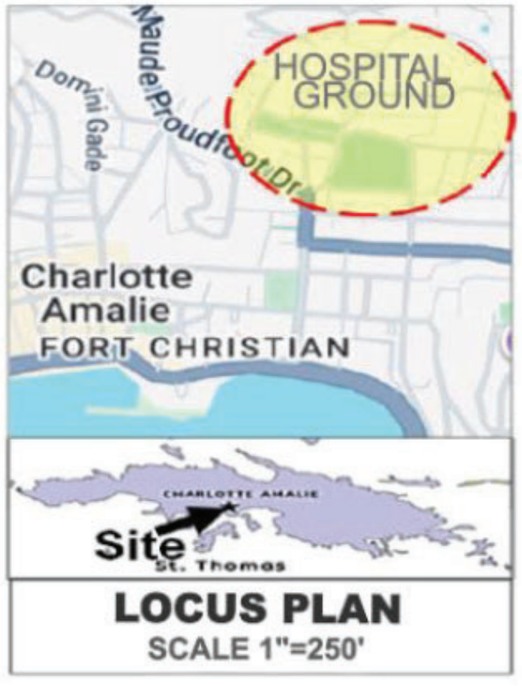
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN

VIRGIN ISLANDS WATER AND POWER AUTHORITY

ST. THOMAS, U.S. VIRGIN ISLANDS
MARCH 2026



LOCUS PLAN
SCALE 1"=250'

SHEET INDEX

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P01	HOSPITAL GROUND ESTATE SOIL MAP	T05	TRAFFIC CONTROL DETAILS
P02	PROPOSED WATER SERVICE LINE LAYOUT		
P03-P11	PLAN AND PROFILE HOSPITAL GROUNDS		

PREPARED FOR

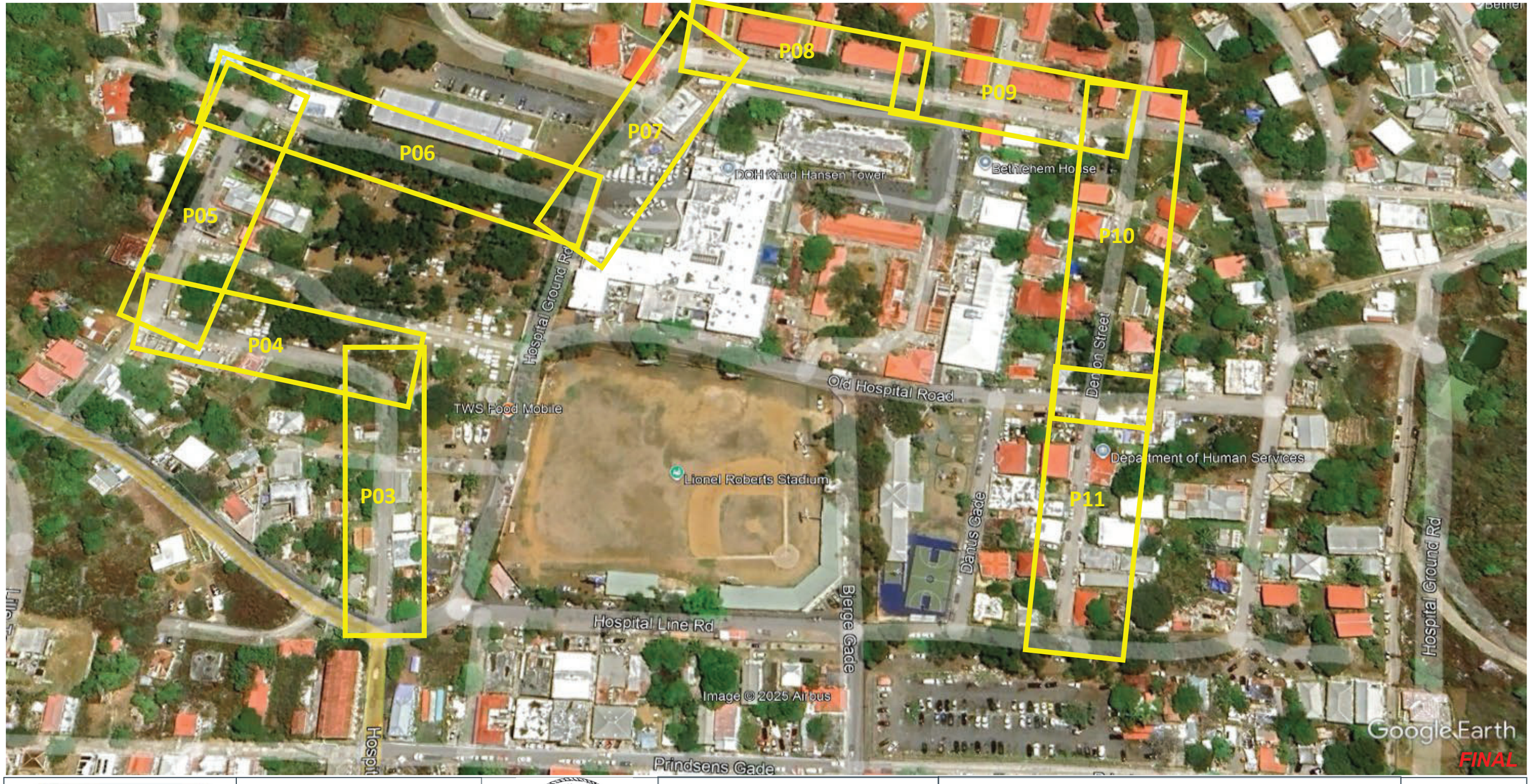
VIRGIN ISLANDS WATER AND POWER AUTHORITY
P.O. BOX 1450, ST. THOMAS, U.S. VIRGIN ISLANDS

PREPARED BY:

Caritech Group LLC
P.O. BOX 5018
KINGSHILL, ST. CROIX, U.S. VIRGIN ISLANDS

REGISTERED ENGINEER
3/27/26
ERIC D. DOUGLAS
U.S. VIRGIN ISLANDS

FINAL



Caritech Group LLC
Engineering Consultants - Tel. 340-690-9533

GRAPHIC SCALE
0' 30' 60' 120' 180
SCALE : 1" = 60'

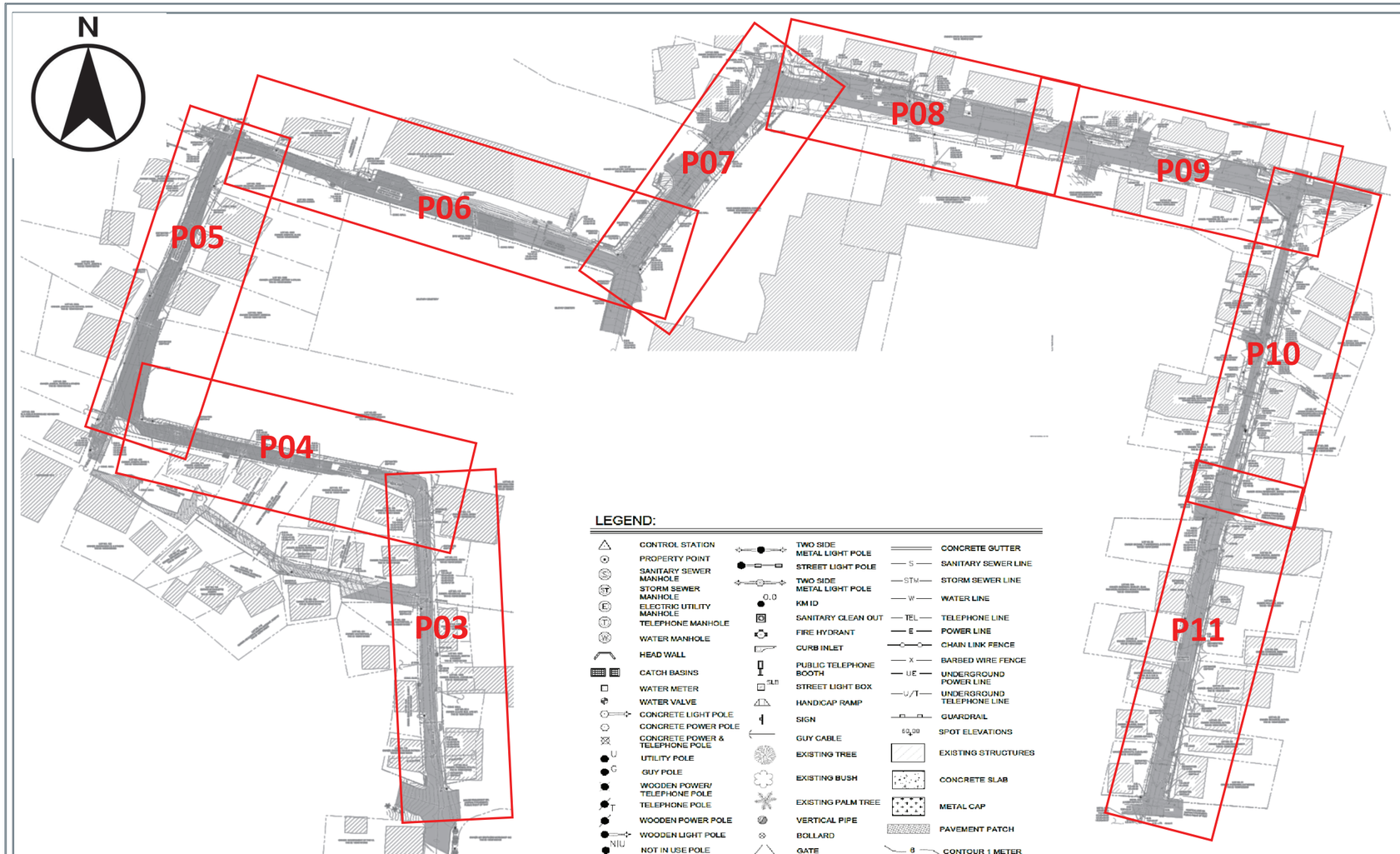
REGISTERED ENGINEER
ERIC D. DOUGLAS
S. VIRGIN ISLANDS

DATE: March 2026
DRAWN BY: Hectior I. Mercado
DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND REHABILITATION DESIGN
HOSPITAL GROUND ESTATE –ST. THOMAS USVI

OVERALL SITE PLAN

SHEET NUMBER
P00-A



LEGEND:

CONTROL STATION	TWO SIDE METAL LIGHT POLE	CONCRETE GUTTER
PROPERTY POINT	STREET LIGHT POLE	SANITARY SEWER LINE
SANITARY SEWER MANHOLE	TWO SIDE METAL LIGHT POLE	STORM SEWER LINE
STORM SEWER MANHOLE	KM ID	WATER LINE
ELECTRIC UTILITY MANHOLE	SANITARY CLEAN OUT	TELEPHONE LINE
TELEPHONE MANHOLE	FIRE HYDRANT	POWER LINE
WATER MANHOLE	CURB INLET	CHAIN LINK FENCE
HEAD WALL	PUBLIC TELEPHONE BOOTH	BARBED WIRE FENCE
CATCH BASINS	STREET LIGHT BOX	UNDERGROUND POWER LINE
WATER METER	HANDICAP RAMP	UNDERGROUND TELEPHONE LINE
WATER VALVE	SIGN	GUARDRAIL
CONCRETE LIGHT POLE	GUY CABLE	SPOT ELEVATIONS
CONCRETE POWER POLE	EXISTING TREE	EXISTING STRUCTURES
CONCRETE POWER & TELEPHONE POLE	EXISTING BUSH	CONCRETE SLAB
UTILITY POLE	EXISTING PALM TREE	METAL CAP
GUY POLE	VERTICAL PIPE	PAVEMENT PATCH
WOODEN POWER/ TELEPHONE POLE	BOLLARD	CONTOUR 1 METER INTERVAL
TELEPHONE POLE	GATE	CONTOUR 0.5 METER INTERVAL
WOODEN POWER POLE	IRON POST	MONITORING WELL
WOODEN LIGHT POLE	CONCRETE MONUMENT	BORING
NOT IN USE POLE	BITT	
CAMERA POLE	FIRE WATER NOZZLE	
METAL LIGHT POLE		
METAL POWER POLE		
ELECTRIC BOX		

GENERAL NOTES:

1. A TOPOGRAPHICAL SURVEY WAS COMPLETED BY ARROW LAND DEVELOPMENT, LLC DURING THE MONTH OF OCTOBER 2025.
2. THE PIPELINE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THIS DESIGN DRAWING PACKAGE, VIWAPA STANDARDS AND SPECIFICATIONS, AND ALL APPLICABLE LOCAL REGULATIONS.
3. THE PIPE SHALL BE INSTALLED WITH A MINIMUM OF 36-INCHES OF COVER AND SHALL MAINTAIN A MINIMUM OF 18-INCHES OF VERTICAL AND HORIZONTAL CLEARANCE FROM ADJACENT UTILITIES UNLESS OTHERWISE SPECIFIED.
4. EXISTING CONDITIONS SHOWN HEREON ARE BASED ON THE TOPOGRAPHICAL AND GROUND PENETRATING RADAR (GPR) SURVEYS COMPLETED BY BCSC-DOSPIVA, LLC AND FIELD INVESTIGATIONS. ALL MEASUREMENTS AND THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES ARE ESTIMATED AND SHOULD BE CONSIDERED APPROXIMATE.
5. THE LOCATION AND ELEVATION OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLAND ARE NOT WARRANTED TO BE CORRECT. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT INDICATED ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND MAINTAINING EXISTING UTILITY SYSTEM SERVICE. NO GUARANTEE IS IMPLIED OR INTENDED AS TO THE ACCURACY OF LOCATION OR ELEVATION THAT ALL UTILITIES AND/OR SUBSURFACE STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL VERIFY SERVICE, SIZE, LOCATION, AND INVERT ELEVATION OF UTILITIES AND STRUCTURES AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.
6. THE CONTRACTOR IS REQUIRED TO PROTECT EXISTING UTILITIES, STRUCTURES, SIGNAGE, CURBS, ETC DURING CONSTRUCTION ACTIVITIES. CARE SHALL BE TAKEN NOT TO DISTURB OR DAMAGE SUCH ITEMS AND THE CONTRACTOR WILL BE RESPONSIBLE TO REPAIR OR RESTORE ANY DAMAGE OR DISTURBANCE.
7. PROPOSED WORK SHALL BE PERFORMED AND COMPLETED IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
8. PROPOSED WORK SHALL BE PERFORMED AND COMPLETED UTILIZING AND IN COMPLIANCE WITH APPROVED TRAFFIC MANAGEMENT PLANS.
9. THE CONTRACTOR SHALL SUPPLY TRAFFIC CONTROL EQUIPMENT AND TEMPORARY ROAD SIGNAGE AS NECESSARY.
10. ALL TRENCH EXCAVATION PROTECTION SYSTEMS SHALL BE IN COMPLIANCE WITH OSHA SPECIFICATIONS.
11. OPEN EXCAVATIONS MUST BE PROTECTED IN ACCORDANCE WITH OSHA SPECIFICATIONS AND COVERED WITH APPROPRIATELY SIZED AND RATED TRENCH PLATES IF THE EXCAVATION IS NOT BACKFILLED AT THE END OF A WORKDAY.
12. THE INSTALLED PIPE SHALL BE SURVEYED FOR LOCATION AND DEPTH EVERY 20 FEET ALONG THE ENTIRE ALIGNMENT. THE CONTRACTOR SHALL USE THE SURVEY INFORMATION TO GENERATE AN AS-BUILT DRAWING SET.
13. THE ROADWAY MUST BE CLEAN OF DEBRIS AND CONSTRUCTION MATERIALS (WITH THE EXCEPTION OF TRENCH PLATES AND NECESSARY SAFETY MARKERS/CONES/SIGNAGE) AT THE END OF THE WORKDAY THROUGHOUT THE DURATION OF THE CONSTRUCTION PROJECT.

FINAL

Caritech Group LLC
Engineering Consultants - Tel: 340-690-9538

GRAPHIC SCALE
0' 30' 60' 120' 180
SCALE : 1" = 60'

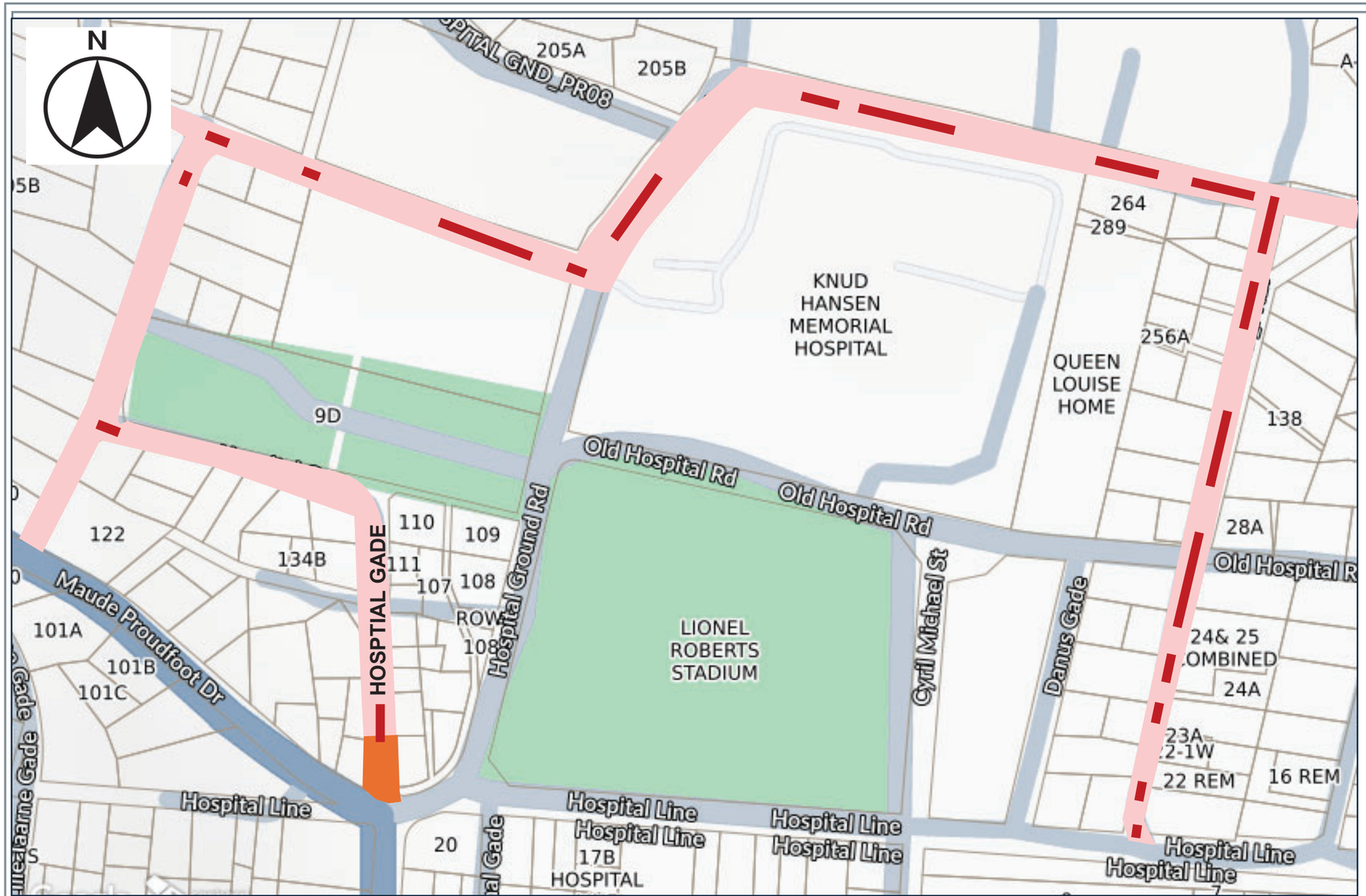
REGISTERED ENGINEER
ERIC D. DOUGLAS
S. VIRGIN ISLAND

DATE: March 2026
DRAWN BY: Hectior I. Mercado
DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

OVERALL SURVEY PLAN

SHEET NUMBER :
P00-B



NOTES

1. SOIL CLASSIFICATION DATA OBTAINED FROM U.S. VIRGIN ISLANDS GEOSPACIAL INFORMATION SYSTEMS.USVI.MAPGEO.IO

2. FOR DETAILED DESCRIPTIONS OF SOIL TYPES NOTED ABOVE, SEE "SOIL SURVEY OF THE UNITED STATES VIRGIN ISLANDS" PREPARED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE AND THE NATURAL RESOURCES CONSERVATION SERVICE IN AUGUST 1998.

3. THE LOCATION OF DENSER SUBSURFACE MATERIAL HAS BEEN APPROXIMATED USING GROUND PENETRATING RADAR (GPR) AND SHOWN ON THE PIPELINE PROFILE. GPR DATA WAS COLLECTED BY ARROWHEAD DEVELOPMENT DURING THE MONTH OF OCTOBER 2025.

SOILS LEGEND:

UcC	URBAN LAND, 0 TO 12 PERCENT SLOPES-
UbD	URBAN LAND, 0 TO 20 PERCENT SLOPES
	APPROXIMATE AREAS OF POTENTIALLY DENSE MATERIAL BASED ON THE INTERPRETATION OF GPR DATA

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GRAPHIC SCALE
0' 30' 60' 120' 180
SCALE : 1" = 60'

REGISTERED ENGINEER
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S. VIRGIN ISLAND

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VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

HOSPITAL GROUND SOIL MAP

SHEET NUMBER :
P01



TYPICAL CONSTRUCTION SEQUENCE:

1. CONFIRM LOCATION OF ADJACENT UTILITIES PRIOR TO COMMENCEMENT OF EXCAVATION.
2. IMPLEMENT TRAFFIC CONTROLS AS NECESSARY.
3. MARK OUT LIMITS OF EXCAVATION.
4. SOFT DIG TEST HOLES AT LOCATIONS WHERE UTILITIES MAY BE IN QUESTION TO CONFIRM THEIR LOCATION PRIOR TO USING MECHANICAL EXCAVATION MEANS.
5. SAW CUT/REMOVE ASPHALT/CONCRETE COVER AS NECESSARY.
6. TRENCH EXCAVATION.
7. INSTALL 12” SAND BEDDING.
8. INSTALL APPROPRIATE SIZE PIPE PER THE PLANS.
9. SURVEY LOCATION AND DEPTH OF PIPE.
10. INSTALL 12” OF BACKFILL SAND AROUND THE ENTIRE PIPE.
11. INSTALL LOCATING TAPE IN THE CENTER OF THE TRENCH.
12. DISINFECT AND LEAK TEST PIPE.
13. BACKFILL AND COMPACT REMAINING TRENCH IN 6” LIFTS USING MATERIAL FROM ORIGINAL EXCAVATION IF APPROPRIATE OR GOOD FILL MATERIAL
14. REMOVE EXCESS EXCAVATED MATERIAL.
15. INSTALL PERMANENT COVER TO MATCH EXISTING.

LEGEND:

- W — EXISTING UNDERGROUND WATER SERVICE
- S — EXISTING UNDERGROUND SANITARY SEWER
- EXISTING SEWER MANHOLE
- EXISTING WATER SERVICE METER
- EXISTING WATER MAIN SHUT OFF VALVE
- EXISTING FIRE HYDRANT
- W — PROPOSED 12"Ø C-900 PVC WATER SERVICE LINE
- W — PROPOSED 6"Ø C-900 PVC WATER SERVICE STUB OUT
- W — PROPOSED 2"Ø C-900 PVC WATER SERVICE LINE
- W — PROPOSED 1"Ø C-900 PVC WATER SERVICE LINE
- W — PROPOSED WATER METER
- PROPOSED WATER VALVE
- PROPOSED HYDRANT
- SP — PROPOSED SAMPLING STATION
- AR — PROPOSED AIR RELEASE VALVE
- SEWER MAIN/WATER MAIN CROSSING
- CUT PIPE AND CAP
- APPROXIMATE HORIZONTAL EXTENT OF POTENTIALLYDENSE MATERIAL THAT MAY BE ENCOUNTERED WITHIN THE VERTICAL EXTENT OF THE TRENCHEXCAVATION BASED ON INTERPRETATION OF GROUND PENETRATING RADAR (GPR) DATA COLLECTED DURING THE MONTH OF OCTOBER 2025

NOTES:

1. SEE PREVIOUS SHEETS FOR ADDITIONAL NOTES AND LEGEND.

FINAL

Caritech Group LLC
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GRAPHIC SCALE
0' 30' 60' 120' 180
SCALE : 1" = 60'

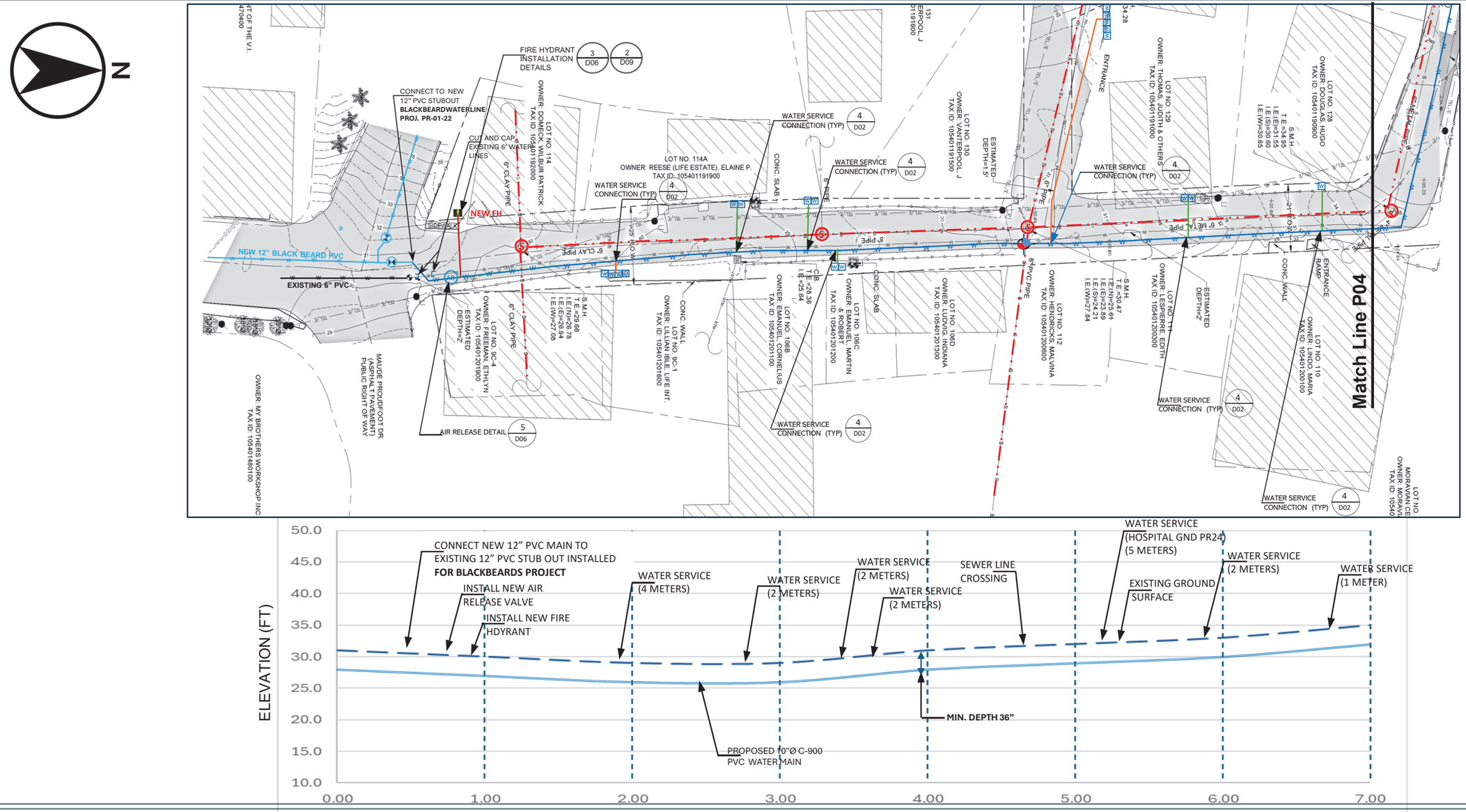
REGISTERED ENGINEER
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S. VIRGIN ISLAND

DATE: March 2026
DRAWN BY: Hectior I. Mercado
DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

HOSPITAL GROUND NEW WATERLINE LAYOUT

SHEET NUMBER :
P02



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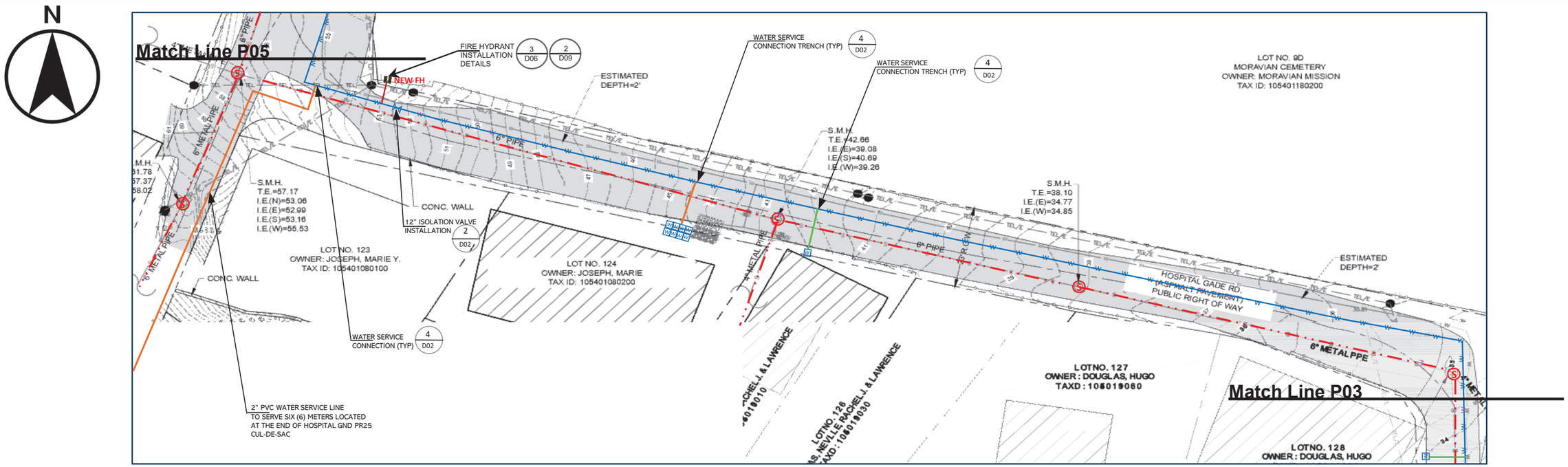
REGISTERED ENGINEER
ERIC D. DOUGLAS
U.S. VIRGIN ISLANDS

DATE: March 2026
DRAWN BY: Hectior I. Mercado
DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

PROPOSED 12" WATER LINE SECTION DETAIL P03

SHEET NUMBER : **P03**



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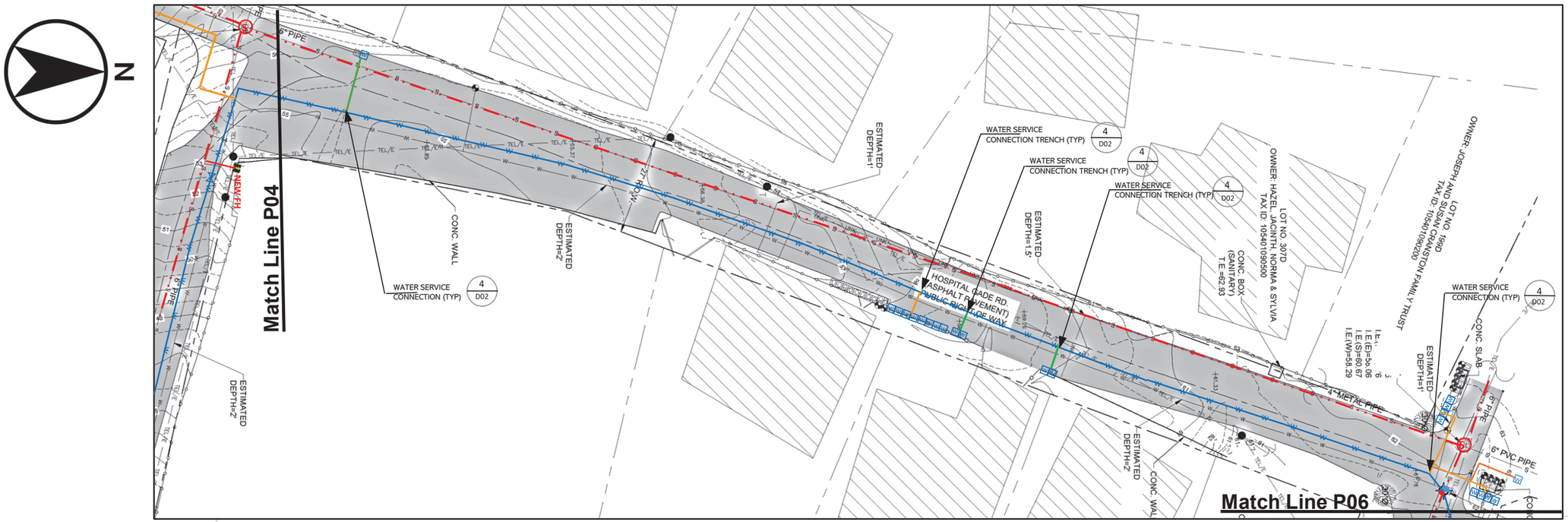
REGISTERED ENGINEER
ERIC D. DOUGLAS
U.S. VIRGIN ISLANDS

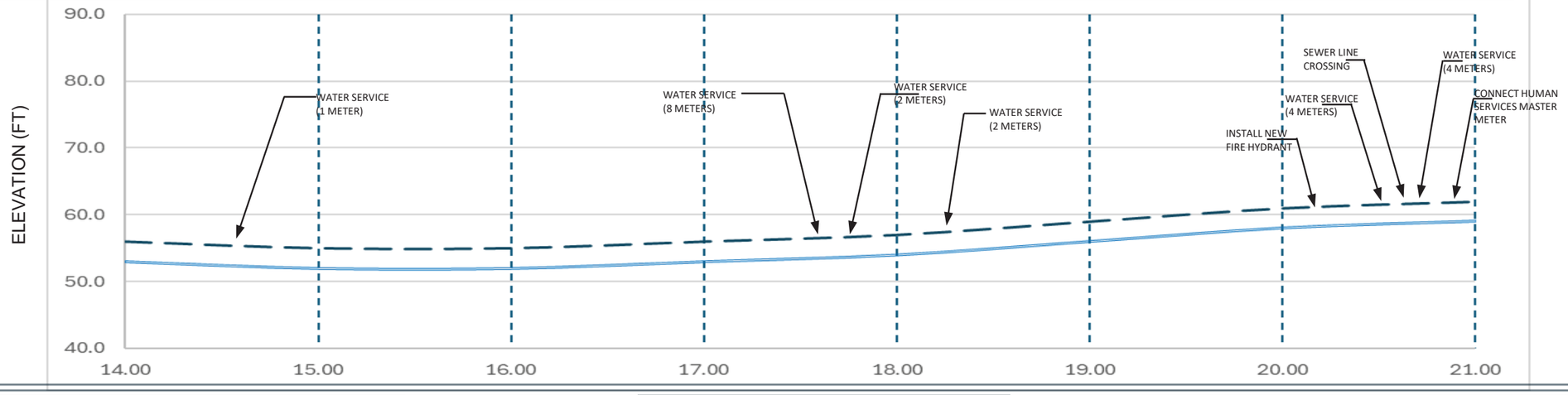
DATE: March 2026
DRAWN BY: Hectior I. Mercado
DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

PROPOSED 12" WATER LINE SECTION DETAIL P04

SHEET NUMBER :
P04





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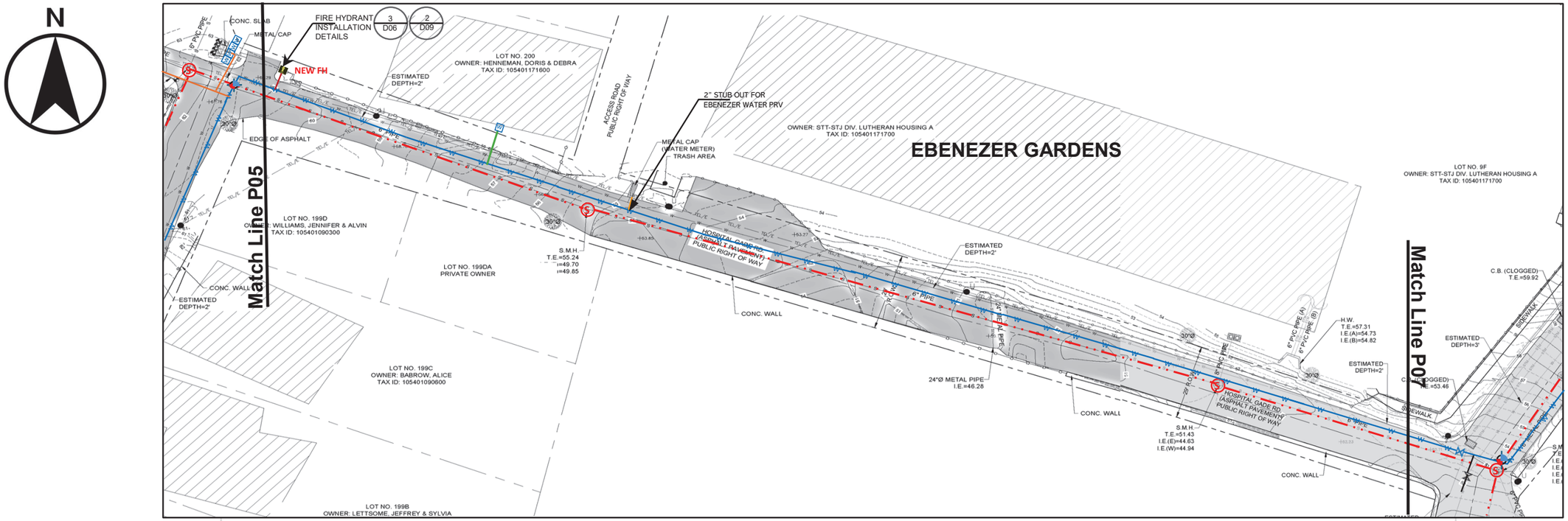
REGISTERED ENGINEER
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DATE: March 2026
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DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

PROPOSED 12" WATER LINE SECTION DETAIL P05

SHEET NUMBER :
P05



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Engineering Consultants -Tel: 340-690-9833

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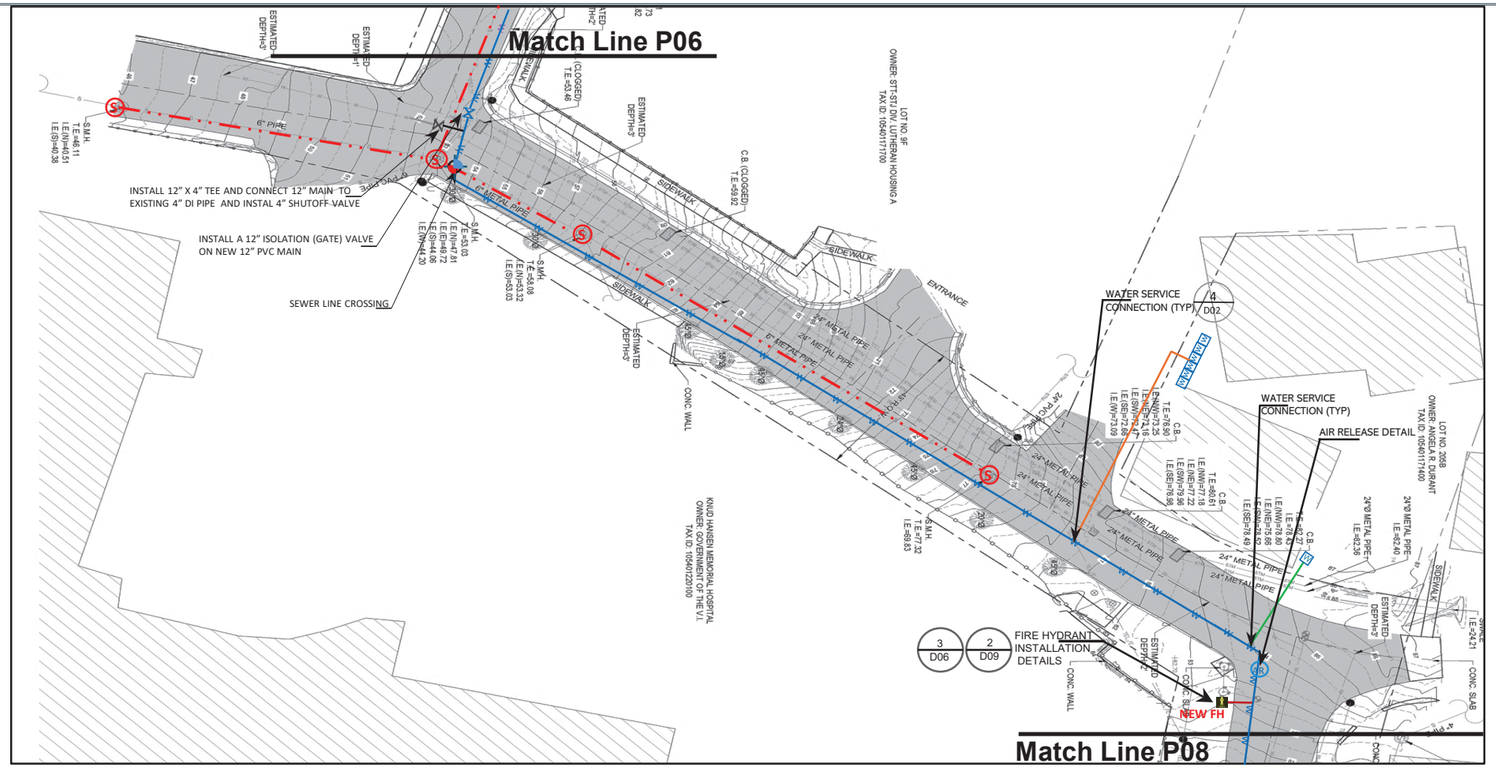
REGISTERED ENGINEER
ERIC D. DOUGLAS
S. VIRGIN ISLAND

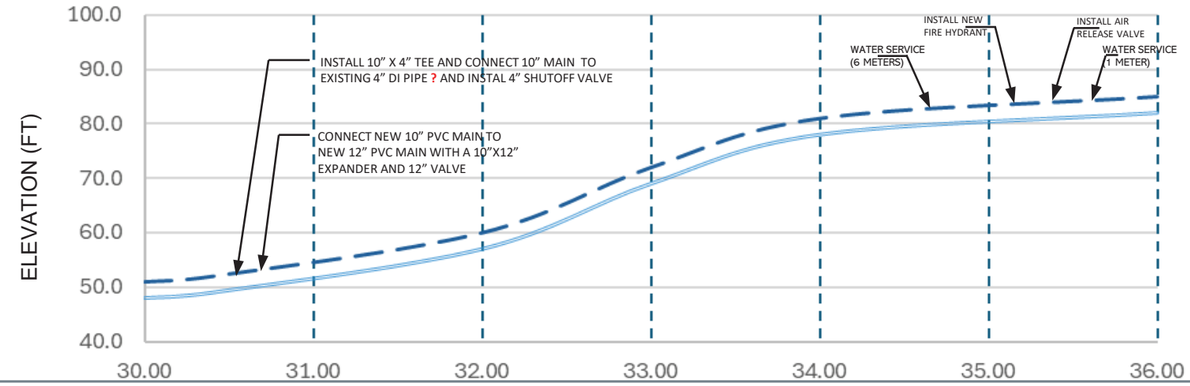
DATE: March 2026
DRAWN BY: Hectior I. Mercado
DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

PROPOSED 12" WATER LINE SECTION DETAIL P06

SHEET NUMBER:
P06





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Caritech Group LLC
Engineering Consultants Tel: 340-690-9583

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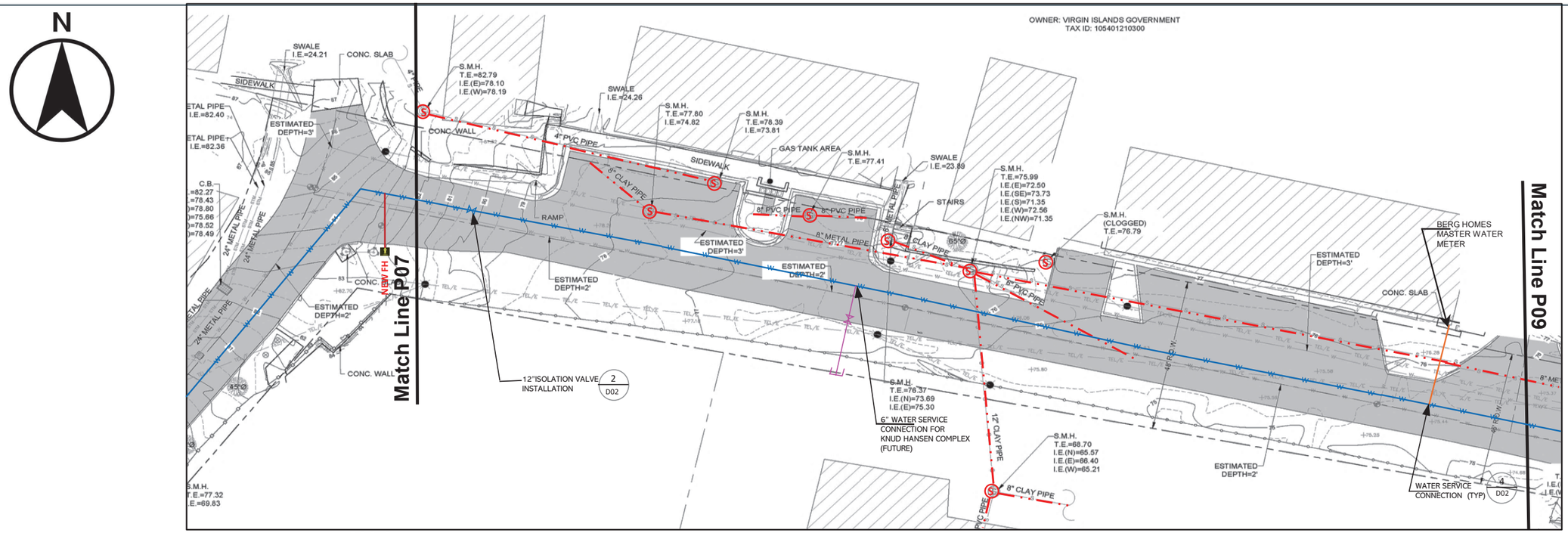
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ERIC D. DOUGLAS
S. VIRGIN ISLAND

DATE: March 2026
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DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

PROPOSED 12" WATER LINE SECTION DETAIL P07

SHEET NUMBER :
P07



FINAL

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Engineering Consultants -Tel: 340-690-9533

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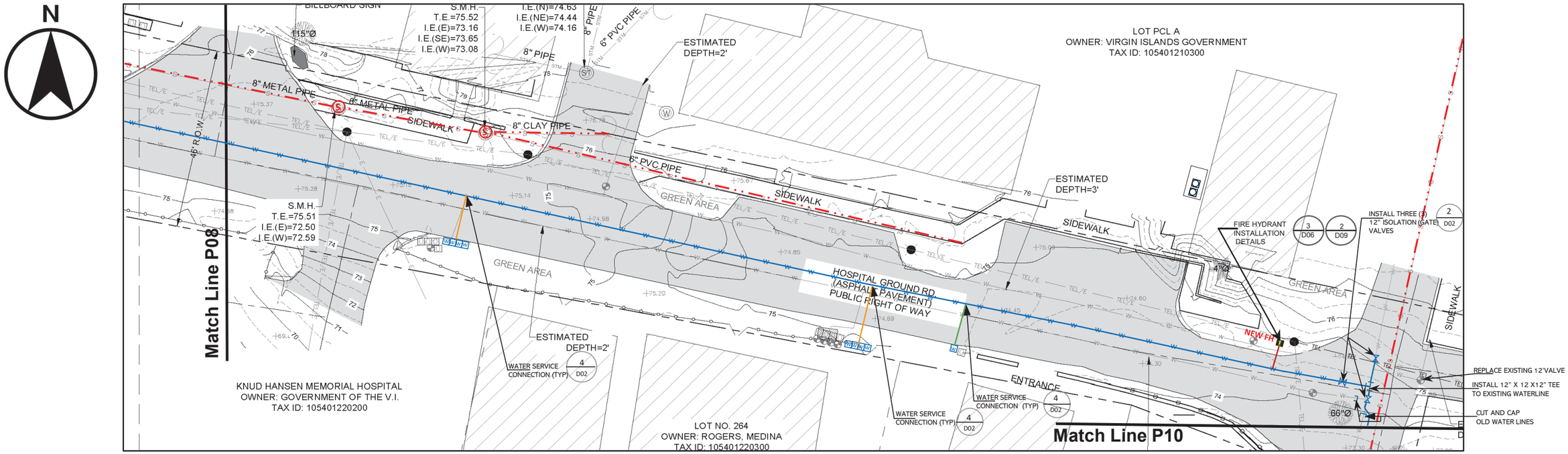
REGISTERED ENGINEER
ERIC D. DOUGLAS
U.S. VIRGIN ISLANDS

DATE: March 2026
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DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

PROPOSED 12" WATER LINE SECTION DETAIL P08

SHEET NUMBER:
P08



Caritech Group LLC
Engineering Consultants Tel: 340-690-9583

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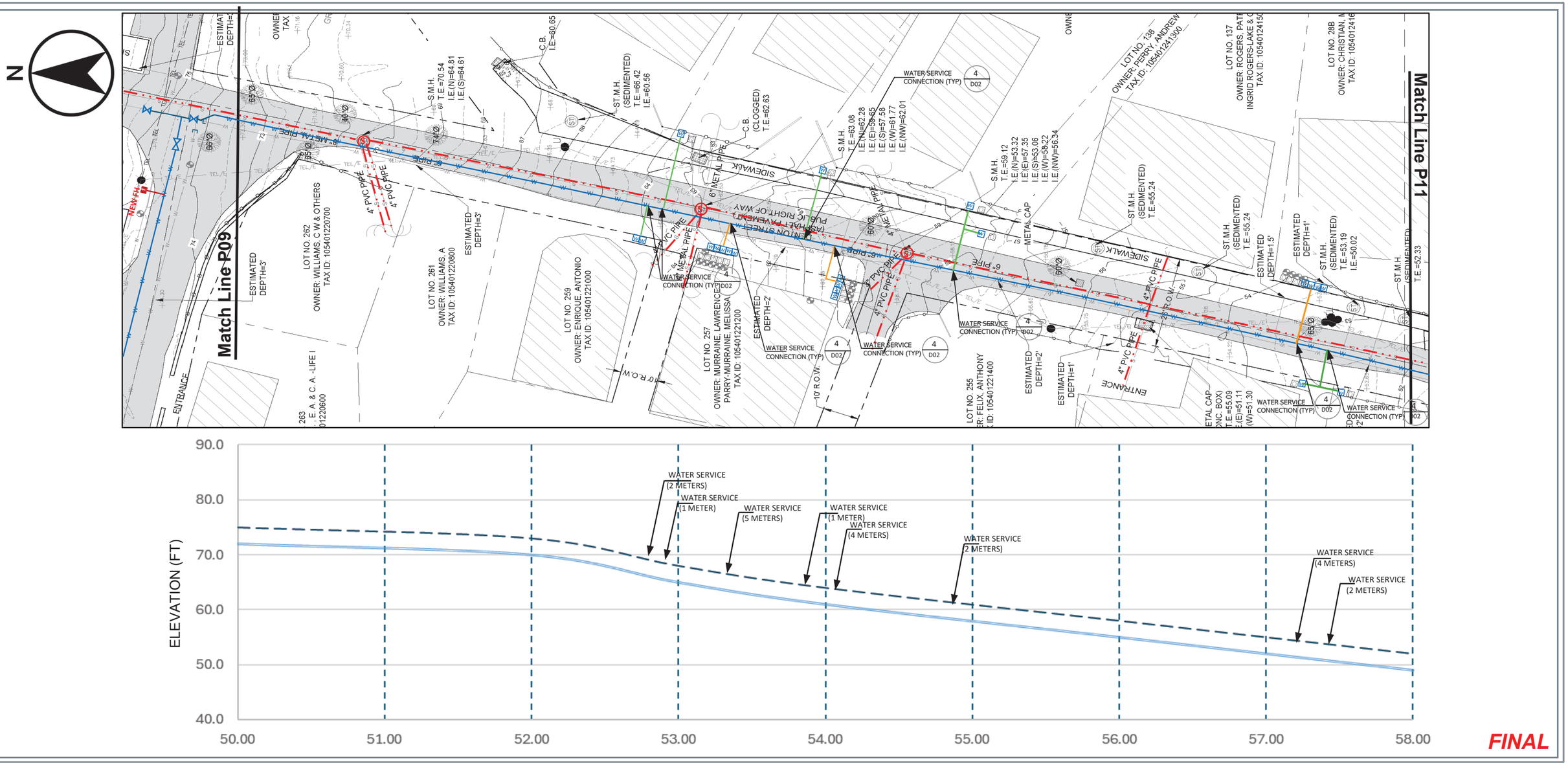
REGISTERED ENGINEER
ERIC D. DOUGLAS
S. VIRGIN ISLAND

DATE: March 2026
DRAWN BY: Hectior I. Mercado
DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

PROPOSED 12" WATER LINE SECTION DETAIL P09

SHEET NUMBER:
P09



FINAL

Caritech Group LLC
Engineering Consultants -Tel: 340-690-9583

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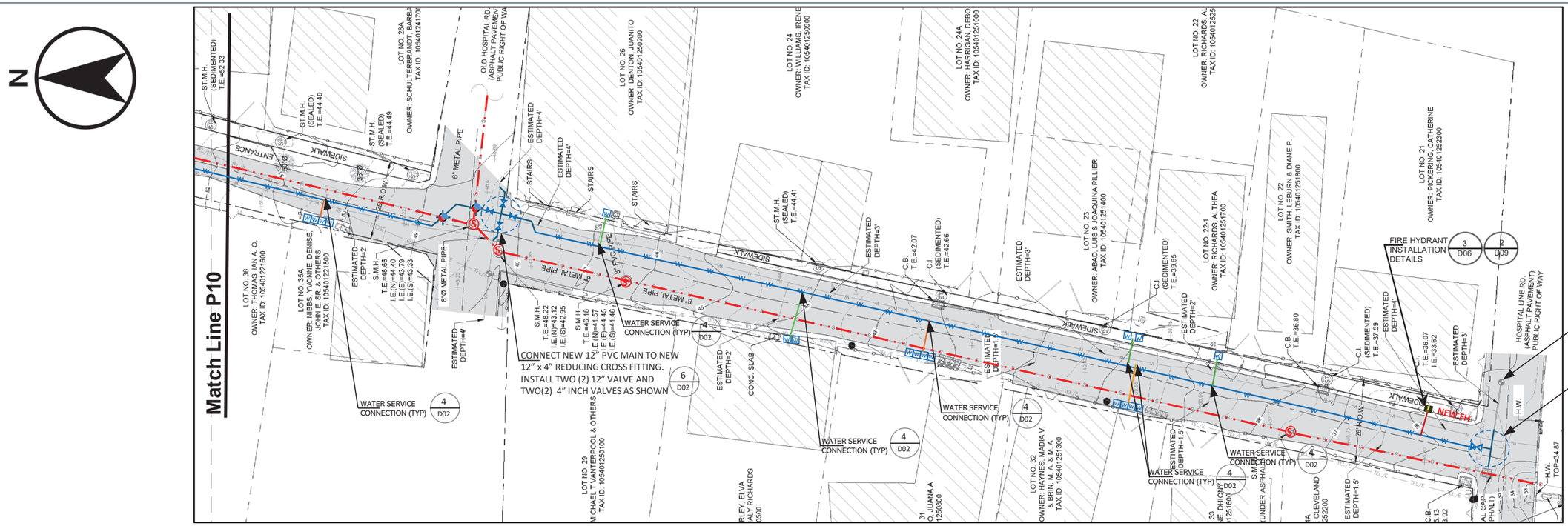
REGISTERED ENGINEER
ERIC D. DOUGLAS
S. VIRGIN ISLAND

DATE: March 2026
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DESIGNED BY: Eric D. Douglas
REVIEWED BY : Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

PROPOSED 12" WATER LINE SECTION DETAIL P10

SHEET NUMBER:
P10



FINAL

Caritech Group LLC
Engineering Consultants -Tel: 340-690-9583

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SCALE : 1" = 20'

REGISTERED ENGINEER
ERIC D. DOUGLAS
S. VIRGIN ISLAND

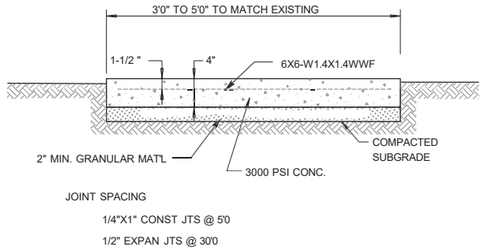
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VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

PROPOSED 12" WATER LINE SECTION DETAIL P11

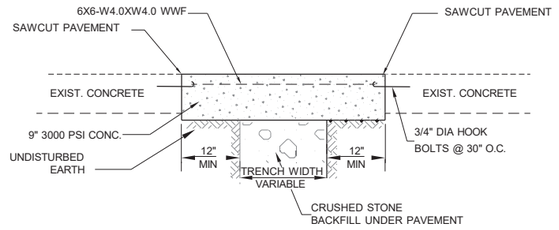
SHEET NUMBER:
P11

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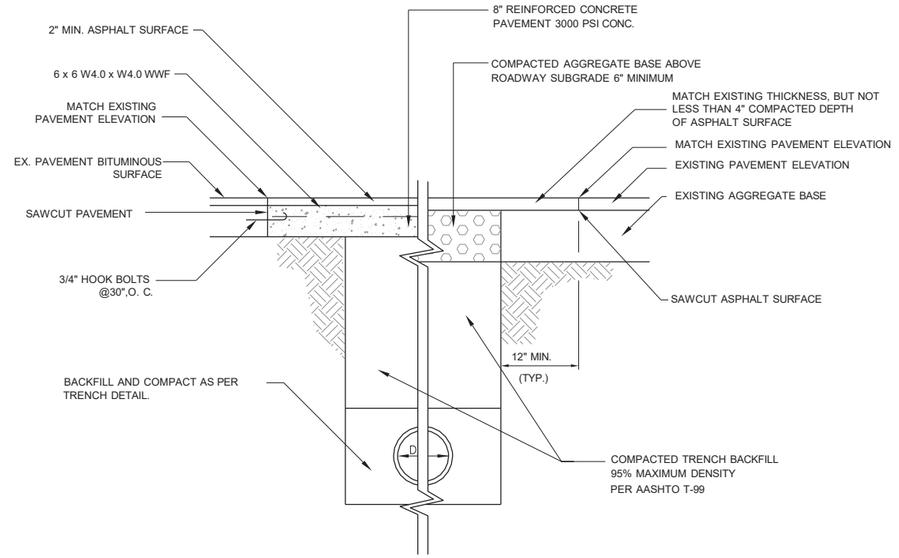
1 CONCRETE WALK REPLACEMENT

NOT TO SCALE



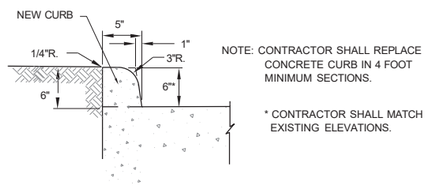
2 PAVEMENT REPLACEMENT - CONCRETE ROADWAY

NOT TO SCALE (IN ACCORDANCE WITH FP-96 REQUIREMENTS)



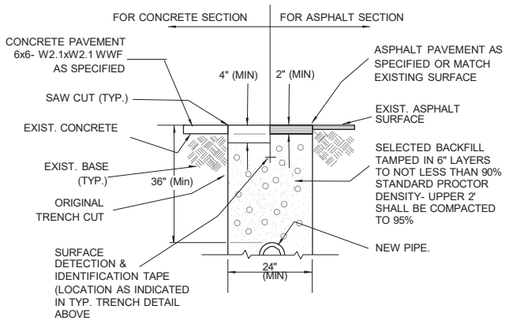
3 PAVEMENT REPLACEMENT - COMPOSITE OR ASPHALT ROADWAY

NOT TO SCALE (IN ACCORDANCE WITH FP-96 REQUIREMENTS)



4 CONCRETE CURB REPLACEMENT

NOT TO SCALE



5 TYPICAL SIDEWALK PATCH

NOT TO SCALE

FINAL

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Engineering Consultants - Tel: 340 690-9583

ERIC D. DOUGLAS
REGISTERED ENGINEER
S. VIRGIN ISLAND

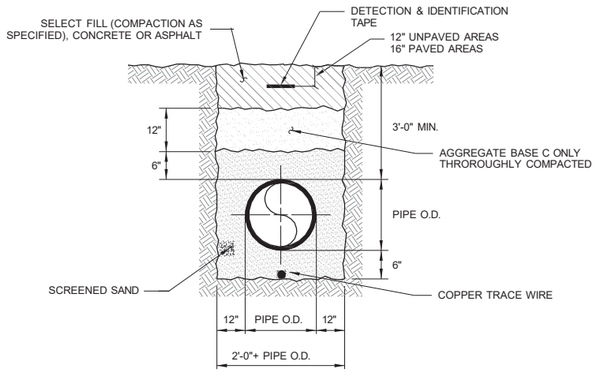
DATE: March 2026
DRAWN BY: Hector I. Mercado
DESIGNED BY: Hector I. Mercado
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND ESTATE –ST. THOMAS USVI

DETAILS

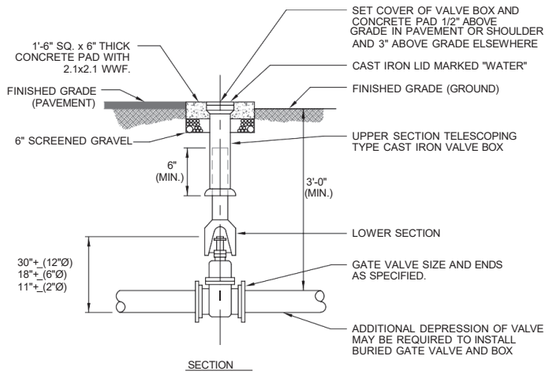
SHEET NUMBER :
D01

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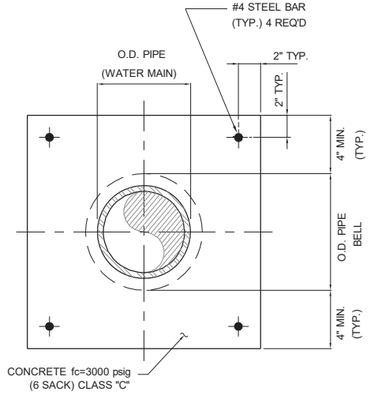
1 TRENCH DETAILS FOR PVC PIPES

NOT TO SCALE



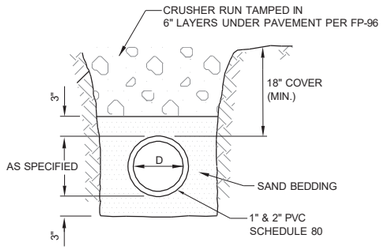
2 BURIED GATE VALVE & VALVE BOX DETAIL

NOT TO SCALE



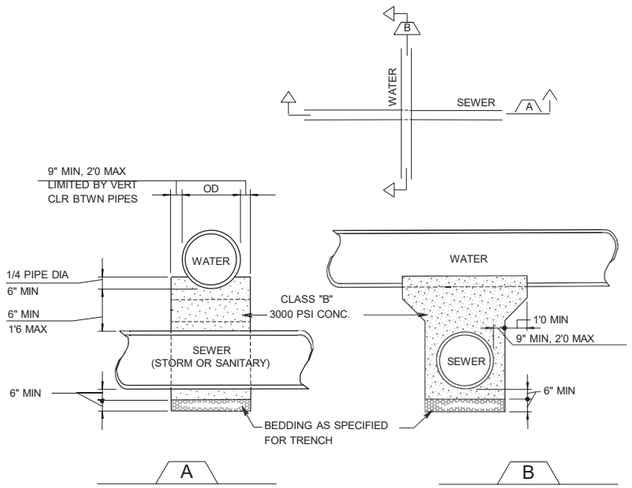
3 CONCRETE ENCASEMENT

NOT TO SCALE



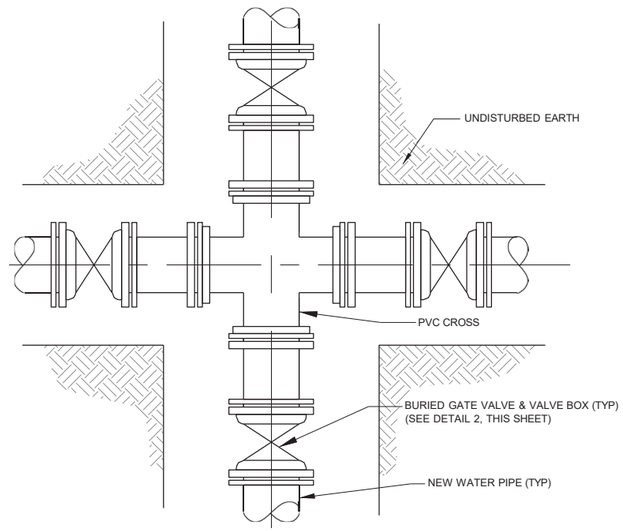
4 TYPICAL WATER SERVICE CONNECTION TRENCH

NOT TO SCALE



5 CONCRETE ENCASEMENT

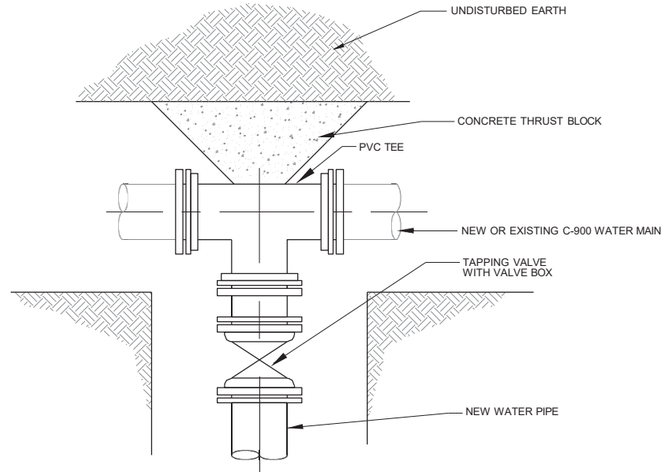
NOT TO SCALE



NOTE:
1. AT ALL 90° - 45° USE TRUST BLOCK AND RESTRAINERS

6 TYPICAL WATER MAIN CONNECTION DETAIL

NOT TO SCALE



NOTE:
1. AT ALL 90° - 45° USE TRUST BLOCK AND RESTRAINERS

7 C-900 TEE CONNECTION DETAIL (PLAN)

NOT TO SCALE

FINAL

Caritech Group LLC
Engineering Consultants -Tel: 340-690-9583

REGISTERED ENGINEER
ERIC D. DOUGLAS
U.S. VIRGIN ISLANDS

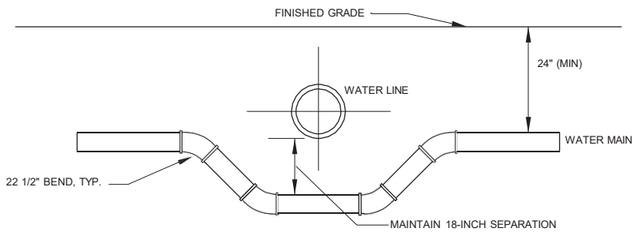
DATE: March 2026
DRAWN BY: Hector I. Mercado
DESIGNED BY: Hector I. Mercado
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND ESTATE –ST. THOMAS USVI

DETAILS

SHEET NUMBER :
D02

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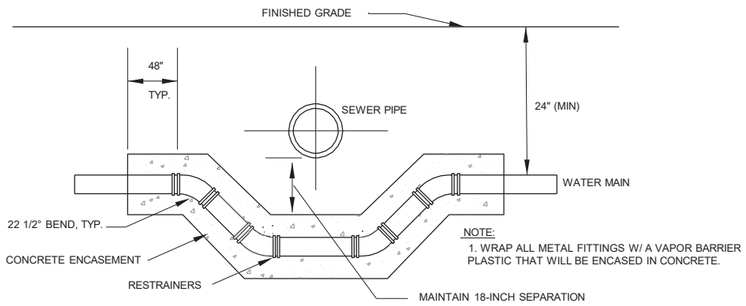


NOTE:
1. PIPE RESTRAINTS OR THRUST BLOCKS TO BE INSTALLED AS NEEDED
2. WRAP ALL METAL FITTINGS W/ A VAPOR BARRIER PLASTIC THAT WILL BE ENCASED IN CONCRETE.

TYPICAL WATER LINE UNDERCROSSING

1

NOT TO SCALE

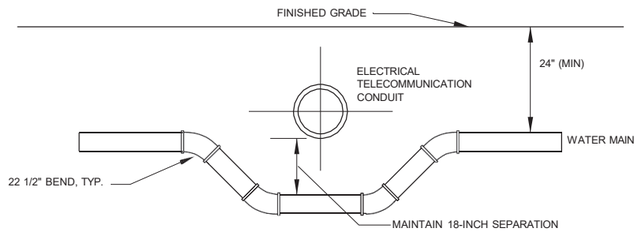


NOTE:
1. WRAP ALL METAL FITTINGS W/ A VAPOR BARRIER PLASTIC THAT WILL BE ENCASED IN CONCRETE.

TYPICAL SEWER UNDERCROSSING

2

NOT TO SCALE

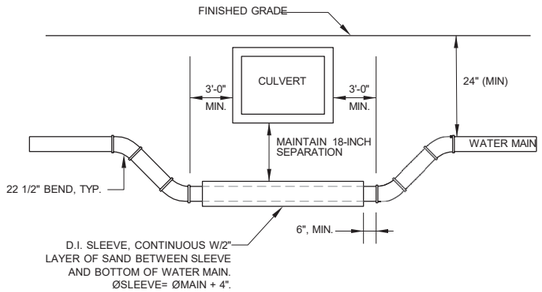


NOTE:
1. PIPE RESTRAINTS OR THRUST BLOCKS TO BE INSTALLED AS NEEDED
2. WRAP ALL METAL FITTINGS W/ A VAPOR BARRIER PLASTIC THAT WILL BE ENCASED IN CONCRETE.

TYPICAL ELECTRICAL/TELECOMMUNICATIONS CONDUIT DRAIN UNDERCROSSING

3

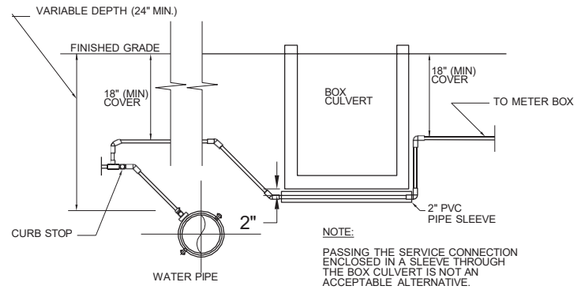
NOT TO SCALE



CULVERT UNDERCROSSING DETAIL FOR WATER MAINS

4

NOT TO SCALE



PROFILE

TYPICAL BOX CULVERT UNDERCROSSING

5

NOT TO SCALE (FOR CUSTOMER SERVICE LINES)

FINAL

Caritech Group LLC
Engineering Consultants - Tel: 340-690-9583

,

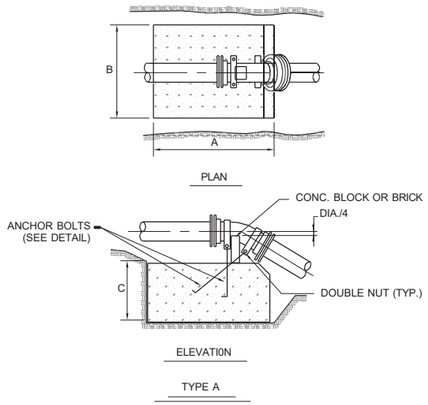
REGISTERED ENGINEER
ERIC D. DOUGLAS
U.S. VIRGIN ISLANDS

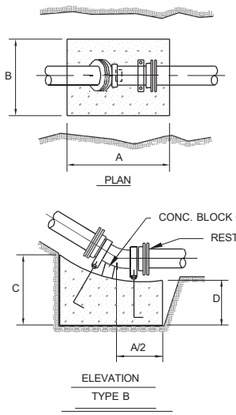
DATE: March 2026
DRAWN BY: Hector I. Mercado
DESIGNED BY: Hector I. Mercado
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

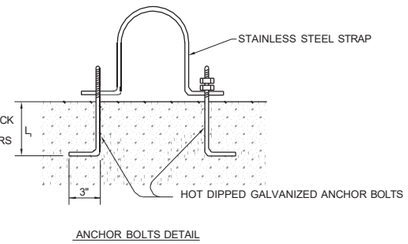
VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND ESTATE –ST. THOMAS USVI

DETAILS

SHEET NUMBER :
D03







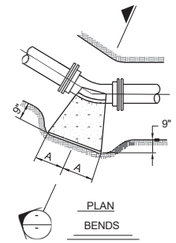
VERTICAL BENDS

TYPE	PIPE SIZE	TYPE A			TYPE B				STRAPS	ANCH. BOLT SIZE (DIA.)	L_1
		A	B	C	A	B	C	D			
2000 P.S.F. SOIL	6"*	38"	32"	27"	27"	27"	27"	16"	(1) 1/4"x 1 1/8"	5/8"	1'-0"
	8"	44"	38"	27"	30"	30"	30"	18"	" "	"	"
	10"	50"	44"	34"	37"	37"	33"	18"	(2) 1/4"x 1 1/4"	5/8"	1'-0"
	12"	57"	51"	40"	41"	41"	40"	21"	" "	"	"
	14"	57"	51"	67"	47"	47"	47"	24"	(2) 3/8"x 1 1/2"	3/4"	1'-0"
	16"	64"	57"	67"	54"	54"	49"	24"	" "	"	"
	20"	78"	63"	80"	64"	64"	64"	30"	(2) 1/2"x 1 3/4"	7/8"	2'-0"
	24"	93"	75"	83"	78"	78"	78"	36"	(2) 1/2"x 2 1/2"	1"	2'-0"

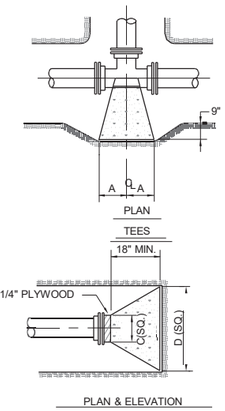
*6" OR LESS

NOTE

1. BASED ON 150 P.S.I. STATIC PRESSURE PLUS A.W.W.A. WATER HAMMER.
2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.
3. ALL STRAPS, BOLTS AND ANCHORS SHALL BE MADE OF GALVANIZED STEEL AND SHALL CONFORM TO ASTM 123 AND 153
4. ALL JOINTS SHALL BE ENCASED IN CONCRETE AFTER THE CONSTRUCTION OF THE THRUST BLOCK.



BENDS & TEES



PLUGS

TYPE	PIPE SIZE	90° BENDS		45° BENDS		22-1/2° & 11-1/4° BENDS		TEES		PLUGS	
		A	B	A	B	A	B	A	B	C	D
2000 P.S.F. SOIL	6" *	18"	11"	10"	11"	6"	9"	11"	13"	10"	24"
	8"	25"	14"	14"	14"	9"	11"	15"	17"	12"	32"
	10"	27"	20"	16"	19"	10"	15"	18"	22"	14"	40"
	12"	33"	23"	18"	23"	12"	18"	21"	26"	16"	47"
	14"	39"	26"	22"	26"	13"	22"	24"	30"	18"	54"
	16"	43"	30"	24"	30"	14"	26"	28"	33"	20"	61"
	20"	50"	39"	27"	39"	17"	32"	33"	42"	24"	74"
	24"	60"	45"	33"	45"	20"	38"	40"	49"	28"	88"

*6" OR LESS

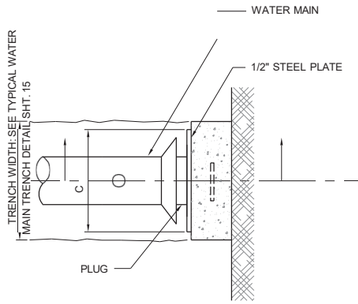
NOTE

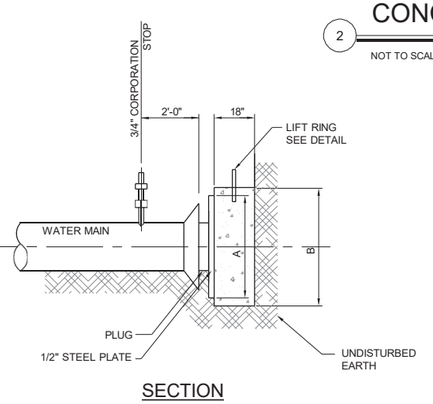
BASED ON 150 P.S.I. STATIC PRESSURE PLUS A.W.W.A. WATER HAMMER.
ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.

1 CONCRETE THRUST BLOCK DETAILS - VERTICAL

NOT TO SCALE

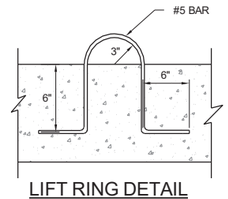
SIZE	A	B	C
3"	0'-8"	0'-8"	1'-3"
4"	0'-10"	0'-10"	1'-4"
6"	1'-0"	1'-0"	1'-6"
8"	1'-2"	1'-2"	1'-8"
10"	1'-4"	1'-6"	1'-10'
12"	1'-6"	2'-0"	2'-0"





2 CONCRETE THRUST BLOCK DETAILS - HORIZONTAL

NOT TO SCALE



3 TEMPORARY CONCRETE THRUST BLOCKS

NOT TO SCALE

FINAL

Caritech Group LLC
Engineering Consultants - Tel: 340-690-9583

REGISTERED ENGINEER
ERIC D. DOUGLAS
U.S. VIRGIN ISLANDS

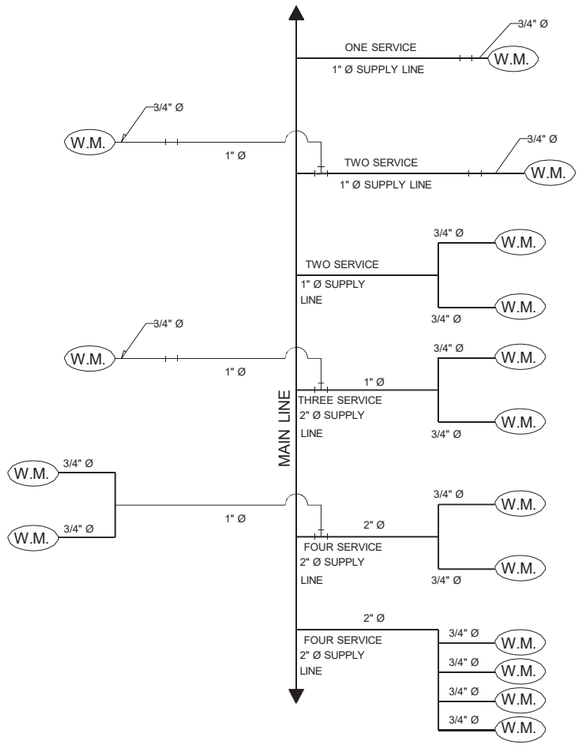
DATE: March 2026
DRAWN BY: Hector I. Mercado
DESIGNED BY: Hector I. Mercado
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND ESTATE –ST. THOMAS USVI

DETAILS

SHEET NUMBER :
D04

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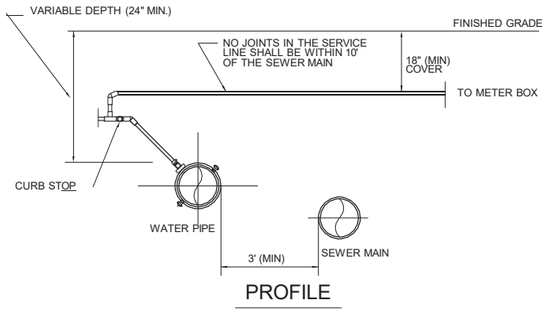
TYPICAL CUSTOMER SUPPLY CONNECTIONS

1

NOT TO SCALE

NOTE:

REFER TO DETAIL 2 THROUGH 5 FOR TYPICAL WATER SERVICE LINE CONNECTIONS.

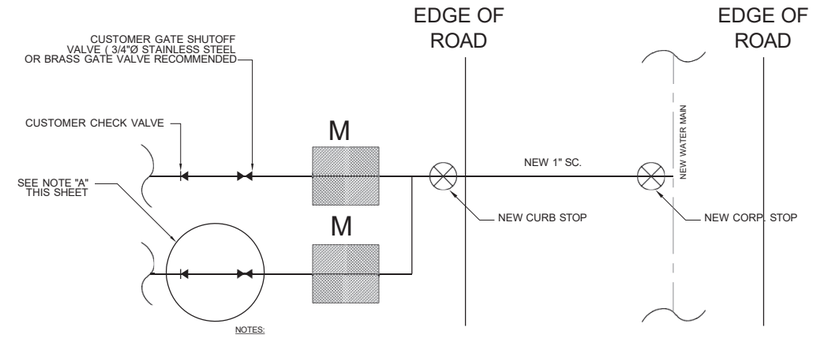


PROFILE

TYPICAL SERVICE LINE OVER/UNDER SEWER MAIN

4

NOT TO SCALE



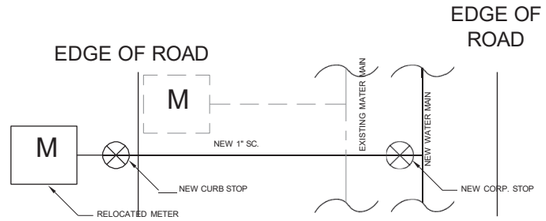
NOTES:

1. INSTALL NEW CORP. AND CURB STOPS ON NEW SERVICE LINE. UP TO THREE (3) RESIDENTIAL METERS MAY BE INSTALLED ON 1" LINE UNLESS NOTED OTHERWISE ON PLANS. FOR MORE THAN THREE METERS, SEE MULTIPLE SERVICE DETAIL THIS SHEET.
2. SCHEDULE 80 PVC PIPE FITTINGS ARE TO BE INSTALLED FROM EDGE OF ROAD TO CURB STOP. STAINLESS STEEL OR BRASS FITTINGS ARE TO BE INSTALLED FROM CURB STOP TO CUSTOMER VALVE

SERVICE CONNECTION DETAIL TYPE A - NEW SERVICE

2

NOT TO SCALE



REMOVE, RESET, RELOCATE EXISTING METER AS DIRECTED BY ENGINEER AND CONNECT TO NEW WATERLINE OR CONNECT TO LINE AS SHOWN ON DRAWINGS. NEW CORP. AND NEW CURB STOPS TO BE INSTALLED. CONTRACTOR SHALL RECONNECT CUSTOMER LINE TO METER BOX. UP TO THREE (3) RESIDENTIAL METERS MAY BE INSTALLED ON ONE 1" LINE UNLESS OTHERWISE SHOWN ON THE PLANS. FOR MORE THAN THREE METERS, SEE MULTIPLE SERVICE DETAIL THIS SHEET.

SERVICE CONNECTION DETAIL TYPE C - EXISTING SERVICE

3

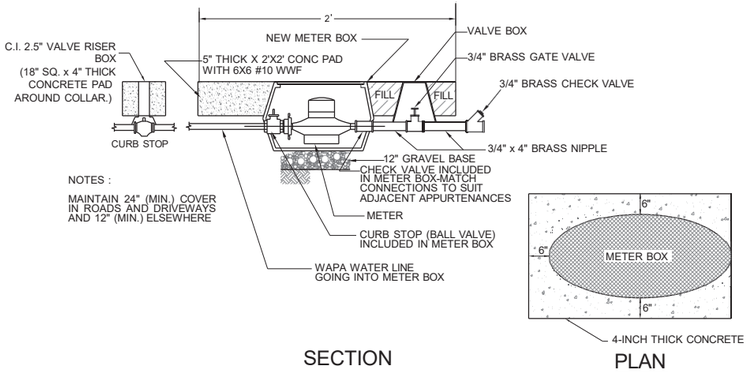
NOT TO SCALE

NOTE "A"

THE CONTRACTOR SHALL MAKE CONNECTION TO CUSTOMER LINE.
CONTRACTOR SHALL INSTALL CHECK,GATE VALVE AND BRASS FITTINGS TO CUSTOMER LINES

1. THE CUSTOMER LINE SHALL BE 10" MINIMUM BELOW GRADE.
2. THE CUSTOMER VALVE SHALL BE WITHIN 12", AND INSIDE THE PROPERTY LINE.
3. WHERE CUSTOMER LINE DOES NOT EXIST, CONTRACTOR SHALL 4 PLUG METER BOX

THOSE SERVICE CONNECTIONS THAT DO NOT FALL WITHIN THE ABOVE CRITERIA SHALL BE REFERRED TO THE ENGINEER FOR RESOLUTION.



SECTION

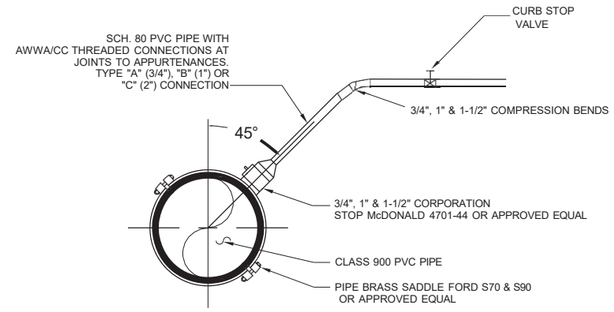
PLAN

NTS

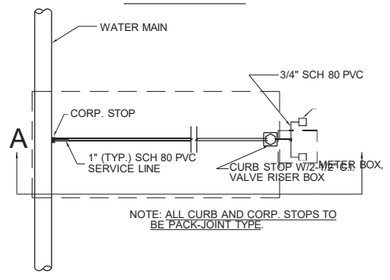
WATER LINE CONNECTION DETAILS

5

NOT TO SCALE



SECTION A



NOTE: 1. FOR 2" SERVICE LINES, END LINE AT 2" CURB STOP WITH 5 1/2" VALVE RISER BOX (FIG. 4905, B&T INDUSTRIES, OR APPROVED EQUAL). FOR LINES LARGER THAN 2", END LINE AT GATE VALVE.

2. ALSO REFER TO SERVICE CONNECTION DETAIL TYPE 'A'

TYPICAL SERVICE CONNECTION

6

NOT TO SCALE

FINAL

Caritech Group LLC
Engineering Consultants - Tel: 340-690-9583

REGISTERED ENGINEER
ERIC D. DOUGLAS
U.S. VIRGIN ISLANDS

DATE: March 2026
DRAWN BY: Hector I. Mercado
DESIGNED BY: Hector I. Mercado
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND ESTATE –ST. THOMAS USVI

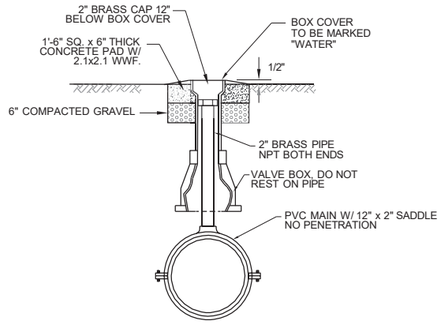
DETAILS

SHEET NUMBER :

D05

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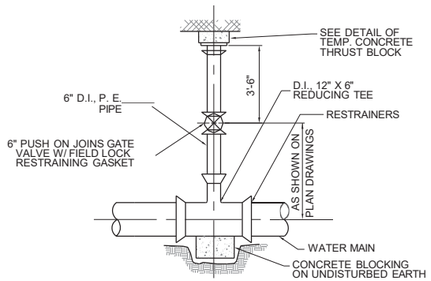
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ACOUSTIC ACCESS POINT DETAIL

1

NOT TO SCALE



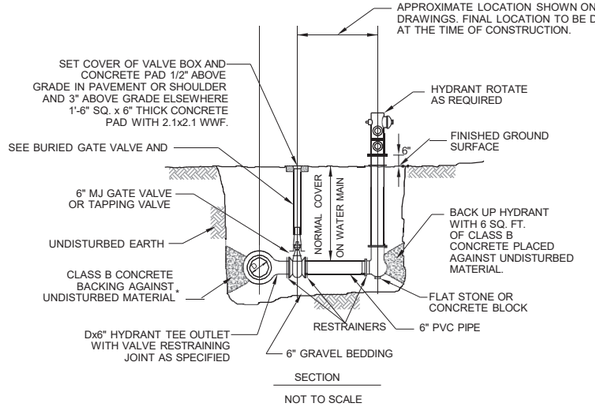
PIPE AND VALVE ASSEMBLY FOR FIRE HYDRANT AND SERVICE LINES OVER 2"

2

NOT TO SCALE

NOTE:

REFER TO DETAIL 3 FOR ADDITIONAL INFORMATION.



NOT TO SCALE

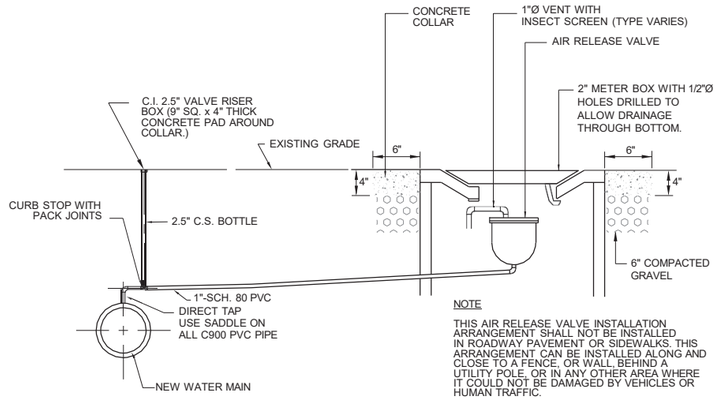
VALVE BOX DETAIL IN THIS SHEET.

* SEE TABLE ON THRUST BLOCK BEARING AREAS FOR THE AREA OF CONCRETE REQUIRED.

BURIED GATE VALVE & HYDRANT DETAIL

3

NOT TO SCALE



AIR RELEASE DETAIL

4

NOT TO SCALE

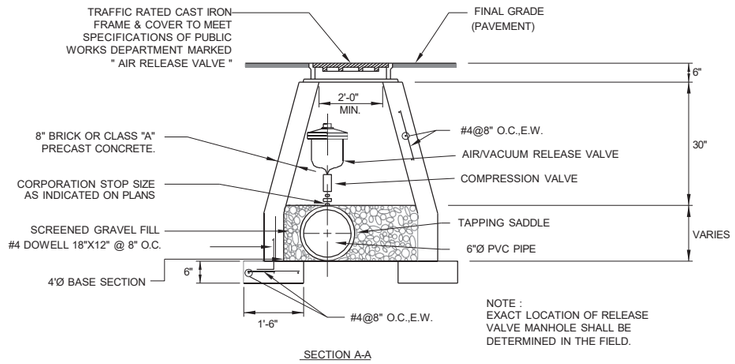
NOTE:

REFER TO DETAIL 5 FOR ADDITIONAL SPECIFICATIONS.

NOTE

THIS AIR RELEASE VALVE INSTALLATION ARRANGEMENT SHALL NOT BE INSTALLED IN ROADWAY PAVEMENT OR SIDEWALKS. THIS ARRANGEMENT CAN BE INSTALLED ALONG AND CLOSE TO A FENCE, OR WALL, BEHIND A UTILITY POLE, OR IN ANY OTHER AREA WHERE IT COULD NOT BE DAMAGED BY VEHICLES OR HUMAN TRAFFIC.

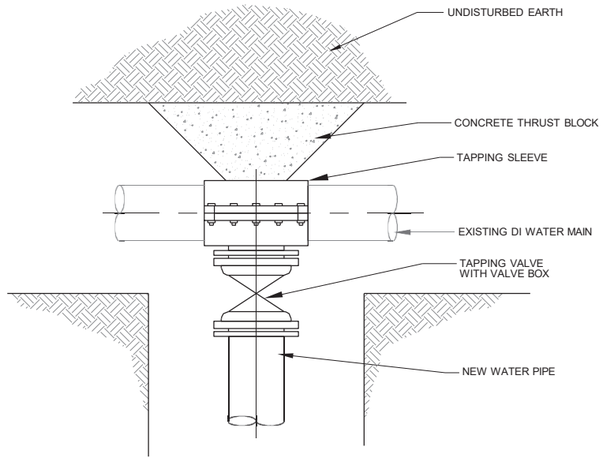
CONTRACTOR SHALL SECURE THE VALVE ON COMPACTED MATERIAL. THE VALVE SHALL NOT BE SUPPORTED BY THE PVC PIPE.



AIR/VACUUM RELEASE VALVE AND MANHOLE

5

NOT TO SCALE



NOTE:

1. AT ALL 90° - 45° USE TRUST BLOCK AND RESTRAINERS

TAPPING SLEEVE DETAIL FOR DUCTILE IRON PIPE (PLAN)

6

NOT TO SCALE

FINAL

Caritech Group LLC
Engineering Consultants - Tel: 340-690-6583

REGISTERED ENGINEER
ERIC D. DOUGLAS
S. VIRGIN ISLAND

DATE: March 2026
DRAWN BY: Hector I. Mercado
DESIGNED BY: Hector I. Mercado
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

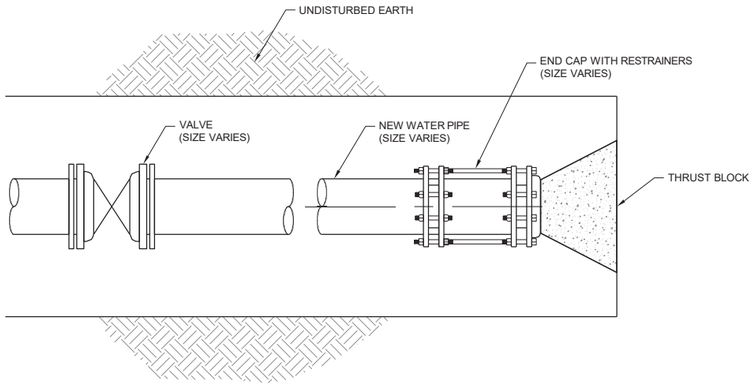
VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND ESTATE –ST. THOMAS USVI

DETAILS

SHEET NUMBER :

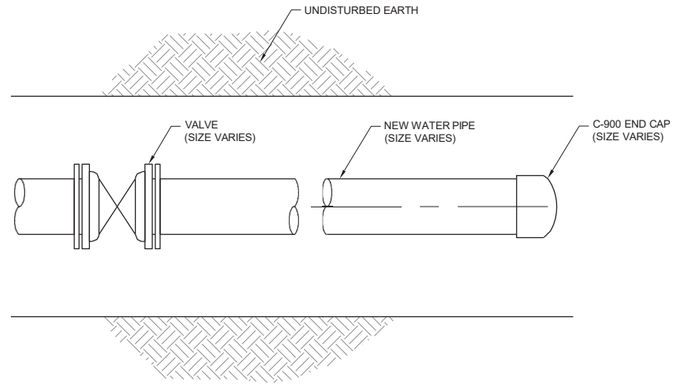
D06

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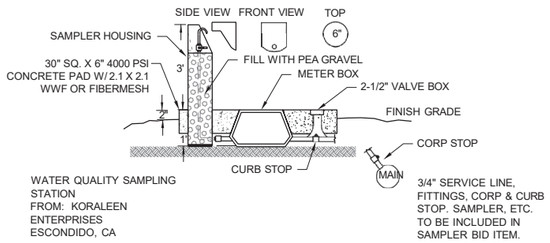
MAIN LINE END CAP WITH RESTRAINERS AND THRUST BLOCK

1 NOT TO SCALE (FOR LINES 4" AND LARGER)



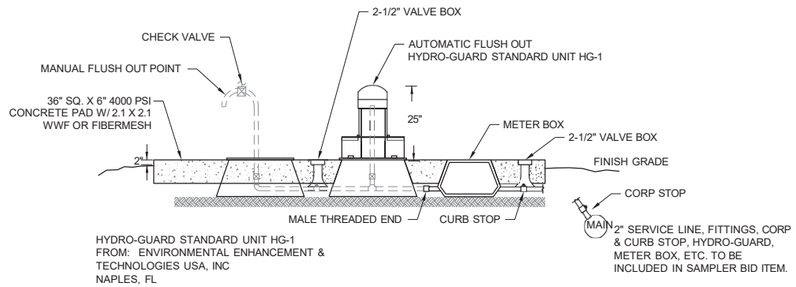
SERVICE LINE END CAP

2 NOT TO SCALE (FOR LINES SMALLER THAN 4")



SAMPLE STATION

3 NOT TO SCALE



AUTOMATIC FLUSHOUT

4 NOT TO SCALE

FINAL

Caritech Group LLC
Engineering Consultants -Tel: 340-690-9583

REGISTERED ENGINEER
ERIC D. DOUGLAS
U.S. VIRGIN ISLANDS

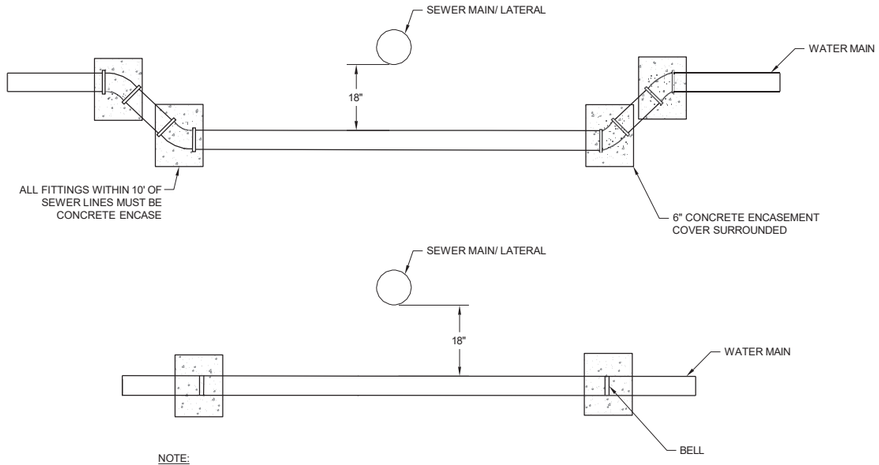
DATE: March 2026
DRAWN BY: Hector I. Mercado
DESIGNED BY: Hector I. Mercado
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
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DETAILS

SHEET NUMBER :
D07

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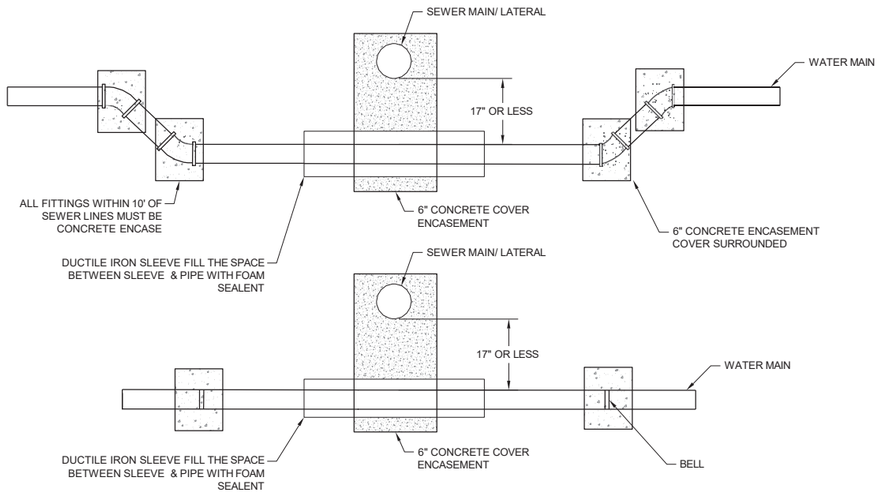
NOTE:

1. 6" CONCRETE ENCASEMENT ON THE TWO NEAREST BELLS

SEWER MAIN/LATERAL CROSSING (UNDER)

1

NOT TO SCALE



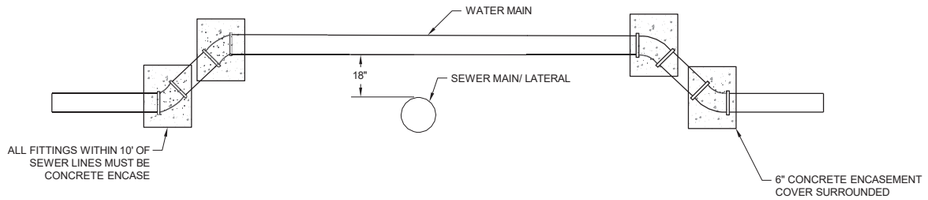
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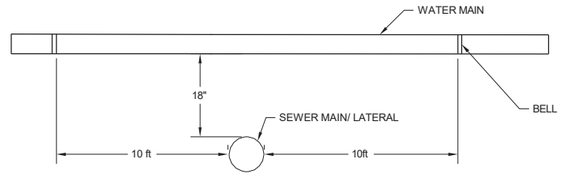
1. 6" CONCRETE ENCASEMENT ON THE TWO NEAREST BELLS

SEWER MAIN/LATERAL CROSSING (UNDER) WITH LESS THAN 18" CLEARANCE

2

NOT TO SCALE





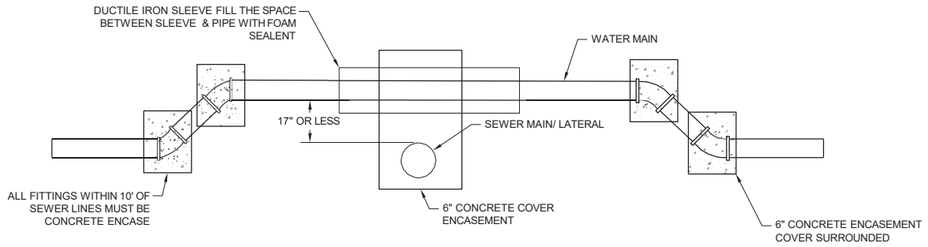
NOTE:

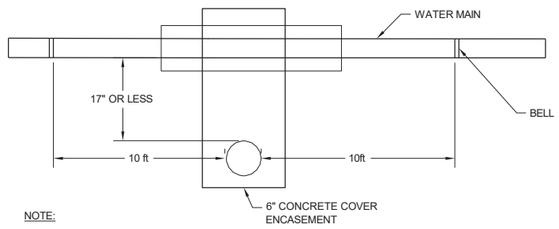
1. IF 10 FT BELL CLEARANCE CANNOT BE ACHIEVED. CONCRETE ENCASE THE BELL.

SEWER MAIN/LATERAL CROSSING (OVER)

3

NOT TO SCALE





NOTE:

1. IF 10 FT BELL CLEARANCE CANNOT BE ACHIEVED. CONCRETE ENCASE THE BELL.

SEWER MAIN/LATERAL CROSSING (OVER) WITH LESS THAN 18" CLEARANCE

4

NOT TO SCALE

FINAL

Caritech Group LLC
Engineering Consultants - Tel: 340-690-6583

,

REGISTERED ENGINEER
ERIC D. DOUGLAS
U.S. VIRGIN ISLANDS

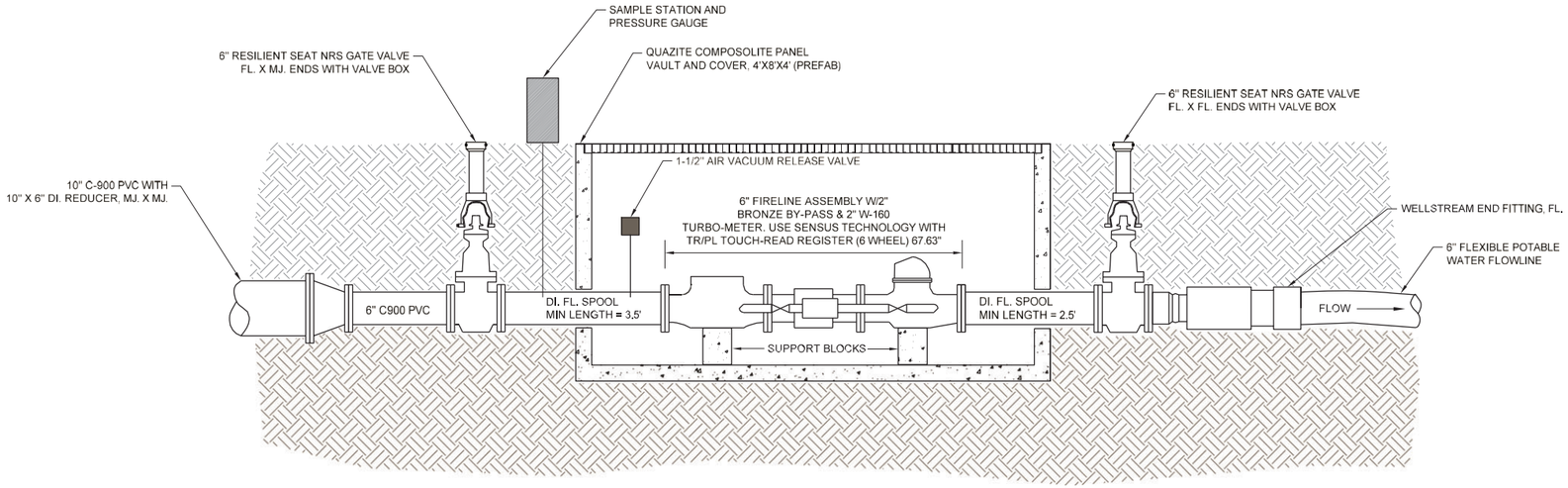
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VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND ESTATE –ST. THOMAS USVI

DETAILS

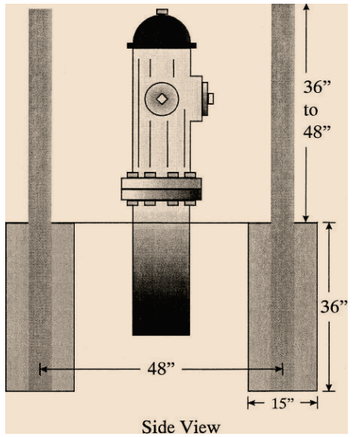
SHEET NUMBER :
D08

2026 CARITECH GROUP, LLC



1 MASTER VAULT

NOT TO SCALE



2 FIRE HYDRANT BOLLARDS DETAILS

NOT TO SCALE

NOTES

Bollard Construction Details and Specifications:

1. **Material:** Minimum 4-inch diameter Schedule 40 or Schedule 80 steel pipe.
2. **Concrete Fill:** The pipe must be filled completely with high-PSI concrete to enhance strength, often with a domed top to allow water to run off.
3. **Footing (Below Ground):** Posts should be set at least 36 inches deep in a concrete footing of no less than 15 inches in diameter.
4. **Height (Above Ground):** Bollards should extend a minimum of 3 to 4 feet above finished grade.
5. **Spacing:** Posts are generally spaced no more than 4 to 5 feet apart, center-to-center.
6. **Hydrant Clearance:** Bollards must be placed at least 3 feet away from the face of the fire hydrant to ensure operation access.
7. **Number of Posts:** A minimum of 2 posts is typical, but enough must be used to protect the exposed sides of the hydrant.
8. **Finishes/Painting:** Bollards are usually painted traffic yellow for visibility, often with a reflective white or yellow top 8 inches.
9. **Visibility/Safety:** If a curb is present, it is often painted red for 15 feet on either side.

FINAL

Caritech Group LLC
Engineering Consultants - Tel: 340 690-9583

REGISTERED ENGINEER
ERIC D. DOUGLAS
S. VIRGIN ISLAND

DATE: March 2026
DRAWN BY: Hector I. Mercado
DESIGNED BY: Hector I. Mercado
REVIEWED BY: Eric D. Douglas
PROJECT MGR Eric D. Douglas

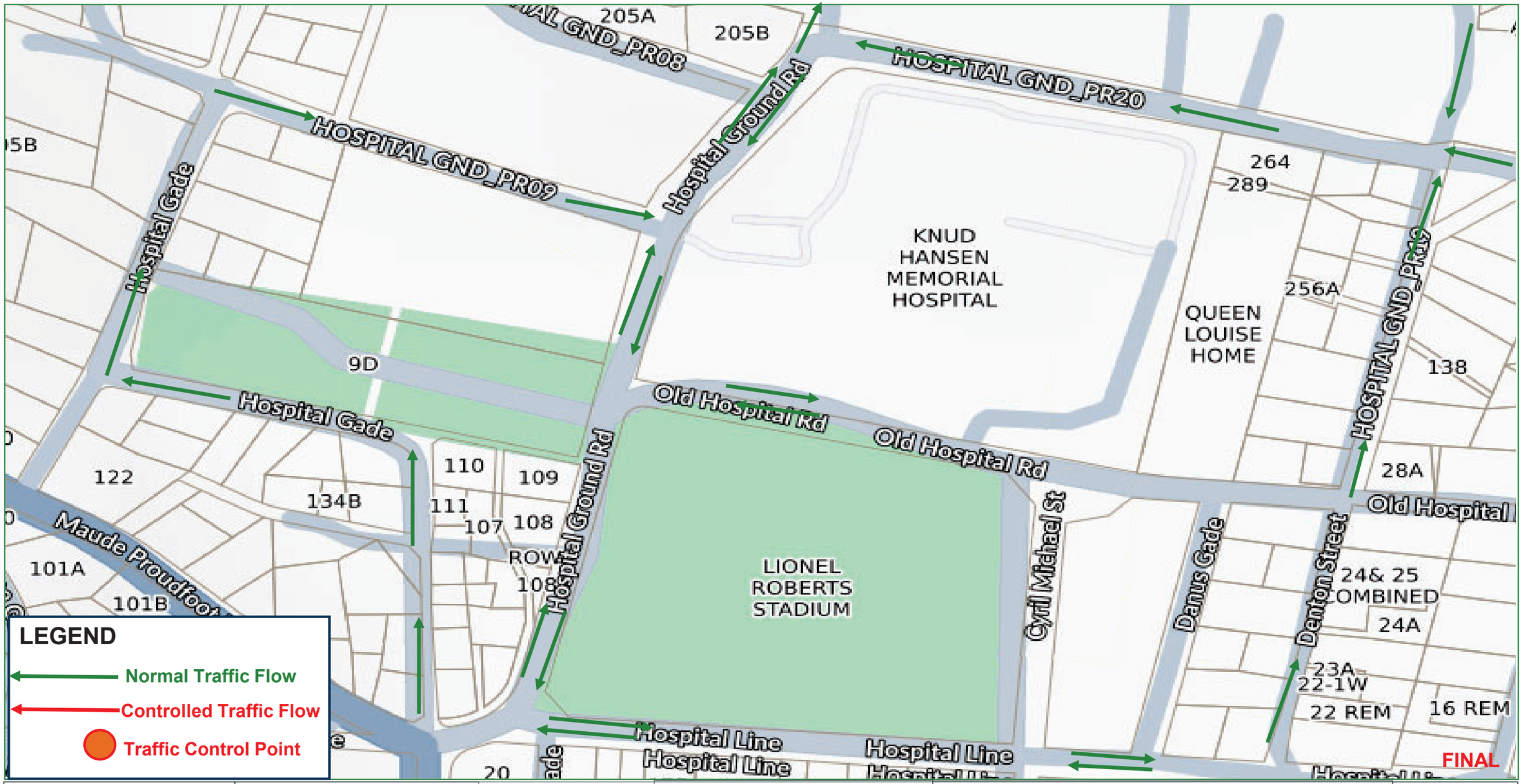
VIRGIN ISLANDS WATER AND POWER AUTHORITY
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DETAILS

SHEET NUMBER :

D09

2025 CARITECH GROUP, LLC



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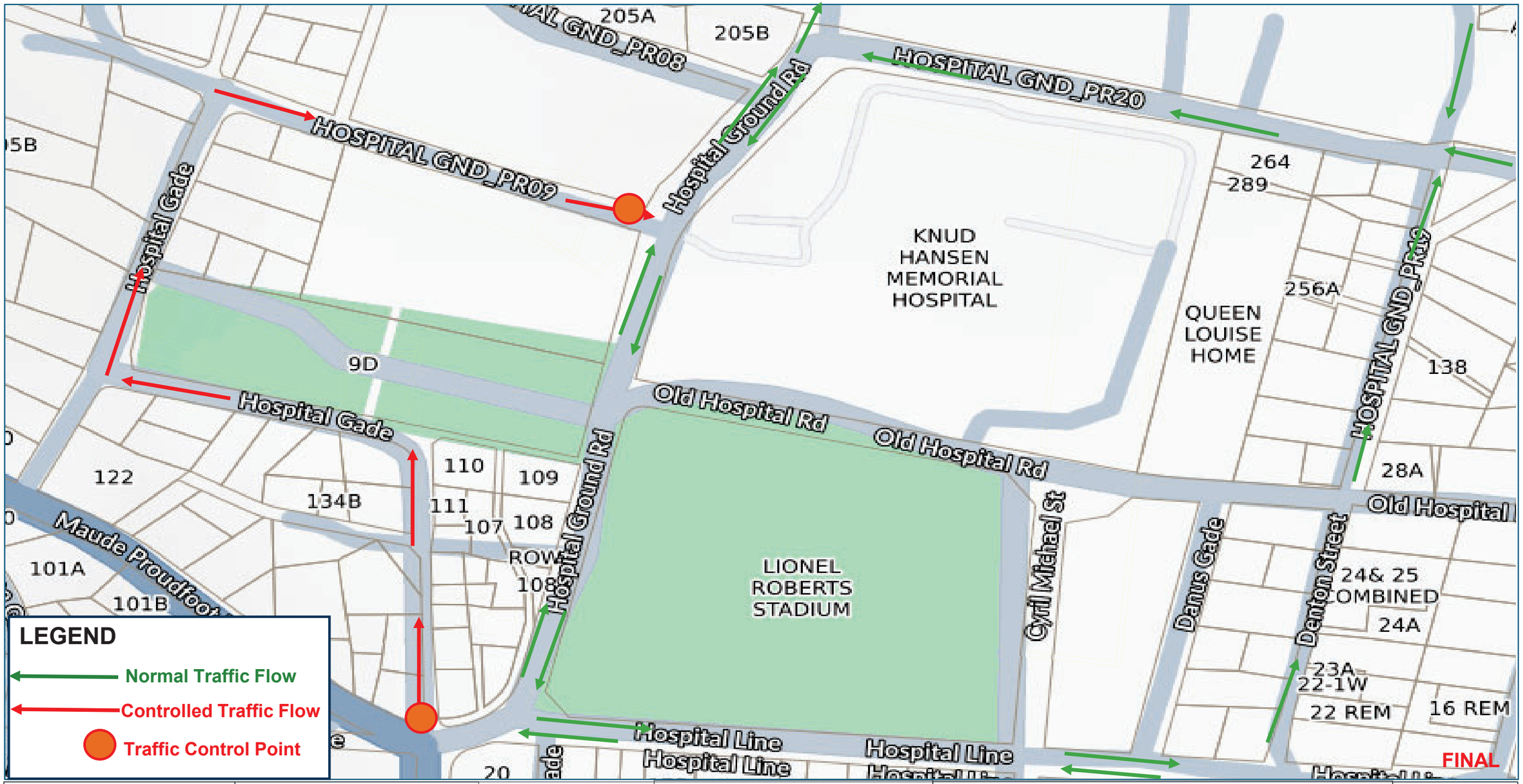
GRAPHICAL SCALE

DATE: March 2026
DESIGNED BY: Eric D. Douglas
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND REHABILITATION DESIGN
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NORMAL TRAFFIC FLOW

SHEET NUMBER :
T00



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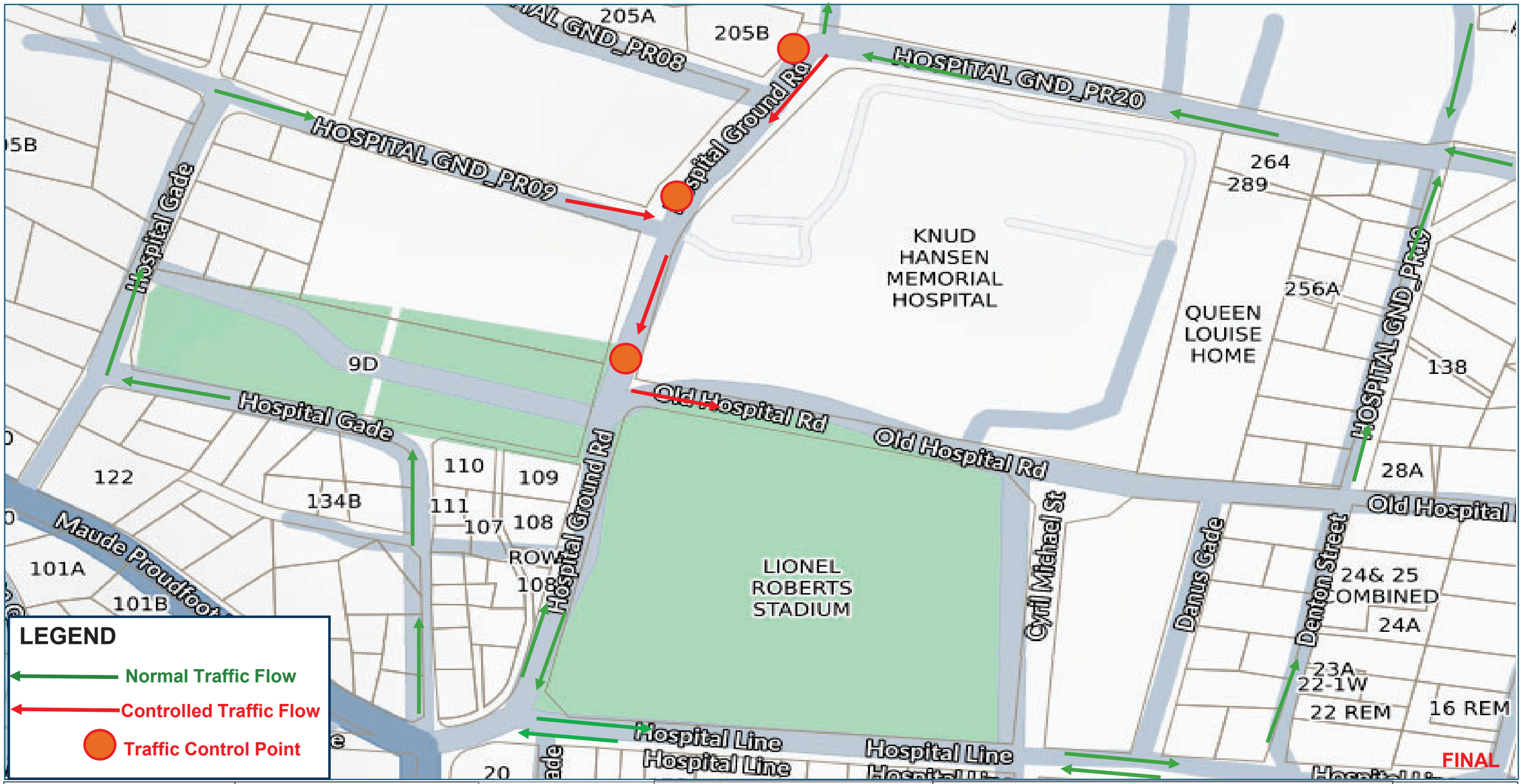
GRAPHICAL SCALE

DATE: March 2026
DESIGNED BY: Eric D. Douglas
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND REHABILITATION DESIGN
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PROPOSED TRAFFIC FLOW-PHASE 1

SHEET NUMBER :
T01



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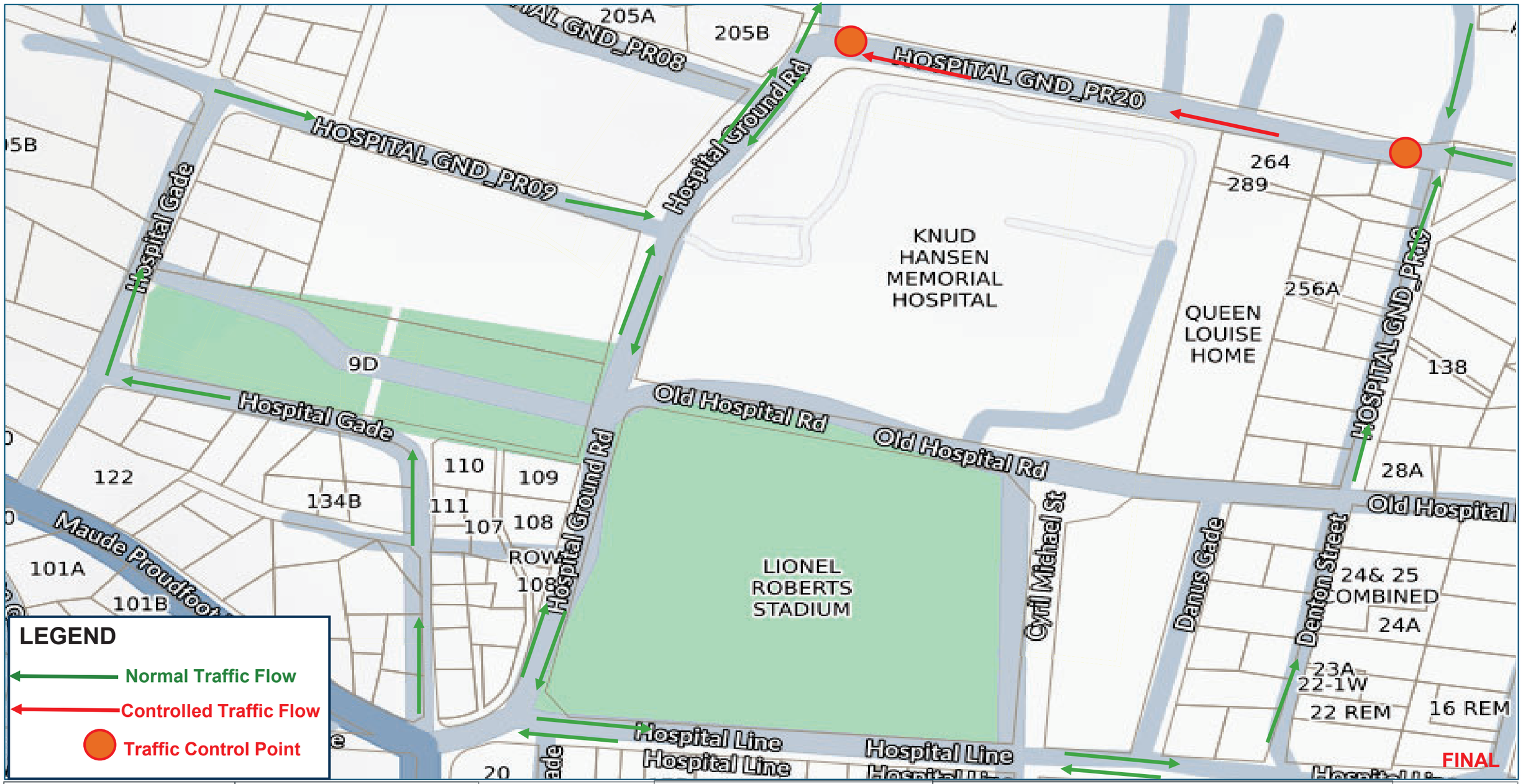
GRAPHICAL SCALE

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VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND REHABILITATION DESIGN
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PROPOSED TRAFFIC FLOW-PHASE 2

SHEET NUMBER :
T02



Caritech Group LLC
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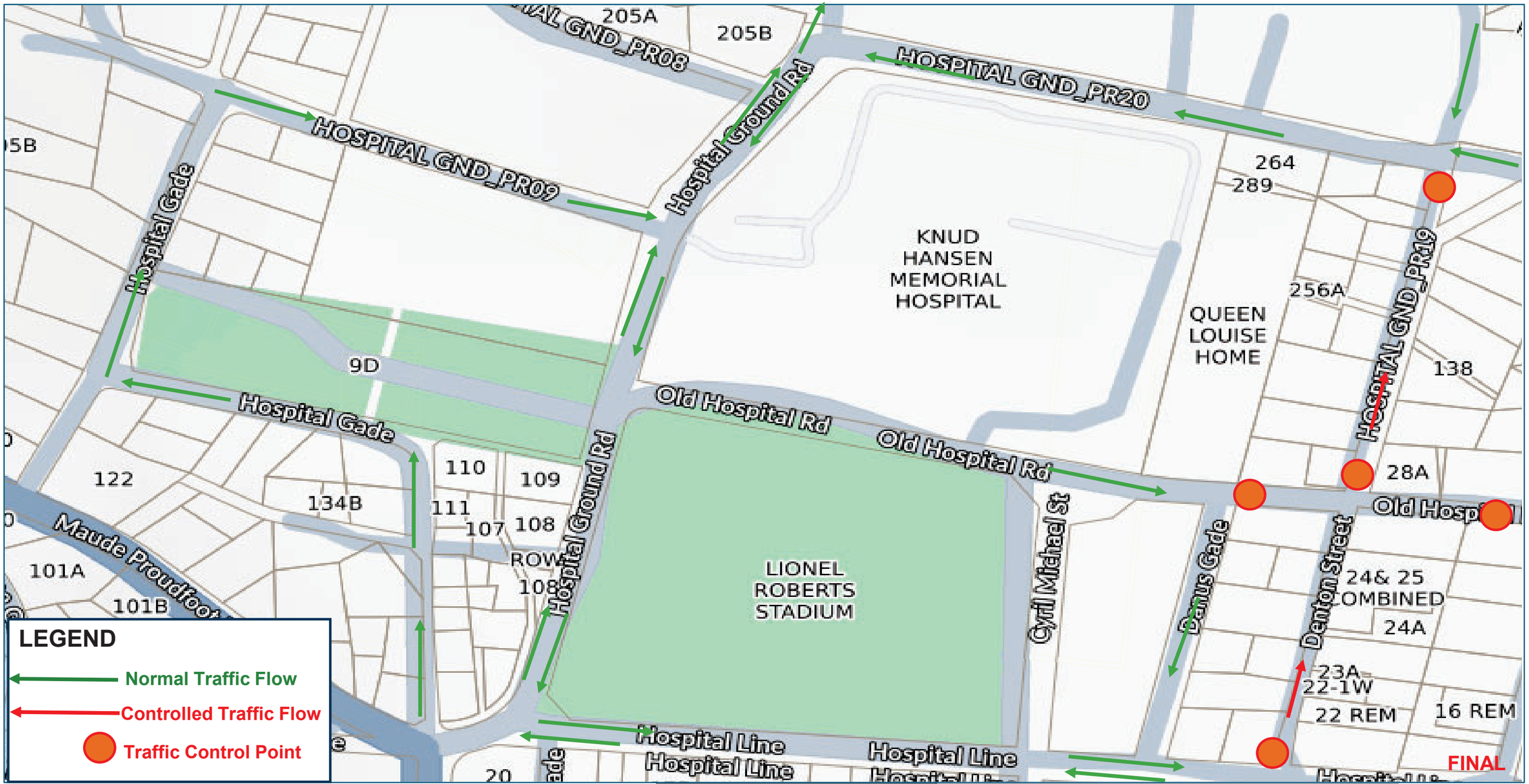
GRAPHICAL SCALE

DATE: March 2026
DESIGNED BY: Eric D. Douglas
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND REHABILITATION DESIGN
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PROPOSED TRAFFIC FLOW-PHASE 3

SHEET NUMBER :
T03



Caritech Group LLC
Engineering Consultants - Tel: 340-690-9583

GRAPHICAL SCALE

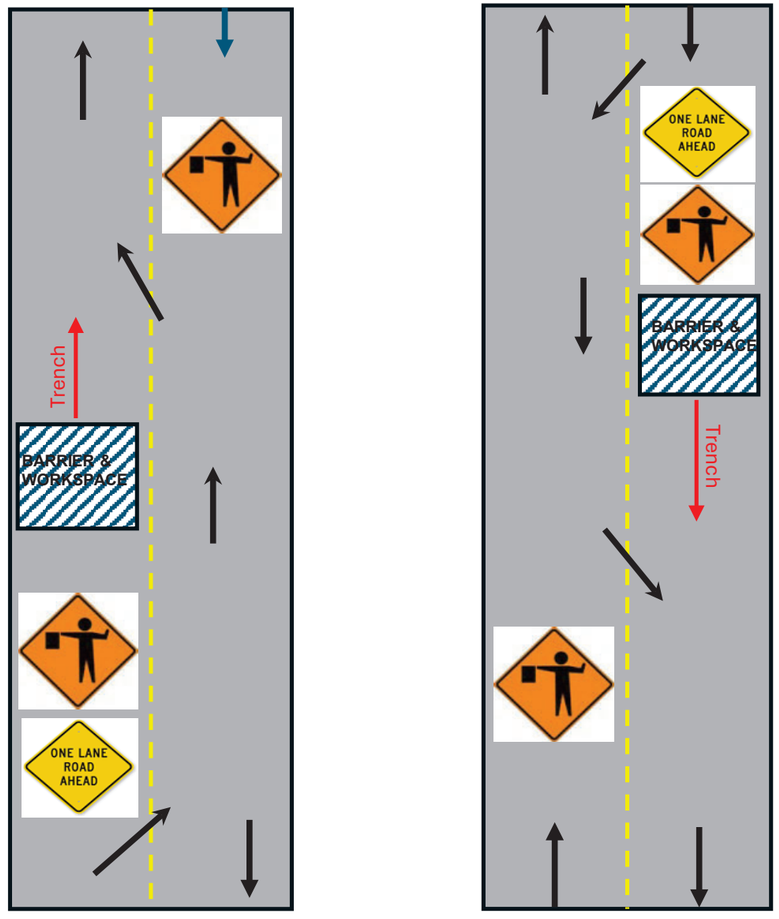
DATE: March 2026
DESIGNED BY: Eric D. Douglas
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND REHABILITATION DESIGN
HOSPITAL GROUND ESTATE –ST. THOMAS USVI

PROPOSED TRAFFIC FLOW-PHASE 4

SHEET NUMBER :
T04

One Lane Closure On A Two-Way Street



NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
2. ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
5. MINIMUM LANE WIDTH IS TO BE 11 FEET (3.3m) UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF CONES.
6. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
7. ALL WORK WILL BE COMPLETED IN THE PRESENCE OF A POLICE DETAIL PERMITTED TO WORK WITHIN THE WORK-ZONE JURISDICTION.
8. ALL WORK WILL BE COMPLETED IN ACCORDANCE WITH THE PERMIT RULES OUTLINED BY THE UNITED STATES VIRGIN ISLANDS.

LEGEND:

1. → DIRECTION OF TRAFFICE FLOW
2. WORKSPACE

FINAL

Caritech Group LLC
Engineering Consultants - Tel. 340-690-9533

GRAPHICAL SCALE

REGISTERED ENGINEER
ERIC D. DOUGLAS
S. VIRGIN ISLAND

DATE: March 2026
DESIGNED BY: Eric D. Douglas
REVIEWED BY: Eric D. Douglas
PROJECT MGR: Eric D. Douglas

VIRGIN ISLANDS WATER AND POWER AUTHORITY
HOSPITAL GROUND WATERLINE REHABILITATION DESIGN
HOSPITAL GROUND –ST. THOMAS USVI

Traffic Control Plan Details

SHEET NUMBER :
T05