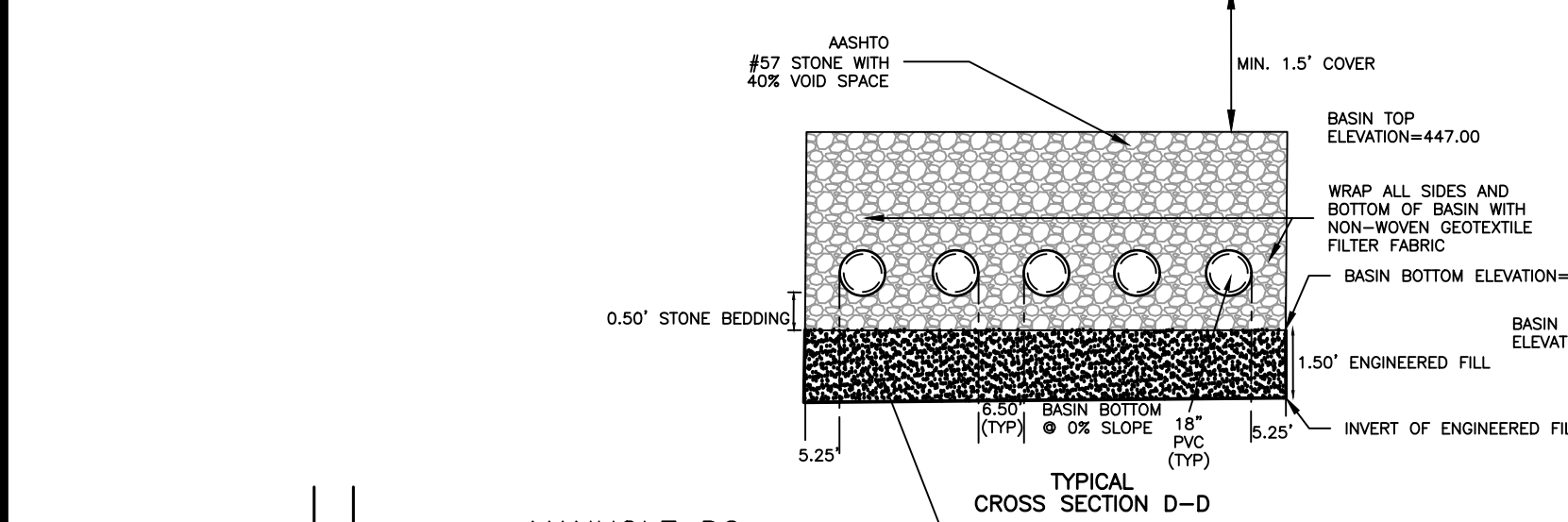
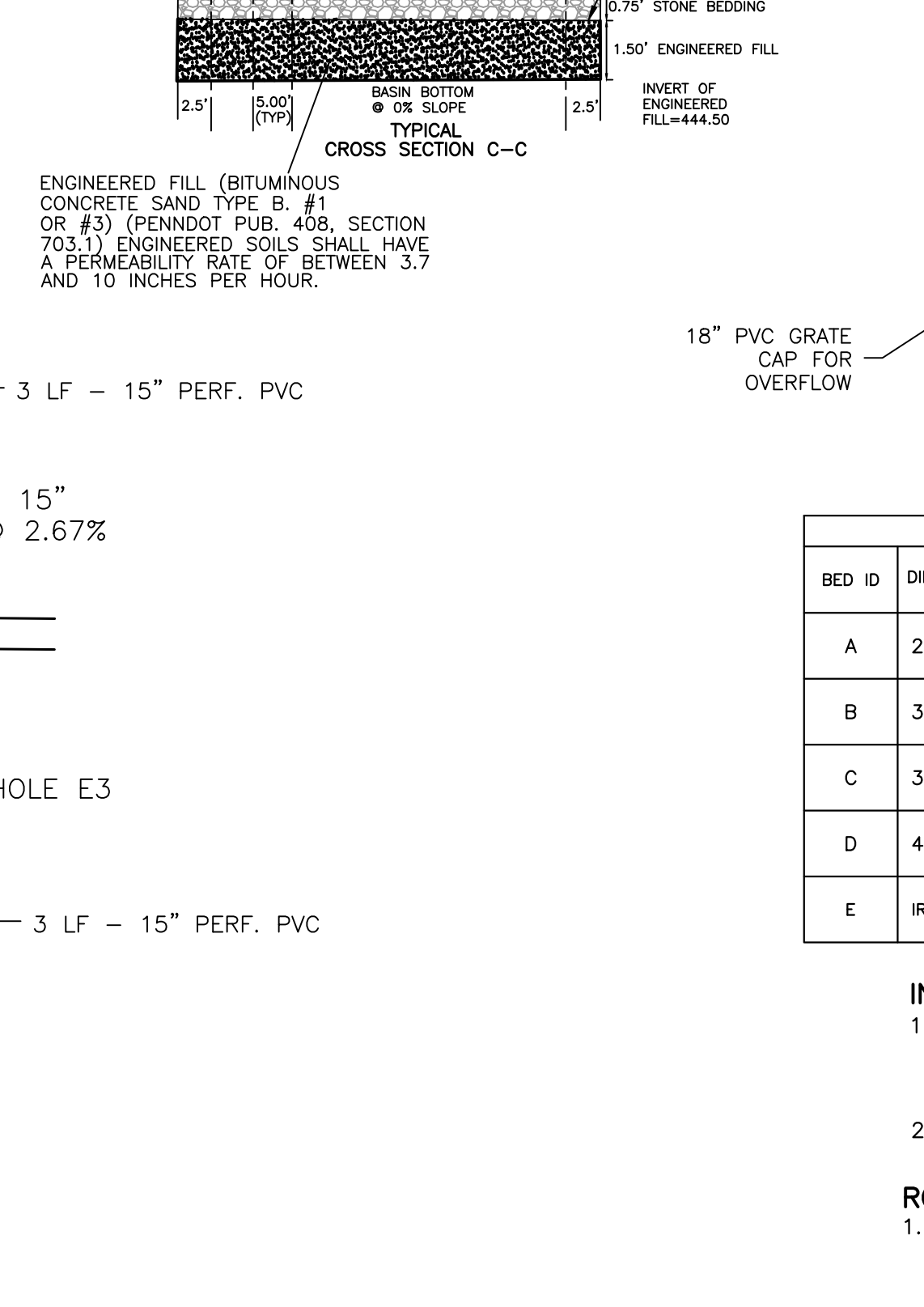
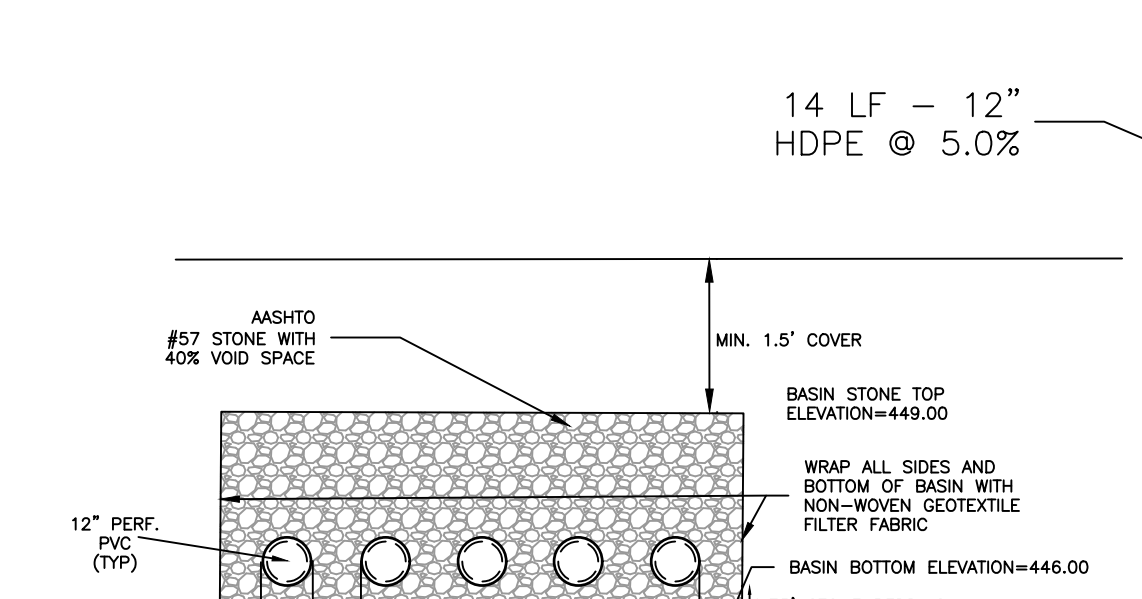
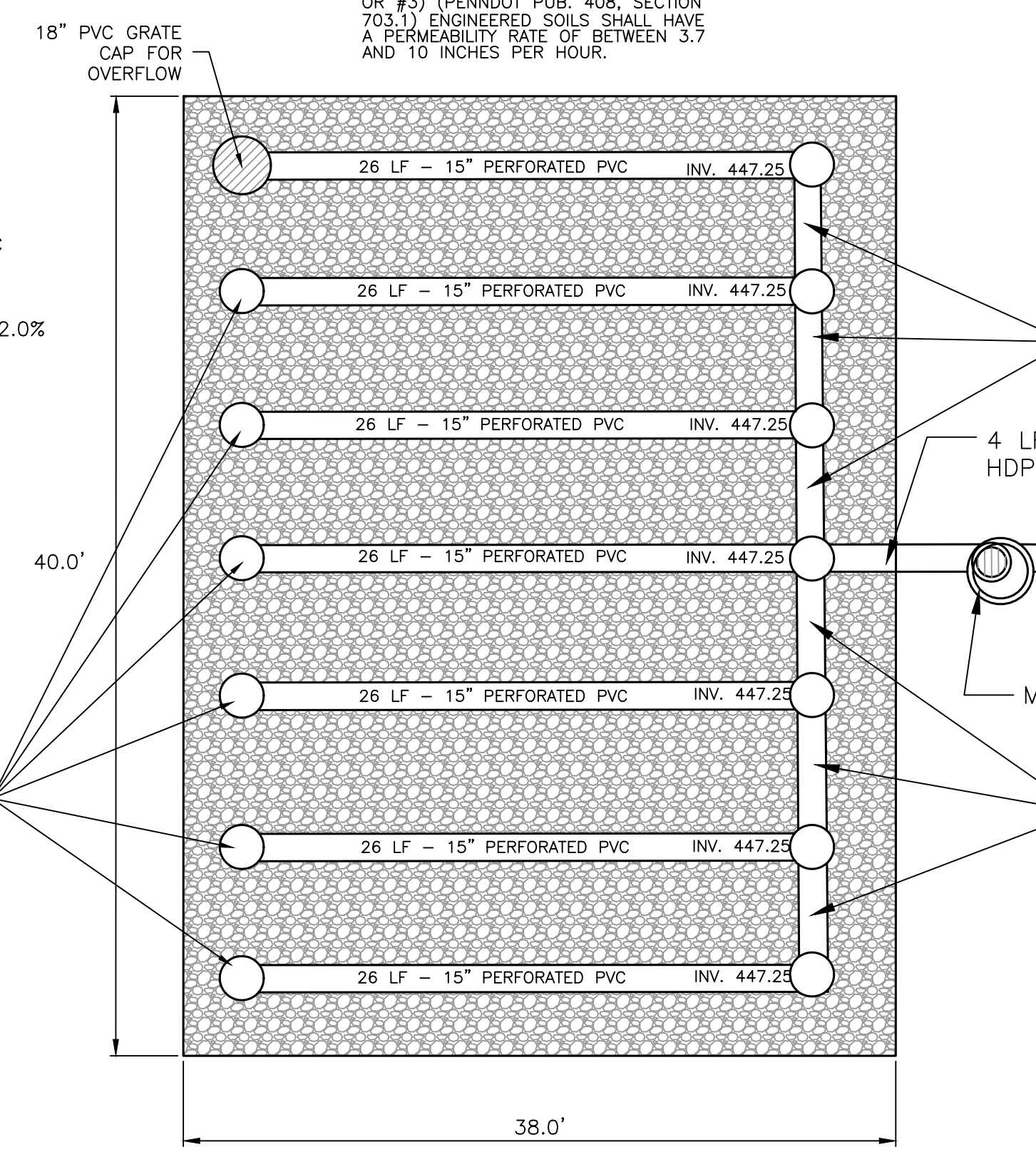
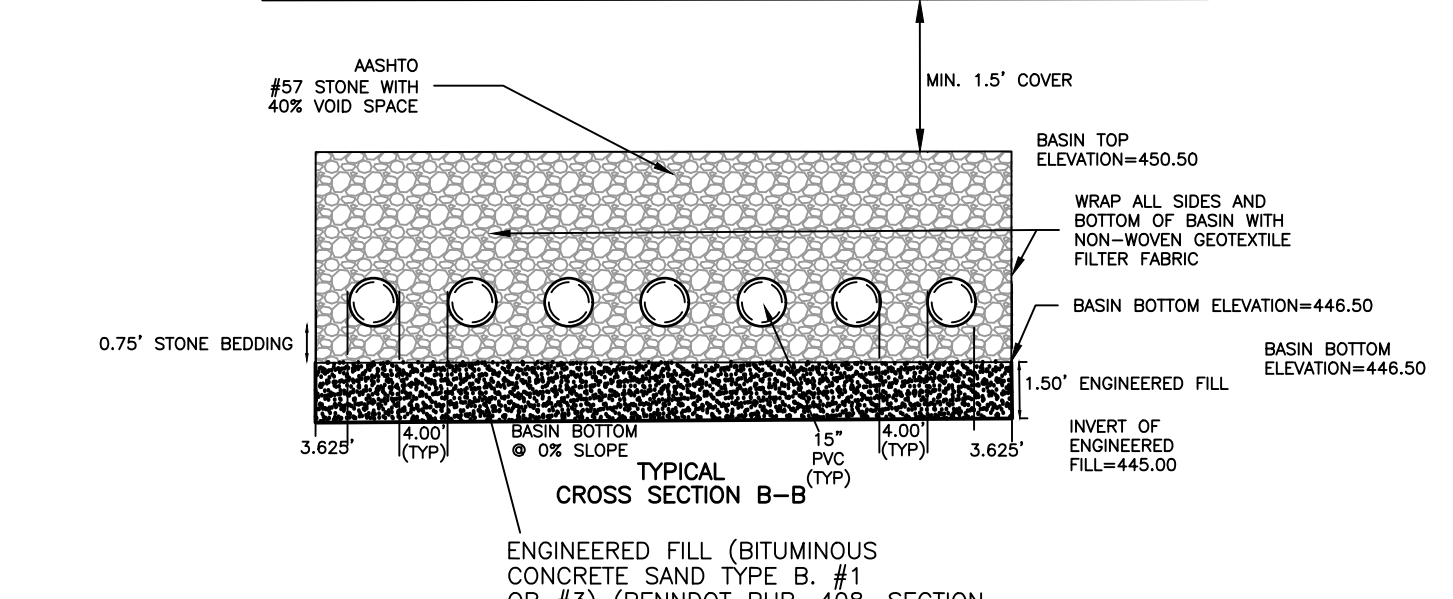
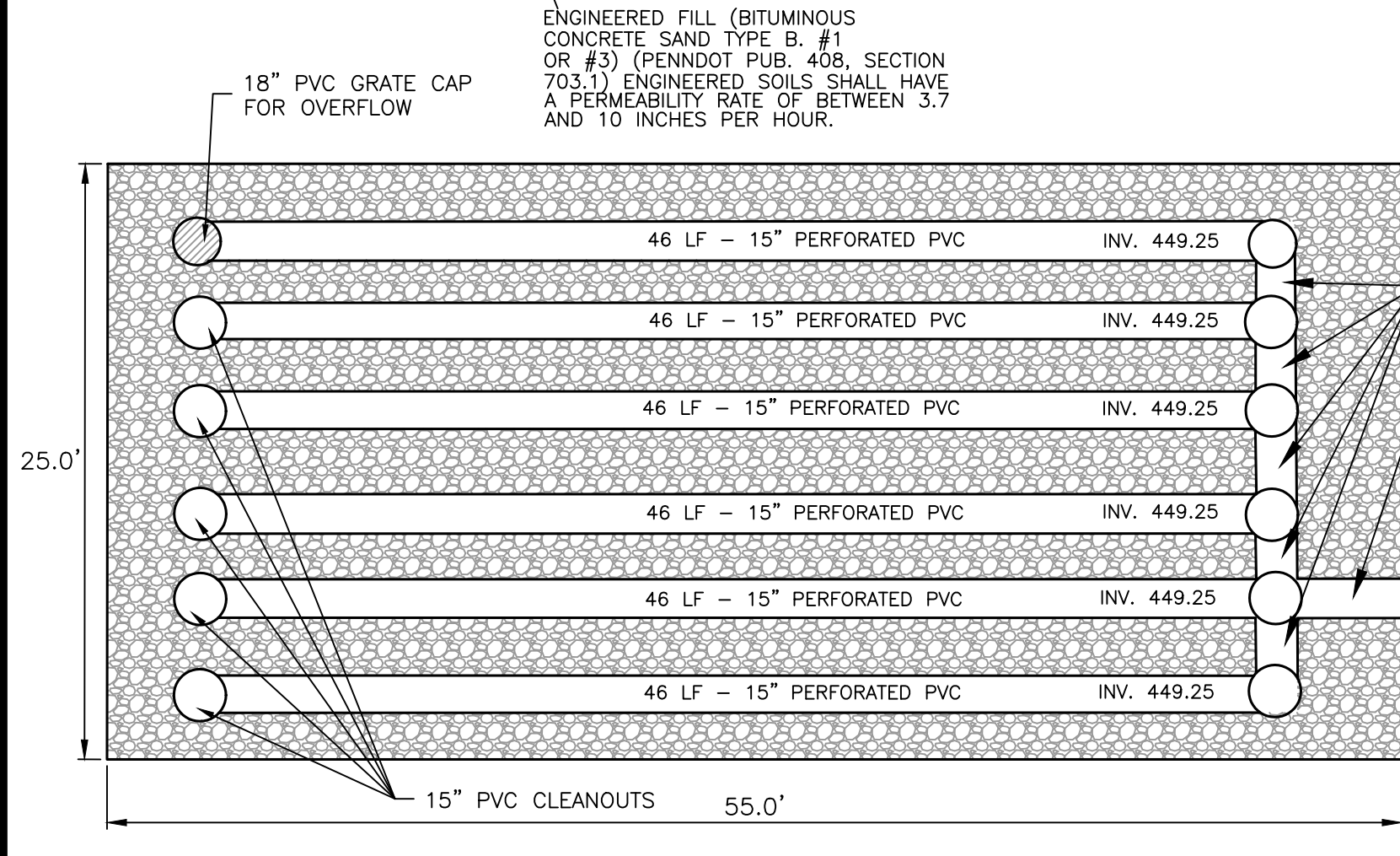
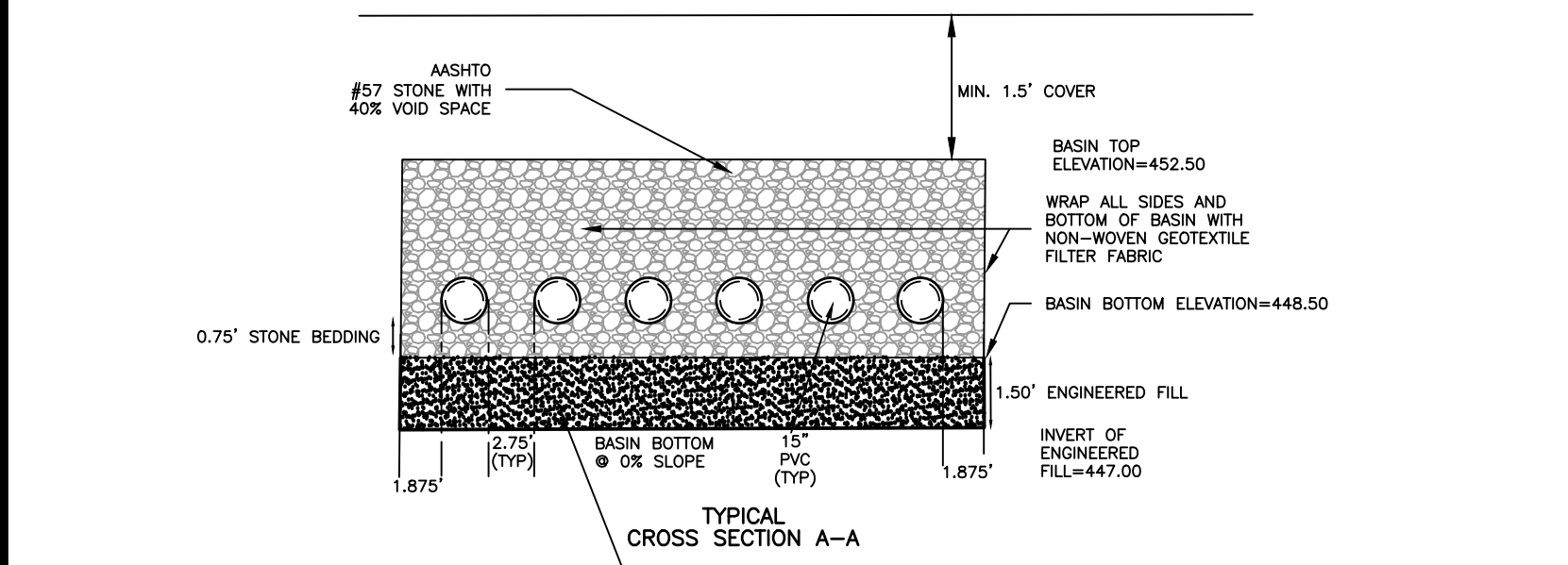
2442 HUCKLEBERRY ROAD

SOUTH WHITEHALL TOWNSHIP LEHIGH COUNTY, PENNSYLVANIA

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

REVISIONS

BY	DATE
MSN	06/16/2021
MSN	12/16/2021
IMK	09/20/2023
IMK	11/17/2023



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 PERFORMED 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 RAKE OR EQUIVALENT 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. WRAP ALL SIDES AND BOTTOM OF BASIN WITH GEOTEXTILE. 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.

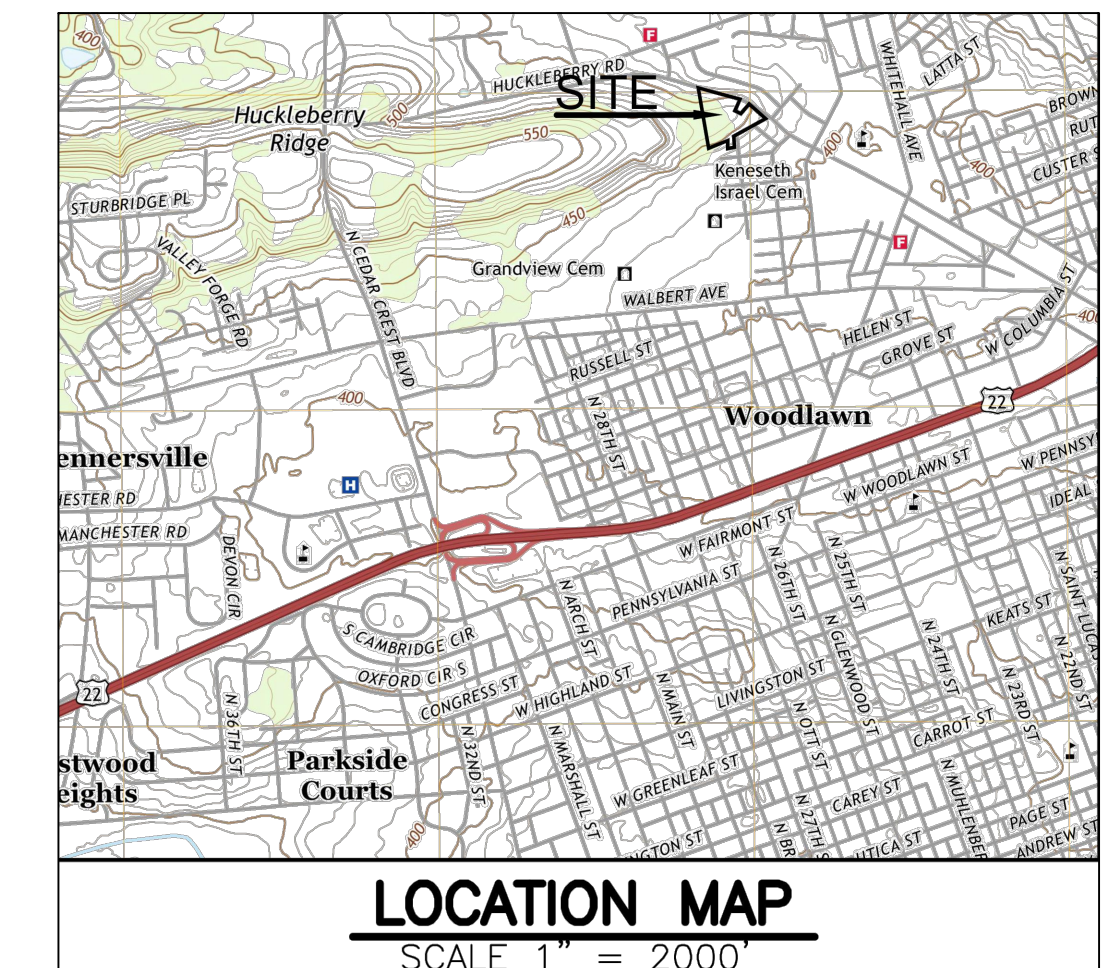
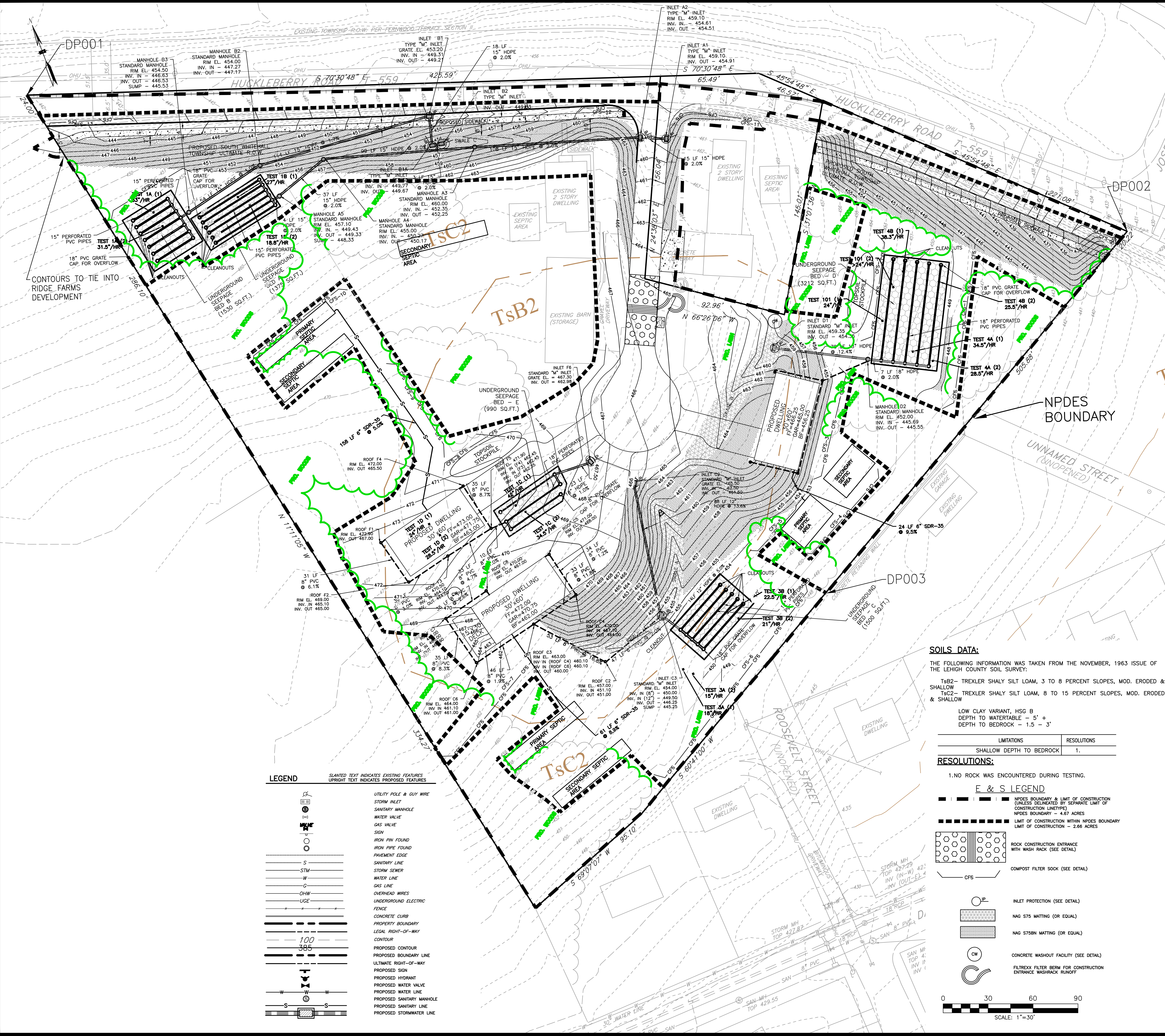
- INSPECT UNDERGROUND SEEPAGE BED AT LEAST FOUR TIMES A YEAR, AS WELL AS AFTER EVERY STORM EXCEEDING 1 INCH.
- DISPOSE OF SEDIMENT, DEBRIS/TRASH, AND ANY OTHER WASTE MATERIAL REMOVED FROM SEEPAGE BED AT A SUITABLE DISPOSAL/RECYCLING FACILITY AND IN COMPLIANCE WITH LOCAL, STATE AND FEDERAL WASTE REGULATIONS.
- 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.



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

DESIGNED BY:	DATE:	BY:	DATE:
KCE	06/16/2021	MSN	06/16/2021
MFC	12/16/2021	MSN	12/16/2021
MFC	09/20/2023	IMK	09/20/2023
MFC	11/17/2023	IMK	11/17/2023

DESIGNED BY:	DATE:	BY:	DATE:
MFC	05/05/2021	MSN	05/05/2021
MFC	N.T.S.	IMK	N.T.S.
MFC	CV-20-128	IMK	CV-20-128
MFC	17 OF 23	IMK	17 OF 23



CHAPTER 93 RECEIVING WATERSHED CLASSIFICATION:
 TSF, MF – TROUT STOCKED FISHERY & MIGRATORY FISHERY
 –DRAINS TO THE JORDAN CREEK VIA STORM SEWER SYSTEM

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 CONSTRUCTION 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-RECOMBOSABLE, INERT, STONE MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREGGED 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.

ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO DETERMINE 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 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. 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 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. HIGHLEY, 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	50%	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	50%	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'

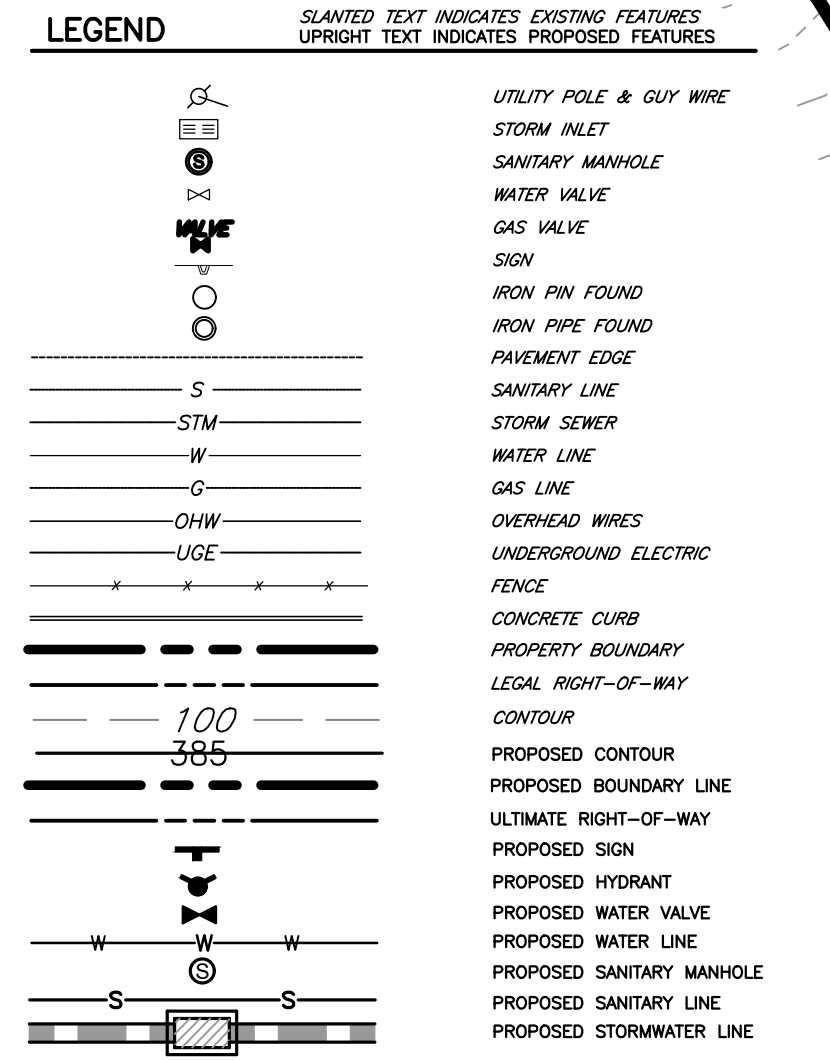
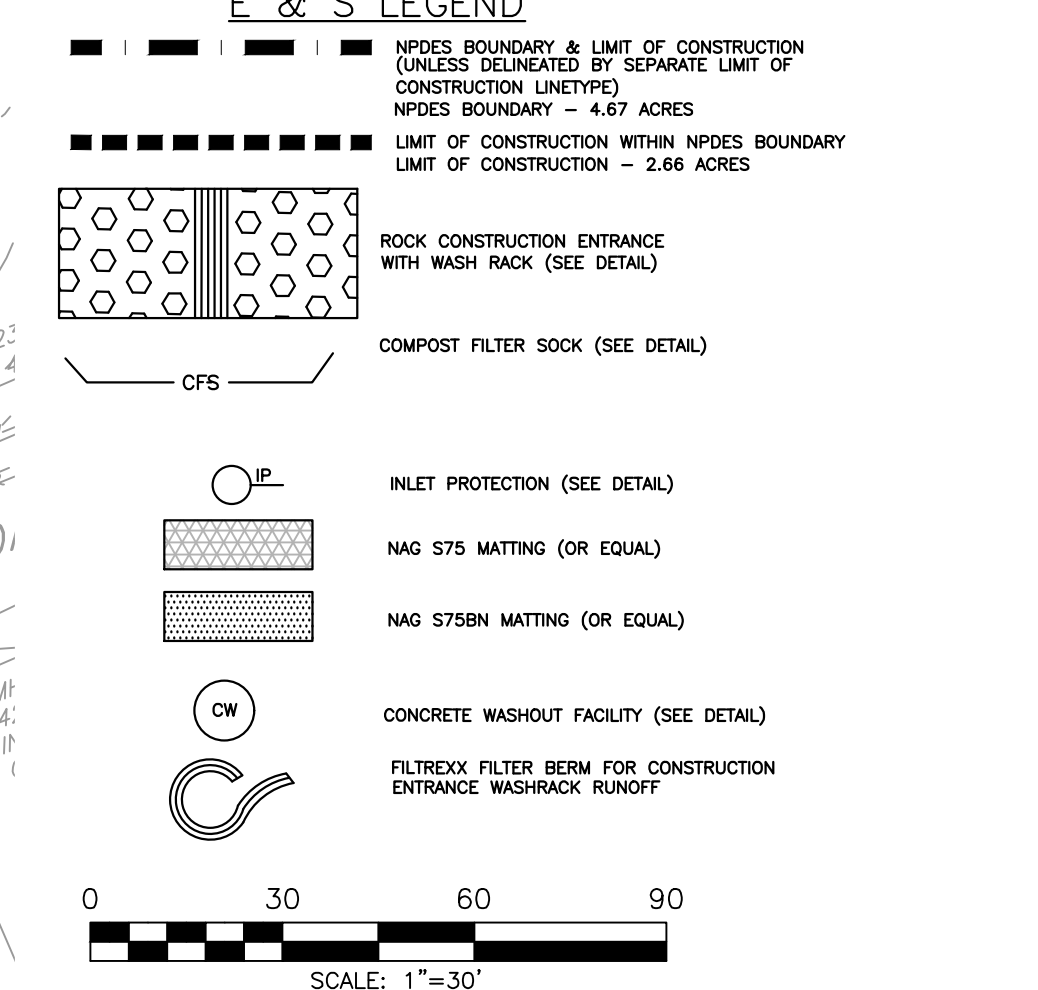
SOILS DATA:
 THE FOLLOWING INFORMATION WAS TAKEN FROM THE NOVEMBER, 1963 ISSUE OF THE LEHIGH COUNTY SOIL SURVEY:

Tsb2 – TREXLER SHALY SILT LOAM, 3 TO 8 PERCENT SLOPES, MOD. ERODED & SHALLOW
 Tsc2 – TREXLER SHALY SILT LOAM, 8 TO 15 PERCENT SLOPES, MOD. ERODED & SHALLOW

LOW CLAY VARIANT, HSG B
 DEPTH TO WATERTABLE – 5' +
 DEPTH TO BEDROCK – 1.5 – 3'

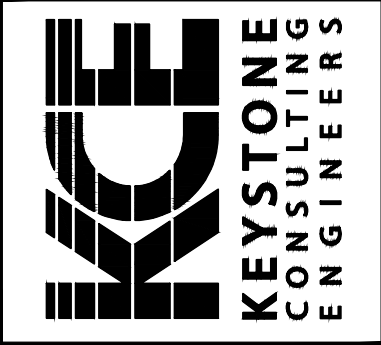
LIMITATIONS	RESOLUTIONS
SHALLOW DEPTH TO BEDROCK	1.

RESOLUTIONS:
 1. NO ROCK WAS ENCOUNTERED DURING TESTING.



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

DESIGNED BY:	DATE:	REVISIONS:
KCE	06/16/2021	BY DATE
MSN	12/16/2021	EAH
MFC/ARF	09/20/2023	EAH
March 05, 2021	11/17/2023	IMK
1" = 30'	12/13/2023	IMK
March 05, 2021	06/24/2024	EAH
1" = 30'	09/12/2024	IMK
March 05, 2021		IMK

81
 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

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 corrective and maintenance work, including clean out, replacement, regrading, reseed, re-mulching and re-mulching 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 - a minimum 4 to 12 inches on compacted soils - prior to placement of topsoil. Areas to be vegetated shall have a minimum 6 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 shall 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

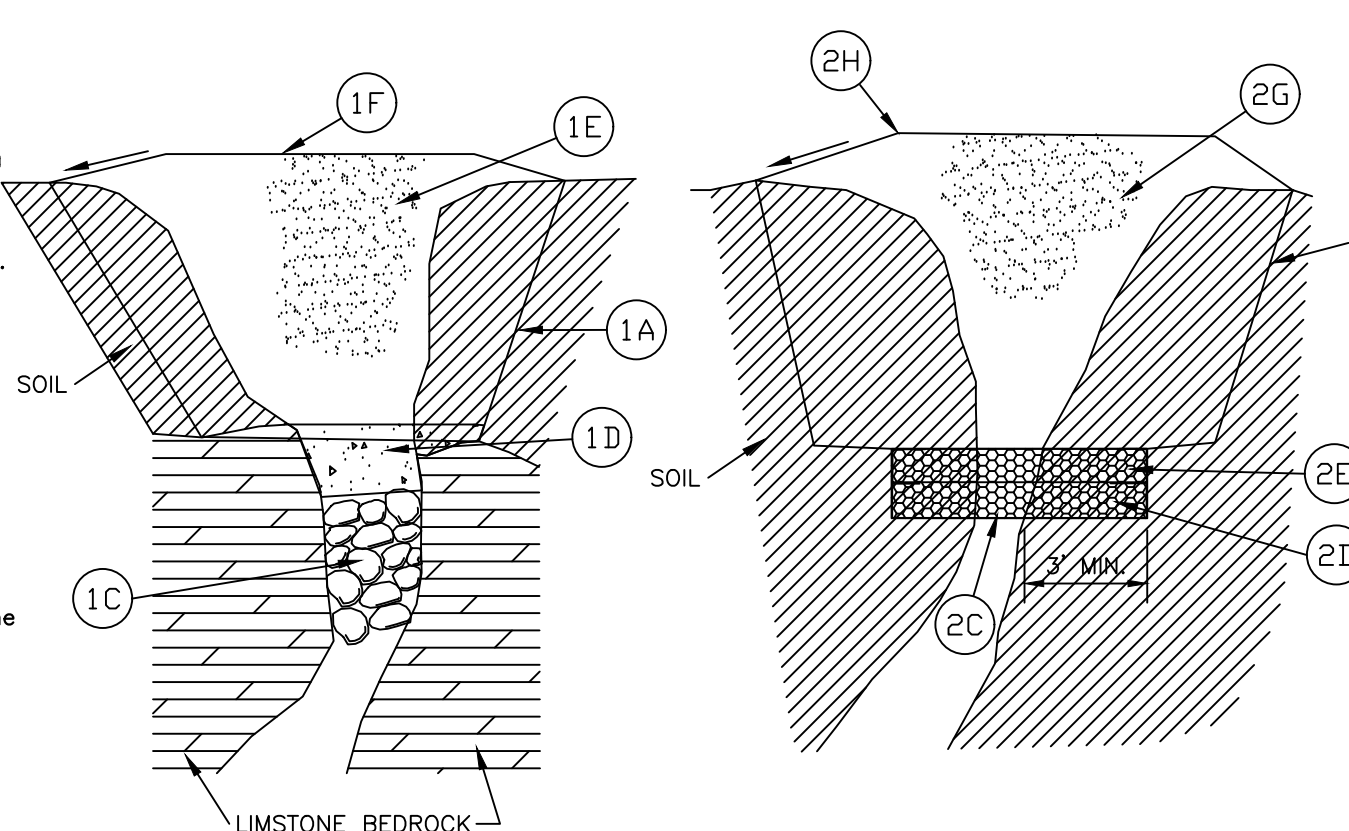
Concrete wash water shall be handled in the manner described on the plan drawings. In no case shall it be allowed to enter any surface waters or groundwater systems.

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.

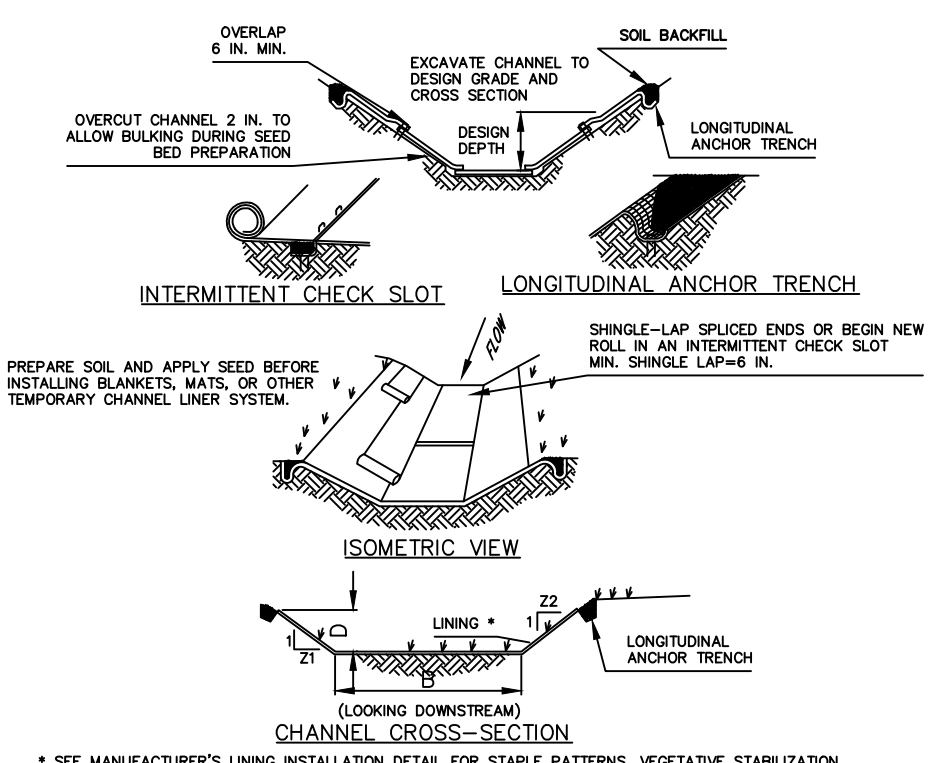
SINKHOLE REPAIR (IF ENCOUNTERED)



GENERAL GUIDELINES FOR SINKHOLE REPAIR

** THE TOWNSHIP GEOTECHNICAL 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, FLAG 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, MIRAFIX 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.

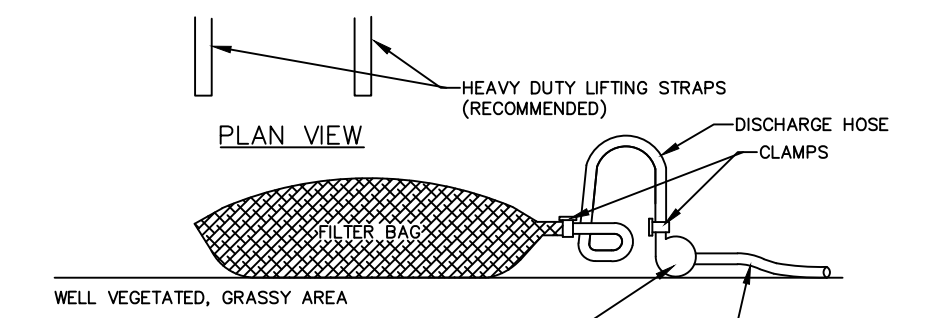


CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	TOP WIDTH W (FT)	Z1 (FT)	Z2 (FT)	LINING *
SWALE A	ALL	1	0.8	5.5	3	3	S75 STAPLE D
SWALE B	ALL	2	0.8	6.8	3	3	S75 STAPLE D

NOTES: ANCHOR TRENCHES SHALL BE INSTALLED AT BEGINNING AND END OF CHANNEL IN THE SAME MANNER AS LONGITUDINAL ANCHOR TRENCHES.

CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE. DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

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



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
MULLER BURST	ASTM D-3788	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AGS % 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 NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON TOP OF STONE TO INCREASE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5% FOR SLOPES EXCEEDING 5%. CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-FILLING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

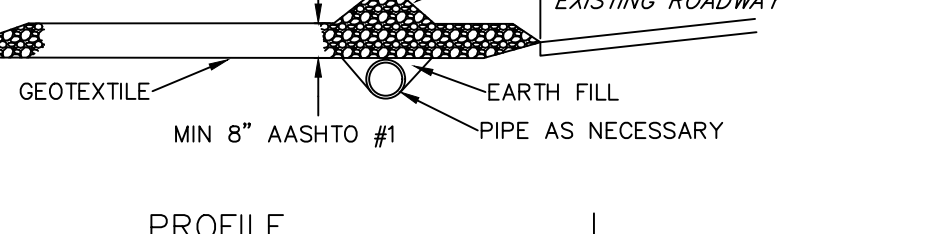
NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HO OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

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, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

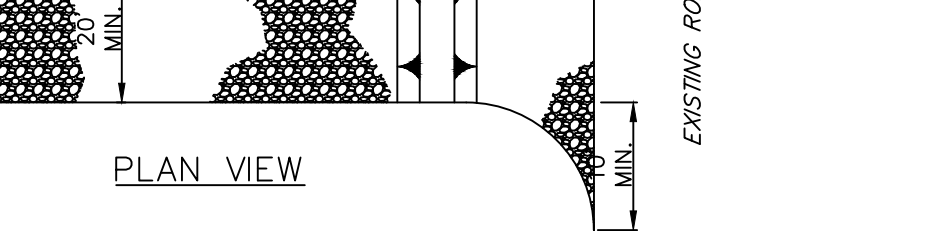
FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

STANDARD CONSTRUCTION DETAIL #3-16 PUMPED WATER FILTER BAG



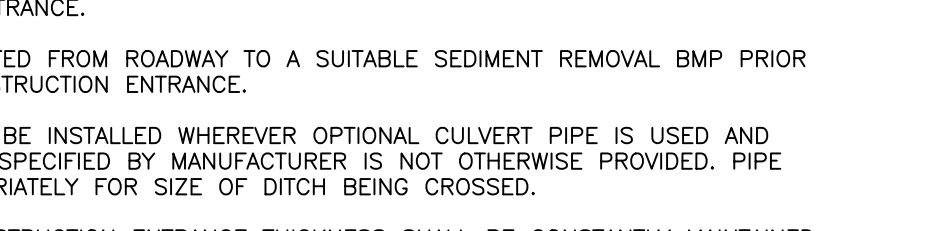
MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. DRAIN SPACE UNDER WASH RACK SHALL BE KEPT OPEN AT ALL TIMES. DAMAGE TO THE WASH RACK SHALL BE REPAIRED 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



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 SPACE 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.

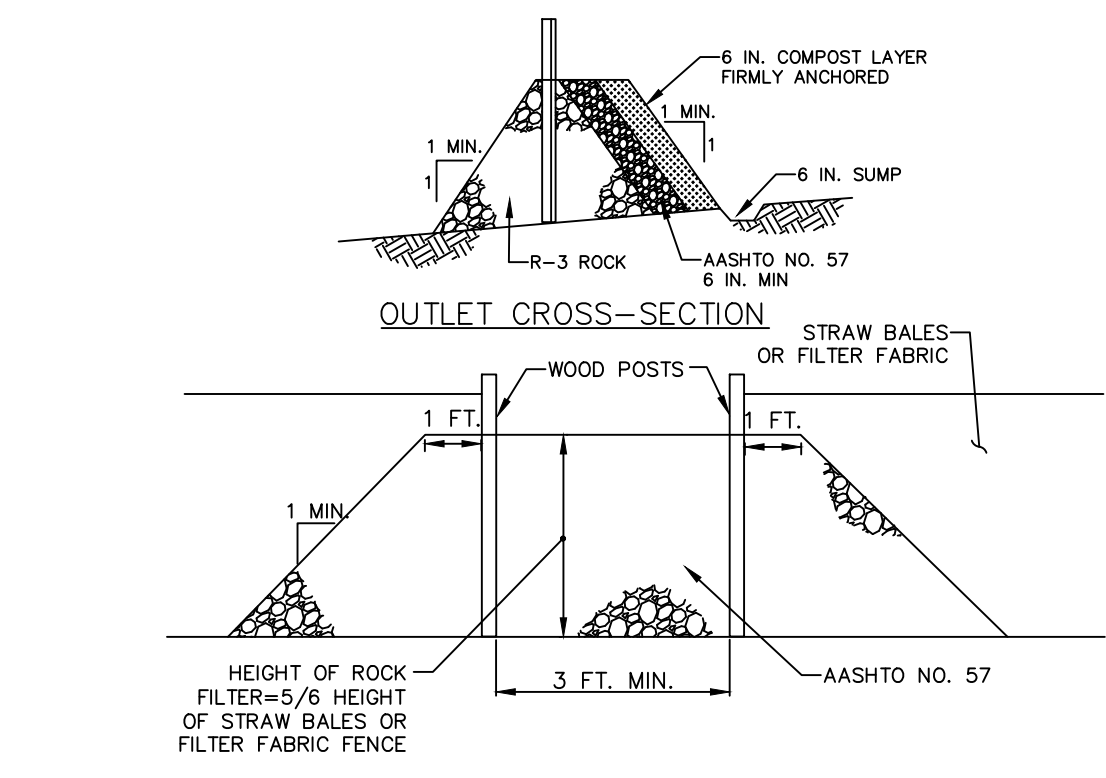
STANDARD CONSTRUCTION DETAIL #3-1 ROCK CONSTRUCTION ENTRANCE



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 ROCK CONSTRUCTION ENTRANCE

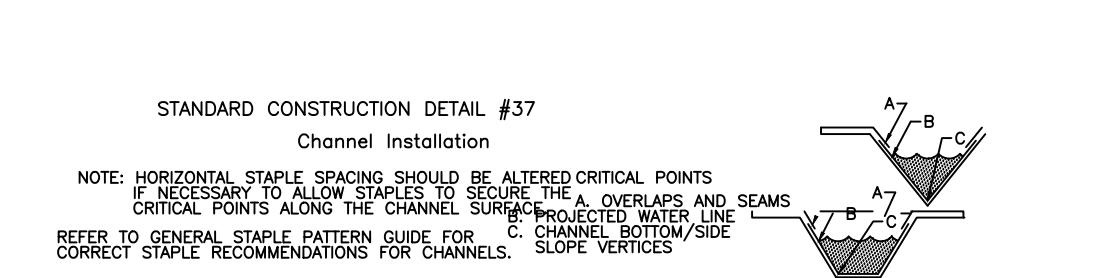
A suitable impervious geomembrane shall be placed at the location of the washout prior to installing the socks. Adapted from Filtrex.



NOTES: A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A SILT FENCE OR STRAW BALE BARRIER HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UPSLOPE FACE IN HO AND EV WATERSHEDS.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

DETAIL ROCK FILTER OUTLET



SEEDING AND SOIL SUPPLEMENTS

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

SEED TYPE	% BY WEIGHT	PURITY	MAX. WEED SEED
ANNUAL RYEGRASS (LOLIUM MULTIFLORUM)	100	95%	0.10%
PERENNIAL RYEGRASS MIXTURE * (LOLIUM PERENNE)	20	97%	0.10%
CREeping RED FESCUE OR CHEWINGS FESCUE (TALE FESCUE OR SSP. COMMUTATE) (IMPROVED AND CERTIFIED)	30	97%	0.10%
KENTUCKY BLUEGRASS MIXTURE ** (POA PRATENSIS)	45	97%	0.15%
ANNUAL RYEGRASS (LOLIUM MULTIFLORUM)	5	95%	0.10%

- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED.
- BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW ON BOTTOM OF CHANNEL.
- PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH A 6" OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES 4" APART TO SECURE BLANKETS.
- FULL LENGTH EDGE OF BLANKETS AT TOP OF SLOPES MUST BE ANCHORED IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
- BLANKETS ON SIDE SLOPES MUST BE OVERLAPPED 4" OVER THE CENTER BLANKET AND STAPLED (2" FOR 650 MATING).
- IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A ROW OF STAPLES 4" APART OVER ENTIRE WIDTH OF THE CHANNEL. PLACE A SECOND ROW 4" BELOW THE FIRST ROW IN A STAGGERED PATTERN.
- THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

CHANNEL INSTALLATION GUIDE NORTH AMERICAN GREEN

14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47711 USA 1-800-772-2040 CANADA 1-800-448-2040

CONCRETE WASHOUT DETAIL



NOTES: 1. INSTALL ON FLAT GRADE FOR OPTIMAL PERFORMANCE. 2. MAXIMUM DEPTH OF CONCRETE WASHOUT BETWEEN BARS OF FILTER SOCK SHALL BE 2\"/>

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 ROCK CONSTRUCTION ENTRANCE

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

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EROSION AND SEDIMENTATION DETAILS

RUIHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN
 2442 HUCKLEBERRY ROAD
 LEHIGH COUNTY, PENNSYLVANIA

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

REVISIONS	DATE	BY
06/16/2021	EAH	
12/16/2021	EAH	
09/20/2023	IMK	
11/17/2023	EAH	
12/13/2023	EAH	

SEQUENCE OF BMP CONSTRUCTION

At least 7 days before starting any earth disturbance activities, the operator shall invite all contractors involved in those activities, the landowner, all appropriate municipal officials, the erosion and sediment control plan preparer, and the Lehigh County Conservation District to an on-site meeting. Also, at least 3 days before starting any earth disturbance activities, all contractors involved in those activities shall notify the Pennsylvania one call system incorporated at 1-800-242-1776 for buried utilities locations. Any silt fence that is damaged or moved to build a utility line should be immediately repaired or replaced the sock.

1. Install the rock construction entrance with wash rack and Filtrax filter berm as shown on the plans. The stone driveway between the entrance and Huckleberry Road must be maintained for access to the existing lots at all times. Tree protection fencing should be installed around all woods identified to remain after construction.
2. Install runs of compost filter sock CFS-1 through CFS-14 as shown on the plans. Also, install the orange safety fencing around the proposed seepage bed areas A, B, C, D & E to protect them from compaction from construction equipment.
3. The contractor shall then perform clearing and grubbing operations for the construction of the cul de sac. Strip the topsoil and stockpile as shown on the plans. The stockpile shall immediately receive temporary stabilization in accordance with the seeding and soil supplements schedule and an 18" silt fence shall be installed down slope of the stockpile at this time.
4. Grade the area of the cul de sac beyond the two existing houses. Bring the cul de sac to final grade and immediately place the stone base.
5. Next, the connection of the cul de sac can be constructed to Huckleberry Road. Since the access must be maintained throughout the construction, work should only occur on half of the remaining cul de sac at one time.
6. (Critical Stage) in conjunction with the construction of the cul de sac, construction should begin on underground seepage beds A, B, C, D & E and the associated piping. The following is the sequence of construction for the underground bed. A licensed professional or designee shall be present to observe the placement of engineered fill as well as subgrade preparation:

- A. Install and maintain adequate erosion and sediment control measures during construction.
- B. The existing subgrade under the bed area should not be compacted or subject to excessive equipment traffic prior to geotextile and stone bed placement.
- C. 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 light tractor. All fine grading should be done by hand. All bed bottoms should be at level grade.
- D. Install upstream and downstream control structures, cleanouts, perforated piping, and all other necessary stormwater structures.
- E. Geotextile, the 18" of engineered fill 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.
- F. 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.
- G. Soil should be placed over the infiltration bed in maximum 6 inch lifts.
- H. Stabilize area over the bed.
- I. Do not remove erosion controls until site is fully stabilized.

7. Concurrently with the construction of underground seepage bed A, construction of the storm drainage run from manhole A5 up to inlet A1 including manholes A3 and A4 as well as inlet A2. Construct the storm drainage run from manhole E3 up to inlet B1 including manhole E2 in conjunction with underground seepage bed B. Construct inlet C3 up to inlet C1 including inlet C2 and construct manhole D2 to inlet D1 as well as inlet F6. For all storm run, work should progress from downstream to upstream. Only disturb the area that can be filled in and stabilized at the end of the day. Also, install inlet protection upon setting an inlet.

8. In conjunction with the storm sewer conveyance run from inlet C3 to inlet C2, grade the embankment and construct swale A. Stabilize both the swale and the slope with the matting indicated on the plans. This work shall be constructed in conjunction with underground seepage bed C.

9. In conjunction with the storm sewer conveyance inlet F6 construct underground seepage bed E.

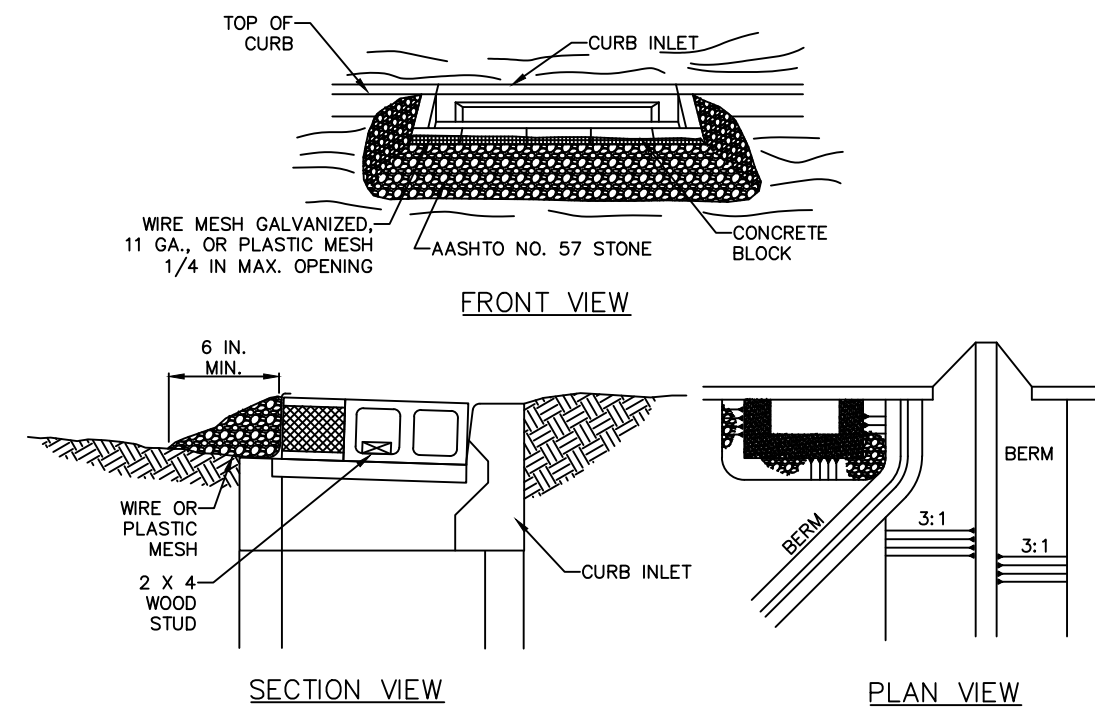
9. In conjunction with the storm sewer conveyance run tributary to underground seepage bed D, construct and stabilize swale B with matting as indicated on the plans.

10. Once step 9 has been completed, individual house construction may begin. Strip topsoil and rough grade the area of the house. Construct the well and septic areas and immediately stabilize. Construct the driveway and perform final grading around the house noting that the embankment around the house on lot 3 is to receive erosion control matting. Install all the roof drain conveyance lines to their respective underground seepage bed. Stabilize all remaining areas.

11. Upon achievement of subgrade elevations, all areas to remain in turf shall receive a minimum 4" of topsoil. If there is insufficient topsoil on site to meet the minimum of 4" required, then material may need to be imported. Areas to remain in turf shall receive permanent stabilization in accordance with the seeding and soil supplements schedule. Areas to remain in turf shall receive permanent stabilization in accordance with the seeding and soil supplements schedule.

12. After the completion of all previous steps and the site has been stabilized (70% uniform perennial vegetative cover), the remaining bmp's such as rock construction entrance, and filter fabric fence shall be removed from the site. Any accumulated sediment and debris removed from erosion control facilities shall be removed from the site. Any area disturbed by the bmp removal shall be immediately stabilized. Once the site is completed, submit a Notice of Termination and set of draft as-built drawings to the Lehigh County Conservation District to close out the NPDES permit.

An area shall be considered to have achieved final stabilization when it has a minimum uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics sufficient to resist sliding and other movements.

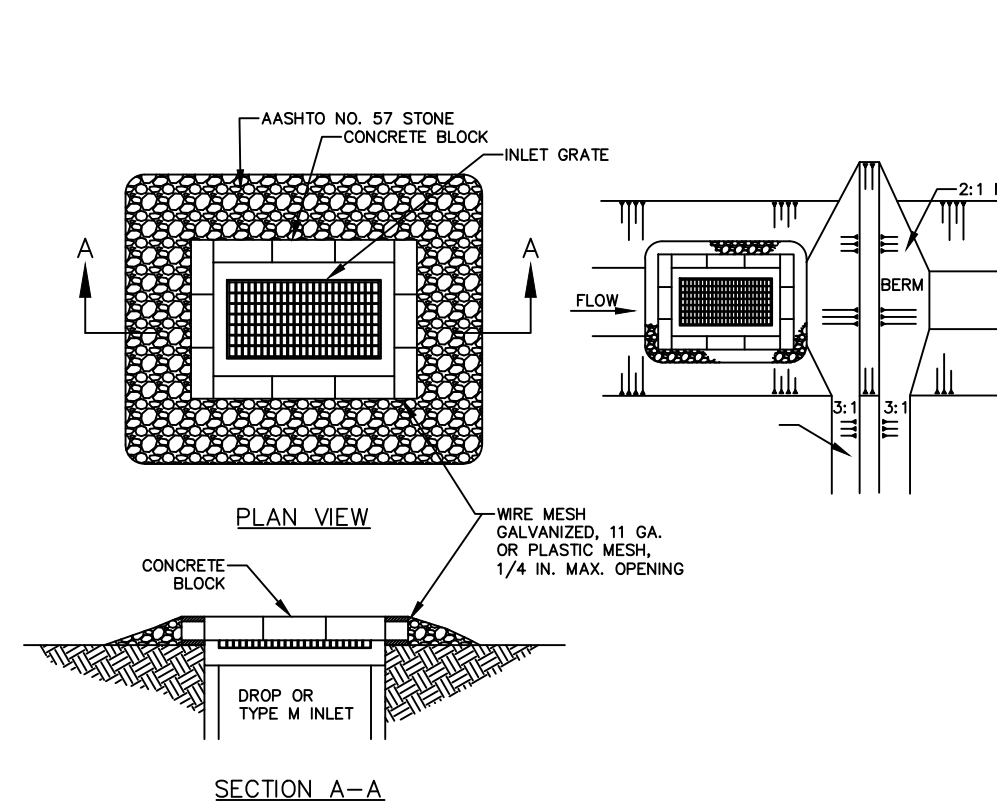


NOTES:

- 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

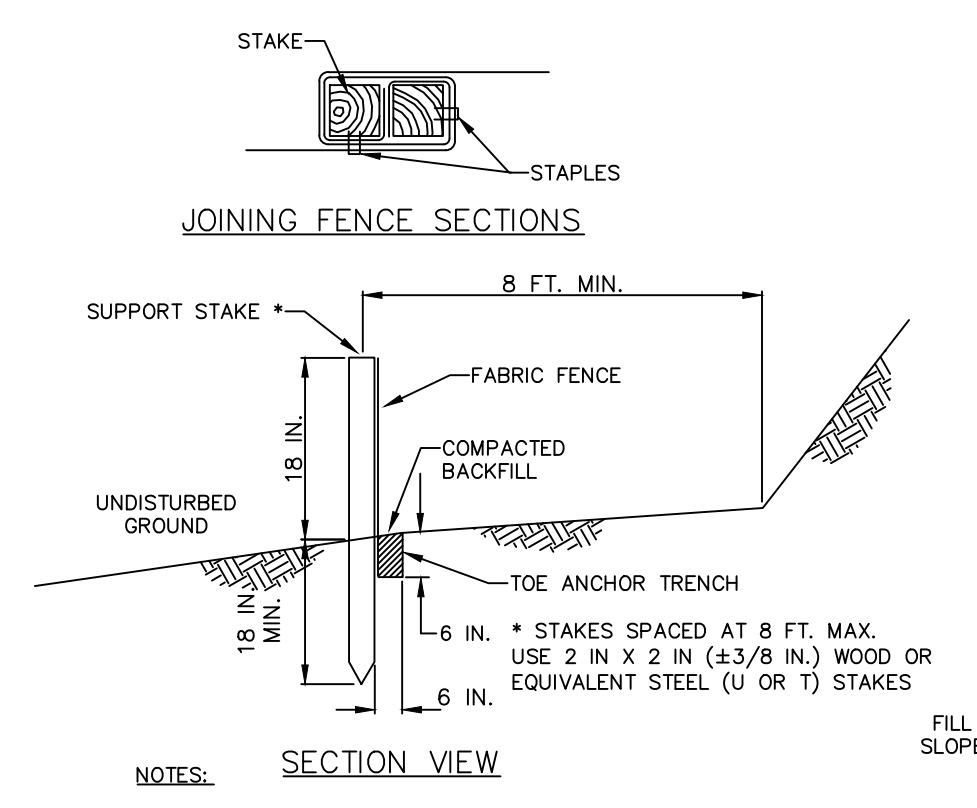


NOTES:

- 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 CHANNELS 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



NOTES:

- FABRIC SHALL HAVE THE MINIMUM PROPERTIES AS SHOWN IN TABLE 4.3 OF THE PA DEP EROSION CONTROL MANUAL.
- FABRIC WIDTH SHALL BE 30 IN. MINIMUM. STAKES SHALL BE HARDWOOD OR EQUIVALENT STEEL (U OR T) STAKES.
- SILT FENCE SHALL BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE FENCE SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.
- SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH HALF THE ABOVE GROUND HEIGHT OF THE FENCE.
- ANY SECTION OF SILT FENCE WHICH HAS BEEN UNDERMINED OR TOPPED SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET (STANDARD CONSTRUCTION DETAIL # 4-6).
- FENCE SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN TRIBUTARY AREA IS PERMANENTLY STABILIZED.

**STANDARD CONSTRUCTION DETAIL #4-7
STANDARD SILT FENCE (18" HIGH)**

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

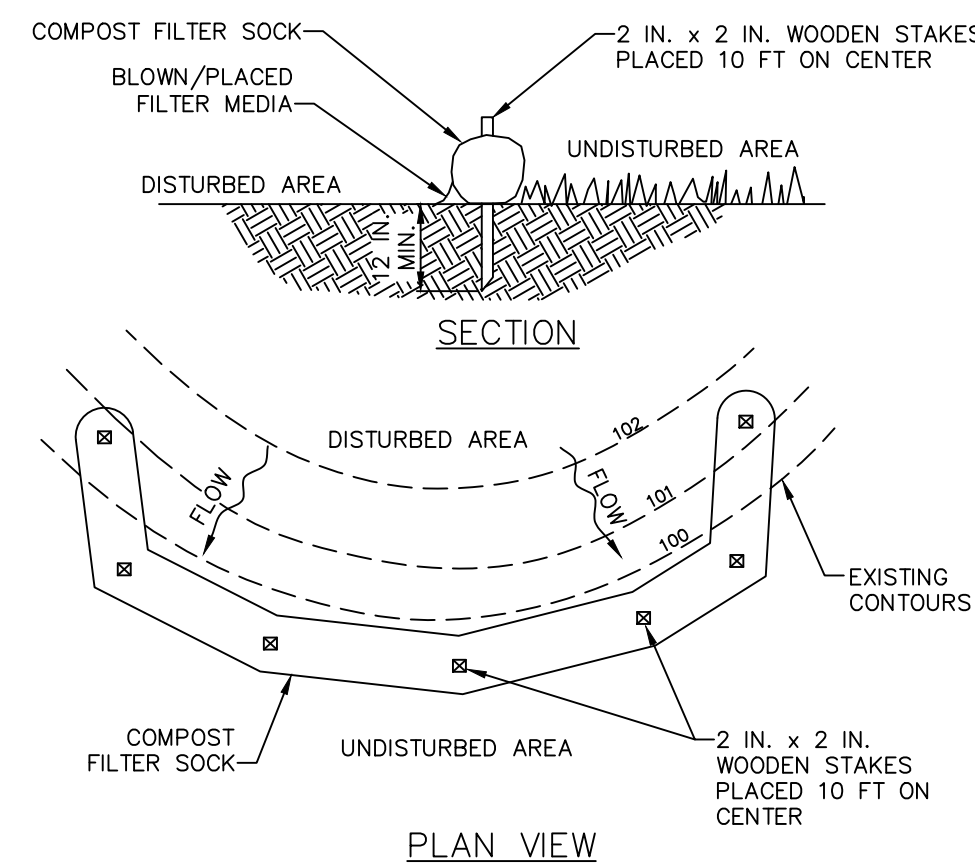
ELEMENT	COMPOST TREATMENT		CONVENTIONAL TREATMENTS		
	BIOSOLIDS	YARDWASTE	BIOINDUSTRIAL COMPOST	COMPACTED SUBSOIL	TOPSOIL
GEOMETRIC MEAN (mg)					
CHROMIUM	0.01 b	<0.01 a	<0.01 b	0.92 c	0.76 c
COPPER	0.02 b	<0.01 a	0.01 b	1.03 c	0.66 c
NICKEL	<0.01 b	<0.01 a	<0.01 b	0.96 c	0.67 c
LEAD	0.01 b	<0.01 a	<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)

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:

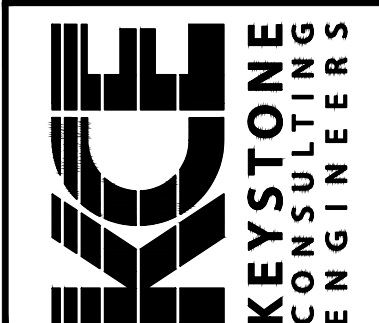
- SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.
- COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE 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.
- COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
- BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

**STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK**

NOT TO SCALE

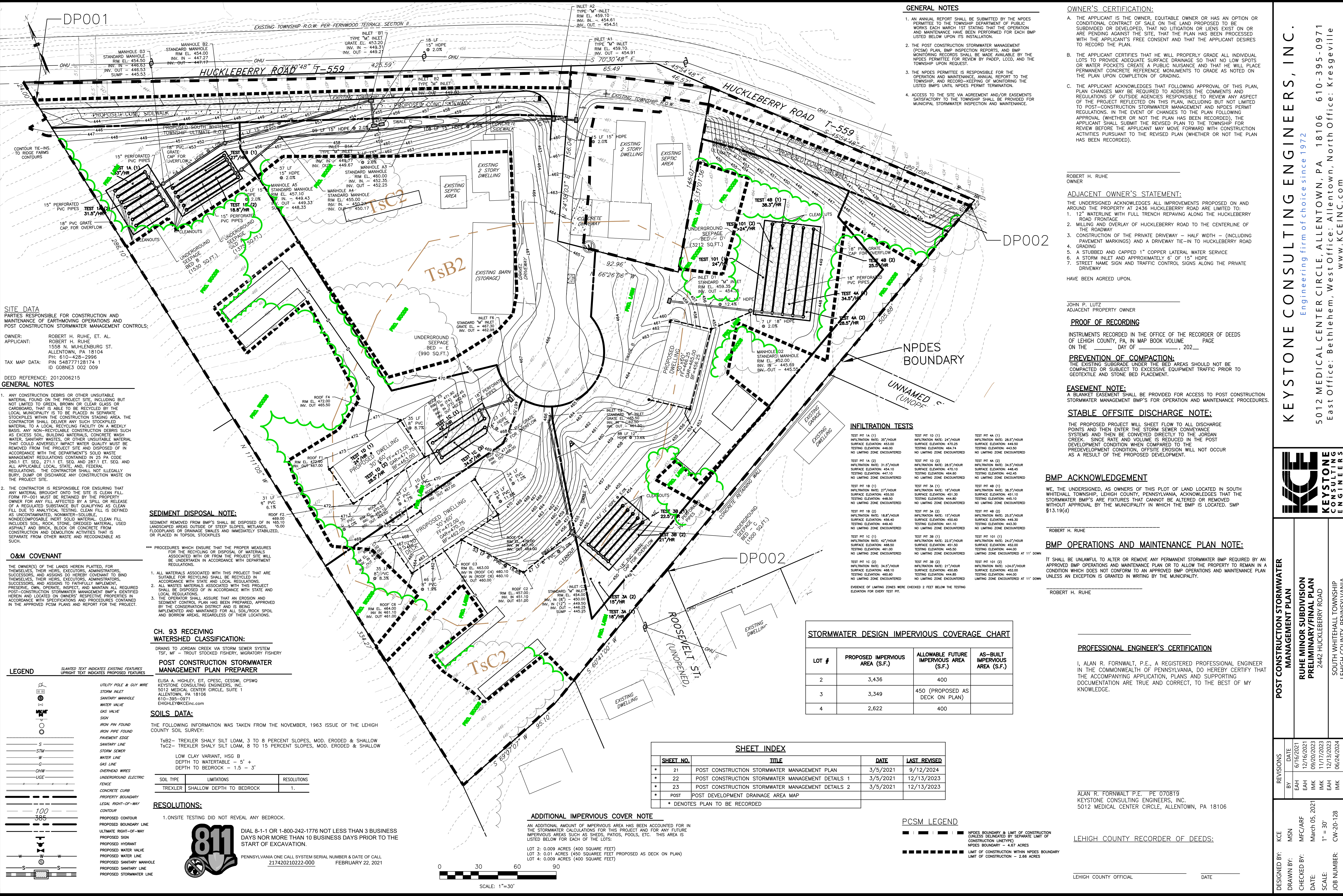
SOCK NO.	Dia. In.	LOCATION	SLOPE PERCENT	SLOPE LENGTH ABOVE BARRIER (FT)
CFS 1	24"	Lot 4	7.2%	313'
CFS 2	32"	Lot 4	50%	178'
CFS 3	12"	Lot 4	7.6%	224'
CFS 4	12"	Lot 4	9.2%	206'
CFS 5	8"	Lot 4	9.6%	167'
CFS 6	24"	Lot 3	7.2%	340'
CFS 7	8"	Lot 3	8.6%	134'
CFS 8	18"	Lot 2	50%	10'
CFS 9	5"	Lot 2	2.4%	106'
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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EROSION AND SEDIMENTATION DETAILS 2
RUHE MINOR SUBDIVISION
PRELIMINARY/FINAL PLAN
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY:	KCE	DATE	REVISIONS	
			BY	DATE
DRAWN BY:	MSN	06/16/2021	EAH	12/16/2021
CHECKED BY:	MFC/ARF	12/16/2021	IMK	09/20/2023
DATE:	March 05, 2021		IMK	11/17/2023
SCALE:	AS SHOWN		EAH	12/13/2023
JOB NUMBER:	CW-20-128			
SHEET:	20 OF 23			



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 HAS 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, LCOCD, AND THE TOWNSHIP UPON REQUEST.
3. THE NPDES PERMITTEE IS RESPONSIBLE FOR THE OPERATION, 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 CERTIFICATION:

- A. THE APPLICANT IS THE OWNER, EQUITABLE OWNER OR HAS AN OPTION OR CONDITIONAL CONTRACT OF SALE ON THE LAND PROPOSED TO BE SUBDIVIDED OR DEVELOPED, THAT NO LITIGATION OR LIENS EXIST ON OR ARE PENDING AGAINST THE SITE, THAT THE PLAN HAS BEEN PROCESSED WITH THE APPLICANT'S FREE CONSENT AND THAT THE APPLICANT DESIRES TO RECORD THE PLAN.
- B. THE APPLICANT CERTIFIES THAT HE WILL PROPERLY GRADE ALL INDIVIDUAL LOTS TO PROVIDE ADEQUATE SURFACE DRAINAGE SO THAT NO LOW SPOTS OR WATER POCKETS CREATE A PUBLIC NUISANCE AND THAT HE WILL PLACE PERMANENT CONCRETE REFERENCE MONUMENTS TO GRADE AS NOTED ON THE PLAN UPON COMPLETION OF GRADING.
- C. 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).

ROBERT 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 1" WATERLINE WITH FULL TRENCH REPAIRS ALONG THE HUCKLEBERRY ROAD FRONTAGE
 2. MILLING AND OVERLAY OF HUCKLEBERRY ROAD TO THE CENTERLINE OF THE ROADWAY
 3. CONSTRUCTION OF THE PRIVATE DRIVEWAY - HALF WIDTH - (INCLUDING PAVEMENT MARKINGS) AND A DRIVEWAY TIE-IN TO HUCKLEBERRY ROAD
 4. GRADING
 5. A STUBBED AND CAPPED 1" COPPER LATERAL WATER SERVICE
 6. A STORM INLET AND APPROXIMATELY 6' OF 15" HDPE
 7. STREET NAME SIGN AND TRAFFIC CONTROL SIGNS ALONG THE PRIVATE DRIVEWAY

HAVE BEEN AGREED UPON.

JOHN P. LUTZ
ADJACENT PROPERTY OWNER

PROOF OF RECORDING

INSTRUMENTS RECORDED IN THE OFFICE OF THE RECORDER OF DEEDS OF LEHIGH COUNTY, PA, IN MAP BOOK VOLUME PAGE
 ON THE DAY OF 202

PREVENTION OF COMPACTON:

THE EXISTING SUBGRADE UNDER THE BED AREAS SHOULD NOT BE COMPACTED OR SUBJECT TO EXCESSIVE EQUIPMENT TRAFFIC PRIOR TO GEOTEXTILE AND STONE BED PLACEMENT.

EASEMENT NOTE:

A BLANKET EASEMENT SHALL BE PROVIDED FOR ACCESS TO POST CONSTRUCTION STORMWATER MANAGEMENT BMP'S FOR OPERATION AND MAINTENANCE PROCEDURES.

STABLE OFFSITE DISCHARGE NOTE:

THE PROPOSED PROJECT WILL SHEET FLOW TO ALL DISCHARGE POINTS AND THEN ENTER THE STORM SEWER CONVEYANCE SYSTEMS AND THEN BE CONVEYED DIRECTLY TO THE JORDAN CREEK. FLOW RATE AND VOLUME IS REDUCED IN THE POST DEVELOPMENT CONDITION WHEN COMPARED TO THE PREDEVELOPMENT CONDITION. OFFSITE EROSION WILL NOT OCCUR AS A RESULT OF THE PROPOSED DEVELOPMENT.

BMP ACKNOWLEDGEMENT

WE, THE UNDERSIGNED, AS OWNERS OF THIS PLOT OF LAND LOCATED IN SOUTH WHITEHALL TOWNSHIP, LEHIGH COUNTY, PENNSYLVANIA, ACKNOWLEDGES THAT THE STORMWATER BMP'S ARE FIXTURES THAT CANNOT BE ALTERED OR REMOVED WITHOUT APPROVAL BY THE MUNICIPALITY IN WHICH THE BMP IS LOCATED. SMP 813.19(d)

ROBERT H. RUHE

BMP OPERATIONS AND MAINTENANCE PLAN NOTE:

IT SHALL BE UNLAWFUL TO ALTER OR REMOVE ANY PERMANENT STORMWATER BMP REQUIRED BY AN APPROVED BMP OPERATIONS AND MAINTENANCE PLAN OR TO ALLOW THE PROPERTY TO REMAIN IN A CONDITION WHICH DOES NOT CONFORM TO AN APPROVED BMP OPERATIONS AND MAINTENANCE PLAN UNLESS AN EXCEPTION IS GRANTED IN WRITING BY THE MUNICIPALITY.

ROBERT H. RUHE

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

DP001

DP002

DP002

SITE DATA
 PARTIES RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EARTHMOVING OPERATIONS AND POST CONSTRUCTION STORMWATER MANAGEMENT CONTROLS:
 OWNER: ROBERT H. RUHE, ET AL.
 APPLICANT: ROBERT H. RUHE
 1558 N. MUEHLNBURG ST.
 ALLENTOWN, PA 18104
 PH: 610-428-2996
 TAX MAP DATA: PIN 54877128174 1
 ID G08NE3 002 009

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 290.1 ET. SEQ. AND 27.1 ET. SEQ. 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. ALL FORM FP-701 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED MATERIAL. BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING. CLEAN FILL IS DEFINED AS UNCONTAMINATED, NONHARZARDOUS, NONCOMPOSTABLE, 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 CHANNELS 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 HERIN 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.

CH. 93 RECEIVING WATERSHED CLASSIFICATION:

DRAINS TO JORDAN CREEK VIA STORM SEWER SYSTEM
 TSF, MF - TROUT STOCKED FISHERY, MIGRATORY FISHERY

LEGEND

- UTILITY POLE & GUY WIRE
- STORM INLET
- SANITARY MANHOLE
- WATER VALVE
- 45° 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

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN PREPARER

ELISA A. HIGLEY, EIT, CPESC, CESSMI, CPSPW
 KEYSTONE CONSULTING ENGINEERS, INC.
 5012 MEDICAL CENTER CIRCLE, SUITE 1
 ALLENTOWN, PA 18106
 610-395-0971
 EHIGLEY@KCEINC.COM

SOILS DATA:

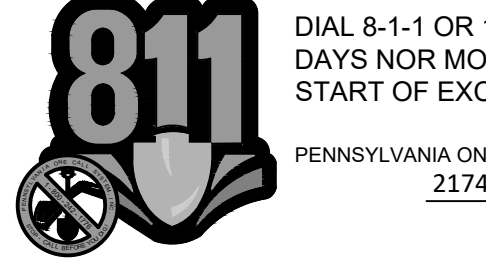
THE FOLLOWING INFORMATION WAS TAKEN FROM THE NOVEMBER, 1963 ISSUE OF THE LEHIGH COUNTY SOIL SURVEY:

T802 - TREXLER SHALY SILT LOAM, 3 TO 8 PERCENT SLOPES, MOD. ERODED & SHALLOW
 TSC2 - TREXLER SHALY SILT LOAM, 8 TO 15 PERCENT SLOPES, MOD. ERODED & SHALLOW

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

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: 0.009 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)

STORMWATER DESIGN IMPERVIOUS COVERAGE CHART

LOT #	PROPOSED IMPERVIOUS AREA (S.F.)	ALLOWABLE FUTURE IMPERVIOUS AREA (S.F.)	AS-BUILT IMPERVIOUS AREA (S.F.)
2	3,436	400	
3	3,349	450 (PROPOSED AS DECK ON PLAN)	
4	2,622	400	

SHEET INDEX

SHEET NO.	TITLE	DATE	LAST REVISED
21	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	3/5/2021	9/12/2024
22	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS 1	3/5/2021	12/13/2023
23	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS 2	3/5/2021	12/13/2023
POST	POST DEVELOPMENT DRAINAGE AREA MAP		

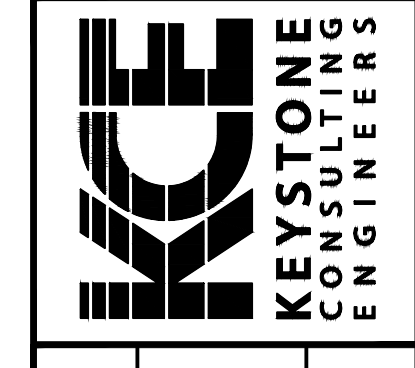
PCSM LEGEND

- NPDES BOUNDARY & LIMIT OF CONSTRUCTION (UNLESS DELINEATED BY SEPARATE LIMIT OF CONSTRUCTION LINE)
- NPDES BOUNDARY - 4.67 ACRES
- LIMIT OF CONSTRUCTION WITHIN NPDES BOUNDARY LIMIT OF CONSTRUCTION - 2.86 ACRES



SCALE: 1"=30'

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

DESIGNED BY:	DATE
KCE	6/16/2021
DRAWN BY:	DATE
MSN	12/16/2021
CHECKED BY:	DATE
MFC/ARF	09/20/2023
SCALE:	DATE
March 05, 2021	11/17/2023
JOB NUMBER:	DATE
1" = 30'	06/24/2024
SHEET:	DATE
CW-20-128	09/12/2024
21 OF 23	

PCSM STANDARD NOTES

PERMIT TERMINATION

UPON PERMANENT STABILIZATION OF EARTH DISTURBANCE ACTIVITIES UNDER § 102.22(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 BMP'S IN ACCORDANCE WITH §102.8(M) AND
- PROOF OF COMPLIANCE WITH §102.8(M)(2).

PCSM REQUIREMENTS

1. **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.

2. **LICENSED PROFESSIONAL OVERSIGHT OF CRITICAL STAGES.** A LICENSED PROFESSIONAL OR A DESIGNEE SHALL BE PRESENT ONSITE 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.

3. **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. §4904 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.

PCSM LONG-TERM O&M REQUIREMENTS

1. UNTIL THE PERMITTEE OR CO-PERMITTEE HAS RECEIVED WRITTEN APPROVAL OF A NOTICE OF TERMINATION, THE PERMITTEE OR CO-PERMITTEE WILL REMAIN RESPONSIBLE FOR COMPLIANCE WITH THE PERMIT TERMS AND CONDITIONS INCLUDING LONG-TERM OPERATION AND MAINTENANCE OF ALL PCSM BMPs ON THE PROJECT SITE AND IS RESPONSIBLE FOR VIOLATIONS OCCURRING ON THE PROJECT SITE. THE DEPARTMENT OR CONSERVATION DISTRICT WILL CONDUCT A FINAL INSPECTION AND APPROVE OR DENY THE NOTICE OF TERMINATION WITHIN 30 DAYS.

2. THE PERMITTEE OR CO-PERMITTEE SHALL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPs UNLESS A DIFFERENT PERSON IS IDENTIFIED IN THE NOTICE OF TERMINATION AND HAS AGREED TO LONG-TERM OPERATION AND MAINTENANCE OF PCSM BMPs.

3. FOR ANY PROPERTY CONTAINING A PCSM BMP, THE PERMITTEE OR CO-PERMITTEE SHALL RECORD AN INSTRUMENT WITH THE RECORDER OF DEEDS WHICH WILL ASSURE DISCLOSURE OF THE PCSM BMP AND THE RELATED OBLIGATIONS IN THE ORDINARY COURSE OF A TITLE SEARCH OF THE SUBJECT PROPERTY. THE RECORDED INSTRUMENT MUST IDENTIFY THE PCSM BMP, PROVIDE FOR NECESSARY ACCESS RELATED TO LONG-TERM OPERATION AND MAINTENANCE FOR PCSM BMPs AND PROVIDE NOTICE THAT THE RESPONSIBILITY FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP IS A COVENANT THAT RUNS WITH THE LAND THAT IS BINDING UPON AND ENFORCEABLE BY SUBSEQUENT GRANTEEES, AND PROVIDE PROOF OF FILING WITH THE NOTICE OF TERMINATION UNDER §102.7(B)(5) (RELATING TO PERMIT TERMINATION

4. THE PERSON RESPONSIBLE FOR PERFORMING LONG-TERM OPERATION AND MAINTENANCE MAY ENTER INTO AN AGREEMENT WITH OTHER PERSON INCLUDING A CONSERVATION DISTRICT, NONPROFIT ORGANIZATION, MUNICIPALITY, AUTHORITY, PRIVATE CORPORATION OR OTHER PERSON, TO TRANSFER THE RESPONSIBILITY FOR PCSM BMPs OR TO PERFORM LONG-TERM OPERATION AND MAINTENANCE AND PROVIDE NOTICE THEREOF TO THE DEPARTMENT.

5. A PERMITTEE OR CO-PERMITTEE THAT FAILS TO TRANSFER LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP OR OTHERWISE FAILS TO COMPLY WITH THIS REQUIREMENT SHALL REMAIN JOINTLY AND SEVERALLY RESPONSIBLE WITH THE LANDOWNER FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPs LOCATED ON THE PROPERTY.

BMP O&M PLAN

INLETS AND SUMPS

- INSPECT INLETS AND SUMPS AT LEAST ONCE 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 ONCE 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 BURN, DUMP OR DISCHARGE ANY WASTE ON THE PROJECT SITE.

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.

PERSONS RESPONSIBLE FOR SHORT TERM AND LONG TERM MAINTENANCE

ROBERT H. RUHE
1558 N. MULLENBURG ST.
ALLENTOWN, PA 18104
PH: 610-428-2996

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 BMP'S 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.

- ALL MATERIALS ASSOCIATED WITH THIS PROJECT THAT ARE SUITABLE FOR RECYCLING SHALL BE RECYCLED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
- ALL 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.

APPLICANT STATEMENT NOTE

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 OF THIS PLAN (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, BY SUBMITTING AN APPLICATION UNDER THE TOWNSHIP 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 IDENTIFY, 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.

CLEAN FILL NOTE & DUE DILIGENCE

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 THAT DOES NOT 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 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 AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF 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.

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

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- ALL WASTES MATERIALS ASSOCIATED WITH THIS PROJECT SHALL BE DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
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SEEDING AND SOIL SUPPLEMENTS

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

TEMPORARY SEED MIXTURES

SEED TYPE	% BY WEIGHT	PURITY	MAX. WEED SEED
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(PENNDOT FORMULA E)
ANNUAL RYEGRASS 100 98% 0.15%
APPLY SEED AT A RATE OF 50 LBS. PER ACRE.
APPLY STRAW MULCH (SEE MULCH APPLICATION RATES TABLE)
APPLY PULVERIZED AGRICULTURAL LIMESTONE AT A RATE OF 1 TONS/ACRE UNLESS TESTING HAS BEEN PERFORMED.
APPLY 10-10-10 FERTILIZER AT A RATE OF 500 LBS./ACRE UNLESS TESTING HAS BEEN PERFORMED.
SEEDING SEASON DATES: MARCH 15 TO OCTOBER 15

PERMANENT SEED MIXTURE

SEED TYPE	% BY WEIGHT	PURITY	MAX. WEED SEED
-----------	-------------	--------	----------------

(PENNDOT FORMULA B)
PERENNIAL RYEGRASS MIXTURE * (LOLIUM PERENNE) 20 98% 0.15%
CREEPING RED FESCUE 30 98% 0.15%
KENTUCKY BLUEGRASS MIXTURE ** (POA PRATENSIS) 50 98% 0.20%

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 680 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 IN ACCORDANCE WITH THE BELOW MULCH APPLICATION TABLE.

* A COMBINATION OF IMPROVED CERTIFIED VARIETIES WITH NO ONE VARIETY EXCEEDING 50% OF THE TOTAL RYEGRASS COMPONENT.
** A COMBINATION OF IMPROVED 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
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TALL FESCUE 70 98% 0.15%
(FESTUCA ARUNDINACEA VAR. KENTUCKY 21)
CREEPING RED FESCUE 30 98% 0.15%

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 680 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	APPLICATION RATE (MIN.)			NOTES
	PER ACRE	PER 1,000 SQ.FT.	PER 1,000 SQ. YD.	
STRAW	3 TONS	140 LB	1,240 LB	EITHER WHEAT OR OAT STRAW, FREE OF WEEDS, NOT CHOPPED OR FINELY BROKEN
HAY	3 TONS	140 LB	1,240 LB	TIMOTHY, MIXED CLOVER AND TIMOTHY OR OTHER NATIVE FORAGE GRASSES
WOOD CHIPS	4-6 TONS	185-275 LB.	1,650-2,500 LB.	MAY PREVENT GERMINATION OF GRASSES AND LEGUMES
HYDROMULCH	1 TON	47 LB.	415 LB.	IF UTILIZED ON SLOPES STEEPER THAN 5%, USE WOOD FIBER HYDROMULCH WITH A TACKIFIER

WASTE AND SEDIMENT DISPOSAL NOTE:

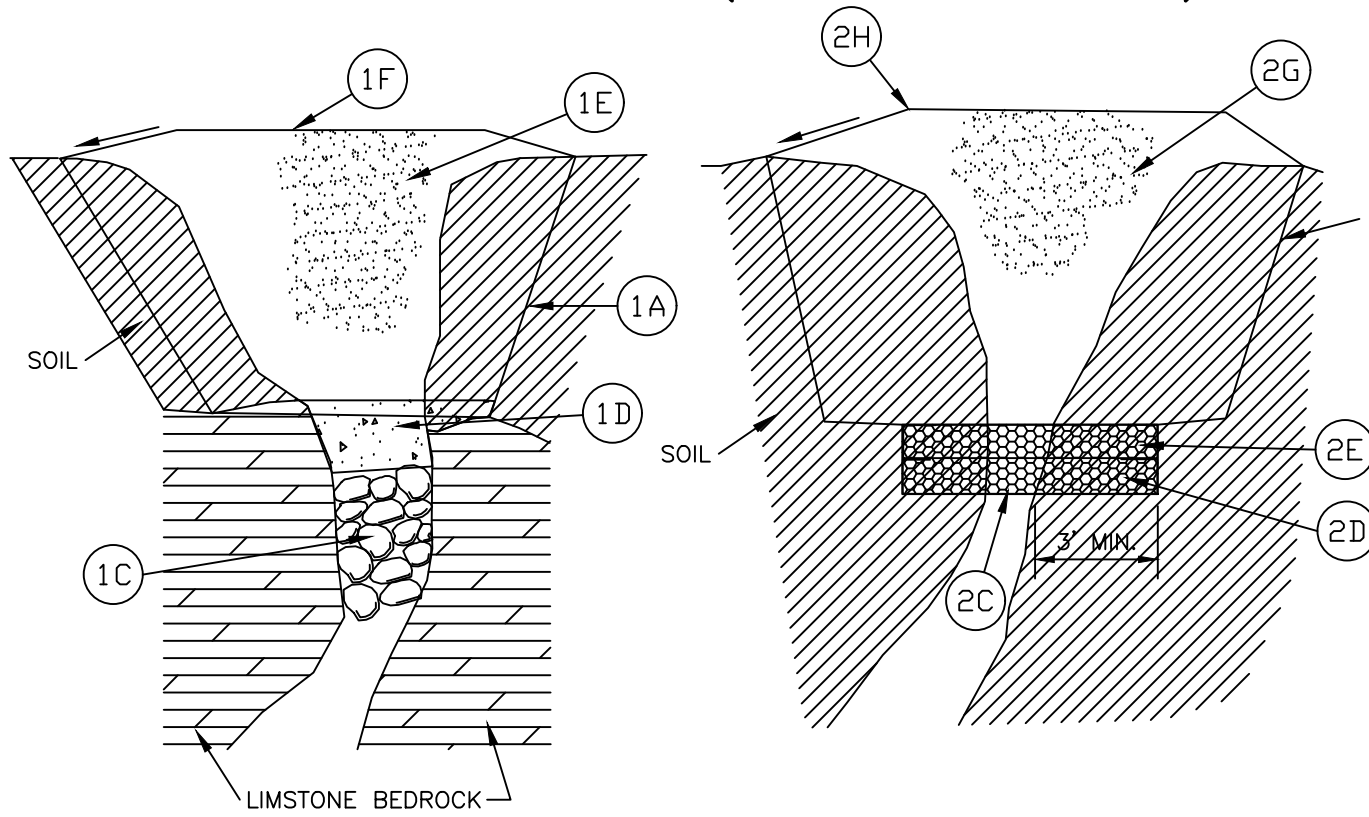
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POTENTIAL FOR GEOLOGIC FORMATIONS OR SOIL CONDITIONS NOTE:

THE SITE IS UNDERLAIN BY CARBONATE GEOLOGY AND PRESENTS THE POTENTIAL FOR SINKHOLE FORMATION. IN THE EVENT A SINKHOLE SHOULD FORM, A PROFESSIONAL GEOLOGIST OR PROFESSIONAL ENGINEER SHOULD BE CONTACTED AND THE FOLLOWING GENERAL GUIDELINES FOR SINKHOLE REPAIR SHOULD BE FOLLOWED.

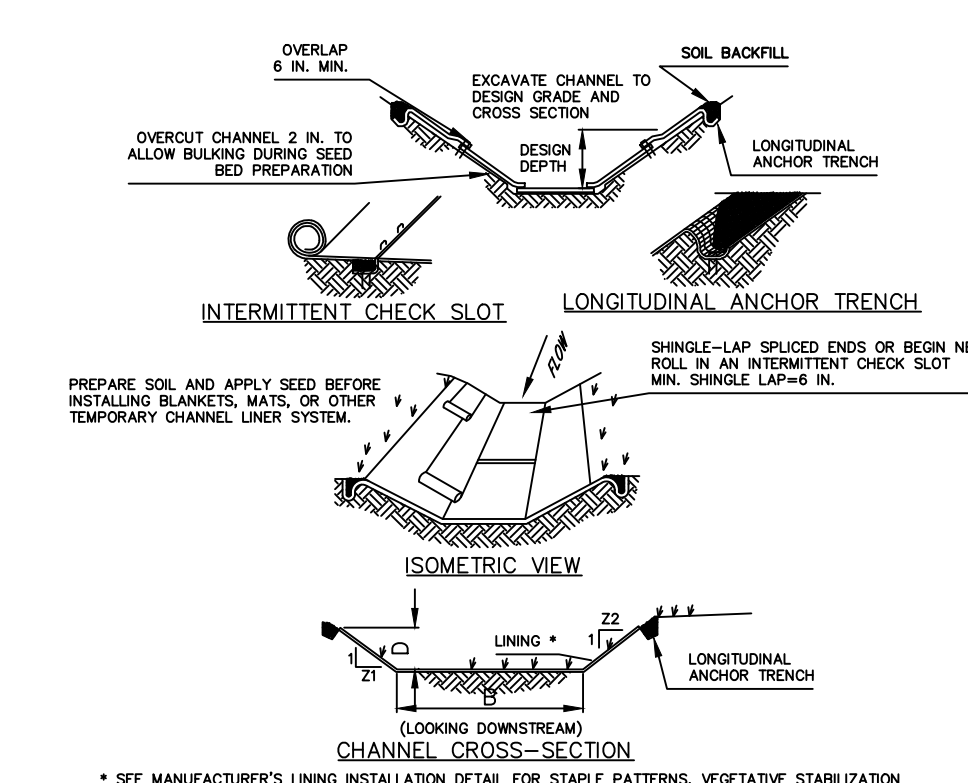
SINKHOLE REPAIR (IF ENCOUNTERED)



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 GEOTEKXILE 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	1	0.8	5.5	3	3	S75 STAPLE D
SWALE B	ALL	2	0.8	6.8	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 MORNING. 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.

KEYSTONE CONSULTING ENGINEERS, INC.
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KEYSTONE CONSULTING ENGINEERS

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

DESIGNED BY:	DATE:
KCE	06/16/2021

REVISIONS	BY:	DATE:
1	EAF	06/16/2021
2	MSN	12/16/2021
3	IMK	09/20/2023
4	IMK	11/17/2023
5	EAF	12/13/2023

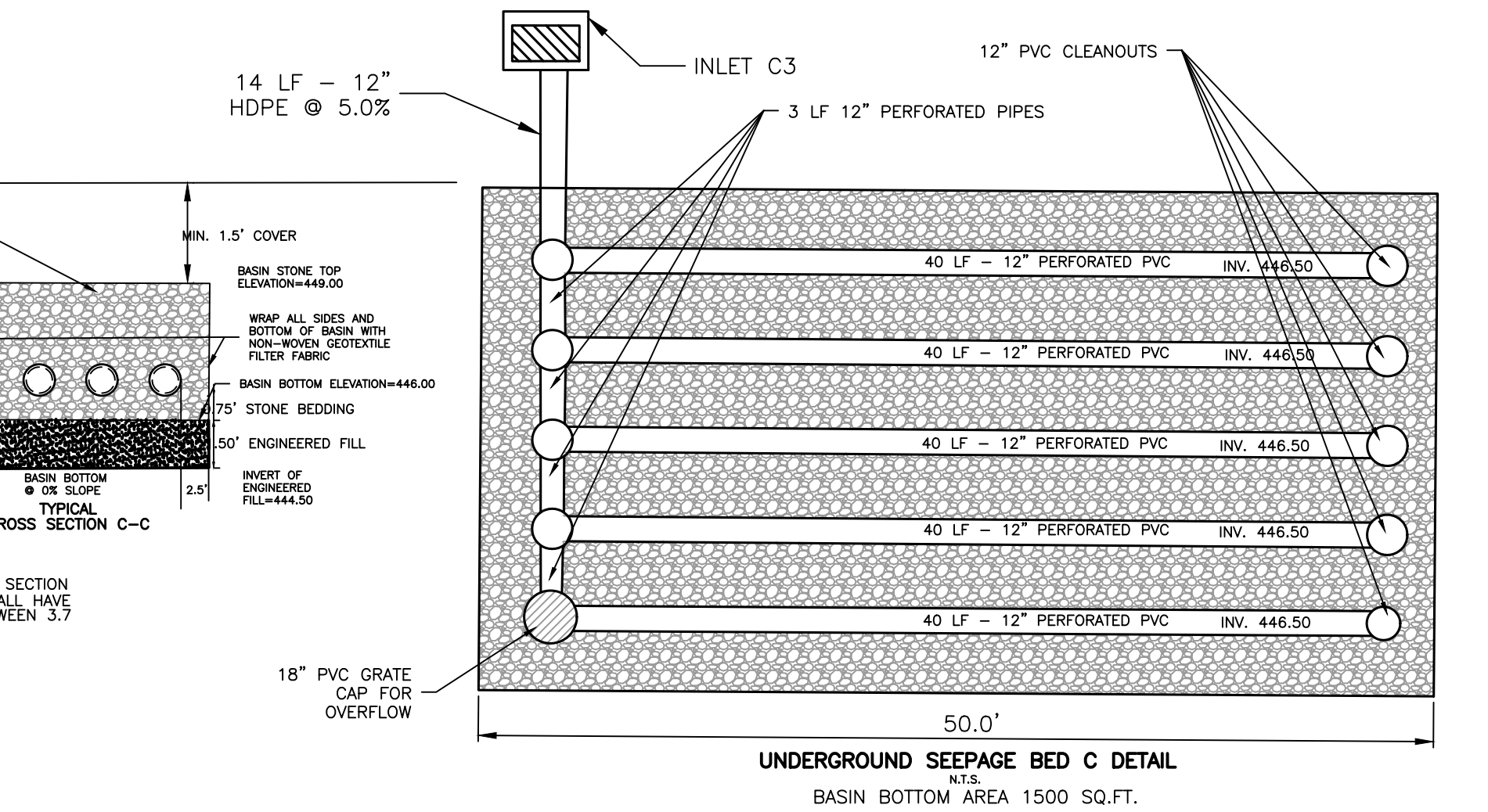
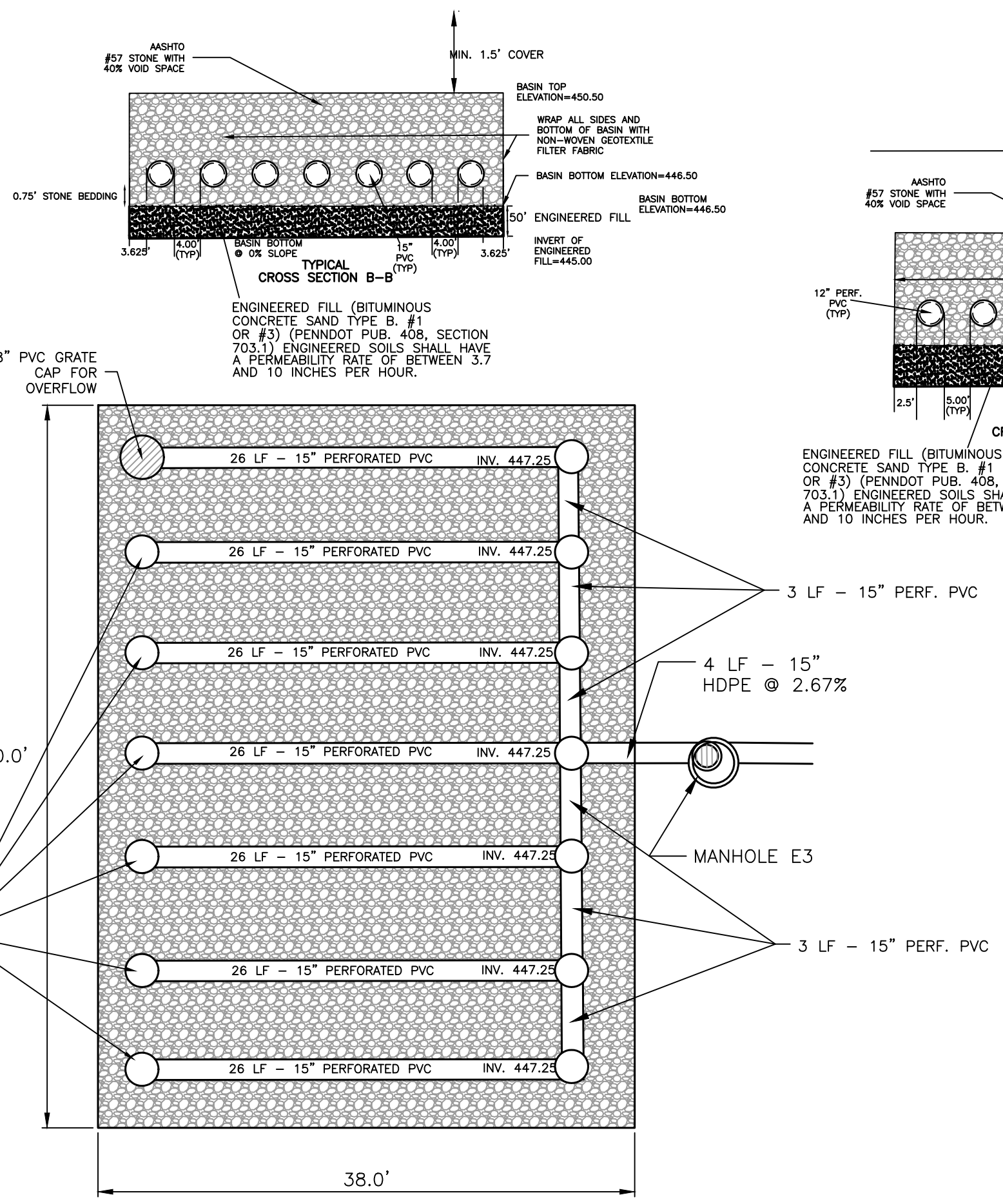
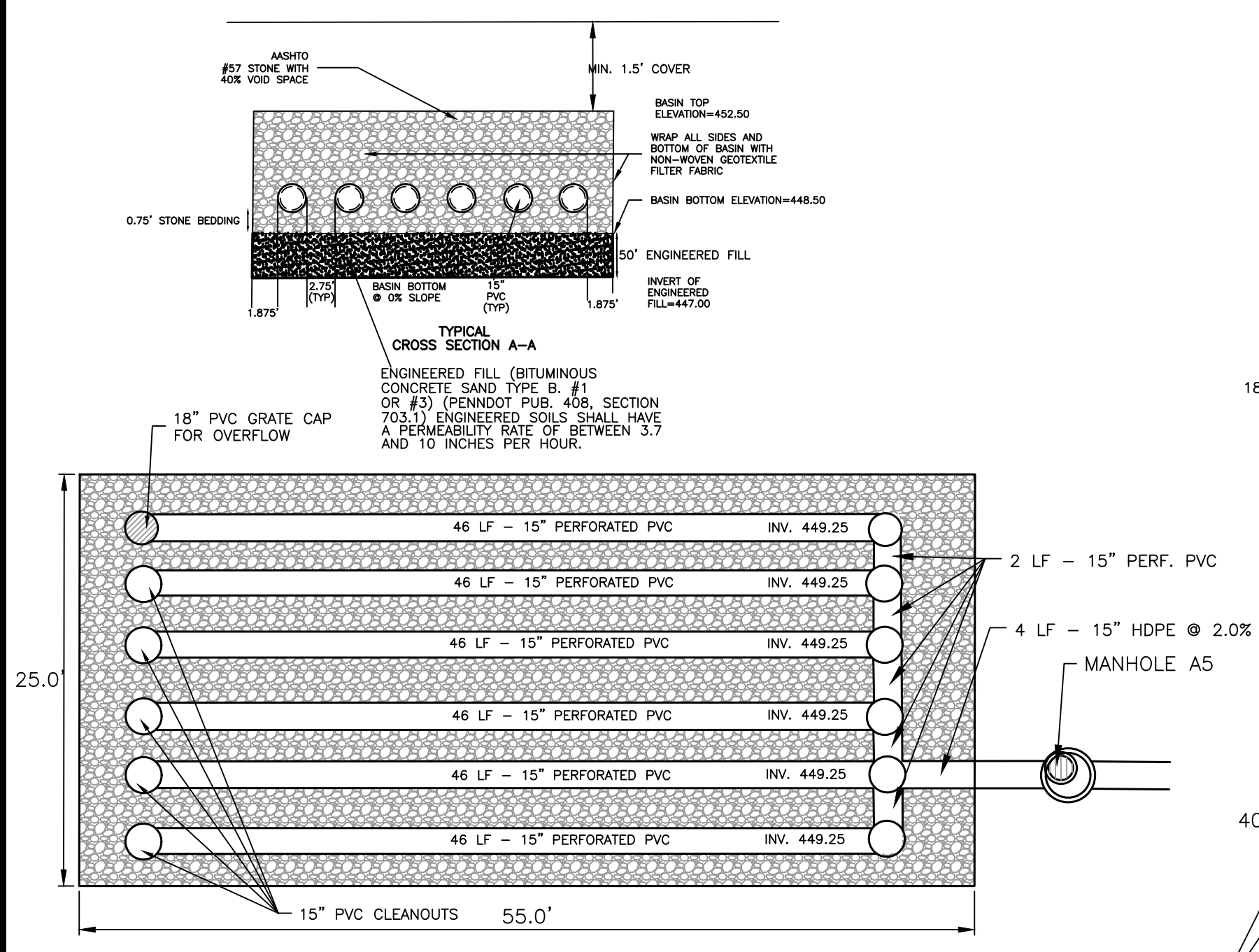
DESIGNED BY:	DATE:
KCE	05/05/2021

DRAWN BY:	DATE:
MSN	05/05/2021

CHECKED BY:	DATE:
MFC/ARF	05/05/2021

SCALE:	JOB NUMBER:
AS SHOWN	CW-201128

SHEET:	TOTAL SHEETS:
22 OF 23	23



SEEPAGE BED DETAIL		INTEGRATION		DISTRIBUTION		ENGINEERED		DISTRIBUTION		TEST ID		TEST ELE.	
BED ID	BED DIMENSIONS (SQ.FT.)	INTEGRATION BED DEPTH (FT)	STONE DEPTH (FT)	ENGINEERED FILL (FT)	PIPE SIZE (IN)	INTEGRATION BED BOTTOM ELE.	ENGINEERED FILL INV. ELE.	DISTRIBUTION PIPE INV. ELE.	TEST ID	TEST 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 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-D4491) 95 GAL/MIN/SF
 - D. UV RESISTANCE AFTER 500 HRS (ASTM D4355) 70
 - E. HEAT SET OR HEAT CALENDERED FABRICS ARE NOT PERMITTED. ACCEPTABLE TYPES INCLUDE MIRAF 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.

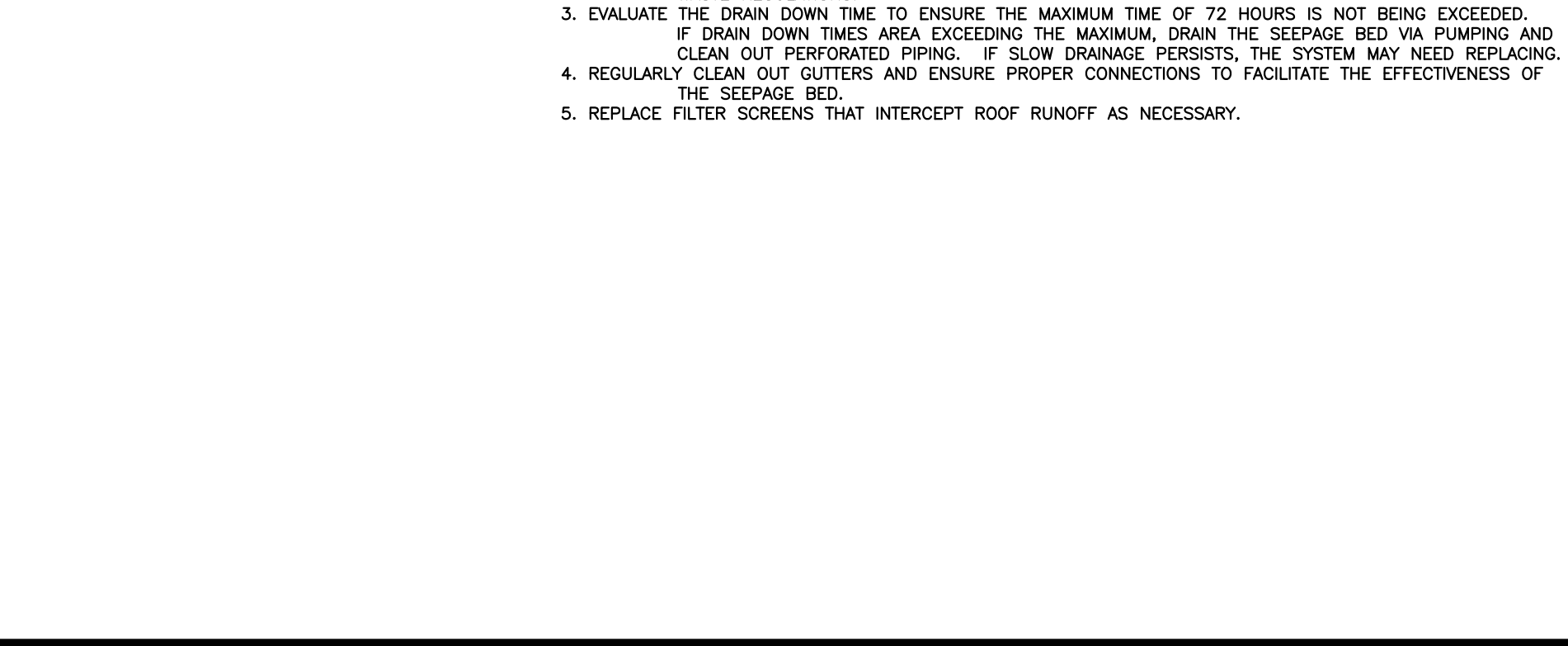
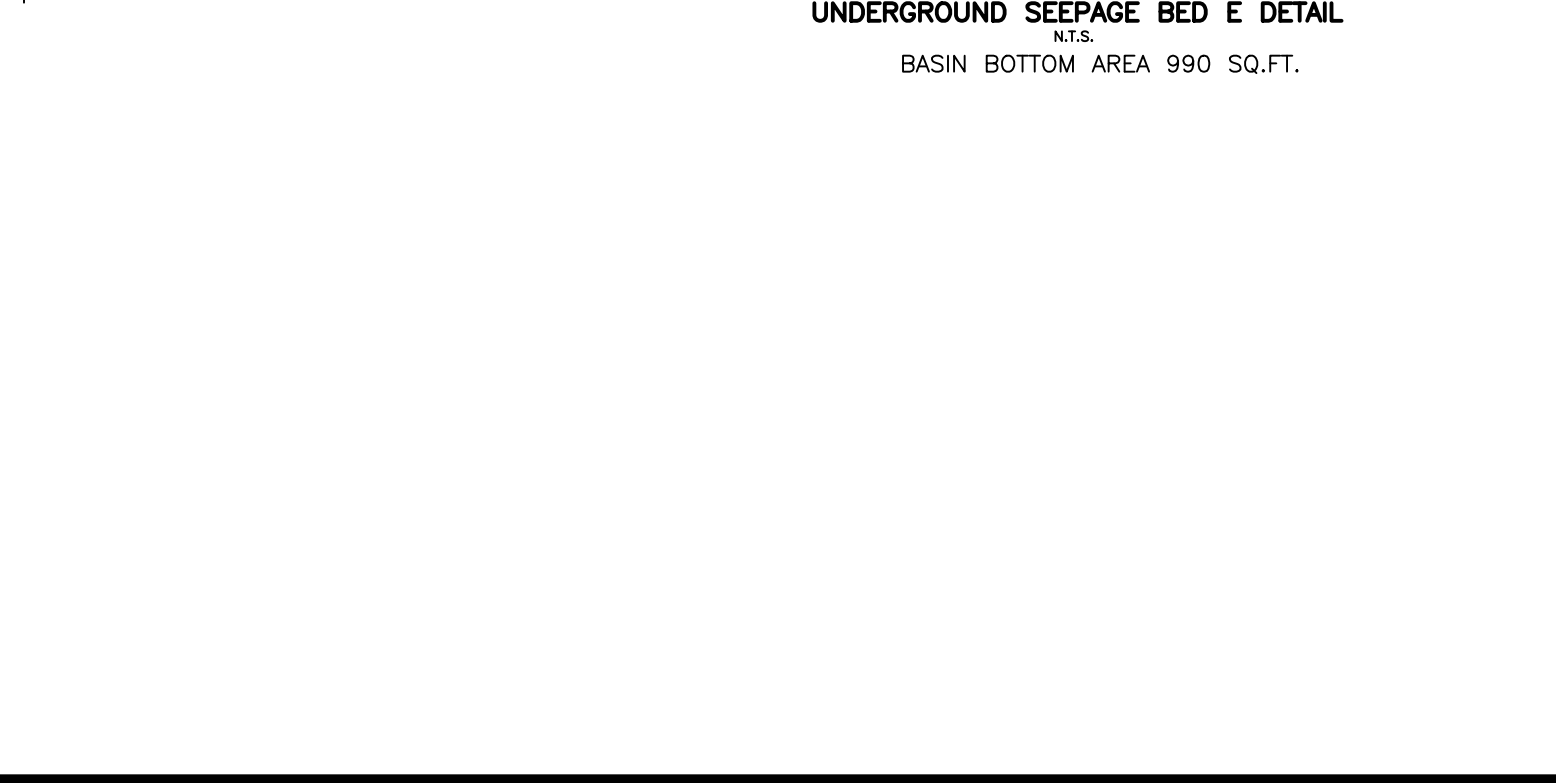
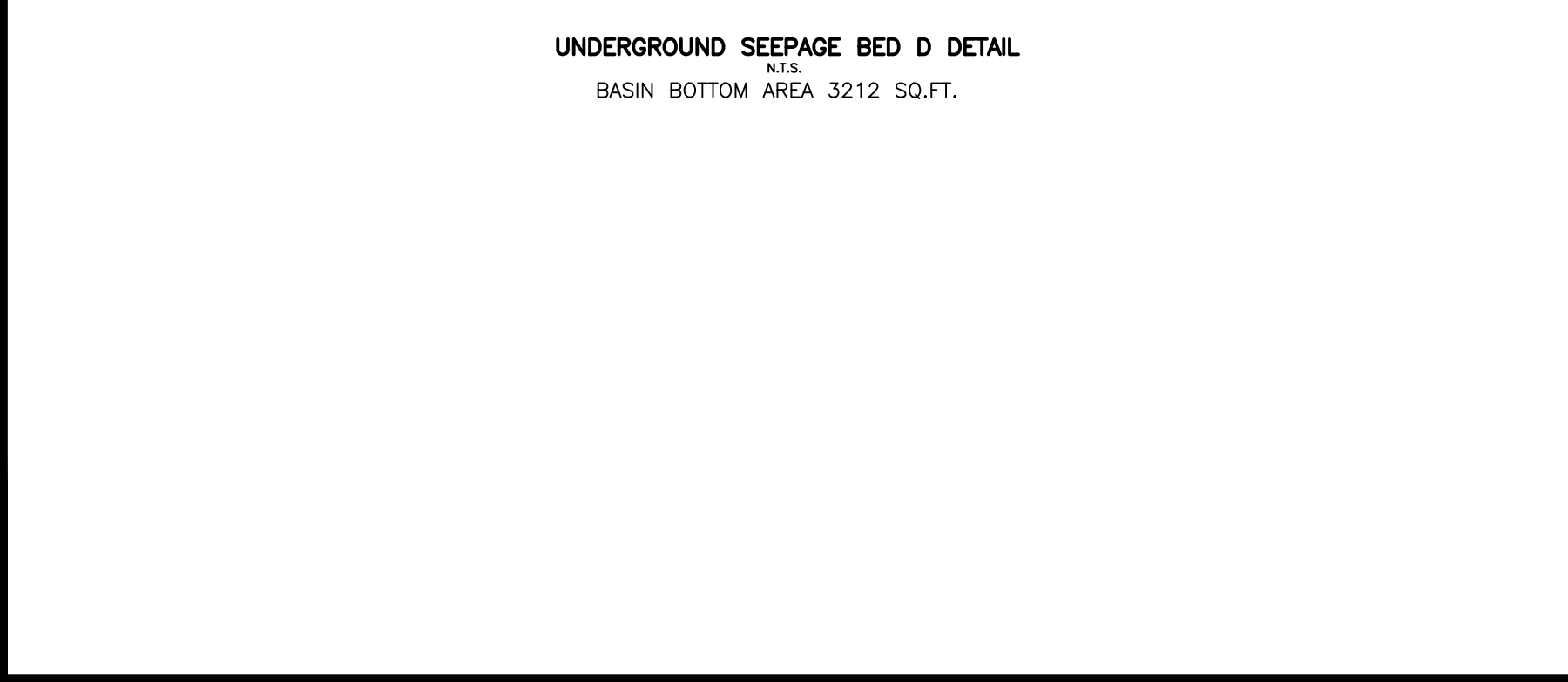
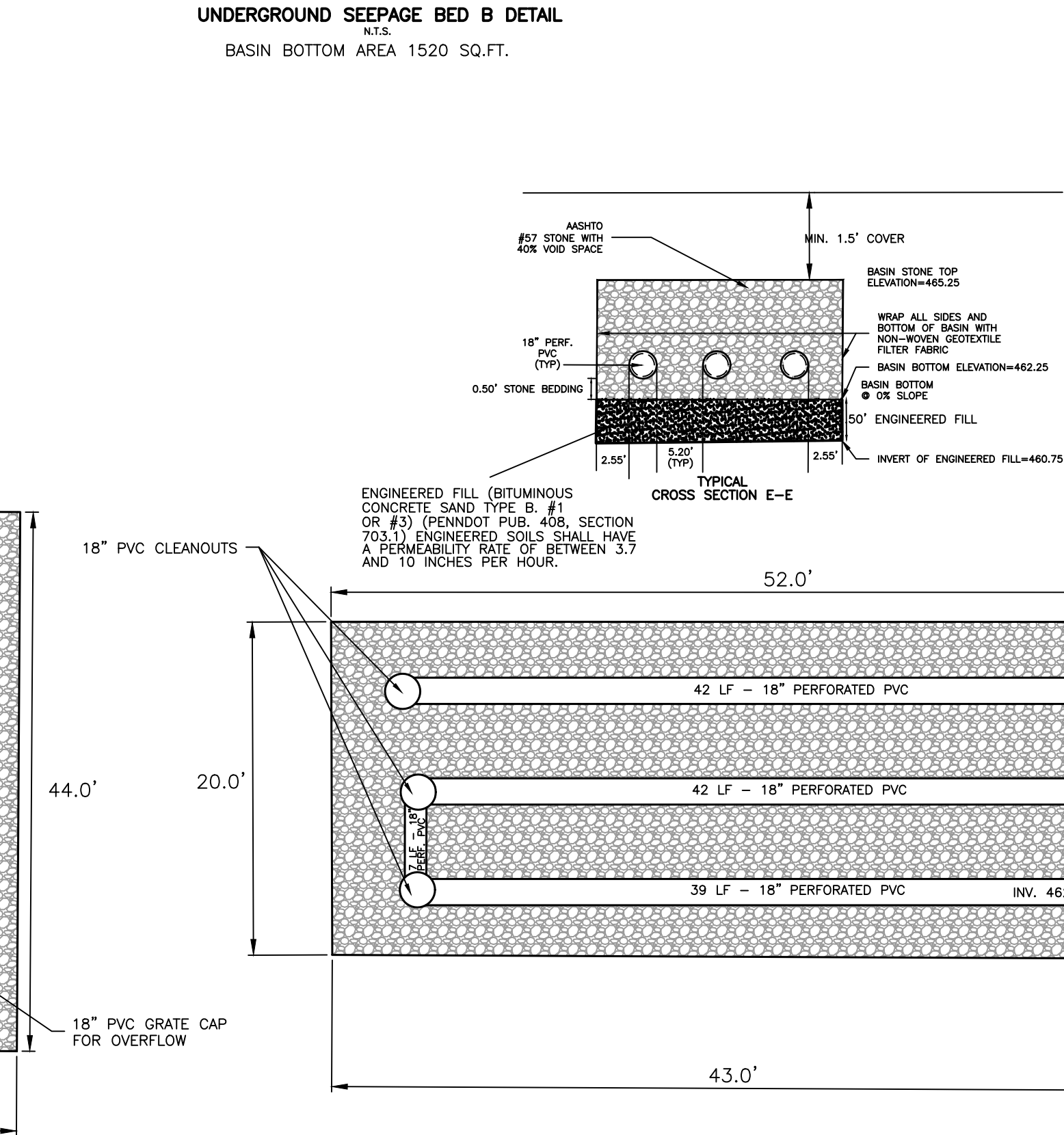
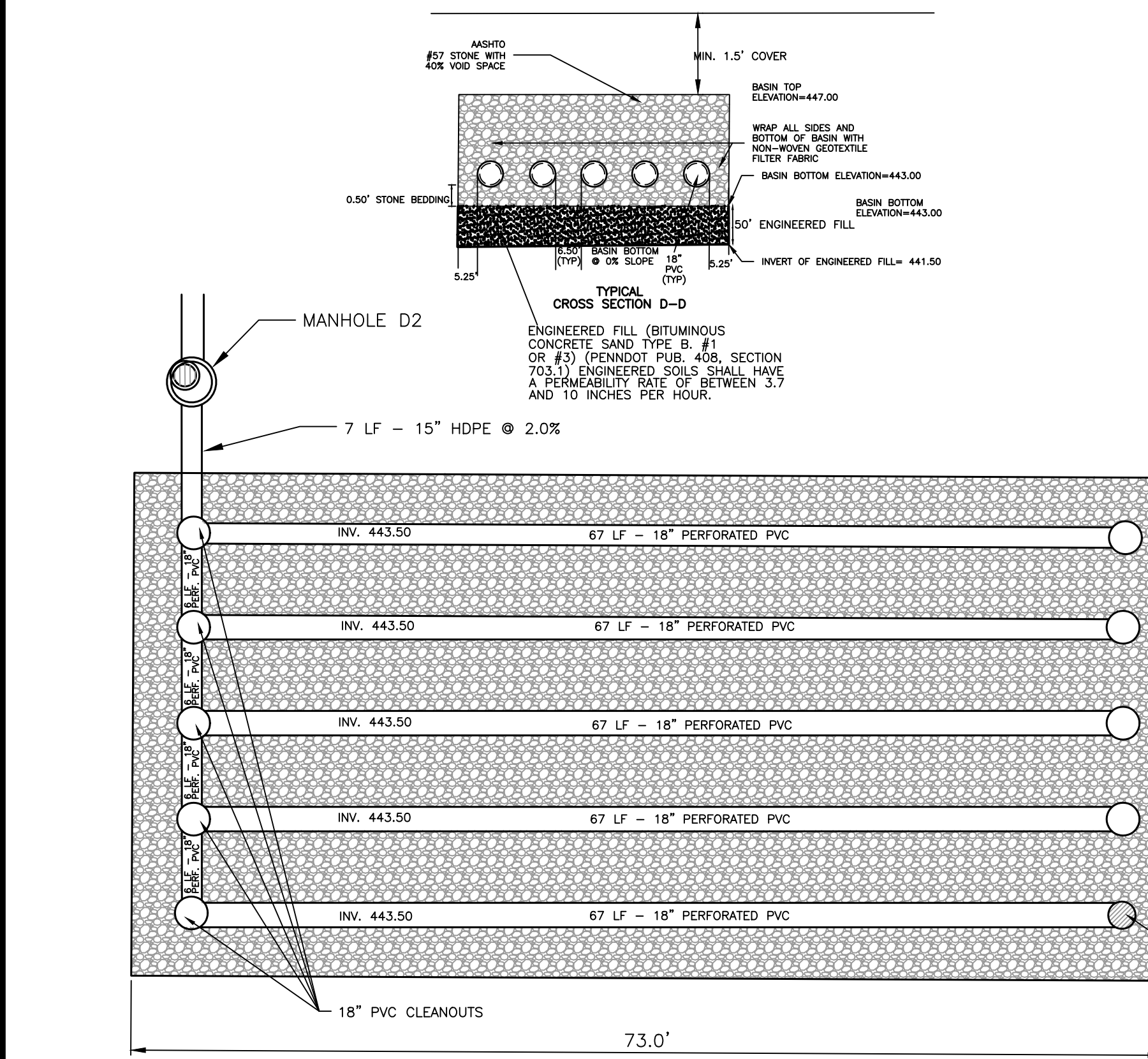
CONSTRUCTION SEQUENCE UNDERGROUND SEEPAGE BEDS

- 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 WORK RATE OR EQUIVALENT AND LIGHT TRACTOR.
- 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. WRAP ALL SIDES AND BOTTOM OF BASIN WITH GEOTEXTILE. ADVANCED 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.



POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS 2	
RUHE MINOR SUBDIVISION PRELIMINARY/FINAL PLAN	
2442 HUCKLEBERRY ROAD	
SOUTH WHITEHALL TOWNSHIP LEHIGH COUNTY, PENNSYLVANIA	
DESIGNED BY: KCE	DATE: 06/16/2021
DRAWN BY: MSN	DATE: 12/16/2021
CHECKED BY: MFC/ARF	DATE: 09/20/2023
DATE: March 05, 2021	DATE: 11/17/2023
SCALE: AS SHOWN	DATE: 12/13/2023
JOB NUMBER: CW-20-128	DATE: 23 OF 23
SHEET:	

STUDY POINT 1
(DP001)

AREA EXCLUDED FROM
CALCULATIONS

PREDEVELOPMENT AREA 2
ONSITE AREA = 0.62 AC.
OFFSITE AREA = 0.06 AC.
TOTAL AREA = 0.68 AC.

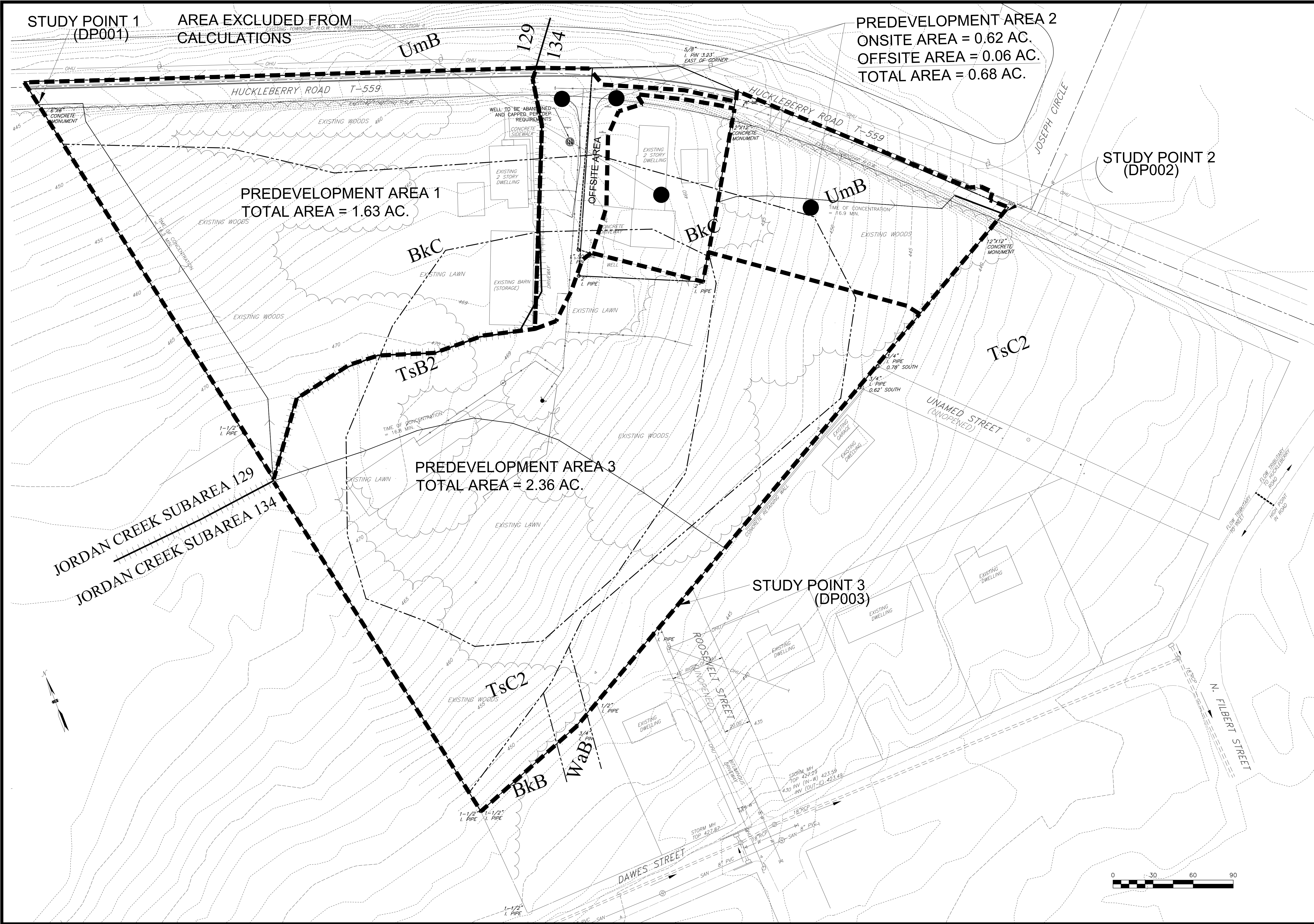
STUDY POINT 2
(DP002)

PREDEVELOPMENT AREA 1
TOTAL AREA = 1.63 AC.

PREDEVELOPMENT AREA 3
TOTAL AREA = 2.36 AC.

STUDY POINT 3
(DP003)

JORDAN CREEK SUBAREA 129
JORDAN CREEK SUBAREA 134

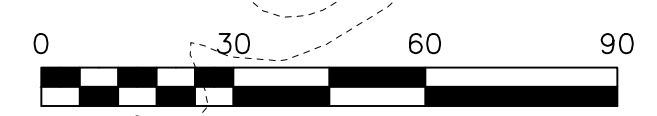


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 www.KeystoneConsultingEngineers.com



PREDEVELOPMENT DRAINAGE AREA PLAN
RUHE SUBDIVISION
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY:	REVISIONS:
KCE	BY DATE
MSN	6/16/2021
MFC/ARF	KCE
JAN. 16. 2020	KCE
SCALE: 1" = 30'	KCE
JOB NUMBER: CW-20-128	DATE: 12/8/2023
SHEET: 1	



**STUDY POINT 1
(DP001)**

UNDERGROUND SEEPAGE BED B
UNDERGROUND SEEPAGE BED A

POST DEVELOPMENT AREA 1 BYPASS
0.17 AC. IMPERVIOUS
0.49 AC. WOODS
0.67 AC. LAWN
TOTAL AREA = 1.33 AC.

UNDERGROUND SEEPAGE BED B DRAINAGE AREA
0.08 AC. IMPERVIOUS
0.17 AC. LAWN
TOTAL AREA = 0.25 ACRES

UNDERGROUND SEEPAGE BED A DRAINAGE AREA
0.11 AC. IMPERVIOUS
0.05 AC. LAWN
TOTAL AREA = 0.16 ACRES

UNDERGROUND SEEPAGE BED E DRAINAGE AREA
0.064 AC. IMPERVIOUS
0.136 AC. LAWN
TOTAL AREA = 0.20 ACRES

UNDERGROUND SEEPAGE BED C DRAINAGE AREA
0.10 AC. IMPERVIOUS
0.13 AC. LAWN
TOTAL AREA = 0.23 ACRES

POST DEVELOPMENT AREA 3 BYPASS
0.01 AC. FUTURE IMPERVIOUS (LOT 3)
0.35 AC. WOODS
0.95 AC. LAWN
TOTAL AREA = 1.31 AC.

POST DEVELOPMENT AREA 2 BYPASS
0.10 AC. IMPERVIOUS
0.11 AC. WOODS
0.35 AC. LAWN
TOTAL AREA = 0.56 AC.

**STUDY POINT 2
(DP002)**

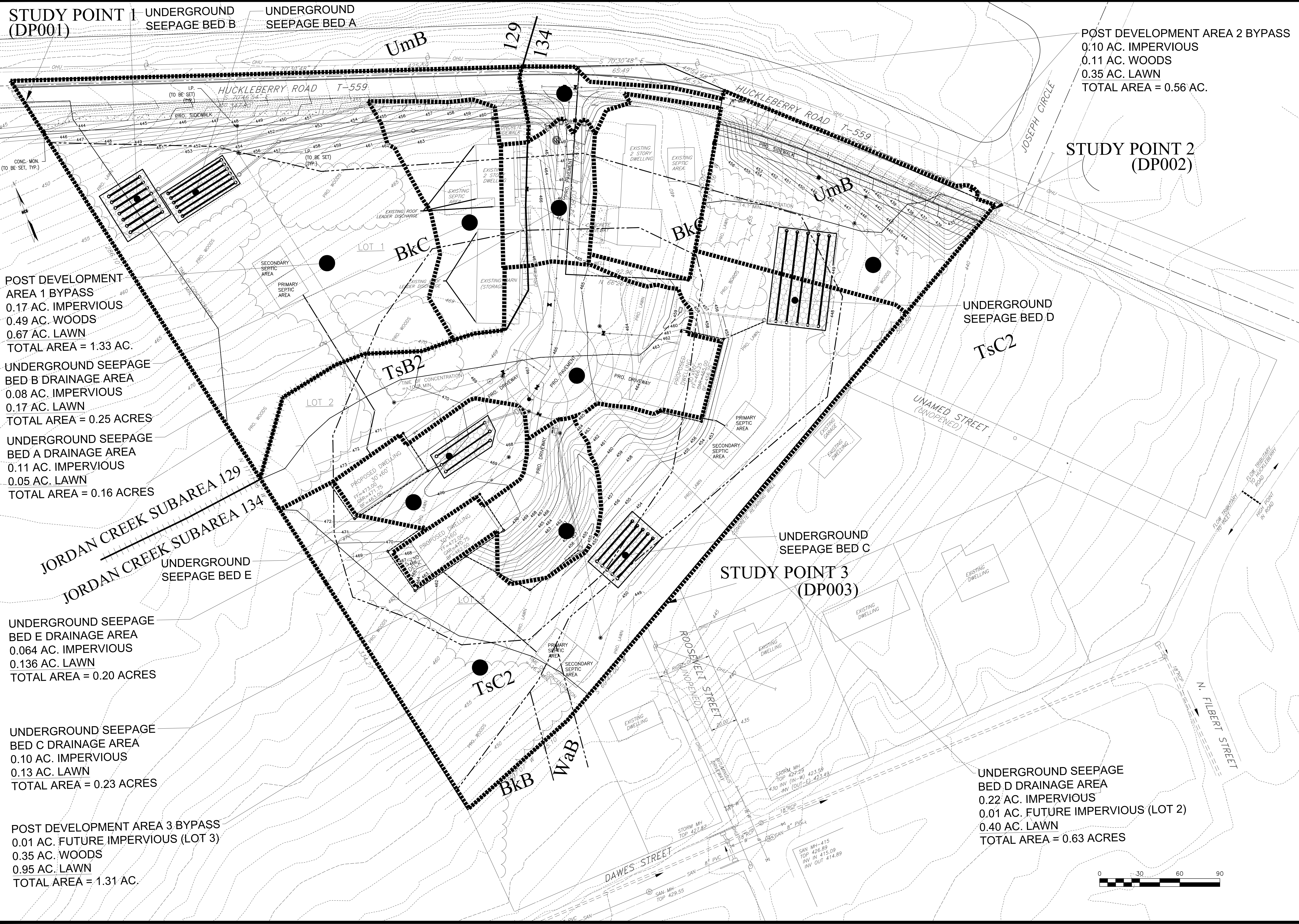
UNDERGROUND SEEPAGE BED D

TsC2

**STUDY POINT 3
(DP003)**

UNDERGROUND SEEPAGE BED C

UNDERGROUND SEEPAGE BED D DRAINAGE AREA
0.22 AC. IMPERVIOUS
0.01 AC. FUTURE IMPERVIOUS (LOT 2)
0.40 AC. LAWN
TOTAL AREA = 0.63 ACRES

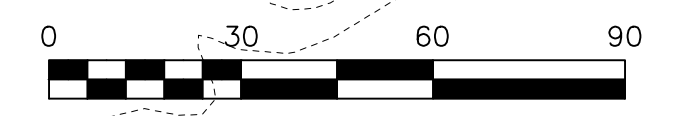


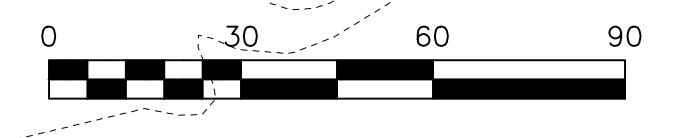
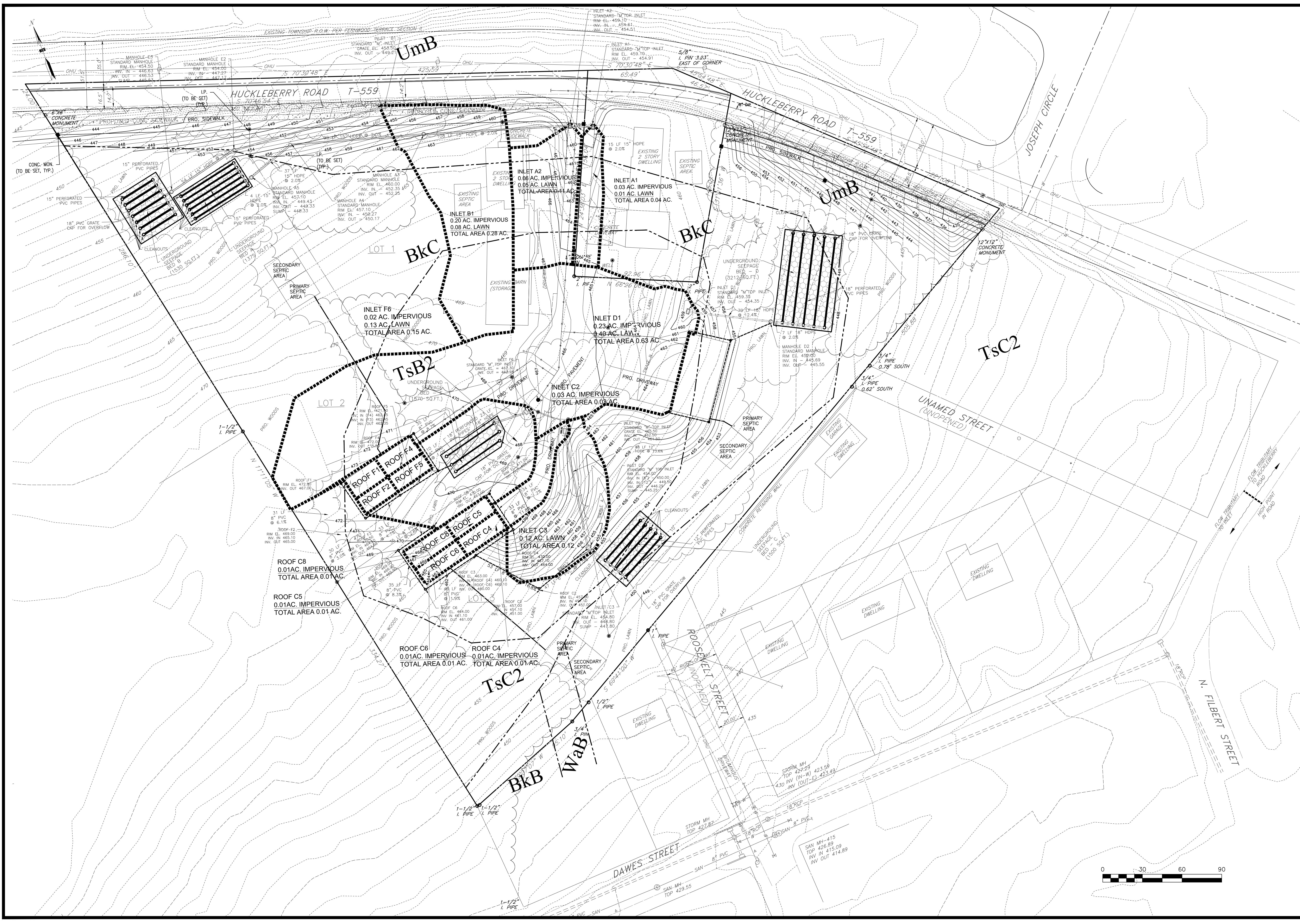
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POST DEVELOPMENT DRAINAGE AREA PLAN
RUHE SUBDIVISION
2442 HUCKLEBERRY ROAD
SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA

DESIGNED BY:	REVISIONS
KCE	DATE
MSN	6/16/2021
MFC/ARF	12/16/2021
JAN	9/21/2023
CW	12/28/2023
DATE:	
JAN. 16, 2020	
SCALE:	
1" = 30'	
JOB NUMBER:	
CW-20-128	
SHEET:	
1	



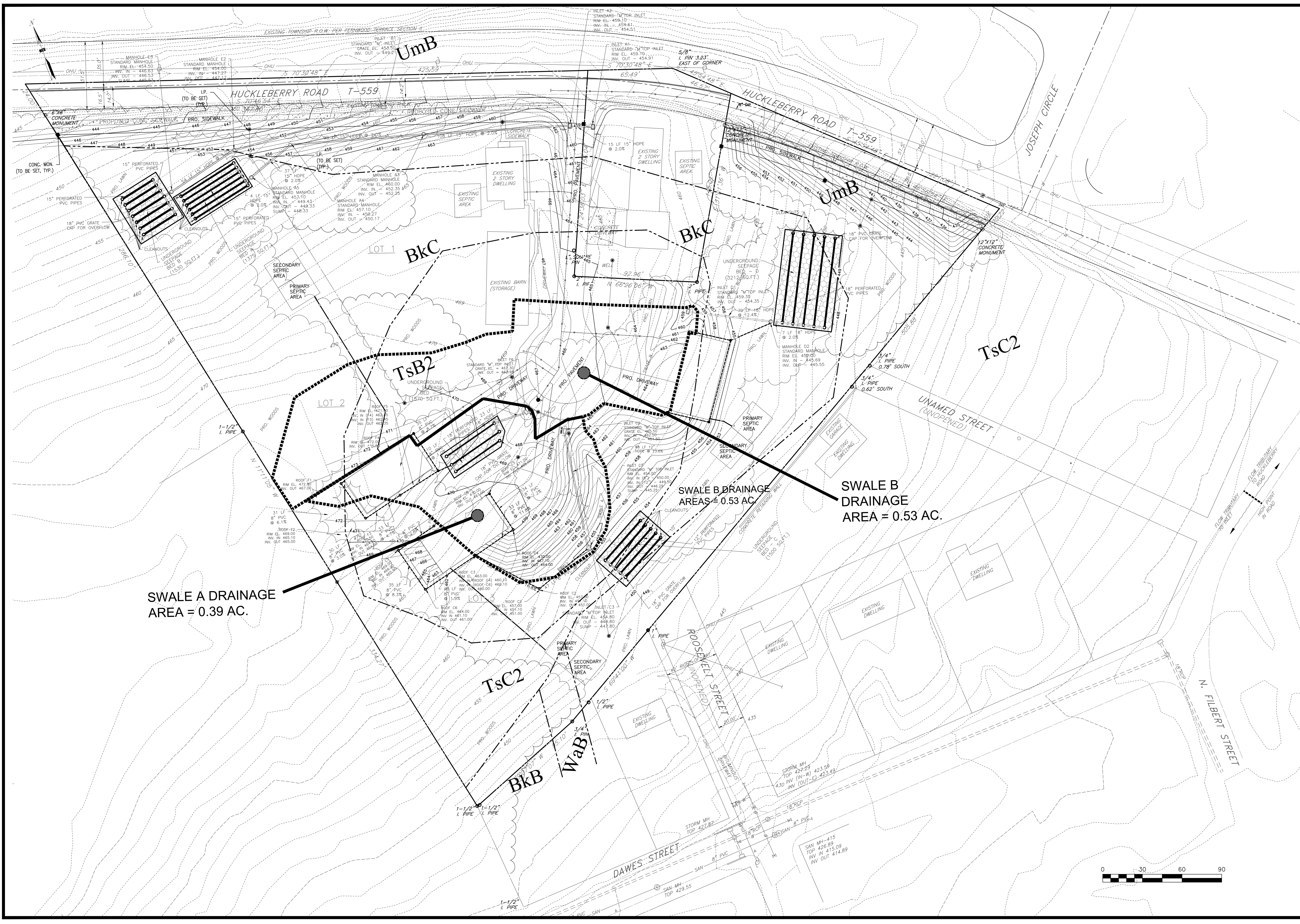


DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	JAN. 16, 2020
SCALE:	1" = 30'
JOB NUMBER:	CW-20-128
SHEET:	1

REVISIONS	DATE	BY
	6/16/2021	KCE
	12/16/2021	KCE
	9/21/2023	KCE
	12/8/2023	KCE

INLET TRIBUTARY DRAINAGE AREA PLAN
RUHE SUBDIVISION
 2442 HUCKLEBERRY ROAD
 SOUTH WHITEHALL TOWNSHIP
 LEHIGH COUNTY, PENNSYLVANIA

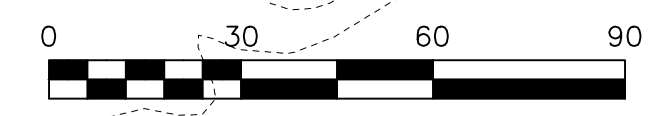
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SWALE A DRAINAGE AREA = 0.39 AC.

SWALE B DRAINAGE AREAS = 0.53 AC.

SWALE B DRAINAGE AREA = 0.53 AC.



DESIGNED BY:	KCE
DRAWN BY:	MSN
CHECKED BY:	MFC/ARF
DATE:	JAN. 16, 2020
SCALE:	1" = 30'
JOB NUMBER:	CW-20-128
SHEET:	1

REVISIONS	DATE
BY	
KCE	6/16/2021
KCE	12/16/2021
KCE	9/21/2023
KCE	12/8/2023

SWALE DRAINAGE AREA PLAN

RUHE SUBDIVISION
2442 HUCKLEBERRY ROAD

SOUTH WHITEHALL TOWNSHIP
LEHIGH COUNTY, PENNSYLVANIA



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Township Engineer Review

THE PIDCOCK COMPANY

CIVIL ENGINEERING AND LAND PLANNING

ARCHITECTURE

LAND SURVEYING

Oxford Drive at Fish Hatchery Road
2451 Parkwood Drive Allentown, Pennsylvania 18103-9608
Telephone: 610-791-2252
Telefacsimile: 610-791-1256
E-mail: info@pidcockcompany.com
Website: www.pidcockcompany.com

Established 1924
J. Scott Pidcock, P.E., R.A.

Bruce E. Anderson, P.E., LEED AP
Brian A. Dillman, P.E.
Ronald J. Gawlik, P.E.
Brian E. Harman, P.E., PTOE
James A. Rothdeutsch, P.E., LEED AP
John R. Russek, Jr., P.E.
Brent C. Tucker, P.E.

Douglas E. Haberbosch, P.E.
William G. Kmetz, P.L.S.
Jeffrey R. Matyus
John M. McRoberts, P.E.
Brent D. Shriver, P.E.
Todd L. Sonntag, R.A., LEED AP
Anthony F. Tallarida, P.E.
Ryan R. Troutman, P.E.

G. Edwin Pidcock, P.E., P.L.S. 1924-1967
John S. Pidcock, P.E., P.L.S. 1954-1999
Ralph M. Pidcock, P.L.S. 1952-2000 (Retired)

MEMORANDUM

TO: Mr. David Manhardt, AICP via email
Director of Community Development
South Whitehall Township

FROM: Mr. Anthony F. Tallarida, PE
Manager, Municipal Engineering Services

SUBJECT: South Whitehall Township
Ruhe Major Subdivision #2013-201
Preliminary/Final Plan Review

DATE: October 3, 2024

COPIES: Mr. Thomas R. Petrucci, MPA
Township Manager
South Whitehall Township

Mr. Herb Bender
Director of Township Operations
South Whitehall Township

Mr. Mike Elias
Public Works Utility and MS4 Program Coordinator
South Whitehall Township

Ms. Tracy J.B. Fehnel
Insurance Administrator & Executive Assistant
South Whitehall Township

Ms. Laura M. Harrier, BCO
Building Code Official/Zoning Officer
South Whitehall Township

Mr. John G. Frantz, CFEI, BCO
Fire Marshal, Building Code Official
South Whitehall Township

Joseph A. Zator, II, Esq.
South Whitehall Township Solicitor
Zator Law

Jennifer R. Alderfer, Esq.
Assistant South Whitehall Township Solicitor
Zator Law

Mr. Christopher A. Taylor, PG
Senior Geologist
Hanover Engineering Associates, Inc.

Mr. Alan R. Fornwalt, P.E., MBA&E
Keystone Consulting Engineers, Inc.

Mr. Robert H. Ruhe via Sandra Ruhe

(all via e-mail)

Mr. Ronald J. Gawlik, PE, Township Engineer

REPORT:

South Whitehall Township Ordinances:

Zoning Ordinance (ZO)

Subdivision and Land Development Regulations (SALDR)

Stormwater Management Plan (SMP)

See attached list for documents reviewed.

Proposal:

R-4 – Medium Density Residential;

4.5± acre tract to be subdivided into 4 residential lots;

Existing dwelling and barn to remain on Lot 1;

Proposed cul-de-sac to replace the existing shared driveway;

The existing 0.35± acre residential lot (Lutz property) to remain with access to proposed cul-de-sac;

Five stormwater management seepage beds proposed;

Public Water;

On-lot Sewer.

Waivers / Variances Granted:

None to date (see waiver comment below).

Recommendation:

Engineering approval is not recommended at this time.

jfw/laf

Enclosures

THE PIDCOCK COMPANY

South Whitehall Township
Ruhe Major Subdivision #2013-201
Preliminary/Final Plan Review

October 3, 2024

REVIEW COMMENTS

A. Planning

1. In a letter revised September 12, 2024, and as noted on the plan the Applicant has requested waivers/deferrals from the requirements of the following sections of the SALDR:

Private Street

- a. SALDR §11-32(b)(1) – Waiver from the requirement of providing curb along all public and private streets. The Applicant requests a waiver from providing curb along the shared private driveway. Curb is proposed along the western radius of the shared private driveway and along the western frontage of the property along Huckleberry Road;
- b. SALDR §11-32(c)(1)(A) – Waiver from the requirement of providing sidewalks within a subdivision. Installation of sidewalk along the proposed private cul-de-sac is requested due to low traffic volumes;
- c. SALDR §11-32(a)(2)(C) – Waiver from the requirement of a cul-de-sac having a right-of-way (ROW) radius of 52 feet (42-foot radius access easement proposed) and a 40-foot roadway radius (30-foot roadway radius proposed). We defer to the Township Fire Marshal for review of the truck turning templates;
- d. SALDR §11-33(c)(1) – Waiver from the requirement of the private street width being 36 feet. A 20 foot cartway is proposed;
- e. SALDR §11-33(c)(1) – Waiver from the requirement of the private street ROW being 60 feet. A 58 foot maximum ROW is proposed;
- f. SALDR §11-33(d)(1)(A) – Waiver from the requirement that grading of the ROW outside of the cartway be a maximum slope of 3/8” vertical per 1 foot horizontal. A proposed grade of 1 foot vertical to 3 feet horizontal (33%) is proposed due to the existing structure;
- g. SALDR §11-32(a)(3)(E)(ii) – Waiver from the requirement of centerlines of intersecting streets being a minimum offset of 400 feet. We note the private street is proposed in the same location as the existing shared private driveway, which is 350± feet from Joseph Circle;

Huckleberry Road

- h. SALDR §11-33(b)(1) – Waiver from the requirement to widen Huckleberry Road to 40 feet (across the frontage of Lots 3 and 4). No widening, curb, or sidewalk is proposed along eastern frontage;
- i. SALDR §11-33(b)(1) – Waiver from the requirement to widen Huckleberry Road to 40 feet (across the frontage of Lots 1 and 2). A 20-foot half-width is currently proposed with a 4-foot taper to the private street;
- j. SALDR §11-32(c)(1)(a) – Waiver from the requirement of providing 5 foot sidewalks one foot inside the right-of-way (frontage of Lots 1 and 2). The proposed sidewalk is 4 feet wide and located 7 to 8 feet inside the ROW line;
- k. SALDR §11-33(d)(1)(A) – Waiver from the requirement that grading of the ROW outside of cartway be a maximum slope of 3/8” vertical per 1 foot horizontal. A proposed grade of 1 foot vertical to 4 feet horizontal (25%) is proposed due to the existing structure;
- l. SALDR §11-32(c)(1)(a) – Deferral from the requirement of providing sidewalk along the frontage of Lots 3 and 4. A deferral is requested due to inability to connect to a sidewalk or other sidewalk facilities; and
- m. SALDR §11-32(b)(1) – Deferral from the requirement of providing curb along all public and private streets. The Applicant requests a deferral from providing curb along the frontage of Lots 3 and 4.

In the event waivers/deferrals are granted, revise the Plan Notes to identify the dates of approval.

- 2. As this Plan relies on the acquisition of an easement access, and the modification of an existing driveway on the adjacent Lutz property and to create a private street for this development. All applicable easements, agreements, etc. should be provided and approved by the Township Solicitor.

B. General

- 1. Address Sewage Planning Act 537 Planning. The design of the on-lot sewage disposal systems is subject to review by the Township Sewage Enforcement Officer (SEO), SALDR §11.36(a)(2);
- 2. We defer to the Department of Public Works (DPW) as it relates to whether any additional pavement reconstruction is necessary on Huckleberry Road. Any comments should be addressed to the satisfaction of the DPW;
- 3. Grading is proposed on the adjacent property to the west. In addition to the “Match Sidewalk and Grading” Note (Sheet 9), obtain and show necessary construction easements. We note that the design will lower the edge of the road approximately 2.5 feet and should be designed in a manner that will not rely on construction of the adjoining development, and a detail for this area should be provided; and

4. We note that revised Legal Descriptions and Exhibits were not provided with this submission. The following comments remain from the previously submitted documents:
 - a. Check the scale of Stormwater Easement – Exhibit ‘D’ as the graphic and written scales are not consistent;
 - b. Sign and seal each legal description;
 - c. Update the bearings and distances to be consistent between the Legal Descriptions and associated Exhibits (e.g., Ruhe Access Easement, Lutz Property Access Easement, etc.);
 - d. Check the reference to 95.98’ contained in the third paragraph of the Lutz Property Access Easement Description; and
 - e. Provide legal descriptions for proposed Huckleberry Road right-of-way areas to be dedicated to the Township (e.g., ROW1, ROW2).

C. Stormwater Management

1. Provide revised storm sewer calculations for the system to Underground Seepage Bed B to confirm all intended runoff is captured by Inlets B1, B1A, and B2. We note the following:
 - a. Revise the Inlet Tributary Area Plan to be consistent with the proposed grading and storm sewer layout;
 - b. Provide the tributary area to Swale C on the Swale Drainage Area Plan; and
 - c. As discussed with Township staff, Inlet B1 should be owned and maintained by the individual lot owner. A private storm sewer easement should be provided to access this inlet in the Huckleberry Road right-of-way.
2. Inverts, slopes, pipe sizes, and pipe lengths matching between the plan view, profiles, details, and report should be confirmed;
3. Revise the pre-development runoff rates for Study Point 1 in the Summary section of the Report to be consistent with the runoff rate calculations; and
4. An Operations and Maintenance Agreement should be executed for the proposed stormwater BMPs, SMP §296-32.

D. Policy and Information

1. The Applicant should coordinate with the Township regarding any required open space or fees necessary, SALDR §11.34(e)(4)(G)(iii);
2. We defer to the Township Solicitor regarding authorized parties and declarations between property ownership and agreements;
3. Once obtained, copies of all required permits, reviews, and approvals should be provided to the Township and our office. Expand General Note 3 to include the dates of approvals and permits;

4. We have not reviewed and defer to the Township Fire Marshal and emergency response personnel regarding the acceptability of emergency access and fire protection requirements;
5. Any concerns of the Landscape and Shade Tree Commission should be addressed;
6. We defer to the Township Geotechnical Consultant to review all geotechnical aspects of the design;
7. Matters pertaining to the design of the water distribution and on-lot sewerage systems should be directed to the DPW and the SEO. We have not reviewed these designs; and
8. All required agreements shall be provided, and all Statements and Certifications shall be signed and sealed/notarized as applicable, SALDR §11.16(b)(2) and §11.16(b)(3).

The comments noted above are the result of our engineering review covering the scope provided in the opening report. We have not reviewed items associated with legal, water/sanitary sewer systems, geotechnical, lighting, environmental, building code, public safety, and other non-engineering issues, which should be reviewed by the appropriate Township Staff and Consultants.

THE PIDCOCK COMPANY

South Whitehall Township
Ruhe Major Subdivision #2013-201
Preliminary/Final Plan Review

List of Plans and Supplemental Information
Prepared by Keystone Consulting Engineers, Inc. and
dated or revised September 12, 2024, except as noted

1. Title Sheet, Sheet 1 of 23;
2. Existing Features and Demolition Plan, Sheet 2 of 23 (cursory review only);
3. Existing Features (Expanded View, 60 Scale), Sheet 3 of 23 (cursory review only);
4. Subdivision Plan, Sheet 4 of 23;
5. Easement Plan, Sheet 5 of 23;
6. Record Plan, Sheet 6 of 23;
7. Fire Truck Turn Plan, Sheet 7 of 23, revised November 17, 2024;
8. Garbage Truck Turn Plan, Sheet 8 of 23, revised November 17, 2024;
9. Grading & Drainage Plan, Sheet 9 of 23;
10. Utility Plan, Sheet 10 of 23;
11. Landscape Plan, Sheet 11 of 23 (cursory review only);
12. Shared Private Driveway & Driveway Profiles, Sheet 12 of 23, revised November 17, 2024;
13. Stormwater Plan and Profile, Sheet 13 of 23, revised June 24, 2024;
14. Water System Plan and Profile, Sheet 14 of 23 (cursory review only), revised November 17, 2024;
15. Construction Details, Sheet 15 of 23, revised June 24, 2024;
16. Utility Details, Sheet 16 of 23, revised November 17, 2024;
17. Stormwater Details, Sheet 17 of 23, revised November 17, 2024;
18. Erosion and Sedimentation Plan, Sheet 18 of 23 (cursory review only);
19. Erosion and Sedimentation Details, Sheet 19 of 23 (cursory review only), revised November 17, 2024;
20. Erosion and Sedimentation Details 2, Sheet 20 of 23 (cursory review only), revised November 17, 2024;
21. Post Construction Stormwater Management Plan, Sheet 21 of 23;

22. Post Construction Stormwater Management Details, Sheet 22 of 23, revised November 17, 2024;
23. Post Construction Stormwater Management Details 2, Sheet 23 of 23, revised November 17, 2024;
24. Stormwater Management & PCSM Report;
25. Pre Development Drainage Area Plan, Sheet 1 of 4, revised December 8, 2023;
26. Post Development Drainage Area Plan, Sheet 2 of 4, revised December 8, 2023;
27. Inlet Tributary Drainage Area Plan, Sheet 3 of 4, revised December 8, 2023; and
28. Swale Drainage Area Plan. Sheet 4 of 4, revised December 8, 2023.

The following information was submitted in support of the Application.

1. LVPC review letter dated August 16, 2024;
2. Geotechnical review letter;
3. Shade Tree Commission review letter;
4. Township Engineer review letter;
5. Township Public Works review letter;
6. Waiver/Deferral Request letter;
7. Township Transmittal letter; and
8. Site Investigation and Percolation Test Report.

Township Water & Sewer Engineer Review



October 4, 2024

Mr. David Manhardt, AICP
Community Development Director
South Whitehall Township
4444 Walbert Avenue
Allentown PA 18104

Re: Robert Ruhe
Land Development #2013-201
Review of Preliminary/Final Plan
SSM File 103400.0036

Dear Mr. Manhardt:

This correspondence is provided as a review of the Preliminary/Final Land Development Plan submitted for the above referenced project revised on 9/12/24. We have the following comments regarding the water and sanitary sewer utilities:

General Comments:

1. **Title Sheet: Sheet 1 of 23 General Notes:**

Add to General notes: Subsurface Utility Engineering (SUE) is required at the connection point station 3+43 [Existing 12" gate valve] to confirm if valve is rodded to water main.

Water Comments:

1. **Utility Plan: Sheet 10 of 23:**

Install 2" waterline blow-off at Station 0+10 [SWT Standard SWT-W-4]

2. **Water system Plan and Profile: Sheet 14 of 23:**

Provide 4 feet of cover from final grade not 4.5 feet as shown on plan. [SWT Standard Construction Documents - Excavation: Section 1. Page B-26]

3. **Utilities Details: Sheet 16 of 23:**

Add South Whitehall Township Standard Construction Details - Water Line Blow Off [SWT-W-4]
Add South Whitehall Township Standard Construction Details - Service Connection [SWT-W-5]

Please contact us should you have any questions or require any additional information regarding our comments.

Sincerely,

Spotts, Stevens, and McCoy

A handwritten signature in blue ink that reads "Jason M. Newhard".

Jason M. Newhard, CCM, LO
Manager, Construction Management
Environmental Engineering
jason.newhard@ssmgroup.com

Geotechnical Review



HanoverEngineering

252 Brodhead Road • Suite 100 • Bethlehem, PA 18017-8944
Phone: 610.691.5644 • Fax: 610.691.6968 • HanoverEng.com

September 24, 2024

Mr. David Manhardt, AICP
South Whitehall Township
4444 Walbert Avenue
Allentown, PA 18104-1699

RE: Geotechnical Review of Provided Documents
Ruhe Subdivision
Major Subdivision #2013-201
South Whitehall Township, Lehigh County,
Pennsylvania
Hanover Project SWT20-11(003)

Dear Mr. Manhardt:

Hanover Engineering (Hanover) has reviewed the information received at our office on September 13, 2024 via electronic submission. Reviewed documents pertaining to the geotechnical aspects of the proposed project at the above-referenced site consisted of the following:

1. Response letter referenced as “Ruhe Subdivision (Minor Subdivision)”, prepared by Keystone Consulting Engineers, Inc. (KCE), dated September 12, 2024.
2. Site Investigation and Percolation Test Reports for Test Pits #101 through #106 inclusive.
3. Report entitled “Ruhe Subdivision Stormwater Management & PCSM Report”, prepared by KCE, dated February 22, 2021, last revised September 12, 2024.
4. Engineering plan set entitled “Ruhe Minor Subdivision Preliminary/Final Plan”, Sheets 1 of 23 through 23 of 23 inclusive, prepared by KCE, dated March 5, 2021, last revised September 12, 2024.

Based on our review, it is our understanding that the subject property currently exists as a 4.59-acre single tax parcel containing existing improvements, including a single-family residence, barn, gravel driveway, and concrete sidewalk. The residence is currently served by an individual well and onlot sewage disposal system. We further understand that the property is now proposed to be subdivided into a total of four (4) lots. Lots 2, 3, and 4 are proposed to serve new single-family residential structures. Lot 1 is proposed to contain the existing residence and barn. All lots are proposed to be served by a paved private driveway, public water, and individual onlot sewer (septic systems).

We offer the following review of remaining outstanding comments issued in our letters of April 1, 2020, April 7, 2021, July 27, 2021, January 14, 2022, October 5, 2023, and December 4, 2023, repeated below in *italics*, and any new comments generated by this submission:

A. Subdivision and Land Development Ordinance

No outstanding comments in this section.

B. Stormwater Management Ordinance:

1. *Section 296-12.H: For each proposed regulated activity in the watershed where an applicant intends to use infiltration BMP's, the applicant shall conduct a preliminary site investigation.*

Prior Comment b: The report indicates that the single standpipe permeameter test was utilized. The Ordinance stipulates the use of percolation tests. The consultant shall acknowledge this and provide a justification for the test method used.

This comment has not been addressed.

This comment has not been addressed. The testing method now reported is Double-Ring Infiltrometer. The requested justification has not been provided.

This portion of the comment has been adequately addressed.

Prior Comment 5: Section 296-12.J.(2): For infiltration areas that appear feasible based on the preliminary site investigation, the additional site investigation and testing as outlined in Appendix G shall be completed.

Additional testing shall be conducted at the exact location and depth of each proposed infiltration facility in order to satisfy the requirements of this section. The number and type of tests shall be in accordance with the density table in Appendix G. This office shall be notified of the soil testing in order to observe the testing per Paragraph H. All items listed under Required Data and Site Information shall be provided in the report of this investigation.

This comment has not been addressed.

This comment has been partially addressed. New testing has been conducted and reported. The consultant shall provide his opinion of the adequacy of the density and depths of the testing provided to adequately characterize the subsurface conditions at each facility location and to satisfy the requirements of this section.

This comment is not fully addressed. The consultant shall provide an evaluation of the test density provided versus the requirements of the density table in Appendix G. It is noted that this office was not notified of the test schedule.

This portion of the comment has been adequately addressed.

C. General

Prior Comment 5: It has been documented that the adjoining property to the southwest is owned by the City of Allentown and contains a "quarry/reservoir". It appears that this property may be used for public water supply. The City of Allentown shall be made aware of this project and given an opportunity to provide comments relative to the potential impact of the project on their operations at this property.

This comment has not been addressed.

This comment has not been addressed. The response letter states that the City of Allentown will be sent a plan shortly to inform them of the proposed development. The response from the City of Allentown shall be documented.

This comment has not been addressed.

This comment has been adequately addressed.

D. *New Comments (April 7, 2021)*

Prior Comment 4: This comment has not been adequately addressed. The response letter states that each underground seepage bed will be underlain by eighteen inches (18") of engineered soil with an assumed infiltration rate. The proposed engineered soil thickness is not provided on the detail and the installation is not addressed in the construction sequence or in the table on Plan Sheet 20. The proposed permeability rates cited in the detail do not match the rate assumed in the response letter. The detail notes do not reference the post construction infiltration testing specified in the stormwater report and referenced in the response letter.

This comment has not been adequately addressed. The consultant shall clarify how the infiltration bed bottom elevation correlates with the top and bottom elevations of the engineered fill. The cross-section detail shows "bottom of bed" as being the bottom of the engineered fill layer, but this doesn't agree with the pipe invert elevations. Provide a thickness dimension on the cross-section detail for all layers and provide elevations for the bottom and top of the engineered fill.

This comment has been adequately addressed.

E. *New Comments (July 27, 2021)*

No outstanding comments from this section.

F. *New Comments (January 14, 2022)*

1. *For Seepage Bed C, the report states that the distribution pipe will be twelve inches (12") in diameter while the data table states fifteen inches (15").*

This comment has been adequately addressed.

2. *For Seepage Bed D, the report states that the distribution pipe will be fifteen inches (15") in diameter while the data table states twelve inches (12").*

This comment has been adequately addressed.

3. *For Seepage Bed E, the depth of the seepage bed is omitted.*

This comment has been adequately addressed.

4. *The consultant shall confirm the appropriateness of the proposed loading ratios.*

This comment has been adequately addressed.

5. *On the plan view, the test labeled as 1D (2) in Seepage Bed E should be 1C (2).*

This comment has been adequately addressed.

6. The following issues regarding sewage disposal shall be addressed:

- a. *Soil testing shall be conducted at the locations of the proposed sewage absorption areas. The testing shall be in accordance with Title 25 Chapter 73 of the Pennsylvania Code. The consultant shall coordinate with this office for witnessing of all testing work in our capacity as the Alternate Sewage Enforcement Officers for South Whitehall Township. All soil test results shall be submitted to this office on standard 290A reporting forms.*

This comment has been acknowledged and will be considered adequately addressed when the soil testing is conducted with our office scheduled to witness.

The consultant states in his response letter that "Testing will be conducted in the upcoming month or so and the Township will be contacted to witness the testing".

The consultant has submitted the soil test results on the 290A reporting forms, as requested. A review of those forms has generated the following comments:

1. For Test Pit #101, the depth of the horizon break in the soil log (31") does not match Limiting Zone depth (30"). Field notes indicate that the correct depth is 30". Please revise.
 2. For Test Pit #103, field notes indicate that, for Hole 4, there should be a sixth reading of 3.50 inches and a seventh reading of 3.50 inches. Please revise.
 3. For Test Pit #105, the reference to Additional Pits should be revised with the correct information. Also, it appears that the readings listed for Hole 4 should be the readings for Hole 5, the readings listed for Hole 5 should be the readings for Hole 6, and the readings listed for Hole 6 are incorrect. Revise these readings and the resulting calculations.
 4. For Test Pit #106, Additional Pits lists Pit #4, but this is located too far from the other testing to be factored in. Please remove.
- b. *All soil testing shall be clearly depicted and labeled on the engineering plans. The locations of the proposed primary and alternate absorption areas shall be shown on the plans correct as to system type, size, orientation, and required grading according to the soil test results.*

This comment has been acknowledged and will be considered adequately addressed when the requested plan information is provided following soil testing.

The consultant states in his response letter that "Testing will be conducted and added to the plan".

The testing and absorption areas have been shown on the plans, as requested. However, required grading has not been provided. The new soil test results indicate that elevated systems will be required on Lots 2 and 4. Prior testing on Lots 1 and 3 may require

elevated systems also. Associated grading shall be shown for all elevated absorption areas.

- c. *A Sewage Facilities Planning Module shall be submitted for review by this office and the Department of Environmental Protection.*

This comment has been acknowledged and will be considered adequately addressed upon review and acceptance of the Planning Module document by this office and the Department of Environmental Protection.

The consultant states in his response letter that "Planning Module is being prepared".

The Sewage Facilities Planning Module has not yet been received.

G. *New Comments (October 5, 2023)*

- 1. *The specifications contained in the Erosion & Sediment Control Narrative, Sequence of BMP Construction, Item 6E, and in plan notes on Sheet 17 appear to indicate the placement of geotextile on the bottom of each infiltration bed subgrade, below the engineered fill. This should be indicated clearly on the infiltration bed cross sections by revising the label to read "Wrap all sides and bottom of basin" or by other notes/ labeling.*

This comment has been adequately addressed.

We trust that this is the information that you require. Should you have any questions or concerns regarding this information, please do not hesitate to contact our office.

Respectfully,

HANOVER ENGINEERING



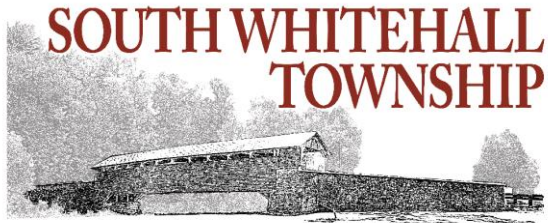
Christopher A. Taylor, PG

cat:cat/sas

S:\Projects\Municipal\WhitehallTownship\Swt20-11(003)-RuheMinorSubdivision_2013-201\Docs\SWT Geotech, Ruhe Subdivision #2013-201 geotech review cmt memo 7.doc

- cc: Mr. Herb Bender, Public Works Department Superintendent (via email)
- Mr. Anthony Tallarida, PE, The Pidcock Company (via email)
- Mr. Mark Gnall, PE, The Pidcock Company (via email)
- Mr. Robert H. Ruhe
- Mr. Alan R. Fornwalt, PE, Keystone Consulting Engineers, Inc.

Public Works Department Review



INTEROFFICE MEMORANDUM

TO: DAVE MANHARDT, DIRECTOR OF COMMUNITY DEVELOPMENT

FROM: HERB BENDER, PUBLIC WORKS MANAGER

DATE: SEPTEMBER 27, 2024

SUBJECT: Ruhe Subdivision Preliminary/Final Plan 2024-105

The Public Works Dept. reviewed the above project and has the following comments:

1. Please submit results from fire flow test
2. We need to know if 2436 Huckleberry is connecting to water

Public Safety Commission

Gregg R. Adams

From: John G. Frantz
Sent: Tuesday, October 3, 2023 11:03 AM
To: Gregg R. Adams
Subject: Ruhe Subdivision 2013-201

Gregg,

The PSC had no recommendations to the plan.

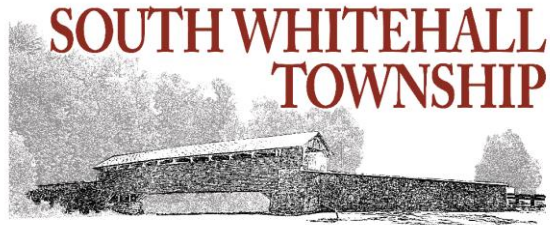
John G. Frantz, CFEI, BCO

Fire Marshal, Building Code Official
South Whitehall Township
4444 Walbert Avenue
Allentown PA 18104-1699
610-398-0401 (office)
610-398-1068 (fax)
www.southwhitehall.com



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Landscape and Shade Tree Commission



MEMORANDUM

TO: Planning Commission
FROM: Gregg Adams, Planner
DATE: October 12, 2023
SUBJECT: Landscaping Plan Review
Robert Ruhe
Minor Plan 2013-201
Plan dated September 20, 2023

COPIES: Landscape and Shade Tree Commission, D. Manhardt, J. Alderfer,
S. Pidcock, Applicant

At their September 25, 2023 meeting, the Landscape and Shade Tree Commission reviewed the above-mentioned plan and recommended the following:

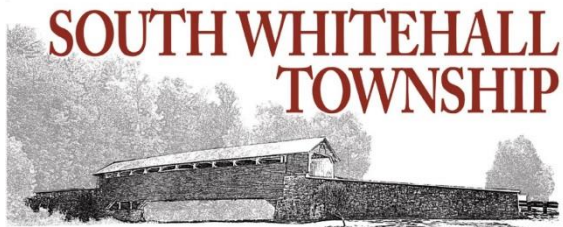
The Commission recommended that the applicant verify the current Township Clear Sight Triangle requirements and that the Red Maples be replaced with a species resistant to Verticillium Wilt.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Gregg Adams", is written over a horizontal line.

Gregg Adams, Planner
Community Development Department

Parks & Recreation Board



MEMORANDUM

TO: Planning Commission
FROM: Gregg Adams, Planner
DATE: May 12, 2020
SUBJECT: Subdivision Plan Review
Ruhe Subdivision
Minor Plan 2013-201
Plan Dated March 21, 2015 (last revised March 19, 2020)
COPIES: Parks and Recreation Board, R. Bickel, R. Cope, M. Kukitz, G. Kinney,
J. Alderfer, S. Pidcock, Applicant

At their May 11, 2020 meeting, the Parks and Recreation Board recommended that the developer pay fees in lieu of common open space land dedication to meet the open space and recreation requirements of Section 11.34(e)(4)(G) of the Subdivision and Land Development Ordinance (effective date December 15, 2010). For residential developments, the amount of fees to be paid in lieu of common open space land dedication shall be \$2,500.00 per dwelling unit, based upon the maximum number of new dwelling units that would be permitted to be constructed on the lots of the subdivision or land development after the plan is approved. As the maximum number of new dwelling units that would be permitted is 3, the fee to be charged is \$7,500.00 (3 x \$2,500.00).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Gregg Adams", with a long horizontal flourish extending to the right.

Gregg Adams, Planner
Community Development Department

Lehigh Valley Planning Commission



Lehigh Valley Planning Commission

DR. CHRISTOPHER R. AMATO
Chair

CHRISTINA V. MORGAN
Vice Chair

ARMANDO MORITZ-CHAPELLIQUEN
Treasurer

BECKY A. BRADLEY, AICP
Executive Director

August 16, 2024

Mr. David Manhardt, Director
Community Development Department
South Whitehall Township
4444 Walbert Avenue
Allentown, Pennsylvania 18104

**Re: 2442 Huckleberry Road
Plans Revised June 24, 2024
South Whitehall Township
Lehigh County**

Dear Mr. Manhardt:

The proposed storm drainage concept presented in the plans revised June 24, 2024 and storm drainage calculations revised July 3, 2024, with supplemental materials received August 8, 2024 and August 15, 2024, has been reviewed for consistency with the *Jordan Creek Watershed Act 167 Storm Water Management Ordinance*, May 1992. The supplemental materials included corrected storage capacities for seepage pits A, B, C and D and hydrograph routings based on updated capacity that show no outflow from any seepage pits for the 2-year through 100-year rainfall events. One additional inlet B1 is added in series with inlet B1A along swale C to make sure that runoff from swale C and the inlet drainage area drains into basin B. A checklist of the Act 167 review items is attached for your information. As indicated on the checklist, each item of the Drainage Plan has been reviewed for consistency with the Act 167 Ordinance. A brief narrative of the review findings is as follows:

The proposed development is located within drainage districts 134 and 129 of the Jordan Creek Watershed as delineated in the Act 167 Plan. As such, the runoff control criteria for district 134 are a 30% Release Rate for the 2-year storm and a 100% Release Rate for the 10-, 25- and 100-year return period storms. The runoff control criterion for district 129 is Provisional No Detention for the 2-, 10-, 25- and 100-year return period storms, meaning that post-development impervious cover may be discharged without detention controls provided that capacity is available to convey increased peak flows. Based on review of the plans and calculations, the Drainage Plan has been found to be consistent with the Act 167 requirements.

Note that only those details of the Drainage Plan included on the checklist have been covered by this review. Therefore, notable portions of the Drainage Plan not reviewed include any aspect of the post-construction storm water management plan concerning water quality, the details and design of any proposed water quality BMPs, the Erosion and Sedimentation Control Plan and the details of the runoff collection system (piping). These items are reviewed by the municipal engineer and/or others, as applicable.

Rec 8/21

*RUHE
2013-201*

Mr. David Manhardt
South Whitehall Township
August 16, 2024
Page 2

Please call if you have any questions regarding these comments.

Sincerely yours,



Geoffrey A. Reese, PE
Master Planner and Engineer



Denjam Khadka
Senior Civil/Environmental Engineer

Attachment

cc: Thomas Petrucci, Township Manager
Ron Gawlik, PE, The Pidcock Company
Anthony F. Tallarida, PE, The Pidcock Company
Alan Fornwalt, PE, Keystone Consulting Engineers
Lehigh County Conservation District

LVPC ACT 167 REVIEW CHECKLIST

Development Name: 2442 Huckleberry Road
 Municipality: South Whitehall Township
 Date: August 16, 2024

Watershed: Jordan Creek
 Reviewer: Denjam Khadka
 Checked by: Geoffrey A. Reese, PE

Ordinance Reference	Item	Consistency w/Ordinance		Comment
		Yes	No N/A	

301.A-G. General storm water management requirements X / /
 H. Consideration of volume controls X / /

302.A,B. Applicable Storm Water Management Provisions

Subarea(s)	134	
Criteria	30%/100% RR	

Criteria Key: RR = release rate; PND = provisional no detention

303.A. Design consistency with applicable provisions from 302.A. and B X / /
 B. Mapping of Storm Water Management District Boundaries X / /
 C. Downstream capacity analysis / / X
 D. Multiple discharge points within a single subarea / / X
 E,F. Multiple discharge points within multiple subareas / / X
 G. Documentation of "no harm" downstream / / X
 H. Regional or subregional detention analysis / / X
 I. Capacity improvements analysis / / X

304.A. Computation method (rational or soil-cover-complex) X / /
 B. Verification of detention design by routing X / /
 Check rational method detention volume vs. TR55 / / X
 C. Minimum detention pond freeboard specifications / / X
 D. Soil-cover-complex method design rainfall X / /
 E. Rainfall intensities for rational method / / X
 F. Curve Numbers for soil-cover-complex method X / /
 G. Runoff coefficients for the rational method / / X
 H. Manning equation to calculate watercourse capacity / / X

403. Drainage Plan Contents X / /

Soil-cover-complex method used.

South Whitehall Community Development Department Review

SOUTH WHITEHALL TOWNSHIP

4444 Walbert Avenue, Allentown, PA 18104-1699
www.southwhitehall.com • 610-398-0401

October 3, 2024

Mr. Robert H. Ruhe
1558 North Muhlenberg Street
Allentown, PA 18104

RE: *Robert Ruhe*
Minor Plan #2013-201
Request For Preliminary/Final Plan Review

Dear Mr. Ruhe:

The purpose of this letter is to report on planning and non-engineering related comments from the Community Development Department that are to be addressed. My comments follow:

Open Space and Recreation

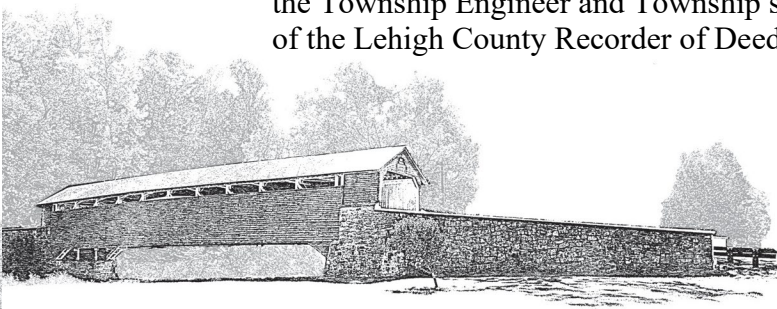
1. The Parks and Recreation Board recommended that the developer pay fees in lieu of common open space land dedication to meet the open space and recreation requirements of Section 11.34(e)(4) of the Subdivision and Land Development Ordinance. For residential developments, the amount of fees to be paid in lieu of common open space land dedication in residential subdivision or land development shall be \$2,500.00 per dwelling unit, based upon the maximum number of new dwelling units that would be permitted to be constructed on the lots of the subdivision after the plan is approved. As the maximum number of new dwelling units that would be permitted is 3, the fee to be charged is \$7,500.00 (3 x \$2,500.00). The updated plan set will be reviewed again at the October 14, 2024 Parks and Recreation Board meeting to confirm this requirement.

Landscape and Shade Tree Commission

1. The Landscape and Shade Tree Commission reviewed the plan at their September 25, 2023 meeting. The Commission recommended that the applicant verify the current Township Clear Sight Triangle requirements and that the Red Maples be replaced with a species resistant to Verticillium Wilt. These comments have been addressed per the letter dated November 17, 2023 from Keystone Consulting Engineers. The updated plan set will be reviewed again at the October 28, 2024 Landscape and Shade Tree Commission meeting to confirm this requirement.

Plan Recording Requirements

1. Prior to plan recording, the applicant shall submit a check set of plans in PDF format to the Township Engineer and Township staff to ensure that the standards and requirements of the Lehigh County Recorder of Deeds Office for a recorded plan are met.



2. Signature Blocks and Certifications to appear on each plan sheet to be recorded.
3. The size of the plan sheet shall be noted on the upper left-hand corner of every plan sheet to be recorded.
4. Wherever a Parcel ID is shown on a plan sheet to be recorded, it shall include the appropriate parnum suffix, such as 547677593477-1 or 547687003997-59.
5. Wherever an Owner's signature is required, the Signature shall be accompanied by a Printed Name and Title (Owner or Title within the owning organization), and an area for a Notary stamp. If there are multiple owners, there shall be signature blocks and areas for Notary stamps for each and every owner's name.
6. On the cover sheet or (if no cover sheet is present) the site plan sheet, include a table listing all of the properties involved in the project, including PIN and Parnum. This information may be included with an existing table or a new table may be created.
7. The review date of the Planning Commission and the review date and Resolution number of the Board of Commissioners shall be placed into the appropriate Board endorsement notes on the appropriate plan sheet to be recorded. Dates and Resolution number may be obtained from South Whitehall Township.

Official Map & Comprehensive Plan

1. The Official Map depicts the subject parcel underlain with karst geology.
2. The Comprehensive Plan envisions the tract within the Neighborhood Residential Type. The goals of Neighborhood Residential areas are to:
 - Preserve natural resources and important landscapes through incentives and cooperation with landowners
 - Enhance crossroad villages with attention to the surrounding landscape
 - Encourage housing types to address the needs of all income levels
 - Support opportunities for local-serving small business development where appropriate
 - Evaluate pedestrian safety and connectivity
 - Encourage walkability within neighborhoods and to other land use types
 - Consider traffic calming and congestion relief where possible
 - Utilize streetscaping, facades, and beautification techniques to create sense of place and community character

The following Place Types are supported in Neighborhood Residential areas:

- Open Space
- Agriculture
- Conservation Subdivision
- Small Lot Residential
- Multi-Family Residential
- Mixed Residential
- Neighborhood Center

This project proposes the subdivision and development of four approximately 1-acre residential lots. While this property may potentially be better suited for smaller lots connected to centralized sewer, it is understood that larger lots are necessary to support on-lot septic if a connection to centralized sewer cannot be accomplished. As a transitional lot between an established neighborhoods or more rural area, this large lot subdivision is still considered consistent with the Comprehensive Plan.

Zoning

1. This project is being reviewed under the June 1, 2013 Zoning Ordinance. The comments of the Zoning Officer’s September 27, 2024 review indicate there are no new comments on this plan.

Your plan is scheduled to be reviewed by the Planning Commission on Thursday, October 10, 2024 at 7:00 p.m. in the South Whitehall Township Municipal Building located at 4444 Walbert Avenue. The meeting will also be livestreamed via GoToMeeting. To access the meeting through your computer, go to <https://global.gotomeeting.com/join/757430189>. To access the meeting through your phone, dial 1-224-501-3412 and, when prompted, enter 757 430 189 to join the meeting.

Should your plan receive a favorable recommendation from the Planning Commission, it will be placed on a future Board of Commissioners meeting agenda for approval. Prior to the meeting you will receive a copy of the agenda packet and approving Resolution. Please direct any questions or concerns about either document to me at your earliest convenience. Should the Resolution be deemed acceptable, please complete the “Acceptance of Conditions” page at the end of the Resolution and return it to me no later than the beginning of the Board of Commissioners meeting. A representative of the applicant shall be required to attend the meeting to present the plan and answer questions.

If you have any questions, please call.

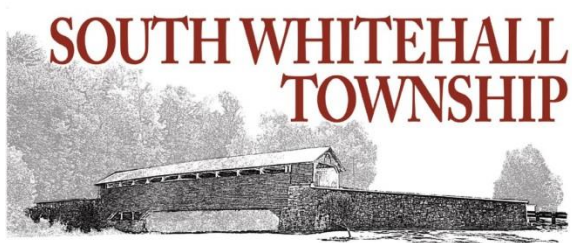
Sincerely,



Christopher Strohler, AICP
Long-Range Planner, Community Development Department
South Whitehall Township
610.398.0401
strohlerc@southwhitehall.com

cc: T. Petrucci D. Manhardt L. Harrier J. Frantz H. Bender
M. Elias A. Tallarida E. Bet J. Zator, Esq J. Alderfer, Esq

Zoning Review



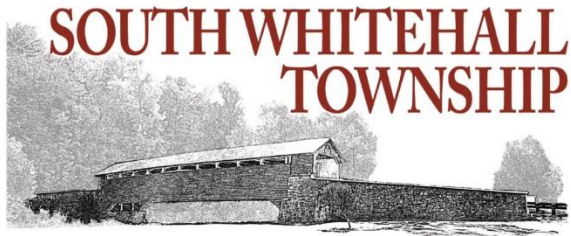
MEMORANDUM

TO: Planning Commission
FROM: Laura Harrier, Zoning Officer
DATE: September 27, 2024
SUBJECT: Ruhe Subdivision
Major Subdivision #2013-201
Plan Dated September 12, 2024
COPIES: D. Manhardt, C. Strohler, J. Alderfer, S. Pidcock, Applicant

This project is being reviewed under the June 1, 2013 Zoning Ordinance.

There are no new comments on this plan.

Laura Harrier, Zoning Officer
Community Development



MEMORANDUM

TO: Planning Commission
FROM: Laura Harrier, Zoning Officer
DATE: January 13, 2022
SUBJECT: Ruhe Subdivision
Major Subdivision #2013-201
Plan Dated December 16, 2021
COPIES: D. Manhardt, G. Adams, J. Alderfer, S. Pidcock, Applicant

This project is being reviewed under the June 1, 2013 Zoning Ordinance.

This original project proposed a 4-lot subdivision. One lot has been removed and are now proposing a 3-lot subdivision. Lot 1 has an existing dwelling, and Lots 2 and 3 are proposed lots for new construction. The existing land parcel owned by John and Deborah Lutz are not listed as part of this subdivision.

Public water is proposed along with on-lot septic systems.

Lots 2 and 3 are no longer proposing access onto Huckleberry Road, but rather from the “bulb” which will derive from an extension of the existing private drive between Lot 1 and the Lutz parcels.

1. Although both Lots 2 and 3 have the required road frontage on Huckleberry Road, the driveway access is proposed via a driveway extension of the existing private drive between the 2 existing dwellings on Huckleberry Road. An easement agreement from Lot 1 and the property of John and Deborah Lutz (who are not part of the subdivision) may be required.
2. The previous plan dated 8/21/19 showed the access that the Applicant was proposing was labeled a “Driveway”, and not a Township Road or Private Drive which reduced the requirement for Zoning and SALDO road compliance. This plan is labeled “Proposed Private Street” which does have specific criteria in both Ordinances. Clarification is required for the type of access being proposed.

Laura Harrier, Zoning Officer
Community Development

Applicant's Correspondence

Waiver Request Letter

Response Letters

Waiver/Deferral Request Letter

March 5, 2021

Last Revised: September 12, 2024

South Whitehall Township
Board of Commissioners
444 Walbert Avenue
Allentown, PA 18104-1699

Re: **Ruhe Minor Subdivision**
2442 Huckleberry Road
Preliminary/Final Land Development (4 Lots)

Members:

The following waivers and deferrals are hereby requested from South Whitehall Township's Subdivision and Land Development Ordinance for the Ruhe Minor Subdivision:

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(c)(1): PRIVATE STREET RIGHT-OF-WAY WIDTH.

A waiver from this requirement is requested as dimensional requirements of the right-of-way width of 60 feet for the private street are provided at a variable width with a maximum of 58 feet.

6. §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.

7. §11-32(a)(3)(E)(ii): 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:

8. §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.

9. §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.

10. §11-32(c)(1)(a): 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.

11. §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

12. §11-32(c)(1)(a): 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.

13. §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.

Sincerely,

KEYSTONE CONSULTING ENGINEERS, INC.



Alan R. Fornwalt, P.E.

September 12, 2024

Gregg Adams
Planner, Community Development Department
Manager, Municipal Division – Planning
South Whitehall Township
4444 Walbert Avenue
Allentown, PA 18104

RE: **Ruhe Subdivision (Minor Subdivision)**

Mr. Adams:

The following are Keystone Consulting Engineers, Inc. responses to the Hanover Engineering Geotechnical Review letter dated October 5, 2023 regarding the above project:

A. Subdivision and Land Development Ordinance

No outstanding comments in this section.

Response: Acknowledged

B. Stormwater Management Ordinance

1. *Section 296-12.H: For each proposed regulated activity in the watershed where an applicant intends to use infiltration BMP's, the applicant shall conduct a preliminary site investigation.*

Prior Comment b: The report indicates that the single standpipe permeameter test was utilized. The Ordinance stipulates the use of percolation tests. The consultant shall acknowledge this and provide a justification for the test method used.

This comment has not been addressed.

This comment has not been addressed. The testing method now reported is Double-Ring Infiltrometer. The requested justification has not been provided.

This portion of the comment has been adequately addressed.

Response: Acknowledged. The comment has been adequately addressed.

Prior Comment 5: Section 296-12.J.(2): For infiltration areas that appear feasible based on the preliminary site investigation, the additional site investigation and testing as outlined in Appendix G shall be completed.

Additional testing shall be conducted at the exact location and depth of each proposed infiltration facility in order to satisfy the requirements of this section. The number and type of tests shall be in accordance with the density table in Appendix G. This office shall be notified of the soil testing in order to observe the testing per Paragraph H. All items listed under Required Data and Site Information shall be provided in the report of this investigation.

This comment has not been addressed.

This comment has been partially addressed. New testing has been conducted and reported. The consultant shall provide his opinion of the adequacy of the density and depths of the testing provided to adequately characterize the subsurface conditions at each facility location and to satisfy the requirements of this section.

This comment is not fully addressed. The consultant shall provide an evaluation of the test density provided versus the requirements of the density table in Appendix G. It is noted that this office was not notified of the test schedule.

This portion of the comment has been adequately addressed.

Response: Acknowledged. The comment has been adequately addressed.

C. General

Prior Comment 5: It has been documented that the adjoining property to the southwest is owned by the City of Allentown and contains a "quarry/reservoir". It appears that this property may be used for public water supply. The City of Allentown shall be made aware of this project and given an opportunity to provide comments relative to the potential impact of the project on their operations at this property.

This comment has not been addressed.

This comment has not been addressed. The response letter states that the City of Allentown will be sent a plan shortly to inform them of the proposed development. The response from the City of Allentown shall be documented.

This comment has not been addressed.

This comment has been adequately addressed.

Response: Acknowledged. The comment has been adequately addressed.

D. New Comments (April 7, 2021)

Prior Comment 4: This comment has not been adequately addressed. The response letter states that each underground seepage bed will be underlain by eighteen inches (18") of engineered soil with an assumed infiltration rate. The proposed engineered soil thickness is not provided on the detail and the installation is not addressed in the construction sequence or in the table on Plan Sheet 20. The proposed permeability rates cited in the detail do not match the rate assumed in the response letter. The detail notes do not reference the post construction infiltration testing specified in the stormwater report and referenced in the response letter.

This comment has not been adequately addressed. The consultant shall clarify how the infiltration bed bottom elevation correlates with the top and bottom elevations of the engineered fill. The cross-section detail shows "bottom of bed" as being the bottom of the engineered fill layer, but this doesn't agree with the pipe invert elevations. Provide a thickness dimension on the cross-section detail for all layers and provide elevations for the bottom and top of the engineered fill.

This comment has been adequately addressed.

Response: Acknowledged. The comment has been adequately addressed.

E. New comments (July 27, 2021)

No outstanding comments from this section.

Response: Acknowledged. These comments have been adequately addressed.

F. New comments (January 14, 2022)

1. *For Seepage Bed C, the report states that the distribution pipe will be twelve inches (12") in diameter while the data table states fifteen inches (15").*

This comment has been adequately addressed.

Response: Acknowledged. The comment has been adequately addressed.

2. *For Seepage Bed D, the report states that the distribution pipe will be fifteen inches (15") in diameter while the data table states twelve inches (12").*

This comment has been adequately addressed.

Response: Acknowledged. The comment has been adequately addressed.

3. *For Seepage Bed E, the depth of the seepage bed is omitted.*

This comment has been adequately addressed.

Response: Acknowledged. The comment has been adequately addressed.

4. *The consultant shall confirm the appropriateness of the proposed loading ratios.*

This comment has been adequately addressed.

Response: Acknowledged. The comment has been adequately addressed.

5. *On the plan view, the test labeled as 1D (2) in Seepage Bed E should be 1C (2).*

This comment has been adequately addressed.

Response: Acknowledged. The comment has been adequately addressed.

6. The following issues regarding sewage disposal shall be addressed:

- a. *Soil testing shall be conducted at the locations of the proposed sewage absorption areas. The testing shall be in accordance with Title 25 Chapter 73 of the Pennsylvania Code. The consultant shall coordinate with this office for witnessing of all testing work in our capacity as the Alternate Sewage Enforcement Officers for South Whitehall Township. All soil test results shall be submitted to this office on standard 290A reporting forms.*

This comment has been acknowledged and will be considered adequately addressed when the soil testing is conducted with our office scheduled to witness.

Response: Testing has been conducted and the plans have been revised accordingly.

- b. *All soil testing shall be clearly depicted and labeled on the engineering plans. The locations of the proposed primary and alternate absorption areas shall be shown on the plans correct as to system type, size, orientation, and required grading according to the soil test results.*

This comment has been acknowledged and will be considered adequately addressed when the requested plan information is provided following soil testing.

Response: Testing has been conducted and the plans have been revised accordingly.

- c. *A Sewage Facilities Planning Module shall be submitted for review by this office and the Department of Environmental Protection.*

This comment has been acknowledged and will be considered adequately addressed upon review and acceptance of the Planning Module document by this office and the Department of Environmental Protection.

Response: Planning Module is being prepared.

G. New Comments (October 5, 2023):

1. The specifications contained in the Erosion & Sediment Control Narrative, Sequence of BMP Construction, Item 6E, and in plan notes on Sheet 17 appear to indicate the placement of geotextile on the bottom of each infiltration bed subgrade, below the engineered fill. This should be indicated clearly on the infiltration bed cross sections by revising the label to read "Wrap all sides and bottom of basin" or by other notes/labeling.

Response: The label has been revised accordingly.

Sincerely,

KEYSTONE CONSULTING ENGINEERS, INC.



Alan R. Fornwalt, P.E.



September 12, 2024

Gregg Adams
Planner, Community Development Department
Manager, Municipal Division – Planning
South Whitehall Township
4444 Walbert Avenue
Allentown, PA 18104

RE: **Ruhe Subdivision (Minor Subdivision)**

Mr. Adams:

The following are Keystone Consulting Engineers, Inc. responses to the South Whitehall Township Landscape and Shade Tree Commission review Memorandum dated October 12, 2023 regarding the above project:

The Commission recommended that the applicant verify the current Township Clear Sight Triangle requirements and that the Red Maples be replaced with a species resistant to Verticillium Wilt.

Response: The clear sight triangle has been verified. The exiting movement on the shared driveway is limited to a right turn movement. The red maples have been replaced with white oak trees.

Sincerely,

KEYSTONE CONSULTING ENGINEERS, INC.

A handwritten signature in blue ink, appearing to read 'Alan R. Fornwalt', is written over a light blue horizontal line.

Alan R. Fornwalt, P.E.



September 12, 2024

Gregg Adams
Planner, Community Development Department
Manager, Municipal Division – Planning
South Whitehall Township
4444 Walbert Avenue
Allentown, PA 18104

RE: **Ruhe Subdivision (Minor Subdivision)**

Mr. Adams:

The following are Keystone Consulting Engineers, Inc. responses to the South Whitehall Township Municipal Engineering Services review letter dated December 14, 2023 regarding the above project:

A. Planning

1. In a letter revised September 21, 2023, the Applicant has requested waivers/deferrals from the requirements of the following sections of the SALDR:

Private Street

- a. SALDR §11.32 b(1) – Waiver from the requirement of providing curb along all public and private streets. The Applicant requests a waiver from providing curb along the shared private driveway. Curb is proposed along the western radius of the shared private driveway and along the western frontage of the property along Huckleberry Road.
- b. SALDR §11.32 (c)(1)(A) – Waiver from the requirement of providing sidewalks within a subdivision. Installation of sidewalk along the proposed private cul-de-sac is requested due to low traffic volumes.
- c. SALDR §11.32(a)(2)(C) – Waiver from the requirement of a cul-de-sac having a right-of-way (ROW) radius of 52-feet (42-foot radius access easement proposed) and a 40-foot roadway radius (30-foot roadway radius proposed).

- d. SALDR §11.33(c)(1) – Waiver from the requirement of the private street ROW being 36 feet. A waiver should also be requested from a 60-foot ROW width required by this section, as a variable width Access Easement with maximum 58-foot width is proposed.
Response: A waiver has been requested on the plan for the ROW, and the waiver request letter has been revised.
- e. SALDR §11.33(d)(1)(A) – Waiver from the requirement that grading of the ROW outside of cartway be a maximum slope of 3/8" vertical per 1 foot horizontal. A proposed grade of 1 foot vertical to 3 feet horizontal (33%) is proposed due to the existing structure.
- f. SALDR §11.32(a)(3)(E)(ii) – Waiver from the requirement of centerlines of intersecting streets being a minimum offset of 400 feet. The private street is proposed in the same location as the existing private driveway, which is 350± feet from Joseph Circle.

Huckleberry Road

- g. SALDR §11.33(b)(1) – Waiver from the requirement to widen Huckleberry Road to 40 feet (across the frontage of Lots 3 and 4). No widening, curb, or sidewalk is proposed along eastern frontage.
- h. SALDR §11.33(b)(1) – Waiver from the requirement to widen Huckleberry Road to 40 feet (across the frontage of Lots 1 and 2). A 20-foot half-width is currently proposed with a 4-foot taper to the private street.
- i. SALDR §11.32 b(1) – Waiver from the requirement of providing 5 foot sidewalks one foot inside the right-of--way (frontage of Lots 1 and 2). The proposed sidewalk is 4 feet wide and located 7 to 8 feet inside the ROW line. We note the correct reference section should be §11.32(c)(1)(a) and should be corrected on the Plans.
Response: Plan reference has been corrected and the revised waiver request letter issued.
- j. SALDR §11.33(d)(1)(A) – Waiver from the requirement that grading of the ROW outside of cartway be a maximum slope of 3/8" vertical per 1 foot horizontal. A proposed grade of 1 foot vertical to 4 feet horizontal (25%) is proposed due to the existing structure.
- k. SALDR §11.32(b)(1) – Deferral from the requirement of providing sidewalk along the frontage of Lots 3 and 4. A deferral is requested due to inability to connect to a

sidewalk or other sidewalk facilities. We note the correct reference section should be §11.32(c)(1)(a) and should be corrected on the plans.

Response: Plan reference has been corrected and the revised waiver request letter issued.

- I. SALDR §11.32(b)(1) – Deferral from the requirement of providing curb along all public and private streets. The Applicant requests a deferral from providing curb along the frontage of Lots 3 and 4.

In the event waivers/deferrals are granted, revise the Plan Notes to identify the dates of approval.

Response: Once the waivers/deferrals are approved, the plans will be revised accordingly.

2. As this Plan relies on the modification of an existing driveway on the adjacent Lutz property and to create a private street for this development, the inclusion of the Lutz property as part of this Application should be determined by the Township and the Township Solicitor. Any required easements/agreements with the private street should be provided, and any associated, required frontage improvements (Huckleberry Road) along the Lutz property should be identified on the Plan.

Response: Easements and agreements have been submitted by separate cover by the project attorney to the Township Solicitor.

B. General

1. The majority of the infrastructure improvements to serve the four lots are proposed to be privately owned and maintained. This would include a 200±-foot cul-de-sac and considerable private stormwater seepage bed (infiltration trench) areas including discharge systems. The Design Engineer indicates that all operations and maintenance of proposed structures, stormwater management, piping, and BMP facilities are to be owned and maintained by the lot on which they are located except for Seepage Bed C located on Lot 4 which is to be owned and maintained by Lot 3. Accordingly, the Ownership and Maintenance responsibilities should be clearly identified on the Plans.

Response: Ownership and Maintenance responsibilities have been added to the Record Plan.

2. Address Sewage Planning Act 537 Planning. The design of the on-lot sewage disposal systems is subject to review by the Township Sewage Enforcement Officer, SALDR §11.36(a)(2). The Design Engineer indicates that the on-lot sewer system will be submitted for approval.
Response: All lots have been tested for septic systems and have been shown on the plans. Test results have been submitted with this submission.

3. The plans have been revised to show milling of the half width of Huckleberry Road along the property frontage. Provide a detail showing the milling and overlay pavement thickness. We defer to the Department of Public Works as it relates to whether any additional pavement reconstruction is necessary on Huckleberry Road. Any comments should be addressed to the satisfaction of the DPW.
Response: A detail of the milling and overlay for the half width of Huckleberry Road is now provided.

4. Grading is shown on the adjacent property to the west. In addition to the "Match Sidewalk and Grading" Note (Sheet 9) obtain and show necessary construction easements. We note that the design will lower the edge of the road approximately 2.5 feet and should be designed in a manner that will not rely on construction of the adjoining development.
Response: A 15'x20' temporary construction easement is now shown on the adjacent property to allow for grading and full construction of the sidewalk.

5. The deferred sidewalk requested along the Lot 3 and 4 frontage should be shown across the entirety of the lots or the waiver/deferral letter should be updated. The Design Engineer indicates that the plan will be updated once the Township decides on waivers/deferrals with the Applicant.
Response: The deferred sidewalk requested along the Lot 3 and 4 frontage is now shown with a note stating the deferral request.

6. We note the following survey related comments:
 - a. Check the scale of the Existing Features (Expanded View, 60 Scale) Plan (Sheet 3). The plan does not appear to be drawn to scale;
Response: The scale has been revised accordingly.
 - b. Check the scale of the Stormwater Easement – Exhibit 'D' as the graphic and written scales are not consistent;
Response: The scale has been revised accordingly.
 - c. Sign and seal each legal description;
Response: Signature and seals will be provided under separate cover with any easement agreements.
 - d. Update the bearings and distances to be consistent between the Legal Descriptions and associated Exhibits (e.g., Ruhe Access Easement, Lutz Property Access Easement, etc.);

Response: The bearings and distances have been updated accordingly.

- e. Check the reference to 95.98' contained in the third paragraph of the Lutz Property Access Easement Description; and

Response: This has been checked and revised accordingly.

- f. Provide legal descriptions for proposed Huckleberry Road right-of-way areas to be dedicated to the Township (e.g., ROW1 and ROW2).

Response: Legal descriptions have been provided.

C. Stormwater Management

- 1. A revised stormwater management report was not submitted with this submission. Therefore the following comments from the previous review memo (listed below) are still applicable:

- a. The Design Engineer indicates that Inlet B-1 has been sumped. Provide substantiating calculations documenting that all intended runoff will be conveyed to Inlet B-1 and will not bypass this storm sewerage system. We previously noted the proposed channel provides limited depth to convey the calculated flow to Inlet B-1 and will not convey the intended flow to Underground Seepage Bed B. Additionally, as previously noted the Township has concerns with roadway or curb maintenance in this location. Another location for this Inlet should be considered. Any comments from the DPW should be addressed to their satisfaction;

Response: Two additional Inlets have been proposed, Inlet B-1A and Inlet B-2 to help in capturing the runoff. A swale has been designed leading to these Inlets to convey the runoff properly.

- b. Inverts, slopes, pipe sizes, and pipe lengths matching between the plan view, profiles, details, and report should be confirmed.

Response: These have been checked and revised accordingly.

- c. Verify the Underground Seepage Bed C calculations in the Report as there are two separate calculations provided.

Response: The Underground Seepage Bed C calculations in the Report have been verified.

- d. An Operations and Maintenance Agreement should be executed for the proposed stormwater BMPs, SMP §296-32.

Response: Acknowledged.

D. Policy and Information

- 1. The Applicant should coordinate with the Township regarding any required open space or fees necessary SALDR §11.34(e)(4)(G)(iii).

Response: Acknowledged.

2. We defer to the Solicitor regarding authorized parties and declarations between property ownership and agreements.

Response: Acknowledged.

3. We recommend the following Street Addresses:

<u>Lot Number</u>	<u>Address</u>
Lot 1	2442 Huckleberry Road (existing address)
Lot 2	2448 Huckleberry Road
Lot 3	2440 Huckleberry Road
Lot 4	2432 Huckleberry Road

Response: The recommended Street Addresses have been updated on the plan.

4. Once obtained, copies of all required permits, reviews, and approvals should be provided to the Township and our office. Expand General Note 3 (Sheet 1) to reflect the status of each permit/review/approval (e.g., received _____ date, pending, under review, etc.)

Response: General Note 3 has been revised accordingly.

5. We have not reviewed and defer to the Township Fire Marshal and emergency response personnel regarding the acceptability of emergency access and fire protection requirements.

Response: Acknowledged.

6. Any concerns of the Public Safety Committee and the Landscape and Shade Tree Commission should be addressed.

Response: Acknowledged.

7. Provide copies of any proposed deed restrictions and protective and restrictive covenants (e.g., the Stormwater Easement on Lot 4 for the benefit of Lot 3, etc.) SALDR §11.5(b)(28).

Response: No proposed deed restrictions are proposed except those in the proposed agreements for access and maintenance and Stormwater Easement on Lot 4.

8. We defer to the Township Geotechnical Consultant to review all geotechnical aspects of the design.

Response: Acknowledged.

9. Matters pertaining to the design of the water distribution and on-lot sewerage systems should be directed to the Township Department of Public Works and the SEO. We have not reviewed these designs.

Response: Acknowledged.

10. As required in SMP §13.19(d), §13.30, §13.31, §13.32, and §13.33, applicable BMP Operations and Maintenance Plans, notes, agreements, and easements should be provided.

Response: Acknowledged.

11. All required agreements shall be provided, and all Statements and Certifications shall be signed and sealed/notarized as applicable, SALDR §11.16(b)(2) and SALDR §11.16(b)(3). We note the following as it relates to Certifications/Acknowledgements:

- a. Remove the Township Waiver Acknowledgement as it is not necessary;
Response: The Township Waiver Acknowledgement has been removed.
- b. Revise the Owner's Certifications to be in accordance with the Applicant's Statement per SALDO §312-14(b)(2). Also, provide an Applicant's Statement for the Lutz's to execute;
Response: The Owner's Certifications has been revised accordingly and an Adjacent Property Owner's Statement has been added for the Lutz's to execute.
- c. Confirm the necessity for the Adjacent Owner's Statement with the Township Solicitor; and
Response: The necessity for the Adjacent Owner's Statement has been confirmed.
- d. Remove the Board of Commissioners' and Planning Commission signature blocks from PCSM Plans (as applicable). Also, the PCSM Plan should include a statement signed by the landowner acknowledging that stormwater BMPs are fixtures that cannot be altered or removed without approval by the municipality, SMP §13.19(d).
Response: The Board of Commissioners' and Planning Commission signature blocks have been removed from the PCSM Plans. The PCSM Plan now includes a statement signed by the landowner acknowledging that stormwater BMPs are fixtures that cannot be altered or removed without approval by the municipality.

Sincerely,

KEYSTONE CONSULTING ENGINEERS, INC.



Alan R. Fornwalt, P.E.

September 12, 2024

Gregg Adams
Planner, Community Development Department
Manager, Municipal Division – Planning
South Whitehall Township
4444 Walbert Avenue
Allentown, PA 18104

RE: **Ruhe Subdivision (Minor Subdivision)**

Mr. Adams:

The following are Keystone Consulting Engineers, Inc. responses to the South Whitehall Township Public Works Manager Interoffice Memorandum dated October 10, 2023 regarding the above project:

1. The extension of the water main on Huckelberry Rd is to be 12" DIP.
Response: The plans have been revised to include a 12" DIP along Huckleberry Road.
2. Sample station shall be after the last service on the 6" main.
Response: The location of the proposed fire hydrant and sample station have been revised to have the sample station after the last service along the 6" main.
3. Due to public water line being extended to the frontage of 2436, our ord. states they would need to connect to public water. If they choose not to connect, they will still be required to pay connection fees as well as a quarterly minimum.
Response: A lateral to valve box is shown on the plan. If the 2436 property is to connect or pay the minimum fees will be a decision by that property owner.
4. Please make sure the flow at the hydrant meets standards.
Response: The Township stated they would send a request form to have the Township Public Works department flow and pressure test the existing water main with our office witnessing.
5. All standards must be SWT.
Response: Acknowledged.
6. All storm BMP's to remain private.
Response: Acknowledged.

7. A will serve letter is required.
Response: Acknowledged.

8. A half mill and overlay is required for Huckelberry Rd.
Response: The plan has been revised for a half road mill and overlay.

Sincerely,

KEYSTONE CONSULTING ENGINEERS, INC.



Alan R. Fornwalt, P.E.