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SITE DEVELOPMENT PLAN

SDP 04-76

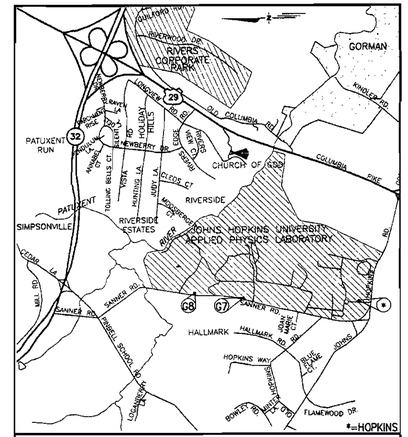
SERVICES AREA COMPLEX

TRADES AND MULTI-USE BUILDINGS

BUILDINGS 29 AND 35

THE JOHNS HOPKINS UNIVERSITY

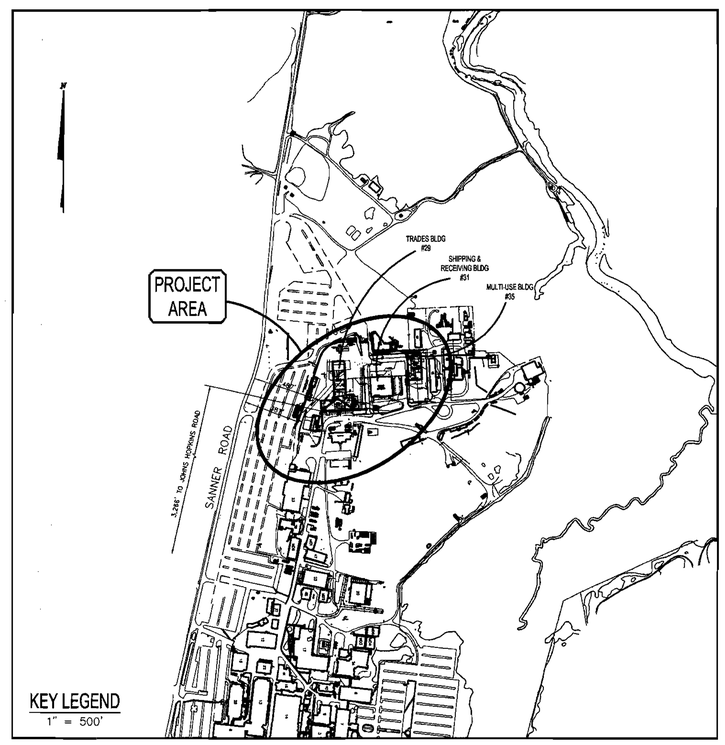
APPLIED PHYSICS LABORATORY



VICINITY MAP
SCALE: 1" = 2000'

LEGEND

TOPOGRAPHIC FEATURE	EXISTING	PROPOSED
MINOR CONTOUR	391	379
MAJOR CONTOUR	390	380
SPOT ELEVATION	387.8	*385.58
FIRE HYDRANT		
STORM DRAIN	SD	SD
WATER LINE	W	W
SANITARY SEWER	San	San
GAS LINE	Gas	Gas
ELECTRIC LINE	Elec	Elec
COMMUNICATIONS LINE	Com	Com
FUEL LINE	Fuel	Fuel
MANHOLE		
INLET		
TREE LINE		
BUILDING		
CURB AND GUTTER		
ROLLED CURB AND GUTTER		
BITUMINOUS PAVING		
HEAVY DUTY CONCRETE PAVING		
CONCRETE SIDEWALK		
FENCE		
WALL		
BORING		
CLEANOUT	RD	CO
LIGHT STANDARD		
BUSH		
TREE		
PIPE BOLLARD		
UTILITY POLE		



KEY LEGEND
1" = 500'

GENERAL NOTES:

1. THE TOPOGRAPHIC AND UTILITY INFORMATION SHOWN IN THIS PLAN WERE OBTAINED FROM FIELD SURVEYS PERFORMED BY CENTURY ENGINEERING, INC. (2003), A. MORTON THOMAS AND ASSOCIATES (2003) AND JHU APPLIED PHYSICS LAB AERIAL TOPOGRAPHY AND UTILITY INFORMATION. SINCE NOT ALL INFORMATION SHOWN MAY REFLECT CURRENT CONDITIONS IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS OWN SATISFACTION.
2. THE CONTRACTOR SHALL CONTACT MR. RUSTY OBER (443) 778-0167 AT LEAST TEN DAYS BEFORE STARTING WORK OR DISRUPTION OF ANY UTILITIES.
3. THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION 24 HOURS IN ADVANCE OF COMMENCING WORK AT (410) 313-1880.
4. CONTRACTOR SHALL CONTACT JHU/APL PLANT FACILITIES OFFICE (443) 778-0167 AND "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO START OF THE EXCAVATION AND MUST NOTIFY ALL PUBLIC UTILITY COMPANIES AND THE OWNER OF UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.
5. WATER IS PUBLIC (HOWARD COUNTY)
6. SEWER IS PUBLIC (HOWARD COUNTY)
7. SOIL MAP USED SHEET NO. 29, SOIL SURVEY JULY 1968 HOWARD COUNTY, MARYLAND, USDA.
8. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY F 02-40.
9. NO FLOODPLAINS, WETLANDS, STREAMS OR STEEP SLOPES ARE LOCATED WITHIN 100' OF LIMIT OF DISTURBANCE.
10. NO PERIMETER LANDSCAPING IS REQUIRED FOR THIS PLAN DUE TO INTERNAL LOCATION OF PROPOSED BUILDINGS.
11. THE SITE PLAN FOR BASIN 'G' MUST BE UNDER CONSTRUCTION OR FINISHED BEFORE THIS BUILDING CONSTRUCTION CAN PROCEED.

SITE ANALYSIS DATA CHART

TOTAL PROJECT AREA: 361 Ac.+/-
AREA OF PLAN SUBMISSION: 10.7 Ac.+/-
LIMIT OF DISTURBANCE: 10.7 Ac.+/-
PRESENT ZONING: PEC
PROPOSED USE: SERVICE AREA COMPLEX / RESEARCH FACILITY
MAXIMUM NUMBER OF EMPLOYEES (FOR PARKING COMPUTATIONS)
TRADES BUILDING (#29): NO NEW EMPLOYEES
MULTI-USE BUILDING (#35): NO NEW EMPLOYEES
EXISTING MAXIMUM NUMBER OF JHU/APL EMPLOYEES: 3937
EXISTING MAXIMUM NUMBER OF PARKING SPACES REQUIRED BY ZONING: 2450 (SDP 99-11)
EXISTING ONSITE PARKING SPACES: 4940 (SDP 04-66)
REQUIRED ADDITIONAL EMPLOYEE PARKING SPACES: N/A
PROPOSED ADDITIONAL EMPLOYEE PARKING SPACES: N/A

NOTE: PROPOSED ONSITE PARKING SPACES ARE FOR FLEET VEHICLES ONLY

EXISTING BUILDING COVERAGE = 19.7 ACRES
EXISTING GROSS FLOOR AREA COVERAGE = 42.7 ACRES,
11.8% OF TOTAL LOT AREA
PROPOSED BUILDING COVERAGE = 1.4 ACRES
GROSS FLOOR AREA COVERAGE = 2.1 ACRES
.6% OF TOTAL LOT AREA
TOTAL GROSS FLOOR AREA COVERAGE = 44.8 ACRES
12.4% OF TOTAL LOT AREA
CASE NUMBERS APPLICABLE: IMPROVEMENTS
F 02-40 - SWM BASIN A, APFO, AND FOREST CONSERVATION
SDP 04-35 - SWM BASIN G
SDP 90-218 - BUILDING #31 & EXISTING SWM BASIN G
SDP 99-63 B52 F 02-77 - SWM BASIN B
SDP 04-66 MAIN PARKING LOT

SANITARY SEWER/WATER SERVICE - PRIVATE ONSITE SYSTEM, PUBLIC CONNECTION

EXISTING OPEN SPACE AREA (LOT AREA MINUS PARKING & BUILDINGS) = 300 ACRES, 83.1% OF TOTAL LOT AREA

PROPOSED OPEN SPACE AREA = 296 ACRES, 82.0% OF TOTAL LOT AREA

BENCHMARKS:

COURSES AND COORDINATES ARE BASED ON THE MARYLAND STATE COORDINATE SYSTEM (NAD 83) AND ARE DERIVED FROM THE FOLLOWING JOHNS HOPKINS UNIVERSITY CONTROL STATIONS:

STATION	NORTH	EAST	ELEV.	DESCRIPTION
HOPKINS	544836.5300	1340825.3542		
G12	550256.5002	1342325.2642		
G7	548107.0328	1341025.0830		
G8	549478.7005	1341170.4345		
41 EA	544825.8093	1339217.4439		
503	547910.16	1341784.40	380.65	"X"-CUT ON N.W. FIRE HYDRANT BONNET BOLT
504			362.77	BOX-CUT ON N.E. COR. OF POND INLET STRUCT.
644	548783.0482	1341364.4945	394.92	REBAR AND CAP
645	548275.6339	1341941.2036	363.53	REBAR AND CAP

CONTACT PERSON FOR THE OWNER

MR. RUSTY OBER
VOICE: (443) 778-0167
FAX: (443) 778-6122

OWNER / ADDRESS

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723

PERMIT INFORMATION CHART

SUBDIVISION NAME: JHU APPLIED PHYSICS LAB			SECTION/AREA N/A		LOT/PARCEL NO. 1
PLAT# OR L/F 15429 15433	GRID #16	ZONING PEC	TAX MAP #41	ELEC. DIST. 5	CENSUS TRACT 6051
WATER CODE E-21			SEWER CODE 6480000		

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT — DATE 3/16/04

DIRECTOR — DATE 3/16/04

aba ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

Century Engineering, Inc.
32 West Road Towson, Maryland 21204
Voice (410) 823-8070
Fax (410) 823-2184

Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
△1 ADDENDUM #1 - 01/09/04

Certification:

2/24/04

Issued for:
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- ■ CONSTRUCTION
- ▲ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:

COVER SHEET

Project No.:

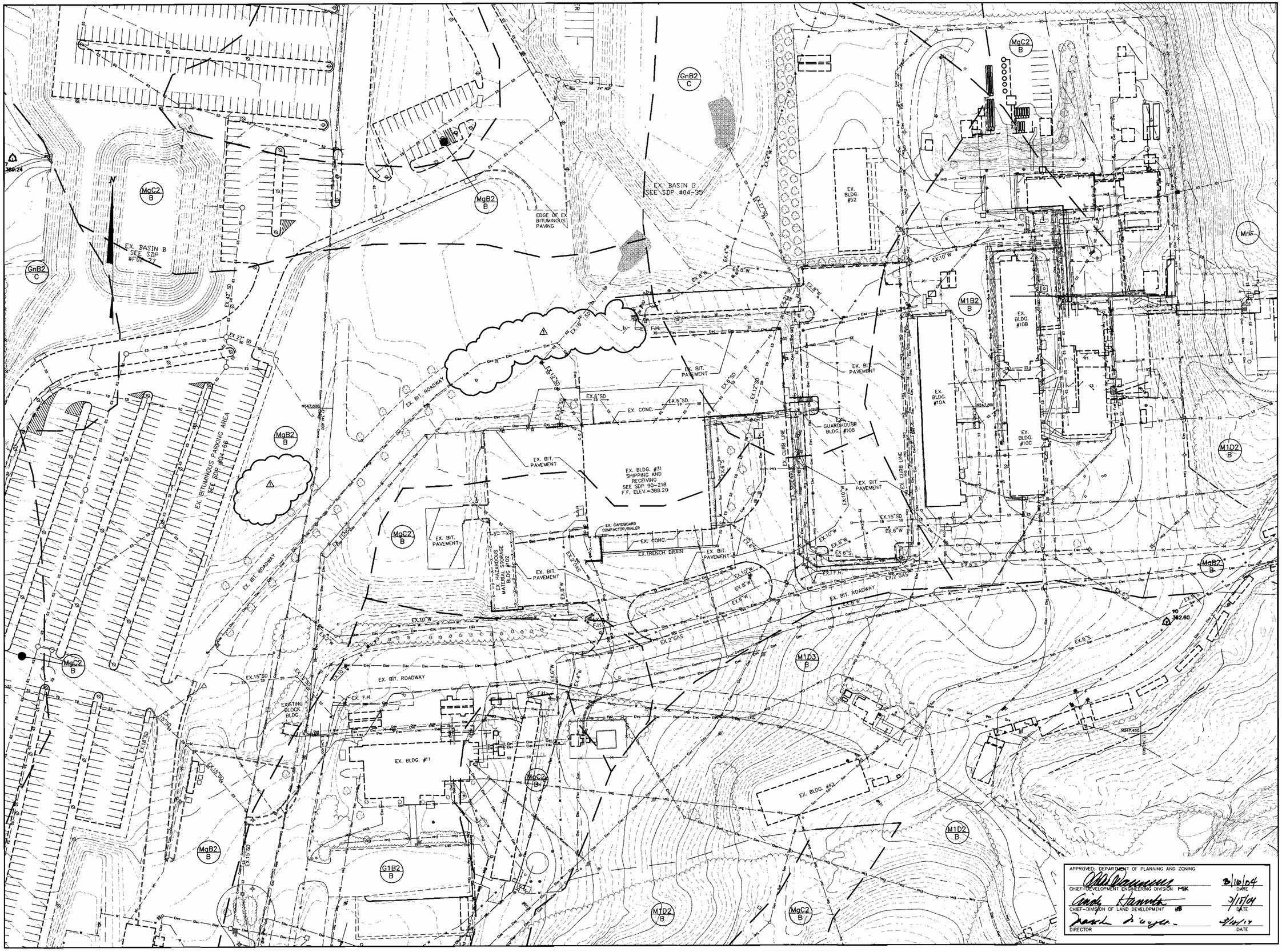
Sheet No.: C-001

Scale: AS NOTED

Date: 12-10-03

Sheet 1 of 31

SDP-04-76



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT — DATE 3/15/04

DIRECTOR — DATE 3/16/04

aba ARCHITECTS

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3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

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TRADES BLDG. - #29
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Revisions:

1 ADDENDUM #1 - 01/09/04

Certification:

2/24/04

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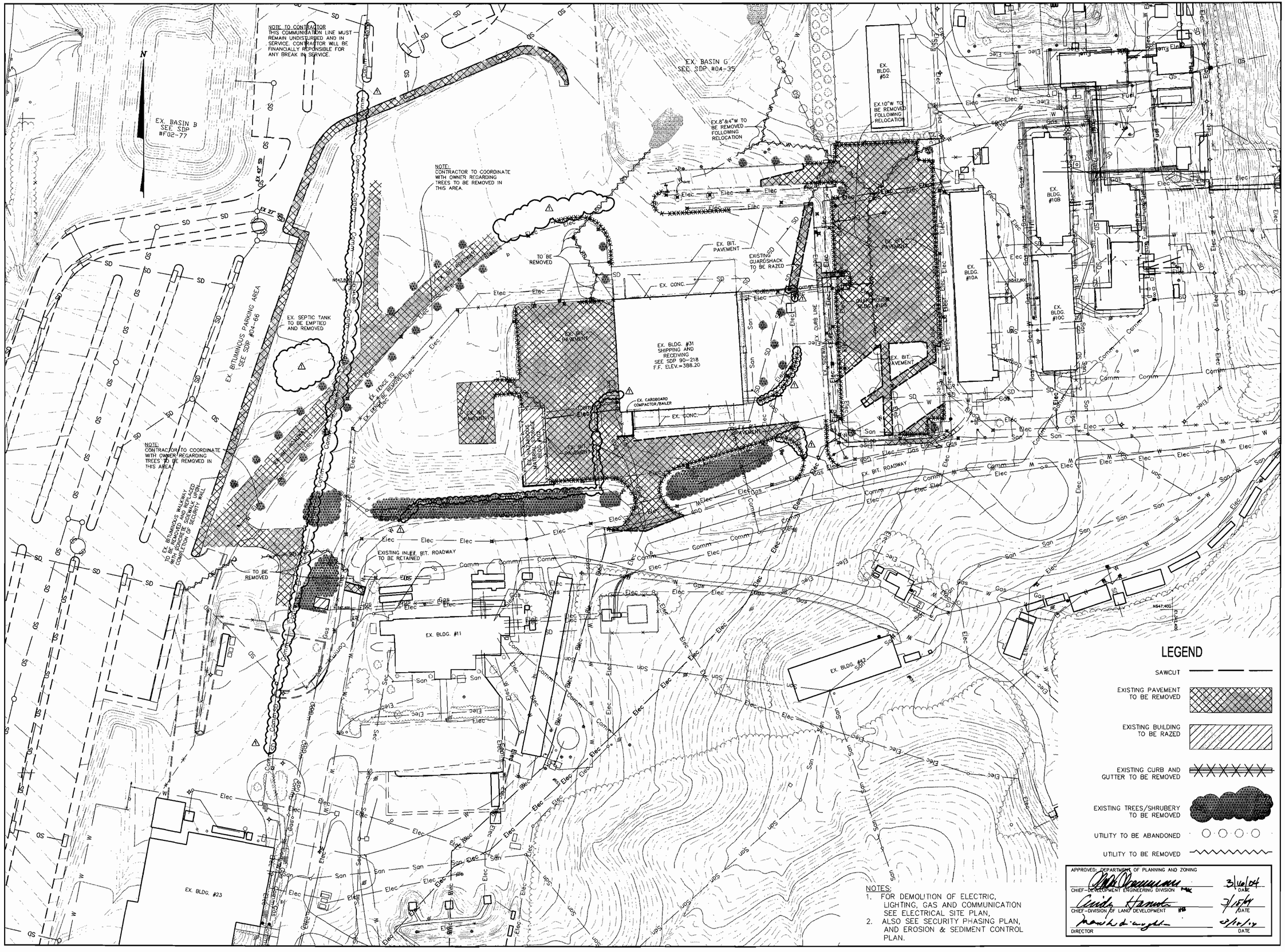
- ☐ 90% CD SUBMISSION

Drawing Title:

EXISTING CONDITIONS PLAN

Project No.:	Sheet No.:
Scale: 1" = 50'	C-002
Date: 12-10-03	Sheet 2 of 31

SDP-04-76



NOTES:
1. FOR DEMOLITION OF ELECTRIC, LIGHTING, GAS AND COMMUNICATION SEE ELECTRICAL SITE PLAN,
2. ALSO SEE SECURITY PHASING PLAN, AND EROSION & SEDIMENT CONTROL PLAN.

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Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
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Century Engineering, Inc.
32 West Road Towson, Maryland 21204
Voice (410) 823-8070
Fax (410) 823-2184

Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
1 ADDENDUM #1 - 01/09/04

Certification:
Robert J. Bathurst 2/24/04

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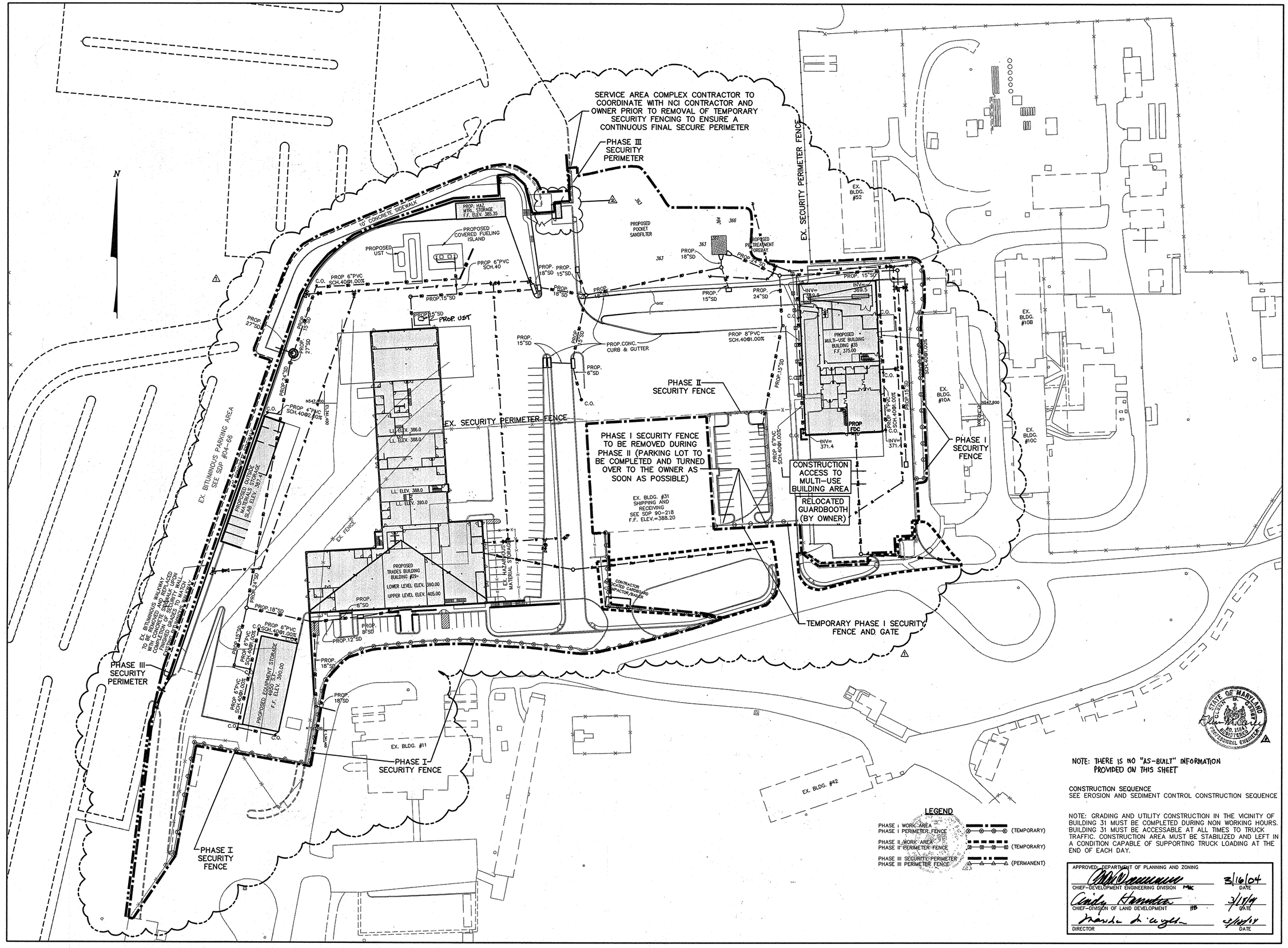
Drawing Title:
DEMOLITION PLAN

Project No.:	Sheet No.:
Scale: 1" = 50'	C-003
Date: 12-10-03	Sheet 3 of 31

SDP-04-76



NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

CONSTRUCTION SEQUENCE
SEE EROSION AND SEDIMENT CONTROL CONSTRUCTION SEQUENCE

NOTE: GRADING AND UTILITY CONSTRUCTION IN THE VICINITY OF BUILDING 31 MUST BE COMPLETED DURING NON WORKING HOURS. BUILDING 31 MUST BE ACCESSABLE AT ALL TIMES TO TRUCK TRAFFIC. CONSTRUCTION AREA MUST BE STABILIZED AND LEFT IN A CONDITION CAPABLE OF SUPPORTING TRUCK LOADING AT THE END OF EACH DAY.

APPROVED: DEPARTMENT OF PLANNING AND ZONING		
CHIEF-DEVELOPMENT ENGINEERING DIVISION MK		3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT HB		3/17/04 DATE
DIRECTOR		3/18/04 DATE

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Project Title:

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TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
1 ADDENDUM #1 - 01/09/04
2 NEW GUARD BOOTH 06/12/15

Certification:

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- ☐ NOT FOR CONSTRUCTION
- ■ BID
- ■ CONSTRUCTION
- ◪ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:
SECURITY PHASING PLAN

Project No.:

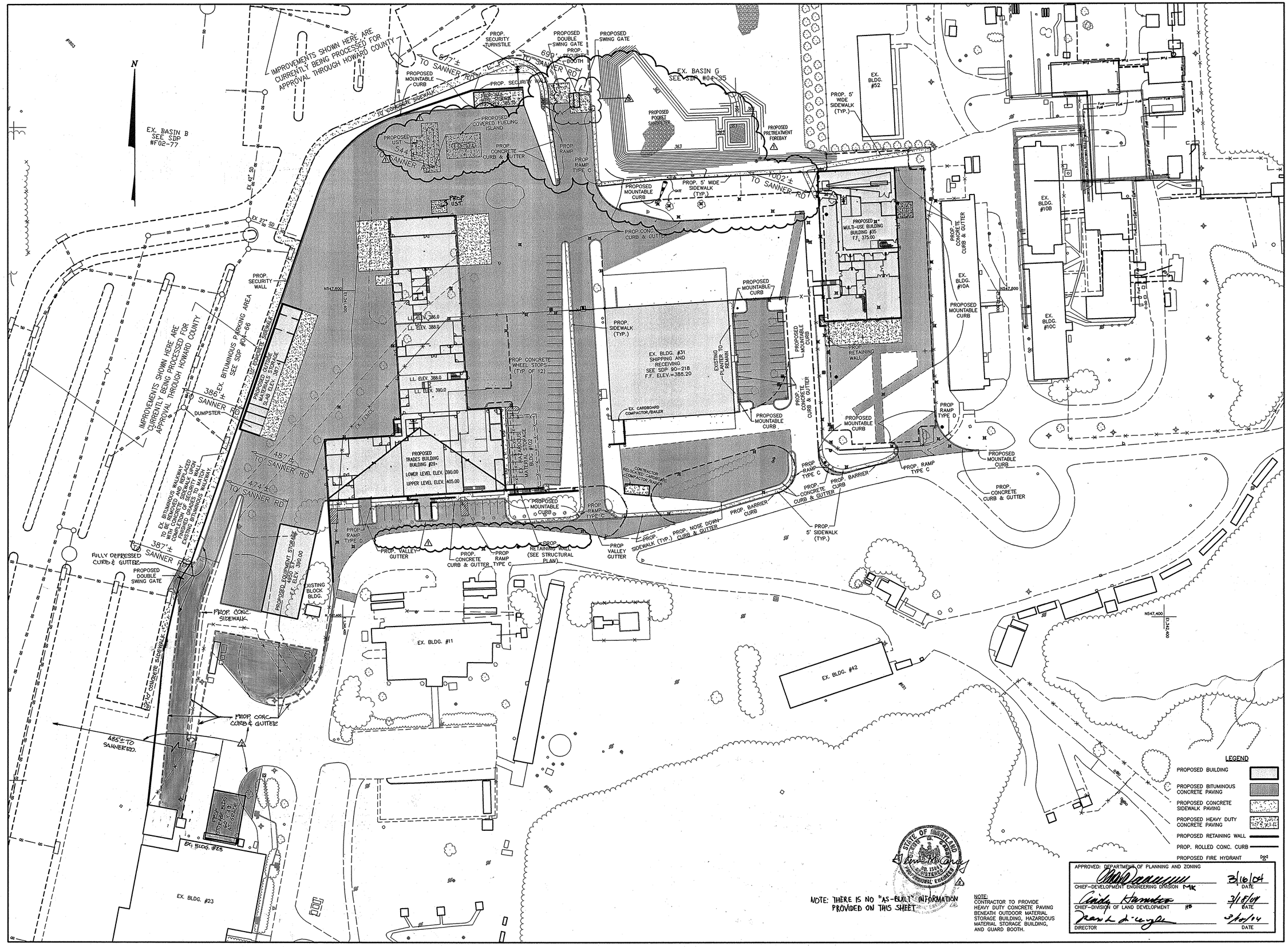
Sheet No.: C-004

Scale: 1" = 50'

Date: 12-10-03

Sheet 4 of 31

SDP-04-76



NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

NOTE:
CONTRACTOR TO PROVIDE HEAVY DUTY CONCRETE PAVING BENEATH OUTDOOR MATERIAL STORAGE BUILDING, HAZARDOUS MATERIAL STORAGE BUILDING, AND GUARD BOOTH.

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF-DEVELOPMENT ENGINEERING DIVISION MK	3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT	3/18/04 DATE
DIRECTOR	3/18/04 DATE

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Fax (410) 823-2184

Project Title:

SERVICES AREA COMPLEX
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MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
1. ADDENDUM #1 - 01/09/04
2. RED-LINED PLANS CHANGES 10/06/04
3. NEW GUARD BOOTH 06/12/15

Certification:

Issued for:
- REVIEW
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- BID
- CONSTRUCTION
- PERMIT
- 90% CD SUBMISSION

Drawing Title:

SITE PLAN

Project No.:

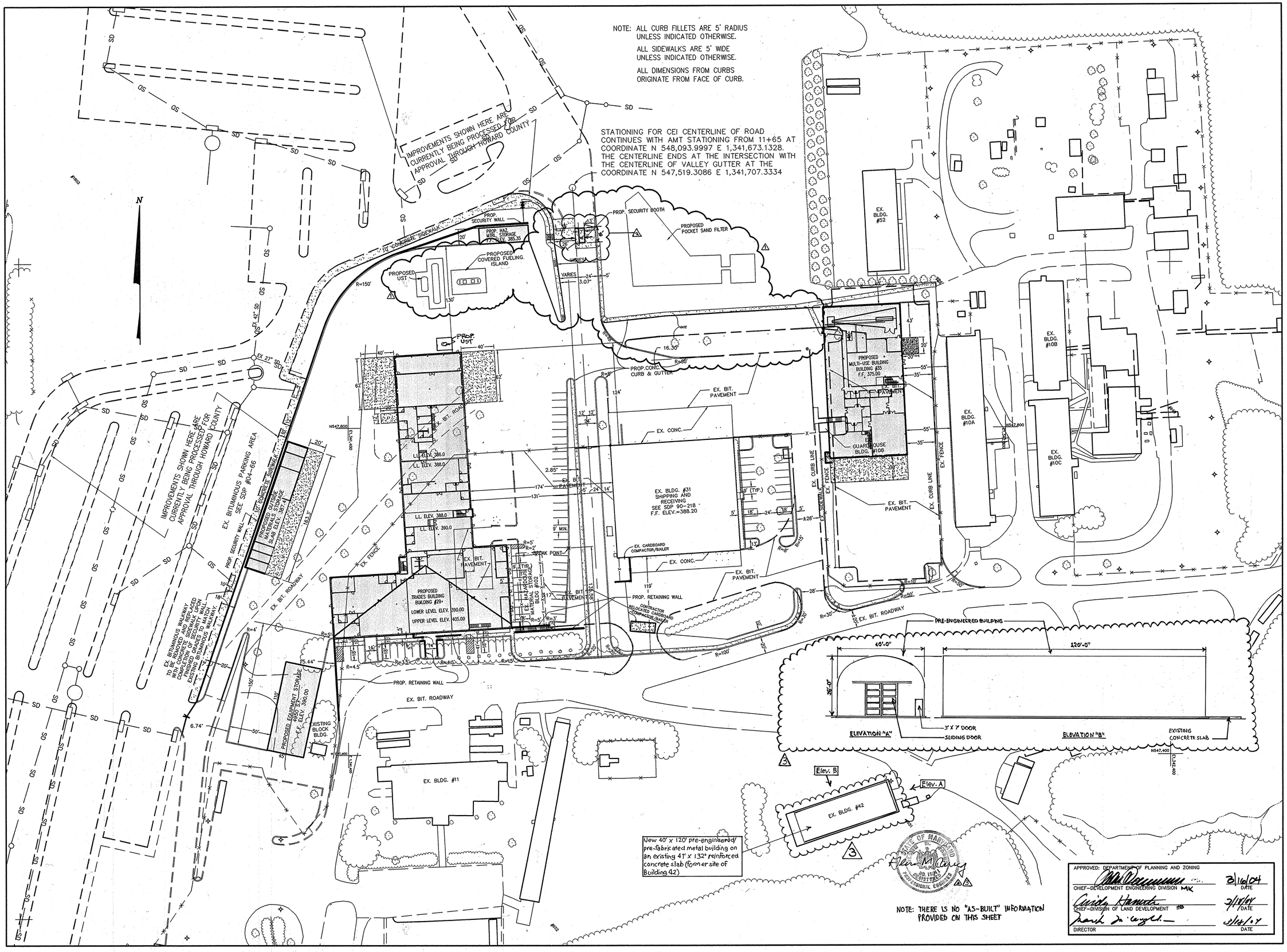
Sheet No.: C-005

Scale: 1" = 50'

Date: 12-10-03

Sheet 5 of 31

SDP-04-76



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Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
1. ADDENDUM #1 - 01/09/04
2. NEW GUARD BOOTH 06/12/15
3. Red-line showing new pre-engineered building on an existing concrete slab (10/19/2015)

Certification:

Issued for:
- REVIEW
- NOT FOR CONSTRUCTION
- BID
- CONSTRUCTION
- PERMIT
- 90% CD SUBMISSION

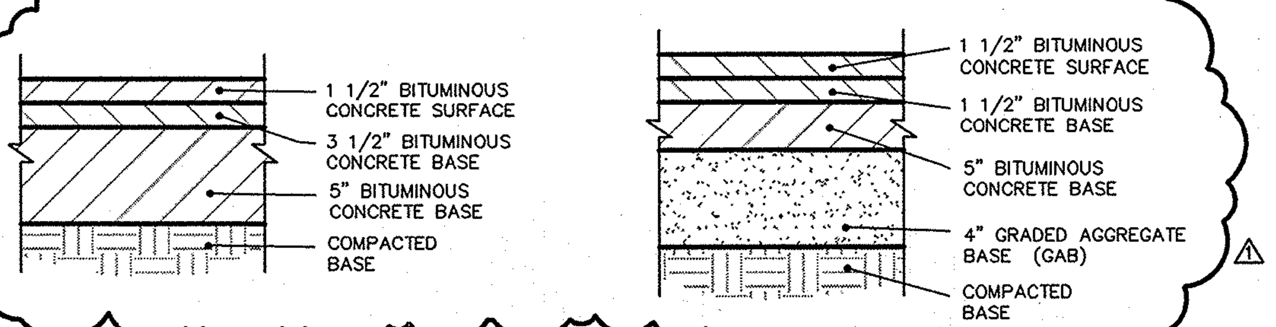
Drawing Title:

LAYOUT PLAN

Project No.:
Sheet No.: C-006
Scale: 1" = 50'
Date: 12-10-03
Sheet 6 of 31

SDP-04-76

BITUMINOUS CONCRETE PAVING SECTION

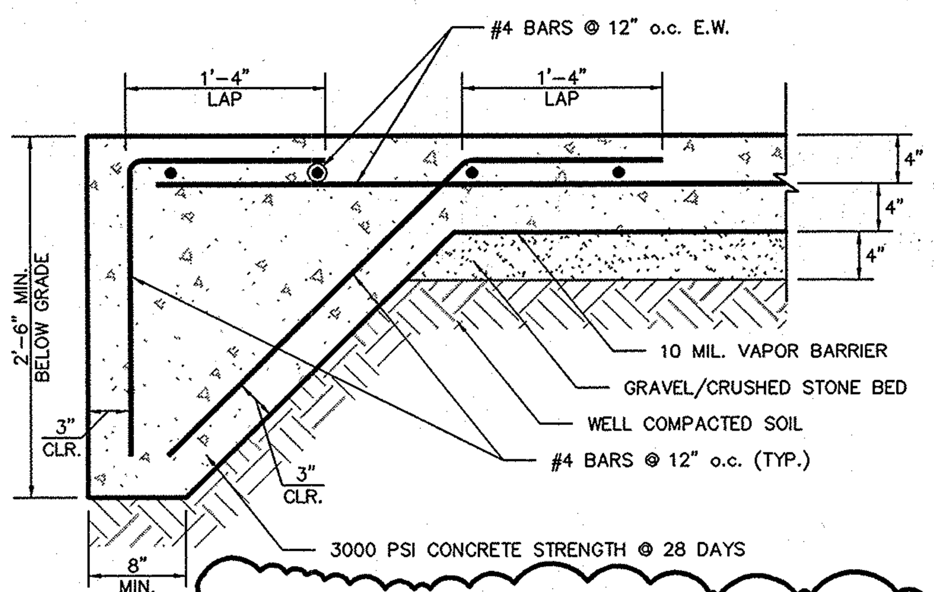


FULL DEPTH BITUMINOUS CONCRETE ALTERNATE
SCALE: N.T.S.

GRANULAR BASE ALTERNATE
SCALE: N.T.S.

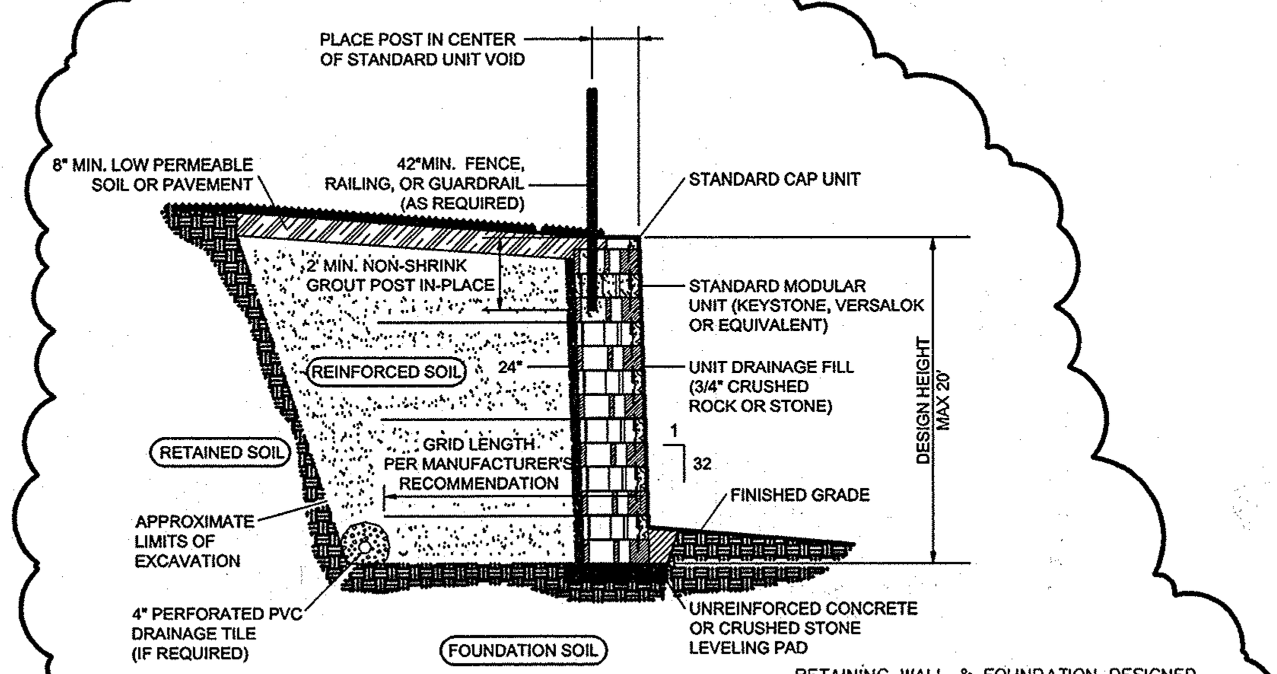
NOTES:
BITUMINOUS CONCRETE PAVEMENT SECTION DESIGNED BY FROEHLING & ROBERTSON, INC. SEE REPORT DATED SEPTEMBER 12, 2003 ENTITLED "REPORT OF SIBSURFACE EXPLORATION AND GEOTECHNICAL EVALUATION – APPLIED PHYSICS LABRATORY ADDITIONS – JOHNS HOPKINS UNIVERSITY".

THE SECTION SHOWN REPRESENTS A HOWARD COUNTY STANDARD P–4 PAVING SECTION



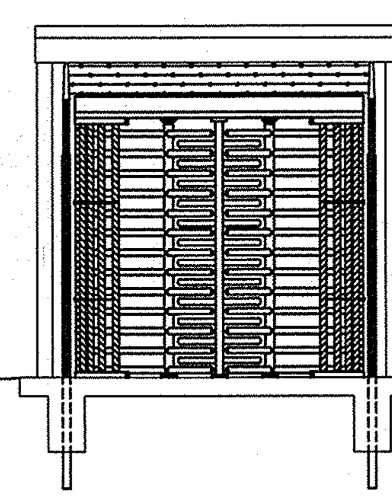
NOTE:
TURN DOWN SLAB AT ENTIRE PERIMETER OF PROPOSED SECURITY BOOTH, PROPOSED HAZARDOUS MATERIAL STORAGE BUILDING, PROPOSED OUTSIDE MATERIAL STORAGE BUILDING, PROPOSED EQUIPMENT STORAGE BUILDING, PROPOSED FUELING ISLAND, AND AT RELOCATED COMPACTOR / BAILER.

HEAVY DUTY CONCRETE PAVING SECTION
SCALE: N.T.S.



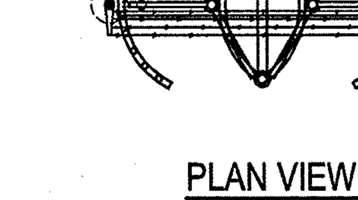
TYPICAL REINFORCED WALL SECTION
N.T.S.

RETAINING WALL & FOUNDATION DESIGNED AND CONSTRUCTED BY THE SPECIALTY CONTRACTOR. SUBMIT DESIGN CALCULATIONS WITH SIGNATURE AND SEAL OF MARYLAND REGISTERED PROFESSIONAL ENGINEER FOR THE OWNER'S ENGINEER REVIEW AND APPROVAL



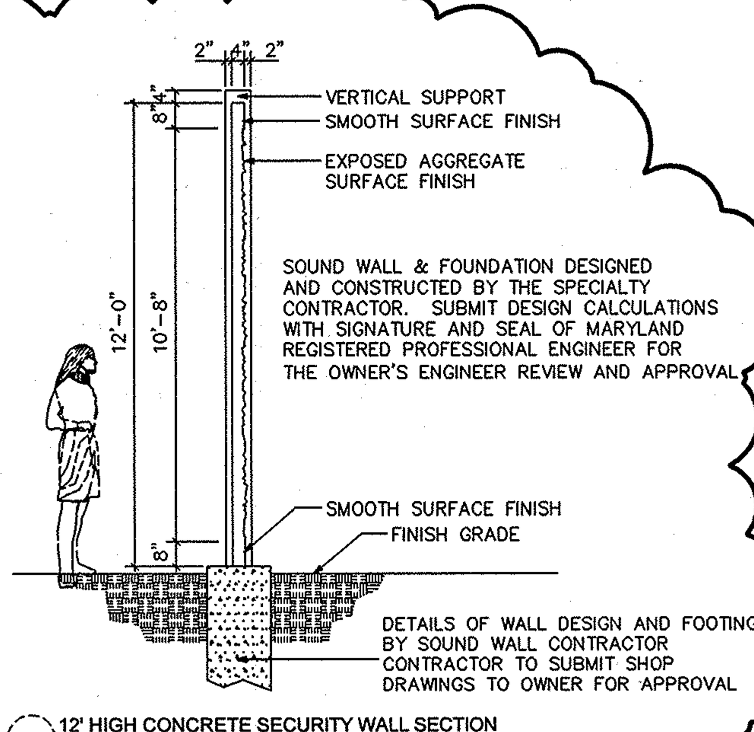
ELEVATION
SCALE: N.T.S.

NOTE: TURNSTILE TO BE ALVARADO MANUFACTURING CO. INC. MODEL MST–TX.



PLAN VIEW
SCALE: N.T.S.

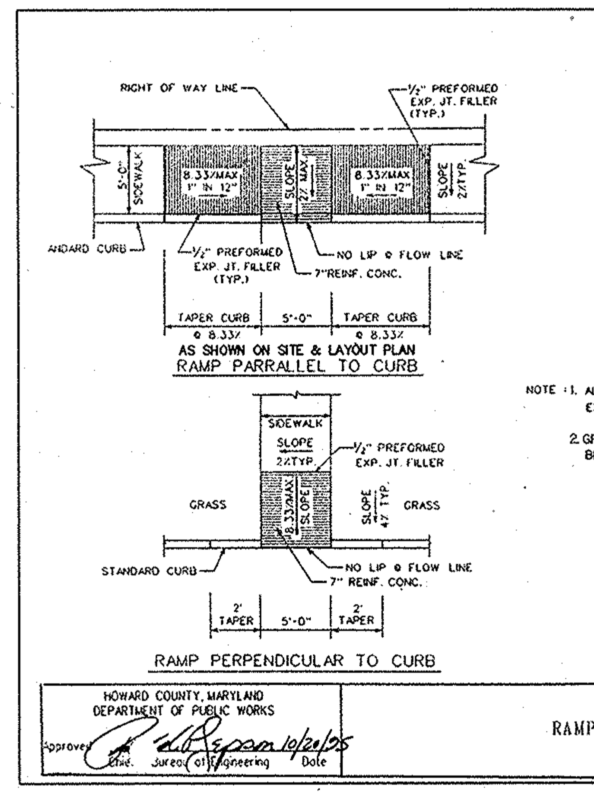
TURNSTILE DETAILS
SEE SPECIFICATIONS
NOTE: TURNSTILE TO BE PROVIDED BY OWNER

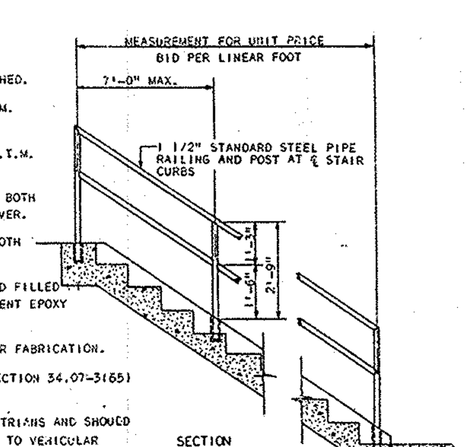


SOUND WALL & FOUNDATION DESIGNED AND CONSTRUCTED BY THE SPECIALTY CONTRACTOR. SUBMIT DESIGN CALCULATIONS WITH SIGNATURE AND SEAL OF MARYLAND REGISTERED PROFESSIONAL ENGINEER FOR THE OWNER'S ENGINEER REVIEW AND APPROVAL

DETAILS OF WALL DESIGN AND FOOTING BY SOUND WALL CONTRACTOR CONTRACTOR TO SUBMIT SHOP DRAWINGS TO OWNER FOR APPROVAL

12' HIGH CONCRETE SECURITY WALL SECTION
SCALE: 1" = 4'





NOTES:
1. UNLESS OTHERWISE NOTED, PAINTED RAILING SHALL BE FURNISHED.
2. RAILING AND POSTS TO BE PAINTED SHALL CONFORM TO A.S.T.M. DESIGNATION A-120 STANDARD WEIGHT.
3. RAILING AND POSTS TO BE GALVANIZED SHALL CONFORM TO A.S.T.M. DESIGNATION A-441 SEE SPECIFICATIONS.
4. UNLESS OTHERWISE NOTED, RAILINGS SHALL BE FURNISHED FOR BOTH SIDES OF STAIRS AND ON ALL STAIRS HAVING 4 RISERS AND OVER.
5. RAILING SHALL BE ALL WELDED WITH ITS JOINTS GROUND SMOOTH AND FREE OF BURRS.
6. RAILING POSTS SHALL BE SET IN METAL SLEEVES, 6" DEEP AND FILLED WITH HOT POURED LEAD OR HOT POURED SULFUR OR AN EQUIVALENT EPOXY COMPOUND.
7. GALVANIZED RAILINGS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
8. PAINTED RAILINGS SHALL BE PAINTED IN ACCORDANCE WITH SECTION 34.07-3(65) OF THE SPECIFICATIONS.
9. THIS HANDRAIL IS TO USED ONLY AS A PROTECTION FOR PEDESTRIANS AND SHOULD NOT BE PLACED IN ANY LOCATION WHERE IT MIGHT BE SUBJECT TO VEHICULAR IMPACT. FOR VEHICULAR PROTECTION, STANDARD GUARD RAIL SHOULD BE USED.
10. THE RAILING SHALL BE PAID FOR AT THE UNIT PRICE BID PER LINEAR FOOT, MEASURED HORIZONTALLY, FOR "STANDARD PIPE RAILING FOR CONCRETE STAIRS" COMPLETE IN PLACE ; OR ITS COST SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "STANDARD CONCRETE STAIR", COMPLETE IN PLACE.

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS | STANDARD PIPE RAILING FOR CONCRETE STAIRS | REV. JAN. 1982 DRAWN BY W.T. BALLARD CHECKED BY J.L.R. NO SCALE G7.02
Approved — Chief-Bur. of Engr. 1-12-81 Date

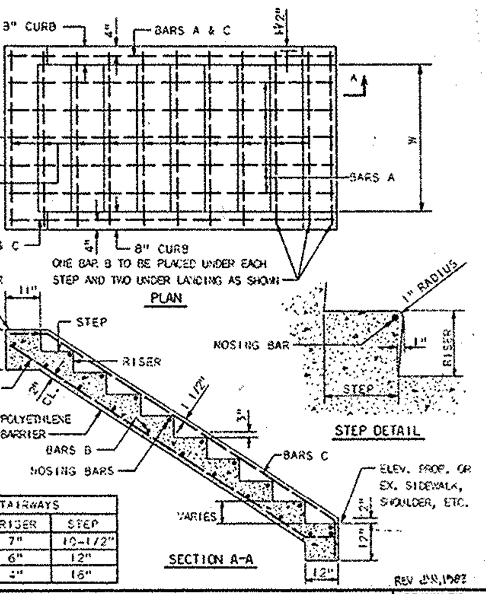
NOTES:
1. CONCRETE: MIX NO.2
2. CHAMFERS: 3/4"x3/4"
3. EXPOSED SURFACES: CLASS I SURFACE FINISH.
4. REINFORCING STEEL: A-15 WITH A-305 DEFORMATIONS.
5. ALL REINFORCING BARS SHALL BE NO.4 BARS EXCEPT NOSING BARS.
6. A, B AND C BARS SHALL BE USED IN THE INSTALLATIONS OF SIX OR MORE STEPS.
7. NOSING BARS SHALL BE NO.2 BARS AND PLACED IN ALL STEPS REGARDLESS OF STAIR LENGTH.
8. UNLESS OTHERWISE NOTED, ALL TREADS SHALL BE FINISHED WITH A LIGHTLY BROOMED SURFACE.
9. FOR RAILING DETAILS, SEE "STANDARD RAILING FOR CONCRETE STAIRS".
10. THE STAIRS SHALL BE PAID FOR ON THE UNIT PRICE BID PER CUBIC YARD FOR "MIX NO.2 CONCRETE FOR MISCELLANEOUS STRUCTURES", COMPLETE IN PLACE OR ON A LUMP SUM BID FOR EACH "STANDARD CONCRETE STAIR", COMPLETE IN PLACE.

BARS A TO BE EQUALLY SPACED. FOR NO. OF BARS SEE TABLE BELOW

NUMBER OF BARS A	N=1-5	N=6	N=7	N=8	N=9	N=10	N=11	N=12	N=13-25
W=3'		4	5	5	6	6	7	7	8
W=4'		5	6	7	7	8	8	9	10
W=5'		6	7	8	9	9	10	11	12

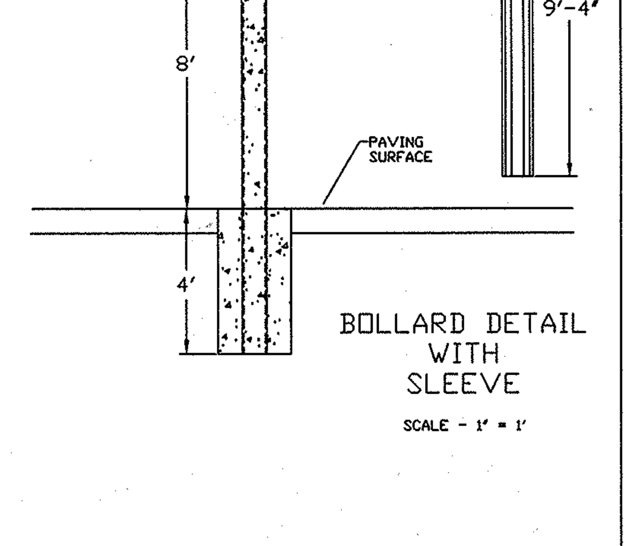
FOR OTHER WIDTHS, THE APPROX. SPACING OF BARS A IN INCHES WILL BE EQUAL TO 50± WITH A MIN. SPACING OF 5 IN. N=INDICATES NUMBER OF STEPS EXCLUSIVE OF LANDING

STAIRWAYS SLOPE	RISER	STEP
1 1/2:1	7"	10-1/2"
2:1	6"	12"
4:1	4"	16"

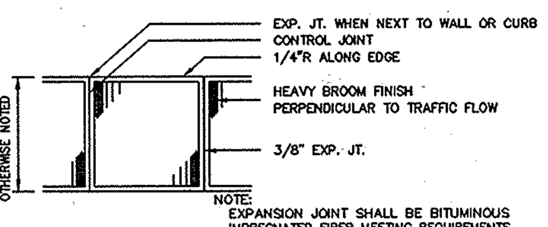


HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS | STANDARD CONCRETE STAIRS | REV JUN.1987 DRAWN BY W.T. BALLARD CHECKED BY J.L.R. NO SCALE G7.01
Approved — Chief-Bur. of Engr. 1-12-81 Date

4 IN. RIGID CONDUIT OR
4 IN. SCH. 40 GALV. PIPE -
CONCRETE FILLED
POLYETHYLENE SLEEVE AS SOLD BY LAB SAFETY SUPPLY. 2003 CATALOGUE, P. 1270, NO. 3BB-79283, 4" ROUND BOLARD POST SLEEVE, 56" TALL.

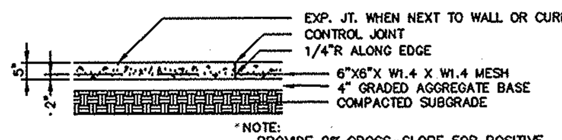


BOLLARD DETAIL WITH SLEEVE
SCALE - 1' = 1'



NOTE:
EXPANSION JOINT SHALL BE BITUMINOUS IMPREGNATED FIBER MEETING REQUIREMENTS OF AASHTO M–213 AND ASTM D–1751 SPECS, SPACED EVERY 16 FEET.

PROFILE
N.T.S.



*NOTE:
PROVIDE 2% CROSS–SLOPE FOR POSITIVE DRAINAGE AS REQUIRED.

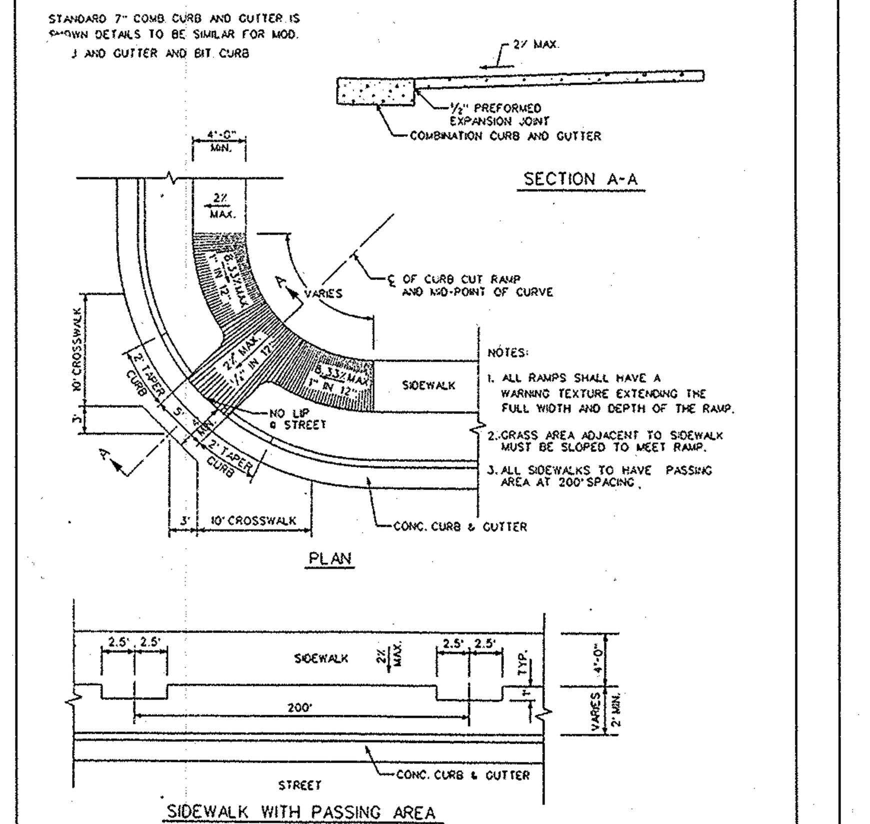
SECTION
N.T.S.

CONCRETE SHALL BE SHA MIX NO. 2

CONCRETE WALK
SCALE: N.T.S.

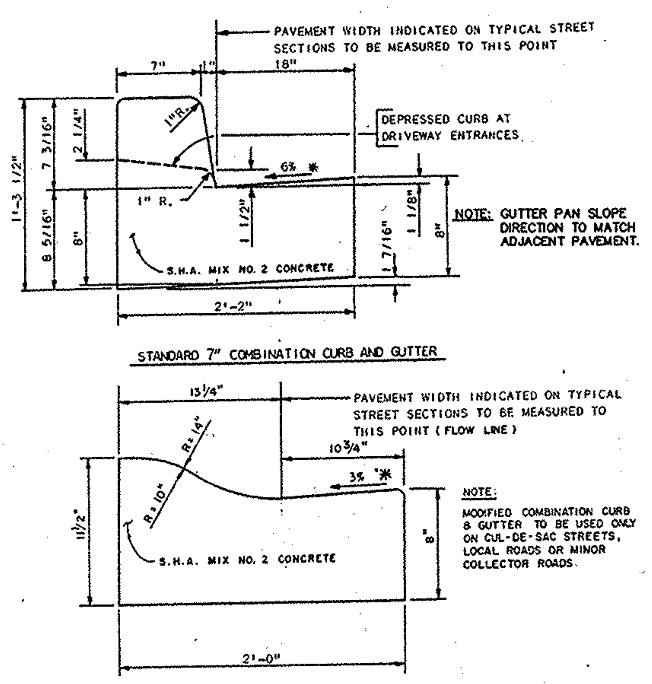
DRAFT ISSUE DATE 6-30-93

STANDARD 7" COMB CURB AND GUTTER IS SHOWN DETAILS TO BE SIMILAR FOR MOD. AND GUTTER AND BIT CURB



NOTES:
1. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.
2. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.
3. ALL SIDEWALKS TO HAVE PASSING AREA AT 200' SPACING.

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS | SIDEWALK RAMP TYPE A | DWN.: Y.P. CHK.: W.M.H. NO SCALE
Approved — 10/20/95

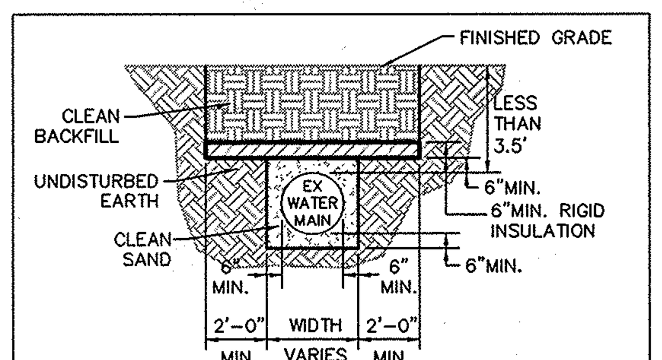


NOTE:
MODIFIED COMBINATION CURB & GUTTER TO BE USED ONLY ON CUL-DE-SAC STREETS, LOCAL ROADS OR MINOR COLLECTOR ROADS.

* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB AND GUTTER.

REV. JAN. 1989 REV. JUN. 1987 REV. MAR. 1986

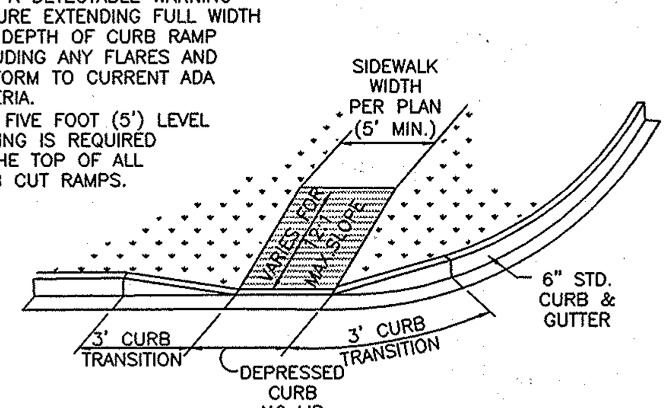
HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS | COMBINATION CURB AND GUTTER | DRAWN BY W.T. BALLARD CHECKED BY J.L.R. NO SCALE R-3.01
Approved — Chief-Bureau of Engineering 1-12-81



SHALLOW WATER MAIN INSTALLATION DETAIL
SCALE: N.T.S.

TO BE USED WHERE EXISTING WATER MAINS WILL HAVE COVER REDUCED TO LESS THAN THE REQUIRED MINIMUM OF 3'6". IN NO CASE SHALL LESS THAN 2'8" COVER BE PROVIDED. SEE APPROXIMATE LIMITS OF SHALLOW INSTALLATION ON UTILITY PLAN.

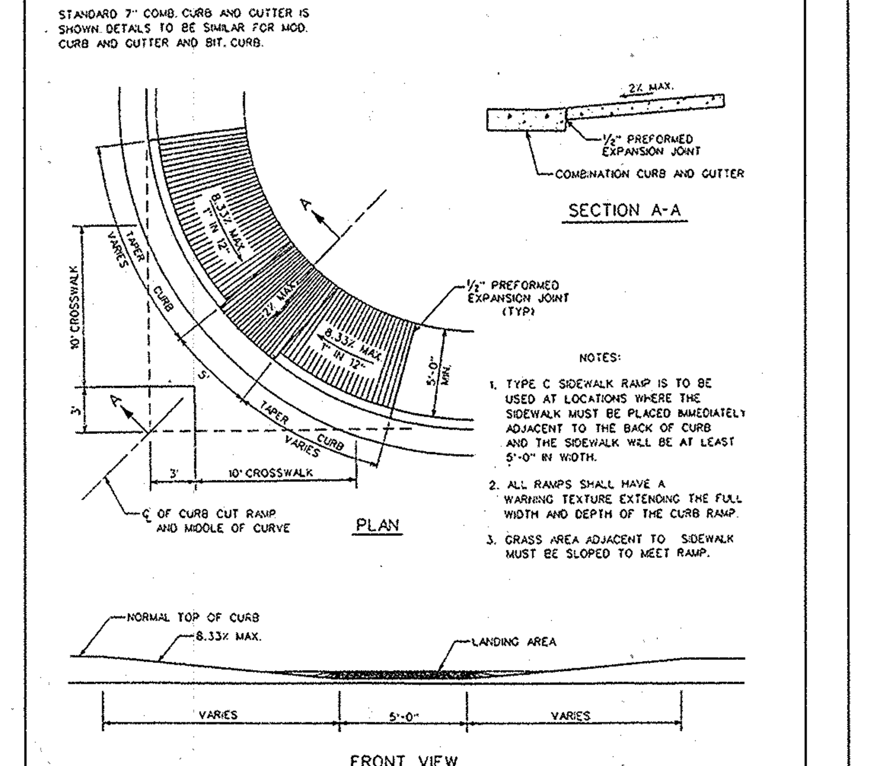
NOTE:
1. ALL CURB RAMPS SHALL HAVE A DETECTABLE WARNING TEXTURE EXTENDING FULL WIDTH AND DEPTH OF CURB RAMP INCLUDING ANY FLARES AND CONFORM TO CURRENT ADA CRITERIA.
2. A FIVE FOOT (5') LEVEL LANDING IS REQUIRED AT THE TOP OF ALL CURB CUT RAMPS.



CURB RAMP TYPE "D"
SCALE: N.T.S.

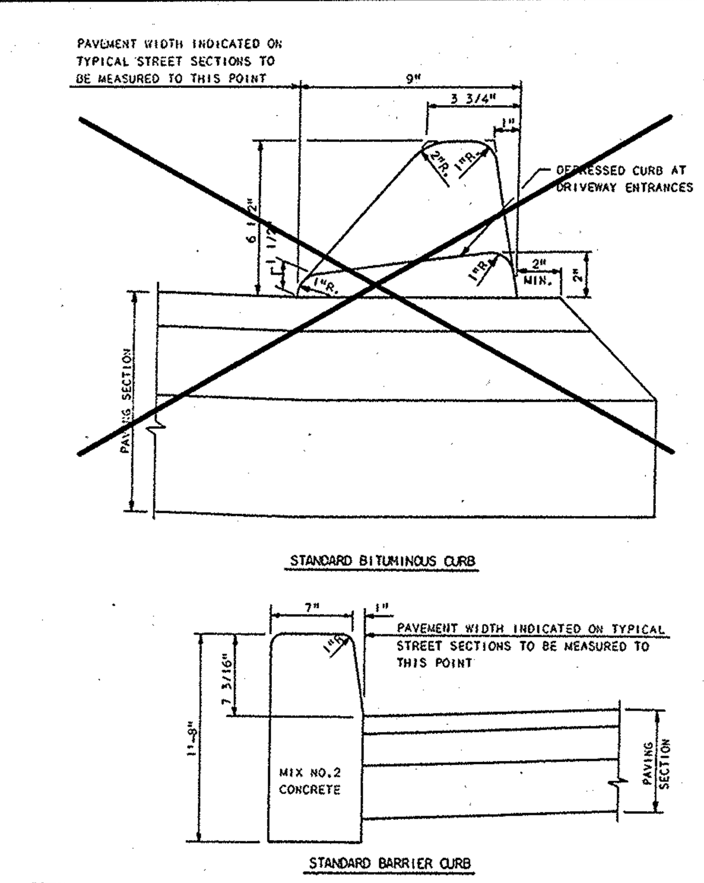
DRAFT ISSUE DATE 6-30-93

STANDARD 7" COMB. CURB AND GUTTER IS SHOWN. DETAILS TO BE SIMILAR FOR MOD. CURB AND GUTTER AND BIT. CURB.

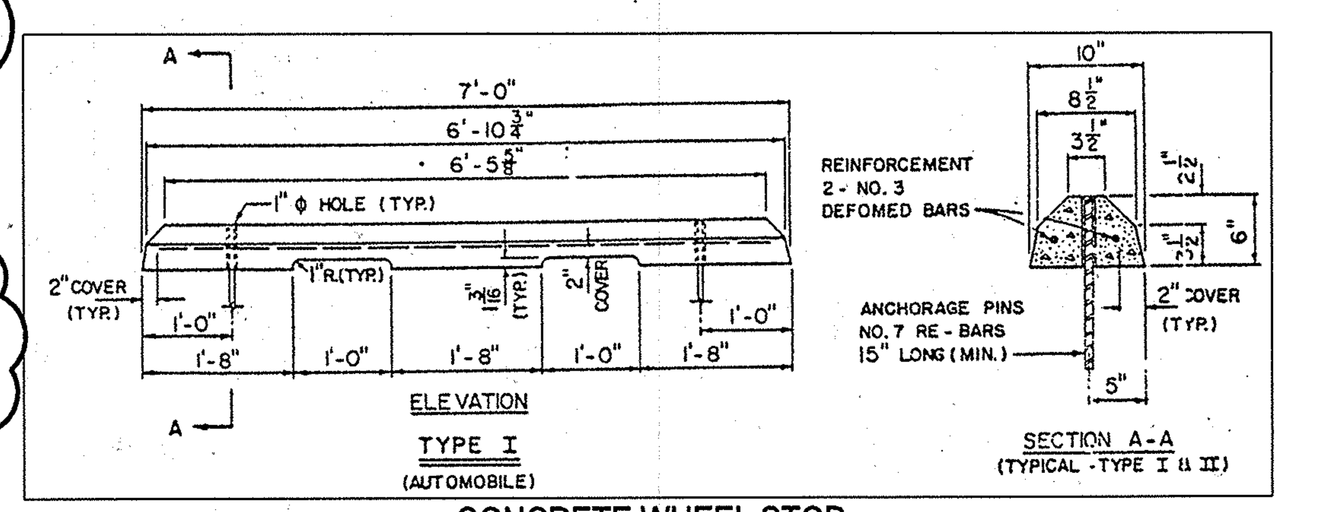


NOTES:
1. TYPE C SIDEWALK RAMP IS TO BE USED AT LOCATIONS WHERE THE SIDEWALK MUST BE PLACED IMMEDIATELY ADJACENT TO THE BACK OF CURB AND THE SIDEWALK WILL BE AT LEAST 5'-0" IN WIDTH.
2. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE CURB RAMP.
3. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS | SIDEWALK RAMP TYPE C | DWN: Y.P. CHK: W.M.H. NO SCALE R-4.03
Approved — Chief - Bureau of Engineering 10/20/95 Date



HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS | CURBS | DRAWN BY W.T. BALLARD CHECKED BY J.L.R. NO SCALE R-3.03
Approved — Chief-Bureau of Engineering 1-12-81



CONCRETE WHEEL STOP
SCALE: N.T.S.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF–DEVELOPMENT ENGINEERING DIVISION MK	3/16/04 DATE
CHIEF–DIVISION OF LAND DEVELOPMENT HB	3/18/04 DATE
DIRECTOR	3/18/04 DATE

ABA ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

Century Engineering, Inc.
32 West Road Towson, Maryland 21204
Voice (410) 823-8070
Fax (410) 823-2184

Project Title:
SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
⚠ ADDENDUM #1 – 01/09/04

Certification:

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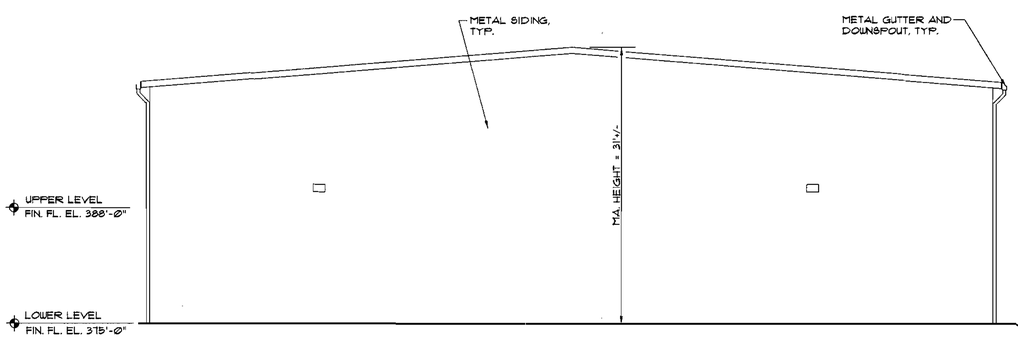
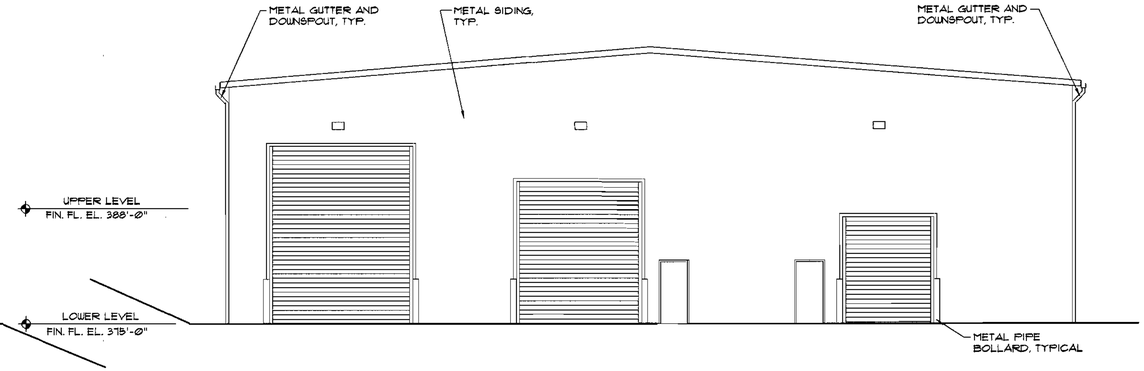
Drawing Title:
SITE DETAILS

Project No.:
Scale: NONE
Date: 12-10-03
Sheet No.: C-007
Sheet 7 of 31

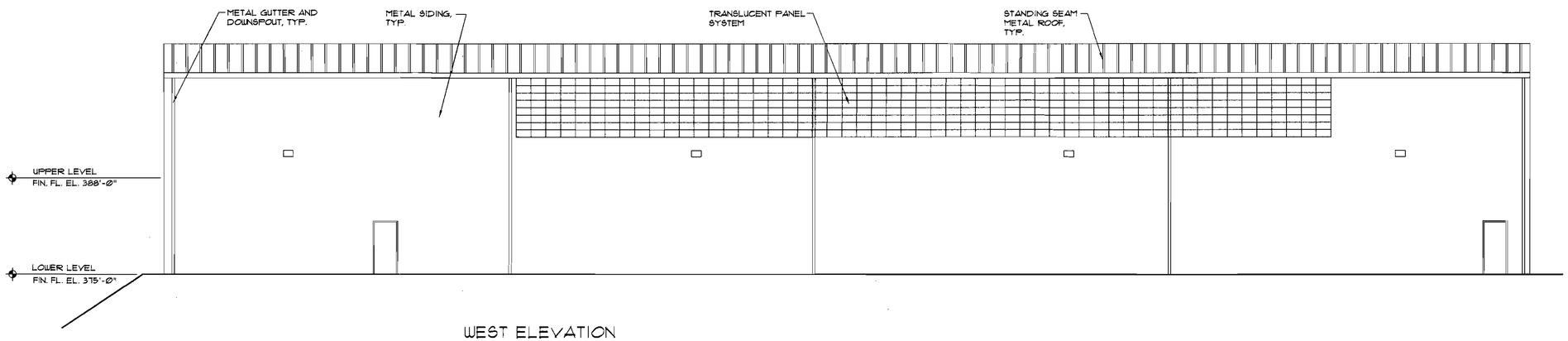
SDP-04-76



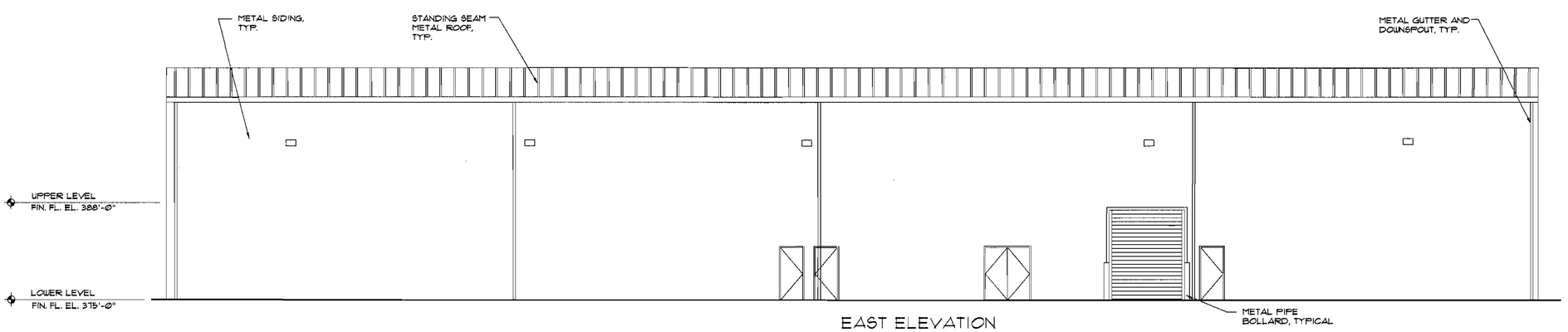
NORTH ELEVATION



SOUTH ELEVATION



WEST ELEVATION



EAST ELEVATION

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT HB — DATE 3/15/04

DIRECTOR — DATE 3/16/04

ABA ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

Century Engineering, Inc.
32 West Road Towson,
Maryland 21204
Voice (410) 823-8070
Fax (410) 823-2184

Project Title:

SERVICES AREA COMPLEX

TRADES BLDG. - #29
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JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

Certification:

2/24/04

Issued for:

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- ☐ 90% CD SUBMISSION

Drawing Title:
MULTI-USE BUILDING ELEVATIONS

Project No.:

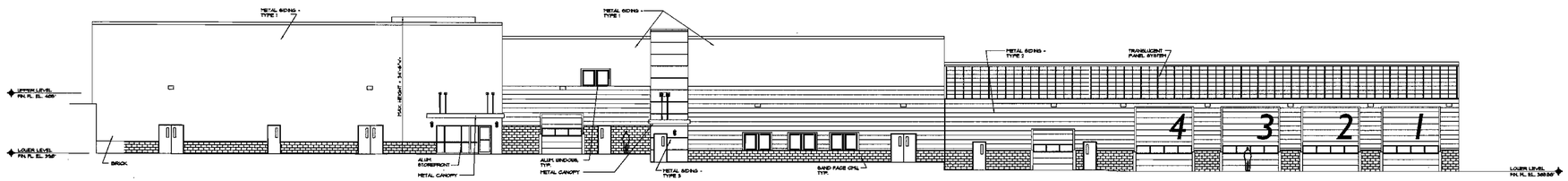
Sheet No.: C-008

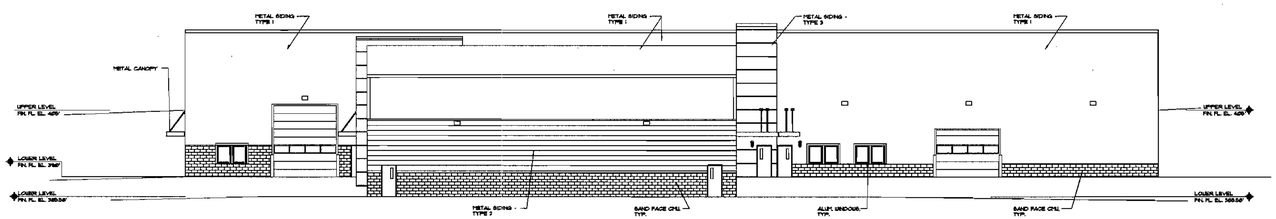
Scale: 1/8"=1'-0"

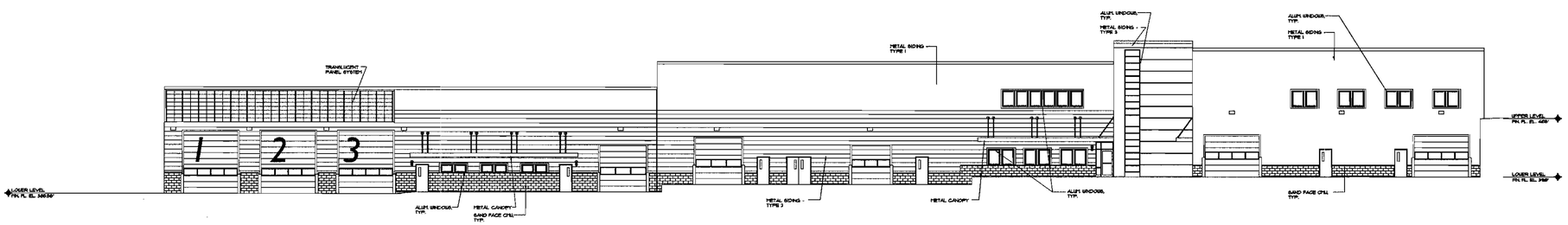
Date: 12-10-03

Sheet 8 of 31

SDP-04-76







APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF–DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/16/04

CHIEF–DIVISION OF LAND DEVELOPMENT — DATE 3/15/04

DIRECTOR — DATE 3/16/04

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Amos Bailey Arnold + Associates, Inc.

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Baltimore, Maryland 21211
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Century Engineering, Inc.
32 West Road Towson,
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Voice (410) 823-8070
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LAUREL, MARYLAND 20723-6099

Revisions:

Certification:

2/24/04

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- ☐ 90% CD SUBMISSION

Drawing Title:

TRADES BUILDING ELEVATIONS

Project No.:

Sheet No.: C-009

Scale: 1/16"=1'-0"

Date: 12-10-03

Sheet 9 of 31

SDP-04-76

NOTE:
THE SITE PLAN FOR BASIN 'G' MUST BE UNDER CONSTRUCTION OR FINISHED BEFORE THIS BUILDING CONSTRUCTION CAN PROCEED.

EX. BASIN B SEE SDP #F02-77

EX. BASIN G SEE SDP #04-95

EX. BITUMINOUS PARKING AREA SEE SDP #04-66

PROPOSED TRADES BUILDING BUILDING #29
LOWER LEVEL ELEV. 390.00
UPPER LEVEL ELEV. 405.00

EX. BLDG. #31 SHIPPING AND RECEIVING SEE SDP 90-218 F.F. ELEV.=388.20

EX. BLDG. #11

EX. BLDG. #42

EX. BLDG. #52

EX. BLDG. #10B

EX. BLDG. #10A

EX. BLDG. #10C

PROPOSED MULTI-USE BUILDING BUILDING #35 F.F.J 375.00

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION	MK	3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT		3/16/04 DATE
DIRECTOR		3/16/04 DATE

aba ARCHITECTS
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Baltimore, Maryland 21211
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JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
1. ADDENDUM #1 - 01/09/04
2. RED-LINED PLAN CHANGES 10/06/04
3. NEW GUARD BOOTH 05/12/15

Certification:

Issued for:
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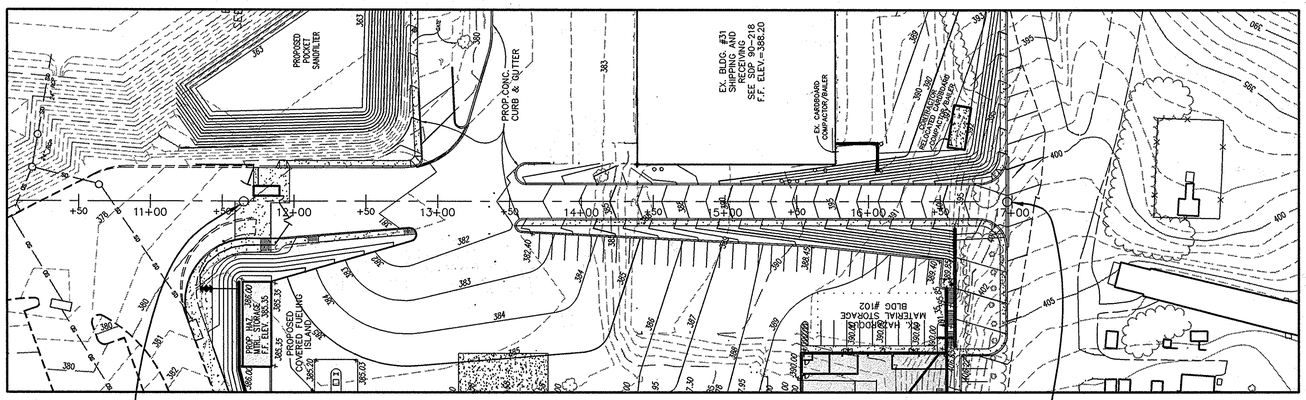
- ☐ 90% CD SUBMISSION

Drawing Title:

GRADING PLAN

Project No.:	Sheet No.:
Scale: 1" = 50'	C-010
Date: 12-10-03	Sheet 10 of 31

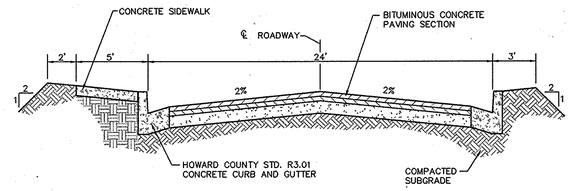
SDP-04-76



PROPOSED ROADWAY PLAN

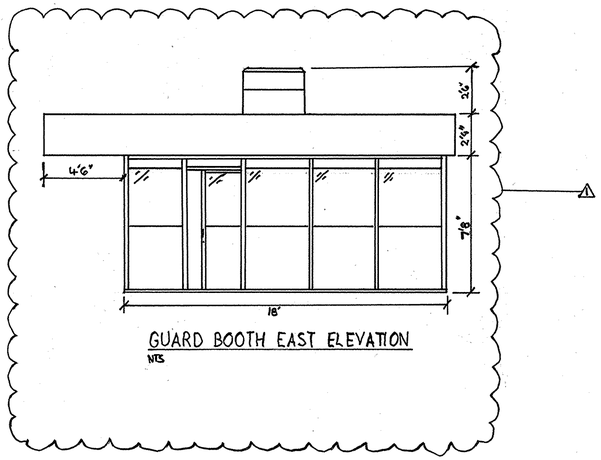
SCALE: 1" = 50'

STATIONING FOR CEI CENTERLINE OF ROAD CONTINUES WITH AMT STATIONING FROM 11+65 AT COORDINATE N 548,093.9997 E 1,341,673.1328. THE CENTERLINE ENDS AT THE INTERSECTION WITH THE CENTERLINE OF VALLEY GUTTER AT THE COORDINATE N 547,519.3086 E 1,341,707.3334



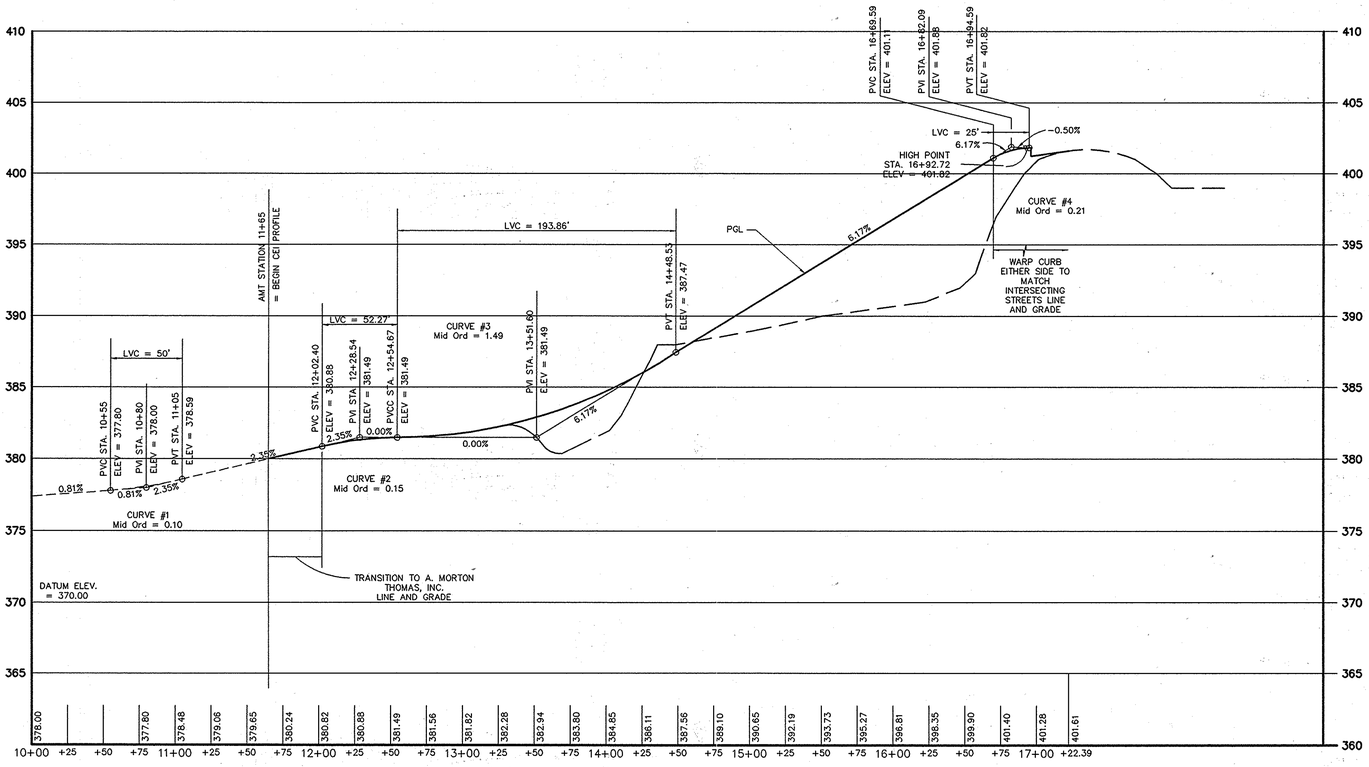
SPLINE ROAD TYPICAL SECTION

SCALE: N.T.S.



GUARD BOOTH EAST ELEVATION

NTS



ROAD PROFILE
FROM AMT,INC. TO EX. ROAD

SCALE { HORIZ: 1" = 50' VERT: 1" = 5'

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION	MK	3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT	HB	3/18/04 DATE
DIRECTOR		3/18/04 DATE

aba ARCHITECTS

Amos Bailey Arnold + Associates, Inc.

3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

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SERVICES AREA COMPLEX

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11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

1 NEW GUARD BOOTH 06/12/15

Certification:

2/24/04

Issued for:

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Drawing Title:

PROPOSED ROAD PROFILE

Project No.:

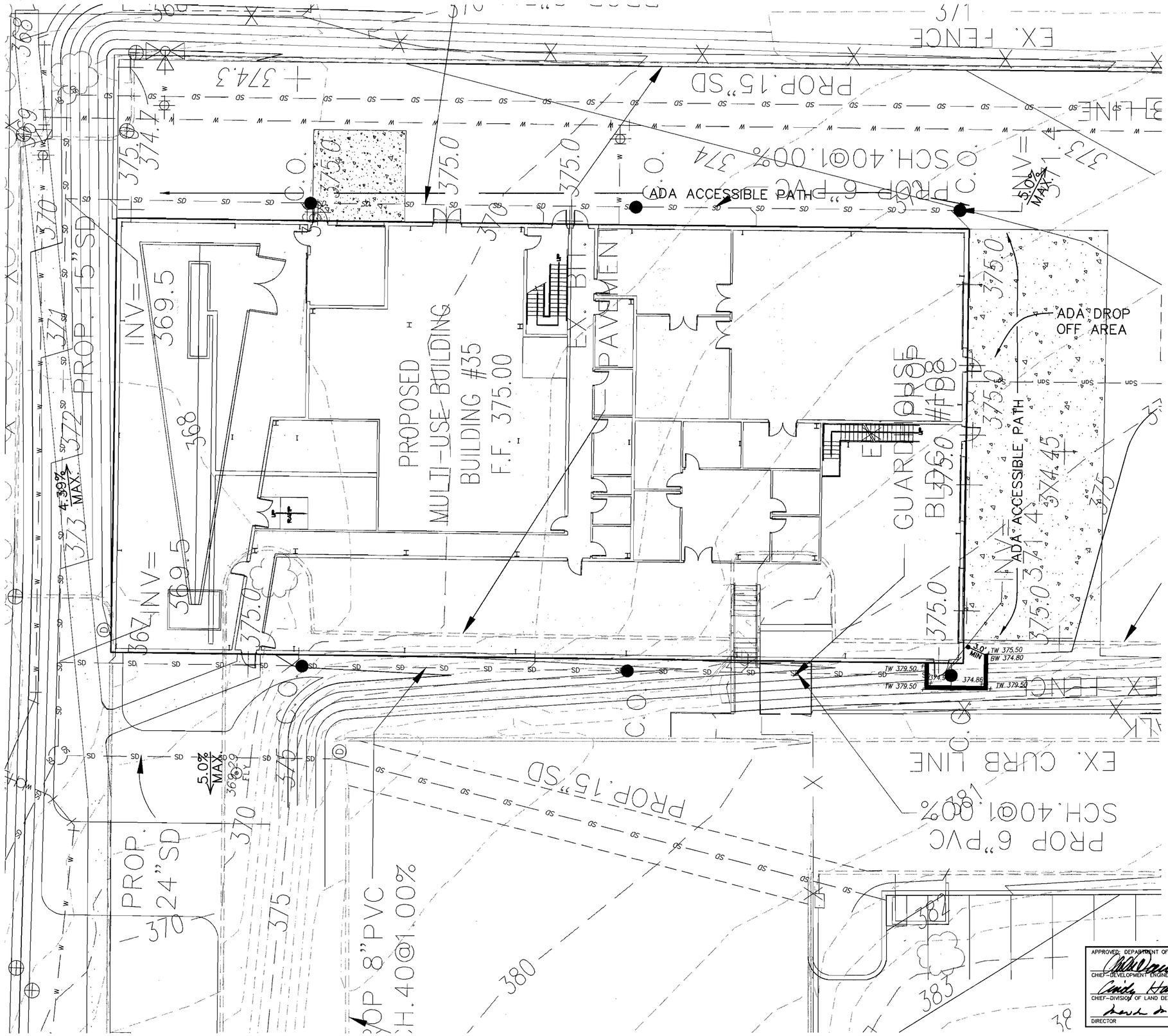
Sheet No.: C-011

Scale: AS NOTED

Date: 12-10-03

Sheet 11 of 31

SDP-04-76



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK	3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT	3/15/04 DATE
DIRECTOR	3/16/04 DATE

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Amos Bailey Arnold + Associates, Inc.
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TRADES BLDG. - #29
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JHU - APL
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LAUREL, MARYLAND 20723-6099

Revisions:

Certification:

2/24/04

Issued for:

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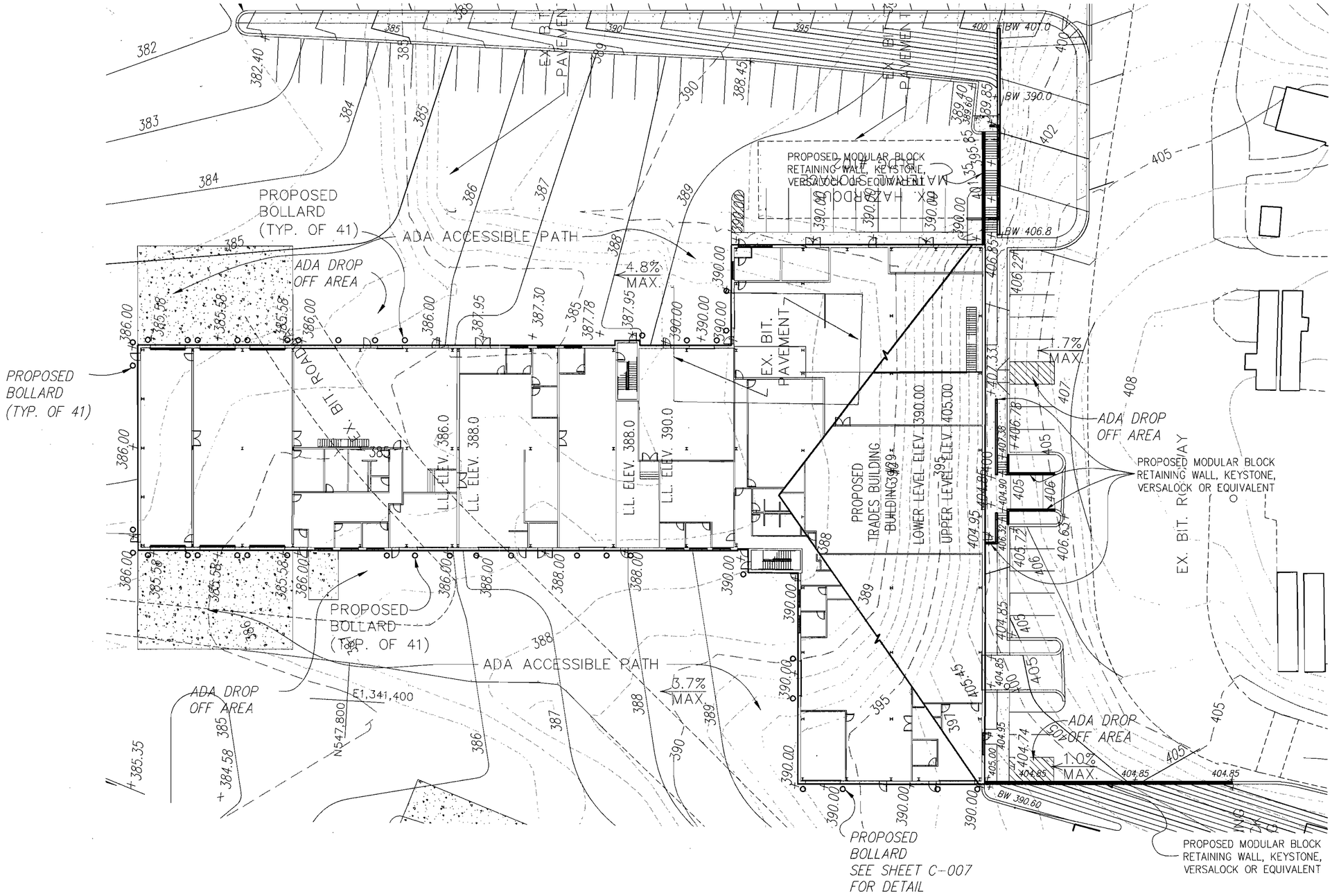
- ■ BID
- ■ CONSTRUCTION
- ▲ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:

GRADING AT MULTI-USE BLDG

Project No.:	Sheet No.:
Scale: 1"=10'	C-012
Date: 12-10-03	Sheet 12 of 31

SDP-04-76



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK	3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT HB	3/18/04 DATE
DIRECTOR	3/18/04 DATE

ABA ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
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Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
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JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

Certification:

2/24/04

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- ■ BID
- ■ CONSTRUCTION
- ☒ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:

GRADING AT TRADES BUILDING

Project No.:

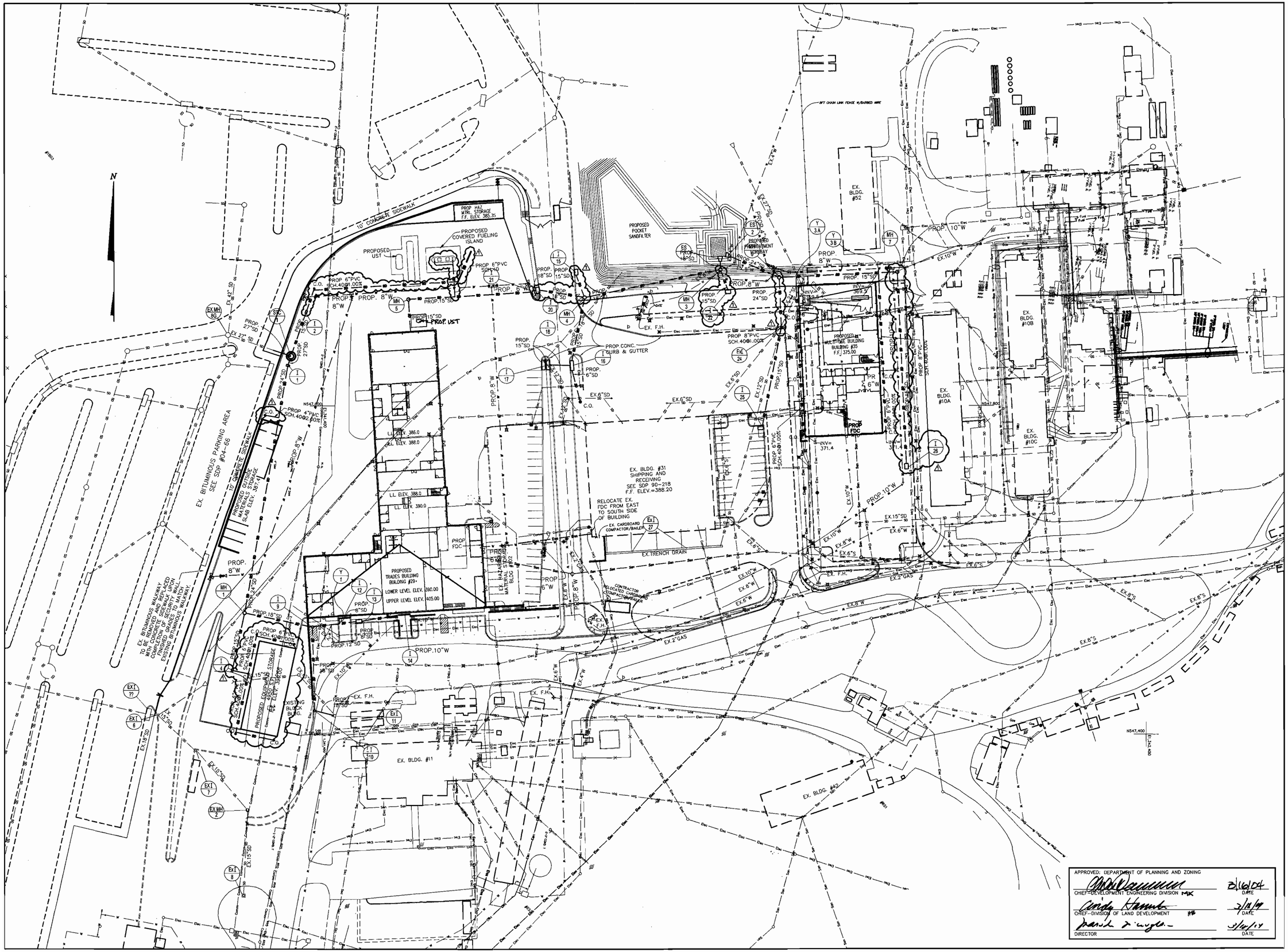
Sheet No.: C-013

Scale: 1" = 20'

Date: 12-10-03

Sheet 13 of 31

SDP-04-76



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK	3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT	3/18/04 DATE
DIRECTOR	3/18/04 DATE

aba ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

Century Engineering, Inc.
32 West Road Towson,
Maryland 21204
Voice (410) 823-8070
Fax (410) 823-2184

Project Title:

SERVICES AREA COMPLEX

TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

1 ADDENDUM #1 - 01/09/04

Certification:

2/26/04

Issued for:

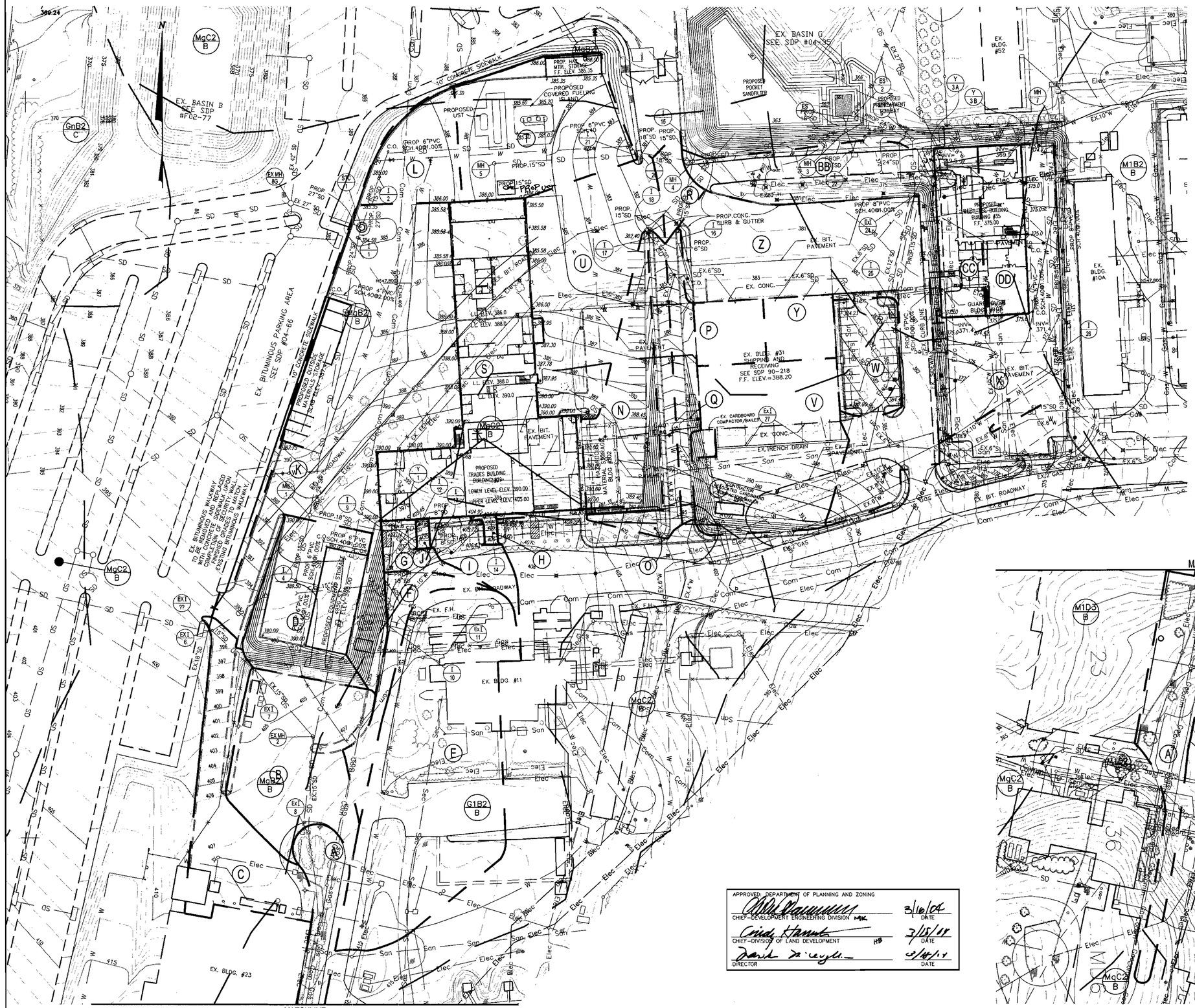
- ☐ REVIEW
- ☐ NOT FOR CONSTRUCTION
- ■ BID
- ■ CONSTRUCTION
- ◪ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:

STORM DRAIN PLAN

Project No.:	Sheet No.:
Scale: 1" = 50'	C-014
Date: 12-10-03	Sheet 14 of 31

SDP-04-76



DRAINAGE AREA ID	PERCENT IMPERVIOUS	DRAINAGE AREA ID "C" FACTOR	AREA (IN ACRES)
A	NOT IN CONTRACT		
B	NOT IN CONTRACT		
C	NOT IN CONTRACT		
D	72	0.86	0.42
E	55	0.69	1.12
F	100	0.86	0.15
G	100	0.86	0.07
H	100	0.86	0.01
I	95	0.86	0.12
J	100	0.86	0.01
K	92	0.86	1.34
L	100	0.86	0.22
M	NOT USED		
N	22	0.69	0.35
O	27	0.86	0.18
P	100	0.86	0.12
Q	63	0.69	0.15
R	100	0.86	0.07
S	100	0.86	0.92
T	94	0.86	0.54
U	100	0.86	0.64
V	87	0.86	0.64
W	83	0.86	0.20
X	92	0.86	0.51
Y	100	0.86	0.12
Z	95	0.86	0.95
AA	NOT USED		
BB	28	0.69	0.45
CC	100	0.86	0.20
DD	100	0.86	0.20

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT HP — DATE 3/15/04

DIRECTOR — DATE 3/16/04

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Baltimore, Maryland 21211
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32 West Road Towson,
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Project Title:

SERVICES AREA COMPLEX

TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
1 ADDENDUM #1 - 01/09/04

Certification:

2/24/04

Issued for:
- ☐ REVIEW
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- ■ BID
- ■ CONSTRUCTION
- ☑ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:

STORM DRAIN DRAINAGE AREA MAP

Project No.:

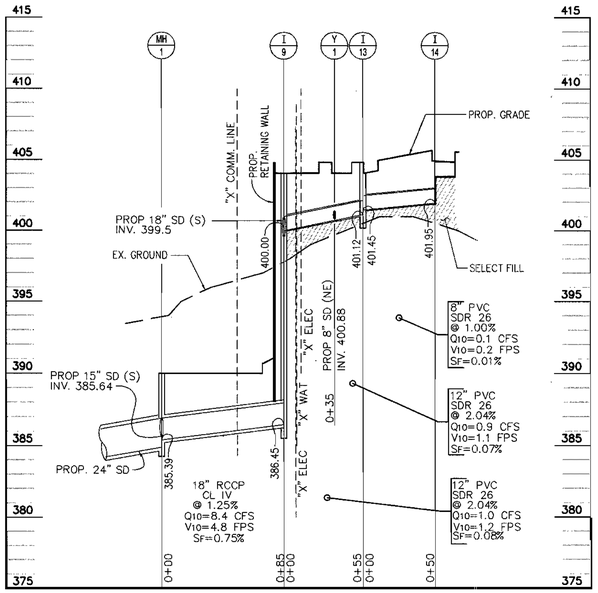
Sheet No.: C-015

Scale: 1" = 50'

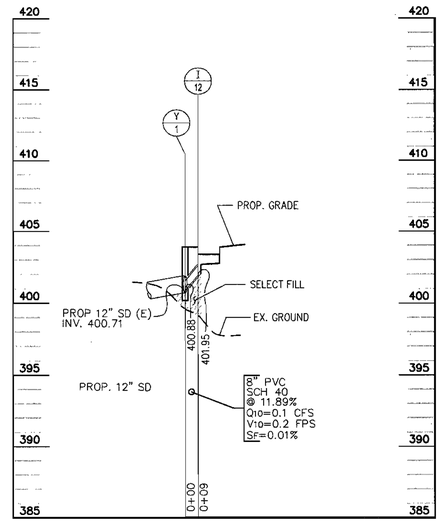
Date: 12-10-03

Sheet 15 of 31

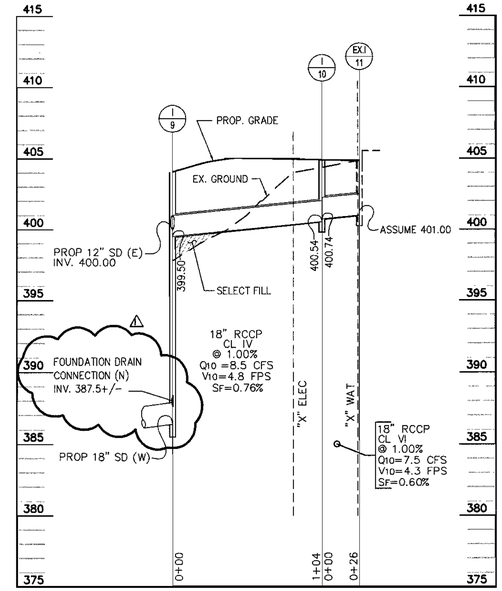
SDP-04-76



STORM DRAIN PROFILE
SCALE { HORIZ: 1" = 50'
VERT: 1" = 5'



STORM DRAIN PROFILE
SCALE { HORIZ: 1" = 50'
VERT: 1" = 5'



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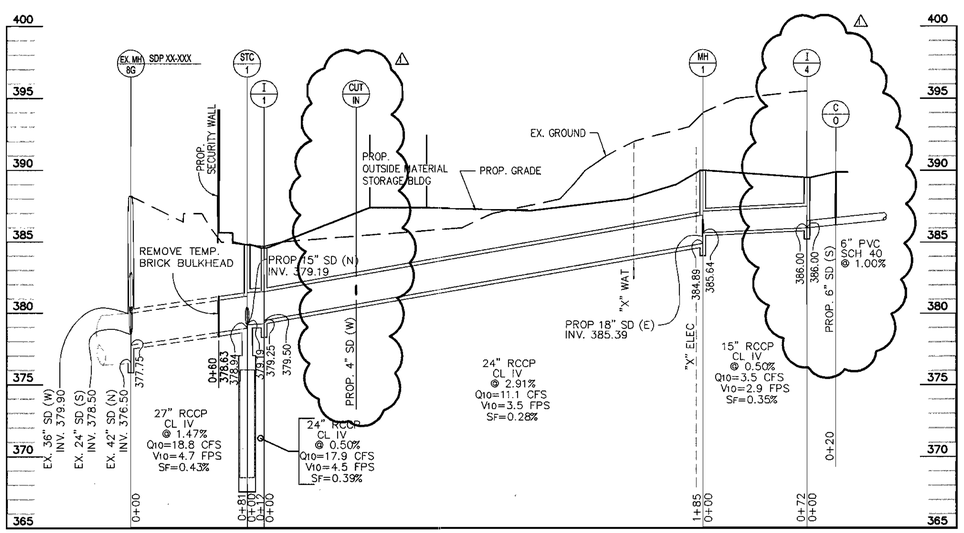
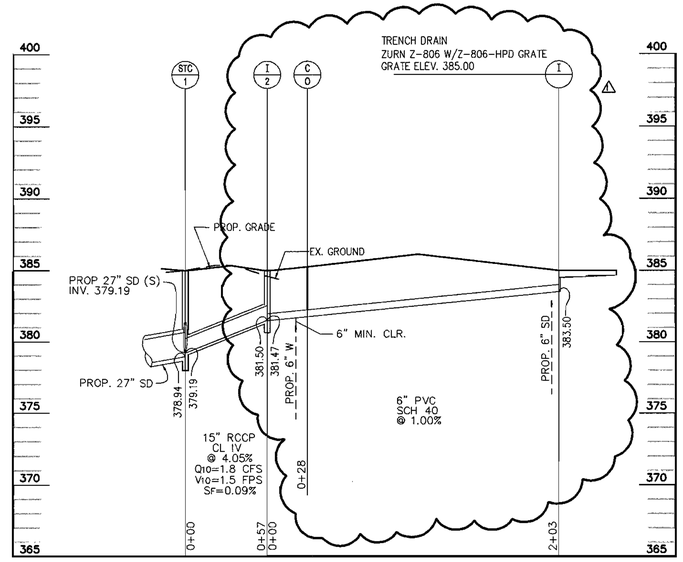
VERT: 1" = 5'



STORM DRAIN PROFILE
SCALE { HORIZ: 1" = 50'
VERT: 1" = 5'



STORM DRAIN PROFILE
SCALE { HORIZ: 1" = 50'
VERT: 1" = 5'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION	DATE 3/16/04
CHIEF-DIVISION OF LAND DEVELOPMENT	DATE 3/18/04
DIRECTOR	DATE 3/24/04

aba ARCHITECTS
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Baltimore, Maryland 21211
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Maryland 21204
Voice (410) 823-8070
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Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
△ ADDENDUM #1 - 01/09/04

Certification:

2/24/04

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- ☐ 90% CD SUBMISSION

Drawing Title:

STORM DRAIN PROFILES

Project No.:

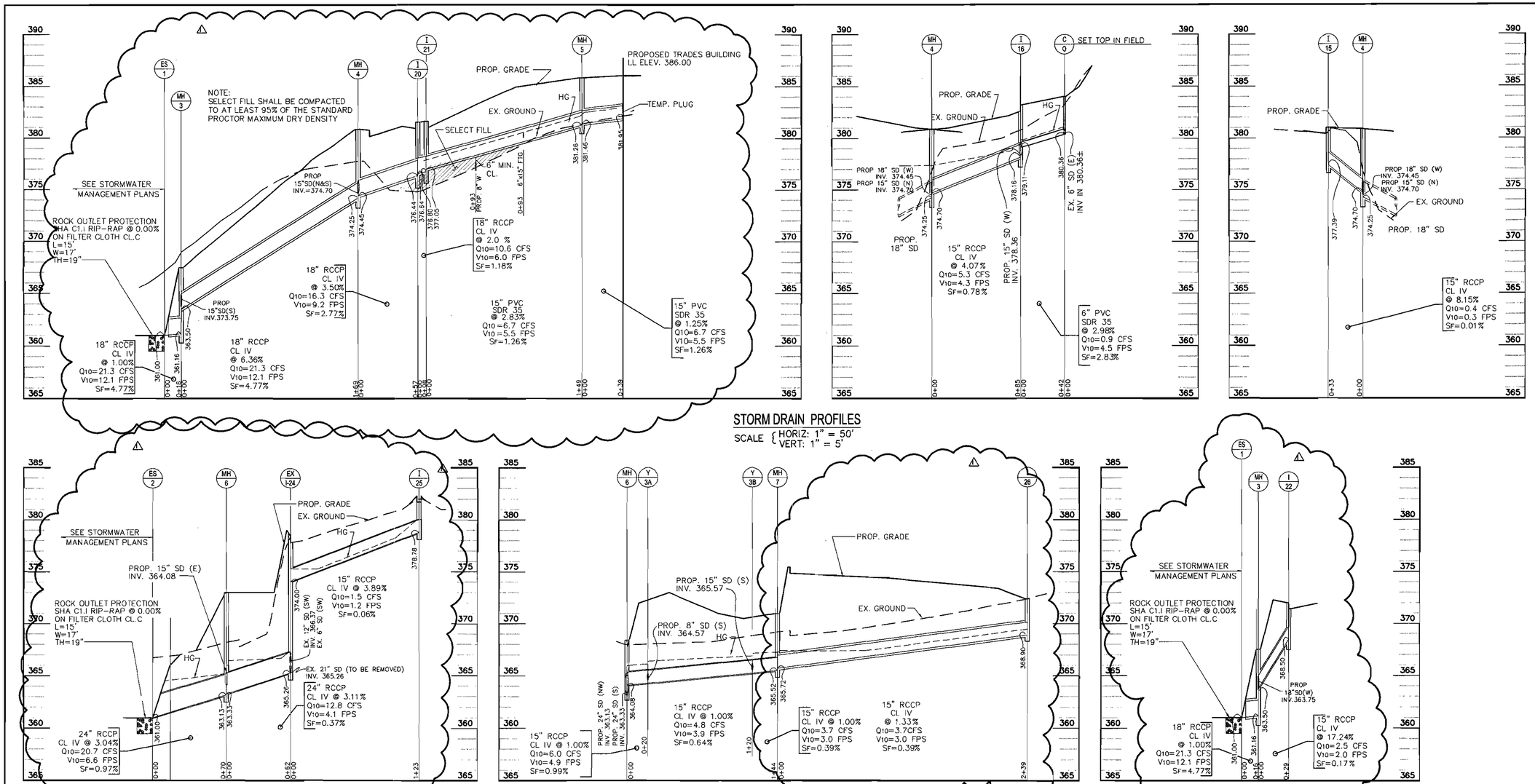
Sheet No.: C-016

Scale: AS NOTED

Date: 12-10-03

Sheet 16 of 31

SDP-04-76



STORM DRAIN PROFILES
SCALE { HORIZ: 1" = 50' VERT: 1" = 5'

STORM DRAIN PROFILES
SCALE { HORIZ: 1" = 50' VERT: 1" = 5'

INLET SCHEDULE

*TOP CURB ELEV. FOR CURB INLET

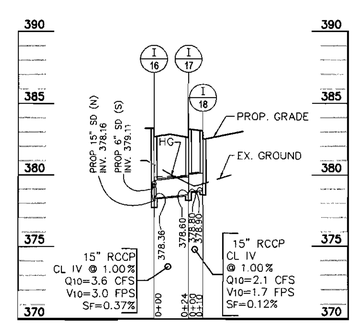
INLET No.	TYPE	STANDARD	TOP ELEV.*	INVERT IN	INVERT OUT
1	WR	HO. CO. SD. 4.35	384.58	379.50	379.25
2	WR	HO. CO. SD. 4.35	385.00	381.47	381.50
3	NOT USED				
4	WR	HO. CO. SD. 4.35	389.50	386.00	386.00
5	NOT USED				
6	NOT USED				
7	NOT USED				
8	EXISTING	N/A	N/A	N/A	N/A
9	WR	HO. CO. SD. 4.35	404.74	400.00 / 386.00	386.45
10	S	HO. CO. SD. 4.22	404.50	400.74	400.54
11	EXISTING	N/A	N/A	N/A	401.00
12	TRENCH	ZURN Z-806 W/Z-806-HPD GRATE	404.85	N/A	401.95
13	A-5	HO. CO. SD. 4.40	405.45	401.45	401.12
14	TRENCH	ZURN Z-806 W/Z-806-HPD GRATE	404.85	N/A	401.95
15	SHA CCG 5	MD SHA MD 374.62	381.49	N/A	377.39
16	A-5	HO. CO. SD. 4.40	383.35	378.11 / 378.16	378.16
17	A-5 W/DEFLECTOR	HO. CO. SD. 4.40 W/ SD 4.83	383.27	378.80	378.60
18	A-5 W/DEFLECTOR	HO. CO. SD. 4.40 W/ SD 4.83	383.10	N/A	378.90
19	A-5	HO. CO. SD. 4.40	381.49	377.03	376.83
20	A-5	HO. CO. SD. 4.40	381.52	376.24 / 376.19	376.19
21	A-10	HO. CO. SD. 4.41	381.69	377.05	376.80
22	WR	HO. CO. SD. 4.35	372.00	N/A	368.50
23	NOT USED				
24	EXISTING	N/A	N/A	374.00	365.26
25	WR	HO. CO. SD. 4.35	382.30	N/A	378.78
26	WR	HO. CO. SD. 4.35	372.40	N/A	368.90

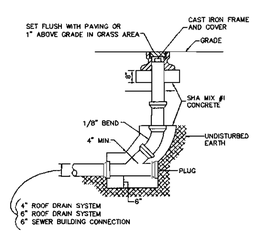
MANHOLE SCHEDULE

MANHOLE No.	TYPE	STANDARD	TOP ELEV.	INVERT IN	INVERT OUT
1	NOT USED				
2	NOT USED				
3	STD 4' MANHOLE	HO. CO. G. 5.12	367.50	363.50	361.16
4	STD 4' MANHOLE	HO. CO. G. 5.12	380.86	374.70	374.25
5	STD 4' MANHOLE	HO. CO. G. 5.12	385.89	381.46	381.26
6	STD 4' MANHOLE	HO. CO. G. 5.12	373.00	364.08 / 363.57	363.13
7	STD 4' MANHOLE	HO. CO. G. 5.12	371.00	365.72	365.52

STRUCTURE SCHEDULE

STRUCTURE No.	TYPE	STANDARD	TOP ELEV.	INVERT IN	INVERT OUT
STC-1	STC-4800	SEE STORMWATER MGNT. PLAN	384.82	379.19	378.94
ES-1	END SECTION	SD 5.51	N/A	N/A	361.00
ES-2	END SECTION	SD 5.51	N/A	N/A	361.00





EXTERIOR CLEANOUT
N.T.S.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK		3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT		3/15/04 DATE
DIRECTOR		3/16/04 DATE

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- PERMIT
- 90% CD SUBMISSION

Drawing Title:
STORM DRAIN PROFILES

Project No.:
Sheet No.: C-017
Scale: AS NOTED
Date: 12-10-03
Sheet 17 of 31

SDP-04-76

West Branch Flow Tabs

CEI Project Name: John Hopkins APL Service Area Complex — 10 Yr. Design - 25 Year Sumps — Date: 11/18/2003

Project Number: 23076.03 — West Branch — Operator: R. Bathurst

LOCATION		AREA			COEFF.	CxA			TIME CONC.			INTEN.		Peak Flow	PIPE					
		I.D.	"A"-ACRES		"C"		SUMP		MIN.			25 Year	10 Year	Q = C.I.A.	Manning's n = .014					REMARKS
FROM	To		Sub.	Total				Σ CA	Inlet	Drain	Total	in/hr	in/hr	cfs	Size	Slope	Vel.	Lgth.	25 Year	
Ex. I-8	I-7	A	.40		.69	0.28	-	-	5.0	-	5.0		8.50	2.35	15 "	0.15%	1.9	200 '		
I-7		B	.52		.86	0.45	-	-	5.0	-	5.0		8.50	3.80	"			'		
I-7	I-6	A+B		.92				0.72	5.0	1.7	6.7		7.72	5.58	15 "	0.87%	4.5	63 '		
I-6		C	.43		.86	0.37			5.0	-	5.0		8.50	3.14	"			'		
						-	-	-							"			'		
I-6	Ex. I-XX	A-C		1.35		-	-	1.09	6.7	0.2	6.9		7.64	8.35	18 "	0.73%	4.7	10 '		
						-	-	-							"			'		
						-	-	-							"			'		
				.06		-	-	-		-					"			'		
I-14	I-13	H	.01		.86	0.01	0.01	-	5.0	-	5.0	9.76	8.50	.08	8 "	0.01%	0.2	52 '	25	SUMP
I-13		I	.12		.86	0.10	0.12	-	5.0	-	5.0	9.76	8.50	1.01	"			'	25	SUMP
I-13	Y-1	H-I		.13				0.13	5.0	3.6	8.6		7.02	.90	12 "	0.07%	1.1	25 '		
I-12	Y-1	J	.01		.86	0.01	0.01	-	5.0	-	5.0	9.76	8.50	.08	8 "	0.01%	0.2	9 '	25	SUMP
						-	-								"			'		
Y-1	I-9	H-J		.14				0.14	5.6	0.4	9.0		6.90	.95	12 "	0.08%	1.2	30 '		
Ex. I-14	I-10	E	1.12		.69	0.77	0.89	-	5.0	-	5.0	9.76	8.50	7.54	18 "	0.60%	4.3	24 '	25	SUMP
I-10		F	.12		.86	0.10	0.12	-	5.0	-	5.0	9.76	8.50	1.01	"			'	25	SUMP
I-10	I-9	E-F		1.24				1.01	5.0	0.1	5.1		8.45	8.50	18 "	0.76%	4.8	105 '		
I-9		G	.10		.86	0.09	0.10	-	5.0	-	5.0	9.76	8.50	.84	"			'	25	SUMP
Y-1	I-9	H-J	.00	.14	.00	-	-	0.14	5.6	0.4	9.0		6.90	.95	12 "	0.08%	1.2	30 '		
				.24					9.0	0.4	9.4		6.78	#VALUE!	"			'		
I-10	I-9	E-F	.00	1.24	.00	-	-	1.01	5.0	0.1	5.1		8.45	8.50	18 "	0.76%	4.8	105 '		
						-	-	-							"			'		
I-9	MH-1	E-J		1.48				1.24	9.4	-	9.4		6.78	8.43	18 "	0.75%	4.8	84 '		
I-1	MH-1	D	.42		.86	0.36	0.41	-	5.0	-	5.0	9.76	8.50	3.53	15 "	0.35%	2.9	70 '	25	SUMP
						-	-	-							"			'		
MH-1	I-1	D-J		1.90				1.66	9.4	0.3	9.7		6.69	11.09	24 "	0.28%	3.5	186 '		
I-1		K	1.31		.86	1.13	-	-	5.0	-	5.0		8.50	9.58	"			'		
						-	-								"			'		
I-1	SC-1	D-K		3.21				2.78	9.7	0.9	10.6		6.32	17.87	27 "	0.39%	4.5	123 '		
I-2	SC-1	L	.25		.86	0.22	-	-	5.0	-	5.0		8.50	1.83	15 "	0.69%	1.5	67 '		
						-	-								"			'		
SC-1	Ex. M-XX	D-L		3.46				3.00	10.6	0.5	11.1		6.28	18.82	27 "	0.03%	1.7	15 '		

Page 1

Middle Branch Flow Tabs

CEI Project Name: John Hopkins APL Service Area Complex — 10 Yr. Design - 25 Year Sumps — Date: 11/18/2003

Project Number: 23076.03 — Middle Branch — Operator: R. Bathurst

LOCATION		AREA			COEFF.	CxA			TIME CONC.			INTEN.		Peak Flow	PIPE					
		I.D.	"A"-ACRES		"C"		SUMP		MIN.			25 Year	10 Year	Q = C.I.A.	Manning's n = .014					REMARKS
FROM	To		Sub.	Total				Σ CA	Inlet	Drain	Total	in/hr	in/hr	cfs	Size	Slope	Vel.	Lgth.	25 Year	
Roof	I-21	S	.92		.86	0.79	-	-	5.0	-	5.0		8.50	6.73	15 "	1.26%	5.5	200 '		
I-21		T	.58		.86	0.50	-	-	5.0	-	5.0		8.50	4.24	"			'		
I-21	I-20	S-T		1.50				1.29	5.0	0.6	5.6		8.20	10.58	18 "	1.18%	6.0	10 '		
I-15	I-20	R	.06		.86	0.05	-	-	5.0	-	5.0		8.50	.44	8 "	0.15%	1.3	56 '		
I-20		U	.66		.86	0.57	0.65	-	5.0	-	5.0	9.76	8.50	5.54	"			'	25	SUMP
I-20	M-4	R-U		2.22				1.99	5.0	0.7	5.7		8.15	16.25	18 "	2.77%	9.2	51 '		
I-18	I-17	N	.35		.69	0.24	-	-	5.0	-	5.0		8.50	2.03	15 "	0.12%	1.7	10 '		
I-17		O	.22		.86	0.19	-	-	5.0	-	5.0		8.50	1.61	"			'		
I-17	I-16	N-O		.57				0.43	5.0	0.1	5.1		8.45	3.64	15 "	0.37%	3.0	24 '		
I-16		Q	.15		.69	0.10	-	-	5.0	-	5.0		8.50	.88	"			'		
Roof	I-16	P	.12		.86	0.10	-	-	5.0	-	5.0		8.50	.88	6 "	2.83%	4.5	100 '		
I-16	M-4	N-Q		.84				0.64	5.0	0.4	5.4		8.30	5.29	15 "	0.78%	4.3	85 '		
I-20	M-4	R-U	.00	2.22	.00	-	-	1.99	5.0	0.7	5.7		8.15	16.25	18 "	2.77%	9.2	51 '		
						-	-	-							"			'		
M-4	E-1	N-U		3.06				2.63	5.7	0.1	5.8		8.10	21.31	18 "	4.77%	12.1	155 '		

Page 1

East Branch Flow Tabs

CEI Project Name: John Hopkins APL Service Area Complex — 10 Yr. Design - 25 Year Sumps — Date: 11/18/2003

Project Number: 23076.03 — East Branch — Operator: R. Bathurst

LOCATION		AREA			COEFF.	CxA			TIME CONC.			INTEN.		Peak Flow	PIPE					
		I.D.	"A"-ACRES		"C"		SUMP		MIN.			25 Year	10 Year	Q = C.I.A.	Manning's n = .014					REMARKS
FROM	To		Sub.	Total				Σ CA	Inlet	Drain	Total	in/hr	in/hr	cfs	Size	Slope	Vel.	Lgth.	25 Year	
Ex. I-27	Ex. I-24	V	.64		.86	0.55	-		5.0	-	5.0		8.50	4.68	12 "	2.00%	6.0	275 '		
I-26	Ex. I-24	W	.20		.86	0.17	-		5.0	-	5.0		8.50	1.46	15 "	0.66%	1.2	123 '		
				.84					5.0	1.7	6.7		7.72		"			'		
Roof	Ex. I-24	Y	.12		.86	0.10	-	-	5.0	-	5.0		8.50	.88	6 "	2.83%	4.5	140 '		
Ex. I-24		Z	.96		.86	0.83	-	-	5.0	-	5.0		8.50	7.02	"			'		
Ex. I-24	Y-2	V,W,Y,Z		1.92				1.65	6.7	-	6.7		7.72	12.75	24 "	0.37%	4.1	20 '		
I-23	Y-2	AA	.12		.86	0.10	-	-	5.0	-	5.0		8.50	.88	12 "	0.07%	1.1	10 '		
						-	-								"			'		
Y-2	I-22	V,W,Y-AA		2.04				1.75	6.7	0.1	6.8		7.68	13.47	24 "	0.41%	4.3	40 '		
I-22		BB	.27		.69	0.19	-		5.0	-	5.0		8.50	1.58	"			'		
						-	-								"			'		
I-22	M-6	V,W,Y-BB		2.31				1.94	6.9	0.2	7.0		7.60	14.75	24 "	0.49%	4.7	10 '		
Roof	Y-3B	DD	.20		.86	0.17	-	-	5.0	-	5.0		8.50	1.46	8 "	1.05%	4.2	196 '	n = 0.011	
I-26	Y-3B	X	.51		.86	0.44	-	-	5.0	-	5.0		8.50	3.73	15 "	0.39%	3.0	260 '	25	SUMP
Y-3B	Y-3A	X,DD		.71				0.61	5.0	1.4	6.4		7.84	4.79	15 "	0.64%	3.9	110 '		
Roof	Y-3A	CC	.20		.86	0.17	-	-	5.0	-	5.0		8.50	1.46	8 "	1.05%	4.2	196 '	n = 0.011	
						-	-	-							"			'		
Y-3A	M-6	X,DD		.91				0.78	6.4	0.5	6.9		7.64	5.98	15 "	0.99%	4.9	17 '		
I-25	M-6	V,W,Y-BB	.06	2.31	.00	-	-	1.94	6.9	0.2	7.0		7.60	14.75	24 "	0.49%	4.7	'		
						-	-	-							"					
M-6	I-8-2	V-DD		3.22				2.72	6.9	0.1	7.0		7.60	20.70	24 "	0.97%	6.6	76 '		

Page 1

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CHIEF-DEVELOPMENT ENGINEERING DIVISION MK — DATE 8/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT HB — DATE 3/18/04

DIRECTOR — DATE 3/18/04

aba ARCHITECTS

Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

Century Engineering, Inc.
32 West Road Towson,
Maryland 21204
Voice (410) 823-8070
Fax (410) 823-2154

Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

Certification:

2/24/04

Issued for:

- [ ] REVIEW
- [ ] NOT FOR CONSTRUCTION
- [x] BID
- [x] CONSTRUCTION
- [x] PERMIT
- [ ] 90% CD SUBMISSION

Drawing Title:

STRUCTURE FLOW TABULATION

Project No.:

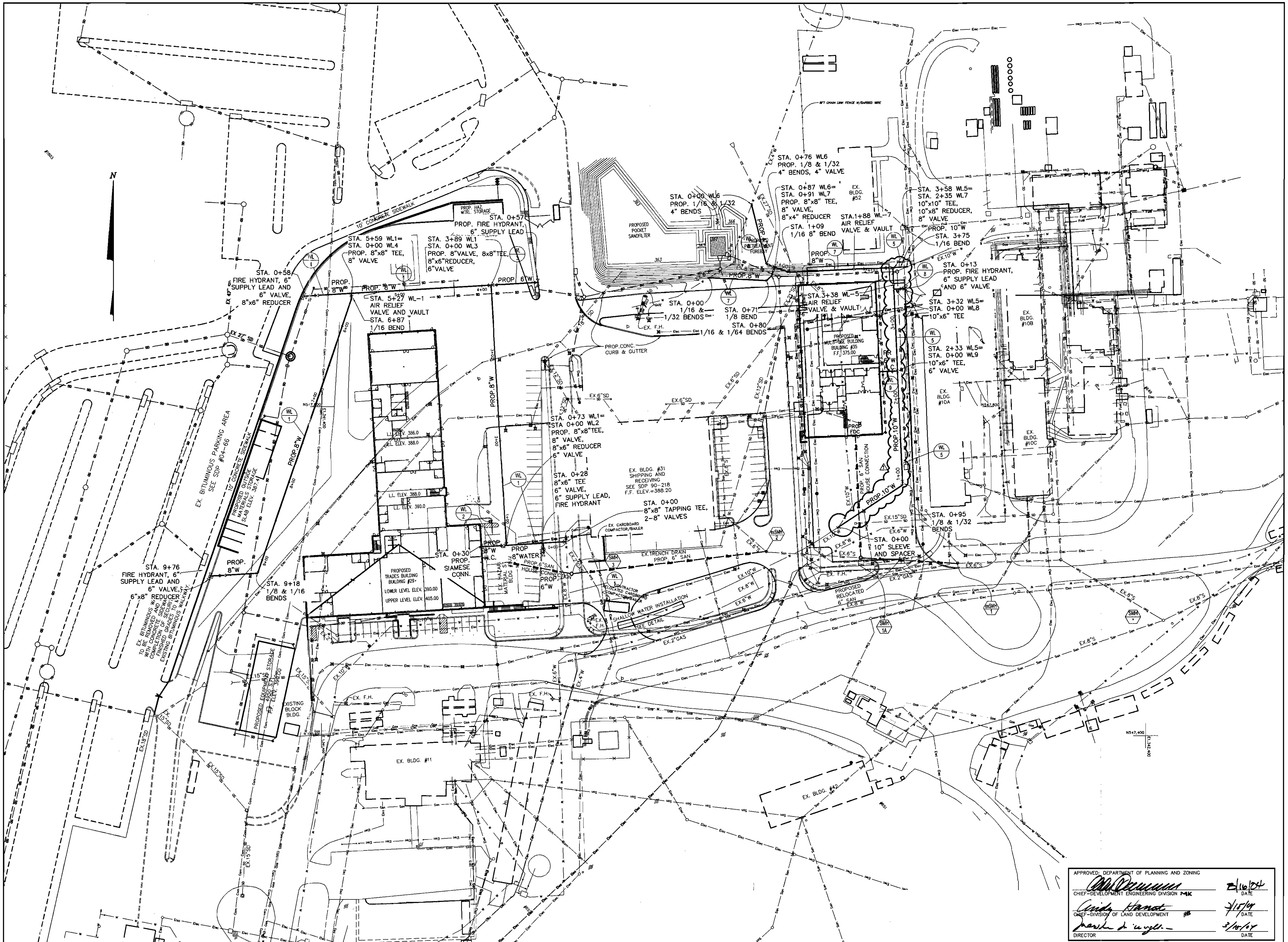
Sheet No.: C-018

Scale: NONE

Date: 12-10-03

Sheet 18 of 31

SDP-04-76



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UTILITY PLAN

Project No.:

Sheet No.: C-019

Scale: 1" = 50'

Date: 12-10-03

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CONSTRUCTION GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT (410) 313 – 1880.

2. ACCESS TO THE CONSTRUCTION AREA THROUGH THE SECURE PERIMETER (WITHIN THE FENCED ENCLOSURE) MUST BE ARRANGED IN ADVANCE BY CONTACTING MR. RUSTY OBER AT (443) 778 – 0167 AT LEAST 10 DAYS BEFORE THE START OF THE SCHEDULED WORK.

3. SECURITY MUST BE MAINTAINED WITHIN THE SECURE/FENCED AREA OF THE APPLIED PHYSICS LABORATORY. ALL REQUIRED FENCE CONSTRUCTION AND RELOCATION SHALL BE BY THE CONTRACTOR WHO SHALL BE RESPONSIBLE TO COORDINATE WITH JHU–APL AS TO WHEN SUCH WORK IS REQUIRED. ALSO SEE SECURITY PHASING PLAN.

4. THE CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE ANY EXISTING SEDIMENT CONTROL DEVICES ENCOUNTERED DURING THE COURSE OF CONSTRUCTION AND AS SHOWN ON THE SEDIMENT CONTROL PLAN. AT THE END OF EACH DAY, ALL SUCH DISTURBED DEVICES SHALL BE REPAIRED OR REPLACED BEFORE LEAVING THE WORK SITE. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL MEET CURRENT HOWARD COUNTY DEPARTMENT OF PERMITTING SERVICES STANDARDS AND DIRECTIVES.

5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF HOWARD COUNTY AND MSHA STANDARD DETAILS AND SPECIFICATIONS FOR CONSTRUCTION AND HOWARD COUNTY PLUMBING CODE EXCEPT AS NOTED HEREON.

6. THE EXISTING UTILITIES AND OBSTRUCTIONS SHOWN ARE FROM THE BEST AVAILABLE RECORDS AND SHALL BE VERIFIED BY THE CONTRACTOR OR THEIR SUBCONTRACTOR TO THEIR OWN SATISFACTION BEFORE STARTING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DIGGING TEST PITS, EMPLOYING ELECTRICAL DETECTION OR OTHER METHODS. MISS UTILITY IS NOT AVAILABLE ON SITE SINCE THIS IS PRIVATE PROPERTY. NEITHER THE OWNER NOR THE ENGINEER WARRANT OR GUARANTEES THE COMPLETENESS OR THE CORRECTNESS OF THE INFORMATION GIVEN.

7. NECESSARY PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT EXISTING SERVICES AND MAINS AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE TO THEM DUE TO THEIR NEGLIGENCE SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE.

8. ALL SITE UTILITIES ARE THE PROPERTY OF JHU–APL. JHU–APL WILL LOCATE HORIZONTALLY ALL ACTIVE UTILITIES FOR THE CONTRACTOR. ONLY JHU–APL PERSONNEL SHALL OPERATE EXISTING WATER VALVES OR NEW VALVES AFTER THEY HAVE BEEN PLACED INTO SERVICE. THE CONTRACTOR SHALL NOTIFY MR. RUSTY OBER AT (443) 778–0167 TO ARRANGE A SHUTDOWN AT LEAST FIVE DAYS PRIOR TO THE PROPOSED SHUTDOWN.

9. THE CONTRACTOR SHALL TIE INTO THE EXISTING UTILITIES ONLY AFTER NORMAL WORKING HOURS AT JHU–APL. WORK MUST BE SCHEDULED ACCORDINGLY. NORMAL WORKING HOURS ARE 8:30 AM TO 5:00 PM, MONDAY THRU FRIDAY.

10. UTILITIES TO BE ABANDONED AS WELL AS PREVIOUSLY ABANDONED LINES, CONDUITS, BURIED CABLES, HIGH VOLTAGE POLES, SMALL DIAMETER WATER LINES ETC. SHALL BE PLUGGED/SECURED AND REMOVED ONLY TO THE EXTENT NECESSARY TO COMPLETE THE WORK AND AS INDICATED ON THE DEMOLITION PLAN. CONTRACTOR SHALL CAP ALL ENDS OF WATER PIPING TO REMAIN AS PER HOWARD COUNTY DPW STANDARD #W2.21 BUTTRESSES AND CAPS AND HORIZONTAL BENDS. CONTRACTOR SHALL PLUG THE ENDS OF ALL STORM AND SANITARY LINES TO REMAIN WITH MORTARED CONCRETE BLOCK OR POURED IN PLACE CONCRETE 6 INCHES THICK WITH #4 REBAR 12 INCHES ON CENTER EACH WAY. PLUG SHALL SEAL AND COVER THE ENTIRE OUTSIDE EDGE OF THE PIPE.

11. UNLESS OTHERWISE NOTED PIPE ELEVATIONS FOR WATER MAINS REFER TO INVERT OF PIPE, AND SANITARY SEWER ELEVATIONS REFER TO INVERT.

12. ALL WATER PIPES SHALL BE CLASS 52 DUCTILE, CEMENT LINED IRON PIPE WITH MANUFACTURERS POSITIVE RESTRAINT JOINT OR MECHANICAL JOINT WITH MEGALUGS. ALL PIPE JOINTS SHALL BE BONDED TO INSURE ELECTRICAL CONTINUITY AND COATED WITH RUST–INHIBITIVE PAINT. BONDING MAY BE ACCOMPLISHED EITHER WITH SHOP WELDED COPPER TERMINAL STRAPS AND COPPER JUMPER STRAPS WITH CORROSION RESISTANT BOLTS OR WITH COPPER EXOTHERMIC WELDED IN THE FIELD. ALL BONDING BETWEEN PIPE JOINTS FOR PIPE, FITTINGS, AND VALVES SHALL BE TESTED FOR ELECTRICAL CONTINUITY. EACH JOINT SHALL BE INSPECTED AND RESISTANCE TESTED PRIOR TO COATING AND BACKFILLING. NO RESISTANCE WILL BE PERMISSIBLE ACROSS ANY JOINT.

13. UNLESS OTHERWISE NOTED, ALL SEWER PIPE SHALL BE P.V.C. SDR–35 (POLYVINYL CHLORIDE CONFORMING TO THE REQUIREMENTS OF A.S.T.M. SPECIFICATION D–3034, TYPE PSM. SEWER PIPES NOTED AS D.I.P. SHALL BE CLASS 52 DUCTILE IRON PIPE WITH TYTON JOINTS PER A.W.W.A. SPECIFICATION C–151.

14. WATER VALVES SHALL OPEN LEFT – COUNTERCLOCKWISE. VALVES TO RESIDE IN TURF AREAS SHALL BE POST INDICTOR TYPE EXCEPT AS INDICATED ON THE DRAWINGS. VALVES TO BE INSTALLED IN PAVEMENT AREAS SHALL HAVE VALVE STEM EXTENSIONS AND VALVE POSITION INDICATORS INSTALLED. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR RETROFIT OF VALVES CURRENTLY IN TURF AREAS AND PROPOSED TO BE IN PAVEMENT AREAS AND VISA VERSA.

15. CONCRETE BUTTRESSES OR ANCHORS ARE TO BE INSTALLED AT ALL WATER PIPE BENDS, CAPS AND TEES IN ACCORDANCE WITH THE LATEST VERSION OF HOWARD COUNTY STANDARD DETAILS AND SPECIFICATIONS FOR CONSTRUCTION. RESTRAINED JOINTS WILL BE UTILIZED IN AREAS WHERE FITTINGS ARE PLACED IN FILL.

16. PRIOR TO INSTALLING WATER AND SEWER LINES EXISTING GRADES SHALL BE BROUGHT TO SUBGRADE.

17. WHERE UTILITY PIPES ARE TO BE PLACED ON COMPACTED FILL, THE FOLLOWING SHALL APPLY:

18. PRIOR TO PLACEMENT OF COMPACTED FILL, ANY SOFT OR OTHERWISE UNSUITABLE SOILS ENCOUNTERED AT OR BELOW THE PIPE INVERT SHALL BE UNDERCUT AND REMOVED FROM THE CONSTRUCTION AREA.

19. ACCEPTABLE COMPACTED FILLS SHALL BE PLACED IN SIX–INCH THICK LOOSE LIFTS AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY DETERMINED BY A.A.S.H.T.O. METHOD T–180. COMPACTION TEST RESULTS BY AN INDEPENDENT TESTING LAB ARE TO BE SEALED BY A REGISTERED ENGINEER AND SUBMITTED TO THE OWNER.

20. THE COMPACTED FILL SHALL BE BENCHED INTO THE EXISTING VIRGIN SLOPES WITH EACH LIFT PLACED TO ALLOW A SMOOTH TRANSITION FROM VIRGIN TO FILL SOILS.

21. INSTALL WATER MAINS WITH A MINIMUM 3 FEET – 6 INCHES COVER UNLESS OTHERWISE NOTED. IN LIMITED AREAS (AS INDICATED ON THE DRAWING) WHERE MINIMUM COVER CANNOT BE OBTAINED, CONSTRUCTION SHALL FOLLOW THE DETAIL PROVIDED HEREON FOR INSULATING THE MAIN.

22. THE CONTRACTOR SHALL PROVIDE A JOINT IN ALL STORM DRAINS WITHIN 2 FEET OF EXTERIOR OF MANHOLES.

23. CLEARANCE BETWEEN UTILITIES SHALL BE A MINIMUM OF 6 INCHES, EXCEPT BETWEEN WATER AND SEWER LINES WHERE IT SHOULD BE 12 INCHES MINIMUM. CLEAR POLES AND FOUNDATIONS BY 2 FEET MINIMUM, OR TUNNEL AS REQUIRED.

24. FIRE HYDRANTS ARE TO BE PAINTED RED, HAVE 4.5" CONNECTION FACING THE STREET AND RISER PIPE PAINTED GLOSS BLACK. ALL OUTLET NOZZLES SHALL HAVE NATIONAL STANDARD FIRE HOSE COUPLING SCREW THREADS.

25. ALL MANHOLES TO BE BITUMINOUS COATED ON THE EXTERIOR PER HOWARD COUNTY STANDARD SPECIFICATIONS.

26. ALL SEWER MANHOLES IN UNPAVED AREAS SHALL HAVE WATERTIGHT FRAMES MARKED WITH A PERMANENT MARKER AND COVERS SHALL BE PAINTED SAFETY YELLOW.

27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HEIGHT ADJUSTMENT TO ALL EXISTING MANHOLES, CLEANOUTS, VALVE STEMS & COVERS, HYDRANTS, ETC. TO REMAIN IN ALL AREAS PROPOSED FOR GRADE ALTERATION IN ORDER TO HAVE THEM RESIDE AT THEIR STANDARD POSITION FOLLOWING FINAL GRADING OPERATIONS.

28. TRENCH BACKFILL SHALL BE PERFORMED IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATIONS. TRENCHING AND INSTALLATION OF NEW UTILITIES SHALL BE SCHEDULED SO THAT ALL TRENCHES WILL BE BACKFILLED BY THE END OF EACH WORK DAY. TRENCH AREAS SHALL BE MULCHED AND TEMPORARILY SEEDED IN NON–PAVED AREAS, AND TRAFFIC BEARING TEMPORARY SURFACE SHALL BE INSTALLED IN PAVED AREAS.

DE
29. THE CONTRACTOR SHALL PERMANENTLY SEED AND STABILIZE ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED.

30. ALL PROPOSED WATER MAINS SHALL BE PRESSURE TESTED, CHLORINATED AND FLUSHED ACCORDING TO HOWARD COUNTY STANDARD PROCEDURES BEFORE BEING PLACED INTO SERVICE. THE CONTRACTOR WILL DISCHARGE THE CHLORINATED FLUSH WATER INTO A FUNCTIONING SANITARY SEWER. MAXIMUM DISCHARGE RATE WILL BE 80 G.P.M.

31. TRAFFIC ACCESS TO EXISTING FACILITIES SHALL BE MAINTAINED AT ALL TIMES. EXISTING PAVEMENTS (ROADWAY, SIDEWALKS, ETC.) REMOVED TO INSTALL PROPOSED UTILITIES SHALL BE REPLACED IN–KIND OR AS DETAILED ON THESE PLANS.

32. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNER OF ANY DEVIATION FROM THESE PLANS PRIOR TO ANY CHANGE BEING MADE. ANY DEVIATION FROM THESE PLANS WITHOUT WRITTEN AUTHORIZATION BY THE OWNER WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

33. SURFACED STREETS AND PARKING AREAS SHALL BE MAINTAINED IN A CLEAN CONDITION; MUD AND DUST FREE AT ALL TIMES. ADEQUATE MEANS SHALL BE PROVIDED TO CLEAN TRUCKS AND OTHER EQUIPMENT USING EXISTING SURFACED STREETS AND PARKING AREAS.

34. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO MINIMIZE DAMAGE DURING CONSTRUCTION TO EXISTING TREES IDENTIFIED TO REMAIN.

35. THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS SO AS NOT TO DAMAGE EXISTING FACILITIES AND STRUCTURES TO REMAIN. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER UNLESS NOTED OTHERWISE.

36. EXISTING SIGNS, GUARDRAILS, AND OTHER MINOR SITE FEATURES IN THE WAY OF PROPOSED CONSTRUCTION, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.

37. DUE TO THE PROXIMATELY OF LIVE UNDERGROUND UTILITIES, THE OWNER AND CENTURY ENGINEERING, INC. IS NOT RESPONSIBLE FOR ANY DAMAGE OR INJURY SUSTAINED DURING CONSTRUCTION BY ANY PERSON, VEHICLES OR EQUIPMENT USED ON OR ADJACENT TO THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES BY TEST PIT OR OTHER MEANS OF INVESTIGATION APPROVED BY THE OWNER BEFORE EXCAVATION STARTS.

38. EXISTING UTILITY LOCATIONS SHOWN ON UTILITY PROFILES ARE TO ILLUSTRATE POSSIBLE UTILITY LOCATIONS. THE FOLLOWING DEPTHS WERE ASSUMED BUT NOT FIELD VERIFIED; WATER MAINS – 3.5 FEET COVER, GAS PIPE, ELECTRIC CONDUIT/DUCT AND TELECOM CONDUIT/DUCT – 1.5 FEET COVER. CONTRACTOR SHALL CONFIRM ACTUAL DEPTH AND PREPARE REVISED PROFILES IF REQUIRED BY CONFLICTS. ALL REVISIONS SHALL BE APPROVED BY THE OWNER BEFORE THE START OF CONSTRUCTION.

39. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK THAT WOULD NORMALLY BE REQUIRED TO COMPLETE THE PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PERFORM SUCH WORK.

40. CONTRACTOR SHALL TRANSPORT EXCESS SUITABLE SOILS TO AN ONSITE LOCATION APPROVED BY HOWARD COUNTY AND ARE RESPONSIBLE FOR MAINTAINING THAT SPOILS SITE AT THEIR EXPENSE. UNSUITABLE EXCESS MATERIALS SHALL BE DISPOSED OF OFFSITE AT THE CONTRACTOR'S EXPENSE.

41. THE FLOODPLAIN LIMITS FOR THIS PROJECT WERE TAKEN FROM HOWARD COUNTY STUDY.

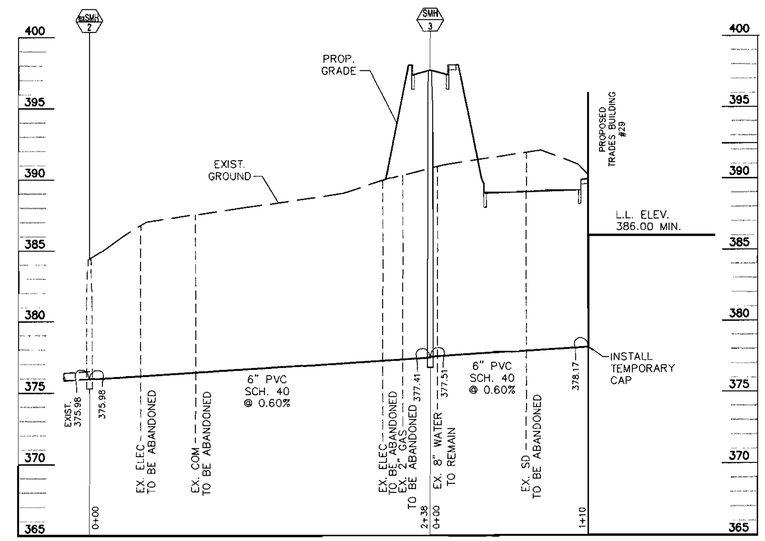
42. THE SDP PLAN AREA OF THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY IS NOT LOCATED IN THE 100 YEAR FLOOD PLAIN. THE LIMIT OF DISTURBANCE FOR THIS SITE PLAN AREA (43,560 ACRES) OF THE JOHNS HOPKINS APPLIED PHYSICS LABORATORY IS NOT LOCATED IN THE 100 YEAR FLOODPLAIN.

43. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THIER BUFFERS AND FOREST CONSERVATION EASEMENT AREA.

44. FOREST CONSERVATION OBLIGATION ADDRESSED WITH F–02–40.

45. STORMWATER MANAGEMENT PONDS ARE PRIVATELY OWNED AND MAINTAINED.

46. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. NO LANDSCAPE PLANTINGS ARE REQUIRED FOR THIS PLAN SINCE NO PROPOSED IMPROVEMENTS ARE ADJACENT TO PUBLIC ROAD OR ADJOINING PROPERTY.
D STA
47. WHERE PROPOSED CURB MEETS EXISTING CURB (AND/OR CURB OF A DIFFERENT TYPE) IT SHALL BE CONSTRUCTED OR SHAPED TO MEET LINE, GRADE AND CROSS SECTION AS REQUIRED TO PROVIDE A SMOOTH TRANSITION, FREE OF PROJECTIONS OR OTHER IRREGULARITIES.



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TRADES BLDG TO exSMH-2
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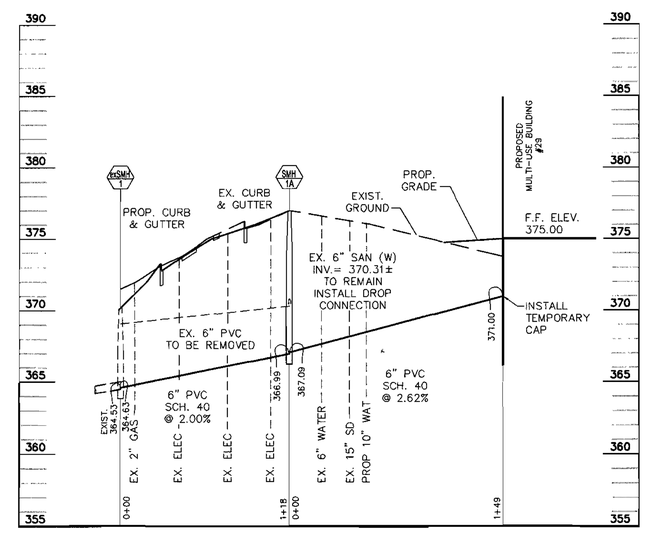

SANITARY PROFILE
MULTI-USE BLDG TO exSMH-1
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CHIEF–DEVELOPMENT ENGINEERING DIVISION MK		3/16/04 DATE
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DIRECTOR		3/24/04 DATE

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1 ADDENDUM #1 – 01/09/04

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Drawing Title:
UTILITY PROFILES AND NOTES

Project No.:
Sheet No.: C-020
Scale: AS NOTED
Date: 12-10-03
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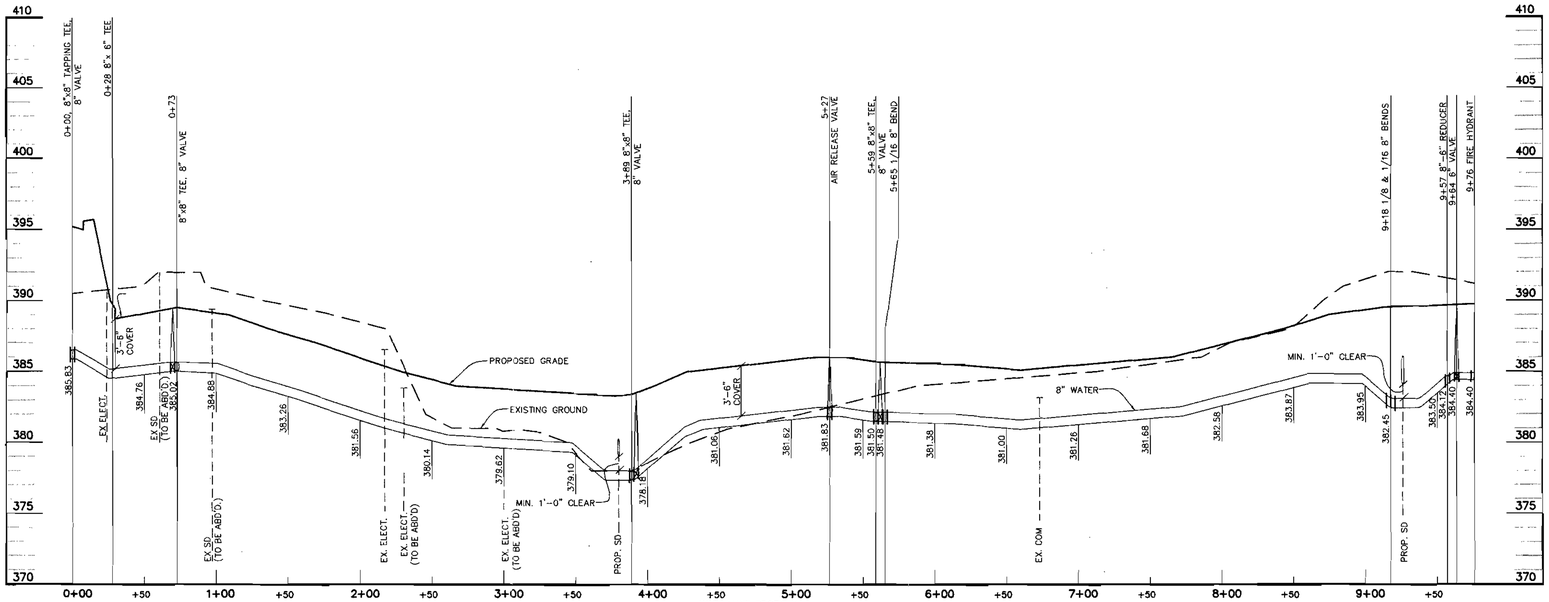

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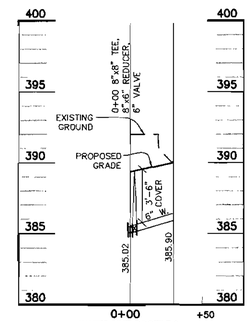

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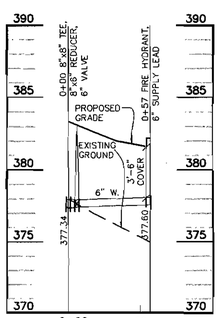

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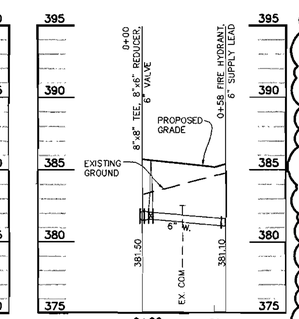

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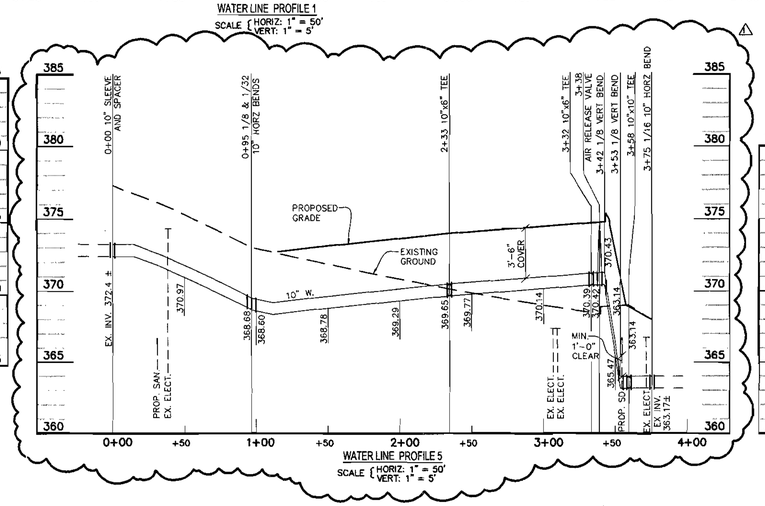

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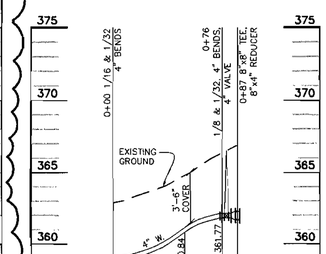

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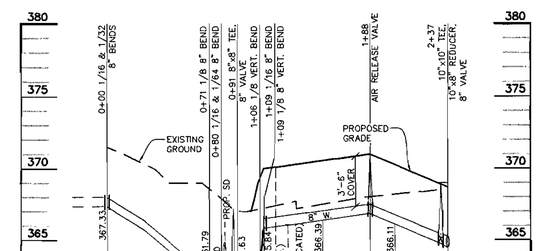

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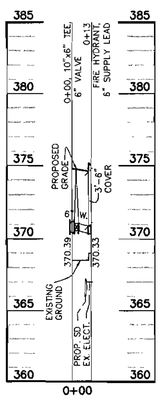

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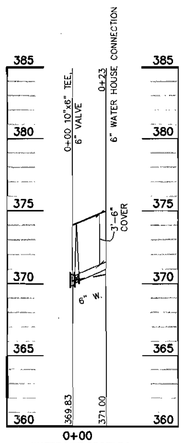

WATER LINE PROFILE 9
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APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION	3/4/04 DATE
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Revisions:
1 ADDENDUM #1 - 01/09/04

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Drawing Title:

UTILITY PROFILES

Project No.:	Sheet No.: C-021
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Date: 12-10-03	Sheet 21 of 31

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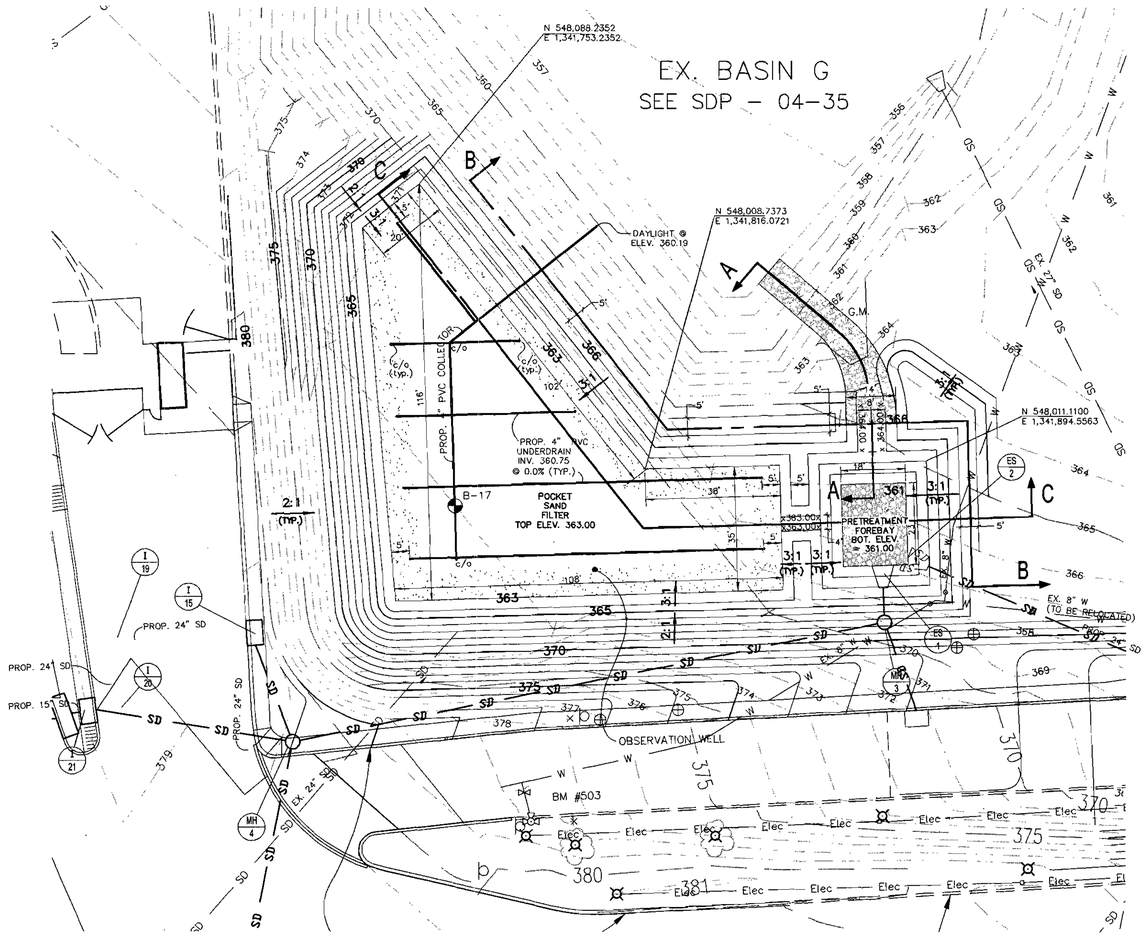


BORING LOG

FROEHLING & ROBERTSON, INC.
GEOTECHNICAL - ENVIRONMENTAL - MATERIALS
ENGINEERS - LABORATORIES
"OVER ONE HUNDRED YEARS OF SERVICE"

Report No. E68-010G Date 08/28/03

Client: Century Engineering

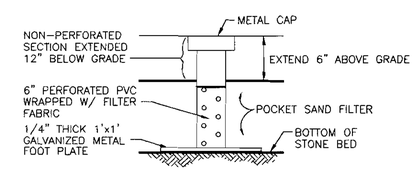
Project: Johns Hopkins University - APL, Laurel, MD

Boring No.: B17 (1 of 1) Total Depth: 15.0' Elev.: 367 +/- o Location:

Type of Boring: HSA Started: 8/22/03 Completed: 8/22/03 Driller: N.Lazaro

Elevation	Depth	DESCRIPTION OF MATERIALS (Classification)	* Sample Blows	Sample Depth (feet)	N Value (blows/ft)	REMARKS
	0.5	5" of Grass & Root material. Brown, moist, loose, clayey fine SAND with silt (SC-SM)-Residual soils.	1-2-3	0.0	5	GROUNDWATER DATA: No groundwater was encountered during or immediately after drilling.
			2-3-5	1.5 / 2.0	8	
			1-3-4	2.5 / 4.0	7	
	6.0	Orange to gray, moist, loose to medium dense, silty fine to medium SAND with some mica (SM)-Residual soils.	4-4-6	3.5 / 5.0	10	
			1-3-5	7.5 / 8.0	8	
				9.5		
			3-5-5	13.5		0 hr. Caving at 13.2'.
	15.0	Boring terminated at 15.0'.		15.0		o - estimated from a site topographical drawing

*Number of blows required for a 140 lb hammer dropping 30" to drive 2" O.D., 1.375" I.D. sampler a total of 18 inches in three 6" increments. The sum of the second and third increments of penetration is termed the standard penetration resistance, N



OBSERVATION WELL
(N.T.S.)

EMBANKMENT COMPACTION NOTE:
ALL EARTH FILL SHALL BE COMPACTED TO 95% OF MAX. DRY DENSITY AS DETERMINED BY ASSHTO METHOD T-99 (STANDARD PROCTOR)

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT — DATE 3/15/04

DIRECTOR — DATE 3/16/04

aba ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

Century Engineering, Inc.
32 West Road Towson,
Maryland 21204
Voice (410) 823-6070
Fax (410) 823-2184

Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

Certification:

2/24/04

Issued for:

- [ ] REVIEW
- [ ] NOT FOR CONSTRUCTION
- [x] BID
- [x] CONSTRUCTION
- [x] PERMIT
- [ ] 90% CD SUBMISSION

Drawing Title:
STORMWATER MANAGEMENT PLAN

Project No.:

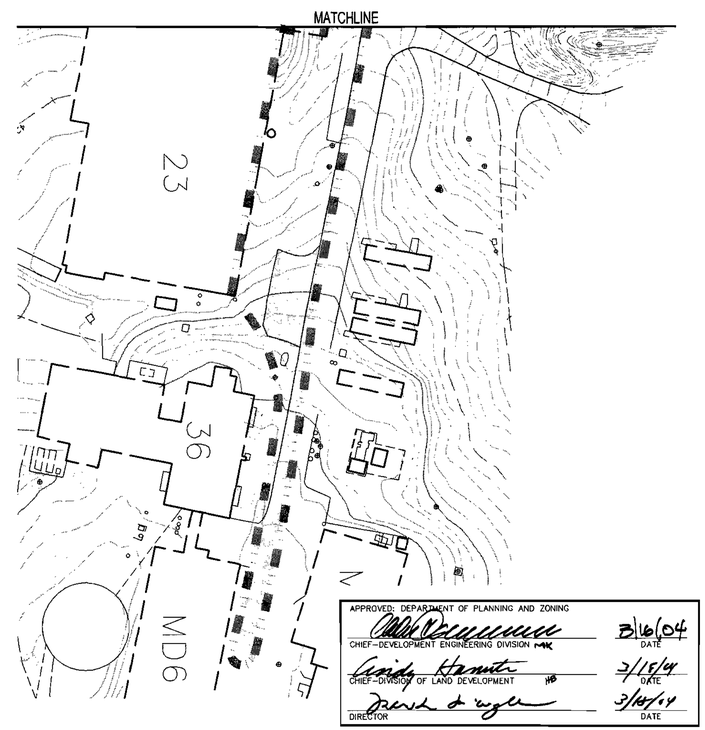
Sheet No.: C-022

Scale: 1" = 20'

Date: 12-10-03

Sheet 22 of 31

SDP-04-76



EXISTING IMPERVIOUS

EXISTING IMPERVIOUS REMOVED

EXISTING IMPERVIOUS, REDEVELOPED

NEW IMPERVIOUS

DRAINAGE AREA TO SANDFILTER = 6.21 Ac.±	DRAINAGE AREA TO STORMCEPTOR 1 = 3.44 Ac.±	DRAINAGE AREA TO STORMCEPTOR VIA EX. INLET #6 (AMT) = 1.51 Ac.±

IMPERVIOUS AREA TO SAND FILTER		
EXISTING IMPERVIOUS	= 153,765 S.F.	= 3.53 Ac.±
REMOVED IMPERVIOUS	= 10,002 S.F.	= 0.23 Ac.±
REDEVELOPED IMPERVIOUS	= 77,897 S.F.	= 1.79 Ac.±
NEW IMPERVIOUS	= 100,036 S.F.	= 2.30 Ac.±
IMPERVIOUS AREA TO STORMCEPTOR 1		
EXISTING IMPERVIOUS	= 67,469 S.F.	= 1.09 Ac.±
REMOVED IMPERVIOUS	= 1,496 S.F.	= 0.031 Ac.±
REDEVELOPED IMPERVIOUS	= 16,186 S.F.	= 0.37 Ac.±
NEW IMPERVIOUS	= 72,135 S.F.	= 1.51 Ac.±
IMPERVIOUS AREA TO STORMCEPTOR VIA EX. INLET #6 (AMT)		
EXISTING IMPERVIOUS	= 13,631 S.F.	= 0.31 Ac.±
REMOVED IMPERVIOUS	= 71 S.F.	= 0.005 Ac.±
REDEVELOPED IMPERVIOUS	= 2,280 S.F.	= 0.05 Ac.±
NEW IMPERVIOUS	= 6,020 S.F.	= 0.31 Ac.±
IMPERVIOUS AREA UNTREATED		
EXISTING IMPERVIOUS	= 7,383 S.F.	= 0.17 Ac.±
REMOVED IMPERVIOUS	= 508 S.F.	= 0.012 Ac.±
REDEVELOPED IMPERVIOUS	= 2,876 S.F.	= 0.066 Ac.±
NEW IMPERVIOUS	= 10,439 S.F.	= 0.24 Ac.±

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MAK — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT — DATE 3/15/04

DIRECTOR — DATE 3/17/04

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Revisions:

Certification:

2/24/04

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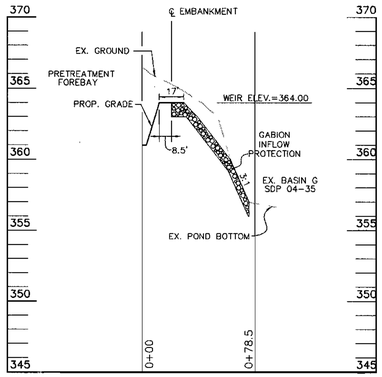
- ☐ 90% CD SUBMISSION

Drawing Title:

STORMWATER MANAGEMENT DRAINAGE AREA MAP

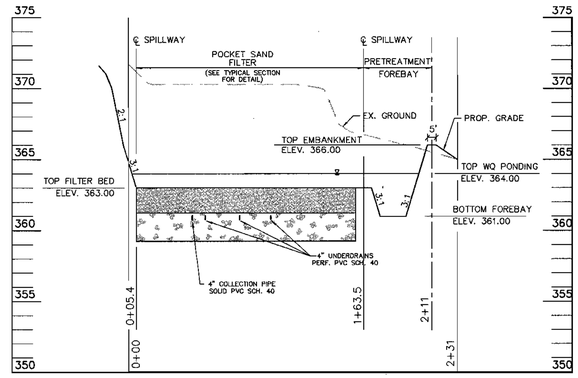
Project No.:	Sheet No.:
Scale: 1" = 50'	C-023
Date: 12-10-03	Sheet 23 of 31

SDP-04-76



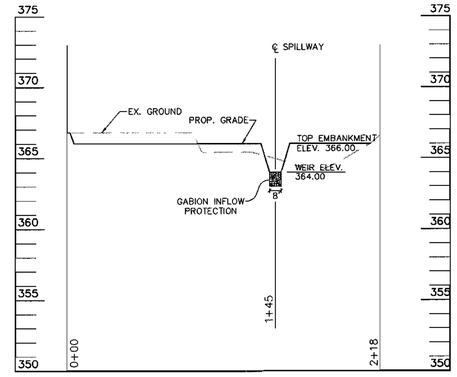
PROFILE A–A THROUGH PRINCIPAL SPILLWAY

SCALE { VERT: 1" = 5' HORIZ: 1" = 50'



PROFILE C–C THROUGH POCKET SAND FILTER

SCALE { VERT: 1" = 5' HORIZ: 1" = 50'



PROFILE B–B THROUGH PERIMETER OF SAND FILTER

SCALE { VERT: 1" = 5' HORIZ: 1" = 50'

STORMCEPTOR MAINTENANCE PROCEDURE

INSPECT AND MAINTAIN THE STORMCEPTOR FROM THE SURFACE, WITHOUT ENTRY INTO THE UNIT. PERFORM MAINTENANCE ONCE THE STORED VOLUME REACHES 15% OF THE STORMCEPTOR CAPACITY, OR IMMEDIATELY IN THE EVENT OF A SPILL.

MAINTENANCE INTERVALS VARY DEPENDING ON THE APPLICATION. THEREFORE, PERFORM INSPECTIONS QUARTERLY DURING THE FIRST YEAR OF INSTALLATION. THEREAFTER, PERFORM INSPECTIONS ON A SCHEDULE DERIVED FROM THE FIRST YEARS MAINTENANCE REQUIREMENTS.

REMOVE OIL AND SEDIMENT THROUGH THE 24–INCH DIAMETER OUTLET RISER PIPE. ALTERNATIVELY, YOU MAY REMOVE FLOATABLES AND HYDROCARBONS THROUGH THE 6–INCH OIL INSPECTION PORT. DISPOSE OF THE SEPARATOR CONTENTS AT A LOCATION APPROVED BY HOWARD COUNTY AND/OR MARYLAND DEPARTMENT OF THE ENVIRONMENT.

SANDFILTER MAINTENANCE PROCEDURE

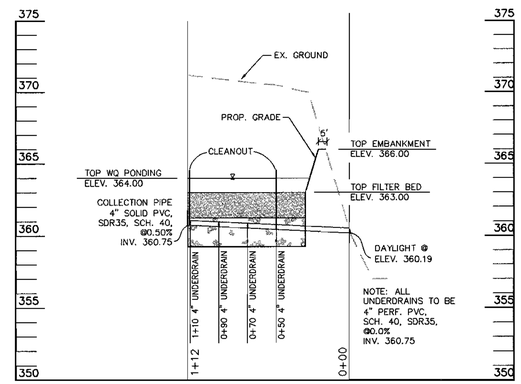
INSPECT THE SANDFILTER FROM THE SURFACE. THE PRETREATMENT FOREBAY SHALL BE CLEANED/REPAIRED WHEN DRAWDOWN TIMES WITHIN THE CHAMBER EXCEED 36 HOURS. TRASH AND DEBRIS SHALL BE REMOVED AS NECESSARY.

SEDIMENT SHOULD BE CLEANED OUT OF THE PRETREATMENT FOREBAY WHEN IT ACCUMULATES TO A DEPTH OF MORE THAN 6 INCHES. VEGETATION WITHIN THE PRETREATMENT FOREBAY SHALL BE LIMITED TO A HEIGHT OF 18 INCHES.

WHEN THE FILTERING CAPACITY OF THE SANDFILTER DIMINISHES SUBSTANTIALLY (E.G. WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS), THE TOP FEW INCHES OF DISCOLORED SAND MATERIAL SHALL BE REMOVED AND SHALL BE REPLACED WITH FRESH SAND MATERIAL PER THE MATERIAL SPECIFICATIONS. THE REMOVED SEDIMENTS SHOULD BE DISPOSED OF IN AN ACCEPTABLE MANNER (E.G. LANDFILL). SILT/SEDIMENT SHOULD BE REMOVED FROM THE FILTER BED WHEN THE ACCUMULATION EXCEEDS 1 INCH.

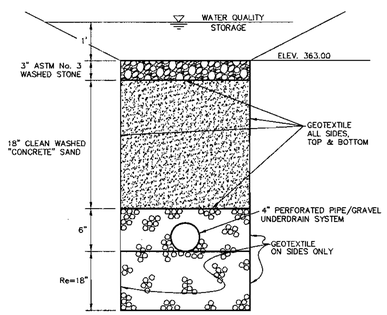
DIRECT MAINTENANCE ACCESS SHALL BE PROVIDED TO BOTH THE PRETREATMENT FOREBAY AND THE SANDFILTER FILTER BED.

CONSTRUCTION AND MAINTENANCE OF THE SANDFILTER SHALL CONFORM TO THE MATERIAL SPECIFICATIONS OUTLINED HEREON.



PROFILE THROUGH 4" COLLECTOR PIPE

SCALE { VERT: 1" = 5' HORIZ: 1" = 50'



POCKET SAND FILTER – TYPICAL SECTION

N.T.S.

SAND FILTER CONSTRUCTION NOTES

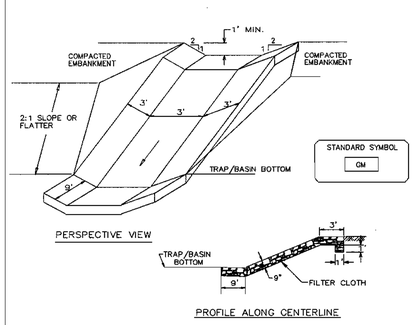
ABSOLUTELY NO RUNOFF IS TO ENTER THE FILTER UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED.

SURFACE OF FILTER BED IS TO BE LEVEL.

MATERIAL SPECIFICATIONS FOR POCKET SAND FILTERS

MATERIAL	SPECIFICATION/TEST METHOD	SIZE	NOTES
SAND	CLEAN AASHTO-M-6 OR ASTM-C-33 CONCRETE SAND	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.
UNDERDRAIN GRAVEL	AASHTO-M-43	0.375" TO 0.75"	
GEOTEXTILE FABRIC	ASTM-D-4833 (PUNCTURE STRENGTH – 125 LB.) ASTM-D-4832 (TENSILE STRENGTH – 300 LB.)	0.08" THICK EQUIVALENT OPENING SIZE OF #80 SIEVE	MUST MAINTAIN 125 GPM PER SQ.FT. FLOW RATE. NOTE: A 4" PEA GRAVEL LAYER MAY BE SUBSTITUTED FOR GEOTEXTILES MEANT TO "SEPARATE" SAND FILTER LAYERS.
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO-M-278	4" – 6" RIGID SCHEDULE 40 PVC OR SDR35	3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW; MINIMUM OF 2" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES
COVER STONE	ASTM No. 3	1" – 2"	

DETAIL 6 – GABION INFLOW PROTECTION



Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" – 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE 8 – 7 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

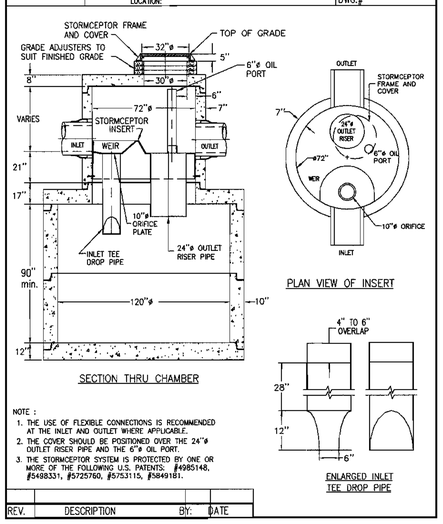
Stormceptor®

Hydro Conduit

STC 4800 Precast Concrete Stormceptor (4800 US Gallon Capacity)

PROJECT:
LOCATION:

DR. BY: N. BALDWIN
CK. BY:
DATE: FEB. 13, 2001
SCALE: N.T.S.
DWG.#



NOTE :
1. THE USE OF FLEXIBLE CONNECTIONS IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.
2. THE COVER SHOULD BE POSITIONED OVER THE 24"ø OUTLET RISER PIPE AND THE 6"ø OIL PORT.
3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181.

REV.	DESCRIPTION	BY:	DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF–DEVELOPMENT ENGINEERING DIVISION MAK	3/16/04 DATE
CHIEF–DIVISION OF LAND DEVELOPMENT HPD	3/18/04 DATE
DIRECTOR	3/18/04 DATE

ABA ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.9715

Century Engineering, Inc.
32 West Road Towson, Maryland 21204
Voice (410) 823-8070
Fax (410) 823-2164

Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

Certification:

2/24/04

Issued for:

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- ■ CONSTRUCTION
- ◪ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:
STORMWATER MANAGEMENT PROFILES AND DETAILS

Project No.:

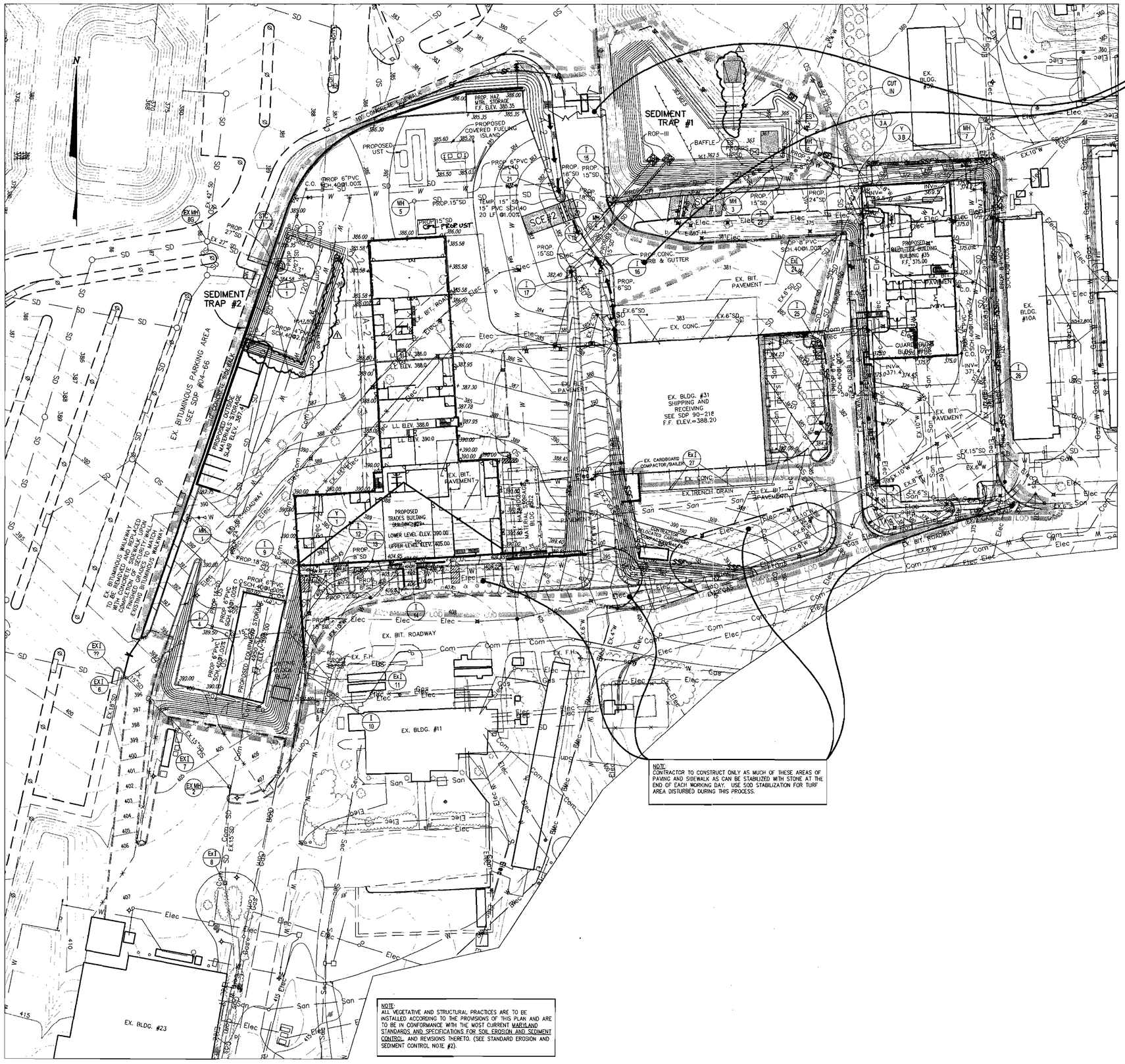
Sheet No.: C-024

Scale: AS NOTED

Date: 12-10-03

Sheet 24 of 31

SDP-04-76



NOTE:
CONTRACTOR TO CONSTRUCT ONLY AS MUCH OF THESE AREAS OF PAVING AND SIDEWALK AS CAN BE STABILIZED WITH STONE AT THE END OF EACH WORKING DAY. USE SOD STABILIZATION FOR TURF AREA DISTURBED DURING THIS PROCESS.

NOTE:
CONTRACTOR TO CONSTRUCT ONLY AS MUCH OF THESE AREAS OF PAVING AND SIDEWALK AS CAN BE STABILIZED WITH STONE AT THE END OF EACH WORKING DAY. USE SOD STABILIZATION FOR TURF AREA DISTURBED DURING THIS PROCESS.

NOTE:
ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO. (SEE STANDARD EROSION AND SEDIMENT CONTROL NOTE #2).

TRAP No. 1 – ST-I
PIPE OUTLET TRAP

EXISTING DRAINAGE AREA	=	4.94 Ac.
PROPOSED DRAINAGE AREA	=	3.93 Ac.
STORAGE REQUIRED	=	17,784 ft^3
STORAGE PROVIDED (PIPE RISER CREST)	=	21,824 ft^3
VOL. AT DEWATERING ELEV. (1,800 ft^3/ac.)	=	11,226 ft^3
VOL. OF BASIN AT CLEANOUT (900 ft^3/ac.)	=	4,213 ft^3
BOTTOM ELEVATION	=	362.50
WET STORAGE ZONE	=	362.50–363.75
PERMANENT POOL ELEVATION	=	363.75
DRY STORAGE ZONE	=	363.75–364.75
BASIN DISCHARGE ELEV. (PIPE RISER CREST)	=	364.75
DISTANCE FROM PIPE RISER CREST TO PERMANENT POOL ELEVATION	=	1.0 ft.
BASIN CLEANOUT ELEVATION	=	363.00
DISTANCE FROM PIPE RISER CREST TO CLEANOUT ELEVATION	=	1.75 ft.
TOP OF EMBANKMENT	=	366.00
EX. GROUND ELEV. @ ℄ EMBANKMENT	=	366.00±
TRASH RACK DIAMETER	=	42"
RISER DIAMETER	=	27"
BARREL DIAMETER	=	21"

TRAP No. 2 – ST-I
PIPE OUTLET SEDIMENT TRAP

EXISTING DRAINAGE AREA	=	3.45 Ac.
PROPOSED DRAINAGE AREA	=	3.96 Ac.
STORAGE REQUIRED	=	14,256 ft^3
STORAGE PROVIDED (PIPE RISER CREST)	=	18,152 ft^3
VOL. AT DEWATERING ELEV. (1,800 ft^3/ac.)	=	10,340 ft^3
VOL. OF BASIN AT CLEANOUT (900 ft^3/ac.)	=	3,268 ft^3
BOTTOM ELEVATION	=	380.50
WET STORAGE ZONE	=	380.50–382.00
PERMANENT POOL ELEVATION	=	382.00
DRY STORAGE ZONE	=	382.00–383.00
BASIN DISCHARGE ELEV. (RISER CREST)	=	383.00
DISTANCE FROM PIPE RISER CREST TO PERMANENT POOL ELEVATION	=	1.0 ft.
BASIN CLEANOUT ELEVATION	=	381.00
DISTANCE FROM PIPE RISER CREST TO CLEANOUT ELEVATION	=	2.0 ft.
TOP OF EMBANKMENT	=	384.00
EX. GROUND ELEV. @ ℄ EMBANKMENT	=	384.00±
TRASH RACK DIAMETER	=	36"
RISER DIAMETER	=	24"
BARREL DIAMETER	=	21"

LEGEND

PHASE I OF SEDIMENT CONTROL	
PHASE II OF SEDIMENT CONTROL	
LIMIT OF DISTURBANCE/PROJECT AREA	LOD
SILT FENCE	SF
SUPER SILT FENCE	SSF
CURB INLET PROTECTION	CIP
AT-GRADE INLET PROTECTION	AGIP
ROCK OUTLET PROTECTION	ROP-III
GABION MATRESS	GM
EARTH DIKE	
TEMPORARY SWALE	
REMOVABLE PUMPING STATION	RPS
BAFFLE	
PIPE SLOPE DRAIN	PSD-24
STABILIZED CONSTRUCTION ENTRANCE	

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ROBERT G. BATHURST — SIGNATURE OF ENGINEER — DATE 2/24/04

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

JAMES E. LOESCH — SIGNATURE OF DEVELOPER — DATE 3/2/04

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

U.S. NATURAL RESOURCES CONSERVATION SERVICE — DATE 3/11/04

THIS DEVELOPMENT PLAN IS AS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. — DATE 3/11/04

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MAK — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT — DATE 3/18/04

DIRECTOR — DATE 3/22/04

aba ARCHITECTS
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LAUREL, MARYLAND 20723-6099

Revisions:
1 ADDENDUM #1 – 01/09/04

Certification:

2/24/04

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Drawing Title:
EROSION & SEDIMENT CONTROL PLAN

Project No.:

Scale: 1" = 50'

Date: 12-10-03

Sheet No.: C-025

Sheet 25 of 31

SDP-04-126

LEGEND

EXISTING DRAINAGE AREA	
PROPOSED DRAINAGE AREA	
LIMIT OF DISTURBANCE	LOD
SILT FENCE	SF
SUPER SILT FENCE	SSF
CURB INLET PROTECTION	CIP
AT-GRADE INLET PROTECTION	AGIP
ROCK OUTLET PROTECTION	ROP-III
GABION MATRESS	GM
EARTH DIKE	
TEMPORARY SWALE	
REMOVABLE PUMPING STATION	RPS
BAFFLE	
PIPE SLOPE DRAIN	PSD-24
STABILIZED CONSTRUCTION ENTRANCE	

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ROBERT G. BATHURST — SIGNATURE OF ENGINEER — DATE 2/24/04

BY THE DEVELOPER:

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JAMES E. LOESCH — SIGNATURE OF DEVELOPER — DATE 3/2/04

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U.S. NATURAL RESOURCES CONSERVATION SERVICE — DATE 3/11/04

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HOWARD S.C.D. — DATE 3/11/04

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT HB — DATE 3/18/04

DIRECTOR — DATE 3/18/04

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- NOT FOR CONSTRUCTION
- BID
- CONSTRUCTION
- PERMIT
- 90% CD SUBMISSION

Drawing Title:

EROSION & SEDIMENT CONTROL DRAINAGE AREA MAP

Project No.:

Sheet No.: C-026

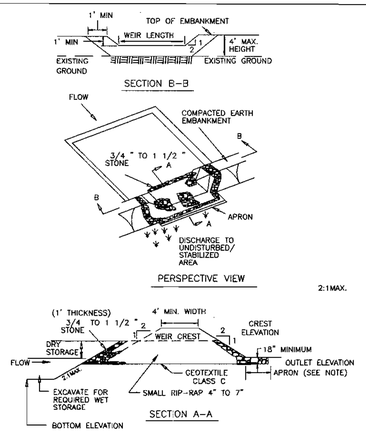
Scale: 1" = 50'

Date: 12-10-03

Sheet 26 of 31

SDP-04-76

DETAIL 10A – STONE RIP-RAP OUTLET SEDIMENT TRAP – ST IV



NOTE: 5' MIN LENGTH UP TO 5 ACRES. OVER 5 ACRES USE 10' MIN

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STONE / RIP-RAP OUTLET SEDIMENT TRAP – ST IV

CONSTUCTION SPECIFICATIONS

1. THE AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER–SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED. MAXIMUM HEIGHT OF EMBANKMENT SHALL BE 4', MEASURED AT CENTERLINE OF EMBANKMENT.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. ELEVATION OF THE TOP OF ANY DIKE DIRECTING WATER INTO TRAP MUST EQUAL OR EXCEED THE HEIGHT OF TRAP EMBANKMENT.
5. STORAGE AREA PROVIDED SHALL BE FIGURED BY COMPUTING THE VOLUME MEASURED FROM TOP OF EXCAVATION. (FOR STORAGE REQUIREMENTS SEE TABLE 9).
6. GEOTEXTILE CLASS C SHALL BE PLACED OVER THE BOTTOM AND SIDES OF THE OUTLET CHANNELPRIOR TO PLACEMENT OF STONE. SECTION OF FABRIC MUST OVERLAP AT LEAST 1' WITH SECTION NEAREST THE ENTRANCE PLACED ON TOP. FABRIC SHALL BE EMBEDDED AT LEAST 6" INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
7. 4" – 7" STONE SHALL BE USED TO CONSTRUCT THE WEIR AND 4" – 12" OR CLASS I RIP–RAP SHALL BE USED TO CONSTRUCT THE OUTLET CHANNEL.
8. OUTLET – AN OUTLET SHALL INCLUDE A MEANS OF CONVEYING THE DISCHARGE IN AN EROSION FREE MANNER TO AN EXISTING STABLE CHANNEL. PROTECTION AGAINST SCOUR AT THE DISCHARGE POINT SHALL BE PROVIDED AS NECESSARY.
9. OUTLET CHANNEL MUST HAVE POSITIVE DRAINAGE FROM THE TRAP.
10. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 OF THE WET STORAGE DEPTH OF THE TRAP (900 CF/AC). REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
11. THE STRUCTURE SHALL BE INSPECTED PERIODICALLY AFTER EACH RAIN AND REPAIRED AS NEEDED.
12. CONSTRUCTION OF TRAPS SHALL BE CARRIED OUT IN SUCH A MANNER THAT SEDIMENT POLLUTION IS ABATED. ONCE CONSTRUCTED, THE TOP AND OUTSIDE FACE OF THE EMBANKMENT SHALL BE STABILIZED WITH SEED AND MULCH. POINTS OF CONCENTRATED INFLOW SHALL BE PROTECTED IN ACCORDANCE WITH GRADE STABILIZATION STRUCTURE CRITERIA. THE REMAINDER OF THE INTERIOR SLOPES SHOULD BE STABILIZED (ONE TIME) WITH SEED AND MULCH UPON TRAP COMPLETION AND MONITORED AND MAINTAINED EROSION FREE DURING THE LIFE OF THE TRAP.
13. THE STRUCTURE SHALL BE DEWATERED BY APPROVED METHODS, REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

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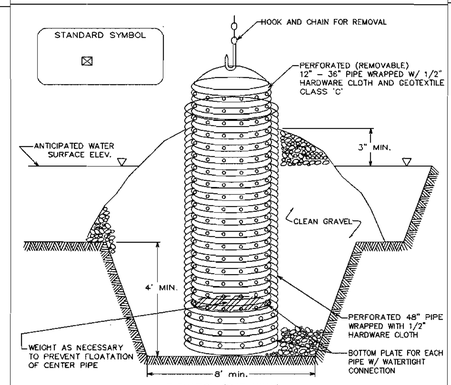
DETAIL 20A – REMOVABLE PUMPING STATION



ELEVATION (CUT AWAY)

CONSTRUCTION SPECIFICATIONS

1. THE OUTER PIPE SHOULD BE 48" DIA. OR SMALL, IN ANY CASE, BE AT LEAST 4" GREATER IN DIAMETER THAN THE CENTER PIPE. THE OUTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS.
2. AFTER INSTALLING THE OUTER PIPE, BACKFILL AROUND OUTER PIPE WITH 2" AGGREGATE OR CLEAN GRAVEL.
3. THE INSIDE STAND PIPE (CENTER PIPE) SHOULD BE CONSTRUCTED BY PERFORATING A CORRUGATED OR PVC PIPE BETWEEN 12" AND 36" IN DIAMETER. THE PERFORATIONS SHALL BE 1/2" X 6" SLITS OR 1" DIAMETER HOLES 6" ON CENTER. THE CENTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH FIRST, THEN WRAPPED AGAIN WITH GEOTEXTILE CLASS C.
4. THE CENTER PIPE SHOULD EXTEND 12" TO 18" ABOVE THE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION WHEN DEWATERING A BASIN.

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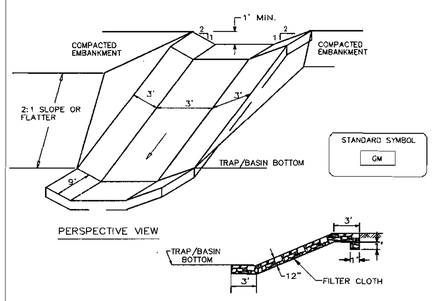
DETAIL 6 – GABION·INFLOW PROTECTION



Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" – 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

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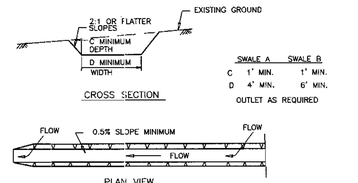
DETAIL 2 – TEMPORARY SWALE



	SWALE A	SWALE B
C	1' MIN.	1' MIN.
D	4' MIN.	6' MIN.

OUTLET AS REQUIRED

DRAINAGE AREA = 10 ac (MAX)
SLOPE = 10% (MAX)

STANDARD SYMBOL
A – 2/ B – 3

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Contro Matting or line with sod.
3. 4"–7" stone or recycled concrete equivalent pressed into soil in a minimum 7" layer.

Construction Specifications

1. All temporary swales shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non–erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the swale.
5. The swale shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill, if necessary, shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale
8. Inspection and maintenance must be provided periodically and after each rain event.

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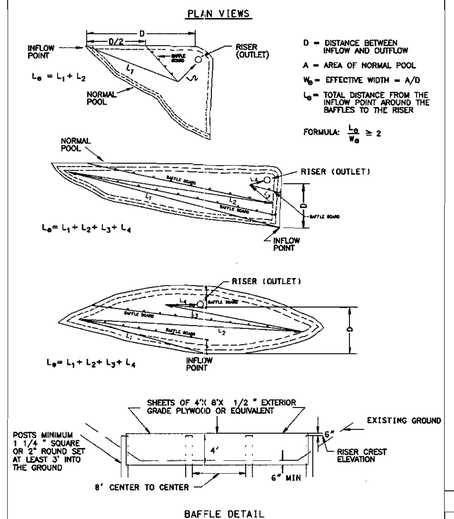
DETAIL 18 – SEDIMENT BASIN BAFFLES



D = DISTANCE BETWEEN INFLOW AND OUTFLOW

A = AREA OF NORMAL POOL

W_e = EFFECTIVE WIDTH = A/D

L_a = TOTAL DISTANCE FROM THE INFLOW POINT AROUND THE BAFFLES TO THE RISER

FORMULA: $\frac{L_a}{W_e} \geq 2$

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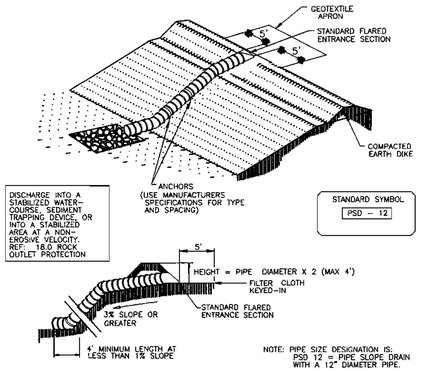
DETAIL 4 – PIPE SLOPE DRAIN



NOTE: PIPE SIZE DESIGNATION IS: PSD 12 = PIPE SLOPE DRAIN WITH A 12" DIAMETER PIPE.

Table 6 Design Criteria for Pipe Slope Drain

Size	Pipe/Tubing Diameter (D) in	Maximum Drainage Area (Acres)
PSD–12	12	0.5
PSD–18	18	1.5
PSD–21	21	2.5
PSD–24	24	3.5
PSD–24 (2)	24	5.0

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PIPE SLOPE DRAIN

Construction Specifications – Pipe Slope Drain

1. The Pipe Slope Drain (PSD) shall have a slope of 3 percent or steeper.
2. The top of the earth dike over the inlet pipe shall be at least 2 times the pipe diameter measured at the invert of the pipe.
pipe.
3. Flexible tubing is preferred. However, corrugated metal pipe or equivalent PVC pipe can be used. All connections shall be watertight.
pipe.
4. A flared end section shall be attached to the inlet end of pipe with a watertight connection. Filter cloth shall be placed under the inlet of the pipe slope drain and shall extend out 5' from the inlet. The filter cloth shall be "keyed in" on all sides.
pipe.
5. The Pipe Slope Drain shall be securely anchored to the slope by staking at the grommets provided. Spacing for anchors shall be as provided by manufacturer's specification. In no case shall less than two (2) anchors be provided, equally spaced along the length of pipe. These details should be provided by pipe suppliers.
pipe.
pipe.
6. The soil around and under the pipe and end section shall be hand tamped in 4 inch lifts to the top of the earth dike.
7. All pipe connections shall be watertight.
8. Whenever possible where a PSD drains an unstabilized area, it shall outlet into a sediment trap or basin. If this is not possible then the slope drain will discharge into a stable conveyance that leads to a sediment trap or basin. When discharging into a trap or basin the PSD shall discharge at the same elevation as the wet pool elevation. The discharge from the PSD must be as far away from the sediment control outlet as possible.
9. When the drainage area is stabilized, the PSD shall discharge onto a stabilized area at a non–erosive velocity.
10. Inspection and any required maintenance shall be performed periodically and after each rain event.
11. The inlet must be kept open at all times.

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ROCK OUTLET PROTECTION III

CONSTRUCTION SPECIFICATIONS

1. The subgrade for the filter, rip–rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip–rap or filter.
3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps, whether for repairs or for joining two pieces of geotextile, shall be a minimum of one foot.
4. Stone for the rip–rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operations and in such a manner as to avoid displacement of underlying materials. The stone for rip–rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonable homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip–rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high, then the flow will be forced out of the channel and scour adjacent to the stone will occur.

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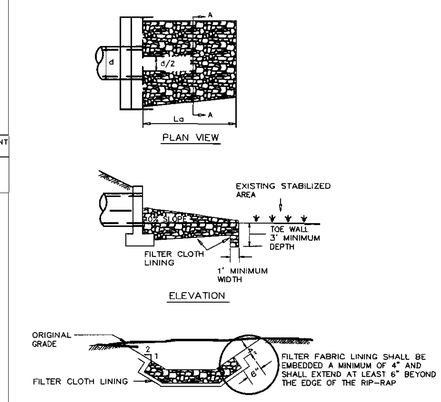
DETAIL 27 – ROCK OUTLET PROTECTION III



NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

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BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ROBERT G. BATHURST — 2/24/04
SIGNATURE OF ENGINEER — DATE

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 ALSO AUTHORIZE PERIODIC ON–SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

JAMES E. LOESCH — 3/2/04
SIGNATURE OF DEVELOPER — DATE

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

U.S. NATURAL RESOURCES CONSERVATION SERVICE — 3/11/04
DATE

THIS DEVELOPMENT PLAN IS AS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. — 3/11/04
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF–DEVELOPMENT ENGINEERING DIVISION MAK — 3/16/04 DATE

CHIEF–DIVISION OF LAND DEVELOPMENT RPD — 3/18/04 DATE

DIRECTOR — 3/18/04 DATE

aba ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

Century Engineering, Inc.
32 West Road Towson,
Maryland 21204
Voice (410) 823-5070
Fax (410) 823-2184

Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

Certification:

2/24/04

Issued for:

- ☐ REVIEW
- ☐ NOT FOR CONSTRUCTION
- ■ BID
- ■ CONSTRUCTION
- ☒ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:
EROSION AND SEDIMENT CONTROL DETAILS

Project No.:

Sheet No.: C-027

Scale: 1" = 50'

Date: 12-10-03

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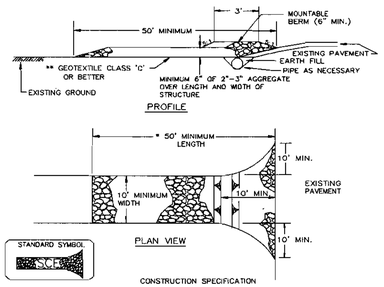
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



CONSTRUCTION SPECIFICATION

1. LENGTH – MINIMUM OF 50' (*30' FOR SINGLE RESIDENCE LOT).
2. WIDTH – 10' MINIMUM, SHOULD BE FLARED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
3. GEOTEXTILE FABRIC (FILTER CLOTH) SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE. **THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE FAMILY RESIDENCES TO USE GEOTEXTILE.
4. STONE – CRUSHED AGGREGATE (2" TO 3") OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT SHALL BE PLACED AT LEAST 6" DEEP OVER THE LENGTH AND WIDTH OF THE ENTRANCE.
5. SURFACE WATER – ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED THROUGH THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PIPE INSTALLED THROUGH THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROTECTED WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 6" OF STONE OVER THE PIPE. PIPE HAS TO BE SIZED ACCORDING TO THE DRAINAGE. WHEN THE SICE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY A PIPE WILL NOT BE NECESSARY. PIPE SHOULD BE SIZED ACCORDING TO THE AMOUNT OF RUNOFF TO BE CONVEYED. A 6" MINIMUM WILL BE REQUIRED.
6. LOCATION – A STABILIZED CONSTRUCTION ENTRANCE SHALL BE LOCATED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE. VEHICLES LEAVING THE SITE MUST TRAVEL OVER THE ENTIRE LENGTH OF THE STABILIZED CONSTRUCTION ENTRANCE.

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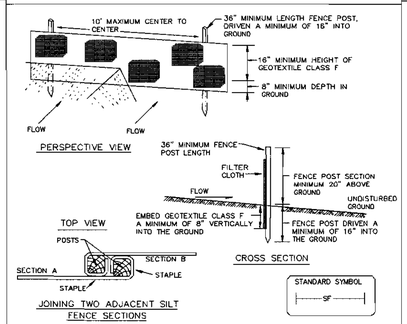
DETAIL 22 – SILT FENCE



CONSTRUCTION SPECIFICATIONS

1. FENCE POSTS SHALL BE A MINIMUM OF 36" LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 11/2" X 11/2" SQUARE (MINIMUM) CUT, OR 13/4" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHING NOT LESS THAN 1.00 POND PER LINEAR FOOT.
2. GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL FT²/ MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% OF THE FABRIC HEIGHT.

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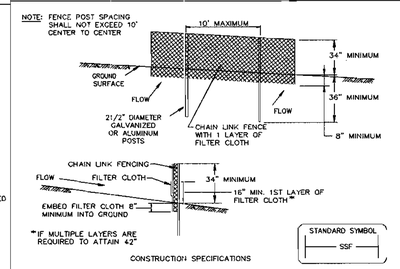
DETAIL 33 – SUPER SILT FENCE



CONSTRUCTION SPECIFICATIONS

1. FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 6' FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' LENGTH POSTS.
2. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE TIES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
3. FILTER CLOTH SHALL BE FASTENED SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT THE TOP AND MID SECTION.
4. FILTER CLOTH SHALL BE EMBEDDED A MINIMUM OF 8" INTO THE GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE HEIGHT
7. FILTER CLOTH SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES AT TOP AND MID SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS F:

TENSILE STRENGTH	50 LBS/IN (MIN.)	TEST: MSMT 509
TENSILE MODULUS	20 LBS/IN (MIN.)	TEST: MSMT 509
FLOW RATE	0.3 GAL/FT²/MINUTE (MAX.)	TEST: MSMT 322
FILTERING EFFICIENCY	75% (MIN.)	TEST: MSMT 322

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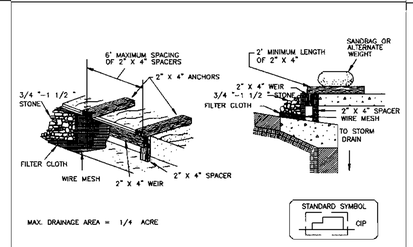
DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



MAX. DRAINAGE AREA = 1/4 ACRE

CONSTRUCTION SPECIFICATIONS

1. ATTACH A CONTINUOUS PIECE OF WIRE MESH (30" MINIMUM WIDTH BY THROAT LENGTH PLUS 4') TO THE 2" X 4" WEIR (MEASURING THROAT LENGTH PLUS 2') AS SHOWN ON THE STANDARD DRAWING.
2. PLACE A CONTINUOUS PIECE OF GEOTEXTILE CLASS E THE SAME DIMENSIONS AS THE WIRE MESH OVER THE WIRE MESH AND SECURELY ATTACH IT TO THE 2" X 4" WEIR.
3. SECURELY NAIL THE 2" X 4" WEIR TO A 9" LONG VERTICAL SPACER TO BE LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAX. 4' APART).
4. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL (MINIMUM 2' LENGTHS OF 2" x 4" TO THE TOP OF THE WEIR AT SPACER LOCATIONS). THESE 2" X 4" ANCHORS SHALL EXTEND ACROSS THE INLET TOP AND BE HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHT.
5. THE ASSEMBLY SHALL BE PLACED SO THAT THE END SPACERS ARE A MINIMUM 1' BEYOND BOTH ENDS OF THE THROAT OPENING.
6. FORM THE 1/2" X 1/2" WIRE MESH AND THE GEOTEXTILE FABRIC TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN 3/4" X 1 1/2" STONE OVER THE WIRE MESH AND GEOTEXTILE IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
7. THIS TYPE OF PROTECTION MUST BE INSPECTED FREQUENTLY AND THE FILTER CLOTH AND STONE REPLACED WHEN CLOGGED WITH SEDIMENT.
8. ASSURE THAT STORM FLOW DOES NOT BYPASS THE INLET BY INSTALLING A TEMPORARY EARTH OR ASPHALT DIKE TO DIRECT THE FLOW TO THE INLET.

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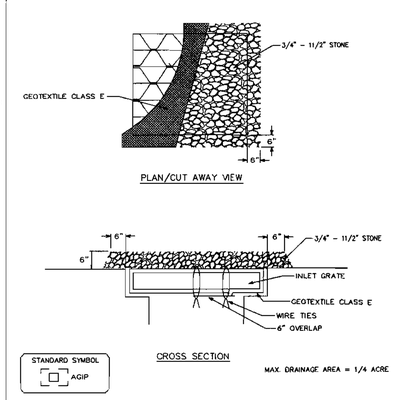
DETAIL 23B – AT GRADE INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
2. Place 3/4" to 11/2" stone, 4"–6" thick on the grate to secure the fabric and provide additional filtration.

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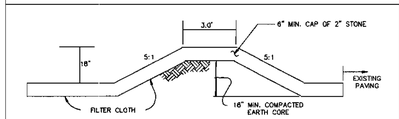
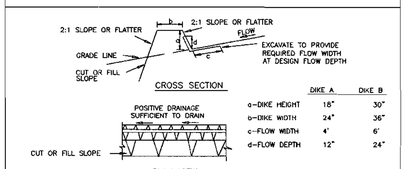
MOUNTABLE BERM DETAIL



DETAIL 1 – EARTH DIKE



	DIKE A	DIKE B
a–DIKE HEIGHT	18"	30"
b–DIKE WIDTH	24"	36"
c–FLOW WIDTH	4'	6'
d–FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. SEED AND COVER WITH STRAW MULCH.
2. SEED AND COVER WITH EROSION CONTROL MATTING OR LINE WITH SOD.
3. 4" – 7" STONE OR RECYCLED CONCRETE EQUIVALENT PRESSED INTO THE SOIL 7" MINIMUM

CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY EARTH DIKES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET SPOT ELEVATIONS MAY BE NECESSARY FOR GRADES LESS THAN 1%.
2. RUNOFF DIVERTED FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. RUNOFF DIVERTED FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED, STABILIZED AREA AT A NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONAL MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIKE.
5. THE DIKE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILL SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIKE.
8. INSPECTION AND MAINTENANCE MUST BE PROVIDED PERIODICALLY AND AFTER EACH RAIN EVENT.

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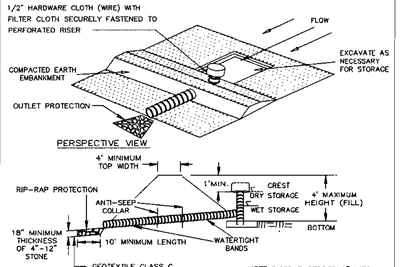
DETAIL 8 – PIPE OUTLET SEDIMENT TRAP – ST I



NOTE: RISER EMBEDDED 9" INTO CONCRETE OR 1/4" STEEL PLATE ATTACHED TO RISER WITH A CONTINUOUS WELD ON BOTTOM AND 2' OF STONE PLACED ON STEEL PLATE TWICE THE RISER DIAMETER (MIN.)

CONSTRUCTION SPECIFICATIONS

1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. THE TOTAL TRAP VOLUME AS MEASURED FROM THE BOTTOM TO RISER CREST ELEVATION SHALL BE 3600 CUBIC FEET PER ACRE OF DRAINAGE AREA (SEE TABLE 9). THE TOP OF EMBANKMENT MUST BE ≥1' ABOVE THE RISER CREST ELEVATION.
4. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF OF THE WET STORAGE DEPTH OF THE TRAP (9000CF/AC). THE SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
5. THE STRUCTURE SHALL BE INSPECTED PERIODICALLY AND AFTER EACH RAIN AND REPAIRS MADE AS NECESSARY.

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PIPE OUTLET SEDIMENT TRAP – ST I

6. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE ABATED. ONCE CONSTRUCTED, THE TOP AND OUTSIDE FACE OF THE EMBANKMENT SHALL BE STABILIZED WITH SEED AND MULCH. POINTS OF CONCENTRATED INFLOW SHALL BE PROTECTED IN ACCORDANCE WITH GRADE STABILIZATION STRUCTURE CRITERIA. THE REMAINDER OF THE INTERIOR SLOPES SHOULD BE STABILIZED (ONE TIME) WITH SEED AND MULCH UPON TRAP COMPLETION AND MONITORED AND MAINTAINED EROSION FREE DURING THE LIFE OF THE TRAP.
7. THE STRUCTURE SHALL BE REMOVED AND AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
8. ALL OUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
9. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
10. ABOVE THE WET STORAGE ELEVATION, THE RISER SHALL BE PERFORATED WITH 1/2" WIDE BY 6" LONG SLITS OR 1" DIAMETER HOLES SPACED 6" VERTICALLY AND HORIZONTALLY. NO PERFORATIONS WILL BE ALLOWED WITHIN 6" OF THE HORIZONTAL BARREL.
11. THE RISER SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH (WIRE) THEN WRAPPED WITH GEOTEXTILE CLASS E. THE FILTER CLOTH SHALL EXTEND 6" ABOVE THE HIGHEST SLIT AND 6" BELOW THE LOWEST SLIT. WHERE ENDS OF FILTER CLOTH COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND FASTENED TO PREVENT BYPASS. FILTER CLOTH SHALL BE REPLACED AS NECESSARY TO PREVENT CLOGGING.
12. STRAPS OR CONNECTING BANDS SHALL BE USED TO HOLD THE FILTER CLOTH AND WIRE FABRIC IN PLACE. THEY SHALL BE PLACED AT THE TOP AND BOTTOM OF THE CLOTH.
13. FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE HAND COMPACTED IN 4" LAYERS. A MINIMUM OF 2' OF HAND-COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
14. THE RISER SHALL BE ANCHORED WITH EITHER A CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. CONCRETE BASES SHALL BE AT LEAST TWICE THE RISER DIAMETER AND 12" DEEP WITH THE RISER EMBEDDED 9". STEEL PLATE BASES SHALL BE AT LEAST TWICE THE RISER DIAMETER, 1/4" MINIMUM THICKNESS AND ATTACHED TO THE BOTTOM OF THE RISER BY A CONTINUOUS WELD TO FORM A WATERTIGHT CONNECTION. THEN PLACE 2' OF STONE, GRAVEL OR TAMPED EARTH ON THE PLATE.
15. ANTI SEEP COLLARS SHALL BE CONSTRUCTED IN ACCORDANCE WITH PLANS (REF. TABLE 16 AND DETAILS 13 AND 14).
16. CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE DESIGN DETAILS ARE ON DETAIL 16.
17. REFER TO SECTION D FOR DEWATERING REQUIREMENTS OF SEDIMENT TRAPS.
18. OUTLET – AN OUTLET SHALL BE PROVIDED, WHICH INCLUDES A MEANS OF CONVEYING THE DISCHARGE IN AN EROSION FREE MANNER TO AN EXISTING STABLE CHANNEL.
19. WHERE DISCHARGE OCCURS AT THE PROPERTY LINE, LOCAL ORDINANCES AND DRAINAGE EASEMENT REQUIREMENTS SHALL BE MET.

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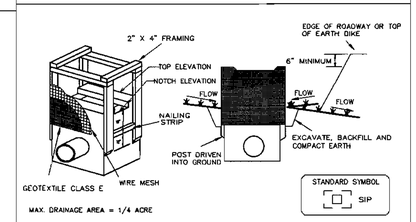
DETAIL 23A – STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

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BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ROBERT G. BATHURST — SIGNATURE OF ENGINEER — DATE 2/24/04

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

JAMES E. LOESCH — SIGNATURE OF DEVELOPER — DATE 3/2/04

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

U.S. NATURAL RESOURCES CONSERVATION SERVICE — DATE 3/11/04

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. — DATE 3/11/04

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT — DATE 3/8/04

DIRECTOR — DATE 3/8/04

ABA ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

Century Engineering, Inc.
32 West Road Towson,
Maryland 21204
Voice (410) 823-8070
Fax (410) 823-2184

Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

Certification:

Issued for:

- ☐ REVIEW
- ☐ NOT FOR CONSTRUCTION
- ■ BID
- ■ CONSTRUCTION
- ▲ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:

EROSION AND SEDIMENT CONTROL DETAILS

Project No.:	Sheet No.:
Scale: 1" = 50'	C-028
Date: 12-10-03	Sheet 28 of 31

SDP-04-76

HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313–1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbance or re–disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes steeper than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sod, temporary seeding and mulching (Sec. G). Temporary stabilization with mulch alone shall only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:

Total Area of Site	=	10.7± Acres
Area Disturbed	=	10.7± Acres
Area to be roofed or paved	=	8.5 Acres
Area to be vegetatively stabilized	=	2.2 Acres
Total Cut	=	1,800 Cu. Yds.
Total Fill	=	27,600 Cu. Yds.
Offsite waste/borrow area location		N/A

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary, by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be backfilled and stabilized within one working day, whichever is shorter.

HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long–lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:

1. Preferred – Apply 2 tons/acre dolomitic limestone (92,000 lbs/1000 sq. ft) and 600 lbs/acre 10–10–10 fertilizer (14 lbs/1000 sq. ft) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs/acre 30–0–0 ureaform fertilizer (9 lbs/1000 sq. ft.).
2. Acceptable – Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs/acre 10–10–10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding – For the periods March 1 – April 30 and August 1 – October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May – July 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 – February 28, protect site by: Option 1 – Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2 – Use sod. Option 3 – Seed with 60 lbs/acre Kentucky 30 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching – Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance: Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be re–disturbed where a short–term vegetative cover is needed.

Seedbed preparation – Loosen upper three inches of soil by raking, disking or other means before seeding, if not previously loosened.

Soil Amendments – Apply 600 lbs/acre 10–10–10 fertilizer (14 lbs/1000 sq. ft.).

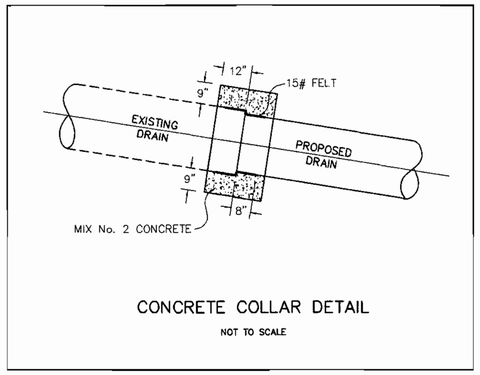
Seeding – For period March 1 – April 30 from August 15 – October 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). for the period May 1 – August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 – February 28, protect site by applying 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching – Apply 1 1/2 tons/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed–free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 ft. or higher, use 348 gal. per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

UTILITY NOTES

1. CONTRACTOR SHOULD OPEN THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE) THE TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTUCTION ARE TO BE REPAIRED IMMEDIATELY.

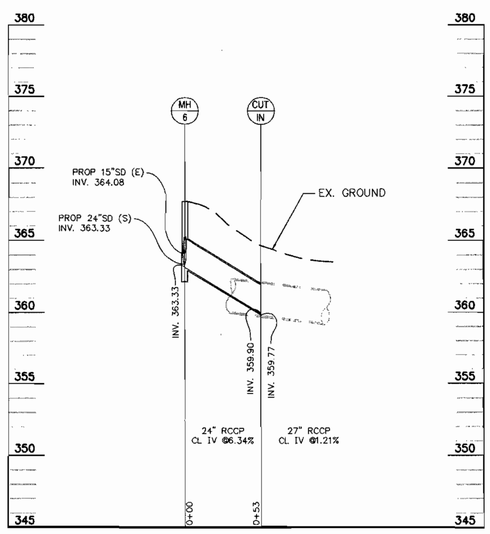


CONCRETE COLLAR DETAIL

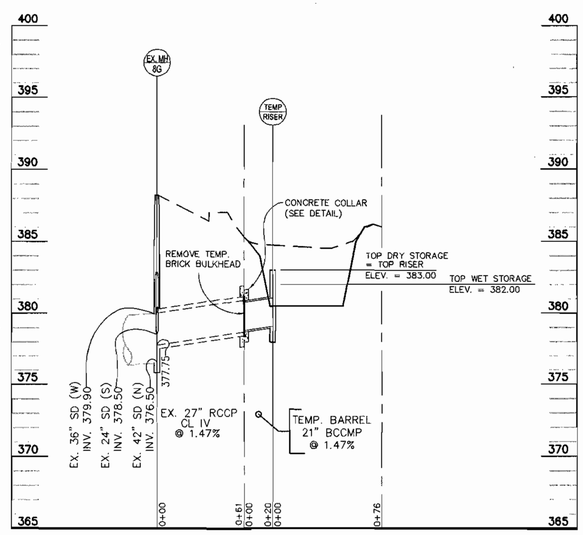
NOT TO SCALE

SEQUENCE OF CONSTRUCTION — TIMETABLE

1.	OBTAIN GRADING PERMIT.	1 WEEK
2.	NOTIFY RUSTY OBER AT THE APPLIED PHYSICS LABORATORY AT 443-778-0167 AT LEAST 10 DAYS PRIOR TO BEGINNING WORK.	1 DAY
3.	NOTIFY THE HOWARD COUNTY DEPARTMENT OF PERMITS & LICENSES, GRADING AND SEDIMENT CONTROL INSPECTIONS AT 410-313-1855, AT LEAST 48 HOURS PRIOR TO BEGINNING WORK.	1 DAY
4.	CLEAR AND GRUB FOR PHASE I SEDIMENT AND EROSION CONTROL MEASURES ONLY.	1 WEEK
5.	INSTALL PHASE I SEDIMENT CONTROL MEASURES AS FOLLOWS:	3 DAYS
a.	INSTALL SCE #1 AS SHOWN ON PLAN. INSTALL 15" SD ALIGNED WITH SCE #1.	1 day
b.	INSTALL TEMPORARY 24" SD DIVERSION FROM CUT-IN THRU M-6 AND PERMANENT STORM DRAIN FROM M-6 TO EX. I-24 AS SHOWN ON PLANS (EAST OF TRAP #1). INSTALL INLET PROTECTION ON INLETS I-22 & I-23.	1 day
c.	INSTALL SSF ALONG PERIMETER OF EX. PARKING LOT ADJACENT TO PROPOSED BLDG. #35 AS SHOWN ON PLAN.	½ day
d.	INSTALL SSF ALONG EDGE OF PROPOSED PARKING AREA EAST OF BUILDING 31. INSTALL AT GRADE INLET PROTECTION AROUND EXISTING TRENCH DRAIN SOUTH OF BUILDING 31.	½ day
6.	NOTIFY THE HOWARD COUNTY DEPARTMENT OF PERMITS & LICENSES, GRADING AND SEDIMENT CONTROL INSPECTIONS AT 410-313-1855 UPON COMPLETION OF INSTALLATION OF THE PHASE I SEDIMENT CONTROL DEVICES.	1 DAY
7.	WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB REMAINDER OF SITE AS NECESSARY. SAW CUT EX. PAVEMENT AND GRADE FOR PROPOSED BUILDING. INSTALL RELOCATED 10" W AND PROP. 15" SD FROM M-6 TO I-26. BLOCK FLOW FROM ENTERING I-26 AND MAINTAIN SHEET FLOW TO SSF. STABILIZE PARKING AREA WITH STONE WHEN GRADING IS COMPLETE AND BEGIN CONSTRUCTION OF BUILDING FOUNDATION.	2 WEEKS
8.	CONSTRUCT PERMANENT ENTRANCE TO BLDG. #35. PROVIDE IMMEDIATE STONE STABILIZATION.	1 WEEK
9.	UPON COMPLETION OF BUILDING SLAB AND STABILIZATION OF ADJACENT AREA, INSTALL CURB AND GUTTER, AND REMOVE INLET BLOCKING.	1 WEEK
10.	GRADE PARKING LOT AREA EAST OF BLDG. 31, AND AREA SOUTH OF BLDG. 31. INSTALL STONE BASE, AND PAVE BOTH AREAS.	1 WEEK
11.	INSTALL 15" SD FROM EX. I-24 TO PROP. I-25. EXCAVATE ONLY AS MUCH TRENCH AS CAN BE STABILIZED BY THE END OF THE WORK DAY, WORKING FROM DOWNSTREAM END UP. INSTALL CURB INLET PROTECTION AROUND I-25 WHEN COMPLETE.	3 DAYS
12.	WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE PHASE I SEDIMENT CONTROLS, EXCEPT FOR SCE #1.	1 DAY
13.	NOTIFY THE HOWARD COUNTY DEPARTMENT OF PERMITS & LICENSES, GRADING AND SEDIMENT CONTROL INSPECTIONS AT 410-313-1855, AT LEAST 48 HOURS PRIOR TO BEGINNING PHASE II CONSTRUCTION.	1 DAY
14.	CLEAR AND GRUB FOR PHASE II SEDIMENT AND EROSION CONTROL MEASURES ONLY.	2 WEEKS
15.	INSTALL PHASE II SEDIMENT CONTROL MEASURES AS FOLLOWS:	1 WEEK
a.	INSTALL SILT FENCE AROUND PERIMETER OF SEDIMENT TRAP #1 AS SHOWN ON PLAN. EXCAVATE FOR AND INSTALL TRAP #1.	1 week
b.	INSTALL TWO (2) 24" PIPE SLOPE DRAINS, UNDER NORTH ENTRANCE TO SITE AS SHOWN ON PLANS. DRAINS TO DISCHARGE ONTO RIP-RAP AND INTO SEDIMENT TRAP #1.	1 week
c.	INSTALL SCE #2 AS SHOWN ON PLAN. INSTALL TEMP. BERMS AND 15" SD BENEATH SCE #2.	2 days
d.	~~INSTALL SSF FOR SEDIMENT TRAP #3 AS SHOWN ON PLANS. EXCAVATE FOR AND INSTALL TRAP #3. INSTALL 12" BARREL FROM EXISTING INLET TO PIPE OUTLET OF TRAP #3, AS SHOWN ON PLANS.~~	1 week
e.	INSTALL PROP. 27" SD FROM EX MH-8G TO TEMP. RISER. EXCAVATE FOR AND INSTALL SEDIMENT TRAP #2 AS SHOWN ON PLAN. INSTALL TEMP. SWALE LEADING TO SED. TRAP #2, AND TEMP. BERM AROUND UPSLOPE PERIMETER OF SED. TRAP #2.	1 week
16.	NOTIFY THE HOWARD COUNTY DEPARTMENT OF PERMITS & LICENSES, GRADING AND SEDIMENT CONTROL INSPECTIONS, AT 410-313-1855 UPON COMPLETION INSTALLATION OF THE PHASE II SEDIMENT CONTROL DEVICES.	1 DAY
17.	WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB REMAINDER OF SITE AS NECESSARY.	2 WEEKS
18.	~~REDIRECT~~ WATER FROM EX. I-8 TO SED. TRAP #3 BY ~~INSTALLING~~ A PORTION ~~OF THE~~ PERMANENT ~~STORM DRAIN~~ SYSTEM FROM M-2 TO I-6. ~~DELAY INSTALLATION OF I-6~~ AND APPROXIMATELY ~~35'~~ OF PIPE. PIPE TO DISCHARGE INTO ~~SED. TRAP #3.~~	1 WEEK
19.	~~ROUGH~~ GRADE SITE, BEGINNING WITH THE LOT ON THE ~~NORTH~~ SIDE OF EX. BLDG. #33, AND WORKING WITHIN THE LIMITS OF THE PHASE II WORK AREA. ~~INSTALL TEMPORARY~~ DIKES AS NECESSARY TO ~~CONTROL~~ DIRTY RUNOFF FROM FILL ~~STOCK INTO SEDIMENT~~ TRAP #3.	3 WEEKS
20.	BEGIN CONSTRUCTION OF BUILDING AND UTILITY INSTALLATION. STORM DRAINS TO BE INSTALLED FROM DOWNSTREAM END UP TO ENSURE ALL INLETS ARE CAPABLE OF CONVEYING DIRTY WATER. FINE GRADE AREAS TO BE PAVED. INSTALL CURB AND GUTTER, AND PLACE STONE BASE. DELAY INSTALLATION OF INLETS I-1 AND I-2, AND STORMCEPTOR 1, AND APPROXIMATELY 150' OF PIPE. PIPES TO DISCHARGE INTO SED. TRAP #2 WHERE APPROPRIATE.	3 WEEKS
21.	~~WHEN ALL UPSTREAM DRAINAGE AREAS ARE PERMANENTLY STABILIZED, AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CONVERT TRAP #3 AND COMPLETE STORM DRAIN INSTALLATION THROUGH TRAP.~~ STABILIZE AREAS TO BE PAVED WITH STONE BASE.	1 WEEK
22.	WHEN ALL UPSTREAM DRAINAGE AREAS ARE PERMANENTLY STABILIZED, FLUSH SD SYSTEM FROM INLETS I-4, I-9, AND I-13 THRU 14 THROUGH TRAP. CONVERT TRAP #2 AND COMPLETE SD INSTALLATION THROUGH TRAP. STABILIZE AREAS TO BE PAVED WITH STONE BASE.	1 WEEK
23.	COMPLETE CONSTRUCTION OF BUILDINGS 29 AND 35, AND PAVE ALL REMAINING AREAS TO BE PAVED WITHIN LIMITS OF PHASE II. PERMANENTLY STABILIZE ALL OTHER AREAS.	1 MONTH
24.	REMOVE PSD-24, STABILIZE, AND PAVE ENTRANCE.	1 WEEK
25.	PERMANENTLY STABILIZE ALL REMAINING AREAS.	1 WEEK
26.	WHEN UPSTREAM DRAINAGE AREA IS PERMANENTLY STABILIZED, AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, FLUSH UPSTREAM STORM DRAIN SYSTEM AND CLEAN OUT SEDIMENT TRAP #1. WITH A 5-DAY DRY FORECAST, EXCAVATE FOR AND INSTALL SAND FILTER. INSTALL 24" SD FROM I-5-2 TO PROP. M16-6. REMOVE TEMPORARY 24" SD DIVERSION FROM MH-6. STABILIZE ALL AREAS DISTURBED BY THIS PROCESS.	1 WEEK
27.	ONCE ALL AREAS HAVE BEEN STABILIZED, AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES, AND STABILIZE ANY AREAS DISTURBED BY THIS PROCESS.	1 WEEK



TEMPORARY STORM DRAIN PROFILE
PROP. MH-6 TO CUT-IN
SCALE { HORIZ: 1" = 50' VERT: 1" = 5'



TEMPORARY RISER PROFILE
SEDIMENT TRAP #2
SCALE { HORIZ: 1" = 50' VERT: 1" = 5'

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ROBERT G. BATHURST — 2/24/04
SIGNATURE OF ENGINEER — DATE

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, 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 ALSO AUTHORIZE PERIODIC ON–SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

JAMES E. LOESCH — 3/2/04
SIGNATURE OF DEVELOPER — DATE

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

U.S. NATURAL RESOURCES CONSERVATION SERVICE — 3/11/04
DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD S.C.D. — 3/11/04
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION — 3/16/04 DATE

CHIEF-DIVISION OF LAND DEVELOPMENT — 3/18/04 DATE

DIRECTOR — 3/18/04 DATE

aba ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9142 Fax: 410.235.3715

Century Engineering, Inc.
32 West Road Towson, Maryland 21204
Voice (410) 823-8070
Fax (410) 823-2164

Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

Certification:

2/24/04

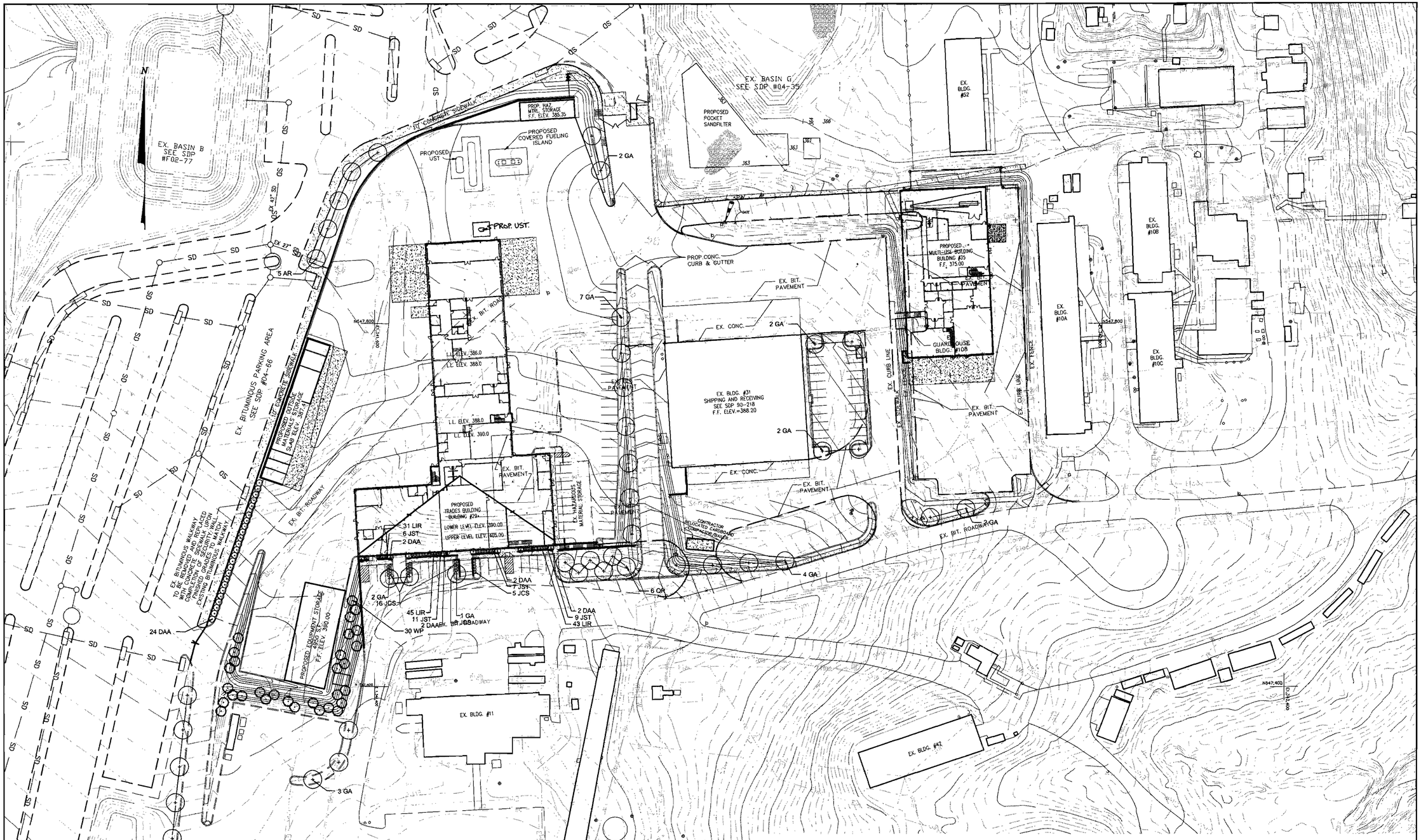
Issued for:

- ☐ REVIEW
- ☐ NOT FOR CONSTRUCTION
- ■ BID
- ■ CONSTRUCTION
- ■ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:
EROSION AND SEDIMENT CONTROL NOTES AND SPECIFICATIONS

Project No.:	Sheet No.:
Scale: 1" = 50'	C-029
Date: 12-10-03	Sheet 29 of 31

SDP-04-76



PLANT LIST				
Quan.	Symbol	Botanical Name	Common Name	Size
	Trees			
11	AR	Acer rubrum 'Red Sunset'	Red Sunset Maple	2 1/2- 3" cal.
25	GA	Fraxinus pennsylvanica 'Patmore'	Patmore Green Ash	2 1/2-3" cal.
6	QR	Quercus rubra	Red Oak	3-3 1/2" cal.
32	DAA	Thuga occidentalis nigra	Dark American Arborvitae	5-6' hgt.
30	WP	Pinus strobus	White Pine	6-7' hgt.
	Shrubs			
33	JST	Juniperus sabina 'tamariscisolia'	Tams Juniper	18-24"
29	JCS	Juniperus chinensis 'Sargentii'	Sargent's Juniper	18-24"
	Perennials			
119	LIR	Liriope muscari 'Big Blue'	Liriope	4" cont., 12" o.c.

NOTE:
NO PERIMETER LANDSCAPING IS REQUIRED FOR THIS PLAN DUE TO INTERNAL LOCATION OF PROPOSED BUILDINGS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT HS — DATE 3/18/04

DIRECTOR — DATE 3/18/04

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SLATER
ASSOCIATES INC.
Landscape Architecture • Planning • Land Planning
5560 Sterrett Pl. Suite 302 • Columbia, MD 21045
410.992.0001 - phone 410.992.0212 - fax
slaterj@erols.com • www.slaterassoc.com

Project Title:

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Drawing Title:

LANDSCAPE PLAN

Project No.:

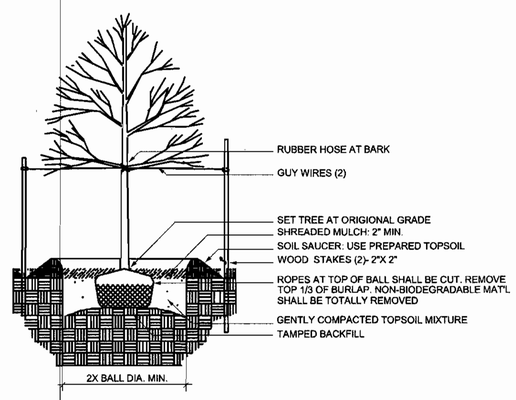
Sheet No.: C-030

Scale: 1" = 50'

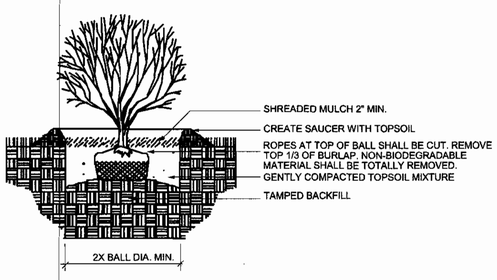
Date: 12-10-03

Sheet 30 of 31

SDP-04-76



A DECIDUOUS TREE PLANTING
not to scale



B SHRUB PLANTING
not to scale

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF - DEVELOPMENT ENGINEERING DIVISION	3/16/04 DATE
CHIEF - DIVISION OF LAND DEVELOPMENT	3/18/04 DATE
DIRECTOR	3/18/04 DATE

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Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
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JHU - APL
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Revisions:

Certification:

2/24/04

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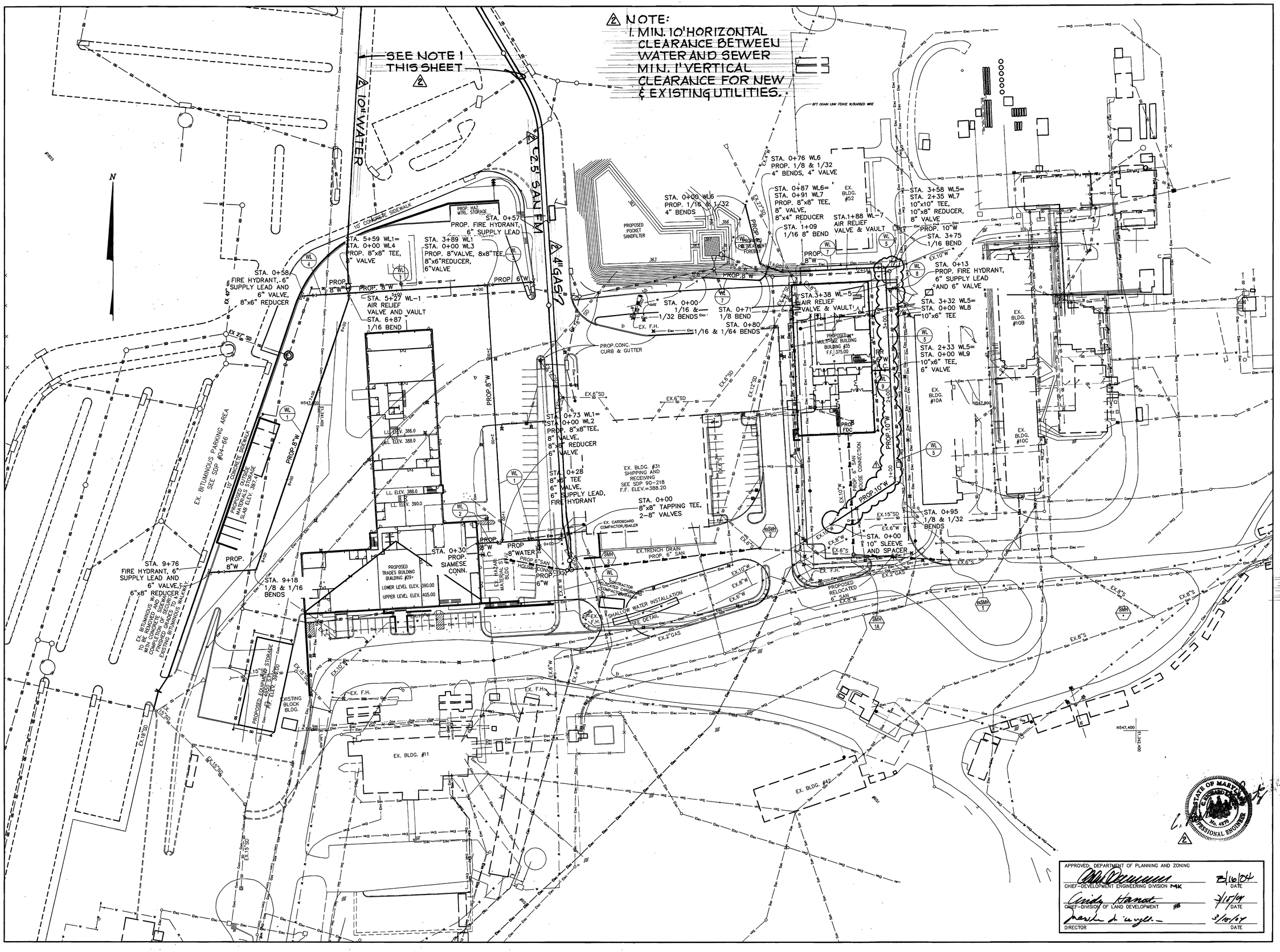
- ☒ PERMIT
- ☐ 90% CD SUBMISSION

Drawing Title:

LANDSCAPE DETAILS

Project No.:	Sheet No.:
Scale: 1" = 50'	C-031
Date: 12-10-03	Sheet 31 of 31

SDP-04-76



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK	2/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT	2/16/04 DATE
DIRECTOR	3/10/04 DATE

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Project Title:

SERVICES AREA COMPLEX

TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:

1. ADDENDUM #1 - 01/09/04
2. FUTURE LIBRARIES SERVICE UTILITIES EXTENSIONS 5/17/04

Certification:

2/24/04

Issued for:

- [ ] REVIEW
- [ ] NOT FOR CONSTRUCTION
- [x] BID
- [x] CONSTRUCTION
- [x] PERMIT
- [ ] 90% CD SUBMISSION

Drawing Title:

UTILITY PLAN

Project No.:

Scale: 1" = 50'

Date: 12-10-03

Sheet No.: C-019

Sheet 19 of 31

SDP-04-96

DRAINAGE AREA TO SED. TRAP #1:
EXISTING = 4.94 Ac.±
PROPOSED = 3.93 Ac.±

DRAINAGE AREA TO SUPER SILT FENCE:
EXISTING = 1.12 Ac.±
PROPOSED = 1.12 Ac.±

DRAINAGE AREA TO CURB INLET PROTECTION:
EXISTING = N/A
PROPOSED = 0.15 Ac.±

DRAINAGE AREA TO SUPER SILT FENCE:
EXISTING = 0.22 Ac.±
PROPOSED = 0.05 Ac.±

DRAINAGE AREA TO SILT FENCE:
EXISTING = 0.07 Ac.±
PROPOSED = 0.07 Ac.±

DRAINAGE AREA TO SUPER SILT FENCE:
EXISTING = 0.35 Ac.±
PROPOSED = 0.11 Ac.±

DRAINAGE AREA TO SED. TRAP #2:
EXISTING = 3.45 Ac.±
PROPOSED = 3.96 Ac.±

LEGEND

EXISTING DRAINAGE AREA	
PROPOSED DRAINAGE AREA	
LIMIT OF DISTURBANCE	LOD
SILT FENCE	SF
SUPER SILT FENCE	SSF
CURB INLET PROTECTION	CIP
AT-GRADE INLET PROTECTION	AGIP
ROCK OUTLET PROTECTION	ROP-III
GABION MATRESS	GM
EARTH DIKE	
TEMPORARY SWALE	
REMOVABLE PUMPING STATION	RPS
BAFFLE	
PIPE SLOPE DRAIN	PSD-24
STABILIZED CONSTRUCTION ENTRANCE	

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

ROBERT G. BATHURST — 2/24/04
SIGNATURE OF ENGINEER — DATE

BY THE DEVELOPER:

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JAMES E. LOESCH — 3/2/04
SIGNATURE OF DEVELOPER — DATE

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

3/11/04
U.S. NATURAL RESOURCES CONSERVATION SERVICE — DATE

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3/11/04
HOWARD S.C.D. — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

3/16/04
CHIEF-DEVELOPMENT ENGINEERING DIVISION — DATE

3/18/04
CHIEF-DIVISION OF LAND DEVELOPMENT — DATE

3/18/04
DIRECTOR — DATE

ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
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Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
1. ADD.#1 - NO CHANGE THIS SHT 01/09/04
2. RED LINE PLAN CHANGES 10/06/04

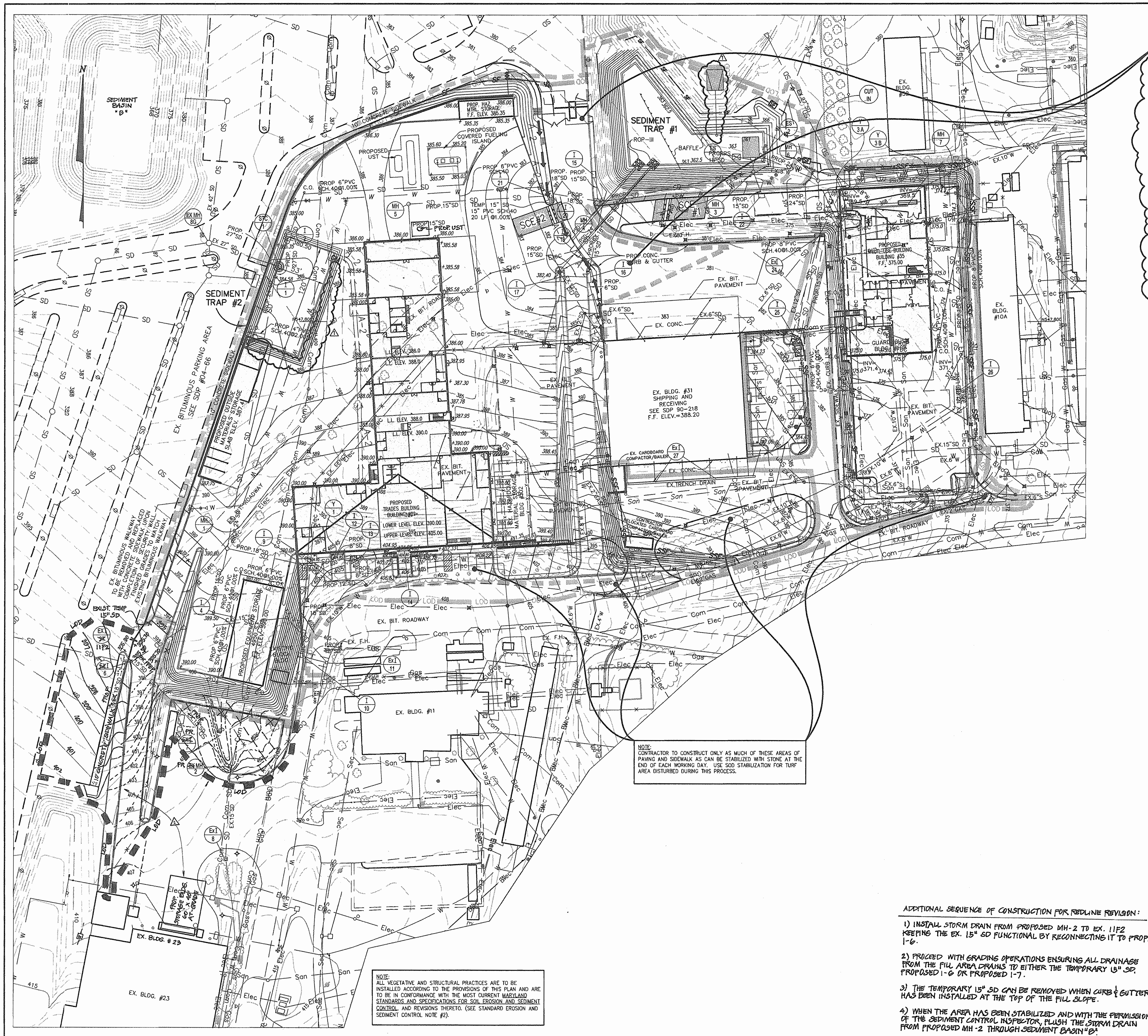
Certification:
2/24/04

Issued for:
- [ ] REVIEW
- [x] BID
- [x] PERMIT
- [ ] NOT FOR CONSTRUCTION
- [x] CONSTRUCTION
- [ ] 90% CD SUBMISSION

Drawing Title:
EROSION & SEDIMENT CONTROL DRAINAGE AREA MAP

Project No.:
Scale: 1" = 50'
Date: 12-10-03
Sheet No.: C-026
Sheet 26 of 31

SDP-04-76



NOTE:
CONTRACTOR TO CONSTRUCT ONLY AS MUCH OF THESE AREAS OF PAVING AND SIDEWALK AS CAN BE STABILIZED WITH STONE AT THE END OF EACH WORKING DAY. USE SOD STABILIZATION FOR TURF AREA DISTURBED DURING THIS PROCESS.

TRAP No. 1 – ST-I
PIPE OUTLET TRAP

EXISTING DRAINAGE AREA	= 4.94 Ac.
PROPOSED DRAINAGE AREA	= 3.93 Ac.
STORAGE REQUIRED	= 17,784 ft³
STORAGE PROVIDED (PIPE RISER CREST)	= 21,824 ft³
VOL. AT DEWATERING ELEV. (1,800 ft³/ac.)	= 11,226 ft³
VOL. OF BASIN AT CLEANOUT (900 ft³/ac.)	= 4,213 ft³
BOTTOM ELEVATION	= 362.50
WET STORAGE ZONE	= 362.50–363.75
PERMANENT POOL ELEVATION	= 363.75
DRY STORAGE ZONE	= 363.75–364.75
BASIN DISCHARGE ELEV. (PIPE RISER CREST)	= 364.75
DISTANCE FROM PIPE RISER CREST TO PERMANENT POOL ELEVATION	= 1.0 ft.
BASIN CLEANOUT ELEVATION	= 363.00
DISTANCE FROM PIPE RISER CREST TO CLEANOUT ELEVATION	= 1.75 ft.
TOP OF EMBANKMENT	= 366.00
EX. GROUND ELEV. @ ℄ EMBANKMENT	= 366.00±
TRASH RACK DIAMETER	= 42"
RISER DIAMETER	= 27"
BARREL DIAMETER	= 21"

TRAP No. 2 – ST-I
PIPE OUTLET SEDIMENT TRAP

EXISTING DRAINAGE AREA	= 3.45 Ac.
PROPOSED DRAINAGE AREA	= 3.96 Ac.
STORAGE REQUIRED	= 14,256 ft³
STORAGE PROVIDED (PIPE RISER CREST)	= 18,152 ft³
VOL. AT DEWATERING ELEV. (1,800 ft³/ac.)	= 10,340 ft³
VOL. OF BASIN AT CLEANOUT (900 ft³/ac.)	= 3,268 ft³
BOTTOM ELEVATION	= 380.50
WET STORAGE ZONE	= 380.50–382.00
PERMANENT POOL ELEVATION	= 382.00
DRY STORAGE ZONE	= 382.00–383.00
BASIN DISCHARGE ELEV. (RISER CREST)	= 383.00
DISTANCE FROM PIPE RISER CREST TO PERMANENT POOL ELEVATION	= 1.0 ft.
BASIN CLEANOUT ELEVATION	= 381.00
DISTANCE FROM PIPE RISER CREST TO CLEANOUT ELEVATION	= 2.0 ft.
TOP OF EMBANKMENT	= 384.00
EX. GROUND ELEV. @ ℄ EMBANKMENT	= 384.00±
TRASH RACK DIAMETER	= 36"
RISER DIAMETER	= 24"
BARREL DIAMETER	= 21"

LEGEND

PHASE I OF SEDIMENT CONTROL	
PHASE II OF SEDIMENT CONTROL	
LIMIT OF DISTURBANCE/PROJECT AREA	LOD
SILT FENCE	SF
SUPER SILT FENCE	SSF
CURB INLET PROTECTION	CIP
AT-GRADE INLET PROTECTION	AGIP
ROCK OUTLET PROTECTION	ROP-III
GABION MATRESS	GM
EARTH DIKE	
TEMPORARY SWALE	
REMOVABLE PUMPING STATION	RPS
BAFFLE	
PIPE SLOPE DRAIN	PSD-24
STABILIZED CONSTRUCTION ENTRANCE	SCE

NOTE:
CONTRACTOR TO CONSTRUCT ONLY AS MUCH OF THESE AREAS OF PAVING AND SIDEWALK AS CAN BE STABILIZED WITH STONE AT THE END OF EACH WORKING DAY. USE SOD STABILIZATION FOR TURF AREA DISTURBED DURING THIS PROCESS.

NOTE:
ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO. (SEE STANDARD EROSION AND SEDIMENT CONTROL NOTE #2).

ADDITIONAL SEQUENCE OF CONSTRUCTION FOR REDLINE REVISION:

1) INSTALL STORM DRAIN FROM PROPOSED MH-2 TO EX. 11F2 KEEPING THE EX. 15" SD FUNCTIONAL BY RECONNECTING IT TO PROP. 1-6.

2) PROCEED WITH GRADING OPERATIONS ENSURING ALL DRAINAGE FROM THE FILL AREA DRAINS TO EITHER THE TEMPORARY 15" SD, PROPOSED 1-6 OR PROPOSED 1-7.

3) THE TEMPORARY 15" SD CAN BE REMOVED WHEN CURB & GUTTER HAS BEEN INSTALLED AT THE TOP OF THE FILL SLOPE.

4) WHEN THE AREA HAS BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, FLUSH THE STORM DRAIN FROM PROPOSED MH-2 THROUGH SEDIMENT BASIN "B".

BY THE ENGINEER:

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ROBERT G. BATHURST — 2/24/04
SIGNATURE OF ENGINEER — DATE

BY THE DEVELOPER:

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JAMES E. LOESCH — 3/2/04
SIGNATURE OF DEVELOPER — DATE

REVIEWED FOR HOWARD S.C.D. & MEETS TECHNICAL REQUIREMENTS.

3/11/04
U.S. NATURAL RESOURCES CONSERVATION SERVICE — DATE

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3/11/04
HOWARD S.C.D. — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

3/16/04
CHIEF-DEVELOPMENT ENGINEERING DIVISION — DATE

3/18/04
CHIEF-DIVISION OF LAND DEVELOPMENT — DATE

3/20/04
DIRECTOR — DATE

āba ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
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Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
1. ADDENDUM #1 – 01/09/04
2. RED-LINED PLAN CHANGES 10/06/04

Certification:
2/24/04

Issued for:
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- [ ] NOT FOR CONSTRUCTION
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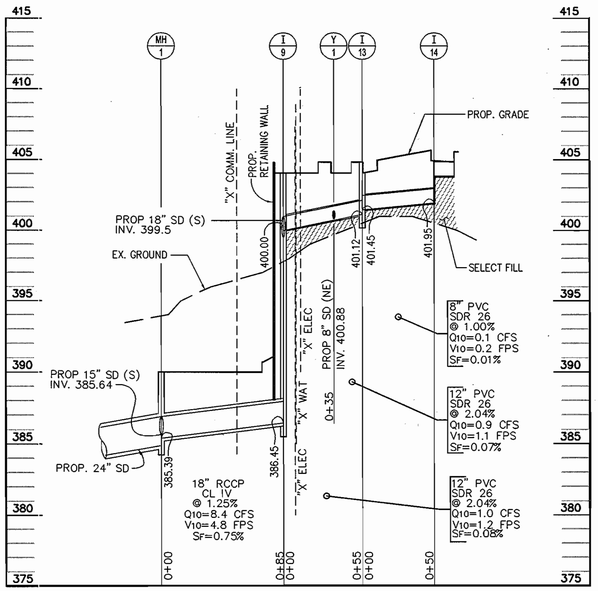
- [ ] 90% CD SUBMISSION

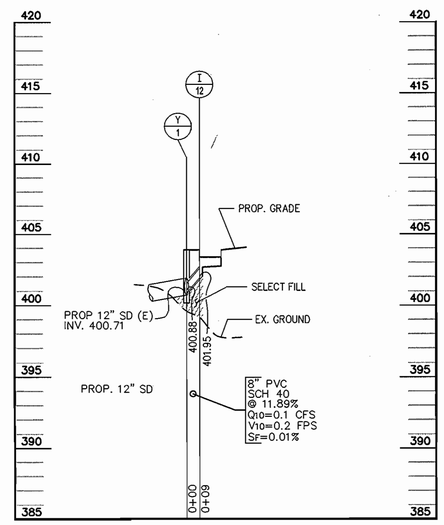
Drawing Title:
EROSION & SEDIMENT CONTROL PLAN

Project No.:
Sheet No.: C-025
Scale: 1" = 50'
Date: 12-10-03
Sheet 25 of 31

SDP-04-76



STORM DRAIN PROFILE
SCALE { HORIZ: 1" = 50'
VERT: 1" = 5'



STORM DRAIN PROFILE
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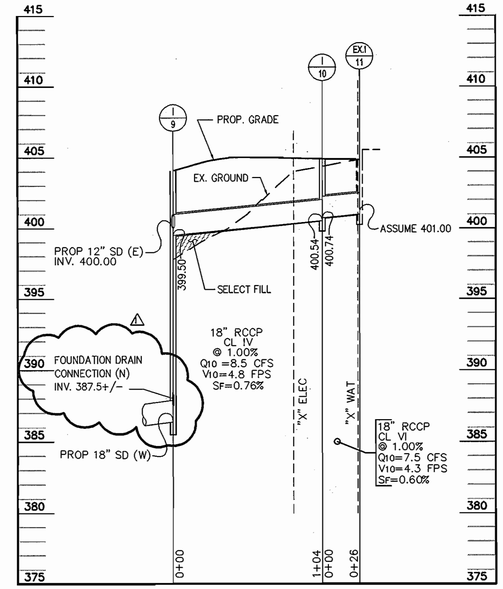
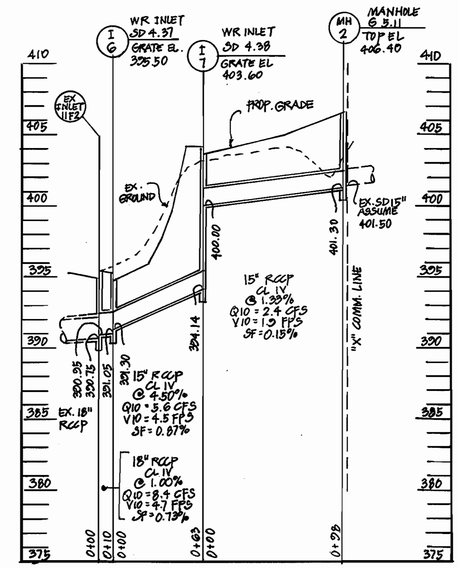
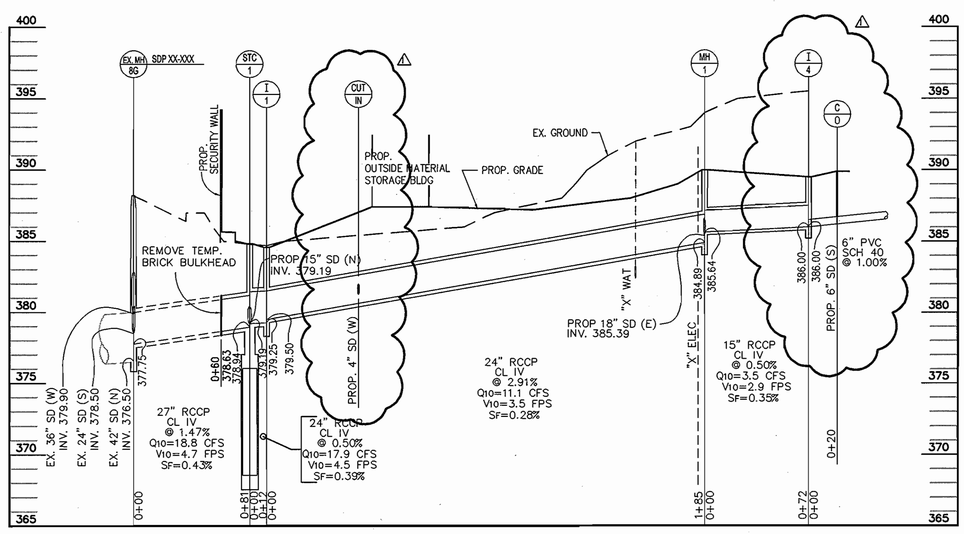
VERT: 1" = 5'



STORM DRAIN PROFILE
SCALE { HORIZ: 1" = 50'
VERT: 1" = 5'



STORM DRAIN PROFILE
SCALE { HORIZ: 1" = 50'
VERT: 1" = 5'



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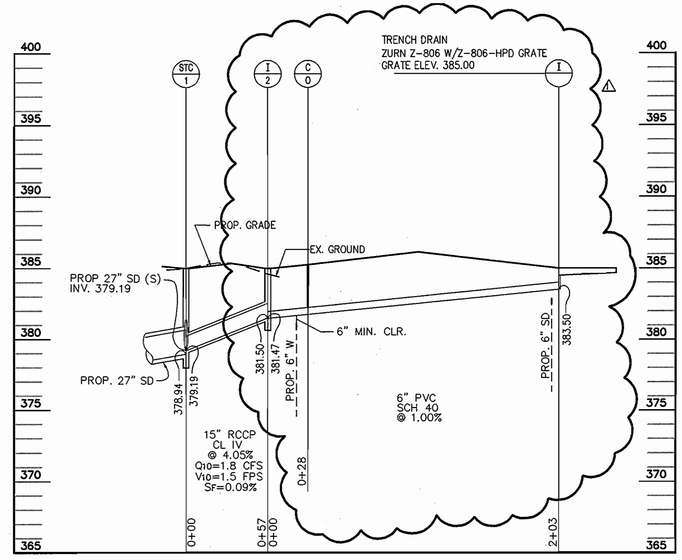
SCALE { HORIZ: 1" = 50'
VERT: 1" = 5'



STORM DRAIN PROFILE
SCALE { HORIZ: 1" = 50'
VERT: 1" = 5'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT — DATE 3/18/04

DIRECTOR — DATE 3/18/04

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Phone: 410.235.9812 Fax: 410.235.3715

Century Engineering, Inc.
32 West Road Towson,
Maryland 21204
Voice (410) 823-8070
Fax (410) 823-2184

Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
1 ADDENDUM #1 - 01/09/04
2 RED-LINED PLAN CHANGES 10/06/04

Certification:

2/24/04

Issued for:
- [ ] REVIEW
- [ ] NOT FOR CONSTRUCTION
- [x] BID
- [x] CONSTRUCTION
- [x] PERMIT
- [ ] 90% CD SUBMISSION

Drawing Title:

STORM DRAIN PROFILES

Project No.:

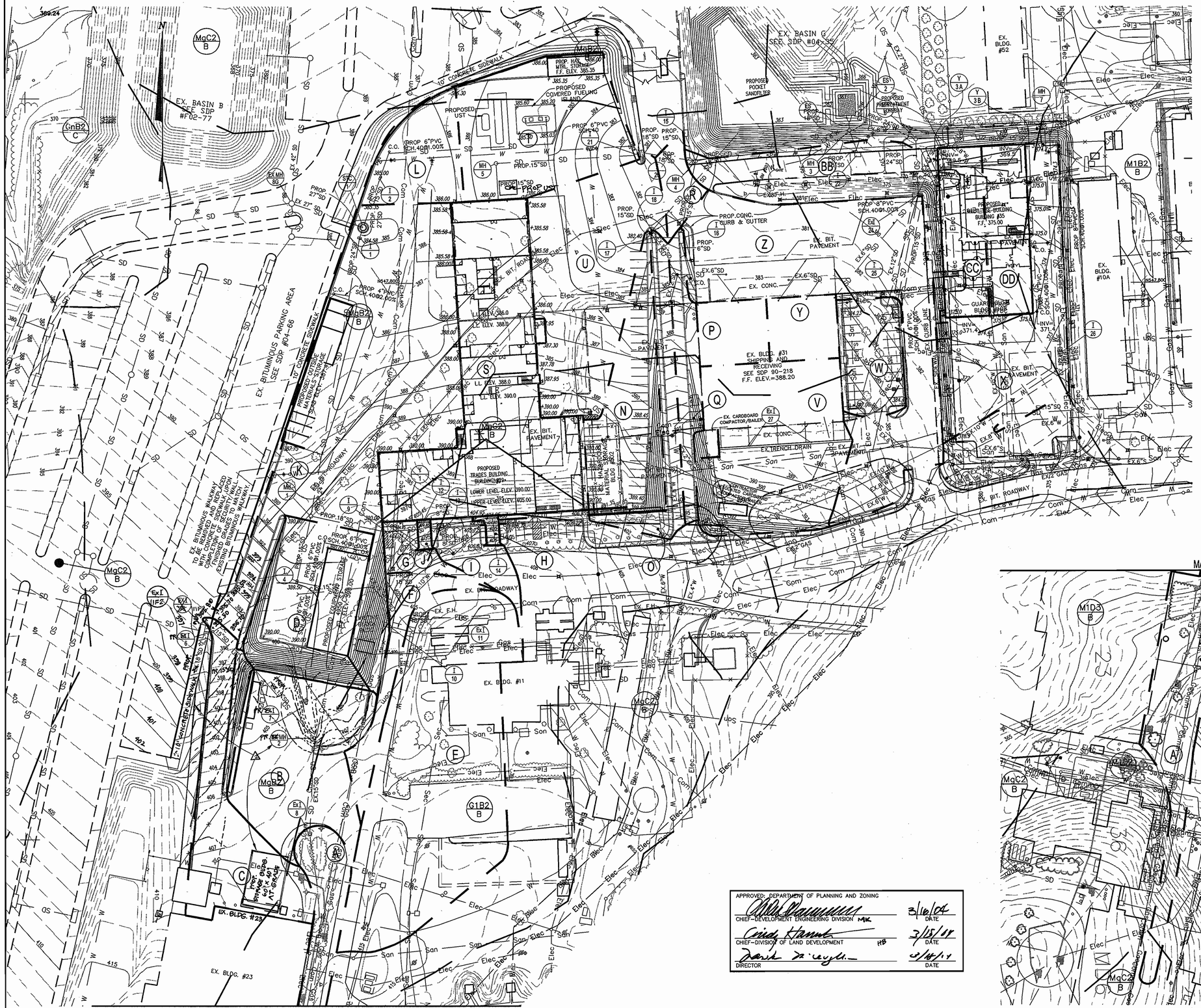
Sheet No.: C-016

Scale: AS NOTED

Date: 12-10-03

Sheet 16 of 31

SDP-04-76



DRAINAGE AREA ID	PERCENT IMPERVIOUS	DRAINAGE AREA ID "C" FACTOR	AREA (IN ACRES)
A	22 ~~NOT~~ ~~IN~~ 0.69 ~~CONTRACT~~		0.40
B	72 ~~NOT~~ ~~IN~~ 0.86 ~~CONTRACT~~		0.52
C	72 ~~NOT~~ ~~IN~~ 0.86 ~~CONTRACT~~		0.43
D	72	0.86	0.42
E	55	0.69	1.12
F	100	0.86	0.15
G	100	0.86	0.07
H	100	0.86	0.01
I	95	0.86	0.12
J	100	0.86	0.01
K	92	0.86	1.34
L	100	0.86	0.22
M	NOT USED		
N	22	0.69	0.35
O	27	0.86	0.18
P	100	0.86	0.12
Q	63	0.69	0.15
R	100	0.86	0.07
S	100	0.86	0.92
T	94	0.86	0.54
U	100	0.86	0.64
V	87	0.86	0.64
W	83	0.86	0.20
X	92	0.86	0.51
Y	100	0.86	0.12
Z	95	0.86	0.95
AA	NOT USED		
BB	28	0.69	0.45
CC	100	0.86	0.20
DD	100	0.86	0.20

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK	3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT HB	3/15/04 DATE
DIRECTOR	3/16/04 DATE

aba ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

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LAUREL, MARYLAND 20723-6099

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2/24/04

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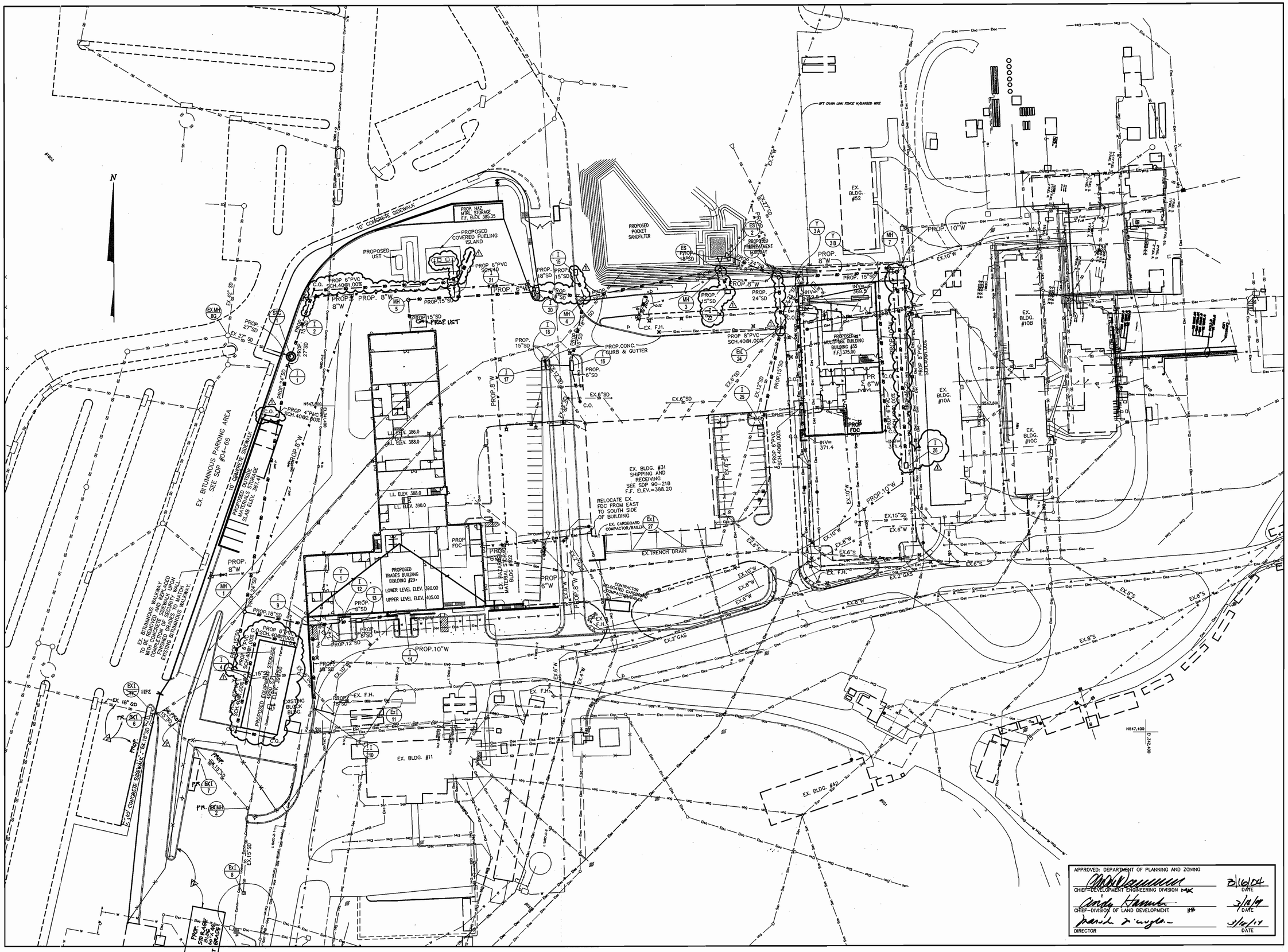
Drawing Title:

STORM DRAIN DRAINAGE AREA MAP

Project No.:	Sheet No.:
Scale: 1" = 50'	C-015
Date: 12-10-03	Sheet 15 of 31

SDP-04-76



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Baltimore, Maryland 21211
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LAUREL, MARYLAND 20723-6099

Revisions:
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2. RED-LINED PLAN CHANGES 10/06/04

Certification:

Robert D. Stadler 2/24/04

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Drawing Title:

STORM DRAIN PLAN

Project No.:

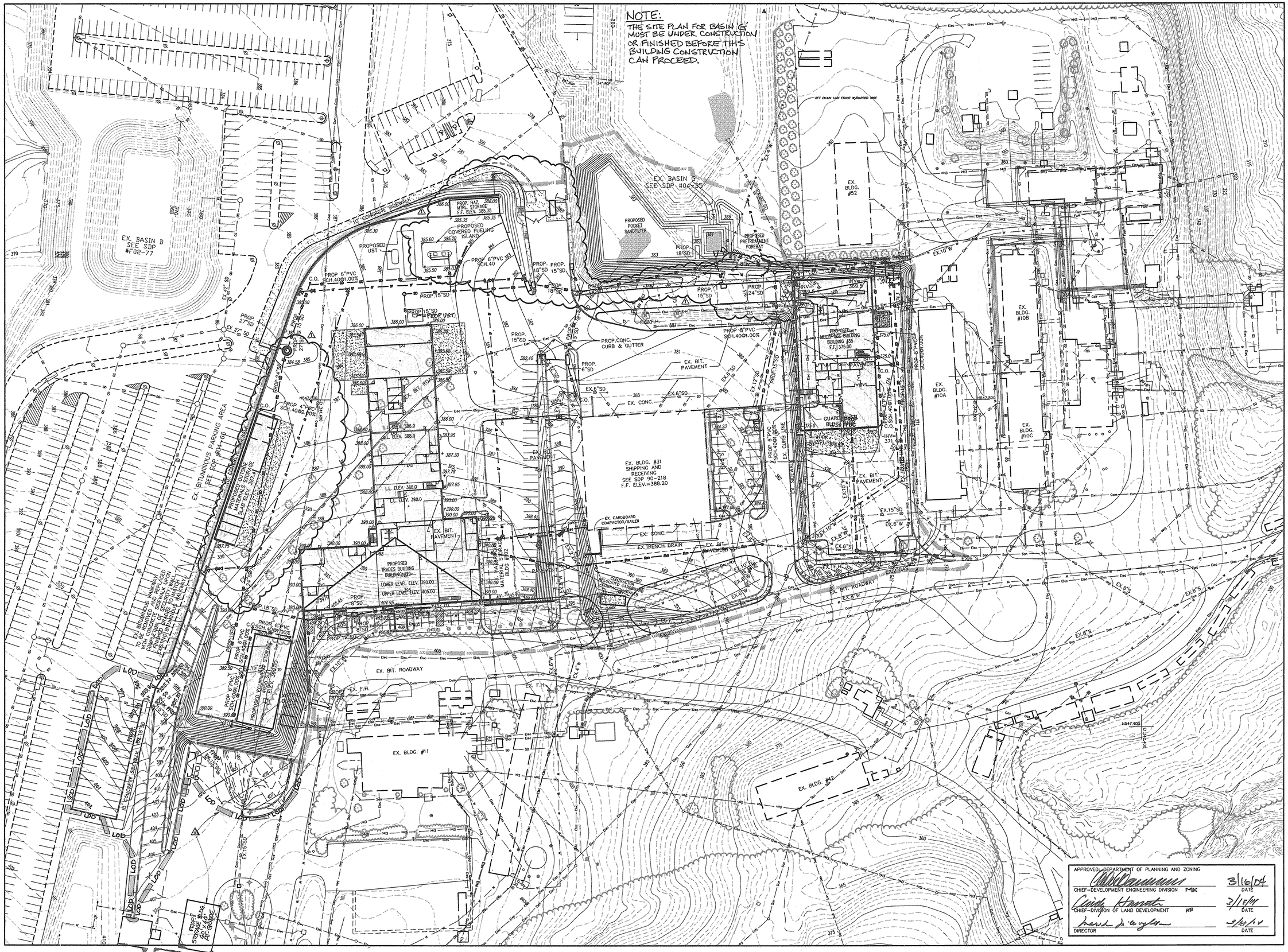
Sheet No.: C-014

Scale: 1" = 50'

Date: 12-10-03

Sheet 14 of 31

SDP-04-76



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Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

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32 West Road Towson,
Maryland 21204
Voice (410) 823-6070
Fax (410) 823-2164

Project Title:

SERVICES AREA COMPLEX
TRADES BLDG. - #29
MULTI-USE BLDG. - #35

JHU - APL
11120 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
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Certification:

2/24/04

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Drawing Title:

GRADING PLAN

Project No.:

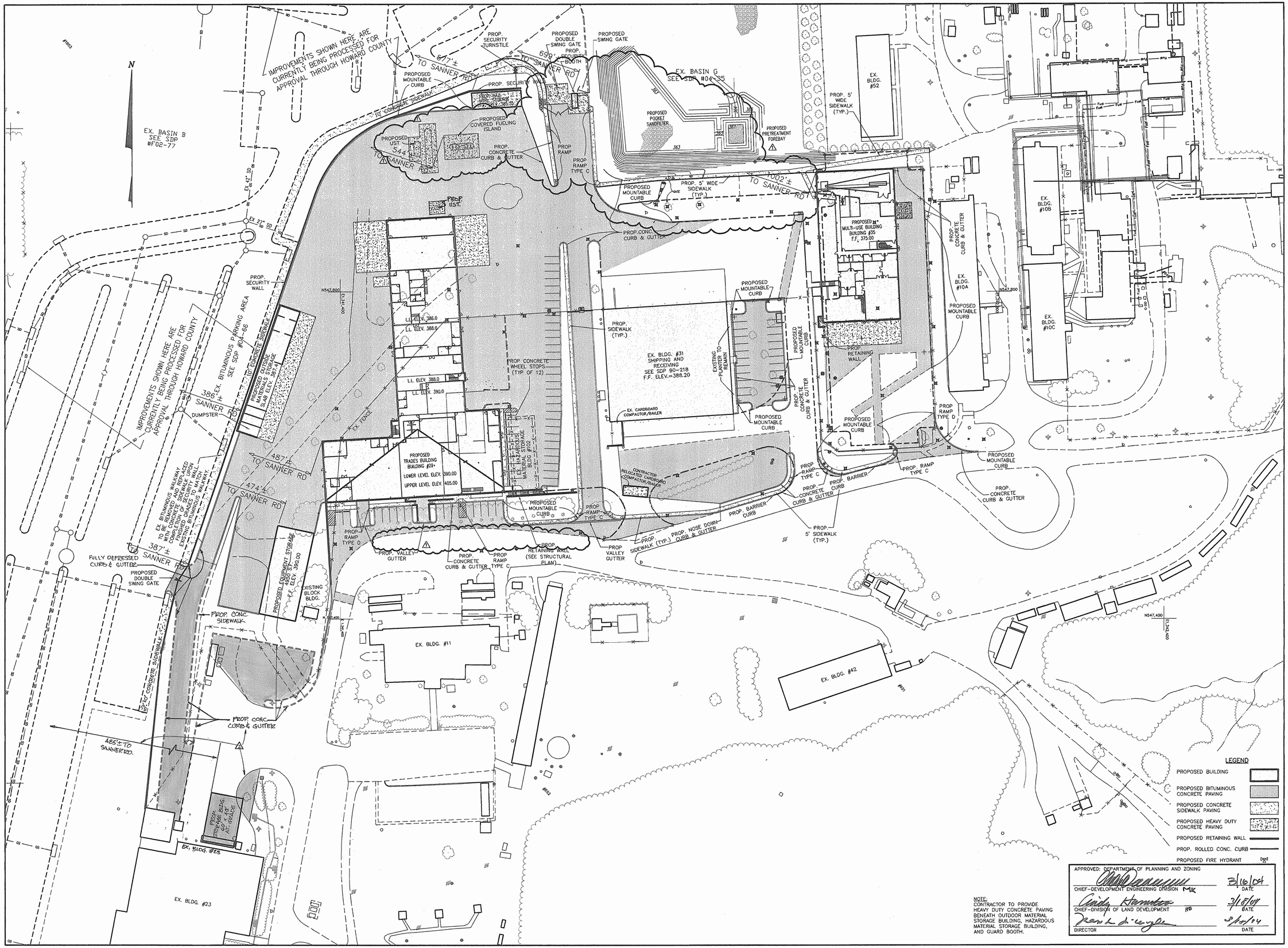
Sheet No.: C-010

Scale: 1" = 50'

Date: 12-10-03

Sheet 10 of 31

SDP-04-76



NOTE:
CONTRACTOR TO PROVIDE HEAVY DUTY CONCRETE PAVING BENEATH OUTDOOR MATERIAL STORAGE BUILDING, HAZARDOUS MATERIAL STORAGE BUILDING, AND GUARD BOOTH.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK	3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT	3/18/04 DATE
DIRECTOR	3/22/04 DATE

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Baltimore, Maryland 21211
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Drawing Title:

SITE PLAN

Project No.:

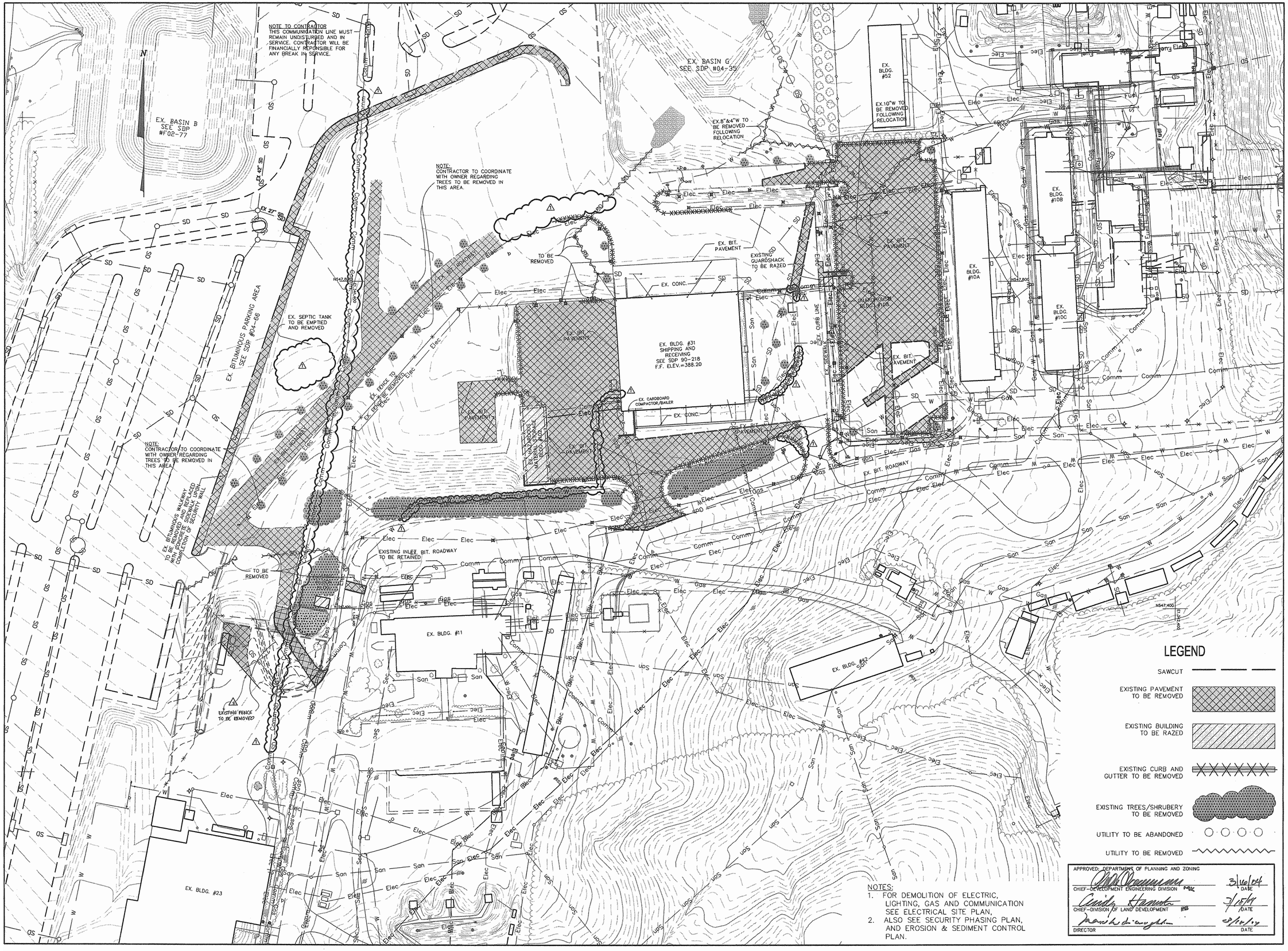
Sheet No.: C-005

Scale: 1" = 50'

Date: 12-10-03

Sheet 5 of 31

SDP-04-76



NOTES:
1. FOR DEMOLITION OF ELECTRIC, LIGHTING, GAS AND COMMUNICATION SEE ELECTRICAL SITE PLAN,
2. ALSO SEE SECURITY PHASING PLAN, AND EROSION & SEDIMENT CONTROL PLAN.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION — DATE 3/16/04

CHIEF-DIVISION OF LAND DEVELOPMENT — DATE 3/15/04

DIRECTOR — DATE 3/16/04

ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

Century Engineering, Inc.
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Voice (410) 823-8070
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11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099

Revisions:
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Certification:

Robert G. Ballard 2/24/04

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Drawing Title:

DEMOLITION PLAN

Project No.:
Scale: 1" = 50'
Date: 12-10-03

Sheet No.: C-003

Sheet 3 of 31

SDP-04-76

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK	3/16/04 DATE
CHIEF-DIVISION OF LAND DEVELOPMENT HB	3/15/04 DATE
DIRECTOR	3/18/04 DATE

āba
ARCHITECTS
Amos Bailey Arnold + Associates, Inc.
3600 Clipper Mill Road, Suite 300
Baltimore, Maryland 21211
Phone: 410.235.9812 Fax: 410.235.3715

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Drawing Title:

EXISTING CONDITIONS PLAN

Project No.:

Sheet No.: C-002

Scale: 1" = 50'

Date: 12-10-03

Sheet 2 of 31

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C-002 EXISTING CONDITIONS PLAN
C-003 DEMOLITION PLAN
C-004 SECURITY PHASING PLAN
C-005 SITE PLAN
C-006 LAYOUT PLAN
C-007 SITE DETAILS
C-008 MULTI-USE BUILDING ELEVATIONS
C-009 TRADES BUILDING ELEVATIONS
C-010 GRADING PLAN
C-011 ROAD PROFILE
C-012 GRADING AT MULTI-USE BLDG
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C-016 STORM DRAIN PROFILES
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C-027 EROSION AND SEDIMENT CONTROL DETAILS
C-028 EROSION AND SEDIMENT CONTROL DETAILS
C-029 EROSION AND SEDIMENT CONTROL NOTES AND SPECIFICATIONS
C-030 LANDSCAPE PLAN
C-031 LANDSCAPE DETAILS

SITE DEVELOPMENT PLAN

SDP 04-76

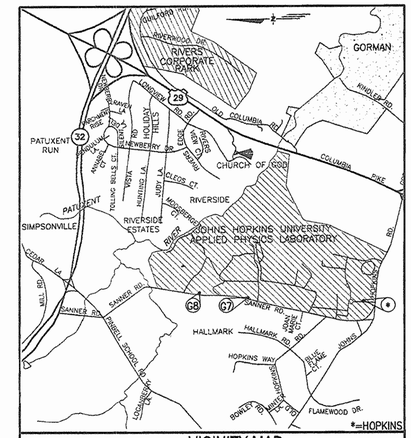
SERVICES AREA COMPLEX

TRADES AND MULTI-USE BUILDINGS

BUILDINGS 29 AND 35

THE JOHNS HOPKINS UNIVERSITY

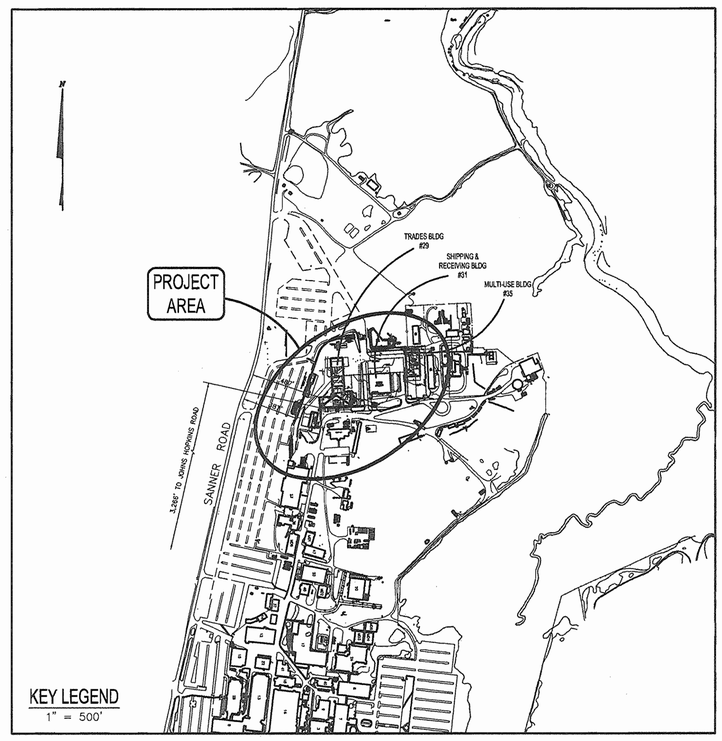
APPLIED PHYSICS LABORATORY



VICINITY MAP
SCALE: 1" = 2000'

LEGEND

TOPOGRAPHIC FEATURE	EXISTING	PROPOSED
MINOR CONTOUR	391	379
MAJOR CONTOUR	390	380
SPOT ELEVATION	× 387.6	+ 385.58
FIRE HYDRANT		
STORM DRAIN	SD	SD
WATER LINE	W	W
SANITARY SEWER	San	San
GAS LINE	Gas	Gas
ELECTRIC LINE	Elec	Elec
COMMUNICATIONS LINE	Com	Com
FUEL LINE	Fuel	Fuel
MANHOLE		
INLET		
TREE LINE		
BUILDING		
CURB AND GUTTER		
ROLLED CURB AND GUTTER		
BITUMINOUS PAVING		
HEAVY DUTY CONCRETE PAVING		
CONCRETE SIDEWALK		
FENCE		
WALL		
BORING		B-4
CLEANOUT		CO
LIGHT STANDARD		
BUSH		
TREE		
PIPE BOLLARD		
UTILITY POLE		



KEY LEGEND
1" = 500'

GENERAL NOTES:

1. THE TOPOGRAPHIC AND UTILITY INFORMATION SHOWN IN THIS PLAN WERE OBTAINED FROM FIELD SURVEYS PERFORMED BY CENTURY ENGINEERING, INC. (2003), A. MORTON THOMAS AND ASSOCIATES (2003) AND JHU APPLIED PHYSICS LAB AERIAL TOPOGRAPHY AND UTILITY INFORMATION. SINCE NOT ALL INFORMATION SHOWN MAY REFLECT CURRENT CONDITIONS IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION TO HIS OWN SATISFACTION.
2. THE CONTRACTOR SHALL CONTACT MR. RUSTY OBER (443) 778-0167 AT LEAST TEN DAYS BEFORE STARTING WORK OR DISRUPTION OF ANY UTILITIES.
3. THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION 24 HOURS IN ADVANCE OF COMMENCING WORK AT (410) 313-1880.
4. CONTRACTOR SHALL CONTACT JHU/APL PLANT FACILITIES OFFICE (443) 778-0167 AND "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO START OF THE EXCAVATION AND MUST NOTIFY ALL PUBLIC UTILITY COMPANIES AND THE OWNER OF UNDERGROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION.
5. WATER IS PUBLIC (HOWARD COUNTY)
6. SEWER IS PUBLIC (HOWARD COUNTY)
7. SOIL MAP USED SHEET NO. 29, SOIL SURVEY JULY 1968 HOWARD COUNTY, MARYLAND, USDA.
8. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY F 02-40.
9. NO FLOODPLAINS, WETLANDS, STREAMS OR STEEP SLOPES ARE LOCATED WITHIN 100' OF LIMIT OF DISTURBANCE.
10. NO PERIMETER LANDSCAPING IS REQUIRED FOR THIS PLAN DUE TO INTERNAL LOCATION OF PROPOSED BUILDINGS.
11. THE SITE PLAN FOR BASIN 'G' MUST BE UNDER CONSTRUCTION OR FINISHED BEFORE THIS BUILDING CONSTRUCTION CAN PROCEED.

SITE ANALYSIS DATA CHART

TOTAL PROJECT AREA: 361 Ac.+/-
AREA OF PLAN SUBMISSION: 10.7 Ac.+/-
LIMIT OF DISTURBANCE: 10.7 Ac.+/-
PRESENT ZONING: PEC
PROPOSED USE: SERVICE AREA COMPLEX / RESEARCH FACILITY
MAXIMUM NUMBER OF EMPLOYEES (FOR PARKING COMPUTATIONS)
TRADES BUILDING (#29): NO NEW EMPLOYEES
MULTI-USE BUILDING (#35): NO NEW EMPLOYEES
EXISTING MAXIMUM NUMBER OF JHU/APL EMPLOYEES: 3937
EXISTING MAXIMUM NUMBER OF PARKING SPACES REQUIRED BY ZONING: 2450 (SDP 99-11) 4975
EXISTING ONSITE PARKING SPACES: ~~4510~~ (SDP 04-66) △1
REQUIRED ADDITIONAL EMPLOYEE PARKING SPACES: N/A
PROPOSED ADDITIONAL EMPLOYEE PARKING SPACES: N/A

NOTE: PROPOSED ONSITE PARKING SPACES ARE FOR FLEET VEHICLES ONLY

EXISTING BUILDING COVERAGE = 19.7 ACRES
EXISTING GROSS FLOOR AREA COVERAGE = 42.7 ACRES,
11.8% OF TOTAL LOT AREA
PROPOSED BUILDING COVERAGE = 1.4 ACRES
GROSS FLOOR AREA COVERAGE = 2.1 ACRES
.6% OF TOTAL LOT AREA
TOTAL GROSS FLOOR AREA COVERAGE = 44.8 ACRES
12.4% OF TOTAL LOT AREA
CASE NUMBERS APPLICABLE: IMPROVEMENTS
F 02-40 - SWM BASIN A, APFO, AND FOREST CONSERVATION
SDP 04-35 - SWM BASIN G
SDP 90-218 - BUILDING #31 & EXISTING SWM BASIN G
SDP 99-63 B52 F 02-77 - SWM BASIN B
SDP 04-66 MAIN PARKING LOT

SANITARY SEWER/WATER SERVICE - PRIVATE ONSITE SYSTEM, PUBLIC CONNECTION

EXISTING OPEN SPACE AREA (LOT AREA MINUS PARKING & BUILDINGS) = ~~309~~ 291 ACRES, ~~85.7%~~ 80.6% OF TOTAL LOT AREA △1
PROPOSED OPEN SPACE AREA = ~~298~~ 287 ACRES, ~~82.6%~~ 79.5% OF TOTAL LOT AREA

BENCHMARKS:

COURSES AND COORDINATES ARE BASED ON THE MARYLAND STATE COORDINATE SYSTEM (NAD 83) AND ARE DERIVED FROM THE FOLLOWING JOHNS HOPKINS UNIVERSITY CONTROL STATIONS:

STATION	NORTH	EAST	ELEV.	DESCRIPTION
HOPKINS	544836.5300	1340825.3542		
G12	550256.5002	1342325.2642		
G7	548107.0328	1341025.0830		
G8	549478.7005	1341170.4345		
41 EA	544825.8093	1339217.4439		
503	547910.16	1341784.40	380.65	"X"-CUT ON N.W. FIRE HYDRANT BONNET BOLT
504			362.77	BOX-CUT ON N.E. COR. OF POND INLET STRUCT.
644	548783.0482	1341354.4945	394.92	REBAR AND CAP
645	548275.6339	1341941.2036	363.53	REBAR AND CAP

CONTACT PERSON FOR THE OWNER

MR. RUSTY OBER
VOICE: (443) 778-0167
FAX: (443) 778-6122

OWNER / ADDRESS

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723

PERMIT INFORMATION CHART

SUBDIVISION NAME: JHU APPLIED PHYSICS LAB			SECTION/AREA N/A		LOT/PARCEL NO. 1
PLAT# OR L/F 15429 15433	GRID #16	ZONING PEC	TAX MAP #41	ELEC. DIST. 5	CENSUS TRACT 6051
WATER CODE E-21			SEWER CODE 6480000		

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION MK		DATE 3/16/04
CHIEF-DIVISION OF LAND DEVELOPMENT	HB	DATE 3/18/04
DIRECTOR		DATE 3/18/04

aba ARCHITECTS
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Baltimore, Maryland 21211
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Revisions:
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Certification:

Robert L. Bethke 2/24/04

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Drawing Title:

COVER SHEET

Project No.:
Scale: AS NOTED
Date: 12-10-03
Sheet No.: C-001
Sheet 1 of 31

SDP-04-76