UPPER UWCHLAN TOWNSHIP MUNICIPAL AUTHORITY

CHESTER COUNTY, PENNSYLVANIA

PHASE II COLLECTION SYSTEM IMPROVEMENTS AND EAGLE MANOR PUMP STATION

UNDERGROUND UTILITY LINE PROTECTION ACT

ARRO CONSULTING, INC. HEREBY STATES THAT, PURSUANT TO THE PROVISIONS OF ACT NO. ACT 287 OF 1974 AS AMENDED BY ACT 121 OF 2008 OF THE PENNSYLVANIA LEGISLATURE, IT HAS COMPLIED WITH THE DESIGNER'S DUTIES PROVISIONS OF THE ACT IN PREPARING THESE DRAWINGS REQUIRING EXCAVATION OR DEMOLITION WORK AT SITES WITHIN THE POLITICAL SUBDIVISION(S) SHOWN ON THE DRAWINGS.

ARRO CONSULTING, INC. DOES NOT MAKE ANY REPRESENTATION, WARRANTY OR ASSURANCE OR OTHERWISE GUARANTEE THAT THE INFORMATION RECEIVED PURSUANT TO SAID ACT FROM THE FACILITY OWNER, AS THE TERM FACILITY OWNER IS DEFINED IN THE ACT, AS REFLECTED ON THESE DRAWINGS IS CORRECT OR ACCURATE.

DATE: 12/08/14 BY: BENJAMIN ELLER

PA ONE CALL SERIAL NO: 20143421448

PENNSYLVANIA ONE CALL SYSTEM, INC. 1-800-242-1776 STOP! CALL BEFORE YOU DIG!

THE REFERENCED ACT REQUIRES NOTIFICATION BY DESIGNERS, CONTRACTORS, OR ANY OTHER PARTY INVOLVED IN DISTURBING THE EARTH'S SURFACE ANYWHERE IN THE COMMONWEALTH.

UTILITY LIST

COLUMBIA GAS TRANSMISSION LLC
1470 POORHOUSE ROAD
DOWNINGTOWN, PA. 19335
CONTACT: RODNEY WEITZEL
EMAIL: mweitzel@nisource.com

AQUA PENNSYLVANIA INC
762 W LANCASTER AVE
BRYN MAWR, PA. 19010
CONTACT: STEVE PIZZI
EMAIL: sbpizzi@aquaamerica.com

BUCKEYE PARTNERS
FIVE TEK PARK 9999 HAMILTON BLVD
BREINGSVILLE, PA. 18031
CONTACT: BETH AUMAN
EMAIL: bauman@buckeye.com

COMCAST CABLE COMMUNICATIONS INC
1004 CORNERSTONE BLVD
DOWNINGTOWN, PA. 19335
CONTACT: LEE MCGARRITY
EMAIL: lee_mcgarrity@cable.comcast.com

PECO ENERGY
C/O USIC 450 S HENDERSON RD SUITE B
KING OF PRUSSIA, PA. 19406
CONTACT: GAVIN HEWITT
EMAIL: gavinhewitt@usicinc.com
NEON TRANSCOM
196 VAN BUREN ST
HERNDON, VA. 20170
CONTACT: MIKE BRODAR
EMAIL: mbrodar@lightower.com

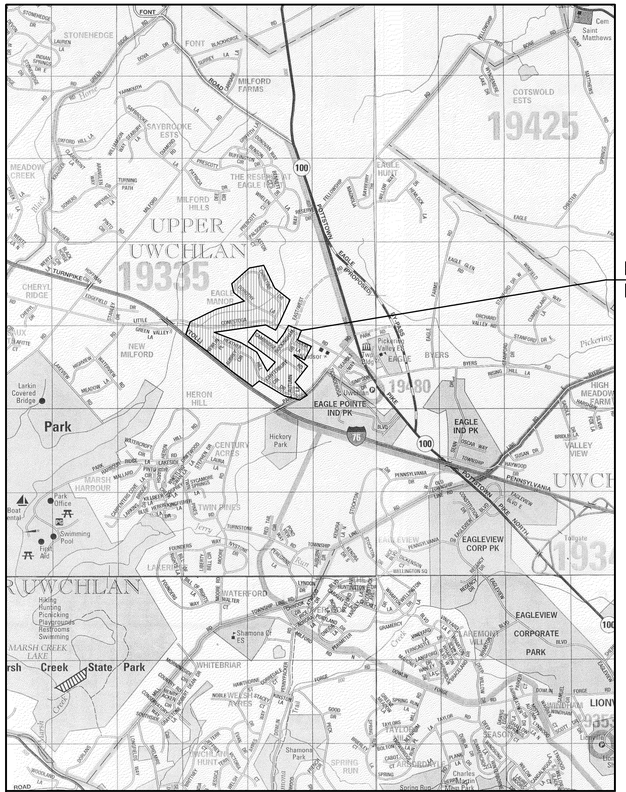
SUNOCO PIPELINE LP
525 FRITZTOWN RD
SINKING SPRING, PA. 19608
CONTACT: ONE CALL DEPARTMENT
EMAIL: tlhoffman@sunocologistics.com

UPPER UWCHLAN TWP/
UPPER UWCHLAN MUN AUTH
140 POTTSTOWN PIKE
CHESTER SPRINGS, PA. 19425
CONTACT: MIKE HECKMAN
EMAIL: mheckman@upperuwchlan-pa.gov

VERIZON PENNSYLVANIA LLC
180 SHEREE BLVD STE 2100 ROOM N/A
EXON, PA. 19341
CONTACT: KELLY BLOUNT
EMAIL: kelly.b.blount@verizon.com

GENERAL NOTES

1. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES AND STRUCTURES BEFORE COMMENCING WORK.
2. THE CONTRACTOR MUST CONTACT THE PENNSYLVANIA ONE-CALL SYSTEM AT 1-800-242-1776 AT LEAST THREE WORKING DAYS PRIOR TO THE START OF EXCAVATION OR DEMOLITION WORK TO HAVE ALL UNDERGROUND UTILITIES MARKED IN THE AREA.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ANY DEBRIS AND FLUSH OUT ALL EXISTING AND NEW STORM DRAINAGE FACILITIES WITHIN THE PROJECT LIMITS AT THE COMPLETION OF THE CONSTRUCTION.
4. THE CONTRACTOR SHALL MAKE PROVISIONS TO PROTECT ALL TREES, SHRUBS, MAILBOXES AND SIGNS. ALL AREAS SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RESTORATION, INCLUDING PAVEMENT, LAWN, DRIVEWAY, SIDEWALK, ETC.
5. PROPERTY LINES SHOWN IN APPROXIMATE LOCATION.
6. GRAVITY LATERALS SHALL BE INSTALLED TO EACH EXISTING DWELLING UNIT. ALL LATERAL CONNECTIONS SHALL BE FIELD LOCATED IN COORDINATION WITH PROPERTY OWNERS.
7. SEED ALL SLOPES AND OTHER DISTURBED AREAS. REFER TO PENNDOT SPECIFICATIONS 2011, SECTION 804.3 FOR THE APPROPRIATE SEEDING FORMULA.
8. IF AT ANY POINT IN A RUN OF PIPE THE DEPTH EXCEEDS 12-FT, THE ENTIRE RUN OF PIPE SHALL BE SDR-21 INCLUDING WYE'S, TEE'S AND LATERALS. ALL PIPE LESS THAN 12-FT DEPTH SHALL BE SDR-35.
9. ALL MANHOLES LOCATED WITHIN SEEDED AREAS SHALL BE WATERTIGHT.



LOCATION MAP

DRAWING INDEX

SHEET NO.	DWG. NO.	TITLE
GENERAL		
1 OF 42	G-1	TITLE SHEET
2 OF 42	G-2	KEY MAP
CIVIL		
3 OF 42	C-1	CHRISTINE DRIVE – PLAN AND PROFILE – STA 0+00 TO STA 6+00
4 OF 42	C-2	CHRISTINE DRIVE – PLAN AND PROFILE – STA 6+00 TO STA 12+50
5 OF 42	C-3	CHRISTINE DRIVE – PLAN AND PROFILE – STA 12+50 TO STA 19+00
6 OF 42	C-4	CHRISTINE DRIVE – PLAN AND PROFILE – STA 19+00 TO STA 25+50
7 OF 42	C-5	DOROTHY LANE – PLAN AND PROFILE – STA 0+00 TO STA 5+00
8 OF 42	C-6	DOROTHY LANE – PLAN AND PROFILE – STA 5+00 TO STA 10+50
9 OF 42	C-7	DOROTHY LANE – PLAN AND PROFILE – STA 10+50 TO STA 15+00
10 OF 42	C-8	SAN. SEWER EM-05 TO EM-11 – PLAN AND PROFILE – STA 0+00 TO STA 6+00
11 OF 42	C-9	CAMBRIDGE ROAD – PLAN AND PROFILE – STA 0+00 TO STA 5+50
12 OF 42	C-10	CAMBRIDGE ROAD – PLAN AND PROFILE – STA 5+50 TO STA 11+50
13 OF 42	C-11	CAMBRIDGE ROAD – PLAN AND PROFILE – STA 11+50 TO STA 13+66
14 OF 42	C-12	BUCKINGHAM DRIVE – PLAN AND PROFILE – STA 0+00 TO STA 5+50
15 OF 42	C-13	BUCKINGHAM DRIVE – PLAN AND PROFILE – STA 5+50 TO STA 11+67
16 OF 42	C-14	TUDOR LANE – PLAN AND PROFILE – STA 0+00 TO STA 5+08
17 OF 42	C-15	HEATHER HILL DRIVE – PLAN AND PROFILE – STA 0+00 TO STA 5+50
18 OF 42	C-16	HEATHER HILL DRIVE – PLAN AND PROFILE – STA 5+50 TO STA 11+50
19 OF 42	C-17	HEATHER HILL DRIVE – PLAN AND PROFILE – STA 11+50 TO STA 17+50
20 OF 42	C-18	HEATHER HILL DRIVE – PLAN AND PROFILE – STA 17+50 TO STA 23+50
21 OF 42	C-19	HEATHER HILL DRIVE – PLAN AND PROFILE – STA 23+50 TO STA 27+34
22 OF 42	C-20	NEWLIN PLACE – PLAN AND PROFILE – STA 0+00 TO STA 4+46
23 OF 42	C-21	AUBREY CIRCLE – PLAN AND PROFILE – STA 0+00 TO STA 4+74
24 OF 42	C-22	CANTERBURY CIRCLE – PLAN AND PROFILE – STA 0+00 TO STA 4+00
25 OF 42	C-23	AUTUMN LANE – PLAN AND PROFILE – STA 0+00 TO STA 2+80
26 OF 42	C-24	SAN. SEWER HH-30 TO HH-36 – PLAN AND PROFILE – STA 3+50 TO STA 8+50
27 OF 42	C-25	SAN. SEWER HH-36 TO HH-06 – PLAN AND PROFILE – STA 8+50 TO STA 11+50
28 OF 42	C-26	SAN. SEWER HH-07 TO HH-09 – PLAN AND PROFILE – STA 11+50 TO STA 17+50
29 OF 42	C-27	SAN. SEWER HH-10 TO HH-11 – PLAN AND PROFILE – STA 17+50 TO STA 23+50
30 OF 42	C-28	SAN. SEWER HH-12 TO HH-21 – PLAN AND PROFILE
31 OF 42	C-29	SAN. SEWER HH-28 TO WP-04 – PLAN AND PROFILE – STA 3+00 TO STA 8+56
32 OF 42	C-30	SAN. SEWER HH-32 TO HH-30 – PLAN AND PROFILE – STA 5+50 TO STA 9+31
33 OF 42	C-31	SAN. SEWER LC-01 TO LC-02 – PLAN AND PROFILE – STA 0+00 TO STA 5+50
34 OF 42	C-32	SAN. SEWER LC-03 TO LC-05 – PLAN AND PROFILE – STA 5+50 TO STA 11+50
35 OF 42	C-33	SAN. SEWER LC-05 TO LC-06 – PLAN AND PROFILE – STA 11+50 TO STA 15+50
36 OF 42	C-34	SITE DETAILS – GRAVITY SEWER
37 OF 42	C-35	SITE DETAILS – RESTORATION & MISCELLANEOUS
38 OF 42	C-36	SITE DETAILS – HIGHWAY OCCUPANCY AND TRAFFIC
39 OF 42	C-37	HIGHWAY OCCUPANCY AND TRAFFIC– DETOUR PLAN
40 OF 42	C-38	COLUMBIA GAS TRANSMISSION LLC – RIGHT-OF-WAY USE RESTRICTIONS – SPECIFICATIONS
MECHANICAL		
41 OF 42	M-1	EAGLE MANOR PUMP STATION – PLAN, SECTIONS AND DETAILS
ELECTRICAL		
42 OF 42	E-1	EAGLE MANOR PUMP STATION – PLAN, SINGLE LINE DIAGRAM & DETAILS
POST CONSTRUCTION STORMWATER MANAGEMENT/EROSION AND SEDIMENT CONTROL PLAN		
1 OF 15		TITLE SHEET
2 OF 15		E&S – PROJECT LAYOUT SHEET
3 OF 15		E&S – EXISTING CONDITIONS & DEMOLITION PLAN
4 OF 15		E&S – PROPOSED CONDITION PLAN
5 OF 15		E&S – CHRISTINE DRIVE STREAM CROSSING – PLAN & PROFILE
6 OF 15		E&S – DOROTHY LANE STREAM CROSSING – PLAN & PROFILE
7 OF 15		E&S – NOTES
8 OF 15		E&S – NOTES AND DETAILS
9 OF 15		PCSM – SENSITIVE RESOURCES PLAN
10 OF 15		PCSM – EXISTING CONDITIONS AND DEMOLITION PLAN
11 OF 15		PCSM – PROPOSED CONDITIONS PLAN
12 OF 15		PCSM – DRAINAGE AREA MAP
13 OF 15		PCSM – RESTORATION PLAN
14 OF 15		PCSM – NOTES
15 OF 15		PCSM – NOTES AND DETAILS

NO	REVISION	DATE	BY	APP.
NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

SEAL
NOT FOR BIDDING OR CONSTRUCTION
SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

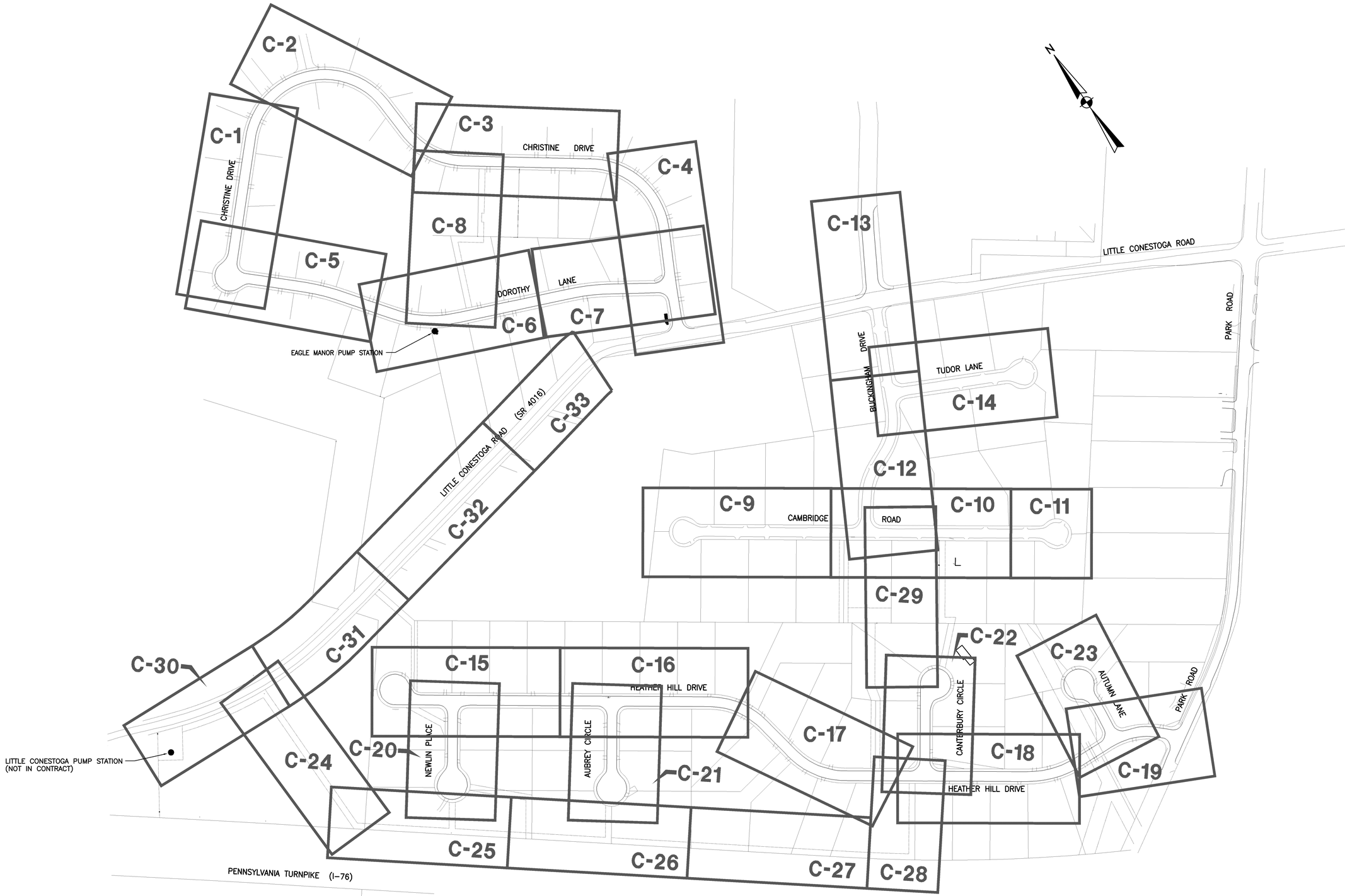
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
TITLE SHEET

SCALE	DWG. NO.
AS NOTED	G-1
PROJECT NO. 10270.06	SHEET NO. 1 OF 42
REV.	S-4440A

Dwg. Name: 10270507.DWG Plotted: 7/6/2015 10:48 AM



NO	REVISION	DATE	BY	APP.	NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED:
DRAWN: BLE	CHECKED:
DATE: JULY 2014	SURVEY DATE:
	FIELD BOOK:

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

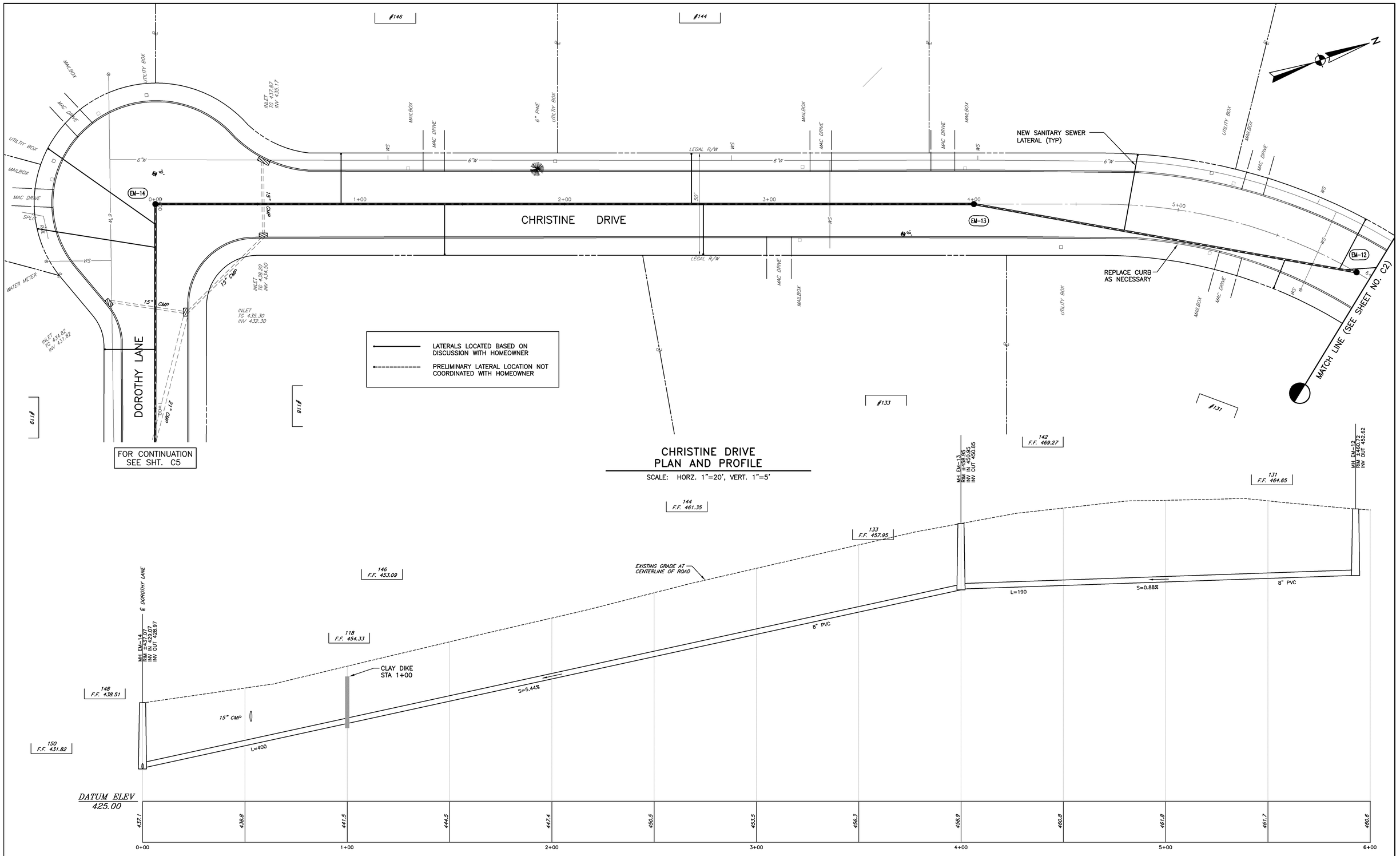
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: KEY MAP

SCALE	DWG. NO.
1"=150'	G-2
PROJECT NO. 10270.06 / SHEET NO. 2 OF 42 / REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:48 AM



CHRISTINE DRIVE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED:
DRAWN: BLE	CHECKED:
DATE: JULY 2014	SURVEY DATE:
	FIELD BOOK:

NOT FOR BIDDING
OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

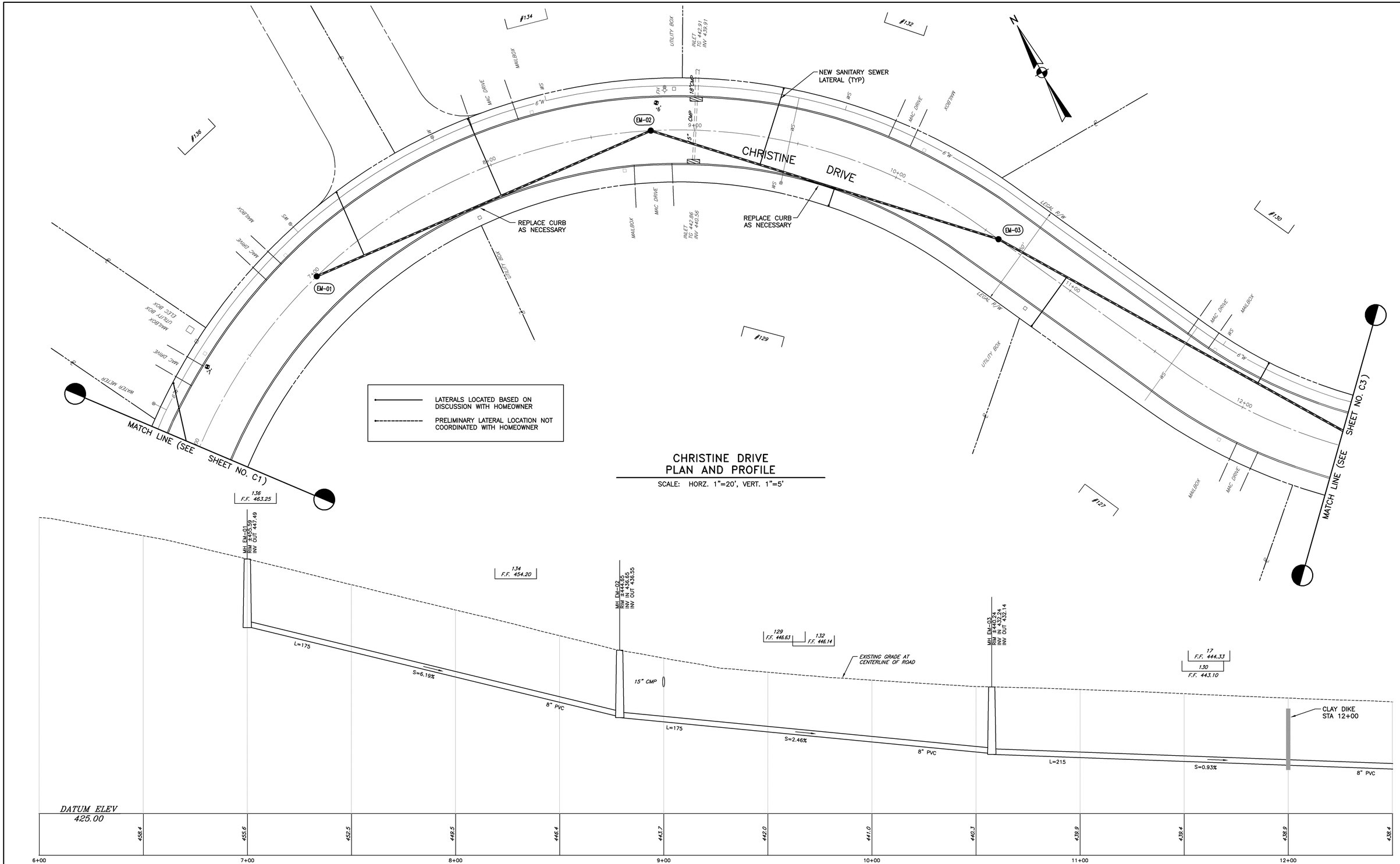
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: CHRISTINE DRIVE
PLAN AND PROFILE
STA 0+00 TO STA 6+00

SCALE	DWG. NO.
AS NOTED	C-1
PROJECT NO. 10270.06	SHEET NO. 3 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:48 AM



CHRISTINE DRIVE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED
DRAWN: BLE	CHECKED
DATE: JULY 2014	SURVEY DATE
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

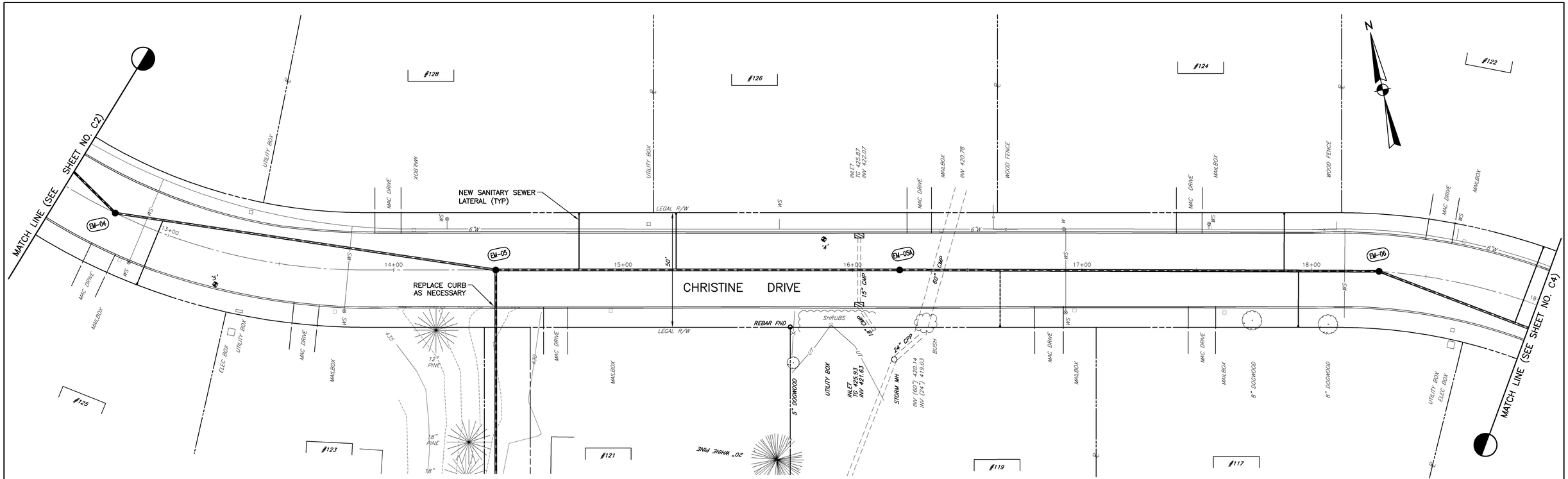
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
CHRISTINE DRIVE
PLAN AND PROFILE
STA 6+00 TO STA 12+50

SCALE	DWG. NO.
AS NOTED	C-2
PROJECT NO. 10270.06 / SHEET NO. 4 OF 42 / REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:48 AM

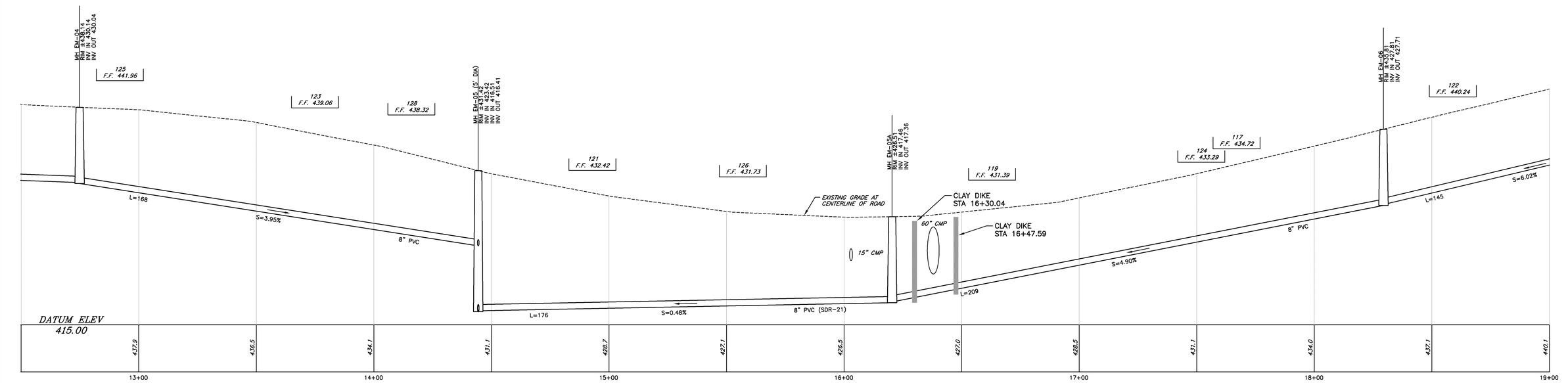


CHRISTINE DRIVE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

LATERALS LOCATED BASED ON DISCUSSION WITH HOMEOWNER

PRELIMINARY LATERAL LOCATION NOT COORDINATED WITH HOMEOWNER



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED:
DRAWN: BLE	CHECKED:
DATE: JULY 2014	SURVEY DATE:
	FIELD BOOK:

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

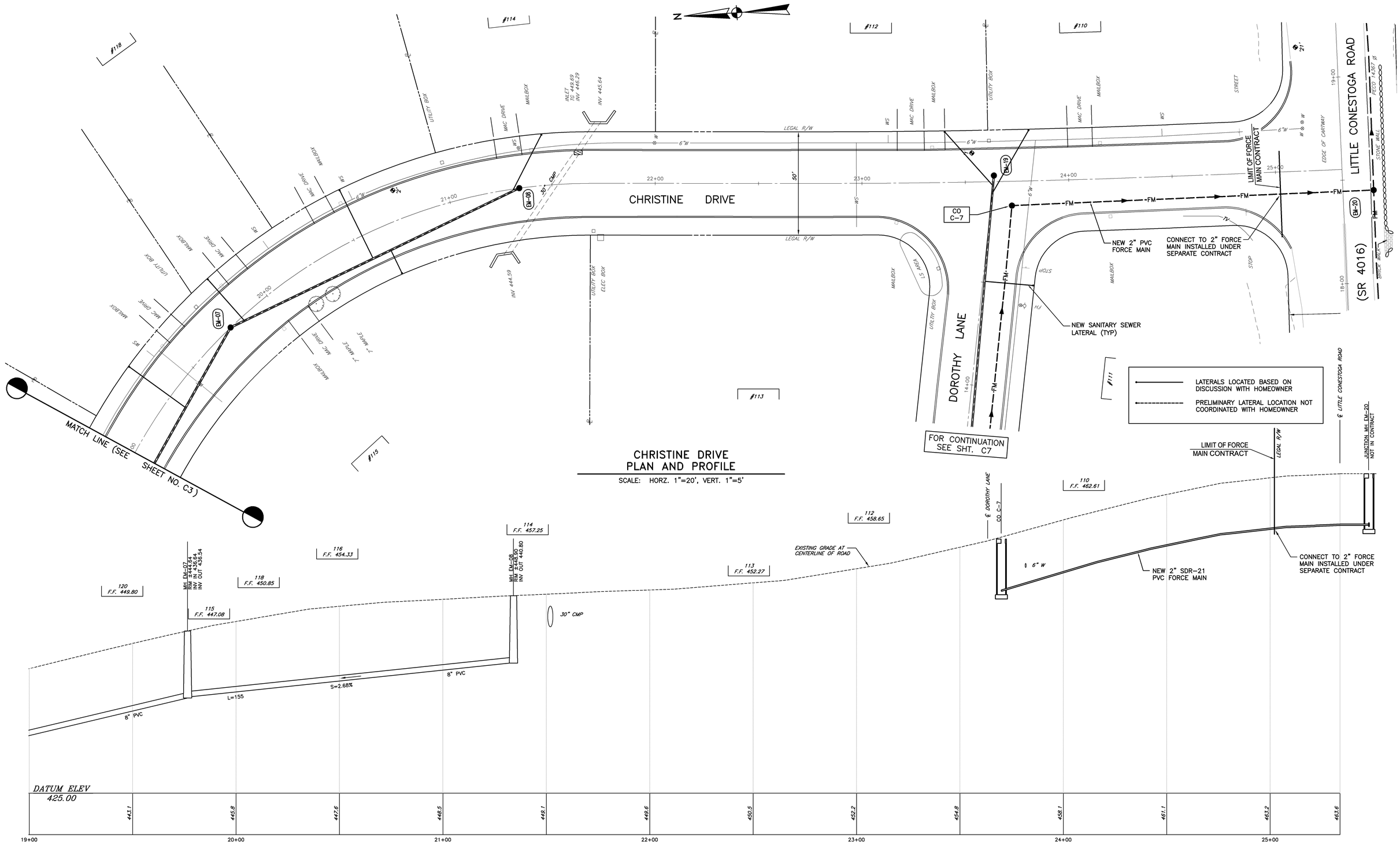
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: CHRISTINE DRIVE
PLAN AND PROFILE
STA 12+50 TO STA 19+00

SCALE	DWG. NO.
AS NOTED	C-3
PROJECT NO. 10270.06	SHEET NO. 5 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:48 AM



CHRISTINE DRIVE PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

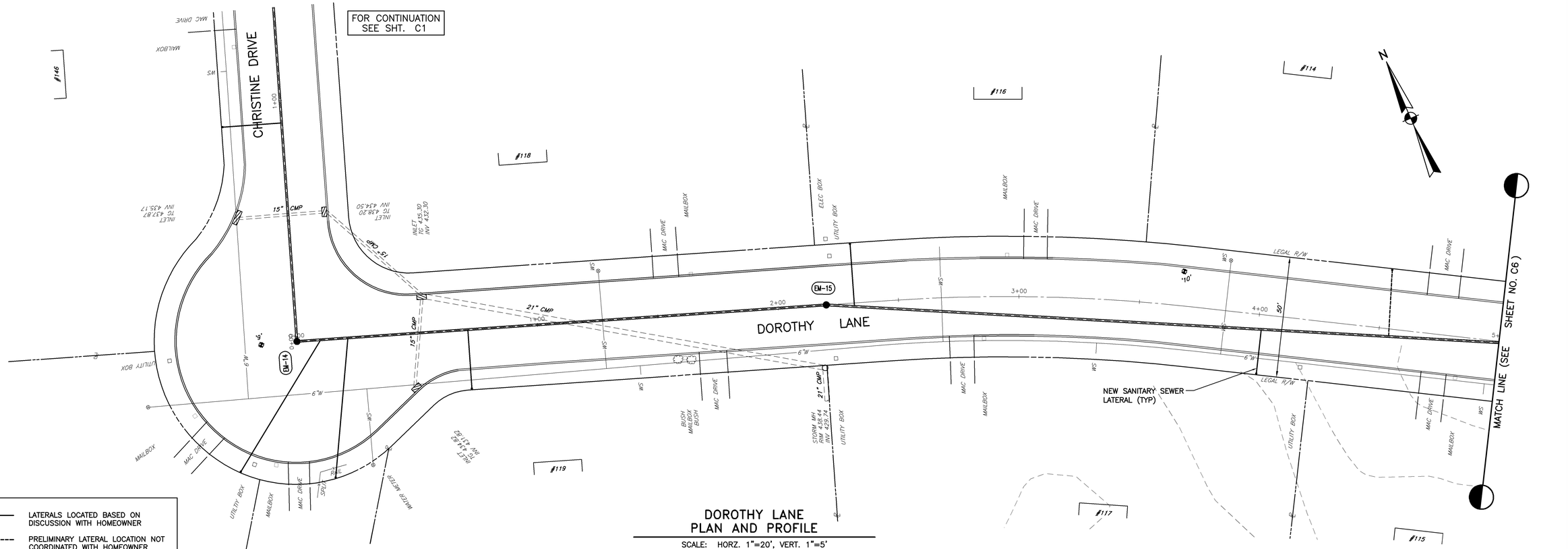
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
CHRISTINE DRIVE
PLAN AND PROFILE
STA 19+00 TO STA 25+50

SCALE	DWG. NO.
AS NOTED	C-4
PROJECT NO. 10270.06	SHEET NO. 6 OF 42
REV.	S-4440A

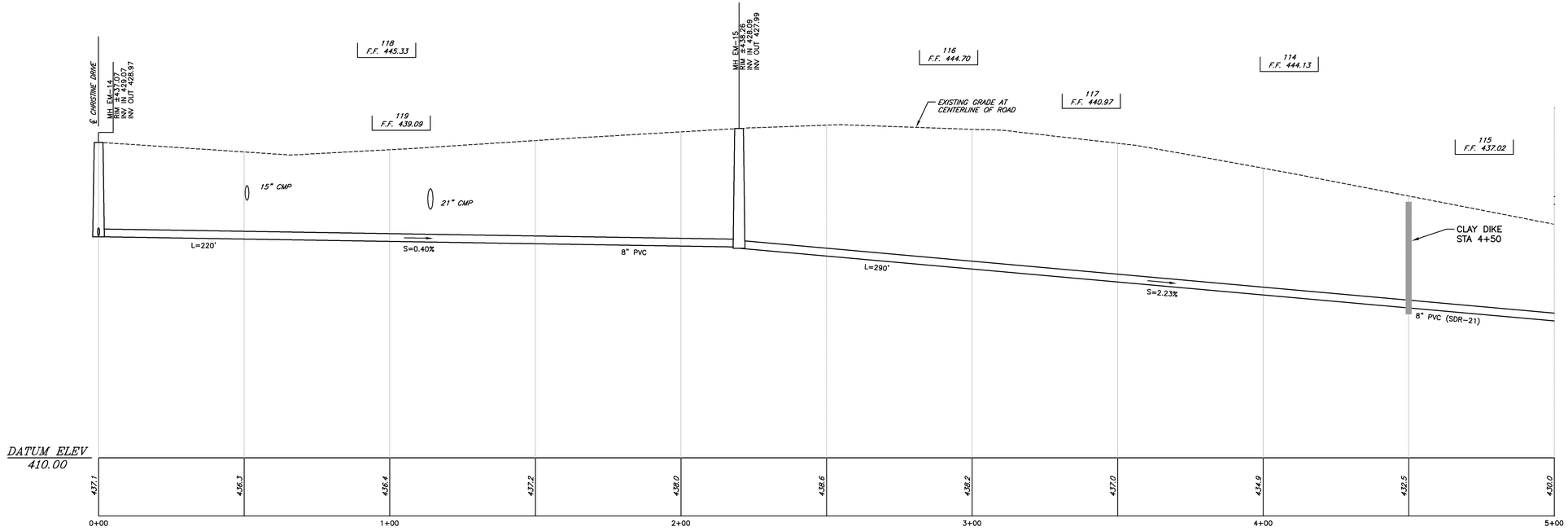
Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM



- LATERALS LOCATED BASED ON DISCUSSION WITH HOMEOWNER
- PRELIMINARY LATERAL LOCATION NOT COORDINATED WITH HOMEOWNER

DOROTHY LANE PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.
NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

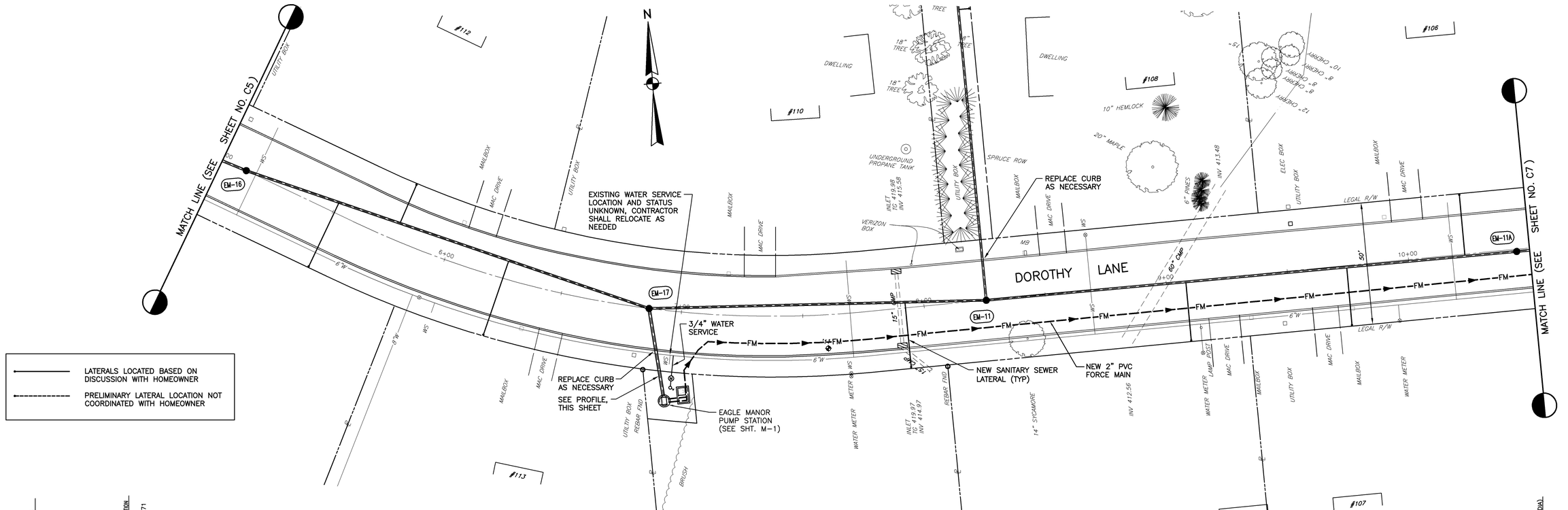
ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
DOROTHY LANE
PLAN AND PROFILE
STA 0+00 TO STA 5+00

SCALE	DWG. NO.
AS NOTED	C-5
PROJECT NO. 10270.06	SHEET NO. 7 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM

FOR CONTINUATION SEE SHT. C8

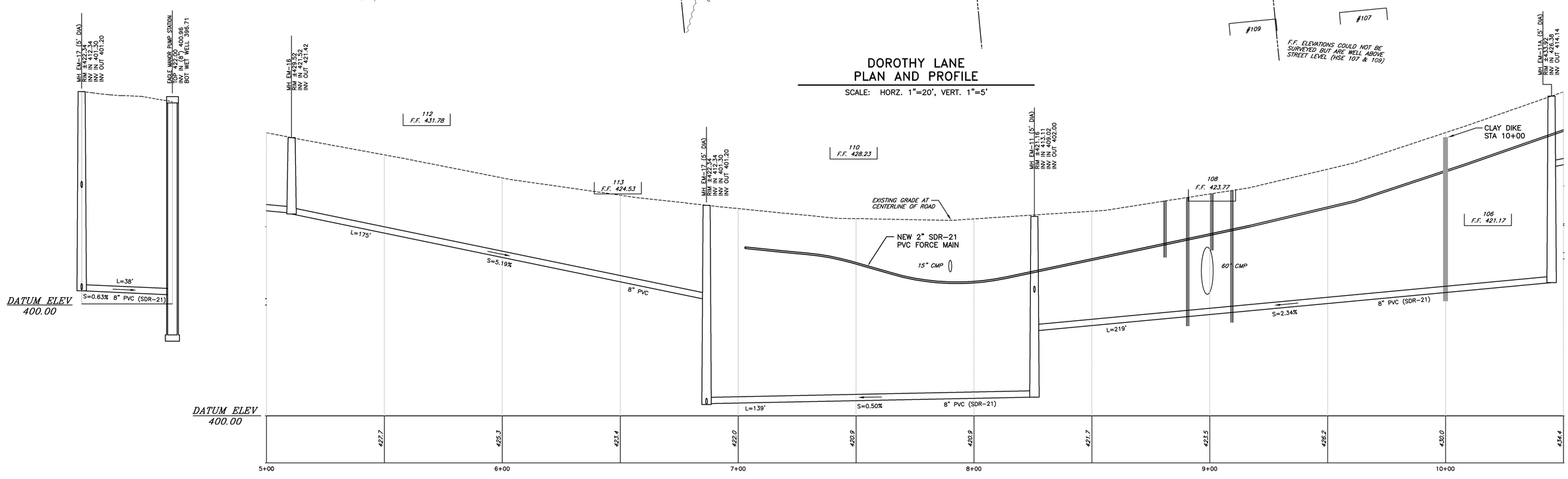


LATERALS LOCATED BASED ON DISCUSSION WITH HOMEOWNER

PRELIMINARY LATERAL LOCATION NOT COORDINATED WITH HOMEOWNER

DOROTHY LANE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED:
DRAWN: BLE	CHECKED:
DATE: JULY 2014	SURVEY DATE:
	FIELD BOOK:

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

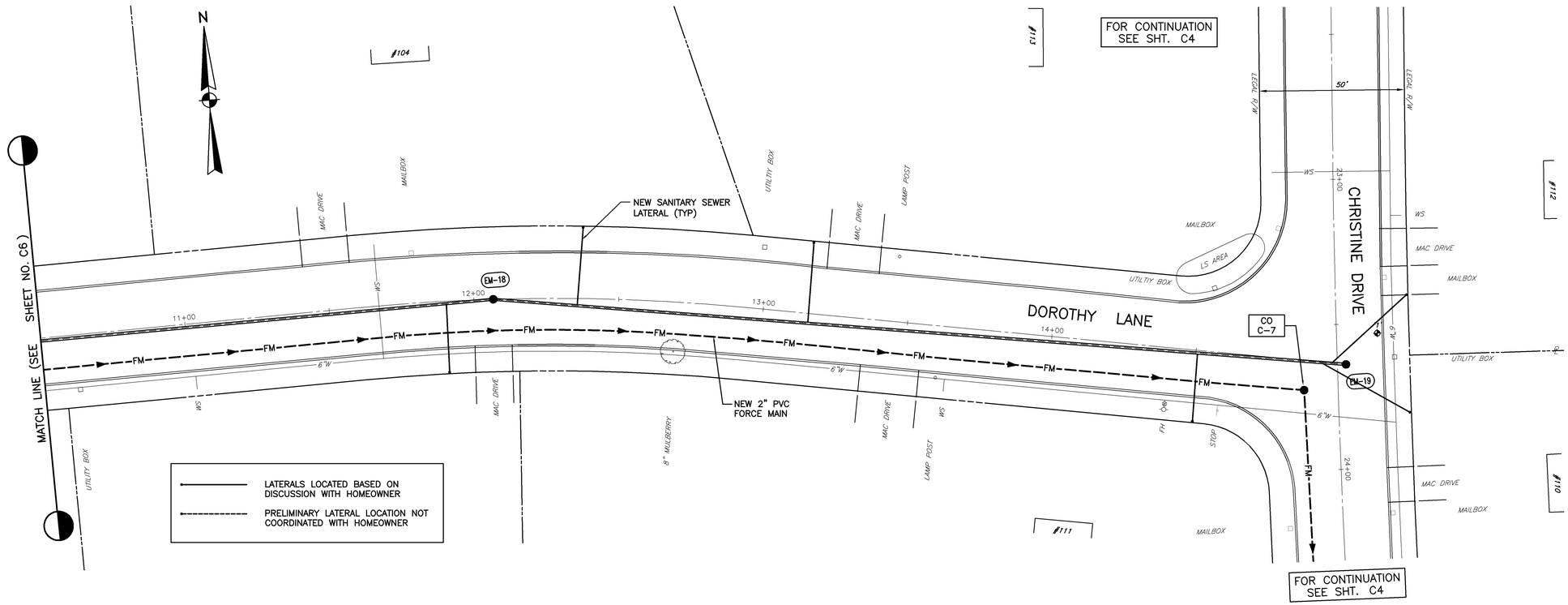
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
DOROTHY LANE
PLAN AND PROFILE
STA 5+00 TO STA 10+50

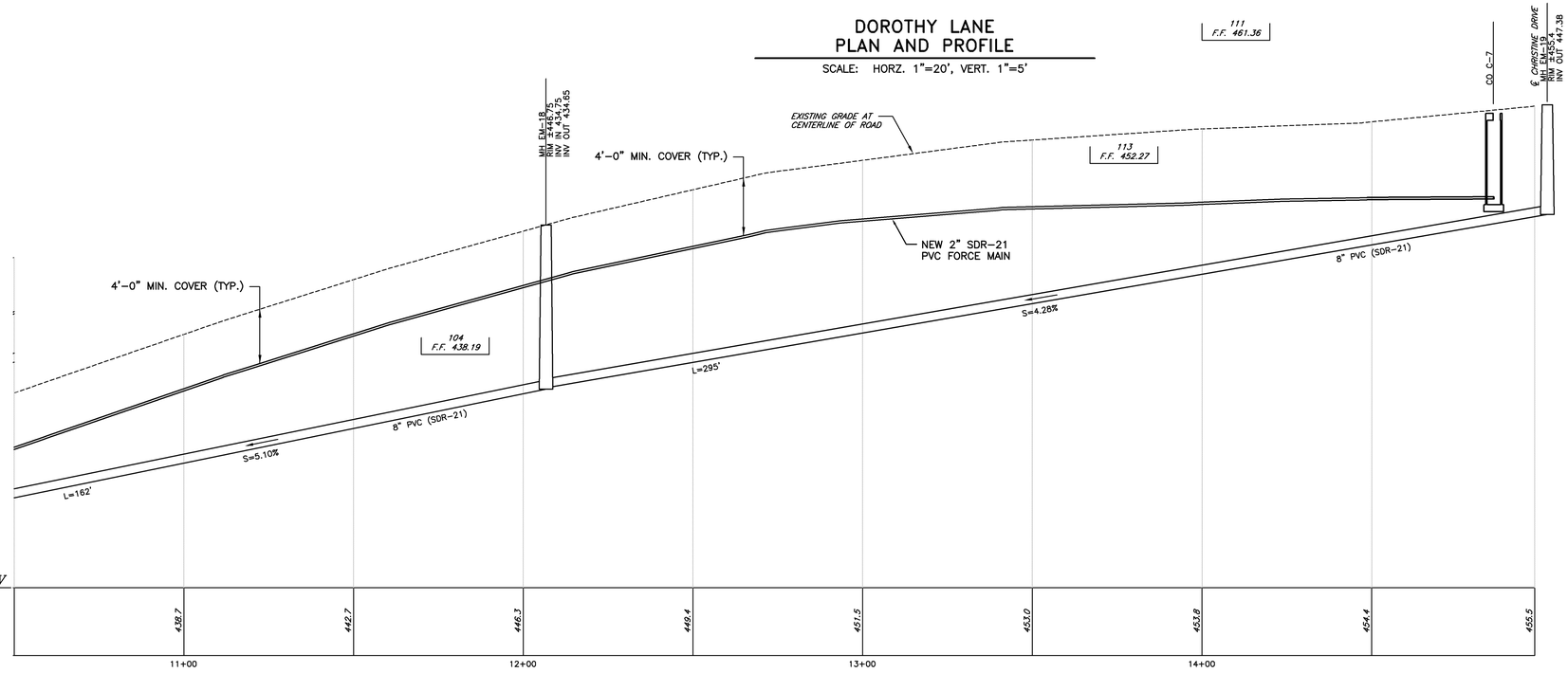
SCALE	DWG. NO.
AS NOTED	C-6
PROJECT NO. 10270.06	SHEET NO. 8 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM



DOROTHY LANE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.	NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

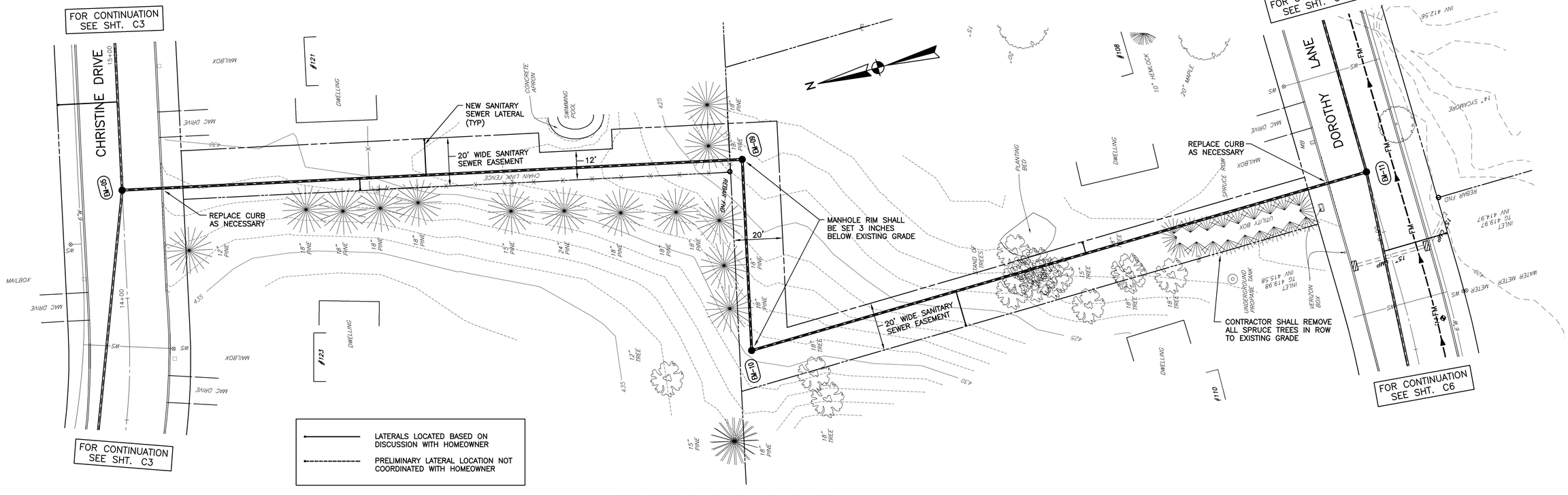
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
DOROTHY LANE
PLAN AND PROFILE
STA 10+50 TO STA 15+00

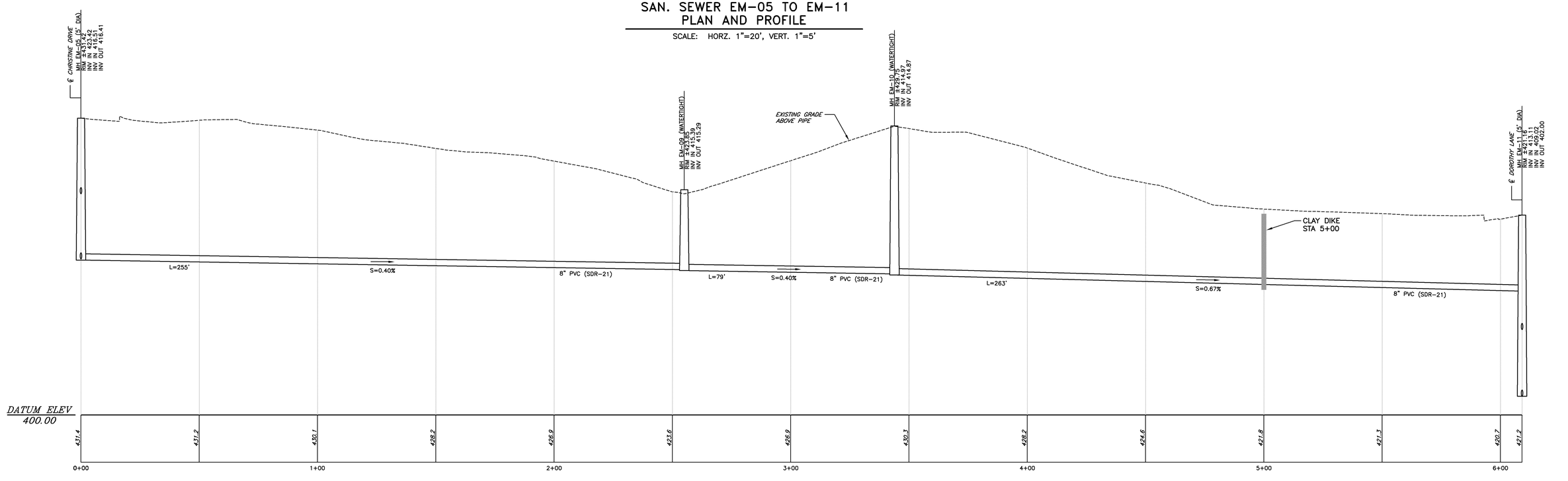
SCALE	DWG. NO.
AS NOTED	C-7
PROJECT NO. 10270.06	SHEET NO. 9 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM



SAN. SEWER EM-05 TO EM-11
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

RELEASED BY: G MATTHEW BROWN, P E

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

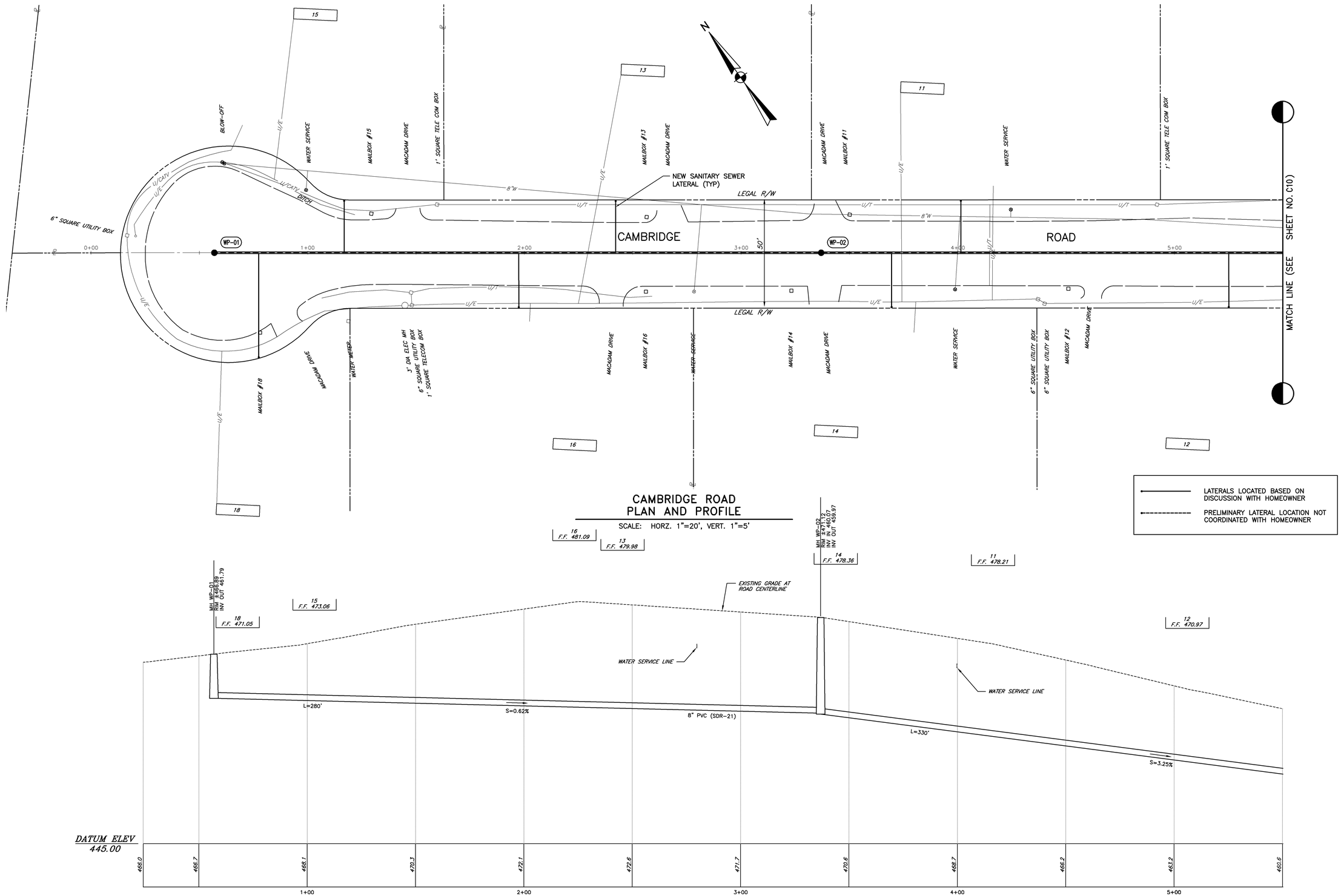
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SAN. SEWER EM-05 TO EM-11 PLAN AND PROFILE STA 0+00 TO STA 6+00

SCALE	DWG. NO.
AS NOTED	C-8
PROJECT NO. 10270.06	SHEET NO. 10 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM



CAMBRIDGE ROAD PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

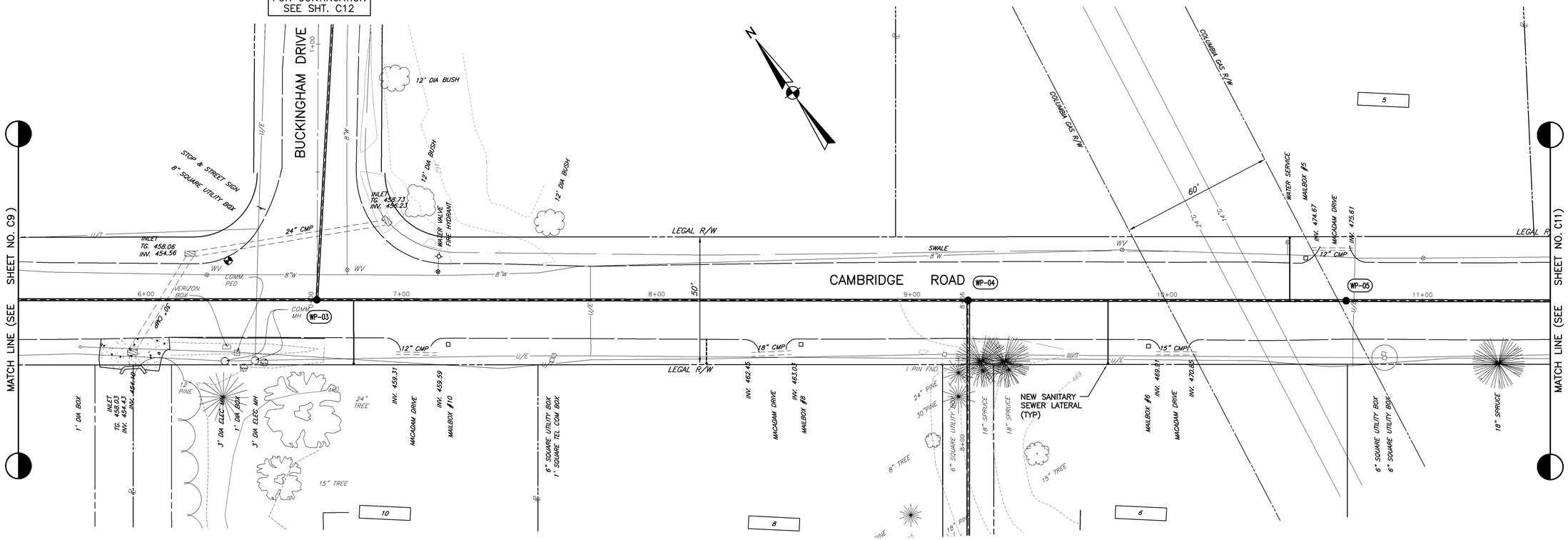
ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
CAMBRIDGE ROAD
PLAN AND PROFILE
STA 0+00 TO STA 5+50

SCALE		DWG. NO.
AS NOTED		C-9
PROJECT NO.	SHEET NO.	REV.
10270.06	11 OF 42	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM

FOR CONTINUATION SEE SHT. C12



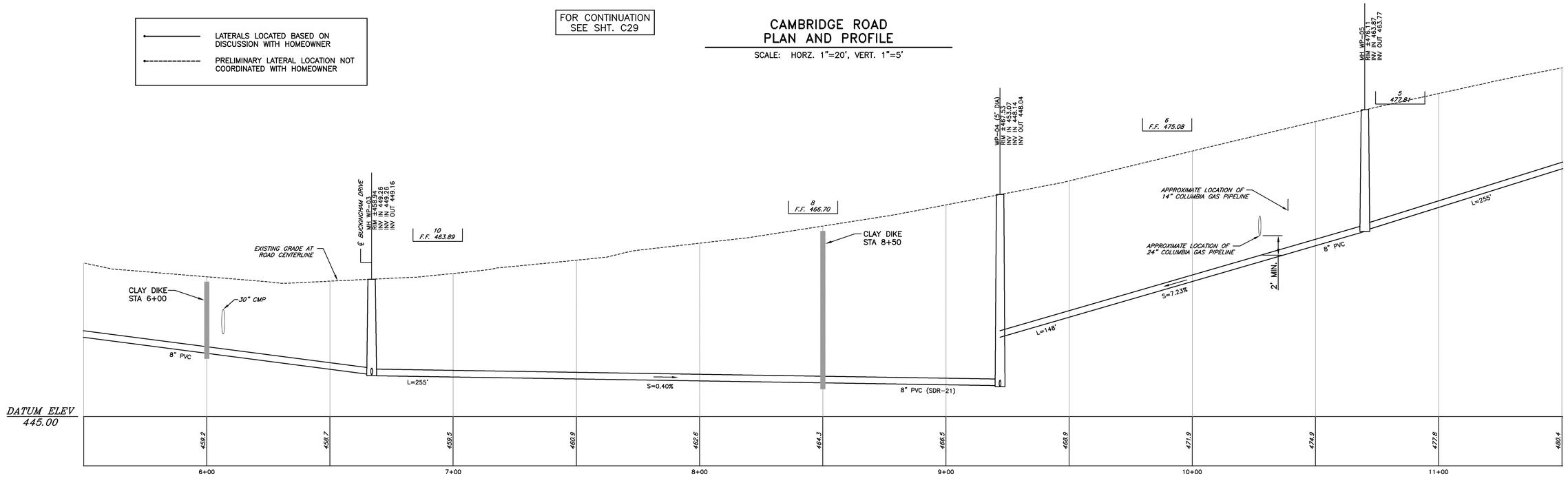
FOR CONTINUATION SEE SHT. C29

LATERALS LOCATED BASED ON DISCUSSION WITH HOMEOWNER

PRELIMINARY LATERAL LOCATION NOT COORDINATED WITH HOMEOWNER

CAMBRIDGE ROAD PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED
DRAWN: BLE	CHECKED
DATE: JULY 2014	SURVEY DATE
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

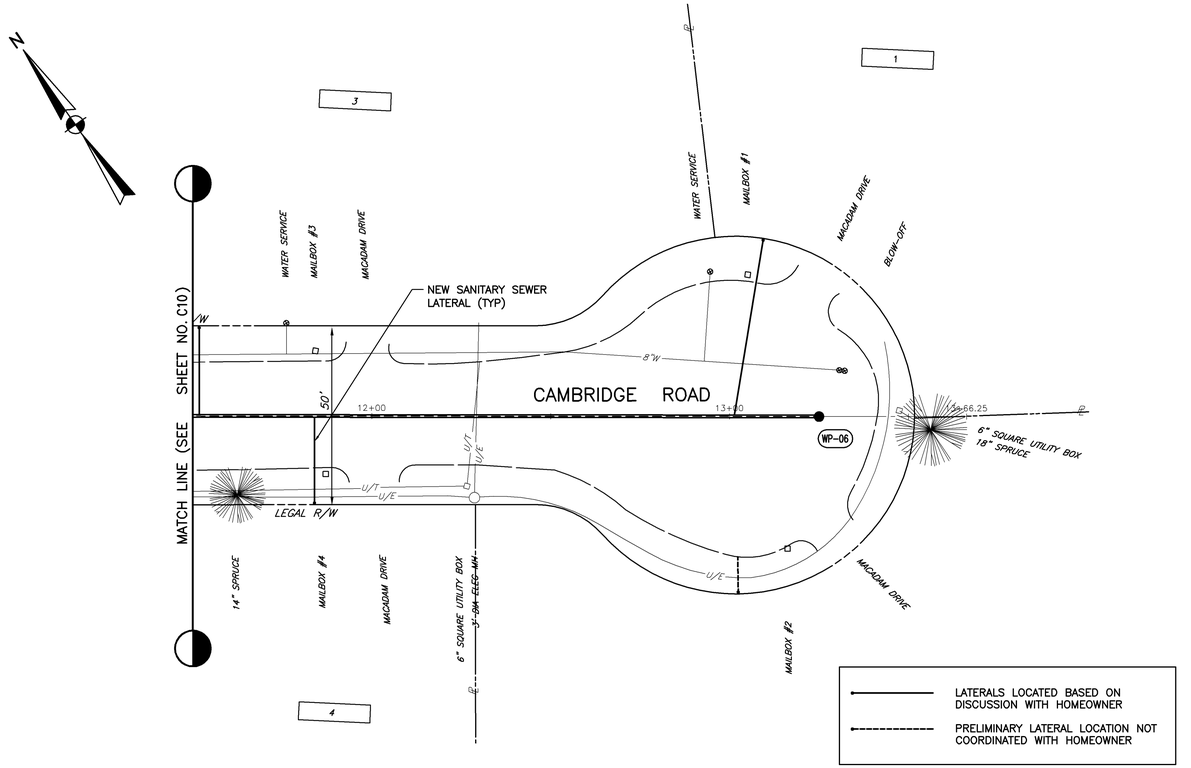
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: CAMBRIDGE ROAD PLAN AND PROFILE STA 5+50 TO STA 11+50

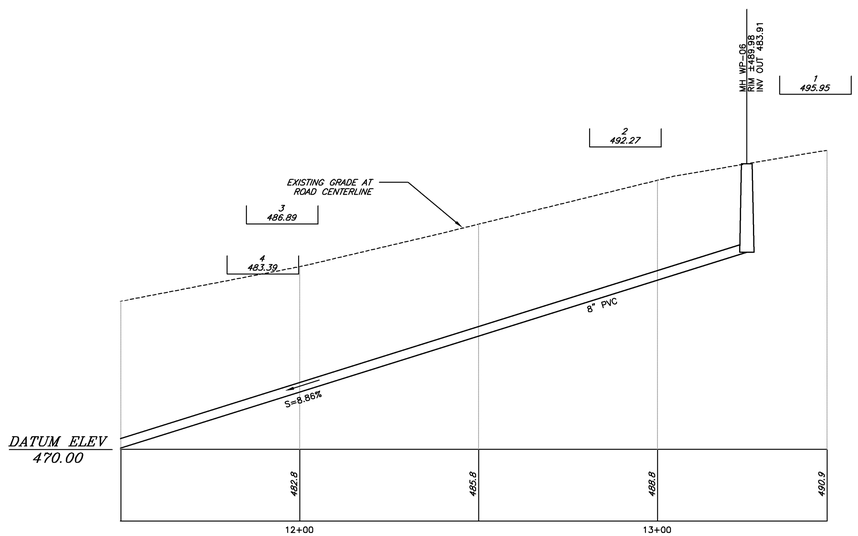
SCALE	DWG. NO.
AS NOTED	C-10
PROJECT NO. 10270.06	SHEET NO. 12 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM



CAMBRIDGE ROAD
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

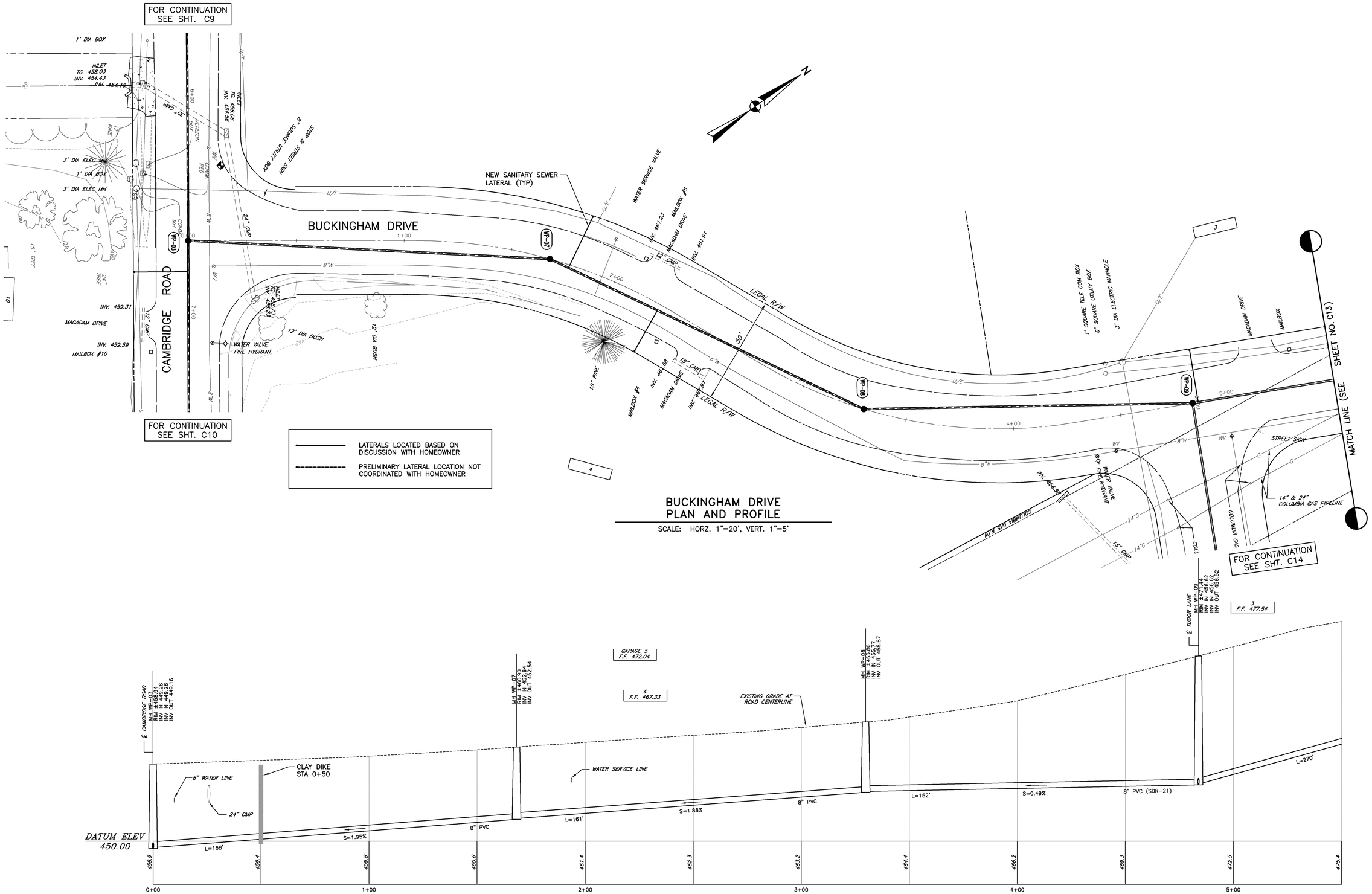
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
CAMBRIDGE ROAD
PLAN AND PROFILE
STA 11+50 TO STA 13+66

SCALE		DWG. NO.
AS NOTED		C-11
PROJECT NO.	SHEET NO.	REV.
10270.06	13 OF 42	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM



BUCKINGHAM DRIVE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

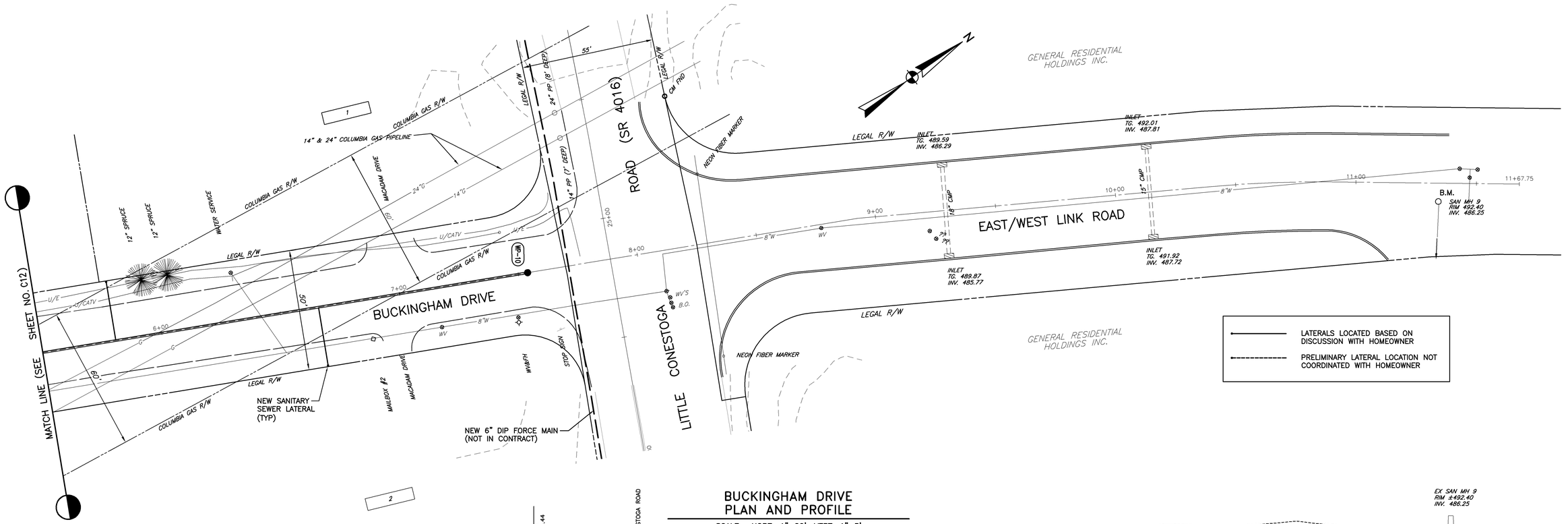
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

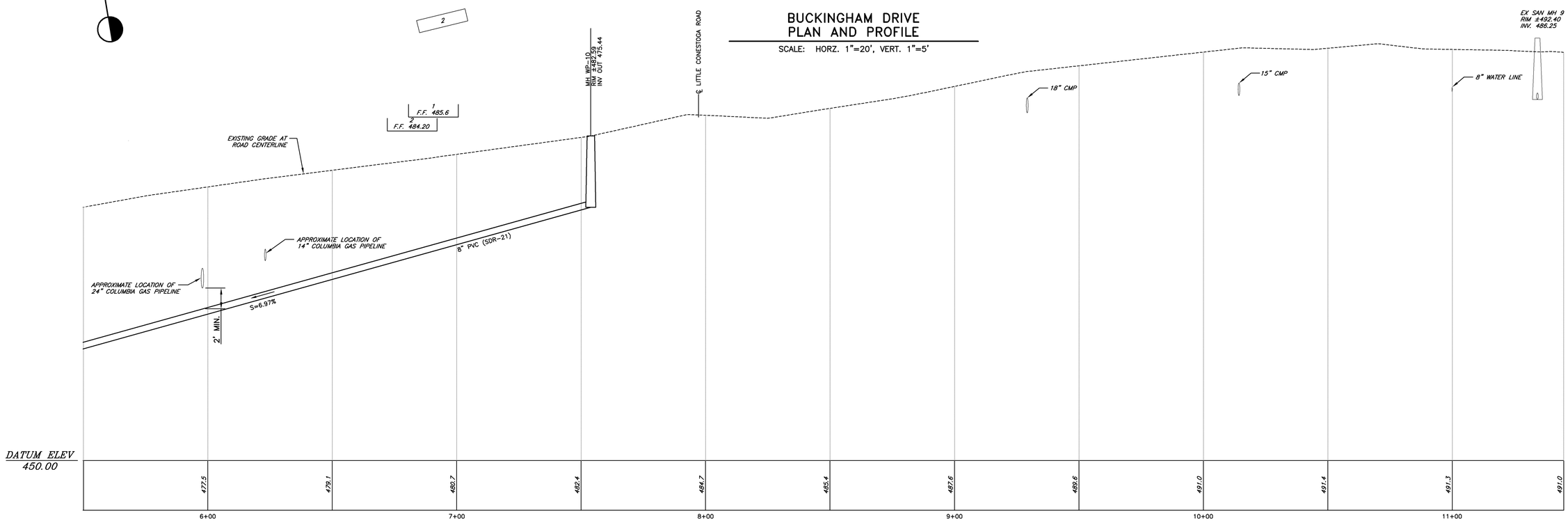
ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
BUCKINGHAM DRIVE
PLAN AND PROFILE
STA 0+00 TO STA 5+50

SCALE	DWG. NO.
AS NOTED	C-12
PROJECT NO. 10270.06	SHEET NO. 14 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM





BUCKINGHAM DRIVE PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED:
DRAWN: BLE	CHECKED:
DATE: JULY 2014	SURVEY DATE:
	FIELD BOOK:

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

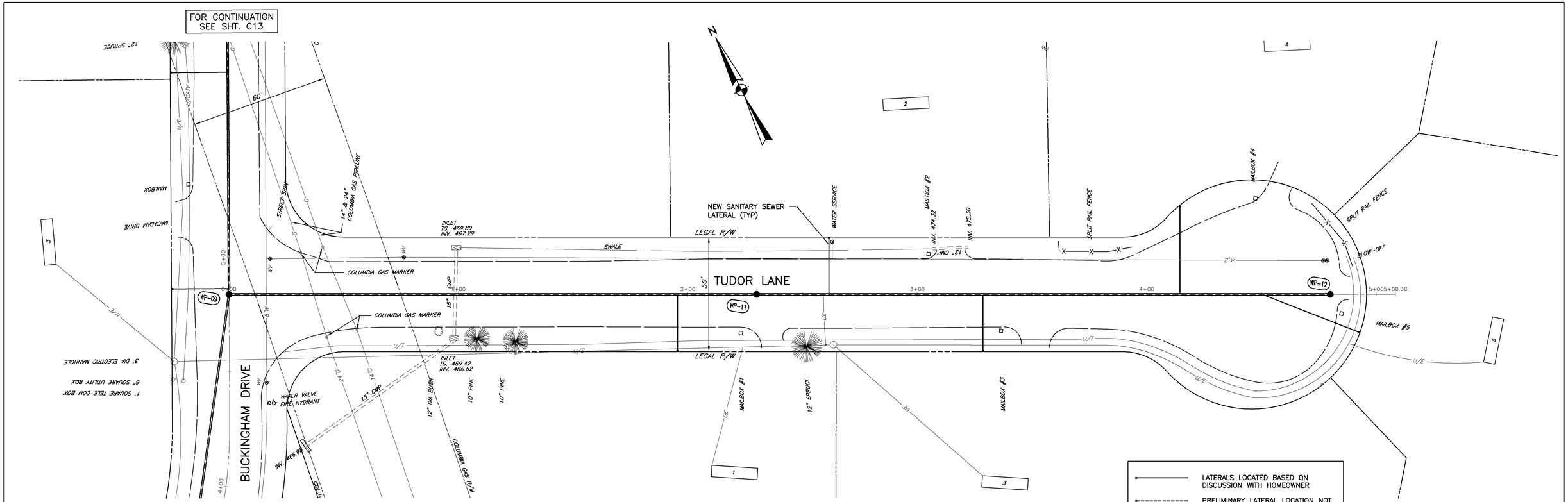
TITLE: BUCKINGHAM DRIVE PLAN AND PROFILE STA 5+50 TO STA 11+67

SCALE	DWG. NO.
AS NOTED	C-13
PROJECT NO. 10270.06 / SHEET NO. 15 OF 42 / REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM

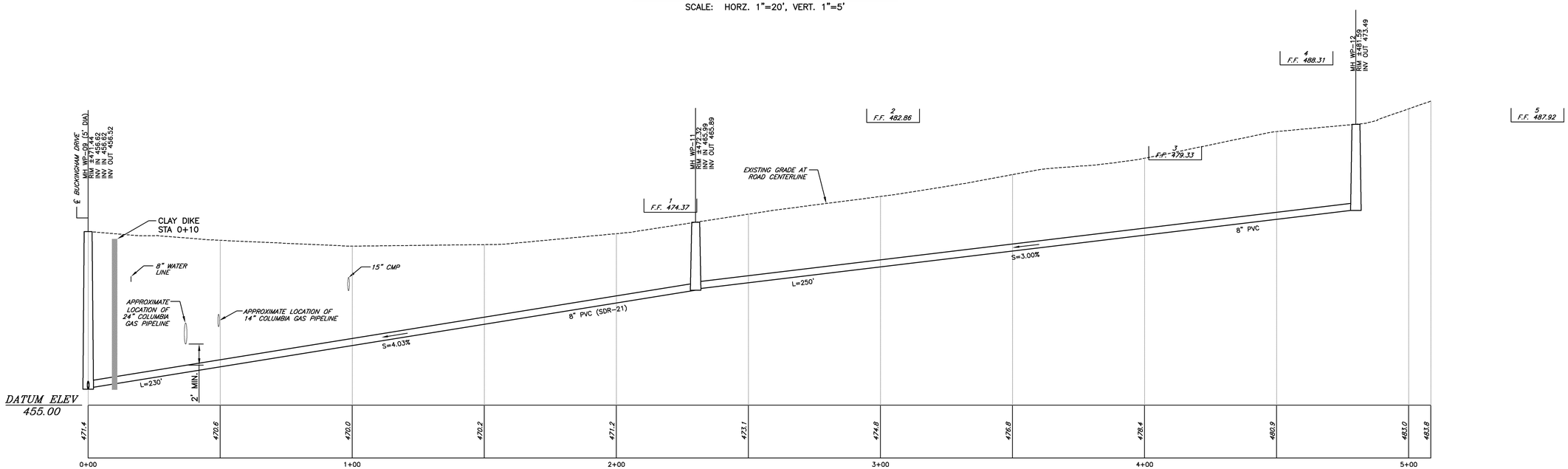
FOR CONTINUATION SEE SHT. C13

FOR CONTINUATION SEE SHT. C12



TUDOR LANE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.	NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

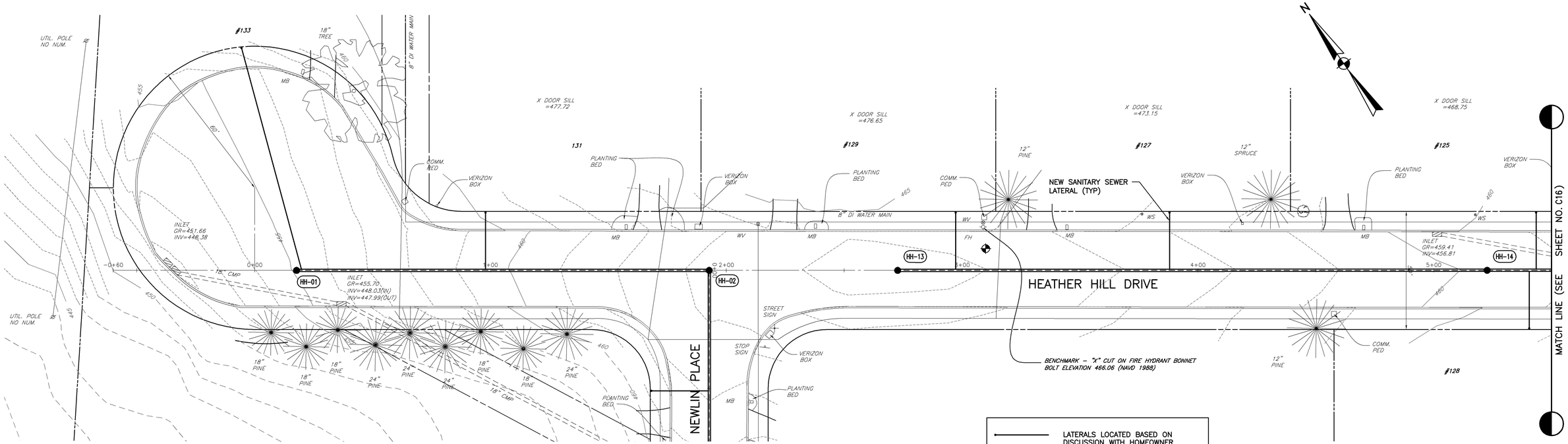
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
TUDOR LANE
PLAN AND PROFILE
STA 0+00 TO STA 5+08

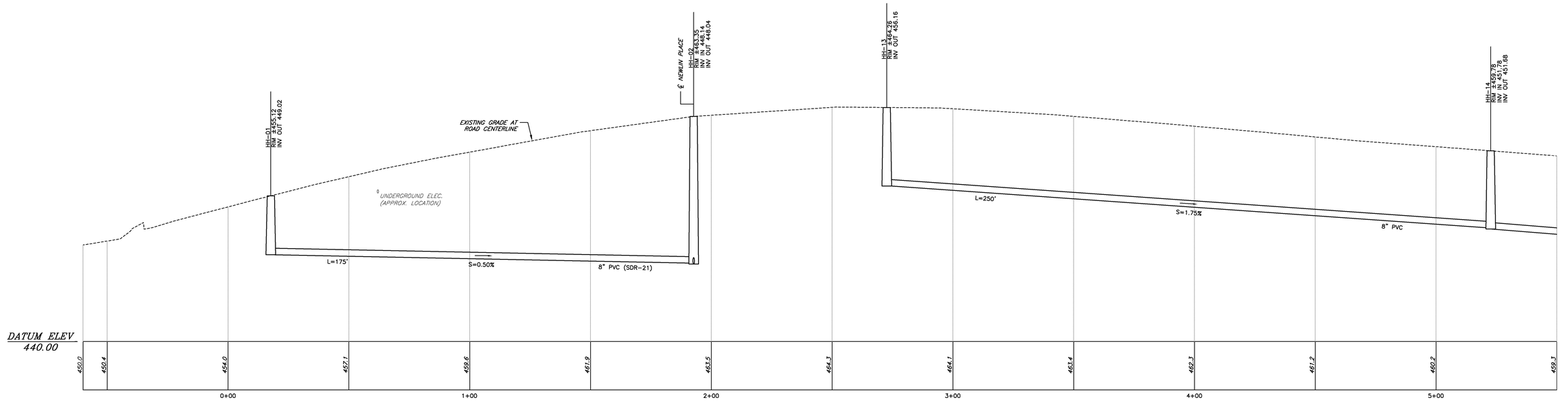
SCALE	DWG. NO.
AS NOTED	C-14
PROJECT NO. 10270.06	SHEET NO. 16 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM



HEATHER HILL DRIVE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

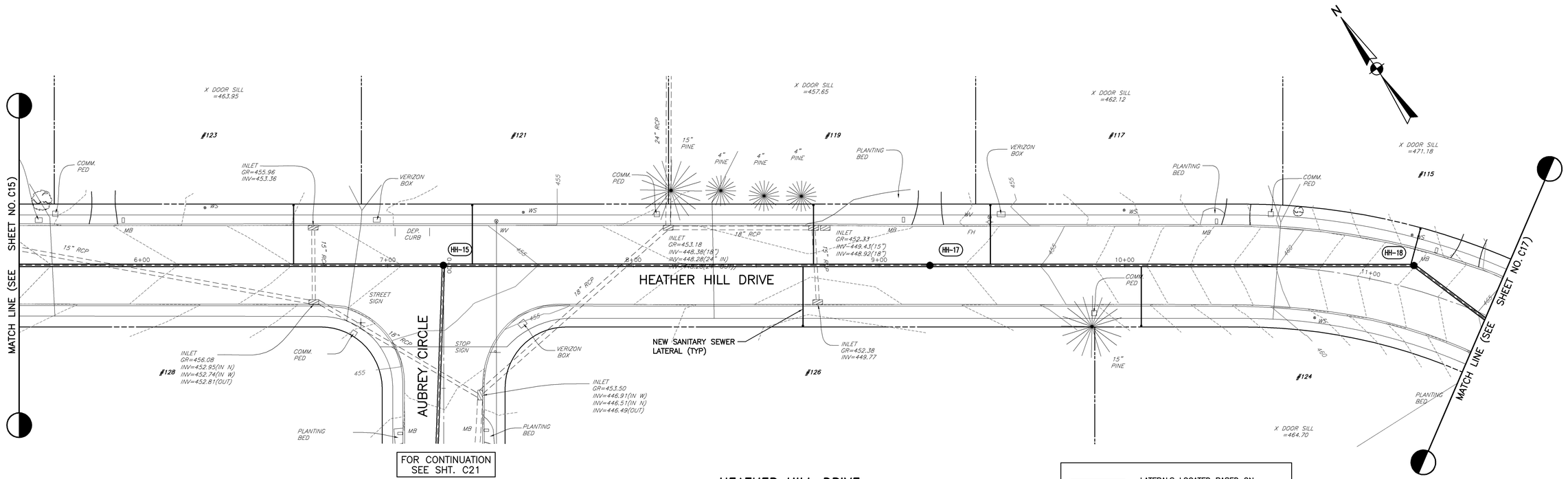
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
HEATHER HILL DRIVE
PLAN AND PROFILE
STA 0+00 TO STA 5+50

SCALE	DWG. NO.
AS NOTED	C-15
PROJECT NO. 10270.06 / SHEET NO. 17 OF 42 / REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:49 AM

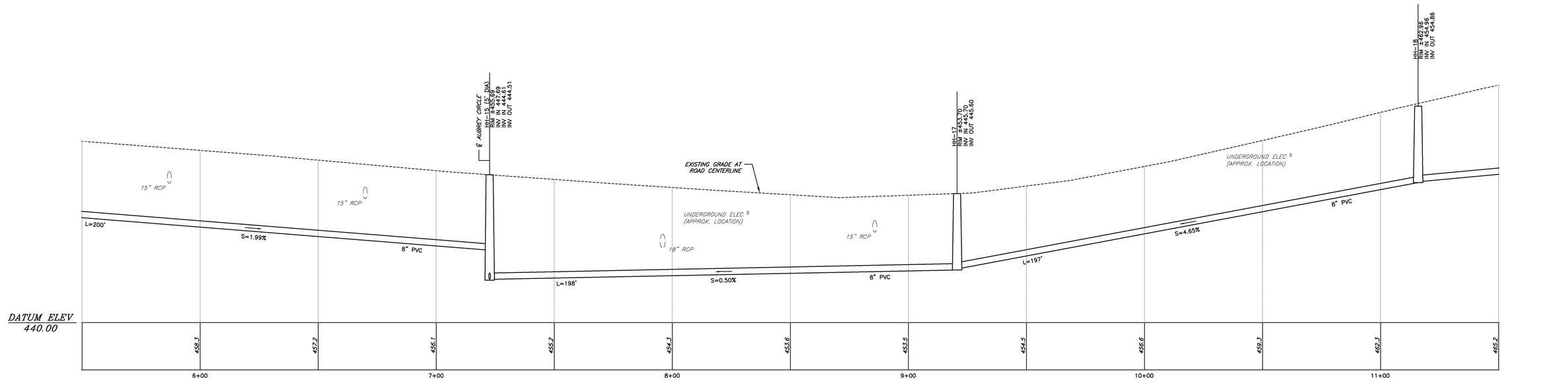


HEATHER HILL DRIVE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

LATERALS LOCATED BASED ON DISCUSSION WITH HOMEOWNER

PRELIMINARY LATERAL LOCATION NOT COORDINATED WITH HOMEOWNER



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

RELEASED BY: G MATTHEW BROWN, P E

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

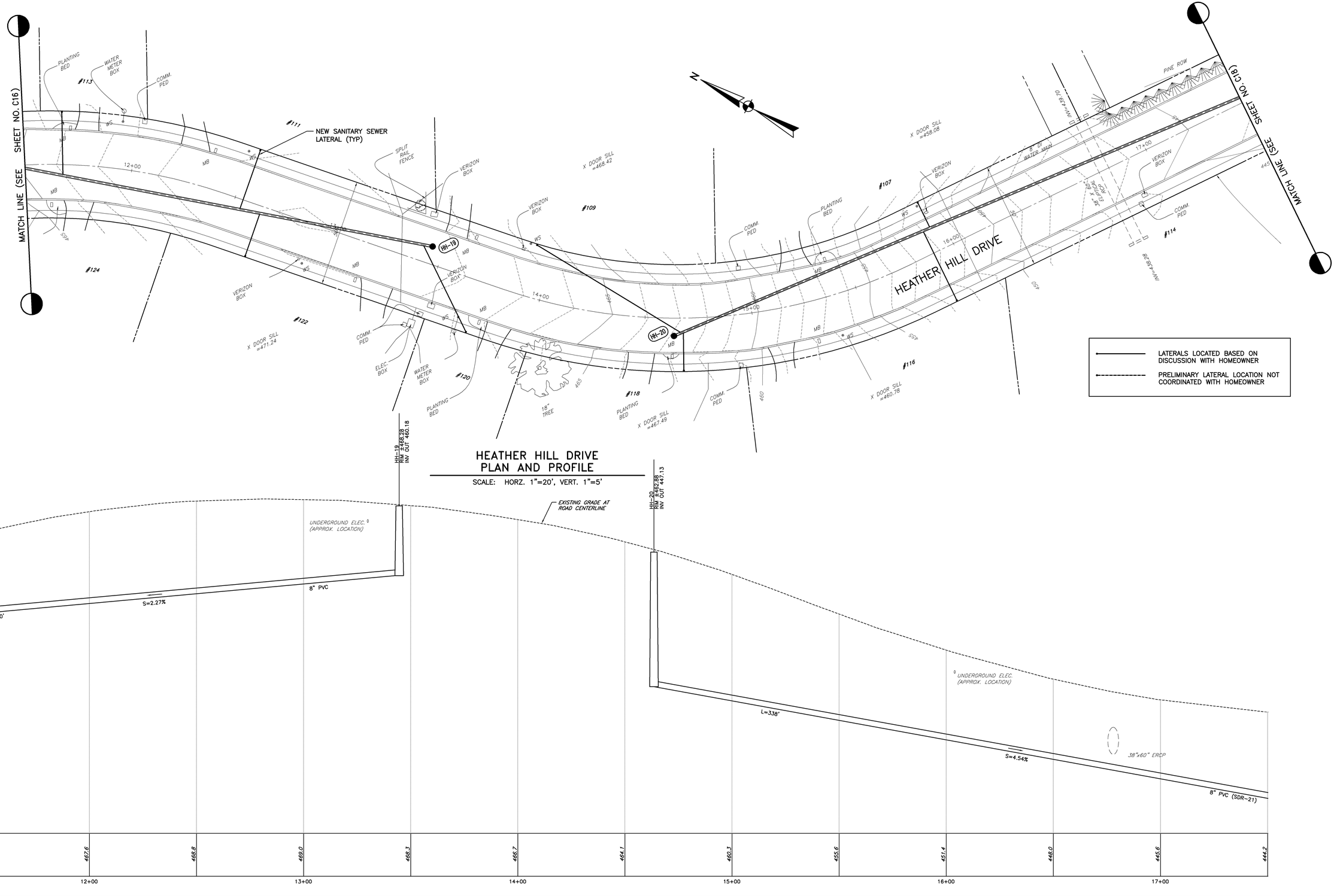
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: HEATHER HILL DRIVE
PLAN AND PROFILE
STA 5+50 TO STA 11+50

SCALE	DWG. NO.
AS NOTED	C-16
PROJECT NO. 10270.06	SHEET NO. 18 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM



HEATHER HILL DRIVE PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E

RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT

UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

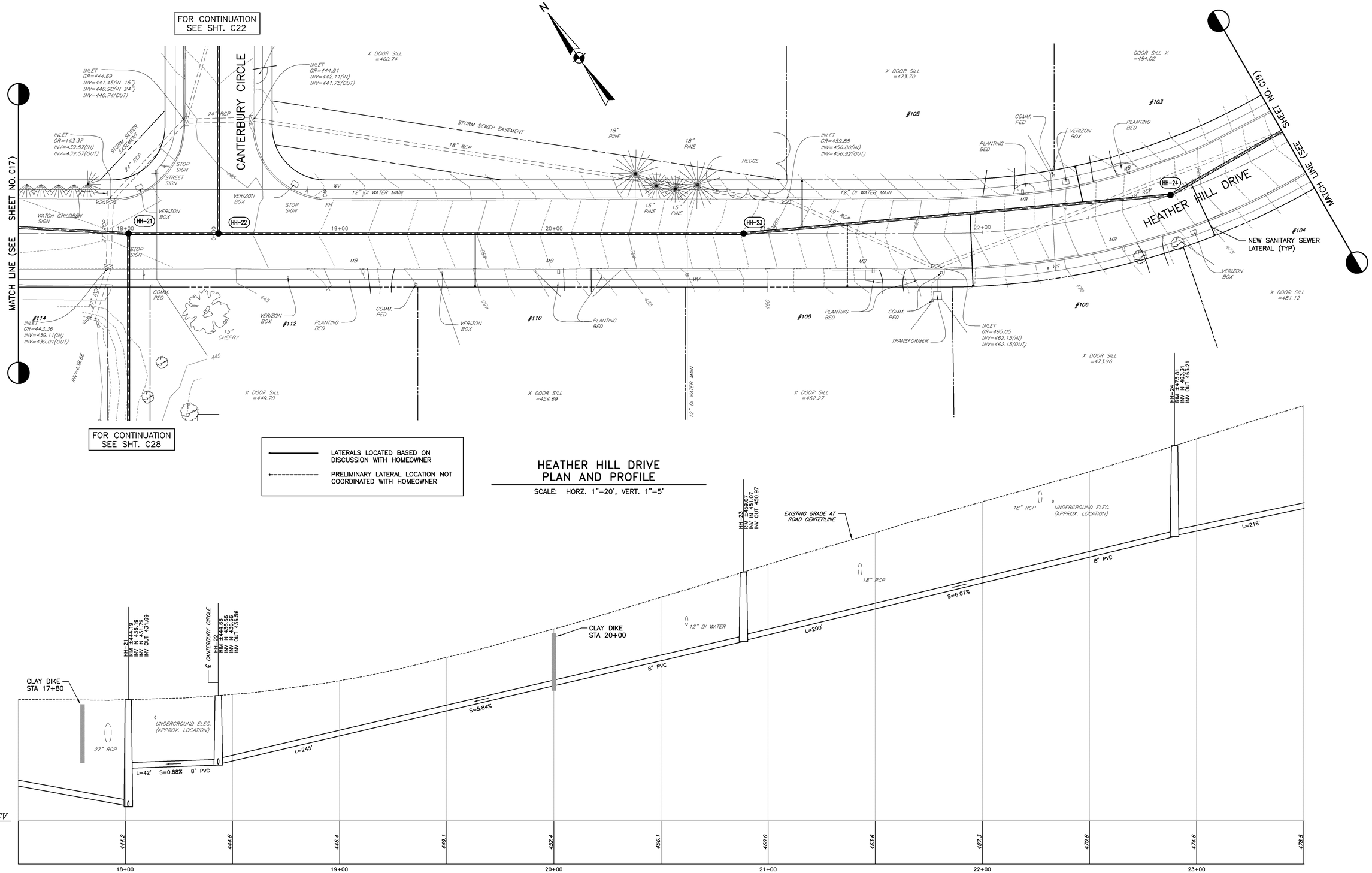
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: HEATHER HILL DRIVE PLAN AND PROFILE STA 11+50 TO STA 17+50

SCALE	DWG. NO.
AS NOTED	C-17
PROJECT NO. 10270.06 / SHEET NO. 19 OF 42 / REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM



LATERALS LOCATED BASED ON DISCUSSION WITH HOMEOWNER

PRELIMINARY LATERAL LOCATION NOT COORDINATED WITH HOMEOWNER

HEATHER HILL DRIVE PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E	
RELEASED BY	
DESIGN J DENNIS	CHECKED
DRAWN BLE	CHECKED
DATE JULY 2014	SURVEY DATE
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

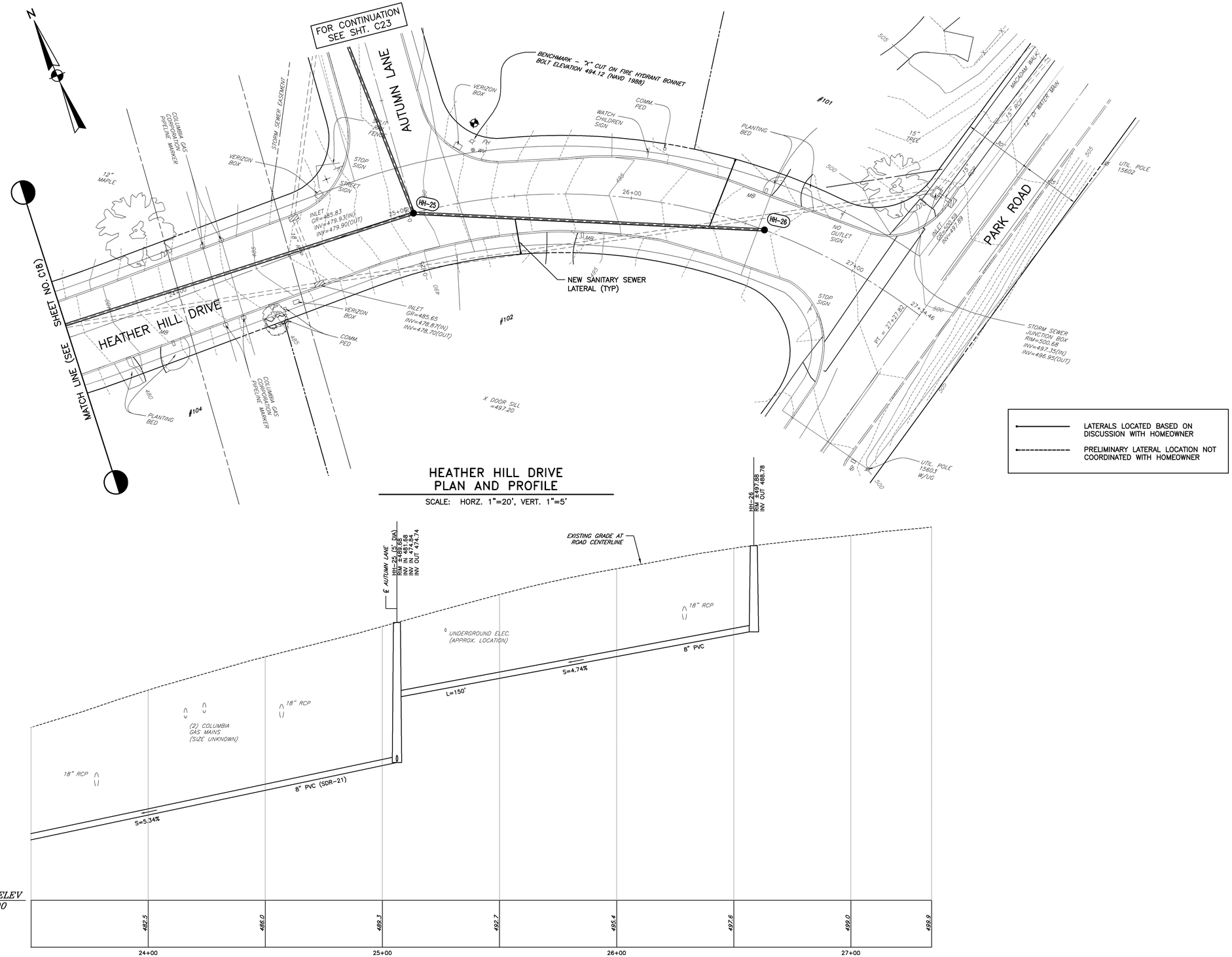
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
HEATHER HILL DRIVE
PLAN AND PROFILE
STA 17+50 TO STA 23+50

SCALE	DWG. NO.
AS NOTED	C-18
PROJECT NO. 10270.06 / SHEET NO. 20 OF 42 / REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM



HEATHER HILL DRIVE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.
NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

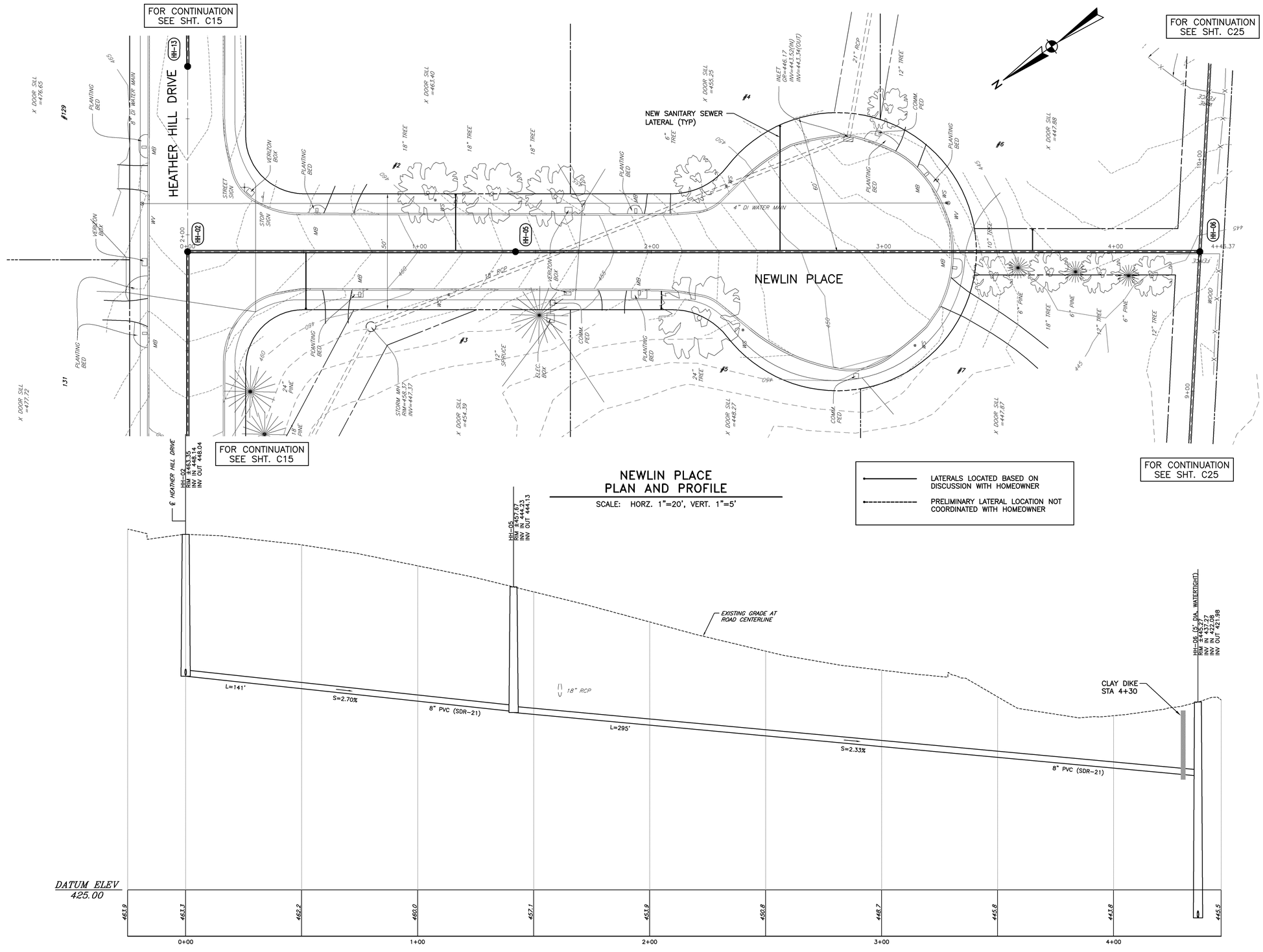
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
HEATHER HILL DRIVE
PLAN AND PROFILE
STA 23+50 TO STA 27+34

SCALE		DWG. NO.
AS NOTED		C-19
PROJECT NO.	SHEET NO.	REV.
10270.06	21 OF 42	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM



NEWLIN PLACE
PLAN AND PROFILE
SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.	NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

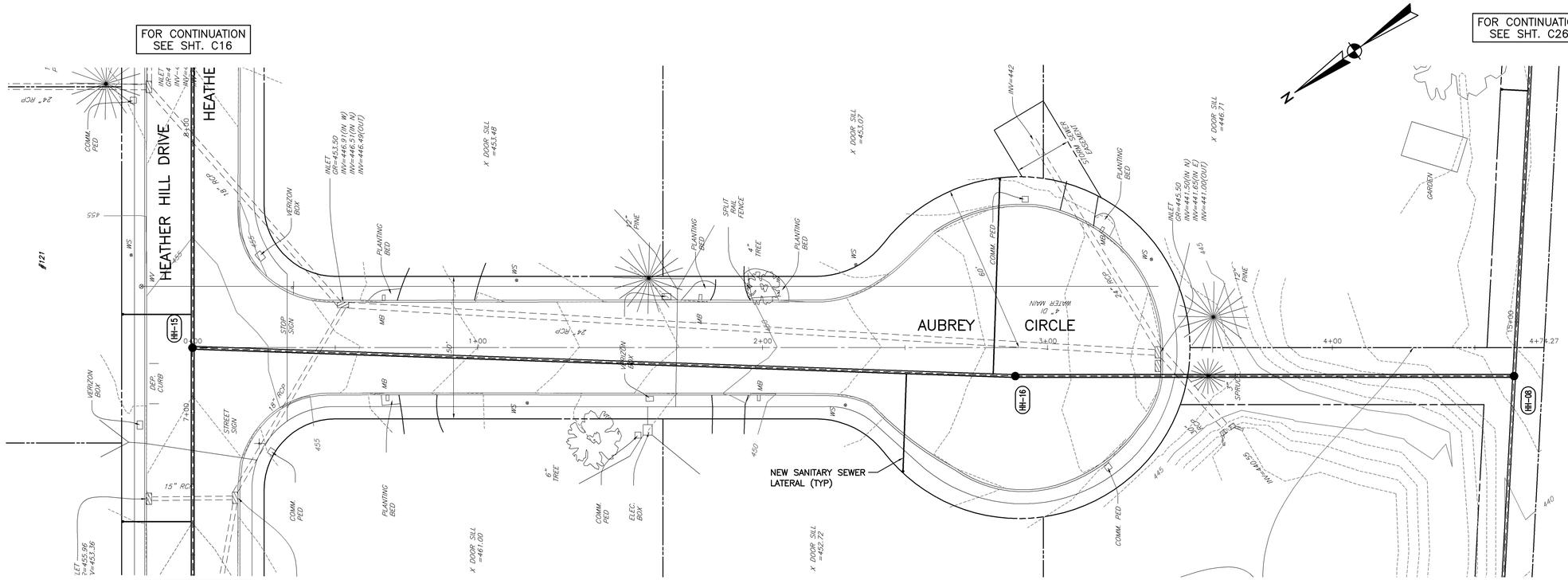
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
NEWLIN PLACE
PLAN AND PROFILE
STA 0+00 TO STA 4+46

SCALE: NO SCALE
DWG. NO. C-20
PROJECT NO. 10270.06
SHEET NO. 22 OF 42
REV.
S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM

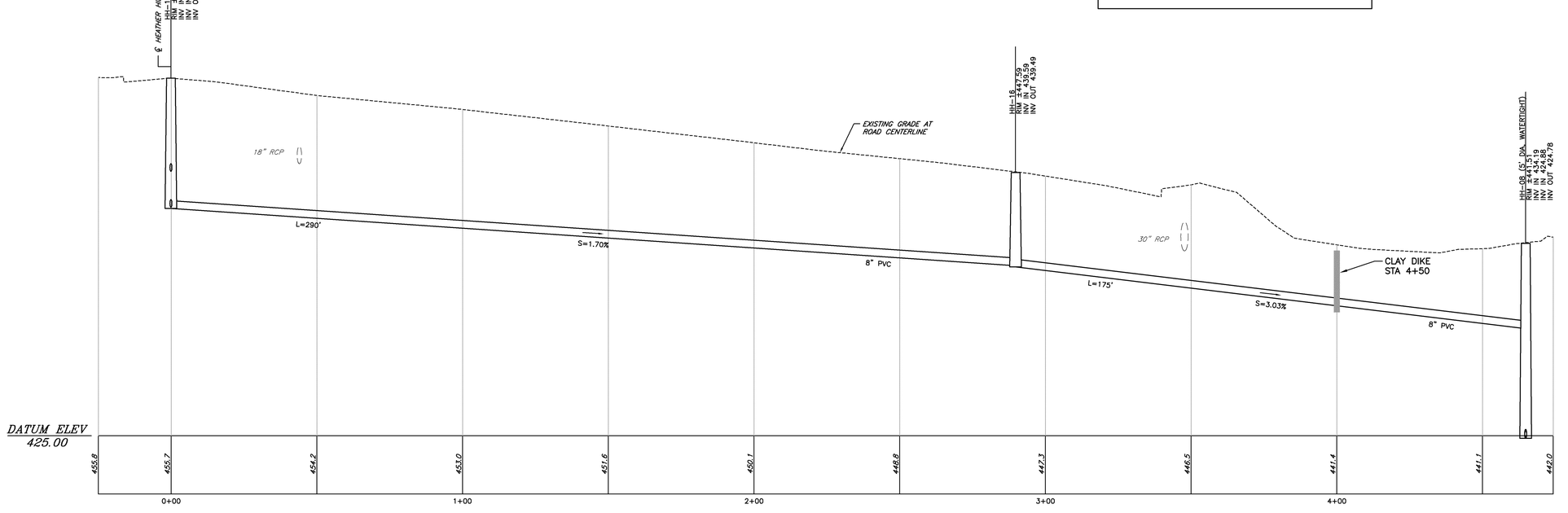


AUBREY CIRCLE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

LATERALS LOCATED BASED ON DISCUSSION WITH HOMEOWNER

PRELIMINARY LATERAL LOCATION NOT COORDINATED WITH HOMEOWNER



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G. MATTHEW BROWN, P.E.
RELEASED BY

DESIGN	CHECKED
J. DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

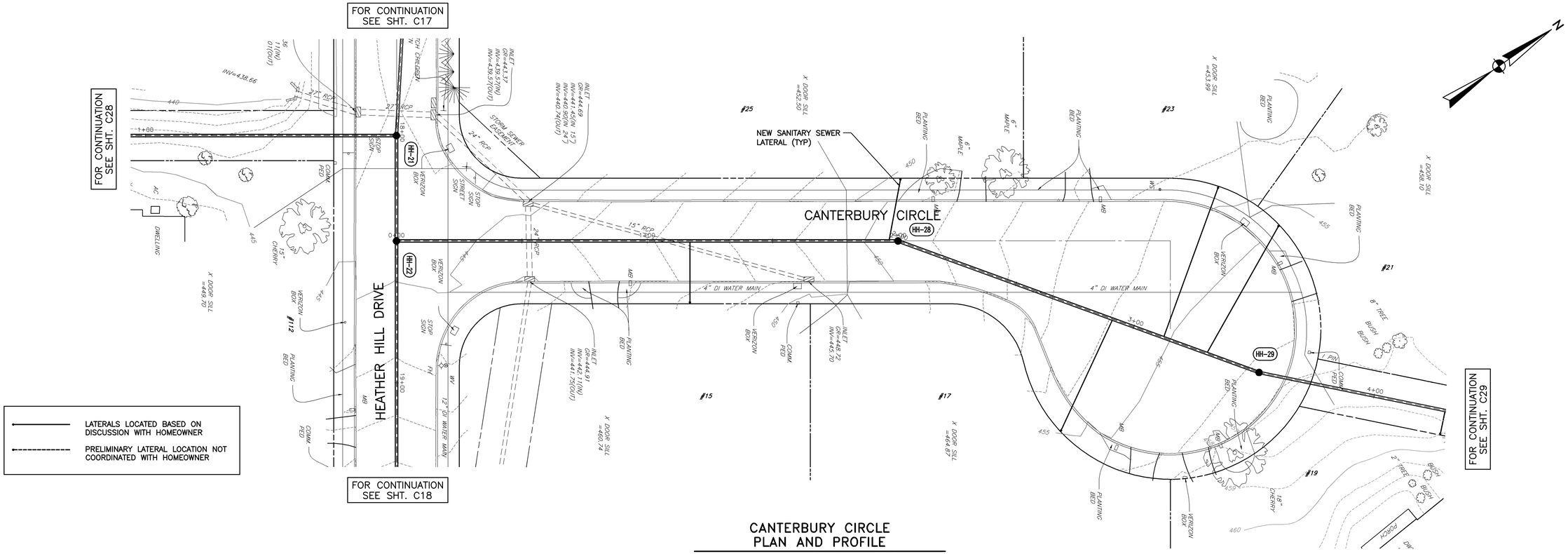
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
AUBREY CIRCLE
PLAN AND PROFILE
STA 0+00 TO STA 4+74

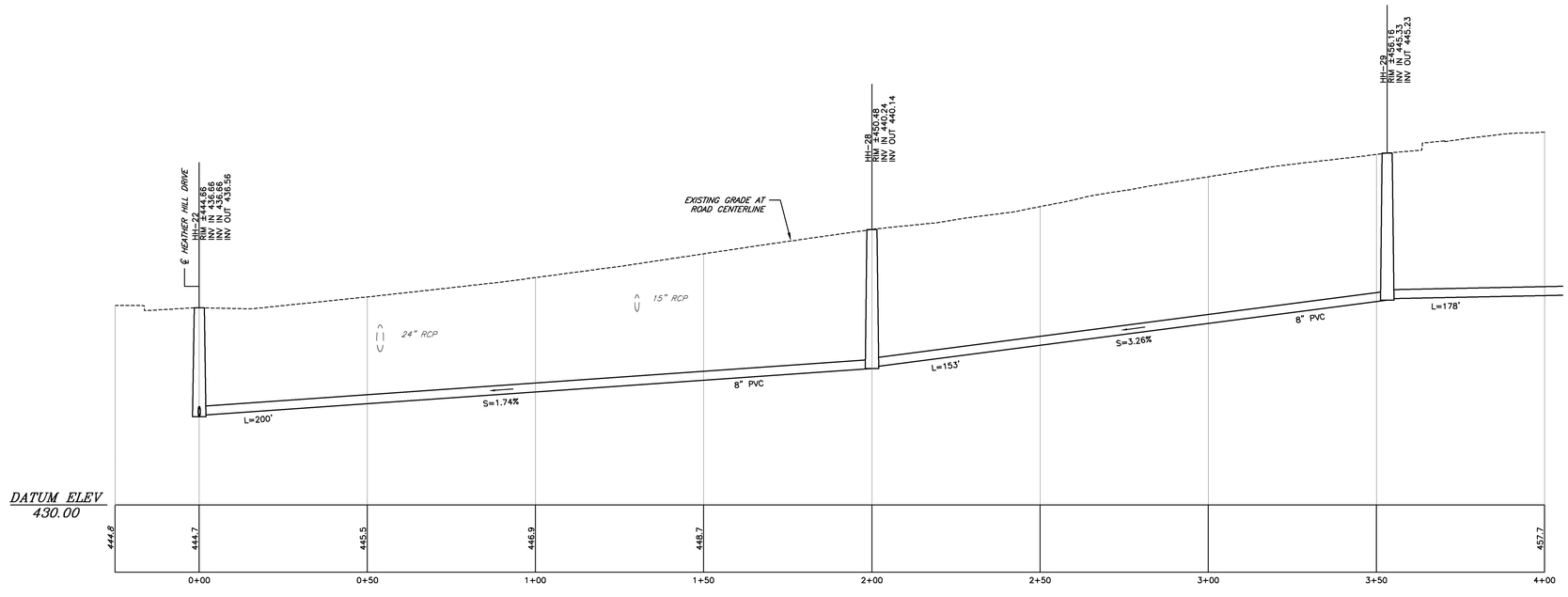
SCALE	DWG. NO.
AS NOTED	C-21
PROJECT NO. 10270.06	SHEET NO. 23 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM



CANTERBURY CIRCLE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.	NO	REVISION	DATE	BY	APP.

RELEASED BY: G MATTHEW BROWN, P E

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

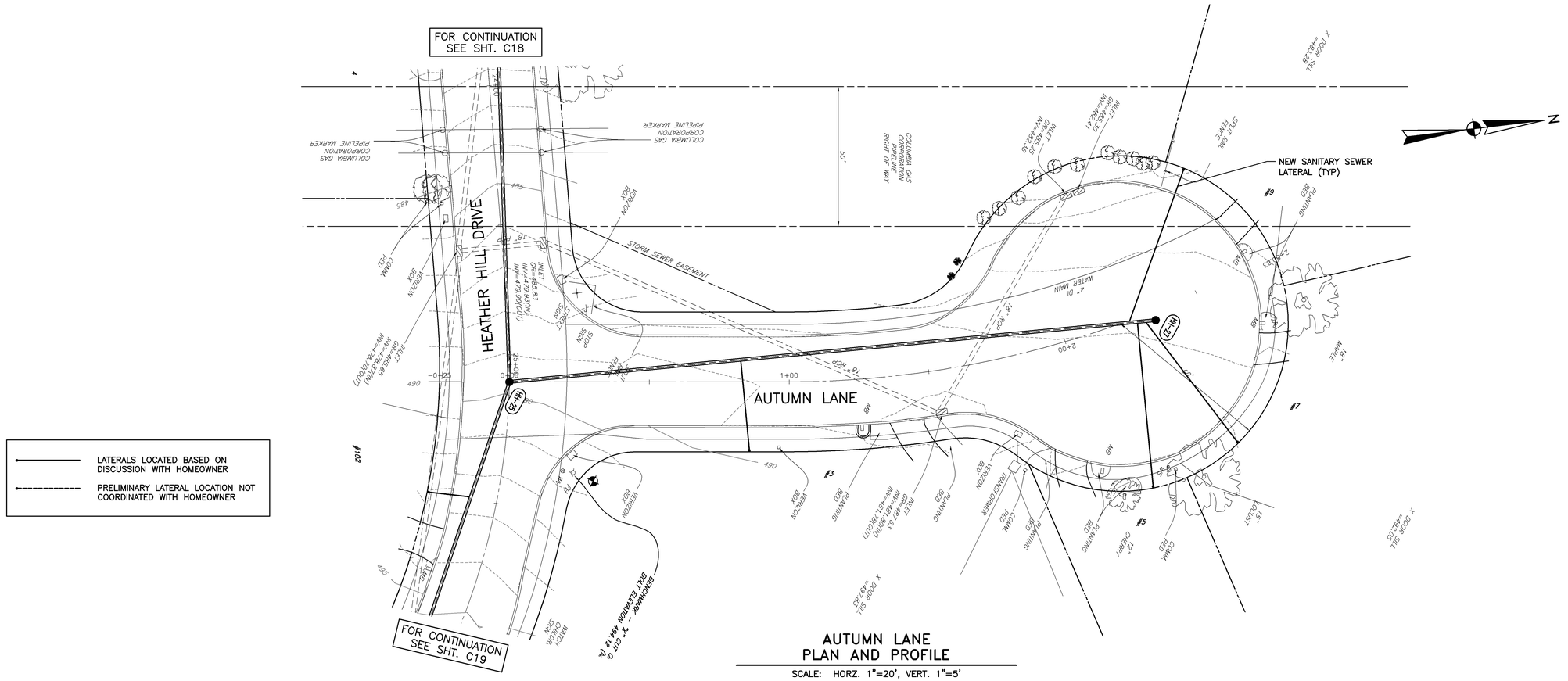
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: CANTERBURY CIRCLE PLAN AND PROFILE STA 0+00 TO STA 4+00

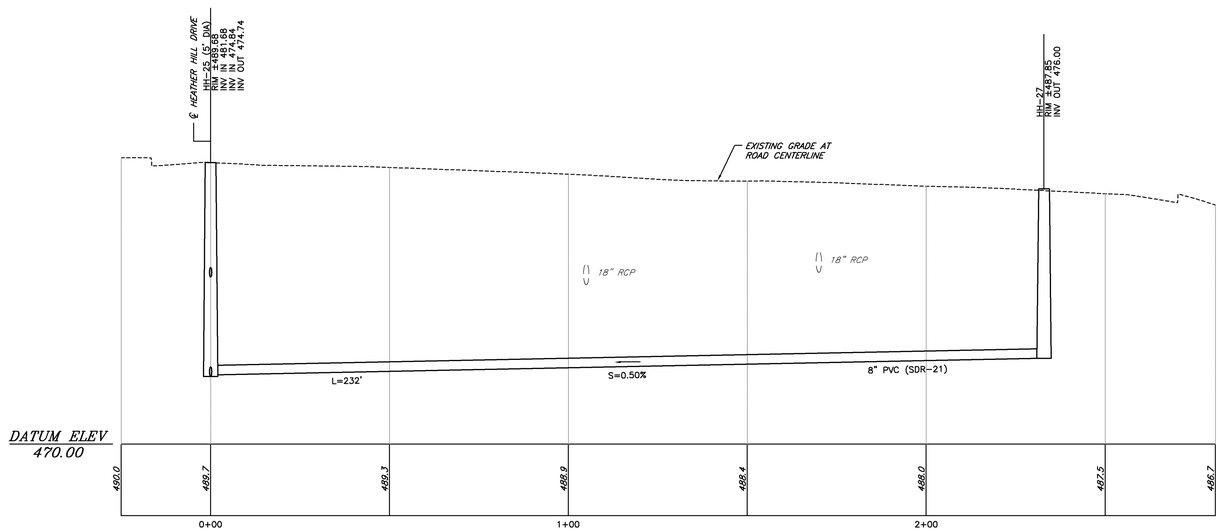
SCALE	DWG. NO.
AS NOTED	C-22
PROJECT NO. 10270.06	SHEET NO. 24 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM



AUTUMN LANE
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.	NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

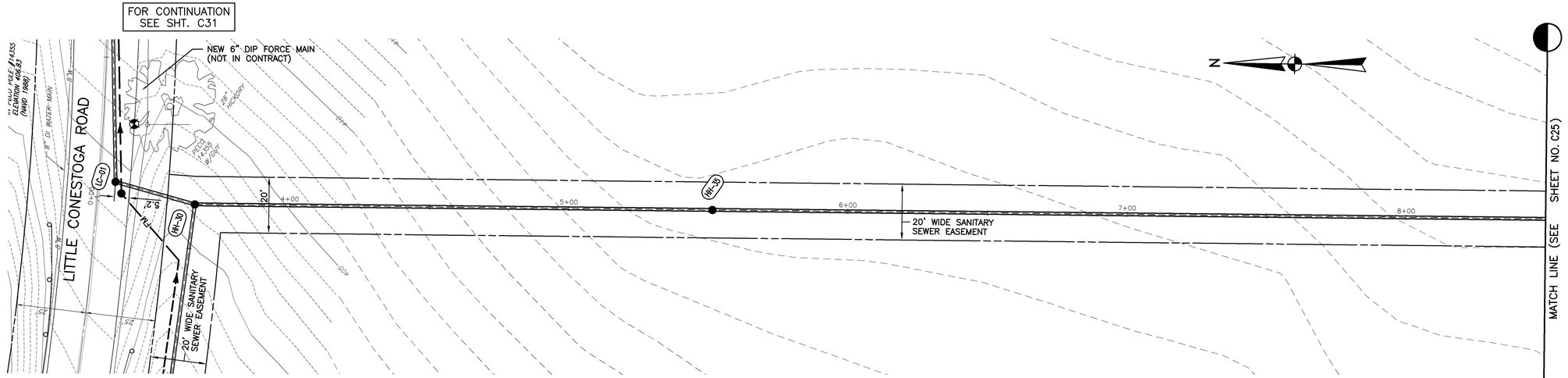
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
AUTUMN LANE
PLAN AND PROFILE
STA 0+00 TO STA 2+80

SCALE		DWG. NO.
AS NOTED		C-23
PROJECT NO.	SHEET NO.	REV.
10270.06	25 OF 42	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM

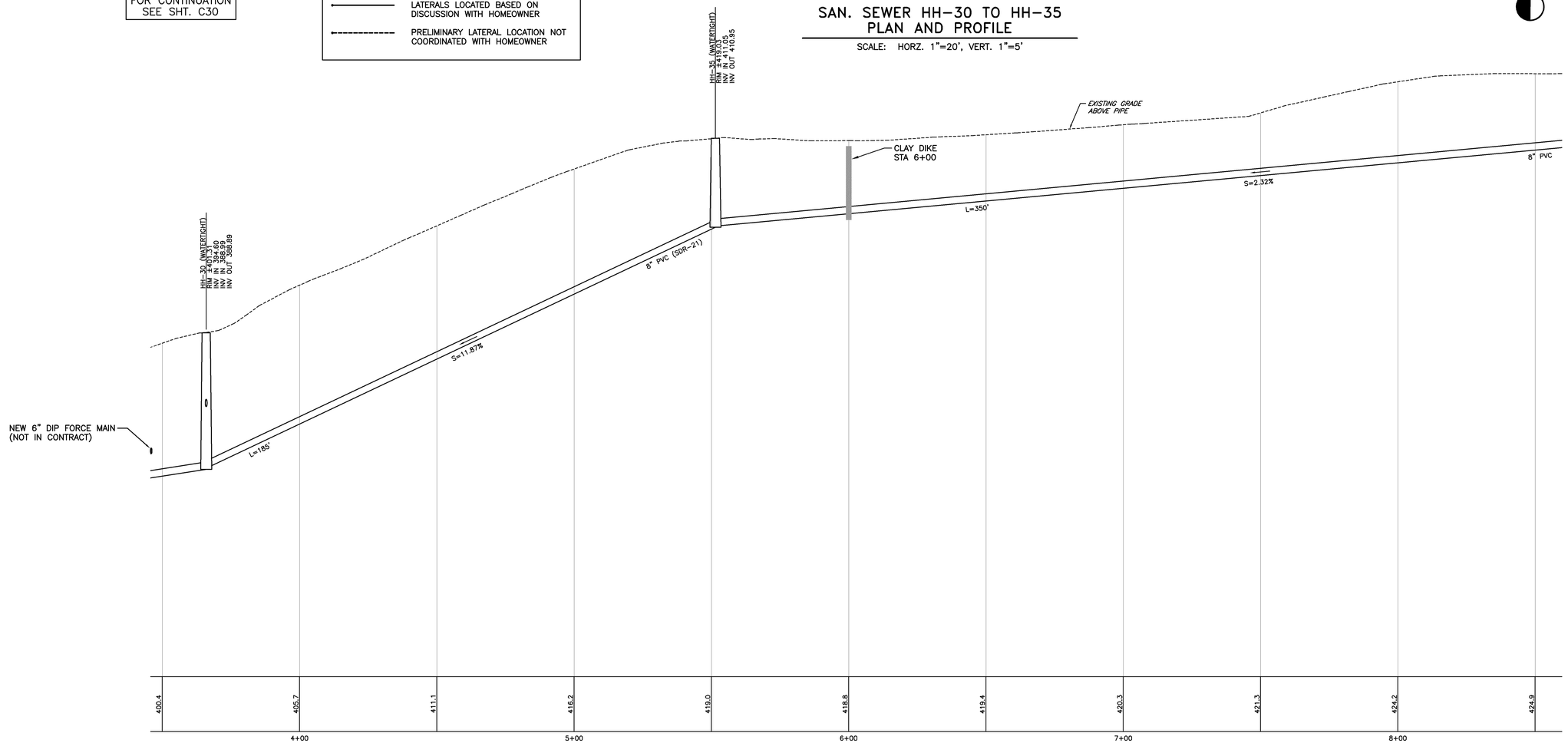


LATERALS LOCATED BASED ON DISCUSSION WITH HOMEOWNER

PRELIMINARY LATERAL LOCATION NOT COORDINATED WITH HOMEOWNER

SAN. SEWER HH-30 TO HH-35
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

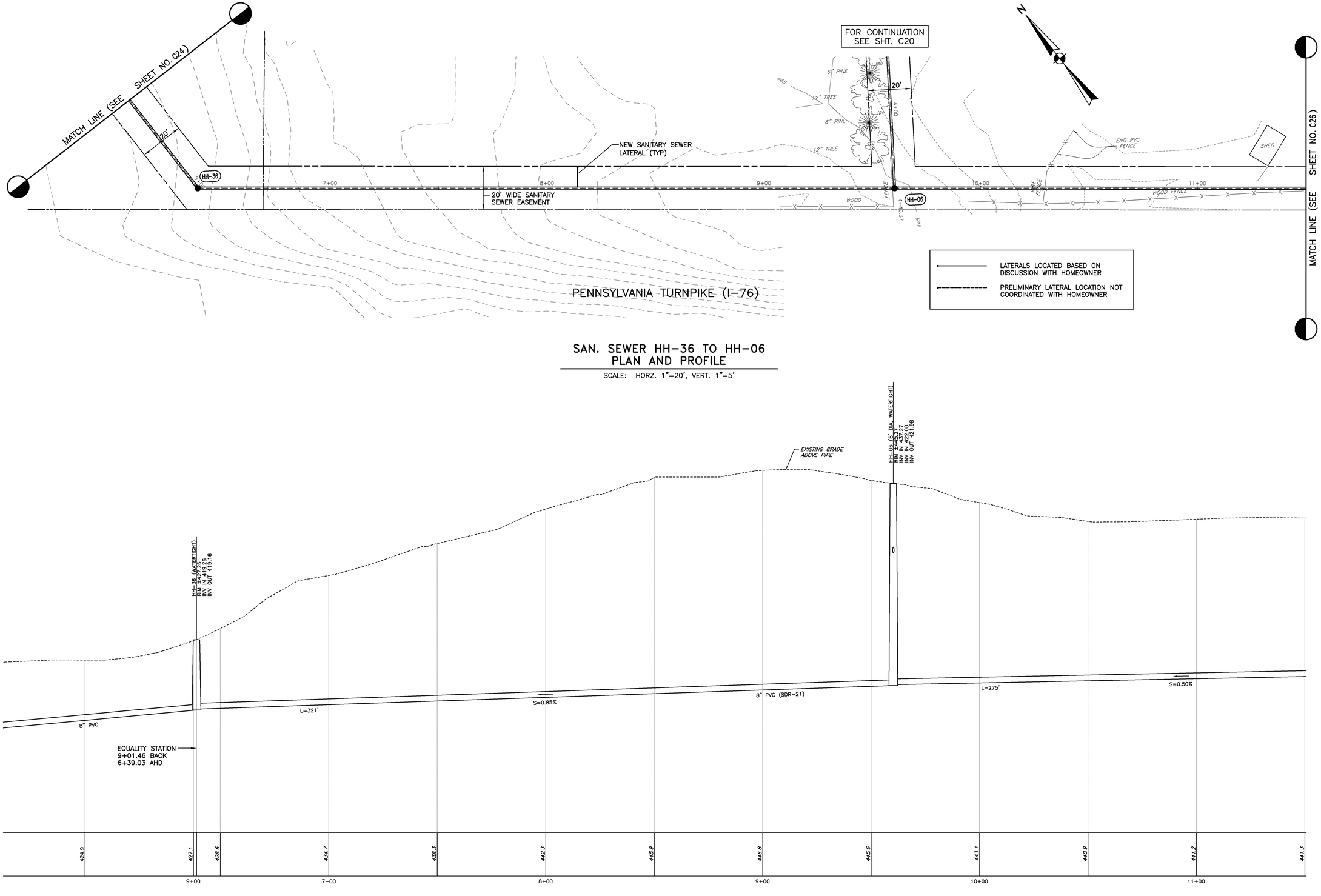
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SAN. SEWER HH-30 TO HH-35
PLAN AND PROFILE
STA 3+50 TO STA 8+50

SCALE	DWG. NO.
AS NOTED	C-24
PROJECT NO. 10270.06 / SHEET NO. 26 OF 42 / REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM



SAN. SEWER HH-36 TO HH-06
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

RELEASED BY: G MATTHEW BROWN, P E

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

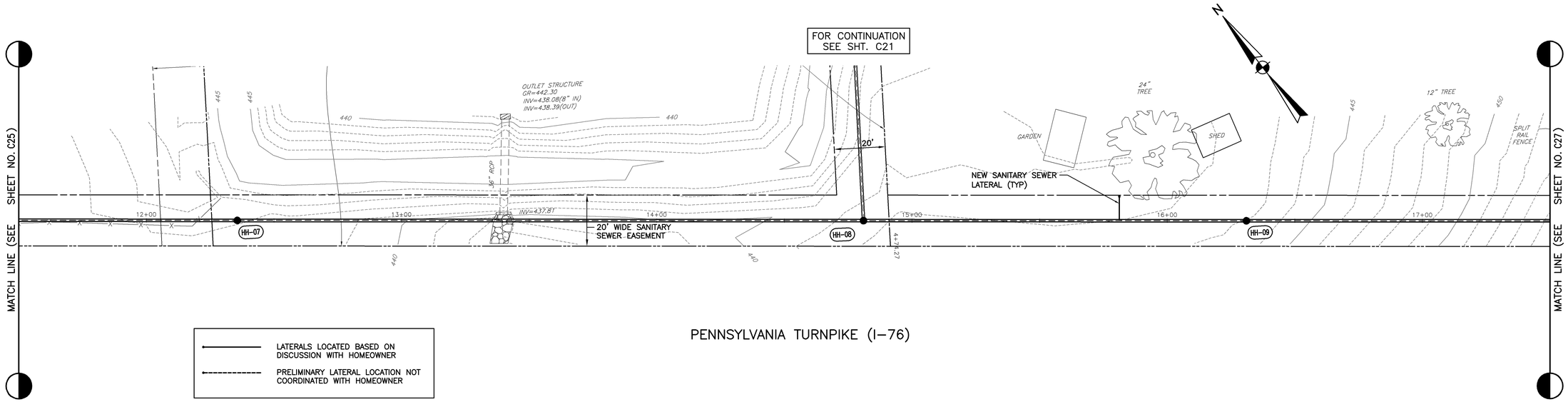
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SAN. SEWER HH-36 TO HH-06 PLAN AND PROFILE STA 8+50 TO STA 11+50

SCALE		DWG. NO.
AS NOTED		C-25
PROJECT NO.	SHEET NO.	REV.
10270.06	27 OF 42	S-4440A

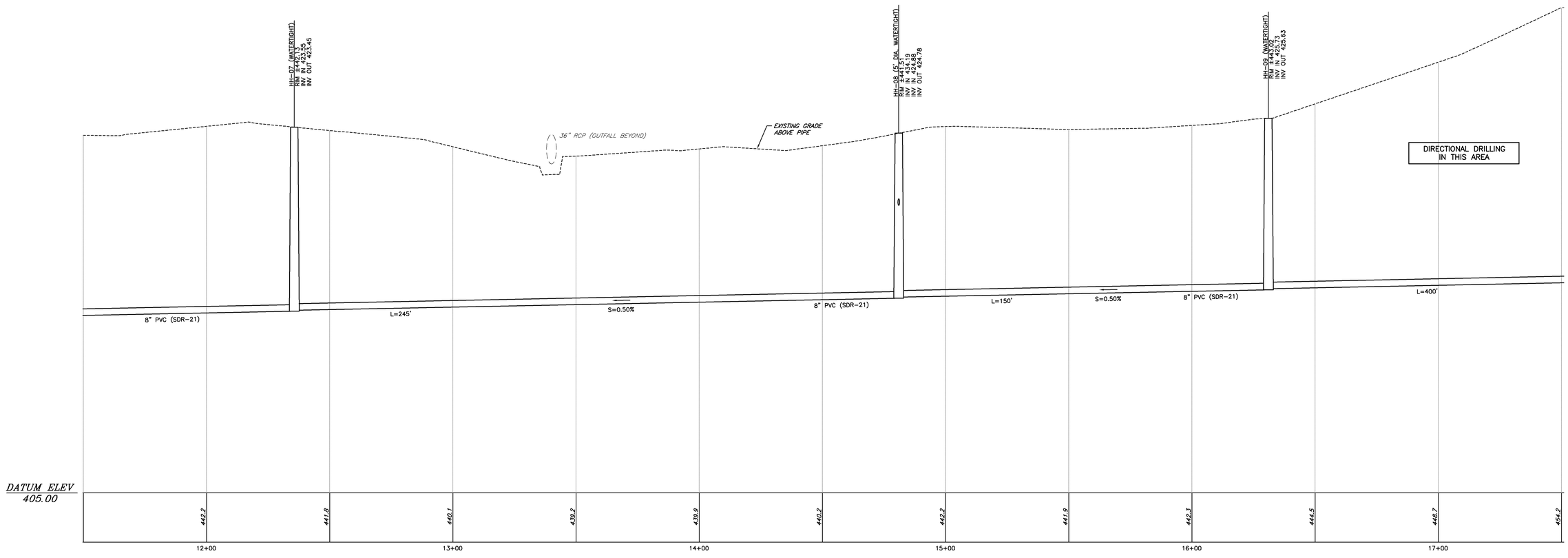
Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM



PENNSYLVANIA TURNPIKE (I-76)

SAN. SEWER HH-07 TO HH-09
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED:
DRAWN: BLE	CHECKED:
DATE: JULY 2014	SURVEY DATE:
	FIELD BOOK:

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

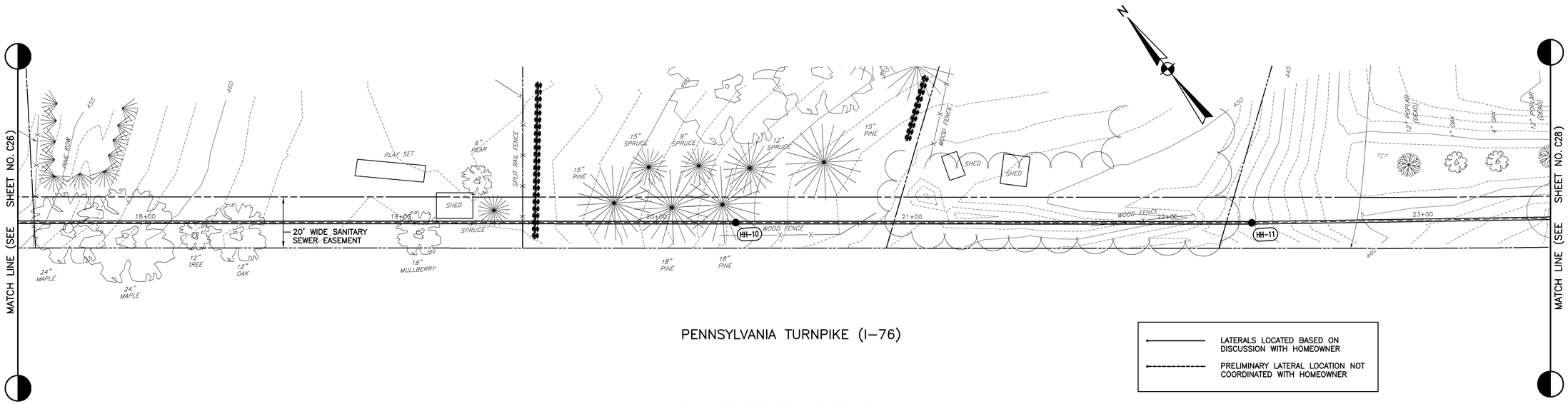
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SAN. SEWER HH-07 TO HH-09
PLAN AND PROFILE
STA 11+50 TO STA 17+50

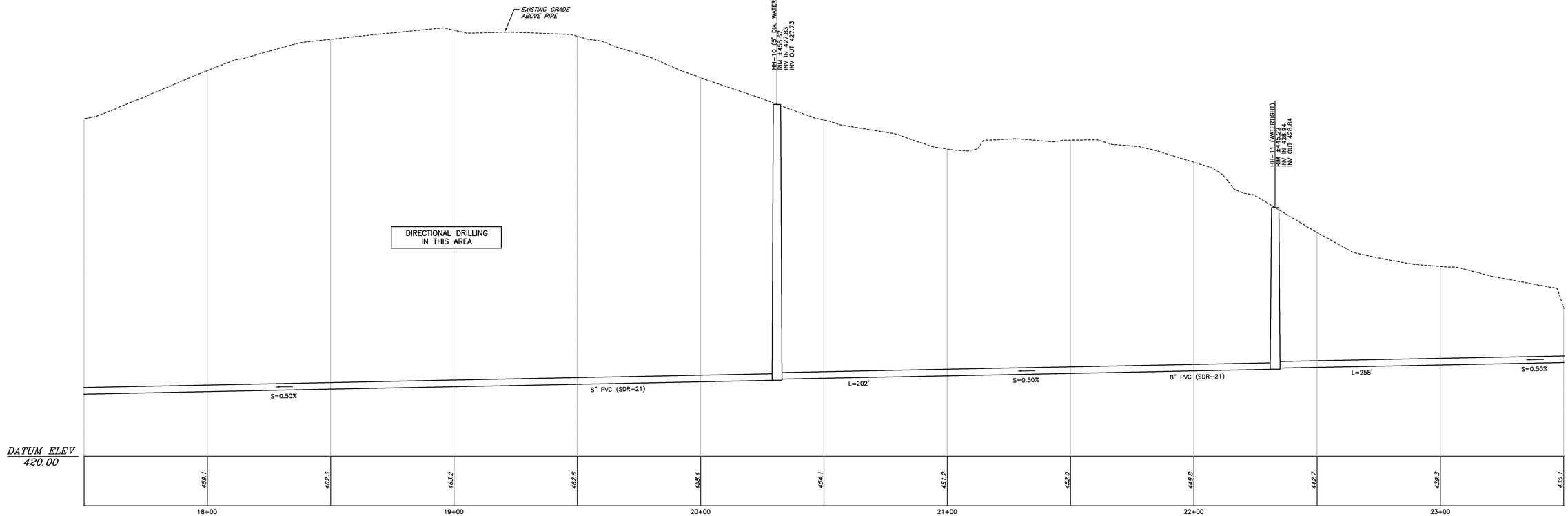
SCALE	DWG. NO.
AS NOTED	C-26
PROJECT NO. 10270.06 / SHEET NO. 28 OF 42 / REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM



SAN. SEWER HH-10 TO HH-11
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED
DRAWN: BLE	CHECKED
DATE: JULY 2014	SURVEY DATE
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

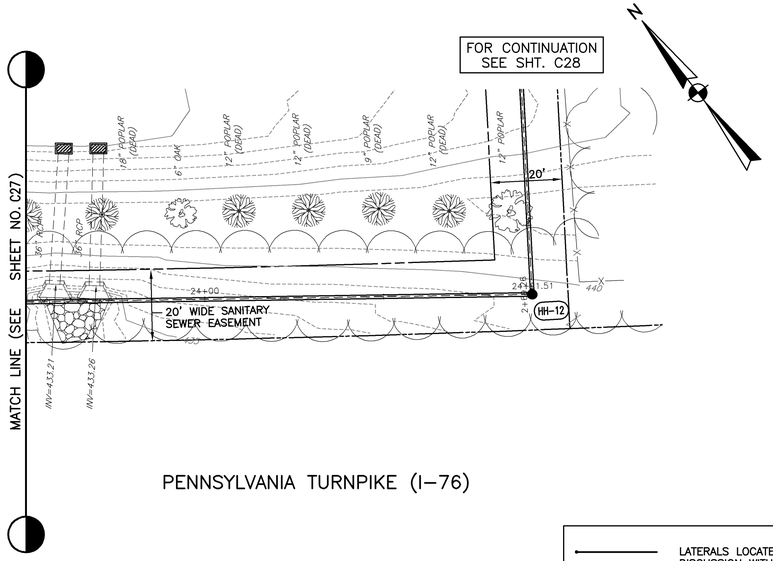
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SAN. SEWER HH-10 TO HH-11 PLAN AND PROFILE STA 17+50 TO STA 23+50

SCALE		DWG. NO.
AS NOTED		C-27
PROJECT NO. 10270.06	SHEET NO. 29 OF 42	REV. S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:50 AM



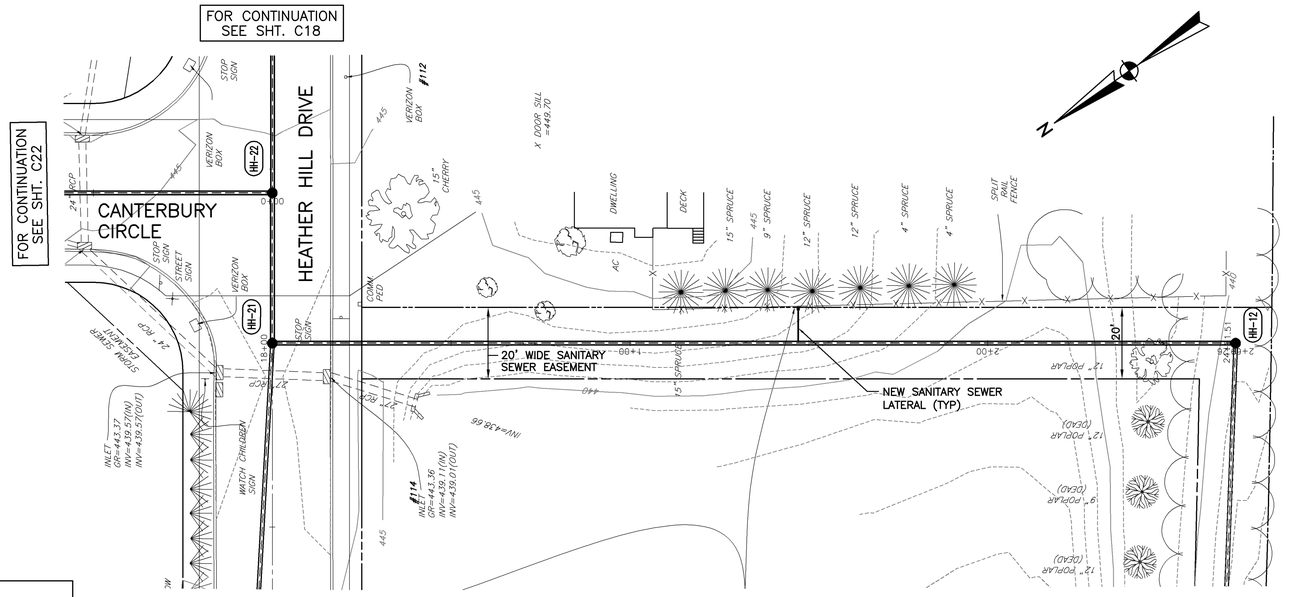
PENNSYLVANIA TURNPIKE (I-76)

SAN. SEWER HH-11 TO HH-12 PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

LATERALS LOCATED BASED ON DISCUSSION WITH HOMEOWNER

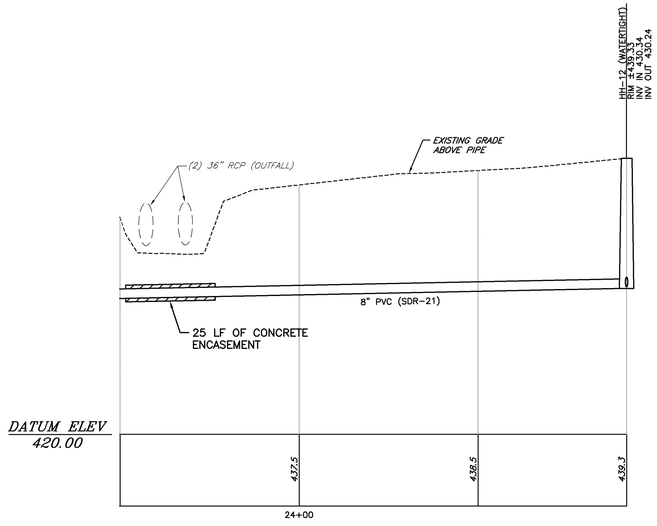
PRELIMINARY LATERAL LOCATION NOT COORDINATED WITH HOMEOWNER

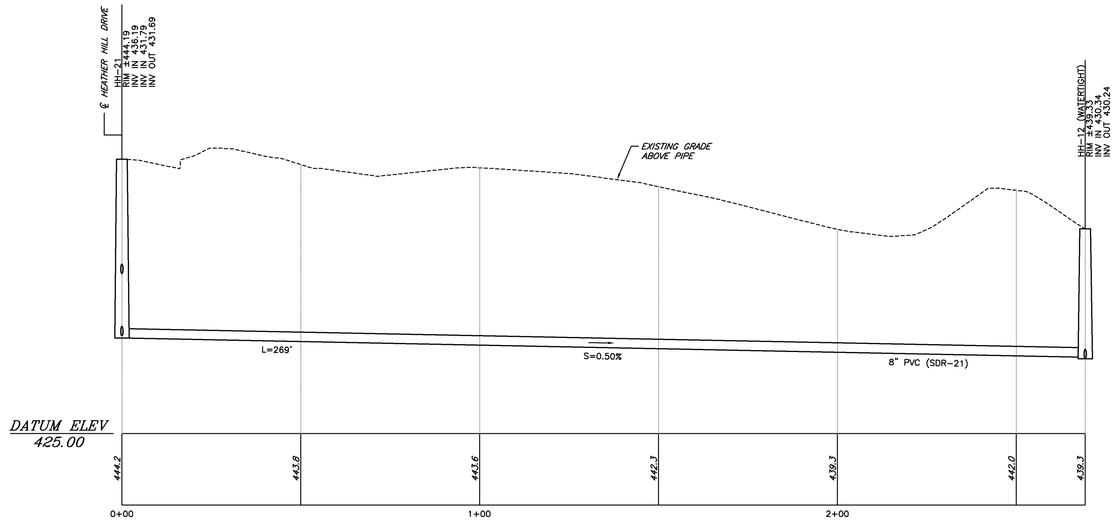


PENNSYLVANIA TURNPIKE (I-76)

SAN. SEWER HH-21 TO HH-12 PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'





NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED
DRAWN: BLE	CHECKED
DATE: JULY 2014	SURVEY DATE
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

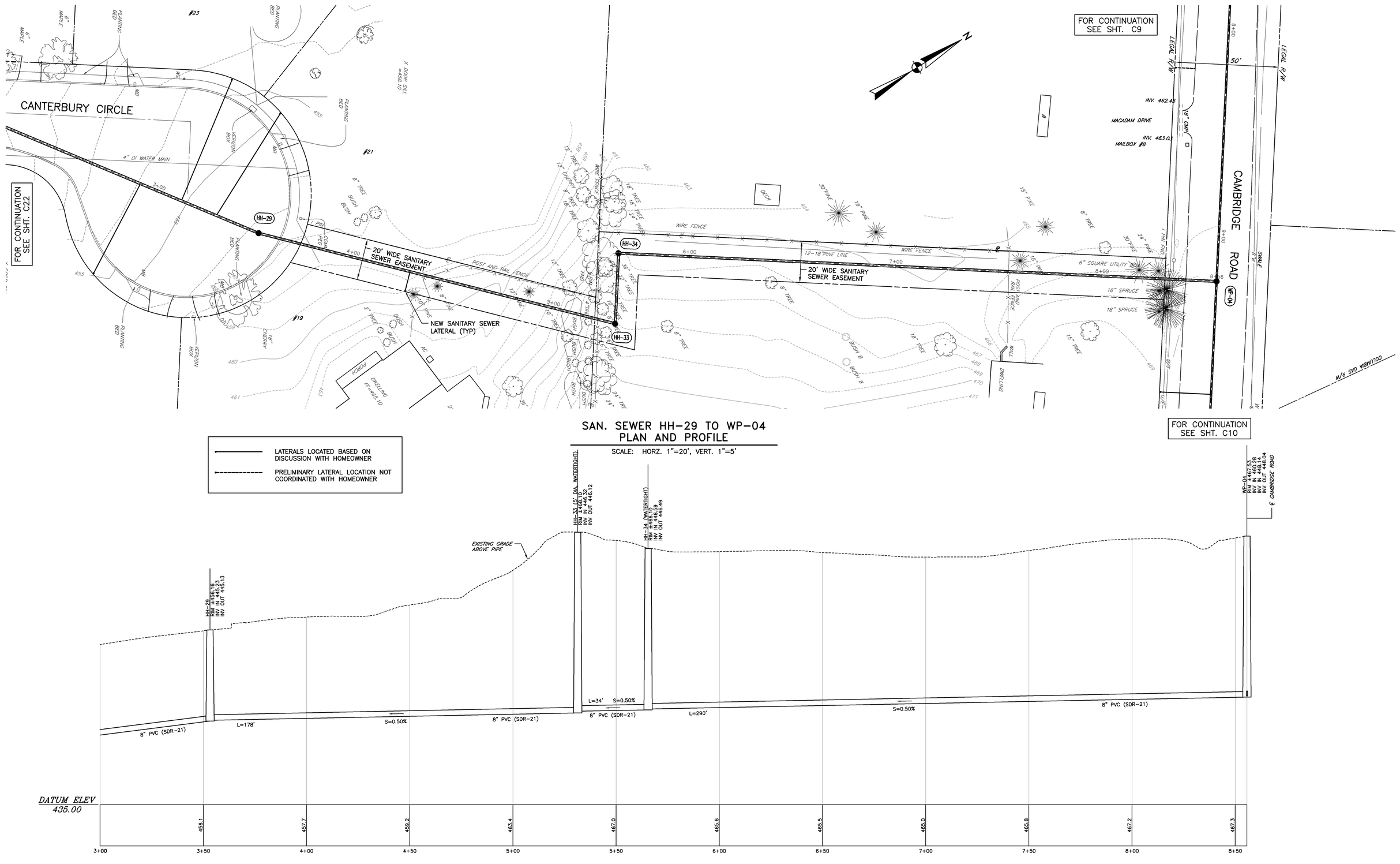
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SAN. SEWER HH-12 TO HH-21 PLAN AND PROFILE

SCALE	DWG. NO.
AS NOTED	C-28
PROJECT NO. 10270.06 / SHEET NO. 30 OF 42 / REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:51 AM



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

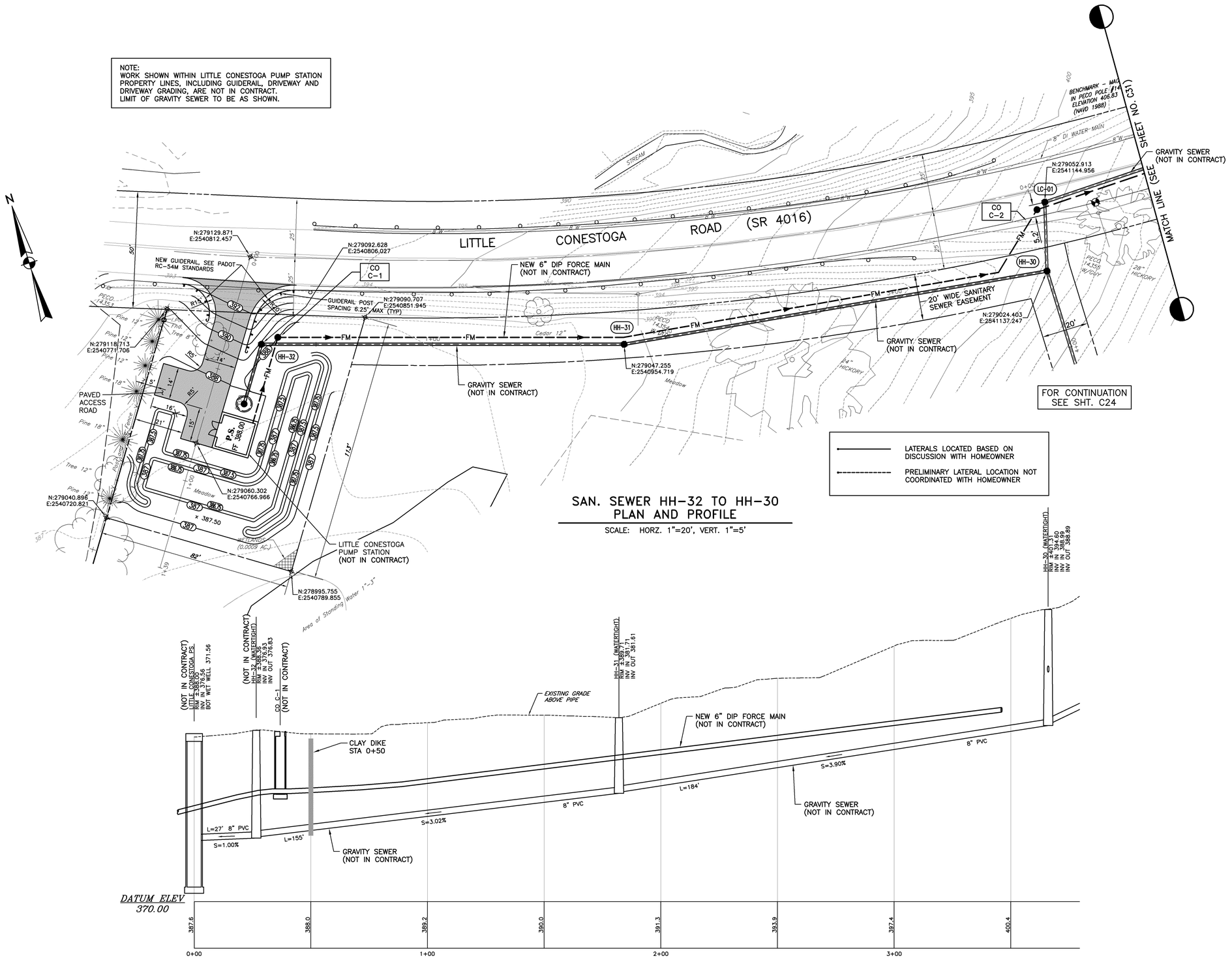
ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
SAN. SEWER HH-29 TO WP-04
PLAN AND PROFILE
STA 3+00 TO STA 8+56

SCALE		DWG. NO.
AS NOTED		C-29
PROJECT NO.	SHEET NO.	REV.
10270.06	31 OF 42	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:51 AM

NOTE:
WORK SHOWN WITHIN LITTLE CONESTOGA PUMP STATION PROPERTY LINES, INCLUDING GUIDERAIL, DRIVEWAY AND DRIVEWAY GRADING, ARE NOT IN CONTRACT.
LIMIT OF GRAVITY SEWER TO BE AS SHOWN.



SAN. SEWER HH-32 TO HH-30 PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G. MATTHEW BROWN, P.E.
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

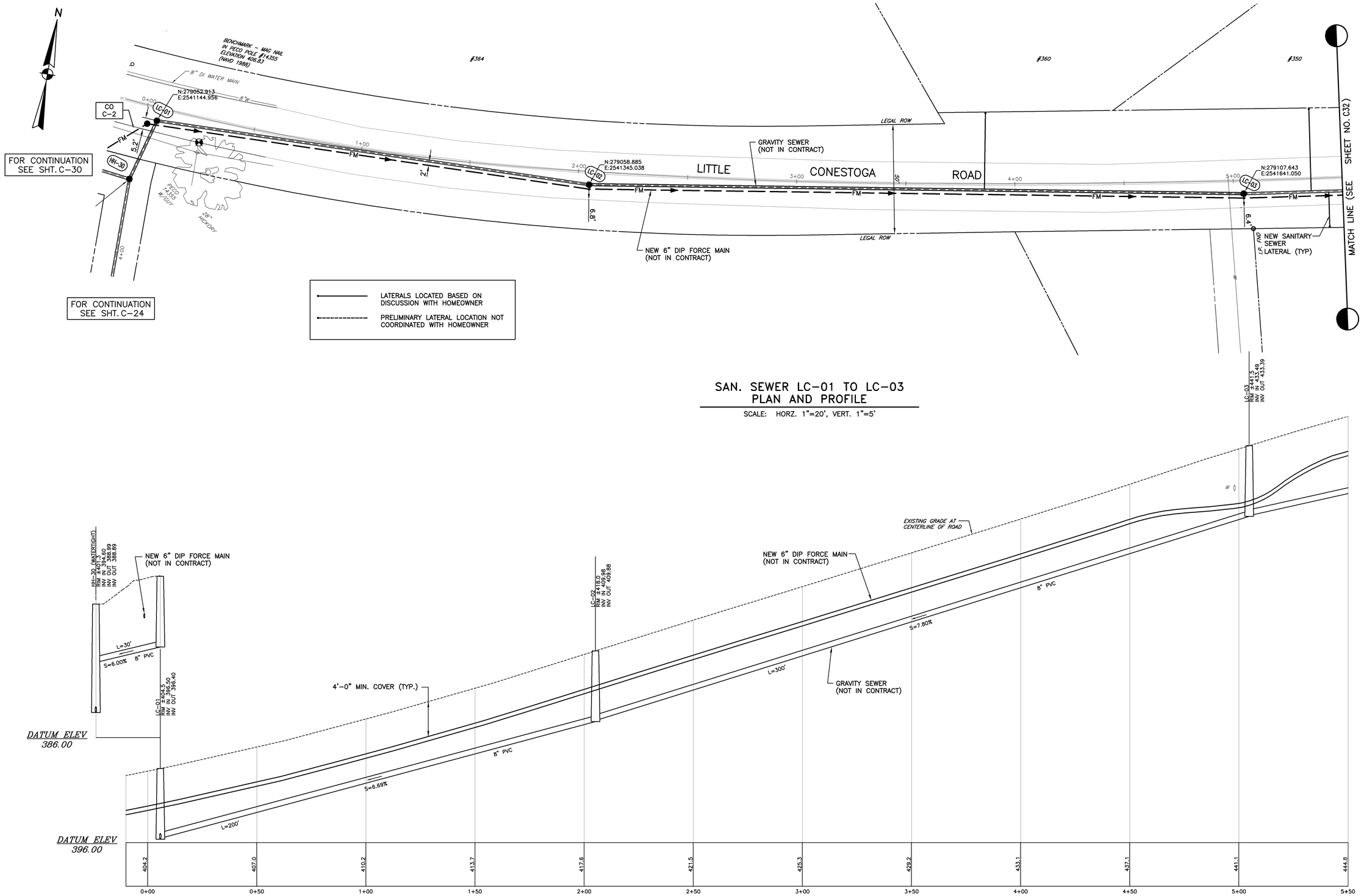
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SAN. SEWER HH-32 TO HH-30 PLAN AND PROFILE STA 0+00 TO STA 3+66

SCALE	DWG. NO.
AS NOTED	C-30
PROJECT NO. 10270.06	SHEET NO. 32 OF 42
REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:51 AM



SAN. SEWER LC-01 TO LC-03
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
SAM	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

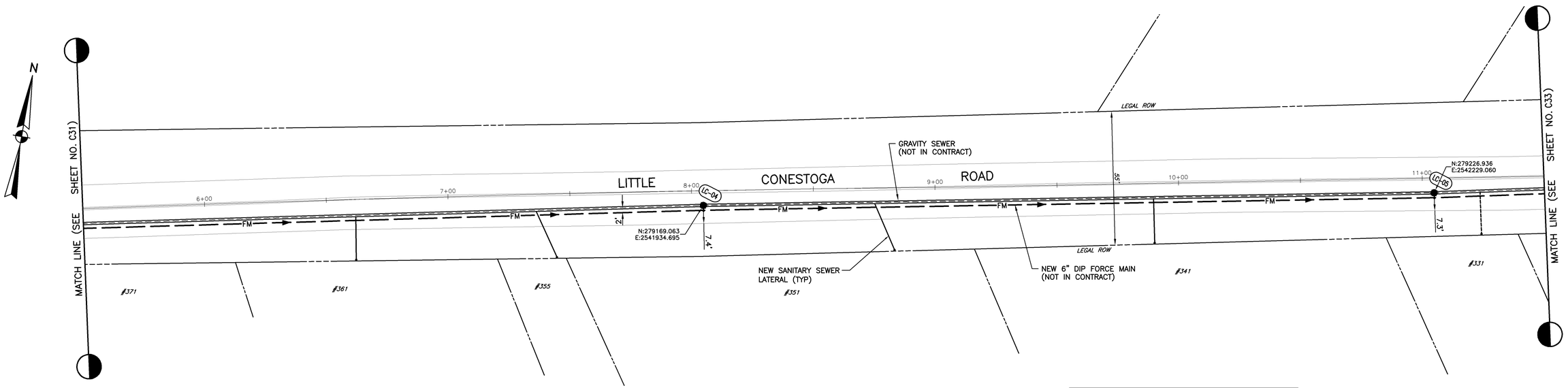
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SAN. SEWER LC-01 TO LC-03
PLAN AND PROFILE
STA 0+00 TO STA 5+50

SCALE		DWG. NO.
AS NOTED		C-31
PROJECT NO.	SHEET NO.	REV.
10270.06	33 OF 42	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:51 AM

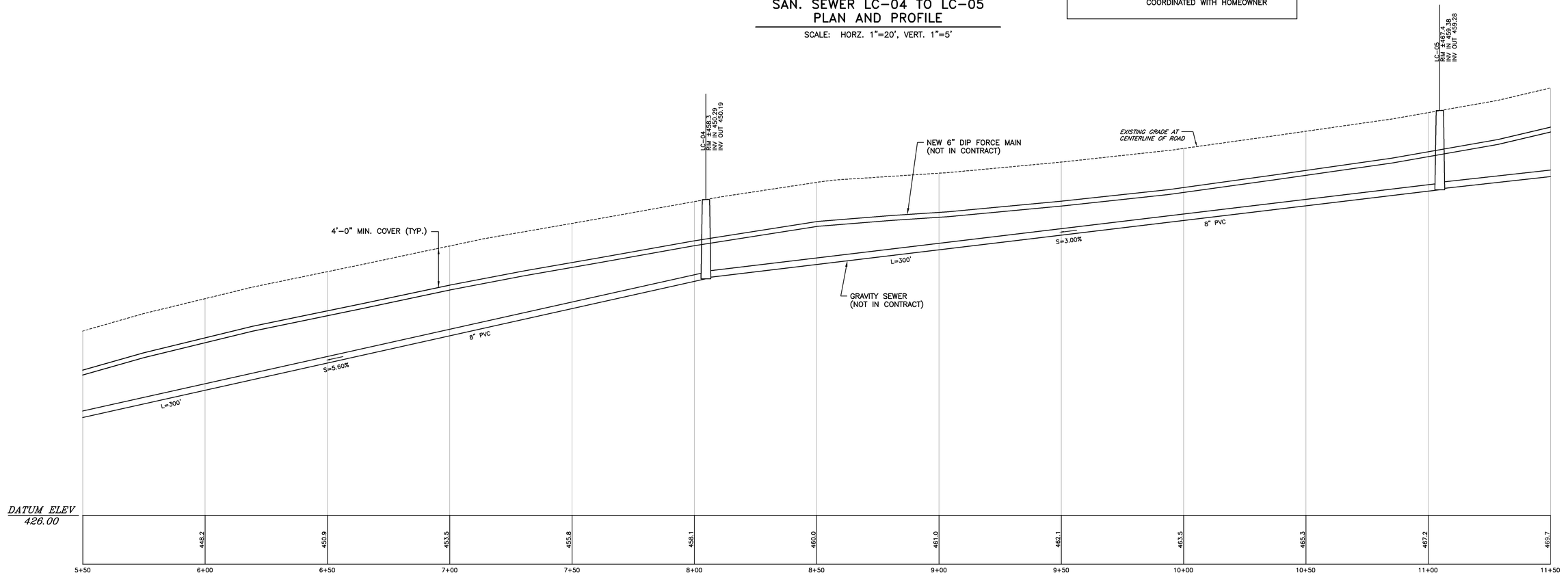


LATERALS LOCATED BASED ON DISCUSSION WITH HOMEOWNER

PRELIMINARY LATERAL LOCATION NOT COORDINATED WITH HOMEOWNER

SAN. SEWER LC-04 TO LC-05 PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED
DRAWN: SAM	CHECKED
DATE: JULY 2014	SURVEY DATE
	FIELD BOOK

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

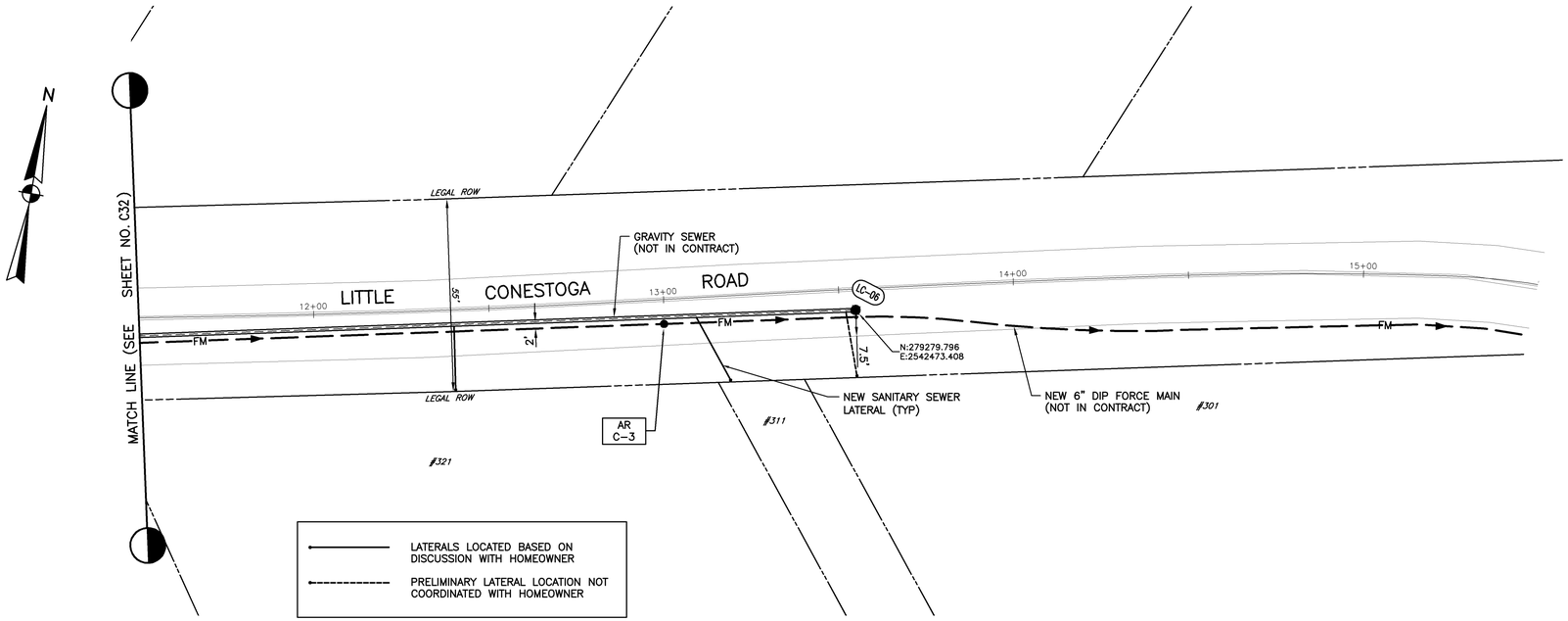
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SAN. SEWER LC-04 TO LC-05 PLAN AND PROFILE STA 5+50 TO STA 11+50

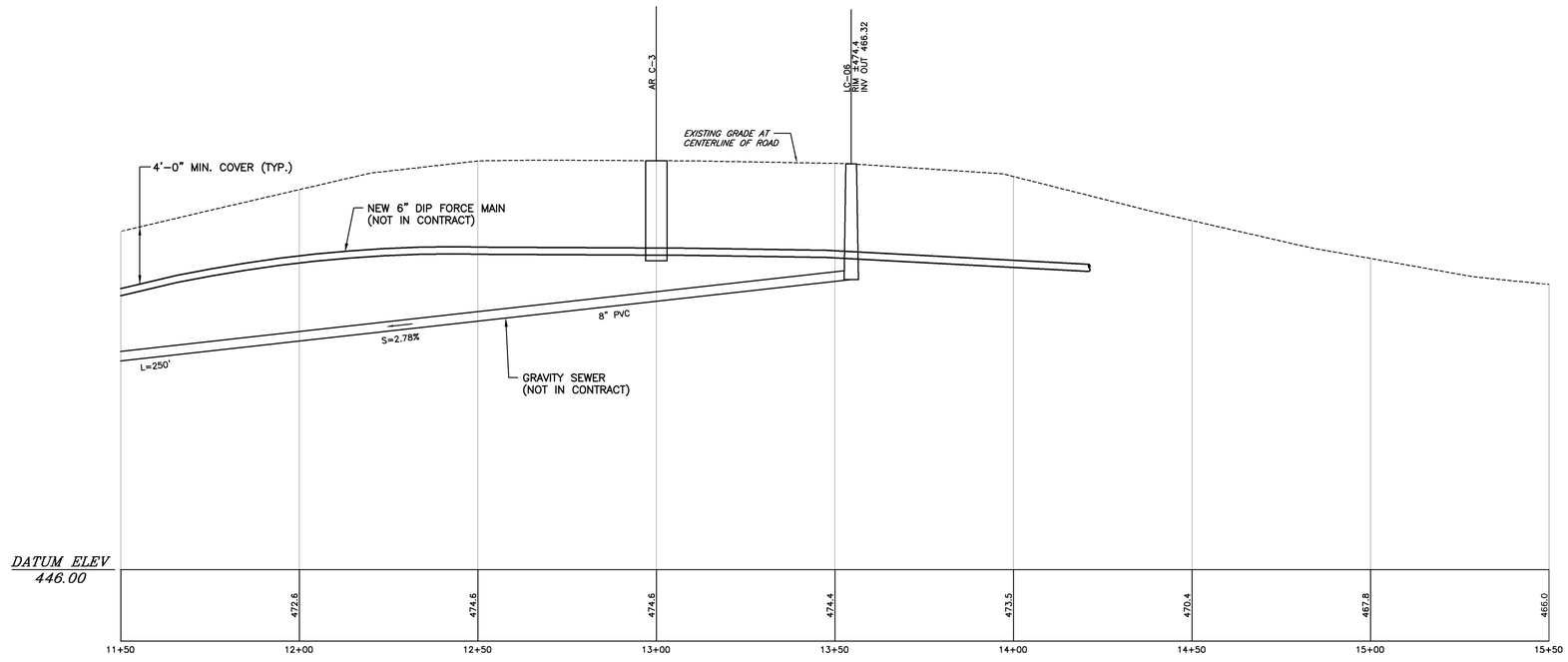
SCALE	DWG. NO.
AS NOTED	C-32
PROJECT NO. 10270.06 / SHEET NO. 34 OF 42 / REV.	S-4440A

Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:51 AM



SAN. SEWER LC-05 TO LC-06
PLAN AND PROFILE

SCALE: HORZ. 1"=20', VERT. 1"=5'



NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED:
DRAWN: SAM	CHECKED:
DATE: JULY 2014	SURVEY DATE:
	FIELD BOOK:

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

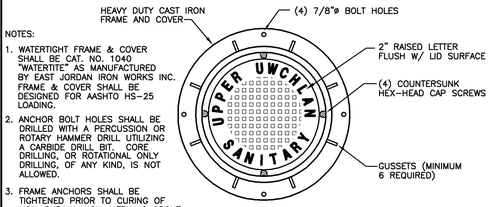
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SAN. SEWER LC-05 TO LC-06
PLAN AND PROFILE
STA 11+50 TO STA 15+50

SCALE	DWG. NO.
AS NOTED	C-33
PROJECT NO. 10270.06 / SHEET NO. 35 OF 42 / REV.	S-4440A

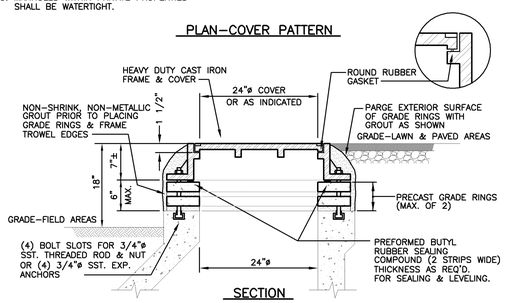
Dwg. Name: 10270498.DWG Plotted: 7/6/2015 10:51 AM



NOTES:

1. WATERTIGHT FRAME & COVER SHALL BE CAT. NO. 1040 "WATERTITE" AS MANUFACTURED BY EAST JORDAN IRON WORKS INC. FRAME & COVER SHALL BE DESIGNED FOR AASHTO HS-25 LOADING.
2. ANCHOR BOLT HOLES SHALL BE DRILLED WITH A PERCUSSION OR ROTARY HAMMER DRILL UTILIZING A CARBIDE DRILL BIT. CORE DRILLING, OR ROTATIONAL ONLY DRILLING, OF ANY KIND, IS NOT ALLOWED.
3. FRAME ANCHORS SHALL BE TIGHTENED PRIOR TO CURING OF NON-SHRINK, NON-METALLIC GROUT.
4. COVER SHALL BE BOLTED TO FRAME.
5. MANHOLES WITHIN PRIVATE PROPERTIES SHALL BE WATERTIGHT.

PLAN-COVER PATTERN



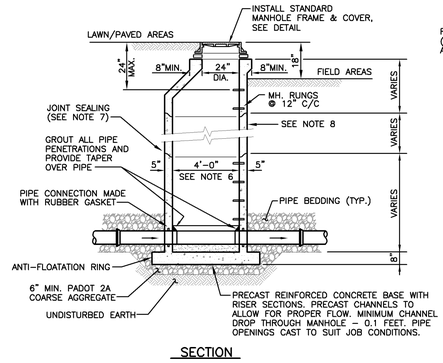
SECTION

MANHOLE FRAME & COVER (WATERTIGHT)

NO SCALE

NOTES:

1. ADJUST TO GRADE WITH CONCRETE GRADE RINGS (MAXIMUM VERTICAL ADJUSTMENT 6") SEE FRAME & COVER DETAILS.2. MATCH EXISTING DEPTHS IF GREATER.
2. MECHANICALLY VIBRATED PRECAST CONCRETE SHALL CONFORM TO A.S.T.M. SPEC. C-478.
3. IF INCOMING INVERT EXCEEDS OUTGOING INVERT BY GREATER THAN OR EQUAL TO 6", SEE INSIDE SPLASH/INSIDE DROP MANHOLE DETAILS.
4. FOR MANHOLES WHERE TOP OF RIM TO INVERT DISTANCE IS LESS THAN 5'-0", USE FLAT TOP MANHOLE IN LIEU OF CONE TOP.
5. FILL ALL LIFTING HOLES WITH NON-SHRINK, NON-METALLIC GROUT.
6. LARGER DIAMETER MANHOLE REQUIRED ON INSIDE DROP AND INSIDE SPLASH CONNECTION GREATER THAN 12", SEE MANHOLE DETAILS INSIDE SPLASH/INSIDE DROP (8"-10").
7. PROVIDE 2 RINGS OF PREFORMED BUTYL RUBBER SEALING COMPOUND (INSIDE & OUTSIDE) AT ALL MANHOLE JOINTS.
8. COAT EXTERIOR WITH BITUMASTIC, 20-MIL DFT (TYP.).



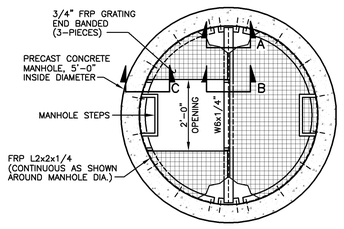
SECTION

PRECAST MANHOLE 8" THROUGH 24" SEWERS

NO SCALE

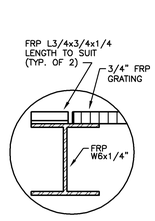
NOTES:

1. FRP MANUFACTURER IS RESPONSIBLE FOR DESIGN OF PLATFORM & ALL SUPPORTS & ANCHORS.

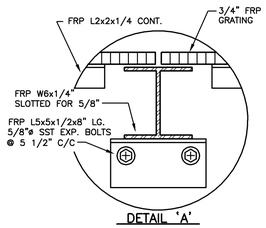


GRATING PLATFORM PLAN

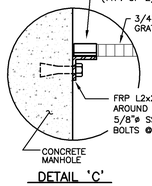
NO SCALE



DETAIL 'B'



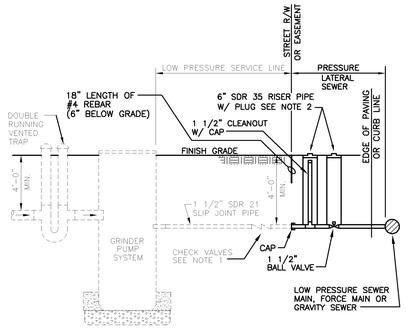
DETAIL 'A'



DETAIL 'C'

MANHOLE FRP PLATFORM

NO SCALE



NOTES:

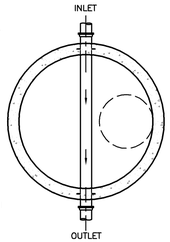
1. PROVIDE TWO (2) CHECK VALVES IN SERIES BETWEEN GRINDER PUMP AND CLEANOUT LOCATED IN STREET RIGHT-OF-WAY WHEN DISCHARGING TO A LOW PRESSURE SEWER OR FORCE MAIN. (NIC)
2. CLEANOUTS LOCATED IN PAVED AREAS MUST BE PROVIDED WITH FRAME AND COVER IN ACCORDANCE WITH DETAIL 4600SD19.
3. GRINDER SYSTEM TANK SHALL BE LOCATED OUTSIDE OF PAVED AREAS. (NIC)
4. NO VENT CAPS OR CLEANOUTS SHALL BE INSTALLED IN DRIVEWAYS OR OTHER PAVED AREAS, UNLESS SPECIFICALLY APPROVED BY UUTMA. VENTS AND CLEANOUTS LOCATED IN PAVED AREAS MUST BE PROVIDED WITH A FRAME AND COVER IN ACCORDANCE WITH VENT & CLEANOUTS IN PAVED AREAS DETAIL.

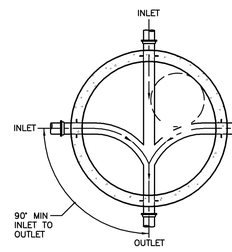
SIMPLEX GRINDER PUMP DETAIL PLUMBING (BY PROPERTY OWNER - NIC)

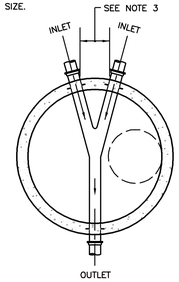
NO SCALE

NOTES:

1. THREE INLET PIPES AND ONE OUTLET PIPE MAX INTO MANHOLE.
2. NO LATERALS INTO MANHOLES, EXCEPT BY SPECIAL EXCEPTION FROM TOWNSHIP AUTHORITY.
3. MINIMUM 12" SEPARATION FROM EDGE OF PIPE PENETRATION TO EDGE OF PIPE PENETRATION.
4. MINIMUM CHANNEL DROP THROUGH MANHOLE:
   STRAIGHT THROUGH - 0.1 FEET
   BEND - 0.2 FEET
5. ALL CHANNELS SHALL BE PRECAST, UNLESS OTHERWISE SPECIFICALLY NOTED OR APPROVED.
6. THESE DETAILS APPLY TO PRECAST CHANNELS IN NEW MANHOLES, AND FIELD-FORMED CHANNELS IN EXISTING MANHOLES.
7. CHANNEL BENCH AT PIPE SHALL MATCH 3/4 CROWN ELEVATION OF PIPE AND RISE 1/2" PER FOOT TO THE MANHOLE WALLS.
8. CHANNELS SHALL MATCH THE CROSS-SECTIONAL DIMENSIONS OF THE PIPES ENTERING AND EXITING THE MANHOLE. SMOOTH TRANSITIONS SHALL BE PROVIDED BETWEEN CHANGES IN PIPE SIZE.





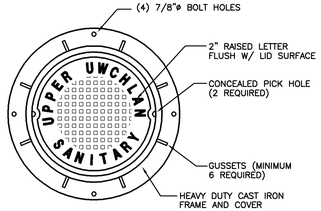


PRECAST MANHOLE CHANNELS

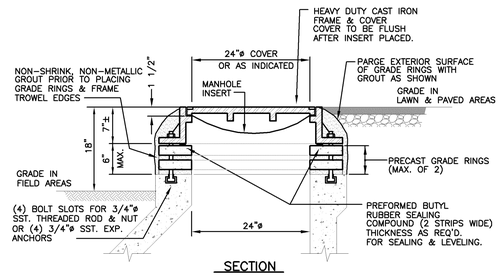
NO SCALE

NOTES:

1. MANHOLE FRAME & COVER SHALL BE CAT. NO. 1040 AS MANUFACTURED BY EAST JORDAN IRON WORKS, INC. FRAME & COVER SHALL BE DESIGNED FOR AASHTO HS-25 LOADING.
2. MANHOLE INSERT IS NOT REQ'D. WHEN INSTALLING A WATERTIGHT FRAME & COVER.
3. ANCHOR BOLT HOLES SHALL BE DRILLED WITH A PERCUSSION OR ROTARY HAMMER DRILL UTILIZING A CARBIDE DRILL BIT. CORE DRILLING, OR ROTATIONAL ONLY DRILLING, OF ANY KIND, IS NOT ALLOWED.
4. FRAME ANCHORS SHALL BE TIGHTENED PRIOR TO CURING OF NON-SHRINK, NON-METALLIC GROUT.
5. COVER RECESS SHALL BE DESIGNED TO ACCOMMODATE MANHOLE INSERT THICKNESS.



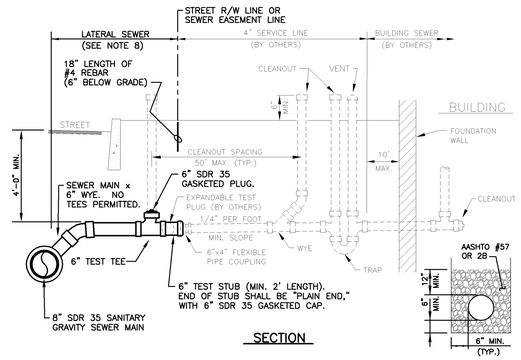
PLAN-COVER PATTERN



SECTION

MANHOLE FRAME & COVER

NO SCALE



SECTION

PIPE BEDDING

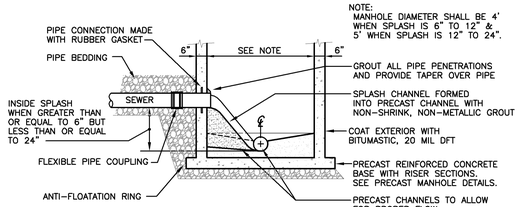
NOTES:

1. PROVIDE 6" OF AASHTO NO. 57 STONE BELOW PIPE AND 12" ABOVE PIPE (TYPICAL ENTIRE LENGTH OF LATERAL).
2. MINIMUM SLOPE = 1% (1/4" PER FT).
3. MINIMUM DEPTH OF COVER = 4 FT.
4. PIPE MATERIALS: LATERAL SEWER - PVC SDR 35, GASKETED.
5. TO CONDUCT AIR TESTING OF LATERAL SEWER, INSTALL GASKETED PLUGS OR CAPS AT LOCATIONS SHOWN.
6. CONTRACTOR SHALL COORDINATE LATERAL LOCATION WITH PROPERTY OWNER.
7. THE LATERAL SEWER SHALL BE INSTALLED TO THE EDGE OF THE SEWER EASEMENT FOR SEWERS LOCATED IN AN EASEMENT OR TO THE STREET RIGHT-OF-WAY AS A MINIMUM, OR TO SUCH POINT, AS REQUIRED, TO CLEAR STREET SIDEWALKS AND UNDERGROUND UTILITIES.
8. NO VENT CAPS OR CLEANOUTS SHALL BE INSTALLED IN DRIVEWAYS OR OTHER PAVED AREAS, UNLESS SPECIFICALLY APPROVED BY UUTMA. VENTS AND CLEANOUTS LOCATED IN PAVED AREAS MUST BE PROVIDED WITH A FRAME AND COVER IN ACCORDANCE WITH VENT & CLEANOUTS IN PAVED AREAS DETAIL.

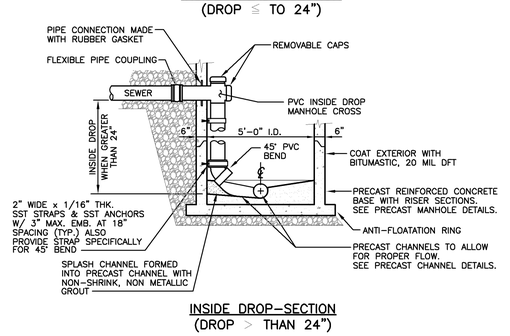
LATERAL SEWER

NO SCALE

NOTE:
MANHOLE DIAMETER SHALL BE 4' WHEN SPLASH IS 6" TO 12" & 5' WHEN SPLASH IS 12" TO 24".



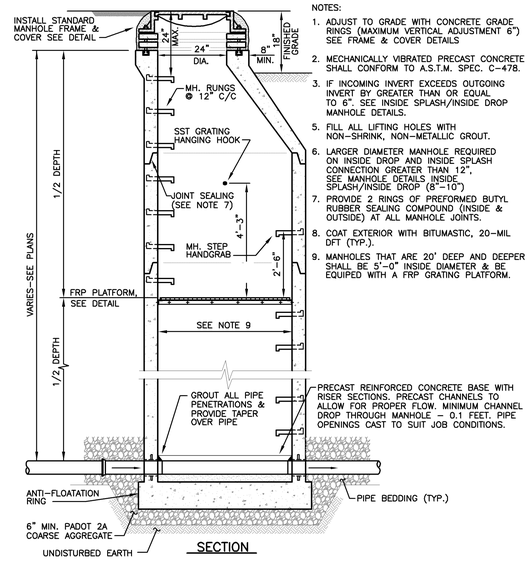
INSIDE SPLASH-SECTION
(DROP ≦ TO 24")



INSIDE DROP-SECTION
(DROP > THAN 24")

MANHOLE OPTIONS INSIDE SPLASH/INSIDE DROP

NO SCALE



NOTES:

1. ADJUST TO GRADE WITH CONCRETE GRADE RINGS (MAXIMUM VERTICAL ADJUSTMENT 6") SEE FRAME & COVER DETAILS
2. MECHANICALLY VIBRATED PRECAST CONCRETE SHALL CONFORM TO A.S.T.M. SPEC. C-478.
3. IF INCOMING INVERT EXCEEDS OUTGOING INVERT BY GREATER THAN OR EQUAL TO 6". SEE INSIDE SPLASH/INSIDE DROP MANHOLE DETAILS.
5. FILL ALL LIFTING HOLES WITH NON-SHRINK, NON-METALLIC GROUT.
6. LARGER DIAMETER MANHOLE REQUIRED ON INSIDE DROP AND INSIDE SPLASH CONNECTION GREATER THAN 12", SEE MANHOLE DETAILS INSIDE SPLASH/INSIDE DROP (8"-10")
7. PROVIDE 2 RINGS OF PREFORMED BUTYL RUBBER SEALING COMPOUND (INSIDE & OUTSIDE) AT ALL MANHOLE JOINTS.
8. COAT EXTERIOR WITH BITUMASTIC, 20-MIL DFT (TYP.).
9. MANHOLES THAT ARE 20' DEEP AND DEEPER SHALL BE 5'-0" INSIDE DIAMETER & BE EQUIPED WITH A FRP GRATING PLATFORM.

PRECAST MANHOLE 20' DEEP AND DEEPER

NO SCALE

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	
	FIELD BOOK

SEAL

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT

UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

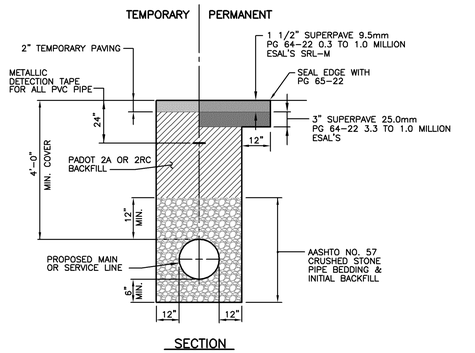
ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE

SITE DETAILS - GRAVITY SEWER

SCALE	DWG. NO.
AS NOTED	C-34
PROJECT NO. 10270.06	SHEET NO. 36 OF 42
REV.	S-4440A

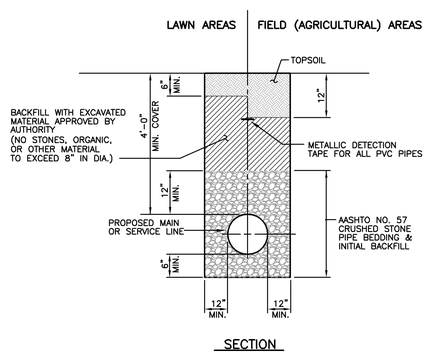
Dwg. Name: 10270507.DWG Plotted: 7/6/2015 10:51 AM



SECTION

TRENCH RESTORATION PARKING AREAS & DRIVEWAYS

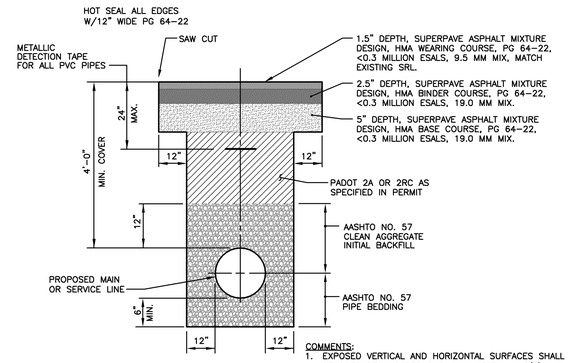
NO SCALE



SECTION

TRENCH RESTORATION LAWN/FIELD AREAS

NO SCALE



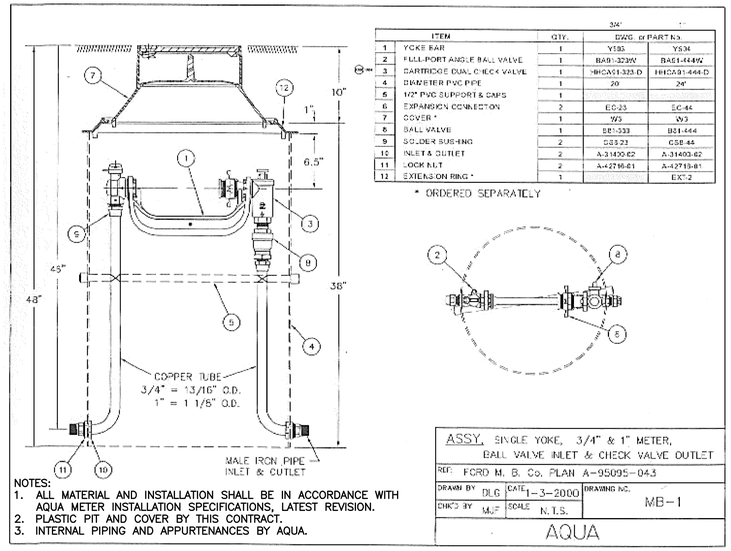
NOTES:
1. SURFACE RESTORATION IN SHOULDERS SHALL BE PADOT STANDARDS.
2. MATCH EXISTING DEPTHS IF GREATER.

SECTION

COMMENTS:
1. EXPOSED VERTICAL AND HORIZONTAL SURFACES SHALL BE PREPARED AS PER PUB 408, SECT. 409.3(g).
2. MINIMUM 1" PAVEMENT CUTBACK, EXCAVATE OLD AND TEMPROARY MATERIAL. RECOMPACT SUB-GRADE. TACK COAT ALL EDGES. INSTALL ONLY BASE COURSE AND BINDER COURS IN ONE DAY.
3. PERMANENT RESTORATION TO BE MINIMUM 90 DAYS UNLESS FLOWABLE FILL IS USED.

FLEXIBLE PAVEMENT RESTORATION STATE ROADS

NO SCALE



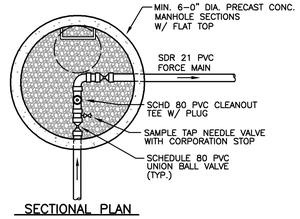
NOTES:
1. ALL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH AQUA METER INSTALLATION SPECIFICATIONS, LATEST REVISION.
2. PLASTIC PIT AND COVER BY THIS CONTRACT.
3. INTERNAL PIPING AND APPURTENANCES BY AQUA.

ASSY. SINGLE YOKE, 3/4" & 1" METER, BALL VALVE INLET & CHECK VALVE OUTLET
REF: FORD M. B. Co. PLAN A-95095-04.5
DRAWN BY DLG | DATE 1-3-2000 | DRAWING NO. MB-1
CHKD BY MJF | SCALE N.T.S.
AQUA

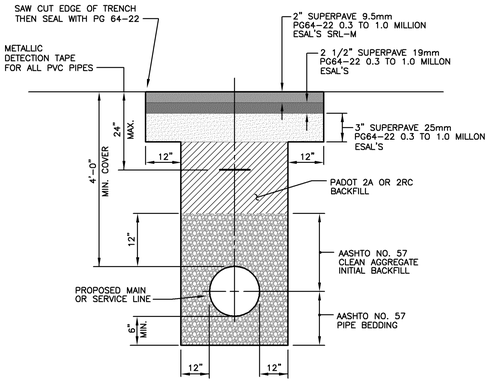
POTABLE WATER METER PIT DETAIL

NO SCALE

NOTES:
1. ADJUST TO GRADE WITH CONC. GRADE RINGS, SEE STANDARD FRAME & COVER DETAILS.
2. MECHANICALLY VIBRATED PRECAST CONC. SHALL CONFORM TO A.S.T.M. C-478.
3. SEAL ALL JOINTS INSIDE & OUTSIDE WITH PREFORMED BUTYL RUBBER SEALING COMPOUND.
4. COAT EXTERIOR WITH BITUMASTIC EPOXY 20-MIL DFT (TYP.)
5. OUTSIDE DIAMETER OF FLANGES SHALL BE 6" ABOVE FLOOR.
6. ALL PIPE AND FITTINGS BETWEEN VALVES SHALL BE SCHDULE 80 PVC



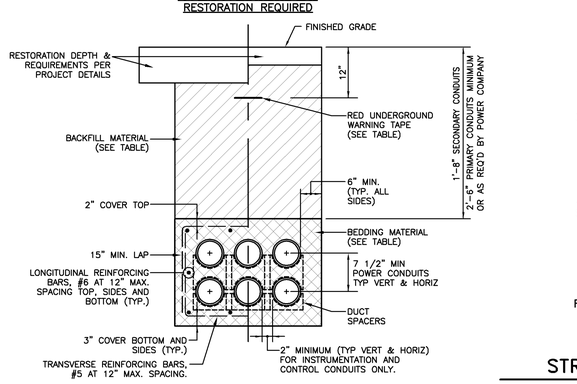
SECTIONAL PLAN



SECTION

TRENCH RESTORATION TOWNSHIP ROADS

NO SCALE

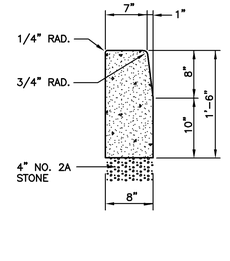


RESTORATION REQUIREMENT	DUCT TYPE	BEDDING MATERIAL	REINFORCING REQUIRED	BACKFILL MATERIAL	WARNING TAPE REQUIRED
ROADWAYS, DRIVEWAYS, & OTHER PAVED AREAS (NOTE 4)	NOTES 5 & 6	CONCRETE ENCASEMENT (NOTE 2 & 3)	YES (NOTE 3)	AGGREGATE	NO
AREAS OF SOFT FILL	NOTES 5 & 6	CONCRETE ENCASEMENT (NOTE 2 & 3)	YES (NOTE 3)	AGGREGATE	NO
CROSSING UTILITIES	NOTES 5 & 6	CONCRETE ENCASEMENT (NOTE 2 & 3)	YES (NOTE 3)	AGGREGATE	NO
GRAVEL DRIVEWAYS	NOTES 5 & 6	AGGREGATE	NO	AGGREGATE	YES
LAWNS, MEADOWS, CULTIVATED FIELDS	NOTES 5 & 6	EXCAVATED BACKFILL MATERIAL	NO	EXCAVATED BACKFILL MATERIAL	YES

NOTES:
1. NUMBER AND SIZE OF DUCTS AS SHOWN ON THE DRAWINGS, THIS DETAIL IS FOR ILLUSTRATION ONLY.
2. DUCT BANK ENCASEMENT MAY BE SLOT POURED WITH SIDES OF TRENCH ACTING AS CONCRETE FORM. 3000 PSI CONCRETE.
3. CONCRETE ENCASEMENT W/ REINFORCING BARS SHALL EXTEND 5 FEET BEYOND EDGE OF PAVED AREAS, SOFT FILL AREA, OR CROSSED UTILITY.
4. DUCT BANKS INSTALLED WITHIN STATE HIGHWAY RIGHT OF WAY SHALL BE INSTALLED IN ACCORDANCE WITH PADOT REQUIREMENTS, SUBJECT TO PADOT INSPECTION.
5. SECONDARY, INSTRUMENT & CONTROL CONDUITS AS SPECIFIED IN 16050.
6. SERVICE PRIMARY CONDUITS OR DIRECT BURIAL CABLE AS REQUIRED BY POWER COMPANY.

TYPICAL DUCT BANK DETAIL

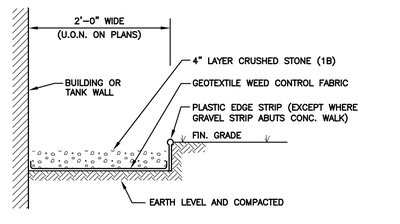
NO SCALE



REFER TO PADOT PUB. 72M, RC-64M

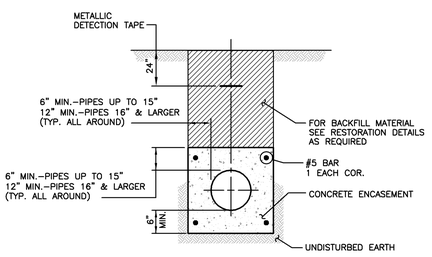
STRAIGHT CONCRETE CURB

NO SCALE



GRAVEL MAINTENANCE STRIP DETAIL

NO SCALE



SECTION

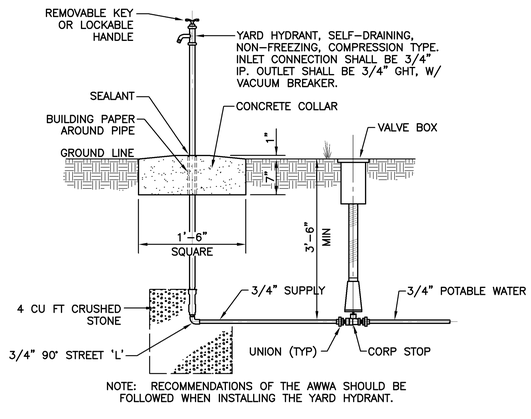
FORCE MAIN (PVC) CLEANOUT WITH VALVES IN MANHOLE

NO SCALE

SECTION

CONCRETE ENCASEMENT

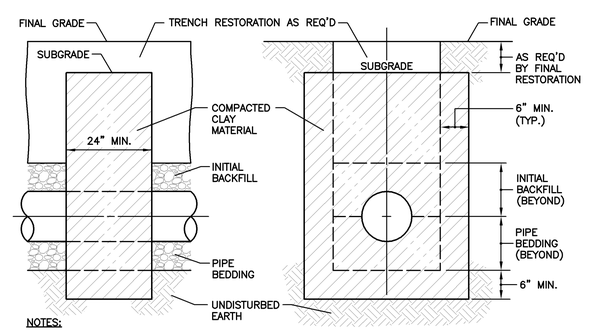
NO SCALE



NOTE: RECOMMENDATIONS OF THE AWWA SHOULD BE FOLLOWED WHEN INSTALLING THE YARD HYDRANT.

YARD HYDRANT DETAIL

NO SCALE



NOTES:
1. CLAY DIKE SHALL CONSIST OF CLAY CONTAINING NO MORE THAN 15% (BY VOLUME) STONE NOT LARGER THAN TWO (2) INCHES IN DIAMETER. CLAY SHALL BE PLACED IN SIX (6) INCH LIFTS AND COMPACTED BY MECHANICAL TAMPER TO NOT LESS THAN 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.
2. CLAY DIKES SHALL BE INSTALLED IN PIPE TRENCH AT MAXIMUM 500 FEET SPACING, OR AS DIRECTED BY ENGINEER.

CLAY DIKE DETAIL

NO SCALE

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

SEAL: NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: SITE DETAILS – RESTORATION AND MISCELLANEOUS

SCALE	DWG. NO.
AS NOTED	C-35
PROJECT NO. 10270.06	SHEET NO. 37 OF 42
REV.	S-4440A

Dwg. Name: 10270507.DWG Plotted: 7/6/2015 10:51 AM

HIGHWAY OCCUPANCY PERMIT NOTES

1. HIGHWAY OCCUPANCY PERMIT APPLICATION NO. 67591
2. THE EXISTING SPEED LIMIT ON SR 04016 IS 35 M.P.H.
3. THE RIGHT-OF-WAY IS FREE ACCESS.
4. ALL WORK IN PADOT RIGHT-OF-WAY IS TO BE BUILT ACCORDING TO:
   - PADOT PUBLICATION NO. 408, SPECIFICATIONS.
   - PADOT PUBLICATION NO. 35, APPROVED CONSTRUCTION MATERIALS (BULLETIN 15).
   - PADOT PUBLICATION NO. 72, STANDARDS FOR ROADWAY CONSTRUCTION.
5. THE CONTRACTOR SHALL CONSTRUCT ALL PROPOSED IMPROVEMENTS AS SHOWN HEREON IN ACCORDANCE WITH THE REQUIREMENTS OF THE ISSUED "HIGHWAY OCCUPANCY PERMIT" AND ANY DIRECTIVES FROM PADOT AND THE MUNICIPALITY.
6. THE CONTRACTOR SHALL SCHEDULE FINAL INSPECTIONS WITH PADOT AND THE MUNICIPALITY AND COMPLY WITH ALL REQUESTS AND DIRECTIVES INCLUDING CORRECTION OF DEFECTIVE WORK AS REQUIRED TO OBTAIN FINAL APPROVAL OF THE WORK AND CLOSING OF THE PERMIT.
7. PADOT HIGHWAY RIGHT-OF-WAY MAY NOT BE USED FOR PARKING.
8. THE PERMITTEE (CONTRACTOR) IS RESPONSIBLE FOR MAINTENANCE OF ALL AUTHORIZED DRAINAGE AND FACILITIES.
9. THE PERMITTEE (CONTRACTOR) IS RESPONSIBLE FOR MAINTENANCE OF ALL AUTHORIZED SIGNS AND PAVEMENT MARKINGS.
10. THE PERMITTEE (CONTRACTOR) MUST CONTACT THE PENNSYLVANIA ONE-CALL NUMBER AT 1-800-242-1776 AT LEAST THREE WORKING DAYS PRIOR TO THE START OF EXCAVATION OR DEMOLITION WORK TO HAVE ALL UNDERGROUND UTILITIES MARKED IN THE WORK AREA.
11. IF A TRAFFIC SIGNAL IS WITHIN 500 FEET OF THE SITE, CALL THE DISTRICT TRAFFIC ENGINEER AT LEAST 3 DAYS PRIOR TO THE START OF WORK.
12. ALL PAVEMENT JOINTS TO BE SAW CUT AND SEALED WITH PG 64-22.
13. HOT THERMOPLASTIC MATERIAL SHALL BE USED FOR ALL PAVEMENT MARKINGS (STOP BARS, CROSSWALKS AND LEGENDS) EXCEPT LONGITUDINAL LINES SUCH AS CENTERLINES AND EDGE OF LANE LINES.

PADOT STANDARD ROADWAY CONSTRUCTION DRAWINGS SHALL BE USED FOR REPAIR AND/OR REPLACEMENT WORK. THE FOLLOWING APPLY BUT ARE NOT LIMITING.
- RC-25M – SHOULDERS
- RC-28M – OVERLAY TRANSITION AND PAVING NOTCHES
- RC-39M – STANDARD MANHOLES
- RC-64M – CURBS AND GUTTERS
- RC-67M – CURB RAMPS
- RC-70M – EROSION AND SEDIMENT POLLUTION CONTROL

CONSTRUCTION SEQUENCE

1. CONTACT PA ONE CALL AT 1-800-242-1776
2. PLACE WORK ZONE TRAFFIC CONTROL SIGNS
3. SET UP AND MAINTAIN SHORT TERM AND LONG TERM TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH APPROPRIATE PATA DIAGRAMS
4. PERMITTEE MUST ARRANGE FOR INSPECTION OF ALL TRAFFIC CONTROL DEVICES PRIOR TO START OF WORK.
5. FOLLOW CONSTRUCTION AND LANE RESTRICTION REQUIREMENTS IN THE PERMIT
6. PLACE PIPING AND BACKFILL
7. NO MORE THAN 100 LF MAY BE OPEN AT ANY TIME. NO MORE THAN 20 LF MAY BE OPEN OVER NIGHT. ALL OPENINGS SHALL BE PLATED AND PINNED.
8. COMPLETE TEMPORARY PAVEMENT RESTORATION
9. PERMITTEE MUST ARRANGE FOR INSPECTION OF ALL DISTURBED SURFACES TO DETERMINE AREAS REQUIRING RESTORATION INCLUDING MILLING AND OVERLAY
10. MILL AND OVERLAY SR 0340 AS DIRECTED BY PADOT/ENGINEER
11. PLACE PERMANENT PAVEMENT MARKINGS AND SIGNAGE
12. ACCESS IS TO BE MAINTAINED TO DRIVEWAYS AT ALL TIMES

TEMPORARY TRAFFIC CONTROL NOTES

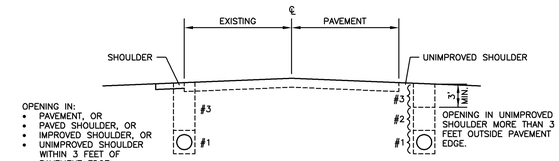
1. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL DURING CONSTRUCTION IN ACCORDANCE WITH APPLICABLE FIGURES IN PADOT PUBLICATION 213 "TEMPORARY TRAFFIC CONTROL GUIDELINES", APRIL 2010 (67 PA CODE, CHAPTER 212), OR MOST CURRENT.
2. THE PROTECTION PRESCRIBED FOR EACH SITUATION SHALL BE CONSISTENT WITH THE GENERAL PROVISIONS OF 67 PA CODE, CHAPTER 212, OFFICIAL "TEMPORARY TRAFFIC CONTROL DEVICES" AND THE NATIONAL "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AS ISSUED BY THE FEDERAL HIGHWAY ADMINISTRATION, LATEST EDITIONS.
3. THIS WORK CONSISTS OF MAINTENANCE OF TRAFFIC AND PROTECTION OF THE PUBLIC WHEN APPROACHING AND DEPARTING THE CONSTRUCTION AREA AND WITHIN THE LIMITS OF CONSTRUCTION.
4. FURNISH, ERECT, PLACE AND MAINTAIN TRAFFIC CONTROL SIGNS AND DEVICES. MAINTAIN TRAFFIC DURING HOURS OF CONSTRUCTION AND AT ALL OTHER TIMES CONSISTENT WITH THE METHODS INDICATED ON THESE DRAWINGS AND THE FOLLOWING:
   a. THE SPECIAL PROVISIONS OF THE CONTRACT.
   b. 67 PA CODE, CHAPTER 212, OFFICIAL TRAFFIC CONTROL DEVICES (WORK ZONE TRAFFIC CONTROL)
   c. PENNDOT PUBLICATION NO. 35, APPROVED CONSTRUCTION MATERIALS (Bulletin 15).
   d. PENNDOT PUBLICATION NO. 408, SPECIFICATIONS.
1. REMOVE THESE DEVICES IMMEDIATELY UPON COMPLETION OF THE WORK. THE DEPARTMENT WILL REMOVE ANY TRAFFIC CONTROL DEVICES ERECTED BY DEPARTMENT FORCES.
2. CONTRACTOR MUST ARRANGE FOR INSPECTION OF ALL TRAFFIC CONTROL DEVICES PRIOR TO START OF WORK.
3. COVER OR REMOVE ALL CONFLICTING SIGNS AND ERADICATE ALL CONFLICTING PAVEMENT MARKINGS.
4. MOUNT ALL LONG TERM ADVANCE WARNING SIGNS ON TYPE III BARRICADES UNLESS OTHERWISE NOTED OR INSTRUCTED BY DISTRICT OFFICE.
5. ALL SIGNS AND DEVICES TO BE MAINTAINED IN NEW OR LIKE NEW CONDITION.
6. DRIVEWAYS WILL BE KEPT ACCESSIBLE AT ALL TIMES. LOCATE ALL SIGNS SO THAT SIGHT DISTANCES WILL NOT BE OBSTRUCTED AT DRIVEWAYS AND LOCAL ROADS.
7. ALL LONG TERM ADVANCE WARNING SIGNS ARE TO CONFORM TO CURRENT STANDARDS (e.g., Type VIII Reflectorized Sheeting on Freeways or Expressways and Type III Reflectorized Sheeting on Other Roads).
8. TIME RESTRICTIONS: NO TRAFFIC RESTRICTIONS OR LANE CLOSURES ARE PERMITTED BETWEEN THE HOURS OF 6:00 AM TO 9:00 AM 3:00 PM TO 6:00 PM, MONDAY THROUGH FRIDAY AND LEGAL HOLIDAYS.
9. CONTRACTOR SHALL NOTIFY LOCAL EMERGENCY AUTHORITIES (e.g., Police, Fire, Medical), AFFECTED BUSINESSES, SCHOOL DISTRICT(S), THE GENERAL PUBLIC, THE DISTRICT PERMIT MANAGER AND THE DISTRICT APRAS COORDINATOR AT LEAST FOURTEEN DAYS PRIOR TO ANY SIGNIFICANT TRAFFIC IMPACTS (e.g., Lateral Width Restrictions Less Than 16 Feet, Detours)
10. NOTIFY THE LOCAL MUNICIPALITY WHEN THE WORK ZONE INCLUDES A SIGNALIZED INTERSECTION. DO NOT FLAG A SIGNALIZED INTERSECTION WITHOUT THE MUNICIPALITY PLACING THE SIGNAL ON FLASH.
11. DO NOT STOP TRAFFIC FLOW WITHIN WORK AREA FOR MORE THAN A 5-MINUTE PERIOD AT ANY ONE TIME.

THE FOLLOWING TRAFFIC CONTROL STANDARDS FROM PADOT PUBLICATION 213 "TEMPORARY TRAFFIC CONTROL GUIDELINES", APPLY BUT ARE NOT LIMITING. THE CONTRACTOR, BASED ON THE EXCAVATION REQUIRED AND LOCATION OF THE WORK, SHALL SELECT APPROPRIATE CONTROLS.
- PATA GENERAL NOTES
- PATA 102 – WORK SPACE ON OR BEYOND THE SHOULDER (MINOR ROADWAY ENCROACHMENT)
- PATA 105 – WORK SPACE IN CENTER OF INTERSECTION
- PATA 107 – WORK IN ONE LANE; TWO FLAGGERS
- PATA 109 – THREE-LEG INTERSECTION FLAGGING
- PATA 110 – FOUR-LEG INTERSECTION FLAGGING
- PATA 204 – WORK SPACE ON THE SIDE OF ROADWAY

MAXIMUM PAY-LINE WIDTHS

NOMINAL PIPE DIAMETER (INCHES)	AGGREGATE BACKFILL AND TEMPORARY PAVEMENT (TRENCH WIDTH INCHES)	FINAL PAVEMENT RESTORATION AND RESEEDING OVER TRENCH (WIDTH INCHES)
2 AND SMALLER	24	48
3 THRU 24	48	72
27 THRU 36	60	84
42 THRU 48	84	108
54 THRU 66	96	120

AT MANHOLES, VALVE PITS, AND OTHER STRUCTURES, THE PAY-LINE SHALL BE MEASURED AS ONE (1) FOOT OUTSIDE THE WALL FOR EXCAVATION AND EIGHTEEN (18) INCHES OUTSIDE THE WALL FOR RESTORATION.



#1 PLACE FINE AGGREGATE OR GRANULAR MATERIAL UP TO 1 FOOT OVER TOP OF THE FACILITY, AND COMPACT IN 4" LOOSE LIFTS.

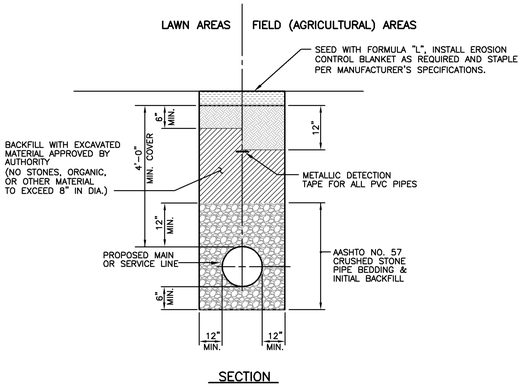
#2 PERMIT MAY AUTHORIZE RETAINED SUITABLE MATERIAL, IN LIEU OF #3 BELOW, AND COMPACT IN ACCORDANCE WITH DEPARTMENT REGULATION 459.8(g).

#3 PLACE COARSE AGGREGATE MATERIAL AND COMPACT (IN 4" LOOSE LIFTS WITH MECHANICAL TAMPER OR 8" LOOSE LIFTS IF VIBRATORY COMPACTION EQUIPMENT IS USED) TO 100% OF THE DETERMINED DRY WEIGHT DENSITY.

NOTE: FOR OPENINGS BEHIND CURB OR OUTSIDE SHOULDER, SUITABLE MATERIAL WILL NORMALLY BE AUTHORIZED FULL DEPTH.

TYPICAL BACKFILL SECTION FOR OPEN CUT AREAS

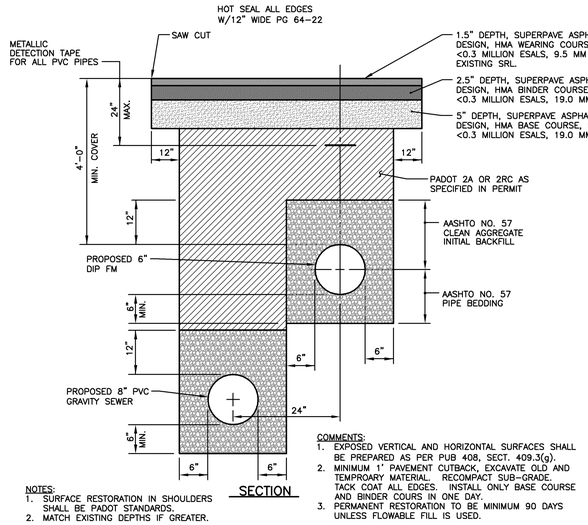
NO SCALE



NOTE: EDGE OF PAVEMENT MUST BE =3' OR <3'

NON-PAVEMENT RESTORATION LAWN/FIELD AREAS

NO SCALE

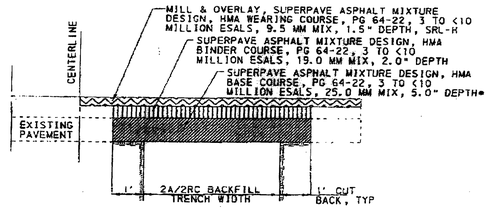


NOTES:
1. SURFACE RESTORATION IN SHOULDERS SHALL BE PADOT STANDARDS.
2. MATCH EXISTING DEPTHS IF GREATER.

COMMENTS:
1. EXPOSED VERTICAL AND HORIZONTAL SURFACES SHALL BE PREPARED AS PER PUB 408, SECT. 409.3(g).
2. MINIMUM 1' PAVEMENT CUTBACK, EXCAVATE OLD AND TEMPROARY MATERIAL. RECOMPACT SUB-GRADE. TACK COAT ALL EDGES. INSTALL ONLY BASE COURSE AND BINDER COURS IN ONE DAY.
3. PERMANENT RESTORATION TO BE MINIMUM 90 DAYS UNLESS FLOWABLE FILL IS USED.

FLEXIBLE PAVEMENT RESTORATION STATE ROADS

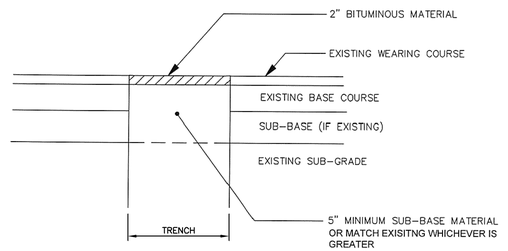
NO SCALE



STATE ROAD PAVING RESTORATION DETAIL FOR PARALLEL TRENCHING WITHIN TRAVEL LANE

NOT TO SCALE

1. REPLACE PAVEMENT MARKINGS
2. ALL PAVEMENT MARKINGS ARE DURABLE (i.e. EPOXY RESIN, HOT THERMOPLASTIC)
* MATCH EXISTING OR WHICHEVER IS GREATER



TEMPORARY PAVEMENT RESTORATION

NO SCALE

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
J DENNIS	
DRAWN	CHECKED
BLE	
DATE	SURVEY DATE
JULY 2014	FIELD BOOK

SEAL

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT

UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE

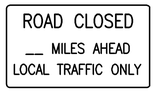
SITE DETAILS
HIGHWAY OCCUPANCY AND TRAFFIC

SCALE		DWG. NO.
AS NOTED		C-36
PROJECT NO.	SHEET NO.	REV.
10270.06	38 OF 42	S-4440A

Dwg. Name: 10270507.DWG Plotted: 7/6/2015 10:51 AM

GENERAL NOTES

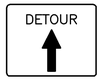
1. THE CONTRACTOR SHALL FURNISH, ERECT, PLACE AND MAINTAIN TRAFFIC CONTROL SIGNS AND DEVICES AND MAINTAIN TRAFFIC DURING HOURS OF CONSTRUCTION AND AT ALL OTHER TIMES IN ACCORDANCE WITH METHODS INDICATED ON THESE DRAWINGS. THE SPECIAL PROVISIONS OF THE CONTRACT, PUBLICATION 213 (WORK ZONE TRAFFIC CONTROL), PA CODE TITLE 67–CHAPTER 212 (OFFICIAL TRAFFIC CONTROL DEVICES), PENN D.O.T. PUB. NO. 35–APPROVED CONSTRUCTION MATERIAL AND PENN D.O.T. PUB. 408–2007 SPECIFICATIONS AND SUBSEQUENT ADDENDUMS.
2. UPON COMPLETION OF THE PROJECT ALL SIGNS AND TRAFFIC CONTROL MATERIAL SHALL BE REMOVED BY THE CONTRACTOR AND SHALL REMAIN HIS PROPERTY.
3. ALL DISTANCES MAY BE ADJUSTED SLIGHTLY TO FIT FIELD CONDITIONS.
4. SIGN R11–3A AND R11–2 SHALL BE MOUNTED ON TYPE III BARRICADES AND BE EQUIPPED WITH TYPE B HIGH INTENSITY WARNING LIGHTS.
5. ALL SIGNS EXCEPT R11–3A AND R11–2 SHALL BE TYPE B POST MOUNTED.
6. ALL SIGNS SHALL BE 36"x36", EXCEPT WHERE NOTED.
7. ALL SIGNS SHALL HAVE BLACK LETTER ON APPROVED FLUORESCENT ORANGE PRISMATIC SHEETING.
8. ACCESS TO HOMES SHALL BE PROVIDED DURING CONSTRUCTION.
9. THE DETOUR SHALL REMAIN ACTIVE UNTIL THE PROJECT IS COMPLETED.
10. POST W23–101 TWO WEEKS PRIOR TO CLOSING ROAD. REMOVE WITHIN 24 HOURS OF PUTTING DETOUR INTO EFFECT.
11. CONTACT PENNDOT PRESS OFFICE, LOCAL MUNICIPALITIES, EMERGENCY SERVICES, SCHOOL DISTRICT, AND POST OFFICE TWO WEEKS PRIOR TO CLOSING ROAD.
12. CONTACT TMC TWO DAYS PRIOR TO CLOSING ROAD. CONTACT TMC ONE HOUR PRIOR TO CLOSING ROAD AND AGAIN WHEN ROAD IS OPEN TO TRAFFIC. 610–205–6934
13. DO NOT PUT DETOUR INTO EFFECT PRIOR TO 9 AM.



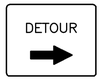
R11–3A
EQUIPPED WITH TYPE B LIGHT AS PER DETAIL
A1 1/8 MILES AHEAD
A2 1/4 MILES AHEAD
A3 1/2 MILES AHEAD

M4–8A

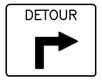
M4–9L



M4–9S



M4–9R

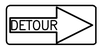


M4–9SR

M4–9SL

R11–2

M4–10L



M4–10R

W20–2
L1 1500 FT
L2 1000 FT
L3 500 FT

W20–3
L1 1500 FT
L2 1000 FT
L3 500 FT

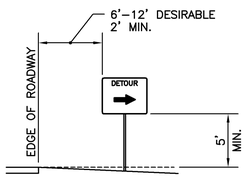
W23–101

REQUIRED LIST OF MATERIALS			
QUAN	STANDARD	SIZE	
2	R11–3A	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY
2	M4–8A	24"x18"	END DETOUR
4	M4–9L	36"x24"	DETOUR SIGN LEFT
4	M4–9R	30"x24"	DETOUR SIGN RIGHT
4	M4–9S	30"x24"	DETOUR SIGN STRAIGHT
5	M4–9SR	30"x24"	DETOUR SIGN ADVANCED RIGHT
5	M4–9SL	24"x18"	DETOUR SIGN ADVANCED LEFT
1	M4–10L	48"x18"	DETOUR SIGN LEFT
1	M4–10R	48"x18"	DETOUR SIGN RIGHT
3	W20–2	36"x36"	DETOUR ___ FEET AHEAD
6	W20–3	36"x36"	ROAD CLOSED __
2	W23–101	96'x48'	THIS STREET TO BE CLOSED FOR MAINTENANCE NEXT WEEK

NOTE:
THE LENGTH OF TYPE III BARRICADE RAILS SHALL EXTEND THE ENTIRE WIDTH OF THE ROADWAY.

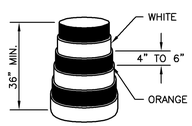
SIGNS MOUNTED ON TYPE III BARRICADES (R11–2)

NO SCALE



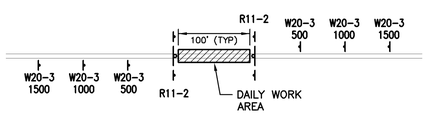
TYPE B POST MOUNTED SIGNS (ALL SIGNS EXCEPT R11–3A)

NO SCALE



TYPICAL NONMETALLIC BARREL WITH CIRCUMFERENTIAL STRIPES

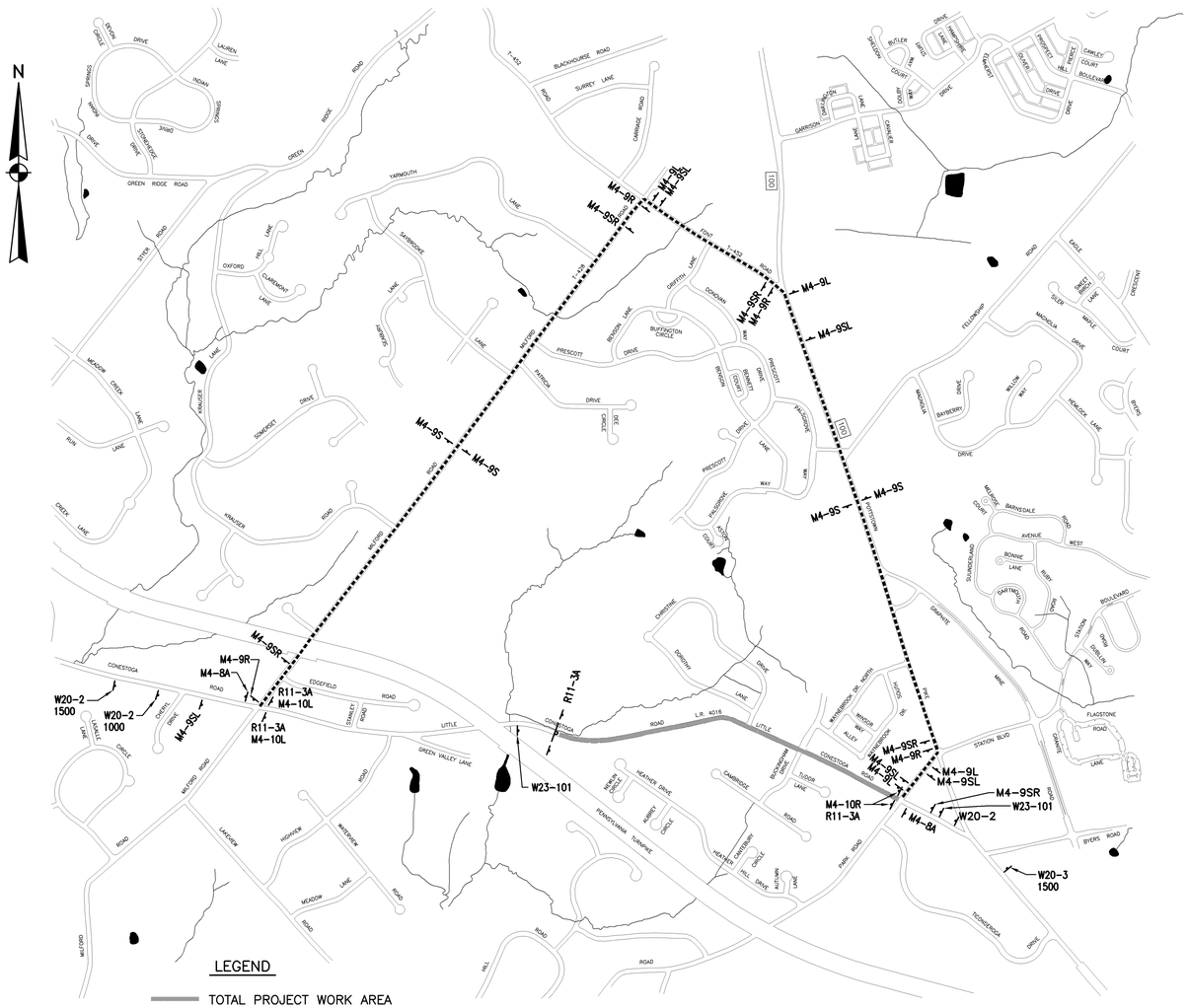
NO SCALE



NOTE: DAILY WORK AREA AND ASSOCIATED SIGNAGE TO BE MOVED AS WORK PROGRESSES UP ROAD.

DAILY WORK AREA DETAIL

NO SCALE



TRAFFIC CONTROL PLAN

SCALE IN FEET 0 400 800 1600 2400

SCALE: 1" = 800'

NOTE

DETOUR PLAN PROVIDES MINIMUM REQUIREMENTS. FOR ADDITIONAL INFORMATION SEE FIG. 39b, WORK ZONE CONTROL, PUBLICATION 213.

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN	CHECKED
K CIRONE	
DRAWN	CHECKED
CAL	
DATE	SURVEY DATE
JULY 2014	
	FIELD BOOK

SEAL

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT

UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE

HOP AND TRAFFIC DETOUR PLAN

SCALE	DWG. NO.
AS NOTED	C–37
PROJECT NO. 10270.06 / SHEET NO. 39 OF 42 / REV.	S–4440A

Dwg. Name: 10270507.DWG Plotted: 7/6/2015 10:51 AM

COLUMBIA GAS
Right-of-Way Use Specifications (In Part)

1.0 Scope
This document provides guidelines for the design and construction of facilities rights-of-way owned and/or operated by Columbia Pipeline Group (CPG) companies, including Columbia Gas Transmission, Columbia Gulf Transmission, Crossroads Pipeline, Millennium Pipeline Company, Hardy Storage Company, Central Kentucky Transmission and NiSource Midstream Services. This guidance is intended for landowners, utility owners, general contractors and their sub-contractors, pipeline/utility contractors, real estate developers, brokers and agents, and any others including their representatives whose proposed construction activities impact CPG rights-of-way (hereinafter called "Permittee.")

2.0 Purpose
CPG's goal is to work proactively with the Permittee in the planning stages of proposed modifications, developments or construction activities. CPG's primary concern when activities are taking place near its pipeline and related facilities (pipeline facilities) is public safety and pipeline facility protection. The intent of this specification is to provide a clear and consistent set of engineering requirements that shall:

- Reduce the risk of damage to CPG pipeline facilities.
- Ensure CPG's unencumbered access to its rights-of-way and related pipeline facilities.
- Provide for maximum use of workspace for CPG routine maintenance, future inspection, and/or repair work.
- Enable the effective corrosion protection of CPG pipeline facilities.

All construction activities and projects that are proposed on or near CPG pipeline rights-of-way are subject to formal review by CPG. Depending on the scope of the project and its impact on CPG rights-of-way and pipeline facilities, additional engineering requirements and protective measures may apply. Reimbursement or fees may be involved with the formal review.

CPG desires to be a good neighbor, but to do so will require CPG to act responsibly to protect its right-of-way and prevent damage to the pipeline system. While CPG wants to accommodate the desired use of the property, its responsibility for public safety is paramount. Through proper planning and communications, CPG can help ensure the safety and integrity of CPG's pipeline system and the welfare of its neighbors.

Note: The transmittal of this document does not constitute CPG approval or permission for the Permittee to begin construction or work within or across the pipeline or facility right-of-way. Work may not begin until permission for such work has been given by CPG.

3.0 Specifications – Pipeline Facilities
3.1 General Guidelines
3.1.1 Safety associated with the pipeline facilities shall be considered at all times. No attempt to probe for or engage in any construction activities which might damage the pipeline shall be permitted.

3.1.2 Before any preliminary field work or construction begins in the vicinity of CPG pipeline facilities, determination of the exact location and elevation of the pipeline shall be made. To coordinate this procedure, dial the national "Call before You Dig" number, 811, or the appropriate State 'One Call' notification number (see Attachment A, 'One Call Contact Information'). Request both the location and depth of the pipeline to be determined.

3.1.3 Proposed drawings/plans shall be submitted to CPG Asset Management Department (see Attachment B, 'CPG Plan Review Locations and Phone Numbers') for review to determine the extent of CPG involvement. Drawings/plans shall be prepared in accordance with Attachment C, 'Requirements for Submission of Design Plans,' and should include a copy of Form 1050P17 – Location of Buried Facilities.

Note: Refer Plan 220.02.06 Damage Prevention Plan, Section 3.11 Guidelines for Design and Construction within Right-of-Way for additional guidance information.

3.1.4 When construction activities are conducted in or around CPG pipeline facilities or rights-of-way, a CPG on-site inspector shall be present unless otherwise permitted by CPG.

3.1.5 Permittee shall notify the responsible State 'One Call' center to request that CPG re-mark a pipeline if the existing markers are inadequate for any reason, including disturbance due to construction activities.

Note: Willful damage or removal of a pipeline marker is a Federal offense with a maximum fine of $100,000 (and up to $250,000 if the action results in a death), imprisonment of up to one year, or both for each offense.

3.1.6 Permittee shall not burn or bury trash, brush, or other items or substances within CPG pipeline rights-of-way.

3.1.7 Permittee shall not park equipment or store materials on the CPG right-of-way.

3.1.8 Use of vibratory equipment larger than walk-behind units shall not be permitted within 25 feet of the pipeline or related facility, unless otherwise permitted by CPG.

3.2 Excavation and Construction Restrictions
3.2.1 Excavation operations shall be performed in accordance with the national "Call before You Dig" program by calling "811" or the appropriate State 'One Call' notification center (See Attachment A, 'One Call Contact Information') to have the excavation area properly located and marked before excavation begins. Safe digging is no accident. Know what's below. Call 811 before you dig.

3.2.2 The Permittee shall mark with white paint any excavation areas that are proposed within CPG rights-of-way. CPG shall erect temporary pipeline markers/flags (yellow) and/or yellow paint identifying the location of the pipeline and right-of-way within the proposed work area, and shall provide information on how to respond should the pipeline be damaged or a natural gas release occur. All personnel operating equipment over or around the pipeline shall be made aware of its location and what actions shall be taken if contact is made with the pipeline.

3.2.3 Before a Permittee excavates within CPG's pipeline right-of-way, a CPG representative shall locate the pipeline and determine the depth of cover before the Permittee begins excavation. The Permittee shall not perform any excavation, crossing, backfilling, or construction operations until a CPG representative has reviewed the proposed work and given permission for work to proceed.

3.2.4 CPG reserves the right to have an on-site inspector present during all excavation activities. Any CPG representative shall have full authority to stop the work if it is determined that the work is being performed in an unsafe manner relative to CPG facilities or personnel.

3.2.5 No equipment shall work directly over the pipeline, unless CPG grants specific written permission. The Permittee shall install temporary fencing along the CPG right-of-way boundaries so that equipment shall not inadvertently pass over the pipeline at locations other than those established for the crossing.

3.2.6 When excavating within a CPG right-of-way, in the presence of a loaded pipeline, the Permittee's excavation equipment shall have a plate welded or attached over the teeth of the excavator bucket. Side cutters shall be removed from equipment prior to excavation.

CPG requires potholing techniques to be used when digging within 24" (2 feet) of the outer edge of the pipe, unless more stringent requirements are set forth by the applicable state's One Call system. Within this 'tolerance zone' only hand excavation, air cutting, vacuum excavation or other CPG approved techniques are permitted.

3.2.7 No excavation shall be made on land adjacent to the pipeline that shall in any way impair, withdraw lateral support, cause subsidence, create the accumulation of water, or cause damage to the pipeline or right-of-way.

3.2.8 The Permittee shall ensure all excavation work complies with OSHA's excavation standards outlined in 29 CFR 1926 and correct any noncompliant excavation site before work within CPG right-of-way continues.

3.2.9 If conditions require, the Permittee shall be directed by CPG to install additional earthen fill or other suitable materials to maintain proper vertical clearance from the pipeline.

3.2.10 At any location where the pipeline is exposed, the Permittee shall provide CPG the opportunity to inspect the pipeline condition, install cathodic protection equipment, repair any pipe coating imperfections, and/or install underground warning materials.

3.2.11 The maximum unsupported exposed length of pipe shall be determined by CPG. When required, the pipeline shall be supported with sand bags, padded skids or other suitable material as permitted by CPG. At no time shall the pipeline be used as a brace to support equipment or sheeting/shoring materials.

3.2.12 No CPG buried pipeline shall be left exposed for any duration of time, unless otherwise permitted by CPG.

3.2.13 Backfill and compaction shall be performed to the satisfaction and in the presence of a CPG representative. At least 6 inches of fine, loose earth or other permitted backfill material with no sharp gravel, rock, hard clods, vegetation, or other debris shall be added on all sides of any pipeline, and remaining backfill shall be placed so as not to disturb this padding material or damage the pipeline and its coating. Backfill over the pipe shall be compacted by hand until 18 inches of cover is achieved. Flowable fill, mixed to CPG specifications, may be required by CPG to achieve necessary compaction. Disturbed ground shall be compacted to at least the same degree of compaction as surrounding areas. The Permittee shall restore the site to its original condition except for items that are part of the CPG permitted change.

3.3 Cover, Grading, and Drainage
3.3.1 Cover and Grading
A. The existing cover over the pipeline and right-of-way shall not be modified without CPG written permission.

B. Where additional cover is permitted, the final grading shall net a minimum cover of 36 inches over the pipeline but shall not exceed five (5) feet from the top of the pipeline.

3.3.2 Drainage
A. Detention ponds, lakes, structures or any type of impoundment of water, temporary or permanent, shall not be permitted within the right-of-way.

B. Any modifications to an existing drainage pattern shall be designed such that there is no erosion of the cover over CPG right-of-way.

C. For drainage channels and ditches where a minimum cover of 36 inches cannot be maintained, the Permittee shall be responsible for the cost of installation of additional protection required by CPG.

3.4 Aboveground/Underground Structures, Gardening and Landscaping
3.4.1 General Requirements
A. Buildings or other structures, including but not limited to overhanging balconies, patios, decks, swimming pools, wells, walls, utility poles, septic systems, propane tanks, transformer pads, or the storage of materials which creates an obstruction or prevents the inspection of the right-of-way by air or foot, shall not be permitted within the CPG right-of-way.

B. The Permittee shall not build retaining walls, drive piling or sheeting, or install an engineered structure that may negatively impact the CPG right-of-way.

3.4.2 Gardening and Landscaping
A. The right-of-way area may be planted in lawn, flowerbeds, or vegetable gardens, or used for normal agricultural purposes.

B. Shrubs maturing at less than five (5) feet tall shall be permitted in the right-of-way. Permitted shrubs shall be planted so that branches are a minimum of five (5) feet away from the pipeline at maturity.

C. Shrubs maturing at more than five (5) feet tall and all trees (including fruit/nut bearing and Christmas tree farms) shall not be permitted within the right-of-way.

D. CPG shall not be responsible for replacement of any plantings within the right-of-way, unless otherwise stated in applicable land rights document.

3.4.3 Fences and Walls
A. Fences or continuous hedges that block visual inspection or interfere with access to CPG facilities shall not be permitted within CPG rights-of-way.

B. Fences permitted by CPG to cross its rights-of-way shall be designed with a minimum 16 foot opening centered on the pipeline.

C. Gates shall be installed as to provide a 16 foot opening. Permittee shall provide CPG access through all gates permitted within the CPG right-of-way. If Permittee installs locks on said gates, CPG shall also be allowed to install its own locks in a manner that allows CPG unimpeded access without limiting Permittee's access.

D. Fences, including invisible dog fences, shall cross as near to 90 degrees as possible. Crossings at less than 45 degrees shall not be permitted.

E. Fences or continuous hedges installed longitudinally to the pipeline shall not be permitted within the right-of-way.

F. Masonry, brick, or stone walls shall not be permitted on the right-of-way.

G. Electric fences shall be permitted across CPG rights-of-way if they are equipped with a disconnect, such as an insulated handled gate, that is available to CPG.

H. Conductors for electric fences shall not be placed within 15 feet of any CPG above-grade piping with mechanical fittings.

3.5 Roads, Driveways, Sidewalks, Parking Areas and Walking/Bicycling Paths
3.5.1 General Requirements
A. Roads, driveways, sidewalks, or parking areas shall not be constructed within CPG right-of-way without CPG's prior review and written permission. All plans for pavement within the right-of-way shall be submitted to the CPG Asset Management Department. External load evaluations shall be performed by CPG as necessary to determine if additional protective measures are required.

B. Permitted roads, driveways, or sidewalks shall cross the right-of-way at as near to 90 degrees as possible. Crossings at less than 45 degrees are prohibited.

C. Roads, driveways and concrete sidewalks shall not be permitted to be installed longitudinally within the right-of-way.

D. Asphalt pavement shall not be permitted closer than five (5) feet from the pipeline except in the case of roadway, driveway, or parking lot "crossovers."

E. The use of alternative paving material designs (other than asphalt or concrete) shall be reviewed and permitted by CPG on a case-by-case basis.

F. Cull de sacs shall not be permitted within the right-of-way area.

3.5.2 Concrete Roads, Driveways and Sidewalks
A. Continuously poured, steel reinforced concrete shall not be permitted within CPG right-of-way.

B. Concrete sidewalks and/or curbs which cross the pipeline shall have expansion joints installed five (5) feet on either side of the pipeline.

C. Concrete residential driveways may be permitted provided that the design and installation meet the requirements of Attachment D, 'Residential Concrete Driveway within CPG Right-of-Way'.

3.5.3 Asphalt Roads and All Parking Areas
A. Asphalt roads shall not be greater than 25 feet in width.

B. Permitted parking areas, including but not limited to asphalt and gravel parking areas shall not be installed within five (5) feet of CPG pipeline facilities.

C. Parking lot 'crossovers' may be permitted by CPG and shall be no greater than 25 feet in width. Parking lot 'crossovers' shall be spaced at a minimum of 50 foot intervals (measured from the edge of the crossover).

3.5.4 Walking / Bicycling Paths
A. Walking/bicycling paths shall be constructed at the outside edge of the CPG permanent right-of-way area. Path width within CPG rights-of-way shall be designed not to exceed six (6) feet.

B. CPG reserves the right to prohibit the construction of walking/bicycling paths inside its right-of-way area if, at CPG's sole determination, the proposed path may adversely impact operation and/or maintenance of the pipeline.

C. Paths shall cross the CPG pipeline as close to 90 degrees as possible, but in no case less than 45 degrees. CPG shall make the sole determination of number of path crossings to be permitted.

D. No motorized vehicles of any type, other than power driven wheelchairs, shall be permitted to utilize paths which run longitudinally inside the right-of-way.

E. Paving shall be restricted to asphalt only. No concrete paving shall be permitted.

F. Landowner shall be responsible for maintaining the path to prevent right-of-way damage (including erosion, illegal dumping, etc.)

3.6 Utility Crossings
3.6.1 General Requirements:
A. Utilities shall include natural gas, water, electrical, sewer, television cable, telephone, fiber optic communications and all other metallic or non-metallic line crossings.

B. Every effort shall be made to have the utility cross the CPG right-of-way as near 90 degrees as possible. In no case shall the utility be permitted to cross the CPG right-of-way at an angle less than 45 degrees. Utilities shall not be installed longitudinally within the right-of-way.

C. Utilities shall cross beneath the pipeline with a minimum vertical clearance of 24 inches where CPG pipelines have at least 3 feet of cover to top of pipe. For circumstances where less than 3 feet of cover exists, CPG may require additional clearance. Under certain circumstances, CPG may permit a crossing above the pipeline while maintaining a vertical clearance of at least 24 inches. These circumstances include excessively deep pipelines (5 ft. or more,) the presence of consolidated rock, or for service entrances to single family dwellings.

D. Earthen fill, sand or other CPG permitted isolation material shall be placed between the pipeline and the utility.

E. All water valves, curb boxes, manholes, sprinkler heads, splice boxes, service risers, energized equipment, poles, towers, guy wires, mechanical supports, ground rods, anchors and similar structures shall be placed outside the CPG right-of-way. Sprinkler systems shall be limited to a single line crossing unless otherwise permitted by CPG.

F. Except for trenchless excavation installation, warning tape, in accordance with A.P.W.A. Uniform Color Code, shall be placed above the utility, 12 inches below ground, across the CPG right-of-way.

G. All permitted underground utility crossings shall be marked with proper signage at the edge of the CPG right-of-way boundaries.

H. Permitted utility crossings shall be marked according to the A.P.W.A. Uniform Color Code, as listed below.

RED – Electric Power Lines, Cables, Conduit, and lighting Cables
YELLOW – Gas, Oil, Steam, Petroleum, or Gaseous Material
ORANGE – Communication, Alarm or Signal Lines, Cables, or Conduit
BLUE – Potable Water
GREEN – Sewers and Drain Lines
WHITE – Proposed Excavation Limits or Route
PINK – Temporary Survey Markings, Unknown / Unidentified Facilities
PURPLE – Reclaimed Water, Irrigation, and Slurry Lines

I. Trenchless Excavations:
- Permittee is responsible for obtaining proper One Call notifications in the area of the entrance pit, along the proposed excavation path, and at the exit pit.
- A minimum clearance of 24" above and below CPG pipelines shall be required. CPG pipelines must have at least 3 feet of cover to top of pipe. For circumstances where less than 3 feet of cover exists, CPG may require additional clearance. This clearance refers to the pipe that is being installed, not the location of the pilot drill.
- Utility crossings proposed for installation using a trenchless excavation method (directional drilling, jacking, slick boring, etc.) shall use a tracking system to verify the exact location of the drill head. Blind boring shall not be permitted on the CPG right-of-way. The proper line and grade shall be established in order to maintain the required minimum clearance. Permitee shall also submit the bore profile drawing to CPG for review prior to starting operations.
- Every effort shall be made by the Permittee to locate trenchless crossings of CPG right-of-way outside of rivers, streams, lakes, wetlands and other water bodies.
- For normal directional drilling or trenchless operations, a four (4) feet by four (4) feet excavation window(s), 24 inches below the pipeline shall be required for visual inspection to ensure the drill (or bore) does not impact the pipeline. For cases where an excavation window is not practical, the Permittee shall adhere to any additional CPG requirements, including but not limited to additional vertical clearance. Additional care maybe needed during reaming.
- State and/or local requirements for trenchless excavation practices shall be followed at all times. The Permittee shall also adhere to any additional requirements, as determined by CPG. Additional requirements may include, but are not limited to, providing documentation of trenchless operator qualification and/or documentation of operator training for the specific trenchless equipment to be used.
- The trenchless equipment operator shall perform a site inspection that includes walking the entire trenchless excavation path, and verifying minimum clearances that are required prior to commencing any work.
- Trenchless activities shall be stopped if at any time an abnormal condition, unknown substructure or other hidden hazard is encountered. Operations may proceed safely only if positive identification has been made.

3.1.1 Non-Metallic Utilities
A. All applicable general requirements covered in Section 3.6.1 applies to non-metallic utilities crossing CPG pipelines including the following:
- Utilities shall be installed with tracer wire for the full width of the CPG ROW unless otherwise permitted by CPG. At locations where tracer wire is installed, tracer wire shall be raised to the ground surface and connected to a test station for monitoring.
- Natural gas (or other industrial gases) line permitted by CPG to cross <u>below</u> the pipeline shall either be encased in a six (6)-inch envelope of yellow 2,000 psi concrete or encased in four (4)-inch minimum diameter, standard inch wall thickness, coated steel pipe across the full width of the CPG right-of-way.
- Natural gas (or other industrial gases) line permitted by CPG to cross above the pipeline shall be encased in 4-inch minimum diameter, standard inch wall thickness, coated steel pipe across the full width of the CPG right-of-way. No concrete shall be used for crossings above the pipeline.

3.7 Construction Induced Vibrations
3.7.1 Construction activities that generate ground vibrations, including but not limited to, pile driving, sheet driving, soil compaction work, jack hammering or ramming, shall be reviewed and permitted by CPG on a case-by-case basis.

3.8 Blasting Operations
3.8.1 Blasting proposed within 300 feet of a CPG pipeline shall be evaluated by the appropriate CPG personnel to determine applied stresses and appropriate mitigation requirements.

3.8.2 Blasting plans shall be submitted ten (10) working days prior to the blasting event. It is the responsibility of the Permittee to fully complete the CPG blasting form (See Attachment F, 'Blasting Data Sheet').

It is imperative that a drawing of the blast area be included with the submission of all blasting plans. Review of the blast data shall not be performed until a drawing is submitted showing the location and orientation of all charges relative to the CPG pipeline. All drawings shall be scalable and show the distance from the charges to the CPG pipeline.

3.8.3 Permittee shall conduct a three (3) axis seismic survey for each blast event within 300 feet of a CPG pipeline, unless otherwise permitted by CPG. Seismic equipment shall be placed in the proximity of the closest charge hole to the pipeline, aligning one of the axes parallel to the pipeline and another axis perpendicular to the pipeline.

Note: Blasting conducted without seismic equipment and using the Scaled Distance Formula shall be evaluated on a case by case basis.

3.8.4 Ground vibration shall be limited to that permitted by the appropriate State's blasting law where CPG pipeline facilities exist. The value shall be expressed as the Peak Particle Velocity (PPV) in units of inches per second. Pipeline facilities are recognized by federal blasting laws as structures and as such shall be protected from excessive PPV.

4.0 Specifications – Storage Wells
4.1 General Guidelines
4.1.1 Any third party activity or development that impedes CPG's ability to safely, efficiently and legally drill, operate and maintain storage wells, shall not be permitted.

4.1.2 CPG's storage well setback specifications are within the confines of applicable leases and laws and allow CPG access to potential and existing storage well operations while ensuring employee and public safety.

4.1.3 CPG requires notification of any proposed aboveground or belowground construction activities or placement of objects closer than 300 feet in any direction of a wellhead. Notification shall be to the CPG Asset Management Department and the Permittee shall submit with this notification a full description of the proposed construction or placement of the object, complete with dimensions, location and distance from the wellhead.

4.1.4 CPG reserves the right to object to such construction activities or placement of objects closer than 300 feet from any wellhead when certain topographical and/or safety conditions exist. These topographical features and permanent structures include, but are not limited to, wellheads situated near significant changes in elevation, rivers, ponds, streams, existing roads, railroad rights-of-way, power line rights-of-way, and high pressure wells.

4.1.5 Additional distances over 300 feet may be necessary for certain CPG activities, including but not limited to, the presence of hydrogen sulfide, flaring of wells, horizontal or directional drilling, drilling of multiple wells from a single location, salt cavern development, aquifer storage development, high pressure and high deliverability wells.

4.1.6 Except as otherwise provided in the applicable lease, there shall be no aboveground or belowground construction activities or placement of objects within 200 feet in any direction from a wellhead by the Permittee.

5.0 Disclaimers
5.1 In the event that the provisions of an applicable land rights document conflict with the requirements set forth above, the land rights document shall supersede these requirements.

5.2 CPG may permit certain property improvements in its rights-of-way. However, in the course of operating and maintaining its pipeline system, CPG may sometimes remove these improvements from its right-of-way in order to facilitate operation and maintenance work. CPG shall not assume responsibility, financial or otherwise, for any improvements directly or indirectly damaged as a result of routine or emergency maintenance or repairs on the pipeline facilities.

5.3 These Right-of-Way Use Specifications were compiled to address the majority of issues concerning the design and construction of facilities on CPG rights-of-way. In rare cases, CPG may determine that adherence to a specific provision of this procedure is not feasible for a particular project. In such instances, CPG may, at its sole discretion, elect to modify specific requirements for that project. Said modifications shall be made by appropriate CPG personnel and shall be properly documented.

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: J DENNIS	CHECKED:
DRAWN: SAM	CHECKED:
DATE: JULY 2014	SURVEY DATE:
	FIELD BOOK:

SEAL
NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

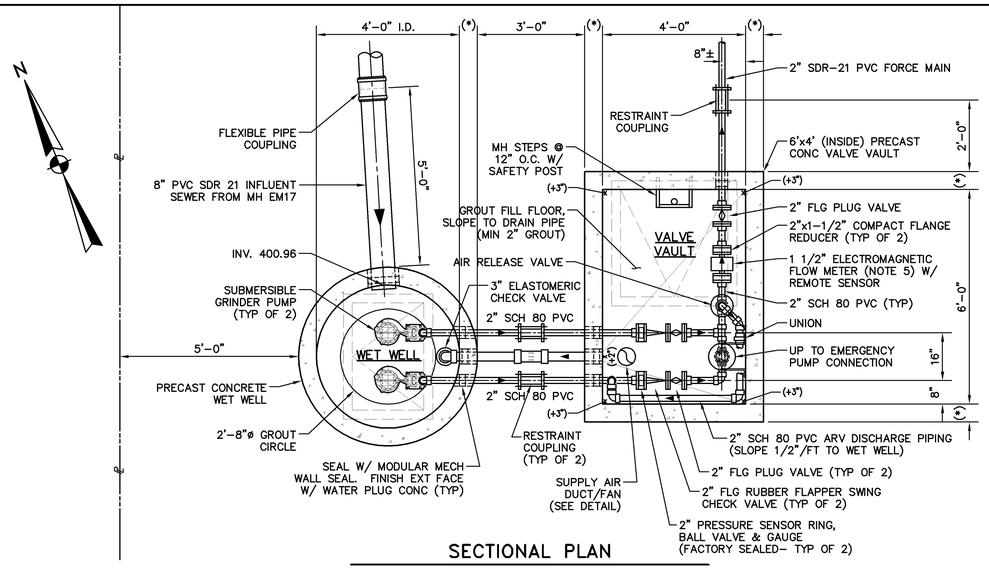
PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE: COLUMBIA GAS TRANSMISSION LLC
RIGHT-OF-WAY USE RESTRICTIONS
SPECIFICATIONS

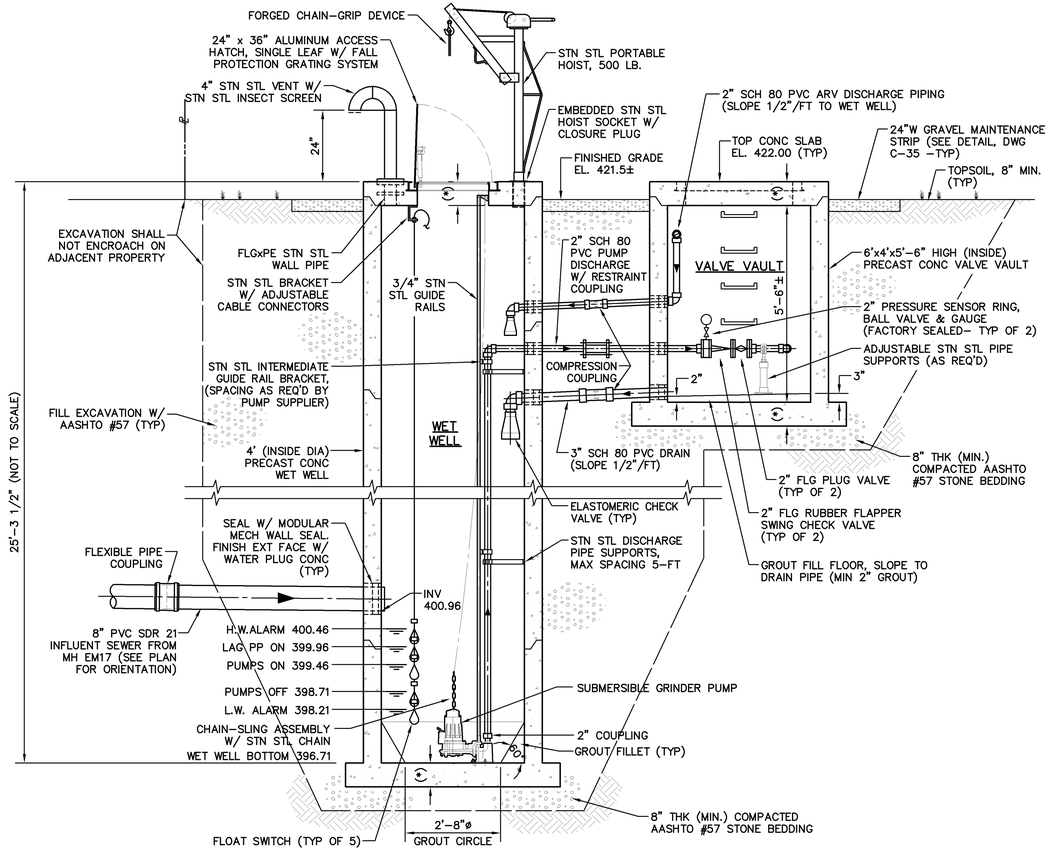
SCALE	DWG. NO.
NO SCALE	C-38
PROJECT NO. 10270.06	SHEET NO. 40 OF 42
REV.	S-4440A

Dwg. Name: 10270507.DWG Plotted: 7/6/2015 10:51 AM



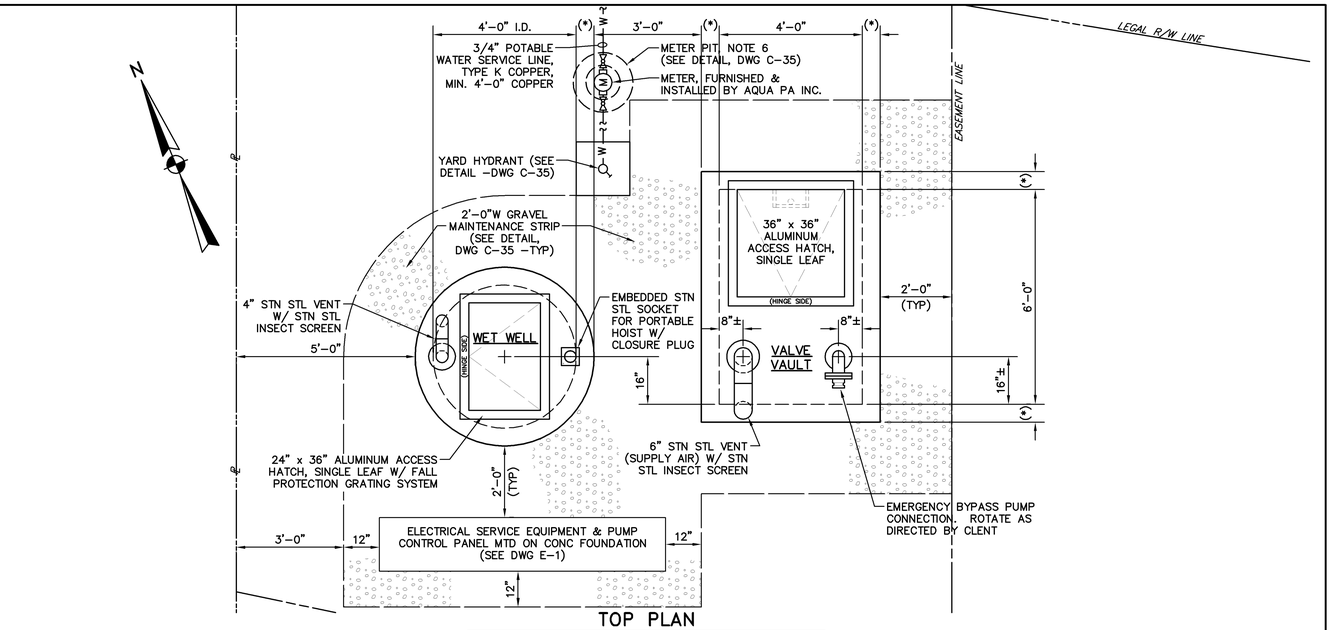
SECTIONAL PLAN

SCALE: 1/2" = 1'-0"



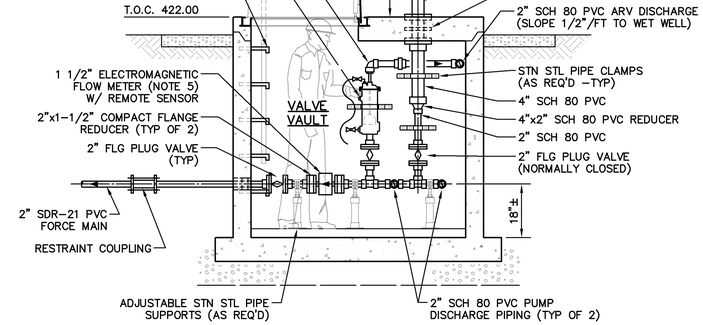
SECTIONAL ELEVATION

SCALE: 1/2" = 1'-0"



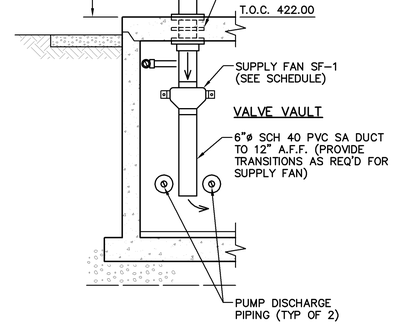
TOP PLAN

SCALE: 1/2" = 1'-0"



EMERGENCY BYPASS PUMP CONNECTION DETAIL

SCALE: 1/2" = 1'-0"



SUPPLY AIR DUCT/FAN DETAIL

SCALE: 1/2" = 1'-0"

PRECAST CONCRETE GENERAL NOTES:

1. PRECAST CONCRETE STRUCTURES ARE SHOWN TO ILLUSTRATE INTERIOR/VOLUME DIMENSION REQUIREMENTS ONLY. CONCRETE THICKNESS, REINFORCING AND SUPPORT METHODS ARE THE RESPONSIBILITY OF THE PRECAST CONCRETE SUPPLIER).
2. DIMENSIONS, SIZES OR QUANTITIES SHOWN AS (*) SHALL BE DETERMINED/VERIFIED BY PRECAST CONCRETE SUPPLIER.
3. PRECAST CONCRETE STRUCTURES SHALL BE DESIGNED TO PREVENT UPLIFT AND FLOTATION (MINIMUM FACTOR OF SAFETY = 1.2) WHEN STRUCTURE IS EMPTY AND THE SURROUNDING SOIL IS SATURATED TO FINISHED GRADE.

Supply Fan Schedule

Designation	Location	CFM	EXT SP	HP	Fan RPM	Elec. Char.	Type	Drive	Speed	Remarks
SF-1	Valve Vault	233	0.4	130 Watts	2750	120V	HLISF	Direct	1	SREP, WB

HLISF - Hazardous Location Inline Supply Fan SREP - Spark Resistant, Explosion Proof
WB - Wall Bracket (Heavy Duty)

NOTES:

1. ALL HARDWARE SHALL BE STAINLESS STEEL. ALL FLANGE BOLTS, NUTS AND WASHERS LOCATED IN THE WET WELL SHALL BE TYPE 316 STAINLESS STEEL.
2. PAINT EXTERIOR OF WET WELL AND VALVE VAULT WITH ONE COAT OF TNEMEC 46H-413 HI-BUILD TNEMEC-TAR, 16-20 MILS DFT.
3. THE ENTIRE INTERIOR SURFACE OF THE WET WELL SHALL BE COATED AS FOLLOWS:
   a. SURFACE PREPARATION - USE DRY ABRASIVE BLASTING EQUIPMENT WITH A COMPRESSED AIR BLAST NOZZLE. PERFORM ABRASIVE BLAST CLEANING TO OPEN UP SURFACE VOIDS AND REMOVE LAITANCE. DO NOT EXPOSE AGGREGATE. AFTER ABRASIVE BLASTING, CLEAN SURFACE BY VACUUMING.
   b. PAINT WET WELL INTERIOR WITH TWO COATS OF TNEMEC 104-1255 HIGH SOLIDS EPOXY, 6-10 MILS DFT PER COAT, FOR A TOTAL DRY FILM THICKNESS OF 12-20 MILS.
4. CONTRACTOR TO PROVIDE PVC PIPING FROM VALVE VAULT ACCESS HATCH DRAIN COUPLING TO AASHTO #57 STONE AROUND PRECAST STRUCTURES.
5. PROVIDE 2" FLGxFLG SCH 80 PVC SPOOL PIECE OF SAME LENGTH AS FLOW METER FOR FLOW METER MAINTENANCE.
6. LOCATION OF WATER METER PIT TO BE AS APPROVED BY AQUA PA INC.

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E

RELEASED BY	
DESIGN: J DENNIS; K CIRONE	CHECKED
DRAWN: DHT	CHECKED
DATE: JULY 2014	SURVEY DATE
	FIELD BOOK

SEAL

NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT

UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE

MECHANICAL
EAGLE MANOR PUMP STATION
PLAN, SECTIONS AND DETAILS

SCALE 0 1' 2' 4' 6'
SCALE: 1/2"=1'-0"

DWG. NO. M-1

PROJECT NO. 10270.06

SHEET NO. 41 OF 42

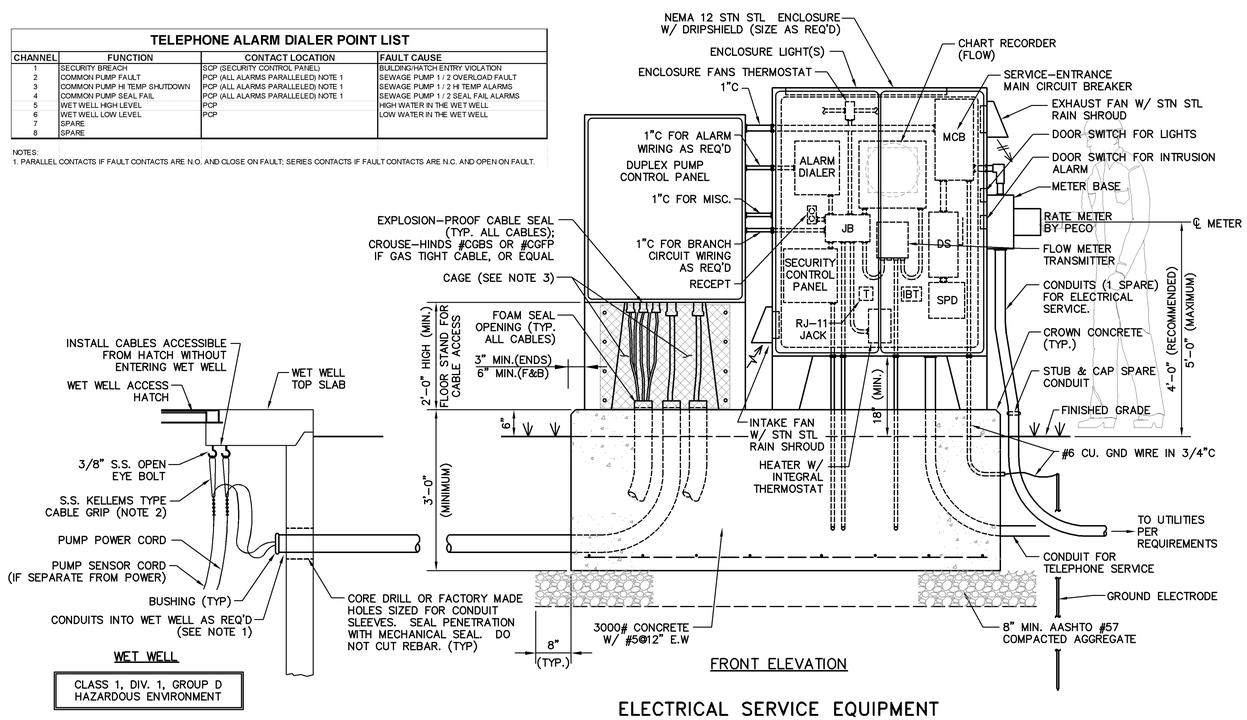
REV. S-4440A

Dwg. Name: 10270528.DWG Plotted: 7/6/2015 10:51 AM

TELEPHONE ALARM DIALER POINT LIST

CHANNEL	FUNCTION	CONTACT LOCATION	FAULT CAUSE
1	SECURITY BREACH	SCP (SECURITY CONTROL PANEL)	BUILDING/HATCH ENTRY VIOLATION
2	COMMON PUMP FAULT	PCP (ALL ALARMS PARALLELED) NOTE 1	SEWAGE PUMP 1 / 2 OVERLOAD FAULT
3	COMMON PUMP HI TEMP SHUTDOWN	PCP (ALL ALARMS PARALLELED) NOTE 1	SEWAGE PUMP 1 / 2 HI TEMP ALARMS
4	COMMON PUMP SEAL FAIL	PCP (ALL ALARMS PARALLELED) NOTE 1	SEWAGE PUMP 1 / 2 SEAL FAIL ALARMS
5	WET WELL HIGH LEVEL	PCP	HIGH WATER IN THE WET WELL
6	WET WELL LOW LEVEL	PCP	LOW WATER IN THE WET WELL
7	SPARE		
8	SPARE		

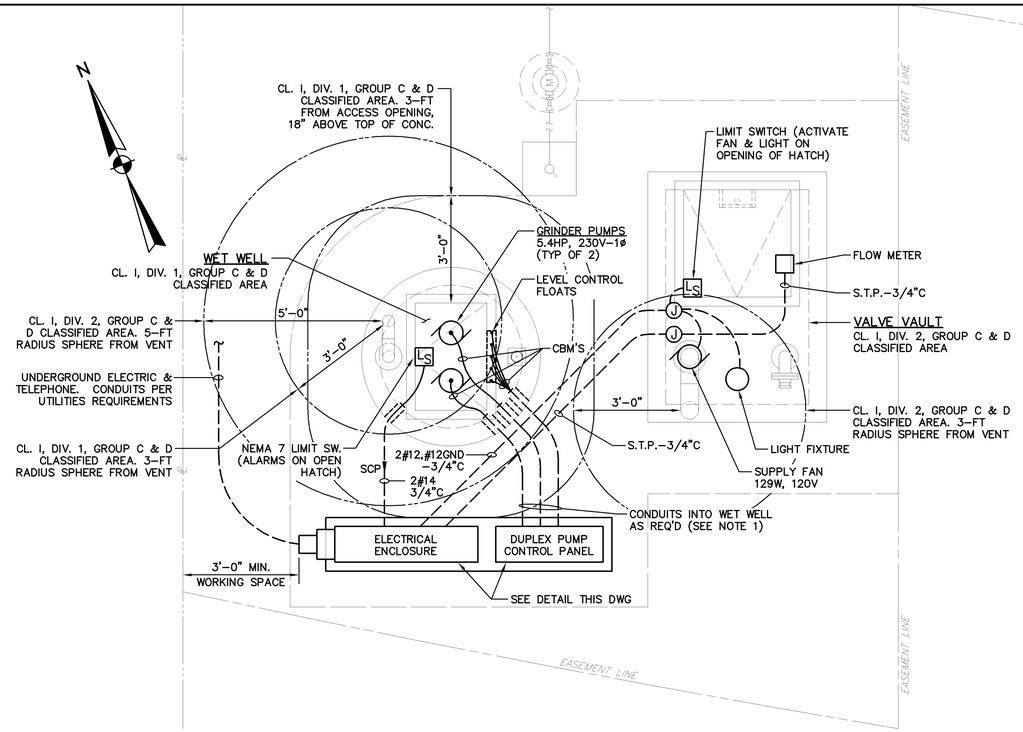
NOTES:
1. PARALLEL CONTACTS IF FAULT CONTACTS ARE N.O. AND CLOSE ON FAULT; SERIES CONTACTS IF FAULT CONTACTS ARE N.C. AND OPEN ON FAULT.



FRONT ELEVATION

ELECTRICAL SERVICE EQUIPMENT & PUMP CONTROL PANEL DETAIL

NO SCALE

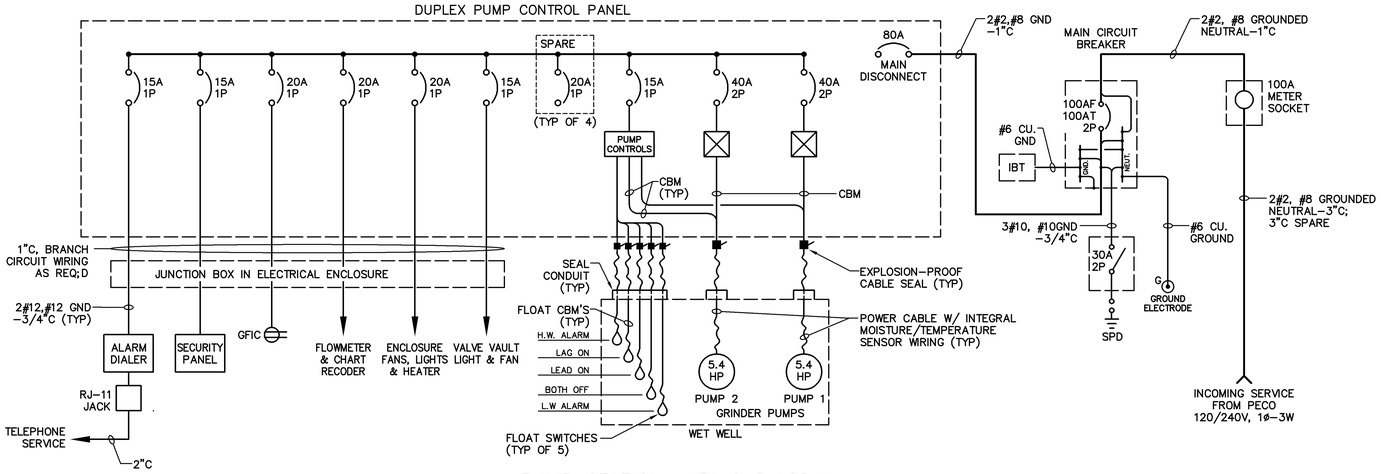


PLAN

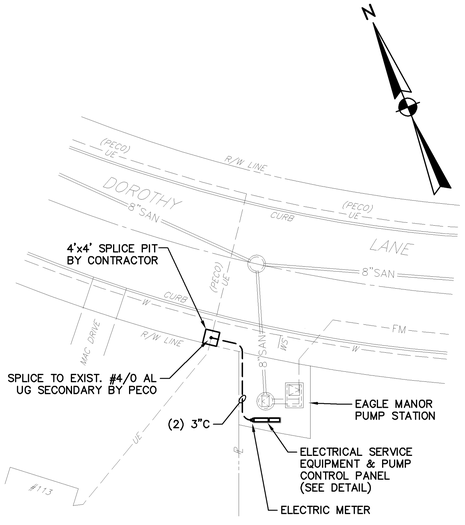
SCALE: 1/2" = 1'-0"

NOTES

1. THE CARRIER CONDUITS FOR THE PUMP POWER CABLE W/ INTEGRAL MOISTURE/TEMPERATURE SENSOR WIRING, AND FLOAT SWITCH CABLES SHALL BE SIZED SUCH THAT BOTH CABLE AND EXPLOSION-PROOF CABLE SEAL CAN BE FISHED THROUGH THE CONDUITS, BACK INTO THE WET WELL, AND REMOVED WITH THE SUBMERSIBLE PUMPS OR FLOATS. IF MULTIPLE FLOAT CABLES IN ONE CONDUIT, SIZE CONDUIT SO ONE SPECIFIC CABLE CAN BE REMOVED WITH ALL OTHERS CONNECTED.
2. THE CONTRACTOR SHALL PROVIDE A SUITABLY SIZED STAINLESS STEEL KELLEMS TYPE CABLE GRIPS ANCHORED TO THE WET WELL WALL/TOP SLAB NO MORE THAN 4" FROM THE TOP OPENING TO SUPPORT THE PUMP POWER CABLES AND FLOAT CABLES. IN LIEU OF THE KELLEMS GRIPS, STAINLESS STEEL BRACKETS MAY BE USED. IN NO CASE SHALL THE CABLES BE LEFT TO HANG UNSUPPORTED FROM THE CARRIER CONDUIT.
3. CAGE: ROUND HOLE STOCK (ALUMINUM 3003H14) -.125" THICK 1/4" DIAMETER, 40% OPEN AREA WITH MARGIN (TYP.); FASTEN TO TAPPED BOLT HOLES IN FRONT AND BACK OF FLOOR STANDS W/ 1/2" DIA. STAINLESS STEEL BOLTS (TYP.); ANY BENDS IN CAGE MADE WITH BENDING BRAKE; CONTRACTOR TO SMOOTH AND DEBURR ALL ROUGH METAL EDGES.
4. SEE DWG. C-35 FOR "TYPICAL DUCT BANK DETAIL."
5. EXP - EXPLOSION PROOF
6. CBM - CABLE BY MANUFACTURER
7. IBT - INTERSYSTEM BONDING TERMINAL



PUMP STATION WIRING DIAGRAM



PARTIAL SITE PLAN

SCALE: 1" = 20'

NO	REVISION	DATE	BY	APP.

NO	REVISION	DATE	BY	APP.

G MATTHEW BROWN, P E
RELEASED BY

DESIGN: W R SWEITZER, PE	CHECKED
DRAWN: DHT	CHECKED
DATE: JULY 2014	SURVEY DATE / FIELD BOOK

SEAL: NOT FOR BIDDING OR CONSTRUCTION

SEAL

CLIENT & PROJECT
UPPER UWCHLAN TWP MUNICIPAL AUTHORITY
140 POTTSTOWN PIKE
CHESTER SPRINGS, PENNSYLVANIA 19425

PHASE II COLLECTION SYSTEM IMPROVEMENTS
UPPER UWCHLAN TOWNSHIP, CHESTER COUNTY, PA

ARRO
108 West Airport Road
Lititz, Pennsylvania 17543
Tel 717.569.7021

TITLE
ELECTRICAL
EAGLE MANOR PUMP STATION
PLAN, SINGLE LINE DIAGRAM & DETAILS

SCALE 0 1' 2' 4' 6' — SCALE: 1/2"=1'-0"
DWG. NO. E-1
PROJECT NO. 10270.06
SHEET NO. 42 OF 42
REV.
S-4440A

Dwg. Name: 10270528.DWG Plotted: 7/6/2015 10:52 AM