

RESIDENTIAL HEALTHCARE FACILITY

GRADING AND DRAINAGE PLAN KEYMAP

90TH STREET AND RAINTREE
SCOTTSDALE, AZ 85260

PROJECT ADDRESS
90TH STREET & RAINTREE DRIVE, SCOTTSDALE, ARIZONA 85260.

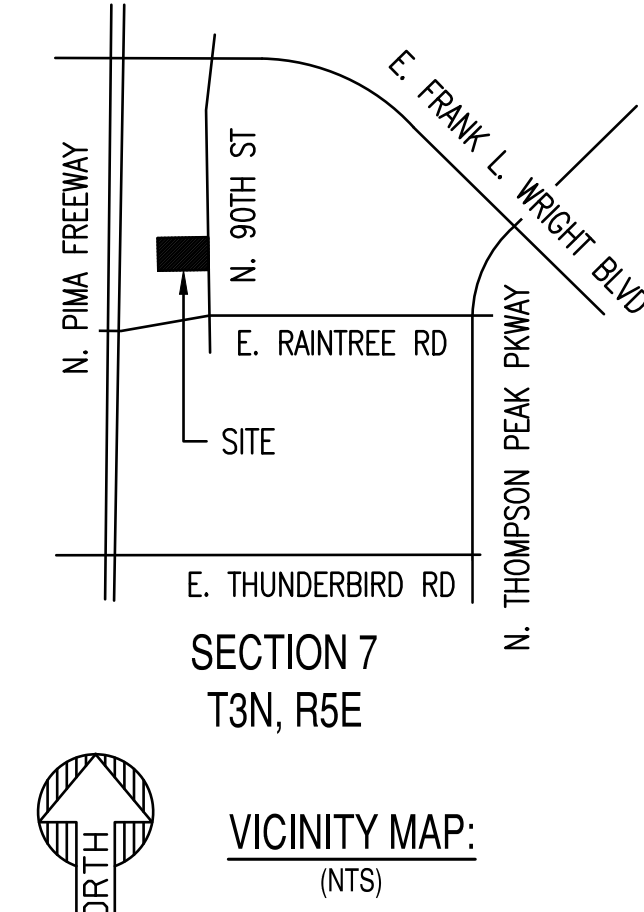
BENCHMARK:
BENCHMARK IS A BRASS CAP FLUSH, BEING THE SOUTH QUARTER CORNER OF SECTION 7, T3N, R5E.
ELEVATION: 1447.21' NAVD 88

PARCEL INFORMATION:
APN: 217-15-033
ZONING: C-0
GROSS AREA: 217,800 SF (5.00 AC)
NET AREA: 202,950 SF (4.66 AC)
FLOOD ZONE: ZONE X IS DEFINED AS AREAS OF 0.2% ANNUAL FLOOD.

ARCHITECT:
TODD & ASSOCIATES, INC.
4019 N.44TH ST.
PHOENIX, AZ 85018
PHONE: 602-952-8280
ATTN: RUSSELL KINDER
RKINDER@TODDASSOC.COM

CIVIL ENGINEER:
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR., SUITE 101
SCOTTSDALE, AZ 85260
PHONE: 480-237-2507
ATTN: ALI FAKIH
ALIAZSEG.COM

PROJECT DESCRIPTION
NEW 151-UNIT RESIDENTIAL HEALTHCARE FACILITY WITH 3 STORIES AND 4 STORIES COMPONENTS, PARKING, AND COMMON AREA.



PRELIMINARY
NOT FOR
CONSTRUCTION

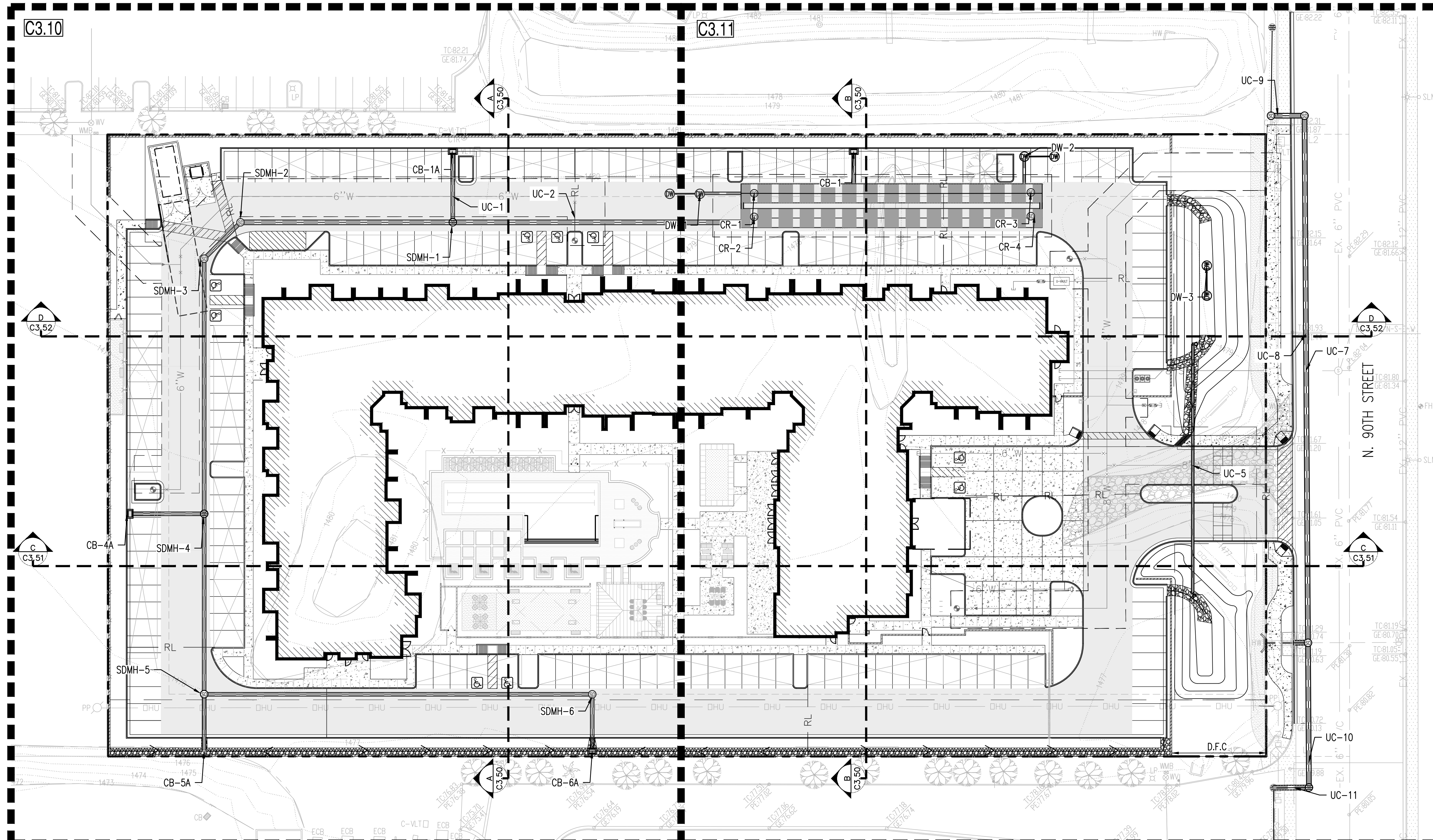
SUSTAINABILITY
ENGINEERING
GROUP

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8280 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL. 480.588.7226 FAX. 480.259.3534

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- PROPOSED LEGEND:**
- TC TOP OF CURB
 - G=XX.XX GUTTER ELEVATION, TC = G+0.5'
 - P=XX.XX PAVEMENT ELEVATION
 - C=XX.XX CONCRETE ELEVATION
 - PROPERTY LINE
 - CURB AND GUTTER
 - VERTICAL CURB
 - RL RIDGELINE
 - GB GRADE BREAK
 - LOC LIMIT OF ONSITE CONSTRUCTION
 - XX MAJOR CONTOUR
 - XX MINOR CONTOUR
 - FLOW ARROW
 - CATCH BASIN
 - ⊙ SD STORM MANHOLE
 - STORM PIPE
 - ⊙ DW DRYWELL
 - ⊙ BB BUBBLER BOX
 - CONCRETE PAVEMENT
 - HEAVY DUTY PAVEMENT
 - LIGHT DUTY PAVEMENT
 - RIP-RAP
 - WALL

LEGAL DESCRIPTION
A PORTION OF THE NORTHWEST QUARTER OF SECTION 7, TOWNSHIP 3 NORTH, RANGE 5 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.

STORM WATER STORAGE SUMMARY:
TOTAL VOLUME REQUIRED:
V_s = 33,306 CF

TOTAL 10' CMP PROVIDED: 160+160=320 LF
V_{pr} = 3.14*(5')²*2*320=25,133 CF

TOTAL OPEN RETENTION:
V_{p2} = 6,712+3,990=10,702 CF

TOTAL BASIN PROVIDED:
V_{prtotal} = 35,835 CF

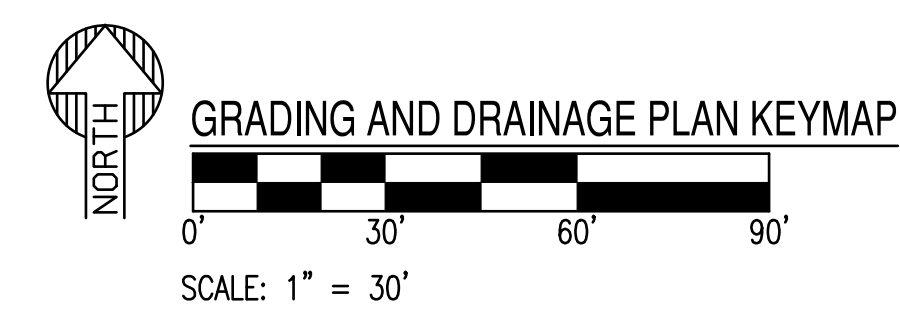
BASIS OF BEARING:
THE BASIS OF BEARING AND ALL MONUMENTATION SHOWN HEREON IS BASED ON THE MONUMENT LINE OF 90TH STREET, USING A BEARING OF SOUTH 00 DEGREES 03 MINUTES 34 SECONDS EAST, AS SHOWN ON RECORD OF SURVEY, RECORDED IN BOOK 896, PAGE 1, MARICOPA COUNTY RECORDS.

CUT AND FILL QUANTITIES
(FOR PERMIT FEE ESTIMATION ONLY. CONTRACTOR TO PERFORM ITS OWN CALCULATIONS)

FILL CUT +15,069 CY - 332 CY
NET FILL +14,737 CY

UTILITY CROSSINGS			
UC-1	6" WATER BOT	76.65	NO EXTRA PROTECTION REQUIRED
	18" STORM TOP	74.55	
UC-2	6" WATER BOT	76.65	NO EXTRA PROTECTION REQUIRED
	18" STORM TOP	72.77	
● UC-5	16" STORM BOT	76.44	PROVIDE VERTICAL REALIGNMENT PER MAG STD. DET. 370.
	8" WATER TOP	74.40	
UC-7	24" STORM BOT	76.37	NO EXTRA PROTECTION REQUIRED
	8" SEWER TOP	69.20	
● UC-8	24" STORM BOT	76.41	PROVIDE VERTICAL REALIGNMENT PER MAG STD. DET. 370.
	8" WATER TOP	74.40	
● UC-9	24" STORM BOT	77.67	PROVIDE VERTICAL REALIGNMENT PER MAG STD. DET. 370.
	8" WATER TOP	75.60	
● UC-10	24" STORM BOT	74.50	PROVIDE VERTICAL REALIGNMENT PER MAG STD. DET. 370.
	12" WATER TOP	72.50	
● UC-11	24" STORM BOT	74.24	PROVIDE VERTICAL REALIGNMENT PER MAG STD. DET. 370.
	12" WATER TOP	72.20	

● REQUIRES VERTICAL REALIGNMENT PER MAG STD. DET. 370.



- EXISTING LEGEND:**
- EX. MAJOR CONTOURS
 - EX. MINOR CONTOURS
 - EX. SPOT ELEVATION
 - EX. PAVEMENT ELEVATION
 - EASEMENT LINE AS NOTED
 - EX. S SEWER LINE
 - ⊙ S SEWER MANHOLE
 - EX. W WATER LINE
 - ⊙ WV WATER VALVE
 - ⊕ FIRE HYDRANT
 - STORM DRAIN LINE
 - CB STORM CATCH BASIN
 - ⊙ STORM MANHOLE
 - GAS GAS LINE
 - IRR IRRIGATION LINE
 - ⊙ SIGN
 - ⊙ STREET LIGHT

LOCATION: Z:\SHARED\PROJECTS\GREYSTAR\RESIDENTIAL HEALTHCARE-90TH ST & RAINTREE-SCOTTSDALE-200626\11 CAD (SEG)\11.3 CO\3\02200626-C3-00.DWG SAVED BY: LAPTOP06 DATE: 2/2/2021

PROJECT: RESIDENTIAL HEALTH CARE FACILITY

LOCATION: N 90TH ST. & RAINTREE CIRCLE DR. SCOTTSDALE, ARIZONA 85260

DATE: 2/2/2021

ISSUED FOR: DRB

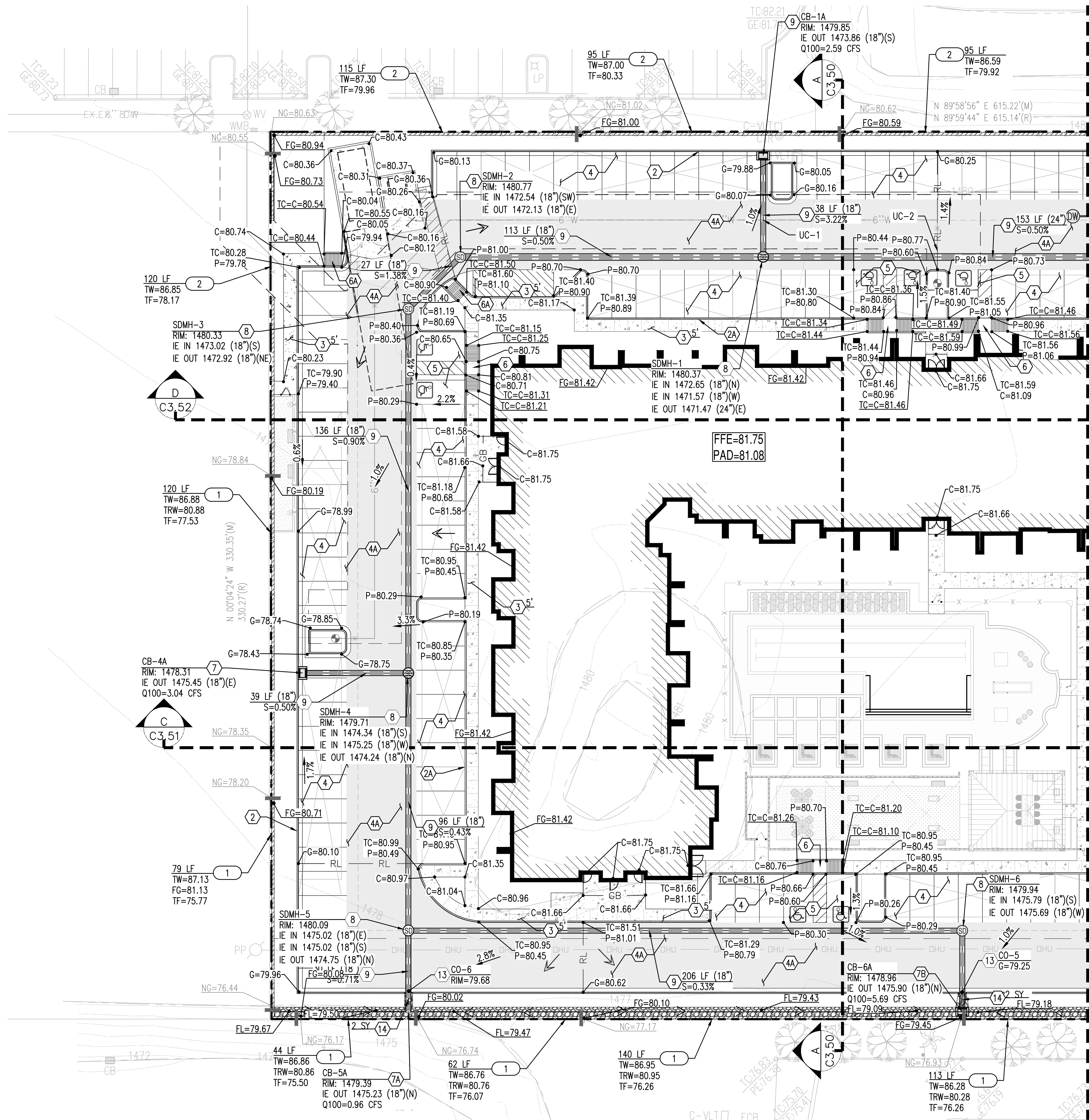
REVISION NO.: DATE:

JOB NO.: 200626

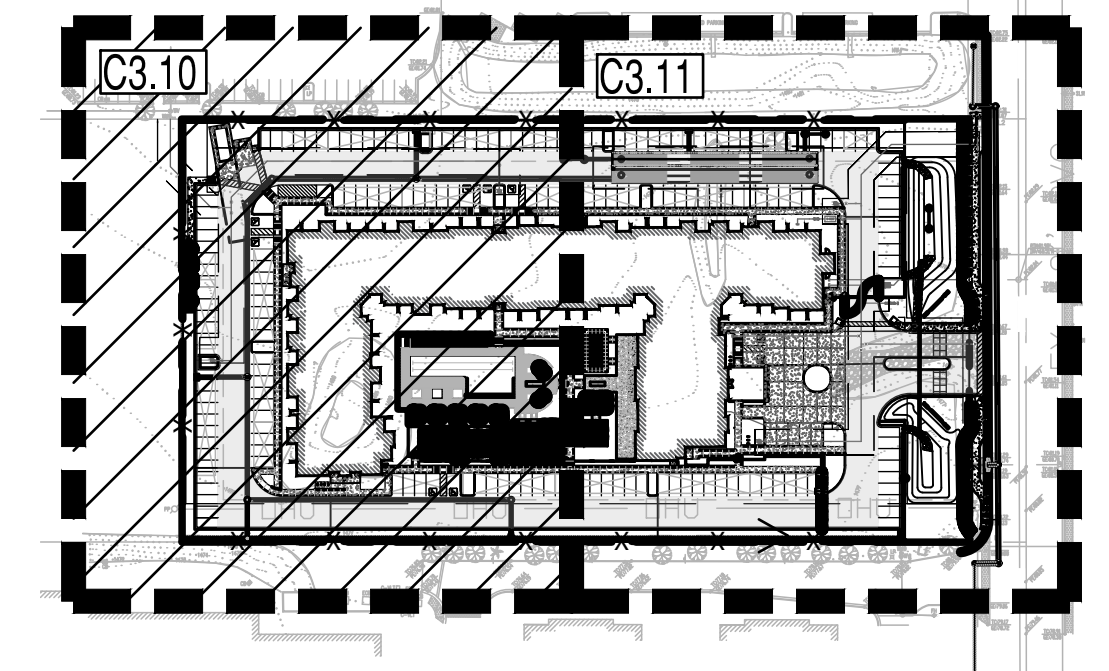
SHEET TITLE: GRADING AND DRAINAGE PLAN KEYMAP

PAGE NO.: SHEET NO.: C3.00

LOCATION: Z:\SHARED\PROJECTS\GREYSTAR\RESIDENTIAL HEALTHCARE-90TH ST & RAIN TREE-SCOTTSDALE-200626\11 CAD (SEG)\11.3 CO\3\02000626-C3.00.DWG SAVED BY: LAPTOP06 DATE: 2/2/2021



GRADING AND DRAINAGE PLAN
SCALE: 1" = 20'



KEY MAP
SCALE: 1"=150'

- PROPOSED LEGEND:**
- TC TOP OF CURB
 - G=XX.XX GUTTER ELEVATION, TC = G+0.5'
 - P=XX.XX PAVEMENT ELEVATION
 - C=XX.XX CONCRETE ELEVATION
 - PROPERTY LINE
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 - VERTICAL CURB
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 - ⊙ BB BUBBLER BOX
 - CONCRETE PAVEMENT
 - HEAVY DUTY PAVEMENT
 - LIGHT DUTY PAVEMENT
 - RIP-RAP
 - WALL

GRADING CONSTRUCTION KEY NOTES

- 1 MATCH EXISTING GRADE; CONTRACTOR TO VERIFY IN FIELD ALL GRADES PRIOR TO CONSTRUCTION ACTIVITIES AND CONTACT ENGINEER IN CASE OF ANY DISCREPANCIES.
- 2 CONSTRUCT 6" CONCRETE CURB AND GUTTER PER MAG STD. DET. 220-1 TYPE "A".
- 2A CONSTRUCT 6" VERTICAL CURB PER MAG STD. DET. 222 TYPE "B".
- 3 CONSTRUCT CONCRETE SIDEWALK PER MAG STD. DET. 230. WIDTH PER PLAN.
- 4 CONSTRUCT 2.5" AC ON 5" ABC ON COMPACTED SUBGRADE PER MAG SPECIFICATION 301, 310, AND 321 AND DET. 4/C3.20.
- 4A CONSTRUCT 3" AC ON 5" ABC ON COMPACTED SUBGRADE PER MAG SPECIFICATION 301, 310, AND 321 AND DET. 4/C3.20.
- 5 CONSTRUCT PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
- 6 CONSTRUCT ADA RAMP PER DET. 2/C3.20.
- 6A CONSTRUCT ADA RAMP PER DET. 1/C3.20.
- 6B CONSTRUCT ADA RAMP PER DET. 3/C3.20.
- 7 FURNISH AND INSTALL CONCRETE CATCH BASIN TYPE "F" PER MAG STD. DET. 535.
- 7A FURNISH AND INSTALL 18" NYLOPLAST DRAIN BASIN WITH STANDARD H-20 GRATE. PER DET. 1/C3.21.
- 7B FURNISH AND INSTALL NYLOPLAST DRAIN BASIN WITH 2'X3' STEEL BAR GRATE INLET PER DET. 2/C3.21.
- 8 FURNISH AND INSTALL PRECAST MANHOLE WITH 48-INCH BASE PER MAG STD. DET. 520 AND 522 WITH CONCRETE COLLAR PER MAG STD. DET. 422; COVER PER C.O.S. STD. DET. 2520
- 9 FURNISH AND INSTALL HDPE DOUBLE WALL PIPE, CLASS 100; PIPE MATERIAL PER MAG SPECIFICATION 738. LENGTH, SIZE AND SLOPE PER PLAN.

RETAINING WALL CONSTRUCTION KEY NOTES

- 1 CMU RETAINING WALL WITH 3' SCREEN WALL, 8' MAXIMUM RETAINED HEIGHT.
- 2 6' VIEW FENCE.

UTILITY CROSSINGS

UC	DESCRIPTION	ELEVATION	REMARKS
UC-1	6" WATER BOT	76.65	NO EXTRA PROTECTION REQUIRED
	18" STORM TOP	74.55	
UC-2	6" WATER BOT	76.65	NO EXTRA PROTECTION REQUIRED
	18" STORM TOP	72.77	

● REQUIRES VERTICAL REALIGNMENT PER MAG STD. DET. 370.

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PROJECT: RESIDENTIAL HEALTH CARE FACILITY
LOCATION: N 90TH ST. & RAIN TREE, SCOTTSDALE, ARIZONA 85260

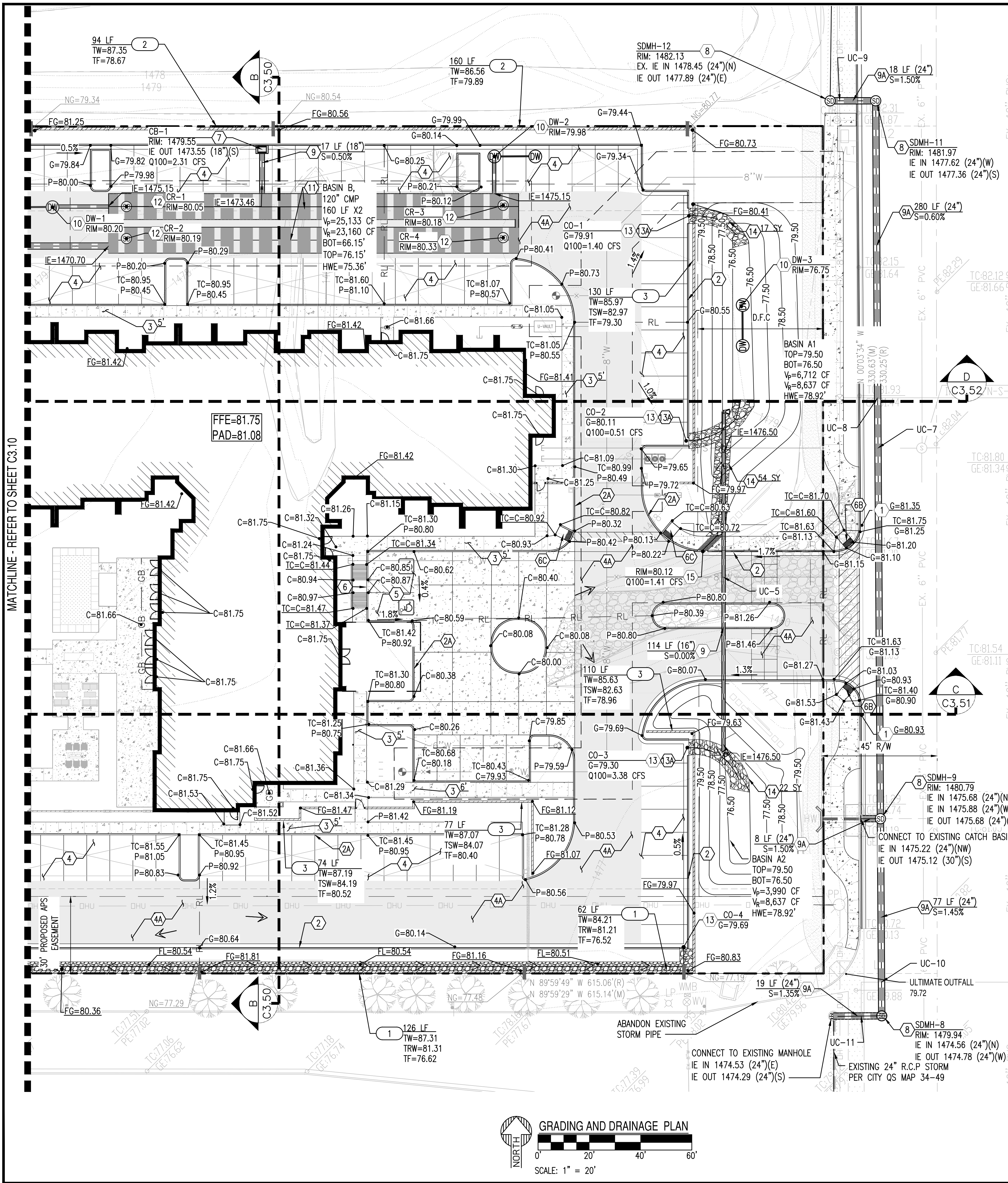
DATE: 2/2/2021
ISSUED FOR: DRB

REVISION NO.: DATE:
JOB NO.: 200626
SHEET TITLE: GRADING AND DRAINAGE PLAN

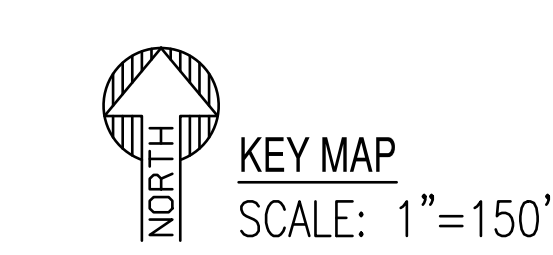
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LOCATION: Z:\SHARED\PROJECTS\GREYSTAR\RESIDENTIAL HEALTHCARE-90TH ST & RAIN TREE-SCOTTSDALE--200620\11.3 CO\3\02000626-C3.00.DWG SAVED BY: LAPTOP06 DATE: 2/2/2021



GRADING AND DRAINAGE PLAN
SCALE: 1" = 20'

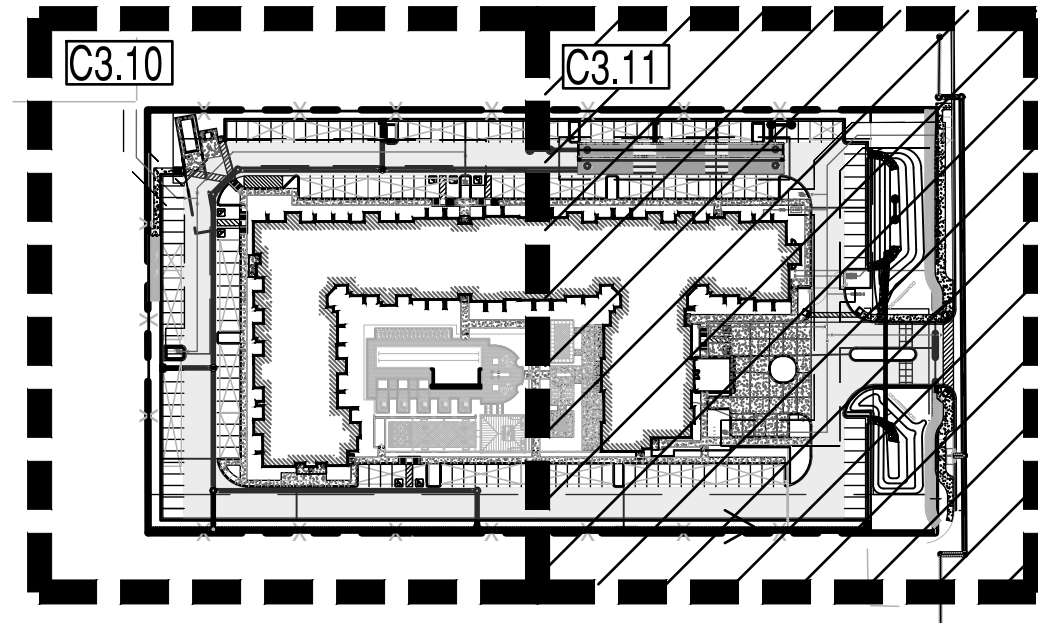


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- P=XX.XX PAVEMENT ELEVATION
- C=XX.XX CONCRETE ELEVATION
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- RL RIDGELINE
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RETAINING WALL CONSTRUCTION KEY NOTES

- 1 CMU RETAINING WALL WITH 3' SCREEN WALL, 8' MAXIMUM RETAINED HEIGHT.
- 2 6' VIEW FENCE.
- 3 3' CMU SCREEN WALL WITH 3' VIEW FENCE.



GRADING CONSTRUCTION KEY NOTES

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- 6 CONSTRUCT ADA RAMP PER DET. 2/C3.20.
- 6B CONSTRUCT ADA RAMP PER DET. 3/C3.20.
- 6C CONSTRUCT ADA RAMP PER C.O.S. STD. DET. 2233-2
- 7 FURNISH AND INSTALL CONCRETE CATCH BASIN TYPE "F" PER MAG STD. DET. 535.
- 8 FURNISH AND INSTALL PRECAST MANHOLE WITH 48-INCH BASE PER MAG STD. DET. 520 AND 522 WITH CONCRETE COLLAR PER MAG STD. DET. 422.; COVER PER C.O.S. STD. DET. 2520
- 9 FURNISH AND INSTALL HDPE DOUBLE WALL PIPE, CLASS 100; PIPE MATERIAL PER MAG SPECIFICATION 738. LENGTH, SIZE AND SLOPE PER PLAN.
- 9A FURNISH AND INSTALL RGRCP, CLASS II; PIPE MATERIAL PER MAG SPECIFICATION 735. LENGTH, SIZE AND SLOPE PER PLAN.
- 10 FURNISH AND INSTALL MAXWELL PLUS DRYWELL REFER TO SHEET C3.21 FOR DETAIL. NOTE: CONTRACTOR TO HAVE A PERCOLATION TEST DONE ON FIRST CONSTRUCTED DRYWELL AND PROVIDE RESULTS TO ENGINEER FOR DETERMINATION OF ULTIMATE NUMBER OF REQUIRED DRYWELLS. PROVIDE RAISED RIM PER DET. 8/C3.20.
- 11 FURNISH AND INSTALL 14 GAGE POLYMER COATED 120" CMP STORMWATER STORAGE SYSTEM. PIPE MATERIAL PER MAG SPECIFICATION 621. LENGTH AND SLOPE PER PLAN. INVERT OF PIPE TO BE PAVED PER C.O.S. STD. DET. 2554. CONTRACTOR TO PROVIDE SIGNED AND SEALED SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO MANUFACTURING.
- 12 FURNISH AND INSTALL 24" CMP RISER WITH STANDARD SOLID LID. PER DET. ON SHEET C3.21.
- 13 CONSTRUCT CURB OPENING PER DETAIL 7/C3.20; LENGTH PER PLAN.
- 13A CONSTRUCT WALL OPENING PER DETAIL 6/C3.20.
- 14 FURNISH AND INSTALL RIP-RAP; D50 = 6", 12" DEPTH. DIMENSIONS PER PLAN. REFER TO DETAIL 5/C3.20.
- 15 FURNISH AND INSTALL SIDEWALK SCUPPER PER MAG STD. DET. 203.

UTILITY CROSSINGS

UC	DESCRIPTION	ELEVATION	REMARKS
UC-5	16" STORM BOT	76.44	PROVIDE VERTICAL REALIGNMENT PER MAG STD. DET. 370.
	8" WATER TOP	74.40	
UC-7	24" STORM BOT	76.37	NO EXTRA PROTECTION REQUIRED
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	12" WATER TOP	72.20	

● REQUIRES VERTICAL REALIGNMENT PER MAG STD. DET. 370.

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**SUSTAINABILITY
ENGINEERING
GROUP**

SEG

8260 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL: 480.586.7226 FAX: 480.259.3534

PROJECT: RESIDENTIAL CARE FACILITY

LOCATION: N 90TH ST. & RAIN TREE CIRCLE DR. SCOTTSDALE, ARIZONA 85260

DATE: 2/2/2021

ISSUED FOR: DRB

REVISION NO.: DATE:

JOB NO.: 200626

SHEET TITLE: GRADING AND DRAINAGE PLAN

PAGE NO.: SHEET NO.: **C3.11**

Drawn: RM 02/02/2021

Designed: RM 02/02/2021

QC: SC 01/25/2021

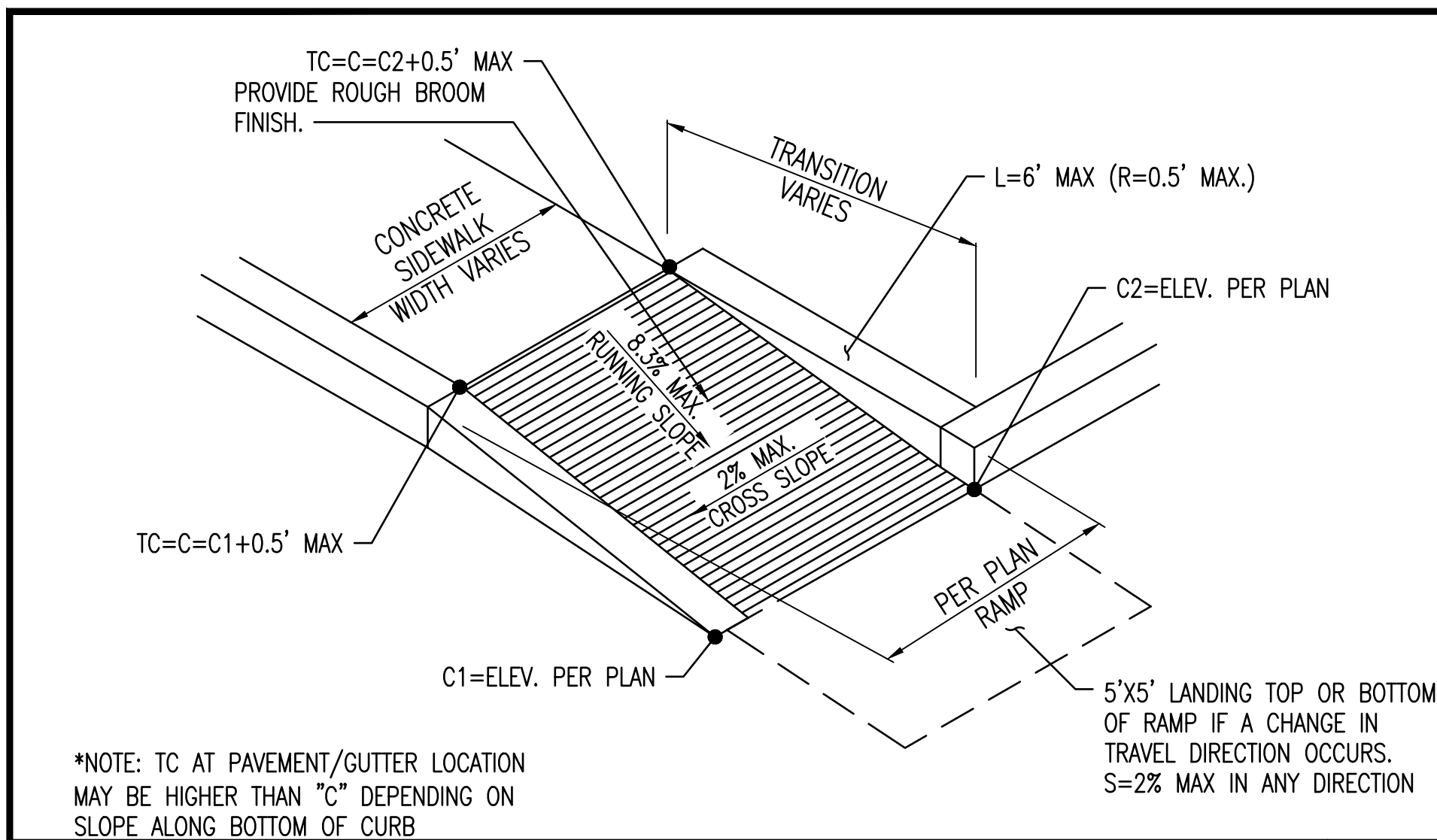
Proj. Mgr: AF 02/02/2021

2/2/2021

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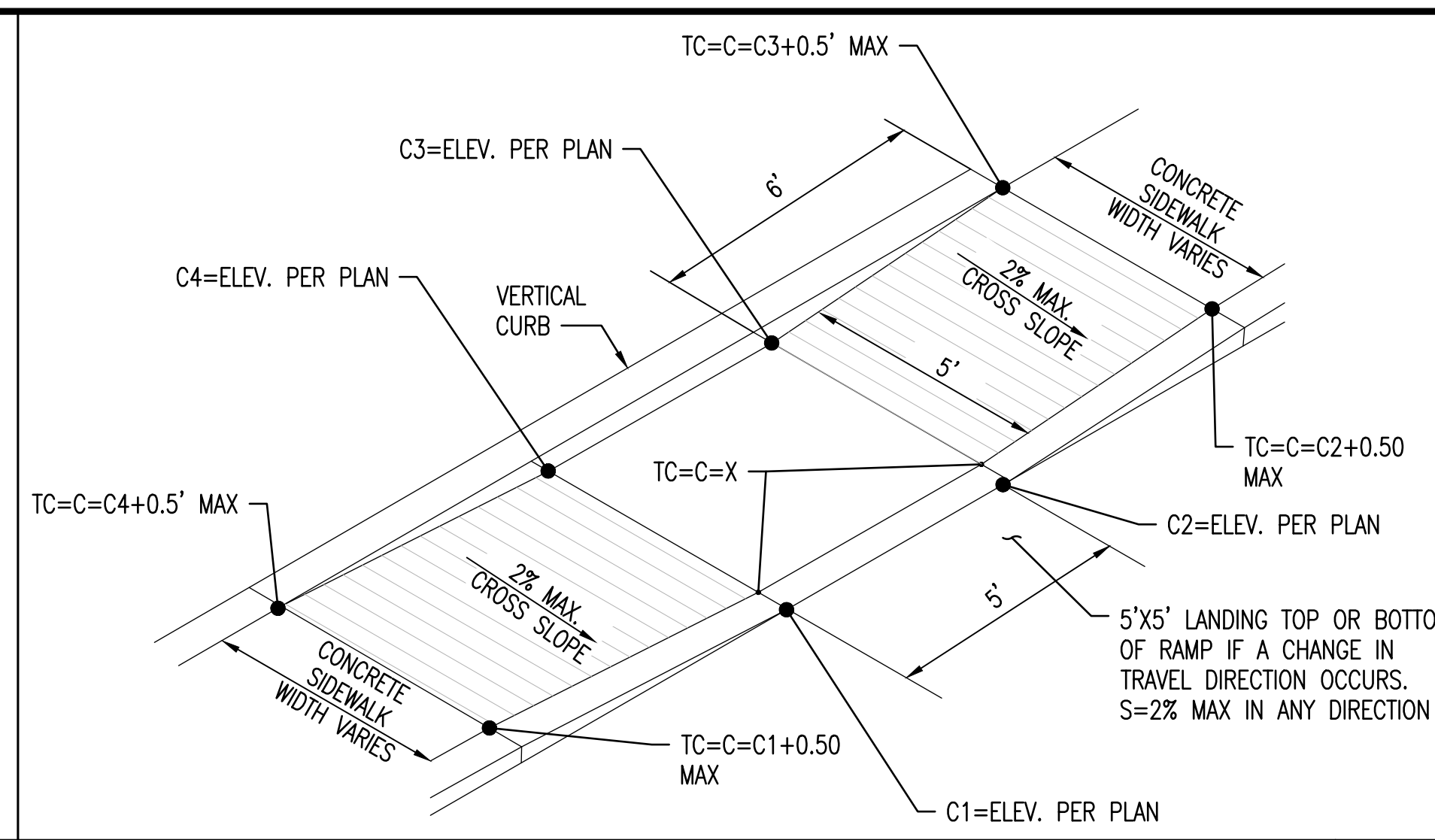
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ADA ACCESSIBLE RAMP



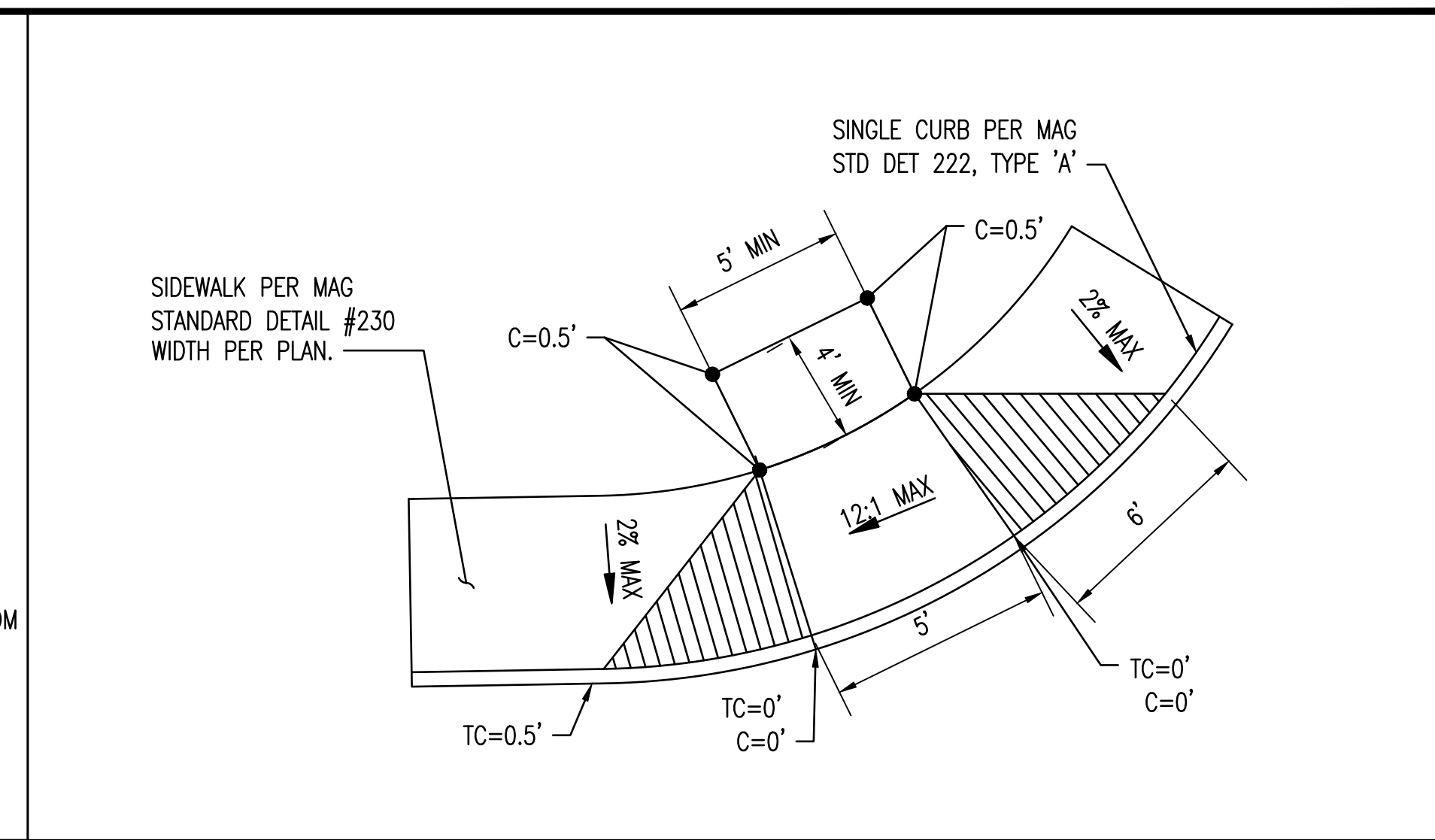
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ADA ACCESSIBLE RAMP



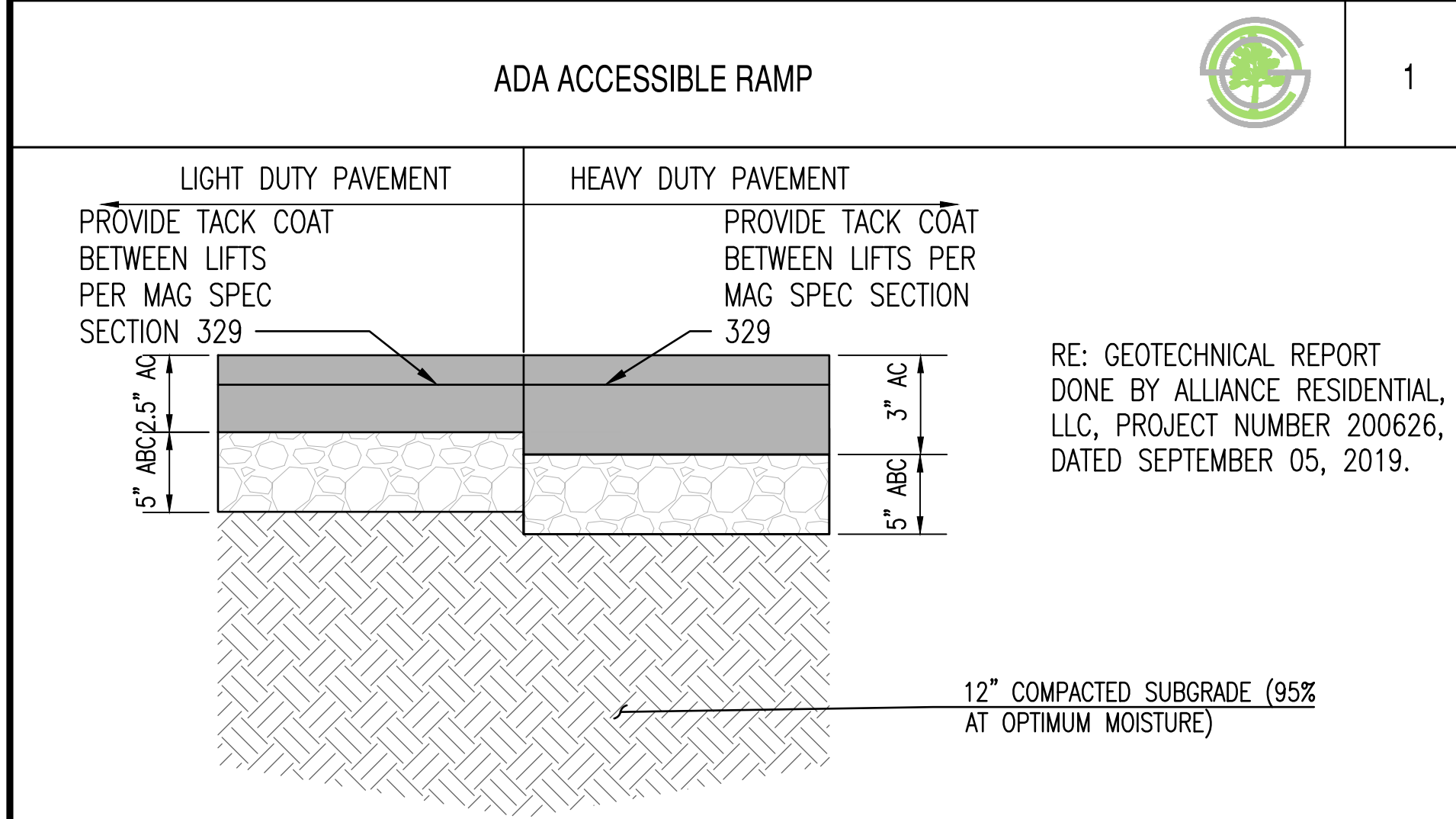
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ADA ACCESSIBLE RAMP



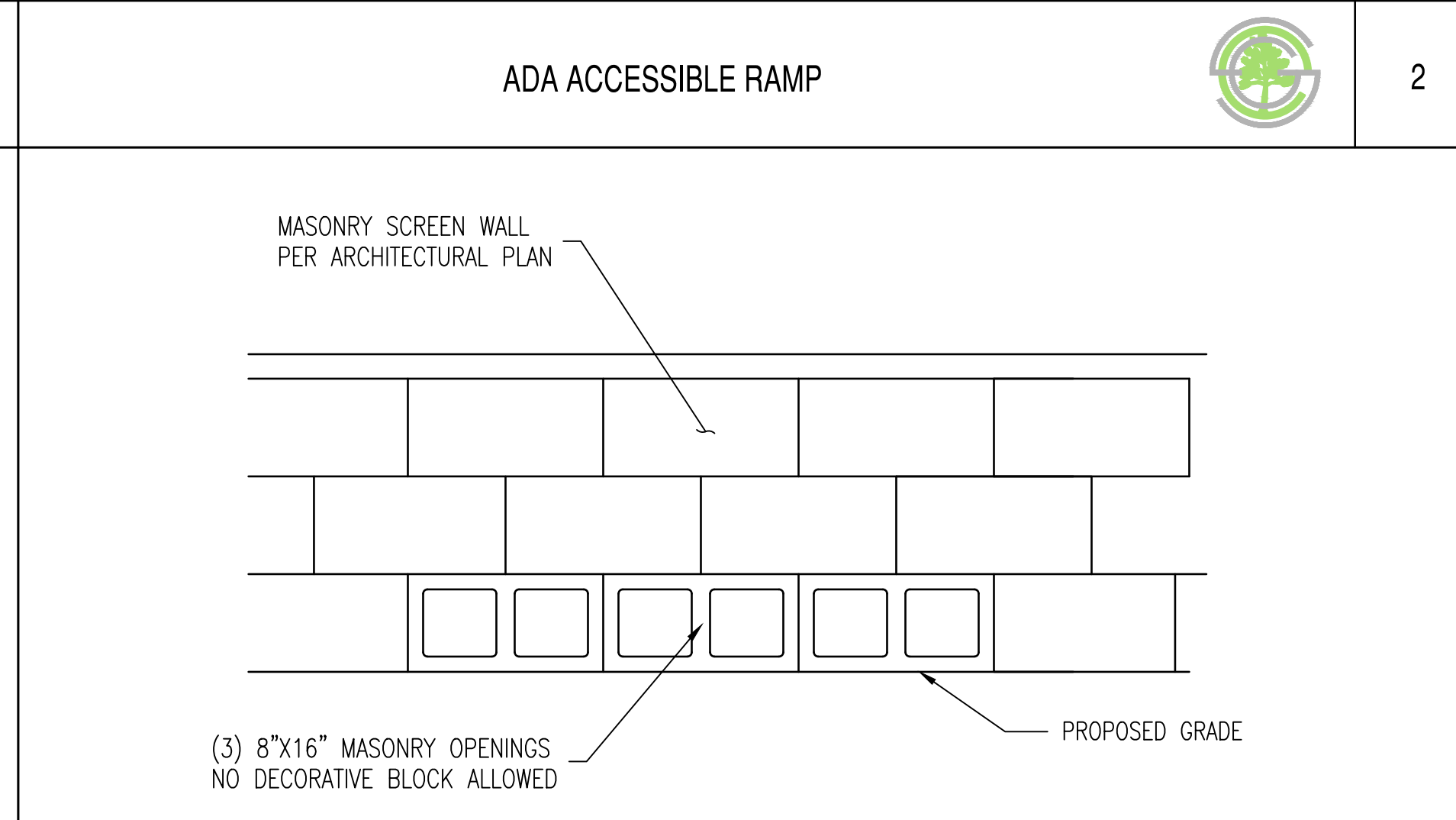
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ASPHALT PAVEMENT SECTION



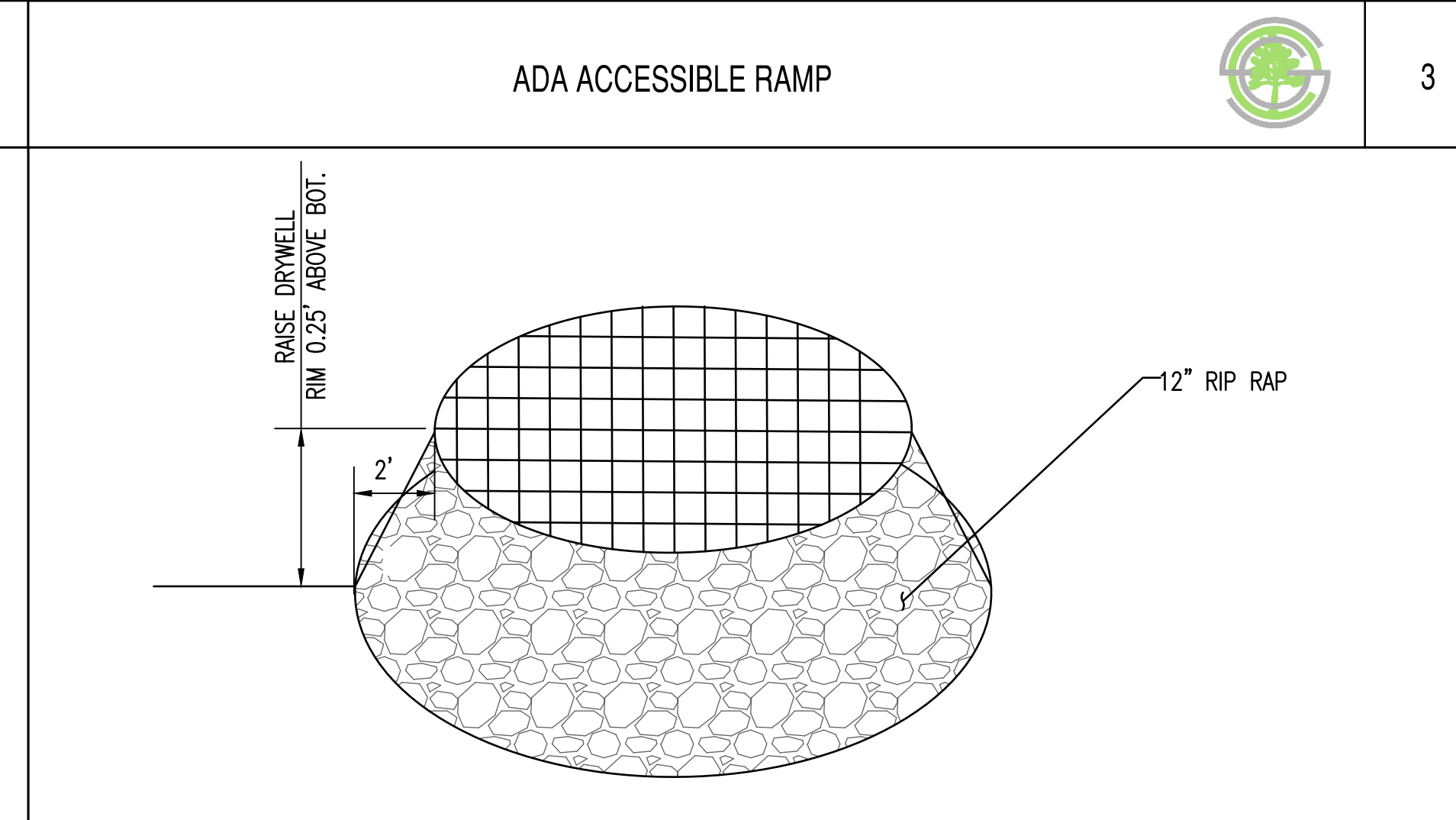
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MASONRY WALL OPENING
N.T.S.



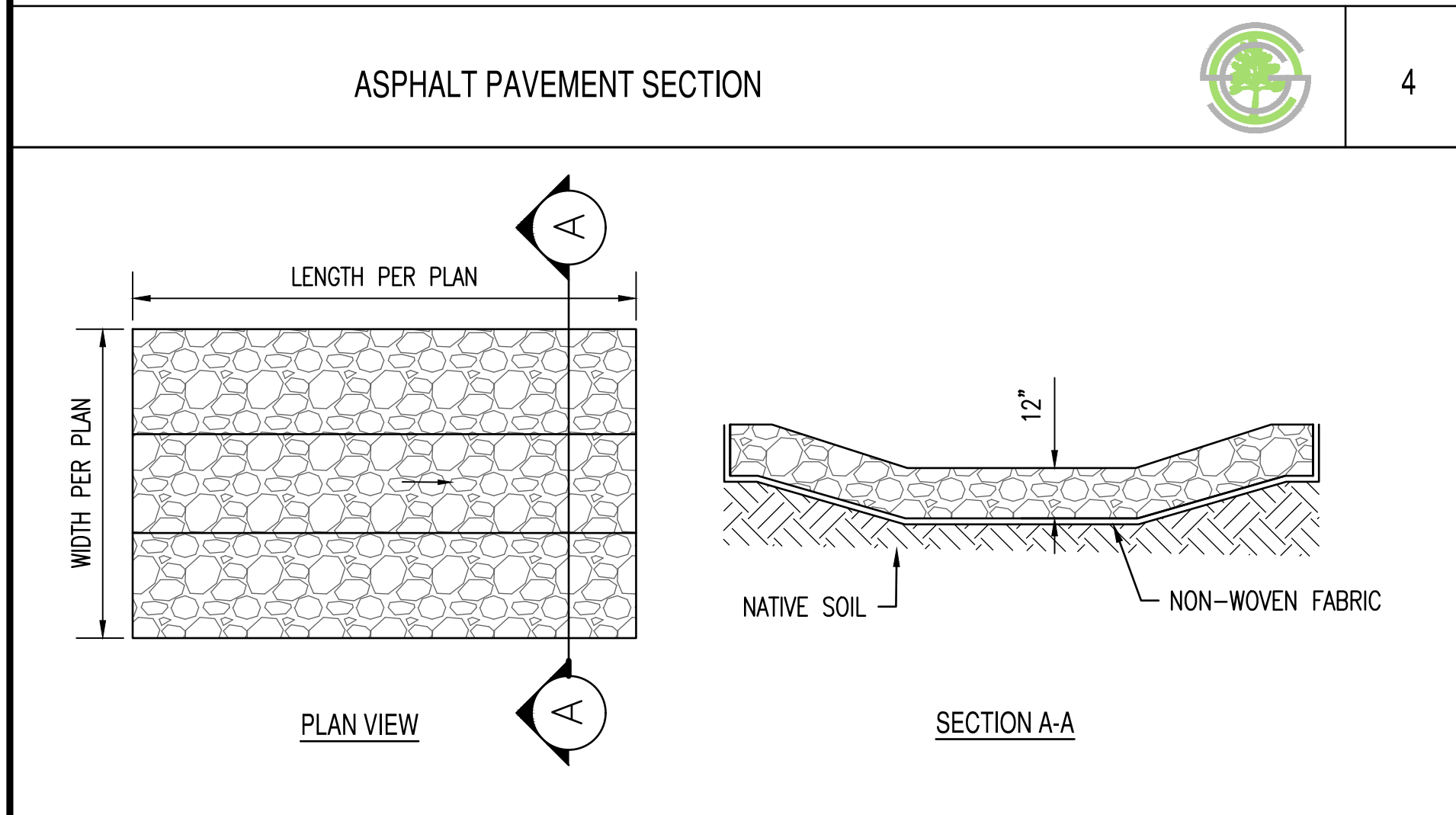
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RAISED DRYWELL RIM
N.T.S.



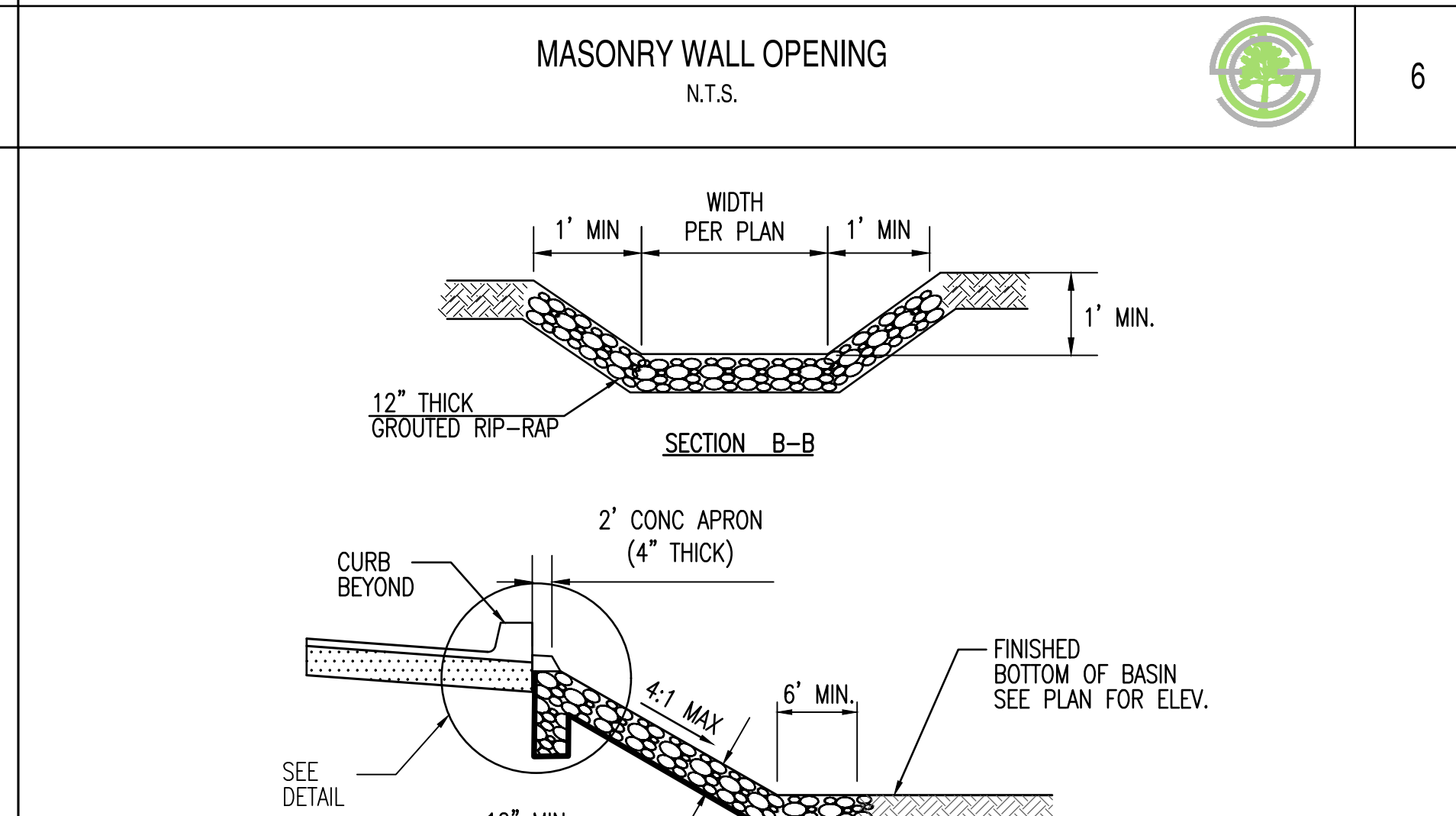
8



TYPICAL RIP RAP PAD



5



CURB OPENING RIPRAP



7

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DESIGNED: RM 02/02/2021
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PROJ. MGR: AF 02/02/2021

DATE: 2/2/2021
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SHEET TITLE: GRADING AND DRAINAGE DETAILS

PAGE NO.: SHEET NO.: C3.20

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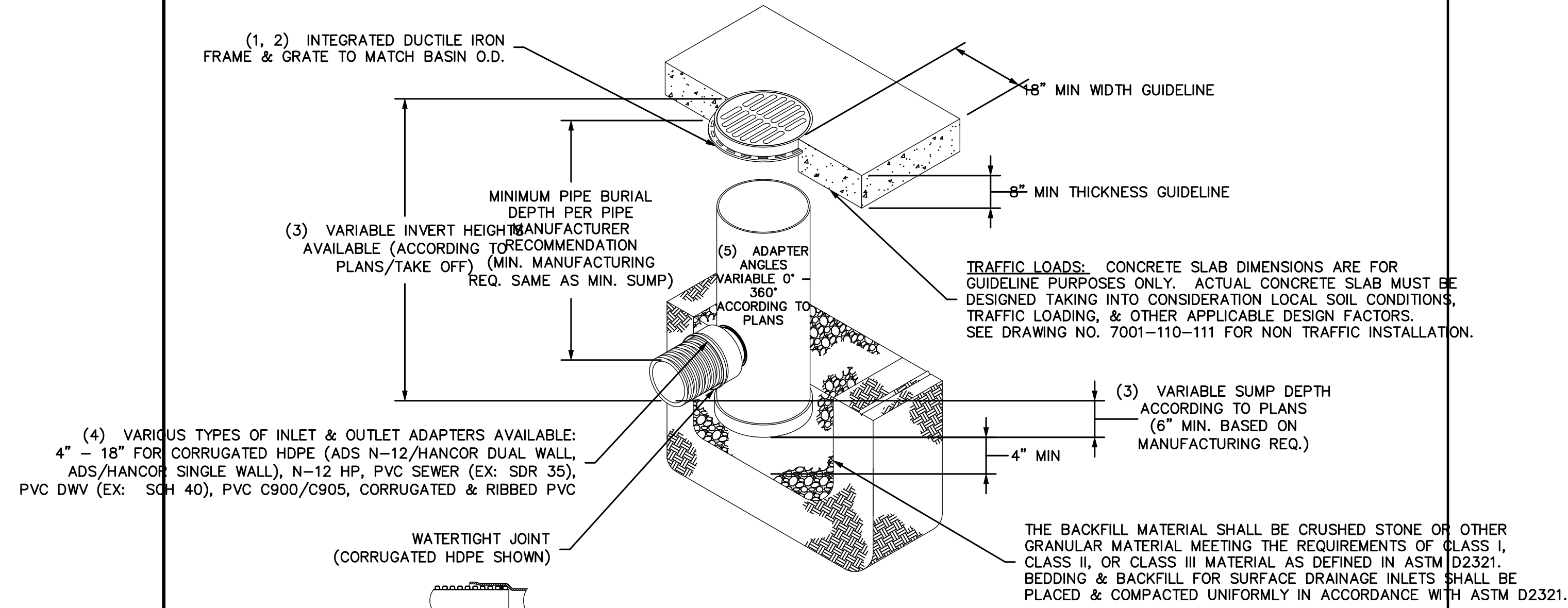
PENDING DRAWING

MAXWELL DRYWELL



9

NYLOPLAST 18" DRAIN BASIN: 2818AG _ _ X



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	1899CGP	7001-110-212
STANDARD	MEETS H-20	1899CGS	7001-110-213
SOLID COVER	MEETS H-20	1899CGC	7001-110-214
DOME	N/A	1899CGD	7001-110-215
DROP IN GRATE	LIGHT DUTY	1801DI	7001-110-074

- GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-30-05.
- FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-30-05.
- DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN. NO TAKE OFF OR POSSESSION RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING LIMITATIONS. SEE DRAWING NO. 7001-110-065.
- DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO TECHNICAL INFORMATION ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL, N-12 HP, & PVC SEWER).
- ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360° WITH A MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-065.

DISCLOSURE TO OTHERS IS FORBIDDEN, EXCEPT BY SPECIFIC WRITTEN PERMISSION FROM NYLOPLAST.

3130 VERONA AVE
 BUFORD, GA 30518
 PHN (770) 932-2443
 FAX (770) 932-2490
 nyloplast-us.com

NYLOPLAST

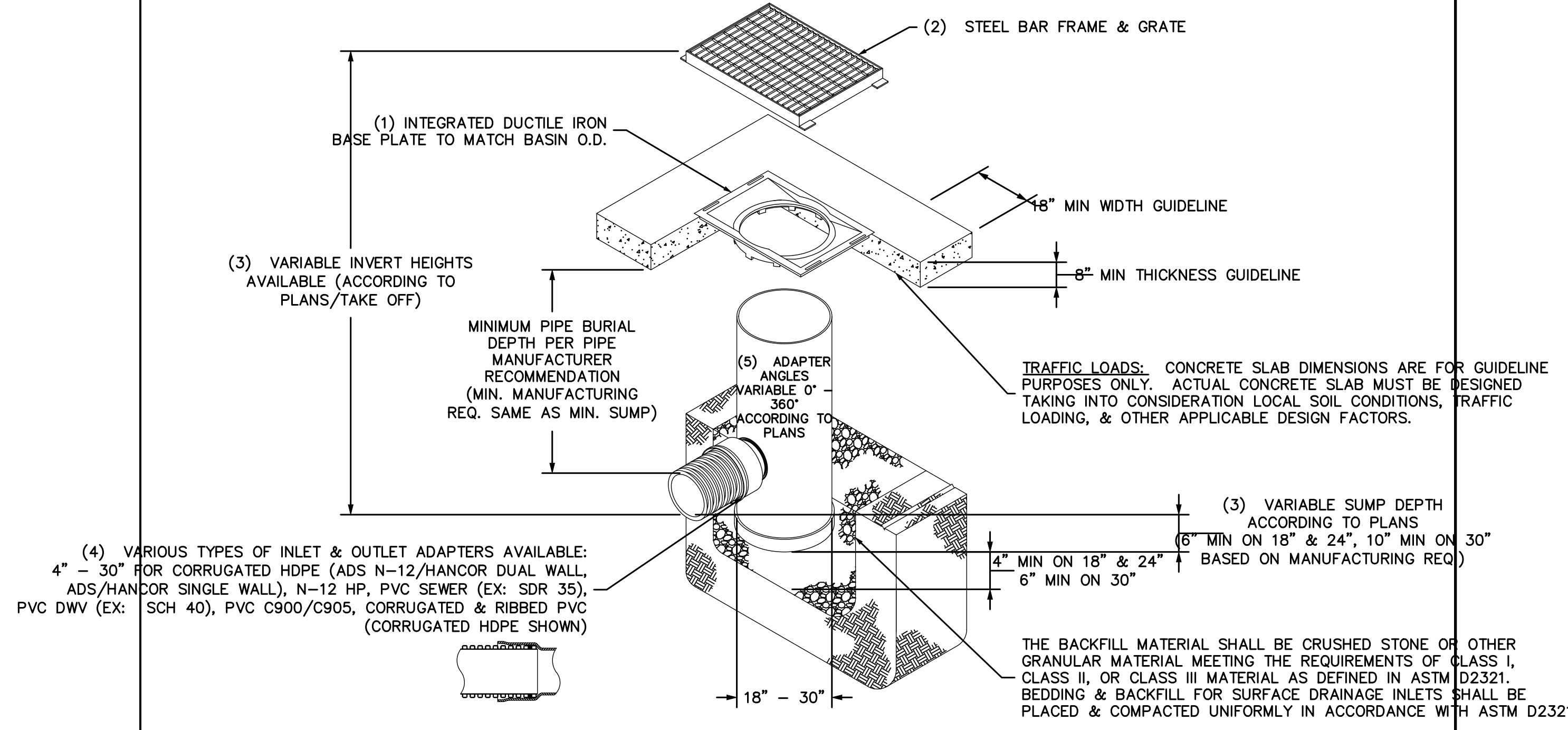
TITLE: 18 IN DRAIN BASIN WITH 18" X 18" STEEL BAR GRATE
 INSTALLATION DETAIL

DRAWN BY: EBC MATERIAL
 DATE: 04-03-06
 PROJECT NO./NAME:
 REVISIONS:
 BY: NMH
 DATE: 03-14-16
 DWG NO.: A SCALE: 1:30 SHEET 1 OF 1
 DWG NO.: 7001-110-191 REV E

NYLOPLAST 18" DRAIN BASIN

1

NYLOPLAST DRAIN BASIN WITH 2 FT X 3 FT STEEL BAR GRATE



- 18" - 30" BASE PLATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-30-05.
- FRAME & GRATE SHALL BE STEEL PER ASTM A36.
- DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN. NO TAKE OFF OR POSSESSION RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING LIMITATIONS. SEE DRAWING NO. 7001-110-065.
- DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO TECHNICAL INFORMATION ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL, N-12 HP, & PVC SEWER (4" - 24").
- ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360° WITH A MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-065.
- STEEL BAR GRATE SHALL MEET H-20 LOAD RATING.

DISCLOSURE TO OTHERS IS FORBIDDEN, EXCEPT BY SPECIFIC WRITTEN PERMISSION FROM NYLOPLAST.

3130 VERONA AVE
 BUFORD, GA 30518
 PHN (770) 932-2443
 FAX (770) 932-2490
 nyloplast-us.com

NYLOPLAST

TITLE: DRAIN BASIN WITH 2 FT X 3 FT STEEL BAR GRATE
 QUICK SPEC INSTALLATION DETAIL

DRAWN BY: EBC MATERIAL
 DATE: 03-22-10
 PROJECT NO./NAME:
 REVISIONS:
 BY: NMH
 DATE: 03-16-16
 DWG NO.: A SCALE: 1:40 SHEET 1 OF 1
 DWG NO.: 7001-110-395 REV D

NYLOPLAST DRAIN BASIN WITH 2' X 3' STEEL BAR GATE

2

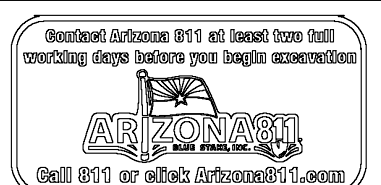
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8260 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
 WWW.AZSEG.COM TEL. 480.586.7226 FAX. 480.259.3534



PROJECT: RESIDENTIAL HEALTH CARE FACILITY
 LOCATION: N 90TH ST. & RAIN TREE CIRCLE DR. SCOTTSDALE, ARIZONA 85260

DRAWN: RM 02/02/2021
 DESIGNED: RM 02/02/2021
 QC: SC 01/25/2021
 CA:
 PROJ. MGR.: AF 02/02/2021
 DATE: 2/2/2021
 ISSUED FOR: DRB

REVISION NO.	DATE

JOB NO.: 200626
 SHEET TITLE: GRADING AND DRAINAGE DETAILS

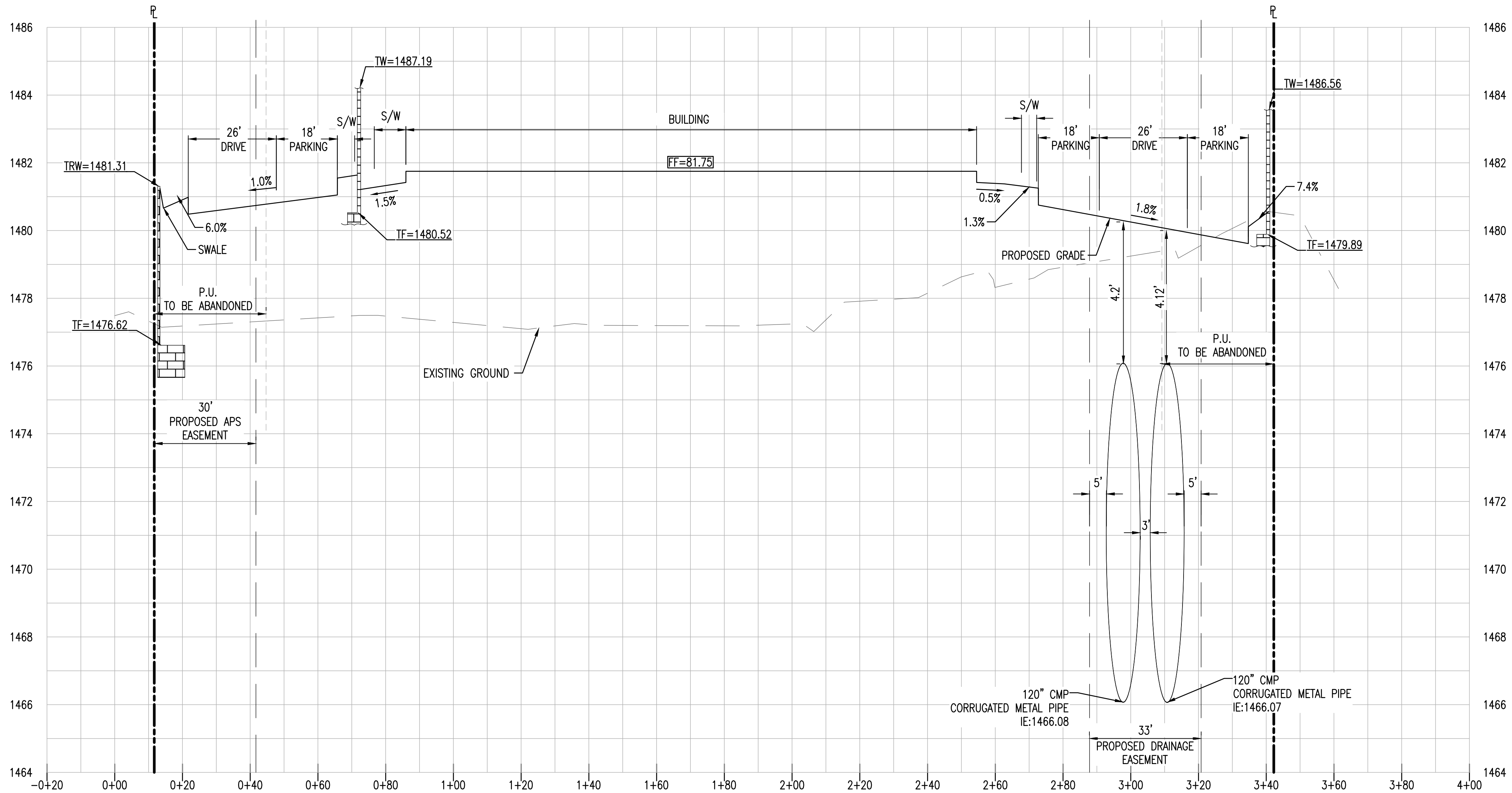
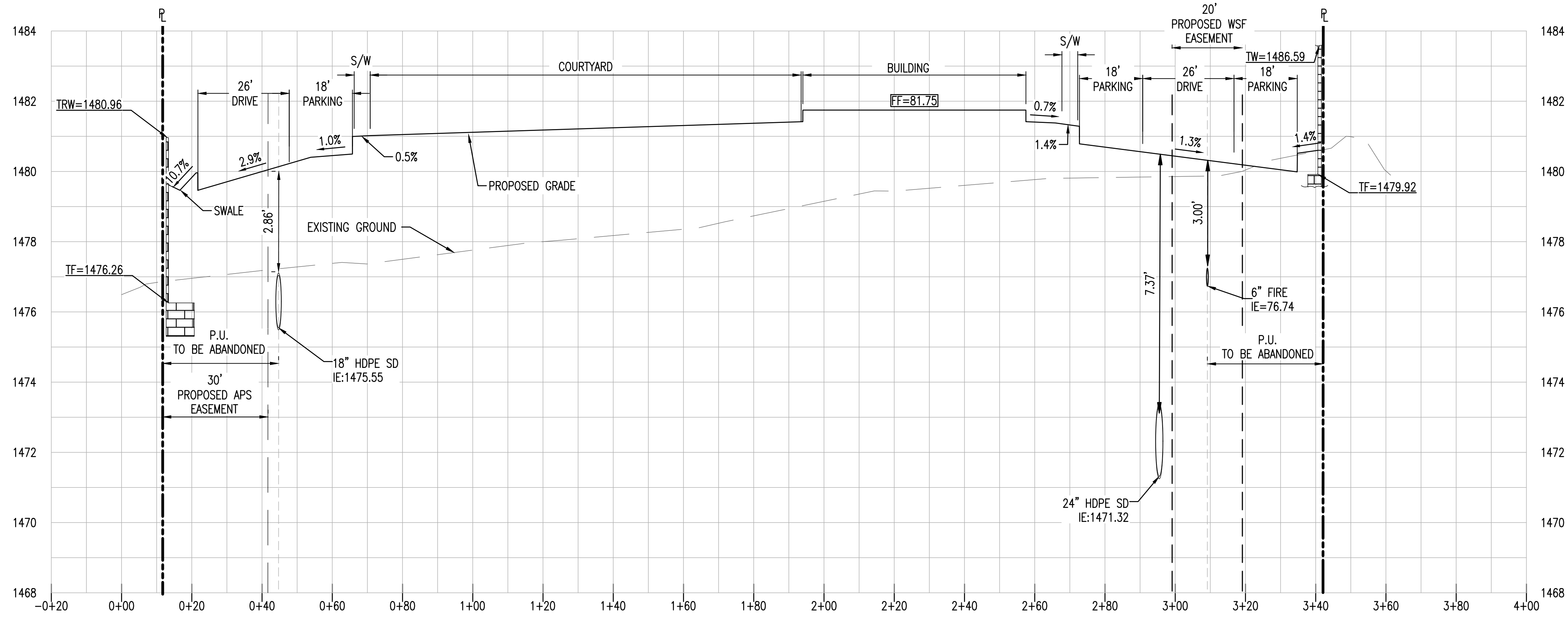
GRADING AND DRAINAGE
DETAILS

PAGE NO.:
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PROJECT: RESIDENTIAL HEALTH CARE FACILITY
 LOCATION: N 90TH ST. & RAIN TREE CIRCLE DR. SCOTTSDALE, ARIZONA 85260

DRAWN: RM 02/02/2021
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REVISION NO.	DATE

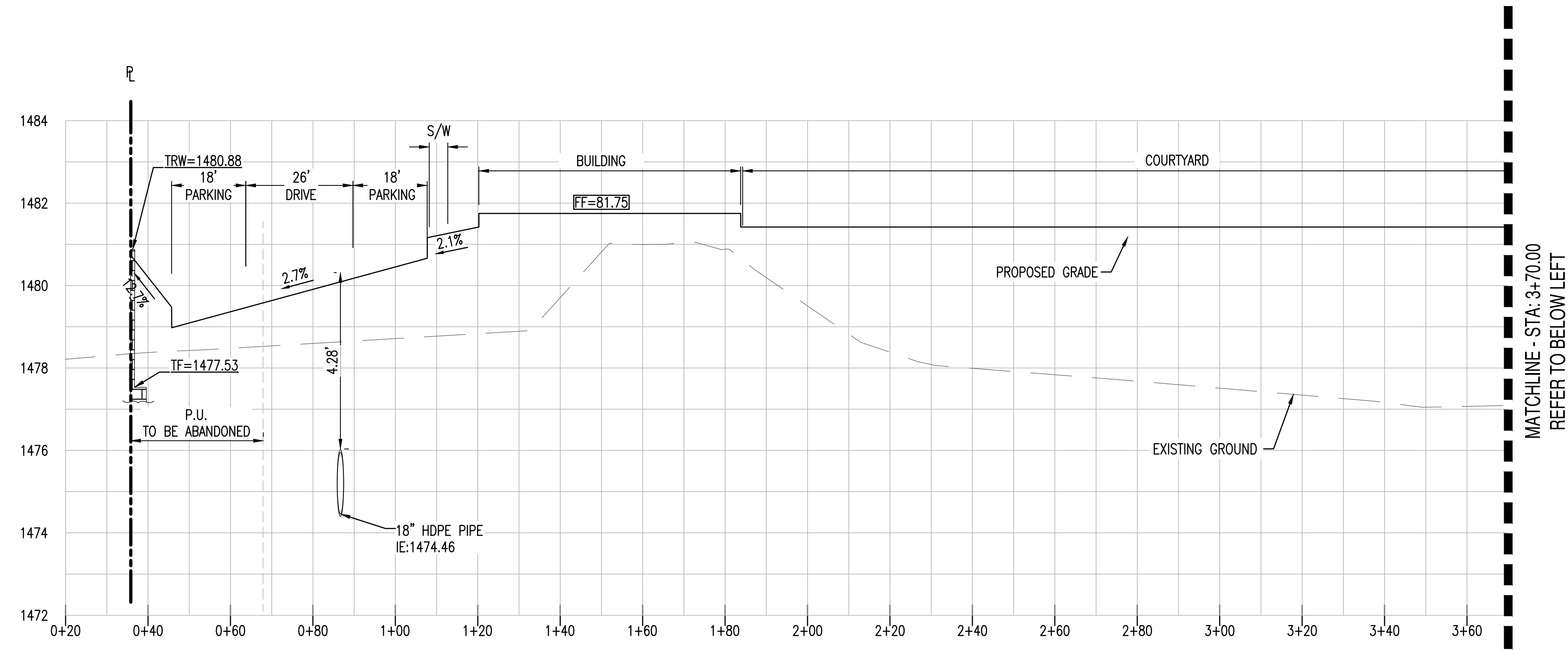
JOB NO.: 200626

SHEET TITLE: SITE CROSS-SECTIONS

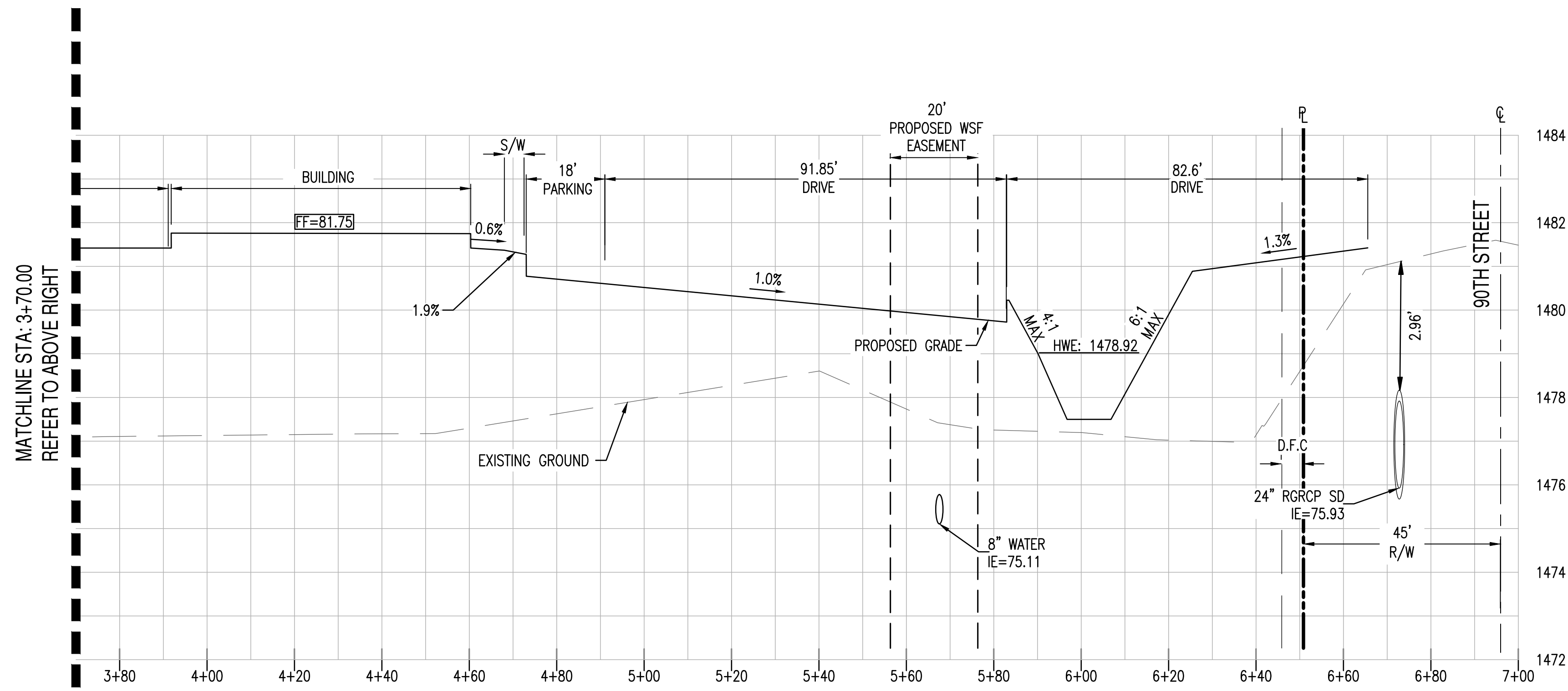
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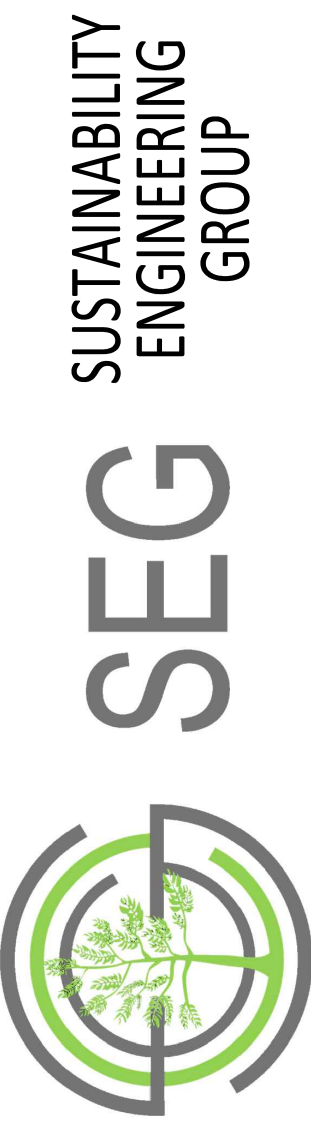


PROFILE VIEW C-C
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 2'



PROFILE VIEW C-C
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 2'

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PROJECT: RESIDENTIAL HEALTH CARE FACILITY
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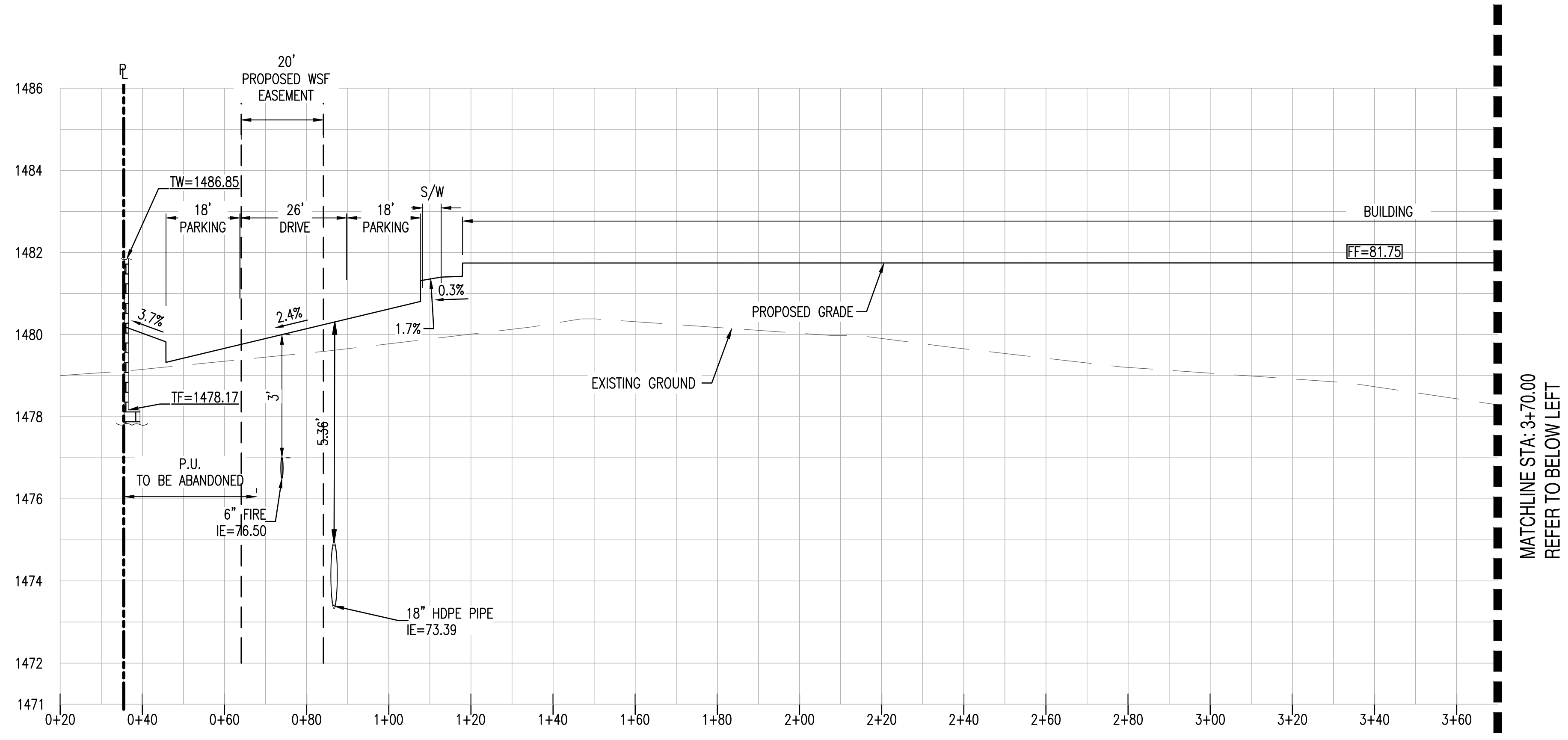
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SITE CROSS-SECTIONS

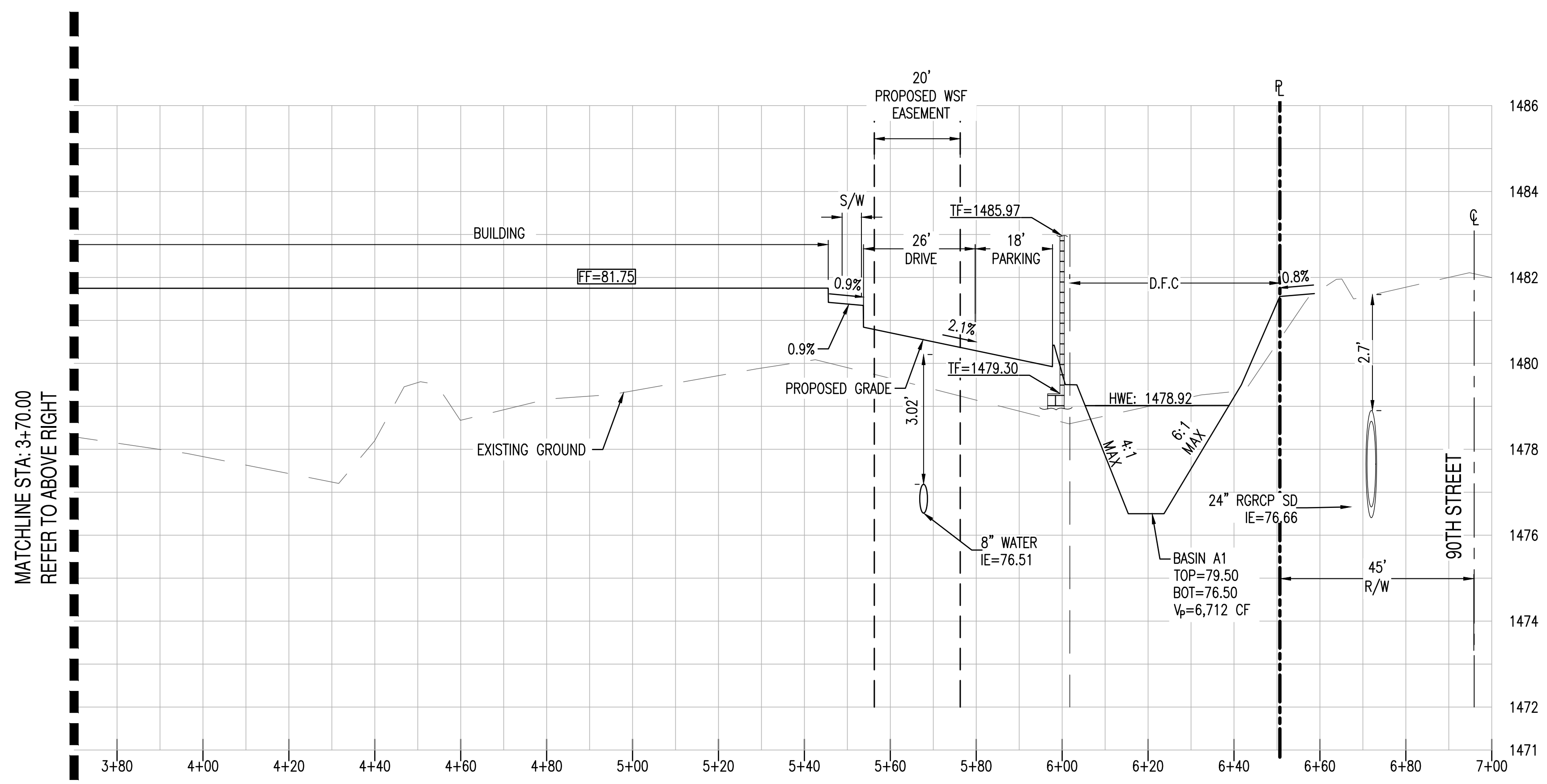
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PROFILE VIEW D-D
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

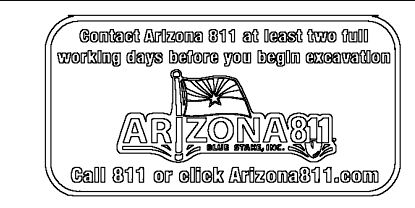


PROFILE VIEW D-D
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

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PROJECT: RESIDENTIAL HEALTH CARE FACILITY
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