VERNON ROAD FIRE STATION

FOR

CITY OF LAGRANGE

LAGRANGE, GEORGIA

(CIVIL)

PROJECT NUMBER 1731

FOR BIDDING AND PERMIT

07 MAY 2018

smith design group | 206 W Haralson Street LaGrange GA 30240 | 706.882.5511 | www.SDGarch.net

INDEX OF SHEETS

ARCHITECT'S STAMP

STATE OF GEORGIA
GORDON M. SMITH, JR.
7575
LaGrange, Georgia
REGISTERED ARCHITECT

SIGNATURE REQUIRED

SMITH DESIGN GROUP, INC.

206 WEST HARALSON STREET
LAGRANGE, GEORGIA 30240

706-882-5511 www.SDGarch.net

REVISIONS

⚠	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION

VERNON ROAD
LAGRANGE GEORGIA

TITLE:

INDEX OF SHEETS

ABBREVIATIONS
LEGENDS

MODIFIED DATE:

JOB NO:
1731

ISSUED DATE:
FOR BID AND PERMIT
07 MAY 2018

SHEET:
G-2

CONSTRUCTION PLANS
FOR
PROPOSED FIRE STATION

IN

LAND LOT 114, 6th LAND DISTRICT,
CITY OF LAGRANGE, TROUP COUNTY, GEORGIA

SITE MAP

GEORGIA 811
Utilities Protection Center, Inc.
Know what's below.
Call before you dig.

UTILITY CONTACTS

WATER
CITY OF LAGRANGE
KEITH HESTER
980 CAMERON MILL ROAD
LAGRANGE, GA 30240
(706) 883-2136

NATURAL GAS
CITY OF LAGRANGE
JIMMY RHODES
LUKKEN INDUSTRIAL DRIVE
LAGRANGE, GA 30240
(706) 883-2135

SEWER
CITY OF LAGRANGE
STEVE LEFEVOR
115 HILL STREET
LAGRANGE, GA 30240
(706) 883-2119

POWER
CITY OF LAGRANGE
JAY BARTLETT
LUKKEN INDUSTRIAL DRIVE
LAGRANGE, GA 30240
(706) 883-2146

STREETS/DRAINS
CITY OF LAGRANGE
CHRIS PRATHER
115 HILL STREET
LAGRANGE, GA 30240
(706) 883-2104

COMMUNITY DEVELOPMENT
CITY OF LAGRANGE
ALTON WEST
200 RIDLEY AVENUE
LAGRANGE, GA 30240
(706) 883-2021

DIRECTOR OF UTILITIES
CITY OF LAGRANGE
PATRICK BOWIE
CITY HALL
(706) 883-2065

DIRECTOR OF SERVICES
CITY OF LAGRANGE
DION SENN
CITY HALL
(706) 883-2074

REPRODUCTION DISCLAIMER

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

NOTES:
1. ZONING: C-1
   SETBACKS: FRONT – 30'
   REAR – 10'
   SIDE – 10
2. ALL PINS ARE 1/5" REBARS UNLESS OTHERWISE NOTED.
3. TOPOGRAPHY FROM FIELD SURVEY BY STOTHARD ENGINEERING, INC.
   DATUM: HORIZONTAL – NAD83, GEORGIA WEST ZONE.
   VERTICAL – NAVD 88
4. PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER CITY OF LAGRANGE FIRM 13285C 0141 & 0143E DATED JULY 3, 2012.
5. PROPERTY ADDRESS IS 1519 VERNON ROAD
6. TOTAL SITE AREA – 29,920 SQ.FT.(0.687 AC.)
7. EXISTING IMPERVIOUS AREA – 88 SQ.FT. (.00202%)
   POST DEVELOPMENT IMPERVIOUS AREA – 16,818 SQ.FT.(56.50%)
8. PROPOSED BUILDING AREA: 4,981 SQ. FT.
9. PARKING: PROPOSED – 9 SPACES (INCLUDING 2 HANDICAP SPACES)

ENGINEER'S STAMP
GEORGIA REGISTERED No. 15260 PROFESSIONAL ENGINEER JAMES STOTHARD
SIGNATURE REQUIRED

SMITH DESIGN GROUP, INC.
[illegible]
LAGRANGE, GEORGIA [illegible]
[illegible]

STOTHARD ENGINEERING, INC.
1008 COLQUITT ST.
LAGRANGE, GA 30241
PH: 706 884-5279
email: stothard@stothard-engineering.com

REVISIONS

	DATE	DESCRIPTION

PROJECT:
VERNON ROAD FIRE STATION
VERNON ROAD
LAGRANGE, GEORGIA

TITLE:
COVER SHEET

MODIFIED DATE:

JOB NO:
1731

ISSUED DATE:
FOR BID AND PERMIT
20 APRIL 2018

SHEET:
C-0

ABBREVIATIONS

AB	ANCHOR BOLTS
●	AT
ALUM	ALUMINUM
APPROX	APPROXIMATE
AVE	AVENUE
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BLK	BLOCK
BM	BENCHMARK
BOT	BOTTOM
BS	BOTH SIDES
CB	CATCH BASIN
CCP	CONCRETE CULVERT PIPE
CI	CAST IRON
CISP	CAST IRON SEWER PIPE
℄	CENTER LINE
CM	CONCRETE MONUMENT
CMF	CONCRETE MONUMENT FOUND
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
CY	CUBIC YARD
CV	CHECK VALVE
DB	DEED BOOK
DEG	DEGREE
DIA	DIAMETER
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
E	EAST
EA	EACH
E.F.	EACH FACE
EL/ELEV	ELEVATION
EW	EFFLUENT WATER
E.W.	EACH WAY
EXIST	EXISTING
FCA	FLANGED COUPLING ADAPTER
FH	FIRE HYDRANT
FIN FL	FINISHED FLOOR ELEVATION
FIN GR	FINISHED GRADE ELEVATION
℄	FLOW LINE
FLG	FLANGED
FM	FORCE MAIN
FOT	FIBER OPTIC TELEPHONE
FT	FOOT
GADOT	GEORGIA DEPARTMENT OF TRANSPORTATION
GALV	GALVANIZED
GL	GAS LINE
GPM	GALLONS PER MINUTE
GR	GRADE
GS	GRAVITY SEWER
GUY	GUY WIRE
GV	GATE VALVE
HGT	HEIGHT
HORIZ	HORIZONTAL
HWY	HIGHWAY
HP	HIGH PRESSURE
ID	INSIDE DIAMETER
IF	INSIDE FACE
INFL	INFLUENT
INV	INVERT
JT	JOINT
LF	LINEAR FEET
LIN	LINEAL, LINEAR
LG	LONG
LJ DIP	LOCK-JOINT DUCTILE IRON PIPE
L.M.	LINEAR METER
LP	LIGHT POLE
LS	LUMP SUM
LT	LEFT
M	METER
mm	MILLIMETER
MAX	MAXIMUM
MC	MOTOR CONTROL
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
N	NORTH
NG	NATURAL GAS
NIC	NOT IN CONTRACT
NO.,*	NUMBER
NOM	NOMINAL
NORM	NORMAL
NPW	NON-POTABLE WATER
NTS	NOT TO SCALE
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OHCTV	OVERHEAD CABLE TELEVISION
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
PE	PLAIN END
PEJ	PIPE EXPANSION JOINT
PG	PAGE
PI	POINT OF INTERSECTION
ℙ	PROPERTY LINE
PL	PLACES
PO	PUSH ON
PP	POWER POLE
PRESS	PRESSURE
PROP	PROPOSED
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RED	REDUCER
REINF	REINFORCING
REQ'D	REQUIRED
RJ	RESTRAINED JOINT
ROW	RIGHT-OF-WAY
RR	RAILROAD
RT	RIGHT
S	SOUTH
SCH	SCHEDULE
SECT	SECTION
SHT	SHEET
SL	SURVEY LINE
SPECS	SPECIFICATIONS
SQ	SQUARE
SQ M	SQUARE METERS
SS	SANITARY SEWER
ST	STREET
STA	STATION
STD	STANDARD
STRUCT STL	STRUCTURAL STEEL
ST STL	STAINLESS STEEL
SWD	SIDE WATER DEPTH
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
THK	THICKNESS
TOC	TOP OF CURB
TP	TELEPHONE POLE
T/S	TOP OF SLAB
T/W	TOP OF WALL
TYP	TYPICAL
UGCTV	UNDERGROUND CABLE TELEVISION
UGP	UNDERGROUND POWER
UGT	UNDERGROUND TELEPHONE
V	VALVE
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
W	WATER
W/	WITH
W/O	WITHOUT
WL	WATER LINE
WS	WATERSTOP
WT	WALL THICKNESS
WTM	WATER TRANSMISSION MAIN
WV	WATER VALVE
WWF	WELDED WIRE FABRIC
YH	YARD HYDRANT

UTILITIES

EXISTING PROPOSED

- LIGHT POLE
- POWER POLE
- TELEPHONE POLE
- SERVICE
- FIRE HYDRANT
- REDUCER/INCREASER
- GATE VALVE
- CLEANOUT
- CATCH BASIN
- GUY WIRE
- WATER METER
- AIR RELEASE VALVE
- GAS METER
- POWER MANHOLE
- SEWER MANHOLE
- TELEPHONE MANHOLE
- BURIED CABLE MARKER
- UNDERGROUND TELEPHONE MARKER
- UNDERGROUND GAS MARKER
- TELEPHONE PEDESTAL
- NON-CONNECTING PIPING
- JUNCTION BOX LETTER DENOTES UTILITY (P-POWER, T-TELEPHONE, C-CABLE, F-FIBER OPTIC)
- FIBER OPTIC LINE
- CABLE TELEVISION LINE
- UNDERGROUND TELEPHONE LINE
- TELEPHONE LINE
- UNDERGROUND POWER LINE
- POWER LINE
- GAS LINE
- WATER LINE
- EXISTING GRAVITY SEWER
- PROPOSED GRAVITY SEWER
- EXISTING FORCE MAIN
- PROPOSED FORCE MAIN
- EXISTING PIPE
- PROPOSED PIPE

SURVEYING SYMBOLS

EXISTING PROPOSED

- IRON PIN FOUND, SET
- CONC. MONUMENT FOUND, SET
- R.O.W. MONUMENT
- CALCULATED POINT
- LAND HOOK
- TEMPORARY BENCHMARK (TBM)
- PERMANANT EASEMENT
- PROP. OR TEMP. EASEMENT
- PROPERTY LINE
- LIMITS (TOWN OR CITY)
- SECTION LINE
- SURVEY BASE LINE

TOPOGRAPHICAL SYMBOLS

- SIGN
- BILLBOARD
- MAILBOX
- WIRE FENCE
- CHAIN LINK FENCE
- WOOD FENCE
- GUARD RAIL
- RAILROAD TRACKS
- TREE LINE
- DRAINAGE DITCH
- IMPROVED ROAD
- UNIMPROVED ROAD
- CREEK
- LAKE OR POND
- MARSH
- BEAVER DAM
- HEDGEROW
- TREE

SITE WORK SYMBOLS

- X 700.00 — EXIST. GRADE ELEVATION
- ⊗ 700.00 — PROP. GRADE ELEVATION
- 699 — EXIST. 1 OR 2 FT. CONTOURS
- 700 — EXIST. 10 FT. CONTOURS
- 699 — PROP. 1 OR 2 FT. CONTOURS
- 700 — PROP. 10 FT. CONTOURS

INDEX TO SHEETS

COLOR CODES FOR UTILITY LOCATING

RED	ELECTRIC
YELLOW	GAS–OIL
ORANGE	TELEPHONE/CATV
BLUE	WATER
GREEN	SEWER

THREE WORKING DAYS
BEFORE
YOU DIG IN GEORGIA
CALL !

GEORGIA 811
Utilities Protection Center, Inc.
Know what's below.
Call before you dig.

GENERAL NOTES

1. EFFORTS HAVE BEEN MADE TO INDICATE LOCATIONS OF EXISTING STRUCTURES, PIPING AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXACT SIZES AND LOCATIONS OF ALL EXISTING UTILITIES BEFORE INITIATING AND CONSTRUCTION OPERATIONS. ANY EXISTING STRUCTURE, PIPING OR UTILITY DISTURBED OR DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION OPERATIONS SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER AND/OR THE ENGINEER.

2. THE LIMITS OF CONSTRUCTION SHALL BE THE PROPERTY LINES OR EASEMENT LINES AS SHOWN ON THE PLANS. ANY ADDITIONAL EASEMENTS REQUIRED FOR CONSTRUCTION SHALL BE ACQUIRED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER AND /OR ENGINEER.

3. DIMENSIONS OF EXISTING STRUCTURES AND/OR SIZE RESTRICTIONS ARE APPROXIMATE. ALL NECESSARY DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES & TOPOGRAPHY SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD PRIOR TO CONSTRUCTION OPERATIONS.

4. ALL WALL PENETRATIONS FOR PIPING SHALL CONFORM TO THE STANDARD DETAILS AS REQUIRED BY THE CONTRACT DRAWINGS & SPECIFICATIONS UNLESS OTHERWISE NOTED.

5. ALL BURIED PIPES SHALL HAVE A MINIMUM OF 3'-0" COVER AS MEASURED VERTICALLY FROM FINISHED GRADE TO THE TOP OF PIPE UNLESS OTHERWISE NOTED.

6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO WORK ALL APPLICABLE DRAWINGS AND THE APPROPRATE SPECIFICATIONS AS A UNIT. ANY OMISSIONS, DELETIONS, OR CONFLICTS ARISING AS A RESULT OF FAILURE TO INCORPORATE ALL DRAWINGS AND SPECIFICATIONS WHICH APPLY SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER AND/OR ENGINEER.

7. CONTRACTOR SHALL MAINTAIN A 15' MINIMUM EXCAVATION CLEARANCE AT ALL TRANSMISSION LINE TOWER SUPPORTS AND DOWN GUY ANCHORS.

ENGINEER'S STAMP
GEORGIA REGISTERED No. 15360 PROFESSIONAL ENGINEER JAMES STOTHARD
SIGNATURE REQUIRED

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REVISIONS

△	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION
VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

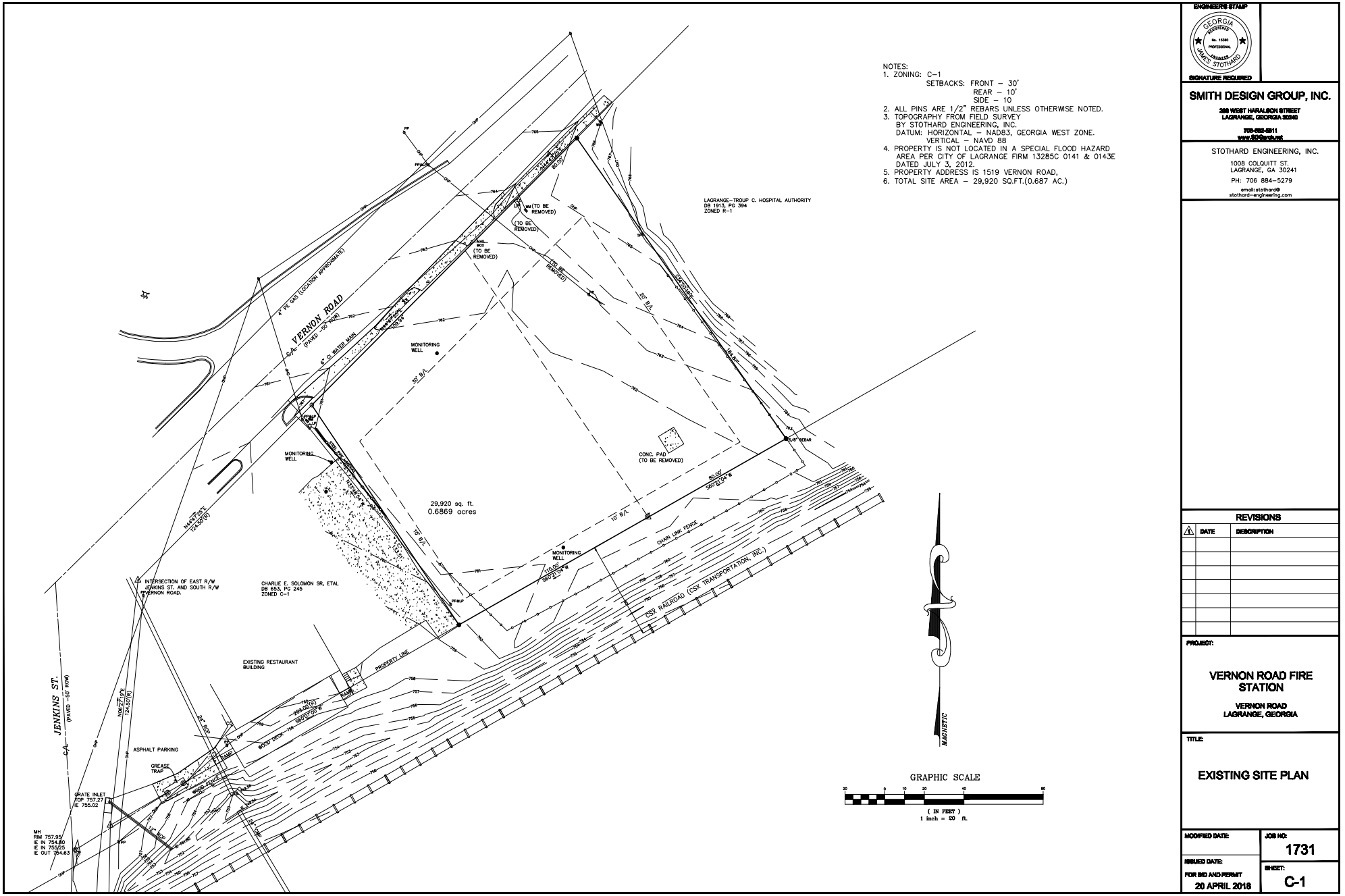
INDEX SHEET

MODIFIED DATE:

JOB NO: 1731

ISSUED DATE:
FOR BID AND PERMIT
20 APRIL 2018

SHEET: C-00



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5. PROPERTY ADDRESS IS 1519 VERNON ROAD,
6. TOTAL SITE AREA – 29,920 SQ.FT.(0.687 AC.)

ENGINEER'S STAMP

GEORGIA REGISTERED No. 15360 PROFESSIONAL ENGINEER JAMES STOTHARD

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email: stothard@stothard-engineering.com

REVISIONS

	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION

VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

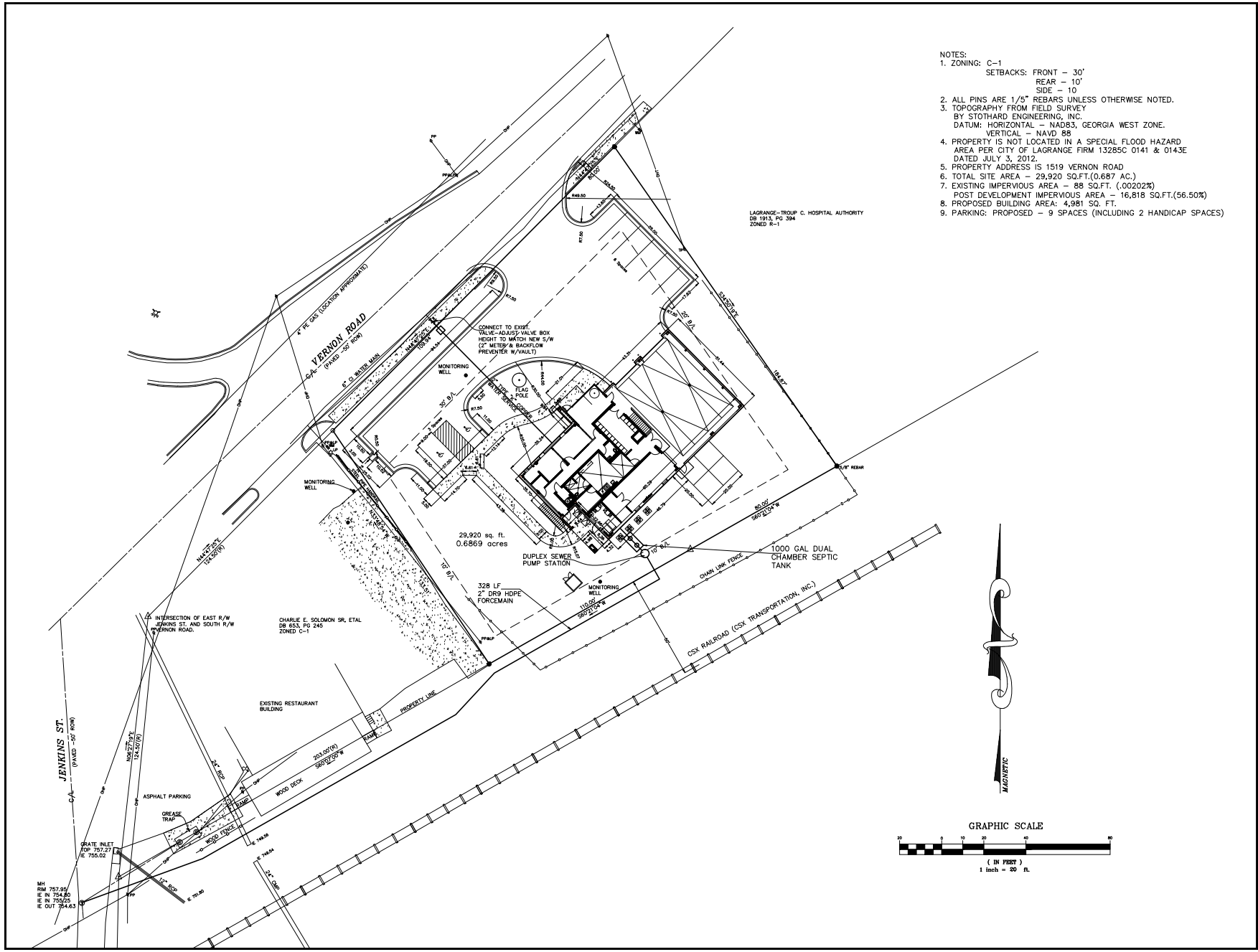
EXISTING SITE PLAN

MODIFIED DATE:

ISSUED DATE:
FOR BID AND PERMIT
20 APRIL 2018

JOB NO:
1731

SHEET:
C-1



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8. PROPOSED BUILDING AREA: 4,981 SQ. FT.
9. PARKING: PROPOSED – 9 SPACES (INCLUDING 2 HANDICAP SPACES)

ENGINEER'S STAMP

GEORGIA REGISTERED No. 15360 PROFESSIONAL ENGINEER JAMES STOTHARD

SIGNATURE REQUIRED

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REVISIONS

⚠	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION

VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

PROPOSED SITE PLAN/UTILITY PLAN

MODIFIED DATE:	JOB NO:
	1731
ISSUED DATE:	SHEET:
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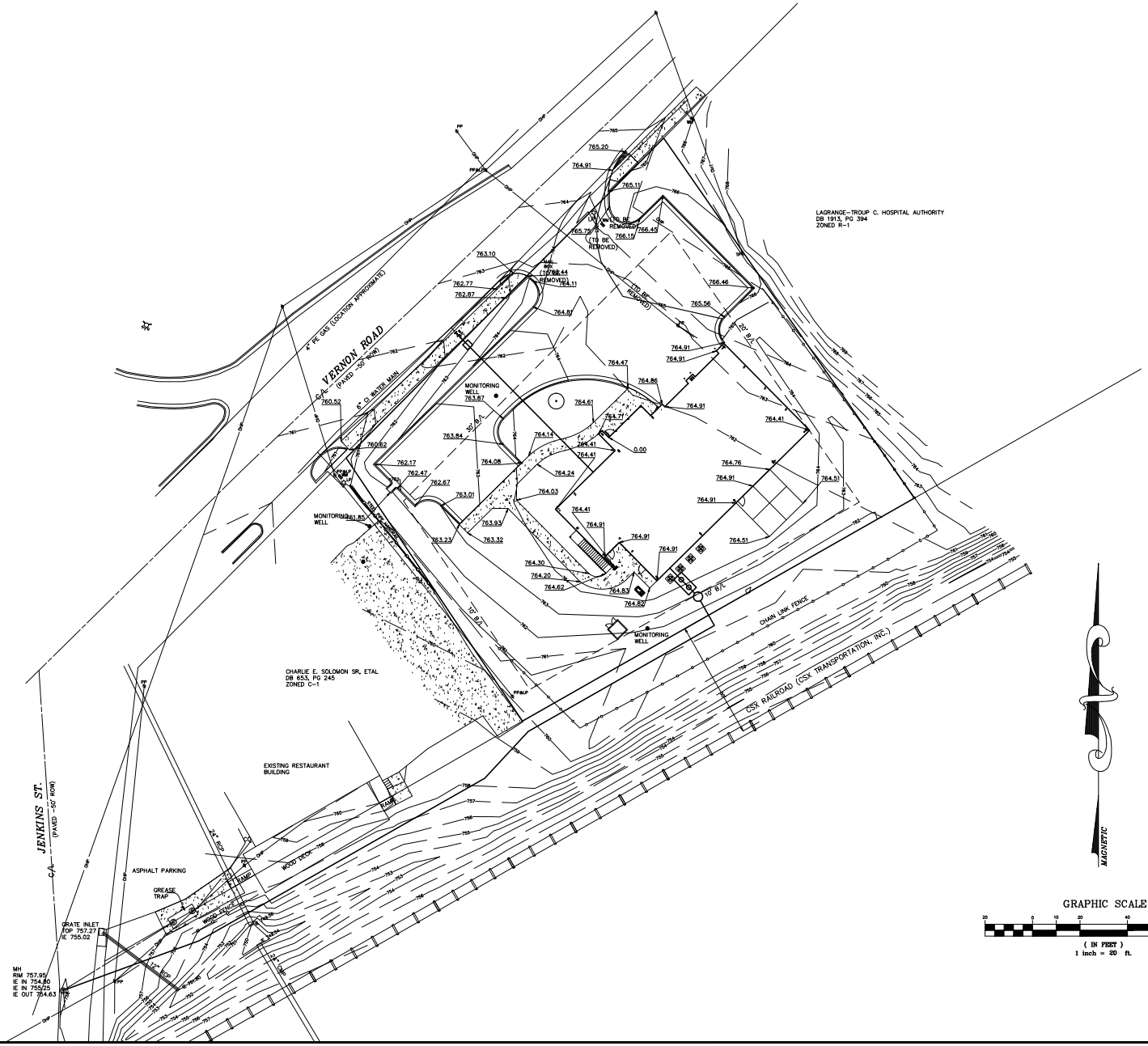

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

1 inch = 20 ft.

ENGINEER'S STAMP

GEORGIA REGISTERED No. 15360 PROFESSIONAL ENGINEER JAMES STOTHARD

SIGNATURE REQUIRED

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stothard-engineering.com

REVISIONS

	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION

VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

GRADING PLAN

MODIFIED DATE:

ISSUED DATE:

FOR BID AND PERMIT
20 APRIL 2018

JOB NO:
1731

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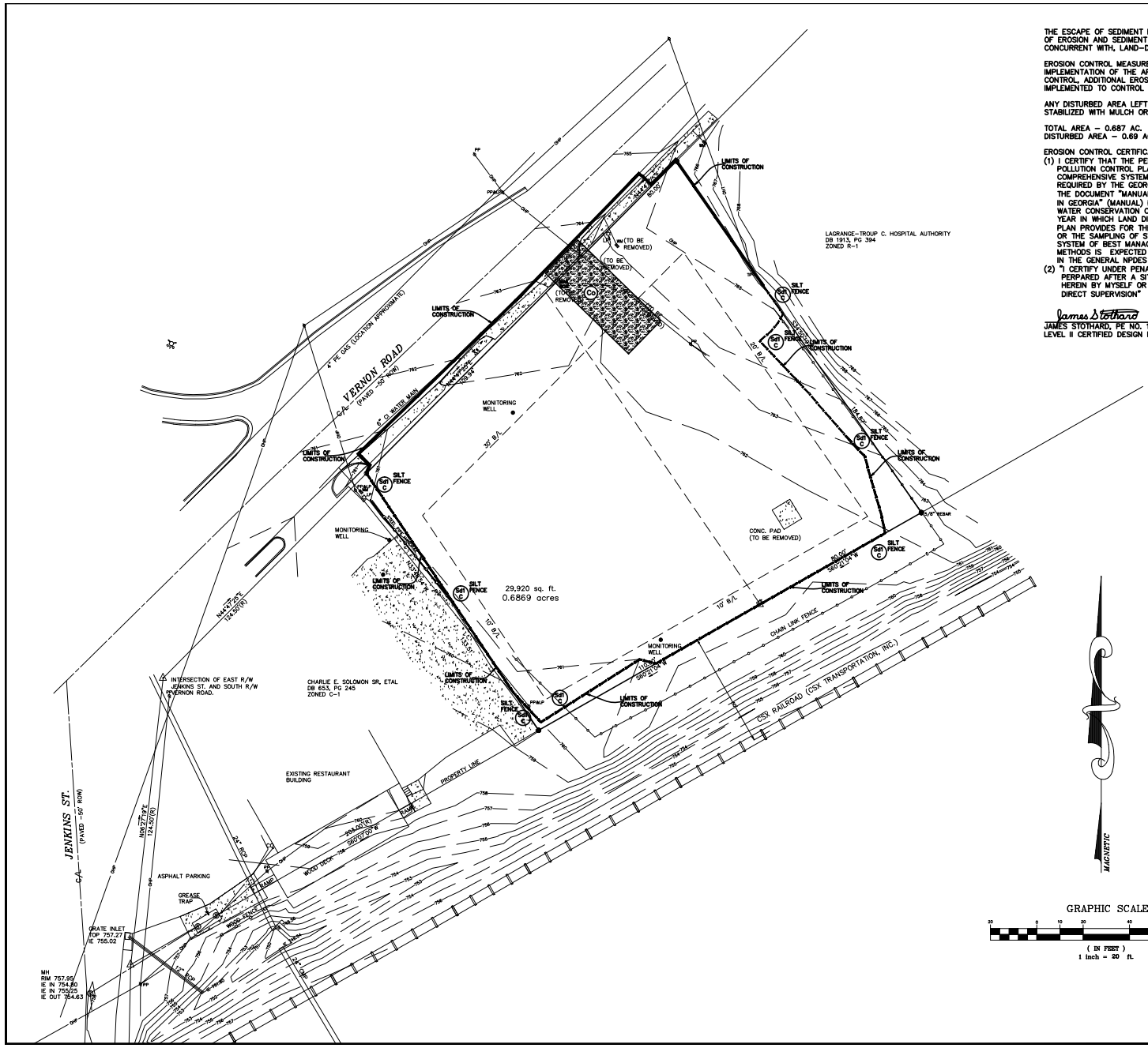

GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND-DISTURBING ACTIVITIES.

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.

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

TOTAL AREA – 0.687 AC.
DISTURBED AREA – 0.69 AC.

EROSION CONTROL CERTIFICATION

(1) I CERTIFY THAT THE PERMITEE'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 STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH LAND DISTURBING ACTIVITY WAS PERMITTED. THE PLAN PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF STORM WATER OUTFALLS. THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES

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

James Stothard

JAMES STOTHARD, PE NO. 15360
LEVEL II CERTIFIED DESIGN PROFESSIONAL NO. 0000029517

ENGINEER'S STAMP

GEORGIA REGISTERED No. 15360 PROFESSIONAL ENGINEER JAMES STOTHARD

SIGNATURE REQUIRED

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REVISIONS

⚠	DATE	DESCRIPTION

PROJECT:

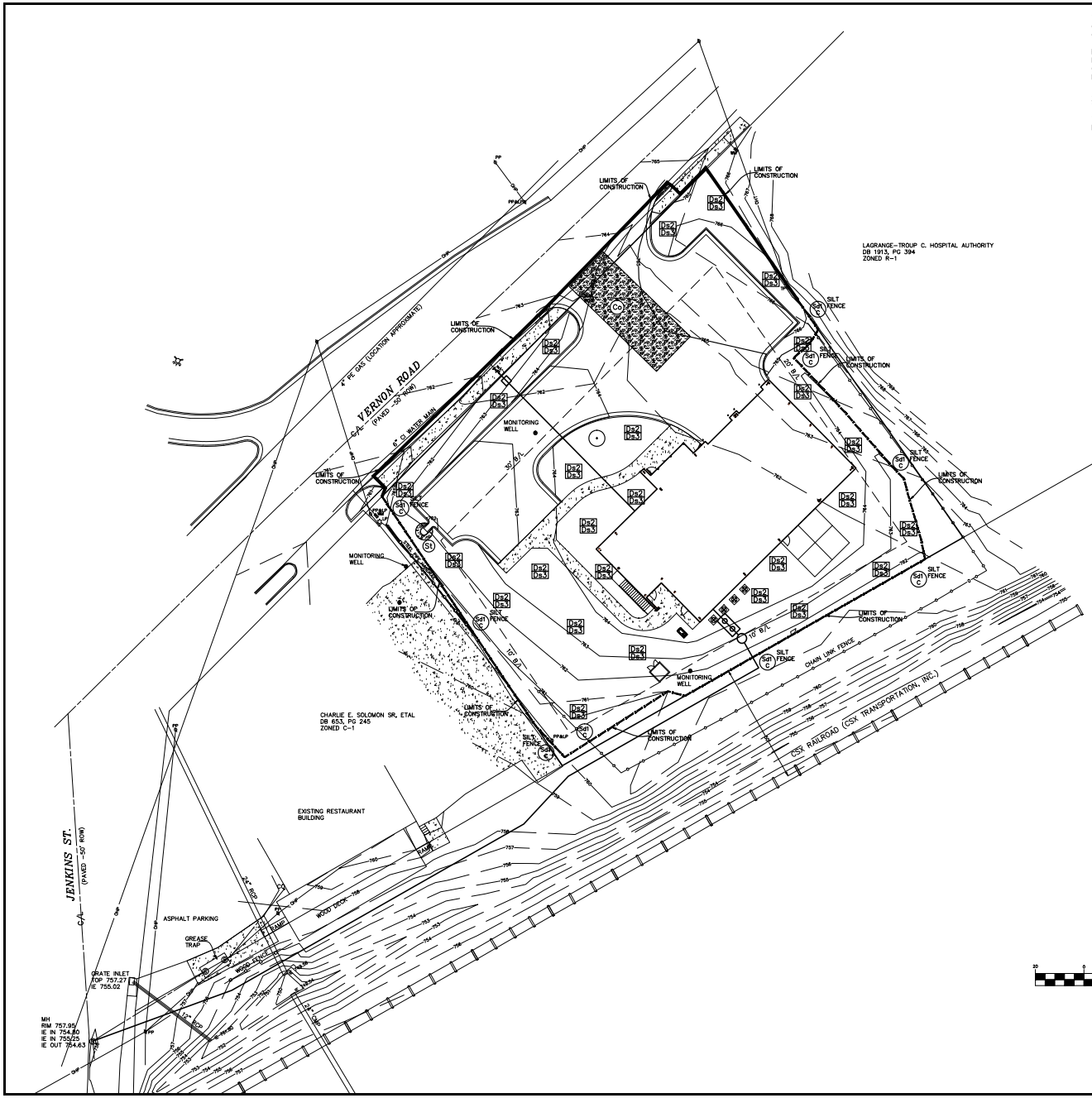
VERNON ROAD FIRE STATION

VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

EROSION CONTROL PLAN, PHASE ONE

MODIFIED DATE:	JOB NO:
	1731
ISSUED DATE:	SHEET:
FOR BID AND PERMIT 20 APRIL 2018	C-4



GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND-DISTURBING ACTIVITIES.

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James S Stothard

JAMES STOTHARD, PE NO. 15360
LEVEL II CERTIFIED DESIGN PROFESSIONAL NO. 0000029517

ENGINEER'S STAMP

GEORGIA REGISTERED No. 15360 PROFESSIONAL ENGINEER JAMES STOTHARD

SIGNATURE REQUIRED

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PH: 706 884-5279
email: stothard@stothard-engineering.com

REVISIONS

	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION

VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

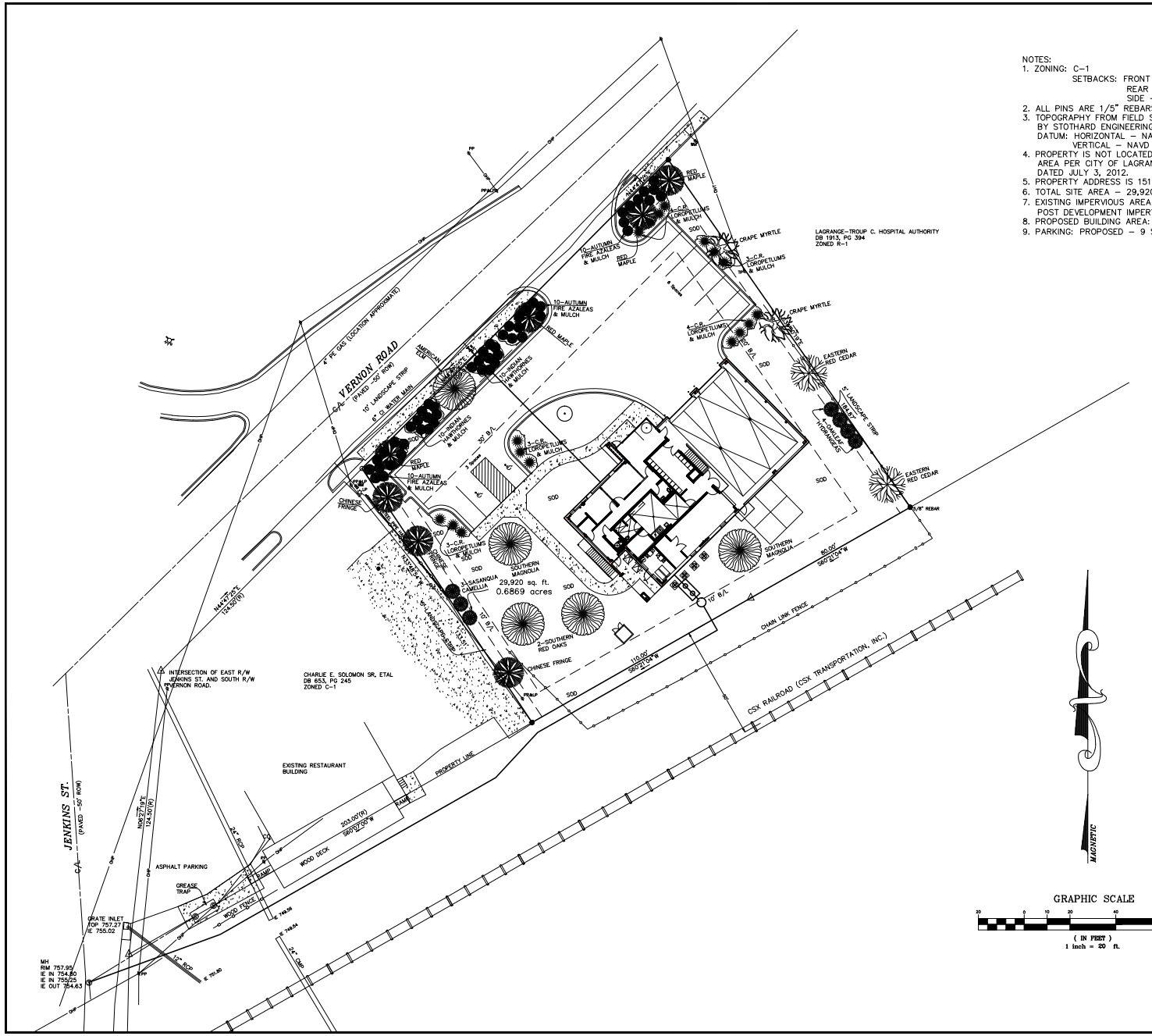
EROSION CONTROL PLAN, PHASE TWO

MODIFIED DATE:

ISSUED DATE:
FOR BID AND PERMIT
20 APRIL 2018

JOB NO:
1731

SHEET:
C-5



GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

NOTES:
1. ZONING: C-1
   SETBACKS: FRONT – 30'
   REAR – 10'
   SIDE – 10
2. ALL PINS ARE 1/5" REBARS UNLESS OTHERWISE NOTED.
3. TOPOGRAPHY FROM FIELD SURVEY BY STOTHARD ENGINEERING, INC.
   DATUM: HORIZONTAL – NAD83, GEORGIA WEST ZONE.
   VERTICAL – NAVD 88
4. PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER CITY OF LAGRANGE FIRM 13285C 0141 & 0143E DATED JULY 3, 2012.
5. PROPERTY ADDRESS IS 1519 VERNON ROAD
6. TOTAL SITE AREA – 29,920 SQ.FT.(0.687 AC.)
7. EXISTING IMPERVIOUS AREA – 88 SQ.FT. (.00202%)
   POST DEVELOPMENT IMPERVIOUS AREA – 16,818 SQ.FT.(56.50%)
8. PROPOSED BUILDING AREA: 4,981 SQ. FT.
9. PARKING: PROPOSED – 9 SPACES (INCLUDING 2 HANDICAP SPACES)

ENGINEER'S STAMP

GEORGIA REGISTERED No. 15360 PROFESSIONAL ENGINEER JAMES STOTHARD

SIGNATURE REQUIRED

SMITH DESIGN GROUP, INC.
200 WEST HARALSON STREET
LAGRANGE, GEORGIA 30240
706-882-3811
www.SDGinc.net

STOTHARD ENGINEERING, INC.
1008 COLQUITT ST.
LAGRANGE, GA 30241
PH: 706 884-5279
email: stothard@stothard-engineering.com

REVISIONS

⚠	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION

VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

LANDSCAPE PLAN

MODIFIED DATE:

ISSUED DATE:
FOR BID AND PERMIT
20 APRIL 2018

JOB NO:
1731

SHEET:
C-6

Sec. 25–11–40. – Tree preservation/replacement plan specifications.

(10) The following notes:
- –UNDERSTORY TREES TO BE A MINIMUM OF SIX FEET (6') IN HEIGHT AT TIME OF PLANTING. OVERSTORY AND MID–CANOPY TREES TO BE A MINIMUM OF EIGHT FEET (8') IN HEIGHT AT TIME OF PLANTING.
- –ALL BUFFERS AND TREE SAVE AREAS SHALL BE CLEARLY IDENTIFIED BY FENCING AND SIGNAGE PRIOR TO COMMENCEMENT OF ANY LAND DISTURBANCE.
- –ALL TREE PROTECTION DEVICES MUST BE INSTALLED AND INSPECTED PRIOR TO ANY CLEARING, GRUBBING OR GRADING. CALL THE CITY INSPECTOR FOR AN INSPECTION.
- –THE DENSITY REQUIREMENTS SHOWN ON THE TREE PRESERVATION/REPLACEMENT PLAN(S) MUST BE VERIFIED PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY OR ACCEPTANCE OF THE PROJECT.
- –REPLACEMENT TREES MUST BE FREE FROM INJURY, PESTS, DISEASE, NUTRITIONAL DISORDERS OR ROOT DEFECTS, AND MUST BE OF GOOD VIGOR IN ORDER TO ASSURE A REASONABLE EXPECTATION OF SURVIVABILITY.
- –PLANT MATERIAL QUALITY SHALL MEET THE AMERICAN STANDARD FOR NURSERY STOCK.
- –A MAINTENANCE INSPECTION OF TREES WILL BE PERFORMED AFTER TWO FULL GROWING SEASONS FROM THE DATE OF THE FINAL CONSTRUCTION INSPECTION. PROJECT OWNERS AT THE TIME OF THE MAINTENANCE INSPECTION ARE RESPONSIBLE FOR ORDINANCE COMPLIANCE.

(c) The tree preservation/replacement plan shall be shown on a copy of a preliminary plat, concept plan or site plan, with the exception of a permit to conduct selective harvest, as appropriate to the proposed development, drawn to the same scale as the other plan documents prepared for a land disturbance permit application on the property, and shall cover the same area. The plan may be combined with a required buffer and landscape plan for the project.

(d) Clearing, grading, grubbing and development activities shall conform in all respects with the approved tree preservation and/or replacement plan. Any revisions to the proposed development of a property, and any changes reflected in a subsequently submitted permit application, shall be shown on a revised tree preservation and/or replacement plan and shall be approved as a part of the new or revised permit prior to the commencement of such changed activities. (Ord. No. 14–12, § 1, 10–28–14)

Sec. 25–11–39. – Standards for tree protection during construction.

In the tree save area, protective measures shall be applied to the aboveground portion of a tree and to roots within the critical root zone, as follows:

(1) Damage prohibited. No person shall:
- a. Cut, carve, transplant, or otherwise damage or remove any tree;
- b. Attach any rope, wire, nails, advertising posters, or other contrivance to any trees;
- c. Allow any gaseous, liquid or solid substance which is harmful to trees (such as concrete washout, fuels, lubricants, herbicides, paint, etc.) to come in contact with them; or
- d. Set a fire or permit any fire to burn when such fire or the heat of the fire will injure any portion of any tree.

(2) Fence required. During excavation, filling, construction or demolition operations, each tree or stand of trees shall be protected against damage to bark, roots and low–hanging branches with a fence enclosing the critical root zone (four (4) feet high, two–inch by four–inch posts; with double one–inch by four–inch rails, plastic construction area fencing, or 12–gauge two–inch by four–inch wire mesh). "Tree save area" signs shall be posted on all sides of the fenced area. All tree protection fencing shall be installed prior to any clearing, grubbing or grading. Tree protection must remain in functioning condition until the certificate of occupancy is issued. Failure to comply with and/or maintain approved tree protection measures may result in a stop work order issued by the community development department.

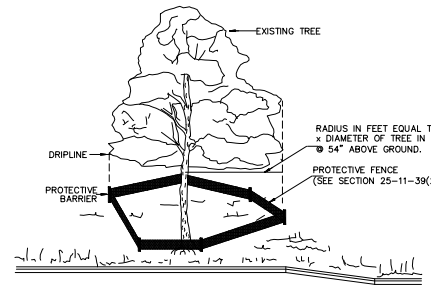
(3) Compaction prohibited. All building materials, vehicles, construction equipment, dirt, debris or other objects likely to cause soil compaction or aboveground damage shall be kept outside the critical root zone. Where a limited amount of encroachment is unavoidable and is approved by the building official, the critical root zone shall first be mulched with a four–inch layer of processed pine bark or wood chips or a six–inch layer of pine straw.

(4) Grade changes prohibited. There shall be no raising or lowering of the ground level within the critical root zone. Stripping of topsoil in the critical root zone shall not be permitted. Where necessary the use of moderate fill is permitted only with prior installation of an aeration system approved by the building official. Deposition of sediment in the critical root zone shall be prevented by placement of sediment barriers, which shall be backed by two–inch by four–inch wire mesh.

(5) Ditches, trenches prohibited. No person shall excavate any ditch, tunnel or trench within the critical root zone. Where such encroachment is unavoidable and is approved by the building official, tunneling rather than trenching shall be used. For installation of underground irrigation, radial trenching may be permitted.

(6) Paving prohibited. No person shall pave with concrete, asphalt or other impervious material within the critical root zone.

(Ord. No. 14–12, § 1, 10–28–14)

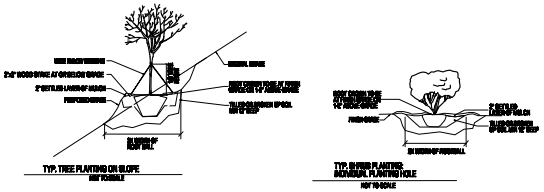


NOTE:
TREES TO BE SAVED WILL BE CLEARLY MARKED PRIOR TO CONSTRUCTION AND A PROTECTIVE BARRIER IS TO BE INSTALLED AT THE DRIPLINE.
DRIP LINE – THE AREA OF SOIL DIRECTLY BENEATH THE TREE EXTENDING OUT TO THE TIPS OF THE OUTERMOST BRANCHES.

METHOD OF TREE PROTECTION DURING CONSTRUCTION

NOT TO SCALE

Where overhead power lines are located, a minimum lateral separation shall be provided from the tree to the utility line as follows:
- –Overstory trees (fifty (50) feet tall and taller at maturity) must be set back at least 50 feet from overhead utility lines;
- –Mid–canopy trees (twenty–five to 50 feet tall at maturity) must be set back at least 35 feet from overhead utility lines;
- –Understory trees (less than twenty–five feet tall at maturity) may be located underneath power lines with no separation requirement provided the average mature height of the tree is less than the lowest overhead wire.



NOTES: TREE PLANTING (>2"CAL.)
1. ALL PLANT MATERIALS SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1–2004). PLANT ACCORDING TO ANSI A300 PART 6.
2. DIG THE PLANTING HOLE A MINIMUM OF 2x WIDTH OF ROOTBALL FOR AT LEAST THE FIRST 12 INCHES OF DEPTH. BELOW 12 INCHES, DIG HOLE WIDE ENOUGH TO PERMIT ADJUSTING. DO NOT DIG THE HOLE DEEPER THAN ROOT BALL DEPTH.
3. SCARIFY THE SUBGRADE AND SIDES OF THE PLANTING HOLE WHEN PLANTING IN CLAY SOILS (MORE THAN 15% CLAY).
4. LIFT AND SET THE TREE BY ROOT BALL ONLY. DO NOT LIFT USING THE TREE TRUNK AND DO NOT USE TREE TRUNK AS A LEVER.
5. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE OR SLIGHTLY HIGHER IF THE SOIL IS PRONE TO SETTLING.
6. AFTER THE TREE IS SET IN PLACE, REMOVE BURLAP, WIRE AND STRAPS FROM AT LEAST THE UPPER 1/3 OF THE ROOTBALL.
7. BACKFILL WITH EXISTING SOIL THAT HAS BEEN WELL–TILLED OR BROKEN UP. DO NOT ADD AMENDMENTS TO THE BACKFILL SOIL. AMEND THE SURFACE WITH MULCH.
8. USE THREE 2" X 2" WOOD STAKES DRIVEN INTO UNDISTURBED SOIL A MINIMUM OF 16 INCHES. SPACE STAKES EQUALLY AROUND THE TREE.
9. ATTACH 3/4" NYLON WEBBING TO CONNECT THE TREE TO STAKES. ATTACH WEBBING AT 1/3 THE TREE HEIGHT.
10. APPLY A 3" (SETTLED) DEPTH OF LONGLEAF PINE STRAW MULCH TO THE PLANTING SURFACE. LEAVE A 2" SPACE AROUND THE TRUNK FOR AIR CIRCULATION.
11. PRUNING SHALL BE LIMITED TO DEAD, DISEASED, OR BROKEN LIMBS ONLY AND SHALL BE IN ACCORDANCE WITH ANSI A300 SPECIFICATIONS.
12. REMOVE ANY TRUNK WRAP REMAINING AT TIME OF PLANTING. NO WRAPS SHALL BE PLACED ON TRUNK.

NOTES: EVERGREEN TREE PLANTING
1. ALL PLANT MATERIALS SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1–2004). PLANT ACCORDING TO ANSI A300 PART 6.
2. DIG THE PLANTING HOLE A MINIMUM OF 2x WIDTH OF ROOTBALL FOR AT LEAST THE FIRST 12 INCHES OF DEPTH. BELOW 12 INCHES, DIG HOLE WIDE ENOUGH TO PERMIT ADJUSTING. DO NOT DIG THE HOLE DEEPER THAN ROOT BALL DEPTH.
3. SCARIFY THE SUBGRADE AND SIDES OF THE PLANTING HOLE WHEN PLANTING IN CLAY SOILS (MORE THAN 15% CLAY).
4. LIFT AND SET THE TREE BY ROOT BALL ONLY. DO NOT LIFT USING THE TREE TRUNK AND DO NOT USE TREE TRUNK AS A LEVER.
5. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE OR SLIGHTLY HIGHER IF THE SOIL IS PRONE TO SETTLING.
6. AFTER THE TREE IS SET IN PLACE, REMOVE BURLAP, WIRE AND STRAPS FROM AT LEAST THE UPPER 1/3 OF THE ROOTBALL.
7. BACKFILL WITH EXISTING SOIL THAT HAS BEEN WELL–TILLED OR BROKEN UP. DO NOT ADD AMENDMENTS TO THE BACKFILL SOIL. AMEND THE SURFACE WITH MULCH.
8. USE THREE 2" X 2" WOOD STAKES DRIVEN INTO UNDISTURBED SOIL A MINIMUM OF 16 INCHES. SPACE STAKES EQUALLY AROUND THE TREE.
9. ATTACH 3/4" NYLON WEBBING TO CONNECT THE TREE TO STAKES. ATTACH WEBBING AT 1/3 THE TREE HEIGHT.
10. APPLY A 3" (SETTLED) DEPTH OF LONGLEAF PINE STRAW MULCH TO THE PLANTING SURFACE. LEAVE A 2" SPACE AROUND THE TRUNK FOR AIR CIRCULATION.
11. PRUNING SHALL BE LIMITED TO DEAD, DISEASED, OR BROKEN LIMBS ONLY AND SHALL BE IN ACCORDANCE WITH ANSI A300 SPECIFICATIONS.
12. REMOVE ANY TRUNK WRAP REMAINING AT TIME OF PLANTING. NO WRAPS SHALL BE PLACED ON TRUNK.

NOTES: TYPICAL TREE PLANTING ON SLOPE
1. ALL PLANT MATERIALS SHALL BE IN ACCORDANCE WITH THE AMERICAN STANDARDS FOR NURSERY STOCK (ANSI Z60.1–2004). PLANT ACCORDING TO ANSI A300 PART 6.
2. DIG THE PLANTING HOLE A MINIMUM OF 2x WIDTH OF ROOTBALL FOR AT LEAST THE FIRST 12 INCHES OF DEPTH. BELOW 12 INCHES, DIG HOLE WIDE ENOUGH TO PERMIT ADJUSTING. DO NOT DIG THE HOLE DEEPER THAN ROOT BALL DEPTH.
3. SCARIFY THE SUBGRADE AND SIDES OF THE PLANTING HOLE WHEN PLANTING IN CLAY SOILS (MORE THAN 15% CLAY).
4. LIFT AND SET THE TREE BY ROOT BALL ONLY. DO NOT LIFT USING THE TREE TRUNK AND DO NOT USE TREE TRUNK AS A LEVER.
5. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE OR SLIGHTLY HIGHER IF THE SOIL IS PRONE TO SETTLING.
6. AFTER THE TREE IS SET IN PLACE, REMOVE BURLAP, WIRE AND STRAPS FROM AT LEAST THE UPPER 1/3 OF THE ROOTBALL.
7. BACKFILL WITH EXISTING SOIL THAT HAS BEEN WELL–TILLED OR BROKEN UP. DO NOT ADD AMENDMENTS TO THE BACKFILL SOIL. AMEND THE SURFACE WITH MULCH.
8. USE THREE 2" X 2" WOOD STAKES DRIVEN INTO UNDISTURBED SOIL A MINIMUM OF 16 INCHES. SPACE STAKES EQUALLY AROUND THE TREE.
9. ATTACH 3/4" NYLON WEBBING TO CONNECT THE TREE TO STAKES. ATTACH WEBBING AT 1/3 THE TREE HEIGHT.
10. APPLY A 3" (SETTLED) DEPTH OF LONGLEAF PINE STRAW MULCH TO THE PLANTING SURFACE. LEAVE A 2" SPACE AROUND THE TRUNK FOR AIR CIRCULATION.
11. PRUNING SHALL BE LIMITED TO DEAD, DISEASED, OR BROKEN LIMBS ONLY AND SHALL BE IN ACCORDANCE WITH ANSI A300 SPECIFICATIONS.
12. REMOVE ANY TRUNK WRAP REMAINING AT TIME OF PLANTING. NO WRAPS SHALL BE PLACED ON TRUNK.

NOTES: TYPICAL SHURB PLANTING, INDIVIDUAL PLANTING HOLE
1. DIG PLANTING HOLE AT LEAST 2X THE WIDTH OF THE ROOT BALL OR CONTAINER.
2. SCARIFY SUBGRADE AND SIDES OF PLANTING HOLE WHEN PLANTING IN CLAY SOIL.
3. SET THE TOP OF THE ROOT BALL LEVEL WITH THE SOIL SURFACE, OR 1–2" ABOVE IF THE SOIL IS PRONE TO SETTLING.
4. IF CONTAINER GROWN PLANT, GENTLY SLICE PLANT OUT OF CONTAINER. DISTURB THE ROOTS.
5. IF B&B PLANT, REMOVE BURLAP FROM AT LEAST THE TOP 12 INCHES OF THE ROOTBALL, WITHOUT DISTURBING THE ROOTBALL. REMOVE ALL CORD FROM THE TRUNK. REMOVE BURLAP AND WIRE BASKET (IF PRESENT) FROM THE ROOT BALL.
6. BACK FILL THE PLANTING HOLE WITH EXCAVATED NATIVE SOIL, BROKEN UP OR TILLED. WATER TO REMOVE AIR POCKETS. DO NOT ADD AMENDMENTS.
7. PLACE LONGLEAF PINE STRAW MULCH ON THE SURFACE TO A (SETTLED) DEPTH OF 3 INCHES.

GRASSING SPECIFICATION
1. ALL AREAS TO BE GRASSED WILL BE PREPARED WITH EQUIPMENT NECESSARY TO LOOSEN SUBGRADE TO A MINIMUM DEPTH OF 6 INCHES. 2. APPLY FERTILIZER AND LIME DIRECTLY TO SUBGRADE BEFORE LOOSENING. 3. APPLY LIME AT A RATE OF 100 POUNDS PER 1000 SQUARE FEET.
4. APPLY A 18–24–12 ANALYSIS FERTILIZER OR EQUIVALENT AT A RATE OF TEN (10) POUNDS PER ONE THOUSAND (1000) SQUARE FEET.
5. REMOVE STONES, STICKS, ROOTS, RUBBISH AND OTHER EXTRANEOUS MATERIALS AND LEGALLY DISPOSE OF THEM OFF OWNER'S PROPERTY.
6. FINAL GRADE THE AREAS TO BE SODDED TO A SMOOTH, EVEN SURFACE, WITH A LOOSE, UNIFORMLY FINE TEXTURE. ROLL, RAKE, AND REMOVE RIDGES AND DEPRESSIONS TO MEET FINISHED GRADES.
7. LAY SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. BUTT ENDS AND SIDES OF SOD. DO NOT STRETCH OR OVERLAP. STAGGER SOD JOINTS IN ADJACENT COURSES. AVOID DAMAGE TO SUBGRADE AND SOD DURING INSTALLATION.
8. SOD TO BE LAYED WITH ROLLS, NOT BLOCK SODDED, TO ENSURE QUICKER GROW IN AND LESS EROSION POTENTIAL.

TOTAL ACRES -0.687 – 6 UNITS PER ACRE = 4.1 UNITS

TREE AND SHRUB SCHEDULE

10' LANDSCAPE						
Scientific Name	Common name	Variety	Min. Height/Size	Quanity	Unit Value	TDU
Acer rubrum	Upright Red M	Autumn Fire	1 gal+	30		
			8'/2"	4	0.5	2
Raphiolepis indica	Indian Hawthorn	Snow White	2.5 quart+	20		
Ulmus Americana	American Elm (O)		8'/2"	1	0.5	0.5
PARKING & ADDITIONAL PROPERTY						
Scientific Name	Common name	Variety	Min. Height/Size	Quanity	Unit Value	TDU
Magnolia grandiflora	Southern Magnolia (O)		8'/2"	2	0.5	1
Quercus falcata	Southern Red Oak (O)		8'/2"	2	0.5	1.0
Chionese Loropetalum	C.R. Loropetalum	Crimson Fire	2-3 gal+	17		
TOTAL						4.5
5' LANDSCAPE STRIP						
Scientific Name	Common name	Variety	Min. Height/Size	Quanity	Unit Value	TDU
Chionanthus retusus	Chinese Fringe (M)		8'/2"	3		
Juniperus virginiana	Easter Red Cedar (M)		8'/2"	2		
Lagerstromia spp	Crape Myrtle (U)		6'/1.5"	2		
Hydrangea	Oakleaf		2-3 gal+/3'	4		
Camellia Sasanqua	Sasanqua Camellia		2-3gal+/3'	3		

THE DENSITY REQUIREMENTS SHOWN ON THE TREE PRESERVATION/REPLACEMENT MUST BE VERIFIED PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY OF ACCEPTANCE OF THE PROJECT.

Overstory Trees (O) Minimum height at planting 8'	
Medium Story Trees (M) Minimum height at planting 8'	
Understory Trees (U) Minimum height at planting 6'	

(1) Trees types/colors can be substituted if maintain same Caliper, Height and is on the City of LaGrange Tree Ordinance list.

NOTES:

*Recommended to till all areas to be planted 12"–15" deep;
If heavy clay soil is present, compost or topsoil should be added, at a depth of 1"–3" then till into existing soil at 12"–15" deep
* For trees follow planting and staking specifications as noted on page 8A
*All new plantings to be mulched 3" deep
All grassed areas to be sodded.

*ALL TREES MUST BE FREE FROM INJURY, PEST, DISEASE, NUTRITIONAL DISORDERS OR ROOT DEFECTS AND MUST BE OF GOOD VIGOR IN ORDER TO ASSURE A REASONABLE EXPECTATION OF SURVIVABILITY.
*PLANT MATERIAL QUALITY SHALL MEET THE AMERICAN STANDARD FOR NURSERY STOCK.
*A MAINTENANCE INSPECTION OF TREES WILL BE PERFORMED AFTER TWO FULL GROWING SEASONS FROM THE DATE OF THE FINAL CONSTRUCTION INSPECTION. PROJECT OWNERS AT THE TIME OF THE MAINTENANCE INSPECTION ARE RESPONSIBLE FOR ORDINANCE COMPLIANCE.

ENGINEERS STAMP

GEORGIA REGISTERED No. 15360 PROFESSIONAL ENGINEER JAMES STOTHARD

SIGNATURE REQUIRED

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200 WEST HARALSON STREET
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STOTHARD ENGINEERING, INC.
1008 COLQUITT ST.
LAGRANGE, GA 30241
PH: 706 884–5279
email: stothard@stothard–engineering.com

REVISIONS

	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION

VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

LANDSCAPE NOTES AND DETAILS

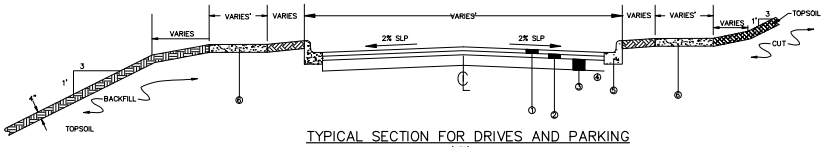
MODIFIED DATE:

ISSUED DATE:

FOR BID AND PERMIT
20 APRIL 2018

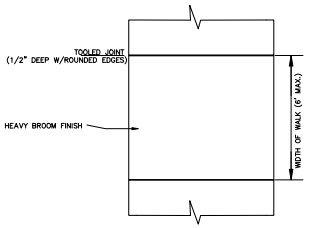
JOB NO:
1731

SHEET:
C-7

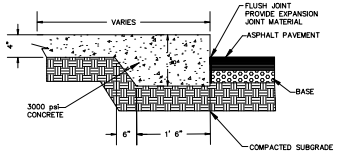


TYPICAL SECTION FOR DRIVES AND PARKING
(NTS)

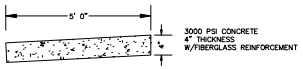
SHEET LEGEND
1 12.5MM SUPERPAVE BITUMINOUS CONCRETE WEARING SURFACE,@ 150 #/sy(1-1/2")
2 19MM BITUMINOUS CONCRETE BINDER LAYER, @ 350 #/sy(2")
3 GRADED AGGREGATE BASE COURSE (GAB), UPPER LAYER, 8" COMPACTED THICKNESS
4 COMPACTED SUBGRADE
5 24" CONCRETE CURB & GUTTER (SPIL OUT GUTTER TO BE CONSTRUCTED IF ON HIGHSIDE
6 CONCRETE SIDEWALK-4" THICKNESS-3000psi CONCRETE



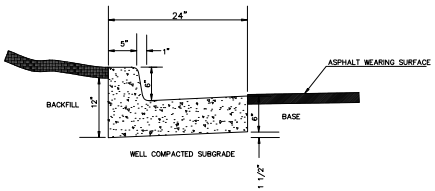
SIDEWALK FINISHING DETAIL
(NTS)



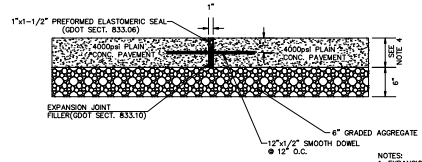
TURN DOWN SIDEWALK DETAIL
(NTS)



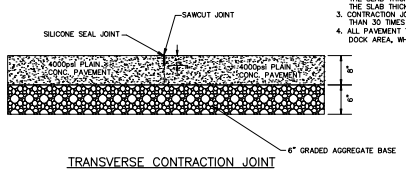
SIDEWALK
(NTS)



STANDARD CURB & GUTTER



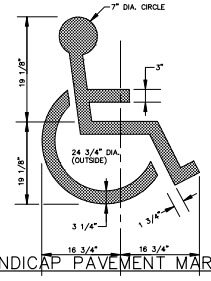
TRANSVERSE EXPANSION JOINT
(NTS)



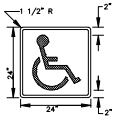
TRANSVERSE CONTRACTION JOINT
(NTS)

NOTES:
1. EXPANSION JOINT SPACING TO BE NO GREATER THAN TWICE THE CONTRACTION JOINT SPACING.
2. EXPANSION JOINTS TO BE PLACED AT MID POINT IN SLAB IF SLAB WIDTH IS GREATER THAN 30 TIMES THE SLAB THICKNESS, BUT LESS THAN 60 TIMES THE SLAB THICKNESS.
3. CONTRACTION JOINT SPACING TO BE NO GREATER THAN 30 TIMES THE SLAB THICKNESS.
4. ALL PAVEMENT TO BE 6" DEPTH EXCEPT AT LOADING DOCK AREA, WHERE 8" PAVEMENT IS REQUIRED.

CONCRETE PAVEMENT DETAILS



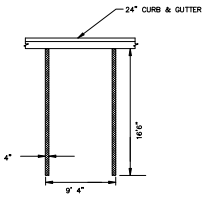
HANDICAP PAVEMENT MARKING
(NTS)



BACKGROUND - BLUE(REFLECTIVE)
LEGEND, BORDER - WHITE(REFLECTIVE)

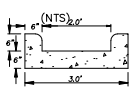
1. SIGN POST TO BE #2 "U" CHANNEL
2. BOLTS TO BE 3/16" W/SWAAGED FLANGE COLLAR (2 REQUIRED /SIGN)
3. SIGN HEIGHT TO BE 6'0" (GROUND TO TOP OF SIGN)
4. POST TO BE ANCHORED IN 6" DIA. CLASS "B" CONC. (MIN. 18" DEEP)
5. SIGN PANEL TO BE 0.125" REFLECTORIZED ALUMINUM PANEL

HANDICAP SIGN
(NTS)



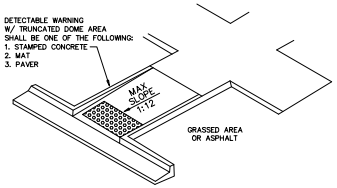
PARKING STALL STRIPING DETAIL

NOTES:
1. ALL PAVEMENT MARKING SHALL CONFORM TO GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION (1993 EDITION) SECTION 652.
2. MARKINGS SHALL BE MADE WITH REFLECTORIZED PERMANENT TRAFFIC PAINT CONFORMING TO SECTION 870 OF THE GDOT SPECIFICATIONS.
3. ALL PAVEMENT MARKINGS SHALL BE WHITE IN COLOR.

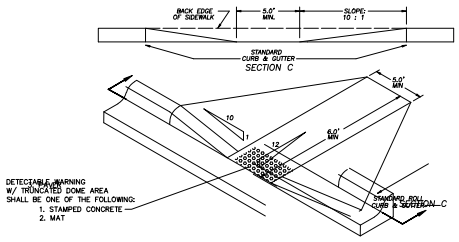


SECTION B

FLUME
(NTS)



SLOPEDOWN SIDEWALK DETAIL
NO SCALE



CURB CUT RAMP

ENGINEER'S STAMP
GEORGIA REGISTERED No. 15265 PROFESSIONAL ENGINEER JAMES STOTHARD
SIGNATURE REQUIRED

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VERNON ROAD
LAGRANGE, GEORGIA

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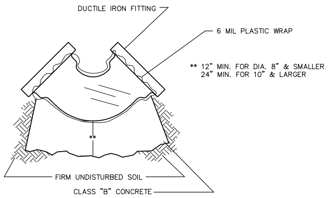


TYPICAL THRUST BLOCK

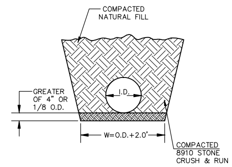
(NTS)

REQUIRED BEARING AREA (SQ. FT.)
STATIC 100 P.S.I. OR LOWER

PIPE	11 1/4° BEND	22 1/2° BEND	45° BEND	90° BEND	TEE
3"–4"	.17	.22	.60	1.00	.83
6"	.22	.67	1.60	3.00	2.00
8"	.55	1.33	3.33	5.33	7.50
10"	.83	2.20	5.60	10.40	8.00
12"	1.17	3.50	8.25	15.00	11.00
14"	1.8	4.50	9.60	17.50	12.25
16"	2.5	7.20	12.70	23.33	16.00
18"	3.3	7.30	16.10	30.00	21.00
20"	6.25	9.70	22.50	35.00	25.00

NOTES:

1. BASED ON 2500#/FT.^{2} SOIL BEARING CAPACITY
2. CONCRETE TO BE CLASS "B" – 2,500PSI COMPRESSIVE STRENGTH
3. CONCRETE TO BE POURED AGAINST UNDISTURBED EARTH ON BEARING SURFACE.
4. ALL PIPE JOINTS TO BE MECHANICAL.
5. ALL FITTINGS TO WRAPPED IN PLASTIC TO PREVENT ADHERENCE OF CONCRETE TO METAL.
6. NO CONCRETE TO BE PLACED UNDER PIPE OR AROUND JOINT BOLTS.



BEDDING FOR D.I. PIPE
NON–ROADWAY TRENCHES

(NTS)

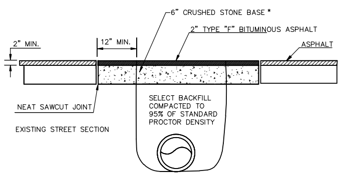
PIPE DEFLECTIONS		
PIPE SIZE:	18.0' JOINT	20.0' JOINT
4" – 12"	15"	16"
14", 16"	8"	9"
18",20",24"	8"	9"

NOTE: FOR MORE INFORMTAION, SEE SHEET TWO OF THESE DETAILS.

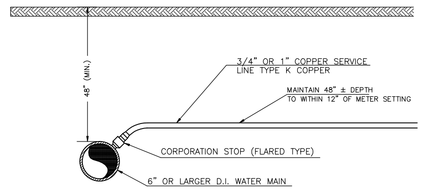
*SEE PIPE DEFLECTIONS
CHART FOR INFO:

NOTES:

1. FOR ALL PIPE DEFLECTIONS SEE CHART ON PAGE 2 OF THIS DETAIL.
2. ALL MATERIALS WILL BE AMERICAN MADE ONLY!!
3. ALL FIRE HYDRANTS: NATIONAL STANDARD THREADS; 4–1/2" STREAMER & 2–1/2" HOSE NOZZLE; M & H STYLE129 MUELLAR CENTURION, AMERICAN DARLING B–62 B APPROVED; BRONZE TO BRONZE SEATED, EPOXY COATED SHOES, WEATHER CAPS SHALL NOT BE MADE OF RUBBER!!!
4. ALL FITTINGS SHALL HAVE MECHANICAL JOINTS.
5. ALL BRASS FITTINGS SHALL BE FLARED COPPER ONLY! MUELLAR OR FORD OR APPROVED EQUAL.
6. ALL MECHANICAL JOINT FITINGS THAT REQUIRE THRUST BLOCKS SHALL BE WRAPPED IN PLASTIC.
7. ALL FITTINGS 10" AND LARGER WILL BE FULL BODY ONLY. NO COMPACT FITTINGS.
8. ALL COPPER LINES SHALL BE TYPE "K" ONLY.
9. FOR ALL PIPES UNDER ROADS: TRENCH BACKFILL, SHALL BE MECHANICALLY TAMPED FOR THE ENTIRE DEPTH OF TRENCH TO 95% STANDARD PROCTER, WITH THE TOP 12" TAMPED TO 98% MINIMUM. WITHIN SIX(6) FEET BEHIND CURBS, MECHANICALLY TAMP TO RREVENT SETTLEMENT. NO SPECIFIC DENSITY REQUIRED.
10. ALL BENDS TO BE INSTALLED WITH RETAINER GLANDS.
11. ALL M.J. BOLTS AND BOLTS ON RETAINER GLANDS ARE TO BE TIGHTENED WITH TORQUE WRENCH; 75–90 FT/LBS. RECOMMENDED.
12. CHLORINE WILL BE INSTALLED ONLY IN LIQUID FORM THROUGH A TAP PLACED AT A POINT DETERMINED BY WATER BOARD INSPECTORS.
13. ALL MAINLINE VALVES WILL BE RESILIENT SEAT G.V.

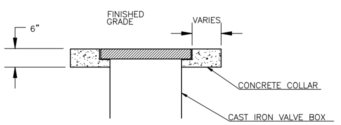


TYPICAL UTILITY PATCH



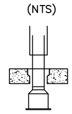
3/4" OR 1" SERVICE CONNECTION
FOR DUCTILE IRON WATER MAIN

(NTS)



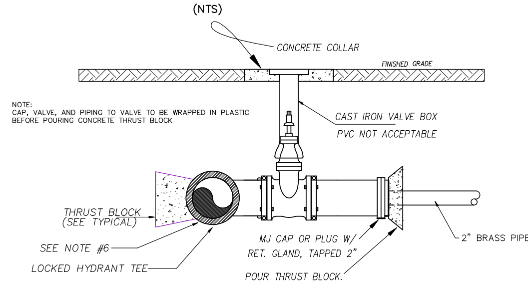
TYPICAL WATER VALVE INSTALLATION

(NTS)

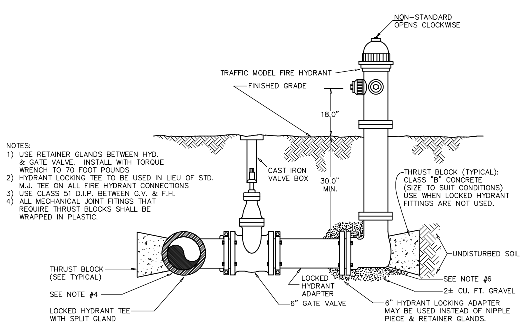


VALVE BOX

(NTS)

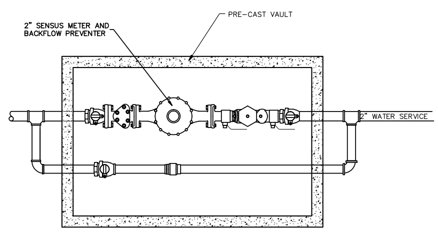

CONCRETE COLLAR
FINISHED GRADE
NOTE:
CAP, VALVE, AND PIPING TO VALVE TO BE WRAPPED IN PLASTIC
BEFORE POURING CONCRETE THRUST BLOCK
CAST IRON VALVE BOX
PVC NOT ACCEPTABLE
THRUST BLOCK
(SEE TYPICAL)
SEE NOTE #6
LOCKED HYDRANT TEE
MJ CAP OR PLUG W/
RET. GLAND, TAPPED 2"
POUR THRUST BLOCK.
2" BRASS PIPE

4" TO 2" ADAPTER

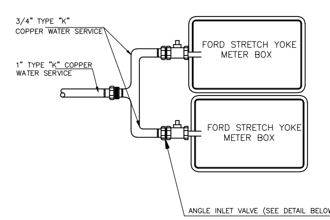

NON–STANDARD
OPENS CLOCKWISE
TRAFFIC MODEL FIRE HYDRANT
FINISHED GRADE
18.0"
30.0"
MIN.
CAST IRON
VALVE BOX
NOTES:
1) USE RETAINER GLANDS BETWEEN HYD.
& GATE VALVE. INSTALL WITH TORQUE
WRENCH TO 70 FOOT POUNDS
2) HYDRANT LOCKING TEE TO BE USED IN LIEU OF STD.
M.J. TEE ON ALL FIRE HYDRANT CONNECTIONS
3) USE CLASS 51 D.I.P. BETWEEN G.V. & F.H.
4) ALL MECHANICAL JOINT FITINGS THAT
REQUIRE THRUST BLOCKS SHALL BE
WRAPPED IN PLASTIC.
THRUST BLOCK (TYPICAL):
CLASS "B" CONCRETE
(SIZE TO SUIT CONDITIONS)
USE WHEN LOCKED HYDRANT
FITTINGS ARE NOT USED.
UNDISTURBED SOIL
THRUST BLOCK
(SEE TYPICAL)
SEE NOTE #4
LOCKED HYDRANT TEE
WITH SPLIT GLAND
LOCKED
HYDRANT
ADAPTER
6" GATE VALVE
SEE NOTE #6
2± CU. FT. GRAVEL
6" HYDRANT LOCKING ADAPTER
MAY BE USED INSTEAD OF NIPPLE
PIECE & RETAINER GLANDS.

FIRE HYDRANT INSTALLATION
AS SHOWN W/ LOCKED HYDRANT FITTINGS

(NTS)



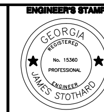
TYPICAL DOMESTIC AND FIRE SERVICE SETTING



TYPICAL MULTIPLE METER BOX INSTALLATION

(NTS)

ENGINEER'S STAMP



SIGNATURE REQUIRED

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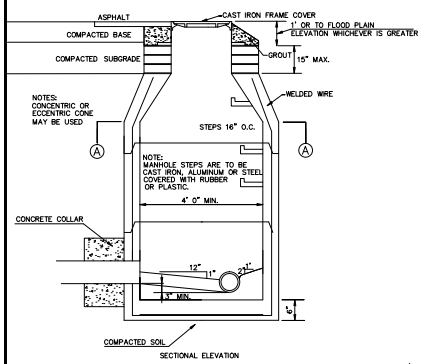
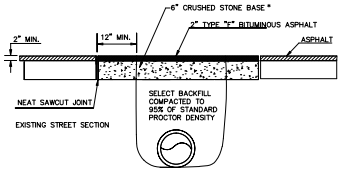
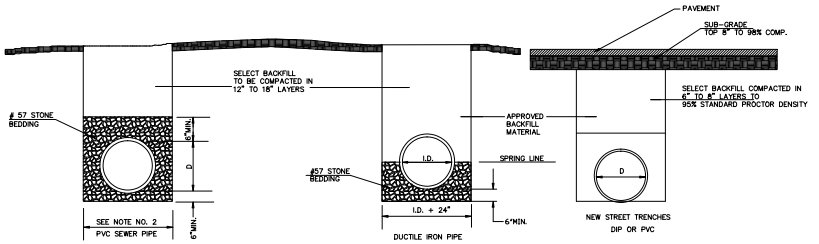


STANDARD MANHOLE



TYPICAL UTILITY PATCH

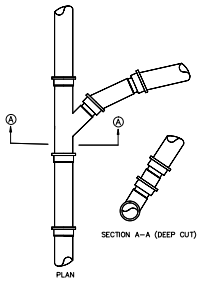


NON STREET TRENCHES

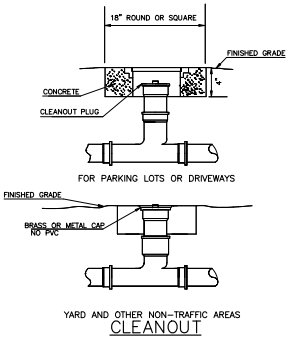
IN-STREET TRENCHES

NOTES:
1. BEDDING MATERIALS SHALL BE 1/4" TO 1 1/2" GRADED CRUSHED STONE SUCH AS: 56,57,6,67,68,7 or 78 STONE PER ASHD OR GDOT STANDARD SPEC.
2. WIDTH VARIES BASED ON WALL STABILITY.
STABLE WALLS: WIDTH AS NEEDED TO JOIN PIPE AND COMPACT HAUNCHING AND INITIAL BACKFILL.
UNSTABLE WALLS: WIDTH TO BE A MINIMUM OF FIVE TIMES PIPE DIAMETER (D).

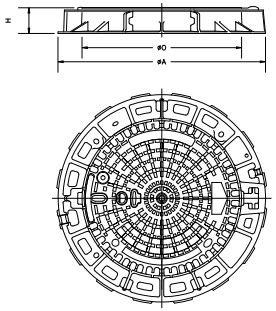
BEDDING REQUIREMENTS FOR P.V.C. AND DUCTILE IRON GRAVITY SEWER PIPE



SERVICE LINE



CLEANOUT



Manhole cover and frame shall be PAMREX or approved equal. Cover and frame shall be manufactured from Ductile Iron in accordance with ISO 1083.

Covers shall be hinged and incorporate a 90 degree blocking system to prevent accidental closure. Covers shall be one man openable using standard tools and shall be capable of withstanding a test load of 120,000 lbs.

Frames shall be circular with a 24" clear opening and shall incorporate a 360 degree mechanically attached elastomer seating gasket for infiltration control and traffic shock. The hinge box shall include a self-cleaning, dust wiper infiltration plug. The frame depth shall not exceed 4 inches, and the flange shall incorporate bedding slots, bolt holes, and lifting eyes.

All components shall be black coated.

Frame weight: 73 lbs.
Cover weight: 122 lbs.
Total weight: 195 lbs.

DIMENSIONS (INCHES)			WEIGHT (lbs)	
A	O	H	COVER AND FRAME	COVER ONLY
33 1/2"	24	4	195	122

24 INCH MANHOLE COVER AND FRAME

ENGINEER'S STAMP

GEORGIA REGISTERED No. 15260 PROFESSIONAL ENGINEER JAMES STOTHARD

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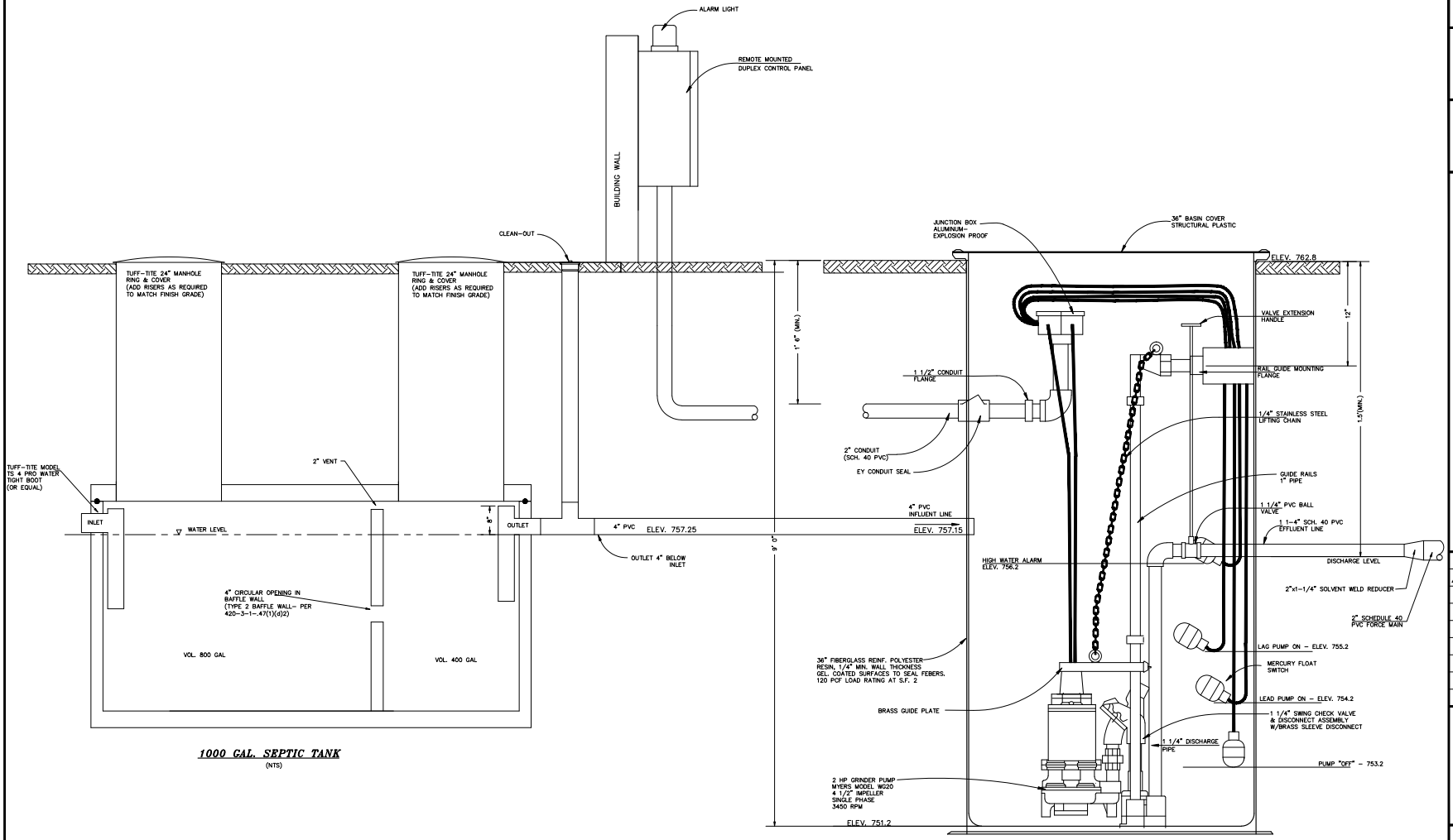

ENGINEER'S STAMP

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SECTION 02100	Site Preparation and Demolition
SECTION 02200	Earthwork
SECTION 02510	Site Concrete
SECTION 02512	Asphaltic Concrete Paving
SECTION 02580	Pavement Markings
SECTION 02660	Water Distribution
SECTION 02700	Sewage and Drainage

SECTION 02100
SITE PREPARATION AND DEMOLITION:

PART 1 – GENERAL

1.01 SUMMARY

A. Obtain and pay for necessary local permits and licenses to accomplish work.

B. Locate existing utilities.

C. Inspect and accept existing site conditions.

D. Install and maintain protective measures (i.e., install warning fence, tape, signs, or other means as designated on plans for the following items) including, but not limited to:
1. Existing pavement, driveways, sidewalks, utilities onsite & along frontage roads.
2. All existing storm sewer pipes & inlets.
3. All existing utilities stubbed out to site or extending thru site.
4. Property corners & benchmarks.

E. Install and maintain all necessary measures to control and erosion and sedimentation.

F. Clear and grub site for new construction within construction limits, protecting items designated above.

G. Remove and stockpile topsoil if any was placed by Owner's site preparation

H. Related work specified in other sections
1. Drawings and general provisions of Contract, including General Conditions and other Division 1 Specification sections apply to work of this section.
2. Topsoil shall comply with Section 02200 Earthwork.

1.02 QUALITY ASSURANCE

A. Industry Reference Standards:
1. Section Cross–Reference: Refer to Division 01 Reference Standards Section.
2. American Society for Testing and Materials (ASTM): D 448–86 Classification for sizes of aggregate for road and bridge construction.

1.03 PROJECT CONDITIONS

A. Permits: a copy of the approved City of LaGrange Site Construction/Land Disturbance Permit shall be present on the site during construction.

B. Any penalties enforced by City of LaGrange, OSHA, EPA, or other agency for violations of regulations set forth by these agencies are the responsibility of the contractor.

C. Nuisances: Keep dirt, dust, noise and other objectionable nuisances to a minimum. Use temporary enclosures, coverings and sprinkling, or combinations thereof, as necessary to limit dust to lowest practicable level, except do not use water to extent to cause flooding, contaminate runoff or icing.

D. Traffic: Conduct work to ensure minimum interference with the normal traffic operations, roads, alleys, streets, driveways, sidewalks, accesses on–site, and to adjacent sites occupied or used as traffic facilities.
1. Do not close or obstruct streets, sidewalks,alleys or other public passageways without permission from authorities having jurisdiction.
2. Parking by construction crews will be allowed at locations designated by the Owner.

E. Protection:
1. Prevent movement and settlement of adjacent structures. Install temporary barriers, fences, guard rails, enclosures, shoring, bracing, planking, and barricades around utilities, landscaping and other items that are to remain in place.
2. Protect bench marks from displacement.
3. Restore damaged improvements to their original condition as acceptable to Project Engineer and local authorities having jurisdiction, at no cost to Owner.

F. Contractor is responsible for damage to State roads and public rights–of–way due to his construction activity.

1.04 SUBMITTAL

A. Field Quality Control Reports: Weekly maintain a copy of the Soil Erosion and Sediment Control Inspection Log.

PART 2 – PRODUCTS

2.01 SEDIMENT DRAINAGE/SILT FABRIC

A. Non–biodegradable, sunlight stabilized, woven polypropylene fabric, type which will retain sediment and reduce water runoff velocity, one of the following by listed manufacturer or approved equal meeting Georgia DOT Qualified Products:
1. Mirafi 700XG Sedimentation Control Fabric by Mirafi, Inc.
2. Amoco CEF–1198, CEF–1199, CEF–1380, CEF–2122.
3. Exxon GT 400.
4. Beltech 755, Beltech 756, Belton Industries.

2.02 CONSTRUCTION ENTRANCE/EXIT TREATMENT

A. Stone size ASTM D448, size no. 1 (1.5"–3.5" diameter). Minimum pad thickness – 6 inches. Length and width as shown on plans (minimum 20 feet wide by 50 feet in length).

2.03 DRAINAGE FILL

A. Selected stone or gravel, graded to pass a 3–inch sieve and retained on a 1" sieve.

2.04 TOPSOIL

A. Section cross–reference: Refer to Section 02200 Earthwork, Part 2, Topsoil.

PART 3 – EXECUTION

3.01 EROSION AND SEDIMENT CONTROL

A. Install erosion and sediment control devices as shown on drawing and details.

B. Contractor shall inspect erosion control measures at the end of each working day to ensure measures are functioning properly. In addition, erosion and sediment control measures shall be inspected within 24 hours of every rainfall. A log of signed inspections shall be maintained at the site and updated on a weekly basis.

C. Maintain erosion control during construction until permanent pavement, plantings, and restoration of natural areas is effective in controlling erosion at site. Employ additional erosion control measures where determined necessary by Project Engineer or City of LaGrange for actual site conditions and sequencing of project.

2.01 D. Plan and execute construction by methods to control surface drainage from cut, fill, borrow and grading areas.
1. Minimize amount of bare soil exposed at any one time.
2. Schedule operations so ground surface will be disturbed for shortest possible time.
3. Maintain large areas as flat as possible to minimize soil transportation through surface flow.
4. Where steep slopes or abrupt grade changes occur, install temporary diversion berm or dike at top of slope to direct water flow to a control point to be transported downslope in a slope drain. In all cases, do not allow water to flow uncontrolled down slope.

E. Construction Entrance/Exit Treatment:
1. Prior to any other construction, a stabilized construction entrance treatment as shown in plans shall be constructed at each point of entry to or exit from the site. This is to be located as shown on drawings or as necessary as deemed by Project Engineer.
2. The construction exit shall be maintained in a condition which will prevent tracking or flow of mud onto public right–of–way. This may require periodic top dressing of exit with additional stone, as conditions demand.
3. All materials spilled, dropped, washed, or tracked from vehicle or site onto public roadway or into storm drainage system must be removed immediately.

F. Storm Drainage System:
1. Repair and/or clean any structures used to trap sediment including inlet sediment traps and silt fencing.

G. Ground Cover: Protect all exposed sloping soils until construction of permanent surface begins.
1. Use straw or other mulches, temporary seeding, plastic sheets, fiber mats, or other effective erosion treatments acceptable to City of LaGrange.
2. Install permanent grass and other landscape plantings and materials, including mulching or hydroseeding for use as stabilization; maintain until ground cover planting is effective for erosion control.

H. Sediment Barriers/Inlet Sediment Traps:
1. Install at all locations as shown on plans and where water flows from construction areas in accordance with Erosion Control Plan. Maintain ground drainage structures until end of construction activities.
2. Arrange to create ponding behind barriers; remove accumulated sediments and maintain ponding capacity during construction.
3. Place silt barriers as access is obtained during clearing. No grading shall be done until silt barrier installation is completed.
4. The contractor shall remove accumulated silt when the silt is within 12" of the top if the silt fence.
5. Silt barriers to be placed as shown on the plans and at downstream toe of all cut and fill slopes.
6. After permanent grass cover and landscaping have been established, remove silt fence and appurtenances and dispose of properly.

I. Temporary Grassing:
1. All disturbed areas shall be stabilized with temporary seeding as soon as possible within construction period. Graded slopes on which no construction activity is scheduled shall be seeded as soon as grading operations are complete on an area by area basis.
2. Grassing limits shall be extended to existing grassed areas.

J. Repair washed and eroded areas; reestablish grades to required density, elevations, profiles, and contours.

K. Contractor is responsible for monitoring downstream conditions throughout the construction period and clearing any debris and sediment resulting from the construction.

3.02 SITE CLEARING

A. General: Remove any trees, shrubs, stumps, bushes, vines, undergrowth, dead wood, grass and other vegetation, improvements, or obstruction from the construction area except as otherwise designated on the drawings to remain. Relocate or store vegetation in accordance with landscape requirements. Remove such items elsewhere on site or premises as specifically indicated. Removal includes digging out stumps and roots.

B. Topsoil Activity:
1. Strip topsoil to whatever depths encountered in a manner to prevent intermingling of subsoil or other objectionable material.
a. Remove heavy growths of grass from areas before stripping.
b. Where trees are indicated to be left staking, stop topsoil stripping no closer than the drip line of the tree to prevent damage to main root system.
2. Stockpile topsoil in storage piles at location approved by Project Engineer and Landscape Architect. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind blown dust. Do not stockpile to depth exceeding eight feet. Install silt fence at toe of slope of perimeter of topsoil storage pile.
3. Dispose of unsuitable or excess topsoil same as waste material, herein specified.
4. Screen topsoil before reuse on site.

3.03 UTILITIES

A. Contact local utility companies 72 hours minimum prior to start of demolition and/or excavation work. Confirm verbal notices and written notices. Verify locations of all utilities entering construction area and their locations on site.

B. Coordinate and cooperate with the City of LaGrange utility departments and other utility companies, adjacent property owners, and other building trades in maintaining, protecting, rerouting or extending of utilities passing through work areas which serve structures located on project site or adjacent properties. Pay all fees associated with service taps, service extensions or relocations.

3.04 DEMOLITION

A. General:
1. If departures from drawing requirements are deemed necessary by Contractor, submit detain and reasons therefore to Project Engineer for action. Make no departures without prior written approval of Project Engineer.
2. Repair and replace all demolition work performed in excess to that required, at no cost to Owner. Repair or replacement shall match and equal construction, condition, and finish existing at time of award of contract.

B. Backfill and compact areas excavated and open pits and holes resulting from demolition operations. Comply with requirements specified in Section 02200, Earthwork for backfill materials, compaction, and installation methods.

C. Rough grade site, within demolition areas, to meet adjacent existing contours and to provide positive drainage. Leave site in clean condition acceptable for performance of subsequent construction operations.

D. Demolish any and all remaining buildings and other aboveground structures and remove debris.

3.05 CLEAN–UP AND DISPOSAL

A. Transport trash, rubbish and debris daily from site and dispose of legally.
1. Remove and promptly dispose of contaminated, vermin infested, or dangerous materials encountered.
2. Do not burn or bury materials on site, unless otherwise approved by Project Engineer and local authorities having jurisdiction.

B. Remove tools, equipment and protection when work is complete and when authorized to do so by local authorities having jurisdiction.

C. Remove and dispose of erosion control devices after landscaping is in place and ground cover is established at completion of project.

END OF SECTION

SECTION 02200

EARTHWORK

PART 1 – GENERAL

1.01 SUMMARY

A. Excavation, placement and compaction of material on the site to obtain the lines and grades shown on the drawings.

B. Related work specified in other sections:
1. Drawings and general provisions of Contract, including General Conditions and other Division 1 Specification sections apply to work of this section.
2. The verification, location, and removal of any utilities necessary but not shown on the drawing shall comply with Section 02100, Site Preparation and Demolition.
3. Topsoil shall be stripped and stockpiled in accordance with Section 02100, Site Preparation and Demolition.

1.02 QUALITY ASSURANCE

A. All work shall comply with City of LaGrange development standards.

B. Field Quality Control:
1. Testing and Inspection: Contractor will obtain and pay for the services of an independent commercial testing laboratory for performing field quality control testing of soils during construction.
2. Refer to Part 3 – Execution section, entitled "Field Quality Control"

C. Industry Reference Standards:
1. Standard Specifications for Construction of Roads and Bridges; State of Georgia Department of Transportation, 1993 Edition, Division 200, Earthwork.

1.03 SUBMITTAL

A. Test Reports:
1. Field density (compaction) test reports of each test mode.
2. Optimum moisture–maximum density curves for each test.

1.04 PROJECT CONDITIONS

A. Inspection:
1. Examine drawings or survey and site for discrepancies between actual site grades and contours and those shown on survey, before starting work. Report all discrepancies in writing to Project Engineer.
2. No extra compensation will be allowed for discrepancies between conditions shown on drawings and actual conditions existing at project site.

B. Excavation Classification:
1. Excavation is unclassified and includes: Excavation to extent of subgrade elevations and bottom of utility trenches shown on drawings or specified, regardless of character of materials and obstructions encountered.
2. Unsuitable Material Excavation:
a. Excavation and disposal of unsuitable material below subgrade elevation.
b. All costs incurred for removal, off–site disposal and replacement of unsuitable soil materials below design subgrade elevations will be included in a unit price for unclassified excavation.
c. Contractor to estimate and include a quantity for unsuitable material in bid. State price separate from total contract amount.

C. A cut and fill balance has not been made. Contractor is responsible for establishing quantity of additional fill required or excess that must be hauled away. No additional compensation will be made for importation of additional material or for disposal of surplus material off site.

D. Existing Utilities:
1. Locations indicated are approximate and provided for contractor's information only. There may be additional utilities not shown on the plans. The Owner assumes no responsibility for locations shown and it shall be the responsibility of the Contractor to verify the locations of all utilities within the limits of work. All damage made to existing utilities shall be the sole responsibility of the Contractor.
2. Perform exploratory tests for verification if exact location of existing utilities are not known. Owner will assume no responsibility for hazardous conditions, losses, and accidents arising out of failure to perform tests for verification.

E. Benchmarks, Monuments, and Other Reference Points: Protect from damage and displacement; if disturbed or destroyed, replace at no additional cost to Owner.

F. Keep dirt , dust, noise, and other objectionable nuisances to a minimum.

G. Barricades:
1. Furnish and maintain barricades, signs and markings for work in public right–of–way in accordance with Georgia Department of Transportation specifications City of LaGrange requirements, and as shown on the drawings.
2. Maintain barricades in good condition. Mount flashing yellow lights and maintain same.
3. Install wood fence adjacent to open excavations and post with warning lights.
4. Prior to commencing land disturbance activity, mark the limits of the current phase of work clearly and accurately with silt fence, tree protection fence,ribbons, or other appropriate means. The limits shall conform to the limits specified in Section 02100, Site Preparation and Demolition. The location and extent of all authorized land disturbance activity shall be demarcated for the duration of the construction activity. No land disturbance shall occur outside the limits indicated on the drawings or as approved by the Project Engineer.

PART 2 – PRODUCTS

2.01 SOIL MATERIALS

A. Suitable Soil Material: Provide soil material free from roots, debris, trash, organic materials, and other deleterious materials, frozen materials, material softer than adjoining soil, rock or stone larger than 3" maximum dimension. Materials shall meet the requirements of Section 810, Class I, II or III of "Standard Specifications for Highway Construction," State of Georgia Department of Transportation, 1993 Edition.

B. Unsuitable Soil Materials: USC Groups, CH, PT, OH, OL, and MH generally described as and including following:
1. Peat, mulch and/or other highly organic swamp solid.
2. Organic and inorganic clays of medium to high plasticity.
3. Fine sand and silty soils.
4. Elastic silts.

C. Structural "Controlled Fill":
1. On–Site Excavated Material: Suitable soil material not exeeding 3" maximum dimension.
2. On–Site Excavated Material Blended with Imported Material: Material to be blended into uniform mixture meeting or exceeding the following imported material requirements.
3. Imported Materials: Unified Soil Classification (USC) System Groups ML, SM, SC–SM, SW, SP, or CL; Atterberg Liquid Limit (LL) less than 50; a maximum dry unit density greater than 90 PCF; Plastic Index (PI) less than 30; if granular, minimum of 20% must pass No. 200 sieve. Imported materials shall be certified as being free of hazardous waste material. Contractor must notify Project Engineer of the exact location of Barrow Pits prior to importing said material from pit.
4. Approval of material by Project Engineer required.

D. Nonstructural "Controlled Fill":
1. Same as structural "Controlled Fill".

E. Filter Aggregate: Provide clean gravel or crushed stone graded from coarse to fine with 100% passing 1/2" sieve, 15% passing 20 sieve, and not more than 2% passing No. 100 sieve.

F. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonably free of subsoil clay lumps, stones and other objects over 2" diameter, and without weeds, roots, and other objectionable material.

2.02 EQUIPMENT

A. Provide type acceptable to Project Engineer suitable for use intended with proven capability to perform work in an acceptable manner. Consult Project Engineer prior to use of equipment and document Project Engineer recommendations in writing.
1. Use steel sheepsfoot roller or similar type equipment for compaction operations, except compact small and inaccessible areas with vibra plates, vibrator impact rammers, vibratory rollers, or similar type equipment.
2. Use rubber–tired pneumatic compaction equipment for sealing off compacted areas.
3. Use rubber–tired compactor or similar type approved equipment with minimum 15 tons static weight for proofrolling.

PART 3 – EXECUTION

3.01 FIELD QUALITY CONTROL

A. Testing and Inspection Services: Contractor will retain the services of a Geotechnical Engineering Service (GES) to perform observations, inspections and testing during execution of site work. Geotechnical Engineering Services include, but are not limited to:
1. Visual Observation by GES: After stripping the site of topsoil, organics, large root system, trash, and demolition debris, the site is to be observed by GES, and any localized pockets of organic, large root systems or remnants or previous construction identified should be undercut and discarded off–site or stockpiled for future use in landscaped areas.
2. Proofrolling: In the presence of GES, at–grade areas and other areas should be proofrolled with a heavily loaded dump truck, scraper, or similar piece of rubber–tired equipment.
3. In–Place Density Test by GES: Field density tests will be performed for each parking bay and driveway by the GES. Tests shall be performed at vertical increments of 2 feet or less for each 2,500–5,000 square feet of surface area. Test every 150 LF per 2–foot vertical increment of utility trench backfill.

B. Contractor shall cooperate with GES Inspectors and Technicians to facilitate the execution of GES duties.

3.02 PREPARATION

A. Conform to dimensions and elevations indicated on the plans. Do not exceed plus or minus five–hundredths of one–foot variation from design grade elevations shown.

B. Dewatering
1. Prevent ground and subsurface water from flowing into excavations, from flooding project site and surrounding properties, and from collecting and ponding unless such ponding is in connection with required erosion control; provide and maintain all temporary drainage and dewatering sysems.
2. Install pumps, sumps and suction and discharge lines, as necessary to comply with requirements specified herein.
3. Install temporary deviations from grades indicated to channel water away from excavations.
4. Leave no sumps or pockets at completion of each day's grading operations.
5. If water is encountered during footing and foundation excavation, install pumps of suitable capacity to remove water while excavations are being made and continue pumping for 24 hours following placing of concrete footings and construction of permanent drainage is completed.
6. Contractor to be responsible for design, installation and maintenance of dewatering specified herein.

C. Do not place fill or backfill material in water, on substances which are frozen or contain frost, or during unfavorable weather conditions.
1. During periods of anticipated inclement weather, grade and seal surface of fill as required to limit percolation of surface water.
2. When work is interrupted by rains, do not resume operations until moisture content and field density tests of upper 6" of in–place materials have been made by GES and approved by Project Engineer.

D. Establish and identify required lines, levels, contours and datum.

E. Proofrolling:
1. Perform proofrolling over entire areas prior to receiving fill material, but after topsoil is removed, in presence of Geotechnical Engineering Service.
2. Make the number of passes as requested by GES over each area. Use minimum 15 tons static weight rubber–tired compactor or similar type equipment for proofrolling acceptable to Project Engineer and/or GES.
a. Soils which are observed to rut or deflect excessively under to moving load should be undercut and replaced with properly compacted fill. Undercutting of three to five feet or more may be required. All proof–rolling and undercutting activities should be witnessed by representative of the geotechnical engineer and should be performed during a period of dry weather.
b. After stripping, excavating where required, and proof–rolling, but prior to placing fill or pavement base, the exposed soils should be scarified and then processed to a moisture content between two percentage points below and three percentage points above the standard Proctor optimum. The subgrade soils should be recompacted to a dry density for a depth of at least 98 percent of the standard Proctor maximum dry density for a depth of at least 6 inches below the surface.
c. After subgrade preparation and inspection have been completed, fill placement may begin. Fill materials should be free of organic or other deleterious materials, have a maximum particle size of 3 inches, and have a liquid limit less than 50 and plasticity index less than 30. If a fine–grained (silt or clay) soil is used for fill, very close moisture content control will be required to achieve the recommended degree of compaction. Fine–grained structural fill should be compacted to at least 98 percent of standard Proctor maximum dry density as determined by ASTM Designation D 698. Granular soils should be compacted to at least 100 percent of the standard Proctor density.
d. Fill placement is expected to replace any undercut soils, and/or to raise site grades (if needed). Fill should be placed in loose lifts not exceeding 8 inches in thickness. The fill should be compacted to a minimum of 98% of the soil's standard Proctor maximum dry density (per ASTM D–698). The moisture content at the time of placement and compaction should be within +/– 3 percent points of the soil's optimum moisture content as determined by the standard Proctor testing procedures. If water must be added, it should be uniformly applied and thoroughly mixed into the soil by disking or scarifying. Each lift of compacted engineered fill should be tested by the Geotechnical Engineer or his representative prior to placement of subsequent lifts. If construction operations soften or otherwise disturb previously proofrolled areas to an extent that they become soft and unstable or are rendered unsuitable, perform additional proofrolling before starting filling operations if necessary, remove unsuitable materials to depth and extent required and replace with approved compacted fill as specified above. Unsuitability to be determined by Project Engineer. Remedial work to be at Contractor's expense.
e. Proofrolling should not be performed in areas of high ground water.

F. Following topsoil stripping and proofrolling operations, but before making cuts or placing of fill and backfill, ground surfaces shall be free of all trash; debris; loose, frozen, wet or soft soil, and other undesirable surface materials.

3.03 GRADING

A. Remove excess topsoil from site and stockpile only the amount necessary to complete work. Specification cross reference: Refer to Section 02 100, Site Preparation and Demolition, Site Clearing Section.

B. Rough grade to required profiles, contours, elevations and subgrade levels as shown on drawing, with allowances made for depths required for placement of topsoil and construction of paving, walks, and equipment and building slabs or pads.

C. Control grading on site; slope ground to prevent water from running into excavated areas of building or damaging other structures; and so entire project is well–drained and free from water pockets.

D. Provide uniform levels and slopes between elevations shown on drawings, and between elevations shown and existing finished grades shown to be maintained. Round abrupt changes in slopes.

E. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Project Engineer. Unauthorized excavation, as well as remedial work directed by Project Engineer, shall be at no additional cost to Owner. Under footings, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Project Engineer. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavation of same classification, unless otherwise directed by Project Engineer.

F. After cuts are made, scarify cut areas a minimum of 12" in depth and compact to specified density for each area.

3.04 FILL

A. General:
1. GES is sole judge as to when specified compaction densities have been obtained; however, the Contractor is recommended to obtain and maintain a copy of the Subsurface Exploration performed for the site.
2. Contractor is responsible for correcting, at his expense, including costs if testing, all areas with insufficient compaction. Remove and replace, or scarify, aerate or sprinkle (as needed), and recompact and retest deficient compacted fill. Density tests should be performed a recommended minimum of one test per 10,000 SF, per fill lift.
3. Place acceptable material in horizontal lifts not exceeding 8" in loose depth, with each lift extending for entire length and width of each area being filled. Do not place material on surfaces that are muddy, frozen or contain frost.
4. Reduce or increase moisture content of fill by drying or uniform sprinkling with water to achieve moisture content required for specified degree of compaction for each lift.
5. Disk each layer of fill to break down oversize clods, to thoroughly mix to uniform density and achieve proper compaction.
6. Maintain positive surface slope to allow runoff and to prevent ponding of surface water. If surface water ponds, dewater. Remove all saturated or disturbed soil before placing additional fill material.
7. Number of compaction equipment passes required is dependent upon degree of compaction specified. Overlap rolling passes to completely cover areas of fill.

3.05 COMPACTION AND FILL MATERIAL LOCATION:

A. Under building, Driveway Areas, Sidewalks, Paving, and Curb and Gutter Areas: Structural "Controlled Fill", 98% of Standard Proctor Maximum Dry Density (ASTM D698) for upper 12 inches. A depth greater than 12 inches, at least 95 percent of Standard Proctor Maximum Dry Density. Granular soils should be compacted to at least 100 percent of the Standard Proctor Density.

B. Under Lawn and Unpaved Areas: Nonstructural "Controlled Fill", minimum 3' in depth shall be 95% of Standard Proctor Maximum Dry Density.

C. Utility Trenches: Structural "Controlled Fill" 98% of Standard Proctor Maximum Dry Density.

D. Others not specified: Nonstructural "Controlled Fill", 95% of Standard Proctor Maximum Dry Density.

3.06 TRENCHING, BACKFILLING, AND COMPACTION FOR UTILITIES SYSTEMS

A. Trench Excavation:
1. Provide open cut excavation except short sections which may be tunneled if approve by Project Engineer and demonstrated by Contractor that pipe, cable, or duct can be properly installed, backfilled, and compacted.
2. Excavate to necessary width, depth, and alignment for proper material installation. Cut trench banks as nearly vertical as practicable, but to safety standards of governing authorities and/or OSHA's "Construction Standards for Excavations." Stockpile material suitable for backfilling a sufficient distance from banks to avoid overloading and cave–ins.
3. Side slopes of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of soil.
4. Maintain sides and slopes of excavation is safe condition until completion of backfilling.
5. Excavate to the line and grade shown. The excavations shall not be carried closer than to within two inches of final grade until the pipe is ready to be installed. The remaining two inches shall be removed by fine graders just ahead of the pipe laying operation.
6. Trench bottoms shall be accurately graded to provide uniform bearing and support for each pipe section on undisturbed soil along full pipe length, except for areas where necessary to excavate for bell holes and for sealing pipe joints. Dig holes and depressions for joints after trench bottom has been graded so pipe rests on prepared bottom for full length. Remove all stones to avoid point bearing.
7. Remove rock, wet or otherwise unstable or unacceptable material encountered 6" below depths indicated and replace with sand, gravel, or concrete.

B. Excavation for Appurtenances: Excavate for manholes and similar structures to leave 12" minimum clearance between structure and outer surfaces of embankment or timber used to hold and protect banks. Fill over excavation with sand, gravel or concrete.

C. Shoring and Bracing:
1. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross–braces in good serviceable condition.
2. Establish requirements for trench shoring and bracing to comply with local codes an authorities having jurisdiction.
3. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

D. Backfilling:
1. Do not backfill until utilities systems have been installed, inspected, tested, and accepted by City of LaGrange inspectors.
2. Backfilling from bottom of trench to a point at least one foot over the top of pipe barrel shall be placed by hand in four–inch layers and thoroughly tamped into place around the pipe. Extreme care shall be exercised to the level one foot above pipe barrel to insure that no damage is caused to the pipe or that its alignment or grade is not disturbed in any way. Backfilling shall be completed in lifts not exceeding four inches. No rock greater than three inches in diameter shall be placed within one foot of any utility. Compaction requirements shall comply with Section 3.05.
3. Restore ground surface, pavements, base courses, and compacted subgrade disturbed by utility systems trenching and backfilling work to their original condition, construction, and finishes.

ENGINEER'S STAMP

GEORGIA REGISTERED No. 15360 PROFESSIONAL ENGINEER JAMES STOTHARD

SIGNATURE REQUIRED

SMITH DESIGN GROUP, INC.
206 WEST HARALSON STREET
LAGRANGE, GEORGIA 30240
706-882-5511
www.SDGarch.net

STOTHARD ENGINEERING, INC.
1008 COLQUITT ST.
LAGRANGE, GA 30241
PH: 706 884–5279
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REVISIONS

⚠1	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION

VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

INDEX SHEET

MODIFIED DATE:	JOB NO: 1731
ISSUED DATE: FOR BID AND PERMIT 20 APRIL 2018	SHEET: C-12

3.07 FOUNDATION AND FOOTING EXCAVATION

A. Excavate bottom of foundations to exact grade called for on structural drawings. Fill overexcavated areas with concrete.

B. Excavate sufficient distance beyond footing and foundations to allow for inspection, placing and removal of forms and for installing of dampproofing, waterproofing and drain tile, except where concrete is authorized to be deposited directly against excavated surfaces. Leave excavations open until work has been inspected and approved by GES.

C. Contractor to backfill excavation after testing is complete. Final grade to the elevations shown on drawings. Ensure that no drainage pockets or drainage towards building is created.

3.08 FOUNDATION BACKFILL

A. Acceptable Structural "Controlled Fill" material.

B. Meet all requirements of Subsection 3.04, FILL.

C. Remove surface debris and debris in excavation before placing backfill.

D. Allow footing and foundation walls to attain full design strength before placing backfill.

E. Exercise care during placing and compacting equipment within 4' of walls.
1. Use hand operated compaction equipment within 4' of walls.
2. Where fill is placed along both sides of foundation walls, place and compact simultaneously on both sides of walls.
3. Repair, or remove and replace, all damage to foundation walls or structure occurring during placement and compaction operations at no additional cost to Owner.

F. Coordinate placing compaction with other trades. Do not backfill until dampproofing, waterproofing and foundation drainage system material has been installed, inspected and approved by GES and/or Architect.

3.09 MAINTENANCE

A. Protection of Graded Areas:
1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
2. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

B. Reconditioning Compacted Areas: Where completed areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.

C. Setting: Where setting is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and restoration to greatest extent possible.

3.10 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Removal from Owner's Property: Remove waste material, including unacceptable excavated material, trash and debris, and dispose of it off owner's property in a legal manner.

END OF SECTION

SECTION 02510
SITE CONCRETE

PART 1 – GENERAL

1.01 SUMMARY

A. Furnish and install all site concrete items as shown on the drawings. Typical items of work including, but not limited to, dumpster area concrete pad, sidewalks, and curb and gutter, concrete sidewalk ramps, concrete steps, etc.

B. Related work specified in other sections
1. Drawings and general provisions of Contract, including General Conditions and other Division 1 Specification sections apply to work of this section.
2. Compaction of the subgrade shall conform to the requirements specified in Section 02 200 Earthwork. Material required for backfilling and compaction thereof shall meet the requirements of Section 02 200 Earthwork.

1.02 QUALITY ASSURANCE

A. Industry Reference Standards:
1. State of Georgia Department of Transportation "Standard Specifications for Construction of Roads and Bridges," 1993 Edition.
2. American Society for Testing and Materials (ASTM)
C39-86 Test Method for Compressive Strength of Cylindrical Concrete Specimens.
C173-78 Test Method for Air Content of Freshly-Mixed Concrete by the Volumetric Method
C231-91 Test Method for Air Content of Freshly-Mixed Concrete by the Pressure Method
C150-92 Portland Cement
D1751-83(1991) Performed Expansion Joint Fillers for Concrete Paving and Structural Construction
D3405-78 Joint Sealants, hot-poured for concrete and asphalt pavements
D3406-89(1991) Joint Sealants, hot-poured, Elastometric-Type, for Portland Cement concrete pavements.

1.03 TESTS

A. Contractor will obtain and pay for the services of an independent commercial testing laboratory for performing field quality control testing during construction.

B. Testing Agency will make one soil density test at subgrade for each 1,000 linear feet or fraction thereof, of curb and gutter, AASHTO T180, modified Proctor. One test minimum.

C. Testing Agency will take three compression test samples and one entrained air content sample from first 50 cubic yards of concrete placed each day and each 100 cubic yards thereafter; in conformance with ASTM C39, and ASTM C173 or C231.0.

1.04 SUBMITTALS

A. Concrete mix design shall be submitted for approval.
1. Fully document proposed materials and mix designs.
2. Submit documentation 28 days, minimum, prior to use in field.

B. Product cut sheets for the curing membrane shall be submitted. Alternate curing methods must also be submitted for approval.

C. Shop drawings for any metal forms shall be submitted.

PART 2 – PRODUCTS

2.01 FORMWORK

A. Steel or wood of heights equal to the full depth of the finished work so as to obtain a smooth form finish.

2.02 CONCRETE

A. Qualities:
1. Concrete Curb and Gutter: Per Section 441 of "Standard Specifications for Construction of Roads and Bridges," State of Georgia Department of Transportation, 1993 Edition.
2. Dumpster Area Pad: 28-day flexural strength of 650 psi, reinforced with 6" X 6" wire mesh, 1.4 x 1.4.
3. Sidewalks: 4" thick, 3,000 psi reinforced with 6" x 6" WWM.1.2 x1.2.

B. Finish:
1. Curb and Gutter: per Section 441, "Standard Specifications for Construction of Roads and Bridges".
2. Sidewalk: Stiff broom finish.

2.03 ACCESSORY PRODUCTS

A. Forms: Steel or wood, staked in place, of strength sufficient to resist pressure of wet concrete without losing shape or deflecting more than 1/4 inch at any point.
1. Key way shaped forms: Steel, only.

B. Expansion Joints: Preformed, non-extruding resilient asphalt/fiber type, 1/2 inch thick; ASTM D1751.

C. Joint Sealer: Hot poured elastomeric type; ATSM D3405 or D3406.

2.04 CURING MATERIALS

A. Impervious sheet membrane-curing or other Architect approved method.

PART 3 – EXECUTION

3.01 INSPECTION

A. Examine the areas and conditions under which concrete is to be installed. Conditions detrimental to the proper and timely completion of the work shall be corrected before proceeding with the work.

3.02 SUBGRADE PREPARATION

A. Subgrade: Conform to the requirements specified in Division Two – Earthwork Section.
1. The subgrade shall be thoroughly wetted and then compacted with two passed of a 500 pound roller.
2. Yielding material deflecting more than 1/2" under the specified roller shall be removed to a depth of not less than 4" below subgrade elevation and replaced with an approved granular material which shall then be compacted as described above.
3. The subgrade shall be in a moist condition when the concrete is placed. The subgrade shall be free from frost or mud when the concrete is placed.

3.03 FORM CONSTRUCTION

A. Install sufficient quantity of forms to allow continuous progress of the work and so that forms can remain in place at least 24 hours after concrete placement. Forms are to be oiled prior to each use.

B. Check completed formwork for grade and alignment to the following tolerances:
1. Top of form: Not more than 1/8" in 10 feet.
2. Vertical face: Longitudinal axis not more than 1/4" in 10 feet.

3.04 CONCRETE PLACEMENT AND FINISHING

A. Concrete placement and finishing shall be as specified in Section 441 of "Standard Specifications for Construction of Roads and Bridges." Finishes as specified in 2.02B of these specifications.

B. Tamp and consolidate concrete with a suitable wood or metal tamping bar and the surface shall be finished to grade with a wood float.

C. The finished surfaces shall not vary more than 3/16 inch from the testing edge of a 10 foot straight edge.

3.05 CONTRACTION JOINTS

A. Divide the surface of paving, walks and terraces into rectangular areas by means of contraction joints not to exceed 10'-0" centers. Where sidewalks abut curb and gutter, alternate joints shall coincide.

B. The depth of the joint shall not be less than 1/5 nor more than 1/4 the depth of the concrete.

C. With the exception of sawed joints, all joints shall be finished with a 1/4 inch edging tool.

D. Membrane-curved surfaces damaged during the sawing operations shall be resprayed as soon as the surface becomes dry.

E. Sidewalk tool joint pattern as per Architect's specifications.

3.06 EXPANSION JOINTS

A. Install transverse expansion joints at returns and a maximum interval of 40 feet on center.

B. Install longitudinal expansion joints where curbs and paved areas, building, other concrete slabs or pads or vertical restraints abut each other.

C. Place joint filler with top edge 1/4" below the surface and hold in place with steel pins or other devices to prevent warping of the filler during floating and finishing.

D. Immediately after the finishing operations are completed, round joint edges with edging tool having a radius of 1/8". Remove concrete over the joint filler.

E. At the end of the curing period, clean and fill expansion joints with joint sealer. Fill joints flush with concrete surface. Dummy groove joints shall not be sealed.

3.07 CURING AND BACKFILLING

A. Curing: Immediately after the finishing operations, the exposed concrete surface shall be cured for 7 days by an impervious sheet membrane or other approved method.

B. Backfilling: After curing, debris shall be removed and the areas adjoining shall be backfilled, graded and compacted to conform to the surrounding areas in accordance with the lines and grades indicated. Compaction shall conform to the requirements of Section 02200 Earthwork.

3.08 PROTECTION

A. Protect the completed work from damage until accepted. Repair damaged concrete and clean concrete discolored during reconstruction. Work that is damaged shall be removed and reconstructed to the entire length between regularly scheduled joints. Refinishing the damaged portion will not be acceptable.

B. Cars, trucks, and heavy equipment shall be excluded from concrete areas for a minimum of 14 days following placement.

END OF SECTION

SECTION 02512
ASPHALTIC CONCRETE PAVING

PART 1 – GENERAL

1.01 SUMMARY

A. Furnish and install all graded aggregate base material, and one or more courses of bituminous plant mixture constructed on the prepaved foundation or on an existing surface in reasonably close conformity with the lines, grades, thickness and typical cross sections shown on the drawings.

B. Related work specified in other sections
1. Drawings and general provisions of Contract, including General Conditions and other Division-1 Specification sections apply to work of this section.
2. Compaction of subgrade shall comply with the requirements of Section 02200 Earthwork.

1.02 QUALITY ASSURANCE

A. State of Georgia Department of Transportation "Standard Specifications for Construction of Roads and Bridges," 1993 Edition, Section 400.

B. Contractor will engage professional testing and inspection service for quality control testing during placement of asphaltic concrete.

C. Paving Coring:
1. Owner reserves the right to make corings of the bituminous paving to establish the depth of the paving layers.
2. The location and timing of the coring shall be at the discretion of the Project Engineer and at the Owner's expense.
3. The indicated depths are minimum; if a core indicates undersize, the Project Engineer may require additional corings (at Contractor's expense)to establish the extent of the undersizing.
4. If undersizing is indicated, methods of corrections shall be submitted for Project Engineer's approval. Correction shall be at Contractor's expense.
5. Fill boring holes with bituminous material and seal properly.

TESTS

A. Testing agency will make compaction tests of the asphaltic concrete utilizing nuclear density testing on a random basis with approximately one test per 500 tons of production, with a minimum of one test.

B. In lieu of digital printouts of liquid asphalt weights supplied by the asphalt plant the contractor will be required to perform extraction tests to verify the asphalt cement content is within 0.50 percent of the approved job mix asphalt content for Asphaltic Concrete Mix A binder course and within 0.40 percent of the approved job mix asphalt content for Asphaltic Concrete Mix A surface course.

C. Testing agency will make compaction tests of the graded aggregate material.

SUBMITTALS

A. Certification that al asphalt paving material is being produced by a Georgia DOT approved plant.

B. Job mix formula shall be submitted and approved by the Engineer. Once approved, no alterations to the job mix formula will be permitted without prior approval of the Engineer.

C. Digital printouts or extraction test results verifying the asphalt content of the mix shall be submitted.

D. Certification from supplier that the tack coat incorporated into the work complies with the requirements of DOT's "Standard Specifications for Construction of Roads and Bridges", Section 413.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Light Duty Flexible Pavement:
1. Graded Aggregate Base Course, 6" thick minimum, GDOT Type B.
2. Asphaltic Concrete Surface Course, 2" thick, GDOT Section 400, Type F.

B. Heavy Duty Flexible Pavement:
1. Graded Aggregate Base Course, 8" thick minimum, GDOT Type B.
2. Asphaltic Binder Course, 2" thick, GDOT Section 400, Type B.
3. Asphaltic Surface Course, 1.5" thick, GDOT Section 400, Type F.

PART 3 – EXECUTION

3.01 SUBGRADE PREPARATION

A. Subgrade shall be compacted in accordance with densities specified in Division Two – Section 02200, Earthwork.

B. Fine Grading:
1. Subgrade and shoulders shall be final graded, trimmed and finished within the limits and as required by the elevations shown on the Drawings. Grading operations shall be so conducted that materials shall not be removed or loosened beyond the required limits. The finished surfaces shall be left in smooth and uniform planes.
2. The Contractor shall be solely responsible for all lines, levels and measurements for this work. He shall provide his own instruments and survey crew to maintain this control throughout the duration of his work.

C. At the locations shown on the drawings and where required to obtain a neat edge, the existing pavement will be saw cut to provide a neat edge. Upon removal of the existing pavement and base material adjacent to a state roadway, the requirements of Georgia Department of Transportation "Standard Specifications for Construction of Roads and Bridges," 1993 Edition shall be adhered to strictly.

D. Material for spot subgrade reinforcement shall be graded aggregate base.

E. Subgrade and Embankment Protection:
1. During construction, embankments and excavations in the areas of the paving shall be kept shaped and drained.
2. Ditches and drains along the subgrade shall be maintained to drain effectively at all times.
3. Repair ruts or depressions of 1" or more in subgrade.

3.02 GRADED AGGREGATE BASE

A. Graded aggregate base material shall be constructed in accordance with Section 310 of GDOT's "Standard Specifications for Construction of Roads and Bridges." Aggregate materials containing frost or frozen particles shall not be placed.

B. Maximum thickness of lifts shall be 4".

C. The material placed shall be shaped to line, grade, and cross-section and rolled until uniformly compacted to at least 100 percent of the maximum dry density as determined by the Modified AASHTO Compaction Test (T-180). The compacted base shall have sufficient stability to support construction equipment without pumping. If the basematerial becomes unstable as a result of too much moisture, the base material, and the underlying subgrade of necessary, shall be dried and reworked to a moisture content that will provide stability and compaction. At all locations not accessible to a roller the required compaction shall be provided by means of mechanized tampers. The same density requirements as stated above shall apply.

D. Those areas found to be deficient in thickness by more than 1/2 inch shall have additional measurements taken to determine the extent of the deficient area. Deficient areas shall be corrected adding additional material and rebuilding to the design thickness.

E. The finished surface of the graded aggregate base material shall conform to the lines, grades, and cross slopes as shown on the drawings.

3.03 PAVING

A. The binder and surface courses shall be constructed in conformity with the provisions of the specifications of Section 400 of GDOT's "Standard Specifications for Construction of Roads and Bridges", 1993 Edition.

B. The Target Density shall be 94 percent of the calculated voidless mixture based on the effective specific gravity of the aggregate used in the mix. Contractor shall be responsible for conducting sufficient testing to assure that the specified density is being obtained.

C. The existing surface shall be clean and free of any debris prior to paving operations.

D. Placing operations shall not be performed where the existing surface is wet or frozen. Minimum temperature requirements shall be in accordance with Section 400 of DOT's "Standard Specifications."

E. All potholes and broken areas of the existing pavement shall be repaired prior to the placement of any leveling course.

F. Bituminous tack coat shall be applied in accordance with Section 413 at the application rate specified . Tack shall be required between subsequent courses of asphaltic concrete. Proper care shall be taken to ensure the tack is distributed in a controlled manner with no spillage onto other portions of completed work.

G. Spreading and rolling operations shall be in accordance with an approved plan. The maximum compacted layer thickness of the various courses will be determined by the type mix being used in accordance with GDOT's "Standard Specifications for Construction of Roads and Bridges," 1993 Edition.

H. Care shall be taken to protect previously completed items of work, including but not limited to curb and gutter, islands, and drainage structures from damage or discoloration. All damaged sections of work shall be repaired or replaced, as determined by the Owner, and at no cost to the Owner.

3.04 FINISH

A. After final rolling, no traffic shall be permitted on paving until it has cooled and hardened and in no case less than 6 hours.

B. Each course of paving shall be constructed in conformance with the lines, grades, and cross slopes as shown on the drawings. No bumps or "bird baths" will be accepted.

END OF SECTION

SECTION 02575
REMOVING AND REPLACING PAVEMENT:

PART 1 – GENERAL

1.01 QUALITY ASSURANCE

All paved streets or other paved areas cut by these operations shall be repaved in a workmanlike manner as shown or specified. All work shall be in accordance with the Georgia Department of Transportation, Standard Specification, Construction of Roads and Bridges, 1993 Edition. Prior to excavation in paved streets or other paved areas, the pavement shall be cut along straight and perpendicular lines parallel to the centerline of the pipe. Upon completion of pipe laying, backfill shall be placed and compacted to 95% of maximum density as determined by AASHTO T99. Just prior to repaving, jagged edges shall be squared and cut to a string line so that the patch will represent a neat appearance. Centerline stripes or other pavement markings which existed prior to start of construction shall be replaced.
The term "pavement" shall be construed to mean either concrete, bituminous, cobblestone, or brick placed as a slope surface in streets, driveways, sidewalks, or placed as slope protection for ditches or drains, Slag surfacing, sand-clay surfacing, gravel surfacing, and other such types of surfacing will not be considered paving. The various types of pavement replacement shall be as hereinafter specified. Specific type or types of pavement replacement will be as indicated on the drawings or in the proposal.

PART 2 – EXECUTION

2.01 Pavement Replacement Type "A", Flexible Pavement

After the pipe has been installed the pipe trench shall be backfilled and compacted as otherwise specified in the Specification to within 12 inches of the existing roadway surface. The a 12-inch thickness of crushed limestone (crusher run) base course shall be placed the full width of the trench and compacted to 100% maximum density. The surface shall be allowed to "weather" for at least one month, but not more than two months. The aggregate lost during the weathering period due to subsidence or other causes shall be replaced at the Contractor's expense. The Contractor shall add to and maintain the limestone layer as required to keep the surface smooth and even with the adjacent existing pavement. After weathering, the existing pavement shall be cut back a minimum of 9 inches from both edges of the trench, and the top 4½" inches of material shall be removed to conform to the required contours and placed in condition for paving.
If the pavement patch is to receive the Type "E" or "F" plant mix surfacing overlayment, then a 4½ inch (500 lbs. per S.Y.) layer of hot compacted plant mix bituminous Type "B" base material shall be placed full width, flush with the existing pavement, to the shape of the original pavement. The 4 ½ inch layer shall be placed and compacted in two (2) or more approximately equal layers, with no layer exceeding 2 ½ inches in thickness. If the pavement patch is not to receive the Type "E" or "F" plant mix surfacing overlayment, the the top 1 inch layer of the 4 ½ inch layer of bituminous material shall be a wearing layer of hot bituminous pavement (Type "E" or "F")

2.02 Pavement Replacement Type "A" Plant Mix Surfacing

Following an acceptable installation of Pavement Replacement, Type "A", Flexible Pavement, a wearing layer of hot mix asphaltic concrete pavement, Type "E" or "F" as specified in Section 828 of the Georgia Department of Transportation, Standard Specification, Construction of Roads and Bridges, 1993 Edition, shall be applied over the Type "A", Flexible Pavement, at a rate of 100 pounds per square yard, and overlapping the adjacent existing pavement on all sides, The width of the wearing layer will be determined by the Engineer. The entire area to be converted by the wearing layer shall receive a tack coat in accordance with 820 of the GDOT Specifications just prior to its placement. The tack coat shall also extend one foot past the finish edges of the wearing layer. The edges of the wearing layer shall be feathered into existing pavement on all sides and care shall be taken to assure a smooth transition at each edge of pavement.

2.03 Pavement Placement Replacement Type "B", Concrete Paving

Where concrete pavement in streets, sidewalks, paved ditches or other areas is removed, it shall be replaced with the same type and thickness as that removed, including finish. A 6 inch compacted thickness soil aggregate base course shall be provided under new concrete paving subject to vehicular traffic. Existing pavement shall be cut back a minimum of 9 inches from edge of trench.

2.04 Valve Boxes, Manhole Rims, etc

The Contractor shall adjust the top elevation of all valve boxes manhole rims, etc., located partially or fully within the paving replacement limits, to the finish elevation of the replacement patch or overlayment.

SECTION 02580
PAVEMENT MARKINGS

PART 1 – GENERAL

1.01 SUMMARY

A. This work shall consist of furnishing and applying reflectorized Traffic Line Paint and in accordance with plan requirements and these specifications. Painted Stripes shall consist of either solid or broken (skip) lines of the color and at the location designated on the Drawings.

B. Skip Traffic Stripes consist of painted segments between unpainted gaps in a designated sequence with a ratio of 1:3 (10 foot segment and 30 foot gap). The location and color will be as designated on the Drawings.

C. This section shall also include the application of words and symbols in accordance with the Drawing details, the provisions of the Specifications, and the requirements of the current Manual on Uniform Traffic Control Devices (MUTCD), latest edition.

D. Related work specified elsewhere:
1. Drawings and general provisions of Contract, including General Conditions and other Division-1 Specification sections apply to work of this section.

1.02 QUALITY ASSURANCE

A. Manual on Uniform Traffic Control Devices, current edition.

1.03 SUBMITTALS

A. Certification: The manufacturer of each brand of paint submitted for acceptance under these Specifications, shall furnish the Owner a certificate of analysis and manufacturer's guarantee.
The certificate shall show the trade name of the paint to be furnished including a facsimile of the label, (if paint is ready-mixed) and an analysis showing the percentage of each of the chemical elements and compounds in the pigment and vehicle. The guarantee shall assert that all paint furnished will conform to the analysis shown on the certificate filed, and to the statement of the percentages of ingredients shown on the labels required to be on each container. The guarantee shall be sworn to by a person having authority to bind the manufacturer by his acts.

B. The proposed method of application shall be submitted for approval.

1.04 PROJECT CONDITIONS

A. Inspection:
1. Examine areas for conditions under which work is to be performed. Report in writing to Project Engineer all conditions contrary to those shown on the drawings or specified herein and all other conditions that will affect satisfactory execution of work such as improperly constructed substrates or adjoining work. Do not proceed with work until unsatisfactory conditions have been corrected.
2. Starting work constitutes acceptance of the conditions under which work is to be performed. After such acceptance, Contractor shall at his expense, be responsible for correcting all unsatisfactory and defective work resulting from such unsatisfactory conditions.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Color: White, blue and yellow colors conforming to GDOT's Standard Specifications for Constructions of Roads and Bridges," 1993 Edition, Sections 870.03.

B. Paint Types: Composition and performance characteristics of Traffic Line Paint shall comply with State of Georgia specifications.

C. Glass Beads: Shall comply with the requirements of Section 913.02.

PART 3 – EXECUTION

3.01 PREPARATION

A. Remove all dirt, oil, grease, and other foreign material from areas of pavement to be marked.

B. Apply paint only on thoroughly dry surfaces, when atmospheric temperature is above 50 degrees fahrenheit.

3.02 INSTALLATION

A. Apply markings in colors indicated and at locations as shown on the drawings.

B. Installation shall comply with the requirements of "Standard Specifications for Construction of Roads and Bridges," Section 652.

C. Glass beads shall be applied uniformly immediately following application of the paint a minimum rate of 6 pounds of beads to each gallon of paint.

D. Protective Measures: When painting is done under traffic, the contractor shall furnish and place all warning and directional signs necessary to direct, control and protect the traffic during the stripping operations. Warning signs shall be set up before the beginning of each operation and extra signs shall be kept well ahead of the painting equipment. When necessary, a pilot car shall be used to protect both the traffic and the painting operation.
The freshly painted stripe shall be protected by cones or other satisfactory devices. All stripes damaged by traffic, or pavement marked by traffic crossing wet paint, shall be repaired or corrected.

END OF SECTION

SECTION 02660
WATER DISTRIBUTION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. This work consists of furnishing and installing water distribution pipes, valves, wyes, backflow preventers, tees, crosses, thrust blocks, and other appurtenances complete with fittings and connections to existing water system.

B. Contractor shall arrange for, coordinate the installation of, and pay all fees associated with the installation of the water meter, backflow preventer, water line and all appurtenances.

1.02 QUALITY ASSURANCE

A. Industry Reference Standards:
1. City of LaGrange Water Department's water connection details.
2. 2012 International Plumbing Code (IPC)
3. 2012 International Building Code (IBC)
4. American Water Works Association (AWWA).
AWWA C601- American National Standard for Disinfecting Water Mains.
AWWA C900- American National Standard for Polyvinyl Chloride (PVC) Pressure pipe, 4" through 12" for water.
B88-92- Seamless Copper Water Tube.
5. Manufacturer's Qualifications: Firms regularly engaged in manufacture of potable water system materials and products, of types and sizes required whose products have been in satisfactory use in similar service for not less than 5 years.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's catalog cuts and specifications data for all materials listed in Part 2-Products.

B. Record Drawings: At project closeout, submit record drawings of installed water system piping and products, in accordance with requirements of Division 1.

1.04 PROJECT CONDITIONS

A. Notify City of LaGrange Water Department for installation of service connection and coordinate installations of meter, vaults, reduced pressure assemblies and Detector/Backflow prevention devices.

PART 2 – PRODUCTS

2.01 MATERIALS

A. General: Provide materials and products complying with NFPA 24.

B. General compliance with the City of LaGrange Water Departments list of acceptable products.

C. Ductile Iron Pipe (DIP):
1. Pipe: ANSI/AWWA A 21.50 and A 21.51
2. Fittings: Ductile-Iron complying with AWWA C110, cement lined, with rubber gaskets conforming to AWWA C111.

D. Copper tubing:
1. Pipe: ASTM B88, Type K, soft-annealed temper.
2. Fittings: Wrought-copper solder-joint fittings, ANSI B16.22.

ENGINEER'S STAMP

GEORGIA
REGISTERED
No. 15360
PROFESSIONAL
ENGINEER
JAMES STOTHARD

SIGNATURE REQUIRED

SMITH DESIGN GROUP, INC.
205 WEST HARALSON STREET
LAGRANGE, GEORGIA 30240
706-882-5511
www.SDGarch.net

STOTHARD ENGINEERING, INC.
1008 COLQUITT ST.
LAGRANGE, GA 30241
PH: 706 884-5279
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stothard-engineering.com

REVISIONS

1	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION

VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

INDEX SHEET

MODIFIED DATE:

JOB NO: 1731

ISSUED DATE:
FOR BID AND PERMIT
20 APRIL 2018

SHEET: C-13

E. Gate Valves:

1. When full open, the gate valves shall have a clear waterway opening equal to the nominal diameter of the pipe. Operating nut or wheel shall have an arrow cast in the metal indicating the direction of opening. Each valve shall have the manufacturer's distinctive marking, pressure rating and year of the manufacture cast on the body. Prior to shipment from the factory, each valve shall be tested by applying it to a hydraulic pressure equal to twice the specified working pressure.
   a. Hydrostatic and leakage tests shall be conducted in strict accordance with AWWA C500 Section 28.

2. Gate Valves 2 1/2 inch and smaller: shall be all bronze valves and shall conform to the Fed. Spec. WW-V-54C, Class A, Type 1, and rated at 200 psi for water. Valves shall be handwheel operated with a union bonnet, solid wedge disc, threaded ends and a non-rising stem. The minimum weight of the valves shall be as follows:

Valve Size (inches)	Valve Weight (pounds)
1/2	1.2
3/4	1.7
1	2.7
1 1/4	3.9
1 1/2	5.2
2	9.0
2 1/2	13.8

3. Valve Joints: All gate valve joints shall have mechanical joint ends, flanged ends, or threaded ends to fit the pipe run in which they are to be used, except valve joints installed on slip joint pipe shall have mechanical joint ends unless otherwise specified.

F. Curb Stops: Curb Stops 3/4" and 1" in size shall be Mueller H-15200, Hays 5045, or Ford B21. Curb Stops 1 1/2" or 2" in size shall be Mueller H-15174, Hays 4005, or Ford B21.

G. Corporation Stops: Shall be Mueller H-15000 or Ford FB600.

H. Accessories:

1. Anchorages: Provide anchorages for tees, wyes, crosses, plugs, caps, bends, valves and hydrants. After installation, apply full coat of asphalt or other acceptable corrosion-retarding material to surfaces of ferrous anchorages.
   a. Clamps, Straps, and Washers: Steel, ASTM A 197.
   b. Rods: Steel, ASTM A 575.
   c. Rod Couplings: Malleable-iron, ASTM A 197.
   d. Bolts: Steel, ASTM A 307.
   e. Cast-Iron Washers: Gray-iron, ASTM A 126.

PART 3 – EXECUTION

3.01 TRENCHING, BACKFILLING AND COMPACTION

A. Trenching, backfilling and compacting: In accordance with applicable requirements of Division Two Section 02200 – Earthwork.

3.02 INSTALLATION

A. The Contractor will tap existing lines and install meters.

B. Contractor to arrange and pay for Item A above.

C. Vertical clearance between sewer and water lines: Eighteen (18) inches minimum.

D. Installation of Valves:

1. Prior to installation, valves shall be inspected for direction of opening, freedom of operation, tightness of pressure containing bolting, cleanliness of valve ports and especially seating surfaces, handling damage, and cracks. Defective valves shall be replaced.
2. Valves, fittings and plugs shall comply with AWWA C600.
3. Install valves as indicated with stems pointing up.
4. Provide valve box over underground valves.

F. Thrust Blocks: Concrete, 3,000 psi. Provide on all tees, wyes and bends.

G. Valve Boxes: Provide as indicated, constructed of poured-in-place concrete, precast concrete, or Gray cast iron meeting the requirements of ASTM A48 for class 30 iron.

H. Flush and disinfect water system in accordance with AWWA C601.

3.03 TESTING

A. Upon completion of waterline construction, notify City of LaGrange Water Department and arrange for testing the system.
The maximum allowable leakage shall be ten(10) gallons per inch of pipe diameter per mile of pipe per day.

B. Contractor to apply and pay for all fees and testing associated with installation.

END OF SECTION

SECTION 02700
SEWERAGE & DRAINAGE SYSTEM

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. General Conditions and Supplementary Conditions apply to this Section.

1.02 WORK INCLUDED

A. Sanitary Sewerage System.
B. Storm Sewer System.
C. Payment of all fees for service.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Erosion Control: Section 02100.

B. Trenching for Utility Systems: Section 02200.

1.04 QUALITY ASSURANCE

A. Applicable requirements of the following standards and codes apply:

1. Standard Plumbing Code with local amendments.
2. GDOT's "Standard Specifications for Construction of Roads and Bridges", Section 550 and 668.
3. American Society for Testing and Materials (ASTM).
   C 828-80Low Air Pressure Testing for Wastewater Piping Systems
   D 2321 Installation of Poly Vinyl Chloride (PVC) Plastic Pipe and Fittings
   D 3034-89 Type PSM Poly Vinyl Chloride (PVC) Sewer Pipe and Fittings
   D 1248-84 (1989) Specification for Polyethylene Plastics Molding and Extrusion Materials.
   D 2729-89 Poly Vinyl Chloride (PVC) Sewer Pipe and Fittings
   F 405-89 Corrugated Polyethylene (PE) Tubing and Fittings

1.05 SUBMITTALS

A. Contractor or Applicator qualifications.

1.06 JOB CONDITIONS

A. Coordinate installation of sanitary service with City of LaGrange.

PART 2 – MATERIALS

2.01

A. General: Ells, tees, reducing tees, wyes, couplings, increasers, crosses, transitions and endcaps of same type and class of material as piping unless otherwise indicated.

B. PVC Plastic Pipe: ASTM 2241, SDR 26; with elastomeric sealed joints in accordance with ASTM D3139

C. Sanitary Sewer Pipe: Shall be PVC with bedding type C as specified above.

1. Sanitary sewer services shall be PVC, Schedule 40 solvent welded pipe. All bends shall be long radius bends.
2. Suitable adaptors shall be provided to connect solvent welded pipe to bell and spigot wye at connection to main.

D. Storm Sewer:

a. Reinforced Concrete Pipe shall be Class III, complying with the requirements of Georgia DOT. Class of pipe shall be in accordance with "Standard Specifications," Section 843 and determined by the proposed height of fill above the pipe as shown on the drawings.
b. High Density Polyethylene Pipe (HDPE) shall be smooth lined, outside corrugated pipe conforming to the requirements of AASHTO M-294 TYPE "S" with molded bell/bell couplers.

E. Concrete Pipe Joints: Concrete pipe joints may be sealed through the use of O-Ring gaskets or preform plastic gaskets. Gaskets shall be installed in accordance with the manufacturer's recommendation.

F. Miscellaneous Drainage Structures: Miscellaneous drainage structures shall include, but not be limited to sanitary sewer manholes, storm sewer manholes, catch basins, drop inlets, yard inlets, and junction boxes. These structures may be precast concrete, poured-in-place or brick masonry.

1. Precast Concrete: All precast structures shall be cast at an Georgia DOT approved casting yard. Each unit shall bear the name or trademark of the manufacturer and the date it was cast, stenciled or otherwise placed thereon in such a manner as to be clearly legible at time of delivery. Each precast unit shall bear the stamp of an approved testing laboratory, or the Georgia DOT, as manufacturer. Precast units shall comply with the requirements of Georgia DOT.
2. Poured-In-Place: Poured-in-place structures shall comply with the requirements of Georgia DOT.
3. Brick: Brick shall comply with the requirements of Georgia DOT.
4. All covers, frames, grates, and steps shall be furnished in accordance with the details shown on the drawings.
5. Sanitary sewer invert channels shall be shaped to lines and grades shown on drawings, and the channel shall be smooth.

G. Mortar and Grout: Mortar and grout shall comply with the requirements of GDOT's "Standard Specifications," Section 834.03, except that where used with sanitary sewer manholes the mortar shall consist of one part cement to two parts mortar sand and the use of hydrated lime shall not be permitted.

H. Pipe Bedding: GDOT, "Standard Specifications," Section 207.

PART 3 – EXECUTION

3.01 TRENCHING, BACKFILLING, AND COMPACTION

A. Generally, excavate to the line and grade shown. The excavations shall not be carried closer than to within two inches of final grade until the pipe is ready to be installed. The remaining two inches shall be removed by fine graders just ahead of the pipe laying operation.

B. Backfilling from bottom of trench to a point at least one foot over the top of pipe barrel shall be placed by hand in six inch layers and thoroughly tamped into place around the pipe. Extreme care shall be exercised to the level one foot above pipe barrel to insure that no damage is caused to the pipe or that its alignment or grade is not disturbed in any way. Only clean materials may be used in this operation, clean earth (no rocks) sand or rock dust.

3.02 LAYING PIPE

A. Reinforced Concrete Pipe:

1. Reinforced concrete pipe shall be installed in accordance with the requirements of GDOT's "Standard Specifications," Sections 550. All pipe shall be laid to the line and grade called for on the plans. Each pipe shall be checked by the Contractor to insure that this result is obtained. The finished work shall be straight and shall be sighted through between manholes.
2. Each pipe shall be inspected for defect prior to being lowered into the trench and inside of pipe and outside of spigot shall be cleaned of any dirt or foreign matter.
3. Construction shall begin at the outlet end and proceed with spigot ends pointing in the direction of flow.
4. Completion of the pipe bedding and backfilling the remainder of the trench shall follow closely behind the laying of the pipe.

3.03 CONSTRUCTION OF DRAINAGE STRUCTURES

A. Construction of Drainage Structures: Drainage structures shall be constructed in accordance with the requirements of GDOT's "Standard Specifications," Sections 668 for precast or pour-in-place structures. Brick masonry structures shall comply with the requirements of Section 668. Structures shall be constructed to the sizes and shapes as shown on the Drawings. Frames and tops shall be set to the elevations as indicated on the Drawings.

3.04 INSTALLATION OF SEWERS

A. Install sewer lines in straight line and on uniform rate of grade between points where changes in alignment or grade are shown. Bed barrel of pipe firmly at required line and grade. Keep stopper in mouth of pipe when pipe-laying is not in progress. Set bell of pipe upstream. Support barrels of pipe continuously and scoop out space for proper clearance of bell.

B. After installed piping has been tested and inspected, backfill excavations with approved material tamped compactly in place per City of LaGrange requirements. Tamp carefully around pipe and above top of pipe in layers not exceeding six inches. Take care in backfilling not to disturb pipe.

C. Provide granular bedding on all PVC pipe. Provide granular bedding and deterring materials and methods necessary to facilitate installation.

3.05 CLEANING PIPES AND STRUCTURES

A. Clear interior of piping and structures of dirt and other superfluous material as job progresses. Maintain swab or drag in line and pull past each joint as it is completed.

B. In large, accessible piping, brushes and brooms may be used for cleaning.

C. Flush lines between manholes, if required, to remove collected debris.

3.06 TESTING

A. All sanitary sewer shall be tested by the Contractor and at his expense for diametric deflection using a GO-NO-GO type mandrel or other approved method. The mandrel shall have an outside diameter of not less than 95% of the pipe inside diameter. The maximum allowable deflection shall be 5%. Pipes with a deflection greater than 5% shall be replaced at the Contractor's expense.

B. All PVC sanitary sewers and services shall be marked with a continuous tracer tape consisting of 6 plies of Copolymer Film bonded without adhesives, bearing a continuous message "Caution Sewer Line Buried Below". The tape shall be laid 6 inches above the installed pipe to facilitate location of the main.

C. Air Testing

1) General: On all Sanitary sewer mains and services, the Contractor shall conduct a line acceptance test using low pressure air. The air test shall be conducted after the pipe has been backfilled and the cost of air testing shall be included in other items of work. Equipment to be used in making the test shall be specifically designed for this purpose and shall be Cherne Air-Loc Equipment or approved equal. The Engineer shall be advised at least 48 hours before tests are conducted.

2) Procedure: All pneumatic plugs shall be seal tested before being used in the actual test installation. One length of pipe shall be laid on the ground and sealed at both ends with the pneumatic plug to be checked. Air shall be introduced into the plug to 25 psig. The sealed pipe shall be pressurized to 5 psig. The plugs shall hold against the pressure without bracing and without movement of the plugs out of the pipe.

After a manhole to manhole reach of pipe has been backfilled and cleaned, the plugs shall be placed in the line at each manhole and inflated to 25 psig. Low pressure air shall be introduced into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any groundwater that may be over the pipe. At least two minutes shall be allowed for the air pressure to stabilize. After the air pressure has stabilized to a minimum of 3.5 psig greater than the average back pressure from any groundwater over the pipe, the air hose from the control panel to the air supply shall be disconnected. The test shall be deemed "Acceptable" if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig (greater than the average back pressure of any groundwater over the pipe) shall not be less than the time shown for the given diameters in the following table:

Pipe Diameter in Inches	Minimum Time in Minutes
4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
15	7.5
18	8.5
21	10.0
24	11.5

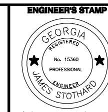
In areas where groundwater is known to exist, the Contractor shall install a one-half inch diameter capped pipe nipple, approximately 10-inches long through the manhole wall on top of one of the sewer lines entering the manhole. This shall be done at the time the line is installed. Immediately prior to the performance of the Line Acceptance Test, the groundwater shall be determined by removing the pipe cap, blowing air through the pipe nipple into the ground so as to clear it, and then connecting a clear plastic tube to the nipple. The tube shall be held vertically and a measurement of the height in feet of water over the invert of the sewer pipe shall be taken after the water has stopped rising in the tube. The measurement in feet shall be converted to psig by dividing it by 2.30. For example, if the height of water is 11.5 feet, then the added pressure will be 11.5/2.3=5 psig. This increases the test pressure from 3.5 psig to 8.5 psig and the minimum allowable residual pressure from 2.5 psig to 7.5 psig.

Should the line fail the pressure test, the Contractor shall, at his own expense, determine the source of leakage and make repairs as necessary. After repairs are made, the line shall be re-tested until deemed "Acceptable".

D. All PVC sanitary sewer services shall be installed in such a manner as to permit the passage of a television camera from the termination of the service to its connection with the sewer main. The contractor shall televise and record all sewer lines and services prior to acceptance.

END OF SECTION

ENGINEER'S STAMP



SIGNATURE REQUIRED

SMITH DESIGN GROUP, INC.
206 WEST HARALSON STREET
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LAGRANGE, GA 30241
PH: 706 884-5279
email: stothard@stothard-engineering.com

REVISIONS

⚠	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION
VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

INDEX SHEET

MODIFIED DATE:

JOB NO: 1731

ISSUED DATE:
FOR BID AND PERMIT
20 APRIL 2018

SHEET: C-14

GEORGIA
UNIFORM CODING SYSTEM
FOR SOIL EROSION AND SEDIMENT CONTROL PRACTICES
GEORGIA SOIL AND WATER CONSERVATION COMMISSION

STRUCTURAL PRACTICES

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 site 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, subdivision 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 safely conduct surface runoff down a slope. This is temporary and inexpensive.
Dn2	PERMANENT DOWNDRAIN STRUCTURE			A paved chute, pipe, sectional conduit or similar material designed to safely conduct surface runoff down a slope.
Fr	FILTER RING			A temporary stone barrier constructed at storm drain inlets and pond outlets.
Ga	GABION			Rock filter baskets which are hand-placed into position forming soil stabilizing structures.
Gr	GRADE STABILIZATION STRUCTURE			Permanent structures installed to protect 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 water 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	RETRO FITTING			A device or structure placed in front of a permanent stormwater detention pond outlet structure to serve as a temporary sediment filter.
Sd1	SEDIMENT BARRIER			A barrier to prevent sediment from leaving the construction site. It may be sandbags, bales of straw or hay, brush, logs and poles, gravel, or a silt fence.
Sd2	INLET SEDIMENT TRAP			An impounding area created by excavating around a storm drain drop inlet. The excavated area will be filled and stabilized on completion of construction activities.
Sd3	TEMPORARY SEDIMENT BASIN			A basin created by excavation or a dam across a waterway. The surface water runoff is temporarily stored allowing the bulk of the sediment to drop out.
Sd4	TEMPORARY SEDIMENT TRAP			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.
Spb	SEEP BERM			Linear control device constructed as a diversion perpendicular to the direction of runoff to enhance dissipation and infiltration, while creating multiple sedimentation chambers with the employment of intermediate dikes.

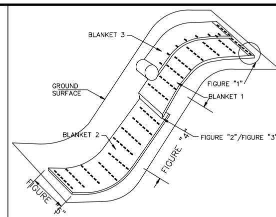
STRUCTURAL PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Sr	TEMPORARY STREAM CROSSING			A temporary bridge or culvert-type structure protecting a stream or watercourse from damage by crossing construction equipment.
St	STORMDRAIN OUTLET PROTECTION			A paved 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 slopes left in a roughened condition after grading.
Tc	TURBIDITY CURTAIN			A floating or staked barrier installed 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 over the disturbed area after completion of construction activities.
Tr	TREE PROTECTION			To protect desirable trees from injury during construction activity.
Wt	VEGETATED WATERWAY OR STORMWATER CONVEYANCE CHANNEL			Paved or vegetative water outlets for diversions, terraces, berms, dikes or similar structures.

VEGETATIVE PRACTICES

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bf	BUFFER ZONE			Strip of undisturbed original vegetation, enhanced or restored existing vegetation or the reestablishment of vegetation surrounding an area of disturbance or bordering streams.
Cs	COASTAL DUNE STABILIZATION (WITH VEGETATION)		Cs	Planting vegetation on dunes that are denuded, artificially constructed, or re-nourished.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)		Ds1	Establishing temporary protection for disturbed areas where seedlings may not have a suitable growing season to produce an erosion retarding cover.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMP SEEDING)		Ds2	Establishing a temporary vegetative cover with fast growing seedings on disturbed areas.
Ds3	DISTURBED AREA STABILIZATION (WITH PERM SEEDING)		Ds3	Establishing a permanent vegetative cover such as trees, shrubs, vines, grasses, or legumes on disturbed areas.
Ds4	DISTURBED AREA STABILIZATION (SODDING)		Ds4	A permanent vegetative cover using sods on highly erodable or critically eroded lands.
Du	DUST CONTROL ON DISTURBED AREAS		Du	Controlling surface and air movement of dust on construction site, roadways and similar sites.
Fl-Co	FLOCCULANTS AND COAGULANTS		Fl-Co	Substance formulated to assist in the solids/liquid separation of suspended particles in solution.
Sb	STREAMBANK STABILIZATION (USING PERM VEGETATION)		Sb	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		Ss	A protective covering used to prevent erosion and establish temporary or permanent vegetation on steep slopes, shore lines, or channels.
Tac	TACKIFIERS AND BINDERS		Tac	Substance used to anchor straw or hay mulch by causing the organic material to bind together.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND-DISTURBING ACTIVITIES.



Step 1 Site Preparation
Prepare site to design profile and grade. Remove debris, rocks, clods, etc. Ground surface should be smooth prior to installation to ensure blanket remains in contact with slope.

Step 2 Seeding
Seeding of site should be conducted to design requirements or to follow local or state seeding requirements as necessary.

Step 3 Staple Selection
At a minimum, 6" long by 1" crown, 11 gauge staples are to be used to secure the blanket to the ground surface. Installation in rocky, sandy or other loose soil may require longer staples.

Step 4 Excavate Anchor Trench and Secure Blanket.
Excavate a trench along the top of the slope to secure the upstream end of blanket. The trench should run along the length of the installation, be 6" wide and 6" deep. Staple blanket along bottom of trench, fill with compacted soil, overlap blanket towards toe of slope and secure with a row of staples (shown in Figures A, B and D).

Step 5– Secure Body of Blanket
Roll blanket downslope from anchor trench. Staple body of blanket following the pattern shown in Figure C. Leave end of blanket unstapled to allow for overlap shown in Figure E. Place downstream blanket underneath upstream blanket to form shingle pattern. Staple seam as shown in Figure C. Stapling pattern shown in Figure C reflects minimum staples to be used. More staples may be required to ensure blanket is sufficiently secured to resist mowers and foot traffic and to ensure blanket is in contact with soil surface over the entire area of the blanket.

Step 6 Continue Along Slope – Complete Installation
Overlap adjacent blankets as shown in Figure F and repeat Step 5. Secure toe of slope using stapling pattern shown in Figure D. Secure edges of installation by stapling at 1.0' intervals along the terminal edge.

(SS) EROSION CONTROL BLANKET

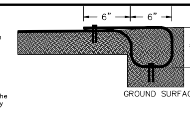


FIGURE "1" – PROFILE VIEW

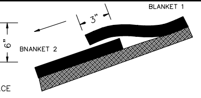


FIGURE "3" – PROFILE VIEW

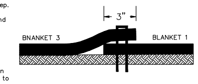


FIGURE "2" – CROSS-SECTION VIEW

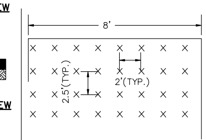


FIGURE 4 – PLAN VIEW

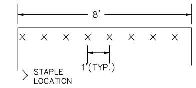
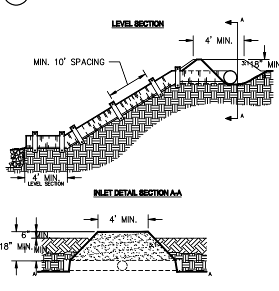


FIGURE 5 – PLAN VIEW

(Dn1) DOWNDRAIN PIPE AND INLET DETAIL

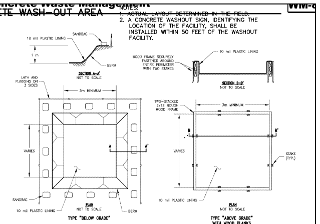


MAKE ALL PIPE CONNECTIONS WATERTIGHT AND SECURE SO THAT THE JOINTS WILL NOT SEPARATE IN USE.

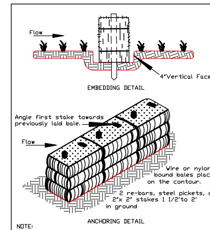
Concrete Waste Management

CONCRETE WASH-OUT AREA

NOTES:
1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN, IDENTIFYING THE LOCATION OF THE FACILITY, SHALL BE INSTALLED WITHIN 50 FEET OF THE WASHOUT FACILITY.

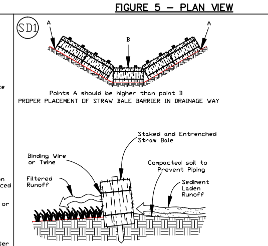


NOTES:
1. ACTUAL LAYOUT DETERMINED IN THE FIELD.



NOTE:
-Anchor and embed into soil to prevent washout or water working under barrier.
-Repair or replacement must be made promptly as needed

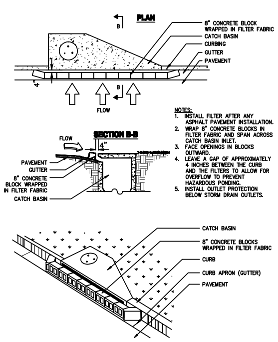
STAKED HAYBALE BARRIERS
Figure 6-13.2



Points A should be higher than point B
PROPER PLACEMENT OF STRAW BALE BARRIER IN DRAINAGE WAY

NOTE: Embed hay bales a minimum of 4".
CROSS-SECTION OF A PROPERLY INSTALLED STRAW BALE
Figure 6-13.1

(Sd2 B) CURB INLET FILTER "PIGS IN BLANKET"



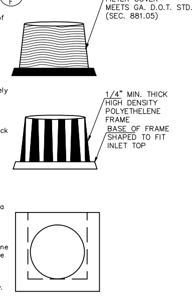
NOTES:
1. INSTALL FILTER AFTER ANY ASPHALT PAVEMENT INSTALLATION.
2. WRAP 8" CONCRETE BLOCKS IN FILTER FABRIC AND SPAN ACROSS CATCH BASIN INLET.
3. FACE OPENINGS IN BLOCKS OUTWARD.
4. LEAVE A GAP OF APPROXIMATELY 4 INCHES BETWEEN THE CURB AND THE FILTERS TO ALLOW FOR OVERFLOW TO PREVENT HAZARDOUS PONDING.
5. INSTALL OUTLET PROTECTION BELOW STORM DRAIN OUTLETS.

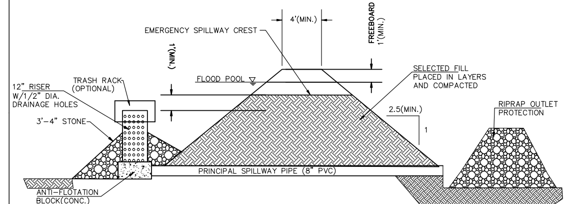
TYPICAL CONSTRUCTION SEQUENCE FOR SILT-SAVER FRAME & FILTER ASSEMBLY (Sd2 F)

1. Excavate approximately 4" to 6" below the top of the inlet structure.
2. Place the frame onto the inlet structure, ensure frame covers structure completely.
3. Slide the filter over the frame.
4. Fill the filter pockets with soil, #57 gravel or equivalent. The filter pockets should be completely filled to ensure a good seal between the ground and the inlet structure.
5. Back fill around the frame and filter assembly is not required to complete installation, however, back filling may be necessary to complete excavation requirements for the site.

MAINTENANCE REQUIREMENTS FOR SILT-SAVER FRAME & FILTER ASSEMBLY

1. Maintenance is required when eroded soils reach a point of 65% of the total height of the frame or approximately 7 to 9 inches of the grey filter material is showing.
2. Remove the impacted material by hand or machine method, paying close attention not to damage the frame or filter.
3. Brush, sweep or wash filter and inspect for any cuts and/or abrasions, replace filter as necessary.
4. Refill filter pockets, backfill as required by jobsite conditions.

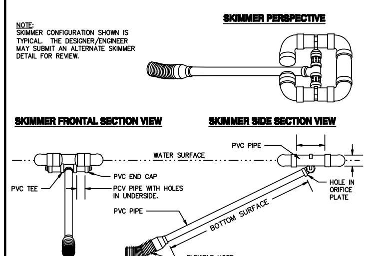




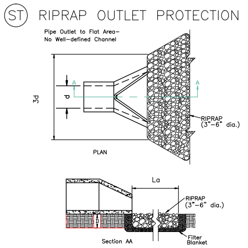
CROSS-SECTION THROUGH EMBANKMENT
(NTS)

(Sk) TEMPORARY SEDIMENT POND

NOTE:
SKIMMER CONFIGURATION SHOWN IS TYPICAL. THE DESIGNER/ENGINEER MAY SUBMIT AN ALTERNATE SKIMMER DETAIL FOR REVIEW.



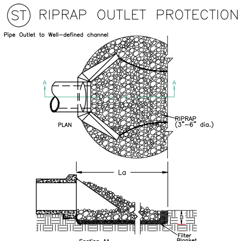
(ST) RIPRAP OUTLET PROTECTION



NOTES:
1. La is the length of the riprap apron.
2. D=1.5 times the maximum stone diameter but not less than 6".
3. In a well-defined channel extend the apron up the channel banks to an elevation of 6" above the maximum tailwater depth or to the top of the bank, whichever is less.
4. A filter blanket or filter fabric should be installed between the riprap and the soil foundation.

(NTS) FIGURE 6–17.1
Riprap outlet protection (modified from Va SWCC).

(ST) RIPRAP OUTLET PROTECTION



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4. A filter blanket or filter fabric should be installed between the riprap and the soil foundation.

(NTS) FIGURE 6–17.1
Riprap outlet protection (modified from Va SWCC).

(Sd2 F)

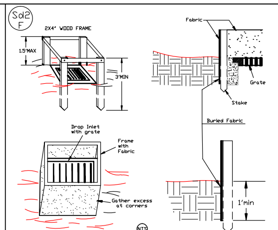
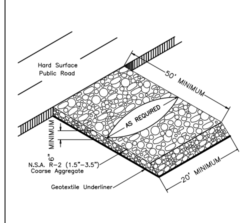


Figure 6-14.1-Fabric and supporting frame for inlet protection.

1. For stakes, use 2x4'wood (preferred) or equivalent metal with a minimum length of 3'.
2. Space stakes evenly around the perimeter of the inlet a maximum of 3'apart, and securely drive them into the ground,approximately 18" deep.
3. To provide needed stability to the installation, frame with 2x4" wood strips around the crest of the overflow area at a maximum of 1.5' above the drop inlet crest
4. Place the bottom 12" of the fabric in a trench and backfill the trench with at least 4' of crushed stone or compacted soil.
5. Fasten fabric securely to stakes and frame.Joints must be overlapped to the next stake.
6. The top of the frame and fabric must be well below the ground elevation downslope from the drop inlet to keep runoff from bypassing the inlet. It may be necessary to build a temporary dike on the down slope side of the stucture to prevent bypass flow.

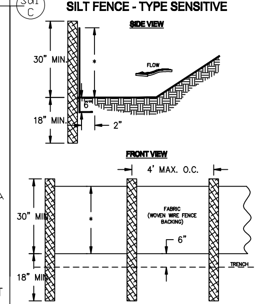
(CO) CONSTRUCTION EXIT



CRUSHED STONE CONSTRUCTION EXIT

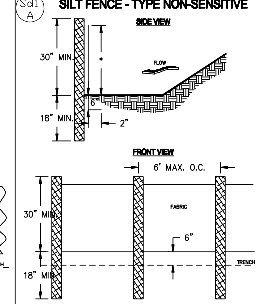
(NTS) FIGURE 6–3.1

(Sd1 C) SILT FENCE - TYPE SENSITIVE



NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

(Sd1 A) SILT FENCE - TYPE NON-SENSITIVE



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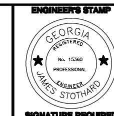
ENGINEER'S STAMP



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REVISIONS

DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION
VERNON ROAD
LAGRANGE, GEORGIA

TITLE:

INDEX SHEET

MODIFIED DATE:

JOB NO: 1731

ISSUED DATE:
FOR BID AND PERMIT
20 APRIL 2018

SHEET: C-15

COMPREHENSIVE MONITORING PLAN

The project consists of the construction of a 4,918 S.F. Fire Department building and ancillary drives and parking on a 0.69 acre site bounded on the north by Vernon Road, on the south by the CSX Railroad and on the west by developed commercial property.. The pre-development runoff coefficient (CN) is 75 and the post-development CN is 87. The USGS 7.5 minute topographic map (Exhibit No. 1) showing the property is attached.

SPILL-PREVENTION PLAN

Petroleum products shall be stored in an adequate and impervious containment area and daily inspections should be made for possible leaks. All spills shall be properly and promptly cleaned up and disposed of. Contractors shall maintain pigs and other measures to control spills on site. Storage of these products are not to be located in buffer or permanent natural areas, near swales or draws, or within 300 feet of any state waters.

MONITORING PLAN.

The monitoring plan requires that samples be taken at the outlet of the detention pond. The target turbidity for the basin is 75 NTUs (Drainage Area= 14 acres; Site Area=12.5 acres) as defined in Appendix B of Permit No. GAR 100001. The location of the sampling points in shown on the attached drawing, Sheet C-5.

Inspections.

a. Permittee requirements.

(1). 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.

(2).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 ablished a crop of annual vegetation and a seeding of target perennials appropriate for the region.

(3).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 inches rainfall or greater (unless such storm ends after 5:00 PM 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.

(4). 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 the 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).

(5). 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.

(6). A report of each inspection that includes 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 the 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 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.

d. Sampling Frequency.

(1). 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.

(2). 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.

(3). Sampling by the permittee shall occur for the following qualifying events:

(a). 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;

(b). 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 NOT, in the drainage area of the location selected as the sampling location, whichever comes first;

(c). 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;

(d). 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

(e). 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.

Retention of Records.

1. 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 NOT is submitted in accordance with Part VI:
   a. A copy of all Notices of Intent submitted to EPD;
   b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit;
   c. The design professional's report of the results of the inspection conducted in accordance with Part IV.A.5. of this permit;
   d. A copy of all sampling information, results, and reports required by this permit;
   e. A copy of all inspection reports generated in accordance with Part IV.D.4.a. of this permit;
   f. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D.2. of this permit; and
   g. Daily rainfall information collected in accordance with Part IV.D.4.a.(2). of this permit.
2. 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 NOT 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 alternative 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.

April 19, 2018

VERNON ROAD FIRE STATION, CITY OF LAGRANGE, TROUP COUNTY, GEORGIA
CERTIFICATION

(1) I certify that the permitee'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" published by the state Soil and Water Conservation Commission as of January 1 of the year in which land disturbing activity was permitted. The plan provides for the sampling of the receiving water(s) or the sampling of storm water outfalls. The designed system of best management practices and sampling methods is expected to meet the requirements contained in the general NPDES.
(2) 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 and that I will inspect the site within 7 days after construction begins.

James Stothard
James Stothard, Georgia PE No. 15360
Level II Certified Design Professional, No. 0000029517

April 19, 2018

VERNON ROAD FIRE STATION, CITY OF LAGRANGE, TROUP, GEORGIA
CERTIFICATION

I certify that the permittee's Comprehensive Monitoring Program provides for the monitoring of the receiving waters or the monitoring of storm water outfalls and is expected to meet the monitoring requirements contained in General NPDES Permit No. GAR 100001.

James Stothard
James Stothard, Georgia PE No. 15360
Level II Certified Design Professional, No. 0000029517

April 19, 2018

VERNON ROAD FIRE STATION, CITY OF LAGRANGE, TROUP COUNTY, GEORGIA
CERTIFICATION
I certify that I have consulted Georgia's 2008 305(b)/303(d) List Documents (Final) and have determined that the construction does not discharge storm water to an impaired stream segment but does discharge storm water within 1 mile upstream and within the same watershed as, Long Cane Creek, a Biota Impaired Stream.

James Stothard
James Stothard, Georgia PE No. 15360
Level II Certified Design Professional, No. 0000029517

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
					2018						
					A,B,C D,E,F	B,C,D E	B,C,D E	B,D,E G,H	B,D,G H	B,C,D E,G	B,C,D E,G
					2019						
B,C,D E,G	B,C,D E,G	B,D,E G, H	B,C,D E,G	B,C,D E,G	B,C,D E,G						

CONSTRUCTION SCHEDULE
A. CLEARING & GRUBBING
B. SEDIMENT CONTROL MEASURES AND INSTALLATION OF SILT FENCE
C. ROUGH GRADING OF SITE
D. TEMPORARY & PERMANENT VEGETATION OUTSIDE BUILDING AREA
E. INSTALLATION OF STORM SEWER & EROSION CONTROL STRUCTURES
F. BUILDING CONSTRUCTION
G. FINISH GRADING & PAVING.
H. FINAL VEGETATION & LANDSCAPING.

EXISTING LAND USE OPEN-SHORT GRASS
PROPOSED LAND USE FIRE STATION

PRIMARY PERMITTEE: CITY OF LAGRANGE
ADDRESS 201 RIDLEY AVE.
CITY & STATE LAGRANGE, GA 30240
PHONE 706-883-2063

LOCAL CONTACT RESPONSIBLE FOR 24 HR EROSION & SEDIMENT CONTROL MEASURES
NAME: GLEN CONROY
PHONE: 706-883-2075

GENERAL NOTES FOR SOIL EROSION AND SEDIMENT CONTROL

1. The area to be disturbed on this project is 0.68 ACRES.
2. 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.
3. Failure to properly install and maintain erosion control practices may result in construction being halted.
4. Erosion control measures will be inspected at least weekly and following rainfall and repaired by contractor.
5. All silt fences shall comply with Georgia Department of Transportation standards and specifications. Contractor shall provide a letter of warranty that materials meet these specifications and that the fabric is on the DOT qualified list (OPL) #36.
6. Temporary or permanent vegetative stabilization shall be provided within 14 days of any land disturbance activity. within 3 working days after receiving such notification.
7. Storm drain systems shall be maintained clean and free of silt and debris.
8. A response to a notification of Non-Compliance or inadequate measures shall be made
9. Soil series for this project CuC
10. K-Factor 0.28, T-Factor 3, Hydrologic Group B.
11. The site is located on Soil Survey Sheet No. 74.
12. Construction begin date is JUNE 2018.
13. Construction completion date is JUNE 2019.
14. IMPLEMENTATION AND MAINTENANCE:
   A. IMPLEMENTATION: Notify the Department of Engineering 24 hours prior to commencing work. PHONE: 706-883-2075
      1.) No clearing, grading, filling or other land disturbing activities shall be permitted until approved erosion and sediment control measures have been installed, except those operations needed to install such measures.
      2.) These erosion and sediment control measures shall apply to all features of the construction site, including, but not limited to, street and utility installations as well as to the protection of individual lots.
   B. MAINTENANCE:
   All erosion and sediment control measures shall be continuously maintained by the contractor or owner during the construction phase of the development and until permanent stabilization of ditches, shoulders, slopes and all disturbed areas is accomplished to eliminate the need for the temporary control measures which shall then be removed by same.
   C. To facilitate acceptance of the streets and improvements prior to establishment of such permanent stabilization, a specific bond in the amount of a specific for the cost of maintaining the temporary control measures, including temporary grassing and establishing the permanent stabilization within a reasonable time relative to the growing season shall be provided with the request for acceptance.
   D. If full implementation of the approved plan does not provide for effective erosion control, additional erosion control measures shall be implemented to control or treat the sediment source.

FUEL SPILL/CONTAINMENT NOTES:

SECONDARY CONTAINMENT UNITS SHALL BE UTILIZED ANYWHERE PRIMARY FUEL CONTAINERS ARE LOCATED. SECONDARY CONTAINMENT UNITS SHALL BE CONSTRUCTED OF MATERIALS THAT ARE CAPABLE OF ADEQUATELY CONTAINING THOSE FUELS STORED WITHIN, PROVIDE 110% OF THE TOTAL VOLUME CAPACITY OF THE LARGEST PRIMARY CONTAINER STORED WITHIN, AND PREVENT THE INGRESS OF RAINWATER INTO THE SECONDARY CONTAINER (WITH A COVER). ANY DRAINAGE VALVES IN THE SECONDARY CONTAINER MUST BE LIQUID TIGHT AND ABLE TO BE LOCKED IN THE FULLY CLOSED POSITION. TOTAL CAPACITY OF PRIMARY AND SECONDARY CONTAINERS SHALL BE CLEARLY MARKED ON ALL CONTAINERS.

IN THE EVEN THAT A FUEL SPILL OCCURS APPROPRIATE ACTION MUST IMMEDIATELY BE TAKEN TO REDUCE THE POSSIBILITY OF LAND OR WATER CONTAMINATION. THE GEORGIA OIL AND HAZARDOUS MATERIAL SPILL OR RELEASES ACT (O.C.G.A. 12-14-1 ET SEQ.) REQUIRES THAT ALL REPORTABLE SPILLS IN THE STATE OF GEORGIA ARE IMMEDIATELY REPORTED TO THE STATE OPERATIONS CENTER AT 404-656-4300 AND TO THE FEDERAL NATIONAL RESPONSE CENTER (NRC) AT 1-800-424-8802. A FUEL SPILL IS CONSIDERED REPORTABLE IF IT REACHES THE WATERS OF THE STATE AND CAUSES A SHEEN. APPROPRIATE SPILL RESPONSE EQUIPEMENT MUST BE AVAILABLE ON-SITE AT ALL TIMES. CLEAN UP AND REMEDIATION OF ANY CONTAMINATION RESULTING FROM A SPILL IS THE RESPONSIBILITY OF THE GENERATOR OF THE WASTE. IN THE EVENT OF A SPILL ONTO UNPAVED GROUND, THE CONTAMINATED SOIL SHALL BE IMMEDIATELY EXCAVATED TO A DEPTH WHERE THE SOIL APPEARS VISUALLY CLEAN. CONTAMINATED SOIL SHOULD THEN BE PLACED INTO AN ADEQUATELY SEALED AND SECURED CONTAINER. IN THE EVENT OF A SPILL ONTO A PAVED SURFACE, IMMEDIATELY CONTAIN THE SPILL. AFTER CONTAINED, ANY CONTAMINATED BULK MATERIAL SHALL BE COLLECTED AND PLACED IN A SECURE CONTAINER FOR LATER DISPOSAL. POWER WASHING MAY BE NEEDED TO REMOVE RESIDUES FROM PAVED OR OTHER HARD SURFACES. IT IS ILLEGAL TO DISPOSE OF ANY WASTE OF POLLUTANTS IN THE STORM SEWER SYSTEM.

EROSION CONTROL CERTIFICATION
(1) I CERTIFY THAT THE PERMITEE'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 STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH LAND DISTURBING ACTIVITY WAS PERMITTED. THE PLAN PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF STORM WATER OUTFALLS. THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES
(2) "I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PERPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION"

James Stothard
JAMES STOTHARD, PE NO. 15360
LEVEL II CERTIFIED DESIGN PROFESSIONAL NO. 0000029517

1/ APPLY IN SPRING FOLLOWING SEEDING
2/ APPLY IN SPLIT APPLICATIONS WHEN HIGH RATES ARE USED
3/ APPLY IN THREE 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

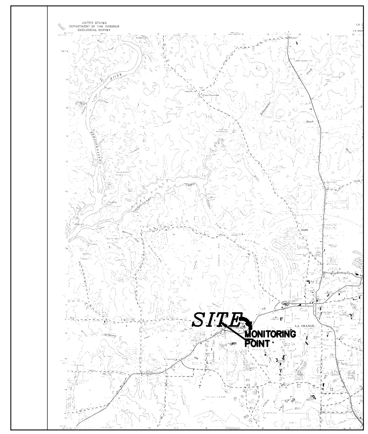
PERMANENT GRASSING SPECIFICATIONS
MARCH 1 TO JUNE 30
BERMUDA, COMMON (HULLED) - 10 LBS/AC
OR
APRIL 1 TO JUNE 30
CENTIPEDE - BLOCK SOD ONLY

TEMPORARY SEEDING SPECIFICATIONS
AUGUST 1 TO APRIL 15
RYEGRASS, ANNUAL - 40 LBS/AC
OR
AUGUST 15 TO DECEMBER 30
RYE - 3 BU/AC
OR
APRIL 15 TO AUGUST 31
MILLET, PEARL - 50 LBS/AC

SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. COOL SEASON GRASSES	FIRST SECOND MAINT	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 LBS/AC
2. COOL SEASON GRASSES AND LEGUMES	FIRST SECOND MAINT	6-12-12 0-10-10 0-10-10	1500 lbs/AC 1000 lbs/AC 400 lbs/AC	0-50 LBS/AC 1/ - -
3. GROUND COVERS	FIRST SECOND MAINT	10-10-10 10-10-10 10-10-10	1300 lbs/AC 1300 lbs/AC 1100 lbs/AC	- - -
4. PINE SEEDLINGS	FIRST	20-10-15	one 21 gram pellet per seedling placed in the closing hole	-
5. SHRUB LEEPEDEZA	FIRST MAINT	0-10-10 0-10-10	700 lbs/AC 700 lbs/AC	-
6. TEMP COVER CROP SEEDED DONE	FIRST	10-10-10	500 lbs/AC	30 LBS/AC 5/
7. WARM SEASON GRASSES	FIRST SECOND MAINT	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
8. WARM SEASON GRASSES AND LEGUMES	FIRST SECOND MAINT	6-12-12 0-10-10 0-10-10	1500 lbs/AC 1000 lbs/AC 400 lbs/AC	50 LBS/AC 6/

LIME RATES

AGRICULTURAL LIME IS REQUIRED AT THE RATE OF ONE TO TWO TONS PER ACRE UNLESS SOIL TESTS INDICATE OTHERWISE. ALL 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.



ENGINEER'S STAMP
GEORGIA REGISTERED No. 15360 PROFESSIONAL ENGINEER JAMES STOTHARD
SIGNATURE REQUIRED

SMITH DESIGN GROUP, INC.
206 WEST HARALSON STREET
LAGRANGE, GEORGIA 30240
706-882-5511
www.SDGarch.net

STOTHARD ENGINEERING, INC.
1008 COLQUITT ST.
LAGRANGE, GA 30241
PH: 706 884-5279
email: stothard@ stothard-engineering.com

REVISIONS

△	DATE	DESCRIPTION

PROJECT:

VERNON ROAD FIRE STATION

VERNON ROAD LAGRANGE, GEORGIA

TITLE:

INDEX SHEET

MODIFIED DATE:
JOB NO: 1731
ISSUED DATE: FOR BID AND PERMIT 20 APRIL 2018
SHEET: C-16