

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Richard S. Kuper
Signature of Developer
5/3/00
Date

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Robert V. Kuegel
Signature of Engineer
5/3/00
Date

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

Cheryl K. Johnson
USDA-Natural Resources Conservation Service
05/03/00
Date

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

B. P. Burt
Howard Soil Conservation District
5/3/00
Date

SEQUENCE OF CONSTRUCTION:

1. THE CONTRACTOR IS TO OBTAIN A GRADING PERMIT FROM HOWARD COUNTY.
2. THE CONTRACTOR IS TO NOTIFY HOWARD COUNTY NATURAL RESOURCES CONSERVATIONS SERVICE AND HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES, AND PERMITS, SEDIMENT CONTROL DIVISION 48 HRS. BEFORE STARTING CONSTRUCTION.
3. THE CONTRACTOR SHALL ATTEND AN ON SITE FIELD MEETING WITH SEDIMENT CONTROL INSPECTOR BEFORE BEGINNING ANY CONSTRUCTION ACTIVITIES.
4. FOR ALL AREAS EXCEPT HALE HAVEN DRIVE-DONCASTER DRIVE CONNECTION, THE CONTRACTOR IS TO PROVIDE TEMPORARY SEDIMENT CONTROL MEASURES AND TEMPORARY STABILIZATION TO EACH DISTURBED AREA BEFORE STOPPING WORK EACH DAY. NO AREA IS TO REMAIN UNSTABILIZED UNLESS THE CONTRACTOR IS ACTIVELY WORKING AT THAT LOCATION.

HALE HAVEN DRIVE - DONCASTER DRIVE CONNECTION

5. THE CONTRACTOR IS TO INSTALL THE APPROPRIATE SEDIMENT CONTROL DEVICE AS CITED IN EACH OF THE FOLLOWING PHASES ONLY ONCE THE SEDIMENT DEVICES ARE IN PLACE MAY THE CONTRACTOR BEGIN ANY CLEARING AND GRUBBING REQUIRED FOR THE INDIVIDUAL PHASE.

PHASE I

1. PLACE MINIMUM EMBANKMENT REQUIRED AND INSTALL STABILIZED CONSTRUCTION ENTRANCES.
2. INSTALL SUPER SILT FENCE (SSF) ALONG SOUTHWESTERN AND SOUTHEASTERN LIMITS OF PROJECT AND ADJACENT TO THE BERM/OUTFALL CHANNEL.
3. INSTALL EARTH DIKE (A-2) NEAR THE TOE OF THE PROPOSED ROADWAY EMBANKMENT, EDGE OF SWM BASIN EXCAVATION AND EAST OF BERM/OUTFALL CHANNEL.
4. CONSTRUCT BERM/OUTFALL CHANNEL AND PERMANENT STABILIZATION.

PHASE II

1. INSTALL STORM DRAIN SYSTEM FROM ES4.1 TO ES4.3 AND BERM AT UPSTREAM END AND ALONG NORTHWEST PROPERTY LIMITS.
2. PROVIDE RIP RAP AT DOWNSTREAM END PLUS SOD DISTURBED AREA UPSTREAM OF ES4.1

PHASE III

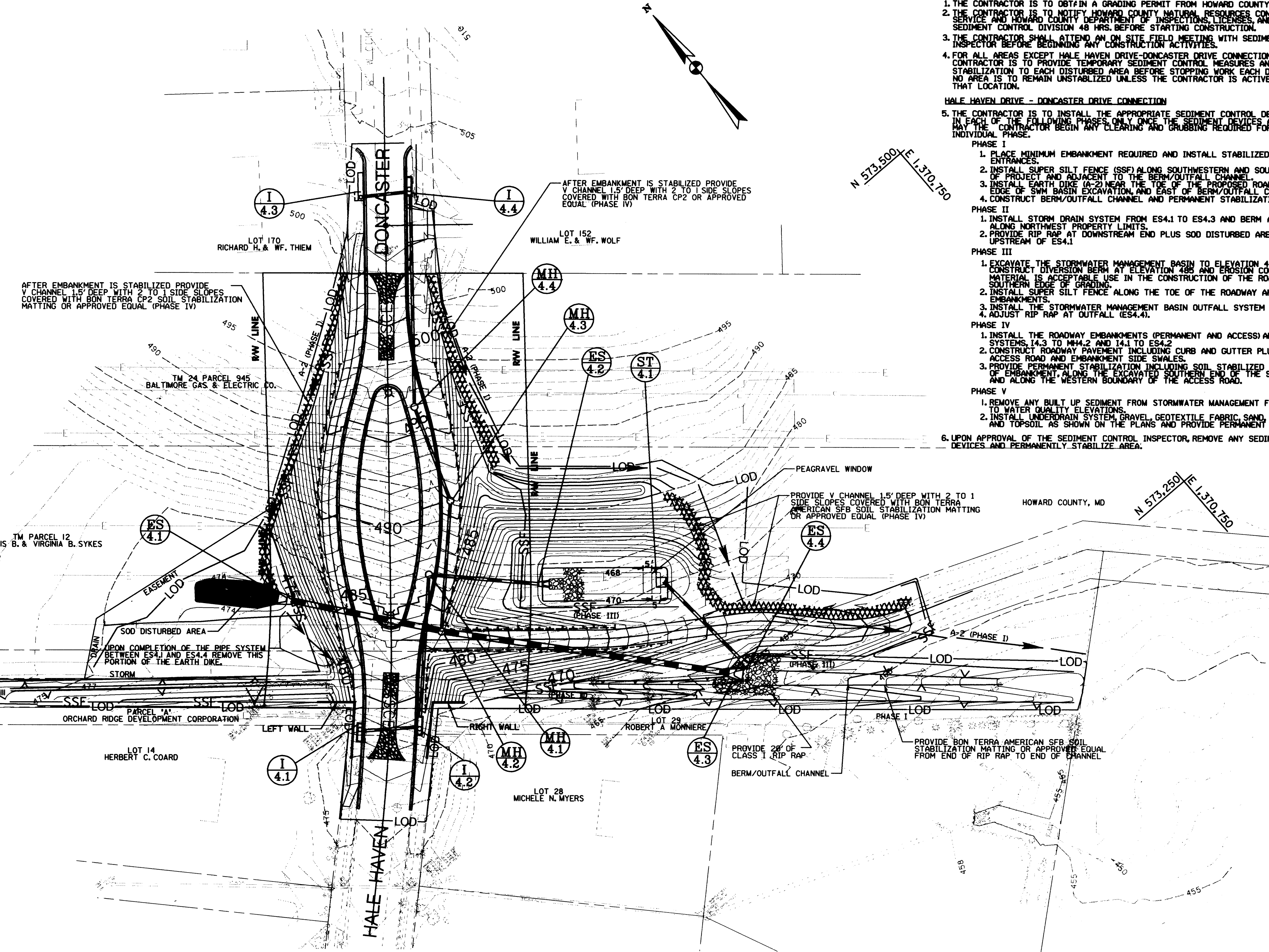
1. EXCAVATE THE STORMWATER MANAGEMENT BASIN TO ELEVATION 476 IF THE REMOVED CONSTRUCTION DIVERSION BERM AT ELEVATION 485 AND EROSION CONTROL MATTING ALONG MATERIAL IS ACCEPTABLE USE IN THE CONSTRUCTION OF THE ROADWAY EMBANKMENT, SOUTHERN EDGE OF GRADING.
2. INSTALL SUPER SILT FENCE ALONG THE TOE OF THE ROADWAY AND ACCESS ROADWAY EMBANKMENTS.
3. INSTALL THE STORMWATER MANAGEMENT BASIN OUTFALL SYSTEM FROM ST4.1 TO ES4.4.
4. ADJUST RIP RAP AT OUTFALL (ES4.4).

PHASE IV

1. INSTALL THE ROADWAY EMBANKMENTS (PERMANENT AND ACCESS) AND STORM DRAIN SYSTEMS, I4.3 TO MH4.2 AND I4.1 TO ES4.2
2. CONSTRUCT ROADWAY PAVEMENT INCLUDING CURB AND GUTTER PLUS SIDEWALK, GRAVEL ACCESS ROAD AND EMBANKMENT SIDE SWALES.
3. PROVIDE PERMANENT STABILIZATION INCLUDING SOIL STABILIZED MATTING AT THE TOE OF EMBANKMENT, ALONG THE EXCAVATED SOUTHERN END OF THE SWM BASIN GRADING AND ALONG THE WESTERN BOUNDARY OF THE ACCESS ROAD.

PHASE V

1. REMOVE ANY BUILT UP SEDIMENT FROM STORMWATER MANAGEMENT FACILITY AND EXCAVATE TO WATER QUALITY ELEVATIONS.
2. INSTALL UNDERDRAIN SYSTEM, GRAVEL, GEOTEXTILE FABRIC, SAND, RIP RAP WEIR AND TOPSOIL AS SHOWN ON THE PLANS AND PROVIDE PERMANENT STABILIZATION.
6. UPON APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ANY SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE AREA.



**HALE HAVEN & DONCASTER CONNECTION
SEDIMENT CONTROL AND GRADING PLAN**

SCALE: 1"=30'

LEGEND

- V-CHANNEL WITH SOIL STABILIZATION MATTING
- STABILIZED CONSTRUCTION ENTRANCE
- SUPER SILT FENCE
- RIP RAP PROTECTION
- LIMIT OF DISTURBANCE
- EARTH DIKE
- BERM OUTFALL CHANNEL

SHEET NO. ES-1 OF ES-4

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John P. Stewart 5/3/00
DEPARTMENT OF PUBLIC WORKS
DATE

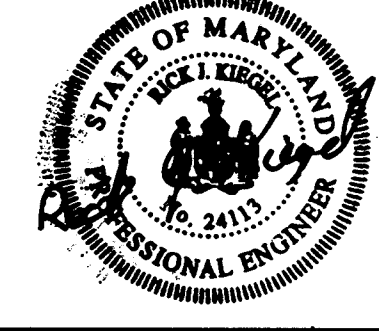
Richard S. Kuper 5/3/00
CHIEF, BUREAU OF ENGINEERING
DATE

Salvatore 5/3/00
CHIEF, TRANSPORTATION PROJECTS
AND WATERSHED MANAGEMENT DIVISION
DATE

Christopher J. Daniels 5/3/00
CHIEF, BUREAU OF HIGHWAYS
DATE

Dowberry & Davis

Architects 3120 Timanus Lane, Suite 211
Engineers Baltimore, Maryland 21244
Planners Tel. 410-265-9500
Surveyors Fax. 410-265-8875



DES:					
DRN:					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

CAPITAL PROJECT NO.
J-4158

NO. DATE:

PHASE 1

**WORTHINGTON AREA
VEHICULAR ACCESS**

SCALE AS SHOWN

SHEET 28 OF 63

CURVE - PRIVATE DRIVE EAST 1

P.I. STA. = 801+30.00
 $\Delta = 28^\circ 38' 52.40''$
 $Dc = 7^\circ 10' 55.87''$ LT
 $R = 200.00'$
 $T = 12.55'$
 $L = 25.07'$
 $E = 0.39'$

CURVE - CONNECTION

P.I. STA. = 301+10.93
 $\Delta = 5^\circ 43' 46.48''$
 $Dc = 6^\circ 59' 04.16''$ LT
 $R = 1000.00'$
 $T = 61.03'$
 $L = 121.90'$
 $E = 1.86'$

CURVE - PRIVATE DRIVE EAST 2

P.I. STA. = 802+13.16
 $\Delta = 57^\circ 17' 44.81''$
 $Dc = 14^\circ 12' 39.00''$ RT
 $R = 100.00'$
 $T = 12.47'$
 $L = 24.80'$
 $E = 0.77'$

CURVE - PRIVATE DRIVE EAST 3

P.I. STA. = 802+75.68
 $\Delta = 57^\circ 17' 44.81''$
 $Dc = 28^\circ 06' 09.30''$ LT
 $R = 100.00'$
 $T = 25.03'$
 $L = 49.05'$
 $E = 3.08'$

DEPRESSED CURB - HALE HAVEN & DONCASTER CONNECTION
 STA. 301+60, 17.10' RT. TO STA. 301+70, 18.75' RT. 10 L.F.

RESIDENTIAL DRIVEWAY STD. NO. R-3.05			
LOCATION	STATION	OFFCET	QTY
DONCASTER	304+00.00	12.00' RT.	35 S.Y.

DRAINAGE PIPE SCHEDULE		
SIZE	RCP CLASS	LENGTH
15"	IV	62
18"	IV	483
33"	IV	256

TYPE C TRAFFIC BARRIER END TREATMENT		
STA. 301+25, RT	HALE HAVEN - DONCASTER	1 EA.
STA. 301+32, LT	HALE HAVEN - DONCASTER	1 EA.
STA. 303+25, LT	HALE HAVEN - DONCASTER	1 EA.
STA. 303+25, RT	HALE HAVEN - DONCASTER	1 EA.
STA. 801+30, LT	EAST ACCESS ROAD	1 EA.
STA. 801+60, RT	EAST ACCESS ROAD	1 EA.

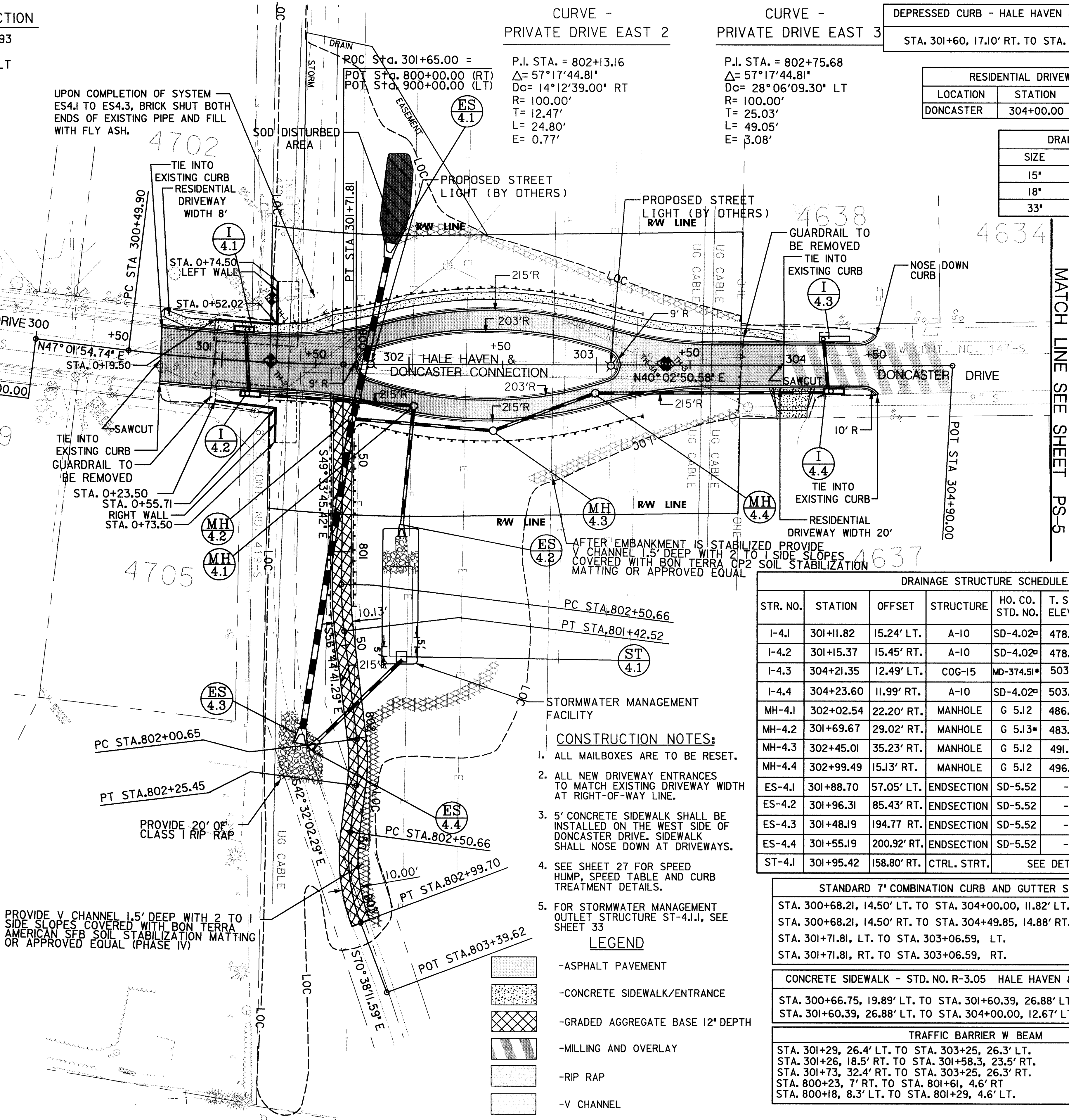
CONSTRUCTION POINTS			
LOCATION	STATION	OFFSET	ELEV.
HALE HAVEN DRIVE	100+46.42	14.37' LT.	SEE SHT 27
	100+46.42	14.44' RT.	SEE SHT 27
	100+52.42	13.37' LT.	SEE SHT 27
	100+52.42	13.29' RT.	SEE SHT 27
	100+62.42	13.37' LT.	SEE SHT 27
	100+62.42	13.25' RT.	SEE SHT 27
HALE HAVEN AND DONCASTER CONNECTION	100+68.42	14.37' LT.	SEE SHT 27
	100+68.42	14.23' RT.	SEE SHT 27

SOUTH HAVEN DRIVE - ALIGNMENT POINTS			
POINT	STATION	NORTHING	EASTING
POT	300+00.00	573,362.2422	1,370,228.0170
PC	300+49.90	573,369.2567	1,370,264.5337
PI	301+10.93	573,437.8520	1,370,309.1890
PT	301+71.81	573,484.5687	1,370,348.4549
POT	304+90.00	573,728.1515	1,370,553.1884
HI2-1	100.00.00	573,226.2740	1,370,082.1980
HI2-2	101+00.00	573,294.3940	1,370,155.4080

CONSTRUCTION POINTS			
LOCATION	STATION	OFFSET	ELEV.
HALE HAVEN AND DONCASTER CONNECTION	300+66.16	15.25' LT.	475.30
	300+68.20	15.50' RT.	475.58
	301+22.66	15.25' LT.	471.67
	301+36.66	15.50' RT.	470.97
	301+77.93	7.59' LT.	474.24
	301+77.93	7.59' RT.	474.25
	301+85.33	22.37' RT.	475.29
	301+88.03	23.09' LT.	474.26
	303+03.66	21.00' LT.	492.87
	303+03.66	21.00' RT.	492.23
ROADWAY IMPROVEMENTS	303+06.28	7.59' LT.	493.08
	303+06.28	7.59' RT.	492.79
	303+65.21	12.00' LT.	499.97
	303+65.21	12.00' RT.	500.21
	303+81.42	12.00' LT.	501.32
	304+00.00	12.82' LT.	502.38
	304+24.77	16.50' LT.	503.47
	304+49.85	14.88' LT.	504.57

SOUTH HAVEN DRIVE - ALIGNMENT POINTS			
POINT	STATION	NORTHING	EASTING
POT	800+00.00	573,479.3750	1,370,344.0576
PC	800+68.05	573,435.2365	1,370,395.8493
PI	800+85.00	573,424.2406	1,370,408.7523
PT	801+00.74	573,407.6646	1,370,412.3070
PC	801+14.26	573,394.4427	1,370,415.1424
PI	801+34.11	573,375.0342	1,370,419.3045
PT	801+52.05	573,363.7653	1,370,435.6453
POT	801+68.98	573,354.1550	1,370,449.5810

SOUTH HAVEN DRIVE - ALIGNMENT POINTS			
POINT	STATION	NORTHING	EASTING
POT	900+00.00	573,479.3730	1,370,344.0576
PC	900+77.41	573,529.5793	1,370,285.1433
PI	900+90.00	573,537.7485	1,370,275.5572
PT	901+02.08	573,540.4016	1,370,263.2450
PC	901+13.76	573,542.1822	1,370,251.7006
PI	901+25.59	573,545.3451	1,370,240.3036
PT	901+36.99	573,553.2791	1,370,231.5317
POT	901+53.37	573,564.4010	1,370,219.2350



- CONSTRUCTION NOTES:**
- ALL MAILBOXES ARE TO BE RESET.
 - ALL NEW DRIVEWAY ENTRANCES TO MATCH EXISTING DRIVEWAY WIDTH AT RIGHT-OF-WAY LINE.
 - 5' CONCRETE SIDEWALK SHALL BE INSTALLED ON THE WEST SIDE OF DONCASTER DRIVE. SIDEWALK SHALL NOSE DOWN AT DRIVEWAYS.
 - SEE SHEET 27 FOR SPEED HUMP, SPEED TABLE AND CURB TREATMENT DETAILS.
 - FOR STORMWATER MANAGEMENT OUTLET STRUCTURE ST-4.1.1, SEE SHEET 33

LEGEND

- ASPHALT PAVEMENT
- CONCRETE SIDEWALK/ENTRANCE
- GRADED AGGREGATE BASE 12" DEPTH
- MILLING AND OVERLAY
- RIP RAP
- V CHANNEL

- A PRECAST STANDARD INLET SD 4.41 MAY BE USED
- PROVIDE GRANITE INVERT
- SHA STANDARD

DRAINAGE STRUCTURE SCHEDULE							
STR. NO.	STATION	OFFSET	STRUCTURE	HO. CO. STD. NO.	T. S. ELEV.	INV. (S) IN	INV. OUT
I-4.1	301+11.82	15.24' LT.	A-10	SD-4.02 ^a	478.97	-	473.50
I-4.2	301+15.37	15.45' RT.	A-10	SD-4.02 ^a	478.89	473.30	473.05
I-4.3	304+21.35	12.49' LT.	COG-15	MD-374.51*	503.13	-	496.00
I-4.4	304+23.60	11.99' RT.	A-10	SD-4.02 ^a	503.62	495.46	494.96
MH-4.1	302+02.54	22.20' RT.	MANHOLE	G 5J2	486.00	472.48	468.32
MH-4.2	301+69.67	29.02' RT.	MANHOLE	G 5J3*	483.50	463.54	463.29
MH-4.3	302+45.01	35.23' RT.	MANHOLE	G 5J2	491.00	480.50	480.00
MH-4.4	302+99.49	15.13' RT.	MANHOLE	G 5J2	496.49	487.76	482.96
ES-4.1	301+88.70	57.05' LT.	ENDSECTION	SD-5.52	-	471.00	-
ES-4.2	301+96.31	85.43' RT.	ENDSECTION	SD-5.52	-	468.00	-
ES-4.3	301+48.19	194.77 RT.	ENDSECTION	SD-5.52	-	-	462.15
ES-4.4	301+55.19	200.92' RT.	ENDSECTION	SD-5.52	-	-	462.15
ST-4.1	301+95.42	158.80' RT.	CTRL. STRT.			SEE DETAIL SHEET	465.00

STANDARD 7" COMBINATION CURB AND GUTTER STD. NO. R-3.01		
STA. 300+68.21, 14.50' LT. TO STA. 304+00.00, 11.82' LT.		332 L.F.
STA. 300+68.21, 14.50' RT. TO STA. 304+49.85, 14.88' RT.	HALE HAVEN & DONCASTER CONNECTION	385 L.F.
STA. 301+71.81, LT. TO STA. 303+06.59, LT.		150 L.F.
STA. 301+71.81, RT. TO STA. 303+06.59, RT.		150 L.F.

CONCRETE SIDEWALK - STD. NO. R-3.05 HALE HAVEN & DONCASTER CONNECTION	
STA. 300+66.75, 19.89' LT. TO STA. 301+60.39, 26.88' LT. WIDTH = 5'	460 S.F.
STA. 301+60.39, 26.88' LT. TO STA. 304+00.00, 12.67' LT. WIDTH = 4'	960 S.F.

TRAFFIC BARRIER W BEAM	
STA. 301+29, 26.4' LT. TO STA. 303+25, 26.3' LT.	97 L.F.
STA. 301+26, 18.5' RT. TO STA. 301+58.3, 23.5' RT.	10 L.F.
STA. 301+73, 32.4' RT. TO STA. 303+25, 26.3' RT.	100 L.F.
STA. 800+23, 7' RT. TO STA. 801+61, 4.6' RT.	88 L.F.
STA. 800+18, 8.3' LT. TO STA. 801+29, 4.6' LT.	47 L.F.

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

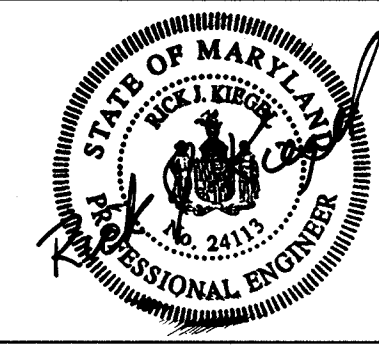
James M. Shaw 7/20/10
 CHIEF, BUREAU OF ENGINEERING

Robert A. Salvo 4/23/10
 CHIEF, BUREAU OF HIGHWAYS

Dewberry & Davis

Architects
 Engineers
 Planners
 Surveyors

3120 Timanus Lane, Suite 211
 Baltimore, Maryland 21244
 Tel. 410-265-9500
 Fax. 410-265-8875



DES:	
DRN:	
CHK:	
DATE:	

CAPITAL PROJECT NO.	J-4158
30' SCALE MAP NO.:	

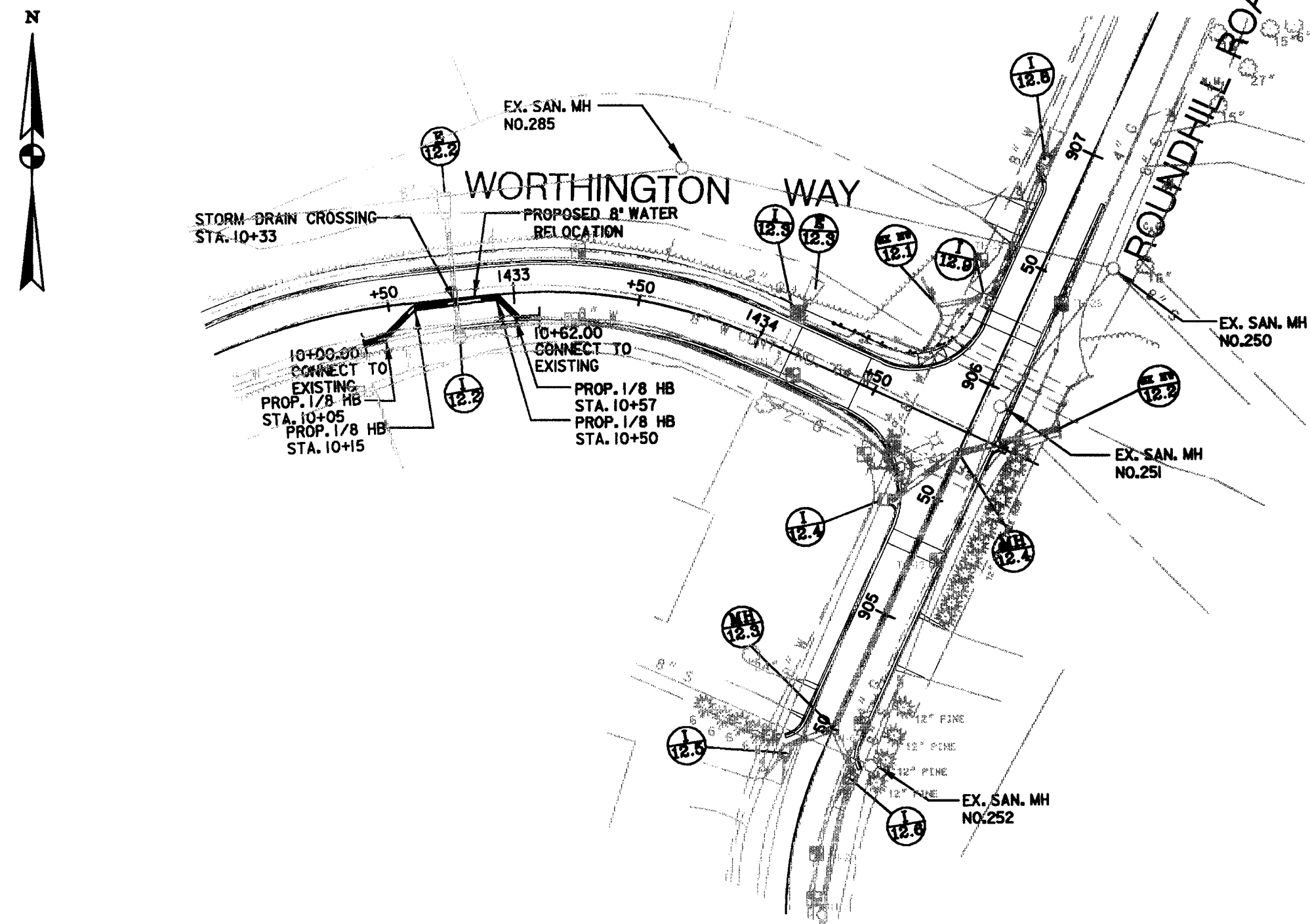
PHASE 1

WORTHINGTON AREA VEHICULAR ACCESS

SHEET NO. PS-4 OF PS-14

SCALE AS SHOWN

SHEET 8 OF 63



PLAN
SCALE: 1"=50'

WATER MAIN RELOCATION
STA. 1432+67 WORTHINGTON WAY

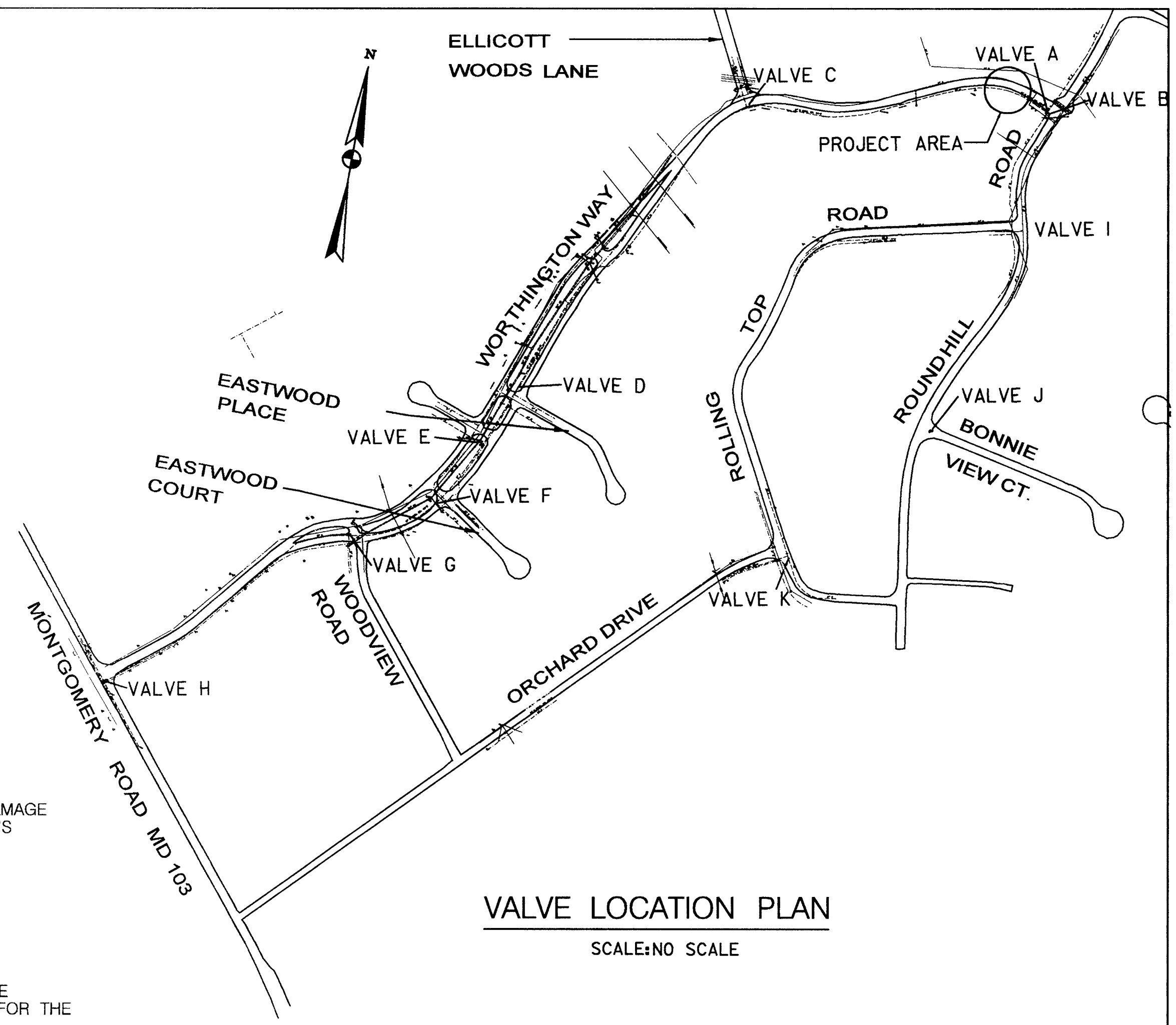
SUGGESTED SEQUENCE OF CONSTRUCTION

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST AMENDED HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND THE CONTRACT DRAWINGS AND SPECIFICATIONS.
2. TEST HOLES SHALL BE EXCAVATED ON THE EXISTING 8-INCH WATER MAIN AT THE TIE-IN LOCATIONS PRIOR TO CONSTRUCTION OF THE PROPOSED WATER MAIN RELOCATION TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF THE EXISTING WATER MAIN.
3. THE CONTRACTOR SHALL PREPARE A TEMPLATE OF THE EXISTING WATER MAIN TO CONFIRM THE ROUNDNESS OF THE PIPE.
4. INSTALL RELOCATED WATER MAIN FROM STA. 10+05+ TO 10+57+ INCLUDING HORIZONTAL AND VERTICAL BENDS, THRUST BLOCKS, ANCHORAGES AND BUTTRESSES. BACKFILL TRENCH IN ACCORDANCE WITH HOWARD COUNTY STANDARDS, CHLORINATE AND PRESSURE TEST THIS SECTION OF WATER MAIN.
5. INSTALL PRE-POURED THRUST BLOCKS FOR THE HORIZONTAL BENDS AT STATION 10+05 AND STATION 10+52. CONTRACTOR SHALL SUBMIT DETAILS FOR PRE-POURED THRUST BLOCKS AND WATER MAIN TIE-IN DETAILS TO ENGINEER FOR APPROVAL.
6. CLOSE ISOLATION VALVES 'A', 'D' AND 'G' ON THE EXISTING 8-INCH WATER MAIN ALONG WORTHINGTON WAY AS SHOWN ON THE VALVE LOCATION PLAN.
7. REMOVE THE EXISTING 8-INCH WATER MAIN AS NECESSARY AND CONNECT THE RELOCATED WATER MAIN TO THE EXISTING WATER MAIN IN ACCORDANCE WITH THE CONTRACT DRAWINGS. TIE-INS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL NO. W-4-15. THE RELOCATED WATER MAIN AND FITTINGS SHALL BE CHLORINATED DURING THE INSTALLATION AND IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION NO. 1006, "DISINFECTION OF WATER MAIN".
8. VISUALLY INSPECT THE TIE-INS FOR LEAKS AND WHEN ASSURED THAT THERE ARE NO LEAKS, BACKFILL THE REMAINING TRENCH IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.

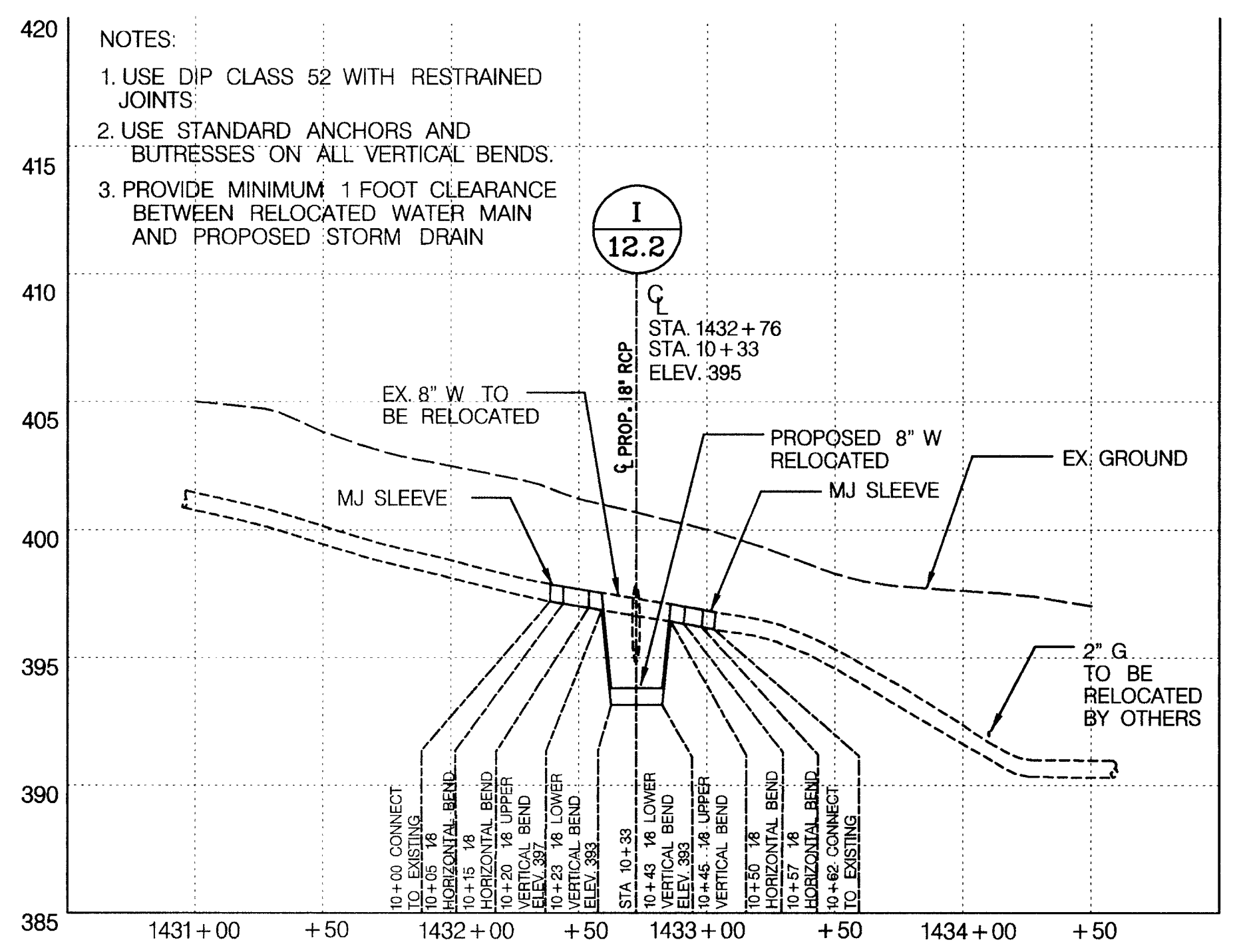
GENERAL NOTES

1. APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
2. ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES, NAD 83.
3. ALL VERTICAL CONTROLS ARE BASED ON NAVD 29.
4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE PLANS.
5. CLEAR UTILITIES BY A MINIMUM OF 12". CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY COMPANIES AND HAS MADE ARRANGEMENTS FOR BRACING OF POLES AS SHOWN ON THE DRAWINGS. IN THE EVENT THE CONTRACTOR'S WORK REQUIRES THE BRACING OF ADDITIONAL POLES, ANY COST INCURRED BY THE OWNER FOR THE BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.
6. FOR DETAILS NOT SHOWN ON THE DRAWINGS AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOLUME IV ON THE JOB.
7. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE TEST PIT OR PITS IS INCLUDED ON THE DRAWINGS. EXISTING UTILITIES IN THE VICINITY OF THE PROPOSED WORK FOR WHICH TEST PITS HAVE NOT BEEN DUG SHALL BE LOCATED BY THE CONTRACTOR TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS AT HIS OWN EXPENSE.
8. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T	1-800-526-2000
BGE (CONTRACTOR SERVICES)	410-850-4620
BGE (UNDERGROUND DAMAGE CONTROL)	410-787-9068
BUREAU OF UTILITIES	410-313-4900
BELL ATLANTIC MARYLAND, INC	1-800-621-9900
COLONIAL PIPELINE CO	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
9. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
10. THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
11. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE.
12. ALL WATER MAINS SHALL BE D.I.P. CLASS 52 UNLESS OTHERWISE NOTED.
13. TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
14. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
15. ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
16. FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
17. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER AND BUREAU OF UTILITIES AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE SCHEDULED TIE-IN TO EXISTING WATER MAIN. THE CONTRACTOR SHALL NOTIFY AFFECTED WATER CUSTOMERS A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO SCHEDULED TIE-IN AND WATER OUTAGE.



VALVE LOCATION PLAN
SCALE: NO SCALE



RELOCATION
WORTHINGTON WAY
SCALE: HOR. 1"=50'
VERT. 1"=5'

UTILITY RELOCATION PLAN
SCALE: AS SHOWN

WATER SERVICE ZONE: 630 E
MAXIMUM WORKING PRESSURE = 104 PSI
TEST GRADIENT = 780 FT

SHEET NO. 7A OF 31

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jane M. Lewis 7/2/00
DATE 6-5-00
CHIEF, UTILITY DESIGN DIVISION

Robert J. Sisson 6/5/00
DATE 6-8-00
CHIEF, BUREAU OF ENGINEERING

Robert J. Sisson 6/5/00
DATE 6-8-00
CHIEF, BUREAU OF UTILITIES

Dewberry & Davis

Architects 3120 Timanus Lane, Suite 211
Engineers Baltimore, Maryland 21244
Planners Tel. 410-265-9500
Surveyors Fax. 410-265-8875



DES:					
DRN:					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

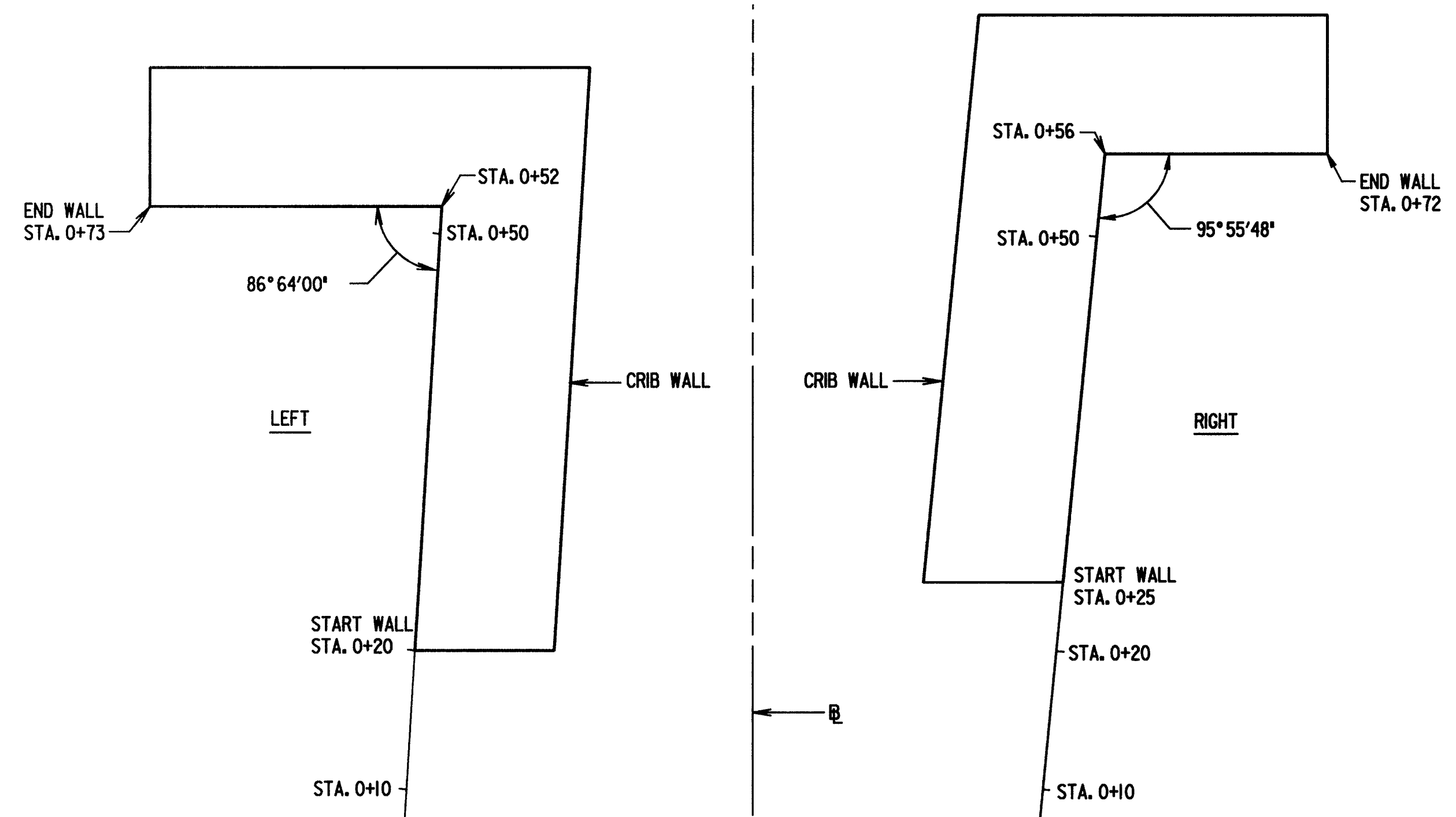
CAPITAL PROJECT NO.
J-4158

600' SCALE MAP NO.: 31 BLOCK 9

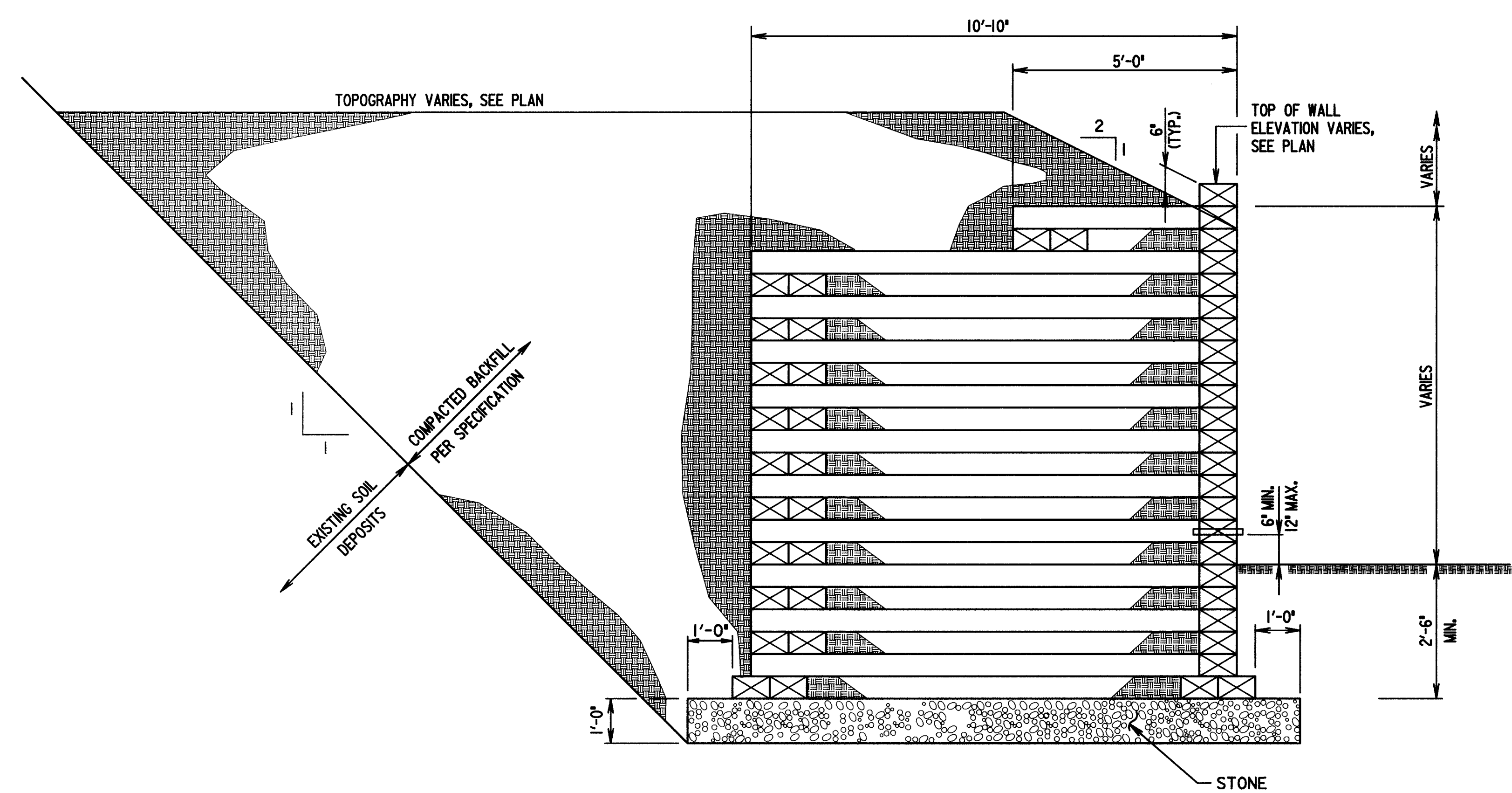
PHASE 1
WORTHINGTON AREA
VEHICULAR ACCESS

CONTRACT NO. 64-W

SCALE AS SHOWN
SHEET 26 OF 63



PLAN - TIMBER CRIB RETAINING WALL
SCALE: 1/8"=1'-0"



SECTION AT STA. 0+50 RIGHT (TYPICAL)
LEFT - OPPOSITE HAND
SCALE: 1/2"=1'-0"

GENERAL NOTES

DESIGN SPECIFICATIONS:

AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 16TH EDITION, 1996.
NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION 1991 EDITION (NFPA)

CONSTRUCTION SPECIFICATIONS:

MARYLAND SHA ROAD AND BRIDGE SPECIFICATIONS, 1993.
AMERICAN WOOD-PRESERVERS' ASSOCIATION STANDARDS, 1991 (AWPA)
NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION 1991 EDITION (NFPA)

DESIGN LOADS:

BACKFILL = LEVEL
LIVE LOAD SURCHARGE = 250 PSF
INTERNAL FRICTION ANGLE $\phi = 30$ DEGREES (ASSUMED)
EQUIVALENT FLUID WEIGHT = 40 PCF
PASSIVE SOIL PRESSURE = 320 PSF PER VERTICAL FOOT
SOIL UNIT WEIGHT = 120 PCF

GEOMETRY:

SEE SITE PLAN FOR STATION AND OFFSET OF LEFT AND RIGHT CRIB RETAINING WALL BASELINES.

TIMBER:

ALL TIMBER SHALL BE IN ACCORDANCE WITH NFPA STANDARDS AND SPECIFICATIONS. TIMBER SHALL BE SOUTHERN PINE NO. 2 WITH MINIMUM DESIGN VALUES OF $F_b = 850$ P.S.I. $F_v = 100$ P.S.I. $F_t = 550$ P.S.I. $E = 1,200,000$ P.S.I. OR APPROVED EQUAL. ALL SIZES SHOWN ARE NOMINAL DIMENSIONS. A LOAD DURATION FACTOR OF 0.90 WAS APPLIED. ALL TIMBERS SHALL BE LAID FLATWISE UNLESS OTHERWISE NOTED (UONI).

PRESSURE PRESERVATIVE TREATMENT:

ALL TIMBER SHALL BE PRESSURE TREATED WITH CHROMATED COPPER ARSENATE (CCA) IN ACCORDANCE WITH THE AWPA STANDARDS. MINIMUM RETENTION FOR CCA WATERBORNE PRESERVATIVE IS 0.4 PCF. WEEP HOLES. WEEP HOLES SHALL BE CIRCULAR HOLES DRILLED HORIZONTALLY THROUGH THE CENTER OF THE TIMBER AND HAVING A DIAMETER OF 2 INCHES.

SPIKES:

ALL SPIKES SHALL BE FLATHEAD, HARDENED-STEEL SPIKES MADE OF HIGH CARBON STEEL, GALVANIZED AND A MINIMUM OF 10" LONG AND INCHES IN DIAMETER. OMIT SPIKE WHERE DESIGN LOCATION COINCIDES WITH TIEBACK CONNECTION.

REINFORCING STEEL PINS:

REINFORCING STEEL PINS SHALL CONFORM TO ASTM A615, GRADE 60. REINFORCING STEEL PINS IN THE TIMBER WALL SHALL BE PLACED IN DRILLED HOLES, WITH A MAXIMUM DIAMETER 1/16 INCH LARGER THAN REINFORCING BARS.

FOUNDATION:

CARE IS REQUIRED DURING EXCAVATION FOR THE TIMBER FOOTING TO ALLOW CONSTRUCTION OF THE FOOTING IN AN AGAINST UNDISTURBED SOIL OR COMPACTED FILL. IF REQUIRED, SUBGRADE BELOW THE WALL SHALL BE PREPARED BY REMOVING UNSUITABLE MATERIAL AND BACKFILLING WITH SELECT MATERIAL AS DIRECTED BY THE GEOTECHNICAL ENGINEER. STONE SHALL BE AASHTO NO. 57 OR LARGER.

THE WALL IS DESIGNED TO EXERT A MAXIMUM FOUNDATION PRESSURE OF 2,000 POUNDS PER SQUARE FOOT.

SELECT BACKFILL:

BACKFILL SHALL CONSIST OF EITHER NO. 57 STONE; A WELL-GRADED CRUSHED ROCK OF AT LEAST 1-INCH DIAMETER; OR A SOIL FREE FROM ORGANIC AND OTHERWISE DELETERIOUS MATERIALS AND CONFORMING TO THE REQUIREMENTS FOR SELECT MATERIAL, TYPE SM OR BETTER.

BACKFILL SHALL BE PLACED TO THE TOP OF EACH DEADMAN AND COMPACTED PRIOR TO EXCAVATION FOR PLACEMENT OF THE DEADMAN.

THE AREAS BEHIND AND ABOVE THE WALL SHALL BE FINISHED TO THE ELEVATION SHOWN ON THE PROJECT PLANS, TAKING CARE TO INSURE THAT DRAINAGE IS DIVERTED FROM GOING OVER THE FACE OF THE WALL.

IF SOIL BACKFILL IS USED, COMPACTION SHALL BE TO A MINIMUM OF 90% MAXIMUM DENSITY AS DETERMINED BY ASTM D 1556 OR BY NUCLEAR DENSITY TESTING DEVICE. COMPACTION TESTS SHALL BE TAKEN AT THE CENTER OF THE TIEBACK, APPROXIMATELY ONE - THIRD OF THE DISTANCE FROM DEADMAN TO FRONT STRETCHER.

BACKFILL:

CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO BRACE WALLS WHEN BACKFILLING. CARE SHALL BE TAKEN DURING PLACEMENT OF BACKFILL ADJACENT TO THE CRIB WALL SO AS NOT TO OVERLOAD THE CRIB WALL DUE TO HEAVY EQUIPMENT. ONLY LIGHTWEIGHT COMPACTION EQUIPMENT (NOT EXCEEDING 2,000 POUNDS) SHALL BE PERMITTED WITHIN THE CRITICAL ZONE DEFINED AS BEGINNING AT THE BASE OF THE CRIB WALL AND WIDENING UPWARD FROM THE BASE AT 1:1 SLOPE. ALL PRECAUTIONS SHALL BE TAKEN TO PROVIDE ADEQUATE DRAINAGE PRIOR TO AND AFTER CONSTRUCTION. BACKFILL MATERIALS APPROVED BY THE GEOTECHNICAL ENGINEER OR PROJECT INSPECTOR (SM CLASSIFICATION) SHALL BE PLACED IN 8 INCH LOOSE LIFTS (8" WHEN USING LIGHTWEIGHT COMPACTION EQUIPMENT) AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM STANDARD PROCTOR DRY DENSITY PER ASTM D698. BACKFILL SHALL PROGRESS SIMULTANEOUSLY WITH THE ERECTION OF THE TIMBER WALL. CARE SHALL BE EXERCISED IN PLACING THE BACKFILL SO THAT THE CRIB WALL IS NOT DAMAGED.

CONSTRUCTION NOTES:

THE WALL SHALL BE LOCATED IN THE FIELD AS SHOWN ON THE SITE PLAN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE ALL DIMENSIONS REQUIRED TO CONSTRUCT THE WALL. IN THE EVENT THE EXPOSED FACE OF THE WALL EXCEEDS THE DIMENSIONS SHOWN ON THE TYPICAL SECTION, CONTACT THE ENGINEER FOR INSTRUCTIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.

ALL WALL CONSTRUCTION SHALL END WITH A TOP COURSE. THE LAST ROW OF TIEBACKS SHALL BE COVERED BY A MINIMUM OF 6" OF COMPACTED FILL.

THIS WALL DESIGN IS INTENDED FOR USE AS A SINGLE WALL. USE OF THIS DESIGN FOR PROVIDING TERRACED WALLS SHALL BE REVIEWED BY A GEOTECHNICAL ENGINEER TO DETERMINE IF THE UPPER WALLS HAVE ANY INFLUENCE ON THE LOWER WALLS. ANY ADDITIONAL LOADS TO THE LOWER WALLS SHALL BE REVIEWED BY A STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.

SUBMITTALS:

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WHICH SHOW THE PROPOSED LAYOUT, BREAK POINTS, BOTTOM AND TOP-OF-WALL ELEVATIONS, STEP LOCATIONS AND DETAILS AND CONSTRUCTION AND BACKFILL SEQUENCES.

S:\P\MISC\NOTHINGTON\RET WALL\CRIBW.DGN

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signatures]
DATE: 7/24/00
DATE: 6/15/00
DATE: 6/5/00
DATE: 6/7/00

Dewberry & Davis
Architects 3120 Timanus Lane, Suite 211
Engineers Baltimore, Maryland 21244
Planners Tel. 410-265-9500
Surveyors Fax. 410-265-8875

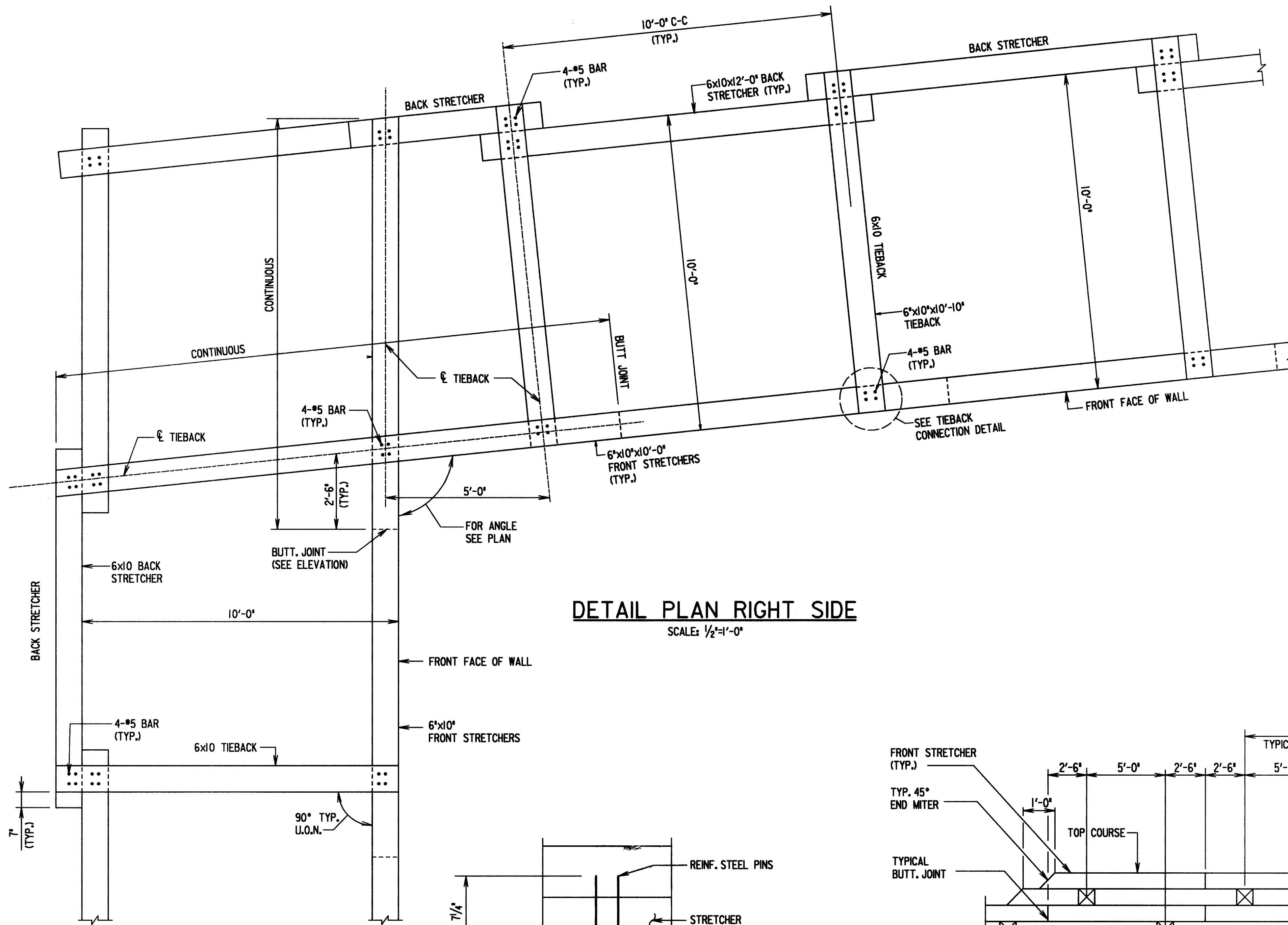


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DRN: HTN				
CHK: SAC				
DATE: 6/1/00	BY	NO.	REVISION	DATE

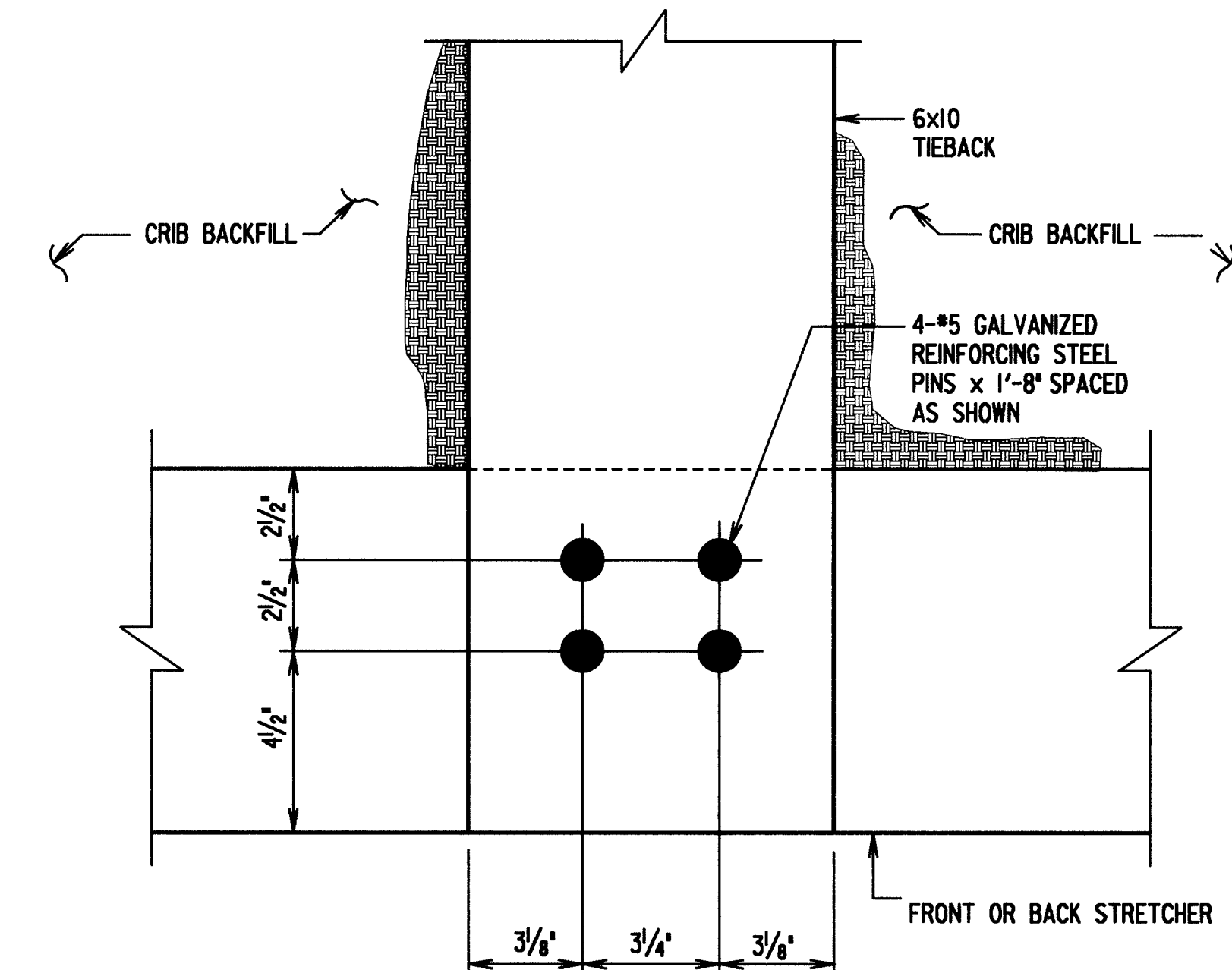
CAPITAL PROJECT NO.
J-4158
30' SCALE MAP NO.: _____ DATE: _____

PHASE 1
WORTHINGTON AREA
VEHICULAR ACCESS

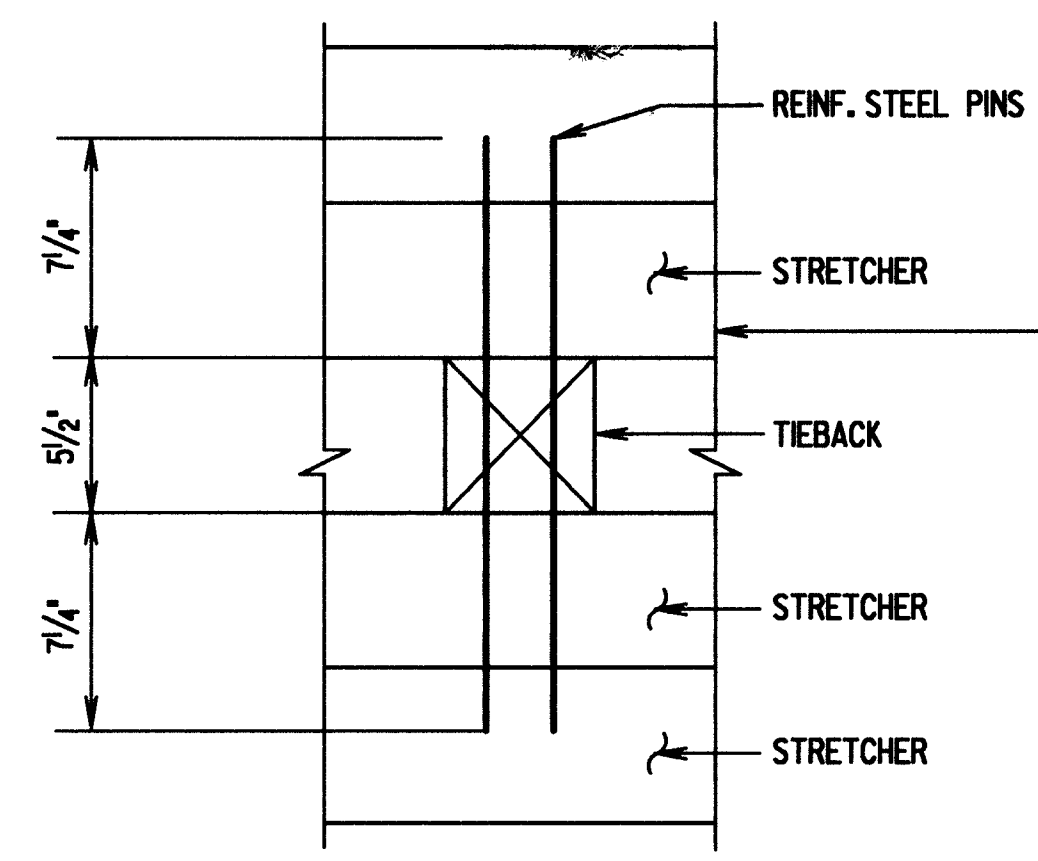
SCALE AS SHOWN
SHEET 33A OF 53



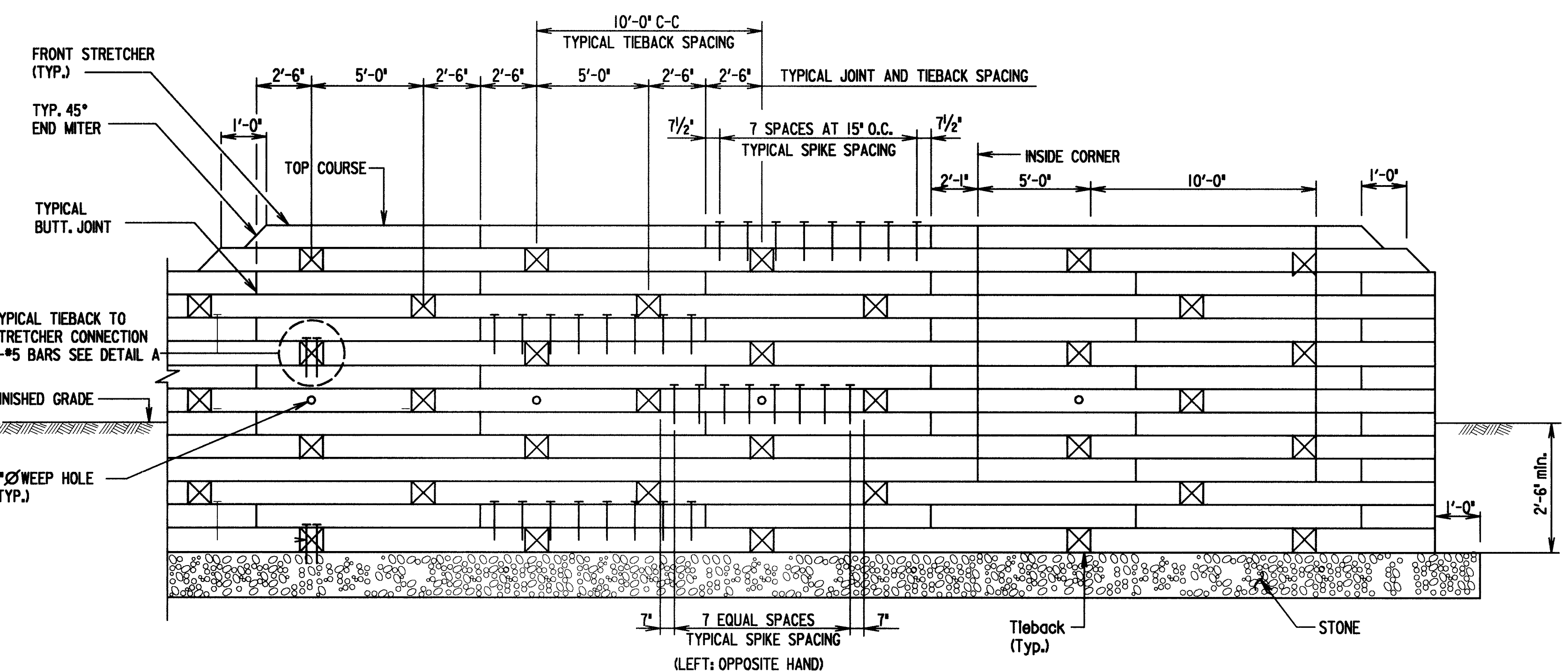
DETAIL PLAN RIGHT SIDE
SCALE: 1/2"=1'-0"



TYPICAL TIEBACK TO STRETCHER CONNECTION DETAIL
SCALE: 3"=1'-0"



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



DEVELOPED ELEVATION - RIGHT (TYPICAL)
SCALE: 1/2"=1'-0"

S:\P\MISC\NOTHINGTON\RET WALL\CRIBW2.DGN

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

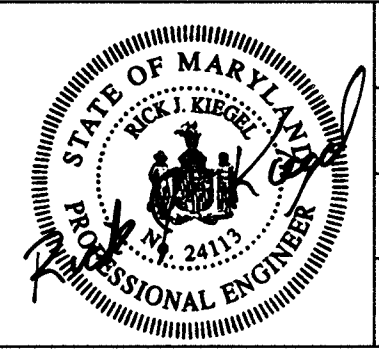
James P. Lewis 7/24/00
DEPARTMENT OF PUBLIC WORKS DATE

Robert J. Sporn 6/5/00
CHIEF, BUREAU OF ENGINEERING DATE

Robert J. Sporn 6/7/00
CHIEF, BUREAU OF HIGHWAYS DATE

Dewberry & Davis
Architects
Engineers
Planners
Surveyors

3120 Timanus Lane, Suite 211
Baltimore, Maryland 21244
Tel. 410-265-9500
Fax. 410-265-8875



DES: DMM				
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CHK: SAC				
DATE: 6/1/00	BY	NO.	REVISION	DATE

CAPITAL PROJECT NO.
J-4158

30' SCALE MAP NO.: _____ DATE: _____

PHASE 1
WORTHINGTON AREA
RETAINING WALL

SCALE AS SHOWN

SHEET 338 OF 63