

ABBREVIATIONS

ABAND	ABANDONED	JT	JOINT
APPROX	APPROXIMATE	L/S	LANDSCAPE STRIP
BACK	BACK	LT	LEFT
B	BASE LINE	LF	LINEAR FEET
BRG	BEARING	LOC	LOCATION
BC	BOTTOM OF CURB	MH	MANHOLE
BWK	BRICK	MAT	MATERIAL
BLOG	BUILDING	MAX	MAXIMUM
CIP	CAST IRON PIPE	MSL	MEAN SEA LEVEL
CB	CATCH BASIN	MIN	MINIMUM
C	CENTER LINE	MISC	MISCELLANEOUS
CC	CENTER TO CENTER	MON	MONUMENT
CIRCUM	CIRCUMFERENCE	N	NORTH
CL	CLASS	N/A	NOT APPLICABLE
CO	CLEAN OUT	NTS	NOT TO SCALE
CLR	CLEAR	NO	NUMBER
COL	COLUMN	OD	OUTSIDE DIAMETER
COMB	COMBINED	PVMT	PAVEMENT
CS	COMBINED SEWER	PVC	POLYVINYL CHLORIDE
CP	COMPUTED POINT	R	RADIUS
CONC	CONCRETE	RP	REFERENCE POINT
CE	CONSTRUCTION EASEMENT	RC	REINFORCED CONCRETE
CMP	CORRUGATED METAL PIPE	RCP	REINFORCED CONCRETE PIPE
CULV	CULVERT	RQD	REQUIRED
C&G	CURB AND GUTTER	REV	REVISED OR REVISION
DIAG	DIAGONAL	RT	RIGHT
DIAM	DIAMETER	R/W	RIGHT-OF-WAY
DI	DIMENSION	SS	SANITARY SEWER
DWG	DRAWING	SEC	SECTION
DI	DROP INLET	SHT	SHEET
DIP	DUCTILE IRON PIPE	SW	SIDEWALK
E	EASEMENT	SPEC	SPECIFICATION
E	EAST	STM	STEAM
EP	EDGE OF PAVEMENT	STL	STEEL
ELEV	ELEVATION	SD	STORM DRAIN
EXIST	EXISTING	ST	STREET
F-F	FACE TO FACE	STA	STATION
F-F	FINISHED FLOOR ELEVATION	STD	STANDARD
FG	FINISHED GRADE	T	TELEPHONE
FH	FIRE HYDRANT	TEMP	TEMPORARY
FL	FLOW LINE	TC	TOP OF CURB
FT	FOOT OR FEET	TW	TOP OF WALL
G	GAS	TYP	TYPICAL
GM	GAS METER	UD	UNDERDRAIN
GV	GAS VALVE	UG	UNDERGROUND
GC	GRANITE CURB	VERT	VERTICAL
GRT	GRATE	VCP	VITRIFIED CLAY PIPE
HC	HEADER CURB	W	WATER
HP	HIGH POINT	WM	WATER METER
HORIZ	HORIZONTAL	WT	WATER TABLE
IN	INCH	WV	WATER VALVE
ID	INSIDE DIAMETER		
INV	INVERT		

- REFERENCES**
- TOPOGRAPHIC INFORMATION TAKEN FROM A SURVEY PREPARED BY THOMAS & HUTTON ENGINEERING CO., DATE DECEMBER 15, 2017.
 - BOUNDARY INFORMATION TAKEN FROM A SURVEY PREPARED BY THOMAS & HUTTON ENGINEERING CO., DATE DECEMBER 15, 2017.
 - PORTIONS OF THE DISTURBED AREA IS WITHIN A FLOOD HAZARD ZONE (REFERENCE FLOOD INSURANCE RATE MAP FOR CITY OF SAVANNAH, CHATHAM COUNTY, GA - PANEL 154 OF 455 COMMUNITY PANEL NO. 1351630135 G & 1351630127 G, REVISED 08/05/2013.)
 - WETLAND THAT MAY EXIST ARE UNDER THE JURISDICTION OF THE CORPS OF ENGINEERS AND/OR THE DEPARTMENT OF NATURAL RESOURCES. LOT OWNERS AND THE DEVELOPER ARE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE PROTECTED AREAS WITHOUT PROPER PERMIT AND APPROVALS.
 - THE LOCATIONS OF UNDERGROUND UTILITIES, HORIZONTAL AND VERTICAL, SHOWN ON THESE DRAWINGS ARE BASED UPON THE LOCATION OF SURFACE APPURTENANCES. THEY ARE APPROXIMATE AND WILL NEED TO BE VERIFIED DURING CONSTRUCTION TO FACILITATE THE WORK. UNDERGROUND UTILITIES, SUCH AS SERVICE LINES OR OTHER UNKNOWN UTILITIES NOT SHOWN ON THE DRAWINGS, WILL NOT RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITY TO COORDINATE WITH UTILITY COMPANIES TO FIELD LOCATE THEIR RESPECTIVE UTILITY LINES NOR FOR THE REPAIR OF UTILITIES WHETHER SHOWN OR NOT, AT THE SOLE EXPENSE OF THE CONTRACTOR.

PRIOR TO LAND DISTURBANCE, THE CONTRACTOR SHALL SCHEDULE A PRECONSTRUCTION MEETING WITH THE AREA SITE DEVELOPMENT INSPECTOR.

APPROXIMATE ACTIVITY SCHEDULE

ANTICIPATED START DATE: 01/01/2019

ANTICIPATED COMPLETION DATE: 05/30/2020

DESCRIPTION	MONTH																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
SEDIMENT CONTROL - TREE PROTECTION																	
DEMOLITION OF EXISTING BUILDINGS AND INFRCST.																	
CLEARING & GRUBBING																	
GRADING																	
MULCHING - TEMPORARY GRASSING																	
UTILITY INSTALLATION																	
BUILDING CONSTRUCTION																	
FINAL PAVING																	
MAINT. OF EROSION CONTROL DEVICES																	
FINAL LANDSCAPING, CLEANING OF STORM DRAINS																	
DISPOSITION OF SEDIMENT DEVICES																	

CONSTRUCTION NOTES

- DIRT FOR FILL SHALL MEET CITY OF SAVANNAH SPECIFICATION 02250, PART 1.26.
- MAX CUT OR FILL SLOPES SHALL BE 2:1 (H:V).
- EQUIPMENT AND MATERIALS SHALL BE STORED IN AREAS DESIGNATED BY THE OWNER. CONSTRUCTION AND STORAGE AREAS SHALL BE KEPT NEAT AND CLEAN. TREE SAVE AREAS SHALL NOT BE USED FOR STORAGE OR PARKING.
- ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE CLASS III UNLESS OTHERWISE NOTED.
- ALL CATCH BASINS SHALL BE FLUSH WITH THE NEW CURB.
- THE TOP ELEVATION OF ALL SANITARY MANHOLES LOCATED IN PAVED AREAS SHALL BE BROUGHT TO FINISHED GRADE AND THE TOP ELEVATION OF ALL SANITARY SEWER MANHOLES LOCATED IN UNPAVED AREAS SHALL BE 3 INCHES ABOVE THE FINISHED GRADE.
- CONTRACTOR TO VERIFY THE ELEVATIONS OF ALL TIE-IN POINTS FOR INSTALLATION OF UTILITIES, CURB & GUTTER AND PAVING, PRIOR TO COMMENCING CONSTRUCTION.
- MANHOLES & DROP INLETS ARE DIMENSIONED TO THE CENTER OF THE RISER. CATCH BASINS ARE DIMENSIONED TO THE CENTER OF THE CATCH BASIN AT THE FACE OF CURB. LAYOUT DIMENSIONS ARE TO FACE OF CURB, FACE OF WALL, CENTERLINE OF PIPE, UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS PROMPTLY UPON DISCOVERY. ANY CONFLICT OR DISCREPANCIES DISCOVERED WITHIN THE CONSTRUCTION PLANS SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER FOR CLARIFICATION. FAILURE TO DO SO SHALL RESULT IN CONTRACTOR'S LIABILITY FOR ISSUES ARISING FROM SUCH CONFLICTS OR DISCREPANCIES
- ALL EXISTING ELECTRICAL BOXES, WATER METER BOXES, AND VALVE BOXES, WHICH ARE TO REMAIN SHALL BE SET FLUSH WITH THE TOP OF THE PROPOSED GRADE.
- ALL VEGETATION, ROOT SYSTEMS, TOPSOIL, REFUSE AND OTHER DELETERIOUS, NON-SOIL MATERIAL SHALL BE STRIPPED FROM THE PROPOSED CONSTRUCTION AREAS. CLEAN TOPSOIL MAY BE STOCKPILED AND REUSED LATER IN LANDSCAPED AREAS.
- UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM THE DETENTION POND AND RESTORE THE POND TO THEIR PROPOSED FINISHED GRADE. ALL STORM DRAIN PIPES ARE ALSO TO BE COMPLETELY CLEANED OF ALL SILT AND DEBRIS AT THE COMPLETION OF CONSTRUCTION.
- IF UTILITIES ARE TO REMAIN AND HAVE BEEN LEFT ACTIVE, THE CONTRACTOR SHALL CAREFULLY PROTECT THEM AND IS RESPONSIBLE FOR RESTORING THEM TO THEIR PREVIOUS CONDITION OR BETTER IF DAMAGED.

SURVEY NOTES

- WETLAND THAT MAY EXIST ARE UNDER THE JURISDICTION OF THE CORPS OF ENGINEERS AND/OR THE DEPARTMENT OF NATURAL RESOURCES. LOT OWNERS AND THE DEVELOPER ARE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE PROTECTED AREAS WITHOUT PROPER PERMIT AND APPROVALS.
- THE LOCATIONS OF UNDERGROUND UTILITIES, HORIZONTAL AND VERTICAL, SHOWN ON THESE DRAWINGS ARE BASED UPON THE LOCATION OF SURFACE APPURTENANCES. THEY ARE APPROXIMATE AND WILL NEED TO BE VERIFIED DURING CONSTRUCTION TO FACILITATE THE WORK. UNDERGROUND UTILITIES, SUCH AS SERVICE LINES OR OTHER UNKNOWN UTILITIES NOT SHOWN ON THE DRAWINGS, WILL NOT RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITY TO COORDINATE WITH UTILITY COMPANIES TO FIELD LOCATE THEIR RESPECTIVE UTILITY LINES NOR FOR THE REPAIR OF UTILITIES WHETHER SHOWN OR NOT, AT THE SOLE EXPENSE OF THE CONTRACTOR.
- MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG: 811
- CONTRACTOR SHALL LIMIT CLEARING AND GRUBBING TO THE PROJECT LIMITS. CONTRACTOR SHALL NOT DISTURB THE WETLANDS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OR UNAUTHORIZED CLEARING OUTSIDE OF THE PROJECT LIMITS.
- ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE SHOWN. SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
- CONTRACTORS SHALL NOT PROCEED WITH LAND CLEARING ACTIVITIES UNTIL APPROVAL IS OBTAINED BY CITY OF SAVANNAH AND EROSION CONTROL AND TREE PROTECTION MEASURES ARE IN PLACE.
- ALL STORM PIPE SHALL BE DOUBLE WRAPPED IN FILTER FABRIC AT THE PIPE JOINTS PER CITY OF SAVANNAH SPECIFICATION 02400.
- CONTRACTOR SHALL COORDINATE ALL SCADA AND FIBER WITH CITY OF SAVANNAH DEPARTMENT OF INFORMATION TECHNOLOGY.

CLEARING NOTES

- UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES HAVING UTILITIES WITHIN OR ADJACENT TO THE WORK AREA. THE CONTRACTOR SHALL HAVE THE UTILITIES FIELD LOCATED AND COORDINATE WITH UTILITY COMPANIES TO HAVE THEM RELOCATED AND/OR ADAPTED FOR THE TIE-INS. IN ADDITION, CONTRACTOR IS REQUIRED TO CONTACT THE UTILITIES PROTECTION CENTER OF GEORGIA AT 1-800-282-7411 PRIOR TO ANY EXCAVATION.
- CONTRACTOR SHALL CLEARLY MARK AND MAINTAIN PROPERTY CORNER MONUMENTATION AND BENCHMARKS WHENEVER POSSIBLE AND WILL BE RESPONSIBLE FOR THE COST OF REPLACING THEM IF DISTURBED OR DESTROYED.
- ALL VEGETATION (UNLESS OTHERWISE NOTED), EXISTING ASPHALT AND CONCRETE PAVEMENT AS SHOWN ON DEMOLITION PLAN, ORGANICS AND UNSUITABLE BEARING SOILS SHALL BE STRIPPED FROM THE SURFACE WITHIN THE CONSTRUCTION LIMITS AND DISPOSED OF LEGALLY OFFSITE.
- PRIOR TO CLEARING, THE CONTRACTOR SHALL OBTAIN WRITTEN VERIFICATION FROM ALL UTILITY COMPANIES THAT ALL UTILITIES HAVE BEEN REMOVED. IF UTILITIES HAVE NOT BEEN REMOVED BUT HAVE BEEN ABANDONED, THE VERIFICATION LETTER SHALL STATE THAT THEIR FACILITIES LEFT ON-SITE HAVE BEEN ISOLATED FROM THEIR SOURCE AND MAY BE REMOVED BY THE CONTRACTOR. IF UTILITIES ARE TO REMAIN AND HAVE BEEN LEFT ACTIVE, THE CONTRACTOR SHALL CAREFULLY PROTECT THEM AND IS RESPONSIBLE FOR RESTORING THEM TO THEIR PREVIOUS CONDITION OR BETTER IF DAMAGED.
- THE CONTRACTOR SHALL LEAVE THE SITE IN A CLEAN AND NEAT CONDITION. ALL DEBRIS, VEGETATION WHICH HAS BEEN REMOVED, LUMBER, CONCRETE, ETC., SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED.
- CONTRACTOR SHALL HAVE THE LIMITS OF CLEARING AND ALL BUFFERS STAKED WITH FLAGGING STRUNG AT CLEARING LIMITS TO ENSURE THE PROPER LOCATION OF TREE SAVE FENCE AND PROPOSED IMPROVEMENTS.
- ALL VEGETATION, ROOT SYSTEMS, TOPSOIL, REFUSE AND OTHER DELETERIOUS, NON-SOIL MATERIAL SHALL BE STRIPPED FROM THE PROPOSED CONSTRUCTION AREAS. CLEAN TOPSOIL MAY BE STOCKPILED AND REUSED LATER IN LANDSCAPED AREAS.
- ALL WASTE FROM DEMOLITION OPERATIONS SHALL BE HAULED OFFSITE AND DISPOSED OF LEGALLY.
- DISCONNECT AND SEAL OFF ABANDONED UTILITIES AND UTILITIES TO BE REMOVED PRIOR TO START OF DEMOLITION. UTILITIES SHALL BE DISCONNECTED BELOW EXISTING GRADE OR OUTSIDE OF CONTRACT LIMITS BY THE APPLICABLE PUBLIC UTILITY. ALL COSTS FOR THIS WORK SHALL BE BORNE BY THE CONTRACTOR. ANY UTILITIES GREATER THAN 6" IN DIAMETER TO BE ABANDONED IN PLACE SHALL BE GROUTED WITH FLOWABLE FILL.
- ALL STRUCTURES TO BE DEMOLISHED SHALL BE COMPLETELY REMOVED ABOVE AND BELOW GRADE. ABANDONED SERVICE LINES TO THE STRUCTURES SHALL ALSO BE REMOVED.
- ALL NECESSARY PERMITS FOR DEMOLITION SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO BEGINNING WORK.
- CONTRACTOR SHALL PROTECT ALL ADJACENT LANDS FROM DAMAGE DURING DEMOLITION WORK. ANY OFF-SITE AREAS DISTURBED SHALL BE RETURNED TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING CONDITION.
- NO DEMOLITION MATERIALS SHALL BE DISPOSED OF ON-SITE. ALL DEBRIS SHALL BE HAULED OFF-SITE TO A DISPOSAL AREA APPROVED FOR THE HANDLING OF DEMOLITION DEBRIS.
- ALL STRUCTURES NOT LABELED FOR DEMOLITION SHALL BE PROTECTED FROM DAMAGE DURING ALL PHASES OF CONSTRUCTION. ANY STRUCTURES THAT ARE TO REMAIN THAT ARE DAMAGED SHALL BE REPAIRED BY THE CONTRACTOR TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING CONDITION AT NO ADDITIONAL COST.
- ALL WATER AND SANITARY SEWER MAINS AND LATERALS TO BE ABANDONED SHALL BE CAPPED AT THE MAINS AND ALL WATER METERS NOT BEING USED MUST BE RETURNED TO THE CITY OF SAVANNAH WATER OPERATIONS DEPARTMENT.

GENERAL NOTES

- PROJECT ADDRESS: 198 DARQUE ROAD SAVANNAH, GA 31404
- OWNER: CITY OF SAVANNAH PO BOX 1627 SAVANNAH, GEORGIA 31402 912.651.6573
- LEAD ENGINEER: THOMAS & HUTTON ENGINEER CO. 50 PARK OF COMMERCE WAY SAVANNAH, GA 31405 912.721.5300
- CIVIL ENGINEER: LONG ENGINEERING, INC. 2550 HERITAGE COURT, SUITE 250 ATLANTA, GEORGIA 30339 770.951.2495
- ZONING: I-L
- BUILDING SETBACK LINES: FRONT: I-L, REAR: NA, SIDE: NA
- THE PROPERTY IS LOCATED WITHIN THE CITY OF SAVANNAH, CHATHAM COUNTY, GEORGIA.
- ALL CONSTRUCTION MUST CONFORM TO THE CITY OF SAVANNAH STANDARDS, SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL OBTAIN THESE DOCUMENTS, BECOME FAMILIAR WITH THEM AND HAVE THEM ON THE JOB SITE AT ALL TIMES.
- SILT BARRIERS TO BE PLACED AS SHOWN AND/OR DIRECTED BY PROJECT ENGINEER AND/OR CITY OF SAVANNAH INSPECTOR.
- NOTIFY CITY OF SAVANNAH INSPECTOR 24 HOURS PRIOR TO BEGINNING OF CONSTRUCTION.
- EQUIPMENT AND MATERIALS SHALL BE STORED IN AREAS DESIGNATED BY THE OWNER. CONSTRUCTION AND STORAGE AREAS SHALL BE KEPT NEAT AND CLEAN AT ALL TIMES.
- EROSION AND SILTATION CONTROL DEVICES MUST BE INSTALLED PRIOR TO START OF OTHER CONSTRUCTION AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
- ALL EROSION AND SEDIMENTATION CONTROLS AND TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO GRADING.
- SIGNING AND STRIPING TO BE PROVIDED BY THE CONTRACTOR ACCORDING TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE MOST RECENT EDITION WITH ALL REVISIONS INCLUDED.
- ALL CONSTRUCTION VEHICLES SHALL PARK IN AREAS DESIGNATED BY THE OWNER.
- OFF-STREET PARKING SHALL BE PROVIDED AND MAINTAINED THROUGHOUT CONSTRUCTION.
- NECESSARY BARRICADES, SUFFICIENT LIGHTS, SIGNS AND OTHER TRAFFIC CONTROL DEVICES AS MAY BE NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC SHALL BE PROVIDED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE MOST RECENT EDITION AND MAINTAINED WHEN WORKING IN CLOSE PROXIMITY TO PUBLIC ROADS.
- THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN ENTERING MANHOLES, PIPES OR OTHER STRUCTURES SHOWN ON THE PLANS. AT A MINIMUM, THESE PIPES AND STRUCTURES SHALL BE PROPERLY VENTILATED.
- ALL FILL PLACED AS A PART OF THIS PROJECT SHALL BE PLACED IN ACCORDANCE WITH CITY OF SAVANNAH SPECIFICATIONS.

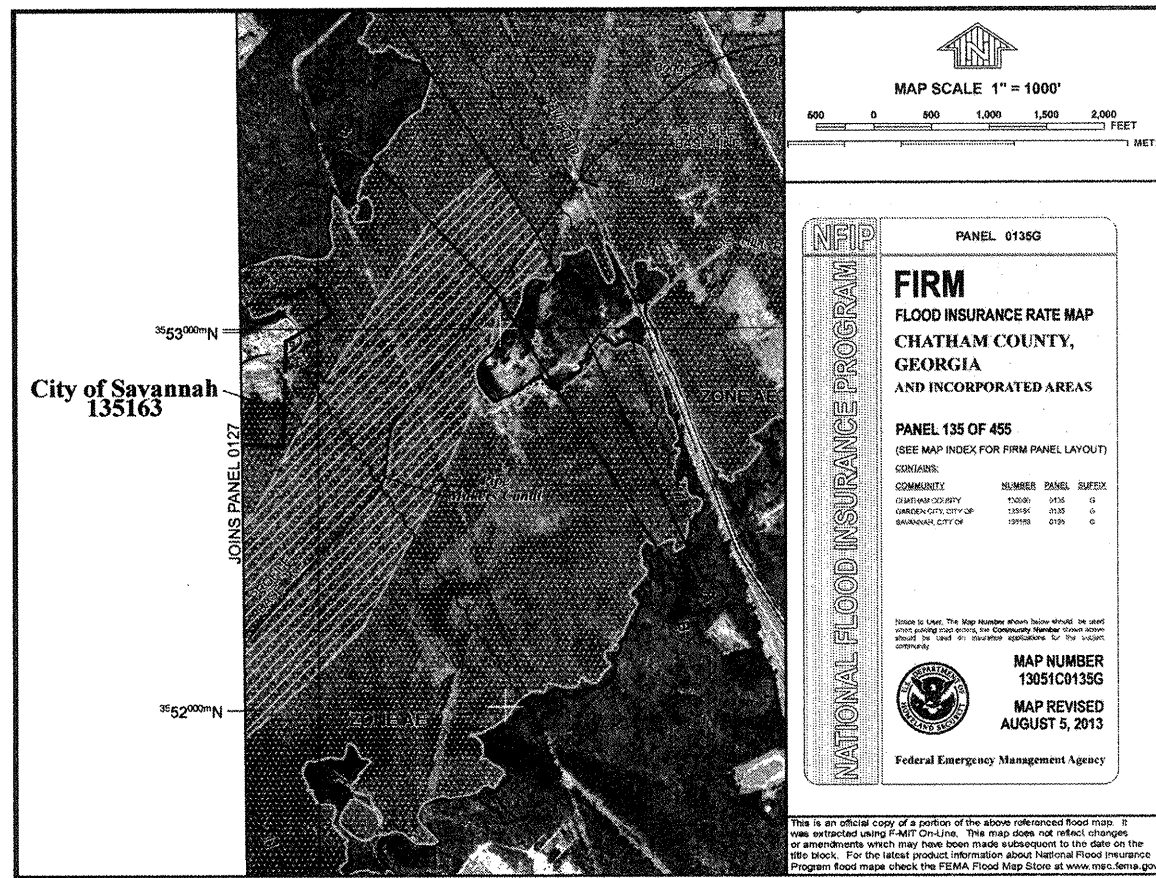
UTILITY NOTES

- ALL WATER AND SANITARY SEWER LINES AND LATERALS TO BE TAKEN OUT OF SERVICE SHALL BE CAPPED AT THE MAINS AND ALL WATER METERS NOT BEING USED SHALL BE RETURNED TO THE CITY OF SAVANNAH WATER OPERATIONS DEPT.
- ALL ABANDONED LINES TO BE LEFT ON SITE SHALL BE CAPPED AT THE MAIN AND FILLED WITH FLOWABLE FILL OR AN EQUIVALENT.
- SANITARY SEWER LATERAL CLEAN OUT SHALL BE INSTALLED AT ALL BENDS IN THE LATERAL LINES.
- A 1% MINIMUM SLOPE SHALL BE PROVIDED ON ALL SANITARY SEWER LATERALS.
- RESTRAINED JOINTS AND FITTINGS SHALL BE USED IN ALL WATER LINE INSTALLATIONS.
- A MINIMUM 10 FOOT HORIZONTAL SEPARATION DISTANCE SHALL BE PROVIDED BETWEEN WATER MAINS/LATERALS AND ALL STORM AND SANITARY MAIN AND LATERALS.
- THE WATER SERVICE LATERAL SERVING THE FACILITY SHALL BE INSTALLED BY THE DEVELOPER/CONTRACTOR FROM THE WATER MAIN TO THE METERS. THE CITY OF SAVANNAH WILL ONLY MAKE THE WET TAP. THE CITY WILL NOT INSTALL THE WATER SERVICE LATERAL.
- ALL WATER USED FOR CONSTRUCTION SHALL BE METERED THROUGH AN APPROVED BACKFLOW PREVENTION DEVICE AND FIRE HYDRANT METER OBTAINED FROM THE CITY OF SAVANNAH.
- ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE TO THE CITY OF SAVANNAH'S LATEST CONSTRUCTION SPECIFICATIONS AND DETAILS.
- AN APPROVED WATER SUPPLY FOR FIRE PROTECTION, EITHER TEMPORARY OR PERMANENT, SHALL BE MADE AVAILABLE AS SOON AS COMBUSTIBLE MATERIAL ARRIVES ON SITE.
- MATERIALS USED AND THAT COME INTO CONTACT WITH DRINKING WATER DURING ITS DISTRIBUTION SHALL NOT ADVERSELY AFFECT DRINKING WATER QUALITY AND PUBLIC HEALTH AND MUST BE CERTIFIED FOR CONFORMANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION STANDARD 61 (ANSI/NSF STANDARD 61)
- IN ALL WATER LINE PROJECTS, CARE WILL BE TAKEN TO KEEP THE INTERIOR OF THE WATER PIPE CLEAN PRIOR TO CONNECTION TO THE CITY SYSTEM. THIS WILL BE ACCOMPLISHED BY STRICT ADHERENCE TO THE CITY OF SAVANNAH SPECIFICATIONS SECTION 02550.
- FOR CITY WATER AND SANITARY SEWER LINE LOCATIONS, CONTACT THE UTILITIES PROTECTION CENTER (1-800-282-7411) A MINIMUM OF SEVENTY-TWO (72) HOURS PRIOR TO DIGGING.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

**24 HOUR EMERGENCY CONTACT:
LESTER HENDRIX 912.398.6112
PUMP ROOM 912.351.3434**

ALL EROSION & SEDIMENT CONTROLS, AND TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO GRADING.



LONG
ENGINEERING INC.
2550 HERITAGE CT. TEL: 770.951.2495
SUITE 250 FAX: 770.951.2498
ATLANTA, GA 30339 www.longeng.com
LEI JOB# 0435-0102

GEORGIA
REGISTERED
PROFESSIONAL
ENGINEER
LEIGH A. FARR

05/01/2019
GSWCO LEVEL II #13352
EXP. 09/10/2020

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	DATE

THOMAS & HUTTON
50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomashutton.com

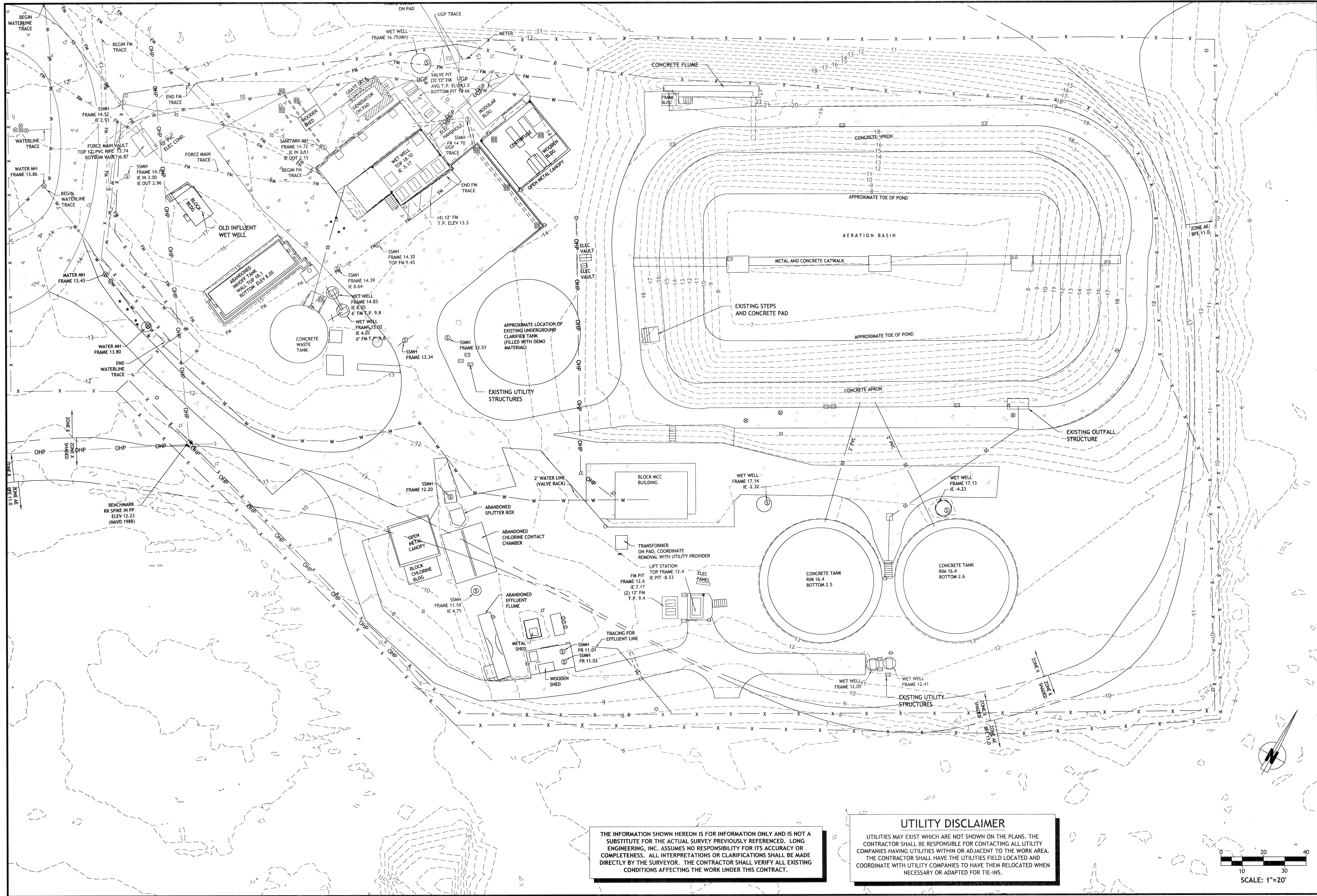
SAVANNAH savannahga.gov

TRAVIS FIELD WATER RECLAMATION FACILITY

GENERAL NOTES

JOB NO: J-26963.0000
DATE: 12/20/2018
DRAWN: LAF
DESIGNED: LAF
REVISED:
APPROVED:
SCALE:

C0.1



THE INFORMATION SHOWN HEREON IS FOR INFORMATION ONLY AND IS NOT A SUBSTITUTE FOR THE ACTUAL SURVEY PREVIOUSLY REFERENCED. LONG ENGINEERING, INC. ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY OR COMPLETENESS. ALL INTERPRETATIONS OR CLARIFICATIONS SHALL BE MADE DIRECTLY BY THE SURVEYOR. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AFFECTING THE WORK UNDER THIS CONTRACT.

UTILITY DISCLAIMER
 UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES HAVING UTILITIES WITHIN OR ADJACENT TO THE WORK AREA. THE CONTRACTOR SHALL HAVE THE UTILITIES FIELD LOCATED AND COORDINATE WITH UTILITY COMPANIES TO HAVE THEM RELOCATED WHEN NECESSARY OR ADAPTED FOR TIE-INS.

LONG
 ENGINEERING, INC.
 2550 HERITAGE CT. TEL: 770.951.2495
 SUITE 250 FAX: 770.951.2498
 ATLANTA, GA 30339 www.longeng.com
 LEI JOB# 0435-0020

GEORGIA
 REGISTERED
 PROFESSIONAL
 ENGINEER
 RICH A. FARR
 No. 036089
 05/01/2019
 GSWCC LEVEL II #13352
 EXP. 06/10/2020

NO.	REVISIONS	DATE

THOMAS & HUTTON
 50 Park of Commerce Way
 Savannah, GA 31405 • 912.234.5300
 www.thomasandhutton.com

SAVANNAH
 savannahga.gov
TRAVIS FIELD WATER RECLAMATION FACILITY
EXISTING CONDITIONS

JOB NO: J-26963.0000
 DATE: 12/20/2018
 DRAWN: LAF
 DESIGNED: LAF
 REVIEWED:
 APPROVED:
 SCALE:

C1.0

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE

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 50 Park of Commerce Way
 Savannah, GA 31405 • 912.234.5300
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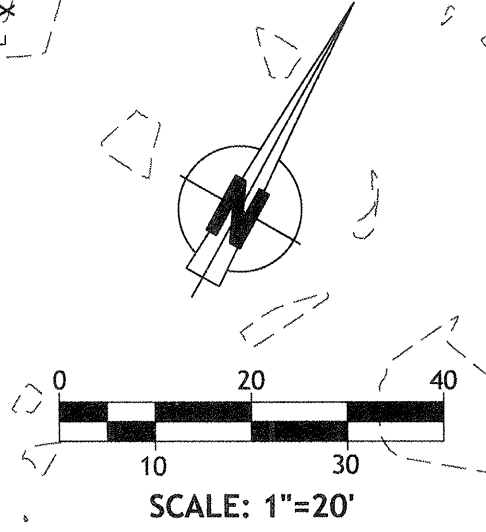
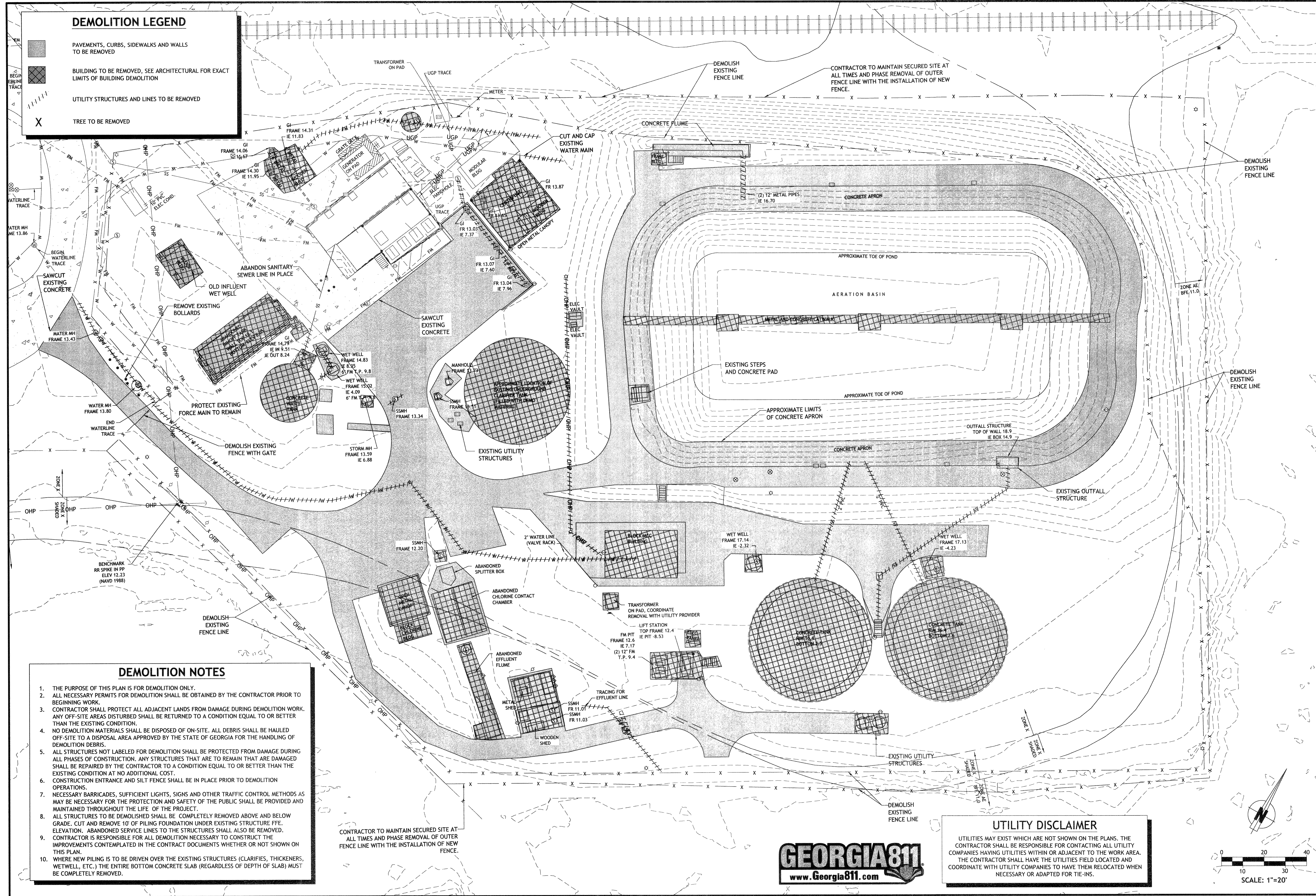
SAVANNAH
 savannahga.gov

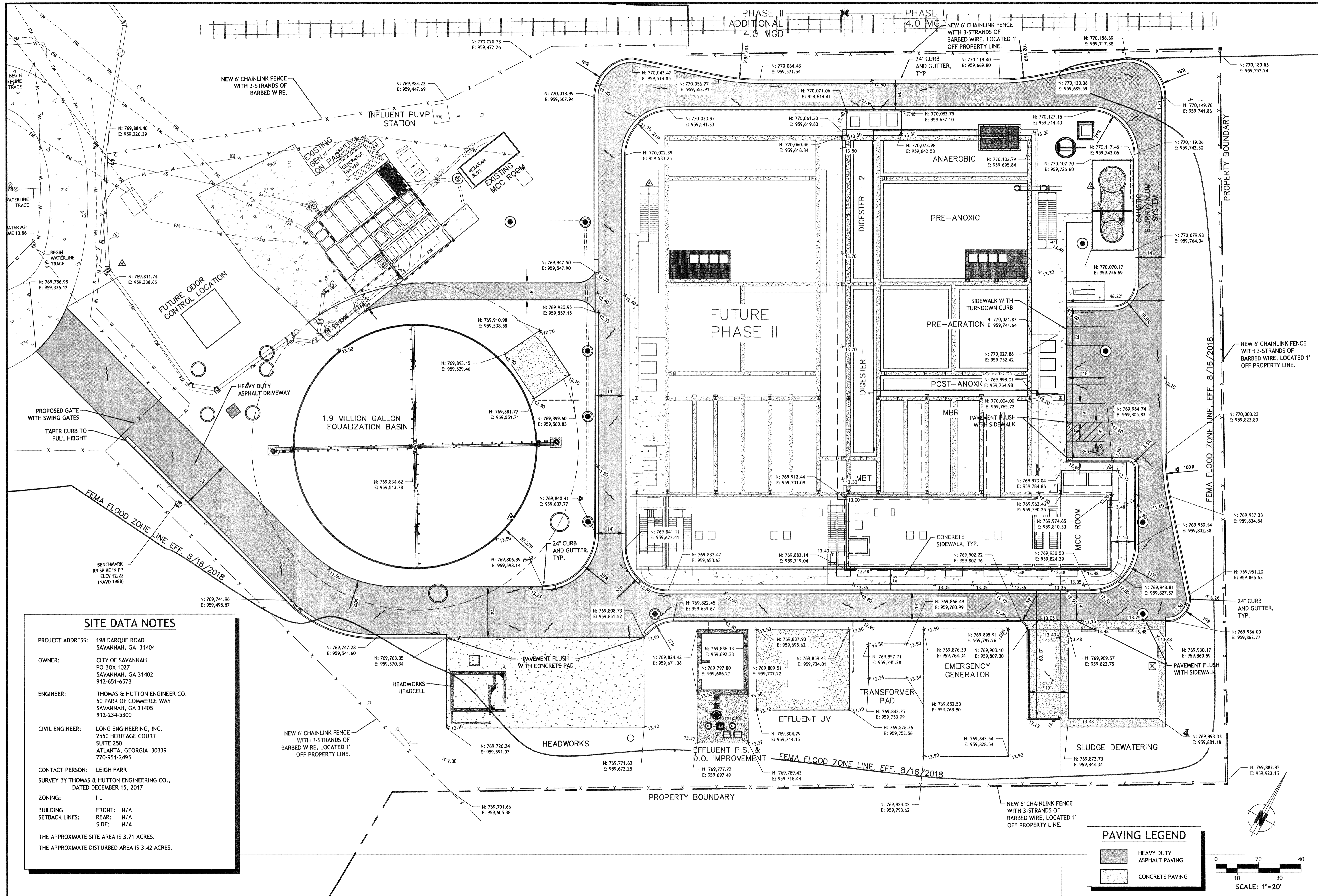
TRAVIS FIELD WATER RECLAMATION FACILITY
DEMOLITION PLAN

JOB NO:	J-26963.0000
DATE:	12/20/2018
DRAWN:	LAF
DESIGNED:	LAF
REVIEWED:	
APPROVED:	
SCALE:	

C2.0

BID SET - NOT FOR CONSTRUCTION





SITE DATA NOTES

PROJECT ADDRESS: 198 DARQUE ROAD
SAVANNAH, GA 31404

OWNER: CITY OF SAVANNAH
PO BOX 1027
SAVANNAH, GA 31402
912-651-6573

ENGINEER: THOMAS & HUTTON ENGINEER CO.
50 PARK OF COMMERCE WAY
SAVANNAH, GA 31405
912-234-5300

CIVIL ENGINEER: LONG ENGINEERING, INC.
2550 HERITAGE COURT
SUITE 250
ATLANTA, GEORGIA 30339
770-951-2495

CONTACT PERSON: LEIGH FARR
SURVEY BY THOMAS & HUTTON ENGINEERING CO.,
DATED DECEMBER 15, 2017

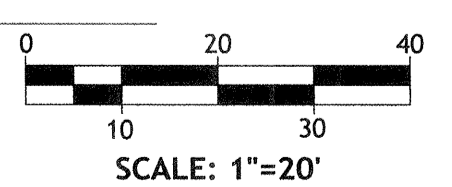
ZONING: I-L

BUILDING SETBACK LINES: FRONT: N/A
REAR: N/A
SIDE: N/A

THE APPROXIMATE SITE AREA IS 3.71 ACRES.
THE APPROXIMATE DISTURBED AREA IS 3.42 ACRES.

PAVING LEGEND

- HEAVY DUTY ASPHALT PAVING
- CONCRETE PAVING



LONG ENGINEERING, INC.
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LEI JOB# 0435-0020

REGISTERED PROFESSIONAL ENGINEER
LEIGH A. FARR

05/01/2019
GSWCC LEVEL II #13352
EXP. 06/10/2020

NO.	ISSUED FOR	BY	DATE

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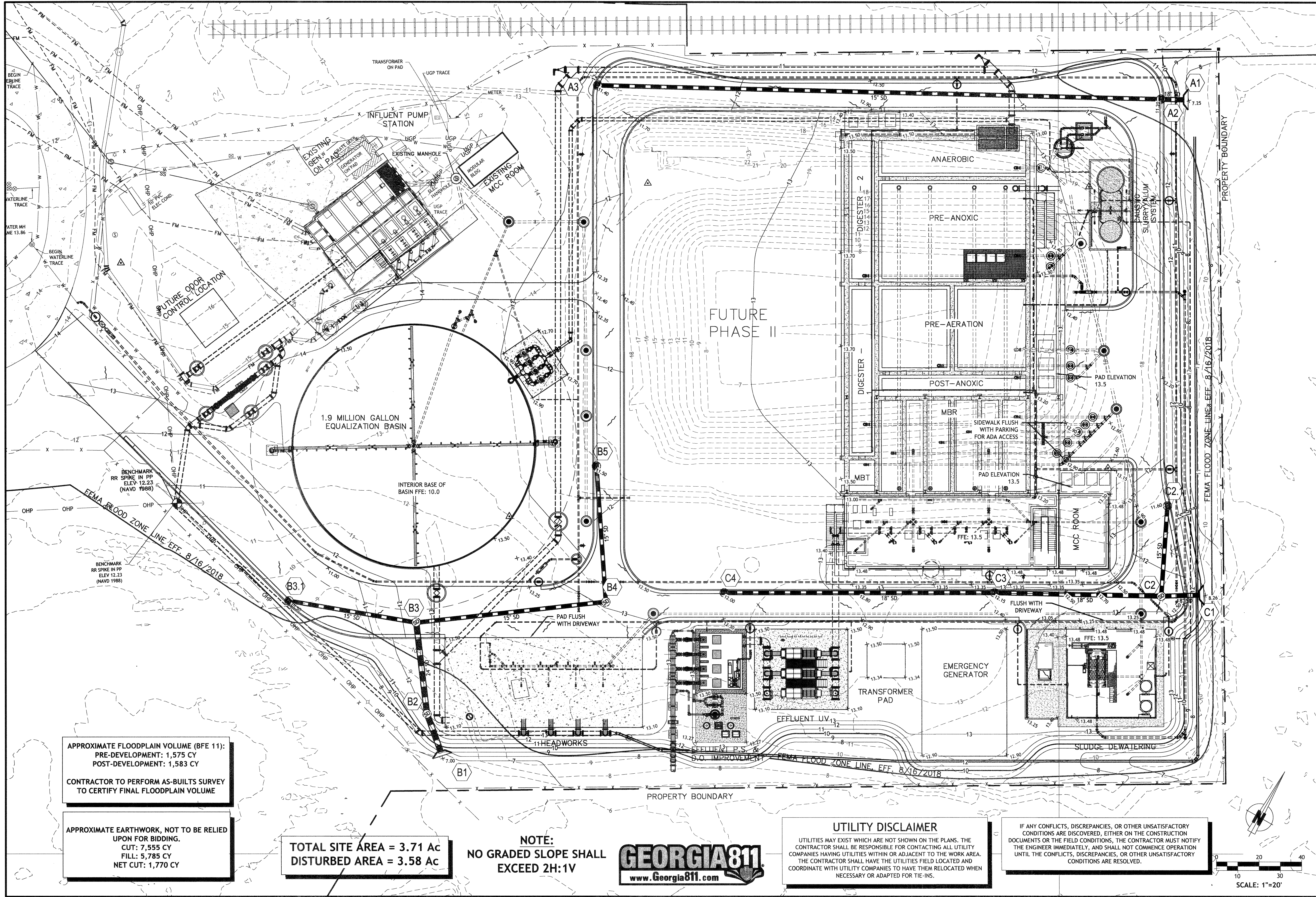
SAVANNAH
savannah.gov

TRAVIS FIELD WATER RECLAMATION FACILITY
SITE PLAN

JOB NO:	J-26963.0000
DATE:	12/20/2018
DRAWN:	LAF
DESIGNED:	LAF
REVIEWED:	
APPROVED:	
SCALE:	

C3.0

BID SET - NOT FOR CONSTRUCTION



APPROXIMATE FLOODPLAIN VOLUME (BFE 11):
 PRE-DEVELOPMENT: 1,575 CY
 POST-DEVELOPMENT: 1,583 CY
 CONTRACTOR TO PERFORM AS-BUILTS SURVEY
 TO CERTIFY FINAL FLOODPLAIN VOLUME

APPROXIMATE EARTHWORK, NOT TO BE RELIED
 UPON FOR BIDDING.
 CUT: 7,555 CY
 FILL: 5,785 CY
 NET CUT: 1,770 CY

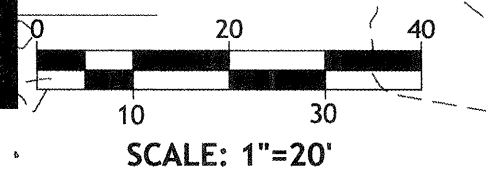
TOTAL SITE AREA = 3.71 Ac
DISTURBED AREA = 3.58 Ac

NOTE:
**NO GRADED SLOPE SHALL
 EXCEED 2H:1V**



UTILITY DISCLAIMER
 UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES HAVING UTILITIES WITHIN OR ADJACENT TO THE WORK AREA. THE CONTRACTOR SHALL HAVE THE UTILITIES FIELD LOCATED AND COORDINATE WITH UTILITY COMPANIES TO HAVE THEM RELOCATED WHEN NECESSARY OR ADAPTED FOR TIE-INS.

IF ANY CONFLICTS, DISCREPANCIES, OR OTHER UNSATISFACTORY CONDITIONS ARE DISCOVERED, EITHER ON THE CONSTRUCTION DOCUMENTS OR THE FIELD CONDITIONS, THE CONTRACTOR MUST NOTIFY THE ENGINEER IMMEDIATELY, AND SHALL NOT COMMENCE OPERATION UNTIL THE CONFLICTS, DISCREPANCIES, OR OTHER UNSATISFACTORY CONDITIONS ARE RESOLVED.



LONG ENGINEERING INC.
 2550 HERITAGE CT. TEL: 770.951.2495
 SUITE 250 FAX: 770.951.2496
 ATLANTA, GA 30338 www.longeng.com
 LET JOB# 0435-0020

GEORGIA REGISTERED PROFESSIONAL ENGINEER HIGH A. FAIR
 No. 036089
 05/01/2019
 GSWCC LEVEL II #13352
 EXP. 06/10/2020

NO.	ISSUED FOR	REVISIONS	BY	DATE
0				

THOMAS & HUTTON
 50 Park of Commerce Way
 Savannah, GA 31405 • 912.234.5300
 www.thomasandhutton.com

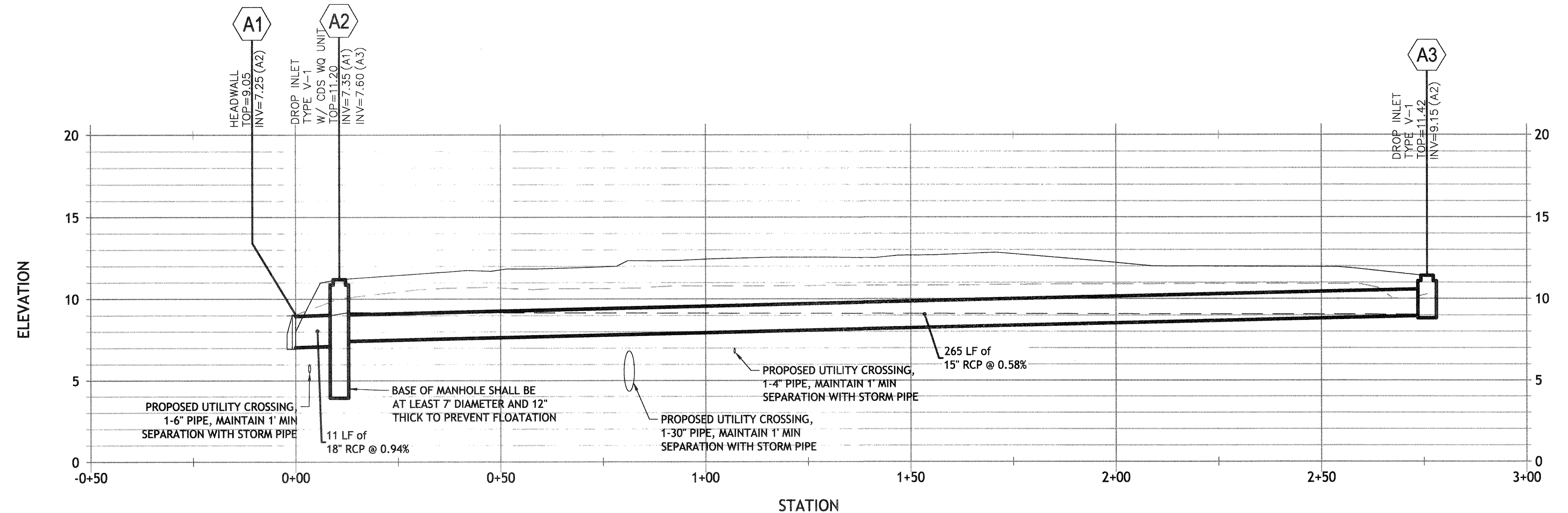
SAVANNAH
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**TRAMS FIELD WATER RECLAMATION FACILITY
 GRADING & DRAINAGE PLAN**

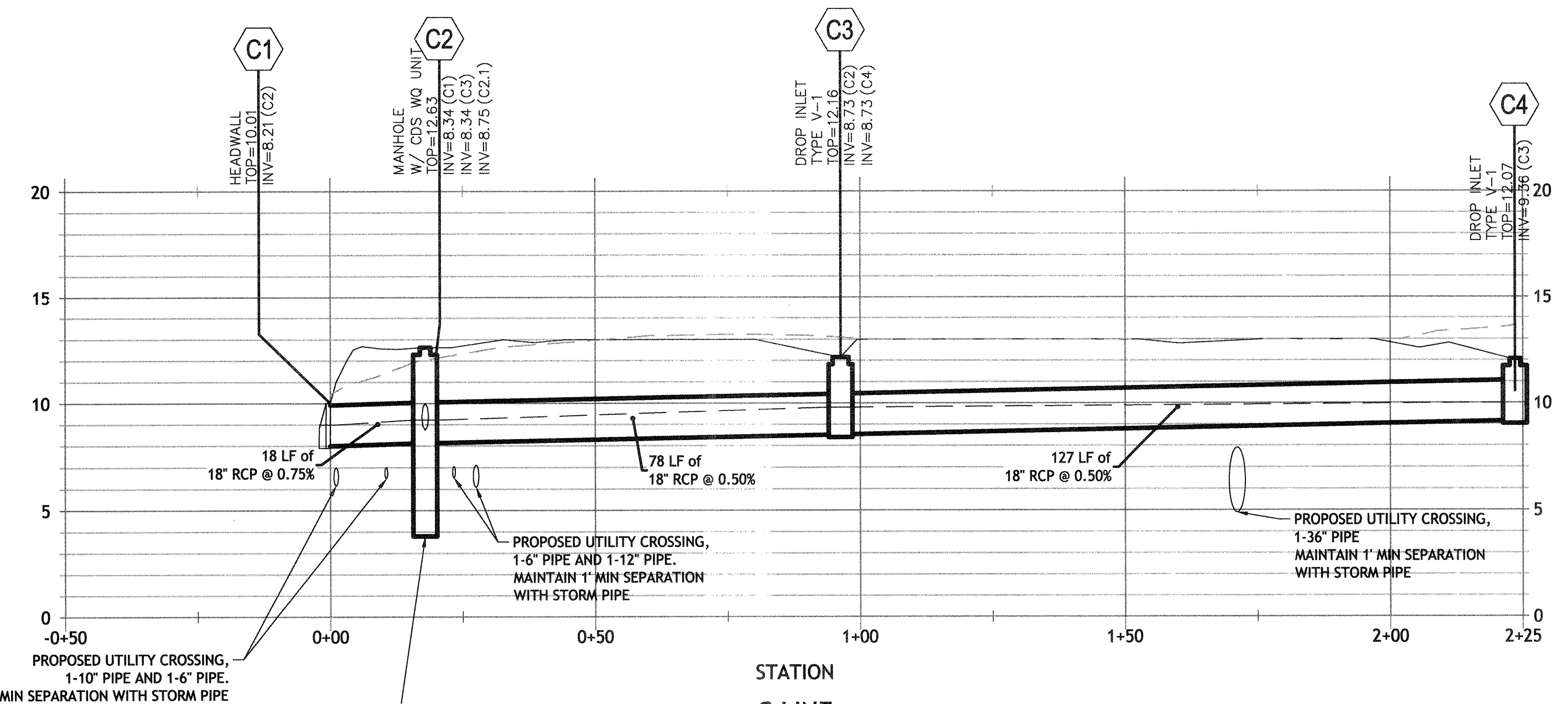
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 DATE: 12/20/2018
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 DESIGNED: LAF
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 APPROVED:
 SCALE:

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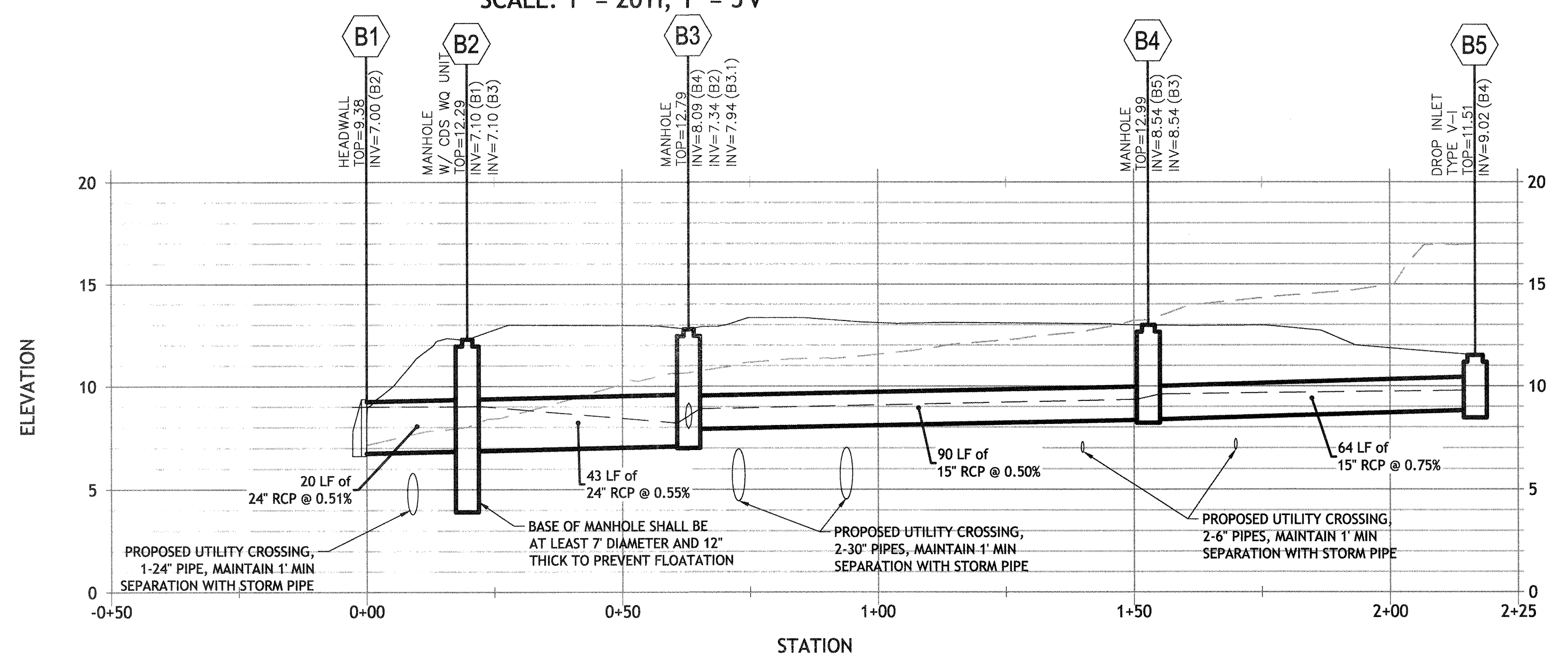
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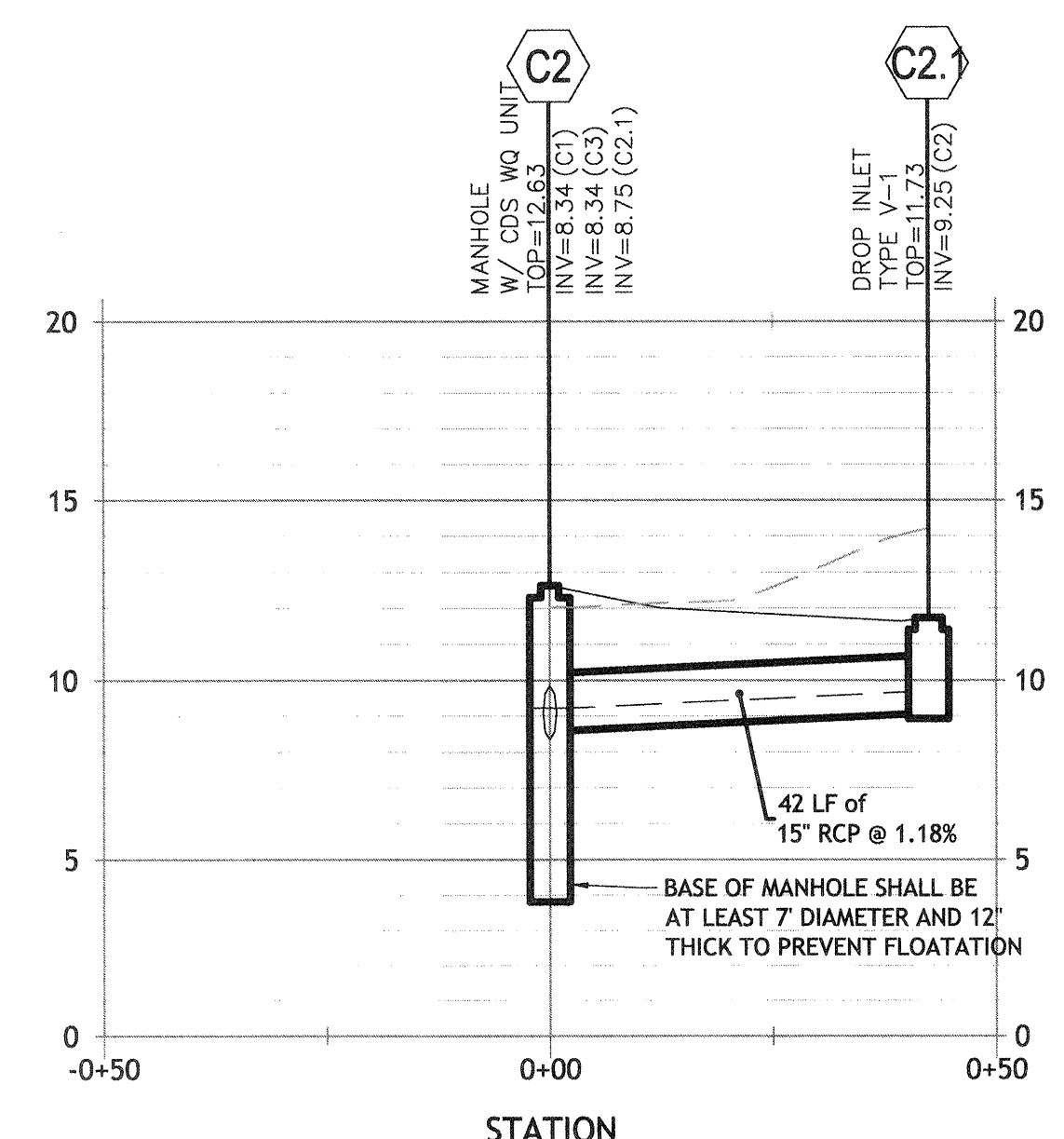
A LINE
SCALE: 1" = 20'H, 1" = 5'V



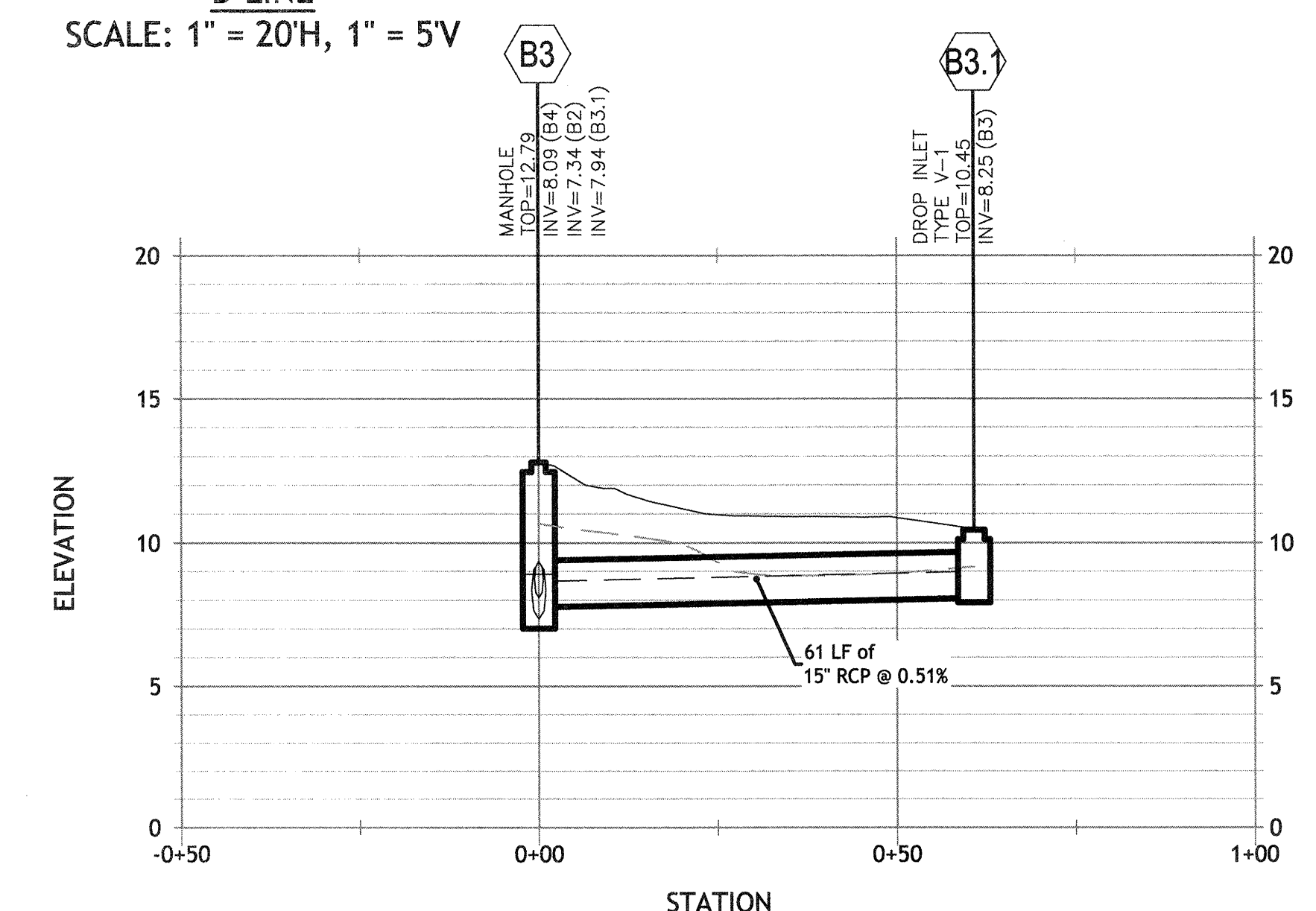
C LINE
SCALE: 1" = 20'H, 1" = 5'V



B-LINE
SCALE: 1" = 20'H, 1" = 5'V



C3.1 LINE
SCALE: 1" = 20'H, 1" = 5'V



B3.1 LINE
SCALE: 1" = 20'H, 1" = 5'V

25-YR PIPE CHART

Line	ToLine	LineLength (ft)	Incr.Area (ac)	TotalArea (ac)	RunoffCoeff. (C)	Incr.C x A	Total.C x A	InletTime (min)	TimeConc (min)	RnfallIn (in/hr)	TotalRunoff (cfs)	AdnlFlow (cfs)	TotalFlow (cfs)	CapacFull (cfs)	Veloc (ft/s)	PipeSize (in)	PipeSlope (%)	Inv ElevDn (ft)	Inv ElevUp (ft)	HGLDn (ft)	HGLUp (ft)	Gmd/RimDn (ft)	Gmd/RimUp (ft)	Line ID
1	Outfall	16,565	0.24	0.66	0.7	0.17	0.39	5	7.5	8	3.1	0	3.1	8.16	1.78	18	0.6	7.5	7.6	9	9.01	9.3	10.9	A1-A2
2	1	127,938	0	0.42	0	0	0.22	5	6.2	8.7	1.89	0	1.89	4.78	2.29	15	0.55	7.85	8.55	9.04	9.19	10.9	12.56	A2-A3
3	2	118,794	0.42	0.42	0.52	0.22	0.22	5	5	9.3	2.03	0	2.03	4.59	3.43	15	0.51	8.55	9.15	9.21	9.72	12.56	11.4	A3-A4
4	Outfall	19,666	0	1.01	0	0	0.69	5	6.3	8.6	5.91	0	5.91	16.13	1.9	24	0.51	7	7.1	9	9.01	9.15	12.29	B1-B2
5	4	43,298	0	1.01	0	0	0.69	5	5.9	8.8	6.04	0	6.04	16.84	3.28	24	0.55	7.1	7.34	9.03	8.21	12.29	12.63	B2-B3
6	5	88,839	0	0.38	0	0	0.38	5	5.4	9.1	3.43	0	3.43	4.57	4.09	15	0.5	8.09	8.54	8.9	9.35	12.63	13.32	B3-B4
7	6	63,835	0.58	0.38	0.65	0.38	0.38	5	5	9.3	3.51	0	3.51	5.6	3.84	15	0.75	8.54	9.02	9.61	9.78	13.32	11.51	B4-B5
8	5	60,796	0.43	0.43	0.72	0.31	0.31	5	5	9.3	2.88	0	2.88	4.61	3.97	15	0.51	7.94	8.25	8.66	8.97	12.63	10.5	B3-B3.1
9	Outfall	13,373	0	0.66	0	0	0.59	5	5.9	8.8	5.19	0	5.19	10.35	5.17	18	0.97	8.21	8.34	9	9.22	11.6	12.61	C1-C2
10	9	29,585	0.14	0.14	0.87	0.12	0.12	5	5	9.3	1.13	0	1.13	8.39	2.93	15	1.69	8.75	9.25	9.22	9.67	12.61	11.5	C2-C2.1
11	9	133	0.52	0.52	0.9	0.47	0.47	5	5	9.3	4.36	0	4.36	7.4	4.29	18	0.5	8.34	9	9.22	9.8	12.61	11.5	C3-C2

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GEORGIA REGISTERED PROFESSIONAL ENGINEER
No. 036089
KEIGH A. FARR

05/01/2019
GSWCC LEVEL II #13352
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NO.	ISSUED FOR	REVISIONS	DATE	BY
0				

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TRAVIS FIELD WATER RECLAMATION FACILITY
STORMWATER PROFILES

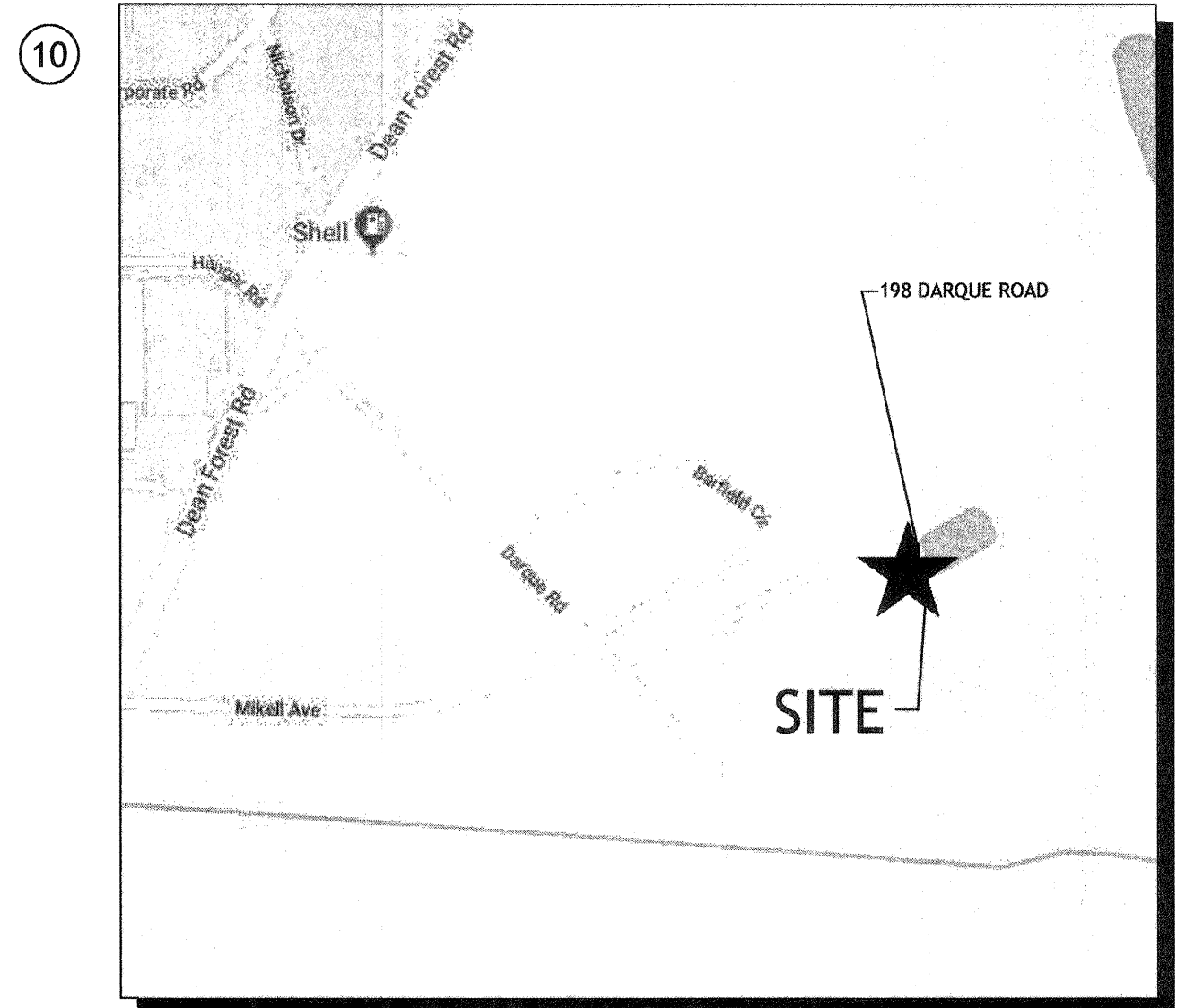
JOB NO: J-28963.0000
DATE: 12/20/2018
DRAWN: LAF
DESIGNED: LAF
REVIEWED:
APPROVED:
SCALE:

C6.0

BID SET - NOT FOR CONSTRUCTION

27 PRODUCT SPECIFIC PRACTICES

- 24. **CONCRETE TRUCKS:** CONCRETE TRUCKS WILL NOT BE ALLOWED TO WASHOUT OR DISCHARGE SURPLUS CONCRETE DRUM WASH ON SITE. WASH AREAS, IF CONSTRUCTED, WILL CONSIST OF AN ENCLOSED WASTE COLLECTION AREA THAT WILL CONTAIN THE CONCRETE WASH UNTIL IT HARDENS.
- 25. **PAINTS:** ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM OR SURFACE WATERS BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND FEDERAL, STATE AND LOCAL REGULATIONS.
- 25. **PETROLEUM PRODUCTS:** ALL ON SITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY PETROLEUM TO BE STORED IN TANKS WILL BE SURROUNDED BY AN EARTHEN BERM WITH IMPERMEABLE LINER AS A SECONDARY PROTECTIVE MEASURE. ALL CONTAINERS/TANKS WILL BE REGULARLY INSPECTED FOR CRACKS OR LEAKAGE. IF POSSIBLE, PETROLEUM PRODUCTS WILL BE STORED IN A COVERED AREA. ANY ASPHALT SUBSTANCES USED ON SITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
- 25. **FERTILIZERS:** FERTILIZER USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE WILL BE IN A COVERED SHED (WHENEVER POSSIBLE). THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO SEALABLE PLASTIC BINS TO AVOID SPILLS (WHENEVER POSSIBLE).
- 25. **SANITARY/SEPTIC WASTES:** ALL SANITARY WASTE FACILITIES WILL BE SERVICED BY A QUALIFIED DOMESTIC WASTE HAULER. FACILITIES WILL BE PLACED OUT OF HIGH FLOW AREAS, AND WILL BE KEPT AWAY FROM, AND NOT RINSED INTO, STORM DRAIN INLETS AND RECEIVING BODIES OF WATER.
- 25. **MULCH:** MULCH STORAGE MUST COMPLY WITH THE FOLLOWING SECTION OF THE STANDARD FIRE PREVENTION CODE: SECTION 502.3.1 - NO PERSON SHALL STORE IN ANY BUILDING OR UPON ANY PREMISES IN EXCESS OF 2,500 CU.FT. GROSS VOLUME OF COMBUSTIBLE EMPTY PACKING CASES, BOXES, BARRELS OR SIMILAR CONTAINERS, OR RUBBER TIRES, OR RUBBER OR OTHER SIMILAR COMBUSTIBLE MATERIALS WITHOUT A PERMIT.
- 25. **SANDBLASTING GRIT:** NO SANDBLASTING GRIT WILL BE DISPOSED OF ON SITE. ITS DISPOSAL WILL BE COORDINATED WITH A LICENSED WASTE MANAGEMENT OR TRANSPORT AND DISPOSAL FIRM.
- 25. **CONSTRUCTION WASTES:** ALL CONSTRUCTION WASTE, FOR EXAMPLE: RUBBLE, PACKAGING MATERIALS, SCRAP BUILDING SUPPLIES, AND TREES AND SHRUBS REMOVED DURING GRUBBING, WILL BE COLLECTED AT A DESIGNATED ON-SITE LOCATION. IF POSSIBLE THE WASTE ACCUMULATION AREA WILL BE LOCATED IN A COVERED AREA. ALL CONSTRUCTION WASTES WILL BE REMOVED REGULARLY ON A CONSISTENT SCHEDULE AND DISPOSED OF AT AUTHORIZED DISPOSAL SITES.
- 25. **DETERGENTS:** THE USE OF DETERGENTS WILL BE LIMITED ON SITE, AND NO WASH WATER CONTAINING DETERGENTS WILL BE DISCHARGED TO STORM DRAIN INLETS OR RECEIVING BODIES OF WATER.



LOCATION MAP
N.T.S.

NPDES PROFESSIONAL CERTIFICATION

"I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100001."

LAF 04/18/19
LEIGH FARR (CERT.# 13352) DATE

EROSION CONTROL & DRAINAGE NOTES

- 15. NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.
- 17. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.
- 18. WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.
- 19. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.
- 20. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
- 21. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.
- 21. EROSION AND SILTATION CONTROL DEVICES MUST BE INSTALLED PRIOR TO START OF OTHER CONSTRUCTION AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
- 21. ANY FAILURE OF ANY EROSION CONTROL DEVICE TO FUNCTION AS INTENDED FOR ANY REASON SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
- 21. ALL DISTURBED AREAS ARE TO BE GRASSED AS SOON AS CONSTRUCTION PHASE PERMITS. TEMPORARY MULCHING SHALL BE UTILIZED DURING THE PERIOD OF GERMINATION OF GRASS SEEDINGS USING STRAW OR HAY MULCH, JUTE MATTING OR SYNTHETIC FIBERS.
- 21. ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL CONFORM TO THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA AND ANY APPLICABLE LOCAL REGULATIONS.
- 21. EROSION CONTROL DEVICES WILL BE PROPERLY INSTALLED PRIOR TO SITE DISTURBANCE, MAINTAINED IN GOOD WORKING CONDITION UNTIL COMPLETION OF PROJECT, AND REPLACED WHEN EFFECTIVENESS IS REDUCED TO 50%.
- 21. ALL DISTURBED AREAS ARE TO BE STABILIZED WITH SUITABLE PERENNIAL VEGETATION, ACCORDING TO SOIL CONSERVATION SERVICE OR GEORGIA EXTENSION SERVICE SPECIFICATIONS, IMMEDIATELY FOLLOWING THE COMPLETION OF GRADING.
- 21. STRIPPING OF VEGETATION, GRADING OR OTHER DEVELOPMENT ACTIVITIES SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION.
- 21. WHENEVER FEASIBLE, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED AND SUPPLEMENTED.
- 21. ALL SEDIMENT COLLECTED DURING MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES SHALL BE REMOVED FROM THE SITE OR SPREAD IN LANDSCAPED OR NATURALLY VEGETATED AREAS, SEEDED AND COVERED WITH STRAW.
- 21. DETENTION FACILITIES AND EROSION AND SILTATION CONTROL DEVICES MUST BE INSTALLED PRIOR TO START OF OTHER CONSTRUCTION AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED. THE DEVICES SHALL BE MOVED AND ADJUSTED AS NEEDED TO KEEP A FUNCTIONING SYSTEM THROUGHOUT CONSTRUCTION. EROSION CONTROL MEASURES SHALL INCLUDE BUT ARE NOT LIMITED TO CONSTRUCTION EXITS, SILT FENCE, STORM INLET/OUTLET PROTECTION, DIVERSION DIKE OR DOWNDRAINS ON LONG STEEP SLOPES AND TEMPORARY GRASSING.
- 21. SEDIMENT STORAGE MAINTENANCE INDICATORS MUST BE INSTALLED IN SEDIMENT STORAGE STRUCTURES, INDICATING THE 1/3 FULL VOLUME.
- 21. MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES, WHETHER TEMPORARY OR PERMANENT, SHALL BE AT ALL TIMES THE RESPONSIBILITY OF THE CONTRACTOR.
- 21. SILT BARRIERS TO BE PLACED AT DOWNSTREAM TOE OF ALL CUT AND FILL SLOPES.
- 21. SILT FENCE SHALL MEET THE REQUIREMENTS OF SECTION 171 TEMPORARY SILT FENCE, OF THE GEORGIA STANDARD SPECIFICATIONS, 1993 EDITION AND BE WIRE REINFORCED.
- 21. THE PRIMARY PERMITTEE IS RESPONSIBLE FOR ALL EROSION CONTROL ACTIVITIES.
- 21. ALL TEMPORARY AND PERMANENT SEEDING MUST BE PERFORMED AT THE APPROPRIATE SEASON. IN SUCH INSTANCES WHERE THE ESTABLISHMENT OF VEGETATION IS INOPPORTUNE DUE TO SEASON OR DROUGHT, DISTURBED AREAS SHALL BE TEMPORARILY STABILIZED USING 2'-4" OF MULCH (D-1). ADDITIONAL PLANTINGS WILL BE NECESSARY IF A SUFFICIENT STAND OF GRASS FAILS TO GROW.
- 21. THE CITY'S DESIGNEE WILL VERIFY ADEQUATE COVER (100% COVER, 70% DENSITY) OF PERMANENT STABILIZATION (D-3, D-4).
- 21. SEDIMENT STORAGE VOLUME @ 6 CY/ACRE MUST BE INSTALLED PRIOR TO ANY OTHER LAND DISTURBANCE ACTIVITY AND IN PLACE UNTIL FINAL STABILIZATION OCCURS.
- 21. ANY CONSTRUCTION ACTIVITY WHICH DISCHARGES STORM WATER INTO AN IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF AND WITHIN THE SAME WATERSHED AS, ANY PORTION OF A BIOTA IMPAIRED STREAM SEGMENT MUST COMPLY WITH PART III. C. OF THE PERMIT. INCLUDE THE COMPLETED APPENDIX 1 LISTING ALL THE BMP'S THAT WILL BE USED FOR THOSE AREAS OF THE SITE WHICH DISCHARGE TO THE IMPAIRED STREAM SEGMENT.

24-HOUR EMERGENCY CONTACT:

LESTER HENDRIX
912.398.6112

SITE VISIT CERTIFICATION

"I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION."

LAF 04/18/19
LEIGH FARR (CERT.# 13352) DATE

GENERAL NOTES

- 1. THE EROSION SEDIMENTATION AND POLLUTION CONTROL PLAN SHALL BE SIGNED IN ACCORDANCE WITH PART IV., AND BE RETAINED ON THE SITE (OR, IF NOT POSSIBLE, AT A READILY ACCESSIBLE LOCATION) WHICH GENERATES THE STORM WATER DISCHARGE IN ACCORDANCE WITH PART IV.F. OF THIS PERMIT.
- 2. THE PRIMARY PERMITTEE SHALL MAKE PLANS AVAILABLE UPON REQUEST TO THE EPD; TO DESIGNATED OFFICIALS OF THE LOCAL GOVERNMENT REVIEWING SOIL EROSION AND SEDIMENT CONTROL PLANS, GRADING PLANS, OR STORM WATER MANAGEMENT PLANS; OR IN THE CASE OF A STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY WHICH DISCHARGES THROUGH A MUNICIPAL SEWER SYSTEM.
- 3. EPD MAY NOTIFY THE PRIMARY PERMITTEE AT ANY TIME THAT THE PLAN DOES NOT MEET ONE OR MORE OF THE MINIMUM REQUIREMENTS OF THIS PART. WITHIN SEVEN (7) DAYS OF SUCH NOTIFICATION (OR AS OTHERWISE PROVIDED BY EPD), THE PRIMARY PERMITTEE SHALL MAKE THE REQUIRED CHANGES TO THE PLAN AND SHALL SUBMIT TO EPD EITHER THE AMENDED PLAN OR A WRITTEN CERTIFICATION THAT THE REQUESTED CHANGES HAVE BEEN MADE.
- 4. THE PRIMARY PERMITTEE(S), AS APPLICABLE, SHALL AMEND THEIR PLAN WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, WHICH HAS A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT, I.E., THOSE BMPs WHERE THE DESIGN IS BASED UPON RAINFALL INTENSITY, DURATION AND RETURN FREQUENCY OF STORMS OR IF THE PLAN PROVES TO BE INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS FROM SOURCES IDENTIFIED UNDER PART IV.D.3. AMENDMENTS TO THE PLAN MUST BE CERTIFIED BY A DESIGN PROFESSIONAL AS PROVIDED IN THIS PERMIT.
- 5. THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN SHALL INCLUDE, AS A MINIMUM, BEST MANAGEMENT PRACTICES, INCLUDING SOUND CONSERVATION AND ENGINEERING PRACTICES TO PREVENT AND MINIMIZE EROSION AND RESULTANT SEDIMENTATION, WHICH ARE CONSISTENT WITH, AND NO LESS STRINGENT THAN, THOSE PRACTICES CONTAINED IN THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED.
- 6. ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A N.O.T. IS SUBMITTED IN ACCORDANCE WITH PART IV. IF AN ELECTRONIC SUBMITTAL IS PROVIDED BY EPD, THEN THE WRITTEN CORRESPONDENCE MAY BE SUBMITTED ELECTRONICALLY; IF REQUIRED, A PAPER COPY MUST ALSO BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL OR SIMILAR SERVICE.
- 7. EACH PERMITTEE MUST COMPLY WITH ALL APPLICABLE CONDITIONS OF THIS PERMIT. ANY PERMIT NONCOMPLIANCE CONSTITUTES A VIOLATION OF THE GEORGIA WATER QUALITY CONTROL ACT AND IS GROUNDS FOR ENFORCEMENT ACTION; FOR PERMIT TERMINATION; OR FOR DENIAL OF A PERMIT RENEWAL APPLICATION. FAILURE OF A PRIMARY PERMITTEE TO COMPLY WITH ANY APPLICABLE TERM OR CONDITION OF THIS PERMIT SHALL NOT RELIEVE ANY OTHER PRIMARY PERMITTEE FROM COMPLIANCE WITH THEIR APPLICABLE TERMS AND CONDITIONS OF THIS PERMIT.
- 8. EACH PERMITTEE MUST DOCUMENT IN THEIR RECORDS ANY AND ALL KNOWN VIOLATIONS OF THIS PERMIT AT HIS/HER SITE WITHIN SEVEN (7) DAYS OF HIS/HER KNOWLEDGE OF THE VIOLATION. A SUMMARY OF THESE VIOLATIONS MUST BE SUBMITTED TO EPD BY THE PERMITTEE WITHIN FOURTEEN (14) DAYS OF HIS/HER DISCOVERY OF THE VIOLATION.
- 9. PENALTIES FOR VIOLATIONS OF PERMIT CONDITIONS. THE FEDERAL CLEAN WATER ACT AND THE GEORGIA WATER QUALITY CONTROL ACT (O.C.G.A. 12-5-20, ET SEQ.) PROVIDE THAT ANY PERSON WHO FALSIFIES, TAMPERS WITH, OR KNOWINGLY RENDERS INACCURATE ANY MONITORING DEVICE OR METHOD REQUIRED TO BE MAINTAINED UNDER THIS PERMIT, MAKES ANY FALSE STATEMENT, REPRESENTATION, OR CERTIFICATION IN ANY RECORD OR OTHER DOCUMENT SUBMITTED OR REQUIRED TO BE MAINTAINED UNDER THIS PERMIT, INCLUDING MONITORING REPORTS OR REPORTS OF COMPLIANCE OR NONCOMPLIANCE SHALL, UPON CONVICTION BE PUNISHED BY A FINE OR BY IMPRISONMENT, OR BY BOTH. THE FEDERAL CLEAN WATER ACT AND THE GEORGIA WATER QUALITY CONTROL ACT ALSO PROVIDE PROCEDURES FOR IMPOSING CIVIL PENALTIES WHICH MAY BE LEVIED FOR VIOLATIONS OF THE ACTS, ANY PERMIT CONDITION OR LIMITATION ESTABLISHED PURSUANT TO THE ACTS, OR NEGLIGENTLY OR INTENTIONALLY FAILING OR REFUSING TO COMPLY WITH ANY FINAL OR EMERGENCY ORDER OF THE DIRECTOR.
- 10. THE NOTES PRESENTED HEREIN SUMMARIZE THE PERTINENT POINTS IN GENERAL PERMIT #GAR 100001. THE PRIMARY PERMITTEE IS RESPONSIBLE FOR COMPLYING WITH ALL PROVISIONS OF THE PERMIT.

PROJECT INFORMATION

5. PRIMARY PERMITTEE:
CITY OF SAVANNAH - LESTER HENDRIX
PRIMARY PERMITTEE ADDRESS: 1400 E. PRESIDENT STREET, SAVANNAH, GA 31402
PRIMARY PERMITTEE PHONE: 912.398.6112
PRIMARY PERMITTEE EMAIL: LHENDRIX@SAVANNAH.GOV

SITE INFORMATION

6. TOTAL SITE AREA: 3.71 ACRES, DISTURBED AREA: 3.58 ACRES
ADDRESS: 198 DARQUE ROAD, SAVANNAH, GA CHATHAM COUNTY
PROJECT NAME: TRAVIS FIELD WATER RECLAMATION FACILITY

GPS LOCATION (DEGREES):

7. 32.1126750, 81.1872580
OWNER: CITY OF SAVANNAH
PO BOX 1027, SAVANNAH, GEORGIA 31402
912.651.6573

DESCRIPTION OF THE CONSTRUCTION ACTIVITY

- 9. EXISTING SITE IS AN EXISTING WATER TREATMENT FACILITY. IT WILL BE DECOMMISSIONED AND A NEW FACILITY WILL BE BUILT IN ITS PLACE. NEW CONSTRUCTION WILL INCLUDE NEW BUILDINGS, UTILITY LINE, ROADS, TANKS, AND STORMWATER PIPING.
- 11. RECEIVING WATER (WARM WATER & FISHERIES STREAM): PIPE MAKERS CANAL, ALL THREE BASINS REACH PIPE MAKERS CANAL
- 22. STREAM STATUS: IMPAIRED - CRITERION VIOLATED: FC; CATEGORY: 5-NON-BIOTA IMPAIRMENT
BUFFER ENCROACHMENT: NO BUFFERS ARE TO BE DISTURBED BY THE PROPOSED CONSTRUCTION.

EPD DISTRICT OFFICE
COASTAL DISTRICT
GEORGIA ENVIRONMENTAL PROTECTION DIVISION
400 COMMERCE CENTER DRIVE
BRUNSWICK, GA 31523
PHONE: 912.264.7284

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2550 HERITAGE CT. TEL: 770.951.2495
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GEORGIA REGISTERED PROFESSIONAL ENGINEER LEIGH A. FARR
No. 036089
05/01/2019
GSWCC LEVEL II #13352
EXP. 05/10/2020

NO.	ISSUED FOR BIDS	DATE	REVISIONS
0	05/07/19	04/05/19	
	0		

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TRAVIS FIELD WATER RECLAMATION FACILITY
EROSION & SEDIMENT CONTROL NOTES

JOB NO:	J-26963.0000
DATE:	12/20/2018
DRAWN:	LAF
DESIGNED:	LAF
REVIEWED:	
APPROVED:	
SCALE:	

C7.0

BID SET - NOT FOR CONSTRUCTION

27 25 POLLUTION PREVENTION MEASURES

- GOOD HOUSEKEEPING PRACTICES: AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT TO DO THE JOB. ALL MATERIALS ON SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER ONE ROOF OR ENCLOSURE. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINER WITH ORIGINAL MANUFACTURER'S LABEL. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER. WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
- HAZARDOUS PRODUCTS: THESE PRACTICES ARE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS.
 - PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.
 - ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED; THEY CONTAIN IMPORTANT INFORMATION.
 - IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURERS' OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

27 25 SPILL PREVENTION PRACTICES

- LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND PROCEDURES WILL BE MADE AVAILABLE TO SITE PERSONNEL.
- MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST AND PROPERLY LABELED PLASTIC AND METAL WASTE CONTAINERS.
- SPILL PREVENTION PRACTICES AND PROCEDURES WILL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.
- ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS WILL BE REPORTED AS REQUIRED BY LOCAL, STATE, AND FEDERAL REGULATIONS.
- FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER) THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802.
- FOR SPILLS OF UNKNOWN AMOUNT, THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-424-8802.
- FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS OCCUR, THE GEORGIA E.P.D. WILL BE CONTACTED WITHIN 24 HOURS.
- FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS OCCUR, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED.

THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1320 GALLONS OF PETROLEUM IS STORED ON SITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 660 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL.

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APPROXIMATE ACTIVITY SCHEDULE

ANTICIPATED START DATE: 01/01/2019

ANTICIPATED COMPLETION DATE: 05/30/2020

DESCRIPTION	MONTH																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
SEDIMENT CONTROL-TREE PROTECTION																	
DEMOLITION OF EXISTING BUILDINGS AND INFRSCT.																	
CLEARING & GRUBBING																	
GRADING																	
MULCHING - TEMPORARY GRASSING																	
UTILITY INSTALLATION																	
BUILDING CONSTRUCTION																	
FINAL PAVING																	
MAINT. OF EROSION CONTROL DEVICES																	
FINAL LANDSCAPING, CLEANING OF STORM DRAINS																	
DISPOSITION OF SEDIMENT DEVICES																	

ADDITIONAL ES&PC NOTES

- USE OF ALTERNATIVE BMP'S WHOSE PERFORMANCE HAS BEEN DOCUMENTED TO BE EQUIVALENT TO OR SUPERIOR TO CONVENTIONAL BMP'S AS CERTIFIED BY A DESIGN PROFESSIONAL (UNLESS DISAPPROVED BY EPD OR THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION). PLEASE REFER TO THE ALTERNATIVE BMP GUIDANCE DOCUMENT FOUND AT WWW.GASWCC.ORG.
- NO STATE WATERS ARE PRESENT WITHIN THE SITE.
- WETLANDS ARE PRESENT WITHIN 200 FEET OF THE SITE.
- CURVE NUMBER: EXISTING CONDITIONS CN = 74, PROPOSED CONDITIONS CN = 85
- SOILS: OJC & PN

32 SAMPLING REQUIREMENTS

- GENERAL NPDES PERMIT #GAR 10001 REQUIRES THE SAMPLING OF STORMWATER RUNOFF AND MONITORING OF NEPHELOMETRIC TURBIDITY IN RECEIVING WATER(S) OR OUTFALLS.
 - ALL SAMPLING SHALL BE COLLECTED BY "GRAB SAMPLES" AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED); THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833-B-92-001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.
 - SAMPLE CONTAINERS SHOULD BE LABELED PRIOR TO COLLECTING THE SAMPLES. LABELING SHOULD INCLUDE: PROJECT NAME, SAMPLE LOCATION, SAMPLE NO., DATE COLLECTED, TIME COLLECTED
 - SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO A SECONDARY CONTAINER.
 - LARGE MOUTH, WELL CLEANED AND REUSED GLASS OR PLASTIC JARS SHOULD BE USED FOR COLLECTING SAMPLES. THE JARS SHOULD BE CLEANED THOROUGHLY TO AVOID CONTAMINATION.
 - MANUAL, AUTOMATIC OR RISING STAGE SAMPLING MAY BE UTILIZED. SAMPLES REQUIRED BY THIS PERMIT SHOULD BE ANALYZED IMMEDIATELY, BUT IN NO CASE LATER THAN 48 HOURS AFTER COLLECTION. HOWEVER, SAMPLES FROM AUTOMATIC SAMPLERS MUST BE COLLECTED NO LATER THAN THE NEXT BUSINESS DAY AFTER THEIR ACCUMULATION, UNLESS FLOW THROUGH AUTOMATED ANALYSIS IS UTILIZED. IF AUTOMATIC SAMPLING IS UTILIZED AND THE AUTOMATIC SAMPLER IS NOT ACTIVATED DURING THE QUALIFYING EVENT, THE PERMITTEE MUST UTILIZE MANUAL SAMPLING OR RISING STAGE SAMPLING DURING THE NEXT QUALIFYING EVENT. DILUTION OF SAMPLES IS NOT REQUIRED. SAMPLES MAY BE ANALYZED DIRECTLY WITH A PROPERLY CALIBRATED TURBIDIMETER. SAMPLES ARE NOT REQUIRED TO BE COOLED.
 - SAMPLING AND ANALYSIS OF THE RECEIVING WATER(S) OR OUTFALLS BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED TO EPD.
- SAMPLING POINTS**
- FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE MUST SAMPLE ALL RECEIVING WATER(S), OR ALL OUTFALL(S), OR A COMBINATION OF RECEIVING WATER(S) AND OUTFALL(S). SAMPLES TAKEN FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY AND REPRESENTATIVE OF THE WATER QUALITY OF THE RECEIVING WATER(S) AND/OR THE STORM WATER OUTFALLS USING THE FOLLOWING MINIMUM GUIDELINES:
 - THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORM WATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.
 - THE DOWNSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORM WATER DISCHARGE NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.
 - IDEALLY THE SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORM WATER OUTFALL CHANNEL(S).
 - CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORM WATER CHANNEL.
 - THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.
 - THE SAMPLES SHOULD BE KEPT FREE FROM FLOATING DEBRIS.
 - PERMITTEES DO NOT HAVE TO SAMPLE SHEETFLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT. FOR PURPOSES OF THIS SECTION, STABILIZED SHALL MEAN, FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES AND AREAS LOCATED OUTSIDE THE WASTE DISPOSAL LIMITS OF A LANDFILL CELL THAT HAS BEEN CERTIFIED BY EPD FOR WASTE DISPOSAL, 100% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70% OR GREATER, OR LANDSCAPED ACCORDING TO THE PLAN (UNIFORMLY COVERED WITH LANDSCAPING MATERIALS IN PLANNED LANDSCAPE AREAS), OR EQUIVALENT PERMANENT STABILIZATION MEASURES AS DEFINED IN THE MANUAL (EXCLUDING A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET CROP PERENNIALS APPROPRIATE FOR THE REGION).
 - ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY (INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING, AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORM WATER RUNOFF FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARD SET FORTH IN PARTS III.D.3. OR III.D.4., WHICHEVER IS APPLICABLE.
- SAMPLING FREQUENCY (GAR 100001 IV.D.6.d)**
- THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORM WATER DISCHARGE TO A MONITORED RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN IN FORTY-FIVE (45) MINUTES OR AS SOON AS POSSIBLE.
 - HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORM WATER DISCHARGE.
 - SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING QUALIFYING EVENTS:
 - FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION;
 - IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOI, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST;
 - AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPs IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMPs ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED;
 - WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.A.(6), MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A), (B) OR (C) ABOVE; AND
 - EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.
- *NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR SAMPLING AT ANY TIME OF THE DAY OR WEEK.
- NON-STORM WATER DISCHARGES: EXCEPT FOR FLOWS FROM FIRE FIGHTING ACTIVITIES, SOURCES OF NON-STORM WATER LISTED IN PART 111.A.2. OF THIS PERMIT THAT ARE COMBINED WITH STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY MUST BE IDENTIFIED IN THE PLAN. THE PLAN SHALL IDENTIFY AND ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORM WATER COMPONENT(S) OF THE DISCHARGE.

30 REPORTING (GAR 100001 IV.E.)

- THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORM WATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V. G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOI IS SUBMITTED IN ACCORDANCE WITH PART VI.
- ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:
 - THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
 - THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;
 - THE DATE(S) ANALYSES WERE PERFORMED;
 - THE TIME(S) ANALYSES WERE INITIATED;
 - THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;
 - REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED;
 - THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, ETC., USED TO DETERMINE THESE RESULTS;
 - RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU;" AND
 - CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.
- ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOI IS SUBMITTED IN ACCORDANCE WITH PART VI. IF AN ELECTRONIC SUBMITTAL IS PROVIDED BY EPD THEN THE WRITTEN CORRESPONDENCE MAY BE SUBMITTED ELECTRONICALLY; IF REQUIRED, A PAPER COPY MUST ALSO BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL OR SIMILAR SERVICE.

29 INSPECTIONS (PERMITTEE REQUIREMENTS)

- EACH DAY WHEN ANY TYPE OF CONSTRUCTION ACTIVITY HAS TAKEN PLACE AT A PRIMARY PERMITTEE'S SITE, CERTIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE SHALL INSPECT: (A) ALL AREAS AT THE PRIMARY PERMITTEE'S SITE WHERE PETROLEUM PRODUCTS ARE STORED, USED, OR HANDLED FOR SPILLS AND LEAKS FROM VEHICLES AND EQUIPMENT AND (B) ALL LOCATIONS AT THE PRIMARY PERMITTEE'S SITE WHERE VEHICLES ENTER OR EXIT THE SITE FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING. THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.
- MEASURE RAINFALL ONCE EVERY 24 HOURS EXCEPT ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY AND NON-WORKING FEDERAL HOLIDAY UNTIL A NOTICE OF TERMINATION IS SUBMITTED. MEASUREMENT OF RAINFALL MAY BE SUSPENDED IF ALL AREAS OF THE SITE HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION.
- CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT THE FOLLOWING AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCH OR GREATER (UNLESS SUCH STORM ENDS AFTER 5:00PM ON ANY FRIDAY OR ON ANY NON-WORKING SATURDAY, NON-WORKING SUNDAY OR ANY NON-WORKING FEDERAL HOLIDAY IN WHICH CASE THE INSPECTION SHALL BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AND/OR WORKING DAY, WHICHEVER OCCURS FIRST): (A) DISTURBED AREAS OF THE PRIMARY PERMITTEE'S CONSTRUCTION SITE; (B) AREAS USED BY THE PRIMARY PERMITTEE FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION; AND (C) STRUCTURAL CONTROL MEASURES, EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN APPLICABLE TO THE PRIMARY PERMITTEE'S SITE SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S). FOR AREAS OF A SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION, THE PERMITTEE MUST COMPLY WITH PART IV.D.4.A.(4). THESE INSPECTIONS MUST BE CONDUCTED UNTIL A NOTICE OF TERMINATION IS SUBMITTED.
- CERTIFIED PERSONNEL (PROVIDED BY THE PRIMARY PERMITTEE) SHALL INSPECT AT LEAST ONCE PER MONTH DURING THE TERM OF THIS PERMIT (I.E., UNTIL A NOTICE OF TERMINATION IS RECEIVED BY EPD) THE AREAS OF THE SITE THAT HAVE UNDERGONE FINAL STABILIZATION OR ESTABLISHED A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET PERENNIALS APPROPRIATE FOR THE REGION. THESE AREAS SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND RECEIVING WATER(S). EROSION AND SEDIMENT CONTROL MEASURES IDENTIFIED IN THE PLAN SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. WHERE DISCHARGE LOCATIONS OR POINTS ARE ACCESSIBLE, THEY SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER(S).
- BASED ON THE RESULTS OF EACH INSPECTION, THE SITE DESCRIPTION AND THE POLLUTION PREVENTION AND CONTROL MEASURES IDENTIFIED IN THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, THE PLAN SHALL BE REVISED AS APPROPRIATE NOT LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION. IMPLEMENTATION OF SUCH CHANGES SHALL BE MADE AS SOON AS PRACTICAL BUT IN NO CASE LATER THAN SEVEN (7) CALENDAR DAYS FOLLOWING EACH INSPECTION.
- A REPORT OF EACH INSPECTION AND THE NAME(S) OF CERTIFIED PERSONNEL MAKING EACH INSPECTION, THE DATE(S) OF EACH INSPECTION, CONSTRUCTION PHASE (I.E., INITIAL, INTERMEDIATE OR FINAL), MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN, AND ACTIONS TAKEN IN ACCORDANCE WITH PART IV.D.4.A.(5) OF THIS PERMIT SHALL BE MADE AND RETAINED AT THE SITE OR BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION UNTIL THE ENTIRE SITE OR THAT PORTION OF A CONSTRUCTION PROJECT THAT HAS BEEN PHASED HAS UNDERGONE FINAL STABILIZATION AND A NOTICE OF TERMINATION IS SUBMITTED TO EPD. SUCH REPORTS SHALL BE READILY AVAILABLE BY THE END OF THE SECOND BUSINESS DAY AND/OR WORKING DAY AND SHALL IDENTIFY ALL INCIDENTS OF BEST MANAGEMENT PRACTICES THAT HAVE NOT BEEN PROPERLY INSTALLED AND/OR MAINTAINED AS DESCRIBED IN THE PLAN. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS, THE INSPECTION REPORT SHALL CONTAIN A CERTIFICATION THAT THE BEST MANAGEMENT PRACTICES ARE IN COMPLIANCE WITH THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN. THE REPORT SHALL BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THIS PERMIT.

RECORDING AND RECORDS

- THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOI IS SUBMITTED IN ACCORDANCE WITH PART VI:
 - A COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD;
 - A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT;
 - THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THIS PERMIT;
 - A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT;
 - A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A. OF THIS PERMIT;
 - A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2. OF THIS PERMIT; AND
 - DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.A.(2). OF THIS PERMIT.
- COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION), OR OTHER REPORTS REQUESTED BY THE EPD, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOI IS SUBMITTED IN ACCORDANCE WITH PART VI OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATE LOCATION ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.
- OWNERS OR OPERATORS OR BOTH WHO INTEND TO OBTAIN COVERAGE UNDER THIS GENERAL PERMIT FOR STORM WATER DISCHARGES FROM A CONSTRUCTION SITE, SHALL SUBMIT A NOTICE OF INTENT (NOI) IN ACCORDANCE WITH THE REQUIREMENTS OF THIS PART AT LEAST FOURTEEN (14) DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
- NOIS ARE TO BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO BOTH THE DISTRICT OFFICE OF THE EPD AND TO THE LOCAL ISSUING AUTHORITY.
- WHERE AN OWNER OR AN OPERATOR OR BOTH CHANGES AFTER AN NOI HAS BEEN FILED, THE SUBSEQUENT OWNER OR OPERATOR OR BOTH MUST FILE A NEW NOI AT LEAST SEVEN (7) DAYS BEFORE BEGINNING OF WORK AT THE FACILITY/SITE.

STORMWATER MONITORING RATIONALE

- THE FOLLOWING FACTORS WERE CONSIDERED WHEN DETERMINING THE STORMWATER MONITORING POINT LOCATIONS:
 - MONITORING POINTS CHOSEN WHERE MAJORITY OF SITE RUNOFF ENTERS CONVEYANCE LEAVING SITE AND AT LOCATION WITHIN RECEIVING CONVEYANCE JUST UPSTREAM OF WHERE THE MAJORITY OF SITE RUNOFF ENTERS THE CONVEYANCE. MONITORING POINT LOCATION ADJUSTED AS SHOWN ON PLAN AS CHANGES ARE MADE TO WHERE SITE RUNOFF ENTERS RECEIVING CONVEYANCE.

- SAMPLING OF (OUTFALL/RECEIVING WATER)
 - NUMBER OF OUTFALLS: 3
 - APPENDIX B NTU VALUE: 75
 - SURFACE WATER DRAINAGE AREA (SQ MILES): 0.13



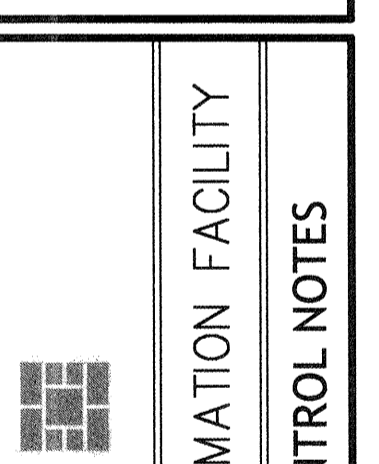
2650 HERITAGE CT. TEL: 770.951.2498
 1685 BENTLEY RD. TEL: 770.951.2496
 ATLANTA, GA 30338 FAX: 770.951.2496
 WWW.LONGENG.COM
 LEI JOB# 0435-0020



05/01/2019
 GSWCC LEVEL II #13352
 EXP. 06/10/2020

NO.	ISSUED FOR BIDS	DATE	REVISIONS
0	05/01/19	04/05/19	
	GASWCC COMMENTS		

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 50 Park of Commerce Way
 Savannah, GA 31405 • 912.234.5300
 www.thomasandhutton.com



TRAVIS FIELD WATER RECLAMATION FACILITY
 EROSION & SEDIMENT CONTROL NOTES

JOB NO: J-26863.0000
DATE: 12/20/2018
DRAWN: LAF
DESIGNED: LAF
APPROVED: [Signature]
SCALE:

C7.1

BID SET - NOT FOR CONSTRUCTION

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST
STAND ALONE CONSTRUCTION PROJECTS

Project Name: TRAVIS FIELD WRF Address: 188 DARQUE STREET
City/County: SAVANNAH/CHATHAM Date on Plans:
Name & email of person filling out checklist: LEIGH FARR/LFARR@LONGENG.COM

Plan Included TO BE SHOWN ON ES&PC PLAN

- 1 The applicable Erosion, Sedimentation and Pollution Control Plan Checklist established by the Commission as of January 1 of the year in which the land-disturbing activity was permitted. (The completed Checklist must be submitted with the ES&PC Plan or the Plan will not be reviewed)
2 Level II certification number issued by the Commission, signature and seal of the certified design professional. (Signature, seal and Level II number must be on each sheet pertaining to ES&PC plan or the Plan will not be reviewed)
3 Limits of disturbance shall be no greater than 50 acres at any one time without prior written authorization from the EPD District Office. If EPD approves the request to disturb 50 acres or more at any one time, the Plan must include at least 4 of the BMPs listed in Appendix 1 of this checklist. (A copy of the written approval by EPD must be attached to the plan for the Plan to be reviewed.)
4 The name and phone number of the 24-hour local contact responsible for erosion, sedimentation and pollution controls.
5 Provide the name, address, email address, and phone number of primary permittee.
6 Note total and disturbed acreage of the project or phase under construction.
7 Provide the GPS location of the construction exit for the site. Give the Latitude and Longitude in decimal degrees.
8 Initial date of the Plan and the dates of any revisions made to the Plan including the entity who requested the revisions.
9 Description of the nature of construction activity.
10 Provide vicinity map showing site's relation to surrounding areas. Include designation of specific phase, if necessary.
11 Identify the project receiving waters and describe all sensitive adjacent areas including streams, lakes, residential areas, wetlands, marshlands, etc. which may be affected.
12 Design professional's certification statement and signature that the site was visited prior to development of the ES&PC Plan as stated on Part IV page 19 of the permit.
13 Design professional's certification statement and signature that the permittee's ES&PC Plan provides for an appropriate and comprehensive system of BMPs and sampling to meet permit requirements as stated on Part IV page 19 of the permit.
14 Clearly note the statement that "The design professional who prepared the ES&PC Plan is to inspect the installation of the initial sediment storage requirements and perimeter control BMPs within 7 days after installation." in accordance with Part IV.A.5 page 25 of the permit.
15 Clearly note the statement that "Non-exempt activities shall not be conducted within the 25 or 50-foot undisturbed stream buffers as measured from the point of wetland vegetation or within 25-foot of the coastal marshland buffer as measured from the Jurisdictional Determination Line without first acquiring the necessary variances and permits."
16 Provide a description of any buffer encroachments and indicate whether a buffer variance is required.
17 Clearly note the statement that "Amendments/revisions to the ES&PC Plan which have a significant effect on BMPs with a hydraulic component must be certified by the design professional."
18 Clearly note the statement that "Waste materials shall not be discharged to waters of the State, except as authorized by a Section 404 permit."
19 Clearly note statement that "The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to land disturbing activities."
20 Clearly note statement that "Erosion control measures will be maintained at all times. If full implementation of the approved Plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source."
21 Clearly note the statement "Any disturbed area left exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding."
22 Any construction activity which discharges storm water into an Impaired Stream Segment, or within 1 linear mile upstream of and within the same watershed as, any portion of an Impaired Stream Segment must comply with Part III, C. of the permit. Include the completed Appendix 1 listing all the BMPs that will be used for those areas of the site which discharge to the Impaired Stream Segment."
23 If a TMDL Implementation Plan for sediment has been finalized for the Impaired Stream Segment (identified in Item 22 above) at least six months prior to submittal of NOI, the ES&PC Plan must address any site-specific conditions or requirements included in the TMDL Implementation Plan."
24 BMPs for concrete washdown of tools, concrete mixer chutes, hoppers and the rear of the vehicles. Washout of the drum at the construction site is prohibited."
25 Provide BMPs for the remediation of all petroleum spills and leaks.
26 Description of the measures that will be installed during the construction process to control pollutants in storm water that will occur after construction operations have been completed."

- 27 Description of practices to provide cover for building materials and building products on site.*
28 Description of the practices that will be used to reduce the pollutants in storm water discharges.*
29 Description and chart or outline of the intended sequence of major activities which disturb soils for the major portions of the site (i.e., initial perimeter and sediment storage BMPs, clearing and grubbing activities, excavation activities, utility activities, temporary and final stabilization).
30 Provide complete requirements of inspections and record keeping by the primary permittee.*
31 Provide complete requirements of sampling frequency and reporting of sampling results.*
32 Provide complete details for retention of records as per Part IV.F. of the permit.*
33 Description of analytical methods to be used to collect and analyze the samples from each location.*
34 Appendix B rationale for NTU values at all outfall sampling points where applicable.*
35 Delineate all sampling locations, perennial and intermittent streams and other water bodies into which storm water is discharged.*
36 A description of appropriate controls and measures that will be implemented at the construction site including: (1) initial sediment storage requirements and perimeter control BMPs, (2) intermediate grading and drainage BMPs, and (3) final BMPs. For construction sites where there will be no mass grading and the initial perimeter control BMPs, intermediate grading and drainage BMPs, and final BMPs are the same, the Plan may combine all of the BMPs into a single phase.*
37 Graphic scale and North arrow.
38 Existing and proposed contour lines with contour lines drawn at an interval in accordance with the following:
Map Scale Ground Slope Contour Intervals, ft.
1 inch = 100ft or larger scale Flat 0 - 2% 0.5 or 1
Rolling 2 - 8% 1 or 2
Steep 8% + 2.5 or 10
39 Use of alternative BMPs whose performance has been documented to be equivalent to or superior to conventional BMPs as certified by a Design Professional (unless disapproved by EPD or the Georgia Soil and Water Conservation Commission). Please refer to the Alternative BMP Guidance Document found at www.gaswcc.org.
40 Use of alternative BMP for application to the Equivalent BMP List. Please refer to Appendix A-2 of the Manual for Erosion & Sediment Control in Georgia 2016 Edition.*
41 Delineation of the applicable 25-foot or 50-foot undisturbed buffers adjacent to state waters and any additional buffers required by the Local Issuing Authority. Clearly note and delineate all areas of impact.
42 Delineation of on-site wetlands and all state waters located on and within 200 feet of the project site.
43 Delineation and acreage of contributing drainage basins on the project site.
44 Provide hydrology study and maps of drainage basins for both the pre- and post-developed conditions.*
45 An estimate of the runoff coefficient or peak discharge flow of the site prior to and after construction activities are completed.
46 Storm-drain pipe and weir velocities with appropriate outlet protection to accommodate discharges without erosion. Identify/Delineate all storm water discharge points.
47 Soil series for the project site and their delineation.
48 The limits of disturbance for each phase of construction.
49 Provide a minimum of 67 cubic yards of sediment storage per acre drained using a temporary sediment basin, retrofitted detention pond, and/or excavated inlet sediment traps for each common drainage location. Sediment storage volume must be in place prior to and during all land disturbance activities until final stabilization of the site has been achieved. A written justification explaining the decision to use equivalent controls when a sediment basin is not attainable must be included in the Plan for each common drainage location in which a sediment basin is not provided. A written justification as to why 67 cubic yards of storage is not attainable must also be given. Worksheets from the Manual included for structural BMPs and all calculations used by the storage design professional to obtain the required sediment when using equivalent controls. When discharging from sediment basins and impoundments, permittees are required to utilize outlet structures that withdraw water from the surface, unless infeasible. If outlet structures that withdraw water from the surface are not feasible, a written justification explaining this decision must be included in the Plan.
50 Location of Best Management Practices that are consistent with and no less stringent than the Manual for Erosion and Sediment Control in Georgia. Use uniform coding symbols from the Manual, Chapter 6, with legend.
51 Provide detailed drawings for all structural practices. Specifications must, at a minimum, meet the guidelines set forth in the Manual for Erosion and Sediment Control in Georgia.
52 Provide vegetative plan, noting all temporary and permanent vegetative practices. Include species, planting dates and seeding, fertilizer, lime and mulching rates. Vegetative plan shall be site specific for appropriate time of the year that seeding will take place and for the appropriate geographic region of Georgia.
*If using this checklist for a project that is less than 1 acre and not part of a common development but within 200 ft of a perennial stream the * checklist items would be N/A.

Effective January 1, 2019

27 POLLUTION AND SPILL PREVENTION MEASURES

- 1. GOOD HOUSEKEEPING PRACTICES: AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT TO THE JOB. ALL MATERIALS ON SITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR ENCLOSURE... PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINER WITH THE ORIGINAL MANUFACTURER'S LABEL. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER. WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED BEFORE DISPOSING OF A CONTAINER.
2. HAZARDOUS PRODUCTS: THESE PRACTICES ARE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS.
A. PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.
B. ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED; THEY CONTAIN IMPORTANT INFORMATION.
C. IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

28 BEST MANAGEMENT PRACTICES

- 1. BEST MANAGEMENT PRACTICES, AS SET FORTH IN THIS PERMIT, ARE REQUIRED FOR ALL CONSTRUCTION ACTIVITIES, AND MUST BE IMPLEMENTED IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS CONTAINED IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA (MANUAL), PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED TO PREVENT OR REDUCE THE POLLUTION OF WATERS OF GEORGIA. PROPER DESIGN, INSTALLATION, AND MAINTENANCE OF BEST MANAGEMENT PRACTICES SHALL CONSTITUTE A COMPLETE DEFENSE TO ANY ACTION BY THE DIRECTOR OR TO ANY OTHER ALLEGATION OF NONCOMPLIANCE WITH PART 111.D.3 AND PART 111.D.4 OF PERMIT #GAR10001.
2. EXCEPT AS REQUIRED TO INSTALL THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs AS DESCRIBED IN PART IV.D.3., THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs MUST BE INSTALLED AND IMPLEMENTED PRIOR TO CONDUCTING ANY OTHER CONSTRUCTION ACTIVITIES (E.G., CLEARING, GRUBBING AND GRADING) WITHIN THE CONSTRUCTION SITE OR WHEN APPLICABLE, WITHIN PHASED SUB-PARTS OR SEGMENTS OF THE CONSTRUCTION SITE. FAILURE TO COMPLY SHALL CONSTITUTE A VIOLATION OF THIS PERMIT FOR EACH DAY ON WHICH CONSTRUCTION ACTIVITIES OCCUR. THE DESIGN PROFESSIONAL WHO PREPARED THE PLAN MUST INSPECT THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs IN ACCORDANCE WITH PART IV.A.5. WITHIN SEVEN (7) DAYS AFTER INSTALLATION.
3. FAILURE TO PROPERLY DESIGN, INSTALL, OR MAINTAIN BEST MANAGEMENT PRACTICES SHALL CONSTITUTE A VIOLATION OF THIS PERMIT FOR EACH DAY ON WHICH SUCH FAILURE OCCURS. BMP MAINTENANCE AS A RESULT OF THE PERMITTEE'S ROUTINE INSPECTIONS SHALL NOT BE CONSIDERED A VIOLATION FOR THE PURPOSES OF THIS PARAGRAPH. IF DURING THE COURSE OF THE PERMITTEE'S ROUTINE INSPECTION BMP FAILURES ARE OBSERVED WHICH HAVE RESULTED IN SEDIMENT DEPOSITION INTO WATERS OF THE STATE, THE PERMITTEE SHALL CORRECT THE BMP FAILURES AND SHALL SUBMIT A SUMMARY OF THE VIOLATIONS TO EPD, IN ACCORDANCE WITH PART V.A.2 OF PERMIT #GAR10001.
4. A DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED, AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH DISCHARGE RESULTS IN THE TURBIDITY OF RECEIVING WATER(S) BEING INCREASED BY MORE THAN TEN (10) NEPHELOMETRIC TURBIDITY UNITS FOR WATERS CLASSIFIED AS TROUT STREAMS OR MORE THAN TWENTY-FIVE (25) NEPHELOMETRIC TURBIDITY UNITS FOR WATERS SUPPORTING WARM WATER FISHERIES, REGARDLESS OF A PERMITTEE'S CERTIFICATION, UNDER PART II.B.1.1 OF PERMIT #GAR10001.
5. WHEN THE PERMITTEE HAS ELECTED TO MONITOR OUTFALL(S), THE DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED, AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH CONDITION RESULTS IN THE TURBIDITY OF THE DISCHARGE EXCEEDING THE VALUE SELECTED FROM APPENDIX B APPLICABLE TO THE CONSTRUCTION SITE. AS SET FORTH THEREIN, THE NEPHELOMETRIC TURBIDITY UNIT (NTU) VALUE SHALL BE SELECTED FROM APPENDIX B BASED UPON THE SIZE OF THE CONSTRUCTION SITE, THE SURFACE WATER DRAINAGE AREA AND WHETHER THE RECEIVING WATER(S) SUPPORTS WARM WATER FISHERIES OR IS A TROUT STREAM AS INDICATED IN THE RULES AND REGULATIONS FOR WATER QUALITY CONTROL, CHAPTER 391-3-6 AT WWW.GAEPD.ORG

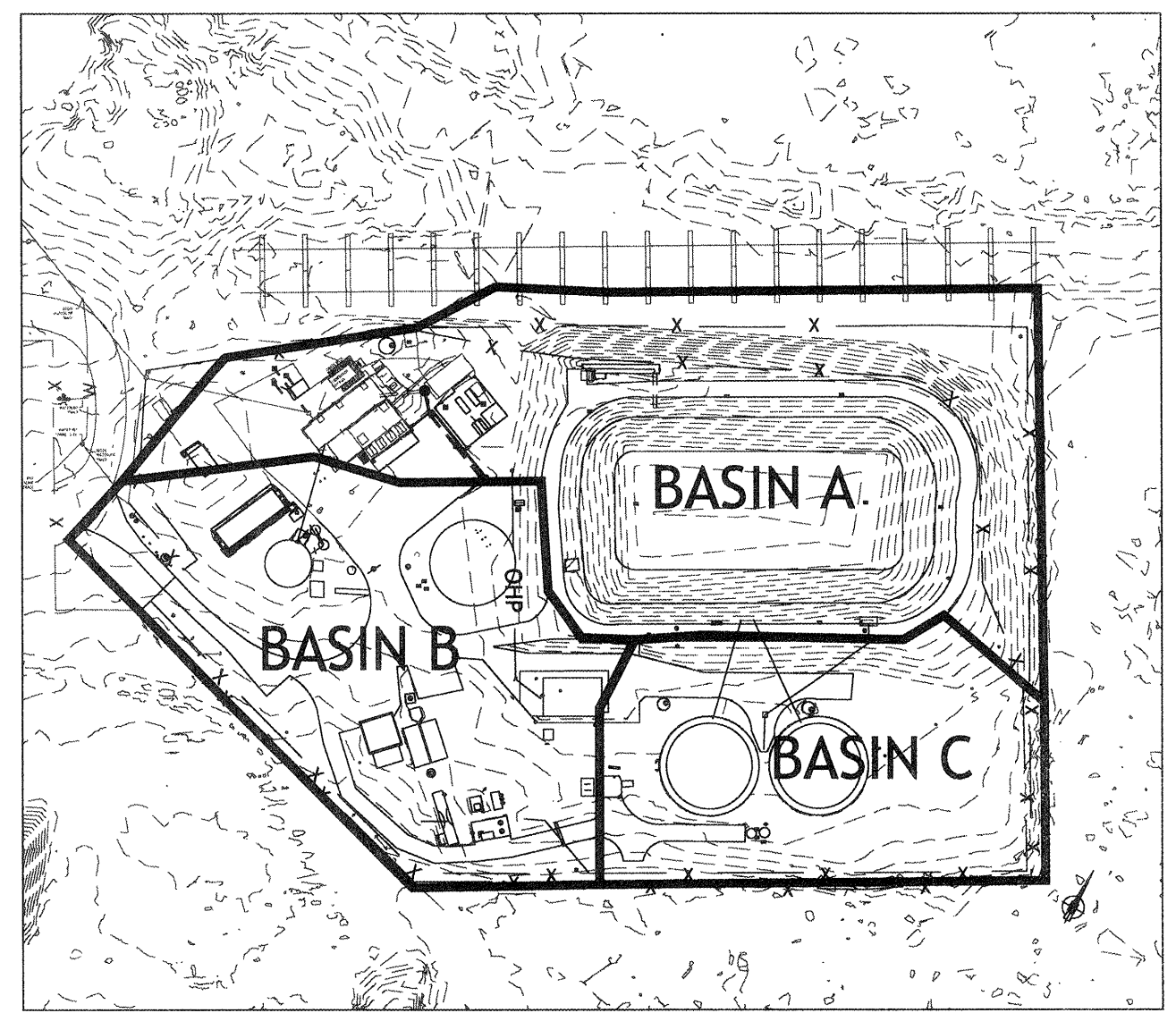
29 DESCRIPTION OF EROSION CONTROL BMP'S BY PHASE

INITIAL PHASE - INSTALL PERIMETER SILT FENCE, TEMPORARY SEDIMENT TRAPS AND CONSTRUCTION EXIT PRIOR TO REMOVING EXISTING PAVEMENT THROUGHOUT SITE AND PRIOR TO STRIPPING TOPSOIL. UPON REMOVAL OF PAVEMENT, ESTABLISH DIVERSIONS TO TEMPORARY SEDIMENT TRAPS. INSTALL OUTLET PROTECTION AT OUTFALLS OF DIVERSIONS. PROVIDE MULCHING AND TEMPORARY GRASSING AS NECESSARY.
INTERMEDIATE PHASE - BEGIN SITE GRADING AND CONSTRUCTION OF TANKS AND BUILDINGS. MAINTAIN SEDIMENT TRAPS UNTIL INLET SEDIMENT TRAPS ARE INSTALLED. MONITOR PREVIOUSLY INSTALLED PERIMETER SILT FENCE AND SEDIMENT BASIN. AFTER SEDIMENT TRAPS ARE INSTALLED AND FUNCTIONING, REMOVE SEDIMENT TRAPS. STONE OUTLET PROTECTION SHOULD BE INSTALLED AT ALL CONCENTRATED FLOW OUTFALLS.
FINAL PHASE - BUILDING CONSTRUCTION, INSTALLATION OF HARDSCAPES AND FINAL GRADING AND STABILIZATION. DISPOSITION OF ALL TEMPORARY SEDIMENT BASINS.
POST CONSTRUCTION - AFTER CONSTRUCTION IS COMPLETED SITE FLOWS WILL BE COLLECTED IN STORM DRAINS AND TREATED BY CONTECH CDS UNITS IN THREE LOCATIONS. AFTER BEING TREATED BY THE CDS UNITS, FLOWS WILL BE DISCHARGED ONTO STABILIZED STONE OUTFALL APRONS. OTHER AREAS WILL ALLOW STORMWATER FLOWS TO SHEET FLOW ACROSS GRASSED AREAS.

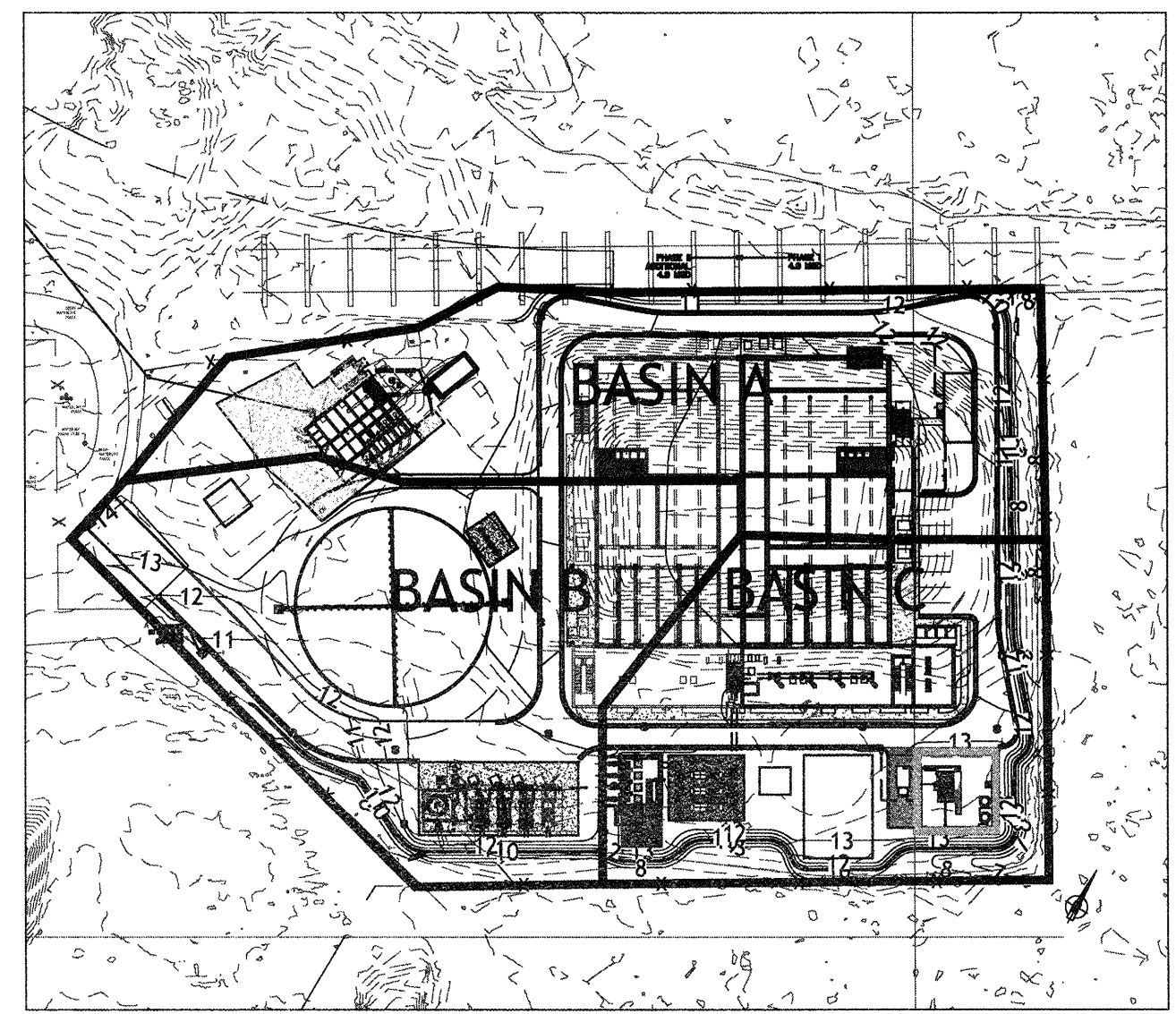
26 DESIGN PROFESSIONAL 7-DAY VISIT CERT.

DATE OF INSPECTION:
I CERTIFY THE SITE WAS IN COMPLIANCE WITH THE ES&PC PLAN ON THE DATE OF INSPECTION
GSWCC LEVEL II DESIGN PROFESSIONAL CERTIFICATION #113352
INSPECTION REVEALED THE FOLLOWING DISCREPANCIES FROM THE ES&PC PLAN:
THESE DISCREPANCIES MUST BE ADDRESSED IMMEDIATELY AND A RE-INSPECTION SCHEDULED. WORK SHALL NOT PROCEED ON THE SITE UNTIL DESIGN PROFESSIONAL CERTIFICATION IS OBTAINED.

PRE DEVELOPED BASIN MAP
PRE DEVELOPED BASIN A: 1.76 AC
PRE DEVELOPED BASIN B: 0.83 AC
PRE DEVELOPED BASIN C: 1.17 AC



POST DEVELOPED BASIN MAP
POST DEVELOPED BASIN A: 1.29 AC
POST DEVELOPED BASIN B: 1.10 AC
POST DEVELOPED BASIN C: 1.37 AC



WATERS SUPPORTING WARM WATER FISHERIES

Table with columns for Surface Water Drainage Area (SQ. MILES) and Site Size (Ac). Rows show site size ranges and corresponding watershed area values.

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Table with columns for Date, By, and Revisions. Includes a section for GSWCC COMMENTS.

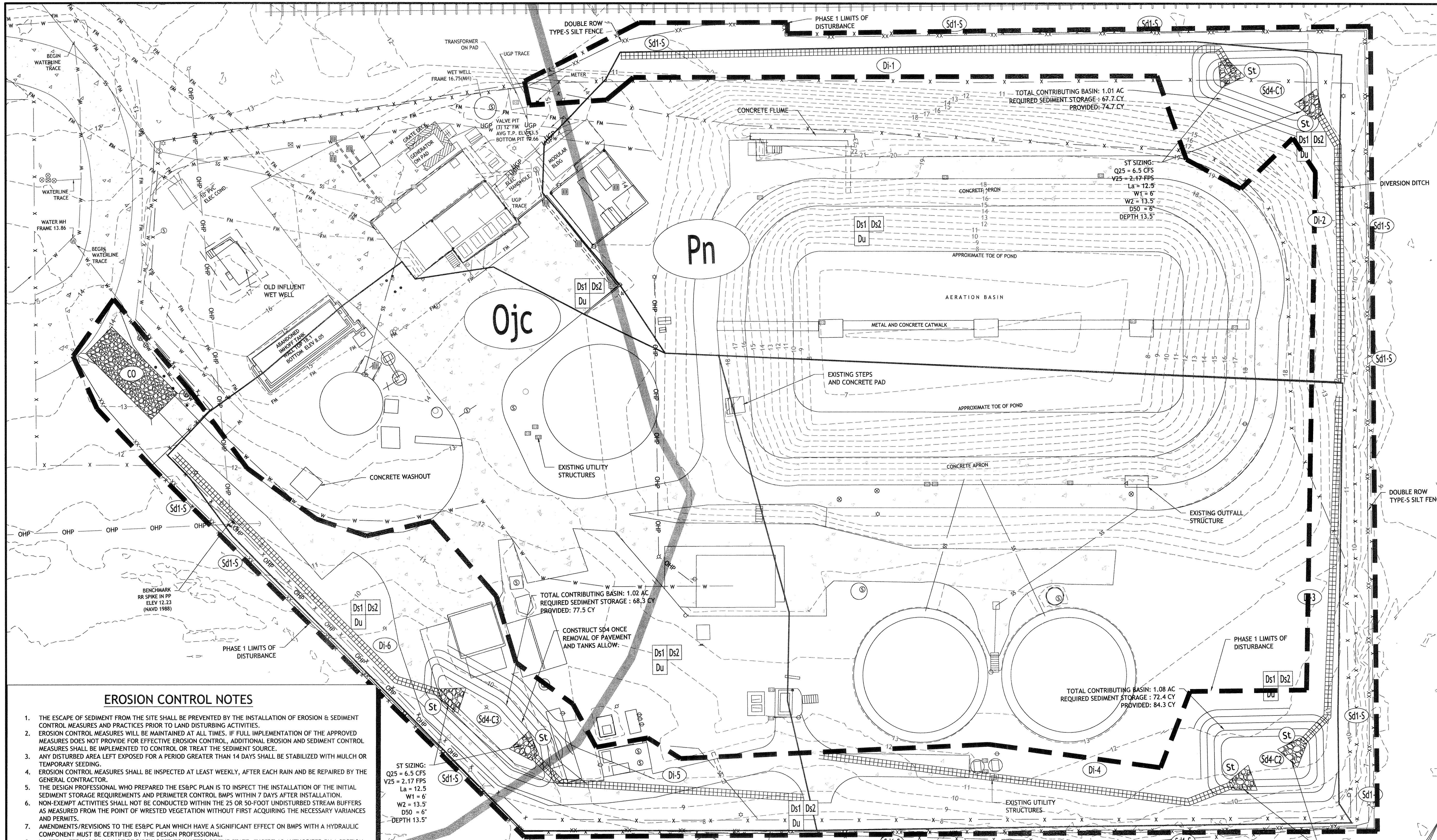
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SAVANNAH savannahga.gov TRAVIS FIELD WATER RECLAMATION FACILITY EROSION & SEDIMENT CONTROL NOTES

JOB NO: J-26963.0000 DATE: 12/20/2018 DRAWN: LAF DESIGNED: LAF REVIEWED: APPROVED: SCALE:

C7.2

BID SET - NOT FOR CONSTRUCTION



EROSION CONTROL NOTES

1. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION & SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.
2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED MEASURES DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
3. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.
4. EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST WEEKLY, AFTER EACH RAIN AND BE REPAIRED BY THE GENERAL CONTRACTOR.
5. THE DESIGN PROFESSIONAL WHO PREPARED THE ESB&C PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL B MPS WITHIN 7 DAYS AFTER INSTALLATION.
6. NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.
7. AMENDMENTS/REVISIONS TO THE ESB&C PLAN WHICH HAVE A SIGNIFICANT EFFECT ON B MPS WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.
8. WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.
9. MAINTAIN CONSTRUCTION EXITS TO PREVENT TRACKING OF MUD INTO THE PUBLIC RIGHT-OF-WAY.
10. FAILURE TO MAINTAIN EROSION CONTROL MEASURES COULD RESULT IN FINES AND/OR JAIL TIME.
11. ADDITIONAL EROSION & SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTOR.
12. ALL GRADED SLOPES 3:1 OR GREATER MUST BE HYDROSEEDED AND COVERED WITH GDOT APPROVED WHEAT OR WOOD FIBER MATTING. IF NOT HYDROSEEDED, GDOT APPROVED MATTING THAT HAS BEEN IMPREGNATED WITH SEED AND FERTILIZER MUST BE USED. ALL SLOPES MUST BE PROPERLY PROTECTED UNTIL A PERMANENT VEGETATIVE STAND IS ESTABLISHED.
13. SILT FENCE SHALL MEET THE REQUIREMENTS OF SECTIONS 171 TEMPORARY SILT FENCE OF THE GEORGIA STANDARD SPECIFICATIONS, LATEST ADDITION AND BE WIRE REINFORCED.
14. ADDITIONAL EROSION CONTROL MEASURES AS DEEMED BY JURISDICTIONAL INSPECTORS SHALL BE IMPLEMENTED IN A TIMELY FASHION.
15. GDOT TYPE "C" SILT FENCE MUST BE INSTALLED WHERE SILT FENCING IS REQUIRED AND A DOUBLE ROW MUST BE INSTALLED BETWEEN THE LAND DISTURBING ACTIVITY AND WATERS OF THE STATE.
16. ALL B MPS TO REMAIN IN PLACE UNTIL PERMANENT VEGETATION IS WELL ESTABLISHED.

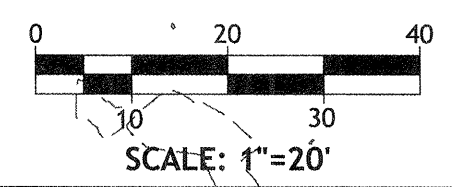
ST SIZING:
Q25 = 6.5 CFS
V25 = 2.17 FPS
La = 12.5'
W1 = 6'
W2 = 13.5'
D50 = 6'
DEPTH 13.5'

EROSION CONTROL NOTES - CONT.

17. SEE SHEETS C8.0 THRU C8.5 FOR EROSION CONTROL DETAILS.
18. THERE ARE NO WATERS OF THE STATE ON OR WITHIN 200 FEET OF PROJECT AREA.
19. SOIL SERIES FOR ENTIRE DISTURBED AREA = OCILLA LAND COMPLEX (OJC), POOLER FINE SANDY LOAM (PN)
20. TOTAL SITE AREA = 3.71 AC. PHASE 1 DISTURBED AREA = 1.01AC OVERALL DISTURBED AREA = 3.58 AC.
21. APPROXIMATE EARTHWORK QUANTITIES:
CUT 7555 CY
FILL 5785 CY
THESE QUANTITIES ARE APPROXIMATE AND SHOWN FOR PERMIT PURPOSES ONLY AND SHOULD NOT BE USED FOR BIDDING PURPOSES.
22. OWNER: CITY OF SAVANNAH
PO BOX 1027
SAVANNAH, GA 31402 - PHONE: 912-651-6573

UTILITY DISCLAIMER

UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES HAVING UTILITIES WITHIN OR ADJACENT TO THE WORK AREA. THE CONTRACTOR SHALL HAVE THE UTILITIES FIELD LOCATED AND COORDINATE WITH UTILITY COMPANIES TO HAVE THEM RELOCATED WHEN NECESSARY OR ADAPTED FOR TIE-INS.



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131 ANITA, GA 30339 www.longeng.com
LEI JOB # 0435-0020

GEORGIA REGISTERED PROFESSIONAL ENGINEER HIGH A FERR
No. 036099
05/01/2019
GSWCC LEVEL II #13352
EXP. 08/10/2020

NO.	ISSUED FOR BIDS	REVISIONS	DATE
0	ISSUED FOR BIDS	GSWCC COMMENTS	09/07/19
			04/03/19

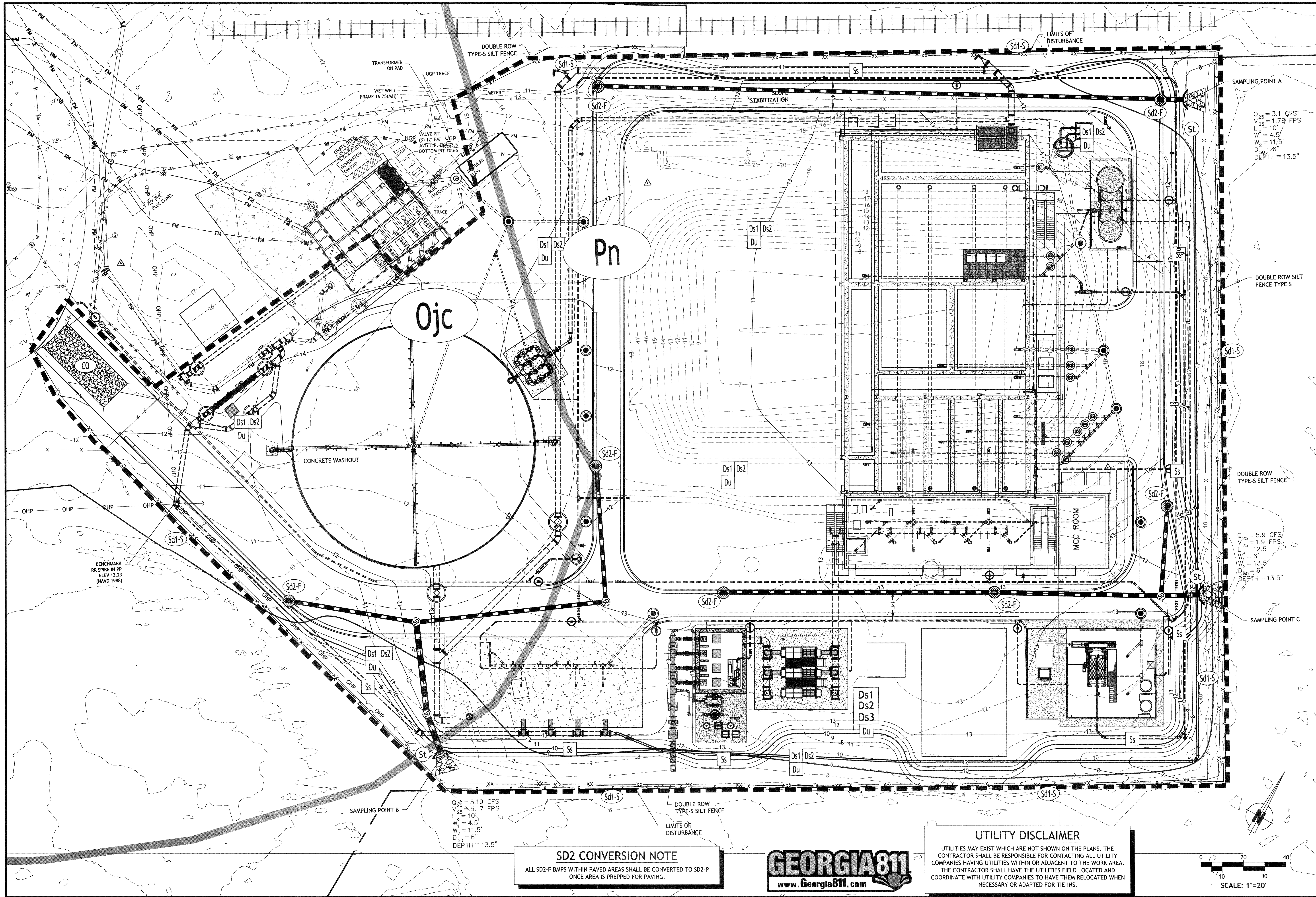
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SAVANNAH savannahga.gov
TRAVIS FIELD WATER RECLAMATION FACILITY
EROSION & SEDIMENT CONTROL INITIAL PHASE

JOB NO: J-26963.0000
DATE: 12/20/2018
DRAWN: LAF
DESIGNED: LAF
REVIEWED:
APPROVED:
SCALE:

C7.3

BID SET - NOT FOR CONSTRUCTION



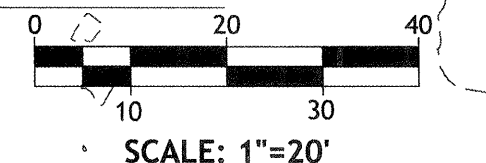
$Q_{25} = 5.19$ CFS
 $V_{25} = 5.17$ FPS
 $L = 10'$
 $W = 4.5'$
 $D_{50} = 6"$
 $DEPTH = 13.5"$

$Q_{25} = 3.1$ CFS
 $V_{25} = 1.78$ FPS
 $L = 10'$
 $W = 4.5'$
 $D_{50} = 6"$
 $DEPTH = 13.5"$

$Q_{25} = 5.9$ CFS
 $V_{25} = 1.9$ FPS
 $L = 12.5'$
 $W = 6"$
 $D_{50} = 6"$
 $DEPTH = 13.5"$

SD2 CONVERSION NOTE
 ALL SD2-F BMPS WITHIN PAVED AREAS SHALL BE CONVERTED TO SD2-P ONCE AREA IS PREPPED FOR PAVING.

UTILITY DISCLAIMER
 UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES HAVING UTILITIES WITHIN OR ADJACENT TO THE WORK AREA. THE CONTRACTOR SHALL HAVE THE UTILITIES FIELD LOCATED AND COORDINATE WITH UTILITY COMPANIES TO HAVE THEM RELOCATED WHEN NECESSARY OR ADAPTED FOR TIE-INS.



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 LEI JOB# 0435-0020

GEORGIA REGISTERED PROFESSIONAL ENGINEER
 No. 036088
HIGH A. FARR
 05/01/2019
 GSWCC LEVEL II #13352
 EXP. 06/10/2020

NO.	ISSUED FOR BIDS	DATE	BY	REVISIONS
0	05/01/19	04/05/19		

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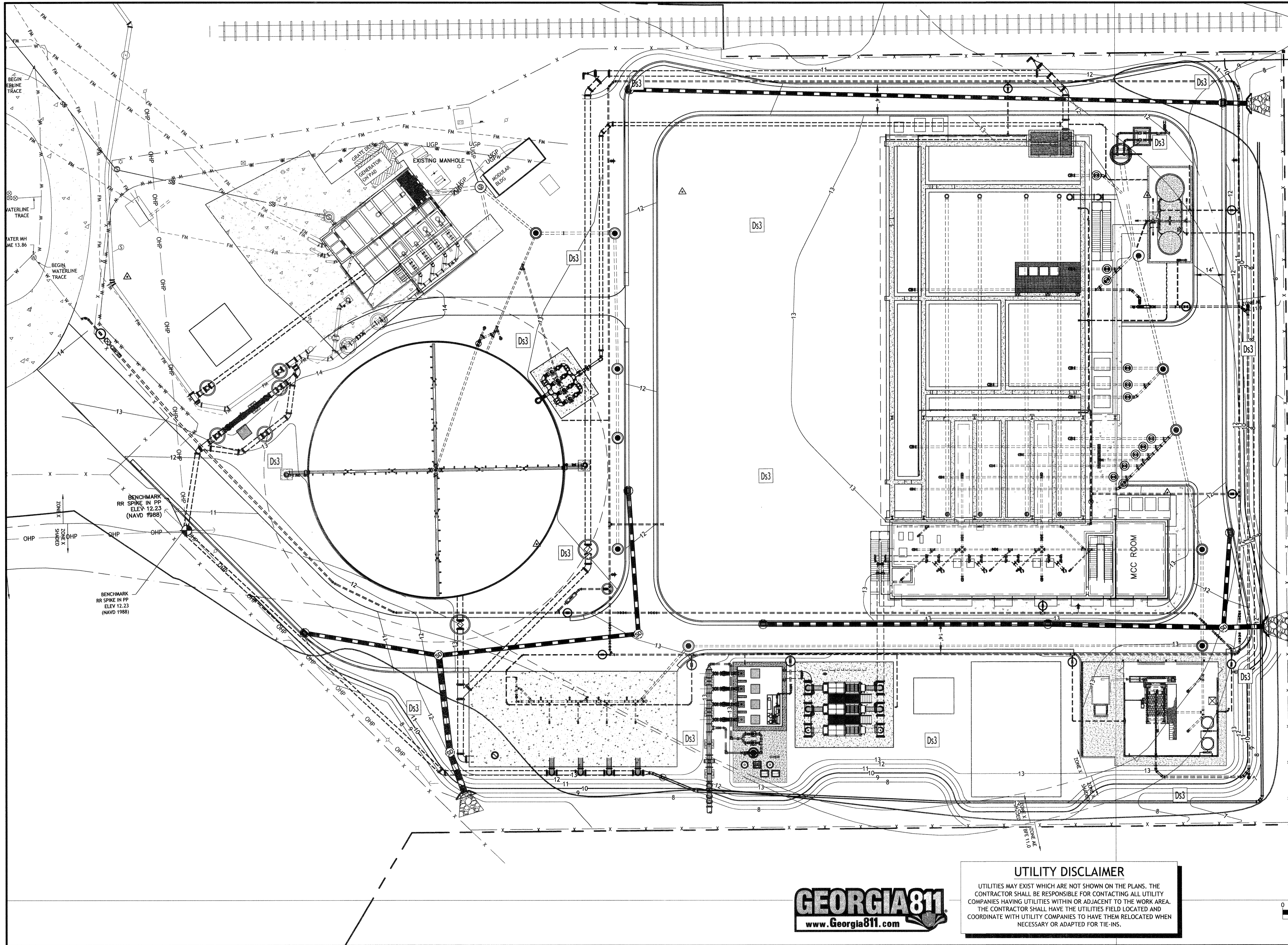
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 savannahga.gov

TRAVIS FIELD WATER RECLAMATION FACILITY
EROSION & SEDIMENT CONTROL INTERMEDIATE PHASE

JOB NO:	J-26963.0000
DATE:	12/20/2018
DRAWN:	LAF
DESIGNED:	LAF
REVIEWED:	
APPROVED:	
SCALE:	

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 05/01/2019
 GSWCC LEVEL II #13352
 EXP. 06/10/2020

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS		09/07/19
1	GASWCC COMMENTS		04/05/19

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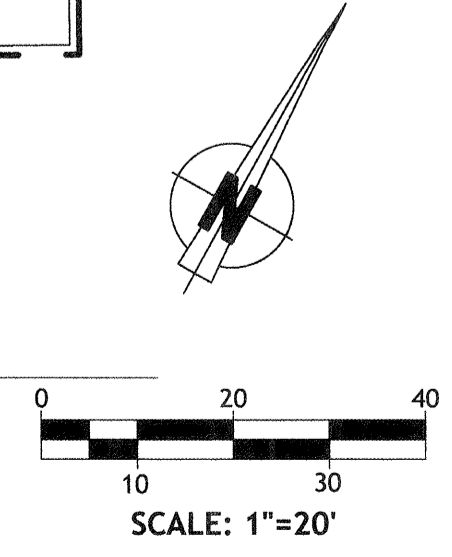
TRAVIS FIELD WATER RECLAMATION FACILITY
EROSION & SEDIMENT CONTROL FINAL PHASE

JOB NO: J-26963.0000
DATE: 12/20/2018
DRAWN: LAF
DESIGNED: LAF
REVIEWED:
APPROVED:
SCALE:

C7.5

UTILITY DISCLAIMER
 UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES HAVING UTILITIES WITHIN OR ADJACENT TO THE WORK AREA. THE CONTRACTOR SHALL HAVE THE UTILITIES FIELD LOCATED AND COORDINATE WITH UTILITY COMPANIES TO HAVE THEM RELOCATED WHEN NECESSARY OR ADAPTED FOR TIE-INS.

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SPECIES	BROADCAST PER ACRE	PER 1000 S.F.	RESOURCE AREA 4/	PLANTING DATES												REMARKS
				J	F	M	A	M	J	J	A	S	O	N	D	
BARLEY (Hordeum vulgare)	144 LBS.	3.3 LBS.	M.L. P													14,000 SEED PER POUND WINTERHARDY. USE ON PRODUCTIVE SOILS.
ALONE IN MIXTURES	24 LBS.	0.6 LBS.	C													
LESPEDEZA, ANNUAL (Lespedeza bicolor)	40 LBS.	0.9 LBS.	M.L. P													200,000 SEED PER POUND. MAY VOLUNTEER FOR SEVERAL YEARS. USE INOCULANT EL.
ALONE IN MIXTURES	10 LBS.	0.2 LBS.	C													
LOVEGRASS, WEEPING (Eragrostis curvata)	4 LBS.	0.1 LBS.	M.L. P													1,500,000 SEED PER POUND. MAY LAST FOR SEVERAL YEARS. MIX WITH SERICEA LESPEDEZA
ALONE IN MIXTURES	2 LBS.	0.05 LBS.	C													
MILLET, BROWNTOP (Panicum fasciculatum)	40 LBS.	0.9 LBS.	M.L. P													137,000 SEED PER POUND. QUICK DENSE COVER. WILL PROVIDE TOO MUCH COMPETITION IN MIXTURES IF SEEDING AT HIGH RATES.
ALONE IN MIXTURES	10 LBS.	0.2 LBS.	C													
MILLET, PEARL (Pennisetum glaucum)	50 LBS.	1.1 LBS.	M.L. P													88,000 SEED PER POUND. QUICK, DENSE COVER. MAY REACH 5 FEET IN HEIGHT. NOT RECOMMENDED FOR MIXTURES.
ALONE			C													
OATS (Avena sativa)	128 LBS.	2.9 LBS.	M.L. P													13,000 SEED PER POUND. USE ON PRODUCTIVE SOILS. NOT AS WINTERHARDY AS RYE OR BARLEY.
ALONE IN MIXTURES	32 LBS.	0.7 LBS.	C													
RYE (Secale cereale)	168 LBS.	3.9 LBS.	M.L. P													18,000 SEED PER POUND. QUICK COVER, DROUGHT TOLERANT AND WINTERHARDY.
ALONE IN MIXTURES	28 LBS.	0.6 LBS.	C													
RYEGRASS, ANNUAL (Lolium temulentum)	40 LBS.	0.9 LBS.	M.L. P													227,000 SEED PER POUND. DENSE COVER, VERY COMPETITIVE AND IS NOT TO BE USED IN MIXTURES.
ALONE			C													
SUDANGRASS (Sorghum sudanense)	60 LBS.	1.4 LBS.	M.L. P													55,000 SEED PER POUND. GOOD ON DROUGHTY SITES. NOT RECOMMENDED FOR MIXTURES.
ALONE			C													
TRITICALE (X-Triticosecale)	144 LBS.	3.3 LBS.	M.L. P													USE ON LOWER PART OF SOUTHERN COASTAL PLAIN AND ATLANTIC COASTAL FLATWOODS ONLY.
ALONE IN MIXTURES	24 LBS.	0.6 LBS.	C													
WHEAT (Triticum aestivum)	180 LBS.	4.1 LBS.	M.L. P													15,000 SEED PER POUND. WINTERHARDY.
ALONE IN MIXTURES	30 LBS.	0.7 LBS.	C													

- TEMPORARY COVER CROPS ARE VERY COMPETITIVE AND WILL CROWN OUT PERENNIALS IF SEEDING TOO HEAVY.
- REDUCE SEEDING RATES BY 50% WHEN DRILLED.
- PLS IS AN ABBREVIATION FOR PURE LIVE SEED.
- M.L. REPRESENTS THE MOUNTAIN, BLUE RIDGE, AND RIDGES AND VALLEYS MLRA
P REPRESENTS THE SOUTHERN PIEDMONT MLRA
C REPRESENTS THE SOUTHERN COASTAL PLAIN, SAND HILLS, BLACK LANDS, AND ATLANTIC COAST FLATWOODS MLRA

TEMPORARY GRASSING

REFER TO THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR FURTHER DETAILS AND SPECIFICATIONS.

Disturbed Area Stabilization (With Temporary Seeding)



DEFINITION
The establishment of temporary vegetative cover with fast growing seedlings for seasonal protection on disturbed or denuded areas.

PURPOSE
To reduce runoff and sediment damage of down stream resources

- To protect the soil surface from erosion
- To improve wildlife habitat
- To improve aesthetics

REQUIREMENT FOR REGULATORY COMPLIANCE
Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Temporary grassing, instead of mulch, can be applied to rough graded areas that will be exposed for less than six months. If an area is expected to be undisturbed for longer than six months, permanent perennial vegetation shall be used. If optimum planting conditions for temporary grassing is lacking, mulch can be used as a singular erosion control device for up to six months but it shall be applied at the appropriate depth, anchored, and have a continuous 90% cover or greater of the soil surface. Refer to specification **Ds1-Disturbed Area Stabilization (With Temporary Seeding)**.

CONDITIONS
Temporary vegetative measures should be coordinated with permanent measures to assure economical and effective stabilization. Most types of temporary vegetation are ideal to use as companion crops until the permanent vegetation is established. Note: Some species of temporary vegetation are not appropriate for companion crop plants because of their potential to out-compete the desired species (e.g. annual ryegrass). Contact NRCS or the local SWCD for more information.

SPECIFICATIONS
Grading and Shaping
Excessive water runoff shall be reduced by properly designed and installed erosion control practices such as closed drains, ditches, dikes, diversions, sediment barriers and others.
No shaping or grading is required if slopes can be stabilized by hand-seeded vegetation or if hydraulic seeding equipment is to be used.

Seedbed Preparation
When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or hand-seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.
When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

Lime and Fertilizer
Agricultural lime is required unless soil tests indicate otherwise. Apply agricultural lime at a rate determined by soil test for pH. Quick acting lime should be incorporated to modify pH during the germination period. Bio stimulants should also be considered when there is less than 3% organic matter in the soil. Graded areas require lime application. Soils must be tested to determine required amounts of fertilizer and amendments. Fertilizer should be applied before land preparation and incorporated with a disk, ripper, or chisel. On slopes too steep for or inaccessible to equipment, fertilizer shall be hydraulically applied, preferably in the first pass with seed and some hydraulic mulch, then topped with the remaining required application rate.

Seeding
Seeded a grass or grass-legume mixture suitable to the area and season of the year. Seed shall be applied uniformly by hand, cyclone seeder, drill, culti-packer-seeder, or hydraulic seeder (slurry including seed and fertilizer). Drill or culti-packer seeders should normally place seed one-quarter to one-half inch deep. Appropriate depth of planting is ten times the seed diameter. Soil should be "raked" lightly to cover seed with soil if seeded by hand. See Table 6-4.1

Mulching
Temporary vegetation can, in most cases, be established without the use of mulch, provided there is little to no erosion potential. However, the use of mulch can often accelerate and enhance germination and vegetation establishment. Mulch without seeding should be considered for short term protection. Refer to **Ds1 - Disturbed Area Stabilization (With Mulching Only)**.

Irrigation
During times of drought, water shall be applied at a rate not causing runoff and erosion. The soil shall be thoroughly wetted to a depth that will insure germination of the seed. Subsequent applications should be made when needed.

Disturbed Area Stabilization (With Mulching Only)



DEFINITION
Applying plant residues or other suitable materials, produced on the site if possible, to the soil surface.

PURPOSE
To reduce runoff and erosion
To conserve moisture
To prevent surface compaction or crusting
To control undesirable vegetation
To modify soil temperature
To increase biological activity in the soil

REQUIREMENT FOR REGULATORY COMPLIANCE
Mulch or temporary grassing shall be applied to all exposed areas within 14 days of disturbance. Mulch can be used as a singular erosion control device for up to six months, but it shall be applied at the appropriate depth, depending on the material used, anchored and have a continuous 90% cover or greater of the soil surface.

Maintenance shall be required to maintain appropriate depth and 90% cover. Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months.
If any area will remain undisturbed for greater than six months, permanent vegetative techniques shall be employed. Refer to **Ds2-Disturbed Area Stabilization (With Temporary Seeding)**.

turbed Area Stabilization (With Temporary Seeding), Ds3 - Disturbed Area Stabilization (With Permanent Seeding), and Ds4 - Disturbed Area Stabilization (With Sodding).

Mulching Without Seeding
This standard applies to graded or cleared areas where seedlings may not have a suitable growing season to produce an erosion retardant cover, but can be stabilized with a mulch cover.

Site Preparation

- Grade to permit the use of equipment for applying and anchoring mulch.
- Install needed erosion control measures as required such as dikes, diversions, berms, terraces and sediment barriers.
- Loosen compact soil to a minimum depth of 3 inches.

Mulching Materials
Select one of the following materials and apply at the depth indicated:

- Dry straw or hay shall be applied at a depth of 2 to 4 inches providing complete soil coverage. One advantage of this material is easy application.
- Wood waste (chips, sawdust or bark) shall be applied at a depth of 2 to 3 inches. Organic material from the clearing stage of development should remain on site, be chipped, and applied as mulch. This method of mulching can greatly reduce erosion control costs.
- Polyethylene film shall be secured over banks or stockpiled soil material for temporary protection. This material can be salvaged and re-used.

Applying Mulch
When mulch is used without seeding, mulch shall be applied to provide full coverage of the exposed area.

- Dry straw or hay mulch and wood chips shall be applied uniformly by hand or by mechanical equipment.

- If the area will eventually be covered with perennial vegetation, 20-30 pounds of nitrogen per acre in addition to the normal amount shall be applied to offset the uptake of nitrogen caused by the decomposition of the organic mulches.
- Apply polyethylene film on exposed areas.

Anchoring Mulch
Straw or hay mulch can be pressed into the soil with a disk harrow with the disk set straight or with a special "packer disk." Disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disk should be dull enough not to cut the mulch but to press it into the soil leaving much of it in an erect position. Straw or hay mulch shall be anchored immediately after application.

Straw or hay mulch spread with special blower-type equipment may be anchored. Tackifiers, binders and hydraulic mulch with tackifier specifically designed for tackling straw can be substituted for emulsified asphalt. Please refer to specification **Tac-Tackifiers**. Plastic mesh or netting with mesh no larger than one inch by one inch shall be installed according to manufacturer's specifications.

- Netting of the appropriate size shall be used to anchor wood waste. Openings of the netting shall not be larger than the average size of the wood waste chips.
- Polyethylene film shall be anchored trenched at the top as well as incrementally as necessary.

MATERIALS	RATE	APPLICATION
DRY STRAW OR HAY, SAWDUST OR BARK	2"-4" DEEP	APPLY UNIFORMLY BY HAND OR BY MECHANICAL EQUIPMENT. ANCHOR HAY DISK HARROW OR PACKER DISK OR WITH EMULSIFIED ASPHALT (GRADE AE-5 OR SS-1) AT A RATE OF 100 GAL. PER 100 GAL. OF WATER FOR EACH TON OF MULCH
WOOD WASTE, CHIPS, SAWDUST OR BARK	2" TO 3" THICK	ANCHOR WITH NETTING OF THE APPROPRIATE SIZE. OPENINGS IN THE NETTING SHALL NOT BE LARGER THAN THE AVERAGE SIZE OF THE WOOD WASTE CHIPS
EROSION CONTROL MATTING OR NETTING	APPLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS	APPLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
CUTBACK ASPHALT (SLOW CURING)	1200 GALLONS PER ACRE, OR 1 GALLON PER SQUARE YARD	APPLY UNIFORMLY
POLYETHYLENE FILM	SECURED OVER BANKS OR STOCKPILED SOIL MATERIAL	ANCHOR TRENCH AT THE TOP OF SLOPE AS WELL AS INCREMENTALLY AS NECESSARY

MAINTENANCE REQUIREMENTS:
INSPECT ALL MULCHED AREAS ON A DAILY BASIS AND AFTER EACH RAINFALL EVENT, REGRADE ERODED AREAS AND REMULCH AREAS IN WHICH THE COVER IS NO LONGER GREATER THAN 90% CONTINUOUS.

Ds1 TEMPORARY MULCHING

REFER TO THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR FURTHER DETAILS AND SPECIFICATIONS.

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Cd	CHECKDAM			A small temporary barrier or dam constructed across a swale, drainage ditch or area of concentrated flow.
Ch	CHANNEL STABILIZATION			Improving, constructing or stabilizing an open channel, existing stream, or ditch.
Co	CONSTRUCTION EXIT			A crushed stone pad located at the construction exit to provide a place for removing mud from tires thereby protecting public streets.
Cr	CONSTRUCTION ROAD STABILIZATION			A travelway constructed as part of a construction plan including access roads, sub-division roads, parking areas and other on-site vehicle transportation routes.
Dc	STREAM DIVERSION CHANNEL			A temporary channel constructed to convey flow around a construction site while a permanent structure is being constructed.
Di	DIVERSION			An earth channel or dike located above, below or across a slope to divert runoff. This may be a temporary or permanent structure.
Dn1	TEMPORARY DOWNDRAIN STRUCTURE			A flexible conduit of heavy-duty fabric or other material designed to collect and convey surface runoff down a slope. Temporary, and nonpermeable.
Dn2	PERMANENT DOWNDRAIN STRUCTURE			A paved chute, sectional conduit, pipe or similar structure designed to collect and convey surface runoff down a slope.
Fr	FILTER RING			A temporary stone barrier constructed to form drain inlets and post outlets.
Ga	GABION			Rock filter baskets which are placed in a predetermined position forming soil stabilizing structures.
Gr	GRADE STABILIZATION STRUCTURE			Permanent structures installed to protect natural or artificial channels or waterways where otherwise the slope would be sufficient for the running water to form gullies.
Lv	LEVEL SPREADER			A structure to convert concentrated flow of waters into less erosive sheet flow. This should be constructed only on undisturbed soils.
Rd	ROCK FILTER DAM			A permanent or temporary stone filter dam installed across small streams or drainageways.
Re	RETAINING WALL			A wall installed to stabilize cut and fill slopes where maximum permissible slopes are not obtainable. Each situation will require special design.
Rt	RETROFITTING			A device or structure placed in front of a permanent stormwater detention pond outlet structure to serve as a temporary sediment trap on a construction site.
Sd1	SEDIMENT BARRIER			A barrier to prevent sediment from leaving the construction site. It may be sandbags, bales of straw or hay, gravel or a sediment fence.
Sd2	SEDIMENT TRAP, TEMPORARY			An impounding area created by excavating around a storm drain inlet. The excavated area will be filled with sediment on completion of construction activities.
Sd3	SEDIMENT BASIN, TEMPORARY			A basin created by excavation or a dam in a waterway where the surface water runoff is temporarily stored allowing the bulk of the sediment to drop out.
Sd4	SEDIMENT TRAP, TEMPORARY			A small temporary pond that drains a disturbed area so that sediment can settle out. The principle feature distinguishing a temporary sediment trap from a temporary sediment basin is the lack of a pipe or riser.
Sk	FLOATING SURFACE SKIMMER			A buoyant device that releases/ drains water from the surface of sediment ponds, traps, or basins at a controlled rate of flow.

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Spb	STEP BERM			A linear control device constructed as a diversion perpendicular to the direction of the runoff to enhance dissipation and infiltration of runoff, while creating multiple sedimentation chambers with the employment of streambank dikes.
Sr	TEMPORARY STREAM CROSSING			A temporary bridge or culvert-type structure protecting a stream or watercourse from damage by crossing construction equipment.
St	STORMDRAIN INLET/OUTLET PROTECTION			A paired or short section of riprap channel at the outlet of a storm drain system preventing erosion from the concentrated runoff.
Su	SURFACE ROUGHENING			A rough soil surface with horizontal depressions on a contour or slope left in a roughened condition after grading.
Tc	TURBIDITY CURTAIN			A floating or stalled barrier to stabilize within the water. It may also be referred to as a floating boom, silt barrier, or silt curtain.
Tp	TOPSOILING			The practice of stripping off the more fertile soil, storing it, then spreading it on the disturbed area after completion of construction activities.
Tr	TREE PROTECTION			To protect desirable trees from injury during construction activities.
Wt	VEGETATED WATERWAY OR STORMDRAIN CONVEYANCE CHANNEL			Paired or vegetative water outlets for diversions, terraces, berms, dikes, or similar structures.

VEGETATIVE MEASURES

Bf	BUFFER ZONE			An undisturbed natural "green belt" existing on the site during the time of temporary property holding. It serves to reduce water velocity and remove sediment. It also acts as a noise or vibration barrier.
Cs	COASTAL ZONE STABILIZATION			Planting vegetation on dunes that are denuded, artificially constructed, or re-nourished, stabilizing cover.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)			Establishing temporary protection for disturbed areas where seedlings may not have a suitable growing season to produce an erosion.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)			Establishing a temporary vegetative cover with fast growing seedlings on disturbed areas.
Ds3	DISTURBED AREA STABILIZATION (WITH PERMANENT SEEDING)			Establishing permanent vegetative cover such as trees, shrubs, vines, sod, grasses or legumes on disturbed areas.
Ds4	DISTURBED AREA STABILIZATION (WITH SODDING)			A permanent vegetative cover using sods on highly erodible or critically eroded lands.
Du	DUST CONTROL ON DISTURBED AREAS			Controlling surface and air movement of dust on construction sites, roadways and similar sites.
Fl-Co	FLOCCULANTS AND COAGULANTS			Substance formulated to assist in the solids/liquids separation of suspended particles in solution.
Sb	STREAMBANK STABILIZATION (WITH PERMANENT VEGETATION)			The use of readily available native plant materials to maintain and enhance streambanks, or to prevent, or restore and repair small streambank erosion problems.
Ss	SLOPE STABILIZATION			A protective covering used to prevent erosion and establish temporary or permanent vegetation on steep slopes, shore lines, or channels.
Tac	TACKIFIERS AND BINDERS			Substance used to anchor straw or hay matting by causing the organic material to bind together.

GEORGIA UNIFORM CODING SYSTEM FOR SOIL EROSION AND SEDIMENT CONTROL PRACTICES

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EXPIRES 12/31/2019

05/01/2019
GSWCC LEVEL II #13352
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NO.	REVISIONS	DATE	BY
0	ISSUED FOR BIDS	05/01/19	
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TRAVIS FIELD WATER RECLAMATION FACILITY
EROSION & SEDIMENT CONTROL DETAILS

JOB NO:	J-26963.0000
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DESIGNED:	LAF
REVIEWED:	
APPROVED:	
SCALE:	

C8.0

**Disturbed Area Stabilization
(With Permanent
Vegetation)**



DEFINITION
The planting of perennial vegetation such as trees, shrubs, vines, grasses, or legumes on exposed areas for final permanent stabilization. Permanent perennial vegetation shall be used to achieve final stabilization.

- PURPOSE**
- To protect the soil surface from erosion
 - To reduce damage from sediment and runoff to down-stream areas
 - To improve wildlife habitat and visual resources
 - To improve aesthetics

REQUIREMENT FOR REGULATORY COMPLIANCE
This practice shall be applied immediately to rough graded areas that will be undisturbed for longer than six months. This practice or sodding shall be applied immediately to all areas at final grade. Final Stabilization means that all soil disturbing activities at the site have been completed, and that for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell that has been certified by the GA EPD for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures.

Permanent vegetation shall consist of, planted trees, shrubs, perennial vines, or a crop of perennial vegetation appropriate for the region, such that within the growing season a 70% coverage by perennial vegetation shall be achieved. Final stabilization applies to each phase of construction. For linear construction projects on land used for agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land by its agricultural or silvicultural use. Until this standard is satisfied and permanent control measures and facilities are operational, interim stabilization measures and temporary erosion and sedimentation control measures shall not be removed.

CONDITIONS
Permanent perennial vegetation is used to provide a protective cover for exposed areas including cuts, fills, dams, and other denuded areas.

- PLANNING CONSIDERATIONS**
1. Use conventional planting methods where possible.
 2. When mixed plantings are done during marginal planting periods, companion crops shall be used.
 3. No-tilt planting is effective when planting is done following a summer or winter annual cover crop. Sericea Lespedeza planted no-tilt into stands of ryegrass is an excellent procedure.
 4. Block sod provides immediate cover. It is especially effective in controlling erosion adjacent to concrete flumes and other structures. Refer to Specification D4-Disturbed Area Stabilization (With Sodding).
 5. Irrigation should be used when the soil is dry or when summer plantings are done.
 6. Low maintenance plants, as well as natives, should be used to ensure long-lasting erosion control.
 7. Mowing should not be performed during the quail nesting season (May to September).
 8. Wildlife plantings should be included in critical area plantings.

Wildlife Plantings
Commercially available plants beneficial to wildlife species include the following:

Most Bearing Trees
Beech, Black Cherry, Blackgum, Chestnut, Chinkapin, Hackberry, Hickory, Honey Locust, Native Oak, Persimmon, Sawtooth Oak and Sweetgum

All trees that produce nuts or fruits are favored by many game species. Hickory provides nuts used mainly by squirrels and bear.

Shrubs and Small Trees
Bayberry, Bicolor Lespedeza, Crabapple, Dogwood, Hackberry or Native Blueberry, Mountain Laurel, Native Holly, Red Cedar, Red Mulberry, Sumac, Wax Myrtle, Wild Plum and Blackberry.

Plant in patches without tall trees to develop stable shrub communities. All produce fruits used by many kinds of wildlife, except for Lespedeza which produces seeds used by quail and songbirds.

Grasses, Legumes, Vines and Temporary Cover
Bahia grass, Bermudagrass, Grass-Legume mixtures, Partridge Pea, Annual Lespedeza, Orchardgrass (for mountains), Browntop Millet (for temporary cover), and Native grapes.

Provides herbaceous cover in clearings for a game bird brood-rearing habitat. Appropriate legumes such as vetches, clovers, and Lespedeza may be mixed with grass, but they may die out after a few years.

CONSTRUCTION SPECIFICATIONS
Grading and Shaping
Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so that equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.

Concentrations of water that will cause excessive

soil erosion shall be diverted to a safe outlet. Diversions and other treatment practices shall conform with the appropriate standards and specifications.

Line and Fertilizer Rates and Analysis
Agricultural lime is required at the rate of one to two tons per acre unless soil tests indicate otherwise. Graded areas require lime application. If lime is applied within six months of planting permanent perennial vegetation, additional lime is not required. Agricultural lime shall be within the specifications of the Georgia Department of Agriculture.

Lime spread by conventional equipment shall be "ground limestone." Ground limestone is calcitic or dolomitic limestone ground so that 90 percent of the material will pass through a 10-mesh sieve, not less than 50 percent will pass through a 50-mesh sieve and not less than 25 percent will pass through a 100-mesh sieve.

Fast-acting lime spread by hydraulic seeding equipment should be "finely ground limestone" spanning from the 100 micron size to the 5 micron size. Finely ground limestone is calcitic or dolomitic limestone ground so that 95 percent of the material will pass through a 100-mesh sieve.

It is desirable to use dolomitic limestone in the Sand Hills, Southern Coastal Plain and Atlantic Coast Flatwoods MLRA's. (See Figure 6-4.1)

Agricultural lime is generally not required where only trees are planted.

Initial fertilization, nitrogen, topdressing, and maintenance fertilizer requirements for each species or combination of species are listed in Table 6-5.1

Lime and Fertilizer Application
When hydraulic seeding and fertilizing equipment is to be used, the initial fertilizer shall be mixed with seed, inoculant (if needed), and wood cellulose or wood pulp fiber mulch and applied in a slurry. The inoculant, if needed, shall be mixed with the seed prior to being placed into the hydraulic seeder. The slurry mixture will be applied during application to keep the ingredients thoroughly mixed. The mixture will be spread uniformly over the area within one hour after being placed in the

tion establishment enhancement, and erosion control effectiveness. Select the mulching material from the following and apply as indicated:

1. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Dry straw or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.
3. One thousand pounds of wood cellulose or wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3:4-1 or steeper.
4. Sericea Lespedeza hay containing mature seed shall be applied at a rate of three tons per acre.
5. Pine straw or pine bark shall be applied at a thickness of 3 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not appropriate for seeded areas.
6. When using temporary erosion control blankets or block sod, mulch is not required.
7. Bituminous treated roving may be applied on planted areas, slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.

Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

Applying Mulch
Straw or hay mulch will be spread uniformly within 24 hours after seeding and/or plant

ing. The mulch may be spread by blower-type spreading equipment, other spreading equipment or by hand. Mulch shall be applied to cover 75% of the soil surface.

Wood cellulose or wood pulp fiber mulch shall be applied uniformly with hydraulic seeding equipment.

Anchoring Mulch
Anchor straw or hay mulch immediately after application by one of the following methods:

1. Hay and straw mulch shall be pressed into the soil immediately after the mulch is spread. A special "pucker disk" or disk harrow with the disks set straight may be used. The disks may be smooth or serrated and should be 20 inches or more in diameter and 8 to 12 inches apart. The edges of the disks shall be dull enough to press the mulch into the ground without cutting it, leaving much of it in an erect position. Mulch shall not be plowed into the soil.
2. Synthetic tackifiers, binders or hydraulic mulch specifically designed to tack straw, shall be applied in conjunction with or immediately after the mulch is spread. Synthetic tackifiers shall be mixed and applied according to manufacturer's specifications. All tackifiers, binders or hydraulic mulch specifically designed to tack straw should be verified nontoxic through EPA 2021.0 testing. Refer to Tackifiers-Tac
3. Rye or wheat can be included with Fall and Winter plantings to stabilize the mulch. They shall be applied at a rate of one-quarter to one-half bushel per acre.
4. Plastic mesh or netting with mesh no larger than one inch by one inch may be needed to anchor straw or hay mulch on unstable soils and concentrated flow areas. These materials shall be installed and anchored according to manufacturer's specifications.

Bedding Material
Mulch is used as a bedding material to conserve moisture and control weeds in nurseries, ornamental beds, around shrubs, and on bare areas on lawns.

Material	Depth
Grain straw	4" to 6"
Grass hay	4" to 6"
Pine needles	3' to 5'
Wood waste	4" to 6"

Irrigation
Irrigation will be applied at a rate that will not cause runoff.

Topdressing
Topdressing will be applied on all temporary and permanent (perennial) species planted alone or in mixtures with other species. Recommended rates of application are listed in Table 6-5.1.

Second Year and Maintenance Fertilization
Second year fertilizer rates and maintenance fertilizer rates are listed in Table 6-5.1.

Lime Maintenance Application
Apply one ton of agricultural lime every 4 to 6 years or as indicated by soil tests. Soil tests can be conducted to determine more accurate requirements, if desired.

Use and Management
Mow Sericea Lespedeza only after frost to ensure that the seeds are mature. Mow between November and March.

Bermudagrass, Bahiagrass and Tall Fescue may be mowed as desired. Maintain at least 6 inches of top growth under any use and management. Moderate use of top growth is beneficial after establishment.

Exclude traffic until the plants are well established. Because of the quail nesting season, mowing should not take place between May and September.

hydroseeder. Finely ground limestone can be applied in the mulch slurry or in combination with the top dressing. When conventional planting is to be done, lime and fertilizer shall be applied uniformly in one of the following ways:

1. Apply before land preparation so that it will be mixed with the soil during seedbed preparation.
2. Mix with the soil used to fill the holes, distribute in furrows.
3. Broadcast after steep surfaces are scarified, pitted or trenched.
4. A fertilizer pellet shall be placed at root depth in the closing hole beside each pine tree seedling.

Plant Selection
Refer to Tables 6-4.1, 6-5.2, 6-5.3 and 6-5.4 for approved species. Species not listed shall be approved by the State Resources Conservationist of the Natural Resources Conservation Service before they are used.

Plants shall be selected on the basis of species characteristics, site and soil conditions, planned use and maintenance of the area, time of year of planting, method of planting, and the needs and desires of the land user.

Some perennial species are easily established and can be planted alone. Examples of these are Common Bermuda, Tall Fescue, and Weeping Lovegrass.

Other perennials, such as Bahia Grass and Sericea Lespedeza, are slow to become established and should be planted with another perennial species. The additional species will provide quick cover and ample soil protection until the target perennial species become established. For example, Common seeding combinations are 1) Weeping Lovegrass with Sericea Lespedeza (scarified) and 2) Tall Fescue with Sericea Lespedeza (unscarified).

Plant selection may also include annual companion crops. Annual companion crops should be used only when the perennial species are not planted during their optimum planting period. A common

mixture is Brown Top Millet with Common Bermuda in mid-summer. Care should be taken in selecting companion crop species and seeding rates because annual crops will compete with perennial species for water, nutrients, and growing space. A high seeding rate of the companion crop may prevent the establishment of perennial species.

Ryegrass shall not be used in any seeding mixtures containing perennial species due to its ability to out-compete desired species chosen for permanent perennial cover.

Seed Quality
The term "pure live seed" is used to express the quality of seed and is not shown on the label. Pure live seed, PLS, is expressed as a percentage of the seeds that are pure and will germinate. Information on percent germination and purity can be found on seed tags. PLS is determined by multiplying the percent of pure seed with the percent of germination; i.e.,

(PLS = % germination x % purity)
EXAMPLE:
Common Bermuda seed
70% germination, 80% purity
PLS = 70% germination x 80% purity
PLS = 56%

The percent of PLS helps you determine the amount of seed you need. If the seeding rate is 10 pounds PLS and the bulk seed is 56% PLS, the bulk seeding rate is:

10 lbs. PLS/acre = 17.9 lbs/acre
56% PLS

You would need to plant 17.9 lbs/acre to provide 10 lbs/acre of pure live seed.

Seedbed Preparation
Seedbed preparation may not be required where hydraulic seeding and fertilizing equipment is to be used (but is strongly recommended for any seeding process, when possible). When conventional seeding is to be used, seedbed preparation will be done as follows:

- Broadcast plantings**
1. Tillage, at a minimum, shall adequately

loosen the soil to a depth of 4 to 6 inches; alleviate compaction; incorporate lime and fertilizer; smooth and firm the soil; allow for the proper placement of seed, sprigs, or plants; and allow for the anchoring of straw or hay mulch if a disk is to be used.

2. Tillage may be done with any suitable equipment.
3. Tillage should be done on the contour where feasible.
4. On slopes too steep for the safe operation of tillage equipment, the soil surface shall be pitted or trenched across the slope with appropriate hand tools to provide two places 6 to 8 inches apart in which seed may lodge and germinate. Hydraulic seeding may also be used.

- Individual Plants**
1. Where individual plants are to be set, the soil shall be prepared by excavating holes, opening furrows, or dibble planting.
 2. For nursery stock plants, holes shall be large enough to accommodate roots without crowding.
 3. Where pine seedlings are to be planted, subsoil under the row 36 inches deep on the contour four to six months prior to planting. Subsoiling should be done when the soil is dry, preferably in August or September.

Innoculants
All legume seed shall be inoculated with appropriate nitrogen-fixing bacteria. The inoculant shall be a pure culture prepared specifically for the seed species and used within the dates on the container.

A mixing medium recommended by the manufacturer shall be used to bond the inoculant to the seed. For conventional seeding, use twice the amount of inoculant recommended by the manufacturer. For hydraulic seeding, four times the amount of inoculant recommended by the manufacturer shall be used.

the same day inoculated. No inoculated seed shall remain in the hydroseeder longer than one hour.

Planting
Hydraulic Seeding
Mix the seed (inoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

Conventional Seeding
Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a cult-packer-seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a cult-packer or other suitable equipment.

No-Till Seeding
No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seeding shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

Individual Plants
Shrubs, vines and sprigs may be planted with appropriate planters or hand tools. Pine trees shall be planted manually in the subsoil furrow. Each plant shall be set in a manner that will avoid crowding the roots.

Nursery stock plants shall be planted at the same depth or slightly deeper than they grew at the nursery. The tips of vines and sprigs must be at or slightly above the ground surface.

Where individual holes are dug, fertilizer shall be placed in the bottom of the hole, two inches of soil shall be added and the plant shall be set in the hole.

Mulching
Mulch is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% to 100% soil cover. When selecting a mulch, design professionals should consider the mulch's functional longevity, vegeta-

LONG ENGINEERING INC.

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ATLANTA, GA 30339 www.longeng.com
LEI JOB# 0435-0020



05/01/2019
GSWCC LEVEL II #13352
EXP. 05/10/2020

NO.	ISSUED FOR BIDS	REVISIONS	DATE
0	05/07/19		04/05/19
	GSWCC COMMENTS		

THOMAS & HUTTON
50 Park of Commerce Way
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TRAVIS FIELD WATER RECLAMATION FACILITY
EROSION & SEDIMENT CONTROL DETAILS

JOB NO:	J-26963.0000
DATE:	12/20/2018
DRAWN:	LAF
DESIGNED:	LAF
REVIEWED:	
APPROVED:	
SCALE:	

C8.1

Storm Drain Outlet Protection



DEFINITION
Paved and/or riprapped channel sections, placed below storm drain outlets.

PURPOSE
To reduce velocity of flow before entering receiving channels below storm drain outlets.

CONDITIONS
This standard applies to all storm drain outlets, road culverts, paved channel outlets, etc., discharging into natural or constructed channels. Analysis and/or treatment will extend from the end of the conduit, channel or structure to the point of entry into an existing stream or publicly maintained drainage system.

DESIGN CRITERIA
Structurally lined aprons at the outlets of pipes and paved channel sections shall be designed according to the following criteria:

Capacity
Peak stormflow from the 25-year, 24-hour frequency storm or the storm specified in Title 12-7-1 of the Official Code of Georgia Annotated or the design discharge of the water conveyance structure, whichever is greater.

Tailwater Depth
The depth of tailwater immediately below the pipe outlet must be determined for the design capacity of the pipe. Manning's Equation may be used to determine tailwater depth. If the tailwater depth is less than half the diameter of the outlet pipe, it shall be classified as a Minimum Tailwater Condition. If the tailwater depth is greater than half the pipe diameter, it shall be classified as a

Maximum Tailwater Condition. Pipes which outlet onto flat areas with no defined channel may be assumed to have a Minimum Tailwater Condition.

Apron Length and Thickness
The apron length and d_{50} stone median size, shall be determined from the curves according to tailwater conditions:

Minimum Tailwater- Use Figure 6-34.1
Maximum Tailwater- Use Figure 6-34.2
Maximum Stone Size = $1.5 \times d_{50}$
Apron Thickness = $1.5 \times d_{max}$

Apron Width
If the pipe discharges directly into a well-defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank (whichever is less). If the pipe discharges onto a flat area with no defined channel, the width of the apron shall be determined as follows:

- The upstream end of the apron, adjacent to the pipe, shall have a width three times the diameter of the outlet pipe.
- For a Minimum Tailwater Condition, the downstream end of the apron shall have a width equal to the pipe diameter plus the length of the apron. Refer to Figure 6-34.1.
- For a Maximum Tailwater Condition, the downstream end shall have a width equal to the pipe diameter plus 0.4 times the length of the apron. Refer to Figure 6-34.2.

Bottom Grade
The apron shall be constructed with no slope along its length (0.0% grade). The invert elevation of the downstream end of the apron shall be equal to the elevation of the invert of the receiving channel. There shall be no overlap at the end of the apron.

Side Slope
If the pipe discharges into a well-defined channel, the side slopes of the channel shall not be steeper than 2:1.

Alignment
The apron shall be located so that there are no bends in the horizontal alignment.

Geotextile
Geotextiles should be used as a separator between the graded stone, the soil base, and the abutments. The geotextile will prevent the migration of soil particles from the subgrade into the graded stone. The geotextile shall be specified in accordance with AASHTO M288-96 Section 7.5, *Permanent Erosion Control Recommendations*. The geotextile should be placed immediately adjacent to the subgrade without any voids.

Materials
The apron may be lined with riprap, grouted riprap, or concrete. The median sized stone for riprap, d_{50} , shall be determined from the curves, Figures 6-34.1 and 6-34.2, according to the tailwater condition. The gradation, quality and placement of riprap shall conform to Appendix C.

Refer to Figure 6-34.4, for alternative structures to achieving energy dissipation at an outlet. For information regarding the selection and design of these alternative energy dissipators, refer to:
FHWA Standard (REF: Hydraulic Design of Energy Dissipators for Culverts and Channels, HEC No. 14, FHWA, Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

CONSTRUCTION SPECIFICATIONS

- Ensure that the subgrade for the filter and riprap follows the plan lines and grades shown in the plan. Compact any fill required in the subgrade to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the riprap thickness.
- The riprap and gravel filter must conform to the specified grading limits shown on the plans.
- Geotextile must meet design requirements and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece of filter fabric over the damaged area. All connecting joints should overlap a

minimum of 1 ft. If the damage is extensive, replace the entire filter fabric.

4. Riprap may be placed by equipment, but take care to avoid damaging the filter.

5. The minimum thickness of the riprap should be 1.5 times the maximum stone diameter.

6. Construct the apron on zero grade with no overlap at the end. Make the top of the riprap at the downstream end level with the receiving area or slightly below it.

7. Ensure that the apron is properly aligned with the receiving stream and preferably straight throughout its length. If a curve is needed to fit site conditions, place it in the upper section of the apron.

8. Immediately after construction, stabilize all disturbed areas with vegetation.

9. Stone quality - Select stone for riprap from field stone or quarry stone. The stone should be hard, angular, and highly weather-resistant. The specific gravity of the individual stones should be at least 2.5.

10. Filter - Install a filter to prevent soil movement through the openings in the riprap. The filter should consist of a graded gravel layer or a synthetic filter cloth. See Appendix C, p. C-1.

MAINTENANCE

Inspect riprap outlet structures after heavy rains to see if any erosion around or below the riprap has taken place or if stones have been dislodged. Immediately make all needed repairs to prevent further damage.

1. Ensure that the subgrade for the filter and riprap follows the plan lines and grades shown in the plan. Compact any fill required in the subgrade to the density of the surrounding undisturbed material. Low areas in the subgrade on undisturbed soil may also be filled by increasing the riprap thickness.

2. The riprap and gravel filter must conform to the specified grading limits shown on the plans.

3. Geotextile must meet design requirements and be properly protected from punching or tearing during installation. Repair any damage by removing the riprap and placing another piece of filter fabric over the damaged area. All connecting joints should overlap a

PG 1 PG 2

ALTERNATE STRUCTURES FOR ENERGY DISSIPATION AT AN OUTLET

(Modified from Goldman, Jackson, and Burstyn)

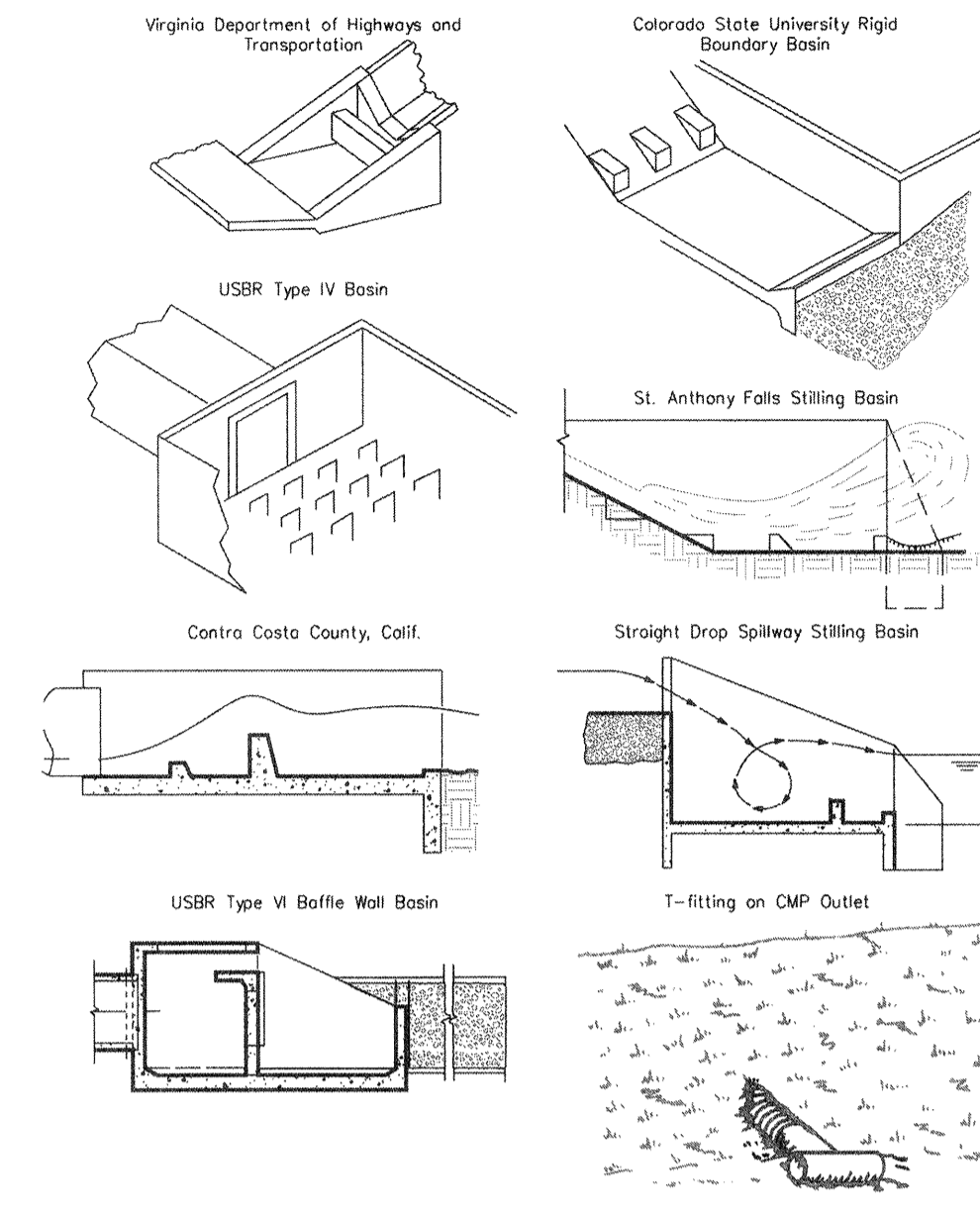


Figure 6-34.4

PG 3

Sediment Barrier (Sd1)



DEFINITION
Sediment Barriers are temporary structures made up of a porous material typically supported by steel or wood posts. Types of sediment barriers may include silt fence, brush piles, mulch berms, compost filter socks or other filtering material.

PURPOSE
To minimize and prevent sediment carried by sheet flow from leaving the site and entering natural drainage ways or storm drainage systems by slowing storm water runoff and causing the deposition and/or filtration of sediment at the structure. The barriers retain the soil on the disturbed land until the activities disturbing the land are completed and vegetation is established.

CONDITIONS
Barriers should be installed where runoff can be stored behind the barrier without damaging the submerged area behind the barrier or the structure itself. Sediment barriers shall not be installed across streams, ditches, waterways, or other concentrated flow areas.

PERFORMANCE EVALUATION
For a product or practice to be approved as a sediment barrier, that product or practice must have a documented P-factor no greater than 0.045 for non-sensitive areas or a P-factor no greater than 0.030 for sensitive areas, as specified by GSWCC. For complete test procedures and approved products list please visit www.gswcc.georgia.gov.

DESIGN CRITERIA

Sediment barriers are designed to retain sediment transported by sheet flow from disturbed areas. It is important for the design professional to take into account the profile of the product for use on the site.

All sediment barriers shall meet the required P-factor performance level. Supporting information on testing can be found at www.gswcc.georgia.gov, under, Documents.

Sediment Barriers should also provide a riprap splash pad or other outlet protection device for any point where flow may overtop the sediment barrier. Ensure that the maximum height of the barrier at a protected, reinforced outlet does not exceed 1 foot and that the support spacing does not exceed 4 feet.

Where all runoff is to be stored behind the sediment barrier (where no storm water disposal system is present), maximum continuous slope length behind a sediment barrier shall not exceed those shown in Table 6-27.1. For longer slope lengths, slope interrupters must be used. The drainage area shall not exceed 1/2 acre for every 100 feet of sediment barrier.

Table 6-27.1 Criteria for Sediment Barrier

Land Slope	Maximum Slope Length Above Fence
Percent	Feet
< 2	100
2 to 5	75
5 to 10	50
10 to 20	25
> 20	15

*In areas where the slope is greater than 20%, a flat area length of 10 feet between the toe of slope to the barrier should be provided.

Placement
When using a sediment barrier the Design Professional must determine Type NS or Type S. Sensitive areas can be defined as any area that needs additional protection, these areas include but are not limited to, state waters, wetlands, or any area the design professional designates as sensitive.

When using multiple types of sediment barrier

PG 1 PG 2

CONSTRUCTION SPECIFICATIONS

Type NS Sediment Barrier (Sd1-NS)
Nonsensitive areas
Sediment barriers being used as Type NS shall have a support spacing of no greater than 6 feet, on center, with each driven into the ground a minimum of 18 inches. Type NS sediment barriers shall have a P-factor no greater than 0.045.

Brush Barrier (Sd1-BB)
(Only during timber clearing operations)
Brush obtained from clearing and grubbing operations may be piled in a row along the perimeter of disturbance at the time of clearing and grubbing. Brush barriers should not be used in developed areas or locations where aesthetics are a concern.

Type S Sediment Barrier (Sd1-S)
Sensitive areas
Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each driven into the ground 18 inches. Type S sediment barriers shall have a P-factor no greater than 0.030.

Filter Media Sock Specifications
Compost filter media used for sediment barrier filter material shall be weed free and derived from a well-decomposed source of organic matter. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations including time and temperature data. The compost shall be free of any refuse, contaminants or other materials toxic to plant growth. Non-composted products will not be accepted. Test methods for the items below should follow US Composting Council Test Methods for the Examination of Composting and Compost guidelines for laboratory procedures:

A. PH - 5.0-8.0 in accordance with TMECC 04.11-A, "Electrometric pH Determinations for Compost"

B. Particle size - 99% passing a 2 inch (50mm) sieve and a maximum of 40% passing a 3/8 inch (9.5mm) sieve, in accordance with TMECC 02.02-B, "Sample Sieving for Aggregate Size Classification". (Note- In the field, product commonly is between 1/2 in., 1 1/2mm) and 2 inches (50mm) particle size.)

C. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.

D. Material shall be relatively free (<1% by dry weight) of inert or foreign man made materials.

E. Sock containment system for compost filter media shall be a photodegradable or biodegradable knitted mesh material with 1/8 in. to 3/8 in. openings.

Post installation shall start at the center of a low point (if applicable) with the remaining posts spaced no greater than 6 feet apart for Type NS sediment barriers and no greater than 4 feet apart for Type S sediment barriers. For post size requirements, see Table 6-27.2. Fasteners for wood posts are listed in Table 6-27.3.

Static Slicing Method
The static slicing machine pulls a narrow blade through the ground to create a slit 12" deep, and simultaneously inserts the silt fence fabric into this slit behind the blade. The blade is designed to slightly disrupt soil upward next to the slit and to minimize horizontal compaction. Construction equipment may be utilized to satisfy this requirement.

The minimum base width of the brush barrier shall be 5 feet and should be no wider 10 feet. The height of the brush barrier should be between 3 and 5 feet tall.

A brush barrier is a good tool to use in developing pasture in an agricultural situation to prevent sediment from leaving the site until the pasture is stabilized.

If greater filtering capacity is required, a commercially available sediment barrier may be placed on the side of the brush barrier receiving the sediment laden runoff. The lower edge of the fabric must be buried in a 6-inch deep trench immediately uphill from the barrier. The upper edge must be stapled, tied or otherwise fastened to the brush barrier. Edges of adjacent fabric pieces must overlap each other. See Figure 6-27.5.

Installation
Sediment barriers should be installed along the contour.

Temporary sediment barriers shall be installed according to the following specifications as shown on the plans or as directed by the design professional.

For installation of the barriers, See Figures 6-27.1, 6-27.2, 6-27.3 and 6-27.4, respectively. It is important to remember that not all sediment barriers need to be trenched into the ground but most taller sediment barriers do.

Post installation shall start at the center of a low point (if applicable) with the remaining posts spaced no greater than 6 feet apart for Type NS sediment barriers and no greater than 4 feet apart for Type S sediment barriers. For post size requirements, see Table 6-27.2. Fasteners for wood posts are listed in Table 6-27.3.

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Installation
Sediment barriers should be installed along the contour.

PG 3

TO BE SHOWN ON THE EROSION SEDIMENT AND POLLUTION CONTROL PLAN

When a SEDIMENT BARRIER is used, show the product height in inches for each barrier being used on site.

Trenching Method

Trenching machines have been used for over twenty-five years to dig a trench for burying part of the filter fabric underground. Usually the trench is about 2'-6" wide with a 6" excavation. Post setting and fabric installation often precede compaction, which make effective compaction more difficult to achieve. EPA supported an independent technology evaluation (ASCE 2001), which compared three progressively better variations of the trenching method with static slicing method. The static slicing method performed better than two lower performance levels of the trenching method, and was as good as or better than the trenching method's highest performance level. The best trenching method typically requires nearly triple the time and effort to achieve results comparable to the static slicing method.

Along all state waters and other sensitive areas, two rows of Type S sediment barriers shall be used. The two rows Type S should be placed a minimum of 36 inches apart.

MAINTENANCE
Sediment shall be removed once it has accumulated to one-half the original height of the barrier. This is extremely important when selecting BMPs with a lower profile.

Sediment barriers shall be replaced whenever they have deteriorated to such an extent that the effectiveness of the product is reduced (approximately six months) or the height of the product is not maintaining 80% of its properly installed height.

Temporary sediment barriers shall remain in place until disturbed areas have been permanently stabilized. All sediment accumulated at the barrier shall be removed and properly disposed of before the barrier is removed.

Construction Exit (Co)



DEFINITION

A stone stabilized pad located at any point where traffic will be leaving a construction site to a public right-of-way, street, alley, sidewalk or parking area or any other area where there is a transition from bare soil to a paved area.

PURPOSE
To reduce or eliminate the transport of mud from the construction area onto public rights-of-way by motor vehicles or by runoff.

CONDITIONS
This practice is applied at appropriate points of construction egress. Geotextile underliners are required to stabilize and support the pad aggregates.

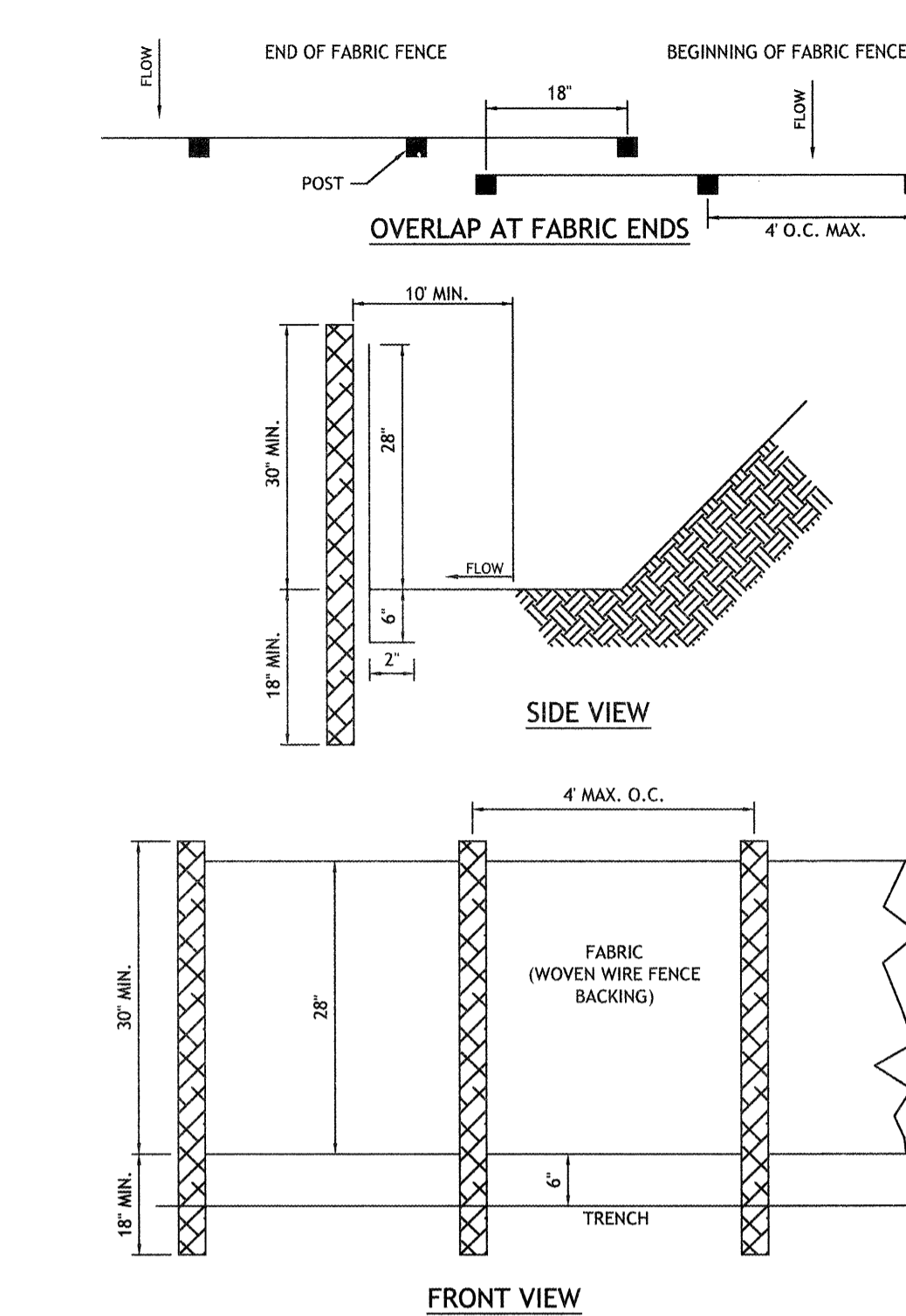
DESIGN CRITERIA
Formal design is not required. The following standards shall be used.

Aggregate Size
Stone will be in accordance with National Stone Association R-2 (1.5 to 3.5 inch stone).

Pad Thickness
The gravel pad shall have a minimum thickness of 6 inches.

Pad Width
At a minimum, the width should equal full width of all points of vehicular egress, but not less than 20 feet wide.

Pad Length
The gravel pad shall have a minimum length



- NOTES:**
- USE ONLY 36" FABRIC ON GEORGIA D.O.T. QUALIFIED PRODUCTS LIST #36
 - USE STEEL POSTS ONLY, 1.3 LB/FT MIN., U, T, OR C SHAPED POST SECTION, 5' LENGTH MINIMUM.
 - ADD REBAR CAPS TO ALL POSTS.
 - ALONG STREAMS AND OTHER SENSITIVE AREAS, TWO ROWS OF TYPE C SILT FENCE OR ONE ROW OF TYPE C SILT FENCE BACKED WITH HAYBALES SHALL BE USED.
 - ALL SILT FENCE SHALL MEET THE MINIMUM STANDARD SET FORTH IN SECTION 171-TEMPORARY SILT FENCE OF THE GEORGIA D.O.T., STANDARD SPECIFICATIONS, CURRENT EDITION.
 - ALL SILT FENCE SHALL BE TYPE C, 36" WITH WOVEN WIRE REINFORCEMENT.
 - ATTACH FABRIC TO POSTS USING WIRE TIES. ALSO, ATTACH FABRIC TO WIRE BACKING MIDWAY BETWEEN POSTS AT THE TOP AND BOTTOM.

TYPE FENCE	C
TENSILE STRENGTH (lbs. MIN.) (ASTM D-4632)	WARP-260 FILL-180
ELONGATION (% MAX.) (ASTM D-4632)	40
AOS (APPARENT OPENING SIZE) (MAX. SIEVE SIZE) (ASTM D-4751)	#30
FLOW RATE (GAL./MIN./SQ.FT) (GDT-87)	70
ULTRAVIOLET STABILITY (ASTM D-4632 AFTER 300 HOURS WEATHERING IN ACCORDANCE WITH ASTM D-4355)	80
BURSTING STRENGTH (PSI MIN.) (ASTM D-3786 DIAPHRAGM BURSTING STRENGTH TESTER)	175
MINIMUM FABRIC WIDTH (INCHES)	36

MAINTENANCE REQUIREMENTS:
SEDIMENT SHALL BE REMOVED ONCE IT HAS ACCUMULATED TO ONE-THIRD THE ORIGINAL HEIGHT OF THE BARRIER. FILTER FABRIC SHALL BE REPLACED WHENEVER IT HAS DETERIORATED TO SUCH AN EXTENT THAT THE EFFECTIVENESS OF THE FABRIC IS REDUCED (APPROXIMATELY SIX MONTHS). TEMPORARY SEDIMENT BARRIERS SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. ALL SEDIMENT ACCUMULATED AT THE BARRIER SHALL BE REMOVED AND PROPERLY DISPOSED OF BEFORE THE BARRIER IS REMOVED.

SILT FENCE - TYPE C

N.T.S.

of 50 feet. When the construction is less than 50' from the paved access, the length shall be from the edge of existing pavement to the permitted building being constructed.

Washing
If the action of the vehicle traveling over the gravel pad does not sufficiently remove the mud, the tires should be washed prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with crushed stone and provisions that intercept the sediment laden runoff and direct it into an approved sediment trap or sediment basin.

Location
The exit shall be located or protected to prevent sediment from leaving the site.

CONSTRUCTION SPECIFICATIONS
It is recommended that the egress area be excavated to a depth of 3 inches and be cleared of all vegetation and roots.

Diversion Ridge
On sites where the grade toward the paved area is greater than 3:1, a diversion ridge 6 to 8 inches high with 3:1 side slopes shall be constructed across the foundation approximately 15 feet above the road.

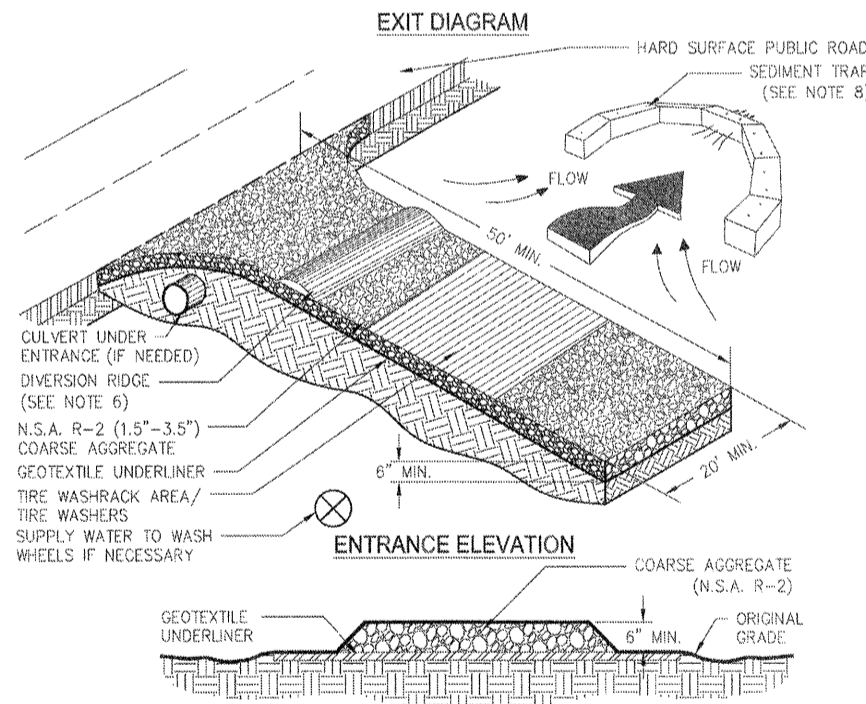
Geotextile
The geotextile underliner must be placed the full length and width of the entrance. Geotextile selection shall be based on AASHTO M288-98 specification:

- For subgrades with a CBR greater than or equal to 3 or shear strength greater than 90 kPa, geotextile must meet requirements of section AASHTO M288-96 Section 7.3, Separation Requirements.
- For subgrades with a CBR between 1 and 3 or shear strength between 30 and 90 kPa, geotextile must meet requirements of section AASHTO M288-96 Section 7.4, Stabilization Requirements.

dropped, washed, or tracked from vehicles or site onto roadways or into storm drains must be removed immediately.

MAINTENANCE
The exit shall be maintained in a condition which will prevent tracking or flow of mud onto public rights-of-way. This may require periodic top dressing with 1.5-3.5 inch stone, as conditions demand, and repair and/or cleanup of any structures to trap sediment. All materials spilled,

CRUSHED STONE CONSTRUCTION EXIT



- NOTES:**
- AVOID LOCATION ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
 - REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND OPENING FOR POSTS/DRAINAGE.
 - AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5" - 3.5" STONE).
 - GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
 - PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
 - A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 3:1.
 - INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
 - BRUSH WASHING IS REQUIRED. IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRENDS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIRECT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
 - WASHBOXES AND/OR THE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHBOX DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT RESISTS WEAR AND TEAR.
 - MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANUP OF ANY MEASURES USED TO TRAP SEDIMENT.

Figure 6-14.1

PG 1 PG 2

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No. 038089
LEIGH A. FARR

05/01/2019
GSWCC LEVEL II #13352
EXP. 06/10/2020

NO.	ISSUED FOR BIDS	DATE	BY	REVISIONS
0	ISSUED FOR BIDS	04/05/19		
	GSWCC COMMENTS			

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TRAVIS FIELD WATER RECLAMATION FACILITY
EROSION & SEDIMENT CONTROL DETAILS

JOB NO:	J-26963.0000
DATE:	12/20/2018
DRAWN:	LAF
DESIGNED:	LAF
REVIEWED:	
APPROVED:	
SCALE:	

C8.3

BID SET - NOT FOR CONSTRUCTION

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS		09/07/19
1	GSWCC COMMENTS		04/09/19

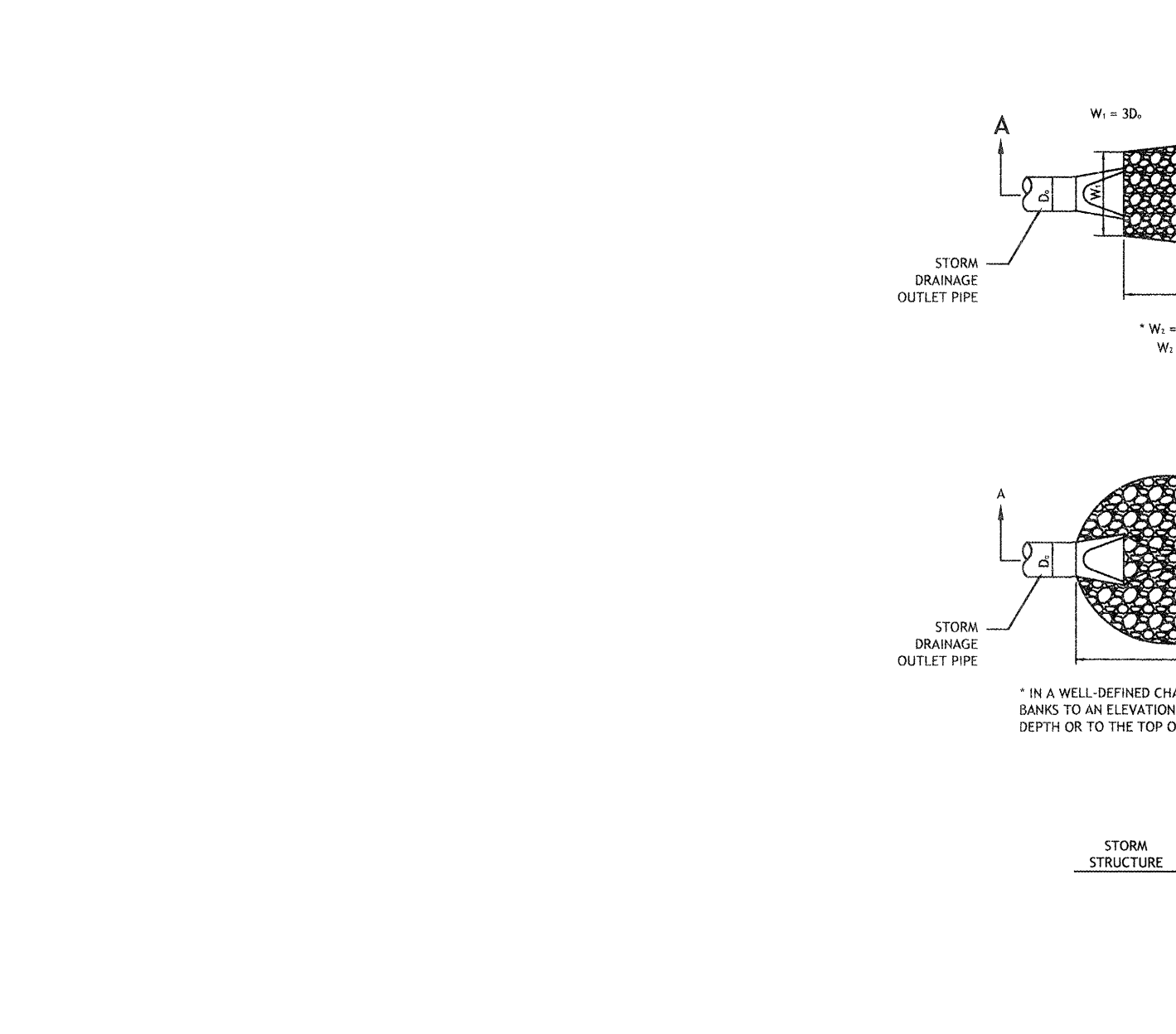
PLANTS, PLANTING RATES, AND PLANTING DATES FOR PERMANENT COVER															
SPECIES	BROADCAST RATES 1/ PLS 2/ PER ACRE PER 1000 S.F.	RESOURCE AREA 3/	PLANTING DATES												
			J	F	M	A	M	J	J	A	S	O	N	D	
BAHA, PENSACOLA (Paspalum notatum) ALONE OR W/ TEMPORARY COVER WITH OTHER PERENNIALS	40 LBS. / 1.4 LBS. 30 LBS. / 0.7 LBS.	P C	2	3	4	5	6	7	8	9	10	11	12	D	100,000 SEED PER POUND, LOW GROWING, SOFT FOLIAGE. SLOW TO ESTABLISH. PLANT WITH A COMPANION CROP. WILL SPREAD INTO BERBERIS PATIARES AND LAWNS. MIX WITH SERICEA LESPEDEZA OR WEEPING LOVEGRASS.
BAHA, WILMINGTON (Paspalum notatum) ALONE OR W/ TEMPORARY COVER WITH OTHER PERENNIALS	40 LBS. / 1.4 LBS. 30 LBS. / 0.7 LBS.	M.L. P C	2	3	4	5	6	7	8	9	10	11	12	D	100,000 SEED PER POUND, LOW GROWING, SOFT FOLIAGE. SLOW TO ESTABLISH. PLANT WITH A COMPANION CROP. WILL SPREAD INTO BERBERIS PATIARES AND LAWNS. MIX WITH SERICEA LESPEDEZA OR WEEPING LOVEGRASS.
BERBERIS, COMMON (Erythron dictyon) RILLED SEED ALONE WITH OTHER PERENNIALS	10 LBS. / 0.2 LBS. 6 LBS. / 0.1 LBS.	P C	2	3	4	5	6	7	8	9	10	11	12	D	1,700 SEED PER POUND, QUICK COVER, LOW GROWING AND SOFT FOLIAGE. USE IN COOL CLIMATE FOR ATHLETIC FIELDS.
BERBERIS, COMMON (Erythron dictyon) UNRILLED SEED W/ TEMP COVER WITH OTHER PERENNIALS	10 LBS. / 0.2 LBS. 6 LBS. / 0.1 LBS.	P C	2	3	4	5	6	7	8	9	10	11	12	D	PLANT WITH WINTER ANNUALS. PLANT WITH TALL FESCUE.
BERBERIS SPICATA (Erythron dictyon) COASTAL, COMMON, MIDLAND, OR TIFT 44 COASTAL, COMMON, OR TIFT 44 TIFT 78	40 C.F. / 0.9 C.F. OR 500 PLUGS 7 X 7	M.L. P C	2	3	4	5	6	7	8	9	10	11	12	D	A CUBIC FOOT CONTAINS APPROXIMATELY 400 SPREGS. A SQUARE CONTAINS 125 CUBIC FEET OR APPROXIMATELY 400 SPREGS. SAME AS ABOVE. SOUTHERN COASTAL PLAIN ONLY.
CENTIFEA (Erenachna sp.) BLOCK SOO ONLY		P C	2	3	4	5	6	7	8	9	10	11	12	D	DROUGHT TOLERANT. FULL SUN OR PARTIAL SHADE. EFFECTIVE AGAINST TOXIC AND INCOMPATIBLE LOW GROWING PERENNIALS. NEAR PASTURES, WINTERHARDSY AS FAR NORTH AS MICHIGAN. USE FROM NORTH ATLANTA AND NORTHWARD.
CROWNBEETCH (Coronilla varia) WITH WINTER ANNUALS OR COOL SEASON GRASSES	15 LBS. / 0.3 LBS.	M.L. P	2	3	4	5	6	7	8	9	10	11	12	D	100,000 SEED PER POUND, DEEPE GROWTH ATTRACTIVE BLOSSOMING AND WHITE BLOSSOMING. SPRING TO LATE FALL. MIX W/ 30 LBS. OF TALL FESCUE OR 15 LBS. OF RYE. INOCULATE SEED WITH A INOCULANT. USE FROM NORTH ATLANTA AND NORTHWARD.
FESCUE TALL (Festuca arundinacea) ALONE W/ OTHER PERENNIALS	50 LBS. / 1.1 LBS. 30 LBS. / 0.7 LBS.	M.L. P C	2	3	4	5	6	7	8	9	10	11	12	D	227,000 SEED PER POUND. USE ALONE ONLY ON BETTER SITES. NOT FOR DROUGHTY SOILS. MIX WITH PERENNIAL LESPEDEZA OR CRONWETCH. APPLY TOPDRESSING IN SPRING FOLLOWING FALL PLANTING. NOT TO HEAVY USE AREAS OR ATHLETIC FIELDS.
LESPEDEZA (Aristida virginica) W/ OTHER PERENNIALS UNSCARIFIED SCARIFIED	40 LBS. / 1.4 LBS. 75 LBS. / 1.7 LBS.	M.L. P C M.L. P C	2	3	4	5	6	7	8	9	10	11	12	D	200,000 SEED PER POUND. HEIGHT GROWTH IS 18 TO 24 INCHES. ADVANTAGES IN URBAN AREAS. 2/ PLS IS AN ABREVIATION FOR PURE LIVE SEED. REFER TO SECTION V.E. OF THESE SPECIFICATIONS. 3/ M.L. REPRESENTS THE MOUNTAIN BLUE RIDGE; AND RIDGES AND VALLEYS ALRAS C REPRESENTS THE SOUTHERN COASTAL PLAIN; SAND HILLS; BLACK LANDS; AND ATLANTIC COAST FLATWOODS ALRAS

SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
COOL SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 1/ 2/ 30
COOL SEASON GRASSES AND LEGUMES		6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	0-50 lbs./ac. 1/ -
GROUND COVERS		10-10-10 10-10-10 10-10-10	1300 lbs./ac. 3/ 1300 lbs./ac. 3/ 1100 lbs./ac.	- -
PINE SEEDLINGS	FIRST	20-10-5	ONE 21-GRAM PELLET PER SEEDLING PLACED IN THE CLOSING HOLE	-
SHRUB LESPEDEZA	FIRST MAINTENANCE	0-10-10 0-10-10	700 lbs./ac. 700 lbs./ac. 4/	- -
TEMPORARY COVER CROPS SEEDED ALONE	FIRST	10-10-10	500 lbs./ac.	30 lbs./ac. 5/
WARM SEASON GRASSES	FIRST SECOND MAINTENANCE	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 800 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 2/ 6/ 50-100 lbs./ac. 2/ 30 lbs./ac.
WARM SEASON GRASSES AND LEGUMES	FIRST SECOND MAINTENANCE	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50 lbs./ac. 6/

1/ Apply in spring following seeding.
 2/ Apply in split applications when high rates are used.
 3/ Apply in 3 split applications.
 4/ Apply when plants are pruned.
 5/ Apply to grass species only.
 6/ Apply when plants grow to a height of 2 to 4 inches.

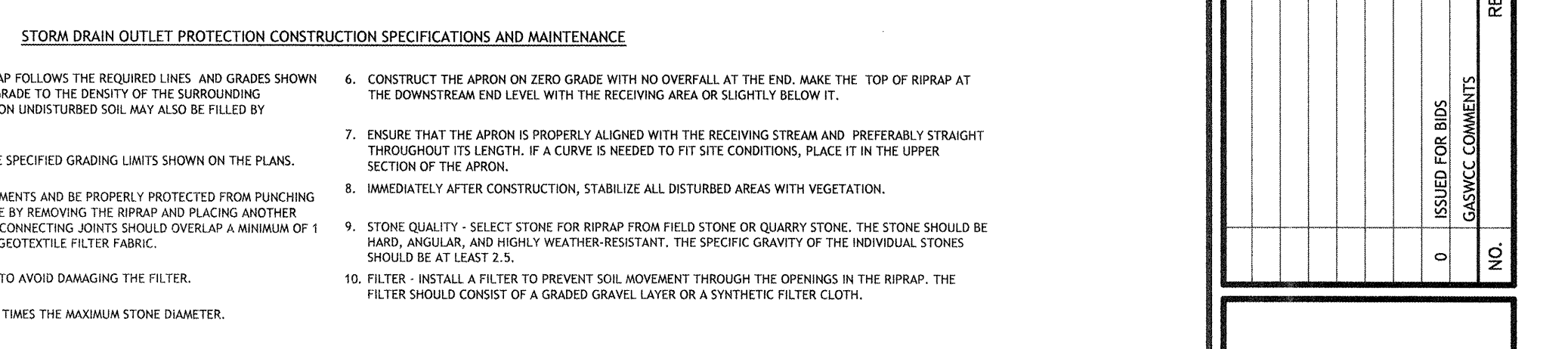
MAINTENANCE REQUIREMENTS:
 PROVIDE PERIODIC INSPECTIONS AND AFTER EACH RAINFALL EVENT AND REGRASS AREAS THAT ARE BARE OR HAVE ERODED. EXCLUDE TRAFFIC ON GRASSED AREAS UNTIL GRASS IS ESTABLISHED. MOW AS REQUIRED.

49 **Ds3** **PERMANENT GRASSING**
 REFER TO THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR FURTHER DETAILS AND SPECIFICATIONS.



STORM DRAIN OUTLET PROTECTION CONSTRUCTION SPECIFICATIONS AND MAINTENANCE

- ENSURE THAT THE SUBGRADE FOR THE FILTER AND RIPRAP FOLLOWS THE REQUIRED SLOPE AND GRADES SHOWN IN THE PLAN. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL. LOW AREAS IN THE SUBGRADE ON UNDISTURBED SOIL MAY ALSO BE FILLED BY INCREASING THE RIPRAP THICKNESS.
- THE RIPRAP AND GRAVEL FILTER MUST CONFORM TO THE SPECIFIED GRADING LIMITS SHOWN ON THE PLANS.
- GEOTEXTILE FILTER FABRIC MUST MEET DESIGN REQUIREMENTS AND BE PROPERLY PROTECTED FROM PUNCHING OR TEARING DURING INSTALLATION. REPAIR ANY DAMAGE BY REMOVING THE RIPRAP AND PLACING ANOTHER PIECE OF FILTER FABRIC OVER THE DAMAGED AREA. ALL CONNECTING JOINTS SHOULD OVERLAP A MINIMUM OF 1 FT. IF THE DAMAGE IS EXTENSIVE, REPLACE THE ENTIRE GEOTEXTILE FILTER FABRIC.
- RIPRAP MAY BE PLACED BY EQUIPMENT, BUT TAKE CARE TO AVOID DAMAGING THE FILTER.
- THE MINIMUM THICKNESS OF THE RIPRAP SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER.
- CONSTRUCT THE APRON ON ZERO GRADE WITH NO OVERFALL AT THE END. MAKE THE TOP OF RIPRAP AT THE DOWNSTREAM END LEVEL WITH THE RECEIVING AREA OR SLIGHTLY BELOW IT.
- ENSURE THAT THE APRON IS PROPERLY ALIGNED WITH THE RECEIVING STREAM AND PREFERABLY STRAIGHT THROUGHOUT ITS LENGTH. IF A CURVE IS NEEDED TO FIT SITE CONDITIONS, PLACE IT IN THE UPPER SECTION OF THE APRON.
- IMMEDIATELY AFTER CONSTRUCTION, STABILIZE ALL DISTURBED AREAS WITH VEGETATION.
- STONE QUALITY - SELECT STONE FOR RIPRAP FROM FIELD STONE OR QUARRY STONE. THE STONE SHOULD BE HARD, ANGULAR, AND HIGHLY WEATHER RESISTANT. THE SPECIFIC GRAVITY OF THE INDIVIDUAL STONES SHOULD BE AT LEAST 2.5.
- INSTALL A FILTER TO PREVENT SOIL MOVEMENT THROUGH THE OPENINGS IN THE RIPRAP. THE FILTER SHOULD CONSIST OF A GRADED GRAVEL LAYER OR A SYNTHETIC FILTER CLOTH.



Rock Outlet (Sd4-C)
 The rock outlet relies on filtering through layers of aggregate, rock or riprap material to dewater the sediment trap. It is the sturdiest of the sediment trap designs and generally requires less maintenance. It can be used for drainage areas up to 5 acres and has a life span of 1 year. See Figure 6-30.3

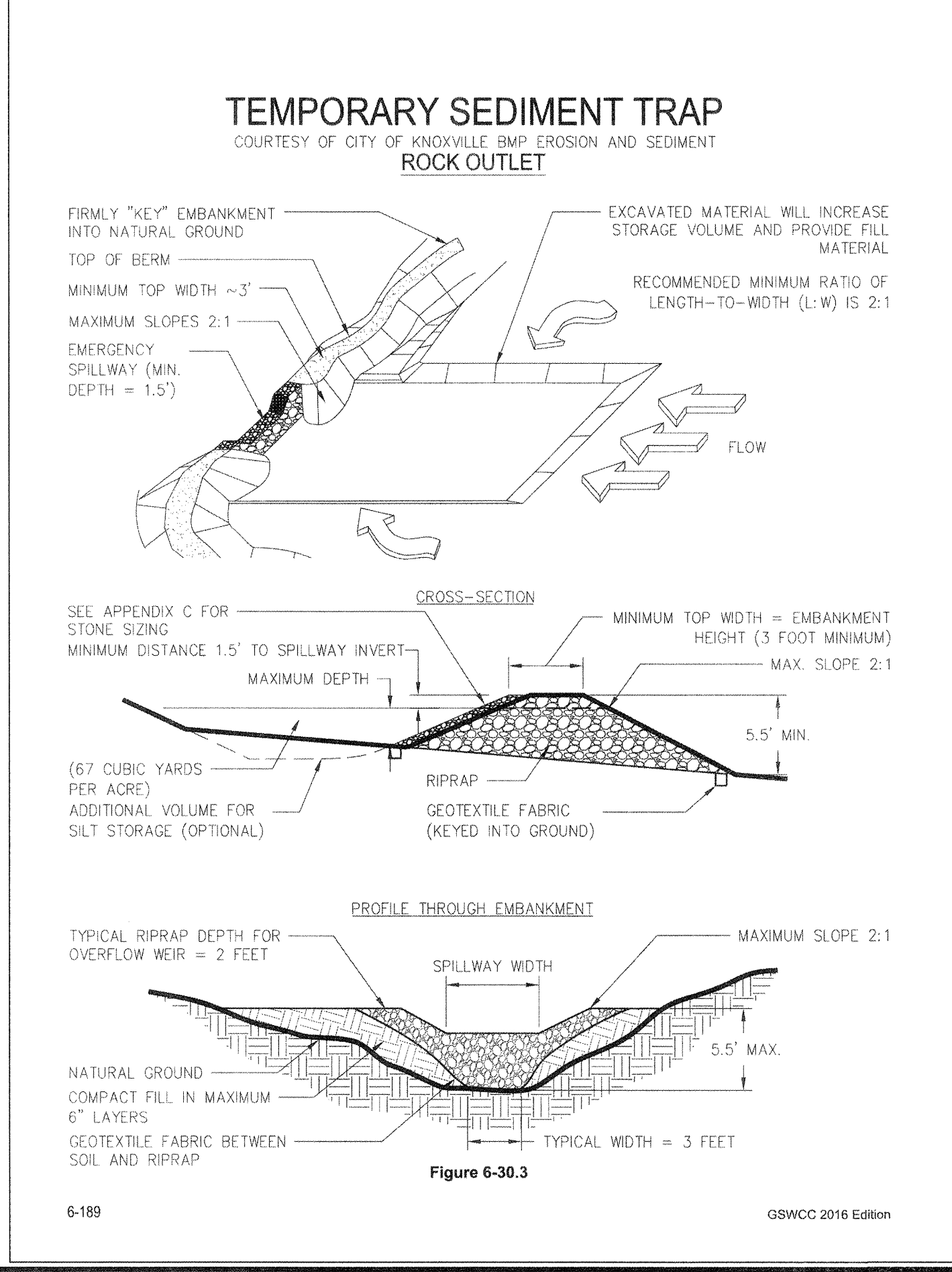
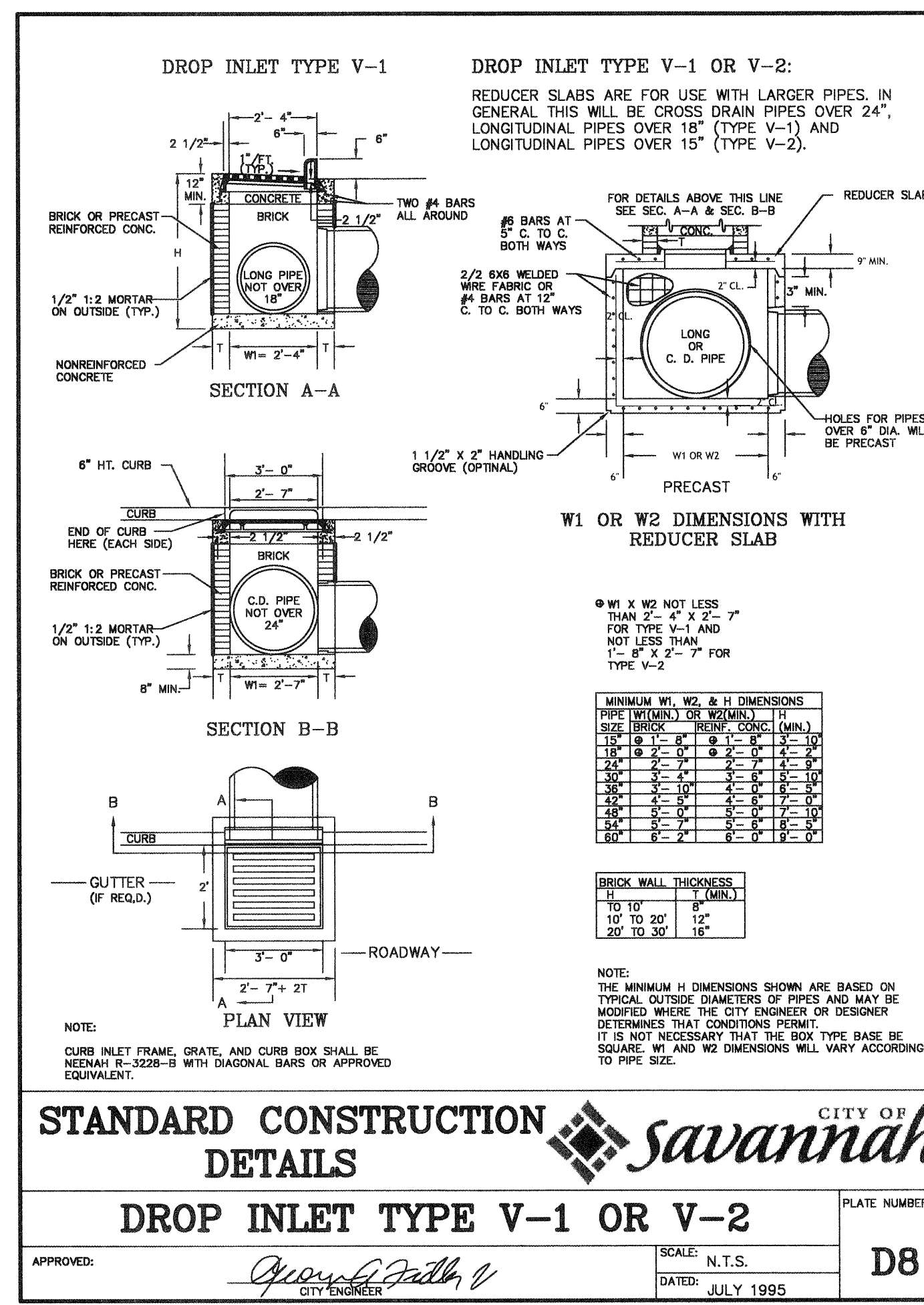


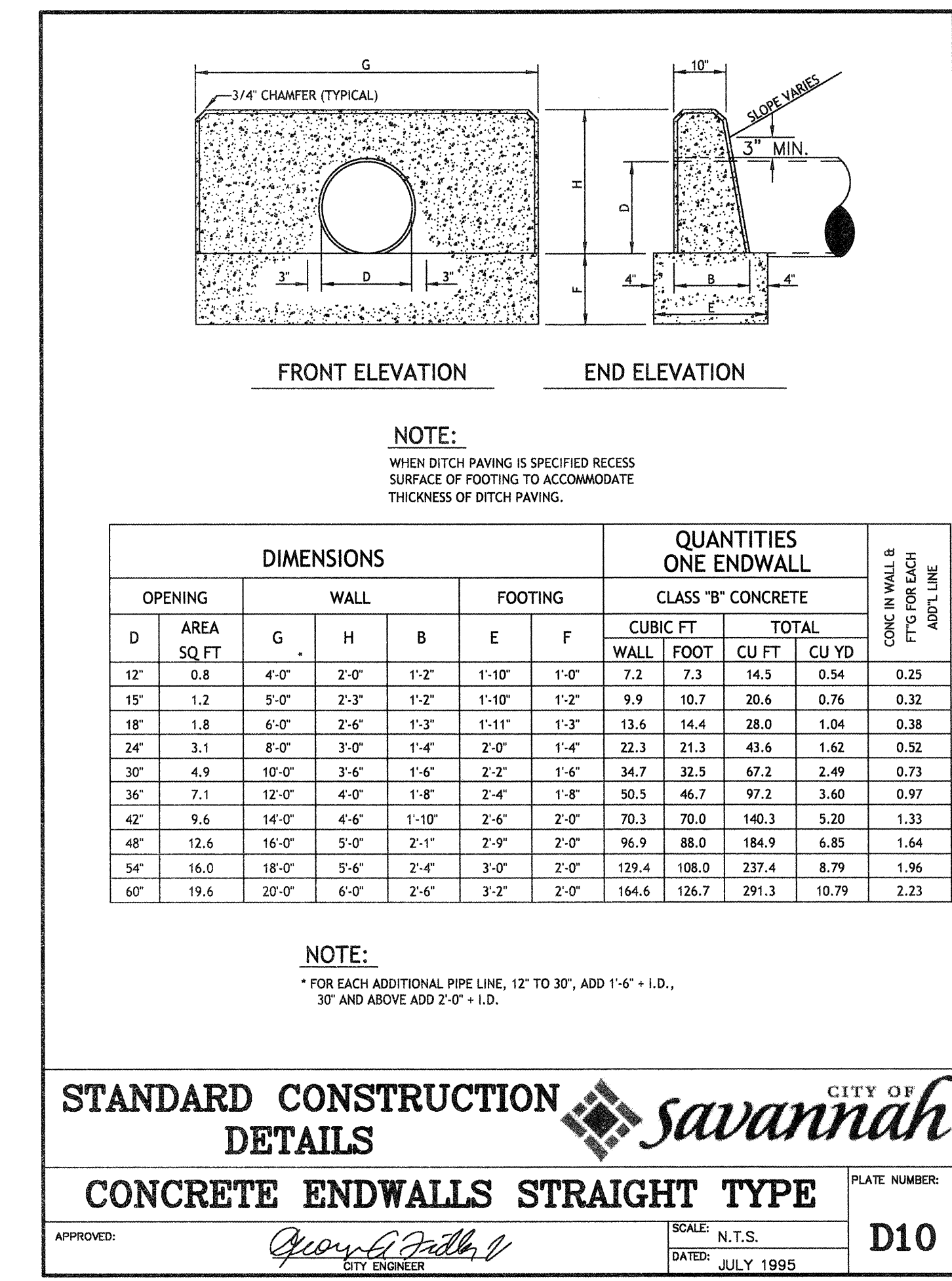
Figure 6-30.3 GSWCC 2016 Edition



STANDARD CONSTRUCTION DETAILS **CITY OF savannah**

DROP INLET TYPE V-1 OR V-2 PLATE NUMBER: **D8**

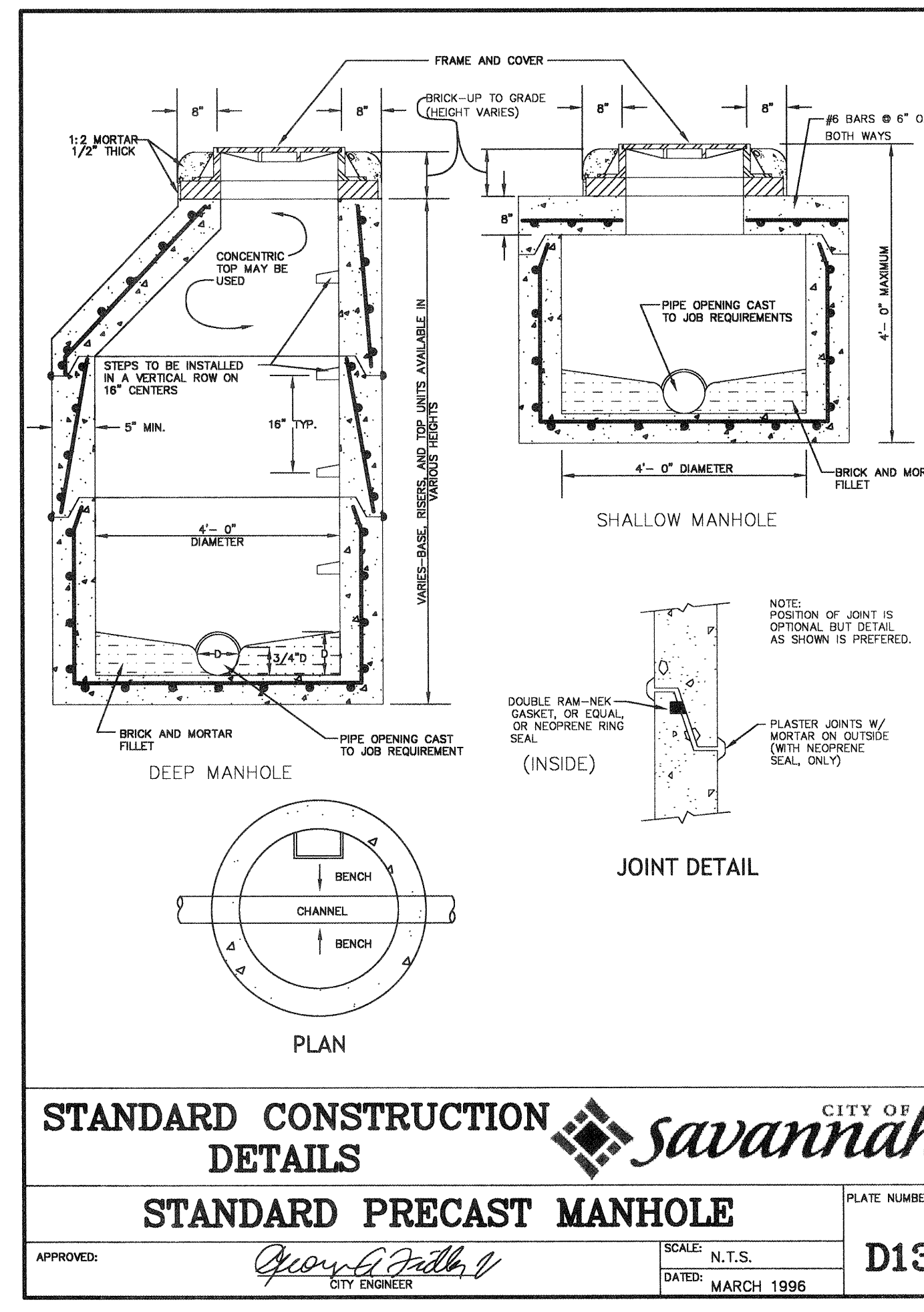
APPROVED: *George L. Patten, V* SCALE: N.T.S. DATED: JULY 1995



STANDARD CONSTRUCTION DETAILS **CITY OF savannah**

CONCRETE ENDWALLS STRAIGHT TYPE PLATE NUMBER: **D10**

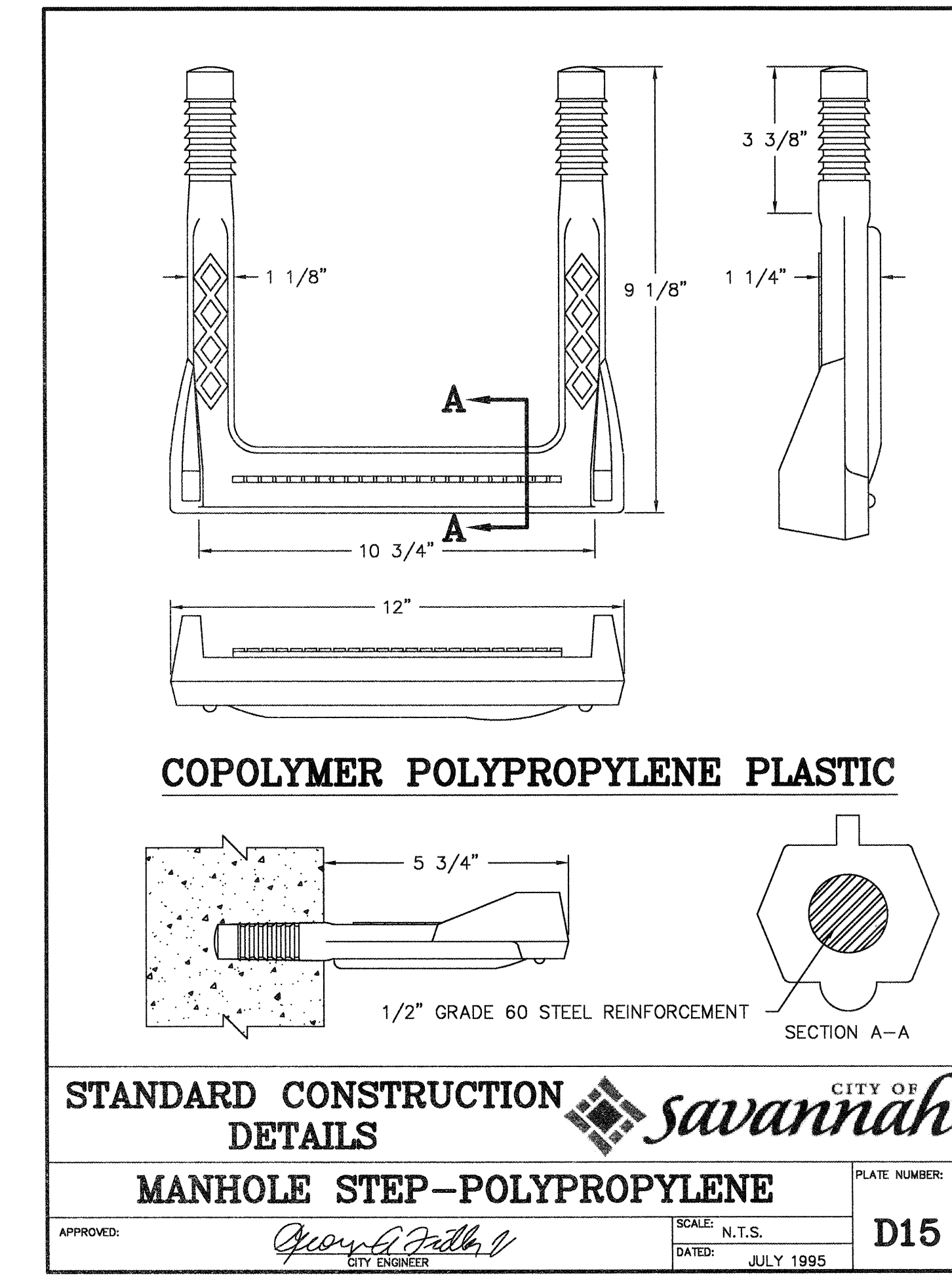
APPROVED: *George L. Patten, V* SCALE: N.T.S. DATED: JULY 1995



STANDARD CONSTRUCTION DETAILS **CITY OF savannah**

STANDARD PRECAST MANHOLE PLATE NUMBER: **D13**

APPROVED: *George L. Patten, V* SCALE: N.T.S. DATED: MARCH 1996



STANDARD CONSTRUCTION DETAILS **CITY OF savannah**

MANHOLE STEP-POLYPROPYLENE PLATE NUMBER: **D15**

APPROVED: *George L. Patten, V* SCALE: N.T.S. DATED: JULY 1995

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GEORGIA REGISTERED PROFESSIONAL ENGINEER
No. 036089
LEIGH A. FAIR

05/01/2019
GSWCC LEVEL II #13352
EXP. 06/10/2020

NO.	DATE	REVISIONS
0	05/01/19	ISSUED FOR BIDS

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50 Park of Commerce Way
Savannah, GA 31405 • 912.234.5300
www.thomasandhutton.com

SAVANNAH savannahga.gov

TRAVIS FIELD WATER RECLAMATION FACILITY
CONSTRUCTION DETAILS

JOB NO: J-26983.0000
DATE: 12/20/2018
DRAWN: LAF
DESIGNED: LAF
REVIEWED:
APPROVED:
SCALE:

C9.0

BID SET - NOT FOR CONSTRUCTION

STANDARD CONSTRUCTION DETAILS

STORM MANHOLE RING & COVER

PLATE NUMBER: **D16**

APPROVED: *Quyen G. Fathallah*
CITY ENGINEER

SCALE: N.T.S.
DATE: NOVEMBER 1995

STANDARD CONSTRUCTION DETAILS

TEMPORARY CURB INLET PROTECTION

PLATE NUMBER: **D19**

APPROVED: _____
CITY ENGINEER

SCALE: N.T.S.
DATE: JULY 2008

STANDARD CONSTRUCTION DETAILS

CURB AND GUTTER DETAILS

PLATE NUMBER: **P02**

APPROVED: _____
CITY ENGINEER

SCALE: N.T.S.
DATE: FEBRUARY 2009

STANDARD CONSTRUCTION DETAILS

SIDEWALK AND WALKWAY DETAILS

PLATE NUMBER: **P03**

APPROVED: _____
CITY ENGINEER

SCALE: N.T.S.
DATE: FEBRUARY 2009

STANDARD CONSTRUCTION DETAILS

BITUMINOUS PAVEMENT REPLACEMENT

PLATE NUMBER: **P07**

APPROVED: _____
CITY ENGINEER

SCALE: N.T.S.
DATE: MARCH 2012

STANDARD CONSTRUCTION DETAILS

TYPICAL COLLECTOR/ARTERIAL STREET SECTION

PLATE NUMBER: **P01A**

APPROVED: _____
CITY ENGINEER

SCALE: N.T.S.
DATE: FEBRUARY 2009

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05/01/2019
GSWCC LEVEL II #13352
EXP. 06/10/2020

NO.	ISSUED FOR	REVISIONS	DATE	BY
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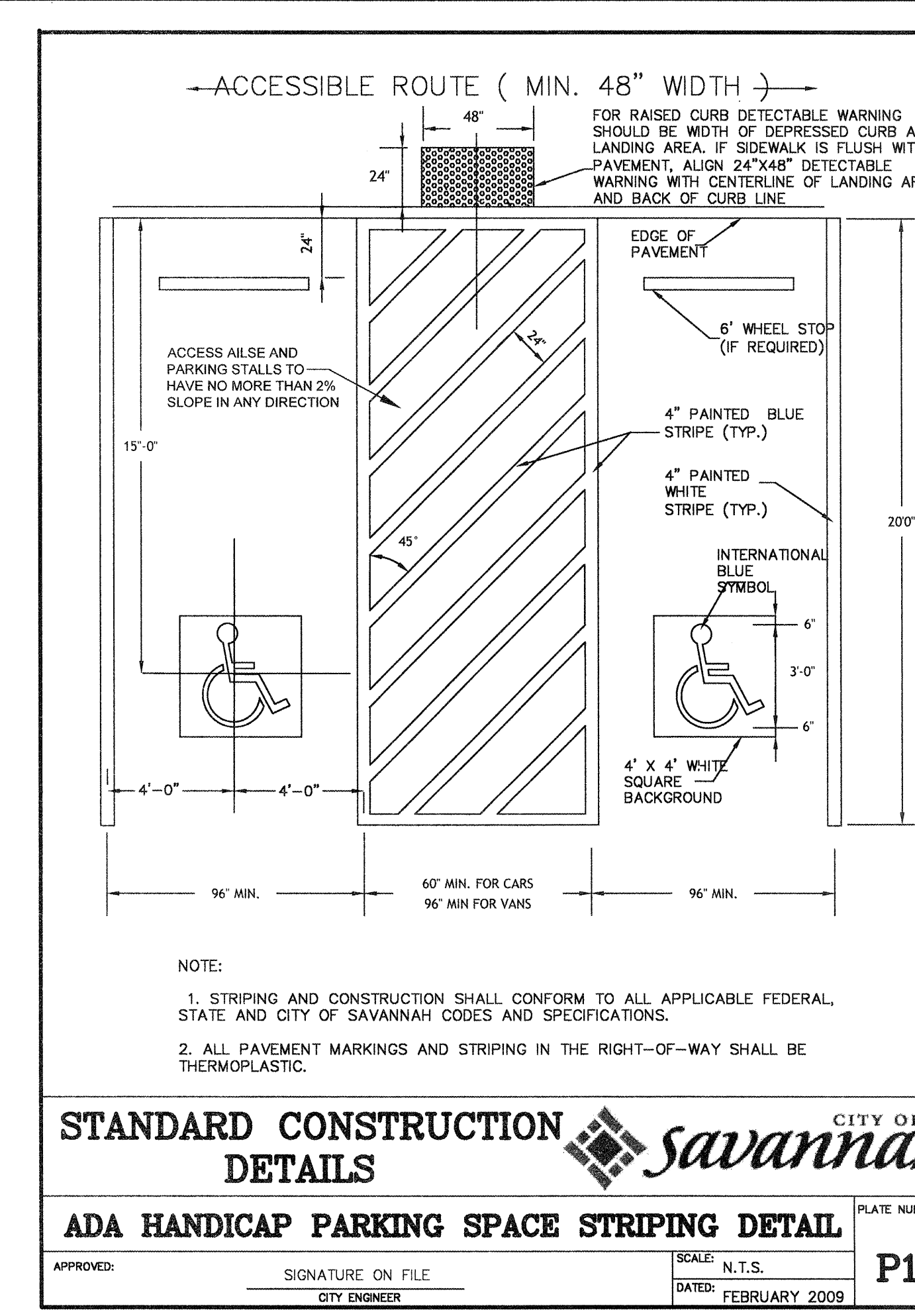
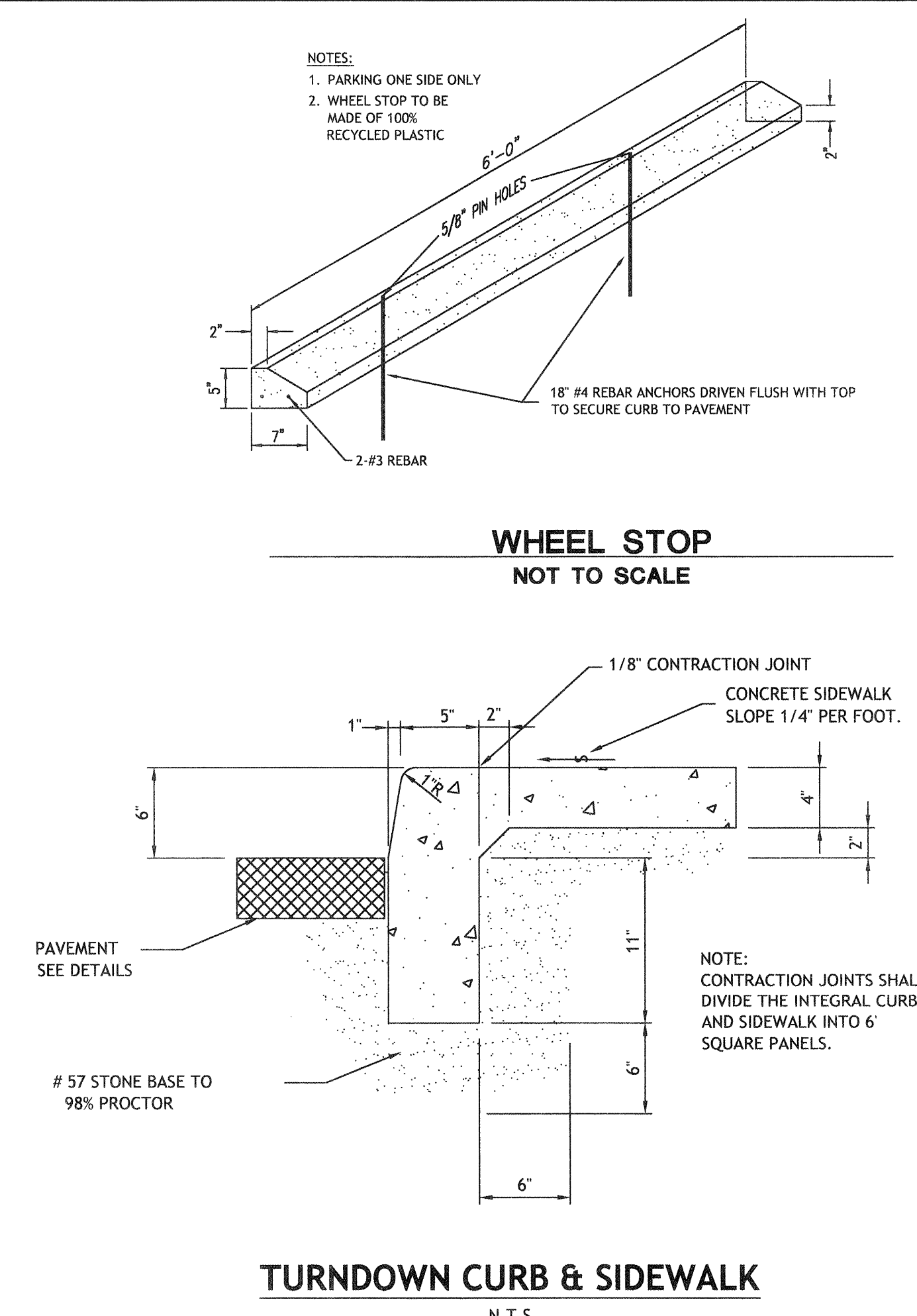
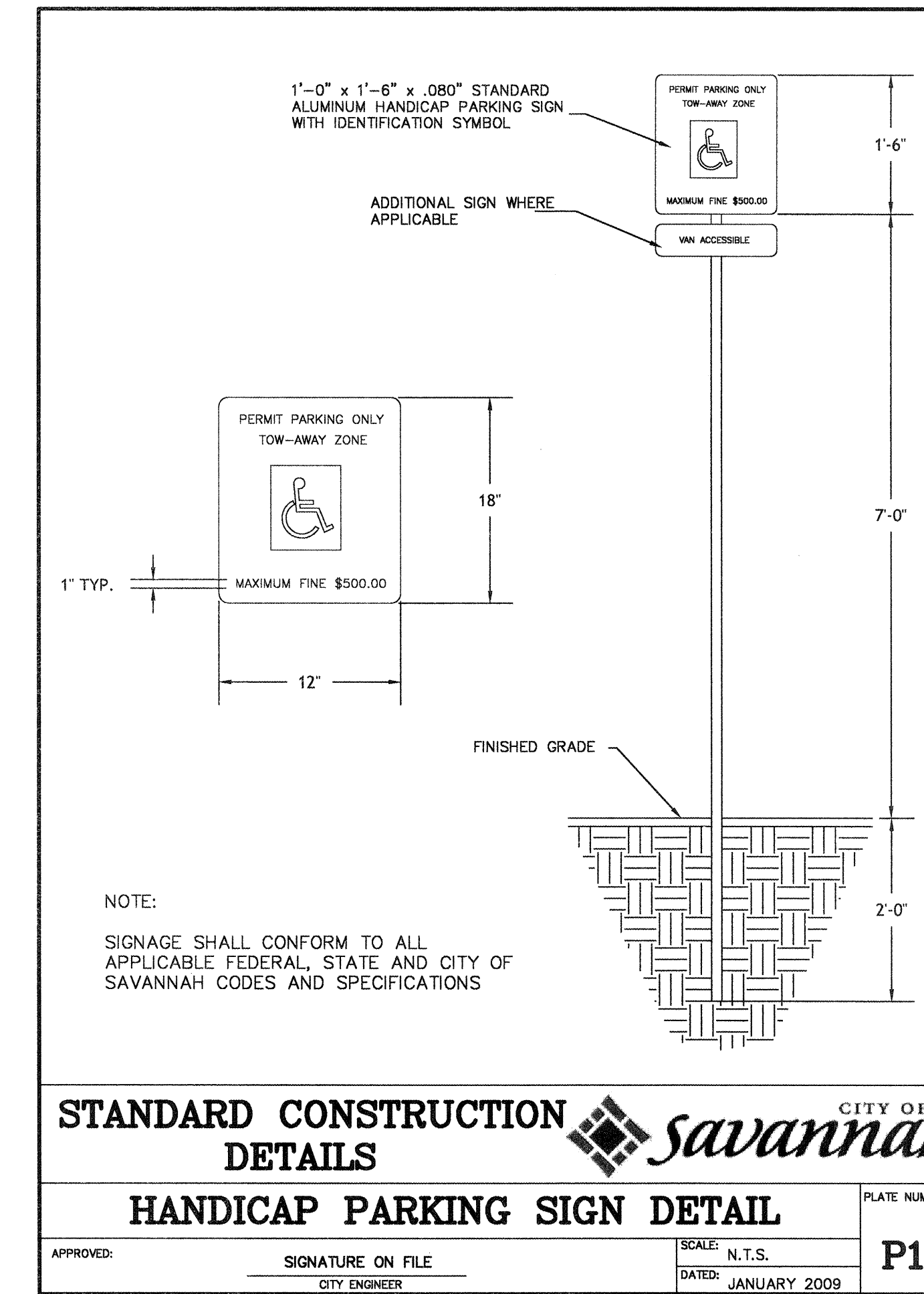
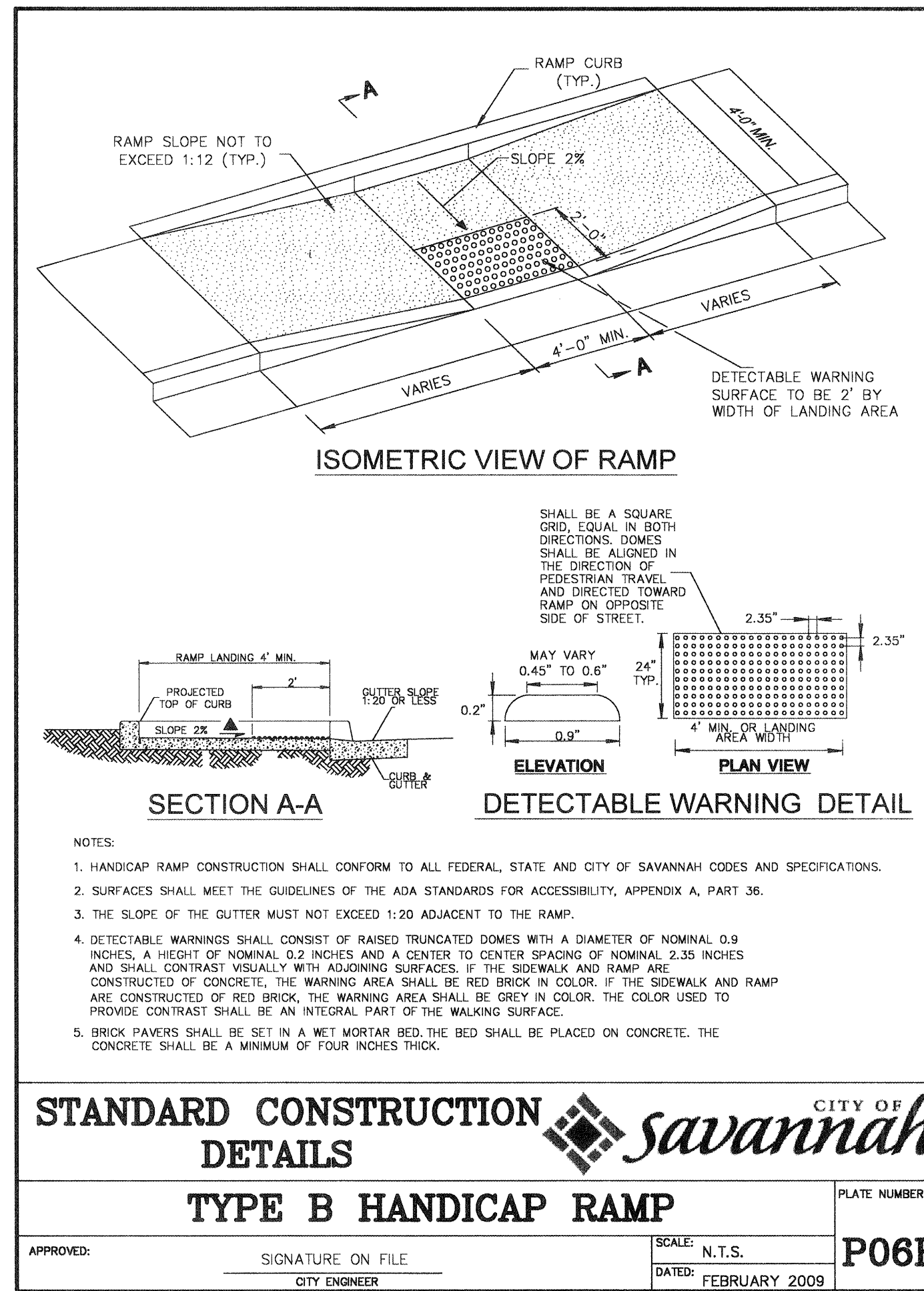
TRAVIS FIELD WATER RECLAMATION FACILITY

CONSTRUCTION DETAILS

JOB NO: J-26963.0000
DATE: 12/20/2018
DRAWN: LAF
DESIGNED: LAF
REVIEWED:
APPROVED:
SCALE:

C9.1

BID SET - NOT FOR CONSTRUCTION



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LEIGH A. FARR

05/01/2019
GSWCC LEVEL II #13352
EXP. 06/10/2020

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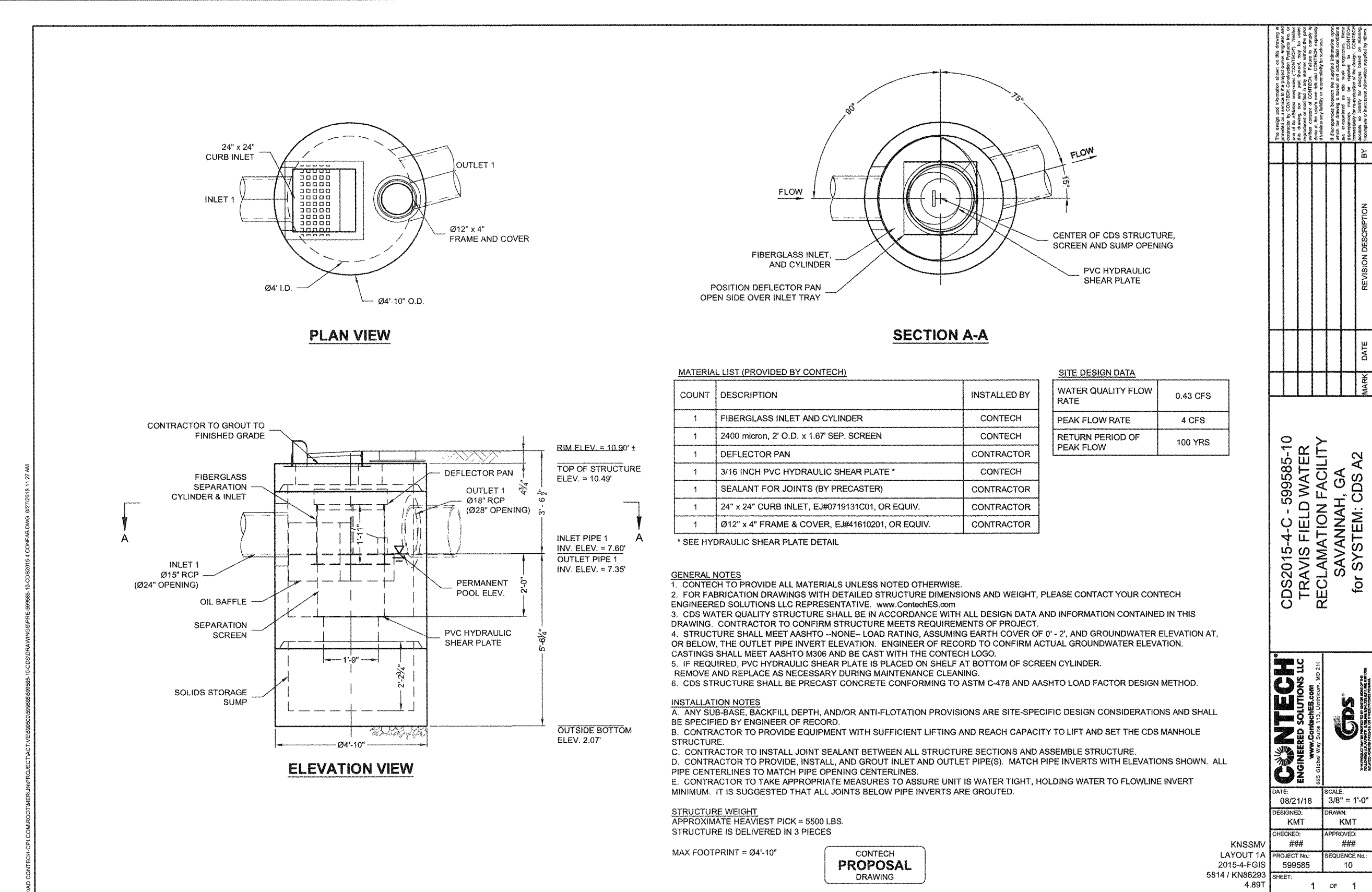
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SAVANNAH COMMUNITY ENERGY

TRAVIS FIELD WATER RECLAMATION FACILITY
CONSTRUCTION DETAILS

JOB NO: J-26963.0000
DATE: 12/20/2018
DRAWN: LAF
DESIGNED: LAF
REVIEWED:
APPROVED:
SCALE:

C9.2



WATER QUALITY UNIT NOTES:

- PER GEOTECHNICAL REPORT BY TERRACON CONSULTANTS, INC., DATED 3/15/2018, GROUND WATER WAS OBSERVED BETWEEN APPROXIMATE ELEVATIONS OF 6.5 AND 8.0 DURING THEIR SITE INVESTIGATION.
- CONTRACTOR SHALL INSTALL WATER QUALITY STRUCTURE WITH A BASE AT LEAST 7" IN DIAMETER AND 12" THICK TO PREVENT FLOATATION.
- CONTRACTOR SHALL CONSULT WITH FIELD GEOTECHNICAL ENGINEER TO ASSESS SOIL CONDITIONS PRIOR TO INSTALLATION OF STRUCTURES.

