

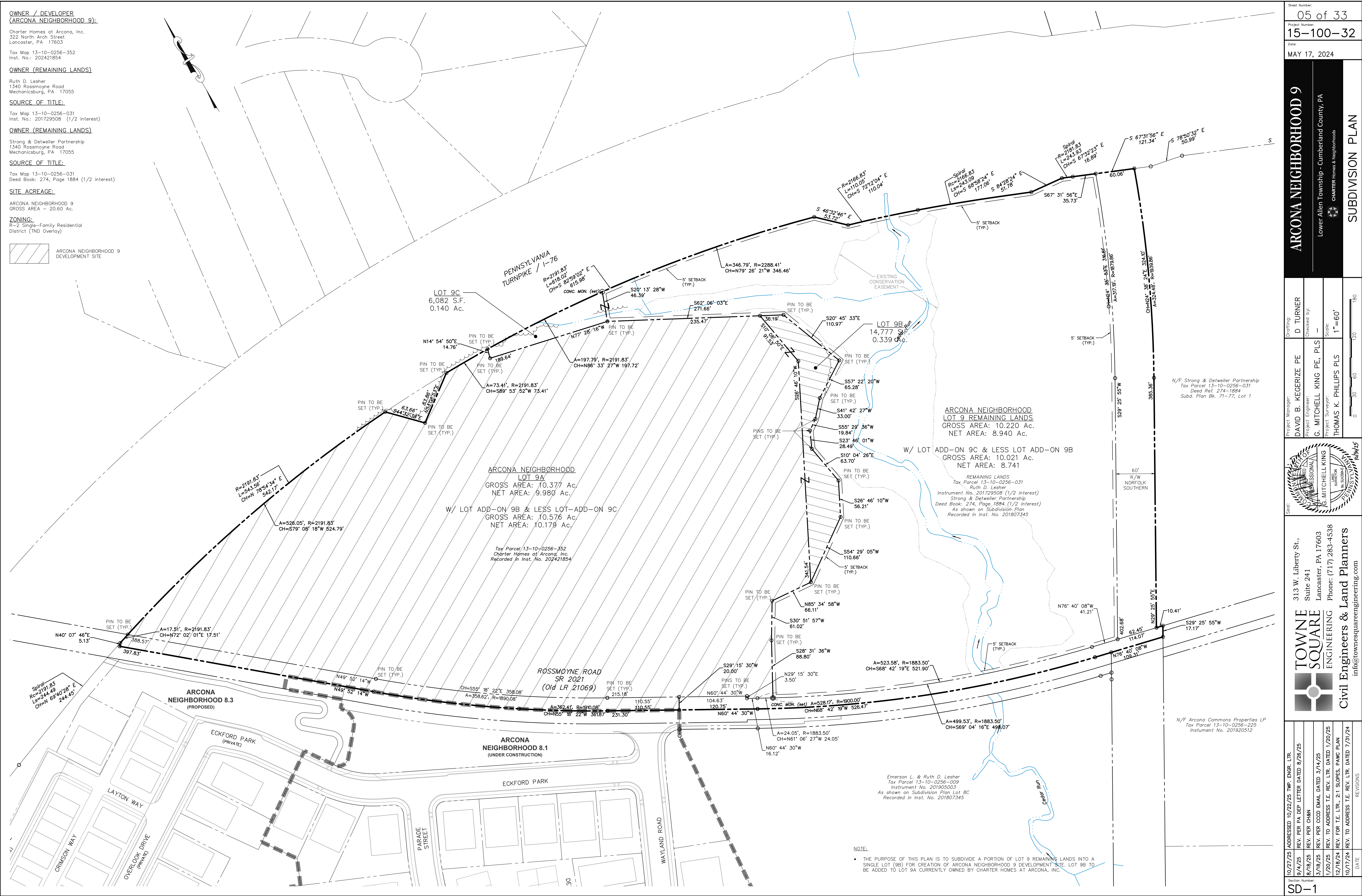
LEGEND -- EXISTING

---	PROPERTY LINE
---	RIGHT-OF-WAY LINE
---	EASEMENT LINE
---	ROADWAY CENTERLINE
---	CURB LINE
---	EDGE OF PAVEMENT
---	EDGE OF STONE
---	MIN. BLDG SETBACK LINE
S	SANITARY SEWER LINE
W	SANITARY FORCE MAIN
G	GAS LINE
OH	OVERHEAD UTILITIES
OHC	OVERHEAD CABLE
OHE	OVERHEAD ELECTRIC
UE	UNDERGROUND ELECTRIC
OHT	OVERHEAD TELEPHONE
UT	UNDERGROUND TELEPHONE
X X X	FENCE
---	INDEX CONTOUR
---	INTERMEDIATE CONTOUR
X 391.25	SPOT ELEVATION
---	STORM INLET & PIPING
---	ZONING LINE
---	MUNICIPALITY LINE
---	GUIDE RAIL
---	RAILROAD
---	EDGE OF WATER (STREAM)
---	FLOODWAY
---	FLOODPLAIN
---	SOILS LINE
---	TREELINE

●	DECIDUOUS TREE
●	CONIFEROUS TREE
●	PROPERTY CORNER MARKER FOUND
○	PROPERTY CORNER
○	UTILITY POLE
○	LIGHT POLE
○	LIGHT
○	WELL
○	WATER SHUT-OFF VALVE (SERVICE)
○	WATER VALVE (MAIN)
○	FIRE HYDRANT
○	GAS SHUT-OFF VALVE (SERVICE)
○	GAS VALVE (MAIN)
○	SEWER VENT
○	SEWER CLEAN OUT
○	ELECTRIC MANHOLE
○	STORM MANHOLE
○	SANITARY MANHOLE
○	TELEPHONE MANHOLE
○	SIGN
○	MAIL BOX
○	DEEP PROBE
○	PERCOLATION TEST HOLE

---	WETLANDS
---	SLOPES - 15%-24.9%
---	SLOPES - 25%+

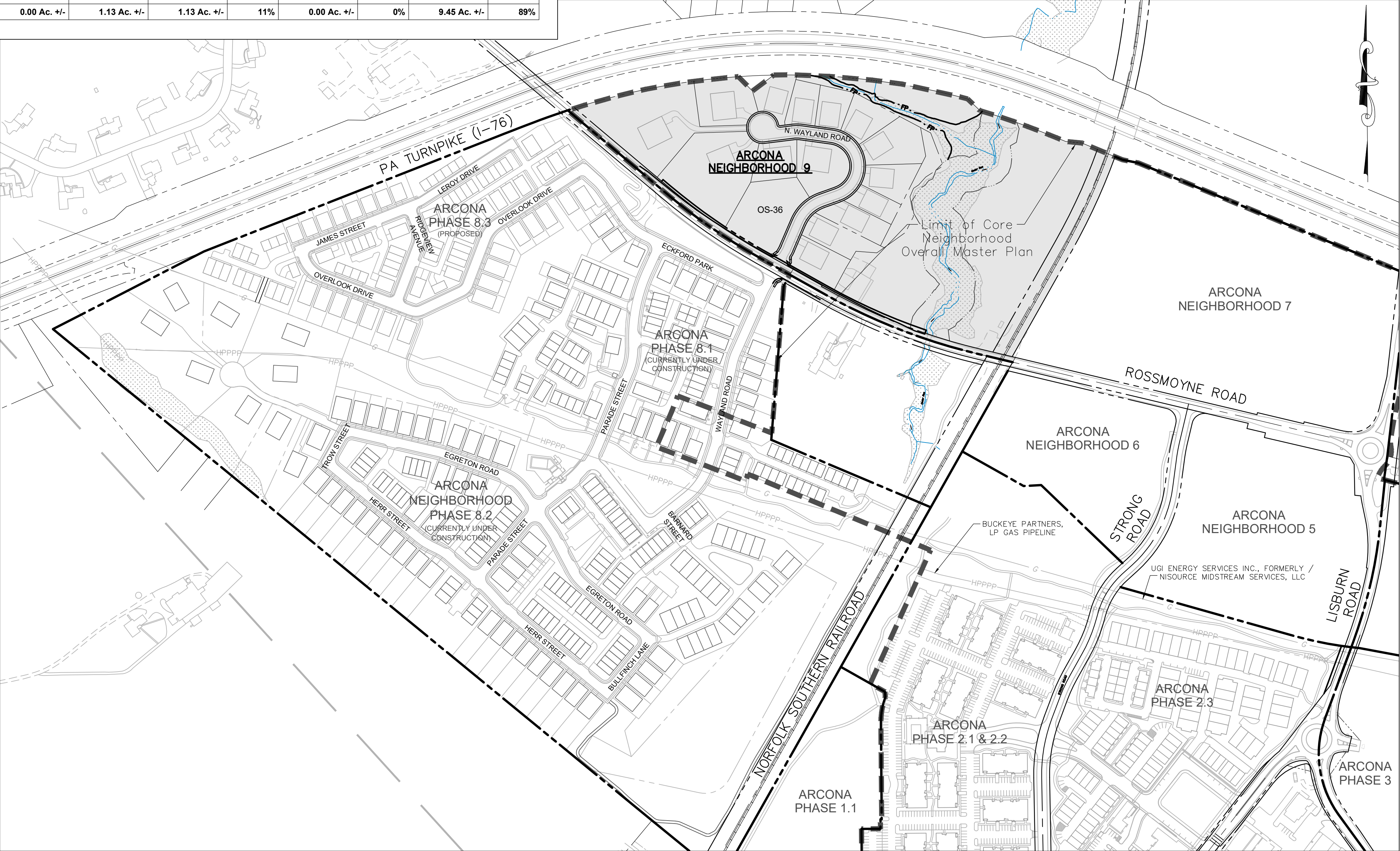
Sheet Number: 04 of 33	
Project Number: 15-100-32	
Date: MAY 17, 2024	
Project Manager: DAVID B. KEGERIZE PE	
Project Engineer: G. MITCHELL KING PE, PLS	
Project Surveyor: THOMAS K. PHILLIPS PLS	
Drafting: D TURNER	
Checked by: -	
Scale: 1"=50'	
Seal: TOWNE SQUARE ENGINEERING 313 W. Liberty St., Suite 241 Lancaster, PA 17603 Phone: (717) 283-4538 info@townesquareengineering.com	
10/27/25 9/4/25 8/16/25 3/16/25 1/20/25 12/16/24 10/17/24	
ADDRESSED 10/22/25 TWP. ENGR. LTR. REV. PER PA DEP LETTER DATED 8/26/25 REV. PER CHAN REV. PER CCOD EMAIL DATED 3/14/25 REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25 REV. FOR T.E. LTR., 21 SLOPES, PANC PLAN REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24	
EX-2	
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Description	Highpoint (rev.)	Strong Road	Arcona Ph. 2.1 & 2.2 (Rev.)	Arcona Ph. 2.3 (Rev.)	Arcona Ph. 8.1 (Rev.)	Arcona Ph. 8.2 (Rev.)	Arcona Ph. 8.3	Arcona Ph. 9	TND Totals to Date
Walking Trails	7,385 L.F. +/-	0 L.F. +/-	2,865 L.F. +/-	2,295 L.F. +/-	1,930 L.F. +/-	1,087 L.F. +/-	1,157 L.F. +/-	0 L.F. +/-	16,719 L.F. +/-
Site Acreage	40.1 Ac. +/-	2.6 Ac. +/-	17.0 Ac. +/-	13.3 Ac. +/-	29.7 Ac. +/-	30.9 Ac. +/-	13.6 Ac. +/-	10.6 Ac. +/-	157.8 Ac. +/-
Common OS	11.9 Ac. +/-	0.0 Ac. +/-	3.7 Ac. +/-	1.7 Ac. +/-	7.4 Ac. +/-	2.7 Ac. +/-	2.6 Ac. +/-	1.1 Ac. +/-	31.2 Ac. +/-
# Residential Units	183 (171)	0	282	107	133 (131)	144	93	15	957 (943)
Unit Density	4.27	0.00	16.61	8.03	4.41	4.66	6.82	1.42	5.98
* Length of Street (Sub-Total)	6,823 L.F. +/-	2,158 L.F. +/-	0 L.F. +/-	3,614 L.F. +/-	6,388 L.F. +/-	6,308 L.F. +/-	4,100 L.F. +/-	785 L.F. +/-	30,176 L.F. +/-
Length of Cul-de-sac (Sub-Total)	0 L.F. +/-	0 L.F. +/-	0 L.F. +/-	0 L.F. +/-	0 L.F. +/-	400 L.F. +/-	0 L.F. +/-	785 L.F. +/-	1,185 L.F. +/-
Percentage of Total	0.00%	0.00%	0.00%	0.00%	0.00%	6.34%	0.00%	100.00%	3.93%
Impervious Area	16.10 Ac. +/-	1.68 Ac. +/-	8.85 Ac. +/-	7.84 Ac. +/-	9.94 Ac. +/-	12.78 Ac. +/-	7.07 Ac. +/-	2.98 Ac. +/-	67.2 Ac. +/-
Impervious Percentage	40.17%	64.34%	52.12%	58.84%	33.43%	41.33%	51.87%	28.20%	42.60%
*Includes public and private streets & alleys.									

Development Site			Open Space							
Highpoint	Development Site	% Total	Rec. Lands	Common OS	Total OS Area	% Total	Village	% Total	Residential	% Total
Highpoint Phase 1.1	17.39 Ac. +/-	40%	0.00 Ac. +/-	5.69 Ac. +/-	5.69 Ac. +/-	13%	0.00 Ac. +/-	0%	11.70 Ac. +/-	27%
Highpoint Phase 1.2	5.94 Ac. +/-	14%	0.00 Ac. +/-	0.71 Ac. +/-	0.71 Ac. +/-	2%	0.00 Ac. +/-	0%	5.23 Ac. +/-	12%
Highpoint Phase 1.3	4.94 Ac. +/-	11%	0.00 Ac. +/-	1.27 Ac. +/-	1.27 Ac. +/-	3%	0.00 Ac. +/-	0%	3.67 Ac. +/-	8%
Highpoint Phase 1.4	7.00 Ac. +/-	16%	0.00 Ac. +/-	1.05 Ac. +/-	1.05 Ac. +/-	2%	5.95 Ac. +/-	14%	0.00 Ac. +/-	0%
Highpoint Phase 1.5	8.06 Ac. +/-	19%	1.85 Ac. +/-	1.35 Ac. +/-	3.20 Ac. +/-	7%	0.00 Ac. +/-	0%	4.86 Ac. +/-	11%
Highpoint (rev.) sub-total =	43.33 Ac. +/-	100%	1.85 Ac. +/-	10.07 Ac. +/-	11.92 Ac. +/-	27.5%	5.95 Ac. +/-	13.7%	25.46 Ac. +/-	58.8%
Arcona Phase 2.1 & 2.2	Development Site	% Total	Rec. Lands	Common OS	Total OS Area	% Total	Village	% Total	Residential	% Total
Arcona Phase 2.1	6.49 Ac. +/-	38%	0.00 Ac. +/-	0.00 Ac. +/-	0.00 Ac. +/-	0%	0.00 Ac. +/-	0%	6.49 Ac. +/-	38%
Arcona Phase 2.2	10.49 Ac. +/-	62%	0.00 Ac. +/-	3.68 Ac. +/-	3.68 Ac. +/-	22%	0.00 Ac. +/-	0%	6.81 Ac. +/-	40%
Arcona Phase 2.1 & 2.2 sub-total =	16.98 Ac. +/-	100%	0.00 Ac. +/-	3.68 Ac. +/-	3.68 Ac. +/-	21.7%	0.00 Ac. +/-	0.0%	13.30 Ac. +/-	78.3%
Arcona Phase 2.3	Development Site	% Total	Rec. Lands	Common OS	Total OS Area	% Total	Village	% Total	Residential	% Total
Arcona Phase 2.3.1	10.49 Ac. +/-	79%	0.00 Ac. +/-	1.74 Ac. +/-	1.74 Ac. +/-	13%	8.75 Ac. +/-	66%	0.00 Ac. +/-	0%
Arcona Phase 2.3.2	2.22 Ac. +/-	17%	0.00 Ac. +/-	0.00 Ac. +/-	0.00 Ac. +/-	0%	2.22 Ac. +/-	17%	0.00 Ac. +/-	0%
Arcona Phase 2.3.3	0.62 Ac. +/-	5%	0.00 Ac. +/-	0.00 Ac. +/-	0.00 Ac. +/-	0%	0.62 Ac. +/-	5%	0.00 Ac. +/-	0%
Arcona Phase 2.3 (Rev.) sub-total =	13.33 Ac. +/-	100%	0.00 Ac. +/-	1.74 Ac. +/-	1.74 Ac. +/-	13.1%	11.59 Ac. +/-	86.9%	0.00 Ac. +/-	0.0%
Arcona Neighborhood 8	Development Site	% Total	Rec. Lands	Common OS	Total OS Area	% Total	Village	% Total	Residential	% Total
Arcona Phase 8.1 (Rev.)	29.54 Ac. +/-	40%	0.00 Ac. +/-	7.41 Ac. +/-	7.41 Ac. +/-	10%	0.00 Ac. +/-	0%	22.13 Ac. +/-	30%
Arcona Phase 8.2 (Rev.)	30.91 Ac. +/-	42%	0.00 Ac. +/-	2.71 Ac. +/-	2.71 Ac. +/-	4%	0.00 Ac. +/-	0%	28.20 Ac. +/-	38%
Arcona Phase 8.3	13.63 Ac. +/-	18%	0.00 Ac. +/-	2.64 Ac. +/-	2.64 Ac. +/-	4%	0.00 Ac. +/-	0%	10.99 Ac. +/-	15%
Arcona Neighborhood 8 sub-total=	74.08 Ac. +/-	100%	0.00 Ac. +/-	12.76 Ac. +/-	12.76 Ac. +/-	17.2%	0.00 Ac. +/-	0.0%	61.32 Ac. +/-	82.8%
Arcona Neighborhood 9	Development Site	% Total	Rec. Lands	Common OS	Total OS Area	% Total	Village	% Total	Residential	% Total
Arcona Neighborhood 9	10.58 Ac. +/-	100%	0.00 Ac. +/-	1.13 Ac. +/-	1.13 Ac. +/-	11%	0.00 Ac. +/-	0%	9.45 Ac. +/-	89%

LEGEND -- PROPOSED	
PROPERTY LINE	---
RIGHT-OF-WAY LINE	---
EASEMENT LINE	---
ROADWAY CENTERLINE	---
CURB LINE	---
EDGE OF PAVEMENT	---
EDGE OF STONE	---
MIN. BLDG SETBACK LINE	---
SANITARY SEWER LINE	---
SANITARY FORCE MAIN	---
WATER LINE	---
GAS LINE	---
OVERHEAD UTILITIES	---
OVERHEAD ELECTRIC	---
UNDERGROUND ELECTRIC	---
OVERHEAD TELEPHONE	---
UNDERGROUND TELEPHONE	---
FENCE	X X X X
INDEX CONTOUR	560
INTERMEDIATE CONTOUR	550
SPOT ELEVATION	x 392.15
STORM INLET & PIPING	---
GUIDE RAIL	---
TREELINE	---
DECIDUOUS TREE	---
CONIFEROUS TREE	---
CONC. MONUMENT SET	---
PIN	---
ANGLE BREAK, PC/PT	---
EASEMENT CORNER	---
UTILITY POLE	---
LIGHT POLE	---
LIGHT	---
WELL	---
WATER SHUT-OFF VALVE (SERVICE)	---
WATER VALVE (MAIN)	---
FIRE HYDRANT	---
GAS SHUT-OFF VALVE (SERVICE)	---
GAS VALVE (MAIN)	---
SEWER VENT	---
SEWER CLEAN OUT	---
ELECTRIC MANHOLE	---
STORM MANHOLE	---
SANITARY MANHOLE	---
TELEPHONE MANHOLE	---
SIGN	---



NOTES:

- Unit density is based on current neighborhood development site acreage.
- Additional neighborhoods will be added to the chart as they are developed.
- Arcona Neighborhood 9 proposes adding a total of 15 dwelling units on 10.6 acres, which equates to a density of 5.88 dwelling units per acre for Highpoint, Arcona Phase 2.1 & 2.2, Arcona Phase 2.3, Arcona Phase 8.1, 8.2, and 8.3, and Arcona Phase 9. Pursuant to Sections 220-126.A and B of the Zoning Ordinance and Section 192-68.E of the SALDO, this density is permitted because (i) cumulatively for such phases, 31.2 acres of common open space is proposed to be provided, which exceeds 150% of the amount of common open space that is required under Section 220-131 of the Zoning Ordinance, and (ii) recreation fees are to be paid based upon approved cumulative density as provided in General Design Note 19 (See Sheet CV-2).

TND SLOPE CALCULATIONS					
Phase	15-24.9% SLOPES (MAX 30% Disturbance)			25%+ SLOPES (MAX 15% Disturbance)	
	Total Area TND	Disturbed Area	Est. % Disturbed	Total Area TND	Disturbed Area
Highpoint (Rev.)		0.00 Ac.	0.0%		0.00 Ac.
Arcona 2.1 & 2.2 (Rev.)		0.00 Ac.	0.0%		0.00 Ac.
Arcona 2.3		0.00 Ac.	0.0%		0.00 Ac.
Arcona 8.1		0.00 Ac.	0.0%		0.00 Ac.
Arcona 8.2		0.69 Ac.	3.6%		0.09 Ac.
Arcona 8.3		0.09 Ac.	0.5%		0.00 Ac.
Arcona 9		2.10 Ac.	10.9%		0.07 Ac.
Totals To Date	2.88 Ac.	15.0%		0.16 Ac.	2.2%
Total area of slopes is inclusive of the entire TND Site, including existing and future phases.					
Slopes are derived from pre-development topo and are based on natural slopes per Zoning Section 220-204.					

NOTES:

- SEE EA-1 FOR ALL PROPOSED EASEMENTS AND EXISTING EASEMENTS TO BE EXTINGUISHED.
- PROPOSED CURB SHOWN ON THIS PLAN IS TO BE BELGIAN BLOCK.
- N. WAYLAND ROAD IS A PRIVATE STREET. "ON-STREET" PARKING OF N. WAYLAND ROAD IS NOT PERMITTED.
- EACH SINGLE-FAMILY DETACHED DWELLING WILL HAVE A 2-CAR GARAGE.
- EACH DWELLING UNIT WILL HAVE INDIVIDUAL REFUSE PICKUP. ALL RESIDENTIAL UNIT OWNERS ARE REQUIRED TO PLACE REFUSE AT A COLLECTION POINT ACCESSIBLE FOR TRUCK PICKUP, AS DIRECTED BY THE NEIGHBORHOOD ASSOCIATION DOCUMENTS. HOMEOWNERS WILL BE REQUIRED TO BRING REFUSE TO END OF DRIVES.
- SEE SHEET LY-2 STREET ADDRESSES (PENDING APPROVAL).
- SEE SHEET LY-4 FOR LOT AREAS, BEARINGS AND DISTANCES.
- NEIGHBORHOOD ASSOCIATION TO MAINTAIN AND KEEP CLEAR ALL SNOW EASEMENTS.

ARCONA NEIGHBORHOOD 9 - PARKING SUMMARY (Residential)						
PHASE	LOT / UNIT	UNIT TYPE	DESCRIPTION	# UNITS	REQUIRED	PROPOSED
9	893-907	RESIDENTIAL (SINGLE-FAMILY DETACHED)	2.0 PER UNIT	15 (Dwelling Units)	30	30 (Garages)
9	N/A	N/A	On Street	N/A	0	0
Total				15 (Dwelling Units)	30	30

Depth to Width Percentage of Dwelling Units - Arcona Neighborhood 9		
# of Residential Lots	# Wider than Deep	> 90% Deeper
15	15	100.0%

Arcona Neighborhood 9 Unit Count	
Unit Type	# of Units
Single Family Detached	15
Single Family Attached	0
Mixed Use Residential	0
Multi-family Residential - Apartments	0
Total Residential Units =	15
Unit Type	SQ. FT.
Commercial Space	0
Total Commercial Space =	0

STREET LENGTH SUMMARY	
Streets, Alleys & Boulevards	L.F. of Pavement
Streets (Public)	0 L.F.
Streets (Private)	785 L.F.
Alleys	0 L.F.
Total =	785 L.F.

OPEN SPACE / COMMON AREAS			Meets Common Open Space Req's.
Description	Area (s.f.)	Area (Acres)	
OS-36	37,478 s.f.	0.86 Ac.	Yes
OS-37	14,612 s.f.	0.34 Ac.	Yes
Total	52,090 s.f.	1.20 Ac.	

Sheet Number:
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Project Number:
15-100-32

Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA

CHARTER Homes & Neighborhoods

Drafting:
D TURNER

Checked by:
I

Scale:
1"=200'

Project Manager:
DAVID B. KEGERIZE PE

Project Engineer:
G. MITCHELL KING PE, PLS

Project Surveyor:
THOMAS K. PHILLIPS PLS

Seal:

Seal:

TOWNE SQUARE ENGINEERING

313 W. Liberty St., Suite 241 Lancaster, PA 17603 Phone: (717) 283-4538

Civil Engineers & Land Planners

10/27/25
9/4/25
8/18/25
3/18/25
1/20/25
12/18/24
10/17/24

ADDRESSED 10/22/25 TWP. ENGR. LTR.
REV. PER PA DEP LETTER DATED 8/26/25
REV. PER CHAN
REV. PER CCOD EMAIL DATED 3/14/25
REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25
REV. FOR T.E. LTR., 21 SLOPES, PANC PLAN
REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

DATE
REVISIONS

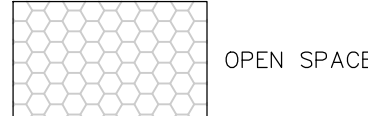
Section Number:
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LOT #	Approved Address	Phase No.
893	1110 N. Wayland Road Mechanicsburg PA 17055	9
894	1112 N. Wayland Road Mechanicsburg PA 17055	9
895	1114 N. Wayland Road Mechanicsburg PA 17055	9
896	1116 N. Wayland Road Mechanicsburg PA 17055	9
897	1118 N. Wayland Road Mechanicsburg PA 17055	9
898	1120 N. Wayland Road Mechanicsburg PA 17055	9
899	1122 N. Wayland Road Mechanicsburg PA 17055	9
900	1124 N. Wayland Road Mechanicsburg PA 17055	9
901	1126 N. Wayland Road Mechanicsburg PA 17055	9
902	1128 N. Wayland Road Mechanicsburg PA 17055	9
903	1127 N. Wayland Road Mechanicsburg PA 17055	9
904	1125 N. Wayland Road Mechanicsburg PA 17055	9
905	1123 N. Wayland Road Mechanicsburg PA 17055	9
906	1121 N. Wayland Road Mechanicsburg PA 17055	9
907	1119 N. Wayland Road Mechanicsburg PA 17055	9

- NOTES:
- SEE EA-1 FOR ALL PROPOSED EASEMENTS AND EXISTING EASEMENTS TO BE EXTINGUISHED.
 - N. WAYLAND ROAD IS A PRIVATE STREET.
 - EACH SINGLE-FAMILY DETACHED DWELLING WILL HAVE A MINIMUM OF A 2-CAR GARAGE.
 - EACH DWELLING UNIT WILL HAVE INDIVIDUAL REFUSE PICKUP. ALL RESIDENTIAL UNIT OWNERS ARE REQUIRED TO PLACE REFUSE AT A COLLECTION POINT ACCESSIBLE FOR TRUCK PICKUP, AS DIRECTED BY THE NEIGHBORHOOD ASSOCIATION DOCUMENTS. HOMEOWNERS WILL BE REQUIRED TO BRING REFUSE TO END OF DRIVES.
 - SEE SHEET LY-4 FOR LOT AREAS, BEARINGS AND DISTANCES.
 - NEIGHBORHOOD ASSOCIATION TO MAINTAIN AND KEEP CLEAR ALL SNOW EASEMENTS.
 - THE SPEED LIMIT FOR THE STREET IN NEIGHBORHOOD 9 SHALL BE POSTED AT 15 MPH.
 - SINGLE-FAMILY FRONT LOAD DRIVEWAYS MUST BE 18" (MIN.) DEEP MEASURED FROM STREET RIGHT-OF-WAY. DEPTH FROM RIGHT-OF-WAY WILL BE DETERMINED AND PROVIDED TO THE TOWNSHIP AT THE TIME OF BUILDING PERMIT APPLICATION FOR EACH DWELLING UNIT.
 - THE FIRST 20' OF ANY DRIVEWAY THAT ENTERS ONTO A STREET SHALL HAVE A MAXIMUM SLOPE OF 7% (SECTION 192-57.8.3.c(2)).
 - DRIVEWAY SLOPES WILL BE DETERMINED AND PROVIDED TO THE TOWNSHIP AT THE TIME OF BUILDING PERMIT APPLICATION FOR EACH DWELLING UNIT.
 - LOT #'S 893, 904, & 905 AND OS-36 CANNOT HAVE DRIVEWAY ACCESS ONTO ROSSMOYNE ROAD.

LEGEND



OPEN SPACE



Sheet Number:
07 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA

CHARTER Homes & Neighborhoods

Project Manager:
DAVID B. KEGERIZE PE

Drafting:
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Project Engineer:
G. MITCHELL KING PE, PLS

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—

Project Surveyor:
THOMAS K. PHILLIPS PLS

Scale:
1"=50'

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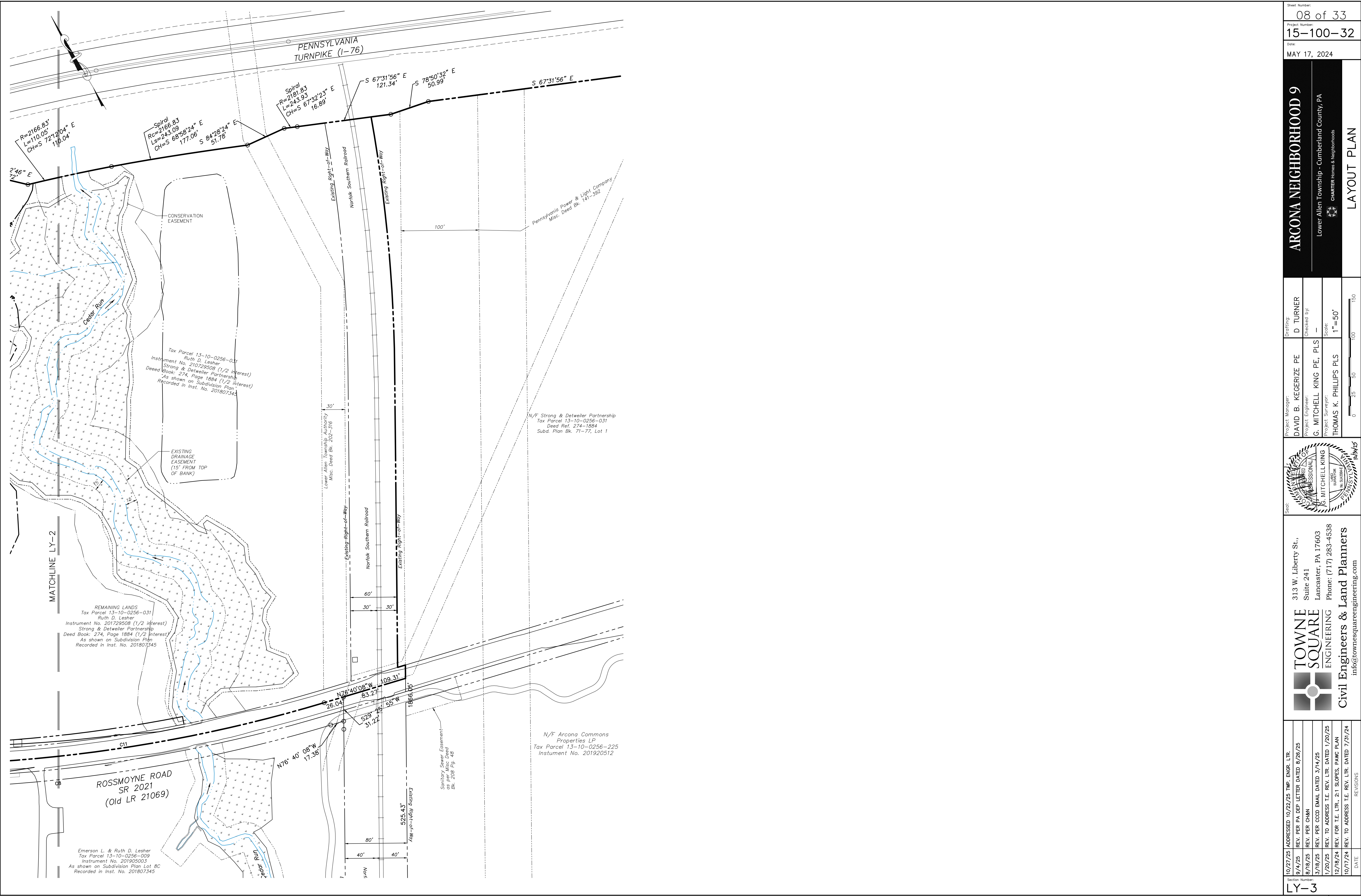
Civil Engineers & Land Planners

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12/18/24	REV. FOR T.E. LTR., 21 SLOPES, P&W PLAN
10/17/24	REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

DATE REVISIONS

Section Number:
LY-2

PRELIMINARY/FINAL



Sheet Number:
08 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA
CHARTER Homes & Neighborhoods

Project Manager:
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Project Engineer:
G. MITCHELL KING PE, PLS

Project Surveyor:
THOMAS K. PHILLIPS PLS

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D TURNER

Checked by:
—

Scale:
1"=50'

Seal:
G. MITCHELL KING
Professional Engineer
No. 120246
RENEWAL 12/24/25

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Civil Engineers & Land Planners
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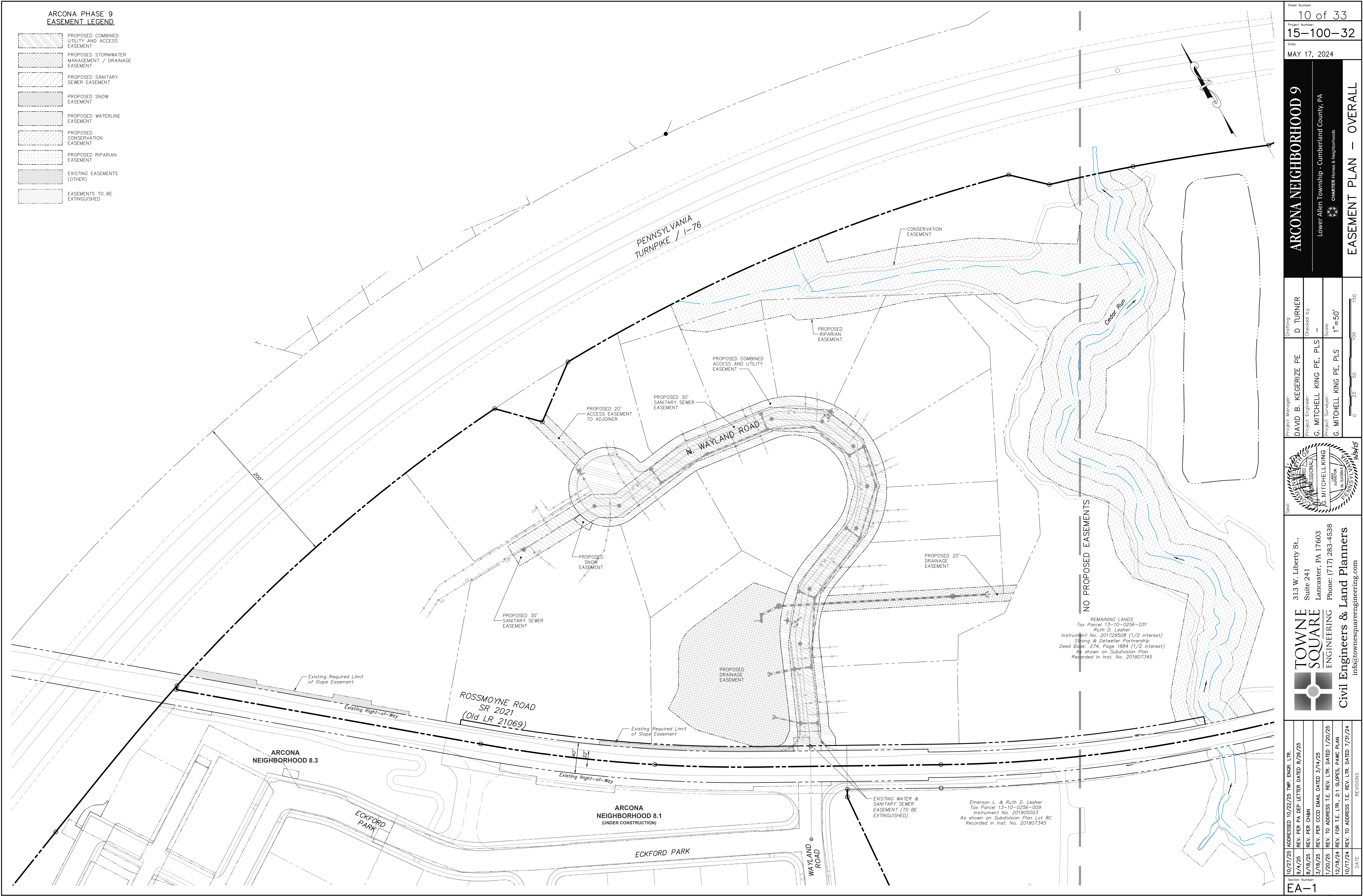
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Lancaster, PA 17603
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10/17/24	REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24
DATE	REVISIONS

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Sheet Number:
10 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA
CHARTER Homes & Neighborhoods

Project Manager:
DAVID B. KEGERIZE PE

Drafting:
D TURNER

Project Engineer:
G. MITCHELL KING PE, PLS

Checked by:
-

Project Surveyor:
G. MITCHELL KING PE, PLS

Scale:
1"=50'

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ENGINEERING
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Lancaster, PA 17603
Phone: (717) 283-4538
info@townesquareengineering.com

Civil Engineers & Land Planners

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10/17/24	REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

DATE REVISIONS

Section Number:
EA-1

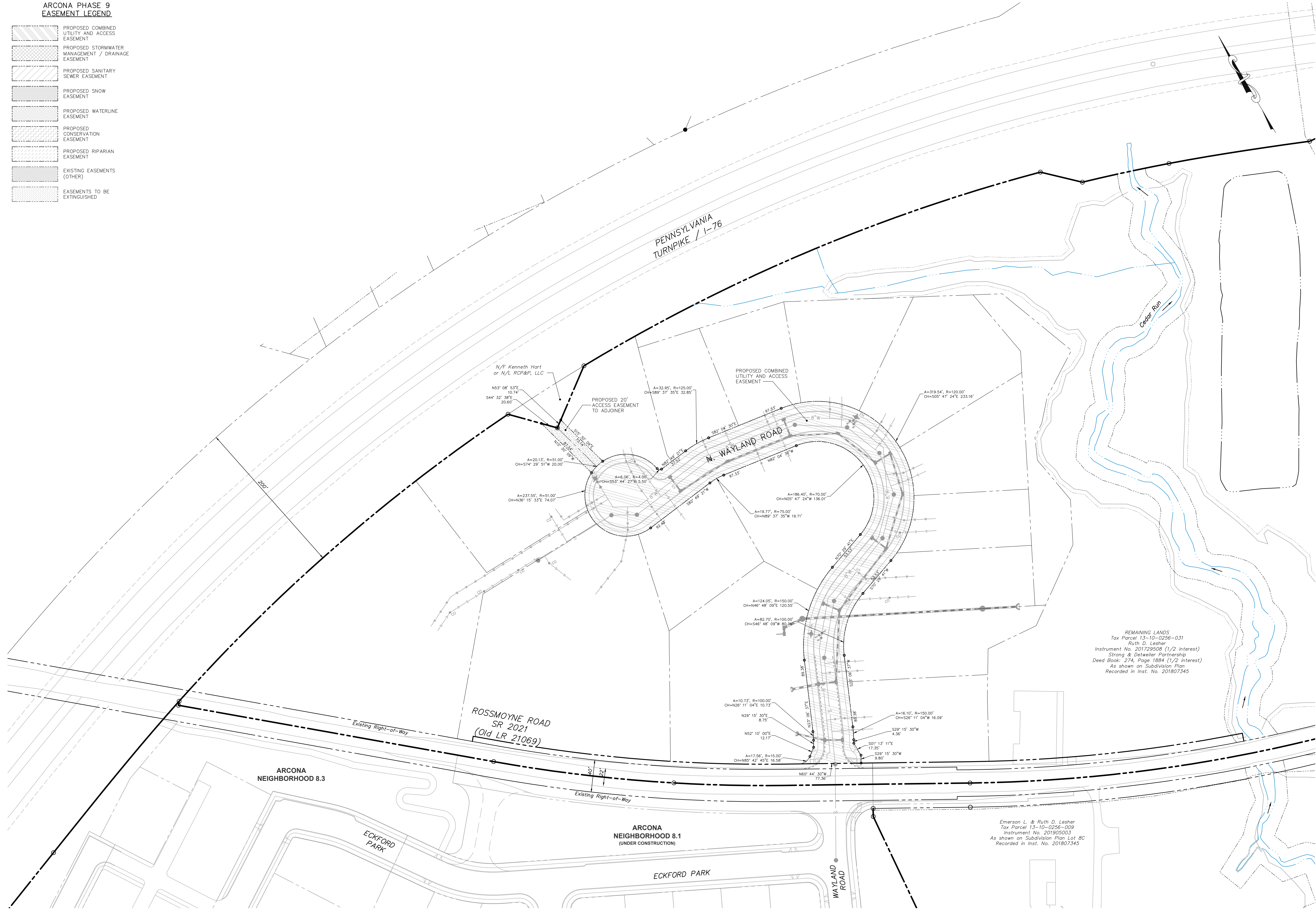
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PRELIMINARY/FINAL

ARCONA PHASE 9
EASEMENT LEGEND

- PROPOSED COMBINED
UTILITY AND ACCESS
EASEMENT
- PROPOSED STORMWATER
MANAGEMENT / DRAINAGE
EASEMENT
- PROPOSED SANITARY
SEWER EASEMENT
- PROPOSED SNOW
EASEMENT
- PROPOSED WATERLINE
EASEMENT
- PROPOSED
CONSERVATION
EASEMENT
- PROPOSED RIPARIAN
EASEMENT
- EXISTING EASEMENTS
(OTHER)
- EASEMENTS TO BE
EXTINGUISHED



Sheet Number:
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Project Number:
15-100-32

Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA

CHARTER Homes & Neighborhoods

EASEMENT PLAN - COMBINED UTILITY & ACCESS

Project Manager:	Drafting:
DAVID B. KEGERIZE PE	D TURNER
Project Engineer:	Checked by:
G. MITCHELL KING PE, PLS	-
Project Surveyor:	Scale:
G. MITCHELL KING PE, PLS	1"=50'



313 W. Liberty St.,
Suite 241
Lancaster, PA 17603
Phone: (717) 283-4538

TOWNE SQUARE
ENGINEERING

Civil Engineers & Land Planners

info@townesquareengineering.com

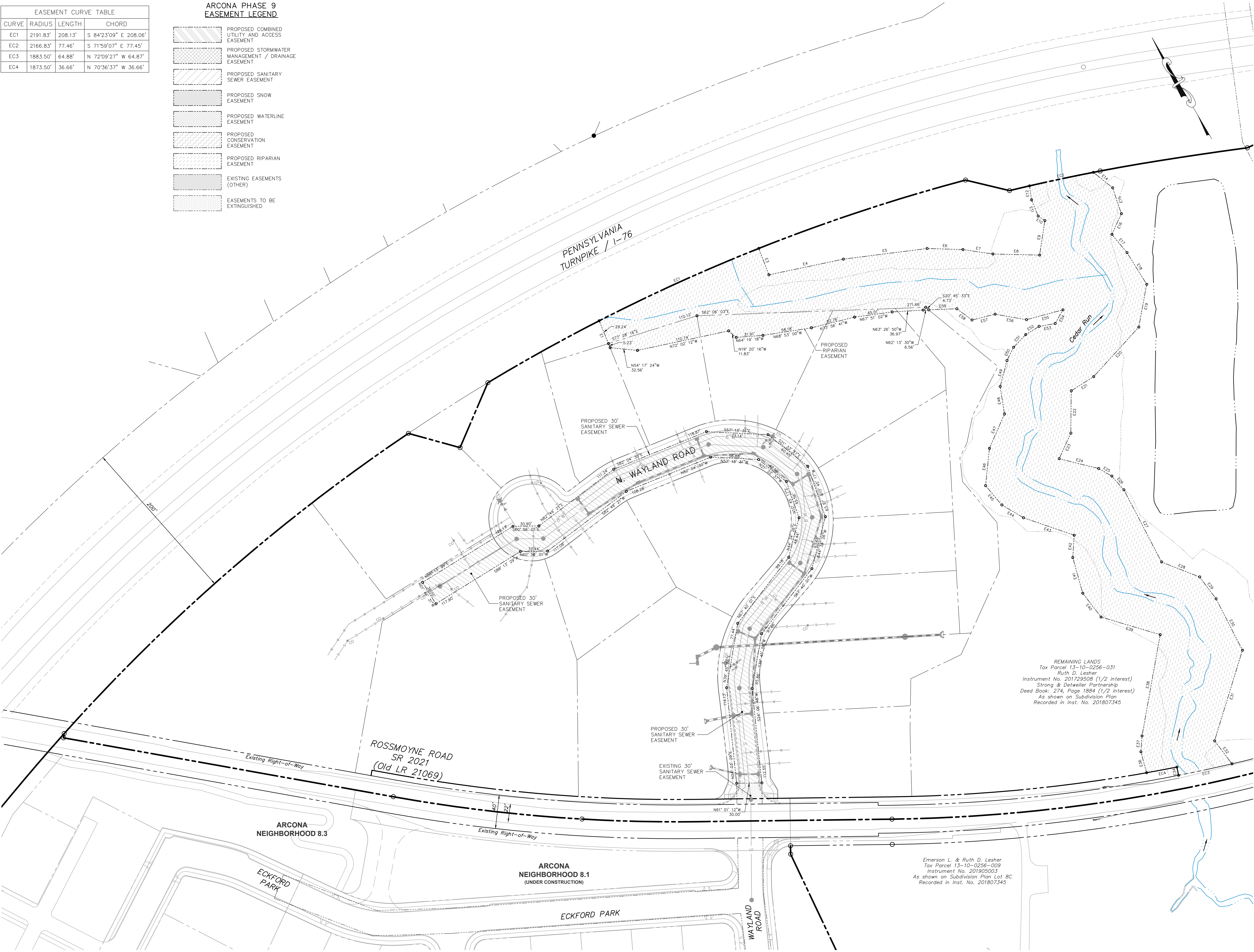
10/27/25	ADDRESSED 10/22/25 TWP. ENGR. LTR.
9/4/25	REV. PER PA DEP LETTER DATED 8/26/25
8/18/25	REV. PER CHAN
3/18/25	REV. PER COCD EMAIL DATED 3/14/25
1/20/25	REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25
12/18/24	REV. FOR T.E. LTR., 21 SLOPES, P&C PLAN
10/17/24	REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24
DATE	REVISIONS

EASEMENT LINE TABLE		
LINE	LENGTH	DIRECTION
E1	34.47'	N 7°53'30" E
E3	33.55'	S 9°09'25" W
E4	90.38'	S 71°52'14" E
E5	100.15'	S 67°15'56" E
E6	42.56'	S 58°19'23" E
E7	36.01'	S 51°33'26" E
E8	55.46'	S 58°39'46" E
E9	41.46'	N 38°40'12" E
E10	9.55'	N 26°29'09" W
E11	20.71'	N 7°47'52" E
E12	16.89'	N 21°50'51" E
E14	29.30'	S 21°16'12" E
E15	32.45'	S 11°20'40" W
E16	26.98'	S 54°35'12" W
E17	28.18'	S 9°30'13" E
E18	44.26'	S 1°54'27" E
E19	51.67'	S 40°27'31" W
E20	79.58'	S 72°20'01" W
E21	31.45'	S 87°44'26" W
E22	50.31'	S 30°34'58" W
E23	33.34'	S 54°30'06" W
E24	48.29'	S 46°03'17" E
E25	18.04'	S 30°00'45" E
E26	21.75'	S 11°23'50" E
E27	96.64'	S 2°25'31" W
E28	48.56'	S 38°34'05" E
E29	32.33'	S 6°54'59" E
E30	68.66'	S 2°49'17" W
E31	112.55'	S 47°05'53" W
E32	34.25'	S 7°05'16" E
E34	10.00'	N 18°49'45" E
E36	25.74'	N 14°54'15" E
E37	18.91'	N 33°52'57" E
E38	122.12'	N 40°10'34" E
E39	73.24'	N 43°23'54" W
E40	35.72'	N 7°35'37" W
E41	43.96'	N 14°22'39" E
E42	26.53'	N 33°34'34" E
E43	63.64'	N 40°57'06" W
E44	29.81'	N 29°26'45" W
E45	30.02'	N 10°10'15" W
E46	44.55'	N 35°57'12" E
E47	44.47'	N 53°43'26" E
E48	33.12'	N 21°05'57" E
E49	31.78'	N 44°32'07" E
E50	17.68'	N 56°39'17" E
E51	20.88'	N 73°47'26" E
E52	18.58'	N 88°29'35" E
E53	19.32'	S 70°06'55" E
E54	18.67'	N 59°42'53" E
E55	44.82'	N 75°08'16" W
E56	37.81'	N 50°05'01" W
E57	28.34'	N 74°06'15" W
E58	22.36'	N 23°14'22" W
E59	33.46'	S 62°13'30" E

EASEMENT CURVE TABLE			
CURVE	RADIUS	LENGTH	CHORD
EC1	2191.83'	208.13'	S 84°23'09" E 208.06'
EC2	2166.83'	77.46'	S 71°59'07" E 77.45'
EC3	1883.50'	64.88'	N 72°09'27" W 64.87'
EC4	1873.50'	36.66'	N 70°36'37" W 36.66'

ARCONA PHASE 9
EASEMENT LEGEND

- PROPOSED COMBINED UTILITY AND ACCESS EASEMENT
- PROPOSED STORMWATER MANAGEMENT / DRAINAGE EASEMENT
- PROPOSED SANITARY SEWER EASEMENT
- PROPOSED SNOW EASEMENT
- PROPOSED WATERLINE EASEMENT
- PROPOSED CONSERVATION EASEMENT
- PROPOSED RIPARIAN EASEMENT
- EXISTING EASEMENTS (OTHER)
- EASEMENTS TO BE EXTINGUISHED



Sheet Number:
12 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

Project Manager:
DAVID B. KEGERIZE PE

Drafting:
D TURNER

Project Engineer:
G. MITCHELL KING PE, PLS

Checked by:
-

Project Surveyor:
G. MITCHELL KING PE, PLS

Scale:
1"=50'

Lower Allen Township - Cumberland County, PA

CHARTER Homes & Neighborhoods

EASEMENT PLAN - SANITARY SEWER & RIPARIAN EASEMENTS

Project Manager:
DAVID B. KEGERIZE PE

Drafting:
D TURNER

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Checked by:
-

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1"=50'

Lower Allen Township - Cumberland County, PA

CHARTER Homes & Neighborhoods

EASEMENT PLAN - SANITARY SEWER & RIPARIAN EASEMENTS

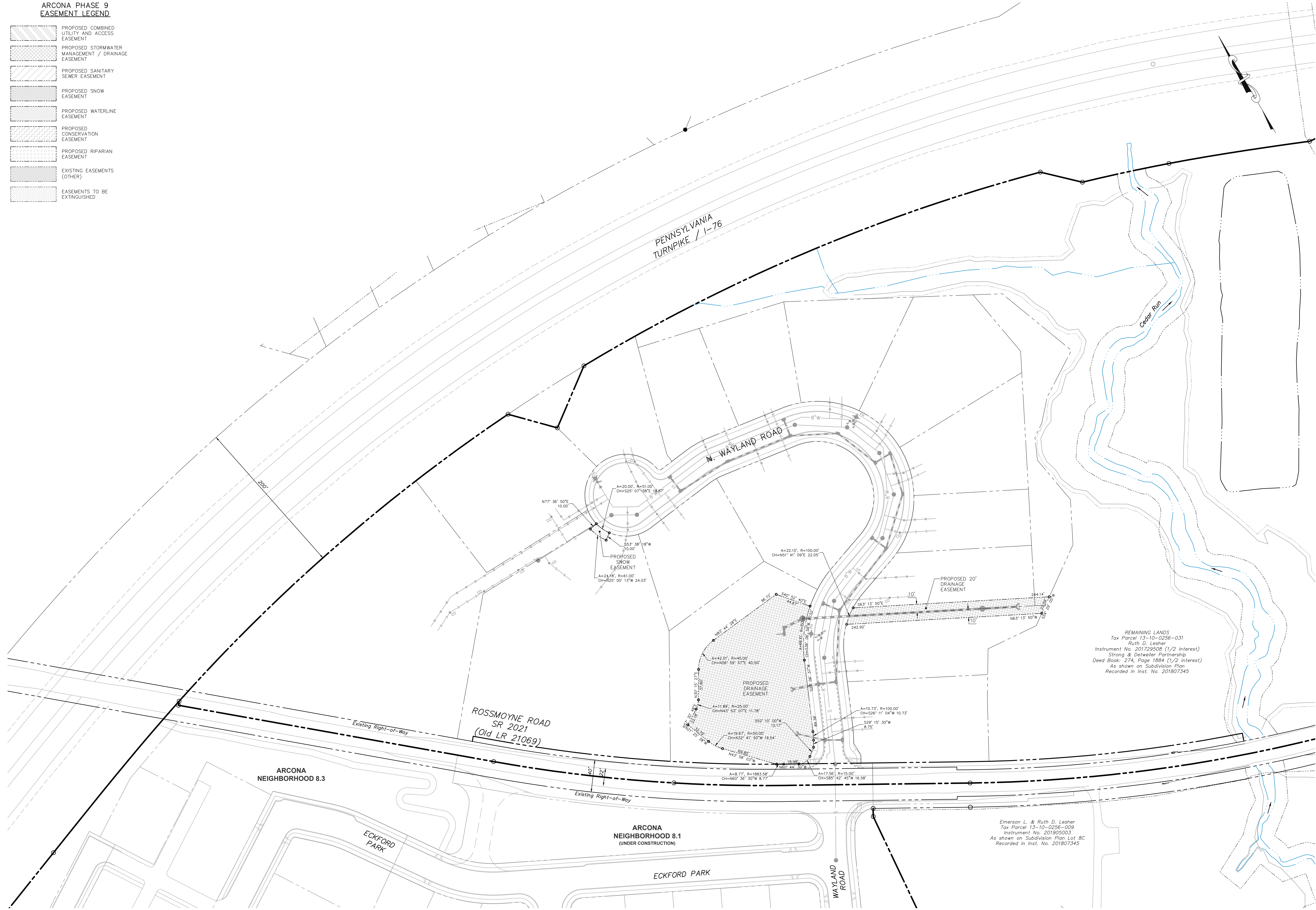
TOWNE SQUARE
ENGINEERING
Civil Engineers & Land Planners
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ARCONA PHASE 9
EASEMENT LEGEND

- PROPOSED COMBINED
UTILITY AND ACCESS
EASEMENT
- PROPOSED STORMWATER
MANAGEMENT / DRAINAGE
EASEMENT
- PROPOSED SANITARY
SEWER EASEMENT
- PROPOSED SNOW
EASEMENT
- PROPOSED WATERLINE
EASEMENT
- PROPOSED CONSERVATION
EASEMENT
- PROPOSED RIPARIAN
EASEMENT
- EXISTING EASEMENTS
(OTHER)
- EASEMENTS TO BE
EXTINGUISHED



Sheet Number:
13 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

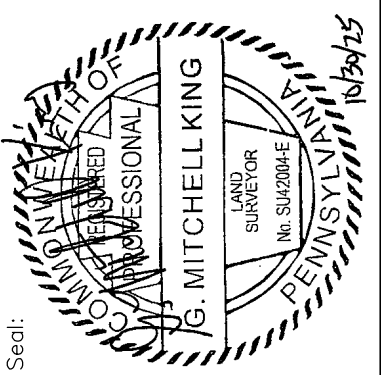
ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA

CHARTER HOMES & NEIGHBORHOODS

EASEMENT PLAN - DRAINAGE & SNOW EASEMENTS

Project Manager: DAVID B. KEGERIZE PE	Drafting: D TURNER
Project Engineer: G. MITCHELL KING PE, PLS	Checked by: —
Project Surveyor: G. MITCHELL KING PE, PLS	Scale: 1"=50'



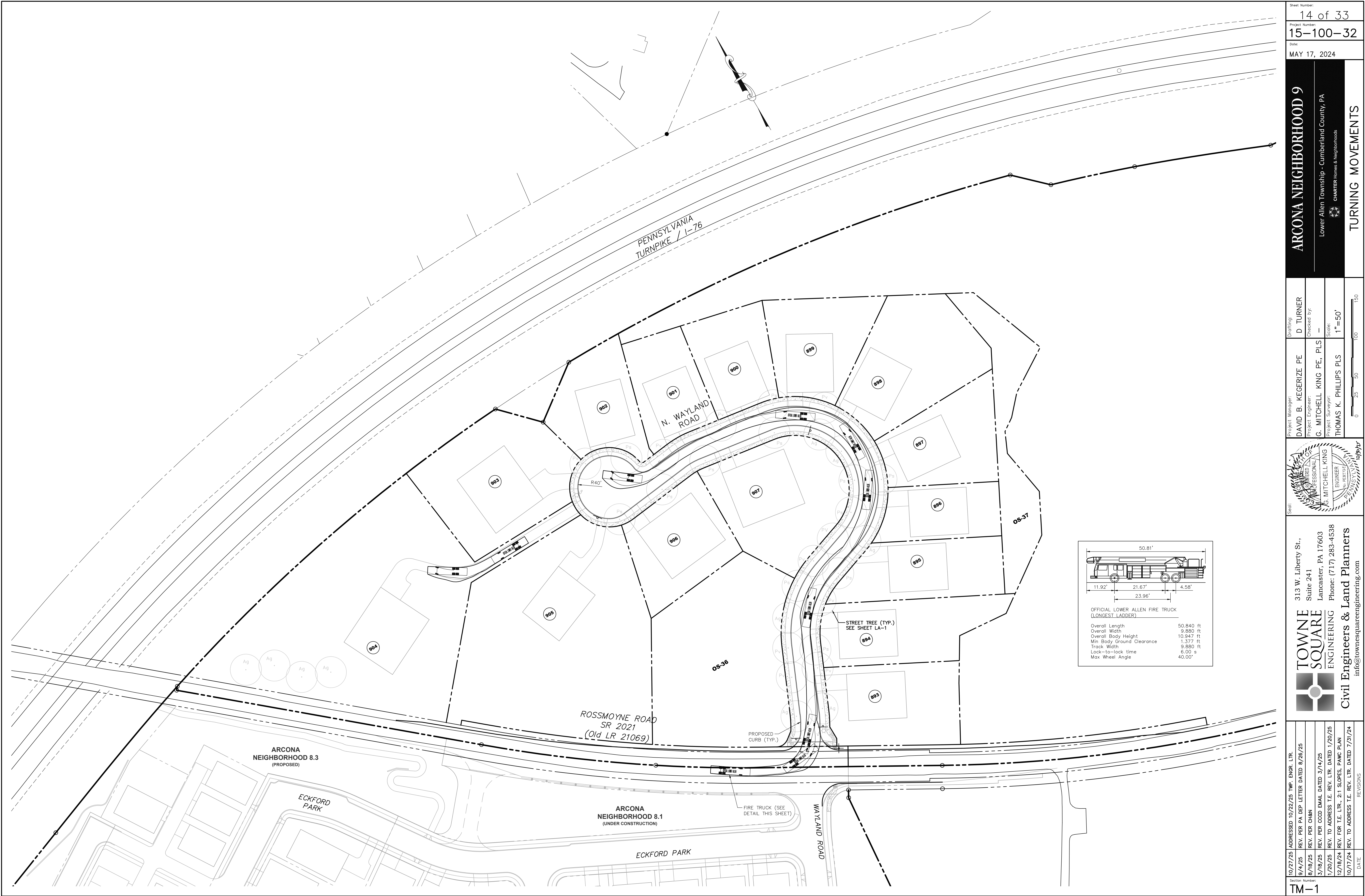
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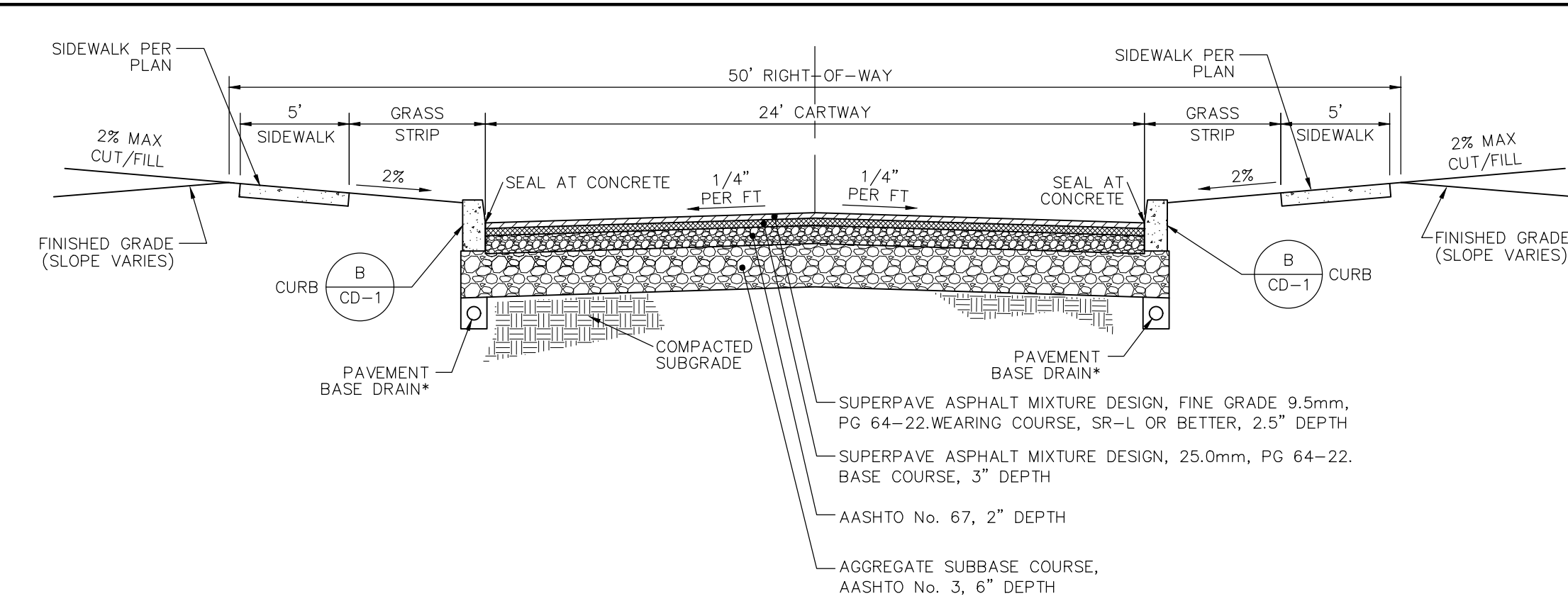
Civil Engineers & Land Planners

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Sheet Number: 14 of 33	
Project Number: 15-100-32	
Date: MAY 17, 2024	
ARCONA NEIGHBORHOOD 9	
Lower Allen Township - Cumberland County, PA	
CHARTER Homes & Neighborhoods	
TURNING MOVEMENTS	
Project Manager: DAVID B. KEGERIZE PE	Drafting: D TURNER
Project Engineer: G. MITCHELL KING PE, PLS	Checked by: —
Project Surveyor: THOMAS K. PHILLIPS PLS	Scale: 1"=50'
0 25 50 100 150	
Seal: TOWNE SQUARE ENGINEERING G. MITCHELL KING P.E. No. 0000000000 RENEWAL 10/31/24	
313 W. Liberty St., Suite 241 Lancaster, PA 17603 Phone: (717) 283-4538 info@townsquareengineering.com	
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DATE	REVISIONS
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TM-1	



- NOTES:
1. WEARING COURSE PLACED IN TWO LIFTS, 1-INCH DEPTH FIRST LIFT, 1.5" DEPTH FINAL LIFT.

2. FIRST WEARING COURSE LIFT MUST BE PLACED WITHIN 30 DAYS OF PLACING BASE COURSE.

3. SECOND WEARING COURSE LIFT MUST NOT BE PLACED PRIOR TO OCCUPANCY OF 90% OF UNITS USING THE STREET FOR ACCESS.

4. SUPERPAVE MIX DESIGN BASED ON ESALS MUST BE APPROVED BY THE MUNICIPALITY PRIOR TO CONSTRUCTION.

5. DEPTH OF BASE COURSE AND AGGREGATE SUBBASE ARE SHOWN AS THE MINIMUM FOR RESIDENTIAL CUL-DE-SAC AND LOCAL ACCESS STREETS WITH ADT LESS THAN 400. ACTUAL DEPTHS FOR OTHERS STREETS MUST BE DETERMINED BY A PAVEMENT DESIGN APPROVED BY THE MUNICIPALITY.

6. 6" STANDARD REVEAL (SEE D/CD-1) 8" SUMP CONDITION AT INLETS.
- *PAVEMENT BASE DRAIN:

a. The pavement base drain shall be constructed in accordance with the specifications as set forth in PennDOT Publication 408, as amended, and as detailed on the Roadway Construction Standard Drawings (RC-30).

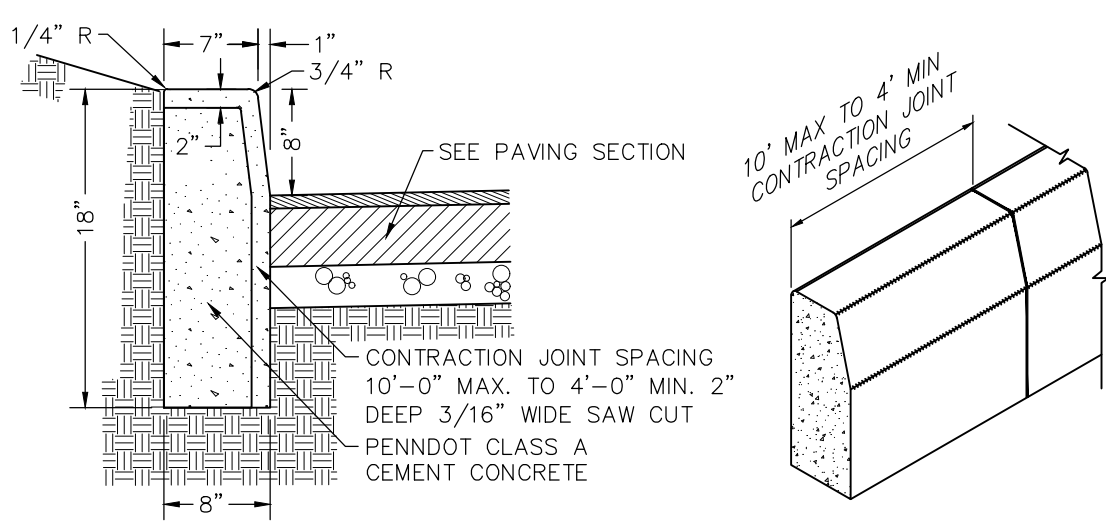
b. The combination storm sewer and underdrain shall be constructed in accordance with the specifications as set forth in PennDOT Publication 408, as amended, and as detailed on the Roadway Construction Standard Drawings (RC-30).

c. The base drain shall be six-inch (6") perforated polyethylene pipe unless otherwise specified and approved by the Township.

d. The pavement base drain shall be provided on both sides of new roadways and existing roadways being widened or reconstructed at all low points for a minimum distance of one hundred feet (100') in each direction.

e. Base drains shall be properly connected to inlet boxes or other approved drainage structures but shall not be permitted to discharge by overland means.

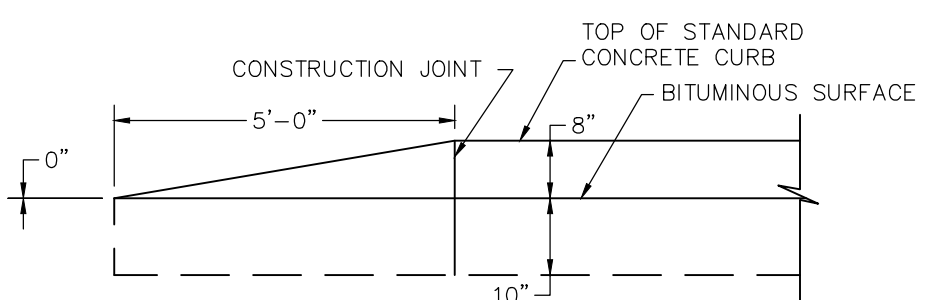
A
CD-1
TYPICAL STREET (24' CARTWAY)
NOT TO SCALE



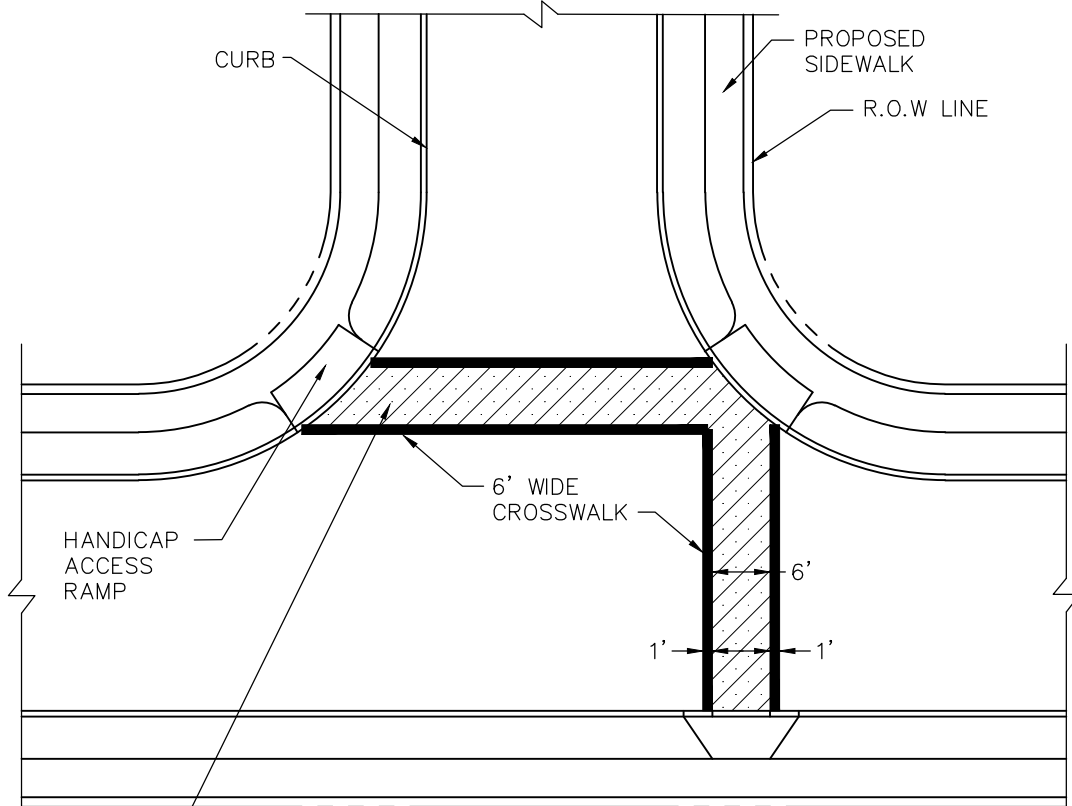
- NOTES:
1. ALL MATERIALS AND WORKMANSHIP ARE TO BE IN ACCORDANCE WITH CURRENT PENNDOT RC AND PUB. 408 STANDARDS.

2. EXTEND ADJACENT PAVING SUBGRADE UNDER CURB. PROVIDE ADJACENT PAVING COARSE AGGREGATE BASE MATERIAL INCIDENTAL TO CURB CONSTRUCTION, BETWEEN SUBGRADE AND BOTTOM OF CURB.

B
CD-1
STRAIGHT CURB DETAILS
NOT TO SCALE

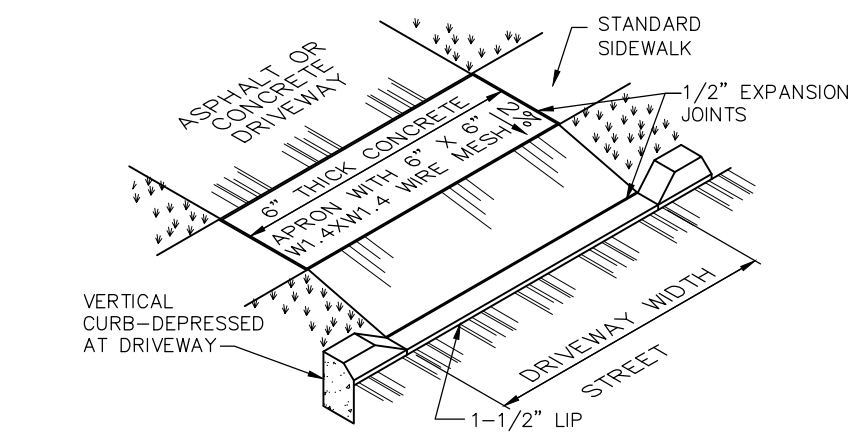


C
CD-1
END TRANSITION FOR STANDARD CURBING DETAIL (HOP BY OTHERS)
NOT TO SCALE

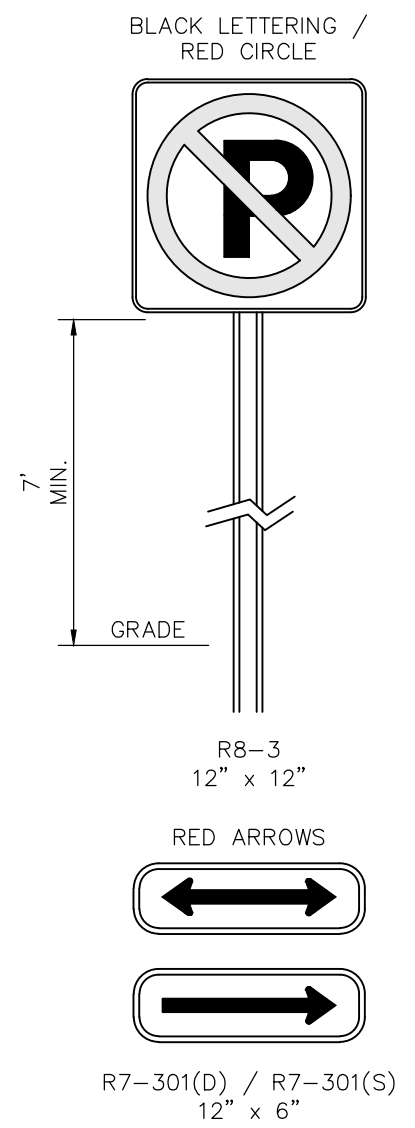


NOTE:
CROSSWALKS TO BE PROVIDED USING MATERIALS, COLORS AND TEXTURE THAT VARY FROM THE ROAD SURFACE. DEVELOPER TO PROVIDE TOWNSHIP WITH DETAILED PLAN FOR PEDESTRIAN CROSSWALKS PRIOR TO CONSTRUCTION.

E
CD-1
TYPICAL CROSSWALK DETAIL
NOT TO SCALE



D
CD-1
DRIVEWAY APRON WITH SIDEWALK
NOT TO SCALE

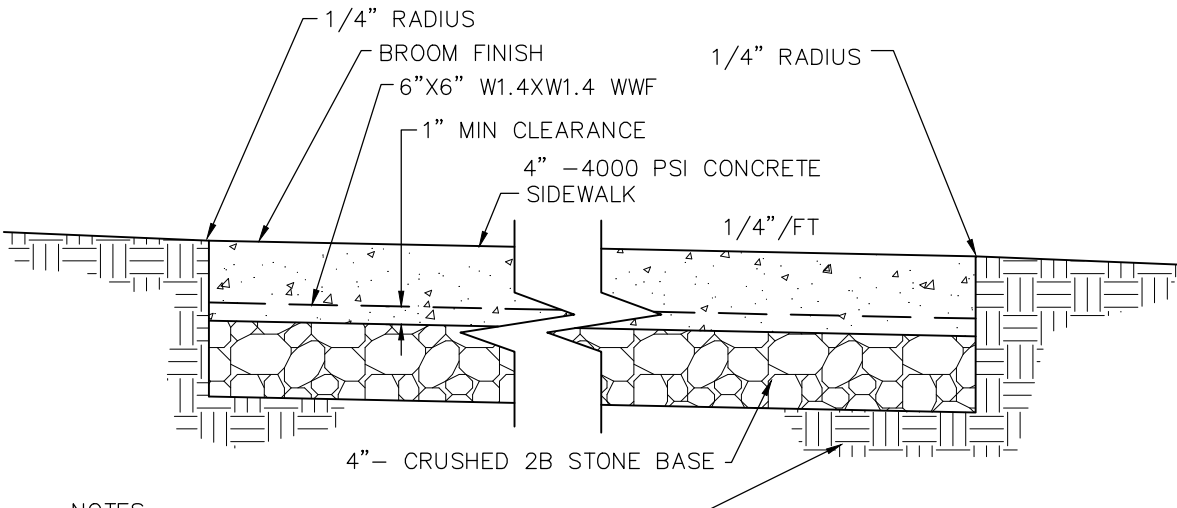


M
CD-1
TYPICAL SIGN DETAIL
NOT TO SCALE

- SIGN NOTES:
- ALL SIGNS SHALL MEET PENNDOT PUBLICATION 408 STANDARDS.

• ALL SIGNS SHALL MEET THE REQUIREMENTS OF SECTION 220-132.2, 220-245, 220-252, AND 220-254 OF THE TOWNSHIP ZONING ORDINANCE.

• ALL SIGNS SHALL MEET MUTCD STANDARDS.

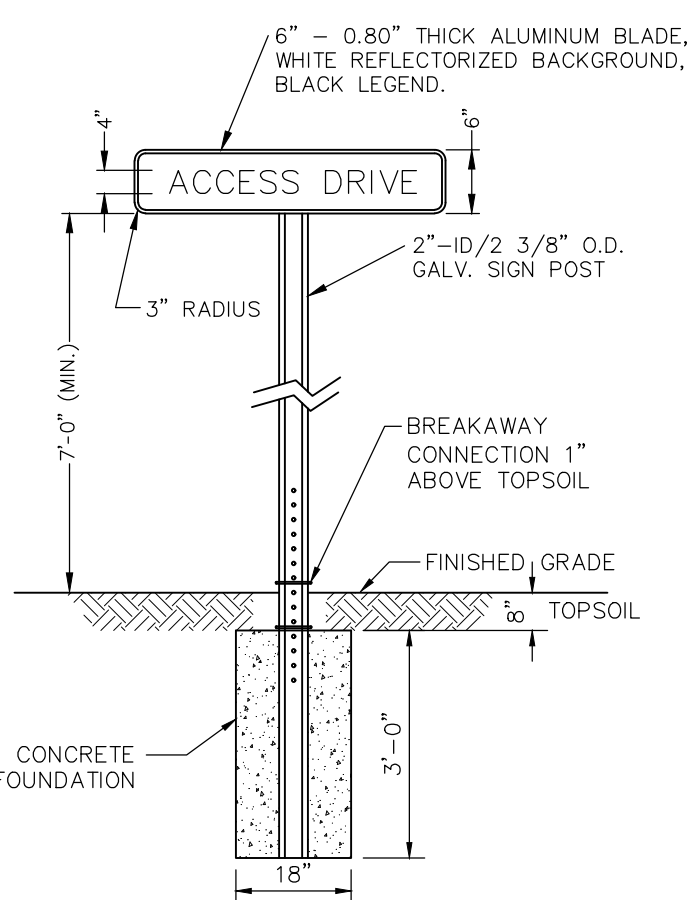


- NOTES:
1. EXPANSION JOINTS LOCATED AT 20' O.C.

2. TOOLED JOINTS LOCATED AT 5' O.C.

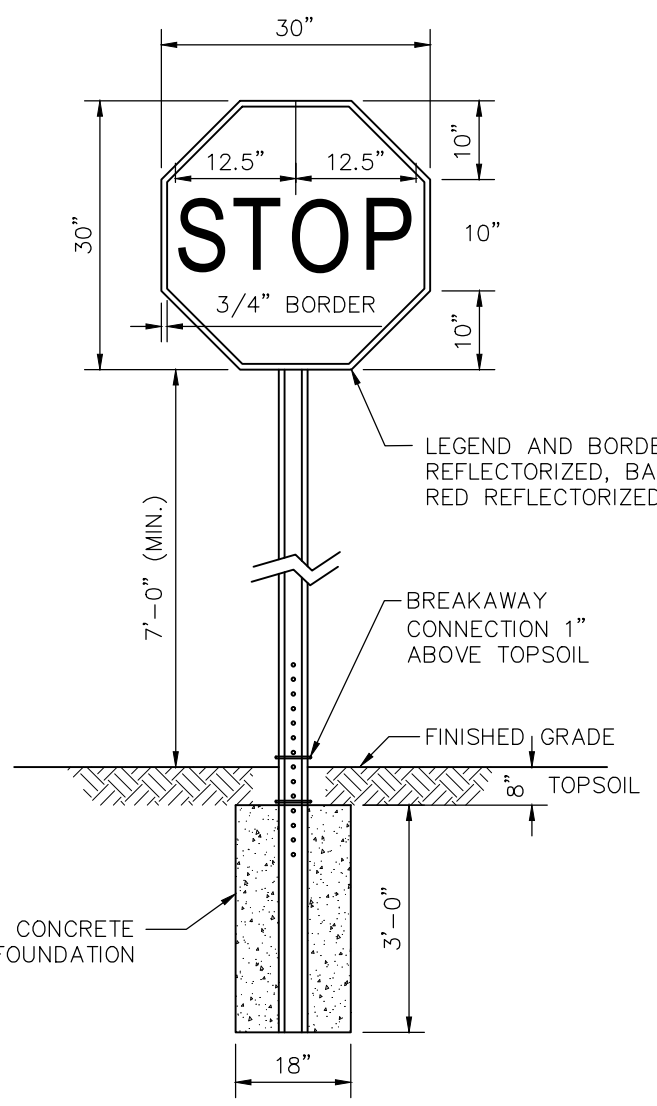
3. SIDEWALK IS TO BE LIGHT BROOM FINISHED IN THE DIRECTION OF SIDEWALK WIDTH.

N
CD-1
CONCRETE SIDEWALK DETAIL
NOT TO SCALE



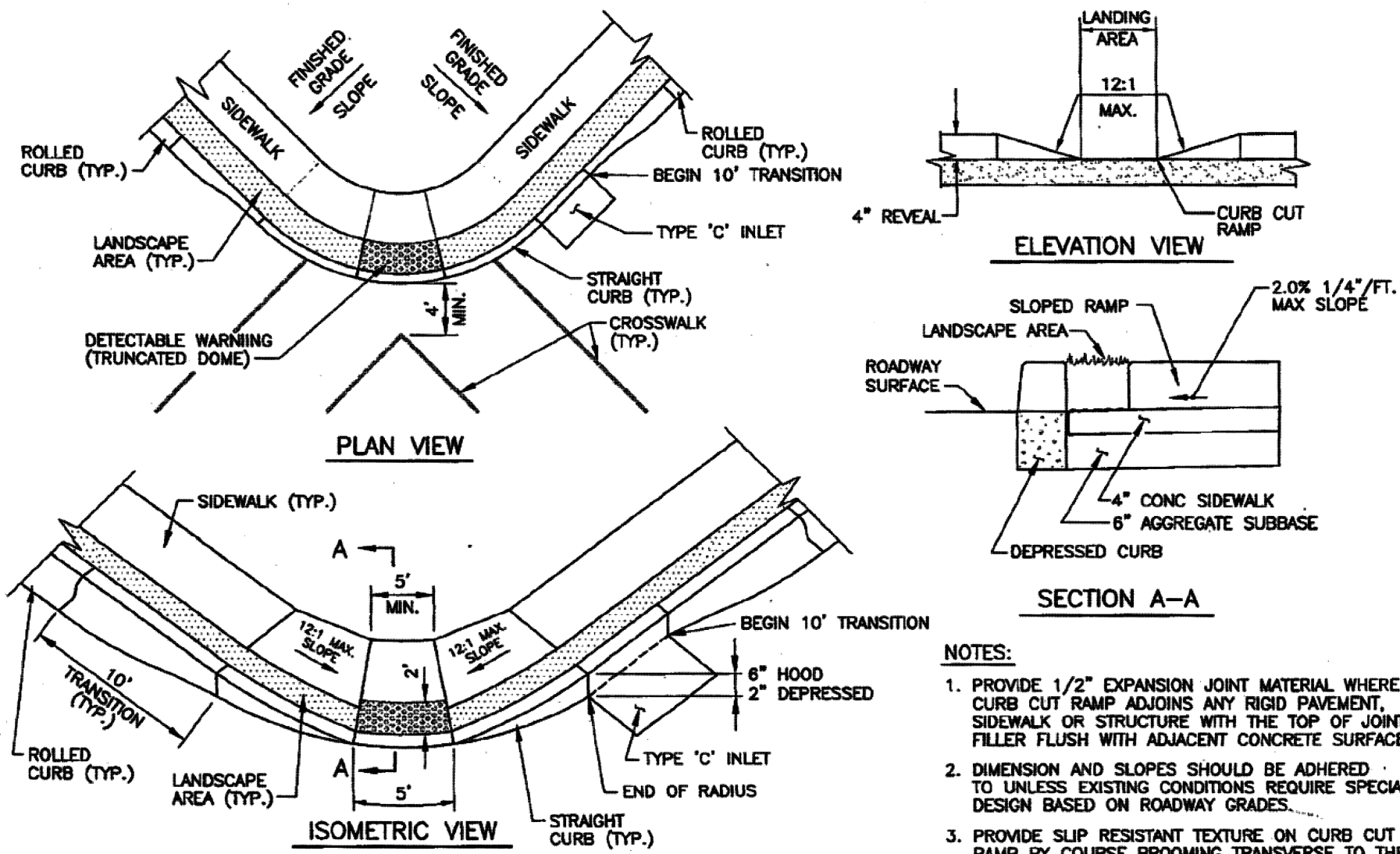
NOTE:
THIS IS A TYPICAL SIGN DETAIL FOR REFERENCE PURPOSES ONLY. THE FINAL SIGN DESIGN WILL BE COORDINATED TO BE DECORATIVE AND COMPLIMENTARY TO THE ARCHITECTURE OF THE DEVELOPMENT AND STILL MEET TOWNSHIP STANDARDS.

O
CD-1
TYPICAL SIGN DETAIL
NOT TO SCALE



P
CD-1
TYPICAL STOP SIGN DETAIL
NOT TO SCALE

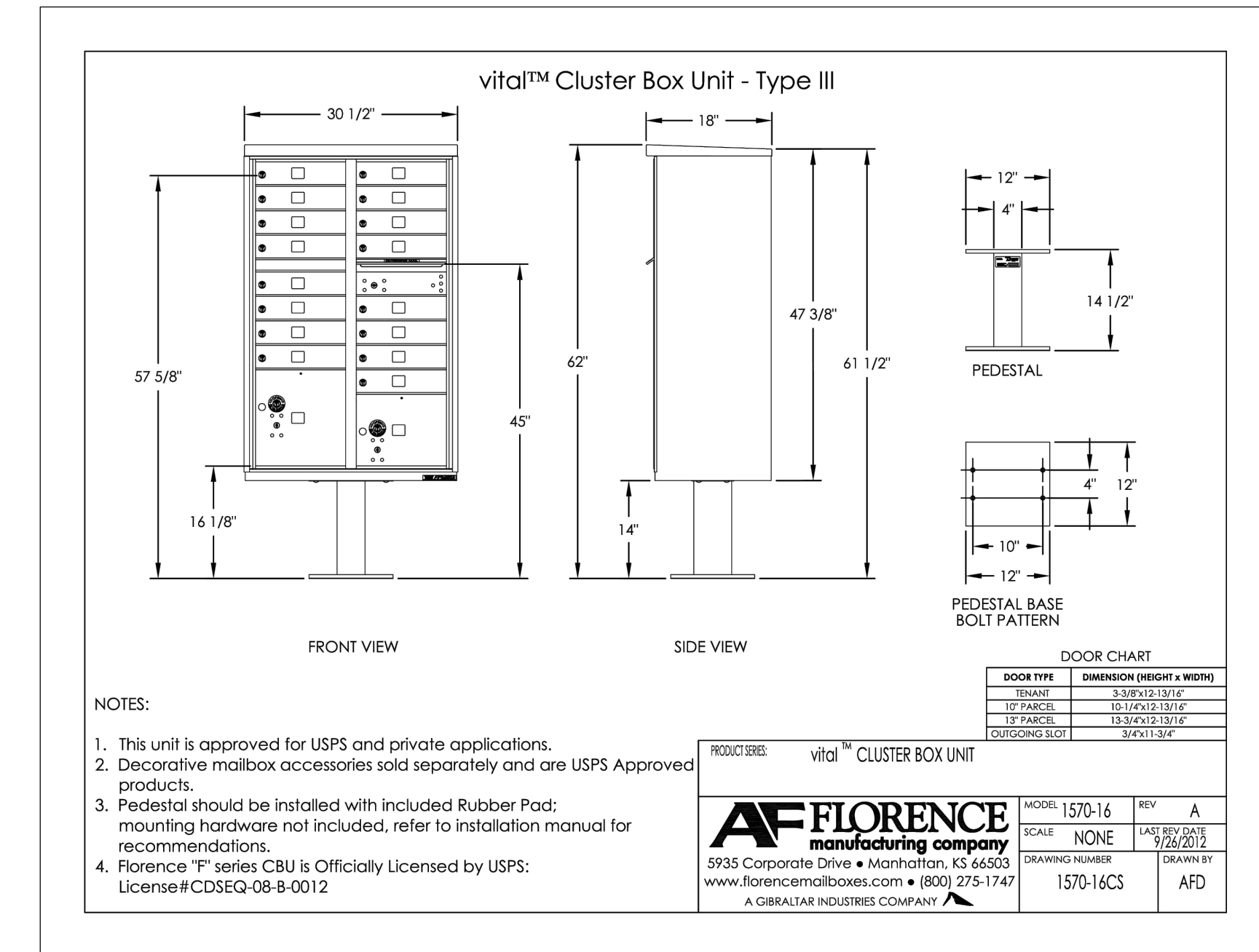
Sheet Number: 15 of 33	
Project Number: 15-100-32	
Date: MAY 17, 2024	
ARCONA NEIGHBORHOOD 9	
Lower Allen Township - Cumberland County, PA	
CHARTER Homes & Neighborhoods	
CONSTRUCTION DETAILS	
Drafting: W ALLEN	Checked by: —
Project Manager: DAVID B. KEEGERIZE PE	Project Engineer: G. MITCHELL KING PE, PLS
Project Surveyor: THOMAS K. PHILLIPS PLS	Scale: AS NOTED
Seal: 	
313 W. Liberty St., Suite 241 Lancaster, PA 17603 Phone: (717) 283-4538	
TOWNE SQUARE ENGINEERING	
Civil Engineers & Land Planners	
10/27/25 ADDRESSED 10/22/25 TWP. ENGR. LTR.	8/26/25 REV. PER PA DEP LETTER DATED 8/26/25
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DATE	REVISIONS
CD-1	



- * NOTES:
1. ARMORCLASS DETECTABLE WARNING PANELS AS MANUFACTURED BY ARMOR CAST PRODUCT COMPANY OR EQUAL.
 2. THE CONTRACTOR IS RESPONSIBLE TO INSTALL CURB CUT RAMPS, SIDEWALK AND DRIVEWAY APRONS TO THE LATEST ADA OR PENNDOT STANDARDS AT THE TIME OF CONSTRUCTION.

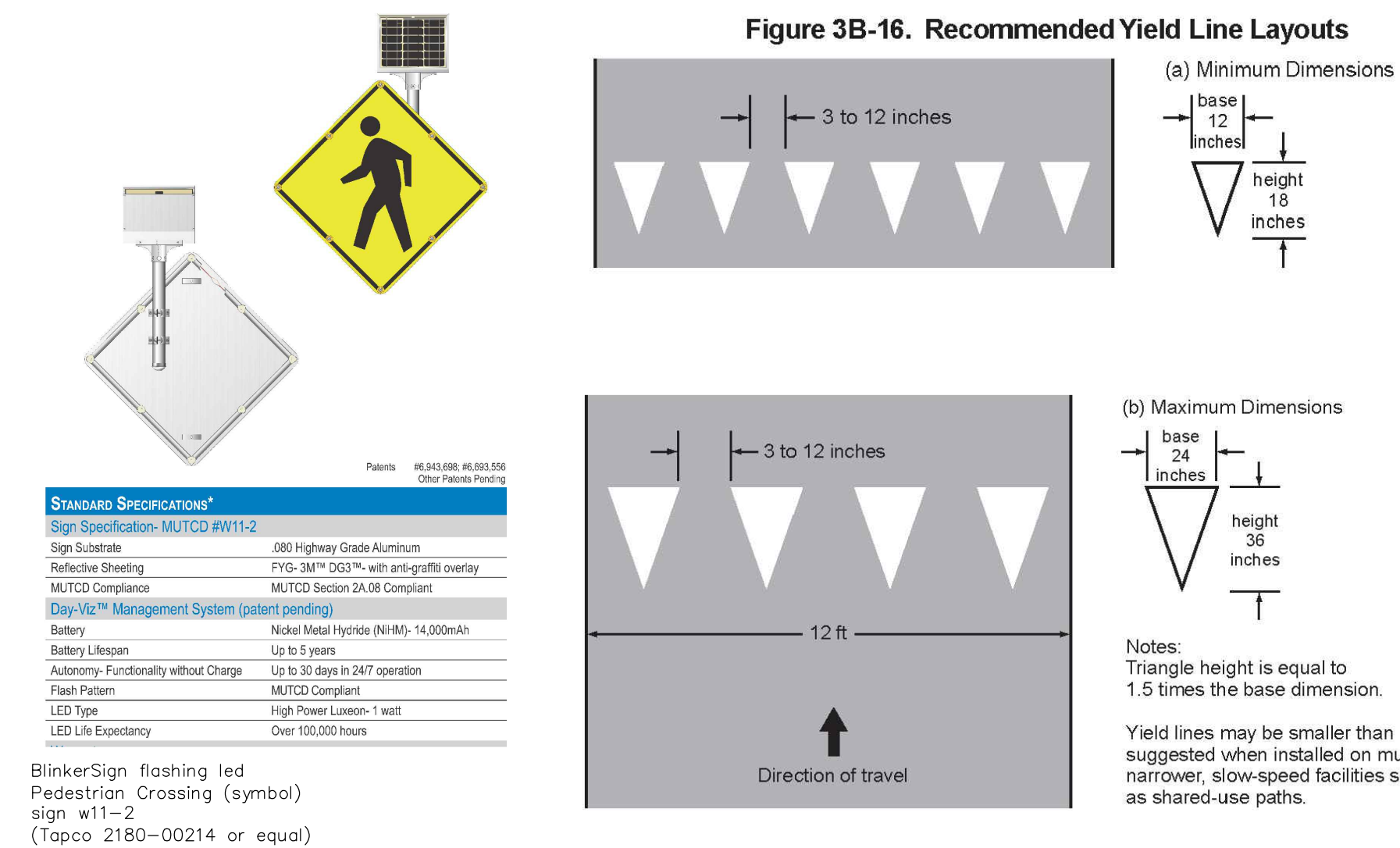
A CURB RAMP DETAILS

CD-2 NOT TO SCALE



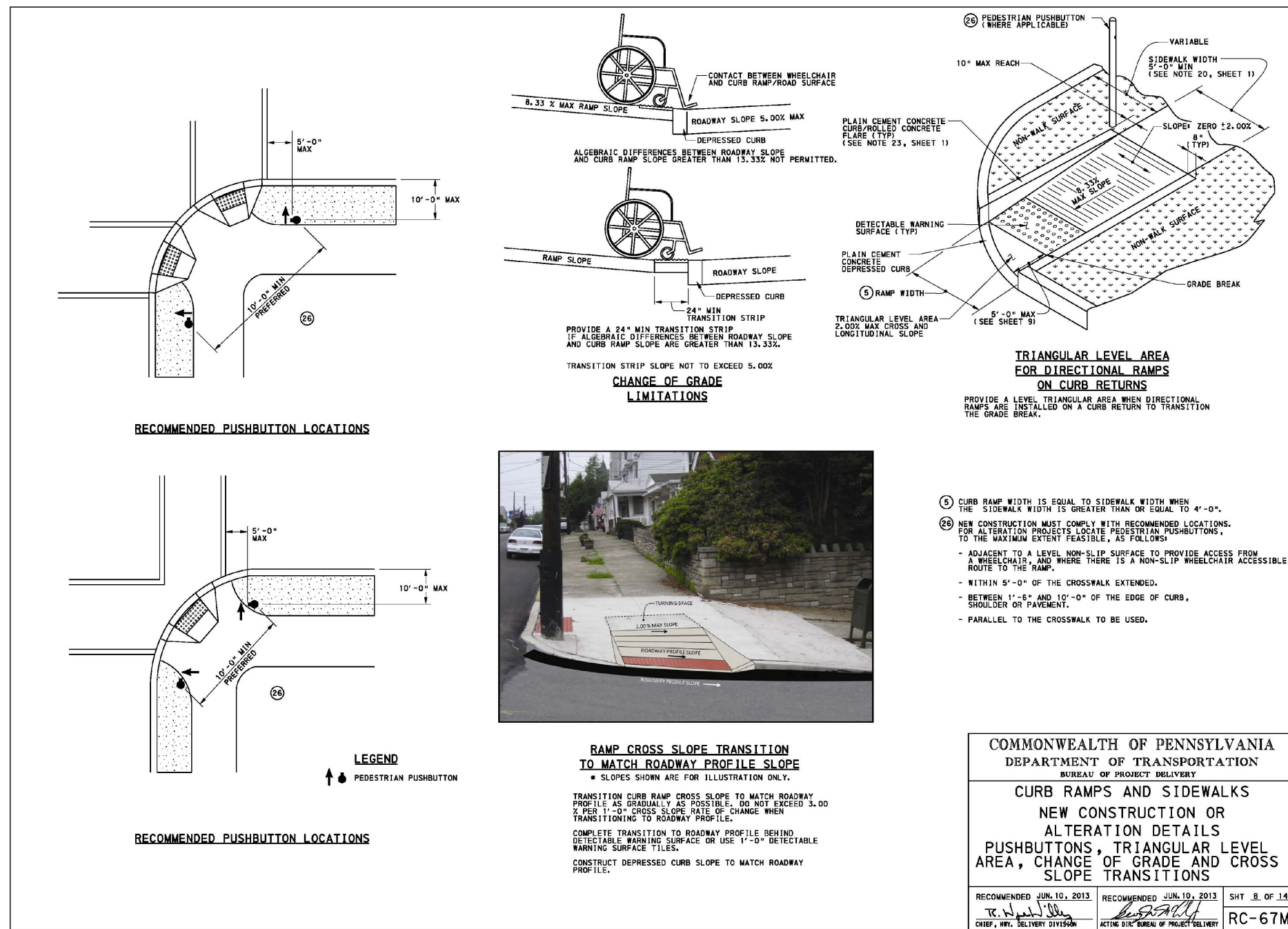
E USPS 16 UNIT CLUSTER MAILBOX (OR APPROVED EQUAL)

CD-2 NOT TO SCALE



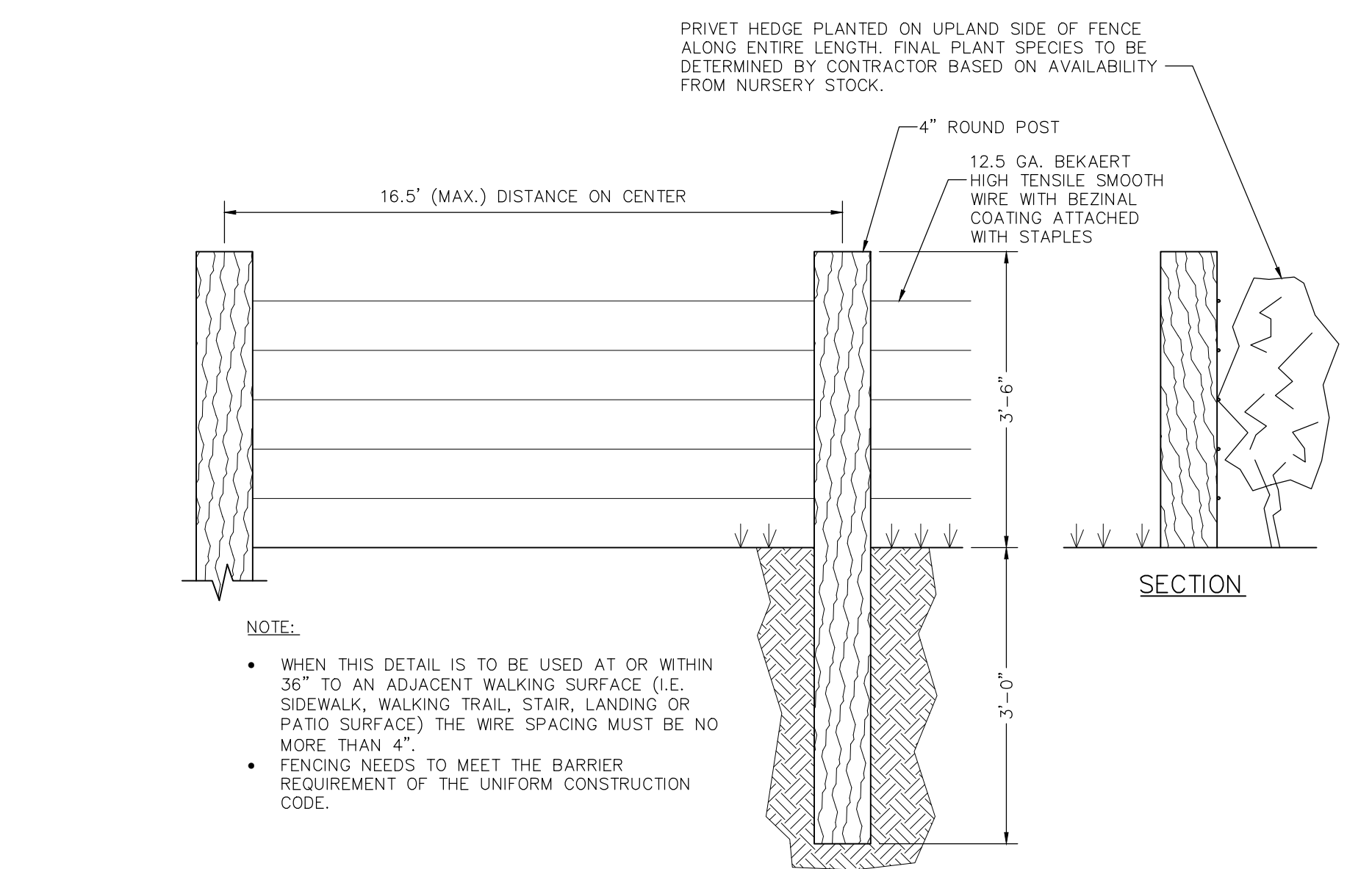
G ROSSMOYNE ROAD CROSSWALK DETAILS

CD-2 NOT TO SCALE



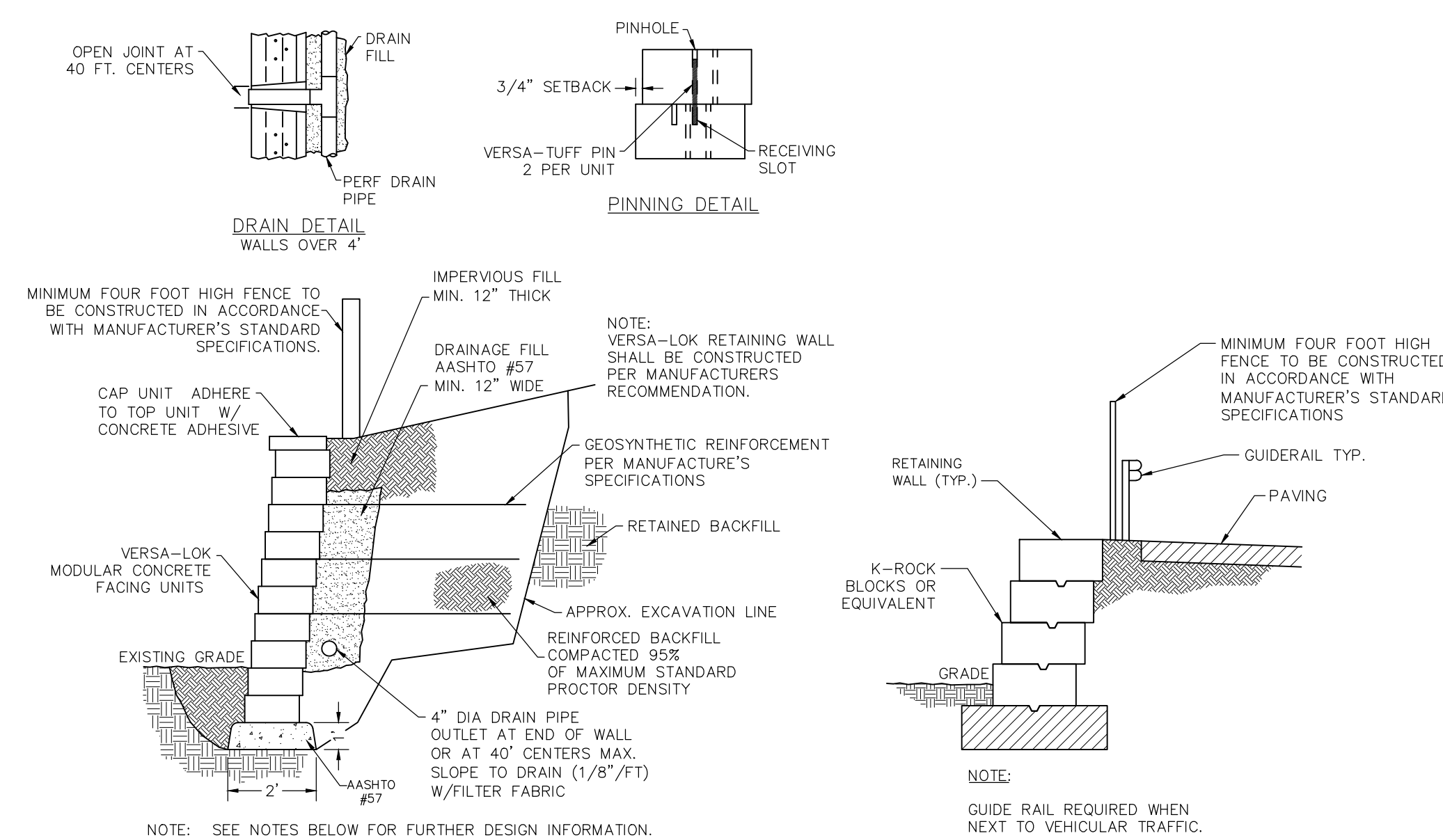
B CURB RAMP DETAILS

CD-2 NOT TO SCALE



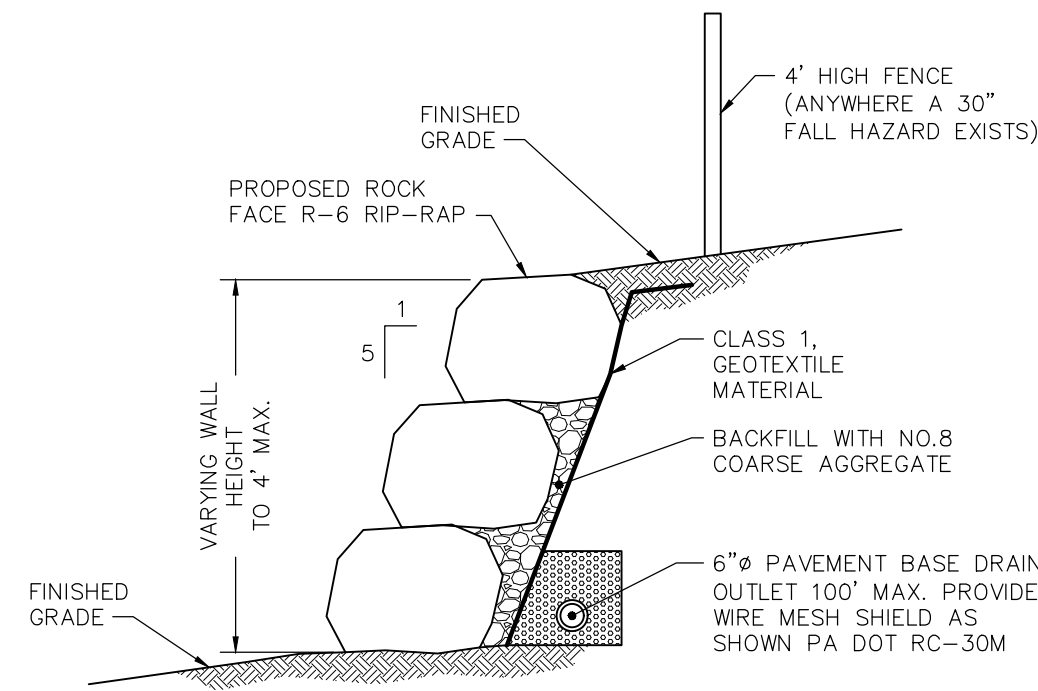
F FENCE FOR RETAINING WALL & BASIN (TYPICAL)

CD-2 NOT TO SCALE



D RETAINING WALL DETAILS (TYPICAL)

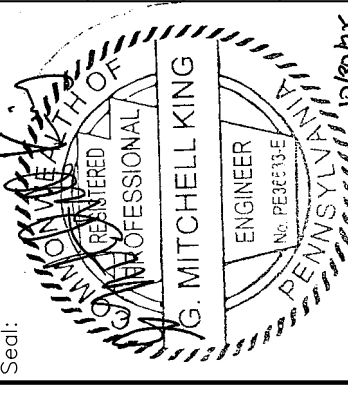
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C ROCK LANDSCAPE WALL SECTION

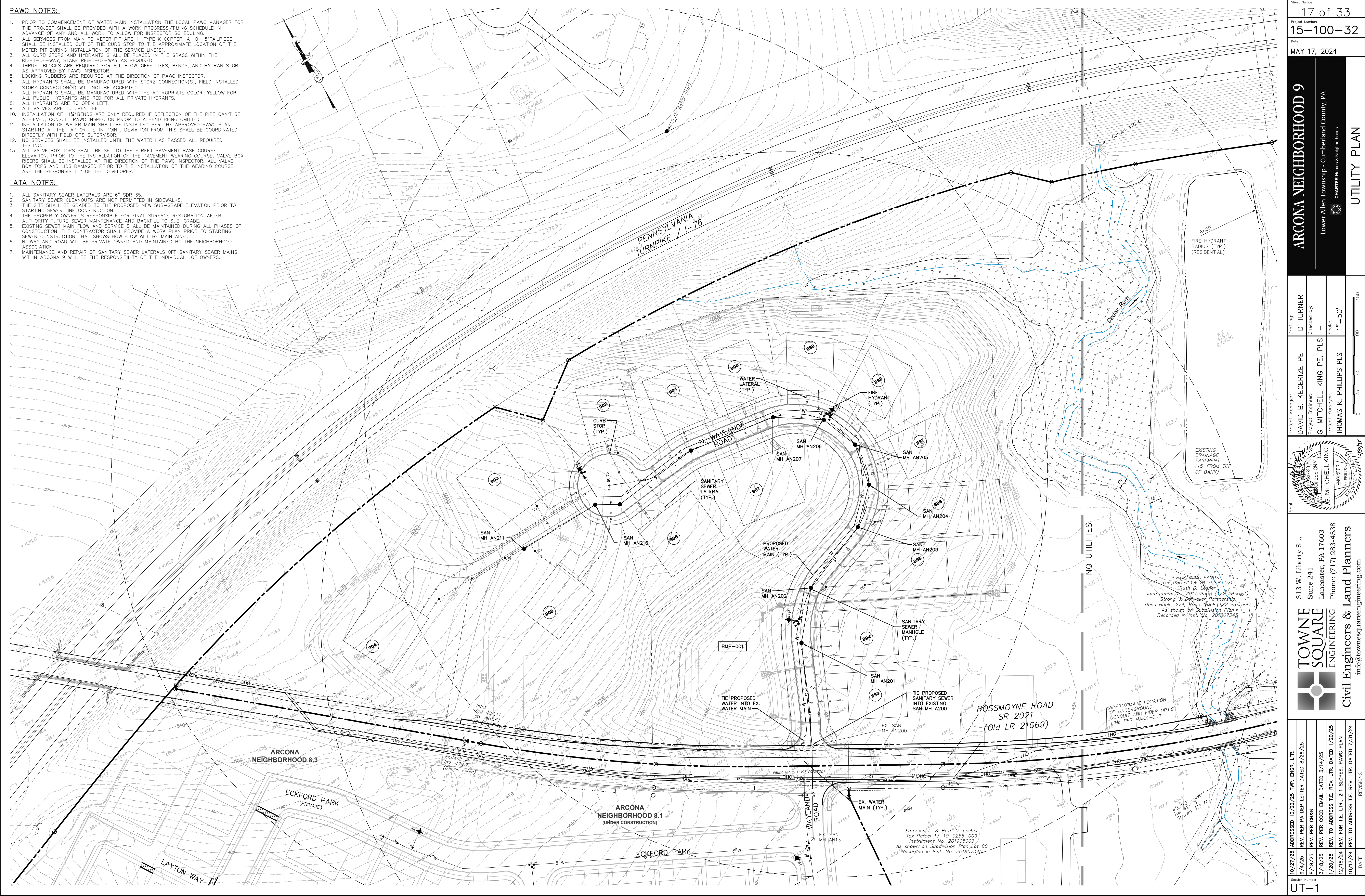
CD-2 NOT TO SCALE

Drafting:	W ALLEN
Project Manager:	DAVID B. KEGERIZE PE
Project Engineer:	C. MITCHELL KING PE, PLS
Project Surveyor:	THOMAS K. PHILLIPS PLS
Scale:	AS NOTED



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Sheet Number:
17 of 33

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ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA
CHARTER Homes & Neighborhoods

Project Manager:
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Project Surveyor:
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Seal:

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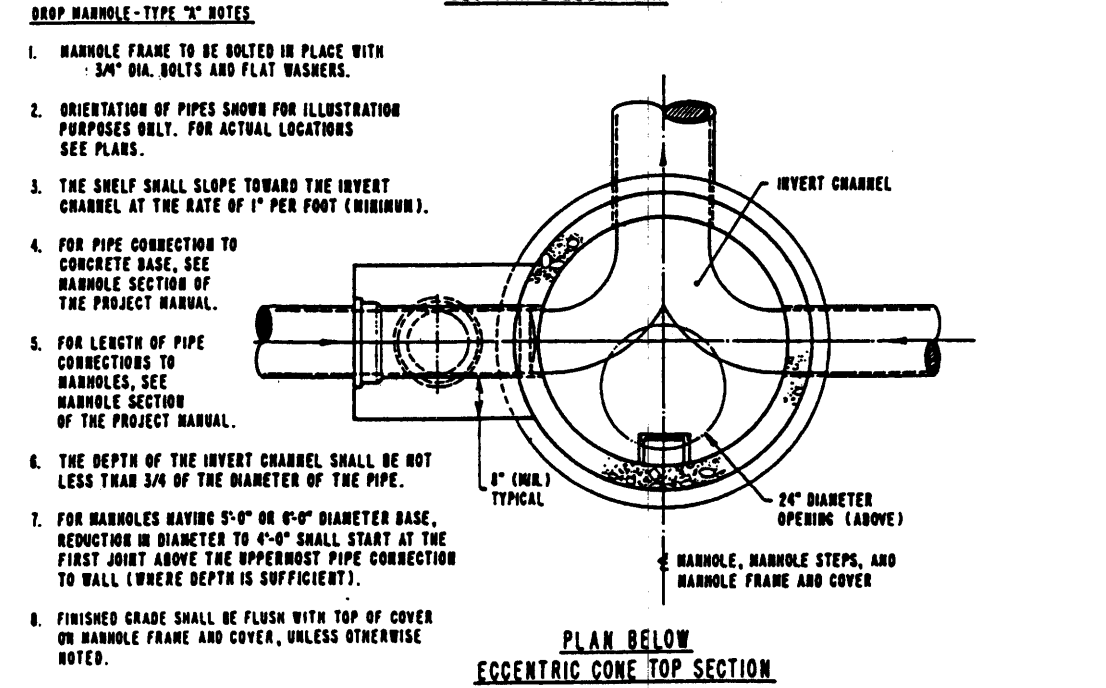
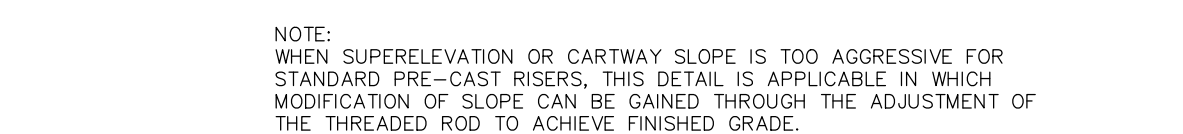
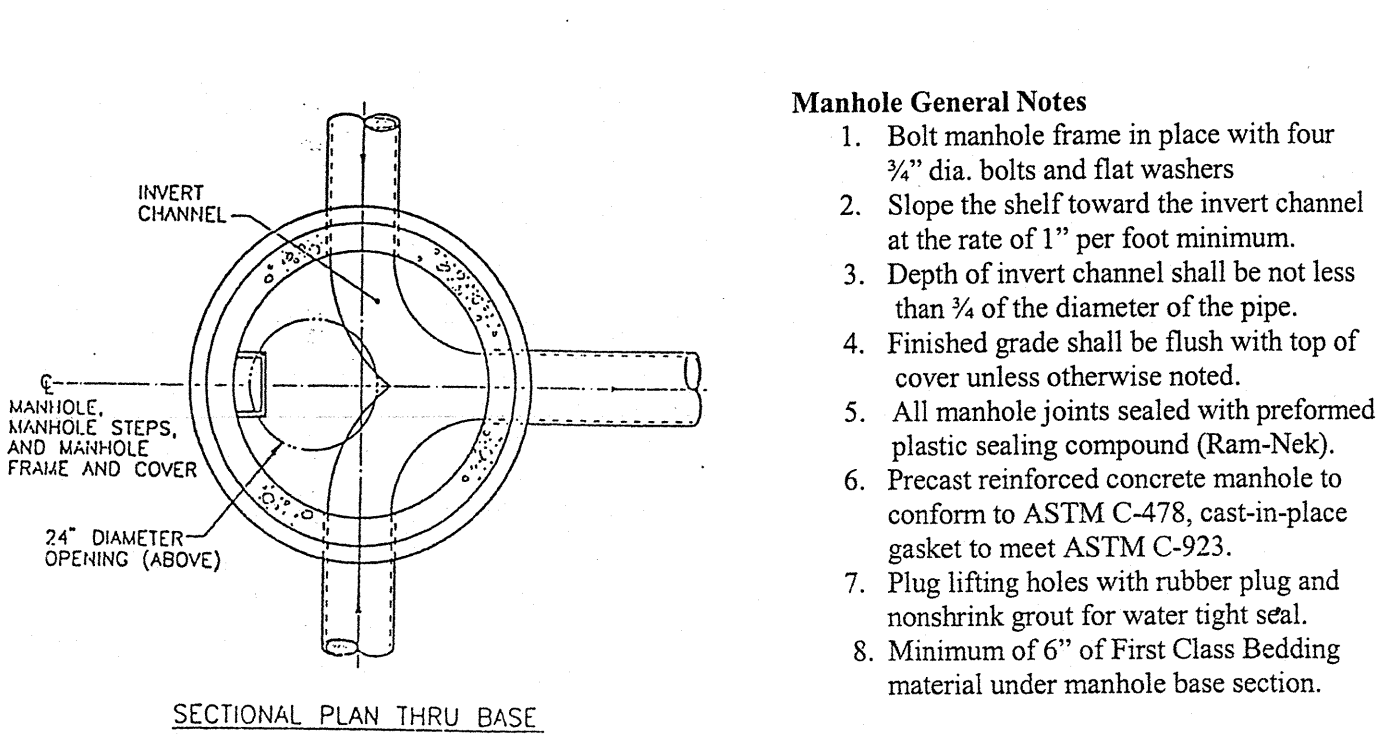
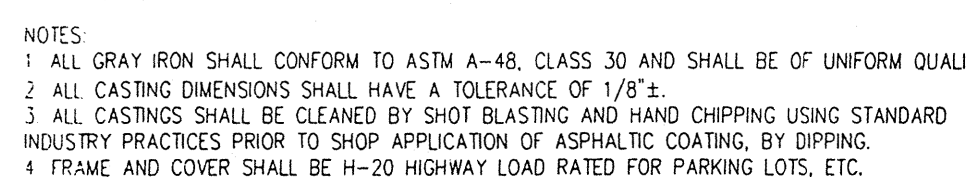
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DATE
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DATE
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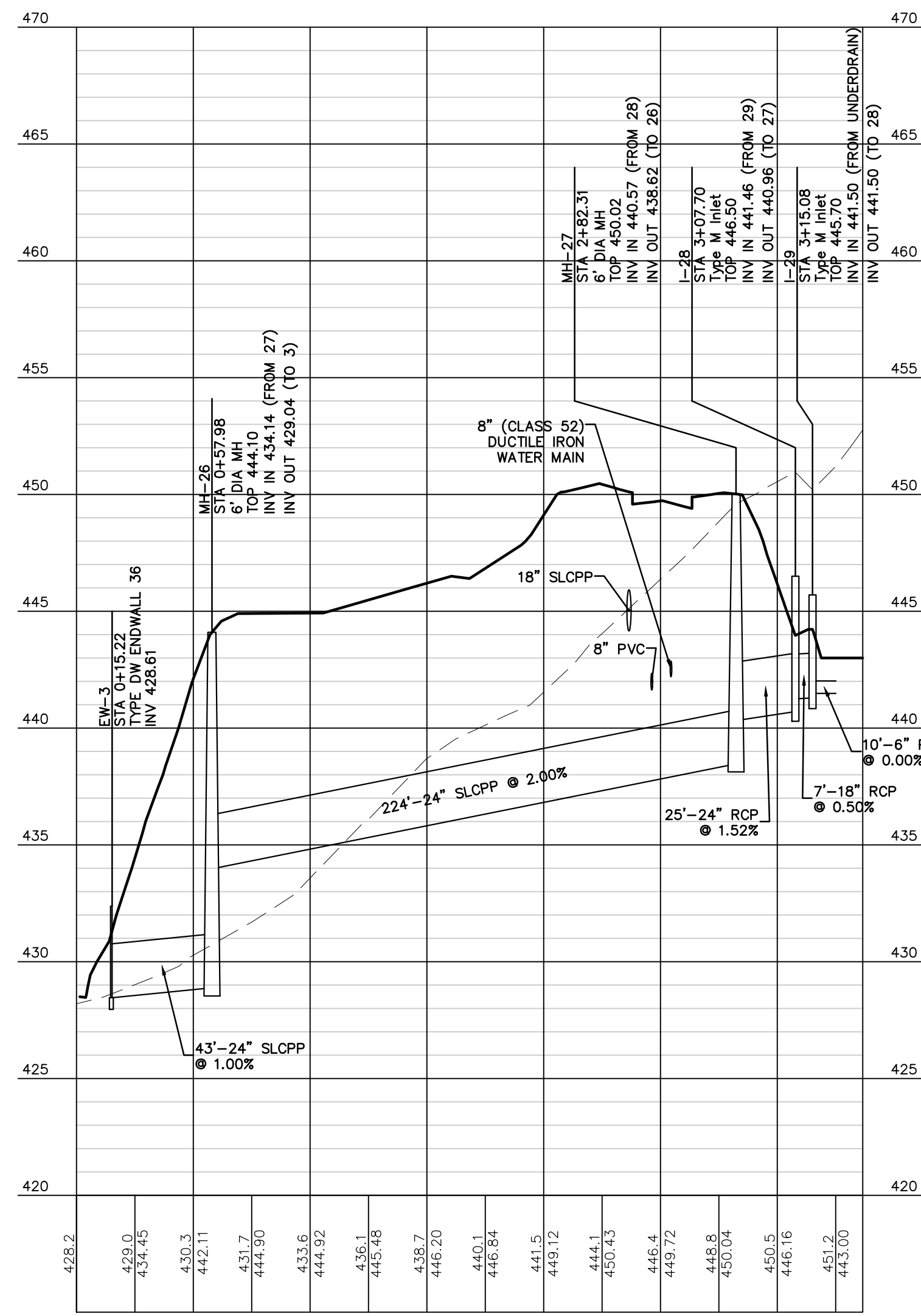
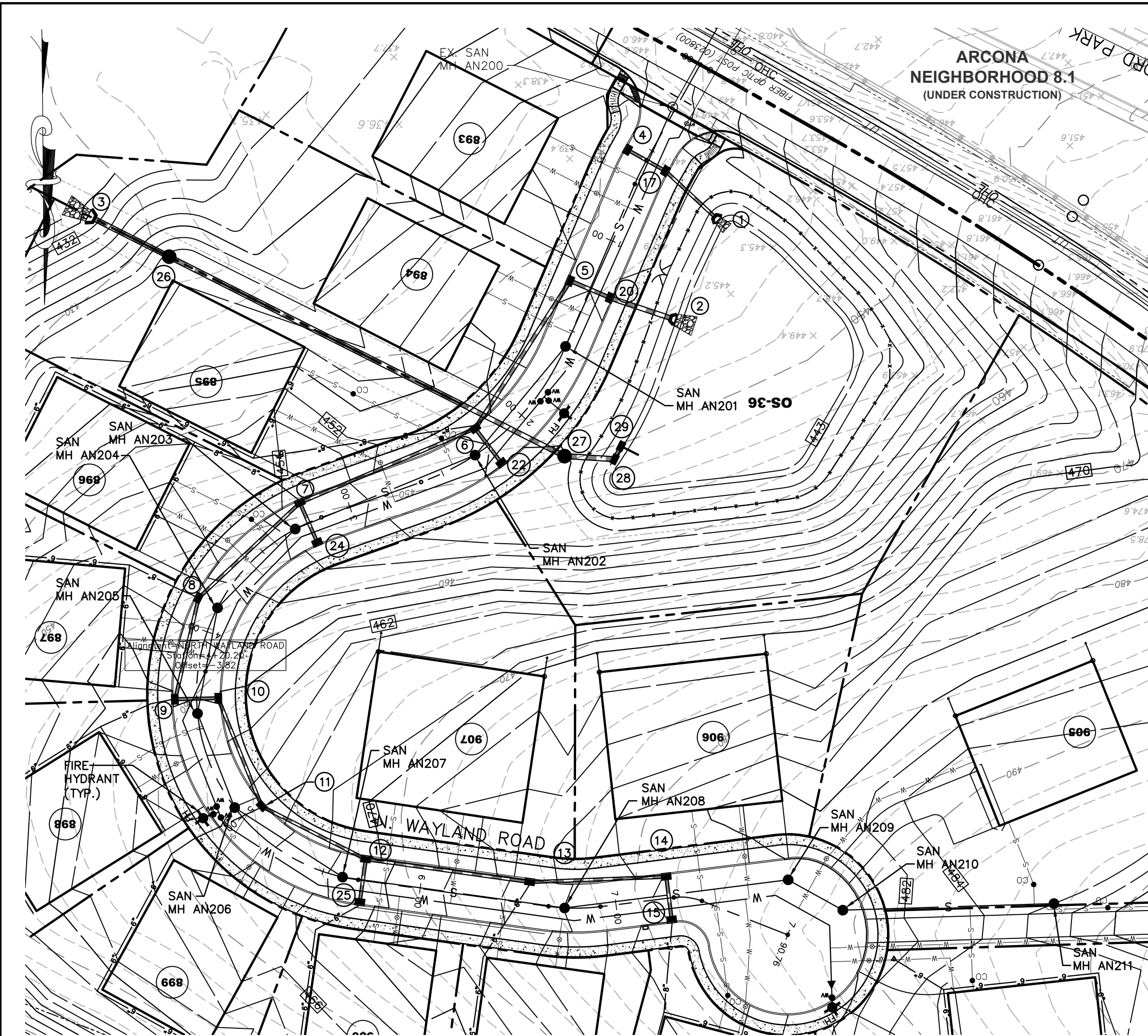
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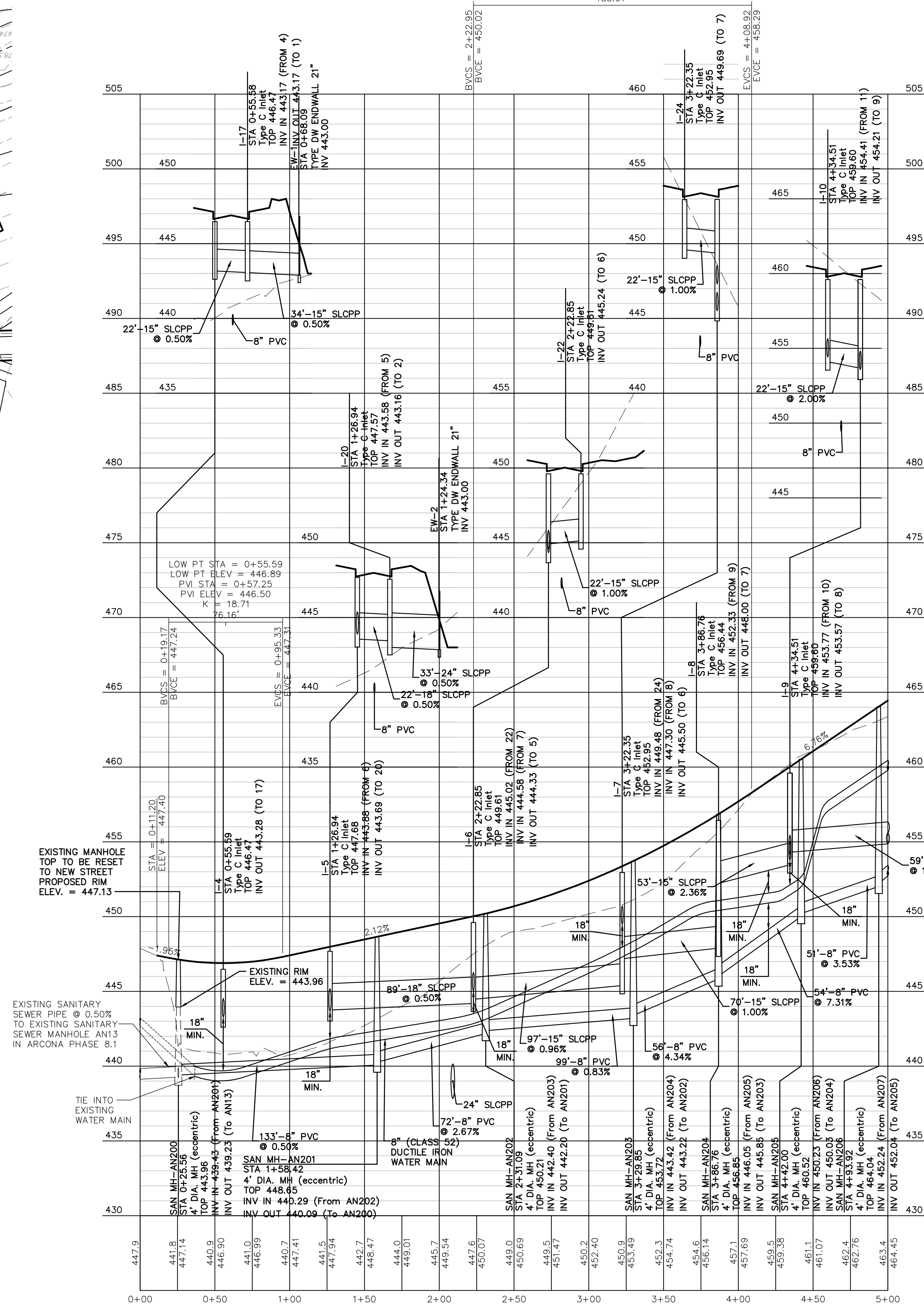
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REV. PER PA DEP LETTER DATED 8/26/25
REV. PER CH&N
REV. PER CCCD EMAIL DATED 3/14/25
REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25
REV. FOR T.E. LTR., 2-1 SLOPES, PAVIC PLAN
REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24
REVISIONS

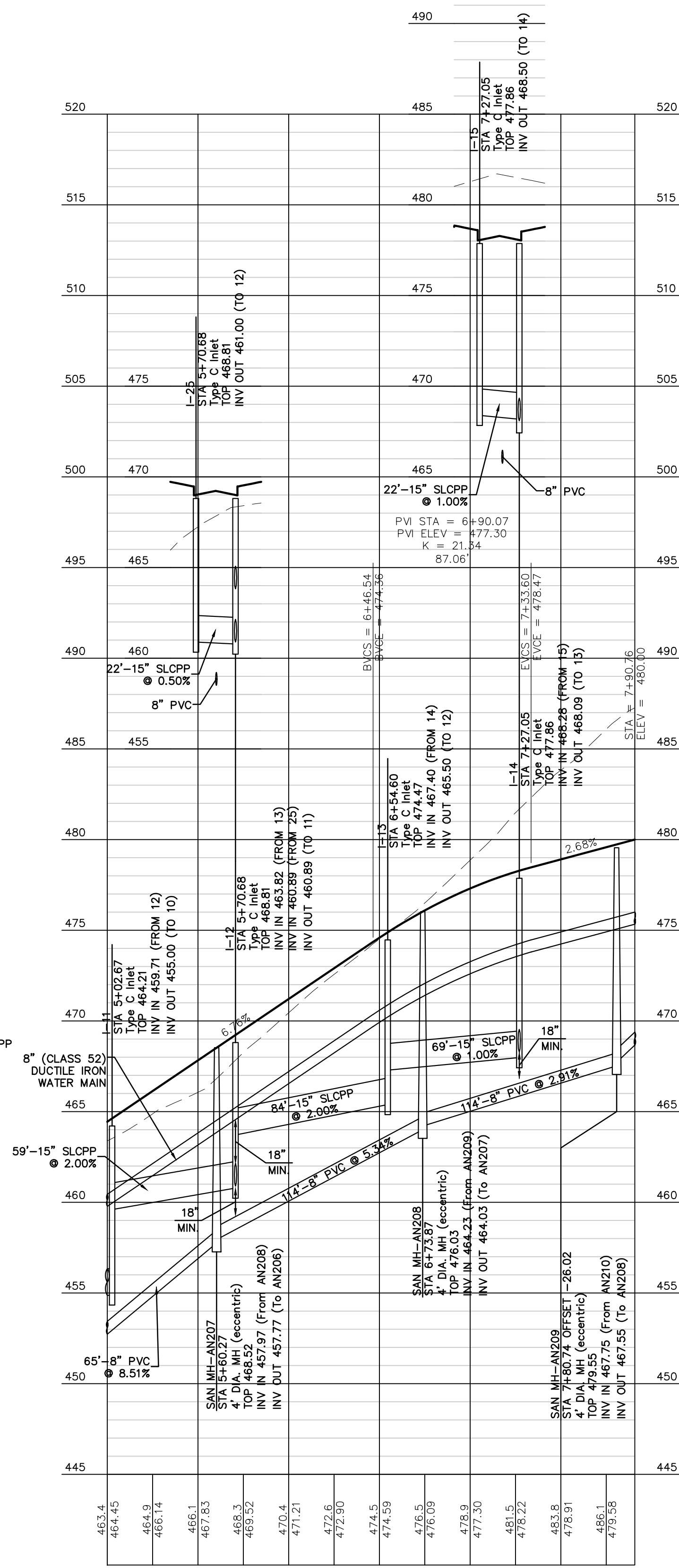
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PROFILE: EW-3 TO BASIN
SCALE HORZ.: 1" = 50' VERT.: 1" = 5'



PROFILE: N. WAYLAND ROAD - STA. 0+00 TO 5+00
SCALE HORZ.: 1" = 50' VERT.: 1" = 5'



PROFILE: N. WAYLAND ROAD - STA. 5+00 TO END
SCALE HORZ.: 1" = 50' VERT.: 1" = 5'

Sheet Number:
19 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9
Lower Allen Township - Cumberland County, PA
CHARTER Homes & Neighborhoods

PLAN & PROFILE - N. WAYLAND ROAD

Project Manager:
DAVID B. KEGERIZE PE

Drafting:
D TURNER

Project Engineer:
G. MITCHELL KING PE, PLS

Checked by:
—

Project Surveyor:
THOMAS K. PHILLIPS PLS

Scale:
1"=50'

Seal: **DAVID B. KEGERIZE**
Professional Engineer
No. 12345
State of PA

Seal: **G. MITCHELL KING**
Professional Engineer
No. 67890
State of PA

TOWNE SQUARE
ENGINEERING
Civil Engineers & Land Planners
info@townesquareengineering.com

313 W. Liberty St.,
Suite 241
Lancaster, PA 17603
Phone: (717) 283-4538

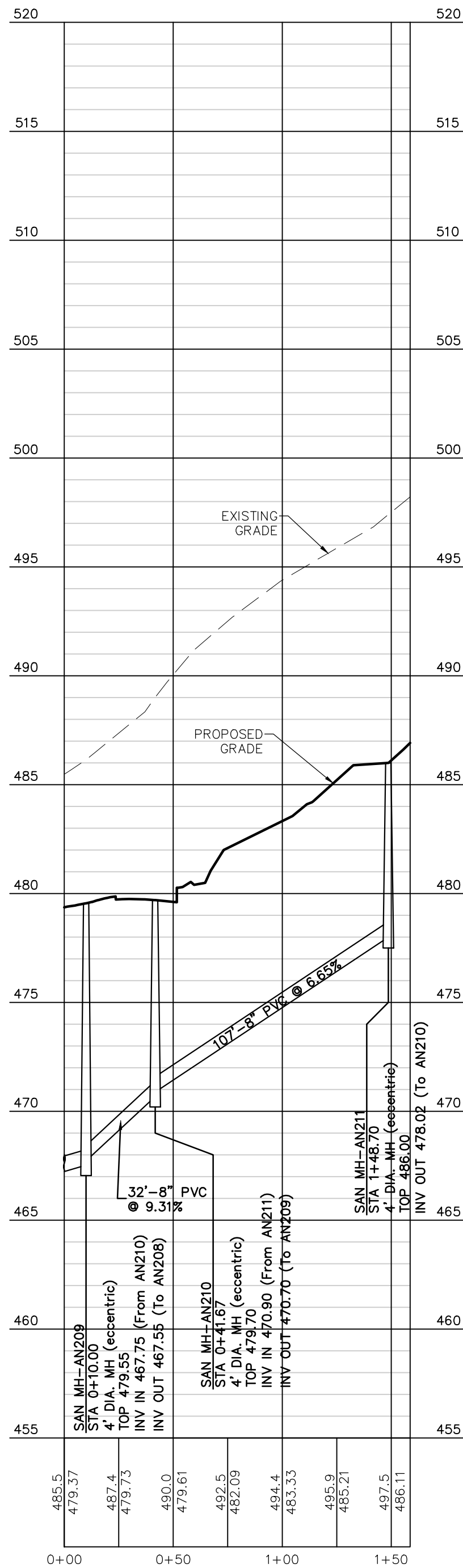
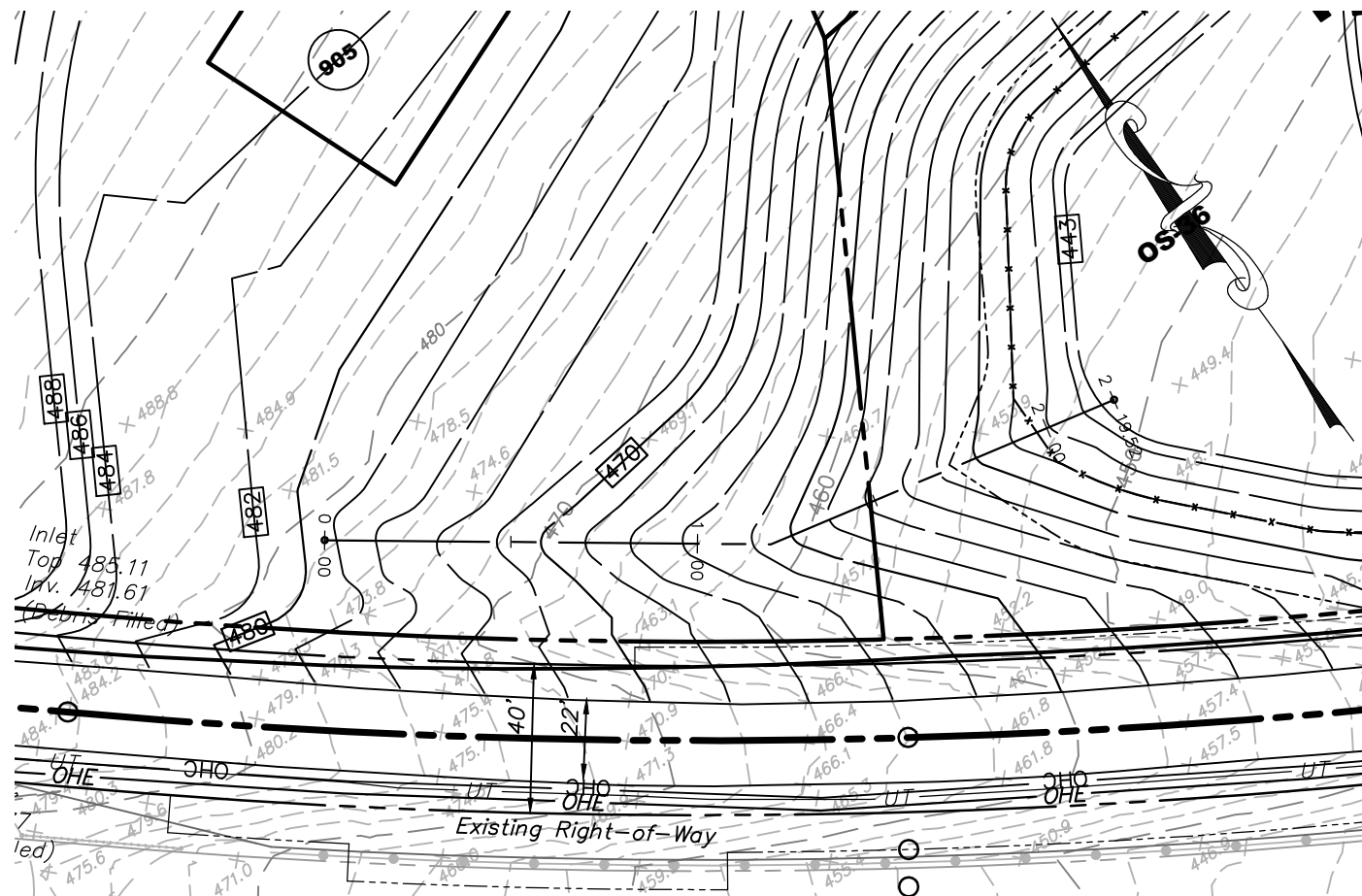
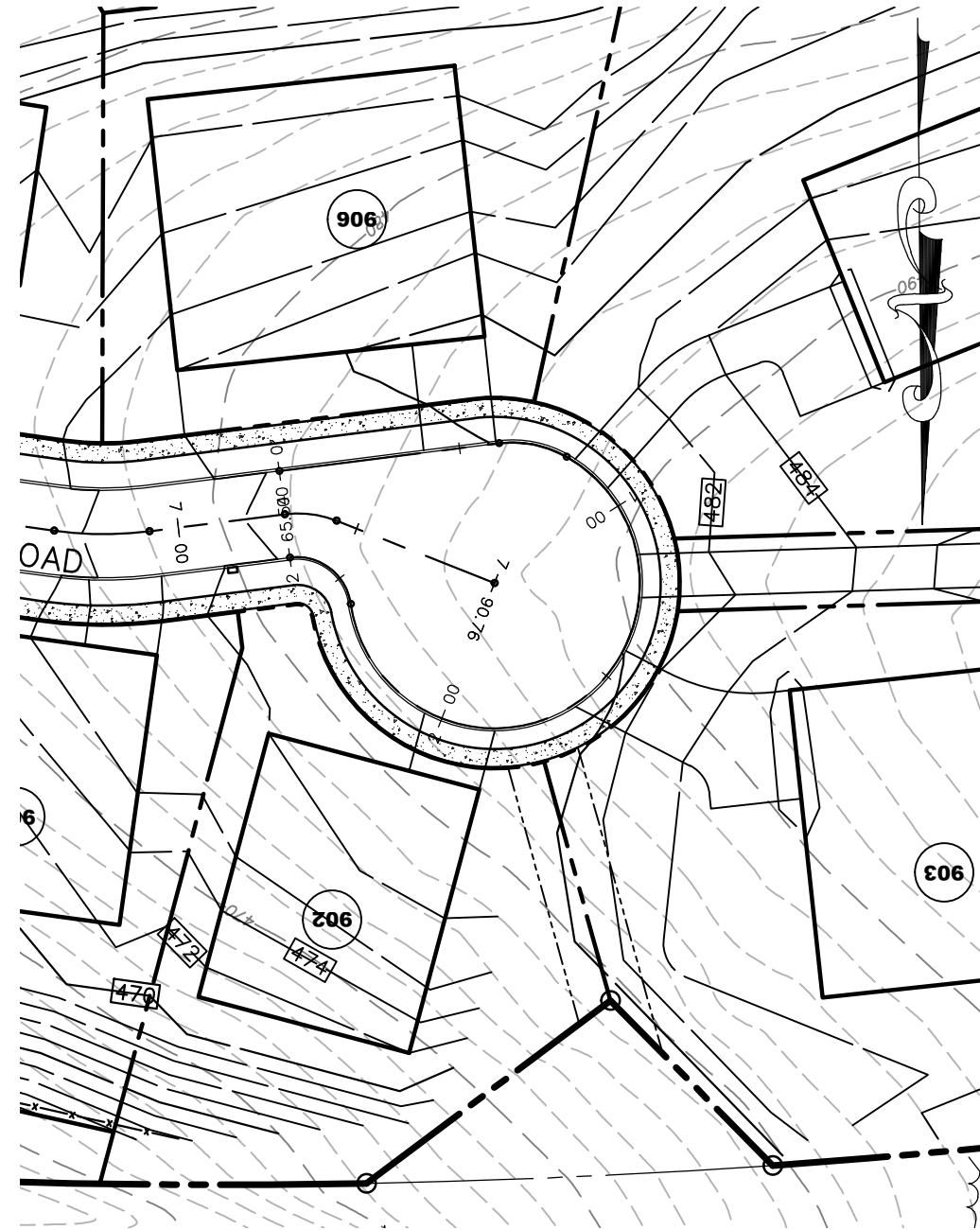
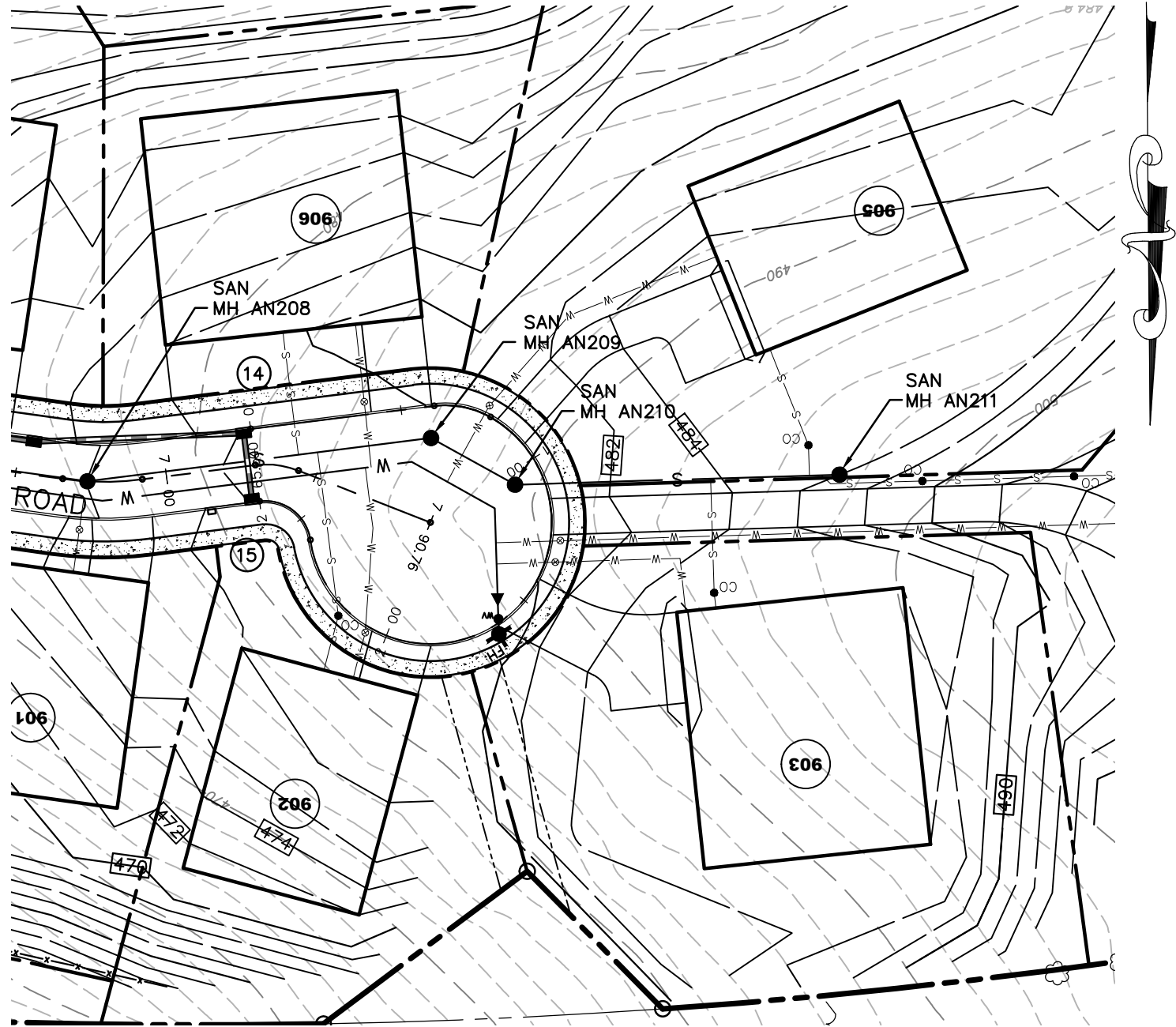
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10/17/24

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REV. PER PA DEP LETTER DATED 8/26/25
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REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25
REV. FOR T.E. LTR., 21 SLOPES, P&WC PLAN
REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

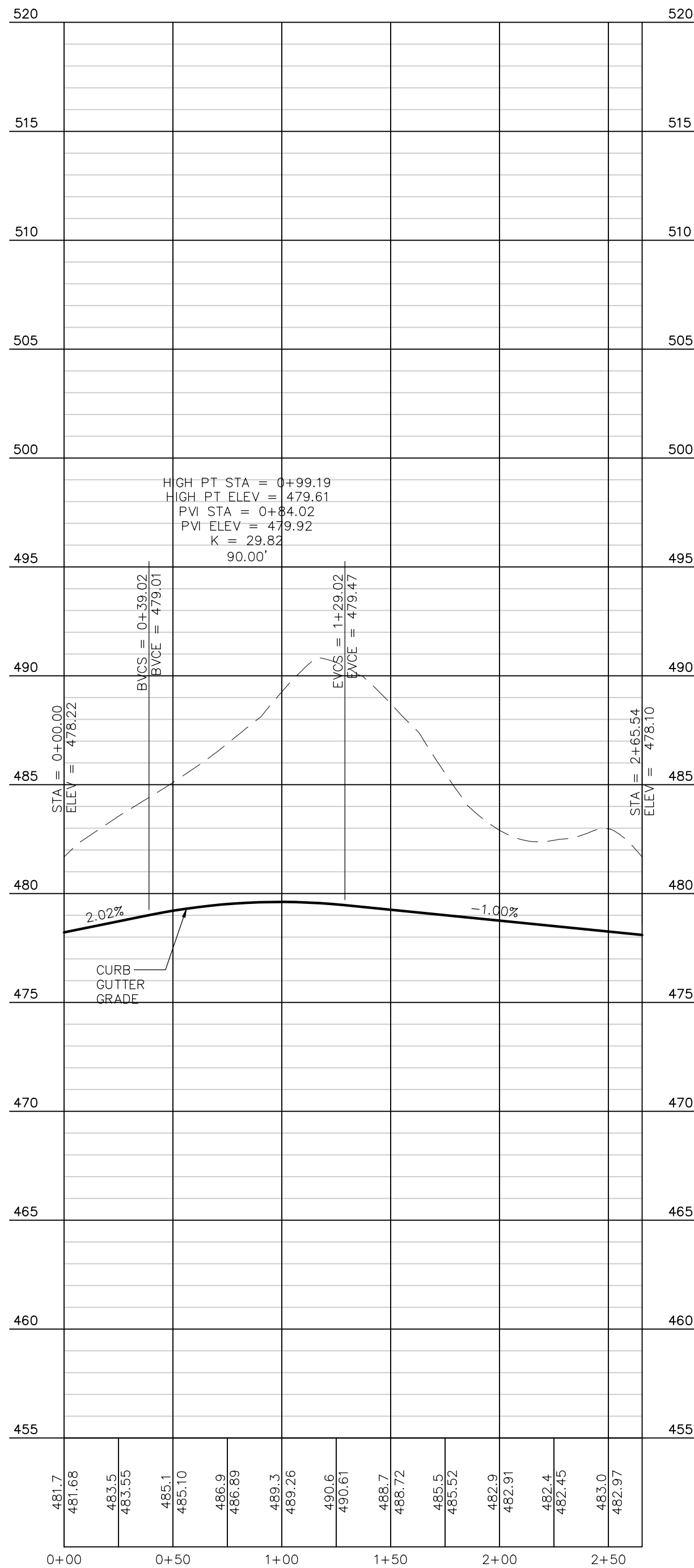
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REVISIONS

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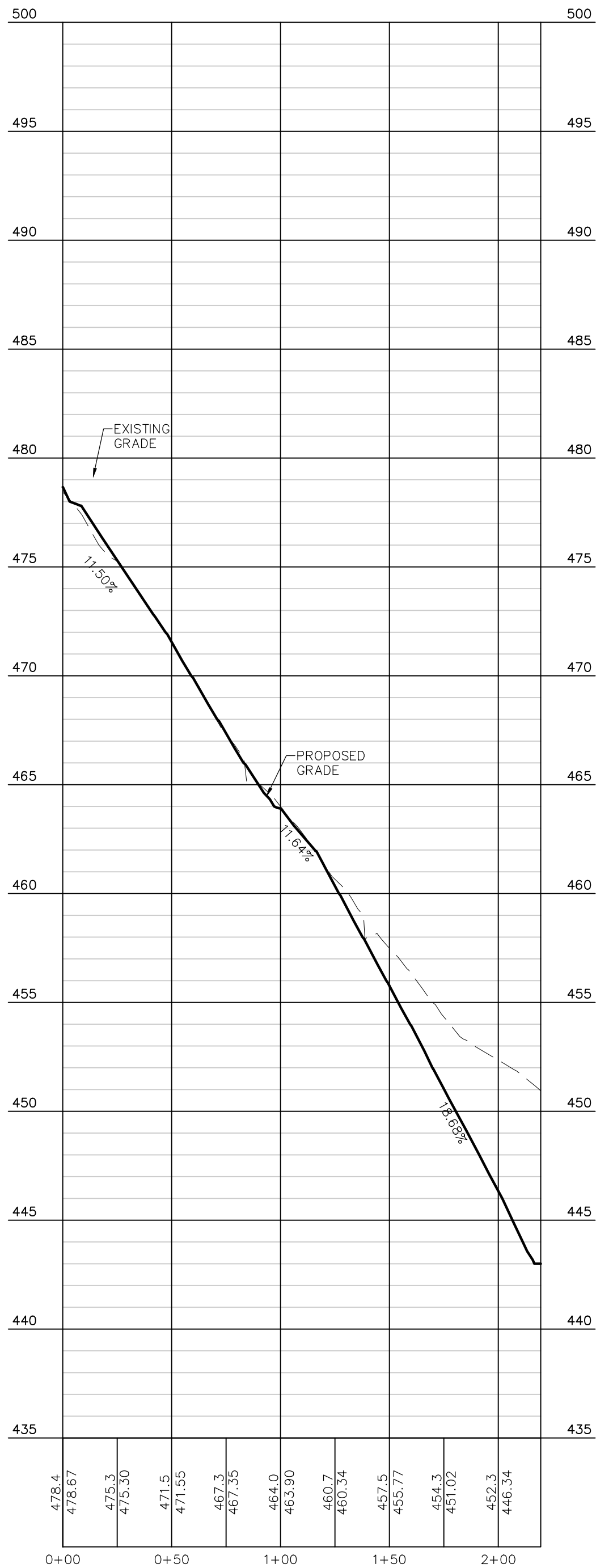
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PROFILE: SANITARY MH-AN209 TO SANITARY MH-AN211
SCALE HORZ.: 1" = 50' VERT.: 1" = 5'



PROFILE: CUL-DE-SAC EDGE OF PAVING
SCALE HORZ.: 1" = 50' VERT.: 1" = 5'



PROFILE: SWALE # 1
SCALE HORZ.: 1" = 50' VERT.: 1" = 5'

Sheet Number:
20 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA

CHARTER Homes & Neighborhoods

Project Manager:
DAVID B. KEEGERIZE PE

Project Engineer:
G. MITCHELL KING PE, PLS

Project Surveyor:
THOMAS K. PHILLIPS PLS

Drafting:
D TURNER

Checked by:
—

Scale:
1"=50'

Seal:
Professional Engineer
No. 000000000
Renewal Date: 10/15/24

TOWNE SQUARE ENGINEERING
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Phone: (717) 283-4538

10/27/25
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ADDRESSED 10/22/25 TWP. ENGR. LTR.
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FOR T.E. LTR., 2-1 SLOPES, P&WC PLAN
REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

DATE
REVISIONS

Section Number:
PF-2

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Post Construction Storm Water BMP Operation & Maintenance Procedures

Inspections detailed below shall employ a qualified a registered professional to conduct the inspections and prepare reports. The entity conducting the inspection shall be required to submit a report to the Municipality annually. Reports shall be submitted by February 1 for inspections completed the previous year. The report shall document the condition of the facilities and recommend needed repairs. Recommended repairs and other corrective actions shall be implemented by the Arcona Neighborhood 9 Association, Inc. within thirty days of the report date.

Bioretention Basin (BMP-001)

The Neighborhood Association shall own and maintain BMP-001, Bioretention Basin.

The general objective of maintenance is to prevent clogging of the outlets and to prevent the growth of weeds and nonnative invasive vegetation. The basin berm and side should be maintained as upland meadow turf grass. The grass should be mowed regularly to maintain a grass height of 6-8 inches. Any seedlings or plantings should be removed from the basin side slopes and berm.

Sediment tends to accumulate over time. The collected sediment in the bottom of the basin must be removed every five to ten years. Clean accumulated silt, sand, mud, and debris. Remove from the site and dispose of in an appropriate approved facility. Seed and mulch the disturbed areas immediately.

During the first growing season, vegetation should be inspected every 2 to 3 weeks. During the first 2 years, the basin should be inspected at least 4 times per year and after major storms (greater than 2 inches in 24 hours). Inspections should assess the vegetation, erosion, flow channelization, bank stability, inlet/outlet conditions, and sediment/debris accumulation. Problems should be corrected as soon as possible. Vegetation may require support –watering, weeding, mulching, replanting, etc. –during the first 3 years. Undesirable species should be removed and desirable replacements planted if necessary.

The basin should be inspected at least semiannually and after major storms as well as rapid ice breakup. Vegetation should maintain at least an 85 percent cover of the emergent vegetation zone. Harvesting of vegetation may increase the nutrient removal of the facility; it should generally be done in the spring so that there is adequate regrowth before winter. Care should be taken to minimize disturbance, especially of bottom sediments, during harvesting. The potential disturbance from harvesting may outweigh its benefits unless the facility receives a particularly high nutrient load or from discharges to a nutrient sensitive waterbody.

The BMP has failed if water remains ponded in the basin more than 72 hours after the end of a storm. Contact the design engineer for repair solutions if this is observed.

Gross Swales

Gross swales shall be maintained with turf grass. The swales should be mowed regularly to maintain a grass height of 3 to 5 inches. Debris should be removed from the swales. erosion occurs uphill of the swales, any sediment deposited in the swales should be removed. The eroded areas should be repaired and stabilized with seed and mulch. Apply seed & mulch to disturbed areas of the swales after sediment is removed. Grass swales shall be maintained by the Arcona Neighborhood 8 Association, Inc.

Rip Rap Aprons

The outlet structures should be inspected quarterly and after each major storm. If the soil has eroded around or below the rip rap pad, the area should be repaired with top soil, seed and mulch.

GEOLOGIC EVALUATION:

See "Arcona Neighborhood 9 Carbonate Geology Evaluation Report," prepared by ARM Group LLC, dated May 2024 for full analyses of site geology and recommendations.

SUMMARY

- According to the Pennsylvania Department of Conservation and Natural Resources' Geologic Date Exploration Map, the site is underlain by two bedrock formations including the undivided Hershey and Myerstown Formations in the northwest portions of the site, and the Epler Formation in the southeast portions of the site. The Epler Formation is characterized as very finely crystalline, medium-gray limestone interbedded with gray dolomite and some coarsely-crystalline limestone lenses. The Myerstown Formation is characterized as mediumcrystalline, medium to dark gray limestone, with dark gray to black carbonaceous limestone at base. The Hershey Formation is characterized as finely crystalline, dark gray to black, argillaceous limestone, with basal conglomerate that contains angular boulders of dolomite.
- Review of the Sinkholes and Karst-Related Features of Cumberland County, Pennsylvania (W.E. Kochanov, 1989) showed no sinkholes are mapped within approximately 3,000 feet of the site limits; however, there are two closed depressions mapped along the fault contact between the undivided Hershey and Myerstown Formations with the Epler Formation near the southern limits of Arcona Neighborhood 8.3 and several more closed depressions to the east of the Norfolk Southern to the east of Neighborhood 9.
- The site reconnaissance and infiltration testing performed by ARM Group, Inc. personnel revealed no closed depressions, topographic lineaments or fracture traces, caverns, intermittent lakes, ephemeral streams, or other carbonate geology hazards.

RECOMMENDATIONS

- Based on the test results, the measured infiltration capacity of the soils across the site ranged from 0.00 to 18.72 in/hr. ARM recommends that design rates should not incorporate test values that exceed the slower of the following:
 - Half of the measured rate for a given test
 - The average of the minimum and maximum range limits for the hydraulic conductivity of the most limiting layer as published for the associated NRCS soil unit (1.10 for Edom silty clay loam and 1.30 for the Bedington shaly silt loam)
 - The geometric mean of all measured rates tested at the site for the mapped NRCS soil unit (0.72 for Edom silty clay loam and 5.77 for the Bedington shaly silt loam)
- Additionally, based on ARM's filed observations and other available information, concentrated stormwater infiltration is acceptable, but sinkhole avoidance and mitigation measures should be observed and incorporated into the design and construction of the project. Please refer to the "Recommendations" section of the ARM report.
- ARM has determined that the site is situated within a potential karst area, which is potentially subject to the development of sinkholes. While no existing sinkholes, closed depressions, or other carbonate geology hazards were visually observed at the existing ground surface by ARM within the investigation area, and were not identified through a review of available aerial photographs and topographic maps, the soil and rock conditions encountered are considered to present a possible risk for sinkhole development. Concentrated stormwater infiltration would potentially increase the risk for sinkhole development at the site, Stormwater management systems should be constructed using appropriate sinkhole mitigation and/or stabilization methods to minimize the potential for sinkhole development.

OWNER / DEVELOPER
(ARCONA NEIGHBORHOOD 9):

Charter Homes at Arcona, Inc.
322 North Arch Street
Lancaster, PA 17603

Tax Map 13-10-0256-352
Inst. No.: 202421854

OWNER (REMAINING LANDS)

Ruth D. Leshar
1340 Rossmoyne Road
Mechanicsburg, PA 17055

SOURCE OF TITLE:

Tax Map 13-10-0256-031
Inst. No.: 201729508 (1/2 interest)

OWNER (REMAINING LANDS)

Strong & Detweiler Partnership
1340 Rossmoyne Road
Mechanicsburg, PA 17055

SOURCE OF TITLE:

Tax Map 13-10-0256-031
Deed Book: 274, Page 1884 (1/2 interest)

SITE ACREAGE:

ARCONA NEIGHBORHOOD 9 – GROSS AREA 20.60 Ac.

SITE DATA:

ZONING:
R-2 Single-Family Residential District (TND Overlay)

PROPOSED USE:

15 Single-Family Lots

PROPOSED WATER SERVICE:

PUBLIC

PROPOSED SEWER SERVICE:

PUBLIC

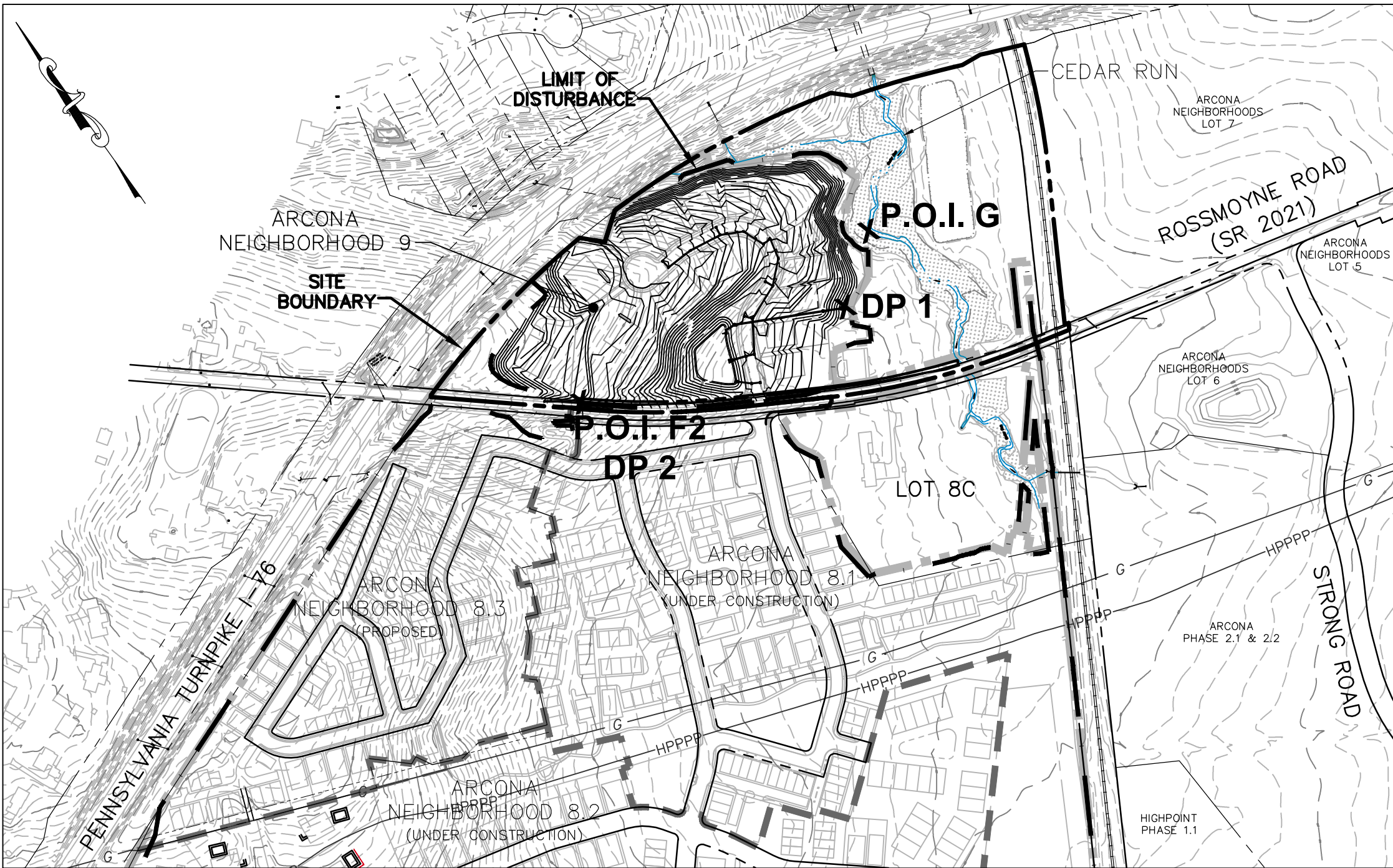
NOTES:

- PA ONE CALL REQUESTED WAIVERS AND NOTES ARE LOCATED ON CV-2.
- LEGENDS ARE LOCATED ON EX-2 & LY-1.
- SOILS TABLE IS LOCATED ON EX-1.
- THE OWNER(S) WILL PROVIDE A NOTARIZED CERTIFICATE OF OWNERSHIP SIGNATURE PRIOR TO FINAL PLAN RECORDATION.

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN



ARCONA NEIGHBORHOOD 9



PLAN: 1" = 300'

This site is on Cedar Run. Cedar Run is classified as Cold Water Fisheries (CWF).

The wetlands on this site are classified as Exceptional Value (EV).

Limit of Disturbance = 164.16 Ac.
(Includes all of Highpoint / Arcona, 9.70 Ac. added for Phase 9 with this Major Amendment)

NPDES Boundary = 183.95 Ac.

PLAN INDEX

NO.	SEC.	TITLE
21	SM-1	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN COVER
22	SM-2	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN
23	SM-3	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS
24	SM-4	POST CONSTRUCTION STORMWATER MANAGEMENT BASIN DETAILS
25	SM-5	POST CONSTRUCTION STORMWATER MANAGEMENT NOTES

NPDES NARRATIVE

Charter Homes at Arcona, Inc. proposes to develop 15 detached single-family lots in Arcona Neighborhood 9. The development is located on a 20.60 acre tract of land. The Arcona Neighborhood 9 property is located on the north side of Rossmoyne Road along the south side of the Pennsylvania Turnpike. The development will be served by public sewer and water. The land is currently farmed.

Arcona Neighborhood 9 is a part of the master plan for a traditional neighborhood development (TND) of the Arcona Site. Storm water management for the Arcona Neighborhood 9 development will be provided by onsite BMPs.

ESTIMATED SCHEDULE FOR PROJECT

Work Schedule:

- Start of Site Work: Fall 2025.
- Site Work Complete: Summer 2026.
- Home Construction: Q4 2025 – Q4 2027.

RECYCLING AND DISPOSAL OF BUILDING MATERIALS AND WASTES

- The operator shall remove from the site, recycle, or dispose of all building materials and wastes in accordance with the department's solid waste management regulations at 25 pa. Code 260.1 et seq., 271.1 et seq., and 287.1 et seq., and any federal regulations. The contractor shall not illegally bury, dump, or discharge any building material or wastes at the site.
- Any sediment removed from the area of the PCSM BMP shall be placed in a location on-site and immediately stabilized to minimize the potential for accelerated erosion.
- The contractor shall be responsible for the removal of any excess material and make sure the site(s) receiving the excess has an approved and fully implemented erosion and sediment control plan that meets the conditions of Chapter 102 and/or other state or federal regulations.
- Any placement of 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.

DESIGN CONSIDERATIONS

The time and extent of earth disturbance will be limited.

- Earth disturbance, topsoil stripping and compaction will be limited on portions of the site. These areas will be marked with orange construction fence as a visible reminder of the areas to be preserved.

The Arcona Neighborhood 9 plan protects existing drainage features and vegetation.

- The existing drainageway/wetlands that run through the site will be fenced to prevent disturbance.

The plans minimize soil compaction by:

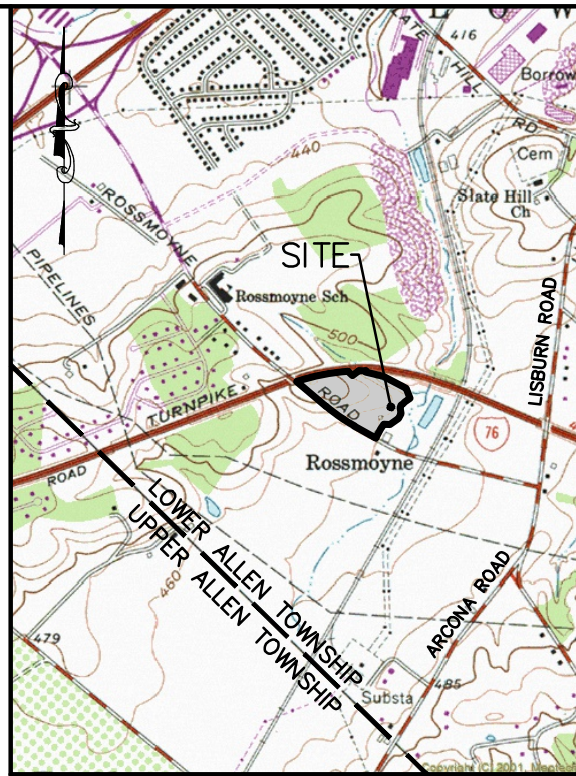
- Leaving steep slopes undisturbed.

The plans minimize generation of increased stormwater runoff by:

- Use streets with the minimum width permitted by Lower Allen Township.

THERMAL IMPACTS

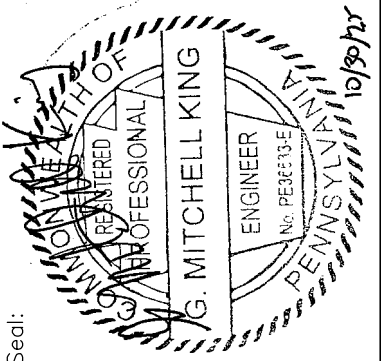
Most of the Arcona Neighborhood 9 area will drain into the bioretention basin BMP-001 via a stormwater conveyance system. The basin will contain the warmer first flush runoff from the site. The warmer first flush will either be evaporated, transpired, or infiltrated through the soil media and vegetation.



LOCATION MAP
SCALE: 1" = 2000'

Sheet Number: 21 of 33
Project Number: 15-100-32
Date: MAY 17, 2024
ARCONA NEIGHBORHOOD 9 Lower Allen Township - Cumberland County, PA CHARTER HOMES & NEIGHBORHOODS
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN COVER

Project Manager: DAVID B. KEGERIZE PE	Drafting: D TURNER
Project Engineer: C. MITCHELL KING PE, PLS	Checked by: —
Project Surveyor: THOMAS K. PHILLIPS PLS	Scale: 1"=300'



TOWNE
SQUARE
ENGINEERING

313 W. Liberty St.,
Suite 241
Lancaster, PA 17603
Phone: (717) 283-4538

Civil Engineers & Land Planners

10/27/25 9/4/25 8/18/25 3/18/25 1/20/25 12/18/24 10/17/24	ADDRESSED 10/22/25 TWP. ENGR. LTR. REV. PER PA DEP LETTER DATED 8/26/25 REV. PER CHAN REV. PER CCOD EMAIL DATED 3/14/25 REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25 REV. FOR T.E. LTR., 21 SLOPES, P&WC PLAN REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24	REVISIONS
DATE		
Section Number: SM-1		

INFILTRATION TESTING INFORMATION

#9-3 Ex. Grade = 460.1 LZ Elev. 459.1 (weathered rock)	#9-7 Ex. Grade = 482.8 Measured Rate = 1.18 in/hr Test Elev. 479.0 Probed to 476.8 (LZ not encountered)	#9-11 Ex. Grade = 433.1 Measured Rate = 0.24 in/hr Test Elev. 430.1 LZ Elev. 428.1 (Mottling)	#9-32 Ex. Grade = 434.82 Measured Rate = 0.28 in/hr Test Elev. 430.3 Probed to 428.3 (LZ not encountered)	#9-35 Ex. Grade = 437.2 Measured Rate = 0.00 in/hr Test Elev. 431.5 Probed to 429.5 (LZ not encountered)	#9-39 Ex. Grade = 439.0 Measured Rate = 0.60 in/hr Test Elev. 431.5 Probed to 429.0 (LZ not encountered)	#9-43 Ex. Grade = 436.0 Measured Rate = 0.00 in/hr Test Elev. 431.5 Probed to 429.3 (LZ not encountered)	#9-54 Ex. Grade = 433.0 Measured Rate = 18.72 in/hr Test Elev. 432.0 Probed to 429.0 (LZ not encountered)
#9-4 Ex. Grade = 494.8 Measured Rate = 11.88 in/hr Test Elev. 492.8 LZ Elev. 490.8 (weathered rock)	#9-8 Ex. Grade = 473.1 Measured Rate = 12.00 in/hr Test Elev. 471.1 LZ Elev. 469.1 (weathered rock)	#9-29 Ex. Grade = 449.8 Measured Rate = 2.16 in/hr Test Elev. 441.5 Probed to 437.8 (LZ not encountered)	#9-33 Ex. Grade = 437.81 Measured Rate = 0.16 in/hr Test Elev. 432.0 Probed to 430.0 (LZ not encountered)	#9-36 Ex. Grade = 436.0 Measured Rate = 0.72 in/hr Test Elev. 431.5 Probed to 429.3 (LZ not encountered)	#9-40 Ex. Grade = 430.1 Measured Rate = 3.00 in/hr Test Elev. 429.4 Probed to 427.1 (LZ not encountered)	#9-51 Ex. Grade = 464.7 Measured Rate = 12.96 in/hr Test Elev. 459.0 Probed to 456.2 (LZ not encountered)	#9-55 Ex. Grade = 440.0 Measured Rate = 15.84 in/hr Test Elev. 439.0 Probed to 435.7 (LZ not encountered)
#9-5 Ex. Grade = 511.8 Measured Rate = 1.32 in/hr Test Elev. 506.3 LZ Elev. 504.3 (weathered rock)	#9-9 Ex. Grade = 461.1 Measured Rate = 7.92 in/hr Test Elev. 459.6 LZ Elev. 457.6 (weathered rock)	#9-30 Ex. Grade = 446.1 Measured Rate = 3.12 in/hr Test Elev. 441.5 Probed to 439.5 (weathered rock)	#9-34 Ex. Grade = 460.0 LZ Elev. 458.5 (weathered rock)	#9-37 Ex. Grade = 437.4 Measured Rate = 0.60 in/hr Test Elev. 431.5 Probed to 429.4 (LZ not encountered)	#9-41 Ex. Grade = 429.5 Measured Rate = 1.44 in/hr Test Elev. 428.9 Probed to 426.5 (LZ not encountered)	#9-52 Ex. Grade = 428.6 Measured Rate = 2.4 in/hr Test Elev. 428.0 Probed to 425.1 (LZ not encountered)	#9-56 Ex. Grade = 483.5 Measured Rate = 6.12 in/hr Test Elev. 483.1 LZ Elev. 481.5 (weathered rock)
#9-6 Ex. Grade = 488.7 Measured Rate = 9.05 in/hr Test Elev. 485.7 LZ Elev. 483.7 (weathered rock)	#9-10 Ex. Grade = 443.5 Measured Rate = 10.08 in/hr Test Elev. 442.5 Probed to 439.9 (LZ not encountered)	#9-31 Ex. Grade = 437.83 Measured Rate = 0.13 in/hr Test Elev. 432.0 Probed to 428.8 (LZ not encountered)	#9-34.2 Ex. Grade = 459.5 LZ Elev. 458.5 (weathered rock)	#9-38 Ex. Grade = 438.4 Measured Rate = 0.36 in/hr Test Elev. 431.5 Probed to 429.4 (LZ not encountered)	#9-42 Ex. Grade = 451.7 Measured Rate = 0.00 in/hr Test Elev. 445.0 Probed to 442.7 (LZ not encountered)	#9-53 Ex. Grade = 424.7 Measured Rate = 0.72 in/hr Test Elev. 424.3 LZ Elev. 421.8 (SHWT)	

SOILS LIST *		
Symbol	Description	K-Factor
BdB	Bedington shaly silt loam 3-8% Slope	0.32
BdC	Bedington shaly silt loam 8-15% Slope	0.32
BdD	Bedington shaly silt loam 15-25% Slope	0.32
DuA	Duffield silt loam, 0-3% Slope	0.32
EdB	Edom silty clay loam 3-8% Slope	0.20
HaB	Hagerstown silt loam 3-8% Slope	0.37
Pe	Penlaw silt loam	0.37
W	Water	n/a



Sheet Number:
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Project Number:
15-100-32

Date:
MAY 17, 2024

ARGONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA

CHARTER Homes & Neighborhoods

Project Manager:
DAVID B. KEGERIZE PE

Project Engineer:
G. MITCHELL KING PE, PLS

Project Surveyor:
THOMAS K. PHILLIPS PLS

Drafting:
D TURNER

Checked by:
—

Scale:
1"=50'

Seal:

Seal:

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Civil Engineers & Land Planners
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Suite 241
Lancaster, PA 17603
Phone: (717) 283-4538

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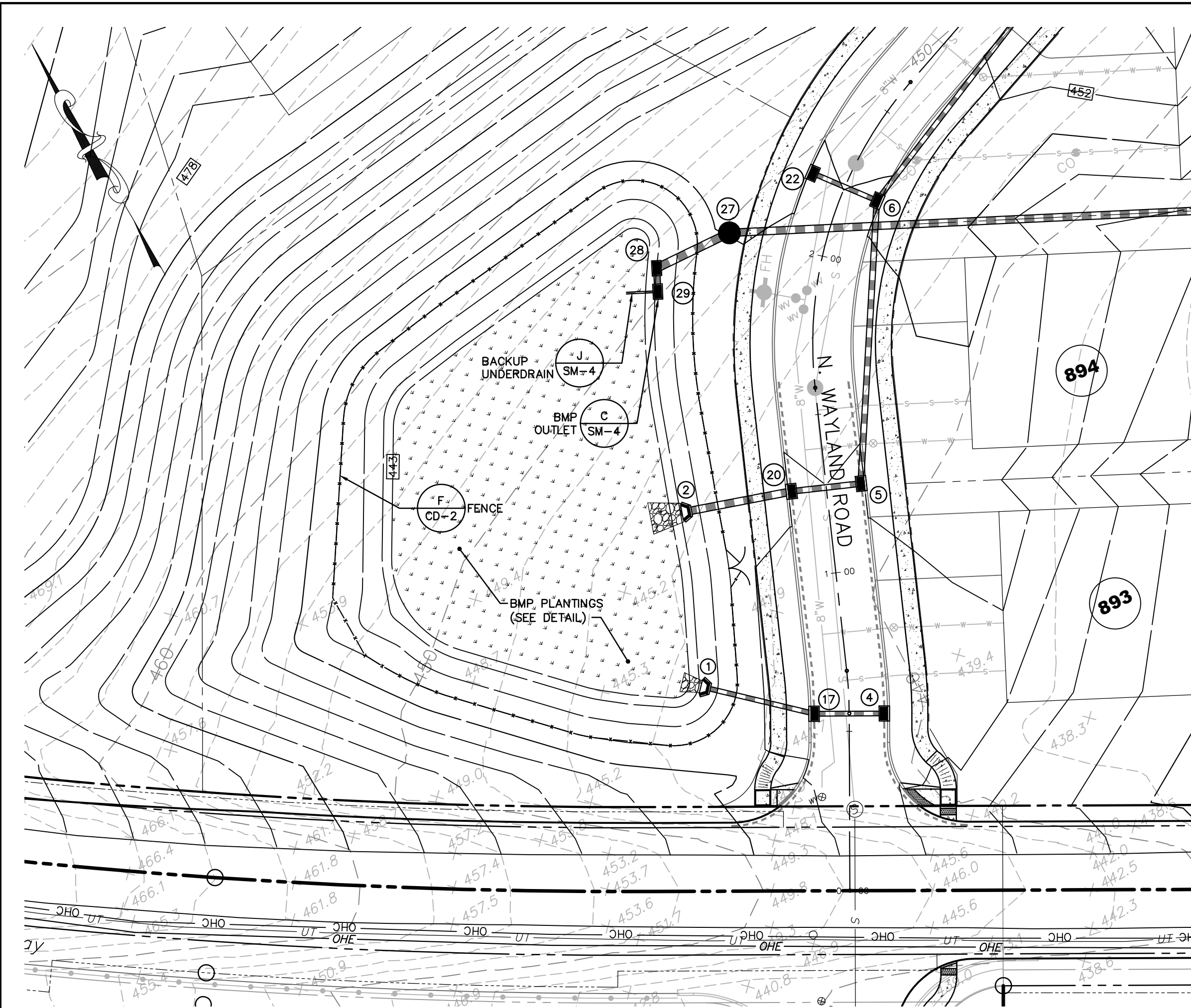
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PRELIMINARY/FINAL



A
SM-4
BMP-001: BIORETENTION BASIN
SCALE: 1" = 30'

GENERAL NOTES:

- The subgrade shall be appropriately prepared for infiltration during final conversion of the facilities to permanent stormwater management facilities.
- The Municipal Engineer shall be notified when the subgrade is prepared.
- The facility shall be protected against sediment laden runoff at all times.
- Permanent and full establishment of the specified BMP plantings (or approved equal) is required. Measures to ensure the full and proper germination of the BMP plantings shall be implemented accordingly during the vegetative establishment of the basin bottom, including: watering, overseeding, reseeding, erosion prevention measures, seed washing prevention measures, stabilization measures, weed control, etc.
- A qualified professional shall inspect, certify, and provide documentation to the municipality that the final BMP vegetation meets the requirements of the approved planting plan, is fully established, and is free from invasive plants.
- A professional geologist shall oversee excavation of the basin to subgrade below the planting soil. Any karst pinnacles or other anomalies shall be remediated per the PC's direction. A minimum of 2 feet of subsoil shall underlay all parts of the subgrade below the planting soil in the basin. During final excavation, the contractor shall probe the subgrade in a grid-like manner to ensure a minimum of 24" of separation between the subgrade and any limiting zone.

BASIN SOIL MEDIA SPECIFICATION

Planting Soil shall be a loam capable of supporting a healthy vegetative cover. Soils shall be amended with composted organic material. A typical organic amended soil is combined with 20-30% organic material and 70-80% topsoil. The topsoil shall be free of clays and fines. The proposed Planting Soil mix shall be laboratory tested to provide between 2.0 inches/hour and no more than 6.0 inches/hour infiltration rate through the planting soil BEFORE installation in the basin. Results of this testing shall be provided to the professional engineer overseeing construction and to the Lower Allen Township Engineer. The engineering and testing of the planting soil mix is a critical stage of construction that will help prevent formation of sinkholes on this active karst area site.

BASIN PLANTINGS SPECIFICATION

After placement of soil media, a combination of plug plantings and seed mix shall be planted. Plugs shall be placed 2' to 3' on center throughout the basin bottom. Seed mix shall be sown throughout basin bottom. Plant during appropriate season and in accordance with manufacturer / supplier recommendations.

BIORETENTION SEEDING MIX FOR BOTTOM OF BASINS:

Rain Garden Mix
Description: ERNM-180
Seeding Rate: 20 lbs per acre

Species List

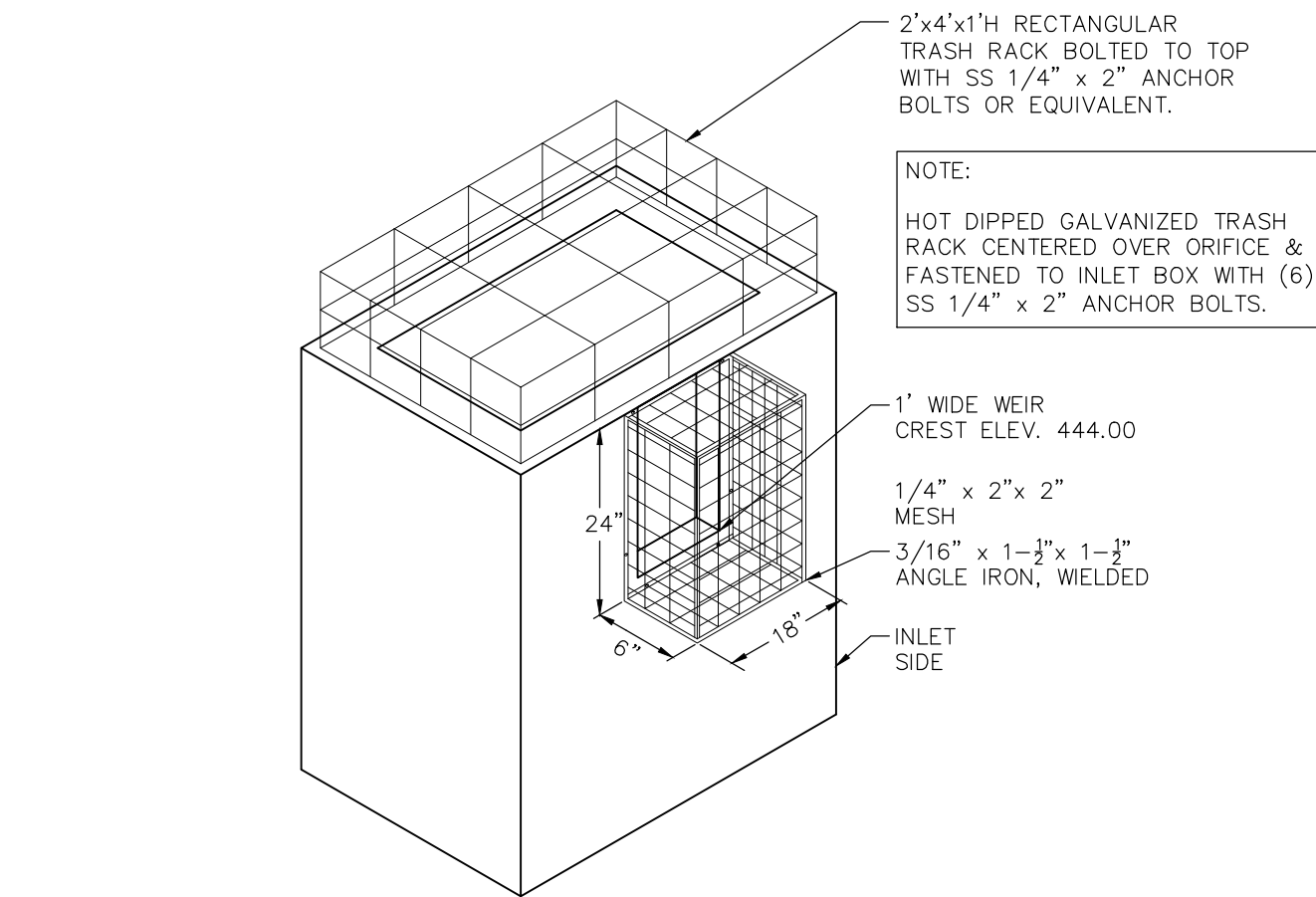
Schizachyrium scoparium (Little Bluestem)
Elymus virginicus (Virginia Wildrye)
Corex vulpinoidea (Fox Sedge)
Echinacea purpurea (Purple Coneflower)
Panicum rigidulum (Redtop Panicgrass)
Chasmanthium latifolium (River Oats)
Coreopsis lanceolata (Lanceleaf Coreopsis)
Rudbeckia hirta (Blackeyed Susan)
Verbena hastata (Blue Vervain)
Panicum clandestinum (Dacotongue)
Helopsis helianthoides (Oxeye Sunflower)
Asclepias incarnata (Swamp Milkweed)
Penstemon digitalis (Tall White Beardtongue)
Corex scoparia (Blunt Broom Sedge)
Senna hebecarpa (Wild Senna)
Zizia aurea (Golden Alexanders)
Baptisia australis (Blue False Indigo)
Juncus effusus (Soft Rush)
Juncus tenuis (Path Rush)
Pycnanthemum tenuifolium (Narrowleaf Mountainmint)
Vernonia noveboracensis (New York Ironweed)
Aster novae-angliae (New England Aster)
Monarda fistulosa (Wild Bergamot)
Aster lateriflorus (Calico Aster)
Aster prenanthoides (Zigzag Aster)
Aster pilosus (Heath Aster)
Eupatorium perfoliatum (Boneset)
Mimulus ringens (Square Stemmed Monkeyflower)
Solidago juncea (Early Goldenrod)
Solidago nemoralis (Gray Goldenrod)

PLUG PLANTINGS (SPACED 2' TO 3' ON CENTER):

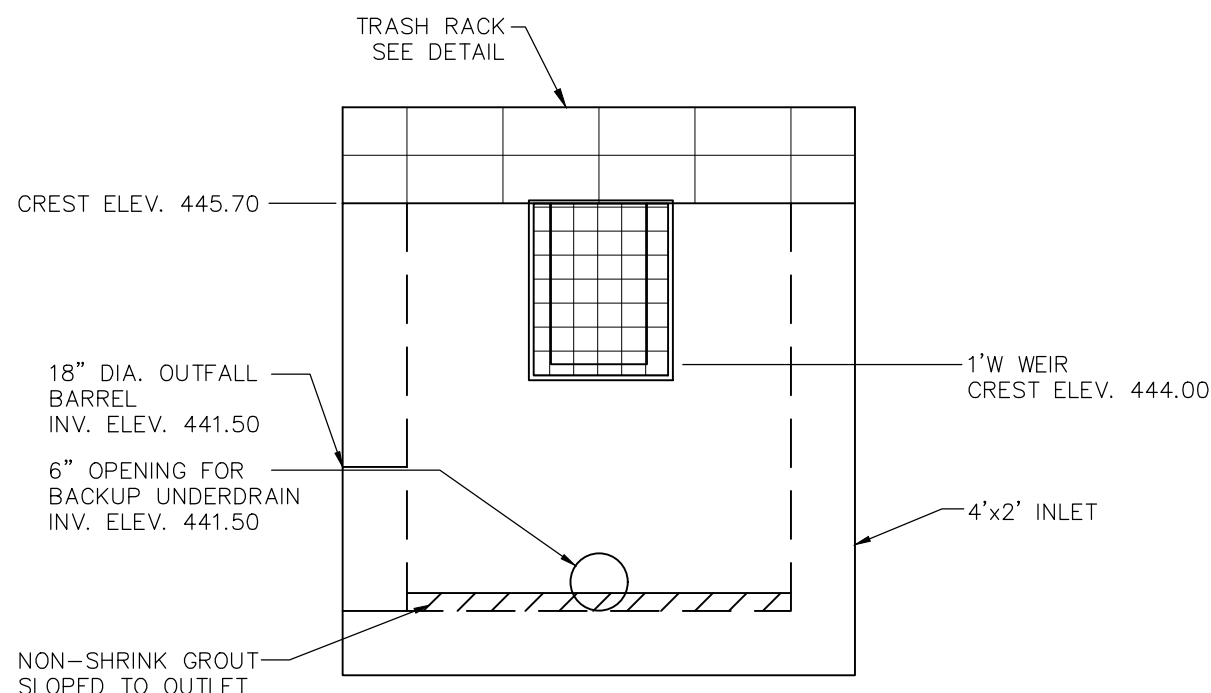
Acceptable Species List

Corex pensylvanica (Pennsylvania sedge)
Corex appalachia (Appalachian sedge)
Sorghastrum nutans (Indiangrass)
Aster novi-belgii (New York aster)
Aster novae-angliae (New England aster)
Andropogon gerardii (Big bluestem)
Chelone glabra (Turtlehead)
Tradescantia ohiensis (Ohio spiderwort)
Thalictrum rochebrunianum (Meadow rue)
Solidago rugosa 'Fireworks' (Rough goldenrod)

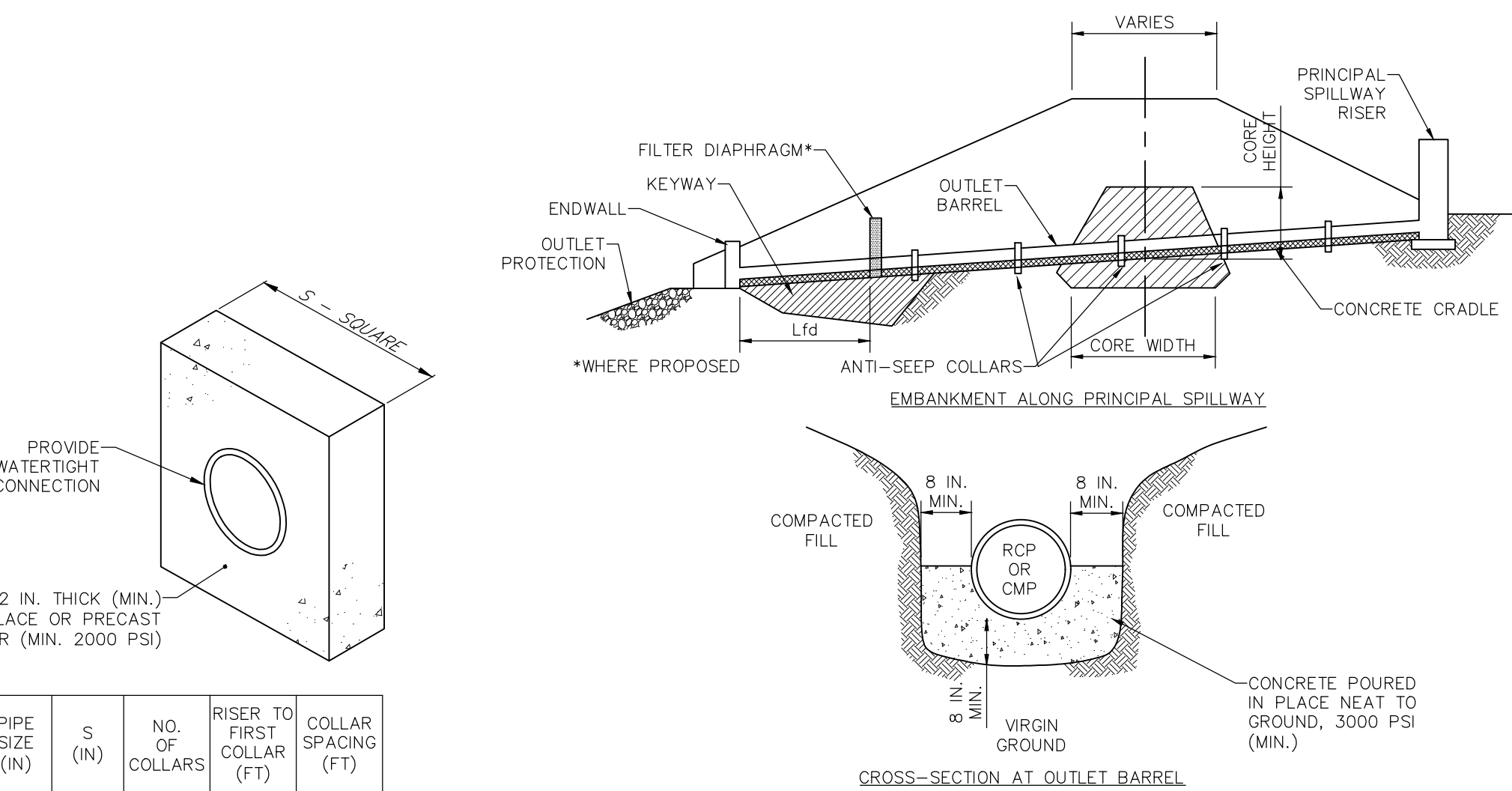
Other native species may be substituted with approval by the Owner and Engineer.



D
SM-4
BMP OUTLET - TRASH RACK
NOT TO SCALE

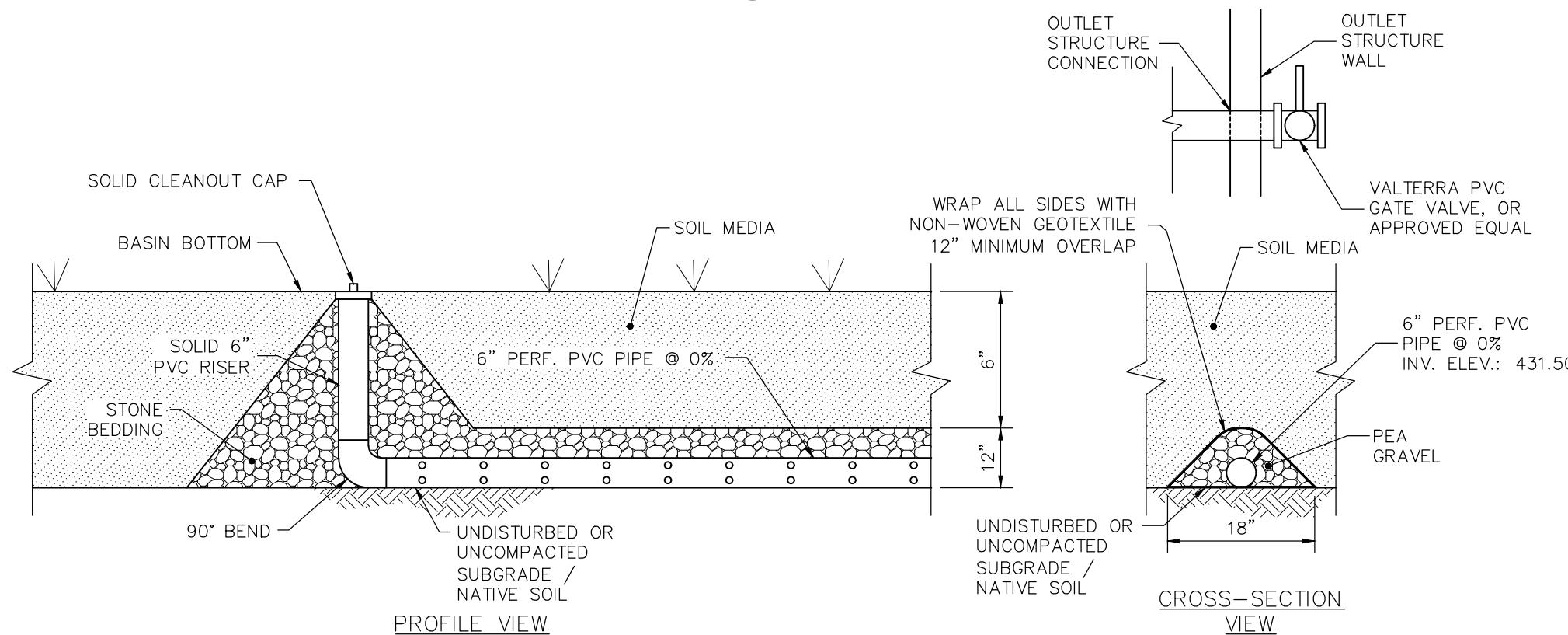


C
SM-4
BMP OUTLET - STRUCTURE 29
NOT TO SCALE



- NOTES:**
- ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATERTIGHT.
 - COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.

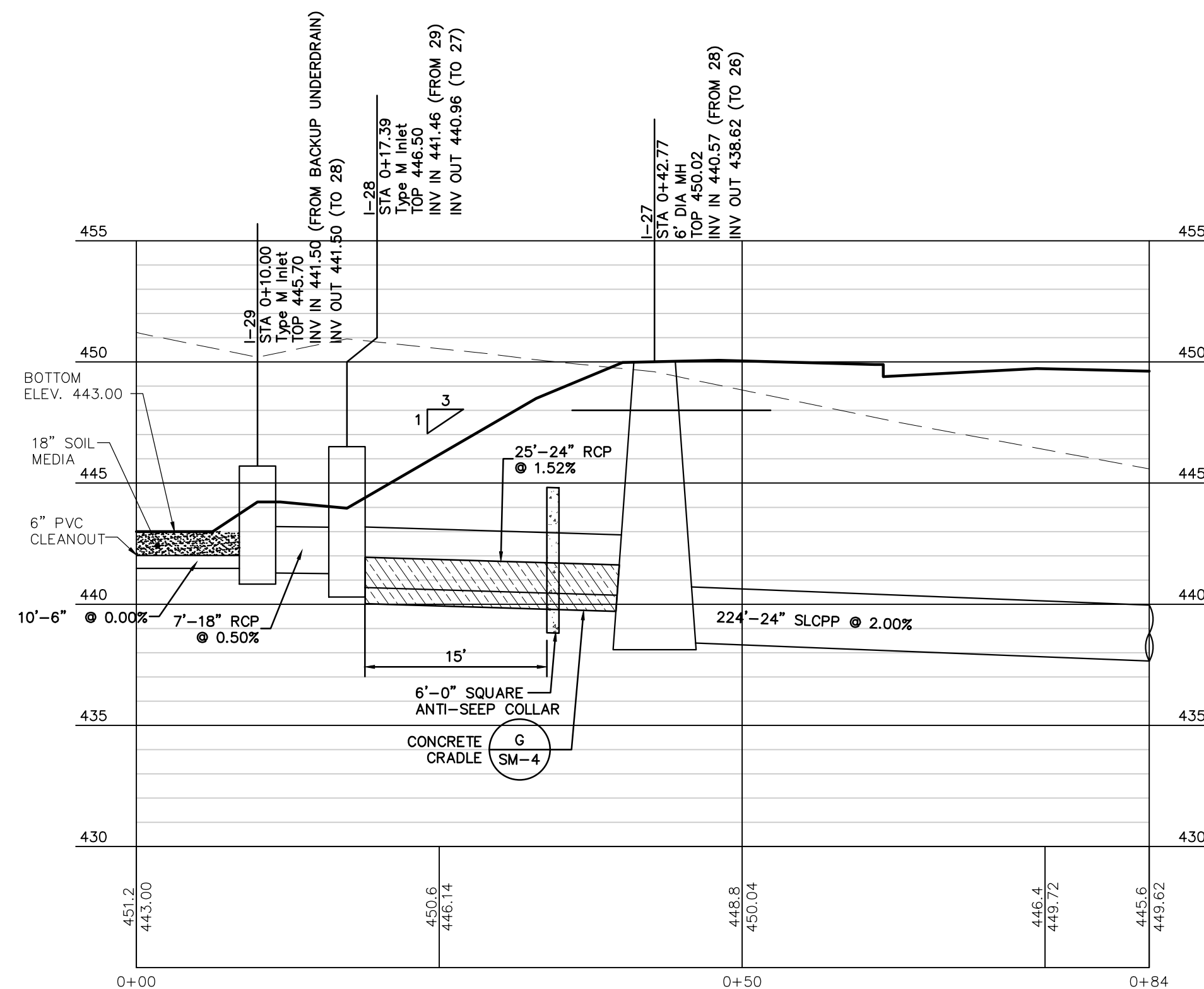
F
SM-4
CONCRETE ANTI-SEEP COLLAR #7-16
NOT TO SCALE



G
SM-4
CONCRETE CRADLE FOR BASIN OR TRAP OUTLET BARREL #7-17
NOT TO SCALE

- NOTES:**
- BACKUP UNDERDRAIN SHALL BE USED ONLY FOR EMERGENCY OR MAINTENANCE PURPOSES. GATE VALVE SHALL REMAIN CLOSED IN ALL OTHER TIMES AND CIRCUMSTANCES.
 - SEE PLAN VIEW OF BASIN FOR HORIZONTAL LAYOUT OF PIPE(S).

J
SM-4
BACKUP UNDERDRAIN DETAIL
NOT TO SCALE



B
SM-4
BMP-001 EMBANKMENT - CROSS SECTION
SCALE: HORIZONTAL - 1" = 10' / VERTICAL - 1" = 5'

Sheet Number:
24 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA

CHARTER Homes & Neighborhoods

Project Manager:
DAVID B. KEGERIZE PE

Project Engineer:
G. MITCHELL KING PE, PLS

Project Surveyor:
THOMAS K. PHILLIPS PLS

Drafting:
D TURNER

Checked by:
I

Scale:
1"=30'

Seal:

TOWNE SQUARE ENGINEERING
Civil Engineers & Land Planners
info@townesquareengineering.com

313 W. Liberty St., Suite 241
Lancaster, PA 17603
Phone: (717) 283-4538

10/27/25
9/4/25
8/18/25
3/18/25
1/20/25
12/18/24
10/17/24

ADDRESSED 10/22/25 TWP. ENGR. LTR.
REV. PER PA DEP LETTER DATED 8/26/25
REV. PER CH&N
REV. PER CCOD EMAIL DATED 3/14/25
REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25
REV. FOR T.E. LTR. 2-1 SLOPES, P&NC PLAN
REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

DATE
REVISIONS

SM-4

Section Number:

L 15-100-32 SHEETS-PRELIM-FINAL 24 SM-04.DWG
10/30/2025 4:35 PM

ARM RECOMMENDATIONS:

Sinkhole Prevention

An effective means of minimizing post-construction sinkhole activity is to include facilities such that stormwater is collected and transported away from critical areas (e.g., structures, roadways, and driveway areas) as quickly and completely as possible. Sinkholes can be discouraged by taking the following precautions.

- Choose the most watertight piping available for all water-bearing conduits. Storm and sanitary sewer lines should, at a minimum, incorporate gasketed joints. If gasketed concrete pipe is used, it is recommended that pipe joints also be externally wrapped to help minimize leakage through the often-ineffective gaskets.
- Construction scheduling should provide for closing of excavations such as for foundations and utilities as soon as possible after exposure.
- Plastic tarps, diversion swales, berms and other measures should be utilized as appropriate to minimize surface water exposure with trenches or excavations that are opened during rainy weather.
- To the greatest extent practical, avoid running sewer lines beneath buildings or other critical facilities. Utilities and sewer lines that run parallel to building walls should be at least 10 feet away from the outboard edge of the foundation but preferably 20 feet or more away.
- Outlet roof drains directly into collection leaders or storm sewers.
- Interrupt granular pipe bedding layers at maximum intervals of 100 feet with trench plugs, earth dams, or similar measures to prevent water flow through the bedding. Trench plugs should be constructed with compacted clay or with synthetic materials designed for this purpose. Specification use of a product such as AquaDlok-→(a composite bentonite aggregate material that will form a trench plug when used as backfill), or equivalent, would be ideal for this purpose.
- Minimize the extent of landscaped areas immediately adjacent to buildings or other critical facilities in favor of impervious surfaces.
- Provide positive overland drainage away from buildings and other critical facilities.
- Carefully seal all pavement joints, including joints where paving meets curb lines, structure walls, catch basins, etc.
- Do not install utility lines or free draining material along foundation lines
- Excavate and repair any sinkholes disclosed during construction.
- Contractors should not let rainwater run through or accumulate in trenches and around new foundations or utilities. Pumps should be used to promptly remove any water that does accumulate. Temporary dikes and/or diversion channels should be installed to divert surface water away from low areas that are not intended to collect water. When practical, trenches that are not yet backfilled, should be temporarily covered with tarps to prevent the accumulation of surface water in low areas.
- Backfill around structures and over utilities and sewer laterals should be placed promptly and should not be permitted to remain open for an extended time.

Implementation of the above measures should significantly reduce the amount of sinkhole activity during construction and over the life of the proposed facilities.

Sinkhole Treatments

Sinkholes that are not promptly addressed with appropriate remedial measures can increase in size and extent and may lead to significant additional mitigation costs in the future. Existing sinkholes, and sinkholes that occur during construction or in the future, should be promptly addressed on a case-by-case basis under the guidance of a Professional Geologist or Engineer registered in the Commonwealth of Pennsylvania and experienced with sinkhole treatments. The attending professional may consider the use of the techniques previously presented in Section 5.0 of this report. ARM will remain available to provide professional guidance regarding sinkhole treatments upon request.

Stormwater Management

Considerations and recommendations for the design and construction of stormwater management facilities at this site are as follows:

- Based on the presence of karst geology and the potential for sinkhole development at the site, stormwater management systems should be constructed using appropriate sinkhole mitigation and/or stabilization methods to minimize the potential for sinkhole development during the lifetime of the project. Sinkhole mitigation measures include such measures as: 1) limiting the head of water above the base of any stormwater management system and/or using a low permeability liner below stormwater management facilities; 2) limiting the stormwater loading ratio to the extent practical consistent with the recommendations of the PA BMP Manual; 3) distributing the proposed stormwater infiltration facilities strategically around the site to limit concentrated flows and to diminish potential property damage and/or injury risks due to inherent sinkhole development risks; and 4) properly reviewing, repairing and/or stabilizing observed subsurface voids or impending sinkhole conditions prior to stormwater management facility construction and as soon as possible following the identification of potential or active sinkholes in the future.
- Based on the observed site conditions, including risks of sinkhole development noted earlier, caution and appropriate vetting should be incorporated while designing and constructing stormwater facilities at the site. Shallow infiltration trenches or rain gardens, clay-lined systems where appropriate, and water-quality protections based on best management practices will generally help to minimize the elevated risks of sinkhole development. Appropriate system redundancy should be considered and implemented in the design of stormwater management facilities, and passive bypass(es) should be incorporated as and where appropriate to prevent surcharging within the system.
- Underground conveyance piping should be leak resistant. All joints should be adequately sealed or gasketed, and pipes should be properly bedded and placed to prevent leakage. Corrugated metal pipe is not recommended because of the difficulty in effectively sealing the joints. Other pipe materials such as High-Density Polyethylene (HDPE) and/or PVC pipe with water-tight connections is recommended where appropriate. Additionally, pipe bedding should be designed and constructed to minimize the potential for the accumulation of water and concentrated infiltration. Where utility and sanitary or storm sewer pipe backfill have the potential to convey significant amounts of water (e.g., along stone bedding around stormwater and sewer lines), trench plugs constructed with AquaDlok-→composite bentonite aggregate (or equivalent such as well-compacted clay) should be placed at 100-foot intervals (maximum) across any open-graded pipe bedding to minimize the preferential flow and concentration of water along the bedding of such utilities. Additional applications of trench plugs around manholes and at other junctures, as appropriate, should be considered by the designer. The designer should strategically select locations of such trench plugs to segregate critical infrastructure at the site (e.g., lined subsurface stormwater detention facilities, etc.) from utility trenches, as appropriate.
- Stormwater management subgrades (as well as subgrades for building foundations, utilities, and pavements) should be evaluated, reviewed, and probed by an ARM or other Professional Geologist or Geotechnical Engineer experienced in identification and mitigation of common issues related to karst geology, historic fill placement and perched water conditions prior to the backfilling of, or construction above, any such subgrades.

General Recommendations

- The Owner and project stakeholders should be informed that significant unscheduled excavations to address karst features may be necessary to facilitate proper surface and subsurface preparations in accordance with the recommendations of the attending Professional Geologist or Geotechnical Engineer.
- As applicable, the recommendations presented herein should be reflected in the specifications, drawings, plans, contracts and/or other documents issued for site construction.
- The designer should carefully review the prevailing Township and County codes and ordinances and State guidance (e.g., Pennsylvania Stormwater BMP Manual) to ensure that stormwater management facilities comply with the applicable provisions of such documents.
- Qualified geotechnical engineering observations and tests should be conducted on a full- time basis during all phases of the site preparation, utility and sewer line construction, foundation construction, pavement construction and stormwater facility construction to ensure its proper execution. All structure foundation subgrades should be approved before pouring foundations, and each lift of fill and backfill should be observed and tested on a layer-by-layer basis to ensure the recommended degree of compaction is obtained and that the materials are placed within the proper moisture content range. Overexcavation and backfill of localized soft material zones should be recommended by Quality Control and Quality Assurance Representatives. ARM can provide personnel to perform quality control and quality assurance reviews and testing services upon request.

SEQUENCE OF CONSTRUCTION FOR PROJECT

PRE-CONSTRUCTION STABILIZATION OF THE SITE

All disturbed areas from agricultural activities must be stabilized completely in the previous growing season prior to the start of grading by seeding with small grain or permanent vegetative cover as specified on these plans.

All earth disturbance activities shall proceed in accordance with the following sequence. Each stage shall be completed and immediately stabilized before any following stage initiated. Clearing, grubbing, and topsoil stripping shall be limited to those areas described in each stage. Upon temporary cessation of the earth disturbance activity for four days or longer, the project site shall immediately be stabilized with the appropriate temporary stabilization. As soon as slopes, channels, ditches, and other disturbed areas reach final grade, the area shall immediately be stabilized with the appropriate permanent stabilization.

Construction of Arcona Phase 9 is to be sequenced in the following order:

Each step marked "CSoc." is a critical stage of construction and requires oversight by a professional engineer.

Phase 9

- As 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 Sedimentation Control Plan preparer, and a representative of the Conservation District to an on-site meeting. The excavation contractor(s) shall execute a NPDES co-permittee/transferee agreement with PA DEP. The contractor shall ensure that all construction shall be done in accordance with the requirements of the NPDES permit.
- The limit of disturbance must be field staked prior to any earth moving activities.
- Install rock construction entrance #1 at the proposed site entrance at Rossmoyne Road. All construction equipment shall utilize the rock construction entrance for ingress and egress to the site. Maintain entrance over course of construction per detail to prevent tracking of soil/mud onto public roads.
- Install compost filter sock as shown on the plan along the perimeter of the site. The contractor shall maintain the silt sock in working order throughout the course of construction, making inspections after each rainfall event and making any necessary repairs. In the event that any compost filter sock should fail in the course of construction or should a point of concentrated flow form, a rock filter outlet may be installed as a repair measure.
- Clear and grub the construction site to the extents necessary to construct the sediment basin and its outfall piping.
- Install storm sewer downstream of sediment basin. Install the riprap apron at the endwall.
- Excavate and construct the sediment basin per the plan and details illustrated and specified herein. During the sediment basin condition, the basin should have a bottom elevation of 442.50. Stabilize with temporary seeding and erosion control matting. The sediment basin must be stabilized and functional prior to additional earth disturbance. No other earth disturbance is permitted on the site except that necessary to construct the sediment basin.
- CSoc. Upon installation of the temporary sediment basin outlet structure, skimmer, and floating turbidity barrier, an immediate inspection of the sediment basin berm, riser, and skimmer shall be conducted by a qualified site representative and the Cumberland County Conservation District shall be notified that the proper risers and skimmers were installed and sealed, per plan. Sediment basin must be protected from unauthorized acts by third parties. Construct the riprap apron at the outfall as shown on the plan.**
- Clear and grub the construction site to the extents necessary to construct the proposed North Wayland Road and storm sewer system.
- Strip topsoil within the construction site to the extents necessary to construct North Wayland Road and storm sewer system. Stockpile in designated area(s) as shown on the plans and place compost filter sock on the down slope side of the stockpile. Immediately stabilize with temporary seeding as specified on the plan.
- Bring North Wayland Road to grade and install the sanitary sewer and water mains and the storm sewer system, beginning at EW-1 and EW-2 and continuing upstream. All excavated utility trench must be backfilled by the end of each day. Install riprap aprons at EW-1 and EW-2.
- Install temporary inlet protection in existing inlet in Rossmoyne Road.
- Clear and grub the remainder of the area to be disturbed on the site and strip topsoil and stockpile in designated area(s). Conduct bulk earth moving operations. All runoff shall be directed to the sediment basin.
- Install all swales and matting. Seed immediately to promptly stabilize.
- Final grade all street subgrade and shoulder areas for the proposed North Wayland Road and widening of Rossmoyne Road.
- Install curbing along all of North Wayland Road.
- Install stone subbase as soon as possible after completing curb. Pave with base and binder courses. Pave Rossmoyne Road widening with wearing course.
- Begin construction of the homes after stone base on street is in place. See Project Staging for Individual Lots.
- Replace topsoil, seed and mulch to stabilize all disturbed areas as possible after each lot or block of homes are completed.
- Pave with wearing course when construction of dwellings is completed.
- Contact the Cumberland County Conservation District for site inspection prior to removal of any sediment basin.
- CSoc. Once all lots have been completely stabilized and the Conservation District has approved removal of the sediment basin, convert to the permanent BMP-001. Check the permanent basin for stability, size, grade, and proper outlet structure after conversion is completed. See Project Staging - Converting Sediment Basin to PCSM BMP-001.**
- Check site for erosion and repair any damaged areas. All portions of the site shall be stabilized.
- Remove perimeter compost filter sock, spread compost mulch around any disturbed areas, and remove any other sediment controls once all disturbed areas are completely stabilized. Remove temporary inlet filter in Rossmoyne Road.
- A final critical stage inspection performed by the site's engineer shall be performed to verify all previously installed PCSM BMPs are still functioning as designed and not impacted by construction activities.
- Upon completion of the project a completed Notice of Termination (N.O.T.) shall be submitted to the department and/or Conservation District staff so a final inspection can be performed to ensure stabilization and verify adequate installation and function of BMPs.

Project Staging - Individual Lots

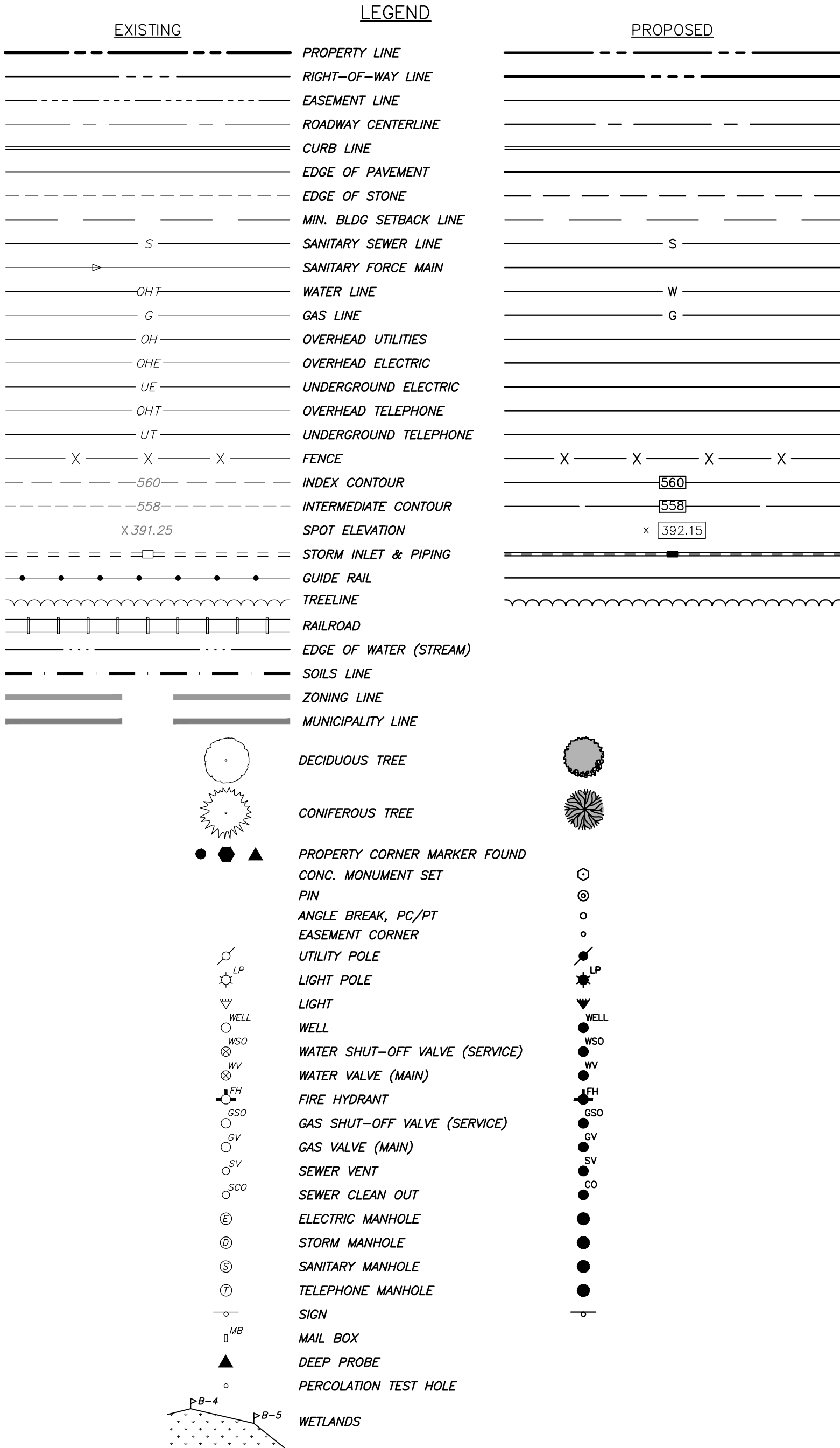
Each lot will be staged in the following order:

- Install stabilized construction entrance.
- Install compost filter sock as shown on plan.
- Rough grade lot and stabilize immediately with temporary seeding.
- Excavate for dwelling foundation. Place excess soil on designated soil stockpile location. Install compost filter sock below the stockpile.
- Construct dwelling.
- Connect utilities.
- Install and connect roof drain leaders to inlet as specified by this PCSM plan.
- Install sidewalk along frontage of lot.
- Pave driveway.
- Final grade lot and stabilize immediately with permanent stabilization.
- Remove filter sock once all disturbed areas are stabilized.

Project Staging - Converting Sediment Basin to PCSM BMP-001

Once the Conservation District has approved removal of the Sediment Basin, convert to the PCSM BMP-001 Bioretention Basin as follows:

- Stabilize any other disturbed areas immediately with permanent seeding.
- Remove the skimmer and landing berm. Dispose of properly or store for reuse. Remove any grout used to seal skimmers into inlets.
- Remove cleanout stake from the basin bottom. Dispose of properly or store for reuse.
- Remove any sediment from the basin outlet pipes.
- Remove stainless steel orifice plate used to attach the floating skimmers to the inlets. Stainless steel orifice plates were used to cover the rectangular orifice in the basin outlet structures required for the permanent basin configuration.
- Overexcavate and install soil media in the basin bottom to the final grade. Immediately install plantings as specified in the plans.



Sheet Number:
25 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

ARGONA NEIGHBORHOOD 9
Lower Allen Township - Cumberland County, PA
CHARTERED HOMES & NEIGHBORHOODS

POST CONSTRUCTION STORMWATER MANAGEMENT NOTES

Project Manager: **DAVID B. KEEZER** PE
Project Engineer: **G. MITCHELL KING** PE, PLS
Project Surveyor: **THOMAS K. PHILLIPS** PLS

Drifting: **D. TURNER**
Checked by: **—**
Scale: **AS NOTED**

Seal:

Seal:

Seal:

TOWNE SQUARE ENGINEERING
Civil Engineers & Land Planners
info@townesquareengineering.com

313 W. Liberty St., Suite 241
Lancaster, PA 17603
Phone: (717) 283-4538

10/27/25
9/4/25
8/18/25
3/18/25
1/20/25
12/18/24
10/17/24

ADDRESSED 10/22/25 TWP. ENGR. LTR.
REV. PER PA DEP LETTER DATED 8/26/25
REV. PER CHAN
REV. PER CCOD EMAIL DATED 3/14/25
REV. TO ADDRESS T.E. LTR. DATED 1/20/25
REV. FOR T.E. LTR., 21 SLOPES, PAVC PLAN
REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

DATE
REVISIONS

SM-5

INFILTRATION TESTING REQUIREMENT

Two infiltration tests using a double-ring infiltrometer shall be conducted at the elevation of the bottom of the basin (below proposed soil media) once excavation has reached that elevation during construction. Both tests shall meet or exceed the design rate for the BMP. If the testing does not meet the design rate, over-excavate the bottom of the basin 24" and fill with amended soils. The minimum rate is:

BMP-001 - 1.32 in./hr.



Know what's below.
Call before you dig.

Before You Dig Anywhere



STOP! CALL 811 (or 1-800-242-1776 outside of PA)
TOLL FREE

PA Act 287 (amended by Act 121 (2008)) requires notification to ONE CALL SYSTEM 3 working days for construction phase and 10 working days for design phase before you excavate.

PA ONE CALL SYSTEM, INC.



DESIGN PHASE SERIAL # 20220682987 (LOWER ALLEN TOWNSHIP)
(CALL MADE BY : Howell Kline Surveying, LLC)

Howell Kline Surveying, LLC, does not guarantee the accuracy of the locations for existing subsurface utility lines, structures, etc. shown on the plans, nor does Howell Kline Surveying, LLC, guarantee that all subsurface utility lines, structures, etc. are shown. Contractor shall verify the location and elevations of all subsurface utility lines, structures, etc. before the start of work, by calling the Pennsylvania One Call System at 1-800-242-1776.

Utilities Listing - Lower Allen Township

Verizon Pennsylvania Inc 1026 Hay St Pittsburgh, PA 15221 Contact: Deborah Barum Email: deborah.d.elia@verizon.com	PPL Electric Utilities Corporation 434 Susquehanna Trl Northumberland, PA 17857 Contact: Doug Haupt Email: dlhaupt@pplweb.com	Centurylink 1025 Eldorado Blvd. Broomfield, CO 80021 Contact: Century Link Operator Personnel Email: relocations@umen.com
Buckeye Partners The Buckeye Building 6161 Hamilton Blvd. Allentown, PA 18106 Contact: Dave Jones Email: djones@buckeye.com	Comcast Cable Communications Inc 4601 Smith Street Harrisburg, PA 17109 Contact: Michael Sweigard Email: m_sweigard@cable.comcast.com	Firstst Energy Penelec 21 S Main St. Akron OH, 44308 Contact: Cara Warren Email: carawarren@firstenergycorp.com
Lower Allen Township Authority 120 Limekin Rd. New Cumberland, PA 17070 Contact: Brian Kauffman Email: bkauffman@atwp.org	Upper Allen Township 100 Gettysburg Pike Mechanicsburg, PA 17055 Contact: Kadi Hockenberry Email: khockenberry@uatwp.org	SUEZ Water Pennsylvania Inc 6310 Allentown Blvd. Harrisburg, PA 17112 Contact: Nat Sheffer Email: nathaniel.sheffer@suez.com
Lower Allen Township 2233 Gettysburg Rd. Camp Hill, PA 17011 Contact: Bryce Thompson email: bthompson@atwp.org	UGI Utilities Inc 1301 Alp Dr. Middletown, PA 17057-5987 Contact: Stephen Bateman Email: sbateman@ugi.com	Pennsylvania American Water 852 Wesley Dr Mechanicsburg, PA 17055 Contact: Jeff Horton Email: jeff.horton@amwater.com
Sprint 484 Williamsport Pike PO Box 113 Martinsburg, WV 25404 Contact: Wesley Carpenter Email: wesley.a.carpenter@tmobile.com	Windstream 1450 Center Point Rd. Hiawatha, IA 52233 Contact: Locate Desk Personnel Email: locate.desk@windstream.com	

GEOLOGIC EVALUATION:

See "Arcona Neighborhood 9 Carbonate Geology Evaluation Report," prepared by ARM Group LLC, dated May 2024 for full analyses of site geology and recommendations.

SUMMARY

- According to the Pennsylvania Department of Conservation and Natural Resources' Geologic Date Exploration Map, the site is underlain by two bedrock formations including the undivided Hershey and Myerstown Formations in the northwestern portions of the site, and the Epler Formation in the southeaster portions of the site. The Epler Formation is characterized as very finely crystalline, medium-gray limestone interbedded with gray dolomite and some coarsely-crystalline limestone lenses. The Myerstown Formation is characterized as medium-crystalline, medium to dark gray limestone, with dark gray to black carbonaceous limestone at base. The Hershey Formation is characterized as finely crystalline, dark gray to black, argillaceous limestone, with basal conglomerate that contains angular boulders of dolomite.
- Review of the Sinkholes and Karst-Related Features of Cumberland County, Pennsylvania (W.E. Kochanov, 1989) showed no sinkholes are mapped within approximately 3,000 feet of the site limits; however, there are two closed depressions mapped along the fault contact between the undivided Hershey and Myerstown Formations with the Epler Formation near the southern limits of Arcona Neighborhood 8.3 and several more closed depressions to the east of the Norfolk Southern to the east of Neighborhood 9.
- The site reconnaissance and infiltration testing performed by ARM Group, Inc. personnel revealed no closed depressions, topographic lineaments or fracture traces, caverns, intermittent lakes, ephemeral streams, or other carbonate geology hazards.

RECOMMENDATIONS

- Based on the test results, the measured infiltration capacity of the soils across the site ranged from 0.00 to 18.72 in/hr. ARM recommends that design rates should not incorporate test values that exceed the slower of the following:
 - Half of the measured rate for a given test
 - The average of the minimum and maximum range limits for the hydraulic conductivity of the most limiting layer as published for the associated NRCS soil unit (1.10 for Edom silty clay loam and 1.30 for the Bedington shaly silt loam)
 - The geometric mean of all measured rates tested at the site for the mapped NRCS soil unit (0.72 for Edom silty clay loam and 5.77 for the Bedington shaly silt loam)Additionally, based on ARM's filed observations and other available information, concentrated stormwater infiltration is acceptable, but sinkhole avoidance and mitigation measures should be observed and incorporated into the design and construction of the project. Please refer to the "Recommendations" section of the ARM report.
- ARM has determined that the site is situated within a potential karst area, which is potentially subject to the development of sinkholes. While no existing sinkholes, closed depressions, or other carbonate geology hazards were visually observed at the existing ground surface by ARM within the investigation area, and were not identified through a review of available aerial photographs and topographic maps, the soil and rock conditions encountered are considered to present a possible risk for sinkhole development. Concentrated stormwater infiltration would potentially increase the risk for sinkhole development at the site. Stormwater management systems should be constructed using appropriate sinkhole mitigation and/or stabilization methods to minimize the potential for sinkhole development.

OWNER / DEVELOPER (ARCONA NEIGHBORHOOD 9):

Charter Homes at Arcona, Inc.
322 North Arch Street
Lancaster, PA 17603

Tax Map 13-10-0256-352
Inst. No.: 202421854

OWNER (REMAINING LANDS)

Ruth D. Leshar
1340 Rossmoyne Road
Mechanicsburg, PA 17055

SOURCE OF TITLE:

Tax Map 13-10-0256-031
Inst. No.: 201729508 (1/2 interest)

OWNER (REMAINING LANDS)

Strong & Detweiler Partnership
1340 Rossmoyne Road
Mechanicsburg, PA 17055

SOURCE OF TITLE:

Tax Map 13-10-0256-031
Deed Book: 274, Page 1884 (1/2 interest)

SITE ACREAGE:

ARCONA NEIGHBORHOOD 9 - GROSS AREA 20.60 Ac.

SITE DATA:

ZONING:
R-2 Single-Family Residential District (TND Overlay)

PROPOSED USE:

15 Single-Family Lots

PROPOSED WATER SERVICE:

PUBLIC

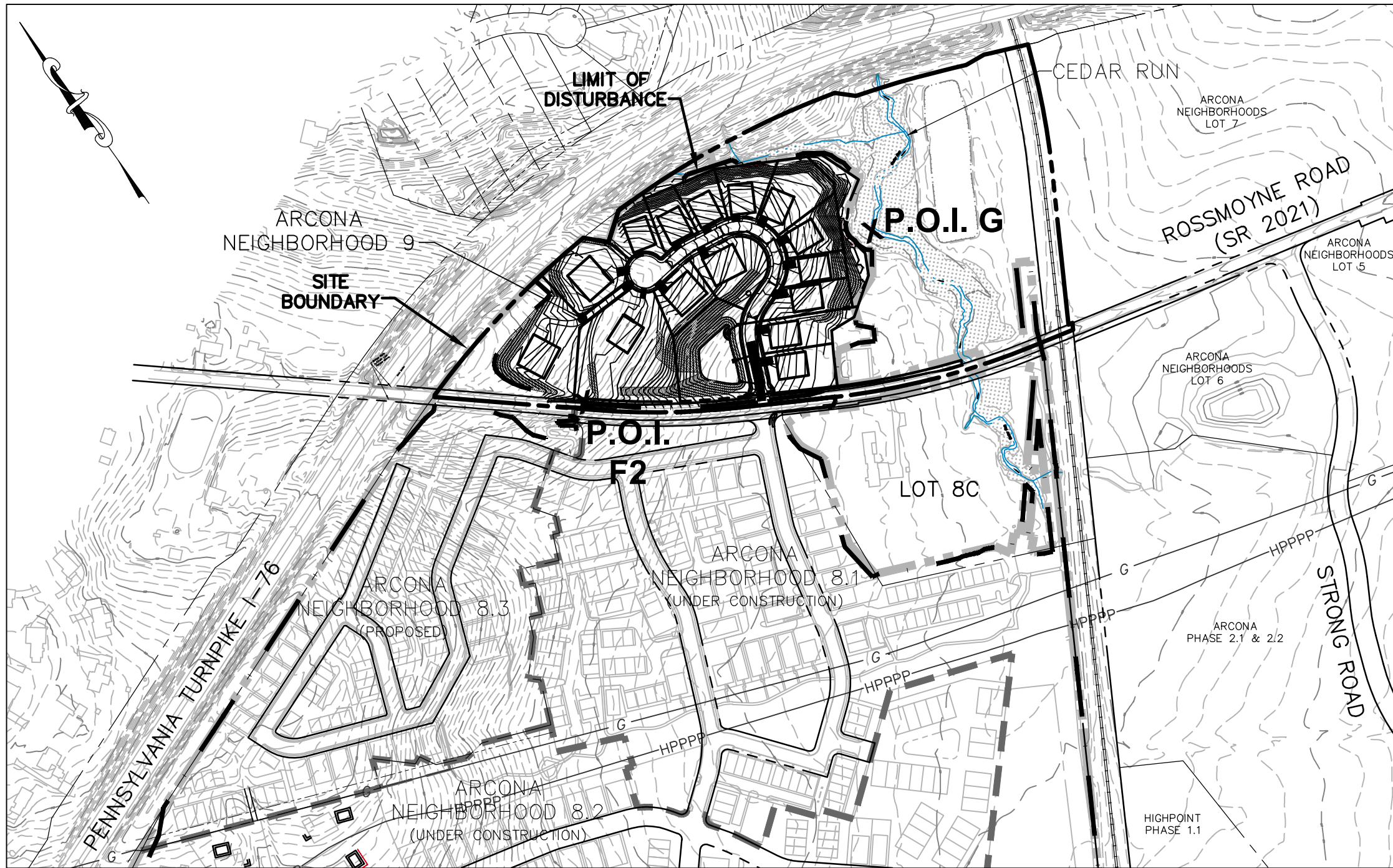
PROPOSED SEWER SERVICE:

PUBLIC

EROSION & SEDIMENTATION CONTROL PLAN



ARCONA NEIGHBORHOOD 9



PLAN: 1" = 300'

This site is on Cedar Run. Cedar Run is classified as Cold Water Fisheries (CWF).

The wetlands on this site are classified as Exceptional Value (EV).

Limit of Disturbance = 164.16 Ac.
(Includes all of Highpoint / Arcona, 9.70 Ac. added for Phase 9 with this Major Amendment)

NPDES Boundary = 183.95 Ac.

PLAN INDEX

NO.	SEC.	TITLE
26	ES-1	EROSION & SEDIMENTATION CONTROL COVER
27	ES-2	EROSION & SEDIMENTATION CONTROL PLAN
28	ES-3	EROSION & SEDIMENTATION CONTROL DETAILS
29	ES-4	EROSION & SEDIMENTATION CONTROL BASIN DETAILS
30	ES-5	EROSION & SEDIMENTATION CONTROL NOTES
31	ES-6	EROSION POTENTIAL ANALYSIS

EROSION & SEDIMENT CONTROL LEGEND

	12" SILT SOXX
	18" SILT SOXX
	24" SILT SOXX
	LIMIT OF DISTURBANCE
	SITE BOUNDARY
	SEDIMENT BASIN WATERSHED BOUNDARY
	SWALE WATERSHED BOUNDARY
	EROSION CONTROL BLANKET NORTH AMERICAN GREEN P300
	EROSION CONTROL BLANKET NORTH AMERICAN GREEN S75
	RIPRAP APRON
	SOIL STOCKPILE
	TEMPORARY GRADING
	SOIL LINE
	EXISTING INDEX CONTOUR LINE
	EXISTING INTERMEDIATE CONTOUR LINE
	PROPOSED INDEX CONTOUR LINE
	PROPOSED INTERMEDIATE CONTOUR LINE
	STORM SEWER

SOILS LIMITATIONS & RESOLUTIONS

Symbol	Name	Slope	Limitations	Resolution
BdB	Bedington shaly silt loam	3-8%	Dusty	Water dry disturbed areas
			Unstable excavation walls	Slope excavation walls or mechanically support
BdC	Bedington shaly silt loam	8-15%	Piping	Clay liner, water-tight pipe joints
			Dusty	Water dry disturbed areas
BdD	Bedington shaly silt loam	15-25%	Unstable excavation walls	Slope excavation walls or mechanically support
			Piping	Clay liner, water-tight pipe joints
DuA	Duffield silt loam	0-3%	High clay content	Minimize construction in this soil
			Dusty	Water dry disturbed areas
EdB	Edom silty clay loam	3-8%	Unstable excavation walls	Slope excavation wall or mechanically support
			Piping	Clay liner, water-tight pipe joints
HaB	Hagerstown silt loam	3-8%	High clay content	Minimize construction in this soil
			Dusty	Water dry disturbed areas
Pe	Penlaw silt loam	-	Unstable excavation walls	Slope excavation walls or mechanically support
			Depth to saturated zone	Minimize cut
			Dusty	Water dry disturbed areas
			Piping	Clay liner, water-tight pipe joints

NPDES NARRATIVE

Charter Homes at Arcona, Inc. proposes to develop 15 detached single-family lots in Arcona Neighborhood 9. The development is located on a 20.60 acre tract of land. The Arcona Neighborhood 9 property is located on the north side of Rossmoyne Road along the south side of the Pennsylvania Turnpike. The development will be served by public sewer and water. The land is currently formed.

Arcona Neighborhood 9 is a part of the master plan for a traditional neighborhood development (TND) of the Arcona Site. Storm water management for the Arcona Neighborhood 9 development will be provided by onsite BMPs.

ESTIMATED SCHEDULE FOR PROJECT

Work Schedule:

- Start of Site Work: Fall 2025.
- Site Work Complete: Summer 2026.
- Home Construction: Q4 2025 - Q4 2027.

RECYCLING AND DISPOSAL OF BUILDING MATERIALS AND WASTES

The operator shall remove from the site, recycle, or dispose of all building materials and wastes in accordance with the department's solid waste management regulations at 25 pa. Code 260.1 et seq., 271.1 et seq., and 287.1 et seq. The contractor shall not illegally bury, dump, or discharge any building material or wastes at the site

DESIGN CONSIDERATIONS

The time and extent of earth disturbance will be limited.

- Earth disturbance, topsoil stripping and compaction will be limited on portions of the site. These areas will be marked with orange construction fence as a visible reminder of the areas to be preserved.

The Arcona Neighborhood 9 plan protects existing drainage features and vegetation.

- The existing drainage/wetlands that run through the site will be fenced to prevent disturbance.

The plans minimize soil compaction by:

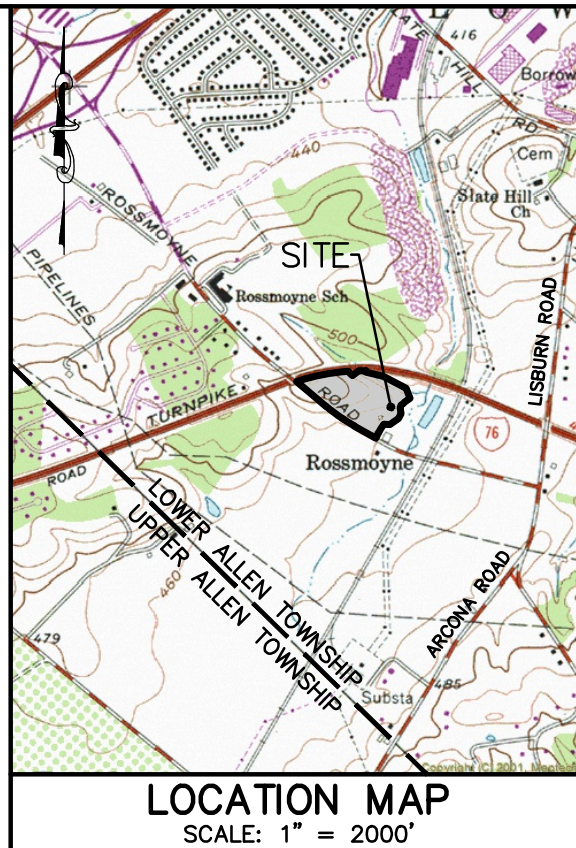
- Leaving steep slopes undisturbed.

The plans minimize generation of increased stormwater runoff by:

- Use streets with the minimum width permitted by Lower Allen Township.

THERMAL IMPACTS

A portion of the Arcona Neighborhood 9 will drain into the regional detention basin via a stormwater management conveyance system. The basin will contain the warmer first flush runoff from the site. The warmer first flush will either be evaporated or transpired through the soil media and vegetation.



Sheet Number:
26 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

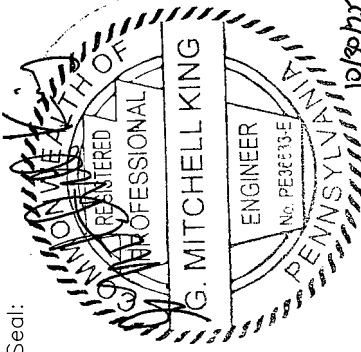
ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA

CHARTER Homes & Neighborhoods

EROSION & SEDIMENTATION CONTROL COVER

Project Manager: DAVID B. KEGERIZE PE	Drafting: D TURNER
Project Engineer: G. MITCHELL KING PE, PLS	Checked by: -
Project Surveyor: THOMAS K. PHILLIPS PLS	Scale: 1"=300'



TOWNE SQUARE ENGINEERING

Civil Engineers & Land Planners

313 W. Liberty St., Suite 241
Lancaster, PA 17603
Phone: (717) 283-4538

DATE	REVISIONS
10/27/25	ADDRESSED 10/22/25 TWP. ENGR. LTR.
9/4/25	REV. PER PA DEP LETTER DATED 8/26/25
8/16/25	REV. PER CHAN
3/18/25	REV. PER CCOD EMAIL DATED 3/14/25
1/20/25	REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25
12/16/24	REV. FOR T.E. LTR., 21 SLOPES, P&WC PLAN
10/17/24	REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

ES-1

PRELIMINARY/FINAL



Sheet Number:
27 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA

CHARTER Homes & Neighbors

Project Manager:
DAVID B. KEGERIZE PE

Project Engineer:
G. MITCHELL KING PE, PLS

Project Surveyor:
THOMAS K. PHILLIPS PLS

Drafting:
D TURNER

Checked by:
—

Scale:
1"=40'

Seal:

Seal:

TOWNE SQUARE
ENGINEERING
Civil Engineers & Land Planners
info@townesquareengineering.com

313 W. Liberty St.,
Suite 241
Lancaster, PA 17603
Phone: (717) 283-4538

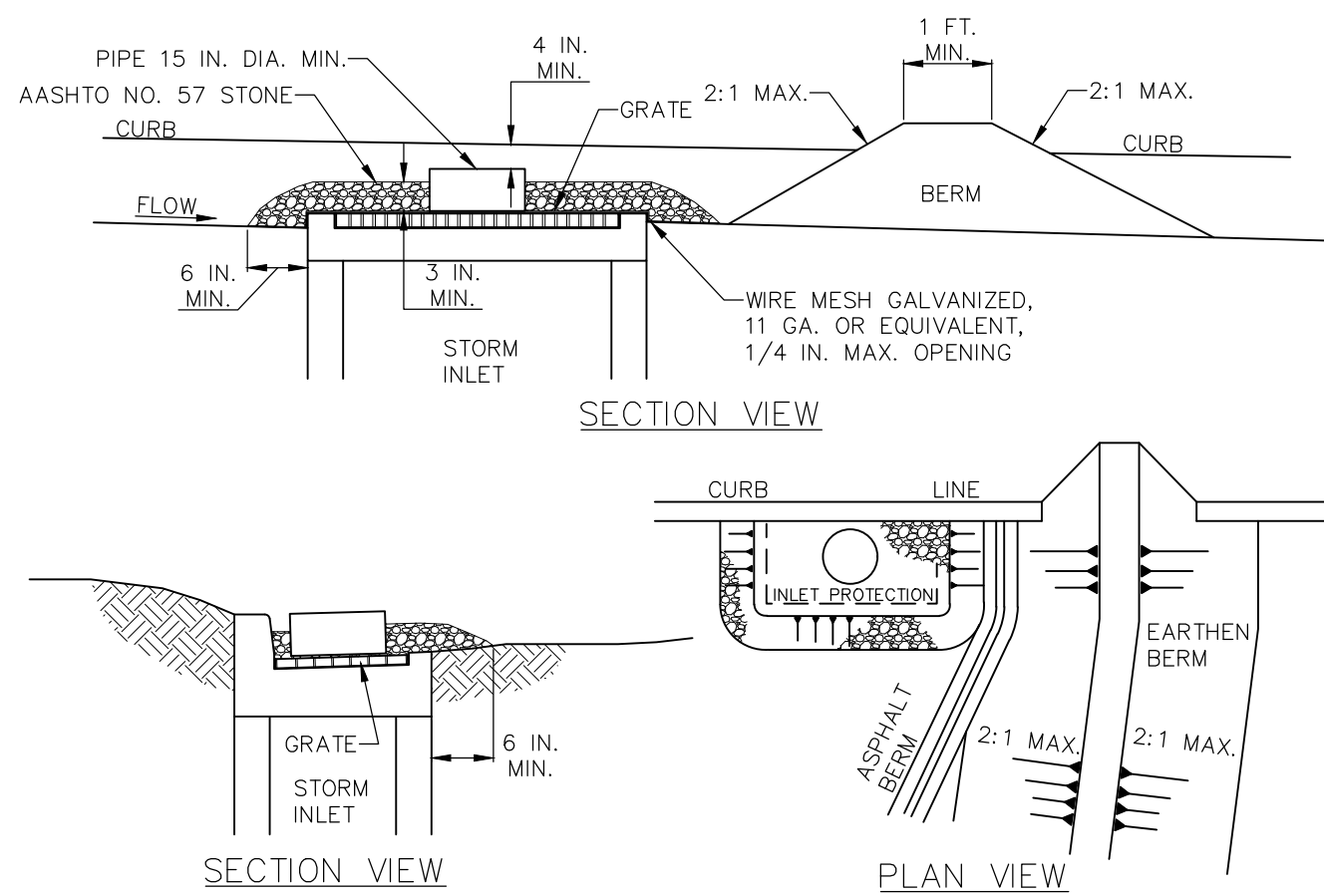
10/27/25
9/4/25
8/18/25
3/18/25
1/20/25
12/18/24
10/17/24

ADDRESSED 10/22/25 TWP. ENGR. LTR.
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REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25
REV. FOR T.E. LTR., 21 SLOPES, P&WC PLAN
REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

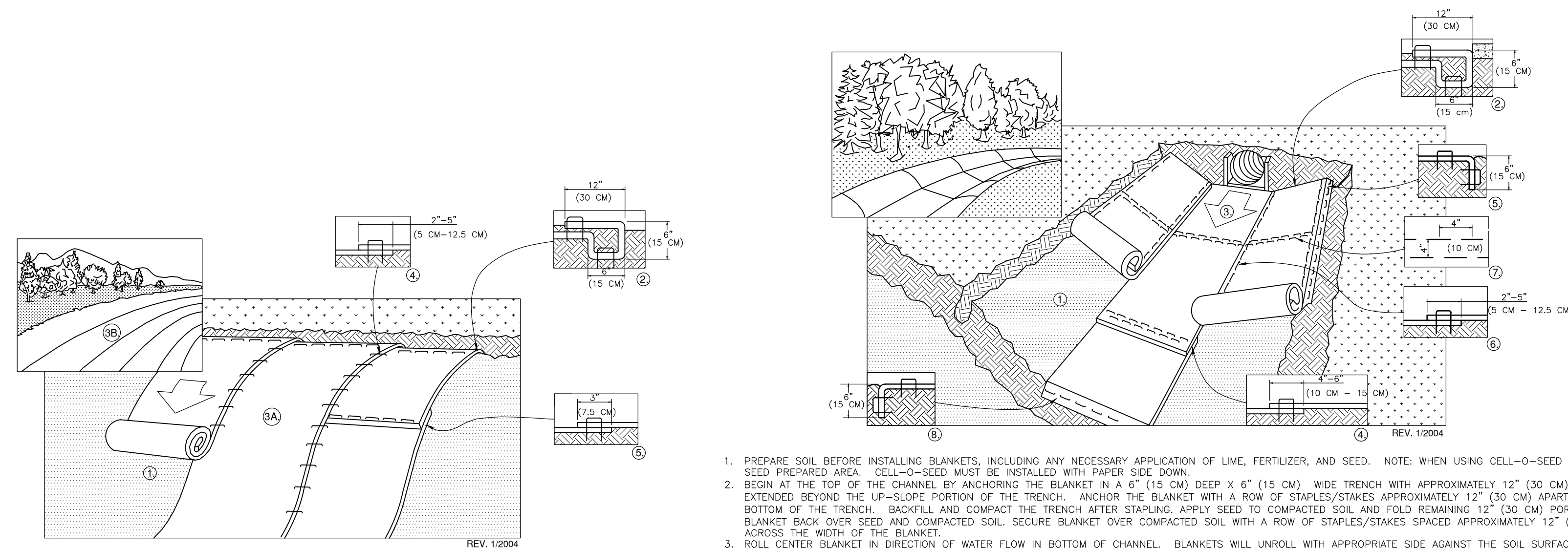
DATE
REVISIONS

Section Number:
ES-2

L 15-100-32 SHEETS PRELIM-FINAL 27 ES-02.DWG
10/30/2025 4:33 PM

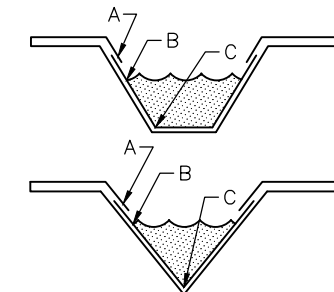


- INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.
- ROLLED EARTHEN BERM SHALL BE PROVIDED AND MAINTAINED IMMEDIATELY DOWN-STREAM OF THE INLET. THE ROLLED INLET PROTECTED ROAD SUBGRADE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. A 6 IN. MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.
- INLET PROTECTION SHALL BE DESIGNED TO BE CAPABLE OF WITHSTANDING IN ONE AREA MAXIMUM DRAINAGE AREA WITH 15 IN OVERFLOW PIPE AND 4 IN HEAD, A PERFORATED PLATE WELDED TO A METAL RISER MAY NOT BE SUBSTITUTED FOR THE WIRE MESH. A SLOTTED PLATE WELDED TO THE RISER MAY BE USED IN CONJUNCTION WITH THE WIRE MESH. INLET PROTECTION SHALL BE DESIGNED TO PROVIDE OVERFLOW CAPABILITY TO ACCEPT THE PEAK RUNOFF FOR A 2-YEAR STORM EVENT FROM THE TRIBUTARY DRAINAGE AREA.
- SUBSTANT 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 IN THICK COMPOST LAYER SHALL BE SECURELY ANCHORED ON OUTSIDE AND OVER TOP OF STONE. COMPOST SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO PREVENT COYOTE DEN DEVELOPMENT.
- DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING OF WATER COULD CREATE HAZARDS



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN APPLYING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN UNROLLING THE BACKFILL BY UNROLLING THE BLANKET (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) APART IN BLANKET BACKFILL. THE TRENCH SHOULD BE 15 CM DEEP AND 6" (15 CM) WIDE. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE MIDDLE OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART AND 4" (10 CM) ON CENTER TO SECURE BLANKETS.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE FOOT SYSTEM, STAPLES MUST BE PLACED THROUGH EACH OF THE FOUR CORNERS CORRESPONDING TO THE STAPLE PATTERN GUIDE. STAPLES MUST BE PLACED ON CONSECUTIVE ROWS OVER AND UNDER (SHINGLE STYLE) WITH A 4" - 6" (10 CM - 15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER TO SECURE BLANKETS.
4. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
5. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2" - 5" (5 CM - 12.5 CM) (DEPENDING ON BLANKET TYPE) AND STAPLED.
6. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK LIST IS RECOMMENDED AT 30 TO 40 FEET (9 M - 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
7. REMAINING END OF BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP TRENCH X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS



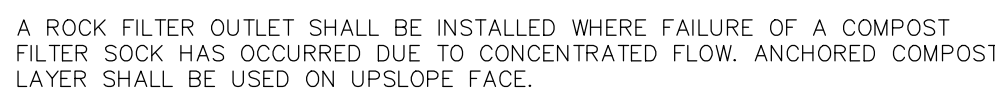
CRITICAL POINTS
A. OVERLAPS AND
B. PROJECTED V
C. CHANNEL BO
SLOPE VERTICES

DETAIL PROVIDED BY:
NORTH AMERICAN GREEN
14649 HIGHWAY 41 NORTH,
EVANSVILLE, INDIANA 47725
USA 1-800-772-2040
CANADA 1-800-448-2040
www.nagreen.com

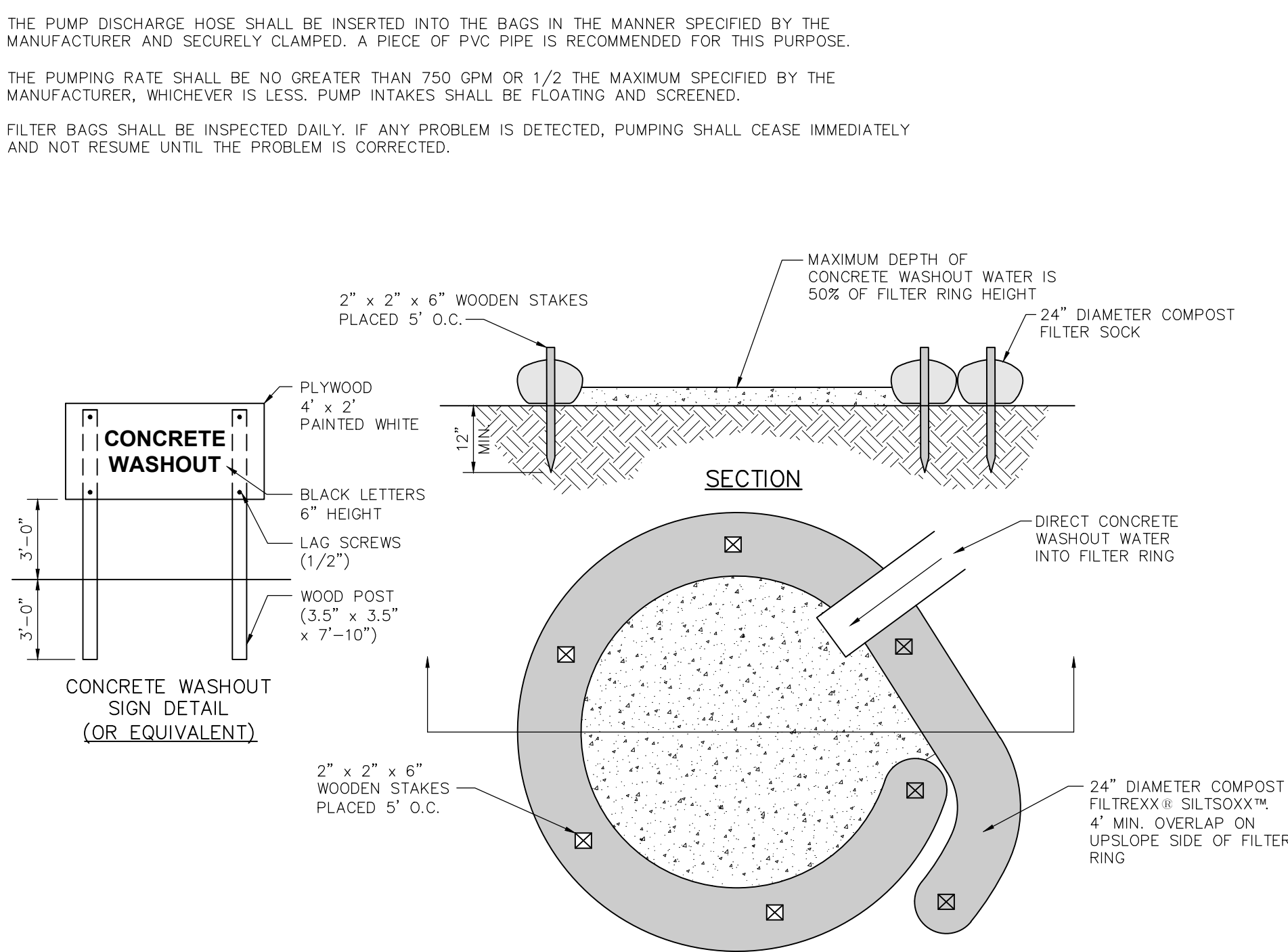
APPLIES TO S150 AND P300

* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

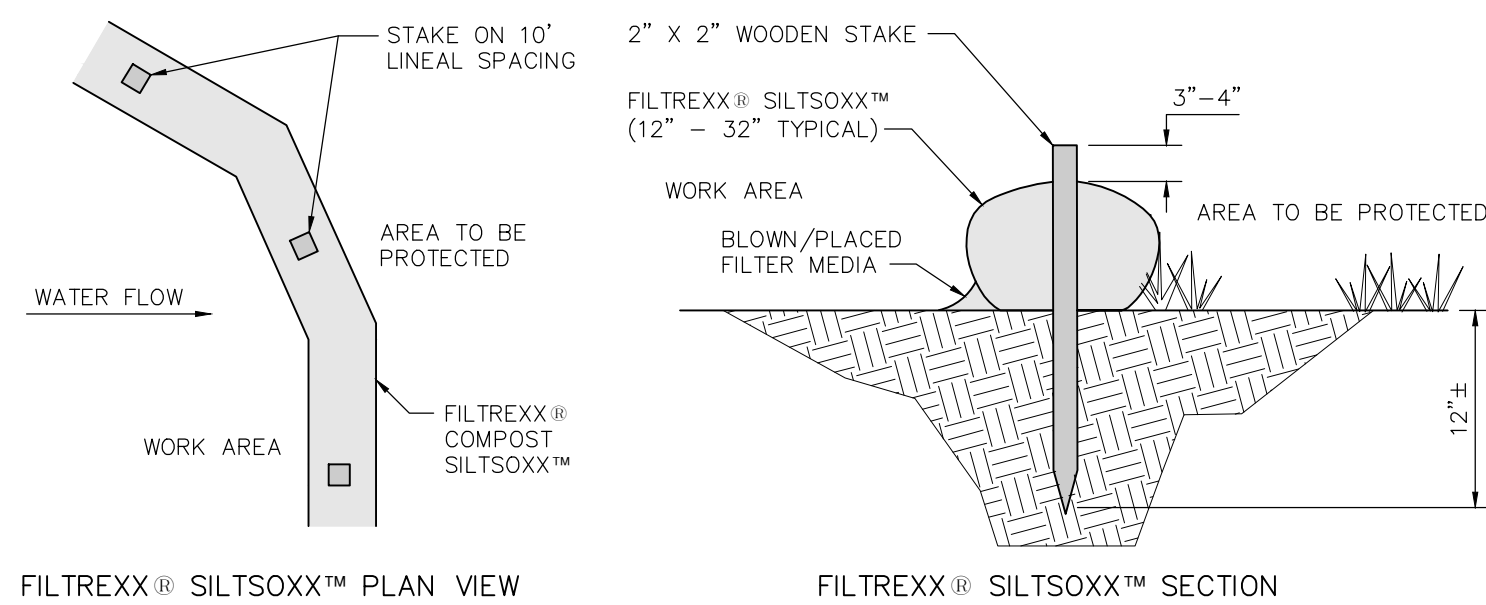
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKET



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



2. 18" DIAMETER FILTER SOCK MAY BE STACKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.
3. A SUITABLE IMPERVIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING SOCKS.

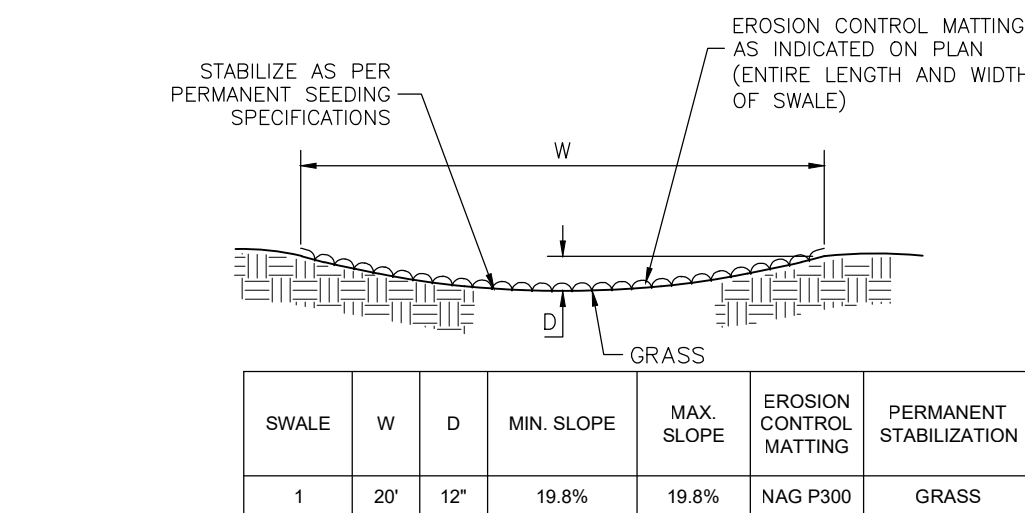
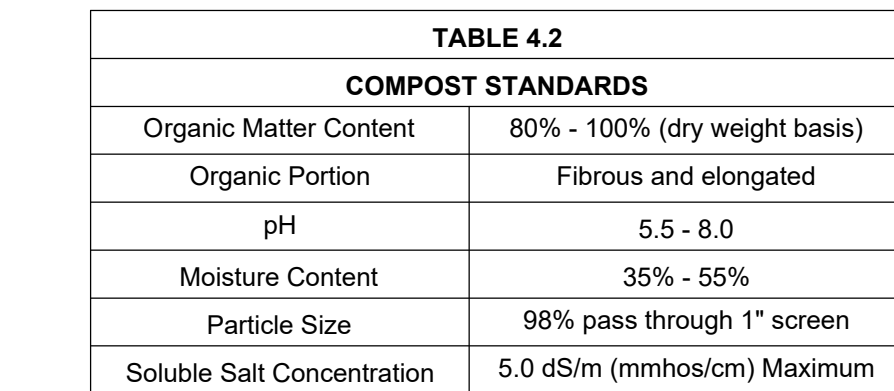


FILTREXX® SILTSOXX™ PLAN VIEW

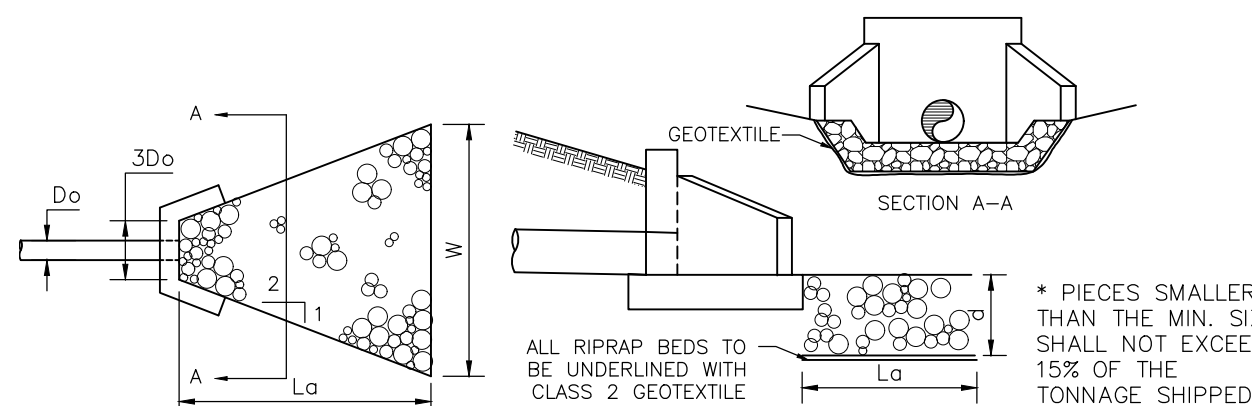
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILTOSOXX™ COMPOST / SOIL / ROCK / SEED FILL TO MEET APPLICATION REQUIREMENTS.
3. SILTOSOXX™ DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER'S RECOMMENDATION.
4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
5. SEE WEBSITE FOR CURRENT VENDOR LISTING AT WWW.FILTREXX.COM
6. CONTACT FILTREXX AT 1-800-466-8524 FOR PRODUCT INFORMATION AND MAINTENANCE REQUIREMENTS.

SILT FENCE MAY BE SUBSTITUTED FOR FILTREXX SILTSOXX WITH APPROVAL OF THE CONSERVATION DISTRICT. USE 18" SILT FENCE IN PLACE OF 12" SILTSOXX. USE 30" SILT FENCE IN PLACE OF 18" SILTSOXX. USE SUPER SILT FENCE IN PLACE OF 24" SILTSOXX EXCEPT IN THE FOLLOWING LOCATIONS: SILTSOXX MAY NOT BE USED IN SEDIMENT BASIN BOTTOMS AS BAFFLE WALLS. IT MAY NOT BE USED WITHIN TEN FEET UPHILL FROM WETLAND EDGES. SUPER SILT FENCE MUST BE USED IN THOSE LOCATIONS.

1. THE SODS SHALL BE FERTILIZED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SOIL ANALYST.
2. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SODK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
3. SODKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL EVENT. DAMAGED SODKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
4. BIODEGRADABLE FILTER SODKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTOGRADABLE SODKS AFTER 1 YEAR.
5. POLYPROPYLENE SODKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
6. IF AN ACCUMULATION AREA TRIBUTARY TO THE SODK STAKES SHALL BE REMOVED, THE SODK 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.



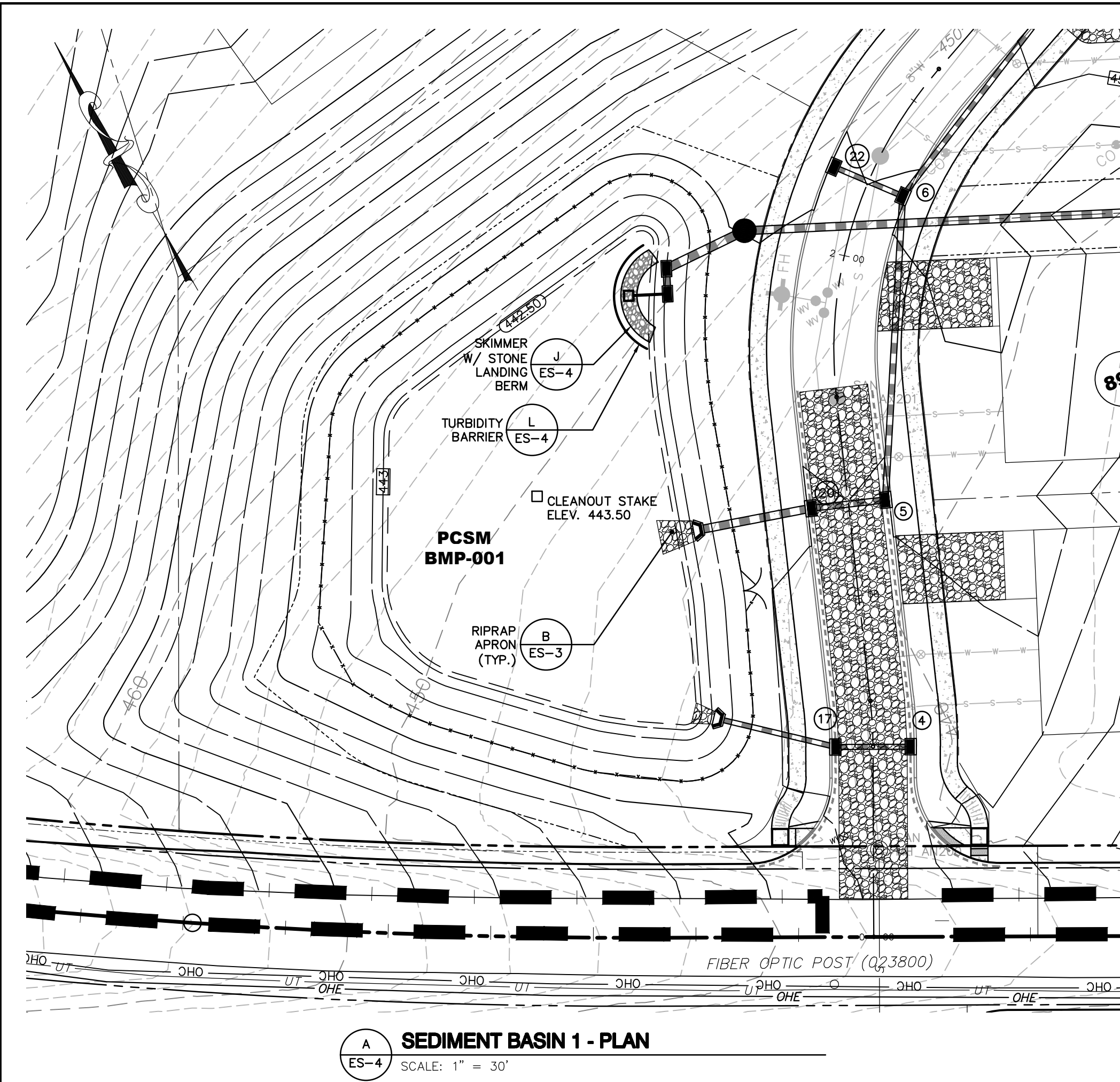

PARABOLIC SWALE DETAILS
 NOT TO SCALE



STRUCTURE	Do	RiPRAP SIZE	La	W	d
EW-1	15	R-3	6.0'	6.2'	9
EW-2	24	R-3	9.0'	9.6'	9
EW-3	24	R-4	12.0'	18.0'	18

GRADATION OF RIPRAP				
	MAX.	AVG.	MIN.*	DEPTH
R-3	6"	3"	2"	9"
R-4	12"	6"	3"	18"
R-5	18"	9"	5"	27"
R-6	24"	12"	7"	36"

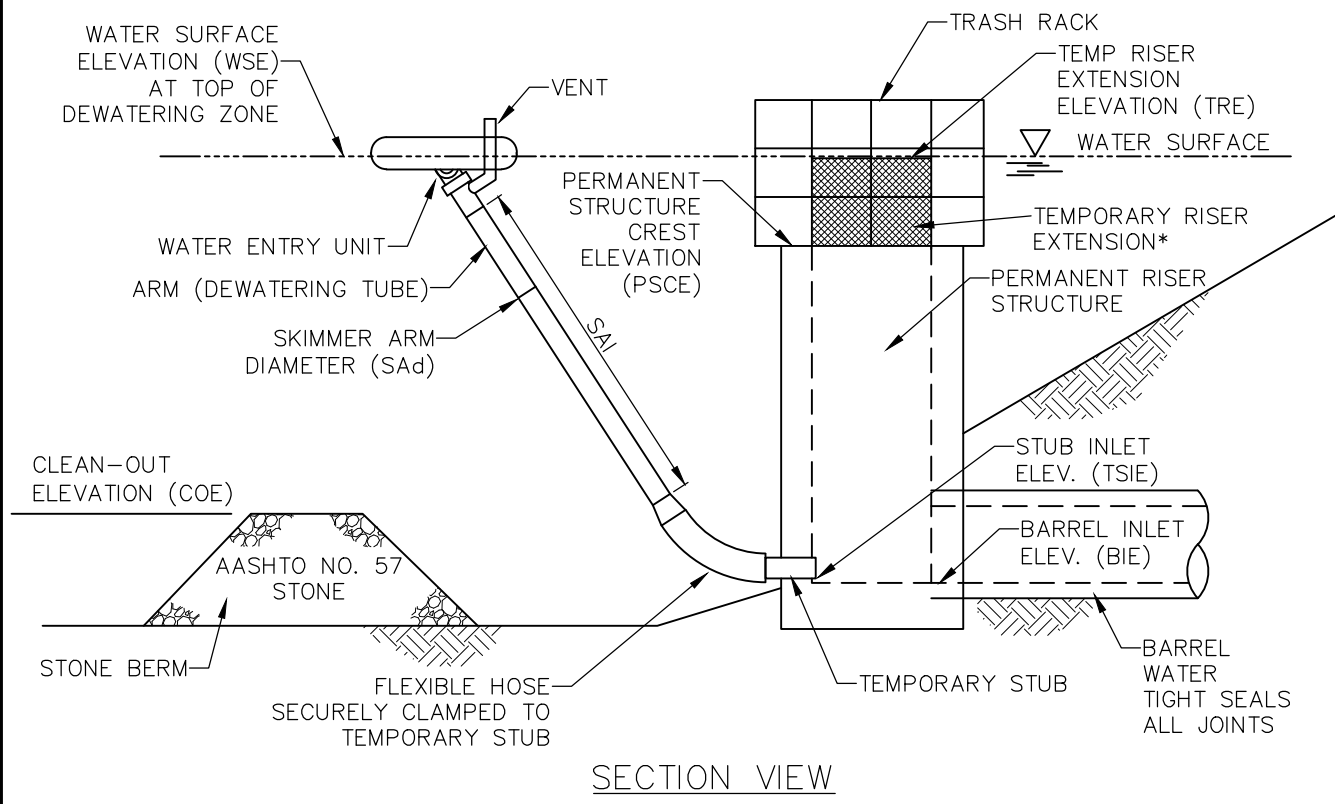




BASIN EMBANKMENT SPECIFICATIONS

COMPACTION:
THE EMBANKMENT FILL & CLAY CORE SHALL BE PLACED IN 6 INCH HORIZONTAL LAYERS CONDITIONED TO OPTIMUM MOISTURE CONTENT, AND COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DENSITY PER THE MODIFIED PROCTOR TEST. THE CONTRACTOR SHALL MAINTAIN THE MOISTURE CONTENT OF THE FILL MATERIAL AS REQUIRED TO PROVIDE THIS REQUIRED DENSITY.

MATERIAL:
EARTH SUBSOIL - COHESIVE SOILS WITHOUT LARGE STONES OR ORGANIC MATTER.
CLAY CORE - SANDY CLAY OR SILTY CLAY LOAM.
STRIP EXISTING TOPSOIL FROM FOOTPRINT OF EMBANKMENT.

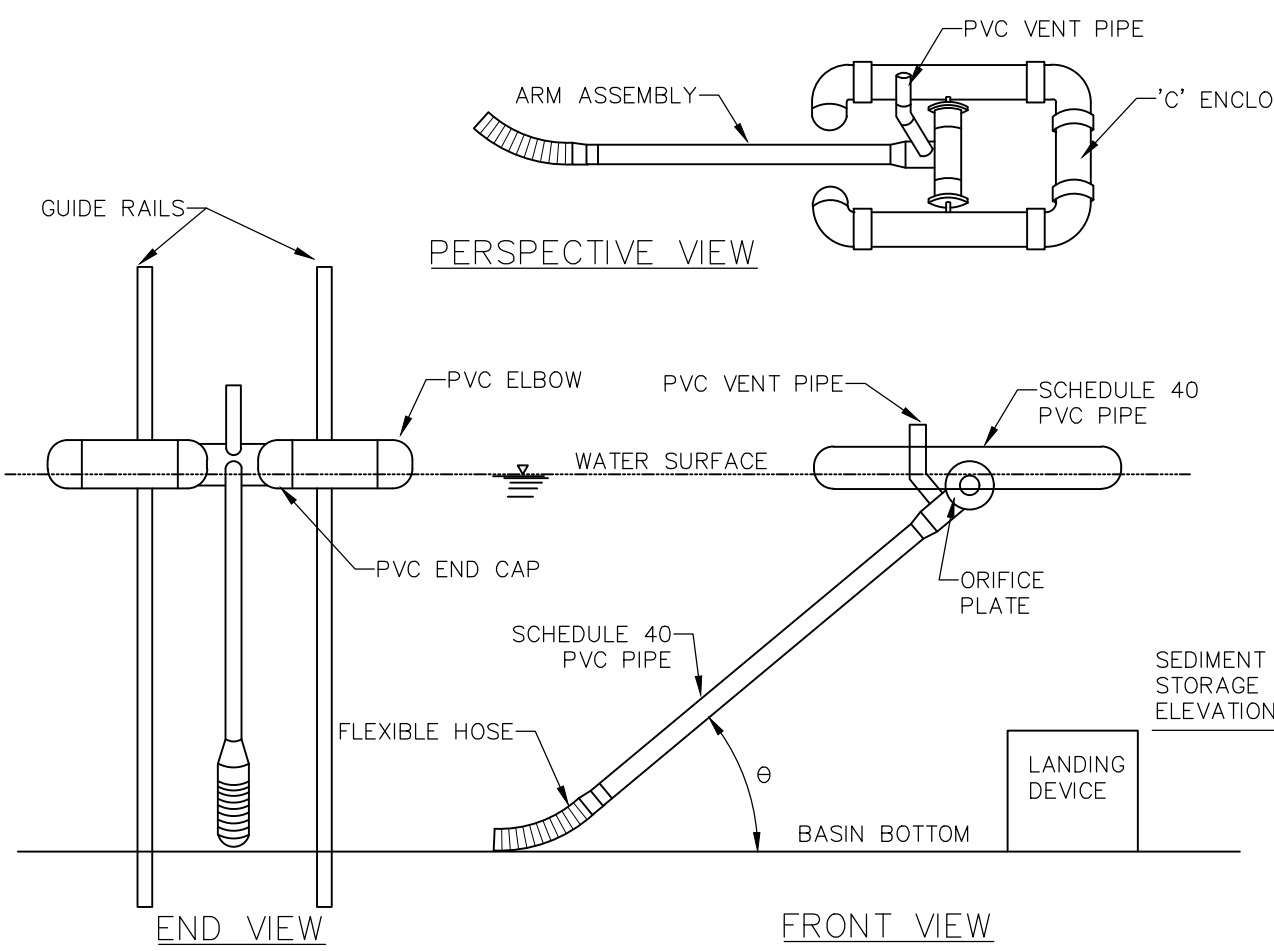


- NOTES:**
- ALL ORIFICES ON PERMANENT RISER BELOW TEMPORARY RISER EXTENSION SHALL HAVE WATER-TIGHT TEMPORARY SEALS PROVIDED. TEMPORARY STUB INVERT ELEVATION SHALL BE SET AT OR BELOW SEDIMENT CLEAN-OUT ELEVATION.
 - A ROPE SHALL BE ATTACHED TO THE SKIMMER ARM TO FACILITATE ACCESS TO THE SKIMMER ONCE INSTALLED.
 - SKIMMER SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT.
 - ANY MALFUNCTIONING SKIMMER SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION.
 - ICE OR SEDIMENT BUILDUP AROUND THE PRINCIPAL SPILLWAY SHALL BE REMOVED SO AS TO ALLOW THE SKIMMER TO RESPOND TO FLUCTUATING WATER ELEVATIONS.
 - SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHES THE LEVEL MARKED ON THE SEDIMENT CLEAN-OUT STAKE OR THE TOP OF THE STONE BERM. SEE STANDARD CONSTRUCTION DETAIL #7-3 FOR CONFIGURATION OF STONE BERM.

BASIN NO.	WATER SURFACE ELEV. WSE (FT)	SKIMMER			FLEXIBLE HOSE		
		ORIFICE DIA. (IN)	HEAD (FT)	DIA. SAD (FT)	ARM LENGTH (FT)	MAT'L	LENGTH (IN)
1	446.59	3.0	0.21	3	5.5	PVC	6

TEMPORARY STUB		PERMANENT RISER		RISER EXTENSION		BARREL	
INSIDE DIA (IN)	INVERT ELEV TSIE (FT)	MAT'L	CREST ELEV PSCE (FT)	HORIZ. OPENING LENGTH EI (IN)	WIDTH Ew (IN)	INLET ELEV BIE (FT)	WIDTH (IN)
6	441.50	PVC	445.70	48	24	446.08	48

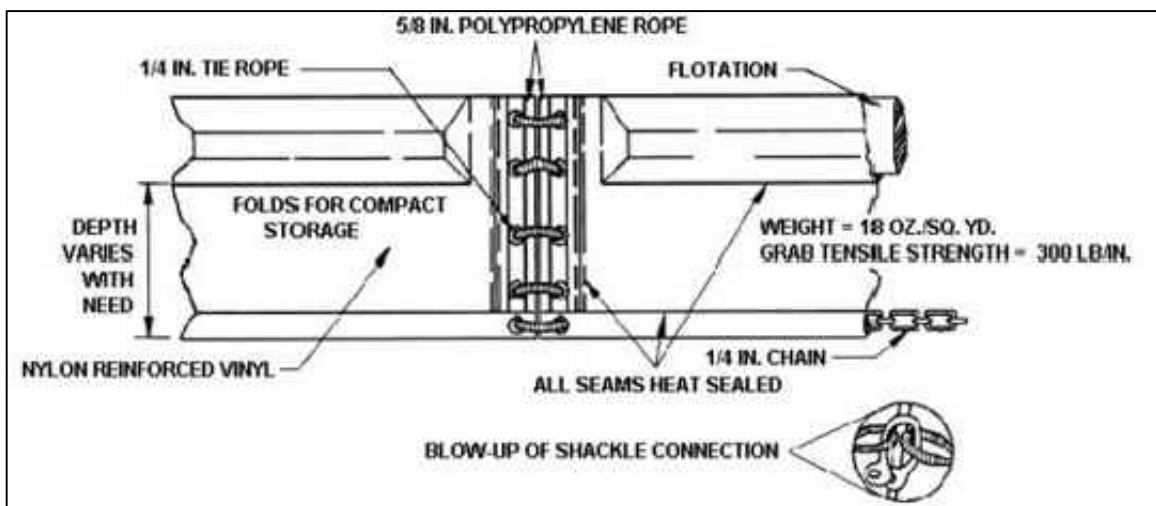
H SKIMMER ATTACHED TO A PERMANENT RISER - # 7-2
ES-4 NOT TO SCALE



BASIN NO.	WATER SURFACE ELEVATION (FT)	ARM LENGTH DIA. (IN)	ARM DIA. (IN)	ORIFICE DIA. (IN)	TOP OF LANDING DEVICE ELEVATION (FT)	FLEXIBLE HOSE LENGTH (IN)	FLEXIBLE HOSE ATTACHMENT ELEVATION (FT)
1	446.59	5.5	3	3.0	443.50	12	441.50

- NOTES:**
- ORIFICE DIAMETER MUST BE EQUAL TO OR LESS THAN ARM DIAMETER
 - A ROPE SHALL BE ATTACHED TO THE SKIMMER ARM TO FACILITATE ACCESS TO THE SKIMMER ONCE INSTALLED.
 - SKIMMER SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT.
 - ANY MALFUNCTIONING SKIMMER SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION.
 - ICE OR SEDIMENT BUILDUP AROUND THE PRINCIPAL SPILLWAY SHALL BE REMOVED SO AS TO ALLOW THE SKIMMER TO RESPOND TO FLUCTUATING WATER ELEVATIONS.
 - SEDIMENT SHALL BE REMOVED FROM THE BASIN WHEN IT REACHES THE LEVEL MARKED ON THE SEDIMENT CLEAN-OUT STAKE OR THE TOP OF THE LANDING DEVICE.
 - A SEMI-CIRCULAR LANDING ZONE MAY BE SUBSTITUTED FOR THE GUIDE RAILS (STANDARD CONSTRUCTION DETAIL # 7-3).

G SKIMMER - # 7-1
ES-4 NOT TO SCALE



SPECIFICATIONS (ST: 10/08)

Main body fabric is laminated vinyl/polyester having the following characteristics:

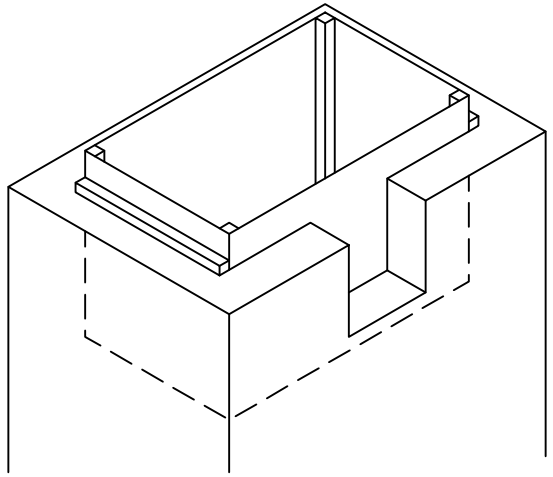
- Construction - vinyl laminate on 9x9 1000x1300 denier polyester scrim
- Weight - 18.5 oz. per sq. yd (434 gr./sq.m)
- Adhesion - 24 x 20 lb./2"
- Grab Tensile - 410 x 410 lb./in. (430 x 421 daN/5cm.)
- Tear - 100 x 100 lb./in. (95 x 95 daN)
- Hydrostatic - 600 psi (4167 kPa)
- Cold resistance to crack: -40° F/C

Geotextile filter fabric inserted into skirt, approximately 20% of skirt area having the following characteristics:

- Construction - woven polypropylene
- Minimum average roll values:
- Grab Tensile (ASTM D-4632) - 370/250 lb (1.64/1.11 kN)
- Grab Elongation (ASTM D-4632) - 15%
- Mullen Burst (ASTM D-3786) - 480 psi (3300 kPa)
- Puncture (ASTM D-4833) - 135 lb (60 kN)
- Trapezoidal Tear (ASTM D4533) - 100/60 lb (.444/.265 kN)
- AOS (ASTM D-4751) - 70 sieve (.212 mm)
- Permittivity (ASTM D-4491) - .28/sec.
- Flow Rate (ASTM D-4491) - 18 gal/min/sq. ft. (730 L/min/sq. m)

- All main body seams are heat sealed. All geotextile seams are sewn double needle type 301.
- 5/8 in. poly rope reinforced vertical edges.
- #5 brass grommets on vertical edge and every 10' across bottom on barriers over 10' deep
- 5/16 in. galvanized steel 7x19 load cable in top, 9800 lb. break strength (4455 kg.)
- 5/16 in. galvanized chain ballast in bottom
- Aluminum stress plates at cable and chain termination
- EPS flotation, (8 in. x 8 in. standard), 26.7 lb./ft. buoyancy in fresh water, 28.4 lb./ft in saltwater.

L FLOATING TURBIDITY BARRIER
ES-4 NOT TO SCALE (OR APPROVED EQUAL)

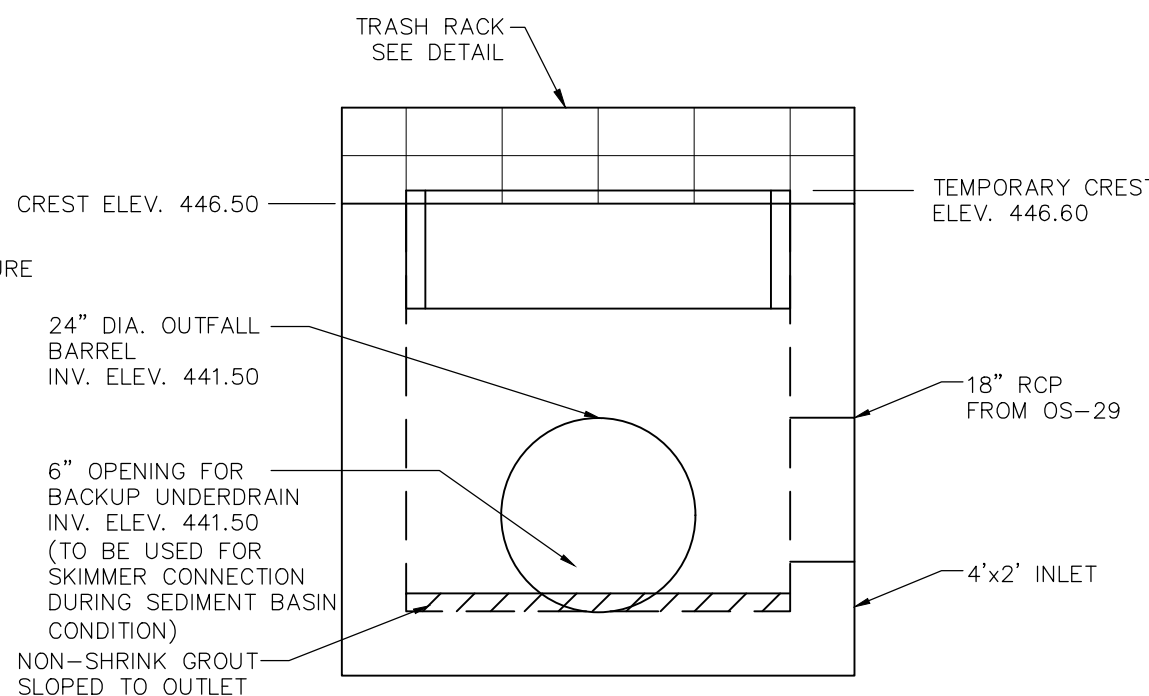


3/4" MARINE GRADE PLYWOOD WITH PRESSURE TREATED 1/2" SQUARE POSTS.

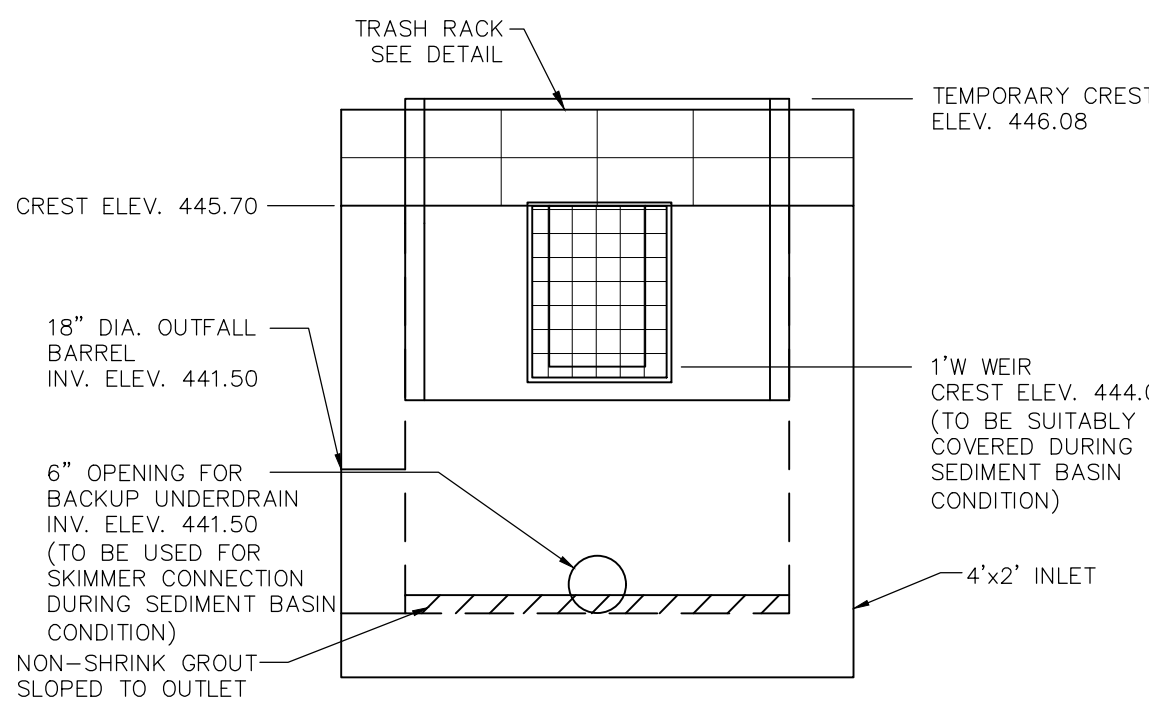
ATTACH TO INSIDE OF INLET WITH STAINLESS STEEL 1/4" x 2" ANCHOR BOLTS

(SEE E&S MANUAL STANDARD DETAIL #7-10)

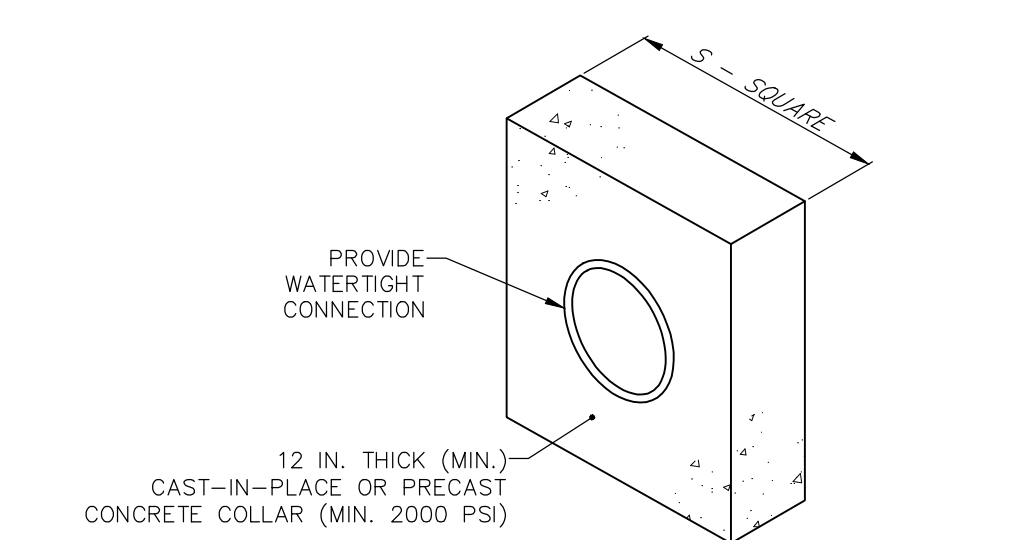
M TEMPORARY RISER BOX DETAIL
ES-4 NOT TO SCALE



D BMP - OUTLET STRUCTURE 28
ES-4 NOT TO SCALE



C BMP - OUTLET STRUCTURE 29
ES-4 NOT TO SCALE

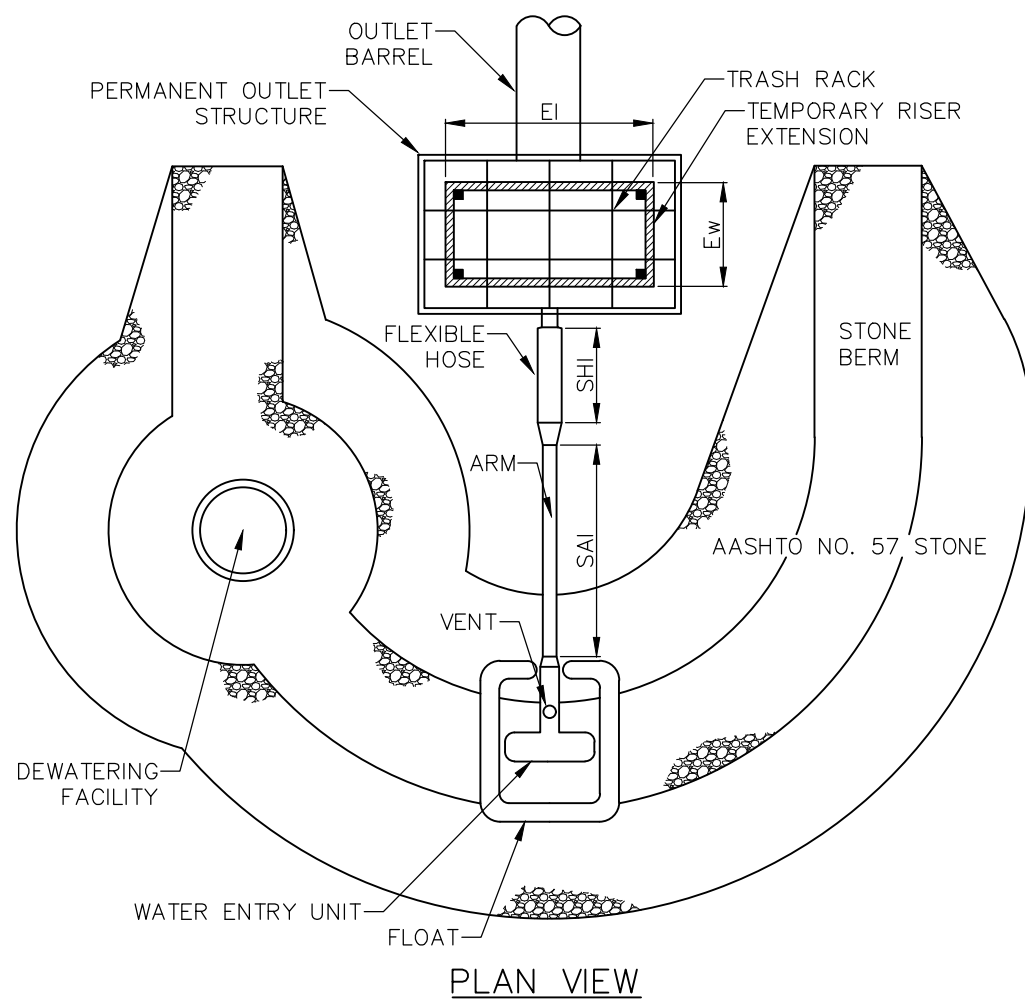


BASIN OR TRAP NO.	PIPE SIZE (IN)	S (IN)	NO. OF COLLARS	RISER TO FIRST COLLAR (FT)	COLLAR SPACING (FT)
BMP-001	24	72	1	15	N/A

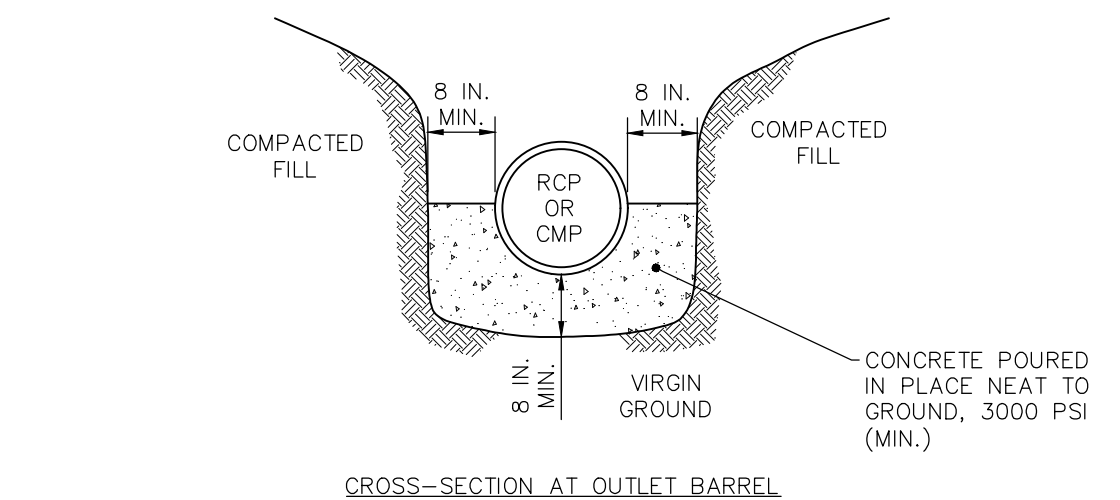
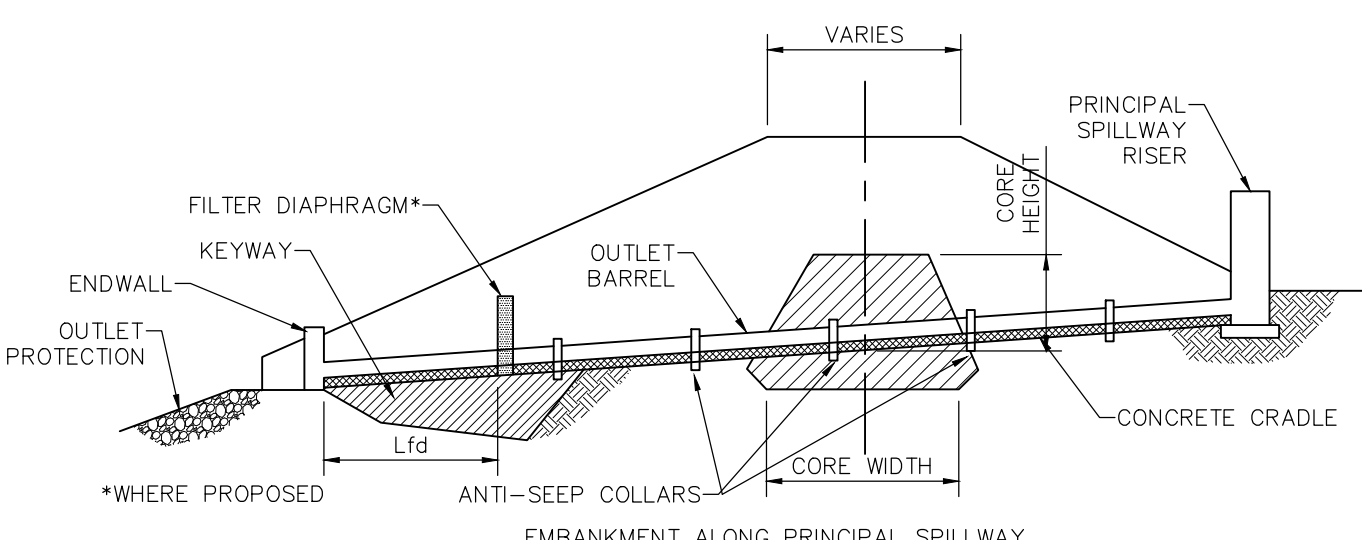
NOTES:

- ALL COLLARS SHALL BE INSTALLED SO AS TO BE WATER-TIGHT.
- COLLAR SIZE AND SPACING SHALL BE AS INDICATED WITHIN TABLE.

E CONCRETE ANTI-SEEP COLLAR #7-16
ES-4 NOT TO SCALE



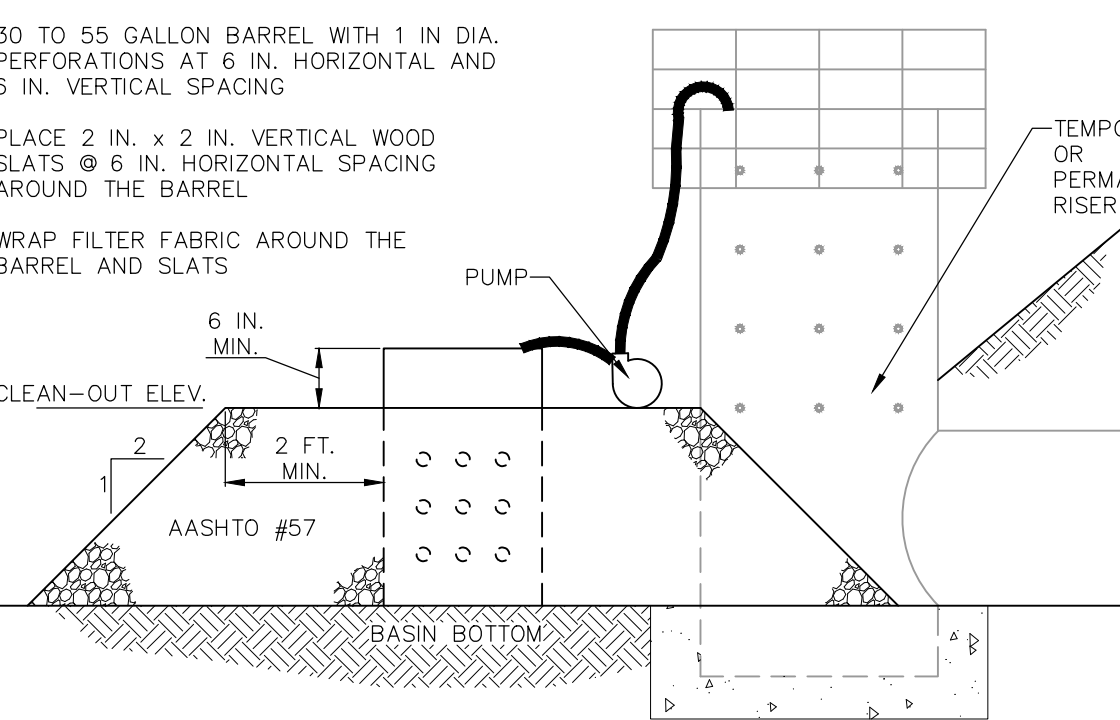
J SKIMMER WITH STONE LANDING BERM - # 7-3
ES-4 NOT TO SCALE



NOTES:

- A CONCRETE CRADLE MAY BE USED IN CONJUNCTION WITH ANTI-SEEP COLLARS AND/OR FILTER DIAPHRAGM.
- ANTI-SEEP COLLAR NUMBER, SIZE AND SPACING SHALL BE AS SHOWN ELSEWHERE IN PLAN.
- FILTER DIAPHRAGM LOCATION (Lfd) SHALL BE AS SHOWN IN FIGURE 7.8 OF THE PA DEP EROSION CONTROL MANUAL.

F CONCRETE CRADLE FOR BASIN OR TRAP OUTLET BARREL #7-17
ES-4 NOT TO SCALE

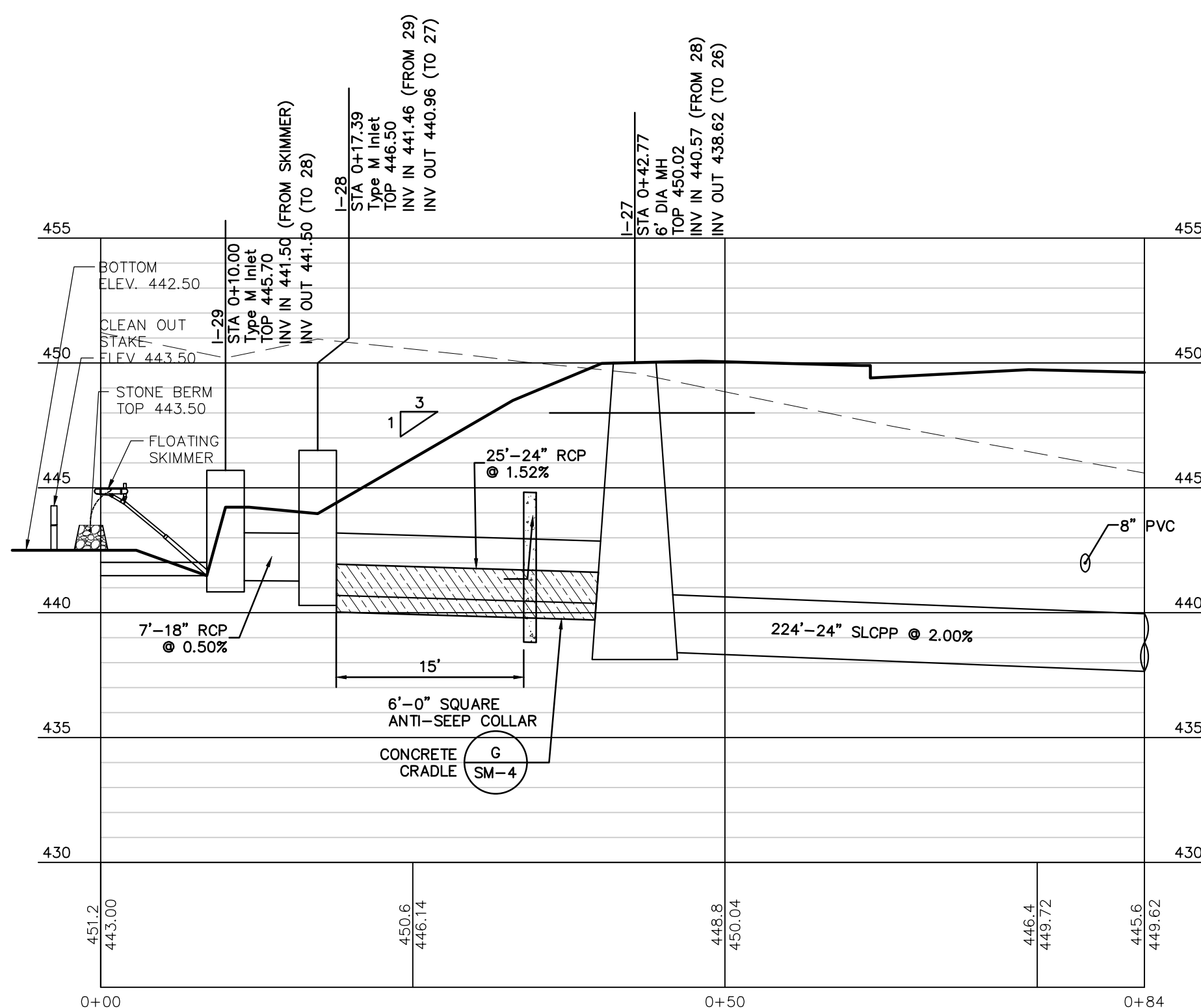


NOTES:

- DEWATERING FACILITY SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF BASIN/TRAP.
- PRIOR TO INITIATING OPERATION OF DEWATERING FACILITY, ALL ACCUMULATED SEDIMENT SHALL BE CLEANED FROM THE INSIDE OF THE BARREL.

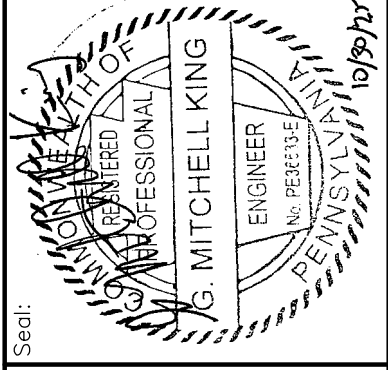
- DEWATERING FACILITY SHALL BE CONTINUOUSLY MONITORED DURING OPERATION. IF FOR ANY REASON THE DEWATERING FACILITY CEASES TO FUNCTION PROPERLY, IT SHALL BE IMMEDIATELY SHUT DOWN AND NOT RESTARTED UNTIL THE PROBLEM HAS BEEN CORRECTED.

K SEDIMENT STORAGE DEWATERING FACILITY - # 7-18
ES-4 NOT TO SCALE



B SEDIMENT BASIN 1 - CROSS SECTION
ES-4 SCALE: HORIZONTAL - 1" = 10' / VERTICAL - 1" = 5'

Project Manager:	DRAFTING:
DAVID B. KEEGER	D TURNER
Project Engineer:	Checked by:
G. MITCHELL KING	PE, PLS
Project Engineer:	Scale:
THOMAS K. PHILLIPS	PLS
Project Engineer:	1" = 30'



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DATE	REVISIONS
10/27/25	ADDRESSED 10/22/25 TWP. ENGR. LTR.
9/4/25	REV. PER PA DEP LETTER DATED 8/26/25
8/18/25	REV. PER CHAN
3/18/25	REV. PER CCOD EMAIL DATED 3/14/25
1/20/25	REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25
12/18/24	REV. FOR T.E. LTR., 21 SLOPES, PANC PLAN
10/17/24	REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION BMP'S MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION BMP'S AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL SITE INSPECTIONS WILL BE DOCUMENTED IN AN INSPECTION LOG KEPT FOR THIS PURPOSE. THE COMPLIANCE ACTIONS AND THE DATE, TIME AND NAME OF THE PERSON CONDUCTING THE INSPECTION. THE INSPECTION LOG WILL BE KEPT ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE DISTRICT ON UPON REQUEST.

WHERE BMPs ARE FOUND TO FAIL TO ALLEVIATE EROSION OR SEDIMENT POLLUTION THE PERMITEE OR CO-PERMITEE SHALL INCLUDE THE FOLLOWING INFORMATION:

- THE LOCATION AND SEVERITY OF THE BMPs FAILURE AND ANY POLLUTION EVENTS.
- ALL STEPS TAKEN TO, REDUCE, ELIMINATE AND PREVENT THE REURRENCE OF THE NON-COMPLIANCE.
- THE TIME FRAME TO CORRECT THE NON-COMPLIANCE, INCLUDING THE EXACT DATES WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE.

SILT FENCE: THE SILT FENCE SHALL BE INSPECTED AFTER EACH STORM EVENT. ALL ACCUMULATED SEDIMENT MUST BE REMOVED AS REQUIRED TO KEEP THE SILT FENCE FUNCTIONING. THE CONTRACTOR SHALL ENSURE THAT, IN NO CASE, DOES THE SEDIMENT ACCUMULATION EXCEED ONE HALF OF THE HEIGHT OF THE SILT FENCE. ALL UNDERCUTTING OR EROSION OF THE TOE ANCHOR WILL BE REPAIRED IMMEDIATELY WITH COMPACTED BACKFILL MATERIALS. ANY DAMAGED OR OVERTOPPED SILT FENCE SHALL BE IMMEDIATELY REPLACED WITH A ROCK FILTER.

SEDIMENT BASINS: SEDIMENT MUST BE REMOVED FROM THE BASINS WHEN THE CLEANOUT ELEVATION IS REACHED. SEDIMENT MUST BE DETERIORATED USING A PUMP TO REMOVE EXCESS WATER WHEN NECESSARY. THE EXCESS WATER MUST BE PUMPED TO A SEDIMENT REMOVAL FACILITY FOR PUMPED WATER. THIS FACILITY MUST BE CONSTRUCTED IN ACCORDANCE WITH THE DETAIL SHOWN ON THE PLANS. REMOVED DETERIORATED SEDIMENT SHALL BE REDISTRIBUTED ON THE CLOSEST SOIL STOCKPILE OR TO THE NEAREST WATER BODY WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURE THAT MEASURES ARE TAKEN TO PROTECT THE SEDIMENT BASINS FROM UNAUTHORIZED ACTS OF THIRD PARTIES. THE SEDIMENT TRAP MUST REMAIN IN PROPER WORKING ORDER UNTIL ALL OF THE TRIBUTARY AREA TO THE BASIN HAS BEEN PERMANENTLY STABILIZED. PERMANENT STABILIZATION SHALL BE DETERMINED WHEN A UNIFORM VEGETATIVE COVER OF AT LEAST SEVENTY PERCENT (70%) HAS BEEN ESTABLISHED.

STABILIZED CONSTRUCTION ENTRANCES: THE CONTRACTOR SHALL MAINTAIN THE THICKNESS OF THE ROCK CONSTRUCTION ENTRANCE AS SPECIFIED ON THE PLANS BY ADDING ROCK. ANY SEDIMENT DEPOSITED ON THE ROADWAYS MUST BE REMOVED AND RETURNED TO THE SITE AT THE END OF EACH DAY. SEDIMENT REMOVAL MUST BE DONE BY SWEEPING AND VACUUMING. WASHING SEDIMENT OFF OF ROADWAYS WITH WATER SHALL NOT BE PERMITTED. STONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN PLACE UNTIL REMOVAL IS NECESSARY FOR FINAL GRADING OF THE DRIVEWAY SUBGRADE. A STOCKPILE OF ROCK MATERIAL WILL BE MAINTAINED ON THE SITE TO MAINTAIN THE THICKNESS OF THE CONSTRUCTION ENTRANCE AS SHOWN ON THE PLANS. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS WILL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.

SOIL STOCKPILES: THE CONTRACTOR SHALL INSPECT THE SOIL STOCKPILES AFTER EVERY STORM EVENT. IF SILT FENCE BECOMES DAMAGED OR OVERTOPPED, REPAIR OR REPLACE IMMEDIATELY. IF STOCKPILES ARE LEFT IN PLACE FOR EXTENDED PERIODS, RE-APPLY TEMPORARY SEED AND MULCH AS NEEDED TO PREVENT EROSION. AFTER CONSTRUCTION IS COMPLETE, ANY REMAINING STOCKPILE MATERIAL SHALL BE GRADED ONTO THE SITE AND STABILIZED OR HAULED OFF SITE.

RIPRAP APRONS: THE CONTRACTOR SHALL INSPECT THE RIPRAP APRONS AFTER EACH STORM EVENT. WHEN NECESSARY, THE CONTRACTOR SHALL REPLACE STONE THAT HAS WASHED AWAY BY ADDING ADDITIONAL STONE TO THE RIPRAP APRON.

EROSION CONTROL BLANKET: THE CONTRACTOR SHALL INSPECT THE EROSION CONTROL BLANKET AFTER EVERY STORM EVENT. IF THE MATTING BECOMES DAMAGED OR SLIDES, MAKE REPAIRS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IN ADDITION TO THE HATCHED AREAS INDICATED, CONTRACTOR SHALL INSTALL EROSION CONTROL MATTING ON ALL 3:1 SLOPES OR GREATER, PER NORTH AMERICAN GREEN S75, OR APPROVED EQUAL. IF DEEMED NECESSARY BY THE CONSERVATION DISTRICT, ADDITIONAL EROSION CONTROL MATTING MAY BE REQUIRED BEYOND WHAT IS INDICATED ON THESE PLANS.

INLET PROTECTION: SEDIMENT MUST BE REMOVED FROM STORM WATER INLET PROTECTION AFTER EACH RUNOFF EVENT.

TEMPORARY STABILIZATION AND PERMANENT STABILIZATION: HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE. MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.

IF THE SITE WILL NEED TO IMPORT OR EXPORT MATERIAL FROM THE SITE, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND DETERMINATION OF CLEAN FILL WILL REST WITH CONTRACTOR.

CLEAN FILT IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID 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).

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

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

ENVIRONMENTAL DUE DILIGENCE. THE APPLICANT MUST PERFORM ENVIRONMENTAL DUE DILIGENCE TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, VISUAL AND PHOTOGRAPHIC RECORDING, VISUAL AND PHOTOGRAPHIC RECORDING, VISUAL AND PHOTOGRAPHIC RECORDING, 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 REGULATED SUBSTANCE(S). IF THE PROPERTY IS BELIEVED TO HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE. THESE REGULATIONS ARE AVAILABLE ON-LINE AT:

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

SEEDING SPECIFICATIONS											
SEED TYPE	DESCRIPTION, FORMULA, SPECIES	% Y/B WEIGHT	MINIMUM %		PURE LIVE SEED %	MAX % WEED/ SEED	SEEDING RATE: LBS/1000 S.F.	FERTILIZER RATE: LBS/1000 S.F.		LIME RATE: LBS/1000 S.F.	MULCH RATE:
			PURITY	GERMINATION				BASIC	STARTER		
TYPE 1	PennDOT formula B										
Lawn Areas	*Perennial Ryegrass mixture, +	20	98	90	88	0.15	0.44	15-10-10	40	89	3 Tons/ Acre
(per PennDOT specs)	*Creeping Red Fescue, +	30	98	85	83	0.15	0.67				
	*Kentucky Bluegrass mixture	50	98	80	78	0.20	1.20				
							TOTAL = 2.31				
TYPE 2	Crownvetch seeding mixture										
Sloped Areas	*Crownvetch, +	50	99	70	69	0.10	0.55	15-20		100	1-1/2" Straw
greater than 3:1	*Annual Ryegrass, +	40	98	90	88	0.15	0.44				
	*Alsike Clover	10	98	90	88	0.20	0.11				
							TOTAL = 1.10				
TYPE 3											
Temporary Seeding	Annual Ryegrass	100	98	90	88	0.15	1.1	15-20		125	3 Tons/ Acre
							TOTAL = 1.10				
TYPE 4											
Detection Basin & Sediment Forebay bottom seeding	Detection Basin & Sediment Forebay Seed Mix: Use ERMNX-127; Ernst Conservation Seed, 1-800-873-3321, www.ernstseed.com; Seed at 20 Bulk pounds per acre or 1/2 to 1 lb. per 1,000 s.f.							25-30		100	1-1/2" Straw

1. THE NPDES DRAINAGE AREA SHALL BE EQUAL TO THE OUTER PERIMETER BOUNDARY OF THE SITE, AND ANY OFF-SITE AREAS WITHIN THE LIMITS OF DISTURBANCE THAT ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL, INCLUDING OFF-SITE FACILITIES SUCH AS UTILITIES AND ROADWAY IMPROVEMENTS.
2. THE EROSION AND SEDIMENT CONTROL PLANS REQUIRED UNDER THE NPDES GENERAL PERMIT ARE CONSIDERED REPORTS THAT SHALL BE AVAILABLE TO THE PUBLIC UNDER SECTION 607 OF THE CLEAN STREAMS LAW, AND 25 PA CODE, CHAPTER 92 OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION GUIDANCE. THE OWNER OR OPERATOR OF A FACILITY WITH STORM WATER DISCHARGES COVERED BY THE NPDES GENERAL PERMIT SHALL MAKE PLANS AVAILABLE TO THE PUBLIC UPON REQUEST BY THE PUBLIC.
3. THE OWNER (PERMITTEE) AND CONTRACTOR/EXCAVATOR (CO-PERMITTEE) SHALL CONTACT THE COUNTY CONSERVATION DISTRICT AND TOWNSHIP AT LEAST FOURTEEN DAYS PRIOR TO START OF CONSTRUCTION TO DEVELOP A CONSTRUCTION DISTURBANCE MANAGEMENT PLAN WITH THE DISTRICT AND OTHERS UNDERTAKING EARTH DISTURBANCE ACTIVITY ATTENDING THE PRE-CONSTRUCTION CONFERENCE.
4. THE OWNER (PERMITTEE) AND CONTRACTOR/EXCAVATOR (CO-PERMITTEE) SHALL FILE A NOTICE OF TERMINATION (N.O.T.) FOR THE NPDES PERMIT WHEN ALL EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN REMOVED. THE OWNER IS ENCOURAGED TO INCLUDE THE GENERAL CONTRACTOR, SUBCONTRACTOR AND EXCAVATOR AND CONTRACTORS INVOLVED IN THE EARTH DISTURBANCE ACTIVITY AS CO-PERMITTEES FOR THE PROJECT.
5. THE N.O.T. WILL BE REQUIRED TO BE SUBMITTED FOLLOWING APPROVAL OF THE FINAL AS-BUILT PLANS. PRIOR TO ACCEPTING THE N.O.T. THE DEPARTMENT AND/OR CONSERVATION DISTRICT STAFF WILL PERFORM A VISUAL INSPECTION TO ENSURE SITE STABILIZATION AND VERIFY ADEQUATE INSTALLATION AND FUNCTION OF BMP'S.

THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.

1. THE OWNER (PERMITEE) AND CONTRACTOR/EXCAVATOR (CO-PERMITTEE) MUST ENSURE THAT VISUAL SITE INSPECTIONS ARE CONDUCTED BIWEEKLY, AND AFTER EACH PRECIPITATION EVENT BY QUALIFIED PERSONNEL, TRAINED AND EXPERIENCED IN EROSION AND SEDIMENT CONTROL, TO ASCERTAIN THAT THE BMPs ARE OPERATIONAL AND EFFECTIVE IN PREVENTING POLLUTION TO THE WATER OF THE COMMONWEALTH. A WRITTEN REPORT OF EACH INSPECTION SHALL BE KEPT AND INCLUDE: (1) A SUMMARY OF THE SITE CONDITIONS, BMPs AND COMPLIANCE; (2) THE DATE, TIME AND NAME OF THE PERSONS CONDUCTING THE INSPECTION.
2. WHERE BMPs ARE FOUND TO BE INOPERATIVE OR INEFFECTIVE DURING AN INSPECTION, OR AT ANY TIME, THE PERMITTEE AND THE CO-PERMITTEE SHALL IMMEDIATELY CONTACT THE COUNTY CONSERVATION DISTRICT, BY PHONE OR PERSONAL CONTACT, FOLLOWED BY SUBMISSION OF A WRITTEN REPORT TO THE DISTRICT. FROM THE INITIAL REPORT, THE DISTRICT SHALL INCLUDE THE FOLLOWING INFORMATION: (1) ANY CONDITION ON THE PROJECT SITE WHICH MAY ENDANGER PUBLIC HEALTH, SAFETY, OR THE ENVIRONMENT, OR INVOLVE INCIDENTS WHICH WOULD THREATEN POLLUTION; (2) THE PERIOD OF NONCOMPLIANCE, INCLUDING THE EXACT DATES AND TIMES AND/OR ANTICIPATED TIME WHEN THE ACTIVITY WILL RETURN TO CORRECT COMPLIANCE; (3) STEPS BEING TAKEN TO ELIMINATE OR PREVENT FURTHER NONCOMPLIANCE; (4) THE DATE OF THE DATE OF, AND/OR SCHEDULE OF DATES, AND IDENTIFYING REMEDIES FOR CORRECTING NONCOMPLIANCE CONDITIONS.

1. THE PERMITTEE AND CO-PERMITTEE SHALL RETAIN RECORDS OF ALL MONITORING INFORMATION INCLUDING COPIES OF MONITORING AND INSPECTION REPORTS REQUIRED BY THIS PERMIT, AND THE RECORDS OF DATA USED TO COMPLETE THE NOTICE OF INTENT FOR THIS PERMIT, FOR A PERIOD OF THREE YEARS FROM THE DATE OF THE TERMINATION OF COVERAGE UNDER THE NPDES PERMIT. MONITORING RESULTS SHALL BE SUBMITTED TO THE COUNTY CONSERVATION DISTRICT UPON REQUEST.

1. THE OWNER (PERMITEE) AND CONTRACTOR/EXCAVATOR (CO-PERMITEE) MUST COMPLY WITH ALL TERMS AND CONDITIONS OF THE NPDES PERMIT. ANY PERMIT NONCOMPLIANCE CONSTITUTES A VIOLATION OF THE PENNSYLVANIA CLEAN STREAM LAW AND FEDERAL CLEAN WATER ACT AND IS GROUNDS FOR ENFORCEMENT ACTION; FOR PERMIT TERMINATION, REVOCATION AND REISSUANCE, OR FOR MODIFICATION OR CANCELLATION OF THE PERMIT. PERMIT RENEWAL IS CONTINGENT UPON COMPLIANCE WITH THE PERMIT.
2. THE PERMITTEE AND CO-PERMITEE MAY BE SUBJECT TO CRIMINAL AND/OR CIVIL PENALTIES FOR VIOLATIONS OF THE CONDITIONS OF THE NPDES PERMIT UNDER SECTION 602 AND 605 OF THE CLEAN STREAMS LAW, 35 P.S. SECTIONS 691.602 AND 691.605, AND UNDER THE CLEAN WATER ACT AS SPECIFIED IN 40 C.F.R. SECTIONS 122.41(A)(2) AND (3), WHICH ARE INCORPORATED BY REFERENCE.

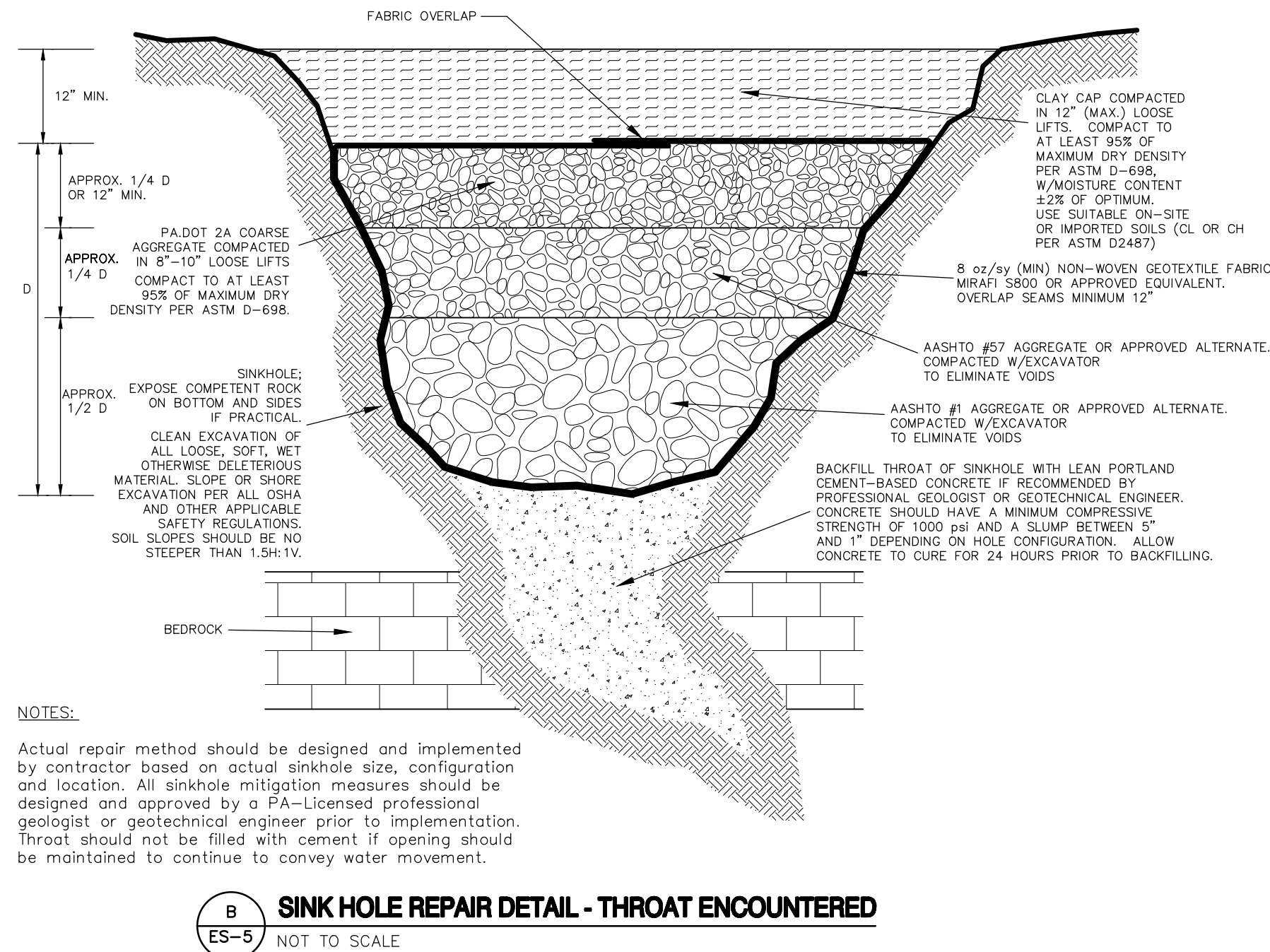
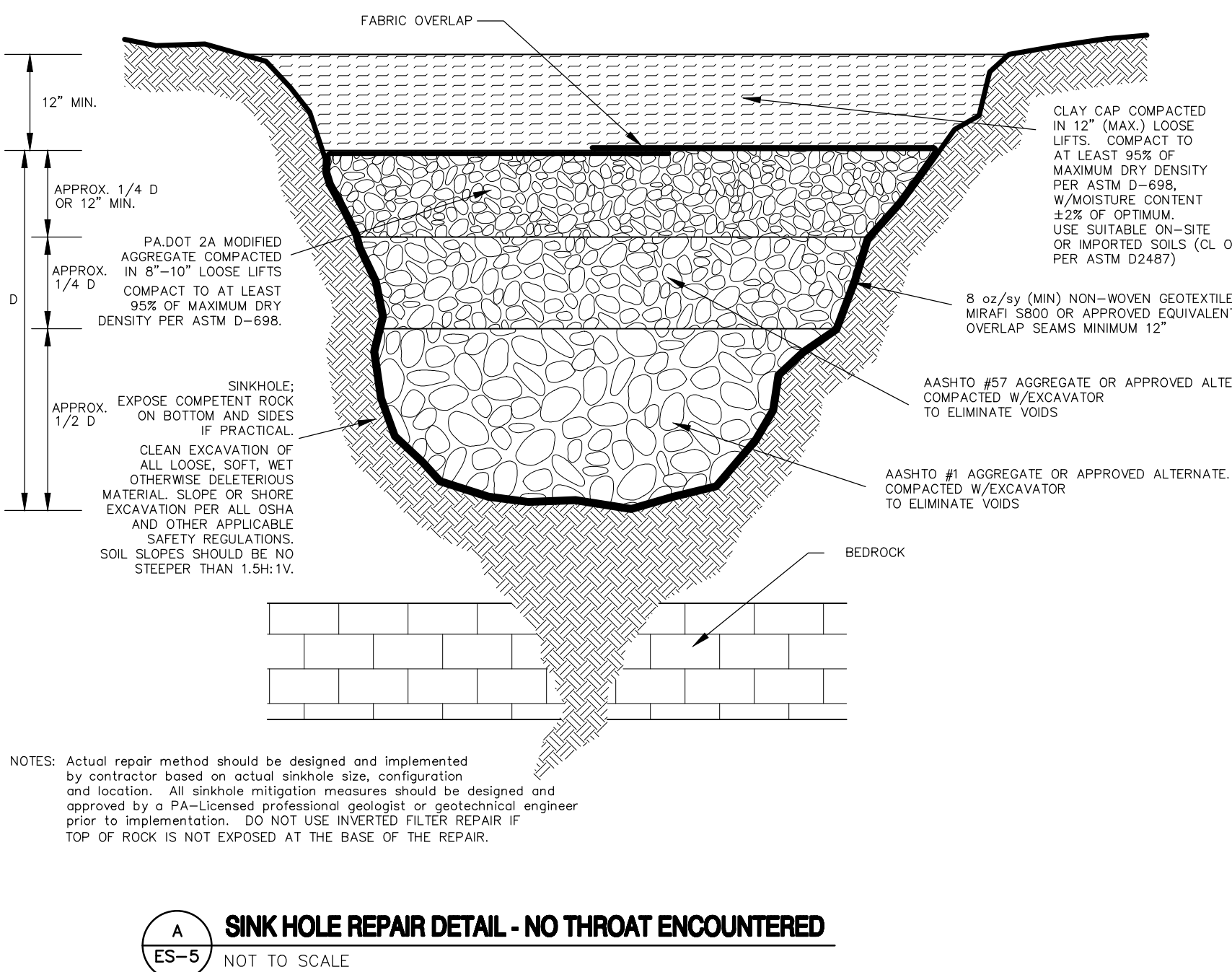
1. IF THE POTENTIAL EXISTS FOR CAUSING ACCIDENTAL POLLUTION OF AIR, LAND, OR WATER OR FOR CAUSING ENDANGERMENT OF PUBLIC HEALTH AND SAFETY THROUGH ACCIDENTAL RELEASE OF TOXIC, HAZARDOUS, OR OTHER POLLUTING MATERIALS, THE PERMITTEE OR CO-PERMITTEE MUST DEVELOP A PREPAREDNESS, PREVENTION, AND CONTINGENCY (PPC) PLAN. THE PPC PLAN SHALL BE DEVELOPED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FEDERAL SUPERFUND REGULATIONS AND SHALL IDENTIFY AREAS WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, WASTE MANAGEMENT AREAS, RAW MATERIALS STORAGE AREAS, TEMPORARY AND PERMANENT SPOILS STORAGE AREAS, MAINTENANCE AREAS, AND ANY OTHER AREAS WHICH MAY HAVE THE POTENTIAL TO CAUSE NONCOMPLIANCE WITH FEDERAL, STATE, AND LOCAL AIR, LAND, AND WATER QUALITY STANDARDS. THE PLAN SHALL IDENTIFY ANY TOXIC OR HAZARDOUS SUBSTANCES SUCH AS OIL, GASOLINE, PESTICIDES, HERBICIDES, SOLVENTS, ETC. BMP'S SHALL BE DEVELOPED AND IMPLEMENTED FOR EACH IDENTIFIED AREA. THE PPC PLAN SHALL BE SUBMITTED TO ALL THE AGENCIES WITH JURISDICTION OVER THE PROJECT AND TO THE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S OR COUNTY CONSERVATION DISTRICT'S REQUEST

DURING CONSTRUCTION THE DEVELOPER AND HIS CONTRACTOR SHALL INSPECT THE AREA DOWNSTREAM OF EACH BASIN OUTLET FOR STABILITY AND SIGNS OF EROSION AFTER ANY STORM EXCEEDING 3 INCHES IN RAINFALL. AFTER CONSTRUCTION IS COMPLETED THE OWNER SHALL CONDUCT THE INSPECTIONS.

CONTACT THE CONSERVATION DISTRICT AND THE DESIGN ENGINEER IF SIGNS OF EROSION ARE FOUND DOWNSTREAM OF THE BASIN OUTLETS. REPAIRS SHALL BE THE RESPONSIBILITY OF THE DEVELOPER UNTIL THE OPEN SPACE LOTS ARE DEEDED TO THE OWNER. THE OWNER SHALL BE RESPONSIBLE FOR REPAIRS AFTER THAT.

ANY OFF-SITE REPAIRS MUST BE DONE AFTER APPROPRIATE PERMISSION HAS BEEN OBTAINED FROM THE OFF-SITE PROPERTY OWNER. ALL LOCAL, STATE AND FEDERAL REGULATIONS MUST BE COMPLIED WITH DURING REPAIRS TO DAMAGES.

AS-BUILT PLANS OF THE STORMWATER BMP'S SHALL BE PROVIDED WITHIN SIX MONTHS FOLLOWING THE COMPLETION OF EACH PHASE. THE AS-BUILT PLANS SHALL BE SIGNED AND SEALED BY A PA REGISTERED PROFESSIONAL ENGINEER.



NOTES:

Actual repair method should be designed and implemented by contractor based on actual sinkhole size, configuration and location. All sinkhole mitigation measures should be designed and approved by a PA-Licensed professional geologist or geotechnical engineer prior to implementation. Throat should not be filled with cement if opening should be maintained to continue to convey water movement.

PRE-CONSTRUCTION STABILIZATION OF THE SITE

All disturbed areas from agricultural activities must be stabilized completely in the previous growing season prior to the start of grading by seeding with small grain or permanent vegetative cover as specified on these plans.

All earth disturbance activity shall proceed in accordance with the following sequence. Each stage shall be completed and immediately stabilized before any following stage initiated. Clearing, grubbing, and topsoil stripping shall be limited to those areas described in each stage. Upon temporary cessation of the earth disturbance activity for four days or longer, the project site shall immediately be stabilized with the appropriate temporary stabilization. As soon as slopes, channels, ditches, and other disturbed areas reach final grade, the area shall immediately be stabilized with the appropriate permanent stabilization.

Construction of Arcona Phase 9 is to be sequenced in the following order:

Each step marked "CSOC:" is a critical stage of construction and requires oversight by a professional engineer.

Phase 9

- As 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 Sedimentation Control Plan preparer, and a representative of the Conservation District to an on-site meeting to discuss the excavation(s) shall be reviewed by NPDES co-permittees/transferee agreement with PA DEP. The contractor shall ensure that all construction shall be done in accordance with the requirements of the NPDES permit.
- The limit of disturbance must be field staked prior to any other moving activities.
- Install rock riprap entrance at the proposed site entrance at Rossmore Road. All construction equipment shall utilize the rock construction entrance for ingress and egress to the site. Maintain entrance over course of construction per detail to prevent tracking of silt/mud onto public roads.
- Install compost filter sock as shown on the plan along the perimeter of the site. The contractor shall install and maintain working silt and sediment control devices. The contractor shall inspect after each rainfall event and making any necessary repairs. In the event that any compost filter sock should fail in the course of construction or should a point of concentrated flow form, a rock filter outlet may be installed.
- Clear and grub the construction site to the extents necessary to construct the sediment basin and its outlet piping.
- Install temporary sewer downstream of sediment basin. Install the riprap apron at the endwall.
- Excavate and construct the sediment basin per the plan and details illustrated and specified herein. During the sediment basin construction, the basin should have a bottom elevation of 442.50 ft. Stabilize with temporary seeding and erosion control matting. The sediment basin must be stabilized and functional prior to any additional earth disturbance. No other earth disturbance is permitted on the site except that necessary to construct the sediment basin.
- CSaC:** Upon installation of the temporary sediment basin outlet structure, skimmer, and floating riprap apron, the riprap apron and the sediment basin skimmer and skimmer discharge shall be conducted by a qualified site representative and the Cumberland County Conservation District shall be notified that the proper risers and skimmers were installed and sealed, per plan. Sediment basin must be protected from unauthorized acts by third parties. Construct the riprap apron at the outfall as shown on the plan.
- Clear and grub the construction site to the extents necessary to construct the proposed North Wayland Road and storm sewer system.
- Install erosion protection site to the extents necessary to construct North Wayland Road and storm sewer system. Stockpile in designated area(s) as shown on the plans and place compost filter sock on the down slope side of the stockpile. Immediately stabilize with temporary seeding as specified on the plan.
- Install North Wayland Road to grade and install the sanitary sewer and water mains and the storm sewer system, beginning at EW-1 and EW-2 and continuing upstream. All excavated utility trench must be backfilled by the end of each day. Install riprap aprons at EW-1 and EW-2.
- Install temporary silt protection in existing inlet at Rossmore Road.
- Clear and grub the remainder of the area to be disturbed on the site and strip topsoil and stockpile in designated area(s). Conduct bulk earth moving operations. All runoff shall be directed to the sediment basin.
- Install all swales and matting. Seed immediately to promptly stabilize.
- Final grade all street subgrade and shoulder areas for the proposed North Wayland Road and widening of Rossmore Road.
- Install curbing along all North Wayland Road.
- Install stone subbase as soon as possible after completing curb. Pave with base and binder courses. Pave Rossmore Road widening with wearing course.
- Begin construction of the homes after stone base on street is in place. See Project Staging for individual lot details.
- Replace topsoil, seed and mulch to stabilize all disturbed areas as possible after each lot or block of homes are completed.
- Deal with weeding operation when construction of dwellings is completed.
- Contact the Cumberland County Conservation District for site inspection prior to removal of any sediment basin.
- CSaC:** Once all lots have been completely stabilized and the Conservation District has approved removal of the sediment basin, the permanent BMP-001. Once the permanent basin for stability size, grade, and proper outlet structure after conversion is completed. See Project Staging – Converting Sediment Basin to PCSM BMP-001.
- Once the site is ready for any damaged areas. All portions of the site shall be stabilized.
- Remove perimeter compost filter sock, spread compost mulch around any disturbed areas, and remove any other sediment controls once all disturbed areas are completely stabilized. Remove temporary inlet filter in Rossmore Road.
- Final critical area inspection performed by the site's engineer shall be performed to verify all previously installed PCSM BMPs are still functioning as designed and not affected by construction activities.
- Upon completion of the project a completed Notice of Termination (N.O.T.) shall be submitted to the department and for County staff to sign. Final inspection can be performed to ensure stabilization and verify adequate installation and function of BMPs.

Project Staging – Individual Lots

Each lot will be staged in the following order:

1. Install stabilized construction entrance.
2. Install compost filter sock as shown on plan.
3. Rough grade lot and stabilize immediately with temporary seeding.
4. Excavate for dwelling foundation. Place excess soil on designated soil stockpile location. Install compost filter sock below the stockpile.
5. Construct dwelling.
6. Connect utilities.
7. Install and connect roof drain leaders to inlet as specified by this PCSM plan.
8. Install sidewalk along frontage of lot.
9. Pave driveway.
10. Final grade lot and stabilize immediately with permanent stabilization.
11. Remove filter sock once all disturbed areas are stabilized.

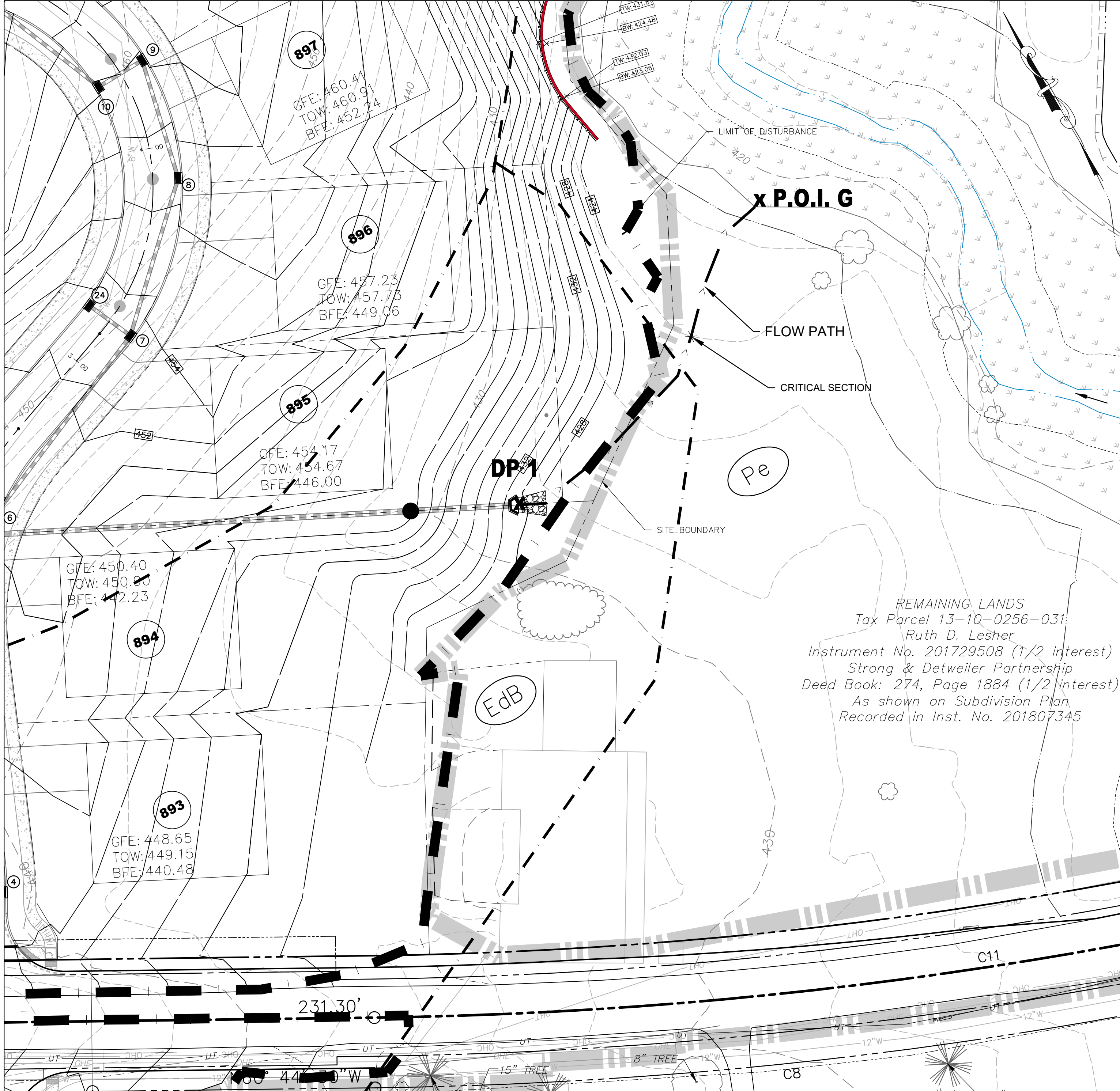
Project Staging – Converting Sediment Basin to PCSM BMP-001

Once the Conservation District has approved removal of the Sediment Basin, convert to the PCSM BMP-001 Bioretention Basin as follows:

1. Stabilize any other disturbed areas immediately with permanent seeding.
2. Remove the skimmer and landing berm. Dispose of properly or store for reuse. Remove any grout used to seal skimmers into inlets.
3. Remove cleanup stake from the basin bottom. Dispose of properly or store for reuse.
4. Remove any sediment from the basin outlet pipes.
5. Remove stainless steel orifice plate used to attach the floating skimmers to the inlets. Stainless steel orifice plates were used to cover the rectangular orifice in the basin outlet structures required for the permanent basin configuration.
6. Overseed and install soil media in the basin bottom to the final grade. Immediately install plantings as specified in the plans.



DISCHARGE POINT 2 FLOWPATH
SCALE: 1" = 80'



DISCHARGE POINT 1 FLOWPATH
SCALE: 1" = 30'

FLOW PATH NARRATIVE

Runoff from Discharge Point 001 (DP 1) flows onto adjacent lands before reaching the P.O.I. G at the wetlands at Cedar Run. The wetlands are classified as Exceptional Value (EV).

Runoff from Discharge Point 002 (DP 2) flows into an existing storm sewer system at P.O.I. F2 before eventually reaching the same surface waters as DP 1.

OFF-SITE DISCHARGE ANALYSIS NARRATIVE

- The rate and volume of runoff to each discharge point matches pre-development rates and volumes for all storms. A common law easement provides the Arcona site the right to continue draining across neighboring properties since there is no change in rate or volume.
- PCSM and E&S drawings and reports have been provided to demonstrate compliance with number 1 above.
- This erosion potential analysis is included with the plan set since the two discharge points do not directly discharge into the surface waters.
- Discharge offsite from DP-1 will be overlaid to the Cedar Run via wetlands in the same manner as in the pre-development condition. Discharge offsite from DP-2 will be to an unchanged storm sewer system, which will contribute to a downstream BMP before reaching the Cedar Run via wetlands, the same manner as in the pre-development condition.
- No express easement documentation is necessary, since both discharge points meet the criteria to qualify for a common law easement.
- Runoff from DP 1 flows to surface waters without downstream BMPs. Runoff from DP 2 enters a downstream BMP, a constructed wetlands in Arcona Phase 8.1.
- Stormwater management is fulfilled on the Arcona property. Runoff from the site meets DEP standards without use of off-site SCMs.
- This off-site discharge analysis provides the information to demonstrate compliance with the Pennsylvania Clean Streams Law and 25 Pa. Code §§ 102.4(c) & 102.8(f)(15).
- This off-site discharge analysis shows that accelerated erosion will not occur on adjoining properties between the site and the surface waters.

ADJOINERS TABLE		
ADDRESS	LOT OWNER	PARCEL ID
1340 Rossmoyne Road	Ruth D. Leshner	13-10-0256-031

SOILS LIST		
Symbol	Description	K-Factor
EdB	Edom silty clay loam	0.20
Pe	Penlaw silt loam	0.37

Sheet Number:
31 of 33
Project Number:
15-100-32
Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9
Lower Allen Township - Cumberland County, PA
CHARTER Homes & Neighborhoods

Project Manager:
DAVID B. KEEGERIZE PE
Project Engineer:
G. MITCHELL KING PE, PLS
Project Surveyor:
THOMAS K. PHILLIPS PLS
Drafting:
D TURNER
Checked by:
—
Scale:
AS NOTED

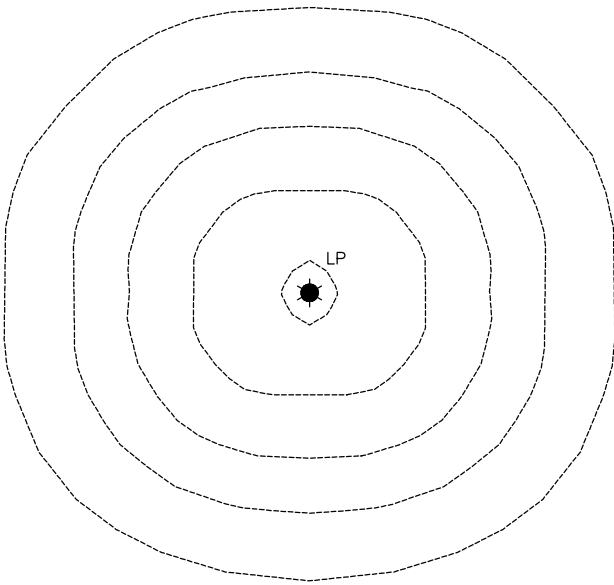
Seal:
Professional Engineer
G. MITCHELL KING
No. 151216
Exp. 12/31/2025

TOWNE SQUARE
ENGINEERING
Civil Engineers & Land Planners
313 W. Liberty St., Suite 241
Lancaster, PA 17603
Phone: (717) 283-4538
info@townesquareengineering.com

10/27/25
9/4/25
8/18/25
3/18/25
1/20/25
12/18/24
10/17/24
DATE
ADDRESSED 10/22/25 TWP. ENGR. LTR.
REV. PER PA DEP LETTER DATED 8/26/25
REV. PER CHAN
REV. PER CCOD EMAIL DATED 3/14/25
REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25
REV. FOR T.E. LTR., 21 SLOPES, P&WC PLAN
REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24
REVISIONS

Section Number:
ES-6

10/30/2025 4:36 PM
L:\15-100-32\SHEETS\PRELIM-FINAL\31 ES-06.DWG



ISOFOOTCANDLE LINES OF
HORIZONTAL ILLUMINANCE
POLE HEIGHT — 11'
NOT TO SCALE

OUTDOOR LIGHTING

ACORN

LUMINAIRE: Acorn, black or green

LAMP SIZE: 5,800 lumen (70 watt) or 9,500 lumen (100 watt)

LAMP TYPE: High-pressure sodium

POLE: 11' or 13 foot black or green fiberglass, boulevard style, style, mounted on a concrete foundation

ALTERNATE POLE: 14 foot round black steel or spun aluminum

ELECTRIC SUPPLY: Underground

RATE: Low-mount underground, high-pressure sodium (SHS)

Want to know more about the PPL Electric Utilities Outdoor Lighting Program?

Call your PPL Electric Utilities representative or PPL Electric Utilities Customer Service Answer Line at 800-942-5775 (OAL/PPL) during business hours 9 a.m. to 5 p.m.

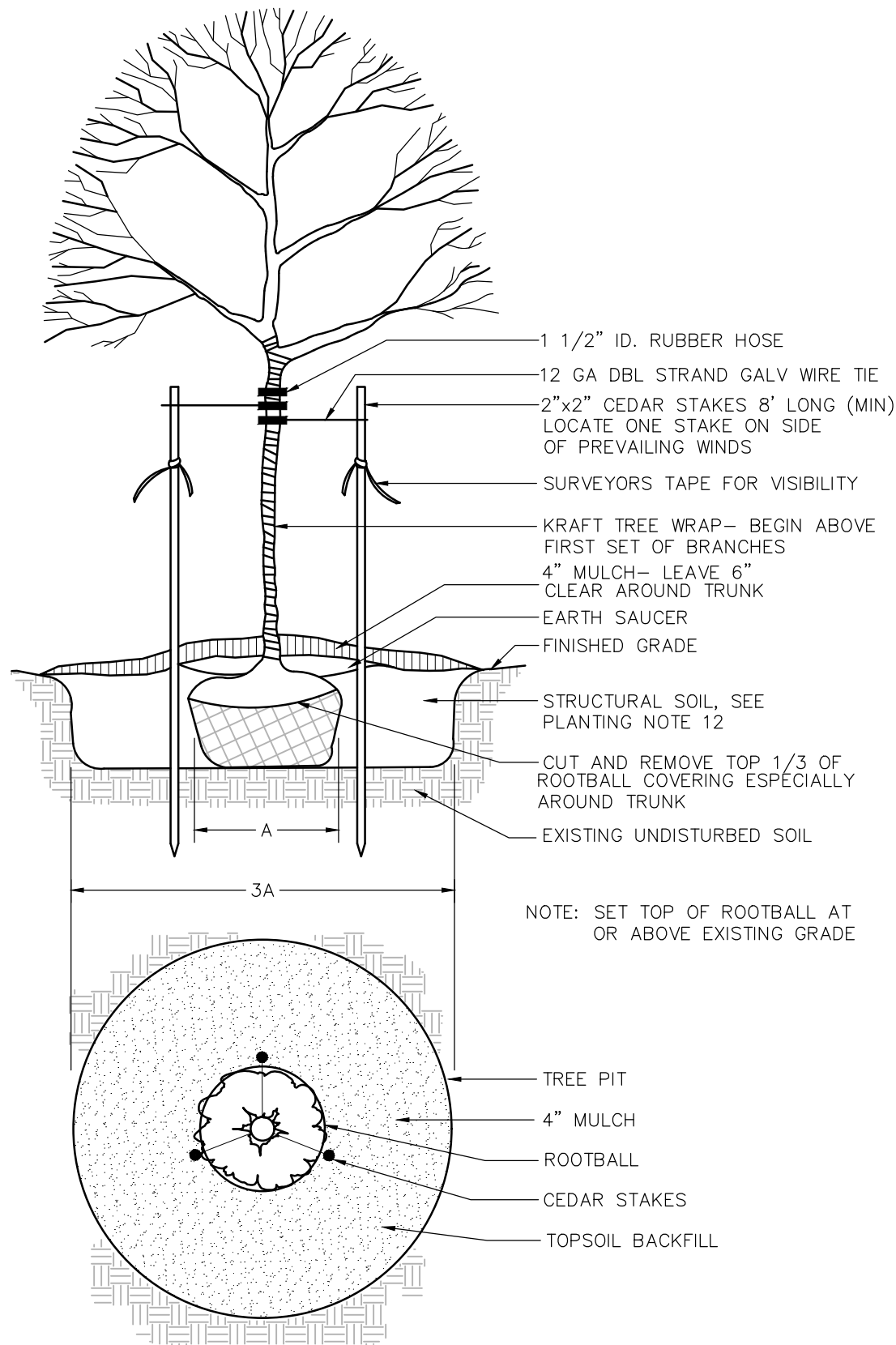
ACORN

- LAMP SIZE: 5,800 LUMEN (70 WATT)
- POLE HEIGHT: 11'
- POLE COLOR: BLACK

A
LA-2
TYPICAL LIGHT - ACORN / PPL
NOT TO SCALE

NOTE:
STREET LIGHT FIXTURES SHALL MEET LAMP
AND WIRING STANDARDS ESTABLISHED BY PPL.

(SEE DETAIL A/LA-2)



C
LA-2
DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE

LANDSCAPE NOTES FOR ARCONA PHASE 9:

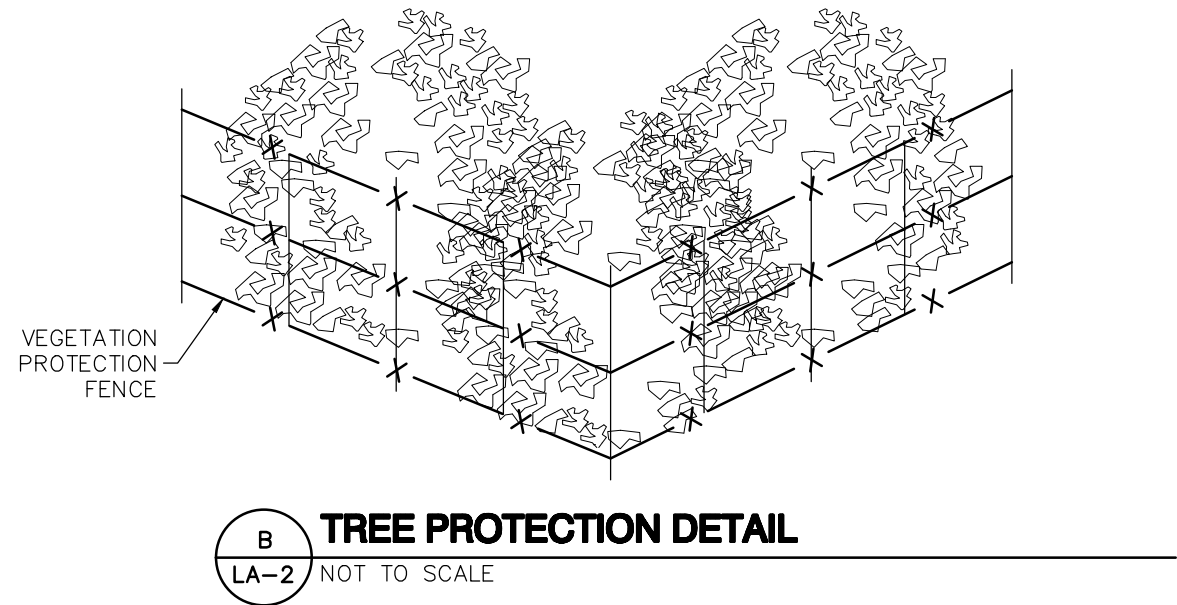
- The landscaping, screening, buffering, street trees, street lights, outdoor lighting, neighborhood entry monuments and other amenities depicted on this Landscaping Plan are intended to demonstrate material compliance with Lower Allen Zoning Ordinance §220-200, §220-201, §220-202 and Lower Allen Subdivision & Land Development Ordinance §192-58 and §192-63 C and to serve as a general guide. All locations shown are approximate and will be subject to adjustments and modifications by Applicant to fit actual site conditions, resolve additional conflicts (especially with utilities), and to improve design and aesthetics. Specific locations, species, and other specifics may be altered and/or substituted provided that the minimum requirements of applicable ordinances are still met. Any alteration and/or substitution to this Landscaping Plan that does not comply with the minimum requirements of applicable ordinances shall not be made unless all applicable waivers, modification or variances are obtained from the Board or Commissioners or Zoning Hearing Board, as applicable. Lower Allen Township reserves the right to inspect construction to verify compliance with Township ordinances and the intent of this Landscape Plan.
- Applicant shall be required to meet the minimum total number of street trees required per this plan albeit in differing locations for necessary and permitted adjustments.
- The precise locations and geometrical layout of walking trails ("trail") as depicted on this Landscaping Plan will be altered by Applicant to fit actual site conditions, resolve additional conflicts (especially with utilities), and to improve design and aesthetics. However, the point(s) of origin(s) and terminus(es) as well as the overall length of the trail(s) shall remain materially the same. The width and construction specification (material/surface, depth of pavement) of the trail(s) shall not be altered. The Applicant hereby grants an easement for public access over all trails shown on this plan. Each trail shall be a hard surface, and shall be not less than six (6) feet wide.
- Street trees shall not be planted on sanitary sewer or water laterals.
- All underground utilities shown are approximate.
- Contractor to field verify locations of all underground utilities prior to the start of construction.
- Trees which have died or have become diseased or pest-ridden within 18 months from the time of planting shall be replaced by the developer.

PLANTING NOTES:

- All trees and shrubs shall be as specified, and shall be installed in accordance with the details and comments noted on the Drawings. No plant substitutions unless approved by the owner and/or the Township.
- The contractor shall furnish, deliver and install all plant materials. All plant materials shall have a normal habit of growth and shall be free of disease, insects or insect eggs. Plants shall conform to the American Association of Nurserymen's *American Standard for Nursery Stock* (latest edition).
- Inspection of Planting Beds** – The contractor shall inspect all planting areas before any top-soiling or planting is begun to insure that adequate drainage exists. If any areas to be landscaped show evidence of poor drainage, the Contractor shall notify the Owner immediately for corrective action. Any plant material that dies due to poor or inadequate drainage shall be the responsibility of the Landscape Contractor.
- The Contractor shall notify the owner and request an approval all plant materials. If requested by owner, stake plant locations prior to installation.
- All plant material shall be guaranteed for eighteen (18) months from the date of completion of installation.
- Any plant material that does not survive within initial planting shall be removed and replaced within thirty (30) days during the subsequent planting season.
- The Contractor shall maintain all plantings prior to the beginning of the guarantee period by watering, fertilizing, disease control, pruning, weeding, etc. so as to keep the completed work and/or uncompleted work in a clean and neat condition at all times. An additional maintenance period duration should be agreed to by the owner, if requested.
- Prepare soils according to specifications and details. Remove rocks and debris.
- Finish grade and "firm" the soil to avoid excessive settling. Caution: Avoid over compaction, minimize activities over newly cultivated soils.
- Mulch planting beds with properly composted mulch to a depth of no more than 2". Keep mulch back 2" from the base of the trunk.
- Pre-emergent herbicide such as "Eptam" shall be applied to all planting beds according to manufacture's recommendation (prior to placement of mulch). A second application of pre-emergent herbicide shall also be included as part of this work.
- Street trees shall be planted in a bed of structural soil. The structural soil shall be CU-Structural Soil as supplied by an AMEREO – licensed company. A minimum of two cubic feet of structural soil per square foot of tree crown area shall be provided. (Use = 620 c.f. of CU-Soil for Autumn Brilliance Service Berry, Flowering Cherry and Choke Cherry, and = 1,450 c.f. of CU-Soil for Japanese Tree Lilac).

NOTES:

- MATERIAL – Fence. Acceptable, undamaged, standard picket snow fence or other acceptable, highly visible, weather resistant, easily maintained fencing that provides a substantial barrier.
- Posts. High carbon channel steel, 7'(feet) in length. Designed to drive satisfactorily into the ground and with at least 10 fence holding lugs of rivet type. Other posts may be accepted by the engineer.
- CONSTRUCTION – Fence desirable wooded areas, individual trees, and shrubs designated for protection, before beginning other general project work. Where directed, fence other areas to be protected. Do not stockpile materials under, or within, protected vegetation areas. Prohibit construction traffic within protected areas. Place the fence at the drip line of trees or plants, but avoid causing root damage when driving posts. Replace damaged fence in kind within 24 hours of damage. Remove temporary protection, when directed.
- A PROTECTION FENCE WILL BE SET UP AT THE DRIP LINE OF ANY WOODY VEGETATION THAT IS WITHIN 25' OF ANY IMPROVEMENTS AS SHOWN ON PLAN.



B
LA-2
TREE PROTECTION DETAIL
NOT TO SCALE

Sheet Number:
33 of 33

Project Number:
15-100-32

Date:
MAY 17, 2024

ARCONA NEIGHBORHOOD 9

Lower Allen Township - Cumberland County, PA
CHARTER Homes & Neighborhoods

LANDSCAPING DETAILS & NOTES

Project Manager:
DAVID B. KEGERIZE PE

Drafting:
D. TURNER

Project Engineer:
G. MITCHELL KING PE, PLS

Checked by:
—

Project Surveyor:
THOMAS K. PHILLIPS PLS

Scale:
1"=50'

Seal:

TOWNE
SQUARE
ENGINEERING

313 W. Liberty St.,
Suite 241
Lancaster, PA 17603
Phone: (717) 283-4538

Civil Engineers & Land Planners

10/27/25
9/4/25
8/16/25
1/20/25
12/16/24
10/17/24

ADDRESSED 10/22/25 TWP. ENGR. LTR.
REV. PER PA DEP LETTER DATED 6/26/25
REV. PER CHAN
REV. PER CCOD EMAIL DATED 3/14/25
REV. TO ADDRESS T.E. REV. LTR. DATED 1/20/25
REV. FOR T.E. LTR., 2-1 SLOPES. PANC PLAN
REV. TO ADDRESS T.E. REV. LTR. DATED 7/31/24

DATE
REVISIONS

Section Number:
LA-2

10/30/2025 4:33 PM
L:\15-100-32\32\SHEETS\PRELIM-FINAL\33 LA-02.DWG