



UNIVERSITY of MARYLAND

ADMINISTRATION & FINANCE

OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
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CAMPUS ELECTRICAL DISTRIBUTION
UPGRADES - PHASE 1A
VARIOUS BUILDINGS

UM Project No.: 17-317
A/E Project No.: 117081.A0

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Hunt Valley, MD 21031
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TRAFFIC CONTROL ENGINEER
THE TRAFFIC GROUP, INC.
9900 Franklin Square Drive
Suite H
Baltimore, MD 21236
410-931-6600

A SERIES DRAWINGS:

SHEETS LIST:

GENERAL

G000 COVER SHEET

CIVIL

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ESC1.02 EROSION AND SEDIMENT CONTROL PLAN
ESC1.03 EROSION AND SEDIMENT CONTROL PLAN
ESC1.04 EROSION AND SEDIMENT CONTROL PLAN
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ESC1.12 EROSION AND SEDIMENT CONTROL DETAILS
ESC1.13 EROSION AND SEDIMENT CONTROL NOTES
ESC1.14 EROSION AND SEDIMENT CONTROL NOTES

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SHEET 2 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD AT SARATOGA STREET
SHEET 3 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD AT SARATOGA STREET
SHEET 4 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD AT SARATOGA STREET
SHEET 5 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD W. MULBERRY STREET TO W. FRANKLIN STREET
SHEET 6 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD W. MULBERRY STREET TO W. FRANKLIN STREET
SHEET 7 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD W. MULBERRY STREET TO PENNSYLVANIA AVENUE
SHEET 8 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD W. FRANKLIN STREET TO PENNSYLVANIA AVENUE
SHEET 9 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD AT PENNSYLVANIA AVENUE
SHEET 10 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD AT PENNSYLVANIA AVENUE
SHEET 11 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD PENNSYLVANIA AVENUE TO DRUID HILL AVENUE
SHEET 12 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD PENNSYLVANIA AVENUE TO DRUID HILL AVENUE
SHEET 13 OF 13 MAINTENANCE OF TRAFFIC PLAN - MARTIN LUTHER KING JR. BOULEVARD PENNSYLVANIA AVENUE TO DRUID HILL AVENUE



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A/E CONSULTANTS



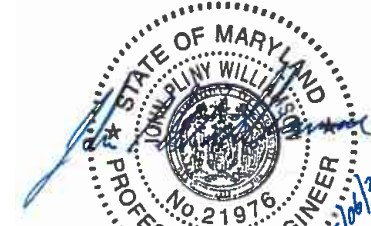
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PROJECT TITLE :
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO. : VARIOUS
UMB Project NO. : 17-317
A/E PROJECT NO. : 117081.A0
CAD FILE NO. :
DATE : 05-06-2020

SHEET TITLE :
COVER SHEET

REVISIONS		
NO	DATE	ITEM

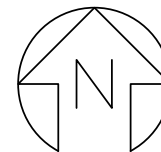
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KEY PLAN



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A/E PROJECT NO. : 117081.A0
CAD FILE NO. :
DATE : 05-06-2020

SHEET TITLE :
**ELECTRIC
DISTRIBUTION
LEGENDS AND
GENERAL
NOTES**

REVISIONS

NO	DATE	ITEM

SHEET NO.

CD0.00

GENERAL NOTES:

- CONTRACTOR IS RESPONSIBLE FOR LOCATION OF ALL UTILITIES, PRIOR TO ANY EXCAVATION. LOCATIONS SHOWN ARE APPROXIMATE AND TAKEN FROM AVAILABLE RECORDS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL UNDERGROUND UTILITIES. CONTRACTOR SHALL CONTACT ALL LOCAL UTILITY AUTHORITIES, AS REQUIRED, AT LEAST 48 HOURS PRIOR TO ALL EXCAVATION.
- INFORMATION CONCERNING EXISTING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY DETECTION EQUIPMENT OR TEST PITTING, AS REQUIRED, TO DETERMINE THE EXACT LOCATION OF THE UTILITIES PRIOR TO EXCAVATION ACTIVITIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DISCLOSING AND IMMEDIATELY NOTIFYING THE OWNER UPON DISCOVERY OF ANY OMISSIONS OF AND/OR DISCOVERY OF UTILITIES FOUND DURING CONSTRUCTION.
- CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES. ANY DAMAGE TO EXISTING UTILITIES DURING CONSTRUCTION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL NOT RESULT IN ANY EXTRA COST TO THE OWNER.
- WHEN WORKING IN AND AROUND THE EXISTING BUILDINGS/STRUCTURES, EXTREME CARE SHALL BE EXERCISED WITH REGARD TO PROTECTION OF THE EXISTING BUILDINGS/STRUCTURES AND SERVICES WHICH WILL REMAIN. ANY DAMAGES SHALL BE REPAIRED, REPLACED, OR RESTORED TO THE SATISFACTION OF THE OWNER AND SHALL NOT RESULT IN ANY EXTRA COST.
- UPON COMPLETION OF WORK EACH DAY, CONTRACTOR SHALL REMOVE ALL EVIDENCE OF WORK INCLUDING DIRT, ASPHALT, TIRE TRACKS, ETC, SWEEP ASPHALT PAVEMENT AND CONCRETE SIDEWALK, AND LEAVE THE SITE IN A NEAT AND ORDERLY CONDITION.
- CONTRACTOR SHALL PROVIDE TOPSOIL AND SEED OR SOD AT ALL DISTURBED AREAS NOT STABILIZED WITH ASPHALT OR CONCRETE AS SHOWN ON RESTORATION DRAWINGS.
- CONTRACTOR SHALL BE REQUIRED TO RESTORE ALL PAVEMENTS, CURBS, GUTTERS, SIDEWALKS, SIGNS, AND PAVEMENT STRIPING TO THEIR ORIGINAL PRE-CONSTRUCTION CONDITION FOR ALL DISTURBED AREAS.
- ROADS AND WALKWAYS SHALL BE RESTORED AS SOON AS POSSIBLE OR SHALL HAVE TEMPORARY REPAIRS TO MAKE THEM USABLE DURING THE CONSTRUCTION PERIOD. TEMPORARY PATCHES SHALL BE MAINTAINED.
- CONTRACTOR SHALL COORDINATE CONSTRUCTION SCHEDULE AND TRAFFIC CONTROL PLAN WITH OWNER IN ORDER TO MAINTAIN ACCESS TO THE EXISTING FACILITIES.
- CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL MEASURES (VEHICULAR & PEDESTRIAN) IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE OWNER, AND AGENCIES HAVING JURISDICTION WHILE WORKING IN ROADWAYS, SIDEWALKS AND PARKING LOTS.
- AN AUTOCAD FILE SHALL BE PROVIDED TO THE CONTRACTOR FOR STAKEOUT PURPOSES.
- CONTRACTOR SHALL LEGALLY DISPOSE OF DEMOISHED DEBRIS OFF OWNER'S PROPERTY.
- A 50'X50' AREA IS AVAILABLE FOR NON-SEDIMENTITIOUS MATERIAL LAYDOWN ON THE OWNER'S PROPERTY. NO EROSION MATERIALS MAY BE STORED WITHIN THIS LAYDOWN AREA. STOCKPILE MAY BE LOCATED WITHIN THE APPROVED EROSION AND SEDIMENT CONTROLS ADJACENT TO THE WORK AREA, OR TO A CONTRACTOR-PROVIDED OFFSITE LOCATION WITH AN APPROVED ESC PERMIT. THE CONTRACTOR IS RESPONSIBLE FOR HAULING ALL STOCKPILE AND LAYDOWN MATERIALS.

ALTERNATE NOTE:

THE DOCUMENTS IDENTIFY A BASE BID AND ADD ALTERNATE THAT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. THE ADD ALTERNATE SCOPE INCLUDES THE DUCTBANKS BETWEEN THE FOLLOWING MANHOLES:

- EMH-951 TO EMH-950
- EMH-950 TO EMH-949
- EMH-949 TO EMH-1009
- EMH-946 TO EMH-1024
- EMH-1024 TO EMH-652

THE ADD ALTERNATE SCOPE IS IDENTIFIED ON THE SITE PLAN DRAWINGS CD2.00 THROUGH CD2.10. THE ASSOCIATED DEMOLITION, RESTORATION, EXCAVATION, BACKFILL, SUPPORT OF EXISTING UTILITIES, TRAFFIC CONTROL SHALL BE INCLUDED AS PART OF THE ADD ALTERNATE BID.

DRAWING LEGEND	
EXISTING CONDITIONS LEGEND	
SYMBOL	DESCRIPTION
	EXISTING BUILDING
	EX. CURB AND GUTTER
	EX. FENCE
	EX. ASPHALT PAVEMENT
	EX. PROPERTY LINE
	EX. RIGHT-OF-WAY
	EXISTING STREAM
	EX. WALL
	EX. CONCRETE SIDEWALK
	EX. INTERMEDIATE CONTOUR
	EX. INDEX CONTOUR
	EX. SPOT ELEVATION
	EX. TREE
	EX. SIGN
	EX. LIGHT POLE
	EX. STAIRS
	EX. CHILLED WATER VALVE
	EX. CHILLED WATER SUPPLY / RETURN
	EX. CONDENSER WATER SUPPLY / RETURN
	EX. HIGH PRESSURE STEAM & PUMPED CONDENSATE PIPING
	EX. STEAM MANHOLE
	EX. UTILITY TUNNEL
	EX. TUNNEL VAULT
	EX. STORM DRAIN
	EX. STORM DRAIN MANHOLE
	EX. STORM DRAIN MANHOLE CALLOUT
	EX. STORM DRAIN INLET CALLOUT
	EX. STORM DRAIN YARD INLET
	EX. STORM DRAIN CURB INLET
	EX. SANITARY SEWER
	EX. SANITARY SEWER MANHOLE
	EX. SANITARY SEWER MANHOLE CALLOUT
	EX. TELECOMM DUCTBANK
	EX. TELECOMM MANHOLE
	EX. TELECOMM MANHOLE CALLOUT
	EX. ELECTRIC DUCTBANK
	EX. ELECTRIC MANHOLE
	EX. ELECTRIC MANHOLE CALLOUT
	EX. UTILITY POLE
	EX. GAS PIPING
	EX. GAS VALVE
	EX. WATER PIPING
	EX. WATER VALVE
	EX. SIAMESE CONNECTION
	EX. FIRE HYDRANT

DRAWING LEGEND	
UTILITIES LEGEND	
SYMBOL	DESCRIPTION
	ELECTRIC DUCTBANK
	PRECAST ELECTRIC MANHOLE
	ELECTRIC MANHOLE CALLOUT
	SECTION CALLOUT
	CALLOUT
	PROFILE CALLOUT

DEMOLITION LEGEND		
SYMBOL	DESCRIPTION	NOTES
	SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT TO NEAREST JOINT	①
	SAWCUT AND REMOVE EXISTING CONCRETE CURB AND GUTTER TO THE NEAREST JOINT	②
	SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT	③
	REMOVE EXISTING BRICK PAVERS AND STORE FOR REINSTALLATION. SEE NOTE 1.	④
	REMOVE EXISTING CONCRETE PAVERS AND STORE FOR REINSTALLATION. SEE NOTE 1.	⑤
	REMOVE EXISTING LIGHT POLE AND SALVAGE FOR REINSTALLATION. SEE NOTE 2.	⑥
	REMOVE EXISTING TREE. SEE NOTE 3.	⑦
	REMOVE EXISTING FIRE HYDRANT. SEE NOTE 4.	⑧
	SAWCUT AND REMOVE EXISTING CONCRETE CURB TO THE NEAREST JOINT	⑨
	REMOVE EXISTING BLUESTONE PAVERS	⑩

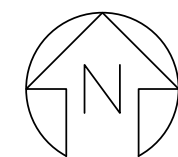
DRAWING LEGEND	
RESTORATION LEGEND	
SYMBOL	DESCRIPTION
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT
	CONCRETE CURB AND GUTTER
	CONCRETE PANELS
	BRICK SIDEWALK
	REPLANT EX. TREE
	REINSTALL EX. SIGN
	REINSTALL EX. LIGHT POLE
	REINSTALL EX. FIRE HYDRANT
	CONCRETE CURB

DRAWING LEGEND	
EROSION AND SEDIMENT CONTROL LEGEND	
SYMBOL	DESCRIPTION
	LIMIT OF DISTURBANCE
	INLET PROTECTION
	TREE PROTECTION



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KEY PLAN



A/E CONSULTANTS



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EXPIRATION DATE: _____

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PROJECT TITLE:
**CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A**

BID DOCUMENTS

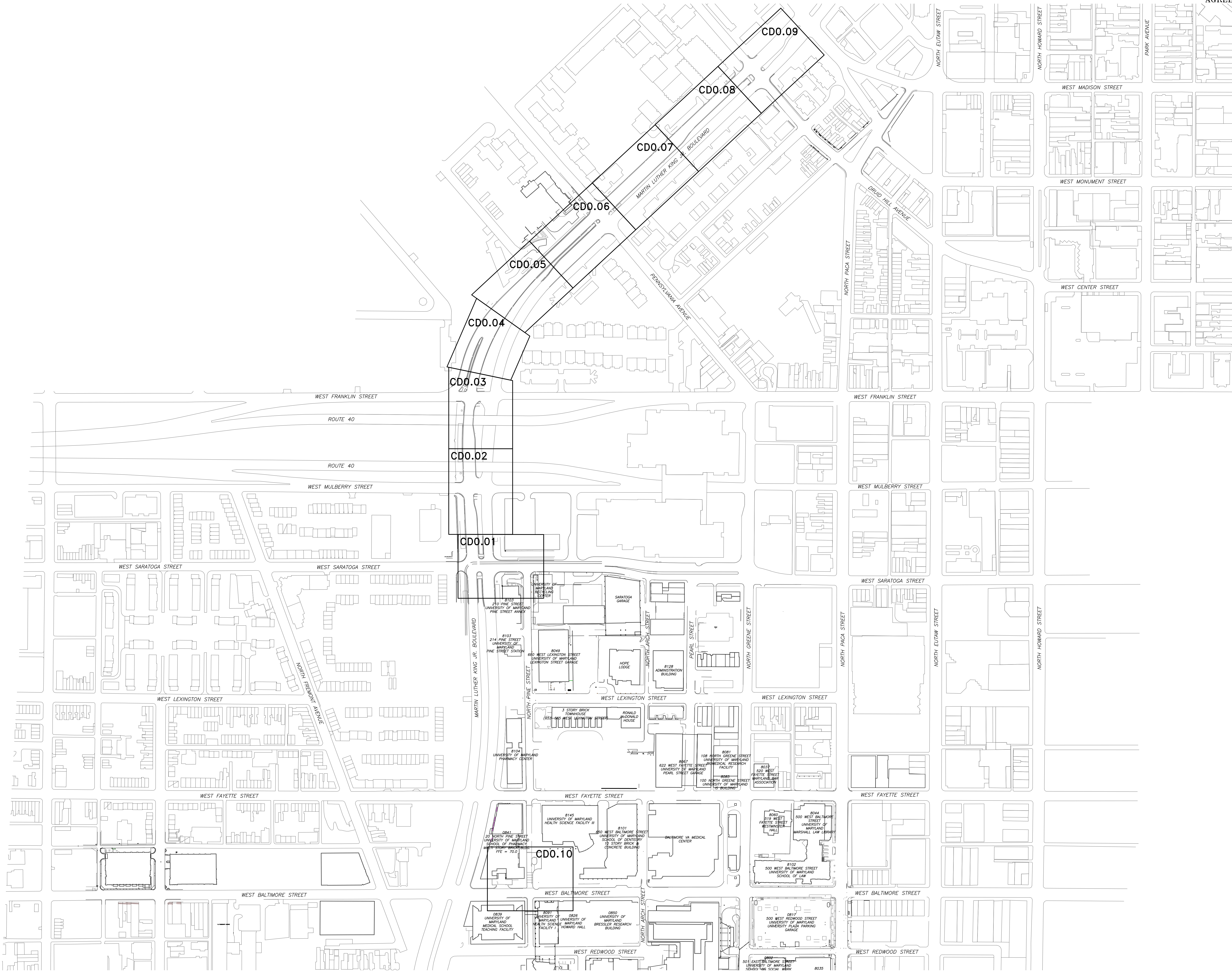
UMB BUILDING NO.: VARIOUS
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A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
**OVERALL
EXISTING
CONDITIONS
PLAN -
PHASE 1A**

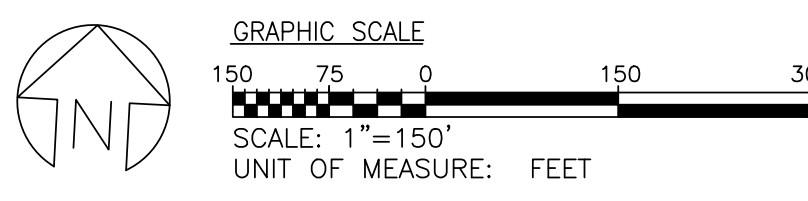
REVISIONS		
NO	DATE	ITEM

SHEET NO.

CD0.00A



OVERALL EXISTING CONDITIONS PLAN - PHASE 1A
SCALE: 1" = 100'





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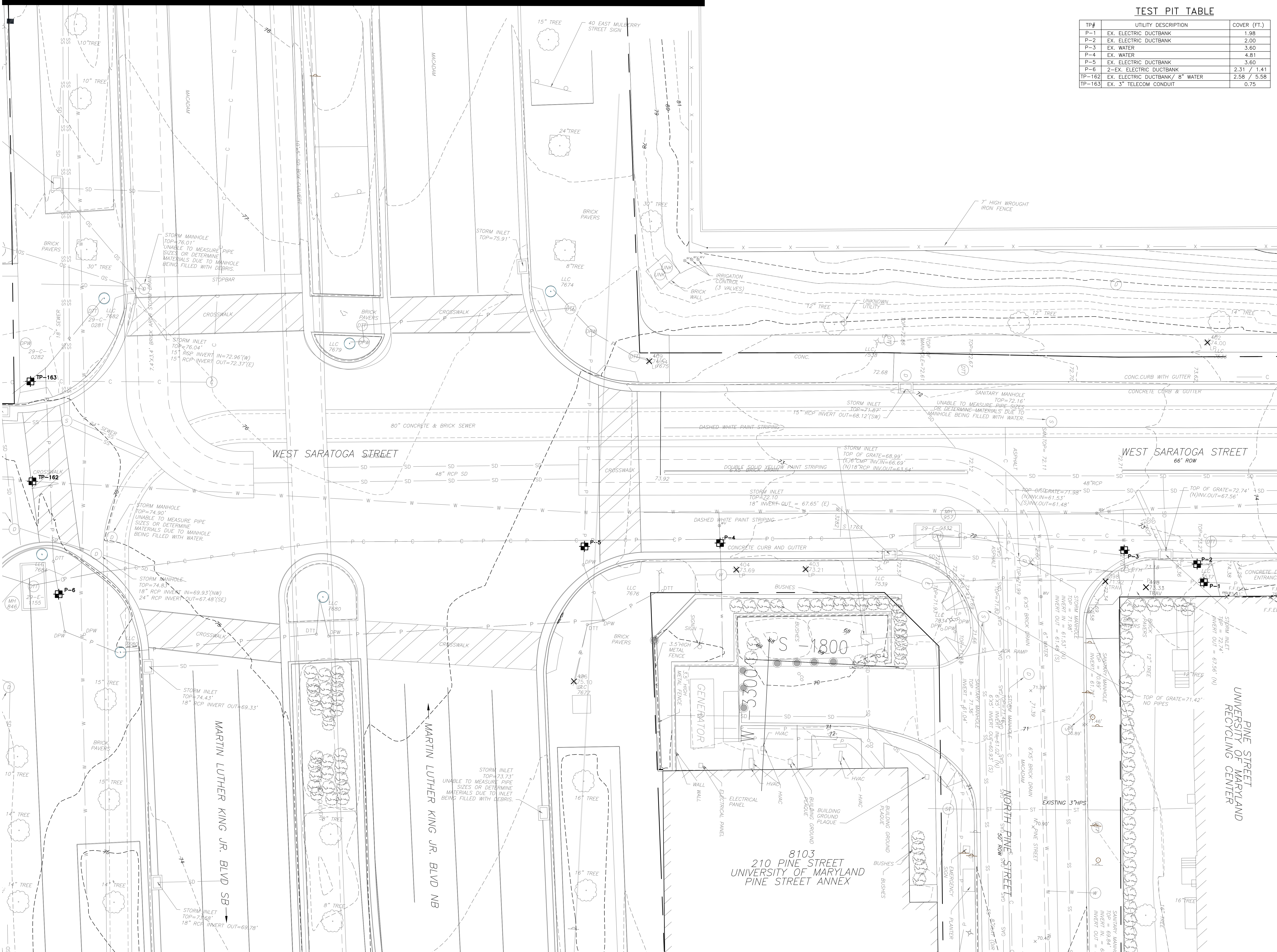
UMB BUILDING NO.: VARIOUS
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A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
EXISTING
CONDITIONS
AND TEST PIT
PLAN

REVISIONS		
NO	DATE	ITEM

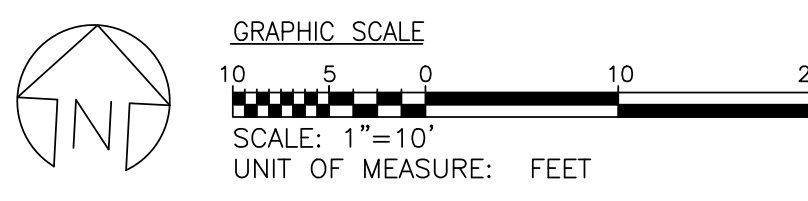
SHEET NO.

CD0.01



EXISTING CONDITIONS AND TEST PIT PLAN

SCALE: 1" = 10'





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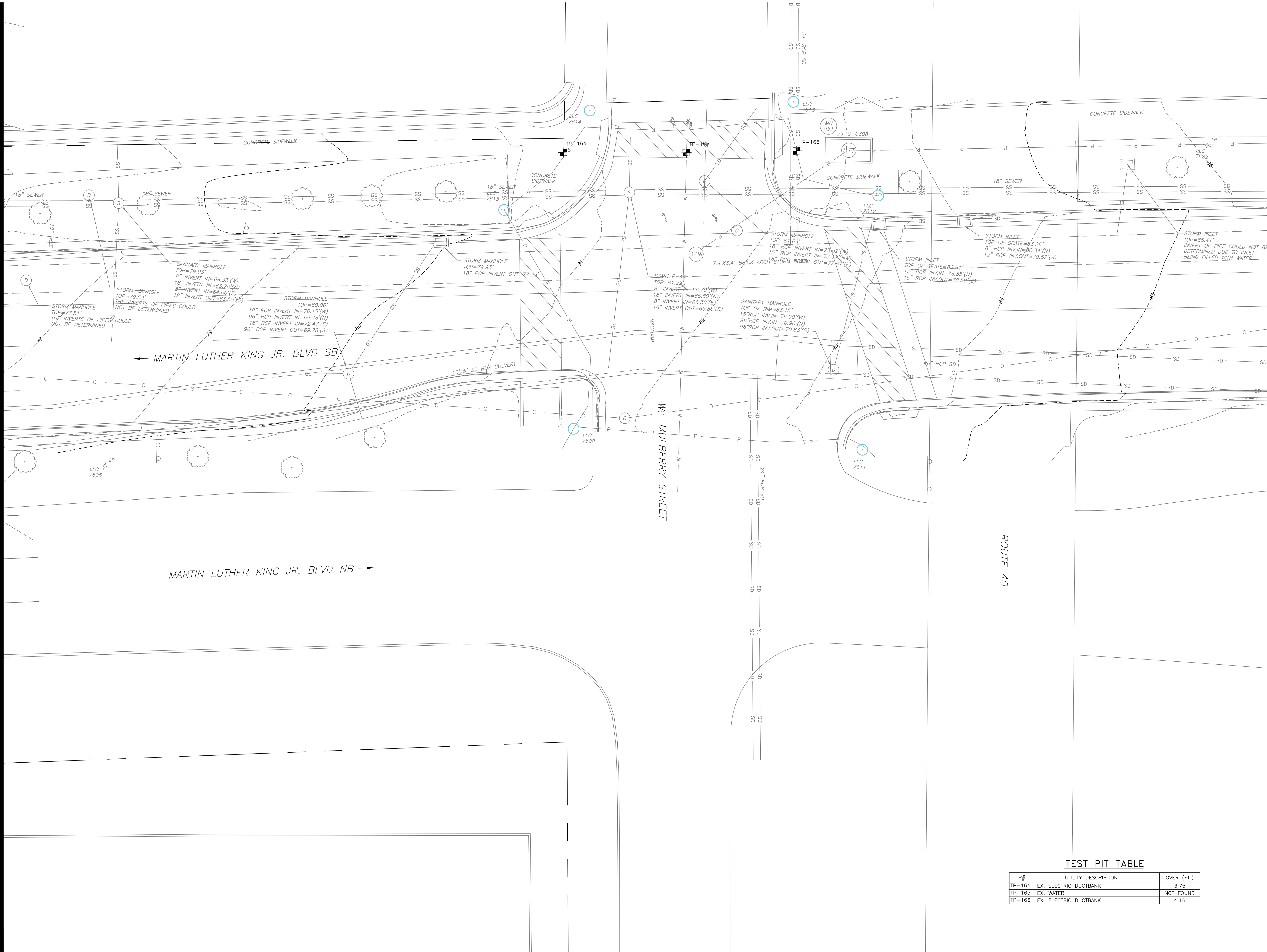
SHEET TITLE:
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REVISIONS		
NO	DATE	ITEM

SHEET NO.
CD0.02

MATCHLINE - SEE DRAWING CD0.01 FOR CONTINUATION

MATCHLINE - SEE DRAWING CD0.03 FOR CONTINUATION

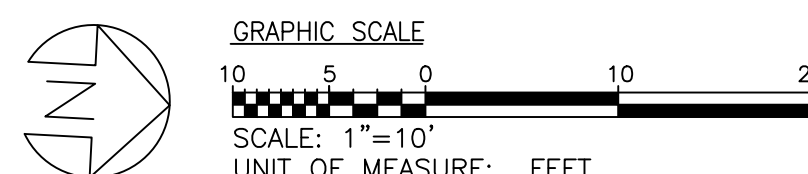


EXISTING CONDITIONS AND TEST PIT PLAN

SCALE: 1" = 10'

TEST PIT TABLE

TP#	UTILITY DESCRIPTION	COVER (FT.)
TP-164	EX. ELECTRIC DUCTBANK	3.75
TP-165	EX. WATER	NOT FOUND
TP-166	EX. ELECTRIC DUCTBANK	4.16



MATCHLINE - SEE DRAWING CD0.02 FOR CONTINUATION

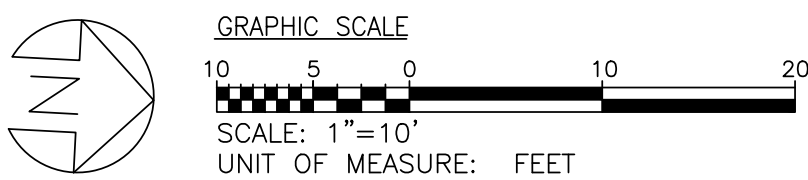


EXISTING CONDITIONS AND TEST PIT PLAN

SCALE: 1" = 10'

TEST PIT TABLE

TP#	UTILITY DESCRIPTION	COVER (FT.)
TP-167	EX. GAS	NOT FOUND
TP-167A	EX. WATER	NOT FOUND
TP-168	EX. 6" WATER	5.75

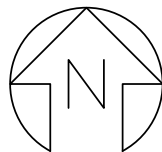


BALTIMORE CITY DEVELOPER'S AGREEMENT DA#1615



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REVISIONS

NO	DATE	ITEM

SHEET NO.

CD0.03



ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547

KEY PLAN

A/E CONSULTANTS



RMF ENGINEERING, INC.
5520 RESEARCH PARK DR, 3RD FLR
BALTIMORE, MD 21228
P: 410.576-0505
F: 410.385-0327



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LICENSE NO. _____
EXPIRATION DATE: _____

REGISTRATION/STAMP



PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

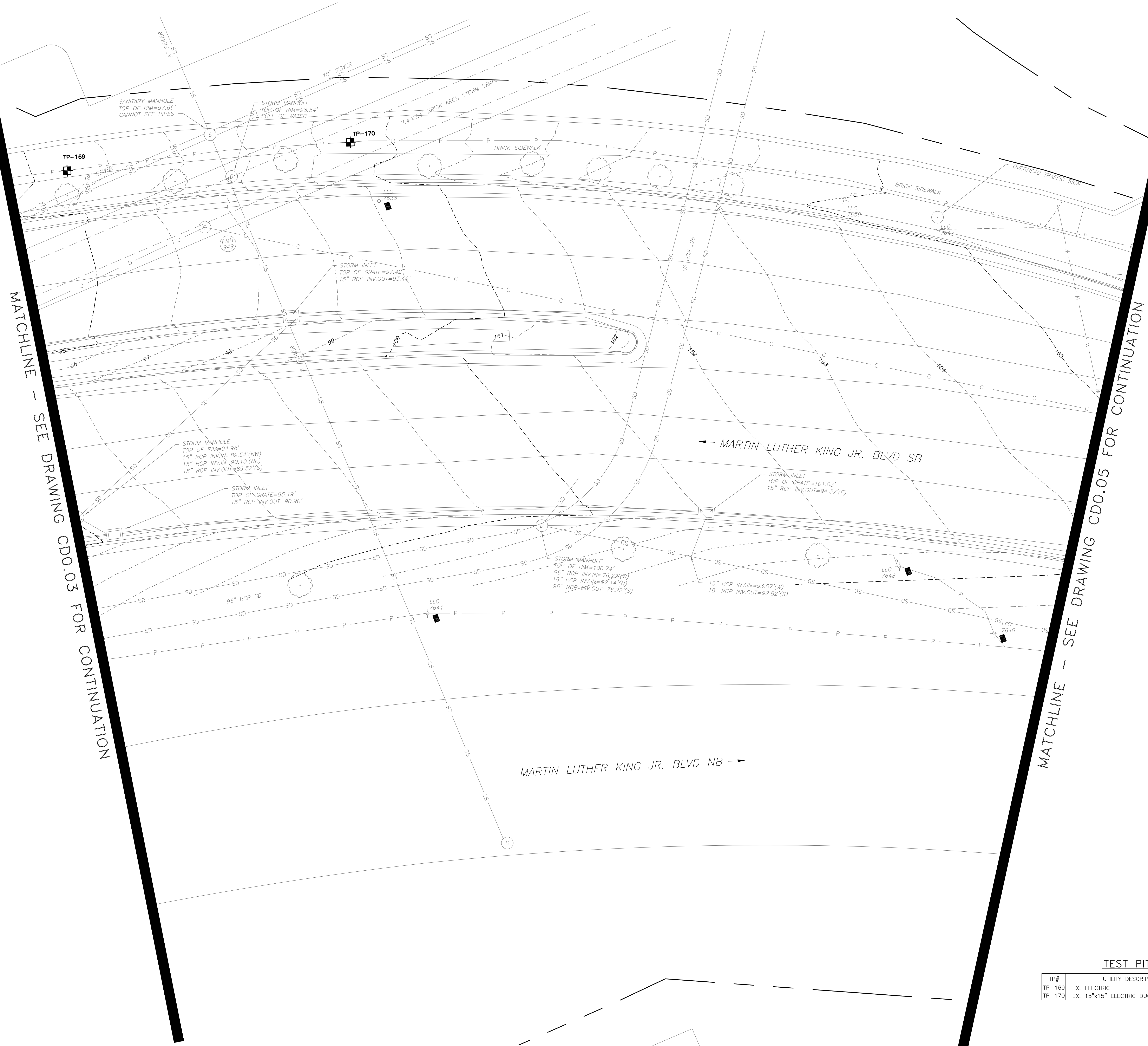
BID DOCUMENTS

UMB BUILDING NO.:	VARIOUS
UMB Project NO.:	17-317
A/E PROJECT NO.:	117081.A0
CAD FILE NO.:	
DATE:	05-06-2020

SHEET TITLE:
EXISTING
CONDITIONS
AND TEST PIT
PLAN

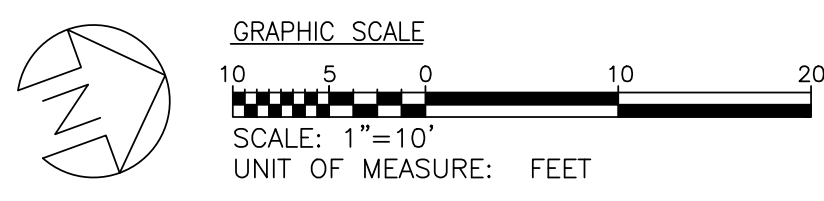
REVISIONS		
NO	DATE	ITEM

SHEET NO.
CD0.04



EXISTING CONDITIONS AND TEST PIT PLAN
SCALE: 1" = 10'

TEST PIT TABLE		
TP#	UTILITY DESCRIPTION	COVER (FT.)
TP-169	EX. ELECTRIC	NOT FOUND
TP-170	EX. 15"x15" ELECTRIC DUCTBANK	3.25





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PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

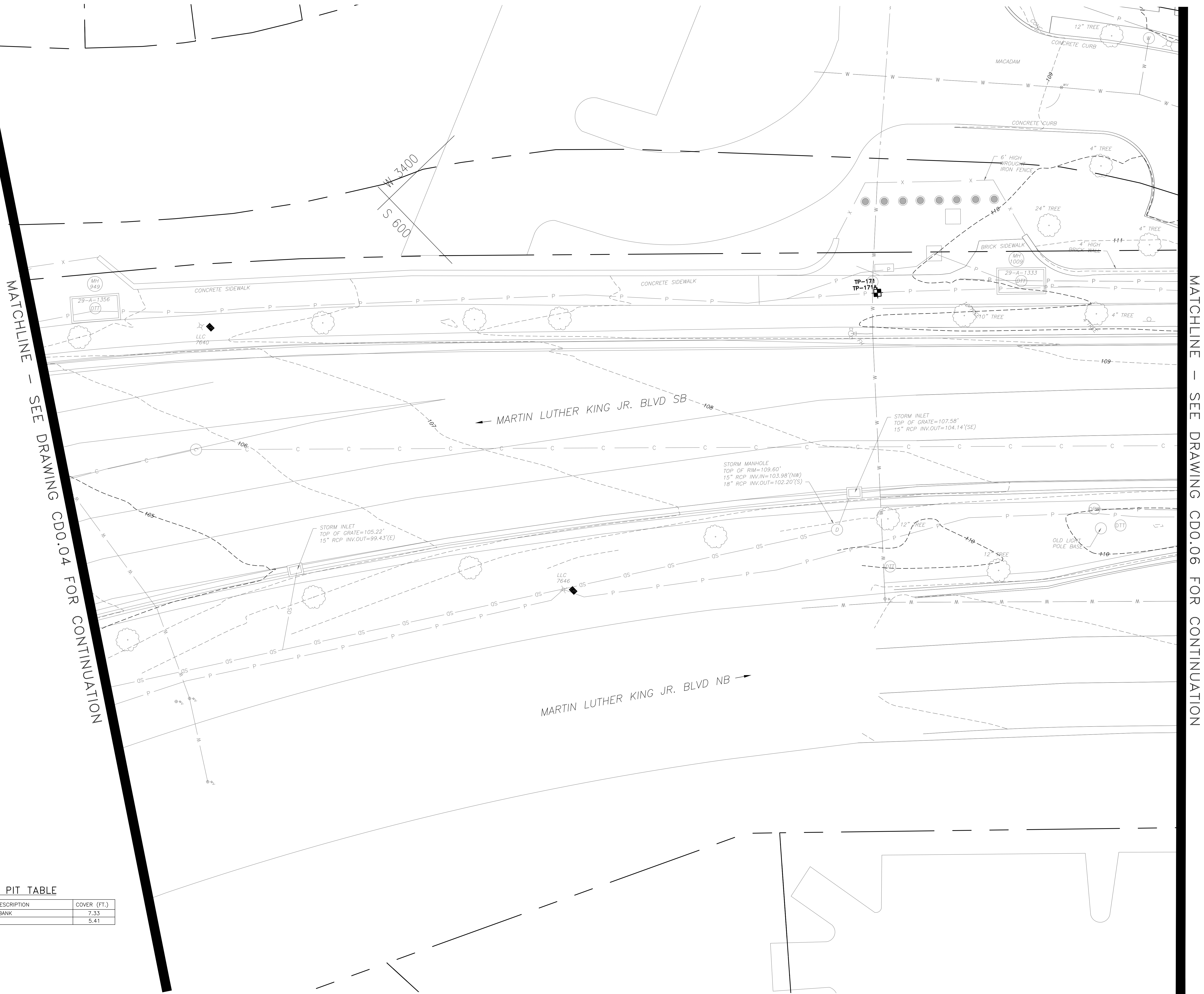
BID DOCUMENTS

UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
EXISTING
CONDITIONS
AND TEST PIT
PLAN

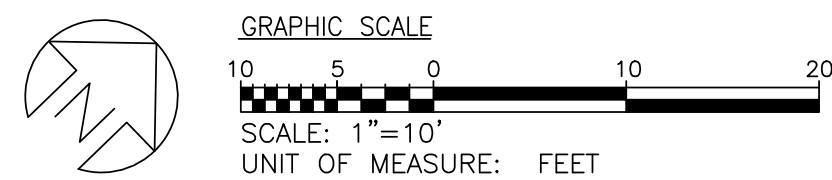
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NO	DATE	ITEM

SHEET NO.
CD0.05



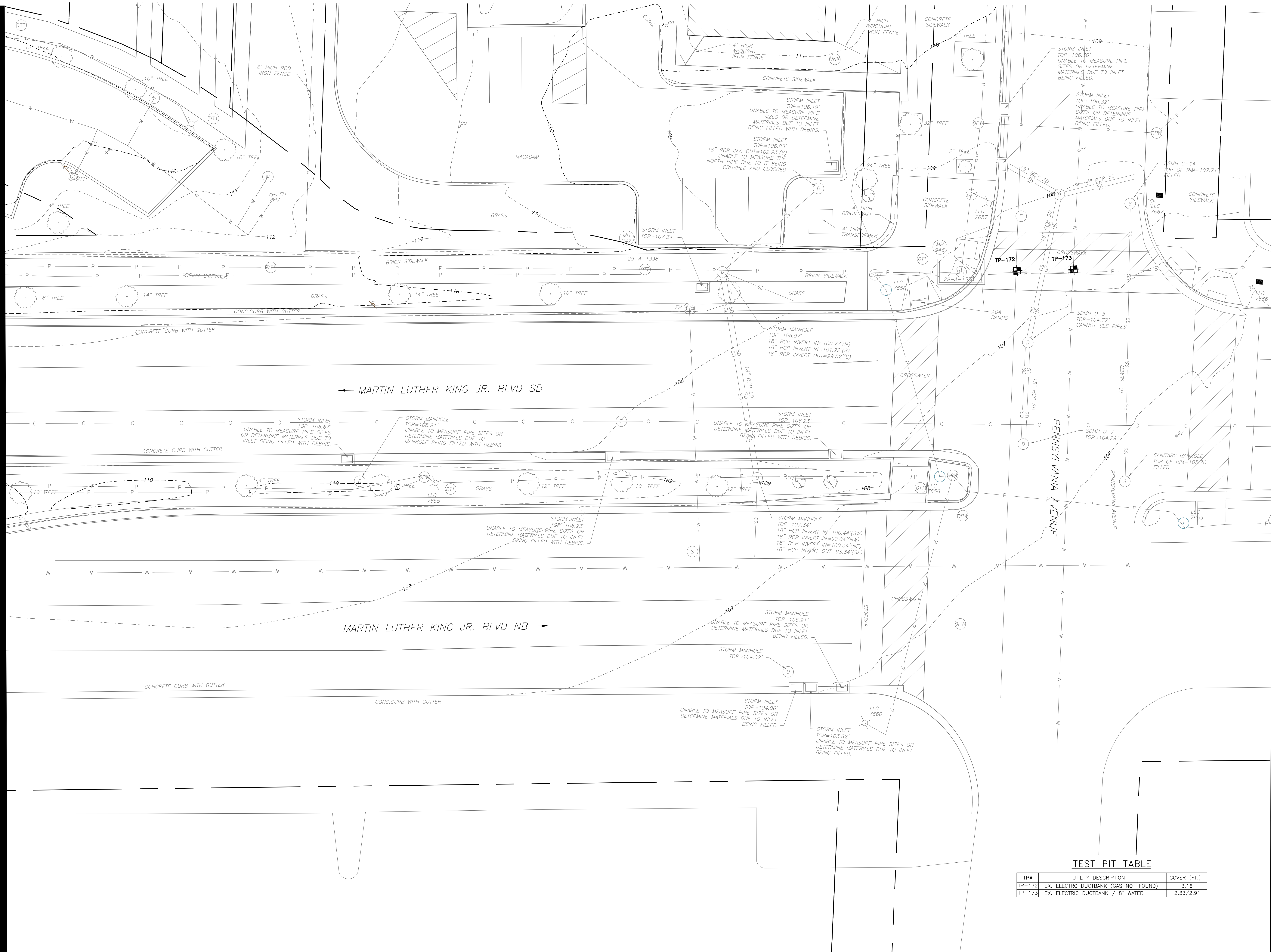
TEST PIT TABLE		
TP#	UTILITY DESCRIPTION	COVER (FT.)
TP-171	EX. ELECTRIC DUCTBANK	7.33
TP-171A	EX. 10" WATER	5.41

EXISTING CONDITIONS AND TEST PIT PLAN
SCALE: 1" = 10'

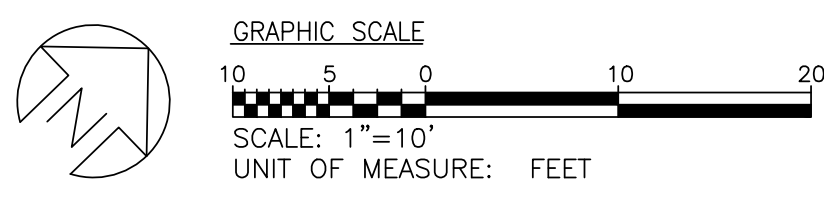


MATCHLINE - SEE DRAWING CD0.05 FOR CONTINUATION

MATCHLINE - SEE DRAWING CD0.07 FOR CONTINUATION



EXISTING CONDITIONS AND TEST PIT PLAN
SCALE: 1" = 10'





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UMB Project NO.:	17-317
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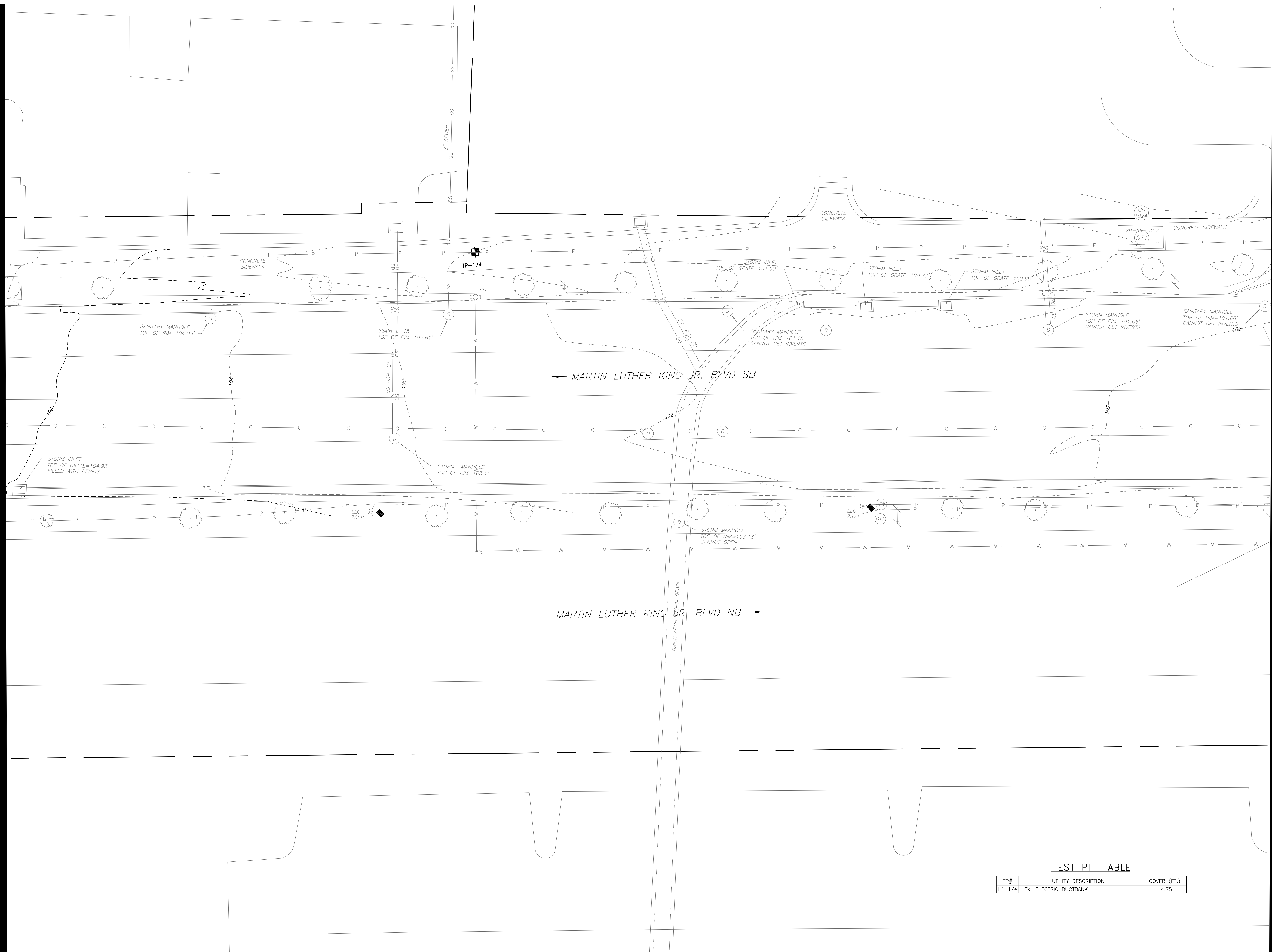
SHEET TITLE:
EXISTING
CONDITIONS
AND TEST PIT
PLAN

REVISIONS		
NO	DATE	ITEM

SHEET NO.
CD0.07

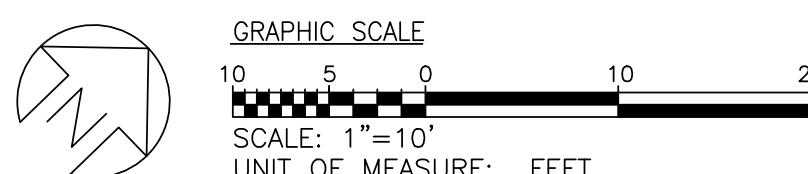
MATCHLINE - SEE DRAWING CD0.06 FOR CONTINUATION

MATCHLINE - SEE DRAWING CD0.08 FOR CONTINUATION



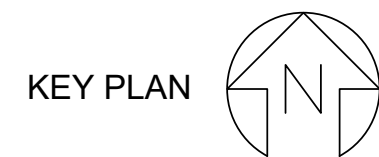
TEST PIT TABLE		
TP#	UTILITY DESCRIPTION	COVER (FT.)
TP-174	EX. ELECTRIC DUCTBANK	4.75

EXISTING CONDITIONS AND TEST PIT PLAN
SCALE: 1" = 10'





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PHASE 1A

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A/E PROJECT NO.: 117081.A0
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SHEET TITLE:
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AND TEST PIT
PLAN

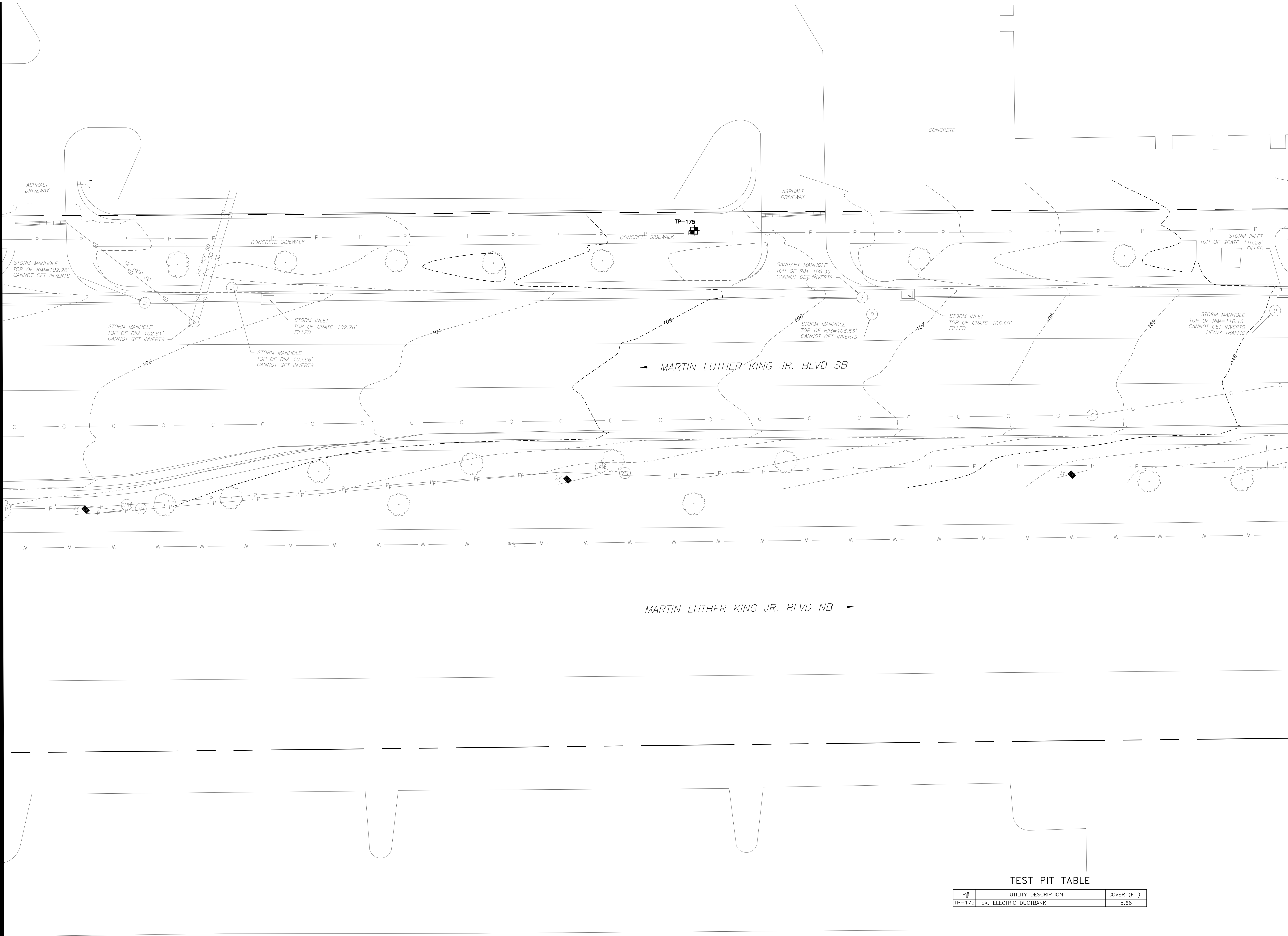
REVISIONS

NO	DATE	ITEM

SHEET NO.
CD0.08

MATCHLINE - SEE DRAWING CD0.07 FOR CONTINUATION

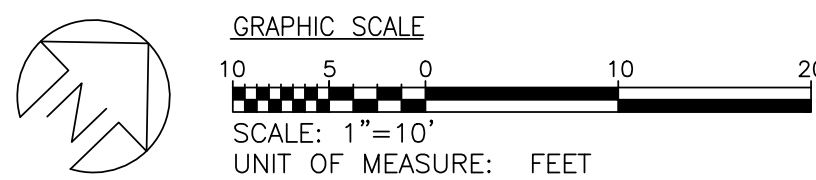
MATCHLINE - SEE DRAWING CD0.09 FOR CONTINUATION



TEST PIT TABLE

TP#	UTILITY DESCRIPTION	COVER (FT.)
TP-175	EX. ELECTRIC DUCTBANK	5.66

EXISTING CONDITIONS AND TEST PIT PLAN
SCALE: 1" = 10'





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KEY PLAN

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PROJECT TITLE:
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ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
EXISTING
CONDITIONS
AND TEST PIT
PLAN

REVISIONS

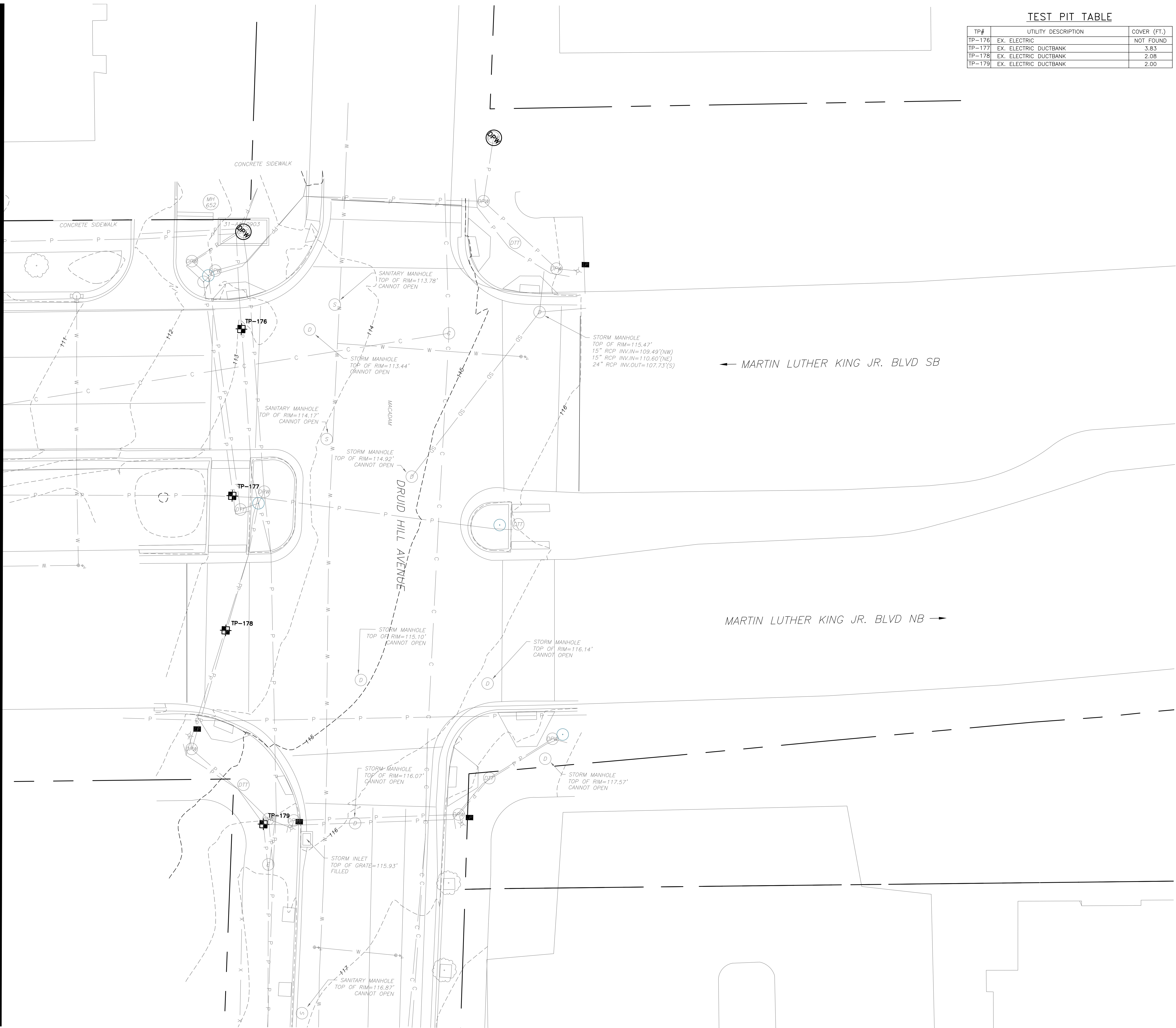
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SHEET NO.
CD0.09

TEST PIT TABLE

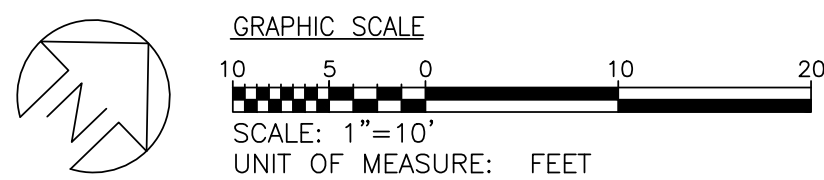
TP#	UTILITY DESCRIPTION	COVER (FT.)
TP-176	EX. ELECTRIC	NOT FOUND
TP-177	EX. ELECTRIC DUCTBANK	3.83
TP-178	EX. ELECTRIC DUCTBANK	2.08
TP-179	EX. ELECTRIC DUCTBANK	2.00

MATCHLINE - SEE DRAWING CD0.08 FOR CONTINUATION



EXISTING CONDITIONS AND TEST PIT PLAN

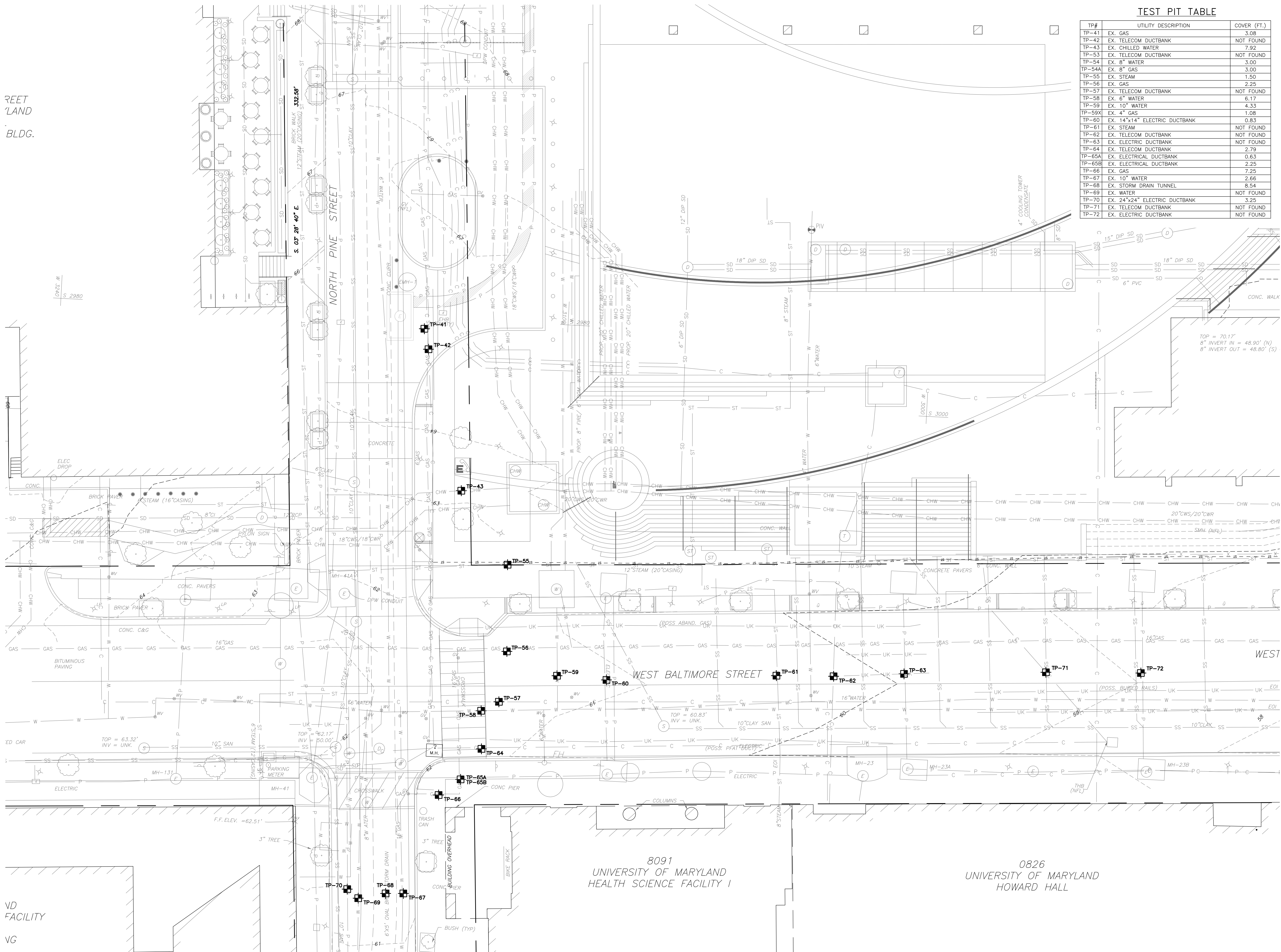
SCALE: 1" = 10'



NO	DATE	ITEM

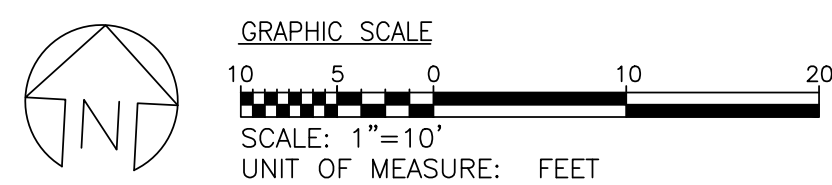
TEST PIT TABLE

TP#	UTILITY DESCRIPTION	COVER (FT.)
TP-41	EX. GAS	3.06
TP-42	EX. TELECOM DUCTBANK	NOT FOUND
TP-43	EX. CHILLED WATER	7.92
TP-53	EX. TELECOM DUCTBANK	NOT FOUND
TP-54	EX. 8" WATER	3.00
TP-54A	EX. 8" GAS	3.00
TP-55	EX. STEAM	1.50
TP-56	EX. GAS	2.25
TP-57	EX. TELECOM DUCTBANK	NOT FOUND
TP-58	EX. 6" WATER	6.17
TP-59	EX. 10" WATER	4.33
TP-59X	EX. 4" GAS	1.08
TP-60	EX. 14"x14" ELECTRIC DUCTBANK	0.83
TP-61	EX. STEAM	NOT FOUND
TP-62	EX. TELECOM DUCTBANK	NOT FOUND
TP-63	EX. ELECTRIC DUCTBANK	NOT FOUND
TP-64	EX. TELECOM DUCTBANK	2.79
TP-65A	EX. ELECTRICAL DUCTBANK	0.63
TP-65B	EX. ELECTRICAL DUCTBANK	2.25
TP-66	EX. GAS	7.25
TP-67	EX. 10" WATER	2.66
TP-68	EX. STORM DRAIN TUNNEL	8.54
TP-69	EX. WATER	NOT FOUND
TP-70	EX. 24"x24" ELECTRIC DUCTBANK	3.25
TP-71	EX. TELECOM DUCTBANK	NOT FOUND
TP-72	EX. ELECTRIC DUCTBANK	NOT FOUND



EXISTING CONDITIONS AND TEST PIT PLAN

SCALE: 1" = 10'



MATCHLINE - SEE DRAWING CD1.02 FOR CONTINUATION

BALTIMORE CITY DEVELOPER'S
AGREEMENT DA#1615



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PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
DEMOLITION
PLAN

REVISIONS

NO	DATE	ITEM

SHEET NO.

CD1.01

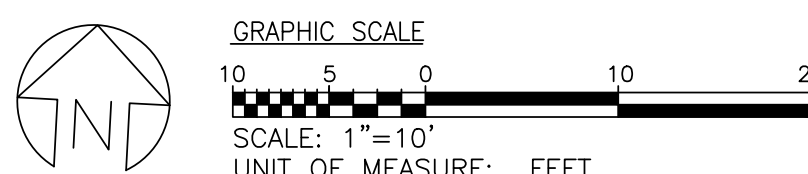
MATCHLINE - SEE THIS
DRAWING FOR CONTINUATION

MATCHLINE - SEE
THIS DRAWING FOR
CONTINUATION

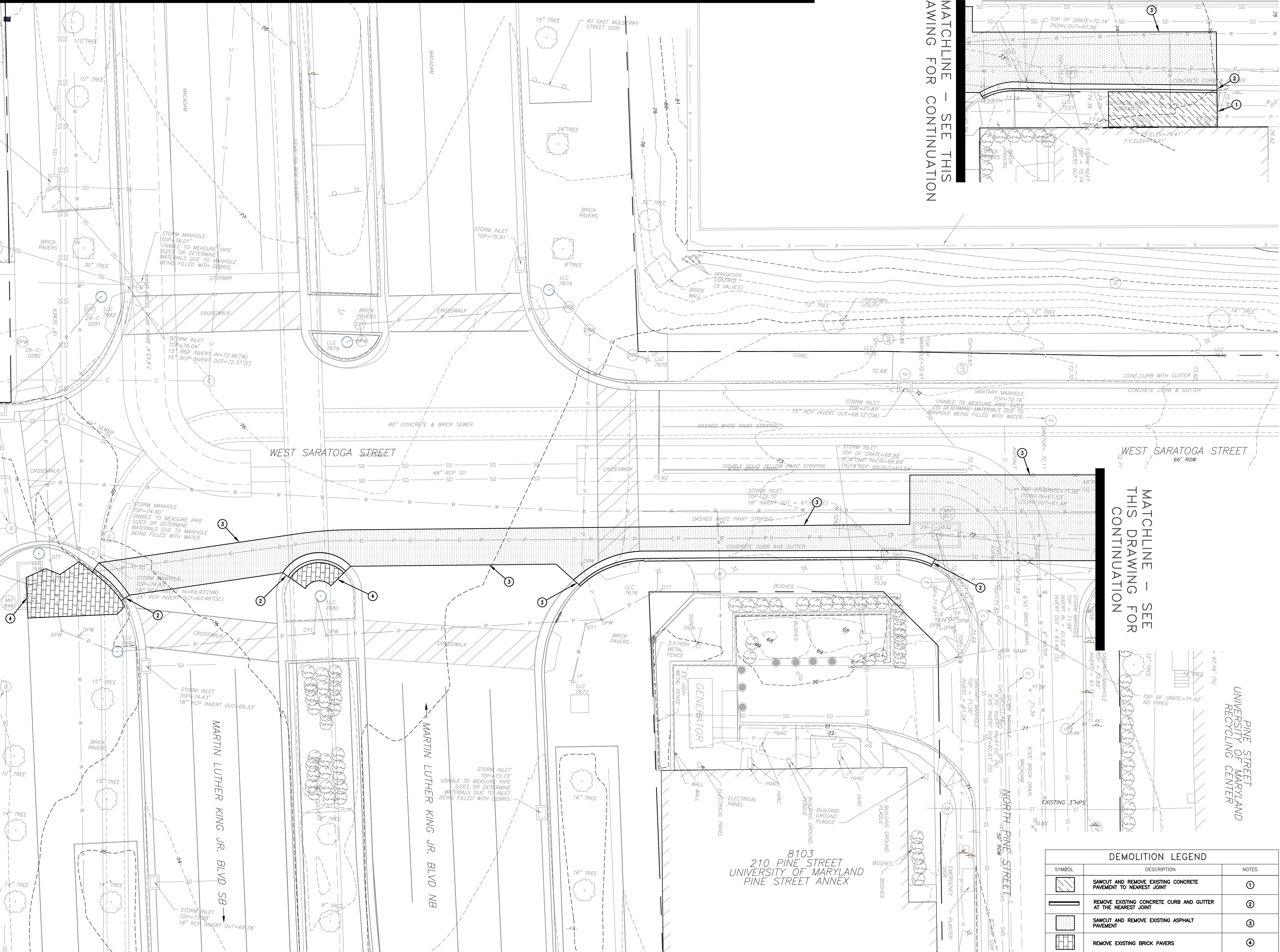
DEMOLITION PLAN

SCALE: 1" = 10'

DEMOLITION LEGEND		
SYMBOL	DESCRIPTION	NOTES
	SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT TO NEAREST JOINT	①
	REMOVE EXISTING CONCRETE CURB AND GUTTER AT THE NEAREST JOINT	②
	SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT	③
	REMOVE EXISTING BRICK PAVERS	④



TREE PROTECTION NOTE:
1. CONTRACTOR SHALL PROVIDE STAKED TREE PROTECTION FENCE AROUND ALL TREES WITHIN THE CONSTRUCTION WORK AREA. WORK AROUND TREES WHICH ARE OUTSIDE THE LIMITS OF DISTURBANCE BUT EXTEND INTO THE WORK AREA WITH LIMBS OR ROOTS SHALL BE PERFORMED IN SUCH A WAY TO LIMIT DAMAGE TO THE LIMBS OR ROOTS. PROVIDE PRE-EXCAVATION AIR SPADING AND ROOT PRUNING ALONG THE EDGE OF EXCAVATION TO TREES WITHIN 10' OF THE LIMITS OF DISTURBANCE.



REVISIONS		
NO	DATE	ITEM

Disregard Add Alternate
Work - See CD2.05 for
delineation

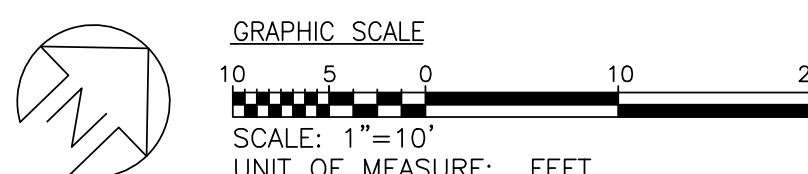
MATCHLINE - SEE DRAWING CD1.04 FOR CONTINUATION

MATCHLINE - SEE DRAWING CD1.06 FOR CONTINUATION

DEMOLITION LEGEND		
SYMBOL	DESCRIPTION	NOTES
	SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT TO NEAREST JOINT	①
	REMOVE EXISTING BRICK PAVERS	④

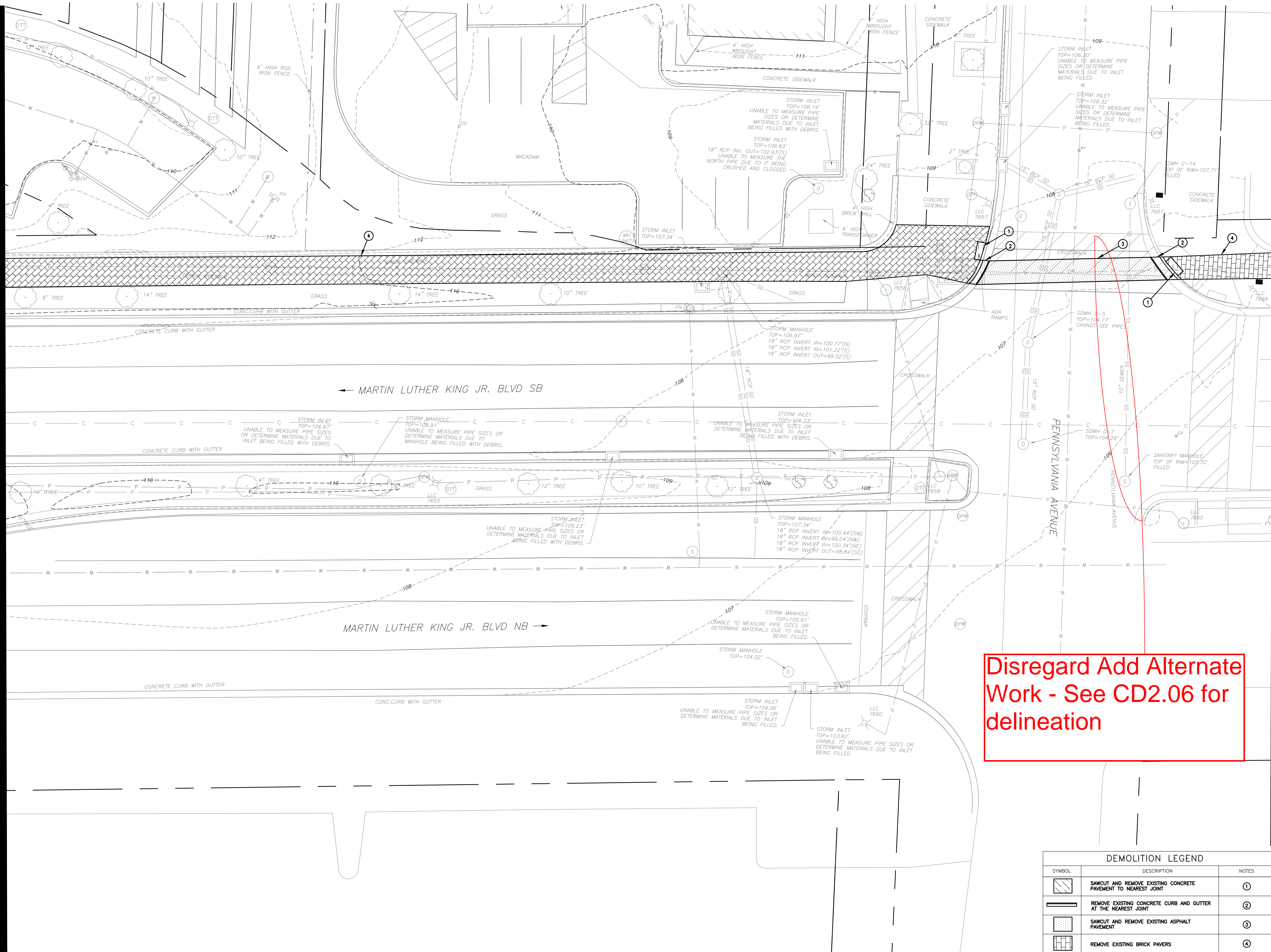
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DEMOLITION PLAN
SCALE: 1" = 10'



MATCHLINE - SEE DRAWING CD1.05 FOR CONTINUATION

MATCHLINE - SEE DRAWING CD1.07 FOR CONTINUATION

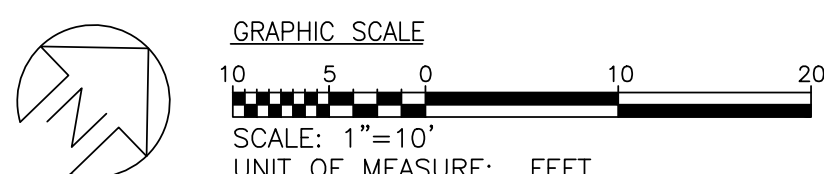


Disregard Add Alternate
Work - See CD2.06 for
delineation

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DEMOLITION PLAN
SCALE: 1" = 10'

DEMOLITION LEGEND		
SYMBOL	DESCRIPTION	NOTES
	SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT TO NEAREST JOINT	①
	REMOVE EXISTING CONCRETE CURB AND GUTTER AT THE NEAREST JOINT	②
	SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT	③
	REMOVE EXISTING BRICK PAVERS	④

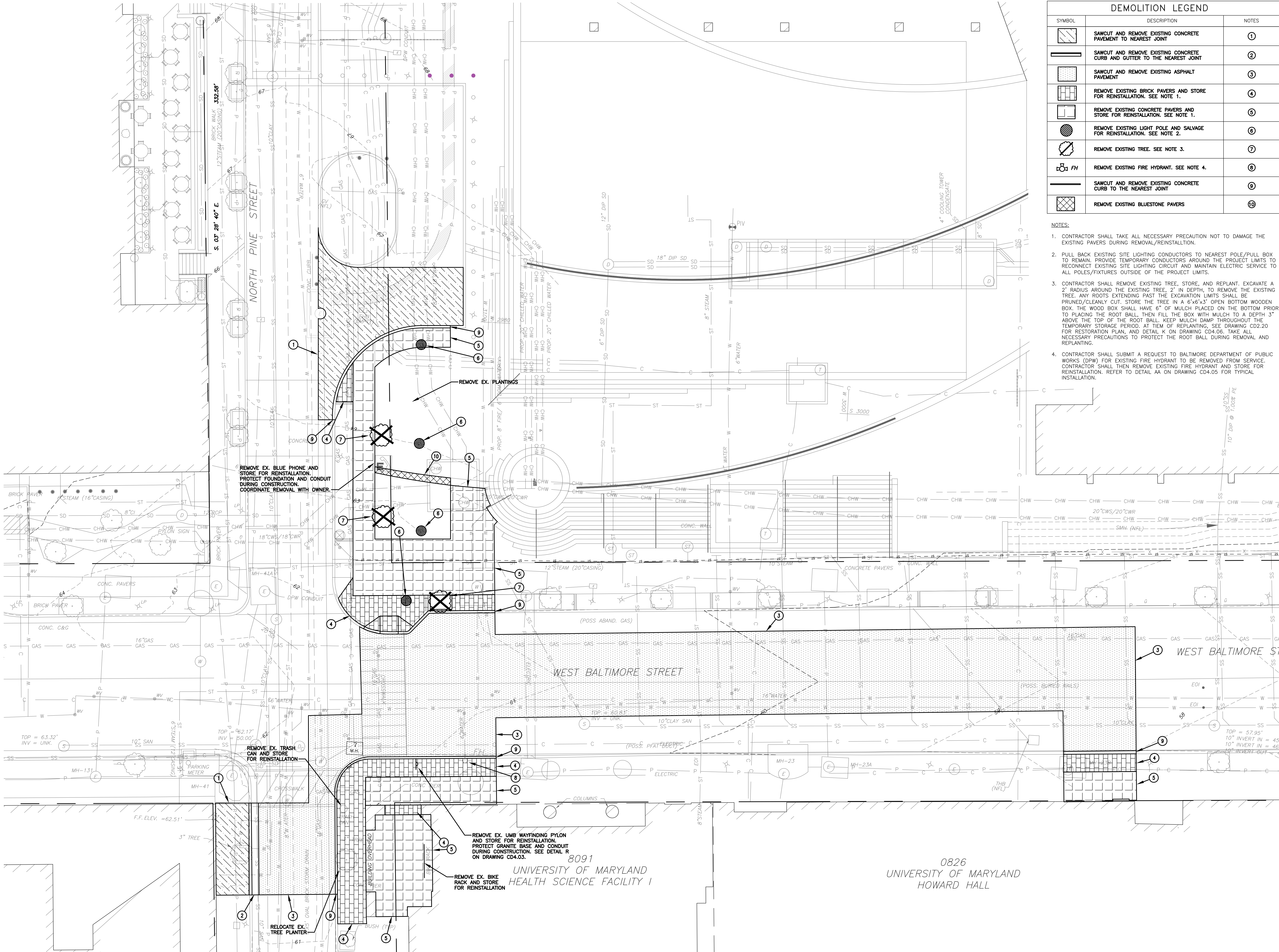


NO	DATE	ITEM

DEMOLITION LEGEND		
SYMBOL	DESCRIPTION	NOTES
	SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT TO NEAREST JOINT	①
	SAWCUT AND REMOVE EXISTING CONCRETE CURB AND GUTTER TO THE NEAREST JOINT	②
	SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT	③
	REMOVE EXISTING BRICK PAVERS AND STORE FOR REINSTALLATION. SEE NOTE 1.	④
	REMOVE EXISTING CONCRETE PAVERS AND STORE FOR REINSTALLATION. SEE NOTE 1.	⑤
	REMOVE EXISTING LIGHT POLE AND SALVAGE FOR REINSTALLATION. SEE NOTE 2.	⑥
	REMOVE EXISTING TREE. SEE NOTE 3.	⑦
	REMOVE EXISTING FIRE HYDRANT. SEE NOTE 4.	⑧
	SAWCUT AND REMOVE EXISTING CONCRETE CURB TO THE NEAREST JOINT	⑨
	REMOVE EXISTING BLUESTONE PAVERS	⑩

NOTES:

- CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTION NOT TO DAMAGE THE EXISTING PAVERS DURING REMOVAL/REINSTALLATION.
- PULL BACK EXISTING SITE LIGHTING CONDUCTORS TO NEAREST POLE/PULL BOX TO REMAIN. PROVIDE TEMPORARY CONDUCTORS AROUND THE PROJECT LIMITS TO RECONNECT EXISTING SITE LIGHTING CIRCUIT AND MAINTAIN ELECTRIC SERVICE TO ALL POLES/FIXTURES OUTSIDE OF THE PROJECT LIMITS.
- CONTRACTOR SHALL REMOVE EXISTING TREE, STORE, AND REPLANT. EXCAVATE A 2' RADIUS AROUND THE EXISTING TREE. 2' IN DEPTH, TO REMOVE THE EXISTING TREE. ANY ROOTS EXTENDING PAST THE EXCAVATION LIMITS SHALL BE PRUNED/CLEANLY CUT. STORE THE TREE IN A 6'x6'x3' OPEN BOTTOM WOODEN BOX. THE WOOD BOX SHALL HAVE 6" OF MULCH PLACED ON THE BOTTOM PRIOR TO PLACING THE ROOT BALL, THEN FILL THE BOX WITH MULCH TO A DEPTH 3" ABOVE THE TOP OF THE ROOT BALL. KEEP MULCH DAMP THROUGHOUT THE TEMPORARY STORAGE PERIOD. AT TIME OF REPLANTING, SEE DRAWING CD2.20 FOR RESTORATION PLAN, AND DETAIL K ON DRAWING CD4.06. TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE ROOT BALL DURING REMOVAL AND REPLANTING.
- CONTRACTOR SHALL SUBMIT A REQUEST TO BALTIMORE DEPARTMENT OF PUBLIC WORKS (DPW) FOR EXISTING FIRE HYDRANT TO BE REMOVED FROM SERVICE. CONTRACTOR SHALL THEN REMOVE EXISTING FIRE HYDRANT AND STORE FOR REINSTALLATION. REFER TO DETAIL AA ON DRAWING CD4.05 FOR TYPICAL INSTALLATION.

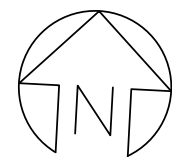


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DEMOLITION PLAN

SCALE: 1" = 10'

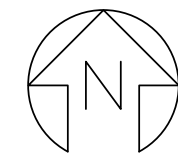


GRAPHIC SCALE
10 5 0 10 20
SCALE: 1"=10'
UNIT OF MEASURE: FEET



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CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:

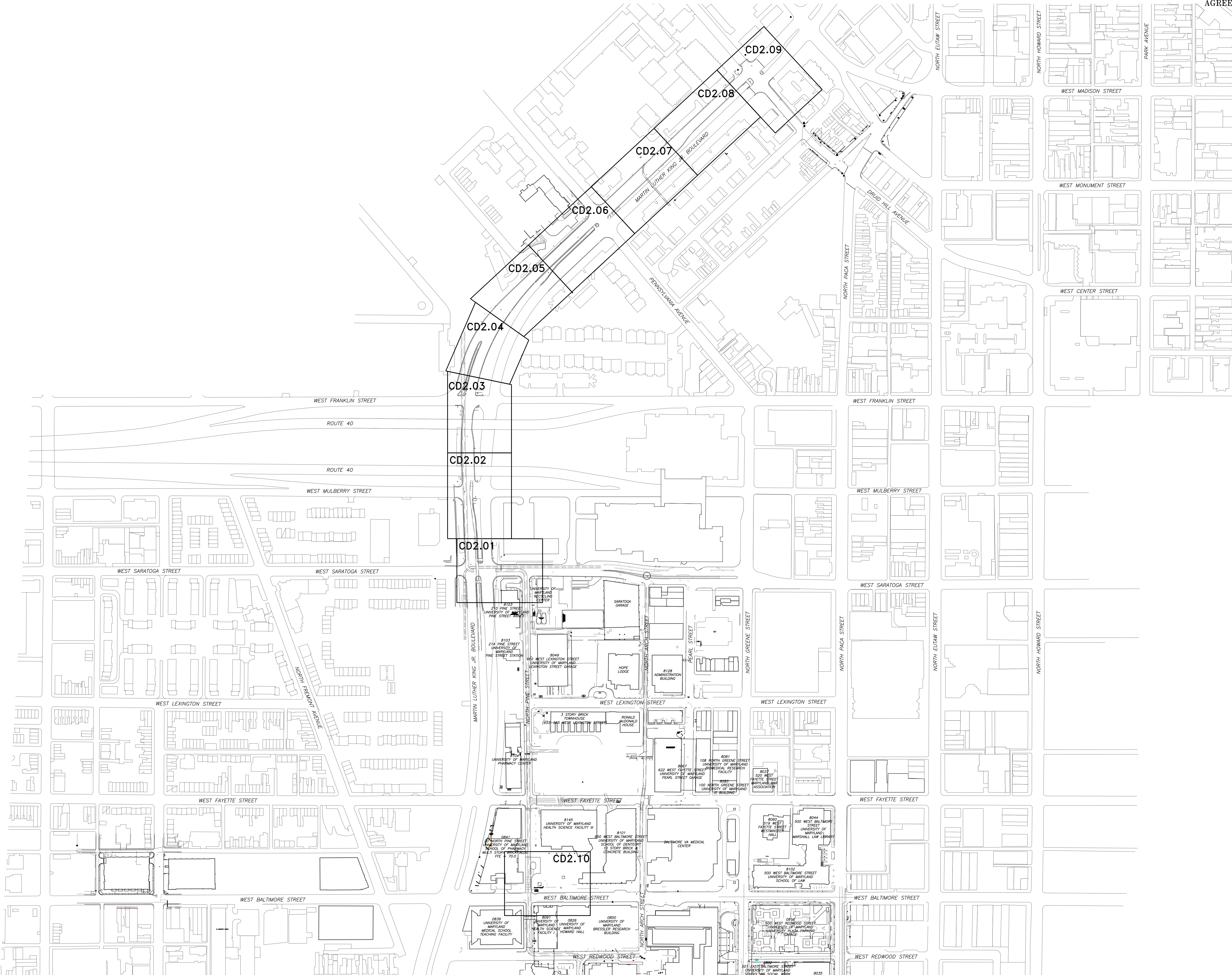
OVERALL SITE
PLAN

REVISIONS

NO	DATE	ITEM

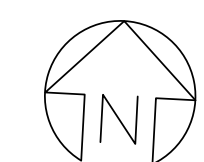
SHEET NO.

CD2.00



OVERALL SITE PLAN - PHASE 1A

SCALE: 1" = 100'



GRAPHIC SCALE
150 75 0 150 300
SCALE: 1" = 150'
UNIT OF MEASURE: FEET

MATCHLINE - SEE DRAWING CD2.02 FOR CONTINUATION

MATCHLINE - SEE THIS
DRAWING FOR CONTINUATION

BALTIMORE CITY DEVELOPER'S
AGREEMENT DA#1615



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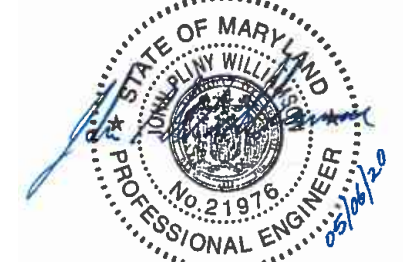


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BALTIMORE, MD 21228
P: 410.576-0505
F: 410.385-0327



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UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. _____
EXPIRATION DATE: _____

REGISTRATION/STAMP



PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

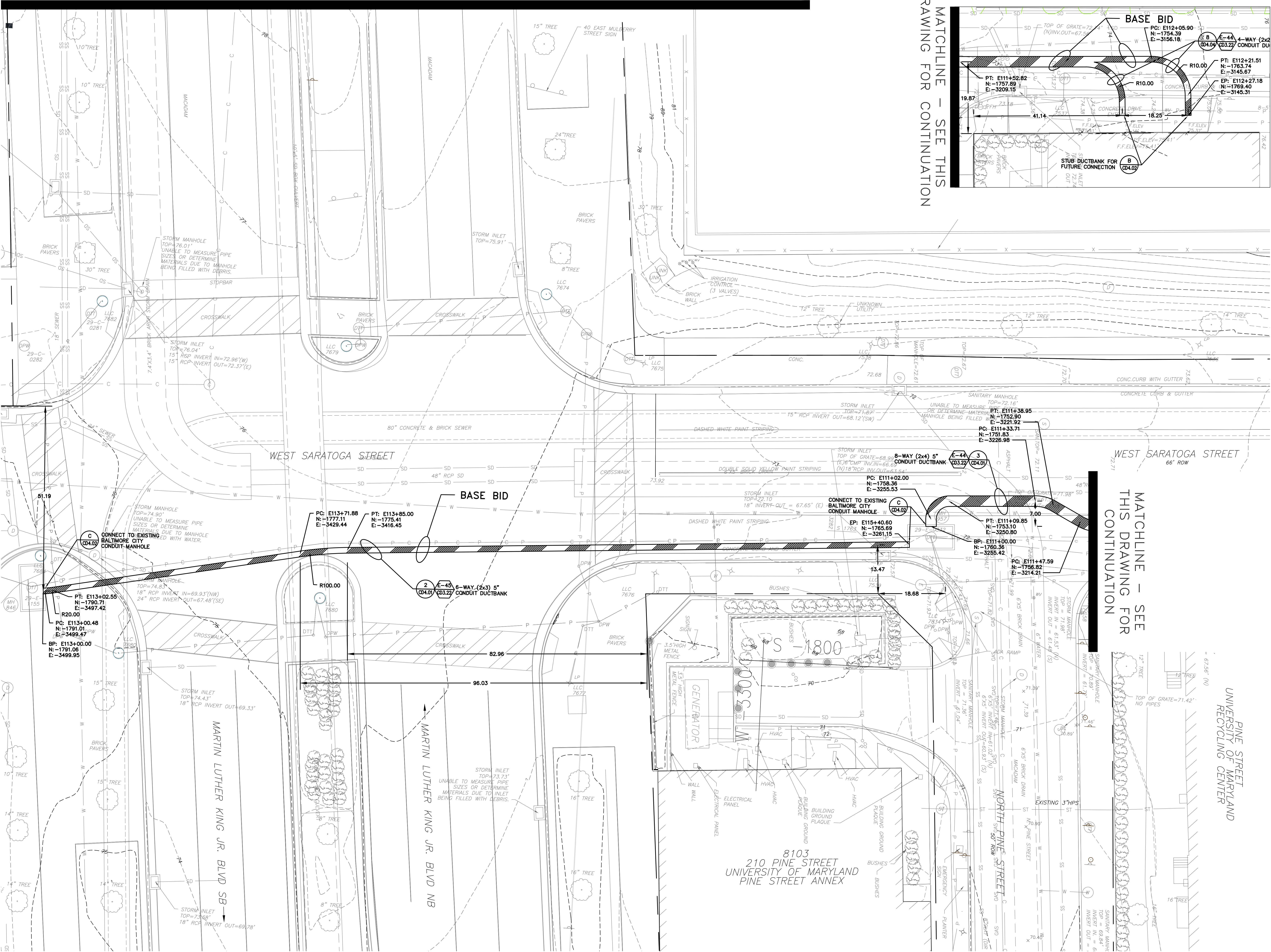
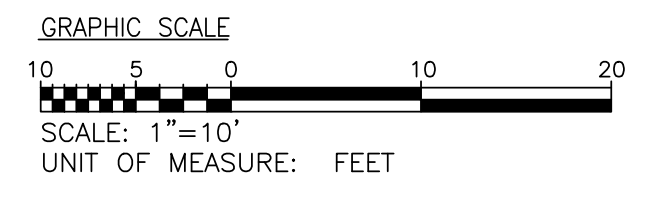
UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081-A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
SITE PLAN

REVISIONS		
NO	DATE	ITEM
2	11/22/19	CHANGE BULLETIN #2

SHEET NO.
CD2.01

SITE PLAN
SCALE: 1" = 10'





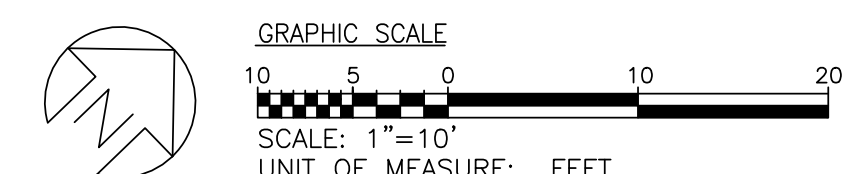
REVISIONS		
NO	DATE	ITEM

Disregard Add Alternate Work

MATCHLINE - SEE DRAWING CD2.04 FOR CONTINUATION

MATCHLINE - SEE DRAWING CD2.06 FOR CONTINUATION

SITE PLAN
SCALE: 1" = 10'



Disregard Add Alternate Work

BALTIMORE CITY DEVELOPER'S
AGREEMENT DA#1615



ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547

KEY PLAN

A/E CONSULTANTS



RMF ENGINEERING, INC.
5520 RESEARCH PARK DR. 3RD FLR
BALTIMORE, MD 21228
P: 410.576-0505
F: 410.385-0327



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EXPIRATION DATE:

REGISTRATION/STAMP



PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081-A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
SITE PLAN

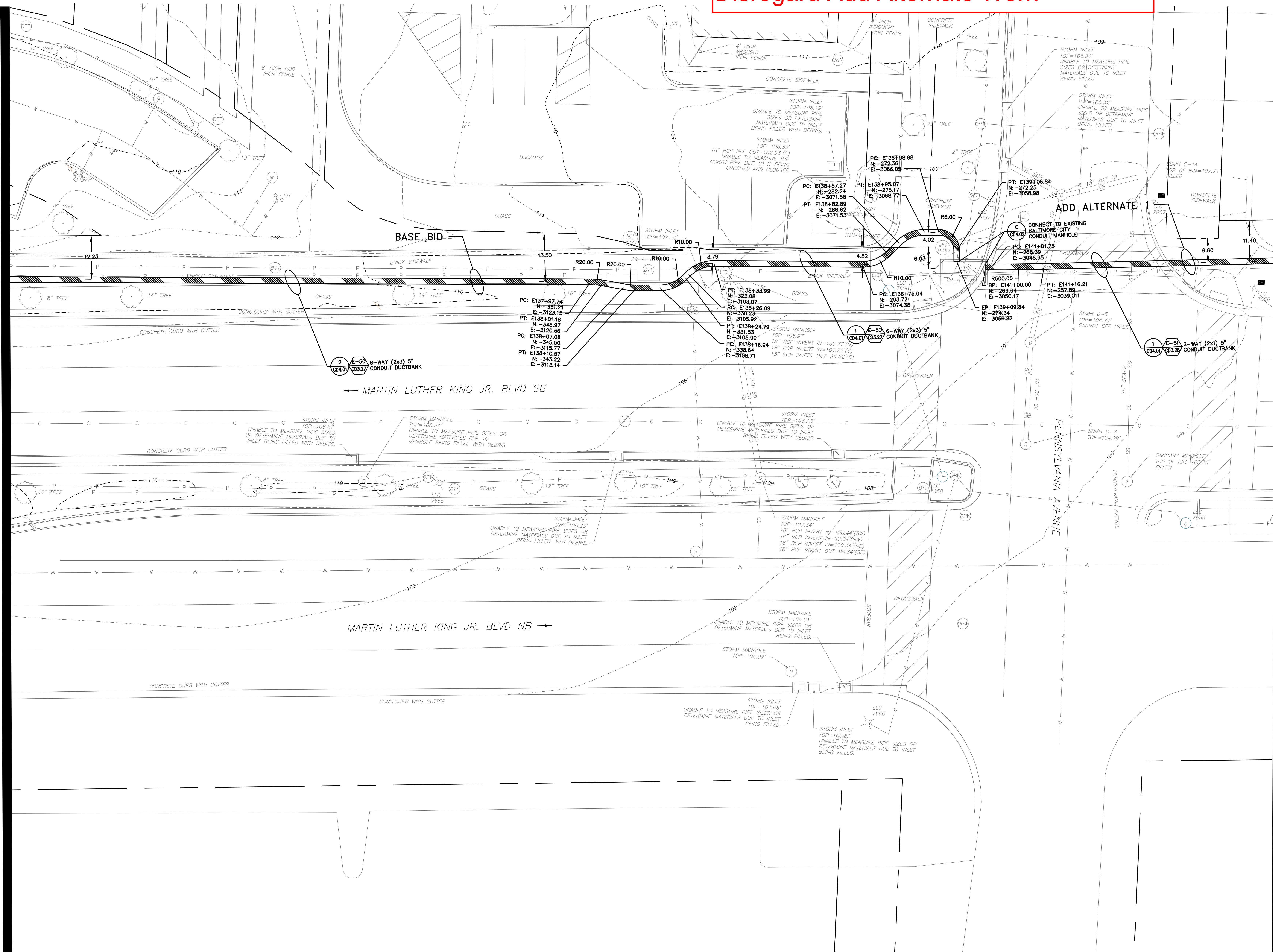
REVISIONS		
NO	DATE	ITEM
2	11/22/19	CHANGE BULLETIN #2

SHEET NO.

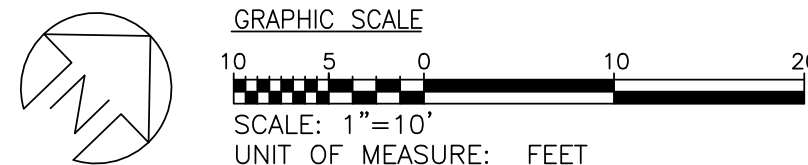
CD2.06

MATCHLINE - SEE DRAWING CD2.05 FOR CONTINUATION

MATCHLINE - SEE DRAWING CD2.07 FOR CONTINUATION



SITE PLAN
SCALE: 1" = 10'





PROJECT TITLE:
CAMPUS
ELECTRIC
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
SITE PLAN

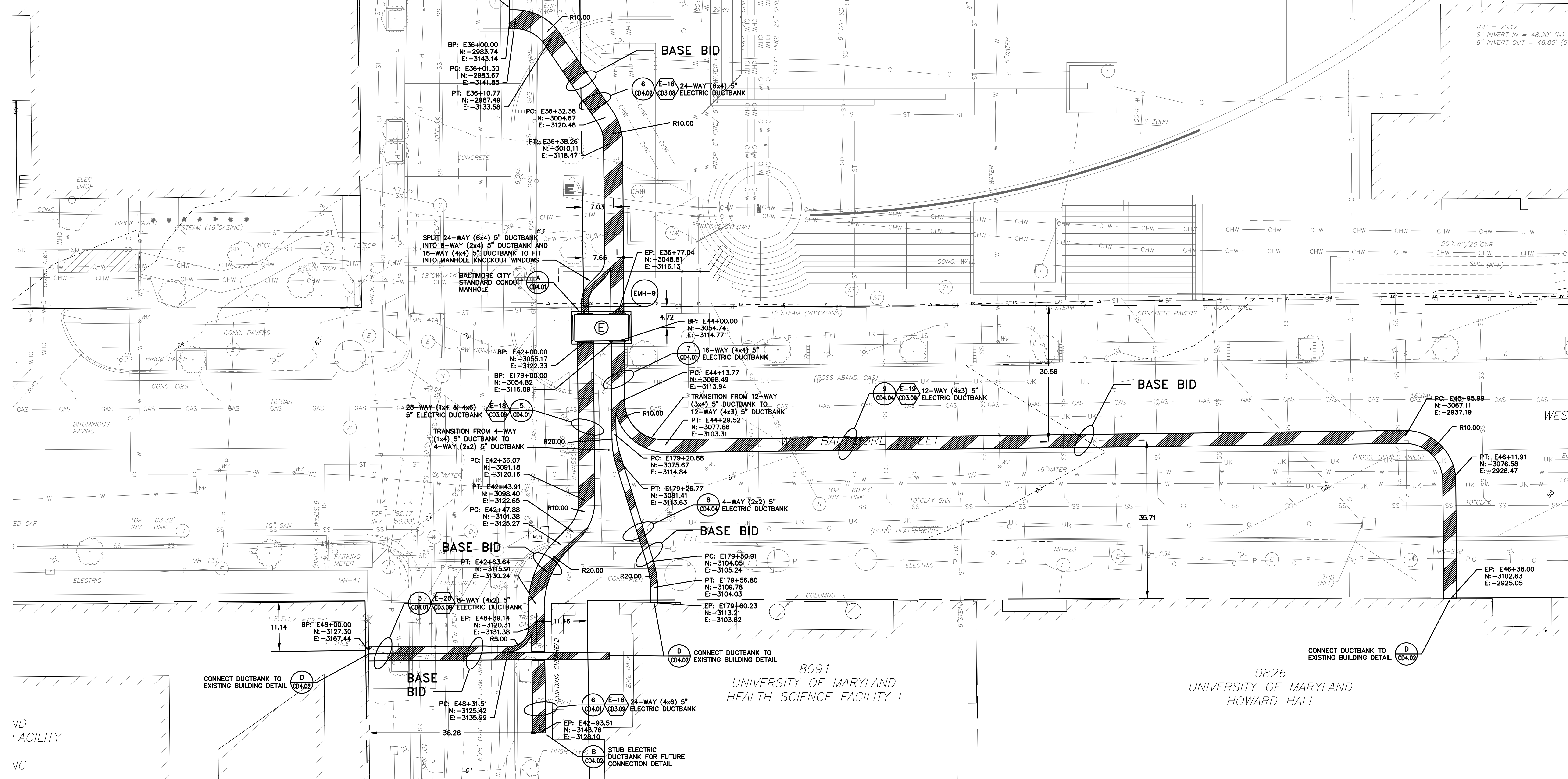
REVISIONS		
NO	DATE	ITEM
1	10/22/19	CHANGE BULLETIN #1

SHEET NO.

CD2.10

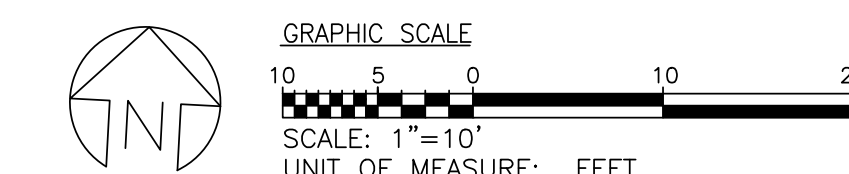
REET
LAND
BLDG.

0.025" = 1'
S 2980



VD
FACILITY
VG

SITE PLAN
SCALE: 1" = 10'



MATCHLINE - SEE DRAWING CD2.14 FOR CONTINUATION

MATCHLINE - SEE THIS
DRAWING FOR CONTINUATION

BALTIMORE CITY DEVELOPER'S
AGREEMENT DA#1615



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PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081-A0
CAD FILE NO.:
DATE: 05-06-2020

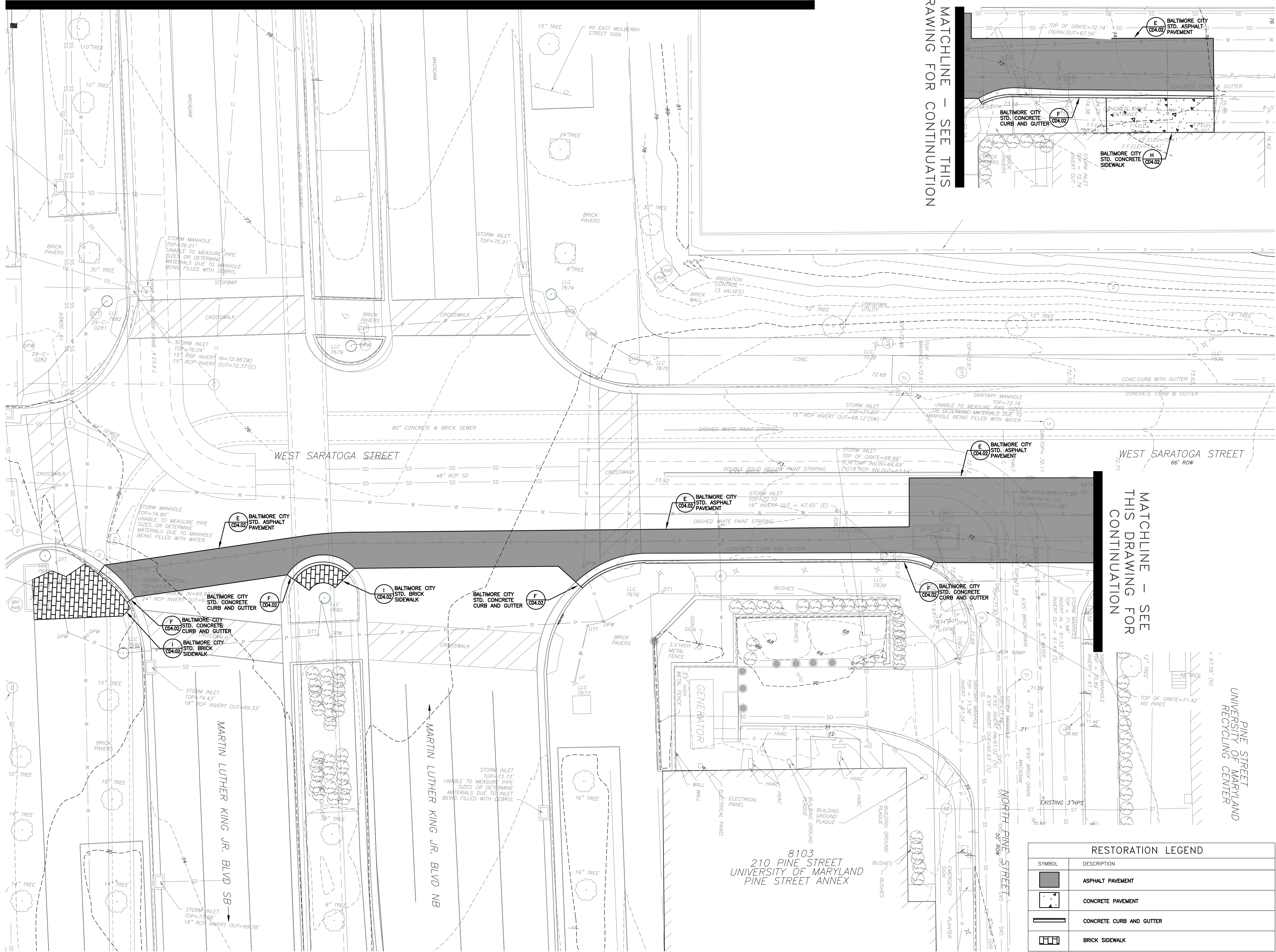
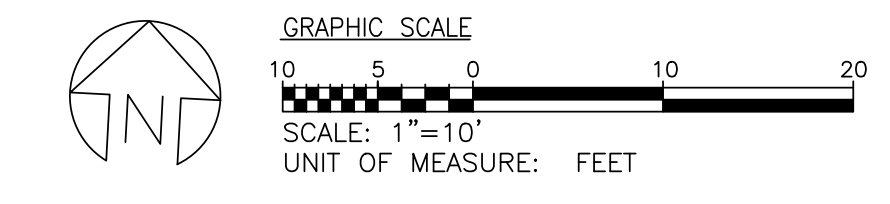
SHEET TITLE:
RESTORATION
PLAN

REVISIONS		
NO	DATE	ITEM

SHEET NO.
CD2.11

RESTORATION PLAN
SCALE: 1" = 10'

RESTORATION LEGEND	
SYMBOL	DESCRIPTION
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT
	CONCRETE CURB AND GUTTER
	BRICK SIDEWALK



Disregard Add Alternate Work - See CD2.05 for delineation



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EXPIRATION DATE:

REGISTRATION/STAMP



PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO.:	VARIOUS
UMB Project NO.:	17-317
A/E PROJECT NO.:	117081-A0
CAD FILE NO.:	
DATE:	05-06-2020

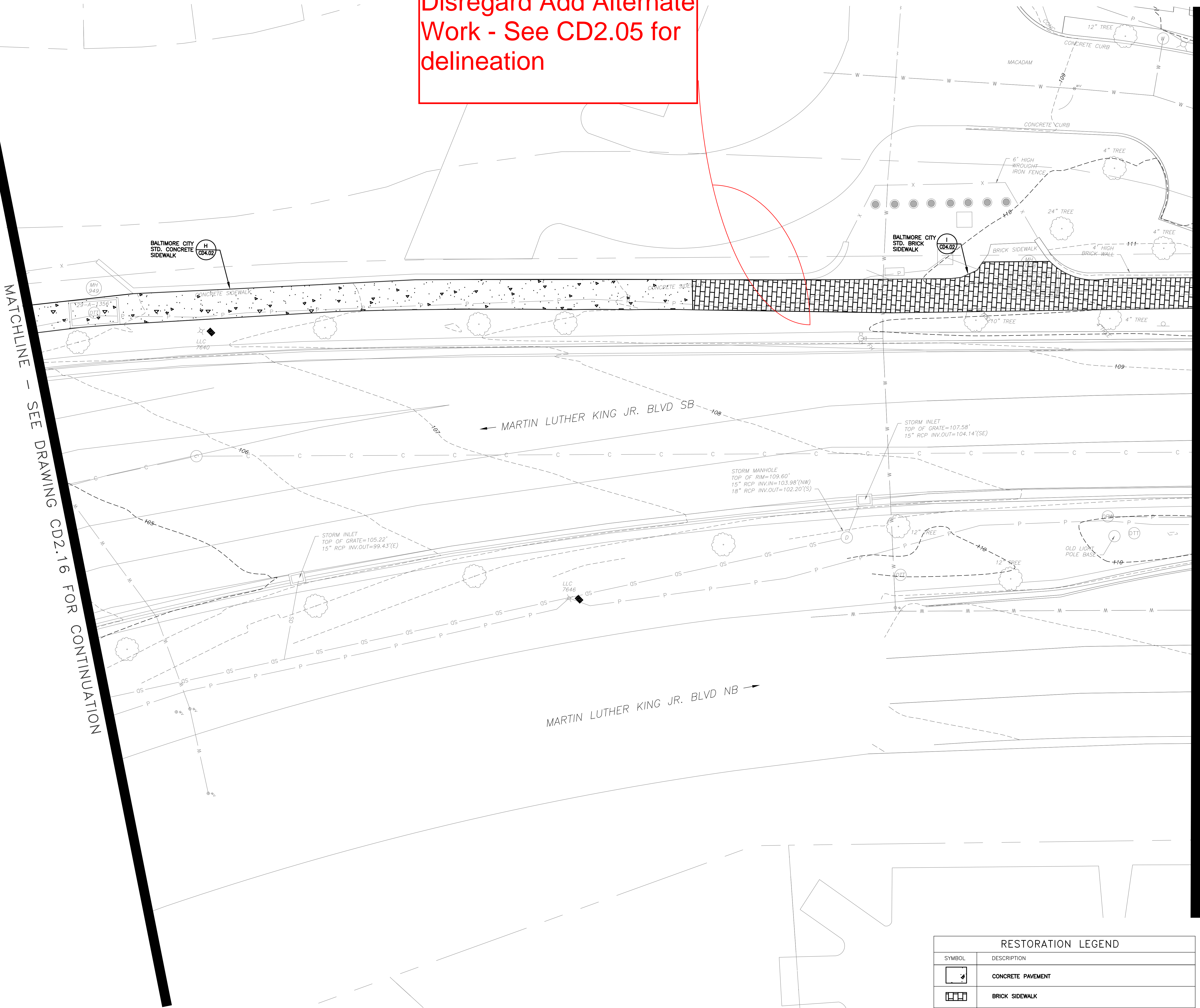
SHEET TITLE:
RESTORATION
PLAN

REVISIONS		
NO	DATE	ITEM

SHEET NO.
CD2.15

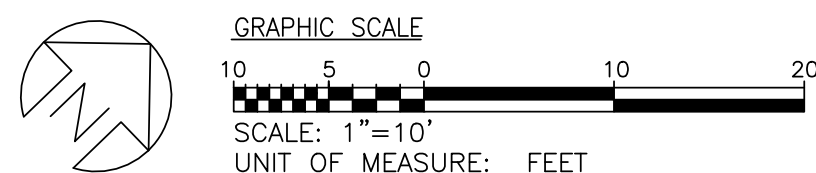
MATCHLINE - SEE DRAWING CD2.16 FOR CONTINUATION

MATCHLINE - SEE DRAWING CD2.18 FOR CONTINUATION



RESTORATION PLAN
SCALE: 1" = 10'

RESTORATION LEGEND	
SYMBOL	DESCRIPTION
	CONCRETE PAVEMENT
	BRICK SIDEWALK



MATCHLINE - SEE DRAWING CD2.17 FOR CONTINUATION



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KEY PLAN

A/E CONSULTANTS



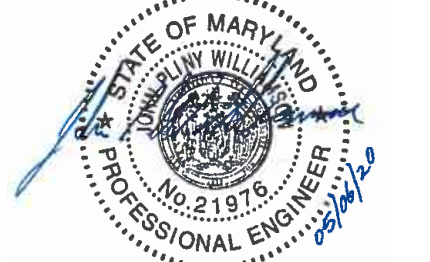
RMF ENGINEERING, INC.
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PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

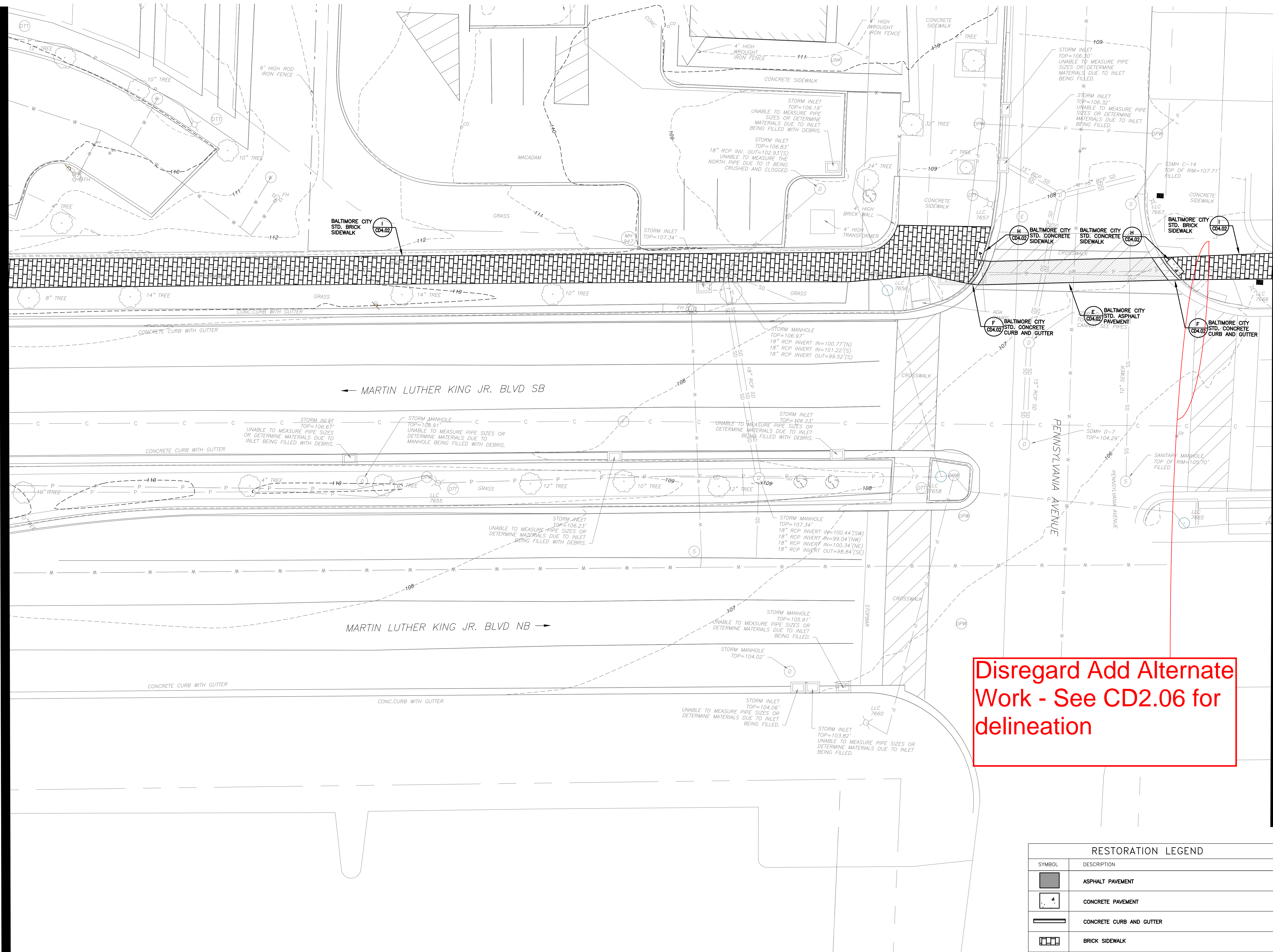
BID DOCUMENTS

UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081-A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
RESTORATION
PLAN

REVISIONS		
NO	DATE	ITEM

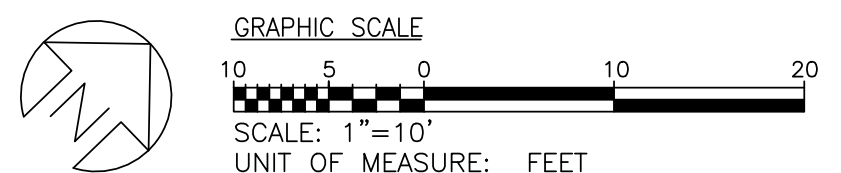
SHEET NO.
CD2.16



Disregard Add Alternate
Work - See CD2.06 for
delineation

RESTORATION PLAN
SCALE: 1" = 10'

RESTORATION LEGEND	
SYMBOL	DESCRIPTION
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT
	CONCRETE CURB AND GUTTER
	BRICK SIDEWALK

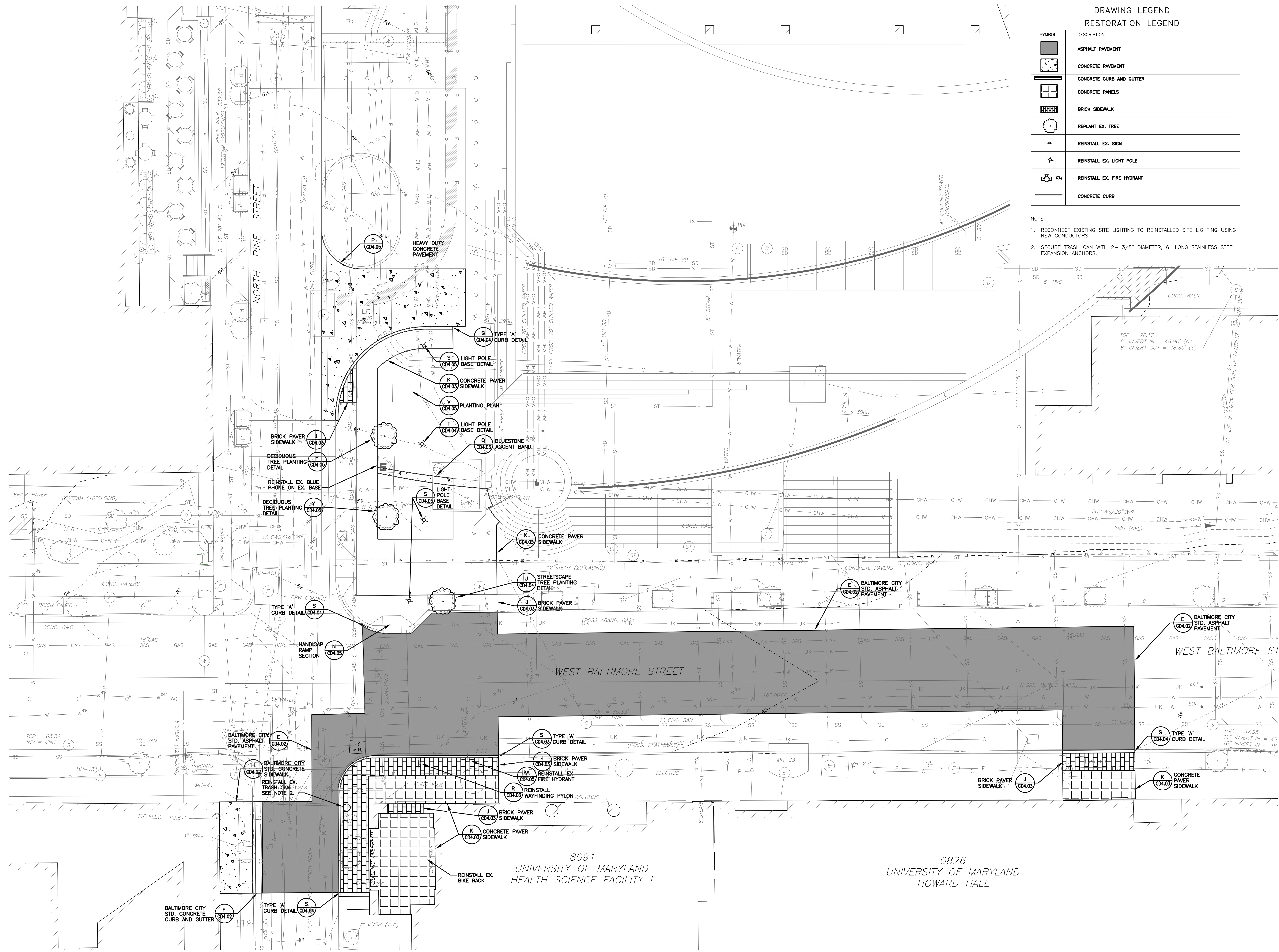




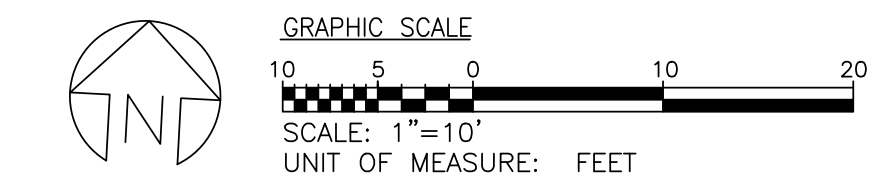
REVISIONS		
NO	DATE	ITEM

DRAWING LEGEND	
RESTORATION LEGEND	
SYMBOL	DESCRIPTION
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT
	CONCRETE CURB AND GUTTER
	CONCRETE PANELS
	BRICK SIDEWALK
	REPLANT EX. TREE
	REINSTALL EX. SIGN
	REINSTALL EX. LIGHT POLE
	REINSTALL EX. FIRE HYDRANT
	CONCRETE CURB

- NOTE:
1. RECONNECT EXISTING SITE LIGHTING TO REINSTALLED SITE LIGHTING USING NEW CONDUCTORS.
 2. SECURE TRASH CAN WITH 2- 3/8" DIAMETER, 6" LONG STAINLESS STEEL EXPANSION ANCHORS.

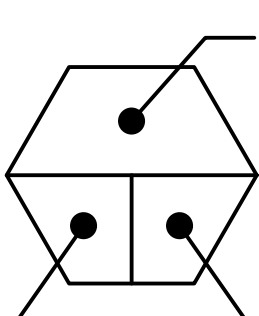


RESTORATION PLAN
SCALE: 1" = 10'



PROFILE DESIGNATION:

CORRESPONDING
CD2 SERIES
PLAN DRAWING



PROFILE NUMBER
(DUCTBANK ALIGNMENT)
CD3 SERIES PROFILE
DRAWING



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PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547

KEY PLAN



A/E CONSULTANTS



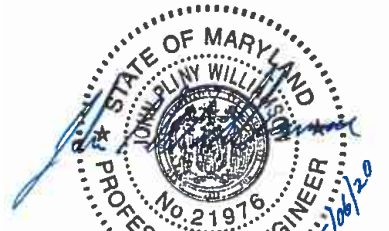
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EXPIRATION DATE:

REGISTRATION/STAMP



PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

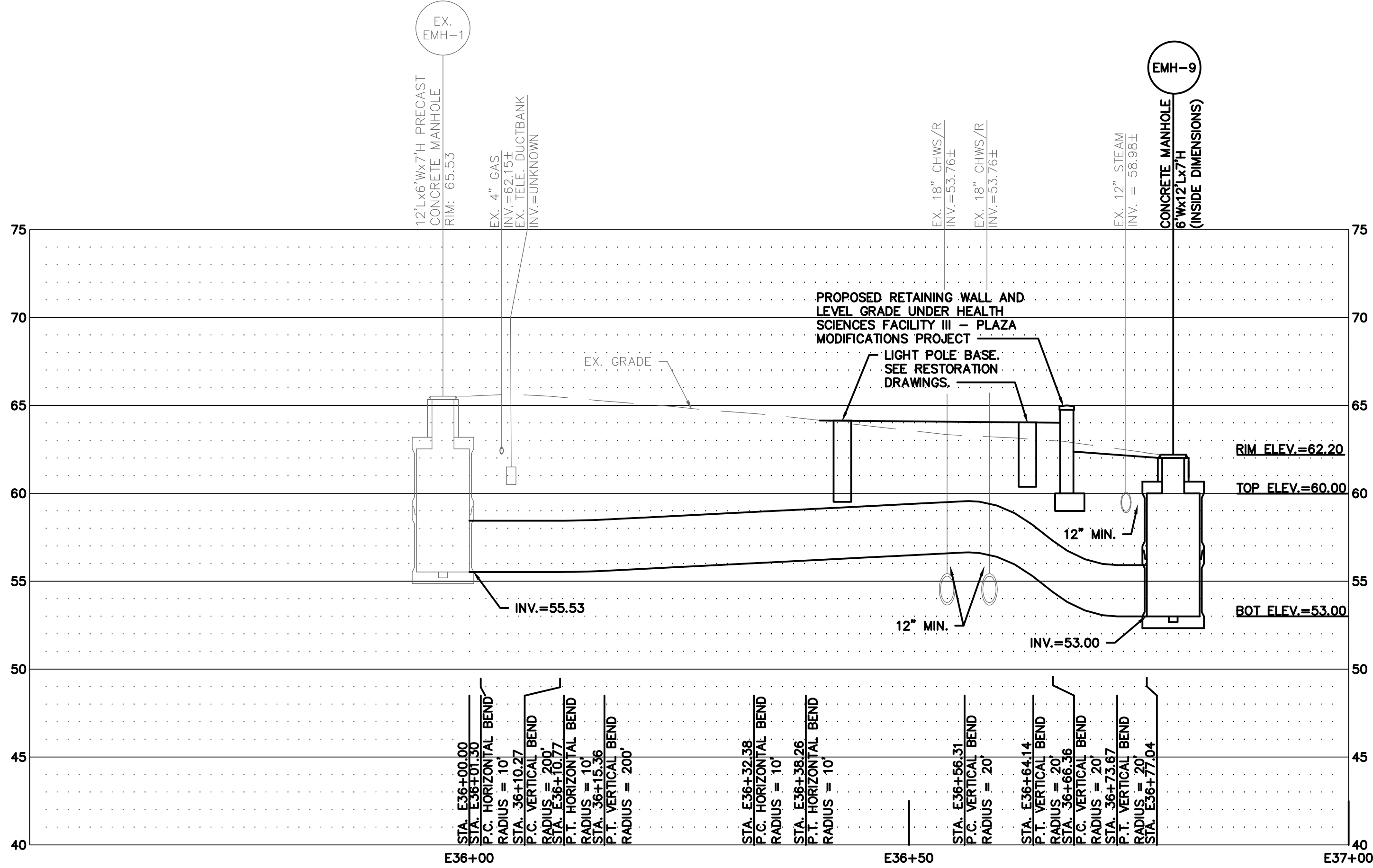
SHEET TITLE:
DUCTBANK
PROFILES

REVISIONS

NO	DATE	ITEM
1	10/22/19	CHANGE BULLETIN #1

SHEET NO.

CD3.08



E-16
24-WAY (6x4) 5" ELECTRIC DUCTBANK
FROM EX. EMH-1 TO EMH-9

VERTICAL SCALE: 1"=5'-0"
HORIZONTAL SCALE: 1"=10'-0"

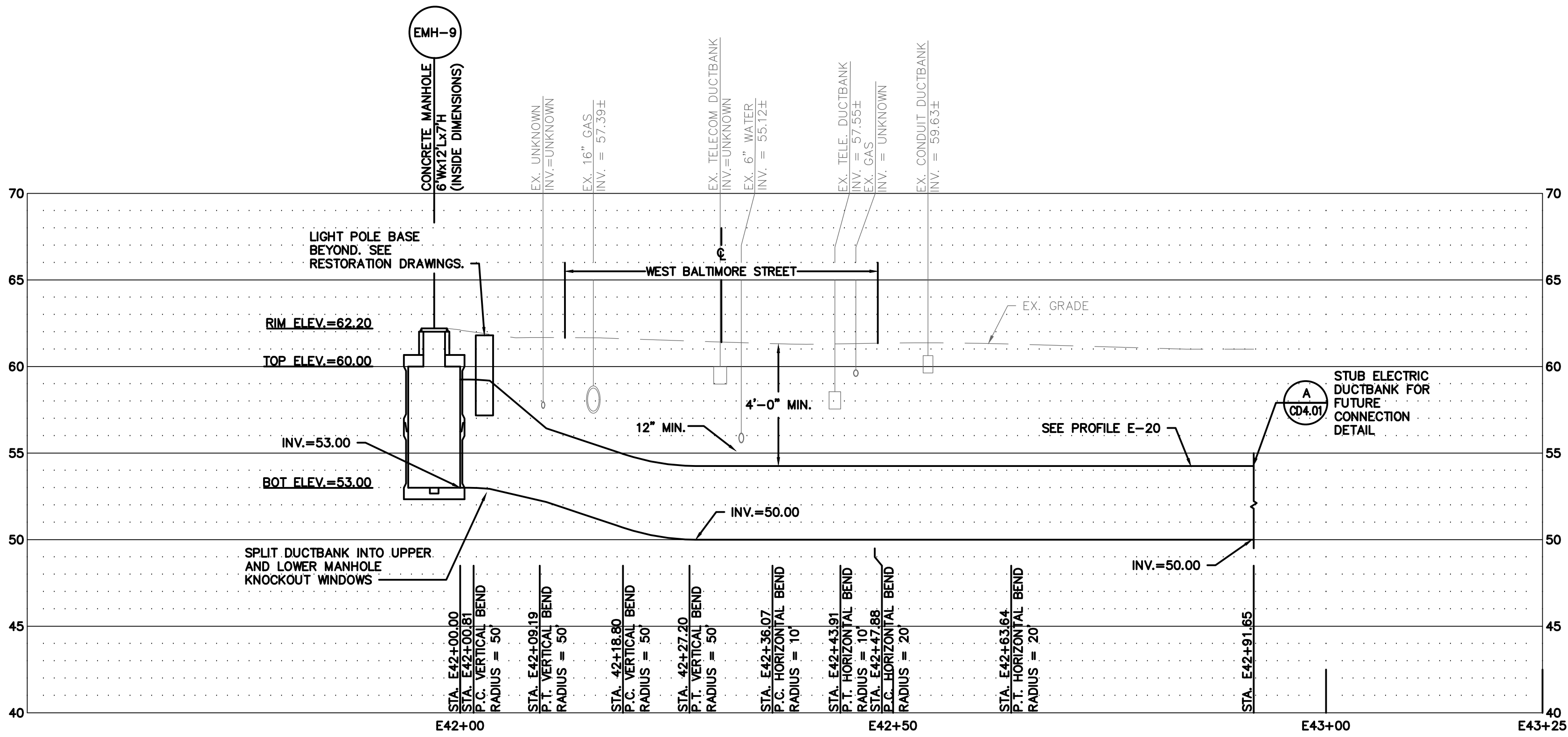
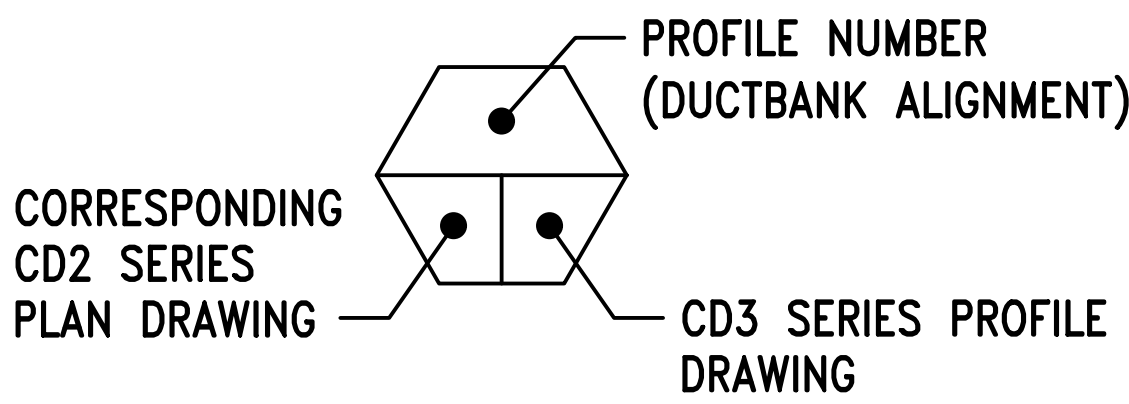
NOTES:

- SEE DRAWING CD2.10 FOR ELECTRICAL DISTRIBUTION SITE PLAN.
- PROFILE IS BASED ON CENTERLINE OF 24-WAY (6x4) 5" ELECTRICAL DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANKS.
- BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1' CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.

VERTICAL SCALE
5 2.5 0 5 10
SCALE: 1"=5'
UNIT OF MEASURE: FEET

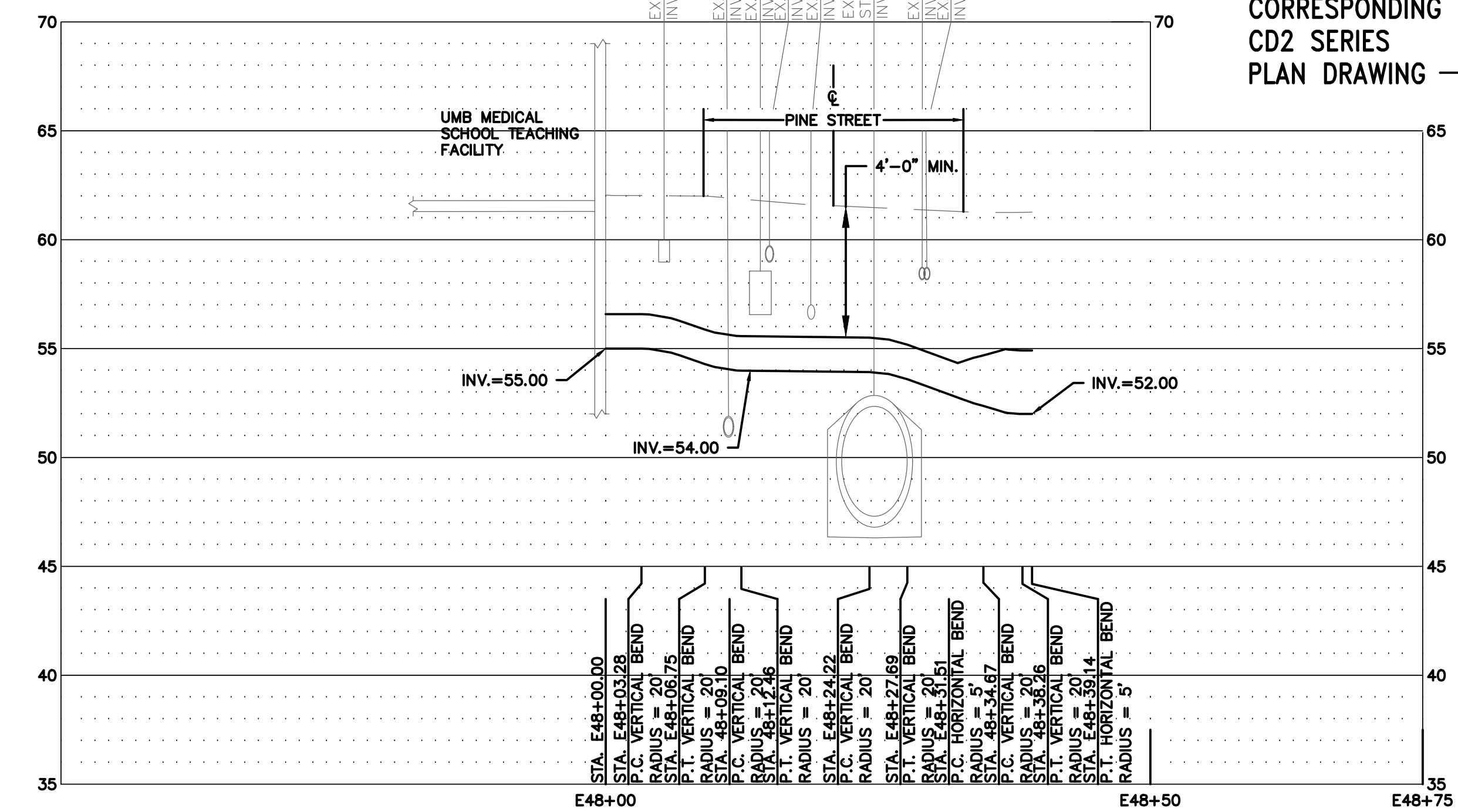
HORIZONTAL SCALE
10 5 0 10 20
SCALE: 1"=10'
UNIT OF MEASURE: FEET

PROFILE DESIGNATION:



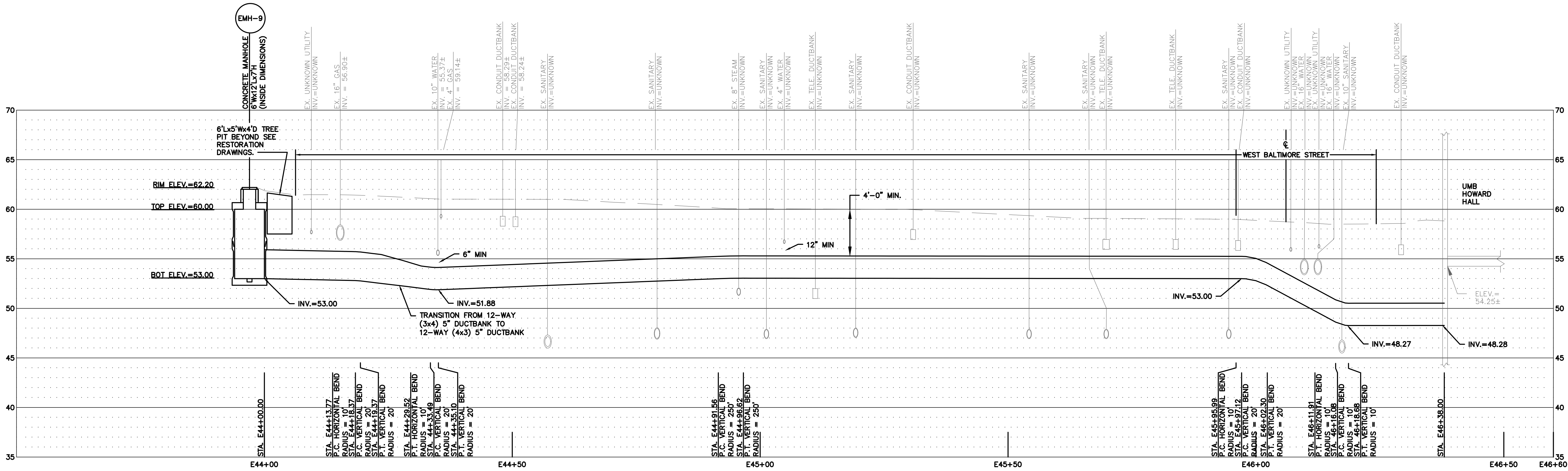
E-18 28-WAY (1x4&4x6) 5" ELECTRIC DUCTBANK
FROM EMH-9 TO STA. E43+01.67

- CD2.10 CD3.09
- NOTES:
- SEE DRAWING CD2.10 FOR ELECTRICAL DISTRIBUTION SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 28-WAY (1x4&4x6) 5" ELECTRICAL DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANKS.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1' CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.



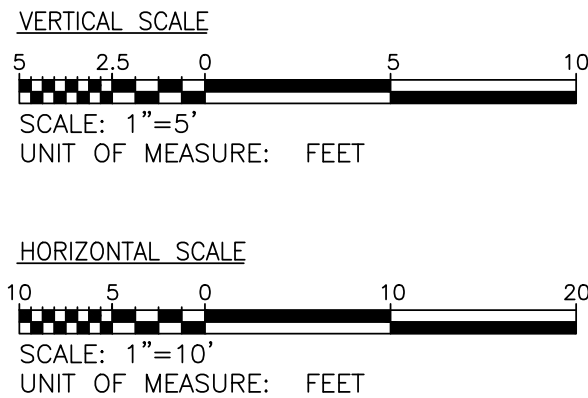
E-20 8-WAY (4x2) 5" ELECTRIC DUCTBANK FROM
PROFILE E-18 TO TEACHING FACILITY

- CD2.10 CD3.09
- NOTES:
- SEE DRAWING CD2.10 FOR ELECTRICAL DISTRIBUTION SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 8-WAY (4x2) 5" ELECTRICAL DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANKS.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1' CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.



E-19 12-WAY (4x3) 5" ELECTRIC DUCTBANK
FROM EMH-9 TO HOWARD HALL

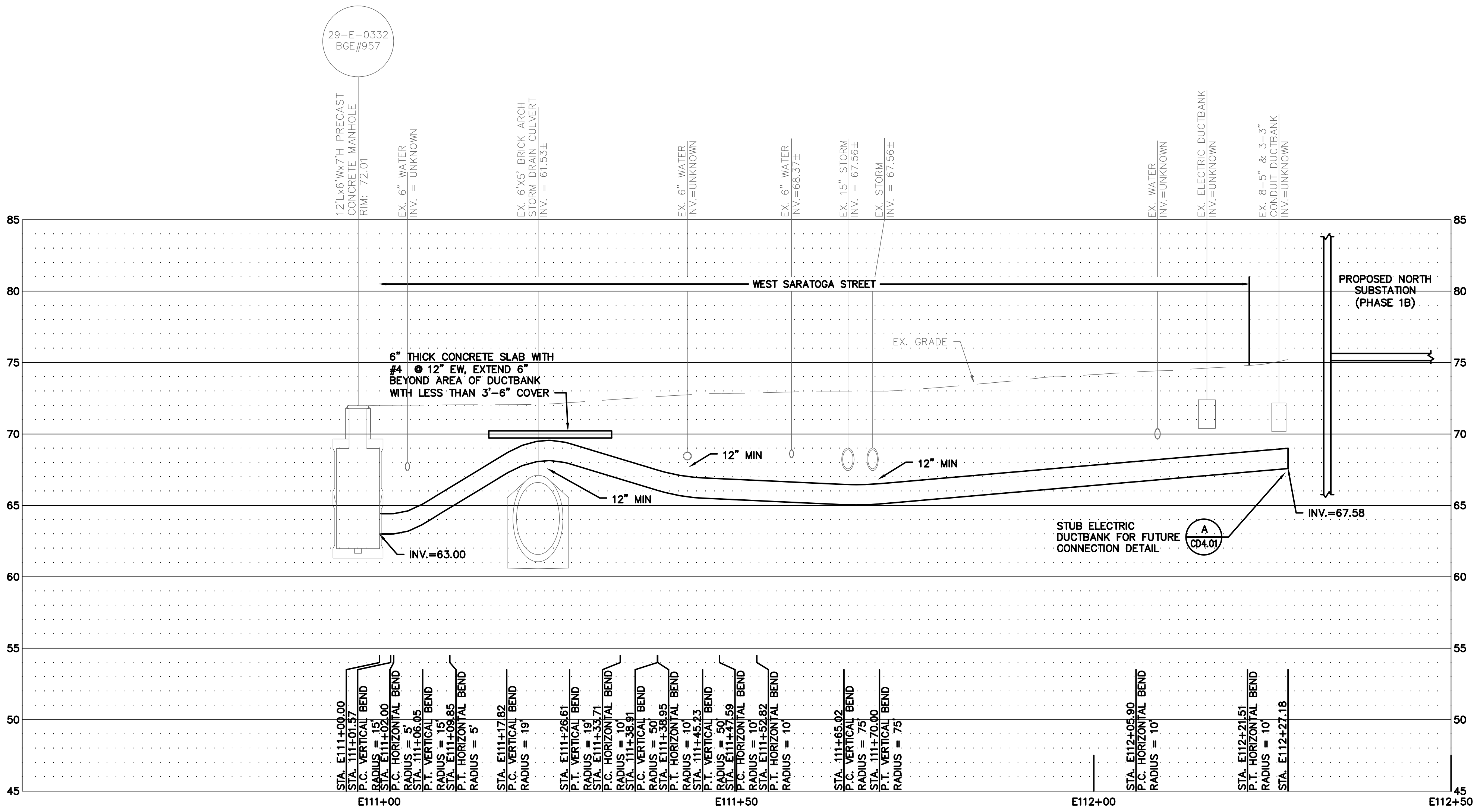
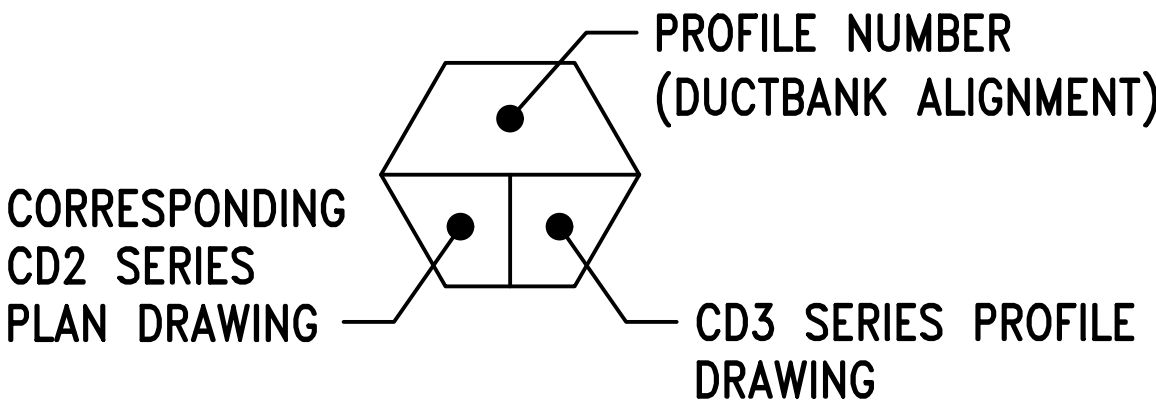
- CD2.10 CD3.09
- NOTES:
- SEE DRAWING CD2.10 FOR ELECTRICAL DISTRIBUTION SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 12-WAY (4x3) 5" ELECTRICAL DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANKS.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1' CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.



REVISIONS		
NO	DATE	ITEM
1	10/22/19	CHANGE BULLETIN #1

REVISIONS		
NO	DATE	ITEM
2	11/22/19	CHANGE BULLETIN #2

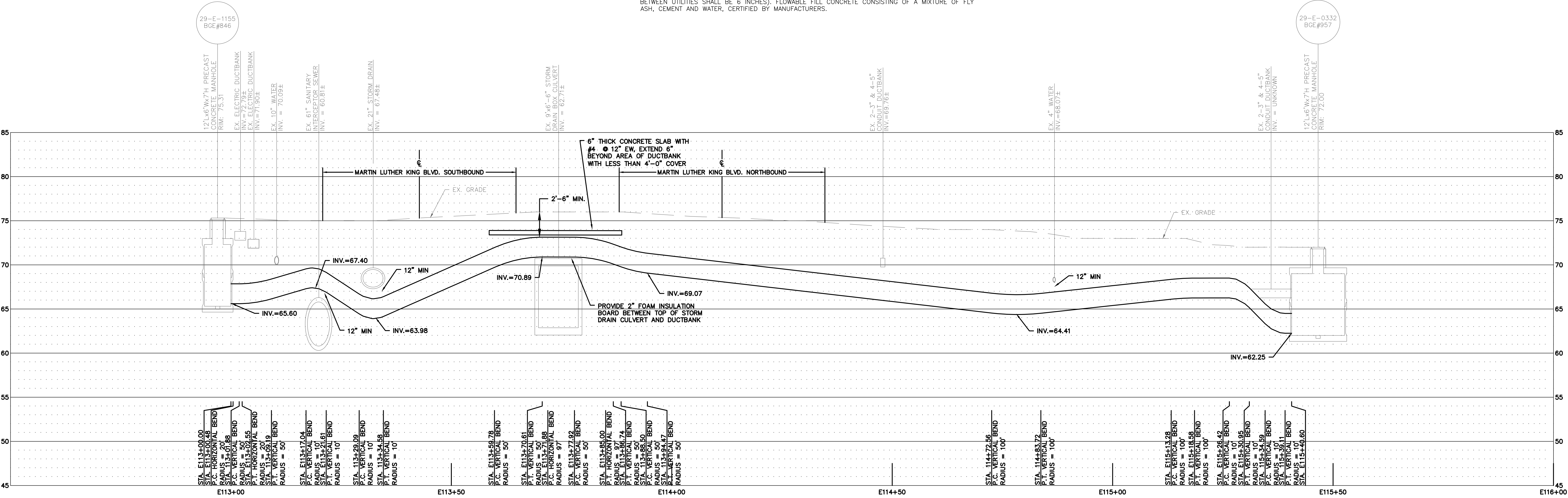
PROFILE DESIGNATION:



E-44 8-WAY (4x2) 5" CONDUIT DUCTBANK FROM EX. CONDUIT MH 957 TO UMB NORTH SUBSTATION

- CD2.01 CD3.22
- NOTES:
- SEE DRAWING CD2.01 FOR SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 8-WAY (4x2) 5" CONDUIT DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANK.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1" CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.

VERTICAL SCALE: 1"=5'-0"
HORIZONTAL SCALE: 1"=10'-0"



E-45 6-WAY (2x3) 5" CONDUIT DUCTBANK FROM EX. CONDUIT MH 846 TO EX. CONDUIT MH 957

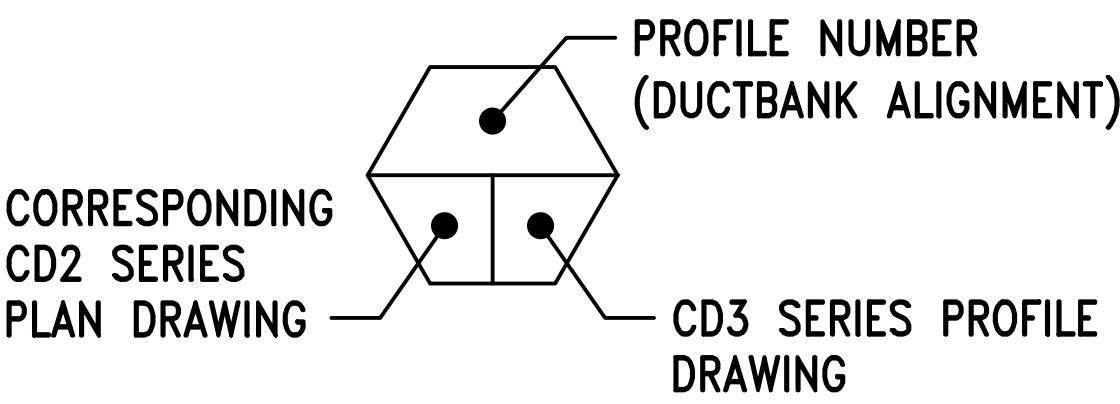
- CD2.01 CD3.22
- NOTES:
- SEE DRAWING CD2.01 FOR SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 6-WAY (2x3) 5" CONDUIT DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANK.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1" CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.

VERTICAL SCALE: 1"=5'-0"
HORIZONTAL SCALE: 1"=10'-0"

VERTICAL SCALE
5 2.5 0 5 10
SCALE: 1"=5'-0"
UNIT OF MEASURE: FEET

HORIZONTAL SCALE
10 5 0 10 20
SCALE: 1"=10'-0"
UNIT OF MEASURE: FEET

PROFILE DESIGNATION:






UNIVERSITY
of MARYLAND

ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547


KEY PLAN



A/E CONSULTANTS



RMF ENGINEERING, INC.
5520 RESEARCH PARK DR, 3RD FLR
BALTIMORE, MD 21228
P: 410.576-0505
F: 410.385-0327



CARROLL ENGINEERING, INC.

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LICENSE NO.:
EXPIRATION DATE:

REGISTRATION/STAMP



PROJECT TITLE :

CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES –
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO. :	VARIOUS
UMB Project NO. :	17-317
A/E PROJECT NO. :	117081.A0
CAD FILE NO. :	
DATE :	05-06-2020

SHEET TITLE :

DUCTBANK
PROFILES

REVISIONS		
NO	DATE	ITEM

SHEET NO.

CD3.23

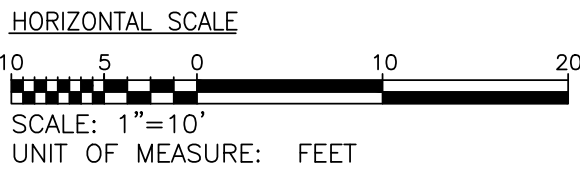
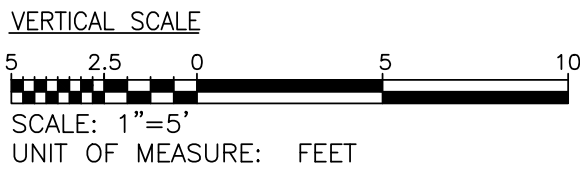
E-46

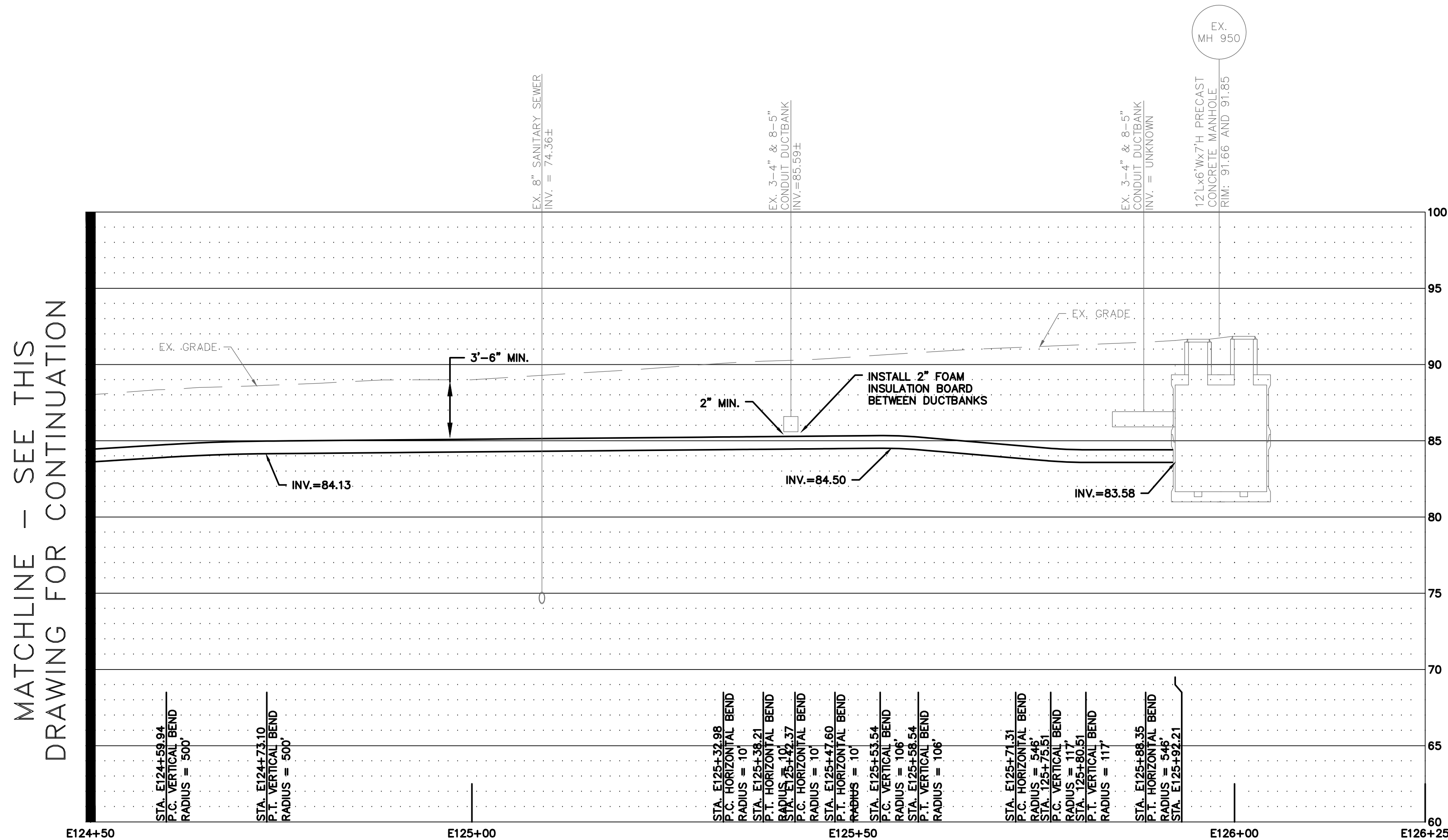
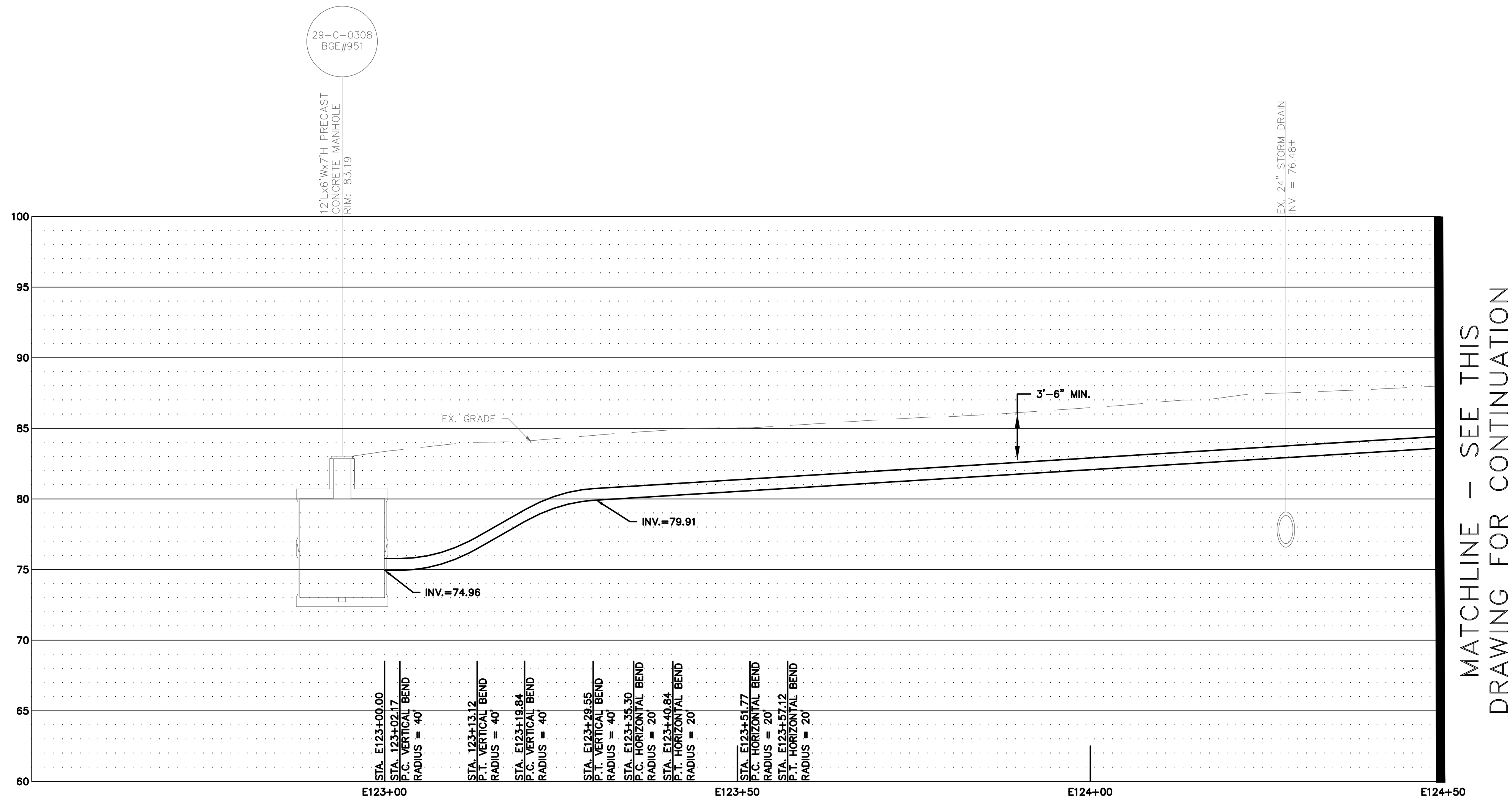
NOT USED

VERTICAL SCALE: 1"=5'-0"
HORIZONTAL SCALE: 1"=10'-0"

CD2.10

CD3.23





E-47

2-WAY (2x1) 5" CONDUIT DUCTBANK FROM EX.
CONDUIT MH 951 TO EX. CONDUIT MH 950

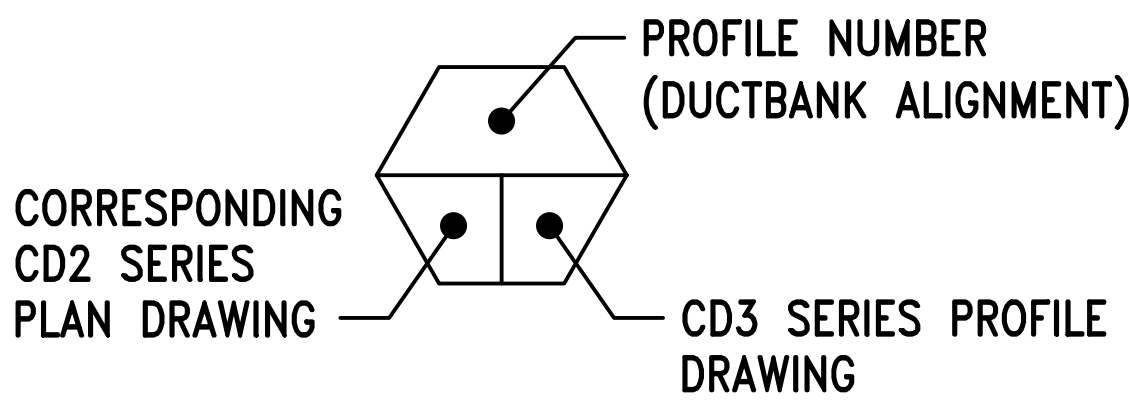
CD2.02
CD2.03

CD3.24

- NOTES:
- SEE DRAWINGS CD2.02 AND CD2.03 FOR SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 2-WAY (2x1) 5" CONDUIT DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANK.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1' CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.

BALTIMORE CITY DEVELOPER'S
AGREEMENT DA#1615

PROFILE DESIGNATION:



ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547

KEY PLAN

A/E CONSULTANTS



RMF ENGINEERING, INC.
5520 RESEARCH PARK DR, 3RD FLR
BALTIMORE, MD 21228
P: 410.576-0505
F: 410.385-0327



CARROLL ENGINEERING, INC.
PROFESSIONAL CERTIFICATION: I HEREBY
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PREPARED OR APPROVED BY ME, AND THAT I
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UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO.:
EXPIRATION DATE:

REGISTRATION/STAMP



PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

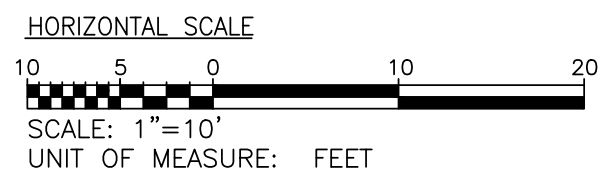
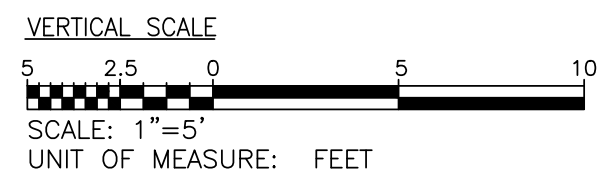
UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
DUCTBANK
PROFILES

REVISIONS

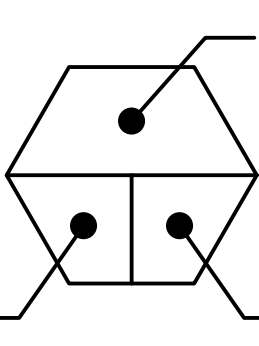
NO	DATE	ITEM

SHEET NO.
CD3.24



PROFILE DESIGNATION:

CORRESPONDING
CD2 SERIES
PLAN DRAWING



PROFILE NUMBER
(DUCTBANK ALIGNMENT)

CD3 SERIES PROFILE
DRAWING



ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
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FAX NO. (410) 706-8547

KEY PLAN



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REGISTRATION/STAMP



PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

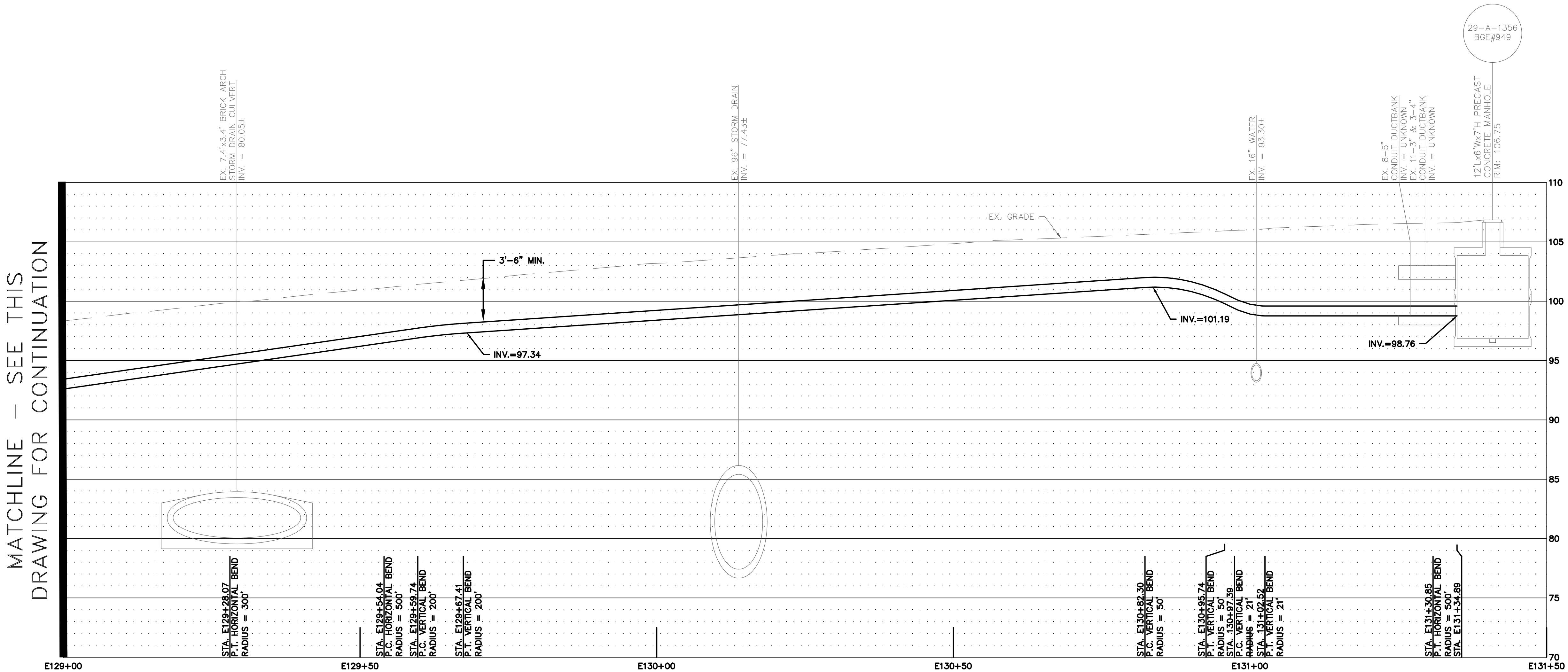
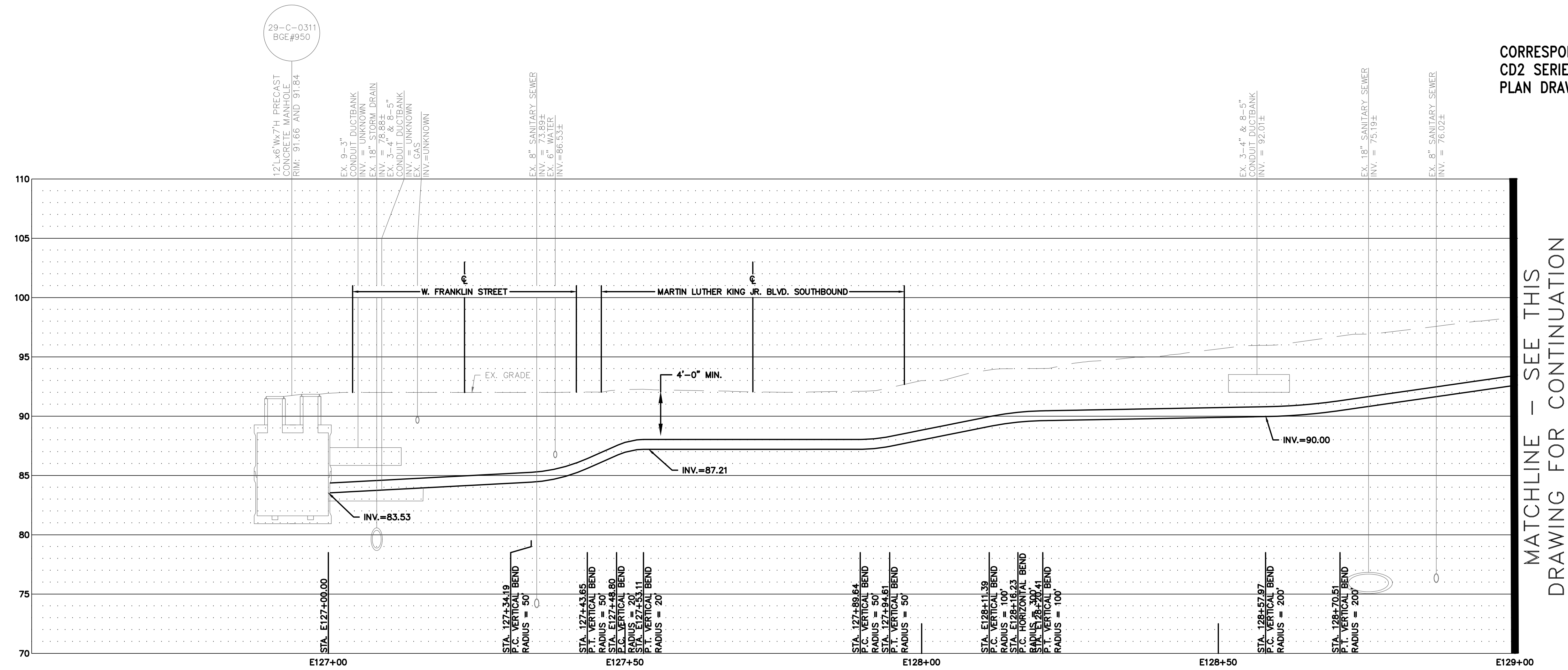
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UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
DUCTBANK
PROFILES

REVISIONS

NO	DATE	ITEM

SHEET NO.
CD3.25



E-48 2-WAY (2x1) 5" CONDUIT DUCTBANK FROM EX.
CONDUIT MH 950 TO EX. CONDUIT MH 949

CD2.03
CD2.04
CD2.05

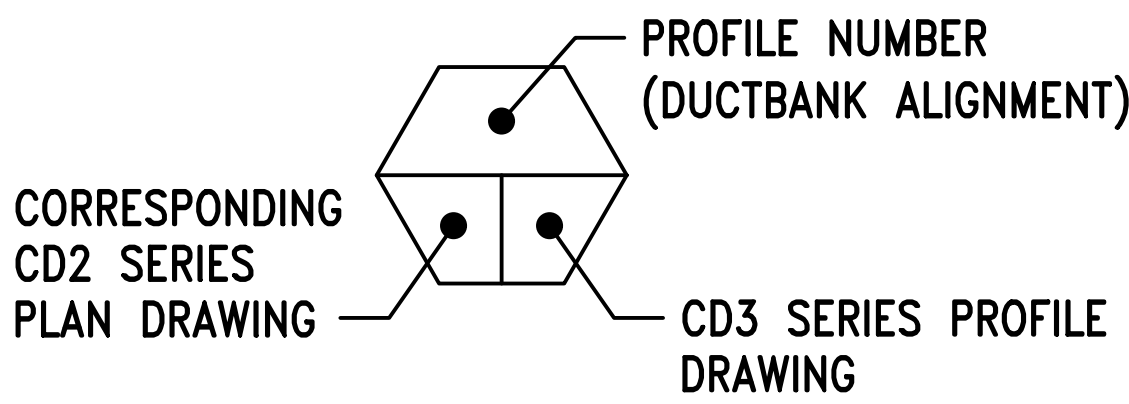
VERTICAL SCALE: 1"=5'-0"
HORIZONTAL SCALE: 1"=10'-0"

- NOTES:
- SEE DRAWINGS CD2.03, CD2.04 AND CD2.05 FOR SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 2-WAY (2x1) 5" CONDUIT DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANK.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1' CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.

VERTICAL SCALE
5 2.5 0 5 10
SCALE: 1"=5'
UNIT OF MEASURE: FEET

HORIZONTAL SCALE
10 5 0 10 20
SCALE: 1"=10'
UNIT OF MEASURE: FEET

PROFILE DESIGNATION:




**UNIVERSITY
of MARYLAND**

ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547



A/E CONSULTANTS


RMF ENGINEERING, INC.
5520 RESEARCH PARK DR, 3RD FLR
BALTIMORE, MD 21228
P: 410.576-0505
F: 410.385-0327


CARROLL ENGINEERING, INC.
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UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO.:
EXPIRATION DATE:



PROJECT TITLE:
**CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A**

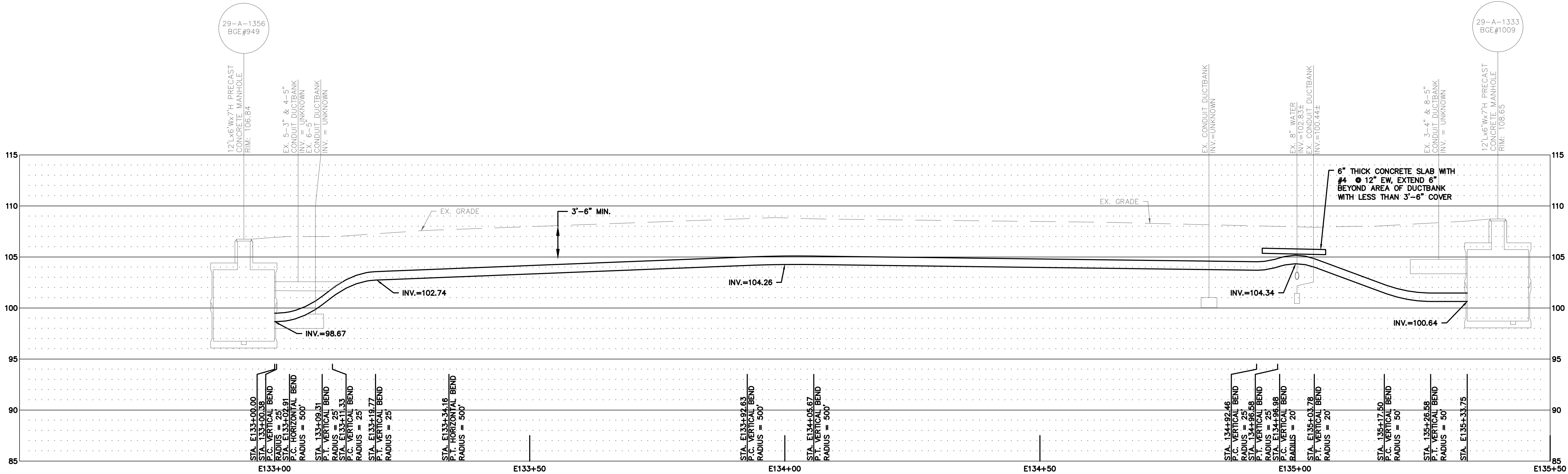
BID DOCUMENTS

UMB BUILDING NO.:	VARIOUS
UMB Project NO.:	17-317
A/E PROJECT NO.:	117081.A0
CAD FILE NO.:	
DATE:	05-06-2020

SHEET TITLE:
**DUCTBANK
PROFILES**

REVISIONS		
NO	DATE	ITEM

SHEET NO.
CD3.26

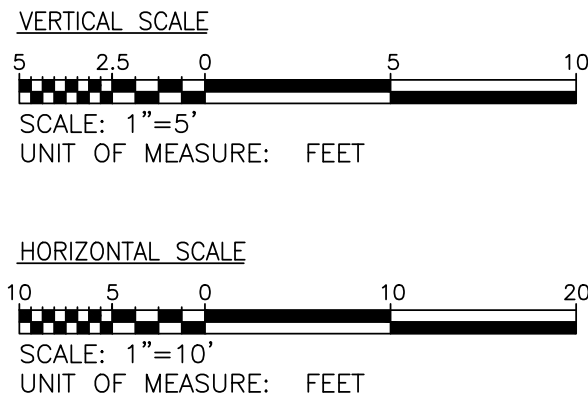


E-49 2-WAY (2x1) 5" CONDUIT DUCTBANK FROM EX.
CONDUIT MH 949 TO EX. CONDUIT MH 1009

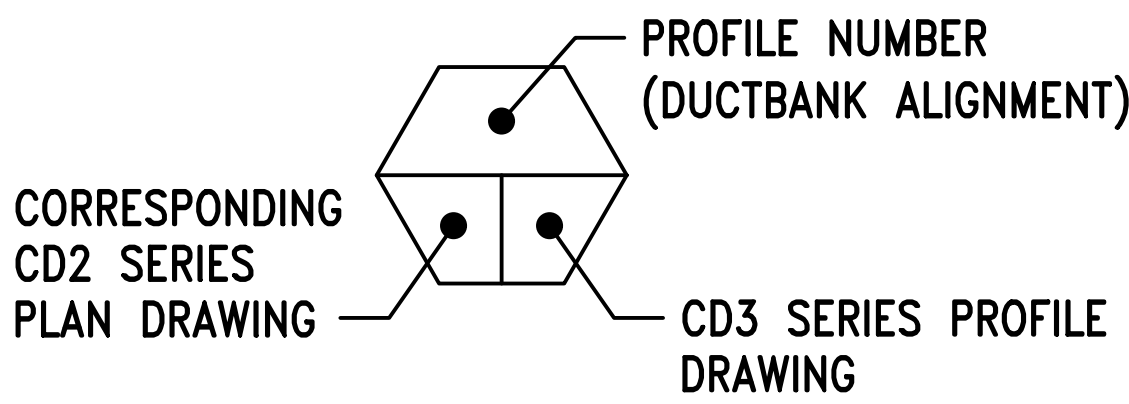
CD2.05 CD3.26

VERTICAL SCALE: 1"=5'-0"
HORIZONTAL SCALE: 1"=10'-0"

- NOTES:
- SEE DRAWINGS CD2.05 FOR SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 2-WAY (2x1) 5" CONDUIT DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANK.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1' CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.



PROFILE DESIGNATION:



UNIVERSITY of MARYLAND

ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547

KEY PLAN

A/E CONSULTANTS

rmf

RMF ENGINEERING, INC.
5520 RESEARCH PARK DR, 3RD FLR
BALTIMORE, MD 21228
P: 410.576-0505
F: 410.385-0327

CARROLL ENGINEERING, INC.

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LICENSE NO.:
EXPIRATION DATE:

REGISTRATION/STAMP

STATE OF MARYLAND
PROFESSIONAL ENGINEER
1918

PROJECT TITLE:
**CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A**

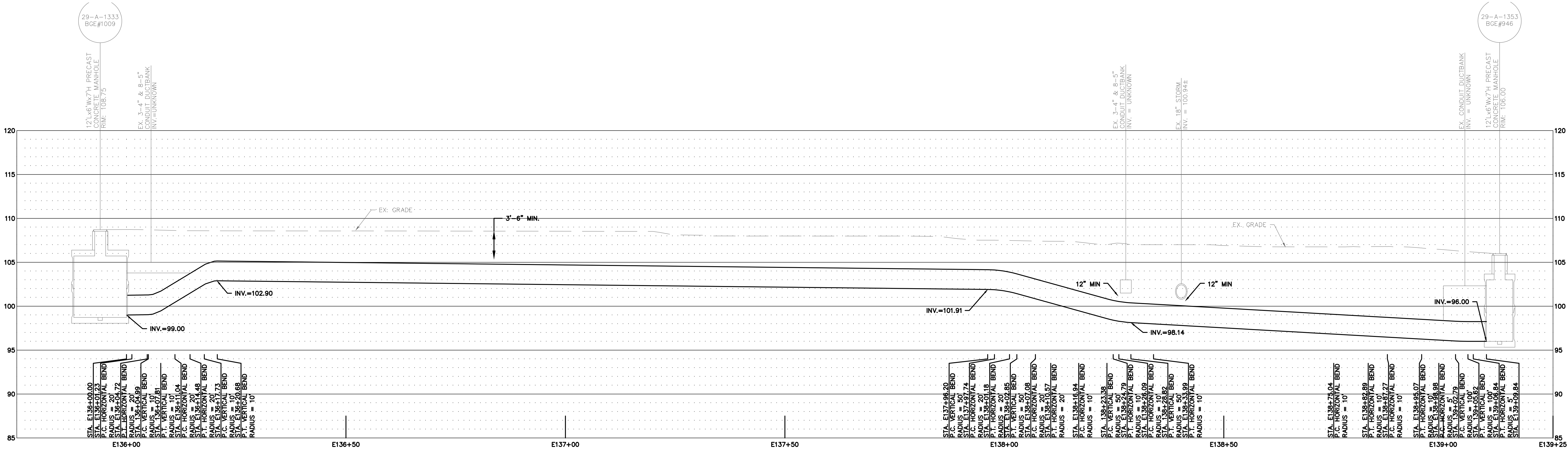
BID DOCUMENTS

UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
**DUCTBANK
PROFILES**

REVISIONS		
NO	DATE	ITEM

SHEET NO.
CD3.27



E-50

**2-WAY (2x1) 5" CONDUIT DUCTBANK FROM EX.
CONDUIT MH 1009 TO EX. CONDUIT MH 946**

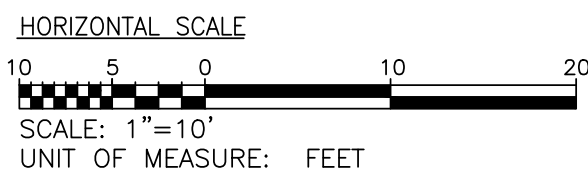
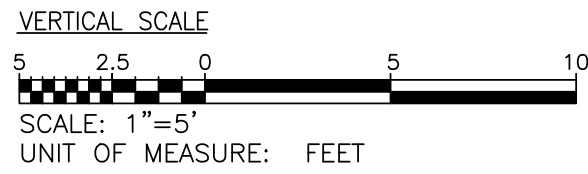
CD2.05
CD2.06

CD3.27

VERTICAL SCALE: 1"=5'-0"
HORIZONTAL SCALE: 1"=10'-0"

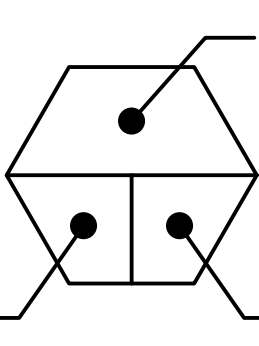
NOTES:

- SEE DRAWINGS CD2.05 AND CD2.06 FOR SITE PLAN.
- PROFILE IS BASED ON CENTERLINE OF 2-WAY (2x1) 5" CONDUIT DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANK.
- BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1" CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.



PROFILE DESIGNATION:

CORRESPONDING
CD2 SERIES
PLAN DRAWING



PROFILE NUMBER
(DUCTBANK ALIGNMENT)
CD3 SERIES PROFILE
DRAWING



ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547

KEY PLAN

A/E CONSULTANTS



RMF ENGINEERING, INC.
5520 RESEARCH PARK DR, 3RD FLR
BALTIMORE, MD 21228
P: 410.576-0505
F: 410.385-0327



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LICENSE NO.:
EXPIRATION DATE:

REGISTRATION/STAMP



PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:

DUCTBANK
PROFILES

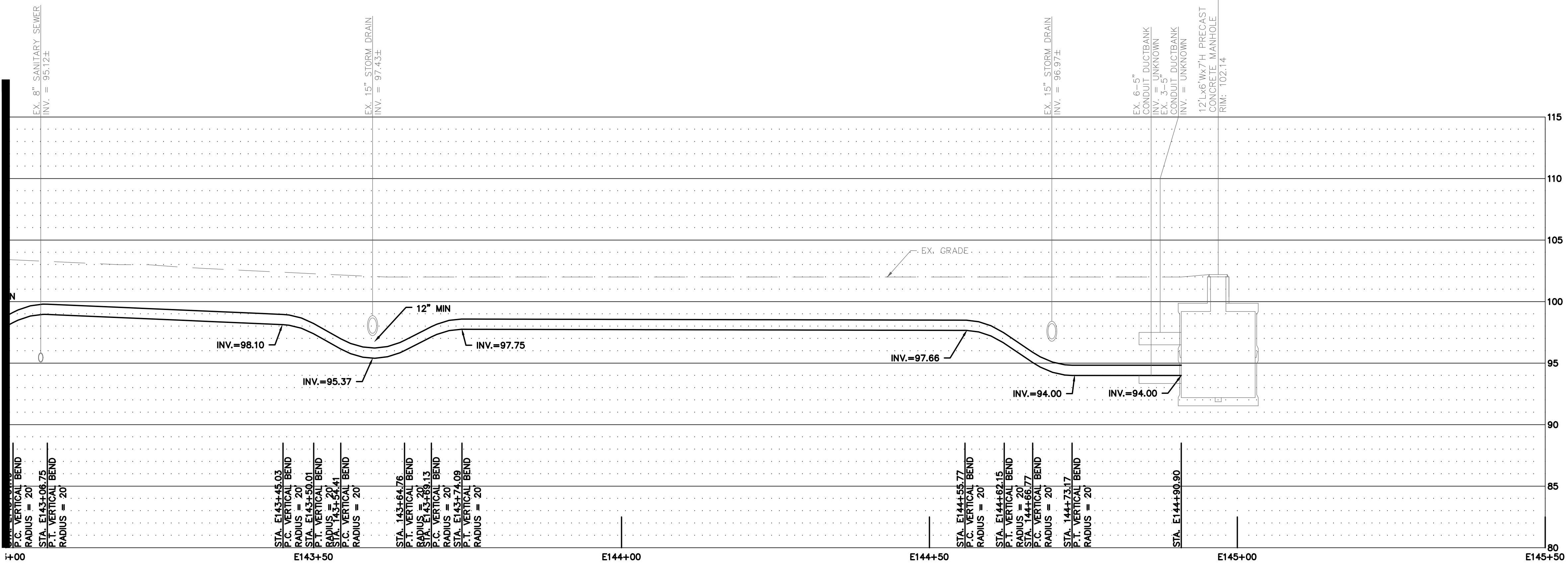
REVISIONS

NO	DATE	ITEM
2	11/22/19	CHANGE BULLETIN #2

SHEET NO.

CD3.28

MATCHLINE - SEE THIS
DRAWING FOR CONTINUATION



E-51 2-WAY (2x1) 5" CONDUIT DUCTBANK FROM EX.
CONDUIT MH 946 TO EX. CONDUIT MH 1024

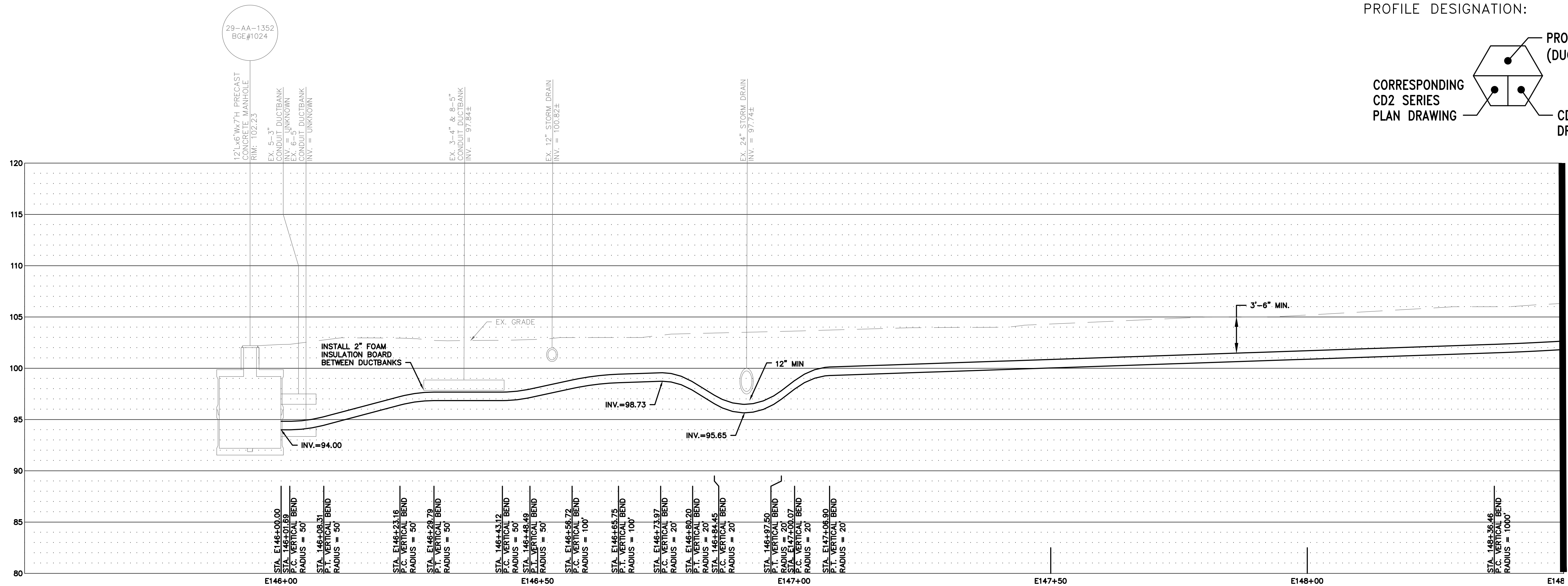
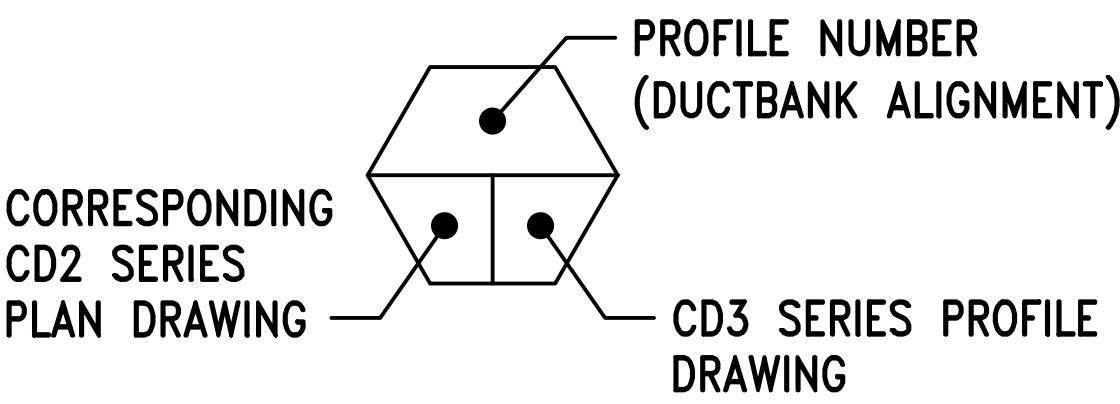
CD2.06
CD2.07

- NOTES:
- SEE DRAWINGS CD2.06 AND CD2.07 FOR SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 2-WAY (2x1) 5" CONDUIT DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANK.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1' CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.

VERTICAL SCALE
5 2.5 0 5 10
SCALE: 1"=5'
UNIT OF MEASURE: FEET

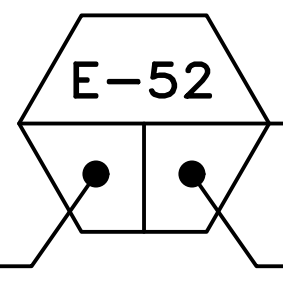
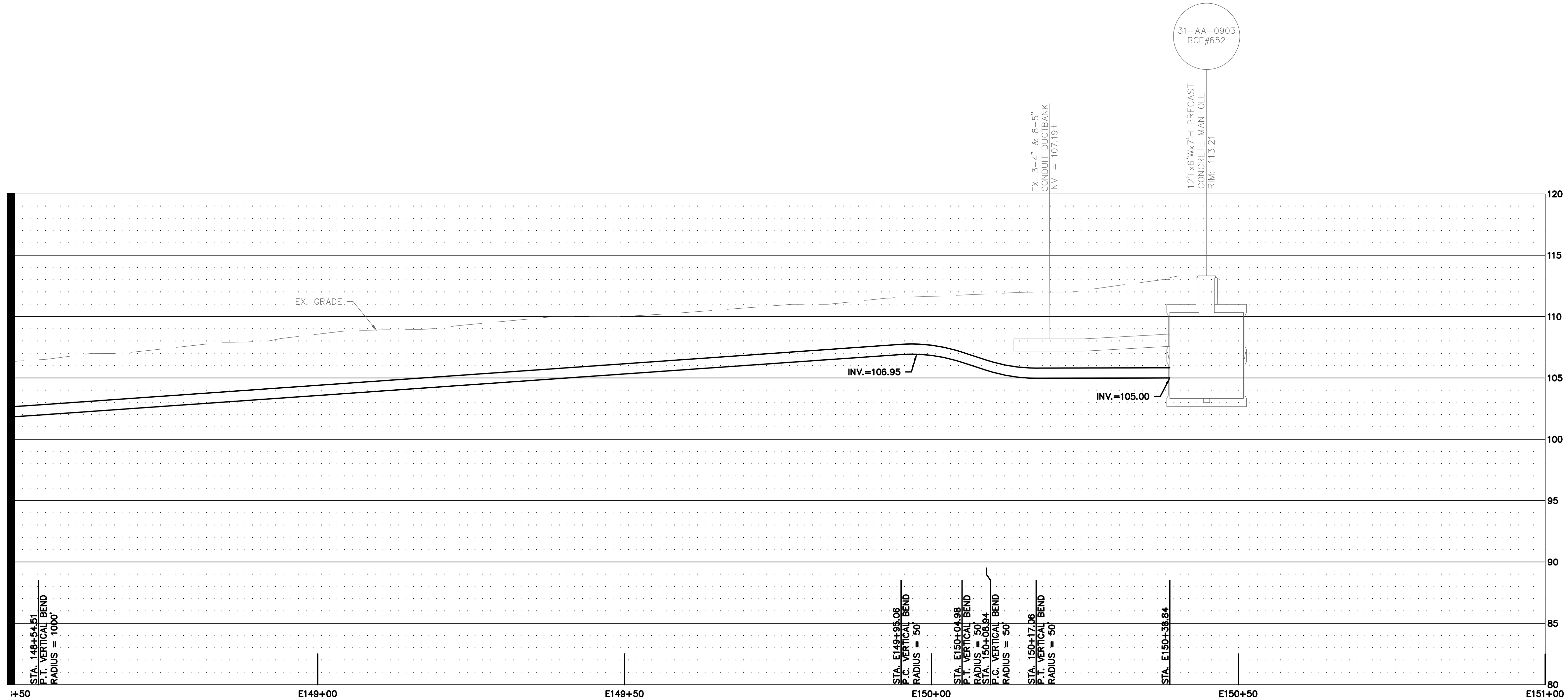
HORIZONTAL SCALE
10 5 0 10 20
SCALE: 1"=10'
UNIT OF MEASURE: FEET

PROFILE DESIGNATION:



MATCHLINE - SEE THIS
DRAWING FOR CONTINUATION

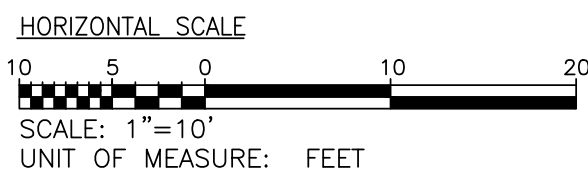
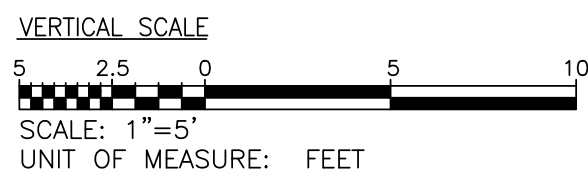
MATCHLINE - SEE THIS
DRAWING FOR CONTINUATION



2-WAY (2x1) 5" CONDUIT DUCTBANK FROM EX.
CONDUIT MH 1024 TO EX. CONDUIT MH 652

VERTICAL SCALE: 1"=5'-0"
HORIZONTAL SCALE: 1"=10'-0"

- NOTES:
- SEE DRAWINGS CD2.07, CD2.08 AND CD2.09 FOR SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 2-WAY (2x1) 5" CONDUIT DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANK.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1' CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.



ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547

KEY PLAN

A/E CONSULTANTS



RMF ENGINEERING, INC.
5520 RESEARCH PARK DR, 3RD FLR
BALTIMORE, MD 21228
P: 410.576-0505
F: 410.385-0327



CARROLL ENGINEERING, INC.
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UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO.:
EXPIRATION DATE:

REGISTRATION/STAMP



PROJECT TITLE:
CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A

BID DOCUMENTS

UMB BUILDING NO.:	VARIOUS
UMB Project NO.:	17-317
A/E PROJECT NO.:	117081.A0
CAD FILE NO.:	
DATE:	05-06-2020

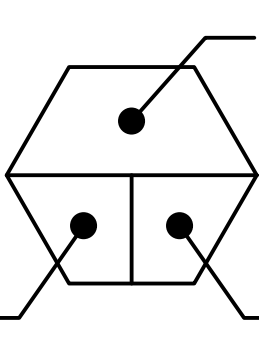
SHEET TITLE:
DUCTBANK
PROFILES

REVISIONS		
NO	DATE	ITEM

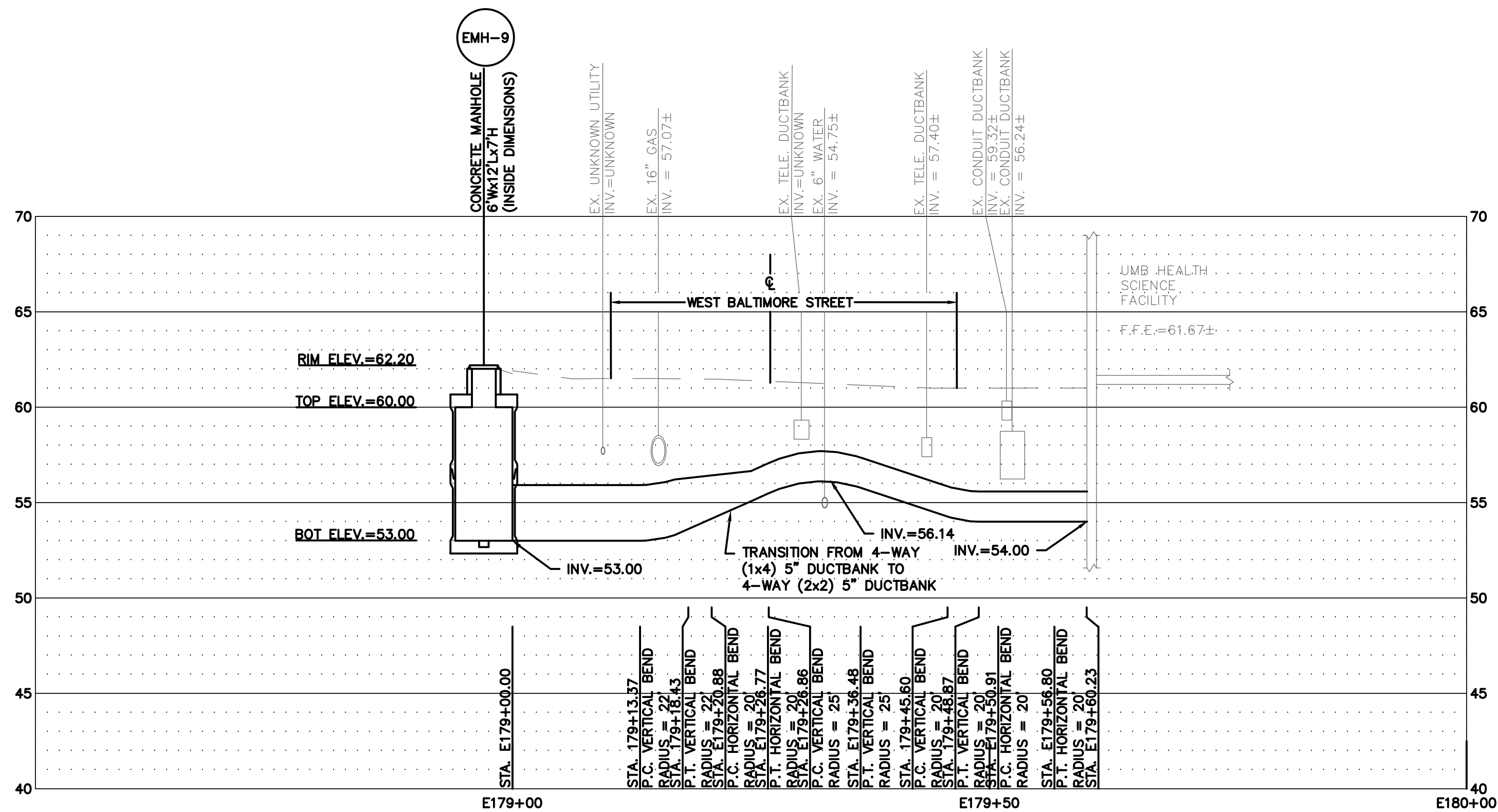
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CD3.29

PROFILE DESIGNATION:

CORRESPONDING
CD2 SERIES
PLAN DRAWING



PROFILE NUMBER
(DUCTBANK ALIGNMENT)
CD3 SERIES PROFILE
DRAWING



E-73
4-WAY (2x2) 5" ELECTRIC DUCTBANK FROM
EMH-9 TO UMB HEALTH SCIENCE FACILITY

- NOTES:
- SEE DRAWING CD2.10 FOR ELECTRICAL DISTRIBUTION SITE PLAN.
 - PROFILE IS BASED ON CENTERLINE OF 4-WAY (2x2) 5" CONDUIT DUCTBANK. INVERT INFORMATION PROVIDED IS BASED ON THE BOTTOM OF THE DUCTBANK.
 - BACKFILL WITH FLOWABLE FILL WHERE LESS THAN 1' CLEARANCE BETWEEN UTILITIES (MINIMUM SEPARATION BETWEEN UTILITIES SHALL BE 6 INCHES). FLOWABLE FILL CONCRETE CONSISTING OF A MIXTURE OF FLY ASH, CEMENT AND WATER, CERTIFIED BY MANUFACTURERS.

VERTICAL SCALE
5 2.5 0 5 10
SCALE: 1"=5'
UNIT OF MEASURE: FEET

HORIZONTAL SCALE
10 5 0 10 20
SCALE: 1"=10'
UNIT OF MEASURE: FEET



ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547

KEY PLAN



A/E CONSULTANTS



RMF ENGINEERING, INC.
5520 RESEARCH PARK DR, 3RD FLR
BALTIMORE, MD 21228
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F: 410.385-0327



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UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO.:
EXPIRATION DATE:

REGISTRATION/STAMP



PROJECT TITLE:
**CAMPUS
ELECTRICAL
DISTRIBUTION
UPGRADES -
PHASE 1A**

BID DOCUMENTS

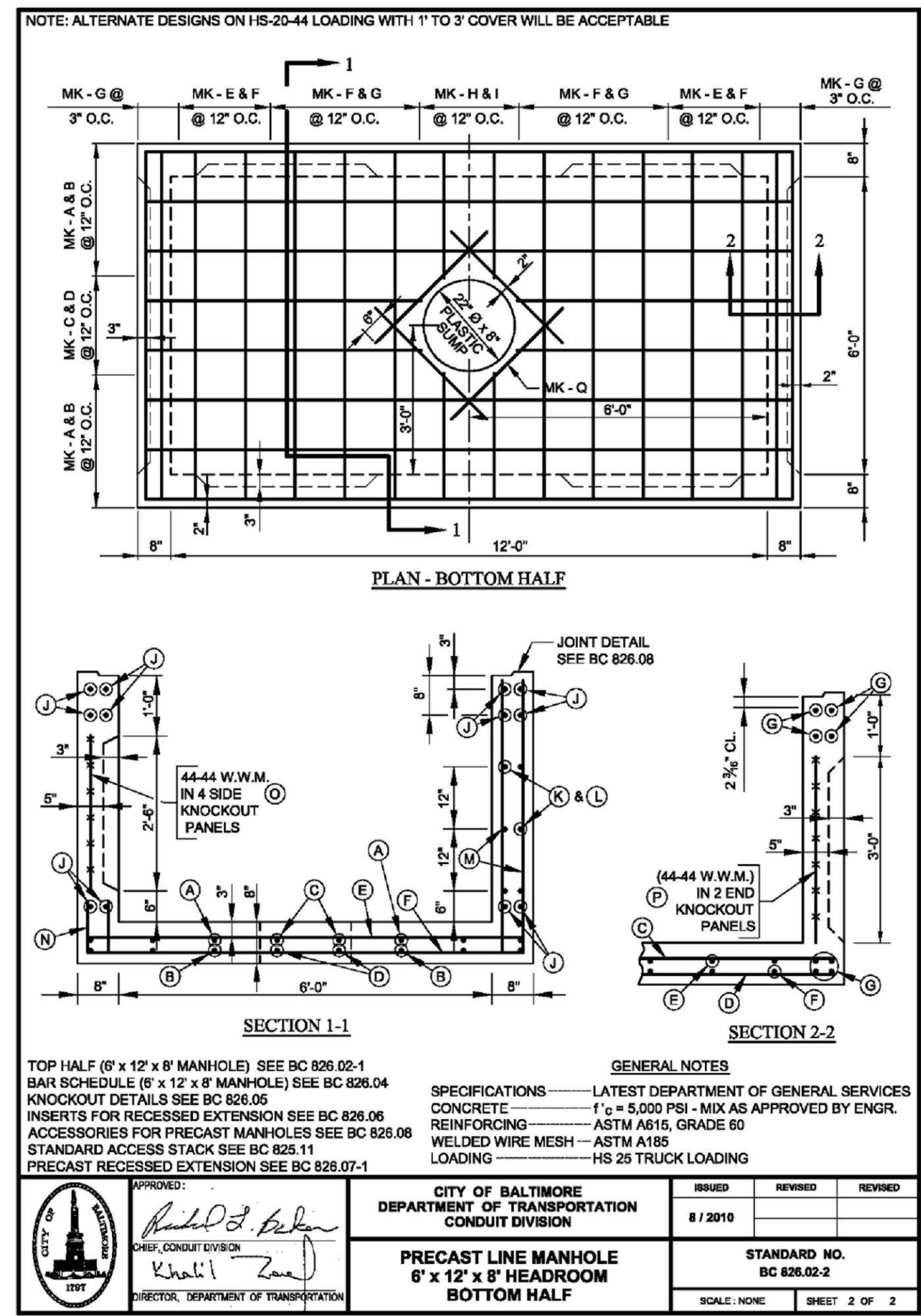
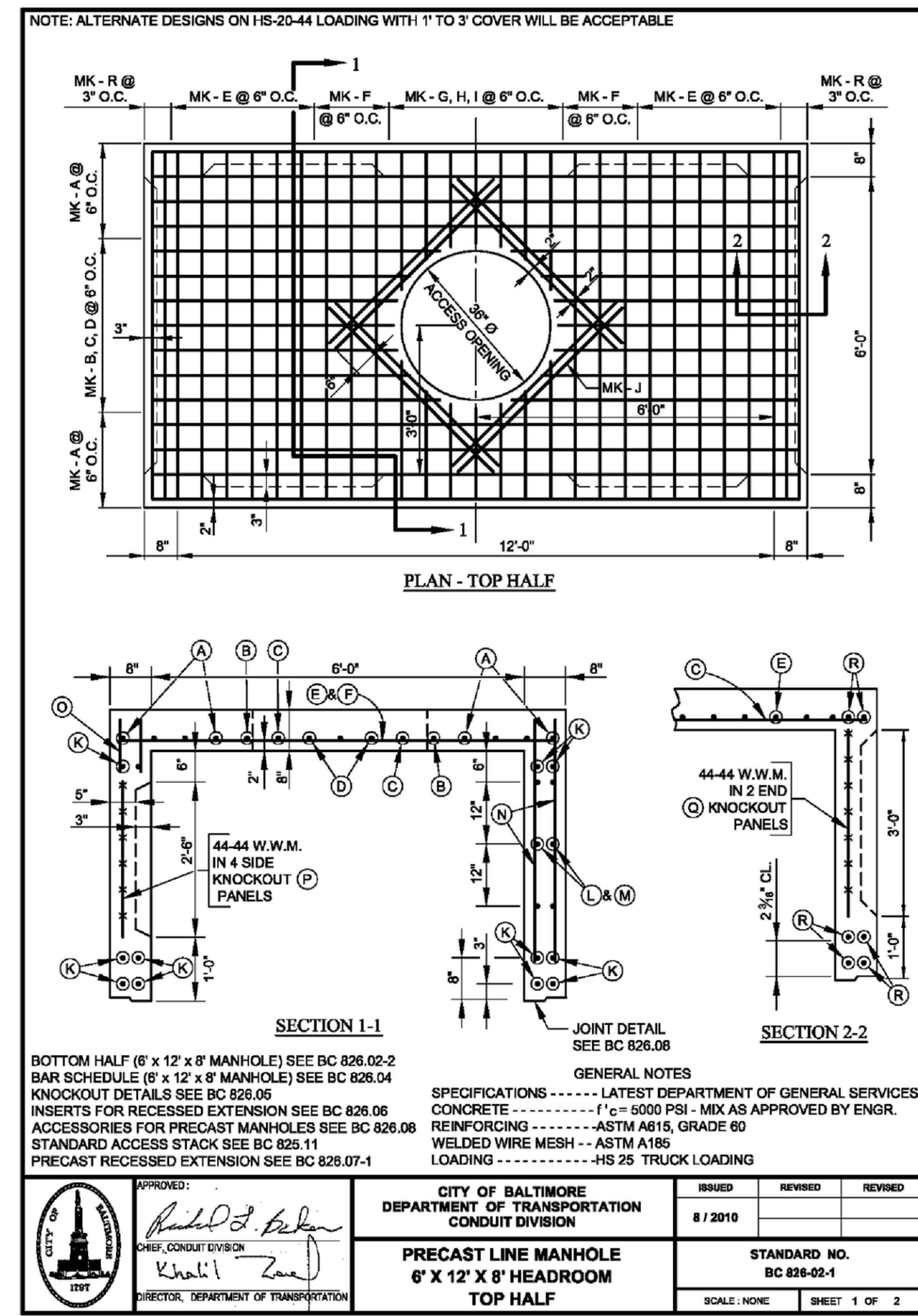
UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

SHEET TITLE:
**DUCTBANK
PROFILES**

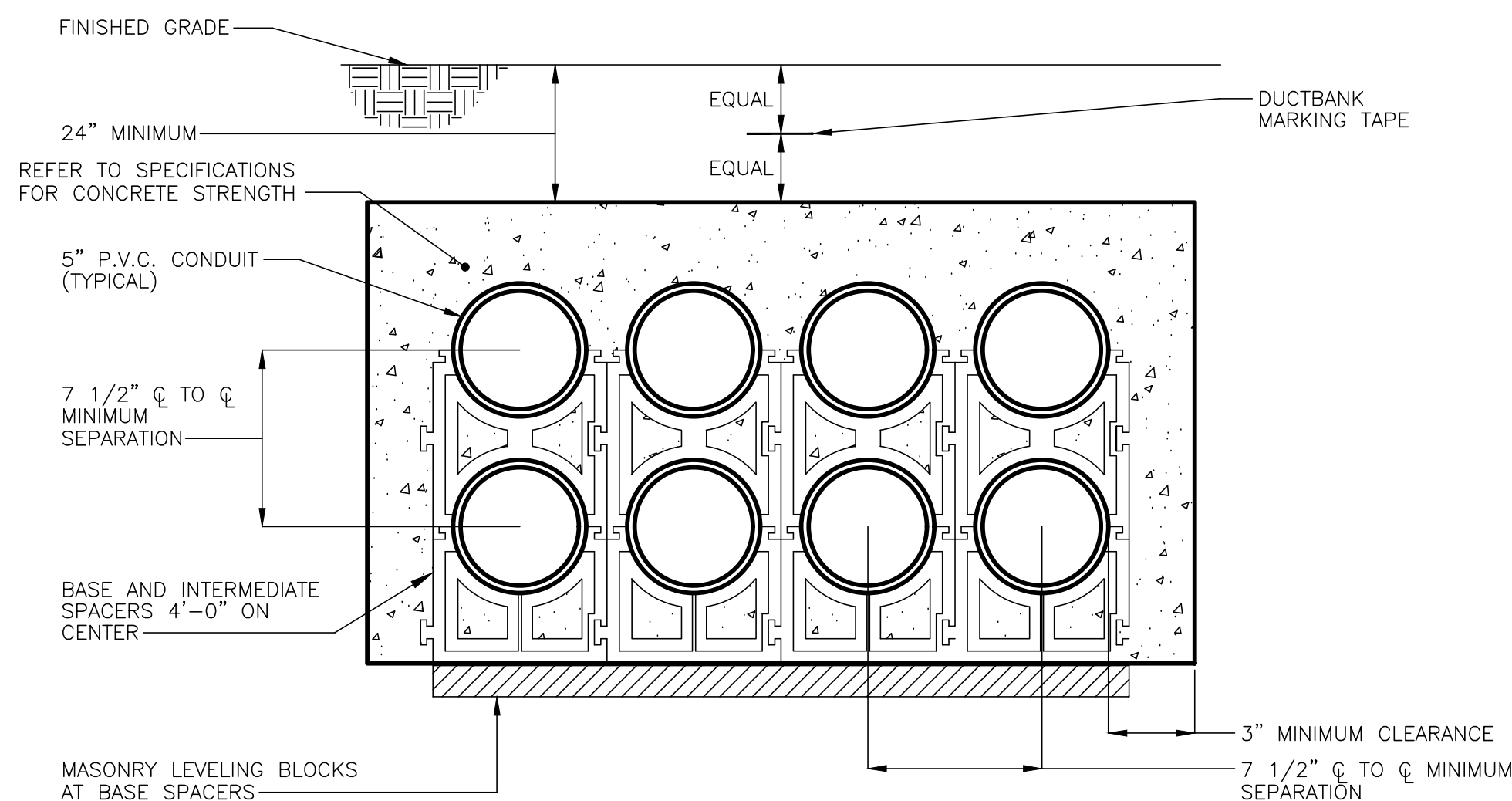
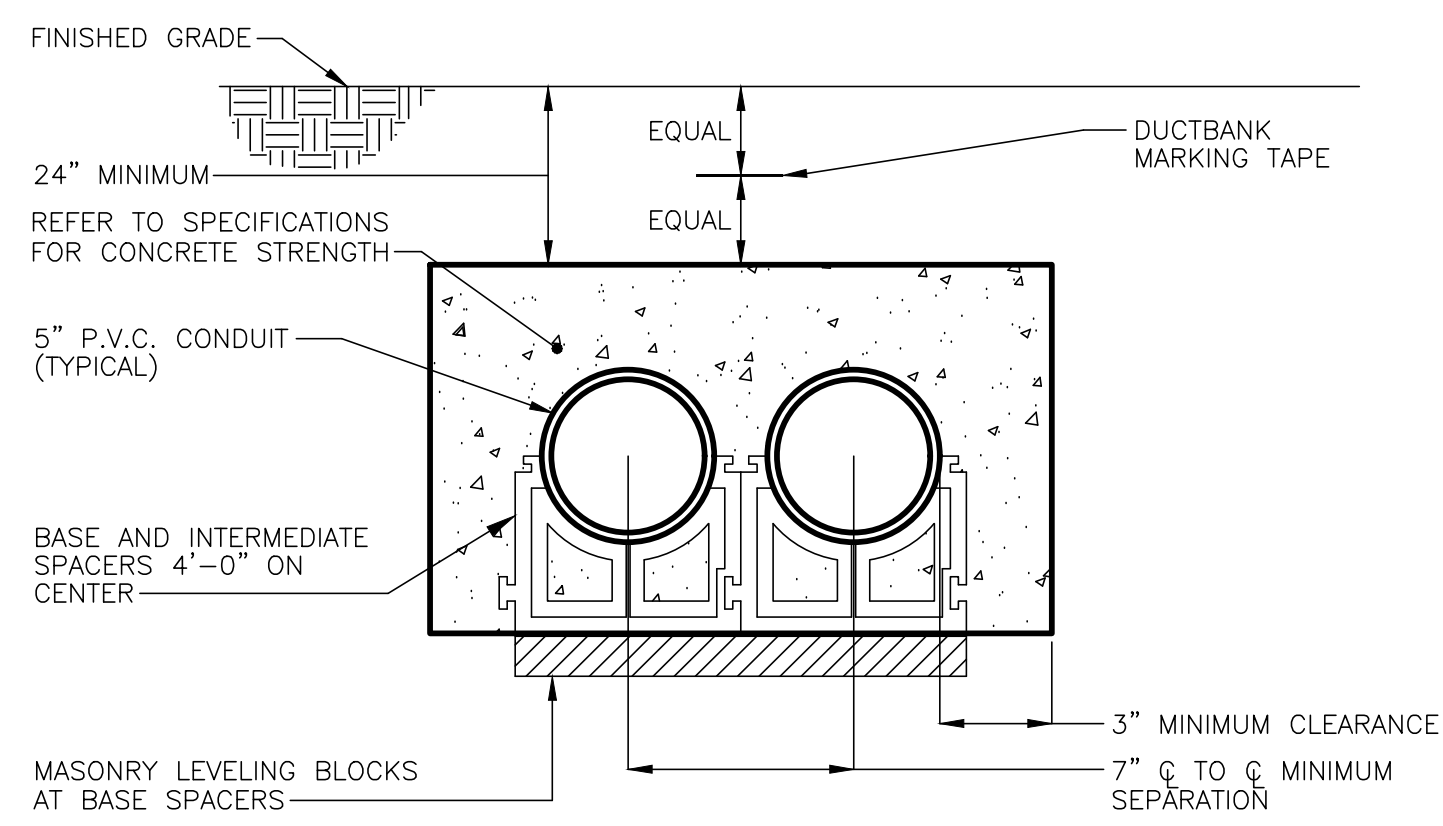
REVISIONS

NO	DATE	ITEM
1	10/22/19	CHANGE BULLETIN #1

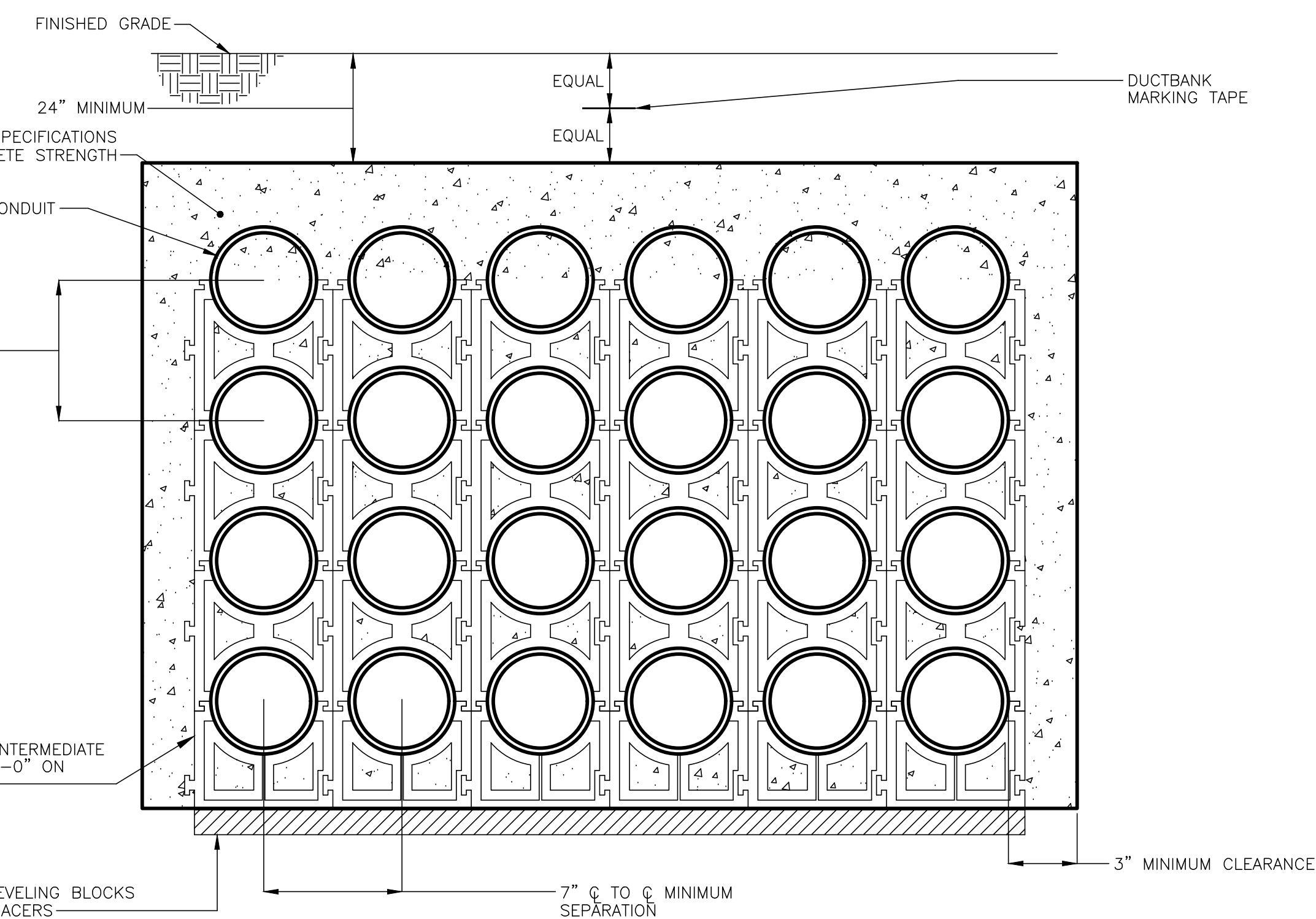
SHEET NO.
CD3.30



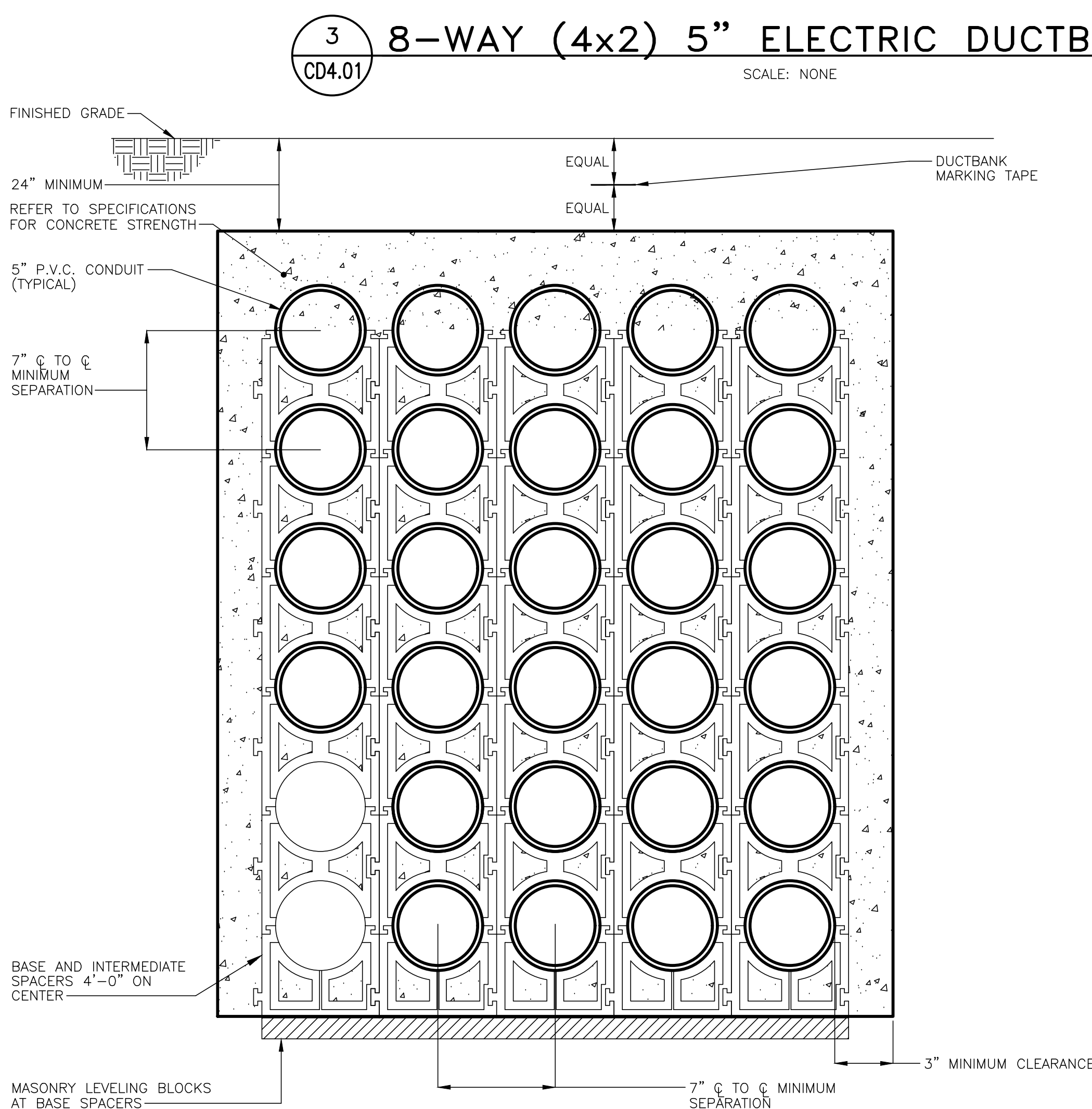
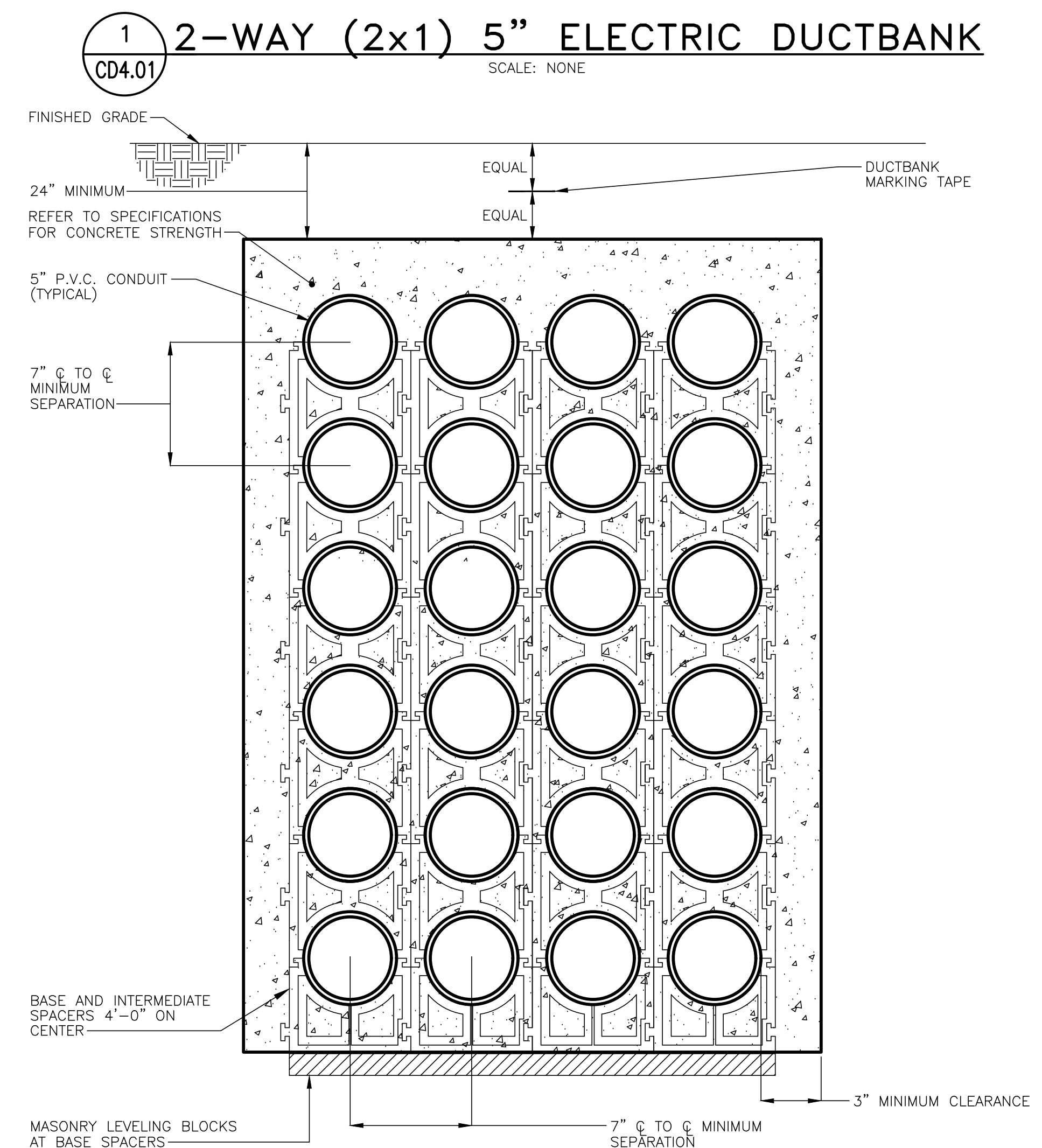
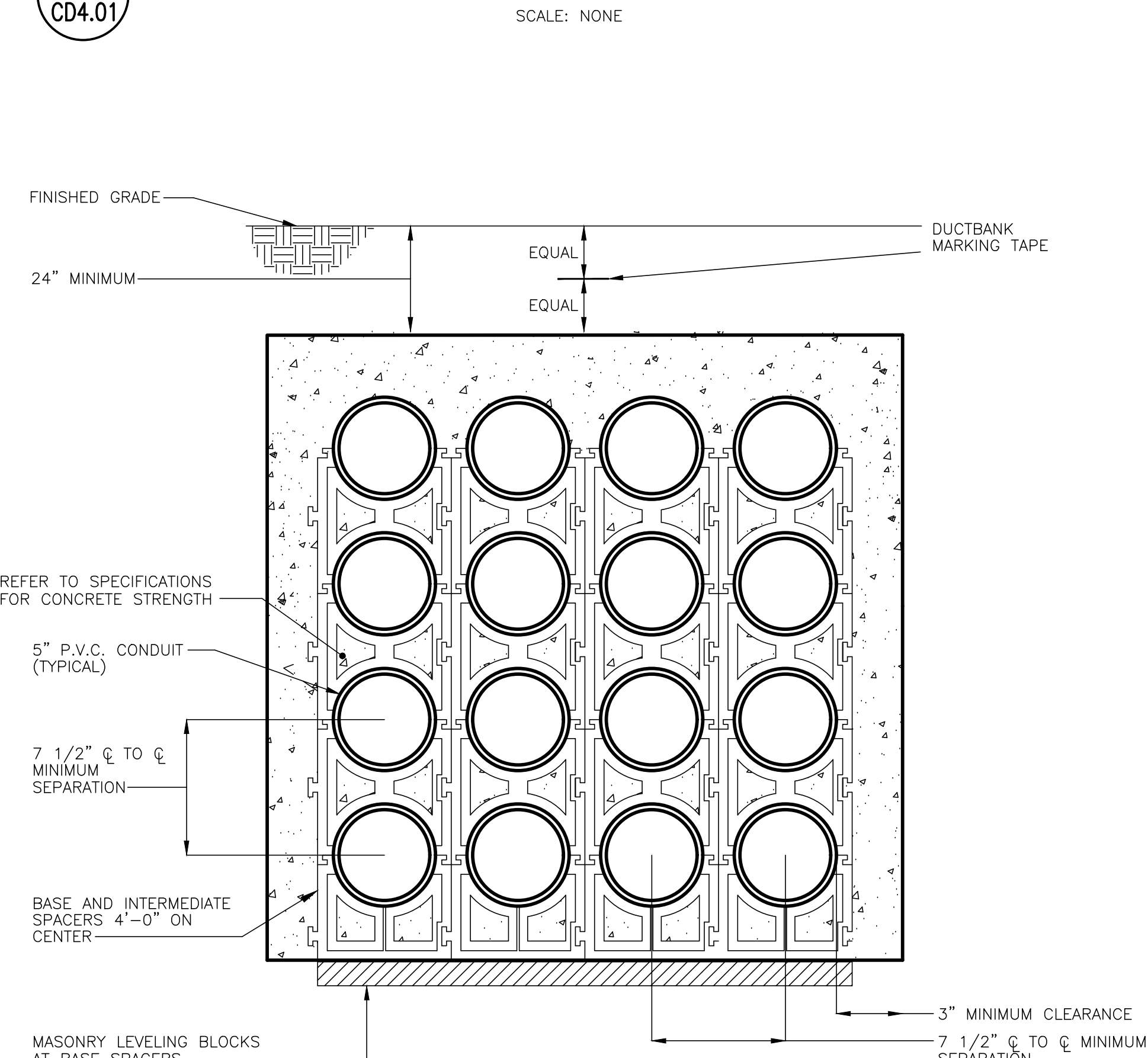
BALTIMORE CITY STANDARD CONDUIT MANHOLE



6-WAY (2x3) 5" ELECTRIC DUCTBANK



24-WAY (6x4) 5" ELECTRIC DUCTBANK



16-WAY (4x4) 5" ELECTRIC DUCTBANK



BALTIMORE CITY DEVELOPER'S AGREEMENT DA#1615



ADMINISTRATION & FINANCE
OFFICE OF FACILITIES MANAGEMENT
DESIGN AND CONSTRUCTION
220 ARCH STREET, OFFICE LEVEL 3
BALTIMORE, MARYLAND 21201
PHONE NO. (410) 706-7740
FAX NO. (410) 706-8547

KEY PLAN

A/E CONSULTANTS

rmf
RMF ENGINEERING, INC.
5520 RESEARCH PARK DR, 3RD FLR
BALTIMORE, MD 21228
P: 410.576-0505
F: 410.385-0327

CARROL ENGINEERING, INC.
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LICENSE NO.:
EXPIRATION DATE:



PROJECT TITLE:
CAMPUS ELECTRICAL DISTRIBUTION UPGRADES - PHASE 1A

BID DOCUMENTS
UMB BUILDING NO.: VARIOUS
UMB Project NO.: 17-317
A/E PROJECT NO.: 117081.A0
CAD FILE NO.:
DATE: 05-06-2020

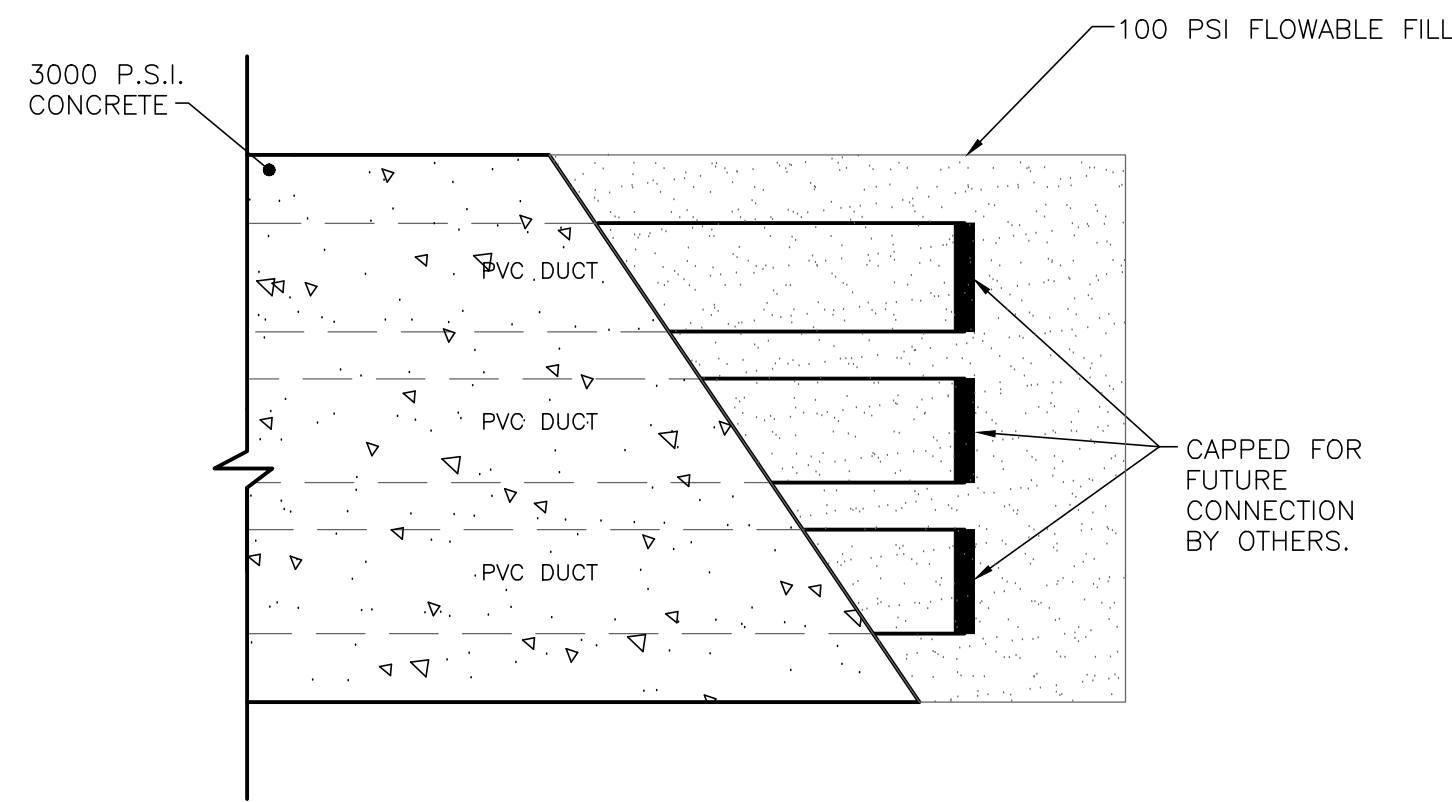
SHEET TITLE:
ELECTRIC DETAILS

REVISIONS		
NO	DATE	ITEM

SHEET NO.
CD4.01

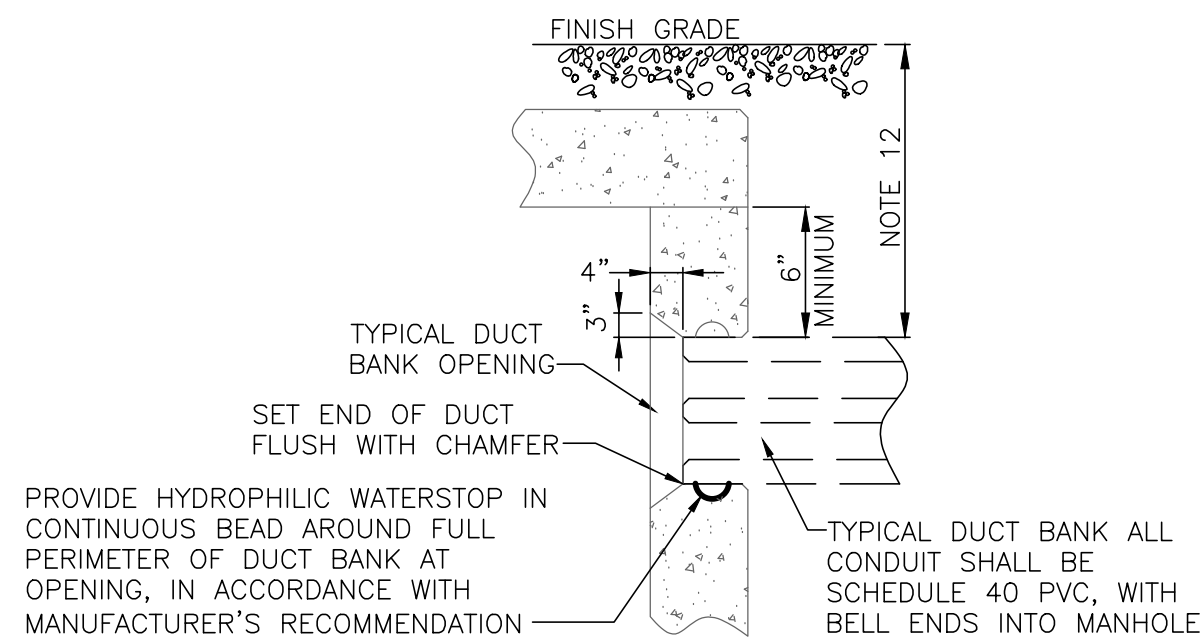


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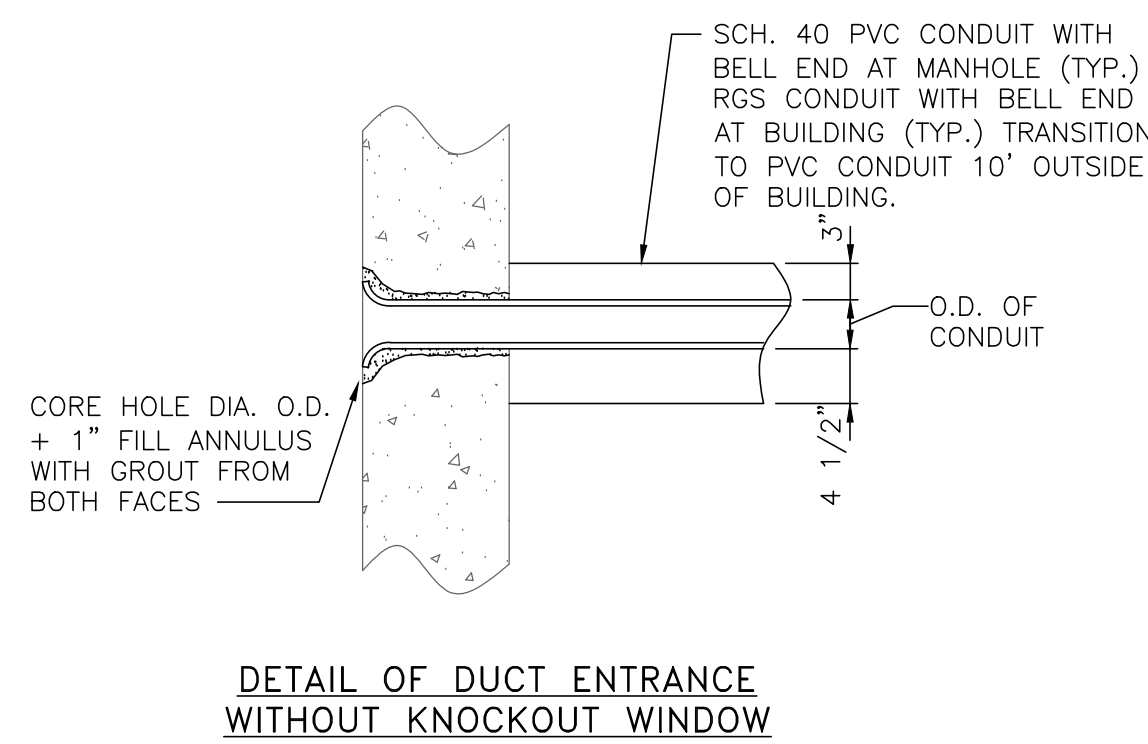


B
CD4.02 **ELECTRIC DUCTBANK STUB OUT
FOR FUTURE CONNECTION DETAIL**

SCALE: NONE

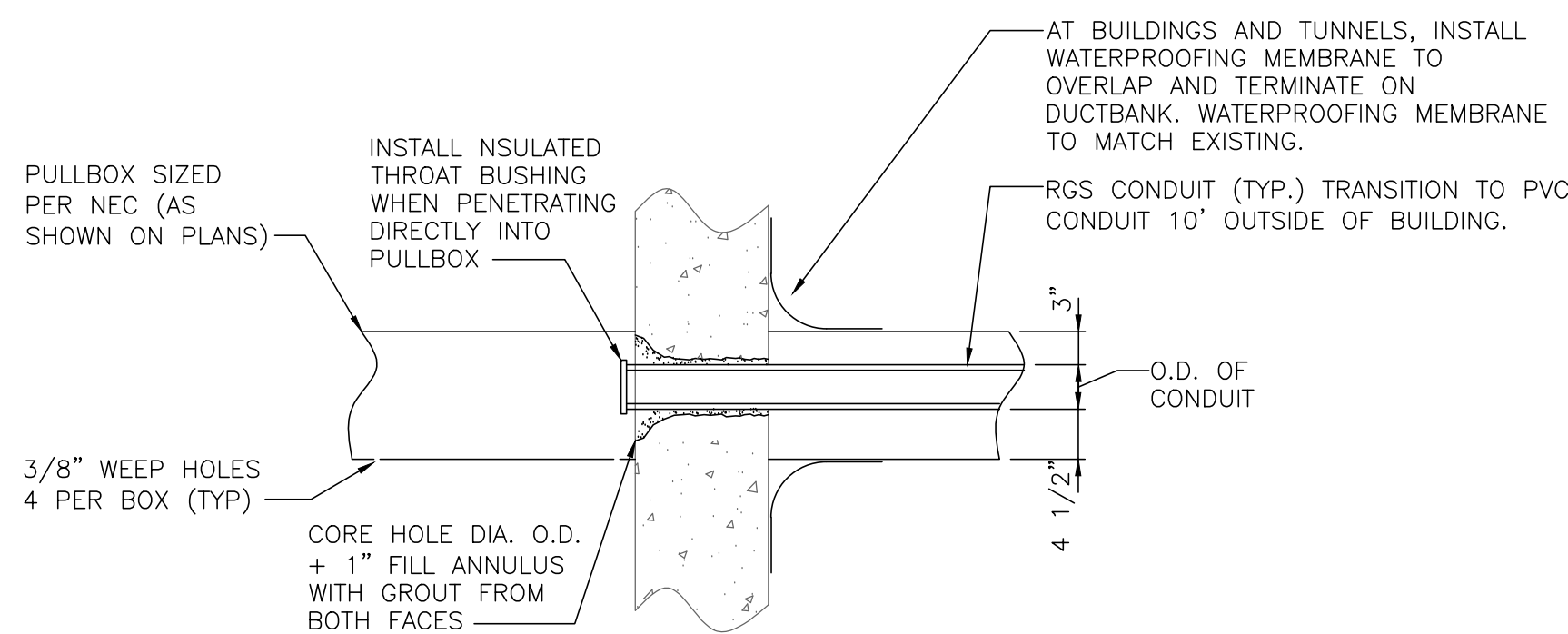


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CD4.02 **TYPICAL SECTION AT
DUCTBANK KNOCKOUT OPENING**



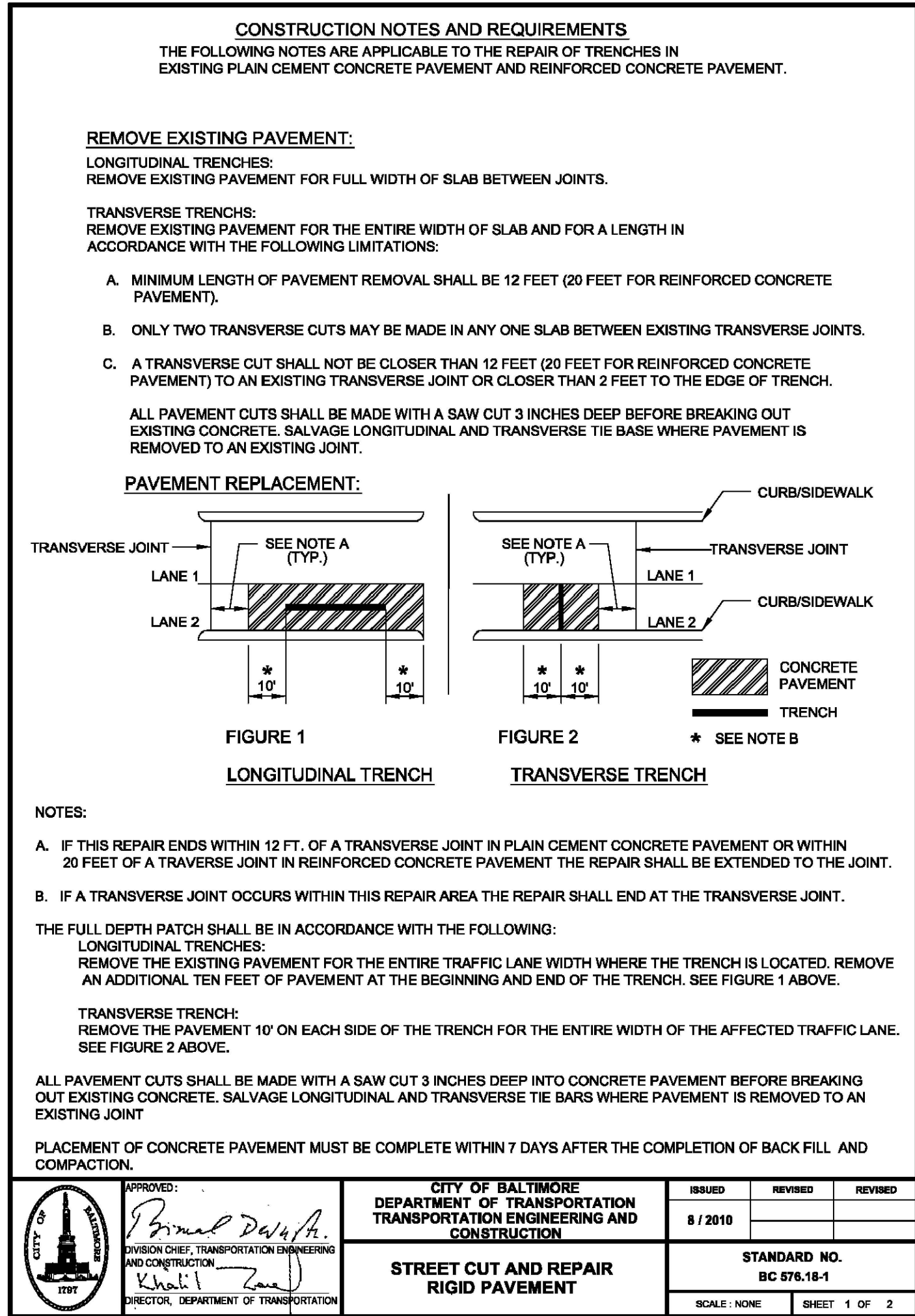
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CD4.02 **CONNECT DUCTBANK TO
EXISTING MANHOLE DETAILS**

SCALE: NONE



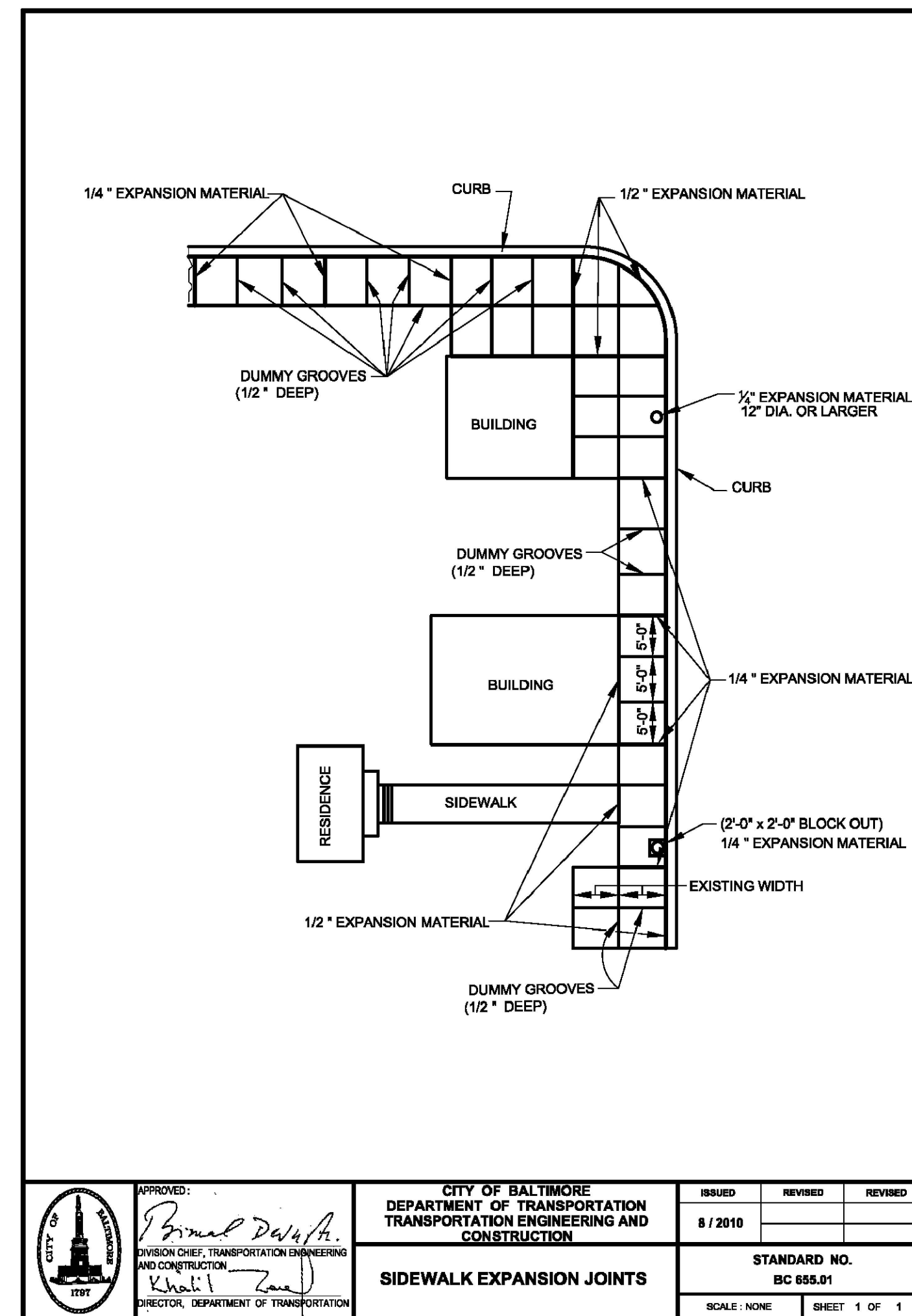
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CD4.02 **CONNECT DUCTBANK TO
EXISTING BUILDING DETAIL**

SCALE: NONE



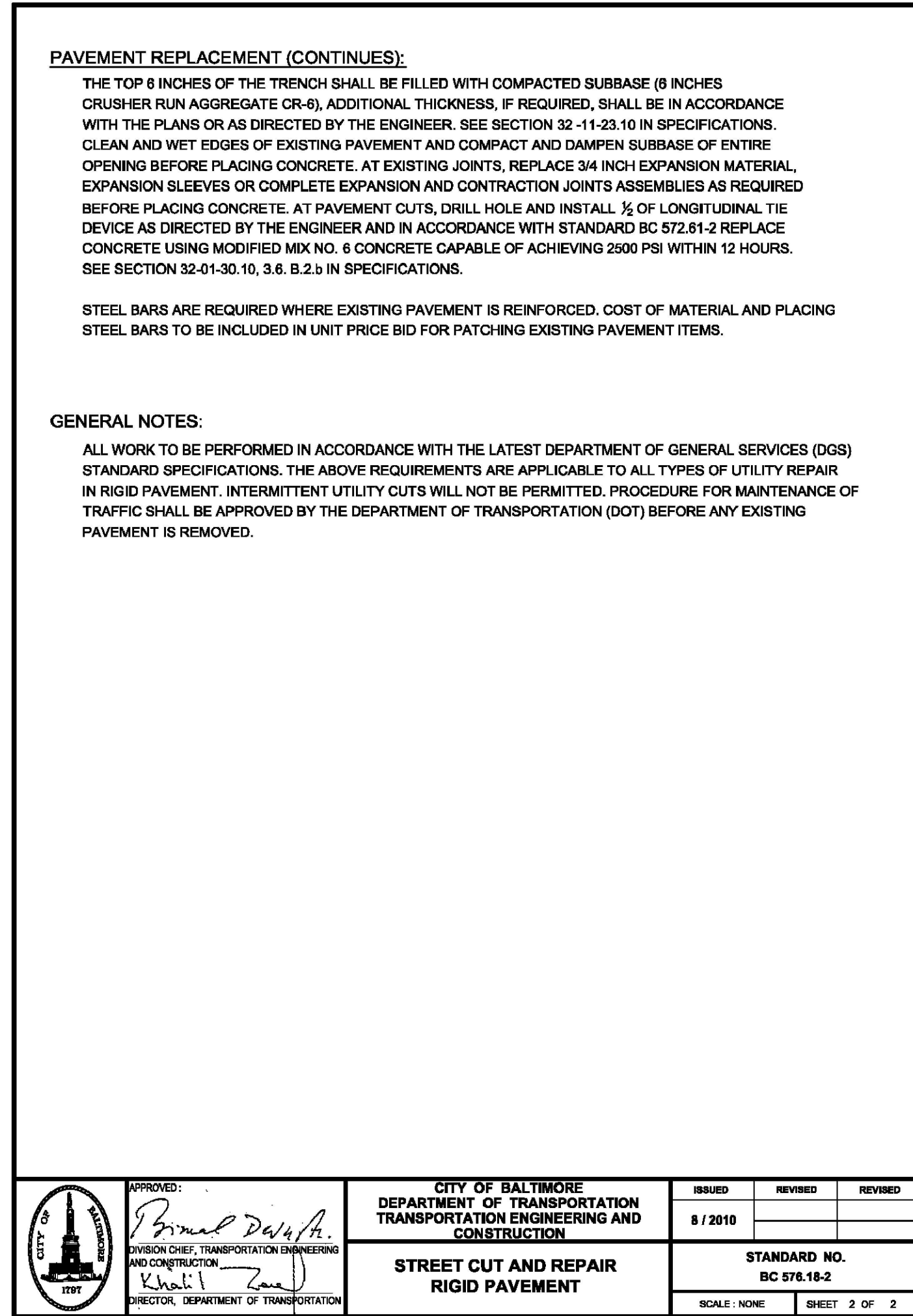
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CD4.03 **STREET CUT AND REPAIR
RIGID PAVEMENT**

SCALE: NONE



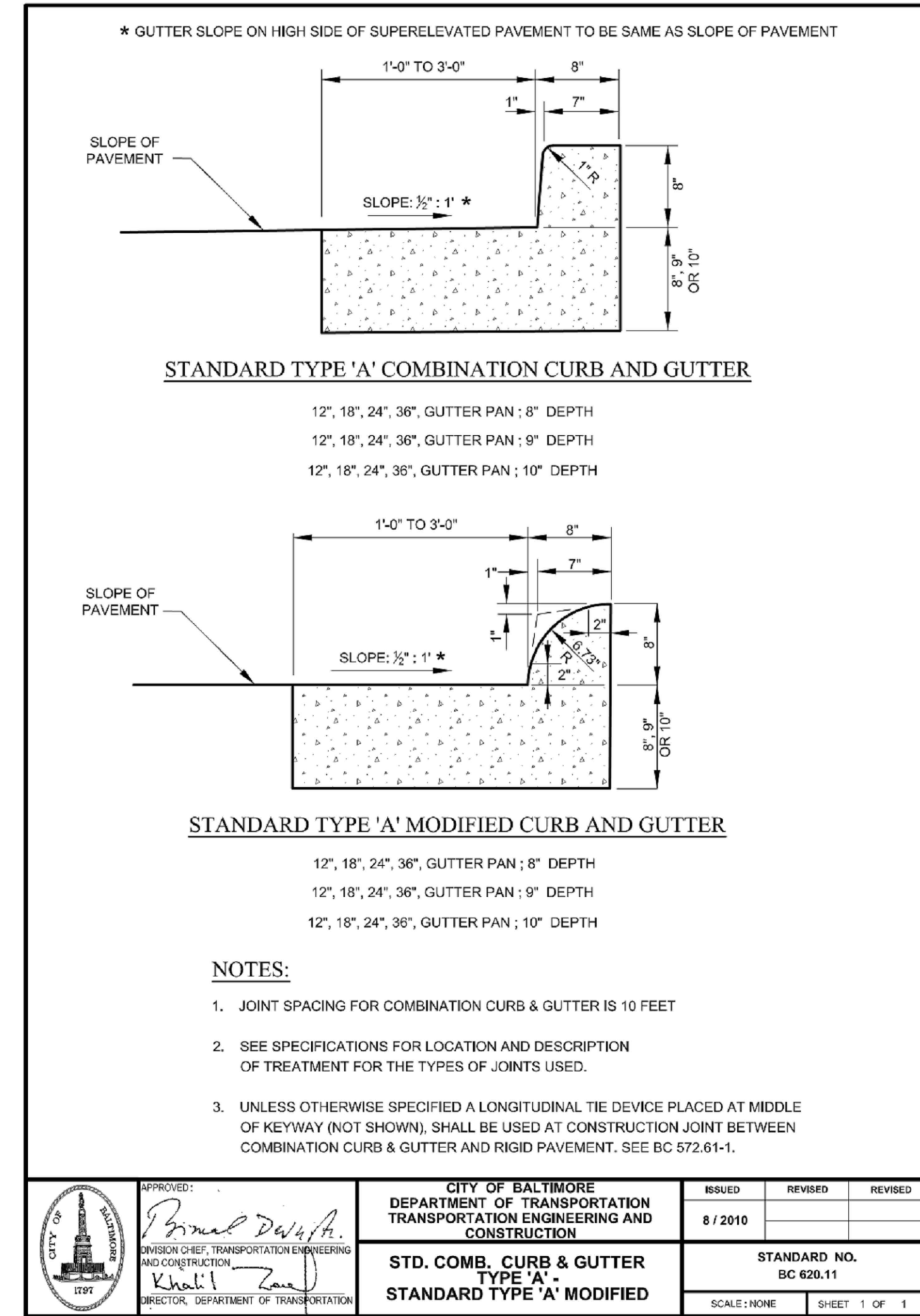
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CD4.02 **CONCRETE SIDEWALK
EXPANSION JOINTS**

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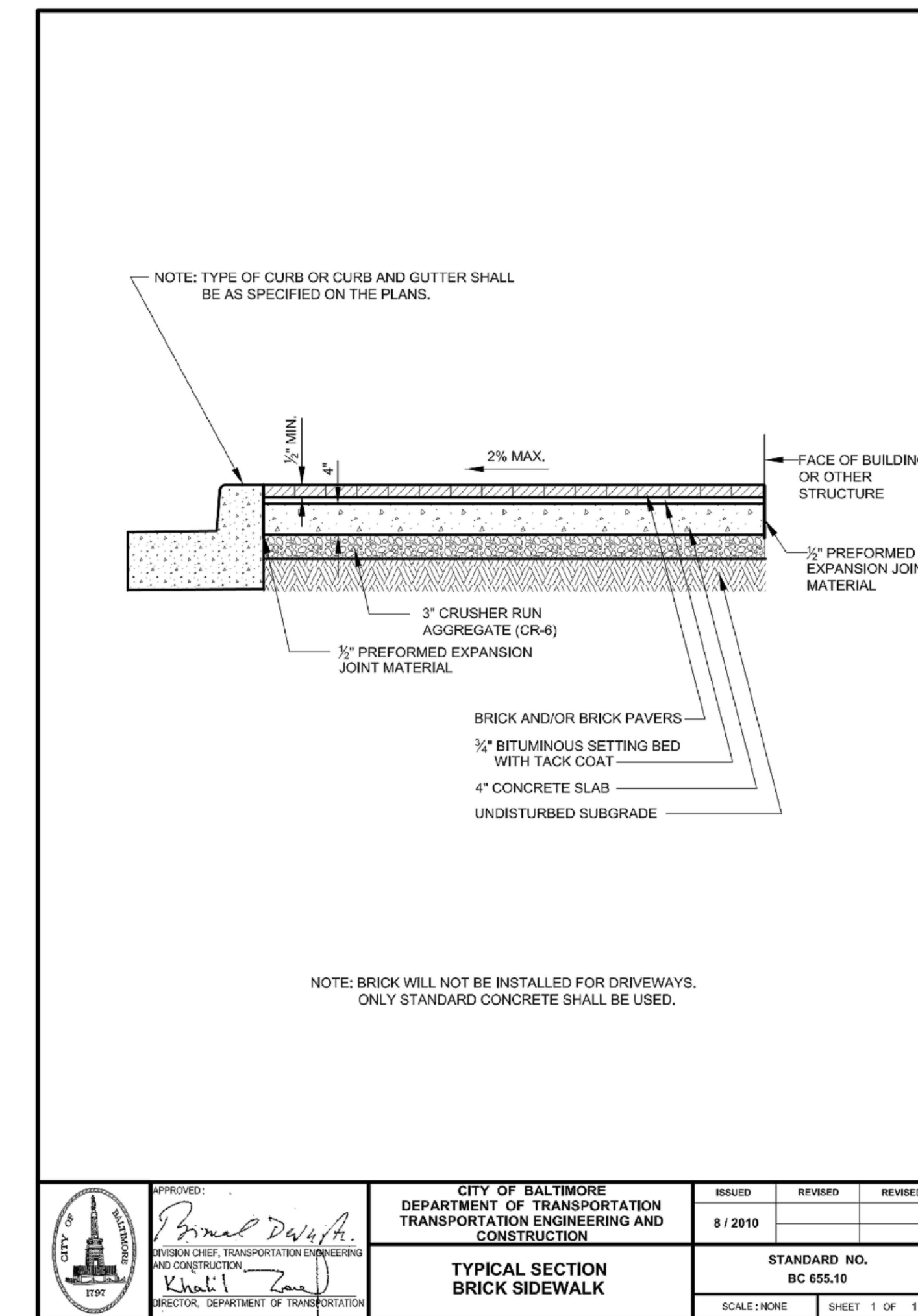
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CD4.04 **CONCRETE SIDEWALK**

SCALE: NONE



F
CD4.02 **BC COMB. CURB &
GUTTER TYPE 'A'**

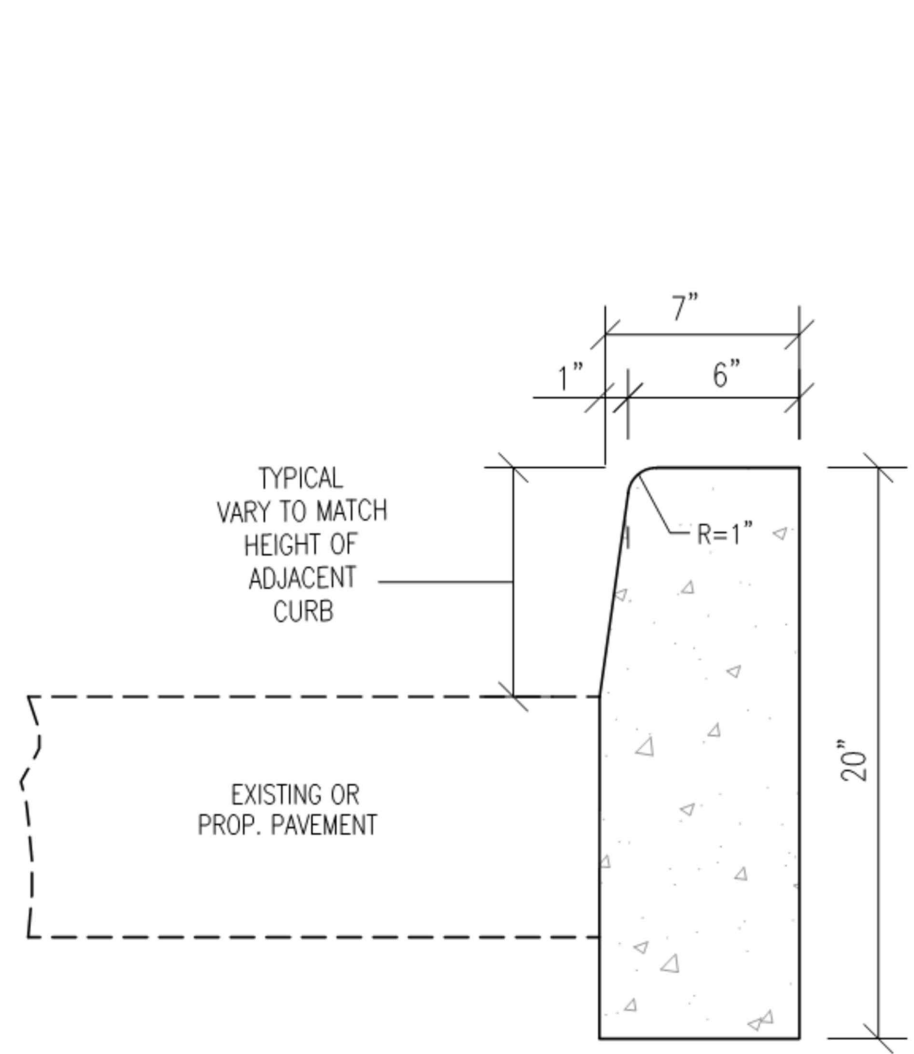
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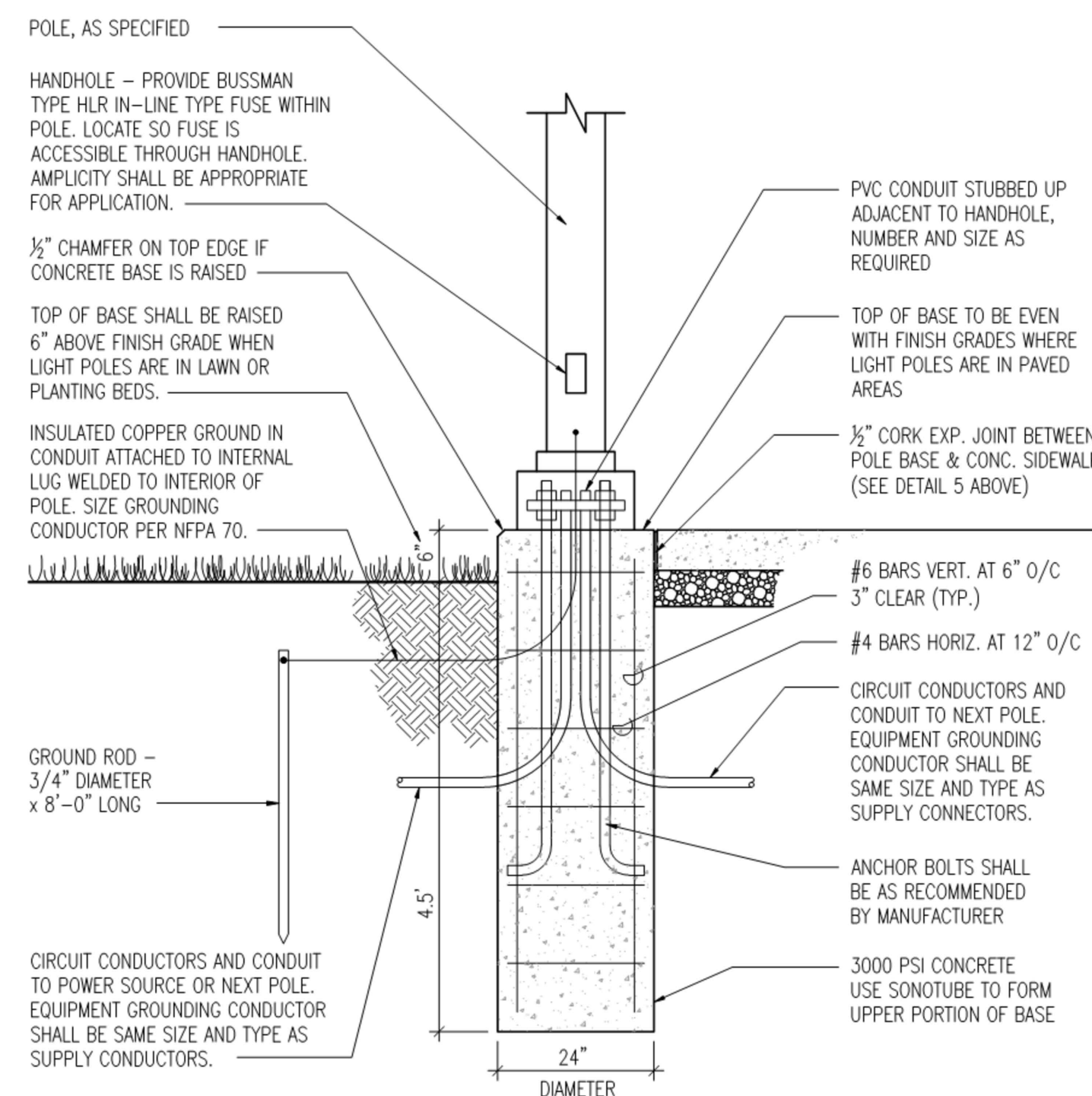
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CD4.04 **BRICK SIDEWALK**

SCALE: NONE

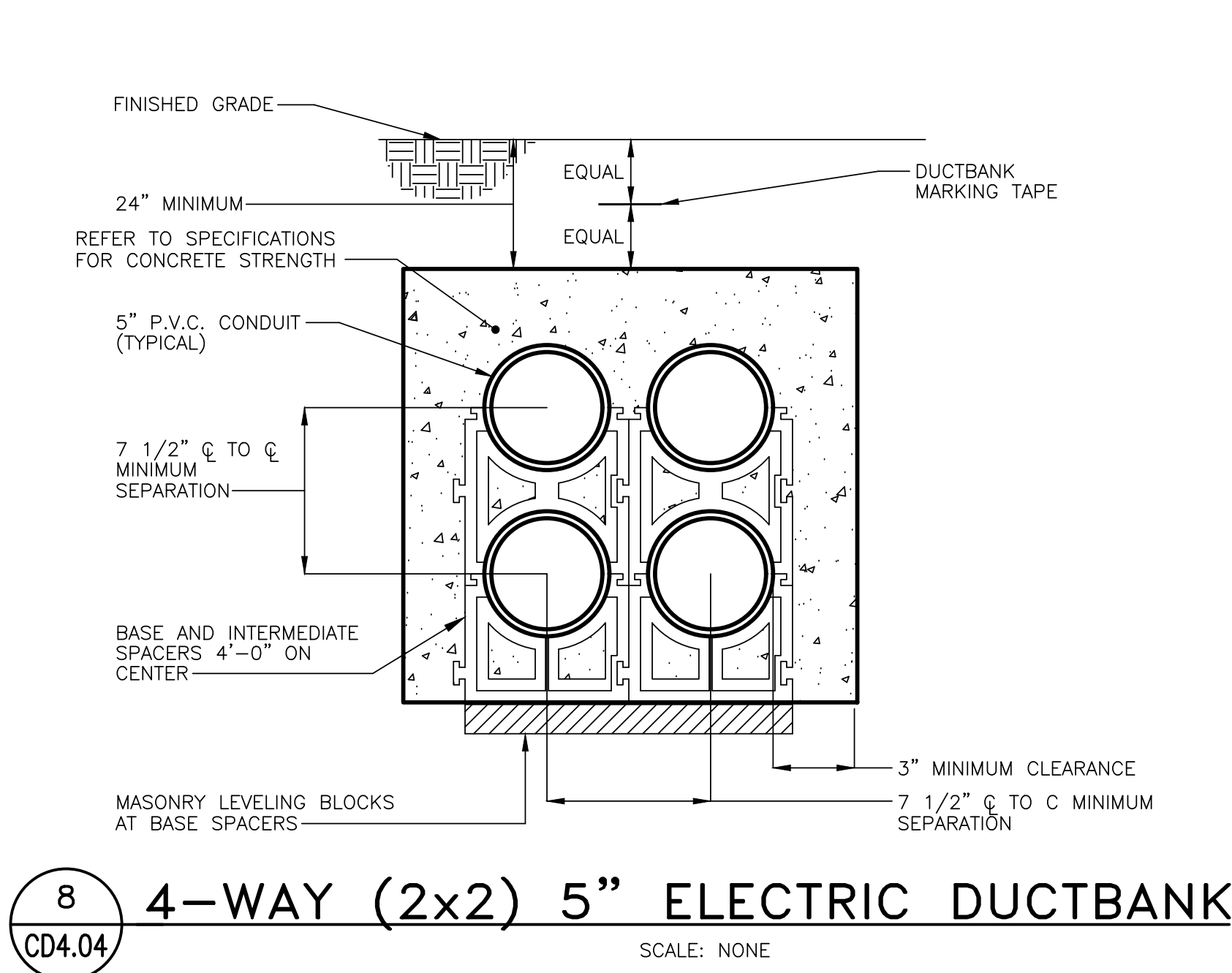




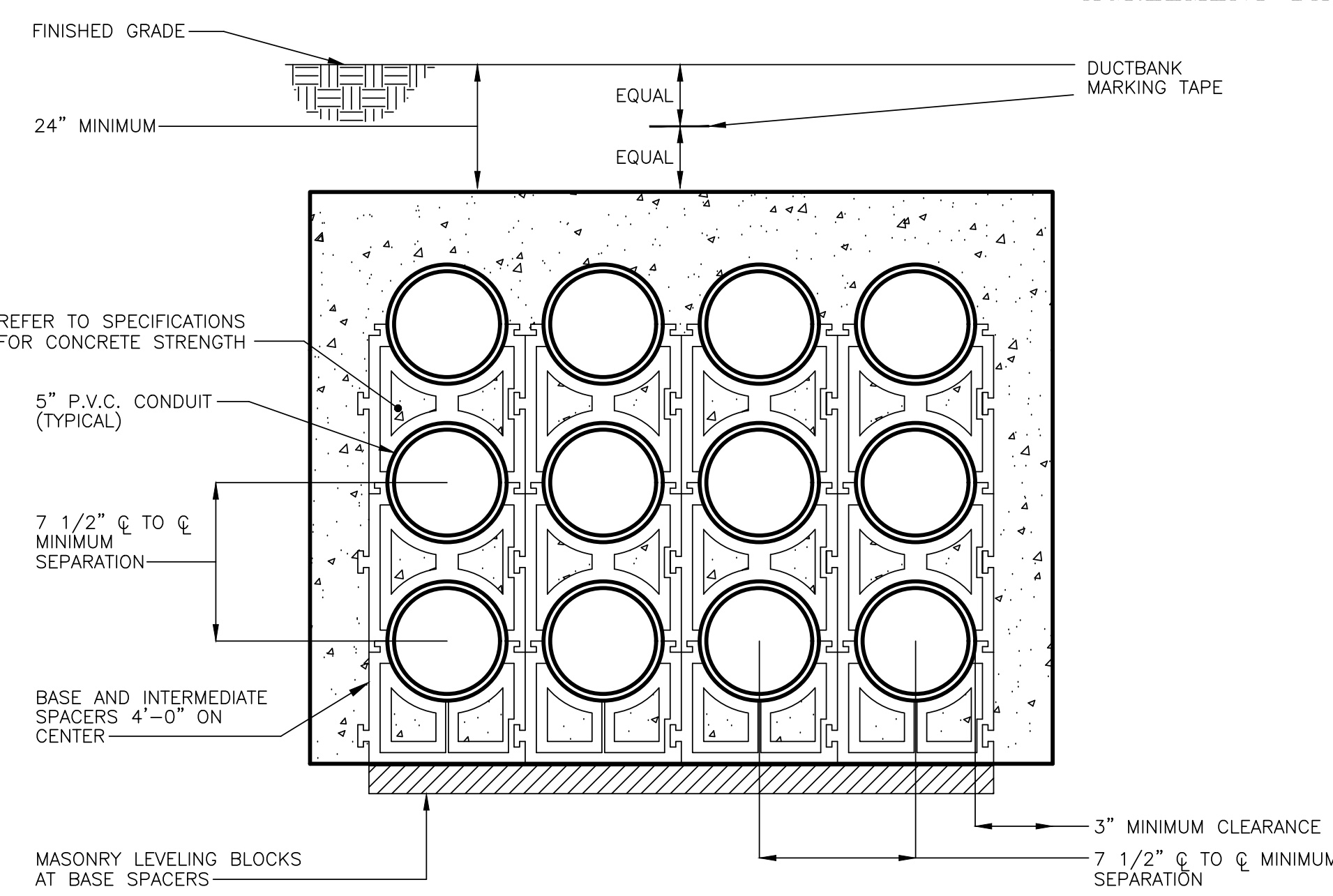
S TYPE 'A' CURB DETAIL
CD4.04 SCALE: NONE



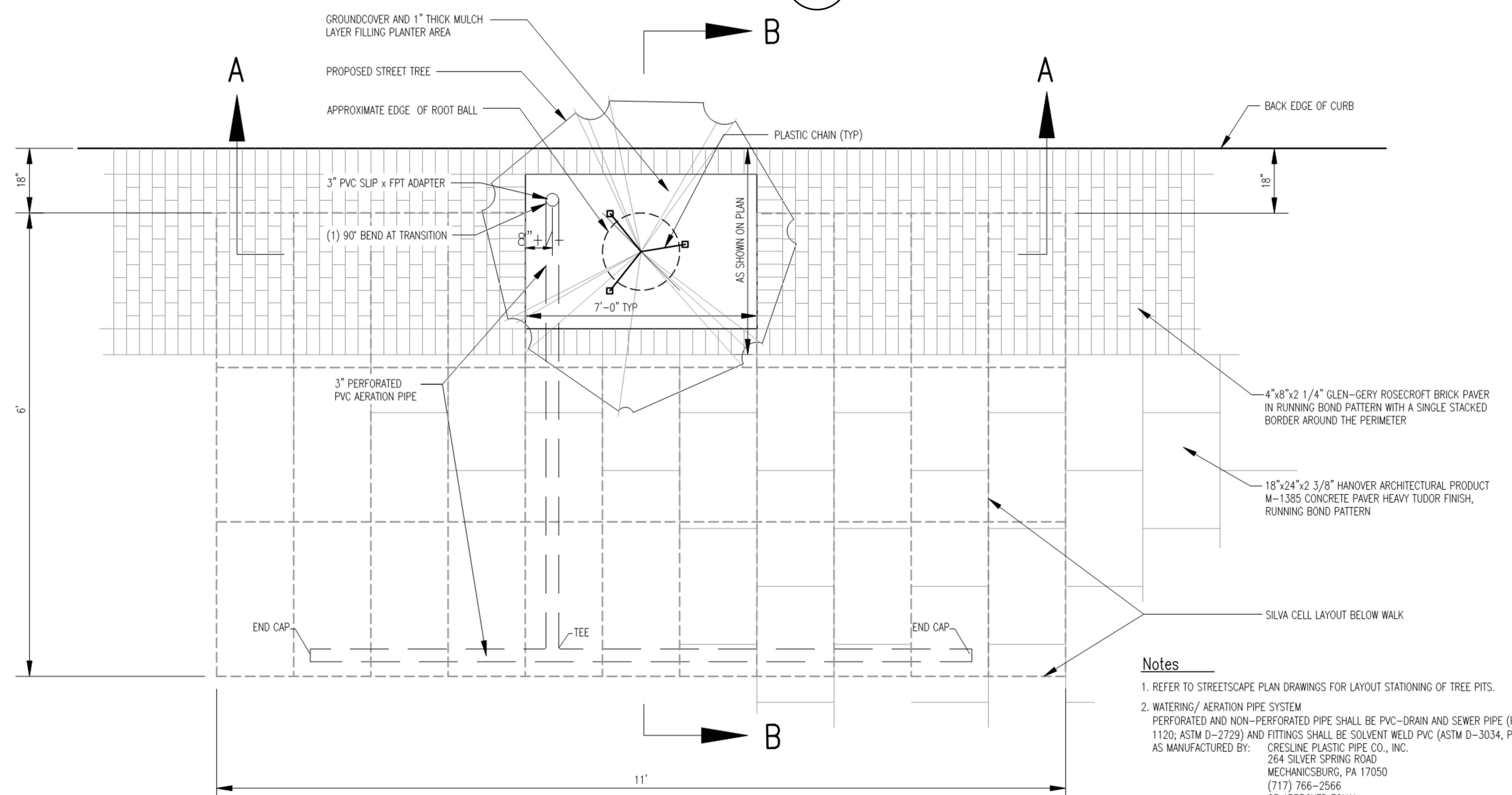
T LIGHT POLE BASE DETAIL
CD4.04 SCALE: NONE



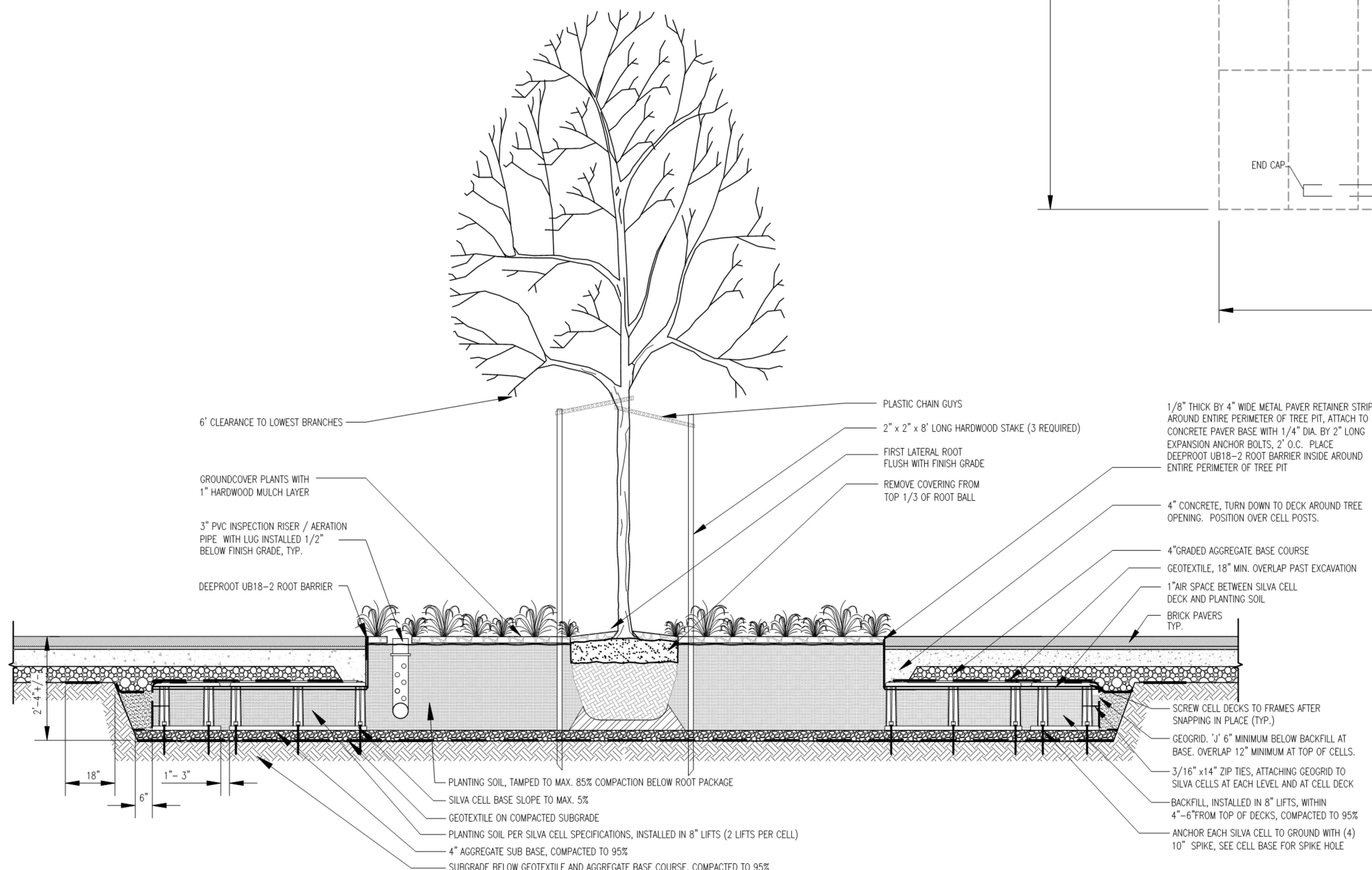
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CD4.04 SCALE: NONE



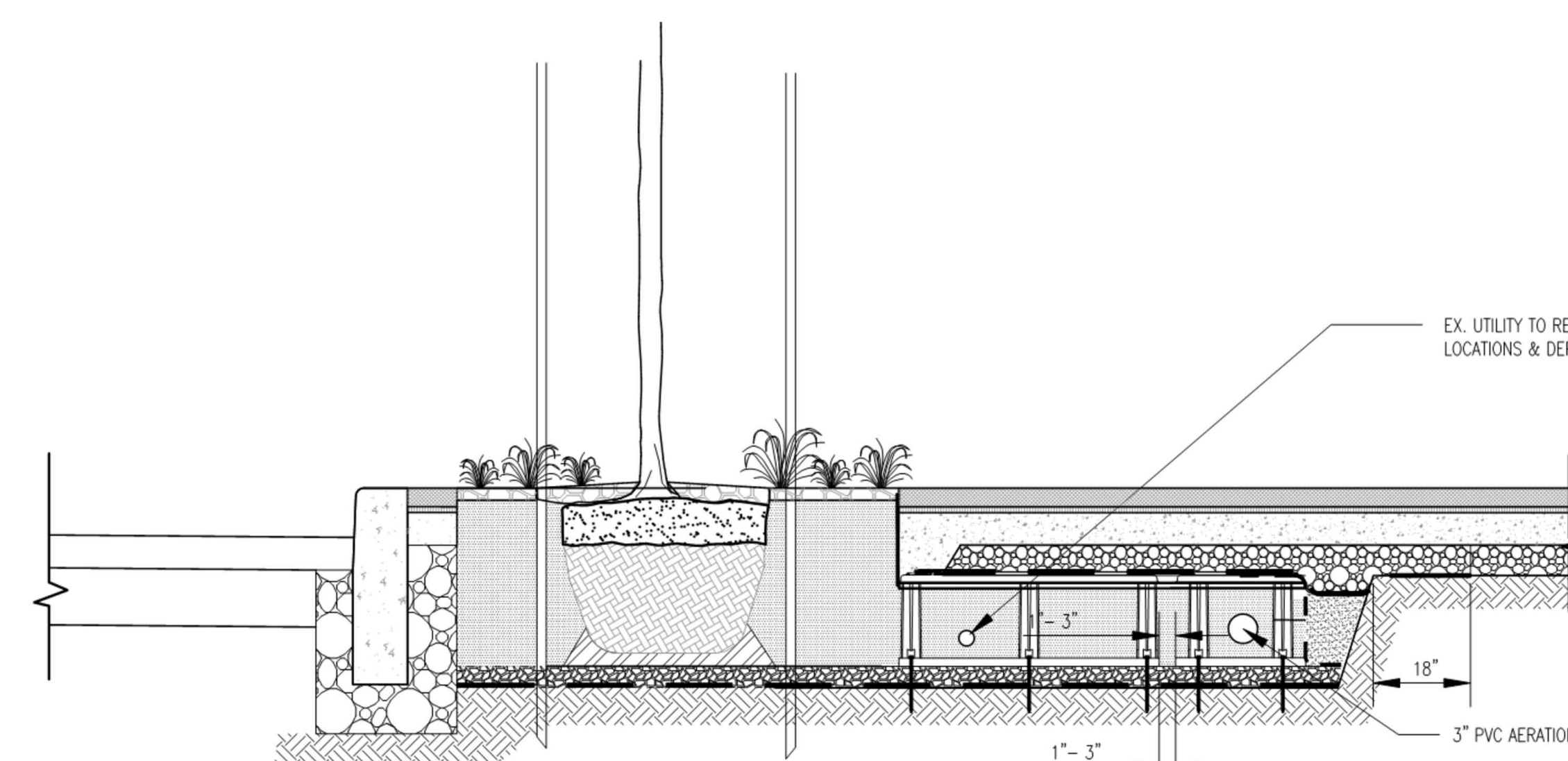
9 12-WAY (4x3) 5" ELECTRIC DUCTBANK
CD4.04 SCALE: NONE



TREE PIT PLAN



SECTION A-A



SECTION B-B

U STREETScape TREE PLANTING DETAIL
CD4.04 SCALE: NONE

REVISIONS		
NO	DATE	ITEM

KEY PLAN



REGISTRATION/STAMP

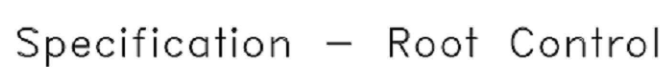


BID DOCUMENTS

SHEET TITLE :

REVISIONS

CD4.06



1. SCOPE

- 1.1 This is materials specification covering root control barrier in trenches, alongside hardscape structures such as sidewalks, curbing, pavements, concrete and building foundations to prevent structural damage due to root penetration. The product functions to provide both a physical and chemical barrier zone to restrict vegetative root encroachment.
- 1.2 This is a material purchasing specification and design review of its use is recommended

1. REFERENCED DOCUMENTS

- | 2.1 *ASTM Standards | |
|---------------------|---|
| D-5261 | Test Method for Measuring Mass per Unit Area of Geotextiles |
| D-4832 | Test Method for Grob Breaking Load and Elongation of Geotextiles |
| D-4383 | Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products |
| D-4535 | Test Method for Hexapod Tear Strength for Geotextiles |
| D-4491 | Test Method for Water Permeability of Geotextiles by Permittivity |
| D-4751 | Test Method for Determining the Apparent Opening Size of a Geotextile |
| D-4355 | Test Method for Deterioration of Geotextiles from Exposure to |

- 2.2 *EPA Standards (Reference EPA Label)
Registration No. 59823-1 Attached Exhibit B
- | | | | |
|-----|----|------|------------------|
| EPA | CG | 1500 | Water Solubility |
| EPA | CG | 1600 | Vapor Pressure |

3. PHYSICAL AND CHEMICAL REQUIREMENTS

- 3.1 Fibers used in the manufacturing of root collar barrier substrate fabric shall consist of long chain synthetic polyolefins (at least 95% by weight) and a UV stabilizer. They shall be formed into continuous filaments or yarns that the filaments or yarns retain their dimensional stability relative to each other.
- 3.2 Noodles consisting of trifluoro, carbon black and polyethylene compounded in a patented method utilizing flame-released characteristics are permanently attached to the substrate fabric of the root collar barrier substrate fabric by a hot melt molding process.
- 3.3 All substrate property values, with the exception of apparent opening size (AOS), in these specifications represent minimum average roll values (MAVR) in the weakest principal direction (i.e., average test results of any roll in a lot sampled for conformance or quality assurance testing shall be equal to or exceed the minimum values provided herein). Values for AOS represent maximum average roll values.
- 3.4 Property values for the trifluoro are average run values.

4. CERTIFICATION

- 4.1 The Manufacturer shall provide, to the Engineer, a certificate stating the name, product name, style number, chemical composition and other pertinent information to fully describe the product. The Manufacturer is responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the specification. Documentation describing the quality control program shall be made available upon request.



- 4.2 The Manufacturer's Certificate shall state that the root control product meets requirements of the specification as evaluated under the Manufacturer's quality control program. The certificate shall be attested to by a person having a legal authority to bind the Manufacturer.
- 4.3 Either mislabeling or misrepresentation of materials shall be reason to reject those products.

5. SAMPLING, TESTING AND ACCEPTANCE

- 5.1. **Roof control substrate product** shall be subject to sampling and testing to verify conformance with the following requirements:
- 5.1.1 **Product labels** shall include a compliance statement certifying that all ingredients and inspection records for the product have been reviewed.
- 5.1.2 **Roof control substrate product** shall be equipped with a protective EVGVI bag and placed in a bag that will protect the product from damage due to shipment, water, sunlight and other environmental conditions. The EVGVI bag and the product bag shall be maintained during periods of shipment and storage.
- 5.1.3 **Roof control substrate product** shall be elevated off the ground and out of direct sunlight; it shall remain sealed in EVGVI protective bag inside shipping box at a temperature of not more than 120°F.

7. PRODUCT DESCRIPTION

Overall Product Major	Composition and Ingredients	Typical
Active Chemical*: 17.5%	Trifluralin (a,a,a-Trifluoro 2,6 - dinitro - N,N- Dipropyl - p - toluidine)	
Inert Ingredients 82.5%	100% Spunbonded Polypropylene, Polyethylene and Carbon	

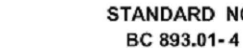
Typical Values				
Trifluorolon Characteristics	Method	English	Metric	Test
Vapor pressure	(mm Hg @ 25 °C)	1x10 ⁻⁴	1x10 ⁻⁴	EPA CG 1600
Solubility in Water	(ppm @ 25 °C)	<0.3	<0.3	EPA CG 1500
Fabric Properties				
		English	Metric	Test Method*
Unit Weight		3.9 oz/yd ²	130 g/m ²	ASTM D-5261
Grat Tensile Strength		930 lbs	975 N	ASTM D-4622
Elongation at Break		10.5%	10.5%	ASTM D-4622
Tensile Strength		60 lbs	2.65 N	ASTM D-4622
Tear Test		0.7 sec.	0.261 N	ASTM D-4533
Permeability		0.21 mm	0.21 mm	ASTM D-4533
ASTM (Max Value)		0.21 mm	0.261 N	ASTM D-4533
Ultimate Stability		700 @ 5000 hrs	700 @ 5000 hrs	ASTM D-4533

*Test methods or revision numbers available on request (17.5% Average trifluralin in total composite Min. of 20% trifluralin in nodules.)
Available from ASTM, 1916 Race Street, Philadelphia, PA

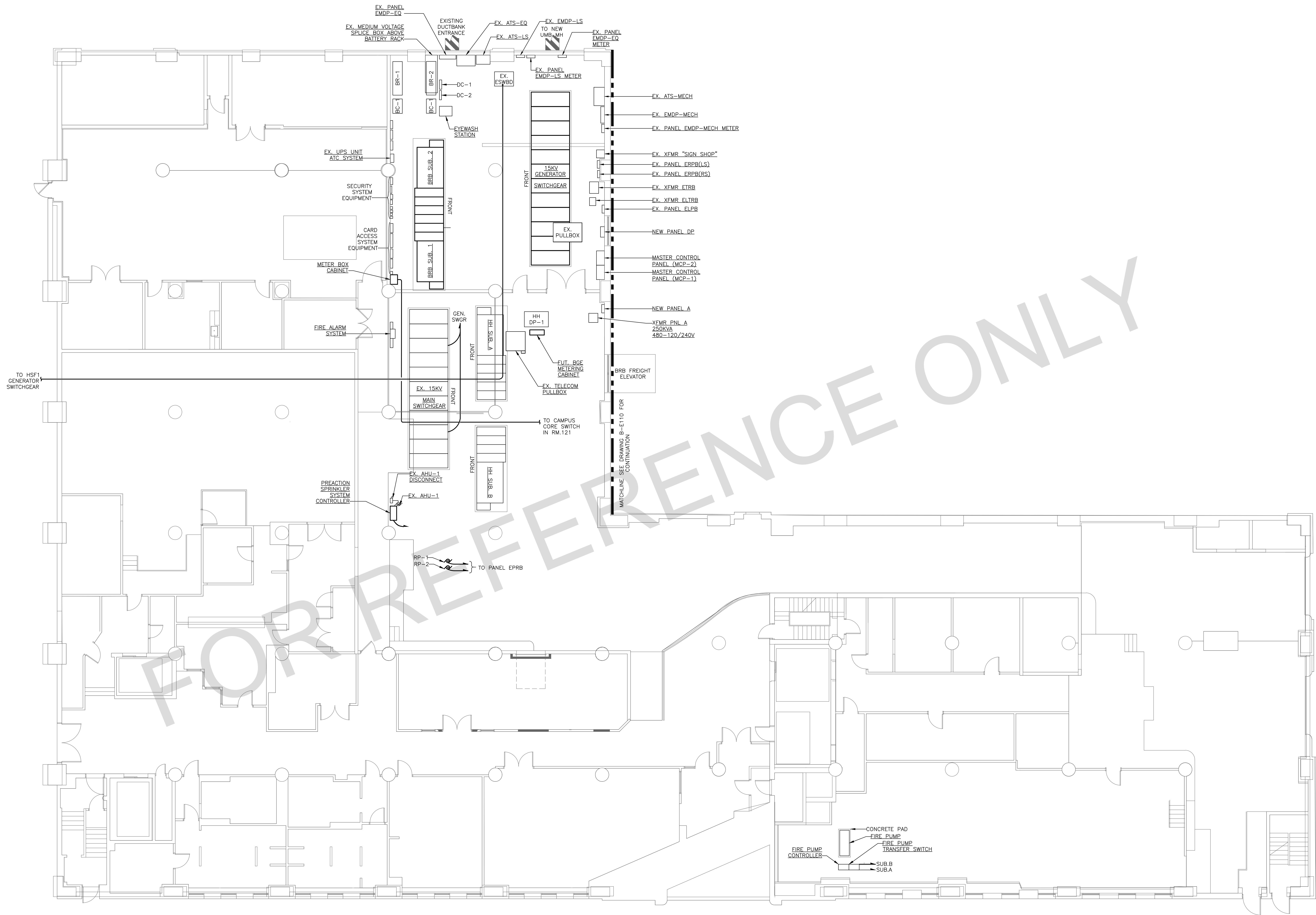


TREE ROOT BARRIER

SCALE: NONE



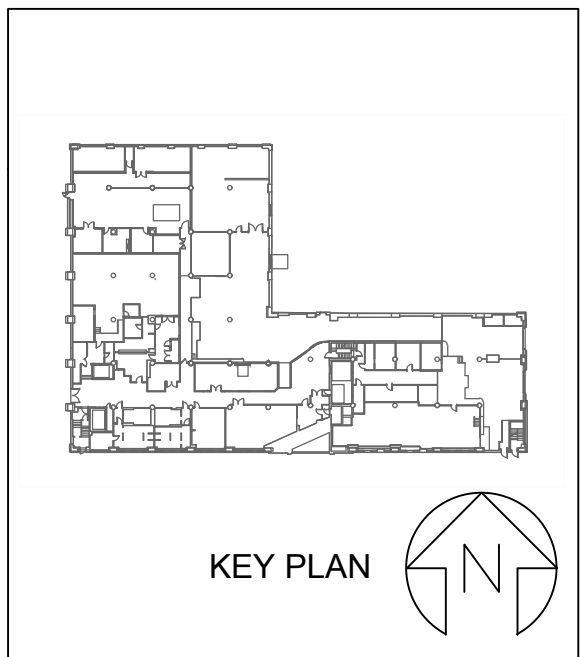
STANDARD N°
BC 893.01-4



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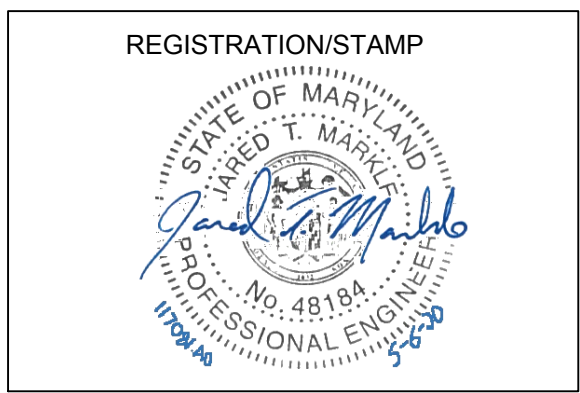
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LICENSE NO. 48184
EXPIRATION DATE: 01/14/2022



PROJECT TITLE:
CAMPUS ELECTRICAL DISTRIBUTION UPGRADES - PHASE 1A

BID DOCUMENTS

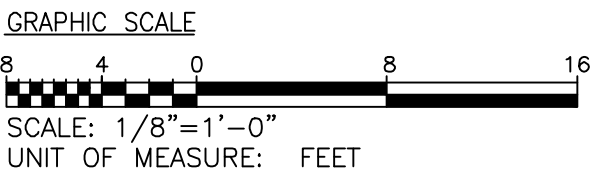
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UMB Project NO.: 17-317
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CAD FILE NO.:
DATE: 05-06-2020

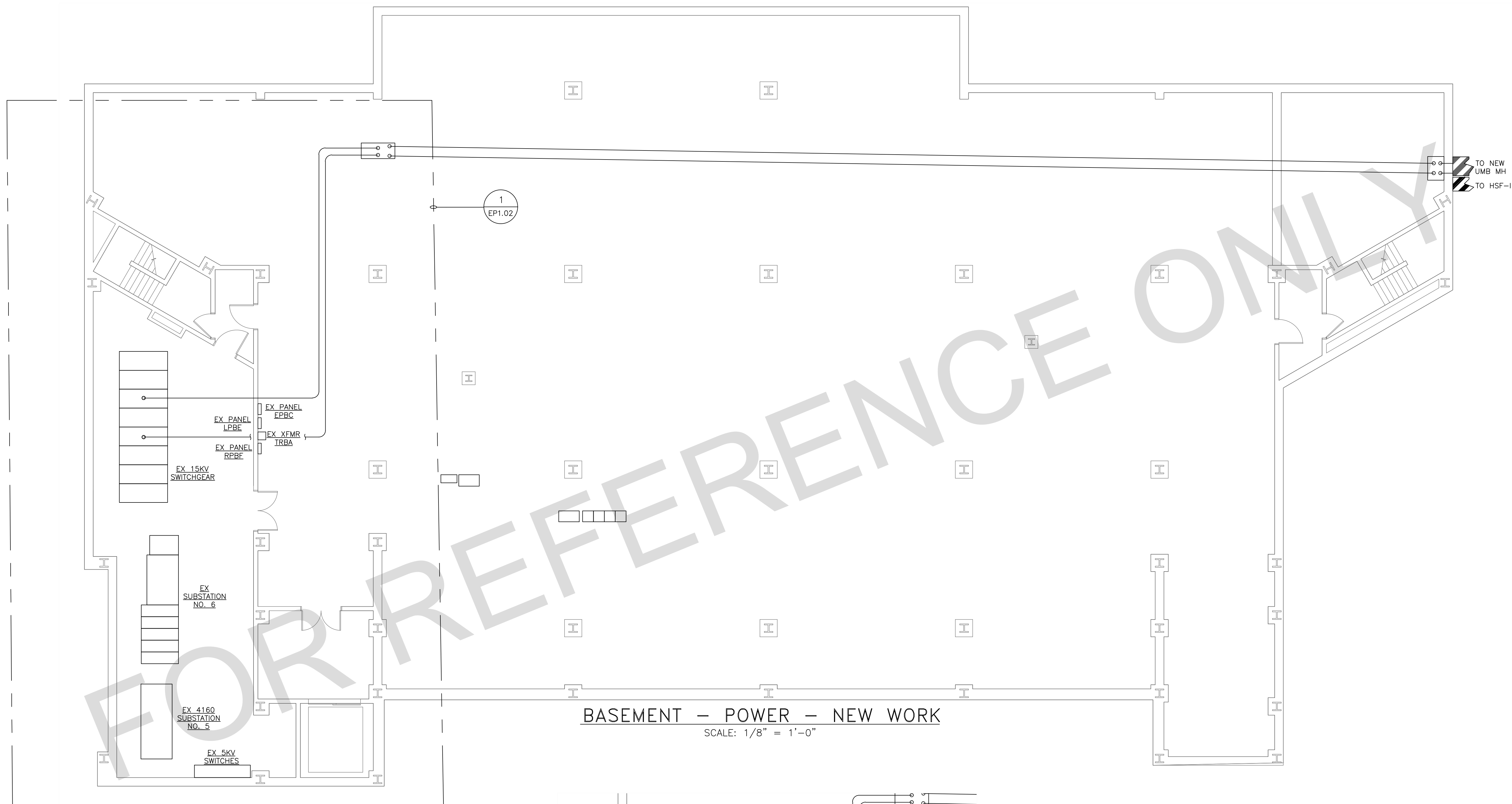
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REVISIONS		
NO	DATE	ITEM

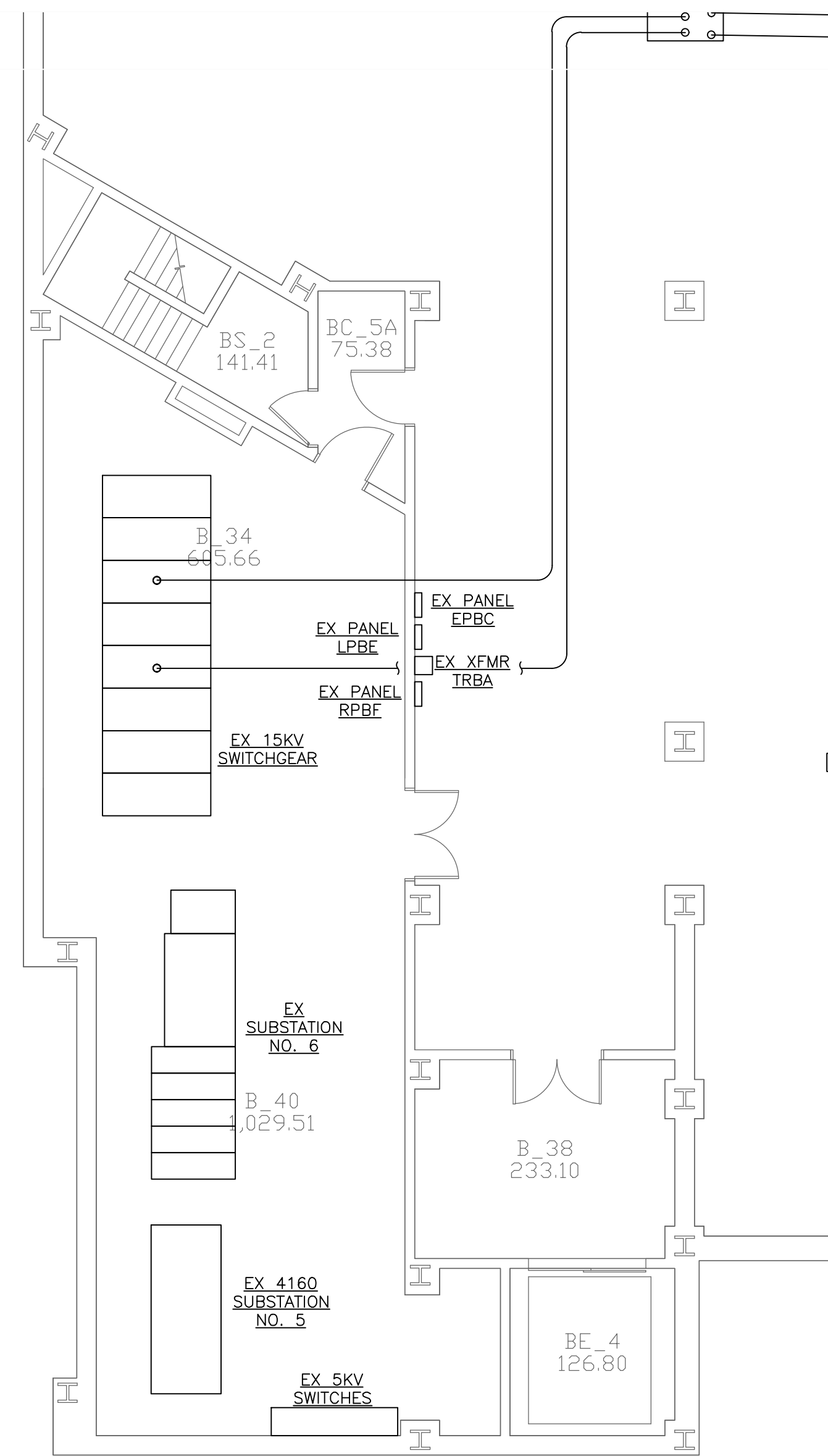
SHEET NO.
EP1.01

HOWARD HALL — BASEMENT — NEW WORK PLAN — PHASE 1A
SCALE: 1/8" = 1'-0"






BASEMENT — POWER — NEW WORK
SCALE: 1/8" = 1'-0"

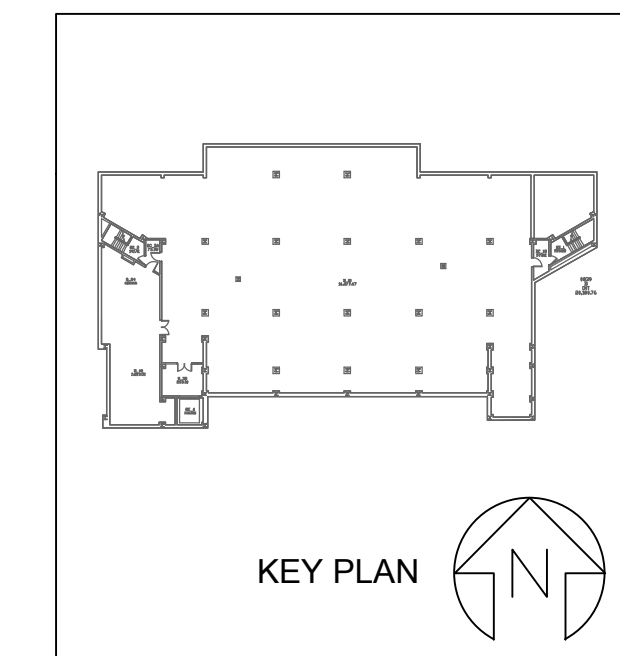



MECHANICAL ROOM B01 — POWER — NEW WORK
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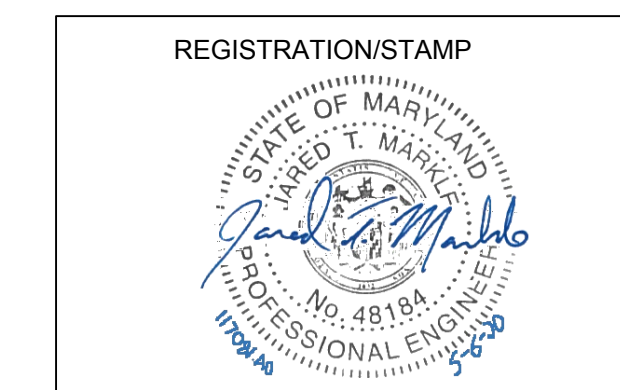

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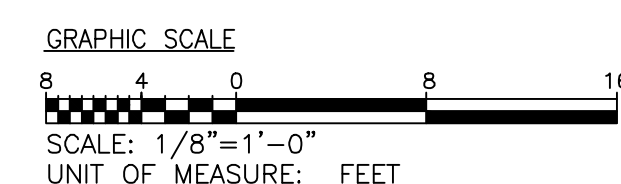
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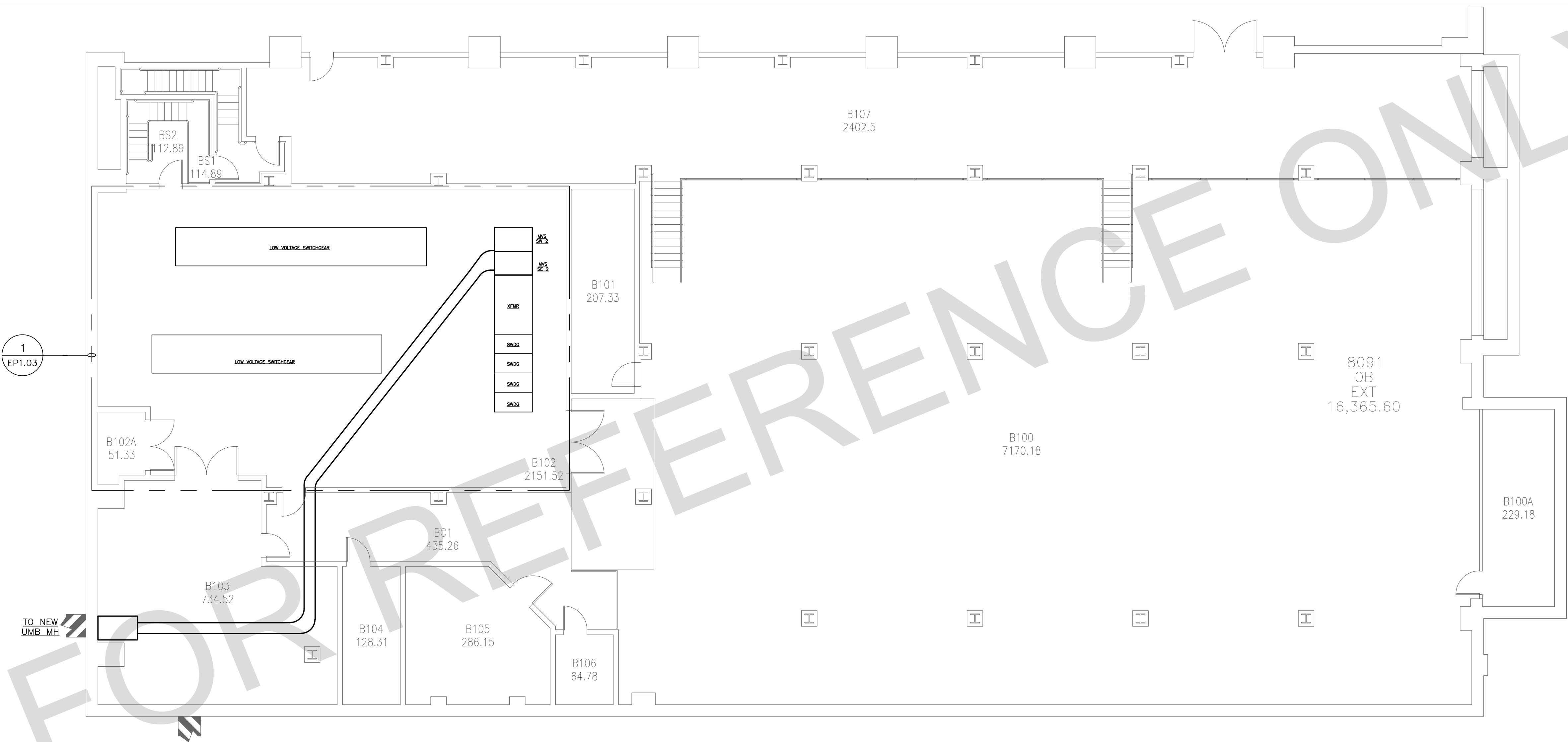
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UMB Project NO.:	17-317
A/E PROJECT NO.:	117081.A0
CAD FILE NO.:	
DATE:	05-06-2020

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REVISIONS		
NO	DATE	ITEM

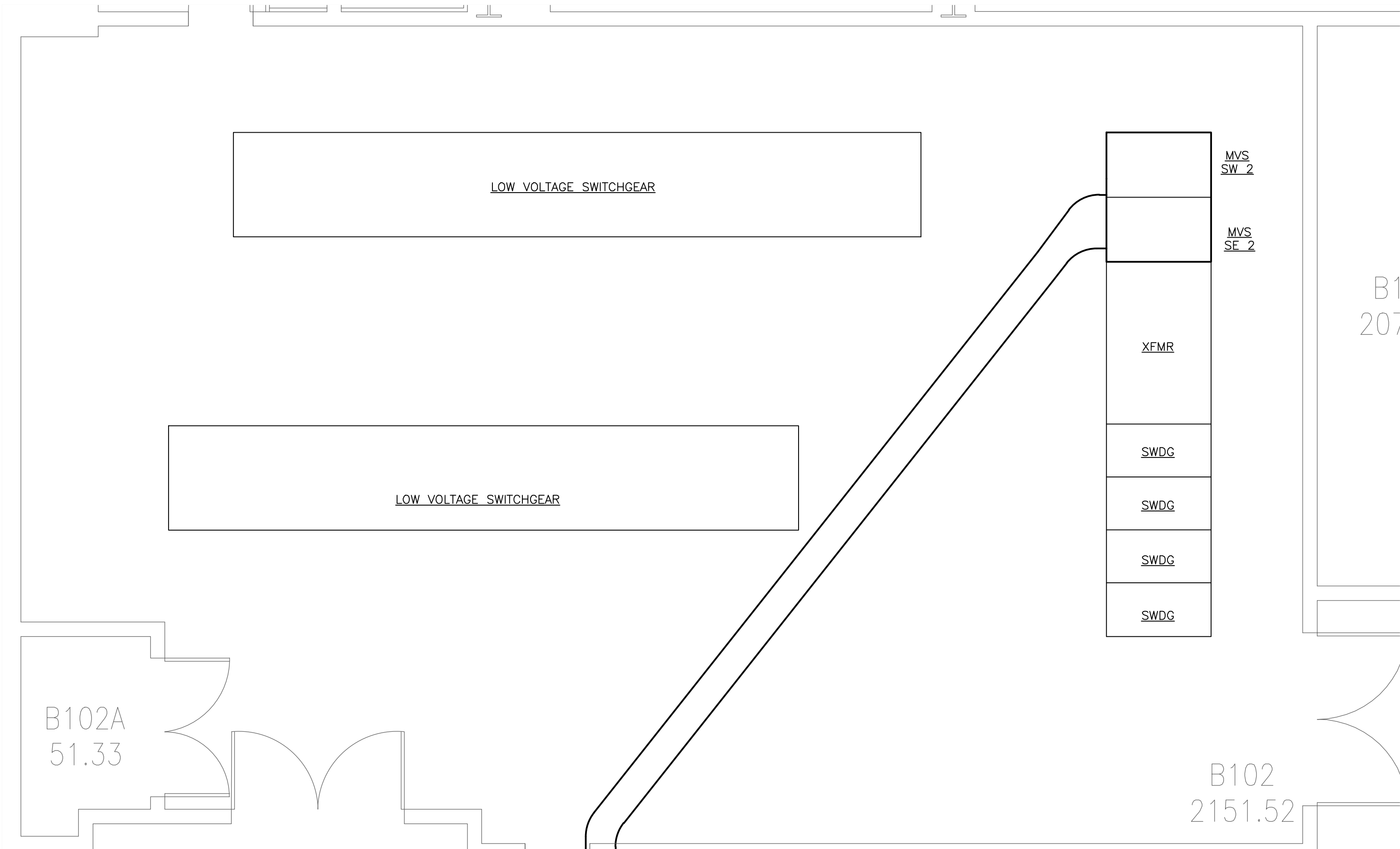
SHEET NO.
EP1.02





BASEMENT — POWER — NEW WORK

SCALE: 1/8" = 1'-0"



ELECTRICAL ROOM — POWER — NEW WORK

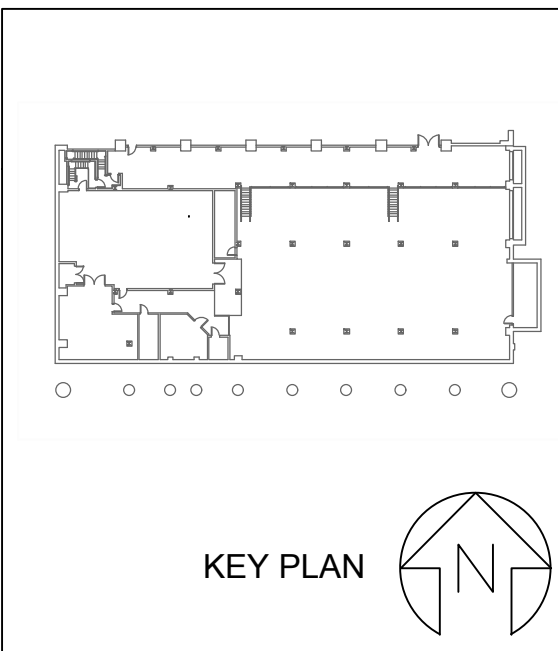
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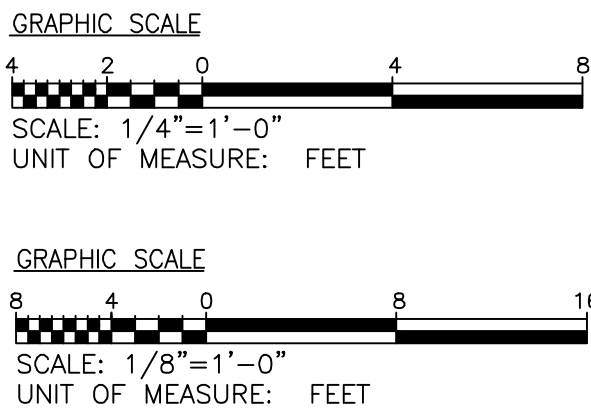
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CAMPUS
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DISTRIBUTION
UPGRADES —
PHASE 1A

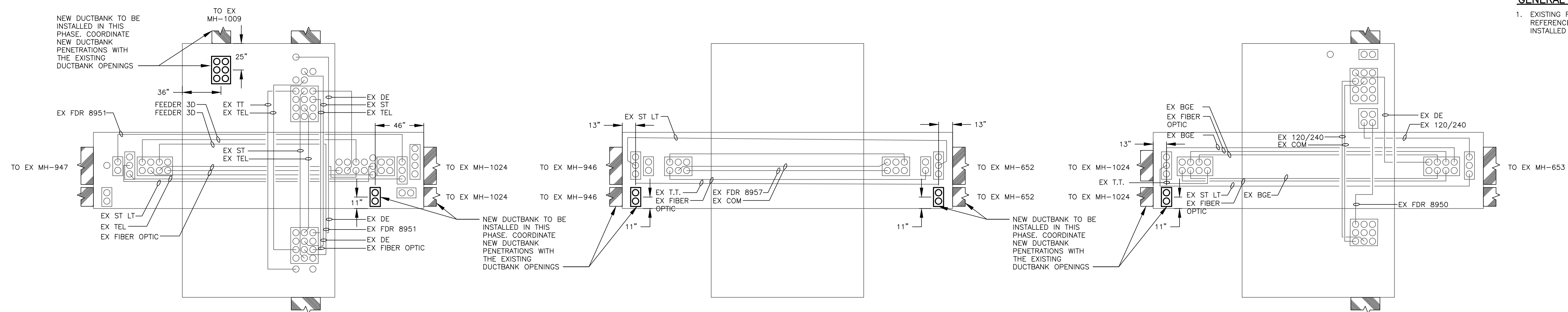
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DATE:	05-06-2020

SHEET TITLE:
HEALTH
SCIENCES
FACILITY I - NEW
WORK - REF.
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REVISIONS		
NO	DATE	ITEM

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EP1.03

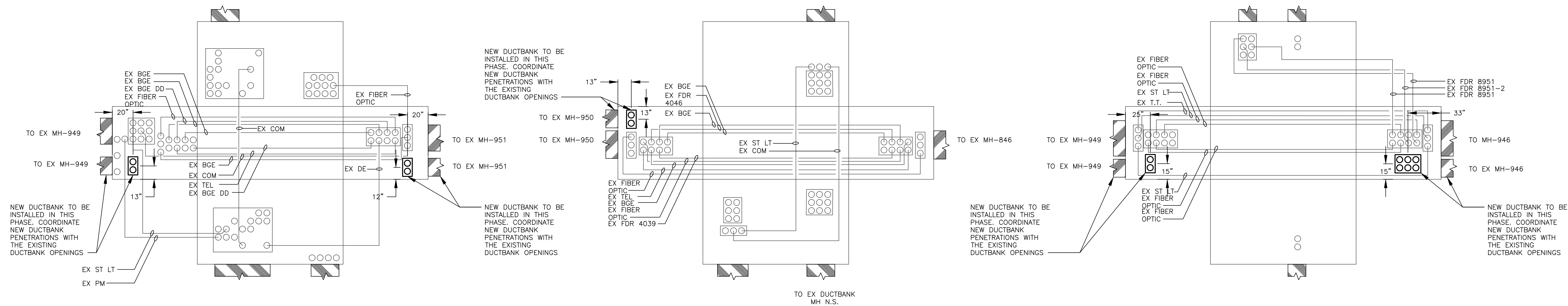




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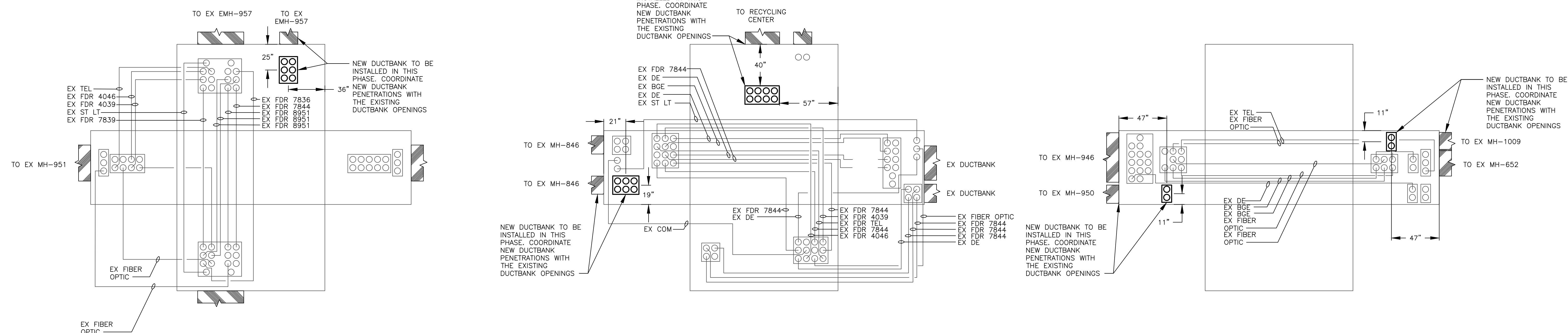
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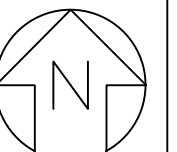
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KEY PLAN (



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UMB Project NO. :	17-317
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ELECTRIC
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DIAGRAMS - REF.
ONLY

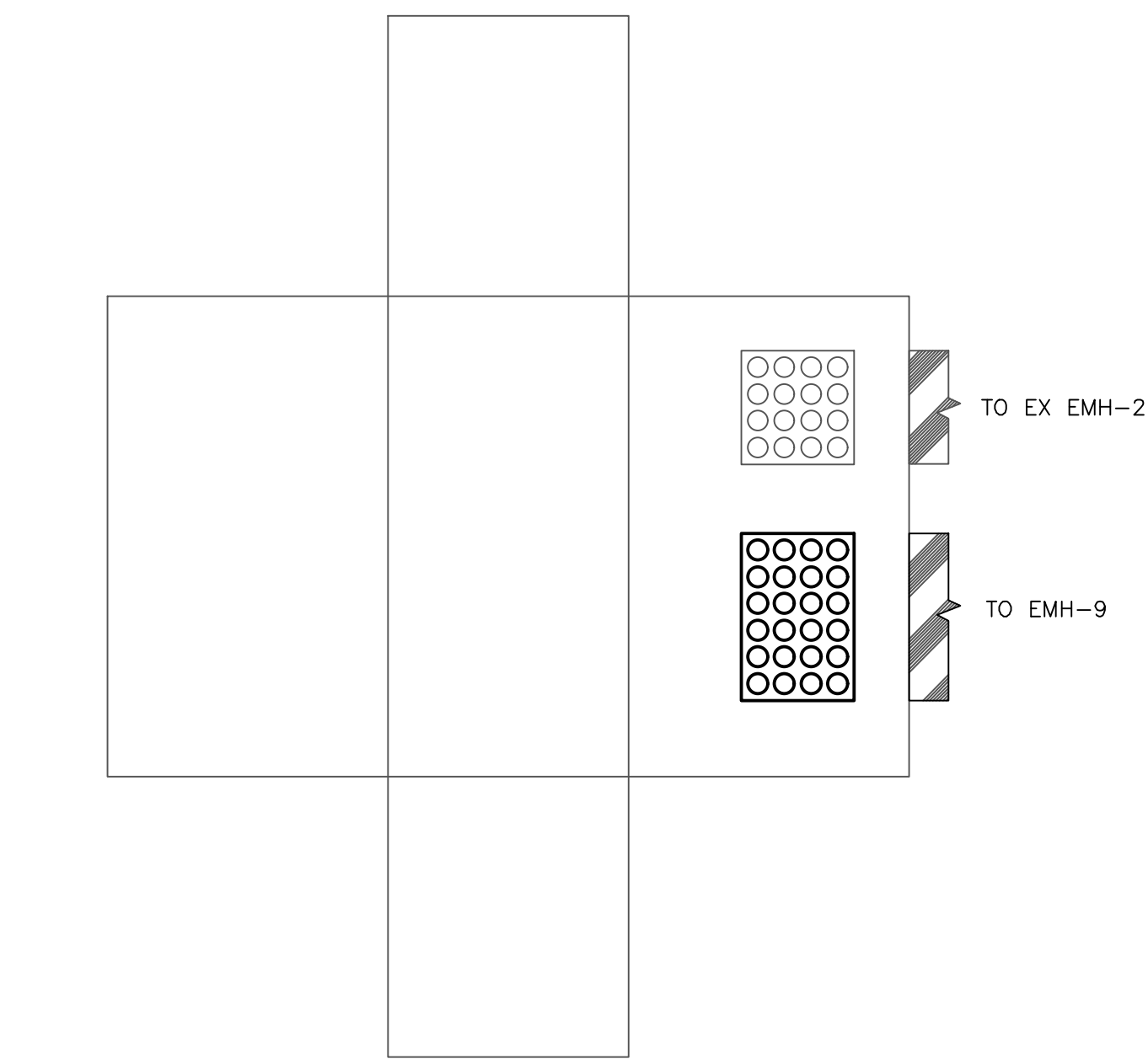
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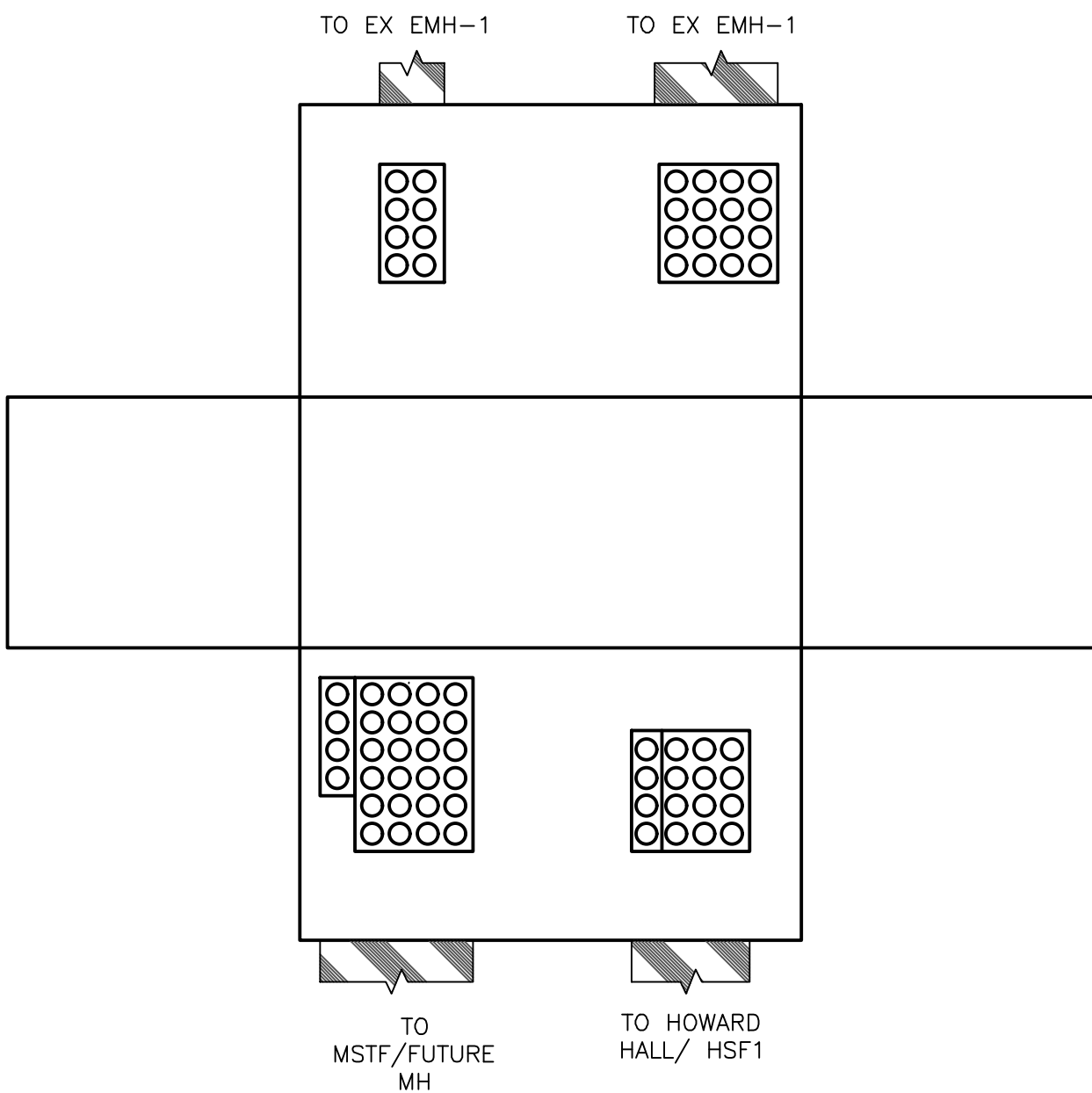
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EXISTING MANHOLE EMH-1
SCALE: NONE




MANHOLE EMH-9
SCALE: NONE




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E3.02